NEW HEIGHTS, TOGETHER

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“The heart and soul of RTCA are its volunteers. Their dedication, commitment and drive for results is played out repeatedly, every week of the year.”

—Margaret Jenny, President, RTCA
2015 was an exciting time to be at RTCA. At the request of the FAA, we generated performance standards for systems as diverse as ADS-B, lithium batteries and airport security, and delivered policy recommendations aimed at facilitating the successful implementation of NextGen and operational issues.

RTCA and the aviation community owe a debt of gratitude to the dozens of committee leaders and thousands of committee participants who hammered out consensus on tough issues, leading again to tangible outcomes for the aviation community. Membership is at an all-time high and we are resolute in our drive to deliver value to all of our 528 member organizations.

Three overarching Federal advisory committees—the NextGen Advisory Committee (NAC), Tactical Operations Committee (TOC) and Program Management Committee (PMC)—along with 22 standards Federal advisory committees (Special Committees) were active during 2015, delivering timely and relevant input to the FAA.

It is my pleasure to highlight in this report the true and effective public-private partnership that was on display every day of 2015 at RTCA.
Members throughout the world include:

- Academia
- Airlines
- Airports
- Aviation Service Providers
- Department of Defense
- General Aviation
- Government Organizations
- Labor Unions
- Manufacturers (Aircraft & Avionics, etc.)
- R&D Organizations
- Suppliers of Automation and Infrastructure

"RTCA is the only organization I know that will bring together the right technical and operational talent—efficiently and effectively—to work together for the greater good of aviation."

Founded in 1935 and chartered by the FAA, RTCA is the premier public-private partnership venue for developing consensus among diverse, competing interests on critical aviation modernization issues in an increasingly global enterprise.
BOARD OF DIRECTORS

The RTCA Board of Directors is comprised of individuals from RTCA member companies, that provide management and fiduciary oversight.

The Board of Directors works in conjunction with the RTCA Policy Board to establish policies and programs.

POLICY BOARD

The Policy Board serves as an important link between the members of RTCA and the organization’s policy development activities by establishing RTCA policies and programs. Individuals from RTCA member organizations are elected to serve on the Policy Board.

The Policy Board includes all the members of the Board of Directors and the following:

December 2015

Faye Malarkey Black
Regional Airline Association

Ed Bolton
Federal Aviation Administration, NG ex officio

Teri Bristol
Federal Aviation Administration, ATO ex officio

Peter Bunce
General Aviation Manufacturers Association

Marke Gibson
NextGen Institute

Margaret Gilligan
Federal Aviation Administration, AS ex officio

Angela Gittens
Airports Council International – ACI World

Keith Hagy
Air Line Pilots Association

Eddie Mayenschein
Transportation Security Administration

Deborah McElroy
Airports Council International – North America

Nicholas E. Calio
Airlines for America

Edward M. Bolen (Chair)
National Business Aviation Association

Craig L. Fuller
The Fuller Company

Margaret T. Jenny
RTCA, Inc. Jenny ex officio

Steve Pennington
Department of Defense

Paul Rinaldi
National Air Traffic Controllers Association

Lillian Ryals
The MITRE Corporation

Rich Swayze
Federal Aviation Administration, Policy & International ex officio

Stephen Timm
Rockwell Collins, Inc.

Todd Zarfos
The Boeing Company
Committees Overview, 2015

BRIGHTER SKIES

35+ countries where members operate
20 global industry sectors represented
1000s aviation industry experts spanning the globe

COLLECTIVE VOICE

Committee Info 2015

More than 68 Federal Advisory Committee Meetings
340 Ad Hocs, Task Groups and Working Group Meetings
More than 2,400 attendees from more than 500 Unique Organizations
15 New or Updated Documents and 4 Policy and Recommendations Developed
RTCA Federal Advisory Committees

At the core of RTCA are the thousands of dedicated individuals from the U.S. and around the world who come together to develop comprehensive, industry-vetted and endorsed recommendations. Leveraging the experience and expertise of RTCA members, recommendations are provided to the FAA, affecting policy and investment priorities to facilitate implementation of air traffic management system improvements, as well as providing minimum performance standards and reports and guidance documents that serve as the basis for some FAA regulations. All Federal advisory committee meetings are open to the public and attract a broad range of committee participants.

NEXTGEN ADVISORY COMMITTEE (NAC)

Established in 2010 by the FAA, the NAC is a Federal advisory committee formed to provide advice on policy-level issues facing the aviation community in implementing NextGen (modernizing the aviation system). The NAC is tackling issues that are broader than air traffic management, including safety, airports, the environment and global harmonization.

PROGRAM MANAGEMENT COMMITTEE (PMC)

Established by the FAA in 1998, the PMC manages the technical Federal advisory committee-related business of RTCA. The PMC establishes Special Committees in response to an identified need by government and industry, reviews recommendations, and reports and approves, modifies, sends back for additional work or disapproves these recommendations and reports.

SPECIAL COMMITTEES (SC)

SCs leverage the expertise of the aviation community to generate recommendations in response to requests (taskings) from the FAA to address technical topics by creating documents. Special Committee recommendations, published as RTCA documents, are frequently referred to by the FAA in Technical Standard Orders and Advisory Circulars, and provide at the very least, a partial basis for the certification of equipment.

TACTICAL OPERATIONS COMMITTEE (TOC)

Established in 2013 by the FAA, the TOC provides the venue for FAA and those who operate in the National Airspace System (NAS) to work in partnership to identify and resolve operational issues affecting the efficiency of the NAS, and recommends resolutions to those issues and challenges.
The NextGen Advisory Committee (NAC) is a committee of senior aviation executives working to develop a common understanding of NextGen priorities in the context of overall NextGen capabilities and implementation constraints, with an emphasis on the near-term and mid-term.

