RTCA DIGEST

Contents

RTCA

RTCA Symposium Launches June 3

With two full days of exciting and informative sessions on current, high-visibility technical and policy topics, this is an experience you don't want to miss. Top aviation leaders and experts from around the world will be attending this premier event taking place at the National Press Club in Washington, DC, June 3-4. This is a distinctive opportunity to interact with key speakers and engage with associates from all aspects of the aviation international community.

OPENING KEYNOTE

Michael Huerta
Administrator, Federal Aviation Administration

AWARDS LUNCHEON KEYNOTE SPEAKER

Chris Hart, Chairman, National Transportation Safety Board

Technical Committee Approves New Documents and Launches New Committee

During its most recent meeting under the leadership of Chris Hegarty of The MITRE Corporation, the Program Management Committee (PMC) met and approved one new document with supplement; one change to an existing document; and revisions to Terms of References (TORs) for six Special Committees.

Key areas and issues discussed:

- **New and Revised Documents –** DO-358, *Minimum Operational Performance Standards for Flight Information Services – Broadcast (FIS-B) with the Universal Access Transceiver (UAT),* and Supplement to DO-358, prepared by SC-206; and Change 4 to DO-210D, *Minimum Operational Performance Standards for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMSS) Avionics,* prepared by SC-222.

- **SC-234, Portable Electronic Devices** – The PMC gave a conditional approval of an initial TOR presented at a previous meeting, pending the completion of three administrative requirements: a FAA letter of request, the envisioned use of the deliverable and coordination with EUROCAE for a common timeline of the Committee deliverable.
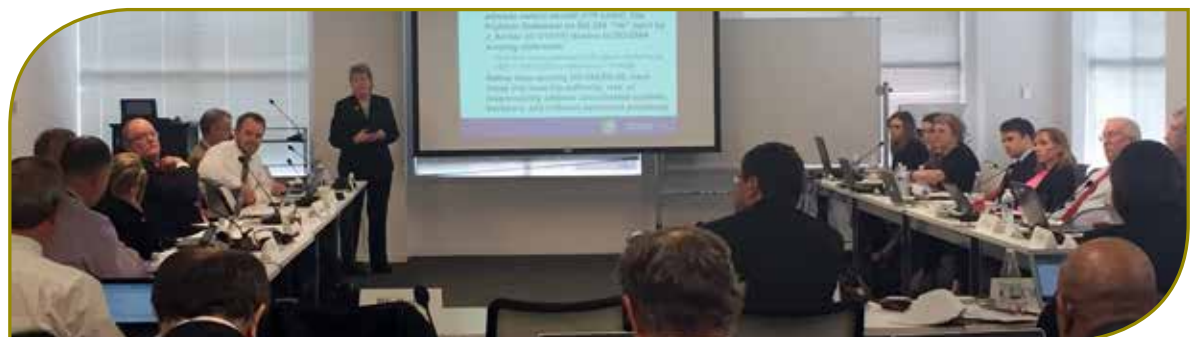
Highlights will include:

- Opening keynote from FAA Administrator Michael Huerta
- Awards Luncheon keynote from newly sworn-in National Transportation Safety Board Chairman Chris Hart
- Remarks from IATA President Tony Tyler during the Global ATM Modernization session
- Remarks from EASA Executive Director Patrick Ky supporting our NextGen Safety Matters session
- Lively discussion by leading industry leaders with varying perspectives on the subject of FAA reform
- Awards Luncheon recognizing the RTCA volunteers who work so hard behind the scenes to develop the products that have led to so much innovation and made possible the continued modernization of the global transportation system
- Presentation of the William E. Jackson Award honorarium to an outstanding graduate student in the field of aviation electronics and telecommunications

Don't miss this opportunity to examine current and emerging issues and interact with colleagues throughout the aviation industry. For more details on the agenda and the RTCA award winners, see pages 4-5. For more information visit the RTCA Symposium website. ◼

Approved and revised TORs:

- **SC-147, Traffic Alert & Collision Avoidance System** – A new Co-Chair was approved.
- **SC-224, Standards for Airport Security Access Control Systems** – A change to DO-230, *Integrated Security System Standard for Airport Access Control,* versions E-G with appropriate date adjustments to allow for incremental releases of the much needed document.
- **SC-225, Rechargeable Lithium Batteries and Battery Systems** – A due date adjustment and description for DO-311, *User Requirements for Future Airport and Terminal Area Communications, Navigation and Surveillance*.
- **SC-227, Standards of Navigation Performance** – A change to the TOR to add a revision to DO-257A, *Minimum Operational Performance Standards for the Depiction of Navigational Information on Electronic Maps*, was added to create consistency with the RNP MASPS and MOPS and ensure better support for implementation of PBN and CNS operations.
- **SC-230, Airborne Weather Detection Systems** – A change to DO-213 with DO-213 Change 1, *Minimum Operational Performance Standards for Nose-Mounted Radomes,* was added to update and clarify the document in light of current technology and industry practices.

For additional information on this meeting and the upcoming June 18th meeting, visit www.rtca.org. ◼

PMC members review revisions to Committee Terms of References

The RTCA and EUROCAE Collaboration: A Story of Success

By Christian Schleifer-Heingärtner, Secretary General, EUROCAE

Christian Schleifer-Heingärtner

Since the creation of EUROCAE in 1963, we have always had a special relationship with RTCA as our main partner and pendant in the US. In times where global harmonization and interoperability becomes paramount, this collaboration is at center stage in order to develop technical industry performance standards and recommendations that are globally aligned to promote safe, economic and sustainable standards in support of the European, American and worldwide aviation community.

This cooperation has grown and become increasingly important and today over half of EUROCAE's work programs are carried out jointly with RTCA. Many of the fundamental documents used almost every day by aviation professionals are the result of a successful collaboration between RTCA and EUROCAE.

