STANDARDS OVERSIGHT COMMITTEE ACTS ON EMERGING TECHNOLOGIES IN ADS-B, UAS AND SATCOM

Washington, DC, March 26, 2020

RTCA’s Program Management Committee (PMC) approved seven guidance documents, reviewed work plans for the Special Committees (SC) and incorporated changes to various committee Terms of Reference (TOR) during the PMC spring meeting on March 26th. The TORs were amended to reflect work plan and leadership changes. In response to COVID-19 travel restrictions, the meeting was fully virtual.

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A MESSAGE FROM RTCA PRESIDENT AND CEO TERRY McVENES

Dear RTCA members, government/industry partners, and friends

On behalf of the RTCA community, thank you for your continued support of our organization, fellow associates, and our staff. Please know we extend our best wishes for your good health as we all deal with the COVID-19 health crisis. I am grateful to see so many of you exhibiting a strong and positive spirit during such a challenging time for our entire industry.

RTCA has transitioned to remote support of our special committees and office activities. We remain committed to staying connected to you and keeping the standards development activities progressing as best we can through these difficult times.

While this pandemic has created much uncertainty and new challenges for the entire world, I am confident that our industry will recover and be stronger than ever before. I encourage everyone to continue to press forward on the great work you are doing so that we don’t find ourselves further behind once this crisis has passed. Working virtually as we have the past few weeks is paving new ground for RTCA and our membership, as we continue to develop new standards with our broad industry base. This is an amazing testament to you and one that you should be proud of.

Please feel free to reach out to me at any time if there is something RTCA can do to back your individual efforts. In the meantime, stay healthy, stay safe, and I thank you for your friendship and support.

Terry McVenes, President and CEO
RTCA, Inc.
Specific committee actions included:

- Creation of a new committee, SC-240 - Topics on Software Advancement, to work jointly with EUROCAE WG-117. The joint committee will develop two documents: one for Low Risk Operations and one to clarify the use of COTS, Open Source and Service History in all software development processes for aviation. With an aggressive schedule to deliver both products in 2021, RTCA and EUROCAE stand ready to support the new committee, which will meet the first time in May.
- Reactivation of SC-227 to resume its work on Required Navigation Performance. The scope includes assuring global standards are consistent with other aviation technologies such as ADS-B and DME. SC-227 will also explore Digitally Derived Charting as a possible new technology for commercial aviation.
- Moving SC-235 – Non-Rechargeable Lithium Batteries – to Active Monitor Status in anticipation of future work. This will allow the committee to consider change requests on their latest publication, DO-227A, Minimum Operational Performance Standards (MOPS) for Non-Rechargeable Lithium Batteries, (published September 21, 2017) and meet in plenary to suggest to the PMC if additional work on the topic is required.

The Members of the PMC approved six revised standards and one new standard:

- **Revised Documents:**
  - DO-328B – Safety, Performance and Interoperability Requirements Documents for Airborne Space – Flight Deck Interval Management (ASPA-FIM) prepared by SC-186, Automatic Dependent Surveillance Broadcast (ADS-B). This document provides the minimum operational, Safety and Performance Requirements (SPR) and Interoperability Requirements (INTEROP) to implement Airborne Spacing (ASPA) - Flight Deck Interval Management (FIM) in support of an identified set of IM Operations. This document is a joint document published with EUROCAE.
  - DO-361A – MOPS for Flight-Deck Interval Management (FIM) prepared by SC-186, Automatic Dependent Surveillance Broadcast (ADS-B). This document contains the Minimum Operational Performance Standards (MOPS) for Flight-deck Interval Management (FIM). These requirements build on those described in the MOPS for the Aircraft Surveillance Applications (ASA) System, RTCA DO-317C / EUROCAE ED-194B, but are documented separately due to their length and complexity. This document is a joint document published with EUROCAE.
  - DO-210D Change 5 – MOPS for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMISS) Avionics) prepared by SC-222, Aeronautical Mobile Satellite (Route) Services AMS(R)S. This change note introduces requirements for blocking immunity from International Mobile Telecommunication (IMT) base stations in the bands 1492 to 1517 MHz and 1526 to 1536 MHz. This document is a joint document published with EUROCAE.
  - DO-262E – MOPS for Avionics Supporting Next Generation Satellite Systems (NGSS) prepared by SC-222, Aeronautical Mobile Satellite (Route) Services AMS(R)S. This document contains MOPS for avionics that provide Aeronautical Mobile Satellite (R) Services (AMS(R)S) by means of satellite communications technologies scheduled to become operational in context of the global and regional ATM and CNS modernization (e.g. ICAO/Global Air Navigation Plan, Europe/SESAR, US/NextGen). Each of these technologies is individually and collectively referred to as a “Next Generation Satellite System” (NGSS), and the NGSS nomenclature will be used throughout this document. This document does not apply to avionics that provide AMS(R)S in accordance with the Standards and Recommended Practices defined in ICAO
Annex 10, Part I, Volume III, Chapter 4 (Chapter 4 SARPS). Such equipment is specified in the current version of RTCA DO-210D.

