

## **6 GHz spectrum vital for India to achieve targets of National Broadband Mission**

The industry firmly believes that it is critical to identify the 6 GHz band for IMT services because it will not only aid in long-term network planning but also because 6 GHz is the last mid-band opportunity offering a provision of minimum 2 GHz contiguous mid-band spectrum, which will become critically essential for mobile communications beyond 2025. Since mid-bands offer wide coverage and capacity, they are critical for rapid and cost-efficient deployments of 5G mobile networks. This is established by the fact that out of the 176 global 5G networks rolled out, around 70% (~120 networks) have harnessed mid-bands.

A GSMA report shows that in the absence of the required additional mid-band spectrum, the mobile networks would need to be substantially densified by increasing the number of base stations to deliver 5G data rate targets. If TSPs don't do so, 5G download speeds would be reduced to 50% if less spectrum is allocated in the 6 GHz band, or 80% if only 700 MHz band is allocated to IMT, compared to an assignment of 1.2 GHz. It may also lead to deterioration of the 5G experience, which would negatively impact its adoption and eventually create risks to investments in next gen infrastructure. **In case adequate spectrum in the 6 GHz band is not allocated to IMT, the country would have to account for around 60% higher annual costs to achieve the performance expected from 5G services,** and this would lead to delayed expansions and a significant increase in energy consumption and radio network cost. Such undesired increase in energy consumption would also be contrary to India's global aspirations and commitment for reduction in its carbon footprint and related green objectives.

Similar research has been conducted by COAI members, and it has come to the conclusion that **Indian TSPs will need 2 GHz of the mid-band spectrum in the 2025–2030 time frame.** In contrast to India, other countries have been able to deploy networks in the 3.8-4.2 GHz and 4.8 GHz mid-bands for IMT. However, in India, access in the mid-band is so far restricted to 367 MHz in the 3.3-3.67 MHz and has been used to its maximum capacity due to other services. **6 GHz is the only mid-band spectrum range where a contiguous bandwidth to the order of 300-400 MHz per TSP is possible, to make it available for the rapidly evolving demands towards 2030.**

We believe that **the existing delicensed spectrum in the 2.4 GHz and 5 GHz amounting to 688 MHz bandwidth in India, is more than adequate for meeting the needs for Wi-Fi connectivity in the 2025-30 timeframe.** Being a mobile-first country, nearly 97% of the user's access internet using Mobile Broadband (MBB) data in India. As a result, there is insignificant data offload from

IMT mobile to Wi-Fi. The World Economic Forum also confirms that out of 1.1 billion Indians accessing the internet by 2030, 80% would be using mobile devices. Moreover, MBB Penetration is significantly higher in India compared to Fixed Broadband, which caters to the need of IMT Spectrum in this particular band. As is a well-known fact, Wi-Fi traffic is inherently stationary whereas the characteristics of mid band is for high capacity and wide area coverage - which is more suitable for IMT 2020 deployments giving more value to the digital economy of the country.

In order to assess the coexistence and compatibility of IMT deployment with Fixed Satellite Services (FSS) uplink services in the 6 GHz band, COAI members undertook a feasibility study. The analysis made highly conservative but realistic estimates about the size of IMT installations that may be practically predicted in India's urban and sub-urban areas between 2025 and 2030, drawing on the long history of our member operators in mobile communication. The study indicates good potential of sharing the common spectrum maintaining the protection margin prescribed by ITU-R. This work was submitted to WP5D#41 and is now part of the ITU-R WP5D working document on AI 1.2 6 GHz as Study-M. The outcome of WP5D#42 meeting also stated that *out of the 20 global studies submitted to ITU-R towards - WRC23 AI1.2 6GHz for IMT- a majority of 14 studies conclude that IMT can coexist with FSS uplink in 6 GHz band.*

***With the National Broadband Mission targeting broadband speeds up to 50 Mbps by 2024-25, COAI recommends that the most optimal allocation for the country in the 6 GHz band would be to identify the entire 5925-7125 MHz i.e., 1200 MHz spectrum in the 6 GHz band for IMT applications, as this would maximize the economic and societal benefits for the nation, while reducing the CAPEX and driving affordable consumer broadband for achieving the national target of achieving a USD 1 trillion digital economy.***

- Lt. Gen. Dr. S.P. Kochhar, Director General, COAI