The NAC continued the collaborative effort between the FAA and industry in the deployment of key NextGen capabilities: DataComm, Improved Multiple Runway Operations (IMRO), Performance-Based Navigation (PBN) and Improved Surface Operations capabilities. The NAC also recommended a set of performance metrics, accepted by the FAA, and launched a collaboration to evaluate the performance improvements attributable to NextGen.
The NAC is an FAA-sponsored forum to obtain a commitment of resources and/or synchronized planning between government and industry that will support and, when necessary, identify opportunities for industry participation in NextGen implementation.

NEXTGEN ADVISORY COMMITTEE (NAC) MEMBERS, DECEMBER 2015

**Richard Anderson**  
(Chair)  
Delta Air Lines, Inc.

**Mike Whitaker**  
(Designated Federal Official)  
Federal Aviation Administration

**Eddie Angeles**  
Federal Aviation Administration

**Mark Baker**  
Aircraft Owners and Pilots Association

**Ed Bolen**  
National Business Aviation Association

**Ed Bolton**  
Federal Aviation Administration

**Jim Bowman**  
FedEx Express

**Frank Brenner**  
Eurocontrol

**Teri Bristol**  
Federal Aviation Administration

**Pete Bunce**  
General Aviation Manufacturers Association

**Tim Canoll**  
Air Line Pilots Association, International

**Russell A. Childs**  
SkyWest, Inc.

**Carl D’Alessandro**  
Harris Corporation

**Mario C. Diaz**  
Houston Airport System

**Peter Dumont**  
Air Traffic Control Association

**Carl Esposito**  
Honeywell Aerospace

**Florian Guillermet**  
SESAR Joint Undertaking

**Jeffrey W. Hamiel**  
Metropolitan Airports Commission

**John Harris**  
Raytheon Technical Services

**Ryan Hartman**  
Insitu, Inc.

**John Hickey**  
Federal Aviation Administration

**Margaret Jenny**  
RTCA, Inc.

**Jeff Martin**  
JetBlue Airways

**T. Allan McArtor**  
Airbus Americas, Inc.

**David Melcher**  
Aerospace Industries Association

**Per Noren**  
The Boeing Company

**Mike Perrone**  
Professional Aviation Safety Specialists

**Brad Pierce**  
NOISE – Aurora City Council

**Paul Rinaldi**  
National Air Traffic Controllers Association

**Lillian Ryals**  
The MITRE Corporation

**Vicki Schmanske**  
Lockheed Martin IS&GS  
Civil, Defense & Intel

**Dr. Jaiwon Shin**  
National Aeronautics and Space Administration

**Rich Swayze**  
Federal Aviation Administration

**Martin Whelan**  
United States Air Force
Program Management Committee (PMC)

The Program Management Committee is comprised of senior leaders from RTCA member organizations including the airlines, the Department of Defense, aircraft manufacturers, pilots, providers of communications, navigation and surveillance (CNS) and air traffic management (ATM) technology.

The PMC approved 15 standards developed by the Special Committees in 2015. New committees were formed to address Non-Rechargeable Lithium Batteries, Portable Electronic Devices (PEDs) and Human Factors.
“Without RTCA you would not have the technical standards to set the path for tech adoption and modernization, and you would not have alignment around the policy and priorities that make modernization possible.”
RTCA Special Committees (SCs) function as Federal advisory committees, formed to address technically-oriented topics leading to the publication of minimum performance standards for key components of air transportation. They are established by the PMC in response to a request from the FAA. Some SCs are joint with EUROCAE committees to develop internationally harmonized recommendations. RTCA documents and recommendations are used by the aviation industry for development, investment and other business decisions.
22 RTCA SPECIAL COMMITTEES WERE ACTIVE IN 2015:

**SC-135, Environmental Testing.** Started working on Revision H of the DO-160 and the corresponding User Guide, Revision A of DO-357; Revision H will include a new section, 27, to address the ground reference fluctuations, which is a phenomenon aggravated by the combination of more composite structure and more electrical aircraft. This new revision will also cover some changes on the power supply, lightning, EMC, RF susceptibility, flammability sections and will identify specific aspects of testing of Integrated Modular Avionics. Publication is expected in 2019.

**SC-147, Traffic Alert & Collision Avoidance System (TCAS).** has completed Change 2 to DO-300 and Change 1 to DO-300A – MOPS for Traffic Alert and Collision Avoidance System II (TCAS II) Hybrid Surveillance. The Changes provide additional requirements to help prevent spurious Resolution Advisories during transition from passive to active surveillance. The Committee’s primary focus is a new MOPS for ACAS XA with XO capabilities; with the “A” denoting active surveillance and the “O” denoting an operational specific variant integrated on the flight-deck. ACAS XA will be a “drop-in” replacement for TCAS II. The document is expected in 2018. There is initial approval for the Committee to work with SC-228 develop a MOPS for ACAS XU a ACAS variant for Unmanned Aircraft Systems (UAS). The MOPS to specify the ACAS XU functionality is targeted for 2020.

**SC-159, Global Positioning System (GPS),** develops equipment standards for Global Navigation Satellite System (GNSS), augmented by aircraft-based, ground-based, and satellite-based augmentation systems (ABAS, GBAS, and SBAS, respectively) as well as associated interference environment reports and interface control documents (ICDs). The Committee reactivated two Work Groups: WG-2A to develop a GPS/GLONASS L1-only MOPS, and WG-2C to develop a MOPS for integrated inertial/GNSS positioning system using Attitude Heading Reference System (AHRS) grade sensors. A revised Terms of Reference provided target dates for a new MOPS for ural-frequency equipment and at least one additional core constellations based on the current schedule for deployment of L5-capable GPS satellites. Near-term updates to DO-246D – GNSS Based Precision Approach Local Area Augmentation System (LAAS) – Signal-in-Space Interface Control Document (ICD) and DO-253C – MOPS for GPS Local Area Augmentation System Airborne Equipment are expected in mid-2016.

**SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B),** published DO-328A, Safety, Performance and Interoperability Requirements Document for Airborne Spacing – Flight-deck Interval Management (ASPA-FIM), and DO-361, MOPS for the Flight-deck Interval Management (FIM). In October, the Committee kicked-off Advanced Interval Management Activities (A-IM). The primary objectives include making use of more integration among flight-deck systems, the use of new information sources such as winds and Target Intended Flight Path Information (IFPI), and being able to support reduced spacing or new separation minima for both radar-controlled and oceanic airspaces. DO-328A and DO-260B will be revised and a new MOPS for A-FIM will be developed as a follow-on to DO-361. Document completion is expected in 2018/2019.

