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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 24 toDocument 99-E** |
|  | **27 October 2023** |
|  | **Original: English** |
|  |
| Japan |
| PROPOSALS FOR THE WORK OF THE CONFERENCE |
|  |
| Agenda item 9.1 |

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

9.1 on the activities of the ITU Radiocommunication Sector since WRC‑19:

# 1 Background

The studies on the RR No. **21.5** issue were requested by WRC-19 Document [550](https://www.itu.int/md/R16-WRC19-C-0550/en) and CPM23-1 identified Working Party (WP) 5D as the responsible group to carry out the studies and to report the results of the studies to the Director of the Radiocommunication Bureau (BR) to be considered as the Director deems appropriate.

In the ITU-R studies conducted by WP 5D, several aspects and approaches regarding the studies were discussed but no consensus was reached. One of the main points of the discussions was the method of notification of the power delivered to the antenna, i.e., data item 8AA of RR Appendix **4**, which was mandatory for submission to the BR. Some administrations were in favour of considering this data item as the power delivered by a single transmitter in AAS for an IMT station. Some other administrations believed the total radiated power (TRP) by all active elements in AAS for an IMT station should be notified as data item 8AA.

Taking into account the CPM23-1 conclusions, the results of these studies were not included in the Report of the CPM to WRC-23. However, they are included in section 4.3.2 of the Report of the Director of the Radiocommunication Bureau “Part 1 Activities of the Radiocommunication Sector in the period between WRC-19 and WRC-23” (Addendum 1 to Document [4](https://www.itu.int/md/R23-WRC23-C-0004/en)).

Considering these situations, Japan submits this contribution to provide its views and proposals on the RR No. **21.5** issue presented in WRC-19 Document [550](https://www.itu.int/md/R16-WRC19-C-0550/en), which may be discussed under WRC-23 agenda item 9.1 or possibly under agenda item 9.2.

# 2 Discussion

Through the active participation in the ITU-R studies, Japan has the following observations on the issues presented in WRC-19 Document [550](https://www.itu.int/md/R16-WRC19-C-0550/en) in order to protect space receivers for the satellite services.

− For the notification of IMT station using AAS, the total radiated power (TRP) (i.e., the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere) should be filled in the data item 8AA in Table 1 of RR Appendix **4**.

− For the verification of the notified IMT station using AAS, the following equation should be applied when assessing conformity with the “+10 dBW” limit stipulated in RR No. **21.5**.

 $P\_{ }- 10log\_{10}\left(\frac{BW}{200}\right)\leq 10 dBW$

 where P is the value of TRP in dBW notified in the data item 8AA and BW is the necessary bandwidth of the IMT station’s emission in MHz notified in the data item 7AB in Table 1 of RR Appendix **4**, respectively. In the above equation, the value of “200” MHz is introduced to avoid a restriction of IMT station using AAS that uses a large channel bandwidth beyond 200 MHz.

− The discussion should focus on the frequency band 24.45-27.5 GHz with respect to the notification and verification of IMT station using AAS. After an agreement in the frequency band 24.45-27.5 GHz, discussion can be extended to IMT station using AAS stations using other frequency bands shared with the space services (Earth-to-space).

− Considering potential future technology innovation of IMT station using AAS employing beyond +10 dBW per 200 MHz bandwidth, but reduced interference to satellite receivers, an additional measure that allows for notification of such IMT station using AAS stations could be considered (e.g., EIRP mask as a function of vertical angle above the horizon).

# 3 Proposal

Based on the discussions above, and considering the divergent views expressed in the ITU-R studies, Japan proposes the following solution to address the issues contained in WRC-19 Document 550 at WRC-23.

− In addition to the existing procedures for verification and notification of stations regarding the power delivered to the antenna (i.e., conducted power) in RR No. **21.5**, TRP (i.e., the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere) can be used as the equivalent value of the conducted power in the frequency assignment notification of IMT station using AAS.

− When the data item 8AA is provided in TRP for IMT stations in the frequency band 24.45-27.5 GHz, the following equation is applied when assessing conformity with the “+10 dBW” limit stipulated in RR No. **21.5**.

 $P\_{ }- 10log\_{10}\left(\frac{BW}{200}\right)\leq 10 dBW$

 where P is the value of TRP in dBW notified in the data item 8AA and BW is the necessary bandwidth of the IMT station’s emission in MHz notified in the data item 7AB in Table 1 of RR Appendix **4**, respectively. The notifying administrations are requested to indicate if the data item 8AA is provided in TRP in order to apply this equation, as necessary.

If this solution, including after some adjustments, works for the conference, it can be captured in the minutes of the Plenary as a decision of WRC-23, which will be used to draft a Rule of Procedure, accordingly. Additionally, this solution can be captured in a new Note to the data item 8AA in Table 1 of RR Appendix **4** while retaining NOC to RR Article **21**.

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Considering the divergent views expressed in the ITU-R studies for WRC-19 Document 550, the following solution is proposed.

− In addition to the existing procedures for verification and notification of stations regarding the power delivered to the antenna (i.e., conducted power) in RR No. **21.5**, TRP (i.e., the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere) can be used as the equivalent value of the conducted power in the frequency assignment notification of IMT station using AAS.

− When the data item 8AA is provided in TRP for IMT stations in the frequency band 24.45-27.5 GHz, the following equation is applied when assessing conformity with the “+10 dBW” limit stipulated in RR No. **21.5**.

 

 where P is the value of TRP in dBW notified in the data item 8AA and BW is the necessary bandwidth of the IMT station’s emission in MHz notified in the data item 7AB in Table 1 of RR Appendix **4**, respectively. In order to apply this equation, the notifying administrations are requested to indicate if the data item 8AA is provided in TRP.

If this solution, including after some adjustments, works for the conference, it can be captured in the minutes of the Plenary as a decision of WRC‑23, which will be used as a basis to draft a Rule of Procedure. Additionally, this solution can be captured in a new Note to the data item 8AA in Table 1 of RR Appendix **4** while retaining NOC to RR Article **21**.

**Reasons:** The above solution is proposed to accommodate different views expressed in the ITU-R studies for WRC-19 Document 550.