Tactical Operational Committee Approves Final Recommendation on NOTAMs

During its most recent meeting, the Tactical Operations Committee (TOC) covered a number of issues affecting current and future operations in the National Airspace System (NAS) including the Notice to Airman (NOTAMs), airport construction guidelines and navigational procedures assessments.

The TOC approved a recommendation from the NOTAM Task Group that provided feedback on the final phases of the FAA’s implementation of the NOTAM Search website. This was the Task Group’s sixth and final recommendation designed to support the FAA’s efforts to meet the objectives of the Pilot’s Bill of Rights legislation to make NOTAMs easier to filter and sort. At the conclusion of the meeting, the NOTAM Task Group was sunset.

This was the first meeting for new leader Captain Bryan Quigley, Managing Director of Flight Operations.

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Constructive Collaboration on Display at NAC Meeting

The Fall meeting of the RTCA NextGen Advisory Committee (NAC) featured the on-going collaboration between the FAA and the aviation industry that has been the hallmark of the Committee since its formation in 2010. Chaired by Delta Air Lines CEO, Richard Anderson, the meeting marked the one-year milestone since the NextGen Integration Working Group (NIWG) final report was transmitted to the FAA and the subsequent NextGen Priorities Joint Implementation Plan was presented to Congress.

In a letter to FAA Deputy Administrator Mike Whitaker, Chairman Anderson emphasized that, “the FAA and industry have continued to tackle the challenges inherent in the deployment of key NextGen capabilities: DataComm, Improved Multiple Runway Operations (IMRO), Performance-Based Navigation (PBN) and Improved Surface Operations capabilities. Collectively we have achieved many successes...”
tions, United Airlines, who will serve with Co-Chair Dale Wright, Director, Safety and Technology, National Air Traffic Controllers Association (NATCA). During the meeting, the Committee expressed its appreciation to Captain Jim Bowman of FedEx Express who previously served as Co-Chair. Mr. Quigley presided over the meeting and Ms. Elizabeth “Lynn” Ray, Vice President Mission Support, Air Traffic Organization, Federal Aviation Administration (FAA) served as the Designated Federal Official.

The TOC received updates on key areas of interest to the operational community:

- The FAA provided a report on the VHF Omni-directional Range (VOR) Minimum Operating Network (MON) Program which was recently approved for funding and is seeking to decommission over 300 VORs over the next 10 years in support of the transition to NextGen.
- The Committee received a briefing on the NextGen Advisory Committee (NAC) and its efforts to use metrics to measure NextGen improvements as well as an emerging tasking related to the long term strategy for Traffic Flow Management.
- Mr. Jim Linney, Director of Air Traffic Systems, FAA Program Management Office, provided an overview of the FAA’s strategy for improving air traffic operational performance in the Caribbean. Mr. Linney explained that the FAA was in the process of evaluating each recommendation included in the TOC’s July 2015 report, “Improving Operations in the Caribbean”. This assessment will be delivered to the TOC in early 2016.
- Mr. Ken Ready, Acting Manager, FAA Airspace and Rules Team, provided an initial assessment of the TOC’s recommendations around design, designation and evaluation of Class B airspace. The TOC concluded that additional dialogue was warranted between Mr. Ready and the Class B Task Group leadership.

Two Task Groups reported to the TOC on their progress and presented draft recommendations for consideration:

- The Airport Construction Task Group presented draft recommendations to improve awareness of planned construction, develop a repeatable process of planning complex construction, and ensure coordinated information and processes during construction execution and completion. The Task Group plans to deliver a final report at the next TOC meeting in March 2016.
- The National Procedure Assessment (NPA) Task Group presented draft recommendations relating to a process and criteria for identifying candidate procedures for cancellations in the NAS. The NPA Task Group will also deliver its final recommendations in March 2016.

Finally, the meeting included discussions on an expected new tasking for the TOC to review a future PBN Route Concept of Operations. The TOC expects to receive this task before the end of 2015.
Another Successful Year

Margaret T. Jenny
President, RTCA, Inc.

RTCA’s raison d’etre is to develop consensus-driven, cost-effective solutions to improve the performance of the air transportation system. We have accomplished this by providing the tools and venue for the numerous and diverse stakeholders to come together and forge consensus on technical, operational and policy advice to present to the FAA. 2015 was no exception in terms of challenges with which RTCA volunteers were presented or results achieved. During FY2015, RTCA Committees convened 68 Federal Advisory Committee (FAC) meetings and approximately 340 sub-committee meetings, attended by more than 2400 individuals.

The Program Management Committee, steered by Designated Federal Official (DFO) Rich Jennings, approved 15 standards developed by the Special Committees. New Committees were formed to address Non-Rechargeable Lithium Batteries, Portable Electronic Devices (PEDs) and Human Factors.

The NextGen Advisory Committee, under the able steering of FAA Deputy Administrator Mike Whitaker, continued the collaborative effort between the FAA and industry in the deployment of key NextGen capabilities: DataComm, Improved Multiple Runway Operations (IMRO), Performance-Based Navigation (PBN) and Improved Surface Operations capabilities. The NAC also recommended a set of performance metrics, accepted by the FAA, and launched a collaboration to evaluate the performance improvements attributable to NextGen.

The Tactical Operations Committee, led by targeted tasking from DFO Lynn Ray, provided a single source of recommendations covering NOTAM Modernization efforts (NOTAM Improvement Panel), the waterfall for the VOR Minimum Operating Network program, and improving operational performance in the Caribbean.

The RTCA membership continued its growth in 2015, surpassing 500! And approximately 70% of our Special Committees are joint committees with EUROCAE, our partner in Europe. RTCA continued its coordination with ICAO, aimed at ensuring ours and EUROCAE’s standards influence the global standards and recommended practices.

