KUMUL TELIKOM HOLDINGS

Date: *14th April 2021*
Our Ref: *KTH/ MD /01-01*

Office of Chief Executive Officer
National Information & Communications Technology Authority
P.O Box 844
BOROKO
National Capital District

Attention: Mr Steven Anda ***"By Hand Delivery"***

Dear Sir,

RE: PUBLIC CONSULTATION ON 2.6Ghz BAND PLAN

We refer to your advertisement for public consultation on the "*Draft 2.6Ghz Band Plan*" which was uploaded onto your website on 19th March 2021.

We are interested in acquiring 100Mhz bandwidth from the 2600MHz Band for LTE mode based on the reasons outlined below.

1. **2600MHz TDD – A Matured Local Ecosystem**

Based on GSMA Global 4G LTE TDD Devices by Bands dated March 2021, TDD2600 bands B41 is among the most popular TDD band in terms of number of available devices. See Figure 1 shown below.

Currently in KTH, **we have an estimated 58% or more of our total LTE capable devices support which can support TDD2600 bands B41.** This will enable existing users to immediately utilize this band for mobile broadband services. In addition, TDD terminals will widely available.

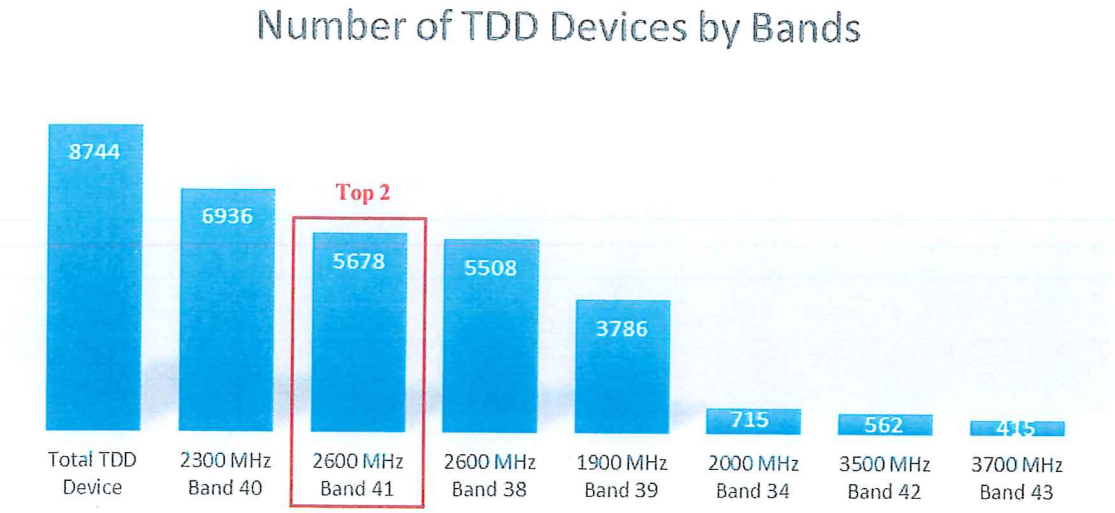

Figure 1: GSA 4G LTE TDD Devices by Bands dated March 2021

2. TDD 2600MHz is future proof band for 5G with an advantage of 4G+5G dual usage

ITU has identified the mid band of 2500-2690MHz as a global band for IMT, hence, it was formally included in the Radio Regulations in accordance with Resolution 223 (Rev.WRC-15).

Driven by USA, Japan, India, KSA and China, assignments of the 2600 MHz band as TDD 2600MHz has been harmonized globally. The mass market deployment by these countries enables devices to be affordable to the PNG market. As shown in Figure 2, for 5G NR Announced Devices dated Jan 2021, N41 ranks top 2 among all, whereas N7 devices is not even half of N41 devices.

Therefore, when appropriate, and driven by market demand (society & business needs), KTH would like to utilize the same LTE band of 2600MHz TDD band to deploy 5G network, offering Fixed Wireless Access (FWA) and higher speed Mobile Broadband services.

For the KTHL group, buried cable infrastructure continues to be a challenge and proving expensive to be maintained as a result of cable vandalism and cable damage due to poor drainage systems by city authorities in all major cities and townships. To mitigate high cost of operations being passed to its users, employing FWA on LTE 2600Mhz TDD band at residential suburbs and niche communities, where broadband services are needed. We would be empowered to provide broadband services effectively and spectrum wise – efficiently at these demanding communities, residents, semi-urban hubs and both urban and rural townships for internet broadband speeds.

Additionally, TDD2600 Bands B41 can extraordinarily support KTH's mobile objectives and within the three months after spectrum allocation we can plan the following large-scale building to enjoy the instant benefits of this technology, considering the current situation of extensive and high congestion in 4G in main cities with high demands and new users joining the network to experience fast broadband speeds and demands to be always connected with high download and upload speeds when accessing the internet.

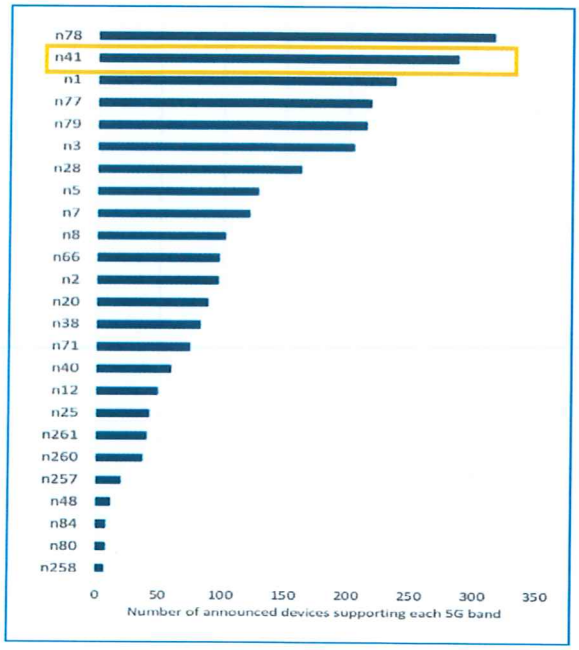

Figure 2: GSMA Announced 5G NR Devices by Bands date Jan 2021

3. 100MHz of spectrum for optimum spectrum efficiency & efficiency: Delivering superior user experience for Mobile & Fixed Wireless Broadband Services

The mid band TDD 2600MHz provides an optimal balance between coverage and capacity for cost efficient implementation. The availability of 100 MHz contiguous channel bandwidth will boost peak, average and cell edge throughput with affordable complexity.

