EASA	**COMMENT RESPONSE DOCUMENT**
	EASA SC-RPAS.1309-01 **[Published on the 24-Jul-2015 and officially closed for comments on the 07-Sept-2015]**

Commenter 1 :CAA NL (Mr. Brants) – date 20-08-2015

Comment # 1

Paragraph No: None

Comment: 21.A.16B 'Special conditions' of EU No 748/2012 states:
(a) The Agency shall prescribe special detailed technical specifications, named special conditions, for a product, if the related airworthiness code does not contain adequate or appropriate safety standards for the product, because:
1. the product has novel or unusual design features relative to the design practices on which the applicable airworthiness code is based; or
2. the intended use of the product is unconventional; or
3. experience from other similar products in service or products having similar design features, has shown that unsafe conditions may develop.
(b) The special conditions contain such safety standards as the Agency finds necessary to establish a level of safety equivalent to that established in the applicable airworthiness code.

This raises several questions with respect to SC-RPAS.1309-01:

- Page 1 states: *The requirements of this paragraph are applicable, in addition to specific design requirements of the applicable type certification basis, to any equipment or system as part of the Remotely Piloted Aircraft System (RPAS).* This statement suggests that it is applicable to all RPAS (which cannot be, because then it should be an NPA). So at least this SC should indicate to which specific system(s) this SC applies (see e.g. http://www.easa.europa.eu/system/files/dfu/SC%20E-55%20Consultation.pdf)
- An SC shall refer to 'applicable airworthiness code'; SC-RPAS does not (yet) have the status of 'airworthiness code', so SC-RPAS.1309-01 cannot refer to SC-RPAS.
- In addition, SC-RPAS.1309-01 refers to SC-RPAS.1302 and SC-RPAS.1322; these 'requirements' cannot be referred to (see previous bullet), but in order to understand why these references are included, the contents of SC-RPAS.1302 and SC-RPAS.1322 should be provided.

Justification: None

Proposed Text (if applicable): None

EASA response:

Bullet point no:

1. Accepted. The scope of applicability of this special condition and the related AMC have been added. The applicability is limited to RPAS for which a type certification is requested, for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR, and with no occupant on board.

2. Accepted. The related certification specifications, CS-VLA and CS-VLR have been added.

3. Accepted. The requirements referenced will be provided as part of other Special conditions covering the RPAS requirements related to "Warning, Caution, and advisory lights" and "Systems and Equipment used by the crew". The reference to the number of the requirements will be removed.

Commenter 1 :CAA NL (Mr. Brants) – date 20-08-2015

Comment # 2

Paragraph No: Appendix 1 of SC-RPAS.1309-01

Comment: Appendix 1 of SC-RPAS.1309-01 provides an AMC, and states on page 3 ´*These means are intended to provide guidance to supplement the engineering and operational judgement that must form the basis of any compliance demonstration*´. This wording supports the conclusion under 1 above that this SC applies to <u>all</u> RPAS, and hence should not be an SC but an (A-)NPA.

Justification: As above

Proposed Text (if applicable): None

EASA response:

Noted. The wording "any compliance demonstration" refers to compliance demonstration in the frame of projects for which the SC will be applicable. The SC is therefore not of a general nature.

Commenter 1 :CAA NL (Mr. Brants) – date 20-08-2015

Comment # 3

Paragraph No: Par. 2 of SC-RPAS.1309-01

Comment: Par. 2 of SC-RPAS.1309-01 does not refer to any 'applicable airworthiness code' (as referred to in 21.A.16B above), so what is the basis for this SC? Par. 2 only refers to two 'policies':

- The 'EASA Concept of Operations for Drones'; this concept is currently under review (as A-NPA 2015-10), so cannot be referred to in this SC-RPAS.1309-01 (EASA may decide to withdraw A-NPA 2015-10 on basis of the review?);
- E.Y013-01 'Policy Statement Airworthiness Certification of Unmanned Aircraft Systems (UAS)' has been formally approved, so may be referred to.

Justification: None

Proposed Text (if applicable): None

EASA response:

Noted.

Commenter 1 :CAA NL (Mr. Brants) – date 20-08-2015

Comment # 4

Paragraph No: None

Comment: Several quotes from E.Y013-01:

21A.16A of E.Y013-01 'Airworthiness Codes':
The Agency has not developed specific CSs for UAS at the time of issue of this policy. UAS certification will be based on a determination of equivalence with the existing CSs developed for manned aircraft, wherever possible.

21A.16B of E.Y013-01 'Special Conditions':
It is recognised from the outset that some special conditions (SC) will be required to address the unique characteristics of UAS. Typically, SC will include, but are not limited
to, the following areas:

- *Emergency Recovery Capability*
- *Command and Control Link*
- *Level of Autonomy*
- *Human Machine Interface*
- *Control station*
- *Due to type of operation*
- *System Safety Assessment*

Guidance on formulating these SC and the factors that should be taken into account are provided in Section 7 of this policy.

21A.17 of E.Y013-01 'Type-certification Basis':
The type-certification basis will typically consist of the following:
a. Certification specifications selected and tailored from the applicable manned aircraft airworthiness code or codes
b. Special Conditions & interpretative material related to UAS specifics, added in accordance with 21A.16B, where the existing requirements do not contain adequate or appropriate safety standards.

4.1
According to 21A.16A of E.Y013-01, the certification may be based on CS-VLA or CS-VLR, but not on the SC-RPAS because that is not an airworthiness code. Hence the referenced requirement on page 1 of SC-RPAS.1309-01 should not be SC-RPAS.1309, but CS-VLA.1309 or CS-VLR.1309:

CS-VLA 1309 Equipment, systems, and installations
The equipment, systems, and installations must be designed to minimise hazards to the aeroplane in the event of a probable malfunction or failure.

CS VLR.1309 Equipment, systems, and installations
(a) The equipment, systems, and installations whose functioning is required by this Subpart must be designed and installed to ensure that they perform their intended functions under any foreseeable operating condition.
(b) The equipment, systems, and installations of the rotorcraft must be designed to minimise hazards to the rotorcraft in the event of a probable malfunction or failure.

CS-VLA and CS-VLR do not have an AMC.1309, so the AMC in Appendix 1 should not be presented as an AMC but as an argument to the SC.

4.2
Section 7 of the policy addresses the SC for the System Safety Assessment, and states '*At the present time, work is still ongoing to reclassify the severity of failure conditions for UAS to better reflect the changed safety objectives and to assign appropriate allowable quantitative probabilities and software and hardware development assurance levels. Such definitions and probability values will be included here in the first update to this policy.'*

As an interim position, quantitative values to be used in the assessment should be those applicable to xx.1309 contained in the applicable airworthiness code used as the
reference in defining the type-certification basis of the individual UAS. As a result, European Aviation Safety Agency Policy numerical values will depend on the selected airworthiness code. In the absence of defined quantitative probability and software development assurance level criteria in the applicable airworthiness code, the minimum values contained in AC 23.1309-1C for Class 1 aeroplanes should be used. However, due to a UAS's increased reliance on systems for continued safe flight, and the fact that the system safety objectives contained in some airworthiness codes are founded on the assumption that simple electronic systems are used, higher quantitative values may be demanded by the Agency for some systems in order to achieve an overall equivalent level of safety with manned aircraft.'

The numerical values in Table 1 in SC-RPAS.1309-01 are consistent with this because they are copied from AC 23.1309, but not those in Table 2. The values in Table 2 cannot be assessed by lack of an argument on which these are based.

Justification: None

Proposed Text (if applicable): None

EASA response:

Noted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.
The probability figures and the DAL are derived from the JARUS AMC RPAS.1309 issue 2 table 3, with the following assumptions:
- class LUAS or LURS,
- complexity level II,
- 10 catastrophic failure conditions.

Commenter 1 :CAA NL (Mr. Brants) – date 20-08-2015

Comment # 5

Paragraph No: None

Comment: The 'conciliation team' plans to have its final meeting shortly, in two months. In light of above arguments and my previous e-mail, I suggest to postpone the deadline for this SC, not only because of the vacation period but also for giving the JARUS-EUROCAE conciliation team a chance to present its conclusions; the conclusions with an impact on this draft SC, can then immediately be implemented in the SC. Postponing the deadline by two months may be more efficient and less confusing than issuing an SC and revising it afterwards.

Justification: None

Proposed Text (if applicable): None

EASA response: Noted.

