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INTERNATIONAL CIVIL AVIATION ORGANIZATION

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ICAO WRC-27 Preparatory Workshop
Agenda item 1.7

Andrew Roy

Chair, ICAO FSMP

ICAO

EUR/MID WRC-27 (World Radiocommunication Conference 2027)
Workshop
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Resolution 256 (WRC-23)

"to consider studies on sharing and compatibility and develop technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz taking into account existing primary services operating in these, and adjacent, frequency bands, in accordance with Resolution **256 (WRC-23)**;"

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Res 256 (WRC-23) Requirements

- Based on sharing and compatibility studies, to identify additional spectrum for international mobile telecommunications (IMT) in one or more of the following frequency bands:
  - 4 400 – 4 800 MHz (in Region 1 and Region 3)
  - 7 125 – 8 400 MHz (in Region 2 and Region 3)
  - 7 125-7 250 MHz and 7 750-8 400 MHz (in Region 1)
  - 14.8-15.35 GHz
- Those studies need to ensure the protection of services to which the frequency band is allocated on a primary basis:
  - including protection of stations operating in international waters or airspace which cannot be registered in the MIFR,
  - without imposing additional regulatory or technical constraints on those services, and on services in adjacent bands.

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ICAO Concerns

- The adjacent frequency band 4.2 – 4.4 GHz is allocated globally to:
  - Radar altimeters aeronautical radionavigation service (ARNS) on a primary basis
  - wireless avionics intra-communication (WAIC) in the aeronautical mobile (route) service (AM(R)S) on a primary basis*
- ICAO is particularly concerned about the potential impacts of IMT identification in the band adjacent to the aeronautical systems in the 4.2 – 4.4 GHz frequency band
  - Ongoing issues raised by the ICAO State Letter SL 21/22 and the ICAO Assembly Resolution 41-7
- The radio frequency band 15.4–15.7 GHz is allocated to the primary aeronautical radionavigation service
  - Used for ground-based primary surveillance radar systems including precision approach radar (PAR) and airport surveillance surface detection equipment (ASDE).
  - Also identified by ICAO for use on board weather radar, ground mapping radar and detect and avoid (DAA) for RPAS

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Additional Considerations

- Majority of existing studies on the radar altimeter have been for 5G below 4.2 GHz
  - Limited altimeter data available for performance above 4.4 GHz
  - What performance that has been seen is not symmetrical to below the band
- New altimeters are not going to be available until 2030+
  - Studies need to be conducted on currently fielded models
  - US filter modification not tuned to above 4.4 GHz
- Additional interference concerns are also being investigated

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Current Status

- ICAO has provided both technical and operational parameters of 4200-4400 MHz systems
  - Proposed use of exiting ITU-R recommendation (Recommendation ITU-R M.2059) and a Minimum Separation Distance (MSD) for operational scenarios
  - ICAO still need to clarify WAIC technical characteristics
  - ICAO material have not yet been adopted by WP5D and they are asking WP5B to verify
- Technical details deadline was been extended until 1 Jul 2025
  - WP 5B should be providing specifications for WP5D to study them
  - WP 5B left the door open to provide informal additional material beyond the deadline in a liaison statement to WP 5D
- Low attendance/support in ITU-R meetings from aviation experts
  - Has contributed to ICAO provided information from not being included in current ITU-R work

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ICAO Position

To oppose any new identification for IMT in the frequency band 4 400-4 800 MHz that reduces the protection of, or imposes additional regulatory or technical constraints, on radio altimeters and Wireless Avionics Intra-Communications operating in the frequency band 4 200-4 400 MHz.

To ensure the results of this agenda item would not reduce the protection of, or impose additional regulatory or technical constraints, on ground-based air traffic surveillance systems, airborne weather radar, and DAA radars, operating in the frequency band 15.4-15.7 GHz.

Thank You

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