RTCA DIGEST

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Contents

RTCA

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Operational Committee Approves Recommendations on NOTAMs, Caribbean Operations and GPS Adjacent Band Compatibility

The Tactical Operations Committee (TOC) approved the following three recommendations:

- The Notice to Airman (NOTAM) Improvement Panel provided feedback on the second phase of the FAA's implementation on the NOTAM Search website. This was the Panel's fifth recommendation designed to support the FAA's efforts to meet the objectives of the Pilot's Bill of Rights legislation, making NOTAMs easier to filter and sort.
- The Eastern Regional Task Group (ERTG) presented recommendations for a comprehensive approach to infrastructure and airspace priorities that improve safety and operational performance in the

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NAC Sets Sights on Measuring Benefits of NextGen

The RTCA NextGen Advisory Committee (NAC) met in June to consider recommendations on National Airspace System (NAS) performance metrics and resolutions to ADS-B equipage mandate issues. Led by Chairman Richard Anderson, CEO of Delta Air Lines, the Committee deliberated over reports developed by its working groups and agreed to send the recommendations to the FAA.

The NAC approved a recommendation to measure the effect on NAS performances attributable to the deployment of the capabilities in the four priority areas. This is an essential component in the FAA-industry partnership and both entities are committing resources to implement the following high level suite of metrics:

- Actual Block Time
- Actual Distance Flown
- Estimated Fuel Burn

} Measured by city pairs

- Throughput – Facility Reported Capacity Rates
- Taxi-Out Time
- Gate Departure Delay

} Measured at airports

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growing Caribbean region. This was the first recommendation of the ERTG and was a culmination of collaboration among the industry and many different offices in the FAA, including the Air Traffic International Office, the Eastern Service Center, NATCA personnel from impacted facilities, the Office of Tactical Operations for the Southeast Region, Oceanic and Offshore Standards and Procedures Office, the Office of International Affairs and Surveillance, and the Broadcast Systems Office.

- The GPS Adjacent Band Compatibility (ABC) Task Group presented an assessment of the safety and operational impact of Exclusion Zones, which were proposed in the October 2014 FAA GPS ABC Study. Exclusion Zones, conceptualized around towers transmitting on the GPS adjacent band, are areas of potentially unreliable GPS signal. Upon accepting the recommendation, the GPS ABC Task Group was sunset by the TOC.

Additionally, the TOC considered a fourth recommendation from the Class B Task Group regarding the designation, design and evaluation of Class B airspace. Committee members raised questions related to seasonal traffic volumes and sector specific levels which the Task Group will meet to discuss further, and subsequently report back to the TOC.

Alan Peljovich (Johnson, Mirmiran & Thomson), Program Manager for the BWI RSA, PMP and Standards Compliance Program, explains installation of new Navaids

TOC's Airport Construction Task Group visits the new deicing pad at BWI

The Committee also reviewed progress on two ongoing taskings:

- The Airport Construction Task Group reported on the current progress to identify gaps in the airport construction process. The Task Group expects to report on concepts for a clearinghouse of airport construction information and repeatable processes for collaboration on construction in future TOC meetings.
- The National Procedure Assessment (NPA) Task Group outlined its plans to evaluate the regulatory and non-regulatory paths, and plans and criteria for large-scale procedure cancellations.

Finally, the meeting included discussion on the subject of Time Based Flow Management (TBFM). The FAA acknowledged that TBFM has been an area of ongoing industry concern and interest, and is working with the industry to identify the appropriate collaborative mechanisms to address outstanding issues.

The TOC is led by Jim Bowman of FedEx Express and Dale Wright of the National Air Traffic Controllers Association, with Elizabeth "Lynn" Ray, Vice President Mission Support, Air Traffic Organization, Federal Aviation Administration (FAA), serving as the Designated Federal Official for the Committee. ■

Airborne Selective Calling Equipment

SC-232 met to update *DO-93, Minimum Performance Standards – Airborne Selective Calling Equipment*, which was first issued in 1959. This document is intended to be used to update Technical Standard Order TSO-C59 to certify aircraft that use air traffic voice Select Call (SELCAL) communications services.

The revised document will increase the 16-tone system to 32-tones, increasing the number of unique codes to over 215 thousand. The Committee is collecting results during the testing phase to ensure backward compatibility, inter-tone spacing, radio propagation effects, ground implementation and interoperability with existing equipment.

In parallel, American Consultants (AEEC) is developing Project Paper 714A for the update of SELCAL equipment and will cooperate with SC-232 to collocate meetings.

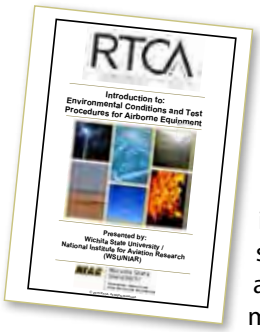
The draft document will be available for Final Review And Comment (FRAC) after the next meeting scheduled for November 10-11. The Committee expects document approval at the January 2016 meeting. ■

RTCA's Training Center - Serving the Industry with Quality Education

Launched in 2011, the RTCA Training Center is designed to assist the aviation community in implementing the standards developed by RTCA Committee volunteers and contained in RTCA documents. The goal of the training is to enhance the knowledge and skills of the government and industry workforce in understanding the requirements and parameters for hardware and software, along with the testing requirements that ensure safety and regulatory compliance.

