Bharti Airtel Ltd.
India & South Asia
Airtel Center, Plot No. 16,
Udyog Vihar, Phase - IV,
Gurugram - 122 015
Haryana, India

www.airtel.in
Call +91 124 4222222
Fax +91 124 4243252

TRAI/FY25-26/021
16th July, 2025

Shri Akhilesh Kumar Trivedi
Advisor (Networks, Spectrum and Licensing)
Telecom Regulatory Authority of India,
World Trade Centre, Nauroji Nagar,
New Delhi – 110029

Subject: Bharti Airtel's Counter Comments on Consultation Paper on *Assignment of the Microwave Spectrum in 6GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, 21 GHz Bands, E-Band, and V-Band*

Reference:
1. **TRAI's Consultation Paper dated 28th May 2025**
2. **Bharti Airtel's Comments dated 02nd July, 2025 on TRAI's Consultation Paper**

Dear Sir,

This is in reference to TRAI's Consultation Paper on *Assignment of the Microwave Spectrum in 6GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, 21 GHz Bands, E-Band, and V-Band* dated 28.05.2025.

In this regard, please find enclosed our counter comments to the consultation paper for your kind consideration.

Thanking You,

Yours Sincerely,
For **Bharti Airtel Limited**

Rahul Vatts
Chief Regulatory Officer

Encl: a.a

At the outset, Airtel reiterates its submissions made in the main comments dated 02.07.2025. We respectfully submit that **the recommendations issued by the TRAI pursuant to this Consultation Paper must be fully aligned with the provisions and legislative intent of the Telecommunications Act, 2023, as enacted by the Parliament of India.**

This consultation is both timely and critical, as India accelerates its digital transformation journey, with 5G deployment gaining momentum and digital infrastructure emerging as the cornerstone of socio-economic progress. Without a robust and economically viable microwave backhaul framework, the expansion, quality, and effectiveness of 4G, 5G, and future technologies will remain significantly constrained, regardless of the volume of access spectrum allocated.

In fact, this critical infrastructure is not only essential for sustaining the rapid adoption of next-generation technologies but also acts as a backbone for India's ambitions to become a global leader in digital innovation. The inadequacy of backhaul infrastructure would directly impede the digital ecosystem, hampering advancements in key sectors such as healthcare, education, and manufacturing, which depend on seamless connectivity.

In this context, the availability of a reliable, scalable, and cost-effective backhaul network is essential to realize the vision of universal, high-quality, and affordable connectivity, especially in regions where fiberization remains limited and wireless backhaul serves as the primary alternative. For these underserved regions, which constitute a large portion of India's rural landscape, wireless backhaul is not just an option but a necessity. It serves as the only viable means to bridge the digital divide and ensure equitable access to the benefits of the digital economy. This will enable TSPs to secure backhaul capacity commensurate with their access spectrum holdings, thereby enabling the delivery of seamless, high-performance telecom services across all geographies, including underserved and remote areas.

Moreover, as India accelerates its transition towards a "Smart India," it is imperative that the regulatory framework supports the development of scalable and sustainable backhaul networks. Ensuring the allocation of sufficient and reliable backhaul spectrum is therefore a vital step toward safeguarding the country's digital future.

Our counter comments made herein are in response to comments provided by certain stakeholders in reference to the assignment methodology, scope, usage and pricing of backhaul spectrum.

