



# EASA DESIGN & CERTIFICATION NEWSLETTER

TECHNICAL

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Welcome to our latest EASA Design & Certification Newsletter, the second issue since the start of this initiative, all of which we hope have helped to keep you updated on our latest certification news.

In this issue you will find some interesting articles related to the recent events impacting aviation but also some more technical subjects and our usual expert tips.

I would like to thank particularly Nicolas DUPREZ, Dirk KRAPPEL, Michael GERHARD, Cyrille ROSAY, Jean-Louis AMMELOOT, Olivier TRIBOUT, Stephanie ROSTREN, Raquel SANZ and Markus GOERNEMANN for their time and contribution to the articles in this edition.

We welcome your comments and suggestions. Should you have further questions, please contact your allocated PCM or DOA Team Leader.

Yours faithfully,  
**Rachel DAESCHLER**

## **IMPORTANT!!!**

**If you wish to receive this bi-annual newsletter in the future you need to register via our [website](#) and click on news feed**

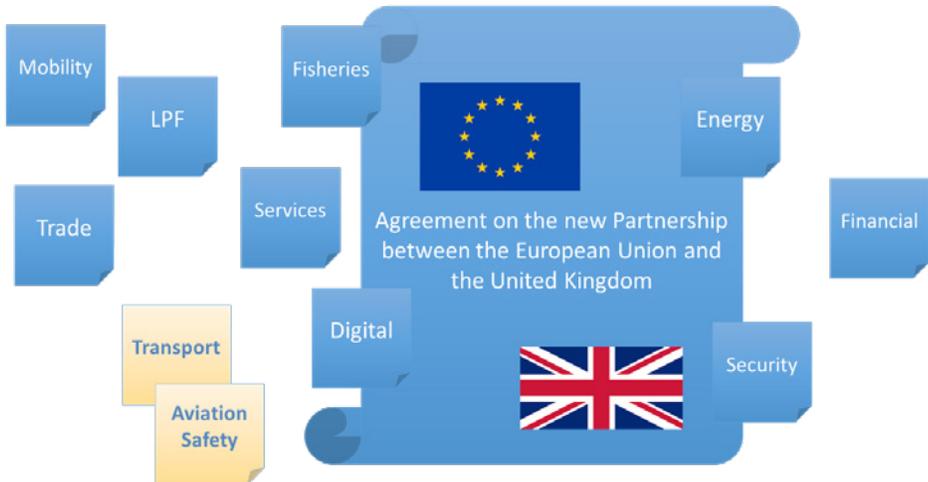
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# Brexit Update

## Arrangement between EU and UK & status of Technical Implementation Procedures (TIP)

### EU UK BASA is Part of a wider context



Following the BREXIT, the EC published the agreement between UK and EU [here](#). **TITLE II: AVIATION SAFETY** deals with topics related to EASA and further provisions are laid down in the Chapter “Annexes” and there in the one called “ANNEX AVSAF-1: AIRWORTHINESS AND ENVIRONMENT CERTIFICATION” (pages n° 811-825). EASA published design related FAQs on the EASA website [here](#) and production related FAQs [here](#).

The Agreement was reached on 24 December 2020 and is provisionally applied as of 1 January 2021 as the following process steps are pending: ratification by EU Parliament and formal adoption by EU Council.

#### Design aspects

In terms of design approvals, the continuing validity of all existing design certificates is addressed in ANNEX AVSAF-1 Airworthiness and Environment and there particularly in Article 15 [Existing design certificates]. This article covers TC, STC, changes and repairs as well as

ETSOA and all changes to them which are deemed to have been issued by the technical agent of the United Kingdom as certificating authority or by an approved organisation under the laws and regulations of the United Kingdom and to have been accepted by the technical agent of the Union as validating authority in accordance with Article 13(1). The same is valid for certificates issued to EU organisations or by an approved organisation under the laws and regulations of EASA which continue to remain valid in the UK.

