

**RTCA PROGRAM MANAGEMENT COMMITTEE
MEETING SUMMARY
March 22, 2018**

The RTCA Program Management Committee (PMC) convened at 8:30 a.m. on March 22, 2018 at RTCA. The attendance list and action items are attached.

AGENDA ITEM 1

Welcome and Introductions

PMC Chairman Dr. Chris Hegarty welcomed the group, asked attendees to introduce themselves and to note their organization of affiliation. Mr. Lou Volchansky, the Designated Federal Officer (DFO), read the Public Meeting Announcement that includes the date the Federal Register meeting notice was published, declares the meeting is “Open to the Public” and provides details for persons wishing to present or obtain information pertaining to the meeting.

Mr. Richard Heinrich announced he will soon be retiring from Rockwell Collins. Mr. Robert (Bob) Lee will be stepping up to the plate as his replacement to the PMC. All members extended a special thank you to Mr. Heinrich.

Two additional new members were welcomed – Ms. Melissa Rudinger from Aircraft Owners and Pilot Association and Mr. John Craig from Aviation Information Sharing and Analysis Center. These individuals were added in response to the PMC Membership Ad Hoc recommendation for adding individuals with other areas of expertise (agenda item 6B).

AGENDA ITEM 2

Review / Approve

- A. The summary of the December 19, 2017 meeting was approved with minor editorial changes (RTCA Paper No. 005-18/PMC-1696).
- B. Administrative Special Committee Terms of Reference (TOR) Revision (Note: most were adjustment to new DFO office symbols based on FAA reorganization):
 - SC-217 – Aeronautical Databases - New Secretary Sasho Neshevski and change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 087-18/PMC-1730).
 - SC-135 – Environmental Testing – Change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 088-18/PMC-1731).

- SC-213 – Enhanced Flight Vision Systems/Synthetic Vision Systems – Change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 089-18/PMC-1732).
- SC-216 - Aeronautical Systems Security – Change DFO Office Symbol and delete one co-chairman. The revised TOR was approved (RTCA Paper No. 090-18/PMC-1733).
- SC-227 – Standards of Navigation Performance – Change DFO Office Symbol and update deliverables based on approval of agenda item 3A. The revised TOR was approved (RTCA Paper No. 091-17/PMC-1734).
- SC-230 – Airborne Weather Detection Systems – Change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 092-18/PMC-1735).
- SC-236 – Standards for Wireless Avionics Intra-Communication System (WAIC) within 4300-4400 MHz – Change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 093-18/PMC-1736).
- SC-186 – Automatic Dependent Surveillance Broadcast (ADS-B) – Change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 095-18/PMC-1738).
- SC-214 – Standards for Air Traffic Data Communication Services – Change DFO Office Symbol. The revised TOR was approved (RTCA Paper No. 096-18/PMC-1739).

AGENDA ITEM 3

Publication Consideration/Approval

A. Revision to DO-257A - *Minimum Operational Performance Standards for the Depiction of Navigational Information on Electronic Maps* prepared by SC-227 (Standards of Navigation Performance)

- Michael Cramer (SC-227 Chairman), Sam Miller (Document Lead) and Barry Miller (SC-227 DFO) presented.

This document supersedes RTCA DO-257A, Minimum Operational Performance Standards (MOPS) for the Depiction of Navigational Information on Electronic Maps, published on June 25, 2003. This MOPS update supports new requirements for electronic display outputs in DO-236C/ED-75D and DO-283B; reflects the most current human factors standards and guidelines for electronic displays; and embraces display system technology updates. DO-236C/ED-75D contains the MASPS for Required Navigation Performance (RNP) equipment, while DO-283B defines the RNP equipment MOPS; and SC-227 completed the recent updates to both these standards to better support worldwide implementation RNP operations. DO-257B supports the RNP MASPS and MOPS by directly incorporating and reflecting the display output requirements of both documents. The updates to DO-257A also ensure installed RNP equipment meets the

requirements for today's RNP operations via presentation of essential navigation information on the electronic displays the flight crew uses. This includes new, updated specifications for a plan view map (i.e. the aircraft's "navigation display"). Likewise, the new electronic display MOPS reflects updates in human factors guidelines for cockpit displays, revisions to the standards for an airport moving map display and robust standards for presentation of a vertical situation display a flight crew can use inflight.

The PMC approved the document. It will be published as DO-257B.

AGENDA ITEM 4
Integration and Coordination Committee (ICC)

No updates reported.

AGENDA ITEM 5
Cross Cutting Committee (CCC)

No updates reported.

AGENDA ITEM 6
Action Item Review.