I was appointed by the EUROCAE Council on an interim basis in July 2014 and took over the permanent function of the Secretary General in February 2015. In this role, one of my first activities was to get in contact with RTCA President Margaret Jenny about the role of RTCA with EUROCAE. The crucial need for international harmonization, further boosted by the ICAO Aviation System Block Upgrades (ASBUs), the Global Air Navigation Plan (GANP) and the Global Aviation Safety Plan (GASP), necessitates strong coordination between RTCA and EUROCAE in order to develop technical specifications on both sides of the Atlantic.

In addition, these need to be timely, reliable and effective to support interoperability and sustainability in this increasingly complex, global environment.

On a European level, we see a clear move to more performance-based regulations; EASA has given us clear signals and has been showing and repeating their intentions for over a year. With ICAO moving towards a more performance-based approach to standards and recommended practices SARPs, as encouraged by the 12th Air Navigation Conference and endorsed by the 38th ICAO General Assembly, they will need to rely more and more on technical specifications developed by recognized Standard Developing Organizations (SDOs) such as RTCA and EUROCAE. Bearing in mind the needs of the different stakeholders – ICAO, national and regional regulators, industry, etc. – a dialogue will be necessary in order to make sure that the technical standards and regulations are well coordinated to achieve their objectives. International and regional coordination structures are in place to ensure this dialogue, and EUROCAE and RTCA take a very active role in these discussions.

Therefore, reinforcing and further formalizing this strategic collaboration between EUROCAE and RTCA has been a major objective for EUROCAE, which was shown by the Memorandum of Cooperation between EUROCAE and RTCA at our first high level meeting under the theme of "European and Global Standardisation Strategy" in Brussels. This was a major achievement, further cementing collaboration.

EUROCAE dedicated 2015 to its working group (WG) members which resulted in a thorough review and improving activities of working arrangements within EUROCAE, especially to better support our WGs and recognize the contributions of the WG members, who demonstrated excellent leadership skills and/or contributed significantly to the success of WG activities, and whose dedication and enthusiasm has helped the committees move forward. This recognition is of enormous value to us because all the staff and resources are coming from our members as a voluntary workforce. WG members are playing a central role towards the achievements of their own WG deliverables and objectives, and also contributing significantly to the success of our organizations as a whole in achieving the objectives of harmonization and interoperability. Joint activities often require extra efforts from committee members and leaders to align the technical standards to the regulatory and political frameworks in both regions. This is a tremendous task that deserves recognition. In this spirit I am very pleased to announce that, for the first time, in 2016, EUROCAE and RTCA will give out joint international awards for outstanding WG/SC members contributing to the achievement of international harmonization and global interoperability.

RTCA and EUROCAE have demonstrated successfully how to fulfill the words of collaboration, harmonization and interoperability with actions and results. We will continue to live this process as we coordinate on all levels our activities to serve the aviation community with effective standards, for a safe, efficient and sustainable aviation, today and in the future. ■

> *RTCA and EUROCAE have demonstrated successfully how to fill the words of collaboration, harmonization and interoperability with actions and results.*

RTCA 2015 GLOBAL AVIATION SYMPOSIUM

Don't miss out on RTCA's premier event for aviation professionals! Join us at the annual RTCA Symposium to learn about:

- **Session 1:** Prioritize, Plan, Implement, Repeat: How FAA & the NIWG are institutionalizing a repeatable process for NextGen

- **Session 2:** NextGen: Safety Matters

- **Session 3:** *Special*: Spectrum: Protecting the Current Aviation System & Introducing New

- **Session 4:** Performance-Based Navigation (PBN)

- **Session 5:** Unmanned Aircraft System (UAS) Detect & Avoid, Command & Control

- **Session 6:** DataComm

- **Session 7:** ADS-B: Preparing for Jan 2020 Mandate and Beyond

- **Session 8:** An Evolving NAS: Implementation Challenges and Implications on Operations Today

- **Session 9:** Global ATM Modernization: Implementing the ICAO Aviation System Block Upgrades

- **Industry Luncheon:** A Conversation on FAA Reform

- **Session 10:** Emerging Technologies: Automation, Cyber Security and Human Factors

- **Session 11:** NextGen Advisory Committee (NAC): How the FAA and NAC are collaborating to facilitate the successful implementation of NextGen

Also featuring keynotes from FAA Administrator Michael Huerta and NTSB Chairman Chris Hart, introduction videos from EASA Executive Director Patrick Ky and IATA CEO and Director General Tony Tyler, and many more featured participants!

RTCA HONORS YOU!

Congratulations to our prestigious volunteers. Because of your hard work and dedication, you have made RTCA the premier public-private partnership venue for aviation modernization issues in an increasingly global enterprise.

Come help us celebrate our prestigious award winners at the annual Awards Luncheon on Wednesday, June 3rd, 12noon, at the National Press Club, 529 14th Street NW, 13th Floor, Washington, DC 20045. You don't want to miss this event!

Achievement Award Winners

Dan Allen
FedEx Express

Gary Beck
Alaska Airlines

Ed Bolton
Federal Aviation Administration

Teri Bristol
Federal Aviation Administration

Lorne Cass
formerly of Federal Aviation Administration

Donna Creasap
Federal Aviation Administration

Steve Dickson
Delta Air Lines, Inc.

Paul Fontaine
Federal Aviation Administration

Steve Fulton
Sandel Avionics

Rob Goldman
Delta Air Lines, Inc.

Josh Gustin
Federal Aviation Administration

John Hickey
Federal Aviation Administration

Nick Lento
Federal Aviation Administration

Glenn Morse
United Airlines

John O'Sullivan
Harris Corporation

Melissa Rudinger
Aircraft Owners and Pilots Association

Tom Skiles
Federal Aviation Administration

Paul Strande
Federal Aviation Administration

Jon Tree
The Boeing Company

Steve Vail
Mosaic ATM

Jesse Wijntjes
Federal Aviation Administration

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RTCA HONORS YOU!

