

# European Aviation Safety Agency

## European Technical Standard Order

**Subject:** Avionics Supporting Automatic Dependent Surveillance - Broadcast (ADS-B) Aircraft Surveillance Applications (ASA)

### **1 - Applicability**

This ETSO gives the requirements which Avionics Supporting Automatic Dependent Surveillance - Broadcast (ADS-B) Aircraft Surveillance Applications (ASA) that are 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 - Basic

##### 3.1.1 - Minimum Performance Standard

Standards set forth in Section 2 of EUROCAE ED-194, dated January 2012/ Radio Technical Commission for Aeronautics (RTCA) DO-317A, dated December 13, 2011, Minimum Operational Performance Standards for Aircraft Surveillance Applications System.

Functional equipment classes for this ETSO are defined by the avionics equipment functionality they provide for one or more of the applications listed in Table 1. The three equipment functionalities are Cockpit Display of Traffic Information (CDTI) (Surface Only), CDTI, and Airborne Surveillance and Separation Assurance Processing (ASSAP). Applicable performance standards for these classes are identified per equipment class in Appendix L of ED-194/DO-317A and are based on Section 2 of ED-194/ED-317A. The functional equipment classes are shown in the following table.

**ETSO-C195a**

**Date: 05.07.2012**

			Equipment Classes		
	Application	Criticality Level	CDTI (Surface Only) (A)	CDTI (B)	ASSAP (C)
	Enhanced Visual Acquisition (EVAcq)	Major	Not Permitted	B1	C1
2	Basic Surface (Runways)	Major (> 80 Knots) Minor (< 80 Knots)	A2	B2	C2
3	Basic Surface (Runways + Taxiways)	Major (> 80 Knots) Minor (< 80 Knots)	A3	B3	C3
	Visual Separation on Approach (VSA)	Major	Not Permitted	B4	C4
	Basic Airborne (AIRB)	Major	Not Permitted	B5	C5
	In-Trail Procedures (ITP)	Major	Not Permitted	B6	C6

**Table 1 – ASA Functional Equipment Classes**

Class A and B equipment authorized under this ETSO must comply with ETSO-C165() when implementing Surface Applications. This ETSO shall take precedence where it differs from ETSO-C165(). Databases used to support moving maps integrated with the SURF application must meet at least 5 meter accuracy and 1 meter resolution. Databases used to support moving maps integrated with the SURF application must meet EUROCAE ED-76/RTCA DO-200A Data Process Assurance Level 2 for state-provided data with Essential Integrity as defined in RTCA DO-272B.

Equipment authorized under this TSO may include or interface with airborne multipurpose electronic display equipment complying with ETSO-C113().

Equipment authorized under this ETSO must contain or support an interface to position sources that meet one of the following ETSOs: ETSO-C129(), ETSO-C145(), ETSO-C146(), ETSO-C196() or equivalent.

### 3.1.2 - Environmental Standard

See CS-ETSO Subpart A paragraph 2.1. The system performance to be demonstrated during the environmental testing is defined in EUROCAE ED-194/RTCADO-317A section 2.4.

Explosion testing in accordance with EUROCAE ED-14( )/RTCA DO-160( ) section 9 is considered optional.

Electrostatic Discharge testing in accordance with EUROCAE ED-14( )/RTCA DO-160( ) section 25 is required for all equipment having control elements and are expected to be touched during operation.

### 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.

**ETSO-C195a**

**Date: 05.07.2012**

Failure of the function defined in paragraph 3.1.1 of this ETSO has been determined to be a major failure condition for malfunctions causing the display of hazardously misleading information in airborne aircraft and aircraft on the ground greater than 80 knots. Failure of the function defined in paragraph 3.1.1 of this ETSO has been determined to be a minor failure condition for malfunctions causing the display of hazardously misleading information in aircraft on the ground less than 80 knots groundspeed. Loss of function has been determined to be a minor failure condition.

#### **4 - Marking**

##### 4.1 - General

Marking as 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.