SUMMER 2019

# RTCA DIGEST

## NEW HEIGHTS REACHED, TOGETHER

### Features

## RTCA KICKS OFF THOUGHT LEADERSHIP MEETING SERIES

To stay on the forefront of aviation-related issues facing our industry today, on April 17, 2019 RTCA kicked off the first in a series of Thought Leadership Roundtable Meetings at RTCA Headquarters in Washington, DC. The topic of this inaugural event was Counter UAS Technologies. Attendees included senior representatives from the FAA, U.S. Department of Defense, U.S. Department of Justice,  Airports Council International-North America (ACI-NA), Aerospace Industries Association (AIA), the Airline Pilots Association, International (ALPA). The purpose of these roundtable

## RTCA: STANDARDS DEVELOPMENT ORGANIZATION – ONE YEAR LATER

**SEE PAGE 3!**

RTCA

meetings is to bring together influential industry and government leaders in an informal forum to discuss the current state of a given issue, and allow participants to share perspectives, discuss barriers of implementation and examine the expected impact on the aviation community and the traveling public.

"We are excited to present this meeting series, which we believe will assist government and industry to work more proactively and to set achievable strategic and business development goals," said RTCA President and CEO Terry McVenes. "I look forward to seeing what these leadership meetings yield in terms of creating prioritized lists of specific actions on a variety of topics that both integrate new technologies while



Thought Leadership Meeting at RTCA Headquarters

enhancing aviation safety."

Future meetings will address supersonic flight technologies, unmanned traffic management, new generation propulsion systems, urban air mobility, and airborne and ground cybersecurity and connectivity challenges. ∎



RTCA President and CEO Terry McVenes during his Keynote at EUROCAE Symposium

# RTCA: STANDARDS DEVELOPMENT ORGANIZATION – ONE YEAR LATER

RTCA has been developing standards since 1935.  In 1975, the United States government designated RTCA a Federal Advisory Committee to the FCC, then in 1976, transferred the FAC charter to the FAA.  That charter expired one year ago and RTCA returned to its roots as an independent Standards Development Organization (SDO). Since then, some things have changed, but more have stayed the same.

One area that has changed is the requirement for RTCA to meet the Federal Advisory Committee Act rules, which dictate document retention and meeting conduct policies.  Ironically, we continue to voluntarily observe these rules despite not being a FAC. RTCA sees the value in transparency and inclusion that the FACA outlines and we continue to hold committee meetings and develop documents according to those tenets.  Since June 2018, RTCA has published 15 documents that have been developed by industry in cooperation with the FAA to support 6 new TSOs.

The FAA continues to participate in a leadership role in all our committees.  The Designated Federal Officer that the FACA requires has evolved into the Government Authorized Representative. This leadership extends to the Program Management Committee (PMC), where we welcomed Dr. Mike Romanowski as the GAR for the committee.  The PMC has established one new Special Committee, SC-237, Helicopter Terrain Awareness System, and re-started one subset Special Committee, SC-231, Terrain Awareness Systems, to address issues as requested by our members.

RTCA reaffirmed our relationship with EUROCAE with President and CEO Terry McVenes and Secretary General Christian Schleifer-Heingärtner signing an updated Memorandum of Cooperation (MOC) at the RTCA 2019 Global Aviation Symposium.  This MOC outlines the RTCA/EUROCAE commitment to developing world class, harmonized global aviation standards.  These standards are referenced by ICAO, where RTCA continues as an official observer.

One year later, RTCA has returned to focusing on what made it such a special organization prior to 1975: developing critical aviation technical standards in a consensus-based, industry-government process that gives voice to all interested parties. We look forward to the future and the exciting opportunities the next generation of technology the aviation industry is introducing. ∎



RTCA President and CEO Terry McVenes and EUROCAE's Secretary General Christian Schleifer-Heingartner sign updated Memorandum of Corporation at RTCA's 2019 Global Aviation Symposium

# CHAIRMAN'S COLUMN

## A Word from RTCA's Special Committee 135 Chairman, Brad Green

Since RTCA's transition to an independent Standards Development Organization (SDO) Members of SC-135 have asked "if there will be changes on how RTCA Special Committees operate"? and to date we have not seen any changes to the committee operations. SC-135 Environmental Testing, and the FAA continue to work together as advisors for the aerospace industry on interpretations of DO-160 test procedures and approved test requirements.

