European Union Aviation Safety Agency

Explanatory Note to ED Decision 2024/003/R

in accordance with Article 4(2) of MB Decision 01-2022

Data link services

CS-ACNS in support of the automatic dependent surveillance-contract extended projected profile (ADS-C EPP) capability

'CS-ACNS Issue 5'

RMT.0524 (SUBTASK 1)

EXECUTIVE SUMMARY

This Decision lays down Issue 5 of the Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS), which affects design and production organisations.

The objective of the amendments issued with CS-ACNS Issue 5 is to enable manufacturers to effectively support in a harmonised manner operators that are required to ensure their affected aircraft provide automatic dependent surveillance-contract extended project profile (ADS-C EPP) as part of ATS Baseline 2 (ATS B2), in accordance with ATM Functionality 6 'INITIAL TRAJECTORY INFORMATION SHARING' (AF6) of Commission Implementing Regulation (EU) 2021/116 on the establishment of Common Project One.

REGULATION(S) TO BE AMENDED/ISSUED	**ED DECISION(S) TO BE AMMENDED**
n/a	ED Decision 2013/031/R — Certification Specifications for Airborne Communications, Navigation and Surveillance (CS-ACNS Initial Issue)

AFFECTED STAKEHOLDERS

Design and production organisations; aircraft operators; air navigation service providers (ANSPs)

WORKING METHODS

Development	**Impact assessment(s)**	**Consultation**
By EASA with external support	Light	NPA — Public

RELATED DOCUMENTS/INFORMATION

— ToR RMT.0524 - Data link services | EASA (europa.eu)

— NPA 2023-07 - Datalink services | EASA (europa.eu)

— CRD 2023-07

PLANNING MILESTONES: Refer to the latest edition EPAS *Volume II*.

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1. About this Decision

1.1. How this regulatory material was developed

This rulemaking activity is included in Volume II of the European Plan for Aviation Safety (EPAS) for 2024[1] under Subtask 1 of Rulemaking Task RMT.0524. EASA developed this Decision in line with Regulation (EU) 2018/1139[2] (the Basic Regulation) and the Rulemaking Procedure[3], as well as in accordance with the objectives and working methods described in the Terms of Reference (ToR) for this RMT[4] .

This regulatory proposal was developed by EASA with the support of Rulemaking Group RMG.0524 and was subsequently submitted to the public for consultation with NPA 2023-07[5], in accordance with the ToR for this RMT.

EASA reviewed the comments received and duly considered them for the preparation of the regulatory material issued with this Decision.

1 EPAS Volume II - EPAS Actions 2024 Edition

2 Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (https://eurlex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139).

3 EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 01-2022 of 2 May 2022 on the procedure to be applied by EASA for the issuing of opinions, certification specifications and other detailed specifications, acceptable means of compliance and guidance material ('Rulemaking Procedure'), and repealing Management Board Decision No 18-2015 (EASA MB Decision No 01-2022 on the Rulemaking Procedure, repealing MB Decision 18-2015 (by written procedure) | EASA (europa.eu)).

4 ToR RMT.0524 - Data link services | EASA (europa.eu)

5 NPA 2023-07 - Datalink services | EASA (europa.eu)

2. In summary — why and what

2.1. Why we need to act

Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS), currently at Issue 4, do not contain those certification specifications required by design and production organisations to support aircraft operators' compliance with Commission Implementing Regulation (EU) 2021/116[6], known as the Common Project One (CP1) Regulation. This Decision addresses the need to provide certification specifications to timely support the implementation of the initial trajectory information sharing (or 'i4D') functionality in accordance with the provisions of the CP1 Regulation.

2.2. What we want to achieve — objectives

The CP1 Regulation requires the implementation of six ATM functionalities to achieve essential operational improvements of the European ATM system. Such ATM functionalities (AF1 to AF6) are defined in Article 2 and further detailed in the Annex to that Regulation. The functionality supported by this Decision is ATM Functionality 6 (AF6) (or 'initial trajectory information sharing' or 'i4D') which, when implemented, is expected to improve trajectory information knowledge.

