



European Union Aviation Safety Agency
**Comment-Response Document (CRD) to
CPTS-0000357 issue 1**

**Comment Response Document (CRD) to Equivalent Level Safety Finding, ref.
CPTS-0000357 issue 1, on «Use of ‘Iron birds’ for the rotor drive system and
control mechanism tests»**

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1. Summary of the outcome of the consultation

EASA received 13 comments from OEMs, industry associations and Authorities which were individually assessed regarding necessary changes or amendments to the proposed text. The comments primarily suggested complementary clarifications on definitions and the applicability scope as well as a consideration for rulemaking activities and harmonization with other authorities.

2. Individual comments and responses

In responding to the comments, the following terminology is applied to attest EASA's position:

- (a) **Accepted** — EASA agrees with the comment and any proposed change is incorporated into the text.
- (b) **Partially accepted** — EASA either partially agrees with the comment or agrees with it but the proposed change is partially incorporated into the text.
- (c) **Noted** — EASA acknowledges the comment, but no change to the text is considered necessary.
- (d) **Not accepted** — EASA does not agree with the comment or proposed change.

2.1. CRD table of comments, responses and resulting text

(General Comments)		-
comment	9	comment by: <i>FOCA (Switzerland)</i> Thank you for the opportunity to comment. We have no remarks on this document.
response	Noted	
comment	10	comment by: <i>AIRBUS HELICOPTERS</i> First of all, Airbus Helicopters would like to thank EASA for giving us the opportunity to comment on this ESF. <u>Airbus Helicopters comment :</u> Airbus Helicopters suggests EASA to contact FAA to harmonise their position regarding CS 29.923(a)(2) interpretation and to issue an equivalent generic issue paper ELOS. <u>Justification for the comment :</u> Issuance of an ESF is a temporary solution which does not prevent further discussion in the frame of Foreign Validations. FAA SEI update would be necessary to ensure that the proposed ESF is recognised by FAA without any further FAA involvement in the frame of certification.
response	Noted	

EASA was, is and will remain in contact with FAA for this subject. However, it cannot be guaranteed that EASA and FAA positions will be harmonised.

Please refer to comment 42 from FAA in the CRD for CPTS-0000358 for further information on the current status of discussions between the authorities.

comment 11 comment by: AIRBUS HELICOPTERS

Airbus Helicopters comment :

Airbus Helicopters suggests that EASA launches a RuleMaking Task to implement the content of the proposed ESF into the CS29 regulation.

Justification for the comment :

What prevents an evolution of CS29.923(a)(2) by adding an exception as for CS29.927(e)?

response Noted

EASA is considering rulemaking on CS 29.923 for the use of alternative test means. The need for a dedicated rulemaking task is under evaluation.

Pending the introduction of the notion of alternative test means in CS 29.923, the activities foreseen for the applicant for compliance demonstration are not impacted.

comment 18 comment by: General Aviation Manufacturers Association (GAMA)

GAMA/ASD would like to thank EASA for the opportunity to provide comments to this consultation paper. Due to limited available time to coordinate discussions, GAMA/ASD could not consolidate an industry position; in consequence, it was agreed that member companies would log their own company comments individually.

Nonetheless, in due consideration of this consultation's relevance, GAMA/ASD would like to request that EASA organize a workshop where submitted comments can be jointly reviewed and discussed with industry representatives. GAMA staff remains available to help support this request if and when accepted.

response Accepted

The workshop was organized and the opportunity was given to relevant companies to review and comment on the updated draft prior to publication.

comment 19 comment by: Vertical Aerospace

Whilst it is recognised that these documents are CS-29 documents, their applicability is wider than just Helicopters as we are seeking to use them for our eVTOL aircraft. Please can the terminology be changed to reflect the fact that it is just not applicable to Helicopters.

response Not accepted



The term "helicopter" is not used in ESF CPTS-0000357 Alternative Test Means – CS 29.923 (Iron bird).

It should be noted that the use of CS-29 and any associated policies such as this ESF need to be assessed individually for their suitability for certification of other aircraft categories. Such assessment would need to be performed at project level.

SUBJECT

p. 1

comment

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comment by: *Leonardo Helicopters*

The definition of "iron bird" is generally associated with a structure more close to a rig and less to an helicopter.
For the purpose of this document it is more appropriate to replace "iron bird" with "Tie down Helicopter" or "Ground Test Vehicle".

response

Partially accepted

The term "iron bird" is now defined in the ESF CPTS-0000357 paragraph 2.: "An "iron bird" is to be considered any ground test equipment that satisfies the compensating factors described in chapter 3. below."

