FEBRUARY 2018 | NO 240

RTCA DIGEST

NEW HEIGHTS REACHED, TOGETHER

Contents

RTCA PUBLISHES NEW STANDARDS

The Program Management Committee (PMC) recently met and approved three new documents, two revised documents, and revisions to Terms of References (TORs) for four Special Committees (SC). The following documents were approved:

DO-370, *Guidelines for In Situ Eddy Dissipation Rate (EDR) Algorithm Performance*, was prepared by SC-206 and defines the minimum user performance requirements applicable to in situ Eddy Dissipation Rate (EDR) turbulence computational algorithms.

DO-371, *MASPS for Aircraft State Awareness Synthetic Vision Systems*, was prepared jointly by SC-213 and EUROCAE WG-79, and developed to expand the previously defined DO-315A, *MASPS for Enhanced Vision Systems, Synthetic Vision Systems, Combined Vision Systems and Enhanced Flight Vision Systems*, as an intended function of an SVS beyond that of supplemental view of the external scene to include enhanced aircraft

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RTCA

2018 GLOBAL AVIATION SYMPOSIUM: FINDING COMMON GROUND

Craig Fuller, Chairman, RTCA, and Chairman, The Fuller Company

This year marks, for me, a decade of attendance at the RTCA Global Aviation Symposium. Since the beginning, this gathering has been a place to look at our progress and consider our future in the quest to optimize operations in the nation's airspace. Believe me when I say this year will not disappoint!

Whether attending the formal sessions or visiting with colleagues, all attendees will have the opportunity to take away new and actionable insights. With our airspace being the most active, complex and diverse on the planet, there are seldom easy challenges. Perhaps it's this reality that continues to bring all segments of the aviation community together at RTCA to find common ground.

[RTCA's] Symposium brings to the stage clear and candid discussions about some of our most important challenges.

Every year, RTCA explores creative ways to take part in differing points of view and bring people together in a consensus-based process, leading to meaningful recommendations. This year's Symposium brings to the stage clear and candid discussions about some of our most important challenges.

During my three-plus decades in Washington, those that gather under the auspices of RTCA are the most impressive I've seen at reaching consensus and finding a path forward for the greater good of the aviation community.

Today, more than ever, collaboration at RTCA is built around some of the toughest issues facing the aviation community. This two-day Symposium focuses on critical issues and will give all participants an up-close look at the views being discussed by leaders in the community including:

- *Implementing NextGen* – highlighting success stories, challenges of equipage, priorities of investments, community noise concerns, managing and mitigating risks, and emphasizing improvement operations in the Northeast Corridor;
- *Integrating drones into the airspace* – where are we, what's next for low altitude and flight level operations, managing risks;
- *Investing in infrastructure* – discussions about the administration's efforts on infrastructure investments and FAA reform;
- *What comes next* – with formal and informal discussions, participants will talk about what is ahead for the aviation community.

The Symposium seeks even greater engagement this year, using new one-on-one debates with hot topics, in addition to panel discussions, audience Q&A, along with keynotes from industry and government leaders.

A traditional "favorite" returns when the Symposium recognizes outstanding leaders from the industry whose commitment as volunteers make possible the work of RTCA. Everyone enjoys the celebration, acknowledging the award-winners' successes in developing vital policy recommendations and industry standards for new and emerging technologies.

Don't miss this extraordinary opportunity to join your colleagues and friends from around the world to hear and discuss the future of aviation. Judging by past years, none of us will go home without a few new good ideas and a few new friends. ■

2018 GLOBAL AVIATION SYMPOSIUM

JUNE 12-13

RTCA

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PMC continued from page 1

attitude and energy state awareness, and define a system that is intended to be presented full-time on the pilots' full color Primary Flight Displays (PFD).

DO-372, *Addressing Human Factors/Pilot Interface Issues for Avionics*, was prepared by SC-233 and developed to increase human factors awareness by the individuals who are responsible for the design and certification of the systems, equipment and related interfaces designed for and used by the flight crew. This applies to systems and equipment that are certified at the box level or installation level. The FAA documented this information previously in expired FAA notice 8110.98, addressing Human Factors/ Pilot Interface Issues of Complex, Integrated Avionics as part of the Technical Standard Order (TSO) process. Once the document was approved by the PMC, the Committee was sunset.

DO-230H, *Standards for Airport Security Access Control Systems*, was revised by SC-224. It provides guidance on acquiring and designing airport security access control systems, testing and evaluation system performance, and operational requirements. The updated document incorporates the latest technological advances in security access control systems and identifies management technologies, including smart cards and biometrics.

RTCA President Margaret Jenny recognizes PMC Member Robert Grove of Garmin, for his longtime service to the Committee

DO-311A, *Minimum Operational Performance Standards for Rechargeable Lithium Batteries and Battery Systems*, was prepared by SC-225 and turned over to an ad hoc of the PMC to resolve disagreement over the inclusion of an alternate thermal runaway test. The final approved document includes the alternate test, as well as the dissenting opinion to not include it, and the committee rebuttal to those concerns. A statement was added to the executive summary that the FAA has not acknowledged the alternate test as an acceptable means of compliance for the Battery Thermal Runaway Containment Test. The Committee was subsequently sunset.