Never resting on our laurels, and recognizing that we always have room to improve, RTCA has embarked on a comprehensive review of our mission and how we communicate that mission to our stakeholders and the public. Thank you to those of you who took the time to provide feedback. We have gained important insights from these surveys and interviews that we will use as we refine our communication strategies for the future.

Thank you to all of the members and volunteers that make RTCA who we are. We wish you a healthy and prosperous 2016.

Quotes from Stakeholders

“RTCA is the only organization I know that will bring together the right technical and operational talent—efficiently and effectively—to work together for the greater good of aviation.”

“Without RTCA you would not have the technical standards to set the path for tech adoption and modernization and you would not have alignment around the policy and priorities that make modernization possible.”

“The FAA has created an effective venue at RTCA to listen to their stakeholders and work collaboratively with them to solve the tough problems. Hats off to the FAA.”

“The collaborative footprint has to get bigger and more global to reflect the global reality of aviation and achieve bigger things.”

“RTCA addresses the real world challenges the aviation industry faces by bringing parties together and finding answers to hard questions.”

“We pay to be a member, [and] then we contribute hours and hours of work, but we see it as highly valuable because we have a voice in the future of aviation that is in sync with our interests and for aviation broadly.”
in meeting implementation milestones fielding NextGen capabilities.”

The Committee approved an update to the NextGen Implementation plan detailing the executions at specific locations. The NAC also discussed work on a rolling three-year implementation plan.

Addressing the collective NextGen goal of improving the operational performance of the national airspace system, the NAC received an update on work underway to evaluate the performance improvements attributable to the implementation of selected capabilities at specific locations. The industry is developing an analytic capability that will be used in conjunction with the FAA’s capabilities to evaluate the result of the implementations, promote success and identify and address any obstacles to success. “Trust is essential - the industry and the FAA must speak with one voice regarding the operational performance improvements attributable to NextGen implementation,” wrote Chairman Anderson. “The NAC is creating that trust.”

The Committee also continues work to ensure the successful deployment of PBN. This includes addressing head-on, the impacts on communities associated with PBN procedures, as well as ensuring the requisite deployment of traffic flow management automation and decision support tools, a key enabler for successful PBN deployment, are available.
SC-186 met in the late Fall to start a two-year effort to develop a revised DO-328A, Safety, Performance, and Interoperability Requirements Document for Airborne Spacing – Flight Deck Interval Management (ASPA-FIM), and a new Minimum Operational Performance Standards (MOPS) for Advanced Flight-deck based Interval Management (A-FIM), as a follow-on to the initial FIM MOPS, DO-361.

The primary objectives for A-IM include making use of more integration among flight-deck systems, making use of new information sources such as winds and Target-Intended Flight Path Information (IFPI), and being able to support reduced separation or new separation minima for both radar-controlled and oceanic airspaces.

The Committee’s WG-3, Extended Squitter, will revise DO-260B, MOPS for 1090 MHz Extended Squitter ADS-B with TIS-B, which will be done in conjunction with a parallel effort to reconstitute SC-209 to work on DO-181E, MOPS for Air Traffic Control Radar Beacon System/Mode select (ATCRBS/Mode S). Airborne Equipment. This effort will address a set of identified clarifications and corrections needed from DO-260B and the creation of new messages to support applications, such as A-IM, communication of MET data and collision avoidance capabilities, and the use of Geometric Altitude will likely be addressed. The initial meeting of this joint effort with EUROCAE WG-51 and WG-49 is planned for February 1-5, 2016.

The next SC-186 meeting is scheduled for March 11, 2016.

Enhanced Flight Vision Systems & Synthetic Vision Systems

SC-213 held its Plenary at the National Institute of Aerospace Headquarters in Hampton, Virginia. Led by Co-Chairs Patrick Krohn, Universal Avionics Systems Corporation, and Tim Etherington, Rockwell Collins, Inc., the Committee reviewed the ongoing work efforts and discussed how to best align the Terms of Reference with EUROCAE WG-79.

Trent Prange, FAA, briefed the group on the FAA’s progress to publish a synthetic vision guidance system (SVGS) installation Advisory Circular (AC) to provide guidance for obtaining airworthiness approval for SVGS in aircraft. The FAA 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, and LPV approaches will not be included.

The next meeting will be held May 2016 in Bordeaux, France, in conjunction with EUROCAE WG-79.
Aeronautical Mobile Satellite (Route) Services (AMS(R)S)

SC-222, chaired by Chuck LaBerge, EFC LaBerge Engineering & Analysis, LLC and UMBC, met to disposition comments received on the Change 1 to DO-262B Iridium Appendix D. Change 1 to DO-262 provides updated information and requirements specific to an Aircraft Earth Station (AES) using the Iridium communication system for the purpose of providing AMS(R)S. The International Civil Aviation Organization and the International Telecommunications Union reserve the designation “(Route)” for services related to the priority and regularity of flights along national and international air routes. This change corrects certain technical inconsistencies and clarifies several requirements contained in the Iridium-specific minimum operational performance standards currently published in DO-262B. Change 1 affects only the Iridium Appendix (Appendix D), without changing the main document or the other appendices.

The Committee will continue its work jointly with WG-82, on Inmarsat Swiftbroadband deliverables and Iridium Next deliverables. The next meeting is scheduled for June 2016.

Airport Security Access Control Systems

SC-224, led by Christer Wilkinson, AECOM Technology Solutions, completed its Final Review and Comment (FRAC) resolution for the revision of DO-230E, Standards for Airport Security Access Control System, which predominately addressed the Credentialing Section. The document was approved at the December Program Management Committee meeting for publication as DO-230F.

The update to the Credentialing Section addresses technical criteria needed due to rapid advances in technology, trends and policy. The Committee finalized a significant number of items for this section, including airport credentials possibly providing both identification and access to a range of privileges; airport operator requirements as the ultimate responsible party for the issuance of credentials; the issue of potential additional measures consistent with state or local law on issuance of such credentials; credentialing process specifics including background and security check processes.

