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| 1 | DUFOUR AEROSPACE | All | Introduction | General comment | DUFOUR AEROSPACE supports the proposed Special Condition which was needed. The content is satisfactory except for the Annex I. | Yes | No | noted | The SC Medium Risk will be first adopted without the Annex |
| 2 | DUFOUR AEROSPACE | ANNEX 1 Table 1 | 22 | Inconsistency of risk classification | In the SORA method, the ground risk class is based on the UAS dimension and the kinetic energy. In order to be consistent with this classical approach, DUFOUR AEROSPACE proposes: to replace “Maximum dimension < 8m AND MTOM <600kg” by “Maximum dimension < 8m AND kinetic energy< 1084 kJ” to delete (1200 m2 worst crash area)to replace “Maximum dimension < 3m AND MTOM <200kg” by “Maximum dimension < 3m AND kinetic energy< 34 kJ”to delete (400 m2 worst crash area) | Yes | Yes | high risk (N/A for SC medium risk) | All comments identified as only applicable to high risk will be adressed in the next revision. |
| 3 | DUFOUR AEROSPACE | ANNEX 1 ##Table 1 | 22 | Choice of category for UAS with intermediate characteristics | In order to take into account UAS with intermediate characteristics (example: maximum dimension 4m and MTOM <200kg), the SC should take example on the ground risk class determination in the SORA.##A sentence such as “In case of a mismatch between the maximum UAS characteristic dimension and the typical kinetic energy expected, the applicant should provide substantiation for the chosen line.” should be added. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 4 | DUFOUR AEROSPACE | ANNEX 1 ##Table 3 | 23 | Inadequate DAL levels | The DAL’s required for:##- BVLOS operations in populated environment ##- with “Maximum dimension < 8 m, MTOM 600 Kg”##are the same as for a VTOL aircraft in the enhanced category.##Those DAL’s are adequate for operations above assemblies of people but too demanding for operations in populated environment with an unmanned aircraft. ##The DAL’s proposed in Table 3 should be consistent with the VTOL Basic Category “2 to 6 passengers” and “0 to 1 passenger” (refer to AMC VTOL.2510). | Yes | Yes | high risk (N/A for SC medium risk) | |
| 5 | KIAST | Statement of Issue ##Fig.1 | iii | Fig.1 show that CS-29/27/VLR and VTOL are all categorised as "VTOL" rather than "Rotorcraft". ##Definition of VTOL (rotorcraft in general within this context) seems clashing with the one specified in the SC-VTOL. | N/A | Yes | No | noted | Picture is taken from concept paper for the certified category for illustration purpose. The concept will be further developped there. |
| 6 | KIAST | An objective-based, operation centric and proportional approach to UAS certification | iii | "The TC issued on that basis will only permit operations in this context."##If opertional scenario changes then new TC is needed? | N/A | Yes | No | noted | When the operation is intended to be performed outside of the operational limitations the TC needs to be amended. |
| 7 | KIAST | Applicability | iv | "With MTOM up to 600 Kg"##Any background/rationale for this weight criteria, e.g. opt-out from the Basic Regulation? | N/A | Yes | No | noted | It reflects CS VLR and CS LSA threshold and heavier aircraft are expected to comply with a certification Basis based on "manned" CS. |
| 8 | KIAST | Applicability | iv | "Operated in the specific category of operations, medium and high risk, or in the certified category of operations"##In order to determine the level of risk, assessment is necessary, which means any UAS that SC Light UAS is applicable needs both risk assessment and certificatioin? | N/A | Yes | No | noted | This is confirmed. |

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| 9 | KIAST | UAS.2102 - NOTE | 4 | Environmental condition includes icing as well but there is no requirement for flight in icing condition. Does this mean that icing could only be included in the operational restriction, not to be certified? | N/A | Yes | No | noted | The applicant may define the environmental conditions including icing or not and has to demonstrate compliance within the defined conditions. |
| 10 | KIAST | UAS.2300 | 8 | Requirement for trim system is not seen. Assuming that all FCS would be EFCS rather than mechanical system? | N/A | Yes | No | not accepted | Some designs may not have a trim, AMC could be added for the trim but the requirements are at high level. |
| 11 | KIAST | UAS.2600 | 18 | What is the background/rationale for “command unit” instead of “control station”? | N/A | Yes | No | noted | CU was choosen to improve consistency with the EU regulatory framework |
| 12 | KIAST | UAS.2500(b) | 12 | “Equipment and systems required to comply with type certification requirements, airspace requirements or operating rules, or whose improper functioning would lead to a hazard, must be designed and installed so that they perform their intended function throughout the operating and environmental limits for which *the aircraft is certified.* ” | Suggest changing “the aircraft is certified” to “the UAS(or the system) is certified” | Yes | No | Noted | "aircraft" does has been corrected in UA (or UAS, depending on the case) |
| 13 | KIAST | Applicability | iv | "UA Certification standards for low risk operations are not included in this SC"##What if someone wishes to get a UAvcertification voluntarily for low risk operation? Do you intend to setup a separate standard/procedure for this case? | N/A | Yes | No | noted | Policy for low risk SAIL 1,2 still to be refined |
| 14 | KIAST | UAS.2511 | 13 | UAS.2511 requirements could be covered by UAS.2510. In particular, UAS.2511.(b)(1), (2) and (3) could all be covered in UAS.2510. | Suggest combining UAS.2510 and UAS.2511. | Yes | No | partially accepted | although EASA recognize potential links (requirement and note have been modified) EASA don’t believe 2511 can be captured by 2510 (in the medium risk) |
| 15 | KIAST | Statement of Issue | iv | "Airworthiness standards for the certified category of operations are those defined for the high risk part of the Specific category." ##The term “airworthiness standards” is known to be used generally for a vehicle(aircraft). Howerer, the context here is trying to describe airworthiness standards for category of operation. | N/A | Yes | No | noted | Airworthiness standards and especially MoC are dependnt on the inheent risk of the operaion (just as the robustness of the SORA OSOs are dependent of the SAIL) |
| 16 | KIAST | UAS.2102 | 4 | Any quantitative value of safety margin for normal and limit flight envelopes respectively? (e.g. safety margin of JARUS CS-UAS.2102 is 1.1Vne) | N/A | Yes | No | noted | There are no explicit quantitative margins. They need to be defined appropriately. |
| 17 | KIAST | Introduction | 4 | Similar to SC-VTOL (Category Basic and Enhanced), a variation of operational risks such as specific and certified is incorporated within objective airworthiness standard in the SC Light UAS. Will the same approach based on operational risk be adopted in the future SC or CS-UAS? | N/A | Yes | No | noted | It is already included. For the later CS-UAS it is expected theat the baselind aircraft CS will contribute to the objective airworthiness standards. |
| 18 | Deutscher Modellflieger Verband e.V. | Office | IV | Aeromodels cannot be part of this regulation. They are examinated by the model flying associations. Otherwise Art. 16 of Regulation EU 2019/947 would be undermined. | “These special conditions are intended for the use of drones within the Specific Category, not for the operation of UAS within model flying clubs and associations – see Art. 16 of Regulation EU 2019/947” | No | Yes | noted | Aeromodels can also be flown in the specific category, but that is not the only solution available for aeromodels. |
| 19 | Wing | (General Comments) | Introduction | Performance-based approach. Wing encourages performance-based approaches to certification that define an objective target level of safety for the operation as a whole. In general, throughout the paper, Wing suggests defining quantitative targets for the entire UA system in its intended operating environment rather than specific requirements for particular sub-systems. | | Major | | noted | as for "quantitative, "EASA does not intend to be prescriptive. The quamtitative dimension is left for the MoC |

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| 20 | Wing | (General Comments) | Introduction | Risk-based approach. Wing advocates risk-based requirements that are proportional to the risk of the operation as a whole. However, many of the draft requirements are not proportional to medium risk operations. This may impose a significant and unnecessary burden on medium risk operations, and limit innovation in UA development. | | Major | | noted | Requirements are high level / objective and this explains why they are very often the same between high and medium risk. More distinction will be visible at MoC level. |
| 21 | Wing | (General Comments) | Introduction | Change process. Wing encourages EASA to outline a defined change process to account for evolving UA designs. Designs may change rapidly in response to improved technology or new considerations, such as public acceptance, and these should be incorporated through a streamlined process without lengthy recertification. | | Major | | noted | Although the comment is understood, the change process cannot be addressed by high level objective standards. This is related to Part 21. |
| 22 | Wing | (General Comments) | Introduction | Applicability. EASA should permit manufacturers or operators to show that a particular part/subpart is not relevant for the safety of an operation. There should be a process for manufacturers and operators to justify why these parts/subparts should not apply, or should apply only with modification.####*Example 1:* A landing gear failure on a UA with no occupants onboard that takes off and lands in a controlled ground area may not pose a safety risk to any people. Requiring a more robust landing gear system may increase the mass and volume of the aircraft, increasing the ground risk. ####*Example 2:* Highly automated UA may not require the same alert systems and C2 links as less automated UA in order to meet the target level of safety. Automation may change the scope and responsibilities of the pilot. Prescriptive information sharing requirements for a highly automated UA may distract the pilot or increase the risk of human error. ####*Example 3:* The loss/destruction/damage of a UA may not be a hazardous event. In the case of frangible airframes, loss/destruction/damage may be expected in order to reduce ground risk to third parties. As such, when performing as designed and intended, EASA should not treat these loss/destruction/damage events as inherently hazardous. Doing so may discourage manufacturers and operators from adopting non-traditional but highly effective mitigations. | | Major | | noted | Substantial flexibility is introduced, and it is increased in the adopted version, at the level of single requirement |
| 23 | Wing | (General Comments) | Introduction | Validation. The proposed Special Condition is focused on design analysis. Design analysis may not be feasible, and it may discourage non-traditional mitigations. Testing, both at the sub-system and full system level, can validate the suitability of the design. ####For all parts/subparts, language should be added to recognize representative testing as a valid means of compliance. Requiring traditional development processes may pose a significant barrier to entry for new entrants or small entities, stifling innovation in Europe. | | Major | | noted | EASA believes that the SC implements a balanced approach between analysis and testing |

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| 24 | Wing | (General Comments) | Introduction | Target level of safety. Wing encourages EASA to define performance objectives with precision and avoid subjective language such as “minimise.” Language such as “minimise” may be difficult to interpret and apply, and it may cause trade-offs that do not advance safety. | | Major | | noted | minimze is terminology often used in CSs. Detailed discussion will be on MOC level. |
| 25 | Wing | Statement of Issue | ii | Wing commends EASA for adopting an objective-based CS approach for UAS. | | Note | | Noted | thank you |
| 26 | Wing | Statement of Issue | ii | For clarity, EASA should define what is meant by “higher risk operations”, and elaborate on page 2 when the concept is introduced. Wing recommends using final SAIL levels to define risk, and define “higher risk” operations as SAIL V and VI operations. | | Major | | accepted | clarification added |
| 27 | Wing | An objective-based, operation centric and proportional approach to UAS certification | iii | Wing strongly supports EASA’s adoption of an objective-based, proportional, and operation-centric approach to UAS certification. Wing agrees such an approach will promote safety while accounting for evolving designs. Wing agrees that certification processes must take into account the intended CONOPS and operational settings of the UA. | | Note | | Noted | thank you |
| 28 | Wing | Applicability | iv | Wing suggests consistency with the SORA by using Roman numerals for SAIL levels and adding a SAIL definition for “low”. ####Change: “SAIL V and VI are herein defined as ‘High Risk’. For operations classified with a lower SAIL the level of robustness may be medium (SAIL 3 or 4) or low.” ####To: “SAIL V and VI are herein defined as ‘High Risk’. For operations classified with a lower SAIL the level of robustness may be medium (SAIL III or IV) or low (SAIL I or II).” | | Minor | | accepted | |
| 29 | Wing | Safety Objectives | v | Wing encourages EASA to recognize simulation- and test-based approaches for validating complex software. The traditional DAL approach to complex software is not cost-effective or scalable for modern software features. | | Major | | noted | This will be tackled by MoC |
| 30 | Wing | Safety Objectives | v | Wing encourages EASA to explain how the high risk safety objectives were determined for the probable urban scenario projected in 2035. | | Major | | noted | SC Medium risk will be adpted first, safety objectives in Annex are N/A |
| 31 | Wing | Safety Objectives | vi | Safety objectives should not be determined solely by the ground environment (populated / unpopulated). Other factors are relevant, including UA size, mass, and mitigations. Wing recommends that safety objectives should be defined by the final SAIL level in SORA. | | Major | | noted | SC Medium risk will be adpted first, safety objectives in Annex are N/A |
| 32 | Wing | Safety Objectives | vi | Wing suggests changing all references to “energy transmitted” to “energy transfer dynamics” since the severity of an impact is determined by more than energy transmission alone (areas impacted, time of energy transfer, etc). Designers should be able to reduce the impact risk using a range of mitigations instead of just kinetic energy. | | Major | | noted | SC Medium risk will be adpted first, safety objectives in Annex are N/A |

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| 33 | Wing | Safety Objectives | vi | For clarity, remove “very low level” and introduce an objective reference to order of magnitude.####Change: “Mitigation means M2 are intended to reduce the effects of ground impacts by design and can either reduce the area affected by the impact (the “crash area”) or reduce the energy transmitted in a crash to a very low level (e.g. a parachute, an energy absorbing design).”####To: “Mitigation means M2 are intended to reduce the effects of ground impacts by design and can either reduce the area affected by the impact (the “crash area”) or reduce the energy transfer dynamics in a crash by approximately one order of magnitude or more (e.g. a parachute, an energy absorbing design).” | | Minor | | noted | The entire section has been changed and simplified |
| 34 | Wing | Safety Objectives | vi | It would be helpful for EASA to clarify how the application of M1 will help determine safety objectives, and potentially give an example: “Such mitigation, if proposed by applicants, will be discussed with EASA in the frame of the determination of the safety objectives and may lead to airworthiness limitations.” | | Major | | noted | Safety Objectives are linked to OSO 5 robustness , which depends on SAIL, which is influecned by M1. This conmcepts are in the EASA aAMC and GM |
| 35 | Wing | Safety Objectives | vi | It would be helpful for EASA to clarify how the application of M2 will help determine safety objectives, and potentially give an example:“If a sufficient reduction of the impact area is demonstrated, this may be taken into account when defining the safety objectives in application of the MOC to Light-UAS.2510.” | | Major | | noted | similar answer as above |
| 36 | Wing | Subpart A: General | 3 | Wing recommends removing “medium risk” operations from required airworthiness standards:##(a) intended to be operated in the Specific category and whose operation is demonstrated to be ~~medium or~~ high risk, or in the Certified category, | | Major | | not accepted | refer to EASA AMC |
| 37 | Wing | Subpart A: General | 3 | Ancillary equipment should be clarified to exclude U-Space services provided by a U-Space Service Provider. | | Minor | | partially accepted | clarified in the definition that Ancillary Equipment is not part of the C2 link. |
| 38 | Wing | Approved Flight Envelope | 4 | Change: “Note: Environmental conditions should include meteorological conditions such as wind, rain and icing as well as external factors that may interfere with the performance of systems such as HIRF.”####To: “Note: Environmental conditions should include meteorological conditions such as wind and precipitation as well##as external factors that may interfere with the performance of systems such as HIRF and icing.” | | Minor | | noted | specification related to adverse weather condition added to clarify |
| 39 | Wing | Performance Data | 4 | Wing suggests clarifying that performance data requirements apply only to the operating conditions expected to be encountered by the aircraft:####Change: “(e) Losses due to atmospheric conditions, cooling needs, installation, downwash considerations, and other demands on power sources as applicable as well as system failure condition in accordance with Light-UAS.2510 must be taken into account.”####To: “(e) Losses due to atmospheric conditions, cooling needs, installation, downwash considerations, and other demands on power sources as applicable as well as system failure condition in the expected operation of the aircraft in accordance with Light-UAS.2510 must be taken into account.” | | Minor | | partially accepted | flight envelope definition adapted and 2510 is adressing the expected operation |

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| 40 | Wing | Vibration and buffeting | 5 | Wing suggests an amendment to recognize that UA can detect or mitigate vibration or buffeting.####Change: “Within the limit flight envelope there must be no vibration or buffeting severe enough to interfere with normal control of the UA or the safety of the operation.”####To: “Within the limit flight envelope there must be no vibration or buffeting severe enough to interfere with the safety of the operation, or the UA must have a means to detect and mitigate the hazard.” | | Minor | | not accepted | the proposed amendment is not needed, as the requirement is already referring to the safety of the operation. |
| 41 | Wing | Structures | 6 | Especially for small UAS, an acceptable means of compliance should include full system testing of the sUAS in representative operational conditions. | | Conceptual | TBD | partially accepted | Flight test campaign could be acceptable for limit loads but not for ultimate loads, the 1,5 safety factor is not prescriptive: "1.5 unless otherwise provided." For some design cases such as gust loads it would be challenging to perform flight tests |
| 42 | Wing | Structure Design Loads | 6 | For some UA, structural damage may not be inherently unsafe. In some cases, structural damage may be intended to reduce the effect of an impact (eg. frangible airframes). As such, these requirements should focus on preventing unsafe operations instead of structural damage.####Change: “(b) Vibration, including air or ground resonance, and buffeting must not result in structural damage.”####To: “(b) Vibration, including air or ground resonance, and buffeting must not result in unsafe operations.” | | Major | agreed | accepted | Light-UAS.2160 Vibration and buffeting<br>Within the limit flight envelope there must be no vibration or buffeting severe enough to interfere with normal control of the UA or the safety of the operation. |
| 43 | Wing | Structural Strength | 6 | Wing suggests removing “(2) detrimental permanent deformation” as this may be an intended safety feature to absorb energy in the event of an impact, ensuring the operation meets the overall target level of safety. Likewise for ultimate loads, as a frangible structure may be designed to fail safely under them. ####Change to: “limit and ultimate loads without interference with the safe operation of the UA.” | | Conceptual | partially accepted | partially accepted | With frangible parts for crash condition and emergency landing still a minimum capability should be ensured to avoid loss of parts in flight with design criteria. Subpart C is modified to allow more flexibility in compliance demonstration. |
| 44 | Wing | Structural Durability | 6 | There may be UA with operational lifetimes very short relative to degradation timelines where this section is not required to meet the appropriate level of safety. Wing suggests clarifying that this may not be applicable for short lifetime aircraft. | | Major | rejected | not accepted | short lifetime is not prevented by the requirement |
| 45 | Wing | Design and construction principles | 7 | The suitability of any part should be determined based on the risk of the intended UA operation as a whole. ####Change: “(a) The design of each part or assembly must be suitable for the expected operating conditions of the UA.”####To: “(a) The design of each part or assembly must be suitable for the expected risk of the intended operation. | | Editorial | agreed | partially accepted | (C ) is only applicable to items "having an important bearing on safety in operations". For non-critical hardware adequate design data should be provided, COTS could be accepted, they are not prevented by the rule. |
| 46 | Wing | Land gear systems | 8 | Requirements in this section may not be applicable to many small UAS as landing gear may not be safety critical. Manufacturers who can show that landing gear is not safety critical should be exempted from requirements 1(a)-(b), except for (1)(c). | | Major | | not accepted | A simple fixed skid or landing device on a small UA should be easily demonstrated to be compliant, especially when no surface operation is performed and no systems are involved. |
| 47 | Wing | Fire Protection | 8 | Change to: “The UA must be designed or tested, to show that the risk of fire initiation and propagation such that ground hazards for##people and infrastructure are properly mitigated to an acceptable level.” | | Minor | | noted | "properly mitigated" has the same intent |

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| 48 | Wing | Lightning Protection | 8 | Remove “and landing” from (b) since, if lightning is encountered, the safest action may be to land the aircraft as soon as practical. | | Minor | | partially accepted | (b) is applicable when the intended operation excludes lightning |
| 49 | Wing | Design and construction information | 8 | Not all information may be required for safe operation of the UA. Thus, at the beginning of the section add “If applicable,”. | | Major | | partially accepted | the intent of this comment is covered by the paragraph that covers operating limitations, procedures and instructions necessary for the safe operation of the UA |
| 50 | Wing | Transportation, assembly, reconfiguration and storage | 9 | In some cases, the UA can verify proper assembly via a pre-flight check. These may be more rigorous, and the condition should recognize pre-flight checks as an acceptable alternative to design provisions.####Change: “(b) Incorrect assembly must be avoided by proper design provisions.”####To: “(b) Incorrect assembly must be avoided by proper design provisions or pre-flight airworthiness checks.” | | Major | | partially accepted | pre-flight check could be part of the design provisions |
| 51 | Wing | Lift/Thrust/Power Endurance and Durability | 10 | As drafted, this section is prescriptive instead of performance-based. Requirements for Lift/Thrust/Power systems should be determined based on the performance of the operation as a whole. ####Wing suggests deleting (a), (b) and (c). | | Major | | partially accepted | c) is removed as this is in fact considered to be one means of compliance |
| 52 | Wing | Lift/Thrust/Power Calibration, Ratings and Operational Limitations | 10 | As drafted, this section is prescriptive instead of performance-based. Requirements for Lift/Thrust/Power systems should be determined based on the performance of the operation as a whole. ####Change to: “a) If required for the safety of flight, each Lift/Thrust/Power System must be subject to calibration tests as necessary to establish its power characteristics.” | | Major | | partially accepted | The requirement is simplified and some content is moved to a note for later MOC development. |
| 53 | Wing | Energy storage and distribution systems | 11 | As drafted, this section is prescriptive instead of performance-based, and does not account for highly automated systems with limited crew involvement. Requirements for energy storage and distribution systems should be determined based on the performance of the operation as a whole.####Change to: “(2) If crew action is required, provide information and warnings to the remote crew regarding normal and degraded modes and remaining energy.” | | Major | | accepted | text modified: Provide information and warnings to the remote crew crew regarding normal and degraded modes and remaining energy as required to be available for the remote crew to safely operate the UA.. |
| 54 | Wing | Equipment, Systems and Installation (High Risk) | 12 | There may be situations where fail safe design may not be possible or practical. As such, EASA should add a footnote outlining conditions under which this would be permitted, such as following a standard or method acceptable to EASA to show that the single failure is extremely improbable, similar to 2018/1139 Annex II 1.3.3.####Suggest adding a footnote after this statement: “(1) Each catastrophic failure condition is extremely improbable and does not result from a single Failure;” | | Major | | high risk (N/A for SC medium risk) | |

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| 55 | Wing | Equipment, Systems and Installation (Medium Risk) | 13 | There may be situations where fail safe design may not be possible or practical. As such, EASA should add a footnote outlining conditions under which this would be permitted, such as following a standard or method acceptable to EASA to show that the single failure is extremely improbable, similar to 2018/1139 Annex II 1.3.3.####Suggest adding a footnote after this statement: "(2) It can be reasonably expected that a catastrophic failure condition will not result from any single failure, and" | | Major | | partially accepted | A note has been added to be more adherent with SORA |
| 56 | Wing | Equipment, Systems and Installation (Medium Risk) | 13 | Highly automated systems may be capable of managing a failure safely without needing to alert the pilot (which could result in pilot overload or increase the risk of human error in response). Wing suggests removing alerting as it may not be a requirement for every hazard, and would be included as needed in the "management" criteria.####Change:"(3) A strategy for detection, alerting and management of any failure or combination thereof, which would lead to a hazard, is available."####To: "(3) A strategy for detection and management of any failure or combination thereof, which would lead to a hazard, is available." | | Major | | not accepted | If the certified systems reconfigure appropriately to manage the failure, then it would not be classified as hazard. Consider that the operation of highly automated systems may still have to be surveyed by operators who may not have a remote pilot role but should be aware of failures and on this base start actions which may not even be directly related with the UA itself (ERP). It is also considered that the requirement is extracted from the SORA. |
| 57 | Wing | Equipment, Systems and Installation (Medium Risk) | 13 | Wing suggests removing "minimised" as it is difficult to quantify. Instead, replace with "an acceptable level of safety".####Change: "(b) Any hazard which may be caused by the operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must be minimised."####To: "(b) Any hazard which may be caused by the operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must meet the acceptable level of safety." | | Major | | not accepted | Minimise is a term often used in aviation regulation, certification specifications and in the SORA. The requirement is extracted from the SORA. |
| 58 | Wing | Containment | 13 | There may be situations where fail safe design may not be possible or practical. As such, EASA should add a footnote outlining conditions under which this would be permitted, such as following a standard or method acceptable to EASA to show the appropriate level of safety is met for (2): "No single failure of the UAS or of any external system supporting the operation must lead to its operation outside the ground risk buffer, and" | | Major | | not accepted | requirememt reflects SORA. |
| 59 | Wing | Command, Control and Communication Contingency | 16 | Some operational situations may be resolved by onboard automation without needing to alert or distract the remote crew. To avoid overload of information, we suggest that only information necessary for the remote crew to do their job should be required in the flight manual.####Change to:"(b) The contingency procedures must be specified in the Flight Manual for the remote crew for each operational situation that requires their attention or action." | | Major | | not accepted | The flight manual should not distract the crew during operation and it can be considered appropriate that the remote pilot is aware of contingency procedures even if they are fully managed by onboard automation |
| 60 | Wing | Command Unit Integration | 18 | It is unnecessary to define equipment used for non-safety purposes, such as the monitor used to display the live feed from a crop / infrastructure inspection. ####Change to:"b) The type design of the UA must specify the Command Unit design and identify all equipment and systems of the CU that are essential for the crew to safely operate the UA." | | Major | | noted | "essential for the crew to operate the UA" already limits scope to safety relevant equipment. |

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| 61 | Wing | Command Unit Integration | 18 | There may be situations where peripheral commercial equipment is interchangeable (eg. computer mouse or monitor). It will be difficult to address all possible combinations. ####Change to:"f) The UA flight manual shall address important requirements or combinations of Command Unit models accepted to control the UA." | | Major | | noted | "must specify the Command Unit design and identify all equipment and systems of the CU that are essential for the crew to operate the UA" is very flexible and allows either to specify a part number or use a more generic specification , like a standard. The operator needs to get the information what can be combined or how it can be qualified and tested. |
| 62 | Wing | Command Unit Integration | 18 | As above, there may be commercially off the shelf hardware that is interchangeable. Wing suggests changing to: "j) The applicant needs to perform satisfactorily integration tests with all approved models of CU as necessary to verify the validity of the declared conditions and limitations and to ensure that the CU will operate satisfactorily and reliably using any C2 Link as specified under the anticipated operating conditions, or have features that prevent non-compliant CU components from operating the UA." | | Major | | noted | It cannot be expected that the drone will test the interoperability of equipment. This will be the operator responsibility based on the manufactures data and specifications which might be support through automated compatibility checking. |
| 63 | Wing | Command Unit Installation and operation information | 19 | Add "If required" as many items may not require labeling.####Change to: "(b) If required, each item of installed equipment related to the remote crew interface must be labelled, if applicable, as for its identification, function, or operating limitations, or any combination of these factors." | | Minor | | noted | The specification is considered flexible enougt to not request labelling of obvious functions |
| 64 | Wing | Command Unit Installation and operation information | 19 | Add "safely" to (c) as some non-safety related items may not be required to display information to operators.####Change to: "(c) There must be a discernible means of providing system operating parameters required to safely operate the aircraft including warnings, cautions, and normal indications, to the responsible remote crew." | | Minor | | noted | The applicability is already limited to parameters required to operate. |
| 65 | Wing | General Requirements | 20 | Only safety-critical C2 performance requirements should be specified.####Change to: ##"(a) The C2 link performances required for safe operations must be specified as part of the Type Design of the UA.##(b) If required, minimum C2 Link Performance needs to be provided in the flight manual." | | Major | | partially accepted | The manual should always provide information on performance of C2 link, depending on how advanced the control solution is, such indication will be adapted. "minimum" has been deleted to provide full flexibility for adaptations |
| 66 | Wing | C2 Link Performance monitoring | 20 | The required performance of the C2 link may vary depending on the automation of the system. Wing recommends adding "if required for safe operation" to (b):##"(b) If required for safe operation, appropriate technical and procedural means must be provided to the remote crew to establish and maintain the C2 link, including the interaction with the C2CSP. The Applicant needs to provide these means within the flight manual." | | Major | | accepted | The subpart is applicable to C2 Link functions required for safe operation of the UA. |

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| 67 | Wing | C2 Link Security | 20 | Non-safety-related information may be transmitted using the C2 link, so requirements should focus on flight information pertaining to safety.##"(a) Information critical to flight safety exchanged between the Command Unit and the UA via the C2 Link must be secure to prevent unauthorised interference with the UA." | | Major | | partially accepted | Mostly accepted with rewording |
| 68 | Wing | Ancillary Equipment | 21 | Although (a) mentions equipment required for safe operation of the UA, we suggest adding "safe operation of the system" to part (b) to stay consistent with parts (c) and (d) and avoid confusion.##"b) The type design of the UA shall specify the performance and, when required, the design of the ancillary equipment for safe operation of the system." | | Minor | | noted | a) already limits the scope of the requirement to equipment required for safe operation of the UA |
| 69 | Wing | Equipment, Systems and Installation (High Risk) | 22 | For Major, specify that crew workload is relevant to safety-related tasks.####"Major: Failure conditions that would reduce the capability of the UAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be a significant reduction in safety margins, functional capabilities or separation assurance. In addition, the failure condition has a significant increase in remote crew workload or impairs remote crew efficiency to perform safety related tasks." | | Major | | high risk (N/A for SC medium risk) | |
| 70 | Wing | Equipment, Systems and Installation (High Risk) | 22 | For Hazardous, the UA may be expendable, or a safety strategy may be to conduct a contingency landing in an unpopulated location. Thus, we suggest removing references to the loss of the UA (described as RPA here) unless it poses a risk to people on the ground:####Change to: "Hazardous: Failure conditions that would reduce the capability of the UAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be the following:##i) Loss of the RPA where it can be reasonably expected that a serious injury may occur, or##ii) A large reduction in safety margins or functional capabilities or separation assurance, or ##iii) Excessive workload such that the remote crew cannot be relied upon to perform their safety related tasks accurately or completely" | | Major | | high risk (N/A for SC medium risk) | |
| 71 | Wing | Equipment, Systems and Installation (High Risk) | 22 | Wing encourages EASA to explain the reasoning from top level requirements and target level of safety to the failure condition probabilities, as in XX.1309. This will help to ensure that underlying assumptions are understood, and that manufacturers and operators can determine the applicability of M1 and M2 mitigations.####As drafted, the failure conditions and probabilities, including corresponding FDAL levels, appear overly conservative for the level of risk of the operation as a whole. | | Major | | high risk (N/A for SC medium risk) | |
| 72 | Wing | Equipment, Systems and Installation (High Risk) | 22 | In table 1 there should be a column for sUAS, < 1m, as in table 2. | | Major | | high risk (N/A for SC medium risk) | |
| 73 | Wing | Equipment, Systems and Installation (High Risk) | 22 | For all the tables, Wing suggests removing the mass limitation as it is generally not a major factor in the crash area calculation. | | Major | | high risk (N/A for SC medium risk) | |

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| 74 | Wingcopter | Intro | iii | Providing detailed definition of the operational volume may not be possible for the manufacturer applying for a TC. Manufacturer could only provide limitations for operational volume. | - | No | Yes | noted | it is not expected to provide the geographical location but in fact the conditions and limitations for the operational volume |
| 75 | Wingcopter | Applicability | iv | Reference to regulatory basis is missing on several sentences / sections under the “Applicability” Chapter | Add reference to regulation 2019/947 | Yes | No | noted | The regulation is mentioned at the start, it shopuld not be needed to always re-refer to it |
| 76 | Wingcopter | Applicability | iv | OSO abbreviation is introduced twice, but different | Remove second abbreviation introduction. | Yes | No | accepted | text modified accordingly |
| 77 | Wingcopter | Applicability | Iv | “SAIL V and VI are herein defined…”##Definition is incomplete, clear definition of “Medium Risk” is missing, it is just mentioned that SAIL III and IV may be medium. | Define “High Risk” and “Medium Risk” clearly and add definition into official part of the SC Light UAS under Light-UAS.2000. | Yes | Yes | accepted | |
| 78 | Wingcopter | Applicability | v | First sentence is referring to part 21.B.75. | Be more specific and add regulation. | Yes | No | not understood | the first sentence is related to non applicability of transport of Humans |
| 79 | Wingcopter | Methodology | v | “As the SC covers certification for operations in the specific category, the determination of airworthiness objectives of Light-UAS has taken into consideration design-related OSOs) determ…” | Delete bracket | Yes | No | accepted | |
| 80 | Wincopter | Light-UAS.2000 | 3 | Point (a): The intention of the new regulations was to provide manufacturers the possibility to apply voluntarily for a TC for an aircraft that will be classified in the SPECFIC category, but it will be mandatory for aircrafts in the CERTIFIED category. Point (a) is now suggesting a TC would be necessary in SPECIFIC also for medium risk operations, although it is not. | Change wording, e.g.: (a) intended to be operated in the certified category in accordance with regulation 2019/947 or intended to be operated in the specific category where TC is required in accordance with regulation 2019/947 or intended to be operated in the specific category where a TC is voluntarily applied for. | Yes | Yes | not accepted | refer to update of EASA AMC |
| 81 | Wingcopter | Light-UAS.2000 | 3 | Point (a) is referring to “medium or high risk”, but no clear definition is provided below what is meant and included by medium and high risk. | Clarify by providing definition in Light-UAS.2000 or take “medium risk” out of the SC, see comments below. | Yes | Yes | not accepted | it is defined in the introduction |
| 82 | Wingcopter | Light-UAS.2000 | 3 | Point (b): What is the basis or reason for the MTOM limit of 600kg? Is this based on studies or coordination with possible operators? | Increase MTOM value to at least 800 kg. | Yes | Yes | not accepted | Mass thresholds can never be precisely justified. Why 800 Kg ? With 600 kg we are covering the CS VLR/CS-LSA range and avoiding to leverage the prescriptive CS VLR to create a CB for light UAS |
| 83 | Wingcopter | Light-UAS.2000 | 3 | Note is referring to part 21. | Be more specific and add regulation | Yes | No | not accepted | the necessary references are in the introduction |
| 84 | Wingcopter | Light-UAS.2000 | 3 | Paragraph Light-UAS.2000 is used for applicability and definitions, but different numbering systems are used within this part. | Split Paragraph into two paragraphs, one for Applicability and one for Definitions | Yes | No | not accepted | same structure is used by published SC VTOL |
| 85 | Wingcopter | Light-UAS.2005 | 3 | Text in box: This is a requirement for the application. The applicant will first apply for a TC and will then clarify the TC basis. Based on this assumption, this requirement should be moved to Part 21 and not to a Special Condition (or later Certification Specification). | This requirement should be moved to Part 21 and not to a Special Condition (or later Certification Specification). | Yes | Yes | not accepted | The note reflects a MoC to the requirement |
| 86 | Wingcopter | Light-UAS.2005 | 3 | The framed statement might indicate that the aircraft will be used in a limited way referred to specific operations. The SC shall path the way for a CS-UAS enabling operators to fly certified aircraft without restrictions. If restrictions are necessary this can be agreed on a case by case basis between applicant and EASA, but not in general | Remove statement from SC Light UAS. | Yes | Yes | not accepted | the SC is first of all addressing the specific catgeory, where there are always limitations. EASA do not foresee in the mid term applications with "no operational limitations" |
| 87 | Wingcopter | Light-UAS.2005 | 3 | Framed statement is referring to EASA AMC and GM, but it is unclear which EASA AMCs and GM are meant. | Specify referenced EASA AMC and GM | Yes | Yes | not accepted | this is clarified in the introduction |

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| 88 | Wingcopter | Light-UAS.2135 | 5 | It is not completely clear if this paragraph is referring to controllability with regards to flight physics or with regards to remote control of the UA. | Clarify applicability of this paragraph. | Yes | Yes | noted | (a) is with regard to the remote control which obviously includes the physics |
| 89 | Wingcopter | Light-UAS.2135 | 5 | Point (a) is referring to normal flight envelope. Using normal flight envelope as reference may lead to uncontrollable behaviour of the aircraft within limit flight envelope. (Also see VTOL.2135) | Use limit flight envelope instead of normal flight envelope. | Yes | Yes | accepted | change to operational envelope |
| 90 | Wingcopter | Light-UAS.2135 | 5 | (b) is referring to “artificial means”, but it is not defined what artificial means may include. Not having a clear definition may lead to a misalignment through stakeholders | Provide definition for “artificial means” | Yes | No | accepted | change to operational envelope |
| 91 | Wingcopter | Light-UAS.2135 | 5 | SC VTOL.2135(d) states “It must be possible to make a smooth transition from one flight condition to another without danger of exceeng the limit flight envelope.”##Transitions between flight conditions may also exists for UAS and are considered as one of the most critical flight conditions. A requirement should be added to SC Light UAS. | Use of VTOL.2135 (d) requirement for SC Light UAS or similar requirement as applicable. | Yes | Yes | partially accepted | transitions included |
| 92 | Wingcopter | Light-UAS.2160 | 5 | Paragraph is referring to normal control within limit flight envelope. It is not clear what is meant by “normal control of the UA” within the limit flight envelope. | Clarify / Specify what is meant by “normal control” in this context. | Yes | Yes | accepted | text modified accordingly |
| 93 | Wingcopter | Light-UAS.2165 | 5 | The SC Light UAS does not contain requirements for icing condition, if the aircraft is used in icing condition. VTOL.2165 (a) provides requirements that can be used for SC Light UAS as well and is considered to be adequate. | Use of VTOL.2165 (a) in SC Light UAS:##An applicant who requests certification for flight in icing conditions must demonstrate that the aircraft can be safely operated in the icing conditions for which certification is requested. | Yes | Yes | partially accepted | specification related to adverse weather condition added to clarify |
| 94 | Wingcopter | Light-UAS.2200 | 6 | Paragraph states: “…a limit condition needs to account for all UA design and operational parameters that affect structural aspects.”##This is a very generic requirement and may lead to a variety of required information from one certification project to another. To create a better understanding it will be beneficial to add some clarification statements (see VTOL.2200). | Expand statement by: ##“…that affect structural aspects like loads, strength, durability, aeroelasticity and includes loads from control inputs, flight load conditions, mass variations and distributions.” | Minor | rejected | not accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 95 | Wingcopter | Light-UAS.2230 | 6 | Paragraph states “Unless special or safety factors are necessary…”##When is the use of special factors necessary? SC VTOL is providing more guidance on this, see VTOL.2265. | Add statement for special factors, e.g. for critical design values for parts likely to deteriorate in service or are subject to variability. | Minor | rejected | noted | 2230 adressed within the new 2235. the use of special factors will be covered in the AMC (unreliable design, uncertainty, variability, production methods ….) |
| 96 | Wingcopter | Light-UAS.2260 | 7 | Compared to VTOL.2260 fabrication methods are missing in the SC Light UAS, but are considered to be very important to ensure aircrafts are consistently produced and can be controlled safe and consistently based on production reliability. | Add paragraph (c) as described as follows (see VTOL.2260):##(c) The methods and processes of fabrication and assembly used must produce consistently sound structures. If a fabrication process requires close control to reach this objective, the applicant must define the process with an approved process specification as part of the design data. | Major | partially accepted | accepted | processes are covered by 2250, 2260 title and 2260 b will be amended |
| 97 | Wingcopter | New paragraph | 7 | It is expected that there might be several UAS solutions in the area of delivery. This may include delivery / transport of dangerous goods. An emergency condition requirement similar to the SC VTOL emergency condition requirement for occupant protection should be added to the SC Light UAS for transport of dangerous goods to ensure acceptable safety levels are reached, especially for external payload. | Add emergency condition for dangerous goods as (external) payload. | Major | rejected | partially accepted | the external load system needs to comply with 2510, no need for additional paragraph |
| 98 | Wingcopter | Light-UAS.2300 | 8 | It is not completely clarified if “UA flight control systems” is referring to structural / mechanical system or to software / flight controller system. | Clarify what kind of system is meant, either structural parts, flight control computers (“flight controllers”) or both. | Yes | Yes | partially accepted | The flight control system comprises sensors, actuators, computers and all those elements of the UAS necessary to control the UA |

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| 99 | Wingcopter | Light-UAS.2370 | 9 | Paragraph is describing requirements for transportation, assembly, reconfiguration and storage, but is not providing details where these information shall be referenced in the end (e.g. either Flight / Operating Manual or Maintenance Manual) nor there is a reference to an acceptable standard (different standards may require different document information). | Specify where informations are expected to be included, either in the Flight / Operating Manual or in the Maintenance Manual | Yes | No | not accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 100 | Wingcopter | Light-UAS.2430 | 11 | The wording of paragraph (b) is not make it clear if the objective addresses electrical or structural loads. As VTOL.2430 is referring to “electrical loads”, it can be assumed electrical loads are meant, but is still unclear. | Rewrite paragraph to clarify if electrical loads or structural loads are meant. | Yes | Yes | accepted | the requirements is about structural loads and is covered by subpart C, therefore removed |
| 101 | Wingcopter | Light-UAS.2510 | 12 | Paragraph is referring to “High Risk” but there is no clear definition provided in the definition section what is “medium risk” or “high risk”. | Provide clarification by definition what is considered to be “high risk” and “medium risk” | Yes | Yes | not accepted | this is clarified in the introduction |
| 102 | Wingcopter | Light-UAS.2510 | 12 | There are two different paragraphs listed, one for medium risk, one for high risk. Both paragraphs are using the same paragraph number. | Update paragraph number or delete medium risk paragraph (see next comment) | Yes | Yes | high risk (N/A for SC medium risk) | |
| 103 | Wingcopter | Light-UAS.2510 | 12 | Paragraph titles are including “(High Risk)” and “(Medium Risk)”. Why Medium Risk? This SC and later CS-UAS shal be used for the certified category (or if required by NAA) and can voluntarily be used for aircraft classified in the specific category (e.g. as restricted certificate). Medium risk class in specific category does not necessarily require a tye certificate. Based on this, there is no reason to differentiate between high and medium risk in this SC / paragraph | Delete Medium Risk Paragraph; Delete “High Risk” reference from paragraph. | Yes | Yes | not accepted | Certification is required to operate in the High Risk of the specific category as per EASA AMC to regulation 947. The fact that in the medium risk it may be possible to operate if the NAA accept the declaration does not mean that the certification basis should not be proportional to the risk |
| 104 | Wingcopter | Light-UAS.2510 | 12 | In point (a) paragraph is referencing to itself. | Delete self reference | Yes | No | not accepted | 2500 is referenced, not 2510, wording identical to SC VTOL |
| 105 | Wingcopter | Light-UAS.2510 | 13 | In point (a) paragraph is referencing to itself. | Delete paragraph (see above) or at least self reference | Yes | No | not accepted | 2500 is referenced, not 2510, wording identical to SC VTOL |
| 106 | Wingcopter | Light-UAS.2510 | 13 | Requirements for Medium Risk Operations are already set in the AMC to regulation 2019/947 in the OSOs as part of the SORA process. There is no need for additional requirements | Delete paragraph | Yes | Yes | not accepted | certification is carried out on the base of the SC. The TC will provide evidence of compliance with design-related OSOs. |
| 107 | Wingcopter | Light-UAS.2511 | 13 | Requirement is copied from the SORA process and referencing to ground buffers and adjacent airspaces which are operational topics. In addition, the probability provided in (b)(1) is not connected to any probability requirement provided in the MOC. | Delete paragraph (a) and (b)(1) and (2) from this SC as already required in the SORA and focussing on operational requirements and not design requirements. | Yes | Yes | not accepted | certification is carried out on the base of the SC and without referencing the SORA. The TC will provide evidence of compliance with design-related OSOs. |
| 108 | Wingcopter | Light-UAS.2511 | 13 | Paragraph (b) (3) wording seems to be more complex than necessary | Proposal for wording: “Software and airborne electronic hardware must be developed to a standard or methodology accepted by by the Agency.” | Yes | No | not accepted | 2511 b3 is applicable only to software and airborne electronic hardware whose development error(s) could directly lead to operations outside the ground risk buffer |
| 109 | Wingcopter | Light-UAS.2511 | 13 | Requirement of point (b)(3) is applicable for medium risk and high risk aircraft independent of the operational use case the aircraft can be used for. For medium risk (SAIL III and IV) this requirement is also part of the SORA process for operations over populated areas only and so not applicable for all medium risk operations. | Harmonize regulations or take medium risk concept out of the SC. | Yes | Yes | not accepted | please see other answers provided to Wingcopter comments regarding the fact that in case of certification in the medium risk the TC acquired on the basis of this SC will provide evidence of xcompliance to design related OSOs of the EASA AMC to regulation 947 |

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|---|---|---|---|---|---|---|---|---|---|
| 110 | Wingcopter | Light-UAS.2511 | 13 | Point (b)(3) is not referring to any DAL for software and airborne electronic hardware. | Add associated DAL or refer to 2510. | Yes | Yes | not accepted | DAL is for AMC |
| 111 | Wingcopter | Light-UAS.2511 | 14 | For additional statement provided in box: EASA AMC and GM are not further specified. | Specify EASA AMC and GM. | Yes | No | not accepted | specified in introduction |
| 112 | Wingcopter | Light-UAS.2511 | 14 | Last sentence in box statement is referring to Conops. Conops is considered as a tool in the specific category, but not in the certified category based on regulations 2019/947 and 2019/945. If a Conops is expected in the certified category as well, it is recommended to require this in another paragraph. | Delete Conops reference. | Yes | No | noted | A CONOPS is common for all type of aircraft operations, it could be a standardized CONOPS like IFR operation of fixed wing aeroplanes or a dedicated one leading to operational limitations as part of the type design in accordance with Part 21.31 |
| 113 | Wingcopter | Light-UAS.2515 | 14 | Paragraph titles are including “(High Risk)” and “(Medium Risk)”. Why Medium Risk? This SC and later CS-UAS shal be used for the certified category (or if required by NAA) and can voluntarily be used for aircraft classified in the specific category (e.g. as restricted certificate). Medium risk class in specific category does not necessarily require a tye certificate. Based on this, there is no reason to differentiate between high and medium risk in this SC / paragraph | Delete Medium Risk Paragraph; Delete “High Risk” reference from paragraph. | Yes | Yes | not accepted | Please see answer provided to Wingcopter for similar questions |
| 114 | Wingcopter | Light-UAS.2520 | 15 | Paragraph titles are including “(High Risk)” and “(Medium Risk)”. Why Medium Risk? This SC and later CS-UAS shal be used for the certified category (or if required by NAA) and can voluntarily be used for aircraft classified in the specific category (e.g. as restricted certificate). Medium risk class in specific category does not necessarily require a tye certificate. Based on this, there is no reason to differentiate between high and medium risk in this SC / paragraph | Delete Medium Risk Paragraph; Delete “High Risk” reference from paragraph. | Yes | Yes | not accepted | Please see answer provided to Wingcopter for similar questions |
| 115 | Wingcopter | Light-UAS.2530 | 16 | Point (a) requires differentiation to manned aircraft without outlining requirements how lighting for UAVs shall be implemented. This flexibility may lead to a variety of light characteristics in the airspace. If the intention is to have a clear distinction between manned and unmanned aircraft, unmanned light systems requirements should be more specific. But, the question is, if it is really necessary to distinguish between manned and unmanned vehicles, especially as there might be vehicles in the future acting as both manned and unmanned system. | Delete point (a) or provide at least requirements on lights for harmonization purpoeses | Yes | Yes | partially accepted | It is now specified "when required by OPS rules" for all the clauses of the requirement |
| 116 | Wingcopter | Light-UAS.2600 | 18 | How will the assignment / release of more than 1 aircraft controlled by 1 CU work? Aircraft release will be possible independently from CU release although when covered by the same type certificate? | - | No | No | noted | Release of UA is not part of the certification basis, the procedures for initial release are in Part 21. |
| 117 | Wingcopter | Light-UAS.2600 | 18 | Point (b) is written very generic and not only minimum requirements in the definition of command units as part of the type design. | Rewrite to:##“The type design of the UA must specify the minimum command unit design requirements and identify all equipment and systems of the CU that are essential for the crew to operate the UA.” | Yes | Yes | noted | "equipment and systems of the CU that are essential for the crew to operate the UA Is limiting specification already to the minimum |
| 118 | Wingcopter | Light-UAS.2600 | 18 | Lettering and format differs between paragraphs. | Harmonize lettering for requirements by using two brackets, e.g. (a), (b)… | Yes | No | noted | format has been improved |
| 119 | Wingcopter | Light-UAS.2600 | 18 | Regards to point (i): There is an extra paragraph for installation procedures of the UA. | Shift Light-UAS.2600 i) to Light-UAS.2605. | Yes | No | noted | As the scope of point (i) is wider than 2605, e.g. including maintenance the point is preferred to be kept in 2600 |

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| 120 | Wingcopter | Light-UAS.2602 | 18 | Point (a) states "…adequate to support the command and control…" which is an integration requirement. | Shift Light-UAS.2602 (a) to Light-UAS.2600 | Yes | No | noted | a) is a requirement to have a CU design and performance adequate to the UA. It is not only about installaiton. |
| 121 | Wingcopter | Light-UAS.2720 | 20 | Point (b) is referring to C2CSP, but no definition of C2CSP is provided. | Provide definition of C2CSP | Yes | No | accepted | Definition inserted in the note |
| 122 | Wingcopter | Light-UAS.2720 | 20 | Point (b): The interaction between the C2CSP and the operator is in the responsibility of the operator. The manufacturer cannot set procedures for interaction between operator and C2CSP. The manufacturer may just provide minimum requirements for interaction. | Rewrite paragraph (b) to ensure applicant / manufacturer only needs to provide minimum requirements for interactions between C2CSP and operator. | Yes | Yes | partially accepted | "where applicable" has been inserted to improve flexibility in the application of the requirement |
| 123 | Wingcopter | Light-UAS.2730 | 20 | The C2 link system might not be necessary to perform operations. If operations are performed autonomously without remote control the wording "at any time" might be misleading. | Add "If required for safe operation" to the objective and remove "at any time" from the objective. | Yes | No | partially accepted | the sentence has been added "Where the safe operation of the UAS requires command, control and communication functionality" (sentence already used above in the document) |
| 124 | Wingcopter | Light-UAS.2810 | 21 | Point (b) states: "If a Recovery System is intended to be used in the normal the operation of the UA" | Update wording | Yes | No | noted | Moved to Subpart D and prescriptive elements removed |
| 125 | Wingcopter | Light-UAS.2810 | 21 | Paragraph Light-UAS.2810 does not include design or performance requirements for the recovery system itself. The proper functionality / design shall be required by performance and design requirements, e.g. designed to standards, demonstrated by tests, analyses or simulations or equivalent. | Add point (C) to set set performance / design requirements | Yes | Yes | noted | Moved to Subpart D and prescriptive elements removed |
| 126 | Wingcopter | Light-UAS.2810 | 21 | Paragraph Light-UAS.2810 does not include requirements for ICA. Without proper means to maintain continued airworthiness of the system, the system may fail due to fatigue or other undetected reasons. | Add point (d) for ICA requirements of the launch / recovery system. | Yes | Yes | noted | Moved to Subpart D and prescriptive elements removed |
| 127 | Wingcopter | MOC .2510 | 22 | The applicability section of SC Light-UAS is only referring to MTOM value of 600kg. Table 1 is referring to different MTOM levels and dimensions. Where do these values come from? What is if there is an aircraft <600kg but above 8m dimensions (SORA is providing this category of larger than 8m dimensions)?##In addition, SC Light-UAS is not reflecting speeds or kinetic energy limits, but dimensions. | Remove MTOM and dimension combination requirement and replace with energy level. | Yes | Yes | high risk (N/A for SC medium risk) | Misleading terminology used. A flight termination or recovery system (e.g. parachute) is normally installed on the UA and would not be considered as ancillary equipment NOT installed. |
| 128 | Wingcopter | MOC .2510 | 22 | Section 7 ("When establishing the…") is referring to the concept of operations. The MOC is applicable for the certified category. The certified category will follow Part 21 TC process. Where does there the reference to a Conops arise? Conops is understood as a document for specific category operations only. | Take Conops reference out of MOC | Yes | No | high risk (N/A for SC medium risk) | A CONOPS is common for all type of aircraft operations, it could be a standardized CONOPS like IFR operation of fixed wing aeroplanes or a dedicated one leading to operational limitations as part of the type design in accordance with Part 21.31 |
| 129 | Wingcopter | MOC .2510 | 22 | Table 1 and 2 provide "$1.10^{-x}$" (respectively "$1,10^{-x}$") values. Shall it mean 1 x $10^{-x}$ (respectively just $10^{-x}$)? | Rewrite to $<10^{-x}$ values | Yes | Yes | high risk (N/A for SC medium risk) | |
| 130 | Wingcopter | MOC .2510 | 22 | Table 1 / 2 and Table 3 / 4 provide separated information which are connected to each other. SC VTOL is only using one table which makes it more clear to see applicable DAL information with associated probability values and vice versa. | Include Table 3 information in Table 1. Remove Table 3. ##Include Table 4 information in Table 2. Remove Table 4. | Yes | No | high risk (N/A for SC medium risk) | |

