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| **The 5th Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-5)** | **APG23-5/OUT-04** |
| 20 – 25 February 2023, Busan, Republic of Korea | 24 February 2023 |

Working Party 1

**PRELIMINARY VIEWS ON WRC-23 AGENDA ITEM 1.1**

**Agenda Item 1.1:**

*to consider, based on the results of the ITU R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No.* ***5.441B*** *in accordance with Resolution* ***223 (Rev.WRC 19)****;*

**1. Background**

WRC-19 approved WRC-23 agenda item 1.1 calling upon WRC-23 “to consider, based on the results of ITU-R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the power flux-density criteria in RR No. **5.441B** in accordance with Resolution **223 (Rev.WRC-19)**”.

WP 5B and 5D are the responsible groups, according to the CPM23-1 results ([*CA/251*](https://www.itu.int/dms_pub/itu-r/md/00/ca/cir/R00-CA-CIR-0251!!PDF-E.pdf)), to address the ITU-R preparatory work for WRC-23. WP 5B has developed a preliminary draft revision to Recommendation ITU-R M.2116 “Technical characteristics and protection criteria for the systems operating in the aeronautical mobile service and maritime mobile service within the 4 400-4 990 MHz frequency range”. WP5D has developed a supporting material “Technical and regulatory conditions for the protection of stations of the Aeronautical Mobile Service (AMS) and Maritime Mobile Service (MMS) located in international airspace or waters (i.e. outside national territories) and operating in the frequency band 4 800-4 990 MHz”. Regulatory aspects and technical studies for agenda item 1.1 were analyzed in this supporting material.

SWG WRC-23 AI 1.1 of Working Party 5D finalized its work on the development of draft CPM text for WRC-23 agenda item 1.1. Eight (8) Methods, proposing various approaches to satisfy WRC-23 agenda item 1.1, were developed. The following eight methods to satisfy this agenda item are proposed in Section 1/1.1/4 of the Draft CPM Report to WRC-23:

|  |  |
| --- | --- |
| **Method A** | NOC |
| **Method B** | NOC to the RR except for modification of Resolution 223 to apply the existing pfd value to all countries listed in RR No. 5.441B |
| **Method C** | Modification of the existing pfd criteria in RR No. 5.441B |
| **Method D** | Modification of the existing pfd criteria in RR No. 5.441B and applying it to all countries listed in RR No. 5.441B |
| **Method E** | Keeping the existing pfd and extension of list of countries where it is not applied |
| **Method F** | Only application of RR No. 9.21 for the protection of AMS/MMS stations in international airspace and waters |
| **Method G** | Application of RR No. 9.21 and bilateral/multilateral coordination agreements with coastal States for the protection of AMS/MMS stations in international airspace and international waters |
| **Method H** | Only application of RR No. 9.21 for the protection of AMS/MMS stations in international airspace and waters and protection of AMS/MMS is limited to national territory |

**2. Documents**

* Input Documents: APG25-5/

[INP-08](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-08_Thailand-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.4_and_9.1_TOPIC_C.docx) (THA), [INP-14](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-14_Japan-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_9.1C_and_RR_NO.21.5.docx) (J), [INP-36](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-36_Iran-WP1-Preliminary_Views_on_WRC_23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_and_9.1Topic_c.docx) (IRN), [INP-46](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-46_Singapore-WP1-Preliminary_Views_on_WRC_23_Agenda_Items_1.1_1.2_9.1Topic_c_and_RR_No.21.5.docx) (SNG), [INP-52](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-52_Viet_Nam-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_and_1.5.docx) (VTN),   
[INP-56](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-56_Australia-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_9.1Topic_c_and_RR_No.21.5.docx) (AUS), [INP-63](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-63_Rep_of_Korea-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.4_9.1Topic_c_and_RR_No.21.5.docx) (KOR), [INP-73(Rev.1)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-73Rev.1_New_Zealand-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.5_9.1Topic_c_and_RR_No._21.5.docx) (NZL), [INP-78](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-78_Indonesia-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_and_1.4.docx) (INS), [INP-88](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-88_China-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_and_RR_No.21.5.docx) (CHN), [INP-95](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-95_Malaysia-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_and_1.4.docx) (MLA)