Brad Green, EaglePicher Technologies, LLC

The recent major change for the RTCA SC-135 committee is the development of a new document for Environmental Conditions and Test Procedures for Ground Based Equipment. This new document will establish approved test requirements and test procedures for Environmental and EMC testing for ground-based equipment with the intention of controlling Unmanned Aerial Vehicles. This is a major change for the committee due to DO-160 is intended for airborne installations but the new document now has to consider equipment planned to be installed in buildings, vehicles or other mobile installations.

SC-135, Environmental Testing, established October 1, 1977 is the longest standing RTCA Special Committee and is responsible for maintaining RTCA DO-160 (current version is DO-160G), Environmental Conditions and Test Procedures for Airborne Equipment. SC-135 started work in 2018 on the development of a new standard for Environmental Conditions and Test Procedures for Ground Based Equipment with an expected release in June of 2020. DO-160 traces its roots back to document DO-60 which was released in 1954.

I have been an active member of SC-135 since 1993 and the committee chair for nine years. Over the years I have enjoyed the technical exchanges with technical test leaders across the aerospace industry and I am proud that we continue improving aviation safety.

Currently the Committee is also writing a new revision with the expected release of DO-160H to be in December 2021. Throughout the years SC-135 typically meets twice a year with about 40 active members supporting committee meetings. The meetings are attended by representatives from across the aviation community, including the Federal Aviation Administration (FAA), test labs, airframers, equipment manufacturers/ associations, test equipment manufacturers and consultants. ∎

# ENVIRONMENTAL TESTING

SC-135 met in April at RTCA in Washington, DC. The Committee held three days of Working Group (WG) meetings before holding their Plenary on the final day. The Ground Station Environment WG is close to completing their work on a new document to provide environmental test conditions to qualify equipment to be installed in ground stations. The Committee expects it to enter Final Review and Comment (FRAC) by the end of 2019. In addition, section change coordinators hosted sessions to review proposed changes to Revision H for DO-160, Environmental Conditions and *Test Procedures for Airborne Electronic/Electrical Equipment and Instruments*.

During the Plenary, the group worked to harmonize the accepted change proposals with representatives from EUROCAE WG- 14. The update to the DO-160H is expected to be published in 2022. The new document for Ground Station Environment Test is expected to be complete in 2020. ∎





SC-135 gathered at RTCA Headquarters for their April Plenary

# RTCA WELCOMES NEW MEMBERS

### Aero Technic BG
**Sofia, BULGARIA**

Aero Technic BG is EASA 145 approved company for Maintenance, Consulting and Logistic Support with maintenance station at Sofia Airport and aircraft type BAe146/Avro RJ, ATR42/72/ B737 and Airbus A320 Family.

The company also provides specialist engineering teams to perform aircraft maintenance. The Aero Technic BG teams are highly qualified engineers with experience in line and base maintenance.

### Anko Trading sp. z o.o.
**Warszawa, POLAND**

Anko Trading designs and build professional laboratory instruments and test equipment.
Their main clients are certification centers, R&D departments, laboratories, universities and notified bodies

### Cirrus Aircraft
**Duluth, Minnesota USA**

Cirrus Aircraft is an aircraft manufacturer that was founded in 1984 by Alan and Dale Klapmeier to produce the VK-30 kit aircraft. Cirrus markets several versions of its three certificated light aircraft models: the SR20, SR22, and SR22T. As of April 2018, the company had delivered over 7,000 SR-aircraft in nearly 19 years of production and has been the world's largest producer of piston-powered aircraft since 2013.

The type certified Cirrus Vision SF50 very light jet began deliveries in 2016. Upon its delivery, the aircraft became the first civilian single-engine jet to enter market and is often referred to as a "personal jet".

The company produces all its aircraft with composite materials and is known for pioneering new technologies in light general aviation aircraft manufacturing, including glass cockpits and full-airframe ballistic parachutes.

