RTCA Paper No. 278-23/PMC-2487
December 12, 2023

RTCA PROGRAM MANAGEMENT COMMITTEE
MEETING SUMMARY
September 21, 2023

The RTCA Program Management Committee (PMC) convened in a hybrid format at 8:30 a.m. on September 21, 2023, with some members present at RTCA and others participating via Webex. The attendance list and action items are attached.

AGENDA ITEM 1
Welcome and Introductions

A. Chair Hegarty welcomed the group, asked attendees to introduce themselves and to note their organization of affiliation. Proxies are noted in the attendance list.

B. Secretary Hofmann reviewed the anti-trust statement, proprietary policy, and membership policy.

AGENDA ITEM 2
Review / Approve

A. With a few administrative edits, a motion from Member McDowell and seconded by Member Barber, the revised June 22, 2023, meeting summary was approved. (RTCA Paper No. 160-23/PMC-2446)

B. The following administrative Special Committee (SC) Terms of Reference (ToR) revision was presented. Approval was moved by Government Authorized Representative (GAR) DeCleene, seconded by Member Turner. The revision was approved.

- SC-238 – Counter UAS – Changing GAR from Queron "Q" Thompson (FAA) to Tricia Fantinato (FAA). (RTCA Paper No. 247-23/PMC-2477)

AGENDA ITEM 3
Publication Consideration/Approval

A. DO-401 – *Minimum Operational Performance Standards (MOPS) for Dual-Frequency Multi-Constellation Satellite-Based Augmentation System Airborne Equipment,*

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presented by SC-159, Navigation Equipment Using the Global Navigation Satellite System (GNSS)

- Laurent Azoulai, SC-159 WG2 Co-Task Lead, presented.

This document is meant to support validation of airborne requirements supporting above mentioned operations when using Dual Frequency Global Positioning System (GPS), Galileo and Satellite-Based Augmentation System (SBAS) signals as defined by International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs) (Annex 10, Volume I, Amendment 93), as well as the development of Dual-Frequency Multi-Constellation (DFMC) SBAS services. This document does not provide specifications for a production approval.

A future release of the document will provide requirements supporting production approval, typically through a new Technical Standard Order (TSO) or European Technical Standard Order (ETSO).

- Approval was moved by GAR DeCleene, seconded by Member McDowell. The PMC approved the document. It will be published as DO-401. It will be published concurrently with EUROCAE ED-259A.

NOTE: The original release of this document, ED-259, was a EUROCAE-only document. This revision was completed jointly with RTCA, thus the version designation difference.

B. DO-404 – *Minimum Aviation System Performance Standard (MASPS) on ATN-IPS End-To-End Interoperability and Certification*, presented by SC-223, Internet Protocol Suite (IPS) and AeroMACS

- Aloke Roy, SC-223 Chair, presented.

This MASPS supports FAA's plans to transition to end-to-end digital communications using internet suite of protocols. It provides for the interoperability and performance requirements and guidance material necessary for global system interoperability through harmonized US and EU air/ground communication standards. Additionally, this MASPS provides the necessary standards to support the successful design, development and implementation of future IPS-based aviation communications systems.

EUROCAE Council recommended a title change for this joint document (indicated in agenda topic above and part of agenda item 7C ToR revision).

- Approval with new title was moved by GAR DeCleene, seconded by Member Turner. The PMC approved the document. It will be published as DO-404. It will be published concurrently with EUROCAE ED-315.

C. DO-350B – *Safety and Performance Requirements Standard for Baseline 2 ATS Data Communication (Baseline 2 SPR Standard) Vol I & II*, presented by SC-214, Standards for Air Traffic Data Communication Services

- Claire Robinson, SC-214 Chair, presented.

This standard provides the operational, safety, and performance requirements (SPR) for the implementation of data communication services that support air traffic services (ATS). It is intended to support the communication element of the implementation of communication, navigation, and surveillance / air traffic management (CNS/ATM) systems in worldwide application.

- Approval was moved by Member McDowell, seconded by Member Turner. The PMC approved the document. It will be published as DO-350B Vol I and II. It will be published concurrently with EUROCAE ED-228B Vol I and II.

D. DO-351B – *Interoperability Requirements Standard for Baseline 2 ATS Data Communication (Baseline 2 INTEROP Standard) Vol I & II*, presented by SC-214, Standards for Air Traffic Data Communication Services

- Claire Robinson, SC-214 Chair, presented.

This document provides the interoperability requirements (INTEROP) standard for the implementation of the Air Traffic Service (ATS) applications supporting the Baseline 2 data link services as specified in the Safety and Performance Requirements for ATS Data Communications (SPR) document. This document addresses the interoperability of the ATS applications using the Aeronautical Telecommunication Network (ATN).

- Approval was moved by Member McDowell, seconded by Member Turner. The PMC approved the document. It will be published as DO-351B Vol I and II. It will be published concurrently with EUROCAE ED-229B Vol I and II.

NOTE: From EUROCAE Representative Vallee - Input from approval on EUROCAE side for ED-228B Vol I & II and ED-229B Vol I & II - one Council member approved with comment, so follow up would be needed. This is not a technical issue, rather a procedural matter. Expect no significant delays.

AGENDA ITEM 4
Integration and Coordination Committee (ICC)

No report presented.

AGENDA ITEM 5
Action Item Review

A. Regroup between RTCA and EUROCAE Secretariats on Way Forward for SC-240/WG-117 Topics on Software Advancement and Forum for Aeronautical Software (FAS)

- Russ Uthe, SC-240 Co-Chair, presented.

With inputs from the RTCA and EUROCAE Secretariats, SC-240/WG-117 and the FAS will be combined. The revised SC-240/WG-117 ToR has been in coordination over the last few months.

The group presented suggested changes discussed and approved in the SC-240/WG-117 August Plenary following inputs from the June PMC meeting. This includes changing the title of the supplement to incorporate commercial off the shelf software and/or open-source software and removing language prescribing what subgroups to create.

