RTCA POLICY AND TECHNICAL COMMITTEES MEET

Leading RTCA Committees that serve vital roles in ensuring success in implementing NextGen, developing critical performance standards and successful operational transitions in the air traffic control system met during the summer. The RTCA NextGen Advisory Committee (NAC), Program Management Committee (PMC), and Tactical Operations Committee (TOC) convened to approve recommendations, establish priorities and discuss additional taskings. See inside for more details!
Experience with NextGen has made it clear that developing technology and installing it in the field is only step one in the path to delivering operational benefits. The need to address “change management,” in a deliberate manner, has become increasingly obvious to all engaged in the implementation of NextGen. ALPA President, Tim Canoll, and NATCA President, Paul Rinaldi, provided feedback from both the pilot and controller perspective (respectively).

**Q:** What is your organization seeing as the significant cultural issues associated with implementing NextGen capabilities, and what impact do you think these issues might have on the success of NextGen implementation?

**ALPA:** There are many issues that airline pilots will need to adjust to as the deployment of NextGen continues forward. As we continue the transition to performance-based navigation in all phases of flight, procedure design and development must be standardized and predictable to ensure that pilots do not need to learn unique or special procedures for each terminal area and airport.

The NextGen plans also call for increased use of data communications between pilots and controllers, which means that pilots will not hear as many traditional voice communications between ATC and other aircraft, potentially changing methods for maintaining situational awareness of other flights operating in the NAS.

Another significant cultural issue associated with NextGen implementation is the ongoing efforts to develop new capabilities that some believe require redefining the roles and responsibilities for pilots and controllers. Traditionally, controllers have been responsible for IFR separation by issuing control instructions and clearances, and pilots have been responsible for navigation and operation of aircraft systems. Aircraft separation is a shared responsibility. Advanced applications should not be designed with any intent to change these roles and responsibilities of pilots and controllers. Specifically, there should not be any changes to separation policies and responsibility and IFR aircraft separation should remain with the controller.

Lastly, a message pilots seem to be hearing as far as cultural change is trust in the “system,” the avionics, and the automation. Aviation has been built on redundancy with the pilot and controller as the last piece of redundancy in the safety net. Our avionics improvements and capabilities have come piecemeal as add-ons, not as wholesale changes. Some of the redundancy is being shifted from the “human” to the avionics and automation. We need to develop trust in the system before that can fully be utilized.

**NATCA:** This is just a small sampling of the issues that need to be smartly addressed as NextGen implementation moves forward.

NextGen implementation has caused many changes to the air traffic control work environment over the last six-to-seven years. These include new technologies, and the associated changes in rules, regulations and procedures.

Additionally, over the last few years the air traffic control workforce has changed significantly. Approximately 2,000 air traffic controllers are currently in some phase of training, several thousand controllers have under six years of experience, and roughly 25 percent of the experienced workforce is currently eligible to retire. Based on these facts, there are many unknown cultural issues within the rapidly changing controller workforce.

Moving forward, there are also modernization efforts, especially in Interval...
Management, that will lead to questions surrounding separation responsibility. Air traffic control has traditionally been responsible for IFR separation. New initiatives must not effect or change current separation responsibilities. There can never be any confusion as to who is responsible for the separation of aircraft in the NAS.

The majority of air traffic facilities are experiencing a staffing crisis. This must also be factored into any discussion regarding cultural issues. As staffing levels fall to all-time lows and the workforce increasingly feels the effects of it, it is natural that they question investments in new technologies when they do not see the same investment being made in their workforce. Employee “buy-in” to change cannot be underestimated. The workforce’s concerns must be addressed. One documented effect of the staffing issue is the inability to ensure adequate and consistent numbers of subject matter experts and appointed union representatives to participate in the collaborative work associated with NextGen projects. The day-to-day operations must be the highest priority, but NextGen implementation’s continued success is undoubtedly affected when experts cannot be released from the operations on a consistent basis.

Q: These cultural issues have come to the forefront with the implementation of PBN. What can be done to address these issues to facilitate the successful implementation of this capability?

