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EUROCAE WG-78 Plenary # 38 / RTCA SC-214 Plenary # 48

"Standards for Air Traffic Data Communication Services" - Minutes

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Date	*October 31 - November 03, 2023*
Place	*Annapolis, MD, USA*
Hosted by	*Collins Aerospace*

Meeting Summary:

The joint plenary of RTCA Special Committee 214 (SC-214) (#48) and EUROCAE Working Group 78 (WG-78) (#38) was held October 31 – November 03, 2023. The meeting was conducted as an in-person and WebEx meeting with the following attendees participating (* indicates in person attendance).

Name	Company
Alexander Engel	EUROCAE
Arndt Suendermann	DFS
Brandi Teel*	RTCA
Kathy Torrence*	FAA – Data Comm Program manager
Christophe Visee*	EUROCONTROL
Claire Robinson*	Universal Avionics
Cyril Ollier	EUROCONTROL
Edward San	FAA
Frederic Beltrando*	Airbus
Kim Cardosi	The Volpe Center
Luc Emberger*	Airbus
Michael Hooper	Iridium
Mike Matyas*	Boeing
Moin Abulhosn*	FAA
Natacha Nombrail	Airbus

Noah Inahara	Boeing
Palen Elder	FAA
Peter Muraca*	FAA
Santi Ibarz*	Airtel ATN
Steve Ferra*	FAA
Thierry Lelievre*	Cap Gemini (on behalf of Airbus)
Thierry Salée	EUROCONTROL
Thomas Hess	DFS
Thomas Mustach	FAA
Viktor Jagasits*	EUROCONTROL
Vincent McMenamy*	FAA
Wendy Gutierrez*	Collins
Wes Googe*	AAL

* Indicates attendance in person

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1 October 31st

1.1   Welcome, Introductions and Administrative Remarks

The joint 48th Plenary of SC-214 / 38th Plenary of WG-78 was convened in person at Collins Aerospace in Annapolis, USA and via Webex from October 31st to November 3rd, 2023 by Chairs Claire Robinson (Universal Avionics) and Luc Emberger (Airbus). RTCA and EUROCAE anti-trust statement, proprietary policy and membership policy were read by Brandi Teel (RTCA) and Alex Engel (EUROCAE). Welcoming remarks were then made, followed by each attendee introducing themselves.

1.2   Agenda, Meeting Minutes and Action Item Review

Claire presented the detailed agenda. The agenda was reviewed with some minor changes based on key participants availability. The agenda was then agreed to with the changes noted.

The whole week was a Plenary meeting, with the objective to review all comment resolution proposals following the FRAC/OC for the documents ED-230B & DO-352B/ED-231B & DO-353B, and agree on those resolutions to proceed with the publication of the documents.

1.3   SC-214 Secretary discussion

Claire announced that Todd Kilbourne, the secretary of RTCA SC-214 resigned from his role of secretary. Claire and Luc are working on finding a new secretary. For this meeting, Wendy Gutierrez kindly volunteer to support the chairs in taking notes for the minutes.

1.4   Review previous meeting minutes

Luc presented the draft minutes of the previous plenary (August 10th, virtual). The minutes were approved without comments.

1.5   TTR issue

Viktor presented the problem experienced in MUAC.

Typical scenario is:

Mainly due to VDL2 network delay, TTS expires regularly, with the consequence that ATCO considers the clearance UL message is lost. It may happen that the crew send a WILCO several minutes after this TTS expiry, and due to VDL2 network delay again, may apply the clearance before an Error message is received from the controller (the pilot may initiate the maneuver without waiting the ack of the WILCO).

For EUROCONTROL the lack of TTR could become a safety issue. The number of responses after TTS expiry occurrences per month is increasing (more than 20 incidents in August), despite the limited number of B2 A/C (worst case: answer received after 391 seconds).

TTS is a partial mitigation and is obviously required.

Note: The ATCO has no knowledge of the uplinked ERROR (it is a system message)

For the FAA (Vince), when a controller sends a clearance, he should "protect" the airspace until he receives the pilot answer (expected to be immediate).

As conclusion, Viktor would like to make sure B2 / ATN B1 backwards compatibility returns the TTR for ATN B1, and make sure B2 Rev C includes the TTR.

Frederic presented his view on the subject:

From previous meetings and discussions (at ICAO level and during the B2 first version development), it was agreed that TTS was enough protection. GOLD and DO-350 were updated understanding that the use of TTR was not required for Safety.