Commenter 2 : Luftfahrtamt der Bundeswehr (Mr. Ostermeier) – date 24-08-2015

Comment # 6

Paragraph No: None

Comment: For me it should be the case that:
If we have the worst effect severity "Catastrophic", which means multiple fatalities, then we should, in my opinion, answer with the most rigorous DAL in order to satisfy our safety goal, in this case DAL A.
The CONOPS define the operations, functions and the environment. All have to be taken into account into the Safety Analysis, together with other RPAS properties such as impact energy, size, and so on.
The outcome of this analysis describes the effect and classifies the severity of this effect. If this severity is CAT then the DAL should be A, HAZ should be B and so on.
If we have, for example, a small RPAS, with low impact energy, flying over non populated area in segregated airspace, then this Analysis should come to a quite low effect severity. This means that the worst case might even be MAJ or MIN which would lead to a DAL C or D.
The crash of the RPAS itself might not be CAT in many cases.
On the other hand, if the CONOPS describes flying at a high speed, only above highly populated area within civil airspace (e.g. above a city, next to an

airfield, cruising above an Highway/"Autobahn" or football arena) the analysis should come to a more severe classification, maybe up to CAT which then would lead to a DAL A.
This should give the appropriate DAL, dependent on the CONOPS of the RPAS. It should purely be the analysis of the specific RPAS that drives the DAL.
I am not sure whether the proposal reflects those examples or possibilities.

Justification: As above

Proposed Text (if applicable): None

EASA response:

Noted. At the time of writing, the Agency is following a new regulatory approach for safely operating remotely piloted aircraft. This flexible approach, called “Concept of Operations”, has been based on input from users and manufacturers of RPAS and provides a set of rules which are proportionate and risk based.
Considering the broad range of aircraft operations and types, it has been proposed by the Agency to establish three categories of operations and their associated regulatory regime: Open category, Specific Operation category, and Certified category. The special condition SC-RPAS.1309 falls within the Certified category. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.

Commenter 2 : Luftfahrtamt der Bundeswehr (Mr. Ostermeier) – date 24-08-2015

Comment # 7

Paragraph No: None

Comment: If it has been decided that for RPAS, the maximum DAL is B, than we should at least make a limitation for further downgrading and not just allow to use ARP 4754A.
AC CS23.1309 also describes the possibilities of a lower DAL for CAT, e.g. DAL B. However in this case, it is B for Primary and C for Secondary (SW and HW DAL).
I think that the DAL B for CAT can be compared similar to a DAL downgrade. Therefore further downgrading should be limited. The use of the

downgrading rules of ARP 4754A only make sense if we use the DAL tables of the ARP (see point 3).
If we give IND the chance to use the ARP 4754A rules to downgrade the DAL on top of the already accepted DAL downgrade, then we might most likely end with everything in DAL D. (First using the Safety Analysis coming to a low effect severity, then use the table with the already reduced DAL and at the end downgrade the DAL to the minimum possible using the ARP).

Justification: As above

Proposed Text (if applicable): None

EASA response:

Noted. The table 2 of the draft SC-RPAS.1309 provides the top-level DAL. The sentence you are referring to is just there to give the manufacturer the opportunity to assign DAL with consideration of system architecture. Ending up with everything in DAL D for catastrophic failure condition is not made possible when properly using ED79A/ARP4754A. As an example for a CAT failure condition, the table 2 would give you a top-level DAL B. The three options are then:

1) Functional failure sets with a single member → DAL B
2) Functional failure sets with multiple members → DAL B for one member, additional member(s) contributing to the top-level Failure Condition at the level associated with the most severe individual effects of an error in their development process for all applicable top-level Failure Conditions (but no lower than DAL D for the additional members)
3) Functional failure sets with multiple members → DAL C for two of the members leading to top-level Failure Condition. The other members at the level associated with the most severe individual effects of an error in their development process for all applicable top-level Failure Conditions (but no lower than DAL D for the additional members).

Functional failure set is defined as a single member or a specific group of members that are considered to be independent from one another (not necessarily limited to one system) that lead(s) to a top level Failure Condition.
In order to ensure that these principles of DAL assignment are properly applied, some verbiage is added to indicate early concurrence with the Agency is needed on the DAL assignment method.

Commenter 2 : Luftfahrtamt der Bundeswehr (Mr. Ostermeier) – date 24-08-2015

Comment # 8

Paragraph No: None

Comment: I think that the referenced Standards ARP 4754A, DO-178C and DO-254 define a ruleset that fits together (DAL and appropriate

Objectives). If we violate one part of this ruleset, the rest is not valid anymore. Starting with CAT = DAL B is a violation of this ruleset.
Although the classification DAL A down to DAL D seems to be linear, the Objectives of the DO-178C for level A down to D are not. The steps from
SW Level A to SW Level B or
SW Level B to SW Level C or
SW Level C to SW Level D
do not have the same magnitude. First, the Number of objectives that have to be fulfilled is not linear. But more important, the amount of SW development activities from each step to the next is not linear as well. At the end, the executed SW development activities and the quality they have been performed with give the confidence that the SW has been developed to meet the Safety Objective.
Either we follow strictly the ARP 4754A und DO-178C (or DO-254), starting with DAL A and a SW level A or we develop something completely new (e.g. a different set of SW/HW objectives).
But we should not mix two worlds that do not fit together.

Justification: As above

Proposed Text (if applicable): None

EASA response:

Noted. The ED79A/ARP4754A provides guidelines. These guidelines were published in December 2010, and are recognised by the Agency as an acceptable means of compliance with CS-25.1309 since publication of CS-25 Amendment 11 (dated July 2011).

Commenter 3 : CAA UK – date 21-08-2015

Comment # 9

Page No: 1

Paragraph No: SC-RPAS.1309(a)

Comment: The content of 1309(a)(1) and (2) combined would be expected to address all RPAS systems. The content as presented has not addressed the equipment and systems whose failure would affect safe operation of the RPAS. Within FAR 23.1309(a), the intent of this is captured with 1309(a)(2) but it is more clearly captured with CS 25.1309(a)(1) that identifies that these systems must be fully “qualified”. It is recommended that the format of systems capture presented within CS25.1309(a) be used to clearly distinguish between those systems and equipment that must perform their intended

function [(a)(1)], and those must only function in so far as they do not affect those classified in (a)(1) [(a)(2)].

Justification: SC-RPAS.1309(a) as presented does not capture systems or equipment whose failure could affect safe operation of those required for safe operation.
If the text was presented in a similar manner to that of Far 23.1309, this would introduce an additional statement in to (a)(2), but this does not provide the clarity of systems and equipment classification gained through use of CS25.1309(a).
With CS 25:

- anything that is fitted to comply with an explicit cert requirement (e.g. asi or altimeter per 1303 or fuel shut off per 1189, etc) or fitted to comply with an operational requirement (e.g. FDR, CVR, ELT, Transponder etc), or if it can fail in a way to reduce safety (e.g. a fly-by-wire system - which isn't "required" by either a cert requirement or an operational rule but is a function introduced to provide a necessary function and as it can fail in a severe way then it must be included within (a)(1)) … then these must perform as intended under all foreseeable operating conditions. And for qualification UK CAA expect this to capture all relevant equipment qualification sections per ED14.
- anything else is either not needed to be fitted to comply with an airworthiness or operational requirement and its functioning cannot "reduce safety" (might have minor failure effects), so it's being installed for some other purpose that is of little consequence to safety of flight - (e.g. IFE system, galley equipment, etc). In these cases, the equipment qualification only needs cover the "no hazard" aspects that its failure cannot affect the correct operation of the (a)(1) systems.

The approach taken by FAR23.1309 is to ensure that any equipment and system does not adversely affect the safety of the airplane or its occupants, but this is stated in 23.1309(a)(2) making the determination of system/equipment qualification less precise.

To make the requirement complete and clear, it is the CAA's recommendation to capture the intent of those systems that can adversely affect the safety of the RPAS by adding a statement to SC-RPAS.1309(a)(1) so that the focus of what needs to be qualified to what level is preserved.

This will also require a restructuring of the associated AMC on pages 6 and 7 of the SC and use of terminology within AMC 25.1309 paragraph 9 could be used.

Proposed Text (if applicable): It is recommended that SC-RPAS.1309(a) is amended to state
(a) The RPAS equipment and systems must be designed and installed so that:
(1) Those required for type certification or by operating rules or whose improper functioning would reduce safety perform as intended under the RPAS operating and environmental conditions; and
(2) Any other equipment and system does not adversely affect the proper functioning of those covered by paragraph (a)(1) of this section.

