RTCA- 228
Summary of Plenary #36
RTCA Paper No. 029-23/SC228-102
HYBRID MEETING
9:00 AM EST, January 27, 2023

The thirty-sixth plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Brandon Suarez at 9:01 AM EST on January 27, 2023 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.
    1.2. Discussed a new permanent update report by the GAR in each Plenary.

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. 16 in person, 63 online
    3.2. Participants on the phone stated their names and organizations, and attendance is noted in Appendix A
    3.3. Call for WG-1 secretary

4. Agenda Item #4- Review and Approve the agenda
    4.1. No walk on agenda items.
    4.2. Brandon moved to approve the notes. Matt Harris moved. Jim Williams second.

5. Agenda Item #5 - Approve meeting minutes from Plenary Meeting #35
    5.1. Amelia Mahan, WG-2 Co-chair, stated they received no comments for update/revision.
    5.2. Amelia called for a motion to approve the minutes. Jim 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. SC-228 work is moving into 2024/2025

7. Agenda Item #7 – EUROCAE WG-105 Update – no update this Plenary

8. Agenda Item #8 – WG-1 Update
    8.1. Wes Olson provided the update for WG-1
    8.2. Tuesday kicked off on the ATAR declaration range analysis
    8.3. Quantification of right of way rules from GA and AFS. Will lead modeling and simulation campaign.
    8.4. ACAS Xr program status briefed – final ConUse is no available
    8.5. Focused efforts on Taxi OSED – draft of taxi OSED by April F2F, July RAC
        8.5.1. Comment from Jim Williams – ensure this remains consistent with the WG-2
    8.6. DAA OSED Support for ACAS Xr – updated scenarios by April F2F, July RAC
        8.6.1. Comment from Ben Zintak – noted to reach out to him direct for any issues relate to ACA Xr
        8.6.2.
    8.7. M:N Concept – will develop a white paper on M:N conops by January 2024. Two main conops of Large UA Cargo Delivery and AAM
        8.7.1. Comment from Jim Williams – This is not in the TOR as a published white paper.
        8.7.2. Action taken by Wes to work with Fabrice and Don if TOR needs to be updated.
    8.8. DO-381A. Permission to enter FRAC February 27, 2023.
        8.8.1. FRAC to be completed by March 29, 2023.
        8.8.2. Brandon Clarified that no additional action is required. Approved the entry into FRAC on February 27, 2023.

9. Agenda Item #9 – WG-2 update
    9.1. Amelia Mahan provided the briefing for WG-2
    9.2. OSED – on track for all of the sections
        9.2.1. Jim – who do we have working across all WG on taxi operation? Answer Andrew Videmsek
    9.3. Cellular
        9.3.1. Brandon Suarez asked ACJA publishing the document? Answer No
    9.4. NPRM – link https://www.fcc.gov/document/fcc-starts-rulemaking-licensed-spectrum-unmanned-aircraft-use-0
        9.4.1. Mark Reed asked how will we respond from RTCA?
        9.4.2. Jim responded will need to do some sort of electronic ballot before the PMC. Want to keep our focus on the RTCA comments only. Answer their questions but don't put in. will add some work on the satellite and terrestrial compatibility. May want to get the White Paper out sooner.

10. Agenda Item #10 – WG3 Update
    10.1. Paul Albuquerque shared WG 3 update
    10.2. Reviewed the outline of the document for *Standardized Lost C2 Link Procedures*
    10.3. Exclusively focused on comment resolution; primarily in Sections 4 and 5
    10.4. Had a joint working session with WG-2
    10.5. Jim Williams asked– are you confident to enter FRAC? Answer yes
    10.6. Jim Williams asked– will ATO be aligned? Answer we believe so
    10.7. Brandon Suarez commented– it will be important for the first operator to get feedback from ATO on how the document is used and received.
    10.8. Tod Lewis commented – this is guidance material, and we expect this to be taken up by a group that would work towards developing requirements for lost link actions or procedures.
    10.9. Mark Reed asked who from NATCA is supporting? Jimmy Smith responded that he is participating.

