



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

Dear Sir/ Madam

### **Public Consultation on Wireless Local Area Network (WLAN) In The 6 GHz Frequency Band**

With regards to the above mentioned, Ericsson welcomes the opportunity to respond to the Malaysian Communications and Multimedia Commission's (MCMC's) Public Consultation on Wireless Local Area Network (WLAN) in the 6 GHz Frequency Band.

The 6 GHz band is a strong candidate to meet the forecast additional spectrum needs in the 2025 - 2030 timeframe. Ericsson considers mid-band spectrum, and in particular 6 GHz, as essential to realize the 5G vision. Ericsson believes the 6 GHz band will be vital to provide additional spectrum for Malaysian mobile industry to meet projected forecast growth on mobile data demand.

Ericsson recommends that MCMC:

- considers making the full 6 GHz range (5925-7125 MHz) available for licensed 5G (5G-NR), ensuring at least the upper part of the band being 6425-7125 MHz for licensed 5G in Malaysia to secure future needs of mid-band spectrum
- if there is a doubt on licensing of the upper part of the range 6425-7125 MHz to 5G, that MCMC waits on progressing with any allocation until the WRC-23 process has been finalized.
- studies what would benefit Malaysian citizens most for the usage of the band 5925-6425 MHz, in particular considering the fixed broadband penetration in the country

Ericsson recognizes the need for new spectrum allocations by many and varied interested parties. To meet forecast demand, Malaysian mobile industry has a requirement for additional mid-band spectrum for the evolution of 5G.

We also acknowledge requests for new spectrum allocations to support radio local area networks (R-LAN). Ericsson considers that both objectives can be considered for the 6GHz band. By 2026, Ericsson forecasts that 5G networks globally will carry 54% of total data traffic, with 3.5 billion 5G subscriptions. This will in turn create demand for hundreds of MHz of additional IMT spectrum for future 5G use.

**Ericsson Malaysia Sdn Bhd**  
Level 22 & 23, The Pinnacle  
Persiaran Lagoon, Bandar Sunway  
46150 Petaling Jaya  
Selangor, Malaysia

Tel : +603 5021 6200  
Fax: +603 5021 6201



Reference:  
Date: 2021-10-11

2(6)

Please refer to Annex 1, for the Ericsson's responses to the public consultation. Please feel free to contact if you have any questions in relation to the responses.

Sincerely,

---

Afrizal Abdul Rahim

Head of Government & Industry Relations

11<sup>th</sup> October 2021



Annex 1: Ericsson's Responses:

Question	Response
<p><b>Question 1</b></p> <p>MCMC seeks your views and comments on the demand for spectrum for Wi-Fi in the 6 GHz frequency band.</p>	<p>Ericsson recognizes the need for new spectrum allocations by many and varied interested parties.</p> <p>To meet forecast demand, mobile network operators (MNOs) require additional mid-band spectrum in the medium term for 5G. In fact, the GSMA estimates that an average of 2GHz of mid-band spectrum is needed in the 2025-2030 timeframe, <a href="#">GSMA   5G Mid-Band Spectrum Needs - Vision 2030 - Spectrum</a></p> <p>Ericsson proposes that MCMC considers the full 6 GHz range (5925-7125 MHz) available for licensed 5G, ensuring at least the upper part of the band 6425-7125 MHz for licensed 5G in Malaysia to secure future needs in mid-band spectrum.</p> <p>Ericsson suggests that if required the usage of the range 5925-6425 MHz for either unlicensed or licensed with technology neutral rules is considered in terms of benefits to the Malaysian society. In particular, when looking at unlicensed usage, we would suggest to take into account the fixed broadband possibilities, noting that the "speed at home" being delivered by the routers are dependent on the maximum fixed broadband speeds.</p>
<p><b>Question 2</b></p> <p>MCMC seeks your views and comments on the emerging technologies utilizing the 6 GHz frequency band.</p>	<p>The 6GHz band is a strong candidate to meet the forecast mid-band spectrum needs in the 2025 - 2030 timeframe because:</p> <ul style="list-style-type: none"><li>• The band is allocated to MOBILE in the RR</li><li>• it can achieve similar performance as 3.5 GHz (with advanced antenna enhancements)</li><li>• it is a large contiguous block of spectrum, which can accommodate multiple of 100MHz wide channels per network</li></ul> <p>Ericsson considers mid-band spectrum, and in particular 6GHz, as essential to realize the 5G vision.</p> <p>Ericsson believes the 6 GHz band will be critical to meet not only the projected forecast growth on high-speed mobile broadband but also to unlock the potential of smart sustainable cities and power grids. This spectrum can also increase the mid-bands capacity to deliver economically viable FWA solutions in busy villages and towns and adds capacity for industry 4.0</p> <p>In July 2021, GSMA released a report on <a href="#">5G Mid-Band Spectrum Needs – Vision 2030</a>. This report includes GSMA's vision on the</p>