Since the initial offering, we have added several new training courses in response to requests from the aviation community. Each training course includes relevant RTCA documents along with tailored training manuals and materials.

In 2011, RTCA teamed with The MITRE Aviation Institute to provide training on the new standards and recommended practices contained in DO-178C, *Software Considerations in Airborne Systems and Equipment Certification*, as the first course to be offered to the aviation community. Led by John Angermayer and Kent Hollinger, the purpose of this training course is to provide guidance to the developers of software for airborne systems and equipment, to assure that it performs the intended functions with a level of confidence in safety and compliance with air worthiness requirements.



While this course received high marks from its attendees, it became quickly obvious that the industry was seeking additional instruction on the techniques needed to comply with DO-178C. RTCA decided to partner with Mark Lillis, an industry veteran with 25 years of hardware and software experience in control system design and certification to create a one-day training opportunity, the Supplements to DO-178C Training course. This program provides the background and scope on the four documents supporting DO-178C, with detailed instruction on DO-331 that covers the objectives, activities, explanatory text and software life cycle data that should be used when model-based developments and verifications are used as part of the software life cycle.

In the Fall of 2014, RTCA formed a partnership with educators at Wichita State University's National Institute for Aviation Research

(WSU-NIAR) to offer high quality training covering DO-160G, *Environmental Conditions and Test Procedures for Airborne Equipment*. This course covers the requirements for minimum standard environmental test conditions and corresponding test procedures for airborne equipment defined by the 160G document. The course is taught by Ernie Condon, a Senior Research Engineer at WSU-NIAR; Billy Martin, a Senior Research Scientist at WSU-NIAR, and Kyle McMullen, a Senior Research Engineer at WSU-NIAR.

New this fall, RTCA will be offering another course, DO-254, *Design Assurance Guidance for Airborne Electronic Hardware* training. It is tailored specifically for design/verification engineers and project/certification managers requiring DO-254 compliance. The instruction will be conducted by Randall Fulton, an experienced FAA consultant, Designated Engineering Representative (DER) and author. The course will provide an overview and application of RTCA DO-254, as defined by current FAA and EASA guidance in airborne electronic systems.

As a non-profit organization, RTCA is eager to assist the aviation community with quality training — hundreds of attendees have been trained in the various courses thus far. We continually seek to refine the course offerings based on feedback from the attendees as well as request from member organizations.

We are grateful to the Committee volunteers who have invested their valuable time and expertise in developing industry performance and testing standards and want to ensure that this expertise is shared with the industry.

Andy Cebula is the VP of Strategy & Programs for RTCA. One of his main responsibilities is managing RTCA's Training Center. For more information about any of RTCA's Training Courses, email training@rtca.org.

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The Committee also approved the ADS-B Ad Hoc Task Group recommendation for ways to mitigate potential roadblocks to the January 2020 ADS-B implementation mandate. The recommendation, closely coordinated with the NextGen Institute Equip 2020 initiative, covers:

- Air Carriers – GPS accuracy requirements
- Business and General Aviation – Privacy capabilities, non-integrated avionics solutions, cost and certification, education and outreach
- Department of Defense (DOD) – Pathways to equipping, funding and fleet mixes
- Regional Air Carriers – GPS accuracy requirements, fleet plans, non-integrated avionics solutions
- Unmanned Aircraft Systems (UAS) – Unique certification requirements

Continuing the work that began last fall, the NAC was also briefed by the joint FAA-Industry NextGen Integration Working Group (NIWG) on ongoing collaborative efforts to implement the capabilities of the four priority areas of NextGen. The FAA has met 19 commitments (2 more than were planned) related to the deployment of DataComm, Improved Multiple Runway Operations (IMRO), Performance-Based Navigation (PBN) and Improved Surface Operations.

Going forward, it was agreed that the FAA would provide briefings on: (1) the status of ADS-B equipage, (2) benefits being accrued associated with ADS-B Out, (3) space-based ADS-B deployment and oceanic surveillance, and (4) the common weather picture.

FAA DFO Mike Whitaker and NAC Chair Richard Anderson

In a letter to Chief NextGen Officer and Deputy Administrator, Mike Whitaker, summarizing the meeting and characterizing the efforts of the NAC, Chairman Anderson stated that, "working together, the industry and the FAA are continuing to facilitate the delivery of air traffic services to the flying public that is leading to increased capacity, improved efficiency and safety, and reduced environmental impact."

For more information about the NAC, or the upcoming meeting in Memphis, TN, view the NAC Committee Page.

