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| **The 6th Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-6)** | **APG23-6/INP-xx** |
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Source

**proposal for the preliminary apt common proposals on wrc-23 agenda items 1.15, 1.16, 1.17 and 7**

**Agenda Item 1.15:**

*to harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with Resolution* ***172 (WRC-​19)****.*

**1. Background**

World Radiocommunication Conference 2019 (WRC-19) adopted agenda item 1.15 that calls for studies on the possible operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space), in accordance with Resolution **172 (WRC-19)**.

Resolution **172 (WRC-19)** calls for studies to ensure that AP30B allotments and assignments as well as other allocated services are protected.

The Conference Preparatory Meeting (CPM), at its second session held in Geneva from 27 March to 6 April 2023, had identified two approaches, as mentioned in CPM report, regarding the consideration of using the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally as follows;

* Method A: This method proposes no changes to the RR and suppression of Resolution **172 (WRC-19)** due to the existence of various uncertainties in the implementation of several courses of action referred to in the potential Resolution associated with Method B.
* Method B: This method proposes to add a new footnote No. **5.A115** in RR Article **5** and a reference to a new WRC Resolution providing the conditions for the operation of ESIM and protection of the services to which the frequency bands are allocated, and consequential suppression of Resolution **172 (WRC-19)**.

**2. View(s)**

Thailand is of the view that there is a need of a new WRC Resolution to define the technical, operational and regulatory conditions for the operation of A-ESIM and M-ESIM communicating with GSO space stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space) while ensuring protection of allocated services.

Thailand supports Method B in the CPM Report, together with the views that:

* the implementation of earth stations on aircraft and vessels communicating with geostationary space stations should ensure protection of the existing primary services, including their future developments, in this frequency band and adjacent frequency bands.
* earth stations on aircraft and vessels communicating with geostationary space stations need to have the capability to cease transmission in territories where authorization has not been granted.
* responsibilities of the notifying administration related to the operation of earth stations on aircraft and vessels in the frequency band 12.75-13.25 GHz (Earth-to-space) should be clearly defined.

**Agenda Item 1.16:**

*to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7- 20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non-geostationary fixed-satellite service earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution* ***173 (WRC-19)****.*

**1. Background**

In *resolves* 1.16of Resolution **811 (WRC-19)**, the 2019 World Radiocommunication Conference (WRC-19) resolved “to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7‑20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non‑geostationary fixed-satellite service earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution **173 (WRC-19)**” as part of the agenda for WRC-23.

The last two WRCs have adopted regulatory frameworks for the operations of GSO ESIM in Ka-band. WRC-15 adopted Resolution **156 (WRC-15),** allowing the use of ESIM communicating with GSO FSS networks in the 19.7-20.2 GHz and 29.5-30.0 GHz bands and WRC-19 adopted Resolution **169 (WRC-19),** allowing the use of ESIM communicating with GSO FSS networks in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz. It is necessary to conduct relevant studies on the sharing situations between non-GSO ESIM and the incumbent services in the Ka band. The parameters of non-GSO ESIM and GSO ESIM have some similarities but also differences, which need to be paid attention to and considered in the follow-up studies under WRC‑23 agenda item 1.16.

The Conference Preparatory Meeting (CPM), at its second session held in Geneva from 27 March to 6 April 2023, had identified two approaches, as mentioned in CPM report, regarding the consideration of using the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz, 19.7-20.2 GHz (space-to-Earth), 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by earth stations in motion communicating with non-geostationary (non-GSO) space stations in the fixed-satellite service (FSS) as follows;

* Method A proposes no changes to the RR and suppression of Resolution 173 (WRC-19).
* Method B proposes to add a new footnote No. 5.A116 in RR Article 5 and a reference to a new WRC Resolution providing the conditions for the operation of ESIM and protection of the services to which the frequency bands are allocated, and consequential suppression of Resolution 173 (WRC-19).

**2. View(s)**

Thailand is of the view that there is a need of a new WRC Resolution to define the technical, operational and regulatory conditions for the operation of non-GSO maritime and aeronautical ESIMs in the FSS in the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7‑20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) while ensuring protection of allocated services.

Thailand supports Method B in the CPM Report, together with the views that:

* the implementation of non-GSO FSS earth stations in motion should ensure protection of the existing primary services, including their future developments, in those frequency bands and adjacent frequency bands.
* non-GSO FSS earth stations in motion need to have the capability to cease transmission in territories where authorization has not been granted.
* responsibilities of the notifying administration related to the operation of earth stations on aircraft and vessels in those the frequency bands should be clearly defined.

**Agenda Item 1.17:**

*to determine and carry out, on the basis of the ITU R studies in accordance with Resolution* ***773 (WRC-19)****, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate.*

**1. Background**

Under this agenda item, Resolution **773 (WRC-19)** invites the ITU-R:

* to develop the technical and operational characteristics of different types of space stations that plan satellite-to-satellite transmissions in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz;
* to study the technical and operational characteristics, including spectrum requirements, off-axis e.i.r.p. values and out-of-band emission limits, for transmissions between space stations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz;
* to study sharing and compatibility between satellite-to-satellite links intending to operate between space stations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz and current and planned stations in the FSS and other existing services allocated in the same frequency bands and adjacent frequency bands, including passive services, with a view to ensuring protection of the primary services referred to above;
* to develop, for different types of space stations, the technical conditions and regulatory provisions for satellite-to-satellite operations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or portions thereof, including new ISS allocations, as appropriate, taking into account the results of the studies above.

The Conference Preparatory Meeting (CPM), at its second session held in Geneva from 27 March to 6 April 2023, had been identified two approaches, as mentioned in CPM report, regarding the consideration to develop the technical and operational characteristics of different types of space stations that plan satellite-to-satellite transmissions in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz as follows;

* Method A: No changes to the Radio Regulations and suppression of Resolution 773 (WRC-19).
* Method B proposes a Resolution to address the regulatory mechanisms to operate the satellite-to-satellite links in 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz. including with alternative approaches. This method also supports no change (NOC) for the band 11.7-12.7 GHz.

**2. View(s)**

Thailand is of the view that there is a need of a new WRC Resolution to define the technical, operational and regulatory conditions for the satellite-to-satellite links in the frequency bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or portions thereof, while ensuring protection of allocated services. Such satellite-to-satellite operation should be allowed through the FSS (space-to-space) allocations under the “within the cone of coverage” concept of operation. Therefore, Thailand supports Method B together with *Alternative FSS* and *Alternative GSO within the cone* in the CPM Report.

