

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 7(I)

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(I) Issue I - Modified regulatory procedure for non-GSO satellite systems with short-duration missions

BACKGROUND:

In recent years, an increasing number of academic institutions, amateur satellite organizations and government agencies have been developing non-GSO satellite systems with short duration missions using nano and picosatellites. The use of these types of satellites has presented various regulatory challenges, including difficulties for the notifying administrations to provide accurate RR Appendix 4 orbital characteristics at the beginning of the development cycle and, in some instances, not even prior to the launch of the satellites.

At WRC-15 a proposal for a new agenda item for WRC-19 “to consider modifications to the regulatory procedures for notifying satellite networks to accommodate nanosatellite and picosatellite missions” was submitted. WRC-15 decided not to include this as an item on the WRC-19 agenda, and concluded that this matter could best be dealt with by the ITU-R under the standing WRC agenda item 7.

As a result, the ITU-R developed a method (I2) to address this issue that consists of modifications to the existing regulatory procedures for advanced publication and notification of satellite networks and systems that are not subject to Section II of RR Article 9 to facilitate the recording of non-GSO satellite systems with short-duration missions in the MIFR.

This proposal assumes that the requirement of short duration missions could be accommodated within frequency bands not subject to coordination. However, it is understood that some of these frequency bands are already very crowded (e.g. space science missions in the frequency bands 2200-2290 MHz and 2025 – 2110 MHz). As a result, the frequency bands suitable for short

duration missions should be carefully considered and every efforts should be made to avoid bands that are heavily used.

MOD IAP/6363A19A9/1

ARTICLE 9

Procedure for effecting coordination with or obtaining agreement of other administrations^{1, 2, 3,}
MOD 4, 5, 6, 7, 8, 9 (WRC-159)

Reasons:

Section I – Advance publication of information on satellite networks or satellite systems

General

MOD IAP/6363A19A9/2

9.1 Before initiating any action under Article **11** in respect of frequency assignments for a satellite network or a satellite system not subject to the coordination procedure described in Section II of Article **9** below, an administration, or one¹⁰ acting on behalf of a group of named administrations, shall send to the Bureau a general description of the network or system for advance publication in the International Frequency Information Circular (BR IFIC) not earlier than seven years and preferably not later than two years before the planned date of bringing into use of the network or system (see also No. **11.44**). The characteristics to be provided for this purpose are listed in Appendix **4**. The notification information may also be communicated to the Bureau at the same time, but shall be considered as having been received by the Bureau not earlier than ~~six~~four months after the date of publication of the advance publication information. (WRC-1519)

Reasons: to reduce period between the date of publication of the advance publication information (API) and the earliest possible date of receipt for notification information.

MOD IAP/6363A19A9/3

9.2B On receipt of the complete information sent under Nos. **9.1** and **9.2**, the Bureau shall publish¹¹ it in a Special Section of its BR IFIC within ~~three~~two months. When the Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor. (WRC-200019)

Reasons:

MOD IAP/6363A19A9/4

⁴ **A.9.4** Resolution **49 (Rev.WRC-15)**, ~~or~~ Resolution **552 (Rev.WRC-15)**, ~~or~~ draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19) as appropriate, shall also be applied with respect to those satellite networks and satellite systems that are subject to it. (WRC-1519)

Reasons: to add a reference to draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19).

Sub-Section IA – Advance publication of information on satellite networks or satellite systems that are not subject to coordination procedure under Section II

MOD IAP/6363A19A9/5

9.3 If, upon receipt of the BR IFIC containing information published under No. **9.2B**, any administration believes that interference which may be unacceptable may be caused to its existing or planned satellite networks or systems, it shall within four months of the date of

publication of the BR IFIC communicate to the publishing administration its comments ADD XX on the particulars of the anticipated interference to its existing or planned systems. A copy of these comments shall also be sent to the Bureau. Thereafter, both administrations shall endeavour to cooperate in joint efforts to resolve any difficulties, with the assistance of the Bureau, if so requested by either of the parties, and shall exchange any additional relevant information that may be available. If no such comments are received from an administration within the aforementioned period, it may be assumed that the administration concerned has no objections to the planned satellite network(s) of the system on which details have been published. (WRC-19)

