

**RTCA- 228**  
**Summary of Plenary #21- RTCA Paper No. 262-19/SC228-065**

**Washington, DC**  
**9:00 AM EST, October 25, 2019**

The twentieth plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, John Moore at 9:00AM (EST) on October 25, 2019, using Webex audio and web conferencing.

1. Agenda Item #1- Call to Order: Welcome
  - 1.1. John Moore, co-chair welcomed everyone to the Plenary and stated the purpose of the meeting was to review status of working groups.
2. Agenda Item #2- Review RTCA meeting guidelines
  - 2.1. Karan Hofmann reviewed the Anti-Trust Policy, the Proprietary Policy and the RTCA Committee Participation Membership Policy.
  - 2.2. Karen also briefed safety and room logistics.
3. Agenda Item #3- Opening remarks
  - 3.1. Note new self-rostering feature online at <https://workspace.rtca.org/kws>
  - 3.2. Roll Call- the complete list of session participants is listed in Appendix A.
4. Agenda Item #4- Approve meeting minutes from Plenary Meeting #20
  - 4.1. Reviewed the key points of plenary #20 Minutes as documented.
  - 4.2. Acceptance of plenary #20 minutes; motion by Ted Lester seconded by Mark Reed. Unanimously approved.
5. Agenda Item #5 WG1 (DAA) Status Report
  - 5.1. DO-365A FRAC Summary
    - 5.1.1. Comment Summary
    - 5.1.2. DO-365A Major FRAC Document Impacts
      - 5.1.2.1. Operational/Conceptual Issues
        - 5.1.2.1.1. Organization of GBSS Class Structure to reduce confusion on various configurations. Broke into three different classes of equipment, which drove multiple changes throughout the document.

DO-365A FRAC Comment Severity	# of Comments
Non-Concur	131
High	278
Medium	337
Editorial	285
Total	1242

- 5.1.2.2. Display Alerting and Guidance
    - 5.1.2.2.1. Many comments for clarity on: Terminal Area Activation, Alerting Requirements, Guidance for Departure, TCAS Interoperability and Radar Special Cases. Revised to include special case more specific requirements. Lincoln Labs and the Navy are working to resolve by next week.
    - 5.1.2.2.2. Guidance Requirements structure and test still needs to be resolved, as team ran out of time this week.
  - 5.1.2.3. Tracker
    - 5.1.2.3.1. GBSS Tracker Integration revisions
  - 5.1.2.4. Test Procedures
  - 5.1.2.5. Equipment Article Mapping and Environmental Qualification
    - Mapping changes made
- 5.2. DO-365A Proposal
- 5.2.1. Propose to finalize FRAC comment adjudication and incorporation into a clean copy by November 22
  - 5.2.2. Request Plenary approval for a second FRAC period starting December 13, 2019.
  - 5.2.3. Propose FRAC period closes on January 10, 2020
  - 5.2.4. Exit FRAC and request document approval at January 30 Plenary
  - 5.2.5. Motion made by Ted Lester and seconded by Jessie Turner. Unanimously approved.
  - 5.2.6. **ACTION:** AI to get 228 on next PMC to share document status (risks), EUROCAE concern and planning for phase 3
- 5.3. DO-GBSS FRAC
- 5.3.1. SC-228 WG1 Requests permission to enter FRAC for GBSS MOPS starting November 18<sup>th</sup>. Raytheon and General Atomics making great progress, but need more time. If additional requirements are needed, then a TOR revision would be required.
  - 5.3.2. Propose FRAC closure on December 23<sup>rd</sup>
  - 5.3.3. Exit FRAC and request document approval at January 30, 2020 Plenary
  - 5.3.4. Motion made by Don Walker and seconded by Jonas Trego. Unanimously approved.
6. Agenda Item #6- WG2 (C2) Status Report
- 6.1. Discussed RAC comments for C2 Link Systems MASPS DO-377A.
  - 6.2. Discussed RAC comments for C-Band MOPS DO-362A
  - 6.3. Continued to refine solution for Near/Far issues from DO-362
  - 6.4. Discussed results of OSA for Phase 2 CONOPS and Use Cases in OSED
  - 6.5. Discussed plan for OPA for Phase 2 MASPS
  - 6.6. Discussed updates required for Interworking and Security sections of MASPS

