NEW HEIGHTS REACHED, TOGETHER

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NEXTGEN ADVISORY COMMITTEE TAKING ON BIG CHALLENGES

Under the leadership of Chairman Dave Bronczek, President & COO of FedEx Corporation, and Designated Federal Official, Victoria Wassmer, FAA Acting Deputy Administrator, the NextGen Advisory Committee (NAC) reached consensus in

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Today, trust and collaboration are in short supply around Washington, D.C. However, for decades, RTCA has demonstrated that trusted collaboration is possible and effective. The approach has served the aviation community well along with the Federal Aviation Administration (FAA) since the Radio Technical Committee for Aeronautics (RTCA) was formed in 1935. However, I doubt that any decade-long period in the proud history of the RTCA could demonstrate more extensive results than we have witnessed around the design and implementation of the NextGen Program.

Through the RTCA and its NextGen Advisory Committee (NAC), hundreds of representatives from the aviation community and leading members of the FAA have collaborated under the leadership of chairmen who came from airline leadership positions to chair the undertaking. Representatives from industry, aviation associations, airports and air traffic controllers worked side by side with senior FAA officials to bring focus and agreement around the priorities associated with modernizing the largest, most diverse and safest air transportation system in the world.

With growing awareness that the work of the NAC is providing favorable results for operators in the national airspace, it is useful to ask why this process has worked. From my perspective as a former aviation association CEO and the current chairman of RTCA, it boils down to the reality that the RTCA provides a trusted forum in which leaders from the community can engage in meaningful discussions that lead to actionable recommendations. And once conclusions are reached and shared with the FAA, the aviation community embraces the direction taken and drives to produce measurable results.

Perhaps because many of us have been so engaged in the consensus process over the past few years, we almost take for granted the advantages of this approach. Through the NAC, important points of view are placed on the table for consideration. Industry and the FAA inform the discussion with facts. Metrics aid in a better understanding of what is working and what is not, and when failing to achieve desired results, the community can evaluate the relevant issues and adjust the approach. Furthermore, this all happens in a transparent process allowing all interested parties to witness the discussions and recommendations flowing from the process.

The value of trusted collaboration should serve the aviation community well as we look ahead regarding NextGen. I think it’s widely recognized that modernization is an ongoing endeavor. With important foundational technology put in place, the time for realizing returns on investments is now through the end of the decade.

Important initiatives include the newly established priority of implementing NextGen capabilities in the Northeast Corridor. Recently embraced by the NAC, this puts a real focus on using the tools now available and coming online to take on the most challenging airspace in the nation.

NextGen provides the capabilities to operate at airports in IFR environments with separations closer to VFR conditions. Maintaining higher levels of operations improves service to customers and operations for airspace users.

In the months ahead, important capabilities are due to come online, and maintaining the pace of improvements in Performance Based Navigation, Enroute DataComm with weather rerouting and Surface Traffic Management will require strong commitments from the FAA and aviation community. Of course, all this work going forward will benefit from the open and transparent collaboration that has benefited our efforts throughout the NAC’s history.

Finally, validating the strength and value of trusted collaboration was the response to the FAA’s newest initiative, the creation of the Drone Advisory Committee (DAC). Needing a forum for discussion about the future and priorities around policies affecting unmanned aircraft systems, the FAA again turned to the RTCA to establish the DAC where it was quickly discovered that aviation and non-aviation parties were eager to participate in significant numbers!

Whether you participate directly in these RTCA fora or follow their progress, all of us should be proud of the example of trusted collaboration established long ago that has been carefully practiced during challenging times. ■
its recent meeting to move forward with a tasking to focus on implementing NextGen in the Northeast Corridor. During the Committee’s deliberations, members recognized that this is critical to making continuous improvements to the system in the NE. They highlighted the need for working through the technical, operational and community issues that must be identified up front and then mitigated through the NAC collaborative process.

The NAC also approved an Interim Report from the Enhanced Surveillance Task Group that is evaluating the needs and benefits of enhanced surveillance for oceanic airspace controlled by the FAA. Continuing its role in overseeing the Four Priority Teams that are working on implementations of DataComm, Multiple Runway Operations, Performance Based Navigation and Surface and Data Management, the Committee discussed the status, risks and plans for each of the teams.

The Committee also received briefings and discussed the FAA’s NextGen Plan, along with equipage plans by representatives from Alaska and UPS airlines, and Honeywell, as the avionics industry supply chain to support Next-Gen equipage.