The next PMC meeting is scheduled for March 22 at RTCA. ■

PMC Chair Chris Hegarty (center) and PMC Members at RTCA Headquarters

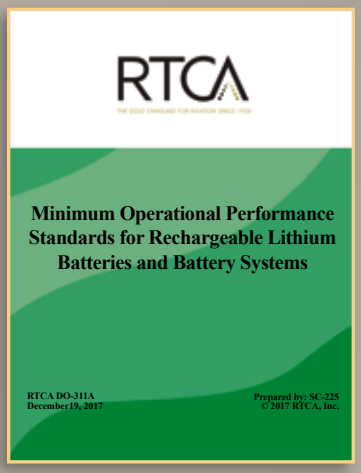
RTCA ONLINE STORE

Your one-stop resource center for documents, many of which serve as a basis for FAA Certification.

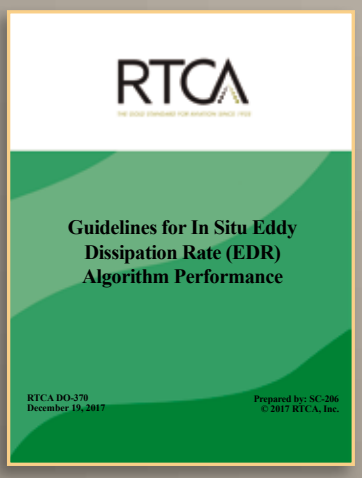
RTCA Documents:

- Establishing a common understanding of performance requirements
- Ensuring interoperability of equipment, systems and processes in the highly complex, safety-critical aviation enterprise
- Expediting innovations to market

DO-230H: Security of aiport access

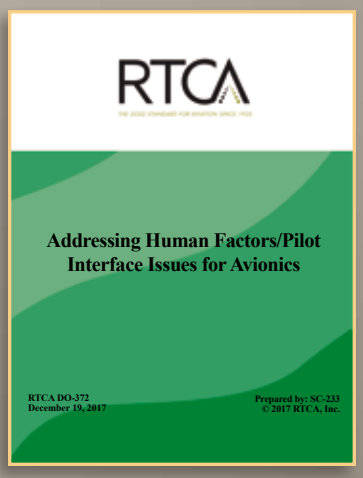


DO-311A: Safety of rechargeable lithium batteries



DO-370: Measuring turbulence

DO-371: Aircraft synthetic vision



DO-372: Addressing human factors early in design of avionics

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

NEW MEMBERS

Beijing Aeronautical Science & Technology Research Institute (BASTRI) of COMAC
Beijing, CHINA
Jianfeng Feng

BASTRI is the key innovation and entrepreneurship base of COMAC to conduct basic, strategic and forward-looking research.

Boom Technologies, LLC
Englewood, Colorado USA
Jeff Bozarth

Boom Technologies, LLC is an American startup company designing a Mach 2.2, (1,300 kn; 2,300 km/h) 55-passenger, supersonic transport with 4,500 nmi (8,300 km) of range, to be introduced in 2023.

With 500 viable routes there could be a market for 1,000 supersonic airliners with business class fares; it gathered 76 commitments by December 2017. It will keep the Concorde delta wing configuration but will be built in composite materials for lower costs. It will be powered by three dry 15,000-20,000 lbf (67-89 kN) turbofans: a derivative or a clean-sheet design to be selected in 2018. Regulations for takeoff noise or overland boom can be met or changed.

The XB-1 "Baby Boom" one-third-scale demonstrator should have its first flight in late 2018, then supersonically in 2019. Powered by three 3,500 lbf (16 kN) dry General Electric J85, it should maintain Mach 2.2 with over 1,000 nmi (1,900 km) of range.

DUATS
Falls Church, Virginia USA
Alan Bolstridge

DUATS is a service provider under contract with the Federal Aviation Administration (FAA) to provide preflight services to pilots, including flight planning and filing, providing airspace and weather/NOTAM data (both text and graphical).

International Technology and Trade Associates (ITTA)
Washington, District of Columbia USA
Joshua Marciano

ITTA is an international policy and business consulting firm. The company has substantial first-hand experience in helping clients with operational issues involving technology transfer, export control, and foreign investment policies in such industries as aerospace, aviation, defense, renewable energy, nuclear energy, cyber security, transportation, and telecommunications.

ITTA has extensive experience working with the U.S. Departments of Commerce, Defense, Energy, State, Treasury, the Office of the U.S. Trade Representative, and Congress.

Intersoft Electronics, Inc.
McLean, Virginia USA
Alex Smith

Intersoft is a rapidly growing small business that specializes in all forms of aircraft cooperative and non-cooperative surveillance. One of Intersoft's specialties is the ability to easily upgrade the performance of an aging radar system, to improve functionality, such as increased range and improved probability of detection, all the while dealing with smaller radar cross sections (e.g., drones). This provides great value to agencies that have made significant investments in legacy radar equipment and sites. With hundreds of operational sites in dozens of countries, Intersoft also provides unparalleled radar tests and evaluation services, and a complete line of advanced primary and secondary radar systems.