AF6 of the CP1 Regulation requires that aircraft operators ensure that aircraft with a certificate of airworthiness first issued on or after 31 December 2027 are equipped with ADS-C EPP as part of the ATS B2 capability. Consequently, aircraft operators need to be supported by design and production organisations by way of providing them with ADS-C EPP-capable data link systems.

The specific objective of this Decision is to enable manufactures to effectively support in a harmonised manner operators that are required to ensure their affected aircraft provide ADS-C EPP as part of ATS B2, in accordance with AF6 (initial trajectory information sharing) of the CP1 Regulation).

CS-ACNS should continue to support aircraft operators' compliance with the relevant airspace usage requirements laid down in Commission Implementing Regulation (EU) 2023/1770[7], and in particular in its Annex I (Part-COM). The means of compliance issued to Part-COM of that Regulation are defined in the 'Acceptable Means of Compliance and Guidance Material for Airspace Usage Requirements — AMC & GM to Part-AUR.COM[8], which for aircraft data link equipment compliance reference is made to CS-ACNS.

Furthermore, the CS-ACNS data link requirements added in support of the CP1 implementation need to be compatible with the data link requirements provided in the 'Detailed Specifications and

[6] Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014 (OJ L 36, 2.2.2021, p. 10) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0116).

[7] Commission Implementing Regulation (EU) 2023/1770 of 12 September 2023 laying down provisions on aircraft equipment required for the use of the Single European Sky airspace and operating rules related to the use of the Single European Sky airspace and repealing Regulation (EC) No 29/2009 and Implementing Regulations (EU) No 1206/2011, (EU) No 1207/2011 and (EU) No 1079/2012 (OJ L 228, 15.9.2023, p. 39) (Implementing regulation - 2023/1770 - EN - EUR-Lex (europa.eu)).

[8] Acceptable Means of Compliance and Guidance Material for Airspace Usage Requirements — AMC & GM to Part-AUR.COM Issue 1 (https://www.easa.europa.eu/en/downloads/138761/en).

Acceptable Means of Compliance & Guidance Material for certification or declaration of design compliance of ATM/ANS ground equipment (DS-GE.CER/DEC)' Issue 1, dated 26 October 2023[9].

2.3. How we want to achieve them — overview of the amendments

To achieve the objectives set out in Section 2.2 above, the following amendments have been issued to CS-ACNS.

Note: The most important amendments are summarised below, and those amendments introduced post NPA 2023-07 are presented in **bold**.

SUBPART A 'GENERAL'

— CS ACNS.A.GEN.005 'Definitions' has been modified to add definitions for ADS-C EPP and to amend the definitions for 'CPDLC' and 'emergency indicators'.

SUBPART B 'COMMUNICATIONS (COM)', SECTION 2 'DATA LINK SERVICES (DLS)'

— The titles of various certification specifications and associated acceptable means of compliance and guidance material have been modified to remove the term 'B1', as the focus of CS-ACNS is no longer only ATN B1 services and applications, but also ADS-C EPP.

— CS ACNS.B.DLS.001 'Applicability' includes ADS-C EPP in support of CP1 as per ATS B2. further guidance material has been added to clarify the focus of the current amendment on accommodating the ADS-C EPP application only, as part of ATS B2. Furthermore, GM1 ACNS.B.DLS.001 on 'Applicability' clearly refers to **ADS-C version 1 as defined in ED-229A**.

— **GM2 ACNS.B.DLS.001 'Applicability' has been added to recognise that, in the future, data link services will be based on ED-228, ED-229 revision A or later acceptable revisions. Such GM clearly states that applications for the approval of ATS B2 systems in lieu of ATN B1 systems will be accepted and supported. Applicants are further encouraged to contact EASA at their earliest convenience to discuss means to demonstrate compliance with the relevant standards.**

— **AMC1 ACNS.B.DLS.005 'Installation Requirements (VDL Mode 2 Sub-Network)' has been added to state that data link installations should be multi-frequency capable;** nonetheless, the information is transferred from AMC1 ACNS.B.DLS.025 'Protection mechanism'.