The NAC approved the recommendation developed by the Joint Analysis Team that evaluated the implementation of Wake Recategorization at Indianapolis and Philadelphia International Airports, and fuel impacts related to the implementation of the North Texas Metroplex: Wake ReCat

• Indianapolis: >$2M in annual savings
• Philadelphia: approximately $800K in annual savings

North Texas Metroplex Fuel Analysis
• Dallas-Ft. Worth arrivals saved $4.5-6.5M annually from reduced level outs, but slightly increased overall fuel cost for Dallas Love Field

The 37-member committee met on February 22nd and was hosted by The MITRE Corporation in McLean, Virginia.

For additional information, see the NAC Page.
NEW MEMBERS

Aeronautique Associates Limited
Trowbridge, UNITED KINGDOM
Dewi Daniels

Aeronautique Associates brings together valuable experience to deliver DO-178B and DO-178C-related training and services to organizations developing aeronautical software in the avionic, space and Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) domains. Each of the partners in Aeronautique has been closely involved in the development of DO-178C and associated documents, making them well placed to deliver training and provide services from a relevant and firm foundation.

Training courses cover all disciplines from management to practitioners, and range from short courses for experienced staff covering the transition from DO-178B to DO-178C to full three-day courses that address the entire DO-178C-related document set, including the Object-Oriented Technologies, Model Based Development and Verification and Formal Method supplements.

Astronics AeroSat Corporation
Amherst, New Hampshire USA
Frank Blanda

Astronics AeroSat Corporation designs and manufactures fuselage and tail-mounted Very Small Aperture Terminal (VSAT) Satellite Communications (SATCOM) solutions for General Aviation, Business, Commercial Transport, VIP, Head of State, and Military aircraft around the world. For over a decade, AeroSat has been developing and manufacturing aircraft connectivity solutions that provide revolutionary in-flight high-speed broadband internet and satellite television services for passengers and crew globally.

The company’s innovative Ku band aircraft SATCOM antenna systems enable aircraft to connect to the Internet and receive direct broadcast service television (DBS-TV), whether in-flight or at the gate, and affordably in every region of the world. AeroSat’s unique and patented aircraft SATCOM solutions provide connectivity service where others can’t, due to a weak signal, low-to-horizon positioning, or humid/wet weather conditions.

AeroSat’s mission is to become the aviation standard for wireless in-flight broadband connectivity, satellite TV, email, Voice over IP (VoIP), and internet conferencing. Their airborne SATCOM products are certified and in use on Boeing, Airbus, Gulfstream, Bombardier, Dassault, and Cessna aircraft, among others. AeroSat holds ISO 9001:2000 certification, Aerospace Standard (AS9100) certification, FAA Parts Manufacture Authority (PMA), and is FAA certified on over 28 types of aircraft.

AT&T, Inc.
Atlanta, Georgia USA
Christopher Penrose

AT&T, Inc. is a multinational telecommunications conglomerate and the second largest provider of mobile telephone services and fixed telephone services in the United States, and provides broadband subscription television services through DIRECTV. As of February 2017, AT&T is the 12th largest company in the world, as measured by a composite of revenues, profits, assets and market value, and the 12th largest non-oil company. AT&T is the largest telecommunications company in the world by revenue. As of 2017, it is also the 18th-largest mobile telecom operator in the world, with 135 million mobile customers. AT&T was ranked at #4 on the 2017 rankings of the world’s most valuable brands published by Brand Finance.

AT&T, Inc. is a holding company, which engages in the provision of telecommunications and digital entertainment services. It operates through the following segments: Business Solutions, Entertainment Group, Consumer Mobility, and International. AT&T participates in the aviation industry, utilizing Unmanned Aircraft Systems (UAS) and providing services to UAS and an operation of its own fleet of aircraft.

Beca Applied Technologies Limited
Auckland, NEW ZEALAND
Robert McGivern

Beca Applied Technologies provides In Service Support services for High Integrity Software systems. Beca Applied Technologies also maintains Flight Simulators for the Royal New Zealand Airforce. Service offerings include Systems & Software Engineering, Certification Consulting, and Simulation development.

Cavorite Research, Inc.
San Francisco, California USA
Marc Piette

Cavorite Research, Inc. is a start-up company working on building autonomous flight related technologies.

Control-J Pty. Ltd.
Redbank, New South Wales AUSTRALIA
Clyde Stubbs

Control-J Pty. Ltd. is a micro-business focusing on mobile apps (BlueMax, TrackDirect, Wing-Frequency, COPAme, Fairfax) and electronics for general aviation.