KLJ Instruments, Inc.
Olathe, Kansas USA
Keith Davis

KLJ Instruments specializes in providing timely, high-value solutions for testing aviation equipment. KLJ Instruments products include ARINC 429 Test Equipment and a wide range of Automatic Dependent Surveillance - Broadcast (ADS-B) test equipment for testing air traffic control ground stations and airborne avionics that transmit and receive ADS-B information. ADS-B generators can transmit and receive Mode S Squitters and Universal Access Transceivers (UAT) messages.

Maxcraft Avionics Ltd.
Pitt Meadows, British Columbia CANADA
Michael Verran

Maxcraft Avionics Ltd. provides professional avionic services to all types of private and commercial aircraft, both rotary and fixed-wing. Its services include complete panel upgrades, installation, design, fabrication, STC approval, wire kit

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New Members (continued)

fabrication, and worldwide field support. As a fully authorized representative of multiple industry-leading manufacturers, Maxcraft has an enormous inventory of serviceable avionics equipment available for sale, exchange or rent. Maxcraft is a Transport Canada approved maintenance organization holding ratings in Avionics, Structures, Instrument, Component, and Aircraft categories. It is recognized by both European Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA).

M-B Consulting

Springfield, Virginia USA
Rose Merchant-Bennett

M-B Consulting was founded in November 2016 to offer government and private business partners with over 75 years of combined experience in aviation, association management, trade and public policy consulting services.

MyDefence System Integration (MDSI)

Fredensborg, DENMARK
Karsten Madsen

MyDefence is an entrepreneurial enterprise rooted in the experience of former military officers. They leverage a deep understanding of military operations and robust insight into advanced radio technologies, with expertise of highly skilled RF engineers. They develop revolutionary, solid and superior technology, which protects infantry soldiers, from Improvised Explosive Devises (IEDs) or drones carrying explosives.

NovAtel, Inc.

Calgary, Alberta CANADA
Neil Paskiw

NovAtel's integrated global positioning helps many of the world's leading companies stay in the lead by consistently delivering OEM global satellite positioning products that are recognized for their technical innovation, unsurpassed quality and industry-leading customer support.

Since 1990, NovAtel has evolved into a global leader of over 350 employees with the industry's most comprehensive line of Global Navigation Satellite System (GNSS) products. The ability to track all constellations is significant to their customers as the more constellations tracked, the better the reliability and availability of the positioning and navigation solutions, especially in partially obstructed environments. Their customers depend on them to develop innovative positioning products that utilize satellite signals not only from currently operating systems, but also from systems to be launched in the future. Their next-generation OEM7® GNSS receiver platform exemplifies such future-proof technology.

NovAtel receivers are known for their low power consumption and comprehensive message suites for configuration and data logging. Their product line also extends to sophisticated reference receivers which they supply to the national aviation ground networks of USA, Japan, Europe, China and India.

Philadelphia International Airport

Philadelphia, Pennsylvania USA
Keith Brune

Philadelphia International Airport (PHL), the only major airport serving the nation's 7th largest metropolitan area, is a large hub airport serving more than 30 million passengers annually. Twenty-five airlines, including all major domestic carriers, offer nearly 500 daily departures to more than 120 destinations worldwide. PHL is one of the largest economic engines in the region, generating $15.4 billion to the economy and accounting for 96,300 full-time jobs annually.

TrustiPhi, LLC

Solon, Ohio USA
Andy Van Damia

TrustiPhi provides specialty engineering services to help technology companies envision, design and build successful secure products and subsystems for some of the world's largest technology companies as well as the US government and US military. ■

AVIATION STUDENT OUTREACH

RTCA's Committee Members Julie Marks, FAA; Katherine Preston, HMMH; Ralph Tamburro, Port Authority NY/NJ; Brian Townsend, American Airlines; and Nancy Young, Airlines for America, participated in a student outreach Aviation Policy Seminar. Sponsored by the University Aviation Association, students from various colleges and universities are educated on the regulatory and policy-making process while discussing current aviation issues with industry leaders. RTCA led the students in a discussion about NextGen implementation pertaining to noise and environmental issues. ■

DRONE ADVISORY COMMITTEE TO MEET IN MARCH

The next Drone Advisory Committee (DAC) meeting will take place Friday, March 9 at The MITRE Corporation in McLean, VA. Pre-registration is required (https://goo.gl/forms/uznj2SHwPJ3bUuC52). On the agenda is a report of recommendations from the UAS Funding Task Group, as well as a discussion of the FAA response to DAC recommendations. The DAC is led by Chairman Brian Krzanich, Chief Operating Officer of Intel, and Designated Federal Officer Dan Elwell, Acting Administrator of the FAA. Visit the DAC page on RTCA's website for more information. ■

NEXTGEN ADVISORY COMMITTEE TO MEET IN MARCH

The NextGen Advisory Committee (NAC) will consider recommendations for NextGen capabilities in the Northeast Corridor (NEC) at its March 14th meeting hosted by Harris Corporation in Melbourne, Florida. Chaired by Dave Bronczek, President and Chief Operating Officer of FedEx Corporation, with Dan Elwell, Acting Administrator, FAA, serving as the Designated Federal Officer, the NAC has identified the huge potential benefits of modernizing air transportation NEC. Pre-registration is required to attend this meeting. Visit the NAC page on RTCA's website for more information. ■

RTCA STAFF NEWS

Andy Cebula promoted to Senior Vice President of Policy and Programs


Andy Cebula

Andy has served as Vice President, Strategy and Programs since joining RTCA in 2010. He has led the work of the NextGen Advisory Committee as well as the Tactical Operations Committee. Andy oversees RTCA's training initiatives as well as the content of the annual Symposium. He has also provided leadership and guidance to numerous internal strategic initiatives.

