European Union Aviation Safety Agency

Comment-Response Document (CRD) 2022-06

RELATED NPA: 2022-06 — RELATED OPINION: NO 03/2023 — RMT.0230 SUBTASK C#1

30.8.2023

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1. Summary of the outcome of the consultation

Please refer to *Section 2.4. What are the stakeholders' views — outcome of the consultation* of Opinion No 03/2023[1].

[1] https://www.easa.europa.eu/en/document-library/opinions

2. Individual comments (without EASA responses)

(General Comments) -

comment *4* comment by: *Moshe*

I would like to propose to consider a V2V (Vehicle to vehicle) direct radio network at this stage.
Though much is unknow at this time, it is clear that the skies will be very busy.
The capacity of the airspace will limit the growth of the new aviation industry.
Safe and efficient midair collision avoidance system will allow more aerial vehicles in the skies.
An analysis shows that the TCAS concept, where each vehicle transmits its ID and location and receives its neighbors' IDs and locations, is the only feasible concept that may allow safe and dense aerial operation.
However, such a Collision Avoidance System requires a V2V (Vehicle to Vehicle) direct radio network shared by all airspace users.

These days discussions are held regarding the V2V network.
Time will pass until it will be well defined.

However,
It should be noted that such a network will be needed.
The vehicles that will operate in the lower altitude airspace will have to have the V2V radio as an integral aprt of their avionic suit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *15* comment by: *ACI EUROPE*

ACI welcomes this NPA which, overall, we consider comprehensive, clear and well drafted.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *24* comment by: *AOPA Sweden*

AOPA Sweden
Stockholm 22-08-29

Comments on NPA 2022-06

The proposed legislation seems comprehensive and AOPA Sweden do not have any objections about the content as such. All matters of safety and security are covered.

Unfortunately, I have again to critizise the amount of text, **300 pages**. I can assure EASA that there is not any operator whatsoever that is capable to read and understand all paragraphs. EASA seems to have the view that the more legal text they produce, the safer european aviation will be. As I have repeated in comments on previous NPA:s, the first step to safer aviation is to make it possible for all aviators, mecanics and pilots to read and understand the text.

Best regards

AOPA Sweden
Fredrik Brandel

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *111* comment by: *IFATCA*

IFATCA welcomes the possibility to express its suggestions, doubt and concerns about such a sensitive and innovative regulations.

This NPA is connected to NPA 2021-14 IFATCA has widely commented. We have received no objections or request for clarification on our comments to NPA 2021-14 so we consider them as accepted and as a base for commenting this NPA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *112* comment by: *IFATCA*

Executive Summary

The tone and words used in the objective subpart is not aligned with the safety promotion that is the main objective of every regulation and that is the essence of EASA itself. None wants to stop or to limit innovative air mobility but the message that comes out from this paragraph is that UAS/IAM market has to continue, whatever it takes. The fact that the word safety is the last word of the paragraph is a sad and dangerous message to be transmitted.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *146* comment by: *GdF*

GdF initially welcomes the possibility to express its suggestions, doubts and concerns about such sensitive and innovative regulations.
Principally, with the integration of larger UAS particularly of the "specified" category and AAM in aviation, we are entering a new regulatory field and cannot guarantee that any rule or practice that is drafted according to our suggestions will serve fully for the intended purpose (e.g.: currently no final conclusion is feasible on whether the categorization according to weight, speed or risk is the best solution or whether more dependencies or other criteria exist and serve better). The top question remains: How can a risk be assessed adequately? Risk might often be very subjective.

Advanced Air Mobility (AAM) is an air transport system concept that integrates new, transformational aircraft designs and flight technologies into existing and modified airspace operations. The objective of AAM is to move people and cargo between places more effectively, especially in currently underserved local, regional, urban, and rural environments. This transportation paradigm requires a "molecular-like" integration within the aviation ecosystem to assure the safety, availability, and efficiency of the flying public. As exciting as this emerging technology is to the industry, but it bears obvious risks from intentional or accidental cyber-related attacks.

Current proposals derive from existing experience and occurrences we have with UAS operation. These might by far not be comprehensive enough to determine the full regulatory field at that point of time, and yet the economic pressure is there.
Applied and experienced safety management helps us to find a way for the right protection of controlled air traffic from UAS, which is better than to only react on incidents and accidents. As such, the rules must be flexible and easily adaptable to new cognitive developments. Aviation safety shall be the number one target for all these rules and regulations.
On the other hand, it has to be acknowledged that the operation of UAS opens new commercial potentials which already have broad political attention. This is a non-negligible factor, and the right balance needs to be found between rules for the safety of the air and rules restricting access to new aerial markets.
This can only be found if all related stakeholders agree on the approach and find a common way forward.
GdF is therefore largely encouraged and motivated to support the rule makers with our expertise and knowledge.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *147* comment by: *GdF*

The tone and words used in the objective subpart is often not aligned with the safety promotion that is the main objective of every regulation and that is the essence of EASA itself. No one wants to stop or to limit innovative air mobility, but the message that comes out from several paragraphs is that the UAS/IAM market has to continue, whatever it takes.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

148 comment by: *GdF*

Rules and standards for the labelling, identification and lighting must be set at a common level; from the category „specified" onward, the availability of requirements for equipage, i.e. with transponders and Sense/Detect-And-Avoid-Systems, is essential.
Unfortunately, the current NPA concept is lacking further considerations with regard to frequency congestion, both traffic and obstacle avoiding-systems between UAS and particularly other air vehicles, particularly within control zones (CTRs) and urban areas, to name just some examples.
Particularly safety must be made more explicit and requires particular interest due to the new potential of hazards stemming from drones/UAS/AAM.

The accommodation - and even more the integration of UAS/AAM - in non-segregated airspace has never been proven to be as safe as the current operation. There is a need for an overall safety and risk assessment for all hazards so far identified with regard to UAS/AAM operations.
This seems to be missing in the text. Partial safety cases or risk assessment will not prove that an overall safety case is still achieving positive values.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

269 comment by: *EUMETNET ASP*

The update does not seem to reflect any UA/UAS urban eVTOL specific meteorological requirements. It is one thing to impose a 'high level' requirement that the operator/pilot ensures '...the aircraft is operated within the weather operating limitations…' (i.e. UAM.OP.VCA.245); but that pre-supposes that:
a) the existing meteorological information available to pilots/operators for current traditional aircraft operations - including current police/HEMS operations - is sufficient to support urban air mobility/innovated air mobility for the aircraft being used at the anticipated increased scale of operations; and/or,
b) the underlying meteorological understanding/capability is at a level that can reliably support such operations, especially at the anticipated scale in the urban and/or more populated areas.

How an operator is expected to 'know' that the meteorological information it is 'using' is

actually fit for purpose?

Urban meteorology, for on-board piloted and remotely piloted aircraft will be extremely complex - wind flow around buildings for example.

In the absence of specific, urban air forecasts meeting minumum standards of capability and quality [the determination of which itself needs to be properly researched and understood] reliance on 'existing, traditional meteorological services to aviation is an unquantified risk.

In the existing EU Rules for Air Operations (Regulation (EU) No 965/2012), AMC specifically references Part-MET of Regulation 2017/373 - i.e. AMC1 CAT.GEN.MPA.180(a)(18) Documents, manuals and information to be carried; 'Appropriate Meteorological Information'.
Notwithstanding the comments above (General 1) regarding appropriateness of existing meteorological services developed for traditional aviation; no similar references are given in the text presented in the NPA 06-22. Does this mean that:
1) It is recognised that current meteorological services as developed for traditional aviation are not appropriate (and therefore the absence of a reference to Part-MET of Regulation 2017/373 is deliberate)?
2) In the absence of such an explicit link to Part-MET of regulation 2017/373 it would be implicit that Part-MET or regulation 2017/373 is appropriate for urban air mobility?

It is not an amendment to the text that is necessary but a full understanding of the meteorological challenges of operating aircraft in the urban environment - whether with on-board pilots or remotely/autonmously piloted. It is accepted that aircraft do operate safely in the current urban environments but typically these are low volume police/HEMS aircraft operated by highly trained pilots. Even then, there are accidents such as Clutha Bar (Glasgow) police helicopter crash https://www.gov.uk/aaib-reports/aircraft-accident-report-aar-3-2015-g-spao-29-november-2013 (though not meteorology related) and the (non-police/HEMS) Vauxhall Bridge (London) crash https://www.gov.uk/aaib-reports/aar-3-2014-g-crst-16-january-2013 which did have weather (fog) as a contributory factor show hazards associated with urban operations. Scaling up commercial activity, with the commercial pressures attached, will stretch the meteorological capabilities.

Clarification is essential - is it the expectatation that currently available meteorological information as described in Part-MET of regulation 2017/373 will be suffient for urban UAS operations and urban air mobility?

response

Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment	*285* comment by: *Andreas Becker* UMS Skeldar AG has reviewed the document and fully concurs with the content. No further comment to add.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*296* comment by: *ASD* ASD thanks EASA for the opportunity given to be part of expert groups of the RMT.0230 for the preparation of this NPA#1 and remains available to support EASA for NPA#2. This NPA is an important step forward and ASD appreciate EASA efforts to setup a regulatory framework to enable emergent market of UAS and manned VTOL operations. This being said, a lot work is still in front of us, in particular ,to define the necessary AMC/GM associated to these new requirements. For IAW part, ASD wants to highlight that impacts of Part 21 could have been strongly reduced with more appropriate Unmanned Aircraft provisions in the basic regulation (EU)2018/1139. For instance, the fact that the CU can not be considered a part is at the origin of the need to amend Part 21. This issue has been already discussed within the IAW WG and not solved as EASA legals stated that IR cannot diverge from BR. To avoid such burden in the future, ASD encourages EASA to take care of next BR update and to involve industry at early stage for a consultation on the document.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*366* comment by: *LBA* LBA: LBA has no comments
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*436* comment by: *Europe Air Sports* Europe Air Sports (EAS) is the organisation for Sports and Recreational aviation in Europe. EAS represents some 700 000 European General Aviation pilots, as well as aircraft owners and aeroclubs, flying aircraft ranging from paragliders to multi-engine travel airplanes.

EAS thanks EASA for the timely development of this NPA and especially its proposed operation rules for manned VTOL-capable aircraft (Annex IX - Part-IAM).

Based on reading the NPA, EAS finds the proposed operation rules to be mostly reasonable for commercial manned VTOL operation in urban areas.

But they are far too restrictive and onerous to be useful for non-commercial operations with manned VTOL aircraft in non-urban areas -i.e. what is traditionally called General Aviation. Please see our comments to the relevant sections of the NPA.

Dismissing General Aviation is a serious omission in the NPA and needs rewriting.

Examples of rules that in our opinion are "overkill" and need to be moderated:

- The requirement for an Air Operator Certificate(AoC) even for non-commercial flights in non-urban areas;
- The requirement for a Commercial Pilor Licence (CPL) as a basis for the "VTOL-rating" even for non-commercial flights in non-urban areas.

EAS looks forward to participating in the work of making Part-IAM suitable for General Aviation with VTOL aircraft, and is ready to offer constructive support. We hope this work can start urgently.

Version v0

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *507* comment by: *DGAC FR (Mireille Chabroux)*

DGAC-FR thanks EASA for this consultation and for the considerable work which was done to publish this NPA.

Regarding the modifications of UE 965/2012, DGAC-FR wants to draw EASA's attention on the following subjects:
- the study of the AIR OPS Part of the NPA is quite complicated as the framework of the other domains (airworthiness, vertiport) are not stabilized, whereas for operations the tentative is to draft a mature set of rules. For example the basis for airworthiness is not fully established and the performances of VTOL are not precisely known. It is indeed difficult to define

complete rules at this stage, due to the lack of visibility/knowledge of future technologies or the limitations of current technologies in terms of performance.

- regulations are not intended to be adapted to the performance of the first demonstrators but must set a reasonable safety framework that will work for several years and that are therefore independent from the capabilities of the first developments. On the other hand, they must also provide alleviations/exemptions provisions that can be used to allow innovation and the development of a new sector.

-a regulation where the authority of the operator is responsible for defining the rules on a case-by-case basis should be avoided. As far as possible, an attempt should be made to strike the right balance between preserving the innovative character of VTOLs with the definition of appropriate rules while having a sufficiently defined and clear framework that can be applied without being re-discussed, re-invented and re-negotiated by applicants on a case-by-case basis. For example, in the NPA, it is proposed to define the final reserve linked to a manoeuvre with an objective based approach. However the objective of a final reserve is to ensure a final reserve per se and not to perform a determined manoeuvre. The reserve should be manoeuvre free and proportionate to the nature of the VTOL, the duration of the flight the nature of the issues which could be encountered. (see comment 78)

- it is difficult to comment IR without having the complete picture that includes the corresponding AMC/GM.

Some other major points that DGAC-FR would like to highlight are:

-predefined tracks: the concept of free routing has been discarded (3.2.6). The concept of "predefined tracks" is defined (definition 140) but is not made mandatory in the rule. It should be clarified all the more so as it is presented as a barrier in the impact assessment (4.1.3.2.3.2.1 p265) .

-selection of aerodrome/operating sites: DGAC-FR believes that clarification should be added to know when a destination alternate is needed; Moreover, it is understood that except for VEMS filght, a diversion site can be chosen only if it is an aerodrome (for VEMS, operating sites are allowed). DGAC-FR wonders if it could be acceptable to allow the use of operating sites for diversion in UAM but only when the VTOL is outside of a congested area.

-flight over water: the provisions seem too demanding for a total flight time of 3 minutes: when flying above congested areas (and above water), it is required that the VTOL-capable aircraft is able to continue its flight. There seems to be an unbalanced between the requirements for limited over water operations (regarding certification requirements) and those to fly above congested areas. Moreover, allowing the authority to give alleviation to operator does not seem acceptable neither, for standardisation and level playing field reasons.

-IFR: the rule seems to be dedicated to en-route IFR but departure and approach and landing are not completely addressed in the NPA. It should be clarified.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *514* comment by: *Ferrovial Vertiports*

We welcome EASA's approach to amending existing regulations and not creating new for the sake of creating new regulations. We have carefully considered where we provide feedback, which as developers and operators of Vertiports is from an infrastructure perspective but very much with safety, security, sustainability and the consumer at the centre of our thoughts and actions

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *531* comment by: *FAA*

There is a statement in the Executive Summary that may need clarification: *promote innovation and development in the field of innovative air mobility while establishing an efficient, proportionate, and well-designed regulatory framework, free of burdensome rules that could hinder the UAS market development;*

Add language on page 1, that although the regulatory framework is *free of burdensome rules that could hinder the UAS market development,* ***while promoting safety.***

There is mention of UAS and VTOL on page 1 – Does EASA plan on discussing/adding/categorizing power lift?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *539* comment by: *AIRBUS*

AIRBUS comments have been prepared by AIRBUS Helicopters, AIRBUS Defence and Space, AIRBUS Commercial Aircraft.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *653* comment by: *NGFT*

- ·Regulation should attempt to cover all vertical take-off and land aircraft under one part, where definitions are shared as much as possible.

- Levels of safety need to be refined. Complex operations typically have a higher level of risk than VFR day operations
- Seasonal / meteorological effects on the operation of VTOL need to be included in the acceptable risk level and not be considered as exceptional situations
- HEMS operations should be excluded from VTOL operations unless it is part of a current SPA.HEMS approval under CAT. A stand-alone operation using only VTOL should be postponed until a solid database of actual VTOL operational data is available, and the level of risk can be guaranteed
- Private VTOL operators should not be required to obtain an AOC to perform operations but offer alternative means to demonstrate an equivalent level of safety to obtain the permission to operate
- Hybrid operators (helicopter, drones, and VTOL) should not have to adhere to multiple regulatory requirements. There should be no distinction in the required conditions for operation between the helicopter and the VTOL except for intrinsic capabilities of VTOL that may be taken into consideration.
- Vertiports should provide access to all types of vertical lift aircraft (VTOL, drones, and helicopters) unless performance requirements for helicopters prevent them from doing so
- Access to urban, highly used airspace must remain open to all without undue technical requirements
- All organizations related to VTOL design, production, maintenance, and operation must be required to set up and maintain a safety management system (SMS)
- Proposals for ORO.FC.105 and ORO.FTL.100 have significant impact on all operations and need to be changed

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *826* comment by: *FOCA (Switzerland)*

Please note that due to technical issues, a first batch of comments was entered by Alexandre Triverio, the rest was entered by me. Please excuse the inconvenience.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *882* comment by: *European Helicopter Association*

<u>Executive summary:</u>

Regulation should attempt to cover all vertical take-off and land aircraft under one part, where definitions are shared as much as possible.
Levels of safety need to be refined. Complex operations typically have a higher level of risk than VFR day operations

Seasonal / meteorological effects on the operation of VTOL need to be included in the acceptable risk level and not be considered as exceptional situations
HEMS operations should be excluded from VTOL operations unless it is part of a current SPA.HEMS approval under CAT. A stand-alone operation using only VTOL should be postponed until a solid database of actual VTOL operational data is available, and the level of risk can be guaranteed
Private VTOL operators should not be required to obtain an AOC to perform operations but offer alternative means to demonstrate an equivalent level of safety to obtain the permission to operate
Hybrid operators (helicopter, drones, and VTOL) should not have to adhere to multiple regulatory requirements. There should be no distinction in the required conditions for operation between the helicopter and the VTOL except for intrinsic capabilities of VTOL that may be taken into consideration.
Vertiports should provide access to all types of vertical lift aircraft (VTOL, drones, and helicopters) unless performance requirements for helicopters prevent them from doing so
Access to urban, highly used airspace must remain open to all without undue technical requirements
All organizations related to VTOL design, production, maintenance, and operation must be required to set up and maintain a safety management system (SMS)
Proposals for ORO.FC.105 and ORO.FTL.100 have significant impact on all operations and need to be changed

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

884 comment by: *European Helicopter Association*

General comments:

For VTOL capable aircraft design to grow and mature a legal framework is required. The proposed regulation aims to close this gap. While there are many positive and constructive proposals and explanations available in the drafted regulation, there are a few points that need to be further evaluated.
With this regulation there is the attempt to create an artificial boundary between helicopter concepts and vertical takeoff and land vehicles. Given the current development of designs in the helicopter as well as in the VTOL domain, it is very clear that both concepts will merge, and a clear distinction will no longer be possible. Today both designs can be clearly distinguished. However, some new designs by Airbus and Sikorsky blur this distinction clearly. It should therefore be attempted not to distinguish between these two modes of transportation. Rather, a concept of performance and safety-based regulation should be introduced that is harmonized across all vertical land capable aircraft. It is obvious that in the future helicopters will also be capable to be remotely piloted and contain hybrid systems of propulsion. With the technological advances, especially in the domain of navigation, envelope protection around the aircraft as well as propulsion systems, a new set of rules should be envisaged. The current VTOL regulation attempts to go in that direction. However, the regulation is attempting to allow for all possible types of operation including MNPS, RVSM,

etc. for VTOL aircraft that are not yet operational. It is hard to anticipate the technological advances and possibilities, especially in the domain of energy density- and storage, as well as the effects of noise produced by this new type of aircraft. A more limited scope and common definition might be more useful.

There still seem to be several inconsistencies within the document. One the one hand the operational capabilities described allow for RVSM as well as PBN and other complex operations. On the other hand, the risk analysis at the end of the document aims to achieve for these aircraft a level of safety that is equivalent to VFR helicopter day operations or a regular public bus transport in one spot and to the same level of safety as airlines in another. It is not clear what the permissible level of risk would be. It must be in line and compatible with the operations allowed. This could mean different levels of safety depending on the type of operation performed.

The risk assessment seems to be based on cities and operational environments that offer continuously good weather and little environmental restrictions. However, it is obvious that a large part of northern Europe is affected by winter weather which includes fog and associated reduction of visibility, icing and higher humidity close to the freezing point. These environmental factors then are identified later in the document as being exceptional conditions. That is not correct. It should be integrated in the risk management evaluation as being a normal part / environmental condition of the operation. Also, the aspired risk level off a severe accident for every 10^{-9}, equivalent to that of airline operation should be revisited. This is because VTOL operations are mostly performed over high density urban areas and a significant part of the flight is done during takeoff and landing which have been identified as the most critical parts of a flight. To achieve this level of safety the current proposed regulation does not indicate how, and by which measures this level of safety should be achieved. More details are needed in this area.

Given the complexity of a HEMS operation it is hard to understand why such unproven aircrafts should be allowed to perform highly sensitive HEMS operations without being embedded into a proven helicopter HEMS operation. There is no disagreement on the necessity to provide public service, to provide medical assistance and care to citizens as quickly as possible. It is obvious that complementary capabilities serving public health and safety need to be elaborated and rolled out. However, attempting to perform these services with untested and currently not yet certified vehicles by operators that have no prior experience in these types of operation is not considered sound decision making.
Also, in our opinion an issue regarding the use of VTOL in HEMS operations is the air deconfliction, whether you are in U space or not and the possible additional A2A warning devices that might be mandatory to operate because of this emerging market. Setting up such an operation needs to take these issues into consideration.
We therefore strongly suggest deferring all references to HEMS operations performed by vertical takeoff and lands aircraft until there is more data available on the reliability of these aircraft. To ensure an equivalent level of safety, we suggest that these types of operation only be allowed under the approval of an existing helicopter CAT HEMS operator. Only after a thorough safety risk assessment based on actual operational data from other vertical takeoff and land operations with VTOLs, the extension of these capabilities should be envisaged.

This document proposes for all VTOL aircraft to obtain an AOC. There is no distinction between private and commercial flights with regards to the permission to operate such a device. This concept should be revisited. The reason being that VTOL aircraft may provide a replacement for road transportation in more remote areas offering better services to individuals and communities. Private persons, however, will not be able to submit a request for an AOC due to the high complexity of process and documentation. This requirement may prohibit this new technology form being used more widely across Europe. Private persons should therefore still be able to perform VTOL operations without having to obtain an AOC. They should be able to obtain the approval offering alternative means to demonstrate an equivalent level of safety. With regards to more dense urban areas, the VTOL allowed to enter these areas could be required to adhere to a higher technical level of safety for private operations.

In the comments the size of the aircrafts is expected to be between four and six seats on average. This is the same size as small helicopters. With technological advances it is to be expected that VTOL aircraft will also grow into multi-purpose, multi mission capable aircraft. currently it is not clear how VTOL may also perform aerial work operations. It is not clear, if VTOL would have to adhere to SPO regulation should they also want to perform aerial work operations. In the current regulatory setup, it is very difficult to compare what is permissible for VTOL, drones and helicopters. The operations are divided into operations over congested, respectively non congested areas. This distinction does not exist for the approval of helicopter operations regarding aerial work. Helicopters, VTOL as well as drone operations should revisit the current regulatory framework and define a common set of operational principles that are then integrated into a regulatory framework taking into account intrinsic capabilities for each type of aircraft. A working group composed of experts from all three types of aircraft should define a common set of rules. In addition, it is to be expected that current helicopter operators will expand their operational capabilities to include drones as well as VTOL aircraft. They will be experts in all kinds of vertical land operations. This pooled expertise and knowledge will increase the level of safety overall. It is therefore necessary to provide a framework that is applicable for all and that is easily understood by all. There should be no distinction in the required conditions for operation between the helicopter and the VTOL.

The proposed regulation covers VTOL aircraft of up to 3175 kilograms. This is comparable to most helicopters currently in operation. It is therefore hard to understand why Vertiports should only be open to VTOL capable aircraft. Physical laws require that the aircraft capable of landing and taking-off vertically must generate thrust to be more or at least equivalent to the weight that the aircraft. The downwash and the expected forces acting upon a Vertiport should be equal. The distribution of weights on skids or wheels can also be considered equal. There is no reason why infrastructure should be limited to one kind of aircraft only. The only exception being performance and obstacle requirements for helicopters preventing them from performing an approach and take-off to the vertiport. Any limitations regarding the use of vertiports therefore should be deleted from the regulation.

In order to best use the technical capabilities of VTOL aircraft, specific corridors wherein these aircraft fly, are proposed. While this concept makes sense from a VTOL point of view, it does not take into consideration the anticipated and expected increase in air space use by drones and helicopters overall. It is not clear how all the different aircrafts within a given airspace will have access to that airspace. The risk analysis at the end of the paper highlights these issues

regarding excessive use of airspace and the associated risks for Air to Air accidents as well as the potential for damage on the ground. When airspace is used excessively beyond a certain point, mitigating measures are no longer working. While it is expected that these issues are mostly limited to dense urban areas, the associated risks operating in that airspace as highlighted in the risk analysis, are significantly higher than in non-urban areas. Therefore, more work needs to be done about fair and equitable access to the airspace surrounding these dense urban areas. Under no circumstances should and excessive level of technology prohibit other aircraft from accessing urban airspace.

It is not evident why VTOL operations do not have to set up a safety management system (SMS) neither in the design organization, nor the continuing airworthiness management organization. Given the untested nature of this kind of operation it is imperative that all possible safety data is collected, analyzed and used to further improve safety and efficiency in the operation. All organizations related to VTOL design, production, maintenance and operation should therefore be required to set up and maintain a safety management system.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *890* comment by: *European Helicopter Association*

Definitions should be aligned with existing definitions if they describe the same thing (e.g. LDP, TODA, TODP)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *911* comment by: *FAA*

Throughout the NPA, several terms are used to describe components that are essential for the operation of the CU (core layer, essential and specific). For those components that are not essential to the operation of the CU, the terms (non-essential, not specific and outer/non-core layer) are used. Can the terminology used throughout the NPA be more consistent?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *924* comment by: *ADAC Luftrettung gGmbH*

Page 66 before 21.A.239

Title "SUBPART J - DESIGN ORGANISATION APPROVAL" for 21.A.239 to 21.A.265 is missing.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *952* comment by: *FAA*

Suggest adding some type of guidance (separate NPA) to address security and safety criteria for UAS components to mitigate potential physical or cyber threats to UAS. Recommend considering secuirty issues and mitigation when referring to risk and impact assessments.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *999* comment by: *General Aviation Manufacturers Association (GAMA)*

The General Aviation Manufacturers Association (GAMA) greatly appreciates the opportunity to provide comments on NPA 2022-06 introducing a regulatory framework for the operation of drones .The comments below were developed and agreed by the GAMA eVTOL subcommittee (part of the Electric Hybrid Propulsion Innovation Commmittee), comprising all the major eVTOL OEMs from the EU, USA and Canada. In particular, active participants in these discussions included representatives from Airbus, Bell Flight, Boeing, Bosch, Embraer, Empirical Systems Aerospace, ERC System, Eve Air Mobility, Garmin, Joby, Lilium, Overair, Skyports, Textron Aviation, Vertical Aerospace, Volocopter and Xwing.

GAMA's staff remain at the Agency's disposal at any time ift here are any questions regarding any of the comments provided below.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1038* comment by: *Austro Control*

Comment:
NPA was not very well structured.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1039* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

General
"Command unit/Command unit component" is implemented as a concept together with "Parts and Appliances". One reflection could be that this new concept could be included in

	the "Parts and appliances" concept. This would reduce repeating in the text, and the text would be easier to read. This could be explained in subpart K."
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1089* comment by: *EUROCONTROL* The term "manned VTOL" should be defined in the document
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1104* comment by: *EUROCONTROL* "handling" meaning has to be better defined in the document. It refers to something that you can touch or control but in some parts of the text it could also mean "flying" and all these words have differences in terms of techniques or procedures
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1177* comment by: *European Cockpit Association* Executive Summary - Page 1 "promote innovation and development in the field of innovative air mobility while establishing an efficient, proportionate, and well-designed regulatory framework, free of burdensome rules that could hinder the UAS market development" Suggested text change: "promote innovation and development in the field of innovative air mobility while establishing an efficient, proportionate, and well-designed regulatory framework where rules do not unnecessarily hinder the UAS market development" Rationale: Unfortunately sometimes burdensome rules are necessary for safety. Whilst every effort should be made to avoid complexities, the prime driver, as stated on p1, is safety.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1187* comment by: *European Cockpit Association*

Commented text:

'create the conditions for the safe operation of UAS and of manned VTOL-capable aircraft in the U-space airspace;'

Comment:
With this sentence it looks like that UAS and manned VTOL are operating in segregated area, but conditions and operational requirements (airworthiness) should be created for operating together with traditional manned aviation. So, ensured should be a high uniform level (also with manned aviation) of safety.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1212* comment by: *European Cockpit Association*

Commented text:
framework, free of burdensome rules that could hinder the UAS market development;

Comment:
Is that at the expense of safety, what are the burdensome rules - quite a polemic statement and should be removed. The market seems more important than safety.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1222* comment by: *Aerospace Industries Association*

Comment: This NPA addresses operations of UAS and is intended to provide suitably lightweight regulations compared to operations of e.g. CS-25 aircraft. However, this UAS does cover operations of UAS that carry persons and for such operations, the rules should be much closer aligned to other operations of aircraft carrying passengers (e.g. DOA/POA for CS-23, CS-25, CS-27, CS-29 and Part 145, Part CAMO)

Suggested resolution: From viewpoint of cybersecurity: Apply Part IS to UAS Continuing Airworthiness requirements as per Part 145 or Part CAMO for any UAS carrying passengers.
Note 1: Changes described for Part 21 indicate that design and production of UAS will be covered by Part 21 and Part IS will apply as eVTOL and similar should not be ELA2. If a specific Part 21 for UAS is intended, Part IS provisions are needed for UAS designed to carry passengers
Note 2: areas other than cybersecurity likely need to be reviewed for suitablity for carriage of passengers

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1258* comment by: *THALES*

THALES thanks EASA for the opportunity given to review and comment this NPA which is an important step in the roadmap to setup a regulatory framework to enable emergent market of UAS and manned VTOL operations. As requested by EASA during the introduction of the NPA to the experts group, THALES is submitting most of its comments through the association it is participating in, namely ASD. THALES actively participated to the review and consolidation effort of the ASD members comments, therefore THALES supports all ASD comments.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1288* comment by: *European Helicopter Association*

Executive Summary:

· Regulation should attempt to cover all vertical take-off and land aircraft under one part, where definitions are shared as much as possible.

· Levels of safety need to be refined. Complex operations typically have a higher level of risk than VFR day operations

· Seasonal / meteorological effects on the operation of VTOL need to be included in the acceptable risk level and not be considered as exceptional situations

· HEMS operations should be excluded from VTOL operations unless it is part of a current SPA.HEMS approval under CAT. A stand-alone operation using only VTOL should be postponed until a solid database of actual VTOL operational data is available, and the level of risk can be guaranteed

· Private VTOL operators should not be required to obtain an AOC to perform operations but offer alternative means to demonstrate an equivalent level of safety to obtain the permission to operate

· Hybrid operators (helicopter, drones, and VTOL) should not have to adhere to multiple regulatory requirements. There should be no distinction in the required conditions for operation between the helicopter and the VTOL except for intrinsic capabilities of VTOL that may be taken into consideration.

· Vertiports should provide access to all types of vertical lift aircraft (VTOL, drones, and helicopters) unless performance requirements for helicopters prevent them from doing so

· Access to urban, highly used airspace must remain open to all without undue technical requirements

· All organizations related to VTOL design, production, maintenance, and operation must be required to set up and maintain a safety management system (SMS)

· Proposals for ORO.FC.105 and ORO.FTL.100 have significant impact on all operations and need to be changed

General comments

For VTOL capable aircraft design to grow and mature a legal framework is required. The proposed regulation aims to close this gap. While there are many positive and constructive proposals and explanations available in the drafted regulation, there are a few points that need to be further evaluated.

1. With this regulation there is the attempt to create an artificial boundary between helicopter concepts and vertical takeoff and land vehicles. Given the current development of designs in the helicopter as well as in the VTOL domain, it is very clear that both concepts will merge, and a clear distinction will no longer be possible. Today both designs can be clearly distinguished. However, some new designs by Airbus and Sikorsky blur this distinction clearly. It should therefore be attempted not to distinguish between these two modes of transportation. Rather, a concept of performance and safety-based regulation should be introduced that is harmonized across all vertical land capable aircraft. It is obvious that in the future helicopters will also be capable to be remotely piloted and contain hybrid systems of propulsion. With the technological advances, especially in the domain of navigation, envelope protection around the aircraft as well as propulsion systems, a new set of rules should be envisaged. The current VTOL regulation attempts to go in that direction. However, the regulation is attempting to allow for all possible types of operation including MNPS, RVSM, etc. for VTOL aircraft that are not yet operational. It is hard to anticipate the technological advances and possibilities, especially in the domain of energy density- and storage, as well as the effects of noise produced by this new type of aircraft. A more limited scope and common definition might be more useful.

2. There still seem to be several inconsistencies within the document. One the one hand the operational capabilities described allow for RVSM as well as PBN and other complex operations. On the other hand, the risk analysis at the end of the document aims to achieve for these aircraft a level of safety that is equivalent to VFR helicopter day operations or a regular public bus transport in one spot and to the same level of safety as airlines in another. It is not clear what the permissible level of risk would be. It must be in line and compatible with the operations allowed. This could mean different levels of safety depending on the type of operation performed.

3. The risk assessment seems to be based on cities and operational environments that offer continuously good weather and little environmental restrictions. However, it is obvious that a large part of northern Europe is affected by winter weather which includes fog and associated reduction of visibility, icing and higher humidity close to the freezing point. These environmental factors then are identified later in the document as being exceptional conditions. That is not correct. It should be integrated in the risk management evaluation as being a normal part / environmental condition of the operation. Also, the aspired risk level off a severe accident for every 10^{-9}, equivalent to that of airline operation should be revisited. This is because VTOL operations are mostly performed over high density urban areas and a significant part of the flight is done during takeoff and landing which have been identified as the most critical parts of a flight. To achieve this level of safety the current proposed regulation does not indicate how, and by which measures this level of safety should be achieved. More details are needed in this area.

4. Given the complexity of a HEMS operation it is hard to understand why such unproven aircrafts should be allowed to perform highly sensitive HEMS operations without being embedded into a proven helicopter HEMS operation. There is no disagreement on the necessity to provide public service, to provide medical assistance and care to citizens as quickly as possible. It is obvious that complementary capabilities serving public health and safety need to be elaborated and rolled out. However, attempting to perform these services with untested and currently not yet certified vehicles by operators that have no prior experience in these types of operation is not considered sound decision making.
Also, in our opinion an issue regarding the use of VTOL in HEMS operations is the air deconfliction, whether you are in U space or not and the possible additional A2A warning devices that might be mandatory to operate because of this emerging market. Setting up such an operation needs to take these issues into consideration.
We therefore strongly suggest deferring all references to HEMS operations performed by vertical takeoff and lands aircraft until there is more data available on the reliability of these aircraft. To ensure an equivalent level of safety, we suggest that these types of operation only be allowed under the approval of an existing helicopter CAT HEMS operator. Only after a thorough safety risk assessment based on actual operational data from other vertical takeoff and land operations with VTOLs, the extension of these capabilities should be envisaged.

5. This document proposes for all VTOL aircraft to obtain an AOC. There is no distinction between private and commercial flights with regards to the permission to operate such a device. This concept should be revisited. The reason being that VTOL aircraft may provide a replacement for road transportation in more remote areas offering better services to individuals and communities. Private persons, however, will not be able to submit a request for an AOC due to the high complexity of process and documentation. This requirement may prohibit this new technology form being used more widely across Europe. Private persons should therefore still be able to perform VTOL operations without having to obtain an AOC. They should be able to obtain the approval offering alternative means to demonstrate an equivalent level of safety. With regards to more dense urban areas, the VTOL allowed to enter these areas could be required to adhere to a higher technical level of safety for private operations.

6. In the comments the size of the aircrafts is expected to be between four and six seats on average. This is the same size as small helicopters. With technological advances it is to be expected that VTOL aircraft will also grow into multi-purpose, multi mission capable aircraft. currently it is not clear how VTOL may also perform aerial work operations. It is not clear, if VTOL would have to adhere to SPO regulation should they also want to perform aerial work operations. In the current regulatory setup, it is very difficult to compare what is permissible for VTOL, drones and helicopters. The operations are divided into operations over congested, respectively non congested areas. This distinction does not exist for the approval of helicopter operations regarding aerial work. Helicopters, VTOL as well as drone operations should revisit the current regulatory framework and define a common set of operational principles that are then integrated into a regulatory framework taking into account intrinsic capabilities for each type of aircraft. A working group composed of experts from all three types of aircraft should define a common set of rules. In addition, it is to be expected that current helicopter operators will expand their operational capabilities to include drones as well as VTOL aircraft. They will be experts in all kinds of vertical land operations. This pooled expertise and knowledge will

increase the level of safety overall. It is therefore necessary to provide a framework that is applicable for all and that is easily understood by all. There should be no distinction in the required conditions for operation between the helicopter and the VTOL.

7. The proposed regulation covers VTOL aircraft of up to 3175 kilograms. This is comparable to most helicopters currently in operation. It is therefore hard to understand why Vertiports should only be open to VTOL capable aircraft. Physical laws require that the aircraft capable of landing and taking-off vertically must generate thrust to be more or at least equivalent to the weight that the aircraft. The downwash and the expected forces acting upon a Vertiport should be equal. The distribution of weights on skids or wheels can also be considered equal. There is no reason why infrastructure should be limited to one kind of aircraft only. The only exception being performance and obstacle requirements for helicopters preventing them from performing an approach and take-off to the vertiport. Any limitations regarding the use of vertiports therefore should be deleted from the regulation.

8. In order to best use the technical capabilities of VTOL aircraft, specific corridors wherein these aircraft fly, are proposed. While this concept makes sense from a VTOL point of view, it does not take into consideration the anticipated and expected increase in air space use by drones and helicopters overall. It is not clear how all the different aircrafts within a given airspace will have access to that airspace. The risk analysis at the end of the paper highlights these issues regarding excessive use of airspace and the associated risks for Air to Air accidents as well as the potential for damage on the ground. When airspace is used excessively beyond a certain point, mitigating measures are no longer working. While it is expected that these issues are mostly limited to dense urban areas, the associated risks operating in that airspace as highlighted in the risk analysis, are significantly higher than in non-urban areas. Therefore, more work needs to be done about fair and equitable access to the airspace surrounding these dense urban areas. Under no circumstances should and excessive level of technology prohibit other aircraft from accessing urban airspace.

9. It is not evident why VTOL operations do not have to set up a safety management system (SMS) neither in the design organization, nor the continuing airworthiness management organization. Given the untested nature of this kind of operation it is imperative that all possible safety data is collected, analyzed and used to further improve safety and efficiency in the operation. All organizations related to VTOL design, production, maintenance and operation should therefore be required to set up and maintain a safety management system.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *1348* comment by: *ADF, Working Group of German Aviation Noise Commissions*

Wir begrüßen den Vorschlag der EASA und halten es auch aufgrund der gesundheitli-chen Auswirkungen von Verkehrslärm auf den Menschen für erforderlich, dass für den zunehmenden Betrieb von Drohnen und der damit verbundenen Lärmbelastung ein Re-gulierungsrahmen geschaffen wird.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1349* comment by: *ADF, Working Group of German Aviation Noise Commissions*

Wichtig ist aus unserer Sicht, dass hoheitlich sichergestellt wird, dass die Verantwortung für Lärmschutzmaßnahmen nicht in alleiniger Verantwortung der Drohnenbetreiber liegt. Der vorliegende Regulierungsentwurf sieht dazu noch vor, dass über geeignete Be-triebsverfahren zur Lärmminderung der Betreiber von Drohnen entscheidet. Aus unserer Sicht sollte dieser Regulierungsrahmen durch ein übergeordnetes Regelwerk flankiert werden, de potenzielle Lärmauswirkungen von Drohnen, einschließlich der Zertifizie-rung, des Betriebs und einzuhaltender Immissionsgrenzwerte regelt.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

1. About this NPA p. 16

comment | *367* comment by: *Linth Air Service*

The NPA tries to set the regulations for a new class of aircraft that might materialize in the next years. In addition to IAM's that are controlled by a pilot it also includes IAM's operating without a pilot controlled from a ground station. It stays open whether the ground station controls the flight or the IAM flies independent, and the control station only overlooks the flight operation.
It is more than only unfortunate that the two completely different operations are tried to beeing mixed and that EASA tries for another time to cover different operations in one regulation.
If EASA would concentrate on IAM's that are controlled by a pilot the existing regulations for helicopters and aircrafts could be used with a few special exemptions at least for the next 10 years especially as we will see only a few if any of the actual projects materialize. Electric powered training aircrafts, the only projects that may lead to a success are covered by the existing regulation.
Physically most of the projects, especially the one which include a vertical component in its flight profile are more than questionable. A lot have already been written about the impossibility of Lilium other projects are more feasible but will also fight with the availability of energy as long as they base on batteries and the battery technology does not make huge steps forward. This is especially true as nearly all depend on relatively large disc loading compared with conventional helicopters. High disc loads mean, directly larger power demand. Technically also important is the fact, that a reliability of 10e-9 with the actual battery technology is impossible to achieve. Compared to a turboshaft where we have decades of

experience a lithium battery is complicated, includes electronic hard and software and they are latent unreliable. A burning battery will most probably lead to a crash but only the failure of a battery will harm the ability of the aircraft to fly. This is even more important as the batteries in an eVTOL will see a load which is by factors higher that the one from an electrical automobile.

With the AW609 and the Bell525 two civil fly by wire helicopters are under certification. Both programs are in huge delay most probably because this are the first fly by wire programs certified under civil authority. The problems with the Boeing 737MAX did make the certification of fully automated computer-controlled systems with software not easier and will not lead to faster certification processes. Both programs have their roots with Bell that has a lot of knowledge with fly by wire in the military rotorcraft area.
The actual projects have their roots with companies without any background in the development of electronical systems and their software according to requirements that needs to be fulfilled to get things certified. This is a huge problem as more as all known systems depend completely on the computer to fly and cannot be flown by a pilot only. Most of them have a control logic which is by far more dependent on the computer than a fly by wire conventional helicopter. The chance that we will see certified aircrafts is therefore very small if the authority is not willing to let them certify their controllers and software under a much-simplified regime.

The very few if any project that will come to market in the next years can easily being overlooked and handled by the existing regulations as helicopters or fixed wing aircrafts when it comes to operation. This regulation in this form is therefore completely unnecessary as more as all the technical aspects from above do not include any acceptance aspects of IAM's from the public and by the politics. And acceptance will depend heavenly on the noise where technically a reduction far below the noise of a helicopter is questionable. The market numbers written in the NPA for such aircrafts are pure wish as the technical problems are not yet solved and acceptance with the public is completely sweet talked.

I do not know one project that has already a certifiable prototype presented; they are all still in development. I would recommend handling the few possible candidates, if any, for the next years as helicopters and aircrafts, if they are piloted by a human being. When it comes to aircrafts without a pilot, controlled from a control station the acceptance problems and hurdles to be taken are too large to think about and it is in addition completely useless to regulate it together with pilot-controlled aircrafts. The effort to implement new regulation which is by far not complete can be reduced to a minimum and the regulation can be implemented once we know more about specific use cases. We need less and not more regulation. It makes no sense to regulate for an unknown future.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *473* comment by: *JEDA*

JEDA thanks for the opportunity to comment. The complexity and variety of contemporary technologies makes the presriptive approach to regulation no longer applicable. Furthermore, competent authorities needs support by Notified Bodies and Qualified Entities to properly exercise oversight. The intention of the Agency to apply operation-centric, performance-based and risk-based approach even in the certified category is highly appreciated and encouraged.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1027* comment by: *Danish Civil Aviation and Railway Authority - DCARA*

Comment regarding the text on the first page:
As amendments to the ATM/ANS regulation 2017/373 are suggested to ensure consistency (section 2.3.6.4) regulation 2017/373 should be mentioned under "related rules".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1166* comment by: *AESA*

There is a lack of definition between the requirements to be met by UA (more similar to the current aircraft we operate) and by CU (totally new). The boundary between both should be clearer, both in CAW (ARC, management system, etc.) and IAW (CoA, TC, etc.).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1245* comment by: *Direction de l'Aviation Civile*

- DAC Luxembourg respectfully welcomes the significant amount of work which has been developed to sustain the future developments of the UAS industry. At the same time, no Type Certificate, Restricted Type Certificate nor any certification specifications centered on UAS have been formally issued by the Agency yet. As such, this regulatory exercise is mainly theoretical / conceptual and cannot claim to be comprehensive nor to anticipate real upcoming issues, in particular taking due account of the remaining important regulatory part to be produced (e.g. Part 66 & 147 through RMT 0255 & RMT 0544; FCL in a second step, etc.);

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2. In summary - why and what p. 18

comment *7* comment by: *ACI EUROPE*

Comment regarding introduction of new term Innovative Aerial Services (IAS):

The added value of adding this new term is not evident. The well established terms of UAM and AAM already cover the aspects defined under IAS. For simplicty, clarity and global harmonisation of terminology IAS should be deleted from the NPA. Instead the terms UAM/AAM should be used as appropriate.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *8* comment by: *ACI EUROPE*

Comment regarding introduction of new term Innovative Air Mobility (IAM):

The added value of adding this new term is not evident. The well established terms of UAM and AAM already cover the aspects defined under IAM. For simplicty, clarity and global harmonisation of terminology IAM should be deleted from the NPA and included in the definition of U-Space.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *9* comment by: *ACI EUROPE*

Proposed addition of term Advanced Air Mobility (AAM) to the list of definitions:

The term Advanced Air Mobility (AAM) is well established and sufficiently covers what has been proposed under the new terms of IAS and IAM. For simplicity, clarity and global harmonisation of terminology AAM should be inclued in the definitions of terms in this NPA instead of introducing new terminology.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *67* comment by: *Wingcopter GmbH*

While talking about the plan for introducing a concept for the purpose of standardizing the communication on the matter (Point 2., page 18ff)

whereas Innovative aerial services (IAS), Innovative air mobility (IAM), Urban air mobility (UAM), and VTOL-capable aircraft is introduced (2.)
whereas 'rotorcraft', 'helicopters', and 'VTOL-capable aircraft' are clearer differentiated (2.)

whereas new rules and regulations are needed and rationale about this is given (2.1)
whereas the regulations are listed where the amendments are proposed to enter (1.3)
whereas the aircraft "UAS" is still separated from 'VTOL-capable aircraft' (e.g. 2., page 18 mid '- EASA will regulate operations with UAS and VTOL-capable aircraft beyond...')
whereas certification and/or restricted certification in IAW and CAW is a consequent step to higher risk scenarios / use cases (SAIL III and higher)
whereas CR (EU) 965/2012 will receive an ANNEX IX PART-IAM (2.3.4.2)
whereas UA operation in 'open' and 'specific' category is regulated in IR (EU) 947/2019
whereas 'cargo' is mentioned in the context of IAS (2., page 18 low end)
whereas 'cargo' is related to operations under PART-IAM (965/2012) amendment only
whereas amendment of 'Air Operation' (965/2012) is only according to 'Article 1, Subject matter and scope', no. 8 for 'VTOL-capable aircraft' and **NOT for UAS** (3.6.1)
whereas 'dangerous goods' are subject for VTOL-capable aircraft operation according to ANNEX IX PART-IAM (proposed amendment to Article 5 - Air operations, 2(h)(ii), 3.6.1 of NPA 2022-06)

the following questions are remaining:
1. Where will the operations be covered with the character of ANNEX VIII PART-SPO? At this stage the NPA is proposing amendments to 'Air Operation' in similarity to the well-known ANNEX IV PART-CAT and ANNEX V PART-SPA?
2. Where is – besides the certification issues – the innovation of the regulations in terms of strictly unmanned aircraft systems operation (this moment called LUC or operational authorization) with the purpose of delivery of cargo, medicals, blood, and even dangerous goods?
Will this be a reason to be under the PART-IAM for this kind of operation and to apply for an AOC?
3. Part FCL is orienting to manned / piloted VTOL-capable aircraft – a field for discussion when operating an UAS in high-risk environment in SAIL higher then III where in some cases a certified UA is required.
A proposal for the syllabus or an orientation in direction of JARUS PART-FCL (JAR_DEL_WG1_D.04) to qualify pilots/operators to the necessary level without existing ATO/DTO and licenses (ops training according to ORO.FC or equivalent)?
4. Operation with VTOL-capable aircraft orients mainly for passenger safety to consider congested and hostile area to be avoided. In contrary the idea to use highways and/or waterways is strictly the opposite argumentation concerning ground risk assessment of today. Can you provide in the upcoming next versions of the regulation (before GM and AMC is shared) where and how this important clarification will be introduced?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *80* comment by: *Supernal*

Unclear as to the definition of VTOL capable aircraft. Seems this adds confusion and the need for clarification in the differences with helicopters. Also, FAA has adopted the term "powered lift aircraft" to define the various configurations and capability of these unique vehicles.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *81* comment by: *Supernal*

Unclear as to the differences in the definition between IAM and UAM. Seems UAM could be easily included in the IAM definition.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *113* comment by: *IFATCA*

p.19 IAM

Definition of IAM operations is missing. IAM is a concept, UAM is a subset of IAM operations

add IAM.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *114* comment by: *IFATCA*

IAM definition: the peculiarity of this concept is not the use of new-generation technologies, but the fact that the mobility is integrated into a multimodal transport system. Is this the correct message?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *115* comment by: *IFATCA*

UAM definition: if we consider operations conducted into, within or out of an urban environment, we are considering all operations. We are considering air taxi into city (into / within) and fertilising into rural environment (out)

more precise definition is necessary

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *116* comment by: *IFATCA*

the caption seems to be not aligned with the picture.
Is IAS the only Domain(s) of UAS and VTOL-capable aircraft operations? or other operations are possible?
In addition, if the aim of the picture is to explain what IAS are, some changes are needed.
From the picture the understanding is that IAS are formed by Aerial operations and IAM, that is not in line with the IAS definition. According to the definition, aerial operations are a subset of operations/services enabled by the IAM.

IAS= Aerial operations + transportation of passengers and/or cargo

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *149* comment by: *GdF*

Definition of IAM operations is missing. IAM is a concept, UAM is a subset of IAM operations.

IAM definition: the peculiarity of this concept is not the use of new-generation technologies, but the fact that the mobility is integrated into a multimodal transport system. Is this the correct message?
UAM definition: if we consider operations conducted into, within or out of an urban environment, we are considering all operations. We are considering air taxi into the city (into / within) and fertilising into the rural environment (out) the caption seems to be not aligned with the picture.
Is IAS the only Domain(s) of UAS and VTOL-capable aircraft operations? or other operations are possible?
In addition, if the aim of the picture is to explain what IAS are, some changes are needed.
From the picture the understanding is that IAS are formed by Aerial operations and IAM, that is not in line with the IAS definition. According to the definition, aerial operations are a subset of operations/services enabled by the IAM.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *248* comment by: *Civil Aviation Authority the Netherlands*

Chapter 2, page 19:
What is the intention of including multimodal transportation system in the definition of Innovative air mobility (IAM)?

Is it the place for regulations related to air/road multimodal transport systems like the PAL-V, or just a hook in the regulation to implement the multimodal related rules and GM the taskforce gyroplanerules presented to EASA in 2021?

With respect to aviation operations the PAL-V is just a gyroplane.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *289* comment by: *FlightSafety International*

I would remove the 'citizens and aviation market' part to simply say:
Innovative aerial services (IAS): the set of operations and/or services that are enabled by new airborne technologies;...

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *457* comment by: *Volocopter GmbH*

The definition of IAS as proposed in the NPA links the term to the benefit to the citizens and to the aviation market that IAS has to bring. Such definition is considered too vague and leaving space for different interpretations of the 'benefit' criteria. Moreover, it is unclear how would aerial services with no benefit to citizens (but for example benefit for certain individuals) be considered in the context of the NPA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *532* comment by: *FAA*

Throughout the document, there are many terms that are new and used in a way that create some uncertainty when describing operational areas and understanding the intent of describing certain operational areas. Recommend clarity and consistency in the terms and phrases being used, for example, the following terms are used in the document:

– *congested (urban) areas*
– *non-congested urban areas*
– *densely populated urban areas*
– *suburbs*
– *countryside-to-countryside*

Suggest providing rationale as to the need to use the term "*urban*" when describing operating areas, or suggest using terms such as:

– *sparsely populated*
– *densely populated*
– *congested area*
– *non-congested area*

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *546* comment by: *DJI Technology*

2. In summary — why and what" indicated : UAS (drones and unmanned VTOL-capable aircraft)

"2.1.2. Links with other RMTs" indicated : UAS (drones operated in the 'open' and 'specific' category)

Many statements in this NPA describe UAS side by side with VTOL, like unmanned aircraft systems (UAS) and aircraft with vertical take-off and landing (VTOL) capability.

To sum up, this NPA should give a clear definition of UAS and explain the relationship and difference between UAS and VTOL. At the same time, it is better to explain the relationship and difference between UAS and IAM/UAM.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *548* comment by: *DJI Technology*

For definition of "VTOL-capable aircraft"

1) The rotorcraft itself is a VTOL-capable aircraft. This definition narrows the scope of the term itself and is unreasonable.

2) The definition cannot tell whether it is manned or unmanned.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *792* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 18)
"Innovative aerial services (IAS): the set of operations and/or services that are of benefit to the citizens and to the aviation market, and that are enabled by new airborne technologies; the operations and/or services include both the transportation of passengers and/or cargo and aerial operations (e.g. surveillance, inspections, mapping, telecommunications networking, etc.)."

Comment regarding the introduction of the new term "Innovative Aerial Services (IAS)":

The added value of adding this new term is not evident. The well established terms of UAM and Advanced Air Mobility (AAM) already cover the aspects defined under IAS. For simplicty, clarity and global harmonisation of terminology IAS should be deleted from this NPA. Instead the terms UAM/AAM should be used as appropriate.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *794* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 19)
"Innovative air mobility (IAM):
the safe, secure and sustainable air mobility of passengers and cargo enabled by new-generation technologies integrated into a multimodal transportation system."

Comment regarding the introduction of the new term "Innovative Air Mobility (IAM)"
The added value of adding this new term is not evident. The well established terms of UAM and AAM already cover the aspects defined under IAM. For simplicty, clarity and global harmonisation of terminology IAM should be deleted from this NPA. Instead the term IAM should be included in the definition of U-Space.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *795* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 18/19)
List of definitions

Comment
Add a definition of "Advanced Air Mobility (AAM)" to the list of definitions.

Rationale:
The term Advanced Air Mobility (AAM) is well established and sufficiently covers what has been proposed under the new terms of IAS and IAM. For simplicity, clarity and global harmonisation of terminology AAM should be included in the definitions of terms in this NPA instead of introducing a new terminology.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *822* comment by: *UAV DACH e.V.*

Rerefence: (p.18) Innovative aerial services (IAS): the set of operations and/or services that are of benefit to the citizens and to the aviation market,...

Comment: The definition of IAS as proposed in the NPA links the term to the benefit to the citizens and to the aviation market that IAS has to bring. Such definition is considered too vague and leaving space for different interpratations of the 'benefit' criteria. Moreover, it is unclear how would aerial services with no benefit to citizens (but for example benefit for certain individuals) be considered in the context of the NPA.

Proposal: Clarification

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *827* comment by: *FOCA (Switzerland)*

1. Definition VTOL-capable aircraft: FOCA suggests that EASA specifies how powered-lift aircrafts and tilt rotor aircrafts are categorised in relation to the new definition of a VTOL capable aircraft. Thus, from FOCA's point of view, it could be beneficial to clarify the differences between the following terminologies: 'VTOL-capable aircraft', 'powered-lift aircraft' and 'tilt rotor aircraft'.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *893* comment by: *European Helicopter Association*

terms in relation to operational concepts need to be detailed further and/or aligned with existing types of operation (e.g. CMP, CSFL, CEL, CFP)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *923* comment by: *ADAC Luftrettung gGmbH*

2. In summary — why and what - Page 18 bottom
Innovative aerial services (IAS)

Comment:
While the footnote is well done and gives the reader concrete criteria, the definition in the text is far too abstract and general.
It would be a presumption of knowledge on the part of the EU to want to judge which technology path has market potential or which application brings the greatest societal benefit

in the balance across all societal sub-aspects. In addition, applications that may only develop their full potential later might be branded at the outset and excluded from access to these rules.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *953* comment by: *FAA*

The use of "Innovative" in the term Innovative Aerial Services appears to be a synonym for new technologies and should include all new enabling technologies, no matter where they are located. Suggest using a more inclusive term.

The use of "new-generation" technologies in the IAM definition is not broad enough because the key characteristic is that the technologies have not been previously approved for air mobility operations rather than being "new". Suggest using a more inclusive term.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *971* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

It is not clear if the proposed definition of VTOL capable aircraft includes traditional Tilt Rotors that are in the final phase of type certfication (for example AW609). In the absence of specific legislation once the TC has been issued it will be impossible to issue AOCs for such aircraft if not under national legislation.
Please clarify that this NPA includes also requirements for twin engined manned Tilt Rotors.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1002* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The definition of IAS as proposed in the NPA links the term to the benefit to citizens and to the aviation market that IAS has to bring. Such definition is considered too vague and leaves space for different interpretations of the 'benefit' criteria. Moreover, it is unclear how aerial services would benefit citizens in the context of the NPA.

PROPOSED ACTION/RESOLUTION
EASA to delete definition of IAS

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1018* comment by: *AESA*

Comment:

The following subjects are not included in the content of this NPA and will be addressed by the Agency with a separate NPA in the future:
— the operational requirements applicable to UAS (drones and unmanned VTOL-capable aircraft) operated in the 'certified' category;

Suggested resolution:

The following subjects are not included in the content of this NPA and will be addressed by the Agency with a separate NPA in the future:
— the operational requirements applicable to UAS (drones and ***manned*** VTOL-capable aircraft) operated in the 'certified' category;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1103* comment by: *EUROCONTROL*

"Urban air mobility (UAM): the subset of IAM operations conducted in to, within or out of urban environments" - "Urban environment" should be defined as per the content of this NPA. Someone's environment is all the circumstances, people, things, and events around them that influence their life.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1213* comment by: *European Cockpit Association*

Page 18, in Figure 1

Proposal to replace International with **European**

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1313* comment by: *JEDA*

Page 19:
The definition of IAS as proposed in the NPA links the term to the benefit to the citizens and to the aviation market that IAS has to bring. Such definition is considered too vague and leaving space for different interpratations of the 'benefit' criteria. Moreover, it is unclear how would aerial services with no benefit to citizens (but for example benefit for certain individuals) be considered in the context of the NPA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1319* comment by: *Markus Engelhart - umlaut*

The applicability of the content of this NPA for technical requirements of the UAS operated in scenarios according to SAIL V and SAIL VI operations as well as the certified category seems to push the certified category defacto well into operations which would be according to the SORA method, a risk assessment method which has been developed over many years by subject matter experts, including significant involvement by EASA itself, still covered as part of the specific category.
Can you please elaborate the reasoning, why the requirements for such operations are defacto increased in this process?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.1. Why we need to amend the rules - issue/rationale p. 20

comment *150* comment by: *GdF*

The use of terms like "integration" needs clarification. Are we talking about full integration, accommodation, segregation, separation or proximity? This opens up room for interpretation. Where unmanned aircraft operate alongside/ close to manned aircraft, a safe integration of unmanned aircraft in the airspace necessitates both the introduction of additional specific rules and a potentially dynamic configuration of airspace that ensures that unmanned aircraft are safely separated from other aircraft, technically or procedurally.

GdF believes that the human element plays a pivotal role in the success of both safe accommodation and future integration of drones into the entire ATM System, not only in the access to airspace.
GdF also believes that every Concept of Operations will drive changes to the procedures being used by all stakeholders and, in particular, will start to modify responsibilities between technology, air traffic controllers and flight/operating crews and operators. This needs to be

supported by relevant regulatory changes. It is therefore both critical and crucial that all concepts being developed take into account the human strengths and weaknesses in their development.

ATCOs and flight/operating crews will face a significant amount of change, operational, professional and procedural.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *151* comment by: *GdF*

A harmonised approach to both accommodation and integration of UAS is crucial to cultivating and exploiting a European market and safe and secure operations.
GdF recognises the importance of UAS to economic growth, but attention should be drawn to the following principles to prevent conflict with manned aviation and to mitigate negative repercussions:
1) must not reduce the current level of aviation safety
2) must not impair the operation of other aircraft and
3) regulations should be adaptable to change.
It is therefore both critical and crucial that all concepts being developed take into account the human strengths and weaknesses in their development.
ATCOs and flight/operating crews will face a significant amount of change, operational, professional and procedural.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.1.1. ICAO and third-country references relevant to this RMT p. 20

comment *270* comment by: *EUMETNET ASP*

3rd bullet 'all the provisions applicable to the operation of manned VTOL-capable aircraft have been developed considering the existing ICAO provisions applicable to manned aviation.'.

In terms of ICAO Annex 3 SARPS - Meteorological Service for Internation Air Navigation the meteorological services were not designed for very low level operations (below 500 FT AGL beyond the aerodrome) nor the urban environment. It should not be assumed that the meteorological services developed and provided under ICAO Annex 3 are appropriate for sub-500 FT AGL (beyond aerodreomes) and/or urban operations.

Can it be confirmed if EASA has explicitly considered the appropriateness of the meteorological services provided under ICAO Annex 3 - Meteorological Service for International Aviation for purposes of sub-500 FT AGL (beyond aerodromes) and/or urban environment operations - especially scaled up commercial operations falling outside police/HEMS? [And noting further that Police helicopter operations would come under State aircraft operations and out of scope for ICAO SARPs as per Article 3 of the Chicago Convention]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.1.2. Links with other RMTs p. 21

comment *249* comment by: *Civil Aviation Authority the Netherlands*

Para 2.1.2, Page 21:
Link with other RMT's, link with RMT 0731 new air mobility related to Gyroplanes is missing, RMT.0731 does have a lot of consequences related to the OPS proposals.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *271* comment by: *EUMETNET ASP*

There seems to be no reference to RMTs relating to developing appropriate meteorological services to support sub-500 FT (outside aerodromes) and urban air environment for the categories of aircraft in ths NPA. Whether additoinal RMTs should be looking to extend Part-MET under regulation 2017/373, or to develop new regulations specific to meteorological support for such operations is something to be considered.
Or, is it expected that the 'U-Space' regulation (Weather Information Services) is anticipated as supporting these categories of operations proposed in this NPA?

Consideration should be given to developing meteorological information services that are appropriate to support scaled up operations in the urban environment. The challenges are greater than can be addressed by existing meteorological information provided under Part-

MET 2017/373 - the urban environment creates hyperlocal, of which wind flows around buildings is of particular importance.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.1.3.1 Drone Strategy 2.0 p. 21

comment *1214* comment by: *European Cockpit Association*

2.1.3.1 Drone Strategy 2.0

The Drone Strategy v2.0 does not address the challenge of data sharing across boundaries or projects (SESAR JU3 for instance) and thus in the safety of data across participants should not be relied upon to have any effect.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1326* comment by: *Gregory Walden*

If DG-MOVE is still developing a Drone Strategy 2.0, please clarify that the Commission has not yet adopted it.

Alternative proposed text:
the European Commission is developing a Drone Strategy 2.0

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.2. What we want to achieve - objectives p. 22

comment *82* comment by: *Supernal*

More discussion needed to conclude "U" space is a reality.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *152* comment by: *GdF*

GdF remains concerned about the intention to create a "U-space" in controlled airspace and to manage safety risk solely through the segregation of manned and unmanned operations.
Our operational experience shows that, even with different categories of manned operations, segregating the airspace further does not necessarily mitigate safety risk and the associated disruption to operations (i.e. the number of airspace infringements has increased significantly over recent years mainly due to the complexity of the European airspace).
GdF also remains concerned about the notion of "dynamic airspace segregation", for which very few details how it is to be applied are provided. Although it is understood that the U-space concepts are not mature enough yet to ensure a safe integration of manned aircraft in an unmanned traffic, the segregation still relies on a concept, the dynamic airspace reconfiguration between ATM and U-space, that has not been tested sufficiently yet.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.1.3.2 Security aspects for vertiports p. 22

comment | *476* comment by: *JEDA*

This would be apprpriate initially, but, to build the internal market of services, we need common rules on vertiport security, bearing in mind that today there are no security checkes for passangers boarding a taxi or bus on the ground. EC and the Agency are encouraged to develop common rules fir security of veritports as soon as possible, in a proportionate, perforamce-based and risk-based approach, while taking advantage of modern digital technologies

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *883* comment by: *Ferrovial Vertiports*

Safety and security are of paramount importance and we are encouraged by EASA's reference to security in this NPA. We assume that where Article 1 of (EC) No 1254/2009 refers to "...airports..." that is will be read as "...aerodromes..." and therefore incorporate vertiports in its scope of permitting Member States to derogate from (EC) No 300/2008. Furthermore, we have interpreted that "*...EASA will ensure appropriate support to the European Commission on order to develop an appropriate strategic regulatory work to enable the development of*

this aviation sector..." means EASA will help the European Commission (an in turn Member States) to fully understand that (EC) No 1254/2009 provides derogation to (EC) 300/2008 for a number of criteria, not least MTOW for which VTOL-capable aircraft will certainly fall under. Therefore not creating an inequitable or unbalanced approach to security specifically for VTOL-capable aircraft, when compared to other aircraft whilst maintaining high standards in security and supporting the sustainability of this aviation sector.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3. How we want to achieve it - overview of the proposed amendments p. 23

comment *272* comment by: *EUMETNET ASP*

Regarding sub-bullets under 'for manned VTOL-capable aircraft'; i.e.:

— air operations (AIR OPS);
See separate comments in this response, not repeating here.

— flight crew licensing (FCL);
For flight crew licensing, what additional training is anticipated to ensure that pilots have full understanding of the hyperlocal weather - particularly but not llimtied to wind flows around buildings? Is it being assumed that the existing meteorological training will be sufficient?

Consider identifying and implementing appropriately enhanced meteorological training for flight crew to understand the challenges of urban meteorology.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1179* comment by: *European Cockpit Association*

2.2 What we want to achieve - objectives
Page 23
"promote innovation and development in the field of IAM while creating an efficient, proportionate, and well-designed regulatory framework, free of burdensome provisions that could hinder the market's development"

Proposed change:
"promote innovation and development in the field of IAM while creating an efficient, proportionate, and welldesigned regulatory framework, where provisions do not unnecessarily hinder the market's development"

Rationale:
Unfortunately sometimes burdensome provisions are necessary for safety. Whilst every effort should be made to avoid complexities, the prime driver, as stated on p1, is safety.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.1 Background p. 24

comment *68* comment by: *Thurling Aero Consulting*

My comment concerns the 3rd paragraph in section 2.3.1.1 and the text "...to include provisions for the certification of UA and for the command unit (CU) that remotely controls the UA...".
For most Remotely Piloted Aircraft, there is little argument that terms such as "Command Unit" are appropriate. However, as we begin to see advanced Uncrewed Aircraft (UA) and airspace management autonomy allowing more than one vehicle to be managed by a single remote pilot, terms such as these become outdated. Terms such as "Ground Station" are preferable to "Command Unit" as is "manage" over "control" since the latter terms imply an active pilot-in-the-loop concept of operations. This may be true now, but we are rapidly approaching (and have already seen in small UAS) the time when the 1:1 relationship of pilot to vehicle is surpassed. Let's future proof the Rule!

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.2 Scope p. 24

comment *69* comment by: *Thurling Aero Consulting*

My comment concerns the 2rd paragraph in section 2.3.1.2 and the text "...One of these elements, the command unit, can optionally be issued a dedicated type certificate ...".
For most Remotely Piloted Aircraft, there is little argument that terms such as "Command Unit" are appropriate. However, as we begin to see advanced Uncrewed Aircraft (UA) and airspace management autonomy allowing more than one vehicle to be managed by a single

remote pilot, terms such as these become outdated. Terms such as "Ground Station" are preferable to "Command Unit" as is "manage" over "control" since the latter terms imply an active pilot-in-the-loop concept of operations. This may be true now, but we are rapidly approaching (and have already seen in small UAS) the time when the 1:1 relationship of pilot to vehicle is surpassed. Let's future proof the Rule!

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *835* comment by: *FAA*

Overall, this NPA differs from the FAA/AVS policy on approval of UAS Special Class UA and their Associated Elements where by the components are the aircraft itself to be part of the type cert and everything else being part of the operational approval in our view, to include what would be third party services that are part of the operational approval. The EASA proposal adds the Command Unit (CU) as a separate element on certification and clarifies it is different than term 'ground-, air- or space-based equipment', which refers to systems and components which are not included in the UA and the CU configuration subject to certification, but may still be necessary, depending on the operation, to support command and control functions.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *867* comment by: *FOCA (Switzerland)*

Reference note 20: The NPA refers several times to low, medium or high risk of UAS operations, but does not clarify to what exactly it refers to. Several parts lead to the understanding that the SAIL level is the one determining the category, however, FOCA would like to suggest that this should be included an introductory text to clarify the understanding. The reference to integrity and assurance levels in reference note 20 is particularly confusing, since these do not have levels III or IV, and can apply to several requirements. If SAIL levels are meant, then the rationale for the exact reference to SAIL III and IV is not completely clear. This qualifiers are used several time along the NPA document, for example also on page 29 (2.3.2.2) or on page 34 (2.3.3.1).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1281* comment by: *XSUN*

"The proposal suggests that the certification procedures of Part 21 apply to the UA as well as the elements included in the type design. One of these elements, the command unit, can

optionally be issued a dedicated type certificate and, in this case, its certification is carried out through dedicated procedures included in this proposal."
Leaving the choice is a good thing. However, obtaining a type certificate for a command unit seems inappropriate. The command unit should be considered as an equipment having an ETSO or being certified with the UAS.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1. Initial airworthiness (IAW) p. 24

comment *1009* comment by: *General Aviation Manufacturers Association (GAMA)*

The introduction of the concept of 'command unit' in Part 21 (Reg. (EU) No 748/2012) and its related provisions now effectively place an UAS command unit under aircraft certification requirements, significantly diverging from the policies of other civil aviation authorities such as the U.S. FAA. It is important that this difference of approach is brought to the attention of EASA to ensure that this topic can be addressed in future bilateral discussions between EASA and other third country partners. The objective of the aviation system as a whole should always remain harmonising policies, regulations and standards, and when convergence is possible, dialogue between authorities should be encouraged and promoted.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.3 Overview of the main proposed amendments to Commission Regulation (EU) No 748/2012 p. 25

comment *83* comment by: *Supernal*

Unclear as to the defininition of unmanned aircraft and unmanned aircraft carrying passengers. You can't be unmanned and carry passengers!

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *84* comment by: *Supernal*

Unclear on the type certificate requirements for the CU. Also, definiton seems to broad. Essentially this is a remote pilot station either affixed to the ground or possible portable.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *291* comment by: *FlightSafety International*

incomplete sentence (something is missing):
When the approval of the flight conditions is not related to the safety of the design, [] to the competent authority in a form and manner established by that authority.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *352* comment by: *Thurling Aero Consulting*

My concern in this section is regarding the statement that was made at the end of section 2.3.1.3 and just before the beginning of section 2.3.1.4, "At this stage, no additional amendments to the Regulation on the certification processes of UAS operated in the 'certified' category are planned to be put forward in subsequent NPAs issued under RMT.0230." What does that mean, that they will never amend the rules to allow for "Certified" category, that they don't think it's necessary to do so, or that there will be another Rule Making Task that does? This is very unclear. Please provide additional guidance.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *465* comment by: *Airbus-Regulations-SRg*

Page 25/295, paragraph 2.3.1.3
"When the approval of the flight conditions is not related to the safety of the design, to the competent authority in
a form and manner established by that authority."

COMMENT:
Will Approved Production Organisations be able to approve the flight conditions when they issue the permit to fly for
an unmanned aircraft system?

RATIONALE:
Point 21.A.163(e) reads:
"Pursuant to the terms of approval issued under point 21.A.135, the holder of a production organisation approval may: [...]
(e) under procedures agreed with its competent authority for production, for an aircraft it has produced and when the

production organisation itself is controlling under its POA the configuration of the aircraft and is attesting conformity with the
design conditions approved for the flight, to issue a permit to fly in accordance with point 21.A.711(c) including
approval of the flight conditions in accordance with point 21.A.710(b).”
Current version of point 21.A.163(e) seems to be in contradiction with the NPA summary.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *608* comment by: *ASD*

Comment:

The Standard repairs aspects shall refer to point 21.A.431B.

Suggested resolution:

Reword the corresponding bullet chapter to integrate a reference to 21.A.431B

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *877* comment by: *FOCA (Switzerland)*

Last section: From FOCA's point of view, the first sentence could be confusing. In our view, "UAS in the specific category is always subject to operational authorisation and not a permit to fly. When the risk associated to an operation is considered to be high, they can be subject to certification.” In addition, FOCA recommends that the section be titled "UAS high risk operated in specific category" to avoid misunderstandings that it refers to possible high risk categories within the specific categories, like SAIL V or VI.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *1008* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the following sentence:

"When the approval of the flight conditions is not related to the safety of the design, to the competent authority in a form and manner established by that authority."

It seems the sentence is not complete.

PROPOSED ACTION/RESOLUTION

Correct/complete the sentence.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1011* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The Standard repairs aspects in this chapter's hyphen No 3 should refer to point 21.A.431B.

PROPOSED ACTION/RESOLUTION

Reword the corresponding bullet chapter to integrate a reference to 21.A.431B.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.4.1 Design of CU and CU components p. 26

comment *10* comment by: *ACI EUROPE*

page 27:

2nd paragraph: EASA has identified the opportunity to make CU type certification available to the aviation community …

ACI fully supports the availability of TC for CUs. This will ensure both reliability and safety of the CU.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *117* comment by: *IFATCA*

The two levels of the CU are defined, but there is nothing stated about the C2 Link providers: certifications, how to use the services, service level agreements, … Are these aspects of any

importance for this NPA or a future and dedicated regulations/NPA will be produced to address what ICAO calls C2CSP?

add references on certification of C2CSPs

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *153* comment by: *GdF*

The two levels of the CU are defined, but there is nothing stated about the C2 Link providers: certifications, how to use the services, service level agreements, … Are these aspects of any importance for this NPA or a future and dedicated regulations/NPA will be produced to address what ICAO calls C2CSP?
GdF suggests including references on certification of C2CSPs.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *268* comment by: *Hagop Kazarian*

In relation to the following statement: *"The CU must be designed by an approved design organisation with the appropriate terms of approval".*

Comment: There are cases where a CU was designed by an organisation not holding an EASA DOA (as per 21.A.14 (b) and (c), or any equivalent delegation that is recognized under a bilateral agreement (e.g. TCCA ADO or DAO, or FAA ODA), and used within the type design of a Part 25 or Part 23 transport category aircraft (or VLA or ELA1 or EL2 aircraft for that matter), which are later converted into a UA. In this case, is there a need to hold a DOA to design the associated CU?

Proposal: Clarify to *"Where the CU will be issued with a TC, the CU must be designed by an approved design organisation with the appropriate terms of approval (including any similar organisations recognized under a bilateral agreement), or be based on a CU design which was deemed approved under an existing aircraft TC."*

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *286* comment by: *ASD*

Comment:
EASA text "clarifying that any ground-, air- or space-based equipment that supports the command and control of the aircraft is not considered part of the CU."

The objective of this clarification was to exclude C2 link from the boundary of the CU. The text is misleading as it is missing "data link service" after command and control and is referred to aircraft

Suggested resolution:

Proposed text "clarifying that it is not considered part of the CU any ground-, air- or space-based equipment or items of equipment being part of any service infrastructure external to the UAS and supporting:
- the command and control (C2) link,
- the navigation (i.e. GNSS),
- any other external service (i.e. internet connection to the CU).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *287* comment by: *ASD*

Comment:
EASA text "Outer-layer elements are typically assets, equipment and resources required to support the CU operation and provide protection against hacking, lighting, power failures, and electromagnetic interference (EMI)."
Depending on CU design the fact that elements providing protection against power failures and EMI are not essential for the operation is questionable. It is suggested to add "may include" as per previous sentence related to environmental conditions

Suggested resolution:
Proposed text "Outer-layer elements are typically assets, equipment and resources required to support the CU operation and this may include elements providing protection against hacking, lighting, power failures, and electromagnetic interference (EMI)."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *355* comment by: *Thurling Aero Consulting*

My concern in this section regards the statements at the end, specifically, "The CU must be designed by an approved design organisation with the appropriate terms of approval. Design changes to the CU, affecting the specifications approved as part of the UA TC type design, are treated as changes to the UA TC or, where the CU has been issued with a TC, changes to the CU TC and must be approved according to Subpart D of Part 21." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the configuration. Requirements for using only approved design organizations will limit the use of the "best of breed" components available in the industry. Also, changes to COTs equipment will be

difficult to track, and even if successful, will drive quite a large burden onto EASA to approve these changes.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *533* comment by: *FAA*

Is it intended that the type certificate for the command unit list which UA it is associated with or can it be utilized for multiple UA's?

Currently EASA Part 21 states that the eligibility requirement for a TC is limited to products, engines and propellers. Will EASA Part 21 Subpart B be revised enabling command units to be eligible to obtain a TC?

It is stated that the type design will distinguish between essential (core layer) and non-essential (outer layer) components. It is further states that core layer components will be "specified to the level of detail required to ensure compliance with the relevant airworthiness requirements, uniquely identified at part number (PN) level and covered by instructions for continued airworthiness (ICAs)."
How will outer layer components (assets, equipment and resources required to support the CU operations be identified on type design?

"Outer-layer elements are typically assets, equipment and resources required to support the CU operation and provide protection against hacking, **lighting**, power failures, and electromagnetic interference (EMI)." Change "lighting" to "lightning"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *570* comment by: *AIRBUS*

2.3.1.4.1 Design of CU and CU components Page 27

<u>Comments</u>

The explanatory text of the NPA indicates "Any CU component would belong to a 'core' or to an 'outer' layer. The core layer is constituted by all the 'essential and specific' components, as defined by the TC holder. The outer layer includes any other component."
From this definition, a CU component that is essential to the intended UA operation but not specific is part of the outer layer and consequently do not need unique PN identification and ICA.
"specific" means according to the dictionaries: clearly defined or identified; specified, precise, or particular; having a special application, bearing, or reference.

The NPA does not provide more details in the text of Part-21 to further define the categorisation criteria for the core layer of the CU.

Suggestions

The definitions of "essential" and "specific" shall be provided with more details in order to allow proper application of the rule.
In addition the definition of the components belonging to the core layer should be assigned to TC holder of the UA (as anticipated in EASA RMT.0230 concept paper), for example as a list of CU components/functions to be included within the type design 21.A.31, in order to the CU TC holder (if different) to allocate proper classification of the components composing the CU.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *571* comment by: *AIRBUS*

2.3.1.4.1 Design of CU and CU components Page 27

Comments

It is mentioned "The core layer is constituted by all the 'essential and specific' components, as defined by the TC holder". It is not clear whether the TC holder is the TC holder of CU or the TC holder of Unmanned Aircraft in the certified category.
The need to have CU component in the core layer cannot be agreed without the contribution of the intended UA TC holder as per the definition of the core layer components "both essential and specific to the intended UA operation"

Suggestions

The definition of the components belonging to the core layer should be assigned to TC holder of the UA (as anticipated in EASA RMT.0230 concept paper), for example as a list of CU components/functions to be included within the type design 21.A.31, in order to the CU TC holder (if different) to allocate proper classification of the components composing the CU.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *587* comment by: *AIRBUS*

2.3.1.4.1 Design of CU and CU components Page 27

Comments

It is mentioned "The CU must be designed by an approved design organisation with the appropriate terms of approval". It seems that there is one specific case that needs clarification: how to manage an ELA1 or ELA2 aircraft that would have been designed by an organisation not holding a DOA (as per 21.A.14 (b) and (c)), and that would be converted into a UA? In this case, is there a need to hold a DOA to design the associated CU?

Suggestions

Clarify how to cope with CU of ELA1 / ELA2 converted into UA. Refer to the comment on 21.B.70 regarding consistency of certification basis.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *603* comment by: *ASD*

Comment:

The explanatory text of the NPA indicates "Any CU component would belong to a 'core' or to an 'outer' layer. The core layer is constituted by all the 'essential and specific' components, as defined by the TC holder. The outer layer includes any other component." From this definition, a CU component that is essential to the intended UA operation but not specific is part of the outer layer and consequently do not need unique PN identification and ICA.
"specific" means according to the dictionaries: clearly defined or identified;specified, precise, or particular; having a special application, bearing, or reference.
The NPA does not provide more details in the text of Part-21 to further define the categorisation criteria for the core layer of the CU.

Suggested resolution:

The definitions of "essential" and "specific" used in 21.A.308 should be provided with more details (at least in AMC/GM) in order to allow proper application of the rule. In addition the definition of the components belonging to the core layer should be assigned to TC holder of the UA (as anticipated in EASA RMT.0230 concept paper), for example as a list of CU components/functions to be included within the type design 21.A.31.
In the particular case of optional CU TC, how to share/allocate this assignement of core layer components between UAS DAH and CU DAH?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *605* comment by: *ASD*

Comment:

It is mentioned "The core layer is constituted by all the 'essential and specific' components, as defined by the TC holder". It is not clear whether the TC holder is the TC holder of CU or the TC holder of Unmanned Aircraft in the certified category. The need to have CU component in the core layer cannot be agreed without the contribution of the intended UA TC holder as per the definition of the core layer components "both essential and specific to the intended UA operation"

Suggested resolution:

To clarify whether the TC holder is the TC holder of CU or the TC holder of Unmanned Aircraft in the certified category.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *796* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 27)
"EASA has identified the opportunity to make CU type certification available to the aviation community as a well-known and tested instrument for the appropriate management of the approval process of most complex CUs throughout their life cycle."

Comment
We fully support the availability of Type Certificates (TC) for Command Units (CUs). This will ensure both reliability and safety of the CU.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *812* comment by: *UAV DACH e.V.*

The NPA uses different terminology for CU 'core layer' and 'non-core layer' components. In the 2. In summary — why and what section, the term used is 'non-core layer', however, this is not reflected in section 21.A.308 where the only used term is 'component which is not deemed essential nor specific'. Also, 21.A.308 uses 'essential and specific components', while 2. In summary — why and what section speaks extensively about 'core layer'.

Proposal: Revise terminology and use either core layer or essential and specific components consistently.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *948* comment by: *FAA*

The 2nd bullet point on page 27 states:
— It is proposed to distinguish between CU components, which are essential for the operation and specifically designed for their use ('essential and specific', as per new requirement in point 21.A.308, addressed below in Section 2.3.1.4.3) and CU components which are not essential and/or not specific.

Suggest providing examples of essential and specific. For example, would launch and recovery equipment fall under essential and specific?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *962* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text "clarifying that any ground-, air- or space-based equipment that supports the command and control of the aircraft is not considered part of the CU."

The objective of this clarification seems to be to exclude C2 link from the boundary of the CU. In this case the text is misleading as it is missing "data link service" after command and control and is referred to aircraft (generally) and not specifically to UAS. The following text is proposed:

Proposed text: "clarifying that any ground-, air- or space-based equipment that supports the command and control data link service is not considered part of the CU."

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *963* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text "Outer-layer elements are typically assets, equipment and resources required to support the CU operation and provide protection against hacking, lighting, power failures, and electromagnetic interference (EMI)."

Proposed text:
"Outer-layer elements are typically assets, equipment and resources required to support the CU operation **and this may include elements providing** protection against hacking, lighting, power failures, and electromagnetic interference (EMI)."

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1013* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

It seems that there is one specific case that needs clarification: how to manage an ELA1 or ELA2 aircraft that would have been designed by an organisation not holding a DOA (as per 21.A.14 (b) and (c)), and that would be converted into a UA? In this case, is there a need to hold a DOA to design the associated CU?

PROPOSED ACTION/RESOLUTION

Clarify how to cope with CU of ELA1 / ELA2 converted into UA.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1015* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The NPA does not provide more details in the text of Part-21 to further define the categorisation criteria for the core layer of the CU.

PROPOSED ACTION/RESOLUTION

The definitions of "essential" and "specific" shall be provided with more details in order to allow proper application of the rule. In addition the definition of the components belonging to the core layer should be assigned to TC holder of the UA (as anticipated in EASA RMT.0230 concept paper), for example as a list of CU components/functions to be included within the type design 21.A.31, in order to the CU TC holder (if different) to allocate proper classification of the components composing the CU.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1016* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

It is not clear whether the TC holder is the TC holder of CU or the TC holder of Unmanned Aircraft in the certified category. The need to have CU component in the core layer cannot be

agreed without the contribution of the intended UA TC holder as per the definition of the core layer components "both essential and specific to the intended UA operation".

PROPOSED ACTION/RESOLUTION

The definition of the components belonging to the core layer should be assigned to TC holder of the UA (as anticipated in EASA RMT.0230 concept paper), for example as a list of CU components/functions to be included within the type design 21.A.31, in order to the CU TC holder (if different) to allocate proper classification of the components composing the CU.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1105* comment by: *EUROCONTROL*

The word "substantiation": It is more used to prove the truth in an accusation. It is too formal and it is used only twice in the whole document. Replace with "evidence"

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1327* comment by: *Gregory Walden*

Please clarify what parts of the control unit are not to be included in a separate control unit certification. The statement that "any ground-, air-, or space-based equipment that supports the command and control of the aircraft is not considered part of the CU" is ambiguous. So, equipment that supports that command of the drone is not part of the command unit. Is that command supporting equipment part of the drone or not part of the drone of the command unit? What are the essential elements of a command unit if it does not include equipment that supports the command of the aircraft?
The draft provides examples of satellite and GNSS support for command and control. Does EASA intend that this "supporting" equipment or technology is not subject to "command unit" certification? Is this supporting equipment subject to any review of safety and reliability?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.4 Command unit (CU) and CU components p. 26

comment *987* comment by: *Austro Control*

Comment:

What was considered on the derivation of these definition regarding criticality, 2510 (1309) and ICAO Annex 19?

Proposed Change:
Please add a clear definition description for "essential" and "specific" components and specify how "essential" and "specific" components of the CU are derived.

Classification:
Major-Conceptual

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *988* comment by: *Austro Control*

Comment:
Propose to provide functional breakdown of the CU, especially the core layer, and a link to CU components, to understand what can be classified as "essential" and/or "specific".

Proposed Change:
Propose to provide further explanation.

Classification:
Major-Conceptual

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *990* comment by: *Austro Control*

Comment:
What was the reason to use the wording Command Unit (CU) instead of Remote Pilot Station (RPS) as used in ICAO Annex 8?

Proposed Change:
Change wording acc. to ICAO Annex 8 "RPS"

Classification:
Major-Conceptual

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.4.2 Production of CU and CU components p. 28

comment *354* comment by: *Thurling Aero Consulting*

My concern in this section regards the statements "the CU core layer is manufactured by an approved production organisation in accordance with approved design data." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the configuration. Requirements for using only approved production organizations will limit the use of the "best of breed" components available in the industry. Also, changes to COTs equipment will be difficult to track, and even if successful, will drive quite a large burden onto EASA to approve these changes.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *458* comment by: *Volocopter GmbH*

The NPA uses different terminology for CU 'core layer' and 'non-core layer' components. In the 2. In summary — why and what section, the term used is 'non-core layer', however, this is not reflected in section 21.A.308 where the only used term is 'component which is not deemed essential nor specific'. Also, 21.A.308 uses 'essential and specific components', while 2. In summary — why and what section speaks extensively about 'core layer'.

Please revise terminology and use either core layer or essential and specific components consistently.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *797* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 28)
"The CU or CU core-layer components are delivered to the UA operator with a conformity statement (EASA Form 1) and need to be installed in accordance with the applicable installation instructions."

Comment
Please revise terminology and use either core layer or essential and specific components consistently.

Rationale:
The NPA uses different terminology for CU 'core layer' and 'non-core layer' components. In the 2. In summary — why and what section, the term used is 'non-core layer', however, this is not reflected in section 21.A.308 where the only used term is 'component which is not

deemed essential nor specific'. Also, 21.A.308 uses 'essential and specific components', while 2. In summary — why and what section speaks extensively about 'core layer'.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1017* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The NPA uses different terminology for CU *'core layer'* and *'non-core layer'* components. In the 2. In summary — why and what section, the term used is 'non-core layer', however, this is not reflected in section 21.A.308 where the only used term is *'component which is not deemed essential nor specific'*. Also, 21.A.308 uses *'essential and specific components'*, while 2. In summary — why and what section speaks extensively about 'core layer'.

PROPOSED ACTION/RESOLUTION

Please revise terminology and use either *'core layer'* or *'essential and specific components'* consistently.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1307* comment by: *JEDA*

The NPA uses different terminology for CU 'core layer' and 'non-core layer' components. In the 2. In summary — why and what section, the term used is 'non-core layer', however, this is not reflected in section 21.A.308 where the only used term is 'component which is not deemed essential nor specific'. Also, 21.A.308 uses 'essential and specific components', while 2. In summary — why and what section speaks extensively about 'core layer'. Please revise terminology and use either core layer or essential and specific components consistently.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.2.1 General approach p. 28

comment: *477* comment by: *JEDA*

The intent for a single Delagated Act covering all aspects of CAW for UAS is fully supported

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.2. Continuing airworthiness (CAW) p. 28

comment | *578* comment by: *Murzilli Consulting*

Attachment #1

Text in Regulation	Comment	Proposal Text (if applicable)
When passing an aircraft from the certified to the specific category, and then back to the certified category, the aircraft must be checked for airworthiness but it is unclear how and if it is checked to still be certified.		

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1253* comment by: *Direction de l'Aviation Civile*

- Many articles refer to Commission Regulation (EU) 2015/640. DAC Luxembourg believes this should be removed as a matter of consistency. Indeed, this regulation imposes "recent" airworthiness requirements to aircraft certified following "too old" certification basis. This regulation is not relevant anymore considering the new technologies and certifications' scopes involved;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.1.4.4 CU identification p. 28

comment | *1216* comment by: *European Cockpit Association*

2.3.1.4.4 CU identification

Comment:
We understand that EASA wants that the CU will be a separate and independent unit and could be used for different (next gen) aircrafts with his own certificate. This will be new concept. So, in traditional words, the cockpit is not part of the flying part. We foresee some issues with responsibility and ownership when there is an incident/accident. Companies of the CU and the flying part are blaming each other, while they have both their certification.
Other concerning aspect is the matter that the C2 communications link between CU and aircraft is not considered to be an aviation component, and therefore EASA will not have the authority to ensure and audit for integrity to aviation safety standards. This is a major concern for professional pilots community.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.2.2 Draft delegated act (DA) on the continuing airworthiness of UAS p. 29

comment *85* comment by: *Supernal*

Continuing airworthiness requirements should not differ between specific and certified category.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *154* comment by: *GdF*

Both a Mandatory Occurrence Reporting and an Airprox Reporting Scheme are absolutely mandatory.
The MOR scheme is a means of recording data about all incidents which endanger or which, if not corrected, would endanger an aircraft, its occupants or any other person. The purpose of occurrence reporting is to improve aviation safety by ensuring that relevant safety information relating to civil aviation is reported, collected, stored, protected, exchanged, disseminated and analysed. An Airprox is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. Such incidents should be reported to the relevant authority, which collects and analyses this data to support aviation safety.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *356* comment by: *Thurling Aero Consulting*

Figure 2 seems to contradict the statement that was made at the end of section 2.3.1.3 and just before the beginning of section 2.3.1.4, "At this stage, no additional amendments to the Regulation on the certification processes of UAS operated in the 'certified' category are planned to be put forward in subsequent NPAs issued under RMT.0230." Will there be an NPA #2?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *466* comment by: *Airbus-Regulations-SRg*

Page 30/295, paragraph 2.3.2.2, Scope of the DA
"It is important to note that Part-ML.UAS and Part-CAO.UAS will not be applicable to all UAS subject to
certification and operated in the 'specific' category."

COMMENT:
Article 1 of Regulation (EU) 2018/1139 provides that this "Regulation further aims at [...] providing a level
playing field for all actors in the internal aviation market [...]."
It is unclear with respect to the applicability of continuing airworthiness requirements, how the Agency intends
to ensure a level playing field when Regulation (EU) 1321/2014 does not offer to operators of manned
aircraft the same possibility (i.e. to submit a risk assessment including mitigating measures) as provided for UAS
in point 2. of Article 5 of Regulation (EU) 2019/947?

RATIONALE:
The airworthiness of the following manned aircraft has to be managed in accordance with Part-ML regardless of
any risk assessment:
(1) aeroplanes of 2 730 kg maximum take-off mass (MTOM) or less;
(2) rotorcraft of 1 200 kg MTOM or less, certified for a maximum of up to 4 occupants;
(3) other ELA2 aircraft.

Point 2. in Article 5 of Regulation (EU) 2019/947 requires a risk assessment in accordance with Article 11
of the same Regulation. This latter Article refers to a multi-parameter assessment to identify the risks of the operation
on the ground and in the air considering, among others, the complexity, performance and operational characteristics
of the unmanned aircraft involved.

But there is no explicit mass criteria set like in Part-ML.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *467* comment by: *Volocopter GmbH*

It should be possible to adhere to Part-ML.UAS and Part-CAO.UAS if the UAS is intended to be operated in both medium and high risk of specific category. Changing the applicable framework every time when an operation is performed in higher/ lower risk should not create any burdens to the operator if it chooses to comply with higher requirements.

Please add such possibility to the text of the NPA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *478* comment by: *JEDA*

The proposed approach (no licence to certifying staff) is proportonate for the specific category and fully in line with risk-based approach. It is also similar to the regimes applied to cebin crews and ATSEPs (ref. Annex XIII to EC Regulation 373/2017). However , to promote harmonisation and reduce burden on organisation, in the performance-based approach, industry standards would be highly desirabvle to complement the rule.

