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Advisor (QoS-I)
Telecom Regulatory Authority of India,
4th, 5th, 6th & 7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
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Kind Attn: Shri Tejpal Singh

Subject: Comments on the consultation paper on Draft amendments in 'The Standards of Quality of Service of access (Wireline and Wireless) and Broadband (Wireline and Wireless) Service Regulations, 2024' dated 05 August 2026.

Dear Sir,

This is in reference to consultation paper on Draft amendments in 'The Standards of Quality of Service of access (Wireline and Wireless) and Broadband (Wireline and Wireless) Service Regulations, 2024' dated 05.08.2026.

In this regard, kindly find enclosed herewith comments from Vodafone Idea Limited on the abovesaid. The comments are enclosed as three annexures, details given below:

1. **Annexure-A: Comments on QoS Parameters & Main Regulation**
2. **Annexure-B: Comments on Schedule-I (Measurement Methodology)**
3. **Annexure-C: Comments on Schedule III (Coverage Maps)**

We hope our comments will merit your kind consideration please.

Thanking you,
Yours sincerely,

For **Vodafone Idea Limited**

Ambika Khurana
Chief Regulatory and Corporate Affairs Officer

Enclosed: Annexure A, B & C

myvi.in

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Annexure-A

S.No	Para. No. of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
1	1(b)	These shall come into force w.e.f. 1st Oct 2026	It will require at least 6 months for implementation post issuance of Regulation.	1. It will require massive augmentation of network elements, network infrastructure and resources. On customer services' side also, it will need huge changes and upgradation in our network and IT systems. Further, both network and customer services will require setting up processes with cross-functional teams. 2. Further, given the scale and complexity of the proposed amendments, the implementation will take at least 6 months from the date of issuance of regulation.
2	2 (sa)	(sa) "Physical Resource Block" or "PRB" is the fundamental unit of radio resource allocation in 4G LTE and 5G New Radio (NR) networks. It represents a defined portion of radio spectrum over a specific time interval and serves as the basic scheduling unit through which a cell allocates radio resources to user equipment (UE) for data transmission and reception.	The definition of "PRB" should be deleted.	Kindly refer to VIL comments on Network slicing, given in this document below.
3	6(1)(i)	Availability of service wise geospatial coverage map on service provider's website for percentage of working cells (Benchmark - ≥ 99%) Accuracy of service wise geospatial coverage map published on service provider's website Benchmark- ≥ 98% (Monthly)	The parameter "Accuracy of service-wise geospatial coverage map published on service provider's website" should not be prescribed as a Quality of Service (QoS)	1. Coverage maps are predictive representations and not actual measurements of service quality a. A geospatial coverage map is fundamentally a predictive engineering model developed using radio propagation software, terrain databases, clutter information, antenna characteristics, loading assumptions and other planning inputs. Even TRAI's proposed