SC-229 406 MHz Emergency Locator Transmitters (ELTs) WG Session at NASA Langley

SC-229 Working Groups (WG) met at NASA Langley Research Center in Hampton, VA, to continue updating DO-204/ED-62A, *Minimum Operational Performance Standards for 406MHz Emergency Locator Transmitters (ELTs)*. While there, they were able to witness the crash test (www.nasa.gov/langley/second-crash-test-harvests-valuable-data-to-improve-emergency-response) carried out by NASA Langley's Landing and Impact Research Facility, supporting attempts to gather more data on ELT functions. This was the second crash test conducted; the first test was done in early July. These tests are done in coordination with NASA's Search and Rescue Mission Office at NASA's Goddard Space Flight Center in Greenbelt, Maryland. While the data of the crash test is still being analyzed, SC-229 WG-2 Chair, Chad Stimson of NASA, and Lisa Mazzuca, Search and Rescue Mission Manager also of NASA, agreed that the test carried out would provide them with data to increase the efficiency of ELTs.

Following the crash test, WG-2, 4 and 5 met and continued their work to develop updates to DO-204A/ED-62A, especially on the crash activation criteria. Topics discussed by WG-2 included crash and safety, vibration, as well as fire/flame. Led by Chris Hoffman of ACR Electronics, WG-4 held their first formal meeting and discussed many issues with hopes to narrow their focus before the next Plenary, to be held at RTCA, September 1-3. WG-5, chaired by Tom Pack of ACR Electronics, discussed the necessary steps forward in compiling the harmonized document. It was also agreed that the core team composition for the new document needs to include ELT manufacturers, airframe manufactures and individuals with aircraft installation certification/background.

SC-217 Discusses FRAC Resolutions and Revisions to DO-201A

The Aeronautical Databases Committee, Co-Chaired by John Kasten of Jeppesen and Stéphane Dubet of DGAC/SIA, met jointly with EUROCAE WG-44 to address the Final Review And Comment (FRAC) inputs received for DO-272C/ED-99C, *User Requirements for Aerodrome Mapping Information*, DO-276B/ED-98B, *User Requirements for Terrain and Obstacle Data* and DO-291B/ED-119B, *Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data*. The Committee reviewed and resolved all 770 comments received during the FRAC period and will submit all documents to the Program Management Committee (PMC) in September for approval.

During the closing Plenary, the group discussed how to keep DO-201A/ED-77, *Standards for Aeronautical Information,* compatible and updated with DO-236 (MASPS RNP), DO-283 (MOPS RNP) and ICAO documents. Three virtual meetings between RTCA and EUROCAE were held in May and June as "scoping exercises" on this need for updating the document. DO-201A/ED-77 gives a voice to the industry and targets those that have a stake in data quality requirements. The update to this document will correlate with the work of SC-206, SC-213, SC-214 and SC-227 and will focus on navigation data, while other data types will be addressed either in subsequent steps or specific appendices.

RTCA President Margaret Jenny presents Co-Chair John Kasten with a plaque for his service to SC-217

The next meeting will be considered a "kick-off meeting" to start working on the revision of DO-201A, with a date TBD.

Enhanced Flight Vision Systems & Synthetic Vision Systems

Led by Co-Chairs Patrick Krohn of Universal Avionics Systems Corporation and Tim Etherington of Rockwell Collins, Inc., SC-213 held its twenty-ninth Plenary at Boeing in Seattle, Washington, and was provided overviews of the progress of Working Group (WG)-1, WG-2, WG-3 and EUROCAE WG-79.

Committee during its recent meeting, hosted by The Boeing Company in Seattle, WA

Trent Prange, FAA, informed the group of the FAA's commitment to publish an Synthetic Vision Guidance Systems (SVGS) installation Advisory Circular (AC). The public comment period for the draft AC is targeted to begin at the end of August. The AC intends to only address SVGS installation options that support the SA CAT I ILS, as described in FAA Technical Standard Order 8400.13D. Flight Standards Service (AFS) is not currently proposing changing the requirement for CAT II Aircraft, CAT II Trained Crews, or CAT II Aircraft Maintenance. SVGS in the SA CAT I operation will only replace the need for a HUD; LPV approaches will not be included.

Tim Etherington provided an overview and update of results on the NASA 300ft RVR experiment results and presented video highlights for sensor and display failure examples.

Additional presentations and activities during the meeting included:

- Dassault Aviation gave a presentation on the latest aircraft and displays
- The FAA presented updated plans for CAT II/III criteria for AC 120-xLS
- The Boeing Company provided simulator demonstrations

The next meeting will be hosted by NASA LaRC, and is scheduled for October 20-22 in Norfolk, Virginia.

Standards for Air Traffic Data Communications Services

SC-214, hosted by DFS, met jointly with EUROCAE WG-78 in Berlin, Germany, and continued working on the data link requirement for three new ATM concepts – Dynamic RNP (D-RNP), Advanced Interval Management (A-IM) and ATC Winds.

SC-214 and WG-78 at Deutsche Flugsicherung GmbH DFS

Led by Co-Chairs Jérôme Condis of Airbus and Chuck Stewart of United Airlines, Inc., the Committee reviewed and assessed the comments received on the draft version of Baseline 2 (B2) Standard Initial release (SPR and INTEROPs) Revision A.