• **DO-343C - MASP for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP)** prepared by SC-222, Aeronautical Mobile Satellite (Route) Services AMS(R)S. This document contains Minimum Aviation System Performance Standards (MASPS) for AMS(R)S that provide safety communications to aircraft in airspace where 1) procedural separation is applied or 2) ATS surveillance services are provided. The performance defined in this document is intended to provide (1) data communication services that comply to the RCP130/A1, RCP240/A1, RCP400/A1 or RCP400/A2 standards of Required Communications Performance (RCP) for two-way, bidirectional, Controller Pilot Data Link Communications (CPDLC) and to the RSP160/A1, RSP180/A1 or RSP400/A1 standards of Required Surveillance Performance (RSP) for one-way aircraft-to-Air Navigation Service Provider surveillance-related information, and (2) voice communication services that comply to the RCP400/V standard for two-way, bidirectional voice communications between pilots and controllers and to the RSP400/V standards for one-way voice communications between pilots and controllers. This document is a joint document published with EUROCAE.

• **DO-365A – MOPS for Detect and Avoid (DAA) Systems** prepared by SC-228, Minimum Performance Standards for Unmanned Aircraft Systems. This document contains MOPS for Detect and Avoid (DAA) systems used in aircraft transiting and performing extended operations in Class D, E, and G airspace along with transiting Class B and C airspace. It includes equipment to enable UAS operations near Terminal Areas during approach and departure in Class C, D, E, and G airspace, and offairport locations, but not operating in the visual traffic pattern or on the surface. It does not apply to small Unmanned Aircraft Systems (UAS) (under 55 pounds (lbs)) operating in lowlevel environments (below 400’) or other segmented areas.

**New Document:**

• **DO-381 – MOPS for Ground-based Surveillance System (GBSS) for Traffic Surveillance** prepared by SC-228, Minimum Performance Standards for Unmanned Aircraft Systems. This document contains MOPS for Ground Based Surveillance Systems (GBSS) used for air traffic surveillance in support of DAA operations for unmanned aircraft. The primary applications will be used in terminal, transit, or extended operational areas in the National Airspace System (NAS) as defined in RTCA Document 365A (DO365A), Minimum Operational Performance Standards for Detect and Avoid Systems.

Chaired by Dr. Chris Hegarty of The MITRE Corporation, the 19-member PMC is the RTCA oversight body charged with producing timely and robust standards and guidance documents to ensure interoperability of aviation systems and equipment. The standards encourage innovation and serve as the basis for meeting Federal Aviation Administration (FAA) regulations. An important responsibility of the PMC is ensuring the operational application of the technical standards.