For not yet EASA approved design certificates, the process will follow, as applicable, the modalities of validation or acceptance in ANNEX AVSAF-1 Airworthiness and Environment as per:

- Article 10 [Modalities of the validation of design certificates] for TC and Significant STC/Significant Major Changes, or
- Article 13 [Acceptance] for Non-significant STCs, non-significant major changes, repairs and technical standard order authorisations as well as for minor changes/repairs

The following table illustrates the different ways of validation for the various project categories:

Design Approval	CAA validation of EASA Design Approvals		EASA validation of CAA Design Approvals	
	Modality	Reference	Modality	Reference
Minor Change	Accept	Art. 13(3)	Accept	Art. 13(4)
Minor Repair	Accept	Art. 13(3)	Accept	Art. 13(4)
Non-Significant STC	Accept	Art 13(2)	Streamlined or Technical Validation	Art 10(4)
Non-Significant Major Change	Accept	Art 13(2)	Streamlined or Technical Validation	Art 10(4)
Major Repair	Accept	Art 13(2)	Streamlined or Technical Validation	Art 10(4)
Significant STC	Streamlined or Technical Validation	Art 10 (2)	Streamlined or Technical Validation	Art 10(4)
Significant Major Change	Streamlined or Technical Validation	Art 10 (2)	Streamlined or Technical Validation	Art 10(4)
Type Certificate	Technical Validation	Art 10(1)	Technical Validation	Art 10(3)
Technical Standard Order	Accept	Art 13(2)	Streamlined or Technical Validation	Art 10(4)

## Recognition of production system

The agreement provides for mutual recognition of the production certifications and production oversight systems. UK POA holders are recognised in the EU and their parts, appliances, engines and propellers released with UK CAA Form 1 on or after 01/01/2021 are accepted in the EU. Please note that UK POA holders are not allowed to release parts, appliances, engines and propellers with an EASA Form 1 as of 01/01/2021. Any EASA Form 1 issued by a UK POA holder on or after 01/01/2021 is not valid as “authorized release certificate”, in such case UK POA holders are requested to notify their customers and re-issue a UK CAA Form 1.

Similarly, EASA POA holders in the EU can export parts, appliances, engines and propellers to the UK with an EASA Form 1 which are accepted in the UK.

To be noted: the export of aircraft will be achieved through an EASA Form 52 (export from EU to UK) and through a UK CAA Form 52 (export from UK to EU).

Finally, some guidance on “EPA” and “UKPA” marking can be found [here](#).

### TIP Status

Negotiations for a TIP between EASA and CAA-UK started on January 6<sup>th</sup>, 2021 based on an EASA proposal. The TIP details, amongst others, the provisions from each other’s side for Validations, Streamlined Validations or Acceptance. It will be signed and adopted during the first COB meeting between EASA and CAA-UK.

# COVID 19 crisis response – Transport of cargo in passenger cabin

*Airlines can take advantage of the possibilities for transport of cargo in the cabin of passenger aircraft.*



Aircraft being prepared for the transport of goods on passenger seats.



Trucks blocked at a checkpoint during spring of 2020 to cross an internal EU border.

## **An early response by a dedicated team**

As the COVID19 crisis hit the European continent, it was recognized in the aviation community that turbulences were ahead. Together with the historical drop in the number of flights, logistical challenges appeared as countries closed their borders; the transport by road was considerably impacted and the concept of cargo transport in the then-empty passenger aircraft cabins appeared.

Among other efforts made by the Agency to alleviate the consequences of the crisis, a dedicated “Special Cargo Transport” working group was created to address the challenges related to that concept:

over 20 EASA colleagues of different disciplines and directorates led by Volker Arnsmeier worked with the highest priority to make those operations possible.

The first publication of this group after intense and numerous working sessions was released in April 2020. It was soon followed by updates and publications on complementary topics.

