



**Submission by Digital Nasional Berhad on the Proposed  
Malaysia's Positions for World Radiocommunication  
Conference (WRC-23) Agenda Items Public Consultation  
Paper**

**16 August 2023**

Agenda Item	Comments and Views on Proposed Malaysia's Positions
<b>Fixed, Mobile and Broadcasting Issues</b>	
1.1	<p><i>"To consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4800-4990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No. 5.44 1B in accordance with Resolution 223 (Rev.WRC-19)".</i></p> <p><b>Malaysia Proposed Position:</b> Malaysia supports the appropriate measures to address the protection of stations of the aeronautical and maritime mobile services located in international airspace and waters (i.e., outside national territories) operating in the 4800-4990 MHz frequency band, and the implementation of IMT systems in this frequency band, as practicable.</p> <p><b><u>DNB's Views on Agenda Item 1.1</u></b></p> <ul style="list-style-type: none"> <li>a) DNB agrees with Malaysia's position on the need for appropriate measures to address the protection of stations of the aeronautical and maritime mobile services (AMS) located in international airspace and waters (i.e., outside national territories) operating in the 4800 – 4990 MHz frequency band, and the implementation of IMT systems in this frequency band.</li> <li>b) It was noted that the pfd value of -155 dB (W/(m<sup>2</sup> . 1 MHz) was derived based on the simplified assumptions during WRC-15, which was based on IMT indoor small cells deployment and one specific AMS system. The current IMT deployment which considers macro deployment needs to be reflected. As such, we believe that Methods A and B of the CPM text do not satisfy this agenda item.</li> <li>c) DNB is of the view that appropriate revision on the pfd limits, if necessary, shall not limit new IMT stations for those countries in the APT region that wish to implement IMT in the existing primary mobile allocation in Region 3, as well as for countries wishing to add their names to the footnote.</li> <li>d) Further, the use of IMT within the national territories should not be constrained from the AMS/MMS stations located in international airspace and international waters and that the implementation of protection measures should only be limited to the frequency bands 4800 – 4825 MHz and 4835 – 4950 MHz, instead of the entire range.</li> <li>e) In view of the importance of additional mid-band spectrum to 5G, DNB recommends that MCMC take appropriate actions at WRC-23 to identify the 4800 – 4990 for IMT by including Malaysia in the footnote RR <b>5.44 1B</b> to encourage wider adoption of this band globally.</li> </ul>
1.2	<p><i>"To consider identification of the frequency bands 3300-3400 MHz, 3600-3800 MHz, 6425-7025 MHz, 7025-7125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications</i></p>

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	<p><i>(IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution 245 (WRC-19)".</i></p> <p><b>Malaysia Proposed Position:</b> 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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>- 3600-3800 MHz and 3300-3400 MHz (Region 2);</li> <li>- 3300-3400 MHz (amend footnote in Region 1);</li> <li>- 6425-7025 MHz (Region 1); and</li> <li>- 10.0-10.5 GHz (Region 2).</li> </ul> <p><b><u>DNB's Views on Band 5: 7025 – 7125 MHz band (globally)</u></b></p> <ol style="list-style-type: none"> <li>a) DNB supports Malaysia's view on the identification of IMT in the 7025 – 7125 MHz.</li> <li>b) 5G is a key pillar of the digital transformation providing expected reliable performance (e.g. high capacity, low latency, wide-area connectivity) to citizens, enterprises, and industries.</li> <li>c) This band is critical to secure future expansion and quality of 5G services, especially in the mid-band spectrum and is also important for global harmonization which is needed for economies of scale for the equipment.</li> <li>d) It is worth noting that 6 GHz has already been standardized for IMT under 3GPP such as band n96 (5925 – 7125MHz) and band n104 (6425-7125MHz) which will promote the ecosystem development and commercial deployment.</li> <li>e) Concerning the protection of a receiving geostationary Fixed -satellite Service (FSS) space network, the study has shown that the sharing between IMT and FSS systems in the band 7025-7075 MHz is found to be feasible. (Doc 5D/1776 (Annex 4.17)).</li> <li>f) In this regard, DNB supports Method 5B which proposes the identification of 7025 – 7125 MHz for IMT by creating a new footnote associated with a new Resolution without any additional conditions or constraints to the IMT deployment other than those existing in the Radio Regulations.</li> </ol> <p><b><u>DNB's Views on Band 4: 6425 – 7025 MHz (Region 1)</u></b></p> <ol style="list-style-type: none"> <li>a) DNB welcomes Malaysia's position to not oppose an IMT identification in other Regions. This band, consisting of 600 MHz of bandwidth, is the largest contiguous mid-band spectrum, which can be allocated for 5G use in Malaysia.</li> </ol>

