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| **World Radiocommunication Conference (WRC-19)Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Document 53-E** |
|  | **10 October 2019** |
|  | **Original: English** |
|  |
| Indonesia (Republic of)/Papua New Guinea/Samoa (Independent State of)/Singapore (Republic of) |
| 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, an 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

# 1 Introduction

WRC-12 and WRC-15 adopted into the RR a series of specific provisions, including RR No. **11.44B**, that clarified the requirements for the bringing into use (BIU) and the bringing back into use (BBIU) of frequency assignments to a space station in a GSO satellite network. However, there were no provisions in the RR that specifically address the BIU of frequency assignments to space stations in non-GSO systems. In this context and in order to complete the recording of frequency assignments to non-GSO systems, it has been the practice of the Bureau to declare their BIU successfully completed when one satellite is deployed into a notified orbital plane and capable of transmitting and/or receiving those frequency assignments. This practice, reflected for FSS and MSS non-GSO systems in section 2 of the Rules of Procedure for RR No. **11.44**, has been used for a number of years. Furthermore, it has been used irrespective of the number of satellites or of the number of orbital planes indicated in the notification information provided under RR No. **11.2**.

However, in its report to WRC-15 on the experience in the application of regulatory procedures and other related matters, the Director of the Radiocommunication Bureau stated that:

 “Taking into account of the numerous non-GSO systems received so far by the Bureau, and the possible speculative nature of such submissions that could lead to spectrum warehousing and resurgence of so-called “paper satellite networks” the conference may wish to consider redefining the notion of bringing into use for non-GSO satellite networks.”

WRC-15 invited the ITU-R to examine, under the standing WRC agenda item 7, the possible development of regulatory provisions beyond those under RR Nos. **11.25** and **11.44** on the non-GSO FSS/MSS systems and the implications of the application of such milestones to non-GSO FSS/MSS systems brought into use after WRC-15.

# 2 Methods to satisfy Agenda item 7(A)

The ITU-R studied both the bringing into use of frequency assignments to non-geostationary satellite (non-GSO) systems, and the possibility of adopting a milestone-based approach for the deployment of non-GSO systems composed of multiple, multi-satellite constellations, in particular frequency bands. The ITU-R studies have led to two general conclusions, one related to the concept of the bringing into use and the other related to the milestone-based approach for the deployment of non-GSO systems, each with multiple options for implementation.

## 2.1 Bringing into use

 INS/PNG/SMO/SNG/53/1

Indonesia, Papua New Guinea, Samoa and Singapore propose that the definition of the BIU of frequency assignments to non-GSO systems subject to section II of Article **9** shall be based on the current practice as contained in section 2 of the Rules of Procedure for RR No. **11.44** (Ed. of 2017)which means the deployment of one satellite into a notified orbital plane capable of transmitting and/or receiving the notified frequency assignments for a continuous period of 90 days for frequency assignments of the FSS/MSS/BSS, and no fixed period for frequency assignments other than the FSS/MSS/BSS. For non-GSO systems that do not ultimately operate in an orbital plane around the Earth, a frequency assignment to a space station in a non-GSO system with a reference body that is not “Earth” shall be considered as having been brought into use when the notifying administration informs the Bureau that a space station with the capability of transmitting or receiving that frequency assignment has been deployed and operated in accordance with the notification information.

**Reasons:** Maintaining the 90-day requirement would avoid creating a new regime for non-GSO systems, different than that for GSO networks, while preventing undesirable practices, such as altitude hopping[[1]](#footnote-1).

## 2.2 Milestone-based approach

 INS/PNG/SMO/SNG/53/2

Indonesia, Papua New Guinea, Samoa and Singapore propose a three-step milestone-based approach for the deployment of non-GSO systems in specific services and frequency bands (FSS, MSS and BSS subject to Section II of Article **9**) with a maximum time limit, after the end of the 7 year period in RR No. **11.44**, of no more than 7 additional years to be fully deployed in accordance with the notified characteristics of the frequency assignments. The milestone-based approach shall only apply to frequency assignments of a given non-GSO system in specific frequency bands and services, that have been brought into use in accordance with RR No. **11.44** (and any other associated provisions adopted by WRC‑19).

**Reasons:** The proposed timeline and objectives of the milestone-based approach is suited to achieve a balance between the need to prevent warehousing of the orbital/spectrum resources and the operational requirements related to the deployment of a non-GSO system.