Jackson Award Winner

Dr. Kuangmin Li
Ohio University

Outstanding Leaders

Mark Cardwell
FedEx Express

Bill Carson
The MITRE Corporation

Jérôme Condis
Airbus

Jim Crites
Dallas/Fort Worth International Airport

Matt de Ris
Panasonic Avionics Corporation

Tammy Farrar
Federal Aviation Administration

Johan Gericke
Cobham Aerospace

David Gray
Federal Aviation Administration

Brad Green
Honeywell International, Inc.

Philip Greene
formerly of Garmin, Ltd.

Jane Hamelink
THANE, Inc.

Michael Hooper
Iridium

Scott Jerdan
Federal Aviation Administration

Dan Johnson
Honeywell International, Inc.

Tom Kramer
Aircraft Owners and Pilots Association

Chuck LaBerge
EFC LaBerge Engineering & Analysis, LLC

Thierry Lelievre
Altran

Paul McDuffee
Insitu, Inc.

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For questions, please email
symposium@rtca.org.

Spotlight on Volunteers: Communication is Key to Advancing Environmental Concerns

Serving as Chair of RTCA's oldest operating Special Committee, SC-135, Environmental Testing, Brad Green has been actively involved with RTCA since 1993 and has been Chair of SC-135 since 2010. He also just became a member of RTCA's newest Special Committee, SC-234, Portable Electronic Devices (PEDs).

Brad is currently Chief Engineer for Environmental/EMC Test at Honeywell International in the Aerospace Division, where he has been since 1989. In this position, he is responsible for developing

received a B.S. in Engineering Technology. Since last June, he has been working with the Polytechnic University of Puerto Rico to help them develop their graduate and undergraduate EMC curriculum and has also been providing guidance for the design of their lab capabilities.

As Chair of SC-135, which was established in 1977, Brad works closely with FAA's Designated Federal Official (DFO), Lee Nguyen. Brad says, "Lee and I have a team-oriented approach and share the leadership of the Committee,

Brad Green
Honeywell International, Inc.

Working together ensures that joint documents are produced with associated and uniform test procedures.

testing strategies, providing guidance in developing electromagnetic capability (EMC) and environmental test capability, and ensuring that proper test processes are followed. Because of this, Brad spends about 50 to 75% of his time on the road. He has most recently been working in Puerto Rico to provide oversight to the design team for the development of an EMC test facility, which is now in its construction phase.

Brad's interest as a child in aerospace, aviation history and wanting to be an astronaut eventually translated into the career that he has today. As a high school student, he worked at a local airport. He then attended Kansas State University and

making sure that all voices are heard. It has been very helpful to have the FAA perspective from Lee in advancing the Committee's work." SC-135 works jointly with EUROCAE WG-14, with meetings alternating between RTCA, the West Coast and Europe. Working together ensures that joint documents are produced with associated and uniform test procedures.

SC-135 will be working through December 2019 on producing Revision H to DO-160, *Environmental Conditions and Test Procedures for Airborne Equipment*, its Supplement and User Guide, and also updating DO-357, *User Guide: Supplement to DO-160G*. The Committee will be addressing newer issues such as volcanic

ash qualification requirements and aspects of carbon dust in a test environment. Since it was first published in 1975, DO-160 has remained the *de facto* guide for defining minimum standard environmental test conditions and standardized procedures and is used to show compliance with environmental issues.

The document production process for SC-135 involves engaging Change Coordinators, who are known as issue experts, to head up teams for the various sections of DO-160. The Committee also engages with a large number of other organizations including the FAA, other RTCA Special Committees, the Department of Defense, NASA and international organizations to coordinate its work. These groups engage by serving as members of SC-135, submitting change proposals to RTCA, making presentations at SC-135 meetings and making requests for various issues to be discussed during the meetings. Brad concludes, "SC-135 is a central communications venue for information-sharing when it comes to environmental concerns, which allows us to keep up with the latest developments of safety and operational concerns in the industry." ◼

RTCA Revises Policy on Proprietary Information

During the most recent Program Management Committee (PMC) meeting, RTCA presented a revised policy for procedures when developing proposals to determine appropriateness and incorporate references to proprietary systems or intellectual property in RTCA documents and follow-on actions if approved. This new policy covers

disclosure requirements for input into RTCA documents, the special review/approval process (to include Special Committee Action and PMC actions), notification of inclusion in a document once approved, specific format for RTCA document content, and policy awareness and adherence for Special Committee participants. ◼

Environmental Testing

SC-135 met in early April at the National Institute for Aviation Research (NIAR) training facility in Wichita, KS, to start work on the revision of DO-160. Chaired by Brad Green of Honeywell International, the Committee is working collaboratively with EUROCAE WG-14 to modify various sections of the document. Working Groups were set up and met to modify Temperature & Altitude, Temperature Variation, Operational Shocks & Crash Safety, Vibration, Explosive Atmosphere, Water Proofness, Fluids Susceptibility, Power Input, RF Susceptibility, EMI, Indirect Effects of Lightning and Direct Effects of Lightning sections.

The Committee has decided to add a new section, Ground Fluctuations, Composite Airframes, break up Power Input into multiple sections to make it easier for the user and develop a test procedure that takes into consideration Volcanic Ash and Composite Aircraft Dust. The Committee also plans to look at bridging the gap for susceptibility that currently exists between the Audio Susceptibility and RF Susceptibility sections.

The Committee is targeting a completion date for DO-160H/ED-14H by December 2019 and scheduling its next meeting for October 27-29 at RTCA. ■

Committee members at the Wichita State University National Institute for Aviation Research training facility in Wichita, KS

RTCA 2014 Annual Report Highlights the Essential Role of Members

Titled, "Results Through Collaboration in Aviation," the contributions of thousands of volunteers throughout the global aviation community are featured in the RTCA 2014 Annual Report. "RTCA Committee participants hold diverse and competing interests, but have a single focus on improving the global air transportation system," explained RTCA President Margaret Jenny. To read the Annual Report, visit www.rtca.org. ■

Spotlight on RTCA Staff: Samantha Palmer

Samantha Palmer became RTCA's newest staff member in 2014 when she was hired as the Office Administrator. In her role, Samantha wears many hats that include responding to phone calls, greeting guests, assisting with committee meetings, handling document fulfillment and reporting, and assisting with the annual RTCA Symposium. "December 9th is a day that I will remember for a long time; it's the day I was hired by RTCA and got engaged," recalled Samantha. "I enjoy working with RTCA's staff and having the opportunity to learn so much about the aviation industry. Coming from a much larger organization, it is amazing to me how much work RTCA's small staff performs each day."

