



RTCA Paper No: 291-23/SC227-077

EUROCAE Paper No: 360-23 WG85-53

**Minutes of 36th RTCA Special Committee 227 Meeting
Joint with EUROCAE WG-85 4D Navigation Performance, 33rd Meeting
21-25 August 2023**

Hybrid: Virtual and in-person at RTCA 1150 18th St NW, Suite 910, Washington, DC 20036

AGENDA

Monday, August 21, 2023, 9 AM to 4 PM (Local Time)

1. Welcome and Administrative Remarks, review of RTCA/EUROCAE Policies
2. Introductions
3. Review and Approve May 2023 Meeting Minutes
4. Proposed revision 16 to SC-227 TOR to Revision 16 to also address EMD lessons learned
as applicable to the material in the EMD MOPS and offer ancillary improvements to the EMD standards.
5. Presentation by WG-2 of planned work for the week and Change Proposal for Approval
6. Presentation by WG-1 of planned work for the week and Change Proposals for Approval
7. Presentation by WG-3 of planned work for the week and Change Proposals for Approval
8. Status of TOAC/FIM Conops Activity
9. Until 3pm, continue Plenary, including to Review and Comment (RAC) draft DO-283C, and a separate meeting room is available for WG-3 members not involved with RAC.



10. 3pm-4pm working sessions:

- WG-1 working session.
- WG-3 working session.

Tuesday, August 22, 2023, 9 AM to 4 PM (Local Time)

1. 9am-3pm Plenary, including to RAC draft DO-283C, and a separate meeting room is available for WG-3 members not involved with RAC.
2. 3pm-4pm working sessions
 - WG-1 working session.
 - WG-3 working session.

Wednesday, August 23, 2023, 9 AM to 4 PM (Local Time)

1. 9am-3pm Plenary, including to RAC draft DO-283C, and a separate meeting room is available for WG-3 members not involved with RAC.
2. 3pm-4pm working sessions
 - WG-1 working session.
 - WG-3 working session.

Thursday, August 24, 2023, 9 AM to 4 PM (Local Time)

1. 9am-3pm Plenary, including to RAC draft DO-283C, and a separate meeting room is available for WG-3 members not involved with RAC.
2. 3pm-4pm working sessions
 - WG-1 working session.
 - WG-3 working session.

Friday, August 25, 2023, 9 AM to 12 PM (Local Time)

1. Continue Plenary (WG-1, WG-2 and WG-3 together). There are no separate WG meetings.
2. Review Plenary Dates and locations for 2023 and 2024.
3. Review Action Items
4. WG-2



- a. Meeting Report
 - b. WG 2 Change Proposal(s) for Approval, if applicable
 - c. Plans/schedules/readiness for SC227 FRAC of DO-283C.
 - d. Consider a motion to initiate OC/FRAC or delay starting formal review of DO-283C.
5. WG-1
- a. Meeting Report
 - b. WG 1 Change Proposals for Approval
 - c. Plans/schedules/readiness for SC227 internal review of MASP (RAC) and/or FRAC
 - d. Consider a motion to initiate RAC or OC/FRAC, or delay starting formal review of DO-236E.
6. WG-3
- a. Meeting Report
 - b. WG-3 Change Proposals for Approval
7. New Business
8. Adjourn
9. Working Groups may continue to meet until 4 PM (Local Time), if desired

ATTENDEES

Chairpersons:

- EUROCAE WG-85 Okuary Osechas, Zurich University of Applied Sciences (ZHAW)
- RTCA SC-227 Ellen McGaughy, Collins Aerospace

EUROCAE WG-85 TPM: Alex Engel (outgoing), Mark Watson (in-coming)

RTCA Program Director: Rebecca Morrison RTCA

RTCA GAR: Barry Miller, FAA

Acting Secretary: Dave Nakamura, MITRE



Others attending

Aaron Jacobson- Jeppesen/Boeing
Alexander Engel (EUROCAE)
Andrew McKenzie NAV CANADA
Andrew Riedel - Boeing/Jeppesen
Barry Miller (FAA)
Bennie Hutto (NATCA)
Bill Tuccio (Garmin)
Bob Gaul - Garmin
Brad Miller - FAA
Brandon Weaver (DLR)
Brian Gilbert (Boeing)
Collin Ogden - Collins
Dale Courtney - FAA
Dave Nakamura (MITRE)
David De Smedt (EuroControl)
Doug Phifer FAA AFS-410A_support
Ellen McGaughy (Collins Aerospace)
Erik Ringnes (Honeywell)
Fernando Díaz (ENAIRE)
Ferraro Davide (Leonardo
Helicopter)
Gang Feng (Boeing)
Gary Petty (FAA)
Gerhard Berz (EuroControl)
Guy Dekker Thales
Jan Langen Lufthansa Systems
Jeff Kerr (FAA Flight Standards)
Jeff Meyers - FAA
Joel Dickinson (FAA Flt Stds)
John Barry, FAA Aircraft Cert
Kendal Hershberger - Garmin
Kevin Schwemmer Textron Aviation
Kirk Kolek – Collins Aerospace
Mark Watson (EUROCAE)
Michael McDowell – Collins
Mitch Narins Strategic Synergies,
LLC
Nathan Beeten
Nick Tallman FAA
Okuary Osechas(ZHAW)



Phillip Pankratz - Textron Aviation
Rebecca Morrison (RTCA)
Regina Richardson, NAVAIR/Avian
Reuss Anderson - Garmin
Ruth Hirt FAA Aircraft Certification
Shrivathsan **DLR**
Stephen Moody (Boeing/Jeppesen)
Steve Horvath - Garmin
Tim Geels (Collins Aerospace)
Tim Padden - USAF
Tom Yochum - Boeing
Toyohashi Yokota
Trent Prange-FAA
VALERIU VITAN EuroControl
Wes Googe AAL