* Information Documents APG25-5/

[INF-08](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-08_Brief_on_AI1.1.docx) (DG Chair), [INF-24](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-24_Views_on_WRC-23_for_mobile.docx) (GSMA), [INF-39](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-39_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf) (CEPT), [INF-43](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-43_CITEL_preparation_for_WRC-23.pdf) (CITEL),   
[INF-45](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-45_Status_of_RCC_preparation_to_the_WRC-23.pdf) (RCC)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Thailand (Kingdom of) - Document APG23-5/**[**INP-08**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-08_Thailand-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.4_and_9.1_TOPIC_C.docx)

Thailand is of the view that the technical and regulatory conditions for the protection of stations of the aeronautical and maritime mobile services located in international airspace or waters (i.e. outside national territories) and operated in the frequency band 4 800-4 990 MHz should be considered. With respect to the review of the pfd criteria contained in RR No. **5.441B**, the protection of existing services should be ensured.

**3.1.2 Japan - Document APG23-5/**[**INP-14**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-14_Japan-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_9.1C_and_RR_NO.21.5.docx)

Japan supports modification of current regulatory conditions to facilitate IMT deployment while ensuring the protection of stations of the aeronautical mobile service and maritime mobile service located in international airspace or waters in the frequency band 4 800-4 990 MHz.

**3.1.3 Iran (Islamic Republic of) - Document APG23-5/**[**INP-36**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-36_Iran-WP1-Preliminary_Views_on_WRC_23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_and_9.1Topic_c.docx)

This Administration supports method A (NOC) to ensure protection of the existing services in the frequency band 4 800-4 990 MHz.

However, should a potential alternative solution be emerged at the Conference this Administration may consider such potential alternative solution with a view to achieve a workable solution.

**3.1.4 Singapore (Republic of) - Document APG23-5/**[**INP-46**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-46_Singapore-WP1-Preliminary_Views_on_WRC_23_Agenda_Items_1.1_1.2_9.1Topic_c_and_RR_No.21.5.docx)

Singapore supports possible new measures to protect stations of the AMS and the MMS that are located in international airspace or waters and are operating in the frequency band 4 800-4 990 MHz in accordance with Resolution **223 (Rev.WRC-19)**, and the implementation of IMT in the band.

Singapore considers that any protection of AMS/MMS in international airspace and waters within 4800-4990 MHz band, for the implementation of IMT, should be subject to the agreement between the concerned administrations, i.e., between a Coastal State and other states which have interest in ensuring protection of AMS/MMS applications authorized by them and operating in international airspace/waters close to the coastal state in question.

**3.1.5 Viet Nam (Socialist Republic of) - Document APG23-5/**[**INP-52**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-52_Viet_Nam-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_and_1.5.docx)

With the discussions (see section 2 in Document APG23-5/INP-52), Viet Nam is of the view that:

* Supports method F, G, H.
* The alternative pfd criteria in Method C could only be consider if not restrict the rights of Member States to use IMT stations on their national territories or based on bilateral/multilateral coordination agreements between concerned Member States.
* Methods A and E could be support.
* Opposes method B and D.

**3.1.6 Australia - Document APG23-5/**[**INP-56**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-56_Australia-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_9.1Topic_c_and_RR_No.21.5.docx)

Australia supports protection of aeronautical mobile service (AMS) and the maritime mobile service (MMS) located in international airspace or waters (i.e. outside national territories) and operated in the 4 800–4 990 MHz frequency band (from other stations located within national territories) through application of an appropriate PFD limit applied at the 12nm territorial coastal boundary of countries listed in RR 5.441B. Australia does not support protection methods that rely solely on use of 9.21 or agreements between countries.

**3.1.7 Korea (Republic of) - Document APG23-5/**[**INP-63**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-63_Rep_of_Korea-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.4_9.1Topic_c_and_RR_No.21.5.docx)

The Republic of Korea is of the view that protection of aeronautical mobile and maritime mobile services from harmful interference caused by IMT stations in the frequency band 4 800-4 990 MHz cannot be ensured solely through coordination procedure between the administrations concerned under RR Article **9** including No. **9.21**. Therefore, Methods F, G, and H in the draft CPM Report are not appropriate to ensure the protection of aeronautical mobile and maritime mobile services.

