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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23)Dubai, 20 November - 15 December 2023** |  |
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| PLENARY MEETING | **Addendum 12 toDocument 85(Add.22)-E** |
|  | **22 October 2023** |
|  | **Original: Russian** |
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| Regional Commonwealth in the field of Communications Common Proposals |
| PROPOSALS FOR THE WORK OF THE CONFERENCE |
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| Agenda item 7(J) |

7 to consider possible changes, in response to Resolution **86** (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86** **(Rev.WRC‑07)**, in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

7(J) Topic J - Modifications to Resolution **76 (Rev.WRC-15)**

The purpose of Topic J under item 7 of the WRC-23 agenda is to update Resolution **76 (Rev.WRC‑15)**, on protection of GSO FSS and GSO BSS networks from the maximum epfd caused by multiple non-GSO FSS systems in frequency bands where epfd limits have been adopted, requiring administrations to collaboratively evaluate aggregate non-GSO FSS epfd levels and, where necessary, agree to reduce their epfd levels, by means of annual consultation meetings. The results of calculations will be published by the Bureau. A similar approach is already employed in Resolution **609 (Rev.WRC-07)** and Resolution **769 (WRC-19)**.

The RCC Administrations support incorporating in Resolution **76 (Rev.WRC-15)** a regulatory mechanism to ensure compliance with the aggregate epfd limits for protecting GSO FSS and BSS satellite networks from non-GSO FSS satellite systems.

In implementing the consultations/consultation meetings, it is necessary to take into account both operational and planned non-GSO systems, so criteria for participation need to be established: aggregate epfd calculations shall take into account the satellites of each non-GSO system brought into use up to the time of the consultation meeting as well as satellites of non-GSO systems planned to be brought into use during a period of one year from the date of the meeting.

MOD RCC/85A22A12/1#2159

RESOLUTION 76 (REV.WRC-23)

Protection of geostationary fixed-satellite service and geostationary broadcasting-satellite service networks from the maximum aggregate
equivalent power flux‑density produced by multiple non‑geostationary
fixed-satellite service systems in frequency bands where equivalent
power flux-density limits have been adopted

The World Radiocommunication Conference (Dubai, 2023),

considering

*a)* that WRC‑97 adopted, in Article 22, provisional equivalent power flux-density (epfd) limits to be met by non‑geostationary fixed-satellite service (non-GSO FSS) systems in order to protect GSO FSS and GSO broadcasting-satellite service (BSS) networks in parts of the frequency range 10.7-30 GHz;

*b)* that WRC‑2000 revised Article **22** to ensure the limits contained therein provide adequate protection to GSO systems without placing undue constraints on any of the systems and services sharing these frequency bands;

*c)* that WRC‑2000 decided that a combination of single-entry validation, single-entry operational and, for certain antenna sizes, single-entry additional operational epfd limits, contained in Article **22**, along with the aggregate limits in Tables 1A to 1D as contained in Annex 1 to this Resolution, which apply to non‑GSO FSS systems, protects GSO networks in these frequency bands;

*d)* that these single-entry validation limits have been derived from aggregate epfd masks contained in Tables 1A to 1D in Annex 1, assuming a maximum effective number of non-GSO FSS systems of 3.5;

*e)* that the effective number of non-GSO FSS systems is not the same as the actual number of systems, since each operational system may cause an epfd curve which is well below, at least in certain portions of the cumulative distribution curve, the curve of the epfd limits;

*f)* that the aggregate interference caused by all co-frequency non‑GSO FSS systems in these frequency bands into GSO FSS systems should not exceed the aggregate epfd levels in Tables 1A to 1D in Annex 1;

*g)* that administrations operating or planning to operate non-GSO FSS systems will need to agree cooperatively through consultation meetings on sharing the aggregate epfd to ensure that the operations of those non-GSO systems do not exceed the aggregate level of protection for GSO FSS systems in Tables 1A to 1D in Annex 1;

*h)* that administrations planning to operate non-GSO FSS systems may also participate in such meetings;

*i)* that WRC‑97 decided, and WRC‑2000 confirmed, that non‑GSO FSS systems in the frequency bands in question are to mutually coordinate the use of frequencies in these frequency bands under the provisions of No. **9.12**;