### Core Avionics & Industrial (CoreAVI)
**Tampa, Florida USA**

Core Avionics & Industrial Inc.'s ("CoreAVI") was formed to combine safety-critical OpenGL Graphics library products with hardware Graphics Processors (GPUs) from Advanced Micro Devices. CoreAVI's overlapping expertise in hardware and software has allowed it to rapidly grow into a trusted supplier to avionics, military, and industrial system designers around the world. CoreAVI has expanded to support many of the industry's leading graphics hardware platforms from suppliers such as Intel, AMD, NXP, and Vivante with a portfolio of OpenGL standard driver libraries that include FAA DO-178C, EASA ED-12C and DO254 certification artifacts.

CoreAVI graphics software products are compatible with most real-time operating systems including those from DDC-I, Intel Wind River, Green Hills, Mentor Graphics, Lynx Software, QNX, and Sysgo, as well as several proprietary systems. The breadth and depth of CoreAVI's product line allows system designers to select the correct level of performance, and the right features, for virtually any safe graphical application. As a result, CoreAVI has grown to serve 62 major avionics firms in 18 countries around the globe. CoreAVI is also bringing its successful avionics technology to high-speed rail, nuclear power and automotive graphics. As the technology and complexity underpinning these businesses increases, the need for safety-critical, real-time information

displayed in an instantly readable graphical fashion increase as well. The integration of video and other sensor data with graphical content promises to further increase the need for safe display systems. To serve this need, CoreAVI has achieved ISO26262 product compliance and their developments are based on the functional safety principles of IEC61508.

### Eagle Management LLC
**Eagan, Minnesota USA**

Eagle Management LLC specializes in Software, Development / Verification and Validation Hardware – Testing.

### Elroy Air
**San Francisco, California USA**

Elroy Air is an American startup company intending to replace land delivery trucks on inefficient routes with unmanned cargo aircraft.

Elroy Air's drone is able to take off and land vertically (VTOL) and fly at a speed of 100 mph. It uses cameras, lidar, and radar in addition to an air-traffic management system to safely reach its destination. The unmanned aircraft looks like a mix between a regular propeller airplane and a drone. The delivery or cargo drone is propelled by a hybrid engine using both gas and electric power. Elroy Air is trying to eliminate the need for delivery trucks to work in conjunction with drones.

## Lilium GmbH
**Wessling, GERMANY**

Lilium GmbH is a Munich-based startup developing a revolutionary on-demand air mobility service. To give wings to its vision of a world where anyone can fly anywhere, anytime, it has designed and prototyped a brand-new form of aircraft that will enable it to deliver journeys that are four times faster than a taxi, yet competitive in price. Manufacturing and operating the Lilium Jet, a five-seater, fully-electric aircraft that can take-off and land vertically (eVTOL), will enable it to address a trillion-dollar market opportunity that will not only change the way people choose to live and travel but will also connect communities at a fraction of the cost of conventional high-speed infrastructure such as road and rail.

## National Research Council Canada
**Ottawa, Alberta CANADA**

The National Research Council is the primary national research and technology organization (RTO) of the Government of Canada. The Minister of Innovation, Science, and Economic Development is responsible for the National Research Council. The transformation of the NRC into an RTO that focuses on "business-led research" was part of the federal government's Economic Action Plan. On 7 May 2013, the NRC launched its new "business approach" in which it offered four business lines: strategic research and development, technical services, management of science and technology infrastructure and NRC-Industrial Research Assistance Program (IRAP). With these services, NRC intended to shorten the gap between early stage research and development and commercialization. At one point, NRC had over 30 approved programs.

## Nightingale Security
**Newark, California USA**

Nightingale Security is a fully autonomous drone solution with proprietary drone-infrastructure technology and a first mover advantage in aerial robotic security.

The nightingale security robotic aerial security system flies and patrols day and night, in the rain and snow, responds to alarms, transmits live video, lands, recharges, communicates, collaborates and reports maintenance needs—all by itself.

## PCF Stork Ltd.
**Kyiv, UKRAINE**

PCF "STORK" Ltd is an approved maintenance organization (MOA, Part-145) and an approved design organization (DOA) in accordance with the Aviation Regulations of Ukraine (Part-21), united within a single company structure.