**Agenda Item 7:**

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

**Background**

* In the implementation of Resolution **86 (Rev. Marrakesh, 2002)**, WRC-23 is invited by Resolution **86 (Rev. WRC-07)** to consider, under the standing agenda item 7, any proposals which deal with deficiencies and improvements in the regulatory/procedural matters for frequency assignments pertaining to space service, ensuring these procedures, and the related Appendices of the Radio Regulations support latest technologies and regulatory practices, as far as possible.
* At the latest Working Party 4A, the eleven agreed Topics under WRC-23 agenda item 7 has been considered and finalized in the draft CPM text as follows:

Topic A: Tolerances for certain orbital characteristics of non-GSO space stations

Topic B: Post milestone reporting

Topic C: Protection of GSO MSS from non-GSO emissions in 7/8 & 20/30 GHz

Topic D: D1 Modifications to Appendix 1 to Annex 4 of RR Appendix **30B**

D2 New Appendix **4** parameters for Recommendation S.1503 update

D3 BR reminders for BIU/BBIU

Topic E: Improved procedures under RR Appendix **30B** for new ITU Member States

Topic F: Excluding uplink service areas in Appendix **30A** (Regions 1& 3) and Appendix **30B**

Topic G: Amendments to Resolution **770 (WRC-19)**

Topic H: Implicit agreement in Appendices **30/30A/30B**

Topic I: Special agreements under RR Appendix **30B**

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

Topic K: Modifications to Resolution **553 (Rev. WRC-15)**

Thailand’s preliminary views on Topics A - K are as follows:

**Topic A - Tolerances for certain orbital characteristics of non-GSO space stations in the FSS, BSS, and MSS**

**Background**

WRC-19 invited the ITU-R to study “as a matter of urgency, tolerances for certain orbital characteristics of non-GSO space stations of the fixed-satellite, mobile-satellite or broadcasting satellite services to account for potential differences between the notified and deployed orbital characteristics for the inclination of the orbital plane, the altitude of the apogee of the space station, the altitude of the perigee of the space station and the argument of the perigee of the orbital plane.”

The objective of these studies would be to determine the allowable differences between the values recorded in the MIFR for the specified orbital characteristics of non‑GSO space stations operating on notified frequency assignments and those representative of the actual deployment of these non-GSO space stations. Studies of tolerances arise from the obligations stipulated in the RR No. **11.44C** and No. **11.49.2** (and its associated sub-footnotes)**,** Resolution **35 (WRC-19)** and RR Appendix **4**.

The concept of orbital tolerances for a space station on board a GSO satellite already exists with, in particular, item A.4.a.2 (Orbital tolerances) and its associated sub items, A.4.a.2.a (the planned longitudinal tolerance easterly limit), A.4.a.2.b (the planned longitudinal tolerance westerly limit) and A.4.a.2.c (the planned inclination excursion). Effective limits on some of these tolerances are contained elsewhere in the Radio Regulations (e.g., the constraint on E/W longitudinal tolerances for GSO satellites operating in unplanned bands in Section III of RR Article **22**). However, there are no equivalent limits for tolerances in RR Appendix **4** for a space station on board a non-GSO satellite. This difference was recognized during discussions at WRC-19 on the BIU of frequency assignments to non-GSO satellite systems and on the milestone-based approach for the implementation of frequency assignments to space stations in a non-geostationary orbit satellite system in specific frequency bands and services.

The Conference Preparatory Meeting (CPM) at its second session held in Geneva from 27 March to 6 April 2023 had identified four different approaches as mentioned in CPM report, in order to specify the tolerance certain orbital characteristics of non-GSO space stations of the fixed-satellite, mobile-satellite or broadcasting satellite services as follows;

**Method A1**

No change to the Radio Regulations.

**Method A2**

A draft new WRC-23 Resolution on the implementation of tolerances for certain orbital characteristics of satellites of non-GSO FSS/BSS or MSS systems to be referred to in RR Nos. **11.44C.1**, **11.49.2** and **11.51**.

Two options are proposed under this method for the Resolution:

* Option A proposes to apply these tolerances, including temporary variation, for satellites of all non-GSO FSS, BSS or MSS systems (either with an eccentricity < 0.5/TBD or more broadly), or to non-GSO FSS, BSS or MSS systems subject to Resolution **35 (WRC-19)** (either with an eccentricity < 0.5/TBD or more broadly);
* In Option B, the orbital elements are updated at the notification stage to reflect the final design. Therefore, Option B proposes to apply two sets of tolerances for satellites of certain non-GSO FSS, BSS or MSS systems with regard to changes between coordination and notification filings, as well tolerances, including temporary variation, between notification filings and deployed characteristics.

**Method A3**

Modify RR Appendix **4** data items related to the planned tolerances for each of the four orbital characteristics for non-GSO systems subject to RR No. **11.44C** and refer to them in the relevant provisions of RR Article **11** and in Resolution **35 (WRC-19)**.

**Method A4**

New footnotes in RR Article **11** pointing to a draft new WRC-23 Resolution, applicable to the Resolution **35 (WRC-19)** frequency bands, calling for periodic reporting on the altitude and inclination of deployed satellites and providing provisions for ensuring that deviations, excluding temporary deviations, do not increase interference or require additional protection.

**View(s)**

* Thailand is of the view that the necessary transitional measures for application of the decision of WRC-23 may need to be developed, is to be reflected in the draft new Resolution.
* Thailand is of the view that there is a need of a new WRC Resolution with specific regulatory measures to allow for variation from the notified orbital plane characteristics, including temporary variation, of non-GSO satellite systems. Therefore, Thailand prefers Method A2 in the CPM Report.

**Topic B - Non-GSO bringing into use post-milestone procedure**

**Background**

WRC-19 agreed on Resolution **35** **(WRC-19)**, “A milestone-based approach for the implementation of frequency assignments to space stations in a non-geostationary-satellite system in specific frequency bands and services.” This Resolution contains a detailed procedure to be followed by administrations and the Radiocommunication Bureau (BR) when recording and maintaining in the Master International Frequency Register (MIFR) frequency assignments for non-geostationary satellite (non-GSO) systems to which the Resolution applies.

One aspect raised but not addressed in a regulatory sense in the Resolution relates to the case where a non-GSO system has completed the milestone process and subsequently experiences an intermediate- or long-term reduction of the number of satellites deployed. To generate data not then available to the BR, WRC-19 included *resolves* 19 in Resolution **35 (WRC-19)**, which requires administrations to inform the BR, for information purposes only, of the date when the number of satellites capable of transmitting or receiving the recorded frequency assignments deployed falls below a specified threshold. Further, if appropriate and applicable, the same *resolves* states that the notifying administration should also inform the BR of the date on which the deployment of the total number of satellites was resumed. The BR is to publish all information received under *resolves* 19 on its website.

WRC-19 invited ITU-R to study, as a matter of urgency, possible development of a post‑milestone procedure taking into account the reporting defined in *resolves* 19 of the Resolution **35 (WRC-19)** and two methods have been proposed to satisfy this Topic:

**Method B1**

No change to the Radio Regulations.