DRS Technologies Canada Ltd.
Kanata, Ontario CANADA
Jocelyn Swift

DRS Technologies Canada Ltd. (DRS TCL) is a wholly owned subsidiary of DRS Technologies Inc., a leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. DRS TCL holds leading market positions in naval integrated communications and networks, electro-optics/infrared search and tracking systems, deployable flight incident recorders and sensor signal processing systems. The subsidiary delivers electronic warfare threat simulation and training systems ranging from computer-based training to high-power threat simulators. It is an experienced provider of turnkey state-of-the-art electronics

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manufacturing, integration and test services for various aerospace, and defense and space applications. It also is a Transport Canada certified manufacturer of cockpit voice recorders, flight data recorders and emergency locator beacons (CV/FDR/ELB).

The Canadian subsidiary is a registered ISO 9001:2008 certified company with a record of service to the Canadian Government for more than 50 years. The certification to the AS9100C quality standard confirms a commitment to high quality manufacture, test and delivery of aerospace products and systems.

**Fortem Technologies, Inc.**
Provo, Utah USA
Timothy Bean

Fortem Technologies, Inc. is a privately held, venture-backed company that delivers ultra-small SWaP-C radar for small manned aircraft as well as the data necessary for safe beyond line of sight (BLOS) unmanned aerial vehicle (UAV) operations. The technology was developed and hardened over the last few years by a proven team focused on US Dept. of Defense applications and is available now to meet the security expectations of the public and the safety requirements of national regulatory agencies.

Fortem Technologies, Inc. has purchased the UAS Detect and Avoid radar solution from IMSAR LLC. IMSAR LLC is the world leader in real time intelligence from small size, weight, and power high performance radar systems – seasoned with years of unmanned aircraft integration, primarily for Department of Defense (DoD) applications. No other company has solved the hard problems in a holistic manner that includes the complex mixture of RF, hardware, firmware, software, algorithms, radar, signal processing, and unmanned vehicles in a small, cost-effective package.

**GoPro, Inc.**
San Mateo, California USA
Trish Fritz

GoPro, Inc. manufactures eponymous action cameras and develops its own mobile apps and video-editing software. It also developed a quadcopter drone, Karma, released in October 2016. The company strives to be the go-to professional to capture on-the-go activities with its assortment of mountable and wearable cameras and accessories (or capture devices, as the company calls them). Its products' small, lightweight, and durable designs allow for versatility when it comes to taking pictures.

Flagship products include its Hero 4 Black, Hero 4 Silver, and Hero 4 Session cameras. In October 2016 before the release of the “Karma” quadcopter drone, GoPro released the GoPro “HERO 5” and “HERO 5 Session. Customers can transfer footage from the capture devices to GoPro Studio, the company’s desktop application that edits and manages videos. It also offers remote controls and integration with mobile devices via its GoPro App. Since establishing its first High Definition (HD) capture device in 2009, the company has sold more than 20 million HD cameras.

**Institute of Technology Bandung**
Bandung, INDONESIA
Adhitya Saputro

Institute of Technology Bandung (ITB) is a state, coeducational research university. Established in 1920, ITB is the oldest technology-oriented university in Indonesia. ITB has been credited as one of the most prestigious universities in Indonesia, along with Gadjah Mada University and University of Indonesia.

The university is a member of LAO-TSE, an international network of leading universities in Europe and Asia, exchanging students and senior scholars. As of early 2016, ITB had nine undergraduate study programs that were internationally accredited from an independent U.S.-based accrediting institution, Accreditation Board for Engineering and Technology, where ITB and IPB (Bogor Agricultural University) are the only public universities in Indonesia with this particular international accrediting institution. The nine study programs are Electrical Engineering, Informatics, Chemical Engineering, Engineering Physics, Industrial Engineering, Ocean Engineering, Petroleum Engineering, Civil Engineering, and Environmental Engineering.

**Japan Manned Space Systems Corporation**
Chiyoda-ku, Tokyo, JAPAN
Haruka Nakao

Japan Manned Space Systems Corporation (JAMSS), have been involved in the operation of the “kibo” and “KOUNOROTI”, the training of astronauts and flight controllers and the implementation of space experiments as part of the International Space Station (ISS) project since their establishment in 1990. They also evaluate and provide advice on safety, reliability and maintainability of hardware and software in space, and are highly acclaimed by people in the space industry who consider JAMSS to be synonymous with safety.