A. Availability of RTCA documents as reference for EUROCAE WGs – Discussion

- Al Secen, RTCA Vice President, Aviation Technology and Standards, presented.

As reported previously, RTCA and EUROCAE have been discussing, as part of the bi-lateral agreement, to allow exchange of documents with Working Groups and members working on joint documents (even if not member of other's organization). Details of accessing the needed documents are still being finalized. Action still open.

B. RTCA Review PMC Membership Recommendations– Discussion

- Al Secen, RTCA Vice President, Aviation Technology and Standards, presented.

RTCA was tasked to review PMC Membership Ad Hoc recommendations and provide feedback/implementation plan to the PMC. RTCA agreed that including general aviation and cyber security expertise to the PMC would be beneficial. Invitations were extended and accepted and, as noted in agenda item 1, these two new members were participating today. Action closed.

C. Compile list of RTCA Documents for ICAO Reference – Update

- Richard Heinrich, PMC Member, presented.

The PMC requested a list of RTCA documents for ICAO that should be referenced.

Mr. Heinrich provided an overview of the alignment of RTCA and ICAO document sharing. The evolution of Standards and Recommended Practices (SARPs) at ICAO is seeking to draw on industry wide subject matter expertise. This is having an impact on how documents are shared and protected. RTCA documents are now referenced in the Global Air Navigation Plan (GANP).

The Aviation System Block Upgrade Call-outs (ASBUs) are aligned to operational threads with each of these threads referencing a “Block” which correlates to a time of operational readiness. The “readiness checklist” includes several key elements (Standards Readiness, Fielding Experience, and have a positive Cost/Benefit Assessment).

ASBUs are managed by the Air Traffic Management Readiness Requirements and Performance Panel at ICAO. Detailed work is being performed by the ASBU Project Panel Team (PPT).

The only traceable alignment of RTCA documents is the ASBUs. There is not equivalent insight into RTCA documents used in ICAO Panel Deliberations. Mr. Heinrich provided an ASBU to RTCA Document List Alignment (RTCA Paper No. 058-18/PMC-1721).

RTCA now has an MOU with ICAO which allows access to these referenced documents for Panel work. But there needs to be more work on configuration management and the correct mapping of RTCA documents. This needs to be accomplished in coordination with the FAA. (Action)

AGENDA ITEM 7

Discussion.

A. SC-223 – Internet Protocol Suite (IPS) and Aeronautical Mobile Airport Communication System (AeroMACS) - Discussion – Revised TOR

- Alope Roy (SC-223 Chairman) and Brent Phillips (SC-223 DFO) presented.

The committee requested to become a joint committee with EUROCAE WG-108 for the publication of the Aviation Profiles for Internet Protocol Suite and to discuss scope and content of the MOPS for possible joint publication. They also requested for the Profiles delivery date to slip to September 2018 vice December 2017. PMC members expressed concern with the type of document the Profiles item was designed to be – further discussion from SC-223 implied MASPS-like. There was also concern on the scope of the document – possible interoperation to include airborne and ground equipment. As there seemed to be non-consensus on way forward, the PMC recommended an Ad Hoc be formed to work through the proposed revised TOR. (Action)

B. SC-229 – 406 MHz Emergency Locator Transmitters (ELTs) - Discussion – Revised TOR

- Charisse Green (SC-229 DFO) presented.

SC-229 is a joint committee with EUROCAE WG-98 and is working on merging content of DO-2014A and ED-62A. The update will include requirements for second generation ELTs, specifically ELT9DT). They requested a delivery date slip of 11 months (from December 2017 to November 2018) and made some clarification in the last paragraph of the Specific Guidance section. This will allow, among other things, to align the older document with the current drafting guide. They are expecting to close FRAC at the end of August. It was noted that EASA needs to have the document ready to be published in September, as they have a hard deadline for aligning the ETSO with the European DT rule and the ICAO GADSS requirement.

The PMC approved the revised TOR (RTCA Paper No. 097-18/PMC-1740).

C. SC-236 – Standards for Wireless Avionics Intra-Communication System (WAIC) within 4300-4400 MHz - Discussion – Revised TOR

Revised TOR was not ready to be presented. Expect at the June 2018 PMC Meeting.

D. SC-147 – Aircraft Collision Avoidance Systems – Discussion – Revised TOR

- Stuart Searight (SC-147 Co-Chairman) presented.

SC-147 requested adding a new MASPS for Collision Avoidance System Interoperability to their deliverables. This would be a joint document with EUROCAE WG-75 based on an Inter-Special Committee Requirements Agreement (ISRA) between SC-147 and SC-228 to include new material on coordination schemes and would harmonize with Combined Surveillance Committee work on DO-181F and DO-260C. Additionally, there is a new DFO, Sheila Mariano replacing Steve Plummer, and the group has a new secretary with Donna Froehlich from Aurora Innovations.