 INS/PNG/SMO/SNG/53/3

Indonesia, Papua New Guinea, Samoa and Singapore propose that under each of the milestones of the milestone-based process, the number of satellites deployed into one or more notified orbital planes, with the confirmed capability of transmitting or receiving the frequency assignments, shall be compared with the minimum number of satellites required as per the milestone. If the number of satellites deployed is equal to or greater than the number of satellites required, the characteristics of recorded assignments, in particular the total number of satellites recorded in the MIFR as comprising the non-GSO system, shall be kept unchanged. Otherwise, failing to meet a milestone shall result in an adjustments to the MIFR entry based on a deployment factor (see details below).

 INS/PNG/SMO/SNG/53/4

Indonesia, Papua New Guinea, Samoa and Singapore propose the commencement date of the milestone-based process, including transitional measures, to be 1 January 2021 at the latest.

**Reasons:** To avoid a too delayed commencement of the new milestone regime that would cater for spectrum warehousing and would not solve the issue of overfilling that originated this Agenda Item in 2015. It would also prolong the uncertainty for non-GSO systems at any stages of development with respect to their coordination procedures.

 INS/PNG/SMO/SNG/53/5

Indonesia, Papua New Guinea, Samoa and Singapore propose the following approach for the milestone-based regime

|  |  |  |  |
| --- | --- | --- | --- |
| Milestones | Milestone timing(Number of years after the end of the seven-year regulatory period or after 1st January 2021, whichever falls later) | Minimum required % of satellites deployed to meet the milestone | Deployment Factor |
| 1st | 2 years | 10% | 10 |
| 2nd | 4 years | 30% | 3.33 |
| 3rd | 7 years | 100% | 1 |

**Reasons:** To provide a fair balance between the need to prevent spectrum warehousing and operational requirements related to the deployment of non-GSO systems; and, to ensure the first milestone to be in advance of WRC-23 to have the necessary hindsight, perspective and time for this conference to possibly adjust the overall approach, if cases of potential difficulty were reported to RRB before the conference.

 INS/PNG/SMO/SNG/53/6

Indonesia, Papua New Guinea, Samoa and Singapore propose the addition in the Resolution **[INS/PNG/SMO/SNG/A7(A)-NGSO-MILESTONES] (WRC-19)** of a post-milestone process to allow operational flexibility between 90% and 100% of the total number of satellites indicated in the latest notification information published after the third milestone. The notifying administration would have to inform the ITU as soon as the number of deployed satellites of its constellation falls below 90%, and it would have then three years from this date to increase the number of satellites above 90%.

**Reasons:** As the number of deployed satellites of a system will always fluctuate during the lifetime of a non-GSO system due to the replacement cycle of each satellite, a regulatory mechanism has been added in the Resolution **[INS/PNG/SMO/SNG/A7(A)-NGSO-MILESTONES] (WRC-19)** to allow a certain operational flexibility beyond the 3rd milestone during the life time of the constellation.

 INS/PNG/SMO/SNG/53/7

Indonesia, Papua New Guinea, Samoa and Singapore propose that the same satellite shall not be used for the deployment information in accordance with the milestones-based process for overlapping frequency assignments of another non-GSO satellite system unless the overlapping frequency assignments of the satellite that has been initially identified for the former non-GSO satellite system are suspended.

**Reasons:** To avoid a potential misuse of information on the deployment of satellites and prevent cases where the milestones of overlapping frequency assignments of more than one non-GSO satellite system to be complied with the same satellite.

 INS/PNG/SMO/SNG/53/8

Indonesia, Papua New Guinea, Samoa and Singapore propose an example of regulatory implementation of the above proposals in the Annex to this contribution for consideration by WRC‑19.