Samantha most recently worked as a Program Coordinator at the Urban Alliance Foundation, a Washington DC-based organization that administers a unique paid internship program, pairing high school seniors with mentors in professional settings. Her primary work was managing a caseload of 35 high school senior interns, teaching professional workshops and helping each intern develop a post-high school plan. "By the end of the school year, it felt like these young people had become my children," said Samantha. She too was selected as an intern for the same program when she was at Eastern Senior High School on Capitol Hill, and worked during her senior year and throughout college at *The Washington Post*. She describes the experience as an incredible opportunity and former *Washington Post* CEO Donald Graham was personally involved in supporting the program and interacting regularly with the interns.

Samantha is very active outside of work and enjoys helping others become more professional and successful. She works with other youth leaders in her church, running the youth program and teaching middle and high school-aged students. Additionally, Samantha runs her own company, Custom Palmer Resumes, which provides customized resume writing services for a wide-range of clients. Samantha graduated from Frostburg State University with a B.A. in English Literature and a Minor in African American Studies. "We are fortunate to have such a capable staff and Samantha is definitely one of them," stated RTCA President Margaret Jenny. "We look forward to utilizing her many talents and skills at RTCA."

Samantha Palmer

Samantha is interested in learning more about the operations side of RTCA and improving her accounting and business administration skills. She also is hoping to make use of her communications and social media skills. "At RTCA, there are many competing priorities and our small staff has to be able to respond swiftly," says Samantha. "It is a pleasure for me to be able to use my past customer relations experience in such a member-oriented environment."

Samantha may be contacted at (202) 330-0661 or spalmer@rtca.org. ∎

New Committee: Portable Electronic Devices (PEDs)

SC-234, joint with EUROCAE WG-99, held their first meeting at the beginning of May. The group will develop industry guidance and best practices for using safety risk assessment (SRA) processes in determining aircraft PED tolerance. This new deliverable will supersede DO-294C, *Guidance on Allowing Transmitting Portable Electronic Devices (T-PEDS) on Aircraft*, and ED-130. During the meeting, SC-234 Chair Billy Martin of National Institution of Aviation Research and WG-99 Co-Chairs Dr. Stephan Schulte of Hamburg University of Applied Sciences and Dr. Peter Kebel of Airbus led discussions on Committee structure and organization to ensure joint committee compliance and to take advantage of the progress and accomplishments of WG-99.

The Committee deliverable is being divided into four main tasks: General Background and Regulations, led by Praf Patel of Garmin and Jorg Rohwer of DKH; Front Door Guidance, led by Kenneth Webb of Rockwell Collins and Franck Poirier of Dassault Aviation; Back Door Guidance, led by Jamie Lutkus of Astronics, Andrew Diaz of Panasonic and Joachim Kienzler of Lufthansa Technik; and Continuous Airworthiness, led by David Hartz of Boeing and Thiemo Stadlter of Airbus. Each group will meet several times before the next Plenary in Cologne, Germany at EASA. They are working to complete the final document by July 2016 and to submit it to the Program Management Committee in September 2016 for approval. ∎

Committee members enjoying the conversation during their first Plenary

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SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems

FAA Umanned Aircraft Systems Executive
Jim Williams being recognized by RTCA

Committee and Working Group Leaders

Working Group 1: Detect and Avoid

Member discussions during a break

Committee Plenary in session

RTCA
THE GOLD STANDARD FOR AVIATION SINCE 1935

TRAINING CENTER

2015 COURSE CALENDAR*

DO-160G, *Environmental Conditions and Test Procedures for Airborne Equipment,* Training Course

June 8-11 | September 21-24 | December 14-17

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

Course participants will gain a clear and relevant understanding of the applicable FAA regulations, advisory material, certification procedures, design approaches/trade-offs, inspection and conformity requirements, as well as details of the necessary parts of a test plan, test report, compliance plan and compliance report. A strong focus is placed on the reduction of risk, cost and schedule throughout the design/certification process, by use of targeted design and increased first-pass success on design and testing.

In addition to a comprehensive course manual, each training course attendee will receive a copy of RTCA's DO-160G, supporting material and will participate in real-world exercises applying the knowledge learned from the class.

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

June 22-24 | September 21-23 | December 1-3

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

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

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

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

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

June 25 | September 24 | December 4

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-278*A

- 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.

LIMITED SPACE: REGISTER TODAY!

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

Enhanced Flight Vision Systems & Synthetic Vision Systems (EFVS/SVS)

SC-213 met for their 28th Plenary at Dassault Aviation in St. Cloud, France. Led by Co-Chairs Patrick Krohn of Universal Avionics Systems Corporation and Tim Etherington of Rockwell Collins, the Committee was briefed on the status of Working Group (WG)1, WG2 and WG3.

WG1: After the SVGS Minimum Aviation System Performance Standard (MASPS) was presented to Program Management Committee (PMC) in March with substantive and editorial comments, the Committee revised the documents for further review. The PMC then approved DO-359, *Minimum Aviation System Performance Standard (MASPS) for Synthetic Vision Guidance System,* and it is currently available in RTCA's Online Store.

Upon his impending retirement from The MITRE Corporation, WG1 Chair David Domino was recognized and honored for his expertise provided to RTCA.

WG2: Randy Bailey, NASA LaRC, provided a report on an analysis of see-and-avoid in surface operations comparing EFVS vs. Non-EFVS operations. A Monte Carlo simulation was conducted to evaluate various scenarios and the results were presented.