The main actions and agreements on the SPR and INTEROPS draft documents concerned:

- Simplification of the way RNP values are provided into the Dynamic RNP Clearance and ADS-C RNP Profile
- Provision of the EPP (Extended Projected Profile) Change Event report type in EPP Report
- Traceability between High Level Operation Requirements from ICAO documents and ATS functions supported by B2 Datalink
- Coordination with ICAO OPDLWG on Message set
- The Operational Safety and Performance Assessment Section (OSA/OPA), especially a position paper presented by EUROCONTROL on the ADS-C OSA

SC-186/WG-51 presented an overview of the A-IM message development material and Pair-Wise Trajectory Management (PTM) CPDLC messages. The Committee will include both A-IM and PTM materials in the B2 SPR/INTEROPs documents.

The position paper prepared by Boeing and Airbus regarding the ARINC 702 format as a relevant alternative for ground is still under assessment by the FAA and SC-186, with a response to allow integration of ATC wind material.

Committee release of Revision A for a Final Review And Comment (FRAC) period is expected at the August 31-September 3 Plenary meeting at RTCA, and Committee approval for finalizing Revision A of B2 standards is still scheduled for the Committee's December 2015 meeting. ■

Committee members enjoying dinner together in Germany

Standards of Navigation Performance

SC-227 met to finalize the revision to DO-283A, *Minimum Operational Performance Standards for Required Navigation Performance for Area Navigation,* for Final Review And Comment (FRAC). The document was released for FRAC on July 22 and all comments are required by August 21. If you are interested in commenting on the document please contact SC-227 Program Director Sophie Bousquet.

The Committee also reviewed the plan for the update to DO-257A, *MOPS for the Depiction of Navigational Information on Electronic Maps*. Discussions, including a review of the Terms of Reference, identification of issues, change candidates, priorities and task assignments, will take place during the December meeting. If you are interested in participating, please contact Sophie Bousquet.

The next meeting is scheduled for September 14-18 at RTCA. ■

SC-227 members considering comments on draft MOPS

NEW

DO-254, *Design Assurance Guidance for Airborne Electronic Hardware* Training Course

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

Conducted by Randall Fulton, an experienced consultant, FAA Designated Engineering Representative (DER) and author, this two-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.

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September 24-25, 2015

The training course 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.

Spotlight on Volunteers: A Perfect Storm of Engineering Talent and Collaboration

Jeff Finley
Rockwell Collins, Inc.

Dawn Gidner
Honeywell International, Inc.

In the past two decades, advancements in weather detection systems, turbulence detection and forward-looking wind shear capability have been astronomical. This made the task of creating an updated set of Minimal Operational Performance Standards (MOPS) an equally astronomical undertaking. Tackling this monumental task is SC-230, Airborne Weather Detection Systems, led by Jeff Finley of Rockwell Collins and Dawn Gidner of Honeywell International.

…while new technology updates have been complex and daunting, Jeff and Dawn have proven equal to the task and have formed an effective working partnership.

Since its inception in December 2013, SC-230 has revisited two 20-year old documents: DO-220, *Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar with Forward-Looking Windshear Capability*, and DO-213, *Minimum Operational Performance Standards for Nose-Mounted Radomes*. Considering the MOPS' haven't been updated since the mid-1990s and manufacturers have constantly developed new functions and features, Dawn laughs and says, "Because some of the test equipment specified in the previous MOPS is so outdated, you may only be able to find it by visiting the Smithsonian."

But while new technology updates have been complex and daunting, Jeff and Dawn have proven equal to the task and have formed an effective working partnership. "Jeff and I work really well together," said Dawn. "Our strengths really complement each other's." "Dawn is a wonderful Co-Chair," said Jeff. "She's a very fine engineer and she's been greatly effective in the Co-Chair format. When either of us is completely consumed with tasks at work, the other takes ownership, and we divide up the work based on interests, desires and times available."

And both hail RTCA as an invaluable part of the process for developing standards, specifically for the helpful assistance of SC-230 Program Director Sophie Bousquet. "RTCA has been great," said Jeff. "They provide a very good organizational structure that provides committees with meeting facilities and electronic formats. It all goes back to the people who work at RTCA. They have been very helpful in providing the framework and ease to update standards."

"We greatly appreciate the work of SC-230," said RTCA President Margaret Jenny. "It's impressive to see great competitors engaging in even greater collaboration. We're so pleased to see these much-needed updates brought together in this format."

Jeff brings thirty years of engineering experience to the Committee, an interest that began with a humorous story from childhood. At age thirteen, Jeff tricked his brother into holding wires he had hooked up to a high voltage power supply, much like an electric fence. "That piqued my interest in all things electrical," Jeff laughed.

Dawn's path to engineering was more unusual, considering she initially earned a bachelor's degree in Animal Production from Penn State. While she had always been interested in engineering, Dawn was discouraged by a high school trigonometry teacher who convinced her math was not her forte. So, after graduation, Dawn moved to Texas and threw herself into innumogenetics research at the University of Texas Health Science Center. She also established a successful business, training horses and teaching riding lessons. Days spent in the blazing sun convinced Dawn to head to an air-conditioned classroom to revisit her engineering passion.

Dawn began taking programming courses and started studying basic level embedded programming for flight simulators. Dawn then moved to Seattle and earned an MSEE degree at the University of Washington. She began her career at Honeywell International as an intern in 2001. Currently, Dawn is a radar systems engineer at Honeywell's Redmond, WA facility. "As a TSO Specialist and ODA Unit Member, I support many certification activities for radar as well as for some of the other navigation and surveillance products developed in Redmond. As the FCC Focal for Honeywell Avionics, I assist product groups in navigating the requirements for FCC equipment authorization. I am also active in the Honeywell Engineering and Technology Council for Diversity and Inclusion."