"Andy's expertise, judgement and skills will help us succeed as we continue to seek consensus on policies and standards in an increasingly complex, global aviation industry," says RTCA President Margaret Jenny.

Prior to joining RTCA, Andy was a Director at Sensis; Executive VP, Government Affairs at Aircraft Owners and Pilots Association; and Vice President at the National Air Transportation Association; and prior to that, he served as a policy analyst at the FAA. Andy currently serves on the Aero Club of Washington's Board of Governors.

Leila Green promoted to Vice President of Business Operations


Leila Green

Leila has served as Director of Business Operations at RTCA since early 2016. In her role, Leila leads human resources, finance and accounting, and manages contracts for RTCA. She also serves as the Secretary for RTCA's Board of Directors. Prior to joining RTCA, Leila held positions at the Institute for Industrial Productivity; Aeronautical Systems, Inc.; the National Alliance for Public Charter Schools; and BAE Systems. She will continue to oversee all business operations at RTCA.

"Leila is a true asset to the organization, a team player whose skills and background will serve RTCA well as we strive to provide the best resources to thousands of participants on our committees," says Margaret. ■

TRAFFIC ALERT & COLLISION AVOIDANCE SYSTEM (TCAS)

COMMITTEE
SC-147, Traffic Alert & Collision Avoidance System (TCAS)

CO-CHAIRS
Ruy Brandao, Honeywell International, Inc.

J. Stuart Searight, Federal Aviation Administration

NEXT MEETING
March 6-8, 2018, at RTCA, Inc., Washington, DC

SC-147 met jointly with EUROCAE WG-75 in December 2017 at the Johns Hopkins University Kossiakoff Center in Laurel, MD. The Committee is preparing for the Final Review and Comment (FRAC) period of the ACAS Xa MOPS for publication in Spring 2018.

ACAS Xa has been developed as a TCAS II-like system, designed to provide more appropriate alerts and collision avoidance guidance for today's airspace. The ACAS Xa MOPS also includes ACAS Xo functionality, which provides the ability for a flight crew to designate an aircraft for which operational specific alerting criteria can be applied.

SC-147 and WG-75 will meet again in March to review the final resolutions and the final draft of the MOPS. It is anticipated that the groups will formally approve commencement of the FRAC/Open Consultation (OC) process for the ACAS Xa/Xo MOPS and then meet in May to address FRAC/OC comments and approve the MOPS.

STANDARDS OF NAVIGATION PERFORMANCE

COMMITTEE
SC-227, Standards of Navigation Performance

CHAIR
Mike Cramer, The MITRE Corporation

NEXT MEETING
TBD

SC- 227 met in plenary in early December in Washington, DC at RTCA. The Committee met to resolve comments received during the Final Review and Comment period for the proposed updates to DO-257A, *Minimum Operational Performance Standards for the Depiction of Navigational Information on Electronic Maps*.

The approved revisions, creating DO-257B, will be considered for publication by the Program Management Committee at their March meeting.

Although SC-227 does not have plans to publish any further documents, the Committee will be in hiatus while members of the Committee observe the work of EUROCAE's WG-107, RNP Reversion Based on DME/DME, to identify if coordination with EUROCAE is desired.

AERONAUTICAL INFORMATION AND METEOROLOGICAL DATA LINK SERVICES

COMMITTEE
SC-206, Aeronautical Information and Meteorological Data Link Services

CO-CHAIRS
Tom Evans, NASA

Rocky Stone, United Airlines, Inc.

NEXT MEETING
March 12-15, 2018, at Harris Corporation, Palm Bay, FL

SC-206 met in early December at Harris Corporation in Herndon, VA.

Sub-Group 5 (SG-5) continues to work on revising DO-358, *Minimum Operational Performance Standards (MOPS) for Flight Information Services Broadcast (FIS-B) with Universal Access Transceiver (UAT),* expecting a delivery in late 2018.

SG-4, under the leadership of Co-Chairs Tammy Farrar Flowe (FAA) and Bill Watts (Delta Air Lines, Inc.), received Program Management Committee (PMC) approval for the publication of DO-370, *Guidelines for In Situ Eddy Dissipation Rate (EDR) Algorithm Performance,* at the PMC December meeting.

A group of members from SC-206 in discussion

ENHANCED FLIGHT VISION SYSTEMS AND SYNTHETIC VISION SYSTEMS

COMMITTEE
SC-213, Enhanced Flight Vision Systems and Synthetic Vision Systems

CO-CHAIRS
Tim Etherington, Rockwell Collins, Inc.

