RTCA DIGEST

Contents

RTCA Symposium: Showcasing Many Perspectives with a Single Purpose

The RTCA 2015 Global Aviation Symposium is only two months away. Top aviation leaders and experts from around the world will be attending this premier event happening at the National Press Club in Washington, D.C., June 3-4.

The Symposium covers thought-provoking sessions as well as the annual Awards Luncheon, celebrating the achievements of RTCA volunteers and their contributions to the consensus process.

The Symposium includes the following featured speakers:

- The Honorable Michael Huerta, Administrator, FAA
- Christopher A. Hart, Chairman, NTSB
- Richard Anderson, Chair, NextGen Advisory Committee and CEO, Delta Air Lines, Inc.

Don't miss this opportunity to examine current and emerging issues and interact with colleagues from the aviation community, including the airlines, automation providers, manufacturers, service providers, the international community, general aviation and the FAA.

FAA Administrator to Open RTCA Symposium

The Honorable Michael Huerta, FAA Administrator, will keynote the start of the RTCA 2015 Global Aviation Symposium, providing a perspective about the successes, challenges and future of aviation. ■

Committee Targets Metrics to Highlight Benefits

Continuing its long track record of working in close collaboration with the FAA to address tough NextGen issues, the NextGen Advisory Committee (NAC) met and agreed to establish an ad hoc group to recommend performance metrics to measure the benefits of implementing operational capabilities in four focus areas recommended by the joint RTCA-FAA NextGen Integration Working Group. In opening remarks, NAC Chair Richard Anderson, CEO, Delta Air Lines, acknowledged that, "The NAC has established itself as the premier venue for the

RTCA's Symposium will feature the following sessions with opportunities for Q&A and audience participation:

- Prioritize, Plan, Implement, Repeat: How the FAA & the NextGen Implementation Working Group (NIWG) are institutionalizing a repeatable process for NextGen
- NextGen: Safety Matters
- The Case for a Consolidated NOTAMs System/Air Traffic Management (CNS/ATM) Modernization
- Challenges of Protecting Spectrum
- Performance-Based Navigation
- Unmanned Aircraft Systems (UAS): Detect & Avoid, Command & Control
- DataComm
- What You Need to Know about Air Transportation System Modernization
- Automatic Dependent Surveillance - Broadcast (ADS-B): Preparing for Jan 2020 Mandate & Beyond
- An Evolving National Airspace System (NAS): Implementation Challenges and Implications on Operations Today
- ATM Modernization: Implementing the ICAO Aviation System Block Upgrades
- Emerging Technologies: Automation, Cyber Security & Human Factors
- NextGen Advisory Committee (NAC): How the FAA & NAC are collaborating to facilitate the successful implementation of NextGen

For more information, visit the Symposium page. Be sure to take advantage of the Early Bird Rate and register by April 15! ◼

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collaborative efforts between the industry and the FAA on recommendations related to implementing NextGen; we must leverage this venue to achieve real and measurable results."

The NAC Subcommittee will take on the task to identify a high-level suite of metrics that will show the effect on NAS performance attributable to the deployment of DataComm, Improved Multiple Runway Operations (IMRO), Performance-Based Navigation (PBN) and Improved Surface Operations. The NAC will consider these metrics at the June meeting.

In a joint briefing, FAA and Delta Air Lines representatives presented a real-world example of tangible and significant benefits of near-term NextGen capabilities deployed in Atlanta related to runway wake recategorization (wake ReCat). It was noted that six more arrivals and departures an hour is offering a huge benefit and adding capacity, improving the passenger experience by reducing missed connections and missed connecting bags.

During the FAA report, Mike Whitaker, FAA Deputy Administrator and Designated Federal Official for the NAC, explained the Equip 2020 effort to gather all industry stakeholders to remove barriers to ADS-B Out equipage by January 1, 2020. While the Committee members expressed their intention to comply with the mandate, several issues remain for the DoD and general aviation population. At the suggestion of Chairman Anderson, the Committee agreed to establish an ADS-B Ad Hoc group to report back during the next meeting on solutions to these issues.

NAC members reiterated the importance of community outreach in PBN implementation, as was made evident during Metroplex implementations at Houston, North Texas and Washington D.C. areas. This issue was one of many addressed in the previously approved NAC recommendation titled, "The Blueprint for Success to Implementing Performance Based Navigation (PBN) Procedures", that captures the lessons learned from PBN implementations across the country and provides a checklist for future implementations. This checklist is an important component of the report and will ensure that new initiatives benefit from lessons learned so that each subsequent initiative will create more benefits sooner. The FAA will be responding to that recommendation at the next NAC meeting in Washington, D.C. The Blueprint document is currently available in the RTCA Online Store.

For additional information on the February 26 meeting and the NextGen Advisory Committee, see the NAC Page. ◼

NAC Members listen to the FAA report from FAA Deputy Administrator Mike Whitaker

Equipping with ADS-B Now Provides Benefits

By Pete Bunce
President and CEO
General Aviation Manufacturers Association

Pete Bunce

As Congress looks at reauthorizing the FAA this year, one of the agency's most important priorities is to modernize the United States' aging air traffic control system. A key cornerstone of NextGen is Automatic Dependent Surveillance-Broadcast (ADS-B). It works by allowing one aircraft to transmit its highly accurate GPS position to air traffic control and other aircraft.

NextGen has been in the works for over a decade; the FAA, industry, and operators—which includes airlines and pilot groups—have been a part of the conversation every step of the way. The entire industry worked with the FAA under the RTCA Air Traffic Management Advisory Committee (ATMAC, now called the NextGen Advisory Committee) in the mid-2000s to develop the strategy for how the FAA should deploy ADS-B. The ATMAC's recommendations included an industry request that the FAA give a January 1, 2020 mandate for operators to equip their aircraft with ADS-B "Out"—a full 10 years after the mandate was adopted.