		parameter and should be removed from Regulation 6(1). In the alternative, if TRAI considers publication and validation of coverage maps necessary for consumer information and transparency purposes, the same may be retained only as a standalone compliance obligation without any QoS benchmark, compliance assessment, or financial disincentive linked to network performance.	framework acknowledges that coverage maps may be generated using standard prediction models. b. A prediction model, by its very nature, estimates coverage probability under assumed conditions. It cannot and should not be equated with actual service experience observed in real time. c. Quality of Service parameters, on the other hand, are intended to measure the actual performance delivered by the network through objectively measurable indicators such as accessibility, retainability, latency, packet loss or downtime. The proposed parameter departs from this fundamental regulatory principle by attempting to evaluate a planning and prediction tool as though it were a network performance metric. d. Therefore, "accuracy of coverage map" is not a QoS parameter but merely an informational transparency mechanism. 2. TRAI is comparing two fundamentally different datasets a. The proposed validation methodology compares: • Prediction-based coverage maps published by TSPs; • Field measurements collected through TRAI drive tests; • Crowdsourced feedback through TRAI applications; and • Consumer-reported observations. b. These datasets are inherently different in methodology, timing, device characteristics and operating conditions. c. Drive tests represent measurements taken at a specific point in time using calibrated equipment. Crowdsourced measurements represent experiences from different handset models, software
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				versions, antennas, user behaviour and surrounding environments. Coverage maps represent engineering predictions under standardized assumptions. d. Comparing these fundamentally different datasets and deriving a compliance benchmark from such comparison is technically unsound and likely to produce misleading conclusions. 3. QoS compliance should be based on actual network performance and not on network predictions a. The essential objective of QoS regulation is protection of consumer interests through measurement of actual service quality. b. The coverage map neither carries live network information nor actual service performance. It does not directly indicate: • Call success rate; • Call drop rate; • Latency; • Packet loss; • Data throughput; • Voice quality; or • Congestion. c. Consequently, a TSP may have a highly accurate coverage prediction map but poor QoS performance, or conversely may have excellent QoS performance while variances arise between prediction outputs and isolated field observations. d. The proposed parameter therefore lacks a direct nexus with actual consumer QoS.
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				4. Actual service experience depends upon multiple dynamically changing factors a. The proposed Schedule III itself acknowledges that signal strength alone is not sufficient to determine service quality and that actual performance depends upon factors such as backhaul performance and cell loading. b. In addition, actual user experience depends upon various factors like Handset capability, device software, Indoor versus outdoor location, Building penetration losses, Traffic loading, Weather conditions, Temporary interference, Mobility conditions, User behavior patterns. c. Many of these factors vary continuously and are beyond the scope of any static or semi-static coverage prediction model. d. Therefore, it is unreasonable to hold a coverage prediction map to a QoS benchmark of 98% accuracy against constantly changing real-world conditions. 5. The proposed methodology is biased towards under-reporting coverage a. As per para 5.5.3 of Schedule III, a sample is considered inaccurate only when the published coverage is shown better than the measured coverage, whereas displaying poorer coverage than actually available is still treated as accurate. b. This creates a regulatory bias whereby service providers may be compelled to deliberately understate coverage to avoid regulatory exposure.
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				c. Such an outcome defeats the very purpose of providing consumers with transparent and useful coverage information. 6. Global practices do not equate coverage map validation with QoS compliance a. The international references cited by TRAI indicate that regulators use coverage maps primarily as transparency and consumer-information tools. Various jurisdictions publish and validate coverage maps, but they do not treat prediction map accuracy as a QoS benchmark attracting regulatory non-compliance and financial disincentives in the manner proposed. b. The purpose globally is informational transparency and consumer awareness rather than network QoS enforcement. c. Therefore, international practices do not support inclusion of this parameter within a QoS compliance framework. <u>Conclusion</u> Accordingly, we submit that prediction-based geospatial coverage maps and actual QoS measurements serve two entirely different purposes and should not be co-mingled within the same regulatory framework. Since coverage maps are predictive engineering representations and not measures of actual network performance, their accuracy cannot form the basis of a QoS benchmark. Therefore, the proposed parameter 'Accuracy of service-wise geospatial coverage map published on service provider's website' should be deleted from Regulation 6(1).
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				In the alternative, if TRAI considers publication and periodic validation of coverage maps necessary, such requirement may be retained purely as a transparency and consumer-information obligation, without any QoS benchmark, compliance assessment, or financial disincentive linked thereto.
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4	6(1)(iv)	Percentage of significant network outage (services not available in a district for more than 4 hours) reported to the Authority within 24 hrs of start of the outage Note: Significant Network Outage is defined as an event where access service (wireless) in a district remains unavailable for a continuous period exceeding four (4) hours, or where more than ten percent (10%) of subscribers in the Licensed Service Area (LSA) experience complete loss of service for a continuous period exceeding four (4) hours. Compensation Rebate to the subscribers for significant network outages of more than 24 hrs: For post-paid subscribers registered in the district or affected post-paid subscribers, as applicable: Proportional rent rebate, as per plan charges, for affected number of days shall be credited in next bill. For the pre-paid subscribers registered in the district or affected pre-paid subscribers, as applicable: The validity of subscribed tariff offering shall be increased by equal number of affected days.	The criteria of Significant Network Outage where more than 10% of subscribers in the LSA experience complete loss of service for a continuous period exceeding 4 hours, should be deleted.	1. The proposed amendment materially widens the definition of Significant Network Outage (SNO), and the biggest reporting risk is that the trigger is no longer only "district-level service not available for more than 4 hours." It now also includes cases where more than 10% of subscribers in an LSA experience complete loss of service for more than 4 continuous hours. That second trigger can create significant operational and evidentiary challenges. 2. Despite bringing in such operational complexity and reporting, there is no clarity or fact-based analysis as to how the earlier provisions have helped the consumers or how the new proposed provisions are going to help. In absence of any fact-based analysis, such requirements are creating huge regulatory compliance burden without any commensurate benefits. Key operational issues that would occur in determining any event as SNO for reporting purposes are given below. 3. Ambiguity in "complete loss of service": The meaning of complete loss of service is not clear. The TSPs provide different access services (voice, sms, data etc) over different technologies (2G, 4G, 5G) and through different spectrum bands, as such loss in any one of these layers may not mean complete loss of service. The complete loss of service should ideally be when there is no wireless technology, and no access service is available. 4. 10% subscriber impact measurement at LSA level a. There is no single real-time system that can reliably confirm, as to exactly how many unique subscribers are affected across the LSA.
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			b. Subscriber count can vary by active base, registered base, attached users, IMSI/SIM count, active data users, home subscribers, roamers, M2M/IoT connections, subscribers moving out of affected zone voluntarily, connections switched-off, battery discharge etc. c. With such varied scenarios, it is not understood as to how to measure 10% affected subscriber measurements that too, in the ultra-short timelines provided for reporting of such events. 5. District vs LSA trigger overlap: a. The proposed amendment creates two separate triggers: district-level outage and LSA-level subscriber impact. b. Reporting teams would struggle to decide which trigger applies and how to present overlapping incidents. This will create compliance overhang and seek to deflect the attention from network restoration to regulatory reporting. 6. Start time determination: a. The requirement is to report within 24 hours from the start of the outage. b. In real operations, the start time may be known only after alarms are correlated, customer complaints increase, or root cause analysis begins. c. There can be different timestamps from network alarms, NOC tickets, field teams, IT systems, and customer complaint systems.
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			7. Continuous 4-hour condition a. The wording requires a continuous period exceeding 4 hours. b. Intermittent restoration, partial recovery, cell flapping, power cycling, or overlapping outages may create uncertainty on whether the 4-hour clock resets or continues. 8. Monthly benchmark of 100% a. Since the benchmark is 100% reporting within 24 hours, even one missed or delayed report could lead to non-compliance. b. The compliance burden is high, especially for incidents discovered late or classified as SNO only after detailed analysis. 9. Root cause and action taken reporting a. The requirement to submit root cause and action taken after restoration may be difficult where root cause depends on vendor investigation, power utility confirmation, fibre provider confirmation, or force majeure validation. b. Initial root cause may later change, creating revision risk or subjective interpretations of false reporting. 10. Documented reporting for Force Majeure:
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				a. The proposed norms seek to have duly documented proof of happenings. b. This documented proof of happening may vary on case-to-case basis as such, there should not be a restrictive acceptance of such proofs.
5	6(1)(xiv)	Tariff offerings in which 80th percentile value of measured test samples for which download and upload speed is $\geq$ offered typical download and upload speed for 4G/5G technology in tariff offerings	The proposed parameter "Tariff offerings in which 80th percentile value of measured download and upload speed is greater than or equal to the offered typical download and upload speed for 4G/5G technology" should be deleted from the QoS Regulations. In the alternative, if TRAI decides to retain the provision, the disclosed speed should be limited to the maximum provisioned speed configured in the network profile/HSS (or equivalent network configuration platform), rather than a "typical	Justification 1. Wireless broadband speeds are inherently dynamic and vary continuously based on several factors such as radio conditions, location, mobility, indoor/outdoor environment, cell loading, handset capability, spectrum availability and time of day. 2. Consequently, a single "typical download/upload speed" cannot realistically represent the experience of subscribers across an entire LSA or even within a specific geographic area. This challenge becomes even more pronounced in 5G NSA architecture, where the consumer experience is delivered through a combination of LTE and 5G resources and cannot be easily correlated with a particular technology-specific speed value. 3. We respectfully submit that publication and regulatory monitoring of such "typical speed" values is likely to create confusion rather than transparency. Consumers may compare occasional speed test results with the published value and perceive a deficiency even when the network is functioning normally within its design parameters. Such measures, which are not directly relatable to real-life usage scenarios experienced by consumers in wireless networks, may inadvertently create distrust and dissatisfaction without delivering any substantial benefit in terms of QoS or QoE.