As we all become accustomed to the new, virtual working environment as we practice social distancing, RTCA continues to assure the development of vital aviation standards. When we can resume taking to the skies regularly, RTCA supports all stakeholders improving commercial aviation.
JOIN RTCA
...HELP SHAPE THE SKIES OF TOMORROW

Member Benefits Include:

- Unlimited free electronic downloads on RTCA library of well over 350 documents and 60% discount on hard copies (certain restrictions may apply).
- Participation in Special Committees and advance notice of all new committees
- Recognition as an organization committed to the consensus technical recommendation process
- Advance information of new RTCA documents
- Access to RTCA staff experts that provide responses to questions about our published or evolving standards
- Discounts to attend and/or exhibit at the RTCA Annual Symposium as well as discounts to attend Forum events and RTCA training courses.
- Subscription to the RTCA Digest, keeping you informed about RTCA’s vast efforts to shape the future of CNS/ATM
- Member-only access to the RTCA Membership Directory Online, connecting you with your aviation colleagues within more than 500 + member organizations

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NAVIGATION EQUIPMENT USING THE GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)

SC-159 met at RTCA in mid-March. The group approved an updated version of DO-229E, *Minimum Operational Performance Standards (MOPS) for Global Positioning System/Satellite-Based Augmentation System Airborne Equipment* from WG-2 for Final Review and Comment (FRAC) release. They will hold a special Plenary in April for FRAC resolution and meet the June Program Management Committee (PMC) for approval and publication.

The group also approved DO-235B, *The L1 Interference Environment Report* for FRAC release from Working Group (WG) 6. FRAC Resolution will be completed at their Plenary session in October and expect presentation to the December 2020 PMC meeting for final approval and publication.

WG-2 also continues joint work with EUROCAE WG-62. WG-2C, WG-4, and WG-7 each met and reviewed contributions to their developing standards.

Details of the deliverables can be found in the Terms of References (TOR) on the RTCA SC-159 Special Committee page.

STANDARDS OF NAVIGATION PERFORMANCE

SC-227 met on February 26, 2020 in a virtual plenary. Since June 2019, SC-227 has been in Active Monitor Mode with the task of observing the work of EUROCAE Working Group (WG) 107 which has been developing standards for DME/DME functions.

During the meeting, the committee approved a Terms of Reference (TOR) update to submit to the Program Management Committee (PMC) which included updates to the current Minimum Aviation System Performance Standards (MASPS) (DO-236C Change 1) and Minimum Operational Performance Standards (MOPS) (DO-257A). Additionally, the committee will example the work to be done to develop standards for digitally derived charting. The group is expected to explore potential work with EUROCAE working groups and coordinate the work with RTCA SC-217/EUROCAE WG-44 which develops the standards for Aeronautical Databases.
SC-206 met for Plenary and sub-group sessions March 2-6 hosted by Honeywell, Prague, Czech Republic.


Sub-Group (SG) 6 continues work on revising DO-364, Minimum Aviation System Performance Standards (MASPS) for Aeronautical Information / Meteorological Data Link Services, as a joint document with EUROCAE Working Group (WG) 76 expecting publication in late 2021.

SC-206 members at Honeywell during their meeting in Prague, Czech Republic
RTCA has teamed with MANNARINO Systems & Software Inc. to offer four new technical seminars expanding the suite of training programs that RTCA provides for the aviation industry. The seminars will offer aviation industry participants proficient domain knowledge on topics relevant to current challenges in aircraft systems, software and electronic hardware development.

Management Seminar: DO-178B/C, DO-254 & SAE/ARP4754A
The training material provides a management-level overview of RTCA/DO-178B & C, RTCA/DO-254 & SAE/ARP4754A objectives and associated activities required as part of a certification program. It provides insight on the usual certification pitfalls, processes flaws, project cost, recommended practices and maintainability aspects of these programs. Created for aerospace industry management personnel, this seminar focuses on the most common challenges for development, verification and certification of safety critical equipment.

July 7

Integrated Modular Avionics (IMA) Development Guidance and Certification Considerations
This course provides the fundamentals for developing and integrating IMA systems, using DO-297 and applicable Advisory Circular material. It presents the definition, tasks and role of each party in the context of component integration, from the platform level to the application, system and aircraft perspective. It presents the approval aspects of the platform in isolation and in conjunction with multiple software applications. It discusses the use of ARINC 653 in IMA systems and as well the system aspects of SAE ARP 4754A in IMA Systems.

