Government and Industry come together at RTCA to generate win-win solutions for aviation.

—Margaret Jenny, President, RTCA
TABLE OF CONTENTS

President’s Message .............................................. 2
RTCA Governance .................................................. 3
Who is RTCA? ......................................................... 4
RTCA Federal Advisory Committees ............................. 5
Special Committees .................................................. 9
Publications ............................................................ 14
Outreach ............................................................... 15
Awards ................................................................. 19
Membership .......................................................... 22
Financial Report ...................................................... 28
2013 was an exciting time to be at RTCA. The hundreds of participants in RTCA committees hammered out consensus on tough issues, leading again to tangible outcomes for the aviation community. Membership has been at an all-time high and we are resolute in our drive to deliver value to all of our over 440 member organizations. At the urging 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.

Three Federal Advisory Committees—the NextGen Advisory Committee (NAC), Tactical Operations Committee (TOC) and Program Management Committee (PMC)—along with 20 Special Committees (SC) were active at RTCA during 2013, delivering timely and relevant input to the FAA. New to the mix is the TOC that was established at the beginning of 2013 to focus on improving operational performance in the NAS.

RTCA held 66 Federal Advisory Committee meetings in 2013 with a total of 2,601 attendees from 391 organizations. These numbers do not begin to describe the hard work of the additional hundreds of sub-group and work-group members. RTCA Special Committees issued performance standards and guidance material for Aeronautical Mobile Satellite Services, Unmanned Aircraft Systems (UAS), Required Navigation Performance (RNP), aeronautical databases, Traffic Collision Avoidance Systems (TCAS) hybrid surveillance, and GPS/Satellite-based Augmentation Systems (SBAS). They are at work on standards for many more critical elements of NextGen including ADS-B In, Data Communications, Aeronautical Information Systems, Airport Security and many more due to be published in 2014. The NAC continued its tradition of building consensus on tough issues, delivering actionable recommendations to the FAA on issues including: NextGen Operational Capabilities prioritization, NextGen performance metrics, fuel burn data sources, Performance Based Navigation (PBN) procedures, and Categorical Exclusions under the National Environmental Policy Act requirements (CatEx2).

The TOC responded to requests from the FAA to forge consensus on the VOR Minimum Operating Network and NOTAMs, among other timely and tactical issues.

RTCA is the venue fostering an effective partnership between the FAA and the industry. More important than the numbers are the outcomes. Due in large measure to the positive track record of our committees, the FAA continues to rely on the RTCA venue to help facilitate the modernization of the NAS. The FAA has incorporated many of the RTCA recommendations into their implementation plans as well as their regulatory documents. Where their plans diverge from the recommendations, the FAA has provided rationale for their decisions. This transparency and spirit of cooperation has strengthened the public-private partnership that has come to define RTCA and encouraged the key industry decision makers to continue to devote time and energy to the committees. Equally important to sustaining this partnership is the extent to which the industry has stepped up to make commitments to their part to facilitate the modernization of the NAS.

Over the past year as we collectively turned our focus from planning to implementing NextGen, we discovered some unanticipated roadblocks to success. Given the complexity of the undertaking, that is not surprising. The good news is we are jointly working through these impediments. The FAA has had the foresight and motivation to work with industry, and industry has responded by expending substantial resources on RTCA committees, and thanks to the hard work and dedication of government and industry volunteers who populate these committees, RTCA continues to be an effective venue to work together to achieve the promise of NextGen.

From solutions to today’s problems with new air traffic procedures and the deployment of new operational capabilities, to the technical standards that enable deployment of certified equipage tomorrow and all the policies in between, RTCA is at the forefront of modernization of the air transportation system known as NextGen. This drives a globally harmonized air transportation system.

Margaret T. Jenny
President, RTCA, Inc.
RTCA GOVERNANCE

The RTCA Board of Directors, comprised of individuals from RTCA member companies, provides management and fiduciary oversight. This includes reviewing and approving the annual operating budget. The Board of Directors also works in conjunction with the RTCA Policy Board to establish RTCA policies and programs.

Board of Directors 2013

Edward M. Bolen (Chair)
National Business Aviation Association

Mark Baker
Aircraft Owners and Pilots Association

Nicholas E. Calio
Airlines for America

Carl Esposito
Honeywell Aerospace

Craig L. Fuller
The Fuller Company

Margaret T. Jenny (ex officio)
RTCA, Inc.

Mary Beth Guaspari (Corporate Secretary)
RTCA, Inc.

Policy Board 2013

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:

Pete Bunce
General Aviation Manufacturers Association

Roger Cohen
Regional Airline Association

Peggy Gilligan (ex officio)
Federal Aviation Administration

David Grizzle (ex officio)
Air Traffic Organization

Keith Hagy
Air Line Pilots Association

Ron Hawkins
ARINC, Inc.

Debby McElroy
Airports Council International-North America

Julie Oettinger (ex officio)
Federal Aviation Administration

Steve Pennington
Department of Defense

Lillian Ryals
The MITRE Corporation

John Sammon
Transportation Security Administration

Sandy Samuel
Lockheed Martin Corporation

Steve Timm
Rockwell Collins, Inc.

Karlin Toner, Ph.D
Joint Planning and Development Office

Todd Zarfos
The Boeing Company
WHO IS RTCA?

Founded in 1935 as a unique collaboration of aviation system users, providers and regulators, RTCA’s recommendations have achieved worldwide acceptance and continue to help shape and harmonize the future of aviation.

RTCA’s advice represents the consensus of thousands of experts from all corners of the vast and diverse aviation industry, functioning in an open, collaborative, consensus-driven environment. Dedicated volunteers log thousands of hours annually participating in an active network of advisory committees organized and managed by RTCA. This unique public-private partnership provides an effective venue for all interested parties to be heard and to work constructively toward solutions to some of toughest challenges to air transportation system modernization. Committees are established and tasked by RTCA in response to requests from the FAA.

RTCA is a DC-based, private, not-for-profit association. Our 440+ member organizations employ tens of thousands of people worldwide working in the aviation business.

RTCA...

- Drives the evolution of the air transportation system by convening interested stakeholders to respond to requests from the government for consensus advice on policy, operational and investment decisions, and the associated performance metrics critical to maintaining a safe, secure and efficient air transportation system.
- Generates products that support the continuing evolution of the US ATC system, an essential service to both government and industry.
- Forges recommendations developed by aviation community volunteers working in a collaborative, consensus-driven environment.
- Convenes federal advisory committees of private sector participants in a manner consistent with US anti-trust laws.
- Generates performance standards that serve as a basis for certification, and help expand the competitive marketplace of aircraft equipment and avionics.
- Produces comprehensive products leading to measurable outcomes.
  - Minimum Performance Standards for aircraft systems and equipage.
  - Industry consensus policy recommendations to government.
  - Training courses for technical standards and guidance.
RTCA FEDERAL ADVISORY COMMITTEES

RTCA brings people together to find solutions to the complex challenges facing the aviation industry. The solutions take the form of advice on policies, tactical operational enhancements, and technical performance standards. Since the advice is routinely adopted by the FAA, the volunteers who devote time and energy to our committees see their efforts pay off in a safer, more efficient, more environmentally friendly air transportation system.