Clay Barber noted that draft TOR does not include updates for Scope, Envisioned Use of Deliverables, or Specific Guidance sections relative to the new MASPS. Chris Hegarty agrees that draft TOR is missing descriptions of new MASPS. Suggests that new deliverable could be approved today with IOU to update TOR with additional descriptive information to be brought to PMC later.

The PMC approved revised TOR with minor editorial changes (RTCA Paper No. 098-18/PMC-1741) and IOU to come back to June 2018 PMC meeting with additional description (Action).

On the ACAS X_a/X_o MOPS deliverable (a joint document with EUROCAE WG-75), SC-147 is looking to recommend PMC approval in September 2018 (barring unforeseen issues with FRAC), but EUROCAE may not be ready to consider approval for another 6-9 months due to need for final European Validation. ICAO considers “Final MOPS Material” is required for presentation to ICAO by end of 2018 for incorporation into SARPS. Failure to meet end-of-year schedule would

put ACAS X_a/X_o consideration into next 2-year ICAO cycle. An RTCA “approved with publication pending” status should be sufficient for ICAO use.

E. SC-206 – Aeronautical Information and Meteorological Data Link Services – Discussion – Temporary Restricted Areas White Paper

- John Ferrara (SC-206 SG-5 Co-Chairman) and Eldridge Frazier (SC-206 DFO) presented.

SC-206 requested the PMC approval of a white paper for submission to the Federal Aviation Administration (FAA) Surveillance and Broadcast Services (SBS) Program Office. The paper included a recommendation to include a Temporary Restricted Areas (TRA) product in the Flight Information Services-Broadcast (FIS-B) Universal Access Transceiver (UAT) Data Link Services. The original TRA matter was identified by AOPA and they along with SC-206 SG-5, feel endorsement from the PMC would be a powerful input for action by the SBS Program Office. The PMC agreed and endorsed forwarding with a cover letter signed by RTCA President, Margaret Jenny to Ali Bahrami, Associate Administrator for Aviation Safety. (Action)

- The paper and slides are posted on Workspace (RTCA Paper No. 029-18/PMC-1704).

F. NextGen Advisory Committee (NAC) – Status Update.

- Andy Cebula, RTCA – Vice President, Strategy and Programs, presented.

The last meeting of the NAC was March 14th, hosted by Harris Corporation in Palm Bay, FL.

The primary item covered was the Priorities for Improving Operational Performance in the Northeast Corridor (NEC) through CY2021 Final Report.

- Primary benefit is airport and airspace throughput
 - Better utilization of available throughput
 - Growing achievable throughput
- Leads to benefits on key operational metrics
 - Completion factor, Delay, Predictability, and Block times
- Industry Operational Needs in NEC
 - Deconflict Airports to Improve Throughput
 - Grow Throughput
 - Leverage Data to Improve Traffic Flow Management Decisions
- Implementation Risks and Opportunities
 - Physical limitations of airspace and traffic
 - Funding and budget priorities
 - Controller and support staffing and resources
 - Mixed equipage of aircraft
 - Environmental concerns
 - Change Management

- PBN Challenge of Synchronization: Procedures, Equipage, Tools (all interact/overlap)
 - Published Procedures that have gone through community involvement process
 - Sufficient Aircraft Equipage that enables NextGen operations
 - Controller Staffing and Decision Support Tools

Other issues discussed:

- DataComm Initial EnRoute Services – FAA has manpower constraints supporting the current waterfall
 - FAA is assessing the impact to schedule
 - FAA expects to have a clearer picture by the end of March
- Funding of FAA PBN activity needed to implement industry endorsed PBN NAS Navigation Strategy that transitions to a “PBN-centric” NAS - national infrastructure effort
- Improving total aircraft equipped with ADS-B out to meet 1/2020 deadline
 - US Air Carrier: 29.4% - 35.2%
 - US General Aviation (includes EXP & LSA): 23.5% - 37.6%
 - International Air Carrier: 1.22%
 - US Mil and Special Use: 10.26%

PMC members requested a copy of the final NEC report (Action).

Next NAC meeting is scheduled for June 28th, hosted by MITRE in McLean, VA.

G. Tactical Operations Committee (TOC) – Status Update.

- Trin Mitra, RTCA Program Director, presented.

The last meeting of the TOC was held March 1, 2018.

