European Union Aviation Safety Agency

Comment-Response Document (CRD) 2021-04

RELATED NPA: 2021-04 — RMT.0519 —5.4.2022

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1. Summary of the outcome of the consultation

During the Notice of Proposed Amendment (NPA) 2021-04 public consultation, 55 comments were received from 18 stakeholders.

Table 1 shows the number of comments received on NPA 2021-04 from each commenter as well as the total number of comments:

Table 1

Commenters	Number of comments
Airbus Commercial Aircraft	9
Airbus Defence & Space	2
Airbus Helicopters	1
Aircraft Owner and Pilot Association (AOPA) Sweden	1
The Boeing Company	8
Civil Aviation Authority the Netherlands (CAA NL)	1
Direction générale de l'aviation civile DGAC France[1]	7
ENAIRE[2]	4
European Satellite Services Provider (ESSP)	3
Federal Aviation Administration (FAA)	2
Garmin International	6
General Aviation Manufacturers Association (GAMA)	1
KF Aerospace (Kelowna Flightcraft Ltd.)	1
Luftfahrt Bundesamt (LBA)[3]	1
Leonardo Helicopters	3
NATS Holdings	2
Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)	1
Thales Group	2
Total	**55**

The number of comments per NPA 2021-04 chapter and the general comments are indicated in Table 2:

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[1] 'Directorate General for Civil Aviation' or 'Civil Aviation Authority' in English.

[2] Air navigation and aeronautical information service provider in Spain.

[3] 'Federal Aviation Office' or 'National Civil Aviation Authority' (of Germany) in English.

Table 2

Chapter of the NPA	Number of comments
General comments	5
Executive Summary	1
Chapter 1: About this NPA	0
Chapter 2: In summary — why and what	0
Chapter 3: Proposed amendments and rationale in detail	49
Total	**55**

Table 3 show the number of comments received per NPA topic:

Table 3

NPA segment	Number of comments
General comments	5
Executive Summary	1
CS ACNS.A.GEN.001 Applicability	4
CS ACNS.A.GEN.005 Definitions	1
CS ACNS.B.DLS.B1.035 Continuity	3
CS ACNS.B.DLS.B1.075 CPDLC downlink messages	1
CS ACNS.C.PBN.615 Autopilot/Flight director	2
CS ACNS.C.PBN.675 RNP system design — RNP AR integrity	3
CS ACNS.C.PBN.680 RNP system design — RNP AR continuity	3
CS ACNS.D.EHS.015 Data transmission	1
CS ACNS.D.ELS.045 Continuity	1
CS ACNS.E.TAWS.040 Integrity	2
CS ACNS.E.TAWS.045 Continuity	1
GM1.ACNS.B.DLS.B1.001 Applicability	1
AMC1 ACNS.B.DLS.B1.035 Continuity	1
AMC1 ACNS.B.DLS.B1.070 CPDLC uplink messages	5
GM1 ACNS.B.DLS.B1.075 Downlink messages	1
GM1 ACNS.C.PBN.501 Applicability	1
AMC1 ACNS.C.PBN.535 Resolution and full-scale deflection of the vertical deviation display	1
AMC1 ACNS.D.ELS.045 Continuity	2
AMC1 ACNS.D.ADSB.090(a) Flight deck interface	6
AMC1 ACNS.D.ADSB.105 Continuity	3
Appendix H — Guidance on 1090-MHz extended squitter ADS-B Out	2
AMC1 ACNS.E.TAWS.040 Integrity	2
CS ACNS.B.DLS.B1.025 Protection mechanism	1
AMC1.ACNS.B.DLS.B1.015 Dual Data Link Capabilities (Dual stack)	1
Total	**55**

The commenters were in general supportive of the proposed amendments to CS-ACNS, including the related acceptable means of compliance (AMC) and guidance (GM).

The comments ranged from specific technical comments to observations aimed at improving the wording. EASA analysed the comments and provided responses to them.

Based on the comments, EASA analysed, adapted, and completed some information accordingly.

The types of EASA responses, including their numbers of occurrence and the related percentages, are shown in Table 4:

Table 4

Type of EASA responses	Number of occurrences	Percentage (%)
Noted	20	36.4 %
Accepted	10	18.2 %
Partially accepted	13	23.6 %
Not accepted	12	21.8 %
Total	**55**	**100 %**

The individual comments and the responses to them are contained in Chapter 2 of this Comment-Response Document (CRD).

All related information is available in the Explanatory Note, Change information document, as well as Annex to ED Decision 2022/008/R on the 'Regular update of the Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS)'.

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)	-

comment	*3*	comment by: *AOPA Sweden*
	NPA 2021-04	
	From AOPA Sweden	
	AOPA Sweden do not have any comments on the NPA 2021-04 but support it in full.	
	Fredrik Brandel	
	AOPA Sweden	
response	Noted	

comment	*7*	comment by: *LBA*
	LBA has no comments	
response	Noted	

comment	*21*	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*
	Thank you for the opportunity to comment on NPA 2021-04 Regular update of the Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance 'CS-ACNS'. Please be advised that there are no comments from the Swedish Transport Agency.	
response	Noted	

comment	*22*	comment by: *Airbus-Regulations-SRg*
	Airbus Commercial Aircraft is pleased to participate in the commenting on NPA 2021-04.	
	Our matter specialists and experts have carefully checked this proposal.	
	We'd like to provide you with 6 comments on the NPA's content as follows.	

response	Noted

comment	*48*	comment by: *Boeing*

May 13, 2021

B-H020-REG-21-MT-21

Note to file:

The attached comprise comments from The Boeing Company submitted to EASA via the Comment Response Tool (CRT) in response to EASA Notice of Proposed Amendment (NPA) 2021-04, Regular Update of the CS and AMOC for ACNS.

Sincerely,

Mildred Troegeler

Director, Global Regulatory Strategy

The Boeing Company Comments to EASA NPA 2021-04 Regular update of the Certification Specifications

and Acceptable Means of Compliance for

Airborne Communications, Navigation and Surveillance 'CS ACNS'

COMMENT #1 of 8			
Type of comment (check one)	**Non-Concur**	**Substantive X**	**Editorial**
Affected paragraph and page number	Page: CS-ACNS Issue 2 pages 14-21 and 75-92 Paragraph: CS-ACNS Issue 2 Book 1, Subpart B, Section 2; and CS-ACNS Issue 2 Book 2, Subpart B, Section 2		
What is your concern and what do you want changed in this paragraph?	**THE CURRENT TEXT STATES:** CS-ACNS Issue 2 invokes EUROCAE ED-120 / RTCA DO-290. **REQUESTED CHANGE:** Boeing recommends that EASA update CS-ACNS Issue 2 to invoke EUROCAE ED-228A / RTCA DO-350A (instead of EUROCAE ED-120 / RTCA DO-290).		
Why is your suggested change justified?	**JUSTIFICATION:** EUROCAE ED-228A / RTCA DO-350A supersedes EUROCAE ED-120 / RTCA DO-290. The FAA published AC 20-140C in 2016 that invokes EUROCAE ED-228A / RTCA DO-350A but EASA		

	released CS-ACNS Issue 2 in 2019 (three years later) that still invokes superseded EUROCAE ED-120 / RTCA DO-290.
COMMENT #2 of 8	
Type of comment (check one)	Non-Concur · Substantive X · Editorial
Affected paragraph and page number	Page: CS-ACNS Issue 2 page 77 Paragraph: CS-ACNS Issue 2 AMC1 ACNS.B.DLS.B1.015
What is your concern and what do you want changed in this paragraph?	**THE CURRENT 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. *Note: FANS 1/A standard (ED-100A) identifies the term 'IMMEDIATELY', within the phraseology standardised for CPDLC communications. This term is to be understood within the required communications performance scope (RCP), which for oceanic and remote operations is either 240 seconds or 400 seconds. The use of these terms 'IMMEDIATELY' and 'EXPEDITE' are not to be confused with the terminology used in material related to CS 25.1322. However, annunciations and indications should allow flight crews to easily identify these messages (associated with Urgent and Distress urgency attribute) among the normal messages.*" **REQUESTED CHANGE:** Boeing recommends that EASA update CS-ACNS Issue 2 to remove the incorrect paragraphs from AMC1 ACNS.B.DLS.B1.015 regarding application of the FANS-1/A Urgency and Alert attributes.
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 actually apply the Urgency and Alert attributes as CS-ACNS Issue 2 AMC1 ACNS.B.DLS.B1.015 incorrectly states.
COMMENT #3 of 8	
Type of comment (check one)	Non-Concur · Substantive X · Editorial
Affected paragraph and page number	Page: CS-ACNS Issue 2 page 81 Paragraph: CS-ACNS Issue 2 AMC1 ACNS.B.DLS.B1.070
What is your concern and what do you want changed in this paragraph?	**THE CURRENT TEXT STATES:** "Received uplink messages with response type 'A/N' as indicated in the 'Response' column should be responded with either DM4 (AFFIRM) or DM5 (NEGATIVE). Received uplink messages with response type 'R' as indicated in the

	'Response' column should be responded with DM3 (ROGER) or with DM1 (UNABLE).**"** **REQUESTED CHANGE:** Boeing recommends that EASA update CS-ACNS Issue 2 to include dM2 STANDBY in AMC1 ACNS.B.DLS.B1.070.
Why is your suggested change justified?	**JUSTIFICATION:** CS-ACNS Issue 2 AMC1 ACNS.B.DLS.B1.070 omits dM2 STANDBY from the lists of potential responses, which EUROCAE ED-110B / RTCA DO-280B Section 2.2.3.3 Table 2-5 and Section B.4.1.2.7 Table M-5 require.