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| 131 | Wingcopter | MOC .2510 | 22 | Probability values are considered inappropriate compared to manned aviation values. ##For example: Table 1, line 1 proposes a probability value of $<10^{-8}$ which is the same as for class III aircraft in accordance with RPAS 1309 / AC 1309 with a MTOM of more than 6000 pounds which is at least 4.5 times higher than referenced 600 kg. ##Example 2: Table 2, last line proposes a probability value of $<10^{-7}$ which is the same as for class II aircraft in accordance with RPAS 1309 / AC1309 having a MTOM of up to 6000 pounds, which is 545 times higher than a 5kg UAV! | Remove MTOM values from table OR update probability values to an proportionate level. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 132 | Amazon | | iii | In the last paragraph certification is required to detail the operational volumes and buffers etc. This will be nearly impossible to do for a system that has autonomy in the architecture and would have to react to encounters in the airspace. More clarity as to what needs to be defined by the applicant would be helpful. | More details as to the risks that need to be mitigated with this paragraph. | Yes | No | not accepted | It is an overarching assumption iof the EASA AMC to CIR 947 that the operation has to take place in an operational volume which is characterized by the ground and air risk utilized to derive the SAIL. Operating "anywhere" is certainly nor for the specific catgeory of operations |
| 133 | Amazon | Applicability | iv | 3rd Paragraph: " ...*SAIL V and VI are herein defined as "High Risk". For operations classified with a lower SAIL the level of robustness may be medium ( **SAIL 3 or 4** ) or low...* "## SAIL 3 or 4 should be SAIL III or IV | Change 3 and 4 to roman numerals for consistency and alignment with JARUS guidelines (Ref. JAR-DEL-WG6-D.04) | No | Yes | accepted | |
| 134 | Amazon | Applicability / general | Introduction | Remains confusing, especially for operations considered to sit at the medium-to-high risk boundary of the specific category (SAILs IV to V). The distinction between a SAIL VI Specific Category operation and a Certified Category operation is not clear. Moreover, it is difficult to determine the types and kinds of systems and operations, classified as SAILs III and IV that would not require a TC.####In addition to this, EASA should clarify how operators should manage the SC-LUAS and the 'standard' SORA process and the subsequent bridge to a Type Certification. Put another way, for UAS designed to meet the requirements of SC-LUAS, what are the additional steps to obtain a type certificate? As written, operators would have completed the SORA process prior to arriving at this special condition, at which point, they would by the special condition's terms be required to redo the SORA.##Additional clarity should be provided regarding the 4Kg limit described in NPA 2020-07 – BVLOS operations. It appears that all UAS above this MTOM would be considered High Risk – this seems to invalidate a large portion of the Applicability description in this document. | The attached image should be used (or a variation of it), to assist with the explanations of applicability and SAIL scales.##(See image below this table) | Yes | No | noted | the paragraph has been changed in line with the update of the EASA AMC to CIR 947. Such update was not available at the time of public consultation. |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 135 | Amazon | General | Introduction | Although definitions for various grades of operating areas (populated, assemblies of people, sparsely populated, etc), are defined in various other publications, it is recommended that these definitions are carried into this SC for clarity, or further definition/clarification is provided in this SC.####Moreover, many references are made in SC-LUAS to 'populated environment.' Other EASA UAS publications reference 'populated area'. Clarity as to whether these mean the same thing would be helpful or whether the term, 'populated environment,' was used in error. ####We would recommend that further clarification is provided in this SC, or in applicable AMC & GM, especially with regard to the definition of 'Populated Area'. This seems to currently be defined by exception – all other potential areas of population are defined in a variety of other publications, and where the area does not fit within these definitions, it should be considered populated. This leaves a large gap in the definitions and makes the process of understanding the area of operation ambiguous. More generally, more clarity into the definitions of the various terms used to describe the population density of operating areas would benefit the industry. For example, in NPA 2020-07 a suggestion is made that 'Populated Area' needs to be further clarified and then suggests that a description is provided in the new GM2 to AMC1 Article 11, but no description is provided. | | Yes | No | noted | The SC should not interevne in such definitions, which are instead regulated by AMC to CIR 947, GM and further updates that will follow. Please refer to AMC to CIR 947 and its updates. |
| 136 | Amazon | | iv | Are 'Low Risk, Medium Risk, and High Risk' interchangeable with the SAIL levels? | Provide a look-up table that maps SAILs to 'Low', 'Medium', and 'High' risk levels. | Yes | No | partially accepted | They are according to the definition peculiar of this SC with regard to Medium Risk (SAIL 3 and 4) and High Risk (SAIL 5 and 6). EASA fully understand that (as commented by others) the final risk of an operation (if authorized) would be the same for every SAIL as the overarching requirement of the SORA in terms of fatality/FH is the same. The initial risk is in fact mitigated proportionally by the SORA (EASA AMC). Medium Risk as used by the SC refers to the fact that such operations are expected, in case of crash, to cause fatality with a probability of, respectively, 10exp(-3) and 10exp(-2). While it would be 10exp(-1) and 1 respectively for SAIL 5 and 6. |
| 137 | Amazon | | v | Additional space and '.' following first para (top of the page) | Remove | Yes | No | accepted | |
| 138 | Amazon | Methodology and principle at the base of the SC | v | Spurious ')' in first para.##".....taken into consideration design related OSOs)....." | Remove | Yes | No | accepted | |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 139 | Amazon | Safety Objectives | vi | No mention of M3 - in the mitigation sequence. | This may be obvious to some readers but an explanation of why Mitigation M3 is not included here would help with understanding. | Yes | | accepted | |
| 140 | Amazon | Light-UAS .2010 | 3 | Para (a) clarity on what is required and which countries or treaties are applicable for means of compliance. | Provide examples or definitions that are indicated by this paragraph. | Yes | No | noted | MOC may be EASA AMC or any standard that is accepted by EASA. |
| 141 | Amazon | Light-UAS .2400 | 10 | Para (d) anticipated operating conditions to include foreign object threats is too vague. Does this refer to birds, someone throws a rock etc, or more 'traditional' Foreign Object Debris (dust, grit, sand, swarf, etc). This will be very difficult to prove and suggest either different wording or remove. | Need to rewrite the requirement or remove this mandate. | Yes | No | noted | Discussion will be on MOC level. |
| 142 | Amazon | Light-UAS .2410 | 10 | Para (c) complete disassembly of an electric motor will be very difficult for most applicants. This should be changed to add a life limit process as an option. | Add a life limit schedule as an option to disassembly. | Yes | No | accepted | c) removed and d) adapted |
| 143 | Amazon | Light UAS.2510 | 12 | Paragraph (a) (1) This doesn't appear to be a 'proportionate' requirement – it may be appropriate to UAS of 200-600kg MTOM, but not necessarily UAS of ~20kg likely to be less complex in design. | Revise paragraph (a) (1) to be proportionate to UAS mass/complexity | Yes | No | not accepted | The requiement is derived from the EASA AMC to regulation 947, which imported this requirement from the JARUS SORA as published after JARUS and public consultation. Being derived from the SORA, it is proportionate to the risk of the operation. With regard to the means of compliance, they might be adapted depending also on the MTOM. |
| 144 | Amazon | Annex I | 22 | Tables 1 and 2 of Annex I offer a broad set of thresholds for UA MTOM that groups relatively light UA (~50kg) with significantly heavier aircraft (<200kg). While the maximum dimension would appear to be the limiting factor, given the associated allowable failure probabilities, this appears to consider that a lighter UA presents the same risk as a significantly heavier UA. Could provision be given to (and therefore additional clarification provided), organisations offering an intermediate set of allowable probabilities, that sit proportionally between the thresholds offered in these tables.## | Allow interpolation between thresholds presented in Tables 1 & 2 for a proportional application of allowable probabilities. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 145 | Amazon | Subpart G | 18 | In general, the requirements of Subpart G seem appropriate, however, consideration should be given to UAS that utilise a more federated ground control infrastructure (such as cloud-based command interfaces and cellular networks for C2). It appears that Subpart G is currently focus around the more traditional GCS-to-Aircraft arrangement whereas, future UAS, with increased levels of onboard autonomy, may seek a more 'internet distributed' control network.####This will be especially important when considering the 2035 timeframe, where more cloud-based distributed networks will be likely. | | | No | noted | For a federated CU system of a higly automated UA subpart F might be more relevant than subpart G. While the wording of Subpart G is often inspired by conventional and pilot centric language it should not create problems for more automated systems. |
| 146 | DUFOUR AEROSPACE | All | Introduction | General comment | DUFOUR AEROSPACE supports the proposed Special Condition which was needed. The content is satisfactory except for the Annex I. | Yes | No | noted | thank you |

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| 147 | DUFOUR AEROSPACE | ANNEX 1 ##Table 1 | 22 | Inconsistency of risk classification | - In the SORA method, the ground risk class is based on the UAS dimension and the kinetic energy.##In order to be consistent with this classical approach, DUFOUR AEROSPACE proposes:##to replace “Maximum dimension < 8m AND MTOM <600kg” by “Maximum dimension < 8m AND kinetic energy< 1084 kJ”##to delete (1200 m2 worst crash area)##to replace “Maximum dimension < 3m AND MTOM <200kg” by “Maximum dimension < 3m AND kinetic energy< 34 kJ”##to delete (400 m2 worst crash area) | Yes | Yes | high risk (N/A for SC medium risk) | |
| 148 | DUFOUR AEROSPACE | ANNEX 1 ##Table 1 | 22 | Choice of category for UAS with intermediate characteristics | In order to take into account UAS with intermediate characteristics (example: maximum dimension 4m and MTOM <200kg), the SC should take example on the ground risk class determination in the SORA.##A sentence such as “In case of a mismatch between the maximum UAS characteristic dimension and the typical kinetic energy expected, the applicant should provide substantiation for the chosen line.” should be added. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 149 | DUFOUR AEROSPACE | ANNEX 1 ##Table 3 | 23 | Inadequate DAL levels | The DAL’s required for:##- BVLOS operations in populated environment ##- with “Maximum dimension < 8 m, MTOM 600 Kg”##are the same as for a VTOL aircraft in the enhanced category.##Those DAL’s are adequate for operations above assemblies of people but too demanding for operations in populated environment with an unmanned aircraft. ##The DAL’s proposed in Table 3 should be consistent with the VTOL Basic Category “2 to 6 passengers” and “0 to 1 passenger” (refer to AMC VTOL.2510). | Yes | Yes | high risk (N/A for SC medium risk) | |
| 150 | Thomas Vandormael | Fig. 1 | iii | The special configurations (zeppelins, swarms, flapping wings) are not included in the figure | Explicitly include these in CS-Light UAS as well | YES | NO | noted | the figure is inherited by the concept paper for the certified catgeory , the concept will be further developped there. |
| 151 | Thomas Vandormael | Applicability | iv | “Operated in the specific category of operations, medium and high risk, or in the certified category of operations”. Does this imply that SAIL will be the deciding factor whether or not to use this CS, instead of the (capacities of the) UAS? | Define more unambiguously i.e: “in case of SAIL III, IV, V or VI, within the category Specific, the use of this special condition is mandatory.” | NO | YES | accepted | wording been improved to increase clarity |
| 152 | Thomas Vandormael | Light-UAS.2260 Materials and processes (example) | 7 | “Materials must be suitable for the intended use”: vague language. | Include technical requirements linked to the UAS, or a certification standard which upholds these quality and technical requirements. | Minor | rejected | not accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 153 | Thomas Vandormael | Light-UAS 2415 Lift/Thrust/Power Calibration, Ratings and Operational Limitations | 10 | “a) Each Lift/Thrust/Power System must be subject to calibration tests as necessary to establish its power characteristics."##Is this referring to a technical assessment or test? If so: is this recurring or one-off? And performed by the manufacturer or by competent authorities or technical assessment companies? ## | Enforce recurring calibration and/or airworthiness assessments in order to safeguard the quality and safety of the UAV. These tests can be performed by the competent authority (CAA or Qualified Entity). | NO | YES | partially accepted | More prescriptive elements moved to a note for later MOC development. |

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| 154 | Thomas Vandormael | Light-UAS.2530 UA External lights | 16 | I believe this could be more detailed than the current draft. | Why not copy or refer to technical requirements and standards (intensity, flash rates, …) of manned aviation? | YES | NO | accepted | text changed |
| 155 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Statement of issue | i | Current text:##This Special Condition addresses airworthiness specifications for UA, not the authorization of operations in the specific category. Nevertheless, as defined by Commission Implementing Regulation 2019/947, some operations in the Specific category may be authorised by the NAA only if the UAS operator demonstrates that he/she is operating a UA certified by EASA. EASA has adopted AMC which provide further guidance on when the Regulation requires the certification of the UA.##**Comment:##**In which cases certification by an aviation authority is indeed required by the Legislator in 2018/1139 or by Commission acts. ##Text proposed by EASA is factual, however, some editorial improvements are suggested. | This Special Condition addresses airworthiness specifications for UA, neither to be confused with the authorization of operations in the specific category nor with certification of the operator in the certified category. Nevertheless, as defined by Commission Implementing Regulation 2019/947, some operations in the Specific category may be authorised by the NAA only if the design of the UA is certified by EASA. EASA has provided further guidance on when the Regulation requires the certification of the design of the UA in GM1 to Art. 6 of Regulation 2019/947.## | suggestion | substantive | partially accepted | text is changed also in line with update of EASA AMC (but EASA does not believe that a confusion with the certification of the operator is realistic) |
| 156 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Statement of issue | ii | Current text:##Objective based CS are deemed more appropriate for UAS.##**Comment:##**This statement, meaning that most Means of Compliance (MoC) would come from consensus based standard developed by industry, is fully supported. | No change proposed. | observation | substantive | noted | |
| 157 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Statement of issue | ii | Current text:##The operation of such UAS may often fall in the specific category, where operational approval is provided by the National Aviation Authorities but UAS shall be certified by EASA for higher risk operations and depending on the CONOPS, or might be certified voluntarily for lower risk ones.##**Comment:##**The original text in Annex E to SORA by JARUS, when high level of assurance robustness is required, speaks about verification by a "competent third party". It is understood that in the EU legal order these parties should normally be either "conformity assessment bodies" established under Regulation 765/2008, alias known as "notified bodies" and known around the word as ISO certifying bodies, or "Qualified Entities" per Article 69 of 2018/1139.##It is acknowledged that the caes in which a notified body may verified airworthiness are defined in Delegated Regulation 2019/945 as amended by 2020/1058 (i.e. only for 7 "classes" of drones, but not in general). It is also acknowledged that, in the absence of the delegated act establishing requirements and procedures to accredit QEs, EASA cannot accredit them, while, since 2018/1139 gives responsibilities for initial airworthiness only to the Agency, this role cannot be played by NAAs.##However, readers should be possibly made aware about the fact that, for other domains (e.g. maintenance, operations, etc.) even in the absence of implementing rules based on Art. 69 NBR, the NAAs may nevertheless accredit QE, based on national requirements and procedures.##Clarity of the text could be improved. | The operation of such UAS may often fall in the specific category, where operational approval is provided by the National Aviation Authorities but design of the UAS shall be certified when required by Article 40 of EC Regulation 2019/945 or Article 6.2 of Regulation 2019/947, or might be certified voluntarily.##In principle, when high level of assurance robustness is required, attestation of conformity could be issued by a conformity assessment body based on Regulation 765/2008 or by a Qualified Entity (QEs) based on Article 69 of 2018/1139, when such bodies enjoy appropriate privileges. Based on this, until common rules would not be available for accreditation of QEs, NAAs may accredit them based on national technical requirements and administrative procedures. However, this does not apply to initial airworthiness, for which the Legislator gave EASA exclusive responsibility. In the absence of the delegated act enabling the Agency to accredit QEs, the "competent third party" in SORA, in the domain of initial airworthiness, can hence only be the Agemcy.## | suggestion | Objection: Agency should better clarify that the "competent third party" is not normally an Authority. | partially accepted | text has been partially modified also following update of the EASA AMC and GM, but discussion of Qualified Entities is not part of this Special Condition |

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| 158 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Statement of Issue, Para 5 | ii | Current text:##The vast majority of upcoming UAS operations is expected with UAS of limited mass####**Comment: ##**no proof or reference to a study; limited mass is not specified further here | Please add a reference where this statement comes from; please specify what "limited mass" means; a few hunderts of kilo could mean 200 kg or 700 kg | suggestion | not substantive | noted | Limited mass is meant as in the scope of this SC |
| 159 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | An objective-based, operation centric and proportional approach to UAS certification | ii | Current text:##Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation.####**Comment: ##**MoC on Required Navigastion Performance (RNP) covering both accuracy and integrity may be very useful (e.g. CEN EN 16803 and ISO 24355). One more sentence is suggested. | Add:##"consensus based standards on accuracy and integrity of Required Navigation Performance (RNP) may be used as MoC." | suggestion | substantive | not accepted | It is not understood why the introduction of the SC should be particularly focused on RNP (which is only one of the multiple aspects) |
| 160 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | applicability | iv | Current text:##Operated in the specific category of operations, medium and high risk, or in the certified category of operations##**Comment: ##**Associating the need to obtain a TC from the Agency to the assessed risk has no legal basis. The TC is either mandated by legally binding Regulations or chosen voluntarily by the designer. Text could be improved | Operated in the specific category of operations when design approval is mandated by legally binding Regulations or voluntarily elected, , or in the certified category of operations | suggestion | Objection: Proposed text goes beyond Regulations and it is NOT acceptable | not accepted | Applicability does not mean to mandate or associating a need for a TC |
| 161 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | An objective-based, …, Para 3 | iv | Comment: ##The safety targets given in Annex I MOC to Light-UAS.2510are not "proportionale" (proportionate). ##See white paper [Explanations and Proposed Resolutions to Comment]. | Revise Annex I MOC to Light-UAS.2510. See resolution white paper [Explanations and Proposed Resolutions to Comment]. | suggestion | substantive | noted | SC Medium risk will be adpted first, safety objectives in Annex are N/A |
| 162 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | applicability | iv | Current text:##This SC does not mandate the use of certain equipment that might be required for specific operations, such a Transponder, ADS-B, Flight Recorders. When this equipment is required, it will have to be installed according to the standards of Subpart F of this SC.##**Comment: ##**It is very unlikely that ATC transponder or ADS-B over 1090 MHz would be required in the specific category. It would be better to mention technologies developed for UAS. | This SC does not mandate the use of certain equipment that might be required for specific operations, such a electronic identification, Detect and Avoid, geofencing or geocaging. When this functionality is required, it will have to be installed according to the standards of Subpart F of this SC.## | suggestion | substantive | noted | You are providing examples of functions, not of equipment |

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| 163 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Applicability ##Para 4, sentence 3 | iv | "The UAS operator is required to demonstrate the operational safety objectives (OSO) with a level of robustness proportionate to the SAIL. Operational Safety Objectives ("OSOs") related to design need to be demonstrated with a high level of robustness when the operation is classified as SAIL V and VI. SAIL V and VI are herein defined as "High Risk". For operations classified with a lower SAIL the level of robustness may be medium (SAIL 3 or 4) or low. UA Certification standards for low risk operations##are not included in this SC"##a) Typo: "SAIL 3 or 4" – should be SAIL III or IV##b) The LoR for OSO#05 (Safety) Low, Medium and High does not correspond to Low = SAIL I+II, Medium = SAIL III+IV and High=SAIL V+VI, but according to ED 2019/021/R AMC and GM to Article 11, Annex E, Section E.9 LoI Optional=SAIL I+II, Low=SAIL III, Medium=SAIL IV+V and High=SAIL VI as per ibid. section 2.5.2, Table 6. | Change text: "The UAS operator is required to demonstrate the operational safety objectives (OSO) with a level of robustness proportionate to the SAIL. Operational Safety Objectives ("OSOs") related to design need to be demonstrated with a high level of robustness when the operation is classified as SAIL VI. SAIL VI is herein defined as "High Risk". For operations classified with a lower SAIL the level of robustness may be medium (SAIL IV or V) or low. UA Certification standards for low risk operations are not included in this SC" | | | partially accepted | that text has been deleted |
| 164 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | methodology | v | Current text:##As the SC covers certification for operations in the specific category##**Comment:** ##Not true. The SC does not cover "operations". Only initial airworthiness. Furthermore, drones in the scope of the SC might also be operated in the certified category. | As the SC covers initial airworthiness approval for drones operated in the specific or certified category## | suggestion | Objection: This goes beyond Regulations and it is NOT acceptable | noted | "certification" is used as referred to design. The EASA AMC uses the same language. |
| 165 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Safety Objectives | v | Current text:##The calculated number of FH flown by drones in the generic / average European city in 2035####**Comment:** ##no reference to a study is made | Please add a reference where those numbers can be found | suggestion | not substantial | noted | Safety objectives addressed in the introduction are N/A for SC Medium Risk |
| 166 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Safety objectives | vi | Current text:##For medium risk operations, different MOCs to address the safety objectives will be developed.##**Comment:** ##Several consensus based standards are published or being developed by industry. The Agency should explore the possibility of using them. One more sentenve is suggested. | Add:##"Furthermore the Agency may publish a list of consensus based industry standards acceptable as MoC in relation to specific provisions of this SC." | suggestion | substantial | noted | The MoC developed in the frame of the SC may or may not be based, or may not be based entirely, on consensus standards |
| 167 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2000 Applicability and Definitions | 3 | Current text:##intended to be operated in the Specific category and whose operation is demonstrated to be medium or high risk, or in the Certified category,##**Comment:** ##This statement exceeds the powers delegated to the Agency by the Legislator. An alternative wording is proposed. | intended to be operated:##in the Specific category when initial airworthiness approval is mandated by legally binding Regulations, or voluntarily sought by the designer,##or in the Certified category,## | suggestion | Objection: reference should be to cases when TC is required by legally binding rules | not accepted | refer to EASA AMC |

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|---|---|---|---|---|---|---|---|---|---|
| 168 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2000 Applicability and Definitions | 3 | Current text:##with MTOMs not exceeding 600 Kg,##Comment: ##JARUS CS-LURS is applicable up to 750 kg:##http://jarus-rpas.org/sites/jarus-rpas.org/files/storage/Library-Documents/jar_01_doc_jarus_certification_specification_for_lurs_-_30_oct_2013.pdf ##The SC does not contain any justification on why it is necessary to deviate from JARUS. Therefore the limit of 750 kg should be applied also by the Agency. | with MTOMs not exceeding 750 Kg,## | suggestion | substantive | not accepted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 169 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2010 Accepted Means of Compliance | 3 | Comment: ##The proposal to use at the level of MoC, as much as possible, consensus standards developed by industry is fully supported | No change proposed. | observation | substantive | noted | |
| 170 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | ANNEX I – Means of Compliance to Light-UAS## | Annex | Comment: ##A list of MoCs developed by Standard Development Organisations (SDOs) should be added, following the example of CS 23 amendment 5. | Add list of consensus based industry standards acceptable to EASA | observation | substantive | high risk (N/A for SC medium risk) | |
| 171 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2000 | 3 | Comment: ##It is unclear where the 600 kg come from, expecially later in the document additionally a max. dimension of 8 m is an additional requirement; also the use for medium risk (SAIL III and IV) cannot directly be found in this objective, it is hard to find the reference to that medium risk, which is only in the Introduction Chapter and later in the Appendix##See also comments 10, 19. | Please explain why 600 kg is the threshold; remove the max dimension completely and replace it by max critical area combined with population density (as defined in SORA Annex F).##See also suggestion for comments 28 to 34.## | observation | substantive | not accepted | "max dimension" is not reported. For MTOM " see answer for ASSORPAS comment above. 8 m is reported only in Annex and Annex is N/A for this special condition medium risk |
| | | | | | | | | | |
| 173 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2000 | 3 | Comment: ##To better align with JARUS CS.LUAS and CS.LURS the MTOM should be 750 kg.##See also comments 10, 18.##[CS 23.2005] considers high and low speed levels (below and above 250 KCAS) - this might be relevant as well. | Change 600 kg to 750 kg.##Define speed limits. | suggestion | not substantive | not accepted | MTOM addressed in previous comment |
| 174 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2102 | 4 | Comment: ##It is unclear why the lightning and HIRF objective can be found in this document, but the icing objective (SC-VTOL 2165, CS 23.2540) cannot be found here; especially since icing is already mentioned in this objective | Please make consistant, either have all three objectives or none of them. | suggestion | substantive | partially accepted | specification related to adverse weather condition added to clarify |

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| 175 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2300 | 8 | Comment: ##requirement is too vague; which hazards? Cf. [SC-EHPS.350]: Should this be limited to FCS or should it also take propulsion into account? | Use text from SC.EHPS.350 | suggestion | substantive | not accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 176 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2305 (a)(2) | 8 | Comment: ##assuming that "system" refers to landing gear system | Add "**landing gear**" to "system" | suggestion | not substantive | accepted | text changed to landing gear systems |
| 177 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2335 (b) | 8 | Comment: ##typo *light e ning* -> lightning | | suggestion | not substantive | accepted | text changed |
| 178 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2430 (b)(1) | 11 | Comment: ##The wording does not make clear that this objective addresses electrical loads CS 23.2540.##Assuming that "*loads* " refers to "electrical loads" (such as in SC-VTOL.2430), not to be confused with "structural loads" | Please rewrite to clarify that electrical loads are meant (also see SC-VTOL.2430) | observation | not substantive | accepted | bullet point removed |
| 179 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2511 | 13 | Comment: ##This section is taken out of 'specific' category, [ED/2019/021/R] AMC1 Article 11, section 2.5.3 (b) and (c )(2) "SORA", adjacent airspace; on which basis is this a requirement for the 'certified' category? There is no concept of 'containment' and 'operational volume' in the 'certified' category, as 'containment' is a mitigation in the 'specific' category.##The objective is not fitting here. A FHA is anyway done to proof the compliance with Light-UAS.2510; a loss of containment would be a "large reduction in safety margins" and hence categorised as Hazardous. From Annex I MOC to Light-UAS.2510, $10^{-4}$/FH would be Major, but Major may have a different safety target dependant on the UAS category. | Remove this objective and make clear in Light-UAS.2510 that loss of containment is major and has to be addressed appropriately dependant on the UAS category. | suggestion | substantive | high risk (N/A for SC medium risk) | the SC is for the moment adopted only for the medium risk of the specific catgeory |
| 180 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2515 | 14 | Comment: ##It should be spelled out that lightning protection applies to UA, CU and C2 link. Just because the UA does not operate in lightning conditions does not mean that the CU and the ground segment of the C2 link is in a position to rule that out. That said, all ground equipment and in particular radio antennas and antenna masts must be protected from the effects of direct or indirect exposure to lightning strike, but safe recovery may not be considered. In the essence, requirements and implementation of IEC 62305-1 (EN 62305-1) for the protection of structures against lightning may not be compatible with SC Light-UAS.2515 | For a UAS, where exposure **of UA, CU or C2 link subsystems** to lightning is likely … | suggestion | not substantive | partially accepted | UAS includes UA, C2 Link and CU. Therefore no need to write it in the requirement. Nevertheless a note has been addedd to clarify |

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| 181 | Sara Mangoni (ASSORPAS International Relations Manager) & EuroUSC | Light-UAS.2730 (b) | 20 | Comment: ##If the UA is flown autonomously no C2 link would be necessary; C2 Link is only necessary when flown remotely; the wording “at any time” is misleading here.##Assume that 'at any time' relates to any instance where the UA receives commands from the CU. | Add “**If required for safe operation**” to the objective; remove “**at any time**” from the objective or replace with “**at any instance where the UA receives commands from the CU**” | suggestion | not substantive | partially accepted | the sentence has been added "Where the safe operation of the UAS requires command, control and communication functionality" (sentence already used above in the document) |
| 182 | Beoing | Page: 16 Paragraph: Light-UAS.2530 UA External lights | 16 | THE PROPOSED TEXT STATES:<br>b) Any position lights and anti-collision lights, if required by operational rules, must have the intensities, flash rates, colours, fields of coverage, position and other characteristics to provide sufficient time for another aircraft to avoid a collision.<br>REQUESTED CHANGE:<br>b) Any position lights and anti-collision lights, if required by operational rules, must have the intensities, flash rates, colours, fields of coverage, position and other characteristics to provide sufficient time for another aircraft to avoid a collision. Where “sufficient time” is a function of ownship system latencies (decision time, processing time, communications latency, etc.), ownship dynamics and manoeuvring performance, and the relative velocity between the traffic pair | JUSTIFICATION:<br>Jack, Devin & Hardy, Jeremy & Hoffler, Keith. (2018). Analysis of Influence of UAS Speed Range and Turn Performance on Detect and Avoid Sensor Requirements. 10.2514/6.2018-3507. Per FAA 14 CFR 91.113 and AC 90-48, “sufficient time” is defined for manned aircraft as 12.5 seconds to the point of avoidance manoeuvre initiation. | | | partially accepted | The comment has been captured in the notes, which may in turn be captured in the future in AMC |
| 183 | Beoing | Page: 16 Paragraph: Light-UAS.2530 UA External lights | 16 | THE PROPOSED TEXT STATES:<br>(c) Any position lights, if required by operational rules, must include a red light on the port side of the UA, and a green light on the starboard side of the UA spaced as far laterally apart as practical and a white light facing aft as far to the rear of the UA as practicable.<br>REQUESTED CHANGE:<br>We recommend the use of strobe lights in addition to traditional port and starboard lights. | JUSTIFICATION:<br>UA covered by this SC, with relatively small wingspans, may lack the physical separation required to prevent the red and green position lights from appearing to converge into a single light source and this may limit their use for collision avoidance. | | | accepted | note amended |
| 184 | Beoing | Page: 16 Paragraph: Light-UAS.2530 UA External lights | 16 | THE PROPOSED TEXT STATES:<br>(a) Any lights required by operational rules for conspicuity at night must have the intensities, colours, and other characteristics to allow an observer to distinguish the UA from a manned aircraft.<br>REQUESTED CHANGE:<br>(a) Any lights required by operational rules for conspicuity at night must have the intensities, colours, and other characteristics to allow an observer to see and avoid other aircraft. | JUSTIFICATION:<br>It is important for an observer to see and avoid other aircraft, whether that aircraft is manned or unmanned. | | | partially accepted | It has been added "if required by operational rules" for all the statements of the external lights requirement |

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| 185 | HAPS Alliance | General | Introduction | We welcome the objective-based, operation centric and proportional approach to UAS certification and the avoidance of unnecessarily prescriptive requirements. We also concur that suitable means of compliance (MOC) with this SC will be key to ensuring proportionality and we welcome the objective to ensure that the same certification basis is suitable for a very wide range of designs including a range of MTOM.##We welcome the language used throughout the document to define the requirements in a performance-based fashion which allows them to be adapted to the specifics of each operation.##However, we believe that the scope and applicability of the SC could benefit from more clarification. Does this SC apply to all classes of LUAS including, for example, High Altitude Long Endurance platforms and lighter-than-air vehicles? | Please clarify the intended scope of the SC; in particular, its applicability to High Altitude Long Endurance platforms and lighter-than-air vehicles (including unmanned free balloons). | Yes | No | noted | EASA believes that in principle the SC could largely be used for lighter than air / HALE. A few requirements more might need to be applied and this is feasible (EASA has already developed material which could be used). This would be discussed in the frame of a real project |
| 186 | HAPS Alliance | Safety objectives## &##Light-UAS.2010 Accepted Means of Compliance | vi | We believe that EASA's approach to determining MOC with high risk safety objectives on the basis of an assessment of a probable urban scenario projected in 2035 may be contrary to the operation-centric approach desired. EASA essentially defines the safety objectives for all operations based on this single operational concept.##In addition, we believe that MOC defined purely based on per-flight-hour probabilities may not adequately reflect the risk. Operators of smaller (but more numerous) UAs may have no issue meeting the per-flight-hour probabilities, yet proportionally they could create a much larger overall total risk (due to the large operation volumes). Conversely operators of larger platforms are likely to require less UAs to deliver a service, and may create significantly lower total risk, even if the risk per flight hour is higher.##We welcome EASA's open attitude to alternate means of compliance (Light-UAS.2010), and welcome that "mitigation means M1 and M2, when applied, may determine a reduction of the initial ground risk class (iGRC)." | Noting an initial emphasis on urban and low-level operations, we request that EASA avoids where possible any provisions or inferences which might disproportionately impact other concepts of operation such as those of HAPS UA (Including HALE, Balloons, Airships).##Supporting EASA's consideration of other means of compliance expressed in Light-UAS.2010, we suggest that EASA states high level safety objectives (e.g. total operator risk) that should be achieved through alternative means of compliance. ##Consistent with the principle that "M1 and M2, may determine a reduction of the initial ground risk class (iGRC)", we suggest that EASA considers how operations scope (e.g. total hours flown within an operational volume, time weighted population and air traffic densities overflown, and vehicle characteristics (e.g. parachute, impact energy, etc.)) may be used to proportionately characterize the risk of an operation beyond a simple failure probability per flight hour approach. | Yes | Yes | noted | Safety objectives addressed in the introduction are N/A for SC Medium Risk |
| 187 | HAPS Alliance | ANNEX I##tables 2&3 | 22 | The FDAL attributions in the MOC to Light-UAS.2510 are categorised according to maximum dimension and MTOM as analogues to crash area and kinetic energy. This rationale is appropriate to conventional, relatively highly area loaded aircraft but it potentially skews the categorisation of other craft such as HAPS which have very low densities. | Acknowledge that an alternative categorisation argument may be considered for unconventional aircraft configurations.##For example, we would welcome the ability to use kinetic energy (e.g. "EASA AMC to Commission regulation 2019/947") - using the likelihood of an event of a given kinetic energy to occur (possibly computed for all the operations in a given region to account for the scale of the operation in the risk). | Yes | Yes | high risk (N/A for SC medium risk) | |

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| 188 | HAPS Alliance | ANNEX I | 22 | Members of the HAPS Alliance reviewed the evolution of the EASA SC.1309 requirement through issues 1, 2, and 3. EASA's own guidance has gone from 10^-6 and DAL B for "Catastrophic" severity in all RPAS all the way to 10^-8 and DAL A in the Issue 3 and the new proposed SC for light RPAS.##We believe that the acceptable failure probabilities outlined in the proposed means of compliance are, in effect significantly more conservative than those of most manned aviation (e.g. CS-23). This may be especially relevant to low-density operations (few UA).##For example with no one on board the probability of an actual Catastrophic outcome, even given the loss of a UA, can be considerably lower when mitigating factors (i.e. acceptable operating conditions) such as time-weighted overflown population and air traffic density are taken into account. ##Likewise, an operator continuously operating (24/7/365) a single large HAPS platform providing connectivity over a city would expect a catastrophic event every 11415 years at 10-8 per flight hour. Even with 10 operators delivering the entire city's needs, this risk tolerance would be extremely restrictive in light of the service provided and orders of magnitude smaller on comparable risk that ground populations are exposed to. | While we support the need for appropriate AMC, we suggest delaying Annex I to a later stage. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 189 | HAPS Alliance | General | Introduction | Whilst the proposed SC-LUAS is a great start to the discussion with industry upon how to create an holistic safe certification environment for UAS devices up to 600kg, it does seem to focus on a system utilising rotors to provide lift and thrust, and with a classic 'remote crew' approach. The ConOps considered are also largely an urban, low altitude operation with a payload requiring little or no management. | Consideration needs to be taken for operations from sea level to above FL600, for fixed wing and rotary craft, for ConOps over urban, and open areas and for payload management ranging from benign cargo deliveries up to the operation of complex 'see and sense' payloads - requiring a complex crew structure. There must also be the scope to develop systems with a high level of human interaction (a remote crew) all the way up to fully autonomous operations. The continued engagement with industry to develop these requirements and guidelines is both welcomed and applauded as a means to develop safe UAS services for the 21st century. | Yes | Yes | not accepted | The SC is not only applicable for systems utilising rotors. The SC is not only valid for operations on urban areas and low altitude (safety objectives in Annex do not apply for medium risk) |
| 190 | S. Sellem-Delmar / Safran | Statement of Issue | ii | " ..., or defined with Special Conditions based on documentation developed and published by JARUS (joint authorities on rulemaking for unmanned air systems). In both cases the approach has been prescriptive."##JARUS CS-LUAS and CS-LURS are prescriptive (based on CS-VLA and CS-VLR), while JARUS CS-UAS is objective based. | Proposal: "Until today, the certification basis of UAS has been either derived from manned aircraft CS integrated with Special Conditions to address specific UAS aspects, or defined with Special Conditions based on **CS-LUAS and CS-LURS** developed and published by JARUS (joint authorities on rulemaking for unmanned air systems). In both cases the approach has been prescriptive." | yes | no | noted | Introduction was proofread and EASA prefer to keep current wording |
| 191 | S. Sellem-Delmar / Safran | Statement of Issue and General | ii | "The objective airworthiness standards proposed in this SC..."##The use of "airworthiness standards" could be unclear in several sections of this Special Condition. ##Even if it is not a Certification Specification, but a Special Condition, the content is a set of airworthiness requirements for applicants, and some airworthiness standards / MOCs are provided as well. | Suggestion to refine in order to ease readability by using in the whole document the terminology "airworthiness standards" when refering to airworthiness MOCs and "airworthiness requirements" when it refers to the objective requirements specified in this Special Condition.##Replace by: "The objective airworthiness **requirements** proposed in this SC...", "complemented with appropriate airworthiness **requirements** from a CS-UAS, yet to be created ...", etc ... | yes | no | noted | EASA understand the comment, on the other side this SC underEASAnt a check of the language also from a formal viewpoint and the result is that what is referred as "requirements" should be instead named "specifications" or "standards" as a SC as EASAll as a CS is not hard law (essential requirements). |

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| 192 | S. Sellem-Delmar / Safran | Statement of Issue | iii | "In the absence of those CS, …" Which ones ? | Proposal to replace by "In the absence of EASA CS-UAS and CS-LUAS, …" | yes | no | accepted | sentence deleted |
| 193 | S. Sellem-Delmar / Safran | An objective-based, operation centric and proportional approach to UAS certification | iii | "Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation. The definitions will be in line with the EASA AMC and GM. The TC issued on that basis will only permit operations in this context." ##The approach is not fully understood, as EASA AMC and GM are applicable partly to the UAS manufacturer (as applicant for the design type certificate) and the operator (as applicant for operations approval). The manufacturer should provide a UAS with means and limitations (e.g.: accurate navigation, containment solutions, mitigations means, etc ...), in order to enable certain types of operations . It was understood that it would be then to each operator to apply EASA AMC and GM and to define detailled operational volume, buffers, etc ... locally at the place of the operations, and then get the approval for their operations. | In order to avoid missunderstandings relative to the limit between designers and operators scope of work when applying EASA AMC and GM, the text could be replaced by something like :"Every UAS certification application shall be linked to a detailed definition of the UAS means and limitations enabling specific operations over populated areas and/or assemblies of people (e.g. operational volume, containment means accuracy and reliability, in terms of both ground and air risks, and any restriction, limitations and mitigation means). The definitions will be in line with the EASA AMC and GM. The TC issued on that basis will permit operations in this context, it may include operations limitations (e.g. no operation avobe assemblies of people if the safety objective requirements are not met for this type of operations or if the UA MTOM is above 200kg)." | yes | no | partially accepted | "detailed definition" has been changed in "characterization". Nevertheless the basic structure is not changed. EASA do not want to address here populated / sparsely populated / assemblies. That is for the EASA AMC and GM, to which EASA refer. |
| 194 | S. Sellem-Delmar / Safran | Statement of Issue | iv | Typo: "Suitable means of compliance (MOC) with this SC will be key to ***ensuring*** *proportionality and to ensure that the same certification basis is suitable for a very wide range of designs including a range of MTOM."* | "Suitable means of compliance (MOC) with this SC will be key to **ensure** proportionality and to ensure that the same certification basis is suitable for a very wide range of designs including a range of MTOM." | yes | no | accepted | |
| 195 | S. Sellem-Delmar / Safran | Applicability | iv | The following paragraph is unclear (linked to comment above about terminology airworthiness objective requirements vs. airworthiness standards):##"In a few cases the SC differentiates between medium and high risk equirements and provides different airworthiness ***standards*** *for them. In most instances no distinction is proposed at the objective* ***standards*** *level: Means of Compliance will be tailored to the risk level, and different means of compliance demonstration to airworthiness objectives will be provided for a medium risk and a high risk operation. Airworthiness* ***standards*** *for the certified category of operations are those defined for the high risk part of the Specific category."* | Proposal : ##"In a few cases the SC differentiates between medium and high risk requirements and provides different airworthiness **objectives** for them. In most instances no distinction is proposed at the **airworthiness objective requirements** level: Means of Compliance will be tailored to the risk level, and different means of compliance demonstration **(airworthiness standards)** to airworthiness **objective requirements** will be provided for a medium risk and a high risk operation. Airworthiness **objective requirements** for the certified category of operations are those defined for the high risk part of the Specific category." | yes | no | noted | see answer for similar comment |
| 196 | S. Sellem-Delmar / Safran | Safety Objectives | v | Typo: "EASA has considered it appropriate to determine MOC to high risk safety objectives on the basis of an assessment of a probable urban scenario projected in 2035." | Typo: "EASA has considered it appropriate to determine MOC to high risk ***operations*** *safety objectives on the basis of an assessment of a probable urban scenario projected in 2035."* | yes | no | noted | Safety Objectives paragraph not applicable for SC Light UAS medium Risk |
| 197 | S. Sellem-Delmar / Safran | Safety Objectives | vi | "The safety objectives are defined for UAS operating in airspace with a residual air risk class lower than D as defined by the EASA AMC and GM (SORA). The assumption on the air risk class is ***in line with the typical urban environment*** *and determines a dependence of the safety objectives uniquely on the final GRC."##Is also the projection on UTM in 2035 (e.g. to manage UAM/e-VTOL with passengers air risk) considered in the assumptions regarding air risk in populated environment?* | | yes | no | noted | Safety Objectives paragraph not applicable for SC Light UAS medium Risk |

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| 198 | S. Sellem-Delmar / Safran | Safety Objectives | v | It would be appreciable to have the following mentions and possibly references, direcly written in Annex I:##"A methodology similar to the one utilised to derive safety objectives for SC VTOL has therefore been applied, in synthesis based on:##- the calculated number of FH flown by drones in the generic / average European city in 2035##- a representative urban population density" | Annex I notes completion, taking into account the comment | yes | no | noted | Safety Objectives paragraph and Annex I not applicable for SC Light UAS medium Risk |
| 199 | S. Sellem-Delmar / Safran | Light-UAS.2000 Applicability and Definitions | 3 | Wording refinement proposal (airworthiness standards specified in the MOCs):##"This Special Condition prescribes objective airworthiness ***standards*** *for the issuance of the type certificate, and changes to this type certificate, for Unmanned Aircraft (UA):"* | Proposal: ##"This Special Condition prescribes objective airworthiness ***requirements and airworthiness standards (through MOCs)*** *for the issuance of the type certificate, and changes to this type certificate, for Unmanned Aircraft (UA):"* | yes | no | noted | The special condition has to follow normalized terminolgy and the use of "requirement" is not always accepted. |
| 200 | S. Sellem-Delmar / Safran | Light-UAS 2005 Definition of the operational scenario | 3 | "The applicant needs to define the limitations associated with the operational scenario within which a safe flight will be demonstrated."##For new comers, "a safe flight will be demonstrated" could be interpreted as just one flight required to demonstrate operational limitations. | Proposal to rephrase.: ##"The applicant needs to define the limitations associated with the operational scenario ***within which safe flight and landing will be demonstrated***." | yes | no | accepted | note, although, that safe landing may not mean that the UAS after landing is still functional. It depends on the operation and a frangible UAS which is damaged at landing may for certain conops be safer than a UAS which has no frangibility |
| 201 | S. Sellem-Delmar / Safran | Light-UAS 2005 Definition of the operational scenario | 3 | "Every application should include a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both the ground and air risk, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation. The definitions will be in line with the EASA AMC and GM"##Same comment as for § An objective-based, operation centric and proportional approach to UAS certification on page iii.It would be preferable not to mix operators (having to set the parameters such as buffers sizes, make use of the containement means for their own specific operations, equip the UAS as required by regulation, etc ... as applicants for their operations approval) with manufacturers UAS design capabilities and limitations. | text could be replaced by something like :"Every application for a TC should include a detailed definition of the UAS means and limitations enabling specific operations over populated areas and/or assemblies of people (e.g. operational volume, containment means accuracy and reliability, in terms of both ground and air risks, and any restriction, limitations and mitigation means). The definitions will be in line with the EASA AMC and GM. " | yes | yes | partially accepted | text has been reworded also on the base of other comments |
| 202 | S. Sellem-Delmar / Safran | LIGHT-UAS.2100 Mass and centre of gravity | 4 | Refinement proposal for "b) The design must comply with each airworthiness standard of this Subpart at critical combinations of mass##and centre of gravity" | "b) The design must comply with each ***requirement*** *of this Subpart at critical combinations of mass##and centre of gravity"* | yes | no | not accepted | A special conditions contains specifications or standards |
| 203 | S. Sellem-Delmar / Safran | Light-UAS.2102 Approved Flight envelope | 4 | "(a) The applicant needs to determine the normal and limit flight envelope for each flight configuration used in##operations. The flight envelopes determination must account for the most adverse conditions for each flight##configuration."##Could you please define what is meant by "flight configuration" ? Does it address only UA configuration ? Or full UAS configuration ? Or a "UA flight configuration" in case of a UA flight configuration change during the flight as for some hybrid-lift VTOLs for UAM ? | Il would help to add an explanation about the term "flight configuration" as it is used only in LIGHT-UAS.2100 Mass and centre of gravity and Light-UAS.2105 Performance data, without any definition. And maybe precise "UAS flight configuration" ? | yes | no | accepted | text modified |
| 204 | S. Sellem-Delmar / Safran | Light-UAS.2105 Performance | 4 | How to demonstrate compliance to "(a) The performance of the UA must be adequate to ensure the safety of the intended operation in the approved flight envelope." ? At first reading, the sentence is so global / general that it is difficult to imagine the corresponding MOC. | | | | noted | MOC will be discussed on project level |

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| 205 | S. Sellem-Delmar / Safran | Light-UAS.2105 Performance | 4 | The term "scheduled" is not understood in this requirement. | Proposals to replace this word:##"Sufficient data on the performance of the UA needs to be determined and ***specified*** *in the aircraft flight manual"##"The UA must be able to meet the performance* ***requirements of this Subpart*** *in still air and ..."* | yes | no | partially accepted | text modified |
| 206 | S. Sellem-Delmar / Safran | Light-UAS.2105 Performance | 4 | "(1) to provide the remote crew with the necessary information and relevant operational parameters to ensure a safe minimum performance for the intended flight operation, and ..." ##"to ensure a safe minimum performance " : does it refer to the list of minimum performances which will be expected by EASA, and mentionned in the Note: MOC will specify the performance as applicable for the design and operation of the UA and take into account: ..." ?##It seems also reasonable to specify a maximum speed when operating over people and/or in a city (to avoid people and obstacles). | Maybe add a requirement relative to maximum speed for operations above populated environment and/or gathering of people. | yes | no | not accepted | A maximum speed would either be far too high to ensure safety of persons on the ground or too restrictive. A limitation like in SC VTOL (<250knots) is considered misleading and not relevant. |
| 207 | S. Sellem-Delmar / Safran | Light-UAS.2105 Performance | 4 | It sounds strange to find "(2) in order to ensure the UA performs as intended ..." in Subpart B "Flight", while this should be demonstrated while showing compliance with Subpart F requirements. ##"any other operational variables" and "(d) The procedures used for determining performance are executable consistently ..." would need clarifications in the on-going MOCs. | Review and inprovement of this Light-UAS.2105 objective requirement, in order to keep consistency with compliance to Subpart F demonstration and not duplicate requirements. | yes | no | partially accepted | text modified to clarify |
| 208 | S. Sellem-Delmar / Safran | Light-UAS.2105 Performance | 4 | "(d) The procedures used for determining performance are executable consistently in atmospheric conditions expected to be encountered in operation and by a remote crew of average skill." is not understood.##"determine performance" is designer applicant task. Therefore the subject "procedure used" would refer to airworthiness and/or industry standards to perform the task "determine performance. ##The other part of the sentence is then unclear: "executable consistently ... and by a remote crew of average skill". | Could you please split into 2 requirements to clarify the meaning ? | yes | no | noted | The paragraph used common language for CS |
| 209 | S. Sellem-Delmar / Safran | Light-UAS.2135 Controllability, manoeuvrability and stability | 5 | Typo: "(a) The UA must be controllable and manoeuvrable, without requiring exceptional skill or alertness on the part of the remote crew" | Proposal: "(a) The UA must be controllable and manoeuvrable, without requiring exceptional skill or alertness ***from*** *the remote crew"* | yes | no | noted | text was checked |
| 210 | S. Sellem-Delmar / Safran | Light-UAS.2135 Controllability, manoeuvrability and stability | 5 | "(b) Within its flight envelopes, the UA must show suitable stability by natural or artificial means, or a combination of both."##What means "natural means" ? | Need for explanation and definition of "natural means". | yes | no | noted | as all combinations of natural or artificial stability are covered there seems to be no need to include a precise definition. |
| 211 | S. Sellem-Delmar / Safran | Light-UAS.2200 Structural design | 6 | Improvement for readability: "The structural design envelope must be determined, which describes the range and limits of the UA design and operational parameters for which compliance with the airworthiness standards of this Subpart is shown." | Improvement for readability: "The structural design envelope must be determined, which describes the range and limits of the UA design and operational parameters for which compliance with the airworthiness ***requirements*** *of this Subpart is shown."* | editorial | agreed | accepted | text changed |

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| 212 | S. Sellem-Delmar / Safran | Light-UAS.2230 Limit and ultimate loads | 6 | Improvement for readability: "Unless special or other safety factors are necessary to meet the airworthiness standards of this Subpart, the applicant needs to determine …" | Improvement for readability: "Unless special or other safety factors are necessary to meet the airworthiness ***requirements*** *of this Subpart, the applicant needs to determine …"* | editorial | agreed | accepted | text changed |
| 213 | S. Sellem-Delmar / Safran | Light-UAS.2350 Forced landing or a crash | 9 | Between a forced landing (landing sooner as planned because of an emergency) and a crash, military experience shows that controlled crash can exists as well ! I.e.enough / limited remaining control on the UA enabling to bring it to a designated area for crash (no full control). Which is different from an totally uncontrolled crash, which is the most feared event. Uncontrolled crash is forbidden above gathering of people ? | Could you please precise if it is controlled or uncontrolled crash ? | yes | no | noted | it is a controlled crash to enable to bring it to the predefined crash area |
| 214 | S. Sellem-Delmar / Safran | Light-UAS.2240 Structural durability | 6 | "Effective inspections or other procedures that are designed to prevent structural failures due to foreseeable causes of strength degradation during the operational life of the UA must be developed. Inspections and procedures must be recorded in the Instructions for Continued Airworthiness (ICA) as prepared in accordance with Light-UAS.2625."##"specified" (designer task) would be better than "recorded" (CAMO task when the work is performed, not in the ICA but in maintenance records). | "Effective inspections or other procedures that are designed to prevent structural failures due to foreseeable causes of strength degradation during the operational life of the UA must be developed. Inspections and procedures must be ***specified*** *in the Instructions for Continued Airworthiness (ICA) as prepared in accordance with Light-UAS.2625."* | editorial | agreed | accepted | text changed |
| 215 | S. Sellem-Delmar / Safran | Light-UAS.2400 Lift/Thrust/Power systems installation | 10 | "a. Each component of the Lift/Thrust/Power system installation must be designed, arranged, and installed in accordance with applicable airworthiness standards of Subparts C, D and F."##This formulation is too restrictive, losing the flexibility essential for industry and market development, specified in all other airworthiness specifications (EASA CSs, EASA SC-VTOL, JARUS CS-LUAS / CS-LURS / CS-UAS, etc ...), i.e. open minded view with possibility of choice between integration of certified Engines / Propellers / APU with their independant TC or integration of engines to be certified with the UAS. Above all for high risk operations, engine design being a specific domain with experts, for which additionnal requirements apply (CS-E, SC E-19 EHPS, CS-P, and ETSO approach). | It is very important to keep flexibility which is essential for industry, by integrating the other EASA CS and SC-VTOL formulation including the use of type certified engines / propellers and APUs: ##"Each UA engine, propeller and auxiliary power unit (APU) must be type certified, or meet accepted specifications." to be added | yes | yes | noted | The special condition leaves the options to either certifiy the L/T/P system or components as part of the aircraft or to have a separate approval to acceptable standards |
| 216 | S. Sellem-Delmar / Safran | Light-UAS.2400 Lift/Thrust/Power systems installation | 10 | "e. All necessary instructions, information and requirements for the safe and correct interface between the lift/thrust/power system and the aircraft need to be available."##The term "requirements" being used generally in association with a compliance demonstration, its use is uncommun in this airworthiness requirement. While limitations are missing. | Proposal to replace "requirements" by "limitations": ##"e. All necessary instructions, information and ***limitations*** *for the safe and correct interface between the lift/thrust/power system and the aircraft need to be available."* | yes | no | noted | The special condition leaves the options to either certifiy the L/T/P system or components as part of the aircraft or to have a separate approval to acceptable standards |

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| 217 | S. Sellem-Delmar / Safran | Light-UAS.2410 Lift/Thrust/Power Endurance and durability | 10 | The content of Light-UAS.2410 seems to corresponds to a MOC / airworthiness standard (validation, testing ...) rather than a requirement. It should be transferred to the MOC section in the Annex. This is linked to the comment above, where the expected requirement about engine, propeller and APU certification should not be deleted.Then this Light-UAS.2410 content would be a MOC in the case of engine / propeller / APU type certification as part of the UAS TC. | Transfer of the content of Light-UAS.2410 to a MOC to requirement to be added:"Each UA engine, propeller and auxiliary power unit (APU) must be type certified, or meet accepted specifications." ##In this MOC, a reference would be made corresponding to Engine / Propeller / APU type certified (i.e. reference to certification basis and airworthiness standards: CS-E, SC E-19 EHPS, CS-P, ETSO approach, etc ... ).##Light-UAS.2410 content transfer to this MOC would correspond to the other way "meet accepted specifications" in order to certify Lift/Thrust/Power systems as part of the UAS TC. | yes | yes | accepted | text modified as requested |
| 218 | S. Sellem-Delmar / Safran | Light-UAS 2415 Lift/Thrust/Power Calibration, Ratings and Operational Limitations | 10 | Part of this requirement that relates more to MOC should be transferred to MOC section (same comment as above)##Exemple: "a) Each Lift/Thrust/Power System must be subject to calibration tests as necessary to establish its power##characteristics." and possibly/partly the paragraph about ratings ? | Part of this requirement that relates more to MOC should be transferred to MOC section, in order to provide airworthiness standards allowing to fulfill the requirement "meet accepted specifications." (same as above comment) | yes | yes | not accepted | To be "type certified" is not an airworthiness requirement. The special condition should provide the airworthiness standard. |
| 219 | S. Sellem-Delmar / Safran | Light-UAS.2500 Systems and equipment function - General | 12 | Terminology improvement:##"(a) Light-UAS.2500, 2505 and 2510 are general airworthiness standards applicable to systems and equipment installed in the UAS and should not be used to supersede any other specific Light-UAS airworthiness##standard." | Terminology improvement:##"(a) Light-UAS.2500, 2505 and 2510 are general airworthiness ***requirements*** *applicable to systems and equipment installed in the UAS and should not be used to supersede any other specific Light-UAS airworthiness* ***requirements*** *."* | yes | no | not accepted | "meet accepted specification" is not a requirement but a means of compliance. |
| 220 | S. Sellem-Delmar / Safran | Light-UAS.2510 Equipment, Systems and Installation (High Risk) | 12 | Reference seems to be incorrect in accordance with (a): "(b) The operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must not cause a hazard throughout the operating and environmental limits for which the UAS is certified." | Reference seems to be incorrect (in accordance with (a)), proposal: "(b) The operation of equipment and systems not covered by ***Light-UAS.2500*** *must not cause a hazard throughout the operating and environmental limits for which the UAS is certified."* | yes | no | high risk (N/A for SC medium risk) | |
| 221 | S. Sellem-Delmar / Safran | Light-UAS.2510 Equipment, Systems and Installation (Medium Risk) | 13 | Reference seems to be incorrect in accordance with (a): "(b) Any hazard which may be caused by the operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must be minimised." | Reference seems to be incorrect in accordance with (a), proposal: "(b) Any hazard which may be caused by the operation of equipment and systems not covered by ***Light-UAS.2500*** *must be minimised."* | yes | no | accepted | text modified accordingly |
| 222 | S. Sellem-Delmar / Safran | Light-UAS.2520 High-Intensity Radiated Fields (HIRF) Protection (medium risk) | 15 | In comparison with the same requirement Light-UAS.2520 for High Risk, the begining of the requirement seems to be missing : "For a UAS where the exposure to HIRF is likely: ..." | Add at the befining of the requirement: "For a UAS where the exposure to HIRF is likely: ..." | yes | no | accepted | |