The ISS is expected to become the cornerstone of projects aimed at manned space expeditions to the moon and Mars in the future. JAMSS will also be taking this enormous step into unchartered territory by acting as a bridge between the earth and outer space to contribute to humanity and society.

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Jazz Engenharia Aeronáutica Ltd.
Belo Horizonte, Minas Gerais BRAZIL
Gustavo Andrade

Jazz Engenharia Aeronáutica Ltd. specializes in major alteration certification projects in fixed and rotary wings, Performance Based Navigation (PBN) and Reduced Vertical Separation Minimum (RVSM) approval, experimental aircraft projects, aerodynamics improvement kits, airfield approval, LSA project and certification, and import and export aircraft.

National Agricultural Aviation Association
Alexandria, Virginia USA
Andrew Moore

The National Agricultural Aviation Association (NAAA), founded in 1966, represents approximately 1,900 members in 46 states. NAAA supports the interests of small business owners and pilots licensed as professional commercial aerial applicators who use aircraft to enhance food, fiber and biofuel production, protect forestry and control health-threatening pests.

NAAA provides networking, educational, government relations, public relations, recruiting and informational services to its members and the aerial application industry.

NAAA works with its partner organization, the National Agricultural Aviation Research & Education Foundation (NAAREF), to provide research and educational programs focused on enhancing the efficacy, security and safety of aerial application.

Additionally, NAAA performs public outreach on the industry’s behalf, communicating the importance of aerial application to agriculture, forestry and public welfare.

NNC Consulting LLC
Moscow, RUSSIAN FEDERATION
Andrey Galiamov

NNC Consulting LLC provides services such as evaluation of APS (antenna-feeder systems) and electromagnetic compatibility of radio equipment. The company also does research on improving the noise immunity of receivers of satellite navigation and satellite communication systems, and the development of algorithms for integrity satellite navigation receivers.

Precision Approaches
Irvine, California USA
Mark Humpreys

Precision Approaches is a consulting firm that provides custom solutions to aviation manufacturers, airline flight departments and operators.

Steinberg Technical Consulting & Partners
Hamburg, GERMANY
Markus Steinberg

Steinberg Technical Consulting & Partners is an aviation certification consulting firm. The company specializes in certification activities for new and innovative post-mix drinking units for aircraft galleys. This includes pieces of software, electronics and hardware. For many components, RTCA standards should be used during compliance demonstrations.

Telecommunications Technology Association (TTA)
Seongnam, Gyeonggi-do REPUBLIC OF KOREA
Cheoi-soon Park

TTA is a statutory organization established in 1988 based on Article 34 of the Framework Act on Broadcasting Communications Development affiliated with Ministry of Science. The company specializes in the field of information and communication technology (ICT) that develops and establishes new ICT standards and offers internationally recognized one-stop testing and certification services for standard ICT products.

TTA has played a key role in ICT standardization, testing, and certification in Korea. In addition, it has contributed greatly to the development of the nation’s ICT industry by taking the lead in international standardization.

VITES GmbH
Ottobrunn, Bavaria GERMANY
Uwe Fricke

The VITES GmbH is a young, dynamic, fast growing organization that focuses on radio and wireless products, systems and technology for professional markets and applications.

With its market, a leading ad-hoc networking product line known as “HiMoNN”, which is well established in Security and Disaster Management scenarios, and the new groundbreaking radio beam steering technology platform called “KARSYS”, markets like Security, Avionics, Transportation, Automotive, Industrial and Telecommunications are served.
The Tactical Operations Committee (TOC) met for two days in Oklahoma City, OK. The first day featured a tour of key organizations at the Mike Monroney Aeronautical Center and began with a review of controller training, including a visit to the Terminal low-fidelity simulation room, as well as the high-fidelity Tower Simulator System.

Conversations with training personnel focused on the process and timing for initial training in OKC; the passing rate for new hires; and the ongoing challenges with staffing. The TOC also spent time with the Instrument Flight Procedures team and visited the FAA’s 24-hour NOTAM office. Discussion focused on the myriad of competing needs for the scarce resources that develop and maintain flight procedures in the National Airspace System.

