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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23) Dubai, 20 November - 15 December 2023** | |  |
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| PLENARY MEETING | | **Addendum 1 to Document 86(Add.25)-E** | |
|  | | **30 October 2023** | |
|  | | **Original: English** | |
|  | | | |
| Canada | | | |
| PROPOSALS FOR THE WORK OF THE CONFERENCE | | | |
|  | | | |
| Agenda item 9.2 | | | |

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

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations;[[1]](#footnote-1)1 and

Introduction

Canada acknowledges the summary provided by the Director of the Radiocommunication Bureau (BR) in Section 4.3.2 of Addendum 1 Document 4 regarding the studies of the RR No. **21.5** issue.

WRC-19 Plenary Document [550](https://www.itu.int/md/R16-WRC19-C-0550/en) invited ITU-R to study, as a matter of urgency, the applicability of the limit specified in RR No. **21.5** of the Radio Regulations to those IMT stations in the frequency range 24.45-27.5 GHz, that use an antenna that consists of an array of active elements (AAS – active antenna system), with a view to recommend ways for its possible replacement or revision for such stations, as well as any necessary updates to RR Table **21-2** related to terrestrial and space services sharing frequency bands. WRC-19 also invited ITU-R to study, as a matter of urgency, verification of RR No. **21.5** regarding the notification of IMT stations that use an antenna that consists of an AAS, as appropriate.

CPM23-1 identified Working Party (WP) 5D as the responsible group to carry out the above-mentioned requested studies and to report the results of the studies to the Director of the Radiocommunication Bureau to be considered as the Director deems appropriate. WP 5D was not able to reach a conclusion on this issue.

At WRC-19 several frequency ranges were allocated to the mobile service and identified for IMT, or identified for IMT where a mobile service allocation already existed. Of these frequency ranges, 24.45-27.5 GHz was already listed in RR Table **21-2** which makes RR No. **21.5** applicable to IMT stations operating in this frequency range, as it was not stated otherwise.

**21.5** 3) The power delivered by a transmitter to the antenna of a station in the fixed or mobile services shall not exceed +13 dBW in the frequency bands between 1 GHz and 10 GHz, or +10 dBW in frequency bands above 10 GHz, except as cited in No. **21.5A**.      (WRC-2000)

The notification of a frequency assignment to a station in the mobile serviceby an administration, and the subsequent verification conducted by the Bureau, is based on the characteristics of each frequency assignment. This information was provided by the BR in response to a question raised during the 36th meeting of WP 5D:

“When it receives a notice, BR examines its conformity with respect to No. **11.31** of the Radio Regulations. For an assignment to a station of the terrestrial service in a frequency band shared with the space service (Earth-to-space), it examines compliance of the notice with respect to criteria given in RR Nos. **21.3**, **21.4**, **21.5** and **21.5A**.”

The verification of RR No. **21.5** by the BR is performed through assessing the data element 8AA, as described below.

8AA the power delivered to the antenna, in dBW

In the case of a transmitting station, required for an assignment:

– in the bands below 28 MHz, in all services except the radionavigation service, or – in the bands above 28 MHz shared with space services; or

– in the bands above 28 MHz not shared with space services:

• in the aeronautical mobile service, meteorological aids service; or

• in all other services, if the radiated power is not supplied.

In the case of a receiving land station, required if the associated transmitting station’s radiated power is not supplied.

In the case of a typical transmitting station, required if the radiated power is not supplied.

It is worth mentioning that the BR response is, as expected, fully in line with the RoP on Table **21-2** which states that: *“Table* ***21-2*** *specifies the frequency bands that are shared with equal rights between space* *services, on the one hand, and the fixed and mobile service, on the other hand, where the* *terrestrial station is subject to power limits specified in provision RR Nos.* ***21.2*** *to* ***21.5A****. These* *power limits are verified during processing frequency assignments by the Bureau under “other* *provisions” mentioned in RR No.* ***11.31*** *that are mandatory for verification during regulatory* *examination.”*

In the frequency range 24.45-27.5 GHz, IMT base stations are described as utilizing AAS, where the power delivered to AAS per assignment is not directly measurable due to the integrated nature of AAS. The parameter of total radiated power (TRP) is commonly used and understood to be “the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere” as per Resolution **243 (WRC-19)** and Resolution **750 (Rev.WRC-19)**.

In Canada’s view, the temporary utilization of TRP in the notification of IMT base stations in this frequency range could be a way forward, and there are several ways to facilitate this:

• RR Appendix **4** data item 8AA could be modified in conjunction with a new RR Appendix **4** data item, 8AA*bis* specific to IMT base stations using AAS in the band 24.45-27.5 GHz;

• the description of 8AA could be modified to allow TRP to be used in the case of IMT stations in 24.45-27.5 GHz; or

• WRC-23 can decide to instruct the RRB to developed a Rule of Procedure to clarify the use of TRP in the case of IMT stations in 24.45-27.5 GHz.

The approach proposed by Canada addresses the implementation issue of RR No. **21.5** as it is currently worded and as raised in WRC-19 Document 550, until a future Conference decides to deactivate the application of RR No. **21.5** for IMT stations using AAS in the band 24.45-27.5 GHz and replace it by another provision.

Proposal

APPENDIX 4 (REV.WRC‑19)

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

ANNEX 1

Characteristics of stations in the terrestrial services[[2]](#footnote-2)1

Footnotes to Tables 1 and 2

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TABLE 1     (Rev.WRC‑23)

Characteristics for terrestrial services

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ... | ... | ... |  |  |  |  |  |  |  |  |
| **8** |  | **POWER CHARACTERISTICS** |  | | | | | | | |
| **8.1** | **8** | the symbol (X, Y or Z, as appropriate) describing the type of power (see Article **1**) corresponding to the class of emission | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **8** |
| **8.2** | **8A** | the power delivered to the antenna transmission line, in kW |  | **X** |  |  |  |  | **X** | **8A** |
| **8.3** | **8AA** | the power delivered to the antenna, in dBW  In the case of a transmitting station, required for an assignment:  – in the bands below 28 MHz, in all services except the radionavigation service; or – in the bands above 28 MHz shared with space services except for IMT base stations in the mobile service using AAS in the frequency band 24.45-27.5 GHz; or  – in the bands above 28 MHz not shared with space services:  • in the aeronautical mobile service, meteorological aids service; or  • in all other services, if the radiated power is not supplied  In the case of a receiving land station, required if the associated transmitting station’s radiated power is not supplied  In the case of a typical transmitting station, required if the radiated power is not supplied |  |  | **+** | **+** | **+** | **X** |  | **8AA** |
| **8.3*bis*** | **8AA*bis*** | the total power radiated, described as the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere, in dBW  Only required for IMT base stations in the mobile service using AAS in the band 24.45-27.5 GHz |  |  | **+** |  |  |  |  | **8AA*bis*** |
| **...** | **...** | ... |  |  |  |  |  |  |  |  |

**Reasons:** To clarify the data item and requirements for the notification of IMT base stations in the mobile service using AAS in the frequency band 24.45-27.5 GHz.

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1. 1 This agenda sub-item is strictly limited to the Report of the Director on any difficulties or inconsistencies encountered in the application of the Radio Regulations and the comments from administrations. Administrations are invited to inform the Director of the Radiocommunication Bureau of any difficulties or inconsistencies encountered in the Radio Regulations. [↑](#footnote-ref-1)
2. 1 The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Terrestrial Services). [↑](#footnote-ref-2)