All of this varied experience has made for a great collaboration on SC-230. The Committee will finalize the new MOPS by the end of September and will submit their recommendations to the Program Management Committee for approval in 2016.

Dawn predicts the need for future updates will continue to come quickly as technology advances, citing emerging technology that more precisely indicates wind shear events and turbulence. "In the future," she says, "there promises to be advancements no one has yet thought of."

Airborne Weather Detection Systems

SC-230 continues to update DO-220, *Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar with Forward-Looking Windshear Capability*, and DO-213, *Minimum Operational Performance Standards for Nose-Mounted Radomes.* Revisions to DO-220 will accommodate current radar technology, add turbulence detection performance standards, correct errata and inadequate requirements, and will consider specifications of new radar functions and features. Revisions to DO-213 will update and clarify the document in light of current technology and industry practices. Revisions to both documents are expected to be completed by December 2015.

Led by Co-Chairs Jeff Finley of Rockwell Collins and Dawn Gidner of Honeywell International, the Committee reviewed findings from draft documents. The DO-220 document was compiled from the inputs of seven Working Groups: General Requirements, Predictive Wind Shear Requirements, Turbulence Requirements, Test Procedures, Installed Performance, Operational Characteristics, and Threat Detection Performance/Human Machine Interface.

During the meeting, the group discussed future EUROCAE WG-95 activities "*In flight ice detection systems"* and the potential coordination with the Committee. WG-95 will develop standards for Ice Crystals Long Range Awareness technologies that are intended to be used on commercial aircraft to alert the flight crew in these particular conditions. SC-230 will revise their Terms of Reference (TOR) to align with WG-95's TOR, and will submit the revisions to the PMC for approval in September.

The next meeting is scheduled for September 29 – October 1 as a WebEx for 3 hours each day. View the Committee page for additional information.

PMC Approves Documents for Aeronautical Data and Airport Security Access

Under the leadership of Chris Hegarty of The MITRE Corporation, the Program Management Committee (PMC) met and approved changes to two existing documents, Terms of Reference (TOR) revisions for three Special Committees, and the formation of a new Special Committee.
Key areas and issues discussed:

- **Revised Documents—**DO-200A, *Standard for Processing Aeronautical Data*, prepared by SC-217; and DO-230D, *Standard for Airport Security Access Control Systems,* prepared by SC-224.
- **SC-159, Global Positioning System—**The PMC approved a revised TOR for MOPS deliverables and adjusted dates based on the current schedule for deployment of L5-capable satellites deliverables.
- **SC-214, Standards for Air Traffic Data Communication Services—**The PMC approved a revised TOR for changes to the Committee's deliverable references and revisions to VDL2 MASPS/MOPS Plan.
- **SC-224, Standards for Airport Security Access Control Systems—**The PMC approved a revised TOR for a new FAA Designated Federal Official.
- **SC-235, MOPS for Non-Rechargeable Lithium Batteries —**The PMC gave approval of an initial TOR to revise DO-227, *Minimum Operational Performance Standard for Lithium Batteries*.

The next PMC meeting is scheduled for September 22. For more information about the upcoming meeting, visit the PMC page.

PMC Members deliberating Committee documents

Terrain Awareness Warning Systems

SC-231 continued the development of the Minimum Operational Performance Standards (MOPS) for Terrain Awareness Warning Systems (TAWS). The Committee is adapting the current TAWS MOPS from FAA TSO C151c, *Terrain Awareness and Warning Systems,* and RTCA DO-161A, *Minimum Performance Standards – Airborne Ground Proximity Warning Equipment*, and updating them based on current technology and experiences.

Led by Yasuo Ishihara of Honeywell International and Rick Ridenour of ACSS, the Committee focused on defining the minimum and maximum Ground Proximity Warning Systems (GPWS) mode envelopes that accommodate the participating manufacturers' existing systems with TSO deviations. This approach allows the Committee to identify areas in the existing envelopes, defined in DO-161A, that are not compatible with real-world operations.

The Committee is studying already certified TAWS envelopes used by participating manufacturers in order to define the minimum and maximum envelopes for each mode and function that works for all existing certified TAWS. In order to protect manufacturers' proprietary information, each manufacturer submits the envelope data to the FAA, and the FAA in turn, only presents the minimum and maximum envelopes.

The next meeting is scheduled for September 22-24 at RTCA.

RTCA New Documents

Aeronautical Data

DO-200B, *Standards for Processing Aeronautical Data*

ISSUED 06-18-15 | PREPARED BY SC-217

This standard provides the minimum requirements and guidance for the processing of aeronautical data that are used for navigation, flight planning, terrain/obstacle awareness, flight deck displays, flight simulators and other applications. It specifies requirements to develop, assess change, and support implementation of data quality management. DO-200B supports ATM modernization programs such as NextGen and SESAR, including the capabilities and flexibilities provided by Performance Based Navigation (PBN). Several other NextGen and SESAR collaborative capabilities implement shared responsibilities between both ground and aircraft operations. System Wide Information Management (SWIM) enables the provision of data and information supporting these concepts of future enhancements. This standard addresses aeronautical databases as well as the associated data processing. These databases may be utilized by airborne and ground-based aviation products. When applied by each organization in the aeronautical data chain, the standard will provide assurance that the level of data quality is established and maintained.