The EUROCAE Technical Advisory Committee (TAC) approved WG-117's changes last week (14-15 September) with suggestions to change the name of the committee to Aviation Software Standards to align with the new scope and to change the name of the new RTCA Report (RR) - ZZZ to "Report on Plans for Deliverables and Future Work for the Development of Aviation Software Standards."

Member Turner asked if RR's need to go through Final Review and Comment (FRAC). Sr Director Morrison explained the "RR" was established to align with EUROCAE's EUROCAE Report (ER) which do not go through Open Consultation (OC). However, it is up to the SC whether to do a FRAC or not, with a strong recommendation from the Secretariat to at least do an internal Review and Comment (RAC). But all RR's will be presented to the PMC. Secretary Hofmann added that the distinctions should be indicated in the ToR.

Once the ToR is finalized by the PMC, the WG-117's final ToR will go forward to the EUROCAE Council for final approval due to strategy change of the committee.

Garmin also offered some editorial changes to the proposed ToR.

- Approval was moved with the TAC suggested changes and the edits from Garmin by Member Turner, seconded by Member Barber. The proposed revised ToR was approved (RTCA Paper No. 252-23/PMC-2482). This action is closed.

B. DO-361A Change 1 Test Case on Document Change Format

- Doug Arbuckle (PMC Member) and Greg Comstock (SC-186 Document Editor) presented.

This action from the December 22, 2022, PMC meeting was to run a test case for suggestion to include the alterations from a change designated document just offering the alterations separately vs. as part of one document – possibly to have the complete document include the adjustments with change tracking feature. PMC members wanted a test case run to measure the difficulty of preparing to have both types available and possible acceptance by store customers.

SC-186's DO-361 Change 1 was just completed (and approved), so the group went through the process of preparing such an example. The group reported their findings and recommendations:

Separate document with only change (legacy process):
- Findings:
  o Need to create document preface explaining the scope and intent of the Change.

o Extraction and formatting relevant sections to create the separate change document is time consuming.
- Pros:
    o Shorter Document (does not mean "short")
    o Easier to keep review focused

For consolidated change document:
- Findings/Recommendation:
    o Need to create a review guidance document explaining the scope and intent of the Change.
    o For FRAC, include guidance document that not all sections are open for comment
- Pros:
    o Review is within context of complete document
    o Considerably less document management work
    o Final version is more usable by industry (no need for cross reference with original document)
    o Removes the risk of transposition error
    o Final version is ready for any future revisions

Document types are provided (Action: share with PMC members).

The following points were made during discussion:
- EUROCAE Representative Vallee: For EUROCAE, changes stand alone with incorporation for revision; there is a workload concern; but willing to discuss possible change of process/procedure
- Sr Director Morrison: Note that integration is not at the Secretariat, but rather is the responsibility of the SC
- Member Barber: the open review to all vs. specific sections – possibly use change bars or links?
- Sr Director Morrison: several tools are available, possibly put line numbers only on parts with changes?
- Member Arbuckle: need to declare scope and response to any comment received not associated with the changed content would be "resolved" with "out of scope"
- Chair Hegarty: PMC members would like to see integrated document, but not adding workload to RTCA staff, would be action for SC
- Member Turner: Would recommend moving forward, but need to be consistent with EUROCAE

This test case action is considered closed.

Separate action: This topic with these inputs will be discussed at the upcoming RTCA/EUROCAE Annual Coordination Meeting and the outcome will be reported at the December PMC meeting.

C. SC-214 Provide Feedback on Tagging Timeline Impact to Deliverable

- Claire Robinson, SC-214 Chair, presented.

During their recent Plenary, the group discussed the options for tagging requirements in the MASPS and MOPS:

1. Use a formatting style in MS WORD to number the sentences. This method is used by SC-223, SC-228 and others.
2. Use a numbering scheme directly with each shall statement. This method has been used by SC-217, SC-231 and others.
3. Remove the text from the TOR that says they will number shalls in the next revision of the document. EUROCAE's TOR does not address numbering shalls, and RTCA only requires committees to number shalls for new documents.

The group agreed on option 3 and this change is included as part of proposed revised ToR under agenda item 6D. Action closed.

D. Investigate Possible EASA Status Summary Available

- Hette Hoekema, EASA PMC Representative, presented.

Member Hoekema provided an EASA Rulemaking Update to PMC members similar to the FAA regular updates per request from March 2023 meeting. It was pointed out that FAA "set a high bar" for providing this information, as the EASA rulemaking process is different. It is more of an annual cycle vs. individually.

The presentation was well received. This closes this action, but members requested an EASA update to be added as a regular discussion agenda item for future meetings.

- The presentation is posted on AerOpus (RTCA Paper No. 236-23/PMC-2473).

E. Assemble List of Possible Documents for Review

- Rebecca Morrison, Senior Director, Standards and Technologies, presented.

Following the ICC Ad Hoc suggestions, the RTCA Secretariat reviewed the RTCA document library for documents published in 2018 and assembled a list of recommendations that should be reviewed for possible update. Some are already being updated and some original versions have been superseded with later revisions, but there are a few that are not currently being revised that should be considered for possible update.

PMC members agreed with a path forward to have the ICC work with RTCA to create a request to committee for the three identified documents (action). RTCA staff will work backwards for each PMC meeting to check status and then record status in our master list of documents of the last review. To assist with tracking, a burndown chart for the PMC will be created to track that all documents are evaluated with a goal of completion by EOY 2025. If an SC is Active or in Active Monitor status, staff will go direct to the SC for review. Otherwise, the request will come to the PMC.

- The presentation is posted on AerOpus (RTCA Paper No. 233-23/PMC-2471).

F. SC-230 Revised ToR Refinement

- Jeff Finley, SC-230 Chair, presented.

