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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 2 to Document 70(Add.1)-E** |
|  | **16 October 2015** |
|  | **Original: English** |
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| Brazil (Federative Republic of) | |
| Proposals for the work of the conference | |
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| Agenda item 1.1 | |

1.1 to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution **233 (WRC‑12)**;

****Introduction****

Under the scope of WRC-15 agenda item 1.1, which considers additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, the Brazilian Administration has reviewed the proposals presented to date to CITEL PCC.II-Radiocommunications.

In that regard, the Brazilian Administration carried out an extensive review of the options presented in the CPM Report in order to search for a solution that could be applied to Region 2. We therefore propose to apply to Region 2 a similar solution used at WRC-07, and currently in force, for Regions 1 and 3.

The proposal contains the following elements:

• Allocation, where needed, of the band 3 400-3 500 MHz to the mobile service on a primary basis

• Identification of the band 3 400-3 600 MHz to IMT

• Technical and regulatory provisions to provide coexistence in the band 3 400-3 600 MHz with FSS systems operating in neighbouring countries:

– Application of 9.21

– Application of 9.17 and 9.18

– Pfd limit at the border to protect FSS stations

– Pfd limits in Table 21-4 for FSS systems

• The introduction of a new Resolution: Resolution [B-A11-IMT 3.4-3.6 GHz] (WRC‑15) for additional studies on the coexistence of FSS systems and IMT systems operating in the 3 400-3 600 MHz band, in accordance with Resolution 233 (WRC-12).

All these elements are contained in CPM Report to WRC-15 as a method to satisfy agenda item 1.1.

Proposals

ARTICLE 5

Frequency allocations

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

MOD B/70A1A2/1

2 700-4 800 MHz

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| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 3 400-3 600  FIXED  FIXED-SATELLITE (space-to-Earth)  Mobile 5.430A  Radiolocation  5.431 | 3 400-3 500  FIXED  FIXED-SATELLITE (space-to-Earth)  MOBILE except aeronautical Mobile ADD 5.IMT  Amateur  Radiolocation 5.433  5.282 | 3 400-3 500  FIXED  FIXED-SATELLITE (space-to-Earth)  Amateur  Mobile 5.432B  Radiolocation 5.433  5.282 5.432 5.432A |
| 3 500-3 700  FIXED  FIXED-SATELLITE (space-to-Earth)  MOBILE except aeronautical mobile ADD 5.IMT  Radiolocation 5.433 | 3 500-3 600  FIXED  FIXED-SATELLITE (space-to-Earth)  MOBILE except aeronautical mobile 5.433A  Radiolocation 5.433 |
| 3 600-4 200  FIXED  FIXED-SATELLITE (space-to-Earth)  Mobile | 3 600-3 700  FIXED  FIXED-SATELLITE (space-to-Earth)  MOBILE except aeronautical mobile  Radiolocation  5.435 |
|  | 3 700-4 200  FIXED  FIXED-SATELLITE (space to-Earth)  MOBILE except aeronautical mobile | |

**Reasons:** To provide additional spectrum for IMT to satisfy AI 1.1 for high-capacity networks.

ADD B/70A1A2/2

5.IMT In Region 2, the band 3 400-3 600 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT), subject to agreement obtained under No. **9.21** with other administrations. See Resolution **[B-A11-IMT 3.4-3.6 GHz]** (WRC-15). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m2 ⋅ 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21‑4** of the Radio Regulations (Edition of 2004). (WRC-15)

**Reasons:** To identify the band 3 400-3 600 to IMT in Region 2 and to provide flexibility to administrations for use by IMT systems in this band or parts thereof subject to successful coordination with FSS. It is necessary, however, to establish technical conditions to guarantee the coexistence of FSS systems and IMT systems operating in 3 400-3 600 MHz, in accordance with Resolution 233 (WRC-12).

SUP B/70A1A2/3

5.431A *Different category of service:*  in Argentina, Brazil, Chile, Costa Rica, Cuba, French overseas departments and communities in Region 2, Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay, Suriname, Uruguay and Venezuela, the band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**. Stations of the mobile service in the band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004).     (WRC-12)

**Reasons:** Consequential change to the addition of footnote RR No. 5.IMT and its application to Region 2 as well.

ADD B/70A1A2/4

Draft New Resolution [B-A11-IMT-3.4-3.6 GHZ] (WRC-15)

Additional studies on the coexistence of FSS systems operating in the band 3 600-4 200 MHz and IMT systems operating in the band 3 400-3 600 MHz

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that the band 3 400-4200 MHz is allocated worldwide on a primary basis to the fixed-satellite service (FSS);

*b)* that International Mobile Telecommunications (IMT), including IMT-2000 and IMT‑Advanced, is the ITU vision of global mobile access;

*c)* that IMT systems provide telecommunication services on a worldwide scale regardless of location, network or terminal used;

*d)* that the technical characteristics of IMT are specified in ITU‑R and ITU‑T Recommendations, including Recommendations ITU‑R M.1457 and ITU‑R M.2012, which contain the detailed specifications of the terrestrial radio interfaces of IMT;

*e)* that previous WRCs have identified the following bands for use by IMT: 450-470 MHz, 694-960 MHz, 1 710-1 885 MHz, 1 885-2 025 MHz, 2 110-2 200 MHz, 2 300-2 400 MHz, 2 500-2 690 MHz and 3 400-3 600 MHz;

*f)* that harmonized worldwide bands for IMT are desirable in order to achieve global roaming and the benefits of economies of scale,

noting

*a)* that FSS earth station receivers receive signals at very low power flux density levels from outer space, particularly satellite telemetry signals, making them particularly susceptible to interference coming from stations operating in the same and adjacent frequency bands;

*b)* that, in the absence of appropriate technical and operational restrictions on IMT operations, FSS receiving earth stations operating in the 3 600-4 200 MHz band may experience harmful interference due to the single and/or aggregate interference from IMT base stations and IMT mobile terminals operating in the 3 400-3 600 MHz frequency band;

*c)* that the IMT terrestrial radio interfaces as defined in Recommendations ITU‑R M.1457 and ITU‑R M.2012 are expected to evolve within the framework of ITU‑R beyond those initially specified, to provide enhanced services and services beyond those envisaged in the initial implementation,

invites ITU‑R

1 to provide guidance and appropriate measures, including, but not limited to, guard bands, separation distances and power limits for the implementation of IMT systems in the band 3 400-3 600 MHz to avoid harmful interference to FSS systems operating in the band 3 600-4 200 MHz;

2 to develop harmonized frequency arrangements for the 3 400-3 600 MHz band for operation of the terrestrial component of IMT, taking into account the results of the sharing and compatibility studies;

3 to include the guidance as well as the frequency arrangements for IMT networks in ITU‑R Recommendation, Resolutions or Reports as appropriate.

**Reasons:** To ask ITU-R to provide guidance on the implementation of IMT in 3 400-3600 MHz to ensure the coexistence with FSS systems operating in the range 3 600-4 200 MHz.

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