In summary, we reiterate as below:

1. *The demand for spectrum in traditional microwave backhaul bands, specifically 13 GHz, 15 GHz, 18 GHz, and 21 GHz bands, remains consistently high in India. This is attributable to their critical role in supporting the rapid growth of mobile broadband traffic, the limited reach of fiber infrastructure, and the ongoing deployment of 5G and future 6G networks.*

2. *MWA carriers should be assigned to TSPs holding access spectrum under Access Service Authorisation for the entire LSA on an exclusive basis. E/V band spectrum should be assigned to TSPs with Access Service Authorisation holding access spectrum for the entire LSA on an exclusive basis. There is no need at all to assign this spectrum to TSPs holding any other authorization other than Access Service Authorisation, and non-TSPs.*

3. *The allocation of 7 GHz band for IMT use is essential for sustaining the momentum of 5G rollouts, meeting future connectivity demands, and supporting national digital infrastructure development.*

4. *15 GHz band should be preserved for exclusive use as microwave backhaul spectrum, even post-WRC-27. No reallocation or repurposing of the band for IMT or unlicensed applications should be undertaken, given the critical dependency of national mobile infrastructure on this band.*

5. *The carrier size(s) and ceiling(s) for various backhaul bands should be as follows:*

S. No.	***Spectrum***	***Carrier Size***	***Ceiling***
1.	*MWA (13/15/18/21 GHz) Carriers*	*28 MHz*	*8 carriers per LSA in Metros & Category A circles and 6 carriers per LSA in Category B & C circles*
2.	*MWB (6/7 GHz) Carriers*	*28 MHz*	*2 carriers per LSA in all categories of circles*
3.	*E-band*	*250 MHz*	*4 carriers per LSA in all categories of circles*
4.	*V-band*	*50 MHz*	*40 carriers per LSA in all categories of circles*

6. *Validity of administratively assigned backhaul should be co-terminus with licenses/authorization (on migration to new regime under the Telecommunications Act, 2023).*

7. *The existing MWA/MWB assignments should not be disturbed as legacy backhaul equipment is incompatible to change in frequencies due to technical restrictions.*

8. *The power limits for the delicensed lower 6 GHz band be carefully evaluated before any meaningful real-world deployments are initiated. Without such an evaluation, there is a high likelihood that the band will see sub-optimal or negligible utilization for its intended unlicensed applications.*

9. *No spectrum in the traditional microwave backhaul bands be earmarked for last-mile Fixed Wireless Access (FWA) to customer equipment.*

10. *No portion of E/V bands should be earmarked for point-to-point connectivity requirements of captive (non-commercial/non-TSP) users.*

11. *No portion of E-band or V-band should be earmarked for services/usages other than backhaul, including "Access" and/or "Integrated Access & Backhaul (IAB)".*

12. *Entire 57–66 GHz frequency range in V-band should be adopted for radio backhaul purposes, in alignment with the internationally recognized framework.*

13. *Neither low power indoor consumer device-to-consumer device usages, nor outdoor usages, should be permitted on a license-exempt basis in V-band.*

14. *For TSPs with Access Service Authorisation, the assignment of spectrum for E band, V band, MWA carriers and MWB carriers should be based on a percentage of AGR, but with the current rates significantly rationalized, preferably moving toward a fixed, nominal, or non-escalating fee model, consistent with its utility function*

15. *The existing SUC escalation matrix should be discontinued; instead, a uniform and nominal SUC rate should be applied across all carriers, regardless of the number held by the TSP.*

16. *The valuation of E/V bands and MWA/MWB carriers in the context of administrative assignment and for determining the applicable SUC must be based on their unique role as essential, non-commercial enabling infrastructure.*

17. *TRAI and DoT should adopt an independent and functionally appropriate framework to price backhaul spectrum, which is not linked in any manner to the pricing of IMT/mobile access spectrum.*

In the remainder of this document, Airtel provides its counter comments:

I. Assignment methodology for Backhaul spectrum:

One stakeholder has argued for the auctioning of MWA/MWB and E/V band spectrum.

Airtel Counter Comments:

1. Airtel reiterates that MWA/MWB and E/V band spectrum should continue to be assigned on an administrative basis only. As submitted in our comments, the rationale for administrative assignment of MWA/MWB spectrum, namely, its essentiality for network rollout and its exclusive use for non-revenue-generating backhaul functions, applies equally and unequivocally to E/V band spectrum. There is, therefore, no justification for treating these bands differently. We strongly submit that all backhaul spectrum, including

MWA/MWB carriers and E/V bands, must be assigned solely through administrative means.