The FAA has met every major milestone of this strategy. It completed the deployment of the ground infrastructure in March 2014 and, today, general aviation pilots benefit from expanded surveillance, if equipped. If you fly your aircraft east of the Rockies, you benefit from ADS-B-enabled surveillance at 1,500 feet, and in many places all the way to the surface. Other benefits achieved from the program's strategy include increased safety through reducing the risk of collisions with other aircraft and free in-cockpit weather and flight information deployed throughout the United States.

The industry also helped develop the equipment standards for ADS-B under RTCA Special Committee 186, which began its work in the mid-1990s. This cooperative work between the industry, FAA and regulators from around the world resulted in performance-based equipment classes that accommodate aircraft of different sizes and speeds.

…manufacturer innovation has driven down costs, as new capabilities and fully integrated solutions meet the demands of the marketplace.

The work of SC-186 also incorporated lessons learned from early deployments of ADS-B, such as the CAPSTONE program in Alaska.

Since the publication of the ADS-B standards back in 2010, manufacturer innovation has driven down costs, as new capabilities and fully integrated solutions meet the demands of the marketplace. There are over a dozen products on the market right now and more are expected to be launched later this year.

Many general aviation aircraft owners are already seeing the benefits of equipage. As of February 2015, 10,000 aircraft, most of which are GA, are equipped with ADS-B—but more work is needed to get a bulk of the fleet equipped by 2020. GAMA and our members are actively supporting the Equip 2020 Working Group established last year by FAA Deputy Administrator Michael Whitaker. The Equip 2020 program has not identified any new challenges to equipage, but has helped clarify guidance and policy for how different certified and experimental aircraft equip smartly, and explain ways operators use the technology to comply with the rule.

Basic rule-compliant equipment with integrated position sources for small GA airplanes currently retails at $2,000-$3,000. An aircraft owner has the option of expanding his benefits to also receive traffic and other flight information data by equipping with "In" for another couple thousand dollars as the "fly-away" price. But, again, that's an option, not a requirement.

FAA leaders have said repeatedly the mandate isn't going to move. The lines to install ADS-B aren't going to get any shorter in the years ahead. And any potential savings from a drop in price will likely be offset by higher installation costs. So the best time to equip—and start enjoying the benefits of equipage—is today.

It's exciting to think we're so close to entering the next phase of aviation and realizing all of the benefits it holds. To do that, we need to again work as one, and manufacturers stand ready to do just that. Let's get going! ■

Spotlight on Volunteers: Extraordinary Commitment to Achieving Consensus

Robert "Rocky" Stone
United Airlines

For more than 20 years, Robert "Rocky" Stone has contributed his technical expertise and leadership skills to advance the work of RTCA. Rocky currently serves as Co-Chair of SC-186, Automatic Dependent Surveillance–Broadcast, along with Jessie Turner of The Boeing Company; as Co-Chair of SC-206, Aeronautical Information Services Data Link, along with Allan Hart of Honeywell International; and for the past year, he has been Chair of the Wake Vortex Tiger Team. Rocky first got involved with RTCA in 1993 when he served on SC-147, Traffic Alert & Collision Avoidance System (TCAS). In 1995, Rocky was asked to chair SC-186 and has served for the past 20 years as either Chair or Co-Chair. Additionally, Rocky has been a panel member at numerous RTCA symposia and also served on Task Force 5. "Rocky exemplifies the caliber and commitment of our incredible RTCA volunteers and we are grateful to Rocky for the many years of leadership that he has given to advancing RTCA's work," stated RTCA President Margaret Jenny.

Attending an Eagle Scout's Aviation Day was the spark that got a 14-year old Rocky hooked on aviation. By the time he graduated from high school, Rocky had completed his first solo flight, received his private pilot's license and become a certified flight instructor. He went on to earn a B.S. degree in Aeronautical Engineering from the Massachusetts Institute of Technology. Afterwards, he joined the U.S. Air Force (USAF), where he served for 12½ years. While in the USAF, Rocky initially flew F-15s and then became an experimental test pilot at Edwards Air Force Base, where he flew at least 50 different kinds of planes. During his USAF service, Rocky earned a M.S. in Systems Management from the University of Southern California.

Upon leaving the USAF in 1992, Rocky was immediately hired by United Airlines as a line pilot. He currently serves as Chief Technical Pilot for Surveillance and also flies as a Boeing 777 Captain. His main responsibility is to make the business case for all technical aircraft upgrades, i.e., weather radar, TCAS, ADS-B. He is excited that pilots will soon be able to update their iPads in real-time, and he and United are working on the best way to deliver this critical information to pilots during flight. Rocky says, "My job is the

to ADS-B would not have been possible without the standards developed by RTCA SC-186." His work with SC-186 and SC-206 has involved producing numerous documents–twenty-seven (including Changes and Supplements) to date by SC-186, and six to date by SC-206, with the production of new and updated documents on the horizon. SC-186 will be working on ADS-B issues, including a Flight-deck based Interval

The work that I do with RTCA is very rewarding because it not only makes a positive difference for United Airlines, but also for the entire aviation community.

best of all worlds, and it's very motivating to be doing something that makes the system better for everyone, from pilots to the flying public."

The RTCA Wake Vortex Tiger Team was established by RTCA's President in May 2014 to develop a White Paper on suggested future standards activities for wake vortex, Air Traffic Management (ATM) and weather applications. One primary objective of the Tiger Team was to suggest the best way to downlink wind information from aircraft in real-time. There are many Air Traffic Control and weather applications that will benefit from this information, so the group's work has gone beyond just wake vortex mitigation. The group recently finalized their White Paper, which Rocky presented at the March Program Management Committee meeting.

Rocky says, "The FAA's transition

Management (FIM) MOPS and Advanced FIM MOPS, and SC-206 will be working on MASPS for downlinking weather from airplanes, standards for turbulence (Eddy Dissipation Rate) and a guidance document on how to best use wind information in aircraft and ATM systems.

