

January 13, 2020

No. T-11012/18/2020-Conf
Ministry of Communications
Department of Telecommunications
WPC Wing, Conference Section
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**Re: DSA Comments to the Ministry of Communications Department of Telecommunications
Notice for seeking comments for Roadmap for use of Radio Frequency Spectrum in India
during the next 10 years**

Dear Sir/Madam,

The Dynamic Spectrum Alliance (“DSA”)¹ respectfully submits these comments to the Ministry of Communications Department of Telecommunications (“DoT”) in response to its Notice for seeking comment for Roadmap for use of Radio Frequency Spectrum in India during the next 10 years.

The DSA promotes a balanced regulatory approach between licensed, license-exempt, and lightly licensed, to enable making unused spectrum available for broadband. An unbalanced approach may create artificial scarcity, which rises the cost of broadband access. In this sense, the DSA believes that licensed and license-exempt spectrum bands will both play important and complementary roles in the delivery of 5G services and that coordinated shared spectrum should be considered in spectrum planning. As part of spectrum planning, the DSA also supports spectrum sharing innovation that will lead to the more efficient utilization of spectrum and foster innovation and affordable connectivity for all.

¹ The Dynamic Spectrum Alliance is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The membership spans multinational companies, small- and medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike. A full list of the DSA members is available on the DSA’s website at www.dynamicspectrumalliance.org/members/.

To these ends, the DSA suggests India consider updating its current National Frequency Allocation Plan (“NFAP-2018”) to reflect the decisions made by WRC-19 with respect to mobile service allocations with an IMT-2020 (“5G”) identification in the 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, and 47.2-48.2 GHz bands. Under the WRC-19 decision, the 66-71 GHz band is technology neutral and will support mobile applications such as multi gigabit wireless systems and IMT. Due to the propagation characteristics of the 66-71 GHz band, the overwhelming trend globally is to allow technology neutral and de-licensed operation. Both IMT and multigigabit wireless systems are able to share the band in a license-exempt regime. In other jurisdictions, identifying IMT in the band has created market uncertainty and delayed product introduction. We therefore recommend against a specific IMT designation. In fact, the DSA recommends that DoT de-license the entire 57-71 GHz frequency band, thereby allowing Indian consumers and businesses to benefit from the unique capabilities of commercially available multigigabit wireless systems.

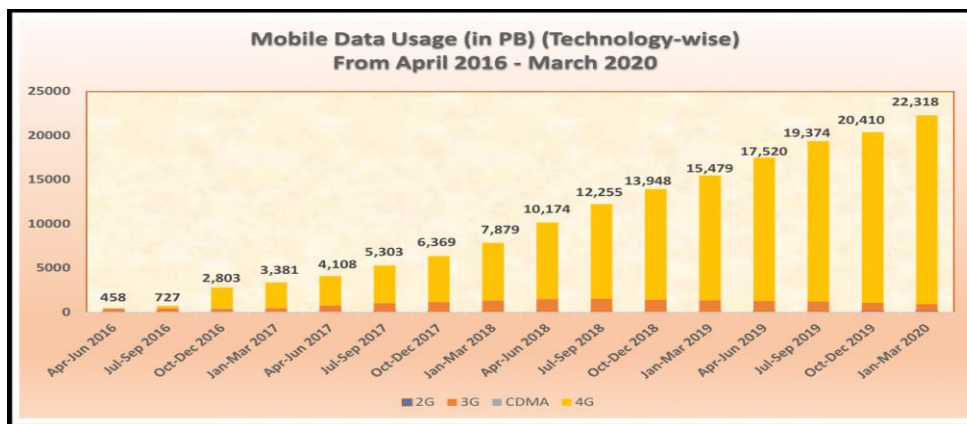
The DSA is very supportive of the recently approved PM Wi-Fi Access Network Interface (“PM-WANI”) project that seeks to boost national broadband penetration by allowing the delivery of public Wi-Fi services without a license.² The changes made in 2018 to de-license spectrum in the 5 GHz band have provided a base level of license-exempt spectrum capacity necessary for large-scale nationwide Wi-Fi deployments. For the PM-WANI project to have a significant and lasting impact throughout the country, the DoT should consider enabling license-exempt access to the entire 5925-7125 MHz band (“6 GHz band”). The additional 1200 MHz of license-exempt spectrum will provide sufficient broadband capacity so that multiple individuals operating devices running high-bandwidth applications (e.g., high-definition video, augmented and virtual reality, interactive content for education and training) can concurrently access the Wi-Fi network at their location (e.g., residence, shops, businesses, industrial facilities, airports).

License-exempt access will not only offer extra capacity but protect the services that are allocated to the band (such as fixed satellite, mobile and fixed services). This removes the requirement for spectrum clearance processes, that might be complex and expensive. License-exempt access protects incumbents and at the same time enables innovation leading to very efficient spectrum use.

