

RTCA- 228
Summary of Plenary #25- RTCA Paper No. 227-20/SC228-074
VIRTUAL
1:00 PM EST, August 28, 2020

The twenty-fifth plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Brandon Suarez at 1:03 PM (EST) on August 28, 2020 using WebEx audio and web conferencing only due to COVID-19 stay at home orders.

1. Agenda Item #1- Call to Order: Welcome
 - 1.1. Brandon Suarez, co-chair welcomed everyone to the Plenary and stated the purpose of the out of cycle meeting was to approve one document to enter FRAC.

2. Agenda Item #2- Review RTCA meeting guidelines
 - 2.1. Al Secen started by thanking everyone for making this week's virtual meetings a success.
 - 2.2. Al reviewed the Anti-Trust Policy, the Proprietary Policy and the RTCA Committee Participation Membership Policy
 - 2.3. Al also briefed some meeting tips to ensure a successful virtual meeting
 - 2.4. Al then briefed self-rostering feature online at <https://workspace.rtca.org/kws>. Thank you to all who self-roster!
 - 2.5. Roll Call- the list of session participants is listed in Appendix A

- 2.6. Agenda Item #3- Opening remarks/ introductions
 - 2.7. As all names displayed on the webex, we dispensed with introductions
 - 2.8. Brandon announced that co-chair John Moore and Secretary Christina Westover were unavailable for the meeting. Al Secen was proxy Secretary
 - 2.9. Brandon stated there are currently 139 unique organizations and 658 members. The past few months have seen some smaller organizations not renew their RTCA membership and so the org count is contracting.
 - 2.10. Matt Harris, from The Boeing Company, was welcomed and thanked as a volunteer to co-chair WG4, Navigation, with Joel Wichgers.
 - 2.11. Co-chair encouraged committee members interested in a role as working group co-lead for the WG3 Lost Link group to contact the co-chairs (Suarez and Moore) to discuss

3. Agenda Item #4- Approve meeting minutes from Plenary Meeting #24
 - 3.1. There was a call for motion to approve meeting minutes from the last plenary
 - 3.2. Before the motion was received, the committee reviewed revisions submitted by members
 - 3.3. Revisions were all minor editorial changes

- 3.4. Andy Thurling moved to approve the minutes
 - 3.5. Joel Wichgers seconded
 - 3.6. There we no objections noted
4. Agenda Item #5- WG1 Approval to Enter FRAC for DO-365B
 - 4.1. WG1 co-lead Fabrice Kunzi then reviewed WG1s activities for the week leading up to the plenary
 - 4.2. Virtual Meeting to Review RAC Comments
 - 4.2.1. Reviewed the comments against DO_365B
 - 4.2.2. 482 comments total
 - 4.2.3. 3 Non-concurs (resolved)
 - 4.2.4. 78 High comments (resolved)
 - 4.2.5. Three Non-Concurs
 - 4.2.5.1. No show stoppers. One regarded communications latency and the other a missing automation aspect. The third was an erroneous submittal.
 - 4.2.5.2. Key comments
 - 4.2.5.2.1. Introductory Text
 - 4.2.5.2.1.1. Architecture diagram updates to include Class 3 DAA systems. Major differences in the locations of functions drive update (or addition of additional figures) of architectural diagrams
 - 4.2.5.2.1.2. Consolidation/Removal of Class 4: Non-Cooperative DAA Well Clear Alerting and Guidance. Updates to architecture diagrams, tables, and notes
 - 4.2.5.2.2. Tracking and I/O
 - 4.2.5.2.2.1. Add tracker requirement to suppress altitude and vertical trend when exceeding an error threshold. To be developed for FRAC release
 - 4.2.5.2.3. Display and Guidance
 - 4.2.5.2.3.1. Ensure correct use of terminology: non-directional/no-bearing, DWC naming
 - 4.2.5.2.3.2. Revise Class 3 corrective guidance requirements: convert to descriptive
 - 4.2.5.2.3.3. Revise MFD DAA traffic display visibility language to be less restrictive
 - 4.2.5.2.4. OSED
 - 4.2.5.2.4.1. Several changes to Use Cases to improve clarity. Corrections on how "Block Altitude" clearances are depicted
 - 4.2.5.2.4.2. Several updates to the Activity Flow Diagram and descriptions to improve clarity