— CS ACNS.B.DLS.010 'Flight deck interface' has been updated to accommodate ADS-C EPP. Flight crew should be able to terminate ADS-C connections.

— AMC1 ACNS.B.DLS.010 'Flight deck interface' has been updated to add at point (e) that if '**only part of the message is displayed, a visual indication should be provided to the pilot to indicate the presence of remaining message**'.

— The title of CS ACNS.B.DLS.020 'Data Link Services' has been changed to 'Data Link Capabilities', as that point now includes the data link capabilities to downlink ADS-C EPP data.

— GM1 ACNS.B.DLS.020 'Data Link Capabilities' has been updated to remove the link to the ETSI EN303214 document, as the data link detailed specification for ground is DS-GE.CER/DEC. **Point (e) has been added to GM1 ACNS.B.DLS.020 to detail the expected ADS-C capabilities**.

[9] https://www.easa.europa.eu/en/downloads/138749/en

— **GM2 ACNS.B.DLS.020 'Data Link Capabilities — Testing' has been added**; however, the information is transferred from AMC2 ACNS.B.DLS.025 'Protection mechanism'.

— AMC1 ACNS.B.DLS.025 'Protection mechanism' has been updated to refer to ED-110B and to ED-229A. Most of the guidance material has been removed as the references are either outdated, not needed, or not related to the protection mechanism topic.

— AMC2 ACNS.B.DLS.025 'Protection mechanism', AMC3 ACNS.B.DLS.025 'Protection mechanism', GM1 ACNS.B.DLS.025 'Protection mechanism', GM2 ACNS.B.DLS.025 'Protection mechanism' and GM3 ACNS.B.DLS.025 'Protection mechanism' have been removed.

— GM1 ACNS.DLS.035 'DLS system continuity' has been revised to add ED-228A as well as to define 'continuity'.

— CS ACNS.B.DLS.B1.040 'UTC requirement' has been revised to clearly state time accuracy, rather than relying on the reference to ICAO Annex II or EUROCAE standards.

— AMC1 ACNS.B.DLS.B1.050 'DLIC Uplink Messages' has been updated to add a reference to ED-229A as well as two notes.

— AMC1 ACNS.B.DLS.055 'DLIC Downlink Messages' is updated to add a reference to ED-229A as well as two notes.

— AMC1 ACNS.B.DLS.070 'CPDLC Uplink Messages' and AMC1 ACNS.B.DLS.075 on 'CPDLC downlink messages' have been updated to focus the AMC on compliance with ED-110B.

— CS ACNS.B.DLS.077 'ADS-C EPP Data' has been added to state the ADS-C EPP data link capability needs.

— AMC1 ACNS.B.DLS.077 'ADS-C EPP Data' has been added.

— Various AMC have been amended to remove references which were not relevant to the specific DL service detailed in the requirement/AMC/GM and to incorporate some editorial changes.

— CS ACNS.B.DLS.097 'ADS-C EPP safety and performance requirements' has been added, referring to ED-228A.

— AMC1 ACNS.B.DLS.097 'ADS-C EPP safety and performance requirements' has been added.

— The AMC to network, transport, session, presentation and application layers requirements references have been updated.

— The certification specifications and associated AMC and GM for various layers have been maintained with some editorial changes.

— GM1 ACNS.B.DLS.125 'Database' has been added, which includes a reference to ICAO Doc 028 'EUR NSAP Address Registry'.

— Appendix B 'Background information on data link systems' has been removed.

2.4. What are the stakeholders' views

Prior to the public consultation of NPA 2023-07, the stakeholders' views were generally divided regarding the extent of the certification specifications and design changes needed to support the implementation of the CP1 Regulation.

Discussions held previously during the activity of RMG.0524 on data link services addressed the topic of design requirements to support compliance with AF6 of the CP1 Regulation, and of partial ATS B2-capable installations in comparison with full ATS B2-capable installations.