**Method B2**

Changes to Resolution **35 (WRC-19)** to remove resolves 19 and adoption of changes to RR Article 11 and a new resolution to capture the post-milestone procedure for systems subject to Resolution 35 (WRC-19).

Two options are proposed under this method for the Resolution:

* Option B2a: involves a single percentage of the system’s satellites, without regard to the number of satellites in the NGSO system
* Option B2b: proposes a different number X depending on the number of satellites in the NGSO system.

**View(s)**

Thailand prefers Method B2 in the CPM report that involves changes to Resolution **35 (WRC-19)** to remove *resolves* 19and adoption of changes to RR Article **11** and a new resolution to capture the post-milestone procedure for systems subject to Resolution **35 (WRC-19)**.

**Topic C - Protection of geostationary-satellite networks in the mobile-satellite service operating in the 7/8 GHz and 20/30 GHz bands from emissions of non-geostationary-satellite systems operating in the same frequency bands and identical directions**

**Background**

Non-GSO systems operating in the frequency bands 7 250‑7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) currently do not require coordination with GSO MSS networks under RR No. **9.11A** (RR Nos. **9.12A** or **9.13**). However, RR No. **9.21** applies to both non-GSO MSS systems and GSO MSS networks in the bands covered by RR No. **5.461**.

If an administration is of the view that unacceptable interference may be caused by a non-GSO system in the frequency bands 20.2-21.2 GHz and 30-31 GHz or by non-GSO FSS in the bands 7 250‑7 750 MHz and 7 900-8 025 MHz to its existing or planned GSO MSS networks, e.g. by having conducted investigations providing results leading to this view, its comments may be communicated to the notifying administration responsible for the non-GSO system according to RR No. **9.3**. However, sometimes requests for the resolution of difficulties under RR No. **9.3** simply remain unanswered. This could be explained by the absence of clear criteria to be used during technical discussions. Furthermore, considering that resolving difficulties with respect to assignments of non-GSO systems subject to RR No. **9.3** does not have any regulatory implication with respect to the recording of assignments, it appears that the protection of GSO MSS networks is based on a best effort only. It should be noted that this is not the case for assignments to non-GSO MSS systems in the bands covered by RR No. **5.461**. In fact, the unsuccessful application of RR No. **9.21** (i.e. the absence of an agreement) leads to a recording in the Master International Frequency Register (MIFR) with favourable finding but the recorded assignment is subject to not causing harmful interference nor claiming protection from the assignments of the objecting administration, i.e. the administration having stated its disagreement (see also RR No. **11.31.1**).

Under RR No. **22.2**, non-GSO systems shall not cause unacceptable interference to GSO networks in the fixed-satellite service (FSS) and broadcasting-satellite service (BSS). However, GSO MSS networks are not covered under RR No. **22.2**.

Because of this apparent deficiency in the regulatory framework, the protection of GSO MSS networks from non-GSO systems in these bands is not ensured.

Furthermore, it is common to change mandatory RR Appendix **4** parameters of non-GSO satellite systems for filings not subject to coordination under Section II of RR Article **9** for the notification process without the need to provide a comparative analysis between the originally filed parameters and the modified parameters, and irrespective of any previous agreements.

These methods consist of:

**Method C1**

No change to the Radio Regulations

**Method C2**

Under this method, it is proposed to add a newprovision, RR No. **22.2*bis****,* toextend the concept of RR No. **22.2** for the protection of GSO MSS networks in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space).

Furthermore, it is proposed to modify RR No. **5.461** to indicate the specific conditions of application of RR No. **9.21**.

Two alternatives are proposed for the modifications to RR No. **5.461**.

The first alternative specifies the conditions of the application of RR No. **9.21** for GSO MSS networks for which the complete coordination information is received by the Bureau from 16 December 2023 or the date of entry into force of the Final Acts of WRC-23, with respect to non-GSO systems for which complete coordination or notification information, as appropriate, is received by the Bureau from 16 December 2023 or the date of entry into force of Final Acts of WRC‑23, and for non-GSO MSS systems for which complete coordination information is received by the Bureau from 16 December 2023 or the date of entry into force of the Final Acts of WRC‑23, with respect to GSO MSS.

The second alternative only specifies the conditions of the application of RR No. **9.21** for GSO MSS networks for which the complete coordination information is received by the Bureau from 16 December 2023 or the date of entry into force of the Final Acts of WRC-23, with respect to non-GSO systems for which complete coordination or notification information, as appropriate, is received by the Bureau from 16 December 2023 or the date of entry into force of the Final Acts of WRC-23.

Finally, it is also proposed to add new RR Appendix **4** data items for assignments to non-GSO FSS systems in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) subject to Section IA of RR Article **9** to allow notifying administrations for GSO MSS operators to conduct reliable interference assessment into their networks using information directly from the BR International Frequency Information Circular (BR IFIC) publication without having to contact the notifying administration.

**Method C3**

Under this method, it is proposed to extend the concept of RR No. 22.2 to GSO MSS with respect to non-GSO systems in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) in the relevant provisions of RR Article 5. Therefore, it is proposed to modify RR No. 5.461 to indicate the specific conditions of application of RR No. 9.21 and extend the concept of RR No. 22.2 for the protection of GSO MSS networks in the frequency bands 7 250-7 375 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space). Furthermore, it is proposed to add two new footnotes RR No. 5.A7C3 and RR No. 5.B7C3 to extend the concept of RR No. 22.2 for the protection of GSO MSS networks in the frequency bands 7 375-7 750 MHz (space-to-Earth) and for the bands 20.2-21.2 GHz and 30-31 GHz, respectively.

**View(s) and Proposal(s)**

Thailand supports Method C3 in the CPM report to extend the concept of RR No. 22.2 to GSO MSS with respect to non-GSO systems in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) in the relevant provisions of RR Article 5.

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**Topic D – Topics for which consensus was achieved in ITU-R**

**Background**

Topic D is a collection of three different topics that are viewed as being straightforward and for which consensus was achieved within ITU-R when presented. The topics address matters such as resolving inconsistencies in regulatory provisions or formalizing certain existing practices. The topics are separately numbered in the following sections. Given the straightforward nature of the topics, and the fact that consensus was achieved, only a single method has been developed to address each topic. However, for Topic D2 the final RR Appendix **4** elements will need to be aligned with the agreed revision of Recommendation ITU-R S.1503‑3.

### **Topic D1 - Modifications to Appendix 1 to Annex 4 of RR Appendix 30B**

**Background**

In §§ 1.1 and 1.2 of Annex 4 of Appendix**30B** of Radio Regulations (RR) 2016**,** an allotment or an assignment was considered as being affected by a proposed new allotment or assignment if the orbital spacing between its orbital position and the orbital position of the proposed new allotment or assignment was equal to or less than:

a) 10° in the frequency bands 4 500-4 800 MHz (space-to-Earth) and 6 725-7 025 MHz (Earth-to-space);

b) 9° in the frequency bands 10.70-10.95 GHz (space-to-Earth), 11.20-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space).

