



Received:

**Document XX/-E**  
**Date 11 April 2022**  
**Original: English**

Subject:

## ITU-APT Foundation of India ([IAFI](#))

### PROPOSAL FOR PRELIMINARY DRAFT CPM TEXT FOR WRC-23 AGENDA ITEM 1.1

During the 40th Meeting of WP 5D held from 7 to 23 February 2022, there were lengthy discussions on section 3.3.1 of the draft CPM text for Agenda Item 1.1 of WRC-23, relating to summary of the results of studies in preparation of WRC-15 and two draft options were developed. (see *First paragraph* of § 1/1.1/3.3.1)

These discussions related to the text based on the conclusions drawn from [Annex 33 of the Chairman's Report of the final meeting of JTG 4-5-6-7 – Document 4-5-6-7/715](#) where two possible options for the text have been drafted

A review the above-mentioned Document 4-5-6-7/715 (PRELIMINARY DRAFT NEW REPORT ITU-R M. [AERO-IMT.SHARING.C-BAND]) indicates that the ITU-R studies on co-channel sharing between aeronautical mobile applications and IMT systems in the 4 400-4 990 MHz were based on IMT base station transmitter power of 38.8 dBm/MHz e.i.r.p. in one study (#2) and 45 dBm/MHz e.i.r.p. in the other study (#3).

Accordingly, it is proposed that this information relating to the two studies may be included in the both the options in the *First paragraph* of § 1/1.1/3.3.1, with the aim of making clear to the reader of the two options on what basis the conclusions were made.

In attached document track changes have been made in § 1/1.1/3.3.1, with the changes highlighted in yellow.

## **Annex 4.7 to Working Party 5D Chairman's Report**

### **WORKING DOCUMENT TOWARDS A PRELIMINARY DRAFT CPM TEXT FOR WRC-23 AGENDA ITEM 1.1**

#### **CHAPTER 1**

##### **Fixed, Mobile and Broadcasting issues**

(Agenda items 1.1, 1.2, 1.3, 1.4, 1.5)

##### **Agenda item 1.1**

**(WP 5B and WP 5D\* / WP 1B, WP 3K, WP 3M, WP 5C, WP 7D)**

*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);*

*Resolution 223 (Rev.WRC-19) – Additional frequency bands identified for International Mobile Telecommunications*

...

#### **1/1.1/2 Background**

*[Text of the background, not more than half a page of text to provide general information in a concise manner, in order to describe the rationale of the agenda items (or issue(s)) See also § A2.2 of Annex 2 to Resolution [ITU-R 2-8](#)]*

#### **Situation at WRC-15**

---

\* Note: WP 5B and WP 5D to work jointly. WP 5B to provide characteristics and protection criteria for the aeronautical and maritime mobile services. WP 5D initiates studies with characteristics of IMT. Studies must take into account comments from both Working Parties (invites the ITU-R 2). WP 5D in consultation with WP 5B develops reports/recommendations, as appropriate, which are approved by SG 5 in accordance with Resolution ITU-R 1-8 (invites the ITU-R 4). WP 5B and WP 5D develop relevant parts, as appropriate, of the draft CPM text. WP 5D finalizes draft CPM text taking into consideration comments by WP 5B (for invites WRC-23).

WRC-15 established RR No. **5.441B** which provided IMT identification for three Region 3 countries in the 4 800-4 990 MHz frequency band, already allocated to the MS on a primary basis, and introduced *inter alia* additional criterion consisting of a limit on the pfd produced by IMT station up to 19 km above sea level at 20 km from the coast in order to protect AMS. This criterion was subject to review at WRC-19.

Due to diverging views with regards to the relevance of pfd criterion to protect AMS, its value, conditions and frequency band for its application, noting that preparatory work was not finalized, WRC-15 invited ITU-R to study the technical and regulatory conditions for the use of IMT in this band in order to protect AMS and review pfd criterion in RR No. **5.441B** at WRC-19.

### **Situation at WRC-19**

As invited by WRC-15, in accordance with Resolution **223 (Rev.WRC-15)** ITU-R carried out but did not finalize studies mentioned above. The report on the above mentioned ITU-R studies was submitted to WRC-19 for its consideration and necessary action, as appropriate.

