

Working Party 3
PRELIMINARY VIEW ON WRC-19 AGENDA ITEMS 1.4, 1.5, 7 (issues B, C, D, H, L and M),
9.1.2, 9.1.3 and 9.1.9

Agenda Item 1.4: Revision of Annex 7 to Appendix 30

“to consider the results of studies in accordance with Resolution 557 (WRC-15), and review, and revise if necessary, the limitations mentioned in Annex 7 to Appendix 30 (Rev.WRC-15), while ensuring the protection of, and without imposing additional constraints on, assignments in the Plan and the List and the future development of the broadcasting-satellite service within the Plan, and existing and planned fixed-satellite service networks”

Preliminary View

Thailand ~~is of the view to~~ supports ITU-R studies and ~~is of the view~~ that any possible revision of the limitations of Annex 7 to Radio Regulations Appendix 30 (Rev.WRC-15) under Resolution 557 (WRC-15) should not impose ~~[(undue)]~~ constraints on current and future FSS/BSS usage in the 11.7 – 12.7 GHz frequency band for Region 3.

Agenda Item 1.5: Earth stations in motion

“to consider the use of the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) by earth stations in motion communicating with geostationary space stations in the fixed-satellite service and take appropriate action, in accordance with Resolution 158 (WRC-15)”

Preliminary View

Thailand supports modification of the Radio Regulations to add a new footnote 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 158 (WRC-15). This additional new footnote does not preclude the use of ~~the~~ frequency bands by any application of the service to which they are allocated.

Agenda Item 7: Satellite regulatory procedures

Agenda Item 7 Issue B:

“Evolution of technology and in particular the development of precise tracking systems, has allowed that terminals on board of systems in motion used in the MSS have characteristics comparable to fixed earth stations. As a result of this, WRC-15 approved the use of earth stations in motion under the FSS (Resolution **156 (WRC-15)**) in the same frequency bands considered under WRC-19 agenda item 7, Issue B.

Currently in the Radio Regulations, to determine whether coordination under RR No. **9.7** is required, in the frequency bands 29.5-30 GHz (Earth-to-space)/19.7-20.2 GHz (space-to-Earth) in all 3 Regions the following criteria is applied:

- FSS vs FSS: Coordination arc of 8°
- FSS vs MSS: $\Delta T/T > 6\%$
- MSS vs MSS: $\Delta T/T > 6\%$

In addition, in the FSS vs FSS coordination, administrations can always request application of RR No. **9.41** to include additional satellite networks that would be affected taking into account the $\Delta T/T > 6\%$ criteria.

Taking into account that the coordination arc criteria is used to determine coordination between FSS systems and it works in an effective and efficient way, WRC-19 agenda item 7, Issue B studies the possibility to apply

this same coordination criteria to determine if coordination is required between MSS systems and between MSS and FSS systems.”

Preliminary View

[Thailand](#) supports to apply the coordination arc to determine the coordination requirements between FSS and MSS systems and between MSS systems in the frequency bands 29.5-30 GHz (Earth-to-space) and 19.7-20.2 GHz (space-to-Earth) in all 3 Regions, replacing the existing coordination criteria $\Delta T/T > 6\%$, as Method B2 in the draft CPM [text report](#).

Agenda Item 7 Issue C:

“Issue C is a collection of several different topics that are viewed as being straightforward and for which consensus was readily achieved within ITU-R. The issues address such things as resolving inconsistencies in regulatory provisions, clarifying certain existing practices, or increasing transparency in the regulatory process.”

Preliminary View

To resolve inconsistencies in regulatory provisions and to increase transparency in the regulatory process, Thailand is of the view that the following seven sub-issues under Issue C could be supported.