IDENTIFICATION OF ISSUE:

p. 2

comment

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comment by: *AIRBUS HELICOPTERS*

With regard to the penultimate paragraph of the Identification of Issue on page 3 :
"EASA considers that using "iron birds" as endurance test means cannot be considered simply as a nonconforming **feature** of the prescribed rotorcraft and must be considered as alternative test means. [...]"

Typo : replace "feature" by "feature"

response

Accepted – Text has been corrected.

1. APPLICABILITY

p. 4

comment

2

comment by: *DE-LBA*

Original text: "changes which consist in a **substantial modification** of..."

Comment: A definition or further explanation is required for the term "substantial modification".

response

Accepted

Changes have been introduced to avoid misunderstanding.



comment	13	comment by: AIRBUS HELICOPTERS
	<p>With regard to the paragraph #1 - Applicability : "This ESF is applicable to large rotorcraft for new TCs and design changes which consist in a substantial modification to the rotor drive and/or rotor control mechanism."</p> <p>Airbus Helicopters proposed text : Airbus Helicopters suggests to change the above sentence as follows : "This ESF is applicable to large rotorcraft for new TCs and for design changes where the design of the rotor drive and/or rotor control mechanism is substantially modified."</p> <p>Justification for the comment : It has to be clarified that the term "substantial" is not equivalent to the one used in PART 21.A.101 to classify a design change at H/C level.</p>	
response	<p>Accepted</p> <p>The proposed changes have been introduced.</p>	

comment	15	comment by: Leonardo Helicopters
	<p>A definition of "substantial change" is mandatory for a correct application of the ESF. An AMC or GM with the related definition could be considered.</p>	
response	<p>Partially accepted</p> <p>"Substantial change" is no longer used to avoid confusion with Part 21 terminology. In addition, ESF CPTS-0000358 "Use of laboratory test rigs for the rotor drive system and control mechanism tests" now includes associated means of compliance detailing some examples of changes that can typically be tested in a test rig and some that typically cannot. This can be used as guidance for ESF.</p>	

3. COMPENSATING FACTORS

p. 4

comment	3	comment by: DE-LBA
	<p>Original text: "the applicant should not alter: [...] b) the rotor drive systems or rotor control mechanisms"</p> <p>Comment: Rotor drive system and rotor control mechanism are the parts under test and must therefore be type-conforming anyway. We do not see why this should be a compensating factor.</p>	
response	<p>Noted</p> <p>This ESF is not applicable only to new TCs where the complete drive systems and rotor control mechanisms will be parts under test. It is also applicable to changes that substantially modify the drive systems and/or rotor control mechanisms, for which all these elements may not be parts under test. For such cases it remains applicable that this point is kept as a compensating factor.</p>	

comment	<p>16 comment by: <i>Leonardo Helicopters</i></p> <p>The sentence "not alter" is directly applicable to point b). For point a) the structure could be different, while the "not alter" should be limited to stiffness/deformation.</p>
response	<p>Partially accepted</p> <p>As defined in ESF CPTS-0000357, the structure specified (i.e. not all structure) shall not be modified. Nevertheless, alterations may be considered for restraining the "iron bird" and reacting the rotor loads. A note has been added to clarify this.</p>
comment	<p>17 comment by: <i>AIRBUS HELICOPTERS</i></p> <p>With regard to the 2nd paragraph of "3. Compensating factors" : <i>"In the endurance test means, the use of alternative and/or modified elements (excluding the parts under test) relative to the rotorcraft type design must be demonstrated to closely simulate the stiffnesses, load reactions and vibration behaviour of the rotorcraft, using simulations and/or tests."</i></p> <p><u>Airbus Helicopters proposed text :</u> Airbus Helicopters suggests to change the above sentence as follows : <i>"In the endurance test means, the use of alternative and/or modified elements(excluding the parts under test) relative to the rotorcraft type design must be demonstrated to closely simulate the stiffnesses, load reactions and vibration behaviour of the rotorcraft <u>which have influence on the parts in test</u>, using simulations and/or tests."</i></p> <p><u>Justification for the comment :</u> The 2nd paragraph asks to demonstrate that several parameters of the iron bird must simulate the ones of the rotorcraft. The proposition is made to precise that this is only for parameters relevant to the test.</p>
response	<p>Accepted</p> <p>The proposed change has been introduced.</p>