	<p>requirements for mid-band spectrum mobile operators between 2025 and 2030</p> <p>The GSMA recommends that governments and regulators:</p> <ul style="list-style-type: none"><li>• Plan to make 2 GHz of mid-band spectrum available in the 2025-2030 time frame.</li><li>• Carefully consider 5G spectrum demands when 5G usage will be reaching its peak, and advanced use cases will carry additional needs;</li><li>• Base spectrum decisions on real-world factors including population density and extent of fibre rollout; and</li><li>• Support harmonized mid-band 5G spectrum (e.g., within the 3.5 GHz, 4.8 GHz and 6 GHz ranges) and facilitate technology upgrades in existing bands</li></ul> <p>It is Ericsson's view that:</p> <ul style="list-style-type: none"><li>• Potential spectrum in the mid-band range, for this time frame, is very limited, and an allocation in the 6 GHz band is critical.</li><li>• Upper mid-band spectrum offers a good combination of propagation with significant bandwidth and reasonable propagation characteristics. Making this range exceptional to increase capacity across the city</li></ul>
<p><b>Question 3</b></p> <p>MCMC seeks your views and comments on the frequency range within the 6 GHz frequency band that could be considered for Wi-Fi under the Class Assignment in Malaysia. Should MCMC consider allowing Wi-Fi to operate in the entire 1200 MHz (5925 MHz to 7125 MHz frequency band) or only in the 500 MHz (5925 MHz to 6425 MHz frequency band)?</p>	<p>Ericsson's view that:</p> <ul style="list-style-type: none"><li>• MCMC should take the following actions:<ul style="list-style-type: none"><li>○ Explore the introduction of new licensed opportunities for IMT in the 6425-7125 MHz band;</li><li>○ If required, evaluate unlicensed or licensed use in the 5925-6425 MHz band. Unlicensed usage should be made technology neutral</li><li>○ Ensure that fixed link incumbent operations are protected from harmful interference;</li></ul></li><li>• In particular when evaluating the amount of spectrum for RLAN, we would like to indicate the following:<ul style="list-style-type: none"><li>○ Fixed broadband is the bottleneck for home broadband and thus society may not necessarily benefit from additional RLAN allocations.</li><li>○ Wi-Fi usage is decreasing, in fact a survey included in See <a href="#">Five Ways to a Better 5G, Ericsson ConsumerLab</a> reveals that on average, 20 percent of 5G users claim they have decreased Wi-Fi usage at home and other locations and that 10% claim they have stopped using Wi-Fi on smartphones after upgrading to 5G in lead 5G markets (this is due to the 5G data pricing)</li></ul></li></ul>



