European Union Aviation Safety Agency

Comment-Response Document (CRD) 2023-07

RELATED NPA: 2023-07 — RELATED ED DECISION: 2024/003/R — RMT.0524 (SUBTASK 1)

16.05.2024

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**Comments and stakeholders**

A total of 279 comments were provided through the CRT to NPA 2023-07. As 13 comments were placed on the NPA quality and are only used for internal quality assurance processes, the total number of comments responded to and accounted for is 266.

In total, 35 stakeholders provided comments from the following categories:

- national competent authorities,
- manufacturers/industry,
- operators / operator associations,
- ANSPs,
- ATCO associations/unions,
- others.
The comments are structured per total number and stakeholder category as follows:

The EASA responses provided in the CRD are categorised as follows:
1. Summary of the outcome of the consultation

EASA thanks all stakeholders for reviewing the proposal.

However, it was noted that many comments addressed issues which are outside the scope of the proposed CS-ACNS amendment (CS-ACNS Issue 5). Thus, while such concerns are acknowledged, in many cases a definitive answer could not be provided within the scope of this rulemaking task.

Furthermore, most of the comments were provided by ANSPs and operators, although the main stakeholders affected by the proposed CS-ACNS amendment are manufacturers (design and production organisations and manufacturer associations).

Summary of the main NPA 2023-07 topics commented

1. Reference to Future Connectivity for Aviation (FCAV): Several stakeholders (operators, ANSPs, associations) commented that the FCAV white paper developed by EASA, the FAA, Airbus and Boeing does not gather the opinion of all data-link-relevant stakeholders.

The FCAV white paper proposes a vision and a transitional road map for the future aviation connectivity landscape, defining a blueprint for the modernisation and harmonisation of aviation data communication. Its intent was to start with an agreement of a limited number of stakeholders and to form the basis for a wider consultation. Although the FCAV white paper was referenced within the explanatory note of NPA 2023-07, it was not the reference for the proposed regulatory text, which only addressed aircraft certification objectives with respect to the transmission of ADS-C EPP data.

It should be noted that the majority of manufacturers, in their comments to the NPA, support the FCAV proposal.

2. Continuation of RMT.0524: Commentators raised concerns about the closure of RMT.0524 and requested that it should be maintained to address future aspects of data-link-related regulatory material.

EASA wishes to clarify that RMT.0524 will be closed with the publication of CS-ACNS Issue 5. The arrangements for the processing of future amendments to regulatory material related to data link activities will be addressed in future editions of the European Plan for Aviation Safety (EPAS), taking into consideration the applicable regulatory frameworks and existing rulemaking tasks purposed for their evolution.

3. ‘Full’ ATS B2 vs ADS-C EPP capability: Comments were received from ANSPs with regard to the scope of the amendment reflecting only the ADS-C EPP (Extended Projected Profile) part of the ATS B2 standard instead of a ‘full’ ATS B2 Rev B standard. These commentators were concerned that such an approach would result in fragmented airborne equipage implementation and may hamper the drive towards globally harmonised air–ground data link operations. However, other stakeholders (in particular, aircraft and system manufacturers) supported this approach as being the only possible route permitting manufacturers to support operators in meeting the deadline specified in Commission Implementing Regulation (EU) 2021/1161. In addition, commentators agreed that the proposal provides flexibility for manufacturers and

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operators to comply with either the minimum requirement proposed in Regulation (EU) 2021/116 and voluntarily choose to implement additional ATS B2 capabilities.

This amendment to CS-ACNS (Issue 5) provides the minimum data link system capability requirements needed to support compliance with Commission Implementing Regulations (EU) 2023/1770\(^2\) and (EU) 2021/116. However, EASA will support applicants that voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP minimum requirements, including the use of later versions of ED-228 and ED-229. Please, see GM2 ACNS.B.DLS.001.

4. **ICAO Doc 9705 vs Doc 9880 compatibility:** Several commentators raised doubts about the completeness of ICAO Doc 9880, which is intended to replace ICAO Doc 9705.

With regard to CS-ACNS, as ICAO Doc 9880 does not consistently and completely replace the provisions of ICAO Doc 9705, and since the focus of the subject amendment is to have minimum changes to support compliance with Commission Implementing Regulations (EU) 2023/1770 and (EU) 2021/116, references to ICAO Doc 9705 were kept unchanged as a result of the consolidation of various AMC and GM.

5. **ADS-C Version 1:** Few stakeholders requested that CS-ACNS should more explicitly define the ADS-C version. EASA clarifies in GM1 ACNS.B.DLS.001 Applicability that the ADS-C version used to provide ADS-C EPP should be Version 1.

6. **SATCOM certification requirements:** Stakeholders enquired whether certification specifications for SATCOM data link installations can also be provided in CS-ACNS as part of the proposed amendment.

Although AMC1 ACNS.B.DLS.005 has been added to highlight that DLS VDLM2 based installations are acceptable, SATCOM data link installations have been already accepted by EASA through other certifications means. A further assessment of CS-ACNS may be undertaken as part of future data link rulemaking activities.

7. **CP1 maturity:** Stakeholders commented that the maturity deadline laid down in Commission Implementing Regulation (EU) 2021/116 should not be linked with the availability of CS-ACNS as there are aircraft types which are ATS B2 capable (including ADS-C EPP) that have been already certified in accordance with already available standards.

While the availability of CS-ACNS contributes to fulfilling the maturity gate requirements, the readiness for the implementation of the ATM functionality 6 (AF6) defined in Commission Implementing Regulation (EU) 2021/116 is not assessed within this rulemaking task, and is subject to a different assessment.

8. **Challenges to comply with Commission Implementing Regulation (EU) 2021/116 deadlines:** Comments were received with regard to the implementation date for ADS-C EPP capability. This is seen as being

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extremely challenging as some aircraft configurations require significant design changes. In addition, commentators expressed the view that any subsequent requirement to comply with additional ATS B2 capabilities envisioned after 2030 will also be demanding for manufacturers and operators. Therefore, it was proposed to deploy all the envisaged ATS B2 capability by 2032 as opposed to a 2-step approach.

The challenging equipage deadlines required by Commission Implementing Regulation (EU) 2021/116 are acknowledged; however, the review of this requirement is outside the scope of this rulemaking task.

9. **Regulation implementation enforcement:** Stakeholders commented that it is unclear how the Regulation will be enforced to keep non-compliant aircraft below FL285. There is no need for additional regulatory action as the existing regulatory framework supports the airspace usage requirements implementation. Datalink system airspace equipage regulation enforcement for operators falls under the oversight responsibility of the operator’s competent authority. Operators’ non-compliance with the data link system equipage requirement needs to be reported in accordance with the currently applicable regulations. Furthermore, enforcement challenges are outside the scope of this rulemaking task.

10. **DLS improvements:** Few stakeholders submitted comments recommending various improvements to CS-ACNS with regard to Commission Implementing Regulation (EU) 2023/1770.

While the intent of the subject amendment (CS-ACNS Issue 5) is to provide the minimum certification specifications to support compliance with Commission Implementing Regulations (EU) 2023/1770 and (EU) 2021/116, such improvements may be considered at the next revision of CS-ACNS for DLS, in accordance with future EPAS editions.

In NPA 2023-07, EASA invited stakeholders to comment on the following topics:

1. **Requirement on protection mechanism:** EASA enquired within the NPA whether there is still a need for protection mechanism specifications in CS-ACNS.

Most of the responses recommended removing such references, while few argued that there is still a need for them. Taking into account the feedback received, EASA consolidated the AMC and GM, moved some content outside the scope of the protection mechanism specifications, and removed some references while maintaining references to interoperability standards.

2. **Adequacy of AMC1 ACNS.B.DLS.077:** EASA enquired within the NPA whether the material provided in AMC1 ACNS.B.DLS.077 represents the minimum and sufficient means to demonstrate compliance with the ADS-C EPP message exchange requirements in CS ACNS.B.DLS.077.

Only two stakeholders responded to this question, and in their view the requirements are appropriate.

3. **Adequacy of CS ACNS.B.DLS.097 and of the associated AMC:** EASA enquired within the NPA whether the material provided in CS ACNS.B.DLS.097 and AMC1 ACNS.B.DLS.097 represents the minimum and sufficient safety and performance requirements and adequate means of compliance to support intended operations.
Three stakeholders responded to this question, stating that in their view the requirements are appropriate. The fourth stakeholder assessed the regulatory requirement as just the minimum necessary, while advising that increased specificity would help improve interoperability.

4. **Layers requirement**: EASA enquired within the NPA whether there is still a need for various layer specifications in CS-ACNS.

Some responses recommended removing the layer specifications from CS-ACNS as such specifications are too detailed. While reflecting upon the feedback received, EASA concluded that the requirements for interoperability layers need to be present in CS-ACNS. Such requirements point to technical details from ICAO Doc 9705 and the related means of compliance. Considering that the purpose of the subject amendment is to minimise changes while supporting compliance with Commission Implementing Regulation (EU) 2021/116, and since the replacement of ICAO Doc 9705 with Doc 9880 was suspended pending further review, the removal of the layer-detailed requirements will be considered at a later revision.

5. **Elements to quantify the economic impact of Option 1 or Option 2, or propose other options**: EASA invited stakeholders to provide feedback on the economic impact. The feedback received was rather mixed, with one stakeholder stating that Option 2 will be far more expensive than Option 1, while others challenged that there is no evidence that Option 1 will cost less than Option 2. Feedback from another stakeholder proposed the introduction of forward-fit requirements and potentially retrofit requirements. Such proposed implementation objectives cannot be implemented at CS-ACNS or other detailed specification (DS) level. Changes at implementing regulation level are needed to introduce such forward-fit and/or retrofit requirements.

6. **Feedback on the proposed options**: EASA invited stakeholders to provide feedback on the proposed options.

Stakeholders’ feedback on the proposed options is as follows:

![Feedback chart](image)
1. Summary of the outcome of the consultation

Note: A sector represents that stakeholder’s contribution to the overall number of comments received in favour of that option.

A CS-ACNS amendment is addressed mainly to design and production organisations / manufacturers. Although Option 2 remains the long-term goal, it may not be met by most manufacturers within the 31 December 2027 deadline. Furthermore, Option 2 would only bring value to operators if the ground data link system would be in place to deliver those benefits. Concerns were raised that data link ground systems will only be able to gradually support the additional ATS B2 capability through a process which would extend into the 2030s.

As only EPP is mandated through Commission Implementing Regulation (EU) 2021/116, only the ADS-C EPP configuration should be certified. Furthermore, based on the feedback received, even meeting the 31 December 2027 deadline by complying with Option 1 would be quite challenging for some manufacturers.

It should be noted that Option 2 was supported mostly by ANSPs with the support in some cases from national competent authorities responsible for their oversight, as well as three aircraft operators and others. The commentors’ rationale to request/prefer that option is detailed in Chapter 2 of CRD 2023-07.

While the support for Option 2 was detailed and substantiated by ANSPs and operators, manufacturers of most aircraft types/models would not be able to meet the deadline if Option 2 is implemented.

On the other hand, Option 1 was viewed as a step in the right direction by various stakeholders, including manufacturers and in particular an operator association, which highlighted that manufacturers and operators would have the possibility to voluntarily complement ADS-C EPP with additional data link capabilities extending beyond the minimum ADS-C EPP.

Taking into account the feedback received in support of Option 2, and duly considering the concerns raised by manufacturers, EASA added GM2 ACNS.B.DLS.001 to clearly state it will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP minimum requirements.
2. Individual comments and responses

In responding to the comments, the following terminology is applied to attest EASA’s position:

(a) **Accepted** — EASA agrees with the comment and any proposed change is incorporated into the text.

(b) **Partially accepted** — EASA either partially agrees with the comment or agrees with it but the proposed change is partially incorporated into the text.

(c) **Noted** — EASA acknowledges the comment, but no change to the text is considered necessary.

(d) **Not accepted** — EASA does not agree with the comment or proposed change.

### (General Comments)

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**Comment 16**

LBA has no comments.

**Response**

Noted

**Comment 17**

1. Agree
2) Neutral
3) Disagree
4) Neutral
5) Neutral
6) Disagree
7) do as little as possible/needed as the costs cannot be justified (insufficient benefits). And wait for ICAO/FAA fielding ATN/IPS that is a much better (more promising and safer) Data-Link solution. Europe must re-join this ATN/IPS effort as quickly as possible (short transition). With this, we will reach a high level of harmonisation and standardization worldwide.

the present proposed DLS solution here is very Euro-centric, not fully harmonized and not bringing the needed safety and capacity benefits to justify such expenses....

**Response**

Noted

**Comment 24**

**Response**

Noted
## 2. Individual comments and responses

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<td>Executive summary</td>
<td>As this proposal provides only the minimum changes required, it is expected that it will be followed by an additional regulatory effort to address the remaining and future data link connectivity challenges in line with the vision expressed in the ‘Future Connectivity for Aviation – FCAV’ white paper.</td>
<td>As this proposal provides only the minimum changes required, it is expected that it will be followed by an additional regulatory effort to address the remaining and future data link connectivity challenges always ensuring backwards compatibility and avoiding the use of proprietary technologies, in line with the vision expressed in the ‘Future Connectivity for Aviation – FCAV’ white paper.</td>
<td>The mentioned document does not gather the opinion of all the data link relevant stakeholders. It was developed without any kind of consultation to the ANSPs, SESAR Deployment Manager or the Network Manager who have an extremely important role in the current and future implementation of data link in Europe.</td>
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**response** Noted

FCAV proposes a common vision for the future aviation connectivity landscape and proposes a transition road map.

Although the FCAV paper was referenced in the NPA, its reference was used within the explanatory note and not in the proposed regulatory text. As data link system installation and data link implementation are complex and were the subject of numerous and sometimes divergent discussions, the FCAV paper was intended to start with an agreement in a smaller group of stakeholders and secure their engagement. Even if such common ground was found, the intent of FCAV is to support a wider consultation of the affected stakeholders.

**comment 25**

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**comment by: ENAIRE**
1 Executive summary

The subsequent regulatory effort may be captured by various ‘regular update’ rulemaking tasks or by the RMT.0682 on ‘Implementation of the regulatory needs in support of the SESAR deployment’.

ENAIRE considers that RMT.0524 is the appropriate RMT/RMG to take care of current and future modifications on data link. For the time being there is no specific Subtask, according to the information already available within the EPAS (European Plan for Aviation Safety), that explains where the new regulation for data link will be addressed.

Response

Noted

RMT.0524 is planned to be closed. Future DLS activities will be undertaken in accordance with the current and future editions of the European Plan for Aviation Safety (EPAS).

At this time, it is foreseen that the DLS rulemaking activity may be captured within RMT.0682 on ‘Implementation of the regulatory needs in support of SESAR deployment’ or within various regular update rulemaking tasks.

Comment

26

Comment by: ENAIRE

<table>
<thead>
<tr>
<th>Page</th>
<th>Article/AMC/GM/CS</th>
<th>Original Text</th>
<th>Proposed amended text</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Affected stakeholders</td>
<td>Design organisation approval (DOA) holders, production organisations, aircraft operators.</td>
<td>Design organisation approval (DOA) holders, production organisations, aircraft operators, and, to some extent</td>
<td>The current NPA indicates in section 2.2: &quot;The airspace usage requirements relevant for data link systems equipage are provided in Commission Regulation (EC) No 29/20098 on data link&quot;.</td>
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</table>
### 2. Individual comments and responses

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
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<tbody>
<tr>
<td>The text discusses the impact of the amendments to CS-ACNS on various stakeholders.</td>
<td>Not accepted</td>
</tr>
</tbody>
</table>

**In general, the stakeholders directly impacted by the amendments to CS-ACNS are design and production organisations (manufacturers). Aircraft operators would be the next affected stakeholder.**

While ANSPs would likewise be affected, the focus would be nevertheless on the directly impacted stakeholders.

With regard to the second point, it should be noted that the detailed specifications for data link (DL) ground equipment DS-GE.CER/DEC Issue 1, includes the backwards compatibility standard to support current ATN B1 aircraft fleet.

---

The text notes that the DLS IR is proposed to be repealed and superseded with provisions in the new regulation. This will impact not only aircraft operators but also on ANSPs who have made a significant endeavour during the last decade to undertake the required investments for the provision of data link services in Europe.

Additionally, it is also important to acknowledge and consider that any new regulation shall ensure backwards compatibility and avoid the use of proprietary solutions that derive into monopolistic situations.

---

An agency of the European Union
<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
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<tbody>
<tr>
<td><strong>41</strong></td>
<td><strong>Civil Aviation Authority the Netherlands</strong>&lt;br&gt;The Netherlands civil aviation authorities do not have comments to this NPA.</td>
</tr>
<tr>
<td><strong>62</strong></td>
<td><strong>ANA Quality Assurance Dept.</strong>&lt;br&gt;It should be needed that ensuring sufficient lead time or addressing the appropriate grace period in order to ensure operator can complete the related modifications by 31st December 2027.&lt;br&gt;In addition, in order to ensure that manufacturers can supply the equipment to the aircraft certified on or after 31 December 2027, specific requirements should be presented as soon as possible so that manufacturers can secure a sufficient development period.</td>
</tr>
<tr>
<td><strong>65</strong></td>
<td><strong>A4E</strong>&lt;br&gt;- A4E recognizes that the CS-ACNS amendment is following strictly the requirements from the CIR 2021-116 (CP1). We are currently in internal discussions whether we would like to see a full ATS B2 requirement or ATN B1 plus ADS-C EPP is sufficient now. Rational: ADS-C EPP in our opinion is an enabler for full TBO. The CS-ACNS in the proposed form would require a full ATS B2 update at a later stage. On the other hand, the full ATS B2 requirement could risk a passing of the Industrialization target date and we see some benefits in ADS-C EPP only, so that we could also support the two-step approach.&lt;br&gt;- The text in the NPA, not the CS-ACNS itself mentions several times the EU/US Task Force Future Connectivity for Aviation White Paper. From our perspective, the white paper does not reflect European Research and Development activities out of the S3JU PJ.14 program sufficiently. LDACS for instance seems to be a quite promising solution, not only with regards to datalink communication, but also integrated CNS with voice comm, Navigation and potentially surveillance. We should not miss such a technological opportunity. Please take in future regulatory activities the European Solutions of Multilink into account.</td>
</tr>
<tr>
<td></td>
<td>This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.&lt;br&gt;EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond ADS-C EPP minimum requirements. See GM2 ACNS.B.DLS.001. Furthermore, EASA will also support applicants that use ED-228/ED-229 or later revisions of acceptable standards.</td>
</tr>
</tbody>
</table>
Second point on FCAV is also noted. Please, see the response to comment #24.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Comment by: Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>General</td>
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<tr>
<td></td>
<td>Dear Madam/Sir, The Swedish Transport Agency appreciate the opportunity to comment on this NPA. We support this proposed change with no further comments.</td>
</tr>
<tr>
<td>Response</td>
<td>Noted</td>
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<tr>
<th>Comment</th>
<th>Comment by: Isavia ANS</th>
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<tbody>
<tr>
<td>68</td>
<td>Isavia ANS wishes to express the following concerns with the Notice of Proposed Amendment (NPA) 2023-07 regarding data link services.</td>
</tr>
<tr>
<td></td>
<td>The future Air-Ground data link standard, ATS Baseline 2 Rev B as documented in Eurocae ED-228B and ED-229B, will be published in 2023. This will be supported by a corresponding update to the ICAO Global Operational Data Link (GOLD) Manual (ICAO Doc 10037). It is expected that ATS Baseline 2 Rev B will become the global standard air-ground data link application for the future.</td>
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<tr>
<td></td>
<td>ATS Baseline 2 (B2) introduction is on the ICAO North Atlantic Region Vision schedule for the period 2026 – 2031.</td>
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<td></td>
<td>NPA 2023-07 mandates only the EPP (Extended Projected Profile) part of B2 ADS-C instead of a full ATS B2 Rev B package. The risk is that major aircraft manufacturers will only implement the minimum required capabilities resulting in fragmented airborne implementation with many possible data link combinations. Any such implementation may delay the global implementation of ATS B2 Rev B and hamper the drive towards globally harmonized air-ground data link. It is unlikely that air navigation service providers outside Europe will be able to support the data link configuration proposed by NPA 2023-07.</td>
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<td></td>
<td>It should be kept in mind that ATS B2 Rev B is a key enabler in the development of Trajectory Based Operations (TBO) and includes many new features that are essential for the safety and efficiency of air traffic services globally in the future. It is essential that the development of ATS B2 Rev B by aircraft manufacturers is not delayed in any way.</td>
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<td>Isavia ANS urges EASA to carefully weigh the NPA’s effect on the global aviation community and coordinate this matter with the relevant international stakeholders (including the ICAO North Atlantic Region) before a final decision is taken.</td>
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<tr>
<td>Response</td>
<td>Noted</td>
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<td></td>
<td>This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at</td>
</tr>
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</table>
implementing regulation level. Subsequent updates of the applicable regulatory package should be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond ADS-C EPP minimum requirements. Please, see GM2 ACNS.B.DLS.001.

Furthermore, EASA will also accept and support applications that use ED-228A/ED-229A or later acceptable standards revisions.

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**Comment 69**

**Comment by:** Air France

As a summary of comments provided in this NPA, AFR:

- Reminds its support to ADS-C EPP and TBO
- Supports Full ATS B2 (option 2) to meet ADS-C EPP CP1 requirement, in accordance with approved standard ED 228A. ATS B2 equivalent to FANS 1/A already in use in US NAS & Oceanic airspaces.
- Raises concerns about interim standards with only ADS-C EPP (option 1):
  - Reduced cost not demonstrated, but higher total cost expected (future retrofits)
  - Operational adverse effects highly probable with interim standards, causing new fragmentation between fleets and possible flight safety risk (no FMS upload of clearances)
  - Time, costs, and difficulties to implement and homogenize to full B2 later
  - Other ATS B2 applications needed (CPDLC V2, DCL)
- Proposes a transition period on aircraft for which manufacturer reports timing difficulties to Full ATS B2 certification, based on compromise found for GADSS ADT. While securing ADS-C EPP airborne equipage rate, this would allow the synchronized ground/board deployment of a robust and stable solution, in line with CP1 objectives
- Proposes to remove references to FCAV white paper, without prior consultation and approval from EU ATM stakeholders

**Response**

Noted

The CS-ACNS scope is limited to provide certification specifications for airborne communications, navigation and surveillance (CNS). An implementation transition period needs to be added at the right level of documentation (e.g. implementing regulations). Any subsequent regulatory changes should be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

Please, see the responses to comments #68 and #24.

---

**Comment 89**

**Comment by:** Henrik Svedberg

General comments:
- Not the best timing to send out a proposed amendment in the middle of the summer with a tight deadline!
In the summer we the most traffic and most ATCO’s are stuck in the Ops.

- I think you should go for CPDL Cv4 and ADS-C v3 (full RevB), since it is only forward-fit.
/Henrik

response
Noted
The public consultation was nonetheless extended, based on the request received.
Please, see the response to comment #68.

comment 107 comment by: Lufthansa Group
In general, Lufthansa Group (LHG) would like to leave technical comments to the integrators who will have to implement ADS-C EPP and potential other functionalities according to the updated version of the CS-ACNS, e.g. airframe and avionics manufacturers.
However, from the operational perspective, LHG would like to provide some general comments, see sections below.

response Noted

comment 112 comment by: EUROCONTROL
ICAO Doc 9705 is replaced with ICAO Doc 9880 (Second Edition) throughout. However, Doc 9880 has known defects and omissions, most notably:
Many CPDLC provisions in Doc 9705 have moved to ED-229A and are not in Doc 9880
CPDLC V1 message syntax is missing entirely
Doc 9880 includes upper layer naming extensions that are not part of ATN B1
A group has been established in ICAO to update Doc 9880.

Note on replacement of obsolete ICAO Doc 9705 with ICAO Doc 9880
ATN B1 functionality can be specified as a profile of ICAO Doc 9880 (second edition) augmented by:
- Specification of ASN.1 Module CPDLCMessageSetVersion1
- Provisions from ICAO Doc 4444 section 14.3.2 and Appendix 5.
And corrected by:
- Deleting the <app-type> (k) arc from AP and AE titles, and reinstating AEQ as the final arc of the Application Entity Title, identifying the application type.

Doc 9705 cross-references in ED-110B deemed to refer to ICAO Doc 9880.
The above provisions could be incorporated into a profile specification, which would also specify required elements of service and exclude services such as CM Update, Downstream Clearance and CPDLC Forward, which are outside the B1 scope.

**Response**

Noted

Based on the feedback received from stakeholders, the current revision of ICAO Doc 9880 does not consistently and completely replace the provisions of ICAO Doc 9705. Therefore, where still needed, the references to ICAO Doc 9705 have been kept unchanged.

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<tr>
<th>Comment</th>
<th>113</th>
<th>Comment by: EUROCONTROL</th>
</tr>
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<tbody>
<tr>
<td>References are made to rev A of EUROCAE documents ED-228 and ED-229. Rev B is expected to be published within the timescale of CS-ACNS finalisation, with significant improvements compared to RevB. How is this going to be addressed and RevB incorporated?</td>
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</table>

**Response**

Noted

EASA will support applicants that may voluntarily choose to add ATS B2 capabilities beyond the ADS-C EPP minimum requirements stated in CP1. Please, see GM2 ACNS.B.DLS.001.

Furthermore, EASA will also support applicants that use ED-228A/ED-229A or later acceptable standards revisions.

Any subsequent regulatory changes should be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

Please, see the response to comment #68.

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<tr>
<th>Comment</th>
<th>114</th>
<th>Comment by: EUROCONTROL</th>
</tr>
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<tbody>
<tr>
<td>References to ARINC 631-6 should be updated to ARINC 631-7 throughout. (For ATN B1 the accepted baseline was ARINC-631-6, and there will be many systems currently operating that were designed around this earlier standard. Supp 7 mainly incorporates clarifications, but does include some new functionality (e.g. appending Channel Utilisation to downlink RR frames) that currently may not be widely implemented.)</td>
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</table>

**Response**

Not accepted

CS-ACNS provides the minimum specifications needed. Since ARINC 631-6 is considered the minimum acceptable standard, it is therefore referenced in CS-ACNS.

Applicants may use a later standard pending the DL system installation approval.

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<tr>
<th>Comment</th>
<th>155</th>
<th>Comment by: EUROCONTROL</th>
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<tr>
<td>“Alternative proposal:</td>
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</table>
In case of time concerns the new regulation could apply similar temporary exemptions to the implementing rule as the Commission Implementing Decision (EU) 2019/2012 which introduced exemptions from the Datalink Service Implementing Regulation for certain airframes for an additional 2 year period. It is more desirable for ANSPs globally to have as few variations in equipment as possible even at the cost of a later implementation/temporary exemptions. It would also be in the interests of all airspace users through the better planning capability and possibly higher capacity increases of the ANSPs due to a more consistent set of airborne equipage.

As the mandate is forward-fit only, it fundamentally differs from the DLS IR.

Acceptable means of compliance proposal:
Between January 2028 – January 2030:
- full RevA (ADSC v1 + CPDLC v2) is acceptable for forward-fit
- exemption for airframes equipped with CPDLC v1 until January 2030

After January 2030:
- full RevB (ADSC v3 + CPDLC v4) acceptable only for forward-fit
- no exemptions on forward-fit (not even general aviation)

Ground: full B2 RevB implementation, which is fully backwards compatible with ATN B1 and B2 RevA as per ED-231B.”

“The proposal’s preferred option (1) would benefit from more appreciation to the medium-to-long term global effects of the change. The proposal’s effect on the global aviation community should be carefully weighed before a final decision is taken.

The objective of ensuring the highest common level of safety protection for EU citizens should not be overruled by development cost concerns. The proposal to keep ATN B1 CPDLC as acceptable for a future regulation without any time limitations, while there is a safer and better performing version already in operation, might not ensure the highest levels of safety.

The proposal to partially implement ADS-C might also somehow contradict the European objectives linked to the Green Deal, due to the lack of ADS-C functionalities which are necessary to provide the most environmentally friendly flight profile for airspace users. Partial ADS-C implementation and usage would also reduce the full ATS B2 implementers’ benefits to a considerably lower level; it would need to be explored how this would affect net emissions and fuel consumption associated costs.

Fragmented implementation will lead to ATCOs humanly not being able to differentiate between the many possible equipment combinations and the associated diverse possibilities to keep aircraft on their most efficient trajectory.
It is unknown whether the ADS-C EPP only equipped aircraft could bring enough benefits to outweigh the lost benefits caused by a lower level of service by ANSPs due the fragmented approach. In moderate to high traffic scenarios ATCOs would have to provide the same, “EPP-only” level service to all aircraft, regardless of equipage level (full or partial).

International aviation stakeholders will be impacted if the decision is made to implement option 1 (ADS-C EPP only+CPDLC B1), limiting their plans to implement ATS B2 in the rest of the world.
The impact of a fragmented implementation was not foreseen when the ATS B2 standard was written and provides no guarantee that this “partial implementation” would perform as expected in terms of compatibility.