- C1: to address the regulatory inconsistency identified in this issue is to align the text of paragraph 8.13 of Article 8 of RR Appendix 30B with that of RR No. 11.43A of RR Article 11.
- C2: to add another footnote to paragraph 6.1 of Article 6 of RR Appendix 30B to allow administration as the follows:
 - a) to submit under paragraph 6.1 an additional use for the two blocks/sub-bands in 10-11 GHz but only bring into use one of the blocks/one sub-band or,
 - b) to submit under paragraph 6.1 an application of an additional use for only one of the two blocks/ sub-bands in 10-11 GHz and notify and bring into use that block/sub-band only;
 - c) to allow/authorize the Bureau, in applying Article 6, to act according to the nature of submission and further process them accordingly, i.e. to process the two blocks/sub bands or process one of the two block/sub-bands and further process the submission as received;
 - d) to allow/authorize the Bureau, in applying Article 8, to maintain one of the two blocks/sub-bands as notified even though the entire two blocks/sub-bands were submitted under Article 6 and successfully coordinated under that Article but only one of the block/sub-bands is notified or brought into use. (4A/425)
- C3: to add a new provision in Article 6 of RR Appendix 30B to clearly state that § 6.13 to 6.15 of RR Appendix 30B do not apply in the context of requirements associated with § 6.6 of RR Appendix 30B.
- C4: to solidify the information required for submission for entry into the List under § 4.1.12 and for Notification under § 5.1.1 and 5.1.2 of RR Appendices 30 and 30A which seem to be identical.
- C5: to be considered advantageous to Notifying Administrations if the Bureau sends a reminder of the option to resubmit returned frequency assignments under RR No. 11.37 or 11.38. Modification of RR No. 11.46 requiring the Bureau to remind the Notifying Administration of the 6 month deadline would aid Administrations who may have had difficulties in receiving the communication of returned frequency assignments.

C6: to modify § 6.17 to allow one submission to be treated in respect of both provisions and modify RR Appendix 4 to enable this.

C7: to add a new provision 6.15*bis* to Article 6 of RR Appendix 30B in order to recognize the possibility of obtaining agreement from affected administrations for a specified period.

Agenda Item 7 Issue D:

Currently, when an administration sends a coordination request (a new one or a modification to an existing one, as appropriate) for frequency assignments subject to RR Nos. **9.12**, **9.12A** and **9.13**, the Bureau publishes in the CR/C Special Section only a list of (potentially) affected administrations in the cases covered by the provisions under RR No. **9.36.1**. This differs from the current course of action of publishing in the same CR/C Special Section a list of specific satellite networks or earth stations in the cases covered by the provisions under RR No. **9.36.2**.

It may be easier for administrations if the two courses of action above were aligned. By doing so, the Bureau would publish a list of potentially affected satellite networks and/or systems following the receipt of a coordination request (a new one or a modification to an existing one, as appropriate) for frequency assignments subject to RR Nos. **9.12**, **9.12A** and **9.13**, rather than a list of affected administrations only.

Preliminary View

Thailand ~~s~~Supports the amendment to the Radio Regulations by adding the requirements to have the list of potentially affected satellite networks and/or systems included in CR/C and CR/D special sections for coordination under RR Nos. 9.12, 9.12A and 9.13, as Method D2 in the draft CPM ~~text~~report.

Agenda Item 7 Issue H:

The RR Appendix 4 items provided in the Advance Publication Information (API) or the Coordination Request (CR/C) for satellite networks or systems are used initially by administrations to identify potential interference scenarios to their existing and planned systems and to formulate their comments under RR No. 9.3 or RR No. 9.52 as appropriate. The capability of these administrations to identify such potential scenarios depends, amongst other things, on whether the satellite orbits can be modelled properly based on the information provided in the API or in the CR/C, as appropriate. For a satellite in a geostationary (GSO) network, the only information required is the nominal orbital location of the satellite. However, the modelling of the orbit of satellites in non-geostationary (NGSO) systems requires significantly more information than a GSO satellite network. Recent analysis performed for NGSO satellite networks or systems (API or CR/C) as published in the Radiocommunication Bureau International Frequency Information Circular (also known as BR IFIC) have shown that, in some instances, there is need for additional information in order to model properly the satellite orbits.

Preliminary View

Thailand ~~is of the view that~~supports the modifications to RR Appendix 4 data elements to be additionally provided for non-GSO satellite networks/systems ~~could be supported in order~~ to facilitate administrations to identify potential interference scenarios to their existing and planned networks/systems.

