TERMS OF REFERENCE
Special Committee (SC) 242
SPECTRUM
COMPATIBILITY
V9

SC LEADERSHIP:

Position	Name	Affiliation	Telephone	email	Change
Co-Chair	Donny Morrow Andy Roy	ALPA ASRI	214-458-9680	donny.morrow@alpa.org acr@asri.aero	
Government Authorized Representative	Christopher Tourigny	FAA	202-267-3071	chris.tourigny@faa.gov	
Secretary	Eddie Straub	Garmin	913-397-8200	Eddie.Straub@garmin.com	

BACKGROUND:

Access to sufficient, suitable and appropriately protected radio frequency (RF) spectrum supporting communication, navigation, surveillance, and other aeronautical safety systems is an essential resource for the aviation industry without which airspace management would not be feasible. As the use of airspace increases, including the introduction of new users such as drones, and the management of that airspace becomes more complex, the demand for spectrum will also increase along with the requirement for improved communication capacity and navigation/surveillance accuracy. Therefore, the ability to secure and protect the spectrum aviation relies upon will be a significant factor to the long-term success of aviation.

Concurrently, many other industries outside of aviation are also growing and evolving their wireless capabilities requiring access to additional spectrum. The increased demand for spectrum has reached a point where industries are competing with each other for access to this limited resource with national and international regulatory bodies having to decide on who should have access. For these decisions to be made, spectrum regulators need to have the most accurate picture of the systems they are considering and how changes to the RF environment can affect them. Therefore, aviation needs to demonstrate and justify that their systems are required, are spectrally efficient, do not interfere with the operations in adjacent bands, and have appropriate resilience to operations in adjacent bands as defined by regulation. The justification will have to include why aviation systems require a level of safety assurance that exceeds most other industries and how through its processes and procedures it delivers that level of safety. Recent US and international spectrum proceedings have highlighted that aviation does not have sufficient detail of how all its current systems interact at the RF level, nor does it have comprehensive guidance for how new aviation radio systems should be designed and introduced.

DELIVERABLES:
As a specific near- to mid-term task, SC-242 should catalog the current standards for RF-based aviation systems in operation, develop a primer on aeronautical radio frequency systems, and develop a new DO-XXX Spectrum Guidance document for use by developers of new and updated aviation systems standards.

SC-242 has completed the task to catalog the current standards for RF-based aviation systems in operation through the publication of RR-001, Survey of Radio Frequency (RF) Performance Standards for Aeronautical RF Systems.

SC-242 has also completed the task to develop a primer on aeronautical radio frequency systems through the publication of RR-002, Report on Aeronautical Radio Frequency Systems, their Regulatory Framework, and Operational Considerations.

PRODUCT DELIVERABLES:

Product	Description	FRAC Completion Due Date*	FRAC or RAC	Projected Publication Date	Change
DO-XXX	**Spectrum Guidance for the Developers of Standards for Aviation Radio Frequency Systems**	June 2027	FRAC	September 2027	

*Note: Due Date refers to the date that the committee plenary approves the document after completing the Final Review and Comment Process. Publication will take place at the PMC meeting no earlier than 30 days after the editing process by RTCA is complete.

SCOPE and COORDINATION:

Guidance Document

RTCA SC-242 shall develop a new DO-XXX for spectrum guidelines that should be taken into account when SCs are developing specifications for new aviation RF systems. The objective for the DO-XXX spectrum guidance is to ensure that the RF characteristics of aeronautical systems are specified in a consistent and complete manner that meets safety case requirements while being consistent with or better than existing spectral mask regulatory requirements and/or guidance material. Such guidance shall include transmitter and receiver RF parameters including, for example, performance, resilience, out of band emissions and spectral efficiency.

ENVISIONED USE OF DELIVERABLES

Guidance Document

The new DO-XXX Guidance Document is intended to be used by other SCs in the update or

creation of new aeronautical standards. The new DO-XXX on spectrum guidance is also envisioned to be used in conjunction with relevant ICAO material to provide guidance to aeronautical radio system designers and as a reference document for national/international spectrum regulators. It is also intended to act as reference material for the Federal Aviation Administration, other civil aviation authorities and spectrum managers. It is not intended to fully define the RF environment, but to ensure RF performance criteria are specified in a consistent and complete manner including resilience, out of band emissions and spectral efficiency during updating of existing standards and creation of new standards.

The guidance document is intended to complement work being done within ICAO in relation to ICAO Doc 9718.

The new spectrum guidance document will be developed jointly with EUROCAE WG-124 with EUROCAE producing an equivalent ED-xxx document.

SPECIFIC GUIDANCE:

The following coordination is envisaged:

- *ICC Coordination* – inform the Integration and Coordination Committee (ICC) of the committee's needs for coordination with other relevant Special Committees.
- *EUROCAE Coordination* – joint committee with EUROCAE WG-124 for ED-xxx Guidance Document.
- *Support for the Activity* – support from the leadership of other Special Committees and Technical Working groups.
- *Additional Coordination* –
    - *ICAO Coordination* – work with the Frequency Spectrum Management Panel as well as the Integrated Communication, Navigation, Surveillance & Spectrum Task Force to ensure the optimized use of limited resources/expertise and minimize overlap between the work. Additionally, coordination may be required with ICAO operational panels to understand the criticality and operational use of systems.
    - *European Telecommunications Standards Institute (ETSI) TG Aero Coordination* – Request co-operation from ETSI TG Aero on aeronautical standards currently being developed within the ETSI framework.
- *Initial Documentation* – Following documentation are elements of the document baseline:

Documents	**Intended Use**
ETSI Guide EG 203 336	Input to Guidance Document
ITU-R Radio Regulations 2020 edition, Recommendations Related to Spectrum Management and/or Aeronautical System Parameters	Inputs to Guidance Document

Documents	Intended Use
EU Directive 2014/53/EU and Regulation (EU) 2018/1139 and related ECC Recommendations and Reports	Inputs to Guidance Document
RR-001, Survey of Radio Frequency (RF) Performance Standards for Aeronautical RF Systems	Input to Guidance Document
FCC 23-27, Policy Statement, Principles for Promoting Efficient Use of Spectrum and Opportunities for New Service; Promoting Efficient Use of Spectrum through Improved Receiver Interference Immunity Performance	Input to Guidance Document
ICAO Doc 9718 – Handbook on Radio Frequency Spectrum Requirements for Civil Aviation	Inputs to Guidance Document

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.