"I'm fortunate that the work I do with SC-186 and SC-206 relates so directly to the work I have been doing at United Airlines," stated Rocky. "Being involved with so many RTCA committees has been helpful because the work of these groups is so interrelated, and it is important that we develop integrated solutions." He concludes, "The work that I do with RTCA is very rewarding because it not only makes a positive difference for United Airlines, but also for the entire aviation community. The policy and standards work that RTCA does to coalesce industry is critical to the FAA and the advancement of safety and efficiency." ■

Prague is the Site of the Aeronautical Database Committee Meeting

Aviation experts from around the world gathered at the Grand Bohemia Hotel in Prague, Czech Republic, to determine the future of requirements for databases that support safety and navigation that is critical to aircraft and airports. Led by Co-Chairs John Kasten of Jeppesen and Stéphane Dubet of French Civil Aviation Authority DGAC/SIA, members of SC-217 worked on several documents related to airports, terrain and obstacles, data quality and security.

The Committee finalized revisions to DO-272C/ED-99C, *User Requirements for Aerodrome Mapping Information*, DO-276B/ED-98B, *User Requirements for Terrain and Obstacle Data*, DO-291B/ED-119B, *Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data*, and addressed the Final Review and Comments (FRAC) inputs received on the DO-200A/ED-76 revision, *Standards for Processing Aeronautical Data*. Hosted by Honeywell International, the Committee split into two working groups between the Plenary sessions: Work Group (WG) 1, chaired by Stéphane Dubet, with Carmen Bonillo-Martinez as the Secretary, discussed ED-76/DO-200; while WG2, chaired by John Kasten, with Brian Gilbert as the Secretary, discussed the three remaining revisions.

WG1 reviewed the comments received during the FRAC/Open Consultation period to address tool qualification, compliance, data quality, data security, scope, the data-processing chain and the editorial comments. All comments were reviewed and resolved, and the document will be submitted to the Program Management Committee (PMC) in June for approval.

WG2 finalized three revisions for FRAC and will continue to work on the editorial with plans to submit the document

for FRAC on April 20th, and receive all comments by June 1st. If you are interested in commenting on the documents please contact Sophie Bousquet (sbousquet@rtca.org). RTCA will make the Unified Modeling Language (UML) and Extensible Markup Language (XML) artifacts available on the RTCA Online Store to complete the documents.

During the closing Plenary, the group discussed the need to revise DO-201A, *Standards for Aeronautical Information,* to keep it compatible with the updated DO-236 MASPS RNP, DO-283 MOPS RNP and ICAO documents. It was agreed to have a one day joint RTCA/EUROCAE meeting hosted by Eurocontrol in Brussels before June, to assess the scope of changes, the amount of work and time, and express the required expertise.

The next meeting is scheduled for June 15-19 at RTCA. ■

Members of SC-217 at their recent meeting

Spotlight on RTCA Interns: Blanca Aguado and Marc Bousquie

RTCA kicked off 2015 with the arrival of two interns, both with international backgrounds and interest in the aviation industry. Marc Bousquie started at RTCA on January 5 and Blanca Aguado arrived on January 20. "Marc and Blanca came to RTCA and got to work right away," stated RTCA President Margaret Jenny. "We are excited to have such talented young people working with us, and look forward to what they will accomplish in the future."

Blanca Aguado was born in Madrid, Spain, but has travelled quite extensively, including throughout Europe, Latin America, Africa and Canada. She attended McGill University in Montreal where she received a B.A. in Political Science and Psychology. While at the university, she worked for the Center for International Peace and Security Studies in Montreal, and most recently for the International Civil Aviation Organization (ICAO), also in Montreal. While aviation runs in the family, Blanca describes her entry into aviation as "accidental," landing a one-year internship at an ICAO social gathering. While at ICAO, Blanca conducted a political research project and analysis of the EU Safety List, an aviation safety audit. She was pleased to come to RTCA to enhance her experience from previously working on the "regulator side", to now work on the "industry side" of aviation. She also appreciates the small, intimate staff at RTCA, where she has an opportunity to work on a wide variety of tasks and issues. Blanca's main responsibilities at RTCA include working on international initiatives and assisting with technical analysis and background reports. Blanca is also conducting research about other standardization organizations and events, and updating the ICAO/FAA/RTCA/EUROCAE, etc. standardization roadmaps. Long-term, Blanca is open to many opportunities, as she is still exploring and learning, but says important in whatever she does, must contribute to society in a positive way.

Marc Bousquie hails from France, and is working on an MBA at the SKEMA Business School and expects to graduate in 2016. As a part of his degree, his internship at RTCA is focused on marketing and business strategies. Marc is serving as a strategy and program assistant at RTCA and some of the key tasks he is focused on are improving the Jackson Awards process and outreach, developing RFPs and conducting research for potential RTCA vendors, researching and developing marketing opportunities for RTCA trainings, identifying and monitoring worldwide ATM events, updating RTCA's Workspace, and assisting with programing, marketing and social media for the upcoming Symposium. Marc says, "While

Blanca Aguado and Marc Bousquie

We are excited to have such talented young people working with us…

one of my primary objectives is to learn as much as I can at RTCA, I also hope to offer ideas that will advance RTCA's work." Marc got the aviation "bug" early, as both of his parents are aviation engineers. Prior to coming to RTCA, Marc served as a consultant with a Customer Relations Management (CRM) company in Paris, and as a communications assistant to a French congresswoman, working on communication strategies, public relations and social media management. As Marc looks ahead, his long-term career goals are to work for a company such as Airbus in their marketing or strategy department. He is excited to be at RTCA, where he will have the opportunity to learn how aviation business is conducted in the U.S.

Both Marc and Blanca agree that what is most important about the work of RTCA is its unique ability to convene competing aviation companies and forge consensus on issues that advance aviation safety and efficiency. Blanca says, "This kind of consensus-building is pretty rare and not seen very often in other parts of the world."