At the June 2023 PMC meeting, members expressed interest for SC-230 formalizing the analysis of spectrum issues, particularly possible interference with weather radar systems. The group was tasked to meet in Plenary and discuss possibilities for formal inclusion in current documents and propose a revised ToR with these items in mind. This was accomplished and Chair Finley presented the recommendation for a new ToR. This includes a white paper documenting an analysis of the susceptibility of airborne weather radars to interference that may be used to develop future X-band telephony and radar standards including power levels and siting requirements. FRAC completion is set for December 2024.

After discussion, it was agreed to remove a TOR scope restriction to solid-state equipment. Also, there was concern expressed on completion schedule considering linkage to SC-242 work. SC-242 Chair Hahn was involved with the SC-230 Plenary for this discussion and agrees this is not on critical path for SC-242 work. But both Chairs (Finley and Hahn) agreed to keep in contact and there is cross-participation of membership between the two groups.

Additionally for the SC-230 ToR, previous Co-Chair Gidner has stepped back up to become co-chair again with a new organization.

- Approval was moved by Member Turner, seconded by Member Roy with the removal of the solid-state limitation. The proposed revised ToR was approved (RTCA Paper No. 249-23/PMC-2479). This action closed.

G. Ad Hoc on FRAC Comment Handling for Non-Members Comments

- Terry McVenes, RTCA President, presented.

President McVenes provided an update on the status of the Ad Hoc on FRAC Comment Handling for Non-member Comments. He indicated that RTCA is receiving lots of unsolicited advice – if from non-members, why bother to address? He emphasized it is very important for RTCA to remain open and transparent. Although this can be difficult, we are the only standards organization recognized by the World Trade Organization (WTO) and need to maintain this recognition with these actions. After discussion at the RTCA Advisory Board, RTCA is appointing PMC Chair Hegarty, Board Member Shawn Cassidy (Amazon), and Mr. Brett Eastham (RTCA COO) to the Ad Hoc. The goal is not to counteract the long-standing, current process, but rather recommend possibly process improvements.

Sr Director Morrison mentioned the EUROCAE TAC met last week and sent a volunteer call out. They want to clarify the review process and indicated four questions of interest. This continues to be significant, as besides the SC-230/WG-119 document, SC-236/WG-96's recently completed

document also received non-concur, non-member comments. President McVenes indicated we want to acknowledge these other interests and respect their inputs, but we don't want to slow our process.

Chair Hegarty said the TAC will name 2 members next week and then the Ad Hoc will meet. He asked for clarification of the Advisory Board's role. President McVenes said the Advisory Board will provide inputs.

Member Turner asked about the type of comment being addressed by the Ad Hoc. President McVenes indicated classification as technical-related, political-related, or out-of-scope for the document. Member Hoekema said all TAC members received emails suggesting 4 questions to consider. If technical-related to a document, address and would be very procedurally approached. Looking at recent non-member comments, some are valid. He noted we will be working with some of the non-member organizations that have recently submitted comments for a long time, so we need to go beyond strict procedural. President McVenes indicated he did not necessarily disagree, but it is a two-way street. We have been open from the beginning. And we have to realize we cannot always disposition comments with consensus. Sr Director Morrison indicated we could share the questions mentioned with PMC members and highlight was has happened so far. (action)

Member Hoekema said he was not disputing process and agrees the process should be followed. Both industries – aviation and telecom – are trying to understand each other and build confidence in relations. President McVenes indicated he wants committees to keep focused on technical aspects and also that we are all on the same page.

Member Roy commented that we need to ensure that non-members are actually following the RTCA process.

H.   Ad Hoc for Draft Charter for Possible Technical Pilot (TP) Advisory Committee

- Wes Googe, Technical Pilot, American Airlines, presented.

Mr. Googe provided an Ad Hoc report with recommendations on bringing much needed flight operational input to the work that many of the SCs are doing today in RTCA.

He recommended the PMC should weigh-in on the appropriate lead and composition of who is reporting status and coordinating to the PMC. The RTCA Program Director (PD) Team will add this responsibility to report on process and coordinate any changes in points of contact.

Possible ideas:
- Add an item on the chair report to identify operational impact – work on how to solicit design decisions that are based on flight operational assumptions or goals
- Be sure the Technical Pilot (TP) Community is aware of the committees working on the issues and documents in OC/FRAC
- Provide some access to TP Community to RTCA work in progress

Question for TP Community:

- Provide TP Community representative to the RTCA PMC
- Work with SC Chairs to present potential assumptions and design decisions that could be reconsidered
- Provide support to give SC's input and participation to achieve consensus in the documents
- Any change requests from the TP community needs to work within the existing Special Committee process

Test case with SC-214:
- Operational Impact was identified for two documents being reviewed for publication today, DO-350B and DO-351B
- TP Community will evaluate and come back to SC-214 if there are concerns and a revision needs to be planned for
- Requesting DO-352B and DO-353B (currently in OC/FRAC) to see if input can be included before comment resolution is complete

Conclusion:
- TP group seeks harmonization between the needs of the flight deck operation and the equipment standards that will support them
- TP/Operational Flight Deck input is valuable
- Organized engagement is crucial for this group to be effective in any SC work

Everyone agreed TP input is needed. President McVenes pointed out this differentiates RTCA from other standard groups, but don't want to slow the process. An additional PMC member is not needed (ALPA and A4A already represent operators). Member Kauffman indicated possibility of giving guidance to SC Chairs and have them reach out prior to RAC or for sure before FRAC.

Chair Hegarty suggested creating a PMC subgroup, possibly something like the ICC. Member Hahn agrees with proposals presented, need to determine flow into current process. Defer to President McVenes on PMC for membership – possibly work with TP community on liaison opportunity.

Member Madden feels the same way with TP input but is worried with putting filter on SC and timing. From a broader view – concern with setting a precedence to focus on a specific group. A4A stand is to get as many members as possible at SC level, not necessarily at PMC level.

