

RTCA- 228
Summary of Plenary #34 RTCA Paper No. 211-22/SC228-100
HYBRID MEETING
1:00 PM EST, July 21, 2022

The thirty-fourth plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Brandon Suarez at 1:01 PM EST on July 21, 2022 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
 - 3.2. Participants on the phone stated their names and organizations, and attendance is noted in Appendix A
4. Agenda Item #4- Review and Approve the agenda
 - 4.1. No walk on agenda items.
5. Agenda Item #5 - Approve meeting minutes from Plenary Meeting #33
 - 5.1. Katie Edwards, secretary, stated she received no comments for update/revision.
 - 5.2. Katie called for a motion to approve the minutes. Mark Reed moved to approve the minutes. Fabrice Kunzi seconded.
 - 5.3. There were no objections noted, minutes approved.
6. Agenda Item #6 - Schedule review – high level overview of document work that remains for 2022-2023
 - 6.1. 6-month view of upcoming FRAC and RAC periods
 - 6.2. Schedule will be updated on AerOpus following the plenary updates
7. Agenda Item #7 – WG-1 Update
 - 7.1. Don Walker provided the update for WG-1

- 7.1.1. WG-1 received a brief from MIT Lincoln Laboratory on Omni Active Surveillance Modeling & Simulation.
- 7.1.2. Proposal to begin an active surveillance sensor MOPS in Q4 of 2022 in SC-147, with SC-228 support as needed for operational concepts and use cases.
- 7.1.3. GBSS DO-381 status: Ready to enter FRAC August 12th, therefore, **WG-1 requests plenary approval to enter FRAC.**
 - 7.1.3.1. Brandon Suarez called for a motion to approve the request. Don Walker moved to approve. Randy Jacobson seconded.
- 7.1.4. OSED FRAC results. All comments successfully addressed and complete or in process. Both non-concurs were associated with HAPS section. One part of that section will be deleted and one will be fixed.
 - 7.1.4.1. Removing “Clear of Conflict” verbiage, RPIC will monitor for “RA clears”
 - 7.1.4.2. Going to complete the section that is currently in bullet points. Need text by August 2nd. It is not adding substantially new content, just clarifying what already exists.
 - 7.1.4.3. **WG-1 Requests plenary approval to forward the DAA OSED to PMC for publication prior to September 15th PMC.**
 - 7.1.4.3.1. Jim Williams called for a motion. Don Walker moved to approve, Bryan Barmore seconded. No objections noted.
 - 7.1.4.3.2. Joel Wichgers asked Brandi if multiple documents can be submitted in the same PMC review window. Brandi answered yes.
 - 7.1.4.3.3. Don thanked Paul Campbell for his leadership of the OSED document and for his contributions to the committee, and wished him well in retirement.
 - 7.1.4.4. DO-365C FRAC results for EO/IR content addition.
 - 7.1.4.4.1. 2 non-concur comments were resolved, figures were lost during document creation. ~216 comments. All editorial comments will be resolved by August 5th.
 - 7.1.4.4.2. **WG-1 Requests plenary approval to forward DO-365C to PMC for publication prior to September 15th PMC.**
 - 7.1.4.4.3. Jim Williams called for a motion. Don Walker moved to approve, Bryan Barmore seconded. No objections noted.
 - 7.1.4.4.4. Brandon noted that it is important to ensure that we get all needed editorial changes in the PDF for DO-365C, as there are no future revisions currently planned.
 - 7.1.4.5. DO-387 Change 1 FRAC
 - 7.1.4.5.1. When it’s a change document, per RTCA policy comments must only be on portions of the document under consideration for change.
 - 7.1.4.5.2. There were 3 “High” comments that referred to ground interference, and concern for pilot attention. However, these

comments were not made at the onset of the documents.

Commenter proposes to conduct a HF study to determine the quantity of false tracks due to ground moving targets.

7.1.4.5.3. If the FAA AUS office, or NASA, wanted to utilize R&D money, the committee would be supportive. We as SC-228 do not have resources to address this at this time. There is only so much we can do to engage commenters about their comments.