Patrick Krohn, Universal Avionics Systems Corporation

NEXT MEETING
April 17-19, 2018, at EASA, Cologne, Germany

SC-213 and EUROCAE WG-79 met in December 2017 and in January 2018 to discuss a motion to initiate EUROCAE's Open Consultation (OC) and RTCA's Final Review and Comment (FRAC) period for a new document, *Minimum Aviation System Performance Standard (MASPS) for a Combined Vision Systems for Rotorcraft Operations*.

The motion was approved and the period for comments began January 30th and will end March 16th.

At the next Plenary, the joint Committee will consider a motion to begin the FRAC process for another document, *Safety Performance Requirements for Complete Vision Systems*.

AERONAUTICAL SYSTEMS SECURITY

COMMITTEE
SC-216, Aeronautical Systems Security

CHAIR
David Pierce, General Electric Aviation

NEXT MEETING
March 19-23, 2018, at EUROCAE, Saint-Denis, France

SC-216 held a joint meeting with EUROCAE WG-72 in mid-December in Melbourne, FL, hosted by Embraer.

They approved the release of DO-356A/ED-203A, *Airworthiness Security Methods and Considerations*, for Final Review and Comment (FRAC)/Open Consultation (OC). The document is expected to be presented at the June Program Management Committee meeting for approval. ED-203A will be presented to the EUROCAE Council for simultaneous approval and publication.

Aeronautical Systems Security members at Embraer


Richard Nguyen


Stephen Diehl


Norman Pereira


John Trela


Jeff Densmore

SPOTLIGHT ON VOLUNTEERS: SC-225 AND SC-235 PROVIDE GUIDANCE FOR LITHIUM BATTERIES IN AIRCRAFT

"In response to a National Transportation Safety Board investigation, RTCA was asked to respond quickly to the highly-public issue of lithium batteries on aircraft," said RTCA President Margaret Jenny. "The skilled leadership of Richard Nguyen, Stephen Diehl, Norman Pereira, John Trela, and Jeff Densmore enabled their respective committees to remain focused on their tasks and produce timely standards that will have an immediate and positive impact on aviation."

SC-225, Rechargeable Lithium Batteries & Battery Systems, was established in 2010 to develop certification guidance for small and medium rechargeable lithium batteries and battery systems. After developing DO-347, *Certification Test Guidance for Small and Medium Sized Rechargeable Lithium Batteries and Battery Systems*, in 2013, the group began working on the revision of DO-311, Minimum Operational Performance Standard (MOPS) for Rechargeable Lithium Battery Systems, to assure the batteries and battery systems will perform their intended function(s) safely under conditions encountered in aeronautical operations.

In June 2015, SC-235, Non-Rechargeable Lithium Batteries, was established to revise DO-227, *MOPS for Lithium Batteries*, to incorporate new technology and lessons learned covering on-rechargeable lithium battery technology and the use of non-rechargeable lithium batteries. The goal of both special committees has been to capture the most current understanding of rechargeable and non-rechargeable lithium battery technology, to ensure safety and efficiency in battery design, testing, installation and system management.

As the Designated Federal Officer for both SC-225 and SC-235, Norman Pereira represented the Federal Aviation Administration in the updating of DO-311 and DO-227. In describing the work of the committees, he stressed the importance of continued cooperation among the many parties in the aviation industry.

"There were many contentious and passionate debates between members, and safety always had to be at the forefront of these resolutions," Norman said. "The conversations were not always easy, but having a safe product on aircraft made it all worthwhile."

Norman gave special thanks to his fellow committee members of SC-225, Richard Nguyen and Stephen Diehl, both of whom were critical in the successful adoption of DO-311. Having retired before the completion of the project, Stephen might have been forgiven for leaving the issue in the hands of his colleagues, but he chose to stay on until the task was complete. That continuing dedication and support, according to Norman, was critical to the ultimate success of the Committee and was mirrored and magnified by Richard's presence and input. In serving with Norman and Stephen, Richard says they each helped address the myriad of concerns surfaced by the committee members.

While SC-225 addressed rechargeable batteries, SC-235 was tasked with revising non-rechargeable lithium batteries. John Trela, a Boeing Commercial Airplanes Battery IPT project engineer, chaired SC-235 through this process. He ultimately guided the group to a consensus on a definition of "thermal runaway". In addition, the Committee determined the requirements and test methods to characterize the impact of a thermal runaway condition of a non-rechargeable lithium battery installed in an end item.

"Updating DO-227 was a team effort, but specifically I would like to thank the leadership team of Norm Pereira, Karan Hofmann, and Jeff Densmore for their guidance and execution," John said. "I would also like to acknowledge Jim Russell, Stuart Inkpen, and John Nielsen. They went above and beyond to ensure technical accuracy and clarity of the document."

Jeff Densmore, Director of Engineering for Radiant Power Corp. and Dukane Seacom Inc, and Secretary for SC-235, had similar sentiments about his colleagues, whom he acknowledged for their ability to overcome obstacles and develop agreements that appealed to all parties.

"There were a wide variety of technical opinions discussed during our committee meetings, which were sometimes quite contentious," he said. "Resolving these into a single set of requirements and test procedures that we could reach consensus on was the most challenging aspect of the Committee's work."