**SC-206, Aeronautical Information and Meteorological Services (AIS and MET) Data Link,** completed a Minimum Operational Performance Standards (MOPS) for Flight Information Services Broadcast (FIS-B) with Universal Access Transceiver (UAT), published as DO-358. The group is concentrating on three new documents for delivery in 2016: a Minimum Aviation System Performance Standards (MASPS) for AIS and MET Services; Guidance for Data Linking Forecast and Real-Time Wind Information to Aircraft; and a MOPS for Eddy Dissipation Rate (EDR).

**SC-209, Air Traffic Control Radar Beacon System (ATCRBS) & Mode S Transponder, will restart in February 2016 with meetings to revise DO-181E, MOPS for ATCRBS/Mode S Airborne Equipment, and DO-260B, MOPS for 1090 MHz Extended Squitter Automatic Dependent Surveillance – Broadcast (ADS-B). The document revisions will focus on transponder updates for Advanced – Flight-deck Interval Management (A-FIM) and operational requirements. The activity will be a joint SC-209/SC-186 WG-3 effort harmonized with EUROCAE WG-49 and WG-51.

**SC-213, Enhanced Flight Vision Systems and Synthetic Vision Systems (EFVS/SVS),** published DO-359, MASPS for Synthetic Vision Guidance Systems, to provide synthetic vision guidance system general requirements and synthetic vision guidance system standard performance requirements. The Committee was re-established as a joint committee with EUROCAE WG-79 in April. The two groups are working jointly to create minimum performance standards for synthetic vision systems for approach, attitude awareness and vision systems for taxi up to 300 ft RVR. Three standards are expected to be delivered late 2016.
**SC Updates**

**SC-214, Standards for Air Traffic Data Communication Services**, developed guidance material to define the safety, performance (SPR) and interoperability requirements for Air Traffic Services (ATS) supported by data communications. The guidance should advance CNS/ATM concepts and support data communication developments for the Next Generation Air Transportation System and the Single European Sky ATM Research (SESAR) initiatives. In September, SC-214 finalized Revision A of the DataComm Baseline 2 documents, SPR DO-350, and the 3 Interops, DO-351, DO-352 and DO-353. Revision A will include new services, Dynamic RNP / DRNP, Advanced IM / A-IM & ATC Winds data as an enabler of the new DRNP and A-IM operations. The publication is expected in April 2016.

**SC-217, Aeronautical Databases**, has completed the updates to DO-272D and DO-276C, User Requirements for Aerodrome Mapping Information and for Terrain and Obstacle. They have also developed the DO-291C, Minimum Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data. These documents support future air traffic management (ATM) requirements as developed in SESAR and NextGen, and make the adjustments required as a result of the experience in implementing the Databases standards. RTCA also published the update of DO-200 to the “B” version, Standards for Processing Aeronautical Data, which was the result of the regulatory actions by the European stakeholders to implement Aeronautical Data Quality (ADQ) for Single European Sky (SES), and was done to remain current with associated changes made to ICAO, ARINC and EUROCAE standards.

**SC-222, Aeronautical Mobile Satellite (Route) Services**, published Change 4 to DO-210D, Minimum Operational Performance Standards for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMSS) Avionics. The purpose of the change was to align with the new DO-262B, MOPS for Avionics Supporting Next Generation Satellite Systems, to Appendix E. The Committee began to work jointly with EUROCAE WG-82 and is working to develop standards relative to new air-ground data link technologies including three components: airport surface, satellite and en route/TMA L band systems.

**SC-223, Aeronautical Mobile Airport Communication System (AeroMACS)**, will re-start in 2016 to develop two deliverables – Aviation Profiles for an Internet Protocol Suite and a MOPS for the Internet Protocol Suite used in Aviation Air-Ground Communication System. The Aviation Industry's planned end-state has recently been identified as one based on Aeronautical Telecommunications Network – Internet Protocol (ATN/IPS) standards. EUROCAE WG-82 will work in parallel with SC-223 to develop a world-wide standard.

**SC-224, Airport Security Access Control Systems**, completed a total rewrite of DO-230C as guidance on acquiring and designing security access control systems, testing and evaluating system performance, and operational requirements. It incorporated the latest technological advances in security access control systems and identified management technologies, including smart cards and biometrics. This was the first step of breaking out in subsections to allow preparation of operational guidance checklists for inclusion in the next few revisions of DO-230 (DO-230E and DO-230F). DO-230E will be completed in December, and DO-230F in mid-2016.

**SC-225, Rechargeable Lithium Batteries & Battery Systems**, is working on an update to DO-311, MOPS for Rechargeable Lithium Battery Systems. The group is working to incorporate the latest understanding of lithium battery technology, battery testing and installation guidance as well as include a category of size classifications in the testing requirements.

**SC-227, Standards of Navigation Performance**, finalized the Revision to DO-283, Minimum Operational Performance Standards for Required Navigation Performance for Area Navigation, that will be used by the Federal Aviation Administration to define the system and functional requirements for aircraft and flight crew enabling PBN operations in the U.S. National Airspace System (NAS). The publication is expected in December.
SC-228, MOPS for Unmanned Aircraft Systems, completed draft documents – Detect and Avoid (DAA) MOPS for Verification and Validation, and Command and Control (C2) Data Link MOPS for Verification and Validation (Terrestrial). The documents focus on an initial scenario; the operation of civil Unmanned Aircraft “to” and “from” Class A airspace (above Flight Level 18,000) under instrument flight rules. Final document release is expected in 2016 following a period of Verification and Validation tests of DAA and C2 performances.