Reasons: to add a reference to a new footnote to No. **9.3**

ADD IAP/6363A19A9/6

^{xx} **9.3.1** Upon receipt of the International Frequency Information Circular (BR IFIC) containing information published under No. **9.2B** for frequency assignments to non-GSO satellite systems subject to draft new Resolution **[IAP/A7(I)-NGSO SHORT DURATION] (WRC-19)**, any administration which believes that unacceptable interference may be caused to its existing or planned satellite networks or systems shall, as soon as possible and within a period of four months, communicate with the notifying administration, with copy to the Bureau, these comments on the particulars of the potential interference to its existing or planned systems. The Bureau shall promptly make these comments available “as received”, on the ITU website. (WRC-19)

Reasons: to urge administrations to provide their comments as soon as possible but no later than four months after the publication of the API.

MOD IAP/6363A19A9/7

ARTICLE 11

Notification and recording of frequency assignments^{1, MOD 2, 3, 4, 5, 6, 7, 8} (WRC-1519)

Reasons: to add a reference to draft new Resolution **[IAP/A7(I)-NGSO SHORT DURATION] (WRC-19)**.

MOD IAP/6363A19A9/8

² **A.11.2** Resolution **49 (Rev.WRC-15)**, ~~or~~ Resolution **552 (Rev.WRC-15)**, or draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19) as appropriate, shall also be applied with respect to those satellite networks and satellite systems that are subject to it. (WRC-1519)

Reasons: to indicate that when applying the provisions of Article **11**, draft new Resolution **[IAP/A7(I)-NGSO SHORT DURATION] (WRC-19)** shall also be applied, as appropriate.

APPENDIX 4 (REV.WRC-15)

Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III

ANNEX 2

Characteristics of satellite networks, earth stations or radio astronomy stations² (Rev.WRC-12)

² The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Space Services). (WRC-12)

Footnotes to Tables A, B, C and D

MOD IAP/6363A19A9/9

TABLE A
GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK,
EARTH STATION OR RADIO ASTRONOMY STATION (Rev.WRC-15)

Items in Appendix	A - GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION	Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network subject to	Advance publication of a non-geostationary-satellite network not subject to	Notification or coordination of a geostationary-satellite network (including space operation functions under	Notification or coordination of a non-geostationary-	Notification or coordination of an earth station (including notification under	Notice for a satellite network in the broadcasting-satellite service under	Notice for a satellite network (feeder-link) under	Notice for a satellite network in the fixed-satellite service under	Items in Appendix	Radio astronomy
A.2	DATE OF BRINGING INTO USE										A.2	
A.2.a	<p>the date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use</p> <p>For a frequency assignment to a GSO space station, including frequency assignments in Appendices 30, 30A and 30B, the date of bringing into use is as defined in Nos. 11.44B and 11.44.2</p> <p><u>For a frequency assignment to a non-GSO satellite network or system with a short-duration mission, the date of bringing into use is as defined in draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19)</u></p> <p>Whenever the assignment is changed in any of its basic characteristics (except in the case of a change under A.1.a, the date to be given shall be that of the latest change (actual or foreseen, as appropriate)</p> <p>Required only for notification</p>				+	+	+	+	+	+	A.2.a	
A.2.b	<p><u>for a space station, the period of validity of the frequency assignments (see Resolution 4 (Rev.WRC-03) and draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19), as appropriate)</u></p>			<u>X</u>	<u>X</u>	<u>X</u>					A.2.b	
A.20	<u>COMPLIANCE WITH NOTIFICATION OF NGSO SHORT DURATION MISSION</u>										A.20	
A.20.A	<p><u>a commitment by administration that in case unacceptable interference caused by a non-GSO satellite network or system identified as short-duration mission in accordance with draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] is not resolved, the administration shall undertake steps to eliminate the interference or reduce it to an acceptable level</u></p> <p><u>Required only for notification</u></p>					I+					A.20A	

Reasons: to add references to draft new Resolution [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19) to specify what is meant by date of BIU for non-GSO systems with a short-duration mission, and reflect the limitation to three years for the period of validity of the frequency assignments and a commitment from the notifying administration to undertake to eliminate harmful interference or reduce it to an acceptable level.