7.1.4.5.4. WG-1 Requests plenary approval to forward the DO—387 Change 1 to PMC for publication prior to September 15th PMC.

7.1.4.5.5. Jim Williams called for a motion. Don Walker moved to approve, Andrew Videmsek seconded. No objections noted.

7.1.5. Don provided an update on the scope of the Phase 3 work, and status of completion.

8. Agenda Item #8 – WG-2 update

8.1. Amelia Mahan provided the briefing for WG-2

8.1.1. Amelia showed the list of documents in the TOR.

8.1.2. DO-377B, third RAC completed.

8.1.2.1. OSED and OSA teams are continuing to make progress in the use cases: Air taxi team, package delivery, surface operations team,

8.1.2.2. OPA – lacking in stressing use cases. Working to understand and add information to potential use cases.

8.1.3. UHF MOPS

8.1.3.1. Plan to RAC after F2F in October.

8.1.4. Cellular MOPS – joint with EUROCAE WG-105

8.1.4.1. Working with other standards bodies to ensure not duplicating work. Translating security pieces and mobile network operators

8.1.5. ICAO C2 Link SARPS

8.1.6. ED-265 and DO-362

8.1.6.1. These two standards were not compatible. At the beginning of the year, looked at a proposal to make the standards compatible. Common Terrestrial and Satcom TDD Frame Structure. The general approach has been figured out. The updates needed for each document would come later down the line.

8.1.6.2. Plenary approval sought to proceed with joint sessions to develop two compatible documents with Common Terrestrial and Satcom TDD Frame Structure.

8.1.6.3. PMC approval is not needed to proceed, because a revision is already planned for DO-362. DO-362 will not be backwards compatible. Designs would have to be updated to be compliant.

- 8.1.6.4. Jim Davis asked: A TSO (213A) is in process for DO-362A. Will a revision also get a TSO?
 - 8.1.6.5. Steve Van Trees answered: Right now, the TSO draft in FAA management review has a life-limited statement that a new TSO would be needed (C213B) for future DO-362B. That verbiage will be available in the public comment.
 - 8.1.6.6. Giving companies an opportunity now to object or state concerns with this path forward.
 - 8.1.6.7. A lead for the activity is needed on the RTCA side, that individual has not been identified.
 - 8.1.6.8. No objections noted in the plenary session.
 - 8.1.7. No schedule changes are requested at this time, but Amelia provided a status on each item. DO-362B revision likely to slide beyond October '23. An updated plan and lead identified will be presented at the October 2022 plenary.
9. Agenda Item #9 – WG3 Update
 - 9.1. Randy Willis, co-chair shared WG 3 update
 - 9.2. WG-3 prepared the final sections of the guidance document.
 - 9.3. Noted lower attendance due to competing sessions with the other WG activities this week.
 - 9.4. Proposal to enter FRAC August 1, and exit in October plenary.
 - 9.5. **WG-3 requests approval for GM: Standardized Lost C2 Link Procedures for Unmanned Aircraft Systems to enter the FRAC process.** Jim Williams called for a motion, Randy Willis moved to approve. Steve Vantrees seconded.
 - 9.6. No objections noted.
10. Agenda Item #10 - WG-4 Update
 - 10.1. Joel Wichgers presenting the update for WG-4
 - 10.2. 2 main activities this week, resolving comments from FRAC and discussing next steps for WG-4.
 - 10.3. 0 non-concurs received in FRAC. Resolutions proposed for all 102 comments in June, worked with authors to resolve all comments.
 - 10.4. **WG-4 requests plenary approval to exit FRAC on proposed new RTCA document: “Guidance Material: Navigation Gaps for UAS.” and deliver document to PMC by August 15th.**
 - 10.5. Brandon Suarez called for a motion, Joel Wichgers moved to approve. Cristina Seibert seconded.
 - 10.6. No objections noted.
 - 10.7. WG-4 has no remaining TOR deliverables. Propose continuing to author a new document focused on one of the gaps defined in the GM document. Propose a TOR change to write a new document. There seems to be more

focus and interest on Automatic taxi. Aiming to propose a TOR change/scope to the plenary in October, and get it approved by PMC in December.