RTCA administers the following Federal Advisory Committees:

NextGen Advisory Committee (NAC)

Twenty-Eight executives from various facets of the aviation community provide the FAA with recommendations related to NextGen implementation. The NAC met three times in 2013, using the meeting locations as opportunities to tour facilities and see real world examples of research, trials, NextGen-related capabilities, deployments and other activities. During 2013, the NAC approved the following recommendations and forwarded these to the FAA:

- **Environment**: Categorical Exclusion contained in the FAA Modernization Act of 2012 – process for implementing the new statutory authority “CatEx2” for a streamlined environmental review process using a noise analysis titled “Net Noise Reduction Method” as the means for identifying measurable reductions in noise on a per-flight basis as required by the law.
- **Fuel Usage**: Data Sources for Measuring NextGen Fuel Impact - culminating over one year’s worth of work, the NAC approved a recommendation for obtaining fuel use data to measure NextGen implementation in specific areas. The Committee recommended that the FAA capitalize on aircraft operator willingness to share aircraft weight and fuel consumption data that can be used in conjunction with modeling to determine the impacts of implementing NextGen capabilities.
- **NextGen Metropoles**: Future Use of Optimization of Airspace and Procedures in the Metroplex (OAPM) Criteria – building on the current FAA-aviation industry efforts to maximize procedures in Metroplex areas, the NAC approved a recommendation to expand the next round of Metroplex work to include integration opportunities with surface and Time Based Flow Management (TBFM) improvements and other NextGen capabilities that are consistent with many of the top priorities identified by the Prioritization recommendation.
- **PBN Barriers**: Increasing Utilization of Performance Based Navigation (PBN) – two reports were developed, one focused on identifying FAA and the other industry barriers to utilization of PBN along with a list of mitigation strategies.
- **City-Pairs Performance**: Key City Pairs – identifying key city pairs to the measure the impact of NextGen on NAS performance.
- **NextGen Priorities**: NextGen Capabilities Prioritization – the Committee identified eleven Tier 1 interdependent NextGen capabilities that should continue regardless of budget constraints. Another eight Tier
2 capabilities were deemed to be of medium benefit and high readiness and should remain on track, budget permitting, but could be delayed if budget cuts dictated. The report also lists the remaining 17 capabilities that were not ranked in the top two tiers.

- **PBN Priorities**: Prioritization of Performance Based Navigation Procedures – responding to the FAA’s request for determining prioritization of new, or the revision or elimination of existing Performance Based Navigation (PBN) procedures, the Committee approved a recommendation to revise the FAA’s Order for Regional Airspace Procedures Teams to include a standardized checklist to aid in quantifying projected benefits (i.e. objectives and goals) for procedures. These would also be time bound and include collaboration aircraft operators, airport officials and controllers.

---

**NAC Members 2013**

- **Bill Ayer (Chair)**
  Alaska Air Group (representing A4A)

- **The Honorable Mike Whitaker**
  Designated Federal Official
  Federal Aviation Administration

- **Ed Bolen**
  National Business Aviation Association

- **Frank Brenner**
  Eurocontrol

- **Sherry Carbary**
  The Boeing Company

- **Mario Diaz**
  City of Houston Department of Aviation

- **Carl Esposito**
  Honeywell Aerospace

- **Christa Fornarotto**
  Federal Aviation Administration

- **Craig Fuller**
  The Fuller Company (formerly Aircraft Owners and Pilots Association)

- **Bob Gray**
  ABX Air

- **David Grizzle**
  Air Traffic Organization
  Federal Aviation Administration

- **Florian Guillermet**
  SESAR Joint Undertaking

- **Jeffrey Hamiel**
  Metropolitan Airports Commission

- **John Harris**
  Raytheon Technical Services

- **John Hickey**
  Federal Aviation Administration

- **Stephanie Hill**
  Lockheed Martin Corporation

- **Margaret Jenny**
  RTCA, Inc.

- **Rob Maruster**
  JetBlue Airways

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

- **Lee Moak**
  Air Line Pilots Association

- **Arlene Mulder**
  O’Hare Noise Compatibility Commission

- **Julie Oettinger**
  Federal Aviation Administration

- **Mike Perrone**
  Professional Aviation Safety Specialists

- **Jim Rankin**
  Air Wisconsin Airlines Corporation

- **Paul Rinaldi**
  National Air Traffic Controllers Association

- **Lillian Ryals**
  The MITRE Corporation

- **Steven Shepro**
  United States Air Force

- **Pamela Whitley**
  Federal Aviation Administration

- **NAC Secretary Andy Cebula**
  RTCA, Inc.
Senior technical aviation leaders of the Program Management Committee (PMC) establish Special Committees and oversee, integrate and coordinate across committees. The PMC approves the Terms of Reference (TOR) for Special Committees, approves the Chairs, reviews recommendations, and reports and approves, modifies, sends back for additional work or disapproves recommendations and reports.

**PMC Members 2013**

- **Dr. Chris Hegarty** (Chair)
The MITRE Corporation

- **Douglas Arbuckle**
Federal Aviation Administration

- **Chris Baum**
Air Line Pilots Association

- **Lawrence Dibble**
U.S. Army

- **Chris Durkin**
Honeywell International, Inc.

- **Cdr Brett Easler**
U.S. Navy

- **Robert Grove**
Garmin Ltd.

- **Richard Heinrich**
Rockwell Collins, Inc.

- **Jens Hennig**
General Aviation Manufacturers Association

- **Robert Ireland**
Airlines for America

- **Richard Jennings** *(Designated Federal Official)*
Federal Aviation Administration

- **Margaret Jenny**
RTCA, Inc.

- **Dr. George Ligler**
Project Management Enterprises, Inc.

- **Michele Merkle**
Federal Aviation Administration

- **Col. Juan Narvid**
U.S. Air Force

- **Michael Rockwell**
ARINC, Inc.

- **William Stine**
National Business Aviation Association

- **Jessie Turner**
The Boeing Company

- **PMC Secretary Harold Moses**
RTCA, Inc.
**Special Committees (SCs)**

RTCA’s Special Committees leverage the expertise of the aviation community to generate minimum performance standards and guidance materials that shape the certification of the safety and efficiency of new equipment and technologies. These standards are frequently invoked by the FAA in Technical Standard Orders and Advisory Circulars and, thereby provide a partial basis for the certification of equipment and systems. The RTCA standards and guidance materials are also used by the private sector for development, investment and other business decisions.

**Tactical Operations Committee (TOC)**

The Tactical Operations Committee (TOC) is a policy committee that leverages the operational expertise from the aviation community to address near term tactical issues affecting the efficiency of the National Airspace System (NAS) involving air carriers, general aviation and military operations. The TOC responded to FAA Taskings on the following issues:

- **GPS/PBN Transition** – Implementing the VHF Omnidirectional Range Minimum Operating Network (VOR MON) – approval of a recommendation on criteria for evaluating the FAA’s planned VOR MON network. The FAA estimates it will decrease the current 967 VOR ground based nav-aids to approximately 567 by 2020. The industry endorsed the FAA’s overall approach based on the transition to PBN and GPS based navigation and the transition plan that provides a basic level of coverage for users of VORs, and the back-up capability for navigation in the event of a GPS outage.

- **Notice to Airmen (NOTAM)** – Improving the NOTAM system – approval of a recommendation providing industry comments on the FAA’s initiative to modernize the NOTAM system by digitizing the information and making it more easily sorted and filtered, thereby enhancing safety and increasing the overall value of the information provided by NOTAMs to the aviation industry.

- **Regional Airspace Issues** – Three Regional Task Groups (Eastern, Central and Western) are providing fora for robust discussions and developments of recommendations on airspace redesign and associated airspace management issues that are local and regional in nature and critically important for the FAA’s management of the NAS.