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| 223 | S. Sellem-Delmar / Safran | Light-UAS.2511 Containment ##Note | 14 | It is difficult to understand wich part is exactly applicable to type certification applicants, as the note is mixing OPS and design. ##E.g.: the designer provides information about maximum UA endurance range depending on flight conditions, UA equipement configuration, provided that a certain amount of energy is available (fuel refill correctly done, batteries charged, etc ...), etc .... It will be up to the operator then to mount mandatory equipements depending on the operation foreseen, and consequently conclude to the UA endurance range available, based on UA manufacturer flight manual data. | It would be helpful if the note could be refined. | yes | no | partially accepted | a part of the note has been refined. |
| 224 | S. Sellem-Delmar / Safran | ANNEX I – Mean of Compliance to Light-UAS | 22 | It is not specified in the Annex I if the allowable quantitative probabilities are per Failure Condition or total, and per flight hour ? ##Only the § Safety Objectives on page v mentions "The MOC to Light-UAS.2510 high risk (see Annex I to this SC) provides tables linking the Severity of Failure Conditions, allowable probabilities per failure condition per Flight Hour and Development Assurance Levels (DALs)."##There is also a note which seems to be interpretable “Note G: The allowable quantitative probabilities are expressed in terms of acceptable ranges for the average probability per flight hour.” | Please specify in tables 1 and 2 if the allowable quantitative probabilities are per Failure Condition or total, and per flight hour ? | yes | yes | high risk (N/A for SC medium risk) | |
| 225 | S. Sellem-Delmar / Safran | ANNEX I – Mean of Compliance to Light-UAS | 22 | If the allowable quantitative probabilities are per Failure Condition (explicit specification is missing, see previous comment), an explanation would be necessary to understand the difference between the global safety objective expected, and the assumption regarding the "typical" number of FC assumed and the maximum number of FC allowed ? 10 FC ? 100 FC ? (just for informatino as a comparison, usually the order of magnitude known for large military drones is around 30 FC leading to CAT effects) | In accordance with the answer to the previous comment, could you please add the assumptions about the number of FC with effects classified as CAT. | yes | yes | high risk (N/A for SC medium risk) | |
| 226 | S. Sellem-Delmar / Safran | ANNEX I – Mean of Compliance to Light-UAS | 22 | It is difficult to understand DAL allocation proportionally to quantative probabilities (e.g. DAL A or DAL B is association with >10-8). The notes on page 24 should be marked on each cell of tables 3 and 4 where they are used. | Could you please add the reference to the page 24 note within the cells of table 3 and table 4 when used ? | yes | no | high risk (N/A for SC medium risk) | |
| 227 | everis ADS | Safety objectives | 6 | Not all Ground Risk Mitigations are considered | M3 Mitigation ***“An emergency response plan (ERP) is in place, UAS operator validated and effective”*** could be considered in order to have certified procedures to implement an ERP. ##If this approach is not considered necessary at least it could be mentioned that there is an existant M3 and it could be explained why it is left out of the scope of the SC. | minor | rejected | not accepted | the ERP is not part of initial airworthiness |
| 228 | everis ADS | Light-UAS.2529 UAS Navigation Function | 23 | Specifications about the UAS positioning system | A subsection defining requirements for the positioning system could be interesting here since it is one of the most critical subsystem in UAS. Specially for operations of medium and high risk the benefitial aspects of GNSS systems, like Galileo & EGNOS in terms of precision, availability and integrity can be a key. | YES | NO | noted | This can be addressed by MoC |
| 229 | everis ADS | Light-UAS.2000 Applicability and Definitions | 10 | The SC is applicable to the UAS intended to be operated in the Specific category and whose operation is demonstrated to be **medium** or high risk, or in the Certified category. | The SC should defined properly in wich cases would a medium risk SAIL will require a certification. | YES | NO | noted | The special condition cannot define when a certification is required, it can only provide the certification basis when a certification is needed |

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| 230 | everis ADS | Light-UAS.2135 | 12 | The UA must be controllable and manoeuvrable, without requiring exceptional skill or alertness on the part of the remote crew, within the normal flight envelope | The SC should taken into account the different type of UA. For instance the manoeuvrable of a multicopter is totally different from one of fixed wing. | YES | NO | not accepted | it does, and independently from the design must be manouevrable . |
| 231 | Markus Farner | Statement of Issue | Introduction | The intend of CS-23, Amdt.5 was to accommodate a diversity of new designs and technologies by replacing the prescriptive design-specific requirements by objective and performance based requirements. Since the objectives are independent from the way how they are achieved, the CSs become independent from technological changes as well.##The related acceptable means of compliance (AMC) will capture the technical details and, when applicable, provide differentiated AMC for the variety of aeroplane designs within the scope of the new CS-23.##This new concept should allow more innovative design and encourage the introduction of safety-enhancing features.##JARUS CS-UAS, EASA SC-VTOL were developed in the same spirit.##SC-Light UAS reflects this spirit as well and intends to define safety objectives for operations in the specific category where the risk can not adequately mitigated without certification of the UA or for voluntary certification in the specific category.##The applicability of SC-Light-UAS is up the 600kg MTOM which corresponds to CS-LSA which are prescriptive requirements based on ASTM standards for less complex aircrafts than todays UAS.##Independent if a M2-Mitigation is incorporated in the design, a UA with 600kg MTOM is lethal when landing or falling on a person on ground. With respect of the risk for other airspace users the difference between a UA with a MTOM of 1200kg, 600kg or 60kg is negligible. The sense of a MTOM threshold of 600kg is therefore questionable.##The GM and AMC (SORA) associated to Art. 11 of the Regulation 2019/947 defining safety objectives for all operations in the Specific Category. What is missing for operations in the specific category where the risk can not adequately mitigated without certification of the UA are the design specific technical details required to show compliance to the objective requirements in the SORA. SC-Light UAS was developed in the spirit of CS-23 Amdt.5 and does therefore not provide this technical details.##In lower risk operation the risk can be adequately mitigated without the certification of the UA and the GM and AMC (SORA) associated to Art. 11 of the | - Withdraw the SC-Light UAS##Develop design specific technical details required to show compliance to the objective requirements in the SORA for UA with a max. MTOM of e.g. 20kg in an approach comparable to the FAA approach##For UA beyond the e.g. 20kg threshold cooperate with standatisation/industry bodies, the competent authorities and the industry for the design specific details required to show compliance. | Yes | Yes | not accepted | An answer to this comment is directly provided in the update of the EASA AMC to CIR 947 and the explanatory note included in the Decision. For SAIL III and IV most stakeholders have appreciated the EASA initiative to develop a new Part to frame the certification process and certification basis. The SORA can provide and has provided very important inputs inputs to define the SC but is definitively not in itself a certification basis acceptable in the European Legal frame. Regarding D&R in EASA view this is part of MoC establishemnt that still need to take place, although EASA is aware that in the FAA approach D&R is reported at the level of AW criteria. EASA and the FAA have intense exchanges on the topic. EASA may connsider the elaboration of MoC which, for specific aspects of the SC, may be based on tests. |

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| 232 | Markus Farner | Statement of Issue###&###Applicability | 13 | Independent the general concern in comment Nr 1, the proposed SC-Light UAS was reviewed and analysed in detail, which resulted in some major concerns##In lower risk operation (SAIL III & IV) the risk can be adequately mitigated without the certification of the UA, as the GM and AMC (SORA) associated to Art. 11 of the Regulation 2019/947 already specifies safety objectives for all operations in the Specific Category.##Knowing that more regulations are under development for the Certified Category and SORA has safety objectives for the complete range of the Specific Category we have already overlapping definitions of safety objectives. Adding requirements for Medium Risk (SC-Light UAS.2510, 2515, 2520) will increase this overlapping which has the risk of contradictionary rules in the future.##We may see in the SAIL's lower than V innovative designs and complete new and maybe unusual approaches to the safety objectives defined in the SORA.##In addition, it is still under debate if SAIL V & VI is in the responsibility of EASA, but SAIL's lower than V are in the responsibility of the NAA's.##In the spirit of objective requirements which should foster more innovative design this 3 requirements may hinder innovation in the lower risk section | Delete the Medium Risk part of the 3 requirements 2510, 2515 & 2520.##The safety objectives are sufficiently contained in the SORA. | Yes | Yes | not accepted | refer to EASA AMC |
| 233 | Markus Farner | MoC, Note D | 31 | Due to the unsufficient precision and accuracy of component data, in particular for US's with lower MTOM JARUS introduced the concept of the Emergency Recovery Capability and Procedures (ERCP).##This would in addition account for the lack of experience with continued operation in populated areas or over assemblies of people. | Introduce an ERCP requirement | Yes | Yes | not accepted | ERCP might be an option to mitigate certain risk but would not ensure automatically an acceptable level of safety. In any case the contribution of ERC can be accounted for under 2510. |
| 234 | Markus Farner | SC-Light UAS.2400 | 10 | The rewuirement does not forsee an independent TC for engines and related components.##At least in Switzerland we see effort in direction of independent TC based on an ETSO approach.##Open this option to the industry may as well facilitate a broather range of engines and related components with defined safety obectifes. This would simplify the authorisation in the specific category. | Incorporate the possibility for an independent TC for engine and related components. | Yes | No | noted | The special condition leaves the options to either certifiy the L/T/P system or components as part of the aircraft or to have a separate approval to acceptable standards |
| 235 | Geely Terrafugia | Light-UAS .2335 lightning Protrction | 15 | Typo issue :##(b) If the intended operation excludes exposure to lightening, limitations must be developed to prohibit flight, including take-off and landing, into conditions where the exposure to lightning is likely.## | Lightening→Lightning | YES | YES | accepted | |
| 236 | Geely Terrafugia | MOC to Light UAS.2510 Equipemt, System and Installation | Annex | Worst Crash Area cannot be exactly defined as the crash situation will be various. | Crash impact area are correlated with the maximum dimension and maximum kinetic energy of air vehicles, the *Worst Crash Area* can be defined by those two factors. It's not necessary to have *Worst Crash Area* considered during the categorization of UAVs. | YES | YES | high risk (N/A for SC medium risk) | |
| 237 | Skyports | Subpart B - Flight | 4 | Note: Environmental conditions should include meteorological conditions such as wind, rain and icing as well | Temperatures and pressure variations could be included | Yes | No | noted | Any parameter could be added, the list of examples is not expected to be complete. |
| 238 | Skyports | Subpart B - Flight | 5 | At critical combinations of flight parameters: - The area required to land and come to a stop, assuming approach paths applicable to the UA; and | area and landing distance required | Yes | No | noted | The note is not expected to be comprehensive. |

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| 239 | Skyports | Performance data | 5 | (a) The UA must be controllable and manoeuvrable, without requiring exceptional skill or alertness on the part of the remote crew, within the normal flight envelope | exceptional skill or alertness are somewhat vague.##The UA must be controllable and manoeuvrable, by suitably qualified remote crew operating in accordance with manufacturer and/or operators flight operations manual, within the normal flight envelope | Yes | No | noted | standard wording |
| 240 | Skyports | Controllability Manoeuvrability and Stability | 5 | As above | The UA must be controllable and manoeuvrable by a suitable qualified remote pilot in accordance with manufacturer and/or operators flight operations manual..... | Yes | No | noted | standard wording |
| 241 | Skyports | Forced Landing or Crash | 9 | Where the emergency procedure contains a forced landing or a crash: (a) The UA must be designed with sufficient self-containment features to minimise possible debris, fire or explosions extending beyond the forced landing or crash area; (b) The Flight Manual for the crew must contain the characteristics of the forced landing or crash area. | Could possible include some mention of appropriate ground infrastructure made available to contain the fire/debris should they extend beyond the forced landing area. Fire figting equipment etc.. Assuming this is during the testing phase. | Yes | No | noted | ground infrastructure requirements cannot be mandated to the drone design |
| 242 | Skyports | Annex 1 - Means of Complience | 22 | No safety effect: Failure conditions that would have no effect on safety. For example, failure conditions that would not affect the operational capability of the UAS or increase the remote crew workload. | Suggest this is called 'fail-operational' | Yes | No | high risk (N/A for SC medium risk) | |
| 243 | Andreas Fischer | | iv | Are we fundamentally looking at the same types of MOC as for other rulesets 8CS23, CS27…)? | | Y | N | noted | MoC will addressed next year and beyond |
| 244 | Andreas Fischer | LIGHT-UAS.2135 | 5 | It may be helpful to have a very clear distinction between artificial stability as a supporting means (SAS) and essential artificial stability (e.g. required to operate multicopter), as these may have to have different DALs and/or redundancy levels | | Y | N | noted | subpart B focusses on Flight, the assurance levels will be adressed in subpart F |
| 245 | Andreas Fischer | | 3 | No margins are given for any performance and/or safety relevant parameters, except an ultimate load factor. The agency should give at least rouch outlines even in this early stage. | | Y | N | not accepted | Prescriptive performance factors cannot be provided without understanding the operation and it's environment. |
| 246 | Andreas Fischer | LIGHT-UAS.2529 | 9 | The ruleset leaves it to the applicant to determine what the requirements with respect to navigation performance must be, and bases it on the mission definition only. More detailed guidance would be helpful | | Y | N | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 247 | Andreas Fischer | Tables 3,4 | 23 | These tables give very helpful information – and it is proposed to supplement these with some guidance towards redundancy/MTBF/Dissimilarity requirements | Include MTBF and redundancy proposals on essential systems | Y | N | high risk (N/A for SC medium risk) | |
| 248 | Andreas Fischer | | Introduction | The drone topic is the working field for many “aviation newcomer” businesses, therefore not necessarily starting from conventional aviation structures and suppliers. Therefore a bridge should be built from non-aviation to aviation world. | - Include guidelines for COTS use##Include guidelines how to integrate “classic” approved aviation parts (ETSO, Propellers etc.) | Y | N | noted | EASA is aware of the relevance of the point, but again this will be addressed in the frame of MoC development |

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| 249 | Andreas Fischer | | Introduction | In its current layout, the CS is completely mission based and risk based – which offers flexibility, but lacks “hard” criteria as design targets. For more generic designs which aim towards multiple mission profiles, it may be helpful to have a minimum ruleset to start with. Today, almost every technical requirement msut be derived by the applicant from the planned mission. For inhabited aircraft/rotorcraft, many “hard” criteria are defined in the CS (e.g. limit load factors, gust velocities). On top of these “classics”, the UAV has some specifics (autonavigation accuracy, up/downlinks, collision avoidance etc.) which today are only partially covered by this CS or other rulesets. | Be more specific on technical requirements.##Provide more “hard” criteria and margins.## | Y | N | not accepted | The specification is on purpose not prescriptive. Hard criteria may be determined in the frame of MoC. |
| 250 | Joerg Dittrich (DLR) | Statement of Issue | Introduction | The last paragraph states, that “as defined by Commission Regulation 2019/947, some operations in the Specific category may be authorised by the NAA only if the UAS operator demonstrates that he/she is operating a UA certified by EASA”, This statement is false. 2019/947 says, that if a risk assessment comes to the conclusion, that the risks can not be mitigated enough, the operation has to move to the certified category and will no longer be in specific. There is no rule in 2019/947 that would create a TC requirement for Specific Operation. | | | yes | partially accepted | The sentence has been modified with regard to the source (EASA AMC and GM) |
| 251 | Joerg Dittrich (DLR) | Statement of Issue | iii | On page iii it is stated: “Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation. The definitions will be in line with the EASA AMC and GM. The TC issued on that basis will only permit operations in this context.”##That would create a new TC for every operation of a a given aircraft design. This does not work at all. | You can certifiy a UAS to operate in a SORA SAIL. You can also make M2 mitigation part of your TC, which gives the operator good information, whether he can use M2 mitigations. You can also certify environmental limits/capabilities. But you cannot issue a TC to a specific operational volume. | | yes | partially accepted | The interntion is certainly not to issue a TC for a specific operational volume, but for volume of which the ground and air risk, as characterized by SORA, are known or assumed. We have substituted "definition" with "characterization" and deleted "detailed". Please note that the sentence says "in terms of ground and air risk", as characterized by the SORA. The information should be sufficient to characterize such rsisk and derive the SAIL. |
| 252 | Joerg Dittrich (DLR) | General | Introduction | The SC Light UAS is overly simplifying the robustness requirements to only “medium (SAIL III & IV)” and “high (SAIL V & VI)”. This does not reflect the reality, that in SORA, there are differences in the robustness levels for all technical design OSOs. Especially comparing SAIL III and IV, there are huge differences in the technical design requirements, which is not surprising, since a SAIL IV operation needs to have an operational reliability that is 10 times higher than SAIL III. Pushing SAIL III drones to SAIL IV technical standards in theory creates safer, but a lot more expensive drones. The SC Light UAS does not seem to indicate how to deal with assurance of OSOs that have low or medium robustness, which means that they would only be declared by the OEM (low assurance) or declared and substantiated with evidence/data (medium assurance) | The SC Light UAS needs to have a separate set of requirements for each SAIL from III to VI to properly reflect the technical design requirements in SORA. SC Light UAS must be in sync with versions of SORA for the concept of R(TC)d drones in Specific category to work. | | yes | partially accepted | EASA agree with the comment and where the SORA provides specific different indications for SAIL III and IV, EASA have adjusted the SC. Nevertheless these cases are extremely limited. |

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| 253 | Joerg Dittrich (DLR) | Statement of Issue | vi | On air risk: "The safety objectives are defined for UAS operating in airspace with a residual air risk class lower than D as defined by the EASA AMC and GM (SORA). The assumption on the air risk class is in line with the typical urban environment and determines a dependence of the safety objectives uniquely on the final GRC."##The ARC does not play a role here. In order to operate in ARC-d you may need a SAIL VI capable aircraft, but you also may need TSO'd avionics equipment for the airspace to operate in. | | | yes | noted | the sentence has been deleted as safety objectives developed for high risk are not addressed by this SC (which is for medium risk only) |
| 254 | Joerg Dittrich (DLR) | Statement of Issue | Vi | M1 should not influence the TC process at all, as the TC design targets depend on SAIL, not on M1 robustnesses. | Delete the reference. | | yes | accepted | this has been modified |
| 255 | Joerg Dittrich (DLR) | Light-UAS 2005 | 3 | This provision would create the need for a new TC for every operation of a a given aircraft design. This does not work at all. | Delete - this is taken care of the SORA evaluation by the operator. The operator needs the OEM to provide either technical design documents to show compliance with the OSOs that are valid and dependent on the operational volume, buffers and adjacent volumes or he needs a TC from the OEM that states the performance limits, containment integrity (SORA Step#9), M2 (0,-1,-2) properties and the maximum SAIL to be operated in. | | yes | partially accepted | As a basis GRC, ARC and SAIL must be known. But further limitations associated with the operation may be necessary to define specification applicability. M2 must be known also as associated with design and certified. |
| 256 | Joerg Dittrich (DLR) | Light-UAS 2510 (Medium Risk) | 13 | 2510 (a) (2), This requirement is taken from SORA OSO#11 and OSO#12. This is however only applicable to operations over populated areas and gatherings of people. | Create new bullet:##"(c) If the UAS is intended to fly above populated areas, it can be reasonably expected that a catastrophic failure condition will not result from any single failure." | | yes | noted | EASA considers not appropriate to mention "populated areas" at requirements level. In future SORA developments which would be adopted as EASA AMC the term "populated" may even disappear. Additionally EASA believes that such a requirement, as defined by SORA, should hold independently of the denisty of population, the point is that the assessment of the "expected" (or not expcted) should depend on the density of population (and crash area). And, if "not expected", the requirement would noty apply |
| 257 | Joerg Dittrich (DLR) | Light-UAS 2510 (Medium Risk) | 13 | 2510 (3): This bullet only applies to SAIL IV, not to SAIL III operations. However there is no differentiation here. | Create requirements for individual SAILs instead of grouping III&IV as well as V&VI | | yes | accepted | The individual SAIL is used when necessary |
| 258 | Joerg Dittrich (DLR) | Light-UAS 2511 | 13 | Paragraph (a) is the minimum containment requirement for all operations in the specific category. As the adjacent area consideration is highly mission dependent, an operator might only find out if he needs to be compliant with (b) for a new task/mission right before and will most likely not switch aircraft. I would suggest that all (R)TCd UAS intended for Specific Operation should meet the (b) requirement. | Delete paragraph (a) | Yes | | partially accepted | a note has been included to advise the applicant, but the suggested solution is not considered sufficiently flexible |
| 259 | Joerg Dittrich (DLR) | Light UAS.2528 | 15 | This section is not in sync with the corresponding SORA requirements (OSO #18) and should be rewritten. There is also no differntion of SAIL levels and robustness requirements. SAIL III and IV have differing OSO #18 requirements. | Look at both documents (SC Light UAS and SORA Annex E) and rewrite the requirements. ##Create requirements for individual SAILs instead of grouping III&IV as well as V&VI | | yes | partially accepted | requirememt text is now close to SORA |

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| 260 | Joerg Dittrich (DLR) | Light UAS.2575 | 16 | Generally agree, but you might want to check consistency with SORA OSO # | | yes | | noted | |
| 261 | Joerg Dittrich (DLR) | Light-UAS.2720 | 20 | This section does not reflect the varying assurance requirements of OSO #06. | Create requirements for individual SAILs instead of grouping III&IV as well as V&VI | | yes | not accepted | the SC does not address licensing of frequency bands. The Requirement ofr Low and Medium Robustness are the same in SORA |
| 262 | Joerg Dittrich (DLR) | Annex I | 22 | SORA has no MTOM limits in its ground risk model, it uses only max dimension and energy limits (to be replaced by speed limits in the future according to draft Annex F), also please reflect if the crash areas are consistent with the SORA ground risk models | | | yes | high risk (N/A for SC medium risk) | |
| 263 | Joerg Dittrich (DLR) | Annex I | 22 | The tables derive their design targets based on assumed population desnities. As this SC is supposed to be used for drones in the specific category, this is not compatible with SORA, which drives the safe system design requirements through OSO #5. SORA already takes care of the tradeoff between aircraft size & speed and the resulting critical crash area against the population density with its ground risk model. The resulting SAIL of an individual assessment drives the operational reliability requirements directly. For high robustness at SAIL V & VI, OSO #5 references to JARUS AMC UAS.1309. This Annex MOC needs to be compatible with OSO#5 requirements. More importantly if Allowable Quantitative Probabilities are stated, they must be provided for a SAIL, and not be shown as a matrix dependent on aircraft size and population density as this is done by SORA. | Rewrite and give OSO#5 compatible probabilities for the possible SAILs, that the TC process needs to certify design compliance towards. | | yes | high risk (N/A for SC medium risk) | |
| 264 | Thales Avionics | General | Introduction | Thales Avionics welcome the proposed Special Condition and the opportunity given for providing comments. This SC is very important as EASA intends to use it as a basis for the future CS-LUAS. ##Using the performance/objective based approach in the continuity of the SC VTOL is a good point and we deeply reviewed the proposal. The major comments raised are related to the following matters:##Assumed urban scenarios ##Flight enveloppe definitions##Cybersecurity objectives##Airworthiness standards versus Means of Compliance##FDAL allocation##We hope that it will help to mature the document and we are open to support the agency to resolve these comments. As regard to the number of remarks, we encourage EASA to organize a focus consultation with industry before publishing the CRD and the final text.## | | | | Noted | Thank you |
| 265 | Thales Avionics | An objective-based, operation centricand proportional approach to UAS certification ##+##Light-UAS.2005 | Introduction | "Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes".##A detailed "characterization" is more appropriate than "definition" which could be related to a specific location## | Every UAS certification application shall be linked to a detailed **characterization** of the operational volume, buffers and adjacent volumes….##[…]##The **characterization** will be in line with the EASA AMC and GM. The TC issued on that basis will only permit operations in this context.####Apply the same in Light-UAS.2005 | Suggestion | Substantative | accepted | |

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| 266 | Thales Avionics | Applicability | iV | "With MTOM up to 600kg"##What is the rationale of the 600Kg limit? We understand that a limit must be set but why 600? | Rationale should be given in the SC | Suggestion | Substantative | noted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 267 | Thales Avionics | Applicability | iV | "Means of Compliance will be tailored to the risk level, and different means of compliance demonstration to airworthiness objectives will be provided for a medium risk and a high risk operation."##It should be better to differentiate high risk and medium risk level at airworthiness standard level rather than at MoC level | Reconsider this approach and favor distinction at standard level | Suggestion | Substantative | noted | the specification is objective, not prescriptive and high level. Only for a few of standards the verbiage can be different, proportionality need to be addrressed at MoC level consdiering the differences in OSO integrity |
| 268 | Thales Avionics | Safety objectives | V | "The tables are accompanied by definitions and notes that are consistent with the EASA AMC and GM. These core elements will be adapted as required for the projects"##We suppose that the intent is to define Safety objectives and associated airworthiness standards that will be used in most projects. Then core elements adaptation should be more an exception than the rule. | "The tables are accompanied by definitions and notes that are consistent with the EASA AMC and GM. These core elements **may** be adapted as required for the projects"## | Suggestion | Substantative | noted | high risk safety objectives not applicable for this SC (medium risk) |
| 269 | Thales Avionics | Safety objectives | V | "EASA has considered it appropriate to determine MOC to high risk safety objectives on the basis of an assessment of a probable urban scenario projected in 2035. This is the minimum time frame usually taken as reference for projections of significantly established drone operations and the one adopted by the SESAR Joint Undertaking Outlook Study."##The time frame (2035) is not really relevant fo the SC, a description of the urban scenario considered is more relevant and usefull to understand the rationale of the requirements. | To define the more relevant aspects of the urban scenario considered to develop the SC and to give more details on:##- the calculated number of FH flown by drones in the generic / average European city in 2035##- a representative urban population density##- representative products and operational assumptions | Suggestion | Objection | noted | high risk safety objectives not applicable for this SC (medium risk) |
| 270 | Thales Avionics | Safety objectives##+##Light-UAS.2000 | Introduction | "The safety objectives are defined for UAS operating in airspace with a residual air risk class lower than D as defined by the EASA AMC and GM (SORA)."##Important assumption that should be reminded in the section "applicability" and in the req Light-UAS.2000.##How will be handled an application to certify an UAS operating in ARC-D? | Consider addition of the following bullet in the list of applicable UAS in introduction and Light-UAS.2000:##Operated in air risk category lower than ARC-D##And provide information on how would be handled an application to certify an UAS operating in ARC-D | Suggestion | Objection | noted | high risk safety objectives not applicable for this SC (medium risk) |

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| 271 | Thales Avionics | Introduction /Safety objectives | VI | "According to the EASA AMC and GM, mitigation means M1 and M2, when applied, may determine a reduction of the initial ground risk class (iGRC)."##This sentence is not consistent with following text from NPA 2020-07 ##*The following operations: ##(1) BVLOS operations over a populated area for a UAS with an MTOM of more than 4 kg, and ##(2) BVLOS operations over an assembly of people for a UAS with a kinetic energy of more than 80 J## are considered to be high-risk operations for third parties on the ground, irrespective of the mitigations proposed by applicants. Steps #2 and #3, as described in this AMC, are therefore not applicable to these types of operations* . | Clarify and ensure consistency between EASA AMC and GM with the SC Light UAS | Suggestion | Substantive | accepted | SC Light UAS is now aligned with the latest update of thenEASA AMC |
| 272 | Thales Avionics | Light UAS 2010 | 3 | This requirement is not well written and mixes objectives and MoC | Proposal: "An applicant can comply with this Special Condition using alternative means of compliance from those proposed by EASA as acceptable (AMC) provided that it is substantiated equivalent and accepted by EASA"##Other considerations must be moved to Annex I (consensus standard, acceptable form and manner)#### | Suggestion | Substantive | not accepted | requirement has the same text as the adopted SC VTOL |
| 273 | Thales Avionics | Light UAS 2105 | 4 | "(e) Losses due to atmospheric conditions, cooling needs, installation…"##Need to clarify that "losses" is related to the performances and not the UA itself | "(e) **Performance** losses due to atmospheric conditions, cooling needs, installation…"## | Suggestion | Substantive | noted | standard wording |
| 274 | Thales Avionics | Light UAS 2105 | 5 | Note: "minimum steady flight speed"##Talking about speed for steady flight seems not relevant, please clarify | Clarification should be given on the concept of "steady flight speed" | Suggestion | Substantive | noted | the concept of "minimum speed" is not applicable to all aircraft configurations. |
| 275 | Thales Avionics | Light UAS 2135 | 5 | Why only requested for normal flight envelope? ##For comparison CS23 Amdt 5 is using "operating envelope, SC LUAS is introducing approved flight envelope understood as encompassing normal and limit | Add also limit flight envelop, at least that the UA shall be reasonably controllable to enable rapid return within normal flight enveloppe? ##Consider also to clarify definitions of flight envelopes to avoid unclarity on the boundary of operating flight envelope | Suggestion | Objection | accepted | controllability up to limit envelope added |
| 276 | Thales Avionics | Light UAS 2260 b) | 7 | "Under strength ": not sure to understand | Consider "is under excessive stress" | mayor | partially accepted | accepted | text modified |
| 277 | Thales Avionics | Light UAS 2305 | 8 | "(c) Adverse loading conditions must not cause damage to the essential systems of the UA, which could lead to a hazardous or catastrophic event if not detected."##Typo error is supposed on "loading conditions", "landing conditions" seems more appropriate | Replace "adverse loading conditions" by "adverse **landing** conditions" | Suggestion | Substantive | accepted | text changed |
| 278 | Thales Avionics | Light UAS 2400 | 10 | "b. Compliance needs to be substantiated via test, validated analysis, or a combination thereof or through evidence of certification of systems or components to acceptable specifications."##Considerations for Means of Compliance that should not be present in the requirement. | Remove the bullet (b) and move it to Annex I | Suggestion | Substantive | noted | It is quite common in CS/SC to limit the acceptable MOC. |
| 279 | Thales Avionics | Light UAS 2405 | 10 | "The integrity of the Lift/Thrust/Power system including mounting and accessory attachment must be demonstrated throughout the limit flight envelope of the UA and must be maintained for the operational life of the system."##The UAS operator will be responsible to maintain the integrity of the Lift/Thrust/Power system for the operational life of the system, the responsibility of the design approval holder is to make it maintainable. | "The integrity of the Lift/Thrust/Power system including mounting and accessory attachment must be demonstrated throughout the limit flight envelope of the UA and must be **maintainable** for the operational life of the system." | Suggestion | Substantive | not accepted | The intention is to maintain it for the operational life e.g. through appropriate testing and safety factors. |

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| 280 | Thales Avionics | Light UAS 2410 | 10 | "c) a complete disassembly after the endurance and durability tests has been completed and each component must be within service limits and eligible for continued operation in accordance with the instructions for continued airworthiness,"##Considerations for Means of Compliance to a) and b) that should not be present in the requirement. | Remove the bullet (c) and move it to Annex I | Suggestion | Substantive | accepted | c) removed and d) adapted |
| 281 | Thales Avionics | Light UAS 2415 | 11 | "1. Ratings and operating limitations, including ratings and limitations based on the operating conditions and any other information found necessary for safe operation of the system."##Repetition in the sentence that can be simplified | Replace by "1. Ratings and operating limitations based on the operating conditions and any other information found necessary for safe operation of the system." | Suggestion | Substantive | noted | reworded and prescriptive wording moved to note for later MOC developemtn |
| 282 | Thales Avionics | Light UAS 2500 | 12 | It is not clear if cybersecurity threats considerations is a requirement of not. Use of "may" in the text intends to think that it is not required and is just a guidance that should be then introduced as MoC and not as airworthiness standard.##Furthermore reference to AMC20-42 should be moved to Annex I - MoC | Brings required clarifications and provide a clear distinction of the airworthiness standard and associated AMC. | Suggestion | Objection | not accepted | Annex I does not address Cybersecurity. The adopted SC is only the medium risk one. "May" is acceptable in a note which intedns to provide guidance. |
| 283 | Thales Avionics | Light UAS 2510 | 12 | "Note: Operational limitations used to demonstrate compliance with Light-UAS.2510 may be taken into account to demonstrate compliance with Light-UAS.2511".##Considerations for Means of Compliance to 2511 that should not be introduced here but more in Annex I. Note that usage of "may" is more for GM than AMC | Remove the note and move it to Annex I.##Consider use of "may" or "should" | Suggestion | Substantive | not accepted | Annex I not applicable for medium risk |
| 284 | Thales Avionics | General | Various locations | Lot of requirements start with "the applicant needs" or "the UA needs". If it is confirmed that this is a requirement, the "shall" statement should be used instead of "needs" | Replace "needs to" by "shall" in all requirements | Suggestion | Objection | not accepted | "needs to" is the correct language in accordance with the rulemaking guidance |
| 285 | Thales Avionics | General | Various locations | Some airworthiness standards are followed by notes written in boxes. These notes are almost equivalent to MoC or guidance and should then be moved to the Annex I which is dedicated to the Means of Compliance. | Moves notes to Annex I when appropriate (equivalent to MoC or GM) | Suggestion | Objection | not accepted | The notes do not yet represent comprehensive MOC |
| 286 | Thales Avionics | Subpart F | 13 | Thales would like EASA to confirm if term definitions (probable, failure…) under "light UAS.2510 Equipment, Systems and Installation (Medium risk)" apply also to the whole subpart F. Indeed, the term failure can also be found in the High Risk section but also in the containment section. | EASA could create a section where all the definitions are captured to minimize potential misunderstanding by applicants. | Suggestion | objection | noted | When a term is defined, the defintion is valid in general |
| 287 | Thales Avionics | Light-UAS.2511 | 13 | Containment requirement proposed is more a MoC.##The requirement should be reworded to stick more with 2510 and to be more objective based | Replace the requirement by:##(a) Operation outside the operational volume must be minimized in the event of a probable failure##(b) When the risk associated with the adjacent areas on ground or adjacent airspace may be significantly higher than the risk associated with the operational volume including the ground buffer, Failure Condition leading to operation outside the ground risk buffer shall be considered catastrophic | Suggestion | objection | not accepted | adherence to SORA would be compromised by comment |
| 288 | Thales Avionics | CS-LUAS##2529 | 16 | Looks redundant with 2510 +2511. Nav function is part of systems. | Remove or explain what is added | Suggestion | Objection | not accepted | Flight control requirement in D&C is high level and needed the further specification of the NAV function under subpart F. |

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| 289 | Thales Avionics | Light-UAS.2600 | 18 | "d) The type design of the UA needs to specify the design of the CU to the level of detail required to ensure compliance with this special condition and the identified design assurance levels."##No consideration of design assurance in the other airworthiness standards of the SC, only at AMC level. It is implicit in the compliance with de SC and can be removed## | "d) The type design of the UA needs to specify the design of the CU to the level of detail required to ensure compliance with this special condition ~~and the identified design assurance levels.~~"## | Suggestion | Substantive | accepted | Agreed."d) The type design of the UA needs to specify the design of the CU to the level of detail required to ensure compliance with this special condition<br>The CU is part of the Type design.<br>The intention of this paragraph is to have enough design data of the CU but not all details (e.g. chair ....) |
| 290 | Thales Avionics | Light-UAS.2810 | 21 | Aiworthiness standards for recovery system is developed in the subpart I section dedicated to Ancillary elements. Does it means that EASA considers such systems as ancillary elements, meaning not installed in the UA or the Command Unit and that is not part of the specified C2 Link?## | Clarification to be provided##Consider also adding the definition of recovery system | Suggestion | Substantive | partially accepted | Misleading terminology used. A flight termination or recovery system (e.g. parachute) is normally installed on the UA and would not be considered as ancillary equipment NOT installed. |
| 291 | Thales Avionics | ANNEX I##MOC to Light-UAS.2510 | 22 | The number of considered "Catastrophic" FCs on the whole UAS system has to be given as hypothesis to the tables 1 & 2 where allowable quantitative probabilities are given. | Indicate the number of "Catastrophic" FCs considered (10 FCs? TBC) on the UAS system to justify the allowable quantitative probability (per FC) in the tables 1 & 2. | Suggestion | Substantive | high risk (N/A for SC medium risk) | |
| 292 | Thales Avionics | ANNEX I##MOC to Light-UAS.2510 | 23 | The link between the allowable quantitative probabilities by FC and the corresponding FDAL is not consistent between the different tables.##The FDAL reduction should be aligned with the quantitative probability reduction to keep matching with the standard allocation reminded here below:##<1.10-9/Fh : FDAL A##<1.10-7/Fh : FDAL B##<1.10-5/Fh : FDAL C##<1.10-3/Fh : FDAL D | Update the allocated FDAL in tables 3 & 4 as proposed in the attachment here below: #### | Suggestion | Objection | high risk (N/A for SC medium risk) | |
| 293 | Thales Avionics | ANNEX I##MOC to Light-UAS.2510 | 23 | As values of "worst crash area" are given as inputs of classification of categories for UAS for safety concern, the hypothesis/definition to take into account in the computation of the "worst crash area" should be given. | Indicate the definition and/or hypothesis of the "worst crash area". | Suggestion | Substantive | high risk (N/A for SC medium risk) | |
| 294 | Thales Avionics | ANNEX I##MOC to Light-UAS.2510 | 24 | Note B mentions a proportionate approach and an already done DAL reduction linked with architecture hypothesis (independence, dissimilarity TBC). It is not clear which influence has these hypothesis on Table 3. | Give more details on which reduction/proportionalte approach is considered and in which lign of Table 3. | Suggestion | Substantive | high risk (N/A for SC medium risk) | |
| 295 | M. Allouche | | Introduction | Throughout the document, the term "risk" does not seem to be used according to standard accepted definitions (e.g. "the combination of the frequency (probability) of an occurrence and its associated level of severity" as per EUROCAE ED-79A/ARP 4754A). The aim of any category (open, specific, certified) is to reduce the risk to an acceptable level through design mitigation rules, operation mitigation rules or the proper combination of both. Flight Authorization / Certification requirements are to be set so that the UA operations remain at an acceptable risk level. Annex 1 of this proposed SC is viewed as a proposal of "risk" acceptability criteria (using the above mentioned "risk" definition.##It is understood and recognized that the terms "High Risk", "Medium Risk" or "Low Risk" are used with a different meaning (as is also the case in EASA regulation,) where the stated level of risk (High, Medium, Low) is rather commensurate to the level of harm a potential mishap could lead to. | In the framework of the technical requirements of this proposed Special Condition, it is considered as important to bring a clarification regarding the meaning of the term risk used throughout the document as compared to the accepted standard definition (including as implied by Annex 1), for instance as a note in the Introduction, e.g.##"The definition of the term "risk" as used throughout the document (namely High. Medium. Low) is used in a broad sense i.e. the level of risk is commensurate to the level of harm a potential mishap could lead to. It does not negate however the standard accepted definitions (e.g. "the combination of the frequency [probability] of an occurrence and its associated level of severity" as per EUROCAE ED-79A/ARP 4754A), as implied in the Annex 1 of this document that provides a proposal for risk acceptability criteria. | Yes | Yes | accepted | |

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| 296 | M. Allouche | | ii | "Until today, the certification basis of UAS…". As a general information, it would be beneficial to know whether TC/RTC has been already actually granted by EASA using this approach and what are the lessons learned in the context of this proposed SC. | Provide this general information | Yes | No | noted | EASA has provided several presentations in several contexts about drone certification projects ongoing at the Agency. Lessons learned is in particular the need for an objective CB for light drones. |
| 297 | M. Allouche | | iii | "An objective-based, operation centric and proportional approach to UAS certification": the fact that EASA is now ready to grant TC with due consideration of operational context, including any restriction is viewed as a significant step forward! | Acknowledgment only! | Yes | No | Noted | Thank you |
| 298 | M. Allouche | | Iv | Annex 1 is indeed viewed as one of the most significant MOC to be agreed upon. It is however suggested that EASA defines a list of second priority MOC (e.g. for new topics such as CU and C2link), that could be developed with the support of Standard Organizations such as EUROCAE | Define such a list in addition to the presentation of Annex 1 | Yes | No | noted | Annex I N/A for Medium Risk SC which is being adopted |
| 299 | M. Allouche | | iv | Applicability##The rationale for choosing MTOM of 600 kg should be presented. Is this simply a cut and paste from manned CS-VLR code applicability? Why manned and unmanned configurations should be made alike in this case; what if the UA would be a fixed wing configuration, should the MTOM be then 750 kg like CS-VLA? | ##Explain and justify the rationale############ | No | Yes | noted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 300 | M. Allouche | | iv | Applicability##No lower weight threshold applicability under which the requirements provided in this SC are likely over restrictive and impractical. In such a case, other criteria could be established: such a Durability & Reliability demonstration approach by FAA? | ##It is suggested to define a lower weight threshold for the applicability. Under this threshold, alternative Type Certification Requirements should be defined and harmonized with FAA approach based upon Reliability & Durability testing, Failure demonstration and Design Checkpoints. | | ##Yes | noted | EASA and the FAA have been discussing about D&R. EASA considers that the published SC is high level and flexible enough to allow demonstration of a large part of requirements by means of D&R - oriented MoC, in the measure that such MoC will be considered appropriate during MoC development. EASA prefers to address the point by means of MoC and not by having tests elevated at requirement level. Additionally such methods, making the parallel with SAIL, may not be adequate for SAIL 4. |

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| 301 | M. Allouche | | iv | Applicability##It is noted that this SC is also applicable to autonomous operations (i.e. operation without the remote pilot being able to intervene). On the other hand, in the next page v, it is stated that this SC may have to be complemented for "fully" autonomous operations. | Clarify / define the difference between "autonomous" and "fully autonomous" operations | ## | ##Yes | accepted | clarified: "fully" has been deleted. "Autonomous" as defined by regulation. In this case this SC (if medium risk) will be applicable but EASA may have to issue a further SC to cover aspects which may not be fully covered. Same for lighter-than-air / HALE. text modified in introduction and in GENERAL. |
| 302 | M. Allouche | | iv | Applicability##The applicability of this SC to the Specific Category (Medium "Risk" i.e. SAIL III & IV at least in part and High Medium "Risk" i.e. SAIL V & VI) and the implicit statement a TC would be required is most surprising and is tantamount of overruling the concept of Specific Category specifically brought in EU regulation 2019/947 and related EASA GM/AMC. ##Our understanding (in line with the EASA concept paper current Issue 2.2) is that for SAIL V or VI operations there will be likely a need for a *design approval* issued by EASA and not necessarily a TC/RTC. | ##Clarification is to be brought with regard to the role of the SC in the framework of flight authorization of Specific Category operations in line with this comment. If the SC requirements would have to be applied in order to meet some OSOs (e.g. OSO#04 and OSO#05), then a cross relationship between the requirements of this SC and the various OSOs that are to be met in the frame of SORA demonstration towards Specific Flight Authorization should be rather established. | | ##Yes | noted | clarifications as per update of EASA AMC and GM on regulation 947 and in line with webinars with MSs and Industry |
| 303 | M. Allouche | | v | Safety Objectives##In the presentation of the methodology to derive safety objectives, there seem to be one important missing element which is a target value to be achieved in term of required probability of ground fatalities. Such a target value should then be used to derive the UAS probability requirements (and DAL levels) for Catastrophic failure conditions. In addition, this target value should be equally met ("safety continuum" principle) for the Open, Specific and Certified except that the means of compliance may be different: design mitigation rules, operation mitigation rules or the proper combination of both. ##In addition, it is suggested that the determination of these safety objectives be also brought for shorter term scenarios likely to happen well before 2035 ##See also comment #1. | ##Clarify the rationale with respect to this target value and the safety continuum principle. | | Yes | noted | Safety Objectives for high risk are not addressed for the moment |
| 304 | M. Allouche | Light-UAS 2000 | 3 | The fact that this SC would be applicable to "UA operated with intervention of the remote pilot or autonomous" as mentioned in p. iv is not repeated here. | Clarification is requested in this core requirement whether this SC is indeed applicable to "UA operated with intervention of the remote pilot or autonomous" as stated in p. iv | | Yes | accepted | |
| 305 | M. Allouche | Light-UAS 2000 | 3 | See also our comments #6, #7, #8 above | See also our suggested resolution under comments #6, #7, #8 above | | Yes | noted | see response to #6, #7, #8 above |
| 306 | M. Allouche | Light-UAS 2102 | 4 | Note: "…such as HIRF". This may also be true for lightning | Add: "…such as HIRF and lightning" | Yes | | accepted | while the note indicates only examples the suggestion is taken in this case |
| 307 | M. Allouche | Light-UAS 2105 | 4 | "and by a remote crew of average skill": this would not be relevant in case of highly automated or autonomous systems where remote crew action is not required | Add e.g.: "and by a remote crew of average skill, **or by the system itself where remote crew action is required**" | | Yes | not accepted | the condition is met when there is no crew involved |
| 308 | M. Allouche | Light-UAS 2135 | 5 | "without requiring exceptional skill or alertness on the part of the remote crew": this would not be relevant in case of highly automated or autonomous systems where remote crew action is not required | Add e.g.: "without requiring exceptional skill or alertness on the part of the remote crew, **or by the system itself where remote crew action is required"** | Yes | Yes | not accepted | the condition is met when there is no crew involved |
| 309 | M. Allouche | Subpart C | 6 | There seems to be missing a minimum requirement regarding the potential effects of system failure on structure performance (similar to JARUS CS-UAS 2205) | It is proposed to add a requirement similar to JAR CS-UAS 2205 (appropriate AMC to be later defined) | mayor | TBD | partially accepted | control loads is missing from 2210, we consider interaction systems/structure covered by 2210, 2510, 2300 |

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| 310 | M. Allouche | Light-UAS-2510 a (1)##(High and Medium) | 12 | The single failure criterion cannot be blindly applied whatever the UA and risk (High/Medium) and how much less in the envisaged weight category.##Furthermore, it is not even included in the manned EASA SC-23 Amendment 5 and there is no reason to have here more stringent requirements. | Delete “and does not result from a single failure” and introduce in the Annex 1 the following note:##“Single-failure criterion (i.e. no single failure shall lead to a Catastrophic effect) is considered as a good engineering practice and may waived except in certain cases e.g. such as for mechanical parts designed according to best aviation industry best practices or for failure conditions with very low exposure time. ##However, the way the single failure criterion may be applied should be reviewed on case by case basis, pending on the type of UA and related concept of operation.” | | Yes | partially accepted | launch and recovery systems are covered by ancillary systems |
| 311 | M. Allouche | Light-UAS-2511 | 13 | The presence of quantitative requirement for the probability of leaving the operational volume clearly departs from the generally accepted practice that CS should not include quantitative requirements (see e.g. 2510) ; such quantitative requirements should only be part of AMC. | The quantitative requirement for the probability of leaving the operational volume should be removed and introduced / integrated with the proper rationale in the Annex 1 | | Yes | partially accepted | quantitative requirement has been removed and note elaborated |
| 312 | M. Allouche | Light-UAS-2515 & 2520 | 14 | The term Emergency Recovery has not been defined nor been subject any requirement. | It is suggested to introduce definition and requirement regarding the Emergency Recovery Capability and Procedures in a way similar to JARUS CS-UAS 2570 | Yes | | not accepted | The SORA uses this term without any formal definition |
| 313 | M. Allouche | Light UAS-2602 (a) | 18 | (1) The following cases do not seem to be specifically covered:##Multiple UAs Control / Monitoring from one CU##UA handover between two CUs | Clarification is requested and additional requirements should be introduced and could e.g. be inspired / adapted from STANAG 4671 U1881, U1883, U1885, U1887 | Yes | | accepted | Agreed.“d) The type design of the UA needs to specify the design of the CU to the level of detail required to ensure compliance with this special condition<br>The CU is part of the Type design. The intention of this paragraph is to have enough design data of the CU but not all details (e.g. chair ....) |
| 314 | M. Allouche | Light UAS-2615 | 18 | Possibility of part-time display is not covered. | The criteria for part-time display are adequately covered in JARUS CS-UAS GM 2615. With the understanding that GM/AMC to this proposed SC may come only much later, it is suggested to have a note as follows:##“Hiding some parameters from full-time display may be accepted on a case by case basis provided an equivalent level of safety to full-time display is demonstrated.” | Yes | | noted | multiple control is covered although AMC is needed<br><br>Handover is covered by this SC, AMC needs to be developed |
| 315 | M. Allouche | Annex 1 | 22 | Comparison with manned SC-VTOL (as claimed to have been performed) and draft MOC issue 1 show drastic and unjustified differences in term of probability and DAL requirements. | Please clarify this comparison and provide rationale for the differences. | | Yes | high risk (N/A for SC medium risk) | |
| 316 | M. Allouche | Annex 1 | 22 | Refer to comment #9##Quantitative requirements cannot be accepted / understood if they are not correlated to an overall target value regarding an acceptable probability of harm to third parties. | ##Please provide rationale and correlation | | Yes | high risk (N/A for SC medium risk) | |
| 317 | M. Allouche | Annex 1 | 22 | See comment # 18. Clarification on the way to account for Emergency Recovery Capability and procedures in meeting safety objectives should be brought. | It is suggested to add a note similar to a statement made in previous EASA policy E.Y013-01 (7.7):##“The applicant may show compliance with the safety objectives by taking into account mitigating provisions brought by an emergency recovery capability. However, the use of the emergency recovery capability should not be used as a “catch-all” for every failure case or every non-compliance.” | Yes | | high risk (N/A for SC medium risk) | |
| 318 | Air Sports | General | Introduction | Europe Air Sports thanks EASA for the opportunity to comment on this proposed SC. | | Yes | | noted | |

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| 319 | Air Sports | General | Introduction | For this category of aircraft, the requirements on the external support equipment i.e. the flight controller used by the remote pilot, are equally important as the aircraft itself. This is in our view well taken care of in the draft SC. | | Yes | | Noted | thank you |
| 320 | Air Sports | General | Introduction | The draft SC's scope seems to be narrowly on the aircraft and its external support equipment. Some interesting items such as the interface towards ATM, and the means how to see and be seen by other aircraft, seem to be deferred to yet-to-be-developed requirements. In EAS' view, especially the see-and-be-seen requirement has to be resolved before wide application of Light UAS. | | | Yes | noted | The SC addresses Airworthiness. The certification will be provided for a defined configuration. The authorization to operate in the specific catgeory is provided by the NAA and before providing it, with regard to Air Risk, the regulation itself mentioned that ANSP need to be in the loop. |
| 321 | Air Sports | General | Introduction | The draft SC does not mention requirements for birdstrike protection, noise, or hazards to semi-involved people on the ground such as first responders in case of an accident. Our assumption is that these will have to be either added to later editions of this SC (which itself is planned to evolve into a CS, Certification Specification similar to EASA's existing CS series) or taken care of in Operational rules for UAS. | | | yes | noted | it is correct that noise will be addressed with further SCs or operational rules. Birdstrike, when considered applicable depending on the operation, will be addressed a MoC level. Hazard to involved people is for the moment not covered by the SORA / EASA AMC. In general, the certification will provide evidence of compliance with EASA AMC (SORA) OSOs, robustness of design-related mitigation means and SORA "step 9" (adjacent areas). In the operational authorization frame, the NAA will assess if there are operational aspect (e.g. linked to noise, birdstrike, hazard to involved people) whihc may require further validation. |
| 322 | EDA MS2 | Light-UAS 2005 | 3 | The requirement implies that only a single operational scenario is certifiable for a specific type of drone. It is however likely that multiple operational scenarios can be executed with a single type drone. If the latter is the case, under this version of the SC this is possible but would lead to multiple TC/RTC for the various operational scenarios for a single type of drone. | Reconsider the requirement to include the possibility of multiple operational scenarios for a single type of UA under one TC/RTC. | Yes | No | not accepted | the requirement does not imply this. Comment not understood. |
| 323 | EDA MS3 | Light-UAS. 2005 | 3 | Different "operational scenarios" have been already classified in the Step #2 of SORA (AMC&GM 2.3.1, Table 2), considering VLOS or BVLOS, and if the overflown area is a controlled ground area/sparsely populated environment/populated environment/assembly of people.##It should be describe the "ConOps" for which the certification of the UA, not only "operational scenario", to include the intended operation requested for certification with all the foreseen flight conditions and ground operations, possible configurations, environmental conditions, operational modes, launch/recovery conditions… | Light-UAS.2005 Description of ConOps | Yes | No | partially accepted | The note has been better detailed |

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| 324 | EDA MS1 | Light-UAS.2010 (a) | 3 | It would be beneficial, if there was a list of accepted standards. Has EASA considered to accept (partially accept) already existing military standards → STANAG 4671, 4703 ? | | yes | no | noted | AMC will be addressed later. EASA is open to proposal from applicants and such proposals may encompass military standards |
| 325 | EDA MS3 | Light-UAS. 2105 | 4 | Meaning of "operational variables" is not clear | It is suggested to use "operational conditions" or "operational parameters" | yes | no | accepted | variables replaced by parameters |
| 326 | EDA MS3 | Light-UAS. 2105 | 5 | Hovering ceiling should be included for VTOL UA in the Note | | yes | no | accepted | note amended |
| 327 | EDA MS3 | Light-UAS. 2210 | 6 | Launch/recovery loads should be also considered | | minor | rejected | partially accepted | launch and recovery systems are covered by 2810 |
| 328 | EDA MS3 | Light-UAS.2260 | 7 | Methods and processes of fabrication and assembly should also be mentioned to result in known and reproducible structural properties | The methods and processes of fabrication and assembly used must produce consistently sound structures. | minor | partially accepted | partially accepted | processes are covered by 2250, 2260 title will be amended |
| 329 | EDA MS3 | Light-UAS.2350 (a) | 9 | Forced landing or crash area must be the area where the risk of debris, fire or explosions is already minimized. | a) The UA must be designed with sufficient self-containment features to minimise possible debris, fire or explosions;##(b) The Flight Manual for the crew must contain the characteristics of the forced landing or crash area where debris, fire or explosions are minimized. | yes | no | partially accepted | the requirement intends to ensure that no debris or explosions would extend beyond the designated crash area, it would not be applicable if a crash area is not included in the emergency procedure |
| 330 | EDA MS3 | Light-UAS.2400 (c) | 10 | It should be "The hazards in the event of a probable malfunction or failure" of Lift/Thrust/Power Control Systems… | c) The hazards in the event of a probable malfunction or failure of Lift/Thrust/Power Control Systems…" | yes | no | accepted | text modified |
| 331 | EDA MS3 | Light-UAS.2410 (d) | 10 | It should be better to clarified that are "functional"tests | d) an operational demonstration including functional tests, validated analysis, or a combination… | yes | no | accepted | specific text removed |
| 332 | EDA MS3 | Light-UAS.2415 (c) | 11 | "Operating limitations" instead of "operational limitations" as in 1) and 2) | c) The following ratings and operatingl limitations need to be established: | yes | no | accepted | text modified |
| 333 | EDA MS2 | Light-UAS.2511 (a) (1) | 13 | This requirement is only applicable when the risk associated with the adjacent areas on ground or adjacent airspace is significantly higher than the risk associated with the operational volume including the ground buffer.##The AMC for article 11 of Regulation (EU) 2019/947 is more restrictive and does not provide the possibility of a higher probability when the risk associated with the operational volume is higher then the risk associated with the adjacent areas on ground or adjacent airspace.##Furthermore, the determination of the associated risk with the adjacent areas on ground or adjacent airspace is likely to be very dependent on the geographic location of an operation. An applicant for a TC/RTC might not always be involved in the actual operation of the aircraft and therefore might not be able to determine relative risk between the operational volume and the adjacent areas on ground or adjacent airspace. | Consider consistency between the SC Light UAS and the AMC for article 11 of Regulation (EU) 2019/947.##And/or##Specify the acceptable probability of leaving the operational volume, when the when the risk associated with the adjacent areas on ground or adjacent airspace is not significantly higher than the risk associated with the operational volume including the ground buffer. ## Additionally, consider a requirement for a limitation in the Aircraft Flight Manual if the UAS is not certified to operate in an operational volume where the risk associated with the adjacent areas on ground or adjacent airspace is significantly higher than the risk associated with the operational volume including the ground buffer. | Yes | No | not accepted | when the risk associated with the adjacent areas on ground or adjacent airspace is not significantly higher, the first requirement is applicable, which is exactly what is reported in the EASA AMC |