MINUTES

Monday, August 21, 2023

- Preamble: At 9am, Rebecca and Ellen opened the meeting with Introductions and discussing policies and planned work for the week. Participation was in person and virtual via WebEx.
- Secretary: Given no one has volunteered for the vacant secretary position, Dave Nakamura, the previous SC-227 Secretary, offered to be the acting secretary for the week.
- Minutes: The SC-227 Plenary #35 Minutes from the May 2023 meeting in Phoenix were reviewed and accepted with some typographical corrections.
- Proposal for SC-227 TOR change to add scope to address EMD “lessons learned” and to remove the secretary was reviewed and approved to forward to RTCA PMC for their approval. Since the DO-257() is not joint with EUROCAE, the EUROCAE TOR will not be updated.
- FIM and TOAC report: There has been progress, but it does not yet impact SC-227 documents.



- WG#2 draft DO-283C (public): In Plenary, SC-227 started resolving items submitted Review and Comment (RAC), starting with items deemed “High”
- WG#3 draft DO-257C (not public): Some SC-227 WG#3 members met separately to continue developing material.

Tuesday, August 22, 2023

- SC-227 Plenary continued dispositioning RAC of draft DO-283C from 9am to 4pm.
- WG3 continued developing material in a side meeting, 9am to 5pm.

Wednesday, August 23, 2023

- SC-227 Plenary continued dispositioning RAC of draft DO-283C from 9am to 4pm.
- There were extensive discussions regarding DME navigation:
 - The FAA said DME reasonableness check can be much simpler than FDE. DME does not require generating a DME-based HPL (Fault Detection and/or Fault Detection and Exclusion). Appendix R is an acceptable means, but not a requirement means.
 - The FAA indicated the MOPS requirements should not imply and should not be interpreted to mean the DME ground facility needs an integrity check.
- WG3 continued developing material in a side meeting, 9am to 5pm.

Thursday, August 24, 2023

- STAR Transition paper [M25-3]: At the Chair’s request, Jeppesen explained why SIDS and STARs do not always have a common segment using examples identified by Garmin and Collins. The outcome was a decision to change the draft DO-257C requirements from the transition level to the waypoint level identical paths. Additionally, the FAA wants SIDs (“transitions”, meaning identical paths) to be addressed in the MOPS minimum workload functions. Airways do not need to be addressed as part of minimum workload functions.
- SC-227 Plenary continued dispositioning RAC of draft DO-283C from 9am to 4pm.



- WG3 continued developing material in a side meeting, 9am to 5pm.

Friday, August 25, 2023

- Personnel changes:
 - SC-227/ED-85 members acknowledged this is the last meeting that Alex Engle of EUROCAE will be attending and thanks him for his service. EUROCAE's Mark Watson will be taking his place.
 - SC-227 members also acknowledge this is the last meeting for Dave Nakamura and thank him for his service to RTCA and to the broader aviation community throughout his career.
- WG2: Erik Ringnes confirmed that all the RAC comments were dispositioned, except for editorial comments. Decision was made to approve change paper M25-3 for changing STARS and SIDS as written and allow FRAC process to move it forward to final text.
- WG-1 (draft DO-236E): SC-227 approved updating the MASP per the resolution of the RAC to the MOPS. SC-227 further approved the RNP MASPS to go directly to FRAC without an intermediate RAC process because the same items have already been discussed for the MOPS.
- FRAC decision: SC-227 approved to proceed to FRAC for MASP (draft DO-236E) and MOPS (draft DO-238C), concurrently, and not close either until both are finished. The RNP MOPS was approved to go to FRAC. Rebecca asked that document editors for RNP MASPS and MOPS get her these draft documents by September 5th, and she'll coordinate with EUROCAE's Alex Engel to initiate FRAC on Friday, September 8th. With the 45 days comment period that will result in a mid-October due date.
- WG3 presented four papers. One was accepted, and the others were sent back to WG-3 to rework:
 1. C10099 Applicable DO-257A Guidance which proposed restoring requirements from DO-257A/TSO-C165a that weren't included in DO-257B. Discussion around the



- manner database corruption/failure are detected and terminology related to currency of databases resulted in agreement to pull this paper from approval at this plenary for more work. The FAA GAR, Barry Miller, took the action to review internally within the FAA for suitable language.
2. C10102 – DO-257C Title Change which proposed updating the title of DO-257C to add mention of Electronic Aeronautical Chart Displays. The pros and cons of both approaches were discussed, and it was decided the concept was not mature enough to vote on at plenary. Additionally, SC-227 wants to hear EASA’s input
 3. C10114 – Document Structure Updates which proposed additional explanatory text to be added to the new “2.6”EACD section. This Change paper was approved.
 4. C10076 – Profile View – Bill Tuccio presented this paper which had been reviewed and worked on extensively in the WG3 meetings during the week and was presented for approval. Barry Miller indicated he had additional comments and would send them separately. Given the significance of this section, the paper was withdrawn for further work in WG-3.
- Next plenary dates are planned as follows:
 1. November 13-17th – in Brussels, with Monday’s meeting at EUROCONTROL, and remaining Tuesday-Friday meetings at EASA.
 2. Jan 29-Feb 2nd, 2024 – Discussed but **not** confirmed to meet at Jeppesen in Denver.
 3. May 13-17th, 2024,
 4. August 19-23, and
 5. Nov. 18-22 are other dates with location TBD for all of these
 - Action Item review: WG-3 is separately tracking detailed actions.
 - New Business: None
 - Adjourned.



Webex/Meeting Adjourned