ALPA: There are many benefits to PBN-based implementation, which improves both safety and efficiency. Vertical guidance is available to nearly every runway end that has an instrument approach. Pilots can conduct stabilized approaches efficiently while reducing the risk of accident or incident during critical phase of flight. Pilots can further benefit from PBN-based procedures if they are designed to allow aircraft to continuously descend from top of descent on a vertical profile that is consistent with the capabilities of the aircraft.

A lesson we have learned from the PBN transition to date, is that technology development (for PBN and other NextGen technology) and procedures for operational use of the new technologies should occur during the early stages of system design. Having a clear vision for what NextGen technology will accomplish and defining operational responsibilities provides increased safety, efficiency, and capacity. Leveraging NextGen capabilities requires that relevant criteria and policies are proposed, analyzed, and implemented.

Current policies will likely require modification to ensure mixed-equipped aircraft can operate in the NAS without reducing gains

There must be a concerted effort to improve education of the workforce on the short and long term goals of NextGen.

anticipated for PBN-equipped aircraft. For example, older aircraft will likely be upgradable for some future requirements, (i.e.) to Automatic Dependent Surveillance-Broadcast (ADS-B). But they may not have the capability to affordably integrate all of the emerging NextGen capabilities to fully leverage PBN benefits. Yet, these aircraft are fully capable of continued revenue flights for many more years. The NAS will need to accommodate these aircraft until they have reached the end of their lifecycle, and are decommissioned and replaced with newer models that are equipped with current avionics.

NATCA: There must be a concerted effort to improve education of the workforce on the short and long term goals of NextGen. Air traffic controllers work in an environment where decisions and actions lead to immediate results. It is unrealistic to expect them to understand the importance of some NextGen programs when the implementation of many may not have an effect on the operations for years.

It is also imperative that we continue working in a collaborative manner at all levels of NextGen program development and implementation. The last several years have shown that when NATCA and the workforce are included, it leads to employee buy-in to associated changes, which leads to more expeditious and successful implementation. Employees must believe they are part of the solution and have a voice in operational changes. When that is accomplished, it increases the chances of success.

With the continued increase in new PBN procedures, air traffic controllers must understand mixed aircraft equipage. Like pilots, controllers like predictability. The current mixed fleet operations at some airports makes it difficult for controllers to consistently utilize new procedures. Controllers and pilots need more opportunities to work together on new PBN design and procedures, and on associated expectations regarding availability and use. This issue is even more complicated due to users utilizing different business models, in addition to mixed aircraft equipage.

Q: Looking forward to the deployment of EnRoute DataComm capabilities, more advanced PBN capabilities, ground-based traffic flow management decision support tools, and cockpit-based interval management, what are the unique cultural challenges the industry should be prepared to address?

ALPA: As PBN capabilities are further deployed, procedure standardization and training will present significant challenges. Continued, Page 4.
Cultural Issues continued.

The standardized EnRoute DataComm message format will be required to eliminate confusion between pilot and controllers. Decision support tools for controllers are critical to the successful execution of PBN throughout the NAS. Both pilots and controllers will need a comprehensive training program to fully understand PBN systems for proper operation. Comprehensive training for both the pilot and controller will increase operational efficiency. With cockpit-based interval management concepts still in the very early stages of concept maturity, there is ample time to fully define potential operational capabilities that preserves today’s well-defined roles and responsibilities for pilots and controllers.

The long lead time necessary to define specific hardware, software, and system interoperability, requires the community to collectively focus their efforts on fully defining a specific operation that both pilots and controllers agree is achievable. Once the benefits are determined to outweigh the costs, then the definition of standards and installation strategies can be finalized, and implementation then begins. Attempting a ready-fire-aim strategy with cockpit-based interval management, will likely add unacceptable risk to cockpit-based interval management concepts.

NATCA: An effort must be made to ensure absolute clarity on roles, responsibilities and expectations associated with new technology and new procedures. There must be clarity about when new procedures “must” be used and when they “may” be used. Any changes associated with Interval Management must be well thought out and there must be an avenue for pilots and controllers to work together to ensure the safety of the NAS.