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| 334 | EDA MS1 and EDA MS2 | Light-UAS.2511 Containment (b) | 13 | The probability of leaving the operational volume is significantly lower than for a catastrophic failure condition (Light-UAS.2510 (High Risk)).##Leaving the operational volume and entering an adjacent airspace or ground area, which involves a significantly higher risk, may lead to a catastrophic event. For a medium risk operation, the tables of Annex 1 do not apply and therefore catastrophic effects cannot be ruled out, when leaving the operational volume.##Shouldn't the requirements for the equipment, that prevents leaving the operational volume during medium risk operations, be the same as the requirements for catastrophic failure conditions in accordance with the tables of Annex 1? | Reconsider the probability for leaving the operational volume and give a explanation for the chosen one. | yes | yes | Partially accepted | The numerical probability has been taken out of the requirement , also due to other comments, and reflected in the note, therefore at AMC level |
| 335 | EDA MS3 | Light-UAS.2575 | 16 | It should be included that “there must be an alert for the remote crew for any loss or degraded status of the command, control or communication function” | New paragraph:##c) there must be an alert for the remote crew for any loss or degraded status of the command, control or communication function | yes | no | not accepted | this is not related with contingency procedures, this is related with C2 link and already captured in the dedicated subpart |
| 336 | EDA MS3 | Light-UAS.2600 | 18 | Assembly/disambly should be included | (d) procedures and limitations for transportation, assembly/disambly, reconfiguration and storage; | yes | no | not accepted | assembly/disassembly is considered maintenance |
| 337 | EDA MS3 | Light-UAS. 2810 | 21 | Rest of the regulation should be aligned to this new definition of “ancillary equipment”, as it is reminded that launch/recovery equipment is considered as GSE in the AMC&GM to Regulation 2019/947. Moreover, current Concept paper for certified category does not included any mention to ancillary equipment.##It should be also explore the possibility of include the possibility of ancillary equipment certification (e.g. as ETSO) | Regulations should be aligned accordingly.##Explore the possibility of include the possibility of ancillary equipment certification | yes | no | noted | 2800 moved to Subpart D and 2810 removed as not in line with the level of detail of other subparts. |
| 338 | EDA MS3 | MOC to Light UAS.2510 | 22 | UA instead of RPA in Hazardous definition | i) Loss of the UA where it can be reasonably expected that one or more fatalities will not occur | yes | no | high risk (N/A for SC medium risk) | |
| 339 | EDA MS1 | ANNEX 1 | 22 | Quantitative Probabilities (HAZ):##The adaptation of the definitions of the failure conditions (CAT, HAZ, MAJ, MIN, NE) to UAS is understood and necessary. However, the respective quantitative probabilities for the different risk classes seem to be inconsistent.##In table 2 for max dimensions <3m and MTOM < 200kg the threshold for HAZ is 10^-7. This is the same value as in CS-25 although the definition for HAZ in this Special condition does not expect fatalities, whereas in CS-25 HAZ is connected to a small number of fatalities. ##Even in AC 23.1309 Class I and Class II MANNED Aircraft, higher probabilities for HAZ failure conditions are allowed for the same weight class and even heavier aircraft (10^-5 and 10^-6). | Consider reduction of this threshold to a more suitable value. (i.e. 10^-5 which would correspond to AC 23.1309 Class I and STANAG 4671 < 6,7 t)##Respective adaption of the threshold for HAZ in the other categories of Table 1 and 2.##Explanation for the chosen probability threshold in case of no reduction. | yes | yes | high risk (N/A for SC medium risk) | |
| 340 | EDA MS1 | ANNEX 1 | 22 | Quantitative Probabilities (CAT):##In table 2 for max dimensions <3m and MTOM < 200kg the threshold for CAT 10^-9 seems to be quite challenging especially considering that for CS-23 aircraft, higher probabilities are already accepted.## | Reconsider CAT threshold.##Explanation for the chosen probability threshold in case of no reduction. | yes | yes | high risk (N/A for SC medium risk) | |
| 341 | EDA MS1 | ANNEX 1 | 22 | Quantitative Probabilities. With respect to the 2 comments above, the probability threshholds for MAJ and MIN should also be reassessed in order to be consistent. Otherwise, if i.e. comment 2 would be implemented HAZ and MAJ would habe the same threshold. | Reconsider MAJ and MIN probability thresholds | yes | yes | high risk (N/A for SC medium risk) | |

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| 342 | EDA MS1 | ANNEX 1 | 22 | FDAL:##For the Catastrophic Failure Condition the DAL Allocation seems to be more severe than for Class I and Class II CS-23 aircraft. And for the top line in both table 3 and 4 of the SC it is also higher for the Hazardous Failure Condition## | Reconsider DAL allocations. ##Explanation for the chosen DAL allocation in case of no reduction. | yes | yes | high risk (N/A for SC medium risk) | |
| 343 | EDA MS1 and EDA MS2 | ANNEX 1 | 23 | Table 2: There seems to be a gap. This SC is planned to be applicable to Light UAS with a MTOM <600kg. But Table 2 stops at MTOM < 200kg. Where will the rules for UAS between 200 and 600kg that are operated over assemblies of people laid out? | Addition of Allowable Quantitative probabilities for UAS with a MTOM <600kg operated in BVLOS over assemblies of people. Or specification in SC Light UAS, where these probabilities could be found. | yes | yes | high risk (N/A for SC medium risk) | |
| 344 | EDA MS4 | generic | Introduction | It is written (page iv) that SC is applicable to UAS /.../ with MTOM up to 600 kg and operated in the specific category of operations, medium and high risk, or in the certified category of operations. Here „light UAS" may cause confusion, especially in those countries who are also in NATO. According to NATO documents light UAS is up to 150 kg (MTOM) and classified as class I. Class I UAS is described: „Class I UAS are small, self-contained and generally man-portable. They usually operate at low altitudes below the coordination level (CL). They typically support small unit ground forces and are generally controlled by a single individual who also views the sensor images and/or full-motion video (FMV) on a small laptop-type computer. They are typically limited to Line of Sight (LOS) operations." Therefore also in our legislation (and I guess also in quite many European countries) „light UAS" is UAS with MTOM up to 150 kg. We highly recommend not to use the term „light UAS" in this document, because it is misleading. | | yes | no | noted | EASA note as a CS like the one for light sport aircraft is also limited to 600 Kg, as EASAll as CS very light rotorcraft, while CS very light aircraft (VLA) is applicable up to 750 Kg. EASA would like to continue to use the term "light" with the same understanding of manned aircraft (as related to MTOM). |
| 345 | Pipistrel Vertical Solutions d.o.o. | Light-UAS.2510 (Medium risk) | 13 | In the phrase at point (a)(1) "Hazards are minimized in the event of a probable failure", the term "minimized" is too generic. | Specify what is meant with the term "minimized" | Suggestion | | not accepted | minimze is a term often used in aviation CSs |
| 346 | Pipistrel Vertical Solutions d.o.o. | Light-UAS.2511 | 13 | Point (b) doesn't end. Sentence has no meaning. | Finish the sentence. | Observation | | noted | : has been added |
| 347 | Pipistrel Vertical Solutions d.o.o. | Annex I | 23 | Table 2 biggest maximum dimension (< 3 m) is lower than Table 1 biggest maximum dimension (< 8 m), does this mean that UAS bigger than 3 meters can never fly over assemblies of people? If this is the case, it is not really clarified in the SC. | Clarify if UAS with a maximum dimension bigger than 3 m can fly over assembly of people. | Suggestion | | high risk (N/A for SC medium risk) | |

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| 348 | K McHale | Annex I | 22 | The adoption of Failure Condition (FC) severity descriptors that derive from manned CS has led to significant debate and confusion in projects I have worked on. ####All FC are hazardous to some extent therefore having a FC of "Hazardous" is misleading. ####The use of "Catastrophic", has tended to lead people to jump straight to considering the accident sequence outcome rather than consider the FC as an intermediate state where a range of outcomes may be possible. In manned aviation some failure conditions are simply not survivable hence "Catastrophic" is appropriate but, as the draft SC states "With no occupant on-board, the risk inherent to any UAS operation is strictly dependent on the characteristics of the operational volume, and of the adjacent ones which the UA might inadvertently enter." Consequently, the risk can only be assessed when the barriers and recovery options are also considered.#### | Consider broadening the FC definitions and amending the terminology as follows:##**No safety effect** – no change proposed.##**Minor** – no change proposed.##**Major** - amend to read:##"***Significant*** - failure conditions that:##• Reduce safety margins through loss of redundancy or independence in systems that provide functionality which, if completely lost, would attract a higher severity assessment.##• Prevent the crew communicating with ATS providers where the function is relayed via the UAV,##• Either by themselves or in conjunction with increased crew workload, are expected to result in an emergency landing of the UAS on a safe site.##**Hazardous -** amend to read:##"***Very Significant*** - failure conditions that:##• Compromise the ability to maintain safe separation from other air traffic.[1]##• Result in significant loss of situational awareness[2] for the UAVp or an inability for the UAVp to issue control commands to the UAV.##• Are expected to result in a controlled termination, or forced landing, at a safe site.##• Present a risk of significant injury[3] to UAS crew or ground staff. ##Software/Firmware DAL – C"##**Catastrophic -** amend to read:##"***Most significant*** – failure conditions that:##• Result in an inability to maintain stable flight to the extent that there is the potential for structural failure or loss of controlled flight. ##• Prevent the UAV taking appropriate collision avoidance action (only in systems with Detect and Avoid Capability intended for use in unsegregated airspace)##• May result in impact with the ground or obstacles outside a designated safe site.##• Present a credible risk of death to UAV flight or ground crew. ##Software/Firmware - Collision avoidance function DAL – A, otherwise Dal B[4]"## (1) To align with EASA policy SC-RPAS.1309-01 Issue 2 dated 12/10/2015.<br>(2) Significant data elements would have to be assessed in the context of the specific system design and level of crew intervention required to operate safely. | Suggestion##(It isn't possible to respond Yes or No) | Substantive##(It isn't possible to respond Yes or No) | high risk (N/A for SC medium risk) | |
| 349 | K McHale | Table 1 | 22 | Use of MTOM and area to specify the failure probabilities will drive incongruities for example Zephyr is a very large area UAS but only weighs about 80Kg the resultant structure is fragile and frangible and in many ways presents a relatively low hazard. ##There are many heavier UAVs which have smaller areas. Furthermore, the smaller and heavier fixed wing UAVs travel faster to generate the lift required for flight. ## | Mass and wing area drive the type of structure required in the UAV, a low mass large area system will have a low wing loading and be fragile whereas a low area but modest mass will have a higher wing loading, more robust structure and move faster thus presenting a higher risk. It is suggested that wing loading be considered as the defining characteristic for determining the required failure probabilities for fixed wing designs. | Suggestion | | high risk (N/A for SC medium risk) | |

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| 350 | Azur Drones | Statement of Issue | 2 | There is no formal reference to the SORA in this section. | The relation between this SC and the SORA should be more precisely established, especially by mentioning the connection between the M2 GRC Mitigation and the OSOs. ## It could be useful if each OSO concerning the UAS could be quoted in this SC.## The level of risk should not be “medium” or “high”, but should only be characterized by the SAIL which should be addressed by this SC : SAIL III, IV, V and VI | X | | noted | The formal refernce is to AMC to CIR 2019/947 which has adopted the SORA. EASA has captured OSOs and consdiered comments about correct tracing but does not consdier appropriate to report traceability matrix. "medium risk" is now well defined in introduction and where appropriate requirements are distinguished between SAIL III and IV. |
| 351 | Azur Drones | An objective-based, operation centric and proportional approach to UAS certification | 3 | There is nor formal referenceS to the SORA in this section. | It could be useful to mention the SORA, which is by design an objective based, operation centric and proportional method to analyse the operational risks. This SC should also be consistent with the NPA 2020-07, which is currently under review | X | | not accepted | The SORA is mentioned and it is explained that the EASA AMC and GM (to regulation 947) is based on the SORA |
| 352 | Azur Drones | Applicability | 4 | UA certification standards for low riks operations should be mentioned in this SC | Mention CS for low risk operations in the SC | X | | not accepted | The special condition is currently only addressing medium risk. |
| 353 | Azur Drones | Annex I Table 1 & 2 | Annex | The tables 1 & 2 refer only to high risk operations (UA operated BVLOS in populated environment, UA operated over assemblies of people). | It could be useful to add a third table referring to medium risk operations (for instance UA operated in sparsely populated environment). It should be more consistent to refer the allowable quantitative probabilities not on high or medium risk operations, but on the SAIL of the operations. | X | | high risk (N/A for SC medium risk) | |
| 354 | Azur Drones | Annex I Table 1 | Annex | The Table 1 does not mention an operation where the UA dimensions are < 1 m | It could be useful to add this type of operation, which is the most likely to happen shortly. | X | | high risk (N/A for SC medium risk) | |
| 355 | Azur Drones | Annex I Table 2 | Annex | The Table 2 mentions an operation where the Worst Crash area surface for a UA < 1 m and 1 kg is 70 m2. This figure should be explained, as well as the term of “Worst Crash Area”. | Explain the term of “Worst Crash Area”. Explain the figure of 70 m2 for the related Worst Crash Area | X | | high risk (N/A for SC medium risk) | |
| 356 | Azur Drones | Annex I, Table 3 and 4 | Annex | The Tables 3 and 4 refer only to high risk operations (UA operated BVLOS in populated environment, UA operated over assemblies of people) | It could be useful to add a third table referring to medium risk operations (for instance UA operated in sparsely populated environment). | X | | high risk (N/A for SC medium risk) | |
| 357 | Azur Drones | Annex I, Table 3 | Annex | The Table 3 does not mention an operation where the UA dimensions are < 1 m | It could be useful to add this type of operation, which is the most likely to happen shortly. | X | | high risk (N/A for SC medium risk) | |
| 358 | Azur Drones | Annex I. Table 4 | Annex | The Table 4 mentions an operation where the Worst Crash Area is < 7 m2; This figure should be explained, as well as the term of “Worst Crash Area”. | Explain the term of “Worst Crash Area”. Explain the type of UA to which the < 7 m2 the Worst Crash Area is relevant. | X | | high risk (N/A for SC medium risk) | |
| 359 | Azur Drones | Annex I Table 3 Table 4 | Annex | The drone industry globally wants to be able to use the resources of the Open Source world: (libraries and automated commercial proofreading tools), by providing a preliminary rationale explaining how much confidence can be placed in these resources. | The concept of Development Assurance Level should, without increasing the level of operational risk, be able to be adapted and extended to the drone industry. This possibility could be mentioned in this SC document. | X | | high risk (N/A for SC medium risk) | |

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| 360 | Azur Drones | Annex I<br>Table 3<br>Table 4 | Annex | The drone industry globally wants to be able to allow new methods of integration and continuous certification. The new automated tools and the high frequency of tests de facto avoid regressions following changes in the software. The increased frequency of tests makes it possible in particular to better control the quality and reliability of the software, which is considered preferable to the strong descriptive documentation requirements imposed by standard DO 187 C. | The concept of Development Assurance Level should, without increasing the level of operational risk, be able to be adapted and extended to the drone industry by authorizing the continuous certification process. This possibility, and especially the AGILE methodology, could be mentioned in this SC document. | X | | high risk (N/A for SC medium risk) | |
| 361 | William Branch | all | Introduction | Some of the acronyms are not defined when used. | The first use of an acronym should spell out the meaning. | Yes | No | noted | all of the acronym are explained now |
| 362 | William Branch | Applicability Paragraph 2 | iv | "Art 11 of Implementing Regulation…on the SAIL"##First, there appear to be words missing between of and Implementing. Did EASA mean 2019/947 or just the word "the"? Should probably spell out Article to be clear. Also, the SAIL definitions are not in 2019/947 or 2019/945. They are in JARUS SOAR, and they are in the publication "Easy Access Rules for Unmanned Aircraft Systems (Regulation (EU) 2019/947 and Regulation (EU) 2019/945)".##Recommend to clearly define the references for the risk assessment method, OSO, level of robustness, and SAILs. | Change the paragraph to read:##The concept of level of risk in operations of the specific category is based on the risk assessment methods, or Article 11 of the 2019/947 Implementing Regulation and is hinged on EASA AMC and GM. Particular attention should be placed on the SAIL (specific assurance integrity level) and level of robustness definitions in JARUS SOAR.##Then it flows into the next paragraph better. | Yes | No | noted | the text has been deleted |
| 363 | William Branch | Safety Objectives Paragraph 1 | v | UAS 2510 sets the objective for UAS cert. EASA calls out Annex I, which sets the objective for the High-Risk Specific Category. But at the bottom of page vi, EASA says the medium risk MOCs will be developed. | It is recommended the criteria for high and medium risk operations be included in this document. This document states it covers the Specific Category High and Medium risk and the Certification Category, but it does not. The Cert Category does not exist yet, and Annex I does not cover Medium Risk. It should not be hard to cover Medium Risk in this doc. | Yes | No | noted | the adopted document adresses only medium risk and no MoC are presented. |
| 364 | William Branch | 2010 a | 3 | The means of compliance seem to be outlined in Annex I, so that should be referenced in the AMC section. Also, other SCs issued by EASA name the Annex by A, B, C, not I, II, III. | (a) Recommend add Annex I to the AMC paragraph.##An applicant can comply with this Special Condition using an acceptable means of compliance (AMC, see Annex I) issued by EASA, or another means of compliance which may include consensus standards, when specifically accepted by EASA. | Yes | No | noted | The special condition will not contain any AMC. |
| 365 | William Branch | 2102 | 4 | "Normal and Limit" Flight envelopes are not well-defined terms in common use. | Recommend use of the standard terms already established in the Civil and Military standards: Operational Flight Envelope, Service Flight Envelope, and Permissible Flight Envelope. In terms of a UAS Operational would be what the autopilot controls to, Service might limit the operator could command, and Permissible would be recoverable limits if an upset or failure caused excursion of the Service Envelope. | Yes | No | partially accepted | The VTOL flight envelope concept is re-introduced which is similar to the proposed standard |
| 366 | William Branch | 2105c | 4 | Section (c) is redundant to (b)(2) so is not necessary | Remove (c) and rename (d) and (e) | Yes | No | accepted | text modified as proposed |
| 367 | William Branch | 2110 | 5 | The Note block at the top of page 5 seems to be Flight Envelope related. Make the section part of 2110 Flight Envelopes | Convert the box to a paragraph under the heading 2110 Flight Envelopes. The flight envelope should include bringing back any payload or external cargo that cannot be jettisoned due to failures. | Yes | Yes | accepted | moved to flight envelope as proposed |
| 368 | William Branch | 2115 | 5 | This SC really needs a Take-off Performance Section | (1) Add section 2115 Takeoff Performance ##The applicant must determine the take-off performance accounting for:##Operational Flight Envelope;##Obstacle Safety Margins;##Surface Danger Zones for loss of control failures. | Yes | Yes | not accepted | Due to the different CONOPS detailed perfomance standards cannot be set. Industry standards are expected to provide detailed specification ensuring compatibility with infrastructure. |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 369 | William Branch | 2130 | 5 | This SC needs a Landing Performance Section | Add section 2130 Landing Performance##(a) The applicant must determine the landing performance accounting for:##(1) the area to land and come to a stop, taking to account obstacle clearance;##(2) landing distance, including bringing back any payload or cargo that cannot be jettisoned due to failures;##(3) decision height for a balked landing; ##(4) Surface Danger Zones for loss of control failures. | Yes | Yes | not accepted | Due to the different CONOPS detailed perfomance standards cannot be set. Industry standards are expected to provide detailed specification ensuring compatibility with infrastructure. |
| 370 | William Branch | 2165 | 5 | UAVs up to 600 kg should have an icing section | Add section 2165 Flight in Icing Conditions##Use the standard icing section from other SCs. | Yes | Yes | partially accepted | Performance and Controllability needs to be demonstrated in the flight envelope. When Icing is not |
| 371 | William Branch | 2215 | 6 | Flight Load Conditions should be added | Add a section 2215 Flight Load Conditions | minor | rejected | partially accepted | covered by 2210 |
| 372 | William Branch | 2240 | 6 | Structural durability calls out section 2625 for continued airworthiness, but the section of 2625 that addresses structural airworthiness is not in 2625. | See the comments on 2625. | No | YES | partially accepted | 2625 addressess ICAs, where inspections and life limited parts are provided in manned aviation |
| 373 | William Branch | 2255 | 7 | In accordance with 2625, the process for continued airworthiness is the inspection of structures in accordance with section 2255. | (a) Recommend EASA needs to add an additional section 2255 since it is called out in 2625.##Add Section 2255 Protection of Structure##Protect against loss of strength due to the operating environment.##Provide adequate provisions for ventilation and drainage.##Allow access for maintenance and servicing. | No | Yes | partially accepted | intent covered by 2250 (a) |
| 374 | William Branch | 2260 | 7 | Materials and Processes clauses often address hazardous materials now. Suggest adding a line for hazardous materials to 2260, but this is only structures. Should be in Subpart D, but there is no general paragraph for materials and processes in D. Could modify the wording in many ways or call out many specifications for hazardous materials. | Add the following to 2260:##Materials and processes used should be environmentally friendly and not create hazardous wastes by:##(1) Not result in Hexavalent Chromate in the UAS structure;##(2) Be RoHS compliant;##(3) Contain no IARC Class 1 or 2A materials. | Yes | No | not accepted | the SC requirements are for airworthiness only |
| 375 | William Branch | 2305 | 8 | Not sure what (c) means in relation to a landing gear system. | Recommend remove (c) or reword it, so the meaning is clear for landing gear systems. | Yes | Yes | accepted | (c ) has been reworded to account for adverse landing conditions |
| 376 | William Branch | 2325 | 8 | Many UAS systems will use lithium batteries as a power source. There is a known fire hazard for Lithium batteries when punctured or overheated. While this requirement is a good catch-all statement, the term “minimise” is hard to quantify for the designer. Does this mean the UAS has to have a fireproof box around batteries? Does it mean they have to have a fire extinguishing system around fuel or batteries? Related to comment on 2350. | Replace minimise with more specific requirements if the intent is to prevent a fire from getting out of control in case of an accident, then requirements like protecting the battery from puncture or fuel leakage in case of an accident. Or use fire extinguishing materials around potential fire sources. Or other wording typical for 2325 or 2330. | Yes | No | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 377 | William Branch | 2335 | 8 | Lightning is spelled incorrectly in (b). Assuming the Limitations can be procedural, it would be nice to add a clarifying statement stating so. | (a) Change Current wording on (b):##If the intended operation excludes exposure to lightning, limitations must be developed to prohibit flight, including take-off and landing, into conditions where exposure to lightning is likely. These limitations can be procedural. | Yes | Yes | accepted | text changed |
| 378 | William Branch | 2350 | 9 | The statement to “minimise possible debris, fire, or explosions” is subject to interpretation. Does EASA really mean every UAS has to put the fuel tank or battery in a fireproof or accident proof box? This is a serious weight penalty for smaller UAS. It is related to comment on 2325. | While it is a nice design goal, the requirement is not definitive with the word minimise. If we really have to design to contain a fire, then state it as such. | Yes | No | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 379 | William Branch | 2415 | 10 | Maybe add a paragraph to the requirement that if the limitations cannot be monitored, then a method to detect limit exceedance post-flight must be provided. This will enforce temperature limit exceedance stickers or such if sensors are impractical. | Add:##(d) If limit exceedances cannot be monitored during flight, then means for detection of limit exceedances post-flight must be provided. | Yes | No | noted | c) reworded. Post flight procedures might be a means to mitigate risks. |

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| 380 | William Branch | 2510 Note | 13 | The Note under 2510 (Medium Risk), does it apply to the High-Risk category as well? It is assumed it does, but if it does not, then that needs to be made clear. It is assumed single point structural failures are allowed for High Risk (a) (1) if they are shown to meet Ultimate and fatigue loads with safety margins. | | Yes | No | high risk (N/A for SC medium risk) | noted. High risk not yet addressed. |
| 381 | William Branch | 2510 | 13 | Interesting that the High-Risk requirements do not include the requirement to detect and annunciate failures that the Medium Risk systems do? | | Yes | No | high risk (N/A for SC medium risk) | noted. High risk not yet addressed. |
| 382 | William Branch | 2511 | 13 | (b) is missing a: at the end of the statement. | Add a : | No | Yes | noted | : has been added |
| 383 | William Branch | 2511 Note paragraph 4 | 14 | Possibility for another system to prevent the UA from exiting the volume implies an on-board system. Change the wording to include crew action. | Change to:##The use of the term 'directly' means that a development error in software or airborne electronic hardware would lead the UA outside the ground risk buffer without the possibility for another means to prevent the UA from exiting the operational volume.##This would change the use in other places as well, such as 2528, where the limit envelope would be replaced by a service envelope. | Yes | No | accepted | text modified accordingly |
| 384 | William Branch | 2529 | 16 | The Navigation function is even more critical than the control function. Loss of control is usually a less serious hazard than a flyaway event. In these cases, the requirement for detection and alerting of failures (from 2510) is important and should be applied to the navigation system. | Add the 2nd paragraph:##In conditions where the state of the Navigation function is failed, erroneous, or unknown, the system shall detect and annunciate the status of the navigation system to the remote crew. | Yes | Yes | noted | this is considered captured under 2510 |
| 385 | William Branch | 2602 | 18 | For the Command unit it would be nice to include two additional paragraphs from human factors standards (MIL-STD-1472) for the use of colours and control actions. | 1) Consider adding:##(d) For common controls the following logic shall be used:##Knobs turning clockwise shall increase the effect of the function,##Switches Up or right shall increase##Pull levers, pull out shall increase##Push buttons Locking in shall activate a function, out shall deactivate.##(e) Functions on the CU shall be colour coded according to the following scheme.##Red shall be used for warning conditions where immediate crew action is required to prevent loss of the missile or loss of life.##Yellow shall be used for Caution conditions where a non-time critical action is required by the crew (like loss of link, loss of video).##White is used for advisories where the function is not critical for completion of mission or to show normal status or situational awareness.##Green shall be used for active or in process actions.##Gray shall be used for unavailable functions.##Black shall be used for backgrounds, borders, or text contrast.##Blue shall be used only for difference with green when necessary, or for water, sky, or cold indications. | Yes | No | not accepted | The details will be provided in the level of AMC |
| 386 | William Branch | 2625 | 19 | Section 2240 calls out structures should meet continued airworthiness requirements of 2625, but 2625 is missing the structures section. | (b) Add:##The applicant must develop and implement procedures to prevent structural failures due to foreseeable causes of strength degradation, which could result in loss of controlled flight. The Instructions for Continued Airworthiness must include procedures in accordance with Light-UAS.2255. | No | YES | not accepted | 2240 required the applicant to develop inspections and procedures as required for structural durability. 2625 only summarize the ICA procedures. |
| 387 | William Branch | 2710 | 20 | The C2 link performances must be specified may lead an applicant to just define range, should probably call out the AMC/GM specific data. | Change (a) to:##(a) The C2 link performances (data rates, latencies, spectrum, and datalink margin) must be specified as part of the Type Design of the UA. | Yes | No | noted | AMC will be developed in a later stage and within projects |

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| 388 | William Branch | 2720 | 20 | Loss of link indication should be part of Link Performance Monitoring. The system should provide a warning (in accordance with the AMC/GM) for LOL. | Add a paragraph to force LOL indication:##(c) If required for safe operation, the UAS remote crew must be provided with clear and distinct aural and visual alerts for any case of loss of C2 link. | Yes | No | not accepted | already captured under new a.1 |
| 389 | William Branch | Annex I paragraph 6 | 22 | Catastrophic Hazards have always considered worse case - which could result in a fatality. The wording "expected" to result in fatality is too constraining as nobody expects a fatality. Change the wording to the more standard could result in fatalities. | Change to:##Catastrophic: Failure conditions that could result in one or more fatalities. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 390 | William Branch | Annex I | 22 | In general the FDAL assignments and Quantitative Probabilistic look good. ##The definition of Major Hazard is pretty much a non-event, so what is the need to calculate probabilities for Major failure conditions. | Change Note E to include Major failure conditions | Yes | No | high risk (N/A for SC medium risk) | |
| 391 | William Branch | Annex I | 22 | The criteria seems to be Crash Area, but EASA list Dimensions and MTOM as the primary criteria. Weight really has nothing to do with crash area and size is less important than angle of descent. A large VTOL craft coming straight down is less likely to hit someone than a fast small aircraft coming in at a shallow angle but covering a very large area. Note I tries to downplay the Dimension and MTOM in favour of crash area. We should put crash area as the criteria (<7m is already defined that way so the table is inconsistent units). | Change the tables such that Crash area is the main criteria and Dimensions and MTOM are in parenthesis instead. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 392 | William Branch | Annex I | 22 | Table 2 implies any UA with dimensions over 3m or MTOM >200 kg or crash area >400 $m^2$ would not be allowed to fly over assemblies. If true no problem, but if not true then the table is not inclusive of all UA types. Same applies to Table 1, what if the crash area is >1200 or the UA size is >8m does one assume Cannot fly BVLOS. Also the crash areas are absolute values and should be < or > so it is assumed the middle box is between 7 and 70 $m^2$ and the top box is 70-400 $m^2$ and above 400 $m^2$ is not allowed? | Check that Tables are all inclusive for UA <600 kg and add </> to crash areas, or add a statement that Dimensions >8M cannot fly BVLOS and Dimensions >3m or 400 $m^2$ crash area cannot fly over assemblies of people. Same applies to the FDAL tables. | No | Yes | high risk (N/A for SC medium risk) | |
| 393 | William Branch | Annex I paragraph 5 | 22 | The severity definitions do not include an injury to people. So a physical injury does not fall into any severity class. Hazardous failure conditions should include injuries to people as some UA system could have lasers that blind, props that can cause permanent disabilities, hazardous materials that can cause long term health effects, etc. | Add to the Hazard severity serious injury or permanent disability to people. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 394 | William Branch | Annex I Table 1 & 2 | 22 | Table 1 and Table 2. The proposed quantitative probability numbers are equivalent to transport aviation categories from EASA CS-25 rules. Recommend quantitative probability numbers be changed to be equivalent to general aviation numbers in line with EASA CS-23 | | Yes | No | high risk (N/A for SC medium risk) | |
| 395 | William Branch | Annex I Notes | 24 | Note F calls for an average flight profile, but in reality more than one flight profile may need to be defined such that all functions are addressed by the CONOPS. | Change Note F to read:##Note F: Flight profiles must be defined which cover all functions addressed in the Type Certification Conops. The full flight envelope must be addressed as well as operational environment for which the applicant wants included in the Type Certification. | | | high risk (N/A for SC medium risk) | |

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| 396 | ENAC - Foti | None | Introduction | General comment.##Starting from CS-23 amdt. 5 Agency started to establish certification specifications or special conditions in an objective based manner. This process of avoiding too prescriptive requirements is continued in the years and was also the input to JARUS in the issuance of the CS-UAS. While for the "understanding" of the CS 23 amdt. 5 was available the history of the CS 23 old prescriptive style requirements, the risk for the subsequent is to became completely incomprehensible. This SC continued in this process of cutting, merging and compressing requirements that pose the risk to miss important pieces of safety. Obviously it is not the intent in the mind of who write this rule but the results will be read and complied by "other minds". To compensate this operation of "word-saving" in writing the requirements, each requirement should be accompanied by an extensively guidance material in order to explain what these words means. The goal is always the same, to assure a safely flexibility in grow of the civil aviation and leave industries more time to "invent" and less to understand and write "good" AMC. | Just a reflection. | Observation | Substantive. | noted | EASA has introduced notes where appropriate. More complete guidance will be provided in the frame of MoC definition |
| 397 | ENAC - Foti | Statement of issue | i | In the SC is used the term "National Aviation authority". Commission Delegated and Implementing Regulations uses the term: "Competent Autorities" or "Competent Aviation Authorities" | The term : "Competent Autorities" or "Competent Aviation Authorities" should be used. | suggestion | | accepted | |
| 398 | ENAC - Foti | Statement of issue | i | In this SC is used the term "UA" and "UAS".The definition is clear but the applicability in the SC is unclear. This SC provides requirements for: UA, CU, Cmmand and Control, Launch and recovery systems. Therefore SC should be applicable to UAS. | The SC should clarify with sufficient details the applicability to UA or UAS or both dependind . | suggestion | | noted | in "GENERAL" a TC is issued to UA (the issuance of a TC to a control unit may not be coherent with the BR). In the introduction the applicability is explained in a more general way (does not refer to release of a TC). |
| 399 | ENAC - Foti | Applicability | iv | Applicability – are missing applicability to CU, Cmmand and Control, Launch and recovery systems and BVLOS. | The following should be added with the necessary clarification:##This SC covers the requirements for BVLOS operation with the exception that the performance requirements for any detect and avoid technology ensuring safe separation are not yet developed ##This SC includes requirements for the CU (Contro Unit), Launch and Recovery Equipment (LRE) and Command and control (C2 Link equipment) . | suggestion | | noted | What stated in the comment is true, but performance requirements for DAA would not be included in the SC even when determined. Therefore we prefer to not change the text |
| 400 | ENAC - Foti | Statement of Issue | ii | The following sentence:##"Most UAS designs have a limited MTOM up to a few hundreds Kg. Especially considering the expansion of urban operations, the vast majority of upcoming UAS operations is expected with UAS of limited mass",##has no proof or reference to a study and the "limited mass" is undefinable.## | Please provide reference to study and a definition of "limited MTOM up to a few hundreds Kg ". | Observation | Objection | noted | Evidence is provided by drones under certification in EASA. Recent AW criteria adopted by the FAA also show that several drones with ,imited MTOM are under certification in the US. "limited" should be interpreted as linked with the applicability of the SC. |

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| 401 | ENAC - Foti | An objective-based, operation centric and proportional approach to UAS certification | iv | Curent text:##No other MOCs are presented so far, as they will be developed in a second stage and, when considered necessary, the most significant ones may be publicly consulted.####Comment:##The most “power” of an objective-based, operation centric and proportional approach to UAS certification is the granting to the Applicant in using industrial standard. Also, as stated in the CS 23 amdt. 5 traditional CS could be used as MOC. In this respect, JARUS CS-LUAS and CS-LURS are available and usable as applicable. | MOC’s coming from industrial standars and JARUS CS-LUAS and CS-LURS should be granted now. | suggestion | substantive | partially accepted | If an applicant proposes MoC based on JARUS CS-KLUAS or CS-LURS , the Agency will most probably agree with such MoC. Nevertheless it is not excluded that such MoC might in some cases be even too restrictive for the medium risk. |
| 402 | ENAC - Foti | Methodology and principle at the base of the SC | v | The text:##“As the SC covers certification for operations in the specific category”##is unclear. The SC covers initial airworthiness certification in the certified category and, if determined by SORA result assessed by Competent Authority , in the specif category. | Please clarify the text. | Suggestion. | | noted | this SC addresses only the certification for operations in the specific catgeory medium risk. The concept of certification for medium risk has been clarified with webinars and is feflected in the EASA AMC and GM update. |
| 403 | ENAC - Foti | Safety Objectives | v | Current text:##EASA has considered it appropriate to determine MOC to high risk safety objectives on the basis of an assessment of a probable urban scenario projected in 2035.##Comment:##The time frame 2035 is unclear. The rationale used for requirement and related MOC is undefined. | Rationale shoul be provided. | suggestion | substantive | noted | comments regarding high risk not addressed at this stage |
| 404 | ENAC - Foti | Safety Objectives | vi | The UA system that, if installed, implements the mitigation means M2, that could lead to permit the transition from high risk (SAIL 5) to medium risk (SAIL 4), shoul remain at high risk evenif the whole UAS became medium risk. | System used for mitigation means M2 for transition to medium risk is always at high risk for the purposes of compliance with Light-UAS.2510. | suggestion | | noted | comments regarding high risk not addressed at this stage |
| 405 | ENAC - Foti | Subpart C | 6 | As a general comment, this subpart is difficult to be understandable for compliance with. An extensive Guidance Material should be provided. In any case, considering the criticality highlighted in this special condition defined as High Risk class, several important requirements are missed and should be indroduced, perhaps, only for high risk UAS. | A complete review of the subpart C should be done indruducing additional requirements applicable, may be, only to high risk class. As alternative, a GM should be provided. | Suggestion | Substantive. | noted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 406 | ENAC - Foti | Subpart C | 6 | Light-UAS.2510 account for interaction system and structures. For completeness there should be a requirement in subpart C.## | Add the JARUS CS-2205. | Suggestion. | | not accepted | 2510 accounts for interaction system and structures |
| 407 | ENAC - Foti | Subpart C | 5 | Internal and external cargo are missed in term of structural requirements but present in subpart B as a simple note. | Add something similar to JARUS CS-2370 and CS-2275. | Suggestion | Substantive. | not accepted | loads due to internal or external cargo need to be adressed under 2235. Additionally 2375 has been introduced in subpart D addressing internal and external payload. |
| 408 | ENAC - Foti | Subpart D | 6 | As a general comment, this subpart is difficult to be understandable for compliance with. An extensive GM should be provided. In any case, considering the criticality highlighted in this special condition, defined as High Risk class, several important requirements are missed and should be indroduced, perhaps, only for high risk UAS. | A complete review of the subpart D should be done indruducing additional requirements applicable, may be, only to high risk class. As alternative, a GM should be provided. | Suggestion | Substantive. | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 409 | ENAC - Foti | Subpart E | 10 | Light-UAS.2410(b) is not in compliance with Light-UAS.2510 (high risk).##Rationale:##Traditional engine certification is made as a independent product as a dedicated TC or within the aircraft TC. The results from testing of one engine is used for compliance to requirements applicable to specific aircraft and, if required by safety objective, additional compliances will deemed necessary up to, for examples, multiple engines installation. The Light-UAS.2410 is applicable to complete "propulsion system" installed on that aircraft and the "minimization" could be not in compliance with high risk safety objectives. | Text should be arranged in line with safety assessment requirement Light-UAS.2510 or recalling it. | Suggestion | | not accepted | 2410 is mainly addressing durability of parts of the L/P/T units not necessarily subject to quantitative objectives of 2510. MOC will need to clarify the expected demonstration. |
| 410 | ENAC - Foti | Subpart E | 10 | System fire protection seems missing. | System fire protection shoud be added as a requirement. | Suggestion | Substantive. | noted | Fire is adressed in 2325 |
| 411 | ENAC - Foti | Subpart F##Light-UAS.2510 Equipment, Systems and Installation (Medium risk) | 13 | In the NOTE 2, the sentence:##"The term 'failure' needs to be understood as an occurrence that affects the operation of a part, or element such that it can no longer function as intended (this includes both loss of function and malfunction)."##should considers also system failure (REF. SAE ARP 4761) | Suggested sentence:##"The term 'failure' needs to be understood as an occurrence that affects the operation or mulfacntion of a system, part, or element such that it can no longer function as intended (this includes both loss of function and malfunction)."## | Observation | | accepted | text modified accordingly |
| 412 | ENAC - Foti | Subpart F | 16 | Light-UAS.2529 – the intent of the requirements is unclear. | Please write better or explain the intent. | Observation. | | noted | original FCS requirement of JARUS split in 2 requirements (subaprt D and subpart F) |
| 413 | ENAC - Foti | Subpart F | 12 | High energy rotating parts requirement is missing. | JARUS CS-2550 should be considered applicable. | Suggestion | Substantive | noted | In the frame of the SC it is considered captured under 2510 |
| 414 | ENAC - Foti | Annex I | 22 | It is not possible to comment this annex because is not available the rationale. | Please provide rationale. | suggestion | substantive | high risk (N/A for SC medium risk) | |
| 415 | | Annex I##Table 2 | 23 | Text:##Maximum dimension < 3 m AND MTOM < 200 Kg (400 m2 worst crash area).##Observation:##SC is applicable up to 600 Kg. Table 2 for certified category over assemblies of people seems an additional limitation. | Please provide rationale.## | observation | | high risk (N/A for SC medium risk) | |
| 416 | DGAC/DSAC | | Introduction | This is a general comment for the entire document. ##These SC contains high-level requirements, that need to be completed and detailed by technical standards. These standards not being available now, commenting the high-level requirements is difficult as long as they contain mostly obvious information, or information that is not exploitable without MOC. | | no | yes | noted | EASA notes that the comment "obvious information" would have been fully applicable to CS-23 amendemnt 5 as long as ASTM standards were not yet linked, and to SC VTOL too. It is EASA methodology to develop MoC in a second stage and this is remained so for objective CS/SC. We have clarified that we intend to develop MoC within real projects (whihc are waiting for a certification basis in the medium risk). |
| 417 | DGAC/DSAC | Statement of issue, applicability | Introduction | It should be clarified if these SC cover light airships or not. If yes, then adaptations would probably be necessary.##Note: figure 1 does not mention the case of airships (CS-UAS does not cross any lighter-than-air CS). The case of airships need to be covered, there are already several ongoing projects | | yes | no | accepted | text has beed added for lighter-than-air |

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|---|---|---|---|---|---|---|---|---|---|
| 418 | DGAC/DSAC | Applicability | iv | It is understood that "High risk" and "medium risk" are defined with reference to SORA, therefore applicable for UAS operated in the specific category (§1.d) of article 40 of Reg. 2019/945)##The case of drones certified in application of §§ 1.a) to 1.c) of article 40 of Reg. 2019/945 needs to be clarified; it should be clear that they should be considered as "high risk". | Define "medium risk" (SAIL III-IV?) and "high risk" (SAIL V-VI + certified category?) in § 2000.##Drones certified in application of §§ 1.a) to 1.c) of article 40 of Reg. 2019/945 shall be considered "high risk". | yes | no | noted | The definition of risk has been further elaborated and ithe use of the word within this SC has been clarified |
| 419 | DGAC/DSAC | Safety objectives | vi | "with a residual air risk class lower than D": it seems that ARC-d is excluded from the applicability of these SC.##This would exclude large portions of airspace.##ARC-d should be considered in these SC. | If ARC-d operations are excluded, it should be explicitely mentioned in the applicability | yes | no | noted | text has been deleted |
| 420 | DGAC/DSAC | §2105(c)##§ 2135(a) | 4 | As written, it seems that performance and flying qualities requirements shall only be satisfied within the "normal flight envelope".##We consider that some requirments should also apply in case of abnormal/failure conditions. | | no | yes | accepted | operational flight envelope re-introduced and controllability requirement extended |
| 421 | DGAC/DSAC | §2500.(a) | 12 | " …and should not be used to supersede any other specific Light-UAS airworthiness standard"####The term "supersede" is ambiguous in this sentence.####For example, please confirm that, if §2510 requires a probability of leaving the operational volume more stringent than the one defined in §2511, the probability resulting from § 2510 would need to be satisfied.## | | yes | no | noted | Requirement drafted as in SC VTOL. In case a more stringent probabilty would be derived from 2510, it will have priority |
| 422 | DGAC/DSAC | §2500(b) | 12 | "…whose improper functioning would lead to a **hazard**"##Is "hazard" to be interpreted by reference to the "hazardous failure condition" of § 2510 (therefore excluding major failure conditions)? | | yes | no | noted | hazard is a more general term and includes also major ones |
| 423 | DGAC/DSAC | §2510, medium risk | 13 | The requirements in this article are very "qualitative".####It is not easy to understand exactly what is actually required before a detailed MOC is provided.#### | | yes | no | noted | They have been extracted from SORA and adherence to SORA is voiced from several stakeholders. The AMC will provide cleareness |
| 424 | DGAC/DSAC | §2511(b) | 13 | "…must be less than 10-4/FH"##For High risk class, §2510 may lead to a more stringent requirement for the probability to leave the operational volume. For the sake of clarity, we propose to make this explicit (see alsocomment n°4 above)##The value of 10-4/FH may be too low if the adjacent areas include arc-d airspace or gathering of people. How has this value been determined?## | "…must be less than 10-4/FH **unless a more stringent requirements results from light-UAQS.2510**" | no | yes | partially accepted | requiremement has been changed and 10exp(-4) is referred to in the note as one of the elements to be considered. MoC to be defined (as for most requirements) |
| 425 | DGAC/DSAC | §2511(b) | 13 | "When the risk associated with the adjacent areas on ground or adjacent airspace is significantly higher than the risk associated with the operational volume…"##This requirement is dependent on the conditions of a specific flight. It is not clear how the allowed criticality of the adjacent areas can be captured at the time of the certification and transcribed in an operating limitation.##"significantly higher" needs to be clarified. | | yes | no | partially accepted | The note has been redrafted to make the intent clearer. "significantly" is not the only example of qualitative terminology used in this SC and other CS (e.g.: "minimize" is another example). Its assessment is left to the NAA. |
| 426 | DGAC/DSAC | §2529 | 16 | This requirement is written in a way which is too absolute/stringent.####A MOC is required to quantify the precision/integrity/continuity requirements behind « remains within the intended flight path ». | | no | yes | noted | Precision / integrity is part of MoCs to be defined |
| 427 | DGAC/DSAC | §2530 | 16 | This article only applies to lights required by the operational rules. The requirements for these lights should therefore be defined in the operational regulations, not in a SC. | | yes | no | accepted | |

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| 428 | DGAC/DSAC | §2575 | 16 | This § only indicates that emergency procedures must be triggered in case of loss of C2, but in some cases the UAV's resilience to the loss of C2 should be higher (e.g. to continue its mission normally in the event of a C2 loss of a few seconds). Is it processed through the 2510?#### | | yes | no | noted | The requirements is limited to "Where the safe operation of the UAS requires command, control and communication functionality" |
| 429 | DGAC/DSAC | §2602, 2605 | 18 | An AMC is required for Human Factor aspects | | yes | no | noted | The details will be provided in the level of AMC |
| 430 | DGAC/DSAC | §2605 | 18 | ########(e) "safety equipement" needs clarification## | (c) We suggest "warnings, cautions and **advisory** indications" rather than "normal" | yes | no | noted | The information should include normal parameters when required. Text identical to VTOL |
| 431 | DGAC/DSAC | Annex I, MOC to §2510 | 22 | The concept of "worst crash area" shall be defined.####Different failure conditions leading to a catastrophic crash may lead to different crash modes and therefore different crash areas (e.g. controlled spiral mode with a reduced speed / high speed low angle dive). Can the manufacturer apply different probabilities / FDAL to the different failure conditions, depending on the resulting crash area? Or is the concept of "worst" crash area precisely defined to prevent this ?####The criteria used to distinguish between the different UAS classes are different from those used in SORA to establish the GRC. A harmonised approach would be preferable.## | ## | yes | no | high risk (N/A for SC medium risk) | |
| 432 | DGAC/DSAC | Annex I, Tables 1 to 4 | 23 | | For the sake of clarity, all tables should contain all UAS classes (even if it means having the same probability/FDAL for several classes) | yes | no | high risk (N/A for SC medium risk) | |
| 433 | DGAC/DSAC | Annex I, Table 3 and 4 | 23 | For some minor failures conditions with a 10-2 objective, the FDAL required is sometimes D and sometimes E. D seems to be a bit too stringent. | | yes | no | high risk (N/A for SC medium risk) | |
| 434 | DGAC/DSAC | Annex I, Note B | 24 | Is such a DAL reduction allowed for the other cases ? (i.e. minor or major or crash areas above 70 $m^2$ ) | | yes | no | high risk (N/A for SC medium risk) | |
| 435 | M Papini | 1st paragraph | ii | | Please provide AMC "which provide further guidance on when the Regulation requires the certification of the UA". | yes | no | noted | update of EASA AMC and GM is scheduled before the adoption of this SC |
| 436 | M Papini | 5th paragraph | ii | "but UAS shall be certified by EASA for higher risk operations and depending on the conops"##Is there risk threshold that requires SC with EASA? | Please clarify | yes | no | noted | please refer to update of EASA AMC and GM |
| 437 | M Papini | Fig 1 | iii | What do colours mean? Why does CS-UAS span other CS but not CS-light. | Please clarify | yes | no | noted | because SC Light UAS already contains the full set of requirements (also those peculiar for drones) |
| 438 | M Papini | Last paragraph | iii | "Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation. The definitions will be in line with the EASA AMC and GM. The **TC issued on that basis will only permit operations in this context.**"##This seems backward? | I do not think operational volumes, buffers, etc should be part of the UAS certification application.##I would expect a TC is granted, which includes vehicle performance limits. Then the operational authorization will be granted to the operator based on the operational volumes, buffers, air risk, TC, etc. proposed by the operator.## | no | yes | not accepted | the certification is linked to the SAIL; a certification for SAIL 3 cannot be claimed by the applicant to cover evidence of compliance with OSOs linked to design for, e.g., SAIL 5. The determination of the SAIL requires what explained by the EASA AMC and GM (SORA) either as known for perspective operation or by assumption. |

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| 439 | M Papini | 2nd paragraph of Safety Objectives | v | "EASA has considered it appropriate to determine MOC to high risk safety objectives on the basis of an assessment of a probable urban scenario projected in 2035."##This assumption may be overly conservative and stifle innovation and utilization. | Suggest EASA consider predicted utilization rates only 5 years into the future rather than 15. Rational:## - this is a new field whose technology changes significantly every 12 months.## - Life expectancy of a drone < 3 years (by then it will be obsolete)## - SC will be revised to CS so have time to correct safety requirements | no | yes | noted | high risk safety objectives not applicable for this SC (medium risk) |
| 440 | M Papini | Definition (3) | 3 | What is a "Command Unit" | Please define Command Unit or use other term: ground station, command station, controller?##Or reference Light-UAS.2602. | yes | no | not accepted | CU is defined in the regulation |
| 441 | M Papini | Boxed text | 3 | Same issue as NR 4 – not sure why an Operational Authorization affects the TC?##Every application should include a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both the ground and air risk, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation. | Suggest:##Every application should include a detailed definition of any restriction, limitation and mitigation means associated with the operation of the vehicle, as per Light-UAS 2340 | no | yes | partially accepted | text has been redrafted |
| 442 | M Papini | Light-UAS.2010 Accepted Means of Compliance (a) | 3 | The requirement referes to AMC issued by EASA and "concensus standards accepeted by EASA. This is overly restrictive since there are only a few UAS AMC approved by EASA or applicable consensus standards, and there does not seem to be a way of proposing our own AMC.## | Would suggest that TC applicant also can propose an AMC for EASA concurrence:##(a) An applicant can comply with this Special Condition using an acceptable means of compliance (AMC) issued by EASA, or another means of compliance which may include consensus standards, when specifically accepted by EASA, or propose alternate means of compliance (AltMoC) subject to the approval of EASA. | no | yes | noted | requirement meaning is already so "or another means of compliance which may include consensus standards, when specifically accepted by EASA". It would be a repetition of the same concept. |
| 443 | M Papini | Light-UAS.2300 UA flight control systems | 8 | What is a "likely hazard" | Please add footnote defining "likely" | yes | no | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 444 | M Papini | Light-UAS.2305 Landing gear systems (c) | 8 | What is the purpose of (c)? This seems to redundant with Light-UAS.2235 (a)(1)? | Delete 2305 (c) | yes | no | noted | It needs to be assured that no unsafe conditions develops for the next flight that is not detected |
| 445 | M Papini | Light-UAS.2325 Fire protection | 8 | This requirement is not achievable.##Minimise – To reduce to the smallest possible amount or degree##How can "minimise" every be achieved? | Suggest the following wording:##The UA must be designed to reduce the risk of fire initiation and propagation such that ground hazards for people and infrastructure are properly mitigated. | yes | no | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 446 | M Papini | Light-UAS.2350 Forced landing or a crash | 9 | Use of the word "minimise" makes this requirement unachievable. | See NR 11 | yes | no | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 447 | M Papini | Light-UAS.2400 Lift/Thrust/Power systems installation (d) | 10 | What is the purpose of this requirement? Would this requirement force us to enclose the drone rotors for an "anticipated" bird strike threat? If yes, this could be problematic due to the large rotos we use. | | no | yes | noted | When a bird strike in the anticipated operating conditions would create a risk to the operation it needs to be considered. MOC will be needed. |

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| 448 | M Papini | Light-UAS.2410 Lift/Thrust/Power Endurance and durability | 10 | "endurance demonstration of sufficient duration with respect to cycles" may be difficult to perform within a certification campaign. | Need AMC providing methodology of extrapolating life cycle from limited tests (this is done for commercial aircraft structure life cycle testing) | no | yes | noted | The need for MOC is understood. Endurance demonstration is state of the art within a certification project. |
| 449 | M Papini | Light-UAS.2430 Energy storage and distribution systems (5) | 11 | Use of the word "minimise" in line (5) makes this requirement unachievable. | See NR 11 | yes | no | noted | Minimise is understood as minimisation in accordance with the technical standard. |
| 450 | M Papini | Light-UAS.2510 Equipment, Systems and Installation (High risk) (b) | 12 | (b) The operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must not cause a hazard throughout the operating and environmental limits for which the UAS is certified.##Then on p13, "hazard" is defined as" a failure condition that relates to major, hazardous or catastrophic."##That implies there can be no MAJ/HAZ/CAT failure condition throughout the operating and environmental limits for which the UAS is certified. This seems excessive for MAJ, which results in a significant reduction in safety and increased crew workload, but no crash or fatalities. | Would suggest:##(b) The operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510:##(1) Must not cause a HAZ or CAT failure condition throughout the operating and environmental limits for which the UAS is certified.##(2) There must be a strategy for detection, alerting and management of MAJ failure conditions or combination thereof. | no | yes | high risk (N/A for SC medium risk) | high risk not addressed for the moment |
| 451 | M Papini | Light-UAS.2510 Equipment, Systems and Installation (Medium risk) (a)(3) and (b) | 13 | Not sure what (a)(1) means? Does it mean, probable failures resulting in failure conditions classified as MAJ, HAZ or CAT must be minimized?##(a)(3) A strategy for detection, alerting and management of any failure or combination thereof, which would lead to a hazard, is available. This does not consider the probability of the failure so that even extremely improbable events must be detected and managed, which could be very difficult to implement.##(b) Any hazard which may be caused by the operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must be minimised. This does not consider the probability of the failure so that even extremely improbable events must be detected and managed, which could be very difficult to implement. | Possible alternate wording:##(a)(1) Probable failures resulting in failure conditions classified as MAJ, HAZ or CAT must be minimized##(a)(3) A strategy for detection, alerting and management of failures or combination thereof, which would lead to a probable hazard, is available.####(b) Probable hazards which may be caused by the operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 should be diminished. | no | yes | not accepted | requirement is extracted from SORA / EASA AMC |
| 452 | M Papini | Light-UAS.2511 Containment (a) | 13 | As discussed in NR 4, FlyingBasket believes the TC should be independent of the operation, i.e. should not have to specify the operational volume within the TC.####(Also, I personally hate the repeated use of the word "operation" within this requirement.) | Suggest:##No probable failure of the UAS or any external system supporting an operation must lead to loss of containment of the operation.##Should also define "probable" to once in a life time event. | no | yes | partially accepted | the note in "GENERAL" referring to the information linked with the TC has been redrafted. In any case, the TC is linked with the SAIL which is linked with the risk assessed in the operational volume + ground buffer. These are concepts which will remian. This does not mean a link to the specific geographical locationj, of course |

