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| **39 MEETING OF PERMANENT****CONSULTATIVE COMMITTEE II:****RADIOCOMMUNICATIONS****October 31 to November 04, 2022****Port of Spain, Trinidad and Tobago** | **OEA/Ser.L/XVII.4.2.39** **CCP.II-RADIO /doc. /22****6 October 2022****Original: English** |
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|  | **DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE** **AGENDA ITEM 1.2** |
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|  | **(Item on the Agenda: 3.1)****(Document submitted by the United States of America)** |

**Impact on the sector:**

This document supports the CITEL PCCII WRC Working Group’s preparations for WRC-23.

**Executive Summary:**

This document contains a preliminary proposal from the United States for WRC-23 agenda item 1.2 for the 3600-3800 MHz frequency band.

Taking into account the Region’s IMT identification in the 3400-3600 MHz band, the U.S. is considering options that encompass both the 3300-3400 MHz and 3600-3800 MHz bands, but is still considering its proposal for the 3300-3400 MHz band.

**UNITED STATES OF AMERICA**

**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

**Agenda item 1.2:***to consider identification of the frequency bands 3 300-3 400 MHz, 3 600‑3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution* ***245 (WRC‑19)****;*

**BACKGROUND**

**Source: GT/CMR-23/doc.022r1**

Mobile broadband plays a crucial and fundamental role in providing access to information for businesses and consumers worldwide. Mobile broadband users are also demanding higher data rates and are increasingly using mobile devices to access audio-visual content. The mobile industry continues to drive technological innovations in order to meet these evolving user demands. In 2020, the first year of the pandemic, the number of Internet users grew by 10.2 per cent, the largest increase in a decade, driven by developing countries where Internet use went up 13.3 per cent. According to ITU estimates, the number of active mobile-cellular telephone subscriptions per 100 inhabitants continues to grow strongly, reaching 110 subscriptions per 100 inhabitants, including a record number of mobile subscriptions with broadband capacity (3G or better).[[1]](#footnote-2) Ninety-five percent of the world’s population lives within reach of a mobile broadband service, and the relatively small difference in the number of subscriptions between developed and developing countries demonstrates that connectivity is a priority among people in countries at all levels of development.[[2]](#footnote-3)

The evolution of International Mobile Telecommunications (IMT), which provides wireless telecommunication services on a worldwide scale, has contributed to global economic and social development. IMT systems are now being evolved to provide applications such as enhanced mobile broadband, massive machine-type communications and ultra-reliable and low-latency communications.

The demand for mobile wireless broadband applications such as IMT continues to grow dramatically as does the need for access to radio spectrum to support that growth.[[3]](#footnote-4) Fifth generation (5G) provides improved data rates and reduced latency. Importantly 5G has been designed to enable capabilities in a wide range of industries including healthcare, transportation, manufacturing, education, and telemedicine; 5G is expected to have a broad impact on our economies and societies. Recognizing the need to consider additional mid-band spectrum bands – with its favourable mix of coverage and capacity - in the range 3 300 MHz to 10.5 GHz to support the terrestrial component of IMT, WRC-19 approved WRC-23 agenda item 1.2. ITU-R, standards development organizations, and industry continue to progress the work on the development of IMT-2020.

WRC-23 agenda item 1.2 (Resolution 245 (WRC-19)) calls for sharing and compatibility studies, with a view to ensuring the protection of services to which the frequency band is allocated on a primary basis, without imposing additional regulatory or technical constraints on those services, and also, as appropriate, on services in adjacent bands, for the frequency bands:

* 3 300-3 400 MHz and 3 600-3 800 MHz and (Region 2);
* 3 300-3 400 MHz (amend footnote in Region 1);
* 7 025-7 125 MHz (globally);
* 6 425-7 025 MHz (Region 1);
* 10.0-10.5 GHz (Region 2).

3 300 – 3 400 MHz

The 3300 – 3400 MHz frequency band is part of a globally-standardized band for 5G. 3GPP has specifications (n77 or 3.3-4.2 GHz band) for the operation of both Long- Term Evolution (LTE) and 5G NR in these bands and there are already significant deployments worldwide along with the required ecosystem to enable those deployments. Seventy percent or nearly 140 operators are investing their 5G deployments in this range. The 3300 – 3400 MHz band is also included in existing frequency arrangements harmonized in CITEL[[4]](#footnote-5) and the ITU-R[[5]](#footnote-6). In Region 2, the Radio Regulations footnote Nos. **5.429C** and **5.429D** provide primary allocations to the Mobile Service and identification for IMT respectively, while in other regions there are primary allocations to the Mobile Service via Nos. **5.429,** Nos. **5.429A, and** Nos. **5.429C,** with identifications to IMT via Nos. **5.429B** andNos. **5.429E**.

The United States uses the band 3 300-3 500 MHz for operating various types of government high-resolution/powered shipborne, land-based, and aeronautical mobile radar systems. ITU-R sharing studies indicated that separation distances and/or exclusion zones are required in the proximity of these radars to ensure their protection.