The additional benefit of permitting license-exempt access throughout the 6 GHz band will be for offloading data from current 4G and future 5G wireless networks. Mobile data usage has been increasing in the last years as it can be appreciated in the figure below.³

² See <https://dot.gov.in/dataservices/prime-minister-wi-fi-access-network-interface-pm-wani-framework-and-guidelines>

³ Taken from presentation: [Session 3: innovation and collaboration working together to deliver connectivity to the hardest to reach areas](#), U K SRIVASTAVA, TRAI, India. Presented at the APAC Spectrum Conference, 2020



Nation’s 4G networks may be experiencing increased utilization and demand during the COVID-19 pandemic, particularly in urban areas where there is a high population density. The availability of a significant amount of licensed-exempt spectrum allows multiple wireless carriers to share the extra spectrum capacity. Furthermore, Wireless Access Systems/Local Radio Networks (“WLAN/RLAN”) will carry offload from cellular 5G technologies (total data offload to unlicensed going from 74% to 79% in 2022).⁴ This will lower the costs of network deployment for mobile operators and for edge investment by neutral host and third-party providers. Importantly, it will also lower costs and improve the quality of Service (“QoS”) indoor for consumers.

Wi-Fi 6, based on the IEEE 802.11ax standard, is the new generation of Wi-Fi. It allows the use of 160 MHz bandwidth channels and incorporate important new features such as the possibility of supporting more clients in dense environments, greater efficiency, flexibility, scalability and network security. Wi-Fi 6 will enable new use cases for industrial IoT, smart homes and support for high-density deployments, to name a few, but access to wider channels is needed to support these new use cases.⁵ Unlike previous generations of Wi-Fi and wireless networks, 5G and Wi-Fi 6 networks can interact seamlessly with each other. Indeed, license-exempt spectrum is recognized as a fundamental enabler of the 5G ecosystem as license-exempt operations are incorporated into the standards. The IEEE has extended its 802.11ax standard (also known as “Wi-Fi 6”) to include the entire 6 GHz band (“Wi-Fi 6E”). Authorizing license-exempt spectrum throughout the 6 GHz band, both mobile network customers and Wi-Fi users across India.

⁴ See Cisco Systems, Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2017-2022. ([link](#))

⁵ See <https://wballiance.com/wp-content/uploads/2019/09/WBA-AnnualIndustry-Report-2020.pdf>

Ideally, all countries and all regions should ultimately enable license-exempt access to the entire 1200 MHz in the 6 GHz band. The harmonization would result in major economies of scale, reducing costs for end users and allowing people all over the world to benefit from innovative new services that harness the capabilities of Wi-Fi 6E.

Last year, the United States regulator, the Federal Communication Commission (“FCC”), authorized unlicensed operations of indoor ‘low power’ devices across the 6 GHz band at Wi-Fi power levels. The FCC also authorized ‘standard power’ (i.e. higher power indoor and outdoor) RLAN operations in the 5925-6425 MHz and 6525-6875 MHz portions of band based on the need to protect incumbent operations specific to the United States.

Since then, countries in all three ITU regions have initiated and/or completed consultations that authorize license-exempt operations across the entire 6 GHz band, or portions thereof. Overall, the DSA sees global momentum for making the 1200 MHz of the 6 GHz band available for license-exempt access. Regarding World Radiocommunication Conference (“WRC-23”), in ITU region 1, under agenda item 1.2, discussions are taking place about the future IMT identification of the upper part of the 6 GHz band (6425 - 7025 MHz). There is no certainty about this possible identification yet, and studies should be finished. Studies about the upper part of the band at WRC-23 cover only Region 1, so there will be no global harmonization for IMT anyway at the end of the conference, except possibly for the 7025-7125 MHz segment, depending on the studies and the interest of administrations. This places India in a good position to advance and enable the license-exempt use of the whole 6 GHz band.

Finally, as DoT considers new bands for 5G in the next 10 years, the DSA encourages DoT to implement dynamic spectrum access database solutions to manage sharing among incumbents and new wireless broadband services. That will enable more users to access scarce and valuable spectrum resources, leading to lower-costs, lower barriers to entry, and most effective allocation for smaller innovative businesses. This enables and encourages competition and innovation by existing service providers as well as new entrants, including enterprises and verticals looking to deploy private networks. DSA also encourages DoT to adopt “use-it-or-share-it” rules in new bands for 5G, providing additional opportunistic access opportunities and ensuring even more efficient use of spectrum. There are numerous benefits that dynamic spectrum access technology could provide to facilitate access to spectrum by new users and minimize the administrative burdens, including:

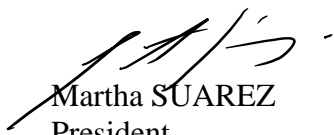
- Enabling incumbent services to continue to use the band and/or to transition to new sub-bands, while minimizing the use of separation distances and exclusion zones,
- Accelerating access to spectrum by new users during transitions,
- Streamlining coordination amongst co-channel and adjacent channel users,

- Minimizing the need for guardbands,
- Automating industry TDD synchronization preferences,
- Providing opportunistic access through “use-it-or-share-it” requirements.

The DSA and its member companies have extensive experience in enabling sharing of both fixed and mobile broadband services with fixed satellite services and point to point incumbents and are ready to assist DoT in any future efforts to introduce wireless broadband solutions in India while maintaining access for existing users. Regulators in several countries have already authorized automated, and sometimes dynamic, frequency coordination databases to manage real-time assignments in shared bands and to protect incumbent operations (including military and public safety systems) from harmful interference. These database technologies are widely available, sufficiently mature, scalable, and secure.⁶

The DSA is available to discuss these comments and any additional questions the DoT might have.

Respectfully submitted,



Martha SUAREZ
President,
Dynamic Spectrum Alliance

⁶ See http://dynamicspectrumalliance.org/wp-content/uploads/2019/03/DSA_DB-Report_Final_03122019.pdf