Mr. Googe appreciated the discussion, pointing out he did not really envision an additional PMC member. He sits on 6 SC's – agrees with all comments about not wanting to slow down committee progress while providing mechanism for TP inputs. It's important to be at the meeting where operational discussions occur. Operational concerns may not be direct equipment matter. Possibly match up a TP with each SC for output of device for cockpit flow – maybe even inputs just to chairs?

Member Roy said TP review of SC work is a lot to ask. Possibly a way to filter for operational inputs – maybe include in ToR scope section and for joint work, what about European pilots' considerations? Mr. Googe indicated these were good considerations. This is not a formal group – a new idea for approach.

Chair Hegarty summarized he was hearing support from TP needed, but any process changes should not hold up SC work with too few pilots. Suggest a Tech Pilot Committee (TPC) (like the ICC) with "charter" to allow consulting by ops pilot. But what is the way forward? Possibly send note to SC Chairs and explain availability for consideration.

Member Hennig agreed concept is great, but in practice hard to implement. Good idea for TPC. Should Mr. Googe review the charter – possibly include anything in cockpit? Let's get a pilot pool and take it for a spin.

President McVenes wondered if operational questions should go just to TP or to Mr. Hahn for ALPA input? Mr. Hahn indicated ALPA does not participate in the Tech Pilot Group (TPG). Would request TPG process be flushed out with a call going out to all TPG. President McVenes said we need to ensure fairness to all groups. Mr. Googe commented that all airlines have TPG participation. Mr. Roy said we should give it a shot and see what happens. Chair Hegarty said the PMC could disband at any point.

All agreed Mr. Googe should draft a charter for a TPC group as a subgroup to the PMC and use SC-214 as test case. RTCA will provide Mr. Googe with a copy of the ICC Charter as an example (action).

- The is posted on AerOpus (RTCA Paper No. 223-23/PMC-2463).

AGENDA ITEM 6
Discussion

A. Out of Cycle Actions since last PMC Meeting – Presentation Summary

- Karan Hofmann, PMC Secretary, presented.

As a reminder and for formal documentation, the following item was reviewed by electronic ballot or assessment action since the last PMC meeting:

- SC-222 Airborne Mobile Satellite (Route) Services (AMS(R)S) TOR Revision – approved July 21, 2023

B. SC-239 – Low Range Radar Altimeter – Update

- Jean Luc Robin and Seth Frick, SC-239 Co-Chairs, presented.

SC-239 Leadership provided an update on group activity:

SC-239/WG-119 is focused 100% on the MOPS DO-155a/ED-30a.

Report from RTCA and EUROCAE Leadership to SC-239:

- Ad hoc group finalized; tasked with an independent review and to recommend a process for handling the DO-399 "dissent" received and closing OC/FRAC; tasking also includes a broader process review and committee generic clarifications on the full FRAC process including the "dissent" process for public reviewers.
- RTCA/EUROCAE leadership will subsequently provide direction to SC-239 with respect to disposition of comments and further development of DO-399, as appropriate.

There is a proposed timeline for completion of FRAC resolution by September 2024. May not meet deadline for presentation to September PMC meeting, so possible out of cycle review and approval request.

There is a possible risk item to meet this timeline – antenna manufacturer input needed. Chair Hegarty commented this is the same issue other SC's face, as many antenna manufacturers are small and don't have the resources to support SC activity. He asked the team if all were passive antennas; Chair Frick responded yes.

President McVenes asked about the risk for antenna manufacturers if the standard changed. Chair Frick responded that currently no standard exists, so yes. Only airworthiness standards exist now. Chair Hegarty asked if any RTCA antenna standards are available other than GNSS. Member Roy mentioned this is the RTCA's highest visible activity and antenna inputs are definitely needed. Need to include or not would be helpful; if too restrictive, non-concur from manufacturers.

Chair Frick suggested maybe a subgroup for manufacturers. Member Hoekema asked about possible outside aviation antenna manufacturers for support. When people ask for the document's release, is 2024 realistic – he thinks not.

Chair Hegarty indicated Dr. Sai Kalyanaraman has contacts with airborne antenna manufacturers from his as SC-159 WG7 (Antennas) chair – possibly he could assist.

GAR DeCleene added this is a pretty critical area. The FAA has research funding that might be used to help the SC. There is a risk, however, that this solution might not help in the near-term.

Chair Frick said it would be greatly appreciated. They are trying to have a very robust RAC and awaiting inputs from Ad Hoc on non-member comment resolution.

Member McDowell reiterated the whole intent was to have the best achievable MOPS. Going forward, need antenna manufacturers on board or at least help provide minimum performance.

Chair Hegarty thanked the group for the update. Member Roy asked if there was an incentive that could be used from the PMC. Sr Director Morrison commented that 5 of 6 antenna manufacturers on the list are RTCA members. They have provided some input, but not much. Member Roy inquired about the reason for lack of participation. Chair Frick offered that maybe they are not fully grasping the impact of the MOPS and new standards.

Member Hennig asked if the antenna manufacturers were smaller outfits. Chair Hegarty replied that most are small companies or small subsidiaries of larger companies. Chair Frick indicated that this interaction at a lower level is difficult.

Chair Hegarty asked PMC members to provide any other inputs directly to Chairs Robin and Frick. PMC members were asked to assist in any possible way to encourage antenna manufacturers inputs.

- The presentation is posted on AerOpus (RTCA Paper No: 230-23/PMC-2468)

C. SC-242 – Spectrum Compatibility – Revised ToR

- Ed Hahn, SC-242 Chair, presented.

The group requested delivery date changes for all three of their documents – Report #1, Report #2, and new document DO-XXX. With this request, it is noted that Report #1 will be provided to PMC members out-of-cycle after their October 24th approval Plenary.