SC-229, 406 MHz Emergency Locator Transmitters (ELTs), continued developing the revision to DO-204A that addresses the latest design, performance, installation and operational issues for 406 MHz ELTs. This would include, specifications for GNSS position information, antenna & cabling specifications, an optional input & switch to effect In-Flight ELT Activation, power source specification, crash safety specifications and second generation homing specifications. The publication is expected in December 2016.


SC-231, TAWS, made good progress on the new MOPS for TAWS, to reflect the mature nature of this technology, and to incorporate enhanced requirements and new capabilities. These TAWS standards should also seek to respond to NTSB Recommendation A-14-82, which recommends improvements to the TAWS requirements when an airplane is configured for landing near the airport, including when the airplane is descending at a high rate and there is rising terrain near the airport. The publication is expected at the end of 2016.

SC-232, Airborne Selective Calling Equipment, is working an update to DO-93, Minimum Performance Standards – Airborne Selective Calling Equipment. The revised document will reflect the current 16-tone system being used today and expands the system by an additional 16 tones. The document is expected to be delivered in early 2016.

SC-233, Addressing Human Factors/Pilot Interface Issues for Avionics, launched in February and is working to identify a recommended process for evaluating the human factors/ pilot interface aspects of avionics, as well as to document some prevalent human factors issues that may aid in the early identification and resolution of these issues as part of the design and evaluation process.

SC-234, Portable Electronic Devices (PEDs), was established in March. The group is working to publish industry-accepted guidance and best practices for determining aircraft PED tolerance through a safety risk assessment (SRA) process. This document is being done as a joint effort with EUROCAE WG-99, Portable Electronic Devices, to ensure interoperable policy as it relates to expanding passenger PED use on aircraft. The new document will supersede RTCA DO-294C and ED-130.

SC-235, Non-Rechargeable Lithium Batteries, was established in June to revise RTCA DO-227, Minimum Operational Performance Standard for Lithium Batteries, to incorporate new technology and lessons learned covering non-rechargeable lithium battery technology and the use of non-rechargeable lithium batteries. The revised guidance will address the design, testing and validation of these batteries and systems.

WVTT, Wake Vortex Tiger Team, finalized and published the new DO-360, Standards Development Activities for using Near Real-Time Aircraft-Derived Data in future applications. This document contains recommendations for standards development activities for current and future applications that could make use of aircraft-derived data. Near real-time data from aircraft, particularly weather observations, may enable many new capabilities both in ground-based automation systems and airborne systems. The document describes wake vortex, air traffic management, and weather applications, and how they could make use of near real-time data from aircraft.
The purpose of the Tactical Operations Committee (TOC) is to provide an open venue for the FAA and those who operate in the National Airspace System (NAS) to work in partnership to identify and resolve near-term, tactical issues affecting the efficiency of the NAS, and to recommend resolutions to those issues and challenges.

The TOC provided a single source of recommendations to the FAA through NOTAM Modernization efforts (NOTAM Improvement Panel), the waterfall for the VOR Minimum Operating Network program, and improving operational performance in the Caribbean.
TACTICAL OPERATIONS COMMITTEE (TOC) MEMBERS, DECEMBER 2015

Brian Quigley
(Co-Chair)
United Airlines

Dale Wright
(Co-Chair)
National Air Traffic Controllers Association

Lynn Ray
(Designated Federal Official)
Federal Aviation Administration

Chris Baum
Air Line Pilots Association, International

Bruce DeCleene
Federal Aviation Administration

Stacey Bechdolt
Regional Airline Association

Mark Hopkins
Delta Air Lines, inc.

Margaret Jenny
RTCA, Inc.

Christian Kast
Airlines for America/United Parcel Service

Bob Lamond
National Business Aviation Association

Joe Miceli
Airline Dispatchers Federation

Doug Molin
The MITRE Corporation

Bill Murphy
International Air Transport Association

Col. Juan Narvid
U.S. Air Force

Chris Oswald
Airports Council International - North America

Bart Roberts
JetBlue Airways

Melissa Rudinger
Aircraft Owners and Pilots Association

Dan Smiley
Federal Aviation Administration

Edwin Solley
Southwest Airlines

Brian Will
American Airlines
RTCA Committees Provide Essential Guidance

RTCA’s Committees developed 13 guidance documents that cover issues ranging from technical performance standards to operational concepts for air transportation. The publication of these documents was accomplished through the expertise and hard work of the committee members.
# 2015 Documents

## Aeronautical Data

<table>
<thead>
<tr>
<th>RTCA Document</th>
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<tbody>
<tr>
<td>DO-200B</td>
<td>Standards for Processing Aeronautical Data</td>
<td>SC-217</td>
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<td>DO-272D</td>
<td>User Requirements for Aerodrome Mapping Information</td>
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## Automatic Dependent Surveillance - Broadcast (ADS-B)

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<tr>
<td>DO-328A</td>
<td>Safety, Performance and Interoperability Requirements Document for Airborne Spacing – Flight Deck Interval Management (ASPA-FIM)</td>
<td>SC-186</td>
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<tr>
<td>DO-358</td>
<td>Minimum Operational Performance Standards (MOPS) for Flight Information Services - Broadcast (FIS-B) with Universal Access Transceiver (UAT)</td>
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<tr>
<td>Supplement to DO-358</td>
<td>Minimum Operational Performance Standards (MOPS) for Flight Information Services - Broadcast (FIS-B) with Universal Access Transceiver (UAT)</td>
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<tr>
<td>DO-361</td>
<td>Minimum Operational Performance Standards (MOPS) for the Flight-deck Interval Management (FIM)</td>
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## Enhanced Vision Systems

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<tr>
<td>DO-359</td>
<td>Minimum Aviation System Performance Standard (MASPS) for Synthetic Vision Guidance Systems</td>
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## Flight Information Services

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## Satellite Services

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## Security

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<td>Standards for Airport Security Access Control Systems</td>
<td>SC-224</td>
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HIGHER PERFORMANCE

"RTCA addresses the real world challenges the aviation industry faces by bringing parties together and finding answers to hard questions."
Outreach

RTCA regularly conducts outreach that highlights the work of its committees. The following are examples of the work of RTCA and its members during 2015:

RTCA VOLUNTEERS RECOGNIZED FOR TECHNICAL STANDARDS SUPPORTING NEXTGEN

In an article published by Air Traffic Management Magazine, RTCA President Margaret Jenny explained how RTCA Committees are developing standards and ensuring equipment will be used properly throughout the National Airspace System. “RTCA’s recommendations represent the output of thousands of experts from all corners of the aviation industry,” stated Jenny. “We are pleased to provide the venue to bring interested parties together to work constructively towards solutions for some of the toughest policy and technical challenges to air transportation modernization.”