For other young people entering the aviation/aerospace fields, Marc and Blanca think that important skills and aptitudes include: innovation, a sense of initiative, ability to adapt to a changing environment, being a team player, open-minded to diverse opinions, and a global focus. Marc says, "This is a fascinating but complex world with lots of actors, and the opportunity to learn about a wide range of issues." Blanca added, "Young people should not be intimidated by all the technical language in this industry, but instead focus on the opportunity to learn about so many different perspectives." ■

Airborne Weather Detection Systems

SC-230 met at RTCA to continue updating DO-220, *Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar with Forward-Looking Windshear Capability*, to accommodate current radar technology, add turbulence detection performance standards, correct errata and confusing or inadequate requirements in the current document, and consider specifications of new radar functions and features.

Led by Co-Chairs Jeff Finley of Rockwell Collins and Dawn Gidner of Honeywell International, the Committee reviewed findings from a draft DO-220 document. The document was compiled from the inputs of the seven Committee Work 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, Irene Moreno-Gonzales provided a presentation on future activities handled by EUROCAE WG-95 regarding "*In flight ice detection systems*" to develop standards for Ice Crystals Long Range Awareness technologies that are intended to be used on commercial aircraft to alert the flight crew to these particular icing conditions. This function will require a change of the weather radar specification, which is currently under revision by SC-230.

The other main outcome was the revision of the Terms of Reference to add a revision to DO-213, *Minimum Operational Performance Standards for Nose-Mounted Radomes*, to update references, clarify requirements and incorporate previous changes. This new task will require specific expertise.

The due date for revisions to DO-220 and DO-213 is November 2015, and the next meeting is scheduled for June 16-18 in Seattle, Washington. ◼

SC-230 all smiles after a hard day's work

Airport Security Access Control Systems

SC-224, co-chaired by Christer Wilkinson, AECOM System Solutions, and Susan Rohde, Transportation Security Administration, met to finalize updates to key sections of DO-230D, *Standards for Airport Security Access Control System*. The Committee's expected completion date is May 2015. All sections were reviewed with the exception of the Credentialing Section. Its potential release generated significant comments, so the Committee decided to postpone discussion, and not hold up approval of all other sections, which are close to completion.

The updated versions of the other eight sections will be finalized as DO-230E without the Credentialing Section, and the next update, DO-230F, will happen later this year when the Credentialing Section is completed and approved.

The next meeting is scheduled for April 9 at RTCA. ◼

RTCA

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TRAINING CENTER

2015 COURSE CALENDAR*

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

June 8-11 | 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.

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

June 22-24　|　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

June 25　|　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.

Addressing Human Factors/Pilot Interface Issues for Avionics

SC-233 held their inaugural Plenary in mid-February to lay the foundation for two tasks, starting from Notice 8110.98 - first, to identify the recommended method that can be used in the design process and second, to establish key human factors issues, including backgrounds and examples. The goal of the Committee is to provide a systems approach and integrate human factors at a broader spectrum.

Led by Susan Taylor of Gulfstream and Trish Ververs of Honeywell International with Michelle Yeh serving as the Designated Federal Official, the Committee was briefed on the many perspectives of avionics approval including flight deck, small aircraft, assessing the interaction of flight deck technologies and an industry perspective from The Boeing Company.

Much of the discussion revolved around defining a general process and focus on commonly reoccurring issues. The Committee will concentrate on identifying particular methods to be used at various stages of development, consider how and when to get the FAA involved, building a framework of the remaining issues that need to be addressed and consider how the applicants will use the document to ensure its usefulness for both the industry and FAA.

The Committee will meet again May 19-21 at Gulfstream in Savannah, Georgia. They are working to develop a final deliverable for June 2017 and two progress reports this year. The first progress report will take place at the June Program Management Committee meeting, and will be an outline of topic areas to be included in the final deliverable. During the second progress report, in December of this year, the Committee leadership will present an updated outline of topic areas along with identified human factors issues. ◼

Terrain Awareness Warning Systems

Special Committee 231 continued the development of the Minimum Operational Performance Standards (MOPS) for Terrain Awareness Warning Systems (TAWS). The Committee is adapting the current TAWS Minimum Performance Standards 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

Co-Chair Rick Ridenour comments on the draft document

to identify areas in the existing envelopes, defined in DO-161A, that are not compatible with real-world operations.

The next meeting is scheduled for June 9-11 at RTCA. ◼

RTCA 2015 GLOBAL AVIATION SYMPOSIUM

National Press Club | Washington, DC 20045 | June 3-4, 2015

Opening Keynote:
Honorable Michael Huerta,
Administrator, FAA

Awards Luncheon Keynote Speaker:
Christopher A. Hart
Chairman, NTSB

Featured Participant:
Richard Anderson
NAC Chairman and CEO, Delta Air Lines

Info-packed Sessions:

- Prioritize, Plan, Implement, Repeat: How the FAA & the NextGen Implementation Working Group (NIWG) are institutionalizing a repeatable process for NextGen
- NextGen: Safety Matters
- The Case for a Consolidated NOTAMs System/Air Traffic Management (CNS/ATM) Modernization
- Challenges of Protecting Spectrum
- Performance-Based Navigation
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- Emerging Technologies: Automation, Cyber Security & Human Factors
- NextGen Advisory Committee (NAC): How the FAA & NAC are collaborating to facilitate the successful implementation of NextGen

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April 15th to take advantage of reduced rates.

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PMC Approves New Documents

During its most recent meeting, under the leadership of Chris Hegarty of The MITRE Corporation, the Program Management Committee (PMC) met and approved one new document with supplement; one change to an existing document; and revisions to the Terms of References (TORs) for six Special Committees. The new document approved by the PMC is the *Minimum Operational Performance Standards for Flight Information Services – Broadcast (FIS-B) with the Universal Access Transceiver (UAT)*. For more information about the Program Management Committee and the meeting, visit the PMC page. ■

RTCA   New Documents

Automatic Dependent Surveillance – Broadcast (ADS-B)

DO-358, *Minimum Operational Performance Standards (MOPS) for Flight Information Services - Broadcast (FIS-B) with Universal Access Transceiver (UAT)*

ISSUED 03-24-15 | PREPARED BY SC-206

This document contains Minimum Operational Performance Standards for Flight Information Services Broadcast-System (FIS-B) with Universal Access Transceiver (UAT). These standards specify system characteristics that should be useful to designers, manufacturers, installers and users of the equipment. This document considers an equipment configuration consisting of the airborne processing and cockpit display of aeronautical and meteorological data known as FIS-B, provided by the Federal Aviation Administration (FAA). Functions or components that refer to equipment capabilities that exceed the stated minimum requirements are identified as optional features.

