

TERMS OF REFERENCE
Special Committee (SC) 222
AMS(R)S Systems
Revision 16

ORIGINAL REQUESTOR:

Organization	Person
Inmarsat (Original Requester)	Alan Schuster-Bruce Alan_schuster-bruce@inmarsat.com
Iridium (Co-Requester)	Michael W. Hooper Michael.Hooper@iridium.com

SC LEADERSHIP:

Position	Name	Affiliation	Telephone	Email	Change
Chair SC-222	Michael W. Hooper	Iridium	703-615-3271	Michael.Hooper@iridium.com	
Government Authorized Representative	Ravi Jain	FAA HQ /AIR-620	202-903-3110	ravi.jain@faa.gov	
Secretary	Ryan Mustoe	The Boeing Company	206-304-9955	Ryan.D.Mustoe@boeing.com	TBD

BACKGROUND: Any pertinent information that will serve to guide the committee.

- AMSS satellite communications include as a required sub-class the safety (route) services designated as AMS(R)S. AMS(R)S services are used for CPDLC, ADS-C and FANS 1/A operations in oceanic airspace.
- The FAA has considered Swift Broadband (SBB) services for use in the Future Communication System. Recent FCC-sanctioned negotiations between Inmarsat and Ligado, previous MSV, Inc and Light Squared, regarding the use of the mid-L-band satellite spectrum for Ancillary Terrestrial Component (ATCt) will affect the minimum performance characteristics of Inmarsat and Iridium aeronautical terminals.
- The activities of SC-215 regarding Iridium avionics have identified several known shortcomings regarding the definition of antenna intermodulation and environmental test redundancy in the existing relevant MOPS document DO-210D. The changes proposed by this effort, as modified by relevant meetings as indicated in the delivery schedule, affect the existing and next generation satellite communication equipment and services specified by DO-210D, DO-262, and DO-270 and Annex 10 of the ICAO SARPs.

- The planned launch by Iridium of a replacement satellite system began in 2017. All current legacy Iridium devices are forward compatible with Iridium NEXT satellites but new transceiver designs and satellite waveforms are intended to enable enhanced capabilities for aviation as specified by DO-262, DO-343 and Annex 10 of the ICAO SARPs.
- RTCA SC-222 is a joint committee with EUROCAE Working Group 82 (WG-82) and they have jointly developed Satcom Performance Class B functional and required communication technical performance, including ATN/IPS, while also addressing related issues for future applications, such as security issues, dual satellite dissimilar simultaneous operation interference issues, VoIP, potential interference from outside sources. SC-222 also monitors WG-82 progress toward Satcom Performance Class A requirements and techniques and will report to PMC with recommendations when appropriate.
- RTCA SC-222 will support the ISRA with SC-228 regarding use of L-Band Satcom systems for the UAS C2 application.
- EUROCAE WG-82 has been tasked to develop standards relative to new air-ground data link technologies including three components (airport surface, satellite and en route/TMA L band systems).
- Iridium and their partners have reviewed the published DO-262F MOPS, Appendix F relating to Iridium Certus and have found several corrections that are urgently needed.
- Support/participation: Airbus, ARINC, Boeing, Cobham SATCOM, ComDev, EMS, FAA Aircraft Certification, FAA Spectrum, Honeywell, Inmarsat, Iridium, Ligado (formerly Light Squared, formally SkyTerra, formerly MSV), Rockwell Collins, SITA, Bombardier, Thales, Garmin, Avionica, Aircell, FLYHT.

DELIVERABLES:

Product	Description	FRAC Completion Due Date*	Change
DO-343E	MASPS – Inmarsat SBB and Iridium Certus Updates	June 2024	March 2024
DO-262G	MOPS - Inmarsat SBB and Iridium Certus Updates	June 2024	March 2024
DO-343F	MASPS – Iridium Certus updates for network update	March 2026	
DO-262H	MOPS – Iridium Certus updates for network update	March 2026	

*Note: Final Review and Comment (FRAC) Completion Due Date refers to the date that the committee plenary approves the document after completing the FRAC Process. SCs should submit the final document at least 45 days before the Program Management Committee (PMC) meeting where it will be considered for approval.

