

RTCA- 228
Summary of Plenary #35 RTCA Paper No. 285-22/SC228-101
HYBRID MEETING
9:00 AM EST, October 7, 2022

The thirty-fifth plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Brandon Suarez at 9:03 AM EST on October 7, 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
 - 3.1.1. 14 in person, 60 online
 - 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 #34
 - 5.1. Katie Edwards, secretary, stated she received no comments for update/revision.
 - 5.2. Brandon called for a motion to approve the minutes. Marv Hammond moved to approve the minutes. Mark Reed 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
 - 6.3. SC-228 work is moving into 2024/2025
 - 6.4. New documents will be added to the schedule in alignment with TOR changes

7. Agenda Item #7 – EUROCAE WG-105 Update
 - 7.1. Alex Florin and Maurizio Goiak presented an update on activities from WG-105
 - 7.2. SG-1 DAA MOPS
 - 7.2.1. Merging OSED for Class A-C (ED-238) with OSED for Class D-G (ED-258) into a new OSED covering all airspace classes and adding RWC function
 - 7.2.2. Initiating work on new ED-271A “Minimum Aviation System Performance Specification for Detect & Avoid [Traffic] under IFR” for all the airspaces from A to G.
 - 7.2.3. Discussion on a joint opportunity between EUROCAE and RTCA for a mini MOPS for a cooperative sensor.
 - 7.3. SG-2
 - 7.3.1. Boris Resnick is back after having rejoined EUROCAE as Flyvercity company.
 - 7.3.2. DP003 C2 5GHz (ED-265 / DO-362): Agreement found with RTCA SC-228. ED-265 and DO-362B will be revised to ensure compatibility of the MOPS (but no joint document DO-362x/ED-xxx foreseen).
 - 7.3.3. An ad-hoc group was set up so that those working on ED-265 and DO-362B can discuss and agreed.
 - 7.3.4. DP008 – UAS C2 MASPS European Stakeholders Report kicked off
 - 7.4. SG-3
 - 7.4.1. DP002 - Technical Specification for Geographical Zones and U- Space data provision and exchange
 - 7.5. SG-4
 - 7.5.1. MoC for EASA Special Condition Light-UAS – Medium Risk, Limited progress over summer MOPS for Command Unit Core Layer of UAS to be operated in the EASA certified category of operations, Work on-going for the closure of 'draft 0' review comments
 - 7.5.2. SG-6 SORA
 - 7.5.3. DP002: ED-301 "Guidelines for the use of multi-GNSS solutions for UAS Specific Category – Low risk operations SAIL I & II" was published in September.
 - 7.5.4. Other DPs are re-launched and leads are allocated: DP003: Automatic protection of the flight envelope from human errors (Daniel Gutierrez - ITG), DP004: Safe Design for UAS (ED-280A) (Antidio Viguria - CATEC), DP005: SAIL II Guidance (Alejandro del Estal - Rigi Tech and Antonio Pascual - Wingtra), DP007: ED-301A – Multi-GNSS guidance for medium risk (Carlos Hernandez).
 - 7.5.5. DP006: scope still need to be re-defined in line with previous TAC guidance
 - 7.5.6. Don Walker asked about the white paper being developed on active Surveillance and Ben Zintak inquired about mini MOPS from SC-147.

Document will be transmitted to RTCA stakeholders but no action is required yet.

7.5.7. Questions: Lee Nguyen inquired about the planned publication date for DP003 and Alex answered January 2024.

7.6. Next EUROCAE WG-105 plenary is in November, SC-228 will be invited to brief.

8. Agenda Item #8 – WG-1 Update

8.1. Fabrice Kunzi provided the update for WG-1

8.2. Began the week with joint discussion with WG-4 on taxi standards document.

8.2.1. Question for WG-1 on taxi standards – EUROCAE wrote a standard a few years ago. Andrew Videmsek answered that RTCA plans to collaborate and utilize the EUROCAE work done as much as possible.

8.2.1.1. Don Walker proposed setting a date for a joint meeting. Maurizio will share a briefing document in advance.

8.2.1.2. ED-251 (OSED) and ED-284 (MASPS)

8.2.2. Avoiding using the term DAA for collision avoidance on the ground.

8.2.3. Question from Randy Jacobsen on if we are the right group to take on this scope? Brandon answered that we are asking the PMC to add it to our TOR, but it is their decision on where this work goes. It is known that this has a wider scope of use cases.

8.3. ACAS Xr inclusion in the DAA OSED DO-398

8.3.1. Includes higher density operational environment and new types of operations, including hover and vertical flight use cases. Also, where operators are intentionally close to terrain.

8.3.1.1. Illustrative example: Autonomous rotorcraft flying through the Hudson River VFR corridor.

8.3.2. Discussion on possible M:N operations, deferred to later discussion.

8.3.3. Marv mentioned that the DO-377 OSED includes a case for an air taxi, happy to share and collaborate.

8.3.4. A mature draft is needed by July 2023, due to the R4 incorporation deadline. Proposed FRAC by February 24.

8.4. Completed needed updates to DO-381A, asking for permission to enter FRAC.

8.4.1. Brandon Suarez called for a motion to approve entry to FRAC. Fabrice Kunzi moved to approve, Andrew Videmsek seconded. No objections noted, motion approved.