President McVenes asked if the primary reason for the delay was driven by the World Radio Conference. Chair Hahn indicated not fully, there was also a slow start and an on-going need for additional expertise. Member Hoekema mentioned the title of the DO-XXX document could cause confusion with the WAIC standard. Chair Hahn indicated there was no specific reason for the title and Member Roy agreed. As this is a joint effort, any changes require coordination. Mr. Vallee reported the TAC approved WG-124's Task Sheet yesterday. Action for the group to jointly review to change the document's title.

On a side note, SC-242/WG-124 expressed a thank you to Capucine Amielh (Airbus) as she is moving on to new task and will no longer be supporting the group's efforts.

- Approval was moved by Member Turner, seconded by GAR DeCleene. The proposed revised ToR was approved (RTCA Paper No. 250-23/PMC-2480).

D. SC-214 – Standards for Air Traffic Data Communication Services – Revised ToR

- Claire Robinson, SC-214 Chair, presented.

The group proposed removing the tagging requirement for DO-281D and DO-224E (agenda item 5C) and requested delivery date changes on five documents (DO-281D, DO-224E, DO-352B, DO-353B, and the new DO-XXX).

It was pointed out with the approval of DO-350B Vol I & II and DO-351B Vol I & II (agenda items 3C and 3D), there is more clean-up needed for the removal of reference to these documents required on this proposed ToR.

There was some discussion on a point from Member Hoekema about the Verification Test Document and who the document applied to. Chair Robinson replied that was an excellent point

and that it was for aircraft level test from the beginning, but it was not clear how it will be applied, and they were trying to work through that and ensure it is relevant and useful.

The subject of too many datacom standards had been previously discussed. President McVenes commented we need standards as enablers vs. hindrances to new technology. Chair Hegarty agreed there are too many, but how do we get arms around to handle? Member Hennig and Member Hoekema indicated there were a couple of white papers relating to the subject that might shed light on this matter. Action to provide those papers to PMC members.

- With the suggested clean-up items (action), approval was moved by Member Turner, seconded by Member McDowell. The proposed revised ToR was approved (RTCA Paper No. 256-23/PMC-2483).

E. SC-227 – Standards of Navigation Performance – Revised ToR

- Ellen McGaughy, SC-227 Chair, presented.

The group requested to add scope to address electronic map display (EMD) lessons learned as part of updating the EMD MOPS to add Data Driven Charts. There are also leadership adjustments – change of affiliation and phone number for the GAR and indicating loss of Secretary due to retirement.

Chair Hegarty expressed gratitude to retiring Secretary Dave Nakamura for his many years of service.

- With a suggested edit/typo correction, approval was moved by Member McDowell, seconded by GAR DeCleene. The proposed revised ToR was approved (RTCA Paper No. 251-23/PMC-2481).

F. MOPS Drafting Guide – Suggested Addition

- Rebecca Morrison, Senior Director, Standards and Technologies, presented.

The suggestion to improve the security inputs in the MOPS drafting guide is finalized and going through internal approval by the sponsoring organization. It is hoped the presentation will be ready for the December PMC meeting.

G. Advanced Air Mobility (AAM) Activity – Update

- Terry McVenes, RTCA President, presented.

RTCA has hosted five workshops on AAM this year:
- Workshop - January 11, 2023 –
    - First workshop was in-person only with members splitting into 5 groups to identify what is needed to move forward with standards for AAM
- Workshop - March 14, 2023 –

- Focus on CONOPS and Spectrum Discussion
- XPONENTIAL Working Group – May 10, 2023 –
    - Solicited input from larger group of stakeholders at AUVSI
- May 23, 2023 –
    - DOT gave a presentation on their RFI and path forward with the Interagency Working Group for AAM
        - RTCA responded to the RFI
- September 13, 2023 –
    - DOT gave a follow up presentation on the RFI
    - FAA presented update on the I28 plan (no longer Innovate 2028)

Path forward:
- Writing Assignments organized around the DoT RFI were made in May
    - Initial drafting still in progress
    - Will combine inputs and review internally with AAM Workshop Participants
- Another white paper was suggested by AAM Workshop Participants
    - An outline and initial draft is being worked by a small group
    - Will review internally with AAM Workshop Participants

- The presentation is posted on AerOpus (RTCA Paper No. 237-23/PMC-2474).

H. Digital Flight Operations Activity – Update

- Brandi Teel, SC-228 Program Director, presented.

PD Teel reported the group is starting work on the White Paper. They admit they are extending beyond the projected six months but expect to have completed by December or early next year.

I. FAA Actions Taken on Previously Published Documents – Update

- Robert Bouza, FAA Representative, presented.

The FAA report was reviewed and discussed. The summary of items presented include:

FAA Closed Actions since previous PMC:
- Deliverable Use of Standard Complete (DO-317C, DO-361A, and DO-384): 3 TSO's
- DO-262F Change 1 (TSO-C159e change 1) and DO-346A (TSO-207b – Planned use as indicated
- DO-381A, DO-387 Change 1 – no plans to invoke or use these standards at this time

RTCA Published Documents Pending PMC Approval:
- Deliverable Use of Standard in development: 2 AC's and 1 TSO
- DO-377B – Currently evaluating how to use standard
- DO-401 – Not planning to use, as internal deliverable

RTCA In Work Documents:
- Revised ACs Expected: 18
- Revised TSOs Expected: 11
- Still TBD: 1
- Expected N/A: 6

RTCA Published Documents Pending FAA Action:
- Revised ACs Expected: 15
- Revised TSOs Expected: 6
- Still TBD: 1
- Expected N/A: 5

The following came off the list DO-350B, DO-351B, and DO-404

- Report is posted on AerOpus (RTCA Paper No. 234-23/PMC-2472).

J. Special Committees - Chair's Reports – Review

- Rebecca Morrison, Senior Director, Standards and Technologies, presented.