COMMENT #4 of 8			
Type of comment (check one)	*Non-Concur*	*Substantive X*	*Editorial*
Affected paragraph and page number	Page: CS-ACNS Issue 2 page 81 Paragraph: CS-ACNS Issue 2 AMC1 ACNS.B.DLS.B1.070		
What is your concern and what do you want changed in this paragraph?	**THE CURRENT TEXT STATES: "**Received uplink messages with response type 'A/N' as indicated in the 'Response' column should be responded with either DM4 (AFFIRM) or DM5 (NEGATIVE). Received uplink messages with response type 'R' as indicated in the 'Response' column should be responded with DM3 (ROGER) or with DM1 (UNABLE).**"** **REQUESTED CHANGE:** Boeing recommends that EASA update CS-ACNS Issue 2 to include the W/U response type in AMC1 ACNS.B.DLS.B1.070.		
Why is your suggested change justified?	**JUSTIFICATION:** CS-ACNS Issue 2 AMC1 ACNS.B.DLS.B1.070 omits the W/U response type from the list of response types, which EUROCAE ED-110B / RTCA DO-280B Section 2.2.3.3 Table 2-4 and Section B.4.1.2.7 Table M-5 require.		

COMMENT #5 of 8			
Type of comment (check one)	*Non-Concur*	*Substantive X*	*Editorial*
Affected paragraph and page number	Page: Notice of Proposed Amendment 2021-04 page 7 Paragraph: Notice of Proposed Amendment 2021-04 section 2.3 item (3)		
What is your concern and what do you want changed in this paragraph?	**THE PROPOSED TEXT STATES: "**AMC1 ACNS.B.DLS.B1.070 CPDLC Uplink Messages (removal of the statement that when UM117 CONTACT is received, no 'DM89 MONITORING' message should be sent);**"** **REQUESTED CHANGE:** Like NPA 2021-04 proposes for AMC1 ACNS.B.DLS.B1.070, Boeing recommends that EASA also remove the "When UM117 CONTACT is received, no DM89 MONITORING		

	message should be sent." statement from AMC1 ACNS.B.DLS.B1.075.
Why is your suggested change justified?	**JUSTIFICATION:** Boeing agrees with removing dM89, but the NPA appears to overlook the reference to dM89 in AMC1 ACNS.B.DLS.B1.075.

COMMENT #6 of 8		
Type of comment (check one)	*Non-Concur*	*Substantive X*	*Editorial*

Affected paragraph and page number	Page: Notice of Proposed Amendment 2021-04 page 15 Paragraph: CS ACNS.C.PBN.615 Autopilot/Flight Director
What is your concern and what do you want changed in this paragraph?	**THE CURRENT TEXT STATES:** (a) Means are provided to couple the RNP system with the autopilot or flight director. (b) The RNP system, the flight director system and the autopilot must be capable of commanding (b) The RNP system, the flight director system and the autopilot must be capable of commanding a bank angle of up to ~~25~~30 degrees above 121 m (400 ft) AGL and up to 8 degrees below 121 m (400 ft) AGL. **REQUESTED CHANGE:** Addition of the following wording: These requirements do not apply for engine out takeoff and go-around operations when the airplane is roll limited due to reduction of maneuver margin.
Why is your suggested change justified?	**JUSTIFICATION:** For Engine out takeoff conditions, the aircraft must accelerate to V2 +20 before it can bank beyond 15 deg. Flying faster than V2 +10 will cause the climb gradient to be diminished and obstacle clearance may not be achieved. This will result in potential violation of training and operational rules. At 25 deg bank the airplane loses 40% of the climb capabilities Due to lack of data, the loss of climb capabilities when the aircraft is banked beyond 25deg is unknown. To expect the use of full 30 degrees results in no margin for corrections due to wind and environmental conditions. This may result in the aircraft banking beyond 30deg which would violate acceptable standards.

COMMENT #7 of 8		
Type of comment (check one)	*Non-Concur*	*Substantive*	*Editorial X*

Affected paragraph and page number	Page: Notice of Proposed Amendment 2021-04 page 16 Paragraph: *CS ACNS.D.ELS.045 Continuity*
What is your concern and what do you want changed in this paragraph?	**THE PROPOSED TEXT STATES:** N/A **REQUESTED CHANGE:** Add "(See AMC1 ACNS.D.ELS.045)" above the revised text.
Why is your suggested change justified?	**JUSTIFICATION:** AMC1 ACNS.D.ELS.045 was added as part of the proposed changes for Issue 3 and should be referenced in CS ACNS.D.ELS.045 in order to be consistent with other CSs. Note that a similar change was made "(See AMC1 ACNS.D.ADSB.105)" to CS ACNS.D.ADSB.105 Continuity.

COMMENT #8 of 8			
Type of comment (check one)	Non-Concur	Substantive	Editorial *X*
Affected paragraph and page number	Page: Notice of Proposed Amendment 2021-04 page 27 Paragraph: *Appendix H, Definition 10: Emergency Status*		
What is your concern and what do you want changed in this paragraph?	**THE PROPOSED TEXT STATES:** The provision of the Emergency Status values that do not have a corresponding Mode A value (see Error! Reference source not found.015(a)(6)) denoting the other emergency conditions defined in 61_{16}, is optional. This applies to the decimal values 2, 3, 6 and 7 in Error! Reference source not found. **REQUESTED CHANGE:** The provision of the Emergency Status values that do not have a corresponding Mode A value (see CS ACNS.D.ELS.015 (a)(6)) denoting the other emergency conditions defined in 61_{16}, is optional. This applies to the decimal values 2, 3, 6 and 7 in Table 11.		
Why is your suggested change justified?	**JUSTIFICATION:** Editorial corrections for references provided in Appendix H, Definition 10.		

response

Comment #1: Noted

EASA understands the requested change; however, the text at stake is currently under review and will be considered under the next CS-ACNS revision (RMT.0524) that will update the complete Subpart B, Section 2.

The introduction of EUROCAE Document ED-228A requires further clarification to address the backwards compatibility by also including ED-231A.

Comment #2: Not accepted

NPA 2021-04 does not propose to amend 'AMC1 ACNS.B.DLS.B1.015 *Dual Data Link Capabilities (Dual stack)*'. Said AMC differentiates the use of the messages 'IMMEDIATELY' and 'EXPEDITE'.

Comment #3: Accepted

EASA incorporated the proposed change in AMC1 ACNS.B.DLS.B1.070 *CPDLC uplink messages* as follows:

'Received uplink messages with the response type 'A/N' as indicated in the 'Response' column should be responded to with either DM2 (STANDBY), DM4 (AFFIRM) or DM5 (NEGATIVE).'

Comment #4: Partially accepted

As per ED-110B, Section B.4.1.2.7, Table M-5, and the Boeing proposal, EASA amended AMC1 ACNS.B.DLS.B1.070 as follows:

'Received uplink messages with the response type 'R' as indicated in the 'Response' column should be responded to with either DM2 (STANDBY), DM3 (ROGER) or with DM1 (UNABLE).'

Comment #5: Accepted

As 'When UM117 CONTACT is received, no DM89 MONITORING message should be sent' was removed from AMC1 ACNS.B.DLS.B1.070 *CPDLC uplink messages*, it is also deleted from AMC1 ACNS.B.DLS.B1.075 *downlink messages*.