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| 453 | M Papini | Light-UAS.2511 Containment (b) | 13 | As commented in NR 17, remove references to operational volumes and buffers.#### | (b) When the risk associated with loss of containment is significantly higher than the risk of the operation##(1) The probability of loss of containment must be less than 10-4 /FH,##(2) No single failure of the UAS or of any external system supporting the operation must lead to loss of containment, and##(3) Software and airborne electronic hardware whose development error(s) could directly lead to loss of containment must be developed to a standard or methodology accepted by the Agency.##OR##Maybe it is simpler to call UAS.2511(a) as Low Risk requirement and (b) as Medium and High Risk requirement? | no | yes | not accepted | Strong links with the SORA are kept |
| 454 | M Papini | Boxed text | 14 | As commented in NR 17 | Remove references to operational volumes and buffers. | no | yes | not accepted | |
| 455 | M Papini | Light-UAS.2515 Electrical and electronic system lightning protection | 14 | Do not see the alleviation in requirements between high and medium risk for a FlyingBasket type aircraft (simple design with minimum systems). | | yes | no | noted | requirements are different (and FB is not providing any suggestion) |
| 456 | M Papini | Light-UAS.2520 High-Intensity Radiated Fields (HIRF) Protection | 15 | Do not see the alleviation in requirements between high and medium risk for a FlyingBasket type aircraft (simple design with minimum systems). | | yes | no | noted | requirements are different (and FB is not providing any suggestion) |
| 457 | M Papini | Light-UAS.2528 UAS Envelope protection Function | 15 | The Envelope Protection Function is optional in SORA. Why is it mandatory in this specification? | Should add:##"For an UAS which employs an Envelope Protection Function:" | no | yes | not accepted | OSO18 is not optional for SAIL 3-6 |
| 458 | M Papini | Boxed text | 17 | Can this page be deleted? | | yes | no | accepted | |
| 459 | M Papini | Light-UAS.2602 Command Unit | 18 | Item (c) uses minimise again. See NR 11. | Maybe it is sufficient to define minimise:##Minimise means to reduce as much as reasonably possible | yes | no | noted | Minimise is understood as minimisation in accordance with the technical standard. |
| 460 | M Papini | Light-UAS.2615 Flight, navigation, and thrust/lift/power system instruments | 19 | Typo:##Installed systems must provide the remote crew member, who sets or monitors parameters for the flight, navigation, and lift/thrust/power system the information necessary to do so during each phase of flight. | Corrected:##Installed systems must provide the remote crew member, who sets or monitors parameters for the flight, navigation, and lift/thrust/power system the information necessary ~~to do so~~ during each phase of flight. | yes | no | not accepted | The crew only needs the data required to do the job. |

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| 461 | M Papini | Light-UAS.2715 C2 Link Performances | 20 | What is the purpose of (b) The C2 Link system message sequencing must be such to preserve the safety of the operation?##If COTS links are used the message sequencing cannot be controlled. How then, can this objective be met? | | no | yes | noted | The question is not if the requirement is appropriate ("The C2 Link system message sequencing must be such to preserve the safety of the operation"). The question is more about AMC in case of COTS. Tests might be potentially proposed as AMC complement if the applicant is not able to provide sufficient information about message sequencing. |
| 462 | M Papini | Light-UAS.2720 C2 Link Performance monitoring | 20 | | Please define C2CSP | yes | no | accepted | Definition added |
| 463 | M Papini | Table 4 | 23 | How did EASA derive the class of RPAs (column 1) for the classification of failure conditions? Note that FlyingBasket aircraft have dimension < 2m, mass of 60 kg (no cargo) and crash area in the order of 10 $m^2$ (no cargo), which does not align well with any of the RPA classes in the table. | Produce 2 columns, one for fixed wing and another for VTOL. | no | yes | high risk (N/A for SC medium risk) | |
| 464 | M Papini | Note C & D | 24 | Why is the Agency concurrence recommended for Note C, which is a well-defined process, but not in Note D, which is not well defined? | Add recommendation for early Agency concurrence on the failure probability numbers to Note D | yes | no | high risk (N/A for SC medium risk) | |
| 465 | UK EUMETNET Member | Sub-Parts C and D | 6 | We do not see MET or atmospheric conditions mentioned in Sub-Parts C and D when considering and defining structural design except for Light-UAS.2335 Lightning protection on page 15. What about effects of rain and ice on the design when operating or winds speeds, up and downdraught strengths on take off lift/thrust/power operations or the effects of environmental temperature and pressure when considering normal operating temperatures and pressure. | Consider including MET or atmospheric conditions mentioned in Sub-Parts C and D when considering and defining structural design. For example, the effects of rain and ice on the design when operating or winds speeds, up and downdraught strengths on take off lift/thrust/power operations or the effects of environmental temperature and pressure when considering normal operating temperatures and pressure. | no | yes | partially accepted | 2200 includes "for all UA design and operational parameters that affect structural aspects" which covers the MET and atmospheric conditions |
| 466 | UK EUMETNET Member | Sub-Part F | 17 | No mention of considering MET conditions when storing equipment (though implied indirectly). Consideration of MET events when assessing hazards.. | Consider making more explicit reference to MET conditions when storing equipment. There could be some opportunity for requiring manufacturers to obtain information on the frequency of MET events to which the equipment may be sensitive – so that they have some idea of what to expect and to what level their UAS need to be resilient in order to provide reliable and safe services. | | | noted | This can be discussed on MOC level |
| 467 | UK EUMETNET Member | Sub-Part I | 21 | When considering compliance with the airworthiness standard design and installation appraisals could/should include 'Any relevant particular risk (e.g. hail, snow, electro-magnetic interference etc) associated with the operation.' | Consider including any relevant particular risk (e.g. hail, snow, electro-magnetic interference etc) associated with the operation.' | | | noted | crew training is not part of the cert. basis for UA (not being type rated) |
| 468 | UK EUMETNET Member | Sub Part G | 18 | Remote crew interface and other information. We see reference to ensuring and maintaining appropriate levels of competence and training for crew, should this be included here or in any other parts of the proposal? | Consider including, and the appropriate place for such inclusion, references ensuring and maintaining appropriate levels of competence and training for crew. | | | noted | crew training is not part of the cert. basis for UA (not being type rated) |

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| 469 | Drone Manufacturers Alliance Europe (DMAE) | Introduction; "Applicability" | iv | The SC lacks clarification on why it needs to deviate from JARUS CS-LURS. Therefore the limit of 750 kg should apply. ## | Proposed change: **##**- With MTOM up to **750kg** ## | Suggestion | Substantive | noted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 470 | Drone Manufacturers Alliance Europe (DMAE) | Subpart A: GENERAL; Light-UAS.2000 Applicability and Definitions | 3 | The SC lacks clarification on why it needs to deviate from JARUS CS-LURS. Therefore the limit of 750 kg should apply. ## | Proposed change: **##**- With MTOM up to **750kg** ## | Suggestion | Substantive | not accepted | the MTOM of 600 Kg is aligned with CS VLR; JARUS CS LURS has not been adopted by EASA |
| 471 | Drone Manufacturers Alliance Europe (DMAE) | Subpart A: GENERAL; Light-UAS.2000 Applicability and Definitions | 3 | Risk-based operations under the EASA Basic Regulation and subsequent rules have been categorised as low (Open Category), medium (Specific Category) and high (Certified Category) risk. Why is EASA introducing the concept of "medium risk" and "high risk" as sub-categories within the Specific Category? We should avoid using the same concepts for particular and already defined terminology; this will only cause confusion amongst manufacturers, certification bodies and operators. ##With regards to JARUS SORA concept and #OSO5 "UAS is designed considering system safety and reliability the risk level can be considered as follows: ## Optional=SAIL I+II, Low=SAIL III, Medium=SAIL IV and High=SAIL V+VI ; ## EASA does not clarify why SC LUAS applies to SAIL III operation and how a manufacturer needs to use SC LUAS for SAIL IV operation. ####It was our understanding that EASA would publish a list of consensus-based industry standards acceptable as MoC in relation to specific provisions of this SC but that a third party validation would be required only for a high level of assurance Sail V and VI (high risk). | Proposed change: **##**(a) intended to be operated in the Specific category, or in the Certified category, ## | Suggestion | Objection | noted | EASA has provided during webinars diffused evidence about policy for "medium risk" |
| 472 | Drone Manufacturers Alliance Europe (DMAE) | Introduction; Applicability | iv | Transponder, ADS-B and Flight Recorders are typical manned aviation equipment and it is very unlikely that this equipment will be required for UAS. | Proposed change:##This SC does not mandate the use of certain **functions** that might be required for specific **UAS** operations, such as **remote Identification**, **Geofencing or Detect and Avoid.** When this equipment is required, it will have to be installed according to the standards of Subpart F of this SC. | Suggestion | Substantive | noted | They are just examples and are mentioned by the Air Risk of the SORA (EASA AMC and GM) |

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| 473 | Drone Manufacturers Alliance Europe (DMAE) | Introduction; Applicability | iv | With regards to JARUS SORA concept and #OSO5 "UAS is designed considering system safety and reliability the risk level can be considered as follows: ## Optional=SAIL I+II, Low=SAIL III, Medium=SAIL IV and High=SAIL V+VI ; ##EASA does not clarify why SC LUAS applies to SAIL III operation and how a manufacturer needs to use SC LUAS for SAIL IV operation. ####It was our understanding that EASA would publish a list of consensus-based industry standards acceptable as MoC in relation to specific provisions of this SC but that a third party validation would be required only for a high level of assurance Sail V and VI (high risk). | Proposed change:##The UAS operator is required to demonstrate the operational safety objectives (OSO) with a level of robustness proportionate to the SAIL. Operational Safety Objectives ("OSOs") related to design need to be demonstrated with a high level of robustness when the operation is classified as SAIL V and VI. SAIL V and VI are herein defined as "High Risk". UA Certification standards for low risk operations are not included in this SC | Suggestion | Substantive | partially accepted | the text has been adapted, but also on the base of other comments |
| 474 | Drone Manufacturers Alliance Europe (DMAE) | Introduction; Safety Objectives | Vi | EASA's role could benefit from further clarifications. A SORA application will be dealt with the CAA in the relevant EU member state and not with EASA. M1 mitigation is an operational strategic mitigation and not a technical mitigation and relies on the ConOps and the proposed mitigation. | | Observation | Substantive | partially accepted | text has been clarified |
| 475 | Drone Manufacturers Alliance Europe (DMAE) | SUBPART B – FLIGHT; Light-UAS.2135 Controllability, manoeuvrability and stability | 5 | Pilot training already covers the skills required to control and maneuver the UAS. | Remove: "without requiring exceptional skill or alertness on the part of the remote crew" | Suggestion | Substantive | noted | The intention is to ensure that an average pilot who has performed the training is capable to fly the UA. |
| 476 | Drone Manufacturers Alliance Europe (DMAE) | SUBPART C - STRUCTURES Light-UAS.2250 Design and construction principles | 7 | For consistency with CS-23 and CS-25, we suggest adapting the subsection as "(c) the suitability of each design detail and part, the failure of which could adversely affect safety, must be determined." | Proposed change:##"(c) the suitability of each design detail and part, the failure of which could adversely affect safety, must be determined." | Suggestion | Substantive | not accepted | adversely affect safety might lead to excessive substantiation for design details having limited affect on safety. |
| 477 | Drone Manufacturers Alliance Europe (DMAE) | SUBPART F – SYSTEMS AND EQUIPMENT; Light-UAS.2510 Equipment, Systems and Installation (Medium risk) | 12 | Light UAS.2510 (medium risk) requirements are a combination of integrity requirements from JARUS SORA 2.0 #OSO5 and OSO10# but #OSO10 only applies "when operating over populated areas or gatherings of people". ##It is not clear why SC Light UAS is not differentiating from SAIL III and IV operations over sparsely populated areas. | Proposed change: ##Remove "b) It can be reasonably expected that a catastrophic failure condition will not result from any single failure, and" or add a note that this requirement only applies when flying over populated areas like in JARUS SORA | Suggestion | Substantive | partially accepted | the note has been enriched |

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| 478 | Drone Manufacturers Alliance Europe (DMAE) | SUBPART F – SYSTEMS AND EQUIPMENT ;##Light-UAS.2530 UA External lights | 16 | In general, it is not clear what is meant with "required by operational rules" and why EASA is derivating from CS LURS. ##Paragraph(a): It is not clear if this applies only to VLL airspace. A green conspicuity light for the ground is an unknown concept for SERA. ##Paragraph (b): If lights under (b) are combined with (a) it is not clear how (b) can be achieved because a green flashing conspicuity light in accordance to (a) and prEN4709-004 norm may interfere with lights under point (b). New SERA rules for unmanned aircraft are needed first. ##Paragraph (c) is linked to fixed wing manned aircraft configurations but does not apply in general to multirotor UAS. This paragraph should be deleted and new SERA rules for unmanned aircraft are needed first.##Paragraph (d): it is unclear what "must perform as expected" means. | | Observation | Substantive | not accepted | "must perfom as expected" is a terminology used in CSs. The UAS being certified, it is considered appropriate to provide requirements about Lights, which have been refined on the base of other comments |
| 479 | Drone Manufacturers Alliance Europe (DMAE) | SUBPART F – SYSTEMS AND EQUIPMENT Light-UAS.2511 Containment | 13 | For medium risk operations, it should be possible to claim compliance with Light-UAS.2511 (3) by demonstrating software and hardware suitability based on in-service experience. | | Observation | Substantive | noted | Testing is under consideration as possible AMC, nevertheless it is considered that SW and airborne electronic HW development should still be based on sound methodology; the Agency is open to assess the proposed methodology. |
| 480 | DAE | General | Introduction | The Drone Alliance Europe ("DAE" or the "Alliance") commends EASA for developing this Special Condition document. DAE agrees that current airworthiness standards for manned aircraft are not appropriate to apply to unmanned aircraft systems ("UAS") in the Specific Category (for which certification may be required or desired) or in the Certified Category. For UAS that require certification, the Special Condition is an appropriate framework pending the development of a full Certification Standard. | | | | Noted | Thank you |
| 481 | DAE | General | Introduction | The Special Condition should recognize the variations in risk posed by different UAS in a variety of operations. As drafted, the Special Condition imposes requirements (parts and subparts) that may not be applicable to every UAS. EASA should incorporate a process for designers to justify why a part or subpart may not be required for safety, and therefor would not be subject to a Special Condition requirement. | | | | noted | The published SC for medium risk has increased flexibility . It is still possible, withing specific certification projects, to address specific requirements with Certification Review Items and discuss their applicability within the CRI |
| 482 | DAE | General | Introduction | Further, the Special Condition should adopt a performance-based approach to validating UAS. EASA should define a target level of safety for the system as a whole – in the context of its intended operation – and recognize a range of ways to verify that the system delivers the required performance. These may include testing rather than traditional design analysis. As drafted, the Special Condition imposes sub-system performance requirements that may not reflect the performance of the system as a whole. | | | | noted | Target level of safety is determined with the EASA AMC and GM to regulation 947 (SORA SAILs). Any RTC released on the basis of compliance to SC Light UAS will be linked to a SAIL. |

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| 483 | DAE | General | Introduction | DAE would welcome any additional opportunity to consult with EASA in developing this Special Condition. | | | | noted | thank you, EASA has discussed with all stakeholdres who has contacted us. There will be further opportunity for cooperation in the frame of MoC development. |
| 484 | DAE | Applicability | iv | DAE requests clarification with respect to medium-risk operations. It is clear that low-risk operations will remain in the Specific Category, and high-risk operations (SAIL VI) will be subject to the Certified Category. But the Applicability section is not clear with respect to medium-risk operations, that might fall within SAIL III through IV. It is difficult to determine the types and kinds of systems and operations, classified as SAIL III and IV, that would not require type certification. | | | | not accepted | "High-risk operations (SAIL VI) will be subject to the Certified Category" confuses the certification of a drone with the operation in the certified category, EASA sees that there are misunderstandings. DAE should refer to the EASA AMC and GM update. |
| 485 | DAE | Applicability | iv | In addition, EASA should clarify how operators should manage the SC-LUAS and the standard SORA process to move toward operational approval. Put another way, for UAS designed to meet the requirements of SC-LUAS, which includes going through the SORA process, what are the additional steps to obtain a type certificate? | | | | noted | please refer to update of EASA AMC and GM to regulation 947 |
| 486 | | Subpart G | 18 | In general, the requirements of Subpart G seem appropriate. However, consideration should be given to UAS that use a more federated ground control infrastructure (such as cloud-based command interfaces and cellular networks for C2). It appears that Subpart G is currently focused around the more traditional command unit-to-aircraft arrangement. UAS that will increasingly rely on higher levels of on-board autonomy may seek a more 'internet distributed' control network. In addition, the process should consider how to incorporate interchangeable commercial off-the-shelf hardware, such as computers and monitors, without requiring manufacturers to define and test all models and combinations. | | | | noted | The subpart is intentially flexible to adress distributed systems. Also "must specify the Command Unit design and identify all equipment and systems of the CU that are essential for the crew to operate the UA" is very flexible and allows either to specify a part number or use a more generic specification , like a standard. The operator needs to get the information what can be combined or how it can be qualified and tested. |
| 487 | | Annex 1 | 22 | Table 1-4: DAE supports performance-based regulation, with target levels of safety defined for the operation as a whole. However, the proposed Failure Severity Classifications define sub-system, rather than system-level targets, based on assumptions that may or may not be representative. Further, these values do not seem proportionate to the risk. For individual systems, the allowable quantitative probabilities for a failure seem excessive and may not be possible to achieve in a cost effective manner, especially for small UAS. DAE requests that EASA break down how these numbers were derived so the assumptions may be understood. As drafted, DAE does not support the current Failure Severity Classifications. DAE is willing to meet with EASA to help revise the Tables so that they can be adaptable to the variety of UAS-specific risk profiles. | | | | high risk (N/A for SC medium risk) | |

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| 488 | | Annex 1 | 22 | The Annex uses the terms “populated environment” and “assemblies of people.” Although these definitions for various grades of operating areas (populated, assemblies of people, sparsely populated, etc) are defined in various other publications, DAE recommends that the definition of these two terms be defined in this Special Condition especially as these terms appear very similar and yet they are presented as very different in this document. | | | | high risk (N/A for SC medium risk) | |
| 489 | | Annex 1 | 22 | Many references are made in SC-LUAS to “populated environment.’ Other EASA UAS publications reference “populated area.” Clarity as to whether these mean the same thing would be helpful or if not, what is the difference between these terms. | | | | high risk (N/A for SC medium risk) | |
| 490 | | Annex 1 | 22 | We would recommend that further clarification is provided in this SC, or in applicable AMC & GM, especially with regard to the definition of “populated area.” This seems to currently be defined by exception – all other potential areas of population are defined in a variety of other publications, and where the area does not fit within these definitions, it should be considered populated. This leaves a large gap in the definitions and makes the process of understanding the area of operation ambiguous. More generally, more clarity into the definitions of the various terms used to describe the population density of operating areas would benefit the industry. For example, in NPA 2020-07 a suggestion is made that “populated area” needs to be further clarified and then suggests that a description is provided in the new GM2 to AMC1 Article 11, but no description is provided. | | | | high risk (N/A for SC medium risk) | |
| 491 | Foltz, James D, FAA/AIR | Overall | Introduction | The FAA is taking a risk-based approach to UAS integration. As a part of that approach, the FAA has developed a means of compliance (and corresponding airworthiness criteria) predicated on demonstrations of Durability & Reliability for the type certification of smaller, lower-risk UAS. To best benefit the UAS industry, the FAA would like to discuss opportunities for harmonization and understand EASA's proposed means of compliance for this Special Condition. The FAA’s approach was developed specifically for smaller, lower-risk UAS and was not an adaptation of existing airworthiness standards. The FAA has concerns about the feasibility of EASA’s proposed approach for smaller UAS. | The FAA encourages coordination with EASA to facilitate harmonization to the greatest extent practicable. | Yes | Yes | accepted | Thank you, our discussions prove that EASA shares the harmonization objective. EASA expect such discussion to extend in 2021 in the frame of MoC definition |

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| 492 | Guion, Andrew, FAA/AIR | Overall | Introduction | In general, it is quite challenging to provide meaningful comments to this SC due to the significant unknowns and uncertainty related to the means of compliance that EASA will find acceptable. This SC presents high-level, fairly general and abstract requirements based on CS 23 Amendment 5, but we do not currently have a clear understanding as to what detailed design requirements (specific means & methods) applicants will need to use to meet these requirements. This SC could be either highly successful or problematic depending on how it is used and what MOCs are expected. It is difficult to anticipate EASA's flexibility regarding how applicants will need to show compliance to these rules, or EASA's openness to MOCs that may differ/depart significantly from traditional MOCs for manned aircraft. As we all know, UAS & operating concepts vary greatly, and it is unlikely for a set of definitive requirements to have both meaningful specificity and wide applicability across all medium and high risk UAS operations. | Recommend close coordination and collaboration between the FAA & EASA to distil and harmonize more detailed means of compliance. Recommend that we consider these high-level requirements as notional objectives whose intent could be met by a wide variety of MOCs. Recommend maintaining receptiveness to new & novel approaches, and preserving the option for customized/tailored requirements (alternative proposals that may differ from the SC) as needed. | Yes | Yes | partially accepted | EASA mosly agrees with the comment although EASA prefer to use the term "objective", or "high level" than "notional". The "customized / tailored" requirements are in EASA opinion the range of MoCs that will be developed within projects. Also, CRI can be used to addressed applicability of specifi requirements within projects |
| 493 | Guion, Andrew, FAA/AIR | Overall | Introduction | We are currently executing type certification projects for smaller, lower risk UAS using means of compliance heavily based on a demonstration of durability and reliability (D&R) substantiated by functional testing at the aircraft level. These D&R MOCs largely depend on operationally representative flight testing across the range of the UAS operational limitations and envelope. These MOCs & airworthiness criteria capture the minimum thresholds for smaller low risk UAS from our perspective. The D&R MOCs and airworthiness criteria were more of a clean-sheet approach which were not derived directly from part 23 requirements. Rather, they were primarily drafted by assessing how much credit can be gained by flight demonstrations across the range of operations and limits, and adding additional test objectives and design requirements where needed. It may be possible that an operationally representative demonstration of reliability (i.e., a D&R approach) could viably be used to substantiate compliance (or at least contribute) toward many of the EASA SC or part 23 certification requirements. But, more effort is likely needed to assess at a detailed level if/how the D&R MOCs might be used to meet a cert basis that resembles this EASA SC or part 23. | Recommend close coordination and collaboration between the FAA & EASA to distil and harmonize more detailed means of compliance. Recommend further assessment if certain UAS may be certified to meet the EASA SC or part 23 style requirements primarily using test, or what changes to the certification requirements might be needed & acceptable for this to be possible (again only in certain cases, such as for smaller, lower risk UAS). | Yes | No | accepted | EASA mostly agrees with the comment. EASA would consider with attention any comment of the FAA which would provide specific suggestion about text adaptation for specific requirements |
| 494 | Blyn, James, FAA/AIR | Various locations | Various locations | The phrase "needs to" is used throughout the document in place of the term "must" in some places. The use of the term "needs to" appears to give the option that it is not required, similar to "should." | Recommend replacing "needs to" with must to be consistent with the rest of the document in multiple locations (Light-UAS.2340, 2400, 2415, 2602, 2610, etc.). | Yes | Yes | noted | The terminology has been checked also from a legal perspective |
| 495 | Kierstead, FAA/AIR | | Various locations | CONOPS is used throughout the document. It is undefined and not consistent capitalization. | Capitalize all letters, in all occurrences and consider defining within the document. | Yes | No | partially accepted | it is now used 2 times, it is defined a concept of operations, and capitalized |

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| 496 | Robert Winn, FAA/AUS | Para 5 | ii | 1st sentence: introduces MTOM (Maximum Takeoff Mass) as the accepted term in establishing the Light UAS weight characteristics (centre of Gravity). To date no Type Certificate (TC) (i.e., EASA/TCCA/FAA) refers to this value in this context, but by MTOW (maximum takeoff weight). Additionally, mass is constant where weight is dependent on specific gravity. "Centre of mass" is the point at which the distribution of mass is equal in all directions, and does not depend on gravitational field. Centre of gravity is the point at which the distribution of weight is equal in all directions, and does depend on gravitational field." (REID, 2014) | Since the systems being described in this document are operating within the Earth's gravitational field for the foreseeable future, the FAA suggests MTOM be changed to MTOW within the complete document. | yes | yes | noted | The comment is understood but MTOM is the term used throughout EASA CSs |
| 497 | Foltz, James D, FAA/AIR | | iii | The FAA would like to have an understanding of the implementation of EASA's text: "Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation." For smaller TC'd UAS utilizing the Durability & Reliability means of compliance, the FAA will be implementing operating limitations (limitations for operating in specific population densities) that will be mandated/enforced through limitations in the Flight Manual. | The FAA encourages coordination between EASA and the FAA to facilitate harmonization to the greatest extent practicable. | Yes | Yes | noted | exchanges ongoing on the SC should have provdied the occasion to understand the terminology. In extreme synthsis, the need of determining the SAIL requires to define what established by the SORA / EASA AMC syllabus. The FAA has particicpated in the SORA development, although did not adopt the SORA, and is aware of its implications. |
| 498 | Foltz, James D, FAA/AIR | | iv | The FAA would like to have active engagement with EASA to utilize industry consensus standards bodies to define appropriate MOC for "light UAS." EASA states "No other MOCs are presented so far, as they will be developed in a second stage and, when considered necessary, the most significant ones may be publicly consulted. For unusual designs and operations, and where MOC have not been developed by the Agency, it is expected that applicants will propose to the Agency new MOC or modified ones." The FAA is engaged in rulemaking to enable operations for "medium risk" UAS, which has overlap with many of the same UAS covered by this proposed EASA SC. Enabling the use of the same industry consensus standards by both EASA and the FAA will help with harmonization and standardize the UAS industry. | The FAA encourages coordination between EASA and the FAA to facilitate harmonization to the greatest extent practicable. | Yes | Yes | accepted | EASA agrees on harmonizing as far as possible the FAA and EASA approaches. |
| 499 | Foltz, James D, FAA/AIR | | iv | EASA states "The UAS operator is required to demonstrate the operational safety objectives (OSO) with a level of robustness proportionate to the [Small Airplanes Issues List] SAIL. Operational Safety Objectives ('OSOs') related to design need to be demonstrated with a high level of robustness when the operation is classified as SAIL V and VI. SAIL V and VI are herein defined as 'High Risk'. For operations classified with a lower SAIL the level of robustness may be medium (SAIL 3 or 4) or low. UA Certification standards for low risk operations are not included in this SC." This implies that every UAS TC applicant will require a SORA evaluation – which may lead to confusion due to the SORA typically being conducted by an operator versus the designer/manufacturer that is a TC applicant. The FAA is not mandating any similar pre-evaluation prior to an applicant seeking TC. | Provide more clarity on the intent of the use of the SORA. | Yes | Yes | noted | SAIL means Specific Assurance Integrity Level according to SORA. The SC must be read together with the EASA AMC and GM on regulation 947 (in particular it's last update before publication of this SC). A basic knowledge of the EASA AMC and GM is required to appriopriately frame the SC. |

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| 500 | Kierstead, FAA/AIR | Safety Objectives | V | The document annotates that the methodology used is based on "the calculated number of FH flown by drones…" ##This may be a condition where Agencies do not agree, causing concern with validation. | The FAA does not consider FH in their approach to certification requirements, but instead overhaul period and life of the UAS (in flight cycles). | No | Yes | noted | high risk safety objectives are not applicable for SC Light UAS medium risk |
| 501 | Scott Franke, FAA/AIR | Para 5 | vi | 2nd sentence: Document text: "the effectiveness of M2 mitigation means should be taken into account. For example a failure condition (FCx) that would be classified as catastrophic (CAT) when M2 is not applied, may be replaced by two different failures conditions (FCx1 and FCx2) when M2 is applied…"##Comment: Is it intended with the wording "may be replaced by two", that the amount of relief or latitude given is limited only to two failure conditions, no more, no less, or would there be any other combinations? Since there is an example given, should there be all examples given? Also, is analogous relief or latitude allowed for the case between "major" and "hazardous" categories?## | State whether the two examples listed in the special condition are the only two possibilities. If the examples are not the only possibilities, then indicate which other safety classifications (CAT, HAZ, MAJ, MIN) can be similarly navigated.## | yes | no | noted | text has been deleted |
| 502 | Lucas, FAA/AIR | UAS.2200, UAS.2210a, UAS.2230, UAS.2235 | 6 | UAS.2200 and UAS.2210 state that the structural loading must be determined for all possible flight ground and handling loads. This typically requires flight and ground test with an instrumented aircraft and precludes the ability for an applicant to show structural reliability through other means. For smaller UAs it might not be practical to do instrumented flight and structural reliability for these UAs. It should be able to be shown in other ways, such as extended flight test. | Allow for small UAs to have an avenue for structural requirement compliance based on operational testing, in lieu of detailed structural design loads analysis. | Yes | Yes | accepted | Structural requirements simplified for medium risk. |
| 503 | Kierstead, FAA/AIR | UAS.2230 | 6 | Subparagragh (2) states that ultimate loads "equal to the limit loads multiplied by a safety factor of 1.5." This safety factor is a high bar for non-passenger aircraft and excessively burdensome for small to "light" UAS. ##This may be a condition that causes issue during validation. | Recommend revising the requirement to have the DAH "establish an appropriate safety factor for safety-critical parts/features." The means of compliance will include their understanding and demonstration of the established safety factor. | Yes | Yes | accepted | Structural requirements simplified for medium risk. |
| 504 | Kierstead, FAA/AIR | UAS.2250 | 7 | Subparagraph (b) does not differentiate between flight critical hardware and other. For flight critical hardware, we agree with the requirements. However, such an approach will likely make the use of commercial off the shelf (COTS) hardware and use of vendor-supplied hardware for non-flight critical hardware impossible, and/or highly burdensome.##Subparagraph (c) requires a suitability evaluation for safety in operations, which presumably will drive a varied compliance demonstration. ##This may be a condition where Agencies do not agree, causing concern with validation | Suggest subparagraph (b) be moved as a subset of (c) and modify (b) to be applicable to only hardware that impacts safety of flight. | Yes | Yes | partially accepted | (C ) is only applicable to items "having an important bearing on safety in operations". For non-critical hardware adequate design data should be provided, COTS could be accepted, they are not prevented by the rule. |
| 505 | Blyn, James, FAA/AIR | UAS.2325, UAS.2350 | 9 | These requirements should not be limited to operations with designated crash areas. The FAA concurs that the UA should be demonstrated to be protected from damage which could constitute a fire hazard as a result of a reasonably foreseeable crash incident, based on the UAS concept of operations. In addition, although the FAA concurs that a forced landing or crash procedure could be used in very unique cases as an operational mitigation, airworthy products should not typically rely on designated crash areas to meet airworthiness objectives or mitigate hazard severities. | Recommend combining UAS.2325 and UAS.2350 and revising it to remove reference to the forced landing area or crash area as follows:##The UA must be##designed to minimise the risk of fire initiation and propagation such that ground hazards for people and infrastructure are properly mitigated; and ##designed with sufficient self-containment features to minimise possible debris, fire or explosions in a crash.####Recommend then updating the title of the proposed SC to "Crashworthiness." | Yes | Yes | not accepted | To minimise the risk of fire after an emergency landing, the use of mitigations (e.g. parachute) is acceptable. Alternative means could be accepted |
| 506 | Kierstead, FAA/AIR | UAS.2335 | 8 | Subparagraph (b) includes the word "lightening," which we believe to be a typographical error. | Replace "lightening" with "lightning." | Yes | No | accepted | text changed |

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| 507 | Kierstead, FAA/AIR | UAS.2400 | 10 | Subparagraph (b) lists "compliance," but it is unclear whether that applies to Subparts C, D, and F as discussed in subparagraph (a) of this section. | Suggest adding "Compliance to Subpart E," to clarify the intent. | Yes | No | noted | compliance to Subpart E is including the referred subparts. |
| 508 | Kierstead, FAA/AIR | UAS.2400 | 10 | Subparagraph (d) lists "…operating conditions including foreign object threats." While possibly implied, the criteria does not include environmental limitations such as snow/icing, gusts, etc. | Suggest rewording to "…operating conditions and environmental effects, for which the aircraft is certified, in addition to foreign object threats." | Yes | No | accepted | Wording improved |
| 509 | Kierstead, FAA/AIR | UAS.2410 | 10 | Subparagraph (c) requires "each component" be subject to "a complete disassembly" and inspection "within service limits and eligible for continued operation."##In general, this is an expectation for larger UAS and manned vehicles, but this would not align with FAA applicants utilizing the Durability & Reliability airworthiness criteria and means of compliance.##Regardless of vehicle class, clarification is needed where limitations to the ability to perform disassembly and inspection exist (e.g. electrical motors, controllers, and components).##The level of specificity listed in this subparagraph (i.e., disassembly, component inspection) is not necessary within the airworthiness criteria since the service limits for the aircraft and safety-critical components are contained within the ICA.##This may be a condition where Agencies do not agree, causing concern with validation. | Recommend the criteria of subparagraph (c) be reworded to focus on the required outcome. ####Reword suggestion: "After the endurance and durability tests have been completed, the aircraft must be eligible for continued operation in accordance with the instructions for continued airworthiness." | Yes | Yes | accepted | c) removed and d) adapted |
| 510 | Kierstead, FAA/AIR | UAS.2415 | 11 | Subparagraph (b) establishes a requirement to produce lift/thrust/power, within stated limits, at all flight conditions including environmental conditions. ##Endurance and Durability demonstration of UAS.2410(d) already achieves this goal.##In addition, this is an expectation for larger UAS and manned vehicles but this would not align with FAA applicants utilizing the Durability & Reliability airworthiness criteria and means of compliance.##This may be a condition where Agencies do not agree, causing concern with validation. | Suggest either deleting subparagraph (b) or supplement (b) with a reference to UAS.2410(d). | Yes | No | partially accepted | 2415 is adapted and details are expected to be adressed in MOC. |
| 511 | Kierstead, FAA/AIR | UAS.2415 | 11 | Subparagraph (c) does not specify the minimum information required for ratings and operating limitations. | Suggest adding operating limits "as it relates to the power, torque, speed, and duty cycles specific to electric engines." | Yes | Yes | noted | to be discussed on MOC level. |
| 512 | Kierstead, FAA/AIR | UAS.2415 | 11 | Subparagraph (c)(2) requires these limitations be continuously monitored. Like manned aircraft, the designer should specify and demonstrate the criteria to ensure that these limitations are not exceeded. Monitoring all operating limitations (e.g., speed, thrust, power, etc.) are in exceedance of the manned aircraft requirements and not appropriate for small-to-light UAS. | Suggest the criteria be reworded, such as: "The UAS control system must continuously monitor the UAS Lift/Thrust/Power system performance to ensure that the operating limitations, including Normal, Maximum Continuous and Emergency Ratings, are not exceeded in accordance with (b), without requiring mandatory actions according to the Instructions for Continued Airworthiness." | Yes | Yes | accepted | relevant subparagraph moved to note to be adressed in MOC. |
| 513 | Kierstead, FAA/AIR | UAS.2415 | 11 | Subparagraph (c) does not include a requirement for establishing the duty cycle for the electric engine. Capability of the electric engine is determined from the duty cycle combined with the rating at that duty cycle. | Add subparagraph (c)(5), such as: "5. As applicable, the duty cycle of the electric engine must be declared. The capability and the limits for an electric engine are determined from the combination of duty cycle and rating at that duty cycle." | Yes | Yes | noted | to be discussed on MOC level. Could be one of the operating limitations. |
| 514 | David Jenson, FAA/AIR | Light-UAS.2511 | 13 | "The probability of leaving the operational volume must be less than 10-4/FH." We suggest using an alternative to probabilities. | Specify containment in another way rather than using probability. Put more emphasis on system architecture, control flow, failure modes, and system verification testing rather than meeting a probability number which is at best an estimate. | Yes | No | partially accepted | requirement has been modified. |

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| 515 | David Jenson, FAA/AIR | Light-UAS.2511 | 13 | "Software and airborne electronic hardware whose development error(s) could directly lead to operations outside the ground risk buffer must be developed to a standard or methodology accepted by the Agency." Does this mean that "System Verification" policy PS-AIR-23-09 would not be acceptable in lieu of DO-178/254? | Allow System Verification policy PS-AIR-23-09 to be utilized in lieu of development assurance. This would be a low risk way of introducing this policy and contribute to harmonization efforts in this area. | Yes | No | noted | development methodology should still be sound. It does not mean, e.g., necessarily applying DO-178 for medium risk |
| 516 | Guion, Andrew, FAA/AIR | Light-UAS.2511 | 13 | - We appreciate the attention given by this SC and the SORA to UAS containment. However, we have a few questions/concerns:##The MOCs to meet the (b)(1) probability of loss of containment less than 10^-4/flight hours seem somewhat nebulous. It seems challenging to assign probabilistic requirements to losses of containment that might often be the result of software, electronic hardware, or critical processing failures.##We are aware the 10^-4/FH probability was referenced in the SORA, but we question how that value was derived and determined to be widely applicable.##The (b)(2) requirement that "no single failure" can lead to a ground risk buffer excursion seems very challenging to meet. We are aware this requirement also came from the SORA, but we question the true ability of most UAS (even very expensive UAS with extensive service history) to meet this requirement in earnest.##The containment requirement seems subject to manipulation, due to the ambiguity and lack of consistency with which an operational volume might be defined. It is very challenging to establish detailed, universally valid requirements for 4D containment which would be applicable to all UAS operations. Unfortunately, this inherent need for flexibility makes the challenge of setting containment requirements highly formidable. | Delete the UAS.2511 requirement, and perhaps assess mitigation of risks related to loss of containment under UAS.2500 and UAS.2510. Or, delete UAS.2511(b) (the probabilistic requirement & the single failure prohibition), and retain only UAS.2511(a). Or, perhaps UAS.2511(a) could be reworded, along the lines that no foreseeable failures may lead to a loss of containment. | Yes | Yes | partially accepted | the probability has been moved to the notes and the notes have been elaborated. The link with 2510 is reflected. The SW does not constitute an element included in the compuation of the probability. |
| 517 | Guion, Andrew, FAA/AIR | Light-UAS.2520 HIRF (medium risk) | 15 | The other HIRF and lightning requirements have the following introductory qualifying statement that appropriately limits their applicability: "For a UAS where the exposure to HIRF is likely," however, it seems this statement may have been omitted from the UAS.2520 medium risk HIRF requirement. | Consider adding the qualifying statement for applicability of this rule, "For a UAS where the exposure to HIRF is likely." | Yes | No | accepted | |
| 518 | David Jenson, FAA/AIR | Light-UAS.2528 | 15 | Light-UAS.2528 UAS Envelope protection function. Is this rule necessary? Doesn't Light-UAS.2500 cover this? | Consider if UAS.2528 is required, or explain the need for this requirement and why its intent is different from UAS.2500. | Yes | No | partially accepted | The requirement is derived from the SORA. The clause "if required for safe operation" has been added. Nevertheless the reference to 2500 is noit understood |
| 519 | Guion, Andrew, FAA/AIR | Light-UAS.2528 | 15 | Suggest adding qualifying verbiage to this requirement to convey a more achievable threshold. | Perhaps consider adding to (a): "under foreseeable operating conditions, consistent with the system safety objectives of Light-UAS.2500 and Light-UAS.2510," or something along those lines. | Yes | No | accepted | verbiage added |
| 520 | Guion, Andrew, FAA/AIR | Light-UAS.2529 | 16 | Suggest adding qualifying verbiage to this requirement to convey a more achievable threshold. | Perhaps consider adding "under foreseeable operating conditions, consistent with the system safety objectives of Light-UAS.2500 and Light-UAS.2510," or something along those lines. | Yes | No | noted | In terms of performance the objective will be determined by 2510 and 2511 |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 521 | David Jenson, FAA/AIR | Light-UAS.2529 | 16 | Light-UAS.2529 UAS Navigation Function. Is this rule really required? Doesn't Light-UAS.2500 cover this? | Consider if 2529 is required, or explain the need for this requirement and why its intent is different from 2500. | Yes | No | noted | FCS requirement of JARUS CS UAS has been split in 2 reequirements, one in Subpart D and one in Subpart F specifically for Navigation aspects (intended flight path) |
| 522 | David Jenson, FAA/AIR | Light-UAS.2530 | 16 | Light-UAS.2530 UA External lights. EASA and FAA should decide if a unique color or other method of lighting should be utilized for UA. It seems important that a UA is easily distinguishable from a manned aircraft for many reasons (e.g. emergency response, manned pilot awareness, right of way, etc.). | The FAA encourages coordination between EASA and the FAA to facilitate harmonization to the greatest extent practicable. | Yes | No | noted | |
| 523 | Guion, Andrew, FAA/AIR | SUBPART G | 18 | Subpart H for the C2 link includes a requirement related to security to prevent unauthorized interference (Light-UAS.2730). Potentially, a similar requirement might be prudent for the command unit in Subpart G, as command units (control stations) might also have vulnerabilities due to security flaws. | Consider if command units should also have a requirement related to mitigating security risks. | Yes | No | noted | The C2 link is considered to be vulanerable by it's nature. The design of the UA and the CU might need design provisions supporting security protection to enable the operator to ensure a level of security as appropriate for the intended operation. |
| 524 | Kierstead, FAA/AIR | UAS.2625 | 19 | Subparagraph (a) requires ICA for the "…UAS design and intended operation," but is silent to the ICA specific to the propulsion system, whereas UAS.2410 references ICA.##Considering that many UAS are highly dependent on the propulsion system (e.g. powered-lift, rotorcraft, low aspect ratio fixed wing), highlighting the propulsion system criteria within UAS.2625 is needed. | Suggest add to subparagraph (a), such as: "…UAS design and intended operation, including those specific to the propulsion system according to UAS.2410." | Yes | No | noted | ICA is not excluding any system. Need to be discussed on MOC level. |
| 525 | Kierstead, FAA/AIR | Table 1, 2 | 22 | The quantitative values for a catastrophic event are far in exceedance of FAA for small-light UAS, as well as small manned aircraft.##This may be a condition where Agencies do not agree, causing concern with validation. | The FAA encourages coordination between EASA and the FAA to facilitate harmonization to the greatest extent practicable. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 526 | Kierstead, FAA/AIR | Annex 1 | 23 | Introduction to Table 2 lists "assemblies over people", but it is not defined within this document. It is unclear whether FAA-EASA agree on this definition. | Add definition | Yes | No | high risk (N/A for SC medium risk) | |
| 527 | Kierstead, FAA/AIR | Table 3,4 | 23 | The DAL levels for a catastrophic event (as well as Hazardous, for smaller UAS) are far in exceedance of FAA for small-light UAS, as well as small manned aircraft.##This may be a condition where Agencies do not agree, causing concern with validation. | The FAA encourages coordination between EASA and the FAA to facilitate harmonization to the greatest extent practicable. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 528 | Kierstead, FAA/AIR | Table 1,2,3,4 | 22 | The dimensional and weight ranges listed in these Tables are continuous | Suggest the upper-limits for dimension and weight include a minimum equal greater than value (e.g. Table 1: Maximum dimension ≥3m and < 8m, and MTOM ≥200 kg <600 kg…) | Yes | No | high risk (N/A for SC medium risk) | |
| 529 | Blyn, James, FAA/AIR | Annex I | 22 | The allowable qualitative probabilities and DAL levels identified in the high risk MoC for Light-UAS.2510 are not aligned with the safety targets currently being utilized within the FAA. The targets presented are substantially above those presented by the FAA and in some cases are above the targets presented for manned eVTOL aircraft or General Aviation aircraft of similar size. | The FAA encourages coordination between EASA and the FAA to facilitate harmonization to the greatest extent practicable. | Yes | Yes | high risk (N/A for SC medium risk) | |

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|---|---|---|---|---|---|---|---|---|---|
| 530 | Nguyen, Hieu, FAA/AIR | Table 1, 3 | 22 | Wording of maximum with the < would make the higher row applicable to the rows below it, e.g. the requirements for "Maximum dimension < 8 m AND MTOM < 600 Kg" would technically also apply to "Maximum dimension < 3 m AND MTOM < 200 Kg" since < 3 m is < 8 m and < 200 Kg is < 600 Kg. | Perhaps reword to where each row is bounded such as Dimension of 3m up to 8m AND MTOM of 200kg up to 600kg. | Yes | No | high risk (N/A for SC medium risk) | |
| 531 | Nguyen, Hieu, FAA/AIR | Table 2, 4 | 23 | Wording of "maximum" with the "<" would make the top row applicable to the rows below it, e.g. the requirements for "Maximum dimension < 3 m, MTOM 200 Kg" would also apply to "Maximum dimension < 1 m, MTOM < 5 Kg."##There isn't a dimension or weight limit associated with the "Worst Crash area ≤ 7 $m^2$" so there is a possibility for a UA up to 600kg or larger than 3m as long as the crash area is ≤ 7 $m^2$. | Suggest rewording to bound as "Dimension of 1m up to 3m AND MTOM of 5kg up to 200kg."##It seems the intent is to have an absolute limit of 3m or 200kg for any BVLOS over assemblies so perhaps add or clarify if there are dimension or weight limits associated with the ≤ 7 $m^2$ crash area. | Yes | No | high risk (N/A for SC medium risk) | |
| 532 | Nguyen, Hieu, FAA/AIR | Table 1, 2, 3, 4 | 22 | The table titles have BVLOS. Does that mean the tables are not applicable to VLOS? If this is true, what would be applicable for VLOS? | Perhaps clarify if the tables are applicable to VLOS or what would be requirements for VLOS. | Yes | No | high risk (N/A for SC medium risk) | |
| 533 | Guion, Andrew, FAA/AIR | ANNEX I | 22 | Several variations of different proposals have been made regarding system safety definitions, classifications and requirements for UAS. Authorities have not reached full consensus yet on many of the critical details. The content of Annex I may be valid for some UAS projects, but certain details might not be valid in all cases. Rational arguments exist to support other definitions, classifications and requirements for UAS. For instance, certification guidance for manned aircraft indicates that failure conditions that lead to one fatality may be classified as hazardous, and it seems requiring UAS to categorize one fatality as catastrophic might be an unjustified increase in stringency. Further, it is still widely debated how manufacturers of UAS with no passengers should assess the probability of various failure conditions resulting in fatalities or injuries, because these outcomes depend on other outside factors which may not be reliably predictable. Finally, many of the probabilities dictated by Annex I are more stringent than those applied to manned aircraft in certification. It seems Annex I may be setting design objectives that would be very difficult to meet, especially considering the shorter useful service lives and lower cost development programs of most UAS. | Potentially consider a high-level caveat for Annex I that describes these targets as notional and open to negotiation/customization. Or, consider refraining from publishing this annex until further coordination between regulators and industry results in UAS system safety policy which is more widely agreeable. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 534 | Guion, Andrew, FAA/AIR | ANNEX I | 22 | The annex appears to largely endorse design assurance as the only acceptable MOCs for software and airborne electronic hardware. | Recommend that system level verification may also be acceptable in lieu of design assurance. | Yes | Yes | high risk (N/A for SC medium risk) | |
| 535 | Doug Rudolph, FAA/AIR | N/A | Introduction | The document does not appear to address noise compliance. | Consider addressing noise compliance in this document. | yes | no | noted | noise compliance is now mentioned in the introduction and in GENERAL |
| 536 | ONERA | Statement of issue | i | The document NPA 2020-07 is not mentioned in this part. Nevertheless, we do believe it has strong commitment with the present SC. As this NPA's related CRD is still under review at EASA, we'd like to know what will be the process of harmonization, and how the community will be involved? | | Yes | | noted | The mentioned NPA has been addressed during several webinars and the update of the EASA AMC and GM on regulation 947 agreed with MSs and industry. The SC is based on such update, which is planned to be adopted before adoption of this SC. |

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| 537 | ONERA | Statement of issue & Applicability | i | Refering to Fig.1 "CS Organisation", and the present document applicability scope, it appears unclear if this document could be applied to light UAS airships like formula ? If so multiple questions would arrize concerning : the MTOM, the maximum dimension, the worst crash area ... considerations. Could you clarify this point? | | Yes | | noted | applicability to lighter-then air is now mentioned . With regard to MTOM refer to how MTOM for (manned) airhips is calculated. |
| 538 | ONERA | An objective-based, operation centric and proportional approach to UAS certification | iii | It is written: "An operation-centric and risk-based approach is therefore also necessary in the context of UAS certification. Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation. The definitions will be in line with the EASA AMC and GM. ***The TC issued on that basis will only permit operations in this context*** .*##Comment: A* pplying the SORA methodology ((EU) 2019/947) the Step #1 is the ConOps description. Following the previous statement this lead not to a 'context of operation' but something more detailed that could shortcut the TC of an aircraft very quickly. It seems to be a stringent recomandation compared to classical definition of a TC usually restricted to higher level of restriction by the fact. | | Yes | | noted | The minimum detail will be the one necessary to determine the SAIL of the operation, the mitigation means linked to design and to decide upon step 9 of the SOIRA (see new note) |
| 539 | ONERA | Applicability | iv | general remark : can you justify the 600kg MTOM? | | Yes | | noted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 540 | ONERA | Applicability | iv | "Operated with intervention of the remote pilot or autonomous [1]" following the definition given by Regulation (EU) 2019/945, this may imply a clearer definition of the related paragraphs in this SC. ##It is partially done for exemple in the HIR part but not clear enough for contingency expectations. | | Yes | | noted | |
| 541 | ONERA | Safety Objectives | v | "a representative urban population density", "populated environment have been transposed for operation over assemblies" Can you be more precise on this topic, especially defining 'in populated environment' or 'over populated area' in NPA 2020-07 and 'over assemblies of people'. In these documents, NPA and the present SC, the definitions remain unclear.##By the end EASA could harmonize these type of question in both CRD? | | Yes | | noted | safety objecive high risk N/A for SC Light UAS medium risk |

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| 542 | ONERA | Safety Objectives | v | Doesn't the division of the territory pose a problem of adequacy to the need (won't an operator run the risk of necessarily ending up in a certified category if he wants to be sure of being able to carry out his operations)? | | Yes | | noted | safety objecive high risk N/A for SC Light UAS medium risk |
| 543 | ONERA | Safety Objectives | v | The safety objectives are defined for UAS operating in airspace with a residual air risk class lower than D as defined by the EASA AMC and GM (SORA).## For seek of clarity, it is to be understood that this document only apply to class lower than D? Then should be more explicit and tell what is the planned action for higher levels. | | Yes | | noted | safety objecive high risk N/A for SC Light UAS medium risk |
| 544 | ONERA | Subpart A : Light-UAS.2000 Applicability and Definitions | 3 | Shouldn't a speed limit be specified as it is done in the VTOL SC for example " | Add : *This Special Condition applies to aircraft with a VNO or VMO ≤ 250 knots calibrated airspeed (KCAS) or a MMO ≤ 0.6* | Yes | | noted | The comment is understood, nevertheless it is considered that the limitation in KE in the EASA AMC would not allow for medium risk |
| 545 | ONERA | general question | Annex | Could EASA give a clear definition of "worst crash area"? If possible could you also recall the methodology applicable to this SC. | | Yes | | high risk (N/A for SC medium risk) | |
| 546 | ONERA | general question | Annex | EASA mainly links the ground risk analysis on the size of crash areas and the density of population and seems in consequence to not take into account the possibility of reducing the risk to hit or injure somebody.##1 In many situations an emergency landing function, that could be of high integrity, (controlled crash and terminal avoidance) will be very efficient to reduce this risk ##2 For very light UAV, ie less than 5kg , solutions exist to drastically reduce the dangerosity of the UAV in case of impact against a human being. On contrary some existing 1,5KG drones are very dangerous and could easily kill. We consider it is not appropriate to generalize this category and to by example impose the same level of catastrophic failure probability to these drones | Add new requirement in SUBPART F## Light-UAS.25xx UAS emergency landing function##Add new requirement in part SUBPART D –DESIGN AND CONSTRUCTION## Light-UAS.23xx UAS lethality and injuries protection systems | Yes | | high risk (N/A for SC medium risk) | |
| 547 | ONERA | Light-UAS.2810 | 21 | paragraph "Light-UAS.2810 System for Launch...", item b) typo: "used in the normal **the** operation" | used in the normal operation | Yes | | noted | 2810 removed |
| 548 | ONERA | Light-UAS.2105 Performance data | 5 | "(c) The UA must be able to meet the scheduled performance in still air and standard atmospheric conditions at sea level and up to the ambient atmospheric conditions for the normal flight envelope."##Why limiting this topic to normal flight envelope and not extending to limit flight envelope ? It could be even contradictory with the topic (e) | *"(c) The UA must be able to meet the scheduled performance in still air and standard atmospheric conditions at sea level and up to the ambient atmospheric conditions for the flight envelopes.* | Yes | | partially accepted | applicability extended to operational flight envelope |
| 549 | ONERA | Light-UAS.2135 | 5 | (a) 2. during all phase of flight; Why not mentionning also ground phases ? | '(a) 2. during all phase of ground or flight | Yes | | noted | Flight generally includes the take-off and landing phase including the required controllabiltiy requirements |
| 550 | ONERA | Light-UAS.2135 | 5 | Why no specific requirement on demonstrated controllability in wind ? Is it endorsed by the 'normal flight envelope' ? Not sure of that. | the applicant must demonstrate controllability in wind from zero to a wind limit appropriate for the aircraft type. | Yes | | not accepted | wind is just one of the environmental conditions that need to be established and demonstrated accordingly |
| 551 | ONERA | Light-UAS.2135 | 5 | (b) Within its flight envelopes, the UA must show suitable stability by natural or artificial means, or a combination of both. Why not mentionning "in all axis" as usual ? | (b) Within its flight envelopes, the UA must show suitable stability by natural or artificial means, or a combination of both, in all axis | Yes | | not accepted | suitable includes all relevant axis. |

