|  |  |
| --- | --- |
| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
|  |  |
|  |  |
| PLENARY MEETING | **Addendum 1 to Document 12(Add.19)-E** |
|  | **3 October 2019** |
|  | **Original: Russian** |
|  | |
| Regional Commonwealth in the field of Communications Common Proposals | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 7(A) | |

7 to consider possible changes, and other options, 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 rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

7(A) Issue A - Bringing into use of frequency assignments to all non-GSO systems, and consideration of a milestone-based approach for the deployment of non-GSO systems in specific frequency bands and services

Introduction

The primary aim of WRC-19 agenda item 7, Issue A, is to improve the procedures for recording frequency assignments to non-geostationary satellite networks in different services in order to ensure equitable access for ITU Member States to the orbit/spectrum resource.

Through ITU-R studies, one method to satisfy Issue A was developed that comprises two separate elements.

The first element addresses the **bringing into use** of frequency assignments to non-GSO systems.

The second element relates to the **milestone-based deployment** of non-GSO systems in the most congested/sought-after frequency bands and services. New provisions are proposed which should: a) enable administrations to achieve full deployment of non-GSO systems once the frequency assignments have been brought into use; b) enable the alignment of recorded frequency assignments to non-GSO systems with the actual deployment/use of the non-GSO systems following confirmation of bringing into use.

*Bringing into use of non-GSO systems*

As things currently stand, a frequency assignment to a space station of a non-GSO satellite system (apart from non-GSO systems in the FSS and MSS) is considered as having been brought into use if the notifying administration has informed the Bureau that at least one space station with the confirmed capability of transmitting or receiving has been deployed on one of the notified orbital planes of the non-GSO satellite system, irrespective of the notified number of orbital planes and satellites per orbital plane in the system.

At the same time, according to the Rule of Procedure on RR No. **11.44**, a frequency assignment to a space station of a non-GSO satellite system in the FSS or MSS is considered as having been brought into use if the notifying administration has informed the Bureau that at least one space station with the confirmed capability of transmitting or receiving that frequency assignment has been deployed for a continuous period of 90 days on one of the notified orbital planes of the non-geostationary satellite system, irrespective of the notified number of orbital planes and satellites per orbital plane in the system.

The RCC Administrations consider that:

– frequency assignments of a non-GSO system should be considered as having been brought into use if the notifying administration has informed the Bureau that at least one space station with the confirmed capability of transmitting or receiving has been deployed on any of the notified orbital planes of the non-GSO system;

– for the bringing into use of the frequency assignments of a non-GSO system, the establishment of a fixed continuous period of deployment of the satellite in orbit is not required;

– determination of the tolerable deviation between the notified characteristics of the orbital planes and the characteristics of the planes in which the space stations are deployed requires further study by ITU-R for the purposes of bringing into use.

*Milestone-based deployment of non-GSO systems*

Inasmuch as the full deployment of satellite constellations of non-GSO systems in accordance with the notified characteristics of the frequency assignments generally takes over seven years, ITU-R concluded that for specific services in specific frequency bands there is a need for a milestone-based approach. This approach will apply only to frequency assignments that have been brought into use in accordance with RR No. **11.44** and any other associated provisions. In order to implement a milestone-based approach for the deployment of non-GSO systems in specific frequency bands and services, a new WRC Resolution should be adopted.

The RCC Administrations support the adoption of a new WRC-19 Resolution for a procedure for the milestone-based deployment of new multiple-satellite non-GSO systems in the fixed-satellite service, broadcasting-satellite service and mobile-satellite service in specific frequency bands (Ku-, Ka- and Q/V-bands).

The RCC Administrations consider that:

– the new WRC-19 Resolution should identify requirements for the implementation of each deployment milestone (time period and percentage of satellites deployed for each milestone) and restrictive measures to be applied to systems having failed to meet the milestone;

– upon completion of the milestone-based procedure for the bringing into use of new multi-satellite systems, the percentage of deployed satellites should be not less than 75%, and the duration of the milestone-based procedure should be not less than seven years.