DO-230F is dedicated to Mr. Charles Chambers, Senior Vice President and Chief Development Officer of the National Safe Skies Alliance. Mr. Chambers was an active member of SC-224 until his death in mid-October. He was instrumental in increasing the circulation of DO-230 to airport security officials and security consultants in the aviation domain.

The next meeting is planned to review DO-230F sections for the creation of operational checklists for DO-230G.

Airborne Weather Detection Systems

Members of SC-230 discussed the recently revised Terms of Reference that added the new deliverable, Recommendations on the Feasibility to Standardize an In-Flight Radar Long Range Ice Crystals Awareness Function. At the Fall meeting, committee members expressed an interest in supporting this activity with EUROCAE WG-95 and the feasibility report is the first step. The report is expected by November 2016.

Two committee documents are in the Final Review and Comment (FRAC) phase: revised DO-220, MOPS for Airborne Weather Radar with Forward-Looking Windshear Detection Capability, and revised DO-213, MOPS for Nose-Mounted Radomes. Comment resolution and document approvals will be the focus at the next meeting, January 11-14, 2016.
Seasons Greetings

From the RTCA Staff
Spotlight on Volunteers: The Human Side of Human Factors

The two women at the helm of SC-233 bring many similarities and a common mission to the Committee addressing Human Factors/Pilot Interface Issues. They have both been in the field for more than twenty years, both acknowledge the vast challenges the Committee faces, and both are grateful for the committee participation across the industry, as well as the contributions of RTCA.

“Human factors are not always well-defined,” says RTCA President Margaret Jenny. “SC-233 has been presented with a significant challenge, particularly when considering the scope and size of this task. With the proven leadership of Susan and Trish, we are making great strides in addressing human factors issues early in the life cycle of aviation systems, when they are cheaper and easier to resolve.”

Human factors allows specialists to understand how a pilot uses new technologies in practice. SC-233 brings together those in the field from academia, the industry and the FAA. It covers the gamut of general aviation from the Cessna 182, to a high-end Gulfstream, to air transport aircraft, and also includes rotor aircraft.

“The human factor is important—the look and feel, how a pilot interacts with something, how information is processed and how it changes the pilot’s experience,” says Trish. “Honestly, one of the biggest challenges in SC-233 is how to culminate the various ideas into one. We all implement human factors practices differently within our organizations and don’t forget, we’re all competitors. Our human factors practices are as different as our products and we have to decide how we’re each implementing it in our organization and how it benefits the aviation industry.”

“Human factors issues have been implicated in a number of aviation accidents, so we’re trying to find a way to derive data-driven requirements to address issues in design as early as possible,” says Susan. “The Committee identifies common issues and then develops and prescribes solutions. The end goal of everything is to attempt to certify a product with a lot of latitude given to develop definitions and methods to address human factors.”

Susan Taylor has been with Gulfstream for more than twenty years, currently as Principal Engineer of Human Factors Engineering, and was with McDonnell Douglas prior to Gulfstream. She was recently recognized as the first Flight Analyst, Human Factors Authorized Representative for the FAA, and in that role is responsible for approving pilot-in-the-loop test methods and analysis for aircraft certification compliance. She started the Human Factors Engineering team at Gulfstream during the GV-SP program, and currently provides technical oversight of the company-wide team which supports all Gulfstream programs. She developed and formalized the Human Factors Engineering certification process at Gulfstream, which has been accepted by both the FAA and EASA, and standardized as part of the Gulfstream ODA manual. Susan earned her professional certification in Ergonomics through the Board of Certification in Professional Ergonomics (BCPE), has a Master’s of Science in Industrial Psychology with a focus in Human Factors from California State University, Long Beach, and a Bachelor of Science in Biology from University of Arizona.

“Susan is trained in human factors and has been applying it for 20 to 25 years,” says Trish. “Gulfstream has the highest standards and they’re regularly faced with challenges of certification that have never been seen before. Gulfstream has a very rigorous process and Susan has been invaluable for defining what the right process should be.”

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Jenny says that each organization involved recognizes the importance of human factors. Trish says that each organization involved recognizes the importance of human factors and acknowledges that the industry gets to decide how it manifests itself in their practices. She gives credit to RTCA for bringing this group together to better the study of human factors and put forth what she says are the right guidelines and the right processes so that the Committee’s work is applicable to all Parts (23,25,27 and 29).

“It’s an honor to work with the global aviation community leaders,” says Trish. “It’s a great group and a great opportunity to study something with an RTCA process.”

“We’ve had good industry participation and good authority participation from the FAA, EASA and Transport Canada—all the parts are represented,” says Susan. “This is my first formal exposure to RTCA and it’s been fabulous. When we need direction or course correction, RTCA’s Jennifer Iversen has been proactive and helps us navigate logistics.”

The careers of both Susan and Trish have parallels that have led to a great camaraderie between the two, as they have both studied human factors for more than two decades. Trish pointed to the existing relationship Honeywell and Gulfstream have had, which is synonymous with the great working relationship the two women have together on the Committee.

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Dr. Trish Ververs became enamored with aviation because of her step-father, who was a pilot and often took her to air shows. She jokes that the smell of jet fuel always makes her happy. Trish came to study human factors in aviation because she began her college career majoring in psychology and studied with a professor who was on the forefront of the human factor field in one of the top programs of its day, at the University of Illinois when it was still an emerging discipline. She says, “I wanted to see how people process information in machines. We studied World War II and how the study of human factors was born out of aviation, of looking at accidents and how human factors led to errors, and what we could learn and apply from these cases.”

“I love working with Trish,” says Susan. “Honeywell is one of Gulfstream’s major suppliers, so I’ve known Trish for years. We’re very similar and we’ve seen organizations grow up and refine human factors. We study how to inject human factors in design—she, on the front end taking it to a certain level of maturity with new and novel technologies and me, on the detailed, design end.”