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| 552 | ONERA | Light-UAS.2300 UA flight control systems | 8 | The flight control systems must be designed to allow proper performance of their functions and protect against *likely hazards.##* Following a global philosophy that tries to always link qualitative terms to quantitative ones it appears that the term "likely" does not fit this philosophy. Why ? and could you propose a qualitative value of it? | | Yes | no | noted | the quantitaive value is depending on the operational context. The term minimize is frequently used to ensure compliance to state of the art standards. |
| 553 | ONERA | Light-UAS.2300 UA flight control systems | 8 | Why this document is exempt of strategy regarding remaining control capacities in case of faillures? It seems that the only option of concern in this document is forced landing or crash even if “continued safe flight and landing or emergency recovery” is expressed in HIR praragraphs. What about emergency strategies to mitigate the risks and associated flight control system expectations? | | Yes | no | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 554 | ONERA | Light-UAS.2350 Forced landing or a crash | 9 | (a) The UA must be designed with sufficient self-containment features to minimise possible debris, fire or explosions extending beyond the forced landing or crash area;##(b) The Flight Manual for the crew must contain the characteristics of the forced landing or crash area.####How does this link to the definition of Worst crash area ? Here is even just mention crash area. Does it means that there is a difference with worst crash area? Still unclear. Need of clarity around the definitions. | | Yes | no | noted | the requirement is for a predefined crash area where the emergency procedure includes a controlled crash. |
| 555 | ONERA | Light-UAS.2400 Lift/Thrust/Power systems installation | 10 | d. The Lift/Thrust/Power system installation must take into account anticipated operating conditions including foreign object threats.##Could you define 'foreign object'? ##Why is this point in installation part ? Shouldn't it be placed in integrity ? If in installation, it seems that we need to anticipate thoose foreign objects with installed protections or countermeasures. This would anyway leed to integrity counterparts anyway, and need also to define what are the threats considered (birds, other drones, from the air or the ground, third parties)? | | Yes | | not accepted | protection against foreign objects is a "classic" installation requirement. Discussion on MOC will be needed. |
| 556 | ONERA | Light-UAS.2400 Lift/Thrust/Power systems installation###&##Light-UAS.2410 Lift/Thrust/Power Endurance and durability | 10 | 2400(b) & 2410 (b) (c) (d) These points look more like MOC than SC and could be applied on other points. Why this specifically for Subpart E ? | | Yes | | partially accepted | 2410 c removed and d reworded |
| 557 | ONERA | Light-UAS.2430 Energy storage and distribution systems | 11 | (b)(1) Withstand the loads under likely operating conditions without failure, accounting for installation,##Do we agree these are the mechanical loads and not the electrical loads? ## | | Yes | | partially accepted | proposed to remove 2430(b)(1) as it is not understood and redundant with (a)(1) and subpart C |

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| 558 | ONERA | Light-UAS.2430 Energy storage and distribution systems | 11 | (b)(1) Withstand the loads under likely operating conditions without failure, accounting for installation,##why only limiting to likely operating conditions ? And even how do we understand this likely compared to the normal condition used in point (2)(3)(4)? ##Finally, why not going to the limit condition, otherwise if considering the associated risks could lead to associated considerations of criticity and severity of the failures.##Moreover, how is it consistant with subpart C expectations, especially L*ight-UAS.2230 Limit and ultimate loads* ? | | yes | | partially accepted | proposed to remove 2430(b)(1) as it is not understood and redundant with (a)(1) and subpart C |
| 559 | ONERA | Light-UAS.2430 Energy storage and distribution systems | 11 | What if you have an hybrid configuration with differenciated Energy storage for different flight phases or different configuration of the UA? ##in (a)(1) some system could be volontary "interrupted" in some situations. But for thees systems maybe specify the availability expectations ? ##(a) (1) &(2) should had something like "in corresponding appropriate flight configuration used in operations" | (1) Provide compatible and uninterrupted energy as required with adequate margins to ensure safe functioning of the supported systems in corresponding appropriate flight configuration used in operations | Yes | | noted | "as required with adequate margins to ensure safe functioning" already provides the requested flexibility |
| 560 | ONERA | Light-UAS.2510 Equipment, Systems and Installation (High Risk) | 12 | The strategy requirement in p13 Medium Risk (a) (3) is not expressed in the Hight Risk part p12. It seems not consistant, and should be reported in High risk part as prevailed in OSO #05 of ANNEX E TO APPENDIX A TO AMC1 TO ARTICLE 11 | add the requirement to the the paragraph "Light-UAS.2510 Equipment, Systems and Installation (High risk)" page 12 | | yes | high risk (N/A for SC medium risk) | high risk not addressed yet |
| 561 | ONERA | Light-UAS.2510 Equipment, Systems and Installation (Medium Risk) | 12 | (a)(2) It can be reasonably expected that a catastrophic failure condition will not result from any single failure, and...##if refering to the § Applicability page iv in the introductory part of this SC one could expect to emphasize mitigation strategies in case of emergency in the whole SC which is unclear at this stage.##Moreover what is then the link and expectations with the remote crew (coordination pilot/UA) in case of UA with low autonomy capabilities. In case of high level of autonomy (a)(2) has then to be required in High risk as well as in medium risk maybe with some explanation of the strategy philosophy. | | Yes | | noted | the requirement is in fact captured in the high risk. The reminder of the comment is not understood in terms of what would be the request, and there is in fact no suggestion of how the requirement should be amended |
| 562 | ONERA | Light-UAS.2500 Systems and equipment function - General | 12 | The applicant *<u>may</u> then also consider cybersecurity threats as possible sources of 'improper functioning' of equipment and systems and consider AMC 20-42 in showing compliance with this Subpart for##equipment and systems whose improper functioning could lead to a failure condition more severe than major.##* Cyber security is a very important question today. Why limiting to a "may" ? | *The applicant <u>must</u> then also consider cybersecurity threats as possible sources of 'improper functioning'…* | Yes | | partially accepted | should |
| 563 | ONERA | General remark | 12 | Previous point is even a larger comment about the document which not reflect properly cyber security risks. ##If well understood, these "text boxes" are not requirement. Is it Guidance only? | | Yes | | noted | boxes are not requirements, it is guidance on requirements |

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| 564 | ONERA | Light-UAS.2511 Containment | 13 | PART F refers to a containment function : Light-UAS.2511 as defined per the SORA##1. there is no explanation on when and how to use this mitigation##2. Sora containment is rather to be used for low risk operations and over controlled or sparsely populated areas and does not require any DAL neither catastrophic failure probabilty demonstration except for " The probability of leaving the operational volume must be less than 10-4 /FH"##3. In any case if containment is to be used for medium and high risk operations, we consider a 10-4:FH probablity is insufficient , 10-7 should be considered to be coherent with velues of annex I##More explantions are necessary, Could you please detail EASA idea about use of containment function | Proposal 1 : add a specific paragraph on containment usage for medium and high risks operations , in populated area and over assembly of people##We recommand:##Containment function shall be limited to operations over controlled areas, sparsely populated areas, sparsely populated areas near "dangerous " areas or populated areas but only when the operationnal volume and the flight trajectory make possible the construction of a safe virtual 3D area with barriers ##A higher safety level of the containment function shall be defined : IE 10-7 F/H and DAL B##Proposal 2: A new table could be introduced in annex I before tables 1 and 2 : BVLOS in populated environment over not populated areas | Yes | | partially accepted | The quantitative probability should be part of AMC and it is now reffered in the notes, which have been redrafted and also linked with 2510 |
| 565 | ONERA | subpart F | 17 | Note: this airworthiness standard is linked with the C2 Link and has been kept under Subpart F as it relates not only with C2 Link but with how equipment and systems will manage the loss of command, control and communication.##Ok and then we have dedicated subpart H for C2 Link. ##But then where is the GNSS link for navigation that could have the same kind of dedicated treatment ? | | Yes | | noted | ONERA does not mention of which requirement they are referring to. |
| 566 | ONERA | Light-UAS.2730 C2 Link Security | 20 | (b) The C2 Link system must enable the UA to unambiguously and at any time ensure that it is controlled by an authorised Command Unit.##The "must" is very ambitious regarding the Cybersecurity threats wich are like always a race between between hackers and defenders. What would be the MOC for a "must"? ##On the other hand, there is no objectives in case of attack or 'interference are detected' ? | | Yes | | noted | MoC still to be developed |
| 567 | AESA ES | General | N/A | The text is not fully justified, and the font and its size are not harmonised along the document. | Justify the text and keep the same font and size along the document. | Yes | No | noted | editorial checking performed |
| 568 | AESA ES | General | N/A | The use of unmanned aircraft (UA) and unmanned aircraft system (UAS) is not consistent along the document and not aligned either with their respective definition. | Correct the use of unmanned aircraft (UA) and unmanned aircraft system (UAS) along the document. | Yes | No | noted | Consistent use of UA and UAS checked |
| 569 | AESA ES | An objective-based, operation-centric, and proportional approach to UAS certification | iv | "*For unusual designs and operations and where MOC have not been developed by the Agency, it is expected that applicants will propose to the Agency new MOC or modified ones* "####Does this refer to 'alternative means of compliance'? Is it made on purpose that such a term is not explicitly mentioned? | Clarification is requested. | Yes | No | noted | text has been modified |
| 570 | AESA ES | Applicability | iv | "*Not intended to transport humans* "####Rather than 'intended', it would be more appropriate to use the same wording as Commission Implementing Regulation (EU) 2019/947, i.e. "the operation does not involve the transport of people". | Use the same wording as in Commission Implementing Regulation (EU) 2019/947. | Yes | No | noted | the current text is more product-centric and considered more adequate in the frame of certification |
| 571 | AESA ES | Applicability | iv | "*Operated with intervention of the remote pilot or autonomous* "####If both cases are allowed, i.e. autonomous and non-autonomous operations, is there a need for explicitly stating both of them herein? | Clarification is requested. Removal of this bullet may be useful. | Yes | No | noted | EASA considers it provide more clarity about a point which attracts much interest |

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| 572 | AESA ES | Applicability. Footnote 1 | iv | *"Autonomous operation, as defined by Regulation (EU) 2019/945, means an operation during which an unmanned aircraft operates without the remote pilot being able to intervene"*#### The reference should be made to Article 2(17) of Commission Implementing Regulation (EU) 2019/947. | Change regulatory reference. | Yes | No | accepted | |
| 573 | AESA ES | Applicability | v | *"The SC is considered to be applicable to various designs, although additional SC may have to be prescribed in accordance with point 21.B.75, e.g. in those cases in which the product includes specific technology novelties such as fully autonomous operations"*####In accordance with Article 2(17) of Commission Implementing Regulation (EU) 2019/947, there are either autonomous or non-autonomous (UAS) operations. Hence 'fully' should be removed. This does not prevent from having high levels of automation. | Remove "fully". | Yes | No | accepted | |
| 574 | AESA ES | Safety objectives | v | "The tables are accompanied by definitions and notes that are consistent with the EASA AMC and GM "####"EASA AMC & GM", to which regulation(s)? | Clarification is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 575 | AESA ES | Safety objectives | v | *"This is the minimum timeframe usually taken as reference for projections of significantly established drone operations and the one adopted by the SESAR Joint Undertaking (SJU) Outlook Study"*####The tem 'drone' should be avoided in EASA's official documents. | 'drone' should be replaced by 'UAS'. | Yes | No | high risk (N/A for SC medium risk) | |
| 576 | AESA ES | Safety objectives | v | *"It has also been considered that safety objectives assigned to UAS for operations in urban environment should be such as to not lead to risks for uninvolved people higher than those determined for UAM operations."*####Have the risks of UAM operations for uninvolved people been (already) determined? Where? | Clarification is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 577 | AESA ES | Safety objectives | vi | *"Safety objectives determined for populated environment have been transposed for UAS operations over assemblies observing the link between SAIL levels in the EASA AMC and GM."*####Clarification on this sentence is requested. It is not clear. | Clarification on this sentence is requested. It is not clear. | Yes | No | high risk (N/A for SC medium risk) | |
| 578 | AESA ES | Safety objectives | vi | "The assumption on the air risk class is in line with the typical urban environment and determines a unique dependence of the safety objectives on the final GRC."####Where is the 'typical urban environment' defined or described? | Clarification is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 579 | AESA ES | Safety objectives | vi | *"According to the EASA AMC and GM, mitigation means M1 and M2, when applied, may determine a reduction of the initial ground risk class (iGRC)."*####The terminology is not aligned with that of the SORA methodology, recognised by EASA as AMC1 to Article 11 on the rules for conducting an operational risk assessment. | Wording harmonisation with other officially published EASA's documents is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 580 | AESA ES | Definitions | vii | "Control Unit"####This is not considered as such in the European UAS regulatory framework. | "Command Unit (CU)" | Yes | No | accepted | text modified accordingly |
| 581 | AESA ES | Definitions | vii | "EVLOS"####This is not considered as such in the European UAS regulatory framework. | Removal of this term is requested. | Yes | No | accepted | |
| 582 | AESA ES | Definitions | vii | The terms 'RLOS' and 'BROLS' may also be relevante for the purpose of this document. | Add these terms. | Yes | No | noted | |

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|---|---|---|---|---|---|---|---|---|---|
| 583 | AESA ES | Light-UAS.2000(c) | 3 | "*with no occupants and not transporting humans externally* "####Same comment as before. The wording should be aligned with that of Commission Implementing Regulation (EU) 2019/947 (i.e. UAS operations that do not involve the transport of people).##In addition to the above, does this provision mean that optionally piloted aircraft fall outside the scope of this SC? | Clarification is requested. | Yes | No | noted | Any unmanned aircraft designed to transport occupants is not within the scope of this SC as well as optionally piloted aircraft. |
| 584 | AESA ES | Light-UAS.2105 | 4 | "*(b) Sufficient data on the performance of the UA needs to be determined and scheduled in the aircraft flight manual* "####aircraft/unmanned aircraft/UAS flight manual? | Clarification and harmonisation along the document are requested. | Yes | No | accepted | Flight Manual is now consistently used throughout the document |
| 585 | AESA ES | Light-UAS.2110 | 6 | "*(b) Vibration, including air or ground resonance, and buffeting must not result in structural damage.* "####Other relevant aerolastic phenomena should be considered as well. | Consider other relevant aerolastic phenomena as well. | no | yes | noted | SC-light.2160 covers the same intent |
| 586 | AESA ES | Light-UAS.2530 | 16 | "(a) Any lights required by operational rules for conspicuity at night must have the intensities, colours, and other characteristics to allow an observer to distinguish the UA from a manned aircraft."####Which role does the green flashing light referred to in Commission Delegated Regulation (EU) 2019/945 to be equipped by a UAS "*for the purpose of conspicuity of the UA at night to allow a person on the ground to distinguish the UA from a manned aircraft* " play herein? | Clarification is requested. | Yes | No | noted | the comment says that 2019/945 refers to a green flashing light. This is not understood (no ref to such lights in the regulation) |
| 587 | AESA ES | Light-UAS.2620 | 19 | "Installed systems must provide the remote crewmember , who sets or monitors parameters for the flight, navigation, and lift/thrust/power system, with the information necessary to do so during each phase of flight."####Does this refer to each crewmember? | Clarification is requested. | Yes | No | noted | This requires that necessary information is provided to every member of the crew who has for a phase fo flight the task to set or monitor a parameter. |
| 588 | AESA ES | Light-UAS.2700 | 20 | "Subpart H – C2 link"##Can the fact that the C2 link is established beyond the radio line of sight (BROLS) have any implications? | Clarification is requested. | Yes | No | noted | It should not make any difference on requirement level if the data is linked directly to the antenna communicating to the UA or if ground or other networks are involved. The MOC may be different and involvement of C2Link Service Provider might require additional performance specification and monitoring |
| 589 | AESA ES | Annex I. MOC to Light-UAS.2510 | 22 | "Table 1 below provides the relationship between Classification of Failure Conditions and Probabilities for UA operated BVLOS in populated environment"####Which is the rationale behind this table? | Clarification is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 590 | AESA ES | Annex I. MOC to Light-UAS.2510 | 23 | "Table 2 below provides the Relationship between Classification of Failure Conditions and Probability for UA operated over assemblies of people"####Which is the rationale behind this table? | Clarification is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 591 | AESA ES | Annex I. MOC to Light-UAS.2510 | 23 | "Table 3 and 4 below provides the relationship between Severity of Failure Conditions and Development Assurance Levels (DAL) for UA operated BVLOS in populated environment and, respectively, assemblies of people"####Which is the rationale behind this table? | Clarification is requested. | Yes | No | high risk (N/A for SC medium risk) | |
| 592 | Pipistrel Vertical Solutions d.o.o. | Light-UAS.2510 (Medium risk) | 13 | In the phrase at point (a)(1) "Hazards are minimized in the event of a probable failure", the term "minimized" is too generic. | Specify what is meant with the term "minimized" | Suggestion | | not accepted | "minimze" is terminology often used in Aviation CSs |

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|---|---|---|---|---|---|---|---|---|---|
| 593 | Pipistrel Vertical Solutions d.o.o. | Light-UAS.2511 | 13 | Point (b) doesn't end. Sentence has no meaning. | Finish the sentence. | Observation | | noted | ":" added |
| 594 | Pipistrel Vertical Solutions d.o.o. | Annex I | 23 | Table 2 biggest maximum dimension (< 3 m) is lower than Table 1 biggest maximum dimension (< 8 m), does this mean that UAS bigger than 3 meters can never fly over assemblies of people? If this is the case, it is not really clarified in the SC. | Clarify if UAS with a maximum dimension bigger than 3 m can fly over assembly of people. | Suggestion | | high risk (N/A for SC medium risk) | |
| 595 | Airbus Helicopters – M. Gaubert | Statement of issue & Applicability | iii Fig.1 | First column of Figure 1 mentions 'VTOL' in front of CS-29, CS-27, CS-VLR and CS-VTOL whereas CS-29 and CS-27 are only applicable to helicopters, CS-VLR only applicable to VLR and CS-VTOL only applicable to VTOL which criteria has been defined by EASA as having at least 3 lift/thrust units, so making a clear differentiation with helicopters. It is important to clarify that CS-27 and CS-29 are NOT applicable to VTOL! | In Fig. 1 column 1, position 'VTOL' only in front of 'CS-VTOL', introduce 'Helicopters' in front of CS-27 and CS-29 and 'VLR' in front of CS-VLR . | no | yes | noted | The picture is just imported from the concept paper of the certified category and the comment will be adressed there. |
| 596 | Airbus | 2000 | Applicability and Definitions | OK | | | | noted | |
| 597 | Airbus | 2005 | Definition of the operational scenario | Flexibility of the content of the definition should remain attached to the Conops. | | | | noted | note has been redrafted |
| 598 | Airbus | 2010 | Accepted Means of Compliance | MoC being issued by the OEM is the best way to link the system solutions to the business driven ConOps - please keep this! | | | | noted | Thank you |
| 599 | Airbus | 2100 | Mass and centre of gravity | This is a similar approach to CS23 Amdt.5 but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 600 | Airbus | 2102 | Approved Flight envelope | This is very important for fixed wing HAPS, which is optimised for operations above FL600. Here, the capability of the aero structure is largely defining the flight envelope, which is then driving margins and limitations plus control laws more so than is typical with manned aircraft. This section will thus become the one driving the UA design, hence flexibility to enable UA-specific approvals and OEM-defined MoC is welcome here. | | | | noted | very well understood |
| 601 | Airbus | 2105 | Performance data | This links to section 2102 and takes the envelope protection management via perfo data and control laws. The envelope protection techniques discussed in the section rely heavily on a remote operator whereas scope in the section must enable the adoption of gradual and eventually full autonomy such that the UA manages it's performance alone. The MoC outlined have a strong relation to the manned UA approach, which whilst having merits may become outdated as technologies and ConOps evolve and associated perfo requirements change. Hence flexibility to enable UA or system-specific and OEM-defined MoC is necessary here. | | | | noted | The need for flexibility at MOC level including OEM defined MOC is understood and supported. |
| 602 | Airbus | 2135 | Controllability, manoeuvrability and stability | As with 2105, this section relies upon a remote operator, but "without requiring exceptional skill or alertness ". Again, the section needs to recognise the move towards full autonomy, so flexibility to enable UA or system-specific and OEM-defined MoC is necessary here. | | | | noted | the flexibility not having a remote pilote or less skilled crew is available and that condition would not be applicable or only the required alertness in case of a crew controlling a fleet might need to be demonstrated. |

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|---|---|---|---|---|---|---|---|---|---|
| 603 | Airbus | 2160 | Vibration and buffeting | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 604 | Airbus | 2200 | Structural design | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is for the UA. | | yes | no | accepted | No change to text |
| 605 | Airbus | 2210 | Structural design loads | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep aligned, however special focus needs to be considered when the UAS-specific ConOps drive the relating requirements. | | yes | no | accepted | No change to text |
| 606 | Airbus | 2230 | Limit and ultimate loads | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep aligned, however special focus needs to be considered when the UAS-specific ConOps drive the relating requirements. | | yes | no | accepted | No change to text |
| 607 | Airbus | 2235 | Structural strength | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep aligned, however special focus needs to be considered when the UAS-specific ConOps drive the relating requirements. | | yes | no | accepted | No change to text |
| 608 | Airbus | 2240 | Structural durability | This is a similar approach to CS23 Amdt.5 , however in some use cases the UA will have a life lower than a manned UA design service goal. When factoring in the ConOps and scale of use, plus the likely light weight and structural margins, the approach to durability should be determined by the OEM and avoid a costly inspection regime, if determined to be unnecessary. | | yes | no | accepted | short lifes are not prevented byt the rule |
| 609 | Airbus | 2250 | Design and construction principles | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | yes | no | accepted | No change to text |
| 610 | Airbus | 2260 | Materials and processes | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | yes | no | accepted | No change to text |
| 611 | Airbus | 2300 | UA flight control systems | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep aligned, however special focus needs to be considered depending on the level of autonomy. | | yes | no | accepted | No change to text |
| 612 | Airbus | 2305 | Landing gear systems | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep aligned, however special focus needs to be considered to avoid carrying unnecessary weight and the OEM should provide the necessary MoC evidence, whilst being enabled to engineer innovative solution for safe landing. We recommend to use the same wording as JARUS CS-UAS: T/O and landing device systems. | | yes | no | noted | MoC will be added to the SC |
| 613 | Airbus | 2325 | Fire protection | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | yes | no | accepted | No change to text |
| 614 | Airbus | 2335 | Lightning protection | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | yes | no | accepted | No change to text |
| 615 | Airbus | 2340 | Design and construction information | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | yes | no | accepted | No change to text |
| 616 | Airbus | 2350 | Forced landing or a crash | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep aligned, however special focus needs to be considered depending on the level of autonomy. | | yes | no | accepted | No change to text |

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|---|---|---|---|---|---|---|---|---|---|
| 617 | Airbus | 2370 | Transportation, assembly, reconfiguration and storage | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | yes | no | accepted | No change to text |
| 618 | Airbus | 2400 | Lift/Thrust/Power systems installation | We welcome the flexibility of this requirement. | | | | noted | thanks for the positive feedback |
| 619 | Airbus | 2405 | Lift/Thrust/Power System Integrity | For fixed-wing UAs, this is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 620 | Airbus | 2410 | Lift/Thrust/Power Endurance and durability | § a and § c) which can be subjetc to discussion depending on the design should be moved to the MOC. | | | | partially accepted | it is agreed to move c) to MOC as it is prescriptive and a disassembly might not be required to demonstrate endurance and durability |
| 621 | Airbus | 2415 | Lift/Thrust/Power Calibration, Ratings and Operational Limitations | § c) which can be subjetc to discussion depending on the design should be moved to the MOC. We understand that there will be no Type Certification of the Propulsion system itself; therefore limitations should be defined at UAS level. | | | | partially accepted | Even when the L/T/P system or components are certified as part of the UA, ratings and limitations should be established. Nevertheless the required level of detail might be quite different for projects and it is agreed to move the prescriptive elements to MOC. |
| 622 | Airbus | 2430 | Energy storage and distribution systems | This is a similar approach to CS23 Amdt 5, but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 623 | Airbus | 2500 | Systems and equipment function - General | Whilst para a & b require a broad airworthiness approach to General Systems, the warning that follows focusses on the important topic of cyber security, most especially in the C2 link. Whilst it can be argued that the OEM is best placed to determine MoC and related evidence for the UA and Command Unit, a centralised approach for a secure C2 link may be an area that EASA should focus? | | | | noted | The comment is understood |
| 624 | Airbus | 2505 | General Requirement on Equipment Installation | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | | | noted | Thank you |
| 625 | Airbus | 2510 | Equipment, Systems and Installation (High Risk) | This is a similar approach to CS23 Amdt.5.Further discussion needs to be conducted to clarify the intent of the requirement and the applicability of the corresponding MoC defined in Annex I. EASA needs to clarify the applicability of it. | | | | noted | The requirement comes from the EASA AMC (SORA). In any case high risk if for the moment not in disscussion. |
| 626 | Airbus | 2510 | Equipment, Systems and Installation (High Risk) | With reference to Annex I, in the case of an UAS capable of operating multiple UA at the same time, how would the safety targets be applied to the elements within the UAS? It is proposed that the subject of certification is always a single UA+single Command Unit+required ancilliary elements, unless the design of the UAS requires having multiple same elements (e.g. multiple UA for C2 Link coverage) for its functions. | | | | high risk (N/A for SC medium risk) | high risk not addressed for the moment |

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| 627 | Airbus | 2510 | Equipment, Systems and Installation (High Risk) | "Crash Area" being a new metric/concept, should be better explained and defined. While Note I in Annex I allows for individual specific justification of crash area, an initial common approach to determining and justifying the crash area should be in a MOC. | | | | high risk (N/A for SC medium risk) | high risk not addressed for the moment |
| 628 | Airbus | 2510 | Equipment, Systems and Installation (Medium risk) | This is a similar approach to CS23 Amdt.5 . Further discussion needs to be conducted to clarify the intent of the requirement and the applicability of the corresponding MoC. For example, what does" minimised" in the § (a) (1)? | | | | noted | minimze is terminology often used in CSs, especially if objective |
| 629 | Airbus | 2511 | Containment | This section seems to assume that the UA is operating in a specific airspace envelope, possible segregated for other air traffic, including the likely impact zone, in case of failure. The discussion centres on possible failure or risk scenarios to be mitigated by design, all of which needs focus by the OEM during development, but mainly to be managed by flight or mission management systems. Emphasis on providing evidence of safe flight within a planned and known target airspace should be placed on the OEM with them deriving clear MoC and evidence to ensure this. By the way, this kind of requirements falls more into the category of "Specific" drones. Therefore it is proposed to be removed. | | | | not accepted | The present SC medium risk applies for drones in the specific catgeory only (by definition) |
| 630 | Airbus | 2515 | Electrical and electronic system lightning protection (High Risk) | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | | | noted | Thank you |
| 631 | Airbus | 2515 | Electrical and electronic system lightning protection (Medium Risk) | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. By "pilot", we read "operator" | | | | noted | Thank you. Operator, in the UAS regulation, is terminology identifying the organization. |
| 632 | Airbus | 2520 | High-Intensity Radiated Fields (HIRF) Protection (high risk) | This is a similar approach to CS23 Amdt.5 , but less restrictive, so please keep as-is. | | | | noted | Thank you |
| 633 | Airbus | 2520 | High-Intensity Radiated Fields (HIRF) Protection (medium risk) | This is a similar approach to CS23 Amdt 5, but less restrictive, so please keep as-is. | | | | noted | Thank you |
| 634 | Airbus | 2528 | Envelope protection Function | This is a similar approach to CS23 Amdt 5, but less restrictive, so please keep aligned, however special focus needs to be considered depending on the level of autonomy. | | | | noted | |

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|---|---|---|---|---|---|---|---|---|---|
| 635 | Airbus | 2529 | UAS Navigation Function | | | | | noted | comment not understood |
| 636 | Airbus | 2530 | UA External lights | § a) is proposed to be deleted: we do not see the need to distinguish the UA from a manned aircraft. External lights are there to be seen, either manned or unmanned. | | | | not accepted | It is specified "when required by OPS rules". Note that drones in the open category have this requirement and there is no clear reason for a drone operating in the specific catgeory to not be subjected to the same policy. |
| 637 | Airbus | 2575 | Command, Control and Communication Contingency | The loss of the C2 link is a crucial safety element, however, it's loss shall be far less significant depending upon the level of on-board autonomy. This section certainly provides scope in the importance of the C2 link and it's related safe flight implications, however more scoping may be necessary to ensure that all likely systems can be catered for here. | | | | noted | scoping will be captured with MoC |
| 638 | Airbus | 2600 | Command Unit Integration | This outlines the importance of the CU and it's contribution to UAS. No changes necessary | | | | noted | thanks for the positive feedback |
| 639 | Airbus | 2602 | Command Unit | This section covers the elements in the CU with respect to safe flight operations. It does not consider the payload or mission management elements, which, due to crew workload and system segregation, shall be demonstrated by the OEM to be designed in such a way as to enable successful, safe operations. | | | | noted | 2602 is not excluding payload or mission equipment when there is a safety effect. Guidance is needed. |
| 640 | Airbus | 2605 | Command Unit Installation and operation information | As in section 2602, the discussion related to safe flight operations. Payload and mission management installations must also be considered. | | | | noted | 2602 is not excluding payload or mission equipment when there is a safety effect. Guidance is needed. |
| 641 | Airbus | 2610 | Instrument markings, control markings and placards | This is a similar approach to CS23 Amdt 5 cockpits, but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 642 | Airbus | 2615 | Flight, navigation, and thrust/lift/power system instruments | This is a similar approach to CS23 Amdt 5 cockpits, but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 643 | Airbus | 2620 | Flight Manual | This is a similar approach to CS23 Amdt 5, but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |
| 644 | Airbus | 2625 | Instructions for Continued Airworthiness (ICA) | This is a similar approach to CS23 Amdt 5, but less restrictive, so please keep as-is. | | | | noted | thanks for the positive feedback |

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|---|---|---|---|---|---|---|---|---|---|
| 645 | Airbus | 2710 | General Requirements C2 Link | This importance of a secure C2 link is discussed, however special focus needs to be considered depending on the level of autonomy | | | | noted | Most requirements are conditioned on the relevance for safe operation, which also captures the link with the level of autonomy. It is an element of flexibility which will be considered also in the compliance demonstration. |
| 646 | Airbus | 2715 | C2 Link Performances | The C2 link performance guidance provides the OEM with scope to develop and demonstrate reliable C2, however the OEM must be able to determine the MoC and evidence to support this. | | | | noted | |
| 647 | Airbus | 2720 | C2 Link Performance monitoring | This outlines the importance of the C2 link availability. No changes necessary | | | | noted | Thank you |
| 648 | Airbus | 2730 | C2 Link Security | The loss of the C2 link is a crucial safety element, however, its loss shall be far less significant depending upon the level of on-board autonomy. This section certainly provides scope in the importance of the C2 link and it's related safe flight implications, however more scoping may be necessary to ensure that all likely systems can be catered for here. By the way,we understand §a) refers to jamming and § b) refers to hacking. | | | | noted | the understanding is correct |
| 649 | Airbus | 2800 | Ancillary Equipment | | | | | noted | |
| 650 | Airbus | 2810 | Systems for Launch and Recovery not permanently installed on the UA | This section provides scope for the OEM to consider how to integrate these needs with those of a landing gear (if applicable). No changes necessary. | | | | noted | 2810 removed |
| 651 | M. Allouche | Annex 1 | 23 | FDAL allocation does not follow the principle of consistency between probability requirements and DAL assignment, as stated in EUROCAE document ER-19 (see p 12 and p 23) and orginally agreed in the JARUS-EUROCAE 1309 Concilaition team report. | Review the FDAL assignment in light of this principle (e.g. requiring $10^{-4}$/h for a Major Failure Condition should be paralleled by a FDAL D allocation) | | Yes | high risk (N/A for SC medium risk) | |
| 652 | UK EUMETNET Member | Sub-Parts C and D | 6-7, 7-9 | We do not see MET or atmospheric conditions mentioned in Sub-Parts C and D when considering and defining structural design except for Light-UAS.2335 Lightning protection on page 15. What about effects of rain and ice on the design when operating or winds speeds, up and downdraught strengths on take off lift/thrust/power operations or the effects of environmental temperature and pressure when considering normal operating temperatures and pressure. | Consider including MET or atmospheric conditions mentioned in Sub-Parts C and D when considering and defining structural design. For example, the effects of rain and ice on the design when operating or winds speeds, up and downdraught strengths on take off lift/thrust/power operations or the effects of environmental temperature and pressure when considering normal operating temperatures and pressure. | yes | no | partially accepted | Adressed in reworded 2235 and 2260. |
| 653 | UK EUMETNET Member | Sub-Part F | 43070 | No mention of considering MET conditions when storing equipment (though implied indirectly). Consideration of MET events when assessing hazards.. | Consider making more explicit reference to MET conditions when storing equipment. There could be some opportunity for requiring manufacturers to obtain information on the frequency of MET events to which the equipment may be sensitive – so that they have some idea of what to expect and to what level their UAS need to be resilient in order to provide reliable and safe services. | | | partially accepted | EASA consider interaction systems/structure covered by 2210, 2510, 2300 |

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| 654 | UK EUMETNET Member | Sub-Part I | 21 | When considering compliance with the airworthiness standard design and installation appraisals could/should include 'Any relevant particular risk (e.g. hail, snow, electro-magnetic interference etc) associated with the operation.' | Consider including any relevant particular risk (e.g. hail, snow, electro-magnetic interference etc) associated with the operation.' | | | noted | Subpart I re-organized and 2800 moved to subpart D |
| 655 | UK EUMETNET Member | Sub Part G | 18-19 | Remote crew interface and other information. We see reference to ensuring and maintaining appropriate levels of competence and training for crew, should this be included here or in any other parts of the proposal? | Consider including, and the appropriate place for such inclusion, references ensuring and maintaining appropriate levels of competence and training for crew. | | | noted | not part of the certification basis |
| 656 | Transport Canada – NAC (S. Lalonde) | Preamble | vi | "The safety objectives are defined for UAS operating in airspace with a residual air risk class lower than D as defined by the EASA AMC and GM (SORA). The assumption on the air risk class is in line with the typical urban environment and determines a dependence of the safety objectives uniquely on the final GRC."####This statement raises concerns:##There is no obvious constraint either in this SC or in the EASA AMC and GM (SORA) to limit applicability of this SC to operations where the Air risk class is lower than D. Actually, the SORA methodology would identify a SAIL 'VI' for such operations, which correspond to 'high risk' under this SC.##It is unclear how the assumption of operation in a typical urban environment would be appropriate in all cases. Throughout this SC, there seems to be very limited to no consideration for potential Air risk, and focus limited instead on the ground risk.## | EASA is requested to provide further explanation of how the relevant air risks would be adequately addressed in the proposed SC. | | YES | noted | text has been removed |
| 657 | Transport Canada – NAC (S. Lalonde) | Preamble | vi | "Mitigation means M2 are intended to reduce the effects of ground impacts (…) If a sufficient reduction of the impact area is demonstrated, this may be taken into account when defining the safety objectives in application of the MOC to Light-UAS.2510."####The above discussion raises concerns, as it suggests some level of circular argument, and 'double accounting' of the safety credit afforded by such mitigations. M2 mitigations would already be considered, as part of the SORA process, in the determination of the GRC, subsequently affecting the SAIL based on which the risk category (high / medium) of this SC is determined. Using a M2 mitigation to further reduce the safety objectives (quantitative probabilities and DAL) applicable for a given failure condition would be inappropriate.####Instead, and as discussed in the following sentences, M2 mitigations could reduce the criticality of the resulting failure condition, e.g. possibly changing into a HAZ condition what would otherwise have been CAT. | Reference to M2 mitigations being taken into account to reduce the safety objective should be avoided as it could create confusion; the effect of M2 mitigations would be on hazard criticality.####It is also recommended the discussion on safety considerations for M2 mitigations be included and expanded in Annex 1, MoC for Light-UAS.2510. | | YES | noted | safety objectives high risk N/A for ths SC (removed) |
| 658 | F. Wright | n/a does not exist | | I could not find any reference in the SC addressing noise. Reference is made to operating in urban environments. | Actively seek public response as usage increases. | Suggestion | | noted | noise is not addresed by this SC. It will be addressed with other specifications. |
| 659 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2105##(b)(2) | p.4 | Sub-paragraph (b)(2) refers to the UA performing as intended "within the normal flight envelope" but the expectation would be that it performs as intended within the full approved flight envelope. | Recommend updating as follows:####*"(b)(2) in order to ensure the UA performs as intended within the ~~normal~~ approved flight envelope and limitations for the ranges of mass (...)"* | | YES | partially accepted | Text modified |

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| 660 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2105(e) | p.4 | Editorial, for improved clarity. See markups in suggested resolution. | Recommend updating as follows:####*"(e) Losses due to atmospheric conditions, cooling needs, installation, downwash considerations, and other demands on power sources as applicable, as well as system failure condition in accordance with LightUAS.2510, must be taken into account."* | YES | | accepted | text modified accordingly |
| 661 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2102 | p.4 | a) Environmental conditions to be considered under sub-paragraph b) would presumably be limited to those for which operational approval is sought.##The effects of HIRF are addressed under Light-UAS.2520 for high and medium risk, and would presumably not be a factor in determining the approved flight envelope. | Recommend updating as follows:####*"(a) The applicant needs to determine the normal and limit flight envelope for each flight configuration used in operations. The flight envelopes determination must account for the most adverse conditions for each flight configuration.##(b) In defining these limitations, environmental conditions for which operations are approved are to be considered##Note: Environmental conditions should include meteorological conditions such as wind, rain and icing as well as any other external factors which may be relevant ~~that may interfere with the performance of systems such as HIRF~~."* | | YES | accepted | text modified accordingly |
| 662 | Mauricio Caio Rosin##Sr.Engineer, OSES | UAS.2105 (d) | 4 | Is there any document/reference that defines the skill of a remote crew? | Definition and classification of skills shall be defined | Observation | | noted | not part of the certification basis |
| 663 | William O'Gorman## Flight Test Engineer##TCCA | Light-UAS.2102 Approved Flight envelope | 4 | These and other regulations are entirely dependent on the UAS envelope protection. However, parallel regulations to the Auto-Pilot requirement for either fixed or rotary wing aircraft do not appear in the SC. The document does not seem to define what an acceptable envelope protection system would entail or the performance of the system itself. | Incorporate the regulations applicable to part 23/27 aircraft for auto pilot behaviour and adapt them for UAS. | | ** | not accepted | it is adressed in 2528. Autopilot requirement from 23/27 are not relevant as they rely partially on the capability of the pilot to intervene. |
| 664 | William O'Gorman## Flight Test Engineer##TCCA | Light-UAS.2102 Approved Flight envelope | 4 | The document has no sections identifying requirements relative to vehicle operations in. Yet, these environmental factors will have a significant influence on the operation of these aircraft and must be included in the certification basis. | Definition of flight envelope in 2102 should incorporate the regulations applicable to part 23/27 aircraft for rain, snow or icing perfromance as adapted for UAS. | | ** | partially accepted | 2102 modified to include explicitely adverse weather conditions. The requirements in 23/27 are appropriate for 23/27 in the defined Conops (e.g. IFR) but might be too conservative for certain operations or not specific enough (e.g. flight in rain). For UA more flexibility is required in defining the Conops and the operational enviroment. |
| 665 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2135(a) | p.5 | As currently written, sub-paragraph a) only defines controllability and manoeuvrability requirements for the normal flight envelope. Considering (per Light-UAS.2000) the limit flight envelope includes up to the aircraft design limits or protection limits, minimum controllability and manoeuvrability should be defined up to these protection limits or UA capability. | Rework paragraph Light-UAS.2135 (a) to define controllability and manoeuvrability requirements both for the normal envelope, and for the limit envelope. | | YES | accepted | manoeuvrability and controllability extended to limit flight envelope. |
| 666 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2135(b) | p.5 | "Within its flight envelopes…" presumably is meant to refer to both the normal and the limit flight envelopes, or in other words to the complete approved flight envelope. It would be clearer to state so. | Recommend updating as follows:####*"(b) Within the approved ~~its~~ flight envelope~~s~~, the UA must show suitable stability by natural or artificial means, or a combination of both."* | | YES | accepted | text modified as requested |

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| 667 | William O'Gorman##Flight Test Engineer##TCCA | Light-UAS.2105 Performance data | 5 | Carriage of external loads is envisioned in the performance section, but there are no regulations describing any design or safety requirements. | Incorporate the regulations applicable to external loads (27/29.865) as adapted for UAS. | | ** | noted | subpart C/D/F apply accordingly |
| 668 | Transport Canada – NAC (S. Lalonde) | Light-UAS.22xx | p.6 | The proposed SC is missing requirement to address interaction of systems and structures. | Add a paragraph similar to CS23.2205 to this Light-UAS SC. | no | YES | partially accepted | EASA consider interaction systems/structure covered by 2210, 2510, 2300 |
| 669 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2240 | p.6 | The proposed SC is missing requirement to address structural damage caused by high-energy fragments and resulting hazards. | Add a paragraph similar to CS23.2240(d) and SC VTOL.2240(d) to this Light-UAS SC. | no | yes | noted | SC-light.2510 covers the same intent |
| 670 | William O'Gorman##Flight Test Engineer##TCCA | Light-UAS.2240 Structural durability | 6 | This section defines the requirements for maintenance and ICA, however the document seems to be missing the Function and Reliability aspects. For vehicles of this size, there should be a requirement to demonstrate the operations of the system. As such, some sub-set of the current requirements need to be devised for the UAS. | Incorporate the regulations applicable to part 23/27 aircraft for Function and Reliability testing and adapt them for UAS. | no | yes | partially accepted | operational testing could be one way to show compliance with this requirement. AMC will be added at a later stage |
| 671 | Denis Kholodar,##TCCA Structural Dynamics Senior Engineer. | Subpart C - Structures | 6 | The UA must be shown by analysis and/or flight test to be aeroelastically stable at all critical combinations of parameters within its flight envelopes. | Add Light-UAS.22XX Aeroelastic Stability paragraph. | no | yes | noted | SC-light.2160 covers the same intent |
| 672 | Transport Canada – NAC (S. Lalonde) | Light-UAS.22xx | p.7 | The proposed SC is missing requirement to address aeroelasticity. | Add a paragraph similar to SC VTOL.2245 to this Light-UAS SC. | no | yes | noted | SC-light.2160 covers the same intent |
| 673 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2250 | p.7 | The proposed SC is missing requirement to address control system jams, friction and deflections. While some UA designs may rely only on electrical signalling for control systems within the UA (for which these considerations would not apply), it is not necessarily the case. The standards should cover the full scope of possible design implementations. | Add a paragraph similar to CS23.2250(d) and SC VTOL.2250(d) to this Light-UAS SC. | | YES | partially accepted | 2300 is intended to prevent jams, frictions …. |
| 674 | Transport Canada – NAC (S. Lalonde) | Light-UAS.22xx | p.7 | The proposed SC is missing requirement corresponding to CS23.2255 and SC VTOL.2255 'Protection of structure' addressing protection of structure from degradation, ventilation and drainage requirements, and maintenance provisions, which would all be applicable to UAS. | Add a paragraph similar to CS23.2255 and SC VTOL.2255 to this Light-UAS SC. | | YES | partially accepted | intent covered by 2250 (a) |
| 675 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2300 | p.8 | For a VTOL UA, the lift/thrust/power systems covered under Subpart E are used both to generate powered lift and for flight control. Therefore for such designs, the flight control function cannot be dissociated from thrust / lift / power functions.####To avoid the potential for confusion on applicability of requirements for such designs, it would be helpful to add a note to this effect. | Add a note under Light-UAS.2300 and/or Light-UAS.2400 regarding applicability of flight control related requirements to lift/thrust/power systems for VTOL designs. | no | yes | noted | SC-light.2300 is generic and intended to cover different designs |

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| 676 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2300 | p.8 | Light-UAS.2300 as proposed appears insufficient to adequately define design and safety objectives for the flight control system.####*"The flight control system must (…) protect against likely hazards."* This is an insufficient safety criterion for such a critical function. It is expected flight control systems will be subject to all safety requirements of Subpart F, including Light-UAS.2510 thru Light-UAS.2520. The term "likely" is not defined in safety guidance, and is not used under Light-UAS.2510. As written, Light-UAS.2300 appears to set a much lower bar than Light-UAS.2510, and does not add specific flight control related requirement.#### Light-UAS.2300 is missing requirement related to control smooth / positive operation to allow proper functional performance – such as requirement found under paragraphs CS23.2300(a)(1) and SC VTOL.2300(a)(1). Such a requirement would also be applicable to UAS, considering the whole control system (UA, command unit, C2 link) as noted in comment c) below. ####In conventional aircraft, the flight control system spans from the pilot controls to the flight control surfaces, and everything in-between. Any compliance demonstration needs to account for the integrated flight control system. This is particularly critical for system designs with higher levels of integrations, such as FBW systems – which are expected to be frequent if not the norm on UAS.####The flight control function for a UAS is effectively spread across the system components on-board the UA itself, the ground command unit, and the C2 link between the two. Yet the proposed compliance requirements appear to be addressing these system components independently, rather than in an integrated manner. The on-board elements presumably addressed under Light-UAS.2300, ground command unit under Subpart G, and C2 link under subpart H.####While additional requirements are appropriate to address the specifics of the command unit and C2 link under Subparts G and H, the scope of applicability of Light-UAS.2300 should be for the whole system, end to end.####Specific considerations typically associated with FBW flight control systems certification (control signal | Recommend updating Light-UAS.2300 to address the following:##Clarify / expand on what is meant by "likely hazards", and how this relates to requirements under Subpart F of this SC; or delete this requirement and rely on Subpart F requirements only.##Add requirement for positive / smooth operation, indicating this applies across the whole control path from ground command unit to control surfaces and/or thrust/lift/power units for VTOL designs.##Clarify that compliance for flight controls need to address the integrated system i.e. on-board UA, command unit and C2 link.##Add necessary requirements specific to FBW flight control systems (control signal integrity, operation in all attitudes, mode awareness, etc.)## | no | YES | not accepted | Light-UAS.2300 is focussing on the hydro-/mechanical design and construction aspects and even when it might be applicable to quadcopter controlled via thrust control we consider these essential for physical control system aspects. We consider the human interface aspects (positiv, smooth operation) sufficiently adressed in 2600 as well as awareness of control margins. System safety aspects are covered by 2500, 2510 and also 2528. |
| 677 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2305##(a)(2) | p.8 | "(a) *The landing gear system, if installed, must be designed to:##(2) account for probable system failures and the operation environment."*## ##The reference to 'operation environment' without further qualifier appears vague subject to differing interpretations. It is noted the corresponding CS23.2305(a)(2) and SC VTOL.2305(a)(2) are more explicit:##*"…account for likely system failures and likely operation environment (including anticipated limitation exceedances and emergency procedures)."* ####While the wording from CS23 and SC-VTOL may not be directly applicable to UAS, Light-UAS.2305(a)(2) should nevertheless be more specific about what constitutes the operational environment to be considered for compliance with this paragraph. | Recommend updating as follows:####*"(a) The landing gear system, if installed, must be designed to:##(2) account for probable system failures and the likely operation environment (including operation in the limit envelope, contingency procedures, and emergency procedures.)"* | no | YES | partially accepted | text changed |

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| 678 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2305(b) | p.8 | "(b) The UA must be designed to absorb the kinetic energy of the landing performance."####The wording of this paragraph is unclear, and the requirement is less specific that the equivalent requirement applicable to CS23 or VTOL. The notion of 'reliable means' is absent. Also the capability to hold the UA when parked would also be relevant (particularly for UA at the upper end of the mass scale in scope of the SC, with brakes installed), but missing here compared to CS23 and SC VTOL. | Recommend rewording this paragraph to better align with the corresponding SC VTOL requirement (and close to CS23 requirement):####*"(b) The UA must have a reliable means of stopping with sufficient kinetic energy absorption to account for landing, in all approved conditions, and of holding the UA when parked."* | no | YES | not accepted | the requirement is intentially less specific compared to CS 23 or VTOL as it is expected that EASA see different design solutions and different operational concepts,e.g. using ancilliary equipment |
| 679 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2305(c) | p.8 | "(c) Adverse loading conditions must not cause damage to the essential systems of the UA, which could lead to a hazardous or catastrophic event if not detected."####This requirement appears to be a structural requirement, not a system requirement, and as such would belong in Subpart C (Light-UAS.22xx) instead of Subpart D.##What would constitute 'adverse loading conditions' is not clear and should presumably be specified in terms of Subpart C loading conditions. Is this meant to address loading on the landing gear only?## | Recommending deleting subparagraph Light-UAS.2305(c), and moving the contents to Subpart C, updating wording as necessary. | no | YES | partially accepted | text changed |
| 680 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2325 | p.8 | "The UA must be designed to minimise the risk of fire initiation and propagation such that ground hazards for people and infrastructure are properly mitigated."####An uncontrolled fire aboard a UA is assumed to result in a loss of control and likely crash, inherently endangering people on ground, and/or critical infrastructure since this is already addressing medium/high risk operations. Focus is thereby on minimization of the risk of fire initiation and fire propagation, to minimize the risk (not mitigate the hazard) to people on ground. ####Additional specifics on minimizing the risk of fire initiation and fire propagation are included in CS23.2325 and SC VTOL.2325 but missing here (ignition sources, flammable fluids/vapours, materials, etc).####The notion of 'fire zone', introduced in CS23.2325 and SC VTOL.2325, and for which requirements are defined in CS23.2330 and SC VTOL.2330 is entirely missing here. For a UA using turbine or hybrid propulsion (which may be plausible in the higher end of the mass range for this SC?), similar requirements to CS23.2330 and SC VTOL.2330 would presumably apply. | Recommend reword and expand paragraph Light-UAS.2325 to align more closely with corresponding CS23.2325 and SC VTOL.2325 (including detailed considerations for fire initiation and fire propagation).##Unless only electric propulsion is considered for this SC (which isn't specified), add to SC Light-UAS a requirement along the lines of CS23.2330 and SC VTOL.2330. | no | YES | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 681 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2335 | p.8 | This is one of two requirements in the proposed SC addressing lightning; the other being Light-UAS.2515 'Electrical and electronic system lightning protection. However the applicability criterion is different between the two:##Light-UAS.2335(a) applies *"if the intended operation does not exclude exposure to lightning"* ##Light-UAS.2515 applies to *"UAS where exposure is likely"*####Are these two conditions intended to mean the same thing, i.e. exposure would be considered likely under Light-UAS.2515 if not specifically excluded from intended operations under Light-UAS.2335(b)? If so this should be clarified, and wording aligned between the two paragraphs. | Recommend updating as follows (assuming the understanding of intent noted in comment is correct):####*"(a) If the intended operation does not exclude exposure to lightning, the UAS must be protected against the catastrophic effects of lightning <u>and comply with Light-UAS.2515</u>."* | no | YES | accepted | text changed |

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| 682 | Mauricio Caio Rosin##Sr.Engineer, OSES | UAS.2325 | 8 | There is no definied requirement for fire initiation and propagation. | Analysis and/or test shall be added to substantiate the fire initiation and propagation. The flight condition shall also be considered to avoid propagation of the fire to other essesntial systems. | Observation | no | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 683 | Mauricio Caio Rosin##Sr.Engineer, OSES | UAS.2325 | 8 | There is no specific information in regards of materials that can be used in the UAS. | A flame resistant materials shall be used in the construction of the UAS, and it shall be cleared informed, as a mitigation risk for fire initiation and propagation. | Observation | no | noted | 2260 includes the material requirements |
| 684 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2370(b) | p.9 | "(b) Incorrect assembly must be avoided by proper design provisions."####Precluding incorrect assembly by design would be an appropriate objective for equipment meant to be assembled / disassembled on a regular basis as part of operations. Proposing stronger wording be used. | Recommend updating as follows:####*"(b) Incorrect assembly must be precluded ~~avoided~~ by proper design provisions."##* | no | YES | partially accepted | "avoided" replaced with "prevented" as "precluded" could be more difficult to understand for non-native English speakers |
| 685 | William O'Gorman##Flight Test Engineer##TCCA | Light-UAS 2415 Lift/Thrust/Power Calibration, Ratings and Operational Limitations | 10 | This section identifies the design requirements for the propulsive system. Unfortunately, it does not capture the requirement for power assurance checks. Some means of confirming propulsion system performance, tailored to the specific implementation, prior to operations is required. | Include a requirement that the UAS must be able to conduct a power assurance check prior to take-off. (i.e. 27/29.45) | | ** | noted | Will be discussed on MOC level. |
| 686 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2400(b) | p.10 | "(b) Compliance needs to be substantiated via test, validated analysis, or a combination thereof or through evidence of certification of systems or components to acceptable specifications."####The first part of this sub-paragraph is referring to acceptable means of compliance, which would typically not be included in performance-based standards.####The second part of this sub-paragraph (*"… or through evidence of certification of systems or components to acceptable specifications."*) suggests stand-alone type certificates for a lift/thrust/power systems similar to that of an aircraft engine, propeller or APU. To our knowledge there are no such type certificates and related certification standards. While equipment suppliers may in time develop lift/thrust/power units with TSO-type approval, these would not be considered "certified" and compliance would still fully need to be shown by the UA manufacturer by appropriate means. | Recommend deleting paragraph Light-UAS.2400(b). | | YES | not accepted | Several commentors requested to even more highlight the option to issue a (type) certificate for engines and propeller. Limiting the acceptable MOC within the CS is quite common even for performance based standards. |
| 687 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2400(c) | p.10 | "(c) The hazards of Lift/Thrust/Power Control Systems and the Lift/Thrust/Power Installation need to be assessed and mitigated in accordance with the airworthiness standards Light-UAS.2500 and Light-UAS.2510."####We understand the intent is to state the requirements of Light-UAS.2500 and Light-UAS.2510 are applicable to lift/thrust/power systems, but it appears problematic as written. Light-UAS.2500 requirement addresses intended function, not failure conditions; and Light-UAS.2510 doesn't talk directly to hazards mitigation, even though failure containment / mitigation means would feed into the safety assessment. | Recommend updating as follows, for clarity:####*"(c) ~~The hazards of Lift/Thrust/Power Control Systems and the Lift/Thrust/Power Installation need to be assessed and mitigated in accordance with t~~ The airworthiness standards Light-UAS.2500 and Light-UAS.2510 are applicable to Lift/Thrust/Power Control Systems."####* Alternatively, this could be deleted from Light-UAS.2400, and instead clarified under Light-UAS.2500:####*"Light-UAS.2500 (a) Light-UAS.2500, 2505 and 2510 are general airworthiness standards applicable to systems and equipment installed in the UAS , including lift/thrust/power systems, and should not be used to supersede any other specific Light-UAS airworthiness standard."* | | YES | partially accepted | Wording improved |

