

# JOINT USER REQUIREMENTS GROUP **JURG #85 MEETING**

1<sup>st</sup> of December 2023, online edition





#4  
5G UPDATE

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# EASA Regulatory Framework

- ❑ As the EU aviation regulator, EASA is bound by regulations:
  - The 'Basic Regulation', (EU) 2018/1139; defining EASA's tasks and responsibilities.
  - 'Part 21', (EU) 748/2012; laying down implementing rules for initial and continued airworthiness.
  - 'Part ADR', (EU) 139/2014; laying down requirements and administrative procedures related to aerodromes.
  - 'Part AUR', (EU) 1332/2011; laying down common airspace usage requirements.
  
- ❑ The Basic Regulation gives EASA the authority to respond to an urgent safety problem through an Airworthiness Directive, or a Safety Directive.

# No reported occurrences\* to EASA

- ❑ To date, no occurrences\* of confirmed 5G interference to radio altimeters have been reported to EASA.
- ❑ Potential interference, although highly undesirable, does not imply an unsafe condition. The severity of the impact of interference on the aircraft systems is relevant:
  - In EASA's risk assessment, the radio altimeter behaviour when subjected to interference, and the impact of this behaviour on aircraft systems performing critical functions is assessed.
  - Many other aspects are considered too (e.g. system integration/architecture, alerting, pilot recognition and intervention, exposure time, system recovery, etc.)

(\* ) The definition of an occurrence (i.e. a reportable event) and the obligation of reporting these to EASA are found in Regulation (EU) No 376/2014:

*'occurrence' means any safety-related event which endangers or which, if not corrected or addressed, could endanger an aircraft, its occupants or any other person and includes in particular an accident or serious incident.*

# No plan for a short-term intervention

❑ In absence of conclusive evidence of an unsafe condition, EASA sees no need for short term intervention.

- However, if EASA identifies an unsafe condition on any aircraft type, we will swiftly require mandatory action to mitigate any safety concerns.
- EASA anticipates that if there may be a concern with the evolving 5G use of the 3.4-3.8 GHz band, it will affect only on a few aircraft types, not the entire fleet operating in the EU.



# Developments in the EU (1/2)

- ❑ Current 5G band is limited up to 3.8 GHz providing a protective “guard band” of 400 MHz to the radio altimeter.
- ❑ Various EU member states have implemented Protection Zones around aerodromes.
- ❑ EC plans to adopt in **2025 a technical implementation measure to harmonise shared use of 3.8-4.2 GHz** band for terrestrial wireless broadband systems (e.g. 5G) for local-area connectivity with low/medium power (e.g. vertical applications).
- ❑ CEPT is preparing a Report in response to an EC mandate (DG CNECT) providing harmonised technical conditions for the shared use of the 3.8-4.2 GHz band and coexistence measures with RA. Report due in Q4/2024.
- ❑ Aviation participation in CEPT groups. Scenarios have different financial impact on telecom/aviation industries. Some progress made on technical parameters. Discussions progressing slowly.

## Developments in the EU (2/2)

- ❑ EUROCAE and RTCA are developing aviation standards (MOPS) for **new generation of radio altimeters** to be published by Q4 2024. Telecom industry participation to EUROCAE/RTCA groups.
- ❑ EASA will publish airworthiness certification specifications taking the MOPS as technical baseline.
- ❑ Industrialisation and certification of safety critical equipment and certification of the installation of such equipment on many aircraft types is a lengthy process.
- ❑ First aircraft equipped with new generation of radio altimeters planned to be certified **around 2030**
- ❑ High demand and low supply would result in an initial price hike.

# Standardised solutions for a global issue



- Aircraft are flying worldwide BUT the 5G/6G environment varies from State to State over time.
- Aviation is a highly regulated global industry.
- Non-harmonized retrofit mandates in different States/Regions increase costs and impact operations for airlines.
- Harmonisation, close cooperation between aviation authorities worldwide is essential.
- Timely coordination and discussion with equipment/aircraft manufacturers and airspace users (e.g. IATA JURG)
- EASA is a key player on international cooperation (ICAO, FAA, Transport Canada, Brazil, China,...) to converge on methodologies, harmonize mandates and support standardized solutions as much as practicable.



# Recent workshops between aviation and telecom/spectrum domains.

## Technical workshop at industrial level on 5 October

**Organised** by EASA at Cologne

**Objectives:** to facilitate dialogue, build trust and prepare technical inputs to EU roadmap.

**Participants:** EASA, EUROCONTROL, MOVE, CNECT, Airbus, Thales, GSMA, ECC, Nokia and Ericsson

**Follow up:** Technical discussion continue at ECC PT 1 were aviation participates

## Regulatory Workshop on 26 October 2023

**Co-organised and co-chaired:** DG CNECT and DG MOVE

**Objectives:** raise awareness on this issue, exchange information on regulatory frameworks, discuss principles of cooperation between regulatory authorities and discuss a draft **EU roadmap**

**Participants:** Regulatory authorities of EU Member States and EEA countries in both domains: members and observers of the EASA and Radio Spectrum Committees

**Action:** Regulators to send comments on Draft EU roadmap by 27 Nov 23.

# Principles of cooperation between aviation and spectrum regulatory authorities

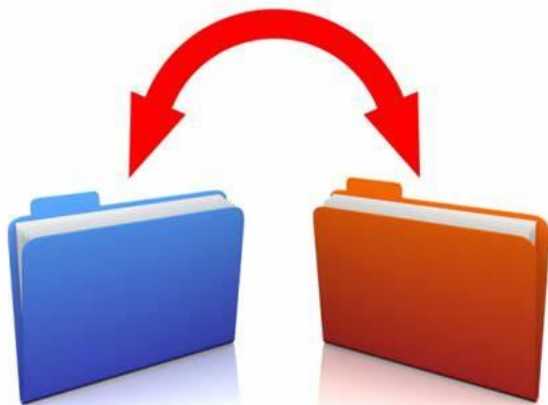


1. Agree to develop an **EU roadmap** towards a balanced solution for the safe co-existence in the 3.4-4.4 GHz band between mobile networks (5G and future 6G) and aircraft radio altimeters considering **safety, technical, operational and economic** criteria.