			speed" benchmark linked to ongoing compliance obligations.	4. Accordingly, if any disclosure is considered necessary, the maximum provisioned speed configured in the subscriber profile (HSS/UDM or equivalent network platform) would be a far more objective, transparent and consumer-friendly metric.
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6	6(1)(xv)	V. Network Slicing (xv) Cells having daily PRB utilization >80% (in 5G network)	The proposed parameter should be deleted. In the alternative, the Authority may adopt a technology-neutral and outcome-based regulatory approach focusing on actual consumer experience rather than internal network resource utilization metrics.	Justification 1. Regulatory framework should remain technology-neutral and outcome-driven a. The proposed parameter is technology-specific in nature and is limited only to 5G networks. However, differentiated service experiences, prioritization mechanisms and resource allocation techniques can be implemented through multiple and mix of technological approaches across 4G, 5G and future network architectures. b. Regulatory frameworks should be technology-neutral and focus on consumer outcomes rather than prescribing specific technologies or network implementations. The objective of QoS regulation should be to protect consumer interests through service quality, awareness and transparency, while allowing service providers the flexibility to adopt the most efficient technological solutions. Accordingly, differentiated QoS and service experiences should be permitted irrespective of whether they are delivered through 4G, 5G or any future technology. 2. PRB utilization is a network engineering indicator and not a QoS parameter a. PRB utilization is fundamentally a network planning and resource management metric and not a direct measure of consumer experience. High PRB utilization merely indicates that radio resources are being scheduled and does not by itself establish deterioration in throughput, latency, packet loss, service availability or any other consumer-facing quality parameter. A cell may continue to deliver satisfactory QoS even at utilization levels exceeding 80%
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				due to favorable radio conditions, advanced coding schemes, efficient scheduling algorithms and optimal spectrum utilization. b. Therefore, PRB utilization should be viewed as an internal engineering and network planning tool rather than a standalone QoS compliance parameter. 3. Network slicing becomes relevant only when resources are genuinely under contention a. Network slicing is effective only when network resources are under contention and differentiated treatment of traffic is required. Where spare capacity exists, all users can continue to access the available resources without any material impact from network slicing policies. In such circumstances, the practical effect of slicing is limited. b. Therefore, linking regulatory compliance or network slicing obligations to cells exceeding 80% PRB utilization does not appear technically justified. If resources are not genuinely constrained, all users would be able to utilize the network at the highest available resource levels irrespective of slicing arrangements. c. As such, an 80% utilization threshold is not, by itself, an appropriate proxy for assessing the effectiveness or necessity of network slicing. 4. The proposed threshold may penalize/deter efficient spectrum utilization a. The proposed criterion that less than 1% of cells should exceed 80% PRB utilization does not adequately reflect the realities of mobile network operations.
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			b. Traffic demand is inherently uneven and geographically concentrated, and certain cells may periodically experience high utilization due to localized demand patterns, transportation corridors, commercial hubs, events or seasonal traffic concentrations. Such utilization levels do not necessarily indicate poor network performance. c. Spectrum is a scarce national resource and high utilization during peak demand periods may, in fact, demonstrate efficient utilization of available capacity rather than network congestion or poor service quality. Requiring substantial unused resource headroom across virtually all cells could inadvertently discourage efficient spectrum utilization and convert a network dimensioning trigger into an over-provisioning mandate. This concern becomes particularly relevant in situations where customer QoS remains satisfactory, traffic peaks are predictable and temporary, additional spectrum is unavailable, site deployment faces right-of-way constraints, or load-balancing alternatives are limited. 5. Significant compliance burden with limited consumer benefit a. The proposed parameter introduces substantial operational complexity by requiring monitoring, validation and reporting of cell-level utilization conditions across extremely large networks. Such reporting obligations increase compliance burden without a corresponding improvement in consumer awareness or consumer welfare outcomes. b. Regulatory interventions are generally most effective when focused on measurable consumer-facing outcomes such as network performance, throughput, latency, packet loss, availability and customer experience, rather than on internal engineering indicators.
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				In the present case, the proposed parameter appears to focus on the means of network management rather than the outcomes experienced by consumers. 6. Our recommendation a. Accordingly, the proposed parameter <i>"Cells having daily PRB utilization >80% (in 5G network)"</i> should be deleted from the QoS framework. b. In the alternative, if the Authority considers retention of a utilization-based parameter necessary, the framework should be simplified, made technology-neutral, and linked only to sustained resource contention conditions that demonstrably impact consumer experience. Any threshold adopted should be based on conditions where network slicing is genuinely relevant and resource contention exists, rather than normal and efficient network operations.
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7	6(1)(xv)	“(3) Every service provider, planning to create a new network slice in their 5G network, shall submit the details of proposed and existing network slice parameters, at least twenty one (21) days in advance to the Authority, clearly demonstrating the availability of sufficient capacity in the cell(s) which are part of different slices, in such manner and format as may be directed by the Authority, from time to time.”	The proposed prior intimation framework for network slicing should be made technology-neutral, the notice period reduced to two weeks, and the reporting requirements finalized only after stakeholder consultation with adequate safeguards for commercially sensitive information.	Justification 1. Regulatory framework should remain technology-neutral and outcome-driven: a. The proposed provision is premised on a specific technological implementation, namely network slicing in 5G networks. However, differentiated service experiences, prioritization mechanisms and enhanced customer offerings can be delivered through multiple technological approaches across 4G, 5G and future network architectures. b. Regulatory frameworks should ideally remain technology-neutral and focus on protecting consumer interests through measurable service outcomes, transparency and consumer awareness rather than prescribing or regulating the manner in which networks are engineered. The objective should be to ensure that consumers receive the quality of service committed to them, irrespective of the underlying technology used to deliver such experience. Accordingly, differentiated QoS, innovative service offerings and customized enterprise solutions should be allowed through any technological platform, provided consumer interests and service quality standards are maintained. 2. The proposed 21-day advance notice period should be reduced: a. The requirement for submission of network slicing details at least twenty-one days in advance may lead to avoidable delays in deployment of new services and innovations. Telecom networks operate in a highly dynamic environment where customer requirements, enterprise use cases, capacity planning decisions and
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				technological deployments often need to be implemented within compressed timelines. b. A mandatory three-week advance notification period may adversely impact agility and responsiveness, particularly in emerging areas such as private networks, enterprise connectivity solutions, Industry 4.0 applications and other evolving use cases. Accordingly, if prior intimation is considered necessary, the notice period should be reduced to a maximum of two weeks to strike an appropriate balance between regulatory visibility and operational flexibility. This would enable the Authority to remain informed while avoiding unnecessary delays in the deployment of new services and technologies. 3. Adequate safeguards must be provided for commercially sensitive information a. The proposed requirement may necessitate submission of network architecture details, capacity information, network slicing configurations, resource allocation methodologies and other commercially sensitive information. Such information forms part of the strategic and competitive business intelligence of a service provider and may have implications for network security, commercial positioning and future technology deployment plans. b. Therefore, before prescribing any reporting obligation, the Authority should establish a clearly defined, secure and access-controlled framework governing the submission, storage, handling and dissemination of such information. Appropriate confidentiality protections should be incorporated to ensure that commercially sensitive data is accessible only on a need-to-know basis and doesn't
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				carry risks which could prejudice the competitive interests of service providers. 4. The format and reporting mechanism should be developed through stakeholder consultation a. The proposed provision empowers the Authority to prescribe the format and manner of submission from time to time. Given the technical complexity of network slicing and the evolving nature of 5G deployments, it is essential that any such reporting framework be developed through a structured consultation process involving TSPs and other relevant stakeholders. Stakeholder consultation would enable practical implementation challenges, data availability issues, reporting burdens and confidentiality concerns to be appropriately considered before finalizing compliance requirements. b. This would also promote uniform interpretation across the industry, reduce implementation ambiguities and help ensure that the reporting framework remains proportionate to the intended regulatory objective. Accordingly, no reporting format or information requirement should be prescribed without prior consultation with the industry and other relevant stakeholders.
8	7(1)(vii)	Silence Call Rate $\leq$ 1%, Monthly Assessment, w.e.f. 01.10.2026	This parameter should be dropped.	Justification 1. The paper proposes introduction of the parameter "Silence Call Rate $\leq$ 1%" with monthly assessment w.e.f. 01.10.2026. 2. While the objective of enhancing voice quality and customer experience is appreciated, the proposed parameter is not suitable for inclusion as a regulatory Quality of Service (QoS) benchmark. Unlike parameters such as Call Setup Success Rate (CSSR), Call Drop Rate (CDR), or packet loss,