WG3: Thea Feyereisen, Honeywell International, Inc., provided a review of the initial ASA SVS draft document. The draft was updated based upon feedback from the Committee.

SC-213 will again begin to work jointly with EUROCAE WG-79. Simon Innocent, Honeywell International, Inc., presented the status of the reactivated Eurocae WG-79. Participating members include EASA, Airbus, Dassault, Thales, Rockwell Collins, Honeywell, Elbit, DGAC, BAE and Diehl. Bruno Aymeric, Thales, is the Chair. The Synthetic Vision System for attitude/energy awareness will be the first joint document between SC-213 and WG-79.

The next meeting is scheduled for July 21-23 at Boeing in Seattle, Washington. ◼

Standards for Air Traffic Data Communications Services

SC-214 met jointly with EUROCAE WG-78 in Grand Rapids, MI and continued working on the data link requirement for three new ATM concepts – Dynamic RNP (D-RNP), Advanced Interval Management (A-IM) and ATC Winds.

Led by Co-Chairs Jérôme Condis of Airbus and Chuck Stewart of United Airlines, Inc., the Committee reviewed the major changes and open issues on the Baseline 2 (B2) Standard Initial Release (SPR and INTEROPs). They also presented the B2 Initial Proposed Defect Reports (PDRs) with subsequent discussions of the necessity to incorporate into B2 Revision A.

Dongsong Zeng from The MITRE Corporation presented a position paper on Air Telecommunication Network / Internet Protocol Suite (ATN/IPS) as a capable communication protocol to support the provision of B2 services. The current version of B2 interoperability standards relies on ATN/Open Systems Interconnection (OSI) and provides placeholders for future inclusion of other supporting networks. The group agreed not to include the requirement to ATN/IPS in Revision A, but to include a note that ATN/IPS is a candidate as a future network to support B2 services.

During the D-RNP session, the group discussed the Radius to Fix (RF) leg issue to define precision turns in terminal area. Further investigation is required with FMS manufacturers and D-RNP ground users to solve the issue. Changes to Automatic Dependent Surveillance – Contract (ADS-C) to support D-RNP service were also reviewed.

SC-186/WG-51 delivered two Operational Services Description (OSD) documents from SC-214/WG-78 for the Advanced-Interval Management (A-IM) operations; Pair-Wise Trajectory Management (PTM) and Arrival, Approach, Departure and Defined Interval (A&A DO DI). It has been decided to replace the existing IM service with the new A-IM service. The A-IM Tiger Team will develop a standalone document containing material to be included into the B2 SPR/INTEROPs.

The group also discussed ATC winds. A position paper prepared by Boeing and Airbus presented the ARINC 702 format as a relevant alternative for ground ATC to provide the necessary winds data to the aircraft in the context of A-IM and 4DTRAD. SC-186/WG-51 was tasked to assess the feasibility of using ARINC 702.

Coordination with ICAO Operational Data Link Working Group has been pursued in order to ensure consistency of B2 standards with the Annex 10, PANS ATM (ICAO Doc 4444), GOLD (ICAO Doc 10037) and PBCS (ICAO Doc 9869) documents. Committee approval for finalizing Revision A of B2 standards is still expected at the Committee's December 2015 meeting. ◼

406 MHz Emergency Locator Transmitters (ELTs)

SC-229 and EUROCAE WG-98, co-chaired by Thomas Pack of ACR Electronics, Inc. and Philippe Plantin De Hugues of BEA, met at Airbus in Hamburg, Germany to provide updates to DO-204A/ED-62A and finalize the MASPS for in-flight triggering criteria.

Miguel Marin gave a presentation on the latest GADSS (Global Aeronautical Distress and Safety System) activities and presented an extract of the State Letter covering the Normal and Distress Tracking SARPs, which was sent to the States in May for comments. Dany St-Pierre provided the latest updates from the COSPAS-SARSAT and COSPAS-SARSAT invited RTCA and EUROCAE to provide information, views and expert advice on issues related to aircraft distress events as well as the operational considerations that would be associated.

Working Group (WG)-1, led by Philippe Plantin de Hugues and Chris Parfitt, finalized their work to provide specific input for the draft document of In-Flight Triggering criteria. The group made good progress on the aircraft scenarios and discussed a key milestone to publish the MASPS in early 2016, enabling it to be referenced in the next issue of ICAO Annex 6, which is scheduled to be released in November 2016.

WG-2, led by Chad Stimson, focused on crash survivability and reliability of ELTs in aviation accidents. They developed a draft of crash safety and fire recommendations with the next step of working on vibration recommendations. All the data and requirements should be available by the end of 2015 to be incorporated in the draft revision of DO-204A/ED-62A.

WG-3, led by Allan Knox and Ed Thiedeman, provided updates on their work into second-generation homing activities and active participation in the COSPAS-SARSAT Task Group. Ed presented the current work activities planned on the 121.5 MHz Test activities.

Co-Chairs Philippe Plantin de Hugues of BEA and Tom Pack of ACR Electronics

WG-5, led by Tom Pack, provided an overview of the 2015-2016 milestones for the Revision to DO-204A and ED-62A. There is a need to harmonize the DO-204A and ED-62A with the objective to have the exact same revision published on both sides. The scope of the Minimum Operational Performance Standards (MOPS) is to cover ELTs (AF, AP, AD and S), to determine which requirements are definite or optional, how to structure the document to allow 1st and 2nd generation Beacons, consideration of rotorcraft requirements, incorporation of some TSO requirements and addressing FAA issuance on battery safety.

SC-229/WG-98's next meeting will be held at RTCA September 1-3. ∎

Committee members enjoying a meal together after a hard day's work

Addressing Human Factors/Pilot Interface Issues for Avionics

SC-233 held its second Plenary at Gulfstream Aerospace in Savannah, GA. Led by Co-Chairs Susan Taylor of Gulfstream Aerospace and Trish Ververs of Honeywell International, Inc., the Committee worked through the Terms of Reference and agreed on what would be included in the subjects for consideration. The Committee split into three Working Groups (WG) to begin working through the draft outline and consensus on initial discussions.