2. **Auctioning Backhaul Spectrum Would Contravene the Framework and Intent of the Telecommunications Act, 2023**

   a. The Authority must take note of the new Telecommunications Act 2023 as passed by both the Houses of Parliament and notified in Gazette on 24th December, 2023. Under the Act, the Government has visualized scenarios /cases in which the spectrum shall be assigned by administrative approach i.e. in order to serve public interest or to perform government function or in cases where auction of spectrum is not the preferred mode of assignment due to technical or economic reasons. Apropos, the 'Radio backhaul for telecommunication services' has been included in the Act under "The First Schedule" that covers instances of "Assignment of Spectrum through Administrative Process".

   b. The Telecommunications Act, 2023, as enacted by the Parliament and notified by the Government of India, lays down a comprehensive and forward-looking legal framework for spectrum management. It clearly delineates the treatment of spectrum based on its intended use, distinguishing between spectrum meant for commercial access services and spectrum required for essential non-commercial functions such as backhaul.

   c. **Backhaul spectrum serves a purely facilitative and non-revenue-generating role, essential for supporting seamless connectivity across mobile and broadband networks. Recognizing this, the Act provides for administrative assignment of such spectrum in the interest of public utility, service continuity, and efficient network operations.**

   d. In-fact, the new Telecom Act is an outcome of extensive consultations with all stakeholders, from within and outside the Government, and it recognizes administrative methodology as the only assignment methodology for spectrum for "*radio backhaul for telecommunication services*." Thus, the industry-wide demand for administrative assignment of backhaul spectrum, including MWA/MWB carriers as well as E/V band spectrum, has been clearly endorsed by the Government and the Parliament as well.

   e. In light of the Act, 2023, it is pertinent to note that satellite spectrum, just like backhaul spectrum, forms an integral part of the First Schedule of the Act. Accordingly, the approach adopted by the TRAI in its recent recommendations dated May 09, 2025 on the consultation paper on *"Terms and Conditions for the Assignment of Spectrum for Certain Satellite-Based Commercial Communication Services",* wherein the Authority clarified that, in the absence of an explicit reference from the Central

Government, it would not undertake any independent review or testing of the entries in the First Schedule, applies equally to backhaul spectrum. The excerpt of stated recommendation is as below:

> ***Without an explicit reference to the Authority for testing/ review of the entries in the First Schedule of the Telecommunications Act, 2023, an action which lies in the domain of the Central Government, it would be an unreasonable extrapolation to undertake a testing/ review of entries in the First Schedule of the Telecommunications Act, 2023 by the Authority……Hence, the Authority has rightfully not asked any specific question on testing/ review of the entries in the First Schedule of the Telecommunications Act, 2023 nor on the methodology of assignment, and proceeded with the consultation as per the extant entries of the First Schedule of the Telecommunications Act, 2023.***

f. As stated above in its recommendation, the Authority emphasized that such review lies solely within the jurisdiction of the Central Government, and any attempt by the Authority to do so would constitute an unreasonable extrapolation of its mandate. Consequently, TRAI appropriately refrained from raising any specific queries or initiating consultations regarding the testing or revision of entries in the First Schedule or the methodology of spectrum assignment therein, and has instead proceeded based on the current statutory provisions. This principle, by extension, is equally valid for backhaul spectrum, reinforcing the interpretation that regulatory deliberations must be grounded in the existing framework unless directed otherwise by the Central Government.

g. Considering all above, **auctioning backhaul spectrum, such as MWA/MWB and E/V-band, would not only be inconsistent with the intent and letter of the Act, but would also undermine the very policy objectives that the legislation seeks to achieve. Specifically, such a move would:**

- **Impose unjustified financial burdens on TSPs for spectrum that does not generate direct revenue.**
- **Disrupt legacy network deployments that rely on existing administrative assignments.**
- **Compromise affordability and speed of mobile broadband rollouts, particularly 5G and beyond.**

h. Therefore, **it is imperative that the sanctity of the Telecommunications Act, 2023 be upheld**. **The legislative will of the Parliament, as embodied in this Act, must remain sacrosanct. Any policy or regulatory deviation from its framework, particularly by introducing auctions for spectrum that is not commercially exploited, would amount**

to an erosion of legislative intent and undermine investor confidence in the telecom sector.