3 600 – 3 800 MHz

The 3 600 – 3 800 MHz frequency band is part of a globally-standardized band for 5G. 3GPP has specifications (n77 or 3.3-4.2 GHz band) for the operation of both Long- Term Evolution (LTE) and 5G NR in these bands and there are already significant deployments worldwide along with the required ecosystem to enable those deployments. The 3 600- 3 800 MHz frequency band is globally allocated to the Fixed-Satellite Service (FSS) (space-to-Earth) on a co-primary basis with Fixed and Mobile services in Region 2. GSO FSS satellites have and continue to provide services across the Americas. C-band GSO satellites provide services including distribution of television and radio broadcasting programs, telephone and data services to consumers, back-haul to mobile terrestrial operators, and feeder links for mobile-satellite services. Additionally, C-band is used for reception of essential telemetry FSS satellite signals.[[6]](#footnote-7)

In the United States the Federal Communications Commission (FCC), as part of its efforts to facilitate 5G network deployments and ensure the continued access for C-band spectrum for FSS services, adopted new rules and auctioned 280 MHz of spectrum in the 3700 – 3980 MHz in the contiguous United States and maintained 200 MHz for FSS operations in the 4000-4200 MHz band. In Alaska, Hawaii, and insular territories, where dependence on C-band FSS services is more significant, the full 3700-4200 MHz band continues to be used to deliver FSS. ITU-R sharing studies have indicated separation distances (e.g. 7.5 - 26 km) are required to ensure the protection of FSS earth station receivers from terrestrial IMT operations. Cross-border coordination between IMT and the FSS is feasible when the deployment of IMT is limited to the areas outside of the required separation distances for each azimuth to protect each specific FSS earth stations. In the case of bilateral coordination, the FSS protection criteria along with the FSS antenna elevation angle, should be used to determine the necessary separation distances to ensure protection of FSS earth stations.

**PROPOSALS**

**Source: GT/CMR-23/doc.022r1**

ARTICLE 5

Frequency allocations

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

MOD PP/1.2(3**.6-3.8**GHz)/1

**Supports: CAN, USA**

3 600-4 800 MHz

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| Allocation to services |
| Region 1 | Region 2 | Region 3 |
| 3 600-4 200FIXEDFIXED-SATELLITE(space-to-Earth)Mobile | 3 600-3 700FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobile MOD 5.434Radiolocation 5.433 | 3 600-3 700FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobileRadiolocation5.435 |
| 3 700-3 800FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobile MOD 5.434 | 3 700-3 800FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobile |
| 3 800-4 200FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobile |
| 4 200-4 400 AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438 5.437 5.439 5.440 |
| 4 400-4 500FIXED MOBILE 5.440A |
| 4 500-4 800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A |

**Reasons:** The identification of sufficient mid-band frequency spectrum for IMT is essential to be able to address digitalization (e.g., sustainable smart cities, industries) and reduce the digital divide in the Americas.

MOD PP/1.2(3**.6-3.8**GHz)/2

5.434 In Region 2, the frequency band 3 600-3 800 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. Stations of the mobile service, including IMT systems, in the frequency band 3 600-3 800 MHz shall not claim more protection from space stations than that provided in Table **21‑4** of the Radio Regulations .     (WRC‑23)

**Reasons:** The identification of sufficient mid-band frequency spectrum for IMT is essential to be able to address digitalization (e.g., sustainable smart cities, industries) and reduce the digital divide in the Americas.

1. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf [↑](#footnote-ref-2)
2. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf [↑](#footnote-ref-3)
3. Ericsson predicts that total mobile traffic is expected to increase by a factor of five over the next six years, reaching 164 exabytes per month by the end of 2025. Ericsson reports that today, smartphones generate about 95% of total mobile data traffic, and that by 2025, 5G networks will carry about half of the world’s mobile data traffic. *See* Ericsson, Mobility Report at 20 (2020), https://www.ericsson.com/49da93/assets/local/mobility-report/documents/2020/june2020-ericsson-mobility-report.pdf. Cisco estimates that, by 2022, 22% of global internet traffic will come from mobile networks, up from 12% in 2017. *See* Cisco Systems Inc., Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2017-2022 White Paper (2019), https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.html. [↑](#footnote-ref-4)
4. PCC.II/REC.54 (XXIX-17) [↑](#footnote-ref-5)
5. Rec. ITU-R M.1036-6 (10/2019) [↑](#footnote-ref-6)
6. *See Expanding Flexible Use of the 3.7-4.2 GHz Band*, Report and Order and Order of Proposed Modification, FCC 20-22, at para. 9 (rel. Mar. 3, 2020) (“*FCC C-Band Order*”), https://docs.fcc.gov/public/attachments/FCC-20-22A1.pdf. [↑](#footnote-ref-7)