11. Agenda Item #11 – Ad-hoc WG Update
 - 11.1. Bryan Barmore presenting the update for Ad-hoc WG.
 - 11.2. WG set up to respond to a request from PMC, to identify need, provide initial feasibility study and answer questions, identify possible outputs.
 - 11.3. Deliver to PMC in December.
 - 11.4. Between 30-40 people participating in three sessions this week.
 - 11.5. One goal was to get agreement on set of assumptions. Randy presented the agreed upon assumptions, and invited anyone with objections or concerns to contact the WG directly. Silence is concurrence with the path forward.
 - 11.5.1. Clarified that AAM title is intended to be generic, not limiting.
 - 11.5.2. V2V focus primarily, not V2X.
 - 11.6. Reached general agreement on scope and assumptions, assigned white paper sections to authors.
 - 11.6.1. Who is participating is of interest to the plenary. This document is providing guidance on where RTCA should go. Answering the technical questions is not our job at this time.
 - 11.6.2. Spectrum options as identified now will be captured in a section of the document.
12. Agenda Item #12 – New York UAS Test Site, Capabilities & Infrastructure
 - 12.1. Lee Nguyen briefed the highlights of NUAIR.
13. Agenda Item #13 – Surface Operations White Paper discussion
 - 13.1. Request for SC-228 members to review the Taxi white paper in preparation for discussions within WG-1 and WG-4 to adopt the recommendations put forward in the paper.
 - 13.2. Document will be available on AerOpus following the plenary.
 - 13.3. Broader interest and applicability beyond just UAS and SC-228 for automatic taxi functionality. Intend to gain interest from surveillance and navigation communities.
 - 13.4. Notify the PMC that we are going to venture into a potentially cross-committee topic.
14. Agenda Item #14 - New Business
 - 14.1. RTCA and EUROCAE have started joint Special Committee (SC) 242/Working Group (WG) 124 on Spectrum Compatibility. The goal of the activity is to provide guidance material for future new and revised standards to ensure that the RF characteristics of aeronautical systems are complete and are fit-for-purpose in the evolving spectrum environment

- 14.1.1. A prerequisite for developing the guidance material is this survey to collect and document the current requirements relevant to the RF performance of aviation systems. This survey is directed at RTCA and EUROCAE MOPS or other technical performance standards that include RF performance requirements and are referenced by current FAA TSOs/ EASA ETSOs. The survey results will then be used in a gap analysis across all relevant CNS systems, resulting generic recommendations will be cataloged in the guidance document produced by our group.
- 14.1.2. Points of contact for survey are needed from WG-1 and WG-2.
- 14.2. Terminology discussion.
- 14.2.1. The term “manned aircraft” and its derivatives have long been used to refer to various things, including in recent documents. This term has always been confusing, but will be more so in light of future concepts involving highly automated passenger carrying aircraft
- 14.2.2. Going forward, SC-228 will move away the use of this term
- 14.2.3. Authors are encouraged to use more descriptive language, for example:
- “aircraft with a pilot onboard”
 - “legacy aircraft” or “traditional aircraft” when referring to aircraft that have existed before
 - “transport category aircraft” when referring to large high-performance aircraft
 - “passenger carrying aircraft”
- 14.3. While this is separate from the issue of gender-neutral language in aviation, we intend to remind the PMC that the FAA is working to change its terminology, including by using “Uncrewed” rather than “unmanned” in UAS
- 14.4. Information on Access to Ground-based Surveillance Data
- 14.5. There is currently a block, in order to access to existing NAS surveillance infrastructure can enable UAS/AAM operations in the near term, and a variety of latency. This limits the usefulness for DAA applications. That may pose security challenges for the U.S. government.
- 14.5.1. Two issues for further discussion with FAA and inter-agency stakeholders
- 14.5.1.1. Process for accredited entities to gain access to NAS data (e.g. primary surveillance radar) to support DAA applications. FAA’s NAS Data Release Board (NDRB) may be a route
- 14.5.1.2. Process to install and qualify ground-based surveillance equipment and data distribution. Fits into larger policy issues with “associated elements”

15. Agenda Item #15 – Adjourn

- 15.1. Meeting look ahead.
- 15.2. No other business
- 15.3. Brandon Suarez adjourned the meeting at 4:40 PM ET.

