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RE: Consultation Paper No. 07/2026, Consultation Paper on the "Proliferation of Public Wi-Fi Networks in India"

Amazon Leo[1] appreciates the opportunity to submit comments in response to the Telecom Regulatory Authority of India's ("TRAI") Consultation Paper No. 07/2026 on the "Proliferation of Public Wi-Fi Networks in India" ("Consultation Paper").[2] Amazon Leo commends TRAI for its efforts to expand broadband access, particularly in underserved and unserved areas of the country, and welcomes this opportunity to highlight the critical role that satellite broadband can play in achieving India's digital connectivity goals.

I. Background

Amazon Leo is deploying a global constellation of low-Earth orbit ("LEO") satellites to deliver affordable, high-speed broadband connectivity to unserved and underserved communities worldwide. Amazon Leo began launching its constellation of non-geostationary satellite orbit ("NGSO"), Fixed-Satellite Service ("FSS") satellites in low Earth orbit ("Amazon Leo System") in April 2025. Since committing to invest over 10 billion U.S. dollars in the Amazon Leo System, Amazon Leo has made significant strides toward further deployment, including the continued expansion of its terrestrial infrastructure and the unveiling of innovative customer terminals that will offer high performance in small form factors and at affordable price points.

Amazon Leo is building on the momentum of its broadband constellation with a major expansion into D2D services. On April 14, Amazon and Globalstar, Inc. ("Globalstar") announced a definitive merger agreement under which Amazon will acquire Globalstar and combine Globalstar's spectrum holdings and established Mobile-Satellite Service ("MSS") capabilities with the scale, performance, and reach of Amazon Leo.[3] Beginning in 2028, Amazon Leo will deploy a next-generation D2D satellite system to deliver advanced voice, data, and messaging services directly to mobile phones and other devices. Globalstar's fleet—including new satellites with expanded capabilities—will operate alongside Amazon Leo's broadband and D2D constellations, forming a unified network spanning fixed and mobile satellite services. Amazon Leo intends to work closely with MNOs and additional partners to bring this

[1] Kuiper Systems LLC (d/b/a "Amazon Leo") is a wholly owned subsidiary of Amazon.com Services LLC (collectively, "Amazon"). On November 13, 2025, Amazon replaced the Project Kuiper code name with Amazon Leo, its permanent brand for its satellite broadband network.
[2] Telecom Regulatory Authority of India, *Consultation Paper On the "Proliferation of Public Wi-Fi Networks in India"*, Consultation Paper No. 07/2026 (April 27, 2026) ("Public Consultation").
[3] *See* Amazon to acquire Globalstar and expand Amazon Leo satellite network (Apr. 14, 2026), https://www.aboutamazon.com/news/company-news/amazon-globalstar-apple.

vision to life and extend reliable, high-speed connectivity to customers no matter where they are in the world.

In addition, Amazon and Apple Inc. have signed an agreement for Amazon Leo to continue to support iPhone and Apple Watch models currently using Globalstar's existing and planned upcoming LEO satellite constellations, and to collaborate with Apple on future satellite services using Amazon Leo's expanded satellite network.[4]

II. Comments on the Consultation Paper

Amazon Leo encourages TRAI to continue studying the manner in which Public Wi-Fi connectivity is provided throughout the country. The Consultation Paper appropriately identifies backhaul availability as a critical constraint on Wi-Fi proliferation. Amazon Leo respectfully submits that satellite broadband is uniquely positioned to address this constraint, particularly in geographies where fiber deployment faces physical, logistical, or economic barriers.

Q1: What are the key supply-side constraints affecting Public Wi-Fi proliferation in India? What targeted policy or regulatory measures may be required to address these supply-side constraints?

The lack of reliable last-mile backhaul connectivity is a primary supply-side constraint for Public Wi-Fi proliferation. TRAI itself recognizes that backhaul for Public Wi-Fi in India is provisioned through a mix of technologies, including optical fiber, mobile broadband, microwave links, and satellite connectivity. NGSO satellite systems like the Amazon Leo System can fill critical backhaul gaps in areas where fiber cannot be economically deployed. Independent analysis has found that the cost of deploying LEO satellite broadband "does not vary with the density and distribution of households," making it more cost-effective than fiber-to-the-home for most rural households.[5] This finding can also carry to the business enterprises offering Wi-Fi networks.

Amazon Leo's low-latency, high-speed broadband performs on par with fiber networks and can be deployed rapidly without the lengthy civil works required for fiber trenching. Accordingly, Amazon Leo urges TRAI to explicitly recognize satellite as a qualifying backhaul technology for Public Wi-Fi deployments under the Prime Minister's Wi-Fi Access Network Interface ("PM-WANI") and any successor framework.