Bringing into use (BIU)

ARTICLE 11

Notification and recording of frequency   
assignments1, 2, 3, 4, 5, 6, 7, 8    (WRC‑15)

Section II − Examination of notices and recording of frequency assignments   
in the Master Register

MOD RCC/12A19A1/1#50014

11.44 The notified date24, MOD 25, MOD 26of bringing into use of any frequency assignment to a space station of a satellite network or system shall be not later than seven years following the date of receipt by the Bureau of the relevant complete information under No. **9.1** or **9.2** in the case of satellite networks or systems not subject to Section II of Article **9** or under No. **9.1A** in the case of satellite networks or systems subject to Section II of Article **9**. Any frequency assignment not brought into use within the required period shall be cancelled by the Bureau after having informed the administration at least three months before the expiry of this period.     (WRC‑19)

NOC RCC/12A19A1/2#50015

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24 11.44.1

MOD RCC/12A19A1/3#50016

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25 11.44.2The notified date of bringing into use of a frequency assignment to a satellite network or system shall be the date of the commencement of the deployment and maintenance in orbit of the space station using that frequency assignment, as defined in No. **11.44B** or [MOD] No. **11.44C**, as applicable.    (WRC‑19)

MOD RCC/12A19A1/4#50031

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

26 11.44.3, 11.44B.1 and 11.44C.2Upon receipt of this information and whenever it appears from reliable information available that a notified frequency assignment has not been brought into use in accordance with No. **11.44** and/or No. **11.44B** or [MOD] No. **11.44C**, as the case may be, the consultation procedures and subsequent applicable course of action prescribed in No. **13.6** shall apply, as appropriate.     (WRC‑19)

MOD RCC/12A19A1/5#50032

11.44C A frequency assignment to a non-geostationary satellite network or system shall be considered as having been brought into use when a space station in the non-geostationary-satellite orbit with the capability of transmitting or receiving that frequency assignment has been deployed on one of the notified orbital planesADD AA of the non‑geostationary-satellite system. The notifying administration shall so inform the Bureau not later than 30 days after the notified date of bringing into useMOD 26, ADD BB, ADD CC. On receipt of the information sent under this provision, the Bureau shall make that information available on the ITU website as soon as possible and shall publish it in the BR IFIC subsequently.     (WRC‑19)

ADD RCC/12A19A1/6#50033

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

AA 11.44C.1In application of Nos. [MOD] **11.44C** or **11.49**, the administration shall provide the following data items in Table A in Annex 2 of Appendix **4**:

– Item A.4.b.4.a, the inclination of the orbital plane of the space station;

– Item A.4.b.4.d, the altitude of the apogee of the space station;

– Item A.4.b.4.e, the altitude of the perigee of the space station, and

– Item A.4.b.5.c, the argument of the perigee of the orbit of the space station (only for orbits whose altitudes of the apogee and perigee are different).     (WRC‑19)

ADD RCC/12A19A1/7#50021

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

BB 11.44C.2 In examining information provided by an administration in accordance with No. **11.44C.1**, the Bureau shall determine whether the data submitted correspond to at least one of the notified orbital planes of the non-geostationary satellite network or system under examination.     (WRC‑19)

ADD RCC/12A19A1/8#50036

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CC 11.44C.3 A frequency assignment to a space station in a non-geostationary-satellite orbit with a notified date of bringing into use more than 30 days prior to the date of receipt of the notification information shall also be considered as having been brought into use if the notifying administration confirms, when submitting the notification information for this assignment, that a space station in a notified orbital plane (see also No. [ADD] **11.44C.1**) with the capability of transmitting or receiving that frequency assignment has been deployed and maintained as provided for in No. [MOD] **11.44C**.     (WRC‑19)