No alternative text is proposed, since the Explanatory Note will never bacome regulatory material. But it is recommended that EASA promotes the inclusion of maintenance staff in ISO 23665 https://www.iso.org/standard/76592.html?browse=tc

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *798* comment by: *German Unmanned Aviation Association (VUL)*

<u>Relevant NPA content / context (Page 30)</u>
"If the UAS subject to certification is operated in medium risk, the UAS operator complies with Commission Implementing Regulation (EU) 2019/947."

<u>Comment</u>
It should be possible to adhere to Part-ML.UAS and Part-CAO.UAS if the UAS is intended to be operated in both medium and high risk of specific category. Changing the applicable

framework every time when an operation is performed in higher/ lower risk should not create any burdens to the operator if it chooses to comply with higher requirements.

Please add such possibility to the text of the NPA.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *813* comment by: *UAV DACH e.V.*

It should be possible to adhere to Part-ML.UAS and Part-CAO.UAS if the UAS is intended to be operated in both medium and high risk of specific category. Changing the applicable framework every time when an operation is performed in higher/ lower risk should not create any burdens to the operator if it chooses to comply with higher requirements.

Proposal: Add such possibility to the text of the NPA.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *837* comment by: *FAA*

Maintenance of the CU components (point ML.UAS.520), Subpart E: Are outer layer components to be included in the ICAs?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *838* comment by: *FAA*

Airworthiness review (AR) of the UA (points ML.UAS.901 and ML.UAS.903), Subpart I: In respect of the CU used to operate the UA, it is stated that the Airworthiness Review of the UA is conducted by a Part-CAO.UAS. Is the documented review and physical inspection of the CU also conducted by the Part-CAO.UAS?

Specificities of Annex 2: Is the occurrence-reporting also applicable to CUs, and does it include non-core layer components? Should a failure occur in a non-core layer component, is it reported to the DAH?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1019* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

It should be possible to adhere to Part-ML.UAS and Part-CAO.UAS if the UAS is intended to be operated in both medium and high risk of specific category. Changing the applicable framework every time when an operation is performed in higher/ lower risk should not create any burdens to the operator if it chooses to comply with higher requirements.

PROPOSED ACTION/RESOLUTION

Please add such possibility to the text of the NPA.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1231* comment by: *European Cockpit Association*

No maintenance licensing is proposed for UAS in the 'specific' category.

Comment:
To be clarified by EASA: Given the nature of the operation isn't just related to the UAS itself, a platform could be independently certified for a specific use, then be flown in a Certified operation. This is a safety risk.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1233* comment by: *European Cockpit Association*

No provisions for 'pilot-owner maintenance' have been developed, considering that the pilot will not be aboard the aircraft and that the remotepilot qualification will be less extensive than in manned aviation.

Comment:
Our impression is that with the introduction of innovative aerial services all the thresholds, including the qualifications of pilots and maintenance people and certification are lowered for "high risk" specific operations, which in the traditional aviation these operations belong to the certified category with its high international standards of safety. This might be a dangerous evolution. Also considering the fact
that this aerial services are not only in urban environment.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1234* comment by: *European Cockpit Association* No safety management system (SMS) Comment: Given the statement about lack of cybersecurity knowledge, it almost seems strange that compliance should not be mandated. SMS compliance should be mandated.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1236* comment by: *European Cockpit Association* Information security management system (refer to EASA Opinion No 03/2021 Management of information security risks) Comment: As per the comms elsewhere, SMS should be included for these operations.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1260* comment by: *Direction de l'Aviation Civile* - If it can be understood that no formal maintenance *licensing* is proposed for UAS in the 'Specific category', DAC Luxembourg nevertheless strongly recommends to harmonize the mechanic's qualifications at a certain minimum. Indeed, standardized qualifications of mechanics are critical to enable transparent and fast recognition of the CAO.UAS all over Europe, similarly to manned aviation CAO. A total shift from the CAO manned concept (Where Part-66 plays a significant role) to UAS (Without any basic mechanic qualifications) could lead to a much weaker concept, eventually leading to a lack of recognition throughout Europe. A proportionate system - lighter than the Part-66 and not necessarily involving independent CS - could be shaped. This is also a lesson learned from the current SPECIFIC category with the remote pilot's qualifications: the lack of a clear minimum competence is already a key hurdle to the development of professional training companies and to the wide recognition of remote pilot qualifications.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1308* comment by: *JEDA* It should be possible to adhere to Part-ML.UAS and Part-CAO.UAS if the UAS is intended to be operated in both medium and high risk of specific category. Changing the applicable

	framework every time when an operation is performed in higher/ lower risk should not create any burdens to the operator if it chooses to comply with higher requirements.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.3.1 Commission Delegated Regulation (EU) 2019/945 p. 33

comment	*155* comment by: *GdF* Standards and certification C2/Command & Control are still a critical area of development. Command&Control addresses using radio-frequency spectrum to ensure safe flight. Also here, there is a need for an overall safety and risk assessment for all hazards so far identified with regard to UAS operations. Partial safety cases or risk assessment will not prove that an overall safety case is still achieving positive values. Standards and Certification for C2 / Command & Control need to be established first – before starting/allowing UAS operations in control airspace. A new safety management system might be needed for that, in particular in terms of future increased automation; the question of how Detect&Avoid and the ATC traffic separation obligation will co-exist next to each other will have to be solved; clear definitions of mutual responsibilities are paramount.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*949* comment by: *FAA* There were questions throughout concerning the differences or requirements for *certification* versus the *operations in the specific category*. For example, would operation in the specific category require a type certificate for the aircraft and the command unit? Recommend clarifying the difference between operating in the specific category and the requirement for certification of one, the UA and two, the command unit.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1329* comment by: *Gregory Walden* *'Therefore, it is not considered appropriate to require in all cases a type certificate for lighter-than-air UAS larger than 3 m, operating over assemblies of people.'*

The Alliance supports the statement that mitigation measures in a risk assessment may be considered to determine that a drone over 3 m operating over assemblies of people may be classified in the "specific" category.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1330* comment by: *Gregory Walden*

'This means that if an UAS is certified but its certification is not required for the intended type of operation (i.e. certified UAS used in low- or medium-risk operation in the "specific" category), then the UAS is not subject to the UAS CAW Regulation.'

With regarding to continuing airworthiness, the Alliance also supports this statement. The Alliance agrees that operations carryinhg passengers shoiuld remain in the certified category.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1331* comment by: *Gregory Walden*

The Alliance also notes that carriage of dangerous goods is in the certified category if the dangerous goods item is not properly protected in an appropriate container. The Alliance supports that statement and requests EASA add that carriage of "limited quantities" and "consumer commodities" may be operated in the specific category if in compliance with the dangerous goods regulations, because these dangerous goods have a much lower risk profile.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.3.2 Commission Implementing Regulation (EU) 2019/947 p. 34

comment *1328* comment by: *Gregory Walden*

'...to impose to the UAS operator the obtention of a (restricted) CofA'

"Obtention" is ambiguous

Alternative proposed text:
to require a UAS operator to obtain a (restricted) CofA

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.4.2 General considerations p. 35

comment *18* comment by: *ACI EUROPE*

Clarification regarding propulsion systems: Please clarify if it would be possible to register a VTOL with conventional (i.e. non-electric) combustion. It is important to ensure that there are no conflicts in the GM, AMC, IRs regulatory material regarding propulsion systems.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *156* comment by: *GdF*

Transparent data collection, standardisation, interoperability and data analysis as well as the collection of accurate, up-to-date and comparable data (and accessibility) are prerequisites for informed and qualified risk assessments and for risk management decisions. Operational, technical, communications and business-wise interoperability is a prerequisite for the good functioning and the integration of the aviation market. The still existing lack of harmonisation in these areas poses barriers to seamless (also cross-border) information flows

GdF suggests developing principles of standardised interfaces as a key point of the concept, supporting interoperability with other systems. It will enable ATS Units to change ADSP in case they are not satisfied with their services. Therefore, standardization and interoperability are key to the suggested common information service provider.

GdF suggests to establishing Framework Guidelines and Network Codes on Interoperability and Data Exchange Rules to facilitate seamless (also cross-border) data exchange and effective, transparent data integration through the application of a number of harmonised principles and common rules on issues such as the establishment and/or amendment of interconnection agreements (including default rules on e.g. flow control, measurement principles, matching processes & allocation of data quantities, exceptional events and amendment procedures for the interconnection agreements), a common set of units to be applied, the managing of both data quality and integrity as well as differences & the monitoring of data quality, common data exchange solutions and dispute resolution.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *251* comment by: *Civil Aviation Authority the Netherlands*

Para 2.3.4.2, Page 36:

Is it the intention to create a section for air/road multi-modal aircraft, like the PAL-V gyroplane under this Annex IX?

Gyroplane flying is not innovative as such, it can be questioned if this is eligible for the operational centered concept of VTOL.

Gyroplane flying fits the traditionally regulations based on private/commercial operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *346* comment by: *ASD*

comment:
Acronyms UVCA and DVCA used for
— Section 3: VTOL-CAPABLE AIRCRAFT IN UNMANNED CONFIGURATION THAT CARRY PASSENGERS (UVCA), and
— Section 4: VTOL-CAPABLE AIRCRAFT IN UNMANNED CONFIGURATION THAT CARRY CARGO (DVCA).
Are not clear. What the D stands for?

suggPlease clarify or consider updating Cargo UAS acronymested resolution:

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *437* comment by: *Europe Air Sports*

2.3.4.2 General Considerations

Text in NPA:
"The transportation of persons and/or cargo by VTOL-capable aircraft in congested (urban) or outside congested areas requires a level of safety that is at least as high as that applicable to operations with conventional aeroplanes or helicopters. In some respects, the precautionary principle should be exercised until more data on operations with innovative aircraft is gathered."

EAS Comment:
While we concur with the text when it comes to commercial operations in urban areas, we ask EASA to relax the requirements for non-commercial operations with VTOL-capable aircraft in non-urban areas. See the Risk Hierarchy related discussion in Comment #439. and our other comments.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *438* comment by: *Europe Air Sports*

Text in NPA:

"Operators that intend to conduct countryside-to-countryside operations with VTOL-capable aircraft without flying over or taking off from / landing at urban areas would be subject to Module-NAM (non-urban, non-congested air mobility). That module will be mostly relevant for non-commercial, low-risk operations with VTOL-capable aircraft."

EAS Comment:
The NAM module is the one best applicable to General , Sports and Recreational aviation using VTOL-capable aircraft.

However, in the actual draft provisions, Module-NAM is de facto almost identical to Module-UAM, so in effect non-commercial flight would be as tightly regulated as commercial flight. This is not acceptable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *439* comment by: *Europe Air Sports*

Text in NPA, page 37:

"Whilst it is expected that most of the initial operations with VTOL-capable aircraft will be commercial by nature, and non-commercial operations (such as leisure flights, business trips, etc.) will follow at a later stage, novel aircraft designs and their frequent use over densely populated urban areas dictate an innovative approach rather than the traditional differentiation of 'commercial' versus 'non-commercial".

EAS Comment:
EAS respectfully disagrees on several points.
In our view, "novel aircraft designs" as such do not necessarily dictate an "innovative approach" as long as these aircaft are flown in non-urban areas.

However, when these novel aircraft are flown over urban areas, we agree that the risk increases. But that is not where non-commercial operations take place.

In EASA's own words, "General Aviation is the cradle of innovation in aviation". We think this still holds in the era of VTOL-capable aircraft. Indeed, there are several new VTOL-capable "personal eVTOL" aircraft in development, both in Europe and the US, which are intended for

non-commercial use. Examples (without any endorsement) are the eMagic One, Jetson One, and Ryse Recon.

To summarize, EAS believes that an "innovative approach" de facto severely limiting General Aviation with VTOL-capable aircraft is not necessary as long as flights are outside urban areas.

Text in NPA, page 37:
"This new approach is operation-centric and requires the same level of safety for the same safety risks, irrespective of the purpose of the flight."

EAS Comment:
With all respect, this requirement goes against EASA's own policy as expressed in the "EASA Risk Hierarchy", the risk hierarchy determined by the EASA, intended for evaluating the acceptable risk level in various areas.

About the EASA Risk Hierarchy (source: TrafiCom)

"The principle is that the higher a party is in the risk hierarchy, the more effectively they will be protected through regulation. Parties lower in the hierarchy may be considered to be more aware and accepting of the risks involved.

Risk hierarchy:
1. Uninvolved third parties
2. Fare-paying passengers in commercial air transport
3. Involved third parties (e.g. air show spectators, airport ground workers)
4. Aerial work participants / Air crew members involved in aviation as workers
5. Passengers ('participants') on non-commercial flights
6. Private pilots on non-commercial flights

All regulation must be considered in relation to the above risk hierarchy and the need for protection derived from it."

Summary:
The Risk Hierarchy clearly implies that non-commercial General Aviation-type of operations can be done with a somewhat relaxed set of regulation.
EAS asks that this principle is followed also when it comes to non-commercial operations with VTOL-capable aircraft, at least in non-urban areas and perhaps limited to smaller aircraft with a maximum of 4 occupants.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *701* comment by: *FOCA Switzerland*

1. FOCA is aware that this NPA focuses on the introduction of VTOL aircraft. Nevertheless, FOCA is of the opinion that the changes in the overall approach proposed in the last paragraph on page 37 would need to be considered in a more generic way.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *842* comment by: *FAA*

The 2nd paragraph on page 36 states:
The concept of innovative air mobility (IAM) accommodates commercial and non-commercial operations with novel aircraft designs that do not automatically fall under one of the known categories of aeroplanes or helicopters, but which have the capability to vertically take off and land, have specific (distributed) propulsion features, may be operated in unmanned configuration, etc.

Suggest language clarifying the types of aircraft that can be operated either with a pilot on board or those that may be operated in unmanned configuration, which may be considered to be an Optionally Piloted Aircraft (OPA).
*The concept of innovative air mobility (IAM) accommodates commercial and non-commercial operations with novel aircraft designs that do not automatically fall under one of the known categories of aeroplanes or helicopters, but which have the capability to vertically take off and land, have specific (distributed) propulsion features, may be operated **as Optionally Piloted Aircraft (OPA)** in unmanned configuration, etc.*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1131* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Art. 7 Reg. (EU) No 965/2012, c. 2, page 36, c. 3 page 157
The definition of IAM is not clear. Since an AOC is required according to the proposal the meaning of IAM should be clear.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1239* comment by: *European Cockpit Association*

Commented text:

	Traditional differentiation of 'commercial' versus 'non-commercial'. This new approach is operation-centric and requires the same level of safety for the same safety risks, irrespective of the purpose of the flight. Comment: Our view is that this approach will give a very high and responsible workload for the CAA to judge if the operation is safe and all items of the SORA are covered. There is no safe standard anymore for commercial ops to rely on and a lot of subjective opinions are possible. This runs a significant risk of "flag of convenience" situations occurring. EASA should be aware of the matter and suggest mitigating measures.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.4.1 Definition of 'rotorcraft' and 'helicopter' p. 35

comment	*86* comment by: *Supernal* Concern over definition of helicopter and rotorcraft. How would a tilt rotor vehicle be classified?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*250* comment by: *Civil Aviation Authority the Netherlands* Para 2.3.4.1, Page 35: Definition of rotorcraft and helicopter lacks the definition of 'gyroplane' as well as the possible inclusion of the future developments related to tilt rotors.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*491* comment by: *Volocopter GmbH* Please ensure that these terminology and definitions are also reflected in other rulemakings, more specifically RMT.0731.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *841* comment by: *FAA*

The additional terminology proposed modifies existing definitions of "Helicopter," which as traditionally defined, was an aircraft propelled by one or more horizontal rotors. The proposed EASA definition notes it as "up to two" rotors. These type of changes may have implication on globally accepted definitions and may require future updates to many global and FAA references, if this change gets accepted and becomes the standard to follow.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.4. Air Operations p. 35

comment *1290* comment by: *European Helicopter Association*

1. Separate Forms for VTOL aircraft will increase administrative burden for the whole value chain (e.g. new Form 1, AOC)
2. Definitions should be aligned with existing definitions if they describe the same thing (e.g. LDP, TODA, TODP)

Terms in relation to operational concepts need to be detailed further and/or aligned with existing types of operation (e.g. CMP, CSFL, CEL, CFP)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.4.3 Air operator certification p. 38

comment *70* comment by: *DGAC FR (Mireille Chabroux)*

2.3.4.3 Air operator Certificate

This paragraph adresses VTOL only. It is suggested to remove "UAS".

Proposal:

Before starting air operations, the operator of a ~~UAS~~ / VTOL-capable aircraft used for commercial or non-commercial operations shall undergo a certification procedure

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *87* comment by: *Supernal*

SMS requirements appear to be inconsistently applied.Under "Specifitities of Annex II (Part-COA.UAS) it indicates no SMS is required. Under this section 2.3.4.3 it indicates the need for an SMS. Needs clarification.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *294* comment by: *FlightSafety International*

Conceptually, the air operator certification should be the same as for traditional manned aircraft; basically it's for commercial operations. Please consider removing - non-commercial operations. Why would a private or non-commercial operator have to obtain an AOC?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *440* comment by: *Europe Air Sports*

Text in NPA, page 38:
"Before starting air operations, the operator of a UAS / VTOL-capable aircraft used for commercial or non-commercial operations shall undergo a certification procedure and shall receive an air operator certificate (AOC)."

EAS Comments:
While this requirement might make sense in a commercial operation, it is completely out of place for non-commercial operations in non-urban areas. To our knowledge, no other non-commercial aviation operations require this very complex, demanding and expensive certification.

In the view of EAS, AoC certification should not be required for non-commercial NAM (not in urban areas) operations. Existing safety management regulation is sufficient.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *699* comment by: *FOCA Switzerland*

FOCA agrees with the fact that rules should not differentiate between commercial and non-commercial operations. However, the term AOC until now is only used in the context of commercial operations, what might create confusion. That is why FOCA recommends that the term AOC be clearly defined.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *844* comment by: *FAA*

The first paragraph under this section states:
Before starting air operations, the operator of a UAS / VTOL-capable aircraft used for commercial or non-commercial operations shall undergo a certification procedure and shall receive an air operator certificate (AOC). The certification requirements and process are the same as those available for operators of aeroplanes and helicopters under Annex II (Part-ARO) and Annex III (Part-ORO) to Commission Regulation (EU) No 965/2012. For this reason, Annex II (Part-ARO) and Annex III (Part-ORO) have been only slightly amended to accommodate operations with manned VTOL-capable aircraft.

Suggest providing rationale for why a non-commercial operator would be required to obtain an Air Operator Certificate (AOC.)

The 3rd paragraph states:
In addition, the VTOL-capable aircraft shall be equipped with the necessary navigation, communication, surveillance, detect and avoid equipment, as well as with any other equipment deemed necessary for the safety of the intended flight, taking into account the nature of the operation, air traffic management regulations and rules of the air applicable during any phase of the flight.

Suggest providing rationale or clarification as to why a VTOL capable aircraft would be required to carry Detect and Avoid (DAA) Equipment on board.

2nd paragraph on page 39 states:
The term 'aerodrome' includes heliports and vertiports. Operators of VTOL-capable aircraft shall only use adequate aerodromes for passenger operations.
Suggest adding clarifying language to distinguish the difference between a heliport and a Vertiport.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1020* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Under this proposed amendment, an AOC is required both commercial and non-commercial operations - this concept should be reviewed. The AOC requirement for non-commercial operations will affect the VTOL market on the longer term and might not be proportionate for private operations e.g., of VTOL aircrafts certified in basic category. Similarily, private pilots license should be an option next to commercial pilot license, as it is today in general aviation.
PROPOSED ACTION/RESOLUTION

EASA to note the possibility to privately operate VTOLs without an AOC when used for non-remunerative purposes, and provide an adequate framework.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.4.5 Operational requirements and specific approvals p. 38

comment *71* comment by: *DGAC FR (Mireille Chabroux)*

2.3.4.5 Operational requirements and specific approval

The NPA does not adress cargo operations. It is suggested to remove "cargo" from the text.

Proposal

"The term 'aerodrome' includes heliports and vertiports. Operators of VTOL-capable aircraft shall only use adequate aerodromes for passenger operations. The use of operating sites is only allowed for VEMS ~~and for cargo~~ operations."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *157* comment by: *GdF*

Not only do contingency plans need to be drafted, they also need to be regularly tested both for validation of the technical facilities as well as to ensure proficiency of all included personnel, incl. ATS/ATCOs

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *549* comment by: *Murzilli Consulting*

Attachment #2

Text in Regulation	Comment	Proposal Text (if applicable)
This study determined found out the following:		~~found out~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *846* comment by: *FAA*

EASA identifies that the term aerodrome includes vertiports and heliports and that there is no need to mention vertiports as an alternative to aerodromes. It is unclear why vertiports are classified as aerodromes as it would appear that standalone vertiports will have different standards than traditional airports or aerodromes. Recommend further clarification on why this would be treated the same.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1272* comment by: *EDA/NH*

Minor comment concerning the sentence: "For example, when planning normal passenger operations, operators shall only select those aerodromes that are adequate. Adequate must also be the departure and destination aerodromes, as well as all alternate aerodromes." Remark: As these are examples given, the term "adequate" requires a more detailed explanation at this point (e.g Reference to definitions provided in UAM.OP.MVCA.107; / or to answer the question adequate in respect of what?).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.4.4 Responsibilities of the AOC holder p. 38

comment	*989* comment by: *FOCA (Switzerland)* Page 39, first two sections: 1. FOCA would like to highlight the need to have a globally coordinated definition of aerodrome among all regulation. This also applies to the "adequacy" of aerodromes.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1287* comment by: *FAA* Consider including that team members (pilots, mechanics, ground handling staff, etc.) have some level of security clearance or training.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.5. Flight crew licensing p. 40

comment	*93* comment by: *Supernal* Should be consistent with ICAO Annex 1 2.1.1.4 and ICAO document 10103
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*228* comment by: *DGAC FR (Mireille Chabroux)* **2.3.5 Flight crew licncensing** DGAC-FR has reservations about the assertion that there will be only a slight increase in the resources that the competent authorities responsible for applying the future regulation will have to invest without knowing at least the estimated number of pilots who will be flying VTOLs, the number of VTOL training courses that will have to be approved, and the number of instructors and examiners who will have to be trained in the years following its implementation. Consequently, Chapter 4 on the impact assessment must be completed with someestimations for the following items: - number of pilots who will fly VTOLs - number of VTOL training courses that will have to be approved - number of instructors and examiners to be trained

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *252* comment by: *Civil Aviation Authority the Netherlands*

Para 2.3.5, Page 40:
The principle of using current CPL pilots for the commercial operations of gyroplanes during the period when an ab initio training is developed could well work.

The development of comprehensive flight crew licensing requirements (ab initio training) for gyroplane is under way. A first NPA for private operations has been published and will be followed by an EASA opinion.

There has also been work ongoing for a commercial pilot licence, there are currently two arguments that hamper progress on the related rulemaking.

First the capacity constraints within EASA for rulemaking, and

Secondly the uncertainty of the development of the market for commercial operations with gyroplanes.

However it needs to be anticipated that some gyroplane operators will be ready to start commercial operations with gyroplanes sometime after the certification of the PAL-V by EASA. Hence, in order to ensure that the start of commercial operations with gyroplanes in the near future will be supported by the availability of appropriately qualified and licensed flight crews, the same principles used for the VTOL can be applied to the gyroplanes.

The current text of article 4f would only need some small amendmentsto include gyroplanes. New proposal could be:

Article 4f – Type ratings for VTOL-capable aircraft and a Type ratings for Commercial operations of gyroplanes
Applicants that hold a commercial pilot licence for aeroplanes (CPL(A)) or helicopters (CPL(H)) in accordance with Annex 1 (Part-FCL) shall be entitled to be issued with
a type rating for a VTOL capable aircraft or,
a type rating for commercial operations of a gyroplane
and shall exercise the privileges of such a type rating, provided they comply with all the following:
the prerequisites determined in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;
Section 1 of Subpart H of Annex I (Part-FCL).
Type rating training, skill tests and proficiency checks for aircraft specified in paragraph 1 shall:
comply with the following requirements of Appendix 9 to Annex I (Part-FCL):
Section A;

Sections B, C or D, as determined and unless specified otherwise in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012; and
under the conditions and to the extent determined in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012, include additional training and testing to allow applicants to obtain the competence to operate the relevant gyroplane.
The validity period of type ratings issued in accordance with this Article shall be 1 year. Holders shall, in the relevant aircraft or an FSTD representing that aircraft, do all the following:
in order to revalidate the type rating:
within the validity period of the rating, complete at least 2 hours of flight time as pilot;
within the 3 months immediately preceding the expiry date of the rating, pass a proficiency check in accordance with paragraph 2 the duration of which may be counted towards the flight time specified in paragraph (1). If applicants choose to pass the proficiency check earlier than within these 3 months, the new validity period shall commence from the date of the proficiency check.
in order to renew the type rating, comply with point FCL.740(b) of Annex I (Part-FCL).
Holders of licences and a type rating as specified in paragraph 1(a) shall be entitled to operate the relevant VTOL-capable aircraft under instrument flight rules, provided that they comply with all of the following:
they hold a valid IR(A) or IR(H), as applicable;
they have, in the relevant type of VTOL-capable aircraft, completed the skill test or the proficiency check, as applicable, in accordance with paragraph 2 including the content relevant for instrument flight.
Notwithstanding point FCL.900(b) of Annex I (Part-FCL), applicants who hold an instructor certificate in accordance with Annex I (Part-FCL) with privileges to provide training for aeroplane or helicopter type ratings shall be issued with privileges to provide training for type ratings specified in paragraph 1, provided that they:
hold a type rating as per point 1 for the relevant aircraft;
unless otherwise specified in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012, have, within the 12 months preceding the application, completed at least 30 route sectors, including take- offs and landings, as pilot-in-command in the relevant aircraft type, of which 15 route sectors may be completed in an FSTD representing that type; and
have completed, at an ATO, theoretical and practical training for extending instructor privileges to that aircraft, including mandatory training elements as specified in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;
pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL).
Holders of instructor privileges as per paragraph 4 shall receive revalidation or renewal, as applicable, of these privileges when they comply with the relevant revalidation or renewal requirements of Subpart J of Annex I (Part-FCL), as applicable for the instructor certificate held, and additionally do either of the following:
complete instructor refresher training that focuses on the privileges as per paragraph 4;

pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL) in the relevant aircraft specified in paragraph 1 or an FSTD representing that aircraft.
Notwithstanding point FCL.1000(b) of Annex I (Part-FCL), applicants who hold an examiner certificate in accordance with Annex I (Part-FCL) with privileges to act as an examiner for aeroplane or helicopter type ratings shall be issued with privileges to conduct skill tests and proficiency checks for an aircraft specified in paragraph 1, provided that they hold instructor privileges as per paragraph 4 for the relevant aircraft and comply with all of the following in the relevant aircraft or an FSTD representing that aircraft:
examiner standardisation in accordance with point FCL.1015 of Annex I (Part-FCL), including the conduct of at least a skill test or a proficiency check;
an assessment of competence in accordance with point FCL.1020 of Annex I (Part-FCL).
Holders of examiner privileges as per paragraph 6 shall receive revalidation or renewal, as applicable, of these privileges when they comply with the relevant parts of point FCL.1025 of Annex I (Part-FCL) and additionally do either of the following:
complete an examiner refresher course that focuses on the privileges as per point 6;
pass the relevant sections of the assessment of competence in accordance with point FCL.1020 of Annex I (Part-FCL) in the relevant aircraft specified in point 1 or an FSTD representing that aircraft.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *273* comment by: *EUMETNET ASP*

Following on from point comment to 2.3 above (FCL), to what extent is additional training to understand the urban meteorology anticipated?

Consider identifying and implementing appropriately enhanced meteorological training for flight crew to understand the challenges of urban meteorology.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *441* comment by: *Europe Air Sports*

Text in NPA, page 40:
"...this NPA proposes to introduce provisions (a new Article 4f in Commission Regulation (EU) No 1178/2011) that will allow holders of commercial pilot licences for aeroplanes or helicopters (CPL(A) and CPL(H)) to be issued with a VTOL-capable aircraft type rating that will be endorsed on their CPL(A) or CPL(H)...."

EAS Comment:
EAS proposes to add similar interim provisions that enable PPL(A), PPL(H), LAPL(A) and LAPL(H) holders to get a rating to fly light VTOL capable aircraft in non-commercial missions in non-urban areas.

Rationale:
EAS is of the view that non-commercial operation of VTOL-capable aircraft in non-urban areas shall be swiftly enabled by regulation. This NPA is the perfect vehicle to do that, also when it comes to the FCL part. Waiting for a possible RMT.0230 based solution would delay the process unacceptably.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *445* comment by: *Europe Air Sports*

Text in NPA, page 40:
"... However, in any case, the intention is that only experienced pilots shall fly VTOL-capable aircraft during the initial phase of their operation. ..."

EAS Comment:
In EAS' view, for non-commercial operations in non-urban areas, this requirement can equally well be fulfilled by PPL or LAPL experience.

In addition, according to several developers of manned VTOL-capable aircraft, these aircraft are very easy to fly with high automation and very little pilot input needed. This also supports the notion that PPL and LAPL is sufficient as a basis for the VTOL rating.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *834* comment by: *FLYINGGROUP*

Only pilots that already hold a licence for a conventional aircraft (CPL(A) and CPL(H)) could be involved in operations with manned VTOL-capable aircraft, with no possibility for ab initio pilot training in VTOL-capable aircraft after having completed type-rating training. Only once the ab initio flight licensing framework is developed, "new" pilots will be able to be trained for VTOL aircraft.

Question: how long will it take for the ab initio licensing framework to be developed? Can you provide an estimate?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *847* comment by: *FAA*

2nd paragraph on page 40 states:
Hence, in order to ensure that the start of operations with manned VTOL-capable aircraft in the near future will be supported by the availability of appropriately qualified and licensed flight crews, this NPA proposes to introduce provisions (a new Article 4f in Commission Regulation (EU) No 1178/2011) that will allow holders of commercial pilot licences for aeroplanes or helicopters (CPL(A) and CPL(H)) to be issued with a VTOL-capable aircraft type rating that will be endorsed on their CPL(A) or CPL(H),

Suggest providing rationale for the requirement to receive a pilot Type Rating for VTOL capable aircraft and the criteria for determining which aircraft would require this Type Rating.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *888* comment by: *European Helicopter Association*

Separate Forms for VTOL aircraft will increase administrative burden for the whole value chain (e.g. new Form 1, AOC)

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *933* comment by: *Civil Aviation Authority the Netherlands*

Air Crew:
The pilot requirements are covered in this NPA. However, the requirements for a training institute are not included.

Education:
- Entry requirements for inspectors – Is work experience not necessary?!.
- Inspectors with CPL must be trained to be able to judge/rate VTOL training.
They need educational knowledge for:
1) Inspections
2) Training Curriculum
- Certification – Organizational requirements must be adapted
What are the minimal entry requirements for e.g. Head of Training (HT?) or the Chief Flight Instructor (CFI)?

Note: This concerns Type ratings, not class ratings.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1077* comment by: *Civil Aviation Authority of Norway*

Comment on the expected consequences for NAAs:

From previous experience we believe that the need for recources is undercomunicated in the text. The change will entail a lot of work with internal procedures, forms that must be changed or new ones created. Our digital oversight tool "EMPIC" tmust be updated with new types of operations/operators, etc., as well as work with impact analyses, information to the market, etc. Therefore, we estimate with a high degree of certainty that this will involve at least one full time employe (FTE) in an implementation phase. After the implementation phase, we expect that the need for recouces will be reduced, but still be at about 75% to 50% of an FTE.

We therefore propose the following amendment to the text:

"for NAAs/EASA: a small increase in resources can be expected related to the administration of type ratings for manned VTOL-capable aircraft that need to be issued to CPL(A) or CPL(H) holders after the provisions are fully implemented. At the same time, the 'bridging solution' will provide for a relatively simple way to issue privileges for flying manned VTOL-capable aircraft, since no initial licensing of pilots would be necessary. A need for additional resources can be expected in the implementation phase due to training of personnel, preparation of forms, procedures etc."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1100* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

General and also article 4f of commission reg. (EU) No 1178/2011, c. 2.3.5 page 40 and c. 3.7 page 230
Proposal for change: This NPA proposes that VTOL type rating is for the commercial operations only.
This means that there are no private operations planned at current stage of rulemaking.
EASA's vision is that the VTOL aircraft will not be operated privately, only commercial operations are envisioned.
Currently there is a need for private operations on the market, which needs to be met sooner rather than later.

We are concerned that current rulemaking will leave out private segment of VTOL operations and will necessitate rulemaking on national level, which might contradict the fact that EU has competence regarding VTOL.
Our hope is that a type rating for a VTOL can be included in this NPA and make it harmonized for non-commercial operations in all EASA member states.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1178* comment by: *Joby Aviation*

No change requested

Comment in relation to this NPA and the future workplan regarding VTOL licensing: It is important to support the concept that the initial pilot ops route in Article 4f remains permanently.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1240* comment by: *European Cockpit Association*

Commented text:
Experienced pilots shall fly VTOL-capable aircraft during the initial phase of their operation.

Comment:
How would an A320 pilot bring relevant experience to a low-altitude urban VTOL landing? The bridging solution is too wide.
In case EASA refers more to "airmanship" than specific type experience - perhaps the workding could be improved:
ex.:"pilots with relevant previous flight experience..."

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.6. Standardised European rules of the air (SERA) p. 41

comment *118* comment by: *IFATCA*

Inside the document (and in this paragraph too) there is a bit of congestion and intersection between UAS and manned VTOL-capable aircraft. Sometimes the distinction is not so clear, at least not as clear as the description of Initial assessment the NPA does. Even if the final aim of the entire UAM is to have UAS transporting people, this is not yet the case.

In describing mixed environment, be sure to allocate responsibilities and procedures to the correct actor.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *158* comment by: *GdF*

Inside the document (and in this paragraph too) there is a bit of congestion and intersection between UAS and manned VTOL-capable aircraft. Sometimes the distinction is not so clear, at least not as clear as the description of Initial assessment the NPA does. Even if the final aim of the entire UAM is to have UAS transporting people, this is not yet the case.
In describing a mixed environment, it has to be made absolutely sure to allocate responsibilities and emergency procedures transparently to the correct actors.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *253* comment by: *Civil Aviation Authority the Netherlands*

Para 2.3.6, Page 41:
Gyroplanes do not need any adaptation from SERA, check for additional specification of helicopter/VTOL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *348* comment by: *Norwegian Air Traffic Controller Association*

NATCA expected there to be more clearcut and adapted rules for the operations of drones. We realize that this hearing specifically looks at VTOL but we are hoping a regulatory framework for rulemaking on general drone-activity, especially in controlled airspace and around airports will be adressed very shortly as the industry is moving at a much higher pace than the much needed rulemaking.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *479* comment by: *JEDA*

Footnote 32: These new corridors would be for domstic use and hence beyond scope of ICAO based on Art. 44 Chicago Convention. It is neverthless urgent to develop RNP criteria for the horizontal dimension, through Standard Development Organisations (SDOs) for both the navigation specification for the avionics and for the route design criteria. Project REALITY funded by EuSPA has tested RNP 0.01 and 0.02 https://geonumerics.es/index.php/projects/88-reality-rpas-egnos-adoption-and-liaison-with-navigation-integrity Furthermore, differently from traditional RNP, even the vertical dimension should be considered, as initially developed by Project ICARUS funded by SESAR JU: https://www.u-spaceicarus.eu

No alternative text is proposed, since the Explanatory Note will never become regulatory material. But it is recommended that EASA promotes development of RNP (navigation specification plus route design criteria) for UAS/VTOL through one or more of the SDOs represented in the EUSCG

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *580* comment by: *Murzilli Consulting*

Attachment #3

Text in Regulation	Comment	Proposal Text (if applicable)
Serviceable transponder may remain optional depending on the type of operation and the operational environment considered.		Does not improve the situation, especially as long as DAA is unavailable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *702* comment by: *FOCA Switzerland*

Regarding the first paragraph on page 42, FOCA is of the opinion that here the second sentence contradicts the first one. This is because we think that manned VTOL is not UAS. It is thus recommended to change the term UAS with the term aircraft in the second sentence.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *704* comment by: *FOCA Switzerland*

Regarding the last paragraph on page 41, it seems that the first sentence uses the term "manned VTOL-capable aircraft" and the third sentence uses the term "UAS operations" for the same type of operation. FOCA thinks it could leads to misunderstandings.

Moreover, if in the end, the limitation is removed, FOCA wonder if this limitation should be restricted only to VTOL or should also apply to UAS operations more generally.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *848* comment by: *FAA*

1st paragraph on page 41 states :
In general, the main purpose of the SERA provisions is to provide for a safe, orderly and efficient air traffic management and help avoid mid-air collisions. One of the underlying SERA principles is the principle of 'see and avoid' which shall be used by the pilot-in-command as last line of defence to avoid mid-air collision in all airspace classes. When the pilot is on board aircraft, as it is the case for manned VTOL-capable aircraft, the 'see and avoid' principle is automatically complied with.

Suggest rephrasing. The presence of a pilot on board an aircraft does not necessarily mean that the see and avoid requirements are complied with. For example, see and avoid requirements may not be met when the pilot has their head down while programming the FMS or tuning a radio frequency. Recommend rephrasing this sentence. Suggest stating, *when the pilot is on board the aircraft, as is the case for manned VTOL-capable aircraft, the 'see and avoid' principle* ***may be met when the pilot is maintaining vigilance so as to see and avoid other aircraft.***

2nd paragraph on page 42 states:
With predefined routes, manned VTOL-capable aircraft would have the possibility to operate in urban environments following predefined routings, i.e. predefined height and heading, and predefined takeoff and landing procedures. With regard to safety, having predefined routes would allow the systematic deconfliction between UAS, thus automatically avoiding mid-air collisions (MAC).

Suggest rewording to state that ***having predefined routes would assist in the systematic deconfliction between UAS, thus helping to mitigate mid-air collisions (MAC).***
This avoids the presumption that the existence of predefined routes would automatically avoid mid-air collisions.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *901* comment by: *FOCA (Switzerland)*

Page 41, fourth section, first sentence:
1. FOCA is of the opinion that from a safety or noise perspective, fixed routes for manned (e)VTOL aircraft do not seem to be required mandatory, as there are also downsides to predefined routes and sensitive areas can be protected by creating no fly zones over these areas. Even if the chosen model would be fully free flight these sensitive areas will be protected. Such considerations should also being taken into account in the NPA. FOCA sees the problems associated with fixed routes/corridors as follows:
1. Will the routes be reserved for a single operator? If for multiple operators then the use must be coordinated. U-Space already is a system that can coordinate dynamic flight route reservations. Why would U-Space not be used for the coordination instead of creating fixed routes?
2. Is there an assumption that the vertiports have standardized charging infrastructure and are not private for a single (e)VTOL company, but instead available for all (e)VTOLs? If this is true then U-Space would potentially not be enough to coordinate landing slots to an open vertiport. However, if most vertiports will be private there is no coordination issue since a single operator will be using them.
3. Noise is not mitigated only by fixed routes. Higher flight altitudes would be the most effective way to limit noise from (e)VTOL aircraft. Fixed routes also will concentrate noise and may become far worse noise problems than a free routing system or a more flexible flight plan coordination system.
For these reasons, FOCA suggests that fixed routes are not mandatory demanded for manned (e)VTOL flights. There instead should be increased efforts to study the use of U-Space with manned aircratf integrated or new flight rules such as more altitude restriction layers based on aircraft speed or noise.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1022* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The concept of pre-defined routes introduced in this NPA seems to be rather unclear and it could be easily understood to imply segregation, which at this point is unnecessary and unacceptable. The near-term VTOL market is composed of highly heterogenous aircraft - with significant differences in range and business models. This can range from low altitude inner city connections to CTOL-capable aircraft flying at higher altitudes and longer ranges. Even if the intent is not to segregate traffic, imposing a prescriptive approach which - as noted by EASA - would hamper initial VTOL operations is highly problematic. Given some aircraft capabilities, it is also unclear where the delineation might exist between 'traditional' aircraft

and some VTOL models (e.g. CTOL capable), and what future problems this could create in terms of equitable access. If the concept of pre-defined routes is specifically driven by concerns of air traffic density, it must be recognised that this is focusing on a medium-term question, not the initial operations which are yet to begin. It is therefore considered disproportionate to impose a requirement before experience is gained based on a limited number of aircraft.

In addition, such requirement would contradict EASA's approach that VTOL operations should be at least as safe as passenger commercial air transport operations today. The high level of safety required for certification (SC VTOL), together with the regulatory framework currently in place in Europe in relation to, for example, flight crew licensing or rules of the air, should not provide a basis to different or discriminatory treatment towards VTOLs. Pilots flying aircrafts under the scope of Part-IAM still are bound by basic principles such as "see and avoid" and fly VFR, which they are perfectly trained to do as per the current stringent training requirements – as reflected in this NPA. It has always been the assumption that manned VTOL aircraft operations should not be treated differently from conventional manned aircraft operations.

Current safety norms do not require aircraft to follow highly limiting routes. Similar to aircraft other than VTOL aircraft, route networks are dynamic, meaning that certain routes can change based on operational changes (airport runway use, TFRs, weather) and operations adapt accordingly. Manned VTOL aircraft should not be different in this respect, with any requirements being on par with helicopter routing in urban environments, and only where deemed necessary. It is true that under very specific circumstances, predefined routes can mitigate safety risks, especially when specific airspaces may become heavily transited in the long future. Nonetheless, this is not expected in the short to medium term.

Furthermore, it remains unclear which authority would be competent for the implementation/enforcement of pre-defined routes. Considering the high complexity of the European regulatory framework, it should be a priority to ensure that competences between EASA, Member States, and relevant organizations (i.e. ANSPs), are well defined and that the concept's interpretation and enforcement is harmonized throughout the entire system. Pre-defined routes should be allowed to be developed by an appropiate competent authority in cooperation with specific operators where their aircraft capabilities require it (where a risk-assessment requires this, i.e. continuous low altitude UAM operations).

GAMA believes initial VTOL operations should not be restricted before experience is gained, and that, at this stage, the introduction of the pre-defined routes concept does not reflect on the high safety standards the industry is bound by, nor the maturity of the overall VTOL market. We believe significant clarifications are required if some form of this concept is to be used in the Opinion, as it can have a serious impact on the industry´s strategy and operations going forward. GAMA remains available to support further discussions of this concept at an appropriate forum.

PROPOSED ACTION/RESOLUTION

EASA should consider excluding the concept of 'pre-defined routes' of this NPA's scope by deleting:

a) Paragraph 2.3.6 in its entirety

b) Footnote 32:

~~It is important to understand that these 'predefined' routes or areas/corridors are not the same with today's ATS route network concept, and the method to establish them for each UAM implementation scenario still needs to be developed~~

c) 3.6.2 Annex I - Definitions for terms used in Annexes II to IX, (140) 'predefined routes':

~~"(140) 'predefined routes' means specific routes, geographical areas (e.g. UAS geographical zones) orcorridors which a national competent authority may establish in its territory for use by UAS orVTOL-capable aircraft operators where operations may be conducted within acceptable airand ground risks and under specified conditions"~~

Alternatively, EASA should urgently provide clarification on the concept of 'pre-defined routes' to be used in the Opinion and perhaps consider AMCs/GMs, in particular with regards to:

a) Predefined routes do not imply segregation and equitable access airspace is a key tenant of this approach.

b) the clarification of competences for the implementation/enforcement of pre-defined routes between EASA, Member States and other relevant organisations (i.e. ANSPs)

c) the need to permit manned VTOL who have the capabilities to safely integrate into the airspace with the same requirements as existing aircraft;

d) the consideration that predefined routes might be a useful tool to be used where deemed necessary to mitigate identified safety risks in very dense airspace; and;

e) the convenience of allowing for pre-defined routes to be developed by an appropiate competent authority in cooperation with specific operators where their aircraft capabilities require it (where a risk-assessment requires this, i.e. continuous low altitude UAM operations).

These proposed clarifications would avoid a host of additional issues in the implementation of this concept, including inconsistencies between competent authorities, as well as resourcing and workload from both industry and regulators.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1025* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

VTOL operations are not equal to UAS operations; indeed, this NPA is focused on MVCA. As such, they should not be limited by the need to gain experience in another field.

PROPOSED ACTION/RESOLUTION

EASA to consider deleting the following statement in the 4th paragraph:

~~"This approach will be necessary until experience is gained on how to validate UAS operations in urban environments from a safety, environmental, security and privacy point of view."~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1026* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The significantly improved noise profiles achieved through distributed electric propulsion are not taken into account in this line of thinking.
PROPOSED ACTION/RESOLUTION

EASA to consider deleting the following statement in the 5th paragraph:

~~"As regards environmental considerations, predefined routes would help to systematically avoid flying over areas and buildings that, for any reason, require noise protection. Furthermore, the possibility to avoid flying over 'sensible' places and the assurance of deconflicting paths thanks to predefined routes would help gain greater public acceptance. However, the system of predefined routes might impose limitations to some types of operations."~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1028* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The assumption that certified DAA capabilities for UAS are necessary for manned VTOL operations seems inherently flawed.

Currently, see and avoid is deemed sufficiently safe for operations - and this should be the case for VTOL operations also. It should be noted that some VTOL aircraft are intended to be operated at high altitude and will thus spend relatively limited time in airspace where UAS operations are taking place. For this part of flight, commercial grade pilots flying VTOL aircraft

can and should navigate as they do for other aircraft, whether it be in an urban environment or outside of one. In addition, the improved safety profile and equipage of VTOLs in comparison to many existing aircraft should be considered.

PROPOSED ACTION/RESOLUTION

EASA to consider deleting the following statement:

~~The alternative solution on 'free routing' would allow manned VTOL-capable aircraft to operate in urban environments but without any restriction whatsoever with respect to routing possibilities. Considering that, as of today, no detect and avoid (DAA) capabilities among UAS have been verified and certified, it cannot be ensured that MACs could be systematically prevented. Therefore, this solution has been discarded.~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1149* comment by: *Lilium*

Attachment #4

Please find below Lilium's position on the introduction of predefined routes for VTOL aircraft in the NPA. The same text can be found in PDF attached to this comment.

EASA has introduced the concept of predefined routes in the Notice of Proposed Amendment 2022-06 (the NPA). It is mentioned in the *summary – why and what* section that EASA expects that the first manned VTOL-capable aircraft in urban environment will follow a limited set of predefined routes. Further, a proposal for a definition on this concept was introduced in Regulation (EU) 965/2012 on air operations, according to which predefined routes are specific routes, geographical areas or corridors which a national competent authority may establish for the use by manned VTOL aircraft or unmanned aircraft operators.

Lilium in principle supports the idea of having dedicated routes/areas to be used by VTOL operators, as a means to mitigate safety risks in areas with a high volume of air traffic. However, the current text in the NPA is ambiguous as to where and under which circumstances predefined routes will be necessary and how these routes should be approved by authorities. Therefore, in order to avoid diverging and uncoordinated approaches by different competent authorities and to enable a common understanding among all stakeholders, specifically ANSPs, OEMs and operators, it is necessary that EASA provides guidance on this topic.

It is our understanding that the different performances of VTOL aircraft, various anticipated distances, and the existence of non-commercial VTOL operations taking-off and landing at private vertiports warrant a certain level of flexibility for VTOL operators to plan for the most

efficient route, taking into account the selection of alternate aerodromes, energy planning and operational realities encountered during initial VFR VTOL operations (e.g., weather, NOTAMs, emergencies, etc.). Hence, Lilium considers that the expectation to have predefined routes in all circumstances and for every connection between vertiports would hamper the entry into service of VTOL operations.

Moreover, such is not necessary from a safety point of view. Safe operations will be guaranteed by compliance with EASA's high aircraft certification standards and stringent operational requirements. Safe operations will furthermore be ensured by highly skilled pilots on board the aircraft, who will have obtained a VTOL type rating, will comply with the 'see and avoid' principle under VFR principles and rely on traditional air traffic services, where applicable. In addition, an operational flight plan will be completed by the VTOL operator for each intended flight in accordance with UAM.OP.MVCA.175 Annex IX Regulation (EU) 965/2012, and an ATC flight plan will be submitted in accordance with UAM.OP.VCA.190 Annex IX Regulation (EU) 965/2012, enabling strategic deconfliction of air traffic.

Finally, in the NPA, EASA expresses its concerns regarding the overflight of areas and buildings that require noise protection. While VTOL aircraft will be deployed in the context of urban air mobility, this will not happen without any restrictions. The minimum altitudes enshrined in point SERA.3105 *io*. SERA.5005(f) of Regulation (EU) 923/2012 apply to VTOL operations, entailing that operations in urban environments at low altitude (below 1000 feet above the highest obstacle) will in principle not occur, except for take-off and landing at a limited number of vertiports in cities. In addition, VTOL aircraft use advanced technology ensuring low noise emissions. The very low sound footprint of the Lilium Jet is ensured by electric ducted fans with variable nozzles and sound absorbers. Public concerns regarding noise can be addressed by e.g., coordinating flight planning with the local authorities so that, depending on the local conditions and demands, VTOL aircraft operations can for instance pass over existing infrastructure such as roads and railways.

Rather than establishing predefined routes for every flight, Lilium proposes that this should only be introduced in those operational environments with a high air traffic density. This means that predefined routes will become increasingly pertinent when a larger number of VTOL aircraft and unmanned aircraft operations, within a few years after entry into service, occupy the skies. Lilium believes that those predefined routes should resemble today's VFR helicopter routes. For instance, the scheduled helicopter inter-city passenger flights in Nice are requested to use corridors. In this case, helicopter pilots follow a route between a defined entry point and a defined exit point in order to streamline the flow of helicopter movement and deconflict with conventional air traffic. Similarly, a predefined route in the vicinity of aerodromes/in the control zone, e.g., between Nice and Monaco, mitigates the air risk as a result of high air traffic density by ensuring segregation of helicopter operations with conventional take-off and landing operations. Furthermore, route networks are often dynamic, meaning that certain routes can change based on operational demands (airport runway use, TFRs, weather).

Based on the above, the following points could be clarified by EASA, preferably in the appropriate regulatory framework that has yet to be identified[1]:

- How many operations (per e.g., route) are needed before pre-defined routes should be considered necessary by the authorities (i.e., level of air traffic density);
- What is the starting and ending point of such pre-defined route (*cf*., VFR helicopter routes in the south of France);
- What are similar existing regulatory solutions that the authorities can refer to (*cf*., VFR helicopter routes in the south of France).
- When establishing such routes, how can a level of flexibility be ensured to VFR VTOL operators to accommodate operational realities.

Finally, it is important to keep in mind that diverging implementations of the concept by different Member States may hamper initial VTOL operations. As put forward in the Report of the Drone Leaders' Group in support of the preparation of A Drone Strategy 2.0, "*Unlike in other sectors, where the EU regulatory harmonisation process started after the adoption at national level of sometimes longstanding and diverging regulations, here, it has been possible to start from the outset with a truly common set of rules. This is a quite unique opportunity that cannot be missed.*" Hence, EASA should promote uniformity and harmonization of national regulations and therefore establish or identify a forum through which Member State authorities, despite their inherent competence over their national airspace, and industry stakeholders can align on a common set of rules which fit the needs of all the relevant players and ensure the realization of safe VTOL operations.

In conclusion, Lilium recognizes the challenge that EASA is trying to tackle related to the safe integration of VTOL-capable aircraft. Although we believe that pre-defined routes are a suitable means to mitigate air risks in high-volume environments, they are not a suitable solution for all operational scenarios. More guidance on the concept should be provided by EASA together with the way forward to ensure a harmonized approach by Member States. Finally, the concept of pre-definition of routes should be further explored as part of research projects, for instance under the auspices of SESAR.

Lilium will continue to support EASA in the further development of the concept and guidance thereto and remains available for further conversations regarding this topic.

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[1] The concept could be introduced in Implementing Regulation (EU) 2017/373, as predefined routes could be deemed an airspace structure as per the definition of GM1 Article 3(1). Alternatively, it could be introduced as guidance material on the implementing rules enshrined in UAM.OP.VCA.135 Annex IX to Regulation (EU) 965/2012 on routes and areas of operation or SERA.3105 Regulation (EU) 923/2012 on minimum heights.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1165* comment by: *Joby Aviation*

It is unclear what is intended with the proposed blanket requirement for pre-defined routes / corridors for manned (i.e. crewed) VTOL operations – raising concerns about their potential impact on the VTOL market. As long as a certified VTOL aircraft can safely integrate into the existing airspace alongside current aircraft, there is no justification to impose any additional requirements.

Primarily, it should be clarified that EASA is not advocating for segregation of manned VTOL aircraft. Current safety norms do not require aircraft to follow highly limiting routes in normal operations, and manned VTOL aircraft should be no different.

Equitable treatment and access to airspace is key, and any overly prescriptive approach to manned VTOL would have a negative impact on initial market development (as noted in the impact assessment), without a clear safety gain. As this NPA addresses the near-term initial operations of eVTOL aircraft – manned and limited in number – it must therefore be made clear that no new requirements are being imposed on VTOL aircraft (except where necessary from a safety perspective) where they are not already applicable to existing users. Indeed, it should also be noted that some VTOL aircraft are also capable of conventional take-off and landing; further illustrating the issues created by any potential delineation between different airspace users.

It must be recognised that some VTOL aircraft are intended to be flown primarily at altitudes of several thousand feet (well outside of U-Space), with significant range and speed to fly beyond a single urban environment. As such, any initial routing requirements should be on par with helicopter routes in urban environments, where in reality the dynamic nature of operations is expected and recognised due a wide number of factors.

Indeed, a more sensible approach might be to explicitly permit any manned VTOL which has the capabilities to safely integrate into the airspace using current safety norms. Where required, specific predefined routes could then be developed by competent authorities in cooperation with specific operators only where their aircraft capabilities require it. This would avoid a host of additional issues, including inconsistencies between NAAs, as well as resourcing and workload from both industry and regulators. On top of this, the development and approval of these routes, as currently referred to in the NPA, would prove not only onerous but also potentially insufficient. Initial VTOL movements will be much wider than they appear – beyond passenger services, VTOL aircraft will be flown between all forms of aerodromes, as well as for repositioning, maintenance, repair, overnight (or longer-term) storage, diversions, one-off operations, etc. This requires flexibility and would be a challenge to prepare exhaustively ahead of time. As such, the focus must remain on the pragmatic integration of these operations, rather than the medium outlook of significant increases in air traffic and the subsequent capacity solutions which may then be required.

The justification for these predefined routes, namely a lack of certified DAA onboard unmanned vehicles, is inconsistent with the requirements for existing air traffic. If a commercially licensed helicopter pilot can use see-and-avoid principles to fly safely, there should be no distinction made between existing aircraft and new entrants. By way of example,

the similarities in rotorcraft are prevalent throughout much of the NPA where existing requirements are expanded to cover VTOL also. Licensing elements of this NPA recognise and facilitate the transition of these pilots into VTOL operations.
Furthermore, VTOL aircraft are arguably more agile, with modern avionics and able to make use of additional landing sites.

Overall, a pragmatic approach is needed (as is the case in other parts of the NPA), where existing norms are applied to manned VTOL operations. This will allow for the authorities and industry to gain experience by working together as we move beyond existing operations and into the future. In specific cases in the near term, if a competent authority identifies a risk linked to a particular operation or aircraft capability, a consistent approach could be applied based on the related guidance material developed with industry and the relevant authorities.

These aforementioned clarifications are vital to ensure that manned VTOL operations are not viewed as inherently less safe or inferior to existing aircraft. It would also address the significant risks of incorrect or inconsistent implementation of this framework by different authorities, and also avoid creating unnecessary workload for all parties involved during these "first type of operations" as noted in the NPA.

[Suggest deleting the following:]

a) Paragraph 2.3.6

b) Footnote 32

In addition:

c) 3.6.2 Annex I - Definitions for terms used in Annexes II to IX, (140) ‘predefined routes’:

"(140) ‘predefined routes’ means specific routes, geographical areas (e.g. UAS geographical zones) or corridors which a national competent authority may establish in its territory for use by UAS orVTOL-capable aircraft operators where operations may be conducted within acceptable air and ground risks and under specified conditions"

Where any aspect of this concept is retained, significant clarity would be needed at NPA level to confirm that:
1. No separation of manned VTOL aircraft is proposed by EASA
2. Equitable access to airspace and existing safety norms are appropriate, so long as the manned VTOL aircraft has appropriate capabilities to meet the same requirements as existing aircraft to safely integrate into the airspace

response

Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *1180* comment by: *Joby Aviation*

VTOL operations are not equal to UAS operations; indeed, this NPA is focused on MVCA. As such, they should not be limited by the need to gain experience in another field.

[Suggest deleting the following:]
This approach will be necessary until experience is gained on how to validate UAS operations in urban environments from a safety, environmental, security and privacy point of view.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1182* comment by: *Joby Aviation*

1) The significantly improved noise profiles achieved through some distributed electric propulsion designs are not taken into account in this line of thinking.
2) A predefined route does not necessarily imply greater public acceptance - indeed it might lead to community opposition to initial ops due to the lack of dynamic routing. Note, the term sensible is understood to mean sensitive.

[Suggest deleting the following:]
As regards environmental considerations, predefined routes would help to systematically avoid flying over areas and buildings that, for any reason, require noise protection. Furthermore, the possibility to avoid flying over 'sensible' places and the assurance of deconflicting paths thanks to predefined routes would help gain greater public acceptance. However, the system of predefined routes might impose limitations to some types of operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1185* comment by: *Joby Aviation*

The assumption that certified DAA capabilities for UAS are necessary for manned VTOL operations is inherently flawed. Currently, see and avoid is deemed sufficiently safe for operations - and this should be the case for VTOL operations also. It should be noted that some VTOL aircraft are intended to be flown primarily at altitudes of several thousand feet (well outside of U-Space) and will thus spend relatively limited time in airspace where UAS operations are taking place.

For this part of flight, a qualified commercial pilot is well placed to fly safely, using the current approach employed in helicopters and aeroplanes. In addition, the improved safety profile and equipage of VTOLs in comparison to many existing aircraft should be considered.

Finally, the phrase "without any restriction whatsover" seems oversimplified, as a manned VTOL aircraft would still be subject to the existing requirements and potential restrictions as other aircraft.

[Suggest deleting the following:]

The alternative solution on 'free routing' would allow manned VTOL-capable aircraft to operate in urban environments but without any restriction whatsoever with respect to routing possibilities. Considering that, as of today, no detect and avoid (DAA) capabilities among UAS have been verified and certified, it cannot be ensured that MACs could be systematically prevented. Therefore, this solution has been discarded.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1219* comment by: *Ferrovial Vertiports*

We would like to preface this note by stating that, for the avoidance of doubt and for the purposes of clarity, our comments are to be read in the context that safety and security of operations are our highest priorities and our feedback is in no way intended to detract from these objectives.

We would like to seek/offer clarification as to what is meant by *"...It is expected that the first type of operations of manned VTOL-capable aircraft in urban environment [sic] will follow a limited set of predefined routes or areas/corridors..."*. This could be interpreted as a mandatory requirement for Member States (and their NAA's) to follow in order to introduce VTOL-capable operations to their respective urban environments. However, stipulating such a rigid approach at this early stage in the industries' development will introduce several unintended consequences which will hinder growth.

The notion of prescribed routes for VTOL-capable aircraft seems inequitable compared to other forms of [new and existing] aircraft and introduces a level of complexity for an industry where data and real-life operational feedback is not yet available.

In keeping with other parts of the NPA we are advocating EASA's pragmatic approach that is being taken. Elsewhere the NPA drafting has given itself 'room' to develop as more data, information and knowledge becomes available to EASA, while it importantly does not compromise safety (it upholds it). By way of example, the following can be found on the NPA: the bridging solution for pilot licensing and recognising future NPA's for certified UAS will be required. This pragmatic approach is perfectly acceptable with regard to SERA and other existing norms, and therefore 'predefined' routes do not need to be introduced at this moment to facilitate the safe introduction of VTOL-capable aircraft.

Applying this pragmatic approach consistently throughout the NPA will allow the industry, NAA's and Member States to implement operations through existing rules of the air without

compromising safety but ensuring equity of treatment to VTOL-capable aircraft **and** not introducing a level of complexity too early with unintended consequences, as it allows more granular data and real-life testing before shaping and stipulating a solution.

Furthermore, such an approach will alleviate the issues anticipated in the NPA's footnote 32: *"...It is important to understand that these 'predefined' routes or areas/corridors are not the same with today's ATS route network concept, and the method to establish them for each UAM implementation scenario still needs to be developed..."*. Given this recognition, we question: is it not more sensible to ensure adherence to SERA as one would today for other aircraft to allow early flight without the added, unknown complication of establishing 'predefined' routes, particularly where the method to establish such routes is even unknown(?).

Once safe flights have been established, the concept of 'predefined' routes may or may not be a sensible path to follow but the decision to do so would be an objective one based upon actual data. To introduce the requirement now, which is not in keeping with the progressive approach taken elsewhere in the NPA and whilst existing norms will maintain safety, seems too subjective and ahead of time and operational data being available.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1242* comment by: *European Cockpit Association*

Commented text:
Considering that, as of today, no detect and avoid (DAA) capabilities among UAS have been verified and certified, it cannot be ensured that MACs could be systematically prevented. Therefore, this solution has been discarded.

Comment:
Agree. This is extremely important to keep in mind when developing these projects further.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1285* comment by: *Aerospace Industries Association*

Comment: The proposal to require predefined routes specifically for manned VTOL aircraft appears highly problematic. Segregating these aircraft would be both unnecessary and deny equitable access to airspace. If this is not the intent, AIA would request that EASA clarify this at NPA level.

However, in the case that predefined routes do not imply segregation, the NPA appears to still propose imposing additional requirements on manned VTOL aircraft which do not appear to

be in line with existing safety practices for current airspace users, where routing is often dynamic.

The justification for this approach is difficult to understand. The absence of certified detect and avoid systems in UAVs cannot be the basis for additional requirements for VTOL aircraft in comparison to existing aircraft. Commercially licenced pilots are already authorised to use 'see and avoid' to fly with existing aircraft, and therefore the VTOL aircraft addressed in this NPA should be subject to the same safety standards as they will be flown by the pilots trained to the same standards.

Given the wide variety of forthcoming manned VTOL aircraft, it would be disproportionate to impose additional requirements on all VTOL aircraft. Data and experience can be gained through initial operations to help successfully plan for a scaling up of VTOL aircraft in the medium-term.

Suggested resolution: Please delete:

Paragraph 2.3.6

Footnote 32:
It is important to understand that these 'predefined' routes or areas/corridors are not the same with today's ATS route network concept, and the method to establish them for each UAM implementation scenario still needs to be developed

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1303* comment by: *European Business Aviation Association EBAA*

The reference to predefined routes in 2.3.6 are only creating an unneccessary restriction. The current rules should be sufficient. It is down to the safety assesment of the operator and the existing rules in SERA.5005(f) and SERA.5015(b) are sufficent to asses if a route can be flown. Under the NPA there need to be predefined routes to systematically deconflict with UAS and avoiding mid-air collisions (MAC) while fixed wing and rotorcraft can fly these routes safely under the current rules but manned VTOLs need special approval from their authority. It should be clear that predefined routes are only applicable to flights below SERA.5005(f) and SERA.5015(b) minima.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.6.2 The term 'helicopter' p. 42

comment *979* comment by: *DGAC FR (Mireille Chabroux)*

It is stated in paragraph 2.3.6.2 that:

"This investigation concluded that the specificities logically also apply to manned VTOL-capable aircraft and the proposal was to replace the term 'helicopter' by the term 'helicopter/VTOL-capable aircraft' as per Article 2(25) of the SERA Regulation. The latter was generally selected for provisions on air-taxiing, take-off or landing areas, minimum heights, phraseology, or marshalling signals, and only in some interception cases"

However the pharseology has not been adapted (for example in appendix 1 to amc1 SERA.14001 General, paragraph 1.4.20 has not been changed to be adapted to VTOL)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1032* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

c) EASA specifically noted how in other cases the rules applying to helicopters should be expanded to read "helicopters/VTOL"

PROPOSED ACTION/RESOLUTION

EASA to reconsider this decision as it seems arbitrary and not risk-based.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1034* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Helicopter operations can be authorized by the competent authority to fly below 1500m visibility if pilots are able to observe other traffic or any obstacles in time to avoid collision. The latter depends on the capability of the aircraft to hover or fly at low speed. VTOL capable

aircraft operations, insofar they demonstrate a similar performance, should be able to obtain a similar authorization.

The competent authority will assess the available operational data and environment to decide whether said performance is possible. Safety will not only be guaranteed by the technical capabilities of the aircraft, which are designed in accordance with the safety level objective of 10-9, but also the rigorous training and expertise of VTOL pilots.

Therefore, and given the importance of VFR operations for initial VTOL operations, we believe that competent authorities should be empowered by the SERA Regulation to authorise VTOL operations in visibility between 1500m and 800m, if they can demonstrate adherence to the mentioned performance requirements.

PROPOSED ACTION/RESOLUTION

EASA to consider the following additional text:

*Para(b): helicopters **and VTOL capable aircraft** may be permitted to operate in less than 1 500 m but not less than 800 m flight visibility, if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.*

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1190 comment by: *Joby Aviation*

The differentiation between helicopters and VTOL minimums appears unjustified:

- Industry consensus is to align helicopter/VTOL minimum altitudes
- VTOL actually have better manoeuvrability and more options for landing than helicopters in the event of an emergency at low altitude
- EASA specifically note how in other cases the rules applying to helicopters should be expanded to read "helicopters/VTOL"
- As such the decision appears arbitrary and not risk-based - why not allow the competent authority to assess the specific risk and needs per use case?

[Suggest deleting the following:]
...it was decided, at least in the initial phase of these operations, that the minimum flight visibility for VMC should not be allowed to less than 1 500 m for manned VTOL-capable aircraft and that the authorisation possibly granted by the competent authority to fly with a 800-m visibility should apply only to helicopters, when the operating conditions permit. This limitation is not included in the present NPA because only binding provisions are addressed, but it will be reflected in the related AMC and GM, as appropriate.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.6.4 Information on unmanned aircraft p. 44

comment | *119* comment by: *IFATCA*

Despite the introduction of UAS as an item of the FIS is described as a preventive measure for times when the UAS traffic will be much more developed, at the current stage there are problems both related to the acquisition of information on UAS and on the provision of the service.
According to U-space package, ATS units are not aware of the presence of UAS. The only information they have is that there is a part of the airspace identified/restricted as U-space airspace. The same information is available to pilots. This is a one direction flow of information (ATS provides info on manned aircraft to USSP to be used into the u-space traffic information service). Same path with TRA established by NOTAM.
FIS, according to SERA.9005.b.2, provides collision hazards to aircraft operating in airspace Classes C, D, E, F and G. The methodology to provide this information is well established (SERA section 14, 2.1.8) and it comprises position, level, direction and type of the traffic. Information that are not known to ATS nowadays. In addition, if UAS traffic levels will increase to the expected levels, providing all traffic information/collision hazards will significantly increase the ATS unit workload and it will vanish all efforts provided so far to establish the u-space.

Postpone amendments to sera.9005 till procedures and RTF will be adequately developed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *159* comment by: *GdF*

Despite the introduction of UAS as an item of the FIS is described as a preventive measure for times when the UAS traffic will be much more developed, at the current stage there are problems both related to the acquisition of information on UAS and on the provision of the service.
According to the U-space package, ATS units are not aware of the presence of UAS. The only information they have is that there is a part of the airspace identified/restricted as U-space airspace. The same information is available to pilots. This is a one direction flow of information (ATS provides info on manned aircraft to USSP to be used into the u-space traffic information service). Same path with TRA established by NOTAM.
FIS, according to SERA.9005.b.2, provides collision hazards to aircraft operating in airspace Classes C, D, E, F and G. The methodology to provide this information is well established (SERA section 14, 2.1.8) and it comprises of position, level, direction and type of the traffic. Information that is not known to ATS nowadays. In addition, if UAS traffic levels will increase

to the expected levels, providing all traffic information/collision hazards will significantly increase the ATS unit workload and it will vanish all efforts provided so far to establish the U-space.
GdF is suggesting postponing amendments to SERA.9005 till procedures and RTF will be adequately developed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *274* comment by: *EUMETNET ASP*

With regard to operating sites for Urban Air Mobility it should be recognised that, unlike traditional aerodromes that have been established for many years, there is typically no climatology information for the potentially numerous sites that might be established to support such operations. Where surrounded by and in close proximity to urban - especially multi-storey - structures such climatology and in particular wind flow will be very complex.

Even the siting of meteorological instruments at operating sites and in the vicinity to properly measure the weather parameters relevant to take-off/departure and approach/landing has not been adequately researched/determined.

The existing text presupposes that existing capabilities are/will be sufficient. Research and development in these areas will be needed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *713* comment by: *FOCA Switzerland*

Regarding the first paragraph, FOCA understands with the proposed approach that the entity providing FIS would have knowledge of UAS activities, which does not seem to be the approach applied in the U-Space regulation for ANSPs. We suggest to verify if an alignement is necessary.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1031* comment by: *Danish Civil Aviation and Railway Authority - DCARA*

See also comment no. 1030.

The proposed changes to SERA.9005 leading to the mentioned consequential amendments to ATS.TR.305, is not supported as mentioned in comment no. 1030.

If EASA retains the proposed amendments to SERA.9005, when is the consistency amendments to ATS.TR.305 foreseen to be proposed?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1090* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Information on unmanned aircraft, Ch. 2.3.6.4, 923/2012, page 44
We agree that scope must change and clarification on which aircraft should be included. Phraseology might need to be updated.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.6.3 The term 'operating site' p. 44

comment *318* comment by: *FlightSafety International*

Agree with: "It was concluded that, like heliports, vertiports are categorised as aerodromes. As a consequence, there is no need to mention vertiports as an alternative to aerodromes."
For consistancy throughout, use the term "aerodrome" rather than vertiport, unless the context refers to operations at a vertiport only and wouldn't include an airport or heliport.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *541* comment by: *DJI Technology*

As regards point SERA.8020 Adherence to flight plan and weather deterioration below VMC, manned VTOL-capable aircraft, operating initially in VFR, but also helicopters, may elect to land at places other than an aerodrome in some cases; therefore, it is considered acceptable to extend the possibility to land elsewhere than at an aerodrome as a possible option in case of necessity due to weather.
add the required alternative flight route and airport information in the flight plan.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *849* comment by: *FAA*

4th paragraph on page 44 states:
In point SERA.11005(ab) Unlawful interference, 'attempt to land as soon as practicable' would be the required immediate action by the pilot-in-command, as stated in the provision.

As soon as practicable and *immediate* can be interpreted differently, especially when operating aircraft. Consider rephrasing to remove the word *immediate* and state ***attempt to land as soon as practicable would be the required action by the pilot in command.***

5th paragraph on page 44 states:
It was concluded that, like heliports, vertiports are categorised as aerodromes. As a consequence, there is no need to mention vertiports as an alternative to aerodromes.

Suggest rationale or clarifying language for the creation of the new phrase (vertiport) if vertiports, like heliports, are categorized as aerodromes.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.4. What are the expected benefits and drawbacks of the proposed amendments p. 45

comment | *11* comment by: *ACI EUROPE*

page 46:

Table of Affected Regulatory Domains & Main benefits/drawbacks.

General Comment: Inclusion of the table of affected regulatory domains and main benefits / drawbacks is very helpful and instructive!

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *264* comment by: *DGAC FR (Mireille Chabroux)*

2.4 What are the expected benefits and drawbacks of the proposed amendments

AIR OPS:
Regarding the impact on EU MS for the certification of commercial and non-commercial operators of manned VTOL-capable aircraft, DGAC-FR would like to highlight the fact that, additional costs are foreseen as VTOL capable aircraft are very different from helicopter and aeroplane and thus the implementation of the regulation will need at least additional training for inspectors.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *275* comment by: *EUMETNET ASP*

There is no referenced to reviewing rules regarding MET services to support the type of operations proposed in this NPA. The meteorological challenges sub-500 FT (beyond the aerodreome) and in the urban environment should not be underestimated.

The existing text presupposes that existing MET services (Part-MET to (EU) Regultion 2017/373?) will be sufficient. Research and development in these areas will be needed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *349* comment by: *Norwegian Air Traffic Controller Association*

NATCA feels that the ATM-side is not properly discussed in this NPA. Are VTOL drones supposed to operate with the same ATM-rules as manned aircraft/helicopters and so on? Manned VTOL could integrate in the same airspace but the NPA also mentions: "This regulatory proposal contributes to ensuring a high and uniform level of safety as regards operations with UAS and manned VTOL-capable aircraft". This NPA does little or nothing to address the challanges of unamnned drones operating in the same airspace as manned "regular" aviation. As of today the rules on separation between unmanned and manned aircraft are not fit for purpose and should be updated at the earliest possible date.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *722* comment by: *FOCA Switzerland*

1. Regarding the last subject ("ATM") on page 47, FOCA is of the opinion that noise protection should not be the only issue referred to at this point. Privacy, environmental, or security protection should also be taken into account.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *799* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 46/47)
Table of Affected Regulatory Domains & Main benefits/drawbacks

General comment
The inclusion of the table of affected regulatory domains and main benefits / drawbacks is very helpful and instructive.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *850* comment by: *FAA*

2nd paragraph under section 2.4 states:
The regulatory proposal enhances the market development in the field of IAM with an efficient and well-designed regulatory framework, free of burdensome provisions.

Recommend adding language to the end of this sentence to state, "*The regulatory proposal enhances the market development in the field of IAM with an efficient and well-designed regulatory framework, free of burdensome provisions* ***while preserving safety***."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *934* comment by: *Civil Aviation Authority the Netherlands*

Page 46, table on Air OPS:

This is a step towards unmanned.
Only VEMS is mentioned. However, the impact for NAAs on "regular" commercially manned VTOL is not mentioned;.
If a non-existent company wants to do this, the NAA will have a problem/great challenge (UAM).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *982* comment by: *FOCA (Switzerland)*

Page 47, ATM: Predefined routes:
FOCA would like to propose that fixed routes are not mandatory demanded for manned (e)VTOL flights. Instead, there should be increased efforts to study the use of U-space airspace infrastructure as flight management for manned aircraft. Furthermore, FOCA is of the opinion that new flight rules such as more altitude restriction layers based on aircraft speed or noise should also be considered as a possible solution.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1037* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

A predefined route does not necessarily imply greater public acceptance - indeed it might lead to community opposition to initial operations due to the lack of dynamic routing.

PROPOSED ACTION/RESOLUTION

EASA to consider amending the text as proposed:

"The establishment of predefined routes would allow to systematically avoid flying over areas and buildings that, for any reason, require noise protection.
~~*Furthermore, the possibility to avoid flying over 'sensible' places and the assurance of deconflicting paths thanks to predefined routes would help gain greater public acceptance.*~~
However, the system of predefined routes might impose limitations on some types of operations."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1093* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

General, Ch. 2.4, page 45
What are the expected benefits and drawbacks of the proposed amendments?
Regarding predefined routes, what if aircraft need to adjust or leave route .

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1248* comment by: *European Cockpit Association* Commented text: However, the system of predefined routes might impose limitations on some types of operations. Comment: Agree. The development of these must go hand in hand with a dynamic airspace reconfiguration and U-space. Routes should be RMZs and transponder mandatory zones.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

2.3.6.5 Operation of an SSR transponder p. 45

comment	*94* comment by: *Supernal* Does this include ADS-B out capablility? Does it apply in all classes of airspace? THere are remote locations and classes of airspace where transponders are not required.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*542* comment by: *DJI Technology* VTOL with electric or fuel power unit. Should be equipped with SSR transponder。It is convenient for monitoring in the operational airspace.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1092* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* **Operation of an SSR transponder, Ch. 2.3.6.5, 923/2012, page 45** We agree to the argument that VTOL is not to be considered an "aircraft without sufficient electrical power". Just be careful on the wording as we don't want the interpretation to be that it is ok to turn off the transponder when low on electricity.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1247* comment by: *European Cockpit Association* Commented text: However, **being equipped with a serviceable transponder may remain optional** depending on the type of operation and the operational environment considered. Comment: Transponder should be mandatory! The risk reducing effect of seeing other aircraft on ACAS (for aircraft equipped with ACAS) is tremendous. This is in addition to the benefits from being visible to ATC. Especially for new technology and aircraft that are not yet designed nor built, transponders should be mandatory. The use of e-conspicuity devices (technology that helps pilots, unmanned aircraft users and air traffic services be more aware of what & who is operating in surrounding airspace) - should be further explored.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 1 Scope and definitions p. 48

comment	*55* comment by: *Wingcopter GmbH* The phrase "the command unit does not include any ground-, air-, or space-based equipment or items of equipment that support(s) the command and control (C2) link service;" might be misunderstood as the modem installed oon a computer may be considered such an item but is probably not meant to be excluded. The definition should be clearer or it should be changed to "the command unit does not include any ground-, air-, or space-based equipment or items of equipment, i.e. associated infrastructure such as stellites, cellular network stations, etc., that support(s) the command and control (C2) link service. Items supporting C2 link services that are integral part of the command unit such as modems are considered part of the CU.;"
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*65* comment by: *Wingcopter GmbH* the definition of command unit in (l) is limited to unmanned aircraft; however, there could be a command unit for manned but remotely piloted aircraft in future.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *66* comment by: *Wingcopter GmbH*

same for (n): it could also remotely control a manned but remotely piloted aircraft.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *103* comment by: *EDA/NH*

Please recommend EASA to replace "means the equipment or items of equipment" in the sentence with "means all equipment" (first case) or with "means all equipment and items" (second case).

The reasons are:

- first case:
- If every item needed to control an UA is part of/belongs to an equipment, then "items of equipment" is a duplication because all "items" are included in all "equipments".
- second case:
- If not every item needed to control an UA is part of/belongs to an equipment, then the current wording "means the equipment or items of equipment" would not include the items not being part of/belonging to an equipment but necessary to control the UA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1041* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to the second part of 'command unit' definition in Art. 1.2 (l):

"the command unit does not include any ground-, air- or space-based equipment or items of equipment that supports the command and control (C2) link service;"

This definition seems to exclude any equipment or item of equipment making part of the CU configuration to support the C2 Link (e.g radio receivers/transceivers). Reference to C2 link services must be emphasized to avoid misunderstanding. The exclusion shall be also extended to navigation related services as GNSS satellite constellations or ground based GBAS.

(See definition within chapter 2.3.14.1 "to support command and control functions, such as but not limited to satellite communication systems or GNSS.")

PROPOSED ACTION/RESOLUTION

EASA to consider the following proposal:

"command unit" ('CU') means the equipment or items of equipment used to control unmanned aircraft remotely as defined in Article 3 (32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during any phase of flight. ***This includes all CU equipment necessary to send and/or receive information over a data link .***

The following example can be used to develop guidance:

Equipment necessary to send and/or receive information over a data link typically includes mobile-telephony modem and antenna, space-based communicaiton system and antenna, etc. However, it does not include any ground-, air- or space-based equipment or items of equipment being part of any external service infrastrucure supporting the command and control (C2) link, the navigation (i.e GNSS), or any other external service (i.e internet connection to the CU).

EASA should apply the same modification in the CU definition given in other regulations amended or introduced by the NPA, e.g. section 3.4 - Arcticle 2 - Definitions

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1332* comment by: *Gregory Walden*

The definition (i) of "command unit" needs to be clarified

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.1.1. Draft cover regulation p. 48

comment: *160* comment by: *GdF*

"The command unit does not include any ground-, air-, or space-based equipment or items of equipment that supports the command&control (C2) link service".
A proper definition of this "command unit" has to be verified against the definition of the RPS, which has already been commonly agreed upon.

GdF believes that ICAO has dropped this acronym of the C2 as command and control already two years ago. A commonly agreed nomenclature would be appreciated and supported.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *239* comment by: *Civil Aviation Authority the Netherlands*

The definition of command unit explicitly excludes that the equipment for the C2 link service is part of the unit. How is the C2 link equipment regulated?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *299* comment by: *ASD*

comment:
"(l) [...] the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;"
This definition seems to exclude any equipment or item of equipment making part of the CU configuration to support the C2 Link (e.g radio receivers/transceivers). Reference to C2 link services must be emphasized to avoid misunderstanding
The exclusion shall be also extended to navigation related services as GNSS satellite constellations or ground based GBAS.
(See definition within chapter 2.3.14.1 "to support command and control functions, such as but not limited to satellite communication systems or GNSS.")

Suggested resolution:

command unit' ('CU') means the equipment or items of equipment used to control unmanned aircraft remotely as defined in Article 3 (32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during any phase of flight. This includes all CU equipment necessary to send and/or receive information over a data link .
Following example can be used to develop guidance.
included: typically mobile-telephony modem and antenna; space-based communicaiton system and antenna, etc...However it does not include any ground-, air- or space-based equipment or items of equipment being part of any external service infrastrucure supporting:
- the command and control (C2) link,
- the navigation (i.e GNSS),
- any other external service (i.e internet connection to the CU).
Apply the same modification in the CU definition given in other regulations amended or introduced by the NPA, e.g. section 3.4 - Arcticle 2 - Definitions

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *540* comment by: *AIRBUS*

Section 3.1.1 Page 48-49

Comments

"the command unit does not include any ground-, air- or space-based equipment or items of equipment that supports the command and control (C2) link service;" it shall be also extended to navigation related services as GNSS satellite constellations or ground based GBAS. (See definition within chapter 2.3.14.1 "to support command and control functions, such as but not limited to satellite communication systems or GNSS.")

Suggestions

To mention that the external services are not only limited to C2 link, but also navigation (i.e GNSS) or any other external service (i.e internet connection to the CU).

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *852* comment by: *FAA*

3.1.1.2.(l) (and multiple times later throughout document)

The caveat that "the command unit does not includeany ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;" seems vague and vastly shrinks the scope of what a command unit might include. It would seem that maintaining a ***COMMAND*** and control link between an operator and a UA is one of the most quintessential functions of a ***COMMAND*** unit. The qualifier that C2 link equipment is not part of a command unit leaves me to wonder what systems or subsystems would then be within the scope of this proposed amendment that is largely based on adding command units to existing language. For instance, would a radio that is installed as part of a ground control station that is transmitting operator commands up to a UA be part of a command unit? What about the antenna(s) that the radio is connected to? If you take out all such parts of the ground portion of many UAS, you might just be left with the operator interface and not much of the "back end" that makes the system work. Perhaps that is the intent here?
In 2.3.1.4.1, satellite communication systems and GNSS are provided as examples of such systems that are not within a command unit scope. The GNSS example makes sense since we would not regard it as "part of" a UAS, but rather a system supporting the UAS via PNT input signals. For the satellite communication system example, we would think that whatever piece

of ground-based system that interfaces with a presumably existing commercial SATCOM provider would be of interest to manage as part of a UAS.

Article 3(32) of Regulation (EU) 2018/1139 seems to include all equipment required for safe UA operation that is not onboard the UA itself, which seems contradictory to the exclusion of C2 equipment.

Clarify what is, and is not a part of the envisioned command unit. If equipment supporting the command and control of a UA is not part of a command unit, then what is?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *853* comment by: *FAA*

For the purpose of this Regulation, the definitions in Regulation (EU) 2018/1139 apply. The following definitions shall also apply:
[…]
(c) 'Part 21' means the requirements and procedures for the certification of aircraft and related products, parts, and appliances, command units and command unit components, and of design and production organisations laid down in Annex I to this Regulation;
Adding the command unit and command unit components of UAS into Part 21 regulations creates a potential significant difference between the FAA and EASA and will impact the validation of UAS products. The FAA is currently in the rulemaking process for UA certification and the approval of their associated elements.

The FAA requests a discussion with EASA certification specialist/Subject Matter Expert to ensure compatibility of our certification systems regarding UAS products.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *993* comment by: *Austro Control*

Comment:
Article 1 Scope and definitions of "control OR monitor" in order to imply that the UA can only be controlled by the CU OR monitored by CU.

Proposed Change:
Proposed to change wording into "control and monitor"

Classification:
Editorial

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1133 comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Art. 1 g Reg. (EU) No 748/2012, c. 3, page 48
Why is certification of "command unit" not required according to Art. 1 g, only "command unit components"?

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1134 comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Art 1 l Reg (EU) No 748/2012, c.3 page 48
The definition of command unit is different from the definition in Reg (EU) 2019/945. "Ensures" instead of "supports".

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.1. Proposed amendments to Commission Regulation (EU) No 748/2012 p. 48

comment

316 comment by: *ASD*

Comment on 3.1 (21.A.31)

please clarify the following paragraph:

VTOL capable aircraft and UAS will come with new propulsion systems like EHPS. As this NPA opens the field for Part21 update to introduce such new aircrafts, how such new propulsion systems will be considered? Will TC be mandatory as for engines?

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

550 comment by: *Murzilli Consulting*

Attachment #5

Text in Regulation	Comment	Proposal Text (if applicable)
'command unit' means the equipment or items of equipment to control unmanned aircraft remotely, as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of unmanned aircraft during any phase of flight; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;	Command Unit includes equipment on ground; the term 'ground-, air- or space-based' equipment should be defined as explained in the NPA. Otherwise the definition would exclude ground-based equipment from the command unit which is misleading. Example: With the current definition LTE modems installed in the command unit would be excluded although significant for safe operation	'command unit' means the equipment to control unmanned aircraft remotely, as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of unmanned aircraft during any phase of flight;
'command unit' means the equipment or items of equipment to control unmanned aircraft remotely, as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of unmanned aircraft during any phase of flight; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;	The term "or items of equipment" could be misleading and puts a lot of pressure on suppliers as their products might fall under the command unit definition although they are not delivering command units.	'command unit' means the equipment to control unmanned aircraft remotely, as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of unmanned aircraft during any phase of flight;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *991* comment by: *Austro Control*

Comment:

The possibility to optionally certify the CU alone is welcomed. It could benefit in cases where multiple UA's are controlled by one CU.
For the period from which the amendment comes into force, is there any transitional period considered?

Proposed Change:
Propose to provide explanation.

Classification:
Major-Conceptual

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3. Proposed amendments and rationale

p. 48

comment: *468* comment by: *Airbus-Regulations-SRg*

Page 48/295, paragraph 3, "Proposed amendments and rationale"
General

COMMENT:
The absence of AMC and GM makes commenting activities more difficult.

RATIONALE:
Although the absence of AMC and GM enables a reduction of the volume to comment on, an extensive use
of the possibility to provide rationales in blue italics (as a compensation for) would have helped.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.3A Reporting system

p. 50

comment: *6* comment by: *Lufthansa CityLine GmbH*

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *588* comment by: *AIRBUS*

21.A.3 Page 50

Comments

Can we anticipate that the Part-21 with AMC which will be applicable on 6 March 2023 is also valid for the scope of this UAS NPA?

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *854* comment by: *FAA*

21.A.3A (a)1.(i): Does the requirement to report failures, malfunctions, defects, or other occurrences, apply to any CU component listed in the type design? Or only components issued a Form 1 (core layer)?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.1.2. Annex I - Section A TECHNICAL REQUIREMENTS p. 50

comment *161* comment by: *GdF*

GdF supports the inclusion of an extra chapter about mandatory occurrence reporting systems. In coordination with other domestic and international agencies, EASA could pursue a research program in probabilistic risk analysis (PRA), including the aspect of comparative risk, so that CAA personnel can interpret or apply PRA for proposed technology innovations.

EASA should expand its perspective on a quantitative risk assessment to look more holistically at the total safety risk. Safety benefits, including those outside of aviation should be part of the equation. AAM operations perhaps should be allowed if they decrease safety risks in society—even if they introduce new aviation safety risks—as long as they result in a net reduction in total safety risk.

Where operational data are insufficient to credibly estimate likelihood and severity components of risk, EASA could consider the additional use of a comparative risk analysis approach to compare proposed AAM operations to comparable existing or de minimis levels of risk.

EASA should research and publish applicable quantitative levels of acceptable risk in comparison to other societal activities that pose de minimis risk to people.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *290* comment by: *ASD*

Comment:

21.A.101
"...In addition, the changed product or the changed command unit shall comply with the environmental protection requirements designated by the Agency in accordance with point 21.B.85".
Current Para 21.B.85 concerns the noise, engine emission etc., not relevant to CU.

Suggested resolution:

Do not modify the statement "In addition, the changed product shall comply with the environmental protection requirements designated by the Agency in accordance with point 21.B.85".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *292* comment by: *ASD*

Comment:
21.A.708 (b)(7)
EASA text "Flight conditions include:
[…] (b) any condition or restriction necessary for the safe operation of the aircraft, including:
[…] 7. for unmanned aircraft, the configuration of the command unit used to control the aircraft and specific arrangements and instructions for the operation of the command unit;"
The proposed approach is considering the configuration and operating instruction of the CU as a "condtion or restriction necessary for safe operation of the aircraft". It seems reductive and misleading for the current text of Subpart P.
It would be preferrable to include the configuration of the CU under para (a) as proposed for para (d) and adding relevant text to para (b) highlighting the safe operation of the CU

Suggested resolution:

Proposed text
"Flight conditions include:
(a) the configuration(s) for which the permit to fly is requested, including the command unit configuration

(b) any condition or restriction necessary for safe operation of the aircraft and, for unmanned aircraft, of the command unit, including:
1. the conditions or restrictions put on aircraft itineraries or airspace, or both, required for the flight(s);
2. any conditions or restrictions put on the crew to fly the aircraft, in addition to those defined in Appendix XII to this Annex I (Part 21);
3. the restrictions regarding carriage of persons other than flight crew or the presence of persons not necessary to conduct the flight within the CU arrangement;
[…] 7. for unmanned aircraft, the instructions for the operation of command unit, the specific arrangements and the conditions or restrictions to put on command unit"

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

293 comment by: *ASD*

Comment:

"(l) [...] the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;"
This definition seems to exclude any equipment or item of equipment making part of the CU configuration to support the C2 Link (e.g radio receivers/transceivers). Reference to C2 link services must be emphasized to avoid misunderstanding
The exclusion shall be also extended to navigation related services as GNSS satellite constellations or ground based GBAS.
(See definition within chapter 2.3.14.1 "to support command and control functions, such as but not limited to satellite communication systems or GNSS.")

Suggested resolution:

command unit' ('CU') means the equipment or items of equipment used to control unmanned aircraft remotely as defined in Article 3 (32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during any phase of flight. This includes all CU equipment necessary to send and/or receive information over a data link .
Following example can be used to develop guidance.
included: typically mobile-telephony modem and antenna; space-based communicaiton system and antenna, etc...However it does not include any ground-, air- or space-based equipment or items of equipment being part of any external service infrastrucure supporting:
- the command and control (C2) link,
- the navigation (i.e GNSS),
- any other external service (i.e internet connection to the CU).
Apply the same modification in the CU definition given in other regulations amended or introduced by the NPA, e.g. section 3.4 - Arcticle 2 - Definitions

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *393* comment by: *DGAC FR (Mireille Chabroux)*

General comment:
All along Part-21, "command unit" is added in all requirements related to product. For example, 21.A.15(b) reads "An application for […] shall include, as a minimum, preliminary descriptive data of the product, and command unit, […]".
Not all applicants will be concerned by command unit and DGAC France is wondering if the following wording should not be preferred: "An application for […] shall include, as a minimum, preliminary descriptive data of the product, and command unit if applicable, […]".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *399* comment by: *DGAC FR (Mireille Chabroux)*

Command unit component missing in 21.A.247:

After the issue of a design organisation approval, each change to the design management system that is significant to the demonstration of compliance or to the airworthiness, operational suitability data and environmental protection of the product, part, appliance or command unit and command unit components shall be approved by the Agency before being implemented.
[…]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *401* comment by: *DGAC FR (Mireille Chabroux)*

Command unit missing in 21.A.259(a)(3):

the design organisation is able to provide the Agency with evidence showing that the design management system of the organisation maintains satisfactory control and supervision of the design of products and command unit, repairs and changes thereto under the approval;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *551* comment by: *Murzilli Consulting*

Attachment #6

Text in Regulation	Comment	Proposal Text (if applicable)
text missing in NPA	Annex I of 748/2012 has the title: "Part 21 - Certification of aircraft and related products, parts and appliances, and of design and production organisations" It should reflect command unit as well.	Add to NPA: "Part 21 - Certification of aircraft and related products, parts, appliances, command units and command unit components, and of design and production organisations"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.3B Airworthiness directives p. 51

comment *856* comment by: *FAA*

21.A.3B (b)1: Are airworthiness directives issued to any CU component listed in the type design? Or only components issued a Form 1 (core layer)?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.6 Manuals p. 52

comment *95* comment by: *Supernal*

What manuals should be kept in the posession of the remote operator?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *300* comment by: *ASD*

comment:

21.A.6
added item (b) should be the purpose of a dedicated new requirement because it is related to the determination of the need for a CU installation in a physical environment. Necessary instructions and associated manuals for operators is just a consequence of this determination

Suggested resolution:

Move 21.A.6 Manual (b) in a new specific requirement (e.g 21.A.8 Instructions for command unit installation)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *981* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

21.A.6 (b) delegate the task of providing for the first installation of a part of a UAS system to a possible maintenance organization operating in accordance with the constituting Part-ML.UAS.
In our view, the initial stages of installation must be performed, checked and released by a POA even if the systems referred to are not strictly covered by aeronautical certifications.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1046* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The use of the term ´command unit installation´ in paragraph (b) should be consistent with the definitions in Art. 1 to Reg. (EU) 748/2012.