SC-233 is expecting to complete the tasking by June 2017. Both Co-Chairs are optimistic, just by the level of industry participation they have experienced so far, that the Committee will be able to generate a solid end product that incorporates best practices with human factors aspects and concerns early in the design process.

Addressing Human Factors/Pilot Interface Issues for Avionics

SC-233, led by Co-Chairs Susan Taylor, Gulfstream Aerospace, and Trish Ververs, Honeywell International, Inc., met in December at the FAA Rotorcraft Directorate in Dallas, Texas, in Working Group (WG) sessions.

WG2, led by Don Stephen, Transport Canada, is working to identify HFE design issues seen during product development, encountered by regulators, and seen in service, post certification.

WG3, led by Chris Hamblin, Honeywell International, Inc., is identifying steps for the evaluation of human factors/pilot interface to include the roles and responsibilities of the applicants and regulatory authorities, expanding upon 8110.98. The WG is discussing how it can be used for Technical Standard Order/Supplemental Type Certificate/Type Certificate (TSO/STC/TC), and expanded to be universally useful. The WG also identified a log of issues that have been saved for future consideration.

WG4, led by Paul Schutte, NASA, is working to identify methods and best practices used to address HFE issues during the design process that can be discussed with evaluators.

The Committee leadership presented to the PMC at the December meeting to provide a detailed outline that includes steps for a recommended process and human factors/pilot interface aspects of avionics that will be addressed in the new document.
Minimum Operational Performance Standards for Unmanned Aircraft Systems

SC-228 recently met at NASA Ames in Moffett Field, CA to continue Working Group (WG) activities. The Committee is tasked to develop Minimum Operational Performance Standards (MOPS) for Detect and Avoid (DAA) and Command and Control (C2) capabilities by July 2016. The purpose of these deliverables is for FAA use in integrating UAS safely and efficiently into the National Airspace System.

WG-1, DAA, expressed confidence that DAA MOPS development is reaching the “final stretch” and many activities are coming together to complete this work. WG-2, C2, reported that all comments in the draft Verification and Validation MOPS presented to the RTCA Program Management Committee in September have been adjudicated. Work continues on the development of the “Quantum” concept and active power control considerations, and the Committee is actively working all Verification and Validation test cases.

The Committee was informed of the efforts of an Ad Hoc Phase Two Terms of Reference (TOR) Development Team chaired by Kelly Markin, The MITRE Corporation. The Phase 2 TOR was briefed to the UAS Steering Committee in December and sent to the Program Management Committee for approval.

Additionally, during the meeting, spectrum considerations noted formal coordination on 960-975 MHz band with the DoD. A final report is expected in January 2016 and will be posted to RTCA’s Workspace upon release. There was no presentation from EUROCAE WG-73 during the meeting, but SC-228 will continue to pursue coordination to provide on-going information updates on mutual progress.

The next committee meetings are scheduled for July 14-15 and September 16, 2016, which are aligned with WG-1 and WG-2 timelines for MOPS document approvals.
Airborne Selective Calling Equipment

SC-232 completed the review of the revised DO-93, *Minimum Performance Standards – Airborne Selective Calling Equipment*. The document will increase the number of 16-tones to 32-tones and result in the possibility of 215,760 usable unique codes.

The Committee reported on the final results of the testing phase performed by several industry members to confirm interoperability with both legacy and updated or new systems. Parameters tested included inter-tone spacing tolerance requirements, radio propagation effects, ground station and airborne implementations. Final testing results will be provided to the ICAO Communications Panel with the expectation that the ICAO guidance will be published in 2017 or 2018. The Air Navigation Service Providers (ANSPs) are expected to be equipped by 2018 in step with the availability of avionics.

The final draft of SELCAL standard for ARINC Project Paper 714A was adopted by the AEEC Executive Committee at their Mid-term meeting in September.

The document will be presented for Final Review and Comment (FRAC) with document approval expected at the next Plenary meeting, January 26-27, 2016.

SC-227 held its sixteenth Plenary at RTCA in December. The Committee is led by Dave Nakamura, SAIC, and just launched a new initiative to update DO-257A, *Minimum Operational Performance Standards for the Depiction of Navigational Information on Electronic Maps*. This initiative will be completed by Working Group 3, led by Sam Miller, The MITRE Corporation, and Richard Jinkins, Rockwell Collins, Inc. The update is driven by the industry's need to provide greater detail and specificity. The Committee will update this document consistent with DO-236C Change 1, and Revision to DO-283A to ensure its minimum standards for display of navigation information on electronic maps further facilitate the implementation of PBN. The Committee will also remove outdated requirements and update the document with newer, more appropriate guidance material and regulatory document references.

SC-227 is looking to expand participation in the committee; if interested, please contact RTCA Program Director Jennifer Iversen, jiversen@rtca.org or (202)330-0662.

The next meeting will be held at RTCA, March 15-17, 2016.

Standards of Navigation Performance
Portable Electronic Devices

SC-234/WG-99 recently met at the European Aviation Safety Agency (EASA) Headquarters in Cologne, Germany. After an opening plenary, led by Andrew Diaz, Panasonic Avionics Corporation, and Working Groups (WG) 99 Co-Chairs Robert Kebel, Airbus, and Stephan Schulte, HAW Hamburg / Lufthansa Group, the WG met to continue work updating RTCA DO-294C.

WG1’s, Introduction/Certification Requirements, Co-Chair Praf Patel, Garmin, presented the group’s recommendations for PED compliance routes (establishing equipment criticality through system safety assessment), with back door compliance to be based on different aircraft types, and front door compliance required for MAJ and higher systems, regardless of aircraft type.

WG2’s, Front Door Compliance, Co-Chair Franck Poirier, Dassault Aviation, presented the topics to be included to cover its scope in conjunction with DO-307, providing additional aid to operators for front door assessment, and portions of FAA publications.