- 6.7. Discussed C-Band SATCOM work for MASPS and issues with EUROCAE SATCOM MOPS. EUROCAE SATCOM MOPS is not electrically compatible with RTCA Terrestrial Standards. Issue will be raised with the FAA and EASA to ensure both are written to work together. EUROCAE closed FRAC with non-concurs from Michael Neil. Front matter was revised but not technical. Mr. Neil has a paper submitted to the ICAO RPAS panel. Mark Reed stated he would work with Mr. Neil.
- 6.8. NASA Reported on Phase 2 C2 Link flight testing
  - 6.8.1. Flight testing suspended pending Glenn Research Center Management approval for locating mobile ground radios off NASA property
  - 6.8.2. Aircraft planned for use (S3) will be retired out of service as of March 2020
  - 6.8.3. Weather conditions required for flight tests will be difficult during winter months
  - 6.8.4. RISK: Schedule for C-band MOPS may delayed if flight test results not available by mid-December. Strong desire to complete with S3 aircraft.
  - 6.8.5. If flight tests are not completed the FAA might not be able to recognize DO-362A MOPS with a TSO until the requirements are validated. FAA reiterated need for completion to be able to approve.
  - 6.8.6. Request plenary approval to send a letter from SC-228 to NASA Glenn Management ASAP to request reconsideration.
    - 6.8.6.1. **ACTION:** WG2 team will draft letter, leadership team will review and Terry McVienes will sign and send letter within the next week.
- 6.9. Met jointly with WG-1 to discuss C2 Link requirements to support DAA
- 6.10. DO-377A Status
- 6.11. DO-362A Status
  - 6.11.1. Schedule is at risk.
  - 6.11.2. EUROCAE C-Band SATCOM incompatibility discussed earlier.
- 6.12. FAA Authorization Section 374, Spectrum report to Congress
  - 6.12.1. On October 21, Ian Atkins sent a request for RTCA SC-228 to review a white paper on his current approach to responding to the 2018 FAA Reauthorization language
  - 6.12.2. WG-2 plans to respond on behalf of SC-228 (John Moore lead)
  - 6.12.3. Response due to the FAA by November 18, 2019
  - 6.12.4. A stakeholder workshop is planned for "early 2020" to discuss the comments received
    - 6.12.4.1. Art Hinaman, FAA, has been instrumental in getting this worked within the FAA.
  - 6.12.5. Represents a major change to FAA C-band use policy (Sharing with commercial ground users)
    - 6.12.5.1. Concerns around usage of LTE, due to non-aviation uses for spectrum sharing. C-Band used to transition and then SATCOM used at altitude. Feedback needs to propose questions for how wireless network providers will guarantee level of service and the public/private

partnership. Current timeline does not support schedule for standard development. Jim Williams invite all WG1 with an interest to participate in development of a letter to the FAA.

6.12.5.2. **ACTION:** WG2 team will draft letter, WG1 will provide input to the letter, and leadership team shall review. Comments must be submitted to Jim Williams no later than November 11<sup>th</sup>.

6.12.5.3. The FAA memorandum will be posted to the RTCA 228 Plenary workspace for review.

## 7. Agenda Item #7- New Business- Future Plenary Dates

7.1. Steering Committee Meeting, held October 22 with RTCA, FAA and 228 leadership

7.1.1. Topics included:

7.1.1.1. FAA CONOPS from 2009 is very constrained/limited

7.1.1.2. ASTM vs RTCA and who has the action for what standards

7.1.1.3. Phase 3 planning discussion

7.1.1.3.1. Need agreement between SC-147 SMOPS for UAM and SC-228

7.1.1.3.2. WG1 Potential Scope: ACAS Xr, ACAS sXu, Urban Air Mobility, Solar HALE, En Route GBSS performance, DAA for single pilot commercial, obstacle/terrain/weather, non-cooperative small UAS

7.1.1.3.3. WG2 Potential Scope: LTE taxonomy/relationships, SATCOM updates, L band updates, international harmonization, 3GPP harmonization

7.1.1.3.4. Proposed Schedule for TOR Revisions

7.1.1.3.4.1. November 6<sup>th</sup>- WG1 and WG2 proposals due

7.1.1.3.4.2. November 7<sup>th</sup>- SC-228 Leadership Meeting

7.1.1.3.4.3. **ACTION:** Please submit your ideas to the WG1 and WG2 leadership teams.