The World Radio communication Conference 2019 (WRC‑19) adopted modifications to Annex 4 of RR Appendix**30B** replacing the orbital separation from 10° and 9° to 7° and 6°, respectively. However, in § 2 of Appendix 1 to Annex 4 of RR Appendix **30B**, the calculation of the aggregate *C*/*I* ratio at a given downlink test point still considers 10° and 9°.

WRC-23 agenda item 7, Topic D1, considers this discrepancy and a method as outlined in sections 4/7/4.4 and 4/7/4.5 has been developed, which is to modify section 2 of Appendix 1 to Annex 4 of RR Appendix **30B** toalign the values of orbital separation with those in sections 1.1 and 1.2 of the Annex adopted by WRC-19.

**Method to satisfy Topic D1**

The method is to modify Section 2 of Appendix 1 to Annex 4 of RR Appendix **30B** to reflect the values of the minimum orbital separation as adopted by WRC-19 in sections 1.1 and 1.2 of Annex 4 of RR Appendix **30B**.

**View(s) and Proposal(s)**

Thailand supports Method D1 in the CPM report to modify Section 2 of Appendix 1 to Annex 4 of RR Appendix **30B** to reflect the values of the minimal orbital separation as adopted by   
WRC-19 in sections 1.1 and 1.2 of Annex 4 of RR Appendix **30B**.



**Topic D2 – New RR Appendix 4 parameters for Recommendation ITU-R S.1503 updates**

**Background**

WRC-23 agenda item 7 Topic D2 addresses modification of RR Appendix **4** data items to support implementation of agreed revisions to Recommendation ITU-R S.1503-3.

ITU-R has been working on changes to Recommendation ITU-R S.1503-3 titled “Functional description to be used in developing software tools for determining conformity of non-geostationary-satellite orbit fixed-satellite service systems or networks with limits contained in Article **22** of the Radio Regulations”. Some of the agreed changes require additional or modified RR Appendix **4** data items in order to be implemented in practice. Therefore, it was proposed to develop draft CPM text to cover these changes, assuming a revision to Recommendation ITU‑R S.1503-3 is adopted by Study Group 4.

**Method to satisfy Topic D2**

Modification of RR Appendix **4** to support the implementation of agreed revisions to Recommendation ITU-R S.1503-3, including new data elements and modified data items.

**View(s) and Proposal(s)**

Thailand supports Method D2 in the CPM report to modify RR Appendix **4** to support   
the implementation of agreed revisions to Recommendation ITU-R S.1503-3, including new data elements and modified data items.

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**Topic D3 – BR Reminders for BIU and BBIU**

**Background**

WRC-23 agenda item 7 Topic D3 addresses the establishment of reminders for confirming the bringing into use (or bringing back into use) of a satellite network or system under RR Nos. 11.44B, 11.44C, 11.49 (11.49.1 and 11.49.2), RR Appendices 30/30A § 5.2.10 (20bis and 24bis) and RR Appendix 30B § 8.17 (14ter).

To assist administrations in managing their ITU satellite system filings under the Radio Regulations, WRCs, RRB and the Radiocommunication Bureau (BR) have, over time, included in the RR or Rules of Procedures reminders for most of the provisions with strict time-limits for submission of mandatory information. Indeed, an unfortunate oversight in the application of the RR, e.g. missing a deadline for providing information, may jeopardize a satellite system project.

These reminders exist for most key provisions of the RR, under Nos. 9.47 or 9.62 (acknowledgement of receipt of a request for coordination or absence of reply or decisions on a coordination request), or Nos. 11.44 and 11.49 (bringing into use or bringing back into use of frequency assignments) or No. 11.47 (provisionally recorded assignments), but also under No. 13.6, all footnotes referring to the payments under Decision 482, and under many similar other occurrences in the Appendices 30/30A and 30B, and numerous resolutions, as e.g. Resolution 35 (WRC-19).

One critical time-limit however does not yet include a formal BR reminder. This is the confirmation of bringing into use or bringing back into use of frequency assignments under RR Nos. 11.44B, 11.44C, 11.49 (11.49.1 and 11.49.2), RR Appendices 30/30A § 5.2.10 (20bis and 24bis) and RR Appendix 30B § 8.17 (14ter) where the notifying administration shall inform the Bureau within 30 days of the end of the 90-day period after the bringing into use or bringing back into use that a space station in the geostationary-satellite or non-geostationary-orbit having the capability to transmit or receive on that assigned frequency, has been deployed and maintained at the notified orbital position or one of the notified orbital planes, as appropriate, for a continuous period of 90 days.

**Method to satisfy Topic D3**

Addition of footnotes to RR Nos. **11.44B**, **11.44C**, **11.49**, RR Appendices **30/30A** § 5.2.10, and RR Appendix **30B** § 8.17providing a formal reminder of the deadline for informing the Bureau of completion of BIU/BBIU in cases not subject to RR No. **11.47** or RR Appendices **30/30A** § 5.2.7 or RR Appendix **30B** § 8.16, as applicable, and for bringing into use or bringing back into use initiated to be sent by the Bureau to the notifying administration.

**View(s) and Proposal(s)**

Thailand supports Method D3 in the CPM report to add footnotes to RR Nos. **11.44B**, **11.44C**, **11.49**, RR Appendices **30/30A** §5.2.10, and RR Appendix **30B** §8.17providing a formal reminder of the deadline for informing the Bureau of completion of BIU/BBIU in cases not subject to RR No. **11.47** or RR Appendices **30/30A** §5.2.7 or RR Appendix **30B** §8.16, as applicable, and for bringing into use or bringing back into use initiated within 120 days of the end of the regulatory deadline to be sent by the Bureau to the notifying administration.



# Topic E – RR Appendix 30B improved procedures for new Member States

**Background**

The RR Appendix **30B** FSS Plan was created and approved by WARC-88, in which each administration being an ITU Member State at that time was given an allotment in the FSS Plan. In order to account for an administration which has joined the Union as a new Member State at a later stage, Article 7 of RR Appendix **30B** (Rev.WRC‑19) contains a procedure for the addition of a new allotment to the Plan for a new Member State of the Union. This procedure prescribes that submissions received under Article 7 shall be processed ahead of all submissions waiting to be processed under Article 6, e.g. submissions for conversion of allotments into assignments or submissions for additional use. Yet, administrations in applying Article 7 have encountered difficulties to obtain allotments in the Plan without having to conduct bilateral coordination with other administrations.

WRC‑19 adopted Resolution **170 (WRC‑19)** in which administrations that do not have any assignments in the RR Appendix **30B** List, or under coordination, have a one-off chance to file for assignments in the List and have this filing processed ahead of regular filings waiting to be processed. Moreover, in determining coordination requirements for the filings under Resolution **170 (WRC‑19)**, criteria more preferential to the filing administration are used.