11. Agenda Item #11 - WG-4 Update
    11.1. Matt Harris presented the update for WG-4
    11.2. Shared the schedule and targeting mid-2025 for the OSED – the target is to develop and OSED that is harmonized between WG-1, WG-2 and WG-4. First review of the 'foundational OSED' will be April 2023.
    11.3. Will be similar to RNP in the lateral case, though considerations of Gear and Wings will be required for Taxi operation
    11.4. Seeking more members to join the subgroup
    11.5. Jim Williams commented that there is a desire in the airline industry to have taxi routes and taxi navigation. Is there any focus on crewed aircraft? Answer yes, will include that as a part of the conops. Andrew Videmsek noted that the TOR entry calls out crewed and uncrewed aircraft.

12. Agenda Item #12 - FAA MASPS/MOPS Usage Update
    12.1. Steve Van Trees presented the current state of MASPS/MOPS Usage in the FAA
    12.2. SC-228 initial focus was larger drones in controlled airspace, and the original TOR from 2013 has been completed.
    12.3. It is premature to impose requirements on DAA across the board. FAA will entertain exemption/waiver proposals to operate UA in the interim and applicants may leverage SC-228 products
    12.4. FAA/AIR does not intend to update TSOS for TSO-C211A, and TSO-C212 ATAR or develop TSO for EO/IR.
    12.5. Will start more TSOs once the regulatory approvals are more defined

12.6.   Jim Williams asked if an applicant wanted to apply under 211, they could apply for a deviation

12.7.   Brandon Suarez commented for the next plenary for SC-228 or SC-147 it would be good to have an explicit discussion about ACAS Xu.

12.8.   Andy Thurling comments that we expected something from a list of topics like a table of contents in terms of what we may get in the near future, in addition to the BVLOS Arc.

12.9.   Steve Van Trees commented that on the Associated Elements work, there are items that will become part of the purview of the approval.

12.10.   Brandon Suarez proposes that we have a 'complimentary' topic from the Industry Side to brief the committee at large to build, certify, deploy, and operate systems that are compliant on SC-228. Industry, academia and regulatory have the same viewpoint of what is needed.

13. Agenda Item #13 - SC-213 Debrief, AAM/UAM/Vision Systems Workshop (this took place after the WG-3 report out to accommodate the 10am Eastern start)

13.1.   Trent Prange presented Enhanced Flight Vision and Synthetic Vision Systems (EFVS/SVS) starting with the history of the committee since 2006, and a summary of the published documents since 2011

13.2.   Trent described regulatory readiness for vision systems – rule is limited to approach and landing today, and predicated on crewed aircraft

13.3.   UAM/AAM Vision System shared the current state of visual navigation. Action item from the workshop is to continue to talk and identify areas of collaboration in the future

13.4.   Brandon Suarez commented that the idea to utilize low resolution, low frame rate video on takeoff and landing to support either navigation integrity and the ability to detect obstructions on the runway during takeoff or landing. We'd allocated bandwidth in the airport environment but we've never worked through exactly how that will work.

13.5.   Trent Prange responded this is more of a regulatory problem, not a technical one. For example, EVS is limited to straight in instrument approach with vertical guidance. UAM wants to go into different types of airports that don't have straight in instrument approaches.

13.6.   Jim Williams commented that we will not 'hand fly' the UA in SC-228. Plenary had a general discussion about feasibility of instrument/down to CAT III approaches at vertiports. Mentioned that there are gaps in rulemaking for use of EVS for this intended function.

13.7.   Tim Bleakley commented that the use case may be similar to assess the runway conditions but in different contexts.

13.8.   Brandon thanked the presenters

Brandon Suarez called for a break from 10:30AM EST to 10:40AM EST

14. Agenda Item #14 - New Business

 14.1. Randy Jacobson presented the Ad-hoc Working Group Advanced Air Mobility (AAM) Vehicle-to-Vehicle (V2V) Whitepaper

  14.1.1. PMC requested additional information on spectrum needs and availability, assumptions on regulatory, and cyber security

  14.1.2. Jim Williams commented that more information on the use of the data is neeed before we can know what spectrum we need

  14.1.3. Brandon Suarez noted that industry must 'take the risk' because the FAA will not impose/allocate spectrum for this initially

  14.1.4. Brandon Suarez noted that ASTM will work on security requirements for V2V. Potential for collaboration here to prevent duplication of work. Part of the C-Band NPRM, there is a proposal to carve out some of it for V2V.

  14.1.5. Don Nellis commented that if we want to propose something for WRC 2023. If we don't have something in there, it will be post 2027 allocation. There are a number of companies that participate, and would be able to start the process.