Agenda topics included:

- Industry advised TOC will be sunset March 31, 2018
- FAA determining appropriate venue(s) for existing, open recommendations
 - PBN Route System
 - CSS FD
 - AIMM S3
 - Graphical TFRs
 - Intentional GPS Interference
- Intentional GPS Interference Overview:
 - 25 recommendations offered across following categories:
 - Interference Event Scheduling
 - Notification of Interference Events
 - During Event
 - Impacts to Operations, Aircraft & NAS Equipment
 - Pilots, Controller and Dispatcher Issues

- Mitigations
 - NextGen Concerns
 - Related Topics Beyond Scope of Tasking
 - Intentional Interference is Increasing
 - Number tests and locations increasing in NAS
 - Industry need to better understand the operational impacts of intentional interference
 - Importance of All Interference
 - This effort focused on planned and intentional interference, but the impacts of interference are critical regardless of the source
 - Non-DoD sources of interference, such as solar weather, illegal personal GPS jammers, unlicensed GPS repeaters or spoofing
 - This effort is step one: FAA and industry need to further collaborate to understand impact of interference and identify mitigations for all sources of interference
 - NextGen Concerns:
 - There is need to better understand impacts of intentional interference on NextGen operations, benefits and resiliency
 - FAA needs to collaborate with industry and between agencies to update the APNT CONOPs
 - Need to meet operator needs for continued navigation and surveillance services when GPS signals are not available
 - Current GPS resiliency plan, namely VOR MON and DME/DME, is insufficient to maintain continuity of NextGen operations in the NAS
- Opportunity to Leverage ADS-B Data
 - ADS-B ground stations receive Navigation Integrity Category (NIC) from aircraft that may be leveraged to identify where and when individual aircraft actually experience interference
 - Opportunity to closely study this actual data on loss of GPS
 - Aircraft Impacts
 - FAA should work with OEMs to develop a clear understanding of known GPS dependencies in avionics and aircraft flight controls
 - Pilots, Dispatchers & Controllers
 - Guidance for pilots, dispatchers and controllers all require updates
 - Terminology, location of resources, AC for GPS interference and resiliency, controller responsibility during event, etc.
 - Clarification required for pilot authorization to deviate from FAR 91.227 within affected area and for the duration of that flight
 - Multiple observations of aircraft losing GPS and never regaining

PMC members requested a copy of the GPS Interference Report (Action).

There was discussion on reasoning for the TOC sunset – basically funding issue. Members expressed concern for this, as the ATC Action Committee was sunset last year so operational implementation venues are disappearing.

H. Drone Advisory Committee (DAC) – Status Update.

- Al Secen, RTCA – Vice President, Aviation Technology and Standards, presented.

Mr. Secen provided a review of the DAC to include:

- Members:
 - 34 Industry Members
 - 6 vacancies currently open awaiting approval from DoT
 - FAA Deputy Administrator (DFO)
- DAC Subcommittee (160+ participants)
 - All Task Groups have been sunset
- Last Meeting – March 9, 2018 at MITRE in McLean, VA

DAC Status:

- The Drone Advisory Committee
 - The FAA sunsetted TG1
 - Received an update on the FAA response to TG2 recommendations delivered in November of 2017
 - TG3: Funding of UAS Integration
 - Analyze Potential Mechanisms Funding the Activities and Services Required
 - Provide Recommendations on Preferred Method for funding Federal Activities and Services
- The Drone Advisory Committee Subcommittee
 - The subcommittee is awaiting further tasks from the DAC
- Task Group Status
 - TG1 (Roles and Responsibilities)
 - Sunset
 - TG2 (Access to Airspace)
 - Sunset
 - TG3: (Funding of UAS Integration)
 - Provided final report to the FAA at March meeting
 - Developed multiple recommendations for UAS Funding

TG3 Summary

- Summary of Consensus Points
 - Additional funding is necessary to integrate drones safely into the NAS.
 - Funding for integration efforts will be shared across government and industry.
 - Options for funding should not be constrained by the current funding structure nor alter the current structure of funding
 - The regulations, policies, and standards necessary in the next five years should be developed primarily by the FAA, with significant industry input.

- The research and development (R&D) and system development necessary in the next five years, should be a collaborative effort between government and industry, with the industry shouldering most of the basic R&D.
- The communication, outreach, and training necessary in the next five years should be shared between government and industry, depending on the activity.
- No later than 2020, FAA should implement transparent cost accounting measures in order to track the resources being used for manned and unmanned aviation activities.
- The UAS industry may be expected to pay for the operation and maintenance of an automated Unmanned Traffic Management (UTM) system through a yet-to-be-created user fee funding model.