MOD RCC/12A19A1/9#50037

11.49 Wherever the use of a recorded frequency assignment to a space station of a satellite network or to all space stations of a non-geostationary satellite system is suspended for a period exceeding six months, the notifying administration shall inform the Bureau of the date on which such use was suspended. When the recorded assignment is brought back into use, the notifying administration shall, subject to the provisions of Nos. **11.49.1** or **11.49.2**, as applicable, so inform the Bureau, as soon as possible. On receipt of the information sent under this provision, the Bureau shall make that information available as soon as possible on the ITU website and shall publish it in the BR IFIC. The date on which the recorded assignment is brought back into use28, ADD AA, ADD BB shall be not later than three years from the date on which the use of the frequency assignment was suspended, provided that the notifying administration informs the Bureau of the suspension within six months from the date on which the use was suspended. If the notifying administration informs the Bureau of the suspension more than six months after the date on which the use of the frequency assignment was suspended, this three-year time period shall be reduced. In this case, the amount by which the three-year period shall be reduced shall be equal to the amount of time that has elapsed between the end of the six-month period and the date that the Bureau is informed of the suspension. If the notifying administration informs the Bureau of the suspension more than 21 months after the date on which the use of the frequency assignment was suspended, the frequency assignment shall be cancelled.     (WRC‑19)

ARTICLE 11

Notification and recording of frequency   
assignments1, 2, 3, 4, 5, 6, 7, 8    (WRC‑15)

ADD RCC/12A19A1/10#50059

Section III – Maintenance of the recording of frequency assignments to non-GSO satellite systems in the Master Register     (WRC‑19)

ADD RCC/12A19A1/11#50060

11.51 For frequency assignments to some non-GSO satellite systems in specific frequency bands and services, Resolution **[RCC/A7(A)-NGSO-MILESTONES] (WRC‑19)** shall apply.     (WRC‑19)

ARTICLE 13

Instructions to the Bureau

Section II − Maintenance of the Master Register and of World Plans by the Bureau

MOD RCC/12A19A1/12#50061

13.6*b)* whenever it appears from reliable information available that a recorded assignment has not been brought into use, or is no longer in use, or continues to be in use but not in accordance with the notified required characteristicsADD 1 as specified in Appendix **4**, the Bureau shall consult the notifying administration and request clarification as to whether the assignment was brought into use in accordance with the notified characteristics or continues to be in use in accordance with the notified characteristics. Such a request shall include the reason for the query. In the event of a response and subject to the agreement of the notifying administration the Bureau shall cancel, suitably modify, or retain the basic characteristics of the entry. If the notifying administration does not respond within three months, the Bureau shall issue a reminder. In the event the notifying administration does not respond within one month of the first reminder, the Bureau shall issue a second reminder. In the event the notifying administration does not respond within one month of the second reminder, action taken by the Bureau to cancel the entry shall be subject to a decision of the Board. In the event of non-response or disagreement by the notifying administration, the entry will continue to be taken into account by the Bureau when conducting its examinations until the decision to cancel or modify the entry is made by the Board. In the event of a response, the Bureau shall inform the notifying administration of the conclusion reached by the Bureau within three months of the administration’s response. When the Bureau is not in a position to comply with the three-month deadline referred to above, the Bureau shall so inform the notifying administration together with the reasons therefor. In case of disagreement between the notifying administration and the Bureau, the matter shall be carefully investigated by the Board, including taking into account submissions of additional supporting materials from administrations through the Bureau within the deadlines as established by the Board. The application of this provision shall not preclude the application of other provisions of the Radio Regulations.    (WRC‑19)

ADD RCC/12A19A1/13#50062

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 13.6.1 See also No. ADD **11.51**, frequency assignments to non-geostationary-satellite systems recorded in the Master Register.     (WRC‑19)

ADD RCC/12A19A1/14#50063

DRAFT NEW RESOLUTION [RCC/A7(A) NGSO Milestones] (WRC-19)

A milestone-based approach for deployment of non-geostationary-orbit satellite systems in certain frequency bands and services

