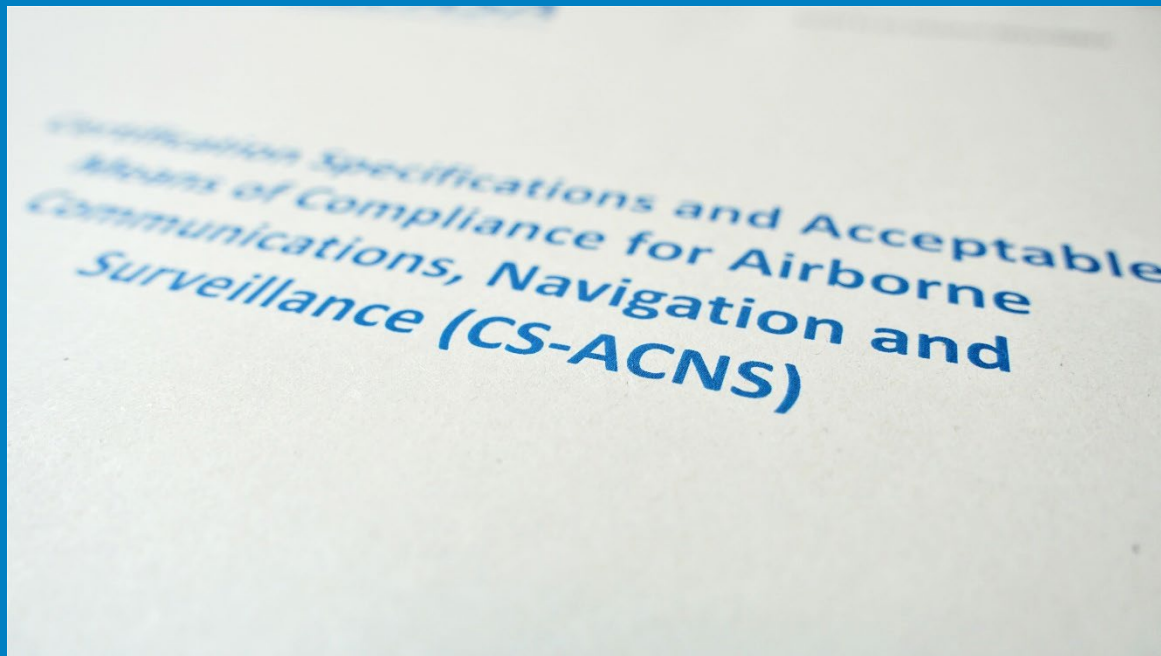


CS-ACNS

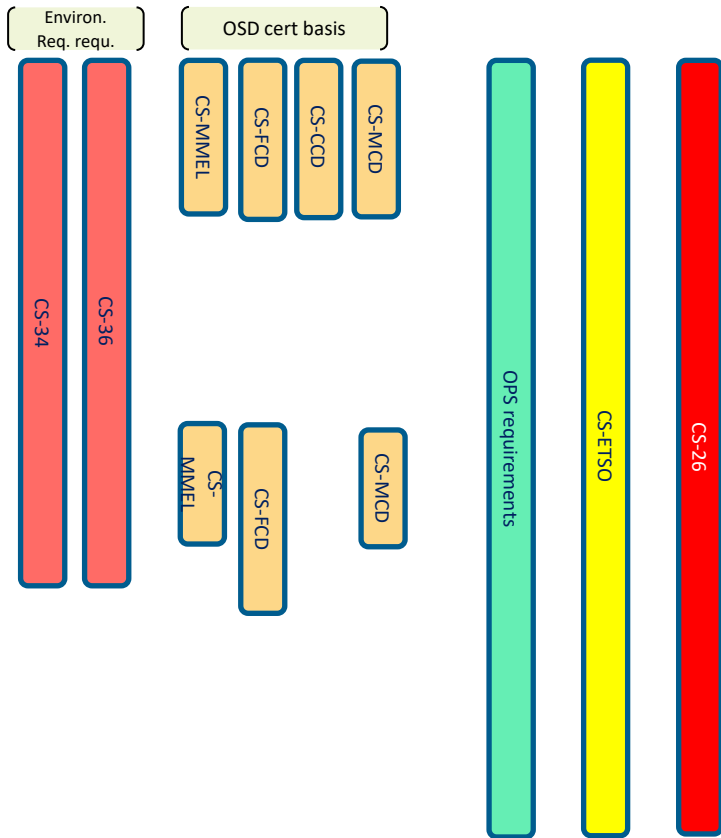
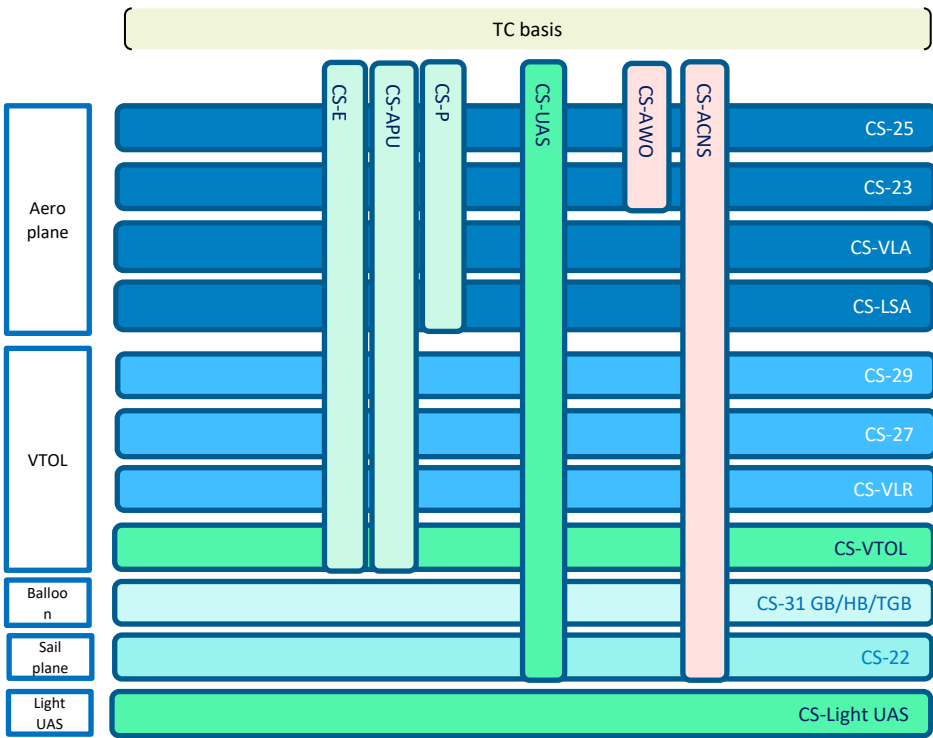


WHAT IS CS-ACNS?

- Initial Airworthiness
- Aircraft level
- Same level as other CSs
 - CS-25,...



CS-ACNS and other CS



WHAT IS CS-ACNS?

Bridge to airspace and interoperability rules

(EU) 965/2012

- Air Operations

(EU) 1207/2011

- Surveillance Performance & Interoperability (SPI)

(EU) 1206/2011

- Aircraft Identification (ACID)

(EC) 29/2009

- Data Link Services (DLS)

(EU) 1079/2012

- Voice Channel Spacing (VCS)



FROM IAW TO OPERATIONS



CS-ACNS content

Subpart A – General

Subpart B – Communications (COM)

Subpart C – Navigation (NAV)

Subpart D – Surveillance (SURV)

Subpart E – Others



(E)TSO credit at installation

European Aviation Safety Agency

**EUROPEAN TECHNICAL STANDARD ORDER
(ETSO) AUTHORISATION**

EASA.210.10000000

This European Technical Standard Order (ETSO) Authorisation is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation, subject to conditions specified below, to

THE IMA COMPANY
12 street of core soft
297 IMACITY
SOMEWHERE

In accordance with Commission Regulation (EU) No. 748/2012, Part 21, Section A, Subpart O and ETSO2C153 for

IMA Processing module CP23
P/N CP23.XXX
DDP 23.554 Issue A or later

Limitations:
Refer to DDP


Conditions:

1. The above ETSO Authorisation holder is only authorised to identify an Article with this ETSO marking whilst remaining in compliance with the conditions retained for the issue of this Authorisation.
2. This ETSO Authorisation does not constitute an installation approval. It is the responsibility of those installing this article to determine that the aircraft installation conditions are within the ETSO standards.