Agenda Item 7 Issue L:

Recommendation ITU-R S.1503 defines an algorithm that can be used to determine whether a non-GSO FSS system or network meets the equivalent power flux-density (epfd) limits in RR Article 22. A revision to this Recommendation from versions ITU-R S.1503-2 to version ITU-R S.1503-3 was formally approved on 15 January 2018 after the procedure for simultaneous adoption and approval by correspondence.

The revised version introduced increased flexibility for non-GSO system operators to model their network while ensuring that the core algorithm to calculate epfd statistics was largely unchanged. This increased flexibility comes partly from new input parameters and partly from additional dimensions to existing input parameters. For example, the exclusion zone angle was assumed to be a single value in Recommendation ITU-R S.1503-2 but in the revision it can vary by latitude and frequency band.

The motivation for this work is to provide a better framework for GSO and non-GSO systems in frequency bands where there are epfd limits to protect the GSO in RR Article 22. Improvements in the detail and accuracy of the modelling of non-GSO systems can improve spectrum utilization, increasing spectrum efficiency while maintaining the protection of the GSO. It can facilitate the introduction of new technologies and development of a wider range of non-GSO system types.

To realize these benefits it is necessary for the input data to be available, and to ensure this can occur they should be mandatory parameters defined in RR Appendix 4. Hence it is proposed to revise RR Appendix 4 to include these additional parameters.

Preliminary View

[Thailand sSupports](#) to update the RR Appendix 4 data elements required for RR Article 22 EPFD limits verification which reflects the revision of Recommendation ITU-R S.1503, as Method L in the draft CPM [textreport](#).

Agenda Item 7 Issue M:

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.

Considering that the size of a satellite is independent of the nature of the service that it is intended to provide, a simplified regulatory regime has been developed for satellites with short-duration missions, independent of the size of the satellite.

Based on the above, ITU-R developed a method 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.

Preliminary View

[Thailand sSupports](#) to establish the simplified regulatory regime annexed to the new WRC Resolution, together with an associated regulatory regime for non-GSO satellite systems with short-duration missions, as Method M in the draft CPM [textreport](#).

Agenda Item 9.1.2: Compatibility study for IMT in 1.5 GHz

"Compatibility of International Mobile Telecommunications and broadcasting-satellite service (sound) in the frequency band 1 452-1 492 MHz in Regions 1 and 3 RESOLUTION 761 (WRC-15)"

Preliminary View

Since the frequency band [1 452 – 1 492 MHz in Thailand is part of the frequency band 1 427 – 1 518 MHz](#) ~~has that has been~~ already identified for terrestrial IMT, Thailand is of the view that ~~any~~ technical and operational measures ~~is required~~ to safeguard terrestrial IMT operating in the band 1 452 – 1 492 MHz ~~could be applied~~ as needed.

Agenda Item 9.1.3: Non-GSO FSS in C-band

"Issue 2) Resolution 958 (WRC-15) - Study of technical and operational issues and regulatory provisions for new non-geostationary-satellite orbit systems in the 3 700-4 200 MHz, 4 500-4 800 MHz, 5 925-6 425 MHz and 6 725 7 025 MHz frequency bands allocated to the fixed-satellite service."

Preliminary View

Based on results of ITU-R studies, Thailand [is of the view that no modification is required for](#) ~~supports no need to modify~~ the values of the existing limits presented in Article 22 efd and Article 21 pfd of the Radio Regulations for the frequency 3 700 - 4 200 MHz, 4 500-4 800 MHz, 5 925-6 425 MHz, and 6 725-7 025 MHz ~~as indicated in APG2019-3 preliminary view on agenda item 9.1.3.~~

Agenda Item 9.1.9: FSS in 52 GHz

"Resolution 162 (WRC-15) - Studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space)

Preliminary View

Thailand supports an allocation to the fixed-satellite service (Earth-to-space) in the frequency band 51.4-52.4 GHz limited to FSS gateway links for geostationary orbit use while protecting currently allocated services in the same frequency band and in adjacent frequency bands.