A highlight of the TOC tour was the visit with the Flight Technologies and Procedures Division (AFS-400) in Aviation Safety where the TOC received an overview briefing of the division and took simulator rides of the Boeing 737 and Airbus 330. During the sim rides, the group experienced integrated simultaneous approaches to parallel runways in which the Boeing 737 was conducting a Radius to Fix turn to final, and the Airbus 330 was conducting a Track to fix turn. The Committee learned about how AFS utilizes the simulators to “fly” new operational concepts and its suite of analysis and human factors tools and expertise to evaluate new concepts.

The second day of the TOC’s visit to OKC was the official meeting of the Committee. The TOC received updates from the FAA on previous recommendations, including Airport Construction and the FAA’s overall Caribbean Strategy. The TOC was briefed on draft recommendations on the future PBN Route System with individual focus on high altitude domain, low altitude and Alaska. The FAA advised the Committee that there were two potential future taskings: one centered on the operational impact of intentional GPS interference, and the other on a review of the operational concept for Airspace Information Management Modernization (AIMM) Segment 3. AIMM Segment 3 includes provisions of real-time, digital information on Special Activity Airspace status and facility Letters of Agreement (LoA), which is an area of high operator interest.

This meeting was the final for Co-Chair Bryan Quigley of United Airlines. “The measurable outcomes of the TOC are due in part to the steady leadership of Brian Quigley,” said RTCA President Margaret Jenny. “We are grateful to Brian for the time he devoted to making the TOC such a success.”

Mr. Quigley also serves as Co-Chair of the RTCA Drone Advisory Committee (DAC) Subcommittee and elected to step down from the TOC to focus on the DAC Subcommittee. Mr. Dale Wright of the National Air Traffic Controllers Association will continue to serve as Co-Chair, and a replacement for Mr. Quigley will soon be announced. Ms. Elizabeth “Lynn” Ray, Vice President Mission Support, Air Traffic Organization, FAA, serves as the Designated Federal Official for the TOC.
NAVIGATION EQUIPMENT USING THE GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS)

SC-159, which authors the standards for Global Navigation Satellite Systems (GNSS), met at RTCA in mid-March, and made significant progress.

The Committee is scheduled to release four documents in 2017: an update to DO-235B, Assessment of Radio Frequency Interference Relevant to the GNSS L1 Frequency Band; an update to DO-292, Assessment of Radio Frequency Interference Relevant to the GNSS L5/E5A Frequency Band; an update to DO-253C, Minimum Operational Performance Standards for GPS Local Area Augmentation System Airborne Equipment; and an update to DO-246D, GNSS-Based Precision Approach Local Area Augmentation System (LAAS) Signal-in-Space Interface Control Document (ICD). Details of the deliverables can be found in the Committee’s Terms of Reference.

AERONAUTICAL INFORMATION AND METEOROLOGICAL SERVICES DATA LINK

SC-206 met at National Institute of Aerospace (NIA) in Hampton, VA.

Under the leadership of Co-Chairs Ernie Dash, AvMet, and Michael McPartland, MIT/LL, Sub-Group 7 (SG7), Wind Information Guidance, led a Final Review And Comment (FRAC) resolution and expect to present it to the Program Management Committee in June for approval.

The Committee’s two other SGs are working on a Minimum Operation Performance Standard (MOPS) for Eddy Dissipation Rate (EDR) for a September delivery, and are working on revising the Flight Information Services Broadcast (FIS-B) with a Universal Access MOPS, for a December delivery.
SPOTLIGHT ON VOLUNTEERS: NORTHROP GRUMMAN’S ROB HUGHES REFLECTS ON HIS RTCA TENURE

Rob Hughes is the senior policy adviser for the Office of Independent Airworthiness at Northrop Grumman. While his office is relatively new, having been created a little over three years ago, it is increasingly busy, developing systems that integrate both manned and unmanned aerial vehicles (UAV). Among these are the high-endurance platforms Global Hawk and Triton, and the tailless flying wing system, Broad Area Maritime Surveillance Demonstrator, which Rob says recently completed a successful autonomous air refueling as well as launch and recovery from an aircraft carrier.

In his role at Northrop Grumman, Rob provides subject matter expertise for airworthiness and certification to help the company understand how well its aircraft comply with industry standards, and how reliable they are overall. This is of special significance to Rob as his work explores how manned and unmanned aerial vehicle systems will interact with each other in the National Air Space (NAS).

“My role is to interface appropriately with standards organizations, regulatory, and key influential policy organizations that influence and shape the regulatory environment,” Rob says of his work with RTCA and Northrop Grumman. “If you were to think of it as the scout for the big ship navigating across the ocean—the scout is looking for the mine fields to minimize the rudder deflections to help the ship successfully navigate efficiently.”