Engagement Change:

- The FAA has asked for a nimbler method for engaging the DAC and DACSC
- New method has not been finalized
- Notionally, the FAA has suggested the following engagement methods:
 - Quick-turn Gauge of Industry
 - DACSC meets in person at least 6 times per year, but may also meet virtually
 - Traditional Tasking – Accelerated
 - DAC meets in person at least 3 time per year, but may also meet virtually

I. Actions Taken on Previously Published Documents – Report and Designated Federal Officer (DFO) List –Update.

- Lou Volchansky, PMC DFO – FAA, presented (FAA Guidance based on RTCA Documents – RTCA Paper No. 033-18/PMC-1708)

FAA Published Documents that reference published RTCA Documents, FAA Pending Documents for RTCA Documents Published, and FAA plans for RTCA Documents pending PMC approval were reviewed.

FAA Published Guidance (Since Previous PMC)

RTCA Document	Developed By	FAA Guidance	Approval Date	Comment
DO-362, Command and Control Data Link MOPS	SC-228	TSO-C213	9 March 2018 (2 months late)	UAS C2 Equipment design standard
		AC 20-187	May 2018 (3 months late)	Airworthiness installation guidance.

DO-311A, MOPS for Rechargeable Lithium Batteries and Battery Systems	SC-225	TSO-C179b	21 March 2018	Design standard for rechargeable lithium batteries
DO-227A, MOPS for Non-Rechargeable Lithium Batteries	SC-235	TSO-C142b	March 2018	Design standard for non-rechargeable lithium batteries

RTCA Published Documents - FAA Pending Guidance

RTCA Document	Developed By	FAA Guidance	Planned Release Date	Comment
DO-365, Detect and Avoid MOPS Phase I	SC-228	AC	June 2018	Airworthiness installation of a UAS DAA system
DO-262C, MOPS for Avionics Supporting Next Generation Satellite Systems	SC-222	TSO-C159d	May 2018	Includes improvements to test cases for Iridium Next Short Burst Data testing
DO-311A, MOPS for Rechargeable Lithium Batteries and Battery Systems	SC-225	AC 20-184A	June 2018	Installation standard for rechargeable lithium batteries
DO-315A, MASPS for EVS, SVS, CVS, EFVS	SC-213	AC 20-167B	June 2018	Consolidates enhanced and combined vision system airworthiness criteria. No new criteria.
DO-315A, DO-359, MASPS for Synthetic Vision Guidance System, MASPS for Aircraft State Awareness Synthetic Vision Systems	SC-213	AC 20-185A	June 2018	Consolidates synthetic vision, synthetic vision guidance system, and airplane state awareness guidance

DO-227A, MOPS for Non-Rechargeable Lithium Batteries	SC-235	AC	July 2018	Airworthiness installation criteria for non-rechargeable lithium batteries
DO-343A MASPS for AMS(R)S Data and Voice Communications Supporting Required Communications Performance and Required Surveillance Performance	SC-222	None at this time	N/A	Includes Swift Broad Band ground gateway-to-aircraft VPN tunneling. Needed for engineering/ scoping purposes
DO-368, MOPS for GPS/GLONASS (FDMA + Antenna) L1-only Airborne Equipment	SC-159	Under review	—	—
DO-246E, GNSS-Based Precision Approach Local Area Augmentation System Signal-in-Space Interface Control Document	SC-159	None	—	This document is a reference for DO-253D. It is published by RTCA for the convenience of avionics OEMs.
DO-253D, MOPS for GPS Local Area Augmentation System Airborne Equipment	SC-159	TSO-C161b and TSO-C162b	July 2018 (3-month slip) Validate VDB compatibility	New design standard to support Category II/III operations; maintenance updates to legacy standards
Addressing Human Factors/Pilot Interface Issues for Avionics	SC-233	AC	September 2018	Best practices, informational AC (00-series)
Guidelines for the In Situ Eddy Dissipation Rate (EDR) Algorithm Performance	SC-206	TBD	N/A	N/A

DO-230H, Standards for Airport Security Access Control Systems	SC-224	N/A	N/A	Updates the credentialing, and access control systems and communications sections
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RTCA Documents Pending PMC Approval

RTCA Document	Developed By	Planned FAA Guidance	Planned Release Date	Comment
DO-257A, MOPS for the Depiction of Navigational Information on Electronic Maps	SC-227	TSO-C165b	October 2018	Supports updated requirements for the electronic display of an RNP system's outputs IAW DO-236C and DO-283B, the recently updated RNP MASPS and MOPS. Editorial updates also embrace new display technologies and revised human factors considerations. Expect revision to TSO-C165a and update to FAA AC 20-138.

J. Special Committees - Chairmen's Reports, Active Inter-Special Committee Requirements Agreements (ISRA) – Review.

- Rebecca Morrison, RTCA Program Director, presented.