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| 688 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2400(d) | p.10 | Conditions addressed in this sub-paragraph are limited to "anticipated operations, including foreign objects threats". While foreign object threats are indeed relevant, other considerations included in the corresponding paragraphs under CS23 and SC VTOL are missing here, but would seem equally relevant.####Extract from SC VTOL.2400(c):##*"The applicant must construct and arrange each thrust/lift system installation to account for:##(1) all likely operating conditions, including foreign object threats;##(2) sufficient clearance of moving parts to other aircraft parts and their surroundings;##(3) likely hazards in operation, including hazards to ground personnel; and##(4) vibration and fatigue."* | Recommend reword and expand paragraph Light-UAS.2400(d) to align more closely with corresponding CS23.2400(c) and SC VTOL.2400(c), and address the additional considerations. | | YES | accepted | text modified accordingly |
| 689 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2400(e) | p.10 | "All necessary instructions, information and requirements for the safe and correct interface between the lift/thrust/power system and the aircraft need to be available."####The intent of this sub-paragraph is not understood. As written, it would appear to be a requirement on the lift/thrust/power system supplier to provide this information to the UA manufacturer for proper integration of the lift/thrust/power system into the UA. It addresses the interface between a component / system, and the UA.####While recognizing this is information which needs to be available to the UA manufacturer, and perhaps would be relevant to a TSO-type component approval, it appears out of place as a requirement on the UA itself, as is the intent of this SC. | Recommend deleting paragraph Light-UAS.2400(e). | | YES | noted | As it is expected that in many cases L/P/T systems or components are certified as part of the UA. It still might be necessary to define interfaces and provide information. Therefore the requirement is kept also considering it is quite flexibel ( All necessary .....). |
| 690 | Transport Canada – NAC (S. Lalonde) | Light-UAS.24xx | p.10 | Shouldn't there be requirements addressing lift/thrust/power control systems? While it is understood controls would be included in the lift/thrust/power system installation, per the definition provided in Light-UAS.2400, there doesn't appear to be requirements directly addressing the control aspects including crew interface considerations.####As commented under Light-UAS.2300 for flight controls, compliance for lift/thrust/power controls should include the integrated system (equipment on-board the UA, command unit, C2 link). | Recommend adding a requirement for positive / smooth operation of lift/thrust/power control systems, similar to what has been applied to flight control systems, indicating this applies across the whole control path from ground command unit to control surfaces and/or thrust/lift/power units for VTOL.## | | YES | noted | Subpart G includes requirements for the control of the UAS including it's systems. |
| 691 | Alexandru Duminica ,##Sr. Engineer, PP&E | Subpart E | 10 and 11 | Missing means of compliance for the high level requirements L_UAS. 2400 – L_UAS.2430 (this SC has only one MoC for requirement L_UAS.2510). | Add means of compliance. | No, Yes | No, Yes | noted | Development of MOC is foreseen at later stages. |
| 692 | Alexandru Duminica ,##Sr. Engineer, PP&E | Subpart E##LUAS.2430 | 11 | Hazardous conditions during abnormal ooerations / malfunction are not covered here (example: fumes, release dangerous chemicals from the energy storage devices after crash or redundancy on distribution systems)? | Add considerations for abnormal operation of the energy storage system. | Yes, No | Yes, No | noted | Probable malfunction is included in the requirement |
| 693 | Alexandru Duminica ,##Sr. Engineer, PP&E | Subpart E##LUAS.2430 | 11 | Consider a potential for life limit storage system. | Add considerations based on type of energy storage system | Yes, No | Yes, No | not accepted | To establish a life limit for the storage system may be an appropriate way to mitigate certain hazards that are linke to aging/cycling of a storage system, e.g. a gas cylinder. MOC is considered appropriate to adress it. |

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| 694 | Transport Canada – NAC (S. Lalonde) | Light-UAS.24xx##Light-UAS.25xx | p.11 | There should be considerations added, not only for lift/thrust/power systems under Light-UAS.24xx but also for the UA in general under Light-UAS.25xx, to address flight in icing conditions, unless such operation is explicitly prohibited. This is entirely missing at the moment from the proposed SC. | Add requirements addressing flight in icing conditions for lift/thrust/power systems under Light-UAS.24xx and for the UA in general under Light-UAS.25xx. | | YES | partially accepted | adverse weather conditions introduced in 2102 |
| 695 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2430 | p.11 | The contents of Light-UAS.2430 appears incomplete, and possibly confusing, in terms of requirements addressing failures.##Under sub-paragraph (a) addressing both energy storage and distribution systems, there is no consideration for failures.##For energy storage systems only, sub-paragraph (b)(4) requires to "prevent hazardous conditions during normal operations or probable malfunctions". ####The corresponding contents of CS23.2430 and SC VTOL.2430 are much more explicit in terms of requirements for capability of these systems under failure conditions.####It is unclear whether the overarching safety requirements of Light-UAS.2510 are meant to apply to energy storage and distribution systems; presumably so, but the requirements of sub-paragraph (b)(4) seem to set lower safety criterion than would apply under Light-UAS.2510. | Recommend updating and expanding the requirements under Light-UAS.2430 to clarify the safety criteria applicable to these systems. | | YES | noted | 2510 is applicable to systems providing energy storage and distribution. It is preferred to keep 2430 for medium risk at an higher level compared to 23&VTOL. Discussion on MOC level needed. |
| 696 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2500(a) | p.12 | As requirements of general applicability, paragraphs Light-UAS.2500, 2505 and 2510 should be applicable to any equipment or system installed on the aircraft – unless specific elements are exempted from compliance to these requirements. The proposed SC currently makes no such explicit exemption.####*"… should not be used to supersede any other specific Light-UAS airworthiness standard."##* While this wording is similar to wording found in earlier EASA guidance (AMC 23.1309 Amt 4), the more succinct wording in CS-23 Amt 5 and in this SC Light-UAS does not convey the intent as clearly. TCCA is concerned this could be interpreted as allowing not to apply requirements of Light-UAS.2500, 2505 and 2510 where specific design requirements exist in SC Light-UAS – even if these are <u>less stringent</u>. This would be contrary to the intent. Especially given the expected high level of complexity and systems integration of UAS, it is imperative requirements of Light-UAS.2500, 2505 and 2510 be clearly and consistently applied across all systems.####TCCA notes SC-RPAS.1309 indicate this requirement is applicable "in addition to" specific design requirements.## | EASA is requested to confirm the intent is for Light-UAS.2500, 2505 and 2510 to be applicable to any equipment or system installed on the aircraft, effectively in addition to specific design requirements of other parts of SC Light-UAS. If there are anticipated exceptions to the above, they should be clearly specified. EASA is requested to clarify if there are any such exceptions, and ensure these are clearly identified to ensure consistent interpretation.####Recommend rewording Light-UAS.2500(a) using similar wording to that of SC-RPAS.1309, possibly adding relevant specific exceptions, if any:####*"(a) Light-UAS.2500, 2505 and 2510 are general airworthiness standards applicable to <u>any</u> systems and equipment installed in the UAS <u>, and are applicable in addition to</u> ~~and should not be used to supersede any~~ other specific Light-UAS airworthiness standard."* | | YES | noted | references to 2505 under 2510 has been corrected in 2500. EASA assumes this clarifies. A payload solely used to take pictures and not used to comply with the SC would not be included under 2500 but only required to comply with 2510 (b) |

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| 697 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2500(b) | p.12 | The note under Light-UAS.2500(b) addresses cybersecurity threats considerations. TCCA understands cybersecurity should be considered in showing compliance for all equipment and systems covered under Light-UAS.2500(b), where this can result in an unacceptable threat. The wording of this note focuses on criticality (*"could lead to a failure condition more severe than major"*) and differs from corresponding GM for CS23.2500(b) (*"could lead to an unacceptable threat condition"*). TCCA favors the wording used GM for CS23.2500(b) as it enables a broader interpretation of 'threat'. In particular, for equipment required to comply with airspace requirements or operating rules, which fall under Light-UAS.2500(b), threats in the broader sense may not correspond to UAS failure conditions.####Also recommend editorial changes to the note under Light-UAS.2500, to improve clarity and align with similar contents under GM for CS23.2500(b). See markups in suggested resolution.## | Recommend rewording the note under Light-UAS.2500 to align with GM for CS23.2500(b):####*"Improper functioning of equipment and systems may be caused by intentional unauthorised electronic interaction (IUEI). The applicant should ~~may then~~ also consider cybersecurity threats as possible sources of 'improper functioning' of equipment and systems . In showing compliance with Light-UAS.2500(b) ~~and consider AMC 20-42 in showing compliance with this Subpart~~ for equipment and systems whose improper functioning could lead to an unacceptable threat, the guidance of AMC 20-42 may be considered. ~~a failure condition more severe than major~~ This AMC provides acceptable means, guidance and methods to perform security risk assessment and mitigation for aircraft information systems."* | | YES | accepted | |
| 698 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510## High Risk | p.12 | "Note: Operational limitations used to demonstrate compliance with Light-UAS.2510 may be taken into account to demonstrate compliance with Light-UAS.2511."####This note is not understood. There are no operational limitations referenced under Light-UAS.2510 nor in the associated means of compliance in Annex 1, nor it is clear how operational limitations could be used to demonstrate compliance with the safety requirements of Light-UAS.2510. | EASA is requested to clarify what is the intent of this note, and update the wording as necessary. | | YES | high risk (N/A for SC medium risk) | |
| 699 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510(a) High & Medium Risk | p.12,13 | The requirements of Light-UAS.2510(a) – High Risk, are presumably intended to apply to equipment and systems identified in Light-UAS.2500(b). Light-UAS.2500(a) is a general statement of applicability of this subpart.####The same applies to both Light-UAS.2510(a) High Risk and Medium Risk. | Recommend updating Light-UAS.2510(a) as follows, both for 'high risk' and 'medium risk':####*"(a) The equipment and systems identified in Light-UAS.2500 (b), considered separately…"* | | YES | not accepted | Refering to the whole requirement "2500" rather than 2500b is aligned on past practice e.g. SC-VTOL |
| 700 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510(b) High & Medium Risk | p.12,13 | "(b) The operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must not cause a hazard…"####The paragraph referenced appear incorrect. Light-UAS.2505 is applicable to all installed equipment. And the reference to Light-UAS 2510 is circular. Presumably intended to refer to equipment not covered by Light-UAS.2500(b).####The same applies to both Light-UAS.2510(a) High Risk and Medium Risk. | Recommend updating Light-UAS.2510(b) as follows, both for 'high risk' and 'medium risk':####*"(b) The operation of equipment and systems not covered by Light-UAS. 2500(b) ~~2505 and Light-UAS 2510~~ must not cause a hazard…"* | | YES | partially accepted | There are two 2510 requirements: one for High risks, one for Medium risks<br>In a first stage, only the medium requirement will be published with the following wording:<br><br>*(b)Any hazard which may be caused by the operation of equipment and systems not covered **by Light-UAS.2500** must be minimised.*<br><br>Refering to the whole requirement "2500" rather than 2500b is aligned on past practice e.g. SC-VTOL |

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| 701 | Sylvain Lemieux,##Senior Engineer, EEDA | Subpart F – Systems and Equipement, Light-UAS.2510 | 41609 | I noted that both the High and Medium risk versions of the 2510 are excluding minor hasards. Hasards is defined in Note 3 at the bottom of page 13. While I can understand the rationale of this approach in the context of UAS not involving the transport of humans, I am interpreting this as a release for minor software and AEH development to demonstrate their development meets minimum requirements like configuration management and requirements based testing. ##Under Annex I, there is a MoC for this SC. Under this MoC, there are definition of the classification of hasards. As expected, the definition for a catastrophic hazard involved assessing the potential of fatalities. In the context of this SC, I would expect the risk of fatalities to be lower than a transport category and mainly driven by ground risk, which could be partially or entirely eliminated through design mitigation (ref: Page vi). Under such situation, I see the potential increase in the development of SW or AEH at a classification less than major, opening the door to "unmanaged" software or AEH development. It is suggested that way be found to define or request a minimum of rigor on software and AEH development. | There are more than one way to resolve this. One possibility is to consider the re-introduction of minor hasards. But there may be other alternative. | Suggestion | Substantive | noted | requirements are extracted from EASA AMC (SORA) |
| 702 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510## Medium Risk | p.13 | "(a) … must be designed and installed such that:##(1) Hazards are minimized in the event of a probable failure. ####Overall the requirements of Light-UAS.2510 (Medium Risk) appear very limited, and setting the bar for safety somewhat too low. If operations are such that authorities require the UAS to be certified under this SC, only requiring to minimize exposure to hazards due to probable failures seems a very much subjective, and too low, safety target. | The safety objectives of Light-UAS.2510(a) (Medium Risk) should be strengthened. However without access to the detailed analysis which led to the SORA risk classification (GRC, ARC, SAIL) in the first place, TCCA NAC is not in a position to recommend a specific alternate wording. We would welcome an opportunity for further authorities review and discussion on this topic. | | YES | noted | "minimize" is terminology used in CSs. It will be addressed by AMC (later). EASA welcomes the opportunity to discuss with TCCA. |
| 703 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510## Medium Risk | p.13 | "(a) … must be designed and installed such that:##(2) It can be reasonable expected that a catastrophic failure condition will not result from any single failure"####"Reasonable expectation" is not something that can be addressed or demonstrated by a safety assessment (either qualitative or quantitative) of the UAS equipment and systems. Regardless of the risk category for the intended UA operations, a catastrophic failure condition would still correspond to the same hazard – i.e. potential for one or more fatalities. The relative exposure of people on ground (population density, mitigations in place, VLOS/BVLOS, etc) is already accounted for in the medium vs high risk categorization, so presumably wouldn't factor in again this 'reasonable expectation'. ####The requirements of Light-UAS.2510 (Medium Risk) should be specifically addressing failures the UAS equipment and systems.## | Update the requirement of Light-UAS.2510(a)(2) (Medium Risk) to remove the "reasonable expectation" criterion and ensure the safety objective specifically addresses failures the UAS equipment and systems, i.e. in terms which can be addressed by performing a safety assessment. | | YES | not accepted | requirement is extracted from SORA and definition too. It will be further addressed in AMC and within projects. |

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| 704 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510## | p.13 | TCCA NAC is concerned about a potential gap in application of the safety requirements of Light-UAS.2510.####Per the SORA (AMC and GM to commission implementing regulation 2019-947), the GRC (ground risk class) and ARC (air risk class) eventually contribute to determination of the SAIL and from which the high / medium risk categories used in this SC are determined. Determination of the final GRC takes into account possible risk mitigations to decrease the initial risk class identified; these mitigation can be procedural, but can also include the addition of equipment and systems (e.g. parachutes) to lower the risk.####These equipment/systems added as mitigations have a given reliability and would be subject to failures. Yet as proposed in this SC, they would not be subject to any safety requirement if the UAS operation falls under the Medium Risk category.####If UAS equipment/systems are added as mitigation as part of the SORA in a way that results in reduction of the risk category per this SC from high to medium, these equipment/systems should be subject to minimum safety requirements – in line with high risk category operations – since their availability is what would reduce the risk from high to medium. | Update the requirement of Light-UAS.2510 to impose specific safety objectives to design mitigations for which credit is taken in the SORA for reducing the risk class, for Conops where the initial GRC was reduced as a result.## | | YES | accepted | new requriement 2512 has been ncluded |
| 705 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2510## Medium Risk | p.13 | Item 2 of the note under Light-UAS.2510 (Medium Risk) raises several concerns.####*"Errors may cause failures, but are not considered to be failures."* While this is in line with existing guidance material, this statement out of context could be understood to mean errors (requirements, design, implementation) do not need to be addressed as part of the safety assessment, which would be incorrect. This would need further elaboration as part of means of compliance, and should be deleted here to avoid confusion.####*"Some structural or mechanical failures may be excluded from the criterion if it can be shown that these mechanical parts were designed according to aviation industry best practices."* This is too broad an exclusion. As written, it could be interpreted to mean that any component design to aviation industry best practices won't fail – which is incorrect. And how does one determine what are these best practices? While it acknowledged some exclusions could be possible, it needs further elaboration and guidance as part of means of compliance, and should be deleted here to avoid confusion.## | Recommend updating the note under Light-UAS.2510 (Medium Risk) by deleting the last two sentences under item 2:####"2 The term 'failure' needs to be understood as an occurrence that affects the operation of a part, or element such that it can no longer function as intended (this includes both loss of function and malfunction). ~~Errors may cause failures, but are not considered to be failures. Some structural or mechanical failures may be excluded from the criterion if it can be shown that these mechanical parts were designed according to aviation industry best practices~~" | | YES | noted | as also reflected in the comment, this will need elaboration as part of MoC. At this stage EASA prefers to avoid to depart from SORA/EASA AMC. The statement does not necessariy means that probable errors should not be addressed as part of the safety process. |
| 706 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2511(b) | p.13 | The containment requirements under Light-UAS.2511(b) are for cases where risk in adjacent areas on ground or adjacent airspace is significantly higher than that identified in the Conops.####Yet it appears the requirements proposed under Light-UAS.2511(b)(2)(3) only address the ground risk, which would leave the air risk only addressed by the 10-4 criterion of Light-UAS.2511(b)(1). Given in terms of air risk this would correspond to excursion in an area where there is significantly higher potential of collision with other aircraft, this would be a too low safety target. | Recommend updating the safety requirement of Light-UAS.2511(b) to more directly and appropriately address the air risk associated with excursion outside of the operational volume. | | YES | partially accepted | b1 has been redrafted to be more general. It also captures air risk |

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| 707 | Sylvain Lemieux,##Senior Engineer, EEDA | Subpart F – Systems and Equipement, Light-UAS.##2511.(b).(3) | 13 | If hasards associated to a software or AEH development were found to be minor, and that development contains functions for which a development error could lead to operations outside of the ground risk buffer, will 2511.(b).(3) prevail and impose the use of a standard? Or is it the minor classification of the hazard that prevails? | Provide a clarification and update the text is necessary. | Observation | Substantive | noted | a failure mode leading to operation outside the ground risk buffer would not be minor in the (b) case. |
| 708 | E. Fleurent-Wilson ,##Sr. Engineer, PP&E | General | all | When two different versions of a rule are presented, one for MED and one for HIGH risk, it may lead to confusion that there is no enumerated differentiation. For example LUAS.2510(b) must be specified to be either the rule for MED or HIGH risk version.. | (1) Improve clarity by split the rules between MED and HIGH risk as per this example:##LUAS.2510##If HIGH RISK:##Rule for high risk##If MED RISK:##Rule for med risk | x | | noted | This will be autoamtically addresssed by the fact that the first adopted SC will be only for medium risk |
| 709 | E. Fleurent-Wilson | LUAS.2415##LUAS.2511 | 14 | Partially covered under LUAS.2415 and the definition of environmental conditions in LUAS.2102, there is no explicit requirement to substantiate or provide a means to detect and exit unapprouved environmental conditions. | Add requirement to substantiate via test/analysis that the UA can safely operate within LUAS.2102 (such as rain,icing, hail, etc), or provide a means to detect and exit. If detect and exit, substantiate the ability to operate in conditions likely to be encountered while exiting. Additionally, if applicable, anti-ice systems should be shown to to operate during the extent of approuved accounters (may be limited in power available if electric). Might belong in AMC. | X | | accepted | 2102 amended. The UA should not enter weather conditions for which it is not certified. In the SORA syllabus, this is "loss of conttol". It has to be ensured by procedural means but technical means may also be proposed and certified as part of the UAS. |
| 710 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2511 (note) | p.14 | Editorial, for improved clarity. See markups in suggested resolution. | Recommend updating the note as follows:####*" (…) Factors to be taken into account to determine the extent ~~extension~~ of the adjacent area include …"* | YES | | noted | kept as is. |
| 711 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2515##Light-UAS.2520#### | p.14,15 | "… would prevent the continued safe flight and landing or emergency recovery of the UA…"####The notion of 'continued safe flight and landing' is defined in the associated note, but the definition raises questions:##The CSF&L definition includes "possibly using emergency procedures". How is this different from the "emergency recovery" included in the rule text? If different, "emergency recovery" should also be defined to ensure consistent interpretation.##The notion of CSF&L should also be clarified in the context of operation within the operational volume or contingency volume.##In the AMC and GM (SORA), Use of emergency procedures is associated with "loss of control of the operation", and operation outside the operational volume. To include here a definition of CSF&L which states this is "continued controlled flight and landing" contradicts the AMC and GM (SORA) established semantic model.####The same applies to both Light-UAS.2515 High Risk and Medium Risk.##The same applies to Light-UAS.2520 High Risk and Medium Risk. | Recommend updating Light-UAS.2515 (High and Medium Risk) and/or the associated note to resolve the apparent inconsistencies regarding emergency procedures and emergency recovery:##Between Light-UAS.2515 and the associated note;##Between Light-UAS.2515 and the AMC and GM (SORA) definitions (semantic model).####Similar updates should be made to Light-UAS.2520 (High and Medium Risk).## | | YES | not accepted | 2515 is extracted from SC VTOL which was extensively subjected to consultation. We do not see inconsistencies. |
| 712 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2515##Light-UAS.2520 | p.14,15 | Sub-paragraph numbering are different between Light-UAS.2515 High Risk and Medium Risk, for similar contents. This is likely to result in confusion. It would be much clearer to maintain consistent numbering between the two standards. ####The same applies to Light-UAS.2520 High Risk and Medium Risk. | Recommend updating Light-UAS.2515 (Medium Risk) and Light-UAS.2020 (Medium Risk) to align with sub-paragraph numbering of the corresponding (High Risk) requirements, i.e.####*(a) …##(1)…##(2)…##(b) Reserved.* | | YES | noted | only medium risk addressed at this stage. |

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| 713 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2520 | p.15 | "For UAS where exposure to HIRF is likely…" What would constitute "likely exposure" needs to be defined.####It is unclear whether the note under Light-UAS.2520 (Medium Risk) is intended to apply to both (Medium Risk) and (High Risk). It is presumably the case, but not this is not evident from the format used. If applicable to both, then the reference to *"(a) and (b) of Light-UAS.2520"* would be incorrect for (High Risk) as the sub-paragraph numbering is different.####The note under Light-UAS.2520 (Medium Risk) indicates credit could be taken for operational limitations defined in the AFM related to operations in HIRF environment to define the likelihood of exposure to HIRF. This would assume an operator has both detailed awareness of, and control on, the HIRF environment for a given operation, which is quite unlikely.## | Recommend updating Light-UAS.2520 to more explicitly define the HIRF environment which needs to be addressed for compliance with these requirements, and delete the note under Light-UAS.2520 (Medium Risk). | | YES | noted | Hirf environment depends on operational environment and must be demonstrated according to MoCs. Specific test on aircraft level could be MOC. |
| 714 | Transport Canada – NAC (S. Lalonde) | Light-UAS.25xx | p.15 | The proposed SC is missing requirement corresponding to CS23.2525 and SC VTOL.2525 'System power generation, storage and distribution'. This is also linked to separate comment above against Light-UAS.2430, which does not define the safety objective for energy storage and distribution. Is the intent to address such considerations under Light-UAS.2510 only? | EASA is requested to clarify intended safety objectives and failure considerations applicable to system power generation, storage and distribution, and add specific requirements if needed along the lines of CS23.2525 and SC VTOL.2525. | | YES | noted | reflected in Light UAS 2400 |
| 715 | William O'Gorman## Flight Test Engineer##TCCA | Light-UAS.2520 High-Intensity Radiated Fields (HIRF) Protection | 15 | This section does not define the exposure level that the vehicles are to be subjected to during testing. I suggest that the HIRF environment will be equivalent to those of rotorcraft since UAS are expected to operate in a low level environment. This should not be debated on a case by case basis for every vehicle. | Include a requirement to test the UAS in a HIRF environment equivalent to that specified for rotorcraft operations, at a minimum. Perhaps even greater robustness would be applicable. | | | not accepted | Hirf environment depends on operational environment and must be demonstrated according to MoCs. Specific test on aircraft level could be MOC. |
| 716 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2528## Light-UAS.2529 | p.15, 16 | "Light-UAS.2528 (a) The UAS must ensure that the UA remains within the limit flight envelope."##"Light-UAS.2529 The UAS navigation function must ensure that the UA remains within the intended flight path..."####Functions such as envelope protection and navigation would have failure modes of their own, which would need to be accounted for under Light-UAS.2510. | EASA is requested this clarification (i.e. need to account for failure of these functions under Light-UAS.2510) is clarified in the associated guidance material. | | YES | noted | To provide an example, Hazards must minimised in the event of a probable failure of the navigation function; additionally the navigation requirement shall be demonstrated. |
| 717 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2529 | p.16 | "… remains within the intended flight path and within all spatial limitations in all flight phases."####While the overall intent is agreed, the wording of this standard is not aligned with the terminology (semantic model) used in the AMC and GM (SORA). | Recommend rewording Light-UAS.2529 to align terminology with that used in the SORA, and Conops, i.e. 'operational volume' and 'flight geography'. | | YES | partially accepted | A note has been added to provide the link |
| 718 | William O'Gorman## Flight Test Engineer##TCCA | Light-UAS.2600 Command Unit Integration | 18 | Section has not been sufficiently developed for the crew interface to the system. The current aircraft regulations have many stipulations of what kind of information needs to be displayed to the pilot and how it can be portrayed. A review of the current regulations should be conducted to determine which aspects are best retained for the UAS "cockpit". | Include the 1302 regulations.##Incorporate applicable portions of 1303,1305, 1321, 1322, 1323, 1337, 1367, and 1541 through 1559. | | ** | noted | The current proposal is based on the relevant requirements developped in the area of VTOL and like in that approach the details will be discussed on MOC level. |

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| 719 | William O'Gorman## Flight Test Engineer##TCCA | Light-UAS.2600 Command Unit Integration | 18 | Section does not appear to have sufficient focus on the flight mode awareness requirements for UAS. Being removed from the aircraft is actually a major disadvantage to the pilot for situational awareness. For instance, there are no proprioceptive or auditory cues to indicate something may be going wrong. There will need to be specific design elements purposefully implemented to compensate for this loss yet there are no requirements developed in this sense. | Minimum baseline requirements need to be stipulated. | | ** | noted | The "baseline requirements" depend heavily on the level of automation and the operational concept. Adequate information and situational awareness for the pilot (if there is one) will need to be provided. |
| 720 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2605(d) | p.19 | The wording associated with crew errors considerations is not aligned with typical wording used in other aviation standards. | Recommend updating as follows:####*"(d) Information concerning an unsafe system operating condition must be provided in a timely manner to the crew member responsible for taking corrective action. The information must be designed to minimize ~~clear enough to avoid likely~~ crew member errors."* | | YES | noted | For the specific category a higher level of protection against crew errors is expected and this justifies to deviate slightly from standard aviation wording. |
| 721 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2615 | p.19 | Additional requirements on instruments included in CS23.2615(b) and SC VTOL.2615(b) have not been included in Light-UAS.2615 but would seem equally relevant. | Recommend updating Light-UAS.2615 to include additional requirements related to instruments, in line with the corresponding requirements of CS23.2615(b) and SC VTOL.2615(b). | | YES | not accepted | 2625(b) of VTOL or 23 is considered to be adequately adressed on MOC level. The Information necessary to set or monitor parameters need to be provided, integrated display might not need to display all information when the crew is not expected to monitor or control a certain parameter. |
| 722 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2625(b) | p.19 | The requirement of Light-UAS.2625(b) indicates how to document Airworthiness limitations, as part of the ICAs, but doesn't actually state what should be included in these Airworthiness limitations – which would be the most important aspect. Compared to the corresponding requirements in CS23 and SC VTOL, there is one critical sentence missing. | Recommend updating Light-UAS.2625(b) to align with SC VTOL.2625(c):####*"(b) The Instructions for Continued Airworthiness must contain a Section titled 'Airworthiness limitations' that is segregated and clearly distinguishable from the rest of the document. This Section must set forth each mandatory maintenance action required for type certification. This Section must contain a legible statement in a prominent location that reads: 'The Airworthiness limitations Section is approved and variations must also be approved'."* | | YES | accepted | sentence added as proposed |
| 723 | William O'Gorman## Flight Test Engineer##TCCA | SUBPART H – C2 Link | 20 | Section does not have a paragraph discussing loss of link. There should be regulations identifying required behaviours of the UAS when a loss of link has occurred. | Include regulations stipulating behaviour of UAS during a loss of link event (i.e. backtracking to acquire signal, graceful decent to ground, return to home, etc.) | * | | noted | This will be in adressed in compliance demonstration to subpart F |
| 724 | William O'Gorman## Flight Test Engineer##TCCA | Light-UAS.2810 Systems for Launch and Recovery | 21 | Section identifies the size and shape of the safety area. Unfortunately, this is insufficient for safe operation of a UAS. The applicant must also describe the characteristics of the launch/recovery phase, identifying vehicle behaviour and embedded maneuvering inhibitions to understand what restrictions are imposed during those phases of flight. | Include a requirement to describe the characteristics of the launch/recovery phase, identifying vehicle behaviour and embedded maneuvering inhibitions. | | ** | noted | Understood. The level of detail in the proposed 2810 is considered much higher than in other subparts (e.g. subpart B) but nevertheless not sufficienty adressing all potential aspects It is now proposed to keep only the high level requirment and integrate them in subpart B. |

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| 725 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2810 | p.21 | (a)(3) and (b)(3) *"… predetermined area in which the UA remains after a failure or malfunction…"####* It would be helpful to specify which failures need to be considered in this determination. Any single failure, probable failures? Also malfunctions would inherently be considered failures, so referring to "failures or malfunctions" here could introduce confusion. | It is recommended to update the requirements of Light-UAS.2810(a)(3) and (b)(3) to clarify which failures should be considered.####Guidance should also be added, preferably applicable across this entire SC, to clarify the definition of failures (which include both loss and malfunction) as well as error considerations (e.g. resulting in software or complex hardware fault). | | YES | noted | Understood. The level of detail in the proposed 2810 is considered much higher than in other subparts (e.g. subpart B) but nevertheless not sufficienty adressing all potential aspects It is now proposed to keep only the high level requirment and integrate them in subpart B. |
| 726 | Transport Canada – NAC (S. Lalonde) | Light-UAS.2810##(b)(1) | p.21 | Editorial, for improved clarity. See markups in suggested resolution. | Recommend updating as follows:####*"(b)(1) The Recovery System must safely reduce <u>the UA kinetic</u> ~~sufficient~~ energy <u>to an extent sufficient</u> to ensure a controlled termination of the flight"* | | YES | noted | Understood. The level of detail in the proposed 2810 is considered much higher than in other subparts (e.g. subpart B) but nevertheless not sufficienty adressing all potential aspects It is now proposed to keep only the high level requirment and integrate them in subpart B. |
| 727 | Transport Canada – NAC (S. Lalonde) | Annex 1##MoC to##Light-UAS.2510## High Risk | p.22 | The MoC provides definition of criticalities, CAT-HAZ-MAJ-MIN as applicable to Light UAS, yet there is no explicit linkage between these definitions and the SORA (UAS AMC and GM) terminology.####For example one would expect a link between excursion outside of the operational volume or the contingency volume, and the notions of 'reduction of safety margin' and 'separation assurance' used in this MoC, but no such explicit association is provided, which is likely to result in inconsistent interpretation. | The guidance in Annex 1, and in particular the definitions of the various risk classifications, should be updated to enable a clear and explicit linkage between these and the terminology used in the SORA. | | YES | high risk (N/A for SC medium risk) | |
| 728 | Transport Canada – NAC (S. Lalonde) | Annex 1##MoC to##Light-UAS.2510## High Risk | p.22,23 | Table 1 vs Table 2:####While still within the "High Risk" category, the MoC defines different safety objectives for operations in a populated environment (BVLOS), and operations over an assembly of people. While the latter inherently represents a higher risk in terms of potential fatalities, the distinction between 'populated area' and 'over and assembly of people' has already been accounted for in the initial risk determination per the SORA (GRC, contributing to SAIL determination).####If operations 'in populated areas' remain in the High Risk category at the output of the SORA, then no further reduction of safety objectives should be allowed from this point on, in particular for HAZ and CAT failure conditions. To further reduce the safety objective as done here constitutes double accounting of the relative difference in exposure to fatalities on ground and is inappropriate. | The guidance in Annex 1 should be revised to ensure, for HAZ and CAT failure conditions, the same safety objectives are applied for any High Risk operation regardless of the environment in which it occurs, since these considerations are already inherently reflected in the risk category (high vs medium). | | YES | high risk (N/A for SC medium risk) | |

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| 729 | Transport Canada – NAC (S. Lalonde) | Annex 1##MoC to##Light-UAS.2510## High Risk | p.23 | This appendix defines further reduction in the quantitative safety objectives for operations over an assembly of people, depending on the size / weight of the UA and associated crash area. This is particularly problematic for CAT failure conditions, which by definition would result in one or more fatalities to uninvolved persons on the ground. ####The risk of fatalities (CAT) associated with operations over an assembly of people is already high in the event of a crash. It should be assumed for these operations that a crash / uncontrolled landing will result in one or more fatalities. The proposed reduction in safety objectives (quantitative probability and DAL) for CAT failure conditions based on size / weight of the UA and associated crash area can either be understood as:##A relationship between the number of fatalities and the quantitative objective / DAL, which is entirely inappropriate. CAT is already defined as one or more fatalities, and further refinement on how many fatalities would be involved shouldn't be allowed.##OR##A relationship between the size of the UA and the quantitative assessment based on the practicality and complexity of implementing a given level of safety due to size/weight/cost considerations. Again this would be inappropriate since the risk is here to uninvolved persons, who have no control or even awareness of this potential risk from UA operations. UAS high risk operations should be authorized, or not, based on UAS capability alone. Some designs will simply not be suited for high risk operations. ####The safety objectives (quantitative probabilities and DAL) should be the same for CAT conditions in High Risk operations, regardless of the size/weight of the UAS and associated extent of the crash area and regardless of the operational scenario, since these have already been accounted for in the risk category determination. | The guidance in Annex 1 should be revised to ensure for CAT failure conditions and High Risk operations, the more conservative safety objectives (quantitative probabilities and DAL) are applied regardless of the size/weight of the UAS and operational scenario. | | YES | high risk (N/A for SC medium risk) | |
| 730 | Nicola Masi/Associazione Dirigibili Archimede | Forewords | i-vii | The document proposed applies both to aerodynes and airships. Two very different categories of aircraft, starting from the lift principle (static vs. dynamic) to many related differences, included the level and profile of the risk. That makes unequal the use of "equal" measures such as dimensions or MTOM. As example, an airship with a lenght of envelope of 8m has a MTOM of about 15-18 kg and with a lenght of 3m (to be certificated) the mass is about 2 kg (for a mean anyhow not able to fly outdoor). Between other characteristics risk-relevant:##- Low speed: low maximum speeds and very low operational speeds##- Buoyancy: in case of failure of motors they don't fall but float (if total failure)##- Low speed "falling": in case of failures in the envelope they don't fall but go down as the gas escapes##- Soft materials: the envelope in many cases act as an air bag or a soft shield for impacts (very low pressure of the gas in the envelope)##- High visibility: the size of LTA aircrafts makes them very visible both on day and night hours (especiallly if illuminated)## | To make explicit reference to airships and their main differences from aerodynes in the presentation of this SC. ##To consider the specific characteristics of airships in the making of future "Detailed Means of compliance"/ certification standards## | Yes | | accepted | airships are now mentioned. The issue will be further addressed in the frame of MoC and potentially in update of the EASA AMC and GM to regulation 947 |

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| 731 | Leonardo | Statement of Issue | ii | Current text:##The operation of such UAS may often fall in the specific category, where operational approval is provided by the National Aviation Authorities but UAS shall be certified by EASA for higher risk operations and depending on the conops, or might be certified voluntarily for lower risk ones.##**Comment:##**It is better to write only on voluntary basis | Please re-write the sentence. | Suggestion | Substantive | accepted | text has been modified |
| 732 | Leonardo | Section:##Statement of Issue | i-ii | Current text:##The Specific Category of Operation is based on a risk assessment ... EASA has adopted AMC and GM to Commission Implementing Regulation (EU) 2019/947…##This Special Condition addresses … EASA has adopted AMC which provide further guidance on when the Regulation requires the certification of the UA.##**Comment:##**Text proposed by EASA is factual, however some modifications are suggested. | Proposed text:##The Specific Category of Operation is based on a risk assessment ... EASA has developed and issued AMC and GM to Commission Implementing Regulation (EU) 2019/947…##This Special Condition addresses … EASA has developed and issued AMC which provide further guidance on when the Regulation requires the certification of the UA.## | YES##suggestion | YES##substantive | noted | development of the SORA has taken place within JARUS |
| 733 | Leonardo | Section:##Statement of Issue | ii | Current text:##Most UAS designs have a limited MTOM up to a few hundreds Kg. Especially considering the expansion of urban operations, the vast majority of upcoming UAS operations is expected with UAS of limited mass.####**Comment:##**Text proposed by EASA is factual in order to explain the field of application, however a refinement of “limited” and “few” terms would clarify better the statement. | Please clarify limited MTOM, limited mass and few hundreds boundaries. | YES##suggestion | NO## | noted | "limited" is referred to the threshold fixed by this SC. |
| 734 | Leonardo | Statement of Issue | ii | Current text:##For UA of higher maximum take-off mass, closer to traditional aircraft or capable of carrying persons the certification basis may be established on the basis of existing manned aircraft CS (CS-23/27, CS- 25/29), complemented with appropriate airworthiness standards from a CS-UAS, yet to be created, focused only on UAS-peculiar elements.##**Comment:##**If SC-Light UAS is limited to 600 kg, CS-UAS will start from over 600 kg? If no, which is the discriminating factor to choose CS-23 + CS-UAS respect to CS-Light UAS? | Provide clarification on field of application of CS-UAS. | Observation | Not substantive | noted | This should be done in the context of the certified category, it is not of interest of SC Light UAS |
| 735 | Leonardo | Section:##Statement of Issue | ii | Current text:##Objective based CS are deemed more appropriate for UAS.##**Comment:##**Objective based certification specification in place of prescriptive requirements are very much appreciated as this would help the issue of AMC developed by industry in a sector where flexibility and rapid evolution of technology are paramount. | No change | YES##observation | YES##substantive | Noted | thank you |

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| 736 | Leonardo | Section:##An objective... | iii | Current text:##With no occupant on-board, the risk inherent to any UAS operation is strictly dependent on the characteristics of the operational volume, and of the adjacent ones which the UA might inadvertently enter. An operation-centric and risk-based approach is therefore also necessary in the context of UAS certification. Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation.##**Comment:##**Operation-centric, risk-based approach and inclusion of the certification link with the CONOPS are very much appreciated as this would help the application of proportionate risk-based approach taking into account real environment as contributor to the safety case. However it is not recognized how the absence of occupants would represent a relevant factor to justify the application of this approach which could be beneficial also for manned aviation. | Proposed text:##The risk inherent to any aircraft operation is strictly dependent on the characteristics of the operational volume and for the UAS with no occupant on-board of the adjacent ones which the UA might inadvertently enter. An operation-centric and risk-based approach is therefore also necessary in the context of UAS certification. Every UAS certification application shall be linked to a detailed definition of the operational volume, buffers and adjacent volumes, in terms of both ground and air risks, and any restriction, limitation and mitigation means which are assumed to be applicable for its operation.## | YES##suggestion | YES##substantive | noted | A Conops is also used for various manned aircraft prjects, while the presence of a pilot on board maintains a certain risk. |
| 737 | Leonardo | Applicability | iv | Current text:##This SC is applicable to UAS:##- Not intended to transport Humans##- Operated with intervention of the remote pilot or autonomous 1##- With MTOM up to 600 Kg##- Operated in the specific category of operations, medium and high risk, or in the certified category of operations##**Comment:##**Why MTOM is limited to 600 kg? ####Last sentence "Operated in the specific category of operations, medium and high risk...." appears not clear.##From Regulation 2019/945 (article 40.1(d)):##"The design, production and maintenance of UAS shall be certified if the UAS meets any of the following conditions: ##....##it is used in the 'specific' category of operations defined in Article 5 of Implementing Regulation (EU) 2019/947 and the operational authorisation issued by the competent authority, following a risk assessment 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."##In addition it is not considered the certification on a voluntary basis. | ########In some standard/regulation a threshold of 150 kg is used. In other,a threshold of 750 kg is used. ##It is suggeseted to standardize the thresholds respect to other standard and regulation. It is suggested to use the same value of JARUS (750 kg). ####Re-write the sencence.#### | Suggestion | Objection | noted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 738 | Leonardo | Section:##Methodology... | v | Current text:##As the SC covers certification for operations in the specific category, the determination of airworthiness objectives of Light-UAS has taken into consideration design-related OSOs) determined by the EASA AMC and GM which is based in the JARUS SORA.##**Comment:##**Text proposed by EASA is factual but SC covers initial airworthiness requirements. | Proposed text:##As the SC covers initial airworthiness requirements for UAS operating in the specific category, the determination of airworthiness objectives of Light-UAS has taken into consideration design-related OSOs determined by the EASA AMC and GM which is based in the JARUS SORA.## | YES##suggestion | YES ##objection | noted | Rewording not essential especially as it is the introduction. |
| 739 | Leonardo | Section:##Methodology... | v | Current text:##CS-UAS, EASA published Special conditions, EASA SC VTOL, FAA Yamaha Fazer##**Comment:##**No clear reference to sources. | Please include clear reference to document Issue considered as source and list all considered EASA Special conditions | YES##suggestion | YES ##substantive | noted | EASA considers that such generic references are sufficient for the aim of the introduction |
| 740 | Leonardo | Section:##Safety Objective | v | Current text:##These core elements will be adapted as required for the projects##**Comment:##**Not clear the meaning of adaptation related to safety targets requirement table. | Please clarify | YES##suggestion | YES ##objection | noted | safey objectives high risk N/A for this SC Light UAS medium risk |

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| 741 | Leonardo | Section:##Safety Objective | v | Current text:##SC VTOL UAM Methodology##**Comment:##**The alignment of UAS methodology for safety targets to the one used for UAM/SC-VTOL in urban environment could be reasonable in principle but need to be evaluated in detail. | Please provide details on assumpition for number of flight hours in European cities 2035, urban population density, prodcuts and assumptions. | YES##suggestion | YES ##substantive | noted | safey objectives high risk N/A for this SC Light UAS medium risk |
| 742 | Leonardo | Safety Objectives | V | Current text##It has also been considered that safety objectives assigned to drones for operation in urban environment should be such as to not lead to risks for uninvolved people higher than those determined for UAM operations. A methodology similar to the one utilised to derive safety objectives for SC VTOL has therefore been applied, in synthesis based on:**##Comment##**The term UAM is causing confusion. | Is it possible to replace “UAM” with “SC-VTOL platform” or similar. Across all areas SC-VTOL is being used interchangeably with UAM. However not all SC-VTOL platforms will be urban operations. SC-VTOL has also been shortened to VTOL. However, VTOL covers SC-VTOL, CS-27 and CS-29. | Suggestion | Not substantive | noted | safey objectives high risk N/A for this SC Light UAS medium risk |
| 743 | Leonardo | Light-UAS.2000 Applicability and Definitions | | Current text:##This Special Condition prescribes objective airworthiness standards for the issuance of the type certificate, and changes to this type certificate, for Unmanned Aircraft (UA):##(a) intended to be operated in the Specific category and whose operation is demonstrated to be medium or high risk, or in the Certified category,##(b) with MTOMs not exceeding 600 Kg,##(c) with no occupants and not transporting humans externally.##**Comment:##**Same as above. | In some standard/regulation a threshold of 150 kg is used. In other,a threshold of 750 kg is used. ##It is suggeseted to standardize the thresholds respect to other standard and regulation. It is suggested to use the same value of JARUS (750 kg). ####Re-write the sencence.## | Suggestion | Objection | not accepted | EASA has assessed 600 Kg, applicable for CS VLR, as a conservative maximum threshold for applicability of this SC, after having evaluated ranges up to 750 Kg, applicable for CS VLA. In case of drone certification application up to a MTOM of 750 Kg, EASA would be open to consider a CB still based on SC Light UAS, with analysis from the applicant about which further requirements, derived from manned CS or JARUS CS-UAS, may be needed to complement CS Light UAS |
| 744 | Leonardo | Light-UAS.2000 c | | "externally" is not necessary to extend “occupants”. Carrying passengers on-board should include being inside or outside the structure. | Not transporting any human | yes | no | accepted | |
| 745 | Leonardo | Light-UAS.2000 c | | The possibility of complex interaction between manned and unmanned aircraft is not covered with | Not transporting any human nor contributing in lifting or carrying any human | yes | no | accepted | a note has been added |
| 746 | Leonardo | Light-UAS.2000 c | | "human” is intended to be a living person. Carrying living animals or dead bodies is not excluded. | | yes | no | noted | |
| 747 | Leonardo | light-UAS.2010 | | Is EASA considering previous or other certification standards as AMC? A CS-23 based certification should cover most of non-UAS related requirements. Do STANAGs 4703/4671 and similar provide certification credits?##Is CS-UAS or SC-VTOL an AMC to address partially CS-Light-UAS? | | yes | No | noted | the formulation of the requirement is standard. EASA is open within certification projects to evaluate any standard proposed by applicants |
| 748 | Leonardo | Light-UAS.2010 Accepted Means of Compliance | 3 | Current text:##Other MOC which may include consensus standard.##**Comment:##**The explcit possibility to propose consensus standard as AMC is very much appreciated as this would help the issue of AMC developed by industry in a sector where flexibility and rapid evolution of technology are paramount. | No change | YES##observation | YES##substantive | noted | |
| 749 | Leonardo | light-UAS.2105 | 12 | Do “performance data take-off / climb / descend" address power capabilities besides vertical rates or speed?##If Climb/descent performance are rates, maxima should be reported.##Landing surface caracteristics are an important issue and limitation to be coped with performance data.. ##Glide slope to approach landing area is a relevant parameter to address specific scenarios. | | yes | no | noted | The intention of the note is not to provide a comprehensive set performance criteria but to explain that the conventional performance data needs to be developped on MOC level "as applicable for the design and operation of the aircraft". |

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| 750 | Leonardo | light-UAS.2105 | 12 | In case of coordinated flight capability with multiple UA (e.g. carrying a suspended load), should the applicant consider this configuration (as far as homogeneus UA are sought, at least) in the aircraft flight manual?##If any sort of formation flying or swarm is included in normal operations, should this be addressed too?##Is only a single UA behaviour and performance within the fleet/swarm to be addressed or the fleet/swarm behaviour and overall performance becomes object of airworthiness? | | | | noted | Operation in swarms is not explicitely adressed in this SC and might require additional considerations in a separate SC. |
| 751 | Leonardo | Light-UAS.2210 Structural design loads | 6 | Current text:##The applicable flight loads, ground loads, handling loads and loads while the UAS is parked or moored must be determined. The loading conditions need to be considered at all critical combinations of parameters, on and within the boundaries of the structural design envelope.##**Comment:##**Loads resulting from water operation are not considered? | Provide clarification | Observation | Not substantive | noted | yes, EASA consider them under ground loads |
| 752 | Leonardo | Light-UAS.2300 UA flight control systems | 8 | Current text:##The flight control systems must be designed to allow proper performance of their functions and protect against likely hazards.##**Comment:##**The requirement appears too general. | Provide adequate AMC. | Observation | Not substantive | noted | MOC will be discussed on project level |
| 753 | Leonardo | Light-UAS.2300 | | Control performance should be resilient to probable failures, including external causes. Likely hazards might be interpreted as external cuses only.##Degraded modes seem not to be included in this scenario. | "…likely hazards and probable failures"##Add "under any normal, abnormal and emergency condition" | no | yes | noted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 754 | Leonardo | Light-UAS.2335 Lightning protection | 8 | Current text:##(b) If the intended operation excludes exposure to lightening, limitations must be developed to prohibit flight, including take-off and landing, into conditions where the exposure to lightning is likely.##**Comment:##**Lightnening has a different meaning. | (b) If the intended operation excludes exposure to lightning, limitations must be developed to prohibit flight, including take-off and landing, into conditions where the exposure to lightning is likely. | Observation | Not substantive | accepted | text changed |
| 755 | Leonardo | Note: | 15 | Current text:##Note: A maximum HIRF Clearance Environment in which systems referred to in (a) and (b) of Light-UAS.2520 are not adversely affected could be defined appropriate for the operation / conops. Associated limitations in the Aircraft Flight Manual should be implemented in order to avoid operations where the defined HIRF Clearance Environment is exceeded.##**Comment:##**It is not clear if the note is related to the req. for high risk or to the req. for medium risk, or to both. | Please clarify.##In addition it is suggested to use different number for the requirements for high risk and medium risk. | Observation | Not substantive | partially accepted | note is applicable to both medium and high risk. Medium and high risk will be two different SC. |
| 756 | Leonardo | SUBPART E –LIFT/THRUST/POWER SYSTEM INSTALLATION | 10 | Current text:##All Subpart and section ##Light-UAS.2410 Lift/Thrust/Power Endurance and durability ####**Comment:##**2410 requirement prescribe endurance and durability demonstration by test. Is it a stand alone testfor the engine subsystem despite of the installation? This is anyway a prescriptive approach. Why a different approach with respect to all other reqs which are not prescriptive? ##With respect to whole Subpart: are reqs of this section intended to cover the whole certification of the UAS including the propulsion system? | Please provide clarifications? | YES##observation | YES##substantive | accepted | 2410 c) is removed as it is in fact considered to be a prescriptive requirement not necessarily appropriate for every system. |

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| 757 | Leonardo | Light-UAS.2500 Systems and equipment function - General | 12 | Current text:##The applicant may then also consider cybersecurity threats as possible sources of 'improper functioning' of equipment and systems and consider AMC 20-42 in showing compliance with this Subpart for equipment and systems whose improper functioning could lead to a failure condition more severe than major.##**Comment:##**Not clear why considering functional failure with specific severity classification. It seems implicit that a FHA/SSA assessment will be required by Safety Assessment Process recognized by AMC and that AMC will also require for analysis of FF above Minor classification. | Please clarify as per comment | YES##observation | YES##substantive | noted | The requirement is referred to Cybersecurity, not to safety |
| 758 | Leonardo | Light-UAS.2510 Equipment, Systems and Installation | 41609 | Current text##Some structural or mechanical failures may be excluded from the criterion if it can be shown that these mechanical parts were designed according to aviation industry best practices;##**Comment:##**Is it certain that for HIGH risk it follows SC-VTOL for no single point failures including mechanical? This seems severe.##For medium risk, should this note relate to design and manufacture? | Please make it clear whether the note section relates to only Medium Risk or Medium and High Risk. It is noted that CS-VLR includes CRITICAL PARTS for certain mechanical parts whose failure may result in a CAT outcome.##Consider adding manufacturing to design best practice. Manufaturing controls ensure that the components meet the design intent. | Suggestion | Substantive | noted | it reflects SORA / EASA AMC to CIR 947. It applies only to medium. It will be clear. |
| 759 | Leonardo | Light-UAS.2510.a | | Definitions for the used terms extremely improbable, extremely remote and remote are missing. Qualitative (like the case "probable") or quantitative (Failure rates or MTBF) definitions should be clarified in order to classify the probability of a failure (regardless of the associated effects ). Is Table 1 meant to resolve this issue? | | | | noted | they would be in AMC , in any case high risk not adoptedfor the moment |
| 760 | Leonardo | Light-UAS.2511 | | Containement requirements (that are identical to those stated in SORA, JARUS SORA and EASA AMC to 947/2019) are strictly related to operational constraints that are more appropriate for specific category rather than certified. Certification for a very specifi conops may be not cost-effective. | | | | noted | The medium risk SC is linked to the specific catgeory, not the certified |
| 761 | Leonardo | Light-UAS.2511 Containment | 13 | Current text:##(1) The probability of leaving the operational volume must be less than 10-4 /FH,##**Comment:##**Not clear why it is considered this probability which is typically referred as the failure rate for single item failure mode. It seems implicit that this requirement would express a target without considering contribution of internal UAS protections to avoid exit from the operational volume. | Please clarify probability source for this requiorements and assumptions on system contributors and defnityions of "leaving" | YES##observation | YES##substantive | partially accepted | requriement has been modified; in any case 10exp(-4) is extracted from EASA AMC (SORA) |
| 762 | Leonardo | Light-UAS.2515 | | It is stated that usage of frequency spectrum in not approved with TC. ##Is its availability a necessary operational constraint? Where frequency use is not allowed or available, TC is not valid?##Is band availability sufficient or requirements concerning minima for signal quality and band occupation should be defined pose a further operational constraint/requirement? | | | | noted | This SC does not cover operational constraints. The TC is valid as long as the limitations determined within SC Light UAS 2005 are respected. |