UAS COMMITTEE FEATURED IN INTERNATIONAL YEARBOOK

The activities of RTCA Special Committee 228, Minimum Operational Performance Standards for Unmanned Aircraft Systems, were presented in the Unmanned Vehicle Systems (UVS) Info web sites annual Remotely Piloted Aircraft Systems (RPAS) yearbook. The update was authored by RTCA President Margaret Jenny and SC-228 Co-chair Paul McDuffee, Vice President, Government Relations and Strategy, Insitu.
“RTCA has been a leading partner in reaching consensus recommendations with major aviation organizations. We wouldn’t be where we are today without the work that RTCA has done, both domestic and international.”

AIR TRAFFIC CONTROLLERS HONOR RTCA

RTCA was recognized during the National Air Traffic Controllers Association (NATCA) Communicating for Safety Awards Luncheon for outstanding work protecting and improving the National Airspace System. NATCA National Safety & Tech Director Dale Wright thanked RTCA for efforts to create a culture of collaboration between NATCA and the FAA.
International Outreach

COOPERATING WITH EUROCONTROL

EUROCONTROL Director General Frank Brenner presented RTCA President Margaret Jenny with a flag in recognition of the excellent cooperation between RTCA and EUROCONTROL.

WORKING TOGETHER

Continuing the long history of collaboration, RTCA and EUROCAE officials met in Paris to discuss ongoing work products and plans for future activities, underscoring the importance of global interoperability. This collaboration exemplifies how two groups can come together to serve the community.

HARMONIZATION WITH ICAO

RTCA participated in the 26th Directors of Civil Aviation of the Eastern Caribbean Meeting to discuss safety, air navigation capacity and efficiency, security and facilitation, economic development of air transport and environmental protection.
RTCA Global Aviation Symposium

With nearly 350 participants, the RTCA 2015 Global Aviation Symposium was characterized by attendees as “outstanding,” with “very strong content.” The value of RTCA’s exceptional volunteers was on full display as panels of industry leaders tackled some of the toughest challenges in aviation. The Symposium featured remarks from FAA Administrator Michael Huerta, IATA Director General and CEO Tony Tyler and NTSB Chair Chris Hart.
RTCA is unique because of its niche in the rule making process. It has become an essential extension of the FAA and is unique in its ability to make a real difference in the final rules and issued by the FAA.

RTCA Awards

TIMELY RESULTS

RTCA is the only organization I know that will bring together the right technical and operational talent—efficiently and effectively—to work together for the greater good of aviation. — Jane Member, President, Aviation Corporation

RTCA is unique because of its niche in the rule making process. It has become an essential extension of the FAA and is unique in its ability to make a real difference in the final rules and issued by the FAA.

CONSENSUS INPUTS

1935 | 500+ member organizations | 1000s aviation industry experts

EST

TER
Highlighting the Dedication of RTCA Volunteers

Congratulations to all our prestigious award winners who were honored during the 2015 Awards Luncheon. Because of the hard work and dedication of RTCA volunteers, RTCA is the premier public-private partnership venue for aviation modernization issues in an increasingly global enterprise. “We recognize and honor the people 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 air transportation system,” said Margaret Jenny.

RTCA ACHIEVEMENT AWARD

The Achievement Award is RTCA’s most prestigious award, selected by the RTCA Policy Board and given to recognize those who have made significant contributions to the successful accomplishment of the RTCA mission and support of the aviation community. This year’s recipients, the NextGen Integration Working Group (NIWG), have underscored the principle of government/industry collaboration, the very foundation of RTCA’s service to the aviation community.

The NextGen Advisory Committee’s NIWG leadership team was recognized for leading the development of the comprehensive recommendations for implementing NextGen capabilities in the four focus areas of DataComm, Multiple Runway Operations, Performance-Based Navigation and Surface. The goal of these plans is to deliver measurable benefits which will increase the aviation community’s confidence in NextGen.
OUTSTANDING LEADER AWARD

The RTCA Outstanding Leader Award recognizes the added demands placed on the RTCA Committee Chairs and other RTCA participants who serve in leadership roles to ensure that the committee publishes high-quality documents by agreed-to dates.

Dr. Kuangmin Li earned a BS in Physics from the University of Science and Technology of China, a MS in Physics from Ohio University, and his PhD in Electrical Engineering from Ohio University in 2014, and completed his dissertation on “Enhanced Distance Measuring Equipment Carrier Phase.” Since 2010, Dr. Li has been a graduate research associate with the Ohio University Avionics Engineering Center. He has published one journal, 13 conference papers and is the recipient of several awards.

“\This award does not just reflect my personal work, but also work from all the faculty and staff members from Avionics Engineering Center. I’m just lucky to be selected as the Jackson Award recipient, as many others in the Center are also deserving.”

—Dr. Kuangmin Li, Avionics Engineering Center

WILLIAM E. JACKSON AWARD

RTCA presents the William E. Jackson Award to an outstanding graduate student in the field of aviation electronics and telecommunications. This award memorializes William E. Jackson, a pioneer in the development and implementation of the nation’s air traffic control system and an enthusiastic supporter of student engineers.

Dr. Kuangmin Li earned a BS in Physics from the University of Science and Technology of China, a MS in Physics from Ohio University, and his PhD in Electrical Engineering from Ohio University in 2014, and completed his dissertation on “Enhanced Distance Measuring Equipment Carrier Phase.” Since 2010, Dr. Li has been a graduate research associate with the Ohio University Avionics Engineering Center. He has published one journal, 13 conference papers and is the recipient of several awards.