				"silence in calls" is not a standard network event or signaling indicator that is available through OSS-based counters. Consequently, this parameter cannot be measured through existing standardized network monitoring systems deployed by TSPs and equipment vendors. 3. At present, no standard KPI or OSS counter exists for measuring "Voice Call Silence Ratio" at the network level. Detection of silence events generally requires specialized audio or media analytics tools that monitor individual voice streams and analyze the call content in real time. Such solutions are neither standardized across the industry nor integrated into existing telecom network management systems. Compliance with the proposed requirement would therefore necessitate deployment of additional proprietary tools and infrastructure, resulting in substantial capital and operational expenditure for TSPs without a commensurate regulatory benefit. 4. Further, as acknowledged in the consultation document, the proposed metric is presently derived through drive-test based measurements rather than network-wide OSS measurements. Drive tests typically cover a limited geography, sample size, and duration, which may not adequately represent the performance experienced across an entire Licensed Service Area. For example, a few hundred test calls conducted over a limited route cannot reliably reflect the service-quality delivered across the complete network footprint. QoS regulations have traditionally relied on OSS-based counters precisely because they represent actual network-wide performance across the entire service area and are generated using standardized industry methodologies. 5. The proposed parameter also suffers from significant challenges relating to measurement consistency and reproducibility. Silence detection is generally dependent upon proprietary algorithms and implementation methodologies adopted by different test solution vendors. The resulting
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				measurements may vary based on factors such as silence amplitude thresholds, voice activity detection sensitivity, analysis window size, treatment of background noise, comfort-noise packet handling, codec implementation (AMR-NB, AMR-WB, EVS, etc.), and whether the analysis is based on acoustic output, decoded RTP streams, or packet traces. In the absence of a globally standardized methodology, comparable and auditable measurements across different operators and testing platforms may not be achievable. 6. It is also submitted that TRAI has already introduced packet drop related quality parameters through the QoS framework amendment of October 2024 to address degradations experienced during voice communications. The proposed Silence Call Rate seeks to address a similar service quality objective and may therefore result in duplication of regulatory requirements. Accordingly, TRAI may consider continuing to evaluate silence-related observations under the Independent Drive Test (IDT) framework, where such measurements are more appropriately suited, rather than making it a licensed service area level QoS compliance parameter. 7. Additionally, the proposed formula for calculation of <i>Call Silence Rate</i> requires reconsideration. As presently defined, the numerator captures the number of silence instances, while the denominator is the total number of calls. This could lead to mathematically anomalous results where multiple silence events within a single call result in values exceeding 100%, which is inconsistent with the stated objective of measuring the proportion of affected calls. If the intention is to measure "Silence Call Rate," the formula should instead be based on the number of calls experiencing one or more silence events as a proportion of total successful calls, i.e., Call Silence Rate = (Number of calls experiencing silence events / Total successful calls) × 100. This approach would align
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				the metric with the nomenclature of the parameter and ensure meaningful interpretation of results. 8. In view of the above, TRAI is requested not to introduce Silence Call Rate as a monthly QoS compliance parameter and to continue its evaluation, if required, through drive-test based assessments until a standardized, OSS-measurable, and industry-accepted methodology becomes available.
9	10(1) (ii)	10(1)(ii) Resolution of billing/ charging complaints within four-weeks one week with benchmark of 100%, with Monthly assessment for Access service (wireless).	We recommend not to revise the TAT to 1 week. If reduction is required, same may kindly be made 2 weeks atleast.	Justification 1. The proposed reduction of the complaint resolution timeline from the existing four weeks to one week and prescription of a benchmark of 100% is not operationally feasible for all categories of billing and charging complaints. Unlike routine service requests, many billing disputes require detailed investigation, validation across multiple systems, coordination with various internal functions, and in certain cases, dependency on third-party entities or external operators. Therefore, the time required for resolution is often driven by factors that are not entirely within the control of the service provider. 2. Billing complaints relating to International Roaming (IR) are a significant example. Resolution of such complaints requires verification of roaming usage records, TAP/TAPIN CDRs, settlement records and billing information received from the visited network operator. Such records may become available only after several days, and in many cases the service provider must wait for the complete set of roaming records before conclusively determining whether any charge reversal or refund is warranted. A one-week timeline may therefore expire even before the necessary information is available, resulting either in premature closure