Supplement to DO-358, *Minimum Operational Performance Standards (MOPS) for Flight Information Services - Broadcast (FIS-B) with Universal Access Transceiver (UAT)*

ISSUED 03-24-15 | PREPARED BY SC-206

This data supplement to DO-358 is a zip file archive that contains test group files described in Section 2.4. The archive includes 18 sets of test group zip files. Each test group zip file includes a test procedures document, test stimulus timing information and binary data input files for conducting the tests. This supplement is available only by electronic download.

Satellite Services

DO-210D Change 4, *Minimum Operational Performance Standards for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMSS) Avionics*

ISSUED 03-24-15 | PREPARED BY SC-222

The purpose of the Change is to correct several known deficiencies in DO-210D, including Changes 1-3, and to bring certain sections of DO-210D into alignment with the new DO-262B, Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems, Appendix E.

For additional information and to order documents, visit RTCA's store. RTCA Members may download electronic documents at no cost and qualify for a 60% discount on paper documents.

RTCA ONLINE STORE

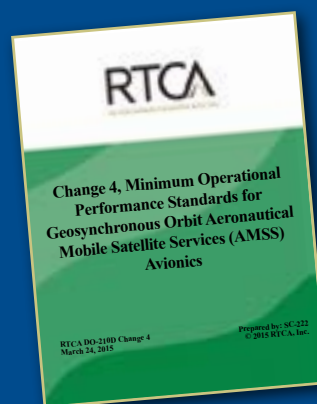Your one-stop resource center for

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JUST RELEASED

DO-358, Minimum Operational Performance Standards (MOPS) for Flight Information Services – Broadcast (FIS-B) with Universal Access Transceiver (UAT)

DO-210D Change 4, Minimum Operational Performance Standards for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMSS) Avionics

For additional information and to order documents, please visit www.rtca.org

Committee Approves Recommendations on NOTAMs and VOR MON

Led by Co-Chairs 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 of the FAA, serving as the Designated Federal Official, the Tactical Operations Committee (TOC) approved two recommendations during the most recent meeting:

- The Notice to Airmen (NOTAM) Improvement Panel provided feedback on the first phase of the FAA's implementation on the NOTAM Search website. This was the Panel's fourth 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 VOR Minimum Operating Network (VOR MON) Task Group addressed the waterfall/implementation plan for the VOR MON as well as the PBN Route Concept of Operations. This was the Task Group's fourth and final recommendation to the FAA addressing efforts to reduce the number of VORs by approximately one-third over the next decade.

The Task Group completed their requested tasks and was sunset during the meeting.

The Committee had a briefing from FedEx Express on new approaches to sorting NOTAMs that aid in reducing NOTAM counts for pilots; status updates from existing Task Groups regarding Caribbean operations, Airport Construction and Class B Airspace; and a discussion on areas of interest to TOC members: Remote Towers, Unmanned Aerial Systems (UAS), Time Based Flow Management (TBFM) and the National Special Activity Airspace Program (NSAAP).

Finally, the group discussed two new taskings:

- **GPS Adjacent Band Capability (ABC)**: the GPS ABC will focus on the operational and safety impacts to aviation that result from exclusion zones which will be required if ground-based transmitters were to radiate on bands adjacent to spectrum used for GPS.
- **National Procedure Assessment (NPA) Initiative**: the NPA Initiative seeks to establish a repeatable process and plan to cancel redundant or excess procedures and reduce the associated maintenance costs. The FAA is asking the TOC to provide recommendations on the criteria used in the NPA Initiative as well as the implementation plans and outreach.

The next meeting is scheduled for July 21 at RTCA. ■

Global Positioning System

SC-159 Co-Chairs Chris Hegarty and George Ligler

Led by Chris Hegarty of The MITRE Corporation and George Ligler of PMEI, Inc., SC-159 navigated significant issues focused on current items and future work at their most recent meeting. Near-term, the Committee approved recommendations in response to a request from the FAA to review the GPS Adjacent-Band Compatibility Study Methodology and Assumptions. Long-term, the Committee approved a Terms of Reference (TOR) with deliverables and dates reaching out to 2023. Working Groups (WG) 2, 2C, 4, 6 and 7 were all engaged in further defining the basis for future standards as specific technical information becomes available.

The Committee approved the recommendations developed in WG-6 to respond to the FAA's GPS Adjacent-Band Compatibility Study Methodology and Assumptions for Technical Questions 1, 2 and 3. To ensure a thorough review of the recommendations, the Committee allotted additional time, through the beginning of April, for a possible minority report to address other perspectives. The FAA will then review all comments from the Committee.

SC-159 took a significant step forward for the first time since 2002 by approving a revised Terms of Reference that provides a list of deliverables with completion dates starting in 2016. Long-term, best estimate dates of 2022-2023 were given as a target for a Global Navigation Satellite System (Ground-Based Augmentation System) L1/L5 Minimum Operational Performance Standards for dual-frequency equipment and including, if possible, at least one additional core satellite constellation. All dates are based on the current schedule for deployment of L5-capable GPS satellites and the availability of specific prerequisites defined in the TOR. The proposed TOR will be available following Program Management Committee approval.

The next meeting is scheduled for October 23 at RTCA. ■

RTCA Training

RTCA delivered three high quality training sessions at the beginning of this year, covering RTCA's DO-160G, *Environmental Conditions and Test Procedures for Airborne Equipment*, DO-178C, *Software Considerations in Airborne Systems and Equipment Certification*, and The Supplements to DO-178C. Attendees across the board rated the courses high for usefulness and the knowledge of the instructors. For more information on upcoming training sessions, please visit RTCA's Training Page. ■

DO-160G Training, Wichita, KS

Standards of Navigation Performance, Future of PBN

SC-227 recently met to finalize updates to DO-283A, *Minimum Operational Performance Standards for Required Navigation Performance for Area Navigation*. A broad range of required changes and additions were discussed, including equipment classes, navigation data quality, temperature compensation and navigation aid selection. Additionally, the Committee's Terms of Reference was revised to update DO-257A, *MOPS for Depiction of Navigational Information on Electronic Maps*.