For the foreseeable future, workforce training will remain a challenge. The numerous efforts combined with the current staffing situation causes a huge strain on resources at the facility level. Facilities have to provide not only required training associated with new NextGen capabilities, but also current training requirements in other areas, including new controller training, recurrent and refresher training, and more. This becomes more complicated if more than one NextGen project is implemented at a facility, which occurs often.

As the FAA moves forward with the implementation of new technology, there must be a concerted effort to address system integration. There is no current team or workgroup with a defined goal of looking at all incoming changes and the effect on the workforce.

PMC CONDUCTS PRODUCTIVE MEETING

At their most recent meeting, the Program Management Committee (PMC) approved changes to one existing document, revisions to the Terms of Reference (TOR) for two Special Committees (SC), and the establishment of a new Committee.

The PMC approved the revision of SC-224’s DO-230G, Standards for Airport Security Access Control Systems, incorporating the latest technological advances in security access control systems and identity management technologies, including smart cards and biometrics. The revision includes checklists to major sections, and highlights essential changes from the previous release.

A new Special Committee, SC-236, Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz, was created to develop a Minimum Operational Performance Standard (MOPS) on WAIC within 4200-4400 MHz, as a joint committee with EUROCAE WG-96, Wireless On-Board Avionics Networks. The use of the new MOPS has the potential to enable improvements in safety and a reduction in weight, thereby enhancing efficiency.

Additionally, PMC members received a presentation about Cyber Security in Mission Critical Environments from Stephen Deakin of Eccot. He gave background of recent experiences in policing and protecting critical systems, cybersecurity threats (types an organization will encounter in business), people (the role they play in cybersecurity context), and technology (the role it plays in the cybersecurity context).

The next meeting is scheduled for September 22 at RTCA. For additional information, please visit www.rtca.org.
NEW MEMBERS

A³ by Airbus Group
San Jose, California USA
Ryan Mease
A³ by Airbus Group is the Silicon Valley outpost of Airbus Group, the parent of Airbus (the leading maker of large commercial aircraft), Airbus Helicopters (the world’s largest supplier of civil helicopters), and Airbus Defense & Space (which makes satellites, drones, and military aircraft, and provides cyber defense capabilities).

Adel Solutions LLC
Clifton, New Jersey USA
Ilan Gelber
Adel Solutions provides comprehensive and personalized procurement solutions for the aviation and hydraulics industries.

Association of Flight Attendants-CWA
Washington, DC USA
Dinkar Mokadam
The Association of Flight Attendants-CWA (AFA-CWA) is the world’s largest labor union organized by flight attendants for flight attendants. AFA represents nearly 50,000 flight attendants at 18 airlines, serving as a voice for flight attendants at their workplace, in the industry, in the media and on Capitol Hill. AFA-CWA negotiates the best flight attendant contracts in the industry, maintaining and improving wages, benefits and working conditions for flight attendants.

Avilation, LLC
Madison, Alabama USA
Mark Spencer
Avilation is an aviation technology company whose eXtensible Flight System (XFS) provides an operating system that may be used with most off-the-shelf aviation hardware. With XFS powering displays, pilots are able to select the best hardware for their needs.

Facebook
Menlo Park, California USA
Michael Tseytlin
Facebook is a social networking service that enables people to connect and share through mobile devices and personal computers. The company enables people to share their opinions, ideas, photos and videos, and other activities. The company’s products include Facebook, Instagram, Messenger, WhatsApp and Oculus. Facebook’s subsidiaries include Andale, Inc., Edge Network Services Limited, Facebook Ireland Holdings Limited, Facebook Ireland Limited, Facebook Operations, LLC, Instagram, LLC, Oculus VR, LLC, Parse, LLC, Pinnacle Sweden AB, Siculus, LLC, Vitesse, LLC and WhatsApp Inc.
Facebook has more than 1.65 billion monthly active users as of March 2016.

Flightech Systems Pte Ltd.
Singapore, SINGAPORE
Samuel Ong
FTS specializes in wireless and connectivity solutions in the most cost-effective and least-hassle route for airlines to equip their fleet with wireless entertainment, connectivity, ancillary revenue generation services. FTS is fully backed with years of avionics and telecommunications research to provide a robust and advanced hardware and software platform. The company offers full turnkey management services to manage all the complexities of content, maintenance and online services.