Comment #6: Not accepted

The requirement in CS ACNS.B.DLS.B1.070 *CPDLC Uplink Messages* generally applies to the autopilot/flight director systems under normal conditions. The performance of the aircraft under abnormal conditions, e.g. an engine-out situation, is addressed in CS ACNS.C.PBN.605 *System performance demonstration*. The CS ACNS.B.DLS.B1.070 requirement is consistent with the criteria of EUROCAE ED-75D / RTCA DO-236C Change 1.

Comment #7: Accepted

A reference to AMC1 ACNS.D.ELS.045 is introduced after the title of CS ACNS.D.ELS.045 *Continuity*: '(See AMC1 ACNS.D.ELS.045)'.

Comment #8: Accepted

The incomplete reference is completed:

'The provision of the 'Emergency Status' values that do not have a corresponding Mode A value (see CS ACNS.D.ELS.015(a)(6)), denoting the other emergency conditions defined in 61_{16}, is optional. This applies to the decimal values 2, 3, 6 and 7 in Table 11.'

Executive Summary   p. 1

comment	*47*	comment by: *Civil Aviation Authority the Netherlands*
	No comments on this NPA.	
response	Noted	

CS ACNS.A.GEN.001 Applicability   p. 10

comment	*23*	comment by: *Airbus-Regulations-SRg*

PDF page 10, CS ACNS.A.GEN.001 Applicability

NPA 2021-04 proposes to amend "CS ACNS.A.GEN.001 Applicability" as follows:

These certification specifications are ~~intended to be~~ applicable to aircraft for the purpose of allowing aircraft operators

to comply~~ing~~ with ~~the~~ airspace requirements on communications, navigation and surveillance ~~carriage requirements~~

functions.

Airbus Proposal:

Please add a dedicated GM1 for the applicability of CS ACNS.A.GEN.001 regarding the showing of compliance to

CS ACNS by operators, in a similar manner that what is done in GM2 26.1 Demonstration of compliance of ED Decision

2015/013/R for CS-26 demonstration of compliance.

(New) GM1 CS ACNS.A.GEN.001 Demonstration of compliance:

Showing compliance to CS ACNS by the aircraft operators directly to the NAA could be difficult. Operators will need

to involve the design approval holder of the aircraft or the approved change to the type certificate as relevant.

This design approval holder should then apply to the Agency for certification that the design complies with the relevant

CS-ACNS subsections, special condition or equivalent safety case. With that approval information the operator can

show compliance to the NAA.

Rationale:

The NPA proposes clarifications that are not of help for the stakeholders to identify the means to ensure compliance

to the CS ACNS (to be demonstrated by the operators).

For the design approval holders the only tools available to demonstrate compliance in front of the Agency are those

of Part 21. Consequently, these means (although they might not be the only means) should be clarified in the

CS ACNS Issue 3 referring to the proposed new GM1.

response	Partially accepted

The commenter may have incorrectly interpreted the applicability of CS-ACNS. CS-ACNS is to be applied, as any other CS is applied, based on the provisions of Annex I (Part-21) to Regulation (EU) No 748/2012 (the 'Initial Airworthiness Regulation'). This implies that CS-ACNS applies to applicants for an airworthiness approval, and not directly to operators.

CS-ACNS provides certification specifications (CSs), acceptable means of compliance (AMC), and guidance material (GM) to applicants for an airworthiness approval for the installation of communication, navigation, and surveillance equipment and other equipment, as required by airspace or operational rules, and for changes to those installations. CS-ACNS has been developed *inter alia* to support compliance with the European Commission (EC) implementing regulations (IRs) on airspace equipage, however, additional requirements may apply. Therefore, compliance with CS-ACNS does not necessarily constitute full compliance with the EC IRs, although EASA strives to ensure consistency.

Moreover, CS ACNS covers functions and applications that are not mandated by the EC IRs, but may be used elsewhere in the world. A reference to compliance with the applicable section(s) of CS-ACNS in the aircraft flight manual (AFM) or other approved document may be used by operators to demonstrate compliance with those airspace and operational rules.

Considering this and similar comments, a new text for <u>CS ACNS.A.GEN.001 Applicability</u> and a related GM were introduced to better specify the applicability of the CS and its use by the applicant for airworthiness approval versus the operator.

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comment | *40*   comment by: *DGAC France*

The deleted text is kind of information very helpful for an applicant, or an EASA expert that wish to inform and advise an applicant.

Could we keep this information in a GM, and add the notes from the Rationale provided here?

If this information is not kept in CS-ACNS, EASA would need to keep updated a FAQ or any other equivalent mean to inform applicants, operators and NAAs.

response | Not accepted

Please refer to the response to Comment 23.

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comment | *49*   comment by: *Leonardo Helicopters*

Notwithstanding the requirement now clarified the applicability of this CS only to aircraft operators, some technical content has superseded the AMC 20 parts, which provide guidance to certify functions or applications, like PBN capabilities, during the Initial Airworthiness of a product by TC holders.

Therefore, this CS is currently used as reference during the TC / Major change certification activity, since operators usually do not manage that kind of information that are peculiar of the system on board.

How this CS is meant to be used by the authorities? In accordance with Part 21, the applicable CS are usually frozen at the application of the TC / Major change for 3/5 years, and remain valid until new Significant change etc. Is this applicable also for CS ACNS?

If yes, this needs to be clarified in the rule.

If not, because this CS is applicable only to the operators and do not belong to "Initial Airworthiness" framework, an amendment of this CS during this period, or even after the approvals, may invalidate the design and/or activity performed. In this case is the applicable CS frozen, at least, at CoA issue? Or an authority may even revoke an authorisation/operational approval upon the issue of a new CS ACNS?

Some clarification would be beneficial in the rule or as GM to avoid issues or misunderstandings.

response | Not accepted

Please also refer to the response to Comment 23.

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comment	*53*	comment by: *Airbus Helicopters*

Reference: *CS ACNS.A.GEN.001 Applicability*

Existing text:

CS ACNS.A.GEN.001 Applicability

These certification specifications are ~~intended to be~~ applicable to aircraft for the purpose of allowing aircraft operators to comply~~ing~~ with ~~the~~ airspace requirements on communications, navigation and surveillance ~~carriage requirements~~ functions.

Proposed change:

Add a GM to the applicability CS ACNS.A.GEN.001 regarding the showing of compliance to CS ACNS by operators, in a similar manner that what is done in GM2 26.1 Demonstration of compliance of ED Decision 2015/013/R for CS-26 demonstration of compliance.

New **GM CS ACNS.A.GEN.001 Demonstration of compliance**

Showing compliance to CS ACNS by the aircraft operator directly to the NAA could be difficult. Operators will need to involve the design approval holder of the aircraft or the approved change to the type certificate as relevant. This design approval holder should then apply to the Agency for certification that the design complies with the relevant CS-ACNS subsections, special condition, equivalent safety case or deviation. With that approval information the operator can show compliance to the NAA.

Justification:

The NPA introduces clarifications that are not helping the stakeholders to identify the means to ensure compliance to the CS ACNS has been demonstrated by the operators.

For the design approval holders the only tools available to demonstrate compliance in front of the Agency are those of Part 21 and consequently this means, although not the only means, should be clarified in the CS ACNS Issue 3

response	Not accepted

Please refer to the response to Comment 23.

CS ACNS.A.GEN.005 Definitions	p. 11

comment	*41*	comment by: *DGAC France*

Under Figure 1 in the Note, it is written: "This CS defines the optimum and maximum fields of view". But this CS shows a lack of consistency with CS-25 in which use is made of "primary field of view"

response	Partially accepted

The definitions in CS-ACNS are consistent with those in CS-25, AMC 25-11 *Electronic Flight Deck Displays*, Appendix 3, *Figure A3-1 Primary Field of View*), and in Federal Aviation Administration (FAA) Advisory Circular (AC) 29-2C. However, upon review of CS-ACNS, the following changes are made:

— in AMC1 ACNS.E.TAWS.030 *Terrain information display*:

'Terrain data should be displayed in the ~~normal~~maximum field of view.';

— in AMC1 ACNS.B.DLS.B1.010 *Flight deck interface*:

'When CPDLC messages are displayed:

(a) such location should be in the maximum field of view~~Primary Field of View~~.'; and

— in AMC1 ACNS.C.PBN.555 *Vertical accuracy when using barometric VNAV*:

'(d) Vertical path steering error (PSE_Z)

[…] the required navigation performance (RNP) system coupling to the flight director and/or autopilot should be unambiguously displayed in the flight crew's ~~primary~~optimum field of view. […]'.