## Rosteco
**Moscow, RUSSIAN FEDERATION**

Rosteco is a fast-growing high-tech Russian company in the field of aviation instrument. Their goal is the creation of modern domestic avionics and airborne electronic systems:

Currently, they are actively working on the release of a series of flight-navigation systems and avionics.

## STARC, LLC
**Hartford, Connecticut USA**

STARC, LLC is a Connecticut, US-based company organized to design and build VV&A and MRO products and solutions for safety-critical industrial clients. STARC is also a Member and Shareholder of Aquiline Drones, LLC; a US-based industrial drone/aircraft manufacturer and Aquiline Capital - a US-based Investment and Asset Management company. ∎

# TERRAIN AWARENESS WARNING SYSTEM

**COMMITTEE**
SC-231,
Terrain
Awareness
Warning System

**CO-CHAIRS**
Yasuo Ishihara,
Honeywell International, Inc.

Rick Ridenour,
ACSS

**NEXT MEETING**
September 24-25, 2019
at RTCA,
Washington, DC

SC-231, which was re-established by the Program Management Committee (PMC) at their March 2019 meeting, met for their 14th Plenary in May, at RTCA Washington, DC. The Committee is working on reviewing the NTSB findings, A-17-035 and A-18-015, and the GAJSC Working Group (WG) recommendations concerning accidents between 500 and 700 ft in mountainous terrain.

At the initial meeting, the membership reviewed the existing material and started to outline the white paper they will write for the PMC on potential solutions to address consequences of inhibiting unwanted aural alerts in Class B/C TAWS. ∎



SC-231 all smiles during their first Plenary in three years

# ENHANCED FLIGHT VISION SYSTEMS AND SYNTHETIC VISION SYSTEMS (EFVS/SVS)

**COMMITTEE**
SC-213, Enhanced Flight Vision Systems/
Synthetic Vision Systems

**CO-CHAIRS**
Tim Etherington,
Collins Aerospace

Patrick Krohn,
Universal Avionics Systems Corporation

**NEXT MEETING**
October 30-31, 2019
at RTCA,
Washington, DC

SC-213 held a joint Plenary with EUROCAE Working Group (WG) 79 in May, in Toulouse, France and was hosted by Airbus. The group is working on the two new documents that were approved at the December 2018 Program Management Committee (PMC) meeting to add to their Terms of Reference (TOR): an updated Minimum Aviation System Performance Standards (MASPS) for Enhanced Vision Systems/Enhanced Flight Vision Systems (EVS/EFVS) and an updated MASPS for Synthetic Visions Systems (SVS).

The joint committee also heard from both EASA and the FAA on regulatory plans with respect to EVS/EFVS and SVS. ∎
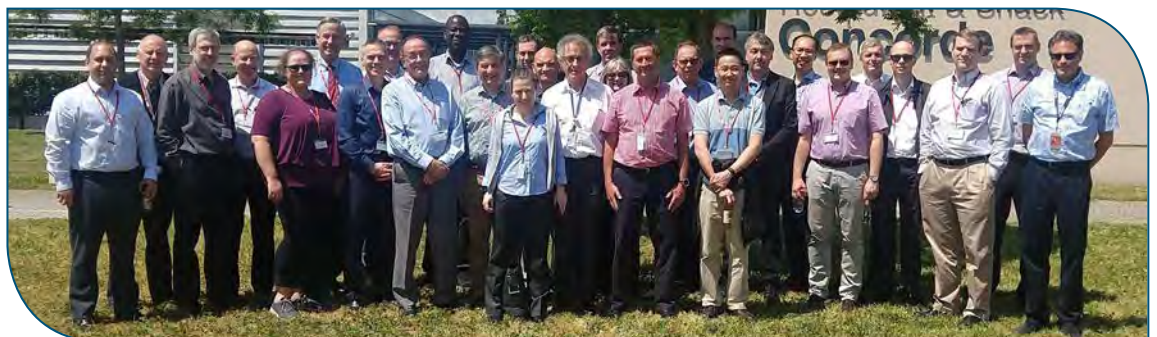


SC-213 members in Toulouse, France

# 406 MHZ EMERGENCY LOCATOR TRANSMITTERS (ELTS)

SC-229 met jointing with EUROCAE Working Group (WG) 98 in April for the first time as an Active Monitoring Committee. The Committee will continue to meet jointly with WG-98 to monitor emerging information about industry and regulatory changes and discuss how developments at other organizations impact DO-204B *Minimum Operational Performance Standards for Aircraft Emergency Locator Transmitters 406MHz*. The group is planning a face to face meeting in conjunction with WG-98 in December. ■

# ARE YOU THINKING OF TAKING DO-254 TRAINING?

- Have you been assigned the task of preparing a PHAC without knowing what you are expected to include?