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	<p>b) According to a study from GSMA prepared by Coleago<sup>1</sup>, a total of 2 GHz of mid-band spectrum will be required to support 5G growth in the 2025 – 2030 timeframe. This spectrum demand study is complemented by a GSMA study<sup>2</sup> on socio-economic benefits of mid-band 5G services. GSMA recommends that at least 6425 - 7125 MHz is made available for licensed 5G by 2030<sup>3</sup>.</p> <p>c) In addition, GSMA's annual Mobile Economy Asia Pacific (APAC) 2023 predicted that the 5G subscription in Malaysia will be at 70% by 2030, with growth in the region generally driven by a fall in the average price of 5G devices, rapid network expansion and concerted efforts by leading governments to integrate mobile-enabled technologies into many aspects of society.</p> <p>d) We foresee that the 6 GHz deployment could be considered as complementary of existing IMT systems and would be mainly used for capacity enhancement purpose by macro cell and small cell deployments, i.e. base stations can be deployed in the areas where existing IMT systems cannot satisfy the traffic requirement.</p> <p>e) Using the 6 GHz for 5G would enable mobile operators to deliver the ITU IMT-2020 requirements, notably the user experience data rate of 100 Mbps in urban areas, in an economically feasible manner. This is relevant for cities like Kuala Lumpur with a population density of 8,167 people per km<sup>2</sup>. Having access to additional mid-band spectrum like the 6425 – 7025 MHz would enable the deployment of 5G networks with speeds and capacity that are critical to future deployment trends.</p> <p>f) Many industries are looking at 5G as the backbone of the Industrial 4.0 Revolution. In a market reliant on data-intensive machine-to-machine applications, higher speeds and low latency of 5G are required for efficient use of smart sensors, robotics and wearable devices. A study<sup>4</sup> published by STL Partners suggests that nearly 3.3 billion devices will be connected through the Internet of Things (IoT) by 2030. Thus, Malaysia should be prepared for the increasing demand for bandwidth requirements from enterprise users by adopting a licensed spectrum approach to guarantee reliable connectivity, exclusive access and faster performance for industrial purposes.</p> <p>g) A number of sharing studies submitted to Working Party (WP) 5D concerning IMT and FSS uplink in the band 6 425-7 025 MHz have shown that sharing is feasible and that there is no risk of harmful interference from IMT to FSS, which is also applicable to Region 3.</p> <p>h) Regarding the sharing between Fixed Service (FS) i.e. microwave links and IMT in the 6 GHz band, studies showed that the co-channel coexistence between the two systems can be achieved but would require site-by-site coordination if IMT and FS are deployed in the same or in adjacent geographical areas. Given that there are only a small number</p>

<sup>1</sup> <https://www.gsma.com/spectrum/resources/5g-mid-band-spectrum-needs-vision-2030/>

<sup>2</sup> <https://www.gsma.com/spectrum/resources/mid-band-5g-spectrum-benefits/>

<sup>3</sup> <https://www.gsma.com/spectrum/wp-content/uploads/2022/07/6-GHz-in-the-5G-Era.pdf>

<sup>4</sup> <https://stlpartners.com/wp-content/documents/Sample%20reports/The-Economy-of-Things-Unlocking-the-true-value-of-IoT-data.pdf>