In regard to the review of the pfd criteria in No. **5.441B** in accordance with Resolution **223** **(Rev. WRC-19)**, in order to ensure the continued protection of AMS and MMS, proper pfd limits shall be applied to IMT stations of administrations listed in No. **5.441B**. If not, the current pfd criteria in RR No. **5.441B** needs to be applied continuously to IMT stations of those administrations.

In this respect, the Republic of Korea supports Alternative 1 or 2 of Method D and opposes Method E in the draft CPM Report.

**3.1.8 New Zealand - Document APG23-5/**[**INP-73(Rev.1)**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-73Rev.1_New_Zealand-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.5_9.1Topic_c_and_RR_No._21.5.docx)

New Zealand supports ongoing protection of the aeronautical mobile service (AMS) and maritime mobile services (MMS) located in international airspace or waters and operating in the frequency band 4 800-4 990 MHz. AMS and MMS shall remain protected on the basis of the pfd limit provided in RR No **5.441B.** New Zealand does not consider that RR No. **9.21** alone is sufficient for AMS and MMS protection. New Zealand could support an appropriate revision to the pfd limit, provided that it continues to ensure protection to AMS and MMS stations. We support the application of the pfd limit to all countries listed in RR No **5.441B** and the deletion of Resolves 5 of Resolution **223 (Rev.WRC 19)****.**

New Zealand can support the following methods from the draft CPM text:

* Method B – NOC to the RR except for modification of Resolution 223 to apply the existing pfd value to all countries listed in RR No. 5.441B, as well as other consequential changes;

OR

* Method D - Modification of the existing pfd criteria in RR No. 5.441B and applying it to all countries listed in RR No. 5.441B, as well as other consequential changes.

New Zealand opposes methods F, G and H.

**3.1.9 Indonesia (Republic of) - Document APG23-5/**[**INP-78**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-78_Indonesia-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_and_1.4.docx)

Indonesia is of the view to consider the applicable pfd criteria in the frequency band 4 800-4 990 MHz based on the result of the ITU-R study which is accessible for operation IMT station located on national territories while protecting stations of the aeronautical and maritime mobile services located in international airspace and waters and not imposing additional restrictions for operation IMT station.

**3.1.10 China (People’s Republic of) - Document APG23-5/**[**INP-88**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-88_China-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_1.2_1.3_1.4_1.5_and_RR_No.21.5.docx)

Considering that,

* No country has jurisdiction over the use of spectrum in international airspace and waters.
* AMS and MMS operated in 4800-4990 MHz are not mentioned in the RR provisions dealing with international protection.
* There is no specific notification and registration procedure in international airspace and waters for frequency assignments of AMS and MMS stations in this frequency band pursuant to RR No. **11.14.** Such situation does not provide possibility to obtain international rights recognition in respect to frequency assignments of AMS and MMS stations in international airspace and waters and to claim protection against subsequent assignments from another country taking into account RR No. **8.1**.

China is of the preliminary view that AMS and MMS located in international airspace and waters and operated in 4800-4990 MHz should not claim for protection from IMT systems located in national territory. China supports Methods F, G and H, under which methods no additional measures such as pfd limit is needed for the protection of AMS/MMS stations in international airspace/waters in 4800-4990 MHz is proposed.

In addition, *resolves* 5 in Resolution 223 (Rev.WRC-19) is proposed to be deleted under Methods B and D. China opposes Methods B and D so as not to adversely affect the stations already in operation.

**3.1.11 Malaysia - Document APG23-5/**[**INP-95**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-95_Malaysia-WP1-Preliminary_Views_on_WRC-23_Agenda_Items_1.1_and_1.4.docx)

Malaysia supports the consideration of possible measures to address the protection of stations of the aeronautical and maritime mobile services located in international airspace and waters operating in the 4 800-4 990 MHz frequency band, while taking into account the implementation of International Mobile Telecommunications (IMT) systems in this frequency band.