2. It should be a **European-wide** roadmap that would allow to avoid having different national/local schemes for airports, aircraft, and telecom operators, which would be the worst-case scenario in terms of internal market, operational impact, interoperability and costs. It should consider the global perspective of both industries.



3. The aviation part of the EU roadmap and the telecom part of the EU roadmap should be **synchronised and consistent**.



# Principles of cooperation between aviation and spectrum regulatory authorities

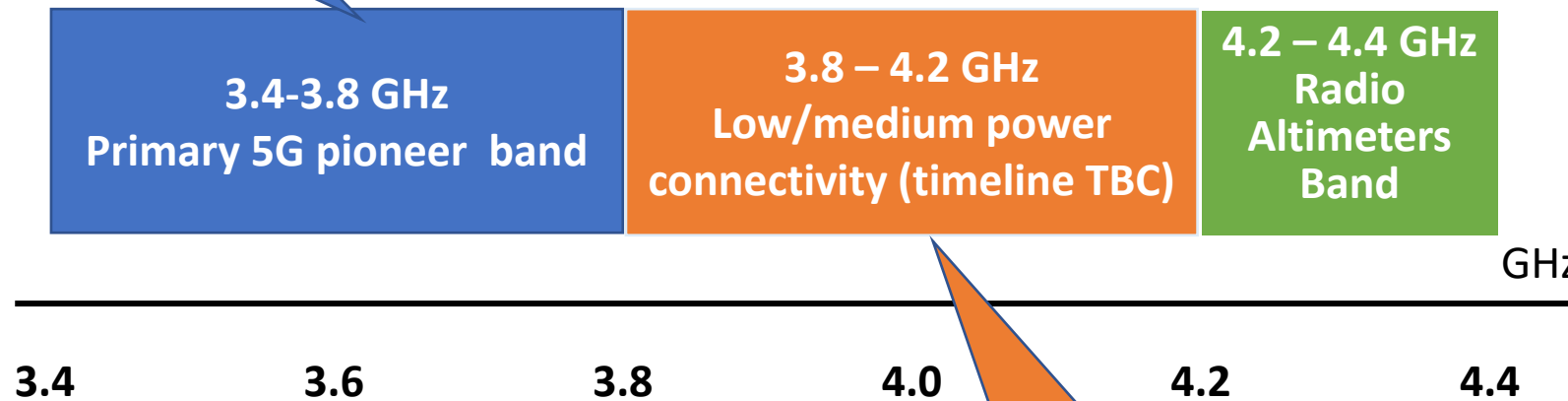
4. The situation in the US has been detrimental for both telecom and aviation industries and **should not create a precedent for the EU**. An EU roadmap should avoid temporary solutions to give certainty to both industries. It should be prepared **well in advance**. An EU roadmap should define activities/milestones for the short, medium and long terms.



5. The EU roadmap composed of aviation and telecom parts should be prepared by DG MOVE and DG CNECT and further discussed with the delegates from the EASA and Radio Spectrum Committees.

# The need of a coordinated approach and key assumptions

No plan for retrofit mandate.  
No need to change the current EU harmonised conditions for the use of the 3.4-3.8 GHz frequency band.



Orderly transition to be organised well in advance to avoid unsafe condition in aviation and undue delays in the telecom domain

# EU Roadmap and planning

- ❑ The use of 3.8-4.2 GHz band by mobile networks may increase the risk of interferences affecting aviation.
  
- ❑ The EU roadmap will establish an orderly transition. Avoid that deployment of 3.8-4.2 GHz mobile networks could result in a unsafe condition that would trigger a mandatory action (e.g. Airworthiness Directive)
  
- ❑ A well-managed and coordinated approach **between aviation and telecom/spectrum domains**:
  - Decision to retrofit to be based on sound evidence: CEPT studies.
  
  - Retrofit based on new standard for Radio Altimeters (MOPS) ensuring a long-term, standardised solution designed to be robust to 5G/6G interferences worldwide.
  
  - Dependencies: Spectrum regulation applicable to 5G deployment in the 3.8-4.2 GHz band to be consistent with rulemaking activities in aviation.
  
  - Dependencies: Temporary measures for 5G deployment (e.g. maximum power around airports) and progressive aircraft retrofitting.

# EU Roadmap and planning

- ❑ Any rulemaking proposal needs a thorough Impact Assessment, justifying the need for the update
- ❑ Nominally, the process to develop a rule change is a sequential process which takes 2-3 years. This process can be expedited, but with all the mandatory consultations, it will still take considerable time.
- ❑ In addition, consideration must be given to the maturity and availability of the systems or functions subject of rulemaking.
- ❑ Operators need to be given reasonable time to adapt (e.g. retrofit during planned maintenance, every 18 months). Good planning and sufficient advanced notice would reduce operational impact and costs