Helicopter Association International
Alexandria, Virginia USA
Chris Martino
Helicopter Association International (HAI) is a not-for-profit professional trade association of 2,500-plus member organizations in more than 68 nations.
Since 1948, HAI has provided its membership with services that directly benefit their operations and advances the civil helicopter industry by providing programs that enhance safety, encourage professionalism and promote the unique contributions made by helicopters to society.
Headquartered in Alexandria, Virginia, HAI members safely fly more than 5,000 helicopters some 2.3 million hours each year.

NPP CTRS LLC
Saint Petersburg, RUSSIAN FEDERATION
Andrey Yablokov
NPP CTRS is engaged in the development and manufacturing of high-tech digital radio systems for air traffic control. Using the latest technology and the innovation of electronic components and advances in the design of radio systems, NPP CTRS creates high-tech equipment and superior foreign analogues.
NPP CTRS successfully operates as a part of the radar surveillance of airspace in the territory of Russia and CIS countries.

PAL-V EUROPE N.V.
Raamsdonksveer, NETHERLANDS
Jeroen Klein Lankhorst
PAL-V EUROPE NV (Personal Air and Land Vehicle) is a Dutch company developing a roadable aircraft, the PAL-V ONE.
The PAL-V ONE in flight is an autogyro or gyrocopter, with a foldable pusher propeller providing forward thrust and a free-spinning rotor providing lift. Directional stability is provided by twin boom-mounted tailfins. It has a tricycle undercarriage with relatively large wheels.
The PAL-V ONE has two seats and a 160 kW flight certified gasoline engine, giving it a top speed of 180 km/h (112 mph) on land and in air, and a Maximum Takeoff Weight of 910 kg.

University of Tulsa, Dept. of Electrical and Computer Engineering
Tulsa, Oklahoma, USA
Loyd Hook
The University of Tulsa (TU) is a private university, historically affiliated with the Presbyterian Church. The university offers programs in law, English, computer science, natural sciences, Clinical and Industrial/Organizational Psychology, and engineering disciplines. The campus’s design is predominantly English Gothic, and the university manages the Gilcrease Museum, which includes one of the largest collections of American Western art in the world.
OPERATIONAL COMMITTEE DISCUSSES NEW ENTRANTS AND REVIEWS STATUS OF PREVIOUS RECOMMENDATIONS

During its June meeting, the Tactical Operations Committee (TOC) covered a number of issues affecting current and future operations in the National Airspace System (NAS).

In discussing new entrants to the NAS, the FAA provided the TOC with a briefing on the policy and operational challenges associated with the growth of the Commercial Space Operations sector. The FAA indicated that the TOC may be tasked to work on operational concerns related to this emerging segment.

Additionally, the TOC received a series of response briefings from the FAA on previous recommendations, including Caribbean Operations, Class B Airspace, the National Procedure Assessment Initiative, VOR Minimum Operating Network (MON), Airport Construction and the NorCal Noise Initiative. The FAA shared the specific actions it has taken in its ongoing effort to improve operations in the Caribbean and the VOR MON Program Office informed the TOC that a Federal Register Notice was due out soon with the full list of VORs proposed for decommissioning between 2016 and 2025.

The Committee also reviewed the progress of ongoing tasks focused on improving the depiction and dissemination of Graphical TFRs, and determining criteria and approach to implementing a NAS PBN Route Structure.

For more information about the Committee, please visit the TOC webpage.

RTCA ESTABLISHES SC-236 TO DEFINE WAIC STANDARDS

The Program Management Committee responded to a request from the FAA to create a new RTCA Special Committee to define the Minimum Operational Performance Standards (MOPS) to implement Wireless Avionics Intra-Communication System (WAIC). Special Committee 236 (SC-236), Standards for WAIC in the 4200-4400 MHz band, will work jointly with EUROCAE Working Group 96 (WG-96), Wireless On Board Avionic Networks, to develop the MOPS for WAIC to complete a joint document by early 2019.