- Do you know if your project is for a simple or complex device and what it will mean to your plan for certification?

- Do you need to communicate why following DO-254 could help save your project time and money?

If you want to find out more about getting your electronics hardware certified for use on aircraft, then you should attend this comprehensive RTCA training course.

- Three days of instruction focused on the details of DO-254

- Registration discount for RTCA members

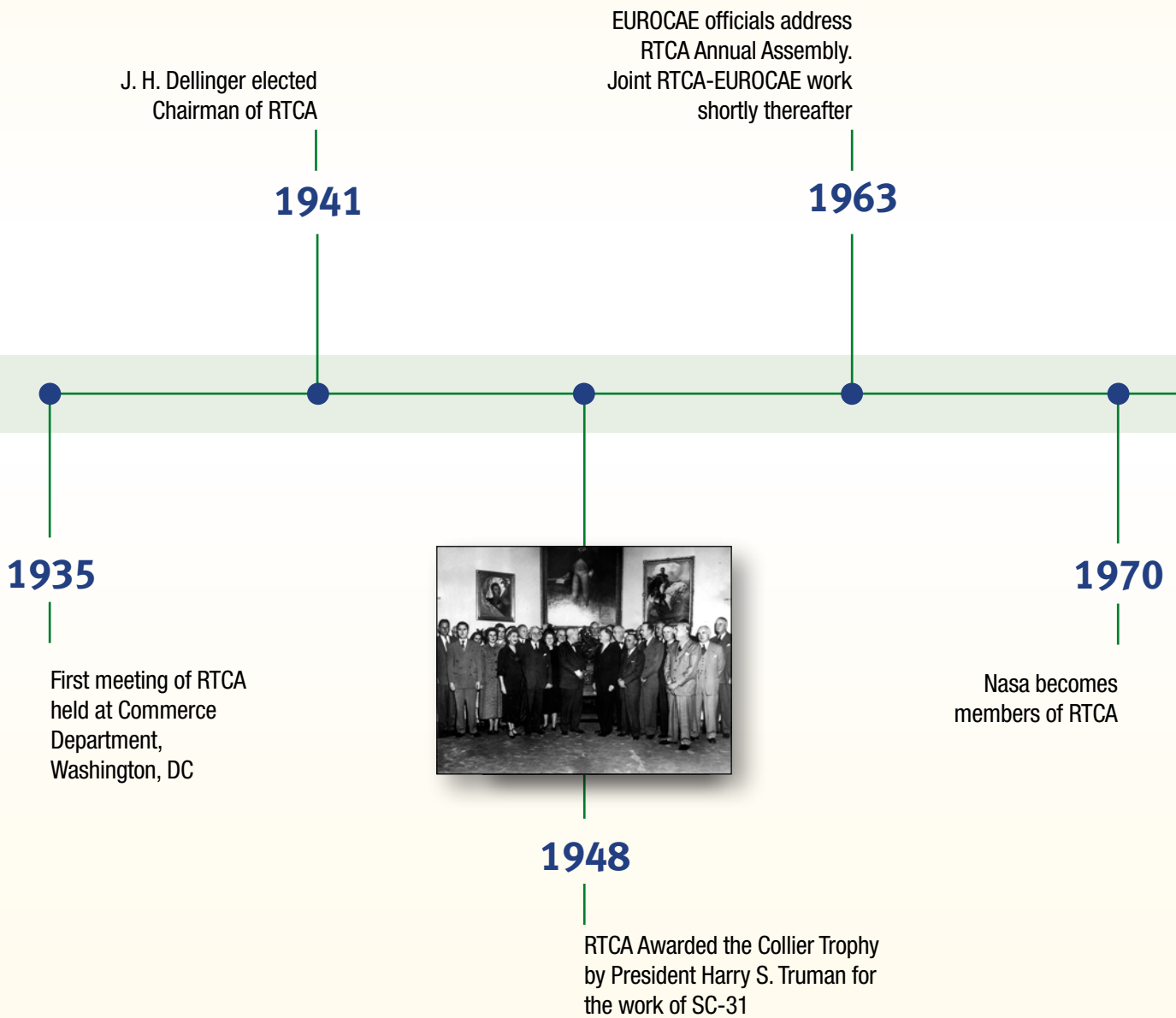- Online registration on RTCA's DO-254 Training site.