7.1.1.3.4.4. November 20<sup>th</sup>- SC-228 Steering Committee

7.1.1.3.4.5. **ACTION:** formal review shall be sent for comments from government and industry

7.1.1.3.4.5.1. **ACTION:** Al Secen has the action to schedule this meeting

7.1.1.3.4.5.2. April 23, 2020- Plenary Approval

7.1.1.3.4.5.3. June 25, 2020 (date subject to change) RTCA PMC Approval

7.1.1.3.4.5.3.1. SC-228 focused on surveillance and com links. Need PMC to determine if automation should be included as a new special committee or working group for certifiable autonomy.

7.2. Proposed Future Meetings

7.2.1. 30-31 January- 22nd Plenary

- 7.2.1.1. Ground Based Surveillance MOPS Exit FRAC
- 7.2.1.2. DO-365A DAA MOPS Exit FRAC
- 7.2.1.3. Discussion on Phase 3 Scope/TOR Revisions

7.2.2. 23 April- 23rd Plenary

- 7.2.2.1. C2 Link MOPS (Terrestrial) Rev A Enter FRAC
- 7.2.2.2. Air-to-Air Radar MOPS, DO-366A Enter FRAC
- 7.2.2.3. Phase 3 TOR Proposal

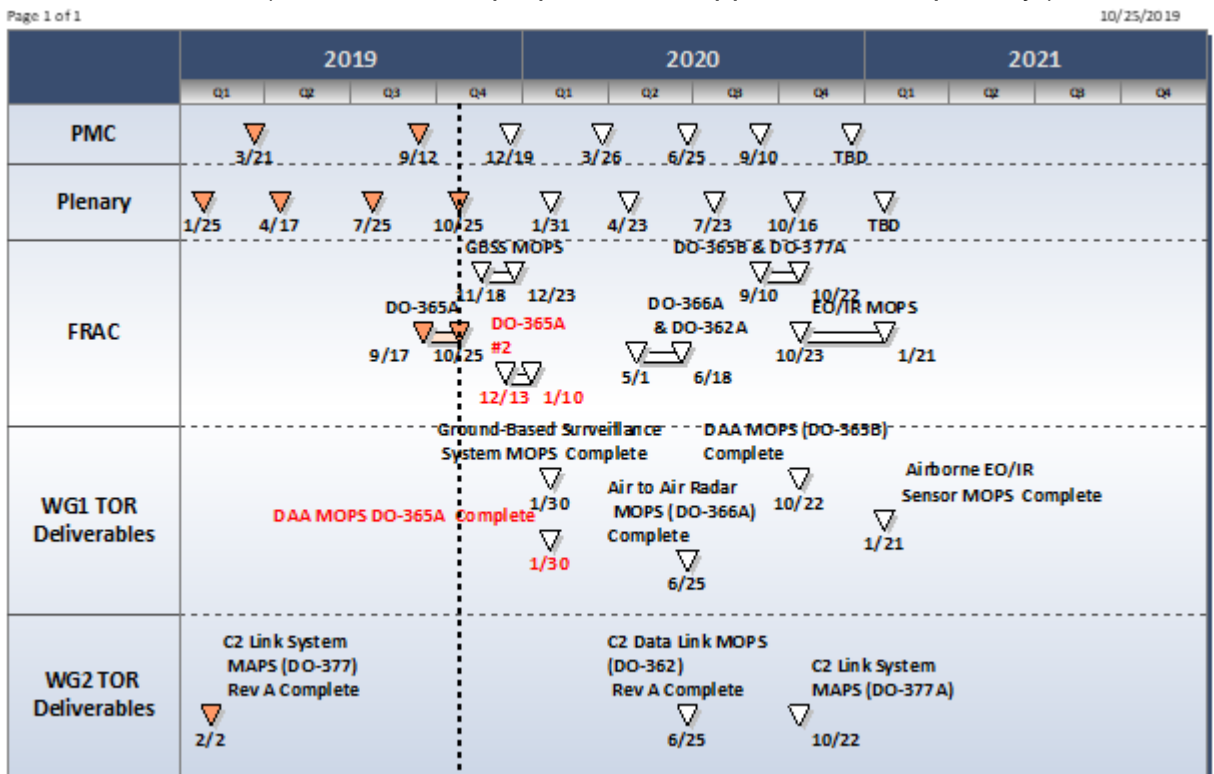
7.2.3. 23 July- 24th Plenary

- 7.2.3.1. Air-to-Air Radar MOPS, DO-366A Exit FRAC
- 7.2.3.2. C2 Link MOPS (Terrestrial) DO-362A Exit FRAC
- 7.2.3.3. DO-365B Enter FRAC
- 7.2.3.4. DO-377A Enter FRAC

7.2.4. 16 October- 25th Plenary

- 7.2.4.1. DO-365B Exit FRAC
- 7.2.4.2. DO-377A Exit FRAC
- 7.2.4.3. Enter FRAC for EO/IR MOPS
- 7.2.4.4. The date of the 25th plenary to revised to October 16th

7.3. SC-228 Schedule (red items were proposed and approved at this plenary.)



8. Agenda Item #8- Adjourn

8.1. John Moore called a motion to adjourn and Don Walker seconded.

8.2. John Moore adjourned the plenary at 10:33 AM EST.

Respectfully Submitted by,  
Christina Westover  
Secretary, RTCA SC-228

CERTIFIED as a true and accurate summary of the meeting by,  
John Moore  
SC-228 Co-Chair

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