3. In addition to above, continuity of existing spectrum assignments is critical to maintaining stable network operations. If these traditional backhaul bands are not made available or are repurposed for non-backhaul use, it will create an artificial scarcity, block network expansion, and derail the digital growth of the country.

4. Also, the legacy operators cannot afford to lose their existing backhaul frequencies without severe service disruption. For hundreds of millions of subscribers dependent on these legacy networks, such disruptions could lead to significant inconvenience, ranging from dropped calls and slower data speeds to limited access to essential digital services. These impacts would be particularly severe for users in underserved or remote areas where alternative connectivity options are limited. Any interruption in service continuity not only affects daily communication and productivity but also undermines customer confidence and satisfaction.

5. Considering all above, **it is imperative that continuity and stability in frequency usage be maintained to safeguard the user experience and uphold public trust in digital infrastructure.**

6. **In summary, we strongly urge that all backhaul spectrum continue to be assigned exclusively through administrative means for backhaul purposes only, in full alignment with the provisions and purpose of the Act.**

II. Scope of use of E/V bands:

One of the stakeholders has advocated for the use of E/V band spectrum for Integrated Access and Backhaul (IAB).

Airtel Counter Response:

1. While this aspect has already been addressed in Airtel's main comments, it is important to reiterate that the scope of services/usages for E/V band spectrum should be restricted to backhaul only.

2. **E-band has been pivotal to India's 5G rollout:** India's remarkably rapid 5G deployment stands as one of the fastest globally, attributable to progressive cabinet reforms, visionary TRAI recommendations, and most notably, the DoT's decision to assign E-band spectrum for backhaul. It is well-established that the success of 5G rollout is fundamentally dependent on the availability of robust backhaul infrastructure. In the absence of widespread fiber connectivity, the E-band has served as a critical enabler. By facilitating

timely access to E-band spectrum, the DoT directly contributed to accelerating the nationwide deployment of 5G services.

3. **Expanding the scope of E/V bands beyond backhaul may lead to competitive distortions:** The current level of fiberization across the country remains limited and is unlikely to see a transformative shift in the near term. Consequently, most TSPs continue to rely heavily on backhaul spectrum, including the E and V bands, to support network expansion and service delivery. In this context, any proposal to extend the use of E/V bands beyond backhaul, particularly for access services, risks disrupting the competitive balance of the telecom sector. Such a move would disproportionately benefit the only TSP with an extensive fiber footprint, potentially leading to market concentration and undermining fair competition in the 5G space. It is important to recognize that had this approach been adopted earlier, India may not have achieved one of the fastest 5G rollouts globally.

4. **Escalating Backhaul Demand Necessitates Exclusive Use of E/V Bands for Backhaul Services:**

   a. Over the past decade, mobile data consumption has increased exponentially, significantly amplifying the backhaul capacity required per site. Traditional microwave backhaul spectrum is already insufficient to meet the demands of 4G, and is clearly inadequate for supporting the high bandwidth requirements of 5G networks. The anticipated surge in access network traffic will require a corresponding and substantial augmentation of backhaul capacity.

   b. While all TSPs are actively accelerating the fiberization of their networks, the rapid pace of 5G deployment renders the use of E and V bands for backhaul not just beneficial, but essential. These bands remain the only viable and immediate alternative to fiber, enabling timely and effective network rollouts.

   c. However, any proposal to conflate the use of E/V bands for both backhaul and access purposes would severely compromise backhaul expansion. It would create a structural advantage for the only operator with extensive fiber infrastructure, thereby distorting market dynamics and leading to monopolistic outcomes in the 5G ecosystem, contrary to the original intent behind the administrative allocation of E-band.

   d. Globally as well, regulatory practices support this position; at least 86 countries have identified the E-band exclusively for backhaul usage, acknowledging its critical role in meeting 5G-era data transport demands.