Security

DO-230E, *Standards for Airport Security Access Control Systems*

ISSUED 06-18-15 | PREPARED BY SC-224

This document provides guidance on acquiring and designing security access control systems, testing and evaluating system performance, and operational requirements. It incorporates the latest technological advances in security access control systems and identity management technologies, including smart cards and biometrics. The major areas covered are:

- Introduction and Overview
- Credentialing
- Biometrics
- Physical Access Control Systems (PACS)
- Perimeter Intrusion Detection Systems (PIDS)
- Video Surveillance Systems
- Security Operations Center (SOC)
- Integration
- Communications Infrastructure
- General Acquisition-Related Considerations

For this revision, changes were made to indicate the current best practices and system requirements to meet the current regulatory requirements and also provide guidance for those airport operators who wish to go beyond these requirements. SC-224 received input from the TSA and this resulted in several forward-looking statements and inputs from the *TSA Recommended Security Guidelines for Airport Planning, Design and Construction* (May 2011). It should be noted that TSA guidelines that cover passenger screening areas and checkpoint security are areas outside the scope of this document. Section inputs from airport operators and vendors relied on are actual experiences and operational issues faced.

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TRAINING CENTER

2015 COURSE CALENDAR*

DO-160G, *Environmental Conditions and Test Procedures for Airborne Equipment,* Training Course

September 21-24 | December 14-17

RTCA has teamed up with Wichita State University's National Institute for Aviation Research (WSU-NIAR) to offer 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.**

DO-178C, *Software Considerations in Airborne Systems and Equipment Certification,* Training Course

September 21-23 | December 1-3

RTCA 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 new 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 will provide a thorough understanding of the requirements and 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*.

The Supplements to DO-178C, *Software Considerations in Airborne Systems and Equipment Certification,* Training Course

September 24 | December 4

The 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-278*A
- 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.

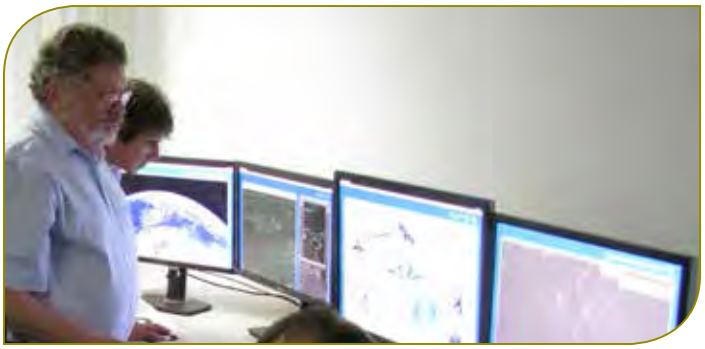
LIMITED SPACE: REGISTER TODAY!

***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.**

Automatic Dependent Surveillance - Broadcast (ADS-B) Committee Approves New Flight-desk Interval Management (FIM) Document and Reviews Future Work Plans

SC-186 met jointly with EUROCAE WG-51 and approved DO-328A/ED-195A, *Safety, Performance, and Interoperability Requirements Document for Airborne Spacing – Flight Deck Interval Management (ASPA-FIM)* and new *MOPS for Flight-deck Interval Management (FIM)*. The document will be presented during the September Program Management Committee meeting for approval. Hosted by the University of Salzburg, the Committee members were given the opportunity to visit the University's Aviation Competence Center, a student "human-in-the-loop" ATM/ATC/CNS research facility.

Committee Members take a break from work in the shadow of Festung Hohensalzburg



Committee members viewing presentation at the Aviation Competence Center

Doug Arbuckle, FAA, presented the Surveillance Broadcast Services (SBS) Program status and included statistics on ADS-B integration into all automation platforms, broken out by en route, terminal, surface and oceanic domains. Current efforts include installing ground stations in Mexico to give controllers surveillance as aircraft transitions into US airspace, and providing complete high-altitude coverage throughout the Gulf of Mexico. Future updates were discussed and are expected by the end of 2015 to provide an explanation of how Interval Management and Time of Arrival (TOA) will fit together, who will use it and how it will be used.

Jörg Steinleitner, Eurocontrol, provided a brief overview of current EUROCAE activities. Current focus outside of the joint work with SC-186 includes Technical Specifications for 1090 MHz ES ground systems, and for Wide Area Multilateration. Other activities include the commencement of development of a specification for independent non-cooperative surveillance systems, and a Generic Surveillance (GEN-SUR) SPR standard. It remains an open question if the Advanced Interval Management (A-IM) MOPS will be developed jointly between RTCA and EUROCAE.

The next meeting is scheduled for October 30.