The SPR being now global and covering all types of Airspace, reintroduction of TTR would require avionics to manage different TTR values (according to different RCPs and operations).

Sending an ERROR message after ground TTS expiration is not forbidden but also not required (not mentioned in ED110 or ED229).

Wes (AAL) reminded that for a complex clearance, the crew has to verify that the clearance is meaningful and this may take time.

It was agreed to re-introduce the TTR in the ATN B1 B2 accommodation document (DO-353B/ED-231B). The group agreed on the text to be added (set of requirements to manage the TTR timer, in a new section).

It was clarified that these updates are ONLY for the ATN B1 backwards compatibility (since the DO-350B/ED-228B and DO-351B/ED-229B are already being published). The group also agreed that it is premature to state that introduction of TTR is solving a potential safety issue in B2 rev A more studies are required before reaching a conclusion).

As a summary, while it was agreed to introduce the TTR in the ATN B1 / B2 backwards compatibility document, more coordination and wider alignment is suitable to properly solve the issues reported by EUROCONTROL (not sure TTR alone is the right solution and will be sufficient). Viktor will present the subject for discussion at the next ICAO OPDLWG meeting.

1.6 Editors Progress Report

Thierry presented the last status of the documents and the proposals for comments resolution:

For DO352B/ED230B (B2 Rev B / FANS 1/A Accommodation):
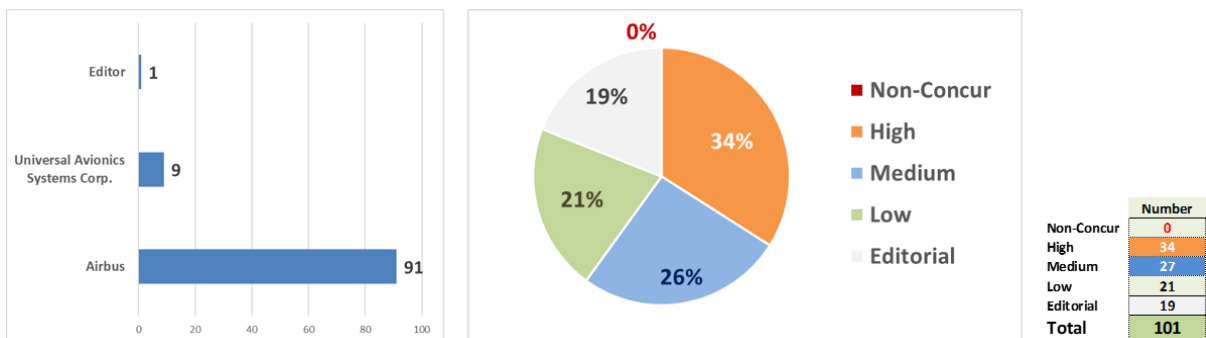
101 comments were submitted, including 9 from RTCA comments sheet, 91 from EUROCAE comments sheet and 1 from Editor's Meeting. No « Non Concurs » were raised. Most of the « High » comments are addressing alignment with GOLD of accommodation rules for some CPDLC messages.

For DO353B/ED231B (B2 Rev B / ATN B1 Accommodation):
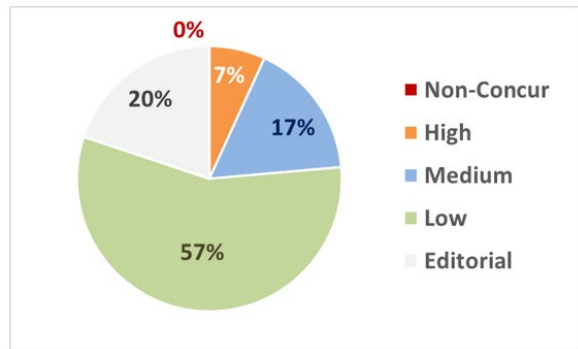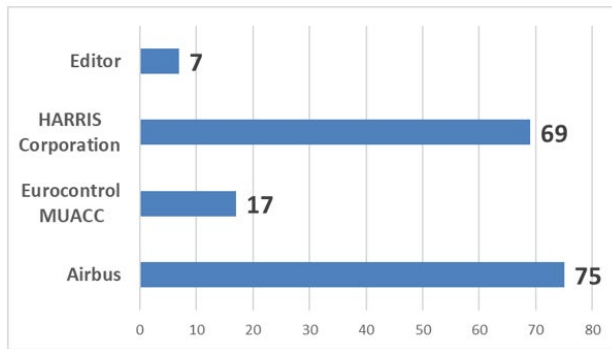
168 comments were submitted, including 69 from RTCA comments sheet, 92 from EUROCAE comments sheet and 7 from Editor's Meeting. No « Non Concurs » were raised. Most of the « High » comments are addressing alignment with GOLD of accommodation rules for some CPDLC messages.