EASA response:

Accepted. The proposed modification of the RPAS.1309(a)(1) has been incorporated.

Commenter 3 : CAA UK – date 21-08-2015

Comment # 10

Page No: 4

Paragraph No: 2.4

Comment: Industry documents should include Eurocae ED-14G/RTCA DO-160G

Justification: The scope of SC-RPAS.1309 includes the degree of correctness of function within the operating environment through 1309(a) and such demonstration includes environmental qualification of equipment and systems, usually in accordance with ED14/DO-160 (at the appropriate issue). These are referenced within the industry benchmark 1309 AMC material within CS25 and it is considered appropriate to include them within SC-RPAS.1309 as appropriate industry documents for the environmental qualification of RPAS systems equipment to aid compliance with 25.1309(a).

Proposed Text: Within 2.4 Industry Documents, include "RTCA, Inc., Document No. DO-160G/ EUROCAE ED-14G, Environmental Conditions and Test Procedures for Airborne Equipment.

EASA response:

Noted. The Eurocae ED-14G/RTCA DO-160G is recognised by EASA and is addressed generally through a project specific CRI. As the AMC RPAS.1309 is not pointing specifically to this standard in the text, we do not see the need to add it in the section 2.4.

Commenter 3 : CAA UK – date 21-08-2015

Comment # 11

Page No: 5

Paragraph No: 4

Comment: Include a definition of "Drone" within Definitions section

Justification: The term "drone" appears in a few instances within the document, primarily in reference to EASA policy in section 2.2. However, as this term isn't defined, the distinction between drone and UAS or RPAS is not clear.

Proposed Text: It is proposed to take the definition from A-NPA 2015-10 and include "'Drone shall mean an aircraft without a human pilot on board, whose flight is controlled either autonomously or under the remote control of a pilot on the ground or in another vehicle.'"

EASA response:

Not accepted. The term "Drone" is not used in the document. Only in the reference to the EASA policy in section 2.2. This is therefore no need to define the term.

Commenter 3 : CAA UK – date 21-08-2015

Comment # 12

Page No: 8

Paragraph No: 7.1

Comment: The last paragraph of 7.1 refers to the ground station and the effect of remote pilot station failure to be considered with its effect on the RPA and assessed as part of the SSA covered by this AMC. The AMC section of the SC does not specifically describe, or prescribe, the SSA process; although it does identify safety objectives to be achieved in paragraph 7.2. A depth of analysis section (as presented in AMC25.1309) might be worth including to identify the steps to take in any safety assessment considering the severity of each failure condition.

Justification: 7.1 states that consideration shall be given as part of the SSA covered by this AMC, but the AMC does not define what the SSA needs to cover.

Proposed Text: See comment, and consider adding material to prescribe a depth of analysis (qualitative/quantitative) as explained for example in AMC25.1309.

EASA response:

Not accepted. In the paragraph 7.2.2. "Allowable probabilities", the note 1 already mentions that the applicant is usually not required to perform a quantitative analysis for minor and major failure conditions. The subject will be further discussed as needed during each certification project in a dedicated CRI.

Commenter 4 : FOCA(Mr Murzili) – date 26-08-2015

Comment # 13

Paragraph No: 7.1

Comment: The failure condition classification concept provided in Paragraph 7.1 assigns a Catastrophic severity to "multiple fatalities" cases only. It is the commenter's opinion that the determination of whether an RPA crash could cause just one fatality (thus qualifying for a Hazardous severity) or conversely result in multiple fatalities is extremely difficult and prone to a high degree of uncertainty. The topic has been subject of lengthy debates within JARUS WG-6 and consensus was found around the concept that any failure condition that could potential lead to a fatality should be considered as catastrophic. The rationale behind this decision is that the determination of whether an RPA crash could be lethal or not is much simpler than the one related to a "multiple" vs. a "single" fatality. Having a simple categorization will provide a high degree of consistency amongst different applications and ultimately result in easier application of the proposed Special Condition. It is understood that Emergency Recovery Systems are being proposed to mitigate several accident scenarios involving multiple fatalities. It is also understood that it is not possible to exclude that even when these systems are activated a single fatality will not occur (e.g., an RPA coming down on a parachute might still have sufficient energy to fatally injure an individual caught below it).

Justification: None

Proposed Text:

For the reasons above it is proposed to:

1. Rework the Hazardous and Catastrophic definition as follows:

   Hazardous

   "Failure conditions that would reduce the capability of the RPAS 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 fatality will not occur, or
(ii) A large reduction in safety margins or functional capabilities, or
(iii) High workload such that the remote crew cannot be relied upon to perform their tasks accurately or completely.

Catastrophic
Failure conditions that could result in one or more fatalities.

2. Further expand the note related to the Emergency Recovery Capability to acknowledge that although 100% certainty of safe landing cannot be guaranteed, the use of the ERC is accepted as a mitigation against Catastrophic FC.

EASA response:

Partially accepted. The expressed concern is shared by the Agency. In order to accommodate this concern, while accepting emergency recovery systems and/or operational limitations for mitigating catastrophic failure conditions may not exclude that a single fatality will not occur, an alternate option is proposed.

	JARUS WG6 - AMC issue 02	EASA - draft SC-RPAS.1309	Alternate option
Hazardous	Loss of the RPA where it can be reasonably expected that a fatality will not occur.	Loss of the RPA where it can be reasonably expected that multiple fatalities will not occur.	Loss of the RPA where it can be reasonably expected that one or more fatalities will not occur.
Catastrophic	Failure conditions that could result in one or more fatalities.	Failure conditions that are expected to result in multiple fatalities.	Failure conditions that are expected to result in one or more fatalities.

The text is revised in accordance with the alternate option.

Commenter 4 : FOCA(Mr Murzili) – date 26-08-2015

Comment # 14

Paragraph 7.2.2, 7.3

Comment:

The allowable quantitative probabilities and development assurance levels described in those paragraphs are independent from the complexity of the RPA. This is a significant deviation from the JARUS AMC RPAS.1309 where the concept of Complexity Level is introduced. This deviation brings inconsistencies throughout the document:

1. The fact that for many RPAS 10 CAT FC is a gross underestimation is acknowledged in Note 3. Doing it in the note, however, results in a significant lack of transparency of the certification process. The applicant will not know if he will need to meet a 10-6 or 10-7 target and, most importantly, this decision will be made within the project. The complexity level concept from JARUS AMC RPAS.1309 was introduced to simplify this decision and make it transparent.

2. EASA understands that RPAS might have very complex systems and requires a DAL B for the CAT FC. This, however, is inconsistent with the probability requirements.

3. To resolve the inconsistency, the SC calls for the paragraph 5.2 of the ARP4754A that allows allocation of a single DAL B to two DAL C (DAL C for primary and DAL C for secondary function). DAL allocation made in such a way, however, require the application of the ARP 4754A principles to assure independence between the two functions. It also requires the introduction of the Functional DAL concept and many other concepts that are typical of a CS-25 certification project. The application of these advanced development assurance principles might be beyond the capabilities of many applicants, especially those dealing with relatively small RPA. It is for this reason that the JARUS AMC RPAS.1309 kept the concept of Primary and Secondary systems well known in the CS-23 world. By assigning DALs directly to items and not to functions the applicant will have less flexibility (as all items within a Primary or a Secondary system will have to be a given DAL) but will avoid the use of complex development assurance technique. JARUS WG-6 felt that this choice should be left to the applicant.

In conclusion, it is recommended to revert to the concept as developed in the JARUS AMC RPAS.1309 as it allows higher degree of transparency and, most importantly, a very consistent set of safety requirements.

Justification: None

Proposed Text (if applicable): None

EASA response:

Not accepted. The safety requirements, as laid down in the current draft special condition, are considered consistent. The Note 3 tracks and makes the assumption visible to the applicant. As written, early concurrence with the Agency is required if this assumption is not valid on a specific project. Should the assumption be not valid on a specific project, the quantitative probabilities will be adapted in the CRI associated to this special condition.

Commenter 4 : FOCA (Mr Murzili) – date 26-08-2015

Comment # 15

Paragraph No: None

Comment: It is proposed to amend SC-RPAS.1309 (a) as follows:

(a) The RPAS equipment and systems must be designed and installed so that:
(1) Those required for type certification or by operating rules *or whose improper functioning would reduce safety* perform as intended under the RPAS operating and environmental conditions; and
(2) Any other equipment and system does not adversely affect the proper functioning of those covered by paragraph (a)(1) of this section."