DFO Norman Pereira also praised the SC-235 members for their focus in developing the update to enhance safety which was quite evident in all the Committee proceedings. He continued that with all the participation and help of the entire committee, the final document was a very good document that would enhance safety. "[Specifically] I would also like to applaud the contributions of Nazih Khaouly of the FAA, as well as Steve Summer from the FAA Technical Center for their contributions to the both standards, DO-311 and DO-227A," he said.

Throughout the process of revising and completing their documents, these five individuals embodied the spirit of collaboration that is central to RTCA's mission. As they move forward to work on future projects, the industry will continue to rely on their guidance and consensus-building to continue improving the state of aviation. ■

NEW DOCUMENTS

Aeronautical Data

DO-370, Guidelines for In Situ Eddy Dissipation Rate (EDR) Algorithm Performance

Issued 12-19-2017 | Prepared by SC-206

This document defines the minimum user performance requirements applicable to in situ Eddy Dissipation Rate (EDR) turbulence computational algorithms (hereafter referred to as "the EDR algorithm"). In situ, as used herein, refers to calculations that use aircraft derived observations, obtained through direct contact with the atmosphere or aircraft, as input (as opposed to remote sensing observations, such as RAdio Detection and Ranging (RADAR) or LIght Detection and Ranging (LIDAR)).

DO-370 Supplement, Algorithm Inputs

Issued 12-19-2017 | Prepared by SC-206

This data supplement to DO-370 is a zip file archive that contains simulated aircraft data files and other supplementary material described in Section 2. The archive includes 19 sets of test data arranged in directories. Each set contains the data necessary for testing a different turbulence scenario. This supplement is available only by electronic download.

Batteries

DO-311A, Minimum Operational Performance Standards for Rechargeable Lithium Batteries and Battery Systems

Issued 12-19-2017 | Prepared by SC-225

This standard is intended for designers and manufacturers of rechargeable lithium batteries and battery systems, aircraft manufacturers, aircraft equipment installers, and users within the aviation community. Meeting the requirements of this standard provides a means of assuring that the batteries and battery systems will perform their intended function(s) safely under conditions encountered in aeronautical operations. To ensure safe operation on the aircraft, it is imperative that users of this standard thoroughly understand the aircraft performance requirements and the capabilities and limitations of the batteries and battery systems. It is the equipment installer's responsibility to ensure that the batteries and battery systems meet the certification and installation requirements of the aircraft. Any regulatory application of this standard is the responsibility of the applicable government agency. This standard provides design, testing, and installation guidance for rechargeable lithium battery systems that are permanently installed on aircraft, including standalone and embedded batteries. It addresses all sizes of rechargeable lithium battery systems regardless of energy content (watt-hours). Batteries or battery systems that are less than two watt-hours are exempt from this standard if they have met the requirements of applicable UL or IEC standards. Otherwise, the requirements of this standard apply.

Enhanced Vision

DO-371, Minimum Aviation System Performance Standards (MASPS) for Aircraft State Awareness Synthetic Vision Systems

Issued 01-9-2018 | Prepared by SC-213

DO-371 was originally prepared by RTCA Special Committee 213 jointly with EUROCAE WG-79. This document expands the previously defined DO-315A intended function of an SVS beyond that of supplemental view of the external scene_for CFIT reduction risk_to include enhanced aircraft attitude and energy state awareness and defines a system that is intended to be presented full-time on the pilots' full color Primary Flight Displays (PFD).

This document has been released as a technically equivalent document with ED-249.

Human Factors

DO-372, Addressing Human Factors/Pilot Interface Issues for Avionics

Issued 12-19-2017 | Prepared by SC-233

The objective of this document is to increase human factors awareness by the individuals who are responsible for the design and certification of systems and equipment and related interfaces designed for use by the flight crew. This applies to

(continued on page 15)

NEW DOCUMENTS

New Documents (continued)

systems and equipment that are certified at the box level or installation level. The FAA documented this information previously in expired FAA Notice 8110.98, Addressing Human Factors/Pilot Interface Issues of Complex, Integrated Avionics as Part of the Technical Standard Order (TSO) Process. The original notice only addressed the TSO process, however human factors issues were being regularly identified late in the Type Certificate (TC), Supplemental Type Certificate (STC), and Amended Type Certificate (ATC) processes with installed avionics. This document outlines a process for identifying the flight crew interface aspects of a system as part of the engineering design and certification process and provides previously approved design examples of how human factors issues have been addressed.

The first section of this document is based on the original steps in expired FAA Notice 8110.98 but extends the process to include TC, STC, and ATC. The second section provides the types of human factors issues previously identified in certification programs and approved design examples. Not every human factors issue encountered is covered. The focus remained on two core principles: (1) identifying human factors aspects in a generic evaluation process that could be scaled as appropriate to the scope and size of the project, and used by avionics manufacturers, Original Equipment Manufacturers (OEMs), and certification authorities alike, and (2) including only those human factors issues that were recurring in the certification process and had a clear human factors basis.

Neither the process nor the examples are meant to be prescriptive. Good practices and lessons learned are provided as a means to inform the development and certification process in an effort to avoid common pitfalls that have been observed in past certification efforts. This document is not intended as a means of compliance for certification. Regulatory requirements and guidance take precedence over the content of this document.