5. **International Developments Reinforce Exclusive Backhaul Usage:**

   a. The utilization of E and V bands for access services alongside backhaul is not supported internationally.

   b. The 3GPP has explicitly classified the E-band as unsuitable for both access services and Integrated Access and Backhaul (IAB). As a result, there is currently no ecosystem for E-band-compatible radios, handsets, or Fixed Wireless Access (FWA) devices based on 3GPP standards. Therefore, the provision of access connectivity to end users via the E-band is not feasible.

   c. These ultra-high frequency bands are inherently unsuitable for access applications due to significant propagation losses from multipath effects and the strict requirement for line-of-sight communication. Consequently, 3GPP has not defined a band plan for the E-band. Permitting access usage in these bands would lead to inefficient utilization of scarce spectrum resources that are critical for establishing high-capacity backhaul infrastructure for 5G, as well as addressing challenges related to fiber deployment.

   d. Furthermore, during the WRC-19 cycle, spectrum requirements for 2020 to 2027 were extensively analyzed across frequency ranges from 24 GHz to 95 GHz. The E and V bands were explicitly excluded from identification for IMT. Consistent with these international decisions, the NFAP 2022 does not designate the E and V bands for IMT usage.

   e. Additionally, the preliminary agenda for the forthcoming WRC-27 cycle does not include any proposals or considerations for the identification of E/V bands for IMT applications.

6. **Adequate mmWave spectrum is already available:**

   a. It is imperative to recognize that adequate mmWave spectrum has already been allocated to meet both access and backhaul needs, thus negating any justification for expanding the scope of E/V bands beyond their dedicated backhaul role.

   b. Of the 62,700 MHz of mmWave spectrum offered in recent auctions, approximately 17,350 MHz remains unallocated. Additionally, the DoT has earmarked another 4,000 MHz in the 37–43 GHz range per LSA. Also, present deployment in mmWave bands has been minimal, with only a limited number of sites activated to satisfy MRO.

   c. The E and V bands were allocated to meet high-capacity backhaul demand, enabling dense 5G rollouts. Diverting this spectrum for IAB would compromise backhaul reliability, forcing the use of less suitable bands for mission-critical transport.

d. Other mmWave bands currently assigned for IMT—including those with substantial unused capacity—can effectively support IAB services without disrupting the integrity of dedicated backhaul networks.

e. In conclusion, there is no compelling rationale to repurpose E/V spectrum for IAB. Doing so would undermine backhaul robustness and network performance, while previously allocated and underutilized mmWave spectrum could sufficiently address access and IAB requirements. Consequently, E/V bands should remain exclusively reserved for backhaul by TSPs.

7. Considering all above, there is currently no case for the use of E/V bands for purposes other than backhaul, and there is not likely to be any need for such usage in the near future as well. Therefore, Airtel recommends that **E/V bands should be used only for backhaul purposes. Deploying these critical bands for any other usage will destabilize the existing networks of TSPs, in addition to impacting the new rollouts.**

III. Misplaced Assertion on 18 GHz Band Usage:

One of the stakeholders has advocated the importance of 18 GHz band to FSS operations and commented that it is "much less utilized" by terrestrial services to provide radio backhaul service in India.

Airtel Counter Response:

1. The assertion that the 18 GHz band is "much less utilized" by terrestrial services for radio backhaul in India and that it holds greater importance for FSS is factually incorrect and strategically flawed.

