Welcome to RTCA SC-238 C-UAS Kickoff
Agenda

- RTCA Overview
- RTCA Committees
- Committee Positions
- Committee Scope
- Tools
RTCA OVERVIEW
RTCA Operations

- Operate as an Independent Standards Development Organization
- FAA is member of RTCA
  - Supports committees with Government Authorized Representative
- RTCA Professional Staff ensures committee proceedings follow guidelines
- Supports ICAO activities
- Close coordination and interaction with EUROCAE
RTCA Non-profit Membership Organization

- Academia
- Airports
- Aviation service providers
- Government organizations
  - FAA, DOD, TSA, NASA
- Manufacturers (OEMs and after-market)
- Operators
  - Airlines, GA, Cargo, DOD, Drone/UAS
- Suppliers
  - Automation, Infrastructure, Avionics
- Labor
  - Pilots, Controllers, Dispatchers
- R&D organizations

580+ Members
Affiliations
RTCA Organization

Board of Directors

Governance

Advisory Board

RTCA President

Policy

PMC

Standards Development

Special Committees
# Types & Purpose of Documents

<table>
<thead>
<tr>
<th>Types &amp; Purpose of Documents</th>
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<tr>
<td>Operational Services and Environmental Definition</td>
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<tr>
<td>• Understand environment in which equipment will operate</td>
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<td>Operational, Safety &amp; Performance Requirements</td>
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<td>• Safety Assessment, Ops Performance Assessment (Comm, Nav, Surv)</td>
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<td>Interoperability Requirements</td>
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<tr>
<td>• Ensure capability among system elements</td>
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<td>Minimum Aviation System Performance Standards</td>
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<td>• Assuring system will perform its intended functions</td>
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<tr>
<td>Minimum Operational Performance Standards</td>
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<td>• Assuring equipment will perform its intended functions</td>
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Document Process

US Gov’t

Tasking

Industry

TOR

PMC review

Call for participation

Submission to PMC for Review

Final Document

Published Document

Public Review and Comment

DRAFT

Document Creation

SC

WG’s

White Papers
V&V Test Plans
Simulations
Etc.
RTCA COMMITTEES
Committee Structure

Committees can remain in a single body who work together on all aspects of the committee or can be further organized into Working Groups

- Committees may choose to break into areas of expertise
  - Working Group leaders will be appointed by the SC during a Plenary meeting
  - Working Group should capture meeting agendas, summaries to include attendance and significant working papers
  - Working Groups are not necessarily open to the public

All outputs of Working Groups must be fully vetted in a plenary meeting

This committee will work as a JOINT committee with EUROCAE WG-115
Joint Activities

• Members of EUROCAE participating in joint activities are entitled to the same access to the joint activity and meetings as RTCA members.
  
  • If EUROCAE members wish access to the RTCA workspace for SC-238, they need only indicate that and provide contact information; a USERID will be established for them.
  
  • The same is true in reverse for RTCA members wishing access to WG-115 workspace area.

• Joint F2F Meeting alternate between Europe and US

• Final Review and Comment/Open Consultation span 45 days
Because both EUROCAE and RTCA have workspace areas, configuration management of material could be problematic.

One workspace is designated as “truth” data and the second as “mirror”.

EUROCAE’s workspace will contain “truth “ and RTCA’s will be mirror

- All pertinent material will be mirrored
EUROCAE and RTCA have agreed to a DRAFTING guide and STYLE Guide

- All submissions of documents must be in MS Word format
- All graphics included in document must also be submitted in editable format (if not editable in the document)
Committee Products

Committees must be familiar with the RTCA drafting guide rules and style guides and ensure adherence to document templates and style requirements!

An editor for the committee should be selected to help coordinate
Reference to RTCA Documents

- Documents are recommendations
- ANSP can reference with:
  - Regulation
  - Advisory Circular
  - Technical Standard Order
  - SARP
- RTCA DO-260B – FAA TSO-C166b
- Adherence to RTCA Standard is one means of compliance

Technical Standard Order

Subject: Extended Squitter Automatic Dependent Surveillance - Broadcast (ADS-B) and Traffic Information Service - Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz)

1. **PURPOSE**: This technical standard order (TSO) is for equipment applying for a TSO authorization (TSOA) or type design approval (DDOA). In it, we (the Federal Aviation Administration, or FAA) tell you what minimum performance standards (MPS) your 1090 MHz ADS-B and TIS-B equipment must meet to be approved and identified with the applicable TSOA marking.

