

August 16, 2023

The Chairman
Malaysian Communications and Multimedia Commission
MCMC Tower 1
Jalan Impact, Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
Malaysia

(Attention: Spectrum Planning and Assignment Division)

Email: npwg.sec@mcmc.gov.my

1 Introduction

Qualcomm Incorporated (Qualcomm) welcomes the opportunity to provide input to the Malaysian Communications and Multimedia Commission (MCMC) regarding the Public Consultation on Malaysia's Proposed Positions for World Radiocommunication Conference 2023 (WRC-23) Agenda Items (the Consultation).

Qualcomm is the world's leading wireless technology innovator and the driving force behind the development, launch, and expansion of 5G. When we connected the phone to the internet, the mobile revolution was born. Today, our foundational technologies enable the mobile ecosystem and are found in every 3G, 4G, and 5G smartphone. We bring the benefits of mobile to new industries, including automotive, the Internet of Things, and computing, and are leading the way to a world where everything and everyone can communicate and interact seamlessly. From our homes to airports, campuses, and the enterprise, Qualcomm's Wi-Fi solutions build on our world-class engineering capabilities to connect users and devices.

One of our major areas of focus is the development of advanced wireless technologies, including 5G and its evolutions (defined as IMT-2030) and Wi-Fi-based technologies. As the driving force behind mobile and RLAN technologies Qualcomm believes in policies oriented to obtaining the most benefit from both the IMT and Wi-Fi development.

In this response, Qualcomm provides its views regarding the main two topics around IMT development at WRC-23: the current and future use of the 6 GHz band, including the possible identification of the 7025-7125 MHz range for IMT worldwide and the possible identification of the 6425-7025 MHz for IMT in region 1 (WRC-23 Agenda item 1.2), as well as the proposed studies for the identification of additional mid-band spectrum to support the development of IMT-2030 (WRC-23 Agenda item 10).

2 The current and future use of the 6 GHz band

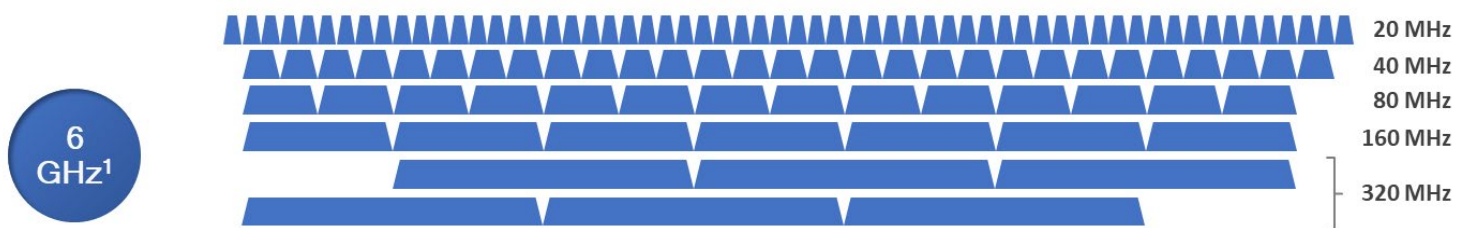
One of the primary spectrum management topics under discussion worldwide for the last four years has been the use of the 6425-7125 MHz frequency band, known as the 6 GHz band.

A wide range of settings and use cases increasingly rely on unlicensed or license-exempt spectrum for their broadband needs. As demand has increased, locations including schools, industrial sites, medical facilities, and transportation hubs have deployed Wi-Fi infrastructure more densely to meet capacity needs. To meet growing needs for broadband capacity and to ensure the fullest and most efficient use of the 6 GHz band, the 1100/1200 MHz of the 6 GHz band must be allocated for license-exempt use.

Allocation of the full 1100/1200 MHz of the 6 GHz band for use of unlicensed devices and technologies is encouraged to enable a seamless experience as users transition between different connectivity mediums. Wi-Fi 6E (and soon Wi-Fi 7) will help to deliver a seamless experience, delivering broadband connectivity to end-user devices in homes and offices.

This is further illustrated by considering the possible channelization options shown in Figure 1 below. The additional 1200 MHz of channels provided by Wi-Fi 6E provides a roughly equivalent number of 80 MHz channels in 6 GHz as there are 40 MHz channels in the 5 GHz band.

Figure 1: 6 GHz channelization options



Limiting new spectrum for unlicensed use in the 6 GHz to the 5925-6425 MHz range would prevent users from taking full advantage of the benefits of Wi-Fi 6 in the 6 GHz band. Specifically, only 3 x 160 MHz channels (illustrated in the bottom row of Figure 1) can be used. With this capacity limitation, the brunt of that burden in terms of lesser quality and congestion will fall on users of Wi-Fi in enterprises, schools, transportation hubs, and other public venues. By comparison, the additional 600/700 MHz (6425-7025/7125 MHz) allows an additional 4 x 160 MHz channels.

Furthermore, the additional 700 MHz would increase the number of possible 320 MHz non-overlapping channels to three from the one that would be available in the lower 500 MHz band, providing even wider channels for high-throughput applications.