Annex to document

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 INS/PNG/SMO/SNG/53/9#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)

**Reasons:** Consequence to MOD 25 and MOD 26.

NOC INS/PNG/SMO/SNG/53/10

24 11.44.1

**Reasons:** Already applicable to GSO and non-GSO systems.

MOD INS/PNG/SMO/SNG/53/11#50016

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

**Reasons:** Consequence to [MOD] No. **11.44C** and addition of non-GSO systems.

MOD INS/PNG/SMO/SNG/53/12#50045

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26 11.44.3, 11.44B.1 and 11.44C.4Upon 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**; No. **11.44B**, [MOD] No. **11.44C** or [MOD] No. **11.44C*bis***, 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)

**Reasons:** Consequence to [MOD] No. **11.44C** or [MOD] No. **11.44C*bis*** and addition of non-GSO systems.

MOD INS/PNG/SMO/SNG/53/13#50018

11.44C A frequency assignment to a space station in a non-geostationary-satellite orbit subject to section II of Article **9** operating in the Fixed-Satellite Service, Mobile-Satellite Service and Broadcasting-Satellite Service, with the “Earth” as the reference body 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 and maintained on one of the notified orbital planesADD AA of the non‑geostationary satellite system for a continuous period of 90 daysADD BB. The notifying administration shall so inform the Bureau within 30 days from the end of the 90-day periodMOD 26, 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)

**Reasons:** Bringing into use and continuous period for confirming BIU of non-GSO systems assignments subject to section II of Article **9** in the FSS, MSS and BSS.

ADD INS/PNG/SMO/SNG/53/14#50019

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AA 11.44C.1In examining information provided by an administration in application of Nos. [MOD] **11.44C**, the following data items in Table A in Annex 2 of Appendix **4** shall be used, as appropriate, to determine if at least one of the orbital planes of the space stations in the non-geostationary-satellite system deployed corresponds to one of the notified orbits:

– 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)

**Reasons:** List of the relevant Appendix **4** parameters to determine the validity of the BIU under No. **11.44C** of one satellite on one of the notified satellite orbital plane.

ADD INS/PNG/SMO/SNG/53/15#50021

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BB 11.44C.2 A frequency assignment to a space station in a non-geostationary-satellite system with a reference body that is not “Earth” shall be considered as having been brought into use when the notifying administration informs the Bureau that a space station with the capability of transmitting or receiving that frequency assignment has been deployed and operated in accordance with the notification information.     (WRC‑19)

**Reasons:** Bringing into use for non-GSO systems with a reference body that is not “Earth”.

ADD INS/PNG/SMO/SNG/53/16#50036

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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**, for a continuous period of time from the notified date of bringing into use until the date of receipt of the notification information for this frequency assignment.     (WRC‑19)

**Reasons:** Consequence to MOD No. **11.44C**.

ADD INS/PNG/SMO/SNG/53/17#50047

11.44C*bis*A frequency assignment to a space station in a non-geostationary orbit, with the “Earth” as the reference body, operating in a service other than the fixed-satellite service, mobile-satellite service and broadcasting-satellite service, or operating in the fixed-satellite service, mobile-satellite service and broadcasting-satellite service not subject to section II of Article **9** 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 planes of the non-geostationary satellite systemADD AA, ADD BB. The notifying administration shall so inform the Bureau as soon as possible but not later than 30 days after the end of the period referred to in No. **11.44**. 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)

**Reasons:** Bringing into use for non-GSO systems in services other than FSS, MSS and BSS or not subject to section II of Article **9**.

MOD INS/PNG/SMO/SNG/53/18#50052

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**, 11.49.2or **11.49.3**, 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 DD, ADD EE, ADD FF, ADD GG 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)

**Reasons:** Clarification of the treatment of non-GSO satellite systems.

NOC INS/PNG/SMO/SNG/53/19

28 11.49.1

**Reasons:** No change to the treatment of GSO networks.

ADD INS/PNG/SMO/SNG/53/20#50054

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DD11.49.2The date of bringing back into use of a frequency assignment to a space station in the non-geostationary satellite orbit, with the “Earth” as the reference body shall be the date of the commencement of the 90‑day period defined below. A frequency assignment to a space station in the non-geostationary-satellite orbit subject to section II of Article **9** operating in the fixed-satellite service, mobile-satellite service and broadcasting-satellite service shall be considered as having been brought back 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 and maintained on one of the notified orbital planes for a continuous period of 90 days. The notifying administration shall so inform the Bureau within 30 days from the end of the  90‑day period.     (WRC‑19)

**Reasons:** Consequence of MOD No. **11.44C**.

ADD INS/PNG/SMO/SNG/53/21#50055

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EE 11.49.3 A frequency assignment to a space station in a non-geostationary satellite system with a reference body that is not “Earth” shall be considered as having been brought back into use when the notifying administration informs the Bureau that a space station with the capability of transmitting or receiving that frequency assignment has been deployed and operated in accordance with the notification information.     (WRC‑19)

