



TO:
European Commission
DG-DEFIS
Rue de la Loi 130
1049 Bruxelles
Belgium

Brussels, 10/10/2023

Subject: X band shall remain reserved for Earth Observation use

The European Association of Remote Sensing Companies (EARSC) and its members are concerned about the continued loss of frequencies necessary for operating space missions, especially Earth Observation missions. Such erosion has happened at the hands of terrestrial mobile communication (i.e. 5G) since the International Telecommunication Union (ITU) World Radio Conference (WRC, 2019). While terrestrial 5G communication have acquired a vast portion of the spectrum at different wavelengths, satellites rely on the long-term use of dedicated frequencies for the up- and downlink of data, and in case of SAR and radiometry, of specific frequency bands, which enable observation of specific features and characteristics.

End of August, at the World Radio Conference CITELE hosted in Ottawa, Brazil and nine other Latin American countries (Colombia, Costa Rica, Republica Dominicana, Ecuador, Guatemala, Mexico, Peru, Paraguay and Uruguay) placed a proposal to turn the 10 GHz frequency range over the 5G industry. Countries from North, Central and South America joined forces to reject the proposal. Such frequency band is used by the Copernicus Contributing Missions (CCM) in X-Band (i.e. TerraSAR-X, TanDEM-XPAZ, COSMO-SkyMed and ICEYE). The technical studies performed by Germany, France, and Canada, carried out within the ITU process, have demonstrated that sharing between SAR and 5G is impossible, without massively degrading the capability of acquiring radar images at very high resolution. The services offered by Copernicus to hundreds of users in Europe and worldwide would lose the X-Band Earth observation capabilities.

In addition, the adjacent band 10.6-10.7 GHz, is planned to be used by the Copernicus Imaging Microwave Radiometer (CIMR). Such passive microwave instruments will also be heavily impacted by interference.

Therefore, these radar and microwave satellite missions need global protection from any International Mobile Telecommunication system in order to deliver high-quality data for monitoring the status of the Earth, for securing the delivery of advanced new SAR-based services, for commercial markets, or needed for the implementation of EU policies, and contributing to the security of European citizens.

In addition, we have observed:

- Increased interest by the 6G influence groups for frequency bands crucial for Earth Observation. This was concretised with a proposal of the Inter-American Telecommunication Union to identify the band 7.0 - 8.5 GHz, crucial for downlinking Earth observation data to ground, for the next generation of terrestrial mobile services (i.e. 6G). This would massively hit any Copernicus mission, both the Sentinels and the Contributing Missions.
- China has proposed to limit the power emitted and therefore the capabilities of every X-Band SAR satellite, quoting unproven interference with ground-based radars. This would substantially limit the usability of any Copernicus Contributing Mission in X-band, such as TerraSAR-X, PAZ, COSMO-SkyMed and ICEYE.

We kindly ask DG DEFIS in its responsibility for Space Policy and Copernicus to protect the 10-10.5 GHz frequency band and all other Earth Observation frequency bands at the upcoming World Radiocommunication Conference (WRC), held in Dubai, UAE from 20 November to 15 December 2023, by reaching out to DG CONNECT, to Copernicus user worldwide, and by joining the World Radio Conference negotiations with its own staff.

In this effort, DG DEFIS can rely on the support of all European nations, who voted “no change” at the regional frequency conference CEPT, notably by Germany and France leading the effort, and by Canada and the United States. At the same time, the Middle East nations have more carefully voted to protect radar on their territory, while the Asia-Pacific nations still seem to be undecided.

Best regards



Emmanuel PAJOT

EARSC Secretary General