*j)* that the orbital characteristics of such systems are likely to be inhomogeneous;

*k)* that, as a result of this likely inhomogeneity, the aggregate epfd levels from multiple non‑GSO FSS systems will not be directly related to the actual number of systems sharing a frequency band;

*l)* that the possible misapplication of single-entry limits should be avoided;

*m)* that Resolution 219 (Bucharest, 2022) of the Plenipotentiary Conference, on sustainability of the radio-frequency spectrum and associated satellite-orbit resources used by space services, noted the urgent need to resolve the issue of developing regulatory bases to support the operation of non-GSO systems on account of their massively expanding launch and operation;

*n)* that there are currently operational or planned non-GSO systems for which multiple notices have been submitted to the Radiocommunication Bureau (BR) either from a single notifying administration or from different notifying administrations,

recognizing

*a)* that non-GSO FSS systems may need to implement interference mitigation techniques to mutually share frequencies;

*b)* that coordination of non-GSO FSS systems may reduce the aggregate level of interference caused by such systems by precluding simultaneous co-frequency transmissions from multiple systems in the same service area;

*c)* that, notwithstanding *considering d)*, *e)* and *f)* and *recognizing b)*, there may be instances where the aggregate interference from non‑GSO systems could exceed the interference levels given in Tables 1A to 1D in Annex 1;

*d)* that administrations operating or planning to operate GSO systems may wish to ensure that the aggregate epfd produced by all operating co-frequency non‑GSO FSS systems in the frequency bands referred to in *considering a)* above into GSO FSS and/or GSO BSS networks does not exceed the aggregate interference levels given in Tables 1A to 1D in Annex 1,

noting

Recommendation ITU‑R S.1588 “Methodologies for calculating aggregate downlink equivalent power flux-density produced by multiple non-geostationary fixed-satellite service systems into a geostationary fixed-satellite service network”,

resolves

1 that administrations operating or planning to operate non‑GSO FSS systems within the next 12 months, for which coordination or notification information, as appropriate, was received after 21 November 1997, in the frequency bands referred to in *considering a)* above, individually or in collaboration, shall take all possible steps, including, if necessary, by means of appropriate modifications to their systems, to ensure that the aggregate interference into GSO FSS and GSO BSS networks caused by such systems operating co-frequency in these frequency bands does not cause the aggregate power levels given in Tables 1A to 1D in Annex 1 to be exceeded (see No. **22.5K**);

2 that, in the event that the aggregate interference levels in Tables 1A to 1D are exceeded, administrations operating or planning to operate as per *resolves*1 non‑GSO FSS systems in these frequency bands and for which the relevant information as per Annex 3 has been provided shall take all necessary measures expeditiously to reduce the aggregate epfd levels to those given in Tables 1A to 1D in Annex 1, or to higher levels where those levels are acceptable to the affected GSO administration (see No. **22.5K**);

2*bis* that, in order to fulfil the requirements in *resolves*1 and 2, administrations operating or planning to operate non-GSO FSS systems shall regularly (at least once a year) hold consultation meetings to determine the level of aggregate interference caused to GSO FSS systems from all the non-GSO FSS systems and determine the necessary measures to ensure compliance with the required level for protecting the GSO FSS systems;

3 that administrations, in carrying out their obligations under *resolves*1 and 2 above, shall take into account all the non-GSO FSS systems operating or planned to operate as per *resolves*1 in the frequency bands covered in Tables 1A to 1D in Annex 1 that have met all the criteria listed in Annex 3 to this resolution, in accordance with the relevant information as well as any other relevant technical and operational parameters required for the epfd calculation provided to the consultation meetings referred to in *considering g)*;

4 that the aggregate epfd calculations performed within the framework of the consultation meetings shall provide two assessment outputs, one taking into account operational non-GSO systems and another taking into account operational and planned non-GSO systems as per *resolves*1 included in the criteria defined in Annex 3;

5 that the aggregate epfd calculations performed within the framework of the consultation meetings held in accordance with *resolves* 4 for an operating or planned non-GSO system filed with BR shall be based on all the notices submitted to the Bureau for that non-GSO system, irrespective of whether the notice was submitted by a single notifying administration or by different notifying administrations on the basis of *resolves*6;

