

RESOLUTION 133 (WRC-23)

Study of the possible use of the frequency band 12.75-13.25 GHz by aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service (Earth-to-space)

The World Radiocommunication Conference (Dubai, 2023),

considering

- a)* that the frequency band 12.75-13.25 GHz is currently allocated, on a primary basis, to fixed service, mobile service and fixed-satellite service (FSS) (Earth-to-space) and, on a secondary basis, to the deep-space research service (space-to-Earth) worldwide;
- b)* that the frequency band 12.75-13.25 GHz is used in the FSS by geostationary-satellite networks (GSO) in conformity with the provisions of Appendix **30B** (No. **5.441**) and that there are GSO satellite networks in the FSS that are operating in this frequency band;
- c)* that the frequency band 12.75-13.25 GHz is used in the FSS by non-geostationary-satellite (non-GSO) systems in conformity with No. **5.441**;
- d)* that the demand for aeronautical and maritime connectivity could be partially met by allowing aeronautical earth stations in motion (A-ESIMs) and maritime earth stations in motion (M-ESIMs) to communicate with non-GSO space stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space);
- e)* that advances in technology, including the use of antenna tracking techniques, allow A-ESIMs and M-ESIMs to operate within the characteristics of fixed earth stations in the FSS;
- f)* that the use of the frequency band 12.75-13.25 GHz for A-ESIMs and M-ESIMs operating with non-GSO FSS could contribute, as an additional use of the spectrum, to improving broadband communications for passengers;
- g)* that A-ESIMs and M-ESIMs referred to in the present Resolution are not to be used for safety-of-life applications;
- h)* that the frequency band 10.6-10.7 GHz is used for the Earth exploration-satellite service (EESS) (passive) in line with Recommendation ITU-R RS.1861;
- i)* that all emissions are prohibited in the frequency band 10.68-10.7 GHz according to No. **5.340**,

noting

- a) that Resolution **156 (Rev.WRC-23)** addresses the use of earth stations in motion (ESIMs) communicating with GSO space stations in the FSS in the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz;
- b) that Resolution **169 (Rev.WRC-23)** addresses the use of ESIMs communicating with GSO space stations in the FSS in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz;
- c) that this conference has adopted Resolution **123 (WRC-23)** which contains the technical operational and regulatory provisions for ESIMs communicating with non-GSO space stations in the FSS in the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth), and the frequency bands 27.5-29.1 GHz and 29.5-30.0 GHz (Earth-to-space);
- d) that this conference has adopted Resolution **121 (WRC-23)**, which contains the technical operational and regulatory provisions for the use of A-ESIMs and M-ESIMs communicating with GSO space stations in the FSS in the frequency band 12.75-13.25 GHz;
- e) that the use of non-GSO space stations in the FSS may introduce more complicated sharing scenarios,

recognizing

- a) that, in conformity with No. **5.441**, non-GSO systems shall not claim protection from GSO networks operating in conformity with the Radio Regulations and shall operate in such a way that any unacceptable interference that might occur due to their operation is immediately eliminated;
- b) that, in conformity with No. **5.441**, the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by a non-GSO satellite system in the FSS is subject to the application of the provisions of No. **9.12** for coordination with other non-GSO satellite systems in the FSS;
- c) that Article **21** contains the power flux-density limits at the Earth's surface produced by emissions from non-GSO FSS systems in the space-to-Earth direction to protect fixed and mobile services;
- d) that Article **22** contains the equivalent power flux-density limits for non-GSO FSS systems in the frequency band 12.75-13.25 GHz (Earth-to-space) that guarantee the protection of GSO networks;
- e) that non-GSO FSS systems that operate in the frequency band 12.75-13.25 GHz (Earth-to-space) may also operate in the frequency band 10.7-10.95 GHz (space-to-Earth) in accordance with No. **5.441**;
- f) that the potential interference impact from unwanted emissions produced by non-GSO FSS systems communicating with A-ESIMs and M-ESIMs in the frequency band 10.7-10.95 GHz (space-to-Earth) in accordance with No. **5.441**, into passive sensors of the EESS operating in the adjacent frequency band 10.6-10.7 GHz, should be studied to ensure protection of existing and future use of the frequency band by the EESS (passive);

g) that the current use and future development of existing services in the frequency band should be protected from unacceptable interference caused by operation of A-ESIMs and M-ESIMs communicating with non-GSO space stations in the frequency band;

h) that interference management mechanisms, including necessary mitigation measures, are required for the operation of non-GSO ESIMs to protect other space and terrestrial services to which the frequency band referred to in *considering a)* are allocated,

resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference

1 studies on the technical and operational characteristics of A-ESIMs and M-ESIMs planning to communicate with the non-GSO space stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space);

2 studies on sharing and compatibility between A-ESIMs and M-ESIMs communicating with non-GSO space stations in the FSS and the current and planned stations of existing services with allocations in the frequency band 12.75-13.25 GHz, ensuring that ESIMs will not call for further protection or cause more interference than existing typical earth stations;

3 the development of the technical conditions and regulatory provisions for the operation of A-ESIMs and M-ESIMs communicating with non-GSO space stations in the FSS that operate in the frequency band 12.75-13.25 GHz (Earth-to-space), taking into account the results of the studies outlined in *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* 1 and 2, while ensuring the protection of incumbent services;

4 sharing and compatibility studies for communications between non-GSO space stations in the FSS and ESIMs with respect to the EESS (passive) allocated in the adjacent frequency band referred to in *recognizing f)*;

5 studies on the development of a new Recommendation for the network control and monitoring centre functionality for ESIM operation;

6 studies on the responsibility of the entities involved in the operation of the A-ESIMs and M-ESIMs addressed by this Resolution,

invites administrations

to participate actively in the studies by sending their contributions to the ITU Radiocommunication Sector,

invites the 2031 world radiocommunication conference

to consider the results of the above-mentioned studies and to adopt the necessary measures accordingly.