Based on his analogy, it might not be surprising to hear that Rob is a 27-year veteran of the Air Force. This experience, he says, makes understanding how airplanes behave second nature to him. It also gave him insight into RTCA and its work within the aviation community long before he began volunteering with the organization. When he finally had the chance to begin working directly with RTCA over 10 years ago, it was in a more limited capacity than now. But with the rise of UAV systems, he has become more heavily involved in the last few years with, among others, Special Committee 228, which is preparing unmanned aircraft standards, and the Drone Advisory Committee (DAC).

“Rob has contributed to impressive outcomes for standards for TCAS, PBN, and UAS,” says RTCA President Margaret Jenny. “Most recently, he has stepped into a leadership role on the DACSC’s Task Group 2, helping to bridge the gap between manned and unmanned aviation stakeholders. He is a rare individual with strong engineering expertise and leadership skills.”

When asked why his involvement with RTCA and the DAC in particular is a high priority for him and his company, Rob cited Northrop Grumman’s increased commitment to developing functional partnerships with other stakeholders in the NAS, including new perspectives. He says the company aims to “participate actively in the formation of industry standards to share expertise and knowledge with the aviation community. Non-traditional aviation companies like Amazon, Google, and Facebook don’t know the traditional airspace structures, so their perspectives are not limited by the traditional constraints associated with understanding how airspace works,” Rob says. “It forces the whole group to get back to basics and reexamine the foundation of the NAS; to think about what was the original impetus for this set of policies and what are the potential impacts of a modification to them.”

Exploring new ideas and perspectives is a large part of what makes his work with RTCA so enjoyable, says Rob. While the DAC is busy balancing the needs of airlines with those of emerging players in the NAS, it is also motivated by its timetable for developing final UAV recommendations to the Federal Aviation Administration in October. As a result, he says he and his colleagues are in a sprint to develop the programs and deliverables that the DAC and its Subcommittees need to choreograph to show the FAA that the industry is making progress on UAV integration.

“It’s hugely challenging, but working with these super-bright people—it’s really inspirational for an old guy like me to hear something that I haven’t thought of before,” Rob says. “It’s also cool to see how the younger engineers appreciate the old guy’s perspective and ability to structure the work that we’re dealing with...there’s structure and direction that our experience can give to the enthusiasm of youth.”

Rob would like to give a special thanks to his colleague Doug Davis, who directs the Northrop Grumman Office of Independent Airworthiness. Additionally, he extends his thanks to the leadership at RTCA and the FAA, whose team—including Lynn Ray, Earl Lawrence, and Jim Eck—goes to great lengths to assist the efforts of RTCA and the industry. Finally, Rob extends a special thanks to RTCA Program Director Claudia Chaudhari, whom he says works tirelessly to support the work of the DACSC and its subsequent Task Groups.
SC-214 met to recommend a Terms of Reference (TOR) delivery date adjustment for their tasks to revise DO-224C, Signal-in-Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications Including Compatibility with Digital Voice Techniques, and DO-281B, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer, to improve air/ground interoperation. The revised TOR will also specify SC-214 as a joint committee with EUROCAE Working Group 92, and will encourage coordination with ARINC Airlines Electronic Engineering Committee (AEEC) Data Link (DLK) Sub Committee.

SC-216 held a joint session with WG-72 hosted by Honeywell International, Inc. at their Deer Valley facility in Phoenix, AZ, and also conducted meetings at EUROCONTROL in Brussels, Belgium. The group is revising DO-356, Airworthiness Security Methods and Considerations, to harmonize with EUROCAE’s ED-203 (same title), per inputs from the Aviation Rulemaking Advisory Committee (ARAC) Working Group on Aeronautical Systems Information Security Protection (ASISP).
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 new 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 will 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 or email training@rtca.org.
DO-160G, ENVIRONMENTAL CONDITIONS AND TEST PROCEDURES FOR AIRBORNE EQUIPMENT, TRAINING COURSE

June 6-9 at RTCA
September 11-14 at WSU
December 12-15 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 10-12 at RTCA
September 11-13 at RTCA
December 18-20 at RTCA

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.
AERONAUTICAL DATABASES

SC-217 met jointly in Toulouse, France with EUROCAE WG-44 to hold their Plenary, hosted by Airbus. The Committee continues its work addressing the updates requested for the joint document DO-201A/ED-77A, which is scheduled to be completed in 2018. DO-201A/ED-77A, Standards for Aeronautical Information, provides for the improved operational effectiveness of airborne navigation systems that use stored databases. It presents a collection of disciplines necessary to provide assurance that aeronautical information used by the aviation industry meets the high quality and integrity for safe flight.