**response**  Not accepted

The introduction of implementation dates as recommended in the comment cannot be accomplished at CS-ACNS or detailed specification (DS) level. If additional DL functionalities are needed to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

This amendment to CS-ACNS (Issue 5) reflects the minimum design specifications for the DL airborne installation that is needed to support compliance with CP1. Furthermore, it is applicable to those applicants that intend to install ADS-C EPP.

Nonetheless, recognizing the need to evolve to ATS B2, EASA will support applicants that may voluntarily choose to add ATS B2 capabilities, going beyond the minimum ADS-C EPP requirements.

Please, see the response to comment #68.

**comment**  192  
**comment by:** Air Traffic Control the Netherlands

**General**

The proposed amendment specifies the minimum requirements for aircraft manufacturers to comply with the CP1/AF6 regulation. The proposal limits the implementation of EPP only to ADS-C instead of mandating the full RevB ATS B2. This limitation will, to our opinion, constitute a major setback in our endeavors to implement TBO in The Netherlands and therefore hinders the development of more flight and environmentally efficient operations with increased safety.

Limiting EPP to ADS-C only, will result in a myriad of implementations with aircraft having different capabilities. This will not only lead to difficulties for and limitations of operational use, but also introduce vast technical implementation complications, further hindering the progress of TBO developments, increasing costs and reducing benefits promised to airlines of their investments.

Furthermore, for LVNL, the operational core of the TBO concept in The Netherlands lies in the integrated nature of CPDLC uplink. This will not be possible with the proposal implemented, resulting in very limited application of the concept, more emissions and noise hindrance. Capacity is then more than likely to be limited.

At the same time, the technical core of TBO is the robust data that is sent by the aircraft to ATC. This consists of several packages of information. A key new package, EPP will contain the 4D trajectory information and is therefore essential for TBO. However, the only truly feasible channel through which the essential information can be obtained is by means of the Common ADS-C Server (CAS, also referred to as ACS). This is being developed under the umbrella of
SESAR and currently in prototype stage. The CAS is based on full implementation of ADS-C, not just EPP.

Also, ground capacity is one of the key issues at Schiphol. The new CPDL standard brings facilities that can be utilized to lower ground control workload, but will be lost if the proposal is accepted.

To summarize
The NPA2023-07 would severely hamper implementation of TBO, the implementation of the results of the SESAR/SJU and delay the projected benefits of TBO and the SESAR initiative by decades on a global scale. Essentially, this proposal would lead to a repeat of history when CPLDC was first implemented with unexpected high cost and limited benefits.

LVNL therefore only sees a way forward by continuing the existing mandate with the inclusion of RevB ATS B2. If this will implicate insurmountable implementation problems in terms of timeline and/or cost, some carefully chosen exemptions can be defined that will not go the detriment of the large scale benefit of the major traffic streams management in Europe.

response
Noted

CS-ACNS only provides the minimum DL capability specifications needed to support compliance with CP1.

If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

Nonetheless, recognising the need to evolve to ATS B2, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider later ED-228/ED-229 acceptable standards revisions (Rev B). Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #65.

comment

204  comment by: General Aviation Manufacturers Association / Hennig

Attachment #1

The General Aviation Manufacturers Association (GAMA) appreciates the work of the agency to advance a timely proposal to provide clarity about the requirements to support the December 31, 2027 mandate for new aeroplane equipage or upgrades to support the Commission Regulation (EU) 2021/116 Common Project (CP1) requirements, specifically as encapsulated in AF6 for airborne equipage.

GAMA did review with interest the Executive Summary statement of the NPA which already now introduces the expected follow-on consultation to advance a notional 2032 additional airborne avionics upgrade to support the full services identified in the joint EASA/FAA/Airbus/Boeing Future Connectivity for Aviation (FCAV) white paper.

While the overall data communication strategy is separate from the consultation about the technical amendment to CS-ACNS, it is important that the Industrialisation Forum’s work
activity appreciates the implications on industry from a “two step” upgrade to over 40 different aeroplane models within the business and general aviation industry’s in-production fleet – not only to support 2027, but also the envisioned 2032 second change to airborne equipage (i.e., an estimated 70-90 individual certification projects over a period of less than a decade). Additionally, based on past experience, concerns remain about the readiness of the standards for airborne equipage and the commitment of ground ANSPs to deploy.

In order to develop a good Extended Projected Profile (EPP) solution for an aeroplane, an avionics supplier would have to develop an updated FMS solution around the Required Time of Arrival (RTA) algorithms. The preferred and cost-effective path would be for a single upgrade as opposed to several.

As noted by a larger jet OEM:

“There are significant challenges for all our affected products to meet the current date for the mandate [i.e., 31 December 2027], particularly if relief, such as make/model exemptions or class, are not considered. Current and past datalink projects in Europe and elsewhere have shown to be extremely challenging in the transition from general requirements to properly tested, certified, and useable systems in the field. [The OEM...] are highly skeptical that... standards and overall implementation readiness are on target for 2028.”

Further, GAMA members note that “the new common ground system architecture for the ADS-C... needs to be understood to make sure... avionics architecture is able to correctly interoperate.”

GAMA has previously shared with the agency the attached white paper to help inform the overall strategy for ADS-C EPP per AF6 and the Industrialisation Readiness decision. The white paper is provided as an attachment as part of comments to NPA 2023-07 Datalink services to provide context about our comments.

**Noted**

It is understood that a single upgrade to ATS B2 would be more cost-effective; however, the timing to accommodate such upgrade (target ATS B2) would not support the timeframe defined in CP1.

EASA was nonetheless required to issue an amendment to CS-ACNS to support compliance with CP1. CS-ACNS Issue 5 reflects the minimum design requirements to support compliance with CP1.

**Comment 219**

**Comment by: Boeing**

September 7, 2023

W-ESMC-REG-23-MT-37

Note to file:
The attached comprise comments from The Boeing Company submitted to EASA via the Comment Response Tool (CRT) in response to EASA NPA 2023-07 Datalink services.

Sincerely,
Mildred Troegeler
Director, Global Regulatory Strategy

response Noted

comment 239  comment by: Airbus-Regulations-SRg
Airbus Commercial Aircraft is pleased to participate in the commentary on NPA 2023-07 Datalink services
Our experts and matter specialists have carefully reviewed the proposals made.
Our comments are added to the dedicated sections of the NPA.

In case any question my occur please contact us at regulations.policies@airbus.com for further internal coordination.
Thank you.

Administrative notes:
Airbus Documents Classification : not applicable
Airbus Export Control Classification: Not technical

response Noted

comment 254  comment by: EASA Focal Point for AustroControl ANSP-issues
General Reservation against the scope of this published NPA, filed by Austro Control:

By having reviewed the published NPA 2023-07, although it is intended to adress only AU’s and Manufacturing Organisations, Austro Control expresses severe concerns against the chosen way of NPA2023-07, specifically mandating only ATN B1 CPDLC + only the EPP (Extended projected profile – downlinked FMS flight plan) part of ADS-C, instead of a full B2 package.

Various bad examples in the past had shown, that stakeholders implement equipment only to the extent, they are mandated by regulations. The fact of issuing AMC’s and GM’s, which tackle only sub-functionalities of the desired Trajectory Based Operations (TBO) package – which by the way, had been long ago identified as THE(!) enabler for the foreseen 3-fold increase in airspace capacity under SES – will end up in a fragmented equipage scene.

A fragmented equipage scene not only blocks by itself reaching SES goals and CBA benefits, it also creates additional workload on ANSPs.
ATCO’s will face additional workload, since there are no flight plan designators and logon indications for “partial ADS-C capability” as “EPP-only”: Aircraft can only declare full ADS-C capability upon logon, therefore lists would need to be maintained to know which aircraft is capable of what.

Due to the possible amount of equipage combinations, strategic capacity planning will become very difficult, as it will never be certain, how many full [CPDLC v2+ADS-C v1[Revision A], CPDLC v4+ADS-C v3[Revision B]] or partial implementations (EPP only) will be crossing the airspace – all with different capabilities to handle messages or do TBO. TBO will be limited, as a good part of the instructions might have to be given via voice instead of CPDLC, while voice channels both congested and also not suitable to pass long clearances with many numbers/parameters.

Considering actual high growth traffic forecasts, ANSP’s will be doubtlessly forced to compensate missing AGDL functionalities by additional ATCOs.

Austro Control highly recommends to stop the ongoing NPA process and bring the consultation process back to the foreseen consultation bodies, like the “Joint CNS stakeholder consultation platform” – which initially had been installed to overcome fragmented scenarios like this one.

---

**response**

Noted

EASA is required to issue documentation to support CP1 implementation. CS-ACNS only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level (i.e. CP1).

Nonetheless, recognising the need to evolve to ATS B2, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP requirements stated in CP1. Please, see GM2 ACNS.B.DLS.001.

Furthermore, EASA will also support applicants that use ED-228A/ED-229A or later acceptable standards revisions.

Please, see the response for comment #68.

---

**comment**

255

*In general NATS are very supportive of the fact that this CS-ACNS should be updated in the ways described by the NPA to properly address the needs for avionics certification to meet CP1 AF6 needs in due time.*

**response**

Noted

**comment**

256

**comment by: NATS**
Although this NPA provides for the required airborne implementation to cover the specific needs of CP1 AF6 only, it is clear that ANSPs and airspace users recognize that a large part of the overall benefit to be gained from using ADS-C lies beyond just the implementation of EPP. NATS urge EASA to consider how the provision of ‘full ATS-B2’ including ADS-C capability in full and CPDLC V2 can be included ASAP as part of regulation around Datalink.

OEP 12.2 (early ATS B2 deployment) work in 21-22, included discussion on 3 possible scenarios, which were:
- Scenario ‘do nothing’, i.e. no specifications for any ATS B2 deployment
- Scenario ‘EPP only’, i.e. draft specifications only for ADS-C/EPP part of ATS B2 (as requested by CP1)
- Scenario ‘extended ATS-B2 deployment’

After discussions (involving all stakeholders), Scenario 2 was chosen to secure the CP1/AF6 Industrialization Gate, but it was also decided to start working on Scenario 3 ‘full ATS B2’ as soon as the CP1/AF6 industrialization gate will be over. This decision was presented and validated by NDTECH/6 in March 22.

The on-going work in OEP 12.2 must be coordinated with EASA, and a route must be planned for outputs from this group in the near future to be included as part of CS-ACNS, and future DLS IR iterations as appropriate to ensure that from end of 2027 onwards, the baseline for ATS-B2 on the airborne and ground side can be as beneficial as possible.

Without this proactive work, the benefits of ATS-B2, and progression from i4D to a full 4D system will be delayed by many years, possibly a decade. A large proportion of airframes flying in Europe will already be capable of more than just providing EPP, but this will be in a fragmented environment which will not allow ANSPs to develop future TBO concepts with any confidence of compatibility with majority of airspace users.

NATS would like to see EASA produce plan to provide a home in appropriate regulation for output from on-going ATS-B2 OEP 12.2 work

response

Noted

It is understood that the benefits to be gained through ADS-C require more than the ADS-C EPP functionality. CS-ACNS only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level (i.e. CP1).

EASA recognises that operational benefits can be achieved on a pan-European basis through the effective use of downlinked aircraft data and the use of an expanded list of CPDLC messages.

A work programme to review and amend the regulatory package, where applicable, could be established; however, this needs to be done in accordance with current and future editions of the European Plan for Aviation Safety (EPAS).
Whilst the EPP data group is indeed an important component of ADS-C data, SESAR-funded research to date has included, and produced promising results for, the application of data items from several other data groups, including:

- **Mass**, for ground trajectory prediction improvement,
- **Speed schedule**, for ground trajectory prediction improvement,
- **TOA Range**, for input to AMAN for optimising arrival management interventions,
- **FMS Planned approach speed**, for improved approach spacing compression prediction, leading to increased landing rate,
- **FMS runway occupancy time**, for improved approach spacing prediction, leading to increased landing rate.

A significant portion (potentially the majority) of ADS-C-related benefits identified by SESAR research come from these additional (non-EPP) data groups. NATS anticipates an incremental implementation of the use of ADS-C data in ATC processes, beyond the use of EPP data, but this is dependent on this additional data being available from airframes. The omission of these data groups from the CS-ACNS will have a significant impact on the benefits that can be realised from the deployment of ADS-C in ATM.

We would request that consideration made for the inclusion of the full ADS-C v1 specification in the CS-ACNS.

**response**

Noted

EASA is required to issue DL installation certification specifications to support CP1 implementation. This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1.

While it is understood that significant ADS-C benefits result from the introduction and use of data complementing the minimum required ADS-C EPP, if additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at the right level of documentation (e.g. implementing regulation level).

While ADS-C Version 1 is used to support compliance with CP1 (see GM1 ACNS.B.DLS.001 Applicability), ADS-C EPP data is required to be downlinked as a minimum.

Whilst it is not planned to implement this additional ADS-C data (beyond EPP) by 2027, it is anticipated to be required well within the typical operational lifespan of a commercial aircraft.

The CP1 mandate in its current form (forward-fit from 2028) will mean that it will be several years before CP1-mandated capability is present on a majority of aircraft operating in Europe. Omission of the additional data groups (beyond EPP) from the CS-ACNS will further delay the realisation of benefits of ADS-C data application.

If the full ADS-C v1 scope and CPDLC v2 scope is not mandated until a later date (e.g. 2032 as referenced in the Future Connectivity for Aviation – ‘FCAV’ whitepaper
**2. Individual comments and responses**

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
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<tbody>
<tr>
<td></td>
<td>CS-ACNS only provides the minimum DL capability requirements needed to support compliance with CP1.</td>
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<td></td>
<td>If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level (i.e. CP1).</td>
</tr>
<tr>
<td></td>
<td>Nonetheless, recognising the need to evolve to ATS B2, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider ED-228A/ED-229A or later acceptable standards revisions (e.g. Rev B). Please, see GM2 ACNS.B.DLS.001.</td>
</tr>
<tr>
<td></td>
<td>A retrofit provision cannot be introduced via CS-ACNS, as such action would require changes at implementing regulation level.</td>
</tr>
<tr>
<td><strong>275</strong></td>
<td><strong>comment by: SESAR 3 JU</strong></td>
</tr>
<tr>
<td>In the executive summary, the reference to the ‘Future Connectivity for Aviation’ (FCAV White Paper) should be removed. Any reference should be to be the European ATM Master Plan (ATM MP) update.</td>
<td>Partially agree</td>
</tr>
<tr>
<td></td>
<td>The ATM Master Plan should be consistent with the regulatory activities as reflected in the European Plan for Aviation Safety (EPAS).</td>
</tr>
<tr>
<td></td>
<td>Please, see the response to comment #24.</td>
</tr>
<tr>
<td><strong>278</strong></td>
<td><strong>comment by: Gulfstream Aerospace Corporation</strong></td>
</tr>
<tr>
<td>Gulfstream Aerospace Corporation:</td>
<td></td>
</tr>
<tr>
<td>Comment: Industry needs a clear path for the subsequent regulatory effort required to provide ADS-C EPP and the overall ATS Mandate.</td>
<td></td>
</tr>
<tr>
<td>Rationale: Regular updates of the RMT.0682 may not drive crucial changes to the implementation and to the means of compliance.</td>
<td></td>
</tr>
<tr>
<td>Recommended Change: EASA should consider the timeline to driving crucial change.</td>
<td></td>
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<tr>
<td>Noted</td>
<td></td>
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</table>
This amendment to CS-ACNS (Issue 5) provides the minimum changes to support compliance with CP1. Any subsequent regulatory changes will be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

At this time, it is foreseen that rulemaking activity on DLS may be captured within RMT.0682 ‘Implementation of the regulatory needs of the Single European Sky ATM Research (SESAR) common projects’ or various regular update rulemaking tasks. RMT.0682 is not intended to be used for regular updates, but rather for regulatory needs as regards the SESAR deployment. A subtask may be created under RMT.0682 to address various data link issues.

1.3. The next steps

<table>
<thead>
<tr>
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<th>Original Text</th>
<th>Proposed amended text</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>6</td>
<td>1.3 The next steps</td>
<td>Subsequent regulatory action may be needed to address the connectivity challenges in line with the common vision proposed by the white paper on the ‘Future connectivity for aviation’.</td>
<td>In line with the common vision proposed by the white paper on the ‘Future connectivity for aviation’.</td>
<td>The mentioned document does not gather the opinion of all the data link relevant stakeholders. It was developed without any kind of consultation to the ANSPs, SESAR Deployment Manager or the Network Manager who have an extremely important role in the current and future implementation of data link in Europe.</td>
</tr>
</tbody>
</table>

Response

Noted
Please, see the response to comment #24.

Comment

43

FCAV White Paper should neither be referenced in this NPA, nor used to support CS-ACNS evolution.
FCAV white paper has been acknowledged only between EASA, FAA and two aircraft manufacturers, without consultation of all other ATM/CNS stakeholders:
• Airlines and their associations
• EU ATM stakeholders (SJU, SDM, ETCL)
• Communication Service Providers
• ANSP
• Other aircraft and avionic manufacturers

Proposed text: “additional regulatory efforts linked to expected/requested COM evolutions should be needed”

response Noted
Please, see the response to comment #24.

comment 276 comment by: SESAR 3 JU
The following text should be removed or should refer to the European ATM MP update rather than the FCAV White Paper:
Subsequent regulatory action may be needed to address the connectivity challenges in line with the common vision proposed by the white paper on the ‘Future connectivity for aviation’.
In addition, the footnote link number 6 should be removed or updated to refer to the European ATM MP update.

response Noted
Please, see the response to comment #24.

comment 279 comment by: Gulfstream Aerospace Corporation
Gulfstream Aerospace Corporation:
Comment:
The 'Future connectivity for aviation' represents a forecast for the time horizon 2030-2035 in contrast to this NPA targeting aircraft certified on or after 31 December 2027.

Rationale:
Gulfstream expects that the acceptable means of compliance described here fully aligns with the future connectivity roadmap to reduce impact on the aircraft in terms of development, installation, etc. The date established by CP1 leaves little time for DOA holders to change the equipment and aircraft design and incorporate the change in the production line. Subsequent changes introduced by a subsequent regulatory action could invalidate this entire effort.

Recommend Change:
EASA should consider the timeline to driving crucial change.
2. Individual comments and responses

response Noted

CS-ACNS only provides the minimum DL capability requirements needed to support compliance with CP1.

If additional DL capabilities are required to be mandated to support certain types of operations, such need and the associated timelines should be reflected at implementing regulation level (i.e. CP1).

Any subsequent regulatory changes will be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

2.2. Description of the issue

comment 44 comment by: Air France

CP1 regulation was published on Feb 2021.
We regret late consideration of this requirement at CS-ACNS level.

Time for ATS B2 implementation by aircraft manufacturers should not be a driver for CS-ACNS policy and deployment strategy.

We remind that full ATS B2 capabilities, including ADS-C EPP, have been certified since 2019 on certain aircraft types, in accordance with standards already available. Maturity and harmonization are not questioned, operationally demonstrated by demo campaigns and our daily operations.

The issue is then more implementation dates than standard definition and availability

response Noted

EASA is required to issue an amendment to CS-ACNS to support compliance with CP1. This amendment provides an element to support fulfilling the CP1 maturity gate requirements.

While CS-ACNS provides the minimum DL capability specifications to support compliance with CP1, this amendment was proposed in conjunction with the corresponding DL detailed specifications (DSs) for ground systems as provided in DS-GE.CER/DEC Issue 1.

comment 268 comment by: DGAC FR (Mireille Chabroux)

It is written:
"AF6 of the CP1 regulation ('AF6 CP1') requires that aircraft operators ensure that aircraft certified on or after 31 December 2027 are equipped ..."

The wording seems incorrect since the requirement does not deal with newly certified aircraft type/model but newly manufactured aircraft.

It is suggested the following wording:
"ensure that aircraft with an individual certificate of airworthiness (CofA) first issued on or after 31 December 2027”

response

Accepted

comment 280

Gulfstream Aerospace Corporation:

Comment:
How will the ATM functionality 6 or AF6 (i4D) via ATN VHF Mode 2 or SATCOM differ from ADS-B IN (CDI) transmitted via transponder extended squitter ADS-B OUT that could be utilized by tactical air traffic control (ATC) and yet reduce interventions and improve de-conflicting situations?

Rationale:
The data link system should comply with EUROCAE Document ED-228A, Sections 6.1 and 6.2 and EUROCAE ED-229A, Sections 3.2 and 5.3 to support the exchange of EPP” as per the new paragraph CS ACNS.B.DLS.077 pointing the implementation to the ATN solution which is based on VHF Mode 2 and potentially SATCOM.

Recommend Change:
Gulfstream believes that this functionality should be supported by current EUROCAE Doc ED-228A and ED-229A.

response

Noted

ADS-C EPP data provided by the aircraft needs to be processed by the ATS providers in accordance with Commission Implementing Regulation (EU) 2021/116. This would require the provision of data and intended routing which is beyond the ADS-B data.

2.1. Why we need to act - issue/rationale

comment 156

Reference 7
The referred link doesn’t exist

response

Not accepted


**2. Individual comments and responses**

<table>
<thead>
<tr>
<th>comment</th>
<th>260</th>
<th>comment by: ATR</th>
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<tbody>
<tr>
<td>Section 2.3 “Assessment of the issue” states: [QUOTE] Aircraft operators are affected by the AF6 CP1 requirements when performing general air traffic (GAT) flights in accordance with instrument flight rules (IFR) above FL 285 within the Single European Sky (SES). [UNQUOTE]</td>
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</table>

It is thus proposed to clarify the rationale within section 2.1 “Why we need to act — issue/rationale” of the NPA. The following text is proposed: [QUOTE] This NPA addresses the need to timely support the initial trajectory information sharing (i4D) capability required of the operators for affected aircraft operating above FL 285, in accordance with the provisions of Commission Regulation (EU) 2021/1167 [UNQUOTE] |

<table>
<thead>
<tr>
<th>response</th>
<th>Not accepted</th>
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<tbody>
<tr>
<td>Within the applicable regulatory framework it is already stated that the operations affected are IFR GAT above FL285 within the SES.</td>
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</table>

### 2.3. Assessment of the issue

<table>
<thead>
<tr>
<th>comment</th>
<th>28</th>
<th>comment by: ENAIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>While the issue assessed is only the support to operators’ need to comply with AF6 CP1 requirements, the remaining data link issues intended to be addressed by the RMT.0524 could be captured in various ‘regular update’ rulemaking tasks or by the RMT.0682 on ‘Implementation of the regulatory needs in support of the SESAR deployment’.</td>
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<tr>
<td>8</td>
<td>2.3 Assessment of the issue</td>
<td>While the issue assessed is only the support to operators’ need to comply with AF6 CP1 requirements, the remaining data link issues intended to be addressed by the RMT.0524 could be captured in various ‘regular update’ rulemaking tasks or by the RMT.0682 on ‘Implementation of the regulatory needs in support of the SESAR deployment’.</td>
<td>To our knowledge, RMG.0524 was already dissolved a couple of years ago. Does this statement mean that RMG.0524 will be reactivated to take care of all the relevant aspects around data link service provision</td>
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</table>
2. Individual comments and responses

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<tr>
<th>Comment</th>
<th>45</th>
<th>Comment by: Air France</th>
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<tr>
<td>We regret late consideration of this requirement at CS-ACNS level.</td>
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<td>Time for ATS B2 implementation by aircraft manufacturers should not be a driver for CS-ACNS policy and deployment strategy.</td>
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<tr>
<td>We remind that full ATS B2 capabilities, including ADS-C EPP, have been certified since 2019 on certain aircraft types, in accordance with standards already available. Maturity and harmonization are not questioned, operationally demonstrated by demo campaigns and our daily operations.</td>
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<tr>
<td>Response</td>
<td>Noted</td>
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<tr>
<td>Please, see the response to comment #44.</td>
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<table>
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<tr>
<th>Comment</th>
<th>63</th>
<th>Comment by: European Business Aviation Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context: Considering the time needed by DOA holders, aircraft, and equipment manufacturers to modify the design and incorporate the changes into the production line to support the forward fit of ADS-C EPP capability, meeting the 31 December 2027 deadline may be challenging and would depend on the aircraft and avionics configurations and on the extent of the design changes needed.</td>
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<tr>
<td>--&gt; Application of AF6 by end of 2027 to all aircraft remains a challenge.</td>
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<tr>
<td>It is especially true for the Business Aviation industry which is producing numerous different aircraft types equipped with a multitude versions of avionics suites. Even if it is not specific to AF6, it will be difficult to not say impossible for the avionics manufacturers to deliver all the TSOd versions on time and this to allow aircraft manufacturers to certify their aircraft on time.</td>
<td></td>
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<tr>
<td>Experience of VDL2 deployment has demonstrated the poor level of quality of the standards. Numerous VDL2 issues remain open and without fixes, and fourteen years after EC 29-2009 publication, the rules to connect and autotune the &quot;non-AOC aircraft&quot; have not been defined.</td>
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<tr>
<td>AF5 (FF-ICE R1 &amp; R2) deployment is a prerequisite to AF6, recent discussions at NM level have highlighted that AF5 will not be ready in time.</td>
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</table>
Difficult in such conditions to consider that avionics manufacturers will be able to deliver free of bugs AF6 avionics.
Is AF6 Preparing the future? The future is "IP & IPS" not "OSI".
Is AF6 CBA positive? It’s with the deployment of all the ED228 functionalities only that we might expect a positive CBA.
EBAA aligns with the vision outlined in the "EASA-FAA White Paper on Connectivity." It is imperative that the deployment of this vision be executed on a global scale, encompassing both continental and oceanic regions, with a concerted effort to ensure seamless coordination on both sides of the Atlantic.
Within the European context, priority should be placed on the establishment and mandated implementation of essential "Centralized Services." This strategic focus is designed to facilitate the use of a comprehensive array of communication links, including VDL2 IP, SatCom B, and cabin links, thereby fostering an integrated and efficient aviation connectivity framework.

response
Noted
EASA is required to amend CS-ACNS to support compliance with CP1. Such amendment represents the minimum provisions needed to support compliance with CP1. This amendment should be followed by additional regulatory effort in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).
Please, see the responses to comments #24 and #278.

comment
71
comment by: Collins Aerospace

Note: In our comments, we frequently refer to “Future Connectivity Whitepaper (WP)”. It refers to the Future Connectivity for Aviation EU/US Task Force White Paper Issue 1 written by EASA / FAA / Airbus / Boeing and the roadmap 444 page 36 (roadmap fully supported by Collins Aerospace).

Coordination Required with other non-European Regulators: The Future Connectivity WP was clearly showing a coordinated approach with EASA / FAA showing a global roadmap (global implementation covering both the Continental and Oceanic Airspaces). AF6 CP1 may appear more a “pocket” implementation than a coordinated global approach.

response
Noted
EASA is required to amend CS-ACNS to support compliance with CP1. Such amendment represents the minimum DL capability specifications needed to support compliance with CP1. This amendment should be followed by additional regulatory effort in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).
Please, see the response to comment #278.

comment
72
comment by: Collins Aerospace

Real value generated for the Aviation / ATM stakeholders:
The target date for AF6 / CP1 is 31 Dec 2027 (Assuming the Maturity Gate is OK). The Future Connectivity WP shows 2032 as a major milestone (Page 36) with introduction of technologies
2. Individual comments and responses

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<tr>
<th>Comment</th>
<th>Comment by: Collins Aerospace</th>
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</thead>
<tbody>
<tr>
<td>73</td>
<td><strong>Partial Compliance with ED228 - Positive Economic Benefits Analysis (EBA):</strong> The AF6 mandates the implementation of the ADS-C / EPP service. It means that it partially covers the ED-228A document (new CPDLC messages are not mandated). Does it give a clear value to the Airspace Users if the full set of CPDLC messages is not implemented? With the foreseen release of the ED-228B, we are concerned by the costs of the necessary retrofits when a common solution US / Europe is foreseen from 2032. Even if this comment is related to the Ground Network (not considered in this NPA), as a Communication Service Provider, Collins Aerospace also wants to underline that a significant number of ANSPs have no / poor coverage below FL285. If an alternate Datalink is not enabled to downlink the EPP Data, it means that any Use Case leveraging the retrieval of EPP data below FL285 may not work with the current VDL Infrastructure.</td>
</tr>
<tr>
<td>74</td>
<td><strong>General Comment – Ground Counterpart Requirements:</strong> In addition, generation of EPP requires at a minimum a ground infrastructure to support the ADS-C Service to collect, aggregate and efficiently distribute the EPP Data. Yet, Ground requirements are not included. Beyond ADS-C, a robust and efficient implementation requires the inclusion of a “Common Service” covering multiple functions: Log-On, ADS-C Server...</td>
</tr>
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</table>

response

Noted

EASA is required to amend CS-ACNS to support compliance with CP1. Such amendment represents the minimum DL capability specifications needed to support compliance with CP1. This amendment should be followed by additional regulatory effort in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

Please, see the response to comment #278.
including flexible design to cope with the future Technologies foreseen in the Future Connectivity WP: MultiLink, Hyperconnected ATM, LDACS, Data Integrity with Digital Signatures foreseen in IPS...

response

Noted

This amendment to CS-ACNS (Issue 5) is issued to support compliance with CP1 and in conjunction with the DL detailed specifications (DSs).