WRC‑07 revised Article 7 of RR Appendix **30B** (Rev.WRC‑19), which provides provisions for new ITU Member States to obtain allotments in the Plan. Like those of Resolution **170** **(WRC‑19)**, these procedures prescribe that the filings under Article 7 (Rev.WRC‑07) will be processed ahead of regular filings waiting to be processed. However, unlike Resolution **170** **(WRC‑19)**, Article 7 (Rev.WRC‑07) identifies coordination requirements using the regular criteria as contained in Annex 4 to RR Appendix **30B** (Rev.WRC‑19). This would give rise to a larger number of coordination requirements being identified than if the criteria in Resolution **170** **(WRC‑19)** had been used. This difficulty has been observed after WRC‑19, where new ITU Member States have applied the Article 7 procedure in order to obtain national allotments in the FSS Plan. These administrations could not obtain national allotments directly under the Article 7 procedure even though these requests received preferential treatment by the Bureau (i.e. the request under Article 7 (Rev.WRC‑19) was processed ahead of regular filings waiting to be processed). One of the factors influencing this, is the large number of networks in the List and the large number of additional systems with global coverage and service area that had already been processed by the Bureau as seen from statistics submitted by the BR Director. The average orbital spacing calculated in the arc corresponding to 20 degrees elevation angle and considering Plan allotments, assignments in the List and pending networks (BR IFIC 2936 / 22.12.2020) is between 0.55 and 0.62 degrees.

Over and above this difficulty, despite the procedure in Resolution **170 (WRC‑19)** being available to new ITU Member States also, the relaxed criteria in Resolution **170 (WRC‑19)** have not yet been applied to Article 7 requests.

Under this Topic, improved procedures for new ITU-R Member States to obtain national allotments in the RR Appendix **30B** Plan are sought.

**Method E1**

No change to the Radio Regulations

**Method E2**

Under this method, to grant new ITU Member States the same privileges as those granted by WRC‑19 to administrations having no assignments in the RR Appendix **30B** List or under coordination, some possible amendments to RR Appendix **30B** are suggested as shown below.

**1 Use the same coordination triggers in RR Appendix 30B Article 7 as those of Resolution 170 (WRC‑19)**

Under this option, the coordination triggers used for filings under Article 7 of RR Appendix **30B** would be those found in Appendices 1 and 2 to Attachment 1 of Resolution **170 (WRC‑19)**, i.e. the preferential criteria. This could be done e.g. by copying these into Annex 4 of RR Appendix **30B** and specifying for what filings and in respect of what assignments they would apply. Furthermore, the current Article 7 already prescribes processing of filings ahead of regular filings waiting to be processed so this element of Resolution **170 (WRC‑19)** is already contained in Article 7.

**2 Provide a pointer in RR Appendix 30B Article 7 to Resolution 170 (WRC‑19)**

Under this option, in Article 7, following the support by the Bureau prescribed in §§ 7.3 and 7.4, new ITU Member States could be pointed to Resolution **170** **(WRC‑19)**:

a) either as a one-off option to be decided by the new ITU Member State or;

b) automatic for the first submission under Article 7 of a new ITU Member State or;

c) automatic for all submissions under Article 7 of a new ITU Member State.

**Method E3**

Under this method, it is proposed to develop a special procedure through a new Resolution to better facilitate any new ITU Member State to obtain a national allotment by providing additional guidance to the Bureau and the new ITU Member State and re‑considering some priority between the Article 7 requests and the application of Article 6 for additional systems.

Special consideration shall be given to the request for a new national allotment under Article 7 of RR Appendix **30B** in order to fulfil the objectives of the FSS Plan. As it could be difficult to apply additional guidance for Article 7 requests already received by the Bureau from 12 March 2020, this Resolution proposes generic solutions for future Article 7 requests received after WRC‑23 and specific solutions for Article 7 requests already received which are still at the coordination phase.

For Article 7 requests, it is proposed that:

– When examining a request under Article 7.3:

• The Bureau shall take into account only:

– Allotments in the Plan;

– Existing systems (those listed in Resolution **148 (WRC‑07)**);

– Assignments appearing in the List on or before the date of receipt of the request under Article 7;

– Pending Article 7 transferred to Article 6;

– Pending conversion of allotment into assignments without modification;

– Pending conversion of allotment into assignments with modification but within the envelope of the allotment;

– and submissions received in accordance with Resolution **170 (WRC‑19)**.

• The Bureau shall apply the criteria contained in Resolution **170 (WRC‑19)** to identify potentially affected administrations.

• The Bureau shall not take into account all pending satellite networks except for the above-mentioned cases.

• The Bureau shall verify if the final characteristics of the new allotment or assignment in the List, as appropriate, are in compliance with Annex 1 of RR Appendix **30B** with due regard to the overall aggregate carrier-to-interference value under free-space conditions.

– All satellite networks identified as affected under § 6.5 *b)* of Appendix **30B** and all pending satellite networks except for the above-mentioned case identified as affected under § 6.5 *c)* of Appendix **30B** will be informed by the BR of the specific nature of such a Special Section which is intended to allow a national allotment to a new Member State of the Union with a request to consider this request with the greatest possible goodwill.

– BR shall inform regularly the RRB of the coordination status of these Article 7 requests.

– In case of continuing disagreement without valid argument, the RRB could instruct the BR to consider that a special agreement has been concluded imposing the administration of the additional system to fully protect the new Allotment when it will be BIU and to not consider mutual interference in updating the reference situation.

– In case an assignment in the List or an existing system is identified as potentially affected by a new Allotment, the responsible administration of that assignment is urged to take all necessary measures to accommodate the new Allotment.

– In case an existing Allotment is identified as potentially affected by a new Allotment, if the requesting administration insists, a remark should be inserted indicating that an agreement shall be reached before the new Allotment is brought into use under Article 8 of RR Appendix **30B**. In such case, the reference situation of existing Allotments would not take into account the interference from the new Allotment.

**View(s)**

Thailand supports granting new ITU Member States the same privileges as those granted by WRC-19 to administrations having no assignments in the RR Appendix 30B List or under coordination. Method E2 is supported to address this agenda item.



**Topic F – Excluding uplink service area in RR Appendix 30A for Regions 1 and 3 and RR Appendix 30B**

**Background**

The planned space services are based on the principle of equitable access to the satellite orbit/frequency spectrum in accordance with Article 44 of the ITU Constitution. To this end, relevant provisions of RR Appendix **30/30A** and RR Appendix **30B** specifically aim at ensuring this principle.

In accordance with the Table of Frequency Allocations contained in RR Article **5**, there are many frequency bands that are allocated to space services. Nevertheless, there are only a few frequency bands that are used for the BSS and FSS Plans as contained in RR Appendices **30**, **30A** and **30B**.