WG3, Back Door Guidance, led by Jamie Lutkus, Astronics, Andrew Diaz, Panasonic, and Joachim Kienzler-Cleuvers, Lufthansa Technik, prepared a White Paper as a working outline of the group’s approach to Backdoor PED tolerance and included capturing Acceptable Means of Compliance (AMC) and relevant guidance material references, ensuring all task groups review document sections to ensure all references are aligned, and ensuring all aircraft considered need to be handled appropriately.

Additional discussions during the meeting included changing both SC-234’s and WG-99’s TOR to revise DO-307 to be consistent with the safety risk assessment processes and existing HIRF requirements. The latter is based on a summary of current status and required changes of DO-307, presented by Dave Walen, FAA, during the Plenary.

The next meeting is scheduled for January 20-22, 2016, at RTCA.

Global Positioning System

SC-159 met in the Fall to focus on current GPS developments and the future work of the SC-159 Working Groups (WG). All WG are engaged in further defining the basis for future standards as specific technical information becomes available.

Led by Chris Hegarty, The MITRE Corporation, and George Ligler, PMEI, Inc., the Committee reviewed the recently revised Terms of Reference and noted that revisions to DO-253C, MOPS for Local Area Augmentation System Airborne Equipment, and DO-246D, GNSS Based Precision Approach Local Area Augmentation System (LAAS) – Signal-in-Space Interface Control Document (ICD), will take an additional year, to 2017, to complete due to delay of ICAO GAST-D SARPS validation. As well, the development of the GPS/GLONASS L1-only Minimum Operational Performance Standards (MOPS) will take an additional six months to allow for further analysis.

EUROCAEWG-28 and WG-62 activities were reported during the meeting and WG-28 reports a similar ICAO SARPS delay on the completion of ED-114B, MOPS for GBAS Ground Subsystem to Support all Types of Precision Approach and Landing, in the context of GBAS CATII/III L1.

The next meetings for the Committee are March 18 and October 17, 2016.
Rechargeable Lithium Batteries and Battery Systems

SC-225 is continuing their work to update DO-311, *Minimum Operational Performance Standards for Rechargeable Lithium Battery Systems*.

The focus of the work is to address feedback from the Program Management Committee (PMC) concerning guidance for installation, testing and validation. The Committee is evaluating suitable criteria and will request concurrence from the PMC once categories are defined. The Committee was also asked to review the structure of the document to better align with the RTCA MOPS Guidelines.

The Committee will meet again in March 2016, working toward a completion date of December 2016.

Non-Rechargeable Lithium Batteries

SC-235 held their first meeting in mid-October at RTCA. The Committee will revise existing Minimum Operational Performance Standards (MOPS) for Non-Rechargeable Lithium Batteries installed on aircraft. Chair John Trela, The Boeing Company, and FAA Designated Federal Official Norm Pereira led discussions on the Committee’s deliverable, an update to DO-227, *MOPS for Lithium Batteries*, published in 1995. The revision will include technology advancement, lessons learned, address AAIB safety recommendations and improve clarity of the existing documents based on past experiences of industry.

The work is initially being divided into three main tasks: MOPS Template and Section 1, led by James Russell, The Boeing Company; Cell and Battery Requirements, led by John Nielsen, Ultralife; and End Item Requirements, led by Stuart Inkpen, Instrumar Ltd, and James Russell, The Boeing Company. The Committee is tasked to complete the deliverable by September 2016 with submission to the Program Management Committee in December 2016 for approval. The next meeting will be January 13-14, 2016 at RTCA.
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**

**March 21-23 | June 21-23 | September 19-21 | December 12-14**

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*.

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

**March 24 | June 24 | September 22 | December 15**

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-278A**
- **DO-333, Formal Methods Supplement to DO-178C and DO-278A**

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

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*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](http://www.rtca.org) or email training@rtca.org.*
Aero Design Services, Inc. St. Petersburg, Florida USA Bill Rathmanner

Aero Design Services was established in 1989 to offer professional engineering assistance and Federal Aviation Administration (FAA) approval of aircraft interior modifications. Aero Design Services specializes in design and FAA DER (Designated Engineering Representative) approval of interiors for projects ranging from executive aircraft components to entire interior installations on commercial transport aircraft.

Aerospace Engineering Solutions, Ltd. (AES) Braintree, Essex UNITED KINGDOM Anton Heissig

Formed in 2001, Aerospace Engineering Solutions has gained a reputation within the aerospace industry for delivering high quality and cost effective design solutions. The company uses the very latest in Computer Aided Design technology solutions to all aerospace requirements that can be provided in a variety of electronic and paper formats to suit individual purposes.


Air Traffic Management Research Institute (ATMRI) Singapore, SINGAPORE Zhi Qiang Kuok

The Air Traffic Management Research Institute (ATMRI) was established by the Civil Aviation Authority of Singapore (CAAS) and the Nanyang Technological University (NTU) in February 2013. The ATMRI is Singapore’s first institute dedicated to research and development (R&D) in Air Traffic Management (ATM). As a key element of the initiative to build Singapore as a Centre of Excellence for ATM, the ATMRI envisons to be a renowned research institute, finding innovative solutions, and catalyzing an ATM transformation in the region.

Since its establishment, the ATMRI has formed partnerships with the German Aerospace Centre (DLR), and is forming partnerships with the National Aeronautics and Space Administration (NASA) and the MITRE Corporation, as well as the French Civil Aviation University (ENAC) in various areas, among numerous other organizations. ATMRI has also held several regional and international seminars of significance, contributing to the exchange of experience and expertise among representatives from key aviation organizations like the International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA) and EUROCONTROL.