PROPOSED ACTION/RESOLUTION

EASA to reword the sentence in (b) from:

"for unmanned aircraft, determine whether the installation of a command unit in a physical environment is necessary, and provide the operator with all the necessary instructions for the installation and release of the command unit in accordance with Annex I (Part-ML.UAS) to Commission Delegated Regulation (EU)

to:

"for unmanned aircraft, determine whether ***the command unit installation*** *in a physical environment is necessary, and provide the operator with all the necessary instructions for*

the installation and release of the command unit in accordance with Annex I (Part-ML.UAS) to Commission Delegated Regulation (EU)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.5 Record-keeping p. 52

comment *396* comment by: *DGAC FR (Mireille Chabroux)*

Mention of command unit or command unit component missing:

[…] when they produce a product, part, appliance, command unit or command unit component, record the details of the production process relevant to the conformity of the product, part or appliances, command unit or command unit component with the applicable design data, and the requirements imposed on their partners and suppliers, and make that data available to their competent authority in order to provide the information that is necessary to ensure the continuing airworthiness of the product, part, ~~or~~ appliance, command unit or command unit component.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *857* comment by: *FAA*

Does the record-keeping requirement apply to any CU component listed in the type design, or only components issued a Form 1 (core layer)?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.7 Instructions for continued airworthiness p. 53

comment *858* comment by: *FAA*

21.A.7 b(3): There is no differentiation between components in the command unit. Is it the expectation that ICAs include the entire unit and its components to include core layer and outer-layer?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.11 Scope p. 54

comment *295* comment by: *ASD*

Comment:

21.A.11
"This Subpart establishes the procedure for issuing type-certificates for products and command units and restricted type-certificates for aircraft,…". Restricted type-certificates may apply also to CU, not only to A/C

Suggested resolution:

"This Subpart establishes the procedure for issuing type-certificates for products and command units and restricted type-certificates for aircraft and CU,…"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *444* comment by: *Baines Simmons*

The levels of Continuing Airworthiness controls for Most complex and critical applications such as unmanned aircraft for the transportation of passengers & for parcel delivery operated in the 'specific' as well as those operated in the 'certified' category do not seem to mirror the existing requirements for fixed-wing & helicopter operations. CAO.UAS. does not match comparable operations in the established operational environment and we feel that 'certified' operations should attract the same levels of Continuing Airworthiness control, in particular the Management System that are required under Part-CAMO. We feel that broadly the same principles (based on risk) should apply to UAS , mirroring the responsibilities in GM M.A.201.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART B - TYPE-CERTIFICATES AND RESTRICTED TYPE-CERTIFICATES p. 54

comment *397* comment by: *DGAC FR (Mireille Chabroux)*

Command unit missing in 21.A.20(d)(2):

No feature or characteristic has been identified that may make the product or command unit unsafe for the uses for which certification is requested.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.19 Changes requiring a new type-certificate p. 55

comment *357* comment by: *Thurling Aero Consulting*

My concern in this section regards the second parapragh "Any natural or legal person that proposes to change a command unit shall apply for a new type certificate if the Agency finds that the change in design is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the configuration. Changes to COTs equipment will be difficult to track, and even if successful, will drive quite a large burden onto EASA to approve these changes.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.21 Requirements for the issuance of a type certificate or restricted type certificate p. 55

comment *552* comment by: *Murzilli Consulting*

Attachment #7

Text in Regulation	Comment	Proposal Text (if applicable)
[...] 3. demonstrate, for aircraft type certificates or restricted type certificates, that the engine or propeller, or both, if installed on the aircraft, and the command	Current wording tends to imply that either a command unit is required for all aircraft types or that the paragraph may just be applicable for unmanned aircraft and	[...] 3. demonstrate, for aircraft type certificates or restricted type certificates, that the engine or propeller, or both, if installed on the aircraft, and, in case of unmanned aircraft, the

unit used to control the unmanned aircraft: [...]	not all aircraft. Provide more clarity.	command unit used to control the unmanned aircraft: [...]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.35 Flight T t ests p. 56

comment *5* comment by: *OzgurDerman*

For manned aircraft with a maximum take-off mass (MTOM) of 2 722 kg or less are exempted from the mimimum 150 hours of functional and reliability flight testing requirement. But there is no weight classification defined for the unmanned aircraft systems in the requirement 21.A.35.f.2. That means any unmanned aircraft under certified category is subject to this requirement:
"for unmanned aircraft, the flight hours that the Agency finds necessary, considering the degree of complexity of the design of the aircraft and the command unit, and their risk on safety, to ensure that its safe operation is demonstrated before the aircraft enters service."
1. I think it may be benefical to define a minimum weight limit (i.e. less than 600 kg) for the unmanned aircraft within the certified category to exempt from functional and reliability flight test hour minimum limit.
2. Also 21.A.35.b.2.(iii) exemption is for manned small aeroplanes only, for all small rotorcraft and VTOL vehicles there is no exemption. In my opinion for VTOL vehicles with no lifting wings and only with a single passenger (maximum two occupants, 1 pilot, 1 passenger) and below 1200 kg MTOM, functional and reliability testing requirement may be exempted. The flight tests executed during the certification program shall be enough evidance for the functionality and reliability testing.
3. With respect to 21.A.35.f.1.(ii) the turbine aircraft's 300 hours of flight test value, same amount of flight test hours may be defined for the unmanned turbine engined aircraft. 21.A.35.f.2 functional and reliability flight testing duration for the turbine unmanned aircraft be set as at least 300 hours.
4. For the newly developing electric propulsion/conversions in analogy with the turbine aircraft at least 300 hours of flight testing may be set as a requirement for CS23 normal-category Level 4 and CS25/29 type certified electric propulsion aircraft.
Regards.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *16* comment by: *Vertical Aerospace*

Does the Agency plan to indicate any exception or additional specification for electrically driven manned small category aircrafts/VTOLs in Flight test part ?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *301* comment by: *ASD*

comment:

21.A.35(f)(2)
The number of flight test hours mentionned in this requirement is a minimum (150h or 300h). This does not prevent EASA to find necessary more flight trst hours when deemed necessary, in particular initially for unmanned aircraft considering the novelties and the complexity of such system. Based on that, it is not necessary to add the paragraph (f)(2) dedicated to UA as it is implicit in the original requirement
In order to provide uniform approach for all applicants for the same UAS degree of complexity & operational scenario, it is encouraged the implementation of proper actions to establish a minimum number of flight hours for each UAS degree of complexity & operational scenario.

Suggested resolution:

Remove distinction added between manned and unmanned aircraft in (f)
EASA to propose a plan to establish minimum number of flight hours for each UAS degree of complexity & operational scenario.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *305* comment by: *ASD*

Comment:
21.A.35 Flight Tests
It is assumed that Flight Test is mandatory for a TC covering both Aircraft and the CU. In case of CU TC, is it required a Flight Test or a "simulated fight test" is enough to certify the CU?

Suggested resolution:
It is suggested to include the possibility of simulated flight test for the CU TC in the AMC to Part 21.A.35

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *394* comment by: *DGAC FR (Mireille Chabroux)*

Even if DGAC France fully understands the approach of remaining flexible in the number of test flight hours required for UAS type certification, what are the rationales for not mandating a minimum? Is the Agency expecting (and willing to allow) requests from the industry for UAS type certification without any flight test hours?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *480* comment by: *JEDA*

Some aspects may have been certified by Notified Bodies, based on applicable industry standards. Based on the principles of performance-based and risk-based regulation, the related tests should not be repated and the Agency should credit NB certifications- Examples of related industry standards can be found on https://www.iso.org/committee/5336224/x/catalogue/p/0/u/1/w/0/d/0

Alternative text:

For unmanned aircraft, the flight hours that the Agency finds necessary, considering the degree of complexity of the design of the aircraft and the command unit, their risk on safety and possibly held certifications based on relevant industry standards, to ensure that its safe operation is demonstrated before the aircraft enters service.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *496* comment by: *Volocopter GmbH*

21.A.35 (f): Considering the EASA proportionality principle in Part 21, it is proposed to also introduce a proportional approach for Innovative Air Mobility Craft in this paragraph to address the highly varying average sector times of aircraft certified under this requirement, that is based on the typical average flight duration and the resulting expected number of cycles that are proportional to the different operating types.

Rationale: It is undue burden for (electric) Innovative Air Mobility craft with a maximum technical possible operational flight endurance of less than 30 Minutes to show the same number of R&F Testing as a new type of long-range CS-25 aircraft with typical economical mission time above 6h flight time per sector. Practically for the hypothetical CS-25 aircraft, the required 150fh R&F Testing (TC'ed engine used) can be accomplished in 25 flights/cyles @

6fh which can be easily implemented. The same 150fh reflect 300 flights/cycles for an (electric) Innovative Air Mobility craft which is a significantly increased logistical effort. Therefore it is proposed to offer an optional additional alternative based on a representative number of cycles also for manned aircraft.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *557* comment by: *AIRBUS*

21.A.35 Flight Tests Page 56

Comments

It is assumed that for a TC covering the Aircraft and the CU Flight Test is mandatory.
In case of CU TC, is it required a Flight Test or a "simulated fight test" is enough to certify the CU?

Suggestions

It is suggested to include the possibility of simulated flight test for the CU TC in the AMC to Part 21.A.35.

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *610* comment by: *ASD*

21.A.35 Flight tests: (b) 2. No exemption is proposed for unmanned aircraft, why not the same kind of exemption as for manned aeroplanes?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *612* comment by: *Volocopter GmbH*

21.A.35 (f)(2): The approach for manned and unmanned aicraft flight testing should be consistent. Considering short flight durations of IAM missions, it is proposed to introduce a proportional approach for required flight test hours based on duration of flights and number of expected cycles.

Such approach shoud be further clarified in AMC & GM material, giving guideline or maximum flight test number of hours/ cycles.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *983* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text: "for unmanned aircraft, the flight hours that the Agency finds necessary, considering the degree of complexity of the design of the aircraft and the command unit, and their risk on safety, to ensure that its safe operation is demonstrated before the aircraft enters service.";

Alternative text proposed: "for unmanned aircraft, the flight hours that the Agency finds necessary, considering the degree of complexity of the design of the aircraft and the command unit, their risk on safety **and possibly held certifications based on relevant industry standards**, to ensure that its safe operation is demonstrated before the aircraft enters service.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1049* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to 21.A.35 Flight Tests:

It is assumed that for a TC covering the Aircraft and the CU Flight Test is mandatory. In case of CU TC, is it required a Flight Test or a "simulated fight test" is enough to certify the CU?

PROPOSED ACTION/RESOLUTION

It is suggested to include the possibility of simulated flight test for the CU TC in the AMC to 21.A.35

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1050* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to 21.A.35 (f):

Considering the EASA proportionality principle in Part 21, it is proposed to also introduce a proportional approach for Innovative Air Mobility Craft in this paragraph to address the highly varying average sector times of aircraft certified under this requirement, that is based on the typical average flight duration and the resulting expected number of cycles that are proportional to the different operating types.

Rationale: It is undue burden for (electric) Innovative Air Mobility craft with a maximum technical possible operational flight endurance of less than 30 Minutes to show the same number of R&F Testing as a new type of long-range CS-25 aircraft with typical economical mission time above 6h flight time per sector. Practically for the hypothetical CS-25 aircraft, the required 150fh R&F Testing (TC'ed engine used) can be accomplished in 25 flights/cyles @ 6fh which can be easily implemented. The same 150fh reflect 300 flights/cycles for an (electric) Innovative Air Mobility craft which is a significantly increased logistical effort.

PROPOSED ACTION/RESOLUTION

EASA to propose to offer an optional additional alternative based on a representative number of cycles also for manned aircraft.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1282* comment by: *XSUN*

21.A.35(f)(2)
This implies a potential difference in the demonstration for certification depending on the complexity of the foreseen operation. Clarification on how this will be dealt with on the (R)TC would be welcome.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1333* comment by: *Gregory Walden*

The Alliance supports removing the 150-hour requirement for drones

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.31 Type design p. 56

comment *315* comment by: *ASD*

Comment on 3.1 (21.A.31):

please clarify the content of the following paragraph:

VTOL capable aircraft and UAS will come with new propulsion systems like EHPS. As this NPA opens the field for Part21 update to introduce such new aircrafts, how such new propulsion systems will be considered? Will TC be mandatory as for engines?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *553* comment by: *Murzilli Consulting*

Attachment #8

Text in Regulation	Comment	Proposal Text (if applicable)
[...] 1. the drawings and specifications [...] and the design features of the product and the command unit [...] 2. information on the materials [...] assembly of the product and the command unit necessary to ensure the conformity of the product and the command unit; [...] 4. any other data [...] the environmental characteristics of later products and command units of the same type.	Implies that a product and command unit are always existing. Change to "or" instead of "and".	[...] 1. the drawings and specifications [...] and the design features of the product or the command unit [...] 2. information on the materials [...] assembly of the product or the command unit necessary to ensure the conformity of the product or the command unit; [...] 4. any other data [...] the environmental characteristics of later products or command units of the same type.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *859* comment by: *FAA*

21.A.31 (a)1. 2. And 3. Type design: Is it the intention that the type design include the drawing and specification, materials, and processes, and airworthiness limitations of all components that make up the CU?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.33 Inspections and tests p. 56

comment *554* comment by: *Murzilli Consulting*

Attachment #9

Text in Regulation	Comment	Proposal Text (if applicable)
[...] (ii) the parts of the products and the command unit components adequately conform to the drawings in the proposed type design; and [...]	Current wording tends to imply that either a command unit is required for all aircraft types or that the paragraph may just be applicable for unmanned aircraft and not all aircraft. Provide more clarity.	[...] (ii) the parts of the products and the command unit components of unmanned aircraft systems adequately conform to the drawings in the proposed type design; and [...]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *860* comment by: *FAA*

21.A.33 (b) 1.(ii) Inspections and tests: Does this include core layer and outer layer components?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.90B Standard changes p. 57

comment *302* comment by: *ASD*

Comment:
21.A.90B
In line with amendment of 21.A.90B and 21.A.431B for unmanned aircraft, is it foreseen an update of the CS-STAN to cope with UAS specific standard changes or repair changes (e.g. payload change)

Suggested resolution:

To be adressed in future AMC/GM

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *306* comment by: *ASD*

Comment

21.A.90B Standard changes
Specific case of CU TC is not mentioned. Standard change only applicable to the CU could be expected.

Suggested resolution

EASA to confirm the standard changes process will be applicable to CU either under its own TC or the UA TC. If yes amend the 21.A.90B accordingly. Consistency with Part-M provisions on standard changes needs to be ensured.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *520* comment by: *Volocopter GmbH*

In the list provided in 21.A.90B, manned VTOL is not included - only unmanned and rotorcraft (where rotorcraft definition doesn't cover VTOLs). Please add a point addressing manned VTOLs.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *558* comment by: *AIRBUS*

21.A.90B Standard changes Page 57

Comments

Specific case of CU TC is not mentioned. Standard change only applicable to the CU could be expected.

Suggestions

EASA to confirm the standard changes process will be applicable to CU either under its own TC or the UA TC. If yes amend the 21.A.90B accordingly. Consistency with Part-M provisions on standard changes needs to be ensured.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1052* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to 21.A.90B Standard changes:

Specific case of CU TC is not mentioned. Standard change only applicable to the CU could be expected.
PROPOSED ACTION/RESOLUTION

EASA to confirm the standard changes process will be applicable to CU either under its own TC or the UA TC. If yes amend the 21.A.90B accordingly. Consistency with Part-M provisions on standard changes needs to be ensured.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1107* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

21.A.90B Standard changes, c. 3, page 57
Why is not manned VTOL-capable aircraft mentioned? Since there is a possibility for standard changes for both rotorcraft and aeroplane under a certain MTOM, why not have it for all VTOL-capable aircraft as well?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.91 Classification of changes to a type-certificate p. 58

comment | *303* comment by: *ASD*

comment:
21.A.91
Effects on operational suitability data may be relevant as well to the command unit (e.g training data for remote pilots, maintenance data, MMEL…)

Suggested resolution:

Consider adding "operational suitability data" in the list of possible appreciable effects of the command unit, taking into account also the impact on other existing material (e.g. CS, PART FCL) to adapt special needs for CU.
To be done considering other comments on OSD (e.g. 21.A.108)

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.95 Requirements for the approval of a minor change p. 58

comment | *307* comment by: *ASD*

Comment:

21.A.95 Requirements for the approval of a minor change
Specific case of CU TC is not mentioned.

Suggested resolution:

"a minor change to an aircraft type-certificate" to be replaced by "a minor change to an aircraft type-certificate or to a CU TC"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *559* comment by: *AIRBUS*

21.A.95 Requirements for the approval of a minor change Page 58

Comments

Specific case of CU TC is not mentioned.

Suggestions

"a minor change to an aircraft type-certificate" to be replaced by "a minor change to an aircraft type-certificate or to a CU TC"

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1055* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to 21.A.95, the specific case of CU TC is not mentioned.

PROPOSED ACTION/RESOLUTION

EASA to consider replacing *"a minor change to an aircraft type-certificate"* by ***"a minor change to an aircraft type-certificate or to a CU TC"***

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.93 Application p. 58

comment *398* comment by: *DGAC FR (Mireille Chabroux)*

Command unit missing in 21.A.93(b)(3)(iii):

a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product or command unit safety or environmental protection. […]

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *555* comment by: *Murzilli Consulting*

Attachment #10

Text in Regulation	Comment	Proposal Text (if applicable)
[...] 3. for a major change to a (iii) a proposal for the assessment [...]	remove update / strikethrough of "type certificate" or remove "to a" to enable better readability.	3. for a major change: or 3. for a major change to a type certificate:

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.101 Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate p. 59

comment | *297* comment by: *ASD*

Comment:
21.A.101
"...In addition, the changed product or the changed command unit shall comply with the environmental protection requirements designated by the Agency in accordance with point 21.B.85".
Current Para 21.B.85 concerns the noise, engine emission etc., not relevant to CU.

Suggested resolution:
Do not modify the statement "In addition, the changed product shall comply with the environmental protection requirements designated by the Agency in accordance with point 21.B.85".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *964* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text: "...In addition, the changed product or the changed command unit shall comply with the environmental protection requirements designated by the Agency in accordance with point 21.B.85".

Current Para 21.B.85 concerns the noise, engine emission etc., not relevant to CU, so in our view it is better do not modify the statement "In addition, the changed product shall comply with the environmental protection requirements designated by the Agency in accordance with point 21.B.85".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.97 Requirements for the approval of a major change p. 59

comment | *308* comment by: *ASD*

Comment:
21.A.97 Requirements for the approval of a major change
Specific case of CU TC is not mentioned.

Suggested resolution:

a major change to an aircraft type-certificate could be replaced by "a major change to an aircraft type-certificate or to a CU TC"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *560* comment by: *AIRBUS*

21.A.97 Requirements for the approval of a major change Page 59

<u>Comments</u>

Specific case of CU TC is not mentioned.

<u>Suggestions</u>

"a major change to an aircraft type-certificate could be replaced by "a major change to an aircraft type-certificate or to a CU TC"

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1057* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to 21.A.97, the specific case of CU TC is not mentioned.
PROPOSED ACTION/RESOLUTION
EASA to consider replacing *"a major change to an aircraft type-certificate"* by ***"a major change to an aircraft type-certificate or to a CU TC"***

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.108 Availability of operational suitability data p. 60

comment *64* comment by: *Wingcopter GmbH*

Is there a reason why the distribution of OSD is limited to EU operators in (a)? I think it should be made available to all known operators, worldwide.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *309* comment by: *ASD*

Comment:

21.A.108 Availability of operational suitability data
As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.

Suggested resolution:

There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *561* comment by: *AIRBUS*

21.A.108 Availability of operational suitability data Page 60

Comments

As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.

Suggestions

There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1059* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to 21.A.108 Availability of operational suitability data:

As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required. The text of the NPA does not however reflect this.
PROPOSED ACTION/RESOLUTION

There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.122 Eligibility p. 61

comment	*304* comment by: *ASD* Comment: 21.A.122 To confirm that subpart F and G are not mandatory applicable for components being part of the outer layer of the command units Suggested resolution: It is suggested to include the possibility of simulated flight test for the CU TC in the AMC to Part 21.A.35
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*481* comment by: *JEDA* CEN series EN 9100 of standard sets out a comprehensive quality management system for the aerospace sector. Holding related certifications may offer a sound basis for the arrangements between the holder of the design applroval and the production organisation. a new paragraph is needed. Proposed text: Add one more sentence: "Appropriate arrangments may refer to requirements contained in the sereis of industry standards EN 9100"
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1334* comment by: *Gregory Walden* 21.A.122 (b) Alternative text proposed: Add one additional sentence at the end Appropriate arrangments may refer to requirements contained in the series of industry standards EN 9100
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.120B Availability of operational suitability data p. 61

comment *563* comment by: *AIRBUS*

21.A.120B Availability of operational suitability data Page 61

Comments

As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.

Suggestions

There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1060* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to 21.A.120B Availability of operational suitability data:

As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.

PROPOSED ACTION/RESOLUTION
There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.139 Production management system p. 64

comment *482* comment by: *JEDA*

subcontractor assessment audit and control would be better harmonised, consistent and safe, if based on industr tandards (e.g. EN 9100)

Proposed amendment: "vendor and subcontractor assessment audit and control based on appropriate industry standards"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *984* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text: "vendor and subcontractor assessment audit and control;".

Subcontractor assessment audit and control would be better harmonised, consistent and safe, if based on industrial standards (e.g. EN 9100) and so, below is proposed an alternative text: "vendor and subcontractor assessment audit and control based on appropriate industry standards;"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1335* comment by: *Gregory Walden*

'vendor and subcontractor assessment audit and control;'

Alternative text proposed:
vendor and subcontractor assessment audit and control based on appropriate industry standards;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.147 Changes in the production management system p. 65

comment *358* comment by: *Thurling Aero Consulting*

My concern in this section is in regard to the text "significant for the demonstration of conformity or the airworthiness and environmental protection characteristics of the product, part, or appliance, command unit or command unit component, shall be approved." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the

configuration. Changes to COTs equipment will be difficult to track, and even if successful, will drive quite a large burden onto EASA to approve these changes.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.159 Duration and continued validity p. 65

comment *359* comment by: *Thurling Aero Consulting*

My concern in this section is in regard to the text "satisfactory control of the manufacture of products, parts, and appliances, command units and command unit components." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the configuration. Changes to COTs equipment will be difficult to track, and even "satisfactory control" is successful, will drive quite a large burden onto EASA to approve these changes.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.165 Obligations of the holder p. 66

comment *556* comment by: *Murzilli Consulting*

Attachment #11

Text in Regulation	Comment	Proposal Text (if applicable)
(e) where, under its terms of approval, the holder of a production organisation approval intends to issue a certificate of release to service, determine, prior to issuing the certificate, that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation;	Shouldn't the command unit be reflected here as well?	(e) where, under its terms of approval, the holder of a production organisation approval intends to issue a certificate of release to service, determine, prior to issuing the certificate, that each completed aircraft or command unit has been subjected to necessary maintenance and is in condition for safe operation;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *862* comment by: *FAA*

21.A.165 (c)2. Obligations of the holder: Is this to mean that all command unit components are to be issued an EASA Form 1 when it is determined that they are complete and conform to the approved design and are in a condition for safe operation?
This statement does not differentiate between core layer and non-core layer components within the CU, and is contradictory to page 31, Subpart E, which states: "Installation of the CU components on the CU (point ML.UAS.520): — this follows the provisions established in Part 21 (point 21.A.308): for core-layer components, an EASA Form 1 is required whereas for outer layer components, a declaration is sufficient."

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.251 Terms of approval p. 67

comment | *400* comment by: *DGAC FR (Mireille Chabroux)*

Command unit component missing in 21.A.251:

The terms of approval shall identify the types of design work, the categories of products, parts, and appliances and command units and command unit components for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform with regard to the airworthiness, operational suitability data and environmental characteristics of the products and command units.
[…]

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.174 Application p. 68

comment *469* comment by: *Airbus-Regulations-SRg*

Page 68/295, point 21.A.174
quote
"Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include: [...]
a weight and balance report with a loading schedule when required by the applicable certification specifications
for the particular aircraft;"
UNQUOTE

COMMENT:
What is a weight and balance report?
What is a loading schedule?
What are the differences with a mass and balance report (e.g. point M.A.305(c) or point ML.UAS.305(b)(4)) or with
a mass and balance statement (e.g. point M.A.301(h))?
With respect to the mass and balance matter, there is a need for harmonizing the terms used in various Regulations
(Initial & Continuing Airworthiness and Air Operations) and for defining the expectations (i.e. contents of the report,
the statement, and/or the schedule). An AMC to point 21.A.174 would help.

RATIONALE:
The Subpart H and Subpart I have the particularity to be the only ones of Part-21 Section A that have no AMC and no GM.
There are different matters in these Subparts, including mass and balance, that deserve AMC in order to standardise the
demonstration of compliance and facilitate the verification activities of the competent authorities, and GM to provide
explanatory and interpretation material to assist readers in the correct understanding and application of requirements and AMC.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *978* comment by: *Airbus-Regulations-SRg*

Page 69/295, 21.A.174, (b) 3 (ii)
quote:
"(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include: [...]
3. with regard to used aircraft originating from: [...]
(ii) a non-Member State: [...]

— a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness
and for an airworthiness review certificate pursuant to an airworthiness review in accordance with Annex I
(Part-M) to Regulation (EU) No 1321/201435 or an airworthiness review certificate in accordance with Annex Vb
(Part-ML) to Regulation (EU) No 1321/2014 or Annex I (Part-ML.UAS) to Commission Delegated Regulation (EU) …/…;"
UNQUOTE

COMMENT:
There is no notion of recommendation for the issuance of an airworthiness certificate and for an Airworthiness Review
Certificate (ARC) in Part-ML.UAS (after a satisfactory airworthiness review).

RATIONALE:
ML.UAS.906A, about the airworthiness review of UA imported into the Union, provides in its point (b) that:

"If the UA complies with the relevant requirements, the competent authority or the organisation performing the
airworthiness review [...] shall issue an ARC and shall submit a copy to the competent authority of the Member
State of Registry".

Therefore, there is no recommendation issued for imported UAs.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.263 Privileges p. 68

comment *564* comment by: *Murzilli Consulting*

Attachment #12

Text in Regulation	Comment	Proposal Text (if applicable)
[...] 7. to issue a permit to fly in accordance with point 21.A.711(b) for an aircraft it has designed or modified, or	Point 7 is not considered as part of an update so far. Point 7 is only referring to aircrafts in the context of a	[...] 7. to issue a permit to fly in accordance with point 21.A.711(b) for an aircraft system it has designed or

for which it has approved, in accordance with point 21.A.263(c)(6), the flight conditions under which the permit to fly can be issued, and where the holder of a design organisation approval itself: (i) controls the configuration of the aircraft, and (ii) attests conformity with the design conditions approved for the flight; [...]	permit to fly. It is assumed a permit to fly might also be required for new command unit designs as part of an unmanned aircraft system. Add command unit to this point by referring to "aircraft system" instead of "aircraft" only	modified, or for which it has approved, in accordance with point 21.A.263(c)(6), the flight conditions under which the permit to fly can be issued, and where the holder of a design organisation approval itself: (i) controls the configuration of the aircraft system, and (ii) attests conformity with the design conditions approved for the flight; [...]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *565* comment by: *AIRBUS*

21.A.263 Privileges Page 68

Comments

Bullet 1. and 2. are assumed to also cover CU TC.
CU are only mentioned for repairs.

Suggestions

Please confirm our understanding.

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1068* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to 21.A.263 Privileges:

Bullet 1. and 2. are assumed to also cover CU TC. CU are only mentioned for repairs.

PROPOSED ACTION/RESOLUTION

Please confirm GAMA's understanding and clarify the text as appropiate.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.308 Eligibility of a component for installation on a command unit p. 70

comment *104* comment by: *EDA/NH*

For the proposed text for 21.A.308(b)
--> Please recommend EASA to replace the word "nor" in the first sentence with the words "or not".

Reason:
Using "nor" the sentence addresses only "not essential and not specific" components. According to what is intended (see last sentence of Chapter 2.3.1.4.3 "Installation of CU and CU components" of the NPA 2022-06 on page 28), paragraph 21.A.308(b) must address the components groups 2 - 4. This would be achieved by replacing the word "nor" with "or not". Otherwise, the entire paragraph 21.A.308 would only address the first and the forth group of components, while the second and third group would remain unaddressed.

Comment based on considering that CU components are subdivided into the following 4 different groups:

1. *essential and specific*
2. *essential and not specific*
3. *not essential and specific*
4. *not essential and not specific*

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *395* comment by: *DGAC FR (Mireille Chabroux)*

The logic proposed for 21.A.308 is not the one retained in the existing 21.A.307.
Indeed:

- 21.A.307: all items need a Form 1 except if ICAs indicate that no Form 1 is required.
- Porposed 21.A.308: Form 1 is not needed except if the item is identified as essential and specific by the design holder.

Is this voluntary because the amount of essential and specific items is anticipated to be limited for each CU?
Another option could be to indicate that all items need a Form 1 except if identified as non-essential and non-specific by the design approval holder (existing 21.A.307 logic). *Note: A change in 21.A.308 might imply changes in Part-ML.UAS (ML.UAS.304/305/520).*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *505* comment by: *Volocopter GmbH*

21.A.308 refers to 'component which is both essential and specific to the intended UA operation', however the NPA doesn't define nor clarify the criteria for components to be considered 'essential and specific' for the operation. Some explanation is given in the introduction section to the NPA, however this will not become a part of a future regulation.

Criteria for 'essential and specific components' are needed in the regulation. This should be defined at AMC&GM level.

Furthermore, the methodology of identifying essential and non-essential CU components should be aligned between Specific Operations and Type Certified Designs.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *574* comment by: *AIRBUS*

21.A.308(b) Eligibility of a component for installation on a command unit Page 70

<u>Comments</u>

The paragraph (b) applies as written only to CU components that are "not deemed essential nor specific to the intended UA operation". A CU component that will be specific but not essential would therefore not meet the condition of applicability of paragraph (b). The same component will also not meet the condition of applicability of paragraph (a) "both essential and specific to the intended UA operation".

Suggestions

The condition of applicability of the paragraph (a) and (b) should be clarified: essential but not specific shall be also covered.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *575* comment by: *AIRBUS*

21.A.308(b) Eligibility of a component for installation on a command unit Page 70

Comments

The paragraph (b) does not require the outer layer CU component to be accompanied with specifications from the TC holder of the UA. EASA RMT.0230 concept paper page 27: "The type design of the UA will specify required performance of elements of the outer layer"
The paragraph (b) should also include a reference to the necessary required performance of the outer layer CU component as specified in the type design of the UA in accordance with 21.A.31.

Suggestions

"(2) the installer holds a document issued by the person or organisation that has manufactured the element, which declares the name and identification of the component, the conformity of the component with its design data, **the performance specifications applicable to the unmanned aircraft**, and contains the issuance date."
Consider including the performance specifications in the TCDS of the UA.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *606* comment by: *ASD*

Comment:

21.A.308(b)
The paragraph (b) applies as written only to CU components that are "not deemed essential nor specific to the intended UA operation". A CU component that will be specific but not essential would therefore not meet the condition of applicability of paragraph (b). The same component will also not meet the condition of applicability of paragraph (a), referring to component "both essential and specific to the intended UA operation"

Suggested resolution:

The condition of applicability of the paragraph (a) and (b) should be clarified and aligned with "2.3.1.4.3 Installation of CU and CU components"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *607* comment by: *ASD*

Comment:

21.A.308(b)
The paragraph (b) does not require the outer layer CU component to be accompanied with specifications from the TC holder of the UA. EASA RMT.0230 concept paper page 27: "The type design of the UA will specify required performance of elements of the outer layer" The paragraph (b) should also include a reference to the necessary required performance of the outer layer CU component as specified in the type design of the UA in accordance with 21.A.31.

Suggested resolution:

Proposed text:
"(2) the installer holds a document issued by the person or organisation that has manufactured the element, which declares the name and identification of the component, the conformity of the component with its design data, the performance specifications specified by the TC holder of the Unmanned aircraft , and contains the issuance date."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *609* comment by: *ASD*

Comment:

(...)21.A.308 Eligibility of a component for installation on a command unit
(a) A command unit component which is both essential and specific to the intended UA

operation, as determined by the design approval holder, is eligible for installation on a command unit provided it is in a condition for safe operation, is marked in accordance with Subpart Q, and is accompanied by an authorised release certificate (EASA Form 1). (b) A command unit component which is not deemed essential nor specific to the intended UA operation, is eligible for installation on a command unit provided that: (1) it is in a condition for safe operation; and (2) the installer holds a document issued by the person or organisation that has manufactured the element, which declares the name and identification of the component, the conformity of the component with its design data, and contains the issuance date (,,,)

Suggested resolution:

We understand the intent that is similar to part eligible for installation without EASA F1.
Sub-para (b) is a little bit contradicting. If an element of the command unit is not essential nor specific (assumed for safety reasons), why is to be in condition for safe operation if its contribution to safety is none (text in red above)?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *611* comment by: *ASD*

Comment:

If a certified CU is used in the certification of different UAS, the list of essential and specific equipments may vary depending on the UAS, how shall the CU TC holder deal with that in order that the CU manufacturer delivers the adequate document ?
This may be dealt at time of initial certification through development of variants of the certified CU dedicated to each specific UAS TC. If not dealt that way, a change required at the level of a didicated UAS mght not be compatible with other UAS.

Suggested resolution:
Need for AMC/ GM

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *815* comment by: *UAV DACH e.V.*

Reference: (a) A command unit component which...

Comment: 21.A.308 refers to 'component which is both essential and specific to the intended UA operation', however the NPA doesn't define nor clarify the criteria for components to be

considered 'essential and specific' for the operation. Some explanation is given in the introduction section to the NPA, however this will not become a part of a future regulation.

Proposal:
Definition of Criteria for 'essential and specific components' for this Regulation at AMC&GM level.
The methodology of identifying essential and non-essential CU components should be aligned between Specific Operations and Type Certified Designs

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *865* comment by: *FAA*

This section speaks of essential and specific and non-essential/not specific components. Are these synonymous with core layer and outer layer?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *887* comment by: *ADAC Luftrettung gGmbH*

Rule: **21.A.308** - Page 70

Comment:
It is unclear, what "essential to the intended UA operation" and "specific to the intended UA operation" really means. It should be clarified in a way that does not predetermine later operational use. Especially niche types of operation, like in the EMS or medical domain are dependent on flexible operational use of equipement, not necessary forseen by the design approval holder.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1072* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The paragraph (b) as proposed seems to apply only to CU components that are *"not deemed essential nor specific to the intended UA operation".* A CU component that will be specific but not essential would therefore not meet the condition of applicability of paragraph (b). The same component will also not meet the condition of applicability of paragraph (a) *"both essential and specific to the intended UA operation"*
PROPOSED ACTION/RESOLUTION

The condition of applicability of the paragraph (a) and (b) should be clarified: essential but not specific shall be also covered.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1075* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The paragraph (b) does not require the outer layer CU component to be accompanied with specifications from the TC holder of the UA. EASA RMT.0230 concept paper page 27 states: *"The type design of the UA will specify required performance of elements of the outer layer".*

Paragraph (b) should also include a reference to the necessary required performance of the outer layer CU component as specified in the type design of the UA in accordance with 21.A.31.

PROPOSED ACTION/RESOLUTION
EASA to consider amending the text as proposed:

"(2) the installer holds a document issued by the person or organisation that has manufactured the element, which declares the name and identification of the component, the conformity of the component with its design data, ***the performance specifications applicable to the unmanned aircraft*** *, and contains the issuance date."*

Consider including the performance specifications in the TCDS of the UA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1078* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Editorial comment for better interpretation in para (a)

PROPOSED ACTION/RESOLUTION

EASA to consider changing the word identified below:

"A command unit component ~~which~~ ***that*** *is both essential and specific to the intended UA operation, as determined by the design approval holder, is eligible for installation on a command unit provided it is in a condition for safe operation, is marked in accordance with Subpart Q, and is accompanied by an authorised release certificate (EASA Form 1)"*

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.303 Compliance with the applicable requirements p. 70

comment | *402* comment by: *DGAC FR (Mireille Chabroux)*

Command unit missing in 21.A.303(a):

in conjunction with the type-certification procedures of Subpart B, D or E for the product or command unit in which it is to be installed;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *483* comment by: *JEDA*

'officially recognised' may be a term historically used for decades. But it is equally not sufficiently clear. The term 'industry standard' used in 965/2012 AMC1 ARO.GEN.305(b);(c);(d);(d1) Oversight programme, would be better.

Proposed amendment: "in the case of standard parts, in accordance with applicable industry standards".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *573* comment by: *AIRBUS*

21.A.303 Compliance with the applicable requirements Page 70

Comments

The showing of compliance in accordance with subpart D or E is request also for command unit component, including outer layer components. The installation of such a component would therefore be considered as a change to the TC or a supplemental TC (STC) Additional criteria for classification of such changes to TC as minor or major are necessary.

Suggestions

EASA is requested to provide additional classification criteria for changes to the command unit related to the installation of command unit components.

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1070* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The showing of compliance in accordance with subpart D or E is request also for command unit component, including outer layer components. The installation of such a component would therefore be considered as a change to the TC or a supplemental TC (STC) Additional criteria for classification of such changes to TC as minor or major are necessary
PROPOSED ACTION/RESOLUTION

EASA is requested to provide additional classification criteria for changes to the command unit related to the installation of command unit components.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1336* comment by: *Gregory Walden*

21.A.303 c)
'in the case of standard parts, in accordance with officially recognised standards.'

Alternative text proposed:
in the case of standard parts, in accordance with applicable industry standards.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.301 Scope p. 70

comment *800* comment by: *German Unmanned Aviation Association (VUL)*

<u>Relevant NPA content / context (21.A.308 Eligibility of a component for installation on a command unit, Page 70)</u>
"(a) A command unit component which is both **essential and specific** to the intended UA operation, as determined by the design approval holder, is eligible for installation on a

command unit provided it is in a condition for safe operation, is marked in accordance with Subpart Q, and is accompanied by an authorised release certificate (EASA Form 1)."

Comment
21.A.308 refers to 'component which is both essential and specific to the intended UA operation', however the NPA doesn't define nor clarify the criteria for components to be considered 'essential and specific' for the operation. Some explanation is given in the introduction section to the NPA, however this will not become a part of a future regulation.

Criteria for 'essential and specific compoments' are needed in the regulation. This should be defined at AMC&GM level.

Furthermore, the methodology of identifying essential and non-essential CU components should be aligned between Specific Operations and Type Certified Designs.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.431B Standard repairs p. 71

comment *311* comment by: *ASD*

Comment:

21.A.431B Standard repairs
Specific case of CU TC is not mentioned. Standard repairs only applicable to the CU could be expected

Suggested resolution:

EASA to confirm the standard repairs process will be applicable to CU either under its own TC or the UA TC. If yes amend the 21.A.90B accordingly. Consistency with Part-M provisions on standard repairs needs to be ensured.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *566* comment by: *AIRBUS*

21.A.431B Standard repairs Page 71

Comments

Specific case of CU TC is not mentioned. Standard repairs only applicable to the CU could be expected.

Suggestions

EASA to confirm the standard repairs process will be applicable to CU either under its own TC or the UA TC. If yes amend the 21.A.90B accordingly. Consistency with Part-M provisions on standard repairs needs to be ensured.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1035* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

21.A.431B Standard repairs, c. 3, page 71
Why is not manned VTOL-capable aircraft mentioned? Since there is a possibility for standard repairs for both rotorcraft and aeroplane under a certain MTOM, why not have it for all VTOL-capable aircraft as well?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1080* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
21.A.431B Standard repairs

Specific case of CU TC is not mentioned. Standard repairs only applicable to the CU could be expectedSpecific case of CU TC is not mentioned. Standard repairs only applicable to the CU could be expected.
PROPOSED ACTION/RESOLUTION
EASA to confirm the standard repairs process will be applicable to CU either under its own TC or the UA TC. If yes amend the 21.A.90B accordingly. Consistency with Part-M provisions on standard repairs needs to be ensured.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.708 Flight conditions p. 72

comment *298* comment by: *ASD*

comment:

21.A.708 (b)(7)
EASA text "Flight conditions include:
[…] (b) any condition or restriction necessary for the safe operation of the aircraft, including:
[…] 7. for unmanned aircraft, the configuration of the command unit used to control the aircraft and specific arrangements and instructions for the operation of the command unit;"
The proposed approach is considering the configuration and operating instruction of the CU as a "condtion or restriction necessary for safe operation of the aircraft". It seems reductive and misleading for the current text of Subpart P.
It would be preferrable to include the configuration of the CU under para (a) as proposed for para (d) and adding relevant text to para (b) highlighting the safe operation of the CU

Suggested resolution:

Proposed text
"Flight conditions include:
(a) the configuration(s) for which the permit to fly is requested, including the command unit configuration
(b) any condition or restriction necessary for safe operation of the aircraft and, for unmanned aircraft, of the command unit, including:
1. the conditions or restrictions put on aircraft itineraries or airspace, or both, required for the flight(s);
2. any conditions or restrictions put on the crew to fly the aircraft, in addition to those defined in Appendix XII to this Annex I (Part 21);
3. the restrictions regarding carriage of persons other than flight crew or the presence of persons not necessary to conduct the flight within the CU arrangement;
[…] 7. for unmanned aircraft, the instructions for the operation of command unit, the specific arrangements and the conditions or restrictions to put on command unit"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *360* comment by: *Thurling Aero Consulting*

My concern in this section is in regard to the text "7. for unmanned aircraft, the configuration of the command unit used to control the aircraft and specific arrangements and instructions for the operation of the command unit;..." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the configuration. Configuration control will be challenging. For RPAS, the configuration of the CU core elements is critical. This requirement should address only core.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *403* comment by: *DGAC FR (Mireille Chabroux)*

As per 21.A.708(b), flight conditions should include any condition or restriction necessary for the safe operation of the aircraft. Further explanations are required here to indicate the role of the SORA in case a UA is to be used under a Permit to Fly in the specific high-risk category. The SORA aims to address operation safety; how will this fit/interfere with potential operational limitations prescribed by the flight conditions associated with a PtF? Are the flight conditions to be considered while preparing the SORA, or the SORA to be considered while defining the flight conditions?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *969* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text "Flight conditions include:
[…] (b) any condition or restriction necessary for the safe operation of the aircraft, including:
[…] 7. for unmanned aircraft, the configuration of the command unit used to control the aircraft and specific arrangements and instructions for the operation of the command unit;"

The proposed approach is considering the configuration and operating instruction of the CU as a "condition or restriction necessary for safe operation of the aircraft".
It would be preferable to include the configuration of the CU under para (a) as proposed for para (d) and adding relevant text to para (b) highlighting the safe operation of the CU. Below, the proposed text:

"Flight conditions include:
(a) the configuration(s) for which the permit to fly is requested, including, for unmanned aircraft, the command unit configuration;
(b) any condition or restriction necessary for safe operation of the aircraft and, for unmanned aircraft, of the command unit, including:
1. the conditions or restrictions put on aircraft itineraries or airspace, or both, required for the flight(s);
2. any conditions or restrictions put on the crew to fly the aircraft, in addition to those defined in Appendix XII to this Annex I (Part 21);
3. the restrictions regarding carriage of persons other than flight crew or the presence of persons other than crew within the CU arrangement;
[…] 7. for unmanned aircraft, the conditions or restrictions put on command unit arrangements"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.801 Identification of products and command units p. 73

comment *63* comment by: *Wingcopter GmbH*

801(a): if the identification shall include product AND command unit designation, it means that the CU is tied to a product and vice versa. The identification would have to be updated for any new CU or if the CU is used with a different product. I am unsure if "OR" is meant to have both product and CU identified seperately and tied up in a TCDS which is easier to amend if a new CU is developed and approved.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *314* comment by: *ASD*

(a) The identification of products and command units shall include the following information:
1. the manufacturer's name;
2. the product and command unit designation;

suggested resolution:

Would propose the following rewording:
"(a) The identification of products and command units shall include the following information:
1. the manufacturer's name;
2. the product or command unit designation;"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *361* comment by: *Thurling Aero Consulting*

My concern in this section is in regard to "(e) Any natural or legal person that manufactures or assembles a command unit under Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that contains the information specified in point (a) in such a manner that it is accessible and legible and will not likely be defaced or removed during normal service, or lost or destroyed in an accident." As ground stations for UA and AAM evolve, it is quite likely that Commercial Off the Shelf (COTS) components, e.g. computer equipment, displays, network routers, etc. will be part of the configuration. The CU may very well be housed in a room or distributed over more than one room or location. How does one mark such a CU? The ground station is more

a capability then a component and should be thought of as such. It seems that the proposed changes sacrifice this understanding in favor of making the CU "fit" into old definitions.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1160* comment by: *AESA*

Comment:

(a) The identification of products and command units shall include the following information:
1. the manufacturer's name;
2. the product and command unit designation;
3. the manufacturer's serial number;
4. the 'EXEMPT' mark in case of an engine, when the competent authority has granted an exemption from the environmental protection requirements;
5. any other information the Agency finds appropriate.

Suggested resolution
Add an additonal point:
6. the operator (s) registration number

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS , AND APPLIANCES , COMMAND UNITS AND COMMAND UNIT COMPONENTS p. 73

comment *568* comment by: *Murzilli Consulting*

Attachment #13

Section / Chapter	Paragraph	Page	Text in Regulation	Comment	Proposal Text (if applicable)
3.1.2 - Annex I, 21.A.729	21.A.729	73	(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the	21.A.729 is not part of the update / NPA so far. Nevertheless the requirements should be	(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the

			flight conditions at the disposal of the Agency and competent authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft. (b) All documents associated with the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the permit to fly itself, shall be held by the related approved organisation at the disposal of the Agency or the competent authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.	extended to the command unit to ensure continued airworthiness of the entire unmanned aircraft system.	flight conditions at the disposal of the Agency and competent authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft and, for unmanned aircraft, the command unit. (b) All documents associated with the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the permit to fly itself, shall be held by the related approved organisation at the disposal of the Agency or the competent authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft and, for unmanned aircraft, the command unit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.1.3. Annex I - Section B PROCEDURES FOR COMPETENT AUTHORITIES p. 74

comment *572* comment by: *Murzilli Consulting*

Attachment #14

Section / Chapter	Paragraph	Page	Text in Regulation	Comment	Proposal Text (if applicable)
3.1.3 - Annex I, 21.B.45	21.B.45	74	(a) The competent authority of the Member State shall ensure coordination as applicable with other related certification, investigation, approval or authorisation teams of that authority, other Member States and the Agency to ensure efficient exchange of information relevant for safety of the products, parts and appliances.	Reference to command unit is missing.	(a) The competent authority of the Member State shall ensure coordination as applicable with other related certification, investigation, approval or authorisation teams of that authority, other Member States and the Agency to ensure efficient exchange of information relevant for safety of the products, parts, appliances, command units and command unit components.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *576* comment by: *Murzilli Consulting*

Attachment #15

Section / Chapter	Paragraph	Page	Text in Regulation	Comment	Proposal Text (if applicable)
3.1.3 - Annex I, 21.B.453	21.B.453	80	(a) The Agency shall issue an approval of a major repair design, provided that: [...] 4. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.	Paragraph not included by NPA. Point (a) 4. of 21.B.453 should be updated to cover command units in addition to aircraft.	(a) The Agency shall issue an approval of a major repair design, provided that: [...] 4. no feature or characteristic has been identified that may make the product or command unit unsafe for the uses for which certification is requested.
3.1.3 - Annex I, 21.B.520	21.B.520	81	[...] (b) The competent authority shall prepare evaluation procedures covering at least the following elements: [...] 4. inspection of the aircraft; [...]	21.A.708 update of the NPA added point (b) 7. to covers command unit configuration for unmanned aircraft. This should be reflected in 21.B.520 as well	[...] (b) The competent authority shall prepare evaluation procedures covering at least the following elements: [...] 4. inspection of the aircraft and, for unmanned aircraft, the command unit used to control the aircraft; [...]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.B.20 Immediate reaction to a safety problem p. 74

comment *866* comment by: *FAA*

The FAA utilizes System Safety in identifying hazards and managing risk to an acceptable level through design and performance oversight. The FAA's Safety Assurance System (SAS), a combination of people, processes, and technology, meets these System Safety goals and is the safety assurance component of the Safety Management System (SMS).
The FAA receives such safety data from Member States through programs such as the Safety Assessment of Foreign Aircraft Programme (SAFA) as well as the European Union (EU) Ramp Inspection Programme. The FAA immediately routes safety notifications from such programs to the appropriate Safety Standards Office for review, analysis and operator follow-up.
The FAA's International Program Division, coordinates Flight Standards engagement with International Civil Aviation Organization (ICAO), develops policy for Flight Standards international engagement and technical agreements, manages, develops, implements, and evaluates operational policies and guidance for foreign air carrier operations, provides aviation safety technical expertise to foreign Civil Aviation Authorities and leadership and oversight of International Field Office (IFO) activities and technical programs.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.A.804 Identification of parts , and appliances and command unit components p. 74

comment *869* comment by: *FAA*

21.A.804 (a)3 Identification of parts, appliances and command unit components: What does "EPA" stand for?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.B.70 Certification specifications p. 75

comment *162* comment by: *GdF*

Safety standards define safety as freedom from unacceptable risk.
The most effective way to eliminate risks is "to design them away". But as risk reduction by design is not always possible or practical (like a zero-risk policy), safeguarding with static guards are often the next best option. Functional safety in machinery usually means systems that safely monitor and, when necessary, override the machine applications to ensure safe

operation. A safety-related system thus implements the required safety functions by detecting hazardous conditions and bringing operation to a safe state, by ensuring that a desired action, e.g. safe stopping, takes place.
EASA might want to consider following a combination of qualitative and quantitative analyses to identify hazards and risks that can occur when drones are operated.
GdF proposes safety procedures, safeguards and protective measures to reduce the risk to an acceptable level. Another approach might be a comprehensive probabilistic model based on Bayesian network for risk estimation.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *310* comment by: *ASD*

Comment:
21.B.70 Certification specifications
In case of separate UA and CU TC, consistency between the certification basis of both should be ensured. As an example a CU for a CS-27 based Unmanned Aircraft if also used to control a Large aeroplane based UA should meet the intent of CS-25 .

Suggested resolution:
Clarification about consistency of certification basis between CU and UA under separate TCs should be included in an AMC to 21.B.70

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *562* comment by: *AIRBUS*

21.B.70 Certification specifications Page 75

Comments

In case of separate UA and CU TC, consistency between the certification basis of both should be ensured. As an example a CU for a CS-27 based Unmanned Aircraft if also used to control a Large aeroplane based UA should meet the intent of CS-25 .

Suggestions

Clarification about consistency of certification basis between CU and UA under separate TCs should be included in an AMC to 21.B.70

This comment is substantive or is an objection.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1082* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
21.B.70 Certification specifications:

In case of separate UA and CU TC, consistency between the certification basis of both should be ensured. As an example a CU for a CS-27 based Unmanned Aircraft if also used to control a Large aeroplane based UA should meet the intent of CS-25 .
PROPOSED ACTION/RESOLUTION
Clarification about consistency of certification basis between CU and UA under separate TCs should be included in an AMC to 21.B.70.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

21.B.82 Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate p. 76

comment *312* comment by: *ASD*

Comment:
21.B.82 Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate
As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.

Suggested resolution:

There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *567* comment by: *AIRBUS*

21.B.82 Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate Page 76

Comments

As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.

Suggestions

There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1084* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
21.B.82 Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate:

As a general comment OSD applies to the operations performed by the complete system: UA and CU. Therefore any contribution from the CU should be accounted for within OSD, as required.
The text of the NPA does not however reflect this.
PROPOSED ACTION/RESOLUTION
There is a need to establish the necessary requirements to address properly the OSD elements applicable to UAS (CU+UA), for example the MMEL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART H - CERTIFICATES OF AIRWORTHINESS AND RESTRICTED CERTIFICATES OF AIRWORTHINESS p. 78

comment *313* comment by: *ASD*

Subpart H - Certificate of Airworthiness

While it is understood that a CU does not fly, a UA cannot fly without a CU. So an equivalent of the CofA for each CU seems desirable.
It should be clarified how the arworthiness status of a specific CU S/N will be stated? Will this CU S/N be recorded in the CoA of the UA?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix I - Authorised Release Certificate - EASA Form 1 referred to in Annex I (Part 21) p. 81

comment *62* comment by: *Wingcopter GmbH*

Typo on page 83 in the last box of the form: it reads ML.A.901(c) and should probably read ML.UAS.901(c)

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix II - EASA Form 15a , and 15c and 15d - Airworthiness Review Certificate p. 81

comment *1168* comment by: *AESA*

All other Part-ML ARC formats (EASA Form 15c) do not include reference to the Annex in the first part of the statement.

"it has performed the airworthiness review, in accordance with Commission Delegated Regulation (EU) …/…, of the following UA:"

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix III - Permit to Fly - EASA Form 20a p. 84

comment *522* comment by: *Volocopter GmbH*

Field 2: [for unmanned aircraft, please ADDITIONALLY insert command unit model and designation]. Please add the word 'additionally' as proposed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *801* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 84)
"2. Aircraft manufacturer/type: [for unmanned aircraft, please insert command unit model and designation]"

Comment
Propose to add the word "additionally":
Field 2: [for unmanned aircraft, please ADDITIONALLY insert command unit model and designation].

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix IV - Permit to Fly (issued by approval organisations) - EASA Form 20b p. 85

comment | *521* comment by: *Volocopter GmbH*

Field 2: [for unmanned aircraft, please ADDITIONALLY insert command unit model and designation]. Please add the word 'additionally' as proposed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *802* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 85)
"2. Aircraft manufacturer/type: [for unmanned aircraft, please insert command unit model and designation]"

Comment
Propose to add the word "additionally":
Field 2: [for unmanned aircraft, please ADDITIONALLY insert command unit model and designation].

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*823* comment by: *UAV DACH e.V.* Reference: 2. Aircraft manufacturer/type: [for unmanned aircraft, please insert command unit... Comment: Field 2: [for unmanned aircraft, please ADDITIONALLY insert command unit model and designation]. Proposal: Add word.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix V - Restricted Certificate of Airworthiness - EASA Form 24 p. 86

comment	*484* comment by: *JEDA* Our ancestors used as physical support for writing, either clay or sculpted stones. Big progress was later achieved with papyrus or sheepskin. Finally, printed paper was the most handy solution between XV and XX centuries. Nowadys, paper is obsolete, since we can carry electronic copies of documents. Proposed amendment: This certificate shall be carried on board during all flights, on paper or in electronic format, inclduing on portable Electronic Flight Bag.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*880* comment by: *FOCA (Switzerland)* "This certificate shall be carried on board during all flights.": FOCA believes that the need for this requirement in the context of a UAS is not clear. The disadvantage of extra weight is in some cases not counterbalanced with obvious benefits. Since the UAS will be registered and identifiable through the registration system, in this cases the airworthiness certificate can be also available only in digital form. FOCA suggests to rephrase the present sentence as follows: *For UAS, unless considered impractical, this certificate shall be carried on board during all flights.*
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1339* comment by: *Gregory Walden* *'This certificate shall be carried on board during all flights'* Alternative text proposed: This certificate shall be carried on board during all flights, on paper or in electronic format, including a portable Electronic Flight Bag.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix VI - Certificate of Airworthiness - EASA Form 25 p. 87

comment	*485* comment by: *JEDA* ICAO standard CofA in Annex 8 includes two new fields: 4. Remote pilot station (RPS) type(s) and/or model(s) and 5. Link(s) for RPA (C2 Link(s)). The need to deviate from the ICAO fornat is not sufficiently demonstrated, even if the operations of manned VTOL capable aircraft are not in the scope of ICAO. Better to somwhow align. Proposed amendment: Insert n the CofA format a new filed for the CU and a new field for the suitable C2 link(s)
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*881* comment by: *FOCA (Switzerland)* "This certificate shall be carried on board during all flights.": FOCA believes that the need for this requirement in the context of a UAS is not clear. The disadvantage of extra weight is in some cases not counterbalanced with obvious benefits. Since the UAS will be registered and identifiable through the registration system, in this cases the airworthiness certificate can be also available only in digital form. FOCA suggests to rephrase the present sentence as follows: *For UAS, unless considered impractical, this certificate shall be carried on board during all flights.*
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 2 Definitions p. 92

comment	*56* comment by: *Wingcopter GmbH* The definition of UAS in (a) should probably exclude associated infrastructure
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1337* comment by: *Gregory Walden* *'The command unit means the equipment or items of equipment to control unmanned aircraft remotely [,] which ensures the control or the monitoring of the unmanned aircraft during flight; the command unit does not include any ground-, air-, or space-based equipment or items of equipment that support the command and control (C2) link service.'* The definition of "command unit" in (26) should be clarified.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.2.1. Draft cover regulation p. 92

comment	*362* comment by: *Thurling Aero Consulting* This comment is in regard to the text in Article 2 (b), "…which ensures the control or monitoring of the unmanned aircraft during any phase of flight; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;" For most Remotely Piloted Aircraft, there is little argument that terms such as "Command Unit" are appropriate. However, as we begin to see advanced Uncrewed Aircraft (UA) and airspace management autonomy allowing more than one vehicle to be managed by a single remote pilot, terms such as these become outdated. Terms such as "Ground Station" are preferable to "Command Unit" as is "manage" over "control" since the latter terms ("command" and "control") imply an active pilot-in-the-loop concept of operations. This may be true now, but we are rapidly approaching (and have already seen in small UAS) the time when the 1:1 relationship of pilot to vehicle is surpassed. Groups in Europe (Eurocontrol ECHO) and the US (NASA/FAA ETM Research Transition Team) are currently developing new Concepts of Operation for High Altitude Operations in "upper Class E" airspace. These concepts assume Upper E operations may start out as being a predominantly air traffic controlled environment (ATCE), however as demand increases, they will evolve to a predominantly cooperative control environment (CCE) where Operators

deconflict from one another using industry defined/ANSP approved Cooperative Operating Practices.

Likewise, Regulators in both Europe and the US have been working on initial concepts for Advanced Air Mobility which would include the use of corridors (FAA AAM CONOPs V1.0) and U-space (EASA). It is likely that these CONOPs also include Operators cooperatively managing traffic in CCEs.

In CCEs Autonomous Fleet management begins to look more like airline air operations centers (AOC), where a small team manages the flights of a large number of highly automated aircraft. AOCs are certified in operational approvals, not as part of individual aircraft Type Certificates. In order to "future proof" the rule, it would seem reasonable to remove the ground station used in a CCE from the type certificate just as an AOC is not part of an aircraft type certificate. Indeed, this NPA seems to have already taken the first step in that direction by removing aspects of command and control form the Type Certificate. The FAA has gone one step further and removed all ground station capabilities from the Type Certificate basis of small UA undergoing the Durability and Reliability approach to Type Certification. Ground stations, C2 and other support capabilities are considered "Associated Elements". While perhaps not appropriate for truly remotely piloted aircraft and some other UAS concepts, this does make a lot of sense for the management of aircraft in CCEs.

A simple way to address the above and to "future proof' the rule is to alter the proposed text in this section to ""…which ensures the control or monitoring of the unmanned aircraft during phases of flight in air traffic controlled environments; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;"

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

404 comment by: *DGAC FR (Mireille Chabroux)*

A slight change in the wording of article 1 is suggested to better match with ML.UAS.101 and ML.CAO.010:

This Regulation establishes common technical requirements and administrative procedures to ensure the continuing airworthiness of unmanned aircraft systems (UAS), including any component for installation thereto, where the unmanned aircraft (UA) is, or will be registered in a Member State, and:
(a) is intended to be operated in the 'specific category' of UAS operation as defined in Article 5 of Commission Implementing Regulation (EU) 2019/947 and for which a certificate of airworthiness or a restricted certificate of airworthiness has been ~~or will be~~ issued to the UA in accordance with Article 7(2) of Regulation (EU) 2019/947;

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *470* comment by: *Airbus-Regulations-SRg*

Page 93/295, 3.2.1 Draft Cover regulation, Article 2 - Definitions, (e) 'continuing airworthiness',
quote:
"(e) 'continuing airworthiness' means all of the processes ensuring that, at any time in its operating life,
the UAS complies with the applicable airworthiness requirements and is in a condition for safe operation;"
UNQUOTE

COMMENT:
What are the applicable requirements making the reference base to certify that an aircraft is "in a condition for safe operation"?
This expression is associated with no requirement in the definition.
There are no explanations on the meaning and implications of this expression.

RATIONALE:
It is clear when a "UAS complies with the applicable airworthiness requirements" because there are tangible
criteria against which one can check the compliance, i.e. the airworthiness requirements. In absence of
criteria/requirements for the expression "in a condition for safe operation", the notion becomes subjective and
certification is no longer possible.

Article 3 of the Basic Regulation defines the term 'certification':
'certification' means any form of recognition in accordance with this Regulation, based on an appropriate assessment,
that a legal or natural person, product, part, non-installed equipment, equipment to control unmanned aircraft
remotely, aerodrome, safety-related aerodrome equipment, ATM/ANS system, ATM/ANS constituent or flight simulation
training device complies with the applicable requirements of this Regulation and of the delegated and implementing acts
adopted on the basis thereof, through the issuance of a certificate attesting such compliance;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *471* comment by: *Airbus-Regulations-SRg*

Page 93/295, 3.2.1 Draft cover regulation, Article 2 - Definitions, (f) 'maintenance' & (h) 'pre-flight inspection'
quote:
(f) 'maintenance' means any one or a combination of the following activities: overhaul, repair, inspection,
replacement, modification or defect rectification of an UAS or component, with the exception of pre-flight inspection;
(h) 'pre-flight inspection' means the inspection carried out before flight to ensure that the UA is fit for the intended flight;
UNQUOTE

COMMENT:
Does the Agency consider the preservation of a UAS as maintenance?
How are the definitions of 'maintenance' and 'pre-flight inspection' taken into account for the establishment
of the Instructions for Continued/ing Airworthiness?

RATIONALE:
At different occasions (e.g. NPA 2019-05(C), EM TEC Dec-2021 meeting), Airbus recommended adding the notion
of 'preservation' in the definition of the term 'maintenance'. With the introduction of this Regulation, certainty is now
necessary since it is probable that it will be necessary to make the difference between protection tasks performed
by the operator (e.g. for the transportation of certain UAS), and preservation tasks that require the certification by
maintenance personnel.
With regard to ICA, point 21.A.7 requires from the holder of a design approval to develop or reference the instructions
which are necessary for maintaining the airworthiness standard throughout the operational life of the aircraft.
Maintenance (certified by a Certifying Staff of the CAO contracted) and pre-flight inspections (under the operator's responsibility)
are contributors to ensure airworthiness is maintained. AMC1 21.A.7(a) timidly refers to any inspection, servicing, troubleshooting
actions or maintenance actions, without a strong link with continuing airworthiness, like the ones established by GM1 21.A.7(b).
It is essential that these definitions apply equally to both subdomains in order to ensure consistent categorisation of tasks
(e.g. maintenance vs pre-flight inspections or other continuing airworthiness tasks that may be entrusted to the operator or
personnel other than maintenance), otherwise some tasks could be performed and/or certified by inappropriately qualified personnel.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *472* comment by: *Airbus-Regulations-SRg*

Page 93/295, 3.2.1 Draft cover regulation, Article - 2 Definitions, (h) 'pre-flight inspection' quote
(h) 'pre-flight inspection' means the inspection carried out before flight to ensure that the UA is fit for the intended flight;
UNQUOTE

COMMENT:
Can the Agency confirm that it anticipates Approved Design Organisations will never require a pre-flight inspection item for the CU?
Can the Agency confirm that it anticipates Approved Design Organisations will never require anything
but an inspection within the frame of the pre-flight inspection?
Could there be a term more pertinent than 'pre-flight inspection', e.g. 'pre-flight preparation'?

RATIONALE:
Depending on the complexity of the UA and the CU, Approved Design Organisations may need to require actions
on the CU before flight. In that case pre-flight preparation actions may apply to the UAS, including the CU,
and not only to the UA.
AMC M.A.301(a) reads "With regard to the pre-flight inspection, it is intended to mean all of the actions necessary to
ensure that the aircraft is fit to make the intended flight". This AMC goes on with the explanation that tasks such
as oil and hydraulic fluid uplift and tyre inflation may be considered as part of the pre-flight inspection.
In other words, this "inspection" may extend to tasks that are not inspections or checks.
It is probable that Approved Design Organisations may include actions other than inspections in their ICA for the establishment
of a programme for the pre-flight preparation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *474* comment by: *Airbus-Regulations-SRg*

Page 93/295, 3.2.1 Draft cover regulation, Article 2 - Definitions, (j) 'critical maintenance task' quote:
"(j) 'critical maintenance task' means a maintenance task that involves the assembly or any disturbance of
a system or any part on an UA, engine or propeller that, if an error occurred during its performance, could
directly endanger the flight safety;"
UNQUOTE

COMMENT:
Some Guidance Material will be necessary to explain why CU maintenance has been excluded from the definition
of 'critical maintenance task'. It is proposed to amend this definition to read: "(j) 'critical maintenance task' means a maintenance task that involves the assembly or any disturbance of a system
or any part on an UA, engine or propeller that, if an error occurred during its performance, could directly endanger the
UAS airworthiness ~~flight safety~~;

RATIONALE:
For the sake of clarification as one may contemplate some CU maintenance tasks equivalent to
critical maintenance tasks.

The term 'flight safety' is not defined and not referred to in the responsibilities of stakeholders as per ML.UAS.201.
The responsibility of stakeholders in the frame of Part-ML.UAS is limited to airworthiness.

'Flight safety' conveys in the Continuing Airworthiness community a subjective notion that is closely tied with the
competence and experience of each individual. It usually leads to speculations and beliefs about the demonstration of
compliance with the requirements referring to this notion.

After consultation of Airbus AMO, personnel confirmed that an AMO holds the knowledge of the potential for its mechanics
to make errors during the accomplishment of a given task, i.e. the AMO has the necessary competences to identify why
and when the execution of certain maintenance tasks ordered by the organisation responsible for the continuing airworthiness
management makes them critical maintenance tasks, and why and when it does not. This knowledge is validfor maintenance
performed by this AMO, but not beyond.

Personnel also confirmed that, however, AMO are not competent to determine the severity of the consequences of these maintenance
errors on the aircraft airworthiness, and even less on flight safety. This is explained by different factors, including the absence of access
to the relevant design data (e.g. design features involving severe failure conditions, the overall picture of the aircraft/component configuration, etc.)

	or the absence of caution (e.g. a CDCCL or equivalent) in the Instructions for Continued Airworthiness or other standard maintenance instructions. Furthermore, what "endanger flight safety" is an elusive notion that is difficult to grasp for the stakeholders of the Continuing Airworthiness domain, in particular for cases other than the evident ones.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 1 Subject matter and scope p. 92

comment	*994* comment by: *Austro Control* Comment: CAW in manned aviation is not dependent on operational scenarios. In this section, CAW for UAS is operational driven within 'specific' category. UAS with CE-markings may or may not need a R/CoA depending on the operation. CAW requirements with fixed boundaries such as weight, dimensions etc may be more sufficient? Proposed Change: Propose to provide explanation. Classification: Major-Conceptual
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.2.2. Draft Annex I (Part-ML.UAS) to Commission Delegated Regulation (EU) .../... p. 95

comment	*322* comment by: *ASD* Comment: ML.UAS.301 Continuing airworthiness tasks (d) the compliance with any applicable: (1) airworthiness directive (AD) issued by the Agency; (2) operational requirements with a continuing airworthiness impact; (3) continuing airworthiness requirements mandated by the Agency; (3) measure required by the competent authority in immediate reaction to a safety problem; Suggested resolution:

last bullet should be (4) - not (3)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *581* comment by: *Murzilli Consulting*

Attachment #16

Text in Regulation	Comment	Proposal Text (if applicable)
ARC	ARC is used as abbreviation for airworthiness review certificate but it is confusing since in the SORA this same abbreviation means Air Risk Class	replace with another abbreviation, for example AWRC

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1044* comment by: *Danish Civil Aviation and Railway Authority - DCARA*

Part-66
No Part-66 AML required. UAS maintenance organisation required to establish a 'company authorisation' mechanism for the certifying staff instead.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART A - GENERAL p. 95

comment *325* comment by: *ASD*

comment:
It seems missing a further explanation of what is intended to apply as pre-flight inspection with respect to other possible similar tasks with similar purposes such as pre-flight check

Suggested resolution:

	EASA to clarify maybe within GM AMC the terminology
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.1 p. 95

comment	*508* comment by: *Airbus-Regulations-SRg* Page 95/295, ML.UAS.1, sub para (b) quote "(b) [...] 'Owner' means the person that is accountable for the continuing airworthiness of the unmanned aircraft system (UAS), including, as applicable:[...] UNQUOTE **COMMENT:** How is the connection between the UAS operator and the UAS owner or lessee addressed? **RATIONALE:** The case of a lessee is appropriately addressed with a leasing contract, but not the case of the UAS operator: e.g. could the UAS operator be different from the lessee? In this case, what kind of contract would be required between the operator and the lessee for ensuring the continuity of the chain of accountability?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*511* comment by: *Airbus-Regulations-SRg* Page 95/295, ML.UAS.1, sub para.: (b)(2) quote: "(b) [...] 'Owner' means the person that is accountable for the continuing airworthiness of the unmanned aircraft system (UAS), including, as applicable: (1) the registered owner of the UAS; (2) the lessee in the case of a leasing contract; (3) the UAS operator." UNQUOTE **PROPOSED TEXT:** It is proposed to amend the point ML.UAS.1(b)(2) to read: (2) the lessee **in the case of a leasing contract**;

RATIONALE:
This information is a duplication of point ML.UAS.201(b), and therefore should be deleted to prevent
future contradictions resulting from possible omitted updates of unnecessary duplicated requirements.
Harmonization between points ML.UAS.1(b)(2) and ML.UAS.1(b)(3) is proposed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *591* comment by: *Airbus-Regulations-SRg*

Page 96/295, point ML.UAS.201, sub para (a)
quote:
"(a) The owner of the UAS shall be accountable for the continuing airworthiness of the UAS and shall ensure
that no flight takes place unless all the following requirements are met:
(1) the UAS is maintained in an airworthy condition;
[...]
(4) the scheduled maintenance of the UAS is performed in accordance with the UAS maintenance programme
specified in point ML.UAS.302"
UNQUOTE

COMMENT:
Is the meaning of "airworthy condition" commonly shared within the UAS owners/operators community?
Article 2 of this Regulation should provide the definition of the term 'airworthy'.
Further, the Agency should clarify the added value of item (a)(4).

RATIONALE:
The term 'airworthy' is defined neither in Article 2 of this Regulation nor in Article 3 of Regulation (EU) 2018/1139.
It is defined in Annex 8 to Chicago Convention as "[t]he status of an aircraft, engine, propeller or part when it
conforms to its approved design and is in a condition for safe operation". It obviously deserves an adaptation
to the UAS case, but the elements of an approved design can be found in various Subparts of Section
A of Annex I (Part-21) to Regulation (EU) No. 748/2012, and as previously said, in absence of explanations for
the expression "in a condition for safe operation", the notion becomes subjective.
The item (a)(4) is probably a contributor to this "airworthy condition" and by consequence should be deleted to prevent

(i) future contradictions resulting from possible omitted updates of unnecessary duplicated requirements (point ML.UAS.301(c)), and
(ii) the impression that scheduled maintenance is more important than unscheduled maintenance in making the decision to allow flight.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1170* comment by: *AESA*

If the owner of the CU and the UA are different, who is the "owner"? Can there be several "owners"? Would each one be responsible for a part? Should there be an agreement between the owner of the CU and the UA in case they are different?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1171* comment by: *AESA*

As per article 14 in Reg (UE) 2019/947, the UA is registered by the owner, not the UAS.

Suggested resolution:

Modify "registered owner of the UAS" to "registered owner of the UA".
Clarify who has full responsabilities related to continuous airworthiness if UA and CU owners are different persons/organisations.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.101 Scope p. 95

comment: *1283* comment by: *XSUN*

We support the proportionnate approach for continuing airworthiness depending on the risk of the intented operation.
Explanation would be welcome on how a (R)CofA is associated to different continuing aiworthiness requirements between the Specific High Risk/Certified categories.
For example, what happens if a UAS which has been maintained for Specific High risk operations need to be used in the certified category at a later stage?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.201 Responsibilities p. 96

comment | *121* comment by: *IFATCA*

Whereas the safety and security responsibilities of ATSP and manned operators are thoroughly detailed (e.g., SERA), the proposed regulation brings no clarification about the responsibilities and liabilities of AAM operator, USSP and CISP. Liability is determined by the judiciary system not by a regulation.

Safety requirements or objectives seem to be missing. For instance, the management of emergency/hazardous situations when a manned aircraft within a flight information airspace (uncontrolled) may end up in a U-space airspace is not explicitly covered by the regulation: the manned and unmanned aircraft pilot/operator and the ATSP remain highly liable and responsible in the event of an accident, even within the U-space airspace, whereas there are few obligations on the USSP or CISP only. Thus, this may represent unfair responsibility sharing and prevent implementation of U-space airspace where manned and unmanned air traffic represent high level of traffic and/or complexity in contradiction with the regulation objective.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *163* comment by: *GdF*

Whereas the safety and security responsibilities of ATSP and manned operators are thoroughly detailed (e.g., SERA), the proposed regulation brings no clarification about the responsibilities and liabilities of USSP and CISP. **Liability is determined by the judiciary system not by a regulation.**
Safety requirements or objectives seem to be missing. For instance, the management of emergency/hazardous situations when a manned aircraft within a flight information airspace (uncontrolled) may end up in a U-space airspace is not explicitly covered by the regulation: the manned and unmanned aircraft pilot/operator and the ATSP remain highly liable and responsible in the event of an accident, even within the U-space airspace, whereas there are few obligations on the USSP or CISP only. Thus, this may represent unfair responsibility sharing and prevent implementation of U-space airspace where manned and unmanned air traffic represent high levels of traffic and/or complexity in contradiction with the regulation objective.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *405* comment by: *DGAC FR (Mireille Chabroux)*

As per ML.UAS.201(e)(3), maintenance on UAS under Part-ML.UAS can only be performed by approved Part-CAO.UAS organisations. This means that a "person" is not allowed to perform maintenance and that the wording of ML.UAS.201(c) should reflect that:

Any ~~person or~~ organisation performing maintenance on UAS and components shall be responsible for the maintenance tasks performed

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *419* comment by: *DGAC FR (Mireille Chabroux)*

In ML.UAS.201(a)(1), it is suggested to replace "airworthiness certificate" by "certificate of airworthiness" in point (a)(3) of ML.UAS.201 to align terminologies.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *592* comment by: *Airbus-Regulations-SRg*

Page 96/295, ML.UAS.201, sub paras (a) and (b)
Quote
"(a) The owner of the UAS shall be accountable for the continuing airworthiness of the UAS [...]
(b) By way of derogation from point (a), when the UAS is leased, the accountability set out in point (a) shall apply to the lessee, provided [...]"
UNQUOTE

COMMENT:
It is proposed to add a new point to ML.UAS.201 (or to supplement point ML.UAS.201(b)) in order
to address the case where the accountability for the continuing airworthiness of the UAS is transferred
to the UAS operator. The conditions to make the UAS operator accountable should also be specified.

RATIONALE:
Point ML.UAS.1(b)(3) identifies that in some cases the UAS operator is accountable for the continuing airworthiness of the UAS.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *594* comment by: *Airbus-Regulations-SRg*

Page 96/295, ML.UAS.201, sub para (c)
quote
"(c) Any person or organisation performing maintenance on UAS and components shall be responsible for the maintenance tasks performed."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (c) to read:
"(c) Any **person or approved** organisation performing maintenance on UAS and components shall be
responsible for the maintenance tasks performed."

RATIONALE:
Point ML.UAS.201(e)(3) provides that the maintenance of the UAS and components for installation thereon
is performed by a maintenance organisation approved under Part-CAO.UAS (i.e. an Approved Maintenance
Organisation, AMO). However, points ML.UAS.501 and 502 remind that some components may be maintained
by any person or organisation, i.e. some are not holding a MOA. These persons and organisations are not regulated
under Regulation (EU) 2018/1139.
So, how can they be responsible for the maintenance they performed? How to raise a finding, for example?
The acceptance by the owner or the organisation responsible for the aircraft continuing airworthiness management,
as applicable, of components not maintained by an AMO should be introduced to ensure the continuity of the accountability chain.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *595* comment by: *Airbus-Regulations-SRg*

Page 96/295, ML.UAS.201, sub para (e)(1)
quote
"(e) The owner of the UAS shall ensure that:
(1) no flight takes place unless the conditions set out in point (a) are met;"
UNQOUTE

COMMENT:

Point ML.UAS.201(e)(1) seems to be a duplication of point ML.UAS.201(a), and therefore should be
deleted to prevent future contradictions resulting from possible omitted updates of unnecessary
duplicated requirements.
Should point ML.UAS.201(a) read the following:
"(a) The **registered** owner of the UAS shall be accountable for the continuing airworthiness of the UAS and
shall ensure that no flight takes place unless all the following requirements are met: [...]."?
The text of point ML.UAS.201(e) creates uncertainty in the establishment of who is in the end accountable/responsible
and for what.

RATIONALE:
Point ML.UAS.201(a) applies to the owner. Point ML.UAS.201(e)(1) also applies to the owner.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *597* comment by: *Airbus-Regulations-SRg*

Page 96/295, ML.UAS.201, sub para (e)(2)
quote
"(e) The owner of the UAS shall ensure that: [...]
(2) [...]. If a Part-CAO.UAS organisation is contracted by the UAS owner as regards the performance
of those tasks, a written contract shall be established in accordance with Appendix I to this Annex.
That contracted organisation shall assume responsibility for the proper performance of those tasks;"
UNQUOTE

PROPOSED TEXT:
It is proposed to amend this point (e)(2) to read:
"(2) [...]. If a Part-CAO.UAS organisation is contracted by the UAS owner as regards the performance
of those tasks, a written contract shall be established in accordance with Appendix I to this Annex.
That contracted organisation shall assume **accountability** ~~**responsibility**~~ for the proper performance of those tasks;"

RATIONALE:

Reference should be made to the accountability of the approved organisation, in particular point CAO.UAS.035(a):
"The organisation shall appoint an accountable manager that has the authority to ensure that all activities of the
organisation can be financed and carried out in accordance with this Regulation."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *598* comment by: *Airbus-Regulations-SRg*

Page 96/295, ML.UAS.201, sub para (e)(3)
quote
"(e) The owner of the UAS shall ensure that: [...]
(3) the maintenance of the UAS and components for installation thereon is performed by an organisation
that is approved in accordance with Annex II (Part-CAO.UAS) to this Regulation and has its principal place
of business in the territory to which the Treaties apply."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (e)(3) to read:
"(3) **without prejudice to points ML.UAS.501, ML.UAS.502, and ML.UAS.520,** the maintenance of the
UAS and components for installation thereon is performed by an organisation that is approved in
accordance with Annex II (Part-CAO.UAS) to this Regulation and has its principal place of business in the territory
to which the Treaties apply."

RATIONALE:
Components which are referred to in points (b)(3) to (b)(6) of point 21.A.307 of Annex I (Part 21) to Regulation (EU) No 748/2012
may be maintained by any person or organisation (i.e. regardless whether they are approved or not in accordance with Part-CAO.UAS).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *599* comment by: *Airbus-Regulations-SRg*

Page 96/295, ML.UAS.201, NEW sub para requested

PROPOSED TEXT:
It is proposed to add the following to this point to read:
"(h) The UAS owner that transfers permanently an UA, CU, or UAS to another owner shall be accountable for transferring the corresponding continuing airworthiness records referred to in point ML.UAS.305."

RATIONALE:
The accountability for transferring the relevant continuing airworthiness records together with the
UA, CU, or UAS, as appropriate, is not allocated. It is possible that at the time of the UA, CU, or UAS transfer,
there is no contract between the registered owner and a Part-CAO.UAS (to complement point ML.UAS.307).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *851* comment by: *FOCA (Switzerland)*

(d) (last sentence): FOCA proposes to reword the sentence as follows: *The pre-flight inspection does not need to be carried out by an approved organisation or by certifying staff.* This is because, in FOCA's view, the originally used wording of the sentence in question could lead to confusion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1261* comment by: *THALES*

ML.UAS.201

Comment:
typo: last bullet should be (f) - not (g)

Suggested resolution:
fix typo

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART B - ACCOUNTABILITY p. 96

comment	*1286* comment by: *FAA* Suggest adding text outlining UAS owner's responsibilities.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.301 Continuing airworthiness tasks p. 97

comment	*323* comment by: *ASD* Comment: "The continuing airworthiness of the UAS and the serviceability of operational and emergency equipment shall be ensured by: (a) the accomplishment of pre-flight inspections of the UA….". Pre-flight inspection could be necessary to be performed also on CU depending on the CU design Suggested resolution: "….pre-flight inspections of the UA and, if applicable, to the CU…."
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*600* comment by: *Airbus-Regulations-SRg* Page 97/295, ML.UAS.301 quote "The continuing airworthiness of the UAS and the serviceability of operational and emergency equipment shall be ensured [...]" UNQUOTE **PROPOSED TEXT:** It is proposed to amend the introductory sentence of this point to read: "The ~~**continuing airworthiness**~~ **airworthy condition** of the UAS **referred to in point ML.UAS.201(a)(1)** ~~**and the serviceability of operational and emergency equipment**~~ shall be ensured [...]" **RATIONALE:**

The term 'continuing airworthiness' is defined in Article 2 of this Regulation. It refers to the processes to ensure
(among others) the UAS complies with the applicable airworthiness requirements. Point ML.UAS.301 is rather
a question of a technical feature (airworthy condition) to achieve, by the means of tasks, than the processes to
perform these tasks.
The term 'UAS' aims to include the UA and the CU. So what are these equipment not covered under the
term 'UAS' that would require continuing airworthiness tasks to ensure their serviceability (not those under point
UAM.IDE.VCA.100; maybe those referred to in point (b) of point ORO.FC.430)?
What does 'serviceability' mean?
How is it different from 'airworthiness'?
In the absence of explanations, it is proposed to simplify the sentence and ensure alignment with point 1.6.
of Appendix III (EASA Form 1 fill-in instructions) that refers to the "airworthiness approval status" of components.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *601* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.301, sub para (a)
quote:
"The continuing airworthiness of the UAS [...] shall be ensured by:
(a) the accomplishment of pre-flight inspections of the UA;"
UNQUOTE

COMMENT:
Can the Agency confirm that it anticipates Approved Design Organisations will never require pre-flight inspection items for the CU?

RATIONALE:
One may be surprised that pre-flight inspection items apply to the UA only.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *602* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.301, sub-para (b)

quote
"The continuing airworthiness of the UAS [...] shall be ensured by: [...]
(b) the performance of unscheduled maintenance, preservation, or rectification of defect and damage
in accordance with the data specified in points ML.UAS.401 and ML.UAS.304, as applicable, while taking into account the minimum equipment list (MEL) and the configuration deviation list (CDL),
when they exist;"
UNQOUTE

PROPOSED TEXT:
It is proposed to amend this point to read:
"The [airworthy condition] of the UAS [referred to in point ML.UAS.201(a)(1)...] shall be ensured by: [...]
(b) the ~~**performance of unscheduled maintenance, preservation, or**~~ rectification of defect**s** **in accordance with ML.UAS.403** and **repair of** damage ~~**in accordance with the**~~ **using** data specified in points ML.UAS.401 and ML.UAS.304, as applicable, while taking into account the minimum equipment list
(MEL) and the configuration deviation list (CDL), when they exist;".

RATIONALE:
This point is about the use of the MEL/CDL in addition to the maintenance data and repair & modification data in case
of defect(s) or damage. The MEL and CDL should not be linked to all forms of unscheduled maintenance
(e.g. aircraft storage).
Defects are addressed under point ML.UAS.403, while damage is addressed under point ML.UAS.304.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *604* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.301, sub para (c)
quote
"The continuing airworthiness of the UAS [...] shall be ensured by: [...]
(c) the accomplishment of all scheduled maintenance in accordance with the UAS maintenance programme
referred to in point ML.UAS.302;"
UNQUOTE

PROPOSED TEXT:

It is proposed to amend this point to read:
"The [airworthy condition] of the UAS [referred to in point ML.UAS.201(a)(1)...] shall be ensured by: [...]
(c) the accomplishment of all ~~**scheduled**~~ maintenance in accordance with the UAS maintenance programme
referred to in point ML.UAS.302;"

RATIONALE:
The wording of point M.A.302(a) and point ML.A.302(a) should be adopted in Part ML.UAS. These points provide that
"[t]he maintenance of each aircraft shall be organised in accordance with an [Aircraft Maintenance Programme]".
This is paramount for ensuring that the appropriate maintenance, whether scheduled or unscheduled, is carried out at all times.

For example, modifications and repairs may be designed by the same organization that operates the UAS into which they are
incorporated. In a more general case, however, the organization that designs and obtains design approval for the modification
or repair, the organisation responsible for the UAS continuing airworthiness management, the organization that installs the
design change on the UAS, and the organisation that operates the UAS may all be different.

Because the holder of a design approval for a particular modification or repair cannot be expected to be aware and to have
conducted analyses and tests for all the possible combination of design elements installed on all UAS of a given type,
the organisation responsible for the UAS continuing airworthiness management has some responsibility to verify compatibility
with the other design elements, including but not limited to the modifications and repairs already installed, before installing any
design change. This organisation should survey the UAS continuing airworthiness records and the UAS itself to determine what
other design elements exist on the UAS. Any questions of incompatibility with other design elements arising from the survey should be
referred for resolution with an appropriately Approved Design Organisation. A description of these difficulties was reported for
manned aircraft in 2014 in an article of Sabrina Woods (FAA):
"Beware the Frankenplane! (The hidden dangers of layering STCs)" ***[NOTE: FAA weblink not accepted by the CRT]***

When it comes to problems or conflicts affecting maintenance instructions, the organisation performing the maintenance may not detect them,
in particular when they are subtle (e.g. selection of the appropriate probe to perform a NDT inspection, appropriateness of a sequence of

maintenance steps in a procedure to detect system malfunctions, etc.). Consequently, it becomes crucial that the
Approved Maintenance Organisations (AMO) contracted to perform maintenance on a given UAS or component for installation thereon use
the maintenance data amended to take into account the particular configuration of this UAS, instead of the generic maintenance data referred
to in point ML.UAS.401(b)(3) and (4) to which they have usually access. AMO cannot be expected to be aware and to have access to maintenance
data for all UAS configurations.

Any maintenance action must be assessed in the frame of the UAS Maintenance Programme creation/revision before it may be performed.
Questions of incompatibility between design elements are resolved as a result of the reviews performed under point ML.UAS.302(e).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *613* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.301, sub para (d)(1)
quote
"The continuing airworthiness of the UAS and the serviceability of operational and emergency equipment shall be ensured by:
[...]
(d) the compliance with any applicable:
(1) airworthiness directive (AD) issued by the Agency;"
UNQUOTE

PROPOSED TEXT:
It is proposed to amend this point to read:
"The continuing airworthiness of the UAS and the serviceability of operational and emergency equipment
shall be ensured by:
[...]
(d) the compliance with any applicable:
(1) airworthiness directive (AD) issued **or adopted** by the Agency;"

RATIONALE:
An authority other than the Agency may issue applicable AD.

Decision N° 2019/018/ED of the Executive Director of the Agency states: "For a design of [...] an aircraft [...]
which has been validated by EASA [...], any airworthiness directive issued by the State of Design of that aircraft [...]
shall apply as of their effective date, unless the Agency adopts a different Decision."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *615* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.301, sub para (e) & (f)
quote
"The continuing airworthiness of the UAS [...] shall be ensured by: [...]
(e) the accomplishment of modifications and repairs in accordance with point ML.UAS.304;
(f) maintenance check flights (MCFs), when necessary."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (e) to read:
"The continuing airworthiness of the UAS [...] shall be ensured by: [...]
(e) the accomplishment of modifications and repairs**, the design of which is approved** in accordance with
point ML.UAS.304**(b)**;"
It is proposed to move the current sub para ML.UAS.301(f) into point M.A.302.
It is proposed to add a ***new sub para (f)*** to read:
"**(f) delivering to the UAS operator the mass and balance statement reflecting the current configuration of the UA.**"

RATIONALE:
The accomplishment of modifications and repairs is possible only when their design is approved beforehand in accordance with
Annex I (Part 21) to Regulation (EU) No 748/2012, as stated in our comment on point ML.UAS.304(b).
The accomplishment of modifications and repairs, and maintenance check flights are maintenance activities.
Any maintenance action must be assessed in the frame of the UAS maintenance programme creation/revision before it may be performed.
Questions of incompatibility between design elements and maintenance actions (e.g. modifications, repairs, maintenance check flights)
are resolved as a result of the reviews performed under point ML.UAS.302(e).
The new point (f) ensures consistency with point CAO.UAS.075(b)(10).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1270* comment by: *THALES*

ML.UAS.301

Comment:
If we compare with Part M and Part ML regulations we can find the following text "the rectification of defect and damage in accordance with the data specified in points ML.UAS.401 and ML.UAS.304, as applicable, while taking into account the minimum equipment list (MEL) and the configuration deviation list (CDL), when they exist;" what is the rationale for adding "preservation and unscheduled maintenance" and what are the associated definitions?

Suggested resolution:
Recover Part M and Part ML text or provide rationale and definitions

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1284* comment by: *XSUN*

ML.UAS.301(b)
The MEL should not be required for Specific High Risk operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.302 UAS maintenance programme p. 97

comment *406* comment by: *DGAC FR (Mireille Chabroux)*

The following elements are not covered by ML.UAS.302:

- Possibility to include additional maintenance actions to those referred in point (c)(2) at the proposal of the Part-CAO.UAS organisation managing the UAS.
- The fact that UAS maintenance programme shall clearly identify the owner of the UAS and the UAS to which it relates.
- The fact that UAS maintenance programme shall identify any additional maintenance tasks to be performed because of the specific UAS type, UAS configuration and type and specificity of operation.
- Signature of UAS maintenance programme by the CAO.UAS and recording of the justification for any deviation introduced to the DAH's recommendations.

- The fact that the CAO.UAS siging the maintenance programme shall retain records with the justification for any deviation introduced to the DAH's recommendations (this is linked with point (e)(1)(ii)(B) of Appendixe I to Part-ML.UAS).

What are the rationales for not requiring the above-listed elements?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *420* comment by: *DGAC FR (Mireille Chabroux)*

In ML.UAS.302(c)(1), it is suggested to repalce "instructions for continuing airworthiness" by "instructions for continued airworthiness".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *617* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.302, sub para (a)
quote
"(a) The scheduled maintenance of the UAS shall be organised in accordance with an UAS maintenance programme."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (a) of this point to read:
"(a) The ~~**scheduled**~~ maintenance of the UAS shall be organised in accordance with an UAS maintenance programme."

RATIONALE:
Whether scheduled or unscheduled, it is paramount to ensure that the appropriate maintenance is carried out at all times.
The suitability of any maintenance action must be assessed before it may be performed. And the only tool currently available
to organise maintenance and ensure consistency is the UAS Maintenance Programme (in the frame of the UAS
Maintenance Programme creation/revision). Questions of incompatibility between maintenance instructions and design elements
are resolved as a result of the reviews performed under point ML.UAS.302(e).
Unscheduled maintenance with a particular interest includes for example maintenance due to abnormal or particular conditions

or events with an impact on the continuing airworthiness of the UAS at the time of its return to service. Some abnormal or particular
conditions or events that could be kept under this requirement could be lightning strikes, hard landings, long-term storage, etc.
Note: Appendix I 'continuing airworthiness management contract' indicates that the contract shall state the following:
"The owner entrusts the Part-CAO.UAS organisation with the management of the continuing airworthiness of the UAS,
the development and approval of the UAS maintenance programme, and the organisation of the maintenance of the UAS according to
that UAS maintenance programme. [...]".
An owner usually does not entrust the Part-CAO.UAS organisation with the organisation of the scheduled maintenance of the UAS only,
but of all maintenance.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

618 comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.302, sub para (c)
quote
"(c) The UAS maintenance programme shall demonstrate compliance with:
(1) the mandatory continuing airworthiness information, such as repetitive ADs, the airworthiness limitation section (ALS)
of the instructions for continuing airworthiness (ICAs), and specific maintenance requirements contained in the
type-certificate data sheet (TCDS);
(2) the ICAs issued by the design approval holder (DAH);"
UNQOUTE

PROPOSED TEXT:
It is proposed to amend point (c) of this point to read:
"(c) The UAS maintenance programme shall demonstrate compliance with **the maintenance instructions contained in**:
(1) the mandatory continuing airworthiness information, such as repetitive ADs, the airworthiness limitation section (ALS)
of the instructions for continuing airworthiness (ICAs), and ~~**specific maintenance requirements contained**~~ in the
type-certificate data sheet (TCDS);
(2) the ICAs **and other maintenance instructions** issued by the design approval holder (DAH)~~;~~**.**".

RATIONALE:

The UAS Maintenance Programme contains exclusively maintenance instructions: an Airworthiness Directive requiring compliance
with a particular revision of the AFM or a pre-flight inspection action specified in the ICA are examples of items not relevant for
introduction into the UAS Maintenance Programme.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *619* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.302, sub para (e)
quote
"(e) The UAS maintenance programme shall be reviewed at least annually in order to assess its
effectiveness while considering new or modified ICA. This review shall be performed, alternatively: [...]".
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (e) of this point to read:
"(e) **The UAS Maintenance Programme shall be amended when necessary.**
The UAS maintenance programme shall be reviewed at least annually in order to assess its effectiveness while
considering new or modified ICA. This review shall be performed, alternatively: [...]."