More information on FAA human factors in aviation safety can be found at: http://www.faa.gov/aircraft/air_cert/design_approvals/human_factors/

Security

DO-230H - Standards for Airport Security Access Control Systems

Issued 12-19-2017 | Prepared by SC-224

The document provides guidance on acquiring and designing airport security access control systems, testing and evaluating system performance, and operational requirements. It should be emphasized that these guidelines and standards are not regulatory in nature but represent the industry'ss derived consensus on standards and provisions to be met in achieving consistency and interoperability in an airport access control environment. This updated document incorporates the latest technological advances in security access control systems and identity management technologies, including smart cards and biometrics. The nature of the changes in available technology, and the need to enhance sections pertaining to perimeter security, security operation support, and identity management requirements, has led to a few changes in this document. Specifically updated are the following sections: • Introduction and Overview • Credentialing • Physical Access Control Systems (PACS) • Video Surveillance Systems • Communications Infrastructure. Following the approach adopted in previous versions of DO-230 and recognizing that both technology and regulation proceed apace and await no man, it was decided that a strict adherence to what was required by the regulations at the date of issue was pointless as it would be quickly obsolete. This RTCA DO-230H document contains forward-thinking references to technology, processes and guidance which continue to evolve. Where applicable, the Committee has made these references in the interest of providing a complete picture of the possible direction of a standard and/or technology. An example of this is the evolution of cloud computing and the ongoing development of standards by various professional, academic and standards organizations.

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

AERONAUTICAL DATABASES

COMMITTEE
SC-217,
Aeronautical Databases

CO-CHAIRS
Stephane Dubet,
France SIA (AIS)

Brian Gilbert,
The Boeing Company

NEXT MEETING
February 27-March 2, 2018,
at EUROCONTROL,
Brussels, Belgium

SC-217 met jointly with EUROCAE WG-44 in Phoenix, Arizona, and was hosted by Honeywell International, Inc. The joint Committee continues to address the updates requested to the joint document DO-201A/ED-77A, *User Requirements for Navigation Data*, which is scheduled to be completed in 2018.

SC-217 at Honeywell facilities in Phoenix, AZ

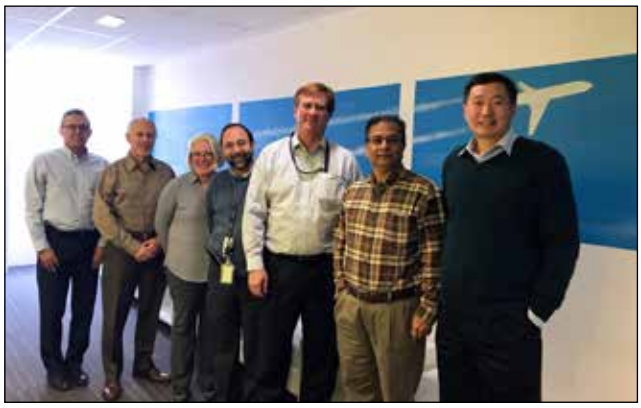
INTERNET PROTOCOL SUITE (IPS) AND AEROMACS

COMMITTEE
SC-223, Internet Protocol Suite (IPS) and AeroMACs

CHAIR
Aloke Roy, Honeywell International, Inc.

NEXT MEETING
March 5-9, 2018, at Rockwelll Collins, Inc., Melbourne, FL

SC-223 met in early December in Washington, DC to continue reviewing potential Request for Comment (RFC) standards to bring consensus on the Interactive Electronic Technical Publications (IETP) RFP profiles to be included in their next document, *Aviation Profiles for Internet Protocol Suite*. The Committee also discussed the possibility of joining with a new EUROCAE working group, WG-108, which will be established in February. The intent of becoming a joint committee is to have international harmonization for the standards on the implementation of IPS.



SC-223 Members at RTCA headquarters

AIRPORT SECURITY ACCESS CONTROL SYSTEMS

COMMITTEE
SC-224, Airport Security Access Control Systems

CO-CHAIRS
Alan Paterno, Transportation Security Administration

Christer Wilkinson, AECOM Technology Solutions

NEXT MEETING
February 22, 2018, at RTCA, Inc., Washington, DC

SC-224 met in mid-December and in late January at RTCA Headquarters to continue working on DO-230I, *Standards for Airport Security Access Control System*, to reflect technology advancements. It is scheduled for delivery in late 2018.

The Committee presented DO-230H, *Standards for Airport Security Access Control System*, to the Program Management Committee in December, and was approved for publication. The document updates the Credentialing, Access Control Systems, and Communications sections.

2018 COURSE CALENDAR*

TRAINING CENTER

DO-178C, SOFTWARE CONSIDERATIONS IN AIRBORNE SYSTEMS AND EQUIPMENT CERTIFICATION, TRAINING COURSE

April 2-4
June 26-28
September 10-12
December 11-13

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

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

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

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

SUPPLEMENTS TO DO-178C, SOFTWARE CONSIDERATIONS IN AIRBORNE SYSTEMS AND EQUIPMENT CERTIFICATION, TRAINING COURSE

April 5
June 29
September 13
December 14

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

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

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

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

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

2018 COURSE CALENDAR*

TRAINING CENTER

Limited space: Register Today!