Justification: None

Proposed Text (if applicable): None

EASA response:

Accepted. The text is revised in accordance with the proposal.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 16

Paragraph No: Chapter General

Comment: It is reminded that CS-VLA and CS-VLR are limited in terms of available advisory material for compliance witjh the 1309. Therefore for RPAS it is evident the lack of reference material while dealing with the approach for the compliance with the special condition. It would be advisable as a minimum to make a reference to AC-23 1309 as far as applicable to RPAS and transferable from manned aviation.

Justification: None

Proposed Text (if applicable):
Please take note

EASA response:

Noted. The EASA policy E.Y013-01 and the FAA AC 23.1309-1E are referenced in the section 2 "Related documents". The section 5 "Background" provides the main elements which this special condition has been built upon, namely the EASA policy E.Y013-01 section 7.7 "Guidance on special conditions - System safety assessment", and the AMC RPAS.1309 from the JARUS Working Group 6.

As a reminder, EASA policy E.Y013-01 section 7.7, dated 2009:
[...] As a result, numerical values will depend on the selected airworthiness code. In the absence of defined quantitative probability and software development assurance level criteria in the applicable airworthiness code, the minimum values contained in AC 23.1309-1C for Class 1 aeroplanes should be used. [...]

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 17

Paragraph No: Special condition, page 1

Original text : Reference CRI-F-01

Comment:

Major. It is understood that the special condition is a generic one. Therefore the reference number CRI-F1 with the date 24 Jul 2015 is not understood since a CRI is used to be product related. In our case there is no product definition within the special condition.

Justification:

Proposed Text (if applicable): Delete the reference to CRI and clarify that the date and issue is referable to the generic special condition or be specific by submitting CRI-F1 if any related to the special condition. This clarification is essential to understand the limit of applicability of the special condition in terms of type of product and associated operational scenario intended for type certification.

EASA response:

Not accepted. While the CRI reference is project specific, the intent is to use the F-01 reference, on the current RPAS projects which the Agency is dealing with, in order to make this special condition applicable. This special condition is considered as a stand alone document, and will be directly attached as an appendix to the CRI F-01 "Equipment, systems, and installations". As such, the issue number and date of the special condition (not project specific) may be different from the issue number and date of the implementing CRI (project specific).

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 18

Paragraph No: Special condition, page 1

Original text : SECONDARY PANELS

Comment: Major.
The structure panel is not involved as a secondary panel for the implications of the special condition. Structure Panel involvement is essential commensurate to type and probabilities of failure conditions which could result in flight conditions and loads affected by such failures. the interaction of system with structure seems to be disregarded at least at this stage of visibility. It is felt that a special condition treating the interaction of systems with structures is needed to complete addressing structural integrity, especially because reference standards are assumed to be CS-VLA or CS-VLR.

Justification: None

Proposed Text (if applicable): Involve the structure panel in this special condition process.

EASA response:

Partially accepted.

Performing aircraft and system functional hazard assessments (AFHA / SFHA) is considered standard practice when a system safety assessment process is requested for supporting compliance with XX.1309. Irrespective of the level of the FHA (i.e. AFHA or SFHA), the effects of the identified failure conditions are assessed at aircraft level, including the influence a system and its functional failure modes may have on the aircraft structural performance. As such, the aircraft structure is not considered disregarded from the system safety assessment process, and consequently from this special condition. As proposed, the structure panel is added in the list of secondary panels.
The need for a special condition addressing the interaction of systems and structures has not been identified yet. Decision to create RPAS related special conditions is prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore those special conditions will be directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR. These two CS's do not contain a CS25.302-like requirement, addressing interaction of systems and structures; and the information currently available on the two RPAS projects the Agency is dealing with has not revealed the need for.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 19

Paragraph No: Special condition, page 1

Original text :
The requirements of this paragraph are applicable, in addition to specific design requirements of the applicable

Comment: Major.
It should be made clear that this SC applies only to CS-VLA and CS-VLR aircraft requiring a type certification as stated in Appendix 1, chapter 3.

Justification: None

Proposed Text (if applicable):
The requirements of this paragraph are applicable to any equipment or system as part of a Remotely Piloted Aircraft System (RPAS) for which a type certification is requested using CS-VLA or CS-VLR as the equivalent manned aircraft code.

EASA response: Partially accepted. The text is amended in accordance.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 20

Paragraph No: Special condition, page 1

Original text:
RPAS systems and controls, including indications and annunciations, must be designed in accordance with SC-RPAS.1302, when existing,

Comment: Minor.
The phrase "when existing" is placed in a way that makes it ambiguous: does it refer to the SC-RPAS.1302 or to the annunciations? Should the same qualification be applied to the reference to SC-RPAS.1322 above?

Justification: None

Proposed Text (if applicable):
Assume the first option: replace "existing" with "published". Apply the same qualification to SC-RPAS.1322.

EASA response: Partially accepted. The text is amended and does no longer refer to the SC-RPAS.1302 and SC-RPAS.1322.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 21

Paragraph No: Special condition, page 1

Original text:
(c) Information concerning an unsafe system operating condition must be provided in a timely manner to the remote crew to enable them to take

appropriate corrective action. An appropriate alert must be provided in accordance with SC-RPAS.1322. RPAS systems and controls, including indications and annunciations, must be designed in accordance with SC-RPAS.1302, when existing, to minimise remote crew errors which could create additional hazards.

Comment: Major.
EASA has informed us that SC-RPAS.1322 and SC-RPAS.1302 are still being drafted. This should be noted, even if it does not change the intent of (c) .

Justification: None

Proposed Text (if applicable):
Add the sentence to the end of the paragraph or as a footnote: "SC-RPAS.1322 and SC-RPAS.1302 are in preparation."

EASA response: Not accepted. The text is amended and does no longer refer to the SC-RPAS.1302 and SC-RPAS.1322.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 22

Paragraph No: C, page 1

Original text :
type certification basis, to any equipment or system as part of the Remotely Piloted Aircraft System (RPAS).

Comment: Minor.
Refernced SC-RPAS.1322 was not available on EASA Website for Referencing. We understand this is the normal paragraph 1322 of manned aviation code. However it has to verified that if changes have been done within the SC-1322 they have to be announced.

Justification: None

Proposed Text (if applicable): None

EASA response: Noted. The SC-RPAS.1322 will be available for public consultation, and will address RPAS specifities regarding remote crew alerting

aspects.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 23

Paragraph No: C, page 2

Original text :
An appropriate alert must be provided in accordance with SC-RPAS.1322. RPAS systems and controls, including indications and annunciations, must be designed in accordance with SC-RPAS.1302, when existing, to minimise remote crew errors which could create additional hazards.

Comment: Minor.
The reference is understood as the usual paragraph 1302 of manned aviation code. However it has to verified that if changes have been done within the SC-1302 they have to be announced.

Justification: None

Proposed Text (if applicable): None

EASA response:

`Noted.` The SC-RPAS.1302 will be available for public consultation, and will address RPAS specificities regarding systems and equipment installed for use by the remote crew.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 24

Paragraph No: 2.1, page 3

Original text :
Reference ICAO circular 328-AN/190, Unmanned Aircraft Systems (UAS)

Comment: Minor.
This Reference should be replaced by ICAO RPAS Manual

Justification: None

Proposed Text (if applicable):
ICAO Manual on Remotely Piloted Aircraft Systems (RPAS), Doc 10019-AN/507, March 2015

EASA response:

Partially accepted. The ICAO circular is not referenced later in the text. Therefore the reference is no longer retained.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 25

Paragraph No: 2.1, page 3

Original text : Riga declaration…

Comment: Minor.
No aspect of the SC is consistent with the principles of the Riga declaration

Justification: None

Proposed Text (if applicable): Delete this bullet.

EASA response:

Partially accepted. The declaration is not referenced later in the text. Therefore the reference is no longer retained.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 26

Paragraph No: 3, page 4

Original text :
for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR

Comment: Major.
Based on the idea of risk based approach which is more or less independent of weight and kinetic energy the SC-RPAS1309 should not limit the applicability to CS-VLA or CS-VLR. Proposal is to generate SC-RPAS.1309 independent of the weight and should only reflect the hazardous using the risk based approach. Meaning some RPAS if they are for example light enough may never have a catastrophic event resulting in multiple death.

Justification: None

Proposed Text (if applicable):

sub bullet "for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR" should be deleted

EASA response:

`Not accepted.` Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 27

Paragraph No: 3, page 4

Original text :
- with no occupant on board

Comment: Minor.
RPAS, as defined by ICAO, have no occupant on board. The qualification is redundant.