“This award does not just reflect my personal work, but also work from all the faculty and staff members from Avionics Engineering Center. I’m just lucky to be selected as the Jackson Award recipient, as many others in the Center are also deserving.”

—Dr. Kuangmin Li, Avionics Engineering Center
SIGNIFICANT CONTRIBUTOR AWARD

The RTCA Significant Contributor Award recognizes individuals for very important and noteworthy contributions to Special Committees and their products.

Randy Bone
The MITRE Corporation

Izabela Gheorghisor
The MITRE Corporation

Ted Lester
The Boeing Company

Gordon Sandell
The Boeing Company

Thomas Mustach
Federal Aviation Administration

Tim Rahmes
The Boeing Company

Paul Schaeffer
U.S. Air Force

Kenneth Webb
Rockwell Collins, Inc.

Dave Nakamura
Advanced PBN Solutions/SAIC

Sylvain Raynaud
Airbus

Chuck Stewart
United Airlines

Dongsong Zeng
The MITRE Corporation

Stéphane Pelleschi
Rockwell Collins, Inc.

Pascal Rohault
Thales Air Systems

Brian Townsend
American Airlines

Paul McDuffee
Insitu, Inc.

Frédéric Picard
Thales Air Systems

Greg Saccone
The Boeing Company

Don Walker
Federal Aviation Administration

Frank Box
The MITRE Corporation

Izabela Gheorghisor
The MITRE Corporation

Sathya Silva
International Center for Air Transportation

Joe Bracken
AvMet Applications, Inc.

Joachim Hochwarth
GE Aviation

Brandon Suarez
General Atomics Aeronautical Systems

Willem Brondsema
EUROCONTROL

Matthew Johnson
Noblis

Christopher Tracy
Federal Aviation Administration

Kim Cardosi
Department of Transportation

Tom Judd
Honeywell International, Inc.

Eric Vallauri
Egis Avia

Scott Conde
National Air Traffic Controllers Association

Todd Kilbourne
Systems Ingenuity

Merrill Vaughan
The Boeing Company

Michael Cramer
The MITRE Corporation

Fabrice Kunzi
Aurora Sciences, LLC

Paul Moore
Rockwell Collins, Inc.

Thomas Obert
Airbus

David Elliott
The MITRE Corporation

Vinay Lakshminarayan
The MITRE Corporation

Madhu Niraula
Rockwell Collins, Inc.

Eric Euteneuer
Honeywell International, Inc.

Jarrett Larrow
Federal Aviation Administration

Chuck Royalty
The Boeing Company

Kara MacWilliams
The MITRE Corporation

Dave Pierce
GE Aviation

Stéphane Pelleschi
Rockwell Collins, Inc.

Chuck Royalty
The Boeing Company
The RTCA membership continued its growth in 2015, surpassing 500.
AAI Corporation
ABX Air
ACC COLUMBIA jet Service GmbH
Access Spectrum, LLC
Accord Software & Systems, Inc.
ACK Technologies, Inc.
Acousticom Corporation
ACR Electronics, Inc.
Adaptive Aerospace Corporation
Adaptive Aerospace Group
ADS-B Technologies, LLC
Advanced Management Technology, Inc.
Advanced Technical Group, Inc.
Advantage Consulting Engineering Services
Aero Design Services, Inc.
Aero, LLC
AeroAntenna Technology Inc.
AeroAstro GmbH
Aerodata Systems & Services GmbH
Aeroflex Wichita, Inc.
Aeronautics Computing Technique Research Institute (ACTRI)
Aerospace Engineering Solutions Ltd.
Aerospace Quality R&D
Aerospace Vehicle Systems Institute
AES Aerospace Embedded Solutions GmbH
Agencia Nacional de Aviacao Civil - Gerencia Geral de Certificacao
Air Canada
Air Line Pilots Association
Air Traffic Management Research Institute
Air Wisconsin Airlines Corporation
Airbus Americas, Inc.
Aircraft Electronics Association, Inc.
Aircraft Mechanics Fraternal Association
Aircraft Owners and Pilots Association
Aircrafts of Long Island, Inc.
Aireon, LLC
Airline Dispatchers Federation
Airlines for America, Inc.
AirMap
Airnet Systems, Inc.
AIRPlus Engineering
Airports Council International - North America
Airports Council International (ACI World)
Airservices Australia
Airtran Airways
Airware
Airways Corporation of New Zealand Ltd.
Alaska Airlines, Inc.
Albatroz Engineering
Alpha Star Aviation Services
Altreonic NV
American Airlines, Inc.
American Eagle Airlines
American Kestrel Company, LLC
Ampyx Power
Andre Consulting, Inc.
Appareo
Applied Avionics
Applied Technical Services, Inc.
A-P-T Research, Inc.
AQL EMC Ltd.
ASELSAN, Inc.
Asia-Pacific Engineering Consulting Services, LLC
Aspenta International, Inc.
Associated AirCenter, LLC
Association for Unmanned Vehicle Systems International (AUVSi)
ASTAR Air Cargo
Astronautics Corporation of America
Astronautics
ATAC Corporation
Atlas Air
Aurora Sciences, LLC
Austrian Military - AIR MATERIAL STAFF
Avia Satcom Company Ltd.
Aviage Systems
Aviation Data Communication Corporation
Aviation Management Associates, Inc.
Aviation Safety Supplies Ltd.
Aviation Spectrum Resources, Inc. (ASRI)
Avidyne
Avionics Tools, Inc.
Avionica, LLC
Avionyx
AVISTA Incorporated
Avitech AG
AvMet Applications, Inc.
AvtechTyee

B

BAE Systems (Operations Limited) U.K
BAE Systems, Inc. - Electronic Sector
Beacon Management Group
Becker Avionics, Inc.
Beijing Weibang Yuanhang Wireless Technology Company, Ltd.
Bell Helicopter Textron, Inc.
Berns Engineering Consulting GmbH
Blhrle Applied Research, Inc.
Blue Avionics
Blue Origin, LLC
Bombardier Aerospace
Broadcast Microwave Services, Inc.
Bundeswehr Technical and Airworthiness Center for Aircraft (wtd 61)
BVR Technologies