In any case, IMT 5G applications could also use the 6 GHz band under the license exempt regime as long as the radio interface (e.g., NR-U) comply with the technical parameters defined for such use.

3 Spectrum to support the deployment of IMT-2030 and beyond

The vision for the sixth generation of mobile technologies (6G or IMT-2030) is emerging as the mobile and broader vertical ecosystems embark on foundational technology research preparing for the next decade of innovations. It is expected that 6G will become the dominant mobile technology in the 2030s. 6G will bring technological leaps, new experiences, and use cases beyond what we can imagine today.

The sixth generation of mobile communications will coexist, complement, and augment existing 5G deployments for a smooth transition in all types of fixed and mobile use cases. It is envisioned that 6G will also make the most of existing infrastructures and spectrum by sharing cloud, computing, and storage resources. 6G is expected to be AI-native, incorporating AI by design. That opens the opportunity to bring more intelligence and coordination to radio access networks (RAN) and to the end-to-end system.

ITU-R Working Party 5D finalized a Draft New Recommendation, “Framework and overall objectives of the future development of IMT for 2030 and beyond,” (the Framework Recommendation) during its June 2023 meeting. The publication of the Framework Recommendation details the overall objectives of IMT-2030 to administrations, research organizations, and standardization bodies worldwide, thus helping them focus their activities on common goals.

6G will be a smarter platform that brings more than just a new radio design. It is envisioned to encompass a broader range of technologies to further drive the expansion of the connected, intelligent edge at scale. 6G will fully unleash the combined potential of communications, artificial intelligence (AI), integrated sensing, system resiliency, and greener networks.

There is support for the analysis of the 7125 MHz-15.35 GHz frequency range as part of the ongoing discussions on a global level regarding the challenges of identifying suitable spectrum for future mobile generations. For example, the most recent Interamerican Telecommunications Commission (CITEL) WRC preparatory meeting (Mexico, May 2023) discussed a proposal in this regard, and a final decision is expected at the final preparatory meeting at the end of August 2023. In the APT region, countries such as India, Japan, Korea, Laos, and Vietnam have expressed their support for the creation of a new agenda item to study the possible identification of mid-band spectrum for IMT-2030 and beyond.

4 Response to the MCMC public consultation

Using the template provided in the consultation, Qualcomm respectfully shares its views and recommendations to MCMC regarding WRC-23 agenda items 1.2 and 10.

Agenda Item	Comments and Views on Proposed Malaysia's Positions
Fixed, Mobile and Broadcasting Issues	
1.2	<p>Qualcomm does not have any comment regarding the MCMC decision to support the IMT identification of the 7025-7125 MHz frequency range for IMT. We believe that WRC-23 will discuss this matter in depth, as the worldwide harmonization path for this band is currently unclear.</p> <p>However, regarding the possibility of identifying the frequency range 6425-7025 MHz of IMT in region 3 (as noted in footnote 3 of the document), we would like to share two main points:</p> <p>First, Resolution 245 (WRC-19) sets the scope of the agenda item and states that the studies for possible identification of the frequency range 6425-7025 MHz are focused on region 1. The IMT identification of the said range in other regions is beyond the scope of the WRC-23 agenda item 1.2.</p> <p>Second, APG19-6 already considered and discussed the possibility of studying 6425-7025 MHz for IMT identification with no agreement. Without regional agreement, the possibility of discussing a possible identification in some APT countries, even through Radio Regulation (RR) footnotes, might be problematic.</p> <p>Considering the points above, we encourage Malaysia and APT administrations to move towards the study and possible identification of additional mid-band spectrum between 7125 MHz-15.35 GHz for supporting the implementation of IMT-2030 as it is described in the next section on WRC-23 agenda item 10.</p>

General and Regulatory Issues	
10	<p>We respectfully suggest that MCMC support the creation of a new agenda item for WRC-27 regarding the study of the possible IMT identification of spectrum in the 7125 MHz-15.35 GHz range.</p> <p>As described in section 3, identifying additional mid-band spectrum at WRC-27 would provide administrations, operators, industry, and other stakeholders with the necessary certainty for investment in expanding network capacity. It would bring regulatory certainty in accessing mid-band spectrum, fostering the necessary economies of scale, and paving the way to start deploying 6G networks later this decade.</p>

5 Conclusion

To ensure the greatest utility and socio-economic value of this important spectrum band for Malaysia businesses and consumers, Qualcomm encourages MCMC to open the entire 1100/1200 MHz of the 6 GHz band for license-exempt use on a technology-neutral basis, while supporting the studies for additional IMT spectrum identification in the 7125 MHz-15.35 GHz range.

Qualcomm’s systems-level research and ecosystem support efforts are both helping the ecosystem with 5G deployments and contributing to the next evolution of 5G and Wi-Fi. We appreciate the opportunity to provide feedback to MCMC and would be happy to provide further information that could help the commission to further develop its plans and positions for WRC-23.

Sincerely,



Nies Purwati,
 Sr. Director Government Affairs,
 Qualcomm International Inc.

Cc: Julie Welch, Vice President, Government Affairs, APAC