Provision 3.4 of Article 3 of RR Appendix **30A** stipulates that: “The Regions 1 and 3 feeder-link Plan is based on national coverage from the geostationary-satellite orbit. The associated procedures contained in this Appendix are intended to promote long-term flexibility of the Plan and to avoid monopolization of the planned bands and orbit by a country or a group of countries”.

Provision 2.6*bis* of RR Appendix **30B** stipulates that: “When submitting additional system(s), administrations shall fully comply with the requirements stipulated in Article 44 of the ITU Constitution. In particular, these administrations shall limit the number of orbital positions and associated spectrum so that:

*a)* the orbital/spectrum natural resources are used rationally, efficiently and economically, and

*b)* the use of multiple orbital locations to cover the same service area is avoided.”

Resolution **2 (Rev.WRC‑03)** resolves that “the registration with the Radiocommunication Bureau of frequency assignments for space radiocommunication services and their use do not provide any permanent priority for any individual country or groups of countries and do not create an obstacle to the establishment of space systems by other countries”.

In spite of the purpose of the planned space services together with their current associated procedures, submissions of global uplink coverage area or submissions in which the coverage area extends well beyond the service area create obstacles for an administration or a group of named administrations to deploy its new national system or their subregional systems, as appropriate for close orbital separations.

**Methods to satisfy Topic F**

Four methods to satisfy agenda item 7, Topic F, have been identified.

**Method F1**

No changes to the Radio Regulations.

**Method F2**

The proposed method is to add:

– a new provision under Article 4 of RR Appendix **30A** to allow an administration to request at any time the exclusion of its territory from the feeder-link service area of a satellite network of other administrations;

– a requirement for the notifying administration to align the coverage area to the associated up-to-date service area when submitting a Part A and/or Part B of an AP**30A**/AP**30B** notice to the Bureau. When it is not possible to do so as it relates to an operational satellite or a satellite soon to be launched, the notifying administration shall request the Bureau to update the coverage area in the List and Master Register when that satellite has been replaced by a new one without the need to restart the Article 4 / Article 6 procedures, as appropriate;

– footnotes to the new provision of RR Appendix **30A** and § 6.16 of Article 6 of RR Appendix **30B** to request a notifying administration of a satellite network having high receiving sensitivity (relative satellite antenna gain of at least −20 dB) over territory of other administrations to accept feeder-link or uplink interference emanating from the territory of other administrations if so requested;

– amend Article 9 of RR Appendix **30B** to remove the right to claim protection from harmful interference from additional systems which have not indicated their agreement to inclusion in the given service area;

– amend Article 10 of RR Appendix **30A** to remove the right to claim protection from harmful interference from additional systems which have not indicated their agreement to inclusion in the given service area.

**Method F3**

The proposed method is to add:

– A new provision under Article 4 of RR Appendix **30A** to allow an administration to request at any time the exclusion of its territory from the feeder-link service area of a satellite network of other administrations.

– A new footnote under Article 4 of RR Appendix **30A** and a revised footnote of Article 6 of RR Appendix **30B** to allow relocation of test points from the excluded territory to a new location within the remaining part of its service area if such relocation does not cause more interference.

– New provisions under Article 4 of RR Appendix **30A** and Article 6 of RR Appendix **30B** to request a notifying administration of a satellite network having relative satellite antenna gain derived from the minimum ellipse required to cover the service area of equal to or less than −20 dB over the territory of other administrations to accept uplink interference emanating from the territory of those other administrations if so requested. The minimum ellipse is determined by the set of test points contained in the RR Appendices **30** and **30A** or RR Appendix **30B** satellite network using the relevant BR software application. For service areas with test points associated with small geographic areas, including service areas associated with just one single test point, it is noted that §§ 3.7.2 and 4.6.2 of Annex 3 to Appendix **30A** and § 1.7.4 of Annex 1 to Appendix **30B** specifies the minimum beamwidth for beams covering such service areas. This is also implemented in the Bureau’s software to generate minimum ellipses to cover service areas.

**Method F4**

This method consists of two elements.

In respect of RR Appendix **30A**:

– a new provision under Article 4 of RR Appendix **30A** to allow an administration to request at any time the exclusion of its territory from the feeder-link service area of a satellite network of other administrations;

– amend Annex 3 of RR Appendix **30A** to include a definition of the feeder link coverage area.

**View(s) and Proposal(s)**

Thailand supports Method F3 in the CPM report to exclude uplink service area in RR Appendix 30A for Regions 1 and 3 and RR Appendix 30B.



**Topic G – Revisions to Resolution 770 (WRC-19) to allow its implementation**

**Background**

ITU-R noted that the outcome of several WRC‑19 agenda items requires follow‑on studies to determine methods on how to implement and apply criteria and conditions decided by WRC‑19. This includes Resolution **770 (WRC‑19)** (related to single-entry interference from non-GSO systems to GSO networks in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space)).

In addressing the *invites* of Resolution **770 (WRC‑19)** to provide a functional description to implement the methodology contained in that Resolution, it has been determined that additional information is required to allow for a proper implementation. That is, corrections or clarifications need to be made to Resolution **770 (WRC‑19)** before it can be consistently applied, some of which are regulatory in nature. Because of this, it was agreed that a new topic under WRC‑23 agenda item 7 would be appropriate to provide for the above-mentioned regulatory corrections and clarifications related to the implementation of the methodology contained in Resolution **770 (WRC‑19)**.

**Methods to satisfy Topic G**

**Method G1**

No changes to Resolution **770 (WRC‑19)**.

**Method G2**

Modify Resolution **770 (WRC‑19)** to allow for its implementation.

**Method G3**

Remove Annex 2 from Resolution **770 (WRC‑19)** and move it to a new ITU‑R Recommendation which would be incorporated by reference in Resolution **770 (WRC‑19)**.

**View(s)**

Thailand supports to modify Resolution 770 (WRC-19) in order to eliminate difficulties applying this Resolution. Method G3 is supported to address this agenda item.



**Topic H – Enhanced protection of RR Appendices 30/30A in Regions 1 and 3 and RR Appendix 30B**

**Background**

**Implicit agreement**

Before WRC-15, in accordance with § 4.1.10 of Article 4 of RR Appendices **30/30A**, an administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of its BR IFIC referred to in § 4.1.5 shall be deemed to have agreed to the proposed assignment. This concept of “implicit agreement” since WRC-2000 had led to a situation in which the reference situation (EPM) of many assignments in the BSS Plans has severely been degraded.

WRC-15 modified the above-mentioned § 4.1.10 indicating that an Administration that has not notified its agreement within a period of four months following the date of the BR IFIC referred to in § 4.1.5 shall be deemed to have not agreed to the proposed assignment unless the provisions of §§ 4.1.10a to 4.1.10d and § 4.1.21 are applied.