WG2: Under the leadership of Don Stephen of Transport Canada, the WG identified Human Factors Engineering (HFE) design issues seen during product development, encountered by regulators, and seen in-service post certification. The WG identified approximately 70 existing issues and 10 potential issues from forecast technology and worked to sort the issues into collector categories that the HFE community could identify with as common HF topics.

WG3: Under the leadership of Chris Hamblin of Honeywell International, Inc., the WG identified 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, Figure 5-1. The WG is discussing how it can be used for Technical Standard Order/Supplemental Type Certificate/Type Certificate (TSO/STC/TC), and expanded to be universally useful. The WG also identified a log of issues that have been saved for future consideration.

WG4: Under the leadership of Paul Schutte of NASA, the WG identified methods and best practices used to address HFE issues during the design process that can be discussed with evaluators.

The next meeting is scheduled for the fall of 2015 at RTCA, with the date to be determined. ◼

SC-233 members at Gulfstream Aerospace

2015 IATA Ops Conference

RTCA President Margaret Jenny participated on the "Operational and Safety Implications regarding ATM Global Interoperability & Harmonization" panel moderated by IATA's Ruby Sayyed at the 2015 IATA Ops Conference

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Operational Committee Tackles Multiple Challenges

During their recent meeting, the Tactical Operations Committee (TOC) discussed the status of a number of ongoing activities:

- GPS Adjacent Band Compatibility (ABC) Task Group: This group is evaluating the operational and safety impacts of proposed Exclusion Zones in which GPS would be unreliable due to nearby towers radiating on the band adjacent to GPS. The FAA provided guidance and requested the TOC to continue evaluating Exclusion Zones as defined in the FAA's October 2014 GPS ABC study. Additionally, if the zones as proposed are not operationally acceptable, the FAA requested the group explore if there are alternate-sized exclusion zones that would be acceptable. The GPS ABC Task Group expects to deliver a recommendation at the next TOC meeting in July.
- Airport Construction Task Group: The Committee reviewed and approved the group's Terms of Reference. This group is working on making recommendations to the processes followed for airport construction between airport authorities, the FAA and flight operators. The Task Group is currently developing an understanding of existing construction processes and will report on this at the next TOC meeting.
- National Procedure Assessment (NPA) Initiative: The TOC was informed that Task Group leadership has been identified and is ready to begin work. The group will evaluate the FAA's process and criteria for cancelling procedures in the National Airspace System (NAS) and provide recommendations for them.

The TOC's three other Task Groups reported on developing recommendations for the next meeting:

- The Class B Airspace Task Group is evaluating criteria for designation, modification and revocation of Class B Airspace.
- The Eastern Regional Task Group is developing recommendations on infrastructure and airspace priorities to improve operations in the Caribbean.
- The NOTAM Improvement Panel has reviewed the Second Phase of implementation of NOTAM Search and is providing feedback to the FAA.

Other highlights from the meeting included:

- An update from the FAA on the National Special Activity Airspace Program (NSAAP) which is improving information on the availability of Special Activity Airspace for commercial operations.
- A response from the FAA on the final recommendation of the VOR Minimum Operating Network (MON) which offered inputs on the Waterfall for the VOR MON as well as the PBN Route Structure Concept of Operations.

Co-Chairs Jim Bowman, FedEx Express, and Dale Wright, National Air Traffic Controllers Association, presided over the meeting while Elizabeth "Lynn" Ray, Vice President Mission Support, Air Traffic Organization, Federal Aviation Administration (FAA), served as the Designated Federal Official of the meeting.

For information on the TOC and the May meeting visit www.rtca.org. ◼

RTCA Discusses the Strategic Role of Standards in the Aviation Industry

RTCA President Margaret Jenny presented on a panel, "Towards An ATM Standardisation Strategy?" at the EUROCAE Symposium in late April. She spoke about the integrated concepts in standards and the need for standard developments not only to be globally harmonized, but to also consider the increasingly integrated cockpit. ◼

Aeronautical Information Services (AIS) Data Link

SC-206 met at the National Institute of Aerospace in Hampton, VA. After an opening Plenary led by Co-Chairs Allan Hart of Honeywell International, Inc. and Rocky Stone of United Airlines, Inc., an FAA presentation on Aircraft Access to System Wide Information Management (SWIM) (AAtS), and a tour of NASA Langley Research facilities, the majority of the week was devoted to Sub-Group (SG) working sessions.

SG1/6, Minimum Aviation System Performance Standards (MAPS): Under the leadership of Co-Chair Allan Hart, the group completed a review of each of the Service Description (SD) Use Cases: Hazardous Weather (Crosslink), Special Activity Airspace (Uplink), and Weather Surveillance (Downlink). They also conducted an Operational Safety Assessment (OSA) review of the crosslink SDs, with discussion of whether the same Operational Hazards (OHs) and External Mitigation Means (EMMs) could apply to the downlink and uplink SDs. Going forward, the SG agreed to focus on the MASPS development effort as a single SG versus breaking out into multiple SGs as they've done in the past.

SG4, Minimum Operational Performance Standard (MOPS) for Eddy Dissipation Rate (EDR): This was the first meeting of this SG. Co-Chairs Tammy Farrar and Bill Watts led the background discussions. The group heard a presentation on "Thoughts of EDR Standards Phase 1 Recommendations" and had lively discussions on the definition of "Operationally Comparable," in-scope and out-of-scope determinations, work plans, and MOPS to Technical Standard Order/Advisory Circular (TSO/AC) procedure.

SG7, Wind Information Guidance: The SG heard briefings on the recent Wake Vortex Tiger Team recommendations, a MIT/LL Study, an AVTECH summary and NASA IM research. Co-Chairs Ernie Dash and Michael McPartland led discussions to review deliverable objectives, ATC GIM-S, and IM follow-up. The group participated in a joint SC-214/WG-78 session to cover common areas (A-IM and ATC Winds).