				of the complaint or issuance of an interim response without full verification of facts.
				3. Similarly, a large number of prepaid and postpaid charging complaints require coordination among multiple functional teams such as billing operations, digital activation teams, marketing teams, offer-configuration platforms, circle resolution teams and technology partners. Cases involving SIM activation charges, recharge benefits, promotional offer eligibility, bundled benefits, wallet adjustments, payment reconciliations, and partner-led services often require sequential validation across several systems before a final resolution can be provided. Such interdependent processes cannot always be completed within seven days while maintaining the accuracy and fairness of the grievance redressal process. 4. It is submitted that the objective of the QoS framework should be to ensure fair, accurate and sustainable complaint resolution rather than drive closure within an artificially compressed timeline. A mandatory one-week TAT coupled with a benchmark of 100% may incentivize interim or premature responses merely to meet compliance requirements, which would be detrimental to consumer interests and may increase repeat complaints or disputes. 5. The practical limitations are also reflected in actual operational data. A review of recent complaint handling performance indicates that despite dedicated processes and monitoring, a small percentage of billing complaints require more than one week for legitimate investigation and resolution. Depending on the nature and complexity of the complaint, approximately 4% to 9% of billing complaints in recent months were resolved beyond one week due to dependencies such as external validation, reconciliation, customer confirmation, or multi-team investigation. This demonstrates that a one-week and 100% compliance