ED230B / DO352B B2 Rev B / FANS 1/A Accommodation

	Number	Not Started	In Process	Complete
Non-Concur	0	0	0	0
High	34	0	0	34
Medium	27	0	1	26
Low	21	0	1	20
Editorial	19	0	0	19
Total	101	0	2	99

ED231B / DO353B B2 / ATN B1 Backward Compatibility

	Number	Not Started	In Process	Complete
Non-Concur	0	0	0	0
High	11	0	2	9
Medium	34	0	2	32
Low	91	0	0	91
Editorial	32	0	0	32
Total	168	0	4	164

As presented, 6 comments are still in progress and will be discussed during the plenary. The comments with the status "complete" have a resolution proposal available and integrated in the redline documents distributed before the meeting.

Thierry presented then an overview of the main evolutions of the document to align with Rev B SPR, B2 interop and ICAO GOLD, as was as the remaining comments to be addressed during this meeting.

- B2 Rev B / ATN B1 Backward Compatibility main changes and issues:
    o 52 B2 Rev A BC-IRs Deleted / 68 new B2 Rev B BC-IR xxB
    o CPDLC Message Set update to comply with B2 Rev B CPLDC Message Set
    o Alignment of B2 Rev B / B1 Backward Compatibility Rules with GOLD (in particular the use, or not, of free text to accommodate non existing messages) Note: Depending on the message considered it was agreed that GOLD was correct, or the contrary (and needed to be further updated).
    o CPDLC Message with invalid timestamp (futur time)
    o Cmt#42 (AIRBUS) - CPDLC Message element in CPDLC Start and CPDLC End
    o CMt#80 (EUROCONTROL MUACC) – Need for Airborne Time Out on Pilot response to a clearance ('ttr' Timer) for B2 Rev B Aircraft
    o Cmt#67 (AIRBUS) - ATN B1 Backward Compatibility rules for "Range and Resolution"
    o Cmt#161 (Editor) – Renumbering of new BC-IR xxB

- B2 Rev B / FANS 1/A Accommodation main changes and issues:
    o 26 B2 Rev A IRs/NIRs Deleted / 32 new B2 Rev B NIR xxB
    o CPDLC Message Set update to comply with B2 Rev B CPLDC Message Set
    o Alignment of B2 Rev B / FANS 1/A Accommodation Rules with GOLD (in particular the use, or not, of free text to accommodate non existing messages)
    o Cmt#81 (AIRBUS) – FANS 1/A Accommodation rules for "Range and Resolution"

o Cmt#101 (Editor) – Renumbering of new NIR xxB

1.7.1   Rounding of parameters

The question of rounding is important because the ground needs to be sure he knows if the A/C is NOT where he is supposed to be. If an A/C is at 0.3 from his advertised position, it would be preferable to consider 1 than rounding down to 0.

For ATN B1, only the value meeting the range and resolution of B1 parameter can be sent.

For FANS1/A, only the value meeting the range and resolution of FANS 1/A parameter can be sent.

1.7.2   CPDLC Message element in CPDLC Start and CPDLC End

ATN B1 implementations do not know the rules introduced in B2 Rev B, and may concatenate CPLDC End request with other messages. In particular, concatenation of UM117 +End of service will still be allowed for ATN B1.

Boeing proposal was discussed. The comment resolution (set of requirements explaining how the B2 Rev A/C shall answer to a CPDLC End indication including a transfer instruction) is agreed.

2   November 1st

2.1.1   Review of high-level comments for DO-352B/ED-230B (B2 Rev B / FANS 1/A Accommodation):

All high-level comments resolution proposals were reviewed and agreed by the group. Final proposals and agreement are captured in the comments resolution matrix.