**TOC Members 2013**

**Jim Bowman (Co-Chair)**
FedEx Express

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

**Lynn Ray (Designated Federal Official)**
Federal Aviation Administration

**Chris Baum**
Air Line Pilots Association

**Peter Cerda**
International Air Transport Association

**Bruce DeCleene**
Federal Aviation Administration

**Scott Foose**
Regional Airline Association

**Margaret Jenny**
RTCA, Inc.

**Nancy Kalinowski**
Federal Aviation Administration

**Christian Kast**
Airlines for America/United Parcel Service

**Bob Lamond**
National Business Aviation Association

**Joe Miceli**
Airline Dispatchers Federation

**Doug Molin**
The MITRE Corporation

**Col. Juan Narvid**
U.S. Air Force

**David Newton**
Southwest Airlines

**Chris Oswald**
Airports Council International - North America

**TOC Secretary Andy Cebula**
RTCA, Inc.
SPECIAL COMMITTEES

Twenty separate committees, staffed by subject matter experts, are involved in developing performance standards, guidance documents and reports. Current SCs are producing standards for aircraft communications, navigation and surveillance equipment; safety and technical aircraft components; UAS systems; and other critical areas that drive future regulatory requirements. During 2013, two SCs completed their work and were sunset, and three more were established.

Many RTCA committees work jointly with the European Organisation for Civil Aviation Equipment (EUROCAE) to achieve internationally harmonized recommendations on aviation issues, while others work parallel with EUROCAE.

The work of the Special Committees is summarized in the following pages.

SC-135, Environmental Testing, established October 1, 1977, continues to maintain RTCA DO-160 (current version is DO-160G), Environmental Conditions and Test Procedures for Airborne Equipment. This document is the standard for environmental testing of commercial avionics and provides standard procedures and environmental test criteria for testing airborne equipment to determine their performance characteristics. DO-160G was published in December 2010, and an update of the Users’ Guide material for this document is in development, with the aim of providing rationales, guidance and background information for the environmental, test procedures and requirements, as well as lessons learned from aircraft and laboratory experience.

Chair: Brad Green, Honeywell International, Inc.
Designated Federal Official: Lee Nguyen, FAA

SC-147, Traffic Alert & Collision Avoidance System (TCAS), established November 1, 1980, has defined and updated the TCAS and TCAS II performance standards, thereby contributing to one of the most significant advances in aviation safety in the past twenty years. The Committee completed the following documents in 2013: DO-300A, Minimum Operational Performance Standards (MOPS) for Traffic Alert and Collision Avoidance System II (TCAS II) Hybrid Surveillance and DO-185, Change 2, Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II). The Committee has started work on a new Aircraft Collision Avoidance System for NextGen, or ACAS X. The foundational system to be specified will be ACAS X$_a$, with the “A” denoting active surveillance. ACAS X$_a$ will be a “drop-in” replacement for TCAS II; expected MOPS completion date – December 2018.

Co-Chairs: Robert Buley, Aircraft Data Fusion, Inc.; J. Stuart Searight, FAA

Designated Federal Official: Steve Plummer, FAA

SC-159, Global Positioning System (GPS), established March 1, 1985, is developing minimum standards that form the basis for FAA approval of equipment using GPS as a primary means of civil aircraft navigation. The Committee’s most recent publication, DO-229D with Change 1, Minimum Operational Performance Standards for Global Positioning System/Satellite-Based Augmentation System Airborne Equipment, contains Minimum Operational Performance Standards (MOPS) for airborne navigation equipment (2D and 3D) using the Global Positioning System (GPS) augmented by the Satellite-Based Augmentation System (SBAS). The Committee is monitoring GNSS developments for the next activity, developing a dual frequency / multi-constellation MOPS.

Co-Chairs: Chris Hegarty, The MITRE Corporation; George Ligler, Program Management Enterprises, Inc.

Designated Federal Official: Ken Alexander, FAA

SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B), established February 1, 1995, is developing operational requirements and minimum performance standards for airborne and ground user applications of ADS-B. Over 70 ADS-B operational capabilities have been identified that could provide enhanced safety, increased capacity and improved efficiency. The Committee has completed over 20 ADS-B documents, including the MASP document for ADS-B and Aircraft Surveillance Applications (ASA), several MOPS documents, and is currently developing safety, performance and interoperability requirements documents for specific ADS-B applications. Two documents expected in 2014 include DO-317(B), MOPS for Aircraft Surveillance Applications (ASA) System – adding Traffic Situation Awareness with Alerts and CDTI Assisted Visual Separation (CAVS) applications; and a new document – Safety and Performance Requirements Document for CDTI Assisted Visual Separation (CAVS).

Co-Chairs: Vincent Capezzuto, FAA; Rocky Stone, United Airlines, Inc.

Designated Federal Official: Don Walker, FAA
SC-203, Unmanned Aircraft Systems (UAS), established October 19, 2004, developed standards, certification criteria, and procedures for sense and avoid systems as well as protocols used for the certification of command, control and communication systems in the defined flight environment. Many federal agencies and commercial operators are currently operating or seeking authority to operate UAS in the National Airspace System (NAS). SC-203 products have helped to assure the safe, efficient and compatible operation of UAS with other vehicles operating within the NAS. The Committee sunset June 2013, and SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems, was created.

SC-206, Aeronautical Information Services (AIS) Data Link, established February 11, 2005, is identifying the AIS and Meteorological MET data link services that are envisaged to be implemented within the next decade, and developing new standards, Minimum Aviation System Performance Standards (MASPS) for AIS and MET Services, Minimum Operational Performance Standards (MOPS) for Flight Information Services – Broadcast (FIS-B) with Universal Access Transceiver (UAT) and the Revised DO-252, Minimum Interoperability Standards (MIS) for Automated Meteorological Transmission (AUTOMET), to further define the requirements that support the global aeronautical information management concept. They will publish DO-349, AIS and MET Services Delivery Architecture Recommendations, in 2014.

Designated Federal Official: Eldridge Frazier, FAA

SC-209, ATCRBS & Mode S Transponder, established January 7, 2005, completed DO-181E, Minimum Operational Performance Standards for Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment. DO-181E includes the decisions on 1090 Extended Squitter that resulted from updating DO-260A to DO-260B, Minimum Operational Performance Standards for 1090 MHz Ex-


Co-Chairs: Tim Etherington, Rockwell Collins, Inc.; Patrick Krohn, Universal Avionics
Designated Federal Official: Trent Prange, FAA

SC-214, Standards for Air Traffic Data Communication Services, established March 22, 2007, is developing Safety and Performance Requirements (SPR) and Interoperability Requirements (INTEROPS) documents for the Air Traffic Services (ATS) supported by data communications to be implemented in the United States by the NextGen Data Communications Program in defined environments through 2025 and in Europe as part of the Single European Sky ATM Research (SESAR) operational improvements. Data communications will introduce services that allow evolution from the current workload-intensive, voice-based air traffic control concepts, to collaborative, management-by-exception operations. Advanced data links between ground and airborne systems are envisioned to increase capacity, allowing greater user access and more efficient flight routing. They will publish the DO-350, Safety and Performance Requirements (SPR) document and DO-351, DO-352 and DO-353, Interoperability Requirements (INTEROPS) documents, in 2014.

Co-Chairs: Chuck Stewart, United Airlines, Inc.; Jérôme Condis, Airbus SAS
Designated Federal Official: Gregg Anderson, FAA

SC-216, Aeronautical Systems Security, established June 26, 2007, is developing airworthiness security methods and considerations, guidance for instructions for continued airworthiness and a revision to DO-326. The Committee’s recommendations and guidance material will help ensure safe, secure and efficient operations amid the growing use of highly integrated electronic systems and network

Co-Chairs: Dan Johnson, Honeywell International, Inc.; Chuck Royalty, The Boeing Company

Designated Federal Official: Raymond DeCerchio, FAA

SC-217, Aeronautical Databases, established March 13, 2008, is developing a revision of DO-200A, Standard for Processing Aeronautical Databases; revision of DO-272C, User Requirements for Aerodrome Mapping Information; revision of DO-276B, User Requirements for Terrain & Obstacle Data; and revision of DO-291B, Minimum Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data, to support future ATM requirements of NextGen and SESAR. The applications need additional aeronautical information beyond the requirements captured in the current RTCA documents DO-272C, DO-276B and DO-291B.