The initial areas of R&D of ATMRI include Integration of Arrival, Departure, Runway and Surface movements, 4D Trajectory-Based Flight, Air-to-Ground communications, Wake Vortices, Airspace Modelling and Simulation for the Association of Southeast Asian Nations (ASEAN) region, Aviation System Block Upgrade modules (ASBU), among others.

AirMap Santa Monica, California USA Megan House

AirMap works collaboratively with industry partners to create the future for drones. The company focuses exclusively on providing accurate, reliable and trustworthy airspace information.

Appareo Fargo, North Dakota USA Tony Grindberg

Appareo is a recognized leader in the custom design, development and manufacturing of innovative electronic and software solutions for original equipment manufacturers, as well as direct-to-market consumer products. Through the creative application of cutting-edge technologies, they create complex end-to-end solutions that include both mobile and cloud-based components in a variety of industries.

Applied Technical Services, Inc Marietta, Georgia USA David Common

Applied Technical Services, Inc. (ATS) is a premier provider of high quality consulting engineering, testing, and inspection services. Founded in 1967, ATS has established an excellent reputation with business, industry, and the legal profession. Notably, ATS is known for successfully uncovering facts in metallurgy, materials testing, chemical analysis, non-destructive testing, calibrations, fires and explosions. The company also provides third party testing labs such as Environmental Qualification Testing (Altitude, Vibration, Thermal, Humidity, Waterproofness, Op. Shock, and Crash Safety).

Bihrlle Applied Research, Inc. Hampton, Virginia USA Jacob Kay

Bihrlle Applied Research, Inc. (BAR) is an aeronautical company specializing in the development of flight-representative software math models for commercial and military fixed-wing and rotary-wing aircraft, including full-envelope modeling and aircraft upset recovery modeling. BAR successfully incorporates such flight models into a wide range of customer applications, including engineering workstations, Full Flight Simulators, Unmanned aircraft systems (UAS) crew training simulators, hardware-in-the-loop simulators and multi-vehicle networked simulations.

BAR also offers solutions in support of flight simulation: (1) StallBox math model upgrade solution, (2) DSix – real-time flight model development and deployment software, (3) SimGen – aerodynamics prediction software, and (4) CompARE – Quality Test Guide (QTG) software for flight model validation, certification and reporting.

Blue Avionics Chesler Springs, Pennsylvania USA Ross Cairns

Blue Avionics provides avionics-related consulting services (Business Development, Commercial, Technical and Certification), Sales and Marketing Representation, Niche product invention, design, manufacturing, and support.

ConsuNova, Inc. San Diego, California USA Reza Madjidi

ConsuNova is a leading global provider of certification, compliance engineering services and solutions for safety-critical systems to the aerospace and defense industries. The company brings practical solutions to certification projects, built on decades of experience to ensure project’s compliance with FAA and EASA standards.

Danielli Massimiliano Mele, ITALY Massimiliano Danielli

Danielli Massimiliano is a sole proprietorship that provides services such as maintenance to the avionics systems of private airplanes and helicopters, minor alterations and installations of avionics equipment, troubleshooting and advice to private owners and EASA certified facilities.

Digital Core Technologies Pvt. Ltd. Kochi, Kerala INDIA Thomas Shalu

Digital Core Technologies Pvt. Ltd. is a design services company in embedded (electronics) hardware, system software and RTL including complete product design and development.

ERASM Aix en Provence, FRANCE Bruno Mathieu

ERASM is an engineering company specializing in the studies of Reliability, Availability, Maintainability and Safety on Embedded equipment in Aeronautics, Railway and Defence sectors.
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European GNSS Agency (GSA)
Prague, CZECH REPUBLIC
Tanja Ghukassian

The European Global Navigation Satellite Systems Agency (GSA) is the agency of the European Union (EU) that aims to ensure that essential public interests are properly defended and represented in connection with satellite navigation programmes of the union: Galileo and European Geostationary Navigation Overlay Service (EGNOS). The aim of the former is to provide a modern European alternative to the established American system, global positioning system (GPS). Established in 2004 and based in Prague, Czech Republic, the Agency is responsible for managing and monitoring the use of the program funds that will help the European Commission deal with any matters relating to satellite radio-navigation.

Fortiss Gmbh
Munich, Bavaria GERMANY
Sergio De Florio

Fortiss GmbH is an institute associated with the Technical University of Munich, and as such, a full-fledged academic research institute enjoying the independence granted by its legal form as a non-profit organization. The institute facilitates research and technology transfers in software-intensive systems and services, thereby triggering future ready innovation, with a focus on Bavaria. In this role, Fortiss acts as a technological think-tank, bridging the gap between fundamental research in academia and its fruitful implementation in an industrially and commercially feasible context.

Gilbert E. Boen Consulting
Huntsville, Alabama USA
Gilbert E. Boen

Consultant to the Software Engineering Directorate, Aviation and Missile Research, Development and Engineering Center (AMRDEC) and Redstone Arsenal Alabama.

IOV Consulting
McLean, Virginia USA
John Kefaliotis

IOV Consulting is a company specializing in ATM consulting services with a focus on business development, proposal development and program management.

LeTourneau University
Longview, Texas, USA
Joonwan Kim

LeTourneau University (LETU) is a Christian-centered, interdenominational institute of higher learning offering more than 85 undergraduate and graduate degree programs in arts and sciences, aviation, business & technology, education, engineering, nursing, psychology & counseling, and theology & vocation. LETU’s 2,700 students represent nearly all 50 states, more than 30 foreign countries, and 53 different denominational groups. In addition to residential programs at the main campus in Longview, Texas, students are enrolled in a robust suite of online programs, as well as innovative hybrid programs in Dallas and Houston, Texas.

Microturbo
San Diego, California USA
Dolene Peterson

Microturbo, a member of Safran group and a subsidiary of Turbomeca, specializes in the design and manufacturing of power systems for civil and military aerospace. With more than 50 years of passion and innovation behind it, Microturbo has become a global reference in small, robust, reliable turbines and turbojets. Microturbo is a world leader in the field of power systems and propulsion systems, and has delivered over 21,000 units.

