Leading RTCA Committees that serve vital roles in ensuring success in the integration of drones, implementing NextGen, developing critical performance standards and successful operational transitions in the air traffic control system all met recently. The RTCA Drone Advisory Committee (DAC), NextGen Advisory Committee (NAC), Program Management Committee (PMC), and Tactical Operations Committee (TOC) convened to approve recommendations, establish priorities and discuss taskings. See inside for more details!
RTCA is a unique organization, and although our standards and policy recommendations have achieved world-wide adoption, our only authority is derived from the collaborative, consensus process by which we develop our recommendations. Since 1935, RTCA recommendations have provided the foundation for virtually every modern technical advancement in aviation, and have helped mold national decisions fostering a healthy air transportation system.

Nearly 1400 aviation industry professionals from more than 600 entities, volunteer valuable time and expertise on more than 20 technical and policy committees. Operating under the rules of the Federal advisory committee act, diverse organizations create consensus standards and policy recommendations consistent with US anti-trust regulations. Further, when a group is asked to render advice, and support the collective outcome to the federal government, it must be done under the rules of the FACA.

RTCA committee members recognize that air transportation system modernization requires more than the deployment of new technologies. Government and industry must introduce procedures and policies and overcome political and organizational challenges to modernize the air transportation system. With constrained budgets, the FAA has routinely turned to RTCA committees to recommend investment priorities. The committees in turn have committed themselves to tackling these tough issues in collaboration with the FAA.

The FAA has utilized RTCA because of its long record of providing sound advice and building industry consensus in a public setting that is not controlled by particular vested interests. A critical component of its success is the professional RTCA staff who possess the technical, operational and policy aviation knowledge required to steer the committees developing policy recommendations and technical performance standards.

Key RTCA Accomplishments:

PRIORITIES AND SOLUTIONS FOR AIR TRAFFIC MANAGEMENT SYSTEM MODERNIZATION: The NAC and TOC have worked in unprecedented collaboration with the FAA, and with skilled support from RTCA staff, to set priorities in an era of constrained budgets and to identify and resolve obstacles to achieving benefits of NextGen.

USE OF GPS IN AIRCRAFT: Standards set the parameters for GPS’s core role in aircraft precision navigation and air traffic control, enhancing the safety of flight.

AIRCRAFT COLLISION AVOIDANCE - LAST LINE OF DEFENSE: Defined the ubiquitous aircraft collision avoidance system, saving many lives.

DIGITAL COMMUNICATION BETWEEN AIR TRAFFIC CONTROLLERS AND PILOTS: Paved the way to replace aging and inefficient controller-pilot voice communications with data communications to enable efficient aircraft routes, and elimination of errors due to pilots mishearing controller directions.

INTEGRATION OF UAS INTO THE AIRSPACE: Enabled the safe introduction of unmanned aerial systems (UAS) into the airspace and is addressing issues associated with fostering the growth of aviation users.

SOFTWARE FOR SAFETY CRITICAL SYSTEM: Established guidelines for software in safety-critical systems relied upon by the aviation industry to carry millions of passengers safely and efficiently, and now, for the millions of drones poised to enter the airspace.

US LEADERSHIP AND GLOBAL HARMONIZATION: Many RTCA standards are developed jointly with Europe and, therefore, adopted by the International Civil Aviation Organization to become global standards.

continued on page 6
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The Tactical Operations Committee (TOC) held its final meeting in early March, approving recommendations on better understanding and mitigating the operational impact of intentional GPS interference. Intentional interference testing and training, conducted primarily by the Department of Defense by Presidential Directive, degrades GPS signals and can impact aircraft operations in the National Airspace System. The recommendations highlight the importance of collecting data on the operational impact and improving information and training provided to pilots and controllers to manage operations during such interference tests.

Citing budget constraints, the FAA decided to shut down the Committee that was established in 2013 to tackle tactical issues in the NAS. The TOC has forged consensus-based innovative solutions to many issues throughout its tenure. Members of the Committee subsequently expressed disappointment and concern about this decision and its effect on future work, as well as the disposition of previous recommendations. The FAA advised the TOC that it will continue to evaluate and follow up on open recommendations from the Committee. There are five open recommendations, and the FAA is expected to inform the TOC about its plans to continue reporting out to the industry on these recommendations.