RATIONALE:
The incorporation of a modification, for example, may require the amendment of the UAS Maintenance Programme
between two successive annual reviews. In other words, the review to assess the UAS Maintenance Programme
effectiveness performed annually (at least) may not be compatible with the timing of the incorporation of such a modification

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *620* comment by: *Airbus-Regulations-SRg*

Page 97/295, ML.UAS.302, sub para (e)(1) & (2)
quote
"(e) The UAS maintenance programme shall be reviewed at least annually in order to assess its effectiveness

while considering new or modified ICA. This review shall be performed, alternatively:
(1) in conjunction with the airworthiness review of the UA by the person that performs such an airworthiness review;
(2) by the organisation that manages the continuing airworthiness of the UAS in those cases where the review of the
UAS maintenance programme is not performed in conjunction with an airworthiness review."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (e) of this point to read:
"(e) The UAS maintenance programme shall be reviewed at least annually in order to assess its effectiveness while
considering new or modified ICA. ~~**This review shall be performed, alternatively:**~~
~~**(1) in conjunction with the airworthiness review of the UA by the person that performs such an airworthiness review**~~;
(**1~~2~~**) **This review shall be performed** by the organisation that manages the continuing airworthiness of the UAS
~~**in those cases where the review of the UAS maintenance programme is not performed in conjunction with an airworthiness review**~~.
(2) If the review identifies deficiencies of the UA linked with deficiencies in the content of the UAS maintenance programme,
the UAS maintenance programme shall be amended accordingly.
(3) If the person performing the review does not agree with the measures taken by the organisation to amend the UAS
maintenance programme in accordance with point (e)(2), he or she shall inform the competent authority of the
Member State of registry accordingly."

RATIONALE:
The review to assess the effectiveness of the UAS maintenance programme made by the ARS is only a possibility that should be offered in an AMC.
Further, this review should not be part of the airworthiness review process as it may be performed independently from the airworthiness review.
Para. AR.UAS.CAW.302 contemplates the case where the person performing the review of the UAS maintenance programme informs the competent
authority that he or she does not agree with the amendments to the UAS maintenance programme. Sub para. ML.UAS.302(e) should be aligned for consistency.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1173* comment by: *AESA*

	It appears to contain insufficient information on what UAS maintenance programs should include such as repetitive maintenance tasks arising from repairs.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.305 UAS continuing airworthiness record system p. 98

comment	*324* comment by: *ASD* Comment: "(b) The UAS continuing airworthiness records system shall record the following: (1) details of the maintenance carried out on the UAS, in particular all certificates of release to service (CRSs) required by points ML.UAS.801 or ML.UAS.803; (2) the pre-flight inspection carried out on the UA;...." Pre-flight inspection could be necessary to be performed also on CU depending on the CU design Suggested resolution: "....(2) the pre-flight inspection carried out on the UA and, if applicable, to the CU...."
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*326* comment by: *ASD* comment: "(f)....(2) the type, serial number and registration, as appropriate, of the UA, engine or component to which the particular component has been fitted, along with the reference to the installation and removal of the component;..." Information to be recorded could be necessary also for the CU? Suggested resolution: "(f)....(2) the type, serial number and registration, as appropriate, of the UA, CU, engine or component to which the particular component has been fitted, along with the reference to the installation and removal of the component;..."
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*327* comment by: *ASD*

comment
"(1) ...l but not less than 36 months after the UA or the component maintenance has been released;"
The criteria could be relevant not only to UA, but also to CU.

suggested resolution:
"(1) all detailed maintenance records in respect of the UA and if applicable to the CU and of any component that is subject to airworthiness limitations, until such time as the information contained in the records is superseded by new information equivalent in scope and detail but not less than 36 months after the UA, CU or the component maintenance has been released;"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *407* comment by: *DGAC FR (Mireille Chabroux)*

CRS issued as per ML.UAS.802 for certification of UA component maintenance, ML.UAS.804 for certification of CU component maintenance and ML.UAS.805 for certification of CU installation are not listed as CRS subject to proper recording in ML.A.UAS.305(b)(1).
What are the rationales for not requiring proper recording of the above-listed elements?
Considering the proposed ML.UAS.201(d), what is the rationale behind including the pre-flight inspection as part of the airworthiness records (ML.UAS.305(b)(2))?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *408* comment by: *DGAC FR (Mireille Chabroux)*

ML.UAS.305(i) requires time in service (i.e. hours, calendar time, cycle and landings, as appropriate) of the UAS to be kept for a given period while this element is not listed as belonging to the UAS airworthiness records (ML.UAS.305(f)(3) covers components only and not the UAS itself).
Having those elements as part of the airworthiness records is also necessary to apply ML.UAS.903(a).
We believe that archiving and airworthiness review requirements should only concern elements mandated to be part of the UAS continuing airworthiness records.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *623* comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.305, sub para. (a)
quote

"(a) A system shall be established to record continuing airworthiness information of the UAS. That system shall be used by the remote pilot and the person(s) involved in the continuing airworthiness of the UAS."

PROPOSED TEXT:
It is proposed to amend the title of this point to read "**UAS continuing airworthiness records**" and point (a) of this point to read:
"(a) ~~**A system shall be established to record continuing airworthiness information of the UAS. That**~~
The UAS continuing airworthiness record entries shall be ~~**used**~~ **made** by the remote pilot and the person(s)
involved in the continuing airworthiness **management** of the UAS."

RATIONALE:
The first sentence should be either deleted as the matter is already addressed under point CAO.UAS.075(b)(9) or moved
into point CAO.UAS.090(a)(3), as only the records/data are necessary to show that the UAS is airworthy (not the record system).
In any case, it seems to be the responsibility of the person(s) responsible for the continuing airworthiness management to
establish this record system (i.e. an organisational requirement) under Part-CAO.
The UAS continuing airworthiness records are the means to assess the airworthiness status of a UAS (including its components).
UAS continuing airworthiness records should provide the owner/organisation responsible for the continuing airworthiness management
of a UAS with the information needed:
(1) to demonstrate that the UAS is in compliance with the applicable (initial) airworthiness requirements (i.e. to ensure compliance with
the approved design); and
(2) to schedule all future maintenance as required by the UAS Maintenance Programme (i.e. to ensure a condition for safe operation) based,
if any, on the last accomplishment of the specific maintenance as recorded in the UAS continuing airworthiness records.
There is a clear distinction made between maintenance and continuing airworthiness records in point CAO.UAS.090.
Not all records need to be transferred from the maintenance organisation(s) to the organisation responsible for the UAS
continuing airworthiness management unless they specifically contain information relevant to UAS configuration and future maintenance:
only the records associated with the maintenance work carried out and necessary to demonstrate compliance with Part-ML.UAS are needed.
The different stakeholders making entries in the UAS continuing airworthiness records should be stated (either in this point or in point CAO.UAS.090):
the remote pilot(s) make(s) entries, the person(s) involved in the continuing airworthiness management of the UAS manage(s) the system, collect(s)

and enter(s) the necessary maintenance records and make(s) entries, while personnel of maintenance organisation(s) has no access to this system.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *626* comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.305, sub para (b)
quote
"(b) The UAS continuing airworthiness records system shall record the following:
(1) details of the maintenance carried out on the UAS, in particular all certificates of release to service
(CRSs) required by points ML.UAS.801 or ML.UAS.803;
(2) the pre-flight inspection carried out on the UA;
(3) information considered necessary to ensure continued flight safety;
(4) the current mass and balance report;
(5) other data necessary to demonstrate compliance with points (e) and (f)."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (b) of this point to read:
"(b) The UAS continuing airworthiness records ~~**system**~~ shall ~~**record**~~ **include** the following:
(1) details of the maintenance carried out on the UAS **to demonstrate the UAS complies with the approved**
design and is in a condition safe for operation, in particular all certificates of release to service (CRSs) required by
points ML.UAS.801**,** ~~**or**~~ ML.UAS.803**, or ML.UAS.805**;
(2) the **signature confirming the satisfactory accomplishment of the** pre-flight **preparation** ~~**inspection carried out on the UA**~~;
(3) information considered necessary to **enable continuing airworthiness management** ~~**ensure continued flight safety**~~;
(4) the current mass and balance report;
(5) other data necessary to demonstrate compliance with points (e) and (f)."

RATIONALE:
The UAS continuing airworthiness records are the means to assess the airworthiness status of a UAS (including its components).
UAS continuing airworthiness records should provide the owner/organisation responsible for the continuing airworthiness management of an
UAS with the information needed to demonstrate:
(i) the UAS is in compliance with the applicable (initial) airworthiness requirements (i.e. to ensure compliance with the approved design); and

(ii) the preparation for each flight and the organisation of all future maintenance as required by the UAS Maintenance Programme
(i.e. to ensure the UAS is in a condition for safe operation), whether due one time (e.g. component replacements, deferred maintenance tasks
and deferred or carried forward defect rectifications) or repetitively based, if any, on the last accomplishment of the specific maintenance
as recorded in the UAS continuing airworthiness records.
There is a clear distinction made between maintenance and continuing airworthiness records in point CAO.UAS.090. Not all records need to be
transferred from the maintenance organisation(s) to the organisation responsible for the UAS continuing airworthiness management unless they
specifically contain information relevant to UAS configuration and future maintenance: only the records associated with the maintenance
work carried out and necessary to demonstrate compliance with Part-ML.UAS are needed.

The wording "ensure continued flight safety" is meaningless. It conveys in the Continuing Airworthiness community subjective notions that are closely
tied with the competence and experience of each individual. It usually leads to speculations and beliefs, and therefore conflicts about what is
evidence showing or not compliance with the requirements. Referring to "information considered necessary to enable continuing airworthiness management"
will allow collection of data that can be associated with a requirement of Part-ML.UAS. However, these pieces of information will need to be listed in an AMC
to prevent endless discussions about the applicable related retention period. They include (but maybe not limited to) the date and signature of the
UAS operator, the times at which the UAS was activated/deactivated, UA took off and landed, the running total of accumulated times (FH, FC, etc.),
details of any failure, defect or malfunction to the UAS, or the nil defect statement for continuity of the record, rectification of defects
(deferred or not), the pre-flight preparation signature

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

627 comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.305, sub para (c)
quote
"(c) Each maintenance-related entry shall be made as soon as possible following the completion
of the maintenance so that it provides an up-to-date maintenance status to the remote pilot."
UNQOUTE

PROPOSED TEXT:
It is proposed to amend the point (c) of this point to read:
"(c) Each ~~**maintenance-related**~~ entry shall be made as soon as possible following the completion of the
~~**maintenance**~~ **continuing airworthiness task referred to in point M.A.301** so that it provides an
up-to-date ~~**maintenance**~~ status to the remote pilot."

RATIONALE:
There are some continuing airworthiness tasks (requiring records) that are not maintenance (e.g. preflight preparation
performed by a person other than the remote pilot, AFM-related AD) that may be of interest to the remote pilot.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *628* comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.305, sub para (d)
quote
"(d) The record system shall include logs for the UA, the engine and the CU and, as appropriate,
for components that are subject to airworthiness limitations."
UNQOUTE

PROPOSED TEXT:
It is proposed to amend the point (d) of this point to read:
"(d) The record**s** ~~**system**~~ shall include ~~**logs**~~ **data** for the UA, the engine**(s)** and the CU and, as appropriate,
for components that are subject to airworthiness limitations."

RATIONALE:
The requirement should not presume the number of engines.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *629* comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.305, sub para (e)(3)
quote

"(e) The UAS continuing airworthiness record system shall be able to provide:
[...]
(3) the current status of compliance with the UAS maintenance programme;
[...]"
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (e) of this point to read:
"(e) The UAS continuing airworthiness record**s** ~~**system**~~ shall ~~**be able to**~~ provide:
[...]
(3) the current status of compliance with **the maintenance schedule of** the UAS maintenance programme;
[...]"

RATIONALE:
For the sake of consistency with previous comments, the term 'system' is deleted.
The term 'maintenance programme' is intended to include scheduled maintenance tasks, the associated procedures
and standard maintenance practises. The term 'maintenance schedule' is intended to embrace the scheduled maintenance
tasks alone. The intent of the amendment to point (e)(3) requirement is to limit the scope of the status to scheduled maintenance.
Unscheduled maintenance influences the determination of UAS airworthiness, but the last accomplishment of unscheduled maintenance
tasks can be found in the records kept as per point ML.UAS.305(i)(1).

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *632* comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para (f)
quote
"(f) With respect to components, in addition to the authorised release document,
EASA Form 1 or equivalent, the following information relevant to installed components that are
subject to airworthiness limitations, shall also be entered in the record system:
[...]."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (f) of this point to read:

"(f) With respect to components, in addition to the authorised release document, EASA Form 1 or equivalent,
the following information relevant to installed components that are subject to airworthiness limitations,
shall also be ~~**entered in the**~~ record**ed** ~~**system**~~:
[...]."

RATIONALE:
For the sake of consistency with previous comments.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *633* comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para. (f)(2)
Quote
"(f) With respect to components, in addition to the authorised release document, EASA Form 1 or equivalent,
the following information relevant to installed components that are subject to airworthiness limitations,
shall also be [recorded]:
[...].
(2) the type, serial number and registration, as appropriate, of the UA, engine or component to which the
particular component has been fitted, along with the reference to the installation and removal of the component;
[...]"
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (f)(2) of this point to read:
"(2) the type, serial number and registration, as appropriate, of the UA, engine, **CU,** or component to which the
particular component has been fitted, along with the reference to the installation and removal of the component;
[...]."

RATIONALE:
Point ML.UAS.302(a) provides that the maintenance programme shall organise the maintenance of the UAS,
i.e. including the CU. Point ML.UAS.305 similarly provides that continuing airworthiness information of the

UAS is recorded, i.e. including for the CU. Therefore, point (f)(2) should take into account Life-Limited Parts
and Time Controlled Components of the CU.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *634* comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para (g)
quote
"(g) These records shall be controlled by the organisation responsible for the management of the
continuing airworthiness of the UAS pursuant to point ML.UAS.201 and shall be presented to the
competent authority upon request."
UNQUOTE

COMMENT:
It is proposed to move this requirement into point CAO.UAS.90(a)(3).

RATIONALE:
This is an organisational requirement.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *636* comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para (i)(1)
quote
"(i) The records shall be kept for the period specified below:
(1) all detailed maintenance records in respect of the UAS and of any component that is subject
to airworthiness limitations, until such time as the information contained in the records is superseded by new information equivalent in scope and detail but not less than 36 months after
the UA or the component maintenance has been released;
[...]"
UNQUOTE

PROPOSED TEXT:

It is proposed to amend the point (i)(1) of this point to read:
"(i) The records shall be kept for the period specified below:
(1) **for records containing the data required by points (b)(1) and (b)(2) of point ML.UAS.305** ~~**all detailed maintenance**~~ in respect of the UAS and of any component that is subject to airworthiness
limitations, until such time as the information contained in the records is superseded by new information
equivalent in scope and detail but not less than 36 months after the UA **maintenance, CU installation**
or the component maintenance has been **certified** ~~**released**~~;
[...]".

RATIONALE:
The signature confirming the satisfactory accomplishment of the pre-flight preparation should be kept for the
same period as for the details of maintenance carried out on the UAS to demonstrate it complies with the approved
design and is in a condition safe for operation.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

637 comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para (i)(3) & (i)(4)
quote
"(i) The records shall be kept for the period specified below:
[...]
(3) the time in service (i.e. hours, calendar time, cycles and landings, as appropriate) since the last
scheduled maintenance of the component that is subject to an airworthiness limitation, at least
until the component's scheduled maintenance has been superseded by another scheduled maintenance
of equivalent work scope and detail;
(4) the current status of compliance with the UAS maintenance programme at least until the scheduled
maintenance of the UAS or of the component has been superseded by another scheduled maintenance of
equivalent work scope and detail;
[...]"
UNQUOTE

COMMENT:

It is proposed ***to delete the points (i)(3) and (i)(4)*** of this sub para.

RATIONALE:
These requirements are already covered by points (e)(3) and (f)(4) of point ML.UAS.305.
The current status of compliance with the maintenance schedule of the UAS maintenance programme means the
last and next accomplishment data (referring to the applicable parameter) for the tasks specified in the maintenance
schedule of the UAS maintenance programme.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *639* comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para (i)(5) & (i)(6)
quote
"(i) The records shall be kept for the period specified below:
[...]
(5) the current status of ADs applicable to the UAS and components, at least 12 months after the UAS or the component has been permanently withdrawn from service;
(6) details of current modifications and repairs to the UAS, engine(s) and to any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the points (i)(5) and (i)(6) of this point to read:
"(i) The records shall be kept for the period specified below:
[...]
(~~5~~**3**) the **data required by points (b)(4), (e) and (f) of point ML.UAS.305**
~~**current status of ADs applicable to the UAS and components**~~, at least 12 months after the UAS or the component has been permanently withdrawn from service~~**;**~~
~~**(6) details of current modifications and repairs to the UAS, engine(s) and to any other component**~~
~~**vital to flight safety, at least 12 months after they have been permanently withdrawn from service**~~."

RATIONALE:
All the current report/list/statuses must be kept up-to-date to enable the organisation responsible for managing
the continuing airworthiness of the UAS to fulfil its obligation prescribed in point ML.UAS.201(a)(1).

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *641* comment by: *Airbus-Regulations-SRg*

Page 99/295, ML.UAS.305, sub para (i)
quote
"(i) The records shall be kept for the period specified below: [...]"
UNQUOTE

COMMENT:
The Agency should clarify the retention period applicable to the records referred to in point ML.UAS.305(b)(3).

RATIONALE:
It is unclear what "information considered necessary to ensure" continuing airworthiness management refer to and
for how long it must be retained.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *966* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text: "(f)….(2) the type, serial number and registration, as appropriate, of the UA, engine or component to which the particular component has been fitted, along with the reference to the installation and removal of the component;…"

Information to be recorded are also related to CU, below is the proposed text:
"(f)….(2) the type, serial number and registration, as appropriate, of the UA, **CU**, engine or component to which the particular component has been fitted, along with the reference to the installation and removal of the component;…"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *967* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text: "(1) ...l but not less than 36 months after the UA or the component maintenance has been released;"

The criteria is relevant not only to UA, but also to CU, than is relevant to UAS; so, below is the proposed text:
"(1) all detailed maintenance records in respect of the UAS and of any component that is subject to airworthiness limitations, until such time as the information contained in the records is superseded by new information equivalent in scope and detail but not less than 36 months after the **UAS** or the component maintenance has been released;"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1067* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

ANNEX I PART-ML.UAS, ML.UAS.305 page 98
Comment: ML.UAS.305 does not state when at the latest any performed maintenance activities shall be inserted into the records, ML.UAS.305(c) only states "as soon as possible".

Proposals for change: Add a timeframe, for example 30 days as in ML.305(a)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1174* comment by: *AESA*

Control is requested as a UAS as a whole, not as a separate UA and CU, so for UAs and CUs operating with different CUs and UAs the total data would be lost. This influences issues such as e.g. application of ADs and other scheduled maintenance tasks that are controlled in hours and/or cycles.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.304 Modifications and repairs p. 98

comment *621* comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.304, sub para. (a)
quote
"(a) Any damage to an UAS or component shall be assessed before being repaired".
UNQUOTE

PROPOSED TEXT:
It is proposed to move the current point (a) of point ML.UAS.304 to a new point ML.UAS.404 and to replace it
with a new requirement to read:
"(a) ~~**Any damage to an UAS or component shall be assessed before being repaired.**~~
The organisation responsible for the UAS continuing airworthiness shall manage the UAS configuration."

RATIONALE:
Modifications and repairs may be designed by the same organization that operates the UAS into which they are incorporated.
In a more general case, however, the organization that designs and obtains design approval for the modification or repair,
the organisation responsible for the UAS continuing airworthiness management, the organization that installs the design change
on the UAS, and the organisation that operates the UAS may all be different.
Because the holder of a design approval for a particular modification or repair cannot be expected to be aware and to have
conducted analyses and tests for all the possible combination of design elements installed on all UAS of a given type,
the organisation responsible for the UAS continuing airworthiness management has some responsibility to verify compatibility
with the other design elements, including but not limited to the modifications and repairs already installed, before installing
any design change. This organisation should survey the UAS continuing airworthiness records and the UAS itself to determine
what other design elements exist on the UAS. Any questions of incompatibility with other design elements arising from the
survey should be referred for resolution with an appropriately Approved Design Organisation.
(based on ICAO Airworthiness Manual Doc. 9760, Part IV, Chapter 3, section 3.2 "Compatibility of Modifications and Repairs")

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *622* comment by: *Airbus-Regulations-SRg*

Page 98/295, ML.UAS.304, sub para (b)
quote
"(b) Carrying out modifications and repairs on the UAS, UA component or CU component referred to in
point 21.A.308(a) of Annex I (Part 21) to Regulation (EU) No 748/2012 shall require such modification
and repair to be either: [...]".
UNQUOTE

PROPOSED TEXT:
It is proposed to amend the point (b) of this point to read:
"(b) Carrying out modifications and repairs on the ~~**UAS, UA component or**~~ CU component**s** referred to in
point 21.A.308(a) of Annex I (Part 21) to Regulation (EU) No 748/2012**, the UA components, or the UAS**
shall require **the design of** such modification and repair to be either: [...]".

RATIONALE:
The sequence of the list of items has been found misleading as it gives the impression that UA components are
referred to in point 21.A.308(a). Reverting this sequence prevents confusion.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.307 Transfer of the UAS's continuing airworthiness records p. 100

comment *409* comment by: *DGAC FR (Mireille Chabroux)*

Typo in ML.UAS.307(b). Correct ML.UAS.307(b) as follows:
(b) The time periods for the retention of the records set out in point ML.UAS.305~~(h)~~(i) shall continue to apply to the new UAS owner.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *642* comment by: *Airbus-Regulations-SRg*

Page 100/295, ML.UAS.307
quote
"(a) When an UAS is permanently transferred from one owner to another, the relevant continuing airworthiness records referred to in point ML.UAS.305 shall also be transferred.
(b) The time periods for the retention of the records set out in point ML.UAS.305(h) shall continue to apply to the new UAS owner."
UNQUOTE

COMMENT:
It is proposed to delete these requirements.

RATIONALE:
These are organisational requirements already covered by point CAO.UAS.90(g).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1069* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

ANNEX I PART-ML.UAS, ML.UAS.307 page 100
Comment: ML.UAS.307 does not include a requirement to transfer applicable records to contracted CAO.UAS organisation. (For reference see ML.A.307(b))

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.403 UAS defects p. 101

comment *506* comment by: *Volocopter GmbH*

AMC/ GM needed to specify which defects are considered as endangering the flight safety. More clarity needed on that point.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *509* comment by: *Volocopter GmbH*

Point b) 1) speaks about 'UAS mission equipment' and point 2 about 'UAS equipment'. It is not clear if the term is different on purpose or should be aligned.

Please use one term 'UAS mission equipment' consistently.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *510* comment by: *Volocopter GmbH*

Comment to point c: Suggestion to use the same wording as in point a), i.e., 'endangering flight safety' for consistency.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *646* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.403, sub para (a)
quote
"(a) Any UAS defect that seriously endangers the flight safety shall be rectified before further flight."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (a) of this point to read:
"(a) Any UAS defect that seriously endangers the ~~**flight safety**~~ **airworthy condition of the UAS referred to in**
point ML.UAS.201(a)(1) shall be rectified before further flight."

RATIONALE:
The term 'flight safety' is not defined and not referred to in the responsibilities of stakeholders as per ML.UAS.201.
The responsibility of stakeholders in the frame of Part-ML.UAS is limited to airworthiness.

'Flight safety' conveys in the Continuing Airworthiness community a subjective notion that is closely tied with the competence
and experience of each individual. It usually leads to speculations and beliefs about the demonstration of compliance with the
requirements referring to this notion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *647* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.403, sub para (b)(2)
quote
"(b) The following persons may decide that a defect does not seriously endanger flight safety, and may defer it accordingly:
(1) the remote pilot or the authorised certifying staff in respect of defects that affect non-required UAS mission equipment;

(2) the remote pilot or the authorised certifying staff when using the MEL in respect of defects that affect required UAS equipment;
[...]"
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (b) of this point to read:
"(b) The following persons may decide that a defect does not seriously endanger **the airworthy condition of the UAS** ~~**flight safety**~~,
and may defer it**s rectification** accordingly:
[...]
(2) the remote pilot or the authorised certifying staff when using the MEL **and CDL** in respect of defects that affect required UAS equipment;
[...]"
Further, the Agency should ensure that GM will explain how the organisation managing the UAS continuing airworthiness can identify
'non-required UAS mission equipment' and 'required UAS equipment' so that it can inform organisations maintaining the UAS accordingly.

RATIONALE:
For the sake of consistency with a previous comment.
The certifying staff may defer the rectification of an existing defect.
The CDL is identified together with the MEL in point ML.UAS.301(b).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *648* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.403, sub para (b)(3)
quote
"(b) The following persons may decide that a defect does not seriously endanger [...],
and may defer [...] accordingly:
[...]
(3) the authorised certifying staff in respect of defects other than those referred to in points (b)(1) and (b)(2)."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (b)(3) of this point to read:
"(3) the authorised certifying staff**, using point ML.UAS.401 maintenance data,** in respect of defects other than
those referred to in points (b)(1) and (b)(2)."

RATIONALE:
Clarify on which basis the authorised certifying staff may decide that a defect does not seriously endanger the airworthy
condition of the UAS, and may defer its rectification.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *649* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.403, sub para (c)
quote
"(c) Any UAS defect that does not seriously hazard flight safety shall be rectified as soon as practicable
from the date on which the defect was first identified and within the time limits specified in the maintenance
data."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (c) of this point to read:
"(c) Any UAS defect that does not seriously hazard ~~**flight safety**~~ **the airworthy condition of the UAS** shall be rectified
as soon as practicable from the date on which the defect was first identified and within the time limits specified in the
maintenance data."

RATIONALE:
For the sake of consistency with a previous comment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *650* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.403, sub para (d)
quote
"(d) Any defect that is not rectified before flight shall be recorded in the UAS continuing airworthiness
record system referred to in point ML.UAS.305 and a record shall be made available to the remote pilot."

UNQUOTE

COMMENT:
It is proposed to ***delete point (d)*** of this point.

RATIONALE:
All defects and associated rectifications must be recorded, regardless whether the rectification is deferred or not.
With regard to the access of the remote pilot to the current list of deferred maintenance (and other
UAS continuing airworthiness records), it should be handled under points CAO.UAS.075(b)(9) and/or CAO.UAS.090(a)(3).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *651* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.403

PROPOSED TEXT :
It is proposed to add a point ML.UAS.404 in order to complement point ML.UAS.403. It reads:
"**(a) Any damage to an UAS or component shall be assessed before next flight.**
(b) Any damage of a nature such that the airworthy condition of the UAS referred to in point ML.UAS.201(a)(1)
is no longer maintained shall be repaired before further flight.
(c) The following persons may decide that damage is of a nature such that the airworthy condition of the
UAS is no longer maintained, and may defer it accordingly:
(1) the remote pilot or the authorised certifying staff in respect of damage that affects non-required UAS
mission equipment;
(2) the remote pilot or the authorised certifying staff when using the MEL or CDL in respect of damage that
affects required UAS equipment;
(3) the authorised certifying staff, using point ML.UAS.304(b) data, in respect of damage other than those referred
to in points (c)(1) and (c)(2).
(d) Any damage of a nature such that the airworthy condition of the UAS is still maintained shall be repaired within
the time limits specified in point ML.UAS.304(b) data."

Further, the Agency should ensure that GM will explain how the organisation managing the UAS continuing airworthiness can identify
'non-required UAS mission equipment' and 'required UAS equipment' so that it can inform organisations maintaining the UAS accordingly.

RATIONALE:
The time limit for assessing damage was missing in point ML.UAS.304(a). Lack of assessment of damage once identified may seriously
impact the airworthy condition of the aircraft during next flight.

Point ML.UAS.301(b) currently refers to 'rectification' for both defect and damage.
Another comment proposes to keep 'rectification' for defects and to add 'repair' for damage.

Point ML.UAS.403 refers to rectification of aircraft **defects** only, and in particular with the possibility to defer rectification, and defining who is
responsible for that. No similar requirements exist for repairs of **damage**.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

803 comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 101)
"(a) **Any UAS defect** that seriously endangers the flight safety shall be rectified before further flight."

Comment
AMC/ GM needed to specify which defects are considered as endangering the flight safety.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

804 comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 101)
"(b) (1) the remote pilot or the authorised certifying staff in respect of defects that affect nonrequired **UAS mission equipment;"**

Comment
Point (b) (1) speaks about 'UAS mission equipment' and point 2 about 'UAS equipment'. It is ot clear if the term is different on purpose or should be aligned.

Please use one term 'UAS mission equipment' consistently.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *805* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 101)
"(c) Any UAS defect that does **not seriously hazard** flight safety shall be rectified as soon as practicable from the date on which the defect was first identified and within the time limits specified in the maintenance data."

Comment
Suggestion to use the same wording as in point a), i.e., 'endangering flight safety' for consistency.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *816* comment by: *UAV DACH e.V.*

Reference: (a) Any UAS defect that seriously endangers...

Comment: AMC/ GM needed to specify which defects are considered as endangering the flight safety. More clarity needed on that point.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *818* comment by: *UAV DACH e.V.*

Reference: (c) Any UAS defect that does not seriously hazard flight safety shall be ...

Comment and proposal: Suggestion to use the same wording as in point a), i.e., 'endangering flight safety' for consistency.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *825* comment by: *UAV DACH e.V.*

Reference: (1) the remote pilot or the authorised certifying staff in respect of defects that affect nonrequired
UAS mission equipment...

Comment: Point b) 1) speaks about 'UAS mission equipment' and point 2 about 'UAS equipment'. It is ot clear if the term is different on purpose or should be aligned.

Proposal: Use one term 'UAS mission equipment' consistently.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1087* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

AMC/ GM needed to specify which defects are considered as endangering the flight safety. Further clarification is needed.

PROPOSED ACTION/RESOLUTION

EASA to clarify ML.UAS.403 through AMC/GM to specify which defects are considerd as endangering the safety of flight.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1091* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Point b) 1) speaks about *'UAS mission equipment'* and point 2 about *'UAS equipment'*. It is ot clear if the term is different on purpose or should be aligned.

PROPOSED ACTION/RESOLUTION

Please use one term *'UAS mission equipment'* consistently.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1094* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Language as proposed in (c) seems to not be consistent with that in point (a), specifically in the use of the term *'endangering flight safety'*.

PROPOSED ACTION/RESOLUTION

	Suggestion to use the same wording as in point a), i.e., *'endangering flight safety'* for consistency.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1309* comment by: *JEDA* Comment to point c: Suggestion to use the same wording as in point a), i.e., 'endangering flight safety' for consistency.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1312* comment by: *JEDA* Point b) 1) speaks about 'UAS mission equipment' and point 2 about 'UAS equipment'. It is ot clear if the term is different on purpose or should be aligned.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.401 Maintenance data p. 101

comment	*644* comment by: *Airbus-Regulations-SRg* Page 101/295, ML.UAS.401, sub para (b)(1) & (b)(2) quote "(b) For the purposes of this Annex, 'applicable maintenance data' means any of the following: (1) any applicable requirement, procedure, standard or information issued by the competent authority or the Agency; (2) any applicable AD; [...]" UNQUOTE **PROPOSED TEXT:** It is proposed to amend points (b)(1) and (2) of this point to read: "(b) For the purposes of this Annex, 'applicable maintenance data' means any of the following: (1) any applicable **maintenance-related** requirement, procedure, standard or information issued by the competent authority or the Agency;

(2) any applicable **maintenance-related** AD;
[...]"

RATIONALE:
For example, some AD require the amendment of the Aircraft Flight Manual. Data not related to maintenance
cannot be considered 'applicable maintenance data'.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *645* comment by: *Airbus-Regulations-SRg*

Page 101/295, ML.UAS.401, sub para. (b)(3) & (b)(4)
quote
"(b) For the purposes of this Annex, 'applicable maintenance data' means any of the following:
[...]
(3) the applicable ICA and other maintenance instructions issued by the type-certificate holder,
supplementary type-certificate holder and any other organisation that publishes such data in accordance
with Annex I (Part 21) to Regulation (EU) No 748/2012;
(4) for components approved for installation by the design approval holder, the applicable maintenance
instructions published by the component manufacturer and acceptable to the design approval holder;"
UNQUOTE

PROPOSED TEXT:
It is proposed to amend points (b)(3) and (4) of this point to read:
"(b) For the purposes of this Annex, 'applicable maintenance data' means any of the following:
[...]
(3) the applicable ICA and other maintenance instructions issued by the type-certificate holder, supplementary type-certificate holder
and any other organisation that publishes such data in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012
that are called in the UAS maintenance programme required by point ML.UAS.302;
(4) for components approved for installation by the design approval holder, the applicable maintenance instructions published by the
component manufacturer and acceptable to the design approval holder **that are called in the UAS maintenance programme required**
by point ML.UAS.302.;"

RATIONALE:
For example, modifications and repairs may be designed by the same organization that operates the UAS into which they are incorporated.
In a more general case, however, the organization that designs and obtains design approval for the modification or repair, the organisation
responsible for the UAS continuing airworthiness management, the organization that installs the design change on the UAS, and the
organisation that operates the UAS may all be different.

Because the holder of a design approval for a particular modification or repair cannot be expected to be aware and to have conducted analyses
and tests for all the possible combination of design elements installed on all UAS of a given type, the organisation responsible for the
UAS continuing airworthiness management has some responsibility to verify compatibility with the other design elements, including but not limited
to the modifications and repairs already installed, before installing any design change. This organisation should survey the UAS continuing airworthiness
records and the UAS itself to determine what other design elements exist on the UAS. Any questions of incompatibility with other design elements arising
from the survey should be referred for resolution with an appropriately Approved Design Organisation. A description of these difficulties was reported for
manned aircraft in 2014 in an article of Sabrina Woods (FAA):
"Beware the Frankenplane! (The hidden dangers of layering STCs)". *[NOTE: the link to the FAA webpage is not accepted by the CRT]*

When it comes to problems or conflicts affecting maintenance instructions, the organisation performing the maintenance may not detect them, in particular
when they are subtle (e.g. selection of the appropriate probe to perform a NDT inspection, appropriateness of a sequence of maintenance steps in a procedure
to detect system malfunctions, etc.). Consequently, it becomes crucial that the Approved Maintenance Organisations (AMO) contracted to perform maintenance
on a given UAS or component for installation thereon use the maintenance data amended to take into account the particular configuration of this UAS, instead
of the generic maintenance data referred to in point ML.UAS.401(b)(3) and (4) to which they have usually access. AMO cannot be expected to be aware and
to have access to maintenance data for all UAS configurations.

The wording of point M.A.302(a) and point ML.A.302(a) should be adopted in Part ML.UAS. These points provide that "[t]he maintenance of each aircraft shall be
organised in accordance with an [Aircraft Maintenance Programme]". This is paramount for ensuring that the appropriate maintenance, whether scheduled or
unscheduled, is carried out at all times. The applicable UAS Maintenance Programme should detail the maintenance data amended to take into account
the particular configuration of the UAS.

Any maintenance action must be assessed in the frame of the UAS Maintenance Programme creation/revision before it may be performed.
Questions of incompatibility between design elements are resolved as a result of the reviews performed under point ML.UAS.302(e).

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1278* comment by: *THALES*

ML.UAS.401

Comment:
"(a) Maintenance on the UAS shall require the use of and adherence to current applicable maintenance data."
This wording differs from Part-M and Part-ML. Can you provide the rationale for the change?

Suggested resolution:
It is suggested to stick to the intial wording from other regulations.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART D - MAINTENANCE STANDARDS p. 101

comment: *1071* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

ANNEX I PART-ML.UAS, SUBPART D — MAINTENANCE STANDARDS page 101
Comment: No requirement has been established in Subpart D to ML.UAS corresponding to ML.A.402 where requirements for types of organisations approved to perform maintenance is stated.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.502 Maintenance of UA components p. 102

comment *328* comment by: *ASD*

comment:
ML.UAS.502 Maintenance of UA components
(a) UA components which are accepted by the owner in accordance with point 21.A.307(b)(2) of Annex I (Part 21) to Regulation (EU) No 748/2012 shall be maintained by any person or organisation, subject to reacceptance by the owner under the conditions of point 21.A.307(b)(2) of that Annex. Such maintenance is not eligible for the issuance of an EASA Form 1, as set out in Appendix II to Annex I (Part-M) to Regulation (EU) No 1321/2014, and shall be subject to the aircraft release requirements

Suggested resolution:
point 21.A.307(b)(2) starts as follows "in the case of ELA1 or ELA2," - so it is limited to aircraft classifying as ELA1 or ELA2.
=> does this imply that UA could be classified as such or the reference to the 21.A.307 should be updated?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *410* comment by: *DGAC FR (Mireille Chabroux)*

21.A.307(b)(2) only applies to ELA1 and ELA2 aircraft (which are manned aircraft) while Part-ML.UAS applies only to unmanned aircraft (as per article 1 of the proposed cover regulation). Therefore, ML.UAS.502(a) seems not relevant and it is suggested to remove it.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *411* comment by: *DGAC FR (Mireille Chabroux)*

As per ML.UAS.201(e)(3), maintenance on UAS under Part-ML.UAS can only be performed by approved Part-CAO.UAS organisations. This means that a "person" is not allowed to perform maintenance and that the wording of ML.UAS.502(c) should reflect that:

Components which are referred to in points (b)(3) to (b)(6) of point 21.A.307 of Annex I (Part 21) to Regulation (EU) No 748/2012 may be maintained by any ~~person or~~ organisation. In such case, by way of derogation from point (b), the maintenance of those components shall be released with a 'declaration of maintenance accomplished' issued by the ~~person or~~ organisation that has performed the maintenance. The 'declaration of maintenance accomplished' shall contain at least basic details of the maintenance carried out, the date on which the maintenance was completed, and the identification of the organisation ~~or person~~ that issues it. It shall be considered a maintenance record and equivalent to an EASA Form 1 in respect of the maintained component.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *667* comment by: *Airbus-Regulations-SRg*

Page 102/295, ML.UAS.502, sub para (a)
quote
"(a) [...]. Such maintenance is not eligible for the issuance of an EASA Form 1, as set out in Appendix II
to Annex I (Part-M) to Regulation (EU) No 1321/2014, and shall be subject to the aircraft release requirements."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (a) of this point to read:
"(a) [...]. Such maintenance is not eligible for the issuance of an EASA Form 1, as set out in Appendix II to Annex I
(Part-M) to Regulation (EU) No 1321/2014, and shall be subject to the ~~**aircraft release**~~ **certification** requirements
for UA maintenance."

RATIONALE:
Para. ML.UAS.801 titled "certification of UA maintenance".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *668* comment by: *Airbus-Regulations-SRg*

Page 103/295, ML.UAS.502, sub para (b)
quote
"(b) The maintenance of UA components shall be released in accordance with the following table: [...]"
UNQOUTE

PROPOSED TEXT:
It is very surprising that UA approved maintenance organisations are authorised to overhaul engines,
but not any other component.
It is proposed to amend sub para (b) of this to read:
"(b) The maintenance of UA components shall be ~~**released**~~ **certified** in accordance with the following table: [...]"

RATIONALE:
Para. ML.UAS.802 titled "certification of UA component maintenance".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *669* comment by: *Airbus-Regulations-SRg*

Page 103/295, ML.UAS.502, sub para (c)
quote
"(c) Components which are referred to in points (b)(3) to (b)(6) of point 21.A.307 of Annex I (Part 21) to Regulation (EU) No 748/2012 may be maintained by any person or organisation. In such case, by way of derogation from point (b), the maintenance of those components shall be released with a 'declaration of maintenance accomplished' issued by the person or organisation that has performed the maintenance. [...]."
UNQUOTE

PROPOSED TEXT :
It is proposed to amend sub para (c) to read:
"(c) [...]. In such **a** case, by way of derogation from point (b), ~~**the maintenance of**~~ those components shall be ~~**released with**~~ **accompanied by** a 'declaration of maintenance accomplished'
issued by the person or organisation that has performed the maintenance. [...]."

RATIONALE:
This kind of maintenance is not certified. Therefore, it is appropriate to use a wording preventing
any confusion in this respect.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *855* comment by: *FOCA (Switzerland)*

(a): To ensure clarity for the reader, FOCA proposes to reference Regulation (EU) 2021/699 instead of Regulation (EU) 748/2012. This because point 21.A.307(b)(2) has been significantly amended and therefore the intention may not be understood when referring to the original version of (EU) 748/2012.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.501 Installation of UA components p. 102

comment *486* comment by: *JEDA*

Evidence of conformity for standard parts shall be based on Regulation 765/2008 and associated Council Decision 768 of the same year. It woud be better to make this explicit.

Proposed amendment: Standard parts shall only be fitted to an UA or to a component when the maintenance data specifies those particular standard parts. Standard parts shall only be fitted when accompanied by evidence of conformity to the applicable standard, based on Regultion 765/2008 and associated Council Decision 768/2008 and when they have appropriate traceability.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *652* comment by: *Airbus-Regulations-SRg*

Page 102/295, ML.UAS.501, sub para (b)
quote
"(b) Prior to the installation of a component on an UA, the maintenance organisation shall ensure that the
particular component is eligible to be fitted taking into account different modifications or AD configurations."
UNQUOTE

PROPOSED TEXT :
It is proposed to amend point (b) of this point to read:
"(b) Prior to the installation of a component on an UA, the maintenance organisation shall ensure that the particular
component is eligible to be fitted taking into account **the UAS approved design** ~~**different modifications or AD configurations**~~."

RATIONALE:
Modifications and ADs are only examples of design elements to take into account (repair designs, unintentional deviations from the
type design occurring in production are other examples) before installing a component on an UA.

Further, maintenance organisations are not responsible for managing the UAS configuration. Therefore, an AMC should explain that

	confirmations that components are eligible for installation can only be obtained from the organisation managing the UAS continuing airworthiness.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART E - COMPONENTS p. 102

comment	*1073* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* **ANNEX I PART-ML.UAS, SUBPART E — COMPONENTS pages 102, 103** Comment: Subpart E to Part ML.UAS does not include any requirements related to Service-life-limited components. Proposal for change: Add paragraphs that corresponds to ML.A.503.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1289* comment by: *FAA* Suggest adding some type of guidance (separate NPA) to address security and safety criteria for UAS components to mitigate potential physical or cyber threats to UAS.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.504 Segregation of components p. 103

comment	*670* comment by: *Airbus-Regulations-SRg* Page 103/295, ML.UAS.504, sub para (a) quote "(a) Unserviceable and unsalvageable components shall be segregated from serviceable components, standards parts, and materials." UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (a) to read:
"(a) ~~**Unserviceable and**~~ unsalvageable components **and components requiring maintenance** shall be segregated from ~~**serviceable**~~ components, standards parts, and materials **referred to in point ML.UAS.501**."

RATIONALE:
What do 'serviceable' and 'unserviceable' mean?
How are they different from 'airworthy' and 'unairworthy'?
In absence of definitions clarifying the differences, it is recommended to not use these terms.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

671 comment by: *Airbus-Regulations-SRg*

Page 103/295, ML.UAS.504, sub para (b)
quote
"(b) A component shall be considered unserviceable in any of the following circumstances:
(1) expiry of the component's limitation as defined in the UAS maintenance programme;
(2) non-compliance with the applicable ADs and other continuing airworthiness requirements mandated by the Agency;
(3) absence of the necessary information to determine the airworthiness status of the component or its eligibility for installation;
(4) evidence of component defects or malfunctions;
(5) involvement of the component in an incident or accident that has likely affected its serviceability."
UNQUOTE

COMMENT:
It is proposed to ***delete point (b) of ML.UAS.504***.

RATIONALE:
REF - comment #670
[What do 'serviceable' and 'unserviceable' mean?]
[How are they different from 'airworthy' and 'unairworthy'?]
[In absence of definitions clarifying the differences, it is recommended to not use these terms.]

In addition,
the definition of 'unserviceable' given in sub para (b) is arguable. For example, one may consider that a

component fitted, or that was fitted, to an aircraft involved in an incident or accident should be considered
unsalvageable until the time an appropriately approved design organisation issues a design approval for its
installation after the event (refer also to ML.UAS.902(b)(5)). It is worth noting that unsalvageable
components are not permitted to re-enter the component supply system unless certain conditions are met.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *672* comment by: *Airbus-Regulations-SRg*

Pages 103-104/295, ML.UAS.504, sub para (c)
quote
"(c) Components which have reached their certified life limits or contain a non-repairable defect
or malfunction shall be classified as unsalvageable and shall not be permitted to re-enter the component
supply system unless their certified life limits have been extended or a repair solution has been approved
in accordance with point ML.UAS.304."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (c) of this point to read:
"(c) ~~**Components which have reached their certified life limits or contain a non-repairable defect or malfunction**~~
The following components shall be classified as unsalvageable and shall not be permitted to re-enter the component
supply system unless ~~**their certified life limits have been extended or a repair**~~ **a design** solution has been
approved in accordance with sub para ML.UAS.304**(b):**
(i) components that have reached the mandatory life limitation specified in the UAS maintenance programme;
(ii) components that contain a non-repairable damage, defect or malfunction;
(iii) components that were fitted to a UA when it was involved in an incident or accident."

RATIONALE:
The current list of reasons requiring the involvement of an appropriately Approved Design Organisation is incomplete.
Specific tests, inspections, or other maintenance actions including the permanent withdrawal from service may be made

necessary by an accident or incident. This implies that an input from the relevant Approved Design Organisation(s),
such as the TC holder(s) or original equipment manufacturer is necessary, and therefore the component should not be
permitted to re-enter the supply chain until the conclusions of the involved Approved Design Organisation(s) are known,
in particular for components that are subject to airworthiness limitations.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1074* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

ANNEX I PART-ML.UAS, ML.UAS.504, page 103
Comment: Subpart E Part ML.UAS.504 does not include any requirements of mutilation of unsalvageable components.

Proposal for change: Add a subparagraph that corresponds to ML.A.504(d).

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.520 Installation and maintenance of CU components p. 104

comment: *412* comment by: *DGAC FR (Mireille Chabroux)*

As per ML.UAS.201(e)(3), maintenance on UAS under Part-ML.UAS can only be performed by approved Part-CAO.UAS organisations. This means that a "person" is not allowed to perform maintenance and that the wording of ML.UAS.520(e) should reflect that:

The maintenance of CU components other than those referred to in point (d) shall be released with a 'declaration of maintenance accomplished' issued by the ~~person or~~ organisation that has performed the maintenance. That declaration shall contain at least basic details of the maintenance carried out, the date on which the maintenance was completed, and the identification of the organisation ~~or person~~ that issues it. It shall be considered a maintenance record and equivalent to the declaration referred to in point 21.A.308(b) of Annex I (Part 21) to Regulation (EU) No 748/2012 for the purpose of installation.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *673* comment by: *Airbus-Regulations-SRg*

Page 104/295, ML.UAS.520, sub para (d)
quote
"(d) The maintenance of CU components referred to in point 21.A.308(a) of Annex I (Part 21) to Regulation (EU) No 748/2012 shall be performed by a maintenance organisation approved in accordance with Annex II (Part-CAO.UAS) and be released on an EASA Form 1 as set out in Appendix II to Annex I (Part-M) to Regulation (EU) No 1321/2014."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (d) to read:
"(d) The maintenance of CU components referred to in point 21.A.308(a) of Annex I (Part 21) to Regulation (EU) No 748/2012 shall be performed by a maintenance organisation approved in accordance with Annex II (Part-CAO.UAS) and be **certified** ~~**released**~~ on an EASA Form 1 as set out in Appendix II to Annex I (Part-M) to Regulation (EU) No 1321/2014."

RATIONALE:
Para ML.UAS.804 titled "certification of CU component maintenance".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *674* comment by: *Airbus-Regulations-SRg*

Page 104/295, ML.UAS.520, sub para (e)
quote
"(e) The maintenance of CU components other than those referred to in point (d) shall be released
with a 'declaration of maintenance accomplished' issued by the person or organisation that has
performed the maintenance. That declaration shall contain at least basic details of the maintenance
carried out, the date on which the maintenance was completed, and the identification of the organisation
or person that issues it. It shall be considered a maintenance record and equivalent to the declaration
referred to in point 21.A.308(b) of Annex I (Part 21) to Regulation (EU) No 748/2012 for the purpose
of installation."
UNQUOTE

PROPOSED TEXT:

It is proposed to amend sub-para (e) to read:
"(e) ~~The maintenance of~~ CU components other than those referred to in point (d) shall **after maintenance** be ~~released with~~ **accompanied by** a 'declaration of maintenance accomplished'
issued by the person or organisation that has performed the maintenance. [...]."

RATIONALE:
This kind of maintenance is not certified.
Therefore, it is appropriate to use a wording preventing any confusion in this respect.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *950* comment by: *FAA*

Paragraphs (d) and (e) on page 104 state:
(d) The maintenance of CU components referred to in point 21.A.308(a) of Annex I (Part 21) to Regulation (EU) No 748/2012 shall be performed by a maintenance organisation approved in accordance with Annex II (Part-CAO.UAS) and be released on an EASA Form 1 as set out in Appendix II to Annex I (Part-M) to Regulation (EU) No 1321/2014.
(e) The maintenance of CU components other than those referred to in point (d) shall be released with a 'declaration of maintenance accomplished' issued by the person or organisation that has performed the maintenance. That declaration shall contain at least basic details of the maintenance carried out, the date on which the maintenance was completed, and the identification of the organisation or person that issues it. It shall be considered a maintenance record and equivalent to the declaration referred to in point 21.A.308(b) of Annex I (Part 21) to Regulation (EU) No 748/2012 for the purpose of installation.

There is some question as to who may perform the *'declaration of maintenance accomplished'.* It may be helpful to clarify the requirements for the person(s) who may make this declaration.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.801 Certification of UA maintenance p. 105

comment *675* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.801, sub para (b)
quote
"(b) A CRS shall contain at least the following:

(1) basic details of the UA maintenance carried out;
(2) the date on which the UA maintenance was completed;
(3) the approval reference of the maintenance organisation and certifying staff issuing the CRS;
(4) the limitations to airworthiness or operations, if any."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (b) to read:
"(b) A CRS shall contain at least the following:
[...]
(2) the date on which the UA maintenance was **certified** ~~**completed**~~;
[...]"

RATIONALE:
A maintenance event may involve multiple tasks completed one after the other and over several days,
or long tasks taking several days. The date of certification is usually the reference with respect to the
aircraft continuing airworthiness management (refer for example to paragraph (a) of AMC M.A.305(c)2).

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *676* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.801, sub para (b)(4)
quote
"(b) A CRS shall contain at least the following: [...];
(4) the limitations to airworthiness or operations, if any."
UNQUOTE

COMMENT:
The Agency should ensure that GM will explain the meaning of sub para (b)(4) of ML.UAS.801.

RATIONALE:
One may understand that if there are limitations to airworthiness, the UAS is to be operated under a
permit to fly, and therefore some explanations referring to point 2. of Article 3 of this Regulation should be given.

One may also understand that if there are limitations to operations, some explanations (in particular referring
to sub para (d)(2) of ML.UAS.301) should be given as well.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *677* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.801, sub para (c)
quote
"(c) By way of derogation from point (a) and notwithstanding point (d), when the ordered maintenance
cannot be completed, a CRS may be issued within the approved aircraft limitations. In that case,
the CRS shall indicate that the maintenance could not be completed, and also indicate any applicable
airworthiness or operations limitations as part of the information required in point (b)(4)."
UNQUOTE

COMMENT:
The Agency should ensure that GM will explain the meaning of 'approved aircraft limitations' in this sub para to ML.UAS.801.

RATIONALE:
The term 'approved aircraft limitations' is not defined.
Clarifications are needed: is reference made to airworthiness limitations or any other specific limitations?
In any case, the Agency should ensure that certifying staff have the necessary competences to correctly
understand the implications of the limitations in question.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *678* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.801, sub para (d)
quote
"(d) A CRS shall not be issued in the case of any known non-compliance with the requirements of this Annex which endangers flight safety."
UNQUOTE

COMMENT:
The Agency should ensure that AMC will explain how and when a CRS can be issued in the case
of a known non-compliance with the requirements of this Annex.

RATIONALE:
The requirement prohibits the issuance of a CRS when the known non-compliance endangers "flight safety",
but it does not when the known non-compliance does not endanger "flight safety".
This gives the impression that it is acceptable to not comply with the requirements under certain conditions.
What "endanger flight safety" is an elusive notion that is difficult to grasp for the stakeholders of the
Continuing Airworthiness domain, in particular for cases other than the evident ones. The term 'flight safety'
is not defined and not referred to in the responsibilities of stakeholders as per ML.UAS.201.
The responsibility of stakeholders in the frame of Part-ML.UAS is limited to airworthiness.
'Flight safety' conveys in the Continuing Airworthiness community a subjective notion that is closely tied with
the competence and experience of each individual. It usually leads to speculations and beliefs about the demonstration
of compliance with the requirements referring to this notion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *685* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.801, sub papa (a)
quote
"(a) When completed, the maintenance carried out on an UA shall be certified on a 'certificate of release to service' (CRS) by a certifying staff. The CRS shall be issued when the certifying staff has verified that all the maintenance that was ordered has been properly carried out taking into account the availability and use of the maintenance data specified in ML.UAS.401."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend point (a) of this point to read:
"(a) [...]. The CRS shall be issued when ~~**the**~~ **that** certifying staff has verified that all the maintenance that

was ordered has been properly carried out **in accordance with the organisation manual required by**
point CAO.UAS.025, taking into account the availability and use of the maintenance data specified in ML.UAS.401."

RATIONALE:
Compliance with the information and procedures referred to in point CAO.UAS.025 must be ensured before
the certifying staff can certify the maintenance performed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.802 Certification of UA component maintenance p. 105

comment *679* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.802, sub para (a)
quote
"(a) When completed, the maintenance carried out on an UA component shall be certified by a certifying staff except for the cases covered by point ML.UAS.502(c). The certification shall be issued when the certifying staff has verified that all the maintenance that was ordered has been properly carried out taking into account the availability and use of the maintenance data specified in point ML.UAS.401 and that the component is in a satisfactory condition."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (a) to read:
"(a) [...]. The certification shall be issued when the certifying staff has verified that all the maintenance
that was ordered has been properly carried out **in accordance with the organisation manual required**
by point CAO.UAS.025, taking into account the availability and use of the maintenance data specified in
ML.UAS.401 and that the component is in a satisfactory condition."

RATIONALE:
Compliance with the information and procedures referred to in para CAO.UAS.025 must be ensured before
the certifying staff can certify the maintenance performed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *680* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.802, general

COMMENT:
It is unclear why para ML.UAS.80**1, sub para** (d), prohibits the certification of maintenance "in the case of any known non-compliance with the requirements of this Annex which endangers
flight safety" and why para ML.UAS.802 does not.

RATIONALE:
There are conditions inappropriate for flight that may be created by a non-compliance with the
requirements of this Annex during component maintenance, and that cannot be detected at the time
of component installation on aircraft.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.803 Certification of CU maintenance p. 105

comment | *681* comment by: *Airbus-Regulations-SRg*

Page 105/295, ML.UAS.803, sub para (a)
quote
"(a) When completed, the maintenance carried out on the CU in respect of features
and functions specific to and essential for the UA operation as determined by the design approval holder shall be certified on a CRS by a certifying staff. The CRS shall be issued when that certifying staff has verified that all the maintenance that was ordered has been properly carried out taking into account the availability and use of the maintenance data specified in ML.UAS.401."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (a) to read:
"(a) [...]. The CRS shall be issued when that certifying staff has verified that all the maintenance

that was ordered has been properly carried out **in accordance with the organisation manual required by point CAO.UAS.025,** taking into account the availability and use of the maintenance
data specified in point ML.UAS.401."

RATIONALE:
Compliance with the information and procedures referred to in para CAO.UAS.025 must be ensured
before the certifying staff can certify the maintenance performed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *682* comment by: *Airbus-Regulations-SRg*

Pages 105-106/295, ML.UAS.803, sub para (b)
quote
"(b) A CRS shall contain at least the following:
(1) basic details of the CU maintenance carried out;
(2) the date on which the CU maintenance was completed;
(3) the approval reference of the maintenance organisation and certifying staff issuing the CRS;
(4) the limitations to airworthiness or operations, if any."
UNQUOTE

PROPOSED TEXT:
It is proposed to amend sub para (b) to read:
"(b) A CRS shall contain at least the following:
[...]
(2) the date on which the CU maintenance was **certified** ~~**completed**~~;
[...]"

RATIONALE:
A maintenance event may involve multiple tasks completed one after the other and over several days,
or long tasks taking several days. The date of certification is usually the reference with respect to the
aircraft continuing airworthiness management (refer for example to paragraph (a) of AMC M.A.305(c)2).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *683* comment by: *Airbus-Regulations-SRg*

Pages 105-106/295, ML.UAS.803, sub para (b)
quote
"(b) A CRS shall contain at least the following: [...];
(4) the limitations to airworthiness or operations, if any."
UNQUOTE

COMMENT:
The Agency should ensure that GM will explain the meaning of sub para (b)(4) of ML.UAS.803.

RATIONALE:
One may understand that if there are limitations to airworthiness, the UAS is to be operated under
a permit to fly, and therefore some explanations referring to point 2. of Article 3 of this Regulation
should be given.
One may also understand that if there are limitations to operations, some explanations (in particular
referring to sub para (d)(2) of ML.UAS.301) should be given as well.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *684* comment by: *Airbus-Regulations-SRg*

Page 106/295, ML.UAS.803, sub para (g)
quote
"(g) A CRS shall not be issued in the case of any known non-compliance with the requirements of this Annex which endangers flight safety."
UNQUOTE

COMMENTS:
(1) The bullet reference should be (c), not (g).

(2) The Agency should ensure that AMC will explain how and when a CRS can be issued in the case of
a known non-compliance with the requirements of this Annex.

RATIONALE:
The requirement prohibits the issuance of a CRS when the known non-compliance endangers "flight safety",

	but it does not when the known non-compliance does not endanger "flight safety". This gives the impression that it is acceptable to not comply with the requirements under certain conditions. What "endanger flight safety" is an elusive notion that is difficult to grasp for the stakeholders of the Continuing Airworthiness domain, in particular for cases other than the evident ones. The term 'flight safety' is not defined and not referred to in the responsibilities of stakeholders as per ML.UAS.201. The responsibility of stakeholders in the frame of Part-ML.UAS is limited to airworthiness. 'Flight safety' conveys in the Continuing Airworthiness community a subjective notion that is closely tied with the competence and experience of each individual. It usually leads to speculations and beliefs about the demonstration of compliance with the requirements referring to this notion.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.805 Certification of CU installation p. 106

comment	*61* comment by: *Wingcopter GmbH* How are movable CUs such as notebooks, tablets, and other computers potentially installed on a vehicle considered in this paragraph?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*696* comment by: *AIRBUS* **Page 106 - point ML.UAS.805(a)** **<u>Comments</u>** "(a) When completed, the installation of the CU shall be certified on a 'certificate of release to service' (CRS) by a certifying staff. The CRS shall be issued when that certifying staff has verified that all the current applicable installation and testing instructions issued by the design approval holder have been properly complied with, taking into account the CU component installation requirements laid down in point ML.UAS.520." **<u>Suggestions</u>**

It is proposed to amend point (a) of this point to read:
"(a) [...]. The CRS shall be issued when that certifying staff has verified that all the current applicable installation and testing instructions issued by the design approval holder **and the information and procedures of the organisation manual required by point CAO.UAS.025** have been properly complied with, taking into account the CU component installation requirements laid down in point ML.UAS.520."

Rationale – Justification

Compliance with the information and procedures referred to in point CAO.UAS.025 must be ensured before the certifying staff can certify the maintenance performed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *697* comment by: *AIRBUS*

Page 106 - point ML.UAS.805(b)(2)

Comments

"(b) A CRS shall include:
(1) a reference to the CU installation instructions;
(2) the date on which the CU installation was completed;
(3) the approval reference of the maintenance organisation and certifying staff issuing the CRS;
(4) the limitations to airworthiness or operations, if any."

Suggestions

It is proposed to amend point (b) of this point to read:
"(b) A CRS shall include:
[...]
(2) the date on which the CU installation was **certified** ~~**completed**~~;
[...]"

Rationale - Justification

A maintenance event may involve multiple tasks completed one after the other and over several days, or long tasks taking several days. The date of certification is usually the reference with respect to the aircraft continuing airworthiness management (refer for example to paragraph (a) of AMC M.A.305(c)2).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *698* comment by: *AIRBUS*

Page 106 - point ML.UAS.805(b)(4)

Comments

"(b) A CRS shall include: [...];
(4) the limitations to airworthiness or operations, if any."

Suggestions

The Agency should ensure that GM will explain the meaning of point (b)(4) of this point.

Rationale – Justification

One may understand that if there are limitations to airworthiness, the UAS is to be operated under a permit to fly, and therefore some explanations referring to point 2. of Article 3 of this Regulation should be given.
One may also understand that if there are limitations to operations, some explanations (in particular referring to point (d)(2) of point ML.UAS.301) should be given as well.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.804 Certification of CU component maintenance p. 106

comment *694* comment by: *AIRBUS*

Page 106 - point ML.UAS.804(a)
Comments

"(a) When completed, the maintenance carried out on a CU component in accordance with point ML.UAS.520(d) shall be certified by a certifying staff. The certification shall be issued when the certifying staff has verified that all the maintenance that was ordered has been properly carried out taking into account the availability and use of the maintenance data specified in point ML.UAS.401 and that the component is in a satisfactory condition."

Suggestions

It is proposed to amend point (a) of this point to read:
"(a) [...]. The CRS shall be issued when ~~**the**~~ **that** certifying staff has verified that all the maintenance that was ordered has been properly carried out **in accordance with the organisation manual required by point CAO.UAS.025,** taking into account the availability and

use of the maintenance data specified in point ML.UAS.401 and that the component is in a satisfactory condition."

Rationale – Justification

Compliance with the information and procedures referred to in point CAO.UAS.025 must be ensured before the certifying staff can certify the maintenance performed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *695* comment by: *AIRBUS*

Page 106 - point ML.UAS.804

Suggestions

It is unclear why point ML.UAS.803(g) [should be (c)] prohibits the certification of maintenance "in the case of any known non-compliance with the requirements of this Annex which endangers flight safety" and why point ML.UAS.804 does not.

Rationale – Justification

It is probable that there are conditions inappropriate for flight that may be created by a non-compliance with the requirements of this Annex during CU component maintenance, and that cannot be detected at the time of component installation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.901 Airworthiness review of the UA p. 107

comment *413* comment by: *DGAC FR (Mireille Chabroux)*

Since ML.UAS.201(e) mandates every UA under Part-ML to be managed and maintained by approved Part-CAO.UAS organisations, what is the added value of ML.UAS.901(c)(1) and (2)? In fact, except if the owner/operator is not compliant with Part-ML.UAS, the UA will be managed and maintained in Part-CAO.UAS approved organisations and ML.UAS.901 means that the validity of an ARC may be extended if the owner/operator simply follows applicable requirements. This gives the impression that non-compliance with ML.UAS.201 is "covered" by the Regulation and the consequence is the impossibility of extending the ARC.

Using the notion of "controlled environment" to drive possible ARC extensions makes sense only when being in a controlled environment is not a mandate for every UA and brings some advantages.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *703* comment by: *AIRBUS*

Page 107 - point ML.UAS.901 "Airworthiness review of the UA"

Suggestions

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.
The Airworthiness Review Certificate should identify both the UA and the CU to enable the ARS to declare that the UAS is considered airworthy at the time of the review, in order to ensure consistency through the whole airworthiness process course.
Note: It is also worth noting that the CU may be approved as part of the UA TC or certified independently (the CU may be issued with a TC). This currently creates concerns as it is unclear how the operator and the organisation responsible for the continuing airworthiness management will be informed of the compatibility between a UA type and a CU type (in the aircraft TCDS maybe, like currently for engines? But then, this TCDS would deal with the UAS).

Rationale – Justification

The last update of the Chicago Convention is dated 2006. At that time, the case of unmanned aircraft was either dealt with very little in the Convention and its Annexes, or not considered at all. Hence, neither Article 31 of the Convention, nor Annex 8 to the Convention address the matter of the Control Unit (when there is one: it is probable that some unmanned aircraft will operate autonomously).
Article 31 reads: "Every aircraft engaged in international navigation shall be provided with a certificate of airworthiness issued or rendered valid by the State in which it is registered".
Standard 3.3.1 of Annex 8, Part II, Chapter 3 reads: "The Certificate of Airworthiness shall contain the information shown in Figure 1 and shall be generally similar to it". In terms of identification, the information in this figure 1 includes the nationality and registration marks, the manufacturer and manufacturer's designation of the aircraft, and the aircraft serial number.
Neither the identification of the CU on the aircraft CofA, nor a CofA for the CU have been anticipated.
This probably explains why some airworthiness requirements proposed in this NPA seem dubious. It is odd to have on one hand requirements imposing on:

- Approved Design Organisations to develop or refer to the instructions (for continued airworthiness) necessary for ensuring that the **airworthiness** standard related to the aircraft type and any associated part, **command unit or command unit component** is maintained

throughout the operational life of the aircraft **and the command unit** (refer to point 21.A.7(a)),

- the organisation responsible for the continuing airworthiness management to organise the maintenance of the **UAS** in accordance with an approved **UAS** maintenance programme (refer to point ML.UAS.302(a)) created/revised in accordance with these instructions,
- the organisation responsible for the continuing airworthiness management to record and keep continuing airworthiness information of the **UAS** (refer to point ML.UAS.305(a)) resulting from the application of this maintenance programme, and to have on the other hand an airworthiness review process that focuses more on the **UA** than the CU.

The foreword of Annex 6 Part I states that "An element of the safety of an [air] operation is the intrinsic safety of the aircraft, that is, its level of airworthiness". Airworthiness is an indivisible characteristic: there is only one airworthiness, although there are two sub-processes; one to achieve this feature and the other to maintain it. Airworthiness must be contemplated from an end-to-end perspective and consistency must be ensured through the whole course. The safety of an unmanned aircraft air operation can be hardly ensured if the safety of the control unit is not ensured as well.

The European Parliament recently issued a fact sheet on aviation safety (https://www.europarl.europa.eu/factsheets/en/sheet/134/aviation-safety). It reads "The common civil aviation safety rules are based on the standards and recommendations adopted by the ICAO, but are often more stringent".

Standard 3.2.3 of Annex 8, Part II, Chapter 3 reads: "A Certificate of Airworthiness shall be renewed or shall remain valid, subject to the laws of the State of Registry, provided that the State of Registry shall require that the continuing airworthiness of the aircraft shall be determined by a periodical inspection at appropriate intervals having regard to lapse of time and type of service or, alternatively, by means of a system of inspection, approved by the State, that will produce at least an equivalent result". Refer also to ICAO Doc 9760, Part III, Chapter 4, Section 4.6.

To ensure compliance with the spirit of Standard 3.2.3 of Annex 8, Part II, Chapter 3 and the EU parliament policy, the periodical inspection at appropriate intervals (i.e. the airworthiness review) should determine the continuing airworthiness of the unmanned aircraft and its control unit, in the case of UAS.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

705 comment by: *AIRBUS*

Page 107 - point ML.UAS.901 "Airworthiness review of the UA"

Suggestions

It is proposed to amend the title of this point to read:
"Airworthiness review of the UA**S**".

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *706* comment by: *AIRBUS*

Page 107 - point ML.UAS.901

Comments

"To ensure the validity of the UA airworthiness certificate, an airworthiness review of the UA and its continuing airworthiness records shall be carried out periodically".

Suggestions

It is proposed to amend the introductory sentence of this point to read:
"To ensure the validity of the UA airworthiness certificate, an airworthiness review of the UA**S** and its continuing airworthiness records shall be carried out periodically."

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *707* comment by: *AIRBUS*

Page 107 - point ML.UAS.901(b)

Comments

"(b) The airworthiness review and the issue of the ARC shall be performed in accordance with point ML.UAS.903, alternatively by:
(1) the competent authority;
(2) any Part-CAO.UAS organisation approved to conduct the airworthiness review of such UA. Whenever circumstances reveal the existence of a potential safety threat, the competent authority shall carry out the airworthiness review and issue the ARC itself."

Suggestions

It is proposed to amend point (b) of this point to read:
"(b) The airworthiness review and the issue of the ARC shall be performed in accordance with point ML.UAS.903, ~~**alternatively**~~ by **either of the following parties**:
(1) the competent authority;
(2) any Part-CAO.UAS organisation approved to conduct the airworthiness review of such UA**S**.
[...]."

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *708* comment by: *AIRBUS*

Page 107 - point ML.UAS.901(c)

Comments

"(c) The validity of an ARC may be extended maximum two consecutive times, for a period of 1 year each time, by the Part-CAO.UAS organisation that manages the continuing airworthiness of the UAS, subject to the following conditions:
(1) the UA has been continuously managed by one or several Part-CAO.UAS organisations since the last issue or extension of the ARC;
(2) the UAS has been maintained for the previous 12 months by approved Part-CAO.UAS maintenance organisations;
(3) the Part-CAO.UAS organisation does not have any evidence or reason to believe that the UAS is not airworthy.
The extension of the ARC by a Part-CAO.UAS organisation is possible regardless of which staff or organisation, as provided for in point (b), has initially issued the ARC."

Suggestions

It is proposed to amend point (c) of this point to read:
"(c) The validity of an ARC may be extended **at most twice** ~~**maximum two consecutive times**~~, for a period of 1 year each time, by the Part-CAO.UAS organisation that manages the continuing airworthiness of the UAS, subject to the following conditions:
(1) the UA**S** has been continuously managed by one or several Part-CAO.UAS organisations since the last issue or extension of the ARC;
[...]."

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1076* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

ANNEX I PART-ML.UAS, ML.UAS.901, page 107
Comment: According to requirement ML.UAS.901(c)(1) is it possible to extend an ARC if the UA has been managed by more than one approved Part-CAO.UAS organisation since last issued ARC, it may be difficult for the approved ARS be able to verify that the UAS has been maintained in accordance with Subpart C to Part-ML.UAS when several Part-CAO.UAS organisations has been involved in the management of the UAS and related maintenance programme.
(This requirement does not correspond to related requirement in Part-ML)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.902 Validity of the UA airworthiness review certificate (ARC) p. 107

comment *709* comment by: *AIRBUS*

Page 107 - point ML.UAS.902 "Validity of the UA airworthiness review certificate (ARC)"

Suggestions

It is proposed to amend the title of this point to read:
"Validity of the ~~UA~~ airworthiness review certificate (ARC)".

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *710* comment by: *AIRBUS*

Page 107 - point ML.UAS.902(a)

Comments

"(a) An ARC becomes invalid if, alternatively:
(1) it is suspended or revoked;
(2) the airworthiness certificate is suspended or revoked;
(3) the UA is not in the aircraft register of a Member State;
(4) the type certificate under which the airworthiness certificate was issued is suspended or revoked."

Suggestions

It is proposed to amend point (a) of this point to read:
"(a) An ARC becomes invalid if~~, alternatively~~ **any of the following circumstances occurs**:
(1) ~~it~~ **the ARC** is suspended or revoked;
(2) the airworthiness certificate is suspended or revoked;
(3) the UA is not in the aircraft register of a Member State;
(4) the type certificate **of the UA** under which the airworthiness certificate was issued is suspended or revoked**;**~~.~~
(5) the type certificate of the CU is suspended or revoked."

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course. It would be difficult to justify that a high uniform level of civil aviation safety in the Union is maintained when UA flight operations are conducted with CU, which TC has been suspended or revoked.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *711* comment by: *AIRBUS*

Page 108 - point ML.UAS.902(b)

Comments

"(b) An UA shall not fly if the ARC is invalid, or if any of the following circumstances are present:
(1) the continuing airworthiness of the UA, the CU or any component fitted to the UAS does not meet the requirements of this Annex;
(2) the UA is intended to be operated with a CU that is subject to an open finding identified in respect of point ML.UAS.903(c);
(3) the UAS does not remain in conformity with the type design approved by the Agency;
(4) the UA has been operated beyond the limitations of the approved flight manual or airworthiness certificate, without appropriate action being taken;

(5) the UA has been involved in an accident or incident that affects its airworthiness, without subsequent appropriate action taken to restore its airworthiness;
(6) a modification or repair to the UAS or any component fitted to the UAS does not comply with Annex I (Part 21) to Regulation (EU) No 748/2012."

Suggestions

It is proposed to amend point (b) of this point to read:
"(b) An UA shall not fly if the ARC is invalid, or if any of the following circumstances **occurs** ~~**are present**~~:
(1) **upon evidence that any of the conditions specified in point 21.A.181(a) is not met** ~~**the continuing airworthiness of the UA, the CU or any component fitted to the UAS does not meet the requirements of this Annex**~~;
~~**(2) the UA is intended to be operated with a CU that is subject to an open finding identified in respect of point ML.UAS.903(c);**~~
~~**(3) the UAS does not remain in conformity with the type design approved by the Agency**~~;
~~**(4) the UA has been operated beyond the limitations of the approved flight manual or airworthiness certificate, without appropriate action being taken;**~~
(**2**~~**5**~~) the UA has been involved in an accident or incident ~~**that affects its airworthiness**~~, without subsequent appropriate action taken to **assess the impact on airworthiness, and if necessary, to** restore its **airworthy condition referred to in point ML.UAS.201(a)(1)** ~~**airworthiness**~~;
~~**(6) a modification or repair to the UAS or any component fitted to the UAS does not comply with Annex I (Part 21) to Regulation (EU) No 748/2012.**~~"

Rationale – Justification

To ensure consistency, reference to compliance with all the conditions specified in point 21.A.181(a) should be made. They already cover most of the reasons proposed in this NPA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1175* comment by: *AESA*

Also if that finding has been opened while the CU belonged to another UA? If that UA can be controlled from several CUs do they all have to be OK to issue the ARC?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1176* comment by: *AESA*

Reference to type design of the UAS, but Type Certificate for the UA and the CU are separated. Please, clarify.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.903 Airworthiness review process p. 108

comment | *414* comment by: *DGAC FR (Mireille Chabroux)*

According to article 7(2)(ii) of Regulation (EU), any UA that meets the conditions specified in point 1(d) of Article 40 of Delegated Regulation (EU) 2019/945 shall obtain a noise certificate. Therefore, the terms "if applicable" in ML.UAS.903(a)(11) seems irrelevant:

~~if applicable,~~ the UA has been issued with a noise certificate in compliance with Subpart I of Annex I (Part 21) to Regulation (EU) No 748/2012, corresponding to the current configuration of the UA.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *415* comment by: *DGAC FR (Mireille Chabroux)*

ML.UAS.903(c) does not specify by who the documented review of the CU record and the physical inspection of the CU shall be performed. Point (d) of that same article gives the impression that the ARS shall perform the inspection of the CU while point (c) indicates that the ARS shall only ensure that an inspection has been performed in the last 3 months. The role of the ARS regarding the inspection of the CU is not clear.
It seems necessary to:

- Clarify the role of the ARS regarding the CU in the course of an UAS airworthiness review.
- Clarify who shall perform the CU inspection and the content of that inspection.

Moreover, the concept of having a CU attached to a given UA, which is checked as part of the airworthiness review of that UA, seems irrelevant. Indeed, there is no restriction on the number of CU used for a given UA. Either we assume that the CU is not safety critical and there is no need to mention the CU as part of the airworthiness review, or we consider that the CU should be part of the airworthiness review which means that the user should somehow declare and control which CU (Serial Number) is/are used with the UA subject to the airworthiness review.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *416* comment by: *DGAC FR (Mireille Chabroux)*

Typo in ML.UAS.903(f)(3):

when any discrepancy found in the UAS maintenance programme in accordance with point ~~(h)~~ (i) has been satisfactorily addressed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *418* comment by: *DGAC FR (Mireille Chabroux)*

Are the batteries/power supply included in "the engine"? If not, it may be relevant to cover batteries/power supply flying hours and associated cycles proper recording as part of ML.UAS.903. This might be achieved by adding "electrical powerplant" in ML.UAS.903(a)(1), assuming that electrical powerplant is defined in NPA 2021-15 as:
"*Electrical powerplant means all elements of a powerplant system which are used to store, transform/convert, control and transmit electrical energy to the aircraft elements that provide trust and/or lift to the aircraft, such as electrical batteries, fuel cell elements (including tanks, lines and other circuit elements for consumables), solar panels, electrical engines, cables and connectors, mechanical attachments to the aircraft structure, related instrumentation, power output control system, etc. Hybrid powerplant systems that transform fossil-fuel energy into electrical energy used for trust and/or lift are not considered to be covered under electrical powerplants*".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *700* comment by: *FOCA Switzerland*

Regarding (f) (3), FOCA suggests to verify if the reference to "point (**h**)" should not rather be "point (**i**)".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *712* comment by: *AIRBUS*

Page 108 - point ML.UAS.903(a)

Comments

"(a) To satisfy the requirement for the airworthiness review of an UA referred to in point ML.UAS.901, the airworthiness review staff shall perform a documented review of the UA records to verify that:
(1) the airframe, the engine and the propeller flying hours and associated flight cycles have been properly recorded;
(2) the flight manual is applicable to the UA configuration and reflects the latest revision status;
(3) all the maintenance due on the UA according to the UAS maintenance programme has been carried out;
(4) all known defects have been corrected or deferred in a controlled manner;
(5) all applicable ADs have been applied and properly recorded;
(6) all modifications and repairs made to the UA have been registered and comply with Annex I (Part 21) to Regulation (EU) No 748/2012;
(7) all components that are subject to an airworthiness limitation and are installed on the UAS are properly identified, registered, and have not exceeded their approved airworthiness limitation;
(8) all maintenance has been certified in accordance with this Annex;
(9) the current mass-and-balance statement reflects the configuration of the UA and is valid;
(10) the UA complies with the current applicable revision of its type design approved by the Agency;
(11) if applicable, the UA has been issued with a noise certificate in compliance with Subpart I of Annex I (Part 21) to Regulation (EU) No 748/2012, corresponding to the current configuration of the UA."

Suggestions

It is proposed to amend point (a) of this point to read:
"(a) To satisfy the requirement for the airworthiness review ~~of an UA~~ referred to in point ML.UAS.901, the airworthiness review staff shall perform a documented review of the UA**S** records to verify that:
(1) the ~~airframe, the engine and the propeller flying hours and associated flight cycles~~ **data required by point ML.UAS.305** have been properly recorded;
(2) **the UAS configuration is controlled and** the flight manual is applicable to **this** ~~the UA~~ configuration and reflects the latest revision status;
(3) all the maintenance due on the UA**S** according to the UAS maintenance programme has been carried out;
(4) all known defects **and damage** have been ~~corrected~~ **rectified or repaired,** or **the rectification or repair has been** deferred in a controlled manner;
(5) all applicable ADs**, operational requirements with a continuing airworthiness impact, continuing airworthiness requirements mandated by the Agency, and measures required by the competent authority in immediate reaction to a safety problem** have been applied and properly recorded;
(6) all modifications and repairs made to the UA**S** have been **recorded** ~~registered~~ **and their design complies** ~~comply~~ with Annex I (Part 21) to Regulation (EU) No 748/2012;

(7) all components that are subject to an airworthiness limitation and ~~are~~ installed on the UAS are properly identified, **recorded** ~~**registered**~~, and have not exceeded their approved airworthiness limitation;
[...]
(11) **the certificate of registration and the airworthiness certificate of the UA are valid, and** if applicable, the UA has been issued with a noise certificate in compliance with Subpart I of Annex I (Part 21) to Regulation (EU) No 748/2012, corresponding to the current configuration of the UA**;**
(12) the preflight preparations have been satisfactorily accomplished."

With respect to item "(10) the UA complies with the current applicable revision of its type design approved by the Agency", the Agency should clarify what is expected from the ARS.

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.
(1) The ARS should not only review the recorded flight hours and flight cycles, as they are not more or less important than the other data required by point ML.UAS.305.
(2) Another comment proposed to amend point ML.UAS.304 to require the management of the UAS configuration. The airworthiness review process should check the UAS configuration is controlled and the flight manual is relevant for this configuration.
(4) Another comment proposed to amend point ML.UAS.301 to address not only the rectification of defects but also repair of damage and any postponement in a controlled manner.
(6) & (7) The term 'registered' should not be used in this context ('recorded' is more appropriate and echoes point ML.UAS.305 matter).
(10) There is no evidence in point CAO.UAS.045 that ARS are familiar with point 21.A.31 'Type design'.
(11) The verifications should not be limited to the noise certificate, but should be extended to all certificates.
(12) If the preflight preparation is part of point ML.UAS.301, ARS should review the satisfactory accomplishment of such preflight preparations.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *714* comment by: *AIRBUS*

Page 108 - point ML.UAS.903(a)(1)

Comments

"(a) To satisfy the requirement for the airworthiness review of an UA referred to in point ML.UAS.901, the airworthiness review staff shall perform a documented review of the UA records to verify that:
(1) the airframe, the engine and the propeller flying hours and associated flight cycles have been properly recorded;
[...]."

Suggestions

It would appear that the matter of propellers is not addressed with consistency throughout the continuing airworthiness requirements.
It is recommended to the Agency to review the situation.

Rationale – Justification

It is acknowledged that propellers are components (C16). However, point ML.UAS.903(1) takes explicitly into account propellers: "[...] the airframe, the engine and the propeller flying hours and [...]". But, for example point (d) of Appendix I to Annex I (Part-AR.UAS) does not: "(d) A component rating (other than complete engines) means that the Part-CAO.UAS organisation may carry out maintenance on uninstalled components (excluding complete engines) intended for fitment to the UA, engine or CU. [...]". One could expect to read: "[...] intended for fitment to the UA, engine, propeller or other component, or CU. [...]". Article 2 provides that 'component' means any engine, propeller, part, or any element of the command unit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *715* comment by: *AIRBUS*

Page 109 - point ML.UAS.903(b)

Comments

"(b) The airworthiness review staff referred to in point (a) shall carry out a physical survey of the UA. For this survey, airworthiness review staff not appropriately authorised as certifying staff shall be assisted by such qualified personnel."

Suggestions

It is proposed to amend point (b) of this point to read:
"(b) The airworthiness review staff referred to in point (a) shall carry out a physical survey of the UA**S**. [...]"

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *716* comment by: *AIRBUS*

Page 109 - point ML.UAS.903(c)

Comments

"(c) In respect of the CU(s) used to operate the UA, the airworthiness review staff referred to in point (a) shall ensure that a documented review of the CU records and a physical inspection of the CU(s) have been carried out satisfactorily in the last 3 months."

Suggestions

It is proposed to delete point (c) of this point.
Should this point be finally kept, the Agency should make clear that the ARS shall perform the review of the CU records and a physical inspection of the CU(s).

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.
For example, AMC M.A.901(l) and (m) indicates "The physical survey could require actions categorised as maintenance (e.g. operational tests, tests of emergency equipment, visual inspections requiring panel opening, etc.)". In case of a UAS, if the CU is not available at the time of the airworthiness review, and particularly at the time of the physical survey, the ARS is not in a position to correctly perform the physical survey of the UA and would probably not sign the ARC.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *717* comment by: *AIRBUS*

Page 109 - point ML.UAS.903(d)

Comments

"(d) Through the physical survey of the UA and the inspection of the CU, the airworthiness review staff shall ensure that:
(1) all required markings and placards are properly installed;

(2) the UA complies with its approved flight manual;
(3) the UAS configuration complies with the approved documentation;
(4) no evident defect can be found that has not been addressed according to point ML.UAS.403;
(5) no inconsistencies can be found between the UAS and the documented review of records as referred to in point (a)."

Suggestions

It is proposed to amend point (d) of this point to read:
"(d) Through the physical survey of the UA and ~~the inspection~~ of the CU, the airworthiness review staff shall ensure that: [...]."

Rationale – Justification

The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *718* comment by: *AIRBUS*

Page 109 - point ML.UAS.903(f)(3)

Comments

"(f) The ARC (EASA Form 15d) set out in Appendix IV shall only be issued:
[...]
(3) when any discrepancy found in the UAS maintenance programme in accordance with point (h) has been satisfactorily addressed."

Suggestions

It is proposed to delete point ML.UAS.903(f)(3).

However, should it be kept it should be corrected to read:
"(f) The ARC (EASA Form 15d) set out in Appendix IV shall only be issued:
[...]
(3) when any discrepancy found in the UAS maintenance programme in accordance with point (~~h~~i) has been satisfactorily addressed."

Rationale – Justification

It is proposed to delete concurrently point ML.UAS.903(i). Therefore, this point is no longer needed.

	If it is kept, the typo should be corrected.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*719* comment by: *AIRBUS* **Page 109 - point ML.UAS.903(g)** **Comments** "(g) A copy of any ARC issued or extended for an UA shall be sent to the Member State of Registry of the particular UA within 10 days." **Suggestions** It is proposed to amend this point to read: "(g) A copy of any ARC issued or extended for an UA**S** shall be sent to the Member State of Registry of the particular UA within 10 days." **Rationale – Justification** The airworthiness review process should concentrate on both the UA and the CU to ensure consistency through the whole airworthiness process course.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*720* comment by: *AIRBUS* **Page 109 - point ML.UAS.903(i)** **Comments** "(i) The effectiveness of the UAS maintenance programme may be reviewed in conjunction with the airworthiness review in accordance with point ML.UAS.302(e). This review shall be completed by the person that has performed the airworthiness review. If the review shows deficiencies of the UA linked with deficiencies in the content of the UAS maintenance programme, the UAS maintenance programme shall be amended accordingly." **Suggestions** It is proposed to delete point ML.UAS.903(i). **Rationale – Justification**

The review to assess the effectiveness of the UAS maintenance programme made by the ARS is only a possibility that should be offered in an AMC to point ML.UAS.302(e). This review could be perceived as part of the airworthiness review process as it may be performed in conjunction with the airworthiness review; therefore the deletion will avoid this and keep consistency with point AR.UAS.302.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *996* comment by: *Austro Control*

Comment:
All modifications and repairs made to the UA have been registered and comply with Annex I (Part 21) to Regulation (EU) No 748/2012;
Does this also apply on CE-classified UAS?

Proposed Change:
Propose to provide explanation.

Classification:
Major-Conceptual

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.904 Qualification of airworthiness review staff p. 109

comment *721* comment by: *AIRBUS*

Page 109 - point ML.UAS.904(a)

<u>Comments</u>

"(a) Airworthiness review staff that act on behalf of the competent authority shall be qualified in accordance with point AR.UAS.CAW.902 of Annex I (Part-AR.UAS) to Implementing Regulation (EU) …/…."

<u>Suggestions</u>

It is proposed to delete point ML.UAS.904(a).

<u>Rationale – Justification</u>

Point ML.UAS.904(a) is not needed as requirements are in point AR.UAS.CAW.902.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.905 Transfer of an UA registration within the Union p. 110

comment *723* comment by: *AIRBUS*

Page 110 - point ML.UAS.905(c)

Comments

"(c) Notwithstanding points (a) and (b), in those cases where the UAS has been in a non-airworthy condition in the former Member State or where the airworthiness status of the UAS cannot be determined using the existing records, point ML.UAS.906 shall apply."

Suggestions

The Agency should amend the reference made to point ML.UAS.906.

Rationale – Justification

Point ML.UAS.906 does not exist (it should be either point ML.UAS.906A or point ML.UAS.906B).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1183* comment by: *AESA*

It specifies to apply ML.UAS.906, which does not exist. You mean they must apply ML.UAS.906A and ML.UAS.906B?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.906A Airworthiness review of UA imported into the Union p. 110

comment *724* comment by: *AIRBUS*

Page 110 - point ML.UAS.906A(b)

Comments

"(b) If the UA complies with the relevant requirements, the competent authority or the organisation performing the airworthiness review, as provided for in point ML.UAS.901(b), shall issue an ARC and shall submit a copy to the competent authority of the Member State of Registry."

Suggestions

"(b) If the UA**S** complies with the relevant requirements, the competent authority or the organisation performing the airworthiness review, as provided for in point ML.UAS.901(b), shall issue an ARC and **when the organisation performs the airworthiness review, it** shall submit a copy to the competent authority of the Member State of Registry."

Rationale – Justification

In accordance with point ML.UAS.1, the competent authority shall be the authority specified in point AR.UAS.GEN.010(a). Point AR.UAS.GEN.010(a) indicates that the competent authority for the oversight of the continuing airworthiness of individual UA and the issue of airworthiness review certificates is designated by the Member State of Registry of the UA.
A copy of the ARC should be sent to the competent authority of the Member State of Registry only when the organisation performs the airworthiness review.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *725* comment by: *AIRBUS*

Page 110 - point ML.UAS.906A(c)

Comments

"(c) The owner shall allow access to the UAS for inspection by the competent authority of the Member State of Registry."

Suggestions

It is proposed to amend this point to read:
"(c) The owner shall ~~allow~~ **ensure** access to the UAS **is granted** for inspection by the competent authority of the Member State of Registry."

Rationale – Justification

The UAS may not be in the premises of the owner.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.906B Airworthiness review following changes in UAS operations p. 110

comment *726* comment by: *AIRBUS*

Page 111/295, point ML.UAS.906B(b)

Comments

"(b) If the UA complies with the relevant requirements, the competent authority or the organisation performing the airworthiness review, as provided for in point ML.UAS.901(b), shall issue an ARC and shall submit a copy to the competent authority of the Member State of Registry."

Suggestions

"(b) If the UA**S** complies with the relevant requirements, the competent authority or the organisation performing the airworthiness review, as provided for in point ML.UAS.901(b), shall issue an ARC and **when the organisation performs the airworthiness review, it** shall submit a copy to the competent authority of the Member State of Registry."

Rationale – Justification

In accordance with point ML.UAS.1, the competent authority shall be the authority specified in point AR.UAS.GEN.010(a). Point AR.UAS.GEN.010(a) indicates that the competent authority for the oversight of the continuing airworthiness of individual UA and the issue of airworthiness review certificates is designated by the Member State of Registry of the UA.
A copy of the ARC should be sent to the competent authority of the Member State of Registry only when the organisation performs the airworthiness review.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *727* comment by: *AIRBUS*

Page 111 - point ML.UAS.906B(c)

Comments

"(c) The owner shall allow access to the UAS for inspection by the competent authority of the Member State of registry."

Suggestions

It is proposed to amend this point to read:
"(c) The owner shall ~~allow~~ **ensure** access to the UAS **is granted** for inspection by the competent authority of the Member State of **R**~~r~~egistry."

Rationale – Justification

The UAS may not be in the premises of the owner.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *861* comment by: *FOCA (Switzerland)*

(a) "If changes in the UAS operations in the 'specific category' result in the need to issue an airworthiness certificate…": FOCA suggests to reword or remove this article. The reason for this is, that the intent of this article is possibly not clearly understandable to the readers, as it is not clear how it is relevant for the process, whether the need to issue an airworthiness certificate is triggered by an initial operation (initial intention of the operator) or by changes in UAS operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ML.UAS.907 Findings p. 111

comment *728* comment by: *AIRBUS*

Page 111 - point ML.UAS.907

Comments

"Following receipt of the notification of findings from the competent authority in accordance with point AR.UAS.GEN.351 of Annex I (Part-AR.UAS) to Implementing Regulation (EU) …/…, the person or organisation responsible for the aircraft continuing airworthiness pursuant to point ML.UAS.201 shall define and demonstrate to the competent authority within a period agreed with the particular authority a corrective action plan to prevent the reoccurrence of the finding and eliminate or mitigate its root cause."

Suggestions

It is proposed to amend this point to read:
"Following receipt of the notification of findings from the competent authority in accordance with point AR.UAS.GEN.351 [...], the person or organisation responsible for the aircraft continuing airworthiness pursuant to point ML.UAS.201 shall define and demonstrate to the competent authority within a period agreed with the particular authority a corrective action plan to **eliminate the non-compliance and to** prevent the reoccurrence of the finding and eliminate or mitigate its root cause."

Rationale – Justification

The non-compliance should be eliminated before consideration is given to the reoccurrence of the finding.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1079* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

ANNEX I PART-ML.UAS, ML.UAS.907, page 111
Comment: Requirement ML.UAS.907 does not specify levels of findings (Level 1 and Level 2), only refers to AR.UAS.GEN.351.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix I - Continuing airworthiness management contract p. 112

comment *417* comment by: *DGAC FR (Mireille Chabroux)*

Since ML.UAS.201(e) mandates every UA under Part-ML to be managed and maintained by approved Part-CAO.UAS organisations, the use of independent certifying staff is not allowed, and this should be reflected in the continuing airworthiness contract:

organise that all defects discovered during maintenance, airworthiness reviews or reported by the owner be corrected by an approved maintenance organisation ~~or, if permitted, by independent certifying staff~~;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *729* comment by: *AIRBUS*

Page 113 - Appendix I, point (e)(1)(ii)

Comments

"(e) When an owner contracts a Part-CAO.UAS organisation in accordance with point ML.UAS.201, the obligations of each party shall be established as follows:
(1) Obligations of the Part-CAO.UAS organisation:
(i) have the UA type included in its scope of work;
(ii) respect all the conditions listed below with regard to managing the continuing airworthiness of the UAS:
(A) develop and approve the UAS maintenance programme;
(B) once it has been approved, provide the owner with a copy of the UAS maintenance programme, and also a copy of the justifications for any deviations from the design approval holder's (DAH) recommendations;
(C) establish and order the necessary maintenance to ensure appropriate bridging with the former UAS maintenance programme;
(D) organise that all maintenance be carried out by an approved maintenance organisation;
(E) organise that all applicable ADs be applied;
(F) organise that all defects discovered during maintenance, airworthiness reviews or reported by the owner be corrected by an approved maintenance organisation or, if permitted, by independent certifying staff;
(G) coordinate scheduled maintenance, the application of ADs, the maintenance of components subject to airworthiness limitations, and component inspection requirements;
(H) inform the owner each time the UAS is to be brought to an approved maintenance organisation;
(I) manage and archive all UAS continuing airworthiness records;"

Suggestions

It is proposed to amend this point to read:
"(e) [...]
(1) Obligations of the Part-CAO.UAS organisation: [...]
(ii) respect all the conditions listed below with regard to managing the continuing airworthiness of the UAS: [...]
(D) organise that all maintenance be carried out by an approved maintenance organisation;
(E) organise that all applicable ADs be applied;
(F) organise that all defects discovered during maintenance, airworthiness reviews or reported by the owner **or the pilot** be corrected by an approved maintenance organisation or, if permitted, by independent certifying staff;
~~**(G) coordinate scheduled maintenance, the application of ADs, the maintenance of components subject to airworthiness limitations, and component inspection requirements;**~~
[...]"