The DO-200A revision is necessary to be aligned with ICAO, ARINC and EUROCAE changes in standards and with the implementation of Aeronautical Data Quality (ADQ) for Single European Sky (SES). The Committee published DO-342, Guidelines for Verification and Validation of Aerodrome Mapping Databases (AMDB) Aerodrome Surface Routing Networks (ASRN) for Routing Applications in 2013 to provide guidance material on the concepts, methods, and criteria for verification and validation of ASRN.

Co-Chairs: John Kasten, Jeppesen; Stéphane Dubet, SIA

Designated Federal Official: Michael Burski, FAA

SC-222, AMS(R)S, established October 2, 2008, is developing Minimum Aviation Performance Standards (MASPS) for the Aeronautical Mobile-Satellite (R) Service (AMS(R)S) incorporating DO-270 satellite subnetwork material and aligning with ICAO’s Global Operational Data Link (GOLD) document. SC-222 also will define system level requirements and equipment specifications for the production of “Technique Specific Appendices” to revised DO-262 and Change 4 to DO-210, as necessary, to add safety service capability to SwiftBroadband. SwiftBroadband is Inmarsat’s latest generation aviation service and is currently a non-safety service. The Committee developed DO-343, Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP) in Procedural Airspace in 2013.

Chair: E.F. Charles LaBerge, EFC LaBerge Engineering & Analysis, LLC and UMBC

Designated Federal Official: Dave Robinson, FAA

SC-223, Aeronautical Mobile Airport Communication System (AeroMACS), established August 7, 2009, is developing standards for the Airport Wireless Surface Communications System. These standards are required to support data communication developments for collaborative decision making (CDM), surveillance broadcast system (SBS) and system wide information management (SWIM), as well as weather and flight information systems (FIS) efforts on the airport surface. The Committee’s recent documents include DO-345, Aeronautical Mobile Airport Communications System (AeroMACS) Profile and DO-346, MOPS for the Aeronautical Mobile Airport Communication System (AeroMACS).

Chair: Aloke Roy, Honeywell International, Inc.

Designated Federal Official: Brent Phillips, FAA
SC-224, Airport Security Access Control Systems, established September 15, 2010 is restructuring, DO-230C, Integrated Security System Standard for Airport Access Control into separate sections that will allow asynchronous updates from the main document. All U.S. commercial airports nationwide rely on this document as the primary resource for baseline minimum performance standards for design of airport access control systems and the related electronic security systems, and as the basis for meeting minimum requirements for Airport Improvement Program (AIP) funding. The Committee developed DO-230D, Standard for Airport Security Access Control Systems in 2013.

Co-Chairs: Christer Wilkinson, AECOM Technical Solutions; Craig Mosford, Transportation Security Administration
Designated Federal Official: Joe Hebert, FAA

SC-225, Rechargeable Lithium Batteries & Battery Systems, established December 8, 2010, is developing certification guidance for small- and medium-sized rechargeable lithium batteries and battery systems. In 2013, the Committee developed DO-347, Certification Test Guidance for Small and Medium Sized Rechargeable Lithium Batteries and Battery Systems to provide certification guidance for batteries permanently installed in an aircraft, including those installed within line-replaceable units (LRUs). The development of minimum standards for small- and medium-sized rechargeable lithium batteries and battery systems will help to ensure safety and efficiency in battery design, testing, installation and system management.

Chair: Richard Nguyen, The Boeing Company
Designated Federal Official: Norman Pereira, FAA

SC-226, Audio Systems and Equipment, established September 28, 2011, developed airworthiness guidance for aircraft audio systems and equipment standards intended to support aircraft audio systems’ response characteristics. The deliverable, DO-214A (published in December 2013), Audio Systems Characteristics and Minimum Operational Performance Standards for Aircraft Audio Systems and Equipment, incorporates emerging technological advances in airborne flight crew communication products providing improved audio quality while enabling more efficient and standardized certification approach across the industry. After DO-214A was created and published, the Committee sunset.

SC-227, Standards of Navigation Performance, established December 13, 2011, is developing navigation standards intended for designers, manufacturers and installers of avionics equipment; airspace managers and service providers; and the users of these navigation systems for world-wide operations. The revision to DO-283, Minimum Operational Performance Standards (MOPS) for Required Navigation Performance for Area Navigation, will provide guidance for the development of airspace and operational concepts needed to obtain the benefits of enhanced navigation capability in the aircraft. The MOPS will be compatible with the upcoming ICAO navigation specification for advanced RNP, to be published in the update to the ICAO PBN Manual, Document 9613. The Committee is developing the Change 1 to DO-236C to define the four dimensional standards that support both RNP and trajectory-based operations and a standard for wrong runway monitoring in support of aviation safety Initiatives. In 2013, the Committee published DO-236C, Minimum Aviation System Performance Standards (MASPS): Required Navigation Performance for Area Navigation. This document will provide the minimum set of requirements needed to demonstrate compliance with the performance and functions in the MASPS while enabling compliance with the PBN operations envisioned to support NextGen and SESAR.

Co-Chairs: Dave Nakamura, The Boeing Company; Sylvain Raynaud, Airbus
Designated Federal Official: Jarrett Larrow, FAA

SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems, established May 20, 2013, is working to develop the Minimum Operational Performance Standards (MOPS) for Detect and Avoid (DAA) equipment and a Command and Control (C2) Data Link MOPS establishing L-Band and C-Band solutions. The initial phase of standards development will focus on civil UAS equipped to operate into Class A airspace under IFR flight rules. The Operational Environment for the MOPS is the transitioning of a UAS to and from Class A or special use airspace, traversing Class D and E, and perhaps Class G airspace. A second phase of MOPS development is envisaged to specify DAA equipment to support extended UAS operations in Class D, E, and perhaps G,

**Co-Chairs:** George Ligler, Program Management Enterprises, Inc.; Paul McDuffee, Insitu, Inc.

**Designated Federal Official:** Steve Van Trees, FAA

**SC-229, 406 MHz Emergency Locator Transmitters (ELTs),** established December 18, 2013, is working to update DO-204 standards addressing the latest design, performance, installation and operational issues for 406 MHz emergency beacons. These standards should be useful to users, designers, manufacturers, and installers of ELTs, and will help ensure a more standardized approach in these systems and the installations approval process. The revision to DO-204 is warranted for several reasons: first, Cospas-Sarsat is upgrading its satellite ELT detection system by placing search and rescue transponders on new GPS, GLONASS, and GALILEO satellites. These new transponders will dramatically improve the speed and accuracy of ELTs. Second, analysis of recent aircraft accidents has created a call from air safety investigators as well as the National Search and Rescue Committee to develop standards for pre-accident automatic ELT activation. Third, GPS technology now allows ELTs to provide accurate accident positioning to first responders. Development of GPS requirements for use in ELTs will help standardize this valuable tool.