## Classes start at 8am and end at 5pm each day.

### Next Class: September 9-11, 2019

## Questions? Contact training@rtca.org

RTCA | 1150 18th Street NW, Suite 410, Washington, DC 20036

# RTCA DID YOU KNOW...

**RTCA**

J. H. Dellinger elected
Chairman of RTCA

**1941**

EUROCAE officials address
RTCA Annual Assembly.
Joint RTCA-EUROCAE work
shortly thereafter

**1963**

**1935**

First meeting of RTCA
held at Commerce
Department,
Washington, DC



**1970**

Nasa becomes
members of RTCA

**1948**

RTCA Awarded the Collier Trophy
by President Harry S. Truman for
the work of SC-31

"RTCA has no powers of enforcement…It recommends only, but its recommendations are backed by all interests as a result of their participation…Its recommendations are, in consequence, accepted.  I think this type of organization is the ideal one for the handling of complex technical problems in a democracy."

*—RTCA Chairman J. H. Dellinger, 1948*

EUROCAE becomes
members of RTCA

The RTCA Policy Board
was created

**1972**

**1997**

**1971**

RTCA and FAA sign letter of
agreement covering non-voting
participation in RTCA



**1975**

First W. E. Jackson Award presented
to Peter W. Hwoschinky, for his
thesis on the Omega Navigation
Systems for General Aviation

# MINIMUM OPERATIONAL PERFORMANCE STANDARDS FOR UNMANNED AIRCRAFT SYSTEMS

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

**CO-CHAIRS**
Paul McDuffee,
The Boeing Company

John Moore,
Collins Aerospace

**NEXT MEETING**
July 25th, 2019
at RTCA
Washington, DC

SC-228 met in April for its 19th plenary session at RTCA in Washington DC.

During the meeting, the Committee heard from the two Working Groups (WG) on the progress of the documents being updated, Rev A of DO-365, *Minimum Operational Performance Standards (MOPS) for Detect and Avoid (DAA) Systems)*. This document is expected to enter Final Review and Comment (FRAC) in September 2019. WG- 1 has sub-divided into 9 subgroups and is tackling the Detect and Avoid (DAA) standard development.

WG-2 also discussed the progress made at their meeting held the same week, where issues surrounding spectrum were covered in detail. The group also provided status on the update of DO-362, *Command and Control (C2) Data Link Minimum Operational Performance Standards (MOPS) (Terrestrial) (Rev A)* as well as DO-377, *Minimum Aviation System Performance Standards for C2 Link Systems Supporting Operations of Unmanned Aircraft Systems in U.S. Airspace (Rev A)*. Although there will be some changes to the delivery dates of some of the DO-362 A material, the end date of the final publication will not change.

The Committee also recognized the new committee secretary, Christina Westover of The Boeing Company.

SC-228 remains on schedule for producing revisions to the original DO-362, DO-365, DO-366 in 2019 and 2020 as well as new documents covering Minimum Operational Performance Standards (MOPS) for a ground-based sensor, MOPS for an airborne sensor, and extensions to point-to-point C2 architectures to address Beyond-Radio-Line-of-Sight (BRLOS) applications. ■

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

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

**CHAIR**
Steve Rines,
Zodiac Inflight Innovations

**NEXT MEETING**
June 27, 2019,
at RTCA,
Washington, DC

SC-236 met in joint Plenary with EUROCAE Working Group (WG) 96 in Cologne, Germany at EASA. During the meeting, the joint committee reviewed additional comments that were received after their last plenary on their first document, *Minimum Aviation System Performance Specification (MASPS) for Coexistence of Wireless Avionics Intra-Communication Systems (WAIC) within 4200-4400 MHz*. This document will be submitted to the EUROCAE Council and the upcoming RTCA Program Management Committee (PMC) meeting for approval in June.

