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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 7(Add.1)-E** |
|  | **29 September 2015** |
|  | **Original: English** |
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| Member States of the Inter-American Telecommunication Commission (CITEL) | |
| 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)**;

Background

The 2012 World Radiocommunication Conference (WRC-12) recognized a need for additional radio spectrum to support the increasing mobile data traffic, and placed consideration of additional spectrum allocations for terrestrial mobile broadband applications on the agenda for WRC-15. Joint Task Group (JTG) 4-5-6-7 considered spectrum requirements for IMT/terrestrial mobile broadband applications and developed sharing and compatibility studies, taking into account protection requirements of other services from concerned ITU-R Working Parties.

The bands 1 164-1 215 MHz, 1 215-1 300 MHz and 1 559-1 610 MHz, are actively used for radionavigation-satellite services (RNSS) in all three ITU Regions. Operators plan or currently operate several global and regional non-geostationary satellite RNSS systems, including GPS, GLONASS, Beidou, QZSS, Galileo, and IRNSS, as well as a number of geostationary-orbit satellite networks that provide space-based augmentation services within these bands. Operators deploy RNSS receivers and applications by the hundreds of millions worldwide, and are pervasive in every facet of everyday life. People use RNSS receivers for safety-of-life applications (including in the Global Navigation Satellite System (GNSS)) and other applications for precision surveying, construction, agriculture, and mining, environmental monitoring (including earthquake and tsunami monitoring), precision timing applications – often within or in conjunction with mobile broadband devices and other handsets. RNSS shares its allocations at 1559-1610 MHz and, 1164-1215 MHz with the aeronautical radionavigation service (ARNS), which is a safety service.

There is a long history of protecting RNSS operations in the ITU. Multiple RNSS systems and networks transmit signals around-the-clock across all three ITU Regions and radiate across the entire surface of the Earth. RNSS systems and networks are operational at all times in all locations on Earth. RNSS signals, which are transmitted from RNSS satellite constellations, are very low-power and use spread-spectrum modulation techniques, which makes the signals difficult to detect. Special processing is required of RNSS receivers to detect and extract these low power signals from the background noise. If a high-power signal in the same frequency band, or an adjacent band, is transmitted in proximity to a RNSS receiver, it could desensitize the RNSS receiver, including to the degree that the RNSS receiver is unable to extract the RNSS signal transmitted by the RNSS satellites.

Studies in the ITU in preparation for WRC-2000 concluded that even relatively weak signals from mobile-satellite service satellites in geostationary orbit would not be able to be provided on a co-frequency basis with the RNSS and ARNS in the 1 559-1 610 MHz band. CPM-99 concluded, in Section 2.2.1.3 of the CPM Report for WRC-2000, that “although studies were not carried out on every different type of RNSS receiver used in all the numerous applications of RNSS, it was nevertheless possible to conclude that sharing between ARNS/RNSS and MSS (space-to-Earth) is not feasible in any portion of the 1559-1567 MHz band.” WRC-2000 declined to add a co‑primary MSS allocation to a portion of the RNSS band. To protect RNSS in the 1164-1215 MHz band, WRC-12 modified Resolution 417 to include strict power limits on high-powered terrestrial transmitters in the adjacent aeronautical radionavigation service band at 960-1164 MHz.

Although all the RNSS allocations are in bands that have favourable propagation and other characteristics for terrestrial mobile broadband, the ITU did not study the use of these or adjacent bands.

Due to the vital and global role of the RNSS, the sensitive nature of RNSS receivers and previous in-band and adjacent band ITU-R studies showing the infeasibility of sharing/compatibility, no allocation to the mobile service or identification for IMT should be considered in the bands 1164-1215 MHz, 1215-1300 MHz and 1559-1610 MHz. Furthermore, any proposed new use of a band adjacent to any of these RNSS bands would need to include regulations that would ensure that terrestrial mobile broadband systems did not cause harmful interference to RNSS receivers (e.g. guardbands, power limits, etc.)

Proposals

ARTICLE 5

Frequency allocations

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

NOC IAP/7A1/2

890-1 300 MHz

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| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 1 164-1 215 AERONAUTICAL RADIONAVIGATION 5.328  RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B  5.328A | | |
| 1 215-1 240 EARTH EXPLORATION-SATELLITE (active)  RADIOLOCATION  RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A  SPACE RESEARCH (active)  5.330 5.331 5.332 | | |
| 1 240-1 300 EARTH EXPLORATION-SATELLITE (active)  RADIOLOCATION  RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A  SPACE RESEARCH (active)  Amateur  5.282 5.330 5.331 5.332 5.335 5.335A | | |

**Reasons:** An allocation to the mobile service and designation for IMT should not be considered for the bands 1 164-1 215 MHz, 1 215-1 300 MHz and 1 559-1 610 MHz due to the incompatibility of RNSS with mobile services.

NOC IAP/7A1/3

1 525-1 610 MHz

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| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 1 559-1 610 AERONAUTICAL RADIONAVIGATION  RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A  5.341 5.362B 5.362C | | |

**Reasons:** To ensure the continued operation of RNSS systems around the world.

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