2. The 18 GHz band has, for decades, been a core backhaul band for TSPs in India. It is extensively used to support mobile and broadband connectivity across a wide range of geographies, including dense urban centres, suburban corridors, and rural deployments where fibre is not feasible. This band forms an integral part of the microwave architecture that enables reliable, scalable, and cost-effective transport networks, a role that cannot be fulfilled by other form of communication services, particularly when it comes to latency-sensitive and high-capacity requirements of modern mobile networks.

3. Moreover, the claim of under-utilization lacks empirical backing. In reality, TSPs have made significant investments in this band, and network usage continues to grow with the rapid rollout of 4G and 5G services. The 18 GHz band provides critical mid-distance backhaul capacity where E-band may fall short due to propagation limitations, and where lower frequency bands cannot deliver adequate throughput. Any disruption to its availability would directly impair service continuity, degrade QoS, and increase costs of

mobile broadband delivery, consequences that the country can ill afford at this stage of its digital transformation.

4. **Therefore, the proposition that the 18 GHz band is "much less utilized" by terrestrial services is untenable. The band is already dominated by terrestrial backhaul use and given these factors, it is imperative that the 18 GHz band be preserved exclusively for terrestrial backhaul usage by TSPs.** Any reservation of this band only toward FSS would represent a significant policy regression, disregarding the long-standing and expanding role of TSPs in India's digital infrastructure.

IV. License-exempt Usage of V-Band:

Some of the stakeholders have argued for allowing unlicensed use of V-band spectrum in 57-66 GHz.

Airtel Counter Response:

1. At the outset, Airtel would like to state that it strongly discourages the arguments related to the delicensing of V-band for any kind of usage. The same has already been addressed in Airtel's main response, specifically in responses to Q 29-33.

2. **Unique Features of V-Band:**

   a. Airtel reiterates that the V-band, with its high data throughput, millimeter-wave capabilities, compact form factor, low interference, and line-of-sight communication, is integral to the deployment of 5G networks and smart city infrastructure. It enables high-capacity, low-latency wireless connectivity in dense urban environments and given its strategic importance to next-generation telecom networks, the V-band must be preserved exclusively for licensed use by TSPs and should neither be delicensed nor allocated to non-TSP entities.

   b. Furthermore, device-to-device communication falls squarely within the access domain, not the backhaul layer. Such use cases should be confined to dedicated access spectrum bands, such as the 2.4 GHz, 5 GHz, or 6 GHz unlicensed bands, and must not encroach upon critical backhaul spectrum like the V-band, which is essential for maintaining the performance and integrity of telecom networks.

3. **Technological development:** Significant efforts are already underway to develop a robust and compatible ecosystem for the V-band. As the industry progresses toward next-generation technologies under the ongoing IMT-2030 study cycle, the V-band is expected to support a range of innovative and forward-looking applications. Delicensing the band at this critical stage risks undermining these developments and would diverge from emerging global best practices.

4. **Irreversibility of delicensing:** Once a spectrum band is delicensed and its ecosystem becomes entrenched, reversing the decision is often complex, disruptive, and, in many cases, impractical. International experience highlights the risks of prematurely delicensing strategically important bands. For instance, countries that opened the entire 6 GHz band for Wi-Fi are now facing significant challenges in reclaiming the upper 6 GHz band for IMT use, as deliberated under WRC-23. These precedents clearly demonstrate that delicensing the V-band at this stage could severely limit its availability for future licensed use cases.

5. **Underutilization of Legacy License-Exempt Bands:** In India, DoT has already designated the lower 6 GHz band (5.925-6.425 GHz) for license-exempt applications. At the same time, legacy license-exempt (2.4/5 GHz) bands remain underutilized. Therefore, any proposal to open additional bands like the V-band for license-exempt use lacks justification and risks long-term harm to the strategic telecom roadmap.

6. Therefore, **Airtel adamantly opposes any proposal to allow the unlicensed use of V-band spectrum**.

*****