DSs on DL for ground systems are provided in DS-GE.CER/DEC Issue 1.

---

**comment 75** comment by: **Collins Aerospace**

**Dependency of the AF6 with other ATM Functions of the CP1 Mandate:**

Even if Collins Aerospace is not directly involved in the other AF CP1 Functions (1-5), we have understood that dependencies exist between the AFs. Typically, AF6 will deliver a clear value to the aviation stakeholders if AF5 is fully implemented (FF-ICE / SWIM). Recent discussions with European stakeholders suggest that the AF5 implementation may not be ready on-time.

response

Noted

EASA is required to amend CS-ACNS to support compliance with CP1.

Such amendment provides an element to support fulfilling the CP1 maturity gate requirements.

---

**comment 76** comment by: **Collins Aerospace**

**Challenges to develop Compliant Avionics on time:**

Collins Aerospace is a major supplier of Datalink / Cockpit systems covering both the Commercial and Business Jet markets. As such, Collins Aerospace wants to underline that this deadline to implement an ADS-C / EPP capability is seen as extremely challenging as some aircraft configurations will require significant Aircraft Design changes. For example, this can include avionics updates to support the needed trajectory computational accuracy that provides the path to future implementation of Time of Arrival Control (TOAC) with Required Time of Arrival (RTA) capability, or modifications to existing communication management units in support of ATN B2. On some configurations, we even question the hardware capacity to generate the EPP data.

Additionally, the structure of several market segments and the applicability of the ADS-C / EPP mandate will drive a potential mix of configurations on the same platform, mainly differing between forward fit and retrofit. This mix increases the likelihood of requiring suppliers, along with OEMs, to upgrade to another major block update for full ATN-B2 definition in a relatively short increment after the initial ADS-C / EPP mandate which we view as demanding and impactful to suppliers, OEMs and operators.

response

Noted
The challenging equipage deadlines required by CP1 are acknowledged. The subject CS-ACNS proposal only provides the minimum DL capability specifications needed to support compliance with CP1.

The requirement for retrofit has not been established yet. Any subsequent regulatory effort will be made in conjunction with the current of future editions of the European Plan for Aviation Safety (EPAS).

**Impact on the Datalink Network:**

As a Communication Service Provider, Collins Aerospace is fully involved in activities to improve the performance of the current ATN B1 implementation. Despite the definition of mitigation plans to improve the quality of service of the VDL Network, we are very concerned by the impact of this additional EPP traffic that may speed up the Network Saturation.

As a service provider, we are also involved in the EIS of the IRIS Service (INMARSAT SATCOM Service). Yet, the adoption rate of IRIS by operators won't be likely fast enough to significantly contribute to the offload of the VDL Network within the next few years.

**Comment:**

**77**

Comment by: **Collins Aerospace**

Impact on the Datalink Network:

As a Communication Service Provider, Collins Aerospace is fully involved in activities to improve the performance of the current ATN B1 implementation. Despite the definition of mitigation plans to improve the quality of service of the VDL Network, we are very concerned by the impact of this additional EPP traffic that may speed up the Network Saturation.

As a service provider, we are also involved in the EIS of the IRIS Service (INMARSAT SATCOM Service). Yet, the adoption rate of IRIS by operators won't be likely fast enough to significantly contribute to the offload of the VDL Network within the next few years.

**Response:**

Noted

This is a valid concern; however, it needs to be addressed at the right level of documentation (i.e. implementing regulation, other). The subject CS-ACNS proposal only provides the minimum DL capability specifications needed to support compliance with CP1.

**Comment:**

**79**

Comment by: **Dassault-Aviation**

Text: "It should be noted that aircraft currently certified are not intended to use the communication via DLS (Controller Pilot Data Link Communication - CPDLC) for non-routine, time critical situations, due to concerns related with the human machine interface and crew workload".

Comment: this sentence is unclear. Please clarify.

**Response:**

Noted

The current use of CPDLC is not intended to non-routine, time-critical situations. The human–machine interface (HMI) and crew workload may not support the use of CPDLC in these situations and many aircraft have not been certified to support data link applications with hazard classification of worse than minor.

**Comment:**

**80**

Comment by: **Dassault-Aviation**

As Aircraft manufacturer, we will do our very best to comply with the Mandate. Nevertheless, we confirm we may have some difficulties, or even impossibility, to be certified on time if the mandate is maintained at end 2027. Industrial roadmaps still to be
clarified, taking into account clear US Avionics certification process, Avionics packages upgrades needs and diversity of the Fleet. Some deadline releases for some Programs would be welcomed, considering those Industrial concerns.
As Business Aviation, flying at or above FL410, access restriction to FL 285 would cause severe inefficiencies, environmental issues and unacceptable operational restrictions.

<table>
<thead>
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<tbody>
<tr>
<td>The challenging equipage deadlines required by CP1 are acknowledged. Nonetheless, the subject CS-ACNS (Issue 5) only provides the minimum DL capability specifications needed to support compliance with CP1.</td>
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<table>
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<tr>
<th>Comment 157</th>
<th>comment by: EUROCONTROL</th>
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</table>
| "The Eurocontrol DSG/OFG has discussed the enforceability of the present DLS IR in terms of environmental effects at OFG#10 in April 2023. The group concluded that due to the detrimental environmental effects (increased emissions) by flying at lower levels, since the DLS IR is not enforced right now (2023), it is not desirable to enforce the DLS IR and force aircraft to fly FL280 or below. The OFG recommended a different, more environmentally-conscious approach for differentiating between compliant and non-compliant traffic filing to fly FL285+: A) Slots should be assigned first for compliant traffic - only remaining ATC capacity shall be used by non-compliant aircraft B) Route charges should be increased for non-compliant traffic above FL285 (eventually based on RFL) C) Route charges should be increased for non-connected traffic above FL285 post-flight."
"Besides, it should be considered, that the present DLS IR only mandates equipage and not the usage of the technology - leading to another issue as although the aircraft complies with the regulation, yet it doesn't contribute to the expected benefits due to the lack of connection to the ATSU. A future regulation with the same requirement will likely result in very similar outcome. The proposal should also enforce the use of the functionality." |

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<th>Response</th>
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<tr>
<td>The CS-ACNS scope is limited to the provision of certification specifications for airborne CNS, and such proposed policy and regulatory changes need to be addressed at the right level of documentation (e.g. implementing regulation) or other means.</td>
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<tr>
<th>Comment 158</th>
<th>comment by: EUROCONTROL</th>
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</table>
"It is confirmed that there are concerns related with the human machine interface and crew workload. Since a new system (CPDLC v2) is already available which tackles many of these problems, aircraft should not be certified in forward-fit configuration with an outdated ATN B1 CPDLC configuration anymore. By mandating CPDLC v2/v4, this concern can be mitigated. Keeping ATN B1 CPDLC as ""part of the future"" through acceptance renders safety to lower priority than development costs and efforts despite known safety issues:

--> UM79 display and associated regular incidents on ATN B1 implementation

ED-228A defines a set of requirements under which messages should be loadable, which mitigates the above-mentioned issues with crew workload and HMI. It also provides the means for executing TBO operations as pilots don’t need to type eg. LatLong coordinates or altitude/speed/time/RTA constraints, where the risk of human error is growing exponentially with message complexity.

ED-228B improves these requirements and introduces further measures to reduce pilot workload through reducing the need for certain ground-to-air system messages and allowing DOA holders to not alert the pilot upon receipt of system management messages (SMM), which is expected to considerably lower flight crew workload and improve CPDLC acceptance.

ED-228B also refers to the new ICAO Doc 10037 (GOLD manual 2024Q1) for recommended display of CPDLC messages to overcome the safety issues with incorrect HMI implementation, which lead to dangerous situations globally (eg. UM79 CLEARED TO VIA)"

response 

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability specifications needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level (i.e. CP1).

Please, see the response to comment #68.

comment 159 comment by: EUROCONTROL

"Performance requirements allowing CSPs to not report service interruptions of less than 6 minutes (Source: Interpretation of EUROCAE ED-120 Performance Requirements v1.3, 3.3.2.5 Derivation of Availability Requirements), even if it causes dozens of aircraft to lose datalink connection as it has been the case at multiple ANSPs in Europe during the spring of 2023, including Maastricht UAC.

Unexpected loss of uplinked messages and connections to multiple aircraft due to CSP issues cause very high workload spikes for ATCOs and can lead to unsafe situations.

The revised performance requirements in ED-228B are more stringent and allow ATC to require a consistent and reliable CPDLC-service, which leads to increased safety and capacity. This is also crucial for making future automation plans feasible.

"
This amendment to CS-ACNS (Issue 5) reflects the minimum design requirements for airborne DL equipment installation to support compliance with CP1. Nonetheless, the use of ED-228B can be requested. Please, see GM2 ACNS.B.DLS.001. For ground equipment requirements, please refer to DS-GE.CER/DEC Issue 1.

Please, see the response to comment #68.

---

**Comment 160**

Comment by: EUROCONTROL

"Referring to the possible certification issues: DOA holders must have been aware of EC IR2021/116 ""CP1"" regulation and its AF6 subpart since its publication in 2021. The regulation had already defined AF6 as the sub-part which requires the downlinking of trajectory information to be used also by the Network Manager (4.1.4). The regulation also outlines under 6.1.1(b) that compatibility must be kept with CPDLC services. DOA holders had plenty of early advisory of this regulation and it is not desirable to allow partial implementations only because some organizations might not have done their due diligence in informing themselves in time and prepare their development accordingly.

CPDLC v2(RevA) and CPDLC v4(RevB) are both fully backward compatible with ATN B1 CPDLC as defined in the ED-231A/B(to be published Q4/2023) standard.

ED-231A 1.2 Note 1 states that ""No backward compatibility requirements are defined for DTAXI, ITP, OCL, DCL CPDLC services and ADS-C services. These B2 services are never provided to or by B1 systems."

ED-231A 2.1.3 defines foreseen B2 airborne implementations as supporting either
A) all B2 data link services or
B) all B2 data link services except DRNP and IM.

As it can be seen above, no airborne implementation was ever considered neither in the RevA nor in the RevB standard which would allow the proposed partial implementation with ADS-C EPP only + ATN B1 CPDLC.

In case of serious concerns about certification, it is recommended to discuss with DOA Holders solutions to comply with the forward-fit requirements."

---

**Response**

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL design requirements to support compliance with CP1. Nonetheless, applicants may choose to install additional DL capabilities beyond the minimum ADS-C EPP as required by CP1. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

---

**Comment 161**

Comment by: EUROCONTROL

It is unclear how the regulation will be enforced to keep non-equipped aircraft below FL285.
1. Who will monitor equipage and through what means in the absence of proper flight planning designators even for full ADS-C equipage?
2. Who will take the decision whether a flight is allowed or not above FL 285 if the equipage does not allow it to? Is it the responsibility of NM or the ATSUs?
3. For how long can an aircraft fly with an inoperable datalink system?
4. What will be the effect of a partially inoperative datalink system eg. only CPDLC/ADS-C not working but the other part of the system does? How will this affect approval to fly above FL285?
5. Who will monitor flights which declare capable but never connect, since the regulation applies for equipage and not usage of the system?
6. How can ATC capacities take into account a system which is only mandated to be carried but not used?
7. How can ANSPs or the NM determine the CofA of an aircraft when applying the requirements?

response Noted

CS-ACNS only represents the DL certification specifications for airborne CNS equipment. While such questions and topics are important, addressing them is outside the scope of the subject amendment to CS-ACNS. Many of these questions have been answered in various forums or are part of the frequently asked questions.

comment 162 comment by: EUROCONTROL

The proposal makes an assumption about the industrialization maturity of the ATS B2, which has been implemented by Airbus on hundreds of airframes and used in everyday operations at Maastricht UAC. While there is no doubt that certain aspects of certification might be difficult to handle in the allowed time, lowering the requirements should not be the solution to this issue.

response Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability specifications to support compliance with CP1. Nonetheless, applicants may choose to install additional capabilities. Please, see GM2 ACNS.B.DLS.001. It should be noted that not all manufacturers have equally progressed with the DL design and implementation to support compliance with CP1, as it may be observed from the comments provided.

Please, see the response to comment #44.

Comment 205 comment by: General Aviation Manufacturers Association / Hennig

EASA notes in 2.3, Assessment of the issue, that it recognizes that meeting the 31 December 2027 deadline may be challenging and would depend on the aircraft and avionics configurations and to the extent the design changes needed.
GAMA appreciates EASA for moving forward with providing the CS-ACNS amendment decision to contribute to fulfilling the maturity level gate requirement by providing standards to support AF6 CP1 by the 31 December 2023 deadline.

GAMA notes that some of the dependencies of this consultation are just now being made final. As an example, the joint EUROCAE WG-78 / RTCA SC-214 work activity submitted the referenced amendments to ED-228B and ED-229B for Council and Program Management Committee (PMC) approval on 7 September 2023, only one day prior to comments being due to NPA 2023-07. This NPA, however, references the approved standards (e.g., page 20 of 45 AMC1 ACNS.B.DLS.025 Protection mechanism "The data link system should comply with the following applicable standards: [...] EUROCAE Document ED-229A;" and page 23 of 45 AMC1 ACNS.B.DLS.055 DLIC Downlink Messages "..or ED 22A, section 2.4.1").

It is essential that EASA continues to work closely with Standards Development Organisations (SDO) to ensure pathways to certification for ADS-C EPP functionality are clear and harmonised. **EASA must also make clear that the CS ACNS update and associated AMC provide clarity about the permissibility of ED-228 and ED-229 Revision A and the soon to be approved Revision B as part of finalising the amendment to CS-ACNS. The successful implementation of the AF6 ADS-C EPP functionality will depend on clarity about the technical standards planned to be used and their maturity.**

**Response**

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability specifications to support compliance with CP1. Nonetheless, applicants may choose to install additional capabilities or use later, acceptable standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

**Comment**

207

**Comment by:** IATA

EASA text in this section - "meeting the 31 December 2027 deadline may be challenging and would depend on the aircraft and avionics configurations and on the extent of the design changes needed."

IATA Comment: Although the statement is understood, we invite to reflection on the fact that meeting a regulatory deadline has to be feasible, without any possible doubt, when the regulation enters into force. It is of concern that we already consider the current deadline "challenging" at the doorstep of the decision on the maturity gate. It suggests there are unresolved issues, lack of maturity, lack of equipment availability, etc.

**Response**

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability specifications to support compliance with CP1. Applicants may choose to install additional capabilities. Please, see GM2 ACNS.B.DLS.001.

Please, see also the response to comment #68.
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<tr>
<th>Comment</th>
<th>209</th>
<th>Comment by: IATA</th>
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<tbody>
<tr>
<td>EASA text in this section: &quot;While the issue assessed is only the support to operators’ need to comply with AF6 CP1 requirements, the remaining data link issues intended to be addressed by the RMT.0524 could be captured in various ‘regular update’ rulemaking tasks or by the RMT.0682&quot;</td>
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<tr>
<td>IATA comment: Please provide more detail on the &quot;remaining data link issues&quot;, how they affect both the topic addressed here and AF6 in general, and clarify the plan to address them in the two RMTs mentioned.</td>
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<tr>
<td>Response</td>
<td>Noted</td>
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<td>This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability specifications to support compliance with CP1. Any subsequent regulatory changes will be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS). Please, see the response to comment #278.</td>
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<tr>
<th>Comment</th>
<th>210</th>
<th>Comment by: IATA</th>
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<tr>
<td>EASA text in the section: &quot;A future RMT.0682 subtask may consider addressing the current and future connectivity challenges, in alignment with the common vision proposed by the white paper on the ‘Future connectivity for aviation’. &quot;</td>
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<td>IATA comment: The White Paper has no regulatory character and it is not considered appropriate to transform it into regulatory material. &quot;The common vision&quot; was not developed with the participation and involvement of a sufficient number of stakeholders. Further discussion is needed on the contents of that paper before they enter into any planning or enforcement process.</td>
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<td>Response</td>
<td>Noted</td>
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<tr>
<td>Please see the responses to comments #24, #25 and #278.</td>
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<tr>
<th>Comment</th>
<th>257</th>
<th>Comment by: NATS</th>
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<tr>
<td>Here it is stated that any aircraft not compliant with the CP1 mandated avionics capability after the deadline of 31st December 2027 will not be able to fly above FL285. However, the avionics mandate is clearly a forward fit mandate only and so there will be a vast majority of aircraft unequipped in this way for a good period of time, maybe years after the deadline.</td>
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<td>This will mean that huge amounts of aircraft will be forced to fly below FL285. This will undoubtedly cause huge capacity issues if enforced. How will it be enforced, is there to be some sort of exemption mechanism applied? How would such a mechanism be visible on flight plans to be used operationally and by NM in flow management decisions? These issues need to be dealt with before this limitation on aircraft altitudes can be enforced.</td>
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Due to the nature of the mandate, being forward fit, this limitation should not be enforced operationally. It can be enforced however through certification requirements for avionics, and this should be done in terms of no certifications to be approved after this date without the specified capability.

**response**

Noted

In accordance with CP1, only aircraft with a CofA issued on or after 31 December 2027 must comply with the ADS-C EPP CP1 capability mandate.

In accordance with CP1, there is indeed no retrofit requirement proposed for aircraft with a CofA issued before 31 December 2027. Therefore, such aircraft for which the CP1 requirement is not applicable can access the airspace above FL285 without being required to be ADS-C EPP capable.

**comment** 269

**comment by: DGAC FR (Mireille Chabroux)**

It is written:
"the target date defined in the CP1 regulation for specification and standards availability supporting AF6 implementation is 31 December 2023"

Considering the potential need to issue a revision-B of ED-228 and ED-229 following issuance by Eurocontrol of specifications/guideline on SWIM service, is it confirmed that revision-A of ED-228 and ED-229 are deemed as suitable to support ADS-C EPP capability certification?

Also, if relevant, suggestion to use the following wording in the entire CS-ACNS (ED-228A/ED-229A or subsequent revisions).

**response**

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability specifications to support compliance with CP1. Nonetheless, applicants may choose to install additional capabilities or use later acceptable standards. Please, see GM2 ACNS.B.DLS.001.

The wording ‘or subsequent revisions’ was avoided in the regulatory text as it is potentially possible that a subsequent revision may introduce additional features that are not required.

Please, see the response to comment #68.

**comment** 270

**comment by: DGAC FR (Mireille Chabroux)**

It is written
"therefore an action is required before reaching this target date."

In the framework of recent EASA efforts to introduce additional aircraft capabilities, several OEMs identified too late the associated regulation requirements hence a late start of certification activities and inability to deliver compliant aircraft in time regarding the mandatory timeframes.

Non-readiness of necessary standard material was not at fault in those cases. It is expected
that a root-cause analysis (lack of EASA communication?) be conducted and the necessary measures taken by EASA to ensure that no such situation re-occurs for the discussed ADS-C EPP implementation.

<table>
<thead>
<tr>
<th>response</th>
<th>Noted</th>
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<tr>
<td>There were numerous discussions among the RMG.0524 stakeholders on the extent of the airborne CNS equipment certification specifications needed to support compliance with CP1 with no conclusive outcome. Furthermore, the scope of the certification specifications for airborne CNS equipment needed to be compatible with the scope of the detailed specifications for ground systems, which were recently published.</td>
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<tr>
<th>comment</th>
<th>271</th>
<th>comment by: DGAC FR (Mireille Chabroux)</th>
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<tbody>
<tr>
<td>It is written: &quot;It should be noted that aircraft currently certified are not intended&quot;</td>
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<tr>
<td>It is suggest to change the wording (discussed requirement does not relate to the fact of being currently certified or not) : &quot;... noted that aircraft are not currently required to use ...&quot;</td>
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<tr>
<th>response</th>
<th>Partially accepted</th>
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<td>Indeed, existing fleets are not required to use CPDLC messages for non-routine, time-critical situations, based on the current operational intent. Moreover, many aircraft types/models may not support the CPDLC messages used for non-routine and time-critical situations due to concerns related with human–machine interface (HMI) and crew workload.</td>
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<tr>
<th>comment</th>
<th>277</th>
<th>comment by: SESAR 3 JU</th>
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<tbody>
<tr>
<td>The following text should be removed:</td>
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<tr>
<td>in alignment with the common vision proposed by the white paper on the ‘Future connectivity for aviation’.</td>
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<tr>
<td>While the issue assessed is only the support to operators’ need to comply with AF6 CP1 requirements, the remaining data link issues intended to be addressed by the RMT.0524 could be captured in various ‘regular update’ rulemaking tasks or by the RMT.0682 on ‘Implementation of the regulatory needs in support of the SESAR deployment’. A future RMT.0682 subtask may consider addressing the current and future connectivity challenges, in alignment with the common vision proposed by the white paper on the ‘Future connectivity for aviation’. The planning for this subtask should be established in a future EPAS revision synchronised with the ATM Master Plan.</td>
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<table>
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<tr>
<th>response</th>
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<tr>
<td>Please, see the response to comment #24.</td>
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<tr>
<th>comment</th>
<th>282</th>
<th>comment by: Gulfstream Aerospace Corporation</th>
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</table>
Gulfstream Aerospace Corporation:

Comment:
What, if any, are the possible work arounds for accessing the airspace above FL 285?

Rationale:
There should be other mitigating allowables for aircraft that are not equipped according to AF6 CP1 due to the compressed timeline.

Recommended Change:
Consider allowing to switch to voice or other mitigating work arounds. List the other possible mitigation or crew actions to avoid limitations and penalties.

response Not accepted

Compliance with CP1, where applicable, is required. Please note that this discussion on mitigation measures, including crew actions, would be outside the scope of CS-ACNS.

2.4. Who is affected by the issue

comment 46 comment by: Air France

Not agreed.

ATN B1 experience shows that all ATM stakeholders are impacted when adaptations, mitigations or temporary are introduced. With option 1 (ADS-C EPP implementation only), CSPs, ANSPs, performance monitoring, etc... will also be affected, as temporary mechanisms will be needed to accommodate various configurations:

- B1 aircraft
- Full B2 aircraft (hundreds already flying)
- B2 with only ADS-C EPP

The global EU ATM community would have to cope with new issues again

response Noted

comment 163 comment by: EUROCONTROL

"Indirectly impacted stakeholders (ANSPs) should be considered. The proposal in its present form generates a negative global impact on aviation, as out-of-standard and partial implementations will have to be handled by all ANSPs in the world."
2. Individual comments and responses

1. The introduced additional possible equipment configurations would create serious issues for ground-to-ground coordination and the logon process. Overcoming this would require complicated and costly ground system upgrades: new OLDI messages would probably also be required as well as an update of the ATS B2 standard to allow and provide clear guidance for all combinations (including FANS1/A) and their backward-compatibility requirements. New flight planning designators would also be needed for indicating exact capabilities.

Possible configurations according to current version of NPA 2023-07:
- CPDLC v1 (legacy CPDLC, what we have now in majority, also known as ATN B1 - all CPDLC-equipped traffic except for the SESAR PJ38 aircraft + a few new Airbuses as mentioned below)
- CPDLC v2+full ADS-C V1 (full RevA, current Airbus aircraft with FANS-C configuration+SESAR PJ38 aircraft)
- CPDLC v4+full ADS-C v3 (full RevB, this is the most desirable for ANSPs)

New configurations (without considering FANS1/A)
- CPDLC v1+ADS-C v1 EPP only ([reduced capabilities] other than Airbus manufacturers as per the AF6/CP1 mandate minimum requirements)
- CPDLC v1+full ADS-C V1 (more than the new mandate[full ADS-C] and with legacy CPDLC)
- CPDLC v1+full ADS-C v3 (ADS-C Revision B[full ADS-C], but with legacy CPDLC)
- CPDLC v1+ADS-C v3 EPP only (as per new mandate[reduced capabilities] with RevB but with old CPDLC)
- CPDLC v4+ADS-C v3 EPP only (as per new mandate[reduced capabilities] with RevB but CPDLC B2 RevB)

2. Through introducing these new configurations, the long-awaited replacement for FANS1/A in the areas outside of Europe would be in jeopardy and a need for even more "hybrid" configurations than the ones listed above would arise. In oceanic regions CPDLC and ADS-C in combination is vital for maintaining a safe, orderly and efficient flow of traffic.

3. ATCOs might have to deal with even more "configurations" as various parts of the system (CPDLC and/or ADS-C) can be non-operational or disabled by the flight crew, which further complicates the handling of traffic."

response

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum changes needed to support operators’ compliance with CP1.

Configuration added at this amendment is CPDLC v1 and ADS-C EPP only. Nonetheless, EASA will support applicants that wish to add capabilities beyond the minimum requirements.

With regard to the capabilities required for DL ground systems, please refer to DS-GE.CER/DEC Issue 1.

Please, see the response to comment #160.

comment 261  comment by: ATR
Section 2.3 “Assessment of the issue” states: [QUOTE] Aircraft operators are affected by the AF6 CP1 requirements when performing general air traffic (GAT) flights in accordance with instrument flight rules (IFR) above FL 285 within the Single European Sky (SES). [UNQUOTE]

It is thus proposed to clarify the extent of applicability of this new CS-ACNS amendment within section 2.4 “Who is affected by the issue” of the NPA. The following text is proposed:

[QUOTE]
While the stakeholders impacted by the AF6 CP1 include ATS providers, NM, air traffic controllers (ATCO)s, the impact of this CS-ACNS amendment is limited to:

— DOA holders for aircraft operations above FL 285,
— Production organisations,
— Aircraft operators operating above FL 285.
[UNQUOTE]

response

Not accepted

While it is agreed that the operations affected are GAT IFR operations above FL285, this fact is already stated at regulation level (Commission Implementing Regulations (EU) 2023/1770 and (EU) 2021/116).

2.7. How we want to achieve it - overview of the proposed amendments

| comment | 29 |
| comment by: ENAIRE |

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<tr>
<th>Page</th>
<th>Article/AMC/GM/CS</th>
<th>Original Text</th>
<th>Proposed amended text</th>
<th>Rationale</th>
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<tr>
<td>9</td>
<td>2.7 How we want to achieve it - overview of the proposed amendments</td>
<td>Modify the title of various paragraphs to remove the term ‘B1’, as the focus of the CS-ACNS should no longer be ATN B1 services and applications only.</td>
<td>Ok, we agree but we need to be careful with this because it won’t be either (full) B2. ADS-C EPP (mandated by CP1 AF6 after the end of 2027) is just one service/capability within the complete set of B2 services/capabilities.</td>
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</table>

response

Noted
comment 82

Question page 10:

[...] to comment if there is still a need to reflect in CS-ACNS the paragraphs related to the protection mechanism [...] 

Answer: DA position is to withdraw this requirement because it is redundant with other specifications for datalink as mentioned is the NPA.

response Noted

comment 83

Question page 10:

[...] to comment if the means of compliance in AMC 1 ACNS.B.DLS.077 represents the minimum and sufficient means [...] 

Answer: DA position is OK. the requirement are at an appropriate level

response Noted

comment 84

Question page 10:

[...] to comment if the requirements proposed in CS ACNS.B.DLS.097 and associated AMC represent the minimum and sufficient safety and performance requirements [...] 

Answer: DA position is OK. the requirements are at an appropriate level

response Noted

comment 151

page 10

The paragraphs on Protection Mechanism (NPA pages 20 – 21) can now indeed be removed since the relevant requirements are now integrated to the base standards, specifically:

- ICAO Doc 9880 Part I Chapter 3 “Controller-Pilot Data Link Communications Application” and Chapter 6 “ATN Message Integrity Check Algorithm”, and
### ED-229A section 3.2.4 for ADS-C and section 3.3.4 for CPDLC

**Response:** Noted

### Comment 152

**Comment by:** EUROCONTROL

"Stakeholders are invited to comment if the means of compliance in AMC 1 ACNS.B.DLS.077 represents the minimum and sufficient means to demonstrate compliance with the ADS-C EPP message exchanges requirements in CS ACNS.B.DLS.077."

In principle, AMC 1 ACNS.B.DLS.077 is a sufficient specification for ADS-C EPP. However, note that the term “EPP” is not defined in ED-229A but ED-229A and ED-228A will soon be superseded by Rev B documents.

**Response:** Noted

The EPP definition has been added in CS ACNS.A.GEN.005 Definitions.

### Comment 153

**Comment by:** EUROCONTROL

"Stakeholders are invited to comment if the requirements proposed in CS ACNS.B.DLS.097 and associated AMC represent the minimum and sufficient safety and performance requirements and adequate means of compliance to support the intended operations."

In principle, the proposed requirements appear to be sufficient. Note ED-228A will soon be superseded by Rev B.