Current TOC Co-Chairs are Bart Roberts, of JetBlue Airways, and Jeff Woods, of the National Air Traffic Controllers Association, and Jodi McCarthy, Vice President Mission Support, acting as the Designated Federal Officer. The TOC has delivered more than 20 actionable recommendations to the FAA since its inception.

To see a complete listing of the TOC recommendations, please visit the TOC webpage.

RTCA hosted two students shadowing engineering professionals as part of Engineering Week 2018. Akira White and Tifari Walker (center), both seniors at Phelps Senior High School of Architecture, Construction and Engineering, visited the RTCA offices in Washington, DC. They attended the beginning plenary session of SC-224 and listened to the North East Corridor NIWG review its document to be presented before the NextGen Advisory Committee.
Minimum Operational Performance Standards for the Depiction of Navigational Information on Electronic Maps

RTCA DO-257B
March 22, 2018
Prepared by: SC-227
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DO-257B, Required Navigational Performance
The Drone Advisory Committee (DAC) met in March and heard reports from the DAC Subcommittee (DACSC) Co-chairs, the DACSC Task Group (TG) 3, and the FAA.

TG3 leaders presented the group’s final report on UAS Integration Funding, and followed with a Q & A session with the committee members. Subsequently, the FAA presented responses to the DAC recommendation, Access to Airspace, that was delivered during the November 2017 DAC meeting. The meeting, hosted by The MITRE Corporation, focused on a discussion about the future of the DAC and how the FAA would engage with the Committee on future requests. The next meeting is scheduled for July 17, with the location to be determined. For more information on the most recent DAC meeting, visit the DAC webpage.

DAC members considering recommendations on Drone Integration Funding. DAC Chairman Brian Krzanich is 5th from the right, and DFO and FAA Acting Administrator Dan Elwell is 4th from the right.

ROLE OF RTCA continued from page 2

in the intricacies of the FACA requirements, RTCA Staff also ensures that committees remain compliant with the act and their defined tasks. Long after RTCA standards are published, the staff routinely fields technical questions from practitioners of our standards. They share their comprehensive understanding of FAA regulatory processes, plans, programs and organizational structure with committee leadership. They keep the FAA apprised of key issues being addressed by committees, and their advice and counsel are routinely sought by committee leadership.

RTCA offers the FAA a sizeable return on its investment. Every dollar of federal government investment in RTCA committees is tenfold in industry funding, participation and support to the committees. Industry consistently provides this support because of the value they get in return.

Every dollar of federal government investment in RTCA committees is tenfold in industry funding, participation and support to the committees.

In summary, RTCA ensures that the output of our committees is independent and objective, while the authority to establish committees, select membership, and set agendas remains with the FAA. The work and output of RTCA are a prime example of how government and industry can work together to solve issues facing our nation.
During the most recent PMC meeting, Committee members met and approved a revised document prepared by SC-227, supporting new requirements for electronic display outputs.

SC-159 also presented RTCA Program Director Rebecca Morrison with a plaque recognizing her outstanding support during the update of DO-229E, MOPS for GPS/SBAS Airborne Equipment.

(left to right): RTCA President Margaret Jenny, Program Director Rebecca Morrison, and PMC Chair and SC-159 Co-Chair Chris Hegarty, The MITRE Corporation
RTCA WELCOMES NEW MEMBERS

Aeronautical Information Service Center / Air Traffic Management Bureau / Civil Aviation Administration of China
Beijing, CHINA
Sun Jie

Aeronautical information service center is a department of Air Traffic Management’s Bureau of China, which is responsible for the publication of Chinese AIP—the transfer of Notam and the promotion of Chinese AIM implementation.

AvioniQ Engineering GmbH
Berlin, GERMANY
Hans Joachim Venrath

AvioniQ GmbH specializes in system development and aviation product life cycle processes. The company offers support in the areas of safety management, process management, innovation management, restructuring and product life cycle optimization.

BeOne Hamburg GmbH
Hamburg, GERMANY
Werner Tesch

BeOne Hamburg GmbH focuses on Engineering Services especially in Customized & Upgrade Engineering for aircraft manufacturers and suppliers, as well as airlines and MRO companies. For this aviation specific requirement, BeOne Hamburg is certificated as a Design Organization according to EASA-Part 21J since 2016. The company portfolio was expanded early with Project and Process Management. During the digitalization, their competences were combined to Digital Operations.