**Co-Chairs:** Thomas Pack, ACR Electronics; Philippe Plantin de Hugues, Bureau d’Enquêtes et d’Analyse (BEA)

**Designated Federal Official:** Charisse Green, FAA

**SC-230, Airborne Weather Detection Systems,** established December 18, 2013, is working to develop recommendations for an advisory circular for airworthiness approval for aircraft weather radar systems. The outdated DO-220 and DO-220 Change 1 will be revised and updated to the minimum operational performance standards for aircraft weather radar equipment. DO-220 provides the current Minimum Operational Performance Standards (MOPS) for Airborne Weather Radar with Forward-Looking Windshear Capability. It was published in 1993, with Change 1 added in 1995. Since then, significant technological advances in weather radar systems have occurred, but the MOPS has not been updated to accommodate these improvements. Modern weather radar systems may also include turbulence detection or other related features and functions that are not currently addressed by the MOPS. Revised guidance will enable a more efficient and standardized certification approach across the industry.

**Co-Chairs:** Dawn Gidner, Honeywell International, Inc.; Jeff Finley, Rockwell Collins, Inc.

**Designated Federal Official:** Lee Nguyen, FAA
RTCA PUBLICATIONS

RTCA Special Committees leverage the expertise of the best and brightest in the aviation community to generate recommendations in response to requests from the FAA to address technical topics. Throughout the years, RTCA has produced numerous documents to help shape the certification of the safety and efficiency of new equipment and provide for the implementation of technologies. These documents are used by the private sector for development, investment and other business decisions. In 2013, RTCA Special Committees developed nine guidance documents, four new and five revised, ranging from technical performance standards to operational concepts for air transportation.

NEW DOCUMENTS

<table>
<thead>
<tr>
<th>RTCA Document</th>
<th>Title</th>
<th>Prepared by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO-342</td>
<td>Guidelines for Verification and Validation of Aerodrome Mapping Databases (AMDB) Aerodrome Surface Routing Networks (ASRN) for Routing Applications</td>
<td>SC-217</td>
</tr>
<tr>
<td>DO-343</td>
<td>Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP) in Procedural Airspace</td>
<td>SC-222</td>
</tr>
<tr>
<td>DO-344</td>
<td>Operational and Functional Requirements and Safety Objectives for Unmanned Aircraft System Standards</td>
<td>SC-203</td>
</tr>
<tr>
<td>DO-345</td>
<td>Aeronautical Mobile Airport Communications System (AeroMACS) Profile</td>
<td>SC-223</td>
</tr>
</tbody>
</table>

REVISED DOCUMENTS

<table>
<thead>
<tr>
<th>RTCA Document</th>
<th>Title</th>
<th>Prepared by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO-229D with Change 1</td>
<td>Minimum Operational Performance Standards for Global Positioning System/Satellite-Based Augmentation System Airborne Equipment</td>
<td>SC-159</td>
</tr>
<tr>
<td>DO-230D</td>
<td>Standard for Airport Security Access Control Systems</td>
<td>SC-224</td>
</tr>
<tr>
<td>DO-236C</td>
<td>Minimum Aviation System Performance Standards: Required Navigation Performance for Area Navigation</td>
<td>SC-227</td>
</tr>
<tr>
<td>DO-300A</td>
<td>Minimum Operational Performance Standards (MOPS) for Traffic Alert and Collision Avoidance System II (TCASII) Hybrid Surveillance</td>
<td>SC-147</td>
</tr>
</tbody>
</table>
Each year RTCA conducts a Symposium to examine current and emerging issues facing the aviation community related to the policy and technical issues under consideration by government and industry volunteers. In June 2013, more than 300 aviation industry and government executives met for two days to discuss Demonstrating the Value of Working Together.

Four keynote speakers included The Honorable Michael Huerta, FAA Administrator; Marilyn Hewson, CEO and President of Lockheed Martin Corporation; Bill Ayer, Alaska Air Group Chairman and Chair of the NextGen Advisory Committee (NAC); and the Honorable Tom Petri, U.S. House of Representatives Chairman, Subcommittee on Highways and Transit, and Member, Subcommittee on Aviation.

The Symposium included 11 sessions, covering a variety of technical and policy topics from global harmonization to PBN procedures and more.
Supporting RTCA Members and Industry

The RTCA Digest provides RTCA members with timely updates six times a year on the activities of the NAC, PMC, TOC, Special Committees, as well as the release of RTCA documents, and other RTCA related actions.

RTCA maintains a website to provide current information on RTCA events, committee activities and actions, and access to meeting schedules and documents.

During 2013, RTCA redesigned its website with a fresh look and user-friendly navigation for RTCA members and perspective members.

Additionally, RTCA expanded on conference center space to support the increasing number of committee meetings being held at RTCA Headquarters.

RTCA staff and Committee leaders periodically participate in national and international industry events to report on the organization’s activities and recommendations as well as to remain current on emerging issues.
Margaret Jenny participated on a panel discussing the regulations and standards for lithium ion batteries at a National Transportation Safety Board (NTSB) forum on *Lithium Ion Batteries in Transportation*. During the forum, Jenny explained the important role that RTCA volunteers play in developing consensus minimum performance standards that are used as the basis for meeting FAA safety requirements.

RTCA Explains Lithium Battery Standard Development to the NTSB

RTCA’s President Margaret Jenny joined a group of international aviation leaders for a discussion on “Addressing Global Standardisation Needs,” stressing the importance of global harmonization and highlighting the significant step that ICAO has taken towards establishing the roadmap documented in the aviation system block upgrades (ASBUs).

The panel was part of the Joint Global Interoperability Workshop, “ICAO-ANC12: Setting the roadmap for global interoperability,” held at the World ATM Congress in Madrid.

Transforming Global Air Traffic Management
Members of the NAC Define Success

Paul Rinaldi, President of the National Air Traffic Controllers Association, hosted a panel of fellow members of the NextGen Advisory Committee at the NATCA Communicating for Safety (CFS) Conference. The panel included (left to right) Paul Rinaldi, Bill Ayer (Chairman of Alaska Air Group and Chairman of NAC), Craig Fuller (President and CEO, Aircraft Owners and Pilots Association and RTCA Chairman), Ed Bolen (President and CEO, National Business Aviation Association), David Grizzle (COO, ATO of the FAA), Margaret Jenny (President, RTCA) and Lillian Ryals (Director, Senior Vice President and General Manager, The MITRE Corporation), and provided an excellent illustration of the collaboration required to move NextGen ahead.

Ongoing Success for DO-178C Training

Throughout 2013, RTCA hosted the DO-178C, Software Considerations in Airborne Systems and Equipment training course. For a second year in a row, attendees continued to rate the training course with high marks, this time for its content, usefulness of the material covered and quality of instructors.

Launch of New Training Course

In 2013, RTCA launched a Supplements to DO-178C training course, to provide background and scope on the supplements supporting DO-178C. Professionals throughout the aviation industry came to RTCA headquarters to receive training and were very impressed with the amount of detail provided in the Supplements course.

Along with the DO-178C training course, the Supplements course addresses the standards and recommended practices contained in DO-178C, and cover the requirements and parameters for avionics software development necessary to obtain FAA certification contained in DO-178C.
RTCA AWARDS

Recognizing Contributions of RTCA Volunteers

Highlighting the vital contributions of RTCA volunteers, the Annual Awards Luncheon recognized the impressive achievements of these leaders for their significant contributions during 2012. Awards were presented in four categories – the Achievement Award, Outstanding Leader Award, Significant Contributor Award, and a category only awarded on special occasions, the Chairman’s Award.

