Subject: ESA Response to RSPG Questionnaire on Long-term vision for the upper 6 GHz band

8 August 2024

Dear Sir, Madam,

The European Space Agency (ESA) appreciates the opportunity to respond to the RSPG questionnaire on Long-term vision for the upper 6 GHz band.

ESA is a relevant stakeholder in relation to the EESS (passive) observations performed in the 6-7 GHz range. Thus, our response is limited to the Part B of the questionnaire, directed to the stakeholders providing incumbent services:

Question 1: What are your current and future spectrum needs (before and beyond 2030) in the upper 6GHz band?

CIMR (Copernicus Imaging Microwave Radiometer) is one of the expansion missions of the European Union Earth Observation Programme Copernicus. It is being developed by ESA and it is due for launch in 2028.

The mission is a constellation of two satellites, each carrying a multi-frequency microwave radiometer to provide a range of key observations.

In particular, the radiometer will observe in the 6675-7075 MHz band, specifically to observe Sea Surface Temperature (SST) and its operation are expected to go well beyond 2030.

Question 2: What impact on your service do you expect from the introduction of MFCN and/or WAS/RLAN in the upper 6GHz band?

The European Common Proposal to WRC-23 agenda item 1.2 recognises the potential degradation to SST measurements and thus to the prediction of major climatic events:

“Some studies submitted to ITU R Working Party 7C indicate that the introduction of high-density deployments of applications in the mobile service in the frequency range 6 425-7 125 MHz, depending upon the application, could interfere with SST measurements in locations up to several thousand kilometres from the coast.

These studies indicate that, SST measurements by satellite in the frequency range 6 425-7 125 MHz could be significantly degraded in the next years due to the amount of interference from the foreseen increased usage under the existing mobile allocation.”

Question 3: What measures could improve compatibility from your perspective?

Keep observing in the 6425-7125 MHz frequency range would be highly important in order to maintain the continuity of the measurements being provided for many decades by several agencies around the world.

Near these frequencies is where passive measurements of sea surfaces are most sensitive to changes in surface temperature (SST), and therefore this is where EESS (passive) sensors can make the most efficient measurements of SST.

Due to the expected interference in the 6-7 GHz range, ESA welcomes the opportunity offered by the WRC-27 agenda item 1.19 to consider possible new primary allocations to EESS (passive) in the 4.2-4.4 GHz and 8.4-8.5 GHz bands. It is expected that these two new frequency bands would complement the observations performed in the 6-7 GHz range and provide, thanks to channel diversity, some degree of mitigation to the received interference.

Contact for further correspondence:

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