**Response:** Noted

### Comment 154

**Comment by:** EUROCONTROL

"Stakeholders are invited to comment if there is still a need to maintain the paragraphs related to the various ATN layers (network, transport, session, presentation, application) in the CS-ACNS"

The requirements specified for network, transport, session, presentation and application layers (NPA pages 32 - 36) do appear to be out of place in the CS-ACNS, in that the level of technical detail is too great. However, the details should be specified somewhere, for example in the EUROCONTROL Specification for Data Link Services. In particular, the application layer requirements could be removed as they are part of the basic design of the data link system.

**Response:** Noted

### Comment 199

**Comment by:** Garmin International

2.7 How we want to achieve it — overview of the proposed amendments :Page 10

**Proposed Text:**
Garmin has the opinion that the Protected Mode requirements don't need to be explicitly mentioned. The PM-CPDLC is considered to be an inherent part of the existing ATN B1 system.

Justification:

Stakeholders are invited to comment if there is still a need to reflect in CS-ACNS the paragraphs related to the protection mechanism, or if these can be removed since the CPDLC Protected Mode (PM-CPDLC) has been baselined and is part of the basic design of data link system (the understanding of CPDLC today is PM-CPDLC).

response

Noted

comment 200

2.7 How we want to achieve it — overview of the proposed amendments :Page 10

Proposed Text:

The definitions of data link capabilities can always have more description as they are relatively complex. With that said, the most basic description of the capability is the receipt of contracts and the resulting EPP report. All of the specific requirements for these capabilities can be captured by the references to ED-229.

Justification:

Stakeholders are invited to comment if the means of compliance in AMC 1 ACNS.B.DLS.077 represents the minimum and sufficient means to demonstrate compliance with the ADS-C EPP message exchanges requirements in CS ACNS.B.DLS.077.

response

Noted

comment 201

2.7 How we want to achieve it — overview of the proposed amendments :Page 10

Proposed Text:

Garmin considers the references to ED-228 to be sufficient in defining the safety and performance requirements. The applicant can extract the applicable requirements from those sections which are applicable to the ADS-C application and/or the EPP report.

Justification:

Stakeholders are invited to comment if the requirements proposed in CS ACNS.B.DLS.097 and associated AMC represent the minimum and sufficient safety and performance requirements and adequate means of compliance to support the intended operations.
### 2. Individual comments and responses

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<tr>
<td>2.7 How we want to achieve it — overview of the proposed amendments :Page 10</td>
<td></td>
</tr>
<tr>
<td><strong>Proposed Text:</strong></td>
<td></td>
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<tr>
<td>Garmin does not consider it necessary to call out these layers explicitly. The top level definition of the ATN B1 system inherently includes these layers.</td>
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<td><strong>Justification:</strong></td>
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<td>Stakeholders are invited to comment if there is still a need to maintain the paragraphs related to the various ATN layers (network, transport, session, presentation, application) in the CS ACNS.</td>
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<tr>
<td><strong>203</strong></td>
<td>Noted</td>
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<tr>
<td>2.7 How we want to achieve it — overview of the proposed amendments :Page 10</td>
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<tr>
<td><strong>Proposed Text:</strong></td>
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<td>While the ATS B2 system calls out ICAO 9880, the ATN B1 system is mostly developed to ICAO 9705. It is believed that ICAO 9705 + PDRs should map to ICAO 9880, but Garmin has not yet performed such a tracing exercise. Prior to 31 Dec 2027, it remains possible that an applicant may intend to certify an ATN B1 only system. If that happens, and if the applicant is using the version of CS-ACNS that will emerge from this NPA, is the expectation that the statements of compliance must be made with regards to ICAO 9880? Will it be possible to use this upcoming version of CS-ACNS to certify just an ATN B1 system? If so, consider wording that allows such a certification and define if references can still be made to ICAO 9705.</td>
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<td><strong>Justification:</strong></td>
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<td>Various AMCs on ‘CPDLC uplink and downlink messages’ are updated to replace the references to ICAO Doc 9705 by the references to ICAO Doc 9880.</td>
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<td><strong>240</strong></td>
<td>Noted</td>
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<td>Please, see the response to comment #112.</td>
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<tr>
<td><strong>240</strong></td>
<td>Noted</td>
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<tr>
<td>p10 / §2.7 How we want to achieve it — overview of the proposed amendments</td>
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</table>
Stakeholders are invited to comment if there is still a need to reflect in CS-ACNS the paragraphs related to the protection mechanism, or if these can be removed since the CPDLC Protected Mode (PM-CPDLC) has been baselined and is part of the basic design of data link system (the understanding of CPDLC today is PM-CPDLC).

**COMMENT**
Airbus believes that it is not needed anymore to reflect the paragraphs related to the protection mechanisms. We propose to remove CS ACNS.B.DLS.025, AMC1 ACNS.B.DLS.025, AMC2 ACNS.B.DLS.025, AMC3 ACNS.B.DLS.025

**RATIONALE:**
The “old” version of CPDLC without protection is deprecated and the version of CPDLC in B1 (ED-110B) or B2 (ED-229) includes by default the protection mechanisms.

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**comment**

**272**

comment by: **DGAC FR (Mireille Chabroux)**

It is written:

"the following amendments to CS-ACNS Subpart B ‘Communications’, Section 2 ‘Data link services’ are proposed:

— The CS ACNS.B.DLS.B1.015 on ‘Flight deck interface’ is updated to accommodate ADS-C EPP. Flight crew should be able to terminate ADS-C connections."

The expected update of this requirement is not reflected in section 2 of this NPA. The only modification is the removal of term 'B1'.

<table>
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The specification for ‘flight deck interface’ is CS ACNS.B.DLS.B.010, and not as stated in Section 2.4 of NPA 2023-07.

Nonetheless, the changes proposed to CS ACNS.B.DLS.B.010 reflect the intent to accommodate ADS-C EPP.

2.5. How could the issue evolve

**comment**

**47**

comment by: **Air France**

Detailed certification specifications supporting AF6 CP1 requirement for ADS-C EPP are already available today. And deployed.

We operate daily 25 A320 aircraft, full ATS B2, iaw ED-228A.
Question is therefore not to solve detailed certification specifications, but to manage delay in certification with some aircraft manufacturers, with regards to CP1 target date.

response Noted

comment 211 comment by: IATA
Avoiding as much as possible the issue of "special conditions" is supported, flexible while harmonized regulatory material is always preferred.

response Noted

comment 212 comment by: IATA
EASA text in the section: "missing the AF6 CP1 industrialisation target date, which may lead to the removal of AF6 from CP1."
IATA Comment: To be clarified why the lack of regulatory action will only result in the removal of AF6. Not passing the industrialization gate could have an intermediate step in between the all or nothing, such as a delay of the mandate through an amendment of the CP1 regulation, not just a binary "all-or-nothing" consequence.

response Noted

However, such an approach cannot be decided at CS-ACNS level, but rather at the right level of documentation (i.e. implementing regulation).

2.6. What we want to achieve - objectives p. 9

comment 48 comment by: Air France
We consider industrialization target date is not jeopardized today by any lack of regulatory action.
ADS-C EPP is already defined in an approved standard, and already operationally used with success in Europe. Difficulties for certain manufacturers to develop against already this approved standard is not relevant regarding industrialization criteria defined in CP1.

response Noted

comment 164 comment by: EUROCONTROL
"In order to allow more time for development/implementation, MUAC proposes the following compromise for forward-fit:
Between January 2028 - January 2030:
- full RevA (ADSC v1 + CPDLC v2) is acceptable for forward-fit
-exemption for airframes equipped with CPDLC v1 until January 2030

After January 2030:
- full RevB (ADSC v3 + CPDLC v4) only
- no exemptions on forward-fit

The complete ATS B2 Revision A standard (ED-228A/-229A/-230A/-231A) has been available since 2016.

response
Not accepted
Such forward-fit proposal cannot be incorporated at CS-ACNS level, but rather at the right level of documentation (i.e. implementing regulation).
CS-ACNS can only impose design requirements for new designs or changes to type designs in accordance with Part 21.

2.8. What are the stakeholders' views

comment 2
comment by: ETF ATM PSO
Regarding the level of performance of CPDLC technology (Full or Reduced ATS B2 with partial capabilities), we ETF are not really convinced that all ATSU's will exploit the full performance of EPP in the coming years, there is a lack of coordination within Europe and the internal development of the HMI in the different ACCs is not the same.

response
Noted

comment 30
comment by: ENAIRE

<table>
<thead>
<tr>
<th>Page</th>
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<th>Original Text</th>
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<td>11</td>
<td>2.8 What are the stakeholders' views</td>
<td>A specific work package (WP2 of RMT.0524) to amend the CS-ACNS was established. The result of this work package was a comprehensive revision of the CS-ACNS, where, depending on the operational needs, the applicants could choose the data link, network, and subnetwork.</td>
<td>Please, clarify what do you mean by &quot;applicants could choose the data link, network, and subnetwork.&quot; Are you referring to different A/G datalink technologies, i.e., VDLm2, SatCom, LDACS, etc.? If that's the case, what are the criteria and the specific technical drivers to choose one or another A/G data link based on</td>
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2. Individual comments and responses

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<th>Comment</th>
<th>Response</th>
<th>Comment by:</th>
<th>Text</th>
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</table>
| 49      | Noted    | Air France   | We do not support this position.  
1. Even if they are not requested by CP1, other ATS B2 applications are fully complementary to get benefits from ADS-C EPP  
2. There is no indication that costs for ADS-C EPP only will be less than full ATS B2.  
   - Most of ATS B2 development costs are related to FMS interface, which is needed to implement ADS-C EPP.  
   - Experience shows that CPLDC V2 can not be operationally de-correlated from ADS-C EPP. If we have to retrofit later to implement CPLDC V2, we can expect higher costs than implementing full B2 since start.  
See comments on chapter 3 for more explanations |
|         | Noted    |              | Please, see the response to comment #68. |
comment 85  
**comment by: Dassault-Aviation**

Page 11.

To comply as possible with the mandate deadline and content, we foresee option 1 with EPP only, although operator value contribution remains difficult to appreciate. Indeed ATS B2 capability seem to be the best valuable solution for operators, but beyond economical issues, due to lack of Ground mandate for such capabilities, Technical DL issues and deployed common solutions would need to be clarified. Further more, no Industrial Roadmap feasibility for those capabilities is acquired for the moment for our Fleet.

response

Noted

Please, see the response to comment #68.

---

comment 86  
**comment by: Dassault-Aviation**

Full workable, interoperable, common solution for DL is needed to support 4DBT. EASA/FAA initiative and white paper is fully supported.

response

Noted

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comment 165  
**comment by: EUROCONTROL**

"The proposal refers several times to the development and certification costs of an equipment which is aimed to increase safety, while suggesting that ""the use of such capability by the ANSPs may only gradually increase over time"". However, according to data maintained by the Network Manager, during the ATN B1 CPDLC implementation ground support has increased in-line with airborne equipage, both reaching about 70% by February 2019. Yet, while the ground equipage has increased to 92.5% by July 2023, airborne equipage is stagnating at 82% with the high-performance avionics only contribution to around 77% (based on MUAC traffic figures). This demonstrates that it is:

1) Not possible to reach the ideal 100% airborne equipage
2) It takes much more time to reach the desired ""critical"" amount of equipped airframes which can bring the combined benefits of more reliable trajectory predictions to a network level which allows capacity planning accordingly.

The ADS-C common service will provide ANSPs with access to the full functionality of the ADS-C application through a SWIM interface; therefore ground systems will have a much smaller task to implement the new functionalities."

response

Noted

It is expected that the use of such data link capability will gradually increase in the SES to take full advantage of the technical capability of the data link systems (see limited number of CPDLC
messages currently exchanged by many ANSPs, although the data link Regulation (Commission Regulation (EC) No 20/2009) was in force for more than 4 years.

Furthermore, it should be taken into that in Commission Regulation (EC) No 29/2009 (repealed and replaced by Commission Implementing Regulation (EU) 2023/1770) ANSPs’ compliance was required 2 years prior to the airspace users’ compliance deadline.

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<td>166</td>
<td>Noted</td>
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<td>&quot;&quot;and is planned to be used by the ground equipment&quot;: MUAC has been using a set of additional functionalities (eg. TOA RANGE) in addition to the ADS-C EPP since 2019 for MUAC ATCOs. MUAC will display the ADS-C Speed Schedule to help ATCOs with speed control and reduce RT usage as of Q1/2024. &quot;&quot;</td>
<td>Please, see the response to comment #68.</td>
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<tr>
<td>167</td>
<td>Noted</td>
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<td>&quot;MUAC’s future capacity increase relies on the use of the ADS-C RevB aircraft downlinking the VHF Active Frequency data group containing the selected VHF frequencies on board - this group is expected to increase safety, reduce loss of communication events and open the way to further reduce RT usage by exploring the possibility of silent ATC sector transfers within the same ANSP’s airspace. Currently initial calls largely contribute to the radio telephony usage of a sector and they are considered a capacity limiting factor (entries). ANSPs might also consider to use the Ground vector (true track - for a more reliable use than radar headings), RTA status as well as the RevB Holding data group in the future. The use of the full ATS B2 baseline will support the future TBO and automation implementation roadmap. &quot;&quot;</td>
<td>Please, see the response to comment #68.</td>
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<tr>
<td>168</td>
<td>Noted</td>
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<td>Regarding the sentence &quot;only a limited part...is planned to be used by the ground equipment&quot;: ANSPs have highly different working methods due to diverse requirements, which makes the required data groups also more or less relevant depending on the type of handled traffic. For example, while upper area centres are not going to need final approach speed data, lower centres might not need other parameters - nevertheless the application provides a set of functionalities which can be used at different stages of the flight.</td>
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2. Individual comments and responses

comment 206  comment by: General Aviation Manufacturers Association / Hennig

EASA seeks input from stakeholders if the means of compliance in AMC 1 ACNS.B.DLS.077 represents the minimum and sufficient means to demonstrate compliance with the ADS-C EPP message exchange requirements in CS ACNS.B.DLS.077.

EASA does identify in CS ACNS.B.DLS.077 references to EUROCAE Document ED-228A, Sections 6.1 and 6.2 and EUROCAE ED-229A, Sections 3.2 and 5.3 to support the exchange of EPP.

Lessons learned from prior implementations of data link communications are that increased specificity helps improve interoperability of services. EASA has, however, provided the minimum of needed information to support airborne equipage.

response  Noted

comment 208  comment by: General Aviation Manufacturers Association / Hennig

EASA seeks input from stakeholders if the means of compliance in CS ACNS.B.DLS.097 and AMC represents the minimum and sufficient means to demonstrate performance requirements and adequate means of compliance to support the intended operations.

EASA does identify in CS ACNS.B.DLS.097 references to EUROCAE Document ED-228A, Sections 6.3.1 and 6.3.2 to support the exchange of EPP.

Lessons learned from prior implementations of data link communications are that increased specificity helps improve interoperability of services. EASA has, however, provided the minimum of needed information to support airborne equipage.

response  Noted

comment 241  comment by: Airbus-Regulations-SRg

p11 / §2.8 What are the stakeholders’ views

PROPOSED TEXT:
Removal of the last sentence:
“Further concerns were raised on the adequacy and complexity of standards supporting the data link installations, prompting EASA to request standardization bodies to consider a minimum operations performance standard for the Communication Management Unit (CMU).”

RATIONALE:
Even if an action is ongoing at EUROCAE to identify the list of relevant and applicable standards, Airbus disagrees with the statement that standards supporting data link installations are not adequate. Indeed, they are complex, but the data link capability is complex.
It is considered not complex identifying the applicable standards for a given Data link installation. Defining MOPS for the CMU is not relevant since:

- It encompasses different technologies and layers (link, network, application) and when necessary, MOPS already exist for these layers.
- CMU is one type or architecture amongst many others (more integrated or distributed).

Response: Noted

Comment 263 comment by: DGAC FR (Mireille Chabroux)

In response to the question regarding PM-CPDLC, DGAC-FR considers that PM-CPDLC is still needed. It proved its use in the past to detect corrupted messages or wrong addressees.

Response: Noted

Comment 281 comment by: Gulfstream Aerospace Corporation

Gulfstream Aerospace Corporation:

Comment:
CMU software block should not trigger a separated 'allowed list' similarly to the 'logon list' where a particular CMU software would allow a particular operator to be in the logon list but yet forced to fly below FL 285 due to lack of EPP CP1 implementation (if CofA are on or after 12/31/2027).

Rationale:
The timeline to comply may be too short in order to adhere to the performance standards.

Recommend Change:
EASA should consider relaxing the minimum operations performance standards if the implementation of ADS-C EPP is absent. Timeline to comply should be considered to be extended in order to allow more time to comply.

Response: Not accepted

Compliance with CP1 is required where applicable. Changes to equipage deadlines cannot be introduced at CS-ACNS level, but rather at the level of the appropriate documentation (i.e. implementing regulation).

2.9. Other relevant information
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<tr>
<td>11</td>
<td>2.9 Other relevant information</td>
<td>2.9. Other relevant information  Together with other stakeholders and at EASA’s initiative, a white paper on FCAV has been published. The vision and strategy outlined in this paper establishes timelines for data links supported by different technologies and protocols as aligned with the current AF6 CP1 mandates and foreseen targets for standards publications. The time fence related with the ADS-C EPP in the FCAV paper is 31 December 2027 and is aligned with AF6 CP1 mandate. Furthermore, FCAV also provides 2032 as target date for full B2 capability supported by different technologies and protocols, in particular the Internet Protocol Suite (IPS).</td>
<td>2.9. Other relevant information  Together with other stakeholders and at EASA’s initiative, a white paper on FCAV has been published. The vision and strategy outlined in this paper establishes timelines for data links supported by different technologies and protocols as aligned with the current AF6 CP1 mandates and foreseen targets for standards publications. The time fence related with the ADS-C EPP in the FCAV paper is 31 December 2027 and is aligned with AF6 CP1 mandate. Furthermore, FCAV also provides 2032 as target date for full B2 capability supported by different technologies and protocols, in particular the Internet Protocol Suite (IPS).</td>
<td>The mentioned FCAV white paper did not include neither consider the contribution from relevant European data link stakeholders.</td>
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**response** Noted

Please, see the response to comment #24.

**comment** 50  **comment by:** Air France
2. Individual comments and responses

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<tr>
<td>109</td>
<td>Noted</td>
<td>Lufthansa Group</td>
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| **Future air/ground communication requirement**

Not in the CS/ACNS proposal, but in the explanatory text, EASA mentions the need for the improvement of the current air/ground communication infrastructure. EASA references the ‘Future Connectivity for Aviation – FCAV’ white paper, drafted by EASA, FAA, Airbus and Boeing in the fall of 2022. Even though the paper describes the need for changes quite well, it is LHG’s opinion, that the paper addresses mainly the US ATM communication strategy. Compared to Europe, at this point in time, the FAA gathered no experiences in the provision of CPDLC services through the ATN network via ATN OSI protocol and neither Europe nor the US gathered experience in the application of the ATN IPS protocol. LHG sees a risk in relying on the VDL infrastructure in the future, especially when transforming it into the IPS standard. LHG believes, that EASA should include the various European Research and Development activities out of the SESAR PJ.14 solutions into their decision-making process. Furthermore, the European activities with regards to LDACS provide, from LHG point of view, additional promising outlooks for the Navigation and partly the surveillance domain, which seems to be a considerable path towards integrated CNS and should not be disregarded.

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<th>Please, see the response to comment #24.</th>
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| 169      |       | EUROCONTROL

"MUAC is concerned about mandating a technology which is completely incompatible with future systems only 4 years after the CP1/AF6 mandate as the FCAV paper foresees full B2 capability by 2032.

Creating a set of new configurations only for 4 years would incur high development costs to provide compatibility and technical feasibility on the ground, while it would seriously fragment airborne equipage for the coming decade(s) - unless the mandate already states that from 2032 the regulation applies to aircraft with a CofA before 2028 (retro-fit mandate)."
2. Individual comments and responses

response Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum design requirements needed to support compliance with CP1. A retrofit mandate cannot be established at CS-ACNS level but rather at the level of the appropriate documentation (e.g. Part-26 of Commission Regulation (EU) 2015/640 or other implementing regulation).

Please, see the response to comment #68.

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

comment 3 comment by: ETF ATM PSO

quote: "a minimal change to the regulatory material to enable ADS-C EPP capability option is preferred", a cost oriented decision that already reduce the ambition anyway ETF-ATM support this road that is more realistic.

response Noted

comment 42 comment by: Paul DONNELLY

Like other operators, we have invested significant time, resources and funding into modifying aircraft and training crew to ensure the full benefits of ATS-B2 are realised, through wider European implementation.

In mandating ATN B1 CPDLC and only the EPP part of ADS-C (instead of the full B2 package), this will lead to fragmented implementation with aircraft and operators having various possible combinations of equipage.

The ANSP will need to manage aircraft with various equipment standards, which will make coordination more complex, and may not be possible to implement.

If only CPDLC v1 is mandated, we will lose the safety and capacity benefits of CPDLC v2-v4:

- with the push-loadable lateral route uplinks,
- increased safety factor through improved messaging,
- TBO will be limited
  - Due to instructions might have to be given via voice instead of CPDLC due to lack of some message in CPDLC v1;
  - Due to the lack of the additional ADS-C functionalities

Furthermore, we will lose the sustainability benefits in reducing track miles, time etc. which have a direct impact of fuel/ carbon.

Practical implications

**Fragmented equipage:** due to the lack of automation (e.g. TBO concept, monitoring time/ level values ATCOs will probably rely on basic system functionalities (EPP) to support the
majority of traffic as it’s easier. This will limited use and support for TBO, creating inefficiencies.

**B1 CPDLC message set would provide limitations:** aircraft without full B2 implementation, will have different messages on different aircraft (v1, v2, v4)

**Atlantic traffic implications:** oceanic/ U.S. implementation of B2 would be delayed, with the oceanic environment needing to retain FANS1/ A CPDLC as opposed to B2 which provides an extended message set.

**Safety/performance improvements:** we will lose the benefits of CPDLC v2/v4 with the push-loadable lateral route uplinks.

**TBO will be limited:** the majority of instructions will be provided via voice instead of CPDLC. Voice channels will become congested and are also not suitable to passing long complex clearances.

**Increased Enroute delays:** The full implementation would allow for network capacity increases and efficiencies at the individual aircraft and network level. Anything less than full implementation will lead to smaller capacity increases and therefore more delays than expected with the introduction of the new technology.

**response**

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP minimum requirements. Please, see GM2 ACNS.B.DLS.001.

Furthermore, EASA will also support applicants that use ED-228A/ED-229A or later acceptable standards revisions.

Please, see the response to comment #68.

**comment 51**

**comment by: Air France**

European datalink history is a series of delays, discontinuities, fragmentation, temporary solutions, technical adaptations and, last but not least, successive retrofits and costs for airlines.

History shows that all adaptations, like on-board backward compatibility mechanisms, causes operational issues that we have to solve with new retrofits again, and new costs again.

Since CP1 regulation discussions and issuance in 2021, we have been supporting a Full ATS B2 introduction, avoiding any temporary standards or “craft” solutions, together with a synchronized and harmonized air/ground deployment.

We can agree with the idea that some ATS B2 applications, such as D-TAXI, are not mature enough to be used in the coming years, and are then no time critical. We could basically consider that delays and costs to implement these applications are useless with regards to CP1 requirement.
However, we have no commitment, and no way to check that costs for airlines for linefit implementation of only ADS-EPP will be significantly lower than those for Full B2. We even believe that, in total, they could be higher in the end: ADS-C EPP implementation requires changes at FMS level, which are expected to be the most important part of ATS B2 avionic implementation costs. What we know is that, surely, airlines will be asked to retrofit again to implement postponed ATS B2 applications.

Most significant example is CPDLC V2. MUAC already makes use of ATN B2, operationally demonstrating maturity of ADS-C EPP. Based on their experience of actual flights equipped with full ATS B2, MUAC strongly recommends usage of CPDLC V2 together with ADS-C EPP. CPDLC V2 allows more complex clearances with extended messages integration in avionics, route clearance loading in FMS, but also reduction of flight crew workload. We fully agree with this.

A key benefit of CPDLC V2 is to allow the automatic upload of complex clearances into the FMS. If some aircraft are delivered from 2028 with only ADS-C EPP, the complex clearances available in CPDLC V1 will have to be noted by crew, and inserted manually in the FMS. We see here a significant flight safety risk. Note that CPDLC V2 introduces also new messages, opening new opportunities. Moreover, if aircraft are delivered with only ADS-C EPP, without CPDLC V2, in 2028, we may not expect a deployment of CPDLC V2 before years, with extra costs. Finally, with low implementation of CPDLC V2, some ATC centers may not implement associated functions, causing new problems of fragmentation, reduce TBO implementation perimeter and benefits. This would result in a new postponement of European ATM automation.

Another example is DCL. We have been operating FANS 1/A DCL in the US since years with outstanding results. On top of operational advantage of continuity between DCL and CPDLC en Route (same logon, same perimeter, user adherence, etc...), FAA has demonstrated benefits of DCL (cf DCOM). We use outdated ACARS PDC through in Europe. We believe switching to ATN B2 DCL will ease digital operations, and facilitate de-fragmentation.

We then support the implementation of Full ATS B2 to support ADS-C EPP CP1 requirement.

Note

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. The requirement for retrofit has not been established yet. Any subsequent regulatory effort will be made in conjunction with the current or future editions of the European Plan for Aviation Safety (EPAS).

If additional DL capabilities are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP minimum requirements. Please, see GM2 ACNS.B.DLS.001.
Furthermore, EASA will also support applicants that use ED-228A/ED-229A or later acceptable standards revisions.

Please, see also the response to comment #68.

Comment 52

Comment by: Air France

Partial ATS B2 implementation for some aircraft types or manufacturers, out of current approved standards, will introduce parallel branches in avionic batches, which will be complex to track and manage for airlines:
- Flight ops and maintenance documentation, flight plan codes (new “European” specific code?), etc...
- Our experience of avionic parallel branches shows that later convergence to single common standard can rarely be met, and brings induced effect, due to mixability and interchangeability constraints.
- As an example, we may reach situations where FMS evolutions could not be implemented on some aircraft due to ATS B2 divergences (new functions only offered on Full ATS B2 and not on "old ADS-C EPP only).

We believe starting implementing "mitigated B2 standard" is the best way to experience new datalink headaches for airlines in a short future.

Response

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities are required to be mandated to support certain type of operations, such need should be reflected at implementing regulation level.

EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities beyond the ADS-C EPP minimum requirements. Please, see GM2 ACNS.B.DLS.001.

Furthermore, EASA will also support applicants that use ED-228A/ED-229A or later acceptable standards revisions.

Please, see the response to comment #68.

Comment 53

Comment by: Air France

CS-ACNS shall clearly state that B1/B2 backwards compatibility must not be implemented on-board, but on ground.

Our B1/B2 experience show that on-board mechanism causes operational issues and datalink disconnections.

This is not clear in the NPA proposal.

Response

Noted
B2/B1 backwards compatibility is proposed in the detailed specifications for DL ground systems in DS-GE.CER/DEC Issue 1.

**Comment 87**

**Comment by: Dassault-Aviation**

- The CS-ACNS should more explicitly define the ADS-C version and messages set to be supported.

**Response**

Accepted

GM1 ACNS.B.DLS.001 has been changed to clarify that applicability refers to CPDLC Version 1 and ADS-C Version 1.

**Comment 170**

**Comment by: EUROCONTROL**

Has there been a study estimating the implementation cost which resulted in limiting ourselves to ATN B1 CPDLC implementation with its known problems (HF, performance, etc.) while a better technology is already available and used by hundreds of airframes without known safety issues (CPDLC v2)?

**Response**

Noted

Please, see the response to comment #68.

### 4. Proposed regulatory material

**Comment 238**

**Comment by: Fintraffic Air Navigation Services**

Fintraffic ANS foresees that the proposed amendment NPA 2023-07 would cause unwanted consequences for overall development of CPDLC usage.

EASA’s proposal will lead to reduced capacity increases and also make ground-ground coordination much more complex, maybe even impossible and costly.

Fintraffic ANS would prefer this implementation would contain full ATS B2 employment with B2 CPDLC and full ADS-C together which in our opinion would bring higher level of safety, capacity and automation.

**Response**

Noted

Please, see the response to comment #68.
Section 2.3 “Assessment of the issue” states:
[QUOTE] Aircraft operators are affected by the AF6 CP1 requirements when performing general air traffic (GAT) flights in accordance with instrument flight rules (IFR) above FL 285 within the Single European Sky (SES). [UNQUOTE]

It is thus recommended to also amend the requirement “CS ACNS.A.GEN.005 Definitions”, within Subpart A of CS-ACNS, as follows:

- Add ADS-C definition
- Clarify the ADS-C flight envelope limitation (above FL 285), as already done for RVSM flight envelope for example.

In addition, in consistency with existing “AMC1 ACNS.E.RVSM.035 Altimetry system accuracy; (b) RVSM Flight envelopes boundaries (Full and Basic)” it is also recommended to incorporate the ADS-C flight envelope limitation (above FL 285) in the proposed AMC.

