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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Revision 1 to Document 34(Add.23)(Add.2)-E** |
|  | **28 September 2015** |
|  | **Original: English** |
|  | |
| Thailand | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 9.1(9.1.2) | |

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:

9.1 on the activities of the Radiocommunication Sector since WRC‑12;

9.1(9.1.2) Resolution **756 (WRC-12)** − Studies on possible reduction of the coordination arc and technical criteria used in application of No. **9.41** in respect of coordination under No. **9.7**

# 1 Introduction

Resolution 756 (WRC-12)resolved to invite ITU-R:

1) to carry out studies to examine the effectiveness and appropriateness of the current criterion (Δ*T*/*T* > 6%) used in the application of No. 9.41and consider any other possible alternatives (including the alternatives outlined in Annexes 1 and 2 to this Resolution), as appropriate, for the bands referred to in *recognizing e)*

2) to study whether additional reductions in the coordination arcs in Appendix 5(Rev.WRC-12)are appropriate for the 6/4 GHz and 14/10/11/12 GHz frequency bands, and whether it is appropriate to reduce the coordination arc in the 30/20 GHz band.

In respect to Resolution 756 (WRC-12), Thailand supports Option 1C of the CPM Report in respect to *resolves 1,* and Option 2A of the CPM Report in respect to *resolves* 2, to accommodate the access to spectrum and orbit resources while ensuring adequate protection of networks operating in accordance with the RR.

# 2 Proposals

2.1 Proposals in respect of *resolves* 1 of Resolution 756 (WRC-12):

NOC

ARTICLE 9

Procedure for effecting coordination with or obtaining agreement of other administrations1, 2, 3, 4, 5, 6, 7, 8, 8*bis*    (WRC‑12)

ARTICLE 11

Notification and recording of frequency   
assignments1, 2, 3, 4, 5, 6, 7, 7*bis*    (WRC‑12)

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

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11.32A *c)* with respect to the probability of harmful interference that may be caused to or by assignments recorded with a favourable finding under Nos. 11.36 and 11.37 or 11.38, or recorded in application of No. 11.41, or published under Nos. 9.38 or 9.58 but not yet notified, as appropriate, for those cases for which the notifying administration states that the procedure for coordination under Nos. 9.7, 9.7A, 9.7B, 9.11, 9.12, 9.12A, 9.13 or 9.14, could not be successfully completed (see also No. 9.65);14, ADD 14*bis* or     (WRC‑15)

**Reasons:** To add criteria for determining the probability of harmful interference and the criteria for the formulation of the findings of the Bureau in respect of assignments in the frequency bands identified in 1) and 2) in Table 5-1 of Appendix 5

NOC

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14 11.32A.1

ADD THA/34A23A2/2

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14*bis***11.32A.2** The criteria to determine the probability of harmful interference and the criteria for the formulation of the findings of the Bureau in respect of assignments in the frequency bands identified in 1) and 2) in Table **5‑1** of Appendix **5** of these regulations for satellite networks having a nominal orbit separation in the geostationary arc of 8\* and 7\* degrees respectively are contained in Resolution **[THA-A912] (WRC‑15).**     (WRC‑15)

**Reasons:** To replace C/I criterion used under RR No. 11.32A with a pfd threshold in the 6/4 GHz and 14/10/11/12 GHz bands only in respect of satellite networks outside of the coordination arc.

ADD THA/34A23A2/3

Draft New Resolution [THA-A912] (WRC-15)

Application of pfd criteria to assess the potential for harmful interference under No. 11.32A for fixed-satellite and broadcasting-satellite service  
networks in the 4/6 GHz and 10/11/12/14 GHz bands   
not subject to a Plan

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that the 4/6 GHz and 10/11/12/14 GHz frequency ranges, not subject to a Plan, are extensively used with operational satellites about every 2-3° around the geostationary arc;

*b)* that there currently are a very large number of satellite networks submitted to ITU‑R for these frequency bands;

*c)* that these above factors have led to significant difficulties for administrations to introduce new satellite networks;

*d)* that more precise criteria to assess the probability of harmful interference under No. **11.32A** have the potential to reduce undue protection requirements for assignments in respect of incoming assignments;

*e)* that reduction of undue protection requirements will facilitate coordination of submissions of new networks;

*f)* that due to the congestion in these frequency bands and due to the maturity of the technology and applications in these frequency bands, practical satellite implementations are seen in practice to use relatively homogeneous technical parameters;

*g)* that use of more homogeneous technical parameters will facilitate efficient spectrum usage and support introduction of new networks;

*h)* that the use of pfd thresholds will encourage use of more homogeneous technical parameters and support efficient spectrum usage,

resolves

1 that for satellite networks operating in the frequency bands 3 400-4 200 MHz (space-to-Earth) and 5 725-5 850 MHz (Region 1), 5 850-6 725 MHz and 7 025-7 075 MHz (Earth-to-space) having a nominal geocentric separation in the geostationary arc of 8\* degrees or more, assignments for a fixed-satellite service (FSS) satellite network with respect to other FSS networks do not have the potential to cause harmful interference if:

a) the pfd produced under assumed free-space propagation conditions, does not exceed the threshold values shown below, anywhere within the service area of the potentially affected assignment:

8\*° ≤ θ ≤ 20.9° −196.8 + 25log(θ/5.6) (dBW/m2 ∙ Hz)

20.9° < θ −182.6 (dBW/m2 ∙ Hz)

where θ is the minimum nominal geocentric orbital separation, in degrees, between the wanted and interfering space stations, taking into account the respective East-West station-keeping accuracies;

b) the pfd produced at the geostationary orbit location of the other FSS network under assumed free space propagation conditions, does not exceed −204.0 dBW/m2 ∙ Hz, taking into account the respective East-West station-keeping accuracies;

2 that in the frequency bands 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz (Region 2), 12.2-12.5 GHz (Region 3), 12.5-12.7 GHz (Regions 1 and 3) and 12.7-12.75 GHz (space-to-Earth) and 13.75-14.5 GHz (Earth-to-space), assignments for an FSS or broadcasting-satellite service (BSS) satellite network with respect to other FSS or BSS networks having a nominal geocentric separation in the geostationary arc of 7\* degrees or more do not have the potential to cause harmful interference if:

a) the pfd produced under assumed free-space propagation conditions does not exceed the threshold values shown below, anywhere within the service area of the potentially affected assignment:

7\*° ≤ θ ≤ 20.9° −187.2 + 25log(θ/5) (dBW/m2 ∙ Hz)

20.9° < θ −171.9 (dBW/m2 ∙ Hz)

where θ is the minimum nominal geocentric orbital separation, in degrees, between the wanted and interfering space stations, taking into account the respective East-West station-keeping accuracies;

b) the pfd produced at the geostationary orbit location of the other FSS network under assumed free-space propagation conditions, does not exceed −208.0 dBW/m2 ∙ Hz, taking into account the respective East-West station-keeping accuracies;

3 that when the Bureau, under No. **11.32A**, conducts its examination of the probability of harmful interference in accordance with this Resolution, the above criteria shall be used.\*\*

*NOTE − FSS and BSS networks are also subject to other relevant limits of the RR, including, but not limited to, RR Nos.****21.16*** *and* ***21.17****.*

*\* NOTE − These are the current values of the coordination arc. Depending on decisions of WRC‑15, the size of the coordination arc may change and these values should be adjusted accordingly.*

*\*\* NOTE − With the adoption of this Resolution by a WRC, it is understood that RRB in updating their RoPs would amend the RoP for 11.32A accordingly.*

**Reasons:** To determine pfd criteria to assess the potential for harmful interference under No. 11.32A for fixed-satellite and broadcasting-satellite service networks in the 4/6 GHz and 10/11/12/14 GHz bands not subject to a Plan.

2.2 Proposals in respect of *resolves* 2 of Resolution 756 (WRC-12):

APPENDIX 5 (REV.WRC‑12)

Identification of administrations with which coordination is to be effected or  
agreement sought under the provisions of Article 9

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TABLE 5-1     (Rev.WRC‑15)

Technical conditions for coordination

(see Article 9)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Reference of Article 9 | Case | Frequency bands (and Region) of the service for which coordination is sought | Threshold/condition | Calculation  method | Remarks |
| No. **9.7** GSO/GSO | A station in a satellite network using the geostationary-satellite orbit (GSO), in any space radiocommunication service, in a frequency band and in a Region where this service is not subject to a Plan, in respect of any other satellite network using that orbit, in any space radiocommunication service in a frequency band and in a Region where this service is not subject to a Plan, with the exception of the coordination between earth stations operating in the opposite direction of transmission | 1) 3 400-4 200 MHz 5 725-5 850 MHz (Region 1) and 5 850-6 725 MHz 7 025-7 075 MHz | i) Bandwidth overlap, and  ii) any network in the fixed-satellite service (FSS) and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±6° of the nominal orbital position of a proposed network in the FSS |  | With respect to the space services listed in the threshold/condition column in the bands in 1), 2), 3), 4), 5), 6), 7) and 8), an administration may request, pursuant to No. **9.41**, to be included in requests for coordination, indicating the networks for which the value of Δ*T*/*T* calculated by the method in § 2.2.1.2 and 3.2 of Appendix **8** exceeds 6%. When the Bureau, on request by an affected administration, studies this information pursuant to No. **9.42**, the calculation method given in § 2.2.1.2 and 3.2 of Appendix **8** shall be used |
| 2) 10.95-11.2 GHz 11.45‑11.7 GHz  11.7-12.2 GHz  (Region 2) 12.2-12.5 GHz  (Region 3) 12.5‑12.75 GHz (Regions 1 and 3) 12.7‑12.75 GHz (Region 2) and  13.75‑14.5 GHz | i) Bandwidth overlap, and  ii) any network in the FSS or broadcasting-satellite service (BSS), not subject to a Plan, and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±5° of the nominal orbital position of a proposed network in the FSS or BSS, not subject to a Plan |

**Reasons:** To reduce the coordination arc from ±8º to ±6º for 6/4 GHz bands and from ±7º to ±5º for 14/10/11/12 GHz bands.

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