BeOne customers are medium-sized businesses as well as international corporations from different industries like automotive, aviation, renewable energy, production or service providers and administration. BeOne Hamburg is certified according to EN 9100:2016 / ISO 9001:2015 since 2006.

Botlink, LLC
Fargo, North Dakota USA
Terri Zimmerman

Botlink is a software system that enables users to quickly & safely capture data using drones, and distribute that data to trade tools, and react to changing conditions in real time.

Botlink integrates with existing industry analysis tools such as Procore® and AgLeaderSMS, giving them easy access to their drone data in their existing business decision-making process.

ESG Elektroniksystem- und Logistik-GmbH
Fuerstenfeldbruck, Bavaria GERMANY
Ronny Schroeder

For fifty years, ESG has been developing, integrating and operating complex, security-relevant electronic and IT systems for the military, public authorities and companies.

As a specialist system company for command and information systems, mission avionics, logistic services, simulation and training, as well as special-purpose systems, they offer customized solutions and products, and assume responsibility for the operation of complex complete systems.

ESG is an approved aeronautical company for aircraft of the German Armed Forces and Aeronautical Company, according to EASA Part 21J / G and Part 145.

H55 SA
Sion, SWITZERLAND
Sebastian Demont

Drive systems using electricity from renewable sources have a future not only on the ground, but also in the air. The people at H55 are convinced of this, and the company has joined forces with partners from the industry to develop a battery-powered stunt plane that, once charged using electricity from renewable sources, flies completely without CO2 emissions. It achieves record-breaking ranges – electrically powered aircraft to date have achieved a flight time of around ten minutes, while the new plane has stayed in the air for 45 minutes, including 30 minutes of energy-intensive aerobatics, without a drop of kerosene.

Heron Aero Solutions, LLC (HAS)
Frederick, Maryland USA
Daniel Morris

Heron Aero Solutions is an engineering, certification and PMA kit provider for aircraft operators, modifiers and manufacturers that is focused on creating cost reducing solutions for aircraft maintenance and operations issues. They also modify aircraft to improve performance or for mission specific needs.

Key Heron Aero staff have over 100 years of collective experience with a proven track record in aircraft certification and PMA parts production for FAA Part 23, 25, 27 and 29 aircraft.

Rinehart Motion Systems LLC
Wilsonville, Oregon USA
Lawrence Rinehart

Rinehart Motion Systems is focused on providing propulsion inverters and ancillary power electronics assemblies for new and emerging applications of electric (EV) and hybrid electric (HEV) ground vehicles. Their business is divided between professional motorsports (they have provided KERS hybrid hardware to the Formula One grid since the 2009 race season, presently servicing 3 teams, and in six cars every race); standard products (their PM family of 50kW – 250kW motor controls designed to ISO16750 commercial vehicle standards); and custom products (primarily military ground vehicle propulsion components, OEM automotive power electronics and propulsion hardware, and product development in vehicle controls and energy management).

Founded in 2002, the company has developed a unique packaging approach (with 6 issued Patents to date) and has established a TS16949-compliant business decision-making process.

(continued on page 9)
new product realization process and manufacturing relationships with TS-certified automotive production facilities in the US, Asia and Europe. RMS drives are typically half the size and weight, are more rugged, and are generally easier to use than competitive products. The company also provides unique customization services – offering new software features, communications protocols, custom housings and specialized functionality for different applications.

RPX Technologies - DynaVibe
Stillwater, Oklahoma USA
Matthew Dock

RPX Technologies, the maker of the DynaVibe and DynaTrack systems, was founded in 2007 by two engineers with graduate degrees in mechanical engineering. Their backgrounds include an emphasis on vibration analysis and control systems and they each have over 20 years of sensor/measurement instrumentation design experience, including expertise with data acquisition and digital signal processing.

The company’s founders are also pilots, and over 10 years ago, they recognized the need to dynamically balance helicopter rotors. They built and tested a prototype balancing system. Recognizing the opportunity for an affordable prop balancer, they refined their prototype and in 2008, delivered the 1st generation DynaVibe to the market, now known as the DynaVibe Classic.

