
PLENARY MEETING

**Addendum 9 to
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Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 10

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

Introduction

This contribution proposes a new agenda item to address the feeder needs of non-GSO FSS in the 71-76 GHz and 81-86 GHz bands.

Discussion

WRC-97 adopted **5.523A** whereby the use of certain frequency bands by geostationary and non-geostationary fixed satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply.

This WRC action allows non-GSO satellite systems to operate in the bands referred to in **5.523A** subject to coordination on a first come first served basis with respect to GSO satellite networks.

WRC-97 also adopted provisional equivalent pfd (epfd) and aggregate epfd limits to be met by NGSO satellite systems operating in certain frequency bands. WRC-2000 adopted definitive epfd limits and expanded the ranges of frequency where they would apply. A NGSO satellite system meeting the epfd limits in the relevant frequency bands is deemed to be compliant with Article **22.2** with respect to any GSO satellite network regardless of priority date.

Leading up to WRC-19, studies were performed on sharing methodologies between GSO and non-GSO in the same band, and WRC-19 will consider taking appropriate regulatory actions for non-GSO satellite systems in the 37-51.4 GHz frequency range by adopting aggregate criteria not to be exceeded by non-GSO FSS systems in order to protect GSO FSS and GSO BSS networks against interference.

The mm-wave bands such as 71-76 and 81-86 GHz are particularly suitable for use as ultra-high capacity feeder links for large constellation non-GSO FSS systems using broadband service links in other frequency bands. In addition, these frequency bands are potentially suitable for broadband

links for consumer and enterprise customers. As a result, system trials of high mm-wave bands are progressing and technology prototypes are maturing.

Lack of regulatory provisions in the 71/81 GHz bands for use under the FSS co-primary allocations contributes to uncertainty in adopting mm-wave feeder link technology among potential operators of non-GSO satellite systems in these bands. This should be addressed by WRC-23.

Proposal

There are currently no mechanisms in the RR establishing coordination procedures applicable between non-GSO systems, nor methods of ensuring satisfactory co-existence with GSO networks, operating in the frequency bands currently allocated to the FSS in the frequency bands from 71-76 GHz (space-to-Earth) and 81-86 GHz (Earth-to-space). We propose to consider the development of regulatory provisions for non-geostationary fixed-satellite services satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and a proposed new Earth-to-space allocation) and 81-86 GHz (Earth-to-space).

It should be noted that several administrations are considering using these band for high-density fixed service links. These bands can play an important role in 5G development by facilitating backhaul and other fixed uses. It is important not only to protect existing links but also to provide an opportunity for future growth of fixed service in these bands as demand for backhaul and other related services increases.

ADD IAP/11A24A9/1

DRAFT NEW RESOLUTION [IAP/10(I)-2023] (WRC-19)]

Agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Sharm-el-Sheikh, 2019),

* * *

resolves to give the view

that the following items should be included in the agenda for WRC-23:

* * *

2 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC-19, to consider and take appropriate action in respect of the following items:

* * *

2. [E-Band NGSO] to consider the development of regulatory provision for non-geostationary fixed-satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and proposed new Earth-space) and 81-86 GHz (Earth-to-space), in accordance with Resolution [IAP/10(I)/E-BAND] (WRC-19);

ADD IAP/11A24A9/2

DRAFT NEW RESOLUTION [IAP/10(I)/E-BAND] (WRC-19)]

Studies of technical, operational issues and regulatory provisions for non-geostationary fixed-satellite services satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and proposed new Earth-to-space) and 81-86 GHz (Earth-to-space)

The World Radiocommunication Conference (Sharm-el-Sheikh, 2019),

considering

- a) that satellite systems are increasingly being used to deliver broadband services and are part of the solutions to enable broadband access;
- b) that next-generation fixed-satellite service technologies are required to deliver multi-terabit speeds to support real-time demanding applications, which can be delivered by large constellation non-geostationary satellite operations (non-GSO) FSS systems;
- c) that the particular characteristics of such high capacity feeder links for large constellation non-GSO FSS systems involve highly directional antennas on both the satellites and the earth stations and, as such, may be conducive to frequency sharing arrangements including, but not limited to, consideration of reverse band operation in certain situations , and a consideration of

whether No. **22.2** can be replaced by another sharing mechanism between GSO and non-GSO systems in some or all of the 71-76 GHz and 81-86 GHz bands;

d) that non-GSO systems are at early conceptual phases, thus providing an opportunity to investigate equitable sharing conditions in these bands;

e) that GSO networks are operating or planned to operate in these frequency bands and that some administrations are considering deploying high-density fixed service links in these bands;

f) that studies are required in order to ascertain the feasibility of, and conditions for, non-GSO FSS satellite systems sharing the frequency bands 71-76 GHz (space-to-Earth) and 81-86 GHz (Earth-to-space) for feeder links, with GSO links and with other non-GSO FSS satellite systems;

g) that studies are required to ascertain the feasibility, and conditions for, a possible new allocation to FSS (Earth-to-space), for reverse-band feeder links for non-GSO FSS satellite systems in the frequency band 71-76 GHz;

h) that the frequency bands 71-76 and 81-86 GHz are allocated to various services,
considering further

