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Shri Rajiv Sinha
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Telecom Regulatory Authority of India
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Subject – GSMA's Response to the TRAI Consultation Paper on "Assignment of Spectrum for Space-based Communication Services"

Dear Shri Rajiv Sinha,

At the outset, the GSMA compliments the Authority (TRAI) for issuing this consultation paper to seek views of the stakeholders on various aspects related to Assignment of Spectrum for Space-based Communication Services. While TRAI has examined the issues pertaining to the spectrum for space-based communication, we feel that some of the issues deliberated by the TRAI in the paper can possibly have an impact on the efficient usage and availability of spectrum for IMT services.

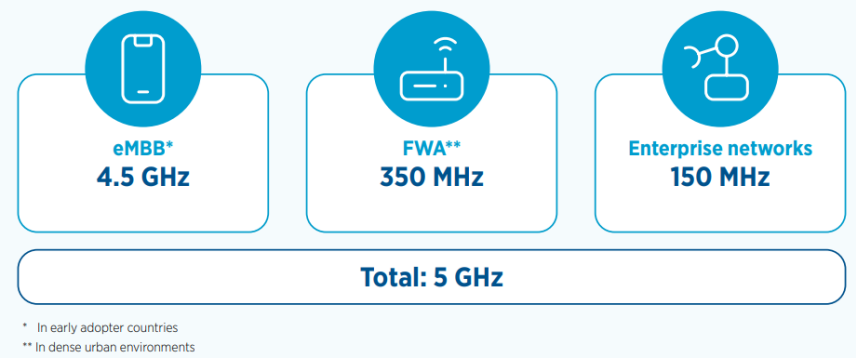
We understand the key goal of space-based communication services as deliberated by TRAI is facilitating connectivity in remote, hard-to-reach areas. At the same time, continued spectrum availability and a long-term spectrum roadmap for 5G/IMT is also key to unlocking a nation's digital growth. This will also provide a regulatory certainty for promoting investment in the sector and help operators to take informed decisions about acquiring spectrum and invest in creating networks across the country.

In view of this important role that mobile connectivity plays in connecting the unconnected and the need for sufficient spectrum on an ongoing basis, the GSMA would like to highlight some of the issues for TRAI consideration, which are relevant for the IMT services in India. We hope our submissions will be taken into consideration by TRAI while finalizing its recommendations on the matter.

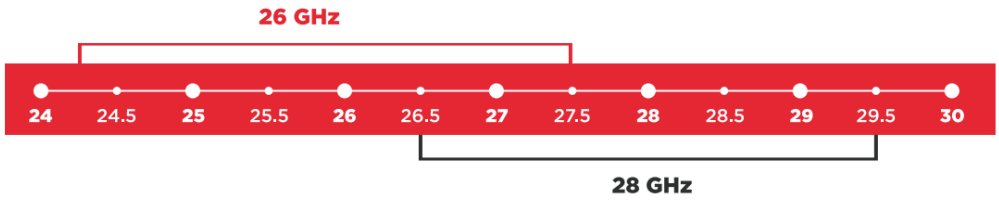
1. Availability of 27.5-29.5 GHz frequency range for IMT

In section-D under Chapter-III of consultation paper, TRAI deliberates on the feasibility of flexible use of spectrum in 27.5-28.5 GHz band and 28.5-29.5 GHz band i.e., mechanism for sharing of auctioned frequency bands in which both IMT/ CNPN and satellite-based services (both user terminal and Gateways) can be provided in a flexible manner.

Access to sufficient spectrum is the key to 5G/IMT success by minimising operator deployment costs and enable countries to benefit from the potential growth in GDP afforded by mobile services. As per the GSMAi estimates[1], current 5G network capacity worldwide, based on low and mid-band spectrum, will not be sufficient to satisfy demand for 5G services by 2030, and an average of 5 GHz of mmWave spectrum will be needed by 2030 per market to satisfy demand for different 5G use cases, including eMBB, FWA and enterprise networks.



26 GHz and 28 GHz have emerged as two of most important band in the mmWave range and may offer the widest harmonization with minimised user equipment complexity. As shown in the chart below, the whole range between 24.25 GHz to 29.5 GHz is important to enable operators to meet the speed, latency, reliability and capacity requirement of 5G.



While the Government has already auctioned the 26 GHz range i.e., 24.25-27.5 GHz in the 5G auctions in 2022, the remaining part of this whole range i.e., from 27.5-29.5 GHz is not yet available for 5G/IMT.