This will enable keeping an overall consistency within CS-ACNS and clarifying the scope of applicability without any ambiguity for DOA holders and aircraft operators.

CS ACNS.A.GEN.005 Definitions has been changed accordingly. However, there is no need to refer to FL285 in CS-ACNS, as the applicability is defined in Commission Implementing Regulation (EU) 2023/1770.

The limitation to ATS B2 EPP only is a step back in the whole document. B2 will be necessary for the safe and efficient provision of Air Traffic services in the future.

We support Full ATS B2 in CS-ACNS, in accordance with already approved standards. For clarity reason, this comment is valid for all SECTION 2, but not repeated for each requirement.

CS ACNS.B.DLS.B1.001 Applicability

Noted
Please, see the response to comment #68.

**comment 110**

**ATS B2 CPDLC (version 2)**

The updated CS/ACNS describes the requirements to integrate ADS-C EPP as part of the ED-228A standard and leaves the CPDLC minimum standard in the version 1 according to ED-110B (option 1). LHG recognizes that this description is in line with the requirements from the AF6 part of CIR 2021/116 commonly known as CP1 regulation. Despite that, LHG sees a number of advantages in the implementation of the full ATS B2 stack in accordance with ED-228A (option 2):

- The provision of the updated CPDLC message set is the logical step towards automation in ATM
- It is our understanding, that one of the goals of the ADS-C EPP implementation is closing the communication loop between air and ground for complex clearances supported by the ATS B2 standard but not ATN B1
- The European Multilink Roadmap and the ‘Future Connectivity for Aviation – FCAV’ white paper foresee an ATS B2 integration by 2032, meaning, that for Airspace Users, by 2032 a further system upgrade of the CP1 compliant aircraft would be required or we would introduce another fleet inhomogeneity reducing the acceptance of the ATS B2 CPDLC application
- All aircraft types would follow the same strategy and provide the same services, Airbus integrated into their A320 family and A330 aircraft. The remaining four years until the functionality is mandated for line fit, from our perspective should be sufficient for manufacturers to integrate the full ATS B2 package.

**response**

Noted

Please, see the response to comment #68.

**comment 115**

**comment by: EUROCONTROL**

“ATN B1 and ATS B2 limited to the provision of ADS-C EPP” is ambiguous and could be interpreted to exclude CPDLC.

Suggested replacement: “ATN B1 and ADS-C EPP ATS B2 provisions”

**response**

Partially accepted

GM1 ACNS.B.DLS.001 has been changed to clarify that applicability refers to CPDLC Version 1 and ADS-C Version 1.

Nonetheless, ATS B2 installations with capability beyond ADS-C EPP may be voluntarily pursued by applicants.

Please, see the response to comment #68.
### Comment 116

**Comment by:** EUROCONTROL

Why is DLIC not mentioned for the ATN B1 datalink installations.

Note the full name of ACL: ATC Clearances and Information

**Response:**

Partially accepted

GM1 ACNS.B.DLS.001 states that ‘The context management (CM) application and the DLIC service are prerequisites for the initiation of CPDLC and ADS-C applications’, which is applicable to B1.

GM1 ACNS.B.DLS.001 has been revised to state ATC Clearances and Information.

### Comment 213

**Comment by:** General Aviation Manufacturers Association / Hennig

**Editorial:**

In reviewing the amendments to CS-ACNS, GAMA notes that some references to ED Documents and specific sections identify the section(s) after the ED Document while other amendments identify the ED document and then the section(s) (e.g., compare CS ACNS.B.DLS.097 ADS-C EPP safety and performance with AMC1 ACNS.B.DLS.077 ADS-C EPP messages).

Recommend editorial review for consistency unless the difference is intentional.

**Response:**

Accepted

CS-ACNS has been updated to ensure the appropriate level of consistency.

### Comment 220

**Comment by:** Boeing

**The Boeing Company Comments to EASA NPA 2023-07 Datalink Services**

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<th>COMMENT #1 of 14</th>
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<tbody>
<tr>
<td><strong>Type of comment (check one)</strong></td>
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<td>Affected paragraph and page number</td>
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<td><strong>What is your concern and what do you want changed in this paragraph?</strong></td>
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<th>Why is your suggested change justified?</th>
<th>JUSTIFICATION: By limiting the implementation to only ADS-C EPP, there is very limited operational benefit.</th>
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<td>response</td>
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<td>Nonetheless, GM1 ACNS.B.DLS.001 has been changed to clarify that applicability refers to ADS-C Version 1 limited to the provision of ADS-C EPP.</td>
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<td></td>
<td>Furthermore, please refer also to the response to comment #68.</td>
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comment 288 comment by: **General Aviation Manufacturers Association / Hennig**

EASA states correctly in CS ACNS.B.DLS.001 Applicability that:

"This section provides the airworthiness standards for ATN B1 and ATS B2 limited to the provision of ADS-C EPP."

Stakeholders should recognise that limiting the implementation to only ADS-C only as opposed to ATS B2 broader provisions will result in minimal and possibly de minimis operational benefits to operators, air traffic system, and the environment.

response Noted

Please, see the response to comment #68.

GM1 ACNS.B.DLS. B1 001 Applicability p. 14

comment 221 comment by: **Boeing**

**COMMENT #2 of 14**

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Page: 14
Paragraph: GM1 ACNS.B.DLS.001 Applicability

**THE PROPOSED TEXT STATES:** ATN B1 data link installations referred to in this section (Section 2) support the data link services ‘ATC Communications Management’ (ACM), ‘ATC Clearances’ (ACL) and ‘ATC Microphone Check’ (AMC), through the CPDLC application.

**REQUESTED CHANGE:** ATN B1 or **ATS B2** data link installations referred to in this section (Section 2) support the data link services ‘ATC Communications Management’ (ACM),
2. Individual comments and responses

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<th>Comment</th>
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<tr>
<td>‘ATC Clearances’ (ACL) and ‘ATC Microphone Check’ (AMC), through the CPDLC application.</td>
<td><strong>JUSTIFICATION:</strong> B1 and B2 installations should be supported by the ATS units, understanding that at present only the existing set of data link services are supported.</td>
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<td><strong>Response:</strong> Not accepted</td>
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<td>Nonetheless, GM1 ACNS.B.DLS.001 has been changed to clarify that applicability refers to ADS-C Version 1 limited to the provision of ADS-C EPP.</td>
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<td>Furthermore, please refer also to the response to comment #68.</td>
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**Comment:** 242  
**Comment by:** Airbus-Regulations-SRG  
**P14, GM1 ACNS.B.DLS.001 Applicability, last sentence AND “Rationale”, quote:**  
“The context management (CM) application and the DLIC service are pre-requisites for the initiation of CPDLC and ADS-C applications.”  
**Rationale:**  
To provide guidance in particular on the pre-requisites needed for the initiation of CPDLC and ADS-C applications.”  
**UNQUOTE**  

**Proposed Text:**  
Modify the last sentences to read:  
The context management (CM) application and the DLIC service are pre-requisites for the **ground** initiation of CPDLC and ADS-C **applications connections**.  

Modify the “Rationale” to read:  
To provide guidance in particular on the pre-requisites needed for the **ground** initiation of CPDLC and ADS-C **applications connections**.  

**Rationale:**  
The “initiation of both CPDLC and ADS-C applications” is always on ground initiative, i.e., CPDLC and ADS-C connections are never aircraft-initiated, but are always ground-initiated.  
The WG78/SC214 had extensive discussions regarding this topic, and clarified the industry standards (revision B) where necessary to avoid any confusion (e.g. in DLIC-IR 1 interpretation).  
Thus, the sentence should be clarified as the initiation of CPDLC and ADS-C application is not at aircraft level.  
As a consequence, modify the rationale too.  

**Response:** Partially accepted
The sentence has been changed to refer to ‘connections’.

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<th>comment</th>
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<th>comment by: ENAIRE</th>
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<tr>
<td>Page</td>
<td>Article/AMC/GM/CS</td>
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<tr>
<td>15</td>
<td>GM1 ACNS.B.DLS.B1.005 Data Link System Installation</td>
<td>Rationale To introduce minor changes to make the guidance material less focused on ATN VDLM2 network/subnetwork.</td>
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2. Individual comments and responses

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| This material refers to VHF radios with Mode 2 capabilities. How is it contemplating the potential situation (that could appear in the near term) where the aircraft is equipped also with SATCOM system(s) for the purpose of supporting continental datalink for ATS?

Could this situation require additional requirements similar to those in CS ACNS.B.DLS.B1.015 Dual Data Link Capabilities (e.g regarding selection of the radio link etc...)? |

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<td>Although AMC1 ACNS.B.DLS.005 has been added to highlight that DL VDLM2 based installations are acceptable, SATCOM installations have been already accepted by EASA by using other certifications means. CS-ACNS will be updated at the next opportunity to reflect the SATCOM link used to provide the required ATC services.</td>
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<th>243</th>
<th>comment by: Airbus-Regulations-SRg</th>
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<td>P15, GM1 ACNS.B.DLS.005 Data Link System Installation, 5th bullet</td>
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PROPOSED TEXT:
An adequate source for conducted flight plan information and predictions (Departure Airport, Destination Airport, Estimated Time of Arrival) e.g. Flight Management System (FMS);

RATIONALE:
With the introduction of the B2 ADS-C EPP transmission, the FMS needs to provide many more parameters than the Departure & Destination Airports which were needed in the scope of the B1 DLIC (CM) application. 4D predictions along the whole flight plan must be transmitted, made up of a large quantity of information/data.
As a consequence, it is proposed to remove the parentheses for this bullet, as it can lead the reader into thinking that this list is exhaustive.
<table>
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| 264     | It is also proposed to add “and predictions” after “flight plan information” to better highlight the need for predictive data, coming from the introduction of B2 ADS-C EPP transmission. | Partially accepted  
GM1 ACNS.B.DLS.B1.005 has been changed to add trajectory intent and other minor changes. |
| 117     | VDLM2 is not anymore the only certified technology to provide ATN B1 and ATS B2 services, since certification of the IRIS service provider and the first Airbus IRIS airborne equipment. | DGAC FR (Mireille Chabroux) proposed to add a reference to IRIS/Satcom airborne equipment as a new possible way to implement ATN B1 and ATS B2 services. | Partially accepted  
SATCOM installations have been already accepted by EASA using other certifications means. CS-ACNS will be updated at the next opportunity to reflect the SATCOM link used to provide the required ATC services. |
| 171     | EUROCONTROL proposed to specifically clarify in point (2) that it refers to datalink ATS provider(s) for the flight crew to know in real time the identifier of the datalink ATS provider(s) and the established ADS contracts connecting with the aircraft. | EUROCONTROL would like to be explained the rationale why must the flight crew know about the established ADS-C contracts (event, demand, periodic) and how does the changing number, type and eventually content of the established ADS-C contract influence flight crew workload. | Partially accepted  
The text referred to in this comment is in fact associated with point (3).  
Please, see the response to comment #245. |

**CS ACNS.B.DLS. B1. 010 Flight Deck Interface**

<table>
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<th>Comment</th>
<th>Response</th>
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| 117     | Don't you want to use the official EUTELSAT website for its skin and services? | Partially accepted  
The text referred to in this comment is in fact associated with point (3).  
Please, see the response to comment #245. |
| 171     | MUAC would like to be explained the rationale why must the flight crew know about the established ADS-C contracts (event, demand, periodic) and how does the changing number, type and eventually content of the established ADS-C contract influence flight crew workload. | EUROCONTROL would like to be explained the rationale why must the flight crew know about the established ADS-C contracts (event, demand, periodic) and how does the changing number, type and eventually content of the established ADS-C contract influence flight crew workload. | "(3) MUAC would like to be explained the rationale why must the flight crew know about the established ADS-C contracts (event, demand, periodic) and how does the changing number, type and eventually content of the established ADS-C contract influence flight crew workload. What is the expected benefit of knowing about all the contracts?  
At any given moment multiple ATSUs can connect to the same aircraft and ask for different kind of data through different contracts. Any ATSU can initiate periodic, event and demand contracts. Real-time display of contract types does not bring anything to the flight crew and is
not in line with the original idea of ADS-C usage leaving the human element out of the loop to decrease workload.

Pilot input through the Eurocontrol Operational Focus Group: "Knowing about ADS-C contracts would be a lot of information that could increase our workload. However, there are some areas, where it is "easier" and "more comfortable" for us, if we know, that we have a positive connection with specific ANSPs. Sometimes, we do not get contact with e.g. Kolkata on HF and VHF frequencies. A positives connection would help to know, that they are aware of our position and we usually "interpret" it as being ok to enter their airspace even without a positive identification. Not an issue in Europe, of course, but in many other places like Iran, India, Pakistan etc."

MUAC proposal: for the flight crew to know in real time the identifier of the ATS providers connected to the aircraft.

**Response**

Partially accepted

Please, see the response to comment #245.

**Comment 244**

**Comment by:** Airbus-Regulations-SRg

P15: CS ACNS.B.DLS.010 Flight Deck Interface, (a) (2), quote:
"for the flight crew to initiate and to terminate the data link services and to terminate ADS-C connections;"

UNQUOTE

**PROPOSED**

Text to be modified as such:
for the flight crew to initiate the DLIC Logon, and to terminate the data link services CPDLC connections and to terminate ADS-C connections;

**RATIONALE:**

The only datalink service the flight crew can initiate is the DLIC logon. Other services based on CPDLC and ADS-C are ground-initiated.
The flight crew cannot initiate the CPDLC connection(s) (and the flight crew cannot initiate ADS-C connections).
The flight crew can only terminate the CPDLC connections and the ADS-C connections. Considering this technical statement, it is proposed to reword the (a) (2) (see above).

**Response**

Accepted

CS ACNS.B.DLS.010 has been changed accordingly.

**Comment 245**

**Comment by:** Airbus-Regulations-SRg

P15: CS ACNS.B.DLS.010 Flight Deck Interface, (a) (3), quote:
"for the flight crew to know in real time the identifier of the ATS provider(s) and the established ADS contracts connecting with the aircraft;"

UNQUOTE

PROPOSED

Text to be modified as such:

for the flight crew to know in real time the identifier of the CPDLC ATS provider(s) and the established ADS-C contracts connecting connections with the aircraft;

RATIONALE:

The text of the (a) (3) is ambiguous. It can make readers think that the ADS-C contract types for each ADS-C connection must be provided to the flight crew awareness. It is useless. The ADS-C application is seamless for the flight crew. The flight crew does not need to know which type of contracts (on-demand, periodic, on-event) are requested by the ground system/the controller. The only thing that the flight crew may know is the name of the ATSU which requested an ADS-C connection with the aircraft system. As such, the flight crew is able to terminate this ADS-C connection, when necessary (e.g., if requested by the CDA (using voice or CPDLC). Considering this technical and operational statement, it is proposed to reword the (a) (3) (see above).

response Accepted

CS ACNS.B.DLS.010 has been changed accordingly.

comment 265

comment by: DGAC FR (Mireille Chabroux)

Second paragraph:

Wording is ambiguous because ADS-C connections are established in order to provide a part of the set of datalink services. The mention "terminate D/L services" seems therefore sufficient

DGAC-FR suggests to delete "... and to terminate ADS-C connections."

(2) for the flight crew to initiate and to terminate the data link services and to terminate ADS-C connections;

response Not accepted

It is preferred to be more specific. CS ACNS.B.DLS.010 has been nonetheless redrafted. Flight crew should be able to only terminate the ADS-C connection, and cannot initiate the ADS-C connection. Please, see the responses to comments #244 and #245.

AMC1 ACNS.B.DLS. B1. 010 Flight deck interface

p. 16
2. Individual comments and responses

comment 64

Deployment of VDL2 (EC 29-2009) has highlighted that the ATS traffic was negatively affected by the AOC one, this has even imposed the deployment of multifrequency, but unfortunately this has not fixed the issue. The today VDL2 communications do not respect the Cs xx.1309.

The NPA paragraph "AMC1 ACNS.BDLS.010Flight Deck interface" is referring to the CS xx.1309 and so is requesting that mandated traffics (ATS, AIS) will not be perturbated by not mandated ones (AOC). What measures EASA will put in place to guaranty that the ATS traffic will not be perturbated by the AOC one. In the "EASA-FAA white paper on future connectivity" (Annex D – Transition roadmap) it is indicated:

"1. From 2027:
* All B2-capable aircraft to be equipped line-fit with VDL2 and
1.a. Performance Class B SATCOM or
1.b. AOC traffic is moved over non-safety link (cabin SATCOM / A2G)."

--> There is a need to clarify the paragraph and to indicate in what conditions AOC traffic can be maintained on the VDL2. There is doubt that if AOC restrictions on VDL2 is limited to the B2 aircraft, this will fix the issue.

response Noted

The scope of the subject amendment to CS-ACNS (Issue 5) is only to provide the minimum DL capability to support compliance with CP1. The issues described should be considered within the next DLS regulatory effort.

Please, see the response to comment #278 for further information on future regulatory activities.

comment 78

Misalignment with the Future Connectivity WP:

Ref § "Flight crew control and display of data link messages should satisfy integrity and interface design criteria appropriate for the intended purpose. Reference to the applicable CS xx.1309 requirements should be observed."

As this paragraph of the NPA calls the CS.25.1309, we assume that one of the concerns expressed here is the full separation of AOC and ATC traffic (meaning AOC traffic will never negatively impact the ATC Communication).

The Future Connectivity WP makes the following statement in Annex D – Transition Roadmaps - Page 64 -> Item #3: "Ensure sufficient Safety link(s) availability, performance and capacity" à Actions "From 2027: All B2-capable aircraft to be equipped line-fit with VDL2 and 1.a. Performance Class B SATCOM OR 1.b. AOC traffic is moved over non-safety link (cabin SATCOM / A2G)."

As previously stated, we are very concerned by the impact of AF6 on the VDL Network and we don't believe a critical mass of Aircraft equipped with IRIS SATCOM will be in operation to offload the VDL Network from 2027.
On the other hand, if the alternate foreseen solution is 1.b "AOC Traffic moved over Non-Safety Link", there is no content explaining how the Communication Management Unit (Airborne) and the Ground Counterparts will move the AOC Traffic over non-Safety Links (What are the Conditions / Criteria? Is it 100% of the AOC traffic moved to non-safety links? VDL Network dedicated to ATC Traffic only?).

**Response**  
Noted  
Please, see the response to comment #278.

<table>
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<tr>
<th>Comment</th>
<th>Comment by: Dassault-Aviation</th>
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<tbody>
<tr>
<td>88</td>
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<tr>
<td>Text: &quot;Flight crew control and display of data link messages should satisfy integrity and interface design criteria appropriate for the intended purpose. Reference to the applicable CS xx.1309 requirements should be observed.&quot;</td>
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<tr>
<td>Comment: If the considered issue is perturbation of DL exchanges by AOC, there is a need to fix the issue at a global level and clarify how AOC traffic can be maintained on the VDL2.</td>
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<td>Please, see the response to comment #278.</td>
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<td>118</td>
<td>Consider: overall crew flight deck design philosophy</td>
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<td>Response</td>
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<td>AMC1 ACNS.B.DLS.010 has been changed accordingly.</td>
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<td>Consider: &quot;from the ATS&quot; -&gt; &quot;from the ATSU&quot;</td>
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To clarify ....
“Means should be provided for the flight crew to create, store, retrieve, edit, **delete**, and send data link messages.”

Why should be possible to delete messages that have been sent or received?

**response**

Noted

The text ‘Means should be provided for the flight crew to create, store, retrieve, edit, delete, and send data link messages.’ supports the usual message preparation, such as ‘delete’.

**comment 121**

Propose to delete paragraph starting “Data link messages from the ATS...” as it repeats bullet (c)

**response**

Accepted

AMC1 ACNS.B.DLS.010 has been changed accordingly.

**comment 172**

“It is recommended to require automation support (eg. warning, countdown) to the flight crew to execute conditional clearances eg. AT TIME (time) CLIMB FL (level) in the interests of safety and flight crew workload reduction.

It is recommended to add the requirement of responding to ATS messages with minimal interaction (eg. display the message with not more than 2 button presses, in order to avoid scenarios like with some ATN B1 implementation which require the pilot to press 4 buttons only to display the message; these legacy implementations seriously increase flight crew workload in busy environments and slows down response time).

It is recommended to add the requirement of a first visual then only in the absence of pilot action (eg. button press) aural warning of a new message to avoid unnecessary distractions such as controlled crew rest disturbances or the aural warnings coinciding with standard radio transmissions (eg. "ding" for CURRENT ATC UNIT/STATE PREFERRED LEVEL at the same time when the ATCO identifies the aircraft as the message might be triggered on the ATCO's "assume/accept" input - this is a common complaint in the IFALPA CPDLC study from Boeing flight crew)

**response**

Partially accepted

The proposed updates to AMC1 ACNS.B.DLS.B1.010 are already covered by the following:

‘Flight crew control and display of datalink-related information (connectivity status, outstanding messages, etc.) should be consistent with the overall flight deck design..."
philosophy. Audible and visual indications should be given by the data link system for each uplinked ATS message, including those messages not displayed immediately because of the lack of crew response to an earlier ATS message. Visual alerts alone may be used for non-ATS messages.’

Further, they are also covered in the change described in the response to comment #173.
Please, see the response to comment #278 for considering other requests for improvement.

---

**Comment #173**

**Comment by:** EUROCONTROL

**Page 17**

“If a message intended for visual display is greater than the available display area and only part of the message is displayed, a visual indication shall be provided to the pilot to indicate the presence of remaining message.”

“It is recommended to add the requirement that the flight crew should not be able to respond to the message until the last remaining part of the message is displayed - this is to help misunderstanding when only the first part of a concatenated clearance is executed due to the second part being on the next page.

Example: FLY HEADING 060 + CLIMB FL320, where only the fly heading part is executed despite the WILCO confirming both elements.”

**Response:** Partially accepted

Point (e) of AMC1 ACNS.B.DLS.010 has been added:

‘(e) If only part of the message is displayed, a visual indication should be provided to the pilot to indicate the presence of remaining message.’

Further changes should be considered as part of future rulemaking activity.

Please, see the response to comment #278.

---

**Comment #273**

**Comment by:** DGAC FR (Mireille Chabroux)

New flight deck interface specifications supporting ADS-C added in CS ACNS.B.DLS.010 are not addressed in the associated AMC1 (i.e. capability to terminate ADS-C connections).

**Response:** Noted

As CS ACNS.B.DLS.010 specifies the ADS-C capabilities, there should be no need for an AMC on ADS-C connection.

---

**AMC1.ACNS.B.DLS. B1. 015 Dual Data Link Capabilities (Dual stack)**

**Page 17**

**Comment #122**

**Comment by:** EUROCONTROL
Editorial correction:
“the alerting scheme evaluate to ensure ...” -> “the alerting scheme should be evaluated to ensure ...”

response
Accepted
AMC1 ACNS.B.DLS.015 has been changed accordingly.

Comment 123
Propose to clarify in point (3) page 18:
“... to ensure that a/c does not hold two simultaneous active CPDLC connections with the same ATSU (Current Data Authority)”
(Note: A 2nd connection with the NDA is allowed)

response
Partially accepted
AMC1 ACNS.B.DLS.015 has been revised to clarify the situation where an aircraft can have two simultaneous CPDLC connections.

Comment 174
page 18
"ED-228A/B does not bind the CPDLC message UM230 IMMEDIATELY to any performance requirements as it can also be used in a continental environment. MUAC proposes to specify the flight crew requirements to execute a CPDLC message received which is concatenated with the UM230 IMMEDIATELY in continental (RCP130) environment."

response
Noted
CPDLC should be used for routine, non-critical and non-urgent situations. This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1.
Please, see the response to comment #278 for future rulemaking activities.

Comment 222

<table>
<thead>
<tr>
<th>Type of comment (check one)</th>
<th>Non-Concur</th>
<th>Substantive</th>
<th>Editorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affected paragraph and page number</td>
<td>Page: 17</td>
<td>Paragraph: AMC1.ACNS.B.DLS.015</td>
<td></td>
</tr>
</tbody>
</table>
What is your concern and what do you want changed in this paragraph?

**THE PROPOSED TEXT STATES:** “FANS 1/A differentiates messages alerting between normal and Urgent. Upon receipt of a high alert CPDLC message, the data link system should indicate it to the flight crew.”

**REQUESTED CHANGE:** Delete the proposed text.

“FANS 1/A differentiates messages alerting between normal and Urgent. Upon receipt of a high alert CPDLC message, the data link system should indicate it to the flight crew.”

Why is your suggested change justified?

**JUSTIFICATION:** In accordance with EUROCAE ED-100A / RTCA DO-258A sections 4.6.5, 4.6.5.1, and 4.6.5.2, FANS-1/A avionics do not apply the Alert attribute as stated.

**response**

Accepted

AMC1 ACNS.B.DLS.015 has been revised.

---

**comment 223**

**comment by: Boeing**

**COMMENT #4 of 14**

<table>
<thead>
<tr>
<th>Type of comment (check one)</th>
<th>Non-Concur</th>
<th>Substantive</th>
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<tr>
<td><strong>Affected paragraph and page number</strong></td>
<td>Pages: 17, 18</td>
<td><strong>X</strong></td>
<td></td>
</tr>
<tr>
<td>Paragraph: AMC1.ACNS.B.DLS.015</td>
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</tbody>
</table>

**What is your concern and what do you want changed in this paragraph?**

**THE PROPOSED TEXT STATES:** All occurrences of “ATN B1”.

**REQUESTED CHANGE:** Add “ATN B1 or ATS B2” for all occurrences,

**Why is your suggested change justified?**

**JUSTIFICATION:** B1 and B2 installations should be supported by the ATS units. It was previously stated that at least B2 CPDLC would be supported on the ground. If that is not the case, the maturity gate will need to be revisited.

**response**

Not accepted

The intent of CS ACNS.B.DLS.015 *Dual DATA Link Capabilities (Dual Stack)* has not been changed.
<table>
<thead>
<tr>
<th>comment</th>
<th>247</th>
<th>comment by: Airbus-Regulations-SRg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Please refer to Airbus comment # 246.</td>
</tr>
<tr>
<td>response</td>
<td></td>
<td>Noted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Please, see the response to comment #246.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>comment</th>
<th>248</th>
<th>comment by: Airbus-Regulations-SRg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>P18</strong>: AMC1.ACNS.B.DLS.015 Dual Data Link Capabilities (Dual stack), section &gt;ATSU Connections and Handoffs: (4)&lt;, quote: Ability for flight crew to manually terminate existing connection and establish new connection, initiate a DLIC ‘logon’ in both directions (i.e., FANS 1/A-to-ATN B1 and ATN B1-to-FANS 1/A).&quot; UNQUOTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PROPOSED TEXT: Text to be modified as such: Ability for flight crew to manually terminate existing connection and establish new connection, initiate a DLIC ‘logon’ in both directions (i.e., FANS 1/A-to-ATN B1 and ATN B1-to-FANS 1/A).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RATIONALE: The only datalink service the flight crew can initiate is the DLIC logon. The flight crew can neither initiate nor establish a CPDLC connection. The flight crew can only terminate the CPDLC connections. The CPDLC connections are initiated by the ground system/controller, and the CPDLC connection is established between the ground system and aircraft system (there is no human action in the CPDLC connection establishment). Considering this technical and operational statement, it is proposed to reword the (4) item (see above).</td>
</tr>
<tr>
<td>response</td>
<td></td>
<td>Accepted</td>
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<tr>
<td></td>
<td></td>
<td>AMC1 ACNS.B.DLS.015 has been revised.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>comment</th>
<th>283</th>
<th>comment by: Gulfstream Aerospace Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Gulfstream Aerospace Corporation: Comment: is for the following statement, &quot;Transfer Data Authority examples (FANS 1/A ATSU to ATN B1 ATSU)&quot;</td>
</tr>
</tbody>
</table>
Rationale:
Other functionality considerations should be explored

Recommended Change:
EASA should consider to be applicable to ATS B2 EPP CP1 where transfer to next ADS-C EPP authority is required.

Section for Rationale:
Add ADS-C EPP into the rationale explanation.