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	<p>of fixed links operating in this band in Malaysia, we believe that it can be freed up for potential 5G use.</p> <p>i) Although only Region 1 is being considered, other countries outside Region 1 could also request to be added to any IMT identification, if agreed at WRC-23 (subject to geographically bordering countries agreeing).</p> <p>j) There was also a proposal to identify the frequency band 6425 – 7025 MHz for some countries in Region 3 for IMT by creating a new Radio Regulations (RR) footnote with appropriate conditions. (CPM 23-2 Section 1/1.2/5.5). There has been precedent in the 3.6 – 3.8 GHz band, which have been made available for IMT systems in Europe, despite the lack of IMT identification in Region 1.</p> <p>k) As such, we respectfully invite MCMC to consider the identification of 6425 – 7025 MHz band for Malaysia by creating country footnotes and support the addition of Region 3 countries that wish to do so.</p> <p><b><u>DNB's Views on Bands 1, 2 and 3: 3300 – 3400 MHz (Region 2 and amend footnote in Region 1); 3600 – 3800 MHz (Region 2)</u></b></p> <p>a) Although the 3.5 GHz frequencies are not discussed in Region 3, the process being considered through the WRC cycle will be beneficial to the Member States seeking to make wider use of the 3.5 GHz range. Considering the wide use of this band at global level, additional IMT identification would further harmonize its usage and benefit the ecosystem. As of the second quarter of 2023, there are approximately 1510 devices available in the market<sup>5</sup>.</p> <p>b) As such, we respectfully invite MCMC to consider the identification of the 3300-3400 MHz and the 3600-3800 MHz bands for Malaysia and support the addition of Region 3 countries that wish to do so to the relevant footnotes.</p> <p>c) DNB recommends that MCMC takes the relevant actions at WRC-23 to identify the 3.3 – 3.4 GHz for IMT by including Malaysia in the footnote RR <b>No. 5.429F</b> to encourage wider adoption of this band globally.</p> <p><b><u>DNB's Views on Band 6: 10.0 – 10.5 GHz (Region 2)</u></b></p> <p>a) There are 500 MHz of spectrum in this range with characteristics suitable for the provision of 5G services. According to Qualcomm, deploying small cell technology at 10 GHz may be a perfect means of enabling mobile broadband connectivity given that these higher frequency signals have higher propagation losses than the sub-3 GHz bands that traditionally have been used for mobile broadband connectivity via macrocells.</p>

<sup>5</sup> <https://gsacom.com/paper/5g-market-snapshot-july-2023/>

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	<p>b) As such, DNB supports the allocation of this band to mobile service on a primary basis for Region 2 and identification for IMT, while ensuring the protection of incumbent services as well as protection to primary services in Region 3.</p>
1.3	<p><i>"To consider primary allocation of the band 3600-3800 MHz to the mobile service in Region 1 and take appropriate regulatory actions, in accordance with Resolution 246 (WRC-19)".</i></p> <p><b>Malaysia Proposed Position:</b> Malaysia notes that this agenda item is a Region 1 issue and supports the APT Preliminary View for this agenda item, as developed at APG23-5, as follows: - A possible upgrade of mobile service to primary allocation in the 3600-3800 MHz frequency band in Region 1 shall protect existing and planned services to which the frequency band is allocated on a primary basis (and in adjacent bands, as appropriate) in Region 3, taking into account the results of sharing and compatibility studies and such upgrading shall not have any adverse effect on the allocation of the existing services and their future development in Region 3.</p> <p><b><u>DNB's Views on Agenda Item 1.3</u></b></p> <p>a) A primary allocation for mobile within 3 600-3 800 MHz in Region 1 will broaden global harmonization of the 3.5 GHz range and enable greater benefit from economies of scale.</p> <p>b) As such, DNB supports the allocation of the band 3600 – 3800 MHz for co-primary mobile in Region 1.</p>
1.4	<p><i>"To consider, in accordance with Resolution 247 (WRC-19), the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level".</i></p> <p><b>Malaysia Proposed Position:</b> Malaysia supports establishing regulatory provisions for the use of HIBS in certain frequency bands below 2.7 GHz already identified for IMT referred to in Resolution 247 (WRC-19), provided that the regulatory provisions will ensure protection of the existing services to which the frequency band is allocated on a primary basis, and the adjacent bands, as well as no additional regulatory or technical constraints imposed on the deployment of ground-based IMT systems in those frequency bands.</p> <p><b><u>DNB's Views on Agenda Item 1.4</u></b></p> <p>a) DNB supports any technology development, including the use of HIBS, that further expands 5G capabilities in certain frequency bands below 2.7 GHz allocated for IMT/5G use. The consideration of the following additional bands, pursuant to the Resolution 247 (WRC-19) would provide more flexibility for the deployment of IMT services using HIBS:</p> <p>a) Band A: 694 – 960 MHz</p>