KTH's short-term vision is to embrace an additional 350,000 new mobile subscribers by the end of 2021. This would bring our existing users up to around 600,000 subscribers. There are also approximately 130,000 LTE users now. We intend to increase the number of LTE users to around 1.1 million at the end of 2023 as a medium-term objective.

At the same time KTH is offering the residents of PNG the option to enjoy the Mobile service and Fixed Wireless Broadband (FWB) services by introducing FWB devices and packages to the public. This would definitely require more adequate spectrum to sustain this service.

Our (KTH) corporate strategy is to first utilize the full band of TDD 2600MHz for both LTE mobile & fixed wireless broadband use, and exploit small portion of this spectrum for 5G when deemed necessary in the future. This can be done via Dynamic Spectrum Sharing methods to assure optimum usage of spectrum for both 4G & 5G to co-exist for a long period of time without compromise existing LTE user experience and at the same time fulfilling high end 5G users' needs seamlessly.

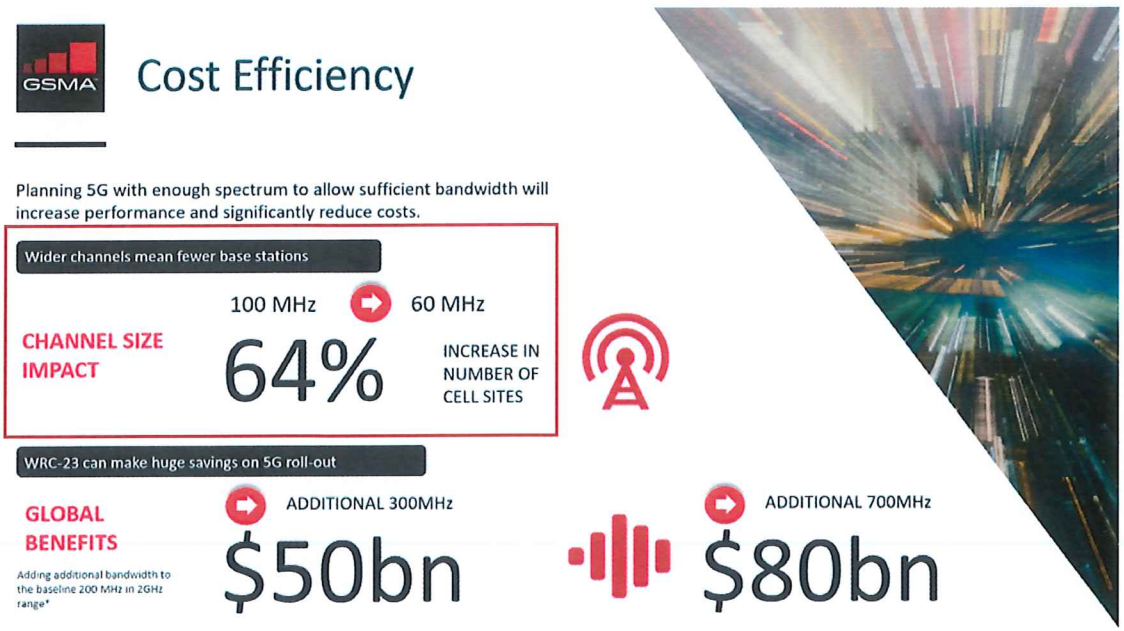

Figure 3: 5G Large Bandwidth will increase Performance and significantly reduce Costs

Figure 3 (above) illustrates that under a 5G Bandwidth, an increase in the size of the channel from 60Mhz to 100Mhz would be cost-efficient, by cutting the required number of base stations by 36%. This would significantly decrease the future deployment costs and time, and would potentially lower the end user mobile tariffs in 5G era.

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4. **Unlike mixture LTE FDD+TDD of 2600MHz bands, additional guard band is not required for full TDD band for synchronized network for optimum spectrum efficiency**

The mixture of LTE FDD +TDD bands can cause interference. In order to avoid interference between FDD and TDD networks for operating in adjacent frequency carriers, a guard band of at least 10MHz or more will be required. This would be at least 5Mhz or more on the left and right sides of B7 FDD networks of radio transmissions adjacent to the B38 TDD networks.

However, by aligning the full band of LTE TDD band of B41 to be synchronized by using the same transmission frame structure throughout all the TDD networks, no guard would be required. It is one of the best way to ensure efficient use of spectrum resources by avoiding inter-operator guard bands and additional base stations filtering, which otherwise would again lead to complexity, higher cost and slow down the network deployment.

You can direct all responses regarding this matter to our Head of Network by contacting Mr. Anthony Pakakota on email anthony.pakakota@bmobile.com.pg or on telephone 7600 1011.

Yours faithfully,
KUMUL TELIKOM HOLDINGS LIMITED

Jessie Wangua
Acting Group Managing Director for KTHL
Acting Chief Executive Officer for Telikom PNG Ltd & Bmobile Ltd