During the 2015 World Radiocommunication Conference, a dedicated co-primary spectrum allocation in the 4200-4400 MHz frequency band was approved to be used for wireless communication on aircraft. Because of that, there is a need to define the implementation guidelines and constraints to maintain safe operation of both the wireless communications and the incumbent systems that occupy this spectrum. Previously, Radio Altimeters had exclusive use of the 4200-4400 MHz frequency band.
COMMITTEE APPROVES NEXTGEN RECOMMENDATIONS

The RTCA NextGen Advisory Committee (NAC) met in early summer agreeing to finalize its recommendations to the FAA covering industry-FAA 2017-2019 plans for implementing NextGen capabilities; community outreach associated with PBN implementations; and an assessment of performance improvements associated with Wake ReCat implementations at Charlotte and Chicago airports.

The meeting was the final one for FAA Designated Federal Official Mike Whitaker. NAC Chairman Richard Anderson praised Deputy Administrator Whitaker for his leadership both in engaging the industry in establishing priorities and ensuring the agency-wide cooperation and collaboration so critical to the successful implement NextGen capabilities.

The NAC approved the following recommendations:

NextGen Integration Working Group (NIWG) 2017-2019 Rolling Plan Recommendation - The Industry-FAA Teams built upon the collaborative work in the four priority areas to identify recommendations for implementing NextGen capabilities at specific sites in the 2017-2019 time-frame. The plans include all necessary components of each capability including industry and FAA commitments such as training, decision support tools, procedures and policies for the successful deployment of PBN, DataComm, Improved Multiple Runway Operations (IMRO), and Improved Surface Operations capabilities.

PBN Blueprint Community Outreach Task Group Recommendation - A Task Group of aviation users, airports and community representatives developed a series of recommendations for community outreach to assist the FAA and industry with overcoming the noise and environmental challenges associated with PBN implementations. The report provides details for:

- Establishing specialized Community Outreach Team(s)
- Developing a standard Community Outreach Toolkit
- Developing specific Local Community Outreach Toolkits
- Establishing ongoing and scalable Community Outreach Programs in collaboration with local airports

Joint Analysis Team (JAT) Performance Assessment of Wake Recategorization (Wake ReCat) at Charlotte and Chicago Report - The JAT industry-FAA team reported its findings on the performance improvements attributable to the implementation of selected NextGen capabilities at specific locations.

The Team, using data from FAA, individual operators and an industry-funded database developed by Passur Aerospace, reported on the methodology and results from an analysis of Wake ReCat at CLT, ORD and MDW airports. The findings conclude that fleet mix and demand levels are critical determinants of the benefits that can be achieved through Wake ReCat. Additionally, operational data demonstrates that Wake ReCat achieves changes in separation as expected. Finally, the empirical analyses of terminal area, taxi times, and throughput are inconclusive due to exogenous factors.

The Committee continued its emphasis on achieving ADS-B Out equipage necessary for the industry to meet the regulatory mandate of January 1, 2020. The FAA reported on commercial and general aviation aircraft installations and identified solutions to outstanding issues. The Committee discussed a pending tasking from the FAA on enhanced surveillance capability in oceanic airspace and is being requested to review FAA’s assumptions and to address the costs and benefits as well as the preferred business model.

An Interim Report was presented by the PBN Time, Speed, Spacing Task Group of a 15-year plan for deployment of PBN in 5-year increments beginning in 2016.

Continued, Page 8
The final report will identify and prioritize the tools and technologies that optimize PBN in a mixed equipage environment using both ground-based and aircraft-based technologies. The draft report proposed ground-based metering/decision support tools first two time frames. The group has not reached consensus yet on the third timeframe. During the discussion the NAC requested that the final report address cultural issues (i.e., change management) that will have to be addressed to ensure successful deployment of PBN.

The Committee was also briefed by the FAA and National Air Traffic Controllers Association (NATCA) on an analysis of the Seattle Greener Skies PBN implementation. The report presented the challenges to full utilization and steps necessary to address the identified issues. These will be tracked by the NIWG PBN Team.

Closing out the meeting, the importance of the numerous recommendations that have been developed over the last six years was addressed by the NAC. The Committee was asked to create an AdHoc to develop better communication strategies for multiple audiences about the benefits of NextGen capabilities being deployed and the collaborative manner in which this is taking place within the NAC.

