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ICAO WRC-27 Preparatory Workshop
Radio Altimeters

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EUR/MID WRC-27 (World Radiocommunication Conference 2027)
Workshop
(Paris, France, 06-07 October 2025)

Presentation Overview

01 **Radio Altimeters Interference Issue**

02 **New Radio Altimeters Performance Standards**

03 **Regional 5G Implementation Examples**

04 **Summary**

Radio Altimeters

Update on global altimeter issues

- The RA interference problems with adjacent band 5G
- New altimeter standards
- Examples of current national 5G mitigations

Radio Altimeters

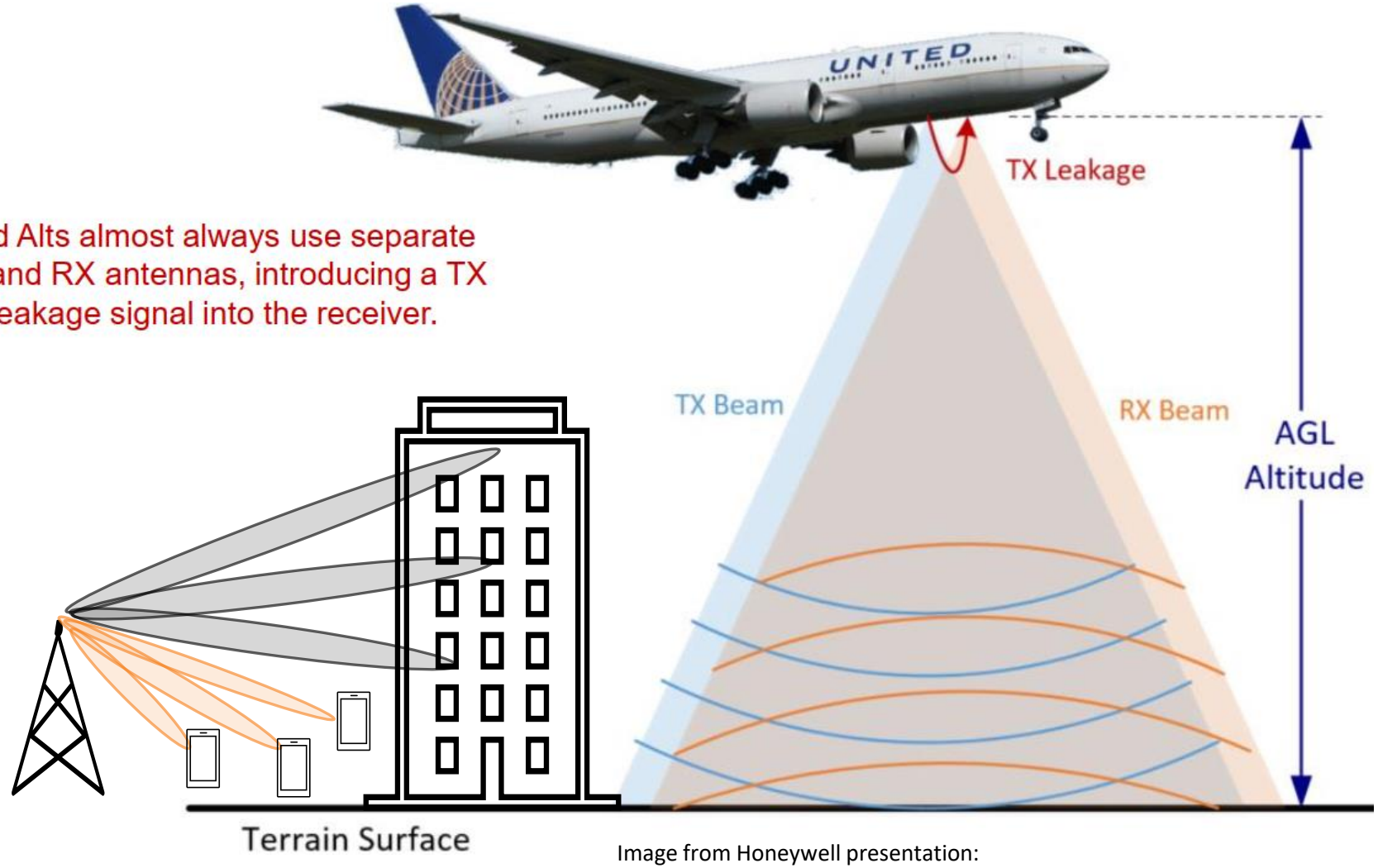
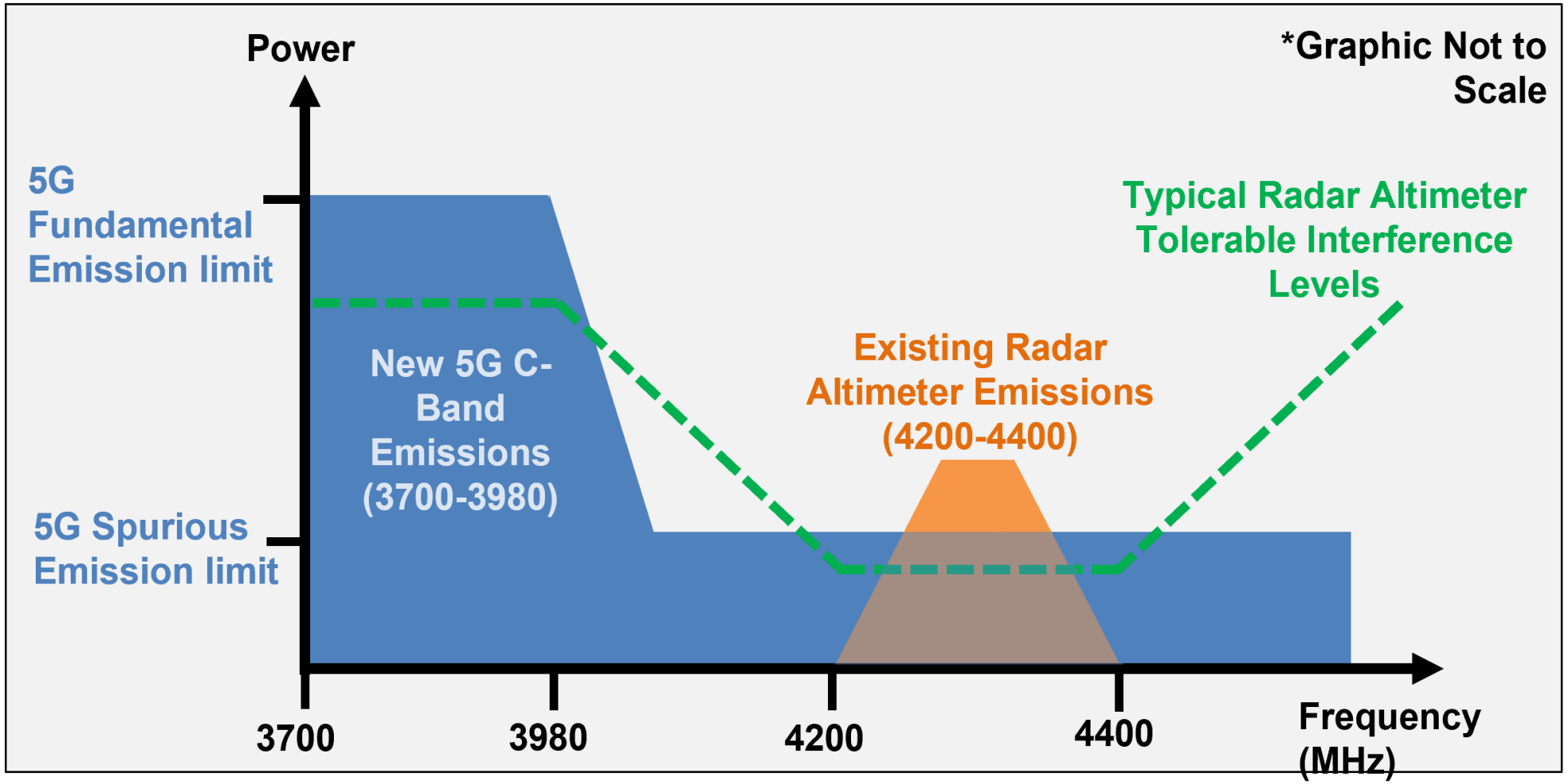