Question 2: What are the major demand-side constraints limiting the uptake of Public Wi-Fi services in the country? What targeted policy or regulatory measures may be required to address these demand-side constraints? Please provide your response in detail with justification.

The Consultation Paper identifies security, privacy, and trust deficits as demand-side barriers to Public Wi-Fi adoption. Satellite-backhauled Wi-Fi operated by established operators can help address these concerns. Amazon Leo, specifically, will use its technical resources and expertise to ensure that gateways are operated in accordance with Amazon's high standards of security and operational excellence.

Q3: Despite the PM WANI initiative, scaling the number of public hotspots across diverse geographies, especially in remote and underserved regions, remains uneven. What are the key challenges in

[4] *See id.*

[5] *See* Stela Bokun, LEO Satellite Broadband: A Cost-Effective Option for Rural Areas of Europe, Analysys Mason, 4 (Feb. 24, 2025), https://www.analysysmason.com/consulting/reports/leo-satellite-broadband-europe/ (finding that the cost of deploying low Earth ("LEO") orbit satellite broadband "does not vary with the density and distribution of households[,]" resulting in deployment that is more cost-effective than [fiber-to-the-home] for most rural households in Europe.").

expanding both the density and geographic spread of hotspots, and what strategies could help accelerate more balanced, nationwide coverage?

As noted above, backhaul availability is a significant constraint on the geographic spread of hotspots. Where BharatNet fiber terminates at the Gram Panchayat,[6] extending backhaul to individual villages, habitations, and community spaces remains a costly and time-consuming undertaking. To address these challenges, satellite backhaul should be formally mainstreamed and expanded for BharatNet projects beyond the current limited deployments, such as the 4,240 Gram Panchayats connected via satellite in Northeast India.[7] This expansion is particularly important for areas where fiber is absent or where repeated delays in fiber rollout persist. Satellite backhaul can serve as a complementary solution to accelerate connectivity in underserved regions while fiber deployment continues.

Q7: In the Indian context, which of the following models would be more appropriate for the proliferation of Public Wi-Fi? (a) A model where the Government actively ensures hotspot deployment through direct funding and implementation support, including backhaul provision; or (b) A model where the Government primarily ensures availability of robust backhaul infrastructure and intervenes in hotspot deployment only in cases of market failure.

Amazon supports implementation of Model B as it is best aligned with India's diverse geography and the need for technology-neutral solutions. Under Model B, the government's focus on ensuring robust backhaul should explicitly include satellite backhaul alongside fiber, wireless, and hybrid solutions. International experience—from the United States (BEAD program), the European Union (WiFi4EU), and the United Kingdom (Project Gigabit)[8]—demonstrates that the most successful Public Wi-Fi ecosystems are built on a strong, multi-technology backhaul foundation provided or facilitated by the government.

Under Model B, satellite backhaul should be leveraged to create dedicated Wi-Fi hotspots at Gram Panchayat and Sarpanch offices, with a target of at least one hotspot in every village. In measuring progress towards these targets, TRAI should distinguish dedicated public hotspots from personal mobile tethering. Mobile phones accessing 4G and 5G services and creating personal hotspots should not be classified as broadband or public Wi-Fi infrastructure, as access to these mobile services differs significantly from fixed Wi-Fi hotspots offering shared public access, and incorporating such mobile services into the Public Wi-Fi scheme could result in overestimations of connectivity.

Q8: Is there a need to adopt separate strategies for Public Wi-Fi proliferation in rural and urban areas? If yes, suggestions may be provided.

Yes. In rural regions, satellite connectivity should serve as the primary broadband or backhaul solution where fiber cannot be economically installed, extending digital access to habitations, schools, health centers, and community spaces, identified in the Consultation Paper as important deployment targets.[9] In contrast, urban areas benefit from satellite broadband as a redundancy layer for Wi-Fi backhaul, ensuring continuity when fiber links are disrupted. Further, the siting of gateway earth stations should be permitted near urban areas to take advantage of available resources and personnel.

Q10: If the Government decides to provide financial support for the proliferation of Public Wi-Fi, which funding mechanisms would be most suitable for India? Should a uniform funding mechanism

[6] *See, e.g.*, Public Consultation at Section 2.109.

[7] *See* Bikash Singh, *Northeast to Get Rs 15,000 Crore for Improving Telecom Connectivity*, The Economic Times (Jan. 16, 2018), https://economictimes.indiatimes.com/news/politics-and-nation/northeast-to-get-rs-15000-crore-for-improving-telecom-connectivity/articleshow/62524256.cms?from=mdr.

[8] *See* Public Consultation at Sections A.2, A.3, A.4.