However, if the provisions of §§ 4.1.10a to 4.1.10d and § 4.1.21 are applied, the use of the concept of “implicit agreement” would lead to the same situation in which the “reference situation” (EPM) of many assignments in the BSS Plans would severely be degraded. It is noted that § 4.1.10d provides only 30 days to an administration to react. In respect of RR Appendix **30B**, a similar situation can also occur under the provisions of 6.10-6.15.

**EPM degradation tolerance in Appendices 30/30A in Regions 1 and 3**

The revision of the Regions 1 and 3 Plan by WRC-2000 was accompanied with an increase in the equivalent downlink protection margin from 0.25 dB to a value of 0.45 dB to facilitate the replanning. However, after revising the Plans the tolerance was maintained at 0.45 dB, despite Plan assignments holding a higher status than List assignments.

EPM has been used together with the power flux-density (pfd) criterion to determine the compatibility among assignments in RR Appendices **30/30A** Regions 1 and 3 Plan and List. In accordance with Section 1 of Annex 1 to RR Appendix **30** and Section 4 of Annex 1 to RR Appendix **30A**, EPM of an assignment is allowed to be degraded up to 0.45 dB below 0 dB or, if already negative, not more than 0.45 dB.

**Methods to satisfy Topic H**

In order to satisfy this topic for protecting the BSS and FSS Plans, the following methods have been identified.

**Methods related to implicit agreement in RR Appendices 30/30A/30B**

**Method H1A**

No change to the Radio Regulations.

**Method H1B**

**Option 1** includes removal of implicit agreement within the RR Appendices **30**, **30A** and **30B**:

It is proposed to remove the implicit agreement applicable to:

– an assignment in the RR Appendices **30** and **30A** Regions 1 and 3 Plans or an assignment intended to enter in those Plans;

– an allotment in the RR Appendix **30B** Plan or an assignment intended to enter in that Plan

that would be identified by the Bureau as affected by an incoming network.

**Option 2** expands Option 1 to include removal of implicit agreement for Region 2 FSS potentially affecting Regions 1 and 3 Appendices **30** and **30A**:

It is proposed to remove the implicit agreement applicable to:

– an assignment in the RR Appendices **30** and **30A** Regions 1 and 3 Plans or an assignment intended to enter in those Plans when the affecting network is an addition of “List” networks;

– an assignment in the RR Appendices **30** and **30A** Regions 1 and 3 Plans, an assignment intended to enter in those Plans, List or proposed new or modified assignments in the List, when the affecting network is a Region 2 FSS in the frequency band 11.7-12.2 GHz;

– an allotment in the RR Appendix **30B** Plan or an assignment intended to enter in that Plan

that would be identified by the Bureau as affected by an incoming network.

**Reasons:** The purpose is to remove the implicit not just for the case that the affecting network is an addition to the List but also in the case that the affecting network is a Region 2 non-Plan FSS. Regarding the second case, the implicit agreement shall not apply to both Plan and List considering that the frequency band 11.7 to 12.2 GHz is not allocated to FSS in Regions 1 and 3.

**Method H1C**

This method proposes to replace the implicit agreement in case of no comments of an affected Regions 1 and 3 BSS Plan assignment or RR Appendix **30B** allotment from an additional use in due time, by a new mechanism. Under such a new mechanism, the administration of the Regions 1 and 3 BSS Plan assignment or of the RR Appendix **30B** allotments allows the administration of the additional use to operate until the bringing into use of its national assignment/allotment. At that time, the administration of the additional use commits to respect some constraints as pfd levels in respect of the affected national assignment/allotment or localization of the transmit earth station. As the national allotment/assignment will not operate simultaneously on the same frequency over the same area as the additional use, mutual interference is not considered.

**Method H1D**

This method proposes to replace the implicit agreement in case of no comments of an affected Regions 1 and 3 BSS Plan assignment or RR Appendix **30B** allotment from an additional use in due time, by a new mechanism. Under such a new mechanism, the administration of the Regions 1 and 3 BSS Plan assignment or of the RR Appendix **30B** allotments allows the administration of the additional use to operate considering that it is entered into the list provisionally until the bringing into use of its national assignment/allotment. At that time, the administration of the additional use commits to respect all constraints including pfd levels in respect of the affected national assignment/allotment or localization of the transmit earth station, so that the administration whose assignment was the basis of the disagreement is not considered as affected. As the national allotment/assignment will not operate simultaneously on the same frequency over the same area as the additional use, mutual interference is not considered.

This method also proposes that after the termination of the temporary agreement, the notifying administration of the assignment in question, requires updating the technical characteristics of its assignment to reflect the operational characteristics and in accordance with the commitment resulting from the termination of the temporal agreement. For this modification there is no need to restart the Article 4 procedure and original date of protection will be kept. Furthermore, to make the obligation mentioned for updating the characteristics enforceable, a deadline and consequences for not complying with it have been specified.

This method also proposes to remove the implicit agreement applicable to an assignment in the RR Appendices **30** and **30A** Regions 1 and 3 Plans, an assignment intended to enter in those Plans, List or proposed new or modified assignments in the List, when the affecting network is a Region 2 non-Plan FSS.

**Reasons:** After the termination of the temporary agreement, the notifying administration shall respect all the limits so that the administration whose assignment was the basis of the disagreement is not considered as affected. Furthermore, it is proposed that the implicit agreement does not apply to both Plan and List considering that the frequency band 11.7 to 12.2 GHz is not allocated to FSS in Regions 1 and 3.

**Methods related to EPM degradation tolerance in RR Appendices 30/30A in Regions 1 and 3**

**Method H2A**

No change to the Radio Regulations.

**Method H2B**

It is proposed to apply EPM degradation tolerance of 0.25 dB instead of 0.45 dB for protection of an assignment in the RR Appendices **30/30A** Regions 1 and 3 Plans or assignments with national coverage from a submission of non-national coverage.

**View(s)**

For the implicit agreement aspect, Thailand supports to use a new mechanism to replace the implicit agreement whereby the administration of the additional use/system is allowed to operate (with commitment to respect certain conditions) until the bringing into use of the national assignment/allotment of the other administration.Method H1C is supported to address this agenda item.

For the AP30/30A EPM degradation tolerance aspect, Thailand supports Method H2A in the CPM report which is no change to the Radio Regulations.

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**Topic I: Special agreements under RR Appendix 30B**

**Background**

When an administration intends to convert an allotment into an assignment or when an administration, or one acting on behalf of a group of named administrations, intends to introduce an additional system or modify the characteristics of assignments in the List that have been brought into use in RR Appendix **30B**, the administration shall submit to the Radiocommunication Bureau all required information as specified in RR Appendix **4**. Then, the Bureau determines administrations whose allotments in the Plan, or assignments in the List or pending assignments are considered as being affected by this assignment under § 6.5 of RR Appendix **30B**.