Reports were received from SC-135, SC-186, SC-206, SC-217, SC-224, SC-227, SC-228, SC-235, SC-236, and SC-237.

Other Reports:

SC-159 – Presented a new document (agenda item 3A).

SC-214 – Presented two revised documents, response to action item, and a ToR revision (agenda items 3C, 3D, 5C, and 6D).

SC-223 – Presented a new document and a ToR revision (agenda items 3B and 7C).

SC-227 – Presented a ToR revision (agenda item 6E).

SC-230 – Presented a ToR revision in response to an action item (agenda item 5F).

SC- 239 – Presented on group status (agenda items 6B).

SC-240 – Presented a ToR revision in response to an action item (agenda Item 5A).

SC-242 – Presented a ToR revision (agenda item 6C).

Member Barber asked about the input from SC-235 and their document, DO-227B. PD Hofmann gave a brief overview of the situation and the difficulties the group is having reaching consensus on a couple of key issues to close FRAC. GAR DeCleene thanked Member Barber for flagging this issue, indicating the FAA is going to provide additional help to clarify things for support at

SC-235's upcoming Plenary next week. The SC needs to do its work and remain open-minded. Member Hoekema indicated if there is disagreement between the regulators that the authorities should meet to coordinate. This support is greatly appreciated. These actions are outside the direct oversight of the PMC and will not be tracked as such. However, a follow-up report is requested for the December PMC meeting on SC-235's status.

- The individual committee reports are posted on AerOpus (RTCA Paper No. 224-23/PMC-2464).

K. International Coordination – Status Update

- Rebecca Morrison, Senior Director, Standards and Technologies, presented.

EUROCAE published five non-joint documents and one joint document since the last PMC meeting.

WG-31 (working with SAE AE2 and SAE AE4) completed a new report based on ED-14H/DO-160H Section 22. They proposed to deliver this report to WG-14 (joint with SC-135) for publication. Note that the update to DO-160H/ED-14H User's Guide is going to be later than the delivery of DO-160H/ED-14H.

The annual RTCA/EUROCAE Coordination meeting will be held in November at RTCA. An update will be provided at the December PMC meeting.

RTCA and EUROCAE are coordinating their efforts on moving to digital publications, Thery are exploring what is available and what digital publishing, or also publishing a digital twin to determine what it would mean to the work at each organization. They plan to do parallel surveys of membership to see what the needs and desires of members are (possibly digital twins, import into Requirements Management Tool, or existing PDF publication sufficient?).

RTCA and EUROCAE provided a joint Issue Paper to the ICAO Frequency Spectrum Management Panel (FSMP) in August 2023. The purpose is to keep ICAO informed of upcoming deliveries related to the work of FSMP. The paper was well received and RTCA and EUROCAE plan to deliver a follow up for the next FSMP meeting in 2023.

Member Roy added that when the SC-239/WG-119 MOPS is complete, ICAO will use it for SARPs. How will this work? Sr Director Morrison said per RTCA and ICAO MOU, the MOPS will be provided to the ICAO library.

- The update is posted on AerOpus (RTCA Paper No. 232-23/PMC-2470).

AGENDA ITEM 7
OTHER BUSINESS

A. NASA Presentation – Digital Standard

- Antonio "Tony" Facciolo, NASA, presented.

NASA has been doing work on digitizing standards. Mr. Facciolo's presentation gave an overview of the program and demonstrated the value of Model-Based Systems Engineering (MBSE) in the standards development process.

Chair Hegarty asked if any standard development organizations used their tool. Mr. Facciolo indicated that not currently but starting with SAE and ASTM.

Many organizations use Excel as a "happy medium" as these other tools are costly. President McVenes said he'd had a direct conversation with SAE to try to align on items – we don't want incompatible standards.

Member Barber asked on how much training would be needed for possible RTCA and SC use. Mr. Facciolo said put in context with MBSE last year – there is a learning curve. Possibly cross or bounce between committees to support more than one.

Member Mendonca commented that this tool is obviously proprietary. The company would have to buy the software for their use. And there is domain depth and knowledge that could be somewhat isolated. As far as reaching out for other uses – possibly as FARs are available free.

Chair Hegarty suggested that RTCA and EUROCAE could poll members on needs/desires.

President McVenes added that not only development process could be affected but could impact delivery of standards. This obviously won't happen overnight.

Member Mendonca mentioned they have given presentations to several groups including AAM Eco-System Working Group. Members asked for links to such presentations. (Action)

- The presentation is posted on AerOpus (RTCA Paper No. 227-23/PMC-2466).

B. FCC NPRM on Certain FM Station Power Increases - Discussion

- Chris Hegarty (PMC Chair) and Ed Hahn (PMC Member) presented.

This topic was not meant to be an in-depth discussion, but rather more of an information sharing topic.

There's a plan afoot to file something with FCC and also reach out to the National Association of Broadcasters. And there is potential that RTCA will be asked to stand up a committee to make updates to the MOPS for VOR, ILS LOC, and GBAS VDB to add tests with signals representing FM digital broadcasts. We are hoping to have cooperative discussions with NAB that will help us identify appropriate FM digital broadcast test signals.

Mr. Joel Wichgers (Collins) commented that new digital standard is forthcoming. We need to preserve the boundary between FM and aviation frequencies. Member Barber added this is not a

problem right now, but there are no FCC regulations other than 108 (VOR Test Station). (Note - <108 MHz is broadcaster while ≥ 108 MHz is aviation related.)

We really don't know where the boundary is – thus could pose problems. Member Hennig offered an editorial comment – this is similar to Ligado and 5G fight – discussions ongoing so hope to solve without filing.

Chair Hegarty said the main takeaway is that we should be aware and if down the road action will be needed, we should be prepared.

Mr. Wichgers added we may need test procedures for hybrid transmitters. We'll need to look at future MOPS. We need to lean forward and keep aware.