2. **APPLICABILITY**: This TSO affects new applications submitted after its effective date.

   a. All prior revisions to this TSO are no longer effective. Generally, we will not accept applications after the effective date of this TSO. We may accept, however, up to six months after the effective date, if you prove that you were working against the earlier TSO before the new change became effective.

   b. 1090 MHz ADS-B and TIS-B equipment approved under a previous TSOA may still be manufactured under the provisions of its original approval.

3. **REQUIREMENTS**: New models of 1090 MHz ADS-B and TIS-B equipment identified and manufactured on or after the effective date of this TSO must meet the ADS-B certification and documentation requirements for the applicable equipment class in RTCA, Inc. document RTCA DO-260B, Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance-Broadcast (ADS-B) and Traffic Information Services Broadcast (TIS-B), Section 2, issued December 2, 2009.

   a. **Functionality**

   (1) This TSO’s standards apply to equipment intended to transmit and receive broadcast messages about an aircraft’s position (include and longitude), velocity, integrity, and other parameters. Uplink-equipped operators will share these messages with one another and with

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**Department of Transportation**

**Federal Aviation Administration**

**Airworthiness Certification Service**

**Washington, D.C.**
Chair

- Ensure compliance with TORs
- Set schedule in accordance with TOR to ensure delivery on time with stated dates
- Forge consensus, manage non-consensus as necessary
- Identify key papers to Program Directors
- Coordinate with Program Director on all critical issues
- Ensure style guide is followed
Max Fenkell is the Director for Unmanned and Emerging Aviation Technologies at the Aerospace Industries Association. In this role he works with AIA’s members regarding Unmanned Aircraft Systems, Urban Mobility and Spectrum among other areas, and works to find industry consensus on complex issues facing the aviation industry.

Before joining AIA, Max spent time working in the U.S. House of Representatives as a Legislative Assistant for Congressman Mark Sanford. While working for Congressman Sanford, Max coordinated efforts on the Transportation and Infrastructure Committee and advised the Congressman on issues pertaining to trade, manufacturing, commerce, technology, and housing and urban development.

Max began his career at Ford Motor Company in their Washington, D.C. government relations office. At Ford, Max served as a Legislative Analyst/Coordinator and was responsible for analyzing legislation and its impact on the company.

Max has a bachelor’s degree from Bowdoin College where he majored in Government and Legal Studies.
WG-115 Leadership

Election of WG-115 Leadership

- **WG Chair**
  - Jorge Munir El Malek Vazquez (Indra)

- **WG Secretary**
  - Patrick Garnier (CS Group)

- **EUROCAE TPM**
  - Alain Vallée
The government assigns a Government Authorized Representative (GAR) to each SC

GAR will work with RTCA to determine appropriate government participation

If GAR is unable to attend meetings, (s)he should designate an approved alternate

- Alternate details should be shared with RTCA Program Director at least 5 days prior to meeting
The secretary plays a critical role in keeping the committee on track to meet its milestones and to produce a quality product(s)

Secretary can be selected prior to first Plenary or at first Plenary
  • The secretary is selected by the Committee Leadership

Role of secretary is to document the meeting through a meeting summary
Secretary Responsibilities

Role is to create and send meeting summary to Program Director
  • Minimum documentation requirements include:
    • Key Actions
    • Presentations
    • Attendance

Critical role in keeping the committee on track

Meet its milestones defined in the TOR

Produce a quality product(s) adhering to RTCA Style Guide

Selected prior to first Plenary or at first Plenary
  • Selected by the Committee Leadership

Protect RTCA Intellectual Property
COMMITTEE SCOPE
Committee Scope

- Scope is limited to surveillance, interoperability, and interfaces with stakeholders involved in the C-UAS domain.
- Focus on detection and surveillance capabilities, especially around airports, but could be extended to other areas.
- Cooperative target detection is not to be addressed, but interaction with information from cooperative sensors should be included in the overall system assessment.
- Interoperability of the defeat capabilities with the airport and ANSP (and CNS) systems will be addressed.
Deliverables