<table>
<thead>
<tr>
<th>response</th>
<th>Not accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMC1 ACNS.B.DLS.B1.015 refers to dual data link capabilities for CPDLC and FANS 1/A to ensure a smooth transition between the two types of applications. ADS-C is not covered in this AMC.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>comment</th>
<th>289</th>
<th>comment by: General Aviation Manufacturers Association / Hennig</th>
</tr>
</thead>
<tbody>
<tr>
<td>While NPA 2023-07 is focused on airborne equipage standards for limited B2 EPP, it is essential that the implementation supports B1 and B2 installations by air traffic services.</td>
<td></td>
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</tr>
<tr>
<td>If ground services - at a minimum - do not support B2 CPDLC, the maturity gate of the deployment must be reviewed.</td>
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</table>

<table>
<thead>
<tr>
<th>response</th>
<th>Noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL detailed specifications for ground (DS-GE.CER/DEC Issue 1) include specifications to accommodate ATS B2 as well as ATN B1 aircraft through the backwards compatibility requirement.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CS ACNS.B.DLS. B1. 015 Dual Data Link Capabilities (Dual stack)</th>
<th>p. 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>comment</td>
<td>246</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
</tr>
<tr>
<td>P17, CS ACNS.B.DLS.015 Dual Data Link Capabilities (Dual stack) and AMC1.ACNS.B.DLS.015 Dual Data Link Capabilities (Dual stack)</td>
<td></td>
</tr>
</tbody>
</table>

**PROPOSED TEXT:**
Replace “Dual Data Link Capabilities” by “Dual Data Link CPDLC Capabilities” in the title of the CS and AMC1
AND
Create new CS requirement and associated AMC (title and new content adapted to the ADS-C application) for the Dual Data Link ADS-C Capabilities
RATIONALITY:
In the current issue 4 of CS-ACNS, the Dual datalink capability addresses only the CPDLC application.
When adding the ADS-C B2 EPP capability in the next revision of the CS-ACNS, there is a new dual datalink capability for the ADS-C application.
New CS requirement and associated AMC should be created to address this Dual datalink ADS-C capability.
Of course, the content of the new CS and AMC addressing the Dual datalink capability for the ADS-C application is different from the content of the existing ones for CPDLC (CPDLC and ADS-C are two different applications).

response
Not accepted
No new CS requirement and associated AMC are considered at the moment for ADS-C.
Future updates would be considered in the next revision of CS-ACNS for DLS.
Please, see the response to comment #278 for future rulemaking activities.

---

**CS ACNS.B.DLS. B1. 020 Data Link Services Capabilities**

**comment**
224

**comment by:** Boeing

**COMMENT #5 of 14**

<table>
<thead>
<tr>
<th>Type of comment (check one)</th>
<th>Non-Concur</th>
<th>Substantive</th>
<th>Editorial</th>
</tr>
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<tbody>
<tr>
<td>Affected paragraph and page number</td>
<td>Pages: 19</td>
<td>Paragraph: CS ACNS.B.DLS.020</td>
<td></td>
</tr>
<tr>
<td>What is your concern and what do you want changed in this paragraph?</td>
<td>THE PROPOSED TEXT STATES: (e) Downlink of ADS-C EPP.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REQUESTED CHANGE:</td>
<td>(e) Downlink of ADS-C EPP.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Why is your suggested change justified?</td>
<td>JUSTIFICATION: At a minimum, the complete B2 ADS-C application (not only the EPP function) should be required because the EPP function cannot be separated from the complete B2 ADS-C application.</td>
<td></td>
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</tbody>
</table>

**response**
Partially accepted
ADS-C application is ADS-C Version 1 (see GM1 ACNS.B.DLS.001 Applicability); nonetheless, the information provided as a minimum would be the EPP data.

**Comment 253**

**Comment by: Icelandic Transport Authority**

The Icelandic Transport Authority fully support concerns reported by Isavia ANS regarding the negative effect this NPA may cause on future implementation of the technology by fragmented airborne implementation with many possible data link combinations.

Isavia ANS wishes to express the following concerns with the Notice of Proposed Amendment (NPA) 2023-07 regarding data link services.

The future Air-Ground data link standard, ATS Baseline 2 Rev B as documented in Eurocae ED-228B and ED-229B, will be published in 2023. This will be supported by a corresponding update to the ICAO Global Operational Data Link (GOLD) Manual (ICAO Doc 10037). It is expected that ATS Baseline 2 Rev B will become the global standard air-ground data link application for the future.

ATS Baseline 2 (B2) introduction is on the ICAO North Atlantic Region Vision schedule for the period 2026 – 2031.

NPA 2023-07 mandates only the EPP (Extended Projected Profile) part of B2 ADS-C instead of a full ATS B2 Rev B package. The risk is that major aircraft manufacturers will only implement the minimum required capabilities resulting in fragmented airborne implementation with many possible data link combinations. Any such implementation may delay the global implementation of ATS B2 Rev B and hamper the drive towards globally harmonized air-ground data link. It is unlikely that air navigation service providers outside Europe will be able to support the data link configuration proposed by NPA 2023-07.

It should be kept in mind that ATS B2 Rev B is a key enabler in the development of Trajectory Based Operations (TBO) and includes many new features that are essential for the safety and efficiency of air traffic services globally in the future. It is essential that the development of ATS B2 Rev B by aircraft manufacturers is not delayed in any way.

Isavia ANS urges EASA to carefully weigh the NPA’s effect on the global aviation community and coordinate this matter with the relevant international stakeholders (including the ICAO North Atlantic Region) before a final decision is taken.

**Response**

Noted

Please, see the response to comment #68.
### 2. Individual comments and responses

<table>
<thead>
<tr>
<th>Page</th>
<th>Article/AMC/GM/CS</th>
<th>Original Text</th>
<th>Proposed amended text</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>AMC1 ACNS.B.DLS.020 Data Link Capabilities</td>
<td>When the aircraft has no CPDLC Current Data Authority, the data link aircraft equipment should provide crew members entering an airspace of a data link equipped ATS unit with the capability to initiate a DLIC ‘Logon’ function (e.g. send a CMLogonRequest message) with the applicable ATS unit, in order to identify the aircraft and initiate the use of data link services.</td>
<td>Consider to include the scenario when the aircraft has CPDLC CDA authority in relation to other aircraft data link capabilities as CMContact in case of a NDA which has no implemented OLDI LOF message (NPA 2023-05 AMC1 GE.CER.DLS.610 DLS Equipment).</td>
<td></td>
</tr>
</tbody>
</table>

**response** Noted

DS-GE.CER/DEC Issue 1, GE.CER.DLS.410 DL includes ‘(f) forward logon parameters.’

**comment** 175

*Comment by: EUROCONTROL*

Page 18

"(5) Ability for flight crew to verify current and next facility designation or name."

Recommendation: replace "designation or name" with "designation and name" in order to avoid incidents where pilots initiate logon to and start accepting clearances from a downstream ATSU, while being under control (on voice) of the upstream ATSU - due to lack of awareness of CPDLC Identifiers. It is very challenging for flight crews to figure out which ATSU has which identifier, especially when there are multiple ATSU in the same FIR.

**response** Not accepted

Industry standards should consistently reflect the need to have the ‘name’ as mandatory. This should be, however, considered for a future revision of CS-ACNS.

Please, see the response to comment #278 for future rulemaking activities.

**comment** 266

*Comment by: DGAC FR (Mireille Chabroux)*
When CP1 AF6 is mandated, the planned European implementation (as per on-going standardisation work expected to be validated end 2023) is that ATS B2 aircraft (ADS-C/EPP equipped) will initiate Datalink connection with the new centralized Logon Service and not anymore with the first applicable ATS unit. This should be introduced in the present paragraph.

DGAC-FR suggests to add a reference to the future Datalink Logon Service to which ATS B2 aircraft should initiate connection once CP1 AF6 is applicable.

**response**

Noted

The specifications for data link common services were not available at the time of the NPA 2023-07 consultation.

Furthermore, this amendment to CS-ACNS (Issue 5) provides the minimum specifications to support compliance with CP1.

### GM1 ACNS.B.DLS. B1. 020 Data link Services Capabilities

<table>
<thead>
<tr>
<th>comment</th>
<th>124</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
</table>
| In the introductory sentence the “verified” is replaced by “representative”.  
The new word raises more questions than the current: 1) representative to what exactly. 2) who determines this?... |
| response | Partially accepted |
| Additional information was provided. GM1 ACNS.B.DLS.020 has been changed to read:  
‘Datalink capabilities should be demonstrated using a representative ground data link system or a ground data link system simulator able to support the transactions and information exchanges defined in the Subpart B Section 2.’ |

<table>
<thead>
<tr>
<th>comment</th>
<th>125</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>The bullet list should be extended to include the EPP service.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>response</td>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>GM1.ACNS.B.DLS.020 has been revised to include the downlink of ADS-C EPP.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>comment</th>
<th>176</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
</table>
| "Could EASA:  
- Provide the definition of ""representative ground data link system""?  
- Indicate what is expected by ""should be demonstrated using...""? And how / when?"" |
| response | Noted |
Please, see the response to comment #124.

This amendment to CS-ACNS (Issue 5) provides the minimum specifications to support compliance with CP1. Subsequent regulatory effort may include and assess recommendations, and provide additional guidance.

Please, see the response to comment #278.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Text</th>
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</thead>
</table>
| 195 | **GM1.ACNS.B.DLS.020 Data Link Capabilities: Page 19**

**Proposed Text:**

Add wording which describes the ability of the ADS-C application to receive ADS-C contracts initiating the EPP report and for the avionics to downlink the EPP report commensurate with the specification of the contract.

**Justification:**

There is no section (e) outlining the EPP capability.

**Response**

Accepted

Please, see the response to comment #125.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Text</th>
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</table>
| 215 | Please clarify why GM1 ACNS.B.DLS.020 does not include in its scope the demonstration of the downlink of the ADS-C EPP capabilities.

**Response**

Noted

GM1.ACNS.B.DLS.020 has been revised to include EPP.

Please, see the response to comment #125.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Text</th>
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</table>
| 249 | **P20: GM1 ACNS.B.DLS.020 Data link Capabilities**

**COMMENT:**

Please add a new subparagraph related to “Downlink of ADS-C EPP” as it has been added in the CS ACNS.B.DLS.020: [new =] (e) Downlink of ADS-C EPP.

**RATIONALE:**

The “Downlink of ADS-C EPP” topic is missing in this GM1, while the (e) “Downlink of ADS-C EPP” has been added in the CS ACNS.B.DLS.020.
<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td><strong>285</strong></td>
<td><strong>Accepted</strong>&lt;br&gt;GML1.ACNS.B.DLS.020 has been revised to include EPP.&lt;br&gt;Please, see the response to comment #125.</td>
</tr>
<tr>
<td><strong>90</strong></td>
<td><strong>Comment by: Gulfstream Aerospace Corporation</strong>&lt;br&gt;Gulfstream Aerospace Corporation:&lt;br&gt;<strong>Comment:</strong>&lt;br&gt;Should ADS-C EPP be listed here as letter (e)?&lt;br&gt;<strong>Rationale:</strong>&lt;br&gt;If adding ADS-C EPP, a new item should be added to the list.&lt;br&gt;<strong>Recommended Change:</strong>&lt;br&gt;Add ADS-C EPP section (e)</td>
</tr>
<tr>
<td><strong>126</strong></td>
<td><strong>Comment by: EUROCONTROL</strong>&lt;br&gt;Similarly to the wording for other references, the reference to ED-229A (3rd bullet) should indicate “where applicable for the protection mechanism (i.e. section 3.2.4 for ADS-C and section 3.3.4 for CPDLC)”</td>
</tr>
<tr>
<td>Comment</td>
<td>Response</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>Propose to also note which CPDLC versions are included and which are excluded.</td>
<td>Partially accepted</td>
</tr>
</tbody>
</table>

AMC1 ACNS.B.DLS.025 has been changed to read: ‘The data-link system compliant with EUROCAE Documents ED-110B and ED-229A satisfies the requirement.’ The CPDLC version is mentioned in updated GM1 ACNS.B.DLS.001.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAO Document 9776 (Second Edition) and ARINC 631-67</td>
<td>Not accepted</td>
</tr>
</tbody>
</table>

This amendment to CS-ACNS (Issue 5) provides minimum changes to support compliance with CP1. AMC1 ACNS.B.DLS.005 has been added to reflect the DL installation needs for a VDL M2 subnetwork.

ARINC 631-6 is still an acceptable means of compliance. No justifications have been brought to the attention of EASA regarding obsolescence of ARINC 631-6.

Furthermore, applicants that may require the use of a later acceptable amendment will address this issue with their certifying authority.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMC1. ACNS.B.DLS.025 Protection mechanism - Page 20, 21</td>
<td>Not accepted</td>
</tr>
</tbody>
</table>

Proposed Text:

Either remove revision numbers to ARINC 631, or state ARINC 631-6 or later. Note that the precedent set by referencing ARINC 750 is done without a revision number.

Justification:

AMC1 and AMC3 of the Protection mechanism sections reference ARINC 631-6. There are later revisions of ARINC 631 which have been published. New/updated designs may not claim ARINC 631-6.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
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<tbody>
<tr>
<td>IATA</td>
<td>Not accepted</td>
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</tbody>
</table>

Please, see the response to comment #127.
There are several references to ED-229A throughout the document. At the time that this NPA becomes an EASA Opinion, according to EUROCAE WG-78 work plan, there will be a published updated ED-229B version of the standard.

response Noted

GM2 ACNS.B.DLS.001 has been added to offer the possibility to applicants to consider applying for ATS B2 DL installation applications based on ED-228A and ED-229A (or later acceptable revisions).

Please, see the response to comment #68.

### COMMENT #6 of 14

<table>
<thead>
<tr>
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<th>Non-Concur</th>
<th>Substantive</th>
<th>Editorial</th>
</tr>
</thead>
</table>
| Affected paragraph and page number | Page: 20  
Paragraph: AMC1 ACNS.B.DLS.025 |             | X          |

**THE PROPOSED TEXT STATES:** “The data link system should comply with the following applicable standards: ... ARINC 631-6 for VDL Mode 2 multi-frequency operations.”

**REQUESTED CHANGE:** Update ARINC 631-6 to ARINC 631-7:

“The data link system should comply with the following applicable standards: ... ARINC 631-6\textsuperscript{7} for VDL Mode 2 multi-frequency operations.”

**JUSTIFICATION:** ARINC 631-7 is the definitive standard for VDL Mode 2 multi-frequency operations.

response Not accepted

Please, see the response to comment #127.

### COMMENT #284 of 14

<table>
<thead>
<tr>
<th>Type of comment (check one)</th>
<th>Non-Concur</th>
<th>Substantive</th>
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<tbody>
<tr>
<td>Affected paragraph and page number</td>
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</tbody>
</table>

Gulfstream Aerospace Corporation:

Comment:
Concerns for the following, "EUROCAE Document ED-110B (references to ICAO Doc 9705 to be replaced by the equivalent ones in the ICAO Doc 9880, where applicable for the protection mechanism);"

Rationale:
Is this an addition or a note to fix the references to ICAO Doc 9880 instead?

Recommended Change:
EASA should consider an explanation for this reference.

response Noted
The reference to ICAO documents has been removed. EUROCAE standards are expected to provide the technical elements.
AMC1 ACNS.B.DLS.025 has been changed to read: ‘The data link system compliant with EUROCAE Documents ED-110B and ED-229A satisfies the requirement.’

AMC3 ACNS.B.DLS. B1. 025 Protection mechanism

comment 128 comment by: EUROCONTROL
Update reference to ARINC 631-6.
ARINC 631-67
response Not accepted
Please, see the response to comment #127.

comment 226 comment by: Boeing

<table>
<thead>
<tr>
<th>Type of comment (check one)</th>
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<tbody>
<tr>
<td>Affected paragraph and page number</td>
<td>Page: 21 Paragraph: AMC3 ACNS.B.DLS.025</td>
<td></td>
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</tr>
</tbody>
</table>

What is your concern and what do you want changed in this paragraph?

THE PROPOSED TEXT STATES: “Where ARINC 631-6 identifies a specific deviation from ICAO Doc 9776 (Manual on VDL Mode 2), the provisions of the former should take precedence. ARINC 631-6 also references ARINC 750 for definition of Signal Quality Parameter (SQP) levels. Measurements of SQP levels may be passed over the air-ground link as parameters in the XID exchanges.”

REQUESTED CHANGE: Update ARINC 631-6 to ARINC 631-7:
“Where ARINC 631-67 identifies a specific deviation from ICAO Doc 9776 (Manual on VDL Mode 2), the provisions of the former should take precedence. ARINC 631-6 also references ARINC 750 for definition of Signal Quality Parameter (SQP) levels. Measurements of SQP levels may be passed over the air-ground link as parameters in the XID exchanges.”

Why is your suggested change justified? JUSTIFICATION: ARINC 631-7 is the definitive standard for VDL Mode 2 multi-frequency operations.

response Not accepted
Please, see the response to comment #127.

GM1 ACNS.DLS. B1. 035 DLS system continuity p. 22

comment 91 comment by: Dassault-Aviation

CS-ACNS should refer to ED-228B, and not ED-228A.

response Noted
EASA is required to amend CS-ACNS to support the application of CP1. Such amendment represents the minimum DL capability specifications needed to support compliance with CP1. While the relevant specifications in ED-228A represent the minimum needed, GM2 ACNS.B.DLS.001 has been added to offer the possibility to applicants to consider applying for ATS B2 DL installation applications based on ED-228A and ED-229A or later acceptable revisions.

Please, see the response to comment #68.

comment 178 comment by: EUROCONTROL

MUAC advises to not redefine the meaning of terms which are used in global standards, as it increases the chance of misinterpretation. CS-ACNS should use the same definition and term as the standards it refers to.

response Noted
There may be standards where the terms ‘continuity’ or ‘availability’ may have a different meaning. Nonetheless, for the purpose of airworthiness certification, the meaning of such terms should be used as defined in CS-ACNS.

**AMC1 ACNS.DLS. B1. 035 DLS system continuity**

<table>
<thead>
<tr>
<th>comment</th>
<th>129</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The loss of the data link system function is considered to be a minor failure condition.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is this statement really true in airspace regions that increasingly rely on data link to maintain capacity?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propose to reconsider and update.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>response</th>
<th>Noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>The loss of the data link system function, being annunciated to the flight crew, would not significantly reduce the aeroplane’s safety as voice can be used.</td>
<td></td>
</tr>
<tr>
<td>Furthermore, on many aircraft, the human–machine interface (HMI) does not support operations with a failure classification for the loss of the data link system function worse than minor.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>comment</th>
<th>177</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could EASA provide background information on &quot;The loss of the data link system function is considered to be a minor failure condition&quot;?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide in the document the rationale behind the statement: &quot;minor failure condition&quot;? What does it impact?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>response</th>
<th>Noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please, see the response to comment #129.</td>
<td></td>
</tr>
</tbody>
</table>

**AMC1 ACNS.B.DLS. B1. 050 DLIC Uplink Messages**

<table>
<thead>
<tr>
<th>comment</th>
<th>92</th>
<th>comment by: Dassault-Aviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS-ACNS should refer to ED-229B, and not ED-229A.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
response

Partially accepted

GM2 ACNS.B.DLS.001 has been added to offer the possibility to applicants to consider applying for ATS B2 DL installation applications based on ED-228A and ED-229A (or later acceptable revisions).

Please, see the response to comment #68.

comment 95

comment by: Dassault-Aviation

Shouldn't CS-ACNS require both compliance to ED-110B and ED-229A? As it is currently written, compliance can be either to ED-110B or ED-229.

response

Noted

As B1 and B2 CM applications are fully compatible, there is no need to require compliance with both EUROCAE Document ED-110B Section 2.2.1 and ED-229A Section 2.4.1.

A note has been added to provide the compatibility explanation.

AMC1 ACNS.B.DLS. B1. 055 DLIC Downlink Messages  p. 23

comment 94

comment by: Dassault-Aviation

CS-ACNS should refer to ED-229B, and not ED-229A.

response

Noted

GM2 ACNS.B.DLS.001 has been added to offer the possibility to applicants to consider applying for ATS B2 DL installation applications based on ED-228A and ED-229A (or later acceptable revisions).

Please, see the response to comment #68.

comment 96

comment by: Dassault-Aviation

Shouldn't CS-ACNS require both compliance to ED-110B and ED-229A? As it is currently written, compliance can be either to ED-110B or ED-229.
2. Individual comments and responses

**CS ACNS.B.DLS. B1. 050 DLIC Uplink Messages**

<table>
<thead>
<tr>
<th>Comment</th>
<th>130</th>
<th>Comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>User Abort and Provider Abort functions should also be included</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Not accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>The standard is inconclusive if the CM User Abort and CM Provider Abort are mandatory functions. This amendment to CS-ACNS (Issue 5) only ensures the minimum specifications to support compliance with CP1. Further improvements should be addressed at a later stage in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment</th>
<th>179</th>
<th>Comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Replace the &quot;DLIC Logon function&quot; by &quot;DLIC initiation function&quot; (which is implemented by CM Logon) according to ED228A.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Not accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>‘DLIC Logon’ and ‘DLIC Initiation’ cover the same function.</td>
</tr>
</tbody>
</table>

**CS ACNS.B.DLS. B1. 055 DLIC Downlink Messages**

<table>
<thead>
<tr>
<th>Comment</th>
<th>131</th>
<th>Comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>User Abort and Provider Abort functions should also be included</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Not accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Please, see the response to comment #130.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment</th>
<th>180</th>
<th>Comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Replace the &quot;DLIC Logon function&quot; by &quot;DLIC initiation function&quot; (which is implemented by CM Logon) according to ED228A.</td>
<td></td>
</tr>
</tbody>
</table>
response Not accepted
Please, see the response to comment #179.

**CS ACNS.B.DLS. B1. 070 CPDLC uplink messages**

**COMMENT #8 of 14**

<table>
<thead>
<tr>
<th>Non-Concur</th>
<th>Substantive</th>
<th>Editorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pages:** 24, 25
**Paragraph:** CS ACNS.B.DLS.070

**THE PROPOSED TEXT STATES:** Table of B1 CPDLC uplink messages.

**REQUESTED CHANGE:** Add additional applicable B2 CPDLC uplink messages.

**JUSTIFICATION:** At present, only the existing set of data link services are supported. However, B1 and B2 installations should be supported by the ATS units.

For CS ACNS.B.DLS.070, replace the two columns of messages with the below.

<table>
<thead>
<tr>
<th>ID</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED-110B/ED-228A</td>
<td>ED-110B/ED-228A</td>
</tr>
<tr>
<td>Code</td>
<td>Text</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>UM0/UM0</td>
<td>UNABLE/UNABLE</td>
</tr>
<tr>
<td>UM1/UM1</td>
<td>STANDBY/STANDBY</td>
</tr>
<tr>
<td>UM3/UM3</td>
<td>ROGER/ROGER</td>
</tr>
<tr>
<td>UM4/UM4</td>
<td>AFFIRM/AFFIRM</td>
</tr>
<tr>
<td>UM5/UM5</td>
<td>NEGATIVE/NEGATIVE</td>
</tr>
<tr>
<td>UM19/UM19</td>
<td>MAINTAIN [level]/ MAINTAIN [level]</td>
</tr>
<tr>
<td>UM20/UM20</td>
<td>CLIMB TO [level]/ CLIMB TO [level]</td>
</tr>
<tr>
<td>UM23/UM23</td>
<td>DESCEND TO [level]/ DESCEND TO [level]</td>
</tr>
<tr>
<td>UM26/UM26R</td>
<td>CLIMB TO REACH [level] BY [time]/ CLIMB TO REACH [level single] BEFORE TIME [time]</td>
</tr>
<tr>
<td>UM27/UM27R</td>
<td>CLIMB TO REACH [level] BY [position]/ CLIMB TO REACH [level single] BEFORE PASSING [position ATW]</td>
</tr>
<tr>
<td>UM28/UM28R</td>
<td>DESCEND TO REACH [level] BY [time] / DESCEND TO REACH [level single] BEFORE TIME [time]</td>
</tr>
<tr>
<td>UM29/UM29R</td>
<td>DESCEND TO REACH [level] BY [position] / DESCEND TO REACH [level single] BEFORE PASSING [position ATW]</td>
</tr>
<tr>
<td>UM46/UM46R</td>
<td>CROSS [position] AT [level]/ CROSS [position ATW] AT [level]</td>
</tr>
<tr>
<td>UM47/UM47R</td>
<td>CROSS [position] AT OR ABOVE [level]/ CROSS [position ATW] AT OR ABOVE [level single]</td>
</tr>
<tr>
<td>UM48/UM48R</td>
<td>CROSS [position] AT OR BELOW [level]/ CROSS [position ATW] AT OR BELOW [level single]</td>
</tr>
<tr>
<td>UM51/UM51R</td>
<td>CROSS [position] AT [time]/ CROSS [position ATW] AT TIME [RTAtimesec]</td>
</tr>
<tr>
<td>UM52/UM52R</td>
<td>CROSS [position] AT OR BEFORE [time]/ CROSS [position ATW] BEFORE TIME [RTAtimesec]</td>
</tr>
<tr>
<td>UM53/UM53R</td>
<td>CROSS [position] AT OR AFTER [time]/ CROSS [position ATW] AFTER TIME [RTAtimesec]</td>
</tr>
<tr>
<td>UM64/UM64R1</td>
<td>OFFSET [specifiedDistance] [direction] OF ROUTE/ OFFSET [specifiedDistanceR] [direction side] OF ROUTE</td>
</tr>
<tr>
<td>UM72/UM72</td>
<td>RESUME OWN NAVIGATION/ RESUME OWN NAVIGATION</td>
</tr>
<tr>
<td>UM74/UM74R</td>
<td>PROCEED DIRECT TO [position]/ PROCEED DIRECT TO [positionR]</td>
</tr>
<tr>
<td>UM79/UM79R</td>
<td>CLEARED TO [position] VIA [routeClearance]/ CLEARED TO [positionR] VIA [departureDataO][routeClearanceR]</td>
</tr>
<tr>
<td>UM80/UM80R</td>
<td>CLEARED [routeClearance]/ CLEARED [departureDataO][routeClearanceR] [arrivalApproachData]</td>
</tr>
<tr>
<td>UM82/UM82R</td>
<td>CLEARED TO DEVIATE UP TO [specifiedDistance] [direction] OF ROUTE/ CLEARED TO DEVIATE UP TO [lateralDeviation] OF ROUTE</td>
</tr>
<tr>
<td>UM94/UM94R</td>
<td>TURN [direction] HEADING [degrees]/ TURN [directionSide] HEADING [degrees]</td>
</tr>
<tr>
<td>UM96/UM96</td>
<td>CONTINUE PRESENT HEADING/ CONTINUE PRESENT HEADING</td>
</tr>
<tr>
<td>UM106/UM106</td>
<td>MAINTAIN [speed]/ MAINTAIN [speed]</td>
</tr>
<tr>
<td>UM107/UM106</td>
<td>MAINTAIN PRESENT SPEED/ MAINTAIN PRESENT SPEED</td>
</tr>
<tr>
<td>UM108/UM108</td>
<td>MAINTAIN [speed] OR GREATER/ MAINTAIN [speed] OR GREATER</td>
</tr>
<tr>
<td>UM116/UM116R</td>
<td>RESUME NORMAL SPEED/ RESUME NORMAL SPEED [flightPhaseO]</td>
</tr>
<tr>
<td>UM117/UM117R</td>
<td>CONTACT [unitname] [frequency]/ CONTACT [unitnameR] [frequencyO]</td>
</tr>
<tr>
<td>UM120/UM120R</td>
<td>MONITOR [unitname] [frequency]/ MONITOR [unitnameR] [frequencyO]</td>
</tr>
<tr>
<td>UM123/UM123</td>
<td>SQUAWK [code]/ SQUAWK [code]</td>
</tr>
<tr>
<td>UM133/ n/a²</td>
<td>REPORT PRESENT LEVEL / &lt;no equivalent&gt;</td>
</tr>
<tr>
<td>UM148/UM148R</td>
<td>WHEN CAN YOU ACCEPT [level]/ WHEN CAN YOU ACCEPT [level single]</td>
</tr>
<tr>
<td>UM157/UM157R</td>
<td>CHECK STUCK MICROPHONE [frequency] / CHECK STUCK MICROPHONE [frequencyO]</td>
</tr>
<tr>
<td>UM159/UM159R</td>
<td>ERROR [errorInformation]/ ERROR [errorInformationR]</td>
</tr>
<tr>
<td>UM162/UM162</td>
<td>SERVICE UNAVAILABLE/ SERVICE UNAVAILABLE</td>
</tr>
<tr>
<td>UM165/ n/a³</td>
<td>THEN / &lt;no equivalent&gt;</td>
</tr>
<tr>
<td>UM171/UM171</td>
<td>CLIMB AT [verticalRate] MINIMUM/ CLIMB AT [verticalRate] MINIMUM</td>
</tr>
<tr>
<td>UM172/UM172</td>
<td>CLIMB AT [verticalRate] MAXIMUM/ CLIMB AT [verticalRate] MAXIMUM</td>
</tr>
<tr>
<td>UM173/UM173</td>
<td>DESCEND AT [verticalRate] MINIMUM/ DESCEND AT [verticalRate] MINIMUM</td>
</tr>
<tr>
<td>UM174/UM174</td>
<td>DESCEND AT [verticalRate] MAXIMUM/ DESCEND AT [verticalRate] MAXIMUM</td>
</tr>
<tr>
<td>UM179/UM179</td>
<td>SQUAWK IDENT/ SQUAWK IDENT</td>
</tr>
<tr>
<td>UM183/UM183</td>
<td>[freetext]/ [freetext]</td>
</tr>
<tr>
<td>UM190/UM190</td>
<td>FLY HEADING [degrees]/ FLY HEADING [degrees]</td>
</tr>
<tr>
<td>UM196/UM196</td>
<td>[freetext]/ [freetext]</td>
</tr>
<tr>
<td>UM203/ n/a³</td>
<td>[freetext]/ &lt;no equivalent&gt;</td>
</tr>
<tr>
<td>UM205/UM205</td>
<td>[freetext] / [freetext]</td>
</tr>
<tr>
<td>UM211/UM211</td>
<td>REQUEST FORWARDED/ REQUEST FORWARDED</td>
</tr>
</tbody>
</table>
### 2. Individual comments and responses

<table>
<thead>
<tr>
<th>Comment</th>
<th>Partially accepted</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM61</td>
<td></td>
<td><strong>UM61 has been corrected.</strong> In this amendment, CS-ACNS remains focused on ATN B1 for CPDLC. Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001. Please, see the response to comment #68.**</td>
</tr>
</tbody>
</table>

---

**Notes:**
1=Incorrect in NPA; yellow highlight shows what it should be
2=Message deemed obsolete due to ADS-C
3= Removed message
4= UM213 was removed from ED-228A

---

**Comment** 181

It is recommended that the flight crew should receive a notification of the DLIC contact request. Experience shows that many flight crews inhibit CPDLC before critical phases of the flight as per company SOPs. However, due to the high pace of operations aircraft are not always shut down completely between two flights and the datalink system stays inhibited typically for the rest of the day.