The March Plenary, chaired by Dave Nakamura of Advanced PBN Solutions/SAIC, included three main items of discussion:

Chairman Dave Nakamura leads Committee discussion

- The Required Navigation Performance (RNP) Minimum Operational Performance Standards (MOPS) Working Group identified changes that were reviewed and updated for inclusion in a draft version of the standard. The document is being prepared for a review during the next meeting in June, in preparation for the Final Review And Comment (FRAC) resolution in September.
- The SC-186/SC-227 Tiger Team's (TT) Interval Management discussions were shared. SC-186 members discussed possible guidance and information for inclusion in the RNP MOPS. It was concluded that the MOPS might be able to add brief information, indicating that the RNP equipment functionality will need to consider interval management for future op-

erations. It was also clear that significant issues must be addressed and answered in order for both SC-227 and SC-186 to develop or update their standards to support and enable interval management.

- A new task updating DO-257A for the electronic map was discussed and will address RNP and Comm/Nav/Surveillance applications. This will lead to new and updated requirements for the navigation map, the aerodrome moving map and vertical situation display requirements that are currently available.

The next meeting is scheduled for June 15-19 at RTCA. ◼

Air Traffic Controllers Honor RTCA Leader

President Margaret Jenny was recognized during the National Air Traffic Controllers Association (NATCA) Communicating for Safety (CFS) Awards Luncheon for the outstanding work done protecting and improving the National Airspace System. "While others seemed not comfortable dealing with NATCA during the White Book days, Ms. Jenny was always a solid supporter," Wright said, recalling Jenny's unwavering support even when times were tough. "We credit her with building some of NATCA's great relationships we enjoy with industry today." "We provide the venue and you all do the rest," Jenny said as she accepted the award. "Without your voice at the table this stuff wouldn't happen, so I want to thank NATCA for coming to the table and being part of the discussion." President Jenny

NATCA National Safety & Tech Director Dale Wright thanked Jenny for her efforts of creating a culture of collaboration between NATCA and the FAA

regularly participates in CFS and was a moderator for *Air Traffic Control Modernization and Safety* at the conference. ◼

2Excel Aviation Ltd
Northampton, Northamptonshire
UNITED KINGDOM
Edward Downs

2Excel was founded in 2005 by two Royal Air Force Harrier pilots who are still, formally, the Company's only Directors. From a team of 5 people and 4 aircraft in 2006, 2Excel has grown organically but fast and it now has a fleet of 14 aircraft and 35 permanent staff with 25 pilots.

2Excel is an aviation-based company that, today, has 5 primary business streams:

- The Blades Formation Aerobatic Display Team - the world's only aerobatic airline
- Scimitar - a developmental test and evaluation unit with unique flying laboratories
- Sabre - providing high-end contract-air services for hire
- BroadSword - taking discerning clients where they want to go, when they want to go
- Leading Edge - getting your ideas airborne

Access Spectrum LLC
Bethesda, Maryland USA
John Vislosky

Access Spectrum leads a group of licensees which hold the Upper 700 MHz A Block (a 1x1 MHz band covering the United States). The band is a perfect spectrum home for sUAS: it is exclusive and interference-free and can be dedicated for sUAS control, including beyond-line-of-site communications.

Aerospace Quality Research and Development
Addison, Texas USA
Raj Naranayan

Aerospace Quality Research and Development (AQRD) LLC is a privately held business employing experts in the aerospace sector, including DERs (designated engineering representatives). AQRD boasts having FAA DERs on staff, versus contractors. Our DERs bring a variety of Part 23, 25, 27, and 29 authorities to our capabilities and provide a wide variety of business, engineering and quality services for our clients. Consultants for AQRD, Inc. bring over 30 years of industry-specific quality and engineering experience, having worked for large aerospace companies specializing in the fields of heavy aircraft and rotorcraft maintenance and engineering.

Aircraft Mechanics Fraternal Association (AMFA)
Aurora, Colorado USA
Justin Madden

The Aircraft Mechanics Fraternal Association is a craft specific, independent aviation union. It is not an industrial union and represents only aircraft maintenance technicians and related employees in the craft or class, in accordance with the National Mediation Board Rules and their dictates. AMFA is committed to elevating the professional standing of technicians and to achieving progressive improvements in the wages, benefits and working conditions of the skilled craftsmen and women it represents.

AMFA was created in 1962 but did not represent any carrier until 1964 at Ozark Airlines. It later represented Pacific Airlines, Airlift International, Hughes Airwest, Southern Airways, Northwest Airlines, Horizon Air, Independence Air, United Airlines, and ATA. AMFA's craft-specific union now represents aircraft maintenance technicians and related support personnel at Alaska Airlines and Southwest Airlines.

Broadcast Microwave Services, Inc.
Poway, California USA
Brad Coleman

Celebrating over 30 years in business, BMS was founded in February 1982 to develop and market wireless microwave products for video and data transmission. In 1984, the company was purchased and became a wholly owned subsidiary of Cohu, Inc., a San Diego-based public company (NASDAQ-COHU).

Whether for analog, digital technology or high-definition solutions, BMS offers one-of-a-kind video transmission solutions by providing HD quality, flexibility without compromises in reliability and enables customers to deliver their digital content quickly and easily. BMS has always been an innovator by introducing new technologies and wireless solutions. As a leader in COFDM microwave transmission, BMS has built up a strong foundation with extensive experience and contacts in global major players in our dedicated markets.

Carnegie Mellon University
Pittsburgh, Pennsylvania USA
William Scherlis

Carnegie Mellon University (CMU) is a global research university with more than 12,000 students, 95,000 alumni, and 5,000 faculty and staff.