The next meeting is scheduled for September 14-18 in Chicago. ■

SC-206 visiting the NASA Langley Research facilities

Committee members outside the National Institute of Aerospace in Hampton, VA

Aero LLC
Fairfax, Virginia, USA
Joel Ratner

InterMedia (through its subsidiary AERO) develops unmanned aerial vehicles and automated flight systems for government and commercial applications. Their engineering and software development teams design airborne platforms and private network control systems for specific tasks, including distributed live HD video feeds, geo-located airborne transponders and atmospheric sensor systems, as well as inflight data capture, real-time mapping and archive.

Acousticom Corporation
Elkhart, Indiana USA
Terry Fisher

For more than thirty years, Acousticom Corporation has been producing innovative, high-quality audio communication equipment. Since being founded by Benjamin T. Cochran and Jean A. Cochran in October 1980, Acousticom has developed an exceptional reputation for its first-rate headsets, earphones, microphones and cable assemblies. Acousticom produces parts & equipment for many major aerospace companies and the Department of Defense. Recently, Acousticom has been making waves with its incredible Sound Egg Chair, which offers a unique, engaging surround sound experience with style.

Aspenta International, Inc.
Atlanta, Georgia USA
Joe Morgan

Aspenta is a US-based fully-integrated mobile operator and an Internet of Things (IoT) solution provider with proprietary technology enabling worldwide connectivity for m2m devices. Proprietor of a Mobile Virtual Network Operator in Poland, Aspenta aims to transform business models through the development of customizable mobile technology solutions that are easy to implement and use, have international reach without added fees, and enhance security and reliability.

The Aspenta product portfolio covers both consumer and enterprise sectors including fleet tracking and logistics management solutions, customizable and scalable IoT platform, remote gateways, global roaming voice, data and m2m SIM cards and consumer tracking devices.

Concepts Beyond
Perrysburg, Ohio USA
Alex Nguyen

Concepts Beyond provides aviation and systems engineering expertise to the Federal Aviation Administration's NextGen program and WJHTC on several programs, including the Florida NextGen Test Bed, Trajectory-Based Operations, Unmanned Aerial Systems and air-ground communications. They provide concept exploration and development, operations research, modeling and simulation, cost-benefit analysis and algorithm development.

DMAero, LLC
Byron, Georgia USA
Brett Taylor

DMAero, LLC provides engineering services with expertise on design, development, integration, flight test and data reduction of avionics, fire-control and flight systems for special forces aircraft.

Google, Inc.
Mountain View, California USA
Lily Laws

Google is a multinational technology company specializing in Internet-related services and products. These include online advertising technologies, search, cloud computing and software. It offers online productivity software including email (Gmail), a cloud storage service (Google Drive), an office suite (Google Docs) and a social networking service (Google+). Desktop products include applications for web browsing, organizing and editing photos and instant messaging. The company leads the development of the Android mobile operating system and the browser-only Chrome OS for a netbook known as a Chromebook. Google has moved increasingly into communications hardware: it partners with major electronics manufacturers in the production of its "high-quality low-cost" Nexus devices and acquired Motorola Mobility. In 2012, a fiber-optic infrastructure was installed in Kansas City to facilitate a Google Fiber broadband service.

The corporation has been estimated to run daily more than one million servers in data centers around the world, process over one billion search requests and use about 24 petabytes of user-generated data.

Google.com is the most visited website in the world. Numerous Google sites in other languages figure in the top one hundred, as do several other Google-owned sites such as YouTube and Blogger.

Google X, Google's facility dedicated to advancing technology, finally announced Project Wing, a project set on developing Unmanned Aircraft Systems (UAS) that can quickly transport and deliver goods across a city or into rural areas.

Indian Institute of Technology Indore
Indore, Madhya Pradesh INDIA
Gourinath Banda

Indian Institute of Technology Indore (IIT Indore or IITI), located in Madhya Pradesh, is an institute of national importance established by the Government of India in 2009. It is one of the eight new IITs established by the Ministry of Human Resource Development under The Institutes of Technology (Amendment) Act.

IIT Indore offers a 4-year Bachelor of Technology (B. Tech) program in several engineering fields. The postgraduate and graduate programs at IIT Indore includes Ph.D. and M. Tech programs in engineering and Ph.D. and M.Sc. programs in basic sciences and humanities.

Information Systems Delft (ISD)
Leiderdrop, NETHERLANDS
Eric Theunissen

Based on the idea that through automatic code generation in combination with a method for API abstraction, it should be possible to develop a low-cost, PC-based approach for the rapid design and implementation of aviation display formats on multiple platforms, ISD was founded January 15, 1988.

The primary goal of ISD was to significantly reduce the software barrier encountered in the research into aviation displays that often prevented the transformation of innovative ideas into actual implementations. To optimally benefit from the rapid increases in computing and graphics capabilities, while maintaining the capability to capitalize on an investment formed by the (already) created implementations, an approach that enabled a seamless migration between different types of graphics hardware (often with proprietary APIs) was designed.

Latitude Engineering, LLC
Tucson, Arizona USA
Jason Douglas

Latitude has built its business around the integration, operation, service and support of Unmanned Aerial Systems (UAS) both domestically and internationally.

Latitude has extensive experience in the integration of autopilots, cameras, sensors and custom software into unmanned aerial platforms, including fixed-wing aircraft, rotor-wing aircraft and aerostats. As a preferred development partner with Cloud Cap Technology, they are a leading edge technology integrator and developer for UAS.

Products they have developed include laser altimeters, touchdown sensors, anti-lock braking systems, custom airframes, launchers, ground stations and tracking antennas. Latitude also provides a range of software services for custom Piccolo Command Center applications and plug-ins, as well as develops and maintains custom autopilot firmware.