Justification: None

Proposed Text (if applicable):
Delete this bullet.

EASA response:

`Not accepted.` The RPAS definition used in the special condition is consistent with the RPAS definition in ICAO manual.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 28

Paragraph No: 7.1, page 7

Original text :
Failure Conditions are classified according to the severity of their effects as follows:..

Comment: Major.
It is noted that the proposed classifications is not weight dependent, it doesn't specifiy if fatalities are considered on ground only therefore it can not be postulated as applicable to a specific operational scenario. This aspect is fundamental to be clarified since it has a direct impact on the probability figures

defined under table 1.

Justification: None

Proposed Text (if applicable): None

EASA response:

Noted. Failure conditions are classified in accordance with their effects. Effects may vary depending on the types of operations and associated limitations. What varies is the effects of the failure condition, not the definition of the severity.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 29

Paragraph No: 7.1, page 7

Original text :
Minor: Failure conditions that would not significantly reduce RPAS safety and that involve remote crew actions that are 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.

Comment: Minor.
To align this definition with the wording used for manned aviation in CS-25 the word "well" should be used as well

Justification: None

Proposed Text (if applicable):

Change the sentence to: Minor: Failure conditions that would not significantly reduce RPAS 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.

EASA response:

Accepted. The text is amended in accordance.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 30

Paragraph No: 7.1, page 7

Original text :
Hazardous: Failure conditions that would reduce the capability of the RPAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be the following:
iii) High workload such that the remote crew cannot be relied upon to perform their tasks accurately or completely.

Comment: Minor.
To align this definition with the wording used for manned aviation in CS-25 the word "excessive" should be used in lieu of high.

Justification: None

Proposed Text (if applicable):

Change the sentence to: Hazardous: Failure conditions that would reduce the capability of the RPAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be the following:
iii) **Excessive** workload such that the remote crew cannot be relied upon to perform their tasks accurately or completely.

EASA response:

`Accepted.` The text is amended in accordance.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 31

Paragraph No: 7.1, page 7

Original text :
Catastrophic: Failure conditions that are expected to result in multiple fatalities.

Comment: Minor.
It is acknowledge that this definition results from the CS-23 AC document.

Justification: None

Proposed Text (if applicable): None

EASA response: Noted

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 32

Paragraph No: 7.8, page 8

Original text :
The applicant will need to provide evidence to the Agency that their use will not result in unacceptable risks.

Comment: Minor.
It has to be considered that the crash site can be reached under any applicable foreseeable failure condition.

Justification: None

Proposed Text (if applicable):
Add the following to the sentence: The applicant will need to provide evidence to the Agency that their use will not result in unacceptable risks **and that the crash site can be reached under the concerned failure condition to be mitigated**.

EASA response:

Not accepted. "Their use" refers to the use of emergency crash sites, not the use of the emergency recovery function. Reaching the crash site under any applicable failure condition will be assessed through the system safety assessment process.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 33

Paragraph No: 7.8, page 8

Original text :
Health and Safety at work legislations are applicable to ground equipment and personnel.

Comment: Minor.
Rephrase the sentence

Justification: None

Proposed Text (if applicable):
It is proposed to change the wording to the following: **Legislations on "Health and Safety at work"** are applicable to ground equipment and personnel.

EASA response:

`Accepted.` The text is amended in accordance.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 34

Paragraph No: 7.8, page 8

Original text :
The effects of a Remote Pilot Station failure or event on the ability of the flight crew to perform their duties (e.g. workload and Human Factors) and the effect on the RPA, will need to be assessed as part of the System Safety Assessment covered by this AMC.

Comment: Major.
"The effects of a Remote Pilot Station failure or event on the ability of the flight crew to perform their duties" on RPA from a structural integrity point of view are not covered by this AMC See also comment regarding "Secondary Panels". Additionaly the text refers to AMC however this document does not help discriminating special condition text from AMC text.

Justification: None

Proposed Text (if applicable):
AMC and special condition for interactions of systems and structure are not covered by this special condition and AMC.

EASA response:

Noted. The need for a special condition addressing the interaction of systems and structures has not been identified yet. Decision to create RPAS related special conditions is prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore those special conditions will be directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR. These two CS's do not contain a CS25.302-like requirement, addressing interaction of systems and structures; and the information currently available on the two RPAS projects the Agency is dealing with has not revealed the need for.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 35

Paragraph No: 7.8, page 8

Original text :
...perform their duties (e.g. workload and Human Factors) and the…

Comment: Major.
Concerning the Human factors aspect it is worth reminding that both CS-VLA and CS-VLR do not envisage complex systems, i.e. cockpit arrangements with the use of integrated display systems. Additionally RPAS do exhibit peculiar human factors aspects. The human factors topic is already discussed inside the RPASP and considered to be significant.

Justification: None

Proposed Text (if applicable):
Develop a special condition concerning human factors tailored to RPAS specificities (particularly needed when CS-VLA and CS-VLR are taken as reference for RPAS).

EASA response:

Noted. A special condition will address RPAS specificities regarding systems and equipment installed for use by the remote crew.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 36

Paragraph No: 7.2.2, page 9

Original text : Table 1

Comment: Minor.
The allowed probabilities on table 1 are accepted provided there are no change on the definitions of section 7.1

Justification: None

Proposed Text (if applicable):
No text change is required

EASA response:

Noted

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 37

Paragraph No: 7.2.2, page 9

Original text : Table 1

Comment: Major**.**
It is understood that the reference is based on the CS-23 single piston engine with max Take-off weight of 6000 lbs. Is this assumption correct and in line with the current risk based approach which is independent of weight? And if so is this 1309 approach valid all RPAS independent for weight? It is suggested that the rationale behind the use of the probability figures taken from manned aviation be expressed as well as how the decision was made for the DAL proposed in Table 2

Justification: None

Proposed Text (if applicable):
Clarification is required.

EASA response:

Noted.

Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy

assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.
The probability figures and the DAL are derived from the JARUS AMC RPAS.1309 issue 2 table 3, with the following assumptions:
- class LUAS or LURS,
- complexity level II,
- 10 catastrophic failure conditions.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 38

Paragraph No: 7.2.2, page 9

Original text :
Note 3: The allowable quantitative probability relies on the assumption that the number of potentially catastrophic failure conditions is in the order of magnitude of 10. Early concurrence with the Agency is required if this assumption is not valid on a specific project.

Comment: Minor.
Is this note related to Systems level?

Justification: None

Proposed Text (if applicable):
Please clarify for which level it is applicable.

EASA response:

Partially accepted.

The number of 10 catastrophic failure conditions is at product level. As the determination of the aircraft level vs. the system level may significantly vary from one manufacturer to the other, the text is modified to make clear that the assumption of 10 catastrophic failure conditions is to be understood as the total number for the product.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 39

Paragraph No: 7.2.2, page 9

Original text :
Note 5: It is reminded that the SC and the Table 1 are only applicable for RPAS for which the type certification basis has been established using the CS-VLA or CS-VLR as equivalent manned aircraft applicable airworthiness code (ref. section 6 of the EASA policy E.Y013-01), and with no occupant on board.

Comment: Major.
Based on the idea of risk based approach which is more or less independent of weight and kinetic energy the SC-RPAS1309 should not limit the applicability to CS-VLA or CS-VLR. Proposal is to generate SC-RPAS.1309 independent of the weight and should only reflecting the hazardous using the risk based approach. Meaning some RPAS if they are for example light enough may never have a catastrophic event resulting in multiple death.

Justification: None

Proposed Text (if applicable):
sub bullet "for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR" should be deleted

EASA response:

Not accepted.

Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 40

Paragraph No: 7.2.2, page 9

Original text :
and with no occupant on board

Comment: Minor.
RPAS, as defined by ICAO, have no occupant on board. The qualification is redundant.

Justification: None

Proposed Text (if applicable):
Delete this bullet.

EASA response:

`Not accepted.` The RPAS definition used in the special condition is consistent with the RPAS definition in ICAO manual.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 41

Paragraph No: 7.3, page 10

Original text : Table 2

Comment: Major. It is acknowledged that for the relevant Design Assurance Levels the CS-23 class III requirements are used as reference. See comment for rationale given for Table 1.

Justification: None

Proposed Text (if applicable): None

EASA response:

Noted

See the answer related to the referenced comment.