Today, RPX Technologies continues to provide an affordable prop balancer for individual aircraft owners and small shops with the DynaVibe Classic. It has also expanded into full spectrum vibration analysis with the DynaVibe GX3, a 3rd generation balancing system that also troubleshoots complex aircraft vibration problems. The company continues to pioneer solutions to improve flight safety, ride quality, performance and lower maintenance costs by extending DynaVibe system capabilities to vibration analysis for turbine engines and helicopter track and balance.

SC3 Automation
Magog, Alberta CANADA
Julien Chouinard

The goal of SC3 Automation is to develop and sell a new generation of automation products, that has the capability to address the traditional Automation market and the Safety market.

The various automation markets are required to have safety systems in addition to the control systems. The safety systems requirements are determined by the risks associated with the process and the required risk reduction. All standards are derived from the overarching IEC61508 standard. Nowadays, whether it is the process, rail, machine, automotive, there are fundamental requirements and processes to meet those standards. It is very difficult for an organization to transform itself to meet those safety standards. A safety product platform developed by SC3 Automation will enable its customers to have products to address their market needs.

Stratolaunch
Huntsville, Alabama USA
Zachary Krevor

Stratolaunch, founded in 2011 by Paul G. Allen, is developing an air-launch platform to make access to space more convenient, reliable, and routine. They believe that normalizing access to low Earth orbit (LEO) has the potential to redefine our lives by creating more opportunities for commercial, philanthropic and governmental organizations to collect rich and actionable data and drive advancements in science, research, and technology from space.

Stratolaunch is currently under construction at the Mojave Air & Space Port in Mojave, California. They aim to be fully operational by the end of this decade.

Totaport
Kirkland, Washington USA
Peter Lemme

Totaport is a consulting firm to airlines, a subcontractor to the Federal Aviation Administration (FAA), avionics suppliers, aviation satellite service providers, satellite system analysis and architecture, data link/ACARS, and cybersecurity/networking.

VIAERO, LLC
Pembroke Pines, Florida USA
John Beatty

VIAERO, LLC is an engineering company that offers solutions to OEMs (original equipment manufacturers), aircraft operators, and repair stations (MROs). VIAERO provides engineering and certification solutions to support product development efforts, aircraft modifications, aircraft upgrades, and aircraft/component repairs. Leveraging the use of their staff, FAA designees and their relationship with the FAA Aircraft Certification Office, they can expedite the approval process.

Due to their client base over the years, they have taken a proactive role in working with Civil Aviation Authorities such as European Aviation Safety Agency (EASA), CAAC, Transport Canada, Brazil ANAC and others, to assist in obtaining validation approval from these authorities.

Zipline International Inc.
Half Moon Bay, California USA
Sebastian Lawson

Zipline operates the world’s only drone delivery system at national scale to send urgent medicines, such as blood and animal vaccines, to those in need, no matter where they live.

More than two billion people lack adequate access to essential medical products, due to challenging terrain and gaps in infrastructure.

Zipline improves access to these supplies by flying over impassable mountains and washed-out roads, delivering directly to remote clinics. They centralize supply and provide on-demand deliveries, completely reducing waste and stock-outs.

The goal of SC3 Automation is to develop and sell a new generation of automation products, that has the capability to address the traditional Automation market and the Safety market.

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Stratolaunch is currently under construction at the Mojave Air & Space Port in Mojave, California. They aim to be fully operational by the end of this decade.

Totaport is a consulting firm to airlines, a subcontractor to the Federal Aviation Administration (FAA), avionics suppliers, aviation satellite service providers, satellite system analysis and architecture, data link/ACARS, and cybersecurity/networking.
A meeting at Harris Corporation in Melbourne, FL, brought together industry and government executives working to modernize air transportation in the Northeast Corridor (NEC). The NEC encompasses airports and airspace stretching from Washington, DC to Boston, and is critical because delays in the NEC account for nearly half of all delays in the entire National Airspace System.

The NextGen Advisory Committee (NAC) heard a status report to help improve operations and launch initiatives as early as this summer. The NAC members were challenged to advance the priorities for the NEC designed for implementation in 2019-2021.