a) that Recommendations ITU-R S.1323, ITU-R S.1325, ITU-R S.1328, ITU-R S.1526, ITU-R S.1529 and provide information on non-GSO and GSO FSS system characteristics, operational requirements and protection criteria that may be used in sharing studies;

b) that Recommendation ITU-R F.206 provide information on radio-frequency channel and block arrangements for fixed wireless systems operating in the 71-76 and 81-86 GHz bands;

c) that Recommendation ITU-R M.2057 provide information on systems characteristics of automotive radars operating in the frequency band 76 - 81 GHz for intelligent transport systems applications;

d) that the ITU-R expert group is currently developing FSS characteristics in 71-76 GHz and 81-86 GHz to provide additional system characteristics of planned high mm-wave FSS networks and systems,

noting

a) that filing information for GSO and non-GSO FSS satellite networks in the frequency bands 71-76 GHz (space-to-Earth) and 81-86 GHz (Earth-to-space) have recently been communicated to the Radiocommunication Bureau;

b) that the frequency band 71-76 GHz is also allocated to the fixed and mobile services on a primary basis and is extensively used for applications in fixed service;

c) that the frequency band 74-76 GHz is also allocated to the broadcasting and broadcasting satellite services on a primary basis, as well as the space research service in the space-to-earth direction on the secondary basis;

d) that in the band 74-76 GHz the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service in accordance with provision No. **5.561**;

e) that the frequency band 81-86 GHz is also allocated to the fixed, mobile and radio-astronomy services on a primary basis, as well as the space research service in the space to earth direction on a secondary basis;

f) that Resolution **750 (Rev. WRC-[19])** applies in the frequency band 81-86 GHz in accordance to provision **5.338A**;

g) that the frequency band 81-84 GHz is also allocated to the mobile-satellite service in the Earth-to-space direction on a primary basis;

h) that the frequency band 81-81.5 GHz is also allocated to the amateur and amateur-satellite services on a secondary basis,

recognizing

a) that WRC-19ⁱ adopted provisions to quantify No. **22.2**, in order to establish protection of GSO FSS and BSS satellite networks from non-GSO FSS satellite systems in the 37-51.4 GHz frequency range;

b) that Resolution [TBD] (WRC-19) contains aggregate criteria not to be exceeded by non-GSO FSS systems in order to protect GSO FSS and GSO BSS networks against interference in the 37-51.4 GHz frequency range;

c) that WRC-19ⁱ incorporated by reference Recommendation ITU-R. S.[50/40 GHZ SHARING METHODOLOGY] to define methodology and sharing criteria between non-GSO FSS and GSO FSS in the 37-51.4 GHz frequency range;

d) that No. **21.16** does not contain power flux-density limits applicable to FSS satellites to protect fixed and mobile services with allocations in the frequency band 71- 76 GHz;

e) that the frequency band 86-92 GHz is allocated on a primary basis to the EESS (passive), radio astronomy, and space research (passive) services, which must be protected;

f) that No. **5.149** indicates that radio astronomy observations are carried out in the frequency band 76-86 GHz and that mitigation measures may have to be defined in this regard;

resolves to invite ITU-R

to conduct, and complete in time for WRC-23:

1 studies considering additional spectrum needs for development of the non-GSO satellite systems in the fixed-satellite service in the frequency bands 71-76 GHz and 81-86 GHz, the technical conditions of their use, and the possibility of optimizing the use of these frequency bands with a view to increasing spectrum efficiency;

2 studies of technical and operational issues for the operation of feeder links for non-GSO FSS satellite systems in the frequency bands 71-76 GHz (space-to-Earth and the feasibility of a possible new allocation for reverse-band feeder operation in the Earth-to-space direction) and 81-86 GHz (Earth-to-space) as well as consideration of regulatory provisions in some or all of these frequency bands for non-GSO systems coordinating and sharing with both GSO and other non-GSO systems in the FSS, MSS and BSS, and their specific Earth stations, taking into account the future growth of these uses and the need to ensure their protection;

3 sharing and compatibility studies between non-GSO FSS satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and a possible new allocation for reverse-band operation in the Earth-to-space direction) and 81-86 GHz (Earth-to-space), with other existing services, including fixed and mobile services in those bands, taking into account the need to ensure the protection of these services;

4 studies to be carried out under *resolves to invite ITU-R 2* above will take into account the methodologies adopted by WRC-19ⁱ in relation to the frequency band 37.5-51.4 GHz;

ⁱ Editor's note: this assumes that WRC-19 will complete consideration of agenda item 1.6

5 studies of possible revisions to Resolution **750 (Rev.WRC-[19])** for the protection of the EESS (passive) and space research (passive) in the frequency bands 86-92 GHz from non-GSO FSS transmission;

6 studies towards ensuring protection of the radio astronomy frequency bands 76-86 GHz from non-GSO FSS transmissions, taking into account recognizing e) above, including study of aggregate FSS interference effects from networks and systems operating or planned to operate in the frequency bands described in *resolves to invite ITU-R 2* above,

further resolves

to invite WRC-23 to consider the results of the above studies and take appropriate action,

invites administrations

to participate in the studies by submitting contributions to ITU-R.

SUP IAP/11A24A9/3

RESOLUTION 810 (WRC-15)

Preliminary agenda for the 2023 World Radiocommunication Conference

Reasons: This Resolution must be suppressed, as WRC-19 will create a new Resolution that will include the agenda for WRC-23.