John Moore	SC-228 Co-Chair	Collins Aerospace
Paul McDuffee	SC 228 Co-Chair	The Boeing Company
Jonas Trego	SC-228 Plenary, WG1 Secretary	General Atomics- Aeronautical Systems Inc.
Don Walker	SC-228 WG1 for DAA, Co- Group Lead	Honeywell International Inc.
Ted Lester	SC-228 WG1 for DAA, Co- Group Lead	General Electric Aviation
Steve Van Trees	SC-228 GAR, WG2 for C2, Co-Group Lead	FAA, AIR-130
Jim Williams	SC-228 WG2 Co-Group Lead	Unmanned Solutions
Al Secen (Karan Hofmann, in- room delegate)	SC-228 Program Director	RTCA
Christina Westover	SC-228 Plenary, Secretary	The Boeing Company

## ATTENDEES

<b>Company</b>	<b>Name</b>
A3	Cedric Cocard
ALPA	Mark Reed Ed Ingham
Aircraft Owners & Pilots Association (AOPA)	Chris Cooper
ARCON Corporation	Dennis Colbert Siva Sivananthan
The Boeing Company	Jessie Turner Amelia Wilson
Cavan Solutions	Sean Ghazavi
Cobham Aerospace Communications	Jeff Knickelbein
Collins Aerospace	Tyler Barney
Electronics & Telecommunications Research Institute (ETRI)	Hee Wook Kim

FAA	Paul Campbell Larry Cowles Tom Farrier Matt Haskin Art Hinaman Kolie Lombard Don Nellis Lee Nguyen Chris Swider Eric Sunshine
FirebirdSe LLC	Bruce Eckstein
General Atomics Aeronautical Systems, Inc	Brandon Suarez Jonas Trego
Honeywell International, Inc.	Lisa Fern
Iridium	Joe Darden
Japan Radio Air Navigation Systems Association	Hiroshi Okochi
Johns Hopkins University	Sam Smearcheck
MIT	Randal Guendel Maria Kuffner Wes Olson Matt Edwards
NASA	Summer Brandt Donna Clements Jack Connolly Aaron Duple Seung Man Lee William Johnson Mohamad Refai Conrad Rorie Jay Shivley Doug Wada
Northeast UAS Airspace Integration Research Alliance (NUAIR)	Ray Young
Regulus Group	Shelly O'Leary
Square Peg	Michael Gertsman
S-Tec	Justin Barnes
Technology Providers, Inc.	Marvin Hammond
Transport Canada	Craig Bloch-Hansen
uAvionx	Jim Davis
US Navy	Roger Burton Matthew Ray