

European Aviation Safety Agency

European Technical Standard Order

Subject: AIRBORNE AREA NAVIGATION EQUIPMENT USING MULTI-SENSOR INPUTS

1 - Applicability

This ETSO gives the requirements which airborne area navigation equipment using multi-sensor inputs that is manufactured on or after the date of this ETSO, must meet in order to be identified with the applicable ETSO marking.

2 - Procedures

2.1 - General

Applicable procedures are detailed in CS-ETSO Subpart A.

2.2 - Specific

None.

3 - Technical Conditions

3.1 - General

3.1.1 - Minimum Performance Standard

Standards set forth in EUROCAE document ED-58 (June 1988) (RTCA DO-187 (1984)).

3.1.2 - Use of Global Positioning System Sensors

EUROCAE document ED-72A, „Minimum Operational Performance Standards for Airborne Supplemental Navigation Equipment Using Global Positioning System (GPS),“ dated April 1997, and ETSO-C129a, Airborne Supplemental Navigation Equipment Using Global Positioning System (GPS), provide standards for the use of GPS sensors. These standards provide additional and, in some cases, contradictory requirements to the requirements of this ETSO. Additional operational capabilities have been authorized for aircraft equipped with ETSO-C129a compliant equipment. If the ETSO applicant wishes to manufacture equipment that is eligible for these additional operational capabilities, then the applicant must certify that the GPS sensor is compliant with ETSO-C129a. In this case the following criteria shall apply:

- (i) All additional standards contained in ETSO-C129a that apply to the appropriate class (B or C) of sensor being incorporated into the multi-sensor system must be complied with in addition to the requirements of this ETSO.
- (ii) The performance requirements of ETSO-C129a take precedence over this ETSO when the GPS sensor is being used for navigation. It is acceptable to revert to the criteria of this ETSO when the GPS sensor is not installed or is otherwise not available. Reversion from ETSO-C129a requirements to ETSO-C115b requirements must be continuously in the pilot's primary field of view.
- (iii) If any conflict is encountered between the two ETSOs, ETSO-C129a will always take precedence over ETSO-C115b.
- (iv) The requirements of ETSO-C129a that are applicable to the multi-sensor system must be demonstrated as a part of demonstrating compliance with this ETSO. All testing which would require inputs from a GPS sensor must be conducted with a sensor that has been demonstrated to meet the criteria of ETSO-C129a for the class of sensor required by the multi-sensor system being evaluated. It is acceptable to simultaneously demonstrate compliance with ETSO-C129a for the sensor and ETSO-C115b for the multi-sensor system.

3.1.3 - Environmental Standard

See CS-ETSO Subpart A paragraph 2.1.

3.1.4 - Computer Software

See CS-ETSO Subpart A paragraph 2.2.

3.2 - Specific

None

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.