RTCA Chairman’s Award
Mr. Steve Brown
National Business Aviation Association (NBAA)
The Chairman’s Award is presented on special occasions to an outstanding leader who is deemed by the RTCA Chairman to have gone above and beyond helping RTCA achieve its goals for a sustained period of time. This was the first time in 10 years that the Chairman’s Award was presented. Steve Brown, Chief Operating Officer for NBAA, was presented with this 2013 award. Steve has applied his deep and broad background to countless RTCA initiatives since the late 1980s, serving on the RTCA Policy Board; Task Forces 2, 3, 4 and 5; Certification Steering Committee; Free Flight Steering Committee; Air Traffic Management Advisory Committee; National Airspace Review Plan & Analysis; GPS/GLONASS MOPS; and, as Co-Chair of the NAC Subcommittee. He has also been a featured Speaker at numerous fora and symposia since the 1990s.

RTCA Achievement Award
Mr. Dale Wright
National Air Traffic Controllers Association (NATCA)
The RTCA Achievement Award recognizes the person or persons who have made the most significant contribution to the successful accomplishment of RTCA’s mission and support of the aviation community over the past year or over a sustained period. The RTCA Policy Board selects the recipient of this award. In 2013, the RTCA Achievement Award was given to Dale Wright, Director of Safety and Technology for NATCA, Dale was recognized for his provision of valuable resources to many RTCA committees and work groups, including the NAC Subcommittee, ATMAC, ATMAC R&P Work Group (WG), the infamous Trajectory-Based Operations (TOPs) WGs, the DataComm Roadmap WG, the Ops Capability WG, the Business Case and Performance Metrics WG, and Task Force 5.
Outstanding Leader Awards

The Outstanding Leader award recognizes the added demands placed on RTCA Special Committee Chairs and/or other RTCA participants who serve in leadership roles, to ensure timely and quality products.

Sherif Ali
GE Aviation
SC-220, Automatic Flight Guidance and Control (AF-G&C)
DO-335, Guidance for Installation of Automatic Flight Guidance and Control Systems (AFGCS) for Part 23 Airplanes
DO-336, Guidance for Certification of Installed Automatic Flight Guidance and Control Systems (AFGCS) for Part 27/29 Rotorcraft

Randy Bailey
National Aeronautics and Space Administration
DO-341, Minimum Aviation System Performance Standards (MASPS) for an Enhanced Flight Vision System to Enable All-Weather Approach, Landing and Roll-Out to a Safe Taxi Speed

Jérôme Condis
Airbus SAS
SC-214, Standards for Air Traffic Data Communication Services

Ernie Dash
AvMet Applications, Inc.
SC-206, Aeronautical Information Services Data Link
DO-340, Concept of Use for Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services

Allan Hart
Honeywell International, Inc.
SC-217, Aeronautical Databases
DO-276B, User Requirements for Terrain and Obstacle Data

Rick Heuwinkel
Federal Aviation Administration
SC-206, Aeronautical Information Services Data Link

DO-340, Concept of Use for Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services

Ed Johnson
National Aeronautics and Space Administration
SC-206, Aeronautical Information Services Data Link
DO-339, Aircraft Derived Meteorological Data via Data Link for Wake Vortex, Air Traffic Management and Weather Applications—Operational Services and Environmental Definition (OSED)

Ken Jones
National Aeronautics and Space Administration
SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B) Supplement to DO-312, Safety, Performance and Interoperability Requirements Document for the In-Trail Procedure in Oceanic Airspace (ATSA-ITP) Application

John Kasten
Jeppesen
SC-217, Aeronautical Databases
DO-276B, User Requirements for Terrain and Obstacle Data

Dude Kerley
Rockwell Collins, Inc.
SC-219, Attitude and Heading Reference Systems (AHRS)
DO-334, Minimum Operation Performance Standards (MOPS) for Strapdown Attitude and Heading Reference Systems (AHRS)

Clark Lunsford
The MITRE Corporation
SC-206, Aeronautical Information Services Data Link
DO-339, Aircraft Derived Meteorological Data via Data Link for Wake Vortex,

Air Traffic Management and Weather Applications—Operational Services and Environmental Definition (OSED)

Paul Mettus
LS Technologies, LLC
SC-214, Standards for Air Traffic Data Communication Services
DO-281B, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer

Dean Miller
The Boeing Company
SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B)
DO-338, Minimum Aviation System Performance Standards (MASPS) for ADS-B Traffic Surveillance Systems and Applications (ATSSA)

Tim Rahmes
The Boeing Company
SC-206, Aeronautical Information Services Data Link
DO-340, Concept of Use for Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services

Rob Strain
The MITRE Corporation
SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B)
DO-338, Minimum Aviation System Performance Standards (MASPS) for ADS-B Traffic Surveillance Systems and Applications (ATSSA)

Andy Zeitlin
The MITRE Corporation
SC-147, Traffic Alert & Collision Avoidance System (TCAS)
DO-337, Recommendations for Future Collision Avoidance Systems
Significant Contributor Awards

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

Laurence Audenaerd
The MITRE Corporation
SC-206, Aeronautical Information Services Data Link
DO-339, Aircraft Derived Meteorological Data via Data Link for Wake Vortex, Air Traffic Management and Weather Applications—Operational Services and Environmental Definition (OSED)

Joe Bracken
AvMet Applications, Inc.
SC-206, Aeronautical Information Services Data Link
DO-339, Aircraft Derived Meteorological Data via Data Link for Wake Vortex, Air Traffic Management and Weather Applications—Operational Services and Environmental Definition (OSED)

Chris Collings
Harris Corporation
SC-214, Standards for Air Traffic Data Communication Services

Stephen Darr
Dynamic Aerospace, Inc.
SC-206, Aeronautical Information Services Data Link
DO-339, Aircraft Derived Meteorological Data via Data Link for Wake Vortex, Air Traffic Management and Weather Applications—Operational Services and Environmental Definition (OSED)

Bruce Eckstein
ITT Corporation
SC-214, Standards for Air Traffic Data Communication Services
DO-281B, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer

Gary Furr
Engility Corporation
SC-186, Automatic Dependent Surveillance-Broadcast (ADS-B)
DO-338, Minimum Aviation System Performance Standards (MASPS) for ADS-B Traffic Surveillance Systems and Applications (ATSSA)

Dick Hess
Universal Avionics Systems Corporation
SC-220, Automatic Flight Guidance and Control (AF-G&C)
DO-335, Guidance for Installation of Automatic Flight Guidance and Control Systems (AFGCS) for Part 23 Airplanes

Amanda Hoprich
AvMet Applications, Inc.
SC-206, Aeronautical Information Services Data Link
DO-340, Concept of Use for Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services

Don Johnson
L-3 Communications
SC-219, Attitude and Heading Reference Systems (AHRS)
DO-334, Minimum Operation Performance Standards (MOPS) for Strapdown Attitude and Heading Reference Systems (AHRS)

Lynda Kramer
National Aeronautics and Space Administration
DO-341, Minimum Aviation System Performance Standards (MASPS) for an Enhanced Flight Vision System to Enable All-Weather Approach, Landing and Roll-Out to a Safe Taxi Speed

Gary Livack
Federal Aviation Administration (Retired)
SC-206, Aeronautical Information Services Data Link
DO-340, Concept of Use for Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services
SC-217, Aeronautical Databases
DO-276B, User Requirements for Terrain and Obstacle Data

Andrew Onken
ARINC Incorporated
SC-214, Standards for Air Traffic Data Communication Services
DO-281B, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer

David Spencer
MIT Lincoln Laboratory
SC-147, Traffic Alert & Collision Avoidance System (TCAS)
DO-337, Recommendations for Future Collision Avoidance Systems

John VanHoudt
Federal Aviation Administration
SC-220, Automatic Flight Guidance and Control (AF-G&C)
DO-336, Guidance for Certification of Installed Automatic Flight Guidance and Control Systems (AFGCS) for Part 27/29 Rotorcraft
Members of RTCA are involved aviation industry and government professionals building consensus today on the electronic and telecommunication issues of tomorrow’s aviation. RTCA Members form the recommendations for policy, procedural and equipment standards that affect the way business is done in the worldwide aviation community.