				requirement is not realistically achievable on a consistent basis across all complaint categories. 6. In view of the above, it is submitted that the proposed reduction of the resolution timeline to one week should be reconsidered. A minimum timeline of two weeks may be prescribed for billing and charging complaints, which would strike an appropriate balance between timely customer grievance redressal and the need for accurate investigation and fact-based resolution. Alternatively, complex complaint categories involving external operators, roaming records, inter-operator settlements or third-party dependencies may be specifically excluded from the one-week requirement.
10	15(1)(e)	Service wise Quality of Experience Score (QoES) of service providers based on various parameters of network performance, consumer service, and consumer perception collected through multiple sources;	If the Authority intends to introduce and publish a service-wise QoES framework, we respectfully submit that the detailed methodology, data sources, calculation approach, governance mechanism and disclosure format should first be developed through a comprehensive consultation process with all stakeholders.	1. While Vi appreciates the Authority's objective of enhancing transparency and making service quality information available to consumers, the concept of a composite Quality of Experience Score (QoES) requires careful consideration before being implemented as a published metric. 2. Customer experience is inherently multidimensional and is influenced by a combination of network performance, service interactions, consumer expectations, usage patterns, device characteristics, location-specific conditions and several other factors. Consequently, any attempt to represent such a complex experience through a single aggregated score may involve subjective choices relating to methodology, weightages, sampling approaches, normalization techniques and interpretation of consumer feedback. 3. It is also submitted that the most meaningful assessment of service experience is ultimately made by the consumer based on his or her actual day-to-day usage experience. India's telecom market already benefits from a well-established competitive framework, including Mobile Number Portability (MNP), which enables consumers to switch service