Highlights from the Chair Reports for several selected Special Committees were reviewed. Reports were received from SC-159, SC-206, SC-213, SC-217, SC-222, SC-223, SC-224, SC-229, SC-230, and SC-236. Other information was included in other presentations during this PMC.

The complete matrix and individual committee reports are posted on Workspace (RTCA Paper No. 034-18/PMC-1709).

K. European/EUROCAE Coordination – Status Update.

- Rebecca Morrison, RTCA Program Director, presented.

Topics of Note:

- New Documents Released by EUROCAE since last PMC
 - o ED-148 – *Guidance to Achieve ATM Validation Platforms Interoperability*
 - o ED-248 – *Guide to Civil Aircraft Electromagnetic Compatibility (EMC)*
 - o ED-249/DO-371 – *MASPS for Aircraft State Awareness Synthetic Vision Systems – WG-79/SC-213*
 - o ED-250 – *Minimum Operational Performance Standard for a Runway Overrun Awareness and Alerting System*
- New Working Group
 - o WG-108: WG For ATN/IPS has been approved by the Council
 - Council approval is ongoing by e-voting, deadline 22 December, then (if approved) Call for Participation followed by kick off meeting 1-2 Feb, Toulouse.
 - SC-223 will present their TOR updates today to align with the new WG on the IPS standards
 - o New Scope for WG-98
 - WG-98 is currently working jointly with SC-229 to align and update ED-62A and DO-204A
 - A TOR update is being presented today to provide the new expected date of publication
 - In order to address Return Link Service, WG-98 is going to continue their work by creating a MASPS
 - This work is to address GADSS requirement from ICAO and the 2018 ICAO Annex 6 "mandate" and the AEEC Global Aircraft Tracking effort
 - Kick-off for this meeting is April 23-24 at EUROCAE
 - PMC Members requested further clarification on this new scope (Action)
 - o WG-109
 - Approved February 26th by the EUROCAE Council
 - Runway Weather Information Systems Strategy
 - Producing a MASPS in May 2020
 - Initial meeting to take place 23-24 May 2018 in Saint-Denis, France.
- EUROCAE Meetings in 2018:
 - o TAC#72: March 21,2018
 - o EUROCAE Symposium April 27, 2018
 - o TAC#73: May 15-16, 2018

AGENDA ITEM 8

Documents Open for Final Review and Comment (FRAC)

There have been five documents completing FRAC/OC since the last PMC meeting. No openings are needed at this meeting.

AGENDA ITEM 9

Other Business.

A. RTCA Award Nominations – Consideration / Approval of Nominations

- Karan Hofmann, PMC Secretary, presented.

The PMC approved all nominations for Outstanding Leader Awards and Significant Contributor Awards with an additional Outstanding Leader to the DO-227A effort. Presentations will occur at the RTCA 2018 Global Aviation Symposium, June 12, 2018.

B. ACSS Commitment to License (CtL) – Discussion – Follow Up

- Al Secen, RTCA – Vice President, Aviation Technology and Standards, presented.

The ACSS CtL was completed to eliminate licensing fee, but possibly a one-time administrative fee. Since the work is being done jointly, the CtL was forwarded to EUROCAE to ensure their requirements are met. It was recommended to possibly forward to ICAO. Mr. Doug Arbuckle is Chairman of the Panel and said they were keeping aware of the situation.

- CtL is posted on Workspace (RTCA Paper No. 049-18/PMC-1713).

C. Drafting Guide Update Project – Discussion

- Karan Hofmann, RTCA Program Director, presented.

Following an action from December 2016 PMC meeting, RTCA collected suggested changes to MOPS / MASPS / SPR Drafting Guides from the Special Committees. A total of 137 comments were received with most being editorial in nature. RTCA is still accepting input from committees as they work through development of deliverables. RTCA also received recommendations on the Style Guide. RTCA staff is working to update these guides and ensure consistency across these documents with a goal to have them complete by late 2018.

D. Spectrum Considerations for Aviation Standards – Presentation

- Andrew Roy, Director, Engineering Services, Aviation Spectrum Resources, Inc., presented.

Mr. Roy provided an overview of the current picture of aviation spectrum, regulatory developments, and implication for aviation standards. He summarized that the pressure on spectrum will only increase, spectrum cannot be considered a “cheap” trade off in system design, and that aviation standards will become increasingly important to defend aviation standards.

- Slides are posted on Workspace (RTCA Paper No. 076-18/PMC-1727).

E. SC-228 – Minimum Performance Standards for Unmanned Aircraft Systems – Discussion – Revised TOR

- Richard Heinrich, SC-228 Co-Chairman, presented.