AERONAUTICAL MOBILE-SATELLITE (R) SERVICE

SC-222 met jointly with EUROCAE Working Group (WG)-82, chaired by Armin Schlereth, DFS GmbH. They are working on a revision to DO-343A/ED-242, Minimum Aviation System Performance Standard (MASP) for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP), to include a system-specific attachment from Iridium, and DO-262C/ED-243, Minimum Operational Performance Standards (MOPS) for Avionics Supporting Next Generation Satellite Systems (NGSS), with a technique-specific normative appendix from Iridium. Both revisions are expected to be completed by December 2017 for approval.

INTERNET PROTOCOL SUITE (IPS) AND AEROMACS

SC-223 met at RTCA to continue reviewing 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, to be published in December 2017.
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SC-225 is completing an extensive Final Review and Comment (FRAC) resolution with their update to DO-311, *Minimum Operational Performance Standards (MOPS) for Rechargeable Lithium Battery Systems*.

The focus of the Committee’s work has been to address feedback from the Program Management Committee (PMC) concerning guidance for installation, testing and validation. The Committee was also asked to review the structure of the document to better align with the RTCA MOPS Guidelines and provide more requirements against the testing standards.

The Committee expects to present the document at the June PMC meeting.

SC-229 met jointly with EUROCAE Working Group (WG)-98 in Cologne, Germany, and was hosted by EASA.

SC-229 and WG-98 received reports on the continued work done by ICAO, COSPAS-SARSAT, and other industry groups to align the updated standard with new technologies. The NASA committee members provided recommendations for the installation chapter based on the crash survival testing they have performed.

The joint committee has been developing a revision of RTCA/DO-204A and EUROCAE/ED-62A to produce a technically equivalent specification for Emergency Locator Transmitters at 406 MHz. At the next meeting, there will be a complete document ready to be reviewed by the Committee, prior to opening the document for Final Review And Comment, and held concurrently with the EUROCAE Open Comment, in September 2017.
STAFF SPOTLIGHT: ALINA GEORGE

Alina George began working with RTCA in November 2016 as the association’s Mission Support Coordinator. In this position, she assists with critical day-to-day functions at RTCA, including organizing and preparing materials for a variety of meetings, whether among committee members, staff, or both. In this work, her drive and sense of enthusiasm serve her well, as noted by RTCA President Margaret Jenny.

“Within weeks of joining our team, Alina was making valuable contributions to support our volunteers,” Margaret said. “Though serious about fulfilling her responsibilities, Alina finds ways to have fun at work, and contribute to the teamwork of the RTCA staff.”

The upbeat approach Alina embodies was fine-tuned during her time as a representative for a fundraising company that served clients like the Kennedy Center, and as a member of a customer service team for an electronics retailer that was expanding into its first brick-and-mortar store. She further expanded her repertoire assisting with the development of both written and video web content for a non-profit association. “These unique work experiences,” Alina says, “let me learn a variety of skills that I can apply to my position at RTCA.”

She has already put her stamp on RTCA, and put her diverse skill set to use, with her work on the revamped RTCA website. When asked what she felt her greatest accomplishment at RTCA has been so far, Alina mentions this first and foremost. “I worked closely with the RTCA Staff and our vendors to put together a dynamic website! I am excited for the switch,” she says, which will be launched this Spring.

Apart from bringing new insight and energy to the RTCA team, Alina is also using the opportunity to continue developing herself professionally. “I am learning so much that I didn’t previously know about aviation—both the science and the industry,” she says. “Brandi Teel, my direct supervisor, has been incredibly supportive of me, and a wonderful mentor. I am constantly impressed with the dedication of my colleagues.”

Alina can be contacted at 202-330-0669 or ageorge@rtca.org.

RTCA PROGRAM MANAGEMENT COMMITTEE

At their most recent meeting, PMC members discussed and considered six final draft documents for approval.
RTCA DIGEST | NEW HEIGHTS REACHED, TOGETHER

SC-230 met virtually to complete their report on the feasibility to standardize In-Flight Ice Crystals Long Range Awareness capabilities by Weather Radar (WXR), jointly with EUROCAE WG-95, and presented it to the Program Management Committee (PMC) at their March meeting. It will be available as a special report through the RTCA Store.