In addition to discussing the Northeast Corridor, the NAC members received updates from the NextGen Integration Working Group's four Priority Teams working on implementations of DataComm, Multiple Runway Operations, Performance Based Navigation and Surface and Data Management, as well as presentations from American Airlines and their ADS-B In equipage status; AOPA and their challenges with the approaching 2020 mandate deadline; and a response from the FAA on a NAC recommendation of Enhanced Surveillance for the Oceanic Airspace.

Visit the NAC page to view the presentations and other information from the meeting.
TRAFFIC ALERT & COLLISION AVOIDANCE SYSTEM (TCAS)

Aircraft Collision Avoidance System for NextGen (ACAS Xa, with the “a” denoting active surveillance) 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 Minimal Operational Performance Standards (MOPS) 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 met jointly with EUROCAE WG-75 at RTCA and resolved to begin the Final Review and Comment (FRAC) period for the MOPS for ACAS Xa, along with the Algorithm Design Document. Comments will be accepted until April 23, and the proposed publication of the document is scheduled for the first quarter of 2019.
SC-159, celebrated their 100th Plenary at RTCA!

The Committee was established in 1985 and has produced and maintained standards for aviation equipment using GPS. The Committee received updates on the progress of several new and revised documents, as well as the possibility of joining their committee with EUROCAE WG-62. They celebrated the conclusion of their meeting with cake!

The group is scheduled to release two documents in 2018: an update to DO-235C, The L1 Interference Environment Report (WG-6), and a new GNSS Dual-Frequency Antenna MOPS for Airborne Equipment (WG-7). WG-2, WG-2C, and WG-4 each met and reviewed contributions to their developing standards.

Details of the deliverables can be found in the Terms of References on the SC-159 Committee page.

**Committee**

SC-159, Navigation Equipment Using the Global Navigation Satellite System (GNSS)

**Co-Chairs**

Dr. Christopher Hegarty, The MITRE Corporation

Dr. George Ligler, Project Management Enterprises, Inc.

**Next Meeting**

May 3, 2018, Virtual

A full house for SC-159's 100th Plenary

Mug given by Rockwell Collins to all Committee members in attendance for that day

One of several cakes celebrating Special Committee 159

SC-159 Leadership (left to right): Program Director Karan Hofmann, Co-Chair Chris Hegarty, DFO Ken Alexander, Co-Chair George Ligler, former Program Director Hal Moses

NAVIGATION EQUIPMENT USING THE GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)
SC-186 met in late March at RTCA Headquarters to continue progress on the development of the MOPS for ADS-B. During the Plenary, The Committee received status updates from Working Group (WG)-3 on Extended Squitter MOPS in coordination with Special Committee 209, ATCRBS/Mode S Transponder, and WG-4 on Advanced-Interval Management (A-IM).

Additional briefings were provided by the FAA Surveillance & Broadcast Services Program and Aireon Corporation, looking to leverage ADS-B via Satellite.

SC-186 is working to revise DO-361, MOPS for Flight-deck Interval Management (FIM), DO-260, MOPS for 1090 MHz ADS-B, and DO-282B, MOPS for Universal Access Transceiver (UAT) ADS-B, all scheduled to be approved in the first quarter of 2020.
INTERNET PROTOCOL SUITE (IPS) AND AEROMACS

SC-223 met in Melbourne, FL, and was hosted by Rockwell Collins. Members of EUROCAE WG-108 joined members of the Committee to review the current draft of the potential Request for Comment (RFC) standards to bring consensus on the IETP RFP profiles to be included in their next document, *Aviation Profiles for Internet Protocol Suite*. The groups will work as a joint committee to complete the scope of their Terms of References. The intent of becoming a joint committee is to have international harmonization for the standards on the implementation of IPS.

Committee members meeting in Melbourne, FL, hosted by Rockwell Collins

AIRPORT SECURITY ACCESS CONTROL SYSTEMS

SC-224 met and approved the release of DO-230I, *Standards for Airport Security Access Control System*, for Final Review and Comment (FRAC). The document is expected to be presented for approval at the September Program Management Committee meeting.