**RTCA MEMBERSHIP**

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>61%</td>
</tr>
<tr>
<td>International</td>
<td>31%</td>
</tr>
<tr>
<td>Academic</td>
<td>6%</td>
</tr>
<tr>
<td>U.S. Govt.</td>
<td>2%</td>
</tr>
</tbody>
</table>

**Members as of December 31, 2013**

**Membership Count by Category (as of December 31, 2013)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Domestic Members</th>
<th>International Associates</th>
<th>Academic Associates</th>
<th>U.S. Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A

A.D.Ventures Software, Ltd.
AAI Corporation
AATC Systeme & Software
ABX Air
ACC COLUMBIA Jet Service Gmbh
Accord Software & Systems, Inc.
ACK Technologies, Inc.
ACR Electronics, Inc.
Adaptive Aerospace Corporation
Adaptive Aerospace Group
Advanced Management Technology, Inc.
Advanced Technical Group, Inc.
Aero Engine Controls - North America
Aero Simulation, Inc.
AeroAntenna Technology, Inc.
AeroAstro GmbH
Aerodata Systems & Services Gmbh
Aeroflex Wichita, Inc.
Aeropoint Aviation Systems, Inc.
Aerosonic Corporation
Aerospace Design & Engineering Consultants, Ltd.
(AERODEC)
Aerospace Vehicle Systems Institute
Agencia Nacional de Aviacao Civil - Gerencia Geral de Certicacao
AgustaWestland S.p.A.
Air Canada
Air Line Pilots Association
Air Wisconsin Airlines Corporation
Airbus Americas, Inc.
Aircraft Electronics Association, Inc.
Aircraft Owners and Pilots Association
Aircrafts of Long Island, Inc.
Aireon, LLC
Airline Services, Ltd.
Airlines for America, Inc.
AIRPlus Engineering
Airports Council International - North America
Airservices Australia
Airtran Airways
Airware
Airways Corporation of New Zealand, Ltd.
Alaska Airlines, Inc.
Albatroz Engineering
Aligned Services, Inc.
Altreonic NV
American Airlines, Inc.
American Eagle Airlines
American Kestrel Company, LLC
Andre Consulting, Inc.
A-P-T Research, Inc.
APX Resources, Inc.
AQL EMC, Ltd.

Archangel Aero
ARINC Incorporated
Artemis, Inc.
Aspen Avionics, Inc.
Associated AirCenter, LP
Association for Unmanned Vehicle Systems International (AUVSI)
Association of Air Medical Services (AAMS)
ASTAR Air Cargo
Astronautics Corporation of America
ATAC Corporation
Atlas Air
Aurora Sciences, LLC
Austrian Military - AIR MATERIAL STAFF
Avia Satcom Company, Ltd.
Aviation Data Communication Corporation
Aviation Management Associates, Inc.
Aviation Spectrum Resources, Inc. (ASRI)
AVIC Avionics Company Limited
AVIC Leihua Rockwell Collins Avionics Company
Avidyne Corporation
Avionica, LLC
Avionyx
AVISTA Incorporated
Avitech GmbH

B

BAE Systems (Operations Limited) U.K
BAE Systems Controls
BAE Systems, Inc. - Electronic Systems
Beacon Management Group
Becker Avionics, Inc.
Beijing Weibang Yuanhang Wireless Technology Company, Ltd.
Bell Helicopter Textron, Inc.
Berns Engineering Consulting GmbH
Biskay Holdings LLC. dba Commercial Aircraft
Bombardier Aerospace
BrightLoop
Bundeswehr Technical and Airworthiness Center for Aircraft (wtd 61)
BVR Technologies

C

Cambria Corporation
Cameroon Civil Aviation Authority
Capital Avionics, Inc.
CARERI
Cascade Technical Sciences, Inc.
Cathay Pacific Airways, Ltd.
CEMSol
Certification Services, Inc.
Certisa International Ltd.
Certon Software
Cessna Aircraft Company
Chippewa Aerospace
Civil Aeronautics Administration MOTC, ROC
Civil Aviation Authority of New Zealand
Civil Aviation Authority of Singapore
Civil Aviation Bureau of Japan
Civil Aviation Flight University of China
Civil Aviation University of China
Clairus, LLC
Cobham Aerospace Communications
College Edouard-Montpetit - Ecole Nationale D'Aerotechnique
COMAIR Airlines
Comant Industries, Inc.
CommutAir/Continental Connection
Computer Sciences Corporation
Continental Airlines, Inc.
Cool City Electronics, Inc.
Cooper Antennas, Ltd.
Crane Aerospace & Electronics
Cranfield University
CS Soft a.s.
CSSI, Inc.

D

Dassault Falcon Jet Corporation
Dautec GmbH
DCS Consulting LLC
DDC-I, Inc.
Defence Materiel Organisation
Defence Science Technology Laboratory (DSTL)
Defense Concept Associates, Inc.
Delta Air Lines, Inc.
Delta Engineering Corporation
Design Assurance
DFS Deutsche Flugsicherung GmbH
Digital Sectional, LLC
DME Corporation
Dro Pros
Duke Pro, Inc.
Dynamic Aerospace, Inc.
Dynamic Analytical Solutions, LLC
Dynamic Aviation Group, Inc.
Dynon Radio, LLC

E

Eagle Security Group, Inc.
Ecole Nationale De L Aviation Civile (ENAC)
Ecole Polytechnique de Montreal
e-Infochips, Inc.

Electromagnetic Testing Services, Ltd.
Electronic Design Office Schlehaus
Electronic Navigation Research Institute
Electronics Test Centre
Elliott Tech, LLC
Embedded Office GmbH & Co KG
EMBRAER
Embery-Riddle Aeronautical University
EMC-Testcenter Zurich AG
Emergency Beacon Corporation
Empire Airlines
ENEA North America-Avionics Professional Servives
Engility Corporation
Engineered Propulsion Systems, Inc.
ENSOCO - Avionics
Environ Laboratories, LLC
Epsilon Lambda Electronics Corp
ES3
Escher Technologies Limited
Esterline CMC Electronics
EuroAvionics Navigationssysteme GmbH & Co. KG
EUROCAE
EUROCONTROL
Eurofins Product Service GmbH
European Aviation Safety Agency
Evergreen International Airlines, Inc.
ExpressJet Airlines
Extreme Engineering Solutions

F

FANS Group, LLC
Federal Aviation Administration
Federal Express Corporation
Federation Aeronautique International
Ferrell and Associates Consulting, Inc.
Flight Data Systems Pty., Ltd.
Flight Focus Pte, Ltd.
FlightOps Consulting, LLC
Foliage, Inc.
Foreflight, LLC
Frasca International, Inc.
FreeFlight Systems
FTI Technologies GmbH

G

Gables Engineering, Inc.
Gama Engineering
Garmin, Ltd.
GE Aviation Systems LLC
GE AVIC Civil Avionics Systems Co., Ltd.
General Atomics Aeronautical Systems, Inc.
General Aviation Manufacturers Association
General Dynamics Information Technology
George Mason University
Georgian Aerospace Group, Inc.
German Aerospace Center - Deutsches Zentrum fur Luft und Raumfahrt
Globatrac, LLC
Glocom, Inc.
GMV (Spain)
Gogo, Inc.
Grays Engineering
Gulfstream Aerospace Corporation

H

Harris Corporation
Hawaiian Airlines, Inc.
Hawker Beechcraft Corporation
HCL Technologies, Ltd.
HeliTrak, Inc.
Heriot-Watt University
Hilton Software, LLC
Hirsch Electronics-Identive Group
Honda Aircraft Company, Inc.
Honeywell International, Inc.
Horizon Air
Houghton Associates, Inc.