[9] *See, e.g.*, *id.* at Section 2.97.

be adopted nationwide, or should differentiated funding mechanisms be used for rural, urban, and high-footfall areas?

Digital Bharat Nidhi ("DBN") funds should be available for satellite backhaul deployment where fiber is unavailable or cost-prohibitive. The Consultation Paper already notes that "suitable technologies—including fibre, wireless, or hybrid solutions—may be deployed using resources from the [DBN], in accordance with applicable guidelines, to bridge connectivity gaps."[10] Satellite should be expressly included within this technology-neutral mandate.

To promote consumer choice and participation, Amazon respectfully encourages the development of a funding system in which Public Data Office Aggregators ("PDOAs") offer small, affordable online recharge coupons on a per-hour basis, thereby lowering the cost barrier for customers in rural and under-connected regions. Further, Amazon respectfully requests that TRAI take steps to ease the current subscriber-level authentication requirements managed by PDOAs and App Providers under the PM-WANI framework. The existing distributed authentication model, under which PDOAs handle authorization and accounting while the Central Registry maintained by C-DOT only retains records of registered entities,[11] should be simplified for satellite-backhaul-enabled hotspots to reduce friction for first-time rural users while maintaining necessary security safeguards.

Q11: What criteria should govern the allocation and disbursement of funds across rural, urban, and high-footfall areas, respectively?

Funding allocation criteria should prioritize areas with demonstrated backhaul gaps measured by the absence of fiber or equivalent broadband connectivity within a defined radius of the proposed Wi-Fi hotspot location. Disbursement should be guided by outcome-based metrics (e.g., number of end users connected, quality of service delivered) rather than input-based metrics tied to specific technologies.

Q12: Is the lack of adequate and reliable last-mile connectivity a critical constraint for the proliferation of Public Wi-Fi in the country? If yes, what specific measures may be considered by the Central Government, State Governments, and local bodies to address the last-mile constraints?

Yes, as discussed in response to Questions 1 and 3 above, the lack of adequate and reliable last-mile connectivity is a significant constraint for Public Wi-Fi proliferation. To address this gap, Amazon Leo recommends that TRAI ensure adequate access to Ka-band, Q/V-band, and E-band spectrum for satellite backhaul operations, as NGSO satellite systems require large, contiguous, globally harmonized spectrum blocks to deliver connectivity effectively at scale.

[10] *See id.* at Section 2.111.
[11] *See id.* at Section 2.49.

Q13: Is there a need for the Government to provide funding for provisioning of last-mile connectivity in the uncovered or underserved areas for Public Wi-Fi networks? If yes, which funding option is best suited in the Indian context, and what should be the criteria for rural, urban, and high footfall areas, respectively?

Yes, consistent with Amazon Leo's recommendation in Question 10 above, Amazon Leo supports the provision of government funding for last-mile connectivity. Such funding should be technology-neutral, permitting satellite-based backhaul as an eligible expenditure alongside fiber and wireless solutions. Amazon endorses a coupon system whereby citizens are provided funding credits to use on broadband as they see fit.

Question 19: What regulatory or fiscal incentives, schemes or programs may be required in the provisioning of bandwidth and backhaul for Public Wi-Fi networks? Please provide your response in detail with justification.

As noted in Amazon Leo's response to Question 12 above, spectrum access is critical for satellite backhaul providers. In addition to general access to the Ka-band, Q/V-band, and E-band, Amazon Leo respectfully encourages the Indian government to specifically ensure the availability of the 17.3–17.7 GHz band for FSS (space-to-Earth) operations and to support a primary FSS allocation for NGSO systems in the 51.4–52.4 GHz band (Earth-to-space) for gateway uplink operations. With regard to ground infrastructure, Amazon urges TRAI to streamline the processes for gateway siting approvals and spectrum access for satellite operators providing backhaul services to reduce administrative delays and lower barriers to entry, thereby accelerating the proliferation of Public Wi-Fi infrastructure across the country.

Question 26: Please provide any additional comments, observations, or suggestions related to the proliferation of Public Wi-Fi in the country, including any potential issues or considerations that may not have been covered in the sections above. Please provide your response in detail with justification.

TRAI's approach to Public Wi-Fi should be consistent with India's broader commitment to fostering a satellite services ecosystem, as reflected in the Telecommunications Act, 2023, the Indian Space Policy 2023, and the ongoing SCN authorization framework. Satellite operators should be able to seamlessly participate as broadband and backhaul providers within the Public Wi-Fi ecosystem.

III. Conclusion

Amazon Leo expresses its gratitude to TRAI for the opportunity to provide comments in response to this consultation and welcomes further dialogue on these important issues.

Respectfully submitted,

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On behalf of Amazon Kuiper Services India Private Limited