Commenter 5: ENAC IT (Mr Moitre) – date 07-09-2015

Comment # 42

Paragraph No: 9, page 10

Original text :
For the purposes of quantitative analysis, a probability of one can be assumed for remote crew and maintenance tasks that have been evaluated and found to be reasonable.

Comment: Major.
The probability of one referred in the text is not qualified. By reading the preamble within the previous sentence it can be expected that probability one is intended for a successful task implementation. If the above said understanding is correct it follows that it is reasonably acceptable. However it should be expanded in order to capture:
-the potential of human factor aspect in maintenance or by the flight crew
- concerned tasks criticality
- task complexity, frequency, high workload involved as well as environmental aspects.

Justification: None

Proposed Text (if applicable):
Take into consideration the possibility of expanding the text to clarify to what the probability one is referred to and to add material for human factor aspects.

EASA response:

Noted.

For the purposes of quantitative analysis, a probability of one can be assumed for remote crew and maintenance tasks that have been evaluated and found to be reasonable. Reasonable tasks are those for which full credit can be taken because the remote crew or maintenance personnel can realistically be

anticipated to perform them correctly when they are required or scheduled.
Material related with human factors aspects, and tasks complexity/criticality may be added at a later stage.

Commenter 6 : Sagem (Mrs Sellem-Delmar) – date 07-09-2015

Comment # 43

Paragraph No: 7.1 Failure condition classification (page 7)

Comment: The definitions provided for failure condition classification are very close to CS-25 AMC.1309 definitions, tailored for RPAS (remote crew and no occupant on board). We understand that catastrophic definition (Failure conditions that are expected to result in multiple fatalities) has always been applicable for whole manned aviation. On an other hand, CS-VLA aircraft are not developed with constraints equivalent to this SC-RPAS.1309. When a CS-VLA crash occurs, killing the 2 people on board and possibly people on ground, it seems not to be considered as catastrophic (this term is not used in CS-VLA). Consequently it is not understood why it is assessed that catastrophic event could occur for RPAS eligible to CS-VLA in comparison to manned aviation CS-VLA aircraft. For CS-VLA aircraft, it is considered that if rules of the air are followed (e.g.: safety height above agglomeration respected …) then safety is ensured.

The use of EASA policy E.Y013-01 to define the category of the RPAS is well understood. While the link between weight & kinetic energy vs. catastrophic event was not found in this document. Consequently, is it expected from the applicant to define this relationship, as well as the density of overflown ground population allowed ?

Justification: None

Proposed Text (if applicable): None

EASA response:

Noted. A fatal accident is considered as Catastrophic in manned aviation and in a similar manner for RPAS, a Failure conditions that are expected to result in multiple fatalities will be considered as Catastrophic.

The EASA policy E.Y013-01 define the category of the RPAS. For each category an airworthiness code is then developed. Further details that are project related are then discussed within dedicated CRI.

Commenter 6 : Sagem (Mrs Sellem-Delmar) – date 07-09-2015

Comment # 44

Paragraph No: 7.3 « Development Assurance » (page 11)

Comment: Regarding Major Failure Conditions, it is not understood why DAL C is required vs. Major Failure conditions for CS-VLA RPAS. It is the same constraint as for CS-25 aircraft carrying hundreds of passengers, so this assignment is severe.

Justification: None

Proposed Text (if applicable): None

EASA response:

Not accepted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which would be RPAS complexity level II per JARUS AMC RPAS 1309. Compared to manned aviation, the definitions of the different severity classes have been reworked, based on AMC RPAS.1309 from the JARUS Working Group 6, so as to take into consideration RPAS specificities. The requested DAL is commensurate with the severity of the failure condition.

Commenter 7 :Airbus Defence and Space – date 18-08-2015

Comment # 45

Paragraph No: General

Original text: None

Comment: It is reminded that CS-VLA and CS-VLR are limited in terms of available advisory material for compliance witjh the 1309. Therefore for RPAS it is evident that the lack of reference material while dealing with the approach for the compliance with the special condition. It would be advisable as a minimum to make a reference to AC-23 1309 if this is the case and a rational why it is used. It should be noted that the 1309

for manned aviation can not be transfered equally to RPAS since they are no people on board. Hence a risk based approach is a must defining the safety objectives for people on ground which should reflect the density of people.

Justification: None

Proposed Text : None.

EASA response:

Noted. The EASA policy E.Y013-01 and the FAA AC 23.1309-1E are referenced in the section 2 "Related documents". The section 5 "Background" provides the main elements which this special condition has been built upon, namely the EASA policy E.Y013-01 section 7.7 "Guidance on special conditions - System safety assessment", and the AMC RPAS.1309 from the JARUS Working Group 6.
As a reminder, EASA policy E.Y013-01 section 7.7, dated 2009:
QUOTE
[...] As a result,numerical values will depend on the selected airworthiness code. In the absence of defined quantitative probability and software development assurance level criteria in the applicable airworthiness code, the minimum values contained in AC 23.1309-1C for Class 1 aeroplanes should be used. [...]
UNQUOTE
Compared to manned aviation, the definitions of the different severity classes have been reworked, based on AMC RPAS.1309 from the JARUS Working Group 6, so as to take into consideration RPAS specificities.

Commenter 7 :Airbus Defence and Space – date 18-08-2015

Comment # 46

Paragraph No: Chapter – Special condition, Page 1.

Original text: Reference CRI-F-01

Comment: Major. It is understood that the special condition is a generic one. Therefore thr reference number CRI-F1 with the date 24 Jul 2015 is not understood since a CRI is used to be product related. In our case there is no product definition within the special condition.

Justification: N/a

Proposed Text : Delete the reference to CRI and clarify that the date and issue is referable to the generic special condition or be specific by submitting CRI-F1 if any related to the special condition. This clarification is essential to understand the limit of applicability of the special condition in terms of type of product and associated operational scenario intend for type certification.

EASA response:

Not accepted. While the CRI reference is project specific, the intent is to use the F-01 reference, on the current RPAS projects which the Agency is dealing with, in order to make this special condition applicable. This special condition is considered as a stand alone document, and will be directly attached as an appendix to the CRI F-01 "Equipment, systems, and installations". As such, the issue number and date of the special condition (not project specific) may be different from the issue number and date of the implementing CRI (project specific).

Commenter 7 :Airbus Defence and Space – date 18-08-2015

Comment # 47

Paragraph No: None

Original text: Secondary panels

Comment: Major. The structure panel is not involved as a secondary panel for the implications of the special condition. Structure Panel involvement is essential commensurate to type and probabilities of failure conditions which could result in flight conditions and loads affected by such failures. The interaction of system with structure seems to be disregarded at least at this stage of visibility. It is felt that a special condition treating the interaction of systems with structures is needed to complete adressing structural integrity, especially because reference standards are assumed to be CS-VLA or CS-VLR.

Justification: N/a

Proposed Text : Involve the structure panel in this special condition process, since the interaction between systems and structure is not covered by 1309.

EASA response:

Partially accepted.
Performing aircraft and system functional hazard assessments (AFHA / SFHA) is considered standard practice when a system safety assessment process is requested for supporting compliance with XX.1309. Irrespective of the level of the FHA (i.e. AFHA or SFHA), the effects of the identified failure conditions are assessed at aircraft level, including the influence a system and its functional failure modes may have on the aircraft structural performance. As such, the aircraft structure is not considered disregarded from the system safety assessment process, and consequently from this special condition. As proposed, the structure panel is added in the list of secondary panels.

The need for a special condition addressing the interaction of systems and structures has not been identified yet. Decision to create RPAS related special conditions is prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore those special conditions will be directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR. These two CS's do not contain a CS25.302-like requirement, addressing interaction of systems and structures; and the information currently available on the two RPAS projects the Agency is dealing with has not revealed the need for.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 48

Paragraph No: Chapter – Special condition, Page 1 .

Original text: The requirements of this paragraph are applicable, in addition to specific design requirements of the applicable

Comment: Major. It should be made clear that this SC applies only to CS-VLA and CS-VLR aircraft requiring a type certification as stated in Appendix 1, chapter 3.

Justification: N/a

Proposed Text : The requirements of this paragraph are applicableto any equipment or system as part of a Remotely Piloted Aircraft System (RPAS) for which a type certification is requested using CS-VLA or CS-VLR as the equivalent manned aircraft code.

EASA response:

Partially accepted. The text is amended.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 49

Paragraph No: Chapter – Special condition, Page 1.