For additional information on the June meeting and the next meeting being hosted by JetBlue on October 5th in Orlando, Florida, see The NAC Page.

Committee Approves continued.

NAC FAA DFO, Mike Whitaker, receives a plaque for his service and leadership in the consensus process on the NAC.
This document provides guidance on acquiring and designing security systems, testing and evaluating system performance, and operational requirements for airport security access control systems. The major areas covered are:

- Introduction and Overview
- Credentialing
- Biometrics
- Physical Access Control Systems (PACS)
- Perimeter Intrusion Detection Systems (PIDS)
- Video Surveillance Systems
- Security Operations Center (SOC)
- Integration
- Communications Infrastructure
- General Acquisition-Related Considerations

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 major change in the layout and content of the document. DO-230G includes the addition of checklists to the major sections covered in this document.

The document contains forward-thinking references to technology, processes and guidance as they continue to evolve. Where applicable, the Special Committee has made these references in the interest of providing a complete picture of the possible direction of a standard and/or technology. As in previous releases of this document, RTCA Special Committee (SC) 224 recommends that readers of this guidance document solicit the latest information on any referenced technology, processes and procedures before moving forward with planned implementation of an airport security access control system. Finally, the document provides information on technology trends in PACS, access card technology, video, wireless and physical security information management systems (PSIM) that are deemed current at the time of publication, but may be obsolete or overcome by other emerging technology. Airport operators are reminded that this information provides current guidance to support well-informed appropriate decision-making in addressing particular facilities.

For additional information and to order documents, visit RTCA’s Store. RTCA Members may download electronic documents at no cost and qualify for a 60% discount on paper documents.
SC-206 met in Ottawa, Ontario and held their Plenary and face-to-face Sub-Group (SG) working sessions. SG1/6, Minimum Aviation System Performance Standards (MASPS), under the leadership of Co-Chairs Steve Darr, Dynamic Aerospace, Inc., and Bill Carson, The MITRE Corporation, the Group completed work for Final Review And Comment (FRAC), and during the Plenary, SC-206 approved the release of the Minimum Aviation System Performance Standards (MASPS) for FRAC. The FRAC resolution is scheduled for September and will be presented to the Program Management Committee for approval in December.

The SG4, Minimum Operational Performance Standards (MOPS) for Eddy Dissipation Rate (EDR), Co-Chairs Tammy Farrar, FAA, and Bill Watts, Delta Air Lines, have continued to lead “pioneering” activities for a MOPS of a type that has never been done before. The team is working towards FRAC release in June 2017.

SG7, Wind Information Guidance, led by Co-Chairs Ernie Dash, AvMet Applications, and Michael McPartland, MIT/LL, worked through eliminating general content and discussed the ongoing survey from the operators and the FAA. The Group also addressed the document for FRAC release.

SG5, Flight Information Services Broadcast (FIS-B) with Universal Access MOPS, did not meet because the FIS-B product design is still being finalized. However, Co-Chairs John Ferrara, John Ferrara Consulting, and Paul Freeman, Harris Corporation, are continuing to lead weekly calls to keep abreast of new FIS-B weather products.
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DO-230G, Standards for Airport Security Access Control Systems
ADDRESSING HUMAN FACTORS/PILOT INTERFACE ISSUES FOR AVIONICS

SC-233 met at FedEx World Headquarters in Memphis, Tennessee, to continue work for their final deliverable expected in June 2017.

Working Group (WG) 2, led by Cathy Swider of Federal Aviation Administration, and Jo Young of Volpe National Transportation Systems Center, is working to identify HFE design issues seen during product development, encountered by regulators, and seen in-service, post certification.

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

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

AERONAUTICAL MOBILE-SATELLITE (R) SERVICE

SC-222 met to progress work on Minimum Aviation System Performance Standards and Minimum Operational Performance Standards for Swift broadband use in enroute continental airspace. A revision to DO-343, Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP) in Procedural Airspace, with system specific attachment from Inmarsat, is expected to go through the Final Review And Comment (FRAC) process in August.

