



## Deviation request #60 for an ETSO approval for CS-ETSO applicable to Recorder Independent Power Supply (ETSO-155) Consultation Paper

### 1. Introductory note

The hereby presented deviation request shall be subject to public consultation, in accordance with EASA Management Board Decision No 7-2004<sup>1</sup> products certification procedure dated 30 March 2004, Article 3 (2.) of which states:

“2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency.”

### 2. ETSO-C155#1 – Recorder Independent Power Supply

Deviate from ETSO-C155 Appendix 1, Section 2 and provide less than the minimum 12 watts of output power for the supply duration.

#### Requirement:

Energy Requirements: Provide minimum 12 watts for the supply duration. Corresponds to stored energy of 6480 to 7920 watt-seconds (9 to 11 minutes times 60 seconds/minute = 12 watts).

#### Industry:

The specific Recorder Independent Power Supply (RIPS) is contained internally in the same housing than the recorder, and is not capable of being interfaced to an external recorder. The recorder installed in the same housing than the RIPS can meet the required 10 +/- 1 minute recording time with less than the prescribed 12 watts of power. The power demand of the associated recorder will be used to determine the needed energy storing capacity. The RIPS subsystem provides monitoring of the energy source and will annunciate a recorder failure should the RIPS capacity fall below the required 10 minutes recorder operation time.

**EASA:** We agree to the requested deviation. The FAA has updated TSO-C155 to revision A referencing the requirements as defined in ED-112. The capacity is now purely defined by operation duration requirements. EASA will update the ETSO-C155 accordingly.

### 3. ETSO-C155#2– Recorder Independent Power Supply

Deviate from ETSO-C155 Appendix 2 and use different categories for environmental testing than those specified in the appendix.

#### Industry:

Since the Recorder Independent Power Supply (RIPS) is housed internal to the recorder housing, the environmental qualifications specified by EUROCAE ED-112 as referenced by the applicable recorder ETSOs shall be applicable to an internal RIPS as well. The

<sup>1</sup> Cf. EASA Web: [http://www.easa.europa.eu/ws\\_prod/g/doc/About\\_EASA/Manag\\_Board/2004/mb\\_decision\\_0704.pdf](http://www.easa.europa.eu/ws_prod/g/doc/About_EASA/Manag_Board/2004/mb_decision_0704.pdf)

applicant asserts that the requirements listed in ETSO-C155 as compared to those in ED-112 provide no added benefit for a RIPS mounted internal to the recorder.

**EASA:** We agree that the environmental conditions selected for the RIPS and the recorder should be the same when installed in one common housing.

EUROCAE ED-112 is providing guidance in respect to the criteria to be tested during the environmental test and identifies the minimum tests to be performed but is not providing guidance which test category should be used and leaves it to the applicant, as usual for equipment qualification, to anticipate the environmental conditions applicable at installation when selecting a qualification category. All the tests, as listed in the following table, are considered optional by ED-112 and not demanded to be performed for the recorder ETSO qualification.

DO-160( )/ED-14( ) Section	Test	ETSO-C155 Category
<b>9.0</b>	<b>Explosion Proofness</b>	<b>E</b>
<b>10.0</b>	<b>Waterproofness</b>	<b>W</b>
<b>11.0</b>	<b>Fluids Susceptibility</b>	<b>F</b>
12.0	Sand and Dust	-
<b>13.0</b>	<b>Fungus Resistance</b>	<b>F</b>
14.0	Salt Spray	-
23.0	Lightning Direct Effects	-
24.0	Icing	-

It has to be noted, that beside the standard ED-14( )/DO-160( ) testing, further specific testing has to be performed demonstrating the crash surveillance for the recorder.

Contrary, ETSO-C155 identifies minimum testing requirements for the sections 9.0 Explosion Proofness, 10.0 Waterproofness, 11.0 Fluids Susceptibility and 13.0 Fungus Resistance - highlighted by bold writing in the table above. The last column identifies the test categories to be used for ETSO-C155 compliance. Based on the typical anticipated installation condition and to keep a level playing field we keep those testing (highlighted in bold) in the group of required tests for RIPS and will not accept the declaration of X – no test performed – for these test cases.

In regard to the specified categories we agree to industry and consider that the test categories as defined in ETSO-C155 Appendix 2 are not sufficient for each anticipated installation environment and accept that industry likes to reflect the potential installation environment for some RIPS equipment by selecting different and even lower categories. Consequently, we agree to the deviation request and allow the selection of different categories for the environmental testing than those specified by ETSO-C155 Appendix 2 but consider all tests mentioned in ETSO-C155 as mandatory.

In other word it is allowed to select different categories than those specified by ETSO-C155 for environmental testing but not accepted to completely skip a specified test environment.

It has to be noted, that the assessment, if the tests performed are sufficient for a specific installation environment, is to be performed during certification of the installation and is outside and on top of the ETSO process.