Original text: RPAS systems and controls, including indications and annunciations, must bedesigned in accordance with SC-RPAS.1302, when existing,

Comment: Minor. The phrase "when existing" is placed in a way that makes it ambiguous: does it refer to the SC-RPAS.1302 or to the annunciations? Should the same qualification be applied to the reference to SC-RPAS.1322 above?
Justification: N/a

Proposed Text : Assume the first option: replace "existing" with "published". Apply the same qualification to SC-RPAS.1322.

EASA response:

Partially accepted. The text is amended and does no longer refer to the SC-RPAS.1302 and SC-RPAS.1322.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 50

Paragraph No: Chapter – Special condition, Page 1.

Original text: (c) Information concerning an unsafe system operating condition must be provided in a timely manner to theremote crew to enable them to take appropriate corrective action. An appropriate alert must be provided inaccordance with SC-RPAS.1322. RPAS systems and controls, including indications and annunciations, must bedesigned in accordance with SC-RPAS.1302, when existing, to minimise remote crew errors which couldcreate additional hazards.

Comment: Major. EASA has informed us that SC-RPAS.1322 and SC-RPAS.1302 are still being drafted. This should be noted, even if it does not change the intent of (c) .
Justification: N/a

Proposed Text : Add the sentence to the end of the paragraph or as a footnote: "SC-RPAS.1322 and SC-RPAS.1302 are in preparation."

EASA response:

Not accepted. The text is amended and does no longer refer to the SC-RPAS.1302 and SC-RPAS.1322.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 51

Paragraph No: Chapter - C, Page 1.

Original text: type certification basis, to any equipment or system as part of the Remotely Piloted Aircraft System (RPAS).

Comment: **Minor. Referenced SC-RPAS.1322 was not available on EASA Website for Referencing. We understand this is the normal paragraph 1322 of manned aviation code. However it has to verified that if changes have been done within the SC-1322 they have to be announced.**

Justification: N/a

Proposed Text : N/a

EASA response:

Noted. The SC-RPAS.1322 will be available for public consultation, and will address RPAS specificities regarding remote crew alerting aspects.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 52

Paragraph No: Chapter - C, Page 2.

Original text: An appropriate alert must be provided in accordance with SC-RPAS.1322. RPAS systems and controls, including indications and annunciations, must be designed in accordance with SC-RPAS.1302, when existing, to minimise remote crew errors which could create additional hazards.

Comment: **Minor. We understand this is the normal paragraph 1302 of manned aviation code. However it has to verified that if changes have been done within the SC-1302 they have to be announced.**

Justification: N/a

Proposed Text : N/a

EASA response:

Noted. The SC-RPAS.1302 will be available for public consultation, and will address RPAS specificities regarding systems and equipment installed for use by the remote crew.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 53

Paragraph No: Chapter -, 2.1 Page 3.

Original text: Reference ICAO circular 328-AN/190, Unmanned Aircraft Systems (UAS)

Comment: Minor. This Reference should be replaced by ICAO RPAS Manual
Justification: N/a

Proposed Text : ICAO Manual on Remotely Piloted Aircraft Systems (RPAS), Doc 10019-AN/507, March 2015

EASA response:

Partially accepted. The ICAO circular is not referenced later in the text. Therefore the reference is no longer retained.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 54

Paragraph No: Chapter – 2.1, Page 3.

Original text: Riga declaration…

Comment: **Minor. No aspect of the SC is consistent with the principles of the Riga declaration**
Justification: N/a

Proposed Text : Delete this bullet.

EASA response:

Partially accepted. The declaration is not referenced later in the text. Therefore the reference is no longer retained.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 55

Paragraph No: Chapter - 3, Page 4.

Original text: for which the type certification basis has been established using the CS-VLA or CS-VLR as equivalent manned aircraft applicable airworthiness code (ref. section 6 of the EASA policy E.Y013-01),

Comment: **Major. It is true that VLA & VLR does not have an AMC 1309 advisory material. This special conditions should highlite no persons on board and risks for people on ground. Which is not equivalent to manned aircraft CS. However it is recommended in order to understand the full picture of SC- RPAS.1309 to generate a general 1309 .**
Justification: N/a

Proposed Text : sub bullet "or which the type certification basis has been established using the CS-VLA or CS-VLR as equivalent manned aircraft applicable airworthiness code (ref. section 6 of the EASA policy E.Y013-01),taking into account that no persons are on board".

EASA response:

Not accepted. The proposed change is already present in the current draft special condition.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 56

aragraph No: 7.1

Original text: - Failure Conditions are classified according to the severity of their effects as follows:..

Comment: **Major.** It is noted that the proposed classifications is not weight dependent, it doesn't specifiy if fatalities are considered on ground only therefore it can not be postulated as applicable to a specific operational scenario. This aspect is fundamental to be clarified since it has a direct impact on the probability figures defined under table 1.

Justification: N/a

Proposed Text :

EASA response:

Noted. Failure conditions are classified in accordance with their effects. Effects may vary depending on the types of operations and associated limitations. What varies is the effects of the failure condition, not the definition of the severity.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 57

Paragraph No: 7.1

Original text: - Minor: Failure conditions that would not significantly reduce RPAS safety and that involve remote crew actions that are 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.

Comment: **Minor.** To align this definition with the wording used for manned aviation in CS-25 the word "well" should be used as well

Justification: N/a

Proposed Text : Change the sentence to: Minor: Failure conditions that would not significantly reduce RPAS 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.

EASA response:

Accepted. The text is amended in accordance.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 58

Paragraph No: 7.1

Original text: - Hazardous: Failure conditions that would reduce the capability of the RPAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be the following:
iii) High workload such that the remote crew cannot be relied upon to perform their tasks accurately or completely.

Comment: **Minor.** To align this definition with the wording used for manned aviation in CS-25 the word "excessive" should be used in lieu of high.

Justification: N/a

**Change the sentence to: Hazardous: Failure conditions that would reduce the capability of the RPAS or the ability of the remote crew to cope with adverse operating conditions to the extent that there would be the following:
iii) Exessive workload such that the remote crew cannot be relied upon to perform their tasks accurately or completely.**

EASA response:

Accepted. The text is amended in accordance.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 59

Paragraph No: 7.1

Original text: Catastrophic: Failure conditions that are expected to result in multiple fatalities.

Comment: **Minor.** It is acknowledge that this definition results from the CS-23 AC document. This criteria for every RPAS it is dependent on the density of overflown ground population at the time the contingency occurs. Should an uncontrolled crash in an empty area be considered as the same failure condition category (Hazardous) as a flight outside of a preplanned safety zone involving "large reduction in safety margins or (…) separation assurance" ?

Justification: N/a

Change the sentence to:

EASA response:

Noted. Failure conditions are classified in accordance with their effects. Effects may vary depending on the types of operations and associated limitations. What varies is the effects of the failure condition, not the definition of the severity.
The assessment of the effects should cover all the following aspects: impacts on third parties; impacts on safety margins, functionnal capabilities, and separation assurance; impacts on remote crew workload.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 60

Paragraph No: 7.1

Original text: Health and Safety at work legislations are applicable to ground equipment and personnel.

Comment: **Minor.** Rephrase the sentence

Justification: N/a

Change the sentence to: Please change the wording to the following: Legislations on "Health and Safety at work" are applicable to ground equipment and personnel.

EASA response:

Accepted. The text is amended in accordance.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 61

Paragraph No: 7.1

Original text: The effects of a Remote Pilot Station failure or event on the ability of the flight crew to perform their duties (e.g. workload and Human Factors) and the effect on the RPA, will need to be assessed as part of the System Safety Assessment covered by this AMC.

Comment: **"The effects of a Remote Pilot Station failure or event on the ability of the flight crew to perform their duties" on RPA from a structural integrity point of view are not covered by this AMC See also comment regarding "Secondary Panels". Additionaly the text refers to AMC however this document does not help discriminating special condition text from AMC text.Justification:** N/a

Proposed Text : AMC and special condition for interactions of systems and structure are not covered by this special condition and AMC.

EASA response:

The need for a special condition addressing the interaction of systems and structures has not been identified yet. Decision to create RPAS related special conditions is prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore those special conditions will be directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section

6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR. These two CS's do not contain a CS25.302-like requirement, addressing interaction of systems and structures; and the information currently available on the two RPAS projects the Agency is dealing with has not revealed the need for

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 62

Paragraph No: 7.1

Original text: - ...perform their duties (e.g. workload and Human Factors) and the…

Comment: Major. Concerning the Human factors aspect it is worth reminding that both CS-VLA and CS-VLR do not envisage complex systems, i.e. cockpit arrangements with the use of integrated display systems. Additionally RPAS do exhibit perculiar human factors aspects. The human factors topic is already discussed inside the RPASP and considered to be significant.
Justification: N/a

Proposed Text : Develop a special condition concerning human factors tailored to RPAS specificities (particularly needed when CS-VLA and CS-VLR are taken as reference for RPAS).