Myngo Aerospace, LLC
Doral, Florida USA
Thomas Byrd

Myngo Aerospace, LLC is a start-up tech/aerospace company. The company is at the very beginning of the Research and Development (R&D) phase and their goal is to develop a universally fitted and adaptable device to stream flight data recorder information off of aircraft in real time, while in flight.

Orolia SAS
Guidel, FRANCE
Alain Bouhet

The Orolia Group designs, manufactures, sells and services precision electronic and telematic systems to determine the “where and when” of people, events or objects in the most critical operations.

Their solutions integrate various technologies for reliable operation in extreme environments (air, sea, land, space). A wide range of competencies includes global navigation satellite signals and expertise in software applications.

Pariani Di Ricci Mariangela & C. SAS
Samarate, ITALY
Mariangela Ricci

Pariani Di Ricci Mariangela & C. SAS designs and produces state of the art of devices in aerospace industries.

Rosen Aviation
Eugene, Oregon USA
Elysabeth Cummings

Rosen was founded in 1980 with a focus on manufacturing application-specific systems that met the stringent requirements of the aviation industry. By continuing to refine its product line over the years, Rosen has developed a reputation for quality in-flight entertainment systems backed by an industry leading four-year warranty and unparalleled customer satisfaction. Today, Rosen Aviation continues the tradition of world-class leadership in the design and manufacture of quality flat panel displays, source equipment, and accessories for the aviation industry. Rosen’s dedication to excellence has been recognized by Cessna and Gulfstream aviation companies.

Saft America, Inc.
Jacksonville, Florida USA
Nicole Haslip

Saft America, Inc. designs and manufactures industrial and specialty batteries for high-tech use. SAFT batteries are used in passenger rail cars, aircraft, military vessels, hybrid vehicles, power grids, telecom networks, and renewable energy applications. Its specialty battery segment makes lithium and rechargeable lithium-ion batteries for the electronics, defense, and space industries. Saft America caters to industrial and defense applications.

Southwest Research Institute Defense & Intelligence Solutions Division
San Antonio, Texas USA
Elizabeth Duran

Southwest Research Institute® (SwRI®) is one of the oldest and largest independent, nonprofit, applied research and development organizations in the United States.

SwRI’s technical divisions offer a wide range of technical expertise and services in such areas as chemistry, space science, non-destructive evaluation, automation, engine design, mechanical engineering, electronics and more.

Tandel Systems
Oldsmar, Florida USA
Steve Heap

Tandel Systems, Inc. offers engineering, technical staffing, systems integration, project management, test and control systems, and enterprise applications, as well as consulting services to the Aerospace, Defense, and Commercial markets.

Young Engineering Services, LLC
Peoria, Arizona USA
Christopher Young

Young Engineering Services, LLC provides hardware, software, and test engineering services for high-integrity industries.
Spotlight on RTCA Staff: Marcelle Forrest

Many RTCA members are probably already familiar with RTCA’s newest staff member, Marcelle Forrest. She began at RTCA in April 2015 and serves as the Executive Coordinator for RTCA President Margaret Jenny. When asked what drew her to RTCA, Marcelle says in her previous position at Securiport, she developed a passion for the aviation/safety industry. “After I researched the company and position, I knew it was going to be the perfect job that would keep me motivated and interested.”

Marcelle has had an interesting career over the last 15 years working with a variety of CEO’s and Executive Directors in fields involving education, non-profit and aviation. As Executive Coordinator, Marcelle is at the forefront with Margaret’s day-to-day schedule, as her communication liaison and performing daily data analysis and research. “The biggest challenge in managing Margaret’s schedule is balance,” says Marcelle. Every day, there’s something important, something unique happening—no two days are ever the same.”

Marcelle received her Bachelor’s degree in Marketing and is currently pursuing an MBA from the University of Maryland. She is very active outside of work and enjoys travelling, skiing, ice skating, exercising and has a passion for animals. Additionally, Marcelle runs a valet parking service that specializes in private events in the Washington DC metropolitan area.

“Marcelle serves an important role for me and is an asset to RTCA,” says RTCA President Margaret Jenny. “In a small organization where staff serve in multiple roles, I rely on her for project management, travel schedules, meeting planning and so much more. She is a valuable member to the team.”

Marcelle can be contacted at (202)330-0651 or mforrest@rtca.org.

RTCA Volunteers Recognized for Technical Standards Supporting NextGen

In an article recently published by Air Traffic Management Magazine, RTCA President Margaret Jenny explained how RTCA Committees are developing standards and ensuring equipment will be used properly throughout the National Airspace System. “RTCA’s recommendations represent the output of thousands of experts from all corners of the aviation industry,” stated Jenny. “We are pleased to provide the venue to bring interested parties together to work constructively towards solutions for some of the toughest policy and technical challenges to air transportation modernization.”

Visit RTCA’s website to view the article.
RTCA’s longest-running committee, SC-135, recently held their 66th meeting at RTCA. The Committee, chaired by Brad Green, Honeywell International, Inc., is responsible for DO-160G, Environmental Conditions and Test Procedures for Airborne Equipment. During the meeting, the Committee focused on twenty-one “open” change proposals under consideration for the next revision to the document. They are considering a proposal to separate Section 16, Power Input, into two sections, one for DC, and one for AC, as power applications. A final decision is dependent upon the further review of all change proposals. Both the Users’ Guide for DO-160 and the next release of DO-160 Revision H are planned for 2019.

The next meeting is scheduled for March 31, 2016.

Environmental Conditions and Test Procedures

Continuing the long history of collaboration, RTCA and EUROCAE officials met in Paris to discuss ongoing work products and plans for future activities, underscoring the importance of global interoperability. The coordination between the two organizations provides a good example of how two groups can come together to serve the community despite differences in working arrangements and stakeholders. The meeting was focused on current work programs with a forward-looking approach to foster better collaboration and working synergies, as the two groups continue working together on technical aviation performance standards.