**Response** Noted

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**CS ACNS.B.DLS. B1. 060 DLIC initiation when in 'CPDLC inhibited' state (uplink)**

---

**Comment**

---

**Response**

---
This amendment to CS-ACNS (Issue 5) only provides the minimum specifications to support compliance with CP1. Further improvements should be addressed at a later stage in accordance with current and future editions of the European Plan for Aviation Safety (EPAS). Please, see the response to comment #278.

### AMC1 ACNS.B.DLS. B1.070 CPDLC uplink messages p. 25

<table>
<thead>
<tr>
<th>Comment</th>
<th>133</th>
<th>Comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propose to discuss with EASA the references for ASN and syntax. Version 2 of ICAO Doc 9880 is not containing all information and ED110B is not having the correct version. Doc 9880 version 1 contained the full material which was reduced in version 2 with expectation to be covered in other docs, but this has not yet happened.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>References to ICAO Doc 9705 regarding syntax have been removed from AMC1 ACNS.B.DLS.B1.070 CPDLC as they are referred to in EUROCAE ED-110B. A note has been added.</td>
<td></td>
</tr>
<tr>
<td>Please, see the response to comment #112.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment</th>
<th>134</th>
<th>Comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second para omits ‘W/U’ response. Add text: “Received uplink messages with the response type ‘W/U’ indicated in the ‘Response’ column should be responded to with either DM0 (WILCO), DM2 (STANDBY) or DM1 (UNABLE).”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Not accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>The responses to those messages indicated with W/U in the response column are already provided in ED-110B. Please, see the response to comment #228.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment</th>
<th>228</th>
<th>Comment by: Boeing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMENT #9 of 14</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-Concur</strong></td>
<td><strong>Substantive</strong></td>
<td><strong>Editorial</strong></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page: 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paragraph: AMC1 ACNS.B.DLS.070</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **THE PROPOSED TEXT STATES:** “The data link system should prepare the appropriate response downlink message to a received uplink message in compliance with EUROCAE Document ED-110B, Section 2.2.3.3, Table 2-4. Received uplink messages with the response type ‘A/N’ indicated in the ‘Response’ column should be responded to with
either DM2 (STANDBY), DM4 (AFFIRM) or DM5 (NEGATIVE). Received uplink messages with the response type ‘R’ indicated in the ‘Response’ column should be responded to with either DM2 (STANDBY), DM3 (ROGER) or DM1 (UNABLE).”

**REQUESTED CHANGE:** Add a sentence to the proposed text to address the omitted W/U response type:

“The data link system should prepare the appropriate response downlink message to a received uplink message in compliance with EUROCAE Document ED-110B, Section 2.2.3.3, Table 2-4. Received uplink messages with the response type ‘A/N’ indicated in the ‘Response’ column should be responded to with either DM2 (STANDBY), DM4 (AFFIRM) or DM5 (NEGATIVE). Received uplink messages with the response type ‘R’ indicated in the ‘Response’ column should be responded to with either DM2 (STANDBY), DM3 (ROGER) or DM1 (UNABLE). Received uplink messages with the response type ‘W/U’ indicated in the ‘Response’ column should be responded to with either DM0 (WILCO), DM1 (UNABLE), or DM2 (STANDBY).”

**JUSTIFICATION:** The proposed text omits the W/U response type from the list of response types, which is required by EUROCAE ED-110B / RTCA DO-280B Section 2.2.3.3 Table 2-4 and Section B.4.1.2.7 Table M-5.

response

Not accepted
This is already covered by ED-110B.
AMC1 ACNS.B.DLS.070 has been revised to remove details that already exist in ED-110B.

**COMMENT #10 of 14**

**Non-Concur** | **Substantive** | **Editorial**
---|---|---
X

Pages: 25
Paragraph: AMC1 ACNS.B.DLS.070

**THE PROPOSED TEXT STATES:** The data link system should...EUROCAE Document ED-110B, Section 3.3.7.6.

**REQUESTED CHANGE:** When referring to ED-110B in this paragraph, ED-229A should also be added:

The data link system should...EUROCAE Documents ED-110B, Section 3.3.7.6 and ED-229A.
JUSTIFICATION: At present, only the existing set of data link services are supported. However, B1 and B2 installations should be supported by the ATS units.

response Not accepted

AMC1 ACNS.B.DLS.070 refers to CPDLC messages, which are defined in ED-110B.

Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see also the response to comment #68.

comment 250 comment by: Airbus-Regulations-SRg

P25, AMC1 ACNS.B.DLS.070 CPDLC uplink messages, 3rd section

PROPOSED TEXT: replace “CS.ACNS.B.DLS.050” by “CS.ACNS.B.DLS.B1.070”

RATIONALE: Editorial error in CS requirement reference

response Accepted

AMC1 ACNS.B.DLS.B1.070 has been revised accordingly.

GM1 ACNS.B.DLS. B1. 070 Uplink Messages p. 26

comment 56 comment by: Air France

We recommend to include CPLDC V2 in CS-ACNS (see comment 51 chapter 3 for further explanations)

Already today in 2023, MUAC proposes complex clearances only on aircraft logged B2. It will not work neither with B1 aircraft, nor with "proposed ADS-C EPP only" aircraft.

Some CPDLC V2, already used today are missing in this V1 list (UM74R, UM266, etc...)

response Not accepted

This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1. If additional DL capabilities (beyond ADS-C EPP) are required to be
mandated to support certain types of operations, such need should be reflected at implementing regulation level.

Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

**COMMENT #11 of 14**

**Non-Concur** | **Substantive** | **Editorial**
--- | --- | ---

**comment** 230 | **comment by:** Boeing

**THE PROPOSED TEXT STATES:** The table includes ED-110B Uplink messages.

**REQUESTED CHANGE:** ED-229A messages should be added.

**JUSTIFICATION:** At present, only the existing set of data link services are supported. However, B1 and B2 installations should be supported by the ATS units.

For GM1 ACNS.B.DLS.070:

First paragraph, change “…ED-110B, Section 2.2.3, and…” to “…ED-110B, Section 2.2.3, **ED-228A, Section 5, and**…”

Second paragraph, change “…ED-110B, Section 2.2.3.3, Table 2-4.” to “…ED-110B, Section 2.2.3.3, Table 2-4 and **ED-228A, Section 5.2.1, Table 5-5.**”

Third paragraph, change “…EUROCAE Document ED-110B, Section 3.3.7.6” to “…EUROCAE Document ED-110B, Section 3.3.7.6 and **ED-228A, Sections 5.2.6, 5.2.8 and 5.2.9**”

Replace the first two columns of the table GM1 ACNS.B.DLS.070 Uplink Messages with the above table. The rightmost 3 columns do not change.

**response** Not accepted

As this amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1, GM1 ACNS.B.DLS.070 refers only to CPDLC messages defined in ED-110B.
Nonetheless, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.
DM82 / DM82R | WE CANNOT ACCEPT [level] / WE CANNOT ACCEPT [levelSingle]
---|---
DM98 / DM98 | [freetext] /[freetext]
---|---
DM99 / DM99 | CURRENT DATA AUTHORITY / CURRENT DATA AUTHORITY
---|---
DM100 / DM100 | LOGICAL ACKNOWLEDGEMENT / LOGICAL ACKNOWLEDGEMENT
---|---
DM106 / DM106R | PREFERRED LEVEL [level] / PREFERRED LEVEL [levelSingle]
---|---
DM107 / DM107R | NOT AUTHORIZED NEXT DATA AUTHORITY / NOT AUTHORIZED NEXT DATA AUTHORITY [CDA][NDAO]
---|---
DM109 / n/a | TOP OF DESCENT [time] / <no equivalent>
---|---

Notes:
1= Message deemed obsolete due to ADS-C

response
Not accepted

CS ACNS.B.DLS.075 refers to CPDLC messages defined in ED-110B. This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1.

EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

AMC1 ACNS.B.DLS. B1. 075 Downlink messages

---

comment
135

comment by: EUROCONTROL

See comment on page 25
Propose to discuss with EASA the reference to ICAO Doc 9880 version 2

response
Noted

Please, see the response to comment #112.

---

comment
235

comment by: Boeing

For AMC1 ACNS.B.DLS. 075 CPDLC downlink messages, replace table with the following:
First paragraph, change “…ED-110B, Section 2.2.3, and…” to “…ED-110B, Section 2.2.3, ED-228A, Section 5, and…”

Second paragraph, change “…ED-110B, Section 2.2.3.3, Table 2-4.” to “…ED-110B, Section 2.2.3.3, Table 2-4 and ED-228A, Section 5.2.1, Table 5-5.”

Replace the first two columns of the table GM1 ACNS.B.DLS.075 Dowlink Messages with the above table. The rightmost 3 columns do not change.

**AMC1 ACNS.B.DLS.077 ADS-C EPP messages**

<table>
<thead>
<tr>
<th>comment</th>
<th>14</th>
<th>comment by: <strong>Honeywell</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rev B of the ED-228 and ED-229 should defined as applicable for all new programs launched after this year’s publication of Rev B. Rev A should only be retained as acceptable for aircraft certification programs completed or launched before Rev B publication.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**response**

Not accepted

AMC1 ACNS.B.DLS.075 refers to CPDLC messages defined in ED-110B. This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1.

EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

<table>
<thead>
<tr>
<th>comment</th>
<th>97</th>
<th>comment by: <strong>Dassault-Aviation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CS-ACNS should refer to ED-228B, and not ED-228A.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**response**

Noted

This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1.
Nonetheless, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the responses to comments #113 and #68.

comment 183 comment by: EUROCONTROL

"Regarding ""The data link system should comply with EUROCAE Document ED-228A [...] the exchange of EPP."

--> Why is it a should?
--> ""the exchange of EPP"" should be replaced by ""the exchange of ADS-C Reports."

"Consider replacing should by shall + Correct wording"

response Not accepted

This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1. The scope of CP1 is the downlink of ADS-C / EPP, which is expressed in CS-ACNS by the generic term ‘exchange of EPP data’. 

AMC is soft law and ‘should’ is typically used in AMC to reflect that it represents a means but not the only means to comply with a requirement.

comment 198 comment by: Garmin International

AMC1 ACNS.B.DLS.077 ADS-C EPP messages: Page 29

Proposed Text:

Provide wording which allows Rev A or later of ED-228 and ED-229.

Justification:

It is understood that implementations compliant with the Rev A or Rev B versions of ED-228 and ED-229 equipment will be accepted. As the Rev B version of the standards are expected to be published in 2023, new equipment is expected to be build to these standards. Existing systems built to Rev A standards are expected to continue to be allowed.

response Partially accepted

This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1. Nonetheless, EASA will support applicants that may voluntarily choose
to add more ATS B2 capabilities or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.
Please, see the responses to comments #68 and #113.

---

**Comment 232**

**Comment by:** Boeing

**COMMENT #13 of 14**

<table>
<thead>
<tr>
<th>Non-Concur</th>
<th>Substantive</th>
<th>Editorial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Page:** 29  
**Paragraph:** AMC1 ACNS.B.DLS.077

**THE PROPOSED TEXT STATES:** “The data link system should comply with EUROCAE Document ED-228A, Sections 6.1 and 6.2 and EUROCAE ED-229A, Sections 3.2 and 5.3 to support the exchange of EPP.”

**REQUESTED CHANGE:**

“The data link system should comply with EUROCAE Document ED-228A, Sections 6.1 and 6.2 and EUROCAE ED-229A, Sections 3.2 and 5.3 to support the exchange of **EPP B2 ADS-C data.**”

**JUSTIFICATION:** At a minimum, the complete B2 ADS-C application (not only the EPP function) should be required because the EPP function cannot be separated from the complete B2 ADS-C application.

**Response:** Partially accepted

The ADS-C application version is defined in GM1 ACNS.B.DLS.001 *Applicability*. This application version is ADS-C Version 1, as defined in ED-229A. However, CP1 only requires that ADS-C EPP data be transmitted by the aircraft.

Please, see the response to comment #258.

---

**Comment 251**

**Comment by:** Airbus-Regulations-SRg

P29, AMC1 ACNS.B.DLS.077 ADS-C EPP messages

**COMMENT:**

Replace reference of **ED-228A** by *ED-228 Revision A or B*
and replace ED-229A by ED-229 Revision A or B

**RATIONALE:**
As Revision B of ED-228 and ED-229 is going to be published in September 2023 it would be suitable to include this revision as an acceptable standard in the NPA.

**NOTE:** References also to be updated in chapter 7 References, p40, bullets 5 & 6.

**response**
Partially accepted

This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1. Nonetheless, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

---

**CS ACNS.B.DLS.077 ADS-C EPP Messages**

**comment**

15

The CS ACNS.B.DLS.077 or the related AMC1 ACNS.B.DLS.077 should contain explicit definition of the supported ADS-C messages. (Similarly to CS ACNS.B.DLS.070 & 075 where supported CPDLC messages are explicitly listed.) From current wording it’s not clear if only EPP-related ADS-C messages need to be supported or if the complete ASN.1 spec needs to be supported. If full ADS-C message set is to be supported, then the CS ACNS.B.DLS.077 should explicitly specify ADS-C version (and/or ED-229 section) and state that full ASN.1 message set for that version shall be supported. If only a subset of ADS-C is acceptable, then the requirement should define at least:

a. Which ASN.1 contract requests should be supported (DemandContractRequest, EventContractRequest, PeriodicContractRequest)

b. For each ASN.1 contract request, which options should be supported (e.g. for DemandContractRequest: projected-profile, ground-vector, air-vector, met-info, extended-projected-profile, toa-range, speed-schedule-profile)

If applicable any lower-level ASN.1 exemptions should also be listed. (E.g. along the lines of: “The following ASN.1 items are not required to comply with the mandate: ADSEmergencyUrgency, MetInfo/turbulence, MetInfo/humidity...”)

**response**
Partially accepted

CS ACNS.B.DLS.077 has been revised to specify the types of contract requests. Some clarifications have also been added.

The applicable sections of EUROCAE documents are mentioned in AMC1 ACNS.B.DLS.077 to support the exchange of EPP data (Demand Contract, Event Contract, Periodic Contract).
2. Individual comments and responses

comment 57  
comment by: Air France

Fully agree to refer to ED-228A.

We should not wait for availability of ED-229B.

This comment is valid for any reference to ED-228A in the NPA.

response Noted

Please, see also the response to comment #68.

comment 108  
comment by: Lufthansa Group

ED-228A vs. ED-228B

LHG follows the update progress of the EUROCAE ED-228 and ED-229 documents from revision A to revision B. LHG acknowledges, that the Rev B will introduce a number of functions supporting more automation and further improvement of flight operations and Air Traffic Management. Our understanding is, that the publication of Revision B could be too late to be integrated into the CS/ACNS, especially with regards to the industrialization target date for AF6 of the CP1 regulation but LHG would appreciate a timely assessment of the introduced changes and elaboration of the path forward by an appropriate RMG, e.g. RMT.0524.

response Noted

Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Furthermore, regulatory activity on DLS will continue in accordance with the current and future editions of the European Plan for Aviation Safety (EPAS). Please, see the response to comment #278.

Please, see also the response to comment #68.

comment 137  
comment by: EUROCONTROL

Add new bullet (3rd): “- establishing and terminating ADS-C Contracts (demand, periodic, event)”

response Partially accepted

CS ACNS.B.DLS.077 has been revised to specify the types of contract requests. Furthermore, please also note that relevant requirements to establish and terminate ADS-C contracts are defined in CS ACNS.B.DLS.010 and CS ACNS.B.DLS.020.

comment 182  
comment by: EUROCONTROL

"Incorrect wording regarding:
"ADS-C EPP MESSAGES"
"receiving and processing ADS-C EPP requests;"
"ADS-C EPP reports"

"Replace ""ADS-C EPP MESSAGES"" by ""ADS-C messages""
Replace ""ADS-C EPP requests"" by ""ADS-C Contract Requests"
Replace ""ADS-C EPP reports"" by ""ADS-C Contract reports"

response
Partially accepted
CS ACNS.B.DLS.077 has been revised to specify the types of contract requests. Further clarifications on the EPP downlink have also been provided. It should be noted that only the downlink of EPP data is required by CP1.

comment 197
comment by: Garmin International

CS ACNS.B.DLS.077 ADS-C EPP Messages: Page 29

Proposed Text:

- receiving and processing ADS-C EPP contract requests; and
- preparing and sending ADS-C EPP reports according to the ADS-C contracts

Justification:

The term "requests" would be more appropriate to include the term "contract".

response
Accepted
CS ACNS.B.DLS.077 has been revised.
Please, see also the response to comment #182.

comment 231
comment by: Boeing

Non-Concur | Substantive | Editorial
-----------|-------------|---------

Page: 29
Paragraph: CS ACNS.B.DLS.077

THE PROPOSED TEXT STATES: “The data link system is capable of:
- receiving and processing ADS-C EPP requests; and
- preparing and sending ADS-C EPP reports according to the ADS-C requests.”
REQUESTED CHANGE: Change the two instances of “ADC-C EPP” in the proposed text to “B2 ADS-C”:

“The data link system is capable of:
- receiving and processing ADS-C EPP B2-ADS-C requests; and
- preparing and sending ADS-C EPP B2-ADS-C reports according to the ADS-C requests.”

JUSTIFICATION: At a minimum, the complete B2 ADS-C application (not only the EPP function) should be required because the EPP function cannot be separated from the complete B2 ADS-C application.

response

Partially accepted

CS ACNS.B.DLS.077 has been revised to provide further clarifications. The ADS-C application version is specified in GM1 ACNS.B.DLS.001.

Nonetheless, only the downlink of EPP data is required by CP1. Please, see also the response to comment #182.

comment 233 comment by: Boeing

COMMENT #14 of 14

<table>
<thead>
<tr>
<th>Type of comment (check one)</th>
<th>Non-Concur</th>
<th>Substantive X</th>
<th>Editorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affected paragraph and page number</td>
<td>Pages: 29 Paragraph: CS ACNS.B.DLS.077</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| What is your concern and what do you want changed in this paragraph? | THE PROPOSED TEXT STATES: The data link system is capable of:
- receiving and processing ADS-C EPP requests; and
- preparing and sending ADS-C EPP reports according to the ADS-C requests. |
| | REQUESTED CHANGE: The data link system is capable of:
- supporting the EPP reports and event functionality,
- receiving and processing ADS-C EPP requests; and
- preparing and sending ADS-C EPP reports according to the ADS-C requests. |
| | JUSTIFICATION: At a minimum, the complete B2 ADS-C application (not only the EPP function) should be required because the EPP function cannot be separated from the complete B2 ADS-C application. |
2. Individual comments and responses

response

Partially accepted
Please, see the responses to comments #182 and #231.

comment 286 comment by: Gulfstream Aerospace Corporation

Gulfstream Aerospace Corporation:

Comment:
Comment on the following "preparing and sending ADS-C EPP reports according to the ADS-C requests."

Rationale:
Where are the ADS-C EPP requests and reports' format defined?

Recommended Change:
EASA should consider adding a section to explain the formatting requirements to be followed for ADS-C EPP reports.

response Noted

AMC1 ACNS.B.DLS.077 provides the technical elements referring to EUROCAE ED-228A and ED-229A.

GM3 ACNS.B.DLS. B1. 075 Optional ACL Downlink Messages p. 29

comment 136 comment by: EUROCONTROL

See comment on page 25
Propose to discuss with EASA the reference to ICAO Doc 9880 version 2

response Noted

Please, see also the response to comment #112.

comment 236 comment by: Boeing

For GM3 ACNS.B.DLS.075 Optional ACL Downlink Messages, replace the table with the below table.

<table>
<thead>
<tr>
<th>ID</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ED-110B/ED-228A</td>
</tr>
</tbody>
</table>
2. Individual comments and responses

<table>
<thead>
<tr>
<th>ED-110B/ED-228A</th>
<th>REQUEST CLIMB TO [level] / REQUEST CLIMB TO [level]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM9 / DM9</td>
<td>REQUEST DESCENT TO [level] / REQUEST DESCENT TO [level]</td>
</tr>
<tr>
<td>DM10 / DM10</td>
<td>REQUEST WEATHER DEVIATION UP TO [specifiedDistance] [direction] OF ROUTE / REQUEST WEATHER DEVIATION UP TO [lateralDeviation] OF ROUTE</td>
</tr>
</tbody>
</table>

**response** Not accepted

This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1. Therefore, GM3 ACNS.B.DLS.075 refers to CPDLC messages defined in ED-120.

Nonetheless, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the response to comment #68.

**GM1 ACNS.B.DLS. B1. 080 Data Link Initiation Capability (DLIC) Service**

<table>
<thead>
<tr>
<th>comment</th>
<th>138</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete: ACM (Table 5-21) and ACL (Table 5-31 and Table 5-32)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This section is only concerned with DLIC.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**response** Accepted

GM1 ACNS.B.DLS.080 has been revised accordingly.

**AMC1 ACNS.B.DLS. B1. 080 Data Link Initiation Capability (DLIC) Service**

<table>
<thead>
<tr>
<th>comment</th>
<th>184</th>
<th>comment by: EUROCONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why &quot;should&quot;? Consider replacing &quot;should by shall&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**response** Noted

AMC is soft law and ‘should’ is typically used in AMC to reflect that it represents a means but not the only means to comply with a requirement.
comment 185 comment by: EUROCONTROL

Why not referring to ED120 and not to ED228A for DLIC / CPDLC Performance requirements?
Consider referring to ATS B2 SPR (ED228A)
Same question for the next requirements

response
Not accepted
This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1. As such, ED-120 continues to be used to support compliance.
Nonetheless, EASA will support applicants that wish to apply for ATS B2 DL installations, which are based on ED-228/ED-229 Revision A or later revisions.
Please, see the response to comment #68.

GM1 ACNS.B.DLS. B1. 085 ATC Communications Management (ACM) Service p. 31

comment 139 comment by: EUROCONTROL
Delete: DLIC (Table 4-8 and Table 4-9) and ACL (Table 5-31 and Table 5-32)
This section is only concerned with ACM.

response
Accepted
GM1 ACNS.B.DLS.085 has been revised accordingly.

GM1 ACNS.B.DLS. B1. 090 ATC Clearances and Information (ACL) Service p. 31

comment 140 comment by: EUROCONTROL
Delete: DLIC (Table 4-8 and Table 4-9) and ACM (Table 5-21)
This section is only concerned with ACL.

response
Accepted
GM1 ACNS.B.DLS.090 has been revised accordingly.

CS ACNS.B.DLS.097 ADS-C EPP safety and performance requirements p. 32

comment 98 comment by: Dassault-Aviation
CS-ACNS should refer to ED-228B, and not ED-228A.
response

Noted
This amendment to CS-ACNS (Issue 5) represents the minimum changes needed to support compliance with CP1.

Nonetheless, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Please, see the responses to comments #14 and #68.

GM1 ACNS.B.DLS. B1. 100 Network Layer Requirements

comment 141
Delete reference to ICAO PDU (sic) M0070002 ('Interoperability impact when deflate compression is used. Non-compliance with Zlib').
This PDR is only applicable to Doc 9705 and should be incorporated into Doc 9880.

response Not accepted
The PDR reference is kept in GM1 ACNS.B.DLS.B1.100.
Please, see the response to comment #112.

GM1 ACNS.B.DLS. B1. 105 Transport Layer Requirements

comment 142
Delete duplicated heading “Transport Protocol Classes”

response Accepted
The duplicate ‘Transport Protocol Classes’ has been removed from GM1 ACNS.B.DLS.105.

comment 143
Typo: “miss deliveries” -> misdeliveries

response Accepted
‘miss deliveries’ has been replaced by ‘misdeliveries’ in GM1 ACNS.B.DLS.105.

comment 144

Delete reference to ICAO PDR M0040002
The PDR is only applicable to Doc 9705 and should be incorporated into Doc 9880.

<table>
<thead>
<tr>
<th>response</th>
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</thead>
<tbody>
<tr>
<td>GM1 ACNS.B.DLS.105 has been revised to still refer to ICAO Dec 0705 as needed. Therefore, the reference to PDR M0040002 is kept.</td>
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<td>Please, see the response to comment #112.</td>
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### CS ACNS.B.DLS. B1. 110 Session Layer

<table>
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<th>comment</th>
<th>145</th>
<th>comment by: EUROCONTROL</th>
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<tbody>
<tr>
<td>Typo: DRPSAC -&gt; SAC</td>
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<table>
<thead>
<tr>
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<th>Accepted</th>
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</thead>
<tbody>
<tr>
<td>‘DRPSAC’ has been replaced by ‘SAC’ in CS ACNS.B.DLS.110.</td>
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### CS ACNS.B.DLS. B1. 120 Application Layer Requirements

<table>
<thead>
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<th>comment</th>
<th>146</th>
<th>comment by: EUROCONTROL</th>
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</thead>
<tbody>
<tr>
<td>Incorrect terminology: Replace “Convergence Function” with “Control Function”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>response</th>
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</thead>
<tbody>
<tr>
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### AMC1 ACNS.B.DLS. B1. 120 Application Layer Requirements

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<tr>
<td>Incorrect terminology: Replace “Convergence Function” with “Control Function”</td>
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<table>
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<tr>
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<tbody>
<tr>
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### GM1 ACNS.B.DLS. B1. 120 Application Layer Requirements

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<tr>
<th>comment</th>
<th>148</th>
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<tbody>
<tr>
<td>Section is not relevant. To consider deleting whole section as irrelevant</td>
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</table>

An agency of the European Union
## 2. Individual comments and responses

<table>
<thead>
<tr>
<th>Comment</th>
<th>Comment by:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>149</td>
<td>EUROCONTROL</td>
<td>Propose to emphasise the need for easy updates in NSAP the database as today there are difficulties in this area. The Network Service Access Point (NSAP) address database is capable of being updated to ensure compliance with the applicable version of the ICAO EUR Doc 028.</td>
</tr>
<tr>
<td>99</td>
<td>Dassault-Aviation</td>
<td>References to ED-228 and ED-229 should point out revision B.</td>
</tr>
</tbody>
</table>
| 252 | Airbus-Regulations-SRg | P40, Chapter 7 “References”  
**PROPOSED**  
remove *ED-122*  
Add *ED-100A*  
**RATIONALE:**  
ED-122 reference is no longer used in the CS ACNS. |
2. Individual comments and responses

While ED-100A reference is used in the AMC1.ACNS.B.DLS.015 Dual Data Link Capabilities (Dual stack).

response
Not accepted

Appendix B with references has been removed; nonetheless, a reference to ED-122 is still present in AMC1 ACNS.B.DLS.015 Dual Data Link Capabilities (Dual Stack).

comment 267

Since IRIS/Satcom is now an applicable air/ground technology to provide datalink capabilities, associated standards should also be listed in the reference list.

DGAC6FR suggests to add IRIS/Satcom related standards, e.g. RTCA DO-343D/ EUROCAE ED-242C, ICAO AMS(R)S SARPs

response
Not accepted

Appendix B with references has been removed at this amendment. Nonetheless, the standards to support DL installation based on IRIS/SATCOM will be considered for the next CS-ACNS DLS amendment.

Please, see the responses to comments #25 and #278.

2. What are the possible options

comment 18

IFATCA believes that Option 1 is the least difficult option to be taken at the current stage.

a. Safety impact
With Option 0, the safety risks would remain unchanged.
The implementation of either Option 1 or Option 2 is expected to have a safety benefit at the airspace level.

response
Noted

b. Data collection

comment 34

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</table>

comment by: ENAIRE
Stakeholders are invited to provide any other quantitative information they deem useful to bring to the attention of EASA, to support and improve the analysis and the choice between option 1 and option 2. As a result, the relevant parts of the impact assessment may be adjusted on a case-by-case basis.