This ETSO Authorisation shall remain valid until surrendered or revoked.

For the European Aviation Safety Agency,

Date of issue: 1 April 2015


Markus GOEPFERMANN
Certification Manager
Parts & Appliances

EUROPEAN TECHNICAL STANDARD ORDER (ETSO) AUTHORIZATION - 10000111 - EASA SOEPM
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1/1

Preamble

In the following slides,

(E)TSO means EASA ETSO or FAA TSO



Initial airworthiness

(E)TSOA covers

- Functional requirements
 - Software and electronic hardware
 - Environmental qualification
 - Documentation
-
- For the scope of the equipment



- Authorisation.
2. This ETSO Authorisation does not constitute an installation approval. It is the responsibility of those installing this article to determine that the aircraft installation conditions are within the ETSO standards.
- This ETSO Authorisation shall remain valid until the next scheduled maintenance check.

Functional requirements at installation level

→ CS AMCs* may grant (E)TSOA credit

CS ACNS.C.PBN.225 Reasonableness check of distance-measuring equipment (DME)

(See AMC1 ACNS.C.PBN.225)

When the RNP system uses DME, it has the capability to perform a reasonableness check of the radio navigation data.

[Issue: CS-ACNS/2]

AMC1 ACNS.C.PBN.225 Reasonableness check of distance-measuring equipment (DME)

Installation of equipment with an ETSO authorisation against ETSO-C115d satisfies the requirement.

[Reference: ED-75D § 3.7.3.1.1]

[Issue: CS-ACNS/2]

Functional requirements at installation level

- Aircraft level performance
 - Relies on (E)TSO MPS
 - But also on integration
 - Compatibility
 - Integrated performance
- And MPS is Minimum Performance
 - Higher expectations for some usage
- Example:
 - Interface between sensor and display
 - Latency or cumulative errors



Functional requirements at installation level

AMC1 ACNS.D.ADSB.070 Horizontal Position and Velocity Data

Sources

(a) GNSS Standards

(1) Basic GNSS System Approval

To be approved, the horizontal position and velocity data source should hold an EASA equipment authorisation in accordance with either ETSO-C129a, or ETSO-C196, or ETSO-C145/ETSO-C146, including the additional qualification requirements as specified in paragraph (2) below.

(2) Additional GNSS Receiver Qualification Requirements

In order to fully address the standard associated with ADS-B Out, **an ETSO authorisation alone may not be sufficient to ensure ADS-B compatibility**. The position and velocity source should also comply with the following requirements (i) to (vi).

It is expected that compliance with these requirements is demonstrated by the equipment manufacturer and documented in the Declaration of Design and Performance (DDP), or an equivalent document. Detailed guidance material on the qualification requirements is provided in Appendix H Part 5.

(i) GNSS system must provide a latitude and longitude output.

Note: ETSO-C129a does not cater for full compliance with this requirement.

(ii) The horizontal position integrity containment should have been qualified as per Appendix H Part 5 paragraph 1;

Note: Horizontal Uncertainty Level (HUL) information does not fulfil CS ACNS.D.ADSB.070.

(iii) The maximum time to alert for the indication of a signal-in-space data integrity failure should be 10 seconds as per Appendix H in Part 5 paragraph 1;

Design assurance at installation level

- Software and Airborne Electronic Hardware
 - No further investigation provided the baseline is acceptable
- System-level development assurance
 - ED-79A/ARP-4754A not imposed in (E)TSO
 - Generally not assessed when investigating the (E)TSO file
 - Might be reviewed in the frame of installation

A few more things (1/2)

- To be assessed at installation
 - (E)TSO deviations
 - Limitations
 - Non-(E)TSO functions

CS ACNS.A.GEN.020 Deviation from equipment standards

Any deviations from the ETSO referenced in this CS and associated AMC are to be evaluated to ensure compliance with the CS requirements.

[Issue: CS-ACNS/2]



A few more things (2/2)

- Suspected non-compliances might be reinvestigated as part of the installation
- e.g. as a follow-up of a CAW issue on the same/similar article



Thank you for your attention



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An Agency of the European Union 