**Reasons:** Bringing back into use for non-GSO systems with a reference body that is not “Earth”.

ADD INS/PNG/SMO/SNG/53/22#50026

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FF 11.49.4In examining information provided by an administration in application of No. [ADD] **11.49.2**, the following data items in Table A in Annex II of Appendix **4** shall be used, as appropriate, to determine if at least one of the orbital planes of the space stations in the non-geostationary-satellite system deployed corresponds to one of the notified orbits:

– 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)

**Reasons:** Similar to No. **11.44C.1**

ADD INS/PNG/SMO/SNG/53/23#50057

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GG 11.49.5A frequency assignment to a space station in a non-geostationary orbit, with the “Earth” as the reference body, operating in a service other than the fixed-satellite service, mobile-satellite service and broadcasting-satellite service, or operating in the fixed-satellite service, mobile-satellite service and broadcasting-satellite service not subject to section II of Article **9** shall be considered as having been brought back 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 planes of the non-geostationary satellite systemADD AA, ADD BB. The notifying administration shall so inform the Bureau as soon as possible but not later than 30 days from the date of resumption of operation. (WRC‑19)

ADD INS/PNG/SMO/SNG/53/24

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

**Reasons:** Link to the new NGSO-Milestones Resolution.

ARTICLE 13

Instructions to the Bureau

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

MOD INS/PNG/SMO/SNG/53/25#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)

**Reasons:** Consequence to the adoption of the new NGSO-Milestones Resolution.

ADD INS/PNG/SMO/SNG/53/26

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

ADD INS/PNG/SMO/SNG/53/27#50063

DRAFT NEW RESOLUTION [INS/PNG/SMO/SNG/A7(A)-NGSO-Milestones] (WRC-19)

A milestone-based approach for the implementation of frequency assignments
to space stations in a non-geostationary-orbit satellite system
in certain frequency bands and services

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

considering

*a)* that filings for frequency assignments to non-geostationary-orbit satellite systems (non-GSO 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 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-GSO 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** applies to both GSO networks and non-GSO systems and addresses the bringing into use of frequency assignments to such networks and 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 1 January 2021 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 1 January 2021 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 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-GSO system,

recognizing further

that this Resolution relates to those aspects of non-GSO systems to which *resolves*1 applies with regard to the notified required characteristics as specified in Appendix **4**. The conformity of the notified required characteristics of the non-GSO systems other than those referred to in *recognizing d)* above 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-GSO 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, A.4.b.4.d, A.4.b.4.e, 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 in the most recent notification information submitted to the Bureau,

resolves

1 that this Resolution applies to frequency assignments to non-GSO 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) | Option 1:FIXED-SATELLITE (space-to-Earth)Option 2:BROADCASTING-SATELLITEFIXED-SATELLITE (space-to-Earth) |
| 12.7-12.75 | FIXED-SATELLITE (space-to-Earth)FIXED-SATELLITE (Earth-to-space) | FIXED-SATELLITE (Earth-to-space) | Option 1:FIXED-SATELLITE (space-to-Earth)Option 2: BROADCASTING-SATELLITEFIXED-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) | None | 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) |
| 27.50-29.50 | Option 1: FIXED-SATELLITE (Earth-to-space) (except non-GSO MSS feeder links) Option 2: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)* |
| *40.50-42.50* | *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)* |

*Editor’s Note: addition of the frequency bands 37.50-38.00, 38.00-39.50, 39.50-40.50, 40.50-42.50, 47.20-50.20, 50.40-51.40 GHz in FSS, MSS and BSS, as appropriate in the above table subject to WRC-19 decision for the application of the provisions of No.* ***9.12/****No.* ***9.11A*** *under AI 1.6 to FSS, MSS and BSS in these bands and services).*

2 that for the frequency assignments to which *resolves* 1 applies, and for which the end of the seven-year regulatory period is 1 January 2021 or later, 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 1 January 2021 or the end of the regulatory period specified in No. [MOD] **11.44**,whichever comes later;

3 that for frequency assignments to which *resolves* 1 applies, and for which the end of the seven-year regulatory period specified in No. [MOD] **11.44** has expired prior to 1 January 2021, 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 1 January 2021;

4 that upon receipt of the required deployment information submitted in accordance with *resolves* 2or3 above, the Bureau shall:

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

b) add a remark to the Master Register entry if available or to latest notification information, as appropriate, stating that the assignments are subject to the application of this Resolution if the number of satellites communicated to the Bureau under *resolves*2 or3aboveis less than 100% of the total number of satellites indicated in the latest notification information published in the BR IFIC (Part I‑S) for the frequency assignments; and

c) publish the results of action taken pursuant to *resolves* 4*b)* above in the BR IFIC and the ITU website;

5 that, if the number of satellites communicated to the Bureau under *resolves* 2 or 3 above is 100% of the total number of satellites indicated in the latest notification information published in the BR IFIC (Part I‑S) for the frequency assignments, *resolves* 6 to 15 of this Resolution are not applicable;

6 that, for the frequency assignments to which *resolves* 2 applies, the notifying administration shall communicate to the Bureau the required deployment information in accordance with Annex 1 to this Resolution for the milestone period mentioned in subsections *a)* through *c)* of this *resolves* 6:

a) no later than 30 days after the expiry of the two-year period after the end of the seven-year period referred to in No. **11.44**;

b) no later than 30 days after the expiry of the four-year period after the end of the seven-year period referred to in No. **11.44**;

c) no later than 30 days after the expiry of the seven-year period after the end of the seven-year period referred to in No. **11.44**;

7 that, for the frequency assignments to which *resolves* 3 applies, the notifying administration shall communicate to the Bureau the required deployment information in accordance with Annex 1 to this Resolution for the milestone period mentioned in subsections *a)* through *c)* of this *resolves* 7:

a) no later than 31 January 2023 (corresponding to 30 days after the expiry of the two-year period after 1 January 2021);

b) no later than 31 January 2025 (corresponding to 30 days after the expiry of the four-year period after 1 January 2021);

c) no later than 31 January 2028 (corresponding to 30 days after the expiry of the seven-year period after 1 January 2021);

8 that, upon receipt of the required deployment information submitted in accordance with *resolves* 6 or 7, 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 as prescribed for each period in *resolves* 9*a)*, 9*b)* or 9*c)* as appropriate;

c) modify the Master Register entry if available or latest notification information, as appropriate, for the frequency assignments to the system to remove the remark added according to *resolves* 4b) if the number communicated to the Bureau under *resolves* 6, or *resolves* 7, is 100% of the total number of satellites indicated in the Master Register entry for the non-GSO system;

d) publish this information and its findings in the BR IFIC and make that information available on the ITU website as soon as possible;

9that, the notifying administration shall also submit to the Bureau, no later than 90 days after the expiry of the milestone period referred to in *resolves* 6*a),* 6*b),*6*c)* or *resolves* 7*a),* 7*b),*7*c),* as appropriate, the modifications to the characteristics of the notified or recorded frequency assignments if the number of space stations declared as deployed:

a) under *resolves* 6*a)* or7*a)*, as appropriate,is less than 10% of the total number of satellites (rounded down to the lower integer) indicated in the latest notification information published in the BR IFIC (Part I‑S) for the frequency assignments. In this case, the modified total number of satellites shall not be greater than 10 times the number of space stations declared as deployed under *resolves* 6*a)* or7*a)*;

b) under *resolves* 6*b)* or7*b)*, as appropriate, is less than 30% of the total number of satellites (rounded down to the lower integer) indicated in the latest notification information published in Part I‑S of the BR IFIC for the frequency assignments. In this case, the modified total number of satellites shall not be greater than 3.33 times the number of space stations declared as deployed under *resolves* 6*b)* or7*b)*;

c) under *resolves* 6*c)* or7*c)*, as appropriate,is less than 100% of the total number of satellites indicated in the latest notification information published in Part I‑S of the BR IFIC for the frequency assignments. In this case, the modified total number of satellites shall be the actual number of satellites that have been launched;

10 that the Bureau shall, no later than forty-five (45) days before any deadline for submission by a notifying administration under *resolves*2, *resolves*3, subsections *a)*, *b)* or *c)* of *resolves*6 and subsections *a)*, *b)* or *c)* of *resolves* 7, send a reminder to the notifying administration to provide the information required;

11 that, upon receipt of the modifications to the characteristics of the notified or recorded frequency assignments as referred to in *resolves* 9:

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

b)the Bureau shall conduct an examination for compliance with the maximum number of satellites as per *resolves* 9*a)*, 9*b)* or 9*c)* and Nos. **11.43A**/**11.43B**, as appropriate;

i) should the Bureau reach a favourable finding under No.**11.31**; and

ii) should the modifications be limited to the reduction of the number of orbital planes (Appendix **4** data item A.4.b.1) and the modifications to the RAAN (Appendix **4** data item A.4.b.4.g) the longitude of the ascending node (Appendix **4** data item A.4.b.6.g) and the date and time of epoch (Appendix **4** data items A.4.b.6.h and A.4.b.6.i) associated with the remaining orbital planes or the reduction of the number of space stations per plane (Appendix **4** data item A.4.b.4.b) and the modifications of the initial phase of the space stations (Appendix **4** data item A.4.b.4.h) within planes; and

iii) should the notifying administration provide a commitment stating that the characteristics as modified will not cause more interference or require more protection than the characteristics provided in the latest modification information published in PART I‑S of the BR IFIC for the frequency assignments (see Appendix **4** data item ADD [A.20]);

*Editor’s Note: ADD [A.20] relates to the required addition of compliance item in AP4*

c) the Bureau, for the purpose of No. **11.43B**, shall not treat these modifications as new notifications of frequency assignments and shall retain the original dates of entry of the frequency assignments in the Master Register;

d) the Bureau shall ensure the remark stating that the assignments are subject to the application of this Resolutionas defined in *resolves* 6 or 7 is retained until the milestone process of this Resolution is complete;

e) the Bureau shall publish the information provided and its findings in the BR IFIC;

12 that, if a notifying administration fails to communicate the information required under *resolves* 2 or *resolves*3, *resolves* 6*a),* 6*b)* or 6*c),* *resolves* 7*a)*, 7*b)* or 7*c),resolves* 9, *or resolves 17* as appropriate, 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;

13 that, if a notifying administration fails to provide information after the reminder sent under *resolves* 12, 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;

14 that, if a notifying administration fails to provide the required information under *resolves*12 and 13, 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* 6 or 7, as appropriate;

15 that the same spacecraft shall not be used for the deployment information to be provided under *resolves* 6 and 7 for overlapping frequency assignments of another non-GSO satellite system unless the overlapping frequency assignments of the spacecraft that has been initially identified for the former satellite system are suspended under No. **11.49**;

16 that the suspension of the use of frequency assignments under No. **11.49** at any point prior to the end of the applicable milestone periods specified in *resolves* 6*a)*, 6*b)* or 6*c)* or *resolves* 7*a)*, 7*b)* or 7*c)* of this Resolution shall not alter or reduce the requirements associated with any of the remaining milestones as derived from *resolves* 6*a)*, 6*b)* or 6*c)* or *resolves* 7*a)*, 7*b)* or 7*c)* of this Resolution, as applicable;

17 that the notifying administration shall inform the Bureau of the date on which the total number of satellites of the non-GSO system is lower than 90% of the total number of satellites (rounded down to the lower integer) recorded in the Master Register after application of the third milestone, within 90 days from the occurrence of the event. The notifying administration shall inform no later than three years from that date the date by which the total number of satellites will reach 90 % of the total number of satellites (rounded down to the lower integer) recorded in the Master Register after application of the third milestone. In the event of a response by the notifying administration at the end of the three-year period confirming a total number of satellites lower than 90% of the total number of satellites (rounded down to the lower integer) recorded in the Master Register after application of the third milestone, the Bureau shall suitably modify the entry in accordance with *resolves* 14,

instructs the Radiocommunication Bureau

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 [INS/PNG/SMO/SNG/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 advance publication information or to the request for coordination, as applicable

*e)* Reference to the notification.

# B Spacecraft manufacturer

In cases of multiple contracts for satellite procurement with one or more satellites per contract, the relevant information shall be submitted for each contract:

*a)* Name of the spacecraft manufacturer

*b)* Number of satellites procured.

# C Launch services provider

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

*a)* Name of the launch vehicle provider

*b)* Name of the launch vehicle

*c)* Name and location of the launch facility

*d)* Launch date.

# D Space station characteristics

For each spacecraft:

*a)* Name of the spacecraft

*b)* Orbital characteristics of the spacecraft (see **11.44C.1**)

*c)* Frequency assignments that the space station can transmit or receive

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

1. Altitude hopping refers to the practice of bringing into use the assignments of several filings with different orbit altitudes during the period of orbit raising between the launch/insertion altitude and the intended operational altitude of the satellite. [↑](#footnote-ref-1)