ENAIRE considers that this is not the right approach. The so-called options 1 and 2 should be widely discussed in detail with all the relevant stakeholders that one way or another will be impacted by this, namely, ANSPs, AUs and aircraft and avionics manufacturers.

It is also very important to have a clear and feasible roadmap and scope for data link implementation considering the needs from the different stakeholders in the aeronautical community. Additionally, it is also very important to consider the required investments by all the stakeholders and the potential loss of the opportunity window if we don’t undertake the required actions in due time.

response

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities (beyond ADS-C EPP) are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Furthermore, regulatory activity on DLS will continue in accordance with the current and future editions of the European Plan for Aviation Safety (EPAS).

Please, see the response to comment #278.
ATS B2 CPDLC (version 2)

The updated CS/ACNS (option 1) describes the requirements to integrate ADS-C EPP as part of the ED-228A standard and leaves the CPDLC minimum standard in the version 1 according to ED-110B. LHG recognizes that this description is in line with the requirements from the AF6 part of CIR 2021/116 commonly known as CP1 regulation. Despite that, LHG sees a number of advantages in the implementation of the full ATS B2 stack in accordance with ED-228A (option 2):

- The provision of the updated CPDLC message set is the logical step towards automation in ATM
- It is our understanding, that one of the goals of the ADS-C EPP implementation is closing the communication loop between air and ground for complex clearances supported by the ATS B2 standard but not ATN B1
- The European Multilink Roadmap and the ‘Future Connectivity for Aviation – FCAV’ white paper foresee an ATS B2 integration by 2032, meaning, that for Airspace Users, by 2032 a further system upgrade of the CP1 compliant aircraft would be required or we would introduce another fleet inhomogeneity reducing the acceptance of the ATS B2 CPDLC application
- All aircraft types would follow the same strategy and provide the same services, Airbus integrated into their A320family and A330 aircraft. The remaining four years until the functionality is mandated for line fit, from our perspective should be sufficient for manufacturers to integrate the full ATS B2 package.

response

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities (beyond ADS-C EPP) are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Furthermore, regulatory activity on DLS will continue in accordance with the current and future editions of the European Plan for Aviation Safety (EPAS).

Please, see the response to comment #278.
The expected impact on safety will be more than minimal, you can also have an overload of work in the cockpit by the various means of communication between the ground and the air, this has already been experienced by several cockpit crews in short to medium range flight, these crews are reluctant to use the CPDLC, which is sometimes too noisy for an authorization that is not very critically useful (such as changing ATSU, maintaining the level, etc.)

response

Noted

The current use of CPDLC is not intended for non-routine, time-critical situations. Furthermore, the primary means of communication within the current context remains via voice.

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<tr>
<td>36</td>
<td>Appendix 1, 4. What are the impacts, a. Safety impact</td>
<td>If only the ADS-C EPP downlink capability would be used, both options proposed would result in similar benefits.</td>
<td>Please, clarify if you refer to the implementation of ADS-C EPP within ATN-B1 or within ATS-B2. Obviously, if ADS-C is only implemented within ATS-B2, there will be no relevant advantages over ATN-B1.</td>
</tr>
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response

Noted

Comparison was made only if the ADS-C EPP downlink capability would be used (as this represents the minimum required by CP1), regardless of whether or not the installation is based on ATN B1 + ADS-C EPP or ATS B2 (which includes AS-C EPP).

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<td>186</td>
<td>MUAC disagrees with the assessment that with option 0 safety risks would remain unchanged. Due to the increase of traffic in Europe, the ATN B1 CPDLC network's performance is already struggling due to the heavy use of the VHF Datalink Mode 2. Multi-link capabilities, such as IRIS are currently only offered to ATS B2 aircraft. Consequently Option 0 and Option 1 would both jeopardize the performance and stability of the VDLM2 network by increasing the number of ATN B1 VDLM2 users and removing the option of using alternative media of data communication. The use of Option 1 introduces further confusion on the ground side and unreliability with respect to aircraft capability. The introduced additional combinations were not foreseen</td>
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during the development of the ED-228/229/230/231 documents, therefore there is no assurance that these combinations will work flawlessly - which might manifest into safety issues and confusion both on the ground and in the air.

The safety benefit of Option 2 is considerably higher through replacing ATN B1 CPDLC with B2 for multiple reasons as described above (performance, messages, flight crew considerations). It has been quantified in MUAC operations, that response times of horizontal clearances on B2 aircraft are about 25% faster than on B1, which demonstrates lower flight crew workload on CPDLC v2.

Average response times (2022):
- UM74 (519548 messages): 12.4 sec
- UM79 (5128 messages): 21.71 sec
- UM74R (20206 messages): 10.57 sec
- UM79R (188 messages): 18.25 sec

response Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1. If additional DL capabilities (beyond ADS-C EPP) are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.

Recognising the need for DL installations to evolve, EASA will support applicants that may voluntarily choose to add more ATS B2 capabilities to the DL installation or consider later revisions to the ED-228/ED-229 standards. Please, see GM2 ACNS.B.DLS.001.

Furthermore, regulatory activity on DLS will continue in accordance with the current and future editions of the European Plan for Aviation Safety (EPAS).

Please, see the response to comment #278.

b. Environmental impact

comment 5 comment by: ETF ATM PSO
To have an effective environmental impact, the ANPS should, as soon as possible, train ATCOs to have this objective on the same level as safety and performance, otherwise the EPP will NOT be used to improve the ATM carbon footprint by the ops rooms.

response Noted

comment 187 comment by: EUROCONTROL
MUAC disagrees with the assessment that Option 1 would have an equal positive environmental impact as Option 2. Option 1 will limit the use of the whole ATS B2 capability the following ways:
- lack of CPDLC v2/4: TBO will be limited due to the already highly used voice frequencies
- TBO instructions are not expected to be feasible to be given over voice (eg. LatLong
coordinates, complex route clearances along with speeds, required time over fix). There will also be no possibility to use closed trajectories instead of radar headings, which will result in more nautical miles flown and more emissions.
- Lack of the ADS-C TOA RANGE and Speed Schedule functions: it will limit the provision of XMAN/AMAN operations to their current levels, instead of being able to use the full capabilities of aircraft. Based on MUAC experience, in general up to 2-2.5 times as much en-route delay absorption would be possible through the use of the TOA RANGE/Speed Schedule function if XMAN restrictions are applied at their current point (EGLL/EGKK at 350 nm from ADES).
- Lack of the ADS-C TOA RANGE function: it would not allow controllers to check if aircraft can speed up/slow down to leave/not to enter a military area on the route, which will cause unnecessary reroutings, more nautical miles flown and more emissions.
- Lack of the [Revision B] VHF Active Frequency downlink option+associated event contract: it will maintain the current risk levels of loss of communication and the subsequent environmental effects of intercepts by fighter aircraft. In case of this functionality not being implemented, no silent intra-ANSP sector transfers will be possible either, which will mean additional radio transmissions with their associated energy requirement and cost.

During the period of 2018-July 2023, MUAC has registered 281 prolonged losses of communication events and subsequently 33 interceptions of civilian aircraft. The environmental "'cost'" of an intercept conducted by 2*F-16 fighter jets is estimated at 30.000 kg of CO2 emitted (Source: Naval Postgraduate School Monterey, 2006).

MUAC handles on average 5.000 flights a day with most flights crossing through at least 3 Maastricht sectors. This results in 3 initial calls, each with a minimum of 10 seconds RT time: 3*5000*10=150.000 seconds or 41.6 hours/day of RT spent only on initial calls. If only 10% of these calls could be saved through the VHF frequency downlink, it would already result in a measurable decrease of energy used by aviation radios. Of course not of the same magnitude, the calculation based on R&S Series 5200 radios shows that reducing initial calls by 10% (15.000/2 seconds as a call consists of RX/TX part from the ground) at MUAC would translate into an approximate daily energy saving of 0.65 kWh only through the reduced use of TX power.

response

Noted

This amendment to CS-ACNS (Issue 5) only provides the minimum DL capability requirements needed to support compliance with CP1.

Please, see the responses to comments #68 and #113.
2. Individual comments and responses

**Comment 188**

**Comment by: EUROCONTROL**

Certain parts of the global society are less and less tolerant to the perceived environmental effect of aviation; the more aviation can do to reduce emissions the more accepted the whole industry is expected to become by society.

**Response**

Noted

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4. What are the impacts

**Comment 35**

**Comment by: ENAIRE**

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<tr>
<td>42</td>
<td>Appendix 1, 4. What are the impacts</td>
<td>Furthermore, AF6 CP1 maturity (industrialisation) level gate is targeted for the end of 2023. Passing such gate depends on the availability of standards (i.e., detailed specifications) including but not only limited to the CS-ACNS.</td>
<td></td>
<td>ENAIRE considers that this is not the right approach. Established maturity level gate is not only an industrialisation definition affecting ADS-C EPP capability for aircrafts. This maturity level should also consider availability of standards (communication, interfaces, functionalities...) in order to help ANSP's to define, develop and implement on ground facilities. For sure that having ADS-C EPP aircrafts is a good enabler to implement ATS B2 in on-ground ATC systems. But dates, phases and mid/long-term regulations should be clear for all stakeholders (including ANSP's). And, of course, taking into account ANSP's.</td>
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response

Noted

EASA is required to issue certification specifications for airborne DL installations to support compliance with CP1. Such amendment (Issue 5) only represents the minimum requirements to support compliance with CP1. As regard fulfilling the CP1 maturity gate requirements, the availability of standards is also taken into account.

comment 58  
comment by: *Air France*

ADS-C EPP is already defined in an approved standard, and already operationally used with success in Europe. Industrialization gate is therefore not jeopardize by the lack of regulatory framework

response

Noted

EASA is required to issue certification specifications for airborne DL installations to support compliance with CP1. This amendment to CS-ACNS (Issue 5) provides an element to support fulfilling the CP1 maturity gate requirements.

d. Economic impact

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<tbody>
<tr>
<td>42</td>
<td>Appendix 1, 4. What are the impacts, d. Economic impact</td>
<td>— Option 0 would result in a misalignment with the vision in the FCAV paper.</td>
<td>— Option 0 would result in a misalignment with the vision in the FCAV paper.</td>
<td>This is irrelevant. The mentioned FCAV white paper did not include neither consider the contribution from relevant European data link stakeholders.</td>
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response

Noted

Please, see the response to comment #24.
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<tr>
<td>Appendix 1, 4. What are the impacts, d. Economic impact 43</td>
<td>For Option 1, there will be a ‘compliance cost’ associated with designing, installing, and implementing the changes for operators of aircraft with a CofA issued on or after 31 December 2027. As the design change is limited to ADS-C EPP capability, by implementing this option, the cost may also be limited for several avionics configurations and aircraft implementations. For Option 2, there will be a ‘compliance cost’ associated with designing, installing, and implementing the changes for operators of aircraft with a CofA issued on or after 31 December 2027. Compared with Option 1, this option adds more capability than required by AF6 CP1. The additional capability (full ATS B2) may increase the compliance cost as more avionics units would need to be upgraded. Such additional capability is however not required by AF6 CP1, therefore the cost incurred would be disproportionate compared with the requirements of AF6 CP1.</td>
<td>ENAIRE does not agree with this approach. Obviously, options 1 and 2 will be more expensive for aircraft operators and for ANSPs. Furthermore, option 2 will be far more expensive than option 1. However, is there any reliable and wide analysis that compares the technical and economic advantages of the implementation of option 1 and 2? Do we (ANSPs and aircraft operators) have to provide such analysis as a response to this NPA? ENAIRE considers that it is too late to require something like this and it will be very difficult to come up with a precise response. Nonetheless, ENAIRE can provide a qualitative answer saying that we (aircraft operators, ANSPs, aircraft and avionics manufacturers) need to go step by step with a clear target to implement option 2 in a synchronised manner with the appropriate European funding.</td>
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Stakeholders are invited to provide elements to quantify the economic impact of the options 1 or 2, or alternatively, propose other options.

response

Noted

comment 59
comment by: Air France

There is no evidence that Option 1 costs for will be less than Option 2.

- Most of ATS B2 development costs are related to FMS interface, which is needed to implement ADS-C EPP (so needed in option 1)
- Experience shows than CPLDC V2 can not be operationally de-correlated from ADS-C EPP. If we have to retrofit later to implement CPLDC V2, we can expect higher costs than implementing Option 2 since start
- With Option 1, we will generate "parallel branches" of avionic configurations (see comment 52), inducing extra costs for configuration management (spares, repairs, etc...) and adverse effects (inability to introduce future FMS evolutions, costs for re-convergence to common standard, etc...)
- With Option 1, ATM benefits already identified with CPDLC V2 will not be reached, causing extra costs
- Please note that for some aircraft types, like on A220, which is expected to operate significant number of flights in the coming years, changes in avionics are grouped together in a combined major avionic batch. The interval between avionic batches is often 3 to 4 years. It means that with Option 1, we will not recover benefits from other ATN B2 applications (CPLDC V2) before years.
- Some ATC centers already operate with full B2 aircraft. If option 1 is chosen, this will result in a new fragmentation in Europe, which we know is very costly (adaptation mechanisms to be implemented on regional basis)

response

Noted

comment 60
comment by: Air France

Option 2: (The additional capability (full ATS B2) may increase the compliance cost as more avionics units would need to be upgraded) ...( cost incurred would be disproportionate
2. Individual comments and responses

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<th>comment by: EUROCONTROL</th>
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OPTION 1:
Option 1 would considerably increase costs on the ground side due to the much more complex ground implementation (to support the fragmented deployment), while it would reduce the expected benefits on the airborne side. Not even sure how feasible it will be for the ground to support fragmented avionics as well as partial ADS-C implementation.

The largest impact on airspace users would be affecting the airlines who have already equipped their aircraft with the full ATS B2 package: due to the fragmented equipage of the rest of the airspace users, early full ATS B2 equippers would also receive a reduced service since ATC in general could not differentiate between different levels of equipage in moderate to high traffic levels. ATCOs would not be able to provide different level/quality of service to differently equipped aircraft and automation support would also be limited, which would limit further capacity increases and cause delays.

The goals of harmonized global B2 implementation and all the associated benefits (eg. uniform service at intercontinental-level, ground-to-ground coordination, ease of information exchange, etc.) would be seriously hampered; it would also take additional resources both to maintain legacy systems in their entirety and to upgrade airframes in the future - this would incur costs to be paid by airspace users, ANSPs and/or States.

In case the FAA or other licensing and certifying authorities outside Europe will not accept the partial ADS-C EPP-only+CPDLC B1 equipage, airspace users will have to invest substantial amount of money to upgrade their airframes to a level which is acceptable also outside of Europe. In case of some aircraft configurations such upgrade might not even be possible due to incompatibilities of hardware/software components.

OPTION 2:
Option 2's "compliance cost" would be returned in safety, operational, economic and environmental benefits on medium to long-term.

Please consider this step not only for the AF6 CP1 regulation, but its impact to the rest of the world too.

Going to Option 2 directly would mean that investment would be done earlier to cover the full ATS B2 (instead of partial ADS-C only), but the cost of certification / deployment only paid once as well as avionics would not need to be upgraded two times.

The cost for ANSP would also go (in total) smaller than developing and deploying a system supporting fragmented avionics versions, and later on having to pay again for the upgrade to Option 2 (and still supporting the legacy versions flying around).

Alternative proposal:
In case of time concerns the new regulation could apply similar temporary exemptions to the implementing rule as the Commission Implementing Decision (EU) 2019/2012 which introduced exemptions from the Datalink Service Implementing Regulation for certain airframes for an additional 2 year period. It is more desirable for ANSPs globally to have as few variations in equipment as possible even at the cost of a later implementation/temporary exemptions. It would also be in the interests of all airspace users through the better planning capability and possibly higher capacity increases of the ANSPs due to a more consistent set of airborne equipage.

As the mandate is forward-fit only, it fundamentally differs from the DLS IR.

Acceptable means of compliance proposal:

Between January 2028 - January 2030:
- full RevA (ADSC v1 + CPDLC v2) is acceptable for forward-fit
- exemption for airframes equipped with CPDLC v1 until January 2030

After January 2030:
- full RevB (ADSC v3 + CPDLC v4) forward-fit only
- no exemptions on forward-fit

If these options can not be selected, please consider a full-retrofit mandate for all aircraft with a CofA of 2028 or after to take effect from 2032 without any exemptions.

response

Not accepted

The changes proposed cannot be implemented at CS-ACNS or other detailed specification (DS) level. This amendment to CS-ACNS (Issue 5) would be applicable to new designs and changes to type designs, in accordance with Part 21.

Changes at implementing regulation level (e.g. Commission Regulation (EU) 2015/640 and its Annex I (Part-26)) are needed to introduce such proposed changes. Any subsequent regulatory changes should be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

comment 217

“Stakeholders are invited to provide elements to quantify the economic impact of the options 1 or 2, or alternatively, propose other options.”

About the options of OEMs offering the ADS-C EPP separated from the FANS-3/C whole suite. The difference stays in the CPDLC B2. For the time being, there are a couple of SESAR Solutions, maturity V2, that have derived positive business cases for the implementation of en-route ATC SOPS based on complex CPDLC B2 clearances. It is very early to determine that the operational expected benefits will represent financial advantages. SESAR IR02 projects will research more in the subject, and after the IR projects it is likely that DSD (demonstrators in real operational environments) will be required to validate the CPDLC B2 benefits. Therefore, at the time being, airlines should bear the costs of the mandated capability (ADS-C EPP), and those operators that decided to go for the ATS B2 suite will do it based on their own hypotheses, business cases, and strategies.
2. Individual comments and responses

response

Noted

This comment supports the approach taken in this amendment to CS-ACNS (Issue 5) to provide the minimum specifications needed to support compliance with CP1. The implementation of additional data link capabilities is voluntary.

comment 274  
comment by: DGAC FR (Mireille Chabroux)

General comment: the proposed Economic Impact does not provide figures or data to rely on. As such, it is not clear how conclusions could be reached. Should an additional consultation be expected with an updated economic-impact assessment once an updated assessment is developed?

response

Noted

The assessment of the options was performed using a qualitative approach, due to the wide range of aircraft installations and avionics configurations with DL capability. The challenge to quantify the benefits was also acknowledged by stakeholders; furthermore, the additional feedback received does not change the proposed way forward.

No additional consultation is required to support the issuance of this amendment (CS-ACNS Issue 5) as this amendment introduces the minimum changes to support compliance with CP1, coupled with supporting applicants that voluntarily upgrade to ATS B2 capability.

Please, see the response to comment #68.

a. Comparison of the options  p. 43

comment 7  
comment by: ETF ATM PSO

Option 1 with social change management, gradually change the ATM culture to use these technologies accordingly

response

Noted

comment 39  
comment by: ENAIRE

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<tr>
<td>44</td>
<td>Appendix 1, 5. Conclusion, a. Comparison of the options</td>
<td>Option 1 is also aligned with the proposals of the FCAV document.</td>
<td>Option 1 is also aligned with the proposals of the FCAV document.</td>
<td>This is irrelevant. The mentioned FCAV white paper did not include neither consider the contribution from relevant European data link stakeholders.</td>
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### Individual comments and responses

#### Comment 40

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<tr>
<td>44</td>
<td>Appendix 1, 5. Conclusion, a. Comparison of the options</td>
<td>In conclusion, Option 1 is proposed as a way forward since it would achieve more efficiently the objectives of AF6 CP1.</td>
<td>In conclusion, Option 1 is proposed as a way forward since it would achieve more efficiently the objectives of AF6 CP1.</td>
<td>ENAIRE does not support this statement. This NPA proposes changes to the Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigations and Surveillance (CS-ACNS), to support the design and production organisations and in particular the aircraft operators required to provide ADS-C EPP (Automatic Dependent Surveillance – Contract Extended Project Profile) part of ATS-B2 (ATS baseline 2), in accordance with AF6 (ATM functionality 6 – initial trajectory information sharing) of Commission Regulation (EU) 2021/116 Common Project One (CP1). Option 1 is the least restrictive and facilitates industry development by reducing the design requirements for CP1 AF6 compliance, in order to certify aircraft after 31 December 2027, but the level of development and planning...</td>
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**Response**

Noted

Please, see also the response to comment #24.
of the other stakeholders (i.e. ANSPs) and their ground systems has not been taken into account in order to harmonize air-ground systems.

It would be very beneficial to have the planning and level of development on ATS B2 applied to the CPDLC and ADS-C service of each actor, as a basis for the decision of the options proposed and thus be able to benefit a maximum number of them and not emperor the rest.

**response**

Noted

EASA is required to amend CS-ACNS to support compliance with CP1.

CS-ACNS is applicable to design and production organisations / manufactures of airborne data link systems. As such, the options reflect mainly the stakeholders to which CS-ACNS is applicable. Furthermore, this amendment (Issue 5) provides the minimum DL capability specifications needed to support compliance with CP1. Applicants may voluntarily introduce additional DL capabilities.

GM2 ACNS.B.DLS.001 has been added to state that EASA accepts and supports applications for approval of systems that offer ATS B2 data link services.

**comment**

*70*

**comment by:** ENAV

Considering the agreement reached in the NDTECH/NDOP about this topic in 2022, ENAV supports the proposed EASA option (Option 1).

**response**

Noted

**comment**

*100*

**comment by:** Dassault-Aviation

As above mentioned (see DA comments page 11), EPP option 1 is the option targeted to comply as much as possible to the mandate. But there are high risks not to be ready on time, considering all different aircraft types and multitude versions of avionics suites.

« Besides, for CP1, there are still technical risks associated to the DL solution, for a
workable solution at the mandate deadline. VDL2 maturity issues (IE: non AOC operators connection, network capacity,...), and EPP services deployment schedule and organisation on ground (ie Common service deployment ) need to be fixed on time.

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**Comment 218**

Comment by: IATA

Current understanding is that Option 2, since it exceeds the minimum requirements of Option 1, is a voluntary option that still fulfills the requirements for certification with no need to resort to additional or alternative mechanisms such as special conditions. Please confirm.

Minimum requirements to fulfill option 1 scenario, with flexibility to accommodate option 2 for those who decide to follow that option, looks like a flexible scenario that still avoids an extension of the initial scope as per CP1 regulation, which could affect the stakeholders already in their way to comply with option 1.

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<td>An aircraft configuration based on Option 2 is beyond the minimum design requirements needed to support compliance with CP1. As such, what is beyond the certification specifications contained in this amendment (CS-ACNS Issue 5) is voluntary.</td>
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</table>

**Comment 237**

Comment by: LFV

LFV prefers Option 1 or 2 as they offer a greater potential to modernize our operations in line with LFVs efforts invested in SESAR Industrial Research. LFV also notes that to date, no avionic manufacturer has signaled intent to develop equipment strictly meeting the Option 0 standard. LFV recognizes the reality that neither DLS IR nor CP1 offer a solid legal backing for anything but Option 0 but we are not in position to assess to which degree this fact presents a practical constraint on the CS-ACNS. In regards to the choice between Option 1 or 2, LFV enters a slight preference for Option 1 in order to minimize the negative consequences on the early movers, a principle which the Commission has an ambition to follow. At the same time LFV has no practical experience with either Option 1 or 2 and will defer to EASA to assess the merit of Option 2 and whether the technical advantages it offers outweigh the principle of not penalizing the early movers.

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comment 61

"Option 1 ensures that the objective of AF6 CP1 is met":
This is not correct. This configuration is not based on an approved standard and has never been tested. Adverse effects may happen

"Option 1 is also aligned with the proposals of the FCAV document":
Reference FCAV white paper is not relevant to decide between options, as it is not a reference document. It has been acknowledged only between EASA, FAA and two aircraft manufacturers, without consultation of all other ATM/CNS stakeholders:

- Airlines and their associations
- EU ATM stakeholders (SJU, SDM, ETCL)
- Communication Service Providers
- ANSP
- Other aircraft and avionic manufacturers"

"Option 2 ensures that the objectives of AF6 CP1 are met":
True - demonstrated with demos and daily ATS B2 flights

"Option 2 making the additional cost incurred disproportionate"
Cost of "Option 1 + Upgrade of other B2 applications some years later" expected to be greater than "Option 2"

CONCLUSION: option 2 supported

response Noted
CS-ACNS (issue 5) only provides the minimum DL capabilities needed to support compliance with CP1.
If additional DL capabilities (beyond ADS-C EPP) are required to be mandated to support certain types of operations, such need should be reflected at implementing regulation level.
Nonetheless, EASA will support applications for the approval of DL systems that offer ATS B2 services beyond ADS-C EPP based on ED-228A/ED-229A or later revisions of acceptable standards.
Please, see the response to comment #68.
See also the response to comment #24 on FCAV.

comment 67

Some ANSP may not be ready to collect and operationally use EPP data by End 2027. Consequently, in order to manage possible certification delays, regulator may consider a transition period to allow a proper deployment of full B2 rather than introducing potential problematic “craft” solution in a rush situation.
In a comparable situation, a smart solution has been introduced for GADSS Autonomous Distress Tracking (Amendment 48 to Annex 6 –Part 1 - 6.18). Some manufacturers have reported certification delays to meet original mandate (01/2024). Updated requirement still requests aircraft with first CoA dated 01/2024 to be equipped, but ask to equip before 01/2025. Retrofit of aircraft delivered without ADT in 2024 will be easily performed in 2025 by airlines, with no significant extra cost.

Such a rule for ATS B2 would allow to secure ADS-C EPP aircraft equipage rate, avoid any intermediate standard and future retrofits, follow existing approved standards supporting industrialization target date, take full benefit of ATS B2 (CPDLC V2, FMS upload, etc...) and avoid new fragmentation issues (aircraft B1, aircraft B1 + EPP, aircraft full B2). Duration of this transition period would be set in accordance with ground EPP introduction ramp-up, ensuring a ground/board synchronized and efficient deployment. Operational consequences and impact on ATM automation would then be very limited. If commercial conditions for retrofit within transition period are comparable with linefit conditions, this could be easily supported by airlines. This would be highly preferred than retrofitting from Option 1 to Full B2 in the coming years.

**response**

Noted

CS-ACNS (Issue 5) only provides the minimum DL capabilities needed to support compliance with CP1. The proposal for a transitional period cannot be introduced at CS-ACNS or other detailed specification (DS) level. CS-ACNS Issue 5 would be applicable for new designs and changes to type designs, in accordance with Part 21.

To introduce requirements on a transitional period a change at implementing regulation level (e.g. Commission Regulation (EU) 2015/640 and its Annex I (Part-26)) would be needed. Any subsequent regulatory changes should be done in accordance with the current or future editions of the European Plan for Aviation Safety (EPAS).

**comment**

191

**comment by:** EUROCONTROL

Option 2 is in our view the only acceptable solution which keeps more than just DOA holders' wish to minimize costs in mind. ANSPs, early equippers and the majority of airspace users will only get the expected benefits through a full ATS B2 implementation.

Please consider the global effect of the decision as well and do not only concentrate on the CP1/AF6 mandate for Europe; a precedent might open the door for other regulatory bodies to come up with their own unique requirements in the future which would ultimately move the whole world away from a harmonized implementation - instead of moving towards it.

**response**

Noted

CS-ACNS (issue 5) only provides the design requirements for the minimum DL capabilities needed to support compliance with CP1. EASA will support applications for the approval of DL systems offering ATS B2 services beyond ADS-C EPP based on ED-228A/ED-229A or later revisions.
Please, see GM2 ACNS.B.DLS.001.
Please, see the response to comment #68.

**e. General Aviation (GA) and proportionality issues**

**Comment 190**

**Attachment #2**

Please note that traffic figures at MUAC show that general aviation traffic accounts for about 5% (6-8,000 aircraft per month) of the total MUAC traffic (FL285+). On average these flights change their altitude by 7-8 thousand feet in MUAC's airspace, which mean that they heavily contribute to ATCO workload due to the necessary deconfliction from other traffic. Due to the existing DLS IR exemptions, only about 15% of the Business Aviation traffic connects to CPDLC (about 0.7% of MUAC's total traffic).

Since the CP1/AF6 mandate is for forward fit only, MUAC would prefer the business aviation sector also taking their share of contributing to the common goals of reducing emissions and improving safety in aviation. If certain DOA holders don't find it possible to develop and implement this technology, then indeed their aircraft should either stay out of upper airspace or only enter upper airspace if there is spare capacity.

**Response**

Noted
Nonetheless, business aircraft with a CofA issued after 5 February 2020 are generally no longer exempted.

As CS-ACNS is applicable directly to manufacturers, their perspective and capability to practically meet the deadlines needs to be considered.

**Comment 287**

**Gulfstream Aerospace Corporation**

**Comment:**
Option 2 does not seem to be feasible for 12/31/2027 due to lack of regulation and ground infrastructure readiness.

**Rationale:**
Timeline does not support crucial changes required for ADS-C EPP implementation

**Recommended Change:**
EASA should consider an extention to this timeline for implementation.
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3. Appendix — Attachments

[Attachment #1 to comment #204]

GAMA23-28 Input to EASA to Inform Industrialisation Readiness Assessment - 2023-04-28.pdf

[Attachment #2 to comment #190]

ECTL Comments ANNEX 1.pdf