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

considering

*a)* that filings for frequency assignments to non-geostationary satellites systems composed of hundreds to thousands of non-GSO satellites have been received by ITU since 2011 in particular in frequency bands allocated to the fixed-satellite service (FSS) or the mobile-satellite service (MSS);

*b)* that design considerations, availability of launch vehicles to support multiple satellite launches, and other factors mean that notifying administrations may require longer than the regulatory period stipulated in No. **11.44** to complete implementation of non-GSO systems referred to in *considering* *a)*;

*c)* that any discrepancies between the deployed number of orbital planes/satellites per orbital plane of a non-GSO system and the Master Register have, to date, not significantly impinged upon the efficient use of the orbital/spectrum resource in any frequency band used by non-GSO systems;

*d)* that the bringing into use and the recording in the Master International Frequency Register (MIFR) of frequency assignments to space stations in non-GSO systems by the end of the period referred to in No. **11.44** do not require the confirmation by the notifying administration of the deployment of all the satellites associated with these frequency assignments;

*e)* that ITU-R studies have shown that the adoption of a milestone-based approach will provide a regulatory mechanism to help ensure that the MIFR reasonably reflects the actual deployment of such non-GSO satellite systems in certain frequency bands and services, and improve the efficient use of the orbital/spectrum resource in those frequency bands and services;

*f)* that in defining the timeline and objective criteria for the milestone-based approach, there is a need to seek a balance between the prevention of spectrum warehousing, the proper functioning of coordination mechanisms, and the operational requirements related to the deployment of a non-geostationary satellite system;

*g)* that extensions to milestones are undesirable, as they create uncertainty with respect to the non-GSO FSS system with which other systems must coordinate,

recognizing

*a)* No. [MOD] **11.44C** addresses the bringing into use of frequency assignments to non-GSO satellite systems;

*b)* that any new regulatory mechanism for management of frequency assignments to non-GSO systems in the Master Register should not impose an unnecessary burden;

*c)* that since No. **13.6** is applicable to non-GSO systems with frequency assignments that were confirmed to have been brought into use prior to the Effective Date in the frequency bands and services to which this Resolution applies, transitional measures are required to provide affected notifying administrations the opportunity to either confirm deployment of satellites in accordance with the notified required characteristics as specified in Appendix **4**, or to complete deployment in accordance with this Resolution;

*d)* that for frequency assignments to non-GSO system brought into use and having reach the end of the period referred to in No. **11.44** prior to the Effective Date in the frequency bands and services to which this Resolution applies, affected notifying administrations should be given the opportunity to either confirm the completion of the deployment of satellites in accordance with the Appendix **4** characteristicsof their recorded frequency assignments, or be given sufficient time to complete deployment in accordance with this Resolution;

*e)* that it is not necessary or appropriate for the Bureau, in the interest of improving the efficient use of the orbital/spectrum resource or otherwise, to routinely use the procedures of No. **13.6** to seek confirmation of the deployment of the number of satellites in notified orbital planes for non-geostationary-satellite orbit systems in frequency bands and services not listed in *resolves*1of this Resolution;

*f)* that No. **11.49** addresses the suspension of recorded frequency assignments to a space station of a satellite network or to space stations of a non-geostationary satellite system,

recognizing further

that this Resolution relates to non-GSO systems in certain bands and services to which *resolves*1 applies, and that the conformity of the notified required characteristics of the non-GSO systems specified in Appendix **4**, other than those referred to in Annex 1 to this Resolution, is outside the scope of this Resolution,

noting

that for the purpose of this Resolution:

– the term “frequency assignments” is understood to refer to frequency assignments to a space station of a non-geostationary satellite system;

– the term “notified orbital plane” means an orbital plane of the non-GSO system, as provided to the Bureau in the most recent advance publication, coordination or notification information for the system’s frequency assignments, that possesses the general characteristics of Items A.4.b.4.a through A.4.b.4.f, and Item A.4.b.5.c (only for orbits whose altitudes of the apogee and perigee are different) in Table A of Annex 2 to Appendix **4**;