In the main body of DO-343A/ED-XXX, the use of satellite communications is being extended into enroute airspace. Initially, DO-343A will include Inmarsat Swift Broadband (SBB) equipment-specific requirements, with the expectation that Iridium Certus equipment will be added at the appropriate time. The Committee will continue its work jointly with WG-82 on Inmarsat Swiftbroadband deliverables and Iridium Next deliverables.
TECHNICAL COMPONENTS EQUALS SIMPLE BENEFITS

There is a stark contrast between the VHF Omnidirectional Radio Range (VOR)-based navigational system of the past and the new normal of Performance-Based Navigation (PBN). It may not be easy to understand the highly-technical components of satellite navigation or the intricate on-board aircraft flight management systems that assist pilots in dealing with everyday challenges associated with flying aircraft around the world. But leading the transition to migrate away from the increasingly obsolete VOR-based navigational infrastructure, and the mounting costs associated with maintaining that aging system, to the new, more accurate routes and procedures of Performance-Based Navigation is the PBN Route Structure Task Group. The Co-Chairs of this Task Group are Mark Hopkins of Delta Air Lines, and Dave Surridge of American Airlines.

Dave identifies the biggest challenge for the Group as making sure recommendations adequately reflect the differences that exist among all users of the national airspace system. Mark says their biggest challenge is determining where the system needs structure and where it doesn’t. He explains how the system needs more structure east of the Mississippi and a more lax structure to the west, where there is a lot more room to navigate.

Both Mark and Dave say they appreciate each other’s work, and the fact that their skills complement each other. “We definitely work well together,” said Dave. “His strength is that he has been doing this for quite some time. He has a flight dispatch and operations management background and I have a pilot background, which melds together to bring strength to the group.” “RTCA work groups are so effective because they’re formed with disciplines from different areas,” added Mark. “Our group takes input from pilots, like Dave, from air traffic controllers like NATCA, dispatchers, reps from airlines, and I’m from the air traffic management side. All of these participants are knowledgeable subject matter experts, and the beauty of this from a leadership perspective, is that pilots are well-versed in performance-based navigation.”

Mark says the success of the group is having the key disciplines in the room working together like a three-legged stool: pilots, air traffic control and flight dispatch. “In these types of work groups, we really don’t wear company hats,” said Mark. “We’re really wearing system hats, working for the betterment of the system.”

Both Mark and Dave also believe RTCA’s Trin Mitra has been an integral part of the group’s success. “Trin has done a great job with managing all different aspects of the group and bringing us together,” says Dave. “RTCA is an important part of the whole process,” agrees Mark. “They provide us with structure and progression.” The PBN Route Structure Task Group spent the last several meetings reviewing feedback, and they will meet again in the Fall, and their final deliverable will be completed in the first quarter of 2017.

Mark Hopkins is the Director of the Delta Air Lines Air Traffic Management and Industry Affairs Division. His career with Delta includes eighteen years in Airport Customer Service before transitioning to flight control/dispatch. Mark has served on numerous committees, including the Air Traffic Management, Council and RTCA’s Airport Construction Task Group.

Dave Surridge is the Senior Manager of Airspace Optimization for American Airlines. He has nearly three decades of aviation experience, including five years as an instructor pilot, eight years in flight operations management, and has served as an Airbus 320 First Officer.
SC-225 is continuing to update DO-311, *Minimum Operational Performance Standards for Rechargeable Lithium Battery Systems*. Their focus is to address feedback from the Program Management Committee (PMC) concerning guidance for installation, testing and validation. The Committee is evaluating suitable criteria and will request concurrence from the PMC once categories are defined. They were also asked to review the structure of the document to better align with the RTCA Minimum Operation Performance Standards guidelines and provide more requirements against the testing standards. SC-225 is working toward a completion date of December 2016.

**AIRPORT SECURITY ACCESS CONTROL SYSTEMS**


**RECHARGEABLE LITHIUM BATTERIES AND BATTERY SYSTEMS**

SC-225 is continuing to update DO-311, *Minimum Operational Performance Standards for Rechargeable Lithium Battery Systems*. Their focus is to address feedback from the Program Management Committee (PMC) concerning guidance for installation, testing and validation. The Committee is evaluating suitable criteria and will request concurrence from the PMC once categories are defined.

