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RESOLUTION 683 (WRC-23)

Study of technical and operational issues and regulatory provisions to support inter-satellite service transmissions in the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz for non-geostationary-satellite space stations communicating with geostationary-satellite space stations¹

The World Radiocommunication Conference (Dubai, 2023),

considering

- a) that many non-geostationary-satellite orbit (non-GSO) satellites operate with limited and non-real-time connectivity to earth stations;
- b) that inter-satellite service (ISS) communications between such non-GSO satellites and geostationary-satellite orbit (GSO) satellites would enhance the efficiency of operations and that the effective reuse of some frequency bands allocated to the fixed-satellite service (FSS) for transmissions between such space stations may increase the efficiency of use of those frequency bands;
- c) that there is growing interest in utilizing ISS links for a variety of applications and that there have been expressions of interest by some administrations in using the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz for ISS transmissions between space stations in those frequency bands,

noting

- a) that the use of frequency bands by the FSS in the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz is subject to existing Resolutions, coordination requirements and country footnotes, taking into account, in particular, the protection of incumbent services;
- b) that the frequency band 3 700-4 200 MHz is allocated to the fixed and mobile services on a primary basis in Regions 2 and 3;
- [c)* that, in Region 1, the frequency band 3 700-4 200 MHz is allocated to the fixed service on a primary basis and the frequency band 3 700-3 800 MHz is allocated to the mobile service on a primary basis;]

¹ *Note by the Secretariat:* The square brackets appearing in this Resolution have been kept with the understanding that this Resolution, which is on the WRC-31 preliminary agenda (see Resolution **814 (WRC-23)**), should be considered at WRC-27.

[* This Region 1 allocation for fixed and mobile services is pending the WRC-23 outcome, and this *noting* should be revised or removed based on the conclusion of WRC-23 agenda item 1.2/1.3.]

[d)** that, in Region 2, the frequency band 3 600-3 700 MHz is identified on a regional basis for International Mobile Telecommunications (IMT) and the frequency band 3 700-3 800 MHz is identified for IMT via No. **5.435B**;

e) that any future use of the ISS in the frequency band 3 700-4 200 MHz shall not claim protection from terrestrial services operating in conformity with the Radio Regulations;

f) that the FSS and fixed and mobile services are allocated globally on a co-primary basis in the frequency band 5 925-6 425 MHz;

g) that the use of the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz by the non-GSO FSS is subject to the application of the provisions of Nos. **22.5C** and **22.5D**;

h) that the frequency band 5 925-6 425 MHz may be used for the FSS (Earth-to-space) for the provision of earth stations located on board vessels, subject to Nos. **5.457A** and **5.457B**;

i) that the use of the frequency band 5 925-6 425 MHz for aeronautical mobile telemetry is subject to the application of the provisions of No. **5.457C**,

noting further

that sharing and compatibility studies were performed between ISS links intending to operate between space stations in the frequency bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz and current and planned stations of the FSS and other existing services allocated in the same frequency bands and adjacent frequency bands, including passive services, with a view to ensuring protection of the primary services,

recognizing

a) that the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz are also allocated to other radiocommunication services on a primary basis, that those allocations are used by a variety of incumbent systems in many administrations and that the protection of those services should be studied;

b) that, for the determination of the incumbent services, the relevant provisions of the Radio Regulations in force apply,

recognizing further

a) that any future ISS use in the frequency band 3 700-4 200 MHz shall not claim protection from terrestrial services or other FSS applications operating consistent with the Radio Regulations;

b) that sharing scenarios may vary because of the wide variety of orbital characteristics of non-GSO FSS space stations,

[**These Region 2 identifications for IMT are pending the WRC-23 outcome, and this *noting* should be revised or removed based on the conclusion of WRC-23 agenda item 1.2.]

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

1 studies on spectrum requirements, technical and operational characteristics and sharing and compatibility, with incumbent [* **], including secondary,) services, taking into account *noting a) to i)*, for non-GSO space stations that operate or plan to operate ISS links with GSO FSS networks in the following frequency bands:

- a) in the Earth-to-space direction in the frequency band 5 925-6 425 MHz, for transmissions from non-GSO user space stations operating at lower orbital altitudes, in communication with GSO FSS service provider space stations; and
- b) in the space-to-Earth direction in the frequency band 3 700-4 200 MHz, for transmissions from GSO FSS service provider space stations, towards non-GSO user space stations;

2 to develop technical conditions and regulatory provisions to ensure protection of other services allocated in those frequency bands for the operation of ISS links taking into account the results of the studies called for in *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference 1* above,

invites administrations

to participate actively in the studies and provide the information required for the studies listed under *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* by submitting contributions to the ITU Radiocommunication Sector (ITU-R),

invites the 2031 world radiocommunication conference

to consider, based on the results of ITU-R studies, to support ISS allocations in the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz, and associated regulatory provisions, to enable links between non-GSO and GSO satellites.