ADD IAP/6363A19A9/10

DRAFT NEW RESOLUTION [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19)

Modified regulatory procedures for the processing of frequency assignments to non-GSO satellite networks or systems identified as short-duration mission¹ under Articles 9 and 11

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

considering

- a) that some non-GSO satellites with short-duration missions to date have been operating for their entire mission duration without being notified or recorded;
- b) that successful and timely development and operation of non-GSO satellite networks or systems with short-duration missions may require regulatory procedures which take account of the short development cycle, the short lifetimes and the typical missions of such satellites, and therefore the application of certain provisions of Articles 9 and 11 of the Radio Regulations may need to be modified to take account of the nature of these satellites;
- c) that these satellites typically have a short (one to two years) development time and are low cost, often using off-the-shelf components;
- d) that the operational lifetime of these satellites generally ranges from several weeks up to not more than three years;
- e) that non-GSO satellites with short-duration missions are being used for a wide variety of applications, including remote sensing, space weather research, upper atmosphere research, astronomy, communications, technology demonstration and education, and therefore may operate under various space radiocommunication services;
- f) that advances in the field of satellite technology have resulted in non-GSO satellites with short-duration missions becoming a means for developing countries to become involved in space radiocommunication activities,

considering further

- a) that the application of provisions of Articles 9 and 11 to frequency assignments to non-GSO satellite networks or systems identified as short-duration mission as prescribed in this Resolution should not adversely or otherwise affect the regulatory treatment of other systems;
- b) that the application of any modified regulatory procedure should not change the sharing status with respect to networks and systems not applying the modified regulatory procedure, both

¹ For the purpose of this Resolution, the definition of non-GSO satellite systems identified as short-duration missions is contained in *resolves* 4, 5, 6, and 7 of this Resolution.

terrestrial and space, in frequency bands which may be used by non-GSO satellite systems with short-duration missions,

recognizing

- a) that Resolution ITU-R 68 seeks to improve awareness and increase knowledge on existing regulatory procedures for small satellites;
- b) that all the non-GSO satellite networks or systems operating in bands not subject to Section II of Article 9 are, irrespective of the period of validity of their associated frequency assignments, subject to No. 9.3 and its process for resolution of difficulties;
- c) that non-GSO satellite systems with short-duration missions are not be used for safety-of-life services,

noting

- a) Report ITU-R SA.2312 on “Characteristics, definitions and spectrum requirements of nanosatellites and picosatellites, as well as systems composed of such satellites”;
- b) Report ITU-R SA.2348 which contains descriptions of current regulatory practices relating to space network notification of such satellites,

resolves

- 1 that this Resolution shall apply only to non-GSO networks or systems identified by the notifying administration as a short duration mission;
- 2 that non-GSO satellite networks or systems identified as short-duration mission shall operate under any space radiocommunication service ~~in~~ frequency ~~assignments~~~~bands~~ not subject to the application of Section II of Article 9 and shall be subject to the provisions of the Radio Regulations with the exceptions stipulated in the Annex to this Resolution;
- 3 that non-GSO satellite networks or systems identified as short-duration mission operating in frequency bands allocated to satellite services shall operate in accordance with the relevant conditions of the allocated satellite service;
- 4 that non-GSO satellite networks or systems identified as short-duration mission using spectrum allocated to the amateur-satellite service shall operate in accordance with the definition of the amateur-satellite service as contained in Article 25 of the Radio Regulations;
- 5 that the total number of satellites in a non-GSO satellite network or system identified as short-duration mission shall not exceed ten satellites;
- 6 that the maximum period of operation and validity of frequency assignments of a non-GSO satellite network or system identified as short-duration mission shall not exceed three years from the date of bringing into use of the frequency assignments (see the Annex to this Resolution for the definition of date of bringing into use for such network or system), without any possibility of extension, after which the recorded assignments shall be cancelled;
- 7 that for the purpose of this Resolution, a non-GSO satellite network or system identified as short-duration mission shall have a single launch date associated with the first launch (in the case of systems with multiple launches) and that launch date shall be defined as the date on which the first satellite of the non-GSO satellite network or system with a short-duration mission is placed into its notified orbital plane,