Some stakeholders argued that it would be beneficial, in the long term, to avoid such partial installations and that it would be important to promote future data link standardised development worldwide. Other stakeholders argued that the only ATS B2 part required by the CP1 Regulation is the EPP report and that the scope of work for the EPP capability is considerably more limited than the complete ATS B2 capability.

Furthermore, the cost to develop, certify, and deploy such full ATS B2 capability is high while the use of such capability by the ANSPs may only gradually increase over time. While a full ATS B2 avionics suite will provide enhanced capabilities to execute various operational scenarios, only a limited part of such capabilities is in fact requested by AF6 CP1 and is to be used by ground equipment. Some stakeholders argued that the ground infrastructure needs to be already in place to support such airborne capability, and concerns were raised on the ground data link installations' readiness level to properly use the information provided through ADS-C EPP.

Considering such views, EASA proposed with NPA 2023-07 that the certification specifications reflect the minimum design changes needed to support operators' compliance with CP1, this being referred to as Option 1. The other option initially considered (Option 2) proposed certification specifications to enable 'full' ATS B2 data link capability, which is beyond the minimum ADS-C EPP required by CP1.

The feedback received during the NPA 2023-07 public consultation reflected the divergences of opinions on the level of data link capabilities needed to support operators' compliance with the CP1 Regulation as from 31 December 2027.

A total of 266 comments were provided through the EASA CRT[10] to NPA 2023-07, from a total of 35 stakeholders, representing national competent authorities, ANSPs, air traffic controller associations/unions, manufacturers, operators, and private entities. Although the stakeholders mainly affected by the subject CS-ACNS amendment are design and production organisations / manufacturers, most of the comments received were provided by ANSPs.

Not all the comments received were on the proposed amendment to CS-ACNS; many of them were relevant to CP1 or to data link in general. However, they were outside the remit of the proposal to amend CS-ACNS. Such comments proposed to delay the applicability of the CP1 mandate, raised concerns on the practicality for stakeholders to meet the CP1 deadline, highlighted the need to shift focus on different technologies (e.g. ATN/IPS) or raised concerns with regard to reliance on VDL infrastructure. It should be recognised that scheduled changes, forward-fit or retrofit mandates cannot be achieved through the application of CSs, but rather through changes to the applicable implementing rules (e.g. the CP1 Regulation, Regulation (EU) 2015/640 (Part-26)).

Stakeholders' views were sought on few topics, ranging from the adequacy of certain certification specifications proposed to support ADS-C EPP to feedback on the two aforementioned regulatory options contained in NPA 2023-07.

The addition of the certification specifications supporting ADS-C EPP was seen as adequate or the minimum necessary by the stakeholders responding to the question.

[10] EASA CRT application (europa.eu)

With regard to the feedback received on the options, Option 1 was supported by a wide range of stakeholders, while Option 2 was supported mostly by ANSPs and national competent authorities providing their oversight, and operators.

The feedback received from national competent authorities was divided between the two options, in many cases being aligned with the position of the corresponding national ANSP. Manufactures' feedback was either to support Option 1 or not providing a clear response, rather focusing on the challenges to comply with the requirements applicable as from 31 December 2027. Some manufactures proposed that the focus and resources should be shifted from the interim 31 December 2027 CP1 deadline to addressing the standards' needs and technical challenges to support a 2032 target for data link capabilities in accordance with the vision proposed in the *Future Connectivity for Aviation* white paper[11].

Air traffic controller associations/unions preferred a more realistic and cost-oriented approach raising concerns that air traffic service units may not be able to use the full EPP information, also due to the lack of coordination for the development of the relevant human–machine interface (HMI) within Europe.

ANSPs' responses mostly supported Option 2. An ANSP provided arguments referring to the reduced operational and environmental benefits if Option 1 were chosen, concerns that Option 1 would introduce additional intermediate configurations resulting into increased complexity for ground data link systems. Furthermore, it was argued that Option 2 could introduce safety benefits through faster response time observed with current B2-equipped aircraft compared to B1-equipped aircraft for certain clearances.