Image from Honeywell presentation:
https://avsi.aero/wp-content/uploads/2021/12/Radio-Altimeter-Overview-of-Design-and-Performance.pdf

Radio Altimeters

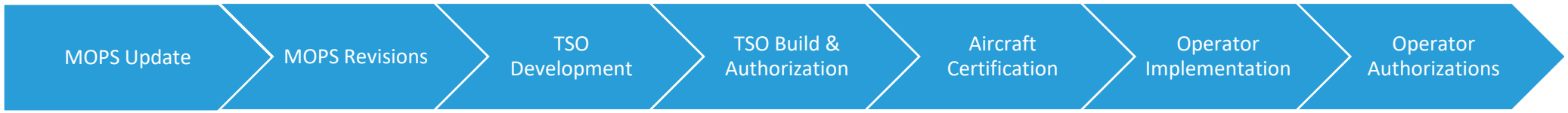
Interference concerns



Radio Altimeters

New Altimeter Standards

- New altimeter standards being developed by RTCA/EUROCAE
  - FAA and EASA requesting new altimeter performance and updates from previous 1980 standard
- New MOPS expected March 2027
  - New standard includes both LRU and antenna performance
  - MOPS progress updates anticipated Q4 2025
- Certification and manufacturing of new altimeters will begin once MOPS complete
  - Mass deployment not anticipated until 2030s at the earliest
  - Regular standards process normally takes 10+ years from beginning to end