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	<p>b) Band B: 1710 – 1885 MHz  c) Band C: 1885 – 1980 MHz, 2010 – 2025 MHz and 2110 – 2170 MHz  d) Band D; 2500 – 2690 MHz</p> <p>b) The use of HIBS in the mobile service would provide an effective and efficient way to meet the growing demand for mobile broadband in areas with challenging terrains and the possibility that these would have application in Malaysia should not be ruled out.</p> <p><b>Views on Band A (694 – 960MHz)</b></p> <p>a) The operation of IMT terrestrial systems operating within the 694 – 960 MHz band is best suited for expanding the mobile coverage to the rural areas, which would likely extend to the common border areas.</p> <p>b) Studies conducted between proposed HIBS systems and IMT terrestrial systems operating within the frequency band 694 – 960 MHz show that co-frequency compatibility between HIBS and IMT systems in the same geographical area is only feasible if a range of separation distances at the border or PFD limits are introduced to ensure the protection of IMT terrestrial systems, particularly for non-synchronized cross-border IMT terrestrial networks.</p> <p>c) Given this requirement, regulatory provisions and technical conditions shall ensure the protection of services to which the 694 – 960 MHz band is allocated and should not give priority to HIBS over existing IMT identifications.</p> <p>d) Any regulatory provisions to be developed at WRC-23 shall facilitate the sharing with existing 5G services operating in the 700 MHz band, and that 5G services are protected with no new regulatory constraints. In this regard, DNB supports Method A3.</p>
9.1 (c)	<p><i>“To study the use of International Mobile Telecommunication systems for fixed wireless broadband in the frequency bands allocated to the fixed service on a primary basis, in accordance with Resolution 175 (WRC-19)”.</i></p> <p><b>Malaysia Proposed Position:</b> Malaysia is of the view that this agenda item may be addressed through the revision of the existing ITU-R Recommendation(s), Report(s) and/or Handbook. Should such a revision still not satisfy the requirements of this agenda item, the development of new Recommendation(s), Report(s) and/or Handbook in the ITU-R is supported.</p> <p><b><u>DNB's Views on Agenda Item 9.1 (c)</u></b></p> <p>a) Since 1997, ITU has published several Recommendations, Reports and Handbooks which describe, among others:</p> <ul style="list-style-type: none"> <li>i. Performance and availability requirements of fixed wireless systems</li> <li>ii. General characteristics of the bands that may be used for Fixed Wireless Access (FWA)</li> <li>iii. Frequency sharing conditions</li> </ul>



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	<p>b) Today, the broadband FWA functionalities to home /enterprise /campus are comparable to 5G technology in terms of high bandwidth and capacity.</p> <p>c) Therefore, it is timely to revise the existing publications and/or produce new ones as required, based on contributions received at the ITU study group.</p>
<b>General and Regulatory Issues</b>	
10	<p><i>"To recommend to the Council items for inclusion in the agenda for the next WRC, and items for the preliminary agenda of future conferences, in accordance with Article 7 of the Convention and Resolution 804 (Rev.WRC-19)".</i></p> <p><b>Malaysia Proposed Position:</b> Malaysia is of the view that proposals for agenda item 10 could be supported, subject to further studies and taking into account the potential coexistence with, and protection of the incumbent services.</p> <p><b><u>DNB's Views on Agenda Item 10</u></b></p> <p>a) DNB supports a new agenda item on additional identifications for IMT within the range 7 – 15 GHz band. Our view is in response to the ITU IMT-2030 standardization and 6G use cases which demand capacity and require large spectrum bandwidth that can be found in higher frequencies.</p>