WRC-19 updated footnote RR No. **5.441B** and Resolution **223 (Rev.WRC-19)** and as a result additional countries were included in the IMT identification in footnote RR No. **5.441B** (now footnote includes 40 countries) and for 11 of these countries the pfd criterion in footnote RR No. **5.441B** was deactivated. However, due to diverging views on whether or not to apply a pfd criterion, WRC-23 was invited, in accordance with Resolution **223 (Rev.WRC-19)**, to consider possible measures to address 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 criterion in RR No. **5.441B**.

WRC-19 therefore adopted agenda item 1.1 referred to above.

### **1/1.1/3 Summary and analysis of the results of ITU-R studies**

*[This section should contain a summary of the technical and operational studies performed within ITU-R, including a list of relevant ITU-R Recommendations. Depending on the agenda item, this section could be divided in two parts, one part dealing with the summary and the other part dealing with the analysis.]*

*The results of the ITU-R studies should also be analysed with respect to the possible methods of satisfying the agenda item and presented in a concise manner.]*

*[Editor's note: The sub-structure of this section will be reviewed further as the studies progress]*

#### **1/1.1/3.1 Applicable ITU-R Recommendations and Reports**

Recommendation ITU-R M.2116    Technical characteristics and protection criteria for the aeronautical mobile service systems operating within the 4 400-4 990 MHz frequency range

[TBD]

#### **1/1.1/3.2 Usage scenarios and deployments characteristics**

*[This section provides the relevant deployments characteristics]*

##### **1/1.1/3.2.1 IMT systems**

IMT systems characteristics are described in the section 5.3 of the working document towards a preliminary draft new Report ITU-R M.[Conditions 1.1]

### **1/1.1/3.2.2 Maritime systems**

Maritime systems characteristics are described in the section 5.2 of the working document towards a preliminary draft new Report ITU-R M.[Conditions 1.1]

### **1/1.1/3.2.3 Aeronautical systems**

Aeronautical systems characteristics are described in the section 5.1 of the working document towards a preliminary draft new Report ITU-R M.[Conditions 1.1]

### **1/1.1/3.3 Summary of the results of studies**

*[This section provides a summary for the conducted sharing and compatibility studies in WP 5D]*

#### **1/1.1/3.3.1 Summary of the results of studies in preparation of WRC-15**

##### *First paragraph*

Option 1 – The pfd criterion as in RR No. **5.441B** was not resulting from ITU-R studies in preparation of WRC-15. It was proposed by some administrations directly at the WRC-15 taking into account assessment they had done in preparation of WRC-15 agenda item 1.1. ITU-R studies were not finalized while some administrations was of the view that co-channel sharing between aeronautical mobile applications and IMT systems in the 4 400-4 990 MHz is not practical, based on IMT base station transmitter power of 38.8 dBm/MHz e.i.r.p. in one study (#2) and 45 dBm/MHz e.i.r.p. in the other study(#3).

Option 2 – The pfd criterion as in RR No. **5.441B** did not result from ITU-R studies in preparation of WRC-15. It was an assessment during WRC-15 taking into account the results of studies conducted in preparation of WRC-15 agenda item 1.1 and included in a preliminary draft new Report referred to in the CPM text. The conclusions of those studies are that co-channel sharing between aeronautical mobile applications and IMT systems in the 4 400-4 990 MHz is not practical given the large exclusion zone and/or the strong IMT e.i.r.p. restriction needed to protect AMS. The conclusions were based on IMT base station transmitter power of 38.8 dBm/MHz e.i.r.p. in one study (#2) and 45 dBm/MHz e.i.r.p. in the other study (#3) (see details in Annex 33 of the Chairman's Report of the final meeting of JTG 4-5-6-7 – Document 4-5-6-7/715).

##### *Second paragraph*

With respect to the pfd referred in the background section and included in RR No. **5.441B**, its value ( $-155 \text{ dB(W/(m}^2 \cdot 1 \text{ MHz))}$ ) was derived during WRC-15 to ensure protection of AMS using simplified assumptions [by administrations interested in the protection of AMS and] [based on the deployment of IMT indoor small cells together with the characteristics of one AMS system considered by ITU-R in preparation of WRC-15], which led to an aggregation factor of about 40 dB. [The details of this calculation were presented in 2021 in ITU-R and can be found in Chapter XX of the Document 5D/XXX.]

#### **1/1.1/3.4 Analysis of the results of studies**

*[This section provides the analysis of the results of studies]*