I

iAccess Technologies, Inc.
IFEN GmbH
iJet Technologies, Inc.
Imperial College London
Incline SoftWorks, LLC
INMARSAT
Insitu, Inc.
International Aero Navigational Systems Concern, JSC (IANS)
International Air Transport Association (IATA)
International Civil Aviation Organization
International Communications Group
International Federation of Air Traffic Controllers’ Associations (IFATCA)
Intertek Testing Services NA - Grand Rapids, MI Aerospace EMC Testing Group
INUVR
INVAP SE
Iridium Satellite, LLC
Iris Unmanned, LLC
Isavia ohf
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
Jeppesen
JetBlue Airways
Jetcraft Avionics, LLC
John Ferrara Consulting
Joint Stock Company Scientific Design Bureau of Computer Systems
JSWalker Group / Aviation Solutions, Inc.
Jupiter Avionics Corporation

K

Kaigai Corporation
Karem Aircraft, Inc.
Kartal Savunma Teknolojileri, Ltd.
Kent State University-Aeronautics
KNMI
Koios Consulting Group
Kollman, Inc.
Korea Aerospace Research Institute
Korea Aerospace University
Korea Civil Aviation Development Association -KADA
Kuerzi Avionics AG
Kutta Technologies
Kymeta Corporation

L

L&T Integrated Engineering Services-Avionics Group
L-3 Communications
LeighFisher, Inc.
Leucadia Engineering
Lexavia Integrated Systems, Inc.
Lockheed Martin Corporation
LS Technologies, LLC

M

Mannarino Systems & Software, Inc.
MAP Aircraft Projects AS
Marenco Swisshelicopter, Ltd.
Marinvent Corporation
Maxcraft Avionics, Ltd.
McDermTed Aviation
Meggitt Aircraft Braking Systems
Metron Aviation, Inc.
Mezzo Movies, Ltd.
MICCAVIONICS GmbH
Micom Consulting, Ltd.
Microair Avionics
MicroPilot
Midwest Airlines
Millennium International
MIT Lincoln Laboratory
MJF Strategies, LLC
MOASOFT Corporation
Mobile Power Solutions
Moog, Inc.
Mosaic ATM, Inc.

Panasonic Avionics Corporation
Parker Hannifin - Aerospace, Control Systems
Phasor Solutions, Ltd
PHI Associates
Piedmont Airlines, Inc.
Pinnacle Airlines Corporation
Pragmatics, Inc.
Predesa, LLC
Presagis
Processware Systems Private Limited
Project Management Enterprises, Inc.

N

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
NAV Canada
Navcast, Inc.
Navicom Aviation Corporation
NavSim Technology, Inc.
NEC Corporation, Air Traffic Control Systems Division
NEC Corporation, Radio Applications Division
Neeme Systems Solutions (NSS), Inc.
NetJets Association of Shared Aircraft Pilots (NJASAP)
NIIAQ (Institute of Aircraft Equipment)
NM Robotic, LLC
NMSU/PSL Aerospace & Autonomous Systems Laboratory
Noblis
North Star Group, LLC
Northrop Grumman Corporation

Q

Qualtest, Inc.
Queensland University of Technology

R

R Cubed Engineering, LLC
Radiometrics Midwest Corporation
Raytheon Company
RDRTec, Inc.
Redak Consulting GmbH
Regio Aviasi Industri
Regional Airline Association
Regulus Group, LLC
Republic Airways Holdings
Rianta Technologies
Richland Technologies, LLC
RightHand Technologies, Inc.
Rockwell Collins, Inc.
Rosell Techsys -Engineering Division
Row 44, Inc.
Royal New Zealand Air Force

S

Saab AB
Saab Sensis Corporation
Safety Analytical Technologies, Inc.
Sagem Avionics, Inc.
Sagetechn Corporation
SAIC
Sandel Avionics, Inc.
Sandia Aerospace
Scientific Research Corporation
SEKAS GmbH
SELEX Sistemi Integrati, Inc.
Sennheiser Electronic GmbH & Co. KG - Aviation Division
SenseFly
Sensor Technology, Ltd.

O

Ohio University - Avionics Engineering Center
Onsite Aerospace Engineering Service, LLC
Optimal Synthesis, Inc.
Orscheln Products, LLC

P

paconsult GmbH
Pambry Electronics
Septentrio Satellite Navigation
SESAR Joint Undertaking
SGT, Inc.
Shanghai Aircraft Airworthiness Certification Center of CAAC
Sierra Nevada Corporation
Signum Altum, Inc.
SITA
Skyguide
SkyWest Airlines
Smithsonian Institution Libraries
Soaring Society of America
Society of Japanese Aerospace Companies
Software Engineering Institute
Solers, Inc.
Solutions Isoneo
Southwest Airlines
Southwest Airlines Pilots’ Association
Spectrum EMC Consulting, LLC
SPP Canada Aircraft, Inc.
Springton Technologies, Inc.
SRC, Inc.
Stanford University
State Research Institute of Aviation Systems (GosNIAS)
S-TEC
STM A.S (Defense Technologies Engineering and Trade, Inc.)
Stonegate Engineering Consulting
Summit Projects
Swedish Defence Materiel Administration
SyberJet Aircraft

TAG Aviation (Geneve Airport, Switzerland)
TAI - Turkish Aerospace Industries, Inc.
TDI Power
Technische Universitaet Muenchen - Institute of Flight System Dynamics
Tek Fusion Global, Inc.
TEK Microsystems, Inc.
Teledyne Controls
Telenenergy
Telephonics Corporation
TESTCORP
Thales Global Services
The Boeing Company
The Brake Control Works
The Cluster for Unmanned Vehicles and Robotics
The Johns Hopkins University
The MITRE Corporation
The Raven Team, Memorial University
Thompson Aerospace
Thrane & Thrane A/S
Titan Aerospace
TLD Solutions, Inc.
Trans States Holdings Group

Transport Canada
Transport Workers Union of America
Transportation Security Administration
Trig Avionics Limited
Trimble Military and Advanced Systems (Trimble MAS)
Tucson Embedded Systems, Inc.
TUV SUD America, Inc.
Tweten Consulting LLC

(UN)MANNED
U.S. Air Force
U.S. Army
U.S. Navy
U.S. Crest Group
U.S. Technical
UAC-Integration Center
UAS Academy
UNITE Alliance
United Airlines, Inc.
UNITED AVIONICS PVT, LTD
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
US Airways

Validated Software Corporation
van Dam Ingenieurbuero
VEROCEL, Inc.
Volpe National Transportation Systems Center

Wendie L Kellington Attorney at Law PC
William E. Payne & Associates, Inc.
Wind River Systems, Inc.

Zee.Aero
Zodiac Aerospace
FINANCIAL REPORT

RTCA, Inc. demonstrated sound fiscal management and accountability measures in 2013, as shown in the audit completed in May 2013 by Calibre CPA Group. Operating revenue exceeded expenditures by $84 thousand.

Operating Revenue totaled $3.275 million. RTCA, Inc. is a membership organization, with revenue from sources depicted in figure below.

Operating Expenditures totaled $3.190 million as depicted in the figure below.

The positive outcome is a result of careful management of expenses and strong membership, document sales, and training course revenue. The 2013 operating income will continue to support RTCA’s programs and services.