	<ul style="list-style-type: none"><li>○ While Wi-Fi can deliver home internet and other best effort use cases. Licensed (IMT) spectrum is critical to secure QoS, low latency and high reliability (e.g. industry 4.0)</li><li>• We note that for example Europe has allocated the band 5945-6425 MHz for RLAN (under technology neutral conditions) while it is considering IMT identification for the band 6425-7125 MHz, in accordance with WRC-23 Agenda Item 1.2; as another example, China is considering the allocation of the full range 5925-7125 MHz for IMT</li></ul>
<p><b>Question 4</b></p> <p>MCMC seeks your views and comments on:</p> <ul style="list-style-type: none"><li>i. the coexistence between Wi-Fi and incumbent services (i.e. fixed service and fixed-satellite service); and</li><li>ii. the potential interference mitigation between these services.</li></ul>	<p><b>Fixed Service (FS)</b></p> <p>Coordination among licensing regimes is always preferred in comparison with sharing between unlicensed and licensed usage. This is because licensing allows to know where the Stations are and thus avoid interference.</p> <p>Examples of coordination between IMT and FS are: avoiding pointing towards the FS main lobe or physical separation.</p> <p>In addition, allocating RLAN in a spectrum already licensed for a service such as FS will jeopardize the development of the latter.</p> <p><b>Fixed Satellite Service (FSS)</b></p> <p>We recognize that this band is also allocated to FSS Uplink and that potential interference may occur at the satellite receiver. This issue is not national but global and thus, the ITU is a relevant place for study. In fact, WP 5D is studying sharing between IMT and FSS UL in the band 6425-7125 MHz towards a potential IMT identification at WRC-23 (World Radiocommunications Conference 2023)</p> <p>Ericsson considers the range 6425-7125 MHz is an important mid-band suitable to be licensed to IMT technologies to secure the spectrum needs for future in this frequency range. IMT cannot co-exist with RLAN (Wi-Fi, NR-U, etc) and Ericsson suggest that Malaysia and MCMC do not take any decisions on this range until the studies are completed and the WRC-23 has been finalized.</p>



Question	Response
<p><b>Question 5</b></p> <p>MCMC seeks your views and comments on the potential technical and operational conditions to be imposed if the 6 GHz frequency band is introduced for Wi-Fi under the Class Assignment. Should part of the frequency band be limited to indoor operation? Should standard power devices operating under the Automatic Frequency Coordination (AFC) system be adopted in Malaysia?</p>	<p>If the results of the suggested evaluation in Q1 concludes that 5925-6425 MHz is necessary for unlicensed use, it is critically important that the band is technologically neutral. That is, the spectrum should not be a “Wi-Fi only” band but should be available for any air interface technology NR-U.</p> <p>We recommend MCMC to be cautious when considering devices that require current Automatic Frequency Coordination (AFC) to protect FS and instead take a more conservative approach of limiting the power. Interference from unlicensed use can cause reduced throughput and, in the worst case, complete outage of a licensed microwave backhaul link. Microwave Analytics tools can be used to indicate interference as the root cause of a link problem. However, the accuracy and efficiency of AFC is still to be proven and in particular, the protection criteria and propagation models used in the interference estimations.</p> <p>As example, in Europe ECC DEC (20)01 defines two types of devices:</p> <ul style="list-style-type: none"><li>• Low Power Indoors (LPI): indoors 23 dBm e.i.r.p and 10dBm/MHz e.i.r.p. density</li><li>• Very Low Power (VLP): portable usage and 14dBm e.i.r.p and 1dBm/MHz e.i.r.p. density</li></ul> <p>According to the European studies, these power levels ensure protection of FS deployed in Europe. A database exclusion zone may be needed for LPI depending on the FS deployments.</p>
<p><b>Question 6</b></p> <p>What other key issues need to be considered in introducing Wi-Fi in the 6 GHz frequency range?</p>	<p>Ericsson considers the range 5925-7125 MHz especially the upper range 6425-7125 MHz is an important mid-band suitable to be licensed to IMT technologies to secure the spectrum needs for future in this frequency range. IMT cannot co-exist with RLAN/Wi-Fi. If there is any doubt, Ericsson suggest that Malaysia and MCMC do not take any decisions on the band 6425-7125 MHz until WRC-23 has been finalized. Malaysia and its citizens will benefit from an IMT identification and the ecosystem developed.</p>