### Several possibilities to alleviate the consequences of the crisis

The use of the cabin of a (fixed-wing) passenger aircraft for cargo transportation is not covered by existing certified configurations, compared to rotorcraft which in many cases have such configurations in their Type Certificate Data Sheet. The main concern (among others) is the risk of onboard fire for in a cabin that is per essence not equipped as a cargo compartment (you can check CS25.855 for more details if you are interested).

Two paths were thus defined by the working group in order to enable such operations:

- the exceptional process leading to the issuance of an “Exemption” by the National Certification authorities. Given the technical complexity of the topic, a set of guidelines was raised in April 2020 and has been regularly updated (**issue 5** was published on November 23<sup>rd</sup> 2020).
- the regular initial airworthiness process leading to the issuance of a “Supplemental Type Certificate” by EASA. Given the impossibility to comply with all applicable requirements, a Deviation Certification Review Item (**published** on October 26<sup>th</sup> 2020) needs to be raised for each project.

Its goal is to provide guidance and recommendations to national competent authorities (NCAs) and operators for the transport of dry ice in excess of that already permitted in the operators’ operations manual or other applicable manuals or documents (e.g. aircraft TCH/OEM Service Letter; regulatory AC) in order to reduce the introduction of additional risks (safety and health) to the aircraft systems and its occupants.

We have received over 60 applications for initial airworthiness projects since early 2020 for those operations which represent a consequent workload and as well a powerful logistical tool with the arrival of vaccines on the European market.

### **Keeping a fair and balanced approach**

Thanks to the tireless effort of the staff part of the working group, the above possibilities were defined at a quick pace taking on board internal and external stakeholders.

In particular, IATA and the FAA participated to several exchanges organised.

Decisions were thus made taking into account the understanding of the technical challenges by the worldwide aviation community.

As a consequence, it was deemed neither safe nor fair to grant the possibility of unlimited approvals for this kind of operations. The guidelines for the issuance of exemptions as well as the above-mentioned Deviation CRI implement then time limitations for the validity of those approvals.

### **EASA support will be maintained**

As the initial phase of the crisis has come to an end, the working group was stopped at the end of the summer: now the technical questions were assessed and the basis for the projects were defined. Hence the regular EASA structures and process have been since then taking care of supporting all stakeholders in order to serve the European citizen in those troubled times.

Our special thanks go to the members of the former “Special Cargo Transport” working group who are still tirelessly supporting the ongoing projects in their respective roles.

In case you need support with the EASA guidelines or requirements, please contact [nicolas.duprez@easa.europa.eu](mailto:nicolas.duprez@easa.europa.eu).

### **EXPERT TIP:**

*If you wish to apply for an STC to transport cargo in the cabin:*

- *inform your customer that this approval will lose its validity by the end of 2021*
- *get in contact as early as possible with the National Certification Authority in charge of the operator's fleet in order to discuss operational requirements outside of EASA's*

# Is there an Airworthiness Directive in here?



As design organisations staff and/or natural/legal persons performing design and/or repair projects it is mandatory for you to identify and evaluate Airworthiness Directives in the affected areas of the design change and repair with regard to their impact.

Failing in adequately identifying Airworthiness Directives in the affected areas of design or repair projects and assessing its impact on the terminating action(s) or other provisions mandated by the Airworthiness Directive could adversely affect the airworthiness of the aircraft and impact your organisation.

*Part 21 already requires in 21.A.97 and 21.A.115, by cross-referencing to 21.A.20, as well as in 21.A.433(a)(3) that the applicant has to declare that “no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested”.*

*This implies that existing Airworthiness Directives have been identified and accordingly accounted for during the design process in the affected areas of the change/repair to be able to make such a declaration. The same declaration is required for Minor Changes and Minor Repairs in dedicated Part-21 paragraphs.*

In line with the regular update of the AMC and Guidance Material to Part-21, it is planned to incorporate the consideration of Airworthiness Directives in design and repair projects also into AMC No.1 and No.2 to 21.A.263(c)(1) and 21.A.263(c)(2) *to further emphasize the importance of this aspect.*

## **RECOMMENDED PRACTICE**

As good practice, Airworthiness Directives in the affected areas of the change or repair should be identified right at the beginning when determining/assessing the pre-mod configuration, or damage in case of a repair, respectively, to establish the baseline for the design change/repair. Some design organisations perform systematically a configuration survey at the beginning of the project as part of their procedures. We strongly encourage all design organisation and natural/legal persons (applying for minor change approvals) to systematically perform such a configuration survey.