6 that, for the purposes of fulfilling *resolves*4 and 5, notifying administrations shall inform BR which notices relate to an operational or planned non-GSO system that is subject to this resolution;

7 that the aggregate epfd calculations referred to in *resolves*4 to 6, taking into account operational and planned non-GSO systems as per *resolves*1 meeting the conditions defined in Annex 3, are for information only;

8 that administrations, in carrying out their obligations under *resolves*1 and 2 above, shall ensure that the aggregate interference allowance into GSO FSS and BSS networks is shared equitably among non-GSO systems operating co-frequency in the frequency bands covered in Tables 1A to 1D;

9 that the consultation meetings to calculate epfd shall be held on a regular basis, once a year, once the methodology referred to in *invites the ITU Radiocommunication Sector*1 is approved and made available to the membership;

10 that the participating administrations shall designate one administration annually to:

i) communicate to the Bureau the results of any aggregate sharing determinations made in application of *resolves*2 above;

ii) provide a record of each consultation meeting,

invites the ITU Radiocommunication Sector

1 to continue its studies on the subject and develop, as a matter of urgency and taking into account existing and relevant ITU‑R Recommendations, a Recommendation on a suitable methodology for calculating the aggregate epfd produced by all non‑GSO FSS systems operating or planning to operate as per *resolves*1 co-frequency in the frequency bands referred to in *considering a)* above into GSO FSS and GSO BSS networks, which may be used to determine whether the systems are in compliance with the aggregate power levels given in Tables 1A to 1D in Annex 1;

2 to develop, as a matter of urgency, a Recommendation containing procedures to be used by administrations in cases referred to *resolves*2,

instructs the Radiocommunication Bureau

1 to participate in the consultation meetings referred to under *resolves*6 and to observe carefully the results of the epfd calculations referred to in *resolves*5;

2 to publish in the International Frequency Information Circular (BR IFIC) the information referred to in *resolves*6 and *instructs the Radiocommunication Bureau*1.

ANNEX 1 TO RESOLUTION 76 (REV.WRC-23)

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ANNEX 2 TO RESOLUTION 76 (REV.WRC‑23)

Results of the aggregate epfd calculation

− Summary record of the meeting;

– Detailed description of the methodology used to calculate the aggregate interference;

− All input materials submitted to the meeting;

− Studies conducted prior to or at the meeting as well as any other materials deemed necessary for demonstrating compliance with Tables 1A to 1D.

ANNEX 3 TO RESOLUTION 76 (Rev.WRC‑23)

Criteria for identifying non-GSO systems and GSO networks to be taken
into account to evaluate the aggregate epfd levels,
in compliance with *resolves*1 and 2

# A Satellite system information

1) Name/Identification of the satellite system;

2) Name of the notifying administration;

3) Country symbol;

4) Reference to the request for coordination, or the notification information, if available, presented for all notices submitted to BR for the satellite system, irrespective of the notifying administration;

5) Total number of space stations deployed into each notified orbital plane of the satellite system with the capability of transmitting or receiving under the frequency assignments;

6) Number of the orbital plane into which each space station is deployed indicated in the latest notification information published in Part I‑S of the BR IFIC for the frequency assignments.

# B Launch information to be provided for each deployed space station

1) Name of the launch vehicle provider;

2) Name of the launch vehicle;

3) Name and location of the launch facility;

4) Launch date.

# C Space station characteristics for each space station deployed

1) Submission of appropriate coordination and/or notification information for non-GSO FSS systems.

2) Entry into satellite manufacturing or procurement agreement, and entry into satellite launch agreement.

3) Initial launch date to occur within a period of 12 months.

The non-geostationary FSS system operator should possess:

i) evidence of a binding agreement for the manufacture or procurement of its satellites; and

ii) evidence of a binding agreement to launch its satellites.

The manufacturing or procurement agreement should identify the contract milestones leading to the completion of manufacture or procurement of satellites required for the service provision, and the launch agreement should identify the launch date, launch site and launch service provider. The notifying administration is responsible for authenticating the evidence of an agreement.

The information required under this criterion may be submitted in the form of a written commitment by the responsible administration.

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