C

C&D Associates, Inc.
Cahon Systems, Inc.
Cape Air
CARERI
Carlisle Interconnect Technologies
Carnegie Mellon University
Cascade Technical Sciences, Inc.
Cathay Pacific Airways Ltd.
Certification Services, Inc.
Certisa International Ltd.
Cessna Aircraft Company
CETC Avionics Co., Ltd.
City of Houston, Texas
Civil Aeronautics Administration MOTC, ROC
Civil Aviation Authority of Israel
Civil Aviation Authority of New Zealand
Civil Aviation Authority of Singapore
Civil Aviation Authority Uganda
Civil Aviation Bureau of Japan
Civil Aviation Flight University of China
Clairus, LLC
Cobham Aerospace Communications
College Edouard-Montpetit - Ecole Nationale D'Aerotechnique
COMAIR Airlines
Comant Industries, Inc.
CommutAir/Continental Connection
Compass Airlines, LLC
Concepts Beyond
ConsuNova, Inc.
Continental Airlines, Inc.
Contour-NIIRS® Ltd. Ño.
Controls and Data Services
Cool City Electronics, Inc.
Cooper Antennas Ltd.
Crane Aerospace & Electronics
Cranfield University
Crown Consulting, Inc.
CSRA
CSSI, Inc.
CUONICS GmbH

(DSTL)
Defense Concept Associates, Inc.
Delta Air Lines, Inc.
Delta Engineering Corporation
Design Assurance
DevCom Ltd (DevCom spol. s r.o.)
DGA/DT/ST/IP/ASA
Digital Core Technologies Pvt. Ltd.
DMAero, LLC
DME Corporation
Dräxlmaier Aviation GmbH
Duke Pro, Inc.
Dynamic Aerospace, Inc.
Dynamic Analytical Solutions, LLC
Dynon Radio, LLC

E
2Excel Aviation Ltd.
Echodyne Corp
Ecole Nationale De L Aviation Civile (ENAC)
Ecole Polytechnique de Montreal
e-Infochips Inc.
Elbit Systems Ltd.
Electromagnetic Testing Services Ltd.
Electronic Design Office Schlehaus
Electronic Navigation Research Institute
Electronics and Telecommunications Research Institute
Electronics Test Centre
ELTA
Embedded Office GmbH & Co KG
EMBRAER
Embry-Riddle Aeronautical University
EMC-Testcenter Zurich AG
Emergency Beacon Corporation
Empire Airlines
EMT Ingenieurgesellschaft Dipl.-Ing. Hartmut Euer mbH
Endeavor Air (9E)
ENEA North America-Avionics Professional Services
Engage Technology Limited
Engineer for Safety Limited
ENSCO - Avionics
Environ Laboratories, LLC
Envoy Air
ERASM
ES3
Esterline CMC Electronics
Esterline Technologies India Private Limited
EuroAvionics Navigationssysteme GmbH & Co. KG
EUROCAE
EUROCONTROL
Eurofins Product Service GmbH
European Aviation Safety Agency
European GNSS Agency (GSA)
Evergreen International Airlines, Inc.
ExpressJet Airlines
Extreme Engineering Solutions

F
FANS Group, LLC
Fareast Huaqiang Navigation and Positioning Co., Ltd
Federal Aviation Administration
Federal Express Corporation
Federation Aeronautique International
Ferrell and Associates Consulting, Inc.
Flight Data Systems Pty. Ltd.
Flight Ops
Foliage, Inc.
ForeFlight, LLC
Fortiss GMBH
Frequencia Ltd.
Frequentis USA, Inc.
G
Gables Engineering, Inc.
Gama Engineering
Garmin Ltd.
GE Aviation Systems, LLC
GEE Operations Solutions
General Atomics Aeronautical Systems, Inc.
General Aviation Manufacturers Association
George Mason University
Georgia Tech Research Institute
Georgian Aerospace Group, Inc.
German Aerospace Center - Deutsches Zentrum fur Luft und Raumfahrt
GILBERT E BOEN CONSULTING
Globatrac, LLC
GMV (Spain)
Gogo Air
GoJet Airlines, LLC
Google, Inc.
GPSat Systems Australia Pty Ltd.
Grand Canyon Airlines
Great Lakes Aviation Ltd.
GS Aero
Gulfstream Aerospace Corporation

H
HAECO Private Jet Solutions,
Harris Corporation
Harris Technologies, LLC
Hawaiian Airlines, Inc.
HCL Technologies Ltd
HDA Technology, Inc.
HeliTrak, Inc.
Hilton Software, LLC
Honda Aircraft Company, Inc.
Honeywell International, Inc.
Hopkins Imaging
Horizon Air

I
iDE, Engineering Bureau Dembinski
IFEN GmbH
Imperial College London
IMSAR, LLC
Incline SoftWorks, LLC
Indian Institute of Technology Indore
Information Systems Delft (ISD)
INMARSAT
Innovative Solutions & Support
Insitu, Inc.
Instrumar Limited
Instytut Techniczny Wojsk Lotniczych
International Aeronavigational Systems Ltd. (IANS)
International Air Transport Association (IATA)
International Civil Aviation Organization
International Communications Group
International Federation of Air Traffic Controllers’ Associations (IFATCA)
Intersky
Intertek Testing Services NA - Grand Rapids
MI Aerospace EMC Testing Group
IOV Consulting
Iridium Satellite, LLC
Isavia ohf
Island Air
Israel Aerospace Industries (IAI)-Malat Division
ITT Exelis

J
Japan Aerospace Exploration Agency
Japan International Transport Institute, USA (JITI)
Japan Radio Air Navigation Systems Association
Jazz Aviation
Jeppesen
JetBlue Airways
Jetcraft Avionics, LLC
John Ferrara Consulting
Joint Stock Company Scientific Design Bureau of Computer Systems