They have campuses in Pittsburgh, Qatar and Silicon Valley, and degree-granting programs around the world, including Africa, Asia, Australia, Europe and Latin America.

For 2013-2014, *The Times Higher Education* of London ranked CMU No. 24 in the world, and No. 17 among U.S. universities. Thirty-five percent of CMU's students are from 115 countries outside the U.S., giving the university one of the 10 most international student bodies, by percentage, among four-year U.S.

institutions. CMU is a world leader in robotics. Software that guides NASA's Mars rovers and crash avoidance systems in Cadillacs began at CMU. Now, their scientists are developing technology to assist the elderly with household chores, respond to natural or man-made disasters and land a robot on the moon in 2015. With 100 percent of CMU's electricity coming from green power sources, the university is ranked as a green power leader by the U.S. Environmental Protection Agency.

Contour-NIIRS Ltd.No.
Saint-Petersburg, RUSSIAN FEDERATION
Maria Razzak

Contour-NIIRS was established in 1998 as a result of industrial restructuring on the basis of the Research Institute of electronic systems (NIIRS). Leading experts at the core of the enterprise participated in the design and implementation of complex flight and navigation systems for aircraft transport aviation such as IL-76, AN-22 "Antaeus", AN-124 "Ruslan", AN-225 "Mriya" and others.

Currently, Contour NIIRS specializes in the development and serial production of equipment for aircraft and helicopters: meteonavigatsionnyh radars, airborne display, avionics systems and airborne pairing.

The company has developed and produced a family of small meteonavigatsionnyh ground radar known as "Contour-Meteo". Meteradiolokatory in this series are successfully operated on the territory of the Russian Federation and abroad.

Another successful activity of the company is the development and serial production of automation equipment for railway rolling stock.

Crown Consulting, Inc. (CCI)
Arlington, Virginia USA
Charles Keegan

Crown Consulting, Inc., a small business established in 1989, has 160 employees working throughout the United States. Their headquarters, located in Arlington, VA, features a sophisticated technical infrastructure that includes an analytics laboratory with an array of simulation, modeling and statistical tools.

CCI's business concentrations include Program Management, Analytics, Information Solutions and Field Engineering. Their principal clients are the Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA) and US Department of Energy (DOE).

HAECO Private Jet Solutions
San Antonio, Texas USA
Tom Langeland

HAECO Private Jet Solutions is an engineering design house with expertise in the certification and program management of cabin completion and reconfiguration projects for VIP and commercial aircraft. The Company is based in San Antonio, Texas, and works in close cooperation with the HAECO Group, Airbus and the Boeing-approved VIP Cabin Completion Centre operating out of TAECO, HAECO's subsidiary in Xiamen, China.

M42 Technologies
Seattle, Washington USA
Nestor Voronka

M42 Technologies was founded in August 2014 to develop advanced technologies, and provide alternative and relevant solutions to space and aerospace challenges. M42Tech is currently focused on developing project solutions and flight systems for the Department of Defense,

the National Aeronautics and Space Administration, and commercial space and aerospace customers.

M42Tech also provides services focused on supporting the development of technologies, products and businesses related to the design, production and operation of space systems.

Mid-Atlantic Aviation Partnership (MAAP) - Virginia Tech
Blacksburg, Virginia USA
Rose Mooney

Work to form the Mid-Atlantic Aviation Partnership began early in 2012. From the beginning, it was clear that collaboration among Virginia, Maryland and New Jersey would create a powerful UAS test capability for the nation. Virginia Tech has an exceptional Aerospace research legacy and Virginia is home to two NASA aeronautics centers. Virginia aviation has always been very progressive and well-supported by the Virginia Department of Aviation. The diversity of airspace – sparsely populated in rural southwest Virginia to densely populated in the northern Virginia Special Flight Rules Area – and the diversity of geography – mountains to open ocean – make it an ideal location to mature concepts from prototypes to off-the-shelf products. The wide diversity of agriculture available in Virginia allows it to also support the development of products for the promising UAV application, Precision Agriculture.

In all three states, there are companies who are pioneers in the UAV field, smaller colleges and universities graduating skilled workforce and the infrastructure (from railroads and power lines to nuclear power plants and international airports) necessary to evaluate any infrastructure inspection technology. As a partnership, MAAP offers an unparalleled diversity of testing and demonstration environments and can support the entire product

lifecycle from R&D, to customer training, to operations.

The FAA agreed that this team provides excellent UAV flight opportunities and selected MAAP as one of its UAS Test Sites in December 2013. MAAP conducted its first operational test flight at the Virginia Tech Transportation Institute on August 13, 2014.

Pacific Aviation & Lease Management, Inc.
San Diego, California USA
Addisu Siyoum

The PACAVI Group is a global firm providing a broad range of professional services to the aviation market. They have earned a reputation for technical excellence and innovation, a tradition that continues as they introduce the first commercially available Airbus A320/321-based Freighter Lite Conversions.

The PACAVI Group operates in The United States and Germany, and consists of three primary business units:

- Pacific Aviation: Commercial Aircraft Conversions and Modifications
- Pacific Aviation & Lease Management: Aircraft sales, leasing and trading
- Pacific Aviation Engineering: Aircraft design

TÜV AUSTRIA SERVICES GMBH
Vienna, AUSTRIA
Andreas Malek

TÜV AUSTRIA is an international corporation with branch offices and representations in over 20 countries worldwide.

Their customized industrial services include elevator testing, pressure equipment, medical and electrical engineering, plant safety, monitoring, certification, IT security, management consulting, insurance services, as well as training and further education.

U.S Coast Guard, ALC, ESD, Tech Pubs
Elizabeth City, North Carolina USA
Cecile Wallen

The U.S. Coast Guard is one of the five armed forces of the United States and the only military organization within the Department of Homeland Security. Since 1790, the Coast Guard has safeguarded our Nation's maritime interests and environment around the world. The Coast Guard is an adaptable, responsive military force of maritime professionals whose broad legal authorities, capable assets, geographic diversity and expansive partnerships provide a persistent presence along our rivers, in the ports, littoral regions and on the high seas. Coast Guard presence and impact is local, regional, national and international. These attributes make the Coast Guard a unique instrument of maritime safety, security and environmental stewardship.