Member Hennig asked if there are lessons learned in context of SC-242. Chair Hegarty reminded all about GAO role of receivers' audit. Member Roy brought up 2002 and started again in 2008. We need to think about this now. Is this a receiver immunity issue? That is emissions that could runover (108-108.1 MHz)? Mr. Wichgers replied that is the primary concern. Extra signal – we haven't seen widespread issues, as the FAA frequency assignments haven't gone that low. We need to preserve our side of the boundary.

President McVenes commented that RTCA is discussing with the FCC the possibility of them serving on the Advisory Board.

- There are four supporting documents posted in AerOpus (RTCA Paper Nos. 222-23/PMC-2362 (-1 through -4)).

C. SC-223 – Internet Protocol Suite (IPR) and Aeronautical Mobile Airport Communication System (AeroMACS) – Revised ToR

- Aloke Roy, SC-223 Chair, presented.

The group requested a MASPS title change to align with the EUROCAE version (related to agenda item 3B) and a delivery delay for their profiles suite.

Sr Director Morrison provided a "shout out" to SC-223 and WG-108 leadership. With the numerous aspects of this work, there is a lot of coordination needed and this group's leadership has gone above and beyond.

- With the suggested edit, approval was moved by Member Roy, seconded by Members Barber and McDowell. The proposed revised ToR was approved (RTCA Paper No. 248-23/PMC-2478).

D. Upcoming Leadership Meeting

- Rebecca Morrison, Senior Director, Standards and Technologies, presented.

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Sr Director Morrison wanted PMC members to know RTCA would be holding its second leadership meeting the week of 9 October. Goal is to hold twice a year and address topics of interest/concern for SC leadership. This session will be two separate days at four hours each with repeat agenda to meet as many schedules as possible. We invite PMC members to attend as well as EUROCAE leadership.

E. Possible SC-231 – Terrain Awareness Warning System (TAWS) Restart

- Rebecca Morrison, Senior Director, Standards and Technologies, presented.

Sr Director Morrison provided comment that there is a possibility of SC-231 completing a revision to DO-367 based on request from the FAA. Following short discussion and the fact that SC-231 is in Active Monitor Status, PMC members asked for a Chair Report for further details. (action)

AGENDA ITEM 8
Schedule for Committee Deliverables and Next Meeting Date

Documents expected for the September 21, 2023, meeting:

- SC-159, Navigation Equipment Using the Global Navigation Satellite System (GNSS)
    - DO-292A – *Assessment of Radio Frequency Interference Relevant to the GNSS L5/E5A Frequency Band*

- SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B)
    - White Paper: *Summary of Activities and Potential Changes to DO-317C and DO-361A Change 1 – Year 2*

- SC-214, Standards for Air Traffic Data Communication Services
    - DO-352B - *Interoperability Requirements Standard for Baseline 2 ATS Data Communications, FANS 1/A Accommodation (FANS 1/A Baseline 2 Interop Standard)*
    - DO-353B - *Interoperability Requirements Standard for Baseline 2 ATS Data Communications, ATN Baseline 1 Accommodation (ATN Baseline 1 - Baseline 2 Interop Standard)*

- SC-222, Aeronautical Mobile Satellite (Route) Services (AMS(R)S)
    - DO-262F C2 – *Minimum Operational Performance Standards for Avionics Support Next Generation Satellite Systems (NGSS)*
    NOTE: Will be OOC approval request prior to December 2023 Meeting.

- SC-228, Minimum Performance Standards for Uncrewed Aircraft Systems
    - DO-381A - *MOPS for GBSS for Traffic Surveillance*
    - DO-377A – *Minimum Aviation System Performance Standards (MASPS) for C2 Link Systems Supporting Operations of Uncrewed Aircraft Systems in U.S. Airspace*

- SC-236, Standards for Wireless Avionics Intra-Communication within 4200-4400 MHz
  - DO-402 – *MOPS for Wireless Avionics Intra-Communication within 4200-4400 MHz*

- SC-237, Helicopter Terrain Awareness Warning System
  - DO-405 – *Minimum Operating Performance Standard (MOPS) for Helicopter Terrain Awareness Warning System (HTAWS) for Onshore Helicopter Operations*

- SC-238, Counter UAS
  - DO-403 – *System Performance and Interoperability Requirements for Non-Cooperative UAS Detection Systems*

The dates for the next four PMC meetings were confirmed: Thursday, December 14, 2023; Thursday, March 14, 2024; Thursday, June 20, 2024; and Thursday, September 26, 2024.

AGENDA ITEM 9
New Action Item Summary

See PMC Action Item Table.

Moved by Member Roy and seconded by Member Barber, the meeting adjourned at 3:10 p.m.

/Signed/
Karan Hofmann, Secretary
RTCA Program Management Committee

CERTIFIED to be a true and accurate report of the meeting.

/Signed/
Christopher Hegarty, Chair
RTCA Program Management Committee

Program Management Committee – September 21, 2023 ATTENDANCE LIST		
PMC MEMBERS:		
Christopher	Hegarty	The MITRE Corporation Chair (Partial Proxy for Jeff Troy and Heidi Williams)
Doug	Arbuckle	Federal Aviation Administration
Clay	Barber	Garmin, Ltd.
Bruce	DeCleene	Federal Aviation Administration Government Authorized Representative
Edward	Hahn	Air Line Pilots Association
Jens	Hennig	General Aviation Manufacturers Association
Hette	Hoekema	European Union Aviation Safety Agency
Karan	Hofmann	RTCA, Inc. Secretary
Donald	Kauffman	Honeywell International, Inc.
Justin	Madden	Airlines For America
Jim	McClay	Aircraft Owners and Pilots Association
Mike	McDowell	Collins Aerospace
Terry	McVenes	RTCA, Inc.
Nancy	Mendonca	National Aeronautics and Space Administration
Andrew	Roy	Aviation Spectrum Resources, Inc.
Jessie	Turner	The Boeing Company
Edgar	Wright	U.S. Air Force
OTHER ATTENDEES:		
Laurent	Azoulai	Airbus
Patty	Bath	AVISTA
Robert	Bouza	Federal Aviation Administration
Barbara	Clark	Federal Aviation Administration
Greg	Comstock	Stratmach
Antonio	Facciolo	NASA
Jeff	Finley	Collins Aerospace
Seth	Frick	Honeywell
Dawn	Gidner	SeaTec Consulting
Wes	Googe	American Airlines
Richard	Kahne	U.S. Air Force
Bob	Lee	GXA Consulting
Ellen	McGaughy	Collins Aerospace
Rebecca	Morrison	RTCA, Inc.
Thomas	Mustach	Federal Aviation Administration
Gregg	Nesemeier	Federal Aviation Administration