Current deliverable are listed below

Aggressive schedule indicates importance of the material

Additional deliverables to be discussed in future meetings

<table>
<thead>
<tr>
<th>Document type</th>
<th>Draft title</th>
<th>Target date</th>
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<tbody>
<tr>
<td>OSED</td>
<td>OSED for Counter-UAS in controlled airspace</td>
<td>Q3/2020</td>
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<tr>
<td>SPR</td>
<td>System Performance Requirements for non-cooperative UAS detection systems</td>
<td>Q2/2021</td>
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<tr>
<td>INTEROP</td>
<td>Interoperability Requirements for Counter-UAS systems.</td>
<td>Q2/2021</td>
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OSED (Operational Services and Environmental Definition)

- Facilitates technical and procedural requirements based on operational expectations and needs
- Captures requirements derived or validated as being necessary for a particular operational service
- Should include
  - Stakeholder identification
  - Operational objectives, intentions, and capabilities
  - Description of services
  - Environment description
Document Table of Contents

- Introduction/Scope
- C-UAS Concept
  - Threat description
  - General description
- Operational Services
- Operating Environment
- Scenarios Description
- Operational Requirements and Assumptions
- Appendices
Table of Contents (draft) - 2

• Introduction (Scope, Organization, References)
  • C-UAS Concept
    • Threat Analysis
      • Type of drones
      • Threat Criticality
        • Note: Considering points of view such as: Payload based threat analysis (i.e.: Chemical payload)
    • General C-UAS Description (High level description)
      • C-UAS Elements and Functions
• Operational Services
  • Previous Operating Methods (considering any C-UAS tools and methodology used so far (if so) and Counter Non Collaborative Aircrafts (beyond UAS).
  • New Operating Methods
    • C-UAS Modes of Operation
• Operational Environment
  • Note: Derive the system context, including stakeholders, affected systems and interfaces
  • Environment identification (An operational environment is a composite of conditions, circumstances and influences that affect the employment of a C-UAS System, considering type of airspaces, light and weather conditions, etc)
  • Airfield and Airspace Environment (Actors, services and infrastructures with which C_UAS capability interfaces)
    • Considering: ATM,U-space, Aircraft, helos, drones....
    • Considering complementary cases: Urban areas, ...
• Scenarios Description (Use Cases)
  • Considering cases such as: Landing / Taking off, Taxi, Station, ...
  • Note (based on WG-115 Task Sheet description): Explain use cases based on known literature, on safety cases and on requirements for a safe air traffic.
• Operational Requirements and Assumptions
  (recollection of all Req/Ass identified in the previous chapters)
• APPENDIX (ACRONYMS, GLOSSARY OF TERMS, REFERENCES,...)
Consensus

- The definition of Consensus, according Merriam Webster is,
  - “General agreement”; or
  - “The judgment arrived at by most of those concerned”

- It does not mean complete and 100% satisfaction by all parties in a decision

- RTCA documents are “consensus built”.

- For RTCA’s purposes, consensus means
  - Lively discussions – but professional
  - Everyone’s voice gets heard
  - Your organization can live with the result
RTCA is Organization Based

While skilled individuals do the hard work of consensus building, those individuals represent their organization

• If more than one person from an organization is on the committee, they should coordinate their views and positions
SCHEDULE
Meeting Schedule

Proposed meetings

- January 23 – First joint WG-115/SC-238 Meeting
  - Virtual
- March 12 – Meet during World ATM Conference
  - Virtual and F2F @ WATM, Madrid
- April/May 2020 – Plenary Meeting (F2F)
- Summer 2020 Plenary Meeting (F2F)
  - OSED
  - SPR, INTEROP
- September 2020 – Document ready for FRAC/OC
- March 2021 – First draft of SPR/Interop
- June 2021 – Final SPR/Interop ready for FRAC/OC
### Draft Joint Schedule 2020

#### January 2020

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*OSED FRAC/OC*

*OSED Comment Resolution*

*PMC*
### Draft Joint Schedule 2021

#### SPR/Interop Ready for FRAC/OC

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TOOLS
RTCA has a document collaboration tool where we capture:

- Meeting/Attendance information
- Agendas/Summaries
- Calendars
- Committee Papers
- Documents
- This tool is also used for Final Review and Comment FRAC
RTCA Program Directors for SC-238