SC-224 Committee members (left to right): Secretary Art Kosatka, DFO DJ Neric, Program Director Karan Hofmann, and Member Dr. Jonathan Branker
**NEW DOCUMENTS**

**Required Navigational Performance**

**DO-257B, Minimum Operational Performance Standards for the Depiction of Navigational Information on Electronic Maps**

Issued 03-22-2018 | Prepared by SC-227

This document supersedes DO-257A, Minimum Operational Performance Standards (MOPS) for the Depiction of Navigational Information on Electronic Maps, published on June 25, 2003. This MOPS update supports new requirements for electronic display outputs in DO-236C/ED-75D and DO-283B; reflects the most current human factors standards and guidelines for electronic displays; and embraces display system technology updates. DO-236C/ED-75D contains the MASPS for Required Navigation Performance (RNP) equipment, while DO-283B defines the RNP equipment MOPS. SC-227 completed the recent updates to both these standards to better support worldwide implementation of RNP operations. DO-257B supports the RNP MASPS and MOPS by directly incorporating and reflecting the display output requirements of both documents. The updates to DO-257A also ensure installed RNP equipment meets the requirements for today’s RNP operations via presentation of essential navigation information on the electronic displays the flight crews use. This includes new, updated specifications for a plan view map (i.e. the aircraft’s “navigation display”). Likewise, the new electronic display MOPS reflect updates in human factors guidelines for cockpit displays, revisions to the standards for an airport moving map display, and robust standards for presentations of vertical situation displays a flight crew can use inflight.

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.

**RTCA PARTICIPATES IN AVIATION DAY USA**

ATA and The Wings Club hosted an Aviation Day in the United States, to bring together industry experts, senior airline and airport executives, and government authorities to discuss aviation’s largest opportunities and key challenges across the New York area and the rest of the United States. RTCA President Margaret Jenny (center) participated on a panel discussion, *The Northeast Corridor—What needs to be done to support New York’s traffic growth?*

(panel members left to right): Tim Campbell, Chief Operating Officer, PASSUR; Teri Bristol, Chief Operating Officer, FAA; Margaret Jenny, President, RTCA; Jeff Martin, Executive Vice President, Operations, jetBlue; and Ed Bolen, President and CEO, NBAA
SC-217 met jointly with EUROCAE WG-44 in Brussels, Belgium and was hosted by EUROCONTROL. The joint committee continues to address the updates requested for the joint document DO-201A/ED-77A, User Requirements for Navigation Data, which is scheduled to be completed in 2018. The Committee will consider the motion to initiate Open Consultation and Final Review and Comment at their next plenary.

**AERONAUTICAL DATABASES**

SC-216 met jointly with WG-72 in Saint Denis, France, in March, and at RTCA in Washington, DC in April. They resolved over 1,300 comments from the Final Review and Comment (FRAC)/Open Consultation (OC) process for the draft document, DO-356A/ED-203A, Airworthiness Security Methods and Considerations. 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**

SC-216/WG-72 members give the "thumbs up" approval after completing their documents’ FRAC/OC processes.

SC-217 met jointly with EUROCAE WG-44 in Brussels, Belgium and was hosted by EUROCONTROL. The joint committee continues to address the updates requested for the joint document DO-201A/ED-77A, User Requirements for Navigation Data, which is scheduled to be completed in 2018. The Committee will consider the motion to initiate Open Consultation and Final Review and Comment at their next plenary.
SC-236 met in a joint plenary with EUROCAE WG-96 at RTCA. The Committee is working to create a joint standard to define the Minimum Operational Performance Standard (MOPS) to use Wireless Avionic Intra-communication in the 4200-4400 MHz band.

During the meeting, the groups discussed issuing a white paper in 2019 to identify spectrum sharing test parameters. This paper will be a first step in identifying parameters for shaping the minimum operational performance requirements needed to ensure that multiple WAIC systems can function concurrently with Radio Altimeters in the 4200–4400 MHz band.
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.

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

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

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

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

*Unless otherwise noted, all training courses will take place at RTCA Headquarters, located conveniently in downtown Washington, DC. For additional information, please visit [www.rtca.org](http://www.rtca.org) or email training@rtca.org.*
DO-160G, ENVIRONMENTAL CONDITIONS AND TEST PROCEDURES FOR AIRBORNE EQUIPMENT, TRAINING COURSE

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

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.
SC-229 met jointly with EUROCAE WG-98 in Toulouse, France at Thales Alenia Space. The Committee reviewed comments and the revisions to RTCA DO-204A and EUROCAE ED-62A, Minimum Operational Performance Standards for 406 MHz Emergency Locator Transmitters (ELT), to produce a technically equivalent specification for Emergency Locator Transmitters at 406 MHz. The joint Committee will finalize the internal comments and consider a motion to initiate the concurrent Final Review and Comment and Open Consultation at the next plenary. The final document is expected to be delivered to the PMC for approval and publication in December 2018.
SC-206, hosted by Harris Corporation, held their 50th Plenary in Palm Bay, FL. The Committee 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.