Rationale – Justification

Item (G) does not add value, as the other items cover all aspects of (G).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *730* comment by: *AIRBUS*

Page 113 - Appendix I, point (e)(1)(vi)

Comments

"(e) When an owner contracts a Part-CAO.UAS organisation in accordance with point ML.UAS.201, the obligations of each party shall be established as follows:
(1) Obligations of the Part-CAO.UAS organisation:
[...]
(vi) inform the competent authority of the Member State of Registry whenever the contract has not been respected;
[...];
(x) inform the competent authority of the Member State of Registry whenever the contract is denounced by either party.

Suggestions

It is proposed to delete point (e)(1)(vi) and (x).

Rationale – Justification

Point (e)(1)(vi) is already covered by point (e)(1)(x). Moreover, further simplification is possible as point (d) of this Appendix provides that "In case of any non-conformity with this contract, by either of the signatories, the contract will be cancelled [...] and the owner will inform the competent authoritie(s) of the Member State of Registry within 2 weeks about the cancellation of the contract".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *731* comment by: *AIRBUS*

Page 114 - Appendix I, point (e)(2)(vi)

Comments

"(e) When an owner contracts a Part-CAO.UAS organisation in accordance with point ML.UAS.201, the obligations of each party shall be established as follows:
[...]

(2) Obligations of the owner:
[...]
(vi) report to the contracted Part-CAO.UAS organisation through the logbook all defects found during operations;
[...]"

Suggestions

It is proposed to amend this point to read:
"(vi) report to the contracted Part-CAO.UAS organisation through the ~~**logbook**~~ **UAS continuing airworthiness records** all defects found during operations;

Rationale – Justification

There is no notion of logbook in point ML.UAS.305.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1184* comment by: *AESA*

ML.UAS.201 says nothing about independent certifying personnel and here it mentions "it is allowed".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix II - Airworthiness review certificate (EASA Form 15d) p. 115

comment *732* comment by: *AIRBUS*

Page 115 - Appendix II "Airworthiness Review Certificate (ARC)"

Suggestions

It is proposed to amend EASA Form 15d to identify the CU that was subject to the airworthiness review at time of issuance of the certificate, and the CU at time of each extension of the validity of the certificate.
This proposal also applies to EASA Form 15d in Appendix II of Annex I (Part-21) to Regulation (EU) No 748/2012.

Rationale – Justification

For the sake of consistency with previous comments. For example, the identification of the CU may be a means for competent authorities to detect if some CU are used only for the airworthiness review process.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1186* comment by: *AESA*

The NPA always speaks of organization, "Company name" should be replaced by "Name of approved organization".

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix III - EASA Form 1 fill-in instructions p. 117

comment: *512* comment by: *Volocopter GmbH*

Comment to point 3. COPIES and the whole chapter: the wording seems to indicate the need to use paper. This chapter should be rewritten in order to allow also purely IT based solutions (paperless maintenance).

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *733* comment by: *AIRBUS*

Page 117 - Appendix III, point 1.3.

Comments

"1.3. The certificate is acceptable to many airworthiness authorities, but may be dependent on the existence of bilateral agreements and/or the policy of a particular airworthiness authority. The 'approved design data' mentioned in this certificate means it is approved by the airworthiness authority of the importing country."

Suggestions

Usually, the Approved Maintenance Organisation does not know to which aircraft the component(s) will be fitted. Therefore, some explanations should be added to help Certifying Staff to identify the 'approved design data' at the time the certificate is signed.

Rationale – Justification

Self explanatory.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *734* comment by: *AIRBUS*

Page 117 - Appendix III, point 1.5. "1.5. UA are not to be released using the certificate."

Suggestions

It is proposed to amend this point to read:
"1.5. UA **maintenance** ~~**are**~~ not to be **certified** ~~**released**~~ using ~~**the**~~ **this** certificate."

Rationale – Justification

For the sake of consistency with previous comments

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *735* comment by: *AIRBUS*

Page 117 - Appendix III, point 1.6.

Comments

"1.6. The certificate does not constitute approval to install the item(s) but helps the end user determine its airworthiness approval status."

Suggestions

It is proposed to amend this point to read:
"1.6. The certificate does not constitute approval to install the item(s) but helps the end user determine its **(their)** airworthiness approval status."

Rationale – Justification

For the sake of consistency.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *736* comment by: *AIRBUS*

Page 117 - Appendix III, point 1.7.

Comments

"1.7. A mixture of production- and maintenance-released items is not permitted with the same certificate."

Suggestions

It is proposed to amend this point to read:
"1.7. A mixture of **certifications of** production**-** and maintenance~~-released items~~ is not permitted with the same certificate."

Rationale – Justification

For the sake of consistency with previous comments.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *737* comment by: *AIRBUS*

Page 118 - Appendix III, point 4.3.

Comments

"4.3. The request for a new certificate may be honoured without reverification of the item's (items') condition. The new certificate is not a statement of the current condition and should refer to the previous certificate in Block 12 with the following statement: 'This certificate corrects the error(s) in Block(s) [enter block(s) corrected] of the certificate [enter original tracking number] dated [enter original issue date] and does not cover conformity/condition/release to service.'
Both certificates should be retained according to the retention period associated to the first certificate."

Suggestions

It is proposed to amend this point to read:
"4.3. [...]. The new certificate is not a statement of the current condition and should refer to the previous certificate in Block 12 with the following statement: 'This certificate corrects the error(s) in Block(s) [enter block(s) corrected] of the certificate [enter original tracking number] dated [enter original issue date] and does not cover conformity/condition/**certification statement** ~~**release to service**~~.'

Both certificates should be retained according to the retention period associated **with ~~to~~** the first certificate."

Rationale – Justification

For the sake of consistency with previous comments.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *738* comment by: *AIRBUS*

Page 118 - Appendix III, point 5. block 4

Comments

"Block 4: Organisation Name and Address
Enter the full name and address of the approved organisation that releases the work covered by this certificate. Logos, etc., are permitted if the logo can be contained within the block."

Suggestions

It is proposed to amend this point to read:
"Block 4: Organisation Name and Address
Enter the full name and address of the approved organisation that **~~releases~~ certifies** the work covered by this certificate. Logos, etc., are permitted if the logo can be contained within the block."

Rationale – Justification

For the sake of consistency with previous comments

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *739* comment by: *AIRBUS*

Page 118 - Appendix III, point 5. block 7

Comments

"Block 7: Description
Enter the name or description of the item. Preference should be given to the term used in the instructions for continued airworthiness (ICAs) or maintenance data (e.g. illustrated parts catalogue, aircraft maintenance manual, service bulletin, component maintenance manual)."

Suggestions

This block refers to "instructions for continu**ed** airworthiness (ICAs)" while point ML.UAS.302(c)(1) refers to "instructions for continu**ing** airworthiness (ICAs)".
The Agency should select the one to be used.

Rationale – Justification

The use of terms should be harmonised within Part ML.UAS.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *740* comment by: *AIRBUS*

Page 119 - Appendix III, point 5. block 11

Comments

"Block 11: Status/Work
The following describes the permissible entries for Block 11. Enter only one of these terms — where more than one may be applicable, use the one that most accurately describes the majority of the work performed and/or the status of the article.
(i) Overhauled Means a process that ensures the item is in complete conformity with all the applicable service tolerances specified in the maintenance data. The item will be at least disassembled, cleaned, inspected, repaired as necessary, reassembled and tested in accordance with the data specified above.
(ii) Repaired Rectification of defect(s) using an applicable standard (1).
(iii) Inspected/Tested Examination, measurement, etc., in accordance with an applicable standard (1) (e.g. visual inspection, functional testing, bench testing etc.).
(iv) Modified Alteration of an item to conform to an applicable standard (1)."

Suggestions

These definitions should be moved to Article 2 of the cover regulation.
The footnote (1) associated with the term 'standard' is missing.
The Agency should clarify which term should be used for 'replacement' of components in order to cover all the terms used in the definition of 'maintenance'.

Rationale – Justification

The definitions should be moved as the related terms are not only used for the EASA Form 1. The standard for repairs and modifications is described in point ML.UAS.304 and the standard for other maintenance kinds is described in the UAS maintenance programme.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *741* comment by: *AIRBUS*

Pages 119-120 - Appendix III, point 5. block 12

Comments

"Block 12: Remarks
Describe the work identified in Block 11, either directly or by reference to supporting documentation, necessary for the user or installer to determine the airworthiness status of the item(s) in relation to the work being certified. If necessary, a separate sheet may be used and referenced from the main EASA Form 1. Each statement must clearly identify which item(s) in Block 6 it relates to.
Examples of information to be entered in Block 12 are:
[...]
(viii) release statements other than those referred to in point 145.A.50 of Annex II (Part-145) to Regulation (EU) No 1321/2014,
(ix) information needed to support shipment with shortages or reassembly after delivery.
Include the following component CRS statement:
'Certifies that, unless otherwise specified in this block, the work identified in Block 11 and described in this block has been accomplished in accordance with the requirements of Annex II (Part-CAO.UAS) to Delegated Regulation (EU) …/…, and in respect to that work the item is considered ready for release to service. THIS IS NOT A RELEASE UNDER ANNEX II (PART-145) TO REGULATION (EU) No 1321/2014.'
If printing the data from an electronic EASA Form 1, any appropriate data that is not fit for other blocks should be entered in this block."

Suggestions

It is proposed to amend this point to read:
"Block 12: Remarks
[...].
Examples of information to be entered in Block 12 are:
[...]
(viii) ~~**release**~~ **certification** statements other than those referred to in point 145.A.50 of Annex II (Part-145) to Regulation (EU) No 1321/2014,
(ix) information needed to support shipment with shortages or reassembly after delivery.
Include the following component ~~**CRS**~~ **maintenance certification** statement:
'Certifies that, unless otherwise specified in this block, the work identified in Block 11 and described in this block has been accomplished in accordance with the requirements of Annex II (Part-CAO.UAS) to Delegated Regulation (EU) …/…, and in respect to that work the item is considered ready for **installation and use** ~~**release to service**~~. THIS IS NOT A ~~**RELEASE**~~ **CERTIFICATION OF MAINTENANCE** UNDER ANNEX II (PART-145) TO REGULATION (EU) No 1321/2014.' [...]."

Rationale – Justification

For the sake of consistency with previous comments

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *742* comment by: *AIRBUS*

Page 120 - Appendix III, point 5. block 14a

Comments

"Block 14a
Tick the box 'other regulations specified in Block 12' and enter the Part-CAO.UAS CRS statement in Block 12. If the maintenance is also released by the organisation under Annex II (Part-145) to Regulation (EU) 1321/2014, tick also the box 'Part-145.A.50 Release to Service'.
If other regulations than Part-CAO.UAS and Part-145 are meant with the tick in the box 'other regulations', then these regulations must be identified in Block 12. At least one box must be marked, or both boxes may be marked, as appropriate.
The certification statement 'unless otherwise specified in this block' is intended to address the following cases:
(a) where maintenance could not be completed;
(b) where the accomplishment of the maintenance deviated from the relevant regulatory requirements;
(c) where maintenance has been carried out in accordance with a requirement other than those specified in Part-145 or in Part-CAO.UAS; in this case, Block 12 shall specify the particular regulation."

Suggestions

It is proposed to amend this point to read:
"Block 14a
Tick the box 'other regulations specified in Block 12' and enter the Part-CAO.UAS ~~**CRS**~~ **certification** statement in Block 12. If the maintenance is also ~~**released**~~ **certified** by the organisation under Annex II (Part-145) to Regulation (EU) 1321/2014, tick also the box 'Part-145.A.50 Release to Service'.
[...]"

Rationale – Justification

For the sake of consistency with previous comments.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *806* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 118)
3. COPIES

Comment to point 3. COPIES and the whole chapter
The wording seems to indicate the need to use paper. This chapter should be rewritten in order to allow also purely IT based solutions (paperless maintenance).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *819* comment by: *UAV DACH e.V.*

Reference: 3. Copies

Comment (3.COPIES and the whole chapter): the wording seems to indicate the need to use paper.

Proposal: This chapter should be rewritten in order to allow also purely IT based solutions (paperless maintenance)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *870* comment by: *FAA*

Authorized Release Certificate EASA Form 1. Block 11 and 12: What would be entered in block 11 and 12 when the status/work included "rebuilt" or "altered" to original PAH's specifications?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1095* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to point 3 of the Appendix III - EASA Form 1 fill-in instructions: the wording seems to indicate the need to use paper.

PROPOSED ACTION/RESOLUTION
EASA should rewrite this chapter in order to allow also purely IT based solutions (paperless maintenance)

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1188* comment by: *AESA*

It should be specified that it is not a release under CAO Part of Reg 1321/2014.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1192* comment by: *AESA*

We do not understand that a double certification can be done, as indicated in this sentence : "If the maintenance is also released by the organisation under Annex II (Part-145) to Regulation (EU) 1321/2014, tick also the box 'Part-145.A.50 Release to Service'"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.2.3. Draft Annex II (Part-CAO.UAS) to Commission Delegated Regulation (EU) .../... p. 122

comment | *421* comment by: *DGAC FR (Mireille Chabroux)*

The way maintenance of CU component not referred to in point 21.A.308(a) might need some improvement (even in current Part-CAO and Part-145 for manned aircraft and component referred to in point 21.A.307(b)(3) to (b)(6)). Indeed, maintenance on such components must not be certified but must be released with a "declaration of maintenance" as indicated in ML.UAS.520(e). Even if CAO.UAS.060(a) states that the CAO.UAS shall follow subpart E of Part-ML.UAS, Part-CAO.UAS does not contain any direct requirements for the organisation to issue a "declaration for maintenance accomplished".

The fact that it is "normal" because such maintenance is not certified is clear for legal experts but the conjunction of ML.UAS.803 which gives the impression that a release document is only required for specific and essential CU components with the fact that the "declaration of maintenance accomplished" is not directly covered by Part-CAO.UAS, creates confusion and a potential risk for CAO.UAS organisation to miss the issuance of "declaration of maintenance accomplished" when required.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1043* comment by: *Danish Civil Aviation and Railway Authority - DCARA* No AML requirement gives no requirement of an approved maintenance training organization
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.017 Means of compliance p. 122

comment	*487* comment by: *JEDA* Alternative means of compliance may likely be based on industry standards. The rule should explicitly mention this possibility. Proposed amendment: An organisation may use any alternative means of compliance, including thoe based on relevant industry standards, to establish compliance with this Regulation
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1344* comment by: *Gregory Walden* *CAO.UAS.017A a)* *'An organisation may use any alternative means of compliance to establish compliance with this Regulation'* Alternative means of compliance may likely be based on industry standards. The rule should explicitly mention this possibility. Alternative proposed text: An organisation may use any alternative means of compliance, including those based on relevant industry standards, to establish compliance with this Regulation
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.020 Terms of approval and scope of work p. 123

comment	*329* comment by: *ASD* comment: Based on CU Design would it be necessary in some case to evaluate rating for CU to be identified in (b) suggested resolution: To evaluate adding Cxx for CU when necessary
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*425* comment by: *DGAC FR (Mireille Chabroux)* Under which Cx the electrical powerplant is covered? Shouldn't we add a "C23: others" like in NPA 2021-15?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*743* comment by: *AIRBUS* **Page 123 - point CAO.UAS.020(b)(10) and (11)** **<u>Comments</u>** "(b) For the maintenance of components that are different from complete engines, the scope of work shall be classified in accordance with the following ratings: [...] (10) C10: helicopter and rotors; (10) C11: helicopter transmission; [...]" **<u>Suggestions</u>** Reference to helicopter should be deleted. **<u>Rationale – Justification</u>** Part-CAO.UAS applies to unmanned aircraft systems.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*968* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile* A specific rating also for CU is suggested to be identified in (b)
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1081* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* **Annex II Part-CAO.UAS, CAO.UAS.020, page 123** Comment: Requirement CAO.UAS.020 is missing specialized activities that the organisation intends to perform. (Specialized activities such as NDT and welding)
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1097* comment by: *General Aviation Manufacturers Association (GAMA)* **RATIONALE / REASON / JUSTIFICATION** The system of ratings as proposed is not clear on where the electric propulsion systems and their elements would fit in. 'Engine' and 'fuel' is distinguished, but how the electric propulsion system/energy storage unit are considered in this distinguishment? **PROPOSED ACTION/RESOLUTION** Please include a rating for electric propulsion system/energy storage unit or clarify where does it fit in in the current proposal.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.035 Personnel requirements p. 124

comment	*422* comment by: *DGAC FR (Mireille Chabroux)* The intent of CAO.UAS.035 is unclear. Is the objective of that article to mandate the organisation to deliver an authorisation with a detailed scope of work to each and every person involved in CAW (including AD management, AMP approval, records keeping management, etc.), or should this be restricted to personnel involved in maintenance tasks? This requirement is much more restrictive than the existing Part-CAO for manned aircraft.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *746* comment by: *AIRBUS*

Page 125 - point CAO.UAS.035(g)

Comments

"(g) The organisation shall establish an initial training for the maintenance staff to ensure they will carry out the intended maintenance safely."

Suggestions

It is proposed to amend this point to read:
"(g) The organisation shall establish **and maintain** an initial **and recurrent** training **programme** for the **continuing airworthiness management and/or** maintenance staff to ensure they will **have up-to-date knowledge to** carry out the intended **activities** ~~**maintenance**~~ safely."

Rationale – Justification

The maintenance personnel should not be the only one to be trained.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.030 Facilities and storage p. 124

comment | *744* comment by: *AIRBUS*

Page 124 - point CAO.UAS.030(b)(2)

Comments

"(b) In addition, where the scope of approval of the organisation includes maintenance activities, the organisation shall ensure that:
(1) [...];
(2) secure storage facilities are provided for components, equipment, tools and materials, which ensure that unserviceable components and materials are segregated from all serviceable items."

Suggestions

It is proposed to amend point CAO.UAS.030(b)(2) to read:
"(b) In addition, where the scope of approval of the organisation includes maintenance activities, the organisation shall ensure that:
(1) [...];
(2) secure storage facilities are provided for components, equipment, tools and materials, which ensure **segregation of ~~that unserviceable~~** components**, standards parts,** and materials **~~are segregated from all serviceable items~~ in accordance with point ML.UAS.504(a)**."

Rationale – Justification

Segregation of components requiring maintenance and unsalvageable components and materials from all components, standards parts, and materials referred to in point ML.UAS.501 is controlled by point ML.UAS.504(a).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *745* comment by: *AIRBUS*

Page 124 - point CAO.UAS.030(c)

Comments

"(c) Relevant instructions for storage are complied with, and access to the storage facilities is restricted only to authorised personnel."

Suggestions

Airbus recommends in a previous comment adding the notion of 'preservation' to the definition of the term 'maintenance', like in the US FAR 1 (https://www.ecfr.gov/current/title-14/chapter-I/subchapter-A/part-1).
In line with this previous recommendation, it is also proposed to transfer point CAO.UAS.030(c) to a new point CAO.UAS.030(b)(3), and to amend its content to read:
"(b) In addition, where the scope of approval of the organisation includes maintenance activities, the organisation shall ensure that:
(1) [...];
(2) [...]**~~.~~;**
(**~~c~~3**) **~~Relevant instructions for storage are complied with, and a~~A**ccess to the storage facilities is restricted only to authorised personnel."

Rationale – Justification

Airbus understands that the regulator intends to ensure with this point (c) that storage instructions, that may be published by the holder of a design approval, are complied with. However, as Part-ML.UAS does not require an organisation approval (for maintenance) under Part CAO.UAS to perform activities other than maintenance like 'preservation' (parking &

storage), level-playing field is not achieved: approved organisations may have their activities prohibited or limited in case of finding, while unapproved organizations performing storage are not subject to such oversight. The perverse effect of the situation could lead approved organizations to use unapproved organizations for parking and storage activities (to avoid having their organisation approval certificate at risk, i.e. revoked or suspended).
Poor/inadequate preservation conditions may impact the airworthiness of aircraft. This has been observed during the return to service of aircraft following Covid-19 pandemic period.
The airworthiness chain must not be broken, and preservation is an important contributor to maintaining airworthiness of UAS. Parking and storage tasks must be considered as part of maintenance and be managed in the context of the UAS maintenance programme.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.040 Certifying staff p. 125

comment *747* comment by: *AIRBUS*

Page 125 - point CAO.UAS.040

Comments

"(a) In order to sign a certificate of release to service after maintenance on UA, CU and components, or after CU installation, the organisation shall authorise relevant certifying staff.
(b) Certifying staff intended to release maintenance performed on UA and CU, or certify CU installation, shall receive an initial training relevant to the particular UA and CU to be stated in the authorisation. The organisation shall ensure that they have acquired a minimum of 3 months of practical maintenance experience with similar UA or CU before receiving their certification authorisation.
(c) The organisation shall ensure that certifying staff periodically receive sufficient and adequate recurrent training to ensure that they have up-to-date knowledge of relevant technologies, organisation procedures, and human factors issues."

Suggestions

It is proposed to amend this point to read:
"(a) In order to ~~**sign a certificate of release to service after**~~ **certify** maintenance on UA, CU and components, or ~~**after**~~ CU installation, the organisation shall authorise relevant certifying staff.
(b) Certifying staff intended to ~~**release**~~ **certify** maintenance performed on UA and CU, or certify CU installation, shall receive an initial training relevant to the particular UA and CU to be stated in the authorisation. [...]"

Rationale – Justification

For the sake of consistency with previous comments.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *872* comment by: *FAA*

What defines "sufficient and adequate" recurrent training? How often is recurrent training required? Recommend providing a time requirement.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1279* comment by: *THALES*

CAO.UAS.040

Comment:
For new type of UAS, certifying staff may have troubles to demonstrate their 3 months of pratical experience with similar UA or CU?

Suggested resolution:
AMC/GM will have to tackle this point

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.045 Airworthiness review staff p. 125

comment *873* comment by: *FAA*

What is considered "appropriate" aeronautical-maintenance training?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1083* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Annex II Part-CAO.UAS, CAO.UAS.045, page 125

Comment: According to CAO.UAS.045(a)(2) shall the authorized airworthiness review staff also be authorized as certifying staff, independence will not be achieved if the staff reviews his/her own work.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1280* comment by: *THALES*

CAO.UAS.045

Comment:
It should be precised if experience in Continuing airworthiness is in general (CAMO) or specific UAS?

Suggested resolution:
Maybe reformulate (a)(1) and (a)(2) to clarify this point

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.060 Maintenance standards p. 126

comment *21* comment by: *Paul Travers*

THe first sentence (a) states: "All maintenance shall be carried out in accordance with the requirements of Subparts D, E, F and H of Annex I (Part-ML.UAS)." however Subpart F does not exist in the document.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *423* comment by: *DGAC FR (Mireille Chabroux)*

Typo in CAO.UAS.060(a). There is no subpart F in Part-ML.UAS:
All maintenance shall be carried out in accordance with the requirements of Subparts D, E, ~~F~~ and H of Annex I (Part-ML.UAS).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *748* comment by: *AIRBUS*

Page 126 - point CAO.UAS.060(a)

Comments

"(a) All maintenance shall be carried out in accordance with the requirements of Subparts D, E, F and H of Annex I (Part-ML.UAS)."

Suggestions

It is proposed to amend this point to read:
"(a) All maintenance shall be carried out in accordance with the requirements of Subparts D, E~~, F~~ and H of Annex I (Part-ML.UAS)."

Rationale – Justification

There is no subpart F in Part ML.UAS.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.050 Components, equipment and tools p. 126

comment *488* comment by: *JEDA*

'officially recognised' may be a term historically used for decades. But it is equally not sufficiently clear. The term 'industry standard' used in 965/2012 AMC1 ARO.GEN.305(b);(c);(d);(d1) Oversight programme, would be better.

Proposed amendment: The organisation shall ensure that the equipment and tools it uses are controlled and calibrated to an applicable industry standard. It shall keep records of such calibrations and the standards used.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1345* comment by: *Gregory Walden*

CAO.UAS.050 b)'
The organisation shall ensure that the equipment and tools it uses are controlled and calibrated to an officially recognised standard. It shall keep records of such calibrations and the standards used.'

'The term 'industry standard' used in 965/2012 AMC1 ARO.GEN.305(b);(c);(d);(d1) Oversight programme, would be better

Alternative proposed text:
The organisation shall ensure that the equipment and tools it uses are controlled and calibrated to an applicable industry standard. It shall keep records of such calibrations and the standards used.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.065 Certification of UA maintenance p. 127

comment ❖ comment by:

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.071 Certification of CU maintenance p. 127

comment *749* comment by: *AIRBUS*

Page 127 - points CAO.UAS.065, CAO.UAS.070, CAO.UAS.071 "Certification of CU installation"

Suggestions

It is proposed to amend one of these points or to add one to read:
"Upon completion of the installation of the CU carried out in accordance with this Regulation, the organisation shall certify such maintenance in accordance with point ML.UAS.805 of Annex I (Part-ML.UAS)."

Rationale – Justification

The certification of maintenance in accordance with points ML.UAS.801, 802, 803 and 804 is appropriately required by point CAO.UAS.065, CAO.UAS.070, CAO.UAS.071. However, the certification of the installation of the CU in accordance with point ML.UAS.805 is not addressed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.070 Certification of component maintenance p. 127

comment | ❖ comment by:

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *874* comment by: *FAA*

How are fabricated components in accordance with point CAO.UAS.095(a)(5) certified?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.075 Continuing airworthiness management p. 127

comment | *750* comment by: *AIRBUS*

Page 127 - points CAO.UAS.075(b)

<u>Comments</u>

"(b) For every UAS managed, the organisation shall:
[...]
(3) ensure that modifications and repairs comply with point ML.UAS.304 of Annex I (Part-ML.UAS);
(4) ensure that all maintenance is released in accordance with Subpart H of Annex I (Part-ML.UAS);
(5) ensure that all applicable ADs and all operational requirements with a continuing airworthiness impact are implemented;
(6) ensure that all defects are rectified by an appropriately approved maintenance organisation;
[...]
(8) coordinate the scheduled maintenance and the application of ADs in order to ensure the work is carried out properly;

[...]
(10) ensure that the mass-and-balance statement reflects the current status of the UA."

Suggestions

It is proposed to amend this point to read:
"(b) For every UAS managed, the organisation shall:
[...]
(3) ensure that **the design of** modifications and repairs comply with point ML.UAS.304**(b)** of Annex I (Part-ML.UAS);
(4) ensure that all maintenance is ~~**released**~~ **certified** in accordance with Subpart H of Annex I (Part-ML.UAS);
(5) ensure that all applicable ADs**,** ~~**and all**~~ operational requirements with a continuing airworthiness impact**, continuing airworthiness requirements mandated by the Agency, and measures required by the competent authority in immediate reaction to a safety problem** are implemented;
(6) ensure that all defects **and damage** are **respectively,** rectified **or, assessed and repaired** by an appropriately approved maintenance organisation;
[...]
(8) coordinate the ~~**scheduled**~~ maintenance and the application ~~**of ADs**~~ **actions resulting from requirements specified in point (5)** in order to ensure the work is carried out properly;
[...]
(10) ensure that the mass-and-balance statement reflects the current ~~**status**~~ **configuration** of the UA.
(11) ensure the preflight preparations are satisfactorily accomplished."

Rationale – Justification

For the sake of consistency with previous comments:
(3) for consistency with comments on point ML.UAS.304(b).
(4) for consistency with titles of point ML.UAS.801, 802, 803, 804 and 805.
(5) for consistency with point ML.UAS.301(d).
(6) for consistency with comments on point ML.UAS.403.
(8) the organisation managing the UAS continuing airworthiness shall order maintenance, supervise activities, and coordinate related decisions to ensure that any maintenance (whether scheduled or unscheduled) is carried out properly and is appropriately certified for the determination of UAS airworthiness.
(10) for consistency with point ML.UAS.301(f).
(11) for consistency with comments on point ML.UAS.301.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *751* comment by: *AIRBUS*

Page 128 - point CAO.UAS.075 "Continuing airworthiness management"

Suggestions

It is proposed to add a point (c) to this point:
"**(c) Where the organisation contracts some UAS maintenance, it shall conclude a contract with an appropriate maintenance organisation in agreement with the owner.**"
Rationale - Justification
Point ML.UAS.201(e)(2) requires that a written contract is established between the UAS owner and the CAO as regard to the performance of the continuing airworthiness management tasks. Similar contract requirements should govern the relationships between the CAO-managing the continuing airworthiness, and the CAO(s)-performing/certifying the maintenance, when applicable. The proposal brings consistency with point CAO.UAS(c), which reads: "The organisation shall also ensure that all contracted maintenance tasks are carried out in accordance with the **contract** or work order." (emphasis added).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.090 Record-keeping p. 128

comment *515* comment by: *Volocopter GmbH*

The word "copy" should be replaced by another word in order to give the opportunity to comply also and exclusively with paperless tools.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *752* comment by: *AIRBUS*

Page 128 - point CAO.UAS.090(a)

Comments

"(a) The organisation shall retain the following records as applicable to the privileges held:
(1) Maintenance
Copy of the certificate of release to service (CRS) together with all supporting documents necessary to demonstrate that all maintenance requirements have been met; the organisation shall provide a copy of each CRS to the owner of the UAS, together with a copy of any specific repair or modification data used for the repairs or modifications carried out.
(2) CU installation

Copy of the CRS together with all supporting documents necessary to demonstrate that all installation requirements have been met; the organisation shall provide a copy of the CRS to the owner of the UAS, together with a copy of any specific installation data.
(3) Continuing airworthiness management
The records required by point ML.UAS.305 of Annex I (Part-ML.UAS).
(4) Airworthiness review
Copy of each airworthiness review certificate (ARC) issued or extended, together with all supporting documents."

Suggestions

It is proposed to amend point (a) to read:
"(a) The organisation shall retain the following records as applicable to the privileges held:
(1) Maintenance
Copy of the certificate of release to service (CRS) together with all supporting documents necessary to demonstrate that all maintenance requirements have been met; the organisation shall provide a copy of each CRS to the **person or organisation managing the continuing airworthiness** ~~owner~~ of the UAS, together with a copy of**:**
(i) any detailed maintenance record associated with the work carried out and necessary to demonstrate compliance with point ML.UAS.305 of Annex I (Part-ML.UAS),
(ii) any specific ~~repair or modification~~ data **approved under point ML.UAS.304(b)** used for the repairs or modifications carried out.
(2) CU installation
Copy of the CRS together with all supporting documents necessary to demonstrate that all installation requirements have been met; the organisation shall provide a copy of the CRS to the **person or organisation managing the continuing airworthiness** ~~owner~~ of the UAS, together with a copy of**:**
(i) any detailed maintenance record associated with the work carried out and necessary to demonstrate compliance with point ML.UAS.305 of Annex I (Part-ML.UAS),
(ii) any specific installation data.
[...]"

Rationale – Justification

In line with a previous comment on point CAO.UAS.75, where the organisation contracts some UAS maintenance, it should conclude a contract with an appropriate maintenance organisation in agreement with the owner. Therefore, records produced by the maintenance organisation and necessary to demonstrate compliance with point ML.UAS.305 (no need to copy all maintenance records) should be provided to the person (owner) or organisation managing the continuing airworthiness of the UAS.
With respect to specific repair or modification data, it is recommended to refer to "data approved under point ML.UAS.304(b) used for the repairs or modifications carried out". Guidance Material may be useful to explain the difference between 'generic' and 'specific' design data.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *753* comment by: *AIRBUS*

Page 128 - point CAO.UAS.090(d)

Comments

"(d) The organisation shall retain the records:
(1) referred to in point (a)(1), and any associated maintenance data, for a period of 3 years from the date on which UA, CU or component maintenance has been released;
(2) referred to in point (a)(2) until 2 years after the CU has been permanently withdrawn from service;
(3) referred to in point (a)(3) for the period specified in point ML.UAS.305 of Annex I (Part-ML.UAS);
(4) referred to in point (a)(4) until 2 years after the UA has been permanently withdrawn from service."

Suggestions

With respect to point CAO.UAS.090(d)(2) and (d)(4), the Agency should explain in an AMC how a CAO that:
(i) installed a CU, but does not manage the UAS continuing airworthiness, can know when this CU will, is or has been permanently withdrawn from service,
(ii) issued or extended an Airworthiness Review Certificate, but does not manage the UAS continuing airworthiness, can know when the UAS will, is or has been permanently withdrawn from service.

Rationale – Justification

It seems difficult, if not impossible, for certain situations to implement the requirements of point CAO.UAS.090(d)(2) and (d)(4), unless keeping records forever, which creates an administrative burden without a safety benefit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1085* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Annex II Part-CAO.UAS, CAO.UAS.090, pages 128-129
Comment: Requirement CAO.UAS.090 does not include a provision of back-up of electronic records and storage of any backup servers.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1098* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The word "copy" should be replaced by another word in order to give the opportunity to comply also and exclusively with paperless tools
PROPOSED ACTION/RESOLUTION
EASA to change the word 'copy' to another term that provides the opportunity to use paperless tools.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.095 Privileges of the organisation p. 129

comment *489* comment by: *JEDA*

The leading sentence (either no privileges or all possible privilges) and the letter e) (one or more privileges) do not match.

Proposed amendment: Change leading sentence: In accordance with the organisation manual, the organisation may be granted one or more the following privileges ... And delete e) which becomes redundant

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *754* comment by: *AIRBUS*

Page 129 - point CAO.UAS.095 Privileges of the organization

Suggestions

It is proposed to amend the introductory sentence of this point to read:
"In accordance with the organisation manual, the organisation shall be granted **with one or any combination of** the following privileges:
(a) Maintenance [...] (b) ~~**Release**~~ **Certification** of CU installation [...] (c) Continuing Airworthiness Management [...] (d) Airworthiness review [...]"

Rationale - Justification

Organisations subject to this Part may be approved for maintenance or CU installation or continuing airworthiness management or airworthiness review, or a combination of these activities.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *755* comment by: *AIRBUS*

Page 130 - point CAO.UAS.095(c)

Comments

"(c) Continuing airworthiness management
(1) Manage the continuing airworthiness of any UAS specified in the scope of work.
(2) Approve the UAS maintenance programme in accordance with point ML.UAS.302(b)(2) of Annex I (Part-ML.UAS).
(3) Arrange for the performance of limited continuing airworthiness tasks by a subcontracted organisation subject to the compliance-monitoring function of the Part-CAO.UAS organisation, as listed in the organisation certificate.
(4) Extend an ARC in accordance with point ML.UAS.901(c) of Annex I (Part-ML.UAS)".

Suggestions

It is proposed to amend point (2) of this point to read:
"(2) Approve the UAS maintenance programme in accordance with point ML.UAS.302(b)~~**(2)**~~ of Annex I (Part-ML.UAS)."

Rationale – Justification

There is no point ML.UAS.302(b)(2).

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *756* comment by: *AIRBUS*

Page 130 - point CAO.UAS.095(d)

Comments

"(d) Airworthiness review An organisation whose approval includes the privileges referred to in point (a) or (b), may be approved to carry out airworthiness reviews in accordance with point CAO.UAS.085 and issue the related ARC."

Suggestions

It seems odd that the privilege to carry out airworthiness reviews may be granted to an organisation performing CU installation only. In addition, it is equally odd that this privilege cannot be granted to an organisation only managing the continuing airworthiness of UAS.
It is proposed to amend this point to align with point CAO.A.095:
"(d) Airworthiness review
An organisation whose approval includes the privileges referred to in point (a) or (~~b~~**c**), may be approved to carry out airworthiness reviews in accordance with point CAO.UAS.085 and issue the related ARC."

Rationale – Justification

Point CAO.A.095(c) provides that an organisation (CAO), the approval of which includes the privileges of continuing airworthiness management and/or maintenance, may be approved to carry out airworthiness reviews.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *757* comment by: *AIRBUS*

Page 130 - point CAO.UAS.095(e) "(e) A Part-CAO.UAS organisation may be approved for one or more privileges."

Suggestions

It is proposed to delete point CAO.UAS.095(e).

Rationale – Justification

For the sake of consistency with a previous comment on point CAO.UAS.095.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.100 Compliance monitoring and organisational review p. 130

comment *490* comment by: *JEDA*

The function may be arried out by an employee of the CAO, but also by a part-time contracted external consultant. This possibility should be made explicit

Proposed amendment: Add one more sentence: The function may be entrusted to an employee of the orgnisation or to an external cosnultnt person or organisation

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1086* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Annex II Part-CAO.UAS, CAO.UAS.100, page 130
Comment: Requirement CAO.UAS.100(d) does not imply that replacement of Compliance Monitoring Function shall be subject to the approval of the competent authority.

Proposal for change: Add bullet point "(3) subject to the approval of the competent authority."

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.102 Protection of software, data and hardware p. 130

comment | *516* comment by: *Volocopter GmbH*

'Exceptional circumstances' should be further clarified in the regulation or at AMC&GM level.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *807* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 131)
"(c) The reporting referred to in point (b) shall be made as soon as possible, but not exceeding 72 hours from the time the condition has been known to the organisation, unless exceptional circumstances prevent this."

Comment
Exeptional circumstances should be further clarified in the regulation or at AMC&GM level.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *820* comment by: *UAV DACH e.V.*

Reference: (b) Without prejudice to Article 14(a) of Implementing Regulation (EU) 2019/947, the organisation shall report to...

Comment: A presentation of the voluntary and mandatory reportable events criteria would be helpful at the AMC&GM level.

Proposal: Please clarify at AMC&GM level.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *878* comment by: *FAA*

What are examples of "exceptional" circumstances that would prevent reporting such incidents?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *997* comment by: *Austro Control*

Comment:
What are the detailed requirements for software / data protection?

Classification:
Major-Conceptual

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1099* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to the following paragraph:

(c) The reporting referred to in point (b) shall be made as soon as possible, but not exceeding 72
hours from the time the condition has been known to the organisation, unless exceptional circumstances prevent this.

'Exeptional circumstances' should be further clarified in the regulation or at AMC&GM level.

PROPOSED ACTION/RESOLUTION

EASA to clarify 'Exeptional circumstances' in the regulatory proposal, or alternatively, note the need for clarification in AMC/GM.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1227* comment by: *Aerospace Industries Association*

Comment: (a) The organisation shall protect software, data and network connections used for continuing
airworthiness activities.

Hardware needs to be protected. Hardware may have vulnerabilities that can be exploited thus necessitating protection. This includes programmable hardware (e.g. firmware in FPGA) as well as fixed hardware (e.g. microprocessors)

Suggested Resolution: Update text to include hardware

The organisation shall protect software, complex electronic hardware, data and network connections used for continuing
airworthiness activities.

Note: complex electronic hardware chosen to make clear that we do not require protection of all physical hardware so applicants do not extend to protecting tools such as torque wrenches which are not typically in scope of cybersecurity.

Comment: (b) Without prejudice to point CAO.UAS.120, the organisation shall ensure that any information
security incident or vulnerability, which may represent a significant risk to aviation safety, is reported to its competent authority.

Part CAO.UAS does not include any provisions for an ISMS. There is a risk that applicants will not have sufficient processes to identify and respond to vulnerabilities and incidents.

Suggested resolution: For UAS without passengers:
Ensure that robust AMC and GM is provided to ensure consistent processes within an organisation as well as equivalent performance with other organisations

For UAS with passengers:
Adopt an ISMS per Part IS

Proposed resolution:

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.112 Access p. 131

comment | *758* comment by: *AIRBUS*

Page 131 - point CAO.UAS.112

Comments

"For the purpose of verifying compliance with the relevant requirements of this Annex, the organisation shall ensure that access to any facility, aircraft, document, records, data, procedures or to any other material relevant to its activity subject to certification is granted to any person authorised by the competent authority."

Suggestions

It is proposed to amend this point to read:
"For the purpose of verifying compliance with the relevant requirements of this Annex, the organisation shall ensure that access to any facility, aircraft, **command unit,** document, records, data, procedures or to any other material relevant to its activity subject to certification is granted to any person authorised by the competent authority."

Rationale – Justification

For the sake of explicitness.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.115 Findings and observations p. 131

comment | *759* comment by: *AIRBUS*

Pages 131-132 - point CAO.UAS.115(a)

Comments

"(a) After receiving a notification of a finding in accordance with point AR.UAS.GEN.350 of Annex I (Part-AR.UAS) to Implementing Regulation (EU) …/…, the organisation shall adopt a corrective action plan and demonstrate to the satisfaction of the competent authority that it has taken the necessary corrections and corrective action to address the finding within the time period set by that authority."

Suggestions

Airbus recommends to the Agency to harmonise the following points:
point CAO.UAS.115(a):
"[...] shall adopt a corrective action plan and demonstrate to the satisfaction of the competent authority that it has taken the necessary corrections and corrective action to address the finding within the time period set by that authority.
point ML.UAS.907:
"[...] shall define and demonstrate to the competent authority within a period agreed with the particular authority a corrective action plan to [eliminate the non-compliance and to] prevent the reoccurrence of the finding and eliminate or mitigate its root cause."
point AR.UAS.GEN.350(d)(2)(ii):
"(2) [...] the competent authority shall [...] assess the corrective action plan and implementation plan proposed by the organisation [...]"

Rationale – Justification

For the sake of consistency.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1088* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Annex II Part-CAO.UAS, CAO.UAS.115, pages 131-132
Comment: CAO.UAS.115 does not specify levels of findings (Level 1 and Level 2) and does not require the CAO to perform a root cause analysis.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

CAO.UAS.120 Occurrence reporting p. 132

comment *424* comment by: *DGAC FR (Mireille Chabroux)*

	This article is welcome in Part-CAO.UAS and DGAC France would like EASA to consider adding a similar article in the current Part-CAO (for manned aircraft) at the next opportunity.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*517* comment by: *Volocopter GmbH* A presentation of the voluntary and mandatory reportable events criteria would be helpful at the AMC&GM level.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*760* comment by: *AIRBUS* **Page 132 - point CAO.UAS.120(b)** **Comments** "(b) Without prejudice to Article 14(a) of Implementing Regulation (EU) 2019/947, the organisation shall report to its competent authority and to the design approval holder of the UAS or component any safety-related event or condition of an UAS or component identified by the organisation which endangers or, if not corrected or addressed, could endanger an UAS or any other person, and in particular any accident or serious incident." **Suggestions** There is no Article 14**(a)** in the Implementing Regulation (EU) 2019/947. **Rationale – Justification** For the sake of understanding.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*761* comment by: *AIRBUS* **Page 132 - point CAO.UAS.120(d)** **Comments**

"(d) When the organisation is contracted for continuing airworthiness management, the organisation shall also report any such event or condition that affects an UA to the owner that has contracted the Part-CAO.UAS organisation."

Suggestions

Can the Agency confirm that it anticipates any such event or condition will never affect the CU, and by repercussion, the airworthiness of the UAS?

Rationale – Justification

For the sake of confirmation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *808* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 132)
"(b) Without prejudice to Article 14(a) of Implementing Regulation (EU) 2019/947, the organisation **shall report to its competent authority and to the design approval holder of the UAS or component any safety-related event or condition of an UAS or component identified by the organisation which endangers or, if not corrected or addressed, could endanger an UAS or any other person, and in particular any accident or serious incident."**

Comment
A presentation of the voluntary and mandatory reportable events criteria would be helpful at the AMC&GM level.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1051* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

CAO.UAS.120 b Draft Commission Delegated Regulation, c. 3, page 132
Is the reference to Art. 14(a) Reg. (EU) 2019/947 correct? Should reference be made to Art. 14.4 or Art. 19 instead?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1102* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

A presentation of the voluntary and mandatory reportable events criteria would be helpful at the AMC/GM level.

PROPOSED ACTION/RESOLUTION

EASA to please clarify at AMC/GM level.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1310* comment by: *JEDA*

A presentation of the voluntary and mandatory reportable events criteria would be helpful.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 2 Definitions p. 133

comment *57* comment by: *Wingcopter GmbH*

As already commented above, the definition of UAS in (a) should probably exclude associated infrastructure

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *442* comment by: *Baines Simmons*

Baines Simmons feels that the exclusion of system elements that support the C2 link service with the definitions of Article 2 presents a notable risk to safe operation. We would like to see the definition amended to read:
(b) 'command unit (CU)' means the equipment or items of equipment to control unmanned aircraft remotely, as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of the unmanned aircraft during any phase of flight; the scope of the command unit elements includes any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;

Operational safety may depend on the establishment & ongoing assurance of the airworthiness of these elements as we feel that they form part of the complete 'end-to-end'

C2 system. Reliance on either operator/controller actions or automated safe flight profile systems should these elements fail may not provide levels of redundancy, fail-safe mitigations or safety expected by the aviation industry or the general public. There has been a loss of control of an unmanned aircraft in the UK & the failure of remote relay stations (which were at the time not subject to any maintenance or assurance) was a factor in this incident. We would like to see all flight control system elements, whether a simple CU to air vehicle system or a complex arrangement of links, relays etc. that depends on software, hardware or both treated as a full system for which the operator has the responsibility.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *443* comment by: *Baines Simmons*

Baines Simmons suggest that the all elements of the system that control the unmanned aircraft are regarded as critical systems as & the definition of Critical Maintenance Task in Article 2 'Definitions' (j) is amended as follows:

(j) 'critical maintenance task' means a maintenance task that involves the assembly, integration, disturbance or Command Unit Installation of a system or any part on an UA, engine, propeller or any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service, that, if an error occurred during its performance, could directly endanger the flight safety;"*

**(k) 'command unit (CU) installation' means the process to integrate the CU elements in a physical environment that is eligible for that purpose according to a set of installation and testing instructions, such that the installed CU may be used to operate a UA*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *762* comment by: *AIRBUS*

Page 133 - Article 2 Definitions: (b) 'command unit (CU)'

<u>Suggestions</u>

The definition for 'command unit' should be harmonized between
COMMISSION IMPLEMENTING REGULATION (EU) …/… of […] laying down competent authority requirements and administrative procedures for the certification, oversight and enforcement of the continuing airworthiness of unmanned aircraft systems
and
COMMISSION DELEGATED REGULATION (EU) …/… of […] on the continuing airworthiness of certified unmanned aircraft systems and their components, and on the approval of organisations and personnel involved in these tasks

Rationale – Justification

For the sake of consistency.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *763* comment by: *AIRBUS*

Page 134 - Article 2 Definitions: (d) 'continuing airworthiness'; (e) 'maintenance' and (g) 'pre-flight inspection'.

Comments

"(d) 'continuing airworthiness' means all of the processes ensuring that, at any time in its operating life, the UAS complies with the applicable airworthiness requirements and is in a condition for safe operation;
(e) 'maintenance' means any one or a combination of the following activities: overhaul, repair, inspection, replacement, modification or defect rectification of an UAS or component, with the exception of pre-flight inspection;
[...]
(g) 'pre-flight inspection' means the inspection carried out before flight to ensure that the UA is fit for the intended flight;"

Suggestions

(d) What are the applicable requirements making the reference base to certify that an aircraft is "in a condition for safe operation"? This expression is associated with no requirement in the definition. There are no explanations on the meaning and implications of this expression?
(e) Does the Agency consider the preservation of a UAS as maintenance?
(g) Can the Agency confirm that it anticipates Approved Design Organisations will never require a pre-flight inspection item for the CU? Can the Agency confirm that it anticipates Approved Design Organisations will never require anything but an inspection within the frame of the pre-flight inspection? Could there be a term more pertinent than 'pre-flight inspection', e.g. 'pre-flight preparation'?

Rationale – Justification

For the sake of consistency with previous comments on Article 2 of the COMMISSION DELEGATED REGULATION (EU) …/… of […] on the continuing airworthiness of certified unmanned aircraft systems and their components, and on the approval of organisations and personnel involved in these tasks.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *879* comment by: *FAA*

Are there any provisions for gender neutral terms? Remotely piloted (RPAS); uncrewed may not be an appropriate term (flight crew in remote location).

Does UAS definition encompass all unmanned/remotely piloted aircraft?Provide specific definition/category for UAS based on class, category, function, etc. (i.e. IAM, AAM, UAM).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.3.1. Draft cover regulation p. 133

comment *363* comment by: *Thurling Aero Consulting*

This comment is in regard to the text in Article 2 (b), "'command unit (CU)' means the equipment or items of equipment to control unmanned aircraft as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of the unmanned aircraft during any phase of flight; the command unit does not…"

For most Remotely Piloted Aircraft, there is little argument that terms such as "Command Unit" are appropriate. However, as we begin to see advanced Uncrewed Aircraft (UA) and airspace management autonomy allowing more than one vehicle to be managed by a single remote pilot, terms such as these become outdated. Terms such as "Ground Station" are preferable to "Command Unit" as is "manage" over "control" since the latter terms ("command" and "control") imply an active pilot-in-the-loop concept of operations. This may be true now, but we are rapidly approaching (and have already seen in small UAS) the time when the 1:1 relationship of pilot to vehicle is surpassed.

Groups in Europe (Eurocontrol ECHO) and the US (NASA/FAA ETM Research Transition Team) are currently developing new Concepts of Operation for High Altitude Operations in "upper Class E" airspace. These concepts assume Upper E operations may start out as being a predominantly air traffic controlled environment (ATCE), however as demand increases, they will evolve to a predominantly cooperative control environment (CCE) where Operators deconflict from one another using industry defined/ANSP approved Cooperative Operating Practices.

Likewise, Regulators in both Europe and the US have been working on initial concepts for Advanced Air Mobility which would include the use of corridors (FAA AAM CONOPs V1.0) and U-space (EASA). It is likely that these CONOPs also include Operators cooperatively managing traffic in CCEs.

In CCEs Autonomous Fleet management begins to look more like airline air operations centers (AOC), where a small team manages the flights of a large number of highly automated

aircraft. AOCs are certified in operational approvals, not as part of individual aircraft Type Certificates. In order to "future proof" the rule, it would seem reasonable to remove the ground station used in a CCE from the type certificate just as an AOC is not part of an aircraft type certificate. Indeed, this NPA seems to have already taken the first step in that direction by removing aspects of command and control form the Type Certificate. The FAA has gone one step further and removed all ground station capabilities from the Type Certificate basis of small UA undergoing the Durability and Reliability approach to Type Certification. Ground stations, C2 and other support capabilities are considered "Associated Elements". While perhaps not appropriate for truly remotely piloted aircraft and some other UAS concepts, this does make a lot of sense for the management of aircraft in CCEs.

A simple way to address the above and to "future proof' the rule is to alter the proposed text in this section to "'command unit (CU)' means the equipment or items of equipment to control unmanned aircraft as defined in Article 3(32) of Regulation (EU) 2018/1139, which ensures the control or monitoring of the unmanned aircraft during phases of flight in air traffic controlled environments; the command unit does not…"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *951* comment by: *FAA*

The FAA supports the definitions proposed in Regulation (EU) 2018/1139, specifically for 'command unit (CU)' and 'component'.
The FAA has taken a similar approach in addressing 'Associated Elements' (AE), as outlined in a joint FAA AIR/AFS Memo published in July 2021 (Memo No. AIR600-21-AIR-600-PM01), but limited in scope to UA using the Durability & Reliability (D&R) Means of Compliance (MoC).

The FAA has taken a similar approach in addressing 'Associated Elements' (AE), as outlined in a joint FAA AIR/AFS Memo published in July 2021 (Memo No. AIR600-21-AIR-600-PM01), but limited in scope to UA using the Durability & Reliability (D&R) Means of Compliance (MoC).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.3. Draft Commission Implementing Regulation (EU) .../... p. 133

comment *492* comment by: *JEDA*

Article 69 20181139 establishes Qualified Entities. In the absence of common eU rules they could still be established by individual EU/EASA MS, but this would be difficult and not harmonised. At least basic principles should be establsihed through this IR

	Proposed amendment: Add new letter g) to par. 3 of Art. 3: accredit Qualified Entities based on Art. 69 of Regulation 2018/1139 and compliant with the essential requirements in Annex VI therein
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 3 Competent authorities p. 134

comment	*428* comment by: *DGAC FR (Mireille Chabroux)* Typo in the numbering of the article.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*764* comment by: *AIRBUS* **Page 135 - Article 3 point 3.(d) "(d) access relevant premises, operating sites or means of transport;"** **Suggestions** There is a potential inconsistency between Article 3 point 3.(d) and point CAO.UAS.112. **Rationale – Justification** Point CAO.UAS.112 requires the organisation ensures that access to any facility, but also to aircraft, [command unit], document, records, data, procedures or to any other material relevant to its activity subject to certification is granted to any person authorised by the competent authority, while Article 3 point 3.(d) relates to access to the relevant premises, operating sites or means of transport only.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.010 Competent authority p. 135

comment	*1195* comment by: *AESA*

	In case that a CU controls more than one UA, and these UAS are registered in different Member States. There should be included in regulation that a colaborative agreement for the CU oversight between NAAs is required.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.120 Means of compliance p. 136

comment	*493* comment by: *JEDA* AltMoC may also be based on industry standards Proposed amendment: Alternative means of compliance, including industry standards, may be used to establish compliance with this Regulation.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1346* comment by: *Gregory Walden* *AR.UAS.GEN.120 b)* *'Alternative means of compliance may be used to establish compliance with this Regulation.'* AltMoC may also be based on industry standards Alternative proposed text: Alternative means of compliance, including industry standards, may be used to establish compliance with this Regulation.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.135 Immediate reaction to a safety problem p. 137

comment	*60* comment by: *Wingcopter GmbH* It seems the CU is not listed in (b); however, it would probably make sense to include it here.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *765* comment by: *AIRBUS*

Page 137 - point AR.UAS.GEN.135(a)

Comments

"(a) Without prejudice to Regulation (EU) No 376/2014 and its delegated and implementing acts, the competent authority shall implement a system to appropriately collect, analyse and disseminate safety information."

Suggestions

It is proposed to amend this point to read:
"(a) Without prejudice to Regulation (EU) No 376/2014 and its delegated and implementing acts, the competent authority shall **establish,** implement**, and maintain** a system to appropriately collect, analyse and disseminate safety information".

Rationale – Justification

For the sake of harmonisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *766* comment by: *AIRBUS*

Page 137 - point AR.UAS.GEN.135(b)

Comments

"(b) The Agency shall implement a system to appropriately analyse any relevant safety information received and, without undue delay, provide the relevant authority of the Member States and the Commission with any information, including recommendations or corrective actions to be taken, that is necessary for them to react in a timely manner to a safety problem involving products, parts, appliances, persons or organisations that are subject to Regulation (EU) 2018/1139 and its delegated and implementing acts."

Suggestions

It is proposed to amend this point to read:
"(b) The Agency shall **establish,** implement**, and maintain** a system to appropriately analyse any relevant safety information received and, without undue delay, provide the relevant authority of the Member States and the Commission with any information, including recommendations or corrective actions to be taken, that is necessary for them to react in a

timely manner to a safety problem involving products, parts, appliances, **CUs,** persons or organisations that are subject to Regulation (EU) 2018/1139 and its delegated and implementing acts."
This point refers to 'appliances' while point AR.UAS.GEN.135A(b) refers to 'non-installed equipment'. The Agency should harmonise the usage of terms.

Rationale – Justification

For the sake of completeness and harmonisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1053* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

AR.UAS.GEN.135 (b) Draft Commission Delegated Regulation, c. 3, page 137
What relevant authorities does this provision refer to?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.135A Immediate reaction to an information security incident or vulnerability with an impact on aviation safety p. 137

comment *767* comment by: *AIRBUS*

Page 137 - point AR.UAS.GEN.135A(a)

Comments

"(a) Without prejudice to Regulation (EU) No 376/2014 and its delegated and implementing acts, the competent authority shall implement a system to appropriately collect, analyse, and disseminate information related to information security incidents and vulnerabilities with a potential impact on aviation safety reported by organisations. This shall be done in coordination with any other relevant authorities responsible for information security or cybersecurity within a Member State to increase the coordination and compatibility of reporting schemes."

Suggestions

It is proposed to amend this point to read:

"(a) Without prejudice to Regulation (EU) No 376/2014 and its delegated and implementing acts, the competent authority shall **establish,** implement**, and maintain** a system to appropriately collect, analyse, and disseminate information related to information security incidents and vulnerabilities with a potential impact on aviation safety reported by organisations. [...]"

Rationale – Justification

For the sake of harmonisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *768* comment by: *AIRBUS*

Page 137 - point AR.UAS.GEN.135A(b)

Comments

"(b) The Agency shall implement a system to appropriately analyse any relevant safety-significant information received in accordance with point AR.UAS.GEN.125(c), and without undue delay provide the Member States and the European Commission with any information, including recommendations or corrective actions to be taken, necessary for them to react in a timely manner to an information security incident or vulnerability with a potential impact on aviation safety, involving products, parts, non-installed equipment, persons or organisations subject to Regulation (EU) 2018/1139 and its delegated and implementing acts."

Suggestions

It is proposed to amend this point to read:
"(b) The Agency shall **establish,** implement**, and maintain** a system to appropriately analyse any relevant safety-significant information received in accordance with point AR.UAS.GEN.125(c), and without undue delay provide the Member States and the European Commission with any information, including recommendations or corrective actions to be taken, necessary for them to react in a timely manner to an information security incident or vulnerability with a potential impact on aviation safety, involving products, parts, non-installed equipment, **CUs,** persons or organisations subject to Regulation (EU) 2018/1139 and its delegated and implementing acts. [...]"
This point refers to 'non-installed equipment' while point AR.UAS.GEN.135(b) refers to 'appliances'. The Agency should harmonise the usage of terms.

Rationale – Justification

For the sake of completeness and harmonisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.200 Management system p. 138

comment *164* comment by: *GdF*

Standardisation and interoperability are key. As long as these key principles are not fulfilled, it will not work out. In the ADAAS (ATM Data as a Service) project, EUROCONTROL MUAC and Slovenia Control, successfully demonstrated the feasibility in which the Air Traffic Service Unit is decoupled from the ADSP and data services such as flight data management, surveillance, and voice communications, can be delivered cross-border to several ATS Units. This requires a high degree of interoperability among the different national ATM systems, authorities and operators. This will be also essential for the UTM/ATM cooperation and communication capabilities.

GdF envisages that U-Space systems are therefore envisaged to be interoperable and consistent with existing ATM systems in order to facilitate safe, efficient and scalable operations. Although system-level requirements for U-Space systems have not yet been developed, core principles can be established to guide their development. Access to the airspace should remain equitable provided that each aircraft is capable of complying with the appropriate conditions, regulations, equipment requirements and processes defined for the specific airspace in which operations are proposed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *769* comment by: *AIRBUS*

Page 138 - point AR.UAS.GEN.200(a)

<u>Comments</u>

"(a) The competent authority shall establish and maintain a management system, including as a minimum: [...]
(5) a function to monitor the compliance of the management system with the relevant requirements, and the adequacy of the procedures, including the establishment of an internal audit process and a safety risk management process; compliance-monitoring shall include a feedback system of audit findings to the senior management of the competent authority to ensure the implementation of corrective actions, as necessary; [...]"

Suggestions

It is proposed to amend this point to read:

"(a) The competent authority shall establish**, implement,** and maintain a management system, including as a minimum: [...]
(5) a function to monitor the compliance of the management system with the relevant requirements, and the adequacy of the procedures, including the establishment**, implementation, and maintenance** of an internal audit process and a safety risk management process; compliance-monitoring shall include a feedback system of audit findings to the senior management of the competent authority to ensure the implementation of corrective actions, as necessary; [...]"

Rationale – Justification

For the sake of harmonisation (refer to point CAMO.A.200(a) for example).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *770* comment by: *AIRBUS*

Page 138 - point AR.UAS.GEN.200(e)

Comments

"(e) In addition to the requirements of point (a), the management system established and maintained by the competent authority shall comply with Annex I (Part-IS.AR) to Implementing Regulation (EU) …/… in order to ensure the proper management of information security risks which may have an impact on aviation safety."

Suggestions

The Agency should explain the intent to require an ISMS for competent authorities.

Rationale – Justification

No ISMS is required for organisations approved in accordance with Part-CAO.UAS. Moreover, the Agency indicated in its Opinion No 03/2021 'Management of information security risks' states:
"The following organisations have been excluded from the proposed rule in order to ensure appropriate proportionality to the lower safety risks they pose to the aviation system:
[...]
organisations that perform maintenance and continuing airworthiness management activities in accordance with Annex Vd (Part-CAO) to Regulation (EU) No 1321/2014."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *771* comment by: *AIRBUS*

Page 138 - point AR.UAS.GEN.200(e)

Comments

"(e) In addition to the requirements of point (a), the management system established and maintained by the competent authority shall comply with Annex I (Part-IS.AR) to Implementing Regulation (EU) …/… in order to ensure the proper management of information security risks which may have an impact on aviation safety."

Suggestions

It is proposed to amend this point to read:
"(e) In addition to the requirements of point (a), the management system established**, implemented,** and maintained by the competent authority shall comply with Annex I (Part-IS.AR) to Implementing Regulation (EU) …/… in order to ensure the proper management of information security risks which may have an impact on aviation safety."

Rationale – Justification

For the sake of harmonisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1119* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

AR.UAS.GEN.200 (c) (2) Draft Commission Delegated Regulation, c. 3. page 138
Compliant with rules on confidentiality in Reg. (EU) No 376/2014?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1229* comment by: *Aerospace Industries Association*

Comment: (e) In addition to the requirements of point (a), the management system established and
maintained by the competent authority shall comply with Annex I (Part-IS.AR) to Implementing
Regulation (EU) .../... in order to ensure the proper management of information security risks which may have an impact on aviation safety

Requirement by competent authorities to follow Part IS may introduce issues in oversight of UAS operators and maintainers.

Suggested Resolution: Provide clarification of limits of Part IS application to competent authority and that this should not be extended to UAS operator and maintainers working with UAS not carrying passengers.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.205 Allocation of tasks p. 138

comment *494* comment by: *JEDA*

Two more letter are necessry to refer to different levels of privilege and to give explicitly to qEs the possiblity of being contracted directly by aplicants. The possible levels of privilege proposed in this comment are inspired by ICAO GASOS.

Proposed amendment: Add (vi) and (vii): (vi) the possibility for the qualified entity to be contracted directly by applicants; (vii) the granted level of privileges which can be Level 1 (advisory functions), Level 2 (Operational assistance functions including issuance of recommendation for the competent authority to issue certificates) or Level 3 (issue, renew, amend, limit, suspend and revoke certificates, or to receive declarations, on behalf of the competent authority)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.220 Record-keeping p. 140

comment *772* comment by: *AIRBUS*

Page 140 - point AR.UAS.GEN.220(a)(5)

<u>Comments</u>

"(a) The competent authority shall establish a record-keeping system that allows the adequate storage, accessibility and reliable traceability of: [...]
(5) with respect to the UAS under the oversight of the competent authority, the UAS oversight process, including:
(1) the UA certificate of airworthiness;

(2) ARCs;
(3) reports from the airworthiness reviews carried out directly by the competent authority;
(4) all relevant correspondence relating to the UA;
(5) details of any exemption and enforcement action(s);
(6) any document approved by the competent authority pursuant to this Annex or Regulation (EU) No 965/2012.
[...]"

Suggestions

It is proposed to amend this point to read:
"(a) The competent authority shall establish a record-keeping system that allows the adequate storage, accessibility and reliable traceability of: [...]
(5) with respect to the UAS under the oversight of the competent authority, the UAS oversight process, including:
(~~1~~**i**) the UA certificate of airworthiness;
(~~2~~**ii**) ARCs;
(~~3~~**iii**) reports from the airworthiness reviews carried out directly by the competent authority;
(~~4~~**iv**) all relevant correspondence relating to the UA **and its CU**;
(~~5~~**v**) details of any exemption and enforcement action(s);
(~~6~~**vi**) any document approved by the competent authority pursuant to this Annex or Regulation (EU) No 965/2012.
[...]"

Rationale – Justification

For the sake of harmonisation, and consistency with previous comments and point AR.UAS.GEN.300(a)(3) for example.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *773* comment by: *AIRBUS*

Page 141 - point AR.UAS.GEN.220(c)

Comments

"(c) All the records referred to in points (a) and (b) shall be kept for a minimum period of 5 years, subject to applicable data protection law, except for the records referred to in point (a)(5) which shall be retained for 2 years after the aircraft has been permanently withdrawn from service."

Suggestions

It is proposed to amend this point to read:

"(c) [...], except for the records referred to in point (a)(5) which shall be retained for 2 years after the aircraft has been permanently withdrawn from **the aircraft register of the Member State of Registry** ~~**service**~~."

Rationale – Justification

It seems difficult, if not impossible, for certain situations to implement the requirements of point AR.UAS.GEN.220(c), unless keeping records forever, which creates an administrative burden without a safety benefit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.305 Oversight programme - organisations p. 141

comment *495* comment by: *JEDA*

In the domain of AIR-OPS, AMC1 In the domain of AIR-OPS, ARO.GEN.305(b);(c);(d);(d1) on Oversight programme includes tha statement that 'For organisations having demonstrated compliance with industry standards, the competent authority may adapt its oversight programme, in order to avoid duplication of specific audit items.' The same principle should be established by the IR AR.UAS

Proposed amendment: Add one more letter to AR.UAS.GEN.305: For organisations having demonstrated compliance with industry standards, the competent authority may adapt its oversight programme, in order to avoid duplication of specific audit items

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *593* comment by: *DGAC FR (Mireille Chabroux)*

AR.UAS.GEN.305 allows oversight cycle length extensions (up to 48 months). One of the criteria to be met by the CAO.UAS organisation to be eligible for an extension is to demonstrate that, during the previous 24 months, the organisation has shown it can effectively identify aviation safety hazards and manage the associated risks.
However, from a practical perspective, Part-CAO.UAS does not require the organisation to implement a management system which includes a safety management function. Only a compliance monitoring function is needed. That compliance monitoring function can even be replaced by a basic non-independent organisational review (CAO.UAS.100). How does the Agency expect the NAA to evaluate the maturity of a process (hazard identification and

management of associated risks) the implementation of which is not required by the concerned organisations?
In addition, we all agree that NAA can implement an "RBO" approach even in the oversight of organisations not required to implement a full SMS. Nevertheless, since the introduction of RBO within EU regulations, oversight cycle length extensions based on RBO has always been possible only for organisations implementing a complete safety management system (AIR-OPS, Part-CAMO, Part-145, Part-21G, etc.). The whole system seems designed to require the implementation of a safety management function by the concerned organisation as a prerequisite to any cycle extensions possibility:

- ARO.GEN.305, CAMO.B.305, and 145.B.305 all relate to approved organisations required to implement a full SMS.
- Part-CAO (for manned aircraft) are not eligible for any oversight cycle length extension. How can we explain that despite CAO.A.100 being similar to CAO.UAS.100, CAO organisations for manned aircraft cannot benefit from cycle length extensions while CAO organisations for unmanned aircraft can?
- EASA Management System Assessment Tool makes clear that:
    - There is a direct link between oversight cycle length extension and the maturity of the concerned organisation's hazard identification and safety risk management function (refer to chapter "Extending the oversight planning cycle" of the tool).
    - The tool is designed to ensure compliance with ARO.GEN.305 (and also CAMO.B.305 and 145.B.305, which are the exact same requirements). AR.UAS.GEN.305 says the very same thing as ARO.GEN.305. However, the approved organisation it relates to is not required to implement a safety management function. In this context, the EASA management system assessment tool becomes irrelevant to CAO.UAS, whereas the requirements to be addressed are supposed to be covered by the tool.

When implementing RBO, NAA define the content of the organisation's oversight programme based on various elements that must be required to be in place and provided to the NAA at the approved organisation level (section A or section ORO requirements). On that particular subject, we hardly see how we can manage a situation where NAA requirements are identical, but section A/ORO are not. DGAC France sees two options:

- AR.UAS.300 and AR.UAS.305 are redrafted to be similar to what is already in place in all currently applicable EASA Regulations regarding the oversight of organisations not required to implement a safety management function (cycle length is 24 months max); or
- we consider that a safety management function is not required to allow oversight cycle length extensions:
    - A significant update of CAO.B.055 and EASA management system assessment tool is needed.
    - EASA should further explain how AR.UAS.GEN.305(d)(1) can be met or by what it is to be replaced.

Moreover, coordination with EASA team currently working on Part-21L and corresponding AMC/GM is expected as the same questions/concerns apply to the declared production organisation (21L.B.144).
To DGAC France opinion, this leads to a significant inconsistency between all EASA regulations which questions the entire approach implemented since cycle extensions are allowed thanks to RBO. DGAC France has no preference for one option over the other, but whatever the Agency's decision, consistency must be developed for similar organisations in every EASA regulation, and adequate tools must be provided to competent authorities if it is decided to allow oversight cycle length extensions based on RBO to organisations without management systems.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.330 Changes - organisations p. 143

comment *774* comment by: *AIRBUS*

Page 144 - point AR.UAS.GEN.350(b)

Comments

"(b) A level 1 finding shall be issued by the competent authority when any significant non-compliance is detected with the applicable requirements of Regulation (EU) 2018/1139 and its delegated and implementing acts, with the organisation's procedures and manuals, or with the organisation certificate including the terms of approval, which lowers safety, or seriously endangers flight safety. [...]"

Suggestions

It is proposed to amend this point to read:
"(b) A level 1 finding shall be issued by the competent authority when any significant non-compliance is detected with the applicable requirements of Regulation (EU) 2018/1139 and its delegated and implementing acts, with the organisation's procedures and manuals, or with the organisation certificate including the terms of approval, which lowers **the level of UAS airworthiness** ~~**safety**~~, or seriously endangers **the UAS airworthiness** ~~**flight safety**~~. [...]"

Rationale – Justification

The foreword of ICAO Annex 6 indicates that "An element of the safety of an [air/flight] operation is the intrinsic safety of the aircraft, that is, its level of airworthiness".
The term 'flight safety' is not defined and not referred to in the responsibilities of stakeholders as per ML.UAS.201. The responsibility of stakeholders in the frame of Part-ML.UAS is limited to airworthiness. 'Flight safety' conveys in the Continuing Airworthiness community a

subjective notion that is closely tied with the competence and experience of each individual. It usually leads to speculations and beliefs about the demonstration of compliance with the requirements referring to this notion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.350 Findings, corrective actions and observations - organisations p. 144

comment *775* comment by: *AIRBUS*

Page 144 - point AR.UAS.GEN.350(b)(1)

Comments

"(b) A level 1 finding shall be issued by the competent authority [...]. Level 1 findings shall also include:
(1) any failure to grant the competent authority access to the organisation's facilities referred to in point CAO.UAS.112 of Annex II (Part-CAO.UAS) to Delegated Regulation …/… during normal operating hours and after two written requests;"

Suggestions

There is a potential inconsistency between point AR.UAS.GEN.350(b)(1) and point CAO.UAS.112.

Rationale – Justification

Point CAO.UAS.112 requires the organisation ensures that access to any facility, but also to aircraft, [command unit], document, records, data, procedures or to any other material relevant to its activity subject to certification is granted to any person authorised by the competent authority, while point AR.GEN.350(b)(1) refers to failure to grant the competent authority access to the organisation's facilities only.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *776* comment by: *AIRBUS*

Page 144 - point AR.UAS.GEN.350(d)

Comments

"(d) When a finding is detected during oversight or by any other means, the competent authority shall, without prejudice to any additional action required by Regulation (EU) 2018/1139 and its delegated and implementing acts, communicate in writing the finding to the organisation and request corrective action to address the non-compliance identified. If a level 1 finding directly relates to an aircraft, the competent authority shall inform the competent authority of the Member State where the aircraft is registered."

Suggestions

It is proposed to amend this point to read:
"(d) When a finding is detected during oversight or by any other means, the competent authority shall, without prejudice to any additional action required by Regulation (EU) 2018/1139 and its delegated and implementing acts, communicate in writing the finding to the organisation and request corrective action to address the non-compliance identified. If a level 1 finding directly relates to a~~n aircraft~~ **UA or a CU**, the competent authority shall inform the competent authority **specified in point AR.UAS.GEN.010(a)**~~ of the Member State where the aircraft is registered~~."

Rationale – Justification

Point AR.UAS.GEN.010(a) provides that the authority designated by the Member State of Registry of the UA shall also be responsible for the oversight of the continuing airworthiness of the CU to the extent that this CU applies to the UA registered in that Member State.
So, if a level 1 finding relates to a CU (i.e. indirectly to the UA), the competent authority performing the oversight of the organisation (specified in point AR.UAS.GEN.010(b)) shall inform the competent authority specified in point AR.UAS.GEN.010(a).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *777* comment by: *AIRBUS*

Page 145 - point AR.UAS.GEN.350(f)

Comments

"(f) The competent authority may issue observations for any of the following cases that do not require level 1 or level 2 findings:
(1) for any item whose performance has been assessed to be ineffective;
(2) when it has been identified that an item has the potential to cause a non-compliance under points (b) or (c);
(3) when suggestions or improvements are of interest to the overall safety performance of the organisation.
The observations issued under this point shall be communicated in writing to the organisation and recorded by the competent authority."

Suggestions

It is proposed to amend this point to read:
"(f) The competent authority may issue observations for any of the following cases that do not require level 1 or level 2 findings: [...]
(3) when suggestions or improvements are of interest to the overall ~~safety~~ performance of the organisation. [...]"

Rationale – Justification

No safety management system is required for organisations approved under Part-CAO.UAS. It may be misleading/confusing to use the term 'safety performance'.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.351 Findings and corrective actions - UAS p. 145

comment *429* comment by: *DGAC FR (Mireille Chabroux)*

Reference to Part-ML in points (b) and (c) shall be replaced by a reference to Part-ML.UAS:

(b) A level 1 finding is any finding of significant non-compliance of the UAS with the requirements of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…, which lowers safety or seriously endangers flight safety.
(c) A level 2 finding is any finding of non-compliance of the UAS with the requirements of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…, which is not classified as a level 1 finding.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *778* comment by: *AIRBUS*

Page 145 - point AR.UAS.GEN.351

Comments

"(a) The competent authority shall have a system in place to analyse findings for their safety significance.
(b) A level 1 finding is any finding of significant non-compliance of the UAS with the requirements of Annex I (Part-ML) to Delegated Regulation (EU) …/…, which lowers safety or seriously endangers flight safety.

(c) A level 2 finding is any finding of non-compliance of the UAS with the requirements of Annex I (Part-ML) to Delegated Regulation (EU) …/…, which is not classified as a level 1 finding.
(d) If during aircraft surveys or by other means evidence is found that shows non-compliance of the UAS with the requirements of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…, the competent authority shall:
(1) for level 1 findings, require appropriate corrective action to be taken before further flight, and immediately revoke or suspend the ARC; and
(2) for level 2 findings, impose the corrective action appropriate to the nature of the finding."

Suggestions

It is proposed to transfer this point in the subpart CAW and to re-identify it as point AR.UAS.CAW.907.
It is also proposed to amend this point to read:
"(a) The competent authority shall have a system in place to analyse findings for their ~~**safety**~~ significance.
(b) A level 1 finding is any ~~**finding of significant**~~ non-compliance of the UAS with the requirements of Annex I (Part-ML) to Delegated Regulation (EU) …/…~~**, which**~~ **that may lead to uncontrolled non-compliances with applicable requirements and affect the UAS airworthiness** ~~**lowers safety or seriously endangers flight safety**~~.
(c) A level 2 finding is any ~~**finding of**~~ non-compliance of the UAS with the requirements of Annex I (Part-ML) to Delegated Regulation (EU) …/…~~**, which**~~ **that** is not classified as a level 1 finding.
[...]."

Rationale – Justification

No safety management system is required for organisations approved under Part-CAO.UAS. It may be misleading/confusing to use the term 'safety performance'.
The foreword of ICAO Annex 6 indicates that "An element of the safety of an [air/flight] operation is the intrinsic safety of the aircraft, that is, its level of airworthiness". The term 'safety' and 'flight safety' are not defined and not referred to in the responsibilities of stakeholders as per ML.UAS.201. The responsibility of stakeholders in the frame of Part-ML.UAS is limited to airworthiness.
'Flight safety' conveys in the Continuing Airworthiness community a subjective notion that is closely tied with the competence and experience of each individual. It usually leads to speculations and beliefs about the demonstration of compliance with the requirements referring to this notion. Part-UAS.CAO will have, at best, a limited view of the safety implications of any issue they observe, as they are not in possession of in-depth knowledge of the tolerance of the UAS to errors or damage, except based on what is available through the manuals. In other words, they cannot determine the severity of the consequences of failures, malfunctions, maintenance errors, etc. on the aircraft airworthiness, and even less on flight safety. This is explained by different factors, including the absence of access to the relevant design data (e.g. design features involving severe failure conditions, the overall picture of the aircraft/component configuration, etc.) or the absence of caution (e.g. a CDCCL or equivalent) in the Instructions for Continued Airworthiness or other standard maintenance instructions.

Furthermore, what "endanger flight safety" is an elusive notion that is difficult to grasp for the stakeholders of the Continuing Airworthiness domain, in particular for cases other than the evident ones.
The proposed definitions of finding levels are based on those given in Part-21.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.GEN.355 Suspension, limitation and revocation of a certificate p. 145

comment *779* comment by: *AIRBUS*

Pages 145-146 - point AR.UAS.GEN.355

Comments

"The competent authority shall:
(a) suspend a certificate when it considers that there are reasonable grounds that such action is necessary to prevent a credible threat to aircraft safety;
(b) suspend, revoke or limit a certificate if such action is required pursuant to point AR.UAS.GEN.350 or AR.UAS.GEN.351;
(c) suspend or limit, in whole or in part, an organisation certificate if unforeseeable circumstances beyond the control of the competent authority prevent its inspectors from discharging their oversight responsibilities over the oversight planning cycle."

Suggestions

It is proposed to amend this point to read:
"The competent authority shall:
(a) suspend a certificate when it considers that there are reasonable grounds that such action is necessary to prevent a credible threat to **UAS airworthiness** ~~**aircraft safety**~~;
(b) suspend, revoke or limit a certificate if such action is required pursuant to point AR.UAS.GEN.350 or **point AR.UAS.CAW.907** ~~**AR.UAS.GEN.351**~~;
[...]"

Rationale – Justification

For the sake of consistency with the comments on point AR.UAS.GEN.351.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.CAW.902 Airworthiness review conducted by the competent authority p. 147

comment *330* comment by: *ASD*

comment:
AR.UAS.CAW.902 Airworthiness review conducted by the competent authority
(a) When the competent authority conducts the airworthiness review and issues the ARC set out in Appendix IV to this Annex (EASA Form 15c),

Suggested resolution:
NPA 2022-06 does not contain Appendix IV to Part-AR.UAS
=> should it be read "EASA Form 15d, as set out in Appendix II to Part-ML.UAS"? (as written in AR.UAS.CAW.902 (e))?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *430* comment by: *DGAC FR (Mireille Chabroux)*

Typo in AR.UAS.CAW.902(a):

When the competent authority conducts the airworthiness review and issues the ARC set out in Appendix IV to this Annex (EASA Form ~~15c~~ 15d), the competent authority shall conduct an airworthiness review in accordance with point ML.UAS.903 of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/….

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *431* comment by: *DGAC FR (Mireille Chabroux)*

Typo in AR.UAS.CAW.902(d):

During the performance of the airworthiness review, the competent authority shall have access to the applicable data as specified in points ML.UAS.305 and ML.UAS.401 of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/….

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *686* comment by: *FOCA Switzerland*

1. Regarding (a), FOCA suggests to verify if the reference to "EASA Form 15c" should rather be "EASA Form 15d".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *786* comment by: *AIRBUS*

Pages 147-148 - point AR.UAS.CAW.902(a)

Comments

"(a) When the competent authority conducts the airworthiness review and issues the ARC set out in Appendix IV to this Annex (EASA Form 15c), the competent authority shall conduct an airworthiness review in accordance with point ML.UAS.903 of Annex I (Part-ML) to Delegated Regulation (EU) …/….."

Suggestions

It is proposed to amend this point to read:
"(a) When the competent authority conducts the airworthiness review and issues the ARC **(EASA Form 15d), as** set out in Appendix ~~**IV**~~ **II** to ~~**this**~~ **Annex I (Part-ML.UAS)** ~~**(EASA Form 15c)**~~, the competent authority shall conduct an airworthiness review in accordance with point ML.UAS.903 of Annex I (Part-ML**.UAS**) to Delegated Regulation (EU) …/….."

Rationale – Justification

There is no Appendix IV to Part-AR.UAS.
This NPA introduces a new ARC Form 15d for UA[S] that comply with Part-ML.UAS in Appendix II of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…..
Note: proposed amendment aligned with point AR.UAS.CAW.902(e).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *787* comment by: *AIRBUS*

Page 148 - point AR.UAS.CAW.902(d)

Comments

"(d) During the performance of the airworthiness review, the competent authority shall have access to the applicable data as specified in points ML.UAS.305 and ML.UAS.401 of Annex I (Part-ML) to Delegated Regulation (EU) …/…."

Suggestions

It is proposed to amend this point to read:
"(d) During the performance of the airworthiness review, the competent authority shall have access to the applicable data **such** as **those** specified in points ML.UAS.305 and ML.UAS.401 of Annex I (Part-ML**.UAS**) to Delegated Regulation (EU) …/…."

Rationale – Justification

The data necessary to perform an airworthiness review are not limited to those specified in points ML.UAS.305 and ML.UAS.401 of Annex I (Part-ML.UAS): e.g. the aircraft flight manual and the approved UAS maintenance programme are needed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART CAW - AIRWORTHINESS OF UA p. 147

comment *780* comment by: *AIRBUS*

Pages 147 - Subpart CAW "SUBPART CAW — AIRWORTHINESS OF UA"

Suggestions

It is proposed to amend the title of this subpart to read:
"SUBPART CAW — AIRWORTHINESS OF UA**S**"

Rationale – Justification

For the sake of consistency with previous comments and other points of this subpart e.g. AR.UAS.CAW.303(a):
"(a) The competent authority shall develop a survey programme following a risk-based approach to monitor the airworthiness status of the UA fleet on its register, and of their command units (CUs)."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.CAW.005 Scope p. 147

comment *781* comment by: *AIRBUS*

Page 147 - point AR.UAS.CAW.005

Comments

"This Subpart establishes the requirements to be fulfilled by the competent authority when performing its tasks and discharging its responsibilities with regard to the oversight of the continuing airworthiness of the UA subject to Delegated Regulation (EU) …/…, and the issue of airworthiness review certificates (ARCs)."

Suggestions

It is proposed to amend this point to read:
"This Subpart establishes the requirements to be fulfilled by the competent authority when performing its tasks and discharging its responsibilities with regard to the oversight of the continuing airworthiness of the UA**S** subject to Delegated Regulation (EU) …/…, and the issue of airworthiness review certificates (ARCs)."

Rationale – Justification

Point AR.UAS.GEN.010 provides that the "[...] authority shall [...] be responsible for the oversight of the continuing airworthiness of the CU to the extent that it applies to the UA registered in that Member State".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.CAW.302 UAS maintenance programme p. 147

comment *782* comment by: *AIRBUS*

Page 147 - point AR.UAS.CAW.302

Comments

"In case the person that performs the review of the UAS maintenance programme informs the competent authority, in accordance with point ML.UAS.302(e) of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…, that he or she does not agree with the amendments to the UAS maintenance programme, the competent authority shall decide which amendments to the UAS maintenance programme are necessary, and shall raise the corresponding findings defined in point AR.UAS.GEN.351 and, if necessary, act in accordance with point AR.UAS.GEN.355."

Suggestions

It is proposed to amend this point to read:
"In case the person that performs the review of the UAS maintenance programme informs the competent authority, in accordance with point ML.UAS.302(e) of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…, that he or she does not agree with the amendments to the UAS maintenance programme, the competent authority shall decide which amendments to the UAS maintenance programme are necessary, and shall raise the corresponding findings defined in point ~~**AR.UAS.GEN.351**~~ **AR.UAS.CAW.907** and, if necessary, act in accordance with point AR.UAS.GEN.355."

Rationale – Justification

For the sake of consistency with a previous comment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

AR.UAS.CAW.303 UA continuing airworthiness monitoring p. 147

comment *783* comment by: *AIRBUS*

Page 147 - AR.UAS.CAW.303 UA continuing airworthiness monitoring

Suggestions

It is proposed to amend the title of this point to read:
"AR.UAS.CAW.303 UA**S** continuing airworthiness monitoring"

Rationale – Justification

For the sake of consistency with previous comments and other points of this Annex; e.g. AR.UAS.GEN.010(a) and AR.UAS.CAW.303(a), referring to the oversight of the continuing airworthiness of the CU.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *784* comment by: *AIRBUS*

Page 147 - point AR.UAS.CAW.303(d)

Comments

"(d) Any findings identified shall be categorised in accordance with point AR.UAS.GEN.351 and confirmed in writing to the person or organisation that is responsible in accordance with point ML.UAS.201 of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…."

Suggestions

It is proposed to amend this point to read:
"(d) Any findings identified shall be categorised in accordance with point ~~**AR.UAS.GEN.351**~~ **AR.UAS.CAW.907** and confirmed in writing to the person or organisation that is responsible in accordance with point ML.UAS.201 of Annex I (Part-ML.UAS) to Delegated Regulation (EU) …/…."

Rationale – Justification

For the sake of consistency with a previous comment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *785* comment by: *AIRBUS*

Page 147 - point AR.UAS.CAW.303(f)

Comments

"(f) If during aircraft monitoring evidence is found that shows non-compliance with this or other Annexes, the finding shall be dealt with as provided for by the relevant Annex."

Suggestions

It is proposed to amend this point to read:
"(f) If during ~~**aircraft**~~ **UAS** monitoring evidence is found that shows non-compliance with this or other Annexes, the finding shall be dealt with as provided for by the relevant Annex."

Rationale – Justification

For the sake of consistency with a previous comment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

APPENDICES TO ANNEX I (Part-AR.UAS) p. 149

comment *788* comment by: *AIRBUS*

Page 149 - Appendix I to Annex I (Part-AR.UAS)

Comments

"(b) An aircraft rating, in relation to maintenance privileges, means that the Part-CAO.UAS organisation may carry out maintenance on the aircraft and any component (including engines) in accordance with aircraft maintenance data or, if agreed by the competent authority, in accordance with component maintenance data, only while such components are fitted to the aircraft. Nevertheless, such aircraft-rated organisation may temporarily remove a component for maintenance in order to improve access to that component except when its removal generates the need for additional maintenance that the organisation is not approved to perform. This will be subject to a control procedure in the organisation manual to be approved by the competent authority."

Suggestions

It is proposed to amend this point to read:
"(b) A**~~n aircraft~~ UAS** rating, in relation to maintenance privileges, means that the Part-CAO.UAS organisation may carry out maintenance on the **~~aircraft~~ UA** and any component (including engines) in accordance with **~~aircraft~~ UA** maintenance data or, if agreed by the competent authority, in accordance with component maintenance data, only while such components are fitted to the **~~aircraft~~ UA**. Nevertheless, such **~~aircraft~~ UA**-rated organisation may temporarily remove a component for maintenance in order to improve access to that component except when its removal generates the need for additional maintenance that the organisation is not approved to perform. This will be subject to a control procedure in the organisation manual to be approved by the competent authority.
Under the UAS rating, the Part-CAO.UAS organisation may also carry out maintenance on the CU and install CU in accordance with CU maintenance/installation data."
It is recommended that the Agency complements these explanations with some for the privileges of the continuing airworthiness management and the airworthiness review.

Rationale – Justification

Point (b) does not reflect all the (maintenance) privileges specified in the Terms of Approval (page 2 of 2 of the certificate).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *789* comment by: *AIRBUS*

Page 149 - Appendix I to Annex I (Part-AR.UAS)

Comments

"(d) A component rating (other than complete engines) means that the Part-CAO.UAS organisation may carry out maintenance on uninstalled components (excluding complete engines) intended for fitment to the UA, engine or CU. That organisation may also carry out maintenance on an installed component (other than complete engines) during UA maintenance or at an engine maintenance facility subject to a control procedure in the organisation manual to be approved by the competent authority."

Suggestions

It is proposed to amend this point to read:
"(d) A component rating (other than complete engines) means that the Part-CAO.UAS organisation may carry out maintenance on uninstalled components (excluding complete engines) intended for fitment to the UA, engine**, propeller or other component,** or CU. That organisation may also carry out maintenance on an installed component (other than complete engines) during UA maintenance or at an engine**, propeller or other component, or CU** maintenance facility subject to a control procedure in the organisation manual to be approved by the competent authority."
It would appear that the matter of propellers is not addressed with consistency throughout the continuing airworthiness requirements. It is recommended to the Agency to review the situation.

Rationale – Justification

It is acknowledged that propellers are components (C16). However, point ML.UAS.903(1) takes explicitly into account propellers: "[...] the airframe, the engine and the propeller flying hours and [...]". But, for example point (d) of Appendix I to Annex I (Part-AR.UAS) does not. Readers may expect consistency.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *790* comment by: *AIRBUS*

Page 149 - Appendix I to Annex I (Part-AR.UAS)

Comments

"(e) A non-destructive testing (NDT) rating is a self-contained rating not necessarily related to a specific UA, engine, or other component. The NDT rating is only necessary for a Part-CAO.UAS organisation that carries out NDT as a particular task for another organisation. A Part-CAO.UAS organisation approved with an aircraft, engine or component rating may carry out NDT on products it maintains subject to the organisation manual containing NDT procedures, without the need for an NDT rating."

Suggestions

It is proposed to amend this point to read:
"(e) A non-destructive testing (NDT) rating is a self-contained rating not necessarily related to a specific UA, engine, or other component. The NDT rating is only necessary for a Part-CAO.UAS organisation that carries out NDT as a particular task for another organisation. A Part-CAO.UAS organisation approved with a~~n aircraft~~ **UAS**, engine or component rating may carry out NDT on products **and components** it maintains subject to the organisation manual containing NDT procedures, without the need for an NDT rating."

Rationale – Justification

The term 'product' is defined. It does not cover all 'components'.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *791* comment by: *AIRBUS*

Page 151 - Appendix I to Annex I (Part-AR.UAS), Terms of Approval

Comments

"These terms of approval are limited to the products, parts and appliances, and to th
e activities specified in the 'Scope of work' section of the organisation manual,"

Suggestions

This point and point AR.UAS.GEN.135(b) refer to 'appliances' while point AR.UAS.GEN.135A(b) refers to 'non-installed equipment'. The Agency should harmonise the usage of terms.

Rationale – Justification

For the sake of harmonisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix I - Part-CAO.UAS certificate - EASA Form 3-CAO.UAS p. 149

comment *1108* comment by: *EUROCONTROL*

Could the underlined text be clarified?

"A "non-destructive testing" rating is a self-contained rating not necessarily related to a specific UA, engine, or other component…….**A Part-CAO.UAS organisation approved with an aircraft**, engine or component rating may carry out NDT on products it maintains subject to the organisation manual containing NDT procedures, without the need for an NDT rating.

Suggestion: Add UA to "A part-CAO.UAS organisation approved with an UA

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1109* comment by: *EUROCONTROL*

A "non-destructive testing" rating is a self-contained rating not necessarily related to a specific UA, engine, or other component…….A Part-CAO.UAS organisation approved with an aircraft, engine or component rating may carry out NDT on products it maintains subject to the organisation manual containing NDT procedures, **without the need for an NDT rating.**

"without the need for an NDT rating" could be very risky. This testing is very useful to prevent the need to replace an item before a malfuntion takes place.
The part "may carry out NDT on products it maintains subject to the organisation manual containing NDT procedures" should be elaborated further.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1197* comment by: *AESA*

How would UAS ratings be determined on page 2 of the certificate?

pg 151

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 2 - Definitions p. 152

comment *22* comment by: *Paul Travers*

acc. the actual applicable regulation artice 3 is "definitions" and not article 2 as per this amendment. This NPA does not propose the removal of the actual article 2 - scope and so article 2 in this amendment should be changed to article 3.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *58* comment by: *Wingcopter GmbH*

See previous comment on page 48/49 about the definition of items that support C2 link and are an integral part of the CU.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *222* comment by: *ENAIRE*

Original text: Article 2 — Definitions.
Proposed amended text: Article 3 — Definitions
Comment: Definitions can be found in article 3 of the regulation.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *240* comment by: *Civil Aviation Authority the Netherlands*

Article 2 - Definitions
Proposed change:
Article 3 - Definitions

Currently in Delegated Regulation (EU) 2019/945 the definitions are in Article 3

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *242* comment by: *Civil Aviation Authority the Netherlands*

Article 2 - Definitions
(38) 'command unit' ('CU') means ... which ~~ensures the control~~ or the monitoring of the unmanned aircraft during any phase of flight;
Proposed change in strikethrough (sentence above) and bold:
(38) command unit' ('CU') means ... which **function is to ensure the safe controlling** or the monitoring of the unmanned aircraft during any phase of flight

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *243* comment by: *Civil Aviation Authority the Netherlands*

Article 2 - Definitions
(39) 'C2 link service' means ... the data link between the unmanned aircraft and the CU ~~for the purpose of managing the flight~~;
Proposed change in strikethrough (sentence above) and bold:
(39) 'C2 link service' means ... the data link between the unmanned aircraft and the CU **to control or monitor the unmanned aircraft**;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *569* comment by: *AIRBUS*

Article 2 - Definitions Page 152

Comments

"the command unit does not include any ground-, air- or space-based equipment or items of equipment that supports the command and control (C2) link service;" it shall be also extended to navigation related services as GNSS satellite constellations or ground based GBAS. (See definition within chapter 2.3.1.4.1)

Suggestions

To modify the definition (38) in accordance with the comment.

