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| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Addendum 10 to Document 28(Add.21)-E** |
|  | **27 September 2019** |
|  | **Original: Chinese** |
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| China (People’s Republic of) | |
| 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 Convention:

9.1 on the activities of the Radiocommunication Sector since WRC-15;

# 1 Background

World Radiocommunication Conference 2015 (WRC-15) approved RR footnote No. **5.441B** which identified the frequency band 4 800-4 990 MHz, or portions thereof, for the International Mobile Telecommunications (IMT) in three countries. In order to protect the stations of the aeronautical mobile service (AMS) from possible interference caused by IMT stations, RR footnote No. **5.441B** contains two specific regulatory provisions:

– application of No. **9.21** of the Radio Regulations for protection of stations of the primary services in this band, including stations in aeronautical mobile service operated in the territory of the concerned administrations, and

– application of the power flux density (pfd) value of −155 dB(W/(m2 · 1 MHz)) in order to protect stations in the aeronautical mobile service operating in the international airspace.

Based on RR footnote No. **5.441B**, World Radiocommunication Conference 2019 (WRC-19) is required to review of the above pfd criterion for the protection of the aeronautical mobile service (AMS) against possible interference from IMT stations in the international airspace.

As a result of the discussions at CPM19-2, it has been recognized that “this criterion is subject to revision at WRC-19”, according to RR No. **5.441В**. At the same time, administrations have also been urged to consider this issue as appropriate in their preparation for WRC-19.

The 32nd meeting of ITU-R Working Party (WP) 5D recently held (Armação dos Búzios, Brazil, 9‑17 July 2019) discussed this issue and “*suggested that administrations and the BR Director may consider the summary information, as appropriate, when preparing for WRC-19, but there was no agreement reached on this suggestion*.”

# 2 Analysis of AMS usage

There are two types of applications of aeronautical mobile service in ITU-R deliverables: aeronautical mobile telemetry (AMT) used by aircraft stations (located on board an aircraft) for flight testing in accordance with the Resolution **416 (WRC-07)** and Aeronautical mobile service data link (ADL) usage whose characteristics are specified in Recommendation ITU-R M.2116. Pfd limit in RR No. **5.441B**, which was intended for the protection of AMS in the international air space, is not required or not applicable to these two applications.

– For aeronautical mobile telemetry (AMT) usage,

• In Region 3, based on RR No. **5.440A** and No. **5.442**, in Australia, the band of 4 800-4 940 MHz is allocated to aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations (located on board an aircraft), and such usage is in compliance with the Resolution **416** (**WRC-07**).

• Resolution **416 (WRC-07)** resolves to apply to “emission limited to transmission from aircraft stations only, see No. **1.83**” and “transmission limited to designated flight testing areas, where flight testing areas are airspace designated by administrations for flight testing”, Consequently, the pfd limit in RR No. **5.441B** is not required for the protection of AMT usage, and their ground-based receivers can be fully protected by the application of RR No. **9.21** already included in the footnote.

– For the aeronautical mobile service data link (ADL) usage,

• according to Recommendation ITU-R М.2116, the usage of such applications is restricted to national territories, as stated “... aeronautical mobile data links are operated between aeronautical stations and aircraft stations, or between aircraft stations equipped with AMS data links (ADL) and can be deployed anywhere within a country whose administration has authorized their use in accordance with regulations.” Therefore, the pfd limit in RR No. **5.441B**, which was intended for the protection of international air space, is not applicable to these applications.

Regarding the aeronautical mobile service in the international space, which the pfd limit in RR No. **5.441B** was intended to protect, is entitled for protection only if it’s in the Master Register or in the frequency plan, according to the fundamental principles indicated in Article **8** of RR (***8.1****- The international rights and obligations of administrations in respect of their own and other administrations’ frequency assignments1 shall be derived from the recording of those assignments in the Master International Frequency Register (the Master Register) or from their conformity, where appropriate, with a plan. Such rights shall be conditioned by the provisions of these Regulations and those of any relevant frequency allotment or assignment plan*). When carrying out the relevant studies, these principles should also be taken into account. In accordance with the Master Register, there is no frequency assignment for AMS stations in the international airspace in the band 4 800-4 990 MHz and there are no plans for AMS in the band 4 800-4 990 MHz. Since no AMS in international space is entitled for protection, so the pfd limit in RR No. **5.441B** for the protection of international air space is not required.

It should be also noted that, for footnote RR No. **5.441A,** in the similar situation as in footnote RR No. **5.441B**, for the international airspace of Region 2, the pfd value for protecting the aeronautical mobile service stations in the band 4 800‑4 900 MHz against possible interference from IMT stations is not used:

*5.441A**In Uruguay, the frequency band 4 800-4 900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution* ***223 (Rev.WRC-15)****.     (WRC-15)*

In conclusion, thepfd limit in RR No. **5.441B**, which was intended for the protection of international air space, is neither required nor applicable, so it should be removed.

# 3 Usage of 4.8 GHz

3GPP has identified band n79 for 5G NR in the frequency range of 4 400-5 000 MHz in its Release 15. Some countries are developing IMT/5G on portions of this range.

In China, 4 800-5 000 MHz frequency band has been planned for 5G, and 4 800-4 900 MHz has been allotted to China Mobile as part of the 5G trial frequency in 2018. Trial networks have been built up in several major cities by China Mobile. Equipment from some manufacturers can already operate on n79 band now. Supporting to this frequency band is mandatory for 5G terminal devices supplied to China Mobile. China will further strengthen the deployment of the 4.8 GHz network and promote the development of the ecosystem.

In the mid-term, the frequency band 4 800-4 990 MHz has a potential to become a regionally harmonized 5G band, complementary to the 5G band in sub 6 GHz spectrum. Pfd limit in the RR No. **5.441B** with regard to 4 800-4 990 MHz concerning the protection of AMS in the international airspace is a potential obstacle for the interested countries to use this frequency band for 5G on the national level.

In Region 3, APT has discussed this issue in APG 19-5 meeting and established its position for its members.

# 4 Proposal

Based on the analysis above, the pfd limit in RR No. **5.441B**, which was intended for the protection of international air space, is neither required nor applicable. Therefore, it is proposed to delete the pfd limit regarding the protection of AMS in the international airspace from RR No. **5.441B**.

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD CHN/28A21A10/1

5.441B In Cambodia, Lao P.D.R. and Viet Nam, the frequency band 4 800-4 990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service.     (WRC‑19)

**Reasons:** The pfd limit in the footnote, which is intended to protect AMS, is neither required nor applicable for the main AMS applications. AMS shall not claim protection in the international airspace since there is no frequency assignment for AMS stations in the international airspace in the band 4 800-4 990 MHz in accordance with the Master Register and there are no plans for AMS in the band 4 800-4 990 MHz.

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