2.1.2   Review of medium-level comments for DO-352B/ED-230B (B2 Rev B / FANS 1/A Accommodation):

Minor updates were discussed.
- These last updates will be transmitted to the GOLD reviewers for those items we are trying to align with the GOLD.
- Position and positionR
- Both sides and either side
- Agreement on Invalid message combinations processing:
  o Invalid automated system message combinations will produce an abort
  o Invalid Human message combinations will produce an error.
  o Additional entry added in the matrix by the editor, to remember starting numbering the new requirements after the RevA requirements (and inform the group of this editorial change)

All medium-level comments resolution proposals were reviewed and final proposal agreed by the group. Final proposals and agreement are captured in the comments resolution matrix.

2.1.3 Low-level and editorial comments for DO-352B/ED-230B (B2 Rev B / FANS 1/A Accommodation):

The group agreed that low and editorial entries do not have to be reviewed and that Thierry making the updates was sufficient.

2.1.4 Review of high-level comments for DO-353B/ED-231B (B2 Rev B / ATN B1 Accommodation):

All high-level comments resolution proposals were reviewed and agreed by the group. Final proposals and agreement are captured in the comments resolution matrix.

2.1.5 Review of medium-level comments for DO-353B/ED-231B (B2 Rev B / ATN B1 Accommodation):

The group started the comprehensive review of all medium-level comments resolution proposals (To be continued next day).

3 November 2nd

3.1 Detailed discussions

3.1.1 ED-110B/ DO-280B Change 2

Viktor presented the need to have an update of ED-110B/DO-280B for the issue of duplicated waypoint in UM79 in [position] and last waypoint of [routeinformation].

For Frédéric (Airbus), this is not an interoperability issue, and therefore should not require an update of ED-110B. For Thomas (FAA) also, this should be captured in the Verification tests document.

Nevertheless, the group agreed that even if not ideal, it was acceptable to manage the issue in ED-110B/DO-280B.

Most ANSPS are not compliant with this since they send single waypoint except for NATS (so not a real change due to ANSPS already not complying).
The issues may be confusing to the pilot due to same waypoint

Luc clarified that the only possible way to update ED-110/DO-280B is a change (not a new revision). This means that the scope of the change shall be clearly limited and identified (and documented in the TORs).

It was decided to also add CPDLC-end concatenation clarifications:
- For CPDLC-end Table 4-3 and 4-5 will remove from 2a "This shall be sent in a CPDLC-end request."
- Update applicable figures if necessary (Figure 4-2 and 4-3, 4-6 and 4-7)
- May want to delete the note.

The group agreed to propose the following TORs modification:

> Objective: Develop Change 2 to **DO-280B/ED-110B**, Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (ATN B1 Interop Standard) to:

- Update the ground requirement in section 3.3.7.6.4.10.2 regarding UM79 content;

- Update the ground requirements in Tables 4-3 and 4-5 and associated figures regarding message concatenation in CPDLC end requests.

3.1.2 Verification tests document TORs

Luc presented a proposal for clarifying the EUROCAE TOR on the Verification test documents. The objective was to clarify that these documents may not be mandatory for certification (according in particular to EASA expectations).

The group agreed that the text should not prevent (but not make mandatory) this Verification tests document.

The group agreed on the following changes in the EUROCAE TORs:

Purpose and justification of the proposal

Develop an industry verification test standard to qualify an aircraft and/or ground implementation based on the following Interop and SPR Standards

• DO-258A/ED-100A and DO-350B/ED-228B for FANS 1/A+,

• DO-280B/ED-110B and DO-350B/ED-228B for ATN B1, and

• DO-351B/ED-229B and DO-350B/ED-228B for B2.

The verification test standard will support the development **and verification** ~~acceptance, and certification~~ of aeronautical data link systems applications.

These service/operational level tests will ensure that future ground and aircraft systems implementations certified with an ATN B1, FANS 1/A+ and/or B2 Interop Designator will exhibit a behavior that is not only complying to the Interoperability **and SPR** Standards **but also that has been validated against realistic operational scenarios,** ~~complying with the operational requirements from the SPR Standards (e.g. requirements on the integration of uplink messages into the FMS). In the first step this document is intended to validate the airborne implementations only.~~ **This document is intended to be used for system development and verification, to make sure that the datalink systems application layer has been tested against the main operational scenarios as they have been deployed or plan to be deployed**.