			providers if they are dissatisfied with the quality of service or overall experience being delivered. This market-driven mechanism acts as a continuous incentive for service providers to improve network quality, customer service and consumer experience. 4. Further, service providers already undertake extensive customer experience measurement and improvement initiatives through internal feedback mechanisms and customer satisfaction frameworks. Before prescribing a uniform industry-wide QoES framework based on multiple sources, it would be important to clearly establish the measurement philosophy, data inputs, source reliability, weighting methodology, validation process and representation format. Given that the resulting score may significantly influence consumer perception and competitive positioning of service providers, even minor variations in methodology could materially affect outcomes. 5. Accordingly, if the Authority intends to introduce and publish a service-wise QoES framework, we respectfully submit that the detailed methodology, data sources, calculation approach, governance mechanism and disclosure format should first be developed through a comprehensive consultation process with all stakeholders. Such consultation would ensure that the framework is objective, transparent, auditable, technically robust and reflective of actual consumer experience, while avoiding unintended consequences arising from subjective assessments or inconsistent interpretation of data
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11	15(3)	Every service provider providing access service (wireless) shall publish on its website the service wise geospatial coverage maps in such a manner and format, <u>as broadly specified under Schedule III</u> and as may be directed by the Authority from time to time, for the geographical areas where wireless voice or wireless broadband service is available for subscription by consumers.	The parameter "Accuracy of service-wise geospatial coverage map published on service provider's website" should not be prescribed as a Quality