They were also asked to review the structure of the document to better align with the RTCA Minimum Operation Performance Standards guidelines and provide more requirements against the testing standards. SC-225 is working toward a completion date of December 2016.

**AERONAUTICAL SYSTEMS SECURITY**

SC-216 most recently met at The Boeing Company in Seattle, Washington, and is revising DO-356, *Airworthiness Security Methods and Considerations*, per inputs from an Aviation Rulemaking Advisory Committee (ARAC) on Aeronautical Systems Information Security Protection (ASISP). They are also harmonizing concepts with Working Group-72’s ED-203.
DO-160G, ENVIRONMENTAL CONDITIONS AND TEST PROCEDURES FOR AIRBORNE EQUIPMENT, TRAINING COURSE
September 20-23 | December 13-16

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-178C, SOFTWARE CONSIDERATIONS IN AIRBORNE SYSTEMS AND EQUIPMENT CERTIFICATION, TRAINING COURSE
September 19-21 | December 12-14

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 new DO-178C, Software Considerations in Airborne Systems and Equipment Certification.

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

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

SUPPLEMENTS TO DO-178C, SOFTWARE CONSIDERATIONS IN AIRBORNE SYSTEMS AND EQUIPMENT CERTIFICATION, TRAINING COURSE
September 22 | December 15

The course will provide the background and scope on the four documents supporting DO-178C:

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

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

*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.
## Calendar of Events

### August
- **August 2**
  - SC-224, Airport Security Access Control Systems
  - Hosted by RTCA
  - Washington, DC
- **August 8-9**
  - SC-236, Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz
  - Hosted by RTCA
  - Washington, DC
- **August 9**
  - SC-225, Rechargeable Lithium Batteries and Battery Systems
  - Hosted by RTCA
  - Washington, DC
- **August 16-17**
  - SC-235, Non-Rechargeable Lithium Batteries
  - Hosted by RTCA
  - Washington, DC
- **August 17-19**
  - SC-223, Internet Protocol Suite (IPS) and AeroMACS
  - Hosted by RTCA
  - Washington, DC
- **August 23-25**
  - SC-234, Portable Electronic Devices
  - Hosted by RTCA
  - Washington, DC

### September
- **September 6-9**
  - SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
  - Hosted by McMurdo
  - Laurent, FRANCE
- **September 8**
  - SC-225, Rechargeable Lithium Batteries and Battery Systems
  - Hosted Virtually
- **September 12-16**
  - SC-206, Aeronautical Information Data Link Services
  - Hosted by National Weather Service
  - Kansas City, MO
- **September 19-21**
  - DO-178C Training
  - Hosted by RTCA
  - Washington, DC
- **September 19-21**
  - SC-216, Aeronautical Systems Security
  - Hosted by GAMA
  - Washington, DC
- **September 20-23**
  - DO-160G Training
  - Hosted by RTCA
  - Washington, DC
- **September 20-23**
  - SC-231, TAWS
  - Hosted by RTCA
  - Washington, DC
- **September 22**
  - Supplements to DO-178C Training
  - Hosted by RTCA
  - Washington, DC
- **September 29**
  - SC-224, Airport Security Access Control Systems
  - Hosted by RTCA
  - Washington, DC

### October
- **October 4-6**
  - SC-230, Airborne Weather Detection Systems
  - Hosted by Airbus
  - Toulouse, FRANCE
- **October 17-21**
  - SC-159, Global Positioning System
  - Hosted by RTCA
  - Washington, DC
- **October 24-27**
  - Hosted by RTCA
  - Washington, DC
- **October 25-26**
  - SC-135, Environmental Testing
  - Hosted by FAA
  - Fort Worth, TX

### Upcoming Events
- **September 16**
  - DAC, Drone Advisory Committee
  - Hosted by RTCA at CSIS
  - Washington, DC
- **September 22**
  - PMC, Program Management Committee
  - Hosted by RTCA
  - Washington, DC
- **October 5**
  - NAC, NextGen Advisory Committee
  - Hosted by JetBlue
  - Orlando, FL
- **October 27**
  - TOC, Tactical Operations Committee
  - Hosted by RTCA
  - Washington, DC