− the term “total number of satellites” is understood to mean the sum of the various values of Appendix **4** data item A.4.b.4.b associated with the notified orbital planes,

resolves

1 that this Resolution applies to frequency assignments to non-geostationary satellite systems brought into use in accordance with Nos. **11.44** and [MOD] **11.44C**,in the frequency bands and for the services listed in the Table below:

Frequency bands and services for application of the milestone-based approach

| Bands (GHz) | Space radiocommunication services | | |
| --- | --- | --- | --- |
| Region 1 | Region 2 | Region 3 |
| 10.70-11.70 | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) | FIXED-SATELLITE (space-to-Earth) | |
| 11.70-12.50 | FIXED-SATELLITE (space-to-Earth) | | |
| 12.50-12.70 | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) | FIXED-SATELLITE (space-to-Earth) | BROADCASTING-SATELLITE  FIXED-SATELLITE (space-to-Earth) |
| 12.7-12.75 | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) | FIXED-SATELLITE (Earth-to-space) | BROADCASTING-SATELLITE  FIXED-SATELLITE (space-to-Earth) |
| 12.75-13.25 | FIXED-SATELLITE (Earth-to-space) | | |
| 13.75-14.50 | FIXED-SATELLITE (Earth-to-space) | | |
| 17.30-17.70 | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) | BROADCASTING-SATELLITE | FIXED-SATELLITE (Earth-to-space) |
| 17.70-17.80 | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) | FIXED-SATELLITE (space-to-Earth) | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) |
| 17.80-18.10 | FIXED-SATELLITE (space-to-Earth)  FIXED-SATELLITE (Earth-to-space) | | |
| 18.10-19.30 | FIXED-SATELLITE (space-to-Earth) | | |
| 19.30-19.60 | FIXED-SATELLITE (space-to-Earth) (Earth-to-space) | | |
| 19.60-19.70 | FIXED-SATELLITE (space-to-Earth) (Earth-to-space) | | |
| 19.70-20.10 | FIXED-SATELLITE (space-to-Earth) | FIXED-SATELLITE (space-to-Earth)  MOBILE-SATELLITE (space-to-Earth) | FIXED-SATELLITE (space-to-Earth) |
| 20.10-20.20 | FIXED-SATELLITE (space-to-Earth)  MOBILE-SATELLITE (space-to-Earth) | | |
| 27.00-27.50 |  | FIXED-SATELLITE (Earth-to-space)  INTER-SATELLITE | |
| 27.50-29.50 | FIXED-SATELLITE (Earth-to-space) | | |
| 29.50-29.90 | FIXED-SATELLITE (Earth-to-space) | FIXED-SATELLITE (Earth-to-space)  MOBILE-SATELLITE (Earth-to-space) | FIXED-SATELLITE (Earth-to-space) |
| 29.90-30.00 | FIXED-SATELLITE (Earth-to-space)  MOBILE-SATELLITE (Earth-to-space) | | |
| 37.50-38.00 | FIXED-SATELLITE (space-to-Earth) | | |
| 38.00-39.50 | FIXED-SATELLITE (space-to-Earth) | | |
| 39.50-40.50 | FIXED-SATELLITE (space-to-Earth)  MOBILE-SATELLITE (space-to-Earth) | | |
| 40.50-41.25 | FIXED-SATELLITE (space-to-Earth)  BROADCASTING-SATELLITE | | |
| 47.20-50.20 | FIXED-SATELLITE (Earth-to-space) | | |
| 50.40-51.40 | FIXED-SATELLITE (Earth-to-space) | | |

2 that for the frequency assignments to which *resolves* 1 applies, the notifying administration shall communicate to the Bureau the required deployment information in accordance with Annex 1 to this Resolution no later than 30 days after completion:

*a)* milestone 1: of a two-year period;

*b)* milestone 2: of a four-year period;

*c)* milestone 3: of a seven-year period,

as from the date of the end of the seven-year regulatory period specified in MOD No. **11.44**, or 30 days after the date of entry into force of this Resolution, whichever comes later;