SC-228 presented a revised TOR with clarification in scope to only Part 91 for Detect and Avoid operations, as well as one new co-chairman John Moore for retiring Richard Heinrich, and changing the DFO Office Symbol. There was quite a bit of discussion on why to limit to Part 91, how it was prepared to come through to the PMC, and the possible effects on SC-228's timeline and resources. There were strong concerns expressed about the scope change being brought to the PMC with only approval by the steering committee and SC-228 leadership and not going through SC-228 Plenary.

The PMC approved the revised TOR (RTCA Paper No. 099-18/PMC-1742). Although changes were approved, Mr. Randy Kenagy expressed concerns about the proposed TOR change, due to the fact that the draft had not yet been coordinated with the SC-228 steering committee or plenary. Randy indicated that ALPA has been unsure whether there are adequate resources to achieve the added scope in the suggested timelines, and despite ALPA's request to committee leadership to understand the resources available, none had been provided to date. ALPA as represented by Randy Kenagy, dissented from the change to the TOR based on these concerns.

Actions Notes: ALPA dissented on the scope change and wanted to note in this summary. There was an action for ALPA to provide wording for inclusion in this summary (Action). (Inputs are included above.) Also, the source of the change (supposedly through a DAC recommendation) was to be provided to ALPA for review (Action).

F. UAS Software - Discussion

- Al Secen, RTCA – Vice President, Aviation Technology and Standards, presented.

The question has been raised about the appropriateness of DO-178C for application to UAS software. With the PMC approval, recommend the Forum of Aeronautical Software (FAS) review the matter. The recommendation from the FAS would be that DO-178C is fit, unfit, or would fit with a few changes/enhancements. Subject Matter Experts (mostly from SC-228) will support this review. The FAA indicated there is probably no interest in modifying DO-178C.

G. SC-159 WG-2C Document IP Example - Discussion

- Mats Brenner, SC-159 WG-2C Co-Chairman, presented.

The committee would like to include a specific example or two in an appendix in their new MOPS for GNSS-aided inertial navigation systems. As these may be potential proprietary/patented information, permission from the owner would have to be received prior to inclusion in the document.

After discussion, Mr. Brenner admitted the examples would probably not be needed for the final document and would like to include only in a working version of the document to assist committee members. The PMC recommended following that course and removing the examples before FRAC. But if the committee determined these needed to be included in that final version to come back to the PMC with more justification.

H. SC-159 – Navigation Equipment Using the Global Navigation Satellite System (GNSS) – Discussion – Revised TOR

- Dr. Chris Hegarty, SC-159 Co-Chairman, presented.

Besides new DFO Barbara Clark and adjustment of delivery dates for the GNSS L1/L5 Antenna MOPS, the committee requested wording adjustments to allow for working officially jointly with EUROCAE WG-62. This would be for the GNSS(SBAS) L1/L5 MOPS and GNSS(GBAS) L1/L5 MOPS and ICD to include validated dual-frequency equipment for Galileo as well as GPS and SBAS/GBAS. There are still some differences in the projected delivery dates, with SC-159 dates being later and suspected more realistic. The PMC discussed agreeing with the changes in principle, but were concerned with adding the additional scope. It was finally agreed to approve, as there is always the option to change as needed.

The revised TOR was approved (RTCA Paper No. 094-18/PMC-1737).

SC-159 presented RTCA Program Director Rebecca Morrison with a plaque recognizing her outstanding support during the update of DO-229E, MOPS for GPS/SBAS Airborne Equipment.

I. SC-186 –Automatic Dependent Surveillance Broadcast (ADS-B) – Discussion

- Al Secen, RTCA – Vice President, Aviation Technology and Standards, presented.

SC-186 is directed in their TOR to work jointly with EUROCAE WG-51 to update the MOPS for ADS-B system operating on 1090 MHz frequency. They asked for assistance from the PMC to formally request WG-51 agree to comply with this task. (Action)

AGENDA ITEM 10

Schedule for Committee Deliverables and Next Meeting Date

Document expected for the June 2018 meeting:

- SC-159, Navigation Equipment Using the Global Navigation Satellite System (GNSS)
 - New Document – *MOPS for GNSS Active Antenna in the L1/E1 and L5/E5A Bands*
- SC-213, Enhanced Flight Vision Systems/Synthetic Vision Systems
 - New Document – *MASPS for A Combined Vision Guidance Systems for Rotocraft Operations*
- SC-216, Aeronautical Systems Security
 - DO-356A – *Airworthiness Security Methods and Considerations*
- SC-230, Weather Detection Systems
 - DO-213A Change 1 – *Minimum Operational Performance Standards for Nose-Mounted Radomes*
 - DO-220A Change 1 – *Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar Systems*

The dates for the next four PMC meetings were confirmed: Thursday, June 21, 2018; Thursday, September 20, 2018; Thursday, December 13, 2018; and Thursday, March 21, 2019.