In the next step, it needs to be evaluated and assessed whether the design change or repair has an impact on the provisions incorporated in all the Airworthiness Directives identified to be applicable in the areas affected by the design change or repair. In case there is an impact, this also influences the classification process and the outcome should be a Major classification, even if the technical part could be classified minor. This assessment should be briefly documented as part of the project documentation and it is acceptable to include this into the configuration survey or classification documentation. In case there is an impact of the design change or repair upon the provisions incorporated in the Airworthiness Directives, this has to be adequately considered and accounted for in the type design of the design change or repair to ensure continued airworthiness on product level.

Should you have any question about this topic, please contact our Senior DOA Team Leader [dirk.krappel@easa.europa.eu](mailto:dirk.krappel@easa.europa.eu).

# Are you competent at competence? – Part 2

In Part 1 of “Are you competent at competence?” in Item [2019/3/5 of J-News](#) we provided guidance on fundamental aspects to be covered by DOA procedures for the selection of CVEs and personnel of the Office of Airworthiness as required by 21.A.243(d).

Now we will focus on the DOA demonstration of the competence necessary for the staff in all technical departments required by 21.A.245(a).

Depending on the complexity and scope of the DO, the staff in all technical departments referred above may involve different positions (e.g. design engineer, configuration engineer, calculation engineer, test engineer, etc.) for the different technical activities necessary for the certification of a product or a change/repair, etc. For simplicity we refer to all these positions as Design Engineers.

The GM No 1 to 21.A.245 introduces general and personnel aspects to be considered by the DOA for ensuring the competence of all the Design Engineers.

The GM makes clear that the DOA has to show that the Design Engineers have the skills, the special qualifications and the ability to provide assurance of design and compile the compliance data needed to meet the applicable requirements, and must consider the state of the art and new experience.

First, let’s focus on some key words in order to provide an understanding of this GM.

- **SKILLS:** This is understood as a combination of knowledge and abilities that allows the Design Engineer to perform a task effectively and be “correct first time”. Skills may need to be of a broad nature, for example soft skills (covering people, social, communication, personality, etc. aspects) and technical skills (also known as hard skills).

- **SPECIAL QUALIFICATIONS:** “Special” should be defined in the frame of aeronautical engineering, aviation products and their certification, and “Qualifications” are expected to be based on academic studies and/or internal company programs.
- **EXPERIENCE:** A Design Engineer acquires and accumulates knowledge from participation and practice design and certification projects over a period of time.
- **STATE OF THE ART:** The evolution of technology and certification requirements demands an agile re-assessment of needed competence to ensure the airworthiness of the affected product.

Now, having these key words in mind, we would like to propose the following questions to trigger your thoughts on developing the process that ensures your Design Engineers are able to provide assurance of the design and compile compliance data.

1. Has my organisation defined the tasks and responsibilities of the Design Engineers?
2. Has my organisation defined minimum skills, special qualifications, experience and the state of the art criteria in order to authorise Design Engineers?
3. How do we authorise our Design Engineers?
4. How do we show that Design Engineers match the minimum criteria?
5. Do we review the criteria in the light of new experience?
6. How do we maintain the currency of our Design Engineers?

We encourage you to assess your current process or intended approach in the light of the above proposal.