In addition, the group is working to create a standard to define the Minimum Operational Performance Standard (MOPS) to use WAIC in the 4200-4400 MHz band. With the completion of the MASPS, the Committee will focus on the MOPS which is expected to be referenced by the FAA and EASA to support a WAIC TSO/ETSO. ∎



SC-236 at EASA, in Cologne, Germany

# AERONAUTICAL INFORMATION AND METEOROLOGICAL DATA LINK SERVICES

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

**CO-CHAIRS**
Tom Evans,
NASA

Rocky Stone,
United Airlines, Inc.

**NEXT MEETING**
September 9-13
Location TBD

SC-206 held a special virtual Plenary on April 30th to complete Final Review and Comment (FRAC) resolution for DO-358A, *Flight Information Services Broadcast (FIS-B) with Universal Access Minimum Operational Performance Standard (MOPS)*. Sub Group (SG) 5, under the leadership of Co-Chairs Paul Freeman, Harris Corporation and John Ferrara, Ferrara Consulting, presented and received approval for presentation to the Program Management Committee (PMC) in June for publication. ∎

## AIRPORT SECURITY ACCESS CONTROL SYSTEMS

**COMMITTEE**
SC-224, Airport Security Access Control Systems

**CO-CHAIRS**
Alan Paterno, Transportation Security Administration

Christer Wilkinson, AECOM Technology Solutions

**NEXT MEETING**
August 8, 2019, at RTCA, Washington, DC

SC-224 met May 9th to continue work on DO-230J, *Standards for Airport Security Access Control System.* This version will primarily update the credentialing, procurement, biometrics and video sections. This document is expected to be published in the Fall of 2019. ∎
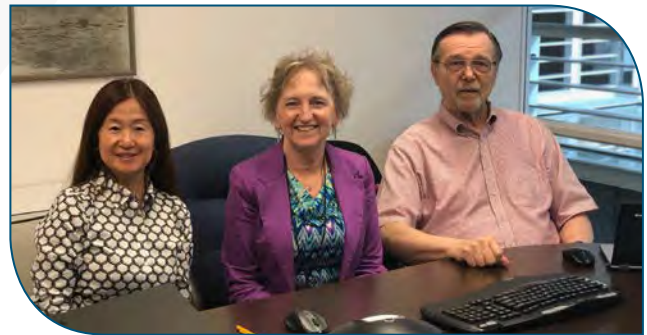
# ARE YOU INTERESTED IN TAKING DO-178C TRAINING?

- **Do you know how the Software Life Cycle at your organization relates to the Software Development Process that supports producing software which can approved?**

- **Is your System Process supporting your Software Development Cycle to ease implementation of the aspects of certification for software?**

- **Can you explain how what you do in your software process relates to a certification process?**

If you need better answers to these and other questions, join the graduates who have benefited from our course. Register early to guarantee your seat.

- Three days of instruction focused on the details of DO-178C

- Registration discount for RTCA members

- Online registration on RTCA's DO-178C Training site

**Classes start at 8:30am and end at 5pm each day.**

**Next Class: September 9-11, 2019**

**Questions? Contact training@rtca.org**

RTCA | 1150 18th Street NW, Suite 410, Washington, DC 20036
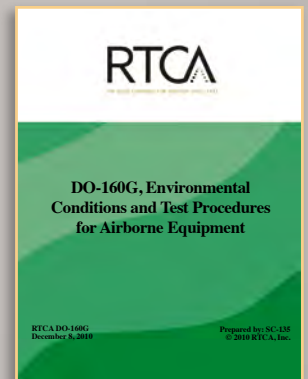
# RTCA ONLINE STORE

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

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

## Five Most Popular Documents



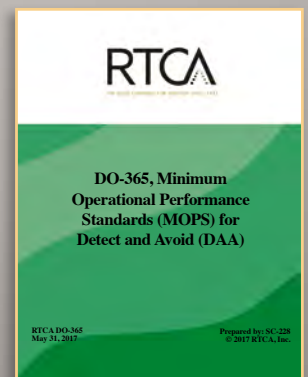**DO-178C, Software Considerations in Airborne Systems and Equipment Certification**