instructs the Director of the Radiocommunication Bureau

- 1 to establish, as soon as possible, proper means to identify the non-GSO satellite networks or systems with short-duration missions subject to this Resolution;
- 2 to expedite the online publication of notices for such networks or systems, in addition to the normal publication of notices;
- 3 to provide the necessary assistance to administrations in the implementation of this Resolution,

invites administrations

- 1 to avoid frequency bands heavily used when assigning frequencies to a non-GSO satellite network or system with a short duration mission;
- 2 to exchange information associated with non-GSO satellite networks or systems identified as short-duration missions and to make every possible effort to resolve interference that may be unacceptable to existing or planned satellite networks or systems, including those with short-duration missions;
- 3 to disseminate information on non-GSO satellite networks or systems identified as short-duration missions in accordance with the provisions of Resolution ITU-R 68;
- 4 to provide their comments on the application of No. **9.3**, upon receipt of the International Frequency Information Circular (BR IFIC) containing information published under No. **9.2B**, as soon as possible within a period of four months from the date of publication of the BR IFIC and to communicate with the notifying administration, with copy to the Bureau, these comments on the particulars of the potential interference to its existing or planned systems.

ANNEX TO DRAFT NEW
RESOLUTION [IAP/A7(I)-NGSO SHORT DURATION] (WRC-19)

Application of the provisions of Articles 9 and 11 for non-GSO satellite networks and systems identified as short-duration missions

- 1 The general provisions of the Radio Regulations shall apply to non-GSO satellite networks or systems identified as short-duration mission with the following exceptions/additions/amendments.
- 2 That when submitting advance publication information under No. **9.1**, administrations shall submit the best estimated orbital characteristics (Appendix 4 data item A.4.b.4) known at the early development time of the satellite project.
- 3 In the application of No. **9.1**, the notification information cannot be communicated to the Bureau at the same time, and can only be submitted after the successful launch of a satellite in the case of a network or the first satellite in the case of a system with multiple launches.
- 4 Notifications relating to non-GSO satellite networks or systems identified as short-duration mission shall be communicated to the Bureau only after the successful launch of a satellite in the case of a satellite network or the first satellite in the case of a system requiring multiple launches, and not later than two months after the date of bringing into use. This provision applies instead of No. **11.25** for frequency assignments to non-GSO satellite networks or systems with short-duration mission. Irrespective of the date of receipt of the notified characteristics of the non-GSO satellite network or system with a short-duration mission under this Resolution, the maximum period

of validity of frequency assignments of this system shall not exceed the time limit in *resolves* 6 of this Resolution. At the expiry date of period of validity, as described in *resolves* 6 of this Resolution, the Bureau shall publish a suppression of the related Special Section.

5 In the application of No. **11.28** the Bureau shall make available on its website the complete information received instead of publication in the BR IFIC. Administrations may comment upon this information in accordance with No. **11.28.1**.

6 In addition to the application of No. **11.36** the Bureau shall publish the characteristics of the system together with the findings under No. **11.31** in the BR IFIC and on its website within no more than four months from the date of receipt of complete information under No. **11.28**. When the Bureau is not in a position to comply with the time-limit referred to above, it shall periodically so inform the notifying administration, giving the reasons therefor.

7 In the application of No. **11.44**, the date of bringing into use of a non-GSO satellite network or system identified as short-duration mission shall be considered automatically as the launch date of a satellite in the case of a non-GSO satellite network or the first satellite in the case of a non-GSO satellite system requiring multiple launches (see *resolves* 7 of this Resolution).

8 No. **11.49** shall not apply to frequency assignments to non-GSO satellite networks or systems identified as short-duration mission.

Reasons: to specify exceptions/additions/amendments to the general provisions in Articles **9** and **11**.