Affected administrations have 4 months after the publication of the Special Section of this assignment to comment on it (§ 6.10) plus an additional period of 1 month subject to application of § 6.13. If, after this period, despite several reminders sent by the Bureau (i.e. § 6.9, § 6.11, § 6.14, § 6.14*bis*), the affected administration has not given a decision, this administration is considered as having given its implicit agreement to this assignment under § 6.15.

At the time of the Part B submission of this assignment under § 6.17 or § 6.25, as appropriate, the final characteristics of this assignment could impact the overall aggregate carrier-to-interference levels of the allotment of the administration which did not give their decision in due time. These overall aggregate carrier-to-interference levels are used to determine the protection of this allotment or assignment for future submissions under § 6.1 and if an allotment can still be put into operation with decent services. Implicit agreements could lead to a situation that no decent services can be provided because of very low overall aggregate carrier-to-interference levels.

It is also important to note that the same consequence would occur if the affected administration signed an explicit agreement and the targeted area for the assignment submitted under § 6.1 is close to the territory of this administration which signed an explicit agreement.

Methods to satisfy Topic I are as follows:

**Method I1** - No changes to the Radio Regulations;

**Method I2** - proposes to:

– define a new type of agreement between notifying administrations of a national allotment and of an assignment, respectively. Under such an agreement, the administration of the national allotment allows the assignment to operate until the bringing into use of its national allotment. At that time (that is to say, from the moment that the national allotment is brought into use), the administration of the assignment commits to respect the section 2.2 of Annex 4 pfd levels over the territory of the national allotment. As the national allotment and the assignment will not operate simultaneously the same frequency over the same area, mutual interference is not considered.

– develop a new Resolution allowing the notifying administration of a national allotment, subject to agreements under § 6.15 of RR Appendix **30B**:

• to sign this new type of agreement with the notifying administration of the concerned assignments,

• to request the Bureau to update the reference situation without reviewing the previous examinations, and

• to request the notifying administrations of assignments for which the procedures of Article 6 of RR Appendix **30B** have not yet been completed and which have been examined by the Bureau before the signature of such agreement to make their utmost efforts to take into account the new reference situation of this national allotment.

**View(s) and Proposal(s)**

Thailand supports Method I2 in the CPM report in which a new type of agreement between notifying administrations of a national allotment and of an assignment is defined while the administration of the assignment commits to respect pfd levels under § 2.2 of Annex4 **(Rev.WRC-19)** of Appendix **30B (Rev.WRC-19)** over the territory of the national allotment, while developing a new Resolution subject to agreements under § 6.15 of RR Appendix **30B** **(Rev.WRC-19)** to sign the new type of agreement, to request the Bureau to update the reference situation without reviewing the previous examination, and to request the notifying administrations of assignments for which the procedures of Article 6 of RR Appendix **30B** have not yet been completed and which have been examined by the Bureau before the signature of such agreement to make their utmost efforts to take into account the new reference situation of this national allotment.



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

**Background**

Resolution **76 (Rev.WRC‑15)** calls for the development of Recommendations on procedures ensuring that the aggregate epfd limits are not exceeded and calls for collaboration among administrations to jointly ensure those levels are not exceeded. While the aggregate epfd limits are specified in Tables 1A to 1D of the Resolution, there is no clear methodology nor procedures outlined in Resolution **76 (Rev.WRC‑15)** for the administrations involved to collaboratively determine whether these aggregate levels are exceeded. This Topic J aims to address a part of this deficiency by developing or calling for the development of a consultation process to be applied to non-GSO fixed-satellite service (FSS) systems operators to avoid and potentially remedy any exceedance of the aggregate interference levels in Tables 1A to 1D of the Resolution based on accurate modelling of non-GSO systems.

Five methods are proposed in the following, noting that some aspects such as the criteria for participation and terms of reference for such consultations still need further discussion.

In relation to this, methods and technical procedures are under development in the ITU-R towards establishing one or more new Recommendations to be used during the consultations.

Methods to satisfy Topic J are as follows:

**Method J1**: No change to Resolution **76 (Rev.WRC‑15)**;

**Method J2**: Modify Resolution **76 (Rev.WRC‑15)** to introduce the concept of “consultation process/meetings” among administrations of non-GSO systems so that they can agree cooperatively to reduce their aggregate epfd if there is an exceedance;

**Method J3**: Modify Resolution **76 (Rev.WRC-15)** to comply with the aggregate epfd levels included in the same Resolution through a consultation process/meetings taking into account only non-GSO operational systems;

**Method J4**: Modify Resolution **76 (Rev.WRC‑15)** to comply with the aggregate epfd levels included in the same Resolution through a consultation process/meetings taking into account both non-GSO operational and planned systems;

**Method J5**: Modify Resolution **76 (Rev.WRC‑15)** to call for further study on accurate modelling of non-GSO systems and a regulatory procedure for assuring compliance with the aggregate emission limits

**View(s) and Proposal(s)**

Thailand is of the view that there is a need to modify Resolution **76 (Rev.WRC-15)** in order to introduce the concept of consultation process/meetings to provide a means for administrations to evaluate aggregate epfd of non-GSO FSS systems and ensure the compliance with the aggregate epfd limits in Tables 1A to 1D of Annex 1 to the Resolution.

Therefore, Thailand supports Method J2, Option 2 in the CPM Report.



**Topic K: Modification to Resolution 553 (Rev.WRC-15) to remove certain restrictions that prevent administrations from taking effective advantage of the Resolution**

**Background**

Resolution **553 (Rev.WRC-15)** titled “*Additional regulatory measures for broadcasting-satellite networks in the frequency band 21.4-22 GHz in Regions 1 and 3...*” has been adopted to enhance equitable access to this frequency band.

Resolution **553 (Rev.WRC-15)** was adopted to provide a better situation regarding equitable access compared with the planning approach. As stated in *considering further a)* to this Resolution, a priori planning for BSS networks in this frequency band was avoided as it “freezes access according to technological assumptions at the time of planning and then prevents flexible use taking account of real-world demand and technical developments”.

Some of the current provisions could contradict the above objective of the Resolution and could permanently deprive administrations of being effectively benefited from the Resolution without even once having a notified network in this frequency band.

Methods to satisfy Topic K are as follows:

**Method K1** - No changes to Resolution **553 (Rev.WRC-15)**;

**Method K2** - proposes to modify paragraphs 1 and 2 of the Attachment to Resolution **553 (Rev.WRC-15)** to remove the intended restrictions in the Resolution.

**View(s) and Proposal(s)**

Thailand supports Method K2 in the CPM Report to modify paragraphs 1 and 2 of the Attachment to Resolution **553 (Rev.WRC-15)** to remove the intended restrictions in this Resolution.



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