- 4.2.5.2.4.3. Discussion on Terminal DAA Well Clear. Clarifications on where it is applicable. Discussion on the transition between Terminal DWC and EnRoute DWC
- 4.2.5.2.5. Automation
 - 4.2.5.2.5.1. Have general agreement on the (2) Non-Concurs and all High comments
 - 4.2.5.2.5.2. Rework required to account for the multi-axis RA terminations (CoC)
- 4.2.6. ACAS Xu
 - 4.2.6.1. The committee received an update on the ACAS Xu work being done by SC-147 from Charles Leeper of JHU APL
 - 4.2.6.2. DO-386 is the document number of ACAS Xu
 - 4.2.6.3. FRAC is completed
 - 4.2.6.4. Document will be sent to the December PMC for approval
 - 4.2.6.5. SC-228 WG1 co-lead Don Walker noted that the team is pushing to keep DO-365B aligned in schedule with DO-386
 - 4.2.6.6. It was noted how hard the team worked to complete the review of the comments for DO-365B
 - 4.2.6.6.1.1.
 - 4.2.6.6.1.2. Clarified that Class 3 DAA systems (ACAS Xu) use the Class B Radar and follow the En Route DWC requirements, not the new Non-Cooperative DWC
 - 4.2.6.6.1.3. Cleaned up figures and language regarding Class 3 Warning Alert timelines
 - 4.2.6.6.1.4. Updated encounter tables to reflect final FRAC ACAS Xu logic version
 - 4.2.6.6.2. Appendix M (Interoperability of Collision Avoidance Systems)
 - 4.2.6.6.2.1. Contents of appendix replaced with a reference to the Interoperability MASPS, set to be approved by PMC at Sep meeting
 - 4.2.6.7. Test Procedures/TVs
 - 4.2.6.7.1. Mapping of section 2.2 to section 2.4. Many of the new sections added to 2.2.4 have not been reflected in the test procedures
 - 4.2.6.7.2. Update Appendix P to match the changes to the test vectors. Changes to sensor model assumptions. Updates to the format of various output files
 - 4.2.6.8. Editorial/Document:
 - 4.2.6.8.1. 2 of 20 Not started pending discussion (both same issue)
 - 4.2.6.8.2. 10 of 20 In-process pending compilation of revised MOPS parts
 - 4.2.6.8.3. 8 of 20 Complete

4.3. EO/IR MOPS RAC

- 4.3.1. Co-lead Kunzi then reviewed the status of the EO/IR draft MOPS work
- 4.3.2. Draft MOPS RAC from 07/24 to 08/26
 - 4.3.2.1. 144 comments received
 - 4.3.2.2. 27 high
 - 4.3.2.3. 38 Medium
 - 4.3.2.4. 46 Low
 - 4.3.2.5. 33 Editorial
- 4.3.3. Main Points
 - 4.3.3.1. Applicable atmospheric conditions: rain rate limitation to be clarified
 - 4.3.3.2. Interface with tracker: need some discussion with tracker team
 - 4.3.3.3. Requirements and tests for night conditions: consistency to be verified
 - 4.3.3.4. Some additional requirement for protective windows
- 4.3.4. Appendices
 - 4.3.4.1. All appendices received (NASA & CAL Analytics)
 - 4.3.4.2. Opportunity to improve test section thanks to additional simulation guidelines is under investigation
- 4.3.5. Goal is to manage comments & document update in WG1.4 before end of September / mid-October
- 4.3.6. DO-365B Schedule
 - 4.3.6.1. Next the co-leads reviewed the schedule for DO-365B
 - 4.3.6.2. There will be a delay in the Final Review and Comment (FRAC) period to allow changes to be incorporated into the document from the last review
 - 4.3.6.3. Date of FRAC release now planned for September 16 to October 15
 - 4.3.6.4. The date of the next plenary to allow the document to come out of FRAC was therefore moved to October 30, 2020
 - 4.3.6.5. Final submission of the document to RTCA is targeted for November 13 with submission to PMC of November 17
 - 4.3.6.6. There was then a motion from the floor to approve DO-365B to enter FRAC according to the new dates
 - 4.3.6.6.1. Don Walker moved
 - 4.3.6.6.2. Sean Calhoun seconded
 - 4.3.6.6.3. There were no objections noted
 - 4.3.6.7. There was discussion of DO-362A being on an ambitious schedule and destined to enter FRAC on August 31
 - 4.3.6.8. No new business was discussed, but the schedule for the remaining FRAC dates was reviewed
 - 4.3.6.8.1. There was a call for a motion to adjourn
 - 4.3.6.8.2. Don walker so moved
 - 4.3.6.8.3. Keith Hoffler seconded