  14.1.6. Neal Suchy commented that the FAA is sponsoring research work with Johns Hopkins. Conops will be developed by July 2023. FAA is working to quantify some of the items the PMC wanted them to provide in the V2V white paper.

  14.1.7. Brandon Suarez asked for an update to this topic at Plenary #37. Will coordinate with Ian Jensen.

 14.2. New Document Access Platform

  14.2.1. Brandi Teel described the new access platform. This will be enacted for all platforms by June 2023 at the latest.

  14.2.2. Please email membership@rtca.org for any questions

  14.2.3. Andrew Videmsek asked if you can still download and read offline? The answer is yes, and it must use Acrobat. You do have to change some settings to access them offline.

 14.3. Meeting look ahead.

  14.3.1. Next F2F is April 18-20 and plenary April 21 at RTCA in WDC.

  14.3.2. Summer F2F is July 18-20 and plenary July 21 at RTCA in WDC

  14.3.3. October 2023 TBD

15. Agenda Item #15 – Adjourn

 15.1. No other business

 15.2. Brandon Suarez called for a motion to adjourn, Mark Reed moved to adjourn and Andrew Videmsek seconded. Brandon adjourned the meeting at 11:22 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
ACES, Inc.	Al Malaga
	Alfonso Malaga
	Michael Neale
Adaptive Aerospace Group	Devin Jack
AFRL	Susan Brickner
Air Line Pilots Association (ALPA)	Mark Reed
Airbus	Jean-Baptiste Berthier
Airbus	Louise Faure
AlternaSource, Inc.	Kathleen Kearns
Amazon Prime Air	Amelia Mahan
Aura Network Systems	Jim Williams
	John Moore
BAE Systems, Inc.	Andrew Klappert
Boeing	Jake Reimberg
	Hilary Fiorentino
	Jacob Sims
	Matt Edwards
Bombardier	Hagop Kazarian
Cicionia	Moshe Cohen
Collins Aerospace	Joel Wichgers
	Randy Jacobson
Constellation Aviation Solutions, LLC	Walter Monk
DLR-KN	Chen Zhu
DND DTAES Canada	Tam Vu
EUROCAE	Sergio Bovelli
FCC	Peter Trachtenberg
	Kambiz Rahnavardy
Federal Aviation Administration (FAA)	Avi Acharya
	Brian Richardson
	Christopher Swider
	Don Nellis
	Gregg Nesemeier
	Jose Fuentes
	Kerry Bowers
	Matt Haskin
	Mohammed Rahman

	Neal Suchy	
	Paul Albuquerque	
	Ray Mei	
	Rose Merchant-Bennett	
	Ruth Hirt	
	Scott McLellan	
	Sean Flack	
	Stephen Van Trees	
Garmin Ltd.	Ben Peetz	
General Atomics	Tim Bleakley	
General Aviation Manufacturers Association	Jens Hennig	
General Dynamics Mission System Canada	Jean-Pascal Joary	
Hyundai Motor Company	Dongkyu Kim	
INMARSAT	Kristen Mineck	
Iris Automation Inc	Akaki Kunchulia	
MIT Lincoln Laboratory	Maria Picardi Kuffner	
	Randal Guendel	
	Wesley Olson	
Mitsubishi Research Institute, Inc.	Takeshi Tomoda	
NASA	Aaron Dutle	
	William Bishop	
NATCA	Jimmy Smith	
NextNav	Cristina Seibert	
NIAR	Armando DeAbreu	
NUAIR	Lee Nguyen	
Raytheon	Waseem Naqvi	
Regulus Group	Bob Pomrink	
Reliable Robotics	Andrew Videmsek	
	Brandon Suarez	
	Martin Koschel	
RTCA, Inc.	Brandi Teel	
	James Venslauskas	
Sagetech Corporation	Stacey Rowlan	
Softbank	Osanai	
Technology Providers, Inc.	Marvin Hammond	
The Boeing Company	Matt Harris	
	Scott Blum	
The Johns Hopkins University	Benjamin Zintak	

The MITRE Corporation	Rob Strain
Thurling Aero Consulting	Andy Thurling
Transport Canada	Josué Morissette
	Tom Hastie
Universal Avionics	Troy Niles
Xwing, Inc.	Michael Mueller