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| 763 | Leonardo | Light-UAS.2530 UA External lights | 16 | Current text:##**(**a) Any lights required by operational rules for conspicuity at night must have the intensities, colours, and other characteristics to allow an observer to distinguish the UA from a manned aircraft.##b) Any position lights and anti-collision lights, if required by operational rules, must have the intensities, flash rates, colours, fields of coverage, position and other characteristics to provide sufficient time for another aircraft to avoid a collision.##(c) Any position lights, if required by operational rules, must include a red light on the port side of the UA, and a green light on the starboard side of the UA spaced as far laterally apart as practical and a white light facing aft as far to the rear of the UA as practicable.##(d) Taxi and landing lights, if installed, must perform as expected.##**Comment:##**For point (d) not clear the meaning of this requirements. Too generic##Furthermore for the RPAS with a dedicate RPS, in the event which the RPS deployment may cause an hazard to the operation, for instance when the deployment of the RPAS is within an Airfield or nearby. | ######Taxi and landing lights, if required, must be designed and installed so they provide sufficient light for night operations. ####If deployed within an aerodrome of any type and size, the Remote Pilot Station and its external structures (e.g. Shelters, Pylons, Poles, antennas etc.) shall comply with the European Aviation Safety Agency "Organization and Operations Requirements for Aerodromes CHAPTER Q —VISUAL AIDS FOR DENOTING OBSTACLES / CS-ADR-DSN.Q.840 — Objects to be marked and/or lighted" and under any circumstances, do not cause hazards to the RPA taxiing itself, other RPAs, other aircrafts and airside vehicles within and out the aerodrome movement area/surrindigs area. | Suggestion | Substantive | partially accepted | In the suggested sentence lights should not be linked only to night operations. The suggestion about RPS has been reflected with generic note (may not be only in airports) |
| 764 | Leonardo | Light-UAS.2530 UA External lights##Light-UAS.2610 Instrument markings, control markings and placards | 16##19 | Current text:##Conspicuity conspicuous##**Comment:##**Unusual wording | Revise wording. Suggested visbility/visible | YES ##suggestion | NO | not accepted | terminology used also by UAS regulation |
| 765 | Leonardo | Light-UAS.2605 Command Unit Installation and operation information | 19 | Current text:##(b) Each item of installed equipment related to the remote crew interface must be labelled, if applicable, as for its identification, function, or operating limitations, or any combination of these factors.##**Comment:##**Why this requirment is not present in the subpart F? | Please add this requirement also in subpart F. | Suggestion | Substantive | noted | As the requirement for identification, function & operating limitations is only related to the crew interface it belongs to subpart G - flight crew interface. |
| 766 | Leonardo | Light-UAS.2730 C2 Link Security | 20 | Current text:##(a) Information exchange between the Command Unit and the UA via the C2 Link must be secure to prevent unauthorised interference with the UA.##(b) The C2 Link system must enable the UA to unambiguously and at any time ensure that it is controlled by an authorised Command Unit.##**Comment:##**In automatic mode the UA does not use link. | Add not in automatic mode. | Suggestion | Not Substantive | partially accepted | flexibility added |
| 767 | Leonardo | Light-UAS.2730.b | | This requirement should address the system functionality and only according to UAS architecture be allocated to subsystems (C2 link, surely).##Coupling of CU and UA can be handled by SW SYS functions rather than demanded to C2 link security (e.g. authorized ID at pre flight planning and cryptos). | "The UAS system and functions must provide C2 link security and enable …." | | | noted | The requiement is considered to be performance based and contain the relevant objectives. |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 768 | Leonardo | Light-UAS.2810 Systems for Launch and Recovery not permanently installed on the UA | 21 | Current text:##(b) If a Recovery System is intended to be used in the normal the operation of the UA##**Comment:##**Not clear | (b) If a Recovery System is intended to be used in the normal operation of the UA## | Suggestion | Not Substantive | noted | While the proposed addendum is expected to be valid for the majority of projects it is considered to be more appropriate for MOC. |
| 769 | Leonardo | Light-UAS.2810.a | | The case of an external system (not included in the UAS accessories) should also be address in order to account for respective specifications: e.g. a secondary UAS lifting the UA at take-off, a vehicle based launch feature, air launched/dropped UAS) | If a Launch system or any external aid …" | | | noted | Understood. The level of detail in the proposed 2810 is considered much higher than in other subparts (e.g. subpart B) but nevertheless far from being complete. It is now proposed to keep only the high level specifications and integrate that in subpart D. |
| 770 | Leonardo | MOC to Light-UAS.2510 Equipment, Systems and Installation (High Risk) | 22, 23 | Current text:##Ref. to Table 1: Relationship between Classification of Failure Conditions and Probabilities (BVLOS in populated environment##Ref. to table 2: Relationship between classification of Failure Conditions and Probabilities (BVLOS over assemblies of people)##**Comment:##**LOS is not considered?##Why are used criteria like dimension, MTOM, crash area and not the kinetic energy expected like in SORA?##JARUS SORA and EASA AMC consider kinetic energy (affected by combination of operational conditions as speed/altitude with mass) to determine lethality (effects of failure conditions). Population environment and typical size or expected impact area are instead used to address probability of impacted people.##It is not present the "Probability of Cumulative Catastrophic Failure".##In addition, the value appears unappropriate respect to other CS or STANAG. | ##########Provide clarification.##Change the criteria using the kinetic energy.##Add the "Probability of Cumulative Catastrophic Failure".##Provide clarification | Suggestion | Substantive | high risk (N/A for SC medium risk) | |
| 771 | Leonardo | Table 1 and 2 | | Worst case crash area is mentioned along with maximum dimension and MTOM. Crash area is expected to be higher for gliding FW AC wrt hovering capable VTOL. Nevertheless smaller glide ratio makes trajectory more visible and predictable by third parties and might result in lower danger if proper actions are taken by involved third party. Has this been considered in determining the 2 classes of AC? | | | | high risk (N/A for SC medium risk) | |
| 772 | Leonardo | Table 1 and 2 | | It is not clear how these tables are related to Table 1 for initial GRC determination from SORA (EASA AMC). | | | | high risk (N/A for SC medium risk) | |
| 773 | Leonardo | Table 1 and 2 | | MTOM limits are not congruent with 945/2019 open classes. They also have no reference to other definitions, such as the 150 kg boundary previously separating national/EASA competence and still used in NATO UAS classes and STANAGs. | | | | high risk (N/A for SC medium risk) | |
| 774 | Leonardo | Annex I##Table 1/3 | 22/23 | Current text:##Populated environment / 10-8 + DAL A for MTOM 600 Kg CATASTROPHIC##**Comment:##**What are the references to be considered for definition of populated environment? Does it refers to urban environment? Up to which density? What about sparsely populated requirements? | Please provide clarification | YES ##observation | YES ##substantive | high risk (N/A for SC medium risk) | |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 775 | Leonardo | Annex I##Table 2/4 | 23 | Current text:##Assemblies environment / 10-9 +DAL A for MTOM 200 Kg CATASTROPHIC##**Comment:##**We suppose that the intention is to consider as from introduction an urban scenario for the most severe situation, ie a failure condition of a UAS MTOM 200 Kg which in a city center is expectd to result in one or more fatalities shall be less probable than 10-9 PFH, ie the same probability of CAT failure for Part 29 manned helicopter | Please provide clarification | YES ##observation | YES ##substantive | high risk (N/A for SC medium risk) | |
| 776 | Leonardo | Table 2 | | The table assigns failure rate requirements for different scenarios (related to crash area and vehicle size). Under the mentioned assumption of flying "Over assemblies of people", any case (even with crash area lower than 7 m2) is likely to cause a casualty. Different probabilities throughout different lines therefore are not related to death probability but only to number of expected casualties: this is ethically unacceptable. | | | | high risk (N/A for SC medium risk) | |
| 777 | Leonardo | Table 3 and 4 | | FDAL are arbitrarly related to population density and vehicle size (MTOM) irrespective of the actual failure condition. This provides proportionality between safety objectives (development costs) and UAS budget (conops and size) but seems too far arbitrary within the same Special Condition, same cathegory. | | | | high risk (N/A for SC medium risk) | |
| 778 | Leonardo | Note C and B | | Apparently tables 3 and 4 provide a reference FDAL if ARP4754 is not used. Note B is not clear. ##Priority and applicability should be better explained. | | | | high risk (N/A for SC medium risk) | |
| 779 | Leonardo | Annex I##Notes | 24 | Current text:##Note C: The DAL assignment method proposed in ED- 79A/ARP4754A (ref. [8]) section 5.2 may be used to assign DALs lower than those proposed in Table 3 and 4. Early concurrence with the Agency should take place on the DAL assignment method.##**Comment:##**It is supposed that initial DAL stands for Item DAL while requirements table stand for Functional DAL | Proposed text:##Note C: The Item DAL assignment method proposed in ED- 79A/ARP4754A (ref. [8]) section 5.2 may be used to assign IDALs lower than FDAL proposed in Table 3 and 4. Early concurrence with the Agency should take place on the IDAL assignment method.## | YES ##suggestion | YES ##substantive | high risk (N/A for SC medium risk) | |
| 780 | Leonardo | Note H | | Is military certification an AMC for safety assessments? Is DAL assignement from previously owned military TC accepted? | | | | high risk (N/A for SC medium risk) | |
| 781 | Leonardo | Light-UAS.2620 Flight Manual | 0.19 | Current text:##The applicant needs to provide a flight manual containing the following information:##(a) operating limitations and procedures, for the intended operation;##(b) performance information;##(c) loading information;##(d) procedures and limitations for transportation, reconfiguration and storage;##(e) instrument marking and placard information; and##(f) any other information necessary for the safe operation of the UAS.##**Comment:##**The applicant needs to provide a flight manual containing further information i.e. normal procedures, emergency procedures and abnormal procedures | Hereunder a possible change to the current text:##The applicant needs to provide a flight manual containing at least the following information:####New entry = (xx) normal, emergency and abnormal procedures##Correction= (c) ~~loading~~ mass and balance information and instructions;#### | Suggestion | Substantive | noted | normal, emergency and abnormal procedures are covered under a) operating limitations and procedures. Mass and balance information and instruction is covered by c) loading information. |
| 782 | Leonardo | Light-UAS.2610 Instrument markings, control markings and placards | Pag.19 | Current text:##(a) The CU must display in a conspicuous manner any placard and instrument marking necessary for operation.##(b) The design must clearly indicate the function of each control, unless obvious.##(c) The applicant needs to include instrument marking and placard information in the Flight Manual.##**Comment:##***"in a conspicuous manner" ?* | This Requirements is too generic. It shall be precised. ##It need to be rephrased. | Observation | | noted | The specification is considered to be performance based and contain the relevant objectives. |

| No. | Author | Section, table, figure | Page | Comment summary | Suggested resolution | Comment is an observation or is a suggestion* | Comment is substantive or is an objection** | EASA comment disposition | EASA response |
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| 783 | Leonardo | MOC to Light UAS.2510 Equipment, Systems and Installation (High Risk) | Pag.22 | Current text:##No safety effect: Failure conditions that would have no effect on safety. For example, failure conditions that would not affect the operational capability of the UAS or increase the remote crew workload.##Minor: Failure conditions that would not significantly reduce UAS safety and that involve remote crew actions##that are well within their capabilities. Minor failure conditions may include a slight reduction in safety margins##or functional capabilities, a slight increase in remote crew workload, such as flight plan changes.##Major: Failure conditions that would reduce the capability of the UAS or the ability of the remote crew to copewith adverse operating conditions to the extent that there would be a significant reduction in safety margins,functional capabilities or separation assurance. In addition, the failure condition has a significant increase in remote crew workload or impairs remote crew efficiency.##Hazardous: Failure conditions that would reduce the capability of the UAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be the following: i) Loss of the RPA where it can be reasonably expected that one or more fatalities will not occur, or##ii) A large reduction in safety margins or functional capabilities or separation assurance, or##iii) Excessive workload such that the remote crew cannot be relied upon to perform their tasks accurately or completely##Catastrophic: Failure conditions that are expected to result in one or more fatalities.##**Comment:##**Those definition are too generic. | ##################This is the moment to prepare better definitions to fit the light RPAS domain up to 750 Kg. Those definitions must be rephrased. | Suggestion | | noted | While the proposed addendum is expected to be valid for the majority of projects it is considered to be more appropriate for MOC. |
| 784 | Leonardo | Light-UAS.2605 Command Unit Installation and operation information | 18 | Current text:##(a) The minimum number of crew members for safe operation of the CU and UAS must be established.SC-Light UAS-01 Issue 1##19 (b) Each item of installed equipment related to the remote crew interface must be labelled, if applicable, as for its identification, function, or operating limitations, or any combination of these factors.##(c) There must be a discernible means of providing system operating parameters required to operate the aircraft including warnings, cautions, and normal indications, to the responsible remote crew.##(d) Information concerning an unsafe system operating condition must be provided in a timely manner to the crew member responsible for taking corrective action. The information must be clear enough to avoid likely crew member errors.##(e) Information related to safety equipment must be easily identifiable and its method of operation must be##clearly marked.##**Comments:##**More emphasis needs to be placed on the warning/caution requirements. | Possible addendum: ##RPAS central warning system alerts shall conform to the following prioritization hierarchy based on the urgency of flight crew awareness and response:##(1) Warning: For conditions that require immediate flight crew awareness and immediate flight crew response.##(2) Caution: For conditions that require immediate flight crew awareness and subsequent flight crew response.##(3) Advisory: For conditions that require flight crew awareness and may require subsequent flight crew response.####where possbilethe RPAS warning and Caution alerts shall:##· be prioritized within each category, when necessary;##· Provide timely attention-getting cues through at least two different senses by a combination##of aural, visual, or tactile indications. | Suggestion | Substantive | noted | While the proposed addendum is expected to be valid for the majority of projects it is considered to be more appropriate for MOC. |

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| 785 | Leonardo | All | All | Comment:##In the whole documents the DAA capability has not been mentioned, as a manatory requirement.##As defined witihin Annex 2 ICAO the detect ans avoid is "the capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action". ##Moreover it is vital that this capability, aims to ensure the safe execution of an RPA flight and to enable full integration in all airspace classes with all airspace users shall be addressed with a dedicate requirments.####For RPA, appropriate technology and/or procedures may be needed to provide capabilities analogous to those which pilots of manned aircraft have, using one or more senses (e.g. vision, hearing, touch) and associated cognitive processes. The appropriate action is to avoid the hazard (e.g. potentially conflicting traffic) to assure safety objectives for specific airspace or operations are met.####RPAS may be designed with different systems and sensors to DAA different hazards. Some of these systems may use more than one sensor to assure reliable hazard detection under a variety of environmental conditions.####When an RPAS is equipped with more than one DAA system (i.e. to detect and avoid different hazards), these systems may need to be ##interoperable to assure an appropriate, coordinated (when applicable) avoidance action is taken when different hazards are present at the same time (e.g. conflict traffic versus terrain or obstacles).## | Evaluate the possibility to add a DAA requirements for for example all RPAS with a MTOM from 450 Kg up to 750 kg. | Suggestion | | noted | Equipment requirements will be driven by the opearting environment esp. the airspace |
| 786 | Leonardo | All | All | It would be desirable distinguish between Fixed wing and Vertical Take Off andlanding Systems | Include two different categories | | | not accepted | EASA considers it more appropriate to not distinguish between different airframe categories which is possible due to the high level requirements. It is understood that this will shift some discussions to MOC level and different MOC might be used for different aircraft categories. |
| 787 | Leonardo | All | All | It would be desirable distinguish within Fixed wing category between MTOW < 150 Kg and 150 Kg<MTOW<750Kg | Include two different categories | | | not accepted | EASA considers it more appropriate to not distinguish between different airframe categories which is possible due to the high level requirements. It is understood that this will shift some discussions to MOC level and different MOC might be used for different aircraft categories. |
| 788 | Leonardo | All | All | Minimum equipment /function List for Certification of Fixed Wing with MTOW above 150 Kg from SORA Annex D | see drawing file word | | | not accepted | Tactical mitigation means for air risk are not mandated by EASA in the specific catgeory. They need to be agreed with Authority responsible for airspace. Additionally the referenced tables reports examples, not exhaustive list. |

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| 789 | Mathias Sanchez Jaen | Light-UAS.2135 | 5 | In a) 3.: "*The UA must be controllable and maneuverable, without requiring exceptional skill or alertness on the part of the remote crew, within the normal flight envelope … with likely flight control or thrust/lift/power system failure"##* The wording does not imply whether "likely" system failure must be assumed, or in case the failure(s) is/are likely by design. | Rewor | | | noted | when failures are likely they have to be considered in the compliance demonstration of Subpart B. |
| 790 | Mathias Sanchez Jaen | Light-UAS.2400 | 10 | In d.: *"The Lift/Thrust/Power system installation must take into account anticipated operating conditions incl. foreign object threats"##* Foreign object threats allow for a wide range of possibilities, unclear | Clarify | | | noted | MOC is needed to clarify the expected compliance deomonstration in relation to the CONOPS |
| 791 | Mathias Sanchez Jaen | Light-UAS.2305 | 8 | (c): *"adverse loading conditions must not cause damage to the essential systems od the UA, which could lead to a hazardous or catastrophic event if not detected" ##* Adverse loading conditions are per se covered by a safety factor – preventing failure. Also, "haz" and "cat" imply danger to persons – "if not detected" assumes supporting systems do not work? | Clarify | no | yes | not accepted | adverse loading condition could be an asymmetric landing attitude. Could be addressed by safety factors or adapted test condition. |
| 792 | Schiebel Elektronische Geräte GmbH., H. Schloffer | 2430.a.1 | 11 | Uninterrupted energy supply may not be necessary for all supported system, as stated in this objective, but for all systems that are necessary for continued safe flight. Auxiliary systems like payloads and the like may not require uninterrupted power but would likely be included by the current wording. | Narrow the range of systems addressed by this objective.##Proposed wording: ##Provide compatible and uninterrupted energy as required with adequate margins to ensure functioning of all systems required for continued safe flight and landing or emergency recovery of the UA. | | | noted | as required already limits the required energy |
| 793 | Schiebel Elektronische Geräte GmbH., H. Schloffer | 2530.a | 16 | Characteristics of lighting is not defined that will allow an observer to distinguish an UA from a manned traffic. For practical reasons the characteristics of the UA lighting system has to be defined by the Authority to establish a common standard that will be known by the observer. | Please define what characteristic of the lighting system of the UA is required to allow for stated distinguishability. | | | noted | this need to be addressed at AMC / standard levekl |
| 794 | Schiebel Elektronische Geräte GmbH., H. Schloffer | 2715.a | 20 | The wording for the required protection of the C2 link from external interference is rather vague. What external interference is addressed with this objective? Clarification would be appreciated. For example interference that has to be expected from HIRF environment or is intentional jamming addressed by this objective too? | Please define "external interference" more specifically e.g. as defined in applicable HIRF environment etc. or provide other means of guidance. | | | noted | intentional jamming is covered by 2730. 2715 refers to the HIRF environment |
| 795 | Schiebel Elektronische Geräte GmbH., H. Schloffer | Annex I, 2510, Table 1 & 2 | 22 | Within the SC-RPAS.1309 there was a footnote stating that the required probabilities are based on the assumption that the number of potential CAT failure conditions is in the order of magnitude of 10. If the number is higher concurrence with the Agency is required.##This note or a similar statement is not present in this SC therefore the assumption would be that the stated required probabilities in Table 1 and 2 are independent from the number of identified CAT failure conditions. Is this interpretation correct? | Provide clarification and/or explicit statement if or not the number of potential CAT failure conditions have been considered within the required probability numbers in Table 1 and Table 2 or if concurrence with the Agency is required if the number of potential CAT failure conditions exceeds number X. | | | high risk (N/A for SC medium risk) | |
| 796 | Schiebel Elektronische Geräte GmbH., H. Schloffer | Various | Multiple | The abbreviation for kilograms has usually been written in other EASA documents in small letters as "kg". In this SC it is often written with a capital K as "Kg". | Change "Kg" to "kg" | | | accepted | text modified accordingly |
| 797 | Schiebel Elektronische Geräte GmbH., H. Schloffer | End of first paragraph | 5 | There is an additional period at the end of the first paragraph: "… as fully autonomous operations. ." | Delete second period. | | | accepted | text modified accordingly |

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| 798 | Schiebel Elektronische Geräte GmbH., H. Schloffer | 2511.b.1 | 13 | Although the required probability values for failure classifications are provided in Table 1 and 2, this requirement states an explicit probability value. The required probability might not always be acceptable or necessary to be $10^{-4}$/FH. It might be an option to stay with an objective based approach avoiding explicit numbers here. | Delete explicit probability value and rephrase requirement so that the the allowable probability value for leaving the operation volume depends on the severity classification of this failure. | | | partially accepted | rephrased |
| 799 | Schiebel Elektronische Geräte GmbH., Ancheta | Light-UAS.2510 Equipment, Systems and Installation (Medium risk) (a) | 13 | CS-Light UAS.2500 | SC-Light UAS.2500 | | | noted | corrected |
| 800 | Schiebel Elektronische Geräte GmbH., Ancheta | Light-UAS.2511 Containment | 13 | (b) When the risk associated with the adjacent areas on ground or adjacent airspace is significantly higher than the risk associated with the operational volume including the ground buffer - ##--> The sentence is not complete | Sentence complete | | | noted | corrected |
| 801 | Schiebel Elektronische Geräte GmbH., Ancheta | Light-UAS.2511 Containment | 13 | Requirement light UAS.2511 shall not be applicable to specific operations with high risk, because the requirements at 2510 (high risk) is already at highest level (SAIL V/VI). | Exclude UAS.2511 if specific operation is high risk (SAIL V/VI) | | | high risk (N/A for SC medium risk) | |
| 802 | Schiebel Elektronische Geräte GmbH., Ancheta | ANNEX I table 1 | 23 | How are the quantitative probabilities derived?##What is the relation between the quantitative probabilities and the worst crash area?##How is the worst crash area calculated? | | | | high risk (N/A for SC medium risk) | |
| 803 | Schiebel Elektronische Geräte GmbH., Ancheta | ANNEX I table 1 | 23 | BVLOS over populated environment and BVLOS over assemblie of people do not have a iGRC in EASA AMC to Commission regulation 2019/947 | | | | high risk (N/A for SC medium risk) | |
| 804 | Schiebel Elektronische Geräte GmbH., Ancheta | ANNEX I table 1/2 | 23 | The operational scenario used for table 1 or 2: is it taken from the unmitigated version of the GRC or from the final GRC?##For example: the operational scenario is “bvlos over populated environment”, through some strategic mitigation for ground risk, the GRC is reduced, which means, from operational perspective that the operational scenario is not “bvlos over populated environment” anymore but “bvlos over sparsley populated environment”. The reason for that is, through the mitigation, the number of people at risk was reduced.##Therefore which scenario is now taken into consideration for the tables. The scenario before the GRC mitigation or after the GRC mitigation? | Please provide clarification | | | high risk (N/A for SC medium risk) | |
| 805 | Schiebel Elektronische Geräte GmbH., Ancheta | ANNEX I table 1/2 | 23 | Is there a tolerable region in ”maximum UAS dimension”? If for example the UAS dimension is just a little bit over 3m (e.g. 3,4m) and the worst case crash area is definitely lower the 400m². How is this handled?## | Question? | | | high risk (N/A for SC medium risk) | |

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| 806 | Schiebel Elektronische Geräte GmbH., Ancheta | ANNEX I table 3 | 23 | see drawing in file word | Proposed to reassign DAL's accordingly:##BVLOS over populated environment (Max dimension >3m, <8m):##CAT  FDAL B (instead of FDAL A)##HAZ  FDAL C (instead of FDAL B)##MAJ  FDAL D (instead of FDAL C)##MIN  FDAL D ( the same as FDAL D)####BVLOS over populated environment (Max dimension <3m):##CAT  FDAL C (instead of FDAL B)##HAZ  FDAL C (the same as FDAL C)##MAJ  FDAL D (instead of FDAL C)##MIN  FDAL D (the same as FDAL D)## | | | high risk (N/A for SC medium risk) | |
| 807 | SW-Department ##Thomas-Wolfram Zak | Light-UAS.2511 Containment | 13 | (3) Software and airborne electronic hardware whose development error(s) could directly lead to operations outside the ground risk buffer must be developed to a standard or methodology accepted by the Agency. ##*Does this imply that high ARP4754/ DO178/DO254 DAL levels for navigation and Flight termination functions, realized in Electronic SW/HEW, even for Low/medium SAIL Operations are considered????*## | 3) Software and airborne electronic hardware whose development error(s) could directly lead to operations outside the ground risk buffer must be developed to a standard or methodology accepted by the Agency, in alignment with UAS.2510 | | | noted | The Agency may accept other methodologies / standard within any certification project. |
| 808 | Thurling | Safety Objectives | vi | "According to the EASA AMC and GM, mitigation means M1 and M2, when applied, may determine a reduction of the initial ground risk class (iGRC)." This statement seems to be a change from the EASA position taken in NPA 2020-07. This is welcome, by the way! | None | Observation | | noted | thank you |
| 809 | Thurling | Safety Objectives | vi | "With regard to the Classification of the failure condition, the effectiveness of M2 mitigation means should be taken into account." This statement seems to be a change from the EASA position taken in NPA 2020-07. This is welcome, by the way! | None | Observation | | noted | thank you |
| 810 | Thurling | Light-UAS.2250 Design and construction principles | 7 | (c) The suitability of each design detail and part having an important bearing on safety in operations must be determined. | Very nebulous, needs to be a bit more specific and detailed. | no | Substantive | partially accepted | the SC is risk-based and non-prescriptive, further detail will be provided in AMC and GM |
| 811 | Thurling | Light-UAS.2335 Lightning protection | 8 | (a) If the intended operation does not exclude exposure to lightning, the UAS must be protected against the catastrophic effects of lightning.(b) If the intended operation excludes exposure to lightening, limitations must be developed to prohibit flight, including take-off and landing, into conditions where the exposure to lightning is likely. | None. Nicely written risk-based requirement. But, it does differ from the ICAO Annex 8 proposed rrequirement. I like yours better! | Observation | | noted | Thank you |
| 812 | Thurling | Light-UAS.2520 High-Intensity Radiated Fields (HIRF) Protection (medium risk) | 15 | Note: A maximum HIRF Clearance Environment in which systems referred to in (a) and (b) of Light-UAS.2520 are not adversely affected could be defined appropriate for the operation / conops. Associated limitations in the Aircraft Flight Manual should be implemented in order to avoid operations where the defined HIRF Clearance Environment is exceeded. | None. Nicely written risk and performance-based requirement. | Observation | | noted | Thank you |

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| 813 | Thurling | ANNEX I – Mean of Compliance to Light-UAS | 22-24 | I went back and reviewed the evolution of the EASA SC.1309 requirement through issues 1, 2, and 3. EASA's own guidance has gone from 10^-6 and DAL B for "Catastrophic" (and this was for all RPAS) all the way to 10^-8 and DAL A in the Issue 3 and the new proposed Special Condition for Light RPAS. This is somewhat remarkable when one considers the SC.1309 was for RPAS of similar risk to CS-23 Level 3 (7-9 PAX sized) aircraft, and the new SC is for light RPAS up to 600 kg. A "crash" of a CS-23 Level 3 aircraft will kill someone, the "crash" of an RPAS will most likely not. We must then assume that any UAS larger than 600 kg can expect to start at DAL A despite being unmanned. A "crash" of a UA is only catastrophic if a number of other events occur (or fail to occur). For instance, a flyaway while assessed as "Catastrophic" severity being the "worst credible" outcome, needs several other events to occur (or not) in order to result in a midair where a human is killed. Specifically, there needs to be an aircraft present with which to conflict, the two aircraft need to be on a collision course, the other pilot must fail to see and avoid, etc. In other words, the right side of the "bow tie" has a lot more uncertainty when there is no human on board the mishap aircraft. | Delete this Annex and MOC until more discussion can occur. The MOC must appropriately incorporate the inherent mitigations present in unmanned aviation. Deleting the Annex will not take away from the excellent work done in the main body of the SC. | | Objection | high risk (N/A for SC medium risk) | |
| 814 | Loon | Objective-based, operation-centric… | iii | Loon strongly supports EASA's thoughtful and measured approach for an objective-based, operation-centric and proportional approach to UAS certification. In particular, we support EASA's recognition that, in the absence of onboard occupants, "the risk inherent to any UAS operation is strictly dependent on the characteristics of the operational volume." Indeed, in the absence of onboard occupants, the risk considered is entirely 3rd party risk. Such risk is a function of operation characteristics, operational volume, and operation scale (number of vehicles operated).<br>We do appreciate that most of the language throughout this SC is performance-based and does leave the possibility for it to be adapted to the specificities of each operation.<br>We believe some sections of this document do not adhere to this "operation-centric, risk-based approach". In particular, the safety objectives and proposed Accepted means of compliance - Annex I (see further comments for details). | See following comments. | Observation | No | Noted | thank you |
| 815 | Loon | Applicability | iV | The applicability of MTOM up to 600kg does not seem to tie directly with a performance-based or a risk-based approach. | Suggest removing the MTOM of 600kg and relying instead on the risk category. | Sugegstion | Yes | Not accepted | This wold not be coherent with the approach of the certified catgeory concept paper (see also picture in the introduction). |
| 816 | Loon | Applicability Light-UAS.2000 | iv / 3 | The current applicability of this SC to the medium risk of the specific category of operation seems contrary to the purpose of the SORA process. | We suggest limiting this SC applicability to the certified category of operations so as not to contradict SORA guidance. | Sugegstion | Yes | Not accepted | See update of AMC to regulation 2019/947 with regard to certified UAS in the specific catgeory |

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| 817 | Loon | Applicability Light-UAS.2000 | iv / 3 | The Applicability does not mention differentiation between Airspaces. High Altitude Platforms (HAPS), which typically fly above FL500, have unique characteristics which are not contemplated in this SC | We suggest that High Altitude Platforms be explicitly excluded from this Special Condition. | Sugegstion | Yes | partially accepted | see note at page 8 "Additional SC may have to be prescribed in accordance with point 21.B.75, e.g. in those cases in which the product includes specific technology novelties or design and operation are unconventional, such as UA operated autonomously, lighter-than-air UA or UA operated at very high altitude." |
| 818 | Loon | Safety Objectives | v/3 | In absence of people onboard, the risk measured per flight hour is inadequate because the risk to 3rd parties is directly proportional to the scale of operations (# flight hours), which can change by several orders of magnitude from one operation to the next.<br>The set of assumptions used by EASA to derive the means of compliance (operational assumptions, flight hours flown in 2035, representative urban population density) are by definition not operation-centric. The method used to derive MOC therefore is contrary to the operation-centric philosophy desired by EASA. These assumptions (especially on operational volume and density) are likely to impose an unnecessary burden on small scale operations, or operations exposed to smaller Urban densities, which create little risk compared to larger scale operations operating mainly over extremely dense areas.<br>Likewise, the use of 2035 operational volume is likely to impose unnecessary burden on innovation in the short term, while not scaling appropriately in the longer term.<br>As vehicle characteristics and operations will vary significantly, we encourage EASA to recognise alternate means of compliance supported by safety cases; such safety cases may use time-weighted population density averages and total hours flown to more accurately characterize total risk of a given operation.<br>For example: Loon uses a dynamic risk assessment that integrates 'risk over time and location' in real time (a function of operational volume and overflown densities). This is complemented by operational risk management that dynamically controls the time weighted population exposure to keep the total operation risk below an acceptable level. | We suggest that EASA enables an operator to demonstrate compliance based on a risk-based and/or performance-based safety case demonstrating total risk for the overall operation (total flight hours). Such a safety case would be based on actual total flight hours, actual time weighted population densities, and actual vehicle characteristics, instead of the per flight hour failure rates which are reliant on generic and capricious assumptions.<br><br>To support applicants to develop operation-centric safety cases, we suggest that EASA specifies high level Target Safety Levels (total risk) that should be demonstrated by the applicant, along with recommended models or methods for deriving the risk from the vehicle characteristics (mass, crash surface, etc.), operational volumes (#flight hours), and time weighted average population densities.<br>As risk is a function of the operational scale, an applicant can demonstrate compliance to the maximum risk limit by providing a safety case tailored to the operation scale, operation area and vehicle characteristics. Doing so would also require the largest operations which create the most cumulative risk to exist with higher failure rate risks than those operating at a different scale which may present a greater overall cumulative risk.<br>A "canned approach" using generic assumptions can be a simple alternative for applicants unable to perform a more realistic assessment. | Objection | Yes | Comment not applciable for medium risk SC (will be addressed with high risk SC) | |
| 819 | Loon | Light-UAS.2210 Structural design loads | 6 | (b) the vehicle can be designed to tolerate some structural damage without compromising safety. | Suggest adding the word "hazardous." E.g. "Vibration, including air or ground resonance, and buffeting must not result in hazardous structural damage" | Suggestion | Yes | Noted | Requirement 2210 is nopt included in adopted SC |
| 820 | Loon | Light-UAS.2235 Structural strength | 6 | (a)(2) a vehicle can be designed to tolerate permanent deformation without affecting the safe operation, even though it may impact the ability to deliver the mission. (b) the UA can be designed to tolerate failures without impacting the safety of the operation, even though the ability to deliver the mission can be affected.. | Suggest :<br>"(a)(2) permanent deformation interfering with the safety of the operation"<br>"(b) ultimate loads without failures that interfere with the safety of the operation" | Suggestion | Yes | partially accepted | Reworded requirement includes the link to safe operation and established safety objectives. |

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| 821 | Loon | Light-UAS.2260 Materials and processes | 7 | (b) The vehicle can be designed such that some structural parts are designed to safely fail (e.g. to absorb energy or load concentration, and protect 3rd parties) | Suggest rewording:<br>"Design values must be chosen such that no structural part is under strength as a result of material variations or load concentration, or both, in a manner that impacts the safety of the operation." | Suggestion | Yes | not found in proposed SC | |
| 822 | Loon | LIFT/THRUST /POWER SYSTEM | 10 and 11 | Some UAs (e.g. lighter than air) do not rely on Thrust or Power to maintain safe operation (forward velocity not required to remain airborne). For example, some lighter than air vehicles rely exclusively on buoyancy to maintain flight altitude. They may be equipped with a complementary thrust system (providing additional control) that is not safety critical. The integrity and availability of such a thrust system does not condition the safe operation. We suggest that the SC focuses on the Lift/Thrust/Power system when necessary to ensure safety. However, the control of the vehicle may be independent from its safe operation. | In Light-UAS.2400 we suggest changing : "The Lift/Thrust/Power system installation includes each part of the UA that is necessary for lift/thrust/power generation and affects the control or the safety of the Lift/Thrust/Power systems."<br>To:<br>"The Lift/Thrust/Power system installation includes each part of the UA that is necessary for the safety of the operation."<br>We suggest that the entire section be adapted to focus on maintaining safe operation. (Disregarding Lift/Thrust/power systems which are inherently non-critical to safety) | Suggestion | Yes | Not accepted | The scope of Subpart E is the installation of Lift/Thrust/Power systems, systems controlling the Lift/Thrust/Power Systems and requirements for the Lift/Thrust/Power system itself including integrity and durability. This is linked to the safety objectives established in Subpart F which is applicable in general to Systems including systems of the control system like the ones maintaining buoyancy and trim for lighter than air vehicles. The current split of subparts is therefore kept. |
| 823 | Loon | Annex I | 22 | 5 comments from Loon (not reported herein, see disposition) | 5 comments from Loon (not reported herein, see disposition) | | | Comments on Annex are applicable to high riskl SC only and will be addressed when the SC Light UAS high risk will be published | |
| 824 | Loon | Light-UAS.2511 Containment | 13 | The probability of 10-4 pfh seems arbitrarily defined.<br>Some operations (for example HAPS with limited or no propulsive ability) cannot be contained. The ground risk can nevertheless be maintained below acceptable levels by controlling the total risk exposure (time weighted population density). Dynamic risk computation and integration coupled with operational risk management designed to reduce the frequency/duration of flight over most dense areas ensure the probability of a ground fatality remains below an acceptable threshold.<br>Airspace risk is maintained below acceptable level by adequate CONOPs for high altitude operations, which account for non-deterministic trajectories. | We suggest that dynamic risk management practices, which use dynamic risk calculation and integration combined with operational risk management, be considered as alternate means of compliance. | Suggestion | Yes | Noted | 10exp(-4) is take from SORA / EASA AMC and cannot be ignored. It is now in the note. In any case MoC for the SC still need to be defined |
| 825 | Loon | Light-UAS.2530 UA External lights | 16 | (c) some HAPS do not have the propulsive power to have forward movement in all wind conditions, resulting in the UA to move in the opposite direction from the thrust heading (i.e. backward). The PORT and STARBOARD may therefore not be indicative of the direction of the vehicle, from a fixed ground observer | Depending on the airspace, we suggest that blinking white lights may be sufficient below some True Airspeed capability threshold. | Objection | No | noted | see disposition above (further SC might need to be issued foir such cases) |

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| 826 | | Light-UAS.2135 Controllability, manoeuvrability and stability & Light-UAS.2528 | 5 and 15 | "The UA must be controllable and manoeuvrable, without requiring exceptional skill [...] 2. during all phases of flight;" We believe that the notion of "control" is not immediately tied to safety. For instance, a UA with a broken propeller may compensate by giving up the yaw control, and go into uncontrollable spin, to retain safety of the operation and safely navigate to a recovery location. Likewise, Loon platforms perform ascents that cannot be controlled and landing descents in designated recovery areas under a parachute. During this phase of the flight, the descent trajectory cannot be changed / maneuvered. Throughout the document, requirements are made for "to be safe, controllable and maneuverable". We believe that controllable/maneuverable is redundant provided the operation is safe. | We suggest modifying Light-UAS.2135 to say. "The UA must be safely operable, without requiring exceptional skill [...] 2. during all phases of flight;" We suggest modifying Light-UAS.2528 (c)(ii) to say: "required safe operation of the UA under anticipated operating conditions with adequate margins on specified limits" | Suggestion | No | noted | |
| 827 | Michael Norcia | Light-UAS.2230 | 6 | Seeking clarification: Is the thought here that composite structures are to be tested to a factor of safety of 1.5? Do they need to be temperature or moisture conditioned? | Pyka's view is that the answer's should be: YES, composite structures are to be tested to a factor of safety of 1.5, and NO they do not need to be temperature or moisture conditioned. | Observation/request for clarification | | requirement not reported in adopted SC | |
| 828 | Michael Norcia | Light-UAS.2260(b) | 7 | Seeking clarification: For composite structures that are tested to ultimate, are there any elevated factors of safety required to account for material variation? Or is the "material variation" claus in reference to structures that are validated through analysis only? | Pyka's view is that the answer's should be: NO, no additional factors of safety are required to account for material variation assuming standard materials and manufacturing processes are used (wetlayup, prepreg, metallic, etc.). And that YES, material variation should be considered if structural strength is being determined through analysis only. | Observation/request for clarification | | noted | Material variations need to be considered but the discussion will be on MOC level. While additional safety factors applied during testing or analysis is a typical way of ensuring that material variations are appropriately addressed. The new subpart C does not any prescriptive safety factor the means of compliance will be established to achieve the safety of the operation. |
| 829 | Dewi Daniels, Callen-Lenz | Statement of Issue | II | It is claimed that "Nevertheless, as defined by Commission Implementing Regulation 2019/947, some operations in the Specific category may be authorised by the NAA only if the UAS operator demonstrates that he/she is operating a UA certified by EASA". I cannot find a statement to that effect in Commission Implementing Regulation 2019/947. The only mention of certified unmanned aircraft is in UAS.SPEC.100. | Either add a reference to the specific clause in Commission Implementing Regulation 2019/947 where this requirement is defined or delete the sentence. | Y | N | accepted | sentence is removed. Please refer to update of AMC to regulation 2019/947 published together with the fional SC mdeium risk |
| 830 | Dewi Daniels, Callen-Lenz | Statement of Issue | Ii | It is stated that "EASA has adopted AMC which provide further guidance on when the Regulation requires the certification of the UA". Is this the AMC and GM to Commission Implementing Regulation (EU) 2019/947 mentioned earlier or a different AMC? | Either change to "The EASA AMC and GM provides further guidance on when the Regulation requires the certification of the UA" or provide a reference to the AMC that is meant. | Y | N | accepted | reference is provided (see comment above) |
| 831 | Dewi Daniels, Callen-Lenz | Statement of Issue | Ii | It is stated that "Therefore, EASA decided to develop a dedicated SC for **light UAS**, which will be applied in accordance with point 21.B.80 when the Agency has to determine the certification basis for **light aircraft**, considering that no existing CS is applicable to **those aircraft**" (my emphasis). | Replace "light aircraft" with "light UAS" | Y | N | accepted | |

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| 832 | Dewi Daniels, Callen-Lenz | Applicability | Iv | It is claimed that "The UAS operator is required to demonstrate the operational safety objectives (OSO) with a level of robustness proportionate to the SAIL. Operational Safety Objectives ("OSOs") related to design need to be demonstrated with a high level of robustness when the operation is classified as SAIL V and VI. SAIL V and VI are herein defined as "High Risk". For operations classified with a lower SAIL the level of robustness may be medium (SAIL 3 or 4) or low. UA Certification standards for low risk operations are not included in this SC".<br>The relationship between robustness and SAIL in JARUS SORA is much more complicated than is suggested by this paragraph. For example, OSO#04 "UAS developed to authority recognized design standards" recommends low robustness at SAIL IV, medium robustness at SAIL V and high robustness at SAIL VI. On the other hand, OSO#05 "UAS is designed considering system safety and reliability" recommends low robustness at SAIL III, medium robustness at SAIL IV and high robustness at SAIL V and SAIL VI. | Replace the paragraph with "When the operation is classified as SAIL V or VI, this document shall consider the operation to be high risk. When the operation is classified as SAIL III or IV, this document shall consider the operation to be medium risk. When the operation is classified as SAIL I or II, this document shall consider the operation to be low risk. UA Certification standards for low risk operations are not included in this SC". | N | Y | partially accepted | text has been changed |
| 833 | Dewi Daniels, Callen-Lenz | Safety Objectives | V | It is stated that the safety objectives are based on "the calculated number of FH flown by drones in the generic / average European city in 2035". When I responded to the external consultation on JARUS SORA, I objected that JARUS SORA does not take into account the number of UAS to be deployed in determining the SAIL. My comment was rejected because "Fleet impact on safety level is not typically considered in aviation". | If the safety objectives are to be based on "the calculated number of FH flown by drones in the generic / average European city in 2035", it follows that the SAIL determined by applying the methodology described in JARUS SORA will need to be adjusted upwards in many cases. This is because none of the tables in JARUS SORA take the calculated number of FH into account in determining the SAIL. | N | Y | Comment not applciable for medium risk SC (will be addressed with high risk SC) | |
| 834 | Dewi Daniels, Callen-Lenz | Light-UAS.2335 | 8 | Spelling mistake. | Change "lightening" to "lightning". | Y | N | accepted | |
| 835 | Dewi Daniels, Callen-Lenz | Light-UAS.2510 Equipment, Systems and Installation (High Risk) | 12 | The requirement that "Each catastrophic failure condition is extremely improbable and does not result from a single failure" is the same text as in CS-25.1309" and is more onerous than CS-23. Does EASA really intend light UAS to be developed to the same standard as airliners and to a higher standard than light manned aircraft? | Delete "and does not result from a single failure" for consistency with CS-23. | N | Y | Comment not applicable for medium risk SC (will be addressed with high risk SC) | |
| 836 | Dewi Daniels, Callen-Lenz | Light-UAS.2510 Equipment, Systems and | 13 | "Hazards are minimised in the event of a probable failure" seems a very lax requirement. This sounds more like a low risk operation than a medium risk operation. | Replace "Hazards are minimised in the event of a probable failure" with:<br>1.Each catastrophic failure condition is extremely remote;<br>~~2. Each hazardous failure condition is remote~~ | N | Y | not accepted | requirement has been extracted from AMC to CIR 2019/947 |
| 837 | Dewi Daniels, Callen-Lenz | Light-UAS.2511 Containment (b) | 13 | What does "significantly higher" mean? | Replace "significantly higher" with "higher". | N | Y | not accepted | "significantly higher" will be defined by the MOC to 2511 and in EASA opinion conveys a better idea of the concept than just "higher". |
| 838 | Dewi Daniels, Callen-Lenz | Light-UAS.2511 Containment (1) | 13 | What is the justification for the probability of leaving the operational volume being less than 10-4 /FH? Leaving the operational volume is potentially catastrophic. 10-4 /FH seems very high and conflicts with the requirement in Light-UAS.2510 Equipment, Systems and Installation (High Risk) that each catastrophic failure condition is extremely improbable. | Replace "The probability of leaving the operational volume must be less than 10-4 /FH" with "Any failure condition that results in the UAS leaving the operational volume shall be extremely improbable". | N | Y | noted | 10exp(-4) is now in the note. In any case, requirement is extracted from AMC to CIR 2019/947 |

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| 839 | Dewi Daniels | Light-UAS.2511 Containment (2) | 13 | It is required that "No single failure of the UAS or of any external system supporting the operation must lead to its operation outside the ground risk buffer". EASA has previously interpreted "no single failure" to include "no single design error". Does EASA really require two dissimilar implementations of any geofencing algorithms? | Remove (2). | N | Y | not accepted | requirement is extracted from AMC to CIR 2019/947 |
| 840 | Dewi Daniels, Callen-Lenz | Light-UAS.2511 Containment | 13 | Why is leaving the ground risk buffer considered more hazardous than entering adjacent airspace? Violating Class A airspace is potentially a catastrophic failure condition. | Replace "outside the ground risk buffer" in (2) and (3) with "outside the operational volume". | N | Y | noted | requirement is extracted from AMC to CIR 2019/947 |
| 841 | Dewi Daniels, Callen-Lenz | Light-UAS.2511 Containment | 13 | I do not understand the rationale behind having objectives that only apply when the risk associated with the adjacent areas on ground or adjacent airspace is significantly higher than the risk associated with the operational volume including the ground buffer. Even if the risk associated with the adjacent areas on ground or adjacent airspace is the same as or lower than the risk associated with the operational volume including the ground buffer, in the event that control is lost of the UAS, the UAS could travel a considerable distance (up to its maximum range) and enter non-adjacent areas on ground or non-adjacent airspace.. | Replace Light-UAS.2511 Containment with<br>(a) The probability of leaving the operational volume must be extremely improbable,<br>(b) Software and airborne electronic hardware whose development error(s) could directly lead to operations outside the operational volume must be developed to a standard or methodology accepted by the Agency. | N | Y | noted | requirement is extracted from AMC to CIR 2019/947 (please note: such AMC is extracted from JARUS SORA which has undergone extensive internal and public consultation. EASA may decide to adapt the SC in the future for those cases in which the SORA might change and such change would directly reflect in SC requirements) |
| 842 | Dewi Daniels, Callen-Lenz | Light-UAS.2529 UAS Navigation Function | 16 | The stated requirement, "The UAS Navigation function must ensure that the UA remains within the intended flight path and within all spatial limitations in all flight phases" seems pretty meaningless. | Specify maximum allowable deviation from intended flight path. Add "The UAS Navigation software must be developed to a standard or methodology accepted by the Agency". | N | Y | noted | This can be addressed at MOC level |

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| 843 | Dewi Daniels, Callen-Lenz | Tables 3 and 4 | 23 | EASA has previously expressed an opinion that "Development Assurance alone is not necessarily sufficient to establish an acceptable level of safety for Flight Control Functions". This opinion is the subject of a problem statement submitted to EUROCAE WG-112.<br>It is unclear how to interpret Tables 3 and 4. For example, Tables 3 and 4 state that a Catastrophic Failure Condition results in an assignment of FDAL A under certain conditions. Would EASA accept that an FDAL A function could be implemented by a single item developed to IDAL A? Presumably, EASA would accept that an FDAL A function could be implemented by two independently developed items developed to IDAL B.<br>Note B states that "For DAL allocated to Catastrophic and Hazardous (for crash areas below 70 square meters), no considerations of the system architecture for a DAL reduction are acceptable, as the DAL classification already constitute a proportionate approach". A Catastrophic Failure Condition results in an assignment of FDAL B in these circumstances. Would EASA accept that an FDAL B function could be implemented by a single item developed to IDAL B? Normally, an FDAL B function could also be implemented by two independently developed items developed to IDAL C. Since EASA has stated that no considerations of the system architecture for a DAL reduction are acceptable, would EASA require the FDAL B function to be implemented by two independently developed items developed to IDAL B? If this is the case, both FDAL A and FDAL B functions would have to be implemented by two independently developed items developed to IDAL B, so there is no alleviation for FDAL B. | Clarify the EASA position whether an FDAL A function can be implemented by a single IDAL A item. Clarify what is meant by "no considerations of the system architecture for a DAL reduction are acceptable", possibly with examples. | N | Y | Comment not applicable for medium risk SC (will be addressed with high risk SC) | |
| 844 | Gregoire FAUR - DELAIR | all | | SORA methodology "drives" thespecific category.<br>A traceability with SORA requirements would greatly help the acceptance of this Special condition. | Add a traceability matrix for all the SC section between<br>-"medium risk" expectations and SORA SAIL III/IV expectations<br>-"medium risk" expectations and SORA SAIL III/IV expectations | suggestion | objection | noted | EASA does not consider necessary to add this traceability, nevertheless has considered comments pointing ouit any transposition which might not be correct or had to be improved |
| 845 | Gregoire FAUR - DELAIR | Methodology and principle at the base of the SC | 5 | "As the SC<br>covers certification for operations in the specific category, the determination of airworthiness<br>objectives of Light-UAS has taken into consideration design-related OSOs) determined by the EASA<br>AMC and GM which is based in the JARUS SORA."<br>higher traceability is needed | Better substabtiate the rationale of technical expectations | suggestion | objection | noted | the sentence express a concept which is considered sufficiently clear and motivated |
| 846 | Gregoire FAUR – DELAIR | Safety Objectives | 6 | "Safety objectives determined for populated environment have been transposed for operation over assemblies observing the link between SAIL levels in the EASA AMC and GM."<br>higher traceability is needed | Better substabtiate the rationale of technical expectations | suggestion | objection | Comment not applicable for medium risk SC (will be addressed with high risk SC) | |
| 847 | Gregoire FAUR – DELAIR | SUBPART B FLIGHT | | Several comments on various subaprts pointing out missing AMCs and that this is a large gap for document assessment | Deatil AMCs | suggestion | objection | noted | MoCs will be developed in a second phase and in direct contact with the ongoing cert projects, applicants may propose MoCs |

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| 848 | Gregoire FAUR – DELAIR | Table 1 and 2 of Annex | | Several comments regarding Annex | see EASA disposition | suggestion | objection | Comment not applicable for medium risk SC (will be addressed with high risk SC) | |
| 849 | Gregoire FAUR - DELAIR | all | all | To have a better traceability with SORA, , it could be worth having more than 2 categories ("medium risk" / "high risk") in the SC<br>Why not having:<br>medium risk - SAIL III<br>medium risk - SAIL IV<br>high risk - SAIL V<br>high risk - SAIL VI | Have more than 2 categories ("medium risk" / "high risk") in the SC<br>Why not having:<br>medium risk - SAIL III<br>medium risk - SAIL IV<br>high risk - SAIL V<br>high risk - SAIL VI<br>? | suggestion | objection | noted | EASA has consdiered differentiation of requirements between SAIL III and IV when needed (ref. medium risk only) |
| 850 | Bell Textron Inc. | 3rd paragraph | v | Change wording from "… this SC has consequently adopted to this approach." | Change wording to "… this SC has consequently adopted this approach." The word "to" should be deleted. | | | accepted | |
| 851 | Bell Textron Inc. | Light-UAS.2710 | 20 | Regulaion title too general and not consistent with Light-UAS.2500 title. | Change title by adding "C2 Link" so that it becomes:<br>Light-UAS.2710 C2 Link General Requirements | | | noted | noit considered necessary as the requirement is under the C2 Link Subpart |
| 852 | K McHale | Annex I | 22 | The adoption of Failure Condition (FC) severity descriptors that derive from manned CS has led to significant debate and confusion in projects I have worked on.<br><br>All FC are hazardous to some extent therefore having a FC of "Hazardous" is misleading.<br><br>The use of "Catastrophic", has tended to lead people to jump straight to considering the accident sequence outcome rather than consider the FC as an intermediate state where a range of outcomes may be possible. In manned aviation some failure conditions are simply not survivable hence "Catastrophic" is appropriate but, as the draft SC states "With no occupant on-board, the risk inherent to any UAS operation is strictly dependent on the characteristics of the operational volume, and of the adjacent ones which the UA might inadvertently enter." Consequently, the risk can only be assessed when the barriers and recovery options are also considered. | Consider broadening the FC definitions and amending the terminology as follows:<br>No safety effect – no change proposed.<br>Minor – no change proposed.<br>Major -amend to read:<br>"Significant - failure conditions that:<br>•Reduce safety margins through loss of redundancy or independence in systems that provide functionality which, if completely lost, would attract a higher severity assessment.<br>•Prevent the crew communicating with ATS providers where the function is relayed via the UAV,<br>•Either by themselves or in conjunction with increased crew workload, are expected to result in an emergency landing of the UAS on a safe site.<br>Hazardous - amend to read:<br>"Very Significant - failure conditions that:<br>•Compromise the ability to maintain safe separation from other air traffic.<br>•Result in significant loss of situational awareness for the UAVp or an inability for the UAVp to issue control commands to the UAV.<br>•Are expected to result in a controlled termination, or forced landing, at a safe site.<br>•Present a risk of significant injury to UAS crew or ground staff.<br>Software/Firmware DAL – C"<br>Catastrophic - amend to read:<br>"Most significant – failure conditions that:<br>•Result in an inability to maintain stable flight to the extent that there is the potential for structural failure or loss of controlled flight.<br>•Prevent the UAV taking appropriate collision avoidance action (only in systems with Detect and Avoid Capability intended for use in unsegregated airspace) | Suggestion (It isn't possible to respond Yes or No) | Substantive (It isn't possible to respond Yes or No) | Comments on Annex are applicable to high risk SC only and will be addressed when the SC Light UAS high risk will be published | |

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| 853 | K McHale | Table 1 | 22 | Use of MTOM and area to specify the failure probabilities will drive incongruities for example Zephyr is a very large area UAS but only weighs about 80Kg the resultant structure is fragile and frangible and in many ways presents a relatively low hazard.<br>There are many heavier UAVs which have smaller areas. Furthermore, the smaller and heavier fixed wing UAVs travel faster to generate the lift required for flight. | Mass and wing area drive the type of structure required in the UAV, a low mass large area system will have a low wing loading and be fragile whereas a low area but modest mass will have a higher wing loading, more robust structure and move faster thus presenting a higher risk. It is suggested that wing loading be considered as the defining characteristic for determining the required failure probabilities for fixed wing designs. | Suggestion | | Comments on Annex are applicable to high risk SC only and will be addressed when the SC Light UAS high risk will be published | |
| 854 | Adrien Thiaux, ARKORY Ltd. | Light-UAS.2530 (c) | 23 | Using position lights on a UAS might be misleading. UAS can move in every direction and change its direction pretty much all the time depending on the situation, without any consideration for the physical front-end (unlike manned aircraft).<br>Specific Operations might lead to have the UAS travelling any direction except the one ahead of its front-end. As an example, camera movement limitation might force the UAS to move exclusively laterally. | External lights should allow externals actors to determine the aircraft position and dimensions/size at all time.<br>External actors should be able to determine UAS trajectory yet using other means than lighting which are deemed too confusing for such aircraft.<br>An easily accessible UAS Traffic Management system is one possibility. | no | no | noted | Lights are mandatory even for the Open catgeory UAS. In any case the requirement has been modified and introduced by "when required by operational rules" |
| 855 | Adrien Thiaux, ARKORY Ltd. | Light-UAS.2602 (b) | 25 | "Human factor principles" is subject to interpretation and might lead to disagreement when considering which principle applies to a design and which one is not.<br>In addition to that, there is a risk that enforcing Human factor principles based on other sector's experience might hinder innovative solutions if these principles are based on totally different systems and different kind of operations. | Either<br>remove «and its design shall consider human factors principles» from the last sentence since it seems redundant with the objectives of the first part of the sentence: a system designed to prevent «excessive concentration, skill, alertness, or fatigue», or.<br>replace "shall consider human factors principles" by "should consider human factors principles", or | yes | yes | noted | "should" is generally not used in requirements (we used it in the introduction). Also, the sentence reflects the wording of one OSO of AMC to CIR 2019/947 |
| 856 | Adrien Thiaux, ARKORY Ltd. | Light-UAS.2605 (b) | 26 | The requirement is deemed too stringent or confusing as it is currently written.<br>Depending on what is considered to be applicable and what is not, one could have to label a simple remote controller with a marking explaining that the equipment is a remote controller (obvious) and is used to remotely control the UAS (also obvious). | Reword this sentence or limit the required labels to the information which are not obvious. | no | no | not accepted | |
| 857 | Adrien Thiaux, ARKORY Ltd. | Subpart F | 19 | There is no mention of any Remote Identification system required for such UAS. This aspect is deemed very important to allow an efficient Traffic Management within the Airspace, even a restricted one. | UAS are meant to be operated in different theatres of operations, and not only within the border of Europe.<br>Yet, and unlike traditional aviation, The UAS payload is very limited thus having different equipment assuming the same function to deal with regulation differences between countries is not possible.<br>As such, having shared and common standards with other countries for such systems is strongly requested to prevent additional industrial constraints. | yes | yes | noted | The concept expressed by the comment is correct, nevertheless the necessity of a remote identification system in the specific category (for flight under 120 m) is already reflected in the update of the drone regulation (Article 40) and should not be repeated in the SC, also consdiering that the implementation shall be in accordance with standards linked to the Annex of the Delegated Act of the open catgeory (CE marking, for which CEN standards provide presumpotion of compliance). |

* Please complete this column using the word "yes" or "no"
** Please complete this column using the word "yes" or "no"