4.3.6.8.4. There were no objections

Appendix A- List of SC-228 Plenary Participants

John Moore	SC-228 Co-Chair	Collins Aerospace
Brandon Suarez	SC 228 Co-Chair	General Atomics Aeronautical Systems, Inc
Don Walker	SC-228 WG1 for DAA, Co-Group Lead	A3 by Airbus
Fabrice Kunzi	SC-228 WG1 for DAA, Co-Group Lead	General Atomics Aeronautical Systems, Inc.
Jonas Trego	SC-228 WG1 for DAA, Secretary	General Atomics Aeronautical Systems, Inc
Steve Van Trees	SC-228 GAR, WG2 for C2, Co-Group Lead	FAA, AIR-130
Jim Williams	SC-228 WG2 for C2, Co-Group Lead	Unmanned Solutions
Lee Nguyen	SC-228 WG2 for C2, Secretary	FAA
Al Secen	SC-228 Program Director	RTCA
Christina Westover	SC-228 Secretary	Boeing

ATTENDEES

Company	Name
A3 by Airbus	Don Walker
Adaptive Aerospace Group	Jack Devin Keith Hoffler
ALPA	
Aircraft Owners & Pilots Association (AOPA)	Christopher Cooper
AiRXOS	Michael Kuhlman
Archangel Aero	Rose Mooney
ARCON Corporation	Dennis Colbert Siva Sivananthan
Avionics International	Brian Garrett-Glaser
Bihle Applied Research, Inc.	
The Boeing Company	Cesar Suarez Lisa Fern Tim Murphy
Calhoun Analytics	Sean Calhoun
Capital Sciences, LLC	
Cavan Solutions	
Cobham Aerospace Communications	
Collins Aerospace	Joel Wichgers

Company	Name
COMAC	
Constellation Aviation Solutions, LLC	Salim Janjua Walt Monk
Electronics & Navigation Research Institute (ENRI)	
Federal Aviation Administration (FAA)	Don Nellis Kolie Lombard Matt Haskin Paul Campbell Peter Georgiou Ravi Jain Ray Mei Steve Van Trees Tony Long Vic Patel
FedEx	Terry Jones
FirebirdSe LLC	
Garmin LTD.	Ben Peetz
GE Aviation	
General Atomics Aeronautical Systems, Inc	Brandon Suarez Fabrice Kunzi JJ Lu Naiel Askar Tim Grebe
Honeywell International, Inc.	Sara Bauman
INMARSAT	
Iridium	
Japan Radio Air Navigation Systems Association	
JHW Unmanned Solutions, LLC.	
The Johns Hopkins University	Charles Leeper
Korea Advanced Institute of Science	
L3Harris	
Ligado Networks	
MIT Lincoln Laboratory	Maria Picardi Kuffner Matt Edwards Randal Guendel Wesley Olson
The MITRE Corporation	
Mitsubishi Research Institute	
Mosaic ATM, Inc	

Company	Name
NASA	Aaron Dutle Clint St. John Doug Wada Elliot Lewis Gilbert Wu Jack Connolly Mohamad Refai Ty Hoang
NextNav	
Northeast UAS Airspace Integration Research Alliance (NUAIR)	Andrew Thurling
Northern Plains UAS Test Site	Erin Roesler
Northrup Grumman Corp	Lance King Randy Willis
Raytheon	
RDRTec, Inc.	
Regulus Group	
Reliable Robotics	
RTCA	Al Secen
Sagem Avionics, Inc.	
SAIC	
San Jose State University Foundation	
Square Peg	
S-Tec	
Thales Group	
Technology Providers, Inc.	
Transport Canada	Craig Bloch-Hansen Tom Hastie
uAvionx	
US Air Force	
US Navy	Matt Boddicker
Washington Cord	
Unknown Affiliation/ Not Active	