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



**DO-254, Design Assurance Guidance for Airborne Electronic Hardware**



**DO-330, Software Tool Qualification Considerations**



**DO-365, Minimum Operational Performance Standard (MOPS) for Detect and Avoid (DAA)**

# TRAINING CENTER

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

September 9-11 at RTCA

December 2-4 at RTCA

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

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

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

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

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

September 12 at RTCA

December 5 at RTCA

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

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

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

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

# TRAINING CENTER

## DO-254, DESIGN ASSURANCE GUIDANCE FOR AIRBORNE ELECTRONIC HARDWARE, TRAINING COUR SE

September 9-11 at RTCA

December 9-11 at RTCA

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

This three-day course will:

- Provide an overview and application of RTCA DO-254, as defined by current FAA and EASA guidance in airborne electronic systems.

- Describe how to apply the DO-254 lifecycle and supporting processes; understand system safety assessments and the design assurance level (DAL); and set up a project correctly through proper planning and standards.

- Present techniques and writing requirements for electronic hardware, and how to optimize requirements for verification processes.

- Describe how to efficiently and effectively verify requirements with simulation and hardware tests.

- Address specific considerations for programmable logic devices (PLDs) such as FPGA/ASIC versus all electronics; commercial off-the-shelf (COTS) components usage; and tool assessment and qualification.

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

October 8-11- at WSU

December 2-5- at RTCA

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

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

*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.

# RTCA CALENDAR

## June

**June 5**
**RTCA 2019 Global Symposium**
Hosted by RTCA
Arlington, VA

**June 10-14**
**SC-206, Aeronautical Information and Meteorological Data Link**
Services
Hosted by AOPA
Frederick, MD

**June 11**
**SC-216, Aeronautical Systems Security**
Hosted by RTCA
Washington, DC

**June 12**
**SC-222, AMS®S**
Hosted by RTCA
Virtual

**June 13**
**SC-147, Traffic Alert & Collision Avoidance System**
Hosted by RTCA
Washington, DC

**June 17-19**
**DO-178C Training**
Hosted by RTCA
Washington, DC

**June 17**
**SC-186, Automatic Dependent Surveillance Broadcast**
Hosted by EASA
Brussels, Belgium

**June17-21**
**SC-223, Internet Protocol Suite (IPS) and AeroMACS**
Hosted by EASA
Cologne, Germany

**June 20**
**SC-224, Airport Security Access Control Systems**
Hosted by RTCA
Washington, DC

**June 20**
**SC-209, ATCRBS/Mode S Transponder**
Hosted by EASA
Brussels, Belgium

**June 25**
**SC-230, Airborne Weather Detection Systems**
Hosted by NASA Langley
Hampton, VA

**June 25**
**SC-237, Helicopter Terrain Awareness Warning System**
Hosted by EUROCAE
St. Denis, France

**June 25-28**
**SC-236, Standards for Wireless Avionics Intra-Communication**
System (WAIC)
Hosted by RTCA
Washington, DC

## July

**July 11**
**SC-186, Automatic Dependent Surveillance Broadcast**
Hosted by RTCA
Washington, DC

**July 25**
**SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems**
Hosted by RTCA
Washington, DC

## August

**August 8**
**SC-224, Airport Security Access Control Systems**
Hosted by RTCA
Washington, DC

## September

**September 9-11**
**DO-254 Training**
Hosted by RTCA
Washington, DC

**September 9-11**
**DO-178C Training**
Hosted by RTCA
Washington, DC

**September 9-13**
**SC-206, Aeronautical Information and Meteorological Data Link**
Services
Hosted by
Toulouse, France

**September 9-13**
**SC-216, Aeronautical System Security**
Hosted by EUROCAE
St. Denis, France

**September 12**
**Supplements to DO-178C Training**
Hosted by RTCA
Washington, DC

**September 24-25**
**SC-231, Terrain Awareness Warning System**
Hosted by RTCA
Washington, DC

**September 30**
**SC-223 Internet Protocol Suite (IPS) and AeroMACS**
Hosted by RTCA
Washington, DC