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| **33 MEETING OF PERMANENT**  **CONSULTATIVE COMMITTEE II:**  **RADIOCOMMUNICATIONS**  **April 8 to 12, 2019**  **Monterrey, Nuevo Leon, Mexico** | | **OEA/Ser.L/XVII.4.2.33**  **CCP.II-RADIO/doc.**  **XX March**  **Original: english** | |
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|  | **U.S. PROPOSAL ON WRC-19 AGENDA ITEM 7, ISSUE F** | |  |
|  | **(Item on the Agenda: 3.1)** | |  |
|  | **(Document submitted by the delegation of the United States of America)** | |  |

Introduction

This document contains an attachment including the USA proposal on WRC-19 Agenda Item 7, Issue F (measures to facilitate entering new assignments into the RR Appendix 30B list) for consideration in CITEL’s preparation to WRC-19 Agenda Item 7.

**ATTACHMENT**

**Agenda Item 7, Issue F –** Measures to facilitate entering new assignments into the RR Appendix **30B** List

**Background Information:**

An administration wishing to convert its national allotment in RR Appendix 30B to assignments with characteristics beyond those of the initial allotment or wishing to introduce a new network will be faced with several difficulties. Two of these are:

* due to the conservative criteria used in RR Appendix 30B, a large number of coordination requirements are identified;
* networks can be designed with combinations of characteristics, possibly unrealistic, to obtain a high sensitivity to interference from later submissions.

The ITU-R performed extensive studies to determine changes to the coordination triggers in RR Appendix **30B** to alleviate the above identified difficulties and minimize the administrative burden of completing coordinations that are not necessary in practice, while maintain full protection of RR Appendix **30B** allotments and existing systems. The United States supports the changes to RR Appendix **30B** espoused in Method F1 of the CPM text to take advantage of the results of these studies. This Method facilitates coordination of new networks and hence eases access of administrations to the frequency bands of RR Appendix **30B**, by updating the coordination triggers in Appendix 30B to take into account technological advances and avoid some unnecessary coordination while assuring adequate protection of other satellite networks. This changes will benefit submissions for new networks, including those of newcomers and those of administrations seeking to convert their national allotments into assignments with changes.

The proposed changes include modifying the RR Appendix **30B** coordination triggers to be similar to those adopted in RR Appendices **30** and **30A** by WRC-2000, specifically:

* Bringing the size of the coordination arc in line with that used for the unplanned frequency bands, i.e. 7° for C-band and 6° for Ku-band and consequently align the Annex 3 limits to the newly established coordination arcs;
* Introducing pfd masks and levels like in RR Appendices **30** and **30A** as well as in portions of the unplanned frequency bands to remove unnecessary coordination and prevent combinations of technical parameters leading to unrealistic links from hindering introduction of new networks. The proposed values for the pfd masks and levels are those developed in preparation for WRC-15, based on a level of protection corresponding to Δ*T/T* = 6% for C-band antennas with a diameter between 1.2 and 18 m and Ku-band antennas with a diameter between 45 cm and 11 m).

**Proposal**:

APPENDIX **30B (REV.WRC‑15)**

**Provisions and associated Plan for the fixed-satellite service  
in the frequency bands 4 500-4 800 MHz, 6 725-7 025 MHz,  
10.70-10.95 GHz, 11.20-11.45 GHz and 12.75-13.25 GHz**

**MOD USA/7/F/1**

ANNEX 3     (Rev.WRC‑19)

**Limits applicable to submissions received under Article 6 or Article 7**MOD [[1]](#footnote-1)15

Under assumed free-space propagation conditions, the power flux-density (space-to-Earth) of a proposed new allotment or assignment produced on any portion of the surface of the Earth shall not exceed:

– −131.4\* dB(W/(m2 · MHz)) in the 4 500-4 800 MHz frequency band; and

– −118.4\* dB(W/(m2 · MHz)) in the 10.70-10.95 GHz and 11.20-11.45 GHz frequency bands.

Under assumed free-space propagation conditions, the power flux-density (Earth-to-space) of a proposed new allotment or assignment shall not exceed:

– −140.0 dB(W/(m2 · MHz)) towards any location in the geostationary-satellite orbit located more than 7° from the proposed orbital position in the 6 725-7 025 MHz frequency band, and

– −133.0 dB(W/(m2 · MHz)) towards any location in the geostationary-satellite orbit located more than 6° from the proposed orbital position in the 12.75-13.25 GHz frequency band.

\*NOTE – These are consequential changes to the proposed reduction of the coordination arc from 10° to 7° in the 4 GHz frequency band and from 9° to 6° in the 10/11 GHz frequency band. Should other sizes of the coordination arc be considered by WRC‑19, the power flux-densities should be amended according to the equation: pfdnew = pfdcurrent – 25 ∙ log(current coordination arc / new coordination arc).