RTCA and EUROCAE Hold Coordination Meeting

(left to right) Anna von Groote (EUROCAE), Jennifer Iversen (RTCA), Christian Schleifer (Secretary General, EUROCAE), Margaret Jenny (President, RTCA), Hugher Meunier (Thales and EUROCAE TAC Chair), Karan Hoffman (RTCA), Chris Hegarty (MITRE CAASD and RTCA PMC Chair)
RTCA Documents Published in 2015

Aeronautical Data

**DO-291C, Minimum Interchange Standards for Terrain, DO-200B, Standards for Processing Aeronautical Data**

**ISSUED 06-2015 | 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).

**Supplements to DO-291C, Minimum Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data**

**ISSUED 09-2015 | PREPARED BY SC-217**

RTCA DO-291C/EUROCAE ED-119C uses a UML representation of the AMDB and an XML Schema representation of the AMDB. Together they form the Aerodrome Mapping Database Exchange Model (AMXM).

Note: Available as a zip file for electronic download only

**Automatic Dependent Surveillance – Broadcast (ADS-B)**

**DO-328A - Safety, Performance and Interoperability Requirements Document for Airborne Spacing – Flight Deck Interval Management (ASPA-FIM)**

**ISSUED 09-2015 | PREPARED BY SC-186**

This document (Revision A) provides the minimum operational, Safety and Performance Requirements (SPR) and Interoperability Requirements (INTEROP) to implement Airborne Spacing (ASPA) - Flight Deck Interval Management (FIM) in support of and consistent with an identified set of operational scenarios in DO-361, Minimum Operational Performance Standards (MOPS) for the Flight-deck Interval Management (FIM). ASPA-FIM is defined as the flight deck component of a larger Interval Management (IM) System. The IM System includes the ground domain's tools to plan and schedule traffic to assist the controller in determining what IM Clearances might be applicable to specific aircraft. ASPA-FIM then, based upon the IM Clearance provided by the controller and surveillance information received on the Target Aircraft, generates guidance for the flight crew to successfully and safely execute the IM Clearance. The document was prepared jointly by RTCA SC-186 & EUROCAE WD-51.

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

**ISSUED 03-2015 | 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

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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 03-2015  |  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.

DO-361, Minimum Operational Performance Standards (MOPS) for the Flight-deck Interval Management (FIM)

ISSUED 09-2015  |  PREPARED BY SC-186

This document contains the Minimum Operational Performance Standards (MOPS) for the Flight-deck Interval Management (FIM) application building upon the MOPS for the Aircraft Surveillance Applications (ASA) System, RTCA DO-317B / EUROCAE ED-194A. Because of the length and complexity of the additional requirements for the FIM application, they are included in this separate document. The FIM application requirements in this document are assumed to be integrated in an ASA System that is compliant with all requirements related to the Basic Airborne Situational Awareness (AIRB) application, which is defined in the ASA MOPS, DO-317B / ED-194A, unless explicitly stated otherwise. The document was prepared jointly by RTCA SC-186 & EUROCAE WD-51.

Enhanced Vision Systems

DO-359, Minimum Aviation System Performance Standard (MASPS) for Synthetic Vision Guidance Systems

ISSUED 05-2015  |  PREPARED BY SC-213

This document contains Minimum Aviation System Performance Standards (MASPS) for a Synthetic Vision Guidance System (SVGS). A SVGS, as defined in this MASPS, is a new airborne flight instrument and guidance system designed to enable operations to a decision altitude/decision height (DH) as low as 150 ft above touchdown. Minimum visibility will be determined in part by the SVGS display modality, head down display (HDD) or head up display (HUD). The system will be used during certain instrument approach procedures with operational minima that are less than the minima for current Category I Instrument Landing System (ILS) approaches, RNAV (GPS) to the Localizer Performance with Vertical Guidance (LPV) line of minima, or Category I GLS approaches. For convenience, in the balance of this document the RNAV (GPS) approach to the LPV line of minima will be referred to as an LPV approach.

Flight Information Services

DO-360, Standards Development Activities for using Near Real-Time Aircraft-Derived Data in Future Applications

ISSUED 09-2015  |  PREPARED BY WAKE VORTEX TIGER TEAM

This document contains recommendations for standards development activities for current and future applications that could make use of aircraft-derived data. Near real-time data from aircraft, particularly weather observations, may enable many new capabilities both in ground-based automation systems and airborne systems. The document describes wake vortex, air traffic management, and weather applications, and how they could make use of near real-time data from aircraft. It recommends standards development and research activities necessary to move forward with implementing near-, mid-, and far-term applications using near real-time data from aircraft. The document also includes, for reference, a summary of many wake vortex research activities across the globe.

Satellite Services

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

ISSUED 03-2015  |  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.

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The RTCA Digest is published by RTCA, Inc., a not-for-profit association. RTCA is the premier Private-Public Partnership venue for developing consensus among diverse, competing interests on critical aviation modernization issues in an increasingly global enterprise.

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Security

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

ISSUED 06-2015 | 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 and 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 areas are outside the scope of this document. Section inputs from airport operators and vendors relied on actual experiences and operational issues faced.

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.

Calendar of Events

JANUARY 2016-MAY 2016

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.

Upcoming Events

NAC, NextGen Advisory Committee
February 25, 2016
Atlanta, GA | Hosted by Delta Air Lines, Inc.

TOC, Tactical Operations Committee
March 3, 2016
Washington, DC | Hosted by RTCA

PMC, Program Management Committee
March 17, 2016
Washington, DC | Hosted by RTCA

RTCA 2016 Global Aviation Symposium
June 1-2, 2016
Washington, DC | National Press Club

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

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