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Program Management Committee – September 21, 2023 ATTENDANCE LIST		
Brent	Phillips	Federal Aviation Administration
Jean Luc	Robin	Airbus
Claire	Robinson	Universal
Aloke	Roy	Visionary Systems
Cecilia	Shaw	Federal Aviation Administration
Paul	Siegmund	Federal Aviation Administration
Brandi	Teel	RTCA, Inc.
Russ	Uthe	Collins Aerospace
Alain	Vallee	EUROCAE
James	Venslauskas	RTCA, Inc.
Joel	Wichgers	Collins Aerospace
Dongsong	Zeng	MITRE

PMC ACTION ITEM TABLE				

TRACKING NUMBER (Meeting Date and agenda item from which original action resulted)	**ACTION**	**ACTION ASSIGNED TO**	**DUE DATE**	**STATUS**
12/16/2021 Agenda Item 6I	12/16/2021 – Regroup between Secretariats on way forward on SC-240/WG-117 03/17/2022 – Conditional approval of revised ToR – more work needed 06/23/2022 – Workshop held for inputs 09/15/2022 – Coordination continues 06/22/2023 – Way Forward presented – awaiting ToR approval on EUROCAE side to press forward 09/21/2023 – Revised ToR approved	RTCA and EUROCAE Staffs & SC-240 Leadership	Sep 2023	Closed
12/15/2022 Agenda Item 5G	12/15/2022 – Test Case of two types of Change format for store – DO-361 Change 1 03/16/2023 – Still being worked 06/22/2023 – Being finalized 09/21/2023 – Materials presented with findings and recommendations	SC-186 and Doug Arbuckle	Sep 2023	Closed
03/16/2023 Agenda Item 6B	03/16/2023 – Provide feedback on tagging timeline impact to deliverable 06/22/2023 – Material provided by RTCA; SC-214 evaluating 09/21/2023 – Actions included in revised ToR	SC-214	Sep 2023	Closed
03/16/2023 Agenda Item 6F	03/16/2023 – Investigate possibility of EASA Status Summary type report similar to FAA report	EASA (Hette Hoekema)	Sep 2023	Closed
06/22/2023 Agenda Item 4A	06/22/2023 – Assemble list of documents possible for review 09/21/2023 – Documents for 2018 reviewed; continue backward review for catch up	RTCA Staff	Dec 2023	Open
06/22/2023 Agenda Item 6E	06/22/2023 – SC-230 reevaluate inclusion of possible spectrum related matters in their documents 09/21/2023 – Revised ToR approved	SC-230	Sep 2023	Closed
06/22/2023 Agenda Item 6G	06/22/2023 – Ad Hoc to address how to handle FRAC non-concur or out of scope comments from non-members	RTCA and EUROCAE	Dec 2023	Open

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06/22/2023 Agenda Item 7A	06/22/2023 – Ad Hoc to draft Charter for a possible Technical Pilot Advisory Committee to serve all active SCs 09/21/2023 – Update provided; work on Charter continues	Wes Googe, Ed Hahn, Justin Madden	Dec 2023	Open
09/21/2023 Agenda Item 5B	09/21/2023 – Share Change Example Types with PMC members	Karan Hofmann	Oct 2023	Open
09/21/2023 Agenda Item 5B	09/21/2023 – RTCA and EUROCAE discuss possible change in document change format	RTCA and EUROCAE	Dec 2023	Open
09/21/2023 Agenda Item 5E	09/21/2023 – ICC assist with request to 216, 230, and 229 to review specified documents for possible updates	ICC and RTCA Secretariat	Dec 2023	Open
09/21/2023 Agenda Item 5G	09/21/2023 – provide questions sent out related to Ad Hoc on Non-Member Comment Responses	Rebecca Morrison	Dec 2023	Open
09/21/2023 Agenda Item 5H	09/21/2023 – Provide copy of ICC Charter to Mr. Googe as example	Rebecca Morrison	Oct 2023	Open
09/21/2023 Agenda Item 6C	09/21/2023 – SC-242/WG-124 consider name change to the Spectrum Guidance Document	SC-242 / WG-124	Dec 2023	Open
09/21/2023 Agenda Item 6D	09/21/2023 – Include clean up suggestions to SC-214 ToR prior to publication	Claire Robinson, Brandi Teel, and Karan Hofmann	Oct 2023	Open
09/21/2023 Agenda Item 6D	09/21/2023 – Provide DataCom White Papers for distribution to PMC Members	Jens Hennig, Hette Hoekema	Dec 2023	Open
09/21/2023 Agenda Item 6J	09/21/2023 – Update on status of SC-235's progress on DO-227B	SC-235	Dec 2023	Open
09/21/2023 Agenda Item 7A	09/21/2023 – Provide link for NASA presentation on Digital Standards	Nancy Mendonca	Dec 2023	Open
09/21/2023 Agenda Item 7E	09/21/2023 – Provide Chair Report for next PMC meeting to provide update on potential DO-367A	SC-231	Dec 2023	Open

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