September 29

Guidance for Engineers: DO-178C DAL D Systems
This training provides a thorough review of the RTCA/DO-178C objectives necessary to achieve compliance for airborne software components assigned DAL D. This condensed version of DO-178C training will present what is needed for an organization to put together the minimum plans, processes and data required to demonstrate compliance to DAL D objectives. In-class workshops will consolidate the learning by providing practical examples of requirements capturing, hardware/software integration tests and problem reports.

July 8-9

*Unless otherwise noted, all training courses will take place at RTCA Headquarters, located conveniently in downtown Washington, DC. For additional information, please visit www.rtca.org or email training@rtca.org.
ENVIRONMENTAL TESTING

SC-135 met virtual on February 18, 2020 to complete their work on a new document, Ground Station Environmental Test. During the plenary, the group reviewed and dispositioned all comments received in Final Review and Comment (FRAC) on this document. The Committee approved the document to be sent for publication by the Program Management Committee (PMC) in June 2020.

The group also submitted a Terms of Reference (TOR) change asking for an extension to complete the work on DO-160G/ED-12G in 2024 and to add a revision to the new document to include a section on testing for Earthquake conditions.

STANDARDS FOR WIRELESS AVIONICS INTRA-COMMUNICATION SYSTEM (WAIC) WITHIN 4200-4400 MHZ

SC-236 met in joint Plenary with EUROCAE Working Group (WG) 96 in College Station, Texas hosted by AVIS. During the meeting, the group reviewed potential changes to include in a new revision of DO-378 Minimum Aviation System Performance Standards (MASPS) for Coexistence of Wireless Avionics Intra-Communication within 4200-4400 MHz. The revision was drafted in response to feedback received from the ICAO Frequency Spectrum Management Panel. The revision of DO-378 was approved to initiate Open Consultation/Final Review and Comment (OC/FRAC). The commenting period was completed on April 6, 2020.

The joint group also continued working on a new document to be the Minimum Operational Performance Standard (MOPS) to use WAIC in the 4200-4400 MHz band which is intended to define the requirements which will be used by the FAA and EASA in a new TSO/ETSO.
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• Ensure interoperability of equipment, systems and processes in the highly complex, safety-critical aviation enterprise
• Expedite innovations to market

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If you want to find out more about getting your electronics hardware certified for use on aircraft, then you should attend this comprehensive RTCA training course.

ARE YOU THINKING OF TAKING DO-254 TRAINING?

- Have you been assigned the task of preparing a PHAC without knowing what you are expected to include?
- Do you know if your project is for a simple or complex device and what it will mean to your plan for certification?
- Do you need to communicate why following DO-254 could help save your project time and money?
- Three days of instruction focused on the details of DO-254
- Registration discount for RTCA members
- Online registration on RTCA’s DO-254 Training site.

Next Class: September 22-24, 2020

Classes start at 8am and end at 5pm each day.

Questions? Contact training@rtca.org

RTCA | 1150 18th Street NW, Suite 475, Washington, DC 20036
AERONAUTICAL SYSTEMS SECURITY


COMMITTEE
SC-216, Aeronautical Systems Security
CHAIR
David Pierce, General Electric Aviation

NEXT MEETING
June 1-5, 2020, at RTCA (tentatively), Washington, DC

ARE YOU INTERESTED IN TAKING DO-178C TRAINING?

- Do you know how the Software Life Cycle at your organization relates to the Software Development Process that supports producing software which can approved?
- Is your System Process supporting your Software Development Cycle to ease implementation of the aspects of certification for software?
- Can you explain how what you do in your software process relates to a certification process?
- Three days of instruction focused on the details of DO-178C
- Registration discount for RTCA members
- Online registration on RTCA’s DO-178C Training site

Classes start at 8:00am and end at 5pm each day.
Questions? Contact training@rtca.org

Next Class: June 22-24, 2020
EARLY 2021

HUMAN FACTORS TRAINING COURSE

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RTCA WELCOMES NEW MEMBERS

AcceleratUM
Park City, Utah USA

AcceleratUM is an inclusive, privately funded collaborative that develops consensus solutions for the unmanned mobility industry by bringing together commercial end users, municipalities, emergency service providers, manufacturers, technology providers, researchers, user groups and regulators.

