

**RTCA- 228**  
**Summary of Plenary #41 RTCA Paper No. 106-24/SC228-117**  
**HYBRID MEETING**  
**9:00 AM EDT, May 3, 2024**

The forty-first plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Brandon Suarez at 9:00 AM EDT on May 3, 2024 at RTCA headquarters in Washington, D.C. and using WebEx audio and web conferencing.

1. Agenda Item #1- Call to Order: Welcome
  - 1.1. Brandon Suarez, co-chair called the meeting to order and stated the purpose for today's plenary through a review of the published and proposed agendas.
2. Agenda Item #2- Review RTCA meeting guidelines
  - 2.1. Brandi Teel, RTCA Program Director, welcomed everyone.
  - 2.2. Brandi reviewed the Anti-Trust Policy, the Proprietary Policy and the RTCA Committee Participation Membership Policy.
  - 2.3. Brandi also briefed some meeting tips to ensure a successful virtual meeting.
  - 2.4. Brandi then briefed the online self-rostering feature. Thank you to all who self-roster!
3. Agenda Item #3- Opening Remarks / Introductions
  - 3.1. Went around the room and phone, and introduced participants and companies.
    - 3.1.1. 19 in person, ~35 online.
  - 3.2. Participants on the phone stated their names and organizations, and attendance is noted in Appendix A.
  - 3.3. Brandon S. gave an overview of the SC-228 leadership team.
4. Agenda Item #4- Review and approve the agenda
  - 4.1. No walk on agenda items. Jim Williams moved to approve the agenda, Fabrice Kunzi seconded. No objections, agenda approved.
5. Agenda Item #5 - Approve meeting minutes from Plenary Meeting #40
  - 5.1. Greg Moran, SC-228 secretary, stated no comments were received for update/revision.
  - 5.2. Greg Moran called for a motion to approve the minutes. Steve Van Trees moved to approve the minutes, Jim Williams seconded. No objections, minutes approved.
6. Agenda Item #6 - Schedule review – high level overview of upcoming document work that remains for 2024-2025
  - 6.1. Greg Moran provided an overview of the SC-228 schedule ToR 17.

6.2. The schedule will be updated based on the plenary presentations and uploaded to the schedule folder on AerOpus. A revised schedule is to be presented to PMC for approval in ToR 18.

## 7. Agenda Item #7 – WG-1 Update

7.1. Fabrice Kunzi provided the update for WG-1.

7.1.1. Reviewed editorial progress on DO-365D Radar MOPS.

7.1.2. Analysis complete for DO-366B, translating to requirements.

7.1.3. NASA Pathfinding for Airspace with Autonomous Vehicles (PAAV) program review.

7.1.4. M:N white paper RAC to be initiated shortly. Question posed to plenary regarding future work, if any, for M:N operations, which is much wider than DAA. It was thought to be at least a new working group, if not a new special committee.

7.1.5. Completed first hazard analysis review for surface DAA.

7.2. Question whether the planned DAA for taxi operations MASPS is sufficient, or if there will be any follow-on MOPS. The initial thought is that the MASPS will be sufficient, but warrants further consideration.

7.3. Joint work with EUROCAE for two standards DO-366B and DO-387A was proposed to PMC March, 2024 in ToR 18, but this was not considered because the necessary RTCA and EUROCAE process had not yet been followed. EUROCAE Technical Advisory Committee (TAC) met April 26<sup>th</sup> and this item was not considered. As EUROCAE has not taken any action, another approach would be for two or more RTCA members to request RTCA to make such a request of EUROCAE. Any interested RTCA members to contact SC-228 leadership or Brandi Teel.

7.4. WG-1 did not anticipate any schedule change from ToR 17.

7.5. The WG-1 secretary position is open.

## 8. Agenda Item #8 – WG-2 Update

8.1. Amelia Mahan provided the briefing for WG-2.

8.1.1. C2 link terrestrial DO-362B on track for October, 2024.

8.1.2. RTCA report on use of DO-377B as a MOC, which intends to provide support for development of C2 link system specification. FAA expressed interest in recognition of material to support BVLOS rule. If recognized by the FAA, PMC agreement will be needed to change from report to guidance material.

8.1.3. FCC NPRM April 8<sup>th</sup> press release for initial rules for spectrum use by UAS 5030-5091MHz. The rule would rely on dynamic frequency management systems, and would require operators to submit a request to the FAA for de-confliction and approval. There was no timeline provided, and does not address networked operations.

- 8.1.4. C band update & EUROCAE SATCOM. Agreement reached on definition of emissions mask compatible with international standards. New agreement with EUROCAE on TDD frame structure, with next step June. Revision to DO-362B anticipated to accommodate FCC NPRM on non-network access. Network supported service will be deferred to DO-362C after final rule.
  - 8.1.5. UHF MOPS RAC complete with 197 comments resolved. Amelia motioned to enter FRAC. Allison Ferguson seconded. No objections, motion carried.
  - 8.1.6. Cellular MOPS RAC complete with 164 comments, 152 high. WG-2 requested a delay of 3 cycles to address unresolved comments. FRAC exit April, 2025 to be proposed to PMC in ToR 18 redlines.
  - 8.2. The FAA is considering Automated Data Service Providers (ADSP), similar in concept to technical standard order, within part 146. WG-2 work could be a pathfinder for industry standards could be used for ADSP authorization. SC-228 (and other SDOs) then would need to review FAA part 146 NPRM, once available, to review for potential changes to, or new, industry standards.
  - 8.3. The WG-2 secretary position is open.
9. Agenda Item #9 - WG-4 Update
    - 9.1. Joel Wichgers presented the update for WG-4.
      - 9.1.1. Automatic taxi MASPS tentative schedule exit RAC April, 2025 and exit FRAC July, 2025.
      - 9.1.2. Automatic taxi OSED exited RAC January 19<sup>th</sup>. Most comments were resolved in February and final five remaining high comments resolved last week.
      - 9.1.3. Runway incursion along-path and cross-path error contributions were described.
      - 9.1.4. Updated Automatic Taxi Navigation System (ATNS) functional architecture was presented between uncrewed aircraft and control station, including path generation, position estimation, control guidance, monitoring & alerting and user interface.
    - 9.2. Question whether the automatic taxi MASPS will be sufficient for aircraft design, or it is envisioned that there will be follow-on MOPS? MASPS is agnostic of implementation (e.g. sensors) so some trade-offs will be left to the implementers. It was not thought that a MOPS would be pursued.
10. Agenda Item #10 – EUROCAE WG-105 Update
    - 10.1. EUROCAE did not present an update.
11. Agenda Item #11 – GAR Report: FAA MASPS/MOPS Usage Update
    - 11.1. Steve Van Trees presented an update.
      - 11.1.1. SC-228 has completed the original ToR from 2013.