Note: Other standards developed by EUROCAE and RTCA also contribute to the comprehensive Data Communication Services validation from an End-to-End perspective, covering the Network and Air-ground link physical layers (such as DO-281D/ED-92D, MOPS for Aircraft VDL Mode 2 Physical Link and Network Layer developed by RTCA SC-214/EUROCAE WG-92, or DO-404/ED-315, MASPS on ATN/IPS end-to-end interoperability and certification developed by RTCA SC-223/EUROCAE WG-108).

Target date

For submission to OC: **December 2025** - For publication: **April 2026**

Claire and Luc took the action to also propose the RTCA TORs the next day.

Claire highlighted that we still need an Editor. Vince (FAA) volunteered to take this role, (pending validation and approval from his management).

The group discussed the way to proceed for the development of the document.
- It was agreed to start with B2 as ATN B1 and FANS 1/A are already developed and deployed
- Backward compatibility will not be part of the tests (but the seamless transfers will)
- Steve suggested to start with a Template proposal (Vince will collect different tests formats to produce a template).
- It was proposed to start with route clearances operational scenarios.

3.1.3 Review of medium-level comments for DO-353B/ED-231B (B2 Rev B / ATN B1 Accommodation):

The group continued and finished the review of all medium-level comments resolution proposals.
All medium-level comments resolution proposals were reviewed and final proposal agreed by the group. Final proposals and agreement are captured in the comments resolution matrix.

3.1.4 Low-level and editorial comments for DO-353B/ED-231B (B2 Rev B / ATN B1 Accommodation):

The group agreed that low and editorial entries do not have to be reviewed and that Thierry making the updates was sufficient.

4 November 3rd
4.1 Approval of DO-352B/ED-230B and DO-353B/ED-231B comments resolution and readiness for publication process

The group acknowledged that:
- the comprehensive review of all "Medium" and "High" comments resolution proposals was achieved during this plenary, leading to a consensus on the proposals
- the editor (Thierry) can manage the "Editorial" and "Minor" comments

The group also trusts Thierry to properly implement the resolution as agreed in the comment matrix, and does not need additional review of the final documents.

As a consequence, DO-352B/ED-230B and DO-353B/ED-231B comments resolution is approved, and the documents can be submitted for review and approval by the RTCA PMC and EUROCAE Council.

Boeing (Mike) kindly proposed to support the editor for a final review of the documents before delivery to RTCA and EUROCAE for the editorial process.

4.2   TORs updates

Claire and Luc presented the TORs update proposals on both ED-110B/DO-280B Change 2 and Verification tests documents.

- Approved documents will be removed
- ED-110B/DO-280B Change 2 added, target FRAC/OC completion date May 2024
- Description of Verification tests document task updated to:
    o Develop DO-xxx/ED-yyy to support development and verification of ATN B1, FANS 1/A+, and B2 datalink system application layers against realistic operational scenarios developed per DO-350B/ED-228B
    o "Certify" was replaced by "Verify"
- Description of Change 2 to DO-280B/ED-110B, Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (ATN B1 Interop Standard) to:
    o Update the ground requirement in section 3.3.7.6.4.10.2 regarding UM79 content;
    o Update the ground requirements in Tables 4-3 and 4-5 and associated figures regarding message concatenation in CPDLC end requests.

The group agreed to submit the TOR updates.

4.3   Upcoming Schedule

The group will now focus on the development of ED-110B/DO-280B Change 2 and Verification tests documents.

Next meetings:
- IN PERSON:
    o Atlantic City, Feb 26-29, 2024, hosted by the FAA (Tech Center)
    o Maastricht, Jun 10-14, 2024, hosted by MUAC
    o US, October 14-18, 2024, host TBD

- WEBEX – ED-110B/DO-280B Change 2
    o Jan 10, 2024
    o Jan 25, 2024

- WEBEX – Verification tests discussion:
    o Dec 13, 2023
    o Jan 17, 2024

4.4   Other business:

Claire opened the floor for any new business.

Several participants reported on the difficulty to extract the ASN.1 description from the published document in a PDF format.
It was agreed that the ASN.1 would be published as a text formatted supplement in the store.

The group also agreed that Thierry manages duplicate identifier for some requirements (will be fixed).

5 Adjourn

The meeting was adjourned on November 3rd, 2023 at 11:00am CET. All documents and presentation material reviewed during Plenary have been uploaded and are available in the applicable RTCA AerOpus documents folder

CERTIFIED as a true and accurate summary of the meeting.

Claire Robinson
Chair, SC-214

Luc Emberger
Chair, WG-78