

Deviation Request #114 for an ETSO approval for CS-ETSO applicable to 406MHz Emergency Locator Transmitter (ETSO-C126a) Consultation Paper

1 Introductory Note

The hereby presented deviation requests shall be subject to public consultation, in accordance with EASA Management Board Decision No 7-2004 as amended by EASA Management Board [Decision No 12-2007](#) products certification procedure dated 11th September 2007, 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 Deviation Requests

2.1 ETSO-C126a#2 406MHz Emergency Locator Transmitter

2.1.1 Summary of Deviation

Deviates from EUROCAE ED-62A §5.3.3. by not applying this test to ELT (S)

2.1.2 Original Requirement

EUROCAE ED-62A:

5.3.3 Radio Frequency Susceptibility (Paragraph 3.2.2)

5.3.3.1 ELT susceptibility to RF damage or activation may be measured using procedure “a” or “b” below, as appropriate.

(...)

a. Direct Coupling Measurement Test Procedure

Step 1: Adjust the signal generator to a frequency in the 118-121.25 MHz band. The signal generator output shall be modulated with a 1 kHz square wave to at least a depth of 90%. Connect the RF amplifier and power meter and adjust the output of the signal generator to measure +24 dBm on the meter. The meter's input impedance should match the ELT antenna's terminal impedance.

Step 2: With the ELT in the “ARMED” mode, replace the power meter with the ELT and inject the +24 dBm signal into the ELT antenna terminal. After one minute, disconnect the ELT and verify that it has not activated or that the ELT has not been damaged.

Step 3: Turn the ELT “ON” and determine that the ELT is transmitting at full EIRP.

Step 4: Repeat Steps 1 through 3 for a frequencies in the 121.75 to 136.975 MHz band.

Step 5: For ELTs units operating on 406 MHz additional frequencies shall also be tested. Repeat Steps 1 through 3 with the signal generator set to 134.5083 to 136.750 MHz, also modulated with 1 kHz square wave modulation to at a depth of 90%.

Step 6: Repeat Steps 1 through 3 for frequencies from 405.528 to 406.528 MHz

- b. Alternatively, EUROCAE ED-14E/RTCA DO-160E can also be used to satisfy RF Susceptibility requirements.

(1) *ELT intended for installation within Rotorcraft or into areas of composite fuselages of fixed-wing airplane shall be tested to EUROCAE ED-14E/RTCA DO-160E, Section 20.0 Radiated Susceptibility Test Level Category L.*

(2) *ELT units intended for installation into an airplane of predominately metal construction shall be tested to EUROCAE ED-14E/RTCA DO-160E Section 20.0 Radiated Susceptibility Test Level Category T.*

5.3.3.2 Activate the ELT and determine compliance with the requirements of Paragraph 4.4.10.

2.1.3 Industry

Tests of EUROCAE ED-62A paragraph 5.3.3 intend to verify compliance to paragraph 3.2.2. This paragraph requires that an ELT unit which is in the “ARMED” mode is not activated or damaged by RF emissions. Survival ELT (ELT(S)) units do not have an “ARMED” mode, as they are portable units exclusively intended to be activated by the survivors of a crash. As a result, the requirement is useless and the test meaningless.

2.1.4 Equivalent Level of Safety

An equivalent level of safety is provided by the ELT (S) not having an “ARMED” mode and being activated only after a crash, reducing the impact of RF interference encountered in an operating aircraft environment.

2.1.5 EASA position

We accept the deviation.