SC-228 Leadership

Jim Williams	SC-228 Co-Chair	Aura Network Systems
Brandon Suarez	SC 228 Co-Chair	Reliable Robotics
Katie Edwards	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
Matt Spanos	SC-228 WG1 for DAA, Secretary	Transport Canada
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
Jennifer Ledford	SC-228 WG2 for C2, Secretary	FAA
Randy Willis	SC-228 WG3 for Lost Link, Co-Group Lead	Northrop Grumman
Paul Albuquerque	SC-228 WG3 for Lost Link, Co-Group Lead	FAA
Kerry Bowers	SC-228 WG3 for Lost Link, Secretary	FAA
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

Company	Name
A3 by Airbus Group	Donald Walker
ACES, Inc.	Al Malaga
	Michael Neale
Adaptive Aerospace Group	Devin Jack
	Paul Volk
Air Line Pilots Association (ALPA)	Mark Reed
Airbus	Sergio Bovelli
Aircraft Owners and Pilots Association	Christopher Cooper
Amazon Prime Air	Amelia Mahan
	Rochelle Perrera
ARCON Corporation	Siva Sivananthan
Aura Network Systems	Jim Williams
Bell Helicopter Textron, Inc	Francis Govers
Cobham Aerospace Communications	Jeffrey Knickelbein
Collins Aerospace	Joel Wichgers
	Jorge Alvarez
	Mike McDowell
	Randy Jacobson
Constellation Aviation Solutions, LLC	Walter Monk
DLR-KN	Chen Zhu
Echodyne Corp	Casey Dunn
EUROCAE	Abinaya Kannan
FCC	Peter Trachtenberg
Federal Aviation Administration (FAA)	Anthony Long
	Avi Acharya
	Bonnie Gagliardo
	Christopher Swider
	David Chen
	Gilbert Ceballos
	Jose Fuentes
	Keith Carver
	Kerry Bowers
	Mack Horton
	Matt Haskin
	Mitch Narins
Pamela Gomez	

	Paul Albuquerque
	Paul Campbell
	Ravi Jain
	Ray Mei
	Raymond Johnson
	Rose Merchant-Bennett
	Ruth Hirt
	Trung Pham
Garmin Ltd.	Ben Peetz
General Atomics Aeronautical Systems, Inc.	J. J. Lu
	Stephan Dupourque
General Aviation Manufacturers Association	Jens Hennig
GXA Consulting	Bob Lee
Honeywell International, Inc.	Sara Bauman
	Vibhor Bageshwar
INMARSAT	Kristen Mineck
L3Harris	Brian Spinks
	Stacey Rowlan
Ligado Networks	Samuel Weich
MIT Lincoln Laboratory	Maria Picardi Kuffner
	Matthew Edwards
	Randal Guendel
Mosaic ATM, Inc.	Todd Kilbourne
NASA	Aaron Duple
	Bryan Barmore
	Elliot Lewis
	William Bishop
NextNav	Cristina Seibert
Northrop Grumman Corporation	Lance King
	Randy Willis
NUAIR	Lee Nguyen
Reliable Robotics	Andrew Videmsek
	Brandon Suarez
RTCA, Inc.	Brandi Teel
Sagetech Corporation	Rudy Johnson
Technology Providers, Inc.	Marvin Hammond
Thales Group	Jeffrey Richards
The Boeing Company	Fabrice Kunzi
	Kaleb Washington

	Katie Edwards
	Matt Harris
	Sergiu Marzac
	Upekesha Ngugi
Transport Canada	Matthew Spanos
	Tom Hastie
uAvionix	Jim Davis
UPS Flight Forward	Jacob Rutledge
Wisk	Garv Stephenson
Xwing, Inc.	Anna Dietrich
	Michael Mueller
	Swee Balachandran