National Example - USA

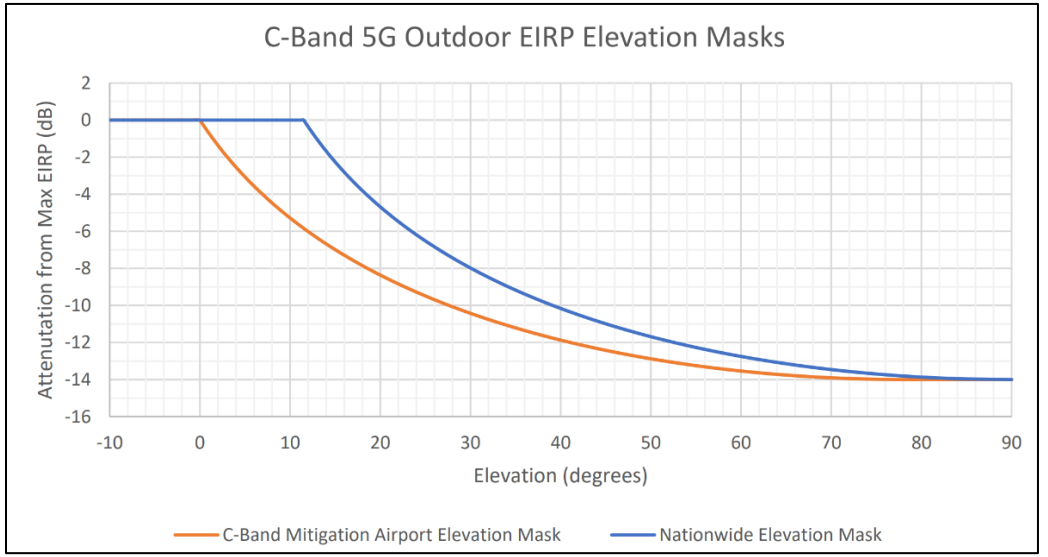
Current Situation

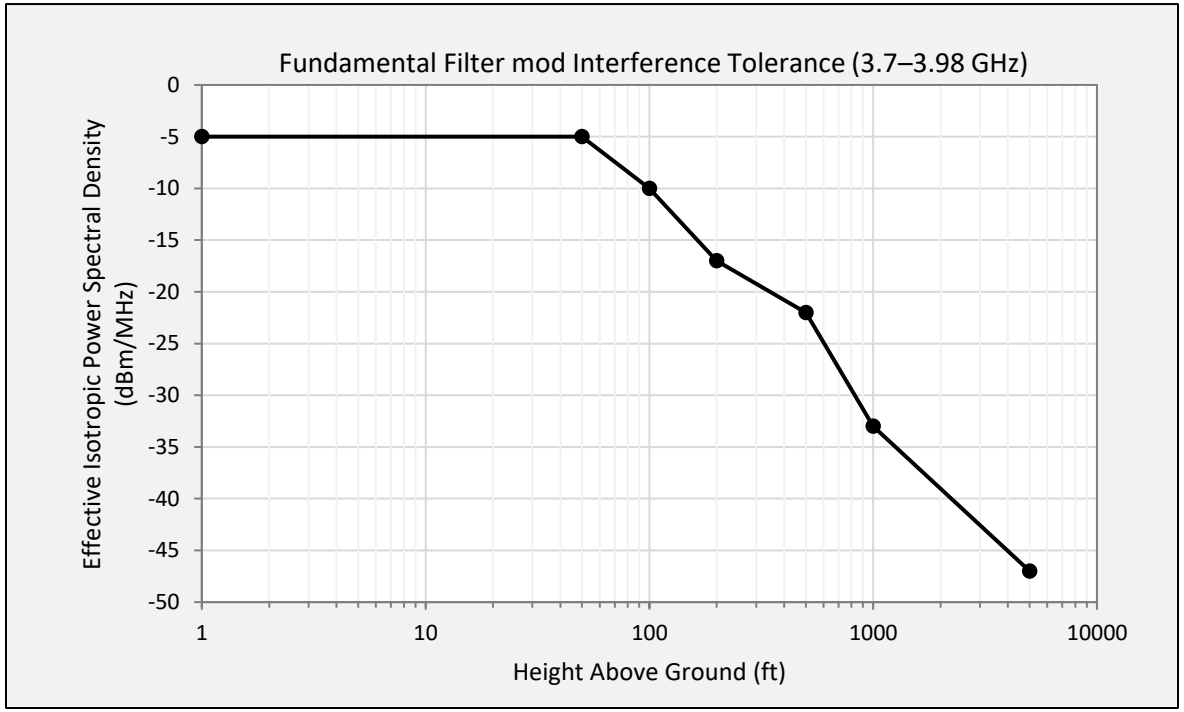
- United States implemented 5G in 3.7-3.98 GHz range in 2020
  - Decision required extensive follow-up work from both industry and FAA to mitigate potential interference
  - 5G industry agreed to voluntary mitigations on 5G emissions until Jan 2028
- Aviation industry had been assessing how to bridge the gap between the ending of the voluntary mitigations in 2028 and new standards deployment in 2030s
  - Multiple industry meetings between aviation and telecoms representatives
- However…. Recent national legislation recently passed for additional 5G spectrum between 3.98-4.2 GHz
  - Auction of at least 100 MHz of high-power licensed 5G must be completed by Jul 2027
  - New 5G frequencies are estimated to be operational 1-2 years after auction

National Example - USA

5G Mitigations Example

- 5G limitations agreed until Jan 2028
  - 5G antenna elevation limited above horizon
  - Spurious emissions to -48 dBm/MHz conducted in 4.2-4.4 GHz
  - Coordination with FAA for 5G towers near airports
- Retrofit of altimeter filters for 3.7-3.98 GHz by Feb 2024
- More details here: https://www.faa.gov/5g