SCOPE:

The scope of work relating to ATN-IPS is well defined in the industry regarding the addition of this material to both the MASPS and MOPS documents (Inmarsat only at this time). Iridium requires updates for a new transceiver type to DO-262 Appendix F on Certus as well as an update to DO-343 MASPS on interference modeling.

It is planned to update the common RTCA/EUROCAE SATCOM MASPS document (DO-343E/ED-242D) to cover following three items for future work:

1. Potential SATCOM system improvements and required updates with impact on SATCOM MASPS material
2. Include ATN-IPS technical material related to SATCOM MASPS (Inmarsat only)

It is planned to update the common RTCA/EUROCAE SATCOM MOPS document (DO-262G/ED-243C) on INMARSAT SBB and Iridium Certus material to cover following three items for future work:

1. Potential SATCOM system improvements and required updates of the SATCOM MOPS
2. Include ATN-IPS technical material related to SATCOM MOPS (Inmarsat only)

It is planned to update the common RTCA/EUROCAE SATCOM MASPS document (DO-343F/ED-242E) and RTCA/EUROCAE SATCOM MOPS document (DO-262H/ED-243D) on Iridium Certus updates for network updates.

ENVISIONED USE OF DELIVERABLE(S)

The technical specific material in DO-262G will serve as an update to the DO-262F MOPS requirements, provides details on ATN-IPS (for Inmarsat only at this time), and serves as one means of compliance for AMS(R)S certification as governed by TSO-159E. The updates to DO-343E will serve as an update to DO-343D covering new information on interference modeling and ATN-IPS updates.

The guidance developed by this special committee is envisioned to be referenced by the Federal Aviation Administration (FAA) and other State Authorities as appropriate in certification guidance material including Technical Standard Orders (TSOs) or other national documents.

SPECIFIC GUIDANCE:

Coordination should include:

- *ICC Coordination* – The chairman of SC-222 is participating in informal coordination with representatives of SC-228.
- *EUROCAE Coordination* – This work will be worked in coordination with EUROCAE WG-82.
- *Additional Coordination* – SC-222 will continue to coordinate closely with the plenary and working group meetings of the AEEC Air-Ground Communication Subcommittee (AGCS). Because many of the participants in AGCS are expected to be active in SC-222

as well, coordination for common meeting times and sites will encourage participation while reducing travel expenditures for participating organizations. PMC will be updated as work progresses by means of RTCA Digest and regular Chairmen’s Reports, augmented as necessary by face-to-face presentations at scheduled PMC meetings.

- *Initial Documentation.*

Documents	Intended Use
RTCA DO-343()/EUROCAE ED-243()	Guidance on preparation of technique-specific material
RTCA DO-262()/EUROCAE ED-242()	Guidance on preparation of technique-specific material
Inmarsat SDM SBB documentation	Used in crafting technique-specific material content for DO-3xx and DO-262 appropriate content for the technique-specific material. Documentation provided by Inmarsat and reviewed for potential proprietary content <i>before</i> release to SC-222 for review.
ICAO COCR V 2.0	ICAO Communication Operating Concept Requirements
ICAO PBCS 9869	Manual on Required Communication Performance (RCP)
RTCA DO-350()/EUROCAE ED-228()	Safety and Performance Standard for Baseline 2 ATS Data Communication (Baseline 2 SPR Standard)
RTCA DO-351()/EUROCAE ED-229	Interoperability Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 Interop Standard)

TERMINATION: When the scope of this Terms of Reference is complete, the committee will recommend to the PMC that the committee Sunset, go into Active Monitoring Mode, or spend a period of time in Hiatus. Any change/extension in the committee’s work program requires prior PMC approval.