8.5. TOR changes will be reviewed later on in the meeting.

9. Agenda Item #9 – WG-2 update

9.1. Amelia Mahan provided the briefing for WG-2

9.2. DO-377B – OSED, OSA, OPA Progress

9.2.1. 4th review and comment (RAC) will begin in October.

9.3. Themes for the Week

- 9.3.1. Making excellent progress in DO-377B through OSED, OSA, and beginning OPA efforts in earnest
 - 9.3.2. Discussions around C2CSPs – and what we can and cannot define for ground-ground links and air-ground links
 - 9.3.3. Callout – ensure that other WGs are utilizing the Surface Operations development
 - 9.4. UHF MOPS and Cellular MOPS will both slide to the left.
 - 9.5. EUROCAE ED-265 (C-Band Satcom) and DO-362: We decided jointly to make ED-265 and DO-362 compatible without restrictions including 1) distance between UAs or 2) band splitting
 - 9.6. Supporting WG-105 DO-377 Gap Analysis *New task*
 - 9.7. TOR changes will be reviewed later on in the meeting.
10. Agenda Item #10 – WG3 Update
- 10.1. Randy Willis, co-chair shared WG 3 update
 - 10.2. 529 comments received in FRAC, 52% were editorial; This week the focus was on 89 non-concurs and high comments. 90% are resolved or on an agreed path to resolution.
 - 10.3. Lower attendance than usual. Competing interests within SC-228.
 - 10.4. WG-3 leadership briefed several FAA HQ offices. 6 ATO offices present
 - 10.5. The WG has decided not to ask to exit FRAC today. Proposing a revised schedule:
 - 10.5.1. Extend current FRAC to November, then use revised document to review internally with the WG and have specific FAA offices review.
 - 10.5.2. New plan to exit FRAC in April, deliver to PMC in June.
11. Agenda Item #11 - WG-4 Update
- 11.1. Matt Harris presented the update for WG-4
 - 11.2. Guidance document is published: DO-397. Congratulations WG-4!
 - 11.3. Week focused on developing new work, now that additional scope is completed.
 - 11.3.1. Proposed Document Structure & Scope for Autotaxi performance
 - 11.3.2. TOR Update will be reviewed later on
 - 11.3.3. Proposed Work Plan established to work at risk until the TOR is approved in December.
 - 11.4. Lee Nguyen asked about the nature of the gaps characterized in DO-397. WG-4 clarified that the majority of focus in that document is on fixed wing operations in traditional airports. However, eVTOL aircraft were included in some areas of gap identification.
12. Agenda Item #12 – Ad-hoc WG Update
- 12.1. Bryan Barmore presented the update for Ad-hoc WG.

- 12.2. FAA SBS office hosted a workshop on Monday at MITRE to get input from industry on the incorporation of a V2V link. This will lead to internal considerations and recommendations at the FAA – good alignment between FAA and future RTCA work. A briefing will be shared during New Business today.
 - 12.3. Resolving comments from internal review, nearing the end of developing white paper and recommendations for follow on work (section 6).
 - 12.4. Final draft will be provided to leadership of SC-147, 186 and 228.
 - 12.5. Recommendations to PMC and suggestions to next working group are included.
 - 12.6. 2 week period for leadership comments, Nov 1 incorporate comments and finalize document, submit to PMC in mid November for December 15 PMC.
 - 12.6.1. Over 100 people engaged, good work over a very short timeline. There is a lot of interest in moving this forward, wherever it may land.
13. Agenda Item #13 – UAS Terminology
- 13.1. Brandon Suarez shared – as part of our conversation with the PMC in September. We have been asked to make the edits in the TOR using the term Uncrewed instead of Unmanned where appropriate.
 - 13.2. For the term “manned” aircraft, for documents that are in work, use a more precise term for what is being discussed, at the discretion
14. Agenda Item #14 - New Business
- 14.1. Welcome to the world Savannah Van Trees, and congratulations to Steve on his newest granddaughter!
 - 14.2. Out of sequence WG-1 DO-387 Change 1 PMC submission – **vote**
 - 14.2.1. At plenary #34, the DO-387 change document was done incorrectly and brought back to the committee. We need to vote to send to the PMC, where they will so an out of sequence vote.
 - 14.2.2. Brandon called for a motion to approve the submittal of the change document. Fabrice Kunzi moved to submit, Randy Jacobsen seconded.
 - 14.2.3. No objections noted, approval granted to submit DO-387 Change 1 to the PMC out of sequence.
 - 14.3. FAA V2X Roundtable out brief (Greg Orrell)
 - 14.3.1. FAA Reauthorization Act of 2018 requires the FAA to respond to Congress on the use of aviation protected spectrum for control link communications, to include surveillance information. Safety related RF communications must occur on licensed spectrum
 - 14.3.2. Goals of V2X Industry roundtable:

- 14.3.2.1. Understand and collect use cases and need statements from industry, validate potential need for V2X communication link.
 - 14.3.2.2. From these use cases and need statements, develop capability needs to inform FAA decisions.
 - 14.3.2.3. Utilize these inputs to drive the scope & the role FAA should take to accelerate the concept of a V2X link in appropriate spectrum
 - 14.3.2.4. Industry can execute on a V2X link
 - 14.3.3. Review of use cases and need statements
 - 14.3.4. Supporting FAA documents are planned:
 - 14.3.4.1. V2X Conceptual Development Roadmap (March 2023)
 - 14.3.4.2. V2X Needs Analysis (May 2023)
 - 14.3.4.3. V2X Concept of Operations (CONOPS) (July 2023)
 - 14.4. TOR updates – every WG has some level of change this cycle.
 - 14.4.1. Mark Reed requested the document be sent out for the broader committee to review. We will conduct the vote, to approve the changes and send to PMC, via an electronic ballot in the coming weeks, after review is complete.
 - 14.5. RTCA Human Factors Course October 25-27
 - 14.5.1. Contact Brandi if you are interested in signing up
 - 14.6. We will be jointly hosting our spring plenary with AUVSI May 8-11, 2023 in Denver, Colorado at [XPONENTIAL](#) conference.**
15. Agenda Item #15 – Adjourn
- 15.1. Meeting look ahead.
 - 15.1.1. Next F2F and plenary January 24-27 at RTCA in WDC.
 - 15.1.2. May 8-11 at AUVSI
 - 15.1.3. Remainder of 2023 dates are being decided.
 - 15.2. No other business
 - 15.3. Brandon Suarez called for a motion to adjourn, Mark Reed moved to adjourn and Matt Harris seconded. Brandon adjourned the meeting at 12:09 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
	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
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
	Keith Hoffler
	Paul Volk
AFRL	Susan Brickner
Air Line Pilots Association (ALPA)	Mark Reed
ALPA	Shea Byom
AlternaSource, Inc.	Kathleen Kearns
Amazon Prime Air	Amelia Mahan
	Rochelle Perrera
	Xavier Redondo
Aura Network Systems	Jim Williams
	John Moore
	Virginia Stouffer
BAE Systems, Inc.	Andrew Klappert
Bell Helicopter Textron, Inc	Francis Govers
Cobham Aerospace Communications	Jeffrey Knickelbein
Collins Aerospace	Joel Wichgers
	Mike McDowell
	Randy Jacobson
COMAC America	Mingwei Wang
DND DTAES Canada	Tam Vu
Esterline CMC Electronics	Jean-Pascal Joary
EUROCAE	Abinaya Kannan
Federal Aviation Administration (FAA)	Adam Hendrickson
	Avi Acharya
	Bonnie Gagliardo
	David Chen
	Jennifer Ledford
	Kerry Bowers
	Matt Harmon
	Neal Suchy
	Pamela Gomez
Pat Maggard	

	Ravi Jain
	Ray Mei
	Rose Merchant-Bennett
	Ruth Hirt
Federal Communications Commission (FCC)	Tim Maguire
Garmin Ltd.	Ben Peetz
Honeywell International, Inc.	Eric Euteneuer
	Sara Bauman
INMARSAT	Kristen Mineck
Iris Automation Inc	Akaki Kunchulia
Japan Radio Air Navigation Systems Association	Hiroshi Okochi
L3Harris	Kevin Dimond
Leonardo Company	Maurizio Goiak
Ligado Networks	Samuel Weich
MIT Lincoln Laboratory	Ian Jessen
	Maria Picardi Kuffner
	Matthew Edwards
	Randal Guendel
	Wesley Olson
MITRE	Gerd Freuwoerth
	Greg Orrell
	Tom Monson
NASA	Aaron Duple
	Bryan Barmore
	Casey Smith
	Elliot Lewis
	Steve Young
NAV CANADA	Steve Bellingham
NextNav	Cristina Seibert
Northern Plains UAS Test Site (NPUASTS)	Erin Roesler
Northrop Grumman Corporation	Randy Willis
NUAIR	Lee Nguyen
Reliable Robotics	Andrew Videmsek
	Brandon Suarez
RTCA, Inc.	Brandi Teel
Sagetech Corporation	Stacey Rowlan
Skygrid	Suda Bharadwaj
Technology Providers, Inc.	Marvin Hammond
The Boeing Company	Fabrice Kunzi

	Katie Edwards
	Matt Harris
	Scott Blum
	Sheila Conway
	Tyler King
The Johns Hopkins University	Benjamin Zintak
	Josh Silbermann
The MITRE Corporation	John Ashley
	Craig Bloch-Hansen
Transport Canada	Earle DePass
	Josué Morissette
	Tom Hastie
University of Michigan	Jean-Baptiste Jeannin
VMA Unmanned	Jim Blanchard
Wing Aviation	Alexandra Florin
Wisk	Garv Stephenson
Xwing, Inc.	Evan Wilson
Zipline	Eric Watson