The aircraft operators that provided responses supported Option 2, focused on possible technical issues if partial standards were implemented, and the lack of operational benefits if Option 1 were implemented. Some argued that the implementation of Option 2 would avoid proliferation of additional avionics configurations. On the other hand, operator associations generally did not clearly provide support for one option or the other, but rather raising some concerns on CP1 deadlines. One operator association was supportive of a voluntary data link capability beyond the mandated ADS-C EPP.

For more details on the outcome of the NPA 2023-07 public consultation, please refer to the related Comment-Response Document (CRD) 2023-07.

[11] Future Connectivity for Aviation - White paper | EASA (europa.eu)

3. What are the expected benefits and drawbacks of the regulatory material

The main benefits of CS-ACNS Issue 5 are expected to be as follows:

— provide the simplest certification specifications provisions to design and production organisations required to support operators' timely compliance with CP1;

— streamline the certification process by reducing the number of project-specific applications to demonstrate compliance with CP1;

— acknowledge the need to support future data link operations based on additional ATS B2 capabilities, therefore supporting applicants which may voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP minimum requirements required by CP1.

The following drawbacks are expected:

— CS-ACNS Issue 5 may lead to additional avionics configurations, in particular if stakeholders voluntarily choose capabilities that exceed the minimum required by CP1. Additional avionics configurations may lead to fleet harmonisation issues — thus, higher costs for aircraft operators. Additional avionics configurations may also impact on the ANSPs that provide the DLS service to aircraft operators.

4. Monitoring and evaluation

EASA plans to assess the implementation of CS-ACNS Issue 5 through the following:

— The information gathered during certification projects carried out after this amendment. In particular, the extent will be assessed to which applicants use the minimum requirements to support CP1 or choose to provide additional data link ATS B2 capabilities.

— The monitoring of the rules under the continuing airworthiness process that is followed by EASA and type-certificate holders.

— The investigation of occurrences and the analysis of safety recommendations issued to EASA by designated safety investigation authorities.

5. Proposed actions to support implementation

EASA intends to provide focused communications for Advisory Body (AB) meetings (Technical Bodies (TeBs)) and Communities following the publication of the subject Decision.

6. References

— Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1)

— Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014 (OJ L 36, 2.2.2021, p. 10)

— Commission Implementing Regulation (EU) 2023/1770 of 12 September 2023 laying down provisions on aircraft equipment required for the use of the Single European Sky airspace and operating rules related to the use of the Single European Sky airspace and repealing Regulation (EC) No 29/2009 and Implementing Regulations (EU) No 1206/2011, (EU) No 1207/2011 and (EU) No 1079/2012 (OJ L 228, 15.9.2023, p. 39)

— Executive Director Decision 2023/015/R of 26 October 2023 issuing Issue 1 of the Detailed Specifications and Acceptable Means of Compliance & Guidance Material for certification or declaration of design compliance of ATM/ANS ground equipment' ('DS-GE.CER/DEC — Issue 1') and Issue 1 of the Detailed Specifications and Guidance Material for statement of compliance of ATM/ANS ground equipment' ('DS-GE.SoC — Issue 1')

— ED-110B, December 2007, 'Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1' (Interop ATN B1)

— ED-120, May 2004, 'Safety and Performance Requirements Standard for Initial Air Traffic Data Link Services in Continental Airspace (SPR IC)', including Change 1, Change 2, and Change 3

— ED-122, February 2011, 'Safety and Performance Standard for Air Traffic Data Link Services in Oceanic and Remote Airspace (Oceanic SPR Standard)'

— ED-154A, March 2012, 'Future Air Navigation System 1/A (FANS 1/A) – Aeronautical Telecommunications Network (ATN) Interoperability Standard'

— ED-228A, March 2016, 'Safety and Performance Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 SPR Standard)'

— ED-229A, March 2016, 'Interoperability Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 Interop Standard)'

— AC 20-140C, Sep 2016, 'Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS)'

— ICAO Doc 9776, 1st Edition 2001, 'Manual on VHF Digital Link (VDL) Mode 2'

— ARINC 631-6, January 2011, 'VHF Digital Link (VDL) Mode 2 Implementation Provisions'