CS ACNS.B.DLS.B1.035 Continuity   p. 13

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comment | *24*   comment by: *Airbus-Regulations-SRg*

PDF page 13, CS ACNS.B.DLS.B1.035 Continuity

Airbus Proposal:

In the title and in the text, please replace 'continuity' by 'availability'

to read as follows:

CS ACNS.B.DLS.B1.035 ~~Continuty~~Availability

(See AMC1 ACNS.B.DLS.B1.035 ~~Continuty~~Availability)

The data link system is designed to provide a level of ~~continuty~~availability that supports the intended operation.

Rationale:

In all the known documentations dealing with ATC datalink communications, the term which characterizes the

loss of datalink service is 'availability', not 'continuity'.

The 'continuity' terminology is used for another purpose which is different from the 'availability' terminology.

The 'continuity' does not characterize the loss of datalink service.

References:

ED-120, ED-228A, ICAO PBCS manual Doc 9869 Ed2, FAA AC20-14"C",

AMC1 ACNS.B.DLS.B1.035 and specifically CRI IM SE-65 and in the CRI IM F-139

Please note that the 'continuity' terminology used in CS ACNS.DLS.B1.035 has been clarified in the CRI IM SE-65 and in

the CRI IM F-139 with the following paragraph:

QUOTE

4.3 CS-ACNS Interpretative material for ATN B1 capacity

[…]

4.3.1 Availability and Continuity clarification

For consistency reason, the showing of compliance of the requirement ACNS.DLS.B1.035 is pro-posed to demonstrate that the data link system availability is designed to an allowable qualitative prob-ability of 'probable'.

Note: The definitions of Continuity and Availability are as follow:

- Availability (system availability) is the probability that the system is in service when it is needed. For a communication system, it is the probability that the communication system between the two parties is in service when it is needed (i.e. it is the probability that an operational communication transaction can be initiated or that surveillance data can be provided).

- Continuity (system continuity) is the probability that a system will perform its required function without unscheduled interruption, assuming that the system is available at the initiation of the intended opera-tion For a communication system, it is the probability that the transaction will be completed before the specified transaction time, assuming that the communication system is available when the transaction is initiated

UNQUOTE

Further details taken from the references are:

From ED-120:

Availability = The probability that the communication system between the two parties is in service when it is needed

Continuity = The probability that the transaction will be completed before the transaction expiration time, assuming that the communication system is available when the transaction is initiated

When reading the ED-120 it appears clearly that:

the availability is associated to the loss of (datalink) service (LOS) or, in other words, to the capability to initiate a datalink communication when it is needed

the continuity is associated the loss of a transaction (also called Loss of Communication Process) i.e. the interruption of a transaction <u>after</u> it has been initiated. *[Continued...]*

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response | Partially accepted

Throughout CS-ACNS, continuity (system continuity) refers to 'the probability that a system will perform its required function without unscheduled interruption'.

EUROCAE ED-120 defines continuity in a different manner. The ED-120 definition of availability would indeed be more commensurate with our definition of continuity. GM1 ACNS.B.DLS.B1.035 *DLS system continuity* is introduced to alert readers to this difference.

In addition, for more clarity, the titles of CS ACNS.B.DLS.B1.035, AMC1 ACNS.DLS.B1.035, and GM1 ACNS.DLS.B1.035 are changed from 'Continuity' to 'DLS system continuity' to indicate that they refer to the design of the airborne system.

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comment | *25*   comment by: *Airbus-Regulations-SRg*

PDF page 13, CS ACNS.B.DLS.B1.035 Continuity // **CONTINUED**

[...]

Rationale, continued

Further details taken from the references are:

<u>From PBCS Ed2 2016 (Doc 9869)</u>

<u>-Availability:</u>

RCP Availability (A) = a RCP parameter that specifies the required probability that an operational communication transaction can be initiated

RCP availability — aircraft (AAIR) = An RCP allocation that specifies the required probability that the aircraft system is serviceable for

the relevant communication capability.

2.2.4.1 - RCP availability (RCP A) is a system requirement associated with the communication service at the disposal of the flight crew and controller. RCP A is the required probability of a functioning communication system, measured over a period of time.

2.2.4.2 RCP A is defined as the ratio between the time the system is actually available for service (actual service time) and the time the system is planned for service (actual service time + unplanned outage time), (i.e. RCP A = actual service time/actual service time + unplanned outage time).

[...]

2.2.4.8 - The value for RCP A is based on the acceptable rate of detected <u>inability to initiate a transaction</u>

[…]

2.2.4.12 - As an example, Appendix B contains the RCP 240 specification, including the values for RCP availability and allocations. The RCP availability requirement of 99.99 per cent for efficiency is specifically a value for consideration in local assessment (i.e. within a specific centre). <u>The RCP availability requirement of 99.9 per cent was determined based on an operational safety assessment (per DO-264/ED-78A) that classified the effect of loss of service as "minor"</u> provided procedural mitigations are in place to transition to a different separation minimum (those not predicated on RCP 240 performance). The RCP availability requirements for safety should determine whether reduced separations requiring RCP 240 are applied.

<u>-Continuity:</u>

RCP continuity (C). An RCP parameter that specifies the minimum proportion of relevant operational communication transactions to be completed within the specified time, given that the service was available at the start of the transaction, where:

a) the minimum proportion is either 95 per cent that is used for statistical monitoring, or a proportion (e.g. 99.9 per cent) that is associated with the time after which the initiator is required to revert to an alternative procedure;

and

b) the specified time represents the RCP transaction time or any allocation provided by the RCP specification.

2.2.2.4 In practice, the RCP transaction time is specified for a nominal continuity and for an operational continuity (ET). The time associated with the operational continuity is called expiration time (ET), as it is associated with the time the controller takes action upon receiving an alert provided by the expiration of the ground timer. […]

2.2.3.1 The value for the RCP continuity parameter is associated with the actual communication performance of the expiration value of RCP and is selected based on the results of an operational hazard and performance assessment.

2.2.3.2 The operational hazard assessment should include a severity-of-effects analysis of detected errors within the communication transactions. Detected errors include, but are not limited to:

a) the transaction exceeding RCP transaction time (ET);

b) one or more messages within the transaction are corrupted, misdirected, directed out-of sequence or lost, and cannot be corrected to complete the transaction within the RCP transaction time; and

c) detecting loss of the communication service or aircraft capability to use the service <u>while transactions are pending completion.</u>

	continued....
response	Partially accepted Please refer to the response to Comment 24.

comment	*26* comment by: *Airbus-Regulations-SRg* PDF page 13, CS ACNS.B.DLS.B1.035 Continuity//**CONTINUED** [...] **Rationale**, continued Further details taken from the references are: From ED-228A, Appendix D -Availability: From the OPA perspective, availability is affected by operator and ATSP expectations and the confidence that the data communications service is there when needed. From the OSA perspective, contributors to availability failures are: * Declared unplanned outage of the data communication service provision, which affects multiple aircraft; * Declared unplanned outage of the aircraft capability to use the data communication service, which affect a single aircraft. -Continuity: The 99.9% Continuity is linked with the Expiration Time (ET), while the 95% Continuity is associated with the Nominal Time (TT95). The Continuity measurements are based on the ratio of successful transactions compared to the total number of attempted transactions. From the OPA perspective, Continuity is associated with the required level of efficiency or usability of the data communications system. .... From the safety perspective, contributors to continuity failures are: a. Detected failure that the transaction has exceeded the expiration time (ET) or Overdue Delivery Time (OT); b. Detected failure that one or more messages within the transaction are corrupted, misdirected, out-of-sequence or lost and cannot be corrected; [END of Rationale]
response	Partially accepted

Please refer to the response to Comment 24.

CS ACNS.B.DLS.B1.075 CPDLC downlink messages   p. 14

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comment | *27(a)*   comment by: *Garmin International*

Page 14 and Page 20-

Recommend making an update to reference ED-120 Change 3 to justify the removal of DM89 from the ATNB1 operating method. Currently CS-ACNS Issue 2 only references change 2. Consider adding the ED-120 Change 3 reference to <u>CS ACNS.B.DLS.B1.080, CS ACNS.B.DLS.B1.085, CS ACNS.B.DLS.B1.090, CS ACNS.B.DLS.B1.095</u> and <u>APPENDIX B — BACKGROUND INFORMATION FOR DATA LINK SYSTEM.</u>

To state in the Rationale that DM89 is no longer mandatory may conflict with the standards. We believe that per ED-110B and ICAO 9705 v2, DM89 is still technically required to be supported by the avionics. In ED-120 Change 3, we interpret this to say the crew shouldn't use the message as previously defined, and alternatively, the avionics shouldn't be programed to automatically send the message.