- 11.1.2. FAA is addressing changes to regulatory structure for next phase of UAS implementation (part 108).
- 11.1.3. Activity on TSO authorizations (C211, C212, C213a) and multiple applicants are proposing SC-228 material as MOC.
- 11.1.4. AIR working with applicants to develop and refine MOC for UAS C2 link projects.
- 11.1.5. DO-400 UAS lost link procedures GM under review by AJV-S.
- 11.1.6. FAA acknowledges need for standard for dynamic frequency management system, and will consult with FCC to determine if RTCA will lead development.

## 12. Agenda Item #12 – New Business

- 12.1. Brandon Suarez asked if there was any additional new business.
- 12.2. Meeting look ahead.
  - 12.2.1. July Working Group Meetings and F2F is July 16-19<sup>th</sup> 2024.
  - 12.2.2. Fall 2024 Working Group Meetings and F2F, previously planned for October, is November 5-8<sup>th</sup> 2024. Jim Williams advised that this date would not provide sufficient time for a document to exit FRAC prior to the December PMC meeting. No objections, meeting dates set.

## 13. Agenda Item #14 – Adjourn

- 13.1. Brandon Suarez adjourned the meeting at 10:47 AM EDT.

**SC-228 Leadership**

Jim Williams	SC-228 Co-Chair	Aura Network Systems
Brandon Suarez	SC 228 Co-Chair	Reliable Robotics
Greg Moran	SC-228 Secretary	Boeing
Brandi Teel	SC-228 Program Director	RTCA
Don Walker	SC-228 WG1 for DAA, Co-Group Lead	A3 by Airbus
Fabrice Kunzi	SC-228 WG1 for DAA, Co-Group Lead	Boeing/Skygrid
<vacant>	SC-228 WG1 for DAA, Secretary	
Steve Van Trees	SC-228 GAR, WG2 for C2, Co-Group Lead	FAA, AIR-130
Amelia Mahan	SC-228 WG2 for C2, Co-Group Lead	Amazon Prime Air
<vacant>	SC-228 WG2 for C2, Secretary	
Joel Wichgers	SC-228 WG4 for Navigation, Co-Group Lead	Collins Aerospace
Matt Harris	SC-228 WG4 for Navigation, Co-Group Lead	Boeing
Andrew Videmsek	SC-228 WG4 for Navigation, Secretary	Reliable Robotics

**Appendix A- List of SC-228 Plenary Participants**

## ATTENDEES

<b>Company</b>	<b>Name</b>
A3 by Airbus Group	Eric Euteneuer
	Donald Walker
ACES, Inc.	Alfonso Malaga
Adaptive Aerospace Group	Devin Jack
Amazon Prime Air	Amelia Mahan
Aura Network Systems	Ally Ferguson
	Virginia Stouffer
	Jim Williams
Collins Aerospace	Randy Jacobson
Collins Aerospace	Joel Wichgers
FAA	Richard Beckwith
Federal Aviation Administration (FAA)	Jose Fuentes
	Pamela Gomez
	Matt Haskin
	Ruth Hirt
	Ray Mei
	Rose Merchant-Bennett
	Don Nellis
	Gregg Nesemeier
	Mohammed Rahman
	Christopher Swider
	Stephen Van Trees
Federal Communications Commission (FCC)	Irene Knuu
	Kambiz Rahnvardy
Garmin Ltd.	Ben Peetz
General Atomics Aeronautical Systems, Inc.	Tim Bleakley
	Joey Neptune
General Dynamics Mission System Canada	Jean-Pascal Joary
Honeywell International, Inc.	Sara Bauman
Iridium Satellite LLC	Joseph Darden
Kansas State University	Tom Haritos
MIT Lincoln Laboratory	Matthew Edwards
	Randal Guendel
	Evan Maki
	Wesley Olson

NASA	Aaron Dutle
	Andrew Guion
	Kurt Swieringa
	Steve Young
NATCA	Mel Davis
National Oceanic and Atmospheric Administration (NOAA)	John Coffey
Northrop Grumman Corporation	Lance King
NUAIR	Lee Nguyen
Reliable Robotics	Andrew Neich
	Brandon Suarez
	Andrew Videmsek
RTCA, Inc.	Brandi Teel
Sagotech Corporation	Stacey Rowlan
The Boeing Company	Matt Harris
	Kyle Jermyn
	Fabrice Kunzi
	Greg Moran
	Matthew Moser
Universal Aviation	Fairy Pan
Xwing, Inc.	Michael Mueller

**Appendix B- List of SC-228 Action Items**

ID	Action	Assigned	ECD
240503-A	Consult with FCC to determine if RTCA will lead development of DMFS standard(s).	FAA (Steve Van Trees)	TBD