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Mobile industry's views on WRC-23 Agenda Item 1.2

Proposal for Malaysia to consider the identification of 6425-7125 MHz for IMT

Malaysian Communications and Multimedia Commission (MCMC)

Firstly, the GSMA and the Vendor Community represented in this letter would like to commend the MCMC for the great work on spectrum management and the constant industry collaboration. With APG23-6 and WRC-23 fast approaching, we would like to take this opportunity to provide our views and proposals on the important topic of Malaysia's position on the 6 GHz band for WRC-23.

Mobile technologies and services generated 5% of global GDP in 2022, a contribution that amounted to \$5.2 trillion of economic value added.¹ 5G is a pillar of digital transformation and has the potential to impact communities and economies. The technology will add almost \$1 trillion to the global economy in 2030, with benefits spread across all industries. This can only happen, however, if sufficient spectrum resources are in place to provide the capacity for innovation and development.

Mid-band spectrum in the 1-7 GHz range is at the core of 5G. As 5G adoption grows and new use cases emerge in Malaysia over the coming years, the pressure on mid-band spectrum supply will increase. To satisfy the demand for 5G and 5G-Advanced, it is estimated that 2 GHz of mid-band spectrum will be required per market, on average, by 2030 to ensure good speed and quality of mobile experience.

The 6 GHz range, specifically 6425-7125 MHz, is essential for 5G expansion. It sits at a balancing point between coverage and capacity, providing the ideal spectrum to support citywide 5G connectivity. The broad, contiguous spectrum offered by the 6 GHz range will reduce the need for network densification in cities and make next-generation connectivity more affordable for all. WRC-23 thus offers the perfect opportunity for governments around the world to take positive steps to secure the future of 5G by supporting IMT identification of the 6 GHz band.

Below you will find details on the mobile industry position. In summary, we kindly encourage Malaysia to:

- **Identify 6425-7025 MHz for IMT by creating a country footnote for Malaysia under AI 1.2 at WRC-23, in addition to supporting global identification in 7025-7125 MHz,**
- **Make 6425-7125 MHz available for IMT in Malaysia.**

We remain available for any questions that may arise and for any meeting needed.

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¹ <https://www.gsma.com/mobileeconomy/>

Upper 6 GHz (6425-7125MHz) is the best frequency band to meet future spectrum requirements of Malaysia.

Mid-band spectrum is a vital component for 5G and discussions about 6 GHz need to maximize the value of new technologies and accommodate the different uses. This is a priority band for mobile operators. The trade-off between licensed 5G and Wi-Fi in the 6 GHz band will affect how 5G develops in the future. The band is one of the last pieces of mid-band spectrum to be considered for IMT and allowing Wi-Fi use in any band is effectively irreversible.

Research from Coleago Consulting on mid-band 5G spectrum needs shows that careful consideration of 5G spectrum demand in the 2025~2030 timeframe is crucial. This is due to the development of new use cases, the rapid take-up of 5G and the need to mitigate the risk of a challenging and costly environment in the near future. The research finds that regulators will need to make 2 GHz, in average, available for the development of 5G, including FWA.

To unleash the full potential of 5G, licensed mobile services will provide safe, reliable and guaranteed access to spectrum users. This allows long-term investment and enable technology evolution. Licensed spectrum is required to provide the reliability necessary for IMT systems.

The 700 MHz bandwidth spectrum that the upper 6 GHz (6425-7125MHz) can provide is critical for the further development of 5G and its users. Lack of allocation of the 6 GHz band for IMT and 5G would inevitably lead to densification of deployments which would delay expansions, and escalate the cost of networks. If not undertaken, the experience by the end user of IMT would deteriorate and negatively impact the adoption of 5G and beyond, and eventually create risks to investments in the next generation infrastructure.

Using 6425-7125MHz for IMT has reached an industry consensus.

- 3GPP specifications: R17 defined the UE/BS RF specifications for 6 GHz licensed IMT, and allocated the 3GPP band number n104 to the range 6425-7125 MHz.
- Industry ecosystem: 80% of global operators say that they will use U6G to deploy mobile networks in the future. According to GSMA's survey on mainstream equipment vendors, mobile phone vendors, and chip vendors, the industry ecosystem of U6G IMT will mature in 2024 and meet large-scale deployment requirements in 2025.
- European Union, RCC, and ATU have formed a preliminary supportive view on upper 6 GHz for IMT. A multi-country contribution to support upper 6 GHz for IMT by some R3 countries was submitted to CPM 23-2 and was included in CPM 23-2 report. Furthermore, China identified 6425-7125MHz for IMT in their National Regulations on Radio Frequency Allocation from July 1st, while Hong Kong SAR released global 1st upper 6 GHz assignment consultation on July 17th

IMT sharing with incumbent service is feasible on the 6425-7125MHz

ITU-R WP 5D has concluded the sharing and compatibility studies, with sufficient amount of studies that was been submitted. The studies are from various administrations, France, China, Japan, Russia, UAE, etc. and the industry.

In Malaysia, the incumbent service is Fixed-satellite Service uplink (FSS UL). For the protection of FSS UL, the majority of studies (14 out of 20) find the sharing is feasible with margin up to 18dB. It's worth noting that the study from France also found that sharing is feasible. France has extensive use of satellite, and their study result can be considered as representative and neutral.

Furthermore, the sharing studies in the WP 5D are quite generic and agnostic to the satellites; the satellite parameters are also generic and representative for 6 GHz FSS systems. Therefore, we can say that these sharing studies can be considered representative to apply to the case of protect FSS also in Region 3 as well.



For the Region 3 case assuming the entire upper 6 GHz band, there are several studies that simulated global beam, hemi beam, zone beam and spot beam which anticipates IMT deployments in Region 3 within the satellite visible area. All of these have shown that sharing is feasible. For example, studies from Japan and also the study from Jio & al. (Indian operators) have focused on the Region 3 territory, have found that sharing is feasible.

Therefore, we invite Malaysia to consider the following positions for Agenda Item 1.2 for APG23-6 & WRC-23 as below:

Malaysia supports the identification of IMT in the 7025-7125 MHz frequency band with appropriate regulatory and technical conditions, taking into account the results of studies to ensure the protection of services to which the frequency band is allocated on a primary basis, and in adjacent bands if appropriate.

Malaysia notes that the following frequency bands are being considered for other Regions and would not oppose an IMT identification in those Regions, where relevant:

- 3600-3800 MHz and 3300-3400 MHz (Region 2);
- 3300-3400 MHz (amend footnote in Region 1);
- 6425-7025 MHz (Region 1); and
- 10.0-10.5 GHz (Region 2).

Malaysia supports IMT identification in the frequency band 6 425-7 025 MHz by creating country footnotes for some Region 3 countries under Agenda Item 1.2 in WRC-23 with appropriate regulatory and technical conditions, taking into account the results of studies to ensure the protection of services to which the frequency band is allocated on a primary basis, and in adjacent bands if appropriate.