We consider it acceptable to remove the DM89 from list of downlink messages which must be downlinked but using the wording of "mandatory" doesn't seem correct. A reference to the operating method being changed seems more appropriate.

response | Partially accepted

The intent of the comment is accepted, with the considerations below:

The ED-120 change 3 reference is introduced in Appendix B — Background information on data link systems:

'[…]

(b)   Related references

       […]

       (6)   EUROCAE

           […]

           ii.   ED-120, May 2004, 'Safety and Performance Requirements Standard For Initial Air Traffic Data Link Services In Continental Airspace (SPR IC)', including change 1, change 2 and change 3,~~2~~.'

In addition, for harmonisation and as the change references to the EUROCAE documents are included in Appendix B, '~~including change 1 and change 2~~' is removed as change reference to ED-120 from CS ACNS.B.DLS.B1.080 *Data link initiation capability (DLIC) service*, CS ACNS.B.DLS.B1.085 *Communications management (ACM) service*,

CS ACNS.B.DLS.B1.090 *ACL service safety requirements*, and CS ACNS.B.DLS.B1.095 *ATC microphone check (AMC) service*.

Furthermore, on page 5 of the Explanatory Note to Decision 2022/008/R, the following footnote is added regarding the 'DM89 MONITORING' message removal from CS ACNS.B.DLS.B1.075 *CPDLC downlink messages*, AMC1 ACNS.B.DLS.B1.070 *CPDLC uplink messages*, AMC1 ACNS.B.DLS.B1.075 *Downlink messages*, and GM1 ACNS.B.DLS.B1.075 *Downlink messages*:

'The crew should not use the 'DM89 MONITORING' message as previously defined or, alternatively, the avionics should not be programmed to automatically send such a message.'.

CS ACNS.C.PBN.675 RNP system design – RNP AR integrity   p. 15

comment	*8*	comment by: *ENAIRE*

Please clarify whether it is appropriate to use the "vertical RNP" concept, as, according to the following extract of the ICAO PBN Manual (Doc 9613), it does not seem either defined or standarised.

1.1.4.2 Vertical performance

Some navigation specifications include requirements for vertical guidance using augmented GNSS or Barometric VNAV (baro-VNAV). See Volume II, Part C, Chapter 5, and Attachment A to Volume II. However, these requirements do not constitute vertical RNP which is neither defined nor included in the PBN Concept, Note.— There is currently no RTCA/EUROCAE definition or standard for vertical RNP.

response	Noted

The rationale behind the removal of the term 'lateral' from CS ACNS.C.PBN.675 *RNP system design — RNP AR integrity*, as provided in NPA 2021-04, is somewhat misleading. EASA is fully aware that the concept of 'vertical required navigation performance (RNP)' neither exists in ICAO Document 9613 *Performance-based Navigation Manual*, nor is accepted by EASA. However, EASA wanted to indicate that the RNP AR system design integrity criteria do not only apply to the lateral guidance provided by the system, but also to the vertical guidance, as defined in, and required by complying with, CS ACNS.C.PBN.670 *Vertical accuracy*.

| | comment | 17 | | | comment by: *FAA* |

	Referenced Text	**Comment/Rationale or Question**	**Proposed Resolution**	**Comment Type (Conceptual, Editorial, or Format)**
	The integrity of the guidance provided by the aircraft RNP system supports the intended RNP AR operations. Rationale: RNP is not exclusive to lateral guidance: it applies to lateral and vertical guidance.	The edit inappropriately removes "lateral" from the high-level requirements statement. RNP is exclusive to lateral guidance only. Barometric VNAV (Baro-VNAV) supports the RNP AR approach vertical guidance requirements; and baro-VNAV airworthiness requires soley 99.7% accuracy and does not require integrity. There are also no public standards for "vertical RNP" embracing a baro-VNAV integrity requirement. Thus, there is no "vertical RNP" nor baro-VNAV integrity requirement implied or intended within the harmonized RNP AR approach navigation specifications.	Recommendation: Retain the existing text which states: "The integrity of the lateral guidance provided by the aircraft RNP system supports the intended RNP AR operations." Rationale: Correctness.	Substantive.

| | response | Partially accepted |

The intent of CS ACNS.C.PBN.675 *RNP system design – RNP AR integrity* is not to impose an integrity requirement on the vertical navigation (VNAV) performance. As the CS title suggests, the requirement refers to the integrity of the design of the RNP system, i.e. the level of assurance to which the system is designed to prevent the RNP system from

producing misleading guidance. This is clarified in the related AMC1 ACNS.C.PBN.675 *RNP system design – RNP AR integrity*.

GM is introduced to better explain the difference between VNAV performance integrity and system design integrity:

'**GM1 ACNS.C.PBN.675 RNP system design – RNP AR integrity**

The criterion of CS ACNS.C.PBN.675 applies to the integrity of the design of the system(s) that provide(s) guidance on lateral navigation (LNAV) and vertical navigation (VNAV), e.g. the design assurance level (DAL). It does not apply to the integrity of the VNAV performance.'.

A reference to this GM is included in the related CS.

Please also refer to the response to Comment 8.

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comment	*19*	comment by: *THALES*

Before NPA2021-04:

In CS ACNS Issue 2, vertical integrity was covered by CS ACNS.C.PBN.575 'RNP system design — integrity in final approach' (as subsection 5: 'VNAV in Final approach' is mandatory for RNP AR operation). Thus it is clear that vertical integrity for RNP AR was limited to final approach only.

This was clearly confirmed by the RNP AR integrity requirement CS ACNS.C.PBN.675 in subsection 6 'RNP AR' that was limited to 'lateral' consideration.

With NPA 2021-04:

Removal of the word 'lateral' in CS ACNS.C.PBN.675 will introduce confusion about the fact that vertical integrity for RNP AR is limited to final approach only because CS ACNS.C.PBN.575 is clear but CS ACNS.C.PBN.675 will become confusing.

Thales proposal:

In order to clarify: add a GM to CS ACNS.C.PBN.675: 'Requirement for RNP AR vertical integrity is limited to final approach in accordance with CS ACNS.C.PBN.575'

response	Not accepted

GM1 ACNS.C.PBN.501 *Applicability* already states that 'the vertical performance of systems that comply with CS ACNS.C.PBN.555 is not adequate to support required navigation performance (RNP) AR APCH operations, but the requirements contained in CS ACNS.C.PBN.670 should be applied instead.'. Please note that in this GM, the reference to 'CS ACNS.C.PBN.575' is corrected to read 'CS ACNS.C.PBN.555'. Therefore,

it would be irrelevant to introduce GM to CS ACNS.C.PBN.575 *RNP system design — integrity in final approach*.

CS ACNS.C.PBN.680 RNP system design – RNP AR continuity p. 15

comment	*9*	comment by: *ENAIRE*

Please clarify whether it is appropriate to use the "vertical RNP" concept, as, according to the following extract of the ICAO PBN Manual (Doc 9613), it does not seem either defined or standarised.

1.1.4.2 Vertical performance

Some navigation specifications include requirements for vertical guidance using augmented GNSS or Barometric VNAV (baro-VNAV). See Volume II, Part C, Chapter 5, and Attachment A to Volume II. However, these requirements do not constitute vertical RNP which is neither defined nor included in the PBN Concept, Note.— There is currently no RTCA/EUROCAE definition or standard for vertical RNP.

response	Noted

Please refer to the response to Comment 8.

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comment	*18*	comment by: *FAA*

Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)
The continuity of the guidance provided by the aircraft RNP system supports the intended RNP AR operations. Rationale: RNP is not exclusive to lateral guidance: it	The edit inappropriately removes "lateral" from the high-level requirements statement. RNP is exclusive to lateral guidance only. Barometric VNAV (Baro-VNAV) supports the RNP AR approach vertical guidance requirements; and baro-VNAV airworthiness requires soley 99.7% accuracy and does not require	Recommendation: Retain the existing text which states: "The continuity of the lateral guidance provided by the aircraft RNP system supports the intended RNP AR operations." Rationale: Correctness.	Substantive.

applies to lateral and vertical guidance.	continuity. There are also no public standards for "vertical RNP" embracing a baro-VNAV continuity requirement. Thus, there is no "vertical RNP" or baro-VNAV continuity requirement implied or intended within the harmonized RNP AR approach navigation specifications.

response	Partially accepted

GM is introduced to better explain the difference between VNAV performance integrity and system design integrity:

'GM1 ACNS.C.PBN.680 RNP system design – RNP AR continuity

The criterion of CS ACNS.C.PBN.680 applies to the continuity of the design of the required navigation performance (RNP) system(s) that provide(s) guidance on lateral navigation (LNAV) and vertical navigation (VNAV). It does not imply recognition of, or a step towards, vertical RNP or similar concepts.'.