Regional Example - Europe

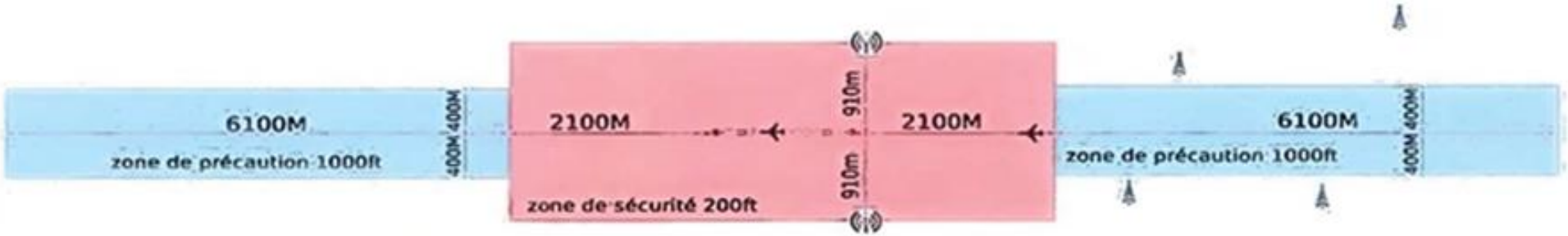
Current Situation

- Europe operating similar, but not identical, 5G bands to the US
  - EASA has been monitoring for any RA interference reports
  - DG MOVE/CONNECT have published roadmap proposal for altimeter retrofits in 2030s with EASA responsible for aviation protections
- ECC Report 362 published in 2025
  - Assessed 3.4-3.8 and 3.8-4.2 GHz mobile systems against radio altimeter
  - Aviation interests filed comments questioning the conclusions in the published report

Regional Example - Europe

France 5G Mitigations Example

- Provisional precautionary measures relating to the geographical location of some 5G antennas in the vicinity of airports with IFR procedures in mainland France have been implemented.
  - Mitigation measures are still in place around Airports where ILS CAT III are implemented



Other National Examples

RA Protections Implemented in multiple other Nations

- Other administrations have implemented national mitigations to protect radio altimeters from adjacent 5G signals
    - Examples include Australia, Japan, Saudi Arabia, etc.
- Many national mitigations based on creating separation distances between airport/heliport facilities and 5G cell towers
    - Exact values have varied depending on data provided
- FSMP CG has been capturing the status of national mitigations*: https://www.icao.int/safety/FSMP/MeetingDocs/FSMP%20WG18/IP%20-%20Copy/FSMP-WG18-IP09R1_CG-RA%20Report%20Feb%202024%20v1.2.docx
    - No globally agreed mitigation methodology to assess and mitigate potential interference

Radio Altimeters

Ongoing Actions

- Aviation industry needs to engage with national spectrum regulators
  - Participate in national spectrum regulator process to educate and inform on aviation specific requirements
  - Ensure accurate aviation information available to help inform national positions and mitigations
  - Data is critical to support positions
- Increase aviation attendance at the ITU-R WP 5B and WP 5D meetings
  - Allow greater ‘in-room experience’ from aviation and additional voices to support ICAO position on WRC-27 Agenda Item 1.7
  - Both aviation regulators and industry
- Please contact ICAO Secretariat if there are any questions or national updates
  - Can provide additional resources and help document ongoing national efforts
  - National updates to CG summary paper are welcome

Summary

- New Radio altimeter standards are going to take time to be implemented
  - Near-term studies of 5G/6G needs to assess current altimeter equipment
- Aviation industry needs to engage with spectrum regulators to provide aviation specific expertise and guidance
  - Both at domestic and international processes
  - Promote correct usage of altimeter performance, ICAO operational scenarios, and protection of WAIC
- Please contact ICAO Secretariat for questions and provide updates to FSMP
  - Can provide additional resources and contacts for questions

Thank You

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