Al Secen
asecen@rtca.org
202-330-0647

Karan Hofmann
khofmann@rtca.org
202-330-0680
BACKUP INFORMATION
RTCA Background

- RTCA works closely with FAA to develop comprehensive, industry-vetted and endorsed recommendations for the government.
- Minimum performance and **not** design standards expand the marketplace of solutions for avionics that may be certified by the FAA.
## Types & Purpose of SC Products

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<th>Type</th>
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<td><strong>Operational Services and Environmental Definition</strong></td>
<td>Understand environment in which equipment will operate</td>
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<tr>
<td><strong>Operational, Safety &amp; Performance Requirements</strong></td>
<td>Safety Assessment, Ops Performance Assessment (Comm, Nav, Surv)</td>
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<tr>
<td><strong>Interoperability Requirements</strong></td>
<td>Ensure capability among system elements</td>
</tr>
<tr>
<td><strong>Minimum Aviation System Performance Standards</strong></td>
<td>Assuring system will perform its intended functions</td>
</tr>
<tr>
<td><strong>Minimum Operational Performance Standards</strong></td>
<td>Assuring equipment will perform its intended functions</td>
</tr>
</tbody>
</table>
Minimum Aviation System Performance Standard (MASPS)

“... specifies characteristics that should be useful to designers, installers, manufacturers, service providers and users of systems intended for operational use within a defined airspace.”

Example: ADS-B Architecture for new technology – Aircraft Surveillance Applications

DO-289/242A
Minimum Operational Performance Standard (MOPS)

“... provides standards for specific equipment(s) useful to designers, manufacturers, installers and users of the equipment…”

Example: Specific requirements for ADS-B aircraft avionics

DO-260B/282B
Standards Consider More Than Avionics

- UAS/RPV
- INTEGRATED COCKPIT
- RNP
- CPDLC
- ADS-B
- DGPS
- ARTCC, Towers, TRACONS, TMUs
- ATC
- TFM
- D&A C2
- AIRLINE/AVIATION
- UAS Ground Station
- ATCSCC/CFMU
- TFM, CDM
- D&A C2
- FP SYS
- CDM
- ACARS
- PAX SYS
- CREW SYS
- MAINT SYS
Current Committee Work

- Technical - Minimum performance standards, basis for certification, safety & performance
  - Program Management Committee (PMC)
  - 20 Special Committees (SCs)
  - Forum for Aeronautical Software+

SC-135 - Environmental Testing
SC-147 - Traffic Alert & Collision Avoidance System
SC-159 - Global Positioning System
SC-186 - Automatic Dependent Surveillance-Broadcast
SC-206 - AIS and MET DataLink Services
SC-209 - ATCRBS & Mode S Transponders
SC-214 - Standards for Air Traffic Data Communication Services
SC-216 - Aeronautical Systems Security
SC-217 - Aeronautical Databases
SC-222 - AMS(R)S
SC-223 - Aeronautical Mobile Airport Communication System
SC-224 - Airport Security Access Control Systems

SC-227 - Standards of Navigation Performance
SC-228 - MOPS for Unmanned Aircraft Systems
SC-229 - 406 MHz Emergency Locator Transmitters (ELTs)
SC-230 - Airborne Weather Detection Systems
SC-231 - Terrain Awareness Warning Systems (TAWS)
SC-236 - Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz
SC-237 – Helicopter Terrain Awareness Warning System (HTAWS)

- **SC-238 Counter UAS**

* Committees in RED are Joint with EUROCAE, GREY are SUNSET, GREEN are due to SUNSET, BLUE exploring joint
Thank you!

- Thank you for committing your time and energy to RTCA and this committee!
- It is through your efforts that
Sections

- RTCA Workspace Tutorial
- Accessing EUROCAE Workspace
RTCA

Workspace Tutorial
Tutorial Outline

1. Website Orientation
2. Developing and Posting a Paper
3. Final Review and Comment
4. Final Review and Comment Disposition
5. Balloting
Website Orientation

Note: The Kavi Collaborative Website is used by all RTCA special committees/groups.

As such, although Kavi tool changes are possible, the change needs to be non-disruptive to other groups and will take a while to implement.
Website Orientation

Logging In
UserID
Password
Website Orientation

Initial Screen…

To get to the FAS Workspace do the following…
Website Orientation

Click ‘Groups’, then under “My Groups”…. Click ‘Forum of Aeronautical Software Workspace’
Website Orientation

You can now look at...
- Documents
- Roster
- Calendar
- Comments
- Ballots
Changing Your Account Information
Website Orientation

You can change…
Username
Password
Salutation (Mr., Mrs)
First Name
Last Name
Title
Etc…..