Yulista Aviation, Inc.
Huntsville, Alabama USA
Paul Gulbis

Yulista Aviation, Inc. (YAI) was created in 2007 to provide all types of aviation maintenance and modification work. YAI is an SBA 8(a) Alaska Native Corporation regionally headquartered in Huntsville, Alabama.

YAI is certified as a Federal Aviation Administration (FAA) Certified Repair Station, meeting Combined Federal Regulations (CFR) Part 145 requirements for qualification of repair parts, authorized tools and equipment, calibration standards and procedures, training requirements, and FAA maintenance records.

YAI achieved ISO 9001/AS9100 & AS9110 certification, assuring our customers the highest possible quality with built-in procedures to ensure accountability and continuous proactive improvement to both processes and products. In 2013, YAI successfully certified all sites and locations to ISO and AS 9100 and 9110 standards.

YAI employs FAA licensed mechanics and electricians. YAI is certified in DCMA 8210.1 (AR 95-20) Compliant, Government Approved Ground/Flight Operations. The YAI quality control program was developed in compliance with ISO9001, AS9110 and AS9100-2008 to maintain all operations under control, prevent non-conformance, focus on customer satisfaction, pursue continual improvement and instill confidence in our team.

Zodiac Inflight Innovations
Brea, California USA
Steven Rines

When it comes to providing ground-breaking in-flight entertainment (IFE) systems for today's tech-savvy passengers, Zodiac Inflight Innovations has been leading the way with cutting-edge systems, such as RAVE, that have been providing passenger and flight crew satisfaction for more than 16 years. Backed by a dedicated executive team with more than 150 combined years of IFE experience and a passion for customer satisfaction, Zodiac Inflight Innovations is committed to developing innovative, intuitive and trusted IFE systems designed to exceed passenger expectations for a truly unique entertainment experience flight after flight.

Since 2008, seat-back embedded RAVE IFE systems and more than 23,000 portable units have been taking flight on airlines around the world, including Lufthansa, SriLankan, Brussels Airlines, Airberlin, Air Transat, Austrian, Air Tahiti, Royal Air Maroc and Air Niugini. As the premier provider of IFE systems trusted by more of the world's major airlines, Zodiac Inflight Innovations remains committed to leading the way in the evolution of airborne entertainment, technology and passenger satisfaction. ■

NextGen Update: 2015
Shows NextGen is Now

Annual reports aren't known for making news, but the *NextGen Update: 2015* is a new kind of document.

For the first time, the report is a website, rather than a print document, PDF or e-book. Stakeholders can now easily surf everything they need to know about NextGen, including sidebars, videos and links to additional information on the FAA website. This new format provides readers with access to greater levels of NextGen information than ever before.

The report features looks at NextGen's top seven programs, environmental and safety initiatives, general aviation and controller decision support tools and includes the latest information about the progress of the four NextGen priorities from RTCA's NextGen Integration Working Group (NIWG).

Please visit *NextGen Update: 2015* for more information. ◼

Calendar of Events

APRIL 2015 – JULY 2015

April 7-9
SC-225, Rechargeable Lithium Batteries and Battery Systems
Washington, DC | *Hosted by RTCA*

April 9
SC-224, Airport Security Access Control Systems
Washington, DC | *Hosted by RTCA*

April 13-17
SC-206, Aeronautical Information Services Data Link
Hampton, VA | *Hosted by NIA*

April 14-16
SC-213, Enhanced Flight Vision Systems & Synthetic Vision Systems
Paris, France | *Hosted by Dassault Aviation*

April 14
SC-222, AMS(R)S
Brussels, Belgium | *Hosted by Eurocontrol*

April 14-16
SC-135, Environmental Testing
Wichita, KS | *Hosted by WSU/NIAR*

April 16
SC-147, Traffic Alert & Collision Avoidance System
Washington, DC | *Hosted by RTCA*

April 21-23
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
Hamburg, Germany | *Hosted by Airbus*

May 6-7
SC-234, Portable Electronic Devices (PEDs)
Washington, DC | *Hosted by RTCA*

May 19-21
SC-233, Addressing Human Factors/Pilot Interface Issues for Avionics
Savannah, GA | *Hosted by Gulfstream*

May 21
SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems
Washington, DC | *Hosted by RTCA*

June 3-4
RTCA Annual Symposium
Washington, DC | *National Press Club*

June 5
NAC, NextGen Advisory Committee
Washington, DC | *Hosted by RTCA*

June 8-11
DO-160G Training
Washington, DC | *Hosted by RTCA*

June 8-12
SC-186, Automatic Dependent Surveillance-Broadcast
Salzburg, Austria | *Hosted by Salzburg University*

June 9-11
SC-231, Terrain Awareness Warning Systems
Washington, DC | *Hosted by RTCA*

June 15-19
SC-217, Aeronautical Databases
Washington, DC | *Hosted by RTCA*

June 15-19
SC-227, Standards of Navigation Performance
Washington, DC | *Hosted by RTCA*

June 16-18
SC-230, Airborne Weather Detection Systems
Seattle, WA | *Hosted by TBD*

June 18
PMC, Program Management Committee
Washington, DC | *Hosted by RTCA*

June 22-24
DO-178C Training
Washington, DC | *Hosted by RTCA*

June 25
Supplements to DO-178C Training
Washington, DC | *Hosted by RTCA*

July 8-9
SC-232, Airborne Selective Calling Equipment
Washington, DC | *Hosted by RTCA*

July 21
TOC, Tactical Operations Committee
Washington, DC | *Hosted by RTCA*

Upcoming Events

RTCA Annual Symposium
June 3-4, 2015
Washington, DC | *National Press Club*

NAC, NextGen Advisory Committee
June 5, 2015
Washington, DC | *Hosted by RTCA*

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