**Reasons**: These changes align the pfd limits with the proposed modified coordination arc in Annex 4 of RR Appendix **30B**, ensuring protection of existing allotments and systems in the uplink direction while facilitating modified allotments and new entries.

**MOD USA/7/F/2**

ANNEX 4     (REV.WRC‑19)

**Criteria for determining whether an allotment or  
an assignment is considered to be affected**

An allotment or an assignment is considered as being affected by a proposed new allotment or assignment:

1 if the orbital spacing between its orbital position and the orbital position of the proposed new allotment or assignment is equal to or less than:

1.1 7° in the 4 500-4 800 MHz (space-to-Earth) and 6 725-7 025 MHz (Earth-to-space) frequency bands;

1.2 6° in the 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) frequency bands.

2 However, an administration is considered as not being affected if at least one of the following conditions is satisfied:

2.1 the calculated16 Earth-to-space single-entry carrier-to-interference (*C*/*I*)*u* value at each test point associated with the allotment or assignment under consideration is greater than or equal to a reference value that is 30 dB, or (*C*/*N*)*u* + 9 dB17[[2]](#footnote-2) , whichever is the lowest and the calculated16 space-to-Earth single-entry (*C*/*I*)*d* value everywhere within the service area of the allotment or assignment under consideration is greater than or equal to a reference value19 that is 26.65 dB, or (*C*/*N*)*d* + 11.65 dB20, whichever is the lowest and the calculated16 overall aggregate (*C*/*I*)*agg* value at each test point associated with the allotment or assignment under consideration, is greater than or equal to a reference value that is 21 dB, or (*C/N*)*t* + 7 dB21, or any already accepted overall aggregate (*C*/*I*)*agg* value, whichever is the lowest, with a tolerance of 0.25 dB22 in the case of assignments not stemming from the conversion of an allotment into an assignment without modification, or when the modification is within the envelope characteristics of the initial allotment.

2.2 in the 4 500-4 800 MHz (space-to-Earth) frequency band, the pfd produced under assumed free-space propagation conditions does not exceed the threshold values shown below, anywhere within the service area of the allotment or assignment under consideration:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | θ | ≤ | 0.09 | −243.5 | dB(W/(m2 ∙ Hz)) |
| 0.09 | < | θ | ≤ | 3 | −243.5 + 20log(θ/0.09) | dB(W/(m2 ∙ Hz)) |
| 3 | < | θ | ≤ | 5.5 | −219.8 + 0.75 ∙ θ2 | dB(W/(m2 ∙ Hz)) |
| 5.5 | < | θ | < | 7 | −196.8 + 25log(θ/5.6) | dB(W/(m2 ∙ Hz)) |

where θ denotes nominal geocentric separation (degrees) between interfering and interfered-with satellite networks;

in the 6 725-7 025 MHz (Earth-to-space) frequency band, the pfd produced at the location in the geostationary-satellite orbit of the allotment or assignment under consideration under assumed free‑space propagation conditions does not exceed −204.0 dB(W/(m2 ∙ Hz));

in the 10.7-10.95 and 11.2-11.45 GHz (space-to-Earth) frequency bands, the pfd produced under assumed free-space propagation conditions does not exceed the threshold values shown below, anywhere within the service area of the allotment or assignment under consideration:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | θ | ≤ | 0.05 | −238.0 | dB(W/(m2 ∙ Hz)) |
| 0.05 | < | θ | ≤ | 3 | −238.0 + 20log(θ/0.05) | dB(W/(m2 ∙ Hz)) |
| 3 | < | θ | ≤ | 5 | −210.9 + 0.95 ∙ θ2 | dB(W/(m2 ∙ Hz)) |
| 5 | < | θ | < | 6 | −187.2 + 25log(θ/5) | dB(W/(m2 ∙ Hz)) |

where θ denotes nominal geocentric separation (degrees) between interfering and interfered-with satellite networks;

in the 12.75-13.25 GHz (Earth-to-space) frequency band, the pfd produced at the location in the geostationary-satellite orbit of the allotment or assignment under consideration under assumed free‑space propagation conditions does not exceed −208.0 dB(W/(m2 ∙ Hz)).

**Reasons**: These changes to the coordination trigger in Annex 4 of RR Appendix **30B** protects existing allotments and systems while facilitating modified allotments and new entries.

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1. 15 These limits shall not apply to assignments submitted in accordance with Article **6** or recorded in the List before 22 November 2019. [↑](#footnote-ref-1)
2. 18(SUP – WRC‑19) [↑](#footnote-ref-2)