The Committee also recommended a Terms of Reference revision to incorporate identified errata and opportunities for clarification to their previously published Minimum Operation Performance Standards (MOPS), DO-220A and DO-213A, at the March PMC meeting.

AIRBORNE WEATHER DETECTION

SC-230 met virtually to complete their report on the feasibility to standardize In-Flight Ice Crystals Long Range Awareness capabilities by Weather Radar (WXR), jointly with EUROCAE WG-95, and presented it to the Program Management Committee (PMC) at their March meeting. It will be available as a special report through the RTCA Store.

The Committee also recommended a Terms of Reference revision to incorporate identified errata and opportunities for clarification to their previously published Minimum Operator Performance Standards (MOPS), DO-220A and DO-213A, at the March PMC meeting.

ADDRESSING HUMAN FACTORS/PILOT INTERFACE ISSUES FOR AVIONICS

SC-233, which is writing a standard to address Human Factors/Pilot Interface Issues for Avionics, met in Plenary at RTCA in Washington, DC. The group worked through more than 300 comments on the latest draft of the document.

The Committee will conclude a final review of the draft at their next Plenary in April. The Final Review And Comment Period is expected to take place from April 15-May 15, and the Committee is scheduled to deliver the document in June to the Program Management Committee for approval.
SC-235 held their sixth Plenary virtually to release DO-227A, *Minimum Operational Performance Standard for Non-Rechargeable Lithium Batteries Installed on Aircraft*, for Final Review And Comment (FRAC). The FRAC resolution is being conducted, and the final version will be presented to the June Program Management Committee for approval and publication.

SC-236 met at RTCA jointly with EUROCAE’s Working Group (WG)-96. They continued their work to create a Minimum Operational Performance Standard (MOPS) to use Wireless Avionic Intra-communication in the 4200-4400 MHz band. WG-96’s Open Comment Period for their Process Specification for the Wireless On-board Avionics Networks (WOBAN) is now complete, and the specification should be released later this year.

SC-236 and WG-96 are on track to deliver the new MOPS to the Program Management Committee in 2019.
CALENDAR OF EVENTS

April

April 3-6
SC-233, Addressing Human Factors/Pilot Interface Issues for Avionics
Hosted by RTCA
Washington, DC

April 3-7
SC-216, Aeronautical Systems Security
Hosted by RTCA
Washington, DC

April 10-12
DO-254 Training
Hosted by RTCA
Washington, DC

April 18
Hosted by RTCA
Washington, DC

April 18
SC-225, Rechargeable Lithium Batteries and Battery Systems
Virtual

April 27
SC-135, Environmental Testing
Hosted by RTCA
Washington, DC

April 27-28
EUROCAE Symposium & 54th General Assembly
Hosted by EUROCAE
London, United Kingdom

May

May 2-4
SC-223, Internet Protocol Suite (IPS) and AeroMACS
Hosted by RTCA
Washington, DC

May 2-5
SC-236, Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz
Hosted by BAE Systems
Rochester, England

May 4
SC-206, Aeronautical Information and Meteorological Data Link Services
Virtual

May 4
SC-224, Airport Security Access Control Systems
Hosted by RTCA
Washington, DC

May 10
SC-235, Non-Rechargeable Lithium Batteries
Virtual

May 15-19
SC-216, Aeronautical Systems Security
Hosted by RTCA
Washington, DC

June

June 6-9
DO-160G Training: Track A&B
Hosted by RTCA
Washington, DC

June 6-9
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
Hosted by RTCA
Washington, DC

June 12-16
SC-206, Aeronautical Information and Meteorological Data Link Services
Hosted by The Boeing Company
Seattle, WA

June 19-21
SC-217, Aeronautical Databases
Hosted by Rockwell Collins, Inc.
Cedar Rapids, IA

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

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

UPCOMING EVENTS

May 3
DAC, Drone Advisory Committee
Hosted by Air Line Pilots Association (ALPA), International Herndon, VA

May 16
PMC, Program Management Committee
Hosted by RTCA
Washington, DC

June 13-14
RTCA Global Aviation Symposium
Hosted by RTCA
Crystal City, VA

June 22
TOC, Tactical Operations Committee
Hosted by RTCA
Washington, DC

June 28
NAC, NextGen Advisory Committee
Hosted by FedEx Corporation
Memphis, TN