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

Co-Chairs
Tom Evans, NASA
Rocky Stone, United Airlines, Inc.

Next Meeting
June 11-15, 2018 at Aircraft Owners and Pilots Association, Frederick, MD

SC-206 members touring the Harris Global Innovation Center

Committee members celebrating their 50th Plenary at dinner in FL
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<tr>
<td>7:30-8:30</td>
<td>BREAKFAST</td>
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<tr>
<td>8:30-9:05</td>
<td>Introduction and Keynote</td>
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<tr>
<td>9:05 – 9:55</td>
<td>NextGen in the Northeast Corridor: Let’s Do This!</td>
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<td>9:55-10:15</td>
<td>NETWORKING BREAK</td>
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<tr>
<td>10:15-11:05</td>
<td>Integrating Drones into the Airspace: What’s Next?</td>
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<tr>
<td>11:05-11:45</td>
<td>Global Leadership, Global Harmonization</td>
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<tr>
<td>11:45-12:10</td>
<td>Moving Civil Aviation Authorities to Risk-based Regulations</td>
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<tr>
<td>12:10-12:30</td>
<td>NETWORKING BREAK</td>
</tr>
<tr>
<td>12:30 – 2:00</td>
<td>ANNUAL AWARDS LUNCHEON: Recognition of Excellence - A Conversation with FAA’s Ali Bahrami</td>
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<td>2:15-3:05</td>
<td>Breaking the Barriers to NextGen: Equipage, Environment and Funding</td>
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<td>3:05-3:45</td>
<td>Assessing Risk of Drones: National Academies Report</td>
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<tr>
<td>3:45-4:05</td>
<td>NETWORKING BREAK</td>
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<tr>
<td>4:05-4:45</td>
<td>Technical Performance Standards: Paving the Way for Integrating UAS in the NAS</td>
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<tr>
<td>4:45-5:15</td>
<td>What’s Happening in the Autonomous Automobile World?</td>
</tr>
<tr>
<td>5:30 – 7:00</td>
<td>INDUSTRY RECEPTION</td>
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RTCA CALENDAR

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

April 2-4
DO-178C Training
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
SC-214, Standards for Air Traffic Data Communication Services
Hosted by RTCA
Washington, DC

April 18-19
SC-213, Enhanced Flight Vision System & Synthetic Vision Systems
Hosted by EASA
Cologne, Germany

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

May
May 2-3
SC-230, Airborne Weather Detection Systems
Hosted by RTCA
Washington, DC

May 3
Hosted by RTCA
Virtual

May 10
SC-224, Airport Security Access Control Systems
Hosted by RTCA
Washington, DC

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

June
June 4-8
SC-223, Internet Protocol Suite (IPS) and AeroMACS
Hosted by EUROCAE
Saint Denis, France

June 11-15
SC-206, Aeronautical Information and Meteorological Data Link Services
Hosted by AOPA
Frederick, MD

June 12
RTCA Symposium
Hosted by RTCA
Hyatt Regency
Arlington, VA

June 18-22
SC-217, Aeronautical Databases
Hosted by RTCA
Washington, DC

June 18-22
SC-229, 406 MHz Emergency Location Transmitters (ELTs)
Hosted by RTCA
Washington, DC

June 21
PMC, Program Management Committee
Hosted by RTCA
Washington, DC

June 25-28
SC-214, Standards for Air Traffic Data Communication Services
Hosted by EUROCAE
Paris, France

June 26-27
SC-222, AMS(R)S
Hosted by RTCA
Virtual

June 26-28
DO-178C Training
Hosted by RTCA
Washington, DC

June 28
NAC, NextGen Advisory Committee
Hosted by The MITRE Corporation
McLean, VA

June 29
Supplements to DO-178C Training
Hosted by RTCA
Washington, DC