Kellogg Brown and Root Pty Ltd
Houston, TX USA

KBR partners with government and industry clients to provide purposeful and comprehensive solutions with an emphasis on efficiency and safety. With a full portfolio of services, proprietary technologies and expertise, their approximately 38,000 employees are ready to handle projects and missions throughout their entire lifecycle, from planning and design to sustainability and maintenance. Whether at the bottom of the ocean or in outer space, their clients trust them to deliver the impossible on a daily basis.

KEYILIK HAVACILIK A.S.
Istanbul, Turkey

This company provides a wide range of services such as aviation software systems, aircraft consultancy service, after sales support, various operations from business strategy plan to investment & fund. With its extensive knowledge, highly experienced and well-qualified team, Keyvan Aviation is ready to take its place in Turkish aviation industry.

Mobile Power Solutions
Beaverton, OR USA

Mobile Power Solutions (MPS) specializes in battery and electric double-layer capacitor safety and performance testing. This includes lithium and lithium-ion batteries, and most other primary and secondary batteries. Applications include aerospace, electric vehicle, medical, office, and consumer products. MPS electrical test capabilities span from microvolts and microamps up to 150 volts and 480 amps. MPS is a CBTL in partnership with Nemko and accredited by A2LA to ISO/IEC/EN 17025.

Gillespie Avionics Limited
Donegal, Ireland
Security Airworthiness Certification Training Course

OCTOBER 20-22, 2020

RTCA has teamed with Wichita State University’s National Institute for Aviation Research (WSU-NIAR) to offer another high quality training course covering the RTCA Security Suite: DO-326A, Airworthiness Security Process Specification; DO-355, Information Security Guidance for Continuing Airworthiness; and DO-356A, Airworthiness Security Methods and Considerations. This course describes what Airworthiness Security is and why it is important. It also explains which FAA Regulations, standards, etc. will require these documents and procedures as well as how to use these standards. The course will also cover what the standards are meant to prevent and how these standards and processes fit into the aviation system.

For additional questions email training@rtca.org
RTCA, Inc. has teamed up with The MITRE Aviation Institute to offer high quality and relevant training for the aviation industry in understanding the requirements and parameters for avionics software development necessary to obtain FAA certification.

The two world class organizations are using their collective experience and expertise to provide training on the new standards and recommended practices contained in the DO-178C, *Software Considerations in Airborne Systems and Equipment Certification*.

In addition to the comprehensive course manual developed by the experts at The MITRE Aviation Institute, each training course attendee will receive the latest standards developed over a six-year period by RTCA Special Committee 205.

The course is led by instructors who will provide a thorough understanding of the requirements and the applicability of DO-178C; the fundamental techniques of software development considerations in airborne systems and equipment certification; and an introduction and overview of Software Tool Qualification Considerations, Formal Methods Supplement to DO-178C, Model-Based Development and Verification Supplement to DO-178C, and Object Oriented Technology and Related Techniques Supplement to DO-178C.

As an adjunct to DO-178C, this course will provide the background and scope on the four documents supporting DO-178C:

- DO-330, *Software Tool Qualification Considerations*
- DO-331, Model-Based Development and Verification Supplement to DO-178C and DO-278A
- DO-332, Object-Oriented Technology and Related Techniques Supplement to DO-178C and DO-278A
- DO-333, *Formal Methods Supplement to DO-178C and DO-278A*

Attendees will receive detailed instruction on DO-331 covering the objectives, activities, explanatory text and software life cycle data that should be applied when model-based development and verification are used as part of the software life cycle.

In addition, the training will cover the systems requirements linkage to the DO-178C and Supplement processes through an explanation of the interface to ARP 4754A, *Guidelines for Development of Civil Aircraft and Systems*. 