AGENDA ITEM 11

New Action Item Summary

See PMC Action Item Table.

/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 – March 22, 2018
ATTENDANCE LIST**

PMC MEMBERS:

Christopher	Hegarty	The MITRE Corporation Chairman
Doug	Arbuckle	Federal Aviation Administration
Clay	Barber	Garmin Ltd.
Chris	Benich	Honeywell International, Inc
Steve	Brown	National Business Aviation Association
John	Craig	Aviation Information Sharing and Analysis Center
Richard	Heinrich	Rockwell Collins, Inc.
Jens	Hennig	General Aviation Manufacturers Association
Robert	Hess	U.S. Army
Margaret	Jenny	RTCA, Inc.
Randy	Kenagy	Air Line Pilots Association
Joseph	Post	Federal Aviation Administration
Melissa	Rudinger	Aircraft Owners and Pilots Association
Jessie	Turner	The Boeing Company
Lou	Volchansky	Federal Aviation Administration (Designated Federal Officer)
Ed	Wright	U.S. Air Force

OTHER ATTENDEES:

Mats	Brenner	Honeywell International, Inc.
Andy	Cebula	RTCA, Inc.
John	Ferrara	John Ferrara Consulting
Eldridge	Frazier	Federal Aviation Administration
Charisse	Green	Federal Aviation Administration
Karan	Hofmann	RTCA, Inc.
Robert	Lee	Rockwell Collins, Inc.
Trin	Mitra	RTCA, Inc.
Rebecca	Morrison	RTCA, Inc.
Brent	Phillips	Federal Aviation Administration
Philippe	Pantin De Hugues	BEA
Aloke	Roy	Honeywell International, Inc.
Andy	Roy	ASRI
Stuart	Searight	Federal Aviation Administration
Al	Secen	RTCA, Inc.
Ronald	Stroup	Federal Aviation Administration

PMC ACTION ITEM TABLE

TRACKING NUMBER (Meeting Date and agenda item from which original action resulted)	ACTION	ACTION ASSIGNED TO	DUE DATE	STATUS
03/21/2017 Agenda Item 7B	03/21/2017 – Define process/procedure for availability of RTCA documents as reference for selected EUROCAE WG’s 06/22/2017 – Still being worked 09/21/2017 – Still being worked 12/19/2017 – Documentation of process being finalized 03/22/2018 – Still working final details	RTCA Al Secen	Jun 2018	Open
12/19/2017 Agenda Item 6A	12/19/2017 – RTCA review PMC Membership recommendations and provide feedback/implementation plan to PMC 03/22/2018 – Recommendations reviewed and acted upon.	Margaret Jenny, Al Secen, Karan Hofmann	Mar 2018	Closed
12/19/2017 Agenda Item 6G	12/19/2017 – Compile list of RTCA documents for ICAO reference 03/22/2018 – List presented	Rick Heinrich, Al Secen, Jens Hennig	Mar 2018	Closed
03/22/2018 Agenda Item 6C	03/22/2018 – RTCA & FAA work to suggest correct mapping and outline CM in coordination w/ICAO	Lou Volchansky, Chris Hegarty, Doug Arbuckle, Brent Phillips, Al Secen	Jun 2018	Open
03/22/2018 Agenda Item 7A	03/22/2018 – Ad Hoc to work SC-223 TOR	SC-223 & WG-108 Leads, Lou Volchansky, Jessie Turner, John Craig	Jun 2018	Open
03/22/2018 Agenda Item 7D	03/22/2018 – SC-147 TOR Revision	SC-147	Jun 2018	Open
03/22/2018 Agenda Item 7E	03/22/2018 – Generate TRA WP Cover Ltr & Forward to FAA	Margaret Jenny, Karan Hofmann	Jun 2018	Open
03/22/2018 Agenda Items 7F&7G	03/22/2018 – Make NEC and Interference Reports available for PMC members	Karan Hofmann	Jun 2018	Open
03/22/2018 Agenda Item 7K	03/22/2018 – Follow up on WG-98 tasking with EUROCAE	Rebecca Morrison	Jun 2018	Open
03/22/2018 Agenda Item 9E	03/22/2018 – Provide ALPA input on dissent for SC-228 TOR change	Randy Kenagy	Jun 2018	Open
03/22/2018 Agenda Item 9E	03/22/2018 – Provide recommendation exact wording to ALPA on scope limitation	Richard Heinrich	Jun 2018	Open
03/22/2018 Agenda Item 9I	03/22/2018 – Coordinate with WG-51 to work jointly with SC-186	Al Secen	Jun 2018	Open