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *624* comment by: *ASD*

Comment:
(d) it is intended to be used in the 'specific' category of operations defined in Article 5 of Implementing Regulation (EU) 2019/947 and the competent authority, when evaluating in accordance with Article 12(1) of Implementing Regulation (EU) 2019/947, the in the operational authorisation to be issued by the competent authority, following a risk assessment conducted in accordance with Article 11 of Implementing Regulation (EU) 2019/947 provided for in Article 11 of Implementing Regulation (EU) 2019/947, considers that the risk of the operation cannot be adequately mitigated without the certification of the UAS, unless the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers.

Suggested resolution:

We fully support the addition of the mention "unless the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers."
However the exclusion for this kind of UAS should apply to all the content of Article 40 and not at paragraph (d) level so that the effect would be equivalent to the one of Basic Regulation 2018/1139 with Annex I (former "Annex II" aircraft) for manned aviation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1001* comment by: *AESA*

Comment:

Definitions of the Commission Delegated Regulation (EU) 2019/945 are found in article 3 and not in article 2.

Suggested resolution:
Replace the reference of article 2 for article 3

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1014* comment by: *AESA*

Suggested resolution:

Include definition of **airframe.**

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1110* comment by: *General Aviation Manufacturers Association (GAMA)*

With respect to definition (38), please see comment #1041 to Art. 1.2 (l), Reg. (EU) No 748/2012.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 40 - Requirements for UAS operated in the 'certified' and 'specific' categories except when conducted under a declaration p. 152

comment *223* comment by: *ENAIRE*

Original text: […] unless the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers.
Comment: What is considered "to be produced in very limited numbers"? Is there a quantitative limit to this number?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *427* comment by: *DGAC FR (Mireille Chabroux)*

Point (d) of article 40 states that even if the risk of the operation cannot be adequately mitigated without the certification of the UAS, certification is not required if the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers.
DGAC France understands the Agency intention with that last sentence. However, this type of exemption is handled using Annex I to (EU) 2018/1139 for manned aircraft, and there is no equivalent to Annex I for unmanned aircraft. Then, DGAC France is wondering:
- How will the Agency handle these cases (Design and Verification Review, etc.)?
- What would be the criteria to determine if certification is required or not (the industry could easily argue that the UA will be used for scientific purposes and produced in a limited number to avoid certification).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *821* comment by: *UAV DACH e.V.*

Reference: 1. (d) it is intended to be used in the 'specific' category of operations defined in Article 5 ...

Comment: Further clarification of "very limited numbers" and "experimental" is needed at AMC & GM level.

Proposal: Please clarify at AMC&GM level.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1010* comment by: *AESA*

Comment:

The proposed modification of article 40 (1)(a) of the Commission Delegated Regulation (EU) 2019/945 indicates that the UAS shall be certified if it has a characteristic dimension of 3 m or more, and is designed to be "operated over assemblies of people unless the aircraft is lighter than air". And the article 6(b)(i) of the Commission Implementing Regulation (EU) 2019/947 stablish that operations shall be classified in the certified category when the operation is conducted "over assemblies of people". Does this mean that a UA lighter than air designed to be operated over assemblies of people is classified in the specific category or on the contrary, is it classified in the certified category without being subject to the certification of the design, production and maintenance thereof?

Suggested resolution:
It is necessary to clarify this aspect and improve the link between both articles.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1012* comment by: *AESA*

Comment:

A similar exemption proposed in the modification of the article 40(1)(d) of the Commission Delegated Regulation (EU) 2019/945 related to the certification of the UAS when it is "specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers", should be included in the the article 11 of the Commission Implementing Regulation (EU) 2019/947 f for those operation classified in the specific category with medium level of risk (SAIL III or SAIL IV) designed for the same purposes that require a Design Verification Report (DVR).

Suggested resolution:

Modify the AMC1 Article 11 Rules for conducting an operational risk assessment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1106* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the following paragraph:

(d) [...] considers that the risk of the operation cannot be adequately mitigated without the certification of the UAS, unless the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers.

Further clarification of "very limited numbers" and "experimental" is needed at AMC/GM level.

PROPOSED ACTION/RESOLUTION

EASA to please clarify at AMC/GM level.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1163* comment by: *Latvian Civil Aviation Agency*

The paragraph 1 of Article 40 states that "*The design, production and maintenance of UAS shall be certified if the UAS meets any of the following conditions*". In addition, current wording of paragraph 1(d) of Article 40 states that the certification process of UAS could be triggered when "*it is intended to be used in the 'specific' category of operations defined in Article 5 of Implementing Regulation (EU) 2019/947 and [..] the risk of the operation cannot be adequately mitigated without the* certification of the UAS".

Article 40 is applicable both to "Certified" and "Specific" category (from 'low' up to 'medium' and 'high' risk operations) including wide range of intermediate operation. As such current formulation infers that there is no intermediate step between non-certified UAS and certified (TC/RTC) UAS. However, the current approach of the EASA is to get partial certification on a case-by-case basis (e.g. only for a parachute system as a mitigation mean linked with the design).

Latvian CAA would like to highlight the following unclarities:

- Is the certification process applicable to full design of the UAS only or partial certification to mitigation means linked with the design is possible?
- In the affirmative to the first question, how is foreseen the certification of the production and maintenance of those partial certification projects?

In addition, EASA has introduced a Design verification process resulting in Design verification report (DVR). However, there is no explicitly legal reference neither in Article 40 nor Regulation (EU) 748/2012 (Part 21) leading in a confusion to understand, if it is a part of a certification or different process. Latvian CAA would highly appreciate clarification and suggest complement Article 40 to separately address the case of a partial UAS certification (or any other design verification process).

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1164* comment by: *Civil Aviation Authority of the Republic of Poland*

EASA has put in place a design verification process that produces a Design Verification Report (DVR). However, neither in Art. 40, nor in Regulation (EU) 748/2012 (Part-21), there is no explicit legal reference for partial certification. Article 40 applies to both the "Certified" and "Specific" categories (LOW/MEDIUM/HIGH risk), including a wide range of operations within this boundaries. Therefore, the current wording suggests that there is no intermediate step between a uncertified UAS and a certified (withj TC / RTC) unmanned aircraft systems. However, the current EASA approach is to obtain partial certification on a case-by-case basis (e.g. only for the parachute system as a mitigation measure related to the project). It is recommended that when changing the technical requirements for UAS, they should be proportional to the risk of the operation and that the need for certification should be weighed against the costs and target safety.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1257* comment by: *Direction de l'Aviation Civile*

- The paragraph 1 of Article 40 states that "The design, production and maintenance of UAS shall be certified if the UAS meets any of the following conditions". In addition, current wording of paragraph 1(d) of Article 40 states that the certification process of UAS could be triggered when "it is intended to be used in the 'specific' category of operations defined in Article 5 of Implementing Regulation (EU) 2019/947 and [..] the risk of the operation cannot be adequately mitigated without the certification of the UAS".

Article 40 is applicable both to "Certified" and "Specific" category (from 'low' up to 'medium' and 'high' risk operations) including wide range of intermediate operation 'Specific' cases. As such current formulation infers that there is no intermediate step between non-certified UAS and certified (TC/RTC) UAS. However, the current approach promoted by EASA is to get partial certification on a case-by-case basis (e.g. only for a parachute system as a mitigation mean linked to the design).

DAC Luxembourg would then like to highlight the following unclarities:

- Is the certification process applicable to full design of the UAS only or is the partial certification of mitigation means linked with the design possible?
- If a partial certification is possible to the first question, how is foreseen the certification of the production and maintenance of those partial certification projects?

EASA has introduced a Design verification process resulting in Design verification report (DVR) mid 2021. However, there is no explicitly legal reference neither in Article 40 nor Regulation (EU) 748/2012 (Part 21) leading in potential confusion. DAC Luxembourg would highly appreciate clarification and suggest complement Article 40 to separately address the case of a partial UAS certification (or any other "design verification process"). The requirement to

	address the considerable amount of potential partial certification projects – with the associated administrative burdens and costs –is urgently required;
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.4. Proposed amendments to Commission Delegated Regulation (EU) 2019/945 p. 152

comment	*347* comment by: *ASD* Art 2 item (38) and item (39) Article 2 of Commission Delegated Regulation 2019/945, amended by Commission Delegated Regulation (EU) 2020/1058 of 27 April 2020 is titled 'Scope'. It seems that this amendment bears on Article 3; not Article 2.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*364* comment by: *Thurling Aero Consulting* This comment is in regard to the text in Article 2 (38) "'command unit' ('CU') means the equipment or items of equipment to control unmanned aircraft remotely as defined Article 3(32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during any phase of flight; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;" For most Remotely Piloted Aircraft, there is little argument that terms such as "Command Unit" are appropriate. However, as we begin to see advanced Uncrewed Aircraft (UA) and airspace management autonomy allowing more than one vehicle to be managed by a single remote pilot, terms such as these become outdated. Terms such as "Ground Station" are preferable to "Command Unit" as is "manage" over "control" since the latter terms ("command" and "control") imply an active pilot-in-the-loop concept of operations. This may be true now, but we are rapidly approaching (and have already seen in small UAS) the time when the 1:1 relationship of pilot to vehicle is surpassed. Groups in Europe (Eurocontrol ECHO) and the US (NASA/FAA ETM Research Transition Team) are currently developing new Concepts of Operation for High Altitude Operations in "upper Class E" airspace. These concepts assume Upper E operations may start out as being a predominantly air traffic controlled environment (ATCE), however as demand increases, they will evolve to a predominantly cooperative control environment (CCE) where Operators

deconflict from one another using industry defined/ANSP approved Cooperative Operating Practices.

Likewise, Regulators in both Europe and the US have been working on initial concepts for Advanced Air Mobility which would include the use of corridors (FAA AAM CONOPs V1.0) and U-space (EASA). It is likely that these CONOPs also include Operators cooperatively managing traffic in CCEs.

In CCEs Autonomous Fleet management begins to look more like airline air operations centers (AOC), where a small team manages the flights of a large number of highly automated aircraft. AOCs are certified in operational approvals, not as part of individual aircraft Type Certificates. In order to "future proof" the rule, it would seem reasonable to remove the ground station used in a CCE from the type certificate just as an AOC is not part of an aircraft type certificate. Indeed, this NPA seems to have already taken the first step in that direction by removing aspects of command and control form the Type Certificate. The FAA has gone one step further and removed all ground station capabilities from the Type Certificate basis of small UA undergoing the Durability and Reliability approach to Type Certification. Ground stations, C2 and other support capabilities are considered "Associated Elements". While perhaps not appropriate for truly remotely piloted aircraft and some other UAS concepts, this does make a lot of sense for the management of aircraft in CCEs.

A simple way to address the above and to "future proof' the rule is to alter the proposed text in this section to, "'command unit' ('CU') means the equipment or items of equipment to control unmanned aircraft remotely as defined Article 3(32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during phases of flight in air traffic controlled environments; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;"

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

809 comment by: *German Unmanned Aviation Association (VUL)*

<u>Relevant NPA content / context (Article 40 - Requirements for UAS operated in the 'certified' and 'specific' categories except when conducted under a declaration, Page 152)</u>
"1. (d) it is intended to be used in the 'specific' category of operations defined in Article 5 ofImplementing Regulation (EU) 2019/947 and the competent authority, when evaluating in accordance with Article 12(1) of Implementing Regulation (EU) 2019/947, the in the operational authorisation to be issued by the competent authority, following a risk assessment conducted in accordance with Article 11 of Implementing Regulation (EU) 2019/947 provided for in Article 11 of Implementing Regulation (EU) 2019/947, **considers that the risk of the operation cannot be adequately mitigated without the certification of the UAS, unless the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be produced in very limited numbers."**

Comment
Further clarification of “very limited numbers” and “experimental” is needed at AMC & GM level.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *864* comment by: *FOCA (Switzerland)*

Article 40 (1.) (d) "[...] the competent authority [...] considers that the risk of the operation cannot be adequately mitigated without the certification of the UAS, unless the UAS is specifically designed or modified for research, experimental or scientific purposes, and is likely to be proceduced in very limited numbers.": FOCA would like to point out that by mentioning "experimental", it could be understood that flight testing performed by UAS manufacturers falls within this category. Hence, by clearly identifying such UAS as "experimental", they would possibly be exempted from airworthiness certification.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

Article 2 - Definitions p. 154

comment *59* comment by: *Wingcopter GmbH*

See previous comment on page 48/49 about the definition of items that support C2 link and are an integral part of the CU.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *244* comment by: *Civil Aviation Authority the Netherlands*

Article 2 - Definitions
(26) ‘command unit’ (‘CU’) means ... which ~~ensures the control~~ or the monitoring of the unmanned aircraft during any phase of flight;
Proposed change in strikethrough (sentence above) and bold:
(26) command unit’ (‘CU’) means ... which **function is to ensure the safe controlling** or the monitoring of the unmanned aircraft during any phase of flight

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *245* comment by: *Civil Aviation Authority the Netherlands*

Article 2 - Definitions
(27) 'C2 link service' means ... the data link between the unmanned aircraft and the CU ~~for the purpose of managing the flight~~;
Proposed change in strikethrough (sentence above) and bold:
(27) 'C2 link service' means ... the data link between the unmanned aircraft and the CU **to control or monitor the unmanned aircraft**;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1111* comment by: *General Aviation Manufacturers Association (GAMA)*

With respect to definition (26), please see comment #1041 to Art. 1.2 (l), Reg. (EU) No 748/2012.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.5. Proposed amendments to Commission Implementing Regulation (EU) 2019/947 p. 154

comment *246* comment by: *Civil Aviation Authority the Netherlands*

The amendment to Commission Implementing Regulation (EU) 2019/947 should include a requirement for operators operating certified UAS in the 'specific' category to implement any safety measures or mandatory safety information (including airworthiness directives) mandated or issues by the competent authority or the Agency

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *365* comment by: *Thurling Aero Consulting*

This comment is in regard to the text in Article 2 (26) "'command unit' ('CU') means the equipment or items of equipment to control unmanned aircraft remotely as defined Article 3(32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during any phase of flight; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;"

For most Remotely Piloted Aircraft, there is little argument that terms such as "Command Unit" are appropriate. However, as we begin to see advanced Uncrewed Aircraft (UA) and airspace management autonomy allowing more than one vehicle to be managed by a single remote pilot, terms such as these become outdated. Terms such as "Ground Station" are preferable to "Command Unit" as is "manage" over "control" since the latter terms ("command" and "control") imply an active pilot-in-the-loop concept of operations. This may be true now, but we are rapidly approaching (and have already seen in small UAS) the time when the 1:1 relationship of pilot to vehicle is surpassed.

Groups in Europe (Eurocontrol ECHO) and the US (NASA/FAA ETM Research Transition Team) are currently developing new Concepts of Operation for High Altitude Operations in "upper Class E" airspace. These concepts assume Upper E operations may start out as being a predominantly air traffic controlled environment (ATCE), however as demand increases, they will evolve to a predominantly cooperative control environment (CCE) where Operators deconflict from one another using industry defined/ANSP approved Cooperative Operating Practices.

Likewise, Regulators in both Europe and the US have been working on initial concepts for Advanced Air Mobility which would include the use of corridors (FAA AAM CONOPs V1.0) and U-space (EASA). It is likely that these CONOPs also include Operators cooperatively managing traffic in CCEs.

In CCEs Autonomous Fleet management begins to look more like airline air operations centers (AOC), where a small team manages the flights of a large number of highly automated aircraft. AOCs are certified in operational approvals, not as part of individual aircraft Type Certificates. In order to "future proof" the rule, it would seem reasonable to remove the ground station used in a CCE from the type certificate just as an AOC is not part of an aircraft type certificate. Indeed, this NPA seems to have already taken the first step in that direction by removing aspects of command and control form the Type Certificate. The FAA has gone one step further and removed all ground station capabilities from the Type Certificate basis of small UA undergoing the Durability and Reliability approach to Type Certification. Ground stations, C2 and other support capabilities are considered "Associated Elements". While perhaps not appropriate for truly remotely piloted aircraft and some other UAS concepts, this does make a lot of sense for the management of aircraft in CCEs.

A simple way to address the above and to "future proof' the rule is to alter the proposed text in this section to, "'command unit' ('CU') means the equipment or items of equipment to control unmanned aircraft remotely as defined Article 3(32) of Regulation (EU) 2018/1139 which ensures the control or the monitoring of the unmanned aircraft during phases of flight in air traffic controlled environments; the command unit does not include any ground-, air- or space-based equipment or items of equipment that support(s) the command and control (C2) link service;"

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 7 - Rules and procedures for the operation of UAS p. 154

comment *426* comment by: *DGAC FR (Mireille Chabroux)*

Point (2)(ii) of article 7 mandates the issuance of a noise certificate for any UAS that meets the conditions specified in point 1(d) of Article 40 of Delegated Regulation (EU) 2019/945. However, for those exact same UAS, point (b)(i) of article 12 states that the UAS must have a valid noise certificate "if applicable" only. Is a noise certificate systematically required for UAS that meets the conditions specified in point 1(d) of Article 40 of Delegated Regulation (EU) 2019/945?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 19 - Safety information p. 155

comment *1056* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Art. 19.3 Reg. (EU) 2019/947, (c) 3., page 155
A new type of reporting. Sufficient confidentiality requirements should be assured.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1338* comment by: *Gregory Walden*

'3. Without prejudice to Regulation (EU) No 376/2014, the UAS operator of an unmanned aircraft whose design is certified shall report to the design approval holder of the UAS or of the component any safety-related event or condition of the UAS or the component identified by the organisation. In particular, the UAS operator shall report any accident or serious incident involving the UAS or the component, which endangers or, if not corrected or addressed, could endanger the UAS or any person".'

Clarification is requested on 'the component' used in Article 19(3). It is not clear, for instance, whether it refers to any component of the UAS, whether the CU is considered a UAS component, and whether the CU components are also considered UAS components.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 2 Definitions p. 157

comment *23* comment by: *DGAC FR (Mireille Chabroux)*

DGAC FR wonders whether it is still useful to keep numbers in front of the definition. It becomes complicated with multiple letters (1aa for example) and the defintion are not in the alphabetical order. Removing the numbers would make it easier to add new defintions (or renumberung using multiple of 5 to keep space for future addition of définition).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *25* comment by: *DGAC FR (Mireille Chabroux)*

definition (12): this definition could be simplify.
Proposal
'innovative air mobility (IAM) operations means any operation with VTOL-capable aircraft ~~commercial and non-commercial operation with VTOL-capable aircraft in congested (urban) and non-congested areas;~~

definition (13) 'VTOL-Capable aircraft' could be moved after the definitions of rotorcraft and helicopter and thus renumbered (1aaa)
Proposal : move definition (13)

defintion 115(b) : the sentence "at such other height above the take-off elevation that allows the aircraft to clear all obstacles" does not set a limit (see file attached). It should be either defined in terms of distance from departure (ex: 2 NM) or in terms of the altitude should be adapted (500 ft)

Proposal
take-off flight path' means:
(a) the vertical and horizontal path, with the critical engine inoperative, from a specified point in the take-off for aeroplanes to 1 500 ft above the surface and for helicopters to 1 000 ft above the surface;
(b) in the case of VTOL-capable aircraft, the vertical and horizontal path that extends from the take-off point to a point at which the aircraft is at ~~305~~ 150m (~~1 000~~ 500ft) above the take-off elevation (or to 2NM from the departure) ~~at such other height above the take-off elevation that allows the aircraft to clear all obstacles;~~

definition (131) 'ground movement' : it is suggested to remove "VTOL capable aircraft" to make a more general defintion :

Proposal
"means the movement of ~~the VTOL-capable~~ an aircraft on the movement area of an aerodrome by an external equipment or accessory that is not powered by the aircraft;"

definition (145) 'VTOL take-off safety speed (VTOSS)': it is suggested to add "certified" for clarification.
Proposal
means the minimum speed at which climb shall be achieved with a CFP recognised at the TDP in the case of VTOL-capable aircraft certified in the category Enhanced;

definition (147) 'urban air mobility (UAM)': it should be made clear when a flight "outside a congested area" has to be considered as UAM.
Proposal
means a subset of IAM operations ~~into, within~~ where at least one segment of the flight is conducted in a ~~outside~~ congested (urban) areas.

Moreover a defintion of NAM should be added (definition 148)
Proposal
(148) NAM 'non urban air mobility': a subset of IAM operations that are not UAM operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *255* comment by: *Civil Aviation Authority the Netherlands*

Para 3.6.1, Page 157, Article 2:
Needs integration with NPA 2021-12.
Definition of IAM here does not match with the definition on page 19 of this NPA.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *337* comment by: *ASD*

Comment:
Definition (1a) & (1aa)
The change of the definition of rotorcraft to limit them to lift generated (not necessarily on vertical axes) to up to two rotors has consequences on the classification on aircraft concept like the Racer which would otherwise be classified in the rotorcraft category as per the previous definition. Also such aircraft concpet would be meeting the conditions of the definition of VTOL-capable aircraft and consequently would require the compliance with Annex IX new provisions

Suggested resolution:

	To keep the existing definition of rotorcraft
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*586* comment by: *AIRBUS* **Article 2 definition (1a) & (1aa) Page 157** **<u>Comments</u>** The change of the definition of rotorcraft to limit them to lift generated (not necessarily on vertical axes) to up to two rotors has consequences on the classification on aircraft concept like the Racer which would otherwise be classified in the rotorcraft category as per the previous definition. Also such aircraft concept would be meeting the conditions of the definition of VTOL-capable aircraft and consequently would require the compliance with Annex IX new provisions. **<u>Suggestions</u>** To keep the existing definition of rotorcraft as defined in CS-definitions. This comment is substantive or is an objection.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1113* comment by: *General Aviation Manufacturers Association (GAMA)* **RATIONALE / REASON / JUSTIFICATION** Art.2 - Definition (1a) & (1aa) The change of the definition of rotorcraft to limit them to lift generated (not necessarily on vertical axes) to up to two rotors has consequences on the classification on aircraft concept like the Racer which would otherwise be classified in the rotorcraft category as per the previous definition. Also such aircraft concept would be meeting the conditions of the definition of VTOL-capable aircraft and consequently would require the compliance with Annex IX new provisions. **PROPOSED ACTION/RESOLUTION** EASA to keep the existing definition of rotorcraft as defined in CS-definitions
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1114* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

(31) 'critical phases of flight'

The part of the taxi which is on ground for repositioning the aircraft, using carriage system or equivalent should not be considered as a critical phase of the flight, as the risk to inadvertently take-off is not present.

In order to ensure proper interpretation of the definition 'critical phases of flight', and provide the right context with respect to the concept of 'taxiing', the definition in Art. 2 (125) Reg. (EU) 923/2012 should be reproduced in Reg. 965/2012. This proposal would allow to interpret 'taxiing' only when the aircraft is moving under its own power, which is a characteristic that is not assumed in the definition of 'critical phases of flight'.

PROPOSED ACTION/RESOLUTION

Consider reproducing the definition of Art. 2 (125) in Reg. 923/2012 to Annex I - Definitions for terms used in Annexes II to IX to Reg. 965/2012:

'taxiing' means movement of an aircraft on the surface of an aerodrome or an operating site under its own power, excluding take-off and landing;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1116* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to (50a) 'flight time':

(c) for VTOL-capable aircraft, the total time between the moment the lift or thrust units are powered for the purpose of taking off until the moment the aircraft finally comes to rest at the end of the flights and the lift or thrust units are stopped;

The term "stopped" does not seem to capture the essence of the intended operation and could lead to ambiguous interpretation.

Also, the definition of flight time is also contained in FCL.010 of Annex I to Reg. (EU) No 1178/2011 (Part FCL) and should be updated according to this proposed definition in Annex I to Reg. 965/2012 (Air Ops definitions).

PROPOSED ACTION/RESOLUTION

EASA to consider amending the definition as follows (in line with IAM.GEN.VCA.130) :

(c)for VTOL-capable aircraft, the total time between the moment the lift or thrust units are powered for the purpose of taking off until the moment the aircraft finally comes to rest at the end of the flight and the lift or thrust units are ~~stopped~~ ***powered off.***

Also, consider adding GM explaining that these conditions are cumulative and "comes to rest" means that the aircraft should be 'parked' and e.g, towing has ended.

Finally, add the same definition in FCL.010 (Annex I to Reg. (EU) No 1178/2011 - Part FCL)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1118* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to this definition:

(132) 'ground personnel' means personnel other than flight crew members that are assigned tasks for the ground movement of the VTOL-capable aircraft and have been trained in the relevant operational and safety procedures;

The definition of 'ground personnel' should not be limited to ground movement of aircraft only.

PROPOSED ACTION/RESOLUTION

Keep the definition flexible to allow for more tasks of the personnel. Add '***or any other ground assistance for VTOLs'*** or a similar verbiage to the definition.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1120* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the following definition:

(136) 'continued safe flight and landing (CSFL)' means, in relation to a VTOL-capable aircraft certified in the category Enhanced, that the aircraft is capable of continued controlled flight and landing at a vertiport, possibly using emergency procedures, without requiring exceptional piloting skills or strength;

Term "Vertiport" should be changed to "aerodrome", as airports and heliports should be captured in the definition as well. In addition, the definition captured in SC VTOL should be amended accordingly.
PROPOSED ACTION/RESOLUTION
EASA to consider amending the text as follows:

*'continued safe flight and landing (CSFL)' means, [..] continued controlled flight and landing at an **aerodrome** [...].*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1121* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Delete vertiport, as aerodromes include vertiports. Instead add operating site as option where the aircraft, flight crew and VEMS crew members can be on standby.

PROPOSED ACTION/RESOLUTION
EASA to consider amending the definition as follows:

*(142) 'VEMS operating base' means an aerodrome/~~vertiport~~ **operating site** at which the VTOL-capable aircraft, its flight crew and VEMS crew members are on standby for VEMS operations;*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1122* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The definition (147) 'Urban Air Mobility' as proposed seems to not align with UAM.OP.VCA.050

PROPOSED ACTION/RESOLUTION

EASA to amend as proposed:

*(147) 'Urban Air Mobility (UAM)' means a subset of IAM operations, **where at least one segment of the flight takes place in a congested area.***

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.6.1. Draft cover regulation p. 157

comment *391* comment by: *DGAC FR (Mireille Chabroux)*

The definition of "rotorcraft" is not the same as in NPA 2021-15.
It should be ensured that the definition of "rotorcraft" is consistent from one Regulation to another.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *596* comment by: *DGAC FR (Mireille Chabroux)*

Comments on the form:

DGAC-FR would recommend that no changes are to be made to the text that is already in CAT even if it slightly improves the wording (ex: he or she instead of "they" see comment 52). It seems important to keep a harmonized wording to facilitate the work of the inspectors so that they do not wonder about the reasons of different wording when they are in charge of the oversight of operators with different category of aircraft.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.6. Proposed amendments to Commission Regulation (EU) No 965/2012 p. 157

comment *946* comment by: *Civil Aviation Authority the Netherlands*

Is it realized that a manned VTOL operator also needs an operating license based on 1008/2008?
There is no amendment in the NPA;
This mainly has an impact on WHO/Which kind of operators are allowed to operate. E.g. A Chinese investor may not.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *947* comment by: *Civil Aviation Authority the Netherlands*

What kind of oranisations/companies would apply for an AOC? It is difficult to build the organization from scratch (not the pilots).
Question:
The scenario that VEMS will probably mainly be performed by the current HEMS operators seems to be the most obvious/logical start; they already have an AOC.
E.G. An AOC for a non-AOC holder who has no aviation affinity. It will be a great challenge for this kind of operator to obtain an AOC.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1040* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Art. 7 Reg. (EU) No 965/2012, c. 2, page 36, c. 3 page 157
The definition of IAM is not clear. Since an AOC is required according to the proposal the meaning of IAM should be clear.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1063* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

The applicability of the whole set of new operating rules is not clearly defined: taking the current text literally, it would follow that ORO.GEN and other parts of Reg. 965/2012 would also be applicable to any UAS (which are power driven heavier than air aircraft other than airplane and rotorcraft) also in case they are simple and small, being this a major issue and incompatible with other EU rules (e.g. 2019/947). A more clear definition of the applicability of the set of rules in regard to IAM Operations and VTOL-capable aircraft is needed and then a review of the suitability and appropriateness of each requirement taking into consideration the chosen applicability.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 5 Air operations p. 158

comment *26* comment by: *DGAC FR (Mireille Chabroux)*

DGAC-FR suggests to keep current paragraph 7 as it is currently. Indeed as SPO in VTOL capable aircraft is not dealt with by NPA 2022-06, no confusion is expected. Moreover, when SPO in

VTOL capable aircraft is covered by AIR OPS, there is no reason for not applying paragraph 7 to these aircraft.

Proposal
7. flight taking place immediately before, during or immediately after specialised operations ~~with aeroplane and helicopetrs~~ and directly...."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *218* comment by: *ENAIRE*

The scope of Annex V does not cover all possible PBN operations, only the most complex ones, for which a specific approval is required.

New proposed text (consistent with Appendix II to Annex II (Part-ARO)):

(h) VTOL-capable aircraft used for:
(i) operations using ***complex navigation specifications for PBN operations***

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *256* comment by: *Civil Aviation Authority the Netherlands*

Para 3.6.1, Page 158, Article 5:
Needs integration with NPA 2021-12.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *497* comment by: *JEDA*

Par. 2.3.3.1 of the Explanatory Note clarifies that UAS may transport dangerous goods in the specific category, when they use a properly protected appropriate container. In this case no SPA would be required, because the operation is still in the specific category and therefore the entire 965/2012 would not be applicable. Text of Art. 5 (2)(h)(ii) should be modified

Proposed amendment: the transport of dangerous goods (DGs) unless properly protected inside an appropriate container and authorised in the UAS specific category of operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*828* comment by: *FOCA (Switzerland)* 2. (g) / (h): FOCA proposes to define the different treatment of helicopters and VTOLs in more detail at this point. For example, it is unclear why Non CAT operations are only extended for VTOL (NVIS and VEMS vs HEMS).
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1250* comment by: *European Cockpit Association* Commented text: where VFR operations at night to/from a VEMS operating site are to be conducted, a crew composition of at least one pilot and one NVIS technical crew member would be necessary. If the medical doctor plays the role of a VEMS technical crew member (option studied by ADAC), it will be necessary that the doctor also obtain NVIS-related training. Comment: Very good point! This is essential in order to obtain the same risk level as for CAT and HEMS.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1347* comment by: *Gregory Walden* *'Art. 5 (2)(h)(ii)* *the transport of dangerous goods (DGs);'* Par. 2.3.3.1 of the Explanatory Note clarifies that UAS may transport dangerous goods in the specific category, when they use a properly protected appropriate container. In this case no SPA would be required, because the operation is still in the specific category and therefore the entire 965/2012 would not be applicable. Text of Art. 5 (2)(h)(ii) should be modified Alternative text proposed: the transport of dangerous goods (DGs) unless properly protected inside an appropriate container and authorised in the UAS specific category of operations.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 8 Flight time limitations p. 159

comment *27* comment by: *DGAC FR (Mireille Chabroux)*

In the NPA, it is proposed to add "with aeroplane" in the following sentence:
1. CAT operations with aeroplanes shall be subject to the requirements of Subpart FTL of Annex III.

The first issue is that not all CAT operations with aeroplane have to comply with FTL; Moreover paragraph 3 "by way of derogation from paragraph 1, CAT operations with helicopters..." is not consistent anymore.
Proposal:
-keep 1 as it is
-add paragraph 5) "by way of derogation from paragraph, CAT operations with VTOL capable aircraft...."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *317* comment by: *FlightSafety International*

(50a) 'flight time' means: […] (c) for VTOL-capable aircraft, the total time between the moment the lift or thrust units are powered for the purpose of taking off until the moment the aircraft finally comes to rest at the end of the flights and the lift or thrust units are powered off ~~stopped~~;
For consistency, rather than saying "stopped" use the term "powered off" (thrust units powered on/powered off.)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *582* comment by: *AIRBUS*

Article 8 Flight time limitations Page 160

<u>Comments</u>

(50a) 'flight time' definition
The definition of flight time is also published in Part FCL.010 and should be updated according to the Part-OPS proposed definition.

Suggestions

Add the same definition in Part FCL.010.

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *583* comment by: *AIRBUS*

Article 8 Flight time limitations Page 160

Comments

(31) 'critical phases of flight' definition
The part of the taxi which is on ground for repositioning the aircraft, using carriage system or equivalent should not be considered as a critical phase of the flight, as the risk to nadvertently take-off is not present.

Suggestions

(31) 'critical phases of flight' in the case of helicopters or VTOL-capable aircraft means taxiing **under its own power**, hovering, take-off, final approach, missed approach, landing and any other phases of flight as determined by the pilot-in-command or the commander.

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *630* comment by: *ASD*

Comment:
Art 8 (50 a) Flight time definition
The definition of flight time is also published in Part FCL.010 and should be updated according to the Part-OPS proposed definition.

Suggested resolution:
Add the same definition in Part FCL.010

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *631* comment by: *ASD*

Comment:
Art 8 (31) critical phases of flight definition
The part of the taxi which is on ground for repositioning the aircraft, using carriage system or equivalent should not be considered as a critical phase of the flight, as the risk to inadvertently take-off is not present

Suggested resolution:
(31) 'critical phases of flight' in the case of helicopters or VTOL-capable aircraft means taxiing under its own power, hovering, take-off, final approach, missed approach, landing and any other phases of flight as determined by the pilot-in-command or the commander;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.6.2. Annex I - Definitions for terms used in Annexes II to VIII IX p. 159

comment | *28* comment by: *DGAC FR (Mireille Chabroux)*

DGAC-FR comments are (suggested changes or questions for EASA):

- (48) final approach and take-off area (FATO)' means a defined area for helicopter or VTOL-capable aircraft operations, over which the final phase of the approach manoeuvre to hover or land is completed, and from which the take-off manoeuvre is commenced. In the case of helicopters operating in performance class 1 and VTOL-capable aircraft operated in UAM, the defined area includes the rejected take-off area available;

Rationale: to be consistent with helicopter (reference to PC1)

- (70) 'landing decision point (LDP)' means: (a) in the case of helicopters, the point used in determining landing performance from which, an engine failure having been recognised at this point, the landing may be safely continued or a balked landing initiated;(b) in the case of VTOL-capable aircraft certified in category enhanced, a point from which a CFP having being recognised a landing may be safely continued., ~~a point along the landing flight path, which is defined as the last point from which a~~

~~balked landing may be initiated; after LDP, a balked landing is not assured~~. ~~If the VTOL-capable aircraft is certified in the category 'Enhanced', then a landing should be possible following a CFP before or after the LDP.~~

- (71) in the case of VTOL-capable aircraft (LDAV), the length of the FATO plus any additional area declared available and suitable for the VTOL-capable aircraft to complete the landing manoeuvre from a defined height;

Comment: Who is in charge of declaring the additional area?

- (71a) 'landing distance required' means: (1) in the case of helicopters (LDRH), the horizontal distance required to land and come to a full stop from a point of 15 m (50 ft) above the landing surface; and (2) in the case of VTOL-capable aircraft (LDRV), the horizontal distance required to land and come to a full stop from a point of 15 m (50 ft) above the landing surface;

Comment: this defintion is used in a GM for helicopters; the equivalent defintion for aeroplane does not exist; this defintion is not used for VTOL. DGAC-FR suggests to harmonize either by removing the defintion for all aircraft or by having a defintion for each aircraft.

- (102) 'rejected take-off distance available means:(a) in the case of helicopters (RTODAH), the length of the final approach and take-off area declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off; or

(b) in the case of VTOL-capable aircraft (RTODAV), the length of the FATO declared available and suitable for VTOL-capable aircraft to complete a rejected take-off in accordance with the category ('Enhanced' or 'Basic') in which it is certified;

Comment and proposal: the acronyms (RTODA) and (RTODAV) are wrongly placed. It is proposed either to have two defintions or to write explicitly: " the acronym used for ... is...." at the end of the defintion.

- (113) 'take-off distance available' (TODAH)' in the case of helicopters means: (a) in the case of helicopters (TODAH), means the length of the final approach and take-off area plus, if provided, the length of helicopter clearway declared available and suitable for helicopters to complete the take-off; (b) in the case of VTOL-capable aircraft (TODAV), the length of the FATO plus, if provided, the length of a clearway declared

Comment: Who is in charge of declaring the additional area?

- (132) ‘ground personnel’ means personnel other than flight crew members that are assigned tasks for the ground movement of the VTOL-capable aircraft and have been trained in the relevant operational and safety procedures;

Comment: GM1 ORO.GEN.110 (e) "Operator responsibilities" gives a defintion of "ground personnel":
"GROUNE PERSONNEL
For the purpose of the MEL training programme referred to in AMC1 ORO.GEN.110(e) ground personnel include maintenance personnel, flight dispatchers and operations officers. "
It is proposed to have one definition to cover all aircraft.

- (141) ‘VEMS technical crew member’ means a technical crew member (TCM) that is assigned to a VEMS mission for the purpose of assisting the pilot during the flight operation and attending to any person in need of medical assistance

Rationale: To make it clear that the pilot is not covered when a reference to VEMS crew member is made.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *88* comment by: *Supernal*

Flight time definition does not take into account the possibility of a ground taxi requirement for vehicles capbale of taxi, Flight time should include that portion of the activity that included taxi fro the purpose of flight.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *89* comment by: *Supernal*

Need further clarification and justification for the terms "rejected takeoff distance, rejected takeoff distance required, takeoff decision point, take off "mass". Seems calculating some of this information will be needlessly time consuming and should be consolidated in some fashion.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *90* comment by: *Supernal*

	Why are there refences to "aeroplanes" throughout this document?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*91* comment by: *Supernal* Controlled emrgency landing definition is too subjective. What is meant by "exceptional piloting skills?" How can they be measured?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*92* comment by: *Supernal* What are limited overwater operations" Need to clarify the term "limited".
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*123* comment by: *Lilium* **Annex I(4)**: NPA does not contain amendment of the definition of 'adequate aerodrome'. It should capture, apart from runway characteristics, also FATO characteristics (cfr UAM.OP.MVCA.107) Proposed regulatory text: "adequate aerodrome' means an aerodrome on which the aircraft can be operated, taking account of the applicable performance requirements and runway/FATO characteristics".
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*197* comment by: *Lilium* **Annex I(136):** Term "Vertiport" should be changed to "aerodrome", as airports and heliports should be captured in the definition as well. In addition, the definition captured in SC VTOL should be amended accordingly. Proposed regulatory text: 'continued safe flight and landing (CSFL)' means, [..] continued controlled flight and landing at an aerodrome [...].
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *198* comment by: *Lilium*

Annex I(50)(a)(c): We propose to use other term for "stopped" (in line with IAM.GEN.VCA.130) + add GM explaining that these conditions are cumulative and "comes to rest" means that the aircraft should be 'parked' and e.g, towing has ended

Proposed regulatory text: Flight time: for VTOL-capable aircraft, the total time between the moment the lift or thrust units are powered for the purpose of taking off until the moment the aircraft finally comes to rest at the end of the flight and the lift or thrust units are powered off.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *199* comment by: *Lilium*

Annex I(142): Delete vertiport, as aerodromes include vertiports. Instead add operating site as option where the aircraft, flight crew and VEMS crew members can be on standby.

Proposed regulatory text: 'VEMS operating base' means an aerodrome or operating site at which the VTOL-capable aircraft, its flight crew and VEMS crew members are on standby for VEMS operations;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *200* comment by: *Lilium*

Annex I(147): we propose to align text with UAM.OP.VCA.050

Proposed regulatory text:a subset of IAM operations, where at least one segment of the flight takes place in a congested area.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *257* comment by: *Civil Aviation Authority the Netherlands*

Para 3.6.2 Page 159/161/162/163, Annex I:
Needs integration with NPA 2021-12.
With more places where the 'helicopter' is specified, these must be analyzed for the consequences on 'gyroplanes'. EG:

Number 70 ((a) should be rotorcraft),
Number 71 (include gyroplanes in (a)),
Number 111 ((a) should be rotorcraft),
Number 116 (Gyroplanes to be included after aeroplanes.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *319* comment by: *FlightSafety International*

Definitions: for consistency, consider using "aerodrome" rather than vertiport, because in this case controlled flight and landing should apply to any type of aerodrome.
(136) 'continued safe flight and landing (CSFL)' means, in relation to a VTOL-capable aircraft certified in the category Enhanced, that the aircraft is capable of continued controlled flight and landing at an aerodrome ~~vertiport~~, possibly using emergency procedures, without requiring exceptional piloting skills or strength;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *320* comment by: *FlightSafety International*

For consistancy, delete "vertiport" because an aerodrome would include a vertiport.
(142) 'VEMS operating base' means an aerodrome~~/vertiport~~ at which the VTOL-capable aircraft, its flight crew and VEMS crew members are on standby for VEMS operations;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *333* comment by: *ASD*

comment :
The definition of flight time is also published in Part FCL.010 and should be updated according to the Part-OPS proposed definition

Suggested resolution:
Add the same definition in Part FCL.010

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *334* comment by: *ASD*

comment:
The part of the taxi which is on ground for repositioning the aircraft, using carriage system or equivalent should not be considered as a critical phase of the flight, as the risk to inadvertently take-off is not present

Suggested resolution:
(31) 'critical phases of flight' in the case of helicopters or VTOL-capable aircraft means taxiing under its own power, hovering, take-off, final approach, missed approach, landing and any other phases of flight as determined by the pilot-in-command or the commander;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *338* comment by: *ASD*

Comment:
Req 71a : Why 2 sentences (1) and (2), as they are exactly the same requirements for both helicopters or VTOL ?
The acronyms LDRH and LDRV are not used in the NPA 2022-06

Suggest resolution:

Gather in only one req.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *339* comment by: *ASD*

comment:
Definion (147) : Please confirm that operations within congested area as defined in current AIR OPS regulation as follows: "'congested area' means in relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes" are always correspnding to urban air mobility (UAM) proposed definition

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *368* comment by: *German NSA (BAF)*

Definition (140): 'predefined routes'

It is suggested to amend the definition of “predefined routes” as the word “routes” gives the impression that clearly defined “paths” must be flown which would be in contradiction with the mentioned geographical zones also listed, where this is not the case.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *498* comment by: *JEDA*

ground personnel may be involved in any other groundhandling activity, which is now in the scope of 2018/1139

Proposed amendment: ‘ground personnel’ means personnel other than flight crew members that are assigned tasks for the ground movement or groundhandling of the VTOL-capable aircraft and have been trained in the relevant operational and safety procedures;

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *518* comment by: *Volocopter GmbH*

The definition of ‘ground personnel’ should not be limited to ground movement of aircraft only.

Please keep the definition flexible to allow for more tasks of the personnel. Please add 'or any other ground assistance for VTOLs' or similar to the definition.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *635* comment by: *ASD*

Comment:

Req 71a : Why 2 sentences (1) and (2), as they are exactly the same requirements for both helicopters or VTOL ?
The acronyms LDRH and LDRV are not used in the NPA 2022-06

Suggested resolution:
Gather in only one req.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *829* comment by: *FOCA (Switzerland)*

3.6.2.: Many of the new definitions for "VTOL capable aircraft" are derived from the EASA AIR OPS or Annex 6 criteria for aeroplanes and helicopters. A lot of those differ between Helicopters and VTOL without further specification of the difference. FOCA believes that this distinction needs to be made more clearly. In addition, FOCA believes that, a large set of new definitions are introduced and made applicable only to VTOL whereas they could be written in a more generic way. Finally, if landing distance required (TOR), take-off distance available (TODA) and take-off distance required (TODR) are defined for VTOL and helicopters, this should perhaps also be done for aeroplanes for reasons of consistency (analogous to landing distance available with LDA, LDAH and LDAV).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *886* comment by: *FAA*

Article 8 (70,71, 71a): New definitions are proposed for Landing Decision Point, Landing Distance Available, and Landing Distance Required. Although these are terminology with regard to aircraft certification, other terminology impacted may include in how instrument approach procedure are developed when it comes to things like Decision Height/Altitude.

Article 8 (131, 132) Terminology for 'ground movement' and 'ground personnel' appears to be applicable to only VTOL capable aircraft and not be generic terms. Suggest revision to be more generic to all types of aircraft.
(131) 'ground movement' means the movement of the aircraft on the movement area of an aerodrome by an external equipment or accessory that is not powered by the aircraft;
(132) 'ground personnel' means personnel other than flight crew members that are assigned tasks for the ground movement of the aircraft and have been trained in the relevant operational and safety procedures;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *906* comment by: *ADAC Luftrettung gGmbH*

Rule: **(78) Annex I (Definitions) to 965/2012** - Page 161

Proposed Text:
'medical passenger' means a medical person other than a crew member, carried in a helicopter during a HEMS flight or in a VTOL-capable aircraft during a VEMS flight, including but not limited to doctors, nurses and paramedics;

Rationale:

In several VEMS concepts the persons on board have multiple roles. The doctor may double as technical crew member. In these cases, the function as crew member must take precedence.

Rule: **(132) Annex I (Definitions) to 965/2012** - Page 163

Proposed Text:
'ground personnel' means personnel other than flight crew members that are assigned ground operation tasks of the VTOL-capable aircraft.

Rationale:
Ground operations should not be limited to movement of the aircraft. Training requirements should not be part of the definition.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *992* comment by: *FOCA (Switzerland)*

Page 160, (48): FOCA would like to point out that it might be problematic to use the same word "FATO" as for heliports, even if VTOL might be able to use heliports. It could lead to misunderstandings when speaking of "FATO", whether it is for a helicopter or VTOL operation or even both.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *995* comment by: *FOCA (Switzerland)*

Page 161, (71), (c): FOCA would like to point out that it might be problematic to use the same word "FATO" as for heliports, even if VTOL might be able to use heliports. It could lead to misunderstandings when speaking of "FATO", whether it is for a helicopter or VTOL operation or even both.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1042* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Annex I p. 50a to Reg. EU) No 965/2012, Definitions, c. 3, page 160
An "s" should be deleted in "flights". The singular form should be used.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1196* comment by: *Joby Aviation*

As with SERA 2.3.6 feedback above:

It is unclear what is intended with the proposed blanket requirement for pre-defined routes / corridors for manned (i.e. crewed) VTOL operations – raising concerns about their potential impact on the VTOL market. As long as a certified VTOL aircraft can safely integrate into the existing airspace alongside current aircraft, there is no justification to impose any additional requirements.

Primarily, it should be clarified that EASA is not advocating for segregation of manned VTOL aircraft. Current safety norms do not require aircraft to follow highly limiting routes in normal operations, and manned VTOL aircraft should be no different.

Equitable treatment and access to airspace is key, and any overly prescriptive approach to manned VTOL would have a negative impact on initial market development (as noted in the impact assessment), without a clear safety gain. As this NPA addresses the near-term initial operations of eVTOL aircraft – manned and limited in number – it must therefore be made clear that no new requirements are being imposed on VTOL aircraft (except where necessary from a safety perspective) where they are not already applicable to existing users. Indeed, it should also be noted that some VTOL aircraft are also capable of conventional take-off and landing; further illustrating the issues created by any potential delineation between different airspace users.

It must be recognised that some VTOL aircraft are intended to be flown primarily at altitudes of several thousand feet (well outside of U-Space), with significant range and speed to fly beyond a single urban environment. As such, any initial routing requirements should be on par with helicopter routes in urban environments, where in reality the dynamic nature of operations is expected and recognised due a wide number of factors.

Indeed, a more sensible approach might be to explicitly permit any manned VTOL which has the capabilities to safely integrate into the airspace using current safety norms. Where required, specific predefined routes could then be developed by competent authorities in cooperation with specific operators only where their aircraft capabilities require it. This would avoid a host of additional issues, including inconsistencies between NAAs, as well as resourcing and workload from both industry and regulators. On top of this, the development and approval of these routes, as currently referred to in the NPA, would prove not only onerous but also potentially insufficient. Initial VTOL movements will be much wider than they appear – beyond passenger services, VTOL aircraft will be flown between all forms of aerodromes, as well as for repositioning, maintenance, repair, overnight (or longer-term)

storage, diversions, one-off operations, etc. This requires flexibility and would be a challenge to prepare exhaustively ahead of time. As such, the focus must remain on the pragmatic integration of these operations, rather than the medium outlook of significant increases in air traffic and the subsequent capacity solutions which may then be required.

The justification for these predefined routes, namely a lack of certified DAA onboard unmanned vehicles, is inconsistent with the requirements for existing air traffic. If a commercially licensed helicopter pilot can use see-and-avoid principles to fly safely, there should be no distinction made between existing aircraft and new entrants. By way of example, the similarities in rotorcraft are prevalent throughout much of the NPA where existing requirements are expanded to cover VTOL also. Licensing elements of this NPA recognise and facilitate the transition of these pilots into VTOL operations.
Furthermore, VTOL aircraft are arguably more agile, with modern avionics and able to make use of additional landing sites.

Overall, a pragmatic approach is needed, where existing norms are applied to manned VTOL operations. This will allow for the authorities and industry to gain experience by working together as we move beyond existing operations and into the future. In specific cases, if a competent authority identifies a risk linked to a particular operation or aircraft capability, a consistent approach could be applied based on the related guidance material developed with industry and the relevant authorities.

These aforementioned clarifications are vital to ensure that manned VTOL operations are not viewed as inherently less safe or inferior to existing aircraft. It would also address the significant risks of incorrect or inconsistent implementation of this framework by different authorities, and also avoid creating unnecessary workload for all parties involved.

[Suggest deleting the following:]
(140)‘predefined routes’ means specific routes, geographical areas (e.g. UAS geographical zones) orcorridors which a national competent authority may establish in its territory for use by UAS orVTOL-capable aircraft operators where operations may be conducted within acceptable airand ground risks and under specified conditions;

response

Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *1304* comment by: *Aerospace Industries Association*

Comment: The proposal to require predefined routes specifically for manned VTOL aircraft appears highly problematic. Segregating these aircraft would be both unnecessary and deny equitable access to airspace. If this is not the intent, AIA would request that EASA clarify this at NPA level.

However, in the case that predefined routes do not imply segregation, the NPA appears to still propose imposing additional requirements on manned VTOL aircraft which do not appear to

be in line with existing safety practices for current airspace users, where routing is often dynamic.

The justification for this approach is difficult to understand. The absence of certified detect and avoid systems in UAVs cannot be the basis for additional requirements for VTOL aircraft in comparison to existing aircraft. Commercially licenced pilots are already authorised to use 'see and avoid' to fly with existing aircraft, and therefore the VTOL aircraft addressed in this NPA should be subject to the same safety standards as they will be flown by the pilots trained to the same standards.

Given the wide variety of forthcoming manned VTOL aircraft, it would be disproportionate to impose additional requirements on all VTOL aircraft. Data and experience can be gained through initial operations to help successfully plan for a scaling up of VTOL aircraft in the medium-term.

Suggested resolution: Please delete:

(140) 'predefined routes' means specific routes, geographical areas (e.g. UAS geographical zones) or corridors which a national competent authority may establish in its territory for use by UAS orVTOL-capable aircraft operators where operations may be conducted within acceptable air and ground risks and under specified conditions"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 7 Air operator certificates p. 159

comment *446* comment by: *Europe Air Sports*

Copy of our comment to Section 2.3.4.3 on page :

Text in NPA, page 38:
"Before starting air operations, the operator of a UAS / VTOL-capable aircraft used for commercial or non-commercial operations shall undergo a certification procedure and shall receive an air operator certificate (AOC)."

EAS Comments:
While this requirement might make sense in a commercial operation, it is completely out of place for non-commercial operations in non-urban areas. To our knowledge, no other non-commercial aviation operations require this very complex, demanding and expensive certification.

	In the view of EAS, AoC certification should not be required for non-commercial NAM (not in urban areas) operations. Existing safety management regulation is sufficient.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ARO.OPS.200 Specific approval procedure p. 164

comment *29* comment by: *DGAC FR (Mireille Chabroux)*

ARO.OPS.200
The use of the acronyms IAM and CAT throughout the NPA should be ensured.

Proposal

DGAC-FR suggests the following change
1) the operations specifications, as established in Appendix II, for ~~commercial air transport~~ CAT operations and for any IAM operation with VTOL-capable aircraft; or

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *266* comment by: *skyguide Compliance Management*

Proposed change to Reg. 965/2012

Annex I – Definitions for terms used in Annexes II to IX

Article text in NPA
(147) 'urban air mobility (UAM)' means a subset of IAM operations conducted into, within or outside congested (urban) areas.

Skyguide proposal:
Delete text shown as struck-through; add text shaded in grey:

(147) 'urban air mobility (UAM)' means a subset of IAM operations conducted into, within or ~~outside~~ out of congested (urban) areas.

Editorial error.
According to the Summary on page 19 of the NPA, UAM refers to "the subset of IAM operations conducted in to, within or out of urban environments".

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.6.3. Annex II (Part-ARO) p. 164

comment | *340* comment by: *ASD*

comment:
ARO.OPS.224 (b) (1) : What is the basis to be used to perform such an assesment ? Any document or other that could be referenced here ?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ARO.OPS.224 Approval of fuel/energy schemes for IAM operations p. 165

comment | *30* comment by: *DGAC FR (Mireille Chabroux)*

ARO.OPS.224
ARO.OPS;224 could cover both CAT and IAM operators.
DGAC-FR suggests to delete ARO.OPS.224 and to modify ARO.OPS. 225 as follow:
Proposal
ARO.OPS.225 Approval and oversight of fuel energy scheme

(a) The competent authority shall approve the fuel/energy scheme proposed by a CAT operator or by an IAM operator if the operator demonstrates compliance with all applicable requirements laid down in this Regulation related to fuel/energy for aeroplanes or helicopters involved in CAT or with the requirements of points UAM.OP.VCA.150 to 165 of Annex IX for VTOL-capable aircraft .
(b) The competent authority shall assess and oversee the fuel/energy planning and in-flight re-planning, selection of aerodrome and, in-flight fuel/energy management policies associated with the fuel/energy schemes, together with the processes supporting the implementation of these fuel/energy schemes.

(c) In addition to points (a) and (b), when approving individual fuel/energy schemes, the competent authority shall:
(1) verify that the operator has demonstrated the baseline safety performance of the current fuel/energy scheme;
(2) assess the capability of the operator to support the implementation of the proposed individual fuel/energy scheme; the following elements shall be considered as a minimum:

(i) the operator's management system,
(ii) the operator's operational capabilities;
(3) verify that the operator's safety risk assessment that supports the proposed individual fuel/energy scheme achieves an equivalent level of safety to that of the current fuel/energy scheme; and
(4) establish an oversight plan to carry out periodic assessments of the approved individual fuel/energy scheme to verify compliance of the scheme or decide whether the scheme should be amended or revoked.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix I to Annex II (Part-ARO) p. 165

comment: *31* comment by: *DGAC FR (Mireille Chabroux)*

Under the title "AIR OPERATIOR CERTIFICATE" , DGAC-FR suggests the following change:
Proposal:

(Approval schedule for air transport operators or for innovative air mobility)

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix II to Annex II (Part-ARO) p. 166

comment: *124* comment by: *Lilium*

In the Ops Spec, there's a line that indicated "Helicopter offshore operations" - should that be extended to VTOL-capable aircraft?

Additionally, should "limited overwater operations" be captured in the Ops Spec template?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1123* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

The proposed template includes a line that indicates 'Helicopter offshore operations'. Should that be extended to VTOL-capable aircraft?

Additionally, should "limited overwater operations" be captured in the Ops Spec template?
PROPOSED ACTION/RESOLUTION
EASA to clarify existing template as per the questions above.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.GEN.005 Scope p. 168

comment: *388* comment by: *H. Raeder*

ORO.GEN.005 (and the rationale) and IAM.GEN.100:
It is conceivable that the demand for using VTOL for SPO-like operations will arise as soon as these aircraft immerge the market. As I understand, the current rule package does not foresee specialised operations with VTOL.
Will there be additional rules to address this kind of operation in the future to achieve a level playing field in the interest of safety and competition?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.GEN.140 Access p. 169

comment: *32* comment by: *DGAC FR (Mireille Chabroux)*

ORO.GEN.140
DGAC-FR suggests to add "operations" after "CAT" to be consistent with b) ii) "IAM operations".

Proposal
b) Access to the aircraft mentioned under in point (a) shall:
(i) in the case of CAT operations, include the possibility

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*258* comment by: *Civil Aviation Authority the Netherlands* Para 3.6.4, Page 169, Part ORO: Are IAM operations intended to include air/road multi-modal aircraft such as the PAL-V gyroplane? Those places where aircraft is replaced by aeroplanes and/or helicopters a check for applicability for gyroplanes needs to be performed as gyroplanes are included in the definition of aircraft or rotorcraft, but excluded from aeroplanes and helicopters. Alignment with NPA 2021-12
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*386* comment by: *H. Raeder* "…unless otherwise decided by the commander…" According to the proposed change in ORO.FC.105 (a) there will be no commander anymore in CAT operations with non-complex aircraft. There are several other points in the 965/2012 that refer to the "commander" and that are intended to include the pilot of non-complex aircraft in CAT.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*935* comment by: *Civil Aviation Authority the Netherlands* ORO.GEN.140/ORO.FC.430 How can an OPC/line check be performed if the VTOL aircraft is a two-seater and a multi-crew flight is being operated? May these aircraft carry max 2 crew members? How will the line check be performed? Are there (any) simulator developments?.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.AOC.100 Application for an air operator certificate p. 169

comment	*33* comment by: *DGAC FR (Mireille Chabroux)*

ORO.AOC.100 Application for an air operator certificate
Editorial comments:
(5) the names of the nominated persons required by point ORO.A~~C~~OC.135(a) of this Annex together with their qualifications and experience

(c) Applicants shall demonstrate to the competent authority that: (1) for CAT operations, they comply with the essential requirements of Annex V to Regulation (EU) 2018/1139, this Annex (Part-ORO), Annex IV (Part-CAT) and Annex V (Part-SPA) to this Regulation, and Annex I (Part-26) to Regulation (EU) 2015/64052; (1a) for IAM operations, they comply with the essential requirements of Annex V to Regulation (EU) 2018/1139, this Annex III (Part-ORO), Annex V (Part-SPA) and Annex IX (Part-IAM) to this Regulation, and with Annex I (Part-26) to Regulation (EU) 2015/640;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *125* comment by: *Lilium*

(a) refer to CAT operations (abbreviate) for consistency
(1a) wrong reference: should be Annex IX instead of X
(1a) should Part-SPO be captured here as well?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *432* comment by: *FlightSafety International*

RE: (a) Without prejudice to Regulation (EC) No 1008/2008 of the European Parliament and the Council51, prior to commencing commercial air transport or IAM operations, the operator shall apply for and obtain an air operator certificate (AOC) issued by the competent authority.

Suggest consistent use of terms and abbreviations throughout the document: Commercial Air Transport = CAT

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *447* comment by: *Europe Air Sports*

Text in NPA:

"... Annex X (Part-IAM) ..."

EAS Comment:
typo, should be Annex IX

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *998* comment by: *Austro Control*

Comment:
Part IAM is Annex 9 and not 10.

Proposed Change:
Proposed to write "Annex IX"

Classification:
Editorial

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1124* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

c) not capture Part-SPO

PROPOSED ACTION/RESOLUTION

EASA to consider the following amendments in the text:

"(a) […] prior to commencing ~~commercial air transport~~ **CAT** or IAM operations[…]

"(c)(1a)[…] they comply with the essential requirements of [...] **Annex IX** (Part-IAM) to this Regulation, [...]"

Also, consider capturing Part-SPO.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.MLR.100 Operations manual - general p. 170

comment *34* comment by: *DGAC FR (Mireille Chabroux)*

ORO.MLR.100
Editorial comment.Annex X should be replace by Annex IX.
Proposal
(b) The content of the OM shall reflect the requirements set out in this Annex, in Annex IV (Part-CAT), Annex V (Part-SPA), Annex VI (Part-NCC) and, Annex VIII (Part-SPO) and Annex IX (Part-IAM), as applicable, and shall not contravene the conditions contained in the operations specifications to the air operator certificate (AOC), the SPO authorisation or the declaration and the list of specific approvals, as applicable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *126* comment by: *Lilium*

(b) wrong reference: should be Annex IX instead of X

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *449* comment by: *Europe Air Sports*

Text in NPA:
"... and Annex X (Part-IAM) ..."

EAS Comment:
Typo, should be Annex IX.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1003* comment by: *Austro Control*

Comment:
Part IAM is Annex 9 and not 10.

Proposed Change:
Proposed to write "Annex IX"

Classification:
Editorial

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1125* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Text as proposed seems to include a wrong reference in (c)(1a). It should be Annex IX instead of X.
PROPOSED ACTION/RESOLUTION
EASA to amend as proposed:

"The content of the OM shall reflect the requirements set out in [...] **Annex IX** (Part-IAM)"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FC.005 Scope p. 170

comment *35* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FC.005
The words in "by the operator of complex motor powered" are not in current AIR OPS.
Proposal
This Subpart establishes the requirements on flight crew training, experience and qualifications to be met ~~by the operator of complex motor-powered~~ aircraft or VTOL-capable aircraft, related to flight crew training, experience and qualification and comprises:

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *387* comment by: *H. Raeder*

"…to be met by the operator of complex motor-powered aircraft…"
I assume there is a mistake in the NPA text, if not ORO.FC will no longer be applicable to non-complex aircraft operators.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.MLR.101 Operations manual - structure for commercial air transport and IAM operations p. 170

comment *127* comment by: *Lilium*

Only amendment of the title is proposed, not of content provision. Part C of the structure of the OM pertains to Commercial air transport operations, comprising route/role/area and aerodrome/operating site instructions and information). We propose to add IAM operations.

Proposed regulatory text: (c) Part C: Commercial air transport operations and IAM operations, comprising route/role/area and aerodrome/
operating site instructions and information;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1126* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
This NPA only seems to amend only the title for ORO.MLR.101, not of provision's content. However, point (c) indicates:

Part C: Commercial air transport operations, comprising route/role/area and aerodrome/ operating site instructions and information;

This paragraph could be updated to include IAM operations as well. Also, harmonise the use of the acronyms for CAT throughout the NPA.

PROPOSED ACTION/RESOLUTION
EASA to consider the following addition in ORO.MLR.101 (c):

(c) Part C: ~~Commercial air transport~~ ***CAT*** *operations* ***and IAM operations****, comprising route/role/area and aerodrome/*
operating site instructions and information;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.AOC.125 Non-commercial operations of an AOC holder with aircraft listed on its AOC p. 170

comment *434* comment by: *FlightSafety International*

Recommend adding VTOL-capable aircraft to the following:
The AOC holder may conduct non-commercial operations in accordance with Annex VI (Part-NCC) or Annex VII (Part-NCO) with aeroplanes, ~~or~~ helicopters or VTOL-capable aircraft listed in the operations specifications of its AOC...

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *448* comment by: *Europe Air Sports*

Text in NPA:
"The AOC holder may conduct non-commercial operations .... provided that the AOC holder describes such operations in detail in the operations manual, including the following:...."

EAS Comment:
This provision is obviously written for an operator/AOC holder that only occasionally flies non-commercial flights, the majority being commercial.

If the AOC requirement for VTOL-capable aircraft would enter into force:

For a pilot or private aircraft owner of a VTOL-capable aircaft, conducting only non-commercial NCO/NAM operations, it is crazy to require this 125 rule which is written for completely different flights.
Please make it sensible.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1004* comment by: *Austro Control*

Comment:
Why was "aircraft" replaced with "aeroplanes or helicopters?" Will eVTOL aircraft not fly Non-commercial operations with an aircraft listed on its AOC? Such Demo Flights, Ferry Flight, MCF, etc.?

Proposed Change:
Proposed to revert back to aircraft.

Classification:
Major-Conceptual

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FC.105 Designation as pilot-in-command/commander p. 171

comment *36* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FC.105 Designation as pilot-in-command/commander
Current ORO.FC.105 do not refer to "operations with complex motor-powered aircraft". There is no reason for adding it in the NPA.
Proposal

(a) In accordance with point 8.6 of Annex V to Regulation (EU) 2018/1139, one pilot amongst the flight crew, qualified as pilot-in-command in accordance with Annex I (Part-FCL) to Regulation (EU) No 1178/2011, shall be designated by the operator as pilot-in-command or, for commercial air transport ~~operations with complex motor-powered aircraft,~~ as commander.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *128* comment by: *Lilium*

Perhaps refer to CAT operations for consistency

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *435* comment by: *FlightSafety International*

Commercial operations applies to various types of aircraft to include VTOL capable aircraft.
Recommend consistent use of abbreviations and terms: CAT.
Recommend adding 'VTOL capable aircraft' to the following:
(c) In the case of ~~commercial operations of~~ CAT for aeroplanes, ~~and~~ helicopters, and VTOL capable aircraft for IAM operations, the pilot-in-command/commander or the pilot to whom the conduct of the flight may be delegated shall have had initial familiarisation training...

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *654* comment by: *NGFT*

New definition of commander will prohibit for PIC in commercial operations to act as limited certifying staff. This article needs to be interpreted in conjunction with AMC 145.A.30(j)(4).This new proposal will significantly limit the capabilities of single engine helicopter operations. One example is that over-night stays on another base without a mechanic are no longer possible. The whole issue of limited certifying staff und Part 145 needs to be reviewed urgently as it is severely limiting helicopter operations.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *655* comment by: *NGFT*

It is not clear how many types of VTOL may be flown by one pilot

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *909* comment by: *European Helicopter Association*

New definition of commander will prohibit for PIC in commercial operations to act as limited certifying staff. This article needs to be interpreted in conjunction with AMC 145.A.30(j)(4).This new proposal will significantly limit the capabilities of single engine helicopter operations. One example is that over-night stays on another base without a mechanic are no longer possible. The whole issue of limited certifying staff und Part 145 needs to be reviewed urgently as it is severely limiting helicopter operations.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *910* comment by: *European Helicopter Association*

It is not clear how many types of VTOL may be flown by one pilot

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *936* comment by: *Civil Aviation Authority the Netherlands*

ORO.FC. 105

How does this compare to the Powered Lift a/c from 1178?
The ICAO definition approaches VTOL but differs from the EASA definition.
In the broadest sense:
To what extent/ in which manner does the VTOL definition relate to the EASA powered lift and the ICAO powered lift.

What is the status of a "tilt rotorcraft"?
A "tilt rotorcraft" is included in the definition of aa CMPA, but it is not a helicopter.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1127* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Text as proposed seems to use inconsistent verbiage in (C) when refering to types of operations; if IAM (abbreviation) is used, then CAT should be used when refereing to 'Commercial Air Transport'
PROPOSED ACTION/RESOLUTION
EASA to consider the following amendments in the text:

"(c) In the case of ~~commercial operations of aeroplanes and helicopters~~ **CAT** and for IAM operations[…]

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1291* comment by: *European Helicopter Association*

1. ORO.FC.105: New definition of commander will prohibit for PIC in commercial operations to act as limited certifying staff. This article needs to be interpreted in conjunction with AMC 145.A.30(j)(4).This new proposal will significantly limit the capabilities of single engine helicopter operations. One example is that over-night stays on another base without a mechanic are no longer possible. The whole issue of limited certifying staff und Part 145 needs to be reviewed urgently as it is severely limiting helicopter operations.
2. ORO.FC.105: It is not clear how many types of VTOL may be flown by one pilot

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1314* comment by: *Kusi*

1. New definition of commander will prohibit for PIC in commercial operations to act as limited certifying staff. This will significantly limit the capabilities of single engine helicopter operations as over-night stays on another base without a mechanic are no longer possible.

2.It is not clear how many types of VTOL may be flown by one pilot

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FC.146 Personnel providing training, checking and assessment p. 171

comment *72* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FC.146
The NPA proposal is to have the OPC conducted by a suitably qualified pilot-in -command nominated by the operator, by derogation to point b of ORO.FC.146.
DGAC-FR is not in favour of having such alleviations for VTOL operations. It is considered that an examiner should be required as VTOL capable aircraft are innovative aircraft and that we do not have any experience on these type of aircraft.

Proposal

~~(3) IAM operations with VTOL-capable aircraft by day and over routes navigated by reference to visual landmarks.~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *129* comment by: *Lilium*

(f)(3) Why not allowing this for **all** IAM operations with VTOL-capable aircraft? Why this limitation"by day and over routes navigated by reference to visual landmarks?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1128* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The limitations in (f)(3) are not fully understood and require further clarification, specially as to:

a) Why not allowing a nominated PIC to conduct training and demonstration of operator proficiency check for all IAM operations with VTOL-capable aircraft?

b) Why the limitation "by day and over routes navigated by reference to visual landmarks"?
PROPOSED ACTION/RESOLUTION
EASA to clarify existing text as per the questions above.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FC.400 Composition of flight crew p. 172

comment *37* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FC.402 Composition of flight crew
This paragraph gives some provisions for single-pilot operations under IFR or at night. Thus DGAC-FR wonders whether paragraph b) of ORO.FC.400 is useful.

DGAC-FR suggests to delete b):

ORO.FC.400 Composition of flight crew

~~(b) For single-pilot operations under IFR or at night, the requirements of point ORO.FC.402 of this Annex shall be complied with.~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *896* comment by: *DGAC FR (Mireille Chabroux)*

According to ORO.FC.105, the operator shall only designate a flight crew member to act as pilot-in-command/commander if he/she has, in the case of multi-crew operations, completed an operator's command course if upgrading from co-pilot to pilot-in-command/commander. VEMS operations can be conducted in multi-crew operations. Thus there should be a provision corresponding to ORO.FC.205.

Proposal
ORO.FC. 405 command course

The command course shall include at least the following elements:
(1) training in an FSTD, which includes line oriented flight training (LOFT) and/or flight training;
(2) the operator proficiency check, operating as commander;
(3) command responsibilities training;
(4) line training as commander under supervision, for a minimum of 10 hours, including at least 10 flight sectors;
(5) completion of a line check as commander and demonstration of adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, facilities and procedures to be used; and
(6) crew resource management training

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FC.402 Single-pilot operations under IFR or at night p. 172

comment | *38* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FC.402
DGAC-FR suggests to adapat paragraph a) 1) to VTOL by adding the energy management in the list of items for the recurrent training.

Proposal
ORO.FC.402

(a) The operator shall include in the operations manual a pilot conversion and recurrent training programme that includes the additional requirements for single-pilot operations. The pilot shall have undertaken training on the operator's procedures regarding:
(1) engine and energy management and emergency handling;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *100* comment by: *Supernal*

Why is it necessary to distinguish the skills and abilities of a single pilot operation vs. multi crew or any IFR flight for that matter. These are skills that should apply uniformly to any application or vehicle configuration.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *130* comment by: *Lilium*

(a) (1) Should lift thrust unit be added in addition to "engine management"?
(b) (1) We assume this needs to be done on the relevant VTOL aircraft. Since this entails many hours in the aircraft, we suggest that this can also, (at least partialy (x hours?)) be done in a FSTD + instead of flight hours sectors can be included.
(b) (2) Instead of only flight hours, sectors can be included + VFR at night is missing
(b) (3) VFR at night is missing

Rationale for introducing reference to OSD in parar (b): each VTOL capable aircraft will be of different design and may be highly automated facilitating the "flying task" of the pilot. It is

thus highly recommended to set a "safe minimum" but to also rely on Operational Suitability Data, as the VTOL manufacturer, based on its specific design, may propose a different solution reaching an equivalent level of safety.

Proposed regulatory text:
(a) (1) engine and/or lift thrust unit management

(b) The pilot shall have gained the following prior experience, **unless otherwise specified in the OSD**
(1) ... 25 flight hours **or 30 sectors**, whichever is reached first, of IFR or at night experience in the relevant ....
(2) ....25 flight hours **or 30 sectors**, whichever is reached first, ... of which 10 hours **or 15 sectors,** whichever is reached first, may ... including 5 sectors of IFR or at VFR night line flying under supervision using single-pilot procedures; and
(3) ... preceding 90 days:
(i) 5 IFR or at VFR night flights as single pilot, including 3 ~~instrument~~ approaches, carried out on a VTOL-capable aircraft approved for this purpose; or
(ii) an IFR / VFR ~~instrument approach~~ check as single pilot on a VTOL-capable aircraft or in an FSTD representing that aircraft.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1129* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the following paragraphs in ORO.FC.402:

(a) (1) - Should lift thrust unit be added in addition to "engine management"?

(b) A reference to OSDs should be included. Each VTOL capable aircraft will be of different design and may be highly automated facilitating the "flying task" of the pilot. It is thus highly recommended to set a "safe minimum" but to also rely on Operational Suitability Data, as the VTOL manufacturer, based on its specific design, may propose a different solution reaching an equivalent level of safety.

(b) (1) - 25 flight hours seem to be a lot of hours to comply with on a VTOL aircraft. GAMA would suggest that this hours could include some FSTD time. Also, instead of hours, sectors could be considered as a threshold to determine experience.

(b) (2) - This Requirement seem to consider both hours and sectors, which could cause confusion. Either hours or sectors could be considered for clarity.

b) (3) - VFR at night seems to be missing.

PROPOSED ACTION/RESOLUTION

EASA to consider the following amendments:

*(a) (1) engine **and/or lift thrust unit** management*

*"(b) **For IFR or VFR ar night**, the pilot shall have gained the following prior experience, **unless otherwise specified in the OSD."***

"(b) (1) [...]25 flight hours or 50 sectors, whichever is reached first, of IFR or at night experience in the relevant [...]"

*"(b) (2) [...] 25 flight hours or 50 sectors, whichever is reached first, ... of which 10 hours or 20 sectors, whichever is reached first, may ... including 5 sectors of IFR **or VFR at night** line flying under supervision using single-pilot procedures; and"*

"(b) (3) [...] preceding 90 days:
*(i) 5 IFR or at **VFR night** flights as single pilot, including 3 ~~instrument~~ approaches, carried out on a VTOL-capable aircraft approved for this purpose; or*
(ii) an IFR / VFR ~~instrument approach~~ check as single pilot on a VTOL-capable aircraft or in an FSTD representing that aircraft."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1130* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The requirements in ORO.FC.402 (b) need to be further clarified, as some questions remain unanswered:

- For single pilot aircraft, what is the difference between (b)(1) and (2)?
- Are these hours cumulative or can they be obtained concurrently?
- Does "line flying" mean for compensation?

- How would the pilot obtain this time with passengers on board if they aren't qualified to be PIC in IFR until they complete this requirement?

- As (3) references FSTD time, is it correct to understand that (1) and (2) cannot be achieved in any way through an FSTD?

PROPOSED ACTION/RESOLUTION

EASA to clarify existing text as per the questions above.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1198* comment by: *Joby Aviation*

These requirements need to be further clarified:
- For single pilot aircraft, what is the difference between (b)(1) and (2)?
- Are these hours cumulative or can they be obtained concurrently?
- Does "line flying" mean for compensation?
- How would the pilot obtain this time with passengers on board if they aren't qualified to be PIC in IFR until they complete this requirement?
- As (3) references FSTD time, it is correct to understand that (1) and (2) cannot be achieved in any way through an FSTD?

[Clarification of existing text requested]

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1264* comment by: *Direction de l'Aviation Civile*

- DAC Luxembourg recommends to develop a requirement clarifying the conversion training (ORO.FC.420) in order to require at least an OPC and some familiarization flights;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FC.430 Recurrent training and checking - operator proficiency check p. 173

comment *39* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FC.430 Recurrent training and checking - operator proficiency check

ORO.FC.430 gives the provisions for recurrent training and checking.
DGAC-FR thinks that these provisions have to be deeply rewieved. Indeed, there is no provision regarding line check, regarding initial operator's crew resource management training (ORO.FC.215), regarding operations on more than one type or variant (ORO.FC. 240) . Does EASA consider that it is too soon to envisage operations on several types?

Moreover, the validity period of the OPC should 6 months as for other aircraft operated in CAT.

Proposal:

ORO.FC.430 Recurrent training and checking — operator proficiency check
(a) Operator proficiency check
(1) Flight crew members shall complete operator proficiency checks to demonstrate their competence in carrying out normal, abnormal and emergency procedures, covering the relevant aspects associated with the specialised tasks described in the operations manual.
(2) Appropriate consideration shall be given when operations are performed under IFR or at night.
(3) The validity period of the operator proficiency check shall be 6 ~~12~~ calendar months

Add some new paragraphs for CRM training, line check, operation on more than one type...

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *614* comment by: *Volocopter GmbH*

ORO.FC.430 (a)(2) is unclear, please further clarify in AMC&GM.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1007* comment by: *Austro Control*

Comment:
Why must the OPC include "relevant aspects associated with the specialized tasks?"
As far as we understand, IAM does not address SPO operations, therefore, there are no specialized tasks.

Proposed Change:

Proposed to delete "relevant aspects associated with the specialized tasks" or exchange the wording of "specialized tasks"

Classification:
Major-Conceptual

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1132* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Text as proposed seems to provide lack of certainty as it notes ambiguous wording such as *'appropiate consideration'* in (a)(3). EASA should specify the intent of *'appropiate'* and whom shall decide what is appropiate or not. Is the appropiate consideration what is laid out in the OSD? Will AMCs discuss 'appropiate consideration'?

PROPOSED ACTION/RESOLUTION
EASA to clarify existing text as per the questions above.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1199* comment by: *Joby Aviation*

a(2)

Will means of compliance discuss "appropriate" consideration? What's "appropriate" - according to whom?
As laid out in the OSD?

[Clarification of existing text requested]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1265* comment by: *Direction de l'Aviation Civile*

- ORO.FC.430 (a) (1): It might be confusing with "task specialist" required for SPO. DAC Luxembourg recommends to remove "specialized" and just keep "tasks" in order to avoid any confusion;
ORO.FC.430 (a) (3): DAC Luxembourg recommends to align the periodicity requirement to CAT, i.e. 6 months;

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.TC.100 Scope p. 173

comment | *40* comment by: *DGAC FR (Mireille Chabroux)*

ORO.TC.100
Editorial comment (to be consistent in the sentence):
Proposal
This Subpart establishes the requirements to be met by the operator when operating an aircraft with technical crew members in commercial air transport helicopter emergency medical service (HEMS), emergency medical service with VTOL-capable aircraft (VEMS), night-vision imaging system (NVIS) operations or helicopter hoist operations (HHO).

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.FTL.100 Scope p. 174

comment | *41* comment by: *DGAC FR (Mireille Chabroux)*

ORO.FTL.100

Subpart FTL does not cover all aircrew in CAT with aeroplanes. For example, it does not cover air taxi, emergency flight... DGAC-FR suggests to keep the provision as it is written today.

Proposal
This Subpart establishes the requirements to be met by an operator and its flight and cabin crew (aircrew) members with regard to flight and duty time limitations and rest requirements ~~for crew members~~ aircrew in commercial air transport (CAT) operations with aeroplanes.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *656* comment by: *NGFT*

This article could be interpreted to cover all Commercial Air Transport CAT operations for aeroplanes currently regulated under national law or EU OPS Subpart Q. This change is not acceptable. Proposed formulation needs to be changed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *912* comment by: *European Helicopter Association*

This article could be interpreted to cover all Commercial Air Transport CAT operations for aeroplanes currently regulated under national law or EU OPS Subpart Q. This change is not acceptable. Proposed formulation needs to be changed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1292* comment by: *European Helicopter Association*

1. ORO.FTL.100: This article could be interpreted to cover all Commercial Air Transport CAT operations for aeroplanes currently regulated under national law or EU OPS Subpart Q. This change is not acceptable. Proposed formulation needs to be changed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1315* comment by: *Kusi*

This article could be interpreted to cover all Commercial Air Transport CAT operations for aeroplanes currently regulated under national law or EU OPS Subpart Q. Proposed formulation needs to be changed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.GEN.100 Competent authority p. 174

comment *42* comment by: *DGAC FR (Mireille Chabroux)*

SPA.GEN.100 Competent authority

It should be precised in a)1) and a) 2) that it covers commercial or non commercial operator other than those operating VTOL (which are covered by 3)).

Proposal

SPA.GEN.100
(a) The competent authority for issuing a specific approval shall be:
(1) for the commercial operator other than an operator of VTOL-capable aircraft, the authority of the Member State in which the operator has its principal place of business;
(2) for the non-commercial operator other than an operator of VTOL-capable aircraft, the authority of the State in which the operator has its principal place of business, is established or resides;
(3) for the operator of VTOL-capable aircraft in IAM operations, the authority of the Member State in which that operator has its principal place of business.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1058* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

SPA.GEN.100 3 Reg. (EU) No 965/2012, c. 3, page 174
"*Place of residence*" should be mentioned as a criteria determining the competent authority.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.6.5. Annex V (Part-SPA) p. 174

comment *259* comment by: *Civil Aviation Authority the Netherlands*

Para 3.6.5, Page 174, Part SPA:
Are IAM operations intended to include air/road multi-modal aircraft such as the PAL-V gyroplane?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *341* comment by: *ASD*

comment:

SPA.VEMS.110 item (d)
Why is heading and attitude references required for day operations ? If required, why it not required for night as well?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *342* comment by: *ASD*

Comment:
SPA.VEMS.120 : The terminolgy "abandon the flight" is unusual and not clearly defined. It is suggested to refer to available diversion landing sites or Emergency landing sites ? Furthermore it is considered that the requirement is not specific to VEMS operations. The general VFR flights according to VMC minima rules should apply for VEMS.

Suggested resolution:
Reconsider the need for this rule as there is no allowance for going below the SERA.5001 VMC minima

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.PBN.100 PBN operations p. 174

comment *830* comment by: *FOCA (Switzerland)*

(a) (2): FOCA would like to draw attention to the fact that CS-ACNS still describes the RNP 0.3 navigation specification as "applicable to helicopters" only. FOCA thinks that this inconsistency should be resolved if it still holds.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

ORO.TC.120 Operator conversion training p. 174

comment *937* comment by: *Civil Aviation Authority the Netherlands*

ORO.TC.120 (b) (1)

Last word, 'aircraft' should probably be removed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.MNPS.100 MNPS operations p. 175

comment | *43* comment by: *DGAC FR (Mireille Chabroux)*

SPA.MNPS.100 MNPS operations
This comment is a general editorial comment: sometimes in the NPA "other than VTOL-capable aircraft" is used, and sometimes , it is referred to "aeroplane and helicopter" to exclude other than VTOL-capable aircraft. It should be harmonized.

In the following provisions, aircraft could be replace by "aeroplane".

Proposal:

SPA.MNPS.100 MNPS operations
Aircraft other than VTOL-capable aircraft sall only be operated in designated minimum navigationperformance specifications (MNPS) airspace in accordance with regional supplementary procedures, where minimum navigation performance specifications are established, if the operator has been granted an approval by the competent authority to conduct such operations.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.LVO.100 Low visibility operations and operations with operational credits p. 175

comment | *131* comment by: *Lilium*

LVO requirements should be addressed in the near future. Propsosed text can be interpreted as if VTOL LVO ops do not need an approval. Therefore, suggest to restore previous text.

Proposed regulatory text: The operator shall conduct the following operations only if they are approved by the competent authority [...]

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1135* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

LVO requirements should be addressed in the near future (NPA#2). Proposed text can be interpreted as if VTOL LVO operations do not need an approval. Therefore, it is suggested to restore to previous text.

PROPOSED ACTION/RESOLUTION

EASA to consider the original verbiage:

"The operator shall only conduct the following low visibility operations (LVO) when approved by the competent authority"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.RVSM.100 RVSM operations p. 175

comment *174* comment by: *DGAC FR (Mireille Chabroux)*

SPA.RVSM.100 RVSM operations
This comment is a general editorial comment: sometimes in the NPA "other than VTOL-capable aircraft" is used, and sometimes , it is referred to "aeroplane and helicopter" to exclude other than VTOL-capable aircraft. It should be harmonized.

Proposal:

SPA.RVSM.100 RVSM operations
Aircraft other than VTOL-capable aircraft shall only be operated in designated airspace where a reduced vertical separation minimum of 300 m (1 000 ft) applies between flight level (FL) 290 and FL 410, inclusive, if the operator has been granted an approval by the competent authority to conduct such operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.DG.100 Transport of dangerous goods p. 175

comment *499* comment by: *JEDA*

Regulation 20197947 allows transport of dangerous goods in the specicif category isnide a properly protected apprpriate container. Also 947 should be mentioned.

Proposed amendment: Except as provided for in Annex IV (Part-CAT), Annex VI (Part-NCC), Annex VII (Part-NCO) and, Annex VIII (Part-SPO) and Annex IX (Part-IAM) to this Regulation, and in Regulation 2019/947, the operator shall only transport dangerous goods by air if the operator has been approved by the competent authority.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.NVIS.110 Equipment requirements for NVIS operations p. 176

comment *44* comment by: *DGAC FR (Mireille Chabroux)*

SPA.NVIS. 110
In the provisions dealing with flight overwater, instead of requiring a radioaltimeter, it has been decided to replace a prescriptive requirement by an objective based requirement. SPA.NVIS.110 should be consistent.

Proposal

SPA.NVIS. 110
b) The VTOL capable-aircraft shall be equipped with a means to determine the height of the aircraft in relation to the ground, capable of emitting an audio warning below a pre-set value and a visual warning at a height selectable by the pilot

The same should be applied to SPA.VEMS.110 (e).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.NVIS.130 Crew requirements for NVIS operations p. 176

comment *45* comment by: *DGAC FR (Mireille Chabroux)*

SPA.NVIS.130 Crew requirements for NVIS operations

If the words "flight simulator" are kept, a simulator on a computer could be used. The intent is to require a FFS.
It is suggested to remove "flight simulator represnting the VTOL-capable aircraft.

Proposal

SPA.NVIS.130 Crew requirements for NVIS operations
[…] (d) Recency. All pilots and NVIS technical crew members that conducting NVIS operations shall have completed 3three NVIS flights in the last 90 days. Recency may be re-established on a training flight in the helicopter / VTOL-capable aircraft or an approved full flight simulator (FFS) ~~/ flight simulator representing the VTOL-capable aircraft~~, which shall include the elements of point.

It could also be assessed whether changing "FFS" by "an adequate FSTD " is acceptable (only possible from our point of view if some AMC and GM define what an adequate FSTD is).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.110 Equipment requirements for VEMS operations p. 177

comment *46* comment by: *DGAC FR (Mireille Chabroux)*

SPA.VEMS.110 Equipement requirement for VEMS operations

Paragraph d) states that:"(d) For VEMS operations by day, the VTOL-capable aircraft shall be equipped with means of measuring and displaying to the pilot the attitude and the stabilised heading."

DGAC-FR wonders whether these equipments are already required for the certification of the VTOL-Capable aircraft. If it is the case, there is no need to have this provision (as PART IDE already requires the VTOL-capable aircarft to be equipped as required by the certification).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *229* comment by: *DGAC FR (Mireille Chabroux)*

SPA.VEMS.110 Equipment requirement for VEMS operations
Regarding paragraph b), the word "device" could be understood as a LRU/equipment which may not be a suitable on board solution.

Moreover, it is suggested a rewording for paragraph f) and g) for clarification.

Proposal

(b) For VFR flights over routes or areas navigated by reference to visual landmarks, the VTOL-capable aircraft shall provide own-ship position and obstacles on a moving map display through an installation certified in accordance with the applicable airworthiness requirements ~~be equipped with a device that provides a moving map display with own-ship position and obstacles.~~ The map and obstacle database(s) shall be kept up to date.
(...)
(f) In addition to point UAM.IDE.MVCA.350 of Annex IX, VTOL-capable aircraft employed in VEMS missions shall provide an ADS-B out function through an installation certified in accordance with the applicable airworthiness requirements ~~be equipped with an ADS-B Out capable device.~~
(g) the installation of the instruments and equipments required in points (b~~-c~~) to (f) shall be certified in accordance with the applicable airworthiness requirements ~~Instruments and equipment required in points (c) to (f) shall be airworthiness approved.~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *589* comment by: *AIRBUS*

SPA.VEMS.110 Equipment requirements for VEMS operations paragraph (e) Page 177

Comments

The paragraph (e) indicates among the requirements that the audio and visual warning, should be "instantly discernible during all phases of NVIS flight"
Does this mean that the requirements apply only in the case of NVIS VEMS operations?

Suggestions

EASA to clarify the applicability of the requirement

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *590* comment by: *AIRBUS*

SPA.VEMS.110 Equipment requirements for VEMS operations paragraph (e) Page 177

Comments

The requirement for the aircraft to be equipped with means of measuring and displaying to the pilot the attitude and the stabilised heading for day operations where there is no such equivalent explicit requirement for night VFR or IFR is prescriptive and may not be appropriate to all VTOL capable aircraft.
Because of their unique design some VTOL-capable aircraft may need specific instruments/equipment to operate in day VFR, night VFR or IFR. This is addressed in the NPA by the proposed rule UAM.IDE.MVCA.125 Flight instruments and associated equipment and the reference to the type-certification approval.
In addition the fact the requirement is limited to day operations is not understood as the possible use of these instruments is, for conventional aircraft, excepted in reduced visual cues context (night, IMC)
It is therefore proposed to allow performance based rewrite of the requirement?

Suggestions

It is proposed to replace the paragraph text by
"(d) For VEMS operations, the VTOL-capable aircraft shall be equipped with means of measuring and displaying to the pilot the attitude and the stabilised heading or other equivalent means to mitigate pilot disorientation in case of reduced visual cues".

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *625* comment by: *ASD*

Comment:

SPA.VEMS.110 Equipment requirements for VEMS operations
[…]
(e) For VEMS operations, the VTOL-capable aircraft shall be equipped with a radio altimeter capable of emitting an audio warning below a pre-set height and an audio and visual warning at a height selectable by the pilot, instantly discernible during all phases of NVIS flight.

Suggested resolution:

Is the requirement to install the radio altimeter intended to apply to all VEMS operations or only for VEMS operations performed in NVIS / Aided Night VFR?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *871* comment by: *ADAC Luftrettung gGmbH*

Rule: **SPA.VEMS.110 (d)** - Page 177

Proposed Text:
Applicable after [date of publication + 3 years], the VTOL capable aircraft shall be equipped with means of measuring and displaying to the pilot the attitude and the stabilised heading. *[additional risk mitigation in AMC during the transition period by reducing weather minima]*

Rationale:
There should be a transitional period. Within the scope of this part are novel and potentially beneficial technologies and business models whose early practical testing should not be inhibited. At the same time, both operators and manufacturers are to be encouraged to further develop their systems. Therefore, there should be transitional periods for certain additional equipment which partly was not required even in the established helicopter sector a few years ago but which today represents an achievable and sensible increase in safety. Additonal risk mitigation measures should be prescribed by AMC, like reduced weather minima during this transition period if the aircraft lacks an attitude indicator or a stabilized heading indicator.

Rule: **SPA.VEMS.110 (e)** - Page 177

Proposed Text:
Applicable after [date of publication + 3 years], the VTOL capable aircraft must be equipped with a radio altimeter capable of emitting an audio warning below a pre-set height and an audio and visual warning at a height selectable by the pilot, instantly discernible during all phases flight. *[additional risk mitigation in AMC during the transition period by reducing weather minima]*

Rationale:
It is unclear, whether this applies to all VEMS-flights or only those under NVIS. It should apply to all flights, including VFR day (see Explanatory note to SPA.HEMS.110(f) and (g), 2.3.14 of HEMS opinion). This requirement should be identical to HEMS.

There should be a transitional period. Within the scope of this part are novel and potentially beneficial technologies and business models whose early practical testing should not be inhibited. At the same time, both operators and manufacturers are to be encouraged to further develop their systems. Therefore, there should be transitional periods for certain additional equipment like a radio altimeter which was not required even in the established helicopter sector until now, but which today represents an achievable and sensible increase in safety. Additonal risk mitigation measures should be prescribed by AMC, like reduced weather minima during this transition period if the aircraft has no radio altimeter.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.EFB.100 Use of electronic flight bags (EFBs) - operational approval p. 177

comment | *132* comment by: *Lilium*

Perhaps refer to CAT operations for consistency

Proposed text: A CAT or IAM operator

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1136* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Text as proposed seems to use inconsistent verbiage in (a) when refering to types of operations; if IAM (abbreviation) is used, then CAT should be used when refereing to 'Commercial Air Transport'.

PROPOSED ACTION/RESOLUTION

EASA to consider the following amendments in the text:

"(a) ~~commercial operations of aeroplanes and helicopters~~ **CAT** or an ~~for~~ IAM operator […]

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.100 Emergency medical service operations with VTOL-capable aircraft (VEMS operations) p. 177

comment | *657* comment by: *NGFT*

1. Given the complexity of a HEMS operation it is hard to understand why such unproven aircrafts should be allowed to perform highly sensitive HEMS operations without being embedded into a proven helicopter HEMS operation. There is no disagreement on the

	necessity to provide public service, to provide medical assistance and care to citizens as quickly as possible. It is obvious that complementary capabilities serving public health and safety need to be elaborated and rolled out. However, attempting to perform these services with untested and currently not yet certified vehicles by operators that have no prior experience in these types of operation is not considered sound decision making. Also, in our opinion an issue regarding the use of VTOL in HEMS operations is the air deconfliction, whether you are in U space or not and the possible additional A2A warning devices that might be mandatory to operate because of this emerging market. Setting up such an operation needs to take these issues into consideration. We therefore strongly suggest deferring all references to HEMS operations performed by vertical takeoff and lands aircraft until there is more data available on the reliability of these aircraft. To ensure an equivalent level of safety, we suggest that these types of operation only be allowed under the approval of an existing helicopter CAT HEMS operator. Only after a thorough safety risk assessment based on actual operational data from other vertical takeoff and land operations with VTOLs, the extension of these capabilities should be envisaged
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.130 Crew requirements p. 178

comment	*47* comment by: *DGAC FR (Mireille Chabroux)* **SPA.VEMS.130 Crew requirements** Contrary to the equivalent paragraph for helicopter paragraph b) is reserved. DGAC-FR would like to know why ther is no additional experience required for the pilots in VEMS. DGAC-FR considers that an additional experience should be required as emergency flights induce additional risks.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*73* comment by: *DGAC FR (Mireille Chabroux)* **SPA.VEMS.130** An AMC or GM should be added to explain the notion of "continuity of crew concept".
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *74* comment by: *DGAC FR (Mireille Chabroux)*

SPA.VEMS .130 f) iii)

As already expressed, DGAC -FR sees no reason for having OPCs only once a year.