EASA response:

Noted. A special condition will address RPAS specificities regarding systems and equipment installed for use by the remote crew.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 63

Paragraph No: Chapter – 7.2.2, Page 9.

Original text: Table 1

Comment: Minor. The allowed probabilities on table 1 are accepted provided there are no change on the definitions of section 7.1
Justification: N/a

Proposed Text : No text change is required.

EASA response:

Noted.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 64

Paragraph No: Chapter – 7.2.2

Original text: Table 1

Comment: Major. We understood that the reference is based on the CS-23 single piston engine with max Take-off weight of 6000 lbs. It is suggested that the rationale behind the use of the probability figures taken from manned aviation should be expressed, as well as how the decision was made for the DAL proposed in Table 2

Proposed Text : Clarification is required.

EASA response:

Noted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.
The probability figures and the DAL are derived from the JARUS AMC RPAS.1309 issue 2 table 3, with the following assumptions:
- class LUAS or LURS,
- complexity level II,
- 10 catastrophic failure conditions.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 65

Paragraph No: Chapter – 7.2.2, Page 9.

Original text: Note 3: The allowable quantitative probability relies on the assumption that the number of potentially catastrophic failure conditions is in the order of magnitude of 10. Early concurrence with the Agency is required if this assumption is not valid on a specific project.

Comment: Minor. Is this note related to Systemslevel?
Justification: N/a

Proposed Text : Please clarifiy for which level it is applicable.

EASA response:

Partially accepted. The number of 10 catastrophic failure conditions is at product level. As the determination of the aircraft level vs. the system level may significantly vary from one manufacturer to the other, the text is modified to make clear that the assumption of 10 catastrophic failure conditions is to be understood as the total number for the product.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 66

Paragraph No: Chapter – 7.2.2, Page 9.

Original text: Note 5: It is reminded that the SC and the Table 1 are only applicable for RPAS for which the type certification basis has been established using the CS-VLA or CS-VLR as equivalent manned aircraft applicable airworthiness code (ref. section 6 of the EASA policy E.Y013-01), and with no occupant on board.

Comment: Major. Based on the idea of risk based approach which is more or less independent of weight and kinetic energy the SC-RPAS1309 should not limit the applicability to CS-VLA or CS-VLR. Proposal is to generate SC-RPAS.1309 independent of the weight and should only reflecting the hazardous using the risk based approach. Meaning some RPAS if they are for example light

enough may never have a catastrophic event resulting in multiple death.
Justification: N/a

Proposed Text : sub bullet "for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR" should be deleted

EASA response:

Not accepted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 67

Paragraph No: Chapter – 7.2.2, Page 9.

Original text:

Comment: **Major. RPAS.1309 should allow to use "factors" for probability compliance demonstration. These factors should be calculated based on density of overflown population or the density of airtraffic in the area where the specific RPAS is allowed to fly.**
Justification: N/a

Proposed Text : Add the following Note: Note 6: Factors based on density of overflown population or density of airtraffic in the area where the specific RPAS is allowed to fly, are allowed for compliance demonstration.

EASA response:

There is no intent to use "factors" for probability compliance demonstration.
Operational considerations, such as operation limitations, are however taken into account at the stage of the severity assessment (AFHA/SFHA) in order to mitigate the effects of a failure condition.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 68

Paragraph No: Chapter – 7.3, Page 10.

Original text: Table 2.

Comment: **Major. For UAS type considered within CRI-F-01, a large part of their systems should be extremely simple and are expected to use components from CS-VLA or VLR aircraft for which no requirement exists. Therefore for MINOR failure conditions DAL requirements should be "E" or "NO requirement"**

Justification: N/a

Proposed Text : Change to DAL=E or to "No DAL requirement" for Minor failure conditions

EASA response:

Not accepted. The requested DAL is commensurate with the severity of the failure condition, not with the level of complexity of the system.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 69

Paragraph No: Chapter – 7.3, Page 10.

Original text: Table 2

Comment: **Major.**
It is considered that current DAL level required for MAJOR failure conditions are more stringent than those required by JARUS AMC RPAS 1309 for a Class I RPAS-23 up to 6000lbs. For CS-VLA or CS-VLR like UAS, it is therefore considered that DAL=D it is fair and equitable

Justification: N/a

Proposed Text : Change to DAL=D for Major failure conditions

EASA response:

Not accepted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which would be RPAS complexity level II per JARUS AMC RPAS 1309.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 70

Paragraph No: Chapter – 7.3, Page 10.

Original text: Table 2

Comment: Major.

Table 1 (p.9) (A on the right) states quantitative probabilities for failure conditions that are applicable to RPAS equivalent to CS-VLA and CS-VLR. AMC-RPAS.1309 does not define probabilities for aircraft of these types (no available data). If we assume that CS-VLA and CS-VLR typically have a MTOW of < 750kg, then the required DALs should correspond to Complexity Class I of RPAS-23 Class I (table D on the right). Thus the DAL requirement for a Major failure condition should be DAL D to maintain equivalence with manned aircraft for at least RPAS-VLA/VLR of complexity class I.

Justification: N/a

Proposed Text :

Change Allowable DAL for Major failure condition to DAL D in Table 2.

EASA response:

Not accepted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which would be RPAS complexity level II per JARUS AMC RPAS 1309.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 71

Paragraph No: Chapter – 7.3, Page 10.

Original text: Table 2.

Comment: Major.

This SC-RPAS.1309 does not identify RPAS of complexity classes I or II explicitly. To be consistent with AMC-RPAS.1309, the DALs for class II must be stated. These should be be equivalent for now to those in AMC-RPAS.1309 for RPAS-23 Class I and CS-LUAS/CS-LURS. We note, however, that these DAL requirements are not equivalent to manned aircraft of the same class (they should be the same), nor consistent with those stated in STANAG 4671 Ed.1.

Justification: N/a

Proposed Text :
Add DALs for RPAS-VLA, RPAS-VLR according to RPAS-23 Class II to Table 2. Recommend reducing the DAL for Major to DAL D.

EASA response:

Not accepted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which would be RPAS complexity level II per JARUS AMC RPAS 1309.

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Comment # 72

Paragraph No: Chapter – 7.3, Page 10.

Original text: Table 2.

Comment: Major.

It is acknowledged that for the relevant Design Assure Levels the CS-23 class III requirements are used as reference. See comment for rationale given for Table 1.

Justification: N/a

Proposed Text :

EASA response:

Noted. Decision to create this special condition was prompted by the applications for type certification that were received by the Agency from two RPAS manufacturers. Therefore this special condition has been directly tailored to the immediate certification need, which is RPAS for which the kinetic energy assessment in accordance with section 6 of the EASA policy E.Y013-01 results in an initial certification basis according to CS-VLA or CS-VLR.
The probability figures and the DAL are derived from the JARUS AMC RPAS.1309 issue 2 table 3, with the following assumptions:
- class LUAS or LURS,
- complexity level II,
- 10 catastrophic failure conditions.

Commenter 7 :Airbus Defence and Space – date 18-08-2015-08-2015

Comment # 73

Paragraph No: Chapter – 9, Page 10.

Original text: For the purposes of quantitative analysis, a probability of one can be assumed for remote crew and maintenance tasks that have been evaluated and found to be reasonable.

Comment: **Major. The probability of one referred in the text is not qualified. By reading the preamble within the previous sentence it can be expected that probability one is intended for a successful task implementation. If the above said understanding is correct it follows that it is reasonably acceptable. However it should be expanded in order to capture:**
-the potential of human factor aspect in maintenance or by the flight crew
- concerned tasks criticality
- task complexity, frequency, high workload involved as well as environmental aspects.

Justification: N/a

Proposed Text : Take into considertion the possibility of expanding the text to clarify to what the probability one is referred to and to add material for human factor aspects.

EASA response:

Noted. For the purposes of quantitative analysis, a probability of one can be assumed for remote crew and maintenance tasks that have been evaluated and found to be reasonable. Reasonable tasks are those for which full credit can be taken because the remote crew or maintenance personnel can realistically be anticipated to perform them correctly when they are required or scheduled.
Material related with human factors aspects, and tasks complexity/criticality may be added at a later stage.