European
Aviation
Safety
Agency

European Technical Standard Order

Subject: Next Generation Satellite Systems (NGSS) Equipment

1 - Applicability

This ETSO provides the requirements which Next Generation Satellite Systems (NGSS) Equipment that are designed and 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 the RTCA DO-262B, Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS), dated June 17, 2014; except that they are not required to meet any requirement of RTCA DO-326, Airworthiness Security Process Specification, in Normative Appendix D or E (as applicable) where referenced.

Note: There are no MPS security requirements for NGSS equipment. However, a security risk assessment may be required at the time of installation, and if needed, security controls may be implemented in connected aircraft systems or addressed by flight crew procedures.

3.1.2 - Environmental Standard

See CS-ETSO, Subpart A, paragraph 2.1.

3.1.3 - Software

See CS-ETSO, Subpart A, paragraph 2.2.

3.1.4 - Airborne Electronic Hardware

See CS-ETSO, Subpart A, paragraph 2.3

3.2 - Specific

The MPS allows for different equipment classes and subclasses as defined by RTCA DO-262B. There are 6 applicable equipment classes and 13 equipment subclass components identified (see RTCA DO-262B, Appendix D and Appendix E). The manufacturer must declare the equipment class requirements from those identified in the applicable appendix. The equipment configuration shall satisfy the relevant requirements of the RTCA DO-262B minimum operational performance standards (MOPS) as identified in Tables 1 and 2 in Appendix 1 of this ETSO.

This ETSO standard applies to equipment intended for long-range communication services, aeronautical mobile satellite (route) services (AMS(R)S) by means of satellite communications between AES, corresponding satellites, and ground earth stations (GES). The NGSS supports data communications, or data and voice communications, between aircraft users and ground-based users, such as air navigation service providers (ANSP) and aircraft operators. Equipment class AES1 supports data communications only. All other equipment classes support both data and voice communications.

(1) The functionality of an NGSS supports four categories of communication service. Two are in the safety of flight category: air traffic services (ATS) and aeronautical operational control (AOC). The other two are in the non-safety of flight category: aeronautical administrative communication (AAC) and aeronautical passenger communication (APC).

(2) NGSS equipment is intended for procedural airspace area operations. The failure conditions specified in paragraph 3.2.1 of this ETSO have been determined based on NGSS equipment operating as an approved Long-Range Communication System (LRCS) in oceanic airspace area environments. Use of NGSS equipment in other operating environments (for example, high-density terminal/en route airspace) may impact equipment performance and safety considerations.

3.2.1 - **Failure Condition Classification**

See CS-ETSO, Subpart A, paragraph 2.4

Failure of the function defined in paragraph 3.b of this ETSO is a minor failure condition.

Loss of the function as defined in paragraph 3.b of this ETSO is a minor failure condition.

Note: The use of NGSS equipment for primary voice or data communications may necessitate the development of the NGSS equipment to a higher design assurance level than required for the failure criticality levels specified above and may drive a revision to this ETSO.

4 - **Marking**

4.1 - **General**

Marking as detailed in CS-ETSO, Subpart A, paragraph 1.2.

4.2 - **Specific**

The NGSS class and subclass markings shall include the complete equipment identifier reference (such as AES1, AES4, or AES7). An example subclass component (such as a high-gain antenna (HGA), Transceiver, or Diplexer/Low Noise Amplifier(DLNA)) marking would display AES6-2/HGA, Type A Transceiver AES7-7/7MA, or Type F Diplexer AES6-3/DF, etc. For valid combinations of system component markings, see table 3 in Appendix 1 to this ETSO.

5 - **Availability of Referenced Document**

See CS-ETSO, Subpart A, paragraph 3.