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

April 9-12 at RTCA
Oct 1-4 at WSU
Dec 11-14 at RTCA

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

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

DO-254, DESIGN ASSURANCE GUIDANCE FOR AIRBORNE ELECTRONIC HARDWARE, TRAINING COURSE

April 2-4
September 10-12
December 3-5

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

This three-day course will:

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

*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.

406 MHZ EMERGENCY LOCATOR TRANSMITTERS (ELTS)

COMMITTEE
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)

CHAIR
Tom Pack,
ACR Electronics

Philippe Plantin de Hugues, Bureau d'Enquêtes et d'Analyses (BEA)

NEXT MEETING
March 13-16, 2018,
at Thales, Toulouse, France

SC-229 met jointly with EUROCAE WG-98 at RTCA Headquarters in mid-December in Washington, DC. The joint Committee is completing the revisions to RTCA DO-204A and EUROCAE ED-62A to produce a technically equivalent specification for Emergency Locator Transmitters at 406 MHz. At the next Plenary, both committees will consider opening the document for concurrent Final Review and Comment and Open Consultation. The final document is expected to be delivered to the Program Management Committee and EUROCAE Council for approval and publication in 2018.

RTCA SC-229 and EUROCAE WG-98

AIRBORNE WEATHER DETECTION SYSTEMS

COMMITTEE
SC-230, Airborne Weather Detection Systems

CO-CHAIRS
Jeff Finley,
Rockwell Collins, Inc.

Dawn Gidner,
Honeywell International, Inc.

NEXT MEETING
April 4-5, 2018, at RTCA, Inc.,
Washington, DC

SC-230 met in early January and received approval for the release of their two documents for Final Review and Comment (FRAC). These documents are DO-220A Change 1, *Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar Systems Capability*, and DO-213A Change 1, *Minimum Operational Performance Standards for Nose-Mounted Radomes*. The Committee is scheduled to present both documents at the June 2018 Program Management Committee meeting for approval.

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

COMMITTEE
SC-236, Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz

CHAIR
Michael Franceschini, Honeywell International, Inc.

NEXT MEETING
February 27-March 2, 2018, at RTCA, Inc., in Washington, DC

SC-236 met in a joint plenary with EUROCAE WG-96 in early December in Cologne, Germany, hosted by EASA. The Committee is working to create a joint standard with WG-96 to define the Minimum Operational Performance Standard (MOPS) to use Wireless Avionic Intra-communication in the 4200-4400 MHz band.

During the meeting, progress was made to identify parameters for shaping the MOPS requirements needed to ensure that multiple WAIC systems can function concurrently with Radio Altimeters in the 4200–4400 MHz band.

SC-236 and EUROCAE WG-96 in Cologne, Germany

RTCA CALENDAR

February

February 6-7
SC-222, AMS(R)S
Virtual

February 22
SC-224, Airport Security Access Control Systems
Hosted by RTCA
Washington, DC

February 27-March 2
SC-236, Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz
Hosted by RTCA
Washington, DC

February 28-March 2
SC-217, Aeronautical Databases
Hosted by EUROCONTROL
Brussels, Belgium

March

March 1
TOC, Tactical Operations Committee
Hosted by RTCA
Washington, DC

March 5-9
SC-223, Internet Protocol Suite (IPS) and AeroMACS
Hosted by Rockwell Collins, Inc.
Melbourne, FL

March 9
DAC, Drone Advisory Committee
Hosted by The MITRE Corporation
McLean, VA

March 12-15
SC-206, Aeronautical Information and Meteorological Data Link Services
Hosted by Harris Corporation
Palm Bay, FL

March 13-16
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
Hosted by Thales
Toulouse, France

March 14
NAC, NextGen Advisory Committee
Hosted by Harris Corporation
Melbourne, FL

March 16
SC-159, Navigation Equipment Using the Global Navigation Satellite System (GNSS)
Hosted by RTCA
Washington, DC

March 19-23
SC-216, Aeronautical Systems Security
Hosted by EUROCAE
Saint Denis, France

March 22
PMC, Program Management Committee
Hosted by RTCA
Washington, DC

March 29
SC-224, Airport Security Access Control Systems
Hosted by RTCA
Washington, DC

April

April 2-4
DO-254 Training
Hosted by RTCA
Washington, DC

April 2-4
DO-178C Training
Hosted by RTCA
Washington, DC

April 4-5
SC-230, Airborne Weather Detection Systems
Hosted by RTCA
Washington, DC

April 5
Supplements to DO-178C Training
Hosted by RTCA
Washington, DC

April 9-12
DO-160G Training
Hosted by RTCA
Washington, DC

April 9-13
SC-216, Aeronautical Systems Security
Hosted by RTCA
Washington, DC

April 17-19
SC-213, Enhanced Flight Vision System & Synthetic Vision Systems
Hosted by EASA
Cologne, Germany

April 17-19
SC-214, Standards for Air Traffic Data Communication Services
Hosted by RTCA
Washington, DC

April 26
SC-135, Environmental Testing
Hosted by RTCA
Washington, DC

May

May 22-25
SC-236, Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz
Hosted by Airbus
Toulouse, France