

European Aviation Safety Agency

European Technical Standard Order (ETSO)

SUBJECT: VHF RADIO COMMUNICATIONS TRANSCEIVER EQUIPMENT OPERATING
WITHIN THE RADIO FREQUENCY RANGE 117.975 TO 137.000 MEGAHERTZ

1 – Applicability

This ETSO gives the requirements which new models of VHF Radio Communications Transceiver Equipment Operating within the Radio Frequency Range 117.975 to 137.000 Megahertz that are manufactured on or after the date of this ETSO must meet in order to be identified with the applicable ETSO marking.

This ETSO cancels ETSO-2C37e “VHF Radio Communication Transmitting Equipment Operating within the Radio Frequency Range 117.975-137.000 Megahertz” and ETSO-2C38e “VHF Radio communication Receiving Equipment Operating within the Radio Frequency Range 117.975-137.000 Megahertz”.

2 - Procedures

2.1. - General

Applicable procedures are detailed in CS-ETSO Subpart A.

2.2 - Specific

This ETSO applies to equipment intended for aircraft VHF amplitude modulated (AM) communications operating within 117.975 to 137.000 MHz. This includes 25 and 8.33 kHz channel spacing capabilities. VHF communication equipment covered by this ETSO is primarily intended for aeronautical operational control (AOC) and air traffic services (ATS) safety communications.

3 - Technical Conditions

3.1 - Basic

3.1.1 - Minimum Performance Standard

Standards set forth in EUROCAE document ED-23C “Minimum Operational Performance Standards for Airborne VHF Receiver-Transmitter Operating within the Radio Frequency Range 117.975-137.000 MHz”, dated June 2009 for the equipment classes defined in the following table.

Table of Equipment Classes for VHF Communication Equipment

Equipment Class	Description
C	Receiver used in a 25 kHz channel separation environment having off-set carrier operation
D	Receiver used in a 25 kHz channel separation environment not having off-set carrier operation
E	Receiver used in an 8.33 kHz channel separation environment not having off-set carrier operation
H1 and H2	Receivers which are to be used in a 8,33 kHz channel separation environment and intended for off-set carrier operation with only two carriers.
3	Transmitter used in a 25 kHz channel separation environment and intended to operate with a range of 200 nautical miles.
4	Transmitter used in a 25 kHz channel separation environment and intended to operate with a range of 100 nautical miles.
5	Transmitter used in an 8.33 kHz channel separation environment and intended to operate with a range of 200 nautical miles.
6	Transmitter used in an 8.33 kHz channel separation environment and intended to operate with a range of 100 nautical miles.

It is recommended that, when applying for ETSO-2C169a authorisation, the applicant also applies for ETSO-2C128 "Devices that Prevent Blocked Channels Used in Two-Way Radio Communications due to Unintentional Transmission" authorisation.

3.1.2 - Environmental Standard

See CS-ETSO Subpart A paragraph 2.1.

3.1.3 - Computer Software

See CS-ETSO Subpart A paragraph 2.2

3.1.4 Electronic Hardware Qualification.

See CS-ETSO Subpart A paragraph 2.3

3.2 - Specific

3.2.1 Failure Condition Classification

See CS-ETSO Subpart A paragraph 2.4

Failure of the function defined in paragraph 3.1.1 of this ETSO has been determined to be a major failure condition.

4 - Marking

4.1 - General

Marking is detailed in CS-ETSO Subpart A paragraph 1.2

4.2 – Specific

None

5 - Availability of Referenced Document

See CS-ETSO Subpart A paragraph 3