

**TERMS OF REFERENCE**  
**Special Committee (SC) 230**  
**Airborne Weather Detection Systems**  
Revision 14

**SC LEADERSHIP:**

Position	Name	Affiliation	Telephone	email	Change
<b>Co-Chairs</b>	Venkata Sishtla	Collins Aerospace	315-380-7473	<a href="mailto:Venkata.Sishtla@collins.com">Venkata.Sishtla@collins.com</a>	Company
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<b>Secretary</b>	Mohammed Ahmed	Boeing Commercial Airplane Group	425.236.5969	mohammed.m.ahmed@boeing.com	

**BACKGROUND:**

RTCA/DO-220 provides the current Minimum Operational Performance Standards 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.

In April 2013, the FAA tasked an Industry Working Group to develop recommendations for an advisory circular for airworthiness approval for aircraft weather radar systems. The Industry Working Group recommended revising the outdated RTCA/DO-220 and DO-220 Change 1 to update the minimum operational performance standards for aircraft weather radar equipment.

The group has since updated DO-220 and DO-213 several times to keep them current. Additionally, they continue to investigate for impacts of continuing evolving technology on weather detection systems.

**PRODUCT DELIVERABLES:**

<b>Product</b>	<b>Description</b>	<b>FRAC Completion Due Date*</b>	<b>Projected Publication Date**</b>	<b>Change</b>
<b>RTCA Report (RR)</b>	Perform engineering analysis to determine susceptibility of airborne weather radar systems to radio frequency interference.	Dec 2024***	Mar 2025	White Paper; Description
<b>RTCA Report (RR) V2</b>	Perform analysis and test to determine susceptibility of airborne weather radar systems to radio frequency interference.	June 2025	Sep 2025	New Deliverable

\*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.

\*\*Note: Projected Publication Date refers to the date that the item will be approved by the PMC and officially published by RTCA.

\*\*\* This is the completion date for the initial Report and not a FRAC completion date (FRAC is not required for this initial Report).

**SCOPE and COORDINATION:**

For airborne weather radar spectrum interference:

Determine susceptibility of airborne weather radar to spectrum interference including:

- Interference anticipated from future adjacent-band international mobile telephony.
- Other X-band transmission sources including ground-based and air-based sources.
- Characterize radio frequency (RF) interference currently being experienced by airborne weather radar. Describe the impact of increased RF interference levels on radar operation. Make recommendations for spectrum interference levels.
- For the second release, assemble, anonymize, and summarize the resulting test data for inclusion in the report. The anonymization will be carried out by an independent entity/agency.

The committee is continuing to investigate the following topics:

- radar detection of volcanic ash,
- updates to the predictive windshear functionality to accommodate modern aircraft characteristics, and to include additional types of aircraft,
- requirements for automatic weather detection and display.

Based on the outcome of these investigations, additional deliverables may be identified for inclusion in this ToR.

**ENVISIONED USE OF DELIVERABLE(S)**

The RR may be used to develop standards and policy for in-band and out-of-band X-band transmission sources including airborne weather radar and future international mobile telephony including:

- a. Power level and siting requirements for momentary in-band noise sources such as nearby X-band radar transmitters.
- b. Power level, antenna pointing and/or siting criteria for out-of-band noise sources such as telecommunications towers near airports.

**SPECIFIC GUIDANCE:**

Coordination with RTCA SC-239 – Low Range Radar Altimeter and SC-242 – Spectrum Compatibility, if and as appropriate.

1. Characterize current RF environment between 9.3 and 9.5 GHz.
2. Document operational impact of increased in-band and out-of-band noise/radio frequency interference (RFI) levels on X-band airborne weather radar systems.
3. Make recommendations for limiting interference levels from in-band/out-of-band RFI and transmission sources. These recommendations may include, but are not constrained to:
  - a. Signal in space interference tolerance mask for weather radar.
4. Potential RFI mitigation strategies for future airborne weather radar systems.

EUROCAE Coordination – This is an independent advisory committee, not a joint RTCA/EUROCAE committee. Coordination with EUROCAE will be undertaken, as appropriate.

Documents	Intended Use
SC-239 White Paper: Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations	Provides an example analysis of interference tolerance of currently fielded equipment.
SC-239 White Paper: Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations Errata 1	Provides an example analysis of interference tolerance of currently fielded equipment.

**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 of the committee's work program requires prior PMC approval.