Coming soon: Resources and their availability

# Product airworthiness cybersecurity

*Increasingly interconnected systems*



Cybersecurity is commonly understood as the protection of aviation information systems from intentional unauthorised electronic interactions (IUEI),

Nowadays aircraft systems are increasingly interconnected, including to ground systems and more often through the internet, allowing out, and sometimes in, dataflow. Those interconnections are susceptible to threats that are new to the aviation and which may potentially have unacceptable impact for air transport.

## **Certification strategy**

Currently, cybersecurity is addressed as part of the certification activities of new large aeroplane type designs or of STCs. This is the reason why EASA has published in July 2020 the EASA ED Decision 2020/006/R to mitigate the potential effects of cybersecurity threats on safety.

The decision amends CS-23, CS-25, CS-27, CS-29, CS-E, CS-ETSO, CS-P, CS-APU, and to their related acceptable means of compliance (AMC)/guidance material (GM), together with AMC-20 and GM to part 21.A.91. The amendments introduce cybersecurity provisions into the relevant certification specifications (CSs), considering the experience gained with special conditions (SCs) and the recommendations of the Aviation Rulemaking Advisory Committee (ARAC) regarding aircraft systems information security/protection (ASISP).

The date of application being 1<sup>st</sup> of January 2021, it is important at project level to check if information security must be addressed, and how. For new TC projects, the amended CSs are applicable. For changes, the applicant should first look at GM to part 21.A.91 if the change may introduce the potential for unauthorised electronic access to product systems, and if this change should be 'major'. In such case information security risk should be addressed either by an elect to comply with the applicable specification (e.g. CS 25.1319 for large aircrafts), the alternative being to continue with a special condition as it was done before the ED Decision 2020/006/R. Such special condition should nevertheless be as close as possible to the content of the Decision.

## **Check our publications**

For more information, you can consult the ED Decision by clicking in the following link:

<https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020006r>

You can send your questions to our Senior Expert Cybersecurity in Aviation, Cyrille Rosay ([cyrille.rosay@easa.europa.eu](mailto:cyrille.rosay@easa.europa.eu)).

# Anti missile systems certification



*Did you know that the installation of anti-missile systems can be approved by EASA?*

## Protecting you from MANPADS

Anti-missile technologies are not limited to military aircraft. Certain commercial air transport and VIP aircraft have such systems installed with the corresponding civil certificate for safe carriage.

EASA is allowing the use of such systems keeping as prime goal the necessary acceptable level of safety of such installations.

Systems are available on the market for civil aircraft with the common goal of defeating the guidance system of shoulder-launched missiles (so-called MANPADS).

## How it works

Two technologies have been submitted for certification of safe carriage so far.

The first one being the flares-releasing systems:

it consists of a dispenser throwing cartridges igniting after release in order to generate infrared emissions matching those of fuel exhaust and hot engine components. The flares use a slow-burning fuel-oxidizer mixture that generates intense heat. This is activated by the flight crew.

## Expert tip:

*Check the operator's national aviation authorities position on the installation of countermeasure systems before engaging in the detailed design development. Their position might reduce your options in terms of design solutions.*

The second technology is the laser-based defence system:

the so-called “Directional Infrared Countermeasures (DIRCM)” consist in an active laser mounted in a turret sending a modulated infrared signal directly at the missile's seeker. The turret is controlled by an automated missile warning system.

Note that those systems do not provide efficient protection against other systems than MANPADS like systems with targeting RADAR or similar long range targeting Surface-to-Air Missile (SAM) Systems.

### The certification strategy

The main risk identified for the safety of occupants and/or persons on ground is the unintended activation of such systems. The worst case being the activation when the aircraft is being serviced at the airport.

From a certification point of view, those systems must comply with the applicable requirements and with the additional requirements specific to the technology used:

- a Special Condition CRI was defined for flares-releasing systems and published **on our website**.
- the certification memorandum CM-AS-006 has been published **on our website** for the certification of airborne laser systems

One particularly important point is that while the installation is approved, the actual use of the systems is outside the remit of the EASA's approval. The national aviation authority responsible for the operator is in charge of the operational approval and the associated limitations, if any.