[1] https://www.gsma.com/spectrum/wp-content/uploads/2022/06/5G-mmWave-Spectrum.pdf

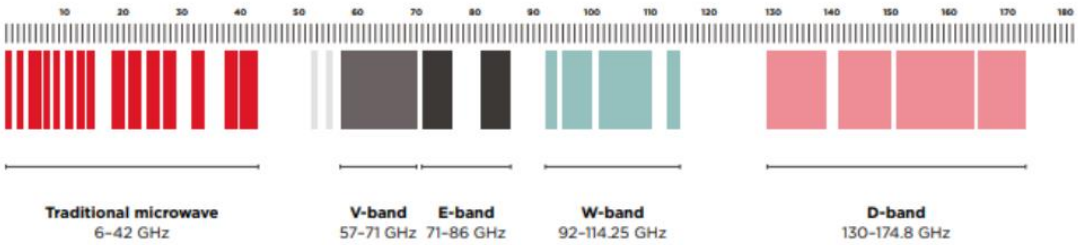
In this regard, the GSMA would like to emphasise that the 28 GHz band has already been assigned for IMT/5G in many countries including Australia, Hong Kong, Japan, Korea, and US, and the same should also be made available in India for 5G/IMT to enable mobile operators to acquire adequate quantity of spectrum, to support present and future needs of variety of use cases. We also recommend TRAI ensures that any proposed flexible use in this frequency ranges does not affect the capability of this range for providing terrestrial 5G/IMT services.

2. Backhaul Spectrum

The consultation paper (para 3.27) states that the new-generation satellite communication systems have plans for deployment in higher bands such as the lower part of V-band (37.5 to 52.4 GHz) for user links as well as gateway links and E-band (71-76 GHz/ 81-86 GHz) for gateway links.

The rollout of 5G services in India and ever-increasing demand for mobile broadband is leading to manifold increase in internet traffic and operators are looking to upgrade their backhaul networks to support this demand. Mobile backhaul can be delivered through different technologies, with the choice depending on factors such as capacity, cost, reach, latency and geography. While fibre is often considered the most suitable due to its longevity, high capacity, high reliability, and ability to support very high-capacity traffic, its deployment is costly and time-consuming. Further, the present status of BTS/tower fiberisation in India is not sufficient (~35%) to meet 5G expectations.

The current/traditional wireless backhaul bands in India still play an important role, however, wider channel sizes are necessary to maintain relevance in the 5G era given the need for high capacity backhaul. The V-band (57–71 GHz) and, in particular, the E-band (71–86 GHz) are becoming more important as these have wide channel bandwidths, allowing 10–25 Gbps data throughput.

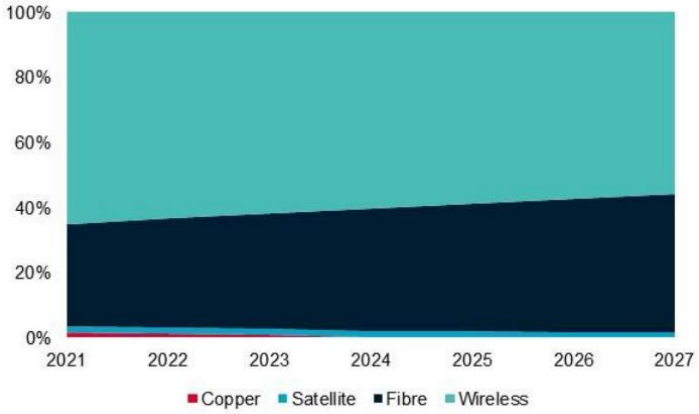


Source: GSMA Intelligence, ITU

As per the forecast from GSMAi, wireless backhaul solutions accounted for more than 60% of macrocell and small cell backhaul links globally in 2021[2]. Although

[2] Scaling 5G in Asia Pacific: the importance of wireless backhaul (gsmaintelligence.com)

wireless's share will drop slightly over the period to 2027, it will remain the dominant mobile backhaul technology throughout the forecast period.



When considering future satellite spectrum, it is also important for TRAI to take account of the growth of wireless backhaul demand in India and timely availability of sufficient amount of affordable terrestrial backhaul spectrum preferably in E- and V-bands with reasonable terms and conditions for licensed mobile network operators (MNOs).

3. Long-term spectrum roadmap to address future IMT needs

In this consultation paper, the TRAI is also examining the present demand and likely demand after about five (05) years in appropriate frequency bands for space-based communication services. In this regard, the GSMA would like to again highlight the need to develop a transparent long-term Spectrum Roadmap for IMT services also at least till 2030 that includes a strategy for making sufficient spectrum available to the mobile industry, with clearly defined terms and conditions.

We agree with TRAI recommendations on "Auction of Spectrum in frequency bands for IMT/5G" issued on 11-Apr-2022[3] wherein it has highlighted the importance of having a spectrum roadmap for IMT and trusts that TRAI continues to pursue for the same with DoT.

Further while it is important to make sufficient IMT spectrum available to the mobile industry, it is also equally important that any spectrum assignment follows an established transparent, fair, robust and technology neutral approach, that support investments in mobile networks.

The GSMA trusts that the submission will merit your kind consideration before taking any final decision in the matter. We would appreciate the opportunity to discuss and

[3] https://www.trai.gov.in/sites/default/files/Recommendations_11042022.pdf

work together to ensure the benefits of mobile infrastructure continue to advance the interests of the citizens of India.

We also remain available for any questions and further information/ clarification that may be required in this regard.

Sincerely,

Jeanette Whyte
Head of Public Policy, APAC
GSMA

Copy to:

1. Dr. P.D. Vaghela, IAS, Chairperson, TRAI
2. Shri V. Raghunandan, Secretary, TRAI
3. Shri Akhilesh Kumar Trivedi, Advisor (NSL), TRAI