*Unless otherwise noted, all training courses will take place at RTCA Headquarters, located conveniently in downtown Washington, DC. For additional information, please visit [www.rtca.org](http://www.rtca.org) or email [training@rtca.org](mailto:training@rtca.org).*
DO-254, DESIGN ASSURANCE GUIDANCE FOR AIRBORNE ELECTRONIC HARDWARE, TRAINING COURSE

September 22-24, 2020
December 8-10, 2020

RTCA is hosting a three-day training course, tailored specifically to design/verification engineers and project/certification managers requiring DO-254 compliance.

This three-day course will:

- Provide an overview and application of RTCA DO-254, as defined by current FAA and EASA guidance in airborne electronic systems.
- Describe how to apply the DO-254 lifecycle and supporting processes; understand system safety assessments and the design assurance level (DAL); and set up a project correctly through proper planning and standards.
- Present techniques and writing requirements for electronic hardware, and how to optimize requirements for verification processes.
- Describe how to efficiently and effectively verify requirements with simulation and hardware tests.
- Address specific considerations for programmable logic devices (PLDs) such as FPGA/ASIC versus all electronics; commercial off-the-shelf (COTS) components usage; and tool assessment and qualification.

DO-160G, ENVIRONMENTAL CONDITIONS AND TEST PROCEDURES FOR AIRBORNE EQUIPMENT, TRAINING COURSE

October 5-8, 2020 at WSU
December 14-17, 2020 at RTCA

RTCA, in partnership with Wichita State University’s National Institute for Aviation Research (WSU-NIAR), offers high quality training covering RTCA’s DO-160G, Environmental Conditions and Test Procedures for Airborne Equipment. The course will provide an understanding of the use of DO-160G and how it fits in with the greater picture of requirements, design, certification and TSOs.

Course participants will gain a clear and relevant understanding of the applicable FAA regulations, advisory material, certification procedures, design approaches/trade-offs, inspection and conformity requirements, as well as details of the necessary parts of a test plan, test report, compliance plan and compliance report. A strong focus is placed on the reduction of risk, cost and schedule throughout the design/certification process, by use of targeted design and increased first-pass success on design and testing. In addition to a comprehensive course manual, each training course attendee will receive a copy of RTCA’s DO-160G, supporting material, and will participate in real-world exercises applying the knowledge learned from the class.

*Unless otherwise noted, all training courses will take place at RTCA Headquarters, located conveniently in downtown Washington, DC. For additional information, please visit www.rtca.org or email training@rtca.org.
RTCA CALENDAR

April

April 7-9
SC-230, Airborne Weather Detection System
Hosted by RTCA, Inc.
Virtual

April 16
SC-224, Airport Security Access Control Systems
Hosted by RTCA, Inc.
Virtual

April 20-24
SC-228, Minimum Performance Standards for Unmanned Aircraft Systems
Hosted by RTCA, Inc.
Virtual

April 22-23
Hosted by RTCA, Inc.
Virtual

April 29-30
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
Hosted by RTCA, Inc.
Virtual

April 30
SC-230, Airborne Weather Detection Systems
Hosted by RTCA, Inc.
Virtual

May

May 12-14
SC-231, Terrain Awareness Warning System (TAWS)
Hosted by RTCA, Inc.
Virtual

May 26-28
SC-237, Helicopter Terrain Awareness Warning System (HTAWS)
Hosted by RTCA, Inc.
Virtual

June

June 1-5
SC-216, Aeronautical System Security
Hosted by RTCA, Inc.
Washington, DC

June 8-12
SC-206, Aeronautical Information and Meteorological Data Link Services
Hosted by United Airlines, Inc.
Denver, CO

June 11
Program Management Committee (PMC)
Hosted by RTCA, Inc.
Washington, DC

June 22-24
DO-178C Training
Hosted by RTCA, Inc.
Washington, DC

June 22-26
SC-223, Internet Protocol Suite (IPS) and AeroMACS
Hosted by RTCA, Inc.
Virtual

June 25
Supplements to DO-178C Training
Hosted by RTCA, Inc.
Washington, DC