



EASA

European Aviation Safety Agency

CS-ACNS: - Applicability - Continuity Requirement

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CS-ACNS Applicability



EU SPI Rule

- The European Commission's Surveillance Performance and Interoperability ('SPI') regulation (EU) No 1207/2011 as amended by (EU) No 1028/2014 specifies technical capabilities in the annexes to regulation 1207/2011
- These apply to aircraft operating IFR flights as General Air Traffic (GAT):
 - All aircraft:
 - ELS - (EU) No 1207/2011 Annex II part A, 
 - Aircraft with MTOM > 5700 Kg or TAS > 250 Kts
 - ELS and ADS-B - (EU) No 1207/2011 Annex II parts A and B, 
 - Fixed wing aircraft with MTOM > 5700 Kg or TAS > 250 Kts
 - ELS and ADS-B and EHS - (EU) No 1207/2011 Annex II parts A, B and C. 



- Commission Regulation No 1028/2014:
 - Forward fit ():
 - ELS: CoA first issued on or after 8 January 2015
 - ADS-B & EHS: CoA first issued on or after 8 June 2016
 - Retro fit:
 - ELS: by 7 December 2017
 - ADS-B & EHS: by 7 June 2020



Applicability of CS ACNS Subpart D (SUR)

- CS ACNS provides a means to comply with 'SPI' regulation (Commission Regulation (EU) No 1207/2011 - amended by (EU) No 1028/2014) and more...

- CS ACNS Subpart D covers:
 - Modes A and C (AC)
 - Mode S – Elementary Surveillance (ELS)
 - Mode S – Enhanced Surveillance (EHS)
 - 1090 MHz Extended Squitter – ADS-B (ADSB)



CS-ACNS vs AMC 20-24

- CS-ACNS covers ADS-B RAD applications:
 - ADS-B RAD: May substitute RADAR.
 - Supports 3 NM aircraft separation.
 - Higher integrity levels.

- AMC 20-24 covers ADS-B NRA applications:
 - NRA: Non-radar application.
 - Supports 5 NM aircraft separation.
 - Used in more remote areas without RADAR coverage:
Australia, China, Hudson Bay, North sea (rotorcraft), Gulf or Mexico (rotorcraft).

Note: Compliance with CS-ACNS also covers NRA requirements.



When do I have to apply what...?

Transponder
Installation (All A/C)



CS-ACNS Subpart D ('AC'),
except where CS-STAN applies.

Mode S-ELS

EU: All A/C
Operating as IFR
GAT



CS-ACNS Subpart D ('ELS'),

Mode-S EHS

EU: All A/C
operating as IFR
GAT and >250 Kts
TAS or > 5700 Kg



CS-ACNS Subpart D ('EHS'),



When do I have to apply what...?

ADS-B NRA

EU: Not mandated



AMC 20-24

ADS-B RAD

EU: All A/C

operating as IFR

GAT and >250 Kts

TAS or > 5700 Kg



CS-ACNS Subpart D ('ADSB'),

Note: Please do not attempt to apply CS-ACNS for ADS-B on A/C <250 Kts TAS or < 5700 Kg.



I heard that AMC 20-24... Minor change?

- Yes. Under the following conditions:
 - The Transponder has ETSO-C166a or ETSO-C166b authorisation.
 - The position sensor is a GNSS receiver is approved under ETSO C-129a, ETSO C-145/C-146, ETSO C-145c/C146c or ETSO C196a
 - Note: The compatibility of the GNSS with ADS-B transmission, including Position Quality Indicators, must be demonstrated. ETSO/TSO approval does not, in itself, imply compatibility.
 - The GNSS has a direct digital interface with the Transponder and the position accuracy/integrity data transfer does not cause the Horizontal Position Latency to exceed the requirements of appendix 3 of AMC 20-24 [1.5 sec.]



CS-ACNS Continuity Requirement



What's with that continuity...?

- (EU) No 1207/2011 continuity requirement:
 2^{-4} /FH \rightarrow 5000 Hr.
- CS-ACNS requires the system to be designed to an allowable qualitative probability of 'probable' for Mode A/C and Mode S EHS and 'remote' for Mode S ELS and ADS-B:
 - Probable: 10^{-3} /FH \rightarrow 1000 Hr. (cf. AMC 25.1309)
 - Remote: 10^{-5} /FH \rightarrow 100000 Hr. (cf. AMC 25.1309)
- Not very consistent...



How do we deal with non-compliances?

- EASA is working on an update to CS-ACNS to address the inconsistency.
- Until that has been published:
 - Try harder! 😊
 - We can work with deviations from CS-ACNS, but...
 - The 2⁻⁴ /FH of (EU) No 1207/2011 is firm: no deviations allowed.



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Questions?

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