3 that the minimum number of satellites deployed at each of the milestones indicated in *resolves* 2, depending on the status of the non-geostationary satellite system, shall correspond to:

*a)* milestone 1: not less than 10% of the total number of satellites recorded in the Master Register for the non-geostationary satellite system (rounded down to the lower integer);

*b)* milestone 2: not less than 30% of the total number of satellites recorded in the Master Register for the non-geostationary satellite system (rounded down to the lower integer);

*c)* milestone 3: not less than 75% of the total number of satellites recorded in the Master Register for the non-geostationary satellite system (rounded down to the lower integer);

4 that each time it receives the required deployment information submitted in accordance with *resolves* 2, the Bureau shall:

*a)* promptly make this information available “as received” on the ITU website;

*b)* conduct an examination of the information provided for compliance with the minimum number of satellites to be deployed at each milestone, as specified in *resolves* 3*a)*, 3*b)* or 3*c)*, as appropriate;

*c)* in cases of non-compliance identified as a result of the examination under *resolves* 4*b)*, modify the Master Register by reducing the total number of satellites of the non-geostationary satellite system, in which case, depending on the milestone in question, the modified total number of satellites shall not be greater than:

i) the number of space stations declared as deployed under *resolves*2*a)*, multiplied by 10; or

ii) the number of space stations declared as deployed under *resolves* 2*b)*, multiplied by 3.33; or

iii) the number of space stations declared as deployed under *resolves* 2*c)*, multiplied by 1.34;

*d)* publish this information and its findings in the BR IFIC and maintain the original date of entry of the frequency assignment in the Master Register;

5 that, if a notifying administration fails to communicate the information required under *resolves* 2, the Bureau shall promptly send to the notifying administration a reminder asking the administration to provide the required information within thirty (30) days from the date of reminder from the Bureau;

6 that, if a notifying administration fails to provide information after the reminder sent under *resolves* 5, the Bureau shall send to the notifying administration a second reminder asking it to provide the required information within fifteen (15) days from the date of the second reminder;

7 that, if a notifying administration fails to provide the required information under *resolves*5 and 6, the Bureau shall treat the case as it would treat a non-response case under No. **13.6**, and continue to take the entry into account when conducting its examinations until the decision is made by the Board to cancel the entry or modify the entry by suppressing the notified orbital parameters of all satellites not listed in the last complete deployment information submitted under *resolves* 2, as appropriate,

instructs the Radiocommunication Bureau

1 to take the necessary actions to implement this Resolution and report to subsequent WRCs on the results of the implementation of this Resolution.

Annex 1 to draft new  
Resolution [RCC/A7(A) NGSO MILESTONES] (WRC-19)

Information to be submitted about the deployed space stations

A Identity of the satellite system

*a)* Name of the satellite system;

*b)* Name of the notifying administration;

*c)* Country symbol;

*d)* Reference to the notification for recording.

B Spacecraft manufacturer

In cases where a contract for satellite procurement covers more than one satellite, the relevant information shall be submitted for each satellite:

*a)* Name of the spacecraft manufacturer;

*b)* Number of satellites procured.

C Information on deployment of the space stations

Information shall be provided for each space station or group of space stations (in the case of a group launch in a satellite system):

*a)* Total number of space stations deployed in the satellite system;

*b)* Total number of space stations deployed in each orbital plane of the satellite system;

*c)* Launch date of each space station (group of space stations), starting from the first launch;

*d)* Name of the launch vehicle used for launching the first space station (group of space stations), starting from the first launch;

*e)* Name and location of the launch facility from which the launch of each space station (group of space stations) was carried out, starting from the first launch.

D Space station characteristics

For each space station (group of space stations) belonging to a satellite system:

*a)* Orbital characteristics of the space station;

*b)* Characteristics of the frequency assignments that the space station (or group of space stations) can transmit or receive, specifically:

– name of the beams of the space station on which the frequency assignment is used;

– identification number of the group of frequency assignments on which the frequency assignment is used.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_