Proposal

(iii) the VEMS components of the proficiency checks and line checks referred to in (f)(2)(ii) shall both have a validity period of 6 and 12 calendar months respectively.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *840* comment by: *FLYINGGROUP*

The minimum crew for a day VEMS flight shall be either 2 pilots or 1 pilot and 1 VEMS technical crew member. In the situation where the crew is reduced to 1 pilot, then the operation of the VTOL is reduced to VEMS operating sites with previous reconnaissance. However, some VTOL aircraft in development are designed to have only 1 pilot on board, have a cockpit that only has room for 1 person and do not have a direct contact between the cockpit and the cabin.

Question: are such aircraft then automatically disallowed to operate VEMS flights? Can the minimum crew requirements for VEMS operations be adapted to include these "1-pilot" VTOL aircraft?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *876* comment by: *ADAC Luftrettung gGmbH*

Rule: **SPA.VEMS.130 (e)(2)(iii)** - Page 178

Proposed Text:
(iii) 1 pilot only if all of the following conditions are met:
(A) one of the situations below apply:
(1) The commander is required to fetch additional medical supplies, refuel or reposition while the VEMS technical crew member provides medical assistance on the ground.
(2) the patient requires the assistance of the VEMS technical crew member during patient transport.
(B) the destination is not an operating site
(C) if the departure is an operating site, an in-flight reconnaissance with two crew members has been performed during the same VEMS mission and the take-off is performed using a take-off-profile published in the aircraft flight manual, that allows a straight vertical

climb to a rotation point 60ft above the height of any obstacle within a distance of 100m from the departure site.

Rationale SPA.VEMS.130 (e)(2)(iii)(A) :
If the aircraft remains behind at the operating site, this can be a hazard in itself, especially if the aircraft is parked at an intersection or on the autobahn. Therefore, even if the TC/doctor accompanies the patient on the ground, it should be left to the commander's discretion to move the helicopter or fly it to the hospital, if he is certain that safety is assured.

In many cases, safe one pilot only operation can be assured. VTOL capable aircraft are automation dependent and will come with a superb stabilization system. Unlike helicopters which are limited by the 30sec OEI power rating, VTOL capable aircraft are truly capable of prolonged straight vertical climb. Hence, the obstacle environment is not so much a factor as for helicopters. As a certified autopilot is required for night operations, even at night a VTOL capable aircraft can safely climb out of the obstacle environment before rotating and building up forward momentum. Additionally, flight profiles of VTOL capable aircraft will often not need the possibility for a safe forced landing even in the event of a failure for performance in the very early phase of the take-off.

In airborne EMS there are many cases where the emergency doctor must accompany the patient by ground to the destination hospital.

In a two-crew concept where the emergency physician has the dual function of a TC, only one person remains behind at the aircraft, which is the pilot. If there were a legal obligation to wait for the emergency physician to return to the aircraft by another means of transport before the aircraft is allowed to continue flying, this would reduce the availability of this high value rescue vehicle to such an extent that such a two-crew concept would become unattractive for the rescue service commissioning authorities. The two-person concept of the eVTOL EMS does not seek to replace HEMS-helicopters but seeks to replace doctor cars. While HEMS-helicopters are a supplemental ressource for EMS, the doctor car is a primary ressource for EMS. Principle availability during night time is therefore even more important for VEMS than it is for HEMS. The two-person concept will persist even when larger eVTOLs come to market, as one of the main challanges for EMS today is the unavailability of sufficient personell, which eVTOLS can ease by providing greater reach for the emergency doctor in the response time available. The strict rule on two persons in the cockpit during night time has the potential to inhibit this societal benefit. Such a rule would unnecessarily impede using VTOL capable aircraft for VEMS in the public benefit and would destroy several VEMS business cases based on a two-crew concept permanently. Therefore we urge EASA to re-evaluate this rule.

The change proposed seeks to take up the two situations from the daytime rule and makes mitigating restrictions with regard to the departure and destination site.

Rationale SPA.VEMS.130 (e)(2)(iii)(B):

It is incomprehensible why only aerodromes should be allowed as departure and destination sites. Neither do the explanatory notes give any indication on the reasons for such a restrictive regulation. The unequal treatment compared to helicopters is not explained any further.

In addition to aerodromes, public interest sites (PIS) are of enormous importance in air rescue. In some member states, the number of PIS far exceeds the number of aerodromes. The ban on using PIS with only one pilot is therefore very close to a general ban on flying with one pilot.

It is also completely unnecessary: the PIS regulations under CAT.POL.H.225 are a performance relief for helicopters so that they can, under exception from CAT.POL.H.100 (b)(1), fly to hospitals in inner-city areas even in performance class 2. But as far as VTOL capable aircraft are concerned, only those in certification category enhanced are allowed to operate in VEMS. They thus fulfil higher performance requirements during take-off and landing than a helicopter in flight performance class 1. PIS can therefore be used much more safely by VTOL capable aircraft than by helicopters. Then why are there stricter rules for VTOL capable aircraft than for helicopters?

While from the point of view of public rescue services, the interest in flying to operating sites with only one pilot is negligible and would be an inadaquate counterweight to the operational risk at the site, matters are different at the departure site. Operating sites as a departure point are of great practical importance. It is typically the case that the patient must be treated at the scene of the incident and transported from there under medical escort. It is of great importance to the rescue system, that the VTOL capable aircraft can fly to the destination hospital as well to pick up the doctor and re-establish readiness for the next mission. The departure site will have been carefully explored with two persons in the cockpit before landing, thus the operational risk will be far lower compared to a destination operating site.

A single pilot departure from an operating site can also be done safely. VTOL capable aircraft are automation dependent and will come with a superb stabilization system. Unlike helicopters which are limited by the 30sec OEI power rating, VTOL capable aircraft are truly capable of prolonged straight vertical climb. Hence, the obstacle environment is not so much a factor as for helicopters. Therefore, a VTOL capable aircraft can safely climb out of the obstacle environment before rotating and building up forward momentum. Additionally, flight profiles of VTOL capable aircraft will often not need the possibility for a safe forced landing even in the event of a failure for performance in the very early phase of the take-off.

Taking into account both the public benefit of night time, single pilot departures from pre-explored operating sites on the one hand and the mitigated operational risk on the other hand, the former is preponderant.

response | Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment | *938* | comment by: *Civil Aviation Authority the Netherlands*

SPA.VEMS.130 (f) (2)

See remark on ORO.GEN.140/ORO.FC. 430 if there are only 2 seats & 2 dedicated people in the a/c.
Are there any simulators available?
Is training/ are checks performed by a lot of actual flying?
Perhaps this is not possible, specifically not for OPC?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *941* comment by: *Civil Aviation Authority the Netherlands*

SPA.VEMS.130(e)(2)

How will you perform SPA.VEMS.130(e)(2) if the patient needs the attention of the VEMS TC? You don't know that in advance; it must be clear that there are risks with regard to patient transport in the dark
If, due to further developments, patients can be taken along and 1 of the 2 crew members sits/looks backwards for the patient - Operators site. Deviates from HEMS.
You must therefore know in advance that you are not taking the patient with you.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.120 Operating minima p. 178

comment: *875* comment by: *ADAC Luftrettung gGmbH*

Rule: **SPA.VEMS.120 sentence 1** - Page 178

Proposed Text:
VEMS flights operated under VFR shall comply with the VEMS specific weather minima for dispatch and en-route phase of the VEMS flight.
[specific minima shall be defined in the AMC]
[add experience requirements to AMC to SPA.VEMS.130 as a mitigating measure]

Rationale:
The public interest in the success of a VEMS-mission calls for less strict minima compared to general aviation.

There is no reason to treat VTOL capable aircraft in VEMS any different from helicopters in HEMS; there must be a level playing field between helicopters and VTOL capable aircraft.

HEMS helicopters are allowed to use HEMS-specific minima, even though an autopilot is not required for these helicopters. An SAS is helpful, but since VTOL capable aircraft are automation dependent, their stability system will even be superior to most helicopter SAS. Considering that VEMS-pilots will be very experienced aviators, many of them with hundreds of flight hours in HEMS, alleviated weather minima are adaquate for this kind of operation.

NPA 2018-04 intends to create more flexibility for HEMS-flights by putting the minima-table into the AMC. This should be done for VEMS as well. To make future change easier, the minima should be defined by AMC, not in the rule itself.

As a mitigating measure, AMC should define adaquate minimum experience levels for the crew in similar types of operation, to ensure they can deal with marginal weather situations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1137* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

VTOL aircrafts serving VEMS will have high stability of the operation, hence they should not be treated worse than helicopters performing such missions. Moreover, due to the purpose and characteristics of VEMS missions, it is crucial that the general airspace requirements can be exempted for those operations.

PROPOSED ACTION/RESOLUTION

EASA should allow VEMS operations to apply VEMS specific minima, similarily as it is done currently for HEMS operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.125 Performance requirements for VEMS operations p. 178

comment *939* comment by: *Civil Aviation Authority the Netherlands*

Editorial: In the summary on p. 39 SPA.EFB is not mentioned. But it is at p. 177

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *940* comment by: *Civil Aviation Authority the Netherlands*

SPA.VEMS.125

Is the title of the article correct?
Is obstacle clearance by lighting a performance requirement? Or an equipment requirement?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.155 Fuel/energy scheme - fuel/energy planning and in-flight replanning p. 180

comment *48* comment by: *DGAC FR (Mireille Chabroux)*

SPA.VEMS.155 Fuel/energy scheme - fuel/energy planning and in-flight replanning
The minimum final reserve fuel/energy is not defined precisely. This could be an issue for authorities who have no clue to decide whether the final reserve is sufficient or not. Moreover, it could lead to non harmonized practices throughout member states. (see comment 78)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.140 Information, procedures and documentation p. 180

comment *885* comment by: *ADAC Luftrettung gGmbH*

Rule: **SPA.VEMS.140** - Page 180

Proposed Text (amendment):
(d) Notwithstanding UAM.OP.MVCA.175, the operator does not need to complete an operational flight plan and may deviate from UAM.OP.MVCA.181 for VEMS flights. SPA.VEMS.125 (b) shall remain unaffected.

Rationale:
In airborne EMS, the destination often is not known before take-off. Airborne re-tasking is frequent. An operational flight plan cannot be completed under these circumstances. There

needs to be an exemption from the requirement of an operational flight plan. The operator must ensure nonetheless CSFL by other means.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1138* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In case of VEMS operations, the destination of the flight might not be known at the time of the take-off. Hence, the VEMS operator should be exempted from the requirement of completing operational flight plan, while the CSFL requirement must remain.

PROPOSED ACTION/RESOLUTION

Proposal to deviate in SPA.VEMS.140 from operational flight plan requirement for VEMS operations. At the same time, proposal to clarify that the SPA.VEMS.125 (b) shall remain applicable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.050 Scope p. 181

comment *49* comment by: *DGAC FR (Mireille Chabroux)*

IAM.GEN.VCA.050 Scope
As a GM will clarify the scope, DGAC-FR suggests the following changes:

Section 1 contains general requirements for any ~~the~~ operation of VTOL-capable aircraft ~~in any configuration (manned/unmanned) and in any area (congested/non-congested).~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *50* comment by: *DGAC FR (Mireille Chabroux)*

IAM.GEN.VCA.050 Scope

	CAT.GEN.MPA.100 "Crew responsibilities" covers the pilot but also cabin crew and technical crew members, whereas IAM.GEN.VCA.100 Pilot reseponsibilities covers only the pilots. As a technical crew member for VEMS is required, it is suggested to rewrite IAM.GEN.VCA.100 to stick to CAT.GEN.MPA.100.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*942* comment by: *Civil Aviation Authority the Netherlands* IAM.GEN.VCA.050 Section 1; generic requirements (including those for unmanned) are listed here. Would that be useful if an operator would only do unmanned? Everything else in 965 is just about Manned. Are we moving back towards to 947 then?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.100 Pilot responsibilities p. 181

comment	*51* comment by: *DGAC FR (Mireille Chabroux)* **IAM.GEN.VCA.100 Pilot responsibilities** Whereas CAT.GEN.MPA.100 "crew responsibilities" covers also other crew members than the pilot, IAM.GEN/VCA.100 covers only the pilot. As for VEMS flight a technical crew member could be require, it is suggested to rewrite IAM.GEN.VCA.100 to take it into account.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*52* comment by: *DGAC FR (Mireille Chabroux)* **IAM.GEN.VCA.100 Pilot responsibilities**

in paragraph c) some changes are made in comparison with CAT paragraphs (ex: "if he or she " instead of "they".
DGAC -FR is in favour of keeping the wording harmonized (even if it could be improved).
This is a general comment which is applicable to the whole AIR OPS Part.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *659* comment by: *NGFT*

What is the difference between a pilot and pilot in command? Why is there this difference?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *915* comment by: *European Helicopter Association*

What is the difference between a pilot and pilot in command? Why is there this difference?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1266* comment by: *Direction de l'Aviation Civile*

- The terminology "Flight crew member" is already used in ORO.FC, SPA.VEMS and even in UAP.OP.MVCA.155. DAC Luxembourg recommends to replace "Pilot" with "Flight crew member" as a matter of consistency;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1274* comment by: *EDA/NH*

Concerning the sentence: "The pilot shall: … report to the pilot-in-command any fault, failure, malfunction…" REMARK: Doesn't this preclude, that a 2-pilot concept will be established for commercial / non-commercial passenger transport? Is this a prerequisite or would it be possible -especially with the level of automation and the intended "unmanned" way in mind - to consider a one-pilot system or an on-board and remote pilot crew-system?

Then, this chapter could to be adapted and accordingly amended in order to give sufficient guidance to allow such a system.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1294* comment by: *European Helicopter Association* What is the difference between a pilot and pilot in command? Why is there this difference?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1317* comment by: *Kusi* What is the difference between a pilot and pilot in command? Why is there this difference?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.100 Scope p. 181

comment *133* comment by: *Lilium*

Confusion may arise about the references to and different uses of the term "commercial air transport" (e.g. ORO.AOC.100 indicates that IAM operations are different from CAT operations, while IAM.GEN.100 states that IAM operations include CAT operations)
Propose to:
1. add definition of "commercial air transport" for the purpose of the Air Ops Regulation or change definition in Basic Regulation. Add reference to aeroplanes and helicopters.
2. change text in IAM.GEN.100: no reference to commercial air transport, but only mention commercial and non-commercial operations. In this way, confusion as to whether CAT operations are part of IAM operations or not can be avoided.

<u>Proposed regulatory text:</u>

- Definition of commercial air transport: E.g., an aircraft operation with an aeroplane or a helicopter to transport passengers, cargo or mail for remuneration or other valuable consideration.

- IAM.GEN.100: This Annex shall apply to the following operations in congested or outside congested areas: (a) commercial and non-commercial passenger and/or cargo operations with VTOL-capable aircraft, in manned configuration.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *389* comment by: *H. Raeder*

There is no explicit definition of "cargo" in the 965/2012 and the term is also used in the context of HEC (human external cargo) and "cargo hook"/"cargo sling". In CAT operations it is clear that the term cargo is used for loads transported in the cabin or cargo compartment and in SPO normally in the context of external loads (HESLO). But in the rules for IAM there is no clear distinction/definition and it seems possible to transport the cargo as external load without having a rule set similar to SPO.SPEC.HESLO or SPO.OP.230.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *658* comment by: *NGFT*

Does this article cover aerial work operations? It is not clear how VTOL may perform such operations

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *913* comment by: *European Helicopter Association*

Does this article cover aerial work operations? It is not clear how VTOL may perform such operations.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1140* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Confusion may arise about the references to and different uses of the term "commercial air transport" (e.g. ORO.AOC.100 indicates that IAM operations are different from CAT operations, while IAM.GEN.100 states that IAM operations include CAT operations).

The following is proposed:

1. Add definition of "Commercial Air Transport" for the purpose of the Air Ops Regulation or change definition in Basic Regulation. Add reference to aeroplanes and helicopters.

2.Change text in IAM.GEN.100. No reference to commercial air transport, but only mention commercial and non-commercial operations. In this way, confusion as to whether CAT operations are part of IAM operations or not can be avoided.
PROPOSED ACTION/RESOLUTION

Definition of commercial air transport:

E.g., an aircraft operation **with an aeroplane or a helicopter** to transport passengers, cargo or mail for remuneration or other valuable consideration

IAM.GEN.100: This Annex shall apply to the following operations in congested or outside congested areas:
(a) commercial and non-commercial passenger and/or cargo **operations** with VTOL-capable aircraft, in manned configuration.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1293* comment by: *European Helicopter Association*

Does this article cover aerial work operations? It is not clear how VTOL may perform such operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1316* comment by: *Kusi*

Does this article cover aerial work operations? It is not clear how VTOL may perform such operations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.280 Aircraft tracking system p. 181

comment *230* comment by: *DGAC FR (Mireille Chabroux)*

SPA.VEMS.280 Aircraft tracking system
DFAC-FR would like to know if it is planned to have associated AMC/GM which should be aligned with existing AMC/GM for CAT.GEN.MPA.205.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *247* comment by: *Civil Aviation Authority the Netherlands*

The operator shall establish and maintain a monitored aircraft tracking system for VEMS operations for the entire duration of the VEMS flight. Are any standards applicable on the flight tracking system?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.6.6. Draft Annex IX (Part-IAM) p. 181

comment | *343* comment by: *ASD*

comment:
IAM.VCA.GEN.175 Endangering Safety.
The psychological assessment needs to be detailed. Operators tend to use psychological assessment tools and processes that are in fact psychotechnical selection tests however stating they are EASA requirements.

Suggested resolution:
Suggest to precise the expectations of the psychological assessment and the boudaries to ease the distinction from the pilot selection tests which are not in the frame of the mental health determination.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *344* comment by: *ASD*

comment:
UAM.OP.MVCA.181 (a) : Why 2 safe landing options? For some very small flights (15 minutes long), maybe 1 landing site is sufficient. Except if you assume current destination as being one of the 2 required safe landing sites.

Suggested resolution:
Allow more flexibility depending on the nature of the mission ?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*345* comment by: *ASD* comment: UAM.IDE.MVCA.300 (3) Type error for the reference to (a) or (b) Suggested resolution: (a) or (b) must be replaced by (1) or (2)
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1273* comment by: *EDA/NH* Minor comment concerning the sentence: "commercial and non-commercial air transport of passengers and/or cargo with VTOL-capable aircraft, in manned configuration" REMARK: This para clearly restricts content to manned configuration only, while the immediately following chapter in section 1 reflects manned and unmanned. THis appers to be a minor contradiction
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SPA.VEMS.195 Fuelling / defuelling / battery charging while passengers are embarking, on board, or disembarking p. 181

comment	*537* comment by: *Volocopter GmbH* Battery swap needs to be included, what can be expressed by replacing 'battery charging' with "energy replenishing and withdrawal". Please change the wording.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*932* comment by: *ADAC Luftrettung gGmbH* Rule: **SPA.VEMS.195** - Page 181 **Proposed Text:**

A refuelling / defuelling / energy replenishment / energy withdrawal procedure while passengers are embarking, on board, or disembarking shall be established by the operator.

Rationale:
Electric vehicles might not only charge batteries, but also swap them, hence a more general wording is needed here.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1139* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Battery swap needs to be considered.
PROPOSED ACTION/RESOLUTION
EASA to please change the wording by replacing *'battery charging'* with *"energy replenishing and withdrawal".*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1252* comment by: *European Cockpit Association*

Commented text:
IAM.GEN.VCA.100 Pilot responsibilities

(a) The pilot shall be responsible for the proper execution of their duties that are

Comment:
Replace pilot with pilot in command or commander.

There is a possibility that there will be two pilots in a manned VTOL-aircraft, even though it is assumed that there will be one in most cases. Changing the wording to
PIC will eliminate a possible source of confusion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART A - GENERAL REQUIREMENTS p. 181

comment *916* comment by: *European Helicopter Association*

	In part VCA there are numerous articles that are duplicated from CAT. Simplify and align. Please reduce complexity of the regulatory system not increase it
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1295* comment by: *European Helicopter Association* 1. In part VCA there are numerous articles that are duplicated from CAT. Simplify and align. Please reduce complexity of the regulatory system not increase it
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.055 Competent authority p. 181

comment	*1061* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* **IAM.GEN.055 Reg. (EU) No 965/2012, c. 3, page 181** "*Place of residence*" should be mentioned as a criteria determining the competent authority.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.105 Responsibilities of the pilot-in-command (PIC) p. 182

comment	*134* comment by: *Lilium* (a)(6): why only reference to crew members - passengers also should not interrupt or move in the cabin during critical phases of the flight. <u>proposed regulatory text:</u> "not permit any crew member or passenger to perform any activity [...]"
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *687* comment by: *FOCA Switzerland*

Regarding (a), FOCA suggests to verify if the reference to "**U**AM.GEN.VCA.100" should not rather be "**I**AM.GEN.VCA.100".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *914* comment by: *ADAC Luftrettung gGmbH*

Rule: **IAM.GEN.VCA.110 (d)** - Page 161

Proposed Text:
The PIC shall, as soon as practicable, report to the appropriate air traffic service (ATS) unit any hazardous weather or flight conditions encountered that are likely to affect the safety of other aircraft.

Rationale:
VCA-flights might be very limited in duration and the crew workload during take-off and landing might not permit reporting ASAP.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1141* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

- Why is the requirement only applicable to crew members? Passengers also should not interrupt or move in the cabin during critical phases of the flight.

PROPOSED ACTION/RESOLUTION

EASA to consider the following addition:

*(6) "not permit any crew members **or passengers** perform any activity […]"*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1142* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to this statement:

(d) The PIC shall, as soon as possible, report to the appropriate air traffic service (ATS) unit any hazardous weather or flight conditions encountered that are likely to affect the safety of other aircraft.

For some short duration missions it would be enough if the pilot reports the observed weather condition at the end of the mission. It seems that *"as soon as possible"* sounds very demanding.

PROPOSED ACTION/RESOLUTION
Proposal to replace by *"as soon as practicable".*

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.130 Powering on of lift or thrust units p. 183

comment *523* comment by: *Volocopter GmbH*

It should be ensured in the continuing airworthiness regulation that maintenance personnel is also authorised to power on the thrust units for the purpose of maintenance ground runs.

Please include this option.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.140 Portable electronic devices (PEDs) p. 183

comment *845* comment by: *FLYINGGROUP*

"The operator shall not permit any person to use a PED on board aircraft that could adversely affect the performance of the aircraft's systems and equipment, and shall take all reasonable measures to prevent such use."

Question: can PEDs be used by passengers if they do not emit/transmit any signals ("flight-safe mode")? Can communication features of PEDs be used (mobile internet, telphone calls,...)

	if it has been proven that this does not adversely affect the performance of the aircraft's systems and equipment?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*900* comment by: *DGAC FR (Mireille Chabroux)* **IAM.GEN.VCA.140 Portable electronic devices** DGAC-FR suggests to link IAM.GEN.VCA.140 to CAT.GEN.MPA. 140. Indeed, the same requirements certainly apply to VTOL and as the rules and AMC/GM are very large, it appears meaningless to double the same 10 pages in AIR OPS. **Proposal** The operator of VTOL-capable aircraft shall comply with CAT.GEN.MPA.140.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1036* comment by: *AESA* **Comment:** *"The operator shall not permit any person to use a PED on board aircraft".* In the case that the on-board system has no connection to a USSP, and the aircraft enters a U-Space airspace, **an exception to this rule** should be considered in order to improve the situational awareness of the pilot.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.120 Common language p. 183

comment	*1021* comment by: *Austro Control* Comment:

Why was "crew" replaced with "personnel?" How can an operator, in Europe, be expected to have only personnel which speaks a common language?

Proposed Change:
Proposed to revert back to "crew"

Classification:
Major-Conceptual

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1062* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

IAM.GEN.VCA.120 Reg. (EU) No 965/2012, c. 3, page 183
See CAT.GEN.MPA where this is the responsibility of the operator.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.155 Carriage of weapons of war and munitions of war p. 184

comment *135* comment by: *Lilium*

We propose to align text with Part-CAT. Weapons of war (carried by, e.g., sky marshalls or bodyguards) should be allowed under conditions laid down in CAT.GEN.MPA.155 Carriage of weapons of war and munitions of war.

Proposed regulatory text:
(a) The operator shall only transport weapons of war or munitions of war by air if an approval to do so has been granted by all States whose airspace is intended to be used for the flight.
(b) Where an approval has been granted, the operator shall ensure that weapons of war and munitions of war are:
(1) stowed in the aircraft in a place that is inaccessible to passengers during flight; and
(2) in the case of firearms, unloaded.

(c) The operator shall ensure that, before a flight begins, the PIC is notified of the details and location on board the aircraft of any weapons of war and munitions of war intended to be carried.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1143* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Text as proposed in IAM.GEN.VCA.155 (Part-IAM) should be aligned with CAT.GEN.MPA.155 (Part-CAT)

Weapons of war (carried by, e.g., sky marshalls or bodyguards) should be allowed under conditions laid down in CAT.GEN.MPA.155 Carriage of weapons of war and munitions of war.
PROPOSED ACTION/RESOLUTION
EASA to align IAM.GEN.VCA.155 with CAT.GEN.MPA.155:

(a) The operator shall only transport weapons of war or munitions of war by air if an approval to do so has been granted by all States whose airspace is intended to be used for the flight.
(b) Where an approval has been granted, the operator shall ensure that weapons of war and munitions of war are:
(1) stowed in the aircraft in a place that is inaccessible to passengers during flight; and
(2) in the case of firearms, unloaded.
(c) The operator shall ensure that, before a flight begins, the PIC is notified of the details and location on board the aircraft of any weapons of war and munitions of war intended to be carried.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA. 160 Carriage of sporting weapons and ammunition p. 184

comment *136* comment by: *Lilium*

We propose to align text with Part CAT requirements for helicopters that do not have a separate compartment in which the weapons can be stowed.

In addition, perhaps add AMC that mirrors AMC1 CAT.GEN.MPA.161 Carriage of sporting weapons and ammunition — alleviations applicable to helicopters.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *943* comment by: *Civil Aviation Authority the Netherlands*

IAM.GEN.VCA.160

This is more a security item than a safety item. Why would the transportation of sports weapons be allowed within an urban area?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1144* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Text as proposed sould be aligned with Part CAT requirements for helicopters that do not have a separate compartment in which the weapons can be stowed.

PROPOSED ACTION/RESOLUTION
Add AMC that mirrors AMC1 CAT.GEN.MPA.161 - Carriage of sporting weapons and ammunition — alleviations applicable to helicopters.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.141 Use of electronic flight bags (EFBs) p. 184

comment | *899* comment by: *DGAC FR (Mireille Chabroux)*

IAM.GEN.VCA.141 Use of Electronic flight bag

DGAC-FR suggests to link IAM.GEN.VCA.141 to CAT.GEN.MPA.141. Indeed, the same requirements certainly apply to VTOL and as the rules and AMC/GM are very large, it appears meaningless to double the same 10 pages in AIR OPS.

Proposal

The operator of VTOL-capable aircraft shall comply with CAT.GEN.MPA.141.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.170 Psychoactive substances p. 185

comment | *53* comment by: *DGAC FR (Mireille Chabroux)*

IAM.GEN.VCA.170 Psychoactive substances

Contrary to CAT.GEN. MPA.170, there is no requirement for the operator to develop and implement an objective, transparent and non-discriminatory procedure for the prevention and detection of cases of misuse of psychoactive substances by its flight and cabin crew and other safety-sensitive personnel **.**

DGAC-FR would like to know the rationale for not requiring such a procedure.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.175 Endangering safety p. 185

comment *638* comment by: *ASD*

Comment :

IAM.VCA.GEN.175 Endangering Safety.
The psychological assessment needs to be detailed. Operators tend to use psychological assessment tools and processes that are in fact psychotechnical selection tests however stating they are EASA requirements.

Suggested resolution:

Suggest to precise the expectations of the psychological assessment and the boudaries to ease the distinction from the pilot selection tests which are not in the frame of the mental health determination.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.185 Information to be preserved on the ground p. 185

comment *793* comment by: *AIRBUS*

Page 186 - point IAM.GEN.VCA.185

<u>Comments</u>

"(b) The information referred to in point (a) includes:

[...]
(2) copies of the relevant part(s) of the aircraft technical log or aircraft logbook, as applicable;"

Suggestions

It is proposed to amend point (b)(2) of this point to read:
"(2) copies of the relevant part(s) of the **UAS continuing airworthiness records** ~~**aircraft technical log or aircraft logbook, as applicable**~~;"

Rationale – Justification

There is no notion of aircraft technical log or aircraft logbook in point ML.UAS.305.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1023* comment by: *Austro Control*

Comment: IAM.GEN.VCA.185(b)
Why was the "special loads notification" omitted. In our opinion, it should be left on the ground.

Proposed Change:
Proposed to add "(b)(5)

Classification:
Editorial

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1267* comment by: *Direction de l'Aviation Civile*

IAM.GEN.VCA.185 (b)(1): DAC Luxembourg recommends to add "when an operational flight plan is required" at the end of the sentence;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.VCA.195 Handling of recording-system recordings: preservation, production, protection and use p. 186

comment *519* comment by: *Volocopter GmbH*

This data should also be possible to be used by Type Certificate holder to improve safety of the future designed aircraft.

Moreover, not allowing the TC holder to get access to this date would be in conflict with SC VTOL.2510(c) which requires "in service monitoring" of aircraft data. In order to receive that data, TC holder should be added to the IAM.GEN.VCA.195 (f) (3) list.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *927* comment by: *ADAC Luftrettung gGmbH*

Rule: **IAM.GEN.VCA.195(3)** - Page 187

Proposed Text:
Flight parameters or data link messages recorded by the recording system shall not be used for purposes other than for the investigation of an accident or an incident which is subject to mandatory reporting, unless such recordings meet all of the following conditions:

(i) are de-identified;
(ii) are disclosed under secure procedures;
(iii) are used or provided for one of the following purposes only
(A) used by the aircraft operator for airworthiness, maintenance or safety management purposes only;
(B) are voluntarily provided by the operator to the type certificate holder for the purpose of safety improvements only.

Rationale:
VTOL capable aircraft will be much more data-driven than previous types of aircraft.
This provides an excellent opportunity to use this data to increase safety. Unexpected operational data can give the operators SMS indications of unsafe flight procedures before an accident occurs. By developing algorithms and models to analyse this data, an important improvement of predictive SMS can be achieved. This is an opportunity to be seized! Ownership of the data clearly lies with the operator. Data collection is in the realm of the operator and therefore he is responsible for access protection. The operator should be free to (selectively) pass on the data to the TC-holder to improve safety. The collection of data by the holder of the type certificate without the knowledge or explicit consent of the operator must be excluded.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1064 comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

IAM.GEN.VCA.195 Reg. (EU) No 965/2012, c. 3, page 186
Should a reference be made also to Reg. (EU) 2016/679 (General Data Protection Regulation), as in CAT.GEN.MPA.195?

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1145 comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to IAM.GEN.VCA.195 (f)(3):

This data should also be possible to be used by Type Certificate holder to improve safety of the future designed aircraft.

Moreover, not allowing the TC holder to get access to this data would be in conflict with SC VTOL.2510 (c) which requires "in service monitoring" of aircraft data.
PROPOSED ACTION/RESOLUTION

EASA should consider adding TC holders to the IAM.GEN.VCA.195 (f) (3) list.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.MVCA.180 Documents, manuals and information to be carried on board each flight p. 188

comment

165 comment by: *GdF*

In manned aviation, only a certified met service provider is allowed to provide weather data and must be used in ATC only. Will that apply also to UAS/AAM operations? If not - why not? How can common operations be guaranteed if perhaps weather data are not compatible? GdF urges EASA to develop a common European standard for certified met services.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

276 comment by: *EUMETNET ASP*

Point (18) 'appropriate meteorological information'.

The existing text presupposes that existing capabilities are/will be sufficient. Research and development in these areas will be needed to understand if that is the case.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1268* comment by: *Direction de l'Aviation Civile*

- IAM.GEN.MVCA.180 (a) (5): knowing the concept of true copy is disappearing in every national legislation, DAC recommends to remove this requirement;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.MVCA.135 Access to the pilot's assigned station p. 188

comment *1305* comment by: *Axalp Technologies*

How is this section to be interpreted? Some clarification would be appreciated. Is this a physical access that should only be granted to the persons in (a) 1-3 meaning that there is a separated cockpit or would any key or other identification to activate the pilot interface suffice?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

IAM.GEN.MVCA.181 Documents and information to be retained on the ground p. 189

comment *54* comment by: *DGAC FR (Mireille Chabroux)*

IAM.GEN.MVCA. 181 Documents and information to be retained on the ground
Editorial comment

Proposal

IAM.GEN.MVCA.181 Documents and information that may ~~to~~ be retained on the ground
Notwithstanding point ~~U~~IAM.GEN.MVCA.180

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *277* comment by: *EUMETNET ASP*

Point (f) 'meteorological information'.

The existing text presupposes that existing capabilities are/will be sufficient. Research and development in these areas will be needed to understand if that is the case.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *688* comment by: *FOCA Switzerland*

FOCA suggests to verify if the reference to "**U**AM.GEN.MVCA.180" should not rather be "**I**AM.GEN.MVCA.180".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.105 Use of aerodromes or operating sites p. 190

comment *1* comment by: *Patrick WILLS*

I refer to "Operating site as defined in Regulation(EU) No 965/2012 being a site, *other than an aerodrome,* selected by the pilot-in-command for landing, take-off and/or external load operations."
Helipaddy Ltd have 15,000 registered landing sites on the platform and have become the standard place for site owners to provide their site surveys which are then made available to operators. Helipaddy have already numbered every site and EASA may wish to use this numerical ID to remove ambiguity around non-ICAO landing sites. The survey that site owners provide is very comprehensive and based on EASA's own documentation and also that of the EHEST

(https://www.easa.europa.eu/community/topics/ehest-heritage-useful-sms-tools). Helipaddy have designed the site survey to far exceed the minimum safety requirements normally required by the regional aviation authorities.
Helipaddy receive around 200 updates a week from pilots and site owners, usually in regards to safety aspects of private landing sites. Helipaddy have engaged with a number of future EVTOL operators and vertiport companies to ensure that the platform is ciompatible going forward.
For more information, please contact paddy@helipaddy.com.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *17* comment by: *Vertical Aerospace*

Could Agency consider to indicate a rationale or specification for selection of aerodromes to enable conventional landing operations for CTOL capable VTOLs?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *137* comment by: *Lilium*

GM might be necessary to explain that small private vertiports are also considered aerodromes. It could be clarified in guidance material what are the minimum requirements to consider a landing site an adequate vertiport/aerodrome. E.g., A suitable surface, markings and a charger as minimum and perhaps add a reference to PTS Chapter C as min. requirements for an adequate vertiport.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *832* comment by: *FLYINGGROUP*

For VTOL passenger operations it is noted that "Operations with passengers will only be possible to aerodromes" and that only cargo and VEMS operations may make use of operating sites under certain conditions. Restricting passenger operations to aerodromes greatly reduces the flexibility of this air transport product (i.e. at its maximum having the possibility to pick up and drop off passengers at any location) as the capital-intensive development of vertiports will be required to operate VTOL aircraft to/from more geographical locations.

Question: would it be possible to allow passenger VTOL operations to/from operating sites under additional safety precautions?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *956* comment by: *Supernal*

Private vertiports are also considered aerodromes. The requirements to consider a landing site an adequate vertiport/aerodrome.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1146* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Small private vertiports are also considered aerodromes. It could be clarified in guidance material what are the minimum requirements to consider a landing site an adequate vertiport/aerodrome. E.g., A suitable surface, markings and a charger as min should suffice and perhaps a reference to PTS- VPT-DSN Chapter C as min. requirements for an adequate Vertiport can be made.
PROPOSED ACTION/RESOLUTION
EASA to consider adding GM

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

MODULE UAM-OP p. 190

comment *75* comment by: *DGAC FR (Mireille Chabroux)*

DGAC-FR wonders why there is no provisions equivalent to those of CAT.OP.MPA.101. dealing with altimeter check and settings.

Proposal

UAM.OP.MVCA.XX Altimeter check and settings Regulation
(a) The operator shall establish procedures for altimeter checking before each departure.
(b) The operator shall establish procedures for altimeter settings for all phases of flight, which shall
take into account the procedures established by the State of the aerodrome or the State of the
airspace, if applicable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*101* comment by: *Supernal* Significnat duplication with IAM Module. Why the need for both UAM and IAM?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.050 Scope p. 190

comment	*168* comment by: *GdF* Where UAS flight takes place within the controlled airspace, the U-space service providers shall establish a procedure to coordinate the flight authorisation requests with the relevant air traffic services units. This will increase ATCOs' workload with all relevant consequences for and negative impact on the capacity. GdF rejects the intention to create a "U-space" in controlled, non-segregated airspace as long as UAS do not fully comply with ICAO rules regulations. It is both IFATCA and GdF policy that all UAS operations in non- segregated airspace must be in full compliance with ICAO requirements. Whether the pilot is onboard or not shall be irrelevant for the purposes of air traffic control, therefore the same division of responsibilities and liabilities as manned aircraft shall apply. ATCOs shall not be held liable for incidents or accidents resulting from the operations of RPAS that are not in compliance with ICAO requirements, in non-segregated airspace. GdF suggests the introduction of mitigation action to reduce the safety issue – to identify with a risk assessment what elements will lead to increased workload for ATCOs, if not manageable address it in the strategic conflict layer management and not in the tactical as currently being proposed - therefore the text needs to be re-drafted. GdF therefore urges the development and implementation of technology to prevent airspace infringements by Unmanned Aircraft. We suggest mentioning that the effects on ATS have to be considered in the safety risk assessments of the operators as well, especially, if factors like traffic numbers or performance of drones change significantly.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SUBPART B - OPERATING PROCEDURES p. 190

comment	*369* comment by: *German NSA (BAF)* It is suggested to add a definition of "operating procedures" to clearly distinguish them from existing terms such as flight procedures.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.130 Noise - abatement procedures p. 191

comment	*76* comment by: *DGAC FR (Mireille Chabroux)* **UAM.OP.VCA.130 Noise-abatement procedures** DGAC-FR wonders whether such procedures will be practically implemented.It is thus suggested to modify the provisions as follow. **Proposal** a) When developing operating procedures, the operator shall take into account...
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*331* comment by: *ASD* Comment: As there is no available standards to measure the noise impact for eVTOL so far (at ICAO or other levels) the noise abatement procedures may not be appropriate reference in this proposed rule Suggested resolution: A more generic reference to noise minimization objective should be proposed without mandatorily requesting a noise abatement procedure
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*577* comment by: *AIRBUS* **UAM.OP.VCA.130 Noise - abatement procedures Page 191** **Comments**

As there is no available standards to measure the noise impact for eVTOL so far (at ICAO or other levels) the noise abatement procedures may not be appropriate reference in this proposed rule.

Suggestions

A more generic reference to noise minimization objective should be proposed without mandatorily requesting a noise abatement procedure

This comment is substantive or is an objection.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *863* comment by: *Umwelt- und Nachbarschaftshaus*

We, the Forum Flughafen und Region (FFR), are a representative of a multi-stakeholder dialogue, based around Frankfurt airport, which includes Deutsche Lufthansa, Fraport, Deutsche Flugsicherung and several local and regional political representatives. We highly appreciate that noise from drones is actively being addressed by the proposed regulation. The increase in use of drones will lead to an increase in related noise impacts. However, we would like to highlight that the responsibility for noise abatement procedures should not be in the responsibility of drone operators alone. There must be a surrounding regulatory framework which regulates potential noise effects from drones, including certification as well as operation of drones.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1148* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to UAM.OP.VCA.130:

"The operator shall establish appropriate operating procedures for noise abatement for each VTOL-capable aircraft type on its fleet, taking into account the need to minimise the effect of aircraft noise at aerodromes/operating sites".

(b) Such procedures shall:
(1) ensure that safety has priority over noise abatement; and
(2) be simple and safe to operate with no significant increase in flight crew workload during critical phases of flight.

The inclusion of noise-abatement procedures in UAM.OP.VCA.130 seems to not consider that:

a) There are no available standards yet to measure the noise impact for eVTOL (at ICAO or other levels). Therefore, the noise abatement procedures may not be an appropriate reference in this proposed rule.

b) Reference to aerodromes/operating sites should be deleted and areas surrounding the aerodrome should be considered by including a reference to departure and arrival procedures. Only including the aerodrome/operating sites could imply that the requirement only takes ground/ramp noise into account. However, the noise may reach beyond the boundaries of the aerodromes/operating site. Therefore, we believe the requirement should be writen in a way that those surrounding areas are included. Reducing the noise impact on communities will be a major factor in enabling these new operations, as found in EASA's "Study on the Societal Acceptance of Urban Air Mobility in Europe". Furthermore, current transport aircraft ICAO-A and –B noise abatement procedures are tailored to reducing community noise impact well beyond the airport boundaries. The same principle should apply to other type of operations such as UAM.

PROPOSED ACTION/RESOLUTION

EASA to remove the following provision within the context of NPA 2022-06:

~~"The operator shall establish appropriate operating procedures for noise abatement for each VTOL capable aircraft type on its fleet, taking into account the need to minimise the effect of aircraft noise at aerodromes/operating sites".~~

~~(b) Such procedures shall:~~
~~(1) ensure that safety has priority over noise abatement; and~~
~~(2) be simple and safe to operate with no significant increase in flight crew workload during critical phases of flight.~~

Alternatively, EASA should align UAM.OP.VCA.130 with part-CAT, as follows:

*"The operator shall establish **appropriate operating departure and arrival/approach** procedures for each VTOL aircraft type on its fleet, taking into account the need to minimise the effect of aircraft noise, **and considering published noise abatement procedures."***

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.125 Taxiing and ground movement p. 191

comment *138* comment by: *Lilium*

(a) we propose referring to a "taxiing aircraft" instead of "aircraft being taxied"

<u>proposed regulatory text:</u>

[...] the operator shall consider the risk of collision between a taxiing aircraft and an aicraft that is being moved and [...]"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *919* comment by: *ADAC Luftrettung gGmbH*

Rule: **UAM.OP.VCA.125(b)(2)** - Page 191

Proposed Text:
in the case of ground taxiing, by a person designated by the operator, after having received appropriate training and instructions, at the controls of the aircraft.

Rationale:
consistency with the rest of the rule

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1147* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to this statement in UAM.OP.VCA.125 (b)(2):

(b)(2) in the case of ground taxi, by a person designated by the operator, after having received appropriate training and instructions, at the controls of the aircraft.

It states 'ground taxiing' in accordance with the text of the rationale which is given below the rule. Also, the rationale explains the difference between taxiing and ground taxiing of VTOLs. Such clarification should also be included in the regulation or at AMC/GM level.
PROPOSED ACTION/RESOLUTION
Please clarify at AMC/GM level.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1150* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

In relation to UAM.OP.VCA.125 (a):

"aircraft being taxied" could be substituted by "taxiing aircraft"
PROPOSED ACTION/RESOLUTION
EASA to amend as follows:

*"(a) […] the operator shall consider the risk of collision between a **taxiing aircraft** and an aicraft that is being moved and […]"*

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.135 Routes and areas of operation p. 191

comment *500* comment by: *JEDA*

U-space services are emergning. Thir use should not be excluded, even for manned VCA

Proposed amendment: The operator shall ensure that operations are only conducted along routes or within areas for which: (a) The operator shall ensure that operations are only conducted along routes or within areas for which: (1) space-based facilities, ground facilities and services and U-space services, and meteorological services, adequate for the planned operation, are provided;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *501* comment by: *JEDA*

In the future requirements for horizontal PBN and for height keeping may emerge. The wording of the rule should enable this evolution

Proposed amendment: the equipment of the aircraft meets the minimum requirements for the planned operation, including for horizontal RNP and for height keeping;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *660* comment by: *NGFT*

1. UAM.OP.VCA.135 (2): This article is not clear. Describe in more detail. What is meant by surface (city park, parking lot, flat roof, etc.?). How can this article be complied with? What is the preparation needed?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *903* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.VCA.135

DGAC-FR suggests to clarify that the surfaces available that permit a landing to be executed in the case of CFP are aerodromes (or operating sites for VEMS).
A GM should clarify that operating sites are only allowed for VEMS flight.

Proposal:

(a)(2) ~~surfaces~~ aerodrome or operating sites are available that permit a landing to be executed in the case of critical failure for performance (CFP);

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *917* comment by: *European Helicopter Association*

UAM.OP.VCA.135 (2): This article is not clear. Describe in more detail. What is meant by surface (city park, parking lot, flat roof, etc.?). How can this article be complied with? What is the preparation needed?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1296* comment by: *European Helicopter Association*

1. UAM.OP.VCA.135 (2): This article is not clear. Describe in more detail. What is meant by surface (city park, parking lot, flat roof, etc.?). How can this article be complied with? What is the preparation needed?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1318* comment by: *Kusi* This article is not clear. Describe in more detail. What is meant by surface (city park, parking lot, flat roof, etc.?). How can this article be complied with? What is the preparation needed?
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.150 Fuel/energy scheme - general p. 192

comment	*77* comment by: *DGAC FR (Mireille Chabroux)* **UAM.OP.VCA.150** The provisions dealing with fuel should be moved to UAM.OP.VCA.18X in order to be consistent with OP.MPA
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.145 Establishment of minimum flight altitudes and lateral clearance distances p. 192

comment	*166* comment by: *GdF* What is a "safe distance"? How close may a drone be operated to a manned aircraft? How many metres/feet are "safe" to uninvolved people? Detailed research on DAA flight operations, using certified sensor systems, could allow aircraft to maintain safe distances from other aircraft during flight conditions that would not be appropriate for visual flight in a manned aircraft. This capability would rely heavily on network-enabled information, precision navigation, and cooperative surveillance and would require the development and integration technologies for traffic, weather, and terrain avoidance. Taking the possible definition of "safety is the freedom from unacceptable risk of harm", the question remains what is individually (un-)acceptable? One possibility would be, at least for uninvolved people: when the UA is operating in close proximity to people, the remote pilot should keep the UA at a lateral distance from any uninvolved person that is not shorter than the height '1:1 rule', i.e. if the UA is flying at distance of 10 m from uninvolved person, the height of the UA should not exceed 10 m. The question of how close a drone may operate next to a manned aircraft remains unanswered though.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *217* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.VCA.145 Establishement of minimum flight altitudes and lateral clearance distances

Flight altitude is linked to obstacles located in a disc whose radius by SERA. Therefore lateral distances are already encompassed in that computation.
Neither UAM.OP.VCA.145 b) nor SERA enable to understand the goal of the additional provisisons regarding lateral distances.
DGAC-FR suggests to review the concept of lateral distance in relation with SERA requirements.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *370* comment by: *German NSA (BAF)*

It is unclear what is – with regard to existing flight procedures - meant and intended especially by these requirements. Should each operator may establish its own "flight procedure" / "operating minima" which must be approved by a CA? If so, how shall this construct be reconciled with the existing flight procedures and their establishment procedures? How does this correlate with the obligation for flight procedure designers to be certified (see Art. 6 lit k CIR (EU) 2017/373)? Do the "procedures" need to be published? And may they be established in any airspace, controlled or uncontrolled? Wouldn't the establishment have to be coordinated with the CA responsible for IFR/VFR flight procedures? Because of these ambiguities, it is suggested to delete these requirements or at least a fundamental revision. In addition, reference is made to the comment No. 369 concerning page 190.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.155 Fuel/energy scheme - fuel/energy planning and in-flight replanning p. 193

comment | *78* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.VCA.155 Fuel/energy scheme

Paragraph c)4) requires fuel/energy to fly to a destination alternate. However it is not clear when such an alternate is needed. Some provisions to clarify when an alternate should be

added.. Moreover, it should be clarified that the fuel has to be taken into account from the LDP (cf UAM.POL.VCA.135 c)).

Regarding paragraph c) 5), DGAC-FR has strong concerns about the definition of final reserve. It is not acceptable to let the operator define its own final reserve for the following reasons:
-the aim of the final reserve is not to perform a go-around but to ensure that a minimum amount of fuel/energy is available in case of any unforeseen situation (time for the pilot to take a decision after any minor failure, in case the vertiport is not available, any weather related issue...) . An objective based regulation is thus not relevant for the final reserve.
-there will be no harmonisation throughout the operators and the member states.
-it gives the responsibility to the authority to approve this reserve without any clue on what is acceptable and probably no data from the AFM.
DGAC-FR considers that a figure should be added. Discussions with experts to define the figure could be held.

Moreover paragraph d) seems not applicable : taking into account human factors to determine the final reserve is practically not feasible. This is another reason for being prescriptive for the final reserve. This will enable to delete this paragraph or replace these considerations by a multiplying factor.
Finally it is suggested to make a link with UAM.OP.VCA.135 in paragraph 6).

Proposal

(4) destination alternate fuel/energy: when a flight is operated with at least one destination alternate aerodrome or operating site, that shall be the amount of fuel/energy needed to fly from the landing decision point (LDP) at the destination aerodrome/operating site to the destination alternate aerodrome/operating site;

(5) final reserve fuel/energy that shall not be less than the energy/fuel to fly X minutes at best range speed ~~the amount of fuel/energy needed to:~~
~~(i) perform a go-around and another approach;~~
~~(ii) manage an abnormal or emergency situation that occurs during point (i).~~
~~The operator shall specify the minimum final reserve fuel/energy in the OM;~~

(6) additional fuel/energy: when a flight is operated with at least one en-route alternate aerodrome or operating site **as required by UAM.OP.VCA.135** that shall be the amount of fuel/energy to enable the VTOL-capable aircraft to perform a safe landing at an ERA aerodrome or en-route operating site c~~onsidering the aircraft CMP in case of a CFP event~~;

(~~d) in determining the final reserve fuel/energy:~~
~~(1) all the following is taken into consideration:~~
~~(i) conservative ambient conditions from the point of view of fuel/energy consumption;~~
~~(ii) an appropriate configuration/speed to perform the go-around and approach procedures;~~

~~(iii) a conservative fuel/energy consumption;~~
~~(2) adequate safety margins are applied to the following, as a minimum:~~
~~(i) differences in the fuel/energy consumption from the planned conditions to the actual conditions;~~
~~(ii) inaccuracy of the remaining usable fuel/energy indications;~~
~~(iii) conditions that may reduce the amount of usable fuel/energy;~~
~~(iv) human factors related to the flight crew managing a low fuel/energy situation;~~
~~(v) human factors related to the flight crew managing an abnormal/emergency situation;~~

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *139* comment by: *Lilium*

(c)(2) and (c)(4): Considering a performance-based reserve definition, if an alternate is selected, the energy from the trip landing is not consumed and can be made available to the reserves. In other words, the landing energy needs only to be accounted once, either in the trip or on the alternate, but not twice to avoid overly conservative definitions. Please consider this in the GM and AMC.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *201* comment by: *Lilium*

(c)(5) The final reserve seems to pursue a performance-based definition as well but the wording of one go-around and one approach does not fully represent a physical flight profile. Should this represent a physical profile, with minimum altitude, slopes, etc? The approach should also have an end point for accounting defined, and the (M)DA/H is suggested for the GM and AMC.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *202* comment by: *Lilium*

A proper definition for the commit to land point is required, and clarification on balked landing and missed approach required, for energy accounting. In special, the differences between the LDP (MOC VTOL.2130) and DA/H or MDA/H considered wrt VFR and IFR operations. It should

be noted that conventional aviation even in VFR still define reserves based on MDA/DA as per CAT.OP.MPA.110, since the operational decision point requires further information from the landing site, like radio, instrumentation, etc, and it is not solely dependent on the aircraft performance.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *203* comment by: *Lilium*

Item (d)(2) provides definitions that lacks objectiveness and cannot be quantified, from both manufacturer and operator points of view. It also overlaps with the purpose of contigency. Item (d)(2) should be removed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *278* comment by: *EUMETNET ASP*

Point (a)(2)(iii) 'anticipated meteorological conditions'.

The existing text presupposes that existing capabilities are/will be sufficient. Research and development in these areas will be needed to understand if that is the case.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *335* comment by: *ASD*

Comment
The reference to deferred maintenance item is not consistent with the terminology used in the other part of the EASA regulation, in particular UAM.IDE.VCA.105 where reference is made to aircraft is operated in accordance with the operator's MEL and UAM.OP.MVCA.175 Flight preparation where reference is made to the configuration deviations list (CDL)

Suggested resolution:

The content of paragraph (d) refers to means of determining the final energy reserve which is already required under paragraph (c)(5) of the same rule.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *336* comment by: *ASD*

Comment:
The content of paragraph (d) refers to means of determining the final energy reserve which is already required under paragraph (c)(5) of the same rule.

Suggested resolution:
Move paragraph (d) to the level of an AMC

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *524* comment by: *Volocopter GmbH*

UAM.OP.VCA.155(c)(3): further clarification/ definition of contingency energy and unforeseen factors is needed. Please clarify at AMC & GM level. Proposal to recognise 'EUROCAE D-289_Guidance on Determination of Accessible Energy in Battery Systems for eVTOL Applications be acceptable to demonstrate Compliance to this paragraph' as AMC to this requirement.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *584* comment by: *AIRBUS*

UAM.OP.VCA.155 b 2 iv Page 193

Comments

The reference to deferred maintenance item is not consistent with the terminology used in the other part of the EASA regulation, in particular UAM.IDE.VCA.105 where reference is made to aircraft is operated in accordance with the operator's MEL and UAM.OP.MVCA.175 Flight preparation where reference is made to the configuration deviations list (CDL).

Suggestions

(iv) the effects of having the aircraft operated in accordance with the operator's MEL and/or under the operator's configuration deviation list (CDL) ;

This comment is an observation or is a suggestion.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *585* comment by: *AIRBUS*

UAM.OP.VCA.155 (d) **Page 194**

Comments

The content of paragraph (d) refers to means of determining the final energy reserve which is already required under paragraph (c)(5) of the same rule.

Suggestions

Move paragraph (d) to the level of an AMC.

This comment is an observation or is a suggestion.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *925* comment by: *ADAC Luftrettung gGmbH*

Rule: **UAM.OP.VCA.155(c)(3)** - Page 194

Comment:
"unforseen factors" needs to be defined in the AMC.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1151* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

UAM.OP.VCA.155 (b)(2)(iv)

The reference to deferred maintenance item is not consistent with the terminology used in other provisions of this proposed amendment, in particular: a) UAM.IDE.VCA.105, where reference is made to aircraft being operated in accordance with the operator's MEL and; b) UAM.OP.MVCA.175 (b)(2), where reference is made to the configuration deviations list (CDL)

PROPOSED ACTION/RESOLUTION
EASA to consider amending the text as proposed:

(iv) the effects ***of having the aircraft operated in accordance with the operator's MEL and/or under the operator's configuration deviation list (CDL)*** *;*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1152* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the following point (c)(3):

(3) contingency fuel/energy that shall be the amount of fuel/energy needed to compensate for unforeseen factors;

"unforseen factors" should be further clarified at AMC&GM level.
PROPOSED ACTION/RESOLUTION
Please clarify at AMC/GM level.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1153* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The content of paragraph (d) refers to means of determining the final energy reserve which is already required under paragraph (c)(5) of the same rule.

PROPOSED ACTION/RESOLUTION
Move paragraph (d) to the level of an AMC

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1154* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The text as proposed seems not clear in relation to:

- the criteria that needs to be considered when defining which abnormal or emergency situations are or not included in the scope of point (5)(ii)

- The meaning of the term 'manage' in point (5)(ii)

PROPOSED ACTION/RESOLUTION
EASA to clarify as per the questions above, and consider adding AMCs/GM

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1271* comment by: *Direction de l'Aviation Civile*

- UAM.OP.VCA.155(c)(5): DAC Luxembourg highly recommends to remove from the operational side the determination about the final reserve fuel/energy. The total usable energy quantity is an essential information related to airworthiness and as such, should be addressed during the certification process.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.170 Special refuelling or defuelling of the aircraft p. 195

comment: *525* comment by: *Volocopter GmbH*

As the provison reads, it is not applicable for electrically powered VTOL. Please clarify in AMC&GM.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *929* comment by: *ADAC Luftrettung gGmbH*

Rule: **UAM.OP.VCA.170(b)** - Page 195

Proposed Text:
(b) Special refuelling or defuelling applies to:
(1) refuelling with an engine running, or rotors or propellers turning;
(2) refuelling/defuelling with passengers embarking, on board, or disembarking; and
(3) refuelling/defuelling with wide-cut fuel.
It does not apply to VTOL capable aircraft powered exclusively by electric energy

Rationale:
Clarification that this does not apply to VTOL capable aircraft powered exclusively by electric energy

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1155* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
it is understood that this provision is not applicable for electrically powered VTOL.
PROPOSED ACTION/RESOLUTION
Please clarify either in the regulatory text or in AMC/GM to avoid confusion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1275* comment by: *EDA/NH*

As it might be fuel and battery energie driven VCAs , is the high power charging process of an electric VCA considered "safe enough" so that no precutionary measures, analog to this 170 Special Fuelling is required? Otherwise a technology driven asaptation and integration in this paragraph should be considered. As Section 2 MVCA consideres this in 195ff an analog equal contextual treatment of fuel and battery energy should be considered.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.160 Fuel/energy scheme - selection of aerodromes or operating sites p. 195

comment *661* comment by: *NGFT*

In conjunction with other references articles, this requirement leads to a chicken and egg situation. Does one need to base the fuel / energy available to define with routes can be flown or is the flight defined first and then required fuel / energy is calculated? How can aerodrome / operating sites be selected in the first case?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *918* comment by: *European Helicopter Association*

in conjunction with other references articles, this requirement leads to a chicken and egg situation. Does one need to base the fuel / energy available to define with routes can be flown or is the flight defined first and then required fuel / energy is calculated? How can aerodrome / operating sites be selected in the first case?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1297* comment by: *European Helicopter Association*

1. UAM.OP.VCA.160: In conjunction with other references articles, this requirement leads to a chicken and egg situation. Does one need to base the fuel / energy available to define with routes can be flown or is the flight defined first and then required fuel / energy is calculated? How can aerodrome / operating sites be selected in the first case?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.245 Meteorological conditions p. 196

comment | *279* comment by: *EUMETNET ASP*

The operator shall ensure that the aircraft is operated within the weather operating limitations it is certified for, based on current and forecast weather for the entire duration of the flight.

The existing text presupposes that existing capabilities are/will be sufficient. Research and development in these areas will be needed to understand if that is the case.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *450* comment by: *Europe Air Sports*

Text in NPA:
The operator of manned VTOL-capable aircraft shall comply with point UAM.OP.MVCA.245.

EAS Comment:
Looks like a circular reference?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.290 Proximity detection p. 198

comment *97* comment by: *Supernal*

Can this function be automated?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.265 Take-off conditions p. 198

comment *140* comment by: *Lilium*

Given the nature of the available flight time in an VTOL aircraft, it makes sense to be satisfied that UAM.OP.VCA.300 (approach and landing conditions) can be met at the ETA.

Proposed regulatory text: Add point (c) to UAM.OP.VCA.265. Before commencing take-off, the PIC shall be satisfied that (c) UAM.OP.VCA.300 is met at the destination aerodome within the ETA window. (GM will need to be written to specify the ETA window this accounts for).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *280* comment by: *EUMETNET ASP*

Point (a) 'the meteorological conditions at the aerodrome or operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure;'

The siting of meteorological instruments at operating sites and in the vicinity to properly measure the weather parameters relevant to take-off/departure and approach/landing has not been adequately researched/determined. Research and development in these areas will be needed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1156* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Given the nature of the available flight time in an VTOL aircraft, it makes sense to be satisfied that UAM.OP.VCA.300 (approach and landing conditions) can be met at the ETA.
PROPOSED ACTION/RESOLUTION
Add point (c) to UAM.OP.VCA.265. Before commencing take-off, the PIC shall be satisfied that (c) UAM.OP.VCA.300 is met at the destination aerodome within the ETA window.

(GM will need to be written to specify the ETA window this accounts for)

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.260 Oil supply p. 198

comment | *526* comment by: *Volocopter GmbH*

UAM.OP.VCA.260 Oil supply: it is proposed to replace 'oil' with 'consumable lubricants' or similar.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1276* comment by: *EDA/NH*

Minor question: There is a poteantial for Hydrogen driven VCAs or systems using Hydrogen as a backup energie source, which would fulfill a similiar role as oil does. Should this also be included?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.270 Minimum flight altitudes/heights p. 198

comment *905* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.VCA.270 Minimum flight altitude/heights
The addition of the word "height" needs to be reassessed to keep a common reference for all aircraft whether VTOL aircraft or other aircraft.

Proposal
UAM.OP.VCA.270 Minimum flight altitudes~~/heights~~
The pilot shall not fly below specified minimum flight altitudes~~/heights~~ except when:
(a) necessary for take-off or landing; or
(b) descending in accordance with procedures approved by the competent authority.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.295 Collision avoidance p. 199

comment *98* comment by: *Supernal*

Can this function be automated?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *167* comment by: *GdF*

The ICAO-definition of Detect and Avoid, explains that Detect and Avoid is at the same Layer 2 and Layer 3 of Conflict Management (lies somewhere between Layer 2 and Layer 3 of Conflict Manager). This, as a radar also does "sense" traffic, or conflicting traffic. There are different ways to sense or detect conflicting traffic and/or hazards. This is also true for many of the currently used Safety Nets (most of them are situated in Layer 3), such as TCAS, STCA or GPWS (E-GPWS). They all do this s well – detect and sense something, being it other traffic or hazards. But See and Avoid is clearly located, even anchored in Layer 3, whereas the same cannot be said for "Detect and Avoid".
So far, the only true "independent" and fully redundant systems which GdF is aware of, and which could "maybe" substitute one day the function of the human operator and the human eyes in the Conflict Management scenarios are cameras – either optical and/or thermal cameras.
GdF notes that all the proposed possible "solutions" for SEE AND AVOID for RPAS/UAS, are in fact an accumulation of the very same tools and/or equipment that are already used for LAYER

2 of Conflict Manager (the Tactical ATC-separation or Layer 2), so they are used as well for the separation provision. And they are again used for Layer 3, the anti-collision layer – therefore used again and again.
It's rather optimistic working by saying "DAA capability will be compatible with the rules of the air and with any separation provision services provided by ATS in a given airspace class". But how can a DAA-manoeuvre be compatible with ATC-service provision?

Considering that, as of today, no detect and avoid (DAA) capabilities among UAS have been verified and certified. It cannot be ensured that MACs could be systematically prevented. Therefore, GdF supports that this solution has been discarded at present point in time.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *231* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.VCA.295 Collision Avoidance

DGAC-FR suggests to clarify that the installation of the DAA system has to be certified.

Proposal
When a detect and avoid (DAA) system is installed and active, whose installation was certified in accordance with the applicable airworthiness requirements the operator shall establish operational procedures and training programmes so that the pilot is appropriately trained and competent in the use of such equipment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *502* comment by: *JEDA*

The possible availability of the Traffic Information Services (TIS) based on Regulation 2021/664 should not be excluded

Proposed amendment: When a detect and avoid (DAA) system is installed and active, or when Traffic Information Service is available, the operator shall establish operational procedures and training programmes so that the pilot is appropriately trained and competent in the use of such equipment or external service.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *986* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

EASA text: "When a detect and avoid (DAA) system is installed and active, the operator shall establish operational procedures and training programmes so that the pilot is appropriately trained and competent in the use of such equipment."

The possible availability of the Traffic Information Services (TIS) based on Regulation 2021/664 should not be excluded, so below there is an alternative text proposed:

"When a detect and avoid (DAA) system is installed and active, **or when Traffic Information Service is available**, the operator shall establish operational procedures and training programmes so that the pilot is appropriately trained and competent in the use of such equipment **or external service**."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1157* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The language used in the 'rationale' appears looser ("may") than within the SERA portions of the NPA; given the importance and potentially significantly negative impact that mandated/recommended predefined routes could impose on initial manned VTOL ops, it is important that the language remain consistent.
PROPOSED ACTION/RESOLUTION
EASA to clarify the text, including the rationale.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1201* comment by: *Joby Aviation*

Rationale

The language used here appears looser ("may") than within the SERA portions of the NPA; given the importance and potentially significantly negative impact mandated/recommended predefined routes could impose on initial manned VTOL operations, it is important that the language remain consistent and be clear.

[Clarification of existing text requested]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1254* comment by: *European Cockpit Association*

Commented text:
UAM.OP.VCA.295 Collision avoidance
Page 199

When a detect and avoid (DAA) system is installed and active, the operator shall establish operational procedures and training programmes so that the pilot is appropriately trained and competent in the use of such equipment.

Comment:
DAA-systems should be mandatory for all unmanned aircraft, and should be encouraged for all aircraft.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.100 Use of air traffic services (ATS) p. 199

comment *99* comment by: *Supernal*

The requirements for establishment of "U" space are not harmonized and the requirements for ATS in it not established.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *224* comment by: *ENAIRE*

Original text: In the case of manned VTOL-capable aircraft that enter a U-space airspace established in controlled airspace, the ATC unit will segregate manned VTOL-capable aircraft from UAS by taking UAS and manned aircraft navigational performance into account, forcing UAS operators to discontinue their flights, vacate the restricted part of the U-space airspace, or conform with amended flight authorisations, as applicable.
In the case of manned VTOL-capable.
Comment: The use of U-space by manned VTOL should be recommended as far as possible, to avoid the generation of a DAR as only solution because U-space services could be provided.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *232* comment by: *DGAC FR (Mireille Chabroux)*

<u>UAM.OP.MVCA.100 Use of air traffic service (ATS)</u>

To be noted that e-conspicuity term is not defined, and that this concept raised several questions (frequency spectrum occupancy, interoperability, minimum required performances ...) still unanswered today. In addition, the conclusions of the activities conducted by EASA in 2020 on airborne collision risk BIS are still unknown.

DGAC-FR is not in favor of a mention to e-conspicuity.
Proposal

(a)(2)(ii) (ii) the aircraft has ~~a functioning electronic conspicuity device if that U-space airspace interferes with uncontrolled airspace~~ the capability to share its position through approved means.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *451* comment by: *Europe Air Sports*

Text in NPA:

"[manned aircraft] must be equipped with an electronic conspicuity device sharing the aircraft position in a manner that is exploitable by all USSPs active in that particular U-space airspace. The pilot of the manned VTOL-capable aircraft ensures that their electronic conspicuity device operates correctly before entering the U-space airspace..."

EAS Comment:
Unacceptable. Current drafts of EC regulation (Implementing Regulation (EU) 2021/664 and draft AMC/GM to it) do not provide the means for the pilot to perform this operational check.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *662* comment by: *NGFT*

Access requirements to U-Space must be clearly defined while not prohibiting other users from fair and equal access to this airspace.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *831* comment by: *FOCA (Switzerland)*

(2) (i)/(ii): FOCA would like to point out that this section may be incomplete and in this circumstance would consider it necessary to formulate this section more precisely. The reason

for this consideration is the following: VFR do not receive ATC service in Class E airspace (only IFR receive ATC service). But Class E is controlled airspace. This would have the consequence that VFR must make themselves visible in Class E (controlled airspace) and in Class G (uncontrolled airspace).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *833* comment by: *FOCA (Switzerland)*

Rationale (last section): FOCA questions whether the regulation does not go further than what is meant though dynamic reconfiguration as anticipated by the U-space Regulation. Although the dynamic reconfiguration will force the UAS to vacate the restricted part of the U-space airspace, this is according to FOCA not a task of the ATC. ATC has no view of where the UAS are; the responsibility to take into account airspace restrictions lies on the UAS operators. However the UAS operators will receive the information about the airspace restriction through the USSPs while using the UAS flight Authorization Service and the Geoawareness service. FOCA would appreciate to have a clarification on this point.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *920* comment by: *European Helicopter Association*

Access requirements to U-Space must be clearly defined while not prohibiting other users from fair and equal access to this airspace.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1065* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

UAM.OP.MVCA.100, c. 2(i)(ii), page 200
Rationale "*In the case of manned VTOL-capable aircraft that enter a U-space airspace established in controlled airspace, the ATC unit will segregate manned VTOL-capable aircraft from UAS by taking UAS and manned aircraft navigational performance into account, forcing UAS operators to discontinue their flights, vacate the restricted part of the U-space airspace, or conform with amended flight authorisations, as applicable*." There are no regulated separation minima to U-space airspace. The long term objective to establish a U-space airspace is to create an environment where manned and unmanned aircraft can operate safely alongside with each other with the help of U-space Service Providers. NPA 2021-14 on "*Draft AMC and GM to Regulation (EU) 2021/665 amending Implementing Regulation (EU) 2017/373*

as regards requirements for providers of air traffic management/air navigation services and other air traffic management network functions in the U-space airspace designated in controlled airspace" states the following AMC: "*AMC1 ATS.TR.237(a) Dynamic reconfiguration of the U-space airspace IMPACT ON UAS OPERATIONS Air traffic control units should only apply the dynamic reconfiguration of the U-space airspace in the event of risk of collision between manned and unmanned aircraft, causing the forced landing of unmanned aircraft*."
This clearly identifies the scenario where an ATC unit shall apply the dynamic reconfiguration. Separative set of operational constrains within different U-space-airspaces in Europe will force USSP to accommodate local separation rules for each U-space airspace. The risk is that we create yet another non-harmonized approache within EU. A set of separation rules, each considered for indivual airspace classes, should be defined.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1277* comment by: *EDA/NH*

What about potential operational instructions from the USSP? Recommend to consider "an new number (iii) the operational intructions from USP notwithstanding the reglation provided by (i)" and moving the electronic conspicuity to (iv)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1298* comment by: *European Helicopter Association*

Access requirements to U-Space must be clearly defined while not prohibiting other users from fair and equal access to this airspace.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1340* comment by: *Gregory Walden*

interferes with

Comment:
lines 3 and 6

Alternative text proposed:
is in

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.VCA.300 Approach and landing conditions p. 199

comment *141* comment by: *Lilium*

References from VCA to MVCA have been made earlier in this NPA, for sake of consistency this would be beneficial. Perhaps add a reference to UAM.OP.MVCA.305 (commencement and continuation of approach) in UAM.OP.VCA.300(a), as this section lays-out the required runway/FATO operating minima to be verified.

Proposed regulatory text:

UAM.OP.VCA.300(a): Before commencing an approach operation, the pilot-in-command shall be satisfied that (a) the meteorological conditions at the aerodrome or operating site and the **operating** conditions of the runway/FATO intended to be used will not prevent a safe approach, landing or go-around, considering the performance information contained in the operations manual (OM). **For IFR flights, the runway/FATO operating conditions as provided by UAM.OP.MVCA.305 shall be complied with.**

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *207* comment by: *Lilium*

We propose to add a reference to UAM.OP.MVCA.245 (meteorological conditions) in UAM.OP.VCA.300(b), as this section lays-out the required aerodrome minima to be verified.

Proposed regulatory text:

UAM.OP.VCA.300(b): the established aerodrome operating minima, **in accordance with UAM.OP.MVCA.245**, shall be complied with.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *208* comment by: *Lilium*

We propose to remove double use of shall in UAM.OP.VCA.300(b)

Proposed regulatory text:

UAM.OP.VCA.300(b): Before commencing an approach operation, the pilot-in-

command **shall** be satisfied that:(b) the established aerodrome operating minima are complied with.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *281* comment by: *EUMETNET ASP*

Point (a) 'the meteorological conditions at the aerodrome or operating site and the conditions of the runway/FATO intended to be used will not prevent a safe approach, landing or go-around, considering the performance information contained in the operations manual (OM);'

The siting of meteorological instruments at operating sites and in the vicinity to properly measure the weather parameters relevant to take-off/departure and approach/landing has not been adequately researched/determined. Research and development in these areas will be needed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1158* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
References from VCA to MVCA have been made earlier in this NPA, for sake of consistency it would be helpful to do the same in this provision. Especifically:

a) add a reference to UAM.OP.MVCA.305 (commencement and continuation of approach) in UAM.OP.VCA.300(a), as this section lays out the required runway/FATO operating minima to be verified.

b) add a reference to UAM.OP.MVCA.245 (meteorological conditions) in UAM.OP.VCA.300(b), as this section lays out the required aerodrome minima to be verified.

c) use the verb 'shall' in UAM.OP.VCA.300(b)
PROPOSED ACTION/RESOLUTION
EASA to consider making the following changes/references:

UAM.OP.VCA.300(a): Before commencing an approach operation, the pilot-in-command shall be satisfied that (a) the meteorological conditions at the aerodrome or operating site and the ***operating*** *conditions of the runway/FATO intended to be used will not prevent a safe*

approach, landing or go-around, considering the performance information contained in the operations manual (OM). ***For IFR flights, the runway/FATO operating conditions as provided by UAM.OP.MVCA.305 shall be complied with.***

UAM.OP.VCA.300(b): the established aerodrome operating minima, ***in accordance with UAM.OP.MVCA.245,*** *shall be complied with.*

UAM.OP.VCA.300(b): Before commencing an approach operation, the pilot-in-command ***shall*** *be satisfied that: (b) the established aerodrome operating minima is complied with.*

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.107 Adequate aerodrome p. 200

comment *96* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.MVCA.107 Adequate aerodrome

This paragraph addresses also operating sites. Thus, it should be renamed "adequate aerodrome or operating site".
DGAC-FR wonders whether it could be envisaged to allow the operator to select operations sites as diversion sites for the portion of the flight which is outside a congested area.

Moreover the meaning of "available" should be clarified in an AMC or a GM.

Proposal

UAM.OP.MVCA.107 Adequate aerodrome or operating sites

(a) The operator of VTOL-capable aircraft shall only use adequate aerodromes, including heliports or vertiports, for its normal operations, as well as for the purpose of diversion.

d) notwithstanding a), the operator may use adequate operating sites for the purpose of diversion when it is outside of a congested area taking into account :

(1) the aircraft performance requirements applicable for take-off and landing;
(2) operating site characteristics, including dimensions, obstacles, and surface condition;
(3) the safe separation of the VTOL-capable aircraft from people on the ground; and
(4) privacy, data protection, liability, insurance, security, and environmental protection requirements.

AMC or GM
AVAILABLE AERODROME
An aerodrome is available when it is weather-permissible and not obstructed by other aircraft.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *142* comment by: *Lilium*

We propose to add AMC/GM to explain para (b)(3) services and facilities.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *371* comment by: *German NSA (BAF)*

UAM.OP.MCVA.100 (a) (2) (i)

The wording should be amended as follows:
"(a) The operator of a manned VTOL-capable aircraft shall ensure that:
(1) …
(2) whenever the VTOL-capable aircraft enters a designated U-space airspace, the operation shall be conducted in accordance with the applicable rules of the air, and:

(i) the operational instructions from the ATC unit, if that U-space airspace interferes with controlled airspace and the aircraft is a controlled flight; or
(ii) …

Rationale:
In airspace class E VFR flights are principally not controlled flights.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1159* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Proposed text requires further clarification
PROPOSED ACTION/RESOLUTION
(b)(3) services and facilities should be further explained in AMC and GM

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.126 Performance-based navigation (PBN) p. 201

comment *143* comment by: *Lilium*

The relevant PBN navigation specification should be stated in the AFM as well as OM.

Proposed regulatory text:
The relevant PBN navigation specification is stated in the OM and AFM or other document that has been approved by the certifying authority of the VTOL-capable aircraft as part of an airworthiness assessment or is based on such approval.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *169* comment by: *GdF*

The conformance monitoring service shall be mandatory: the safety of the operation is based on the assumption that manned aviation is segregated/separated/spaced from UAS applying the dynamic airspace reconfiguration and so UAS comply with these restrictions. Clear regulations are essential and required, in particular in case of an Unusual Incident.

GdF therefore considers the establishment of a mandatory, transparent reporting and safety management system for incidents to improve overall safety as absolutely paramount.
GdF suggests creating clear, transparent responsibilities for UTM / ATM / ATCOs, in particular for the case of an Unusual Incident - who is responsible for what? In particular when things go wrong - because they will.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *374* comment by: *German NSA (BAF)*

The wording of this regulation suggests that there is a difference between procedures and routes. Are the mentioned routes the predefined routes and the mentioned procedures IFR flight procedures? If that is the case, the wording should be amended so the difference is clear.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*957* comment by: *Supernal* The relevant PBN navigation specification should be stated both in the AFM as well as the OM.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1161* comment by: *General Aviation Manufacturers Association (GAMA)* **RATIONALE / REASON / JUSTIFICATION** The relevant PBN navigation specification should be stated both in the AFM as well as the OM. **PROPOSED ACTION/RESOLUTION** EASA to consider the following addition in UAM.OP.MVCA.126 para (a): *"(a) the relevant PBN navigation specification is stated in **the OM** and AFM or other document that has been approved by the certifying authority of the VTOL-capable aircraft as part of an airworthiness assessment or is based on such approval;"*
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.125 Instrument departure and approach procedures p. 201

comment	*219* comment by: *ENAIRE* The fact that point (c) (1) and (2) are joined by an "or" implies that operators holding part-SPA PBN approvals may dispense with obstacle/terrain clearance analyses and safety risk assessments, essentelements which are not totally under the scope of a specific PBN approval as per Annex V. To ensure that essential elements of flight and ATM/ANS operations are still complied with, point (1) is proposed to be deleted. The role of Annex V approvals would be reflected in point (2), which would be renumbered as (1). Furthermore, Aerodrome obstacle clearance criteria (i.e. ICAO Annex 14) should not the only ones to be considered. Instrument flight procedure-specific criteria (i.e. ICAO Annex 6 / PANS-OPS) should be added to those for aerodromes. New proposed text: *(1) they are designed by the operator in compliance with the relevant aircraft airworthiness **and Part-SPA** approvals, aerodrome **and IFP design** obstacle clearance criteria and navigation*

specifications for operation, and the operator has established standard operating procedures in the OM on the basis of a safety risk assessment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *220* comment by: *ENAIRE*

Regarding (c) (2), Who should perform and approve the safety risk assessment? Will there be a single assessment, or at least two (one for the operator and other for ATM/ANS providers)? Is this aspect going to be developed by means of AMC/GMs?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *373* comment by: *German NSA (BAF)*

An ATC clearance is basically binding, see SERA.8015 (b) of CIR (EU) No 923/2012. Therefore, the wording of the sentence "may accept ATC clearance" should be amended to avoid misunderstandings.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *663* comment by: *NGFT*

VTOL operators are given the possibility to define their own IFR approach. This needs to extend to other aircraft as well (e.g. IFR helicopters). The technical capabilities exist as we write this. Operational tests under the PROUD project (https://www.sesarju.eu/node/1559) have proved this beyond any reasonable doubt.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *921* comment by: *European Helicopter Association*

VTOL operators are given the possibility to define their own IFR approach. This needs to extend to other aircraft as well (e.g. IFR helicopters). The technical capabilities exist as we write this. Operational tests under the PROUD project (https://www.sesarju.eu/node/1559) have proved this beyond any reasonable doubt.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1299* comment by: *European Helicopter Association* VTOL operators are given the possibility to define their own IFR approach. This needs to extend to other aircraft as well (e.g. IFR helicopters). The technical capabilities exist as we write this. Operational tests under the PROUD project (https://www.sesarju.eu/node/1559) have proved this beyond any reasonable doubt.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.110 Aerodrome operating minima p. 201

comment	*372* comment by: *German NSA (BAF)* It is unclear what is – with regard to existing flight procedures- meant and intended especially by these requirements. Should each operator may establish its own "flight procedure" / "operating minima" which must be approved by a CA? If so, how shall this construct be reconciled with the existing flight procedures and their establishment procedures? How does this correlate with the obligation for flight procedure designers to be certified (see Art. 6 lit k CIR (EU) 2017/373)? Do the "procedures" need to be published? And may they be established in any airspace, controlled or uncontrolled? Wouldn't the establishment have to be coordinated with the CA responsible for IFR/VFR flight procedures? Because of these ambiguities, it is suggested to delete these requirements or at least a fundamental revision. In addition, reference is made to the comment no. 369 concerning page 190.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.165 Passenger seating p. 202

comment	*12* comment by: *ACI EUROPE* The operator shall establish procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they are able to assist and not hinder evacuation of the aircraft. Comment: The logic of this IR is not clear. The eVTOL aircraft have dedicated seats for pilots and dedicated seats passengers. Hence, depending on the design of the eVTOL it is clear where the passenger(s) can sit and which seat is reserved for the pilot. Given the space limitations of

eVTOL aircraft there are no options of sitting in places not intended for seating. This provision therefore seems redundant and should be deleted.

See also UAM.OP.MVCA.225 (page 205) which covers this point.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *810* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 202)
"The operator shall establish procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they are able to assist and not hinder evacuation of the aircraft."

Comment
The logic of this Implementing Rule (IR) is not clear. The eVTOL aircraft have dedicated seats for pilots and passengers. Hence, depending on the design of the eVTOL it is clear where the passenger(s) can sit and which seat is reserved for the pilot. Given the space limitations of eVTOL aircraft there are no options of sitting in places not intended for seating. This provision therefore seems redundant and should be deleted.
See also UAM.OP.MVCA.225 (page 205) which covers this point.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.175 Flight preparation p. 202

comment: *144* comment by: *Lilium*

Training flight do not always need an OFP. This should be up to the Instructor and operator procedures.

Proposed regulatory text:
add point (c). Training flights are exempted from the requirement established under point (a). It should be up to the Instructor or the Operator to decide whether an OFP should be completed for a training flight.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *527* comment by: *Volocopter GmbH*

UAM.OP.MVCA.175(b)(7): it is proposed to replace 'oil' with 'consumable lubricants' or similar.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *689* comment by: *FOCA Switzerland*

Regarding (b) (4), FOCA suggests to verify if the reference to "**U**AM.GEN.MVCA.180" and "**U**AM.GEN.MVCA.181" should not rather be "**I**AM.GEN.MVCA.180" and "**I**AM.GEN.MVCA.181"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1167* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Training flights do not always need an OFP. This should be up to the Instructor and the operator procedures.
PROPOSED ACTION/RESOLUTION
EASA to consider adding point (c), such as:

(c) Training flights are exempted from the requirement established under point (a). It should be up to the Instructor or the Operator to decide whether an OFP should be completed from a training flight.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1169* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the following statement:

(7) The requirements specified in the operations manual in respect of fuel/energy, oil, oxygen, minimum safe altitudes, aerodrome operating minima and availability ofalternate aerodrome can be complied with for the planned flight;

To be more precise, it would be preferable to note these requirements apply where appropriate.
PROPOSED ACTION/RESOLUTION

EASA to consider adding the following wording:

(7) **where appropriate**, the requirements specified in the operations manual in respect of fuel/energy, oil,oxygen, minimum safe altitudes, aerodrome operating minima and availability ofalternate aerodrome can be complied with for the planned flight;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1204* comment by: *Joby Aviation*

(b) 7
To be more precise, it would be preferable to note these requirements apply where appropriate.

Suggested wording:

(7) where appropriate, the requirements specified in the operations manual in respect of fuel/energy, oil,oxygen, minimum safe altitudes, aerodrome operating minima and availability ofalternate aerodrome can be complied with for the planned flight;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.155 Carriage of special categories of passengers (SCPs) p. 202

comment *958* comment by: *Supernal*

Training flights do not always need an OFP. This should be up to the operator procedures.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.170 Passenger briefing p. 202

comment *1162* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Clarification needed - do digital (web/app-based) safety briefing materials meet these requirements? More precise wording would address the potential for confusion
PROPOSED ACTION/RESOLUTION
EASA to clarify proposed text and/or indicate whether it will be addressed at AMC/GM level.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1202* comment by: *Joby Aviation*

(b)
Clarification needed - do digital (web/app-based) safety briefing materials meet these requirements? More precise wording would address the potential for confusion.

Suggested wording:

(b) provided with safety briefing material including picture-type instructions indicate the operation of emergency equipment and emergency exits likely to be used by passengers.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.181 Fuel/energy scheme - selection of aerodromes p. 203

comment: *102* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.MVCA.181 Fuel/energy scheme- selection of aerodromes
Paragraph a) states that

(a) The pilot-in-command shall select and specify in the operational and, if so required, in the ATS flight plan one or more aerodromes so that at least two safe-landing options are available during normal operation until committing to land. The pilot-in-command shall commit to land at the destination aerodrome when the current assessment of the meteorological conditions, traffic, and other operational conditions indicates that a safe landing can be performed at the destination aerodrome at the estimated time of use.

DGAC-FR has some reservations about the applicability of this provision. Indeed**, ...**

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *282* comment by: *EUMETNET ASP*

Point (a) '...The pilot-in-command shall commit to land at the destination aerodrome when the current assessment of the meteorological conditions...';
and
point (b)(1) 'the actual and forecast weather conditions indicate that at the estimated time of use the conditions will be at or above the applicable aerodrome operating minima and the occupants will be protected after landing in case of adverse weather;'
and
point (c) 'The pilot-in-command shall apply appropriate safety margins to flight planning in order to take into account possible deterioration of the meteorological conditions at the estimated time of landing compared to the available forecast.'

The siting of meteorological instruments at operating sites and in the vicinity to properly measure the weather parameters relevant to take-off/departure and approach/landing has not been adequately researched/determined. Research and development in these areas will be needed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *640* comment by: *ASD*

Comment:

UAM.OP.MVCA.181 (a) : Why 2 safe landing options? For some very small flights (15 minutes long), maybe 1 landing site is sufficient. Except if you assume current destination as being one of the 2 required safe landing sites.

Suggested resolution:

Allow more flexibility depending on the nature of the mission ?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.200 Charging of batteries while passengers are embarking, on board, or disembarking p. 204

comment *145* comment by: *Lilium*

Please elaborate in GM (with examples) what precautions can be taken.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *529* comment by: *Volocopter GmbH*

It is proposed to combine UAM.OP.MVCA.195 and 200 to keep consistency with SPA.VEMS.195 (Fuelling / defuelling / battery charging while passengers are embarking, on board, or disembarking).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *931* comment by: *ADAC Luftrettung gGmbH*

Rule: **UAM.OP.MVCA.195 and UAM.OP.MVCA.200** - Page 204

Proposed Text:
UAM.OP.MVCA.195 Fuelling/defuelling and energy replenishment and energy withdrawal while passengers are embarking, ob board, or disembarking
a) A VTOL-capable aircraft shall not be refuelled/defuelled with Avgas (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel when passengers are embarking, on board, or disembarking.
(b) For all other types of fuel, the necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct passenger evacuation from the aircraft using the most practical and expeditious means available.
(c) When replenishing or withdrawing energy of an electric VTOL-capable aircraft while passengers are embarking, on board, or disembarking, the operator shall take the necessary precautions to avoid overcharge, overheat, short circuit and fire, and shall establish procedures to ensure that energy replenishing or withdrawing activities are otherwise not harmful to passengers embarking, on board, or disembarking.

Rationale:
Combine both rules. Electric vehicles might not only charge batteries, but also swap them, hence a more general wording is needed here.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1189* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Battery swaps should be considered. Also, text should be further clarified to ensure proper context and implementation.
PROPOSED ACTION/RESOLUTION
EASA to consider replacing *"battery charging"* with *"energy replenishing and withdrawal".*

Also, please elaborate in GM (with examples) as to what precautions can be taken.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.190 Submission of ATS flight plan p. 204

comment *452* comment by: *Europe Air Sports*

Text in NPA:
"...If an air traffic service (ATS) flight plan is not submitted because it is not required by the applicable rules of the air and the class of airspace in which the operation is conducted, adequate information shall be deposited in order to permit alerting services to be activated if required."

EAS Comment:
We think this is overkill for General aviation and Part-NAM, where the number of occupants is small.
"If a flight plan is not required, a kind-of flight plan is still required anyway".
Suggestion: remove this for non-commercial flights outside urban areas.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *889* comment by: *FAA*

Provision states that "If an air traffic service (ATS) flight plan is not submitted because it is not required by the applicable rules of the air and the class of airspace in which the operation is conducted, adequate information shall be deposited in order to permit alerting services to be activated if required." In this language, it is unclear what is meant by adequate information being deposited. It may mean similar to a VFR flight plan that is used for search and rescue

type of purpose, but may need clarification what that entails if different from something equivalent to a VFR flight plan. Please define “adequate information”

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

UAM.OP.MVCA.195 Fuelling/defuelling while passengers are embarking, on board, or disembarking p. 204

comment *528* comment by: *Volocopter GmbH*

It is proposed to combine UAM.OP.MVCA.195 and 200 to keep consistency with SPA.VEMS.195 (Fuelling / defuelling / battery charging while passengers are embarking, on board, or disembarking).

As well, battery swap needs to be included, what can be expressed by replacing 'battery charging' with "energy replenishing and withdrawal".

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

comment *930* comment by: *ADAC Luftrettung gGmbH*

Rule: **UAM.OP.MVCA.195 and UAM.OP.MVCA.200** - Page 204

Proposed Text:
UAM.OP.MVCA.195 Fuelling/defuelling and energy replenishment and energy withdrawal while passengers are embarking, ob board, or disembarking
a) A VTOL-capable aircraft shall not be refuelled/defuelled with Avgas (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel when passengers are embarking, on board, or disembarking.
(b) For all other types of fuel, the necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct passenger evacuation from the aircraft using the most practical and expeditious means available.
(c) When replenishing or withdrawing energy of an electric VTOL-capable aircraft while passengers are embarking, on board, or disembarking, the operator shall take the necessary precautions to avoid overcharge, overheat, short circuit and fire, and shall establish procedures to ensure that energy replenishing or withdrawing activities are otherwise not harmful to passengers embarking, on board, or disembarking.

Rationale:
Combine both rules. Electric vehicles might not only charge batteries, but also swap them, hence a more general wording is needed here.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1181* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The provisions UAM.OP.MVCA.195 and UAM.OP.MVCA.200 could be merged to keep consistency with SPA.VEMS.195.
PROPOSED ACTION/RESOLUTION
Propose to combine UAM.OP.MVCA.195 and 200 to keep consistency with SPA.VEMS.195 (Fuelling / defuelling / battery charging while passengers are embarking, on board, or disembarking).

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.245 Meteorological conditions p. 205

comment | *105* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.MVCA.245 Meteorological conditions

The sentence "when information is available that indicates that the expected meteorological conditions, at the time of arrival, at the destination and/or destination alternate aerodrome(s), are at or above the aerodrome operating minima established in accordance with point UAM.OP.VCA.110." is applicable to point 1) 2) and 3).Thus a line break is required.

Proposal

(a) On IFR flights, the pilot-in-command shall only:
(1) commence the flight; or
(2) continue beyond the point from which a revised ATS flight plan applies in the event of in-flight replanning; or
(3) continue towards the planned destination aerodrome

when information is available that indicates that the expected meteorological conditions, at the time of arrival, at the destination and/or destination alternate aerodrome(s), are at or above the aerodrome operating minima established in accordance with point UAM.OP.VCA.110.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *176* comment by: *Lilium*

Reference to UAM.OP.VCA.110, UAM.OP.VCA.110 does not exist within the regulation

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *204* comment by: *Lilium*

para (b): We propose to refer to VFR minima, instead of limits.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *283* comment by: *EUMETNET ASP*

Point (a)(3) 'continue towards the planned destination aerodrome when information is available that indicates that the expected meteorological conditions, at the time of arrival, at the destination and/or destination alternate aerodrome(s), are at or above the aerodrome operating minima established in accordance with point UAM.OP.VCA.110'.
and
Point (b) 'On VFR flights, the pilot-in-command shall only commence the flight when appropriate meteorological reports and/or forecasts indicate that the meteorological conditions along the part of the route to be flown under VFR will, at the appropriate time, be at or above the VFR limits.'

The siting of meteorological instruments at operating sites and in the vicinity to properly measure the weather parameters relevant to take-off/departure and approach/landing has not been adequately researched/determined. Research and development in these areas will be needed.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1193* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
UAM.OP.VCA.110 does not exist within the regulation, hence its reference is not understood. It seems that the right reference is Rightful reference is UAM.OP.MVCA.110.

Also, para (b) meteorological conditions should be at or above VFR minima, not limits (a limit is a maximum)
PROPOSED ACTION/RESOLUTION
EASA to consider:

a) correcting the reference in (a)(3) from UAM.OP.VCA.110 to UAM.OP.MVCA.110; and

b) adapting language in para (b) as follows: *(b) [...] to be flown under VFR will, at the appropriate time, be at or above the VFR* ***minima****.*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.240 Smoking on board p. 205

comment *175* comment by: *Lilium*

We propose to align text with Part CAT CAT.OP.MPA.240 Smoking on board

Proposed regulatory text (simplified Part CAT text adapted to small a/c).
The commander shall not allow smoking on board:
(a) whenever considered necessary in the interest of safety;
(b) during refuelling, defuelling or charging of the aircraft;
(c) while the aircraft is on the surface unless the operator has determined procedures to mitigate the risks during ground operations; and

(d) outside designated smoking areas.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1191* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Align with Part CAT - CAT.OP.MPA.240 Smoking on board. It is proposed to simplify Part CAT text and adapt it to small a/c.
PROPOSED ACTION/RESOLUTION

EASA to consider the following text:

"The commander shall not allow smoking on board:

(a) whenever considered necessary in the interest of safety;
(b) during refuelling, defuelling or charging of the aircraft;
(c) while the aircraft is on the surface unless the operator has determined procedures to mitigate the risks during ground operations; and
(d) outside designated smoking areas."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.230 Securing of passenger compartment p. 205

comment *267* comment by: *skyguide Compliance Management*

Proposed UAM.OP.MVCA.245(a) Meteorological conditions

Article text in NPA
(a) On IFR flights, the pilot-in-command shall only:

(1) commence the flight; or

(2) continue beyond the point from which a revised ATS flight plan applies in the event of in-flight replanning; or

(3) continue towards the planned destination aerodrome when information is available that indicates that the expected meteorological conditions, at the time of arrival, at the destination and/or destination alternate aerodrome(s), are at or above the aerodrome operating minima established in accordance with point UAM.OP.VCA.110

Skyguide proposal
Break text of item (3) with a carriage return, as shown below:

(a) On IFR flights, the pilot-in-command shall only:

(1) commence the flight; or

(2) continue beyond the point from which a revised ATS flight plan applies in the event of in-flight replanning; or

(3) continue towards the planned destination aerodrome;

when information is available that indicates that the expected meteorological conditions, at the time of arrival, at the destination and/or destination alternate aerodrome(s), are at or above the aerodrome operating minima established in accordance with point UAM.OP.VCA.110.