K
Kaigai Corporation
Kellington Law Group PC
Kent State University-Aeronautics
KNMI
Kollsman, Inc.
Korea Aerospace University
Kuerzi Avionics AG
Kymeta Corporation

L
L2 Consulting Services, Inc.
L-3 Communications
Latitude Engineering, LLC
LC Peru
LeighFisher, Inc.
LeTourneau University
Lexavia Integrated Systems, Inc.
Liaoning General Aviation Academy
Lightsquared, Inc.
Lockheed Martin Corporation LS Technologies, LLC
Lufthansa Systems FlightNav

M
M42 Technologies
Mannarino Systems & Software, Inc.
Marinvent Corporation
Marshall Aerospace and Defence Group
Martin Aircraft Company Limited
Meggitt Aircraft Braking Systems
Mesa Airlines
Meteksan Savunma San. A.S
Metron Aviation, Inc.
MGA Research
Miccavionics GmbH
MicroPilot
Microturbo
Mid Atlantic Aviation Partnership (MAAP) - Virginia Tech
Midwest Airlines
MIT Lincoln Laboratory
MOASOFT Corporation
Mobile Power Solutions
MonkeyProof Solutions
Moog
Mooney International
Mosaic ATM, Inc.
My-konsult Teknik AB
Myngo Aerospace, LLC

N

Namsung Corp
Nanjing University of Aeronautics & Astronautics
NASA
NASA Glenn Research Center
Nasteks, Inc.
National Air Carrier Association
National Air Traffic Controllers Association
National Air Transportation Association (NATA)
National Business Aviation Association
National Geospatial-Intelligence Agency
National Institute for Aviation Research (NIAR) at Wichita State University
National Safe Skies Alliance
NATO AEW&C PROGRAMME MANAGEMENT AGENCY (NAPMA)
NAV Canada
Navtech
NEC Corporation, Air Traffic Control Systems Division
NEC Corporation, Radio Applications Division
NetJets Association of Shares Aircraft Pilots
New England Airlines
NIIAO (Institute of Aircraft Equipment)

Q

Qualcomm Technologies, Inc.
Qualtest, Inc.
Queensland University of Technology
Quotec GmbH

R

R Cubed Engineering, LLC
Radiant Power Corporation
RadioBro Corporation
Radiometrics Midwest Corporation
Ravn Alaska
Raytheon Company
RDRTec, Inc.
Real Time Consulting
Redak Consulting GmbH
Regional Airline Association
Regulus Group, LLC
Republic Airways Holdings
Research Design Lab NAVIS
Richland Technologies, LLC
RightHand Technologies, LLC
Rockwell Collins CETC Avionics Co. Ltd. (RCCAC)
Rockwell Collins, Inc.
Rosen Aviation
Rossell Techsys - Engineering Division
Rotorcraft Systems Engineering and Simulation Center at the University of Alabama in Huntsville
Row 44, Inc.
Royal New Zealand Air Force

S

Saab AB
Saab Sensis Corporation
Safety Analytical Technologies, Inc.
Saft America
Sagem Avionics, Inc.
Sagetech Corporation
to organize Federal advisory committees

22 special committees

2400+ committee meeting attendees annually
State University Parthenope
S-TEC
STM A.S (Defense Technologies Engineering and Trade Inc.
Surf Air
Swedish Defence Materiel Administration Systems Consultants Services Ltd.

TAG Aviation (Geneve Airport, Switzerland)
TAI - Turkish Aerospace Industries Inc.
Tandel Systems
Technische Universitaet Muenchen - Institute of Flight System Dynamics
Technology Providers, Inc.
TechSat GmbH
Technibit
Tek Fusion Global, Inc.
Tekever Ltd.
Teledyne Controls
Telenery
Telephonics Corporation
THALES CETC AVIONICS
Thales Global Services
The Boeing Company
The Johns Hopkins University
The MITRE Corporation
The Padina Group
The Second Research Institute, Civil Aviation Administration of China
Thompson Aerospace
Thrane & Thrane A/S
Trans States Holdings Group
Transport Canada
Transportation Security Administration
Trig Avionics Limited
Trimble Military and Advanced Systems (Trimble MAS)
Triumph Group, Inc.
Tucson Embedded Systems, Inc.
TÜV AUSTRIA SERVICES GMBH

TUVAmerica, Inc.
TwiiVision Engineering Services Group

U
U.S. Air Force
U.S. Army
U.S. Navy
U.S Coast Guard, ALC, ESD, Tech Pubs
U.S Dept. of Agriculture Forest Service
U.S. Crest Group
U.S. Technical
UAC-Integration Center
uAvionix
Ukrainian Helicopters Aviation Private Joint-Stock Company
Ultralife Corporation
Underwriters Laboratories, Inc.
Union of Aviation Industrialists of Russia
UNITE Alliance
United Airlines, Inc.
United Parcel Service
United Technologies Corporation
Universal Avionics Systems Corporation
University Corporation for Atmospheric Research
University of Idaho
University of Kansas
University of Malta
University of North Dakota
(UN) MANNED
US Airways

V
VadaTech Ltd.
Valerian Aero Solutions, LLC
Validrone AB
Veracity Engineering, LLC
VEROCEL, Inc.
Volpe National Transportation Systems Center

W
Waxwing Avionics Research and Product Development Private Limited
William E. Payne & Associates, Inc.
Wind River
WOLF Industrial Systems, Inc.
WS Technologies, Inc.

Y
Young Engineering Services, LLC
Yulista Aviation, Inc.

Z
Zee.Aero
Zodiac Aerospace
Zodiac Inflight Innovations
Financial Report

The graphs below show the sources of RTCA revenue and expenditures for 2015.

2015 OPERATING REVENUE
- 69% Membership Dues
- 13% Training Seminars
- 12% Document Sales
- 6% Symposium
- 6% Publications
- 7% Training Seminars
- 10% Symposium
- 28% Management & General
- 38% Committees and Task Forces
- 3% Public Education
- 1% Program Development
- 3% Membership Development
- 4% Membership Services
- 3% Symposium

2015 OPERATING EXPENSES