**3.2 Summary of issues raised during the meeting**

There was a discussion on the common understanding regarding the use of spectrum in international airspace and international waters contained in the draft CPM report. There was a proposal to move the following two items to section 4. However, there was no agreement to this proposal due to different views on the necessity to capture this information in that section.

* + No country has jurisdiction over the use of spectrum in international airspace and water.
  + There is no specific notification and registration procedure in international airspace and waters for frequency assignments of AMS and MMS stations in this frequency band pursuant to RR No. **11.14**.

There was a discussion regarding the protection of AMS and MMS stations and the pfd issues in RR No. **5.441B** and “resolve 5” of Resolution **223 (Rev.WRC-19)**:

* + Some APT Members expressed that the protection of AMS and MMS stations cannot be ensured solely through coordination procedure between the administrations concerned under RR Article 9 including No. **9.21**.
  + Some APT Members also expressed that appropriate pfd limits shall be applied to IMT stations of administrations listed in No. **5.441B.**
  + Some other APT Members are of the view that no additional measures such as pfd limit is needed for the protection of AMS and MMS stations in international airspace/waters in 4 800-4 990 MHz

There was a discussion on the Methods to satisfy agenda item 1.1, and different views were expressed by APT Members in this regard.

**4. APT Preliminary View(s)**

None at this stage.

**5. Other View(s) from APT Members**

See section 3.2 above.

**6. Issues for Consideration at Next APG Meeting**

APT Members are encouraged to monitor the progress for this agenda item at the upcoming CPM23-2 meeting and also to review the result and Method(s) that could be support and taking into account section 3.2 above, to contribute for the APG23-6 meeting, in order to formulate a Preliminary APT Common Proposal (PACP).

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 CEPT - Document APG23-5/**[**INF-39**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-39_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf)

CEPT is of the view that,

* AMS and MMS stations located in international airspace or waters and operated in the band 4800 -4990 MHz shall be protected on the basis of the following pfd limits provided in RR No. **5.441B** and derived from detailed AMS and MMS characteristics and protection criteria:
  + In the frequency bands 4800-4825 MHz and 4835-4950 MHz, −140 dB(W/(m2 · 1 MHz)) produced up to19 km above sea level at 22 km from the coast, defined as the low-water mark, as officially recognized by the coastal State.
  + In the band 4800-4990 MHz, −134 dB(W/(m2 · 1 MHz)) produced up to 30 m above sea level at 22 km from the coast, defined as the low-water mark, as officially recognized by the coastal State.
* These pfd criteria shall apply to IMT operating in national territories in order to protect AMS and MMS stations located in international airspace or waters and operating in the band 4800-4990 MHz, i.e. beyond the territorial seas.
* The above new pfd criteria shall apply to all countries listed in RR No. **5.441B** ensuring consistency in the application of the limits.

**7.1.2 CITEL - Document APG23-5/**[**INF-43**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-43_CITEL_preparation_for_WRC-23.pdf)

An administration propose **MOD 5.441B / MOD RESOLUTION 223**

Reasons: Studies are ongoing regarding the pfd limit in **No. 5.441B** and area boundaries to protect AMS and MMS operating in international waters and airspace. Text indicating the review of the pfd criterion at WRC-23 and the IMT identification effective date is no longer required.

**7.1.3 RCC - Document APG23-5/**[**INF-45**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-45_Status_of_RCC_preparation_to_the_WRC-23.pdf)

The RCC Administrations oppose applying the PFD limits to protect stations of the aeronautical and maritime mobile services located in international airspace and waters (i.e., outside national territories) since:

* this imposes restrictions on services within national territories;
* administrations do not hold exclusive spectrum rights in international airspace and waters

and there is no notification and registration procedure in international airspace and waters

for AMS and MMS in this band;

* AMS and MMS stations do not have priority over other applications of terrestrial services in international airspace and waters or within national territories of countries.

Protection of AMS and MMS stations’ frequency assignments in international airspace and waters can be provided if agreed by concerned administration(s) since it can impose restrictions on their frequency assignments within national territories. Such agreement may be reached, for example, through developing the relevant harmonized spectrum utilization plans for AMS and MMS, based on the standards approved by ICAO and IMO.

Method F, G or H from the draft CPM Report

**7.2 International Organisations**

None

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