Editorial error.
A carriage return has been lost between item (3) and the remaining content of point (a).

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.OP.MVCA.305 Commencement and continuation of approach p. 206

comment *106* comment by: *DGAC FR (Mireille Chabroux)*

UAM.OP.MVCA.305 Commencement and continuation of approach

Point d) deals with unmmaned aircraft. It should noy be part of this NPA.

Proposal

~~(d) For automatic approach and landing procedure (AALP) the operator shall comply with point UAM.OP.UVCA.305.~~

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *177* comment by: *Lilium*

We propose to change the title of the provision or add AMC to refer that this is only applicable for IFR operations. VFR flights don't have RVR, DA/H, or AALP

Proposed regulatory text
title: Commencement and continuation of instrument approach procedures

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *205* comment by: *Lilium*

Reference to UAM.OP.UVCA.305: UAM.OP.UVCA.305 is not in this NPA.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1200* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Reference to UAM.OP.UVCA.305 is not in this NPA.

Change the title of the provision or add AMC to refer that this is only applicable for IFR operations. VFR flights don't have RVR, DA/H, or AALP
PROPOSED ACTION/RESOLUTION
EASA to consider changing the title to:

"Commencement and continuation of instrument approach procedures"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.OP.VCA.105 Use of aerodromes or operating sites p. 207

comment | *2* comment by: *Patrick WILLS*

I refer to "Operating site as defined in Regulation(EU) No 965/2012 being a site, other than an aerodrome, selected by the pilot-in-command for landing, take-off and/or external load operations."

Helipaddy Ltd have 15,000 registered landing sites on the platform and have become the standard place for site owners to provide their site surveys which are then made available to operators. Helipaddy have already numbered every site and EASA may wish to use this numerical ID to remove ambiguity around non-ICAO landing sites. The survey that site owners provide is very comprehensive and based on EASA's own documentation and also that of the EHEST (https://www.easa.europa.eu/community/topics/ehest-heritage-useful-sms-tools). Helipaddy have designed the site survey to far exceed the minimum safety requirements normally required by the regional aviation authorities.

Helipaddy receive around 200 updates a week from pilots and site owners, usually in regards to safety aspects of private landing sites. Helipaddy have engaged with a number of future EVTOL operators and vertiport companies to ensure that the platform is ciompatible going forward.

For more information, please contact paddy@helipaddy.com.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.OP.VCA.050 Scope p. 207

comment | *454* comment by: *Europe Air Sports*

Text in NPA:
"Where no specific requirement exists, the relevant Module UAM-OP requirements apply."

EAS Comment:
With all respect, this writing style is not satisfactory. It requires me, as a pilot flying in non-urban areas, to read both UAM and NAM in order to find out requirements which are in UAM but not in NAM. It should be sufficient to read NAM if I fly in N (non-urban) areas.
Suggestion: Amend Part NAM to include all relevant NAM rules, even if they are also in Part-UAM.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1341* comment by: *Gregory Walden*

Please clarify the phrase "WTO-capable aircraft, including UAS." Does EASA intend to subject small UAV that conduct vertical takeoffs and landings to this and other IAM rules?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.OP.MVCA.050 Scope p. 208

comment | *455* comment by: *Europe Air Sports*

Text in NPA:
"Where no specific requirement exists, the relevant Module UAM-OP requirements apply."

EAS Comment:
Not acceptable writing. It requires NAM operators to read part UAM as well. It shall be sufficient to read NAM.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.110 General performance requirements p. 209

comment | *107* comment by: *DGAC FR (Mireille Chabroux)*

UAM.POL.VCA.110

Paragraph c) provides general criteria that should be taken into account to determine the performance. More specifically c) 3) ii) B) gives the tailwind component to take into account for take-off and landing. However, by comparison with helicopter,there is no provision for a margin. It is not clear why in the case of VTOL capable aircraft , it is considered that no margin is needed. Does the SC VTOL require the manufacturer to establish "a minimum value" for the correction of tailwind?
DGAC-FR asks for clarification.

Proposal

(B) where take-off and landing with a tailwind component is permitted in the AFM, and in all cases for the take-off flight path, not less than 150 % of any reported tailwind component shall be taken into account; ~~the correction for tailwind shall be limited to a minimum value, as established in the AFM;~~

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *284* comment by: *EUMETNET ASP*

Point (c)(3)
'(i) density altitude; (ii) wind: (A) except as provided in point (C), for take-off, take-off flight path and landing, the correction for wind shall be no more than 50 % of any reported steady headwind component of 5 kt or greater; (B) where take-off and landing with a tailwind component is permitted in the AFM, and in all cases for the take-off flight path, the correction for tailwind shall be limited to a minimum value, as established in the AFM; (C) where precise wind-measuring equipment enables the accurate measurement of wind velocity over the point of take-off and landing, wind components in excess of 50 % may be taken into account by the operator, provided that the operator demonstrates to the

competent authority that the proximity to the FATO and accuracy enhancements of the wind-measuring equipment provide an equivalent level of safety;'

On point (i) what research has been undertaken to determine to what degree urban heat island/urbal lows affect denisity altitude for the purposes of urban air operations at the anticipated scale?
On points (ii) the complexities of wind flow around buildings is likely to significantly complicate these requirements. Wind may change velocity (speed and direction) over very short distances (metres) and over very short timescales (seconds). The text as presented seems to assume there will be something approaching steady state conditions (which might be more or less the case at traditional aerodromes). This will not be the case in the urban environment and more research will need to be undertaken to properly identify criteria to apply.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.100 Certification basis p. 209

comment *178* comment by: *Lilium*

Editorial - "shall" instead of "hall"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *238* comment by: *DGAC FR (Mireille Chabroux)*

UAM.POL.VCA.100 Certification basis
-Editorial comment: an s is missing to shall.

-2 DGAC-FR suggests to clarify the link between the certification standards and the performance required according to the operations. The following table could be added in a GM to UAM.POL.VCA.100. Moreover, in UAM.POL.VCA.100 it could be clarified that the VTOL capable aircraft has to be certified in enhanced category. The certification should eb in the rules.

Proposal
The performance of VTOL-capable aircraft shall be certified in enhanced ~~the appropriate certification~~ category for the intended type of operation to be conducted

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1203* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The text should read "shall" instead of "hall"
PROPOSED ACTION/RESOLUTION
Correct the typo

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.115 Obstacle accountability p. 210

comment *664* comment by: *NGFT*

1. UAM.POL.VCA.115 (a)(4): VTOL operations may use Automatic Approach and Landing Procedures. This needs to extend to other aircraft as well (e.g. helicopters). The technical capabilities exist.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *922* comment by: *European Helicopter Association*

UAM.POL.VCA.115 (a)(4): VTOL operations may use Automatic Approach and Landing Procedures. This needs to extend to other aircraft as well (e.g. helicopters). The technical capabilities exist.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1000* comment by: *FOCA (Switzerland)*

(a)/(b)/(c): FOCA would like to note that perhaps the letter D should not be used here as it is already used for helicopters and this could therefore possibly lead to confusion if also used for VTOL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1300* comment by: *European Helicopter Association*

1. UAM.POL.VCA.115 (a)(4): VTOL operations may use Automatic Approach and Landing Procedures. This needs to extend to other aircraft as well (e.g. helicopters). The technical capabilities exist.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.120 Take-off p. 211

comment *179* comment by: *Lilium*

We propose to add a reference to UAM.POL.VCA.115

Proposed regulatory text
Split UAM.POL.VCA.120(b) into two parts: i.e.
(b) The operator shall take into account:
(1) The appropiate parameters of point UAM.POL.VCA.110(c)
(2) The obstacles identified in accordance with UAM.POL.VCA.115

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *206* comment by: *Lilium*

Sentence in rationale "The point at which the VTOL-capable aircraft must be allowed to accelerate forward is the transition point at which all surrounding obstacles are cleared." is misleading. It seems this point is the TDP of a vertical TO procedure specifically, and not the point where obstacles are cleared. Obstacles can be cleared when already accelerating forward and at VTOSS.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *959* comment by: *Supernal*

"The point at which the VTOL-capable aircraft must be allowed to accelerate forward is the transition point at which all surrounding obstacles are cleared." is misleading. It seems UAM.POL.VCA.120 is the TDP of a vertical TO procedure specifically, and not the point where obstacles are cleared. Obstacles can be cleared when already accelerating forward and at VTOSS.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1205* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
There seems to be no reference made to UAM.POL.VCA.115

Also, the sentence in the rationale description "The point at which the VTOL-capable aircraft must be allowed to accelerate forward is the transition point at which all surrounding obstacles are cleared." is misleading. It seems UAM.POL.VCA.120 is the TDP of a vertical TO procedure specifically, and not the point where obstacles are cleared. Obstacles can be cleared when already accelerating forward and at VTOSS.

PROPOSED ACTION/RESOLUTION
EASA to consider splitting UAM.POL.VCA.120 (b) into two parts:

i.e.
(b) The operator shall take into account:
(1) The appropiate parameters of point UAM.POL.VCA.110(c)
(2) The obstacles identified in accordance with UAM.POL.VCA.115

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.125 Take-off flight path p. 212

comment *180* comment by: *Lilium*

(a)(2) Some designs do not bank to turn, so this specification is not useful.

<u>Proposed regulatory text:</u>

Where a change of direction of more than 15° is made, adequate allowance shall be made for the ability to maintain the climb gradient and obstacle clearance requirements in accordance with the values defined in the AFM

Add AMC referring to VFTO and turn rates specifications of MOC VTOL.2115.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1206* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

(a)(2) Some designs do not bank to turn, so this requirement is not useful.
PROPOSED ACTION/RESOLUTION

EASA to consider the following text in (a)(2):

*(a)(2) where a change of direction of more than 15° is made, adequate allowance shall be made **for the ability to maintain the climb gradient** and obstacle clearance requirements in accordance with the values defined in the AFM.*

Also, consider adding an AMC referring to VFTO and turn rates specifications of MOC VTOL.2115.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.130 En route p. 213

comment *108* comment by: *DGAC FR (Mireille Chabroux)*

UAM.POL.VCA.130 En route

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1301* comment by: *European Helicopter Association*

The principle of certification of CAT vs. Non CAT does not change the exposure of uninvolved third parties on the ground. Damage is expected to be the same. Please explain and amend this principle.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.135 Landing p. 213

comment *181* comment by: *Lilium*

We propose to add a reference to UAM.POL.VCA.115.

Proposed regulatory text
Split UAM.POL.VCA.135(b) into two parts: i.e.
(b) The operator shall take into account:
(1) The appropriate parameters of point UAM.POL.VCA.110(c)
(2) The obstacles identified in accordance with UAM.POL.VCA.115

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1207* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
There seems to be no reference made to UAM.POL.VCA.115
PROPOSED ACTION/RESOLUTION
EASA to consider splitting UAM.POL.VCA.135(b) into two parts: i.e.

(b) The operator shall take into account:
(1) The appropriate parameters of point UAM.POL.VCA.110(c)
(2) The obstacles identified in accordance with UAM.POL.VCA.115

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.POL.VCA.145 Mass and balance data, documentation p. 214

comment *1269* comment by: *Direction de l'Aviation Civile*

UAM.POL.VCA.145 (a) (9): In case of battery powered VTOL, the mass of the battery is the same uncharged or charged. DAC Luxembourg would appreciate a clarification on the "zero energy mass" concept in that case;

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.POL.VCA.050 Scope p. 216

comment *456* comment by: *Europe Air Sports*

Text in NPA:
"Where no specific requirement exists, the relevant requirements of Module UAM-POL apply."

EAS Comment:
With all respect, this writing style is not satisfactory. It requires me, as a pilot flying in non-urban areas, to read both UAM and NAM in order to find out requirements which are in UAM but not in NAM. It should be sufficient to read NAM if I fly in N (non-urban) areas.

Suggestion: Amend Part NAM to include all relevant NAM rules, even if they are also in Part-UAM.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.POL.VCA.130 En route p. 217

comment *109* comment by: *DGAC FR (Mireille Chabroux)*

NAM.POL.VCA.130 En route
Editorial comment

Proposal

(b) VTOL-capable aircraft not certified for the commercial air transport of passengers shall be able:
(1) with all lift or thrust units operating within the appropriate power setting, to continue along their intended route or to a planned diversion without flying at any point below the

	minimum level established in accordance with point SERA.5015(b) of the Annex to Regulation (EU) No 923/2012~~.~~; or (2) to perform a controlled emergency landing (CEL) in the event of critical failure for performance (CFP).
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*665* comment by: *NGFT* The principle of certification of CAT vs. Non CAT does not change the exposure of uninvolved third parties on the ground. Damage is expected to be the same. Please explain and amend this principle.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.POL.VCA.135 Landing p. 217

comment	*944* comment by: *Civil Aviation Authority the Netherlands* NAM.POL.VCA.135 distinguishes between commercial and non-commercial: is that correct in relation to the intro on page 37 Risk performance based? Why is the distinction so explicitly made? What can be hit when hitting the ground? Inconsistent? The device is certified independent of commercial or non-commercial. Or is the text on page 37 incorrect
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.VCA.100 Instruments and equipment p. 218

comment	*332* comment by: *ASD* Comment: Equipment required to be installed in the Subpart D should have airworthiness requirements in the EASA SC VTOL otherwise compliance issues may be encountered at operator level to

demonstrate the capability of the equipment installed to meet the expected equipment performance.
Requirements such as UAM.IDE.MVCA.140 Fuel/energy measuring and displaying equipment introducing additional capabilities compared to SC VTOL.2445, or autopilot in SPA.VEMS.110 not provided with any certification requirements in SC VTOL should be associated to certification specifications or standards allowing the equipment OEM to certify the required capabilities and performance.

Suggested resolution:
No proposed modification of NPA text but a suggestion to introduce references to certification specifications (including CS-ETSO) or standards at the level of the AMCs to Subpart D.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *503* comment by: *JEDA*

Portable EFB should also be excluded from airworthiness requirements.

Proposed amendment: Add one more point to th list of exemptions: (8) portable electronic flight bag

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *579* comment by: *AIRBUS*

UAM.IDE.VCA.100 Instruments and equipment Page 218

Comments

Equipment required to be installed in the Subpart D should have airworthiness requirements such as the EASA SC VTOL otherwise compliance issues may be encountered at operator level to demonstrate the capability of the equipment installed to meet the expected equipment performance.
Requirements such as UAM.IDE.MVCA.140 Fuel/energy measuring and displaying equipment introducing additional capabilities compared to SC VTOL.2445, or autopilot in SPA.VEMS.110 not provided with any certification requirements in SC VTOL should be associated to certification specifications or standards allowing the equipment OEM to certify the required capabilities and performance.

Suggestions

No proposed modification of NPA text but a suggestion to introduce references to certification specifications or standards at the level of the AMCs to Subpart D.

This comment is an observation or is a suggestion.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1208* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Equipment required to be installed in the Subpart D should have equivalent airworthiness requirements in the EASA SC VTOL, otherwise compliance issues may be found at operator level to demonstrate the capability of the equipment installed to meet the expected equipment performance.

Requirements such as UAM.IDE.MVCA.140 Fuel/energy measuring and displaying equipment introducing additional capabilities compared to SC VTOL.2445, or autopilot in SPA.VEMS.110 not provided with any certification requirements in SC VTOL should be associated to certification specifications or standards allowing the equipment OEM to certify the required capabilities and performance.
PROPOSED ACTION/RESOLUTION
No proposed modification of NPA text but a suggestion to introduce references to certification specifications or standards at the level of the AMCs to Subpart D.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.125 Flight instruments and associated equipment p. 219

comment *233* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.125 Flight instruments and associated equipment
The autopilot for single pilot operation in IFR condition may not be required by type-certification, hence it should be included under UAM.IDE.MVCA.125.

Proposal
(c)VTOL-capable aircraft operated under IFR with a single-pilot shall be equipped with an autopilot with at least altitude hold and heading mode

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1209* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
This requirement is very general
PROPOSED ACTION/RESOLUTION
Guidance material will be needed (possibly from the existing EU-OPS, e.g. CAT.IDE.H.100 to 130 or by referring to the cert basis)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.145 Height-determination equipment p. 220

comment *183* comment by: *Lilium*

Perhaps add AMC that shows that TAWS/HTAWS is acceptable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *459* comment by: *Europe Air Sports*

Text in NPA:
"VTOL-capable aircraft shall, for flights over water, be equipped with a means to determine the height of the aircraft in relation to the **ground**, capable of emitting an audio warning below a pre-set value and a visual warning at a height selectable by the the pilot, when operating:..."

EAS Comment:
1) Could this be a typo? I would expect the height in relation to the **water surface** to be relevant here?
2) Is a GNSS device sufficient or is a radio altimeter required? In the latter case, we suggest a relaxation of this requirement for non-commercial flights in non-urban areas, at least for day-VFR operations with a maximum of 4 occupants.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1210* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Proposed text requires further clarification
PROPOSED ACTION/RESOLUTION
Add AMC that shows that TAWS/HTAWS is acceptable.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.160 Airborne weather-detecting equipment p. 220

comment *184* comment by: *Lilium*

This requirement is more restrictive than CAT.IDE.A.160. Part-CAT's MTOW and MOPSC limitation should apply, since these are important indicators of the aircraft size and therefore of the ability to include large equipment such as weather detecting equipment. In addition, taking into consideration the short duration of VTOL-capable aircraft flights, pre-flight data based on weather reports should be sufficient to avoid the encounter with severe weather conditions.

Proposed regulatory text
When VTOL-capable aircraft with MOPSC of more than nine or of more than 5700 kg is operated in IMC or at night in areas where thunderstorms or other potentially hazardous weather conditions, which are regarded as detectable by airborne weather-detecting equipment, may be encountered to exist along the **planned and alternate route taking into account the current weather reports,** the aircraft shall be equipped with airborne weather-detecting equipment.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1211* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Include the condition of MOPSC of more than nine to align the requirement of airborne weather radar with "CAT.IDE.H.160 Airborne weather detecting equipment".
PROPOSED ACTION/RESOLUTION
EASA to consider the following addition:

*"When VTOL-capable aircraft **with an MOPSC of more than nine** are operated in IMC or at night in areas where thunderstorms or other potentially hazardous weather conditions, which*

are regarded as detectable by airborne weather-detecting equipment, may be expected to prevail along the route according to current weather reports, shall be equipped with airborne weather-detecting equipment."

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1215* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
This requirement seems to be more restrictive than CAT.IDE.A.160.

Part-CAT's MTOW and MOPSC limitation should apply, since these are important indicators of the aircraft size and therefore of the ability to include large equipment such as weather detecting equipment. In addition, taking into consideration the short duration of VTOL-capable aircraft flights, pre-flight data based on weather reports should be sufficient to avoid the encounter with severe weather conditions.
PROPOSED ACTION/RESOLUTION
This requirement should align with Part-CAT as proposed:

*"[…] may be encountered to exist along the **planned and alternate route taking into account the current weather reports,** the aircraft shall be equipped with airborne weather-detecting equipment"*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.180 Public address system (PAS) p. 220

comment *185* comment by: *Lilium*

We propose to align text with CAT.IDE.H.180 which requires public address system for helicopters with MOPSC of more than 9. Part IAM should not be more demanding that the equivalent helicopter requirement in this case.

Proposed regulatory text
VTOL-capable aircraft with an MOPSC of more than nine shall be equipped with a public address system, unless:
(a) [...]
(b) [...]

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1217* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
This requirement should align with CAT.IDE.H.180, which requires public address system for helicopters with MOPSC of more than 9. Part IAM should not be more demanding that the equivalent helicopter requirement in this case.
PROPOSED ACTION/RESOLUTION
EASA to consider rewording as proposed:

*"VTOL-capable aircraft **with an MOPSC of more than nine** shall be equipped with a public address system, unless:*

(a) [...]
b) [...]"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.190 Flight data recorder (FDR) p. 221

comment | *110* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.190 Flight date recorder (FDR)

EASA asks for stakeholders' opinion on the recording duration. DGAC-FR is in favour of requiring 10h as the flights will be short (even if FDR will be able in practice to record more than 10h).

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *690* comment by: *FOCA Switzerland*

1. Following internal clarifications, FOCA supports the recording duration of 25 hours.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.185 Cockpit voice recorder (CVR) p. 221

comment | *234* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.185 Cockpit voice recorder (CVR)

As for helicopter, it should be clarified that CVR shall record on means other than magnetic tape or magnetic wire

Proposal:
(c) the CVR shall record with reference to a timescale on means other than magnetic tape or magnetic wire:, .

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *960* comment by: *Supernal*

This statement is confusing and could lead to misinterpretation with the requirements related to the voice and datalink aspects, as they are already covered by UAM.IDE.MVCA.195 Data link recording and UAM.IDE.MVCA.185 Cockpit voice recorder

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.191 Flight recorder p. 222

comment | *186* comment by: *Lilium*

Current text could cause a conflict with the requirements related to the voice and datalink aspects which are already covered by UAM.IDE.MVCA.195 Data link recording and UAM.IDE.MVCA.185 Cockpit voice recorder

Proposed regulatory text

(b) The flight recorder shall record, by means of flight data or images, information that is sufficient to determine the flight path and aircraft speed ~~as well as audio and data link communication messages with air traffic service (ATS) units, where applicable.~~

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *811* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 222)
"(a) VTOL-capable aircraft with an MCTOM of 3 175 kg or less shall be equipped with a flight recorder."

Comment
Please replace 'shall be equipped' with 'VTOL aircraft shall have the capability to record…'.

Rationale:
The VTOL operator should be able to establish means to record flight parameters other than onboard equipment, while satisfying all the other requirements from this article.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *824* comment by: *UAV DACH e.V.*

Reference: (a) VTOL-capable aircraft with an MCTOM of 3 175 kg or less shall be equipped with a flight
recorder.

Comment: The VTOL operator should be able to establish means to record fligt parameters other than onbord equipment, while satisfying all the other requirements from this article.

Proposal: Replace 'shall be equipped' with 'VTOL aircraft shall have the capability to record…'

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1218* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Current text could cause a conflict and/or provide basis for misinterpretation with the requirements related to the voice and datalink aspects, as they are already covered by UAM.IDE.MVCA.195 Data link recording and UAM.IDE.MVCA.185 Cockpit voice recorder
PROPOSED ACTION/RESOLUTION

EASA to consider amending the text as follows:

(b) The flight recorder shall record, by means of flight data or images, information that is sufficient to determine the flight path and aircraft speed. ~~*as well as audio and data link communication messages with air traffic service (ATS) units, where applicable.*~~

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1306* comment by: *Volocopter GmbH*

UAM.IDE.MVCA.191: SC-VTOL anyhow requires in service monitoring where a data recorder is one means.

It should be clarified if data recorder can satisfy flight recorder requirement in case it is combined with cockpit voice recorder. Please consider for AMC&GM development.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1311* comment by: *JEDA*

UAM.IDE.MVCA.191 Flight data recorder (FDR)
Please replace 'shall be equipped' with 'VTOL aircraft shall have the capability to record…'
The VTOL operator should be able to establish means to record fligt parameters other than onbord equipment, while satisfying all the other requirements from this article.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.205 Seats, seat safety belts, restraint systems and child restraint devices p. 223

comment: *187* comment by: *Lilium*

para (a)(2) can be misleading: only 3-point belts are mentioned for passenger seats; 4-point should also be possible.

<u>Proposed regulatory text</u>
An upper torso restraint system that includes a seat belt with **at least one shoulder strap** for use on each passenger seat and restraining belts on each berth

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *530* comment by: *Volocopter GmbH*

UAM.IDE.MVCA.205: It is unclear, if an automatic inertia reel 3-point harness is allowed for the pax.

Please clarify in AMC&GM.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1220* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Para (a)(2) can be misleading as only 3-point belts are mentioned for passenger seats. 4-point should also be possible. E.g. Reword to "...with at least one shoulder strap..." or similar.
PROPOSED ACTION/RESOLUTION
EASA to consider additional wording as proposed:

*"(a)(2) an upper torso restraint system that includes a seat belt **with at least one shoulder strap** for use on each passenger seat and restraining belts on each berth."*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.210 ' Fasten seat belt ' and ' no smoking ' signs p. 224

comment *188* comment by: *Lilium*

Perhaps add GM to clarify that a permanent sign is acceptable if the seat belts are supposed to be fastened throughout the complete flight; this should then also be mentioned in a pre-flight briefing.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *666* comment by: *NGFT*

The equipment requirements make no sense for small VTOL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*980* comment by: *European Helicopter Association* VAR.IDE.MVCA.210: The equipment requirements make no sense for small VTOL.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1221* comment by: *General Aviation Manufacturers Association (GAMA)* **RATIONALE / REASON / JUSTIFICATION** Proposed text requires further clarification **PROPOSED ACTION/RESOLUTION** Propose GM to clarify that a permanent sign is acceptable if the seat belts are supposed to be fastened throughout the complete flight; this should then also be mentioned in a pre-flight briefing.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1302* comment by: *European Helicopter Association* The equipment requirements make no sense for small VTOL.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.220 First-aid kits p. 224

comment	*189* comment by: *Lilium* Perhaps add GM with reference to the minmum content of the first-kit.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1223* comment by: *General Aviation Manufacturers Association (GAMA)* **RATIONALE / REASON / JUSTIFICATION**

Proposed text requires further clarification
PROPOSED ACTION/RESOLUTION
Propose GM with reference to the minimum content of the first-kit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.250 Handheld fire extinguishers p. 225

comment *190* comment by: *Lilium*

Perhaps add AMC referring to MOC VTOL.2325(b)(1) and (2)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *235* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.250 Handheld fire extinguishers
DGAC-FR wonders whether the use of halon should be specifically banned (per (UE) No 744/2010 Halon shall soon be prohibited on all aircraft, but per current Part-26, only large rotorcraft would be subject to requirement 26-40)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *538* comment by: *Volocopter GmbH*

It is considered that fire extinguisher requirement is not necessary for small cabins of less than 3 occupants, especially if they show CSFL. Moreover, in such small spaces it might be dangerous to operate it. The proposal is to remove this requirement for cabins <3 occupants that show CSFL.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1224* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

Proposed text requires further clarification
PROPOSED ACTION/RESOLUTION
Propose AMC referring to MOC VTOL.2325(b)(1) and (2)

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.275 Emergency lighting and marking p. 225

comment: *191* comment by: *Lilium*

(b) request "marking&locating signs". This could be misleading and be understood to request to separate signs always. In line with ED-307 (in open consultation) and Ac 29.811 (b) it could be clarified in AMC: "For small passenger cabins one self-illuminated sign stating "EXIT" may be used as both the locating and marking sign for an individual exit on one side of the cabin."

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *534* comment by: *Volocopter GmbH*

UAM.IDE.MVCA.275(A) and (b):
Clarification needed in AMC GM on the need for lighted signs for daily ops only in small cabin designs.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1225* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to the requiremernt in (b) requesting "marking & locating signs":

It could be misleading and understood that the intent is to always request separate signs, which may not be the case. Further clarification should be provided In line with ED-307 (in open consultation) and AC 29.811 (b)
PROPOSED ACTION/RESOLUTION
Consider adding further clarification in AMC as proposed:

"For small passenger cabins one self-illuminated sign stating "EXIT" may be used as both the locating and marking sign for an individual exit on one side of the cabin."

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.280 Emergency locator transmitter (ELT) p. 225

comment | *192* comment by: *Lilium*

'Question to EASA: What is the difference beween ELTs in UAM.IDE.MVCA.311 and UAM.IDE.MVCA.280? Why possibly need an additional one?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *236* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.280 Emergency locator transmitter (ELT)
DGAC-FR suggests to have AMC/GMs to deal with the following:
- performance requirements for the tracking device (aligned with CAT.GEN.MPA.210)
- Automatic tracking device Beacon capable to transmit on 406 MHz

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *535* comment by: *Volocopter GmbH*

The requirement on ELT (and other equipment) should depend on airspace requirements. Hence, it should be linked to respective SERA provision.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *1226* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
'What is the difference beween ELTs in UAM.IDE.MVCA.311 and UAM.IDE.MVCA.280? Why possibly need an additional one?
PROPOSED ACTION/RESOLUTION
Provide clarification as per the questions above, and, if necessary, amend the text correspondingly.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.300 Flights over water p. 225

comment | *193* comment by: *Lilium*

point (3) refers to points (a) and (b) while this should be (1) and (2)

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *221* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.300 flights over water

DGAC-FR has several comments regarding this paragraph:

1 - Paragraph VTOL.2310 Flotation refers to "certification for intended operations on water" whereas UAM.UDE.MVCA.300 refers to "certification for limited overwater operations". It should be consistent.

2 - DGAC -FR questions the relevance of the 3-minute total flying time over water. As CSFL capability can be compared to PC 1 in helicopter, the provisions should looked alike. It may be too demanding to require a "limited overwater certification" when the VTOL capable aircraft flies above a river. Should this certification has an impact on the performance margin, then a risk based assessment should be carried out to balance the pros/cons of this certification for 3 minute flight versus the remaining flight ime above the ground;

3 –Allowing the authority to give alleviation to operator does not seem acceptable neither, for standardisation and level playing field reasons.

4 – Regarding paragraph (a)(3)(ii): the assumption that the flying time over water is longer than the performance time following a critical failure for performance (CFP) is not consistent with UAM.OP.VCA.135 which requires an adequate aerodrome to divert in case of CSFL.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *616* comment by: *Volocopter GmbH*

Performance time following a critical failure for performance' wording is not fully clear.

Please improve the wording of the NPA to align it with CSFL requirement and terminology.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *643* comment by: *ASD*

Comment:
UAM.IDE.MVCA.300 (3)
Type error for the reference to (a) or (b)

Suggested resolution:
(a) or (b) must be replaced by (1) or (2)

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1228* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION

PROPOSED ACTION/RESOLUTION

EASA to correct reference as proposed:

*"For limited overwater operations, when operated in conditions other than those referred to in **point (1) or (2)**, and when one or more of the following conditions apply:"*

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.305 Life jackets and other equipment p. 226

comment *194* comment by: *Lilium*

'Requirements captured under points c) and d) are well-suited for offshore operations but not for **any** operations of more than 10 mins over hostile sea. For example, flights connecting

Tallinn and Helsinki could potentially fall under this category but the proximity to land and availability of rescue services should lift the obligation from passengers to wear life jackets and survival suits during flight.

Proposed regulatory text:
The operator shall determine, based on the perfomance of the aircraft and availability of rescue services, whether passengers shall wear a life jacket and/or a survival suit, when operating flight over water in a hostile sea area at a distance of more than 10 minutes flying time at normal cruise speed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1230* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
The proposed text should clarify that UAM.IDE.MVCA.305 "over water operation" definition, for life jacket requirements, was stated on UAM.IDE.MVCA.300;
PROPOSED ACTION/RESOLUTION
EASA to consider the following additions:

(a) Except as provided for in (c), (d) and (e), for flights over water ***as defined in UAM.IDE.MVCA.300****, VTOL-capable aircraft shall be equipped as a minimum with a life jacket for each person on board, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided, with the restrain system fastened. If it is not possible to have the life jackets readily accessible with the restrain system fastened, each person shall wear a life jacket on or, if that person is younger than 24 months, an equivalent flotation device.*
[…]

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1232* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Requirements captured under points c) and d) are well-suited for offshore operations but not for any operations of more than 10 mins over hostile sea.

For example, flights connecting Tallinn and Helsinki could potentially fall under this category but the proximity to land and availability of rescue services should lift the obligation from passengers to wear life jackets and survival suits during flight.

PROPOSED ACTION/RESOLUTION

	EASA to consider that the operator shall determine, based on the perfomance of the aircraft and availability of rescue services, whether passengers shall wear a life jacket and/or a survival suit, when operating flight over water in a hostile sea area at a distance of more than 10 minutes flying time at normal cruise speed.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.311 Survival equipment p. 227

comment	*195* comment by: *Lilium* • More guidance is neccessary on the definition for areas where search and rescue is particularly difficult. • There seems to be a conflict with UAM.IDE.MVCA.280 requesting automatic ELT. Are we then expected to carry both automatic and survival ELT? This would be an excessive requirement.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*961* comment by: *Supernal* Are we then expected to carry both automatic and survival ELT? This seems excessive.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1237* comment by: *General Aviation Manufacturers Association (GAMA)* **RATIONALE / REASON / JUSTIFICATION** This provision seems to conflict with UAM.IDE.MVCA.280 requesting automatic ELT. Are we then expected to carry both automatic and survival ELT? This seems excessive. **PROPOSED ACTION/RESOLUTION** More guidance on the definition should be provided for areas where search and rescue is particularly difficult.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.330 Radio communication equipment p. 227

comment *237* comment by: *DGAC FR (Mireille Chabroux)*

UAM.IDE.MVCA.330 Radio communication equipment

In the rationale , it is written that : "for VFR flights with VTOL-capable aircraft over visually navigated routes, it makes sense to mandate the carriage of at least one radio communication system" . However flights in IFR can also be conducted. DGAC-FR considers that it should be assess if the provisions of CAT.IDE.H.345 are relevant for VTOL. For example; at least two independent radio communication systems should be required for IFR flights.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.345 Navigation equipment p. 228

comment *196* comment by: *Lilium*

Question to EASA, what counts as navigation equipment, does the INS count?

AMC is critical here to identify what is considered minimum equipment set. VOR and ILS installation are being decommisioned in many locations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1238* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
It is not clear from the text what counts as navigation equipment. Does the INS count?
PROPOSED ACTION/RESOLUTION
EASA should provide clarification as per the question above. Also, AMC is critical here to identify what is considered a minimum equipment set. VOR and ILS installation are being decommisioned in many locations.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

UAM.IDE.MVCA.350 Transponder p. 228

comment *536* comment by: *Volocopter GmbH*

The requirement on SSR transponder (but also on other equipment as proposed in this NPA) should depend on airspace requirements. Hence, it should be linked to respective SERA provision, more precisely SERA.6005, to avoid any confusion.

It is proposed to add wording: '...in accordance with point SERA.6005) of the Annex to Regulation (EU) No 923/2012' (e.g., as it was done in NAM.POL.VCA.130 b) 1) of the NPA).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.IDE.VCA.050 Applicability p. 229

comment *460* comment by: *Europe Air Sports*

Text in NPA:
"Where no specific requirement exists, the relevant requirements of Module UAM-IDE apply."

EAS Comment:
With all respect, this writing style is not satisfactory. It requires me, as a pilot flying in non-urban areas, to read both UAM and NAM in order to find out requirements which are in UAM but not in NAM. It should be sufficient to read NAM if I fly in N (non-urban) areas.

Suggestion: Amend Part NAM to include all relevant NAM rules, even if they are also in Part-UAM.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

NAM.IDE.MVCA.300 Flights over water p. 229

comment *461* comment by: *Europe Air Sports*

Text in NPA:

"VTOL-capable aircraft not certified for the commercial air transport of passengers shall not operate over water when carrying passengers."

EAS Comment:
Not acceptable. It's permitted in NCO, so this is overkill. Also the Risk Hierarchy accepts that a higher risk can be tolerated by passengers on non-commercial flights, who are not fare-paying commercial air transport passengers.

Please allow it for non-commercial operations.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.7. Proposed amendments to Commission Regulation (EU) No 1178/2011 p. 230

comment *213* comment by: *Lilium*

Article 4f(3): Current FCL.740(a) provides that the validity period of class and type ratings shall be 1 year [...] unless determined otherwise in the OSD. Suggest inserting a link to OSD in Article 4f(3).

Proposed regulatory text:
The validity period of type ratings issued in accordance with this Article shall be 1 year, unless otherwise determined in the OSD.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *214* comment by: *Lilium*

Article 4f(5)

para(c): Assumption is that a TRI for VTOL Capable aircraft would already be TRI, and would only need to complete the relevant parts of the technical training and the flight instruction parts of the applicable TRI course.

Proposed regulatory text:
Have completed, at an ATO, the relevant part of theoretical and practical training for extending instructor privileges to that aircraft

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *216* comment by: *Lilium*

Article 4(7)

para(b): Assumption is that a TRE for VTOL Capable aircraft would already be TRE and would only need to complete the relevant parts of the assessment of competence, not necessarily a "full assessment" of competence.

Proposed regulatory text:
pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL).

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *254* comment by: *DGAC FR (Mireille Chabroux)*

Article 4 f- Type ratings for VTOL-capable aircraft

It is stated in Article 4f on type ratings for VTOL-capable aircraft that applicants holding a commercial pilot license for airplanes (CPL(A)) or for helicopters (CPL(H)) in accordance with Annex 1 (FCL part) are entitled to be issued a type rating for a VTOL-capable aircraft and to exercise the privileges of such a type rating, provided they meet all of the following:
(a) the prerequisites determined in the operational capability data established in accordance with Annex I (Part 21) of Commission Regulation (EU) No. 748/2012 ;
(b) Section 1 of Subpart H of Annex I (Part FCL).
In addition, this Article 4f makes a systematic reference to the Operational Suitability Data (OSD) established in accordance with the provisions of Annex I (Part 21) of Commission Regulation (EU) No 748/2012, thus giving them increased importance.
DGAC-FR has the following comments:
From the provisions of Article 11 of Regulation (EU) 2018/1139 of 4 July 2018 ,the design of a product shall be subject to certification and accompanied by the issue of a type certificate.
[...]
An approval is issued for the operational suitability data associated with a type design. This approval shall be included in the type-certificate or restricted type-certificate referred to in Article 18(1)(b), as appropriate.
[...]
Furthermore, accoridng to the provisions of Article 14 of Regulation (EU) 2018/1139 of 4 July 2018, each aircraft is subject to certification and a certificate of airworthiness is issued [...].
The certificate shall be issued upon application, when the applicant demonstrates that the aircraft complies with the design certified in accordance with Article 11 and that the aircraft can be operated safely [...].
Furthermore, according to point 21.A.62 (Availability of operational suitability data) of Annex 1 (Part-21) of Commission Regulation (EU) No 748/2012, the type certificate holder shall make:

(a) available to all EU operators known to the aircraft at least one complete set of the operational adequacy data prepared in accordance with the applicable operational adequacy data certification basis, before the operational adequacy data is required to be used by a training organization or an EU operator; and
(b) make available to all EU operators known to the aircraft any changes to the operational suitability data; and
(c) upon request, the relevant data referred to in (a) and (b) above:
(1) available to the competent authority responsible for verifying compliance with one or more elements of that operational adequacy data set; and
(2) available to any person required to comply with one or more elements of that operational adequacy data set.

Pursuant to the provisions of Section 21.A.62 of Annex 1 (Part-21) to Commission Regulation (EU) No. 748/2012, each competent authority may require the type certificate holder to make available the operational adequacy data prepared in accordance with the applicable aircraft operational adequacy data certification basis, subject to that authority verifying compliance with one or more elements of that operational adequacy data set.

Finally, it appears from the provisions of point 21.A.62 (Availability of operational adequacy data) of Annex 1 (Part-21) of Commission Regulation (EU) No 748/2012 that "operational adequacy data" consists of [...] the minimum syllabus for pilot type rating training, including the type rating designation.

In view of all the regulatory elements noted in the applicable regulations, it would appear appropriate for the Agency to centralize, at its level, the process of collecting from the holders of type certificates for VTOL capable aircraft, the complete sets of operational suitability data prepared in accordance with the certification basis of operational suitability data applicable to these aircraft and to develop, for the attention of the competent authorities in charge of verifying compliance with one or more elements of these operational adequacy data sets, AMCs and GMs in order to achieve a harmonized reading and interpretation of these documents.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *260* comment by: *Civil Aviation Authority the Netherlands*

Para 3.7, Page 230, Article 2:
Needs integration with NPA 2021-12.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *261* comment by: *Civil Aviation Authority the Netherlands*

Para 3.7, page 230, Article 4f:
See earlier comment on para 2.3.5. this could also be used for commercial gyroplane operations when adapted as follows:
Article 4f – Type ratings for VTOL-capable aircraft and Type ratings for Commercial operations of gyroplanes
Applicants that hold a commercial pilot licence for aeroplanes (CPL(A)) or helicopters (CPL(H)) in accordance with Annex 1 (Part-FCL) shall be entitled to be issued with
a type rating for a VTOL capable aircraft or,
a type rating for commercial operations of a gyroplane
and shall exercise the privileges of such a type rating, provided they comply with all the following:
the prerequisites determined in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;
Section 1 of Subpart H of Annex I (Part-FCL).
Type rating training, skill tests and proficiency checks for aircraft specified in paragraph 1 shall:
comply with the following requirements of Appendix 9 to Annex I (Part-FCL):
Section A;
Sections B, C or D, as determined and unless specified otherwise in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012; and
under the conditions and to the extent determined in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012, include additional training and testing to allow applicants to obtain the competence to operate the relevant gyroplane.
The validity period of type ratings issued in accordance with this Article shall be 1 year.
Holders shall, in the relevant aircraft or an FSTD representing that aircraft, do all the following:
in order to revalidate the type rating:
within the validity period of the rating, complete at least 2 hours of flight time as pilot;
within the 3 months immediately preceding the expiry date of the rating, pass a proficiency check in accordance with paragraph 2 the duration of which may be counted towards the flight time specified in paragraph (1). If applicants choose to pass the proficiency check earlier than within these 3 months, the new validity period shall commence from the date of the proficiency check.
in order to renew the type rating, comply with point FCL.740(b) of Annex I (Part-FCL).
Holders of licences and a type rating as specified in paragraph 1(a) shall be entitled to operate the relevant VTOL-capable aircraft under instrument flight rules, provided that they comply with all of the following:
they hold a valid IR(A) or IR(H), as applicable;
they have, in the relevant type of VTOL-capable aircraft, completed the skill test or the proficiency check, as applicable, in accordance with paragraph 2 including the content relevant for instrument flight.
Notwithstanding point FCL.900(b) of Annex I (Part-FCL), applicants who hold an instructor certificate in accordance with Annex I (Part-FCL) with privileges to provide training for aeroplane or helicopter type ratings shall be issued with privileges to provide training for type ratings specified in paragraph 1, provided that they:
hold a type rating as per point 1 for the relevant aircraft;

unless otherwise specified in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012, have, within the 12 months preceding the application, completed at least 30 route sectors, including take- offs and landings, as pilot-in-command in the relevant aircraft type, of which 15 route sectors may be completed in an FSTD representing that type; and
have completed, at an ATO, theoretical and practical training for extending instructor privileges to that aircraft, including mandatory training elements as specified in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;
pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL).
Holders of instructor privileges as per paragraph 4 shall receive revalidation or renewal, as applicable, of these privileges when they comply with the relevant revalidation or renewal requirements of Subpart J of Annex I (Part-FCL), as applicable for the instructor certificate held, and additionally do either of the following:
complete instructor refresher training that focuses on the privileges as per paragraph 4;
pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL) in the relevant aircraft specified in paragraph 1 or an FSTD representing that aircraft.
Notwithstanding point FCL.1000(b) of Annex I (Part-FCL), applicants who hold an examiner certificate in accordance with Annex I (Part-FCL) with privileges to act as an examiner for aeroplane or helicopter type ratings shall be issued with privileges to conduct skill tests and proficiency checks for an aircraft specified in paragraph 1, provided that they hold instructor privileges as per paragraph 4 for the relevant aircraft and comply with all of the following in the relevant aircraft or an FSTD representing that aircraft:
examiner standardisation in accordance with point FCL.1015 of Annex I (Part-FCL), including the conduct of at least a skill test or a proficiency check;
an assessment of competence in accordance with point FCL.1020 of Annex I (Part-FCL).
Holders of examiner privileges as per paragraph 6 shall receive revalidation or renewal, as applicable, of these privileges when they comply with the relevant parts of point FCL.1025 of Annex I (Part-FCL) and additionally do either of the following:
complete an examiner refresher course that focuses on the privileges as per point 6;
pass the relevant sections of the assessment of competence in accordance with point FCL.1020 of Annex I (Part-FCL) in the relevant aircraft specified in point 1 or an FSTD representing that aircraft.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

390 comment by: *H. Raeder*

The new article 4f of (EU) No 1178/2011 enables the holder of a CPL(A) or CPL(H) to get a license for the operation of a manned VTOL but it remains unclear how many different types of VTOL a pilot may operate in IAM operations if he/she also operates helicopters or aeroplanes in CAT as ORO.FC.240 and its AMCs only refer to CAT, NCC and SPO in this point.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *462* comment by: *Europe Air Sports*

Text in NPA:
"Applicants that hold a commercial pilot licence for aeroplanes (CPL(A)) or helicopters (CPL(H)) in accordance with Annex 1 (Part-FCL) shall be entitled to be issued with a type rating for a VTOL-capable aircraft and shall exercise the privileges of such a type rating, provided they comply with all the following..."

EAS comment:
As stated in our comments to 2.4,
we ask that this type rating, possibly limited to non-commercial operations in non-urban areas, shall also be available to PPL(A/H) and LAPL(A/H) pilots.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *513* comment by: *DGAC FR (Mireille Chabroux)*

Article 4f- Type ratings for VTOL-capable aircraft

- paragraph 1 states that:

[…]
(a) the prerequisites determined in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;
(b) Section 1 of Subpart H of Annex I (Part-FCL).

The provisions of (a) and (b) together seem to duplicate the provisions of FCL.725 (a) of section 1 of subpart H of annex I (Part-FCL) that states :

« […] The type rating training course shall include the mandatory training elements for the relevant type as defined in the operational suitability data established in accordance with Annex I (Part-21) to Commission Regulation (EU) No 748/2012.»

Proposal

1. Applicants that hold a commercial pilot licence for aeroplanes (CPL(A)) or helicopters (CPL(H)) in accordance with Annex 1 (Part-FCL) shall be entitled to be issued with a type rating for a VTOL-capable aircraft and shall exercise the privileges of such a type rating, provided that they comply with ~~all of the following:~~
~~(a) the prerequisites determined in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;~~
~~(b)~~ s~~S~~ection 1 of Subpart H of Annex I (Part-FCL).

- paragraph 4 states that:

4. Holders of licences and a type rating as specified in paragraph 1 shall be entitled to operate the relevant VTOL-capable aircraft under instrument flight rules, provided that they comply with all of the following :
(a) they hold a valid IR(A) or IR(H), as applicable ;

It is suggested to delete the word « valid » as it isn't needed. It goes without saying that only the holders of a licence and type rating who also hold a valid IR can operate IFR operations.
Proposal

(a) they hold a ~~valid~~ IR(A) or IR(H), as applicable ;

- paragraph 5)c) states that:

c) have completed, at an ATO, theoretical and practical training for extending instructor privileges to that aircraft, including mandatory training elements as specified in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012 ;

It is suggested to delete the words "including mandatory training elements" as they imply other mandatory elements should also be taken into account at the discretion of the authority. The manufacturer should provide, in OSD, all elements necessary to the additional instructor training.

Proposal

c) have completed, at an ATO, theoretical and practical training for extending instructor privileges to that aircraft, ~~**including mandatory training elements**~~ as specified in the

operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012 ;

- paragraph 6)

It is suggested to mention that the instructor refresher training must be conducted at an ATO
Proposal
a) complete instructor refresher training **at an ATO** that focuses on the privileges as per paragraph 4 **;**

- Questions

Must the instructor refresher training mentioned in (6)(a) be conducted at an ATO, in the same way as the training in (5) (c) conducted at an ATO?

We infer from point (7) that some instructors might instruct on VTOL only. Is it possible, and what are the requirements applicable for their type rating?

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *691* comment by: *FOCA Switzerland*

Regarding Art. 4f, 6, FOCA suggests to verify if the reference to "paragraph **4**" should not rather be "paragraph **5**".

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *692* comment by: *FOCA Switzerland*

Regarding Art. 4f, 7, FOCA suggests to verify if the reference to "paragraph **4**" should not rather be "paragraph **5**".

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *693* comment by: *FOCA Switzerland*

Regarding Art. 4f, 8, FOCA suggests to verify if the reference to "paragraph **6**" should not rather be "paragraph **7**".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *945* comment by: *Civil Aviation Authority the Netherlands*

art 4(f)

Is a type rating sufficient to allow a CPL(A) pilot to operate a VTOL aircraft? Different principle of flying; difference in rotorcraft and fixed wing = 1178

Does the OSD cover the pilot competency difference between fixed wing and rotary wing.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1029* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Article 4f, c.3.7 page 230
Proposal for change: We propose to delete the word "commercial", CPL(A) and CPL(H) in Article 4f(1). The new text we propose would be: *Applicants who hold a pilot licence for airplanes or helicopters*
in accordance with Annex 1 (Part-FCL) shall be entitled to be issued with a type rating for a VTOL-capable aircraft and shall exercise the privileges of such a type rating, provided they comply with all the following:

If the reason for the current proposal is that more experience and knowledge will be required for VTOL, we believe that it is much better to add this as requirements for the issue of a VTOL type rating, which should apply to all pilots, instead of requiring a CPL licence. If it is flight experience that is needed, a PPL with a minimum flight experience would be sufficient. If it is theoretical knowledge that is needed, this can be defined in other parts. We find it unlikely that a VTOL pilot must know the vast majority of the CPL/ATPL syllabus when a HPA pilot does not need it. Perhaps some of these requirements can be handled through the OSD instead?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1047* comment by: *Danish Civil Aviation and Railway Authority - DCARA*

FCL - (EU) No 1178/2011
Remote-pilot qualification will be less extensive than in manned aviation.

The development of comprehensive flight crew licensing requirements (ab initio training) for manned
VTOL-capable aircraft is under way.
Future NPA under RMT.0230 to (EU) No 1178/2011) that will allow holders of commercial pilot licences for aeroplanes or helicopters (CPL(A) and CPL(H)) to be issued with a VTOL-capable aircraft type rating that will be endorsed on their CPL(A) or CPL(H), after having completed type-rating training in accordance with the applicable OSD.
Bridging solution' only pilots that already hold a licence for a conventional aircraft could be involved in operations with manned VTOL-capable aircraft.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1101* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

General and also article 4f of commission reg. (EU) No 1178/2011, c. 2.3.5 page 40 and c. 3.7 page 230
Proposal for change: This NPA proposes that VTOL type rating is for the commercial operations only.
This means that there are no private operations planned at current stage of rulemaking.
EASA's vision is that the VTOL aircraft will not be operated privately, only commercial operations are envisioned.
Currently there is a need for private operations on the market, which needs to be met sooner rather than later.
We are concerned that current rulemaking will leave out private segment of VTOL operations and will necessitate rulemaking on national level, which might contradict the fact that EU has competence regarding VTOL.
Our hope is that a type rating for a VTOL can be included in this NPA and make it harmonized for non-commercial operations in all EASA member states.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1243* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Current FCL.740 (a) provides that "the validity period of class and type ratings shall be 1 year [...] unless determined otherwise in the OSD".

GAMA would suggest inserting likewise a link to OSD in Article 4f(3).

PROPOSED ACTION/RESOLUTION

EASA to clarify Article 4f(3) as proposed:

(3) The validity period of type ratings issued in accordance with this Article shall be 1 year, ***unless determined otherwise in the OSD.***

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1244* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to Art. 4f (5) (c):

"have completed, at an ATO, theoretical and practical training for extending instructor privileges to that aircraft, including mandatory training elements as specified in the operational suitability data established in accordance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012;"

Assumption is that a TRI for VTOL Capable aircraft would already be TRI, and would only need to complete the relevant parts of the technical training and the flight instruction parts of the applicable TRI course.
PROPOSED ACTION/RESOLUTION
EASA to consider amending as follows:

(c) "Have completed, at an ATO, **the relevant part** of theoretical and practical training for extending instructor privileges to that aircraft, […]"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1246* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
In relation to Art. 4f (4), and rationale point (4):

Art. 4f (4): Holders of licences and a type rating as specified in paragraph 1 shall be entitled to operate therelevant VTOL-capable aircraft under instrument flight rules, provided that they comply with allof the following:(a)they hold a valid IR(A) or IR(H), as applicable;(b)they have, in the relevant type of VTOL-capable aircraft, completed the skill test or the proficiency check, as applicable, in accordance with paragraph 2 including the content relevant for instrument flight.

Rationale point (4): CPL(A)/CPL(H) holders will be entitled to exercise their IR(A)/IR(H) privileges in the VTOL-capable aircraft, subject to skill tests / proficiency checks to cover instrument flight. The IR(A)/(H) itself needs to be kept valid by complying with the relevant revalidation requirements.

Is there a practical way to allow a CPL holder to keep their IR current via VTOL flying, rather than obliging them back to fixed wing or helicopter? In the case of a VTOL aircraft which has sufficient similarity to an aeroplane for example, it would be unfortunate to overlook this.
PROPOSED ACTION/RESOLUTION
EASA to consider whether allowing a CPL holder to keep their IR current via VTOL flying is possible, and amend Art. 4f consequently. Alternatively, if not feasible to consider this possibility within this NPA, EASA should explore this route in the near-term.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.7.1. Annex I (Part-FCL) p. 233

comment *262* comment by: *Civil Aviation Authority the Netherlands*

Para 3.7.1, Page 233, Part FCL:
FCL.010 Needs integration with NPA 2021-12

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1172* comment by: *Joby Aviation*

Is there a practical way to allow a CPL holder to keep their IR current via VTOL flying, rather than obliging them back to fixed wing or helicopter? In the case of a VTOL aircraft which has sufficient similarity to an aeroplane for example, it would be unfortunate to overlook this - If not feasible within this NPA, then this route should be explored in the near-term. Text proposed to not rule out this possibility in the future.

Suggested Text:
4.Holders of licences and a type rating as specified in paragraph 1 shall be entitled to operate therelevant VTOL-capable aircraft under instrument flight rules, provided that they comply with allof the following:(a)they hold a valid IR(A) or IR(H), as applicable;(b)they have, in the relevant type of VTOL-capable aircraft, completed the skill test or the proficiency check, as applicable, in accordance with paragraph 2 including the content relevant for instrument flight.

Rationale:
CPL(A)/CPL(H) holders will be entitled to exercise their IR(A)/IR(H) privileges in the VTOL-capable aircraft, subject to skill tests / proficiency checks to cover instrument flight. The IR(A)/(H) itself needs to be kept valid by complying with the relevant revalidation requirements.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

3.8.2. Annex - Rules of the air p. 234

comment *211* comment by: *Lilium*

SERA.8012

GM needed to clarify that the FATO of a vertiport in legal terms is not a runway and therefore SERA.8012 does not apply to this situation. However, the wake turbulence may impact a FATO located in the vicinity of the runway(s). The risks are very much pending on the local situation and the types of aircraft being involved. A case by case assessment and approval by the competent authority are required.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *212* comment by: *Lilium*

SERA.5001

Helicopter operations can be authorized by the competent authority to fly below 1500m visibility if pilots are able to observe other traffic or any obstacles in time to avoid collision. The latter depends on the capability of the aircraft to hover or fly at low speed. VTOL capable aircraft operations, insofar they demonstrate a similar performance, should be able to obtain a similar authorization. The competent authority will have to assess the available operational data and environment to decide whether said performance is possible. Safety will not only be guaranteed by the technical capabilities of the aircraft, which are designed in accordance with the safety level objective of 10-9, but also the rigorous training and expertise of VTOL pilots. Therefore, and given the importance of VFR operations for initial VTOL operations, we believe that competent authorities should be empowered by the SERA Regulation to authorise VTOL operations in visibility between 1500m and 800m, if they can demonstrate adherence to the mentioned performance requirements.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1096 comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Annex — Rules of the air, Ch. 3.8.2, 923/2012, page 234
Is the term "'aerodrome' includes heliports and vertiports" valid? Otherwise it must be clarified that preparations also must be done from vertiports.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

1251 comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Other provisions in Reg. (EU) 923/2012 not addressed in this regulation might need to be revised or clarified in AMC/GM to ensure proper interpretation and implementation of this regulatory amendment. For example, the applicability of SERA.8012 is not clear when it relates to UAM operations.
PROPOSED ACTION/RESOLUTION
GM needed to clarify that the FATO of a vertiport in legal terms is not a runway and therefore SERA.8012 does not apply to this situation, however the wake turbulence may impact a FATO located in the vicinity of the runway(s). The risks are very much pending on the local situation and the types of aircraft being involved. A case by case assessment and approval by the competent authority are required.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Article 2 Definitions p. 234

comment

263 comment by: *Civil Aviation Authority the Netherlands*

Para 3.8.1, Page 234, Article 2:
Include definition of gyroplane as specified in NPA 2021-12.

response

Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment

543 comment by: *DJI Technology*

In 94a, "minimum fuel" means a term used to describe a situation in which an aircraft's fuel/energy supply has reached a state where the flight is committed to land at a specific

	aerodrome and backup fuel/energy shall meet the requirements of severe weather and alternate landing。
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SERA.2010 Responsibilities p. 234

comment	*544* comment by: *DJI Technology* SERA.2010 （b） Pre-flight action ： Flight conflict shall be considered in pre-flight plan and strategic conflict management。
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SERA.9005 Scope of flight information service p. 236

comment	*120* comment by: *IFATCA* This change does not correspond to the text in Annex 11 (Chapter 4, 4.2). The draft lacks phraseology about the transmission of information about unmanned aircraft to manned acft (ATS clients), as well as where this information is obtained, including it contens because the movement in space of VTOL and UAS and the accuracy of the information are different).
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*265* comment by: *skyguide Compliance Management* (8) information on unmanned aircraft Skyguide proposal : (8) available information on known unmanned aircraft Rationale : It should be reflected that ATS personnel only provide information on known unmanned aircraft, and only to the extent of the information made available to them. This correction would make the provision consistent with the logical limiting ATS responsibility already found in SERA.9005 (c) ("… provision of available information

concerning traffic…") and elsewhere in SERA (e.g. SERA.10005 "… other aircraft known to be in the vicinity of the aircraft involved…").

Although it is also true that such a limitation (available/known) does not appear in all elements of FIS (e.g. release of toxic and radioactive materials in the air), in those cases, ATS is not normally the generator of the information but rather just a transmitter. For unmanned operations, ATS may also be expected to be the generator of the information, and therefore, this limitation of responsibility is essential.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *375* comment by: *German NSA (BAF)*

SERA.9005 (a) (8)

The wording should be amended as follows:
"information on other known unmanned aircraft"

As an UAS is already covered by SERA.9005 (b) 2 as an UAS is an aircraft. From this point of view it doesn't seem necessary to mention them explicitly in SERA.9005 (a) (8). But if they are mentioned, at least the word "other" should be amended. Furthermore, only information about known air traffic can be provided. In uncontrolled airspace without a U-space airspace UAS may be unknown for the FIS unit.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *836* comment by: *FOCA (Switzerland)*

FOCA would like to point out that SERA applies in principle to drones in the "specific" category. This leads to the view of FOCA that drones should also be considered as "aircraft" and not as a danger to other aircraft. This would tend to suggest that TI already falls under SERA.9005(b)(2) (which, after all, covers TI over manned aviation) and should not be included as a hazard under SERA.9005(a). Furthermore, it is not completely clear for FOCA to what extent U-space airspace plays a role. Does the requirement to issue TI apply whether or not a U-space airspace is established? If a U-space airspace is established in airspace class C and D, segregation between UAS and manned aviation is provided and then TI should not play a role. FOCA would appreciate to have a clarification on this point.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1030* comment by: *Danish Civil Aviation and Railway Authority - DCARA*

The proposed amendment is not supported.

"Information on unmanned aircraft" is already included in SERA.9005(b)(2).

If needed a GM to (b)(2) could be proposed to specify that it includes also unmanned aircrafts. Hence the mentioned changes to ATS.TR.305 indicated in this NPA, section 2.3.6.4, is not needed.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1255* comment by: *European Cockpit Association*

Commented text:
SERA.9005 Scope of flight information service
Page 236
(a) Flight information service shall include the provision of pertinent:
[…]
(8) information on unmanned aircraft;

Comment:
Very good! This implies that unmanned aircraft must adhere to existing rules and regulations for manned aircraft when it comes to ATS.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SERA.8020 Adherence to flight plan p. 236

comment *209* comment by: *Lilium*

We suggest to adopt the term "alternate aerodrome" instead of alternative aerodrome

Proposed regulatory text:
(1) request an amended clearance enabling the aircraft to continue in VMC to destination or to an **alternate** aerodrome or operating site

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *210* comment by: *Lilium*

GM might be necessary - As explained on p.44 in the NPA, in deciding whether operating sites can be used, it will be the responsibility of the pilot/operator to see whether the specificities of a given flight are covered only by the SERA Regulation as a general case or are subject to additional restrictions imposed by other regulations. Indeed, operating sites cannot be used by VTOL aircraft carrying passengers on board. Alternates must be designated as per UAM.OP.MVCA.181 and used in case of diversion due to e.g., weather deterioration (not for emergencies). Operating sites are to be used solely by cargo and VEMS operators.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1249* comment by: *General Aviation Manufacturers Association (GAMA)*

RATIONALE / REASON / JUSTIFICATION
Suggest to adopt the term "alternate aerodrome" instead of "alternative aerodrome" in SERA.8020 (d)(1)

PROPOSED ACTION/RESOLUTION
EASA to consider the proposed wording:

*(d)(1) request an amended clearance enabling the aircraft to continue in VMC to destination or to an **alternate** aerodrome or operating site.*

Also, consider adding GM - (As explained on p.44 in the NPA) in deciding whether operating sites can be used, it will be the responsibility of the pilot/operator to see whether the specificities of a given flight are covered only by the SERA Regulation as a general case or are subject to additional restrictions imposed by other regulations.

Indeed, operating sites cannot be used by VTOL aircraft carrying passengers on board. Alternates must be designated as per UAM.OP.MVCA.181 and used in case of diversion due to e.g., weather deterioration (not for emergencies). Operating sites are to be used solely by cargo and VEMS operators.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

SERA.11012 Minimum F f uel /energy and F f uel /energy E e mergency p. 236

comment: *545* comment by: *DJI Technology*

When encountering the minimum fuel/energy, the air traffic controller should also inform the aircraft of airspace conditions and the best flight plan. For selection.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4. Impact assessment (IA) p. 241

comment | *464* comment by: *Europe Air Sports*

EAS Comments:
Based on our quick analysis, we unfortunately have to regard this NPA as not providing a realistic framework for non-commercial operation of VTOL-capable aircraft outside urban areas, i.e. typical General Aviation uses. The requirements in the NPA are set on the highest level, including concepts so far unheard of in the non-commercial world, such as requiring an AoC or requiring a CPL for non-commercial operations.

EAS looks forward to participating in the work of making Part-IAM suitable for General Aviation with VTOL aircraft, and is ready to offer constructive support. We hope this work can start urgently.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1. Innovative air mobility - introduction to the issue p. 241

comment | *891* comment by: *FAA*

"Amongst many different use cases, air taxis will be the type of innovative operations more largely deployed in Europe in the near future". This doesn't make it clear weather its speaking to operations such as urban air mobility or if its talking about the vehicle itself. eVTOL/VTOL or powered-lift may be a better term than Air Taxi. Suggest consistent terminology for global messaging.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.2. Issues p. 242

comment | *19* comment by: *ACI EUROPE*

Wake Turbulence Classes:
Do you consider introducing a new Wake Turbulence Class for VTOL capable aircraft? If not, how will VTOL capable aircaft be classified and separated?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *20* comment by: *ACI EUROPE*

Security Checks:
Who will be responsible for security checks of passengers, crew, goods and cargo? Will security checks be the same/similar to those currently in place at airports?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *350* comment by: *Norwegian Air Traffic Controller Association*

4.1.2 Impact assesment, Issues:

- — Inadequate protection against air safety risks (mid-air collision risk, aircraft proximity (AIRPROX), accidents and incidents with manned and unmanned aircraft)
  - — The increase in the number of UAS and VTOL-capable aircraft in airspace raises concerns about the increased risk of mid-air collisions with manned and unmanned aircraft, and occurrences resulting in collision-avoidance manoeuvres seriously affecting traffic management

This issue needs to be adressed as soon as possible, conflicts between manned and unmanned aviation is a grave threat to safety in the air.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *894* comment by: *FAA*

Add the following to ground safety risk, infrastructure risk, and air safety risk bullets

Additional risk: lithium ion batteries catching fire and damaging the IEC, infrastructure, or other people on the ground. Recommend adding to ground safety risk, infrastructure risk, and air safety risk bullets.

Additional risk: Hydrogen/Hybrid aircraft

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1256* comment by: *European Cockpit Association* Commented text: Impact Asessment, 4.1.2 issues Page 243 The increase in the number of UAS and VTOL-capable aircraft in airspace raises concerns about the increased risk of mid-air collisions with manned and unmanned aircraft, and occurrences resulting in collision avoidance manoeuvres seriously affecting traffic management. Comment: This NPA states that see and avoid has some limitations for all aircraft, and more so for manned VTOL. This is even more true for UAV. This NPA addresses that issue in several places. It is of outmost importance to have other mitigating measures in place before starting operations. Mitigating measures can be detect and avoid, air traffic service, airborn collision and avoidance systems, transponders etc. However, SEE AND AVOID IS NOT A SUFFICIENT BARRIER FOR THE SAFE INTEGRATION OF UNMANNED AND MANNED AVIATION.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.1. Drivers p. 242

comment	*892* comment by: *FAA* Electrical engines may be too limiting. Consider other types of engines that are near term operations (AW-609)
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.3. Safety risk assessment p. 244

comment	*463* comment by: *Europe Air Sports* EAS Comments:

	EAS commends EASA for its in-depth safety assessment. Wee agree a high level of safety is essential for the acceptance and growth of commercial manned VTOL operations. However, we notice that it focuses almost exclusively on the scenario with commercial operations in urban areas, and more or less dismisses even the possibility of non-commercial operations outside urban areas. We sugges
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*895* comment by: *FAA* Add "electrical fire" to ground safety risk, infrastructure risk, and air safety risk bullets
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.3.2.1 Risk to occupants p. 245

comment	*897* comment by: *FAA* Add security/background check for passengers.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.3.2.2 Ground safety risk p. 249

comment	*898* comment by: *FAA* Add battery cooling/overheating to ground safety risk, infrastructure risk, and air safety risk bullets
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*902* comment by: *FAA* Will need to address vertiport security – passenger vetting & cargo scanning procedure as well as access to facilities (restriction/limitation on access to site).
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.3.2.3 Air safety risk p. 253

comment	*170* comment by: *GdF* 4.1.3.2.3.2.3 Do ATCOs have to manage manned aviation to segregate from UAS? This would be in contrast with the so far existing definition of "Dynamic airspace reconfiguration". An increase in ATCO workload is probable - with the necessary consequences to capacity. Access to airspace without discrimination will not be possible for all, since with more participants will be operating in the air, sharing the one continuum of airspace, the need to establish and to agree upon compromises on all sides will increase - hence a change for all. It is either about keeping segregation or a process towards integration. Why should ATCOs, who are paid by their ANSPs / Airlines to do the job for USSPs? Will USSPs financially contribute to the ATCO cost? This is important as the provision of information and service inevitably has a cost, and the current regulatory model for Air Navigation Service Providers means that provision would otherwise have to be borne by existing (manned) airspace users as the only mechanism for recovering costs.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*171* comment by: *GdF* 4.1.3.2.3.2.3 The provision to Common Information Service (CIS) provider / U-Space Service Provider (USSP) of traffic information of manned aircraft can increase dramatically the workload, especially if there are no surveillance services available. Where will the CIS/USSP get the data of the manned aircraft from? Traffic information service about manned aircraft should be based on dynamic airspace reconfiguration (at least in controlled airspace with no surveillance available). It remains unclear whether ANSPs have to share their radar data with CIS/USSPs - which is very unlikely

to happen without sharing cost. In addition to that, in RP3 it has been explicitly indicated that ANSPs cannot transfer costs from U-space to airline fares. This needs clarification.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *172* comment by: *GdF*

4.1.3.2.3.3

Evidence of comprehensive hazard identification is a crucial component of any aerospace certification argument.
Historically, in the early stages of the aerospace safety assessment process, hazard identification has been performed through use of hazard checklists – derived from lists of previously identified or experienced hazards. The arguments used in support of this approach are predominantly based upon the amount of accumulated experience (i.e. to a large extent we know how systems fail) and the stability of the underlying domain (i.e. aviation systems don't change a great deal from instance to instance). However, this is a reactive rather than proactive approach to identifying hazards. Also, when looking at complex and highly integrated subsystems of an aircraft/drone (such as a single engine controller), the lower-level hazardous failure modes are less well understood and not as stable. Completeness of the hazard identification process for such subsystems is therefore our concern.

GdF is aware that Functional Hazard Assessment (FHA) can be hard to apply. More accurately, FHA can be hard to apply <u>well</u> – in a way that means we are not simply generating reams of meaningless tables, but instead are gaining a better understanding of the effect of failures and therefore a more complete list of hazardous failure modes. Identifying and defining functions at the right level of abstraction can be a non-trivial exercise. Care must be taken when extracting functions from requirements documentation to remove premature implementation detail.

GdF believes that FHA works best as a technique for functions that are entirely independent. However, when talking about highly integrated feedback systems, the functions are far from independent. Both function-to-function and function-mode interactions must be addressed. However, FHA size must be managed too. It is necessary to clearly scope and direct the FHA process.
GdF is aware that it can be difficult to determine the end-effect of low-level subsystem functional failures. It is useful to have a model of the 'consequence' chain that clearly identifies how functions interact and their relationship to effects that are observable at the higher levels of the system.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *225* comment by: *ENAIRE*

Original text (page 267): Same as for OPE#1 since in U-space environment, manned VTOL-capable aircraft are treated as manned aircraft. In addition, once U-space is implemented, manned VTOL-capable aircraft and other manned aircraft that operate in this environment are supposed to be equipped with electronic conspicuity devices (ECDs) but nothing indicates that it would be efficient/sufficient to help avoid collisions (due to, e.g., lack of procedures, interoperability issues, etc.).

Comment: The use of U-space by manned VTOL should be recommended as far as possible, to avoid the generation of a DAR as only solution because U-space services could be provided.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *226* comment by: *ENAIRE*

Original text (page 268): In this uncontrolled airspace.
Proposed amended text: In this uncontrolled airspace by ATS.
Comment: It should be clarified that in this airspace, although ATS services are not provided, U-space services are provided.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *227* comment by: *ENAIRE*

Original text (page 275): The main mitigating measure to prevent in-flight collision between manned aircraft (including VTOL-capable aircraft) and UAS is the dynamic airspace reconfiguration. Dynamic airspace reconfiguration means the temporary modification of U-space airspace in order to accommodate short-term changes in manned traffic demand by adjusting the geographical limits of that U-space airspace. The objective of this strategic mitigation is to make sure that manned aircraft which are provided with ATC services and UAS remain segregated.

Comment: The use of U-space by manned VTOL should be recommended as far as possible, to avoid the generation of a DAR as only solution because U-space services could be provided.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *351* comment by: *Norwegian Air Traffic Controller Association*

Regarding: "Risk of in-flight collision between manned VTOL-capable aircraft and UAS in OPE#3" claiming that "The current UAS traffic density in CTR Class D is very low and it is assumed that it will remain low in the future" is not true for Norway. ENTC and ENZV for

instance, are class D airspace and have a lot of unmanned traffic operating without the use of a system for "detect and avoid" or similar.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *376* comment by: *German NSA (BAF)*

4.1.3.2.3.2.1 (i)

What is meant by "predetermined routes"? And what is the difference to "predefined routes"?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *377* comment by: *German NSA (BAF)*

4.1.3.2.3.2.1 (iii)

In the impact assessment it is mentioned that there "is a need for a traffic management function at the vertiport". How does this fit with the statement, especially by page 39 and 44, that vertiports are aerodromes and the requirements of CIR (EU) No 923/2012 are applicable? At least if the vertiports were located in controlled airspace, a traffic management function would not be necessary as ATC would be responsible for controlled flights.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *378* comment by: *German NSA (BAF)*

page 270, figure 13

Airspace E must be considered and represented separately as VFR flights are principally not subject to control.

Furthermore, the following correction in the headline of Figure 13 is suggested:
"~~Un~~controlled airspace without U-Space".

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *379* comment by: *German NSA (BAF)*

4.1.3.2.3.2.3 (i)

It is mentioned that "in controlled airspace, it is assumed that ATC does not manage the vertiport traffic and a dedicated vertiport traffic management system is put in place by a third party". This seems to contradict the statement on page 44 and 39 that vertiports are aerodromes and therefore subject to the CIR (EU) No 923/2012. And what is meant by the term "vertiport traffic management system"? Who will be the third party? Does this third party need a certification? Or is the operator meant here in view of the regulation UAM.OP.VCA.145 on page 191?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *380* comment by: *German NSA (BAF)*

4.1.3.2.3.2.3 (i)

How does the system "specific VFR VTOL route corridors" fit with the existing system of IFR/VFR flight procedures and the existing "ATC clearance system" of CIR (EU) No 923/2012? Are these corridors the predefined routes, as defined on p. 164 or is this an additional concept? The intended construct of this NPA is unclear and should be revised.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *381* comment by: *German NSA (BAF)*

4.1.3.2.3.2.4

The following correction is suggested:
"SAC-OPE#4: The probability …. in controlled airspace with~~out~~ U-space shall …"

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *382* comment by: *German NSA (BAF)*

page 275, figure 14

Airspace E must be considered and represented separately as VFR flights are principally not subject to control.

Furthermore, the following correction in the headline of Figure 14 is suggested:
"Controlled airspace with~~out~~ U-Space"

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *383* comment by: *German NSA (BAF)*

4.1.3.2.3.2.4 (ii)

The dynamic reconfiguration only applies to manned aircraft which are provided with an ATC service. So, in E in case of manned VFR flights the U-Space won't be reconfigured by the ATC unit. This should be considered in this section.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *384* comment by: *German NSA (BAF)*

4.1.3.2.3.3.2

What is meant by "pseudo-IFR operations"?

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *547* comment by: *DJI Technology*

A definition of electronic conspicuity devices (ECDs) should be given, along with examples of commonly used systems or devices

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *839* comment by: *FOCA (Switzerland)*

4.1.3.2.3.2.3 (Page 270; Figure 13): FOCA suggests adjusting the title as follows: *Controlled Airspace without U-Space.* The reason for this is that, in FOCA's view, otherwise the title is inconsistent with operational environment.

response | Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment | *843* comment by: *FOCA (Switzerland)*

4.1.3.2.3.2.4 (Page 275; Figure 14): FOCA suggests adjusting the title as follows: *Controlled Airspace with U-Space.* The reason for this is that, in FOCA's view, otherwise the title is inconsistent with operational environment.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *904* comment by: *FAA*

AAM technology is anticipated to be safer than helicopter operations, please provide test data, accident data analyses of air travel

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *965* comment by: *Tuncay Deniz*

Hello,

first of all, I would like to congratulate and thank you for this NPA.

Please allow me to recommend to add a new section regarding establishing a slot allocation system for the UAVs (or manned/unmanned eVTOLs etc.), as you also already mentioned in section 4.1.3.2.3.2.1.

In my experience, it is very necessary and helpful to build up an effective slot allocation system for such air movements. Otherwise, it is not possible to ensure a smooth and secure operation at the airports already having them in use, or at locations, the vertiports will be built in the future.

The UAV- Slot Allocation System could work like the already established National Airport Coordinator Systems in many countries in the world. In that system schedules facilitators/coordinators are responsible for allocating slots in accordance with the international regulations and those national laws of each country. This is particularly important for UAV flights carried out in 2-, or 3-country corners like, Austria-Germany, or Austria-Germany-Switzerland etc. or for Schengen/Non-Schengen border crossings.

These new UAV systems are very quiet, so it is perfectly possible to operate flights also late at night, even during the particular sensitive hours after midnight. As no system has been set up to regulate those flight, new regulations should to be set up or the existing ones should be adapted accordingly.

Wish you all the best for your NPA.

Best regards

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response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1066* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

4.1.3.2.3.2.2 Air risk analysis in uncontrolled airspace with U-space (OPE#2), page 266
"SAC-OPE#2: *The probability of in-flight collision or near-collision between a VFR manned VTOL-capable aircraft with other airspace users in uncontrolled airspace without U-space shall not be greater than a collision between a VFR helicopter (carried under an AOC) with other airspace users in uncontrolled airspace*." SAC-OPER#2 refers to operations *with* U-space. Can be updated according to the analysis.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1259* comment by: *European Cockpit Association*

Commented text:
4.1.3.2.3.2.2 268
It is assumed that, in accordance with Article 11 of Delegated Regulation (EU) 2021/66481 manned VTOL-capable aircraft which will enter a U-space airspace will be deconflicted from UAS. For that purpose, manned VTOL-capable aircraft will have to be equipped with an electronic conspicuity device (ECD) as required by point SERA.600582 of Implementing Regulation (EU) 2021/66683

Comment:
The concept of ECD should include other manned aviation that might fly in U-space: helicopters, HEMS, SAR, police, etc.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1262* comment by: *European Cockpit Association* Commented text: 4.1.3.2.3.2.3 Page 269 Some proposals relative to the **implementation of radio mandatory zones (RMZ) and transponder mandatory zones (TMZ)** in such airspace have been put forward to reduce the risk associated to unknown VFR traffic Comment: ECA supports it.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1321* comment by: *Markus Engelhart - umlaut* Regarding 4.1.3.2.3.2 Analysis of the air risk in different operational environments: Determining that the current level of probability of collision between drones and manned aviation will be maintained, also with manned VTOL-capable aircraft - vehicles that will fly in VLL and in greater quantity - will require that the control of the UTM airspace is extremely evolved until the drones can share the VLL with these manned vehicles. This decision prioritizes air taxi and delays/prevents the development of non-troubled services in most urban environments. à If the 'one at a time' principle is not implemented, then strategic and tactical barriers should be put in place to mitigate the risk of in-flight collision: predetermined VFR VTOL routes should be established to prevent conflicting situations (e.g. crossing, head-on or overtaking situation). Bearing in mind that in a first scenario of urban implementation there will not be a UTM system (U-Space) 100% developed for a highly complex environment, so as not to make urban services by UAS unfeasible and still keep the manned VTOL-capable aircraft safe, it should be established that the predetermined routes for manned VTOL-capable aircraft are required until the UTM technology is advanced enough to enable UAS and manned VTOL-capable aircraft in VLL airspace, ensuring the desired level of safety against collision with manned aircraft - The default routes for manned VTOL-capable aircraft are not a secondary mitigation as suggested in the document (Pg. 264). The same idea applies to the non-obligation of electronic conspicuity device (ECD) in all manned VTOL-capable aircraft, considered just a "recommended tactical mitigation" (Pg. 265) or a requirement for a collision-avoidance system (ACAS, DAA) to reinforce this barrier in very low level airspace (Pg. 266).
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1322* comment by: *Markus Engelhart - umlaut*

Regarding 4.1.3.2.3.2.3 Air risk analysis in controlled airspace without U-space (OPE#3): According to our understanding this determines that helicopters and manned VTOL-capable aircraft will not be able to coexist in routes and/or infrastructures. Is it intended with this paragraph to basically eliminate the possibility of initial manned VTOL-capable aircraft implementation at a lower cost, that is, using/adapting pre-existing infrastructures such as heliports and providing common infrastructures to both aircraft in favor of the economic viability of the network?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1323* comment by: *Markus Engelhart - umlaut*

Regarding 4.1.3.2.3.3.1 New types of aircraft with novel technologies and novel performance: Generalizing the whole scenario and increasing the VMC from 800 m to 1500 m is a very conservative measure that will significantly (negatively) impact VFR manned VTOL-capable aircraft operations in several cities around the world. Instead of generalizing and penalizing the entire market, a technological criterion could be established (as in helicopters) for the manned VTOL-capable aircraft to operate at 800 m of VMC and a maximum traffic limit - and only when these conditions are not met, expand to 1500 m.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1324* comment by: *Markus Engelhart - umlaut*

Can you please clarify the implications of the certification/approval level of U-space services and their associated systems not being the same implies? In our understanding, if the overall movement of the airspace VLL is higher considering UAS, manned VTOL-capable aircraft and other users of that space, although the risk of collision between manned aircraft and manned VTOL-capable aircraft is lower at that altitude other complexities are added: therefore, the certification/approval level is just different or considered more/less complex?

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.4. Who is affected p. 279

comment *122* comment by: *IFATCA*

Whilst strongly supporting the new requirement for AAM operators to provide identification information to ATS providers - if such a service is to be mandatory - we remain of the view that the IR should only cover those services necessary for strategic/pre-tactical traffic management – namely e-identification, geo-awareness and flight authorization – at this point in time.
By also incorporating additional services such as network identification, we believe the framework unnecessarily and prematurely specifies requirements and approaches to specific tactical services where we cannot yet be confident these are appropriate or that the necessary technology exists. For example, a broadcast as opposed to network identification service may provide the necessary conspicuity and be a more appropriate solution under certain conditions
It is also not clear how General Aviation would connect to USSPs / AAM providers. According to our understanding, they are not within the scope of the network identification service, however the draft IR states that electronic conspicuity of manned aircraft should be guaranteed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *173* comment by: *GdF*

Whilst strongly supporting the new requirement for AAM operators to provide identification information to ATS providers - if such a service is to be mandatory - we remain of the view that the IR should only cover those services necessary for strategic/pre-tactical traffic management – namely e-identification, geo-awareness and flight authorization – at this point in time.
By also incorporating additional services such as network identification, we believe the framework unnecessarily and prematurely specifies requirements and approaches to specific tactical services where we cannot yet be confident these are appropriate or that the necessary technology exists. For example, a broadcast as opposed to network identification service may provide the necessary conspicuity and be a more appropriate solution under certain conditions
It is also not clear how General Aviation would connect to USSPs / AAM providers. According to our understanding, they are not within the scope of the network identification service, however the draft IR states that electronic conspicuity of manned aircraft should be guaranteed.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *385* comment by: *German NSA (BAF)*

4.1.4

	From this point of view the CA responsible for IFR/VFR flight procedures are missing in the list of the CA.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1006* comment by: *FOCA (Switzerland)* Page 280, Aerodrome operators: FOCA shares the view set out here. It is important to consider, that there will be possible combinations of use between vertiports, heliports and aerodromes. Like there are Helicopter OPS at aerodromes, there might be VTOL OPS at heliports and aerodromes. But there will never be Helicopter OPS at vertiports for ex. That's why FOCA suggests that single vertiports will have to be classified as such.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*1342* comment by: *Gregory Walden* editorial: manufacturers
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.1.5. How could the issue evolve p. 280

comment	*13* comment by: *ACI EUROPE* bullet point - Aerodrome operator This should be extended as follows: - Aerodrome, Heliport and Vertiport operators An additional stakeholder groups would be local authorities which will need to develop / hire expertise concerning air operations as well as urban planning. For this reason., local authorities should be included as a specific stakeholder group. Rationale: As indicated in this item, VTOL operators might commence / terminate flights from airports and heliports. However, we are seeng a number of companies designing and

	developing Vertiports which would not be open for helicopter use. To reflect this, affected stakholders should explicitly include Vertiport operators.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment	*814* comment by: *German Unmanned Aviation Association (VUL)* Relevant NPA content / context (Page 280) "Legacy and newly established manufacturing companies are in the phase of developing UAS and manned VTOL-capable aircraft to be used in new operational concepts in order to enable the deployment of IAM in its full potential. The lack of regulatory initiative in the domains of: • initial airworthiness, • continuing airworthiness, • air operations, • llight crew licencing, and • air traffic management may severely compromise the achievement of the necessary level of safety of operations with UAS and manned VTOL-capable aircraft." Comment The listed domains should be extended as follows: • Aerodrome, Heliport and Vertiport operators An additional stakeholder group would be local authorities which will need to develop / hire expertise concerning air operations as well as urban planning. For this reason, local authorities should be included as a specific stakeholder group. Rationale: As indicated in this item, VTOL operators might commence / terminate flights from airports and heliports. However, we are seeing a number of companies designing and developing Vertiports which would not be open for helicopter use. To reflect this, affected stakeholders should explicitly include Vertiport operators.
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.2. Introduction to the options p. 281

comment *907* comment by: *FAA*

Recommend clarifying the following:

“Operations would be performed with different levels of safety in different Member States, and this may give an economic edge to those Member States where requirements would be less restrictive.»

Is this is meant to say that Member States will perform with a different level of safety? Safety regarding operations should remain relatively aligned regardless of where the operations are taking place, however, may have meant to say that the regulatory burden and performance of the operations/vehicle may have different levels.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

4.3.1.1 Description of the options p. 284

comment *954* comment by: *FAA*

Option 2 provides higher safety standards.

response Please, refer to the file ‘CRD 2022-06: EASA responses to individual comments’.

4.3.1. Options for the continuing airworthiness of UAS subject to certification and operated in the 'specific' category p. 284

comment *1320* comment by: *Markus Engelhart - umlaut*

Option 1 is in our opinion the preferred option. Part-ML and Part-CAO provide a proportionate framework for continuing airworthiness to correspond to the lower risks associated with 'Light Aircraft' in general aviation. Even considering the approach of "Part-CAO.UAS organisations", the requirements for the organization to receive approval with all necessary CAW privileges can be considered very high for the equipment in question (sometimes of less complexity than manned aircraft (Part -ML) used as a reference. Thus,

since this decision affects more than 1 SAIL level of the specific category, in my view it leads to a packaging of the SORA methodology previously foreseen because it is not distinguishing different levels of risk in such a minimalist way as in the SORA model currently used. Thus, this decision becomes incompatible with the current detail. The suggestion is that a subdivision is also made with regard to continuing airworthiness (CAW) for UAS as we have published today for risks of the specific category.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment: *1343* comment by: *Gregory Walden*

The Alliance agrees that Option 1 is the preferred option.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.3.2.1.1 VTOL-capable aircraft employed in emergency medical services (VEMS) p. 287

comment: *908* comment by: *FAA*

Consider adding Helicopter Terrain Awareness and Warning System (HTAWS)

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.3.2. Options for manned VTOL-capable aircraft p. 287

comment: *1325* comment by: *Markus Engelhart - umlaut*

Instead of a direct ban on this option, for example, inspection conditions of the landing and take-off site could be stipulated to verify that the minimum requirements are met, inspection carried out by a member of the ground rescue team who has had adequate training for such. Thus, the risk of unknown "flight skill" would be mitigated and potential benefits to people in need could be still reaped in conditions where there is space limitation for helicopter rescue and ground restriction for vehicle traffic (prevented from reaching the point or high wait times for an emergency rescue).

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

4.3.2.1.2 Certification of non-commercial operators of manned VTOL-capable aircraft p. 288

comment *1263* comment by: *Direction de l'Aviation Civile*

- Require a certification (AOC) for non-commercial operations is an important shift from and not consistent with the current air operations regulatory framework. Indeed, the rule was always not to have a certification for non-commercial operations. DAC Luxembourg would appreciate further substantiations on the explanation provided through 4.3.2.1.2 as no "certified" category requirements exist in Regulation 2019/947 yet with regard to the obligation to hold an AOC ;

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

5. Proposed actions to support implementation p. 293

comment *14* comment by: *ACI EUROPE*

Consider adding additional proposed actionsn to support implementation:

- Publication of AMC and GM applicable to new/amended regulations
- Focused communication for Advisory Body meeting(s) (MAB/SAB)
- Clarifications via electronic communication tools between EASA and NAAs (EUSurvey or other)
- Detailed explanations/clarifications on the EASA website
- Dedicated thematic workshop/session
- Combination of the above-mentioned means
- support and evaluation of demonstrator projects

Rationale: As UAM is a new concept that will grow gradually, little practical experience is available at this stage. Active support for demonstrators could provide additional insights and empirical data that could support the development of regulations as well as the technologies. It might also encourage CAs and local authorities to support the development of UAM projects in their localities.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *817* comment by: *German Unmanned Aviation Association (VUL)*

Relevant NPA content / context (Page 293)
"5. Proposed actions to support implementation

- Publication of AMC and GM applicable to new/amended regulations
- Focused communication for Advisory Body meeting(s) (MAB/SAB)
- Clarifications via electronic communication tools between EASA and NAAs (EUSurvey or other)
- Detailed explanations/clarifications on the EASA website
- Dedicated thematic workshop/session
- Combination of the above-mentioned means"

Comment
Consider adding additional proposed actions "support and evaluation of demonstrator projects" to support implementation:

- Publication of AMC and GM applicable to new/amended regulations
- Focused communication for Advisory Body meeting(s)(MAB/SAB)
- Clarifications via electronic communication tools between EASA and NAAs (EU Survey or other)
- Detailed explanations/clarifications on the EASA website
- Dedicated thematic workshop/session
- Combination of the above-mentioned means
- **support and evaluation of demonstrator projects**

Rationale:
As UAM is a new concept that will grow gradually, little practical experience is available at this stage. Active support for demonstrators could provide additional insights and empirical data that could support the development of regulations as well as the technologies. It might also encourage competent and local authorities to support the development of UAM projects in their localities.

response: Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.7. Any other comments on the quality of this NPA (please specify) p. 295

comment: *3* comment by: *Patrick WILLS*

I believe too little consideration is being given to suitability of landing sites, for different size aircraft in different flying conditions and with different noise signatures. This was a mistake made with non-passenger drones and the private sector has taken a while to catch up and deal with noise and safety issues on the ground.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *1235* comment by: *ADAC Luftrettung gGmbH*

It is remarkable that EASA and the Commission are the first rulemaker in the world to have created such a comprehensive, coherent and well thought-out set of rules for IAM. Treading these new, unexplored paths requires legislative initiative and courage. The high flexibility and speed of rulemaking EASA presented here is immensely important for the development of novel aircraft, the realisation of socially desirable applications such as VEMS and the innovative capacity of the European aviation industry.

Good Job!

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.1. The regulatory proposal is of technically good/high quality p. 295

comment *504* comment by: *JEDA*

Very high quality document. Congratulations to the Agency supported by the Expert Group. In its Resolution of 29 October 2015 on safe use of remotely piloted aircraft systems (RPAS), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015IP0390&rid=7 the European Parliament noted (point 1) that 'the US, at the time, was seen by many as the leading market for the use of RPAS, albeit for military operations; stresses
however that Europe is the leader in the civilian sector' No CAA in the world has yet issued a regulatory proposal as comprehensive as NPA 2022-06 for rules applicable to type certifified UAS and to IAM services. This confrims the EU leadership in the filed of UAS regulation and standardisation.

response Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

comment *972* comment by: *ADAC Luftrettung gGmbH*

fully agree

response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.2. The text is clear, readable and understandable p. 295

comment	*973* comment by: *ADAC Luftrettung gGmbH* fully agree
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.3. The regulatory proposal is well justified p. 295

comment	*974* comment by: *ADAC Luftrettung gGmbH* fully agree
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.4. The regulatory proposal is fit for purpose (capable of achieving the objectives set) p. 295

comment	*975* comment by: *ADAC Luftrettung gGmbH* fully agree
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.5. The impact assessment (IA), as well as its qualitative and quantitative data, is of high quality p. 295

comment	*976* comment by: *ADAC Luftrettung gGmbH*

	fully agree
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

7.6. The regulatory proposal applies the 'better regulation' principles p. 295

comment	*977* comment by: *ADAC Luftrettung gGmbH* agree Potential for improvement: - make better use of the data driveness of these novel aircraft types in the interest of safety and the environment (digital driven impact) - regulate in more detail the collection and use of valuable operational data between operators and holders of the type certificate (digital driven impact) - take the lead in opening possibilities for digital documentation, e.g. in maintenance (digital driven impact, digital by default, digital ready) - be even more technology agnostic, level playing field between VTOL capable aircraft and helicopters
response	Please, refer to the file 'CRD 2022-06: EASA responses to individual comments'.

Appendix — Attachments

NPA2022-06_Comments.pdf
Attachment #1 to comment #578

NPA2022-06_Comments.pdf

Attachment #2 to comment #549

NPA2022-06_Comments.pdf

Attachment #3 to comment #580

Lilium's position on predefined routes (NPA 2022-06).pdf

Attachment #4 to comment #1149

NPA2022-06_Comments.pdf

Attachment #5 to comment #550

NPA2022-06_Comments.pdf

Attachment #6 to comment #551

NPA2022-06_Comments.pdf
Attachment #7 to comment #552

NPA2022-06_Comments.pdf
Attachment #8 to comment #553

NPA2022-06_Comments.pdf
Attachment #9 to comment #554

NPA2022-06_Comments.pdf
Attachment #10 to comment #555

NPA2022-06_Comments.pdf
Attachment #11 to comment #556

NPA2022-06_Comments.pdf
Attachment #12 to comment #564

NPA2022-06_Comments.pdf
Attachment #13 to comment #568

NPA2022-06_Comments.pdf
Attachment #14 to comment #572

NPA2022-06_Comments.pdf
Attachment #15 to comment #576

NPA2022-06_Comments.pdf
Attachment #16 to comment #581