Airport Security Access Control Systems

SC-224 met to initiate work on the Credentialing Section of the recently issued DO-230E, *Standards for Airport Security Access Control System*. Rapid advances in technology, trends and policy changes require an update of this Section. Revisions will address technical criteria and other issues identified by comments received to date to provide a balance between too much and too little information, and what must be avoided in the document. There was some discomfort expressed on the level of detail in the document, and as a result, a revised Section draft will be available prior to the next meeting.

The Committee discussed the significant number of parallel efforts underway to produce overlapping documents and will coordinate with other committees to help ensure consistent guidance across activities.

The next meeting is set for September 17 at RTCA.

SC-224 members (left to right) Ed Ebright, Art Kosatka, Joe Hebert and Jonathan Branker

RTCA New Members

Advantage Consulting & Engineering Services (ACES) Corporation
Baltimore, Maryland USA
Martin Jeriko San Juan

Advantage Consulting & Engineering Services Corporation is a systems integration and engineering firm serving government and commercial businesses since 2005 in the DC metropolitan area.

Since its inception, they have been able to provide services in the areas of spectrum engineering, RFI Analysis, frequency allocation, frequency licensing, international and domestic spectrum planning, as well as training courses in radiation hazards and radio frequency interference.

Civil Aviation Authority of Israel
Airport City, ISRAEL
Maya Feldman

The Civil Aviation Authority is the national aviation authority of Israel. It is a statutory authority which regulates aviation in the country. The former Civil Aviation Administration, which was a department in the Ministry of Transport, was converted into the present authority on May 13, 2005, following the guidelines set forth in the Civil Aviation Authority Law of 2005.

Its functions include regulating civil aviation according to laws, regulations, and international conventions Israel is party to, as well as advancing and promoting certain objectives such as: ensuring the utmost level of flight safety and an appropriate level of service from aviation providers, maintaining a safety net for Israeli air carriers, environmental compliance, and the implementation of government policies relating to civil aviation.

Civil Aviation Authority of Uganda
Kampala, Entebbe UGANDA
Marion Tibenderana

The Civil Aviation Authority of Uganda advises government on policy matters concerning civil aviation and on matters regarding international conventions relating to civil aviation and the adoption of measures necessary to give effect to the standards and recommended practices of the international air transport system.

GPSat Systems Australia Pty Ltd.
Macleod, Victoria AUSTRALIA
Joey Fleming

The mission of GPSat Systems Australia Pty Ltd., since 1993, has been to deliver world class products and technical services, assisting regional companies with the introduction of global positioning to their business environment, to return substantial productivity and efficiency improvements, as well as to deliver premium ongoing support as the technology changes and the Global Navigation Satellite Systems (GNSS) industry evolves.

The vision is to grow the regional technology leadership through ongoing associations with the premium global suppliers of GNSS products (NovAtel, Spirent and GPS Networking), supported by a strong team of professional engineers and research scientists.

Mooney International
Chino, California USA
Anthony Parker

Mooney International designs and manufactures single-piston engine aircraft that hold more than 130 world speed and altitude records. Since 1953, Mooney has been manufacturing the famous M20 aircraft with 15 different models and more than 11,000 aircraft delivered worldwide.

Located in Kerrville, TX, Chino, CA, and Beijing, China, Mooney International boasts elite engineering design and manufacturing capabilities that focus on delivering safe, fast, and luxurious aircraft for pilots internationally.

Nova Engineering Services Pte Ltd.
Singapore, SINGAPORE
Dale Marshall

Nova Engineering Services Pte Ltd. is the Singapore design centre of GVH Aerospace, an EASA Part 21J Design Organisation, providing design solutions for airlines, special mission and aeromedical operators, and with design centres in the United Kingdom, Singapore and Australia. Nova Engineering Services Pte Ltd. started in February 2015, and provides immediate support to GVH Aerospace's Asian customers and to other global design centres. GVH Aerospace provides cabin interior designs, avionics upgrades, supply of installation and interior kit parts, and has a complement of aeromedical products for a complete air ambulance fit-out.

NOAA Environmental Satellite and Information Service (NESDIS), SARSAT Program
Silver Spring, Maryland USA
Christopher O'Connors

NOAA Environmental Satellite and Information Service, SARSAT is an international, humanitarian search and rescue system that uses satellites to detect and locate emergency beacons carried by ships, aircraft or individuals. The system consists of a network of satellites, ground stations, mission control centers, and rescue coordination centers.

The Sarsat system provides a tremendous resource for protecting the lives of aviators and mariners that was unthinkable prior to the Space-Age. With a 406 MHz beacon, a distress message can be sent to the appropriate authorities from anywhere on Earth, 24 hours a day, 365 days a year.

Rockwell Collins CETC Avionics Co., Ltd. (RCCAC)
Chengdu, Sichuan CHINA
Zhenlin Liao

RCCAC is a joint venture by CETCA and Rockwell Collins. The RCCAC is established to supply and support Communication/Navigation solutions toward the C919 aircraft program. By introducing Rockwell Collins' advanced avionics technology into the People's Republic of China, RCCAC will boost the development and prosperity of the commercial aviation sector of the country.

Sogilis
Grenoble, FRANCE
Valentin Brossard

For several years, Sogilis has developed critical embedded software fulfilling DO-178B/C standards, for both aircraft and drones. They specialize in software engineering, safety/critical embedded software, web development, software development, programming, consulting, training, web application, application native, ergonomics and medical software.