YOU CANNOT CHANGE YOUR COMPANY
ONLY RTCA CAN DO THAT
Documents are in Folders. Here is shown the highest level, with subfolders collapsed:
- Meeting Agendas
- Meeting Summaries
- Important papers for the committee to review
- FRAC will be listed here
Website Orientation

Each document is in a folder. Clicking on the folder gets you access to the document.
Developing and Posting a Paper

Click the intended folder then click on the “Actions” Icon and select “Add Document”
Developing and Posting a Paper

- Choose the paper.doc file from your computer
- Title: (same as folder title)
- Document No: (leave blank)
- Description: Paste Abstract Here
Developing and Posting a Paper

- Auto Filled
- Select the Authors Name
- Select “Draft”
- Leaving this checked will notify the committee that the paper is ready for review
Click on FRAC Folder.
Final Review and Comment

To Comment, go to folder with document and go to Actions – you can either add a single comment or bulk comments.
Final Review and Comment

These are the actions
Add a Comment
Add Bulk Comments
Raising an Issue on the Document Suite

To add a single comment:

Enter
- Subject
- Your Comment
- Category (Editorial or Substantive)
- Section, Page, (line FAS will not use)
- Item (N/A, Figure, Paragraph, Table)
Final Review and Comment

Going back to the “Documents” tab we see…
Doc Title / Rev / Status / No Comments Yet
Final Review and Comment

- Proposed Solution
- (You can add a supporting file)
- Option to Send Email Notifications
  - All Members, Doc Submitter, Technical Contact
The Committee will review all the new comments (issues) against the Document and determine a course of action at the Plenary following Final Review and Comment.
Viewing Comments / Responses

Click on ‘Comments’
All comments will be displayed.
In order to see comments on one document, apply a filter.
Viewing Comments / Responses

Comments are displayed.

- Let’s look at a ‘Deferred’ One

Click on a comment here to see details and responses.
Viewing Comments / Responses

- Comment submitter is displayed
- Comment is displayed
- Proposed solution is displayed
Balloting

Balloting is initiated by the RTCA, chairs or secretaries

You will receive emails stating a ballot is available for your review and vote

Generally balloting is only used for informal reasons – not voting on documents
Summary

1. Website Orientation
2. Developing and Posting a Paper
3. Final Review and Comment
4. Final Review and Comment Disposition
5. Balloting
Accessing EUROCAE WorkSpace

A Guide for RTCA Members
Click on the link to access EUROCAE: https://join.eurocae.net/WorkspaceSelector
EUROCAE Portal Registration

In the beginning of the registration process, you will be asked to fill in a business email address. All communication and notifications will be sent to this email address and cannot be changed.

After finalising the registration, you will receive a login account that you must use to access the portal.

Start registration
Identify yourself as a NON-MEMBER

Provide professional details

First Name
Last Name
Member type
- Non-member (only access to open consultations)
- Member
Organisation
Business Email*
Required information: Submit

If your organisation is not in the list it is not yet a member or partner of EUROCAE. To apply for a EUROCAE membership please Click here

*All communication and notifications will be send to this email address. This email address cannot be changed.

EUROCAE privacy policy

© 2019 - Visit the EUROCAE website
Await Approval

Someone from EUROCAE will then review and approve your registration. Once that is done, you will receive an email with your approved EUROCAE credentials that you must use to logon.
After receiving approval and credentials, Go to Workspace.
TO ACCESS WORKSPACE AREAS
Select Open Consultations

My working groups
You have not joined any working groups.

My Committees

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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</tbody>
</table>
TO ACCESS OPEN CONSULTATION (FRAC) DOCUMENTS
Select Open Consultations

My working groups
You have not joined any working groups.

My Committees
Name | Title
Helpful Hints

- You should download the comment sheet from the Open Consultation site for the document you are commenting on.

- If you upload multiple sheets to the Open Consultation site, only the last one is saved – so be sure your last upload includes all your comments.

- The site marks comments against the username that is used to upload the comments – only upload your own comments.

- Be sure to provide your email address so you can be contacted by the committee in case they have any questions.