### These projects are challenging

To conclude on this article, while such projects are possible at EASA they are not usual and might be more challenging in terms of schedule than others. Be mindful to install a good communication channel with the certification team.

Should you have questions about this topic, do not hesitate to send them to **[STC\\_news@easa.europa.eu](mailto:STC_news@easa.europa.eu)**.

# EASA and China's CAAC start a new era of cooperation



COLOGNE/BEIJING, September 3, 2020 – The EU-China Bilateral Aviation Safety Agreement (BASA) went into effect, giving a boost to the regions' aviation manufacturers by simplifying the process of gaining product approvals from the European Union Aviation Safety Agency (EASA) and the Civil Aviation Administration of China (CAAC), while also ensuring high safety and environment standards will continue to be met.

The agreement is the result of several years of successful efforts by experts from the European Commission, EASA and the CAAC.

"I am confident that, thanks to this bilateral agreement, the relations between Europe and China in aviation will be taken to the next level," said EASA Executive Director Patrick Ky. "This further strengthens EASA's commitment to work closely with international partners on building a safe and environmentally sustainable industry."

The entry into force of the BASA was marked by EASA and CAAC holding the first joint Certification Oversight Board (COB). During this meeting, the parties adopted the Technical Implementation Procedures (TIP) which will support the BASA and its Annex on Airworthiness. These administrative and technical procedures describe in detail how EASA and CAAC will conduct the validation and reciprocal acceptance of civil aeronautical product approvals.

The entry into force of the BASA will require some previous arrangements to be revised and the two parties have agreed to make this transition as smooth as possible.

More information and link to the TIP can be found [here](#).

# International Cooperation – EASA as ambassador of European HEMS industry in Thailand

*Find out how EASA is supporting you in promoting your expertise on the South-East Asian market.*



The EASA team promoted European expertise in Thailand.



South-East Asian delegation on an European HEMS tour.

On December 9<sup>th</sup> 2019, a Helicopter Emergency Medical Services (HEMS) Demonstration and a meeting with EU representatives were held in Bangkok.

EASA was invited as a key actor under the scope of the EU-South East Asia Aviation Partnership Project ([EU SEA APP](#)).

## The golden hour

Critical health care for accident, heart-attack, and stroke victims revolves around providing proper health care during the first hour (typically referred to as the 'golden hour'). Thailand suffers from the highest rate of road deaths in the world but its current regulations do not allow for Helicopter Emergency Medical Services (HEMS). This is the aviation equivalent of an ambulance driving through a red light.

HEMS can help reduce the number of fatalities as a result of road accidents and health incidents in Thailand and may contribute to the development of higher-level tourism, as tourists become more confident about access to health care in congested and/or difficult-to-reach locations, which are prevalent in Thailand.

Safe HEMS operations will accelerate the development of helicopter and aviation business in general and entail the education of highly skilled aero-medical personnel in the country.

## Regular activities for a strong partnership

This meeting was a follow-up of the HEMS Study Tour, which took place in the EU in July 2019. This study tour aimed to increase the capacity of the South East Asian authorities for safety oversight and mitigate the need for action under the EU Air Safety List and Support the use of EU (performance based) regulations, standards and technologies and promote EU expertise towards South East Asian decision makers, particularly through on-the-job training and coaching / mentoring.

EASA had opened a local office in Bangkok earlier in February 2019 to help further the partnership between the EU, Thailand and ASEAN, and support safer and more sustainable aviation.

## Promotion of European safety technologies

The HEMS initiative supports access to emergency healthcare for European citizens in Thailand, as well as the promotion of European aviation technology available to enhance the system.

This initiative will open opportunities for EU companies (such as STC holders) interested in starting HEMS projects in Thailand.

It is expected that both the aviation industry and the population will benefit from such strengthened relationship between Thailand and the EU.

For more details, please contact [Raquel Sanz](#).



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