MonkeyProof Solutions
Breda, NETHERLANDS
Co Melissant

MonkeyProof Solutions is the center of expertise for optimal MATLAB & Simulink utilization, code generation & verification tools, configuration & requirements management systems and supporting infrastructure (e.g. issue tracking & version control systems). MonkeyProof Solutions operates internationally across supply chains. Its customers range from multinational and renowned research institutes to SME companies and start-ups introducing new technologies into new markets.

The MonkeyProof Model-Based Design Tool Suite is aimed at centralized design data management with a strong focus on workflow, traceability, data integrity and continuous quality control.

The MonkeyProof MATLAB Applications Framework is a solid Java-based foundation for production-quality MATLAB applications.

Namsung Corp.
Seoul, REPUBLIC OF KOREA
Byungjae Ahn

Namsung Corporation was founded in 1965 and is a major manufacturer and exporter of electronic products that has played a pivotal role in the Korean electronics industry. Today it continues to sharpen its competitive edge by intensifying investments in R&D and accumulations of advanced technologies.

Recently, Namsung took an aggressive move to penetrate the Chinese market through several joint venture projects. At the same time, they considerably accelerated the development and launching of new digital integrated products in the U.S. market, strengthening their position as one of the most important suppliers to the industry.

Osmisys LLC
Cleveland, Ohio USA
Jonny Hall

Osmisys LLC is a product development company headquartered in Cleveland, OH. They specialize in electronic and electromechanical design, embedded software, quick turn prototype development and manufacturing services.

Quotec GmbH
Zug, SWITZERLAND
Alec Quiate

Quotec GmbH is a service provider delivering aerospace, defence and transport solutions for commercial and non-profit organizations, governments and investors. They support major corporations, SMEs and new entrants with professionally managed projects, advisory help, auditing and know-how transfer.

Real Time Consulting
Phoenix, Arizona USA
Jennifer Paige

Real Time Consulting (RTC), a division of Real Time Companies, has been providing full life cycle embedded engineering services to their clients since 1997. Their engineers have decades of embedded development experience meeting or exceeding very strict government regulations in the aerospace, medical and automotive industries. From DO-178B, DO-254, SAE ARP 4754, IEEE 12207 to FDA regulatory processes, their experts are ready to apply their knowledge and discipline to the success of the project.

Their clients are among some of the world's finest aerospace companies of which they are preferred suppliers to a majority of them. Their ISO 9001:2008/AS9100 Rev C certification provides assurance to their clients that they perform to the expectations of a preferred supplier.

Surf Air
Santa Monica, California USA
Mac Kerns

Surf Air is a California-based airline that offers unlimited flights for a fixed monthly fee. Operating executive Pilatus PC-12 aircraft, they fly to and from convenient airports in the San Francisco Bay Area, the Los Angeles Metro Area, Santa Barbara, Carlsbad/San Diego, Truckee/Lake Tahoe, and Las Vegas with additional destinations to follow.

Waxwing Avionics Research and Product Development Private Limited
Angamaly, Kerala INDIA
Rufus Stanly

Waxwing Avionics strives to research and develop various avionics equipment in the civil aviation industry. Their mission is to improvise various avionics equipment with the highest quality and better advantageous functionality, abiding by the standards set by various aviation regulatory bodies.

The vision of the company is to revolutionize the way the aviation industry sees air transportation by bringing in innovative measures to increase the safety and quality of the avionics equipment. ■

Calendar of Events
JUNE 2015 – SEPTEMBER 2015

June 3-4
RTCA Annual Symposium
Washington, DC | *National Press Club*

June 5
NAC, NextGen Advisory Committee
Washington, DC | *Hosted by RTCA*

June 8-11
DO-160G Training
Washington, DC | *Hosted by RTCA*

June 8-12
SC-186, Automatic Dependent Surveillance-Broadcast
Salzburg, Austria | *Hosted by University of Salzburg*

June 9-11
SC-231, Terrain Awareness Warning Systems
Washington, DC | *Hosted by RTCA*

June 15-19
SC-217, Aeronautical Databases
Washington, DC | *Hosted by RTCA*

June 15-19
SC-227, Standards of Navigation Performance
Washington, DC | *Hosted by RTCA*

June 16-18
SC-230, Airborne Weather Detection Systems
Seattle, WA | *Hosted by The Boeing Company*

June 22-24
DO-178C Training
Washington, DC | *Hosted by RTCA*

June 25
Supplements to DO-178C Training
Washington, DC | *Hosted by RTCA*

June 25
SC-224, Airport Security Access Control Systems
Washington, DC | *Hosted by RTCA*

July 21-23
SC-213, Enhanced Flight Vision Systems & Synthetic Vision Systems
Seattle, WA | *Hosted by Boeing*

August 31 -September 4
SC-214, Standards for Air Traffic Data Communication Services
Washington, DC | *Hosted by RTCA*

September 1-3
SC-229, 406 MHz Emergency Locator Transmitters (ELTs)
Washington, DC | *Hosted by RTCA*

September 14-18
SC-227, Standards of Navigation Performance
Washington, DC | *Hosted by RTCA*

September 14-18
SC-206, Aeronautical Information Services Data Link
Chicago, IL | *Hosted by United Airlines*

September 21-23
DO-178C Training
Washington, DC | *Hosted by RTCA*

September 21-24
DO-160G Training
Washington, DC | *Hosted by RTCA*

September 24
Supplements to DO-178C Training
Washington, DC | *Hosted by RTCA*

Upcoming Events

PMC, Program Management Committee
June 18, 2015
Washington, DC | *National Press Club*

TOC, Tactical Operations Committee
July 21, 2015
Washington, DC | *Hosted by RTCA*

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

Unless otherwise specified, all meetings are held at RTCA, 1150 18th St., NW, Suite 910, Washington, DC, 20036. The information in this calendar is deemed to be reliable as of the date of publication, but is not guaranteed and is subject to change. Please visit www.rtca.org for updates. All RTCA Federal advisory committee meetings are open to the public and are free of charge. For additional information, email RTCA at info@rtca.org.

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