Triumph Group, Inc.
West Hartford, Connecticut USA
Mark Lillis

Triumph Group, Inc., is a global leader in manufacturing and overhauling aerospace structures, systems and components. Operating in 70 locations worldwide, Triumph designs, engineers, manufactures, repairs and overhauls a broad portfolio of aerostructures, aircraft components, accessories, subassemblies and systems.

Triumph consists of 47 highly specialized manufacturing companies, organized into three groups: Aerostructures, Aerospace Systems, and Aftermarket Services.

Their operations touch virtually all major players of all current and future aviation platforms. Triumph serves a broad, worldwide spectrum of the industry, including Original Equipment Manufacturers (OEMs) of commercial, regional, business and military aircraft and aircraft components, as well as commercial and regional airlines and air cargo carriers.

Triumph participates at all levels of the aerospace supply chain, from single components to complex aerostructures and their contents. ■

Wake Vortex Tiger Team

At the June Program Management Committee (PMC), it was decided to bring the Wake Vortex Tiger Team (WVTT) White Paper, *Suggested Standards Development Activities to Move Forward with Aircraft-Derived Data for Wake Vortex, Air Traffic Management, and Meteorological Applications*, into the Federal Advisory Committee Act (FACA) process, to be presented as a formal recommendation to the FAA. To do this, the Tiger Team completed a Final Review And Comment (FRAC) process and held a Plenary meeting at the end of July to address and resolve comments.

Led by Rocky Stone of United Airlines, the main objective for the WVTT has been to suggest ways to downlink weather information from aircraft in "near real-time". The White Paper suggests limited meteorological information be added into ADS-B transmissions. These transmissions are done in real-time, with the aircraft position integral to the weather information being reported. Therefore, there is economy in consolidating the position and weather information onto one data link.

Leaders of the Wake Vortex Tiger Team at RTCA Headquarters

The White Paper will be submitted to the PMC in September for approval and publication. ■

Calendar of Events

AUGUST 2015 – DECEMBER 2015

August 31 -September 3
SC-214, Standards for Air Traffic Data Communication Services
Washington, DC | *Hosted by RTCA*

September 1-3
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
Washington, DC | *Hosted by RTCA*

September 14-18
SC-206, Aeronautical Information Services Data Link
Chicago, IL | *Hosted by United Airlines*

September 14-18
SC-227, Standards of Navigation Performance
Washington, DC | *Hosted by RTCA*

September 17
SC-224, Airport Security Access Control Systems
Washington, DC | *Hosted by RTCA*

September 21-24
DO-160G Training
Washington, DC | *Hosted by RTCA*

September 21-23
DO-178C Training
Washington, DC | *Hosted by RTCA*

September 22
PMC, Program Management Committee
Washington, DC | *Hosted by RTCA*

September 22-24
SC-147, Traffic Alert & Collision Avoidance System
Brussels, Belgium | *Hosted by Eurocontrol*

September 22-24
SC-231, TAWS
Washington, DC | *Hosted by RTCA*

September 24
Supplements to DO-178C Training
Washington, DC | *Hosted by RTCA*

September 24-25
DO-254 Training
Washington, DC | *Hosted by RTCA*

September 29-October 1
SC-230, Airborne Weather Detection Systems
Washington, DC | *Hosted by RTCA*

October 7-9
SC-234, Portable Electronic Devices
Cologne, Germany | *Hosted by EASA*

October 19-23
SC-159, Global Positioning System
Washington, DC | *Hosted by RTCA*

October 20-22
SC-213, Enhanced Flight Vision Systems & Synthetic Vision Systems
Norfolk, VA | *Hosted by NASA LaRC*

October 21-22
SC-235, Non-Rechargeable Lithium Batteries
Washington, DC | *Hosted by RTCA*

October 27-29
SC-135, Environmental Testing
Washington, DC | *Hosted by RTCA*

October 30
SC-186, Automatic Dependent Surveillance-Broadcast
Washington, DC | *Hosted by RTCA*

November 10-11
SC-232, Airborne Selective Calling Equipment
Washington, DC | *Hosted by RTCA*

November 16-20
SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems
Mountain View, CA | *Hosted by NASA Ames*

December 1-3
DO-178C Training
Washington, DC | *Hosted by RTCA*

December 4
Supplements to DO-178C Training
Washington, DC | *Hosted by RTCA*

December 14-17
DO-160G Training
Washington, DC | *Hosted by RTCA*

Upcoming Events

NAC, NextGen Advisory Committee
October 8, 2015
Memphis, TN | *Hosted by FedEx Express*

TOC, Tactical Operations Committee
November 12, 2015
Washington, DC | *Hosted by RTCA*

Visit www.rtca.org for up-to-date information

Unless otherwise specified, all meetings are held at RTCA, 1150 18th St., NW, Suite 910, Washington, DC, 20036. The information in this calendar is deemed to be reliable as of the date of publication, but is not guaranteed and is subject to change. Please visit www.rtca.org for updates. All RTCA Federal advisory committee meetings are open to the public and are free of charge. For additional information, email RTCA at info@rtca.org.

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