A reference to this GM is included in the related CS.

comment	*20*	comment by: *THALES*

Before NPA2021-04:

In CS ACNS Issue 2 , vertical continuity was covered by CS ACNS.C.PBN.580 'RNP system design — continuity' (as subsection 5: 'VNAV in Final approach' is mandatory for RNP AR operation). Thus it is clear that vertical continuity for RNP AR was limited to final approach only.

This was clearly confirmed by the RNP AR continuity requirement CS ACNS.C.PBN.680 in subsection 6 'RNP AR' that was limited to 'lateral' consideration.

With NPA 2021-04:

Removal of the word 'lateral' in CS ACNS.C.PBN.680 will introduce confusion about the fact that vertical continuity for RNP AR is limited to final approach only because CS ACNS.C.PBN.580 is clear but CS ACNS.C.PBN.680 will become confusing.

Thales proposal:

In order to clarify: add a GM to CS ACNS.C.PBN.680: ' Requirement for RNP AR vertical continuity is limited to final approach in accordance with CS ACNS.C.PBN.580'

response | Not accepted

Please refer to the response to Comment 19.

CS ACNS.C.PBN.615 Autopilot/Flight director p. 15

comment | *50* comment by: *Leonardo Helicopters*

This update would require changing the current approved systems for a need that seems more related to aeroplanes than helicopters (which have different dynamics and could fly and perform manoeuvres much slowly than aeroplanes).

It is proposed to apply a "proportional" approach for this requirement, differentiating the requirement for aeroplanes and helicopters.

response | Noted

The intent of updating CS ACNS.C.PBN.615 *Autopilot/Flight director* is to harmonise it with EUROCAE document ED-75D.

If considered necessary, EASA may update again this CS in the future to address specific rotorcraft issues.

CS ACNS.D.EHS.015 Data transmission p. 16

comment | *54* comment by: *KF Aerospace*

CS ACNS.D.EHS.015(a)

Commission Implementing Regulation (EU) No 2020/587 was published in April of 2020 and amended Annex II, Part C of Regulation No 1207/2011. Annex II, Part C, paragraph 2 of Regulation No 1207/2011 dictates the required parameters for aircraft to transmit as requested by the ground-based surveillance chain for enhanced surveillance (EHS). Previous to the amendment, this paragraph read: "The following data items **shall be made available to the transponder and be transmitted by the transponder** as requested by the ground-based surveillance chain, via the Mode S protocol and in accordance with the formats specified in ICAO document 9871 (2nd edition):". However, following the amendment in 2020 this paragraph now reads: "The following data items, **where available on a digital bus, shall be transmitted by the transponder** as requested by the ground-based surveillance chain, via the Mode S protocol and in accordance with the formats specified in ICAO document 9871 (2nd edition):".

The above amendment to Regulation No 1207/2011 should be reflected in CS-ACNS, specifically CS ACNS.D.EHS.015(a) which currently states that all of the parameters listed should be transmit. It is KF Aerospace's belief that the current wording of CS-ACNS is more restrictive than the latest version of Regulation No 1207/2011, and there is a current disconnect between the requirements of these two documents. Furthermore, dependent on aircraft configuration not all of the listed parameters are available on all aircraft and to incorporate changes to the aircraft to accommodate every parameter may cause an economic burden on the operator. We would request that CS ACNS.D.EHS.015(a) be reworded to the following:

"Where available in a suitable format, the surveillance system provides in the Mode S reply the following downlink aircraft parameters in addition to those specified in CS ACNS.D.ELS.:"

We would also request that CS ACNS.D.EHS.015(c) be reworded to the following:

"Where available in a suitable format, the transmitted parameters are correct and are correctly indicated as available."

These changes would keep CS-ACNS in-line with Regulation No 1207/2011 Annex II, Part C, paragraph 2.

response	Partially accepted

EASA accepted the proposal to harmonise CS ACNS.D.EHS.015(a) with Commission Implementing Regulation (EU) No 1207/2011 (the 'Surveillance Performance and Interoperability (SPI) Regulation'), as amended by Commission Implementing Regulation (EU) 2020/587:

'**CS ACNS.D.EHS.015 Data transmission**

[…]

(a)   The surveillance system provides in the Mode S reply the following downlink aircraft parameters, where available on a digital bus, in addition to those specified in CS ACNS.D.ELS.015:

[…]'.

Regarding CS ACNS.D.EHS.015(c), the proposed wording 'Where available in a suitable format […]' may be interpreted as an additional restriction on the correct transmission of all the related parameters, and is therefore not accepted.

CS ACNS.E.TAWS.040 Integrity	p. 18

comment	*38*	comment by: *Airbus Defence & Space*

Although the term "hazardously misleading information" is widely used, it may be confusing when it is classified as major (instead of hazardous). We suggest to remove the word "hazardously" from this AMC.

response	Accepted

Please refer to AMC1 ACNS.E.TAWS.040 *Integrity*: '[…] or the presentation of ~~hazardously~~ misleading information, should be considered major failure conditions.', and the related '*Note: 'In this case, ''misleading information'' is considered to be an incorrect depiction of the terrain threat relative to the aircraft under alert conditions.*'.

EASA made that change to avoid confusion, i.e. considering the failure condition itself as 'hazardous'.

comment	*42*	comment by: *DGAC France*

Although modifications to CS.ACNS.E.TAWS.040 and its AMC are acceptable, it is not clear how proposed update would improve harmonisation with FAA guidance material. Indeed, sections 9 & 13 of FAA AC 25-23 include details that are not present in CS.ACNS

response	Noted

In general, FAA ACs on terrain awareness and warning systems (TAWSs) are more prescriptive than the EASA AMC for TAWSs. EASA applies a less prescriptive approach for the following two reasons:

— firstly, various aspects of FAA AC 25-23 are already covered in EASA rules (e.g. CS 25.1302, AMC 25-11); and

— secondly, in the EU regulatory context, the applicant may propose alternative means of compliance (AltMoC) and EASA assesses whether to accept or not those AltMoC.

From that perspective, EASA decided not to make reference to FAA ACs.

CS ACNS.E.TAWS.045 Continuity	p. 18

comment	*43*	comment by: *DGAC France*

Although modifications to CS.ACNS.E.TAWS.045 and its AMC are acceptable, it is not clear how proposed update would improve harmonisation with FAA guidance material. Indeed, sections 9 & 13 of FAA AC 25-23 include details that are not present in CS.ACNS

response	Noted
	Please refer to the response to Comment 42.

GM1.ACNS.B.DLS.B1.001 Applicability	p. 19

comment	*28*	comment by: *Airbus-Regulations-SRg*

PDF page 19, GM1.ACNS.B.DLS.B1.001 Applicability

Airbus Proposal:

Please remove (new) 'Note 2: Further background information on data link systems is provided in Appendix A.'

or ALTERNATIVELY:

Please clarify in the Appendix A of the "CS-ACNS - Book 2 -Subpart B – Communications" [CS-ACNS issue 2, pdf page 90]

the relevant document references dealing with datalink communication system installations.

Rationale:

The new Note 2 indicates "Further background information on data link systems is provided in Appendix A'.

But the Appendix A of the "Subpart B – Communications" of the CS-ACNS seems to include only reference documents dealing

with voice communications. Indeed the section (a) states:

quote:

(a) General

This appendix provides additional references, background information, and guidance for maintenance testing, as appropriate

to Voice Communication System installations.

unquote

response	Partially accepted

The title of the above-mentioned Appendix B is 'Background information on data link systems', therefore, Note 2 in GM1 ACNS.B.DLS.B1.001 *Applicability* is changed accordingly from:

'Note 2: Further background information on data link systems is provided in Appendix A.'

to:

'Note 2: Further background information on data link systems is provided in Appendix B – 'Background information on data link systems.'.

AMC1 ACNS.B.DLS.B1.070 CPDLC uplink messages   p. 20

comment	*27(b)*	comment by: *Garmin International*

Page 14 and Page 20-

Recommend making an update to reference ED-120 Change 3 to justify the removal of DM89 from the ATNB1 operating method. Currently CS-ACNS Issue 2 only references change 2. Consider adding the ED-120 Change 3 reference to <u>CS ACNS.B.DLS.B1.080, CS ACNS.B.DLS.B1.085, CS ACNS.B.DLS.B1.090, CS ACNS.B.DLS.B1.095</u> and <u>APPENDIX B — BACKGROUND INFORMATION FOR DATA LINK SYSTEM.</u>

To state in the Rationale that DM89 is no longer mandatory may conflict with the standards. We believe that per ED-110B and ICAO 9705 v2, DM89 is still technically required to be supported by the avionics. In ED-120 Change 3, we interpret this to say the crew shouldn't use the message as previously defined, and alternatively, the avionics shouldn't be programed to automatically send the message.

We consider it acceptable to remove the DM89 from list of downlink messages which must be downlinked but using the wording of "mandatory" doesn't seem correct. A reference to the operating method being changed seems more appropriate.

response	Partially accepted

Please refer to the response to Comment 27(a).

comment	*30*	comment by: *Airbus-Regulations-SRg*

<u>PDF page 20, AMC1 ACNS.B.DLS.B1.070 CPDLC Uplink Messages</u>

Airbus Comment:

AMC1, second section, first sentence, please remove text part:

"For the sole exception of UM117, […]" to read as follows:

~~"For the sole exception of UM117,~~ "The data link system should prepare the appropriate response […]"

Rationale:

Within the proposed change of this AMC1, second section, the last sentence "*When UM117 CONTACT is received,*

no DM89 MONITORING message should be sent." shall be removed.

Also it is proposed to delete "AMC2 ACNS.B.DLS.B1.070 CPDLC Uplink Messages" completely.

Thus the 'exception' quoted in the first sentence of the second section of this AMC1 ("For the sole exception of UM117,")

needs to be removed for consistency purpose.

response	Accepted
	'For the sole exception of UM117,' is removed from AMC1 ACNS.B.DLS.B1.070 *CPDLC uplink messages*, as proposed, and from AMC1 ACNS.B.DLS.B1.075 *Downlink messages*.

AMC1 ACNS.B.DLS.B1.035 Continuity   p. 20

comment	*29* comment by: *Airbus-Regulations-SRg*
	PDF page 20, AMC1 ACNS.B.DLS.B1.035 Continuity
	Airbus Proposal:
	In the title, please replace 'continuity' by 'availability'
	to read as follows:
	"AMC1 ACNS.B.DLS.B1.035 ~~Continuity~~Availability"
	Rationale:
	Same rationale as for Airbus NPA comment #24
response	Partially accepted
	Please refer to the response to Comment 24.

GM1 ACNS.B.DLS.B1.075 Downlink messages   p. 21

comment	*31* comment by: *Airbus-Regulations-SRg*
	PDF page 21, GM1 ACNS.B.DLS.B1.075 Downlink Messages
	Here: ID >>DM107<<
	Airbus Comment:
	For ID "DM107" please reinstate the initial wording 'AUTHORI**Z**ED'
	(instead of the proposed modification AUTHORI**S**ED - spelling with a 'S')
	Rationale:

In ED-120, in ED-228A, in ICAO GOLD Document 10037, and in PANS-ATM Doc 4444, the recommended wording for "DM107" is

quote:

'NOT AUTHORI**Z**ED NEXT DATA AUTHORITY'

unquote

("authorized" - spelling with a Z, not with a S).

response	Accepted
	The proposed modification is introduced in CS ACNS.B.DLS.B1.075 *CPDLC downlink messages* and GM1 ACNS.B.DLS.B1.075 *Downlink messages*.

GM1 ACNS.C.PBN.501 Applicability   p. 21

comment	*51* comment by: *Leonardo Helicopters*
	This update in the GM would require changing the formulas for baro-VNAV guidance for all approved systems.
	It is request to provide some additional rational and specific need for this change, considering that the impact seems more than a reference correction.
response	Accepted
	Please refer to page 10 of the Explanatory Note to Decision 2022/008/R:
	'— in GM1 ACNS.C.PBN.501 *Applicability*, the incorrect references to CS ACNS.C.PBN.575 and CS ACNS.C.PBN.675 were neither related to precision nor vertical performance, and are therefore replaced by the correct ones, CS ACNS.C.PBN.555 and CS ACNS.C.PBN.670 respectively […]'.

AMC1 ACNS.C.PBN.535 Resolution and full-scale deflection of the vertical deviation display   p. 22

comment	*10* comment by: *ENAIRE*
	AMC1 ACNS.C.PBN.535 Resolution and full-scale deflection of the vertical deviation display
	(3) Systems that use a type of angular vertical scaling other than the scaling defined in RTCA DO-229D should meet the following
	Comment: RTCA/DO-229F is already available.
response	Noted

EASA decided to refer in this case to the minimum acceptable standard (except where it made sense to refer to the later standard). Consequently, compliance with the latest available standards is not always automatically required.

AMC1 ACNS.D.ELS.045 Continuity   p. 24

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comment | *12 (a)*   comment by: *NATS*

The maximum failure rate requirement is stated as applying to the respective "systems". If the aircraft is equipped with a dual transponder, it is not clear whether the figure (2 × 10–4) applies to each transponder or to the combination of the two (the "system" installation as a whole). If it is for each transponder, the figure is acceptable. However, as there is no requirement for the installation to be dual, this would need to be complemented with an additional single fit requirement one order of magnitude higher (2x10-5) given the reliance on cooperative data in modern ATM operations. Additionally, it is not clear how the value of 2x10-4 has been determined.

response | Noted

Regarding Comment 12(a) and Comment 12(b) (see page 37), the related CSs indicate in CS ACNS Issue 3:

— **'CS ACNS.D.ELS.045 Continuity**

The Mode S ELS airborne surveillance system continuity is designed to an allowable qualitative probability of ''remote''.'; and

— **'CS ACNS.D.ADSB.105 Continuity**

'(a) The ADS-B Out system continuity is designed to an allowable qualitative probability of ''remote''.'.

The changes to the related AMC are triggered by a previously adopted deviation from the 'remote' probability requirement (1E-5 per flight hour) regarding the continuity of the transponder function (the system as a whole). Said deviation allowed applicants to comply with the continuity requirement of Part A, Section 6 and Part B, Section 16 of Annex II to the SPI Regulation (as initially adopted), which required the system continuity to be less than or equal to 2E-4 per flight hour:

The continuity of transponder functionality supporting the Mode S / ADS-B protocol shall be equal to or less than 2. 10^{-4} per flight hour (i.e. mean time between failure equal to or greater than 5 000 flight hours).

The deviation above was adopted because it seemed impractical for designs to meet the qualitative probability objective of 'remote'.

The new AMC1 ACNS.D.ELS.045 *Continuity* and AMC1 ACNS.D.ADSB.105 *Continuity* are therefore modified accordingly (please refer to the Change information document published under Decision 2022/008/R.

comment	*33 (a)*	comment by: *Garmin International*

Page 24 and Page 26:

We thank the agency for resolving the previous ELS and ADSB continuity requirement discrepancies between CS-ACNS, Implementing Regulation (EU) No 1207/2011, and AMC and GM to Commission Implementing Regulation (EU) No 1207/2011. The reconciliation of continuity requirements will reduce the effort required of applicants and the agency to obtain deviations for single unit installations of ELS and ADSB.

response	Noted

AMC1 ACNS.D.ADSB.090(a) Flight deck interface   p. 25

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comment	*4*	comment by: *ESSP*

According to AMC1 ACNS.D.ADSB.090, consistency of the data displayed to the flight crew may be demonstrated by using a compliant GNSS sensor connected to the transponder and the navigation equipment. Nevertheless, where this is not practical, consistency may be demonstrated by the installation of a stand-alone SBAS receiver (ETSO-C145()/146) connected (only) to the transponder.

Which are the situations or cases where the installation of a GNSS sensor connected to the transponder and the navigation equipment may be not practical?

response	Noted

The impracticability originates from the ADS-B Out requirement (of US origin), which is interpreted as a requirement to install a satellite-based augmentation system (SBAS)-capable global navigation satellite system (GNSS) receiver. Combined with the CS-ACNS requirement to ensure consistency between the information that is transmitted and the information that is displayed to the flight crew, this would imply that (dual) GNSS receivers must be replaced with SBAS-capable GNSS receivers on many aircraft (i.e. the navigation systems on board should be recertified!), only to meet the ADS-B Out requirements. EASA considered this requirement disproportionate. Hence, EASA adopted a deviation to CS ACNS.D.ADSB.090, which allowed applicants to install a single, separate SBAS-capable GNSS receiver to be able to demonstrate compliance with the ADS-B Out requirement in a reasonable manner. The additional integrity provided by an SBAS-capable GNSS receiver is considered to provide an equivalent level of robustness to a system, whereby the output of the GNSS receiver can be verified by the flight crew on a display. The content of the deviation is now incorporated in CS-ACNS Issue 4.

comment	**5**	comment by: *ESSP*

First paragraph indicates that the data transmitted by the active ADS-B transmit unit should be consistent with the data displayed to the flight crew, meaning that the positioning source should be the same. Nevertheless, note 2 of the NPA contradicts this consistency due to it is indicated that the horizontal position data displayed to the flight crew might may be based on data from more position sources than the one used for ADS-B transmissions.

Which other sources may be used to meet ADS-B Out installations requirements if GNSS or SBAS receivers (ETSO-C129A, ETSO-C196, or ETSO-C145()/146) and the only means of compliance stated in the CS-ACNS?

response	Partially accepted

The term 'consistency' is replaced with 'compliance'.

Please also refer to the response to Comment 4.

comment	**6**	comment by: *ESSP*

CS-ACNS presents SBAS receivers as a possible option for meeting the equipage qualification requirements (ETSO-C129A, ETSO-C196, or ETSO-C145()/146). In the proposed text of the NPA 2021-04, SBAS receivers are promoted to be used ONLY for surveillance capabilities, connected only to the transponder for ADS-B applications and not taking advantage in navigation applications (EGNOS based procedures).

SBAS receivers (ETSO C145/146) provides the maximum values of accuracy and availability and should be found as the best available navigation receiver to support also current and future ADS-B applications. For this reason, it is proposed to include a recommendation to equip affected aircraft with SBAS receivers (ETSO c145-146) as the preferred positioning source both for navigation and surveillance purpose, to maximize the availability of the SBAS system, in line with EU navigation (PBN IR) and surveillance requirements (SPI-IR and CS-ACNS).

response	Not accepted

The SPI Regulation and Commission Implementing Regulation (EU) No 2018/1048 on performance-based navigation (PBN) do not explicitly require the installation of SBAS-capable GNSS receivers. EASA recognises the benefits of such receivers, but considers it imprudent to recommend or require applicants to install systems that exceed the minimum requirements for a particular function.

comment	11	comment by: *ENAIRE*
	AMC1 ACNS.D.ADSB.090(a) Flight Deck Interface *Note 1: Operational Classes 1, 2 or 3 of RTCA DO-229D satisfy the 'consistency' criteria.* Comment: RTCA/DO-229F is already available.	
response	Noted Please refer to the response to Comment 10.	

comment	39	comment by: *Airbus Defence & Space*

	Wording proposed in the NPA includes the possibility to demonstrate consistency with the installation of a stand-alone GNSS connected only to the transponder, while we do not understand why could not it be used also for other purposes (i.e. tactical system). We do not understand either why ETSO C-129a or ETSO C-196 are not considered acceptable means to demonstrate consistency if they are on the other hand considered as valid PVT sources for ADS-B (see ADSB.070).
	
	On top of this, we would consider also a valid mean of compliance the demonstration of acceptable integrity and position error between both GNSS sources (the one used to fly and the one displayed to the flight crew).
	
	Note 1 is proposed to be removed since applicable RTCA-DO are required in corresponding ETSO (i.e. RTCA-DO-229D is required as part of ETSO-C145c in the same way that RTCA-DO-316 is required as part of ETSO-C196).
	
	For all these reasons we propose to amend AMC1 ACNS.D.ADSB.090(a) Flight Deck Interface in the following way:
	
	(a) Installations
	
	     1. Data Transmission and Display Consistency
	
	        The data transmitted by the active ADS-B transmit unit should be consistent with the data displayed to the flight crew.
	
	        The horizontal position data displayed to the flight crew might may be based on data from more position sources than the one
	
	        used for ADS-B transmissions.
	
	        Consistency may be demonstrated by using a compliant GNSS sensor connected to the transponder and the navigation equipment (i.e. the transponder and navigation equipment receive the same data from the GNSS source).
	
	        If is impractical to connect the transponder to the GNSS sensor used to fly the aircraft, consistency may be achieved through:	

o   The installation of another GNSS receiver connected to the transponder, providing that it is approved to ETSO C-129a, ETSO C-196, ETSO-C145c or C146c (or later ETSO amendments) or

o   Ensuring that the displayed source meets design and performance standards that ensure an adequate level of integrity of its output, to mitigate the risk of a possible inconsistency between both GNSS sources.

response	Not accepted
	Please refer to the response to Comment 4.

comment	*44* comment by: *DGAC France*
	in the third paragraph of (a)(1), "providing" should be replaced by "provided", as:
	"..., provided the GNSS received is approved..."

response	Accepted
	The text was corrected.

AMC1 ACNS.D.ADSB.105 Continuity   p. 26

comment	*12(b)* comment by: *NATS*
	The maximum failure rate requirement is stated as applying to the respective "systems". If the aircraft is equipped with a dual transponder, it is not clear whether the figure (2×10^{-4}) applies to each transponder or to the combination of the two (the "system" installation as a whole). If it is for each transponder, the figure is acceptable. However, as there is no requirement for the installation to be dual, this would need to be complemented with an additional single fit requirement one order of magnitude higher (2×10^{-5}) given the reliance on cooperative data in modern ATM operations. Additionally, it is not clear how the value of 2×10^{-4} has been determined.

response	Noted
	Please refer to the response to Comment 12(a).

comment	*33* (b) comment by: *Garmin International*
	Page 24 and Page 26:
	We thank the agency for resolving the previous ELS and ADSB continuity requirement discrepancies between CS-ACNS, Implementing Regulation (EU) No 1207/2011, and AMC and GM to Commission Implementing Regulation (EU) No 1207/2011. The reconciliation

of continuity requirements will reduce the effort required of applicants and the agency to obtain deviations for single unit installations of ELS and ADSB.

response	Noted

comment	*52* comment by: *General Aviation Manufacturers Association / Hennig*
	The General Aviation Manufacturers Association (GAMA) appreciates the cooperative work between the EU Aviation Safety Agency (EASA) and industry to clarify the allowable continuity requirement during the past few years.
	The topic has been raised through various forums and in comments to the agency by stakeholders. The inclusion of AMC1 ACNS.D.ELS.045 Continuity in NPA 2021-04 will help manage agency and industry resources, support the implementation of the SPI mandate, as well as inform any future policy discussions about transponder equipage.

response	Noted

Appendix H – Guidance on 1090-MHz extended squitter ADS-B Out	**p. 27-28**

comment	*35* comment by: *Garmin International*
	Page 27:
	There are two "Reference Source Not Found" errors that should be fixed. The first to "CS ACNS.D.ELS" and the second to "Table 11".

response	Accepted
	Please refer to the response to Comment 48, Item 8

AMC1 ACNS.E.TAWS.040 Integrity	**p. 28**

comment	*45* comment by: *DGAC France*
	Is it intended to consider only "Warning" level alerts? otherwise replace " Warnings" by "Warning and Caution alerts" as: "...that result in false warning and caution alerts an unannuncitaed loss of function...."

response	Accepted
	AMC1 ACNS.E.TAWS.040 *Integrity* is reworded accordingly:
	'[…] Elsewhere, failure conditions that result in false terrain warning and caution alerts, a non-annunciated loss of function, or […]'.

comment	*46*	comment by: *DGAC France*
	In the note, the wording "Hazardously misleading information" needs to be harmonised with regard to CS-25, in which use is made of different terminology.	

response	Accepted
	Please refer to the response to Comment 38.

CS ACNS.B.DLS.B1.025 Protection mechanism	-

comment	*36*	comment by: *Garmin International*
	Published CS-ACNS Issue 2: CS ACNS.B.DLS.B1.025 Protection mechanism 15 and 79-80 of published CS ACNS Issue 2-

While not in the NPA 2021-04 proposed changes to CS-ACNS, showing compliance to CS ACNS.B.DLS.B1.025 can be difficult due to the vagueness of the requirement but the broadness of the referenced AMC and GM items. This has caused some instances where it is difficult to show compliance to EASA.

It is assumed the protection of integrity refers to the AMIC (Application Message Integrity Check) but when referencing the AMC and GM material, only AMC1 ACNS.B.DLS.B1.025 and GM1 ACNS.B.DLS.B1.025 are within the scope of the AMIC. It is not clear what other integrity protection is inferred by the references to AMC2 ACNS.B.DLS.B1.025, AMC3 ACNS.B.DLS.B1.025, GM2 ACNS.B.DLS.B1.025, or GM3 ACNS.B.DLS.B1.025. Request clarification of the intent of these AMC and GM references or remove them if they don't add to the definition of the protection mechanism in CS ACNS.B.DLS.B1.025. | |

response	Noted
	The intent of CS ACNS.B.DLS.B1.025 *Protection mechanism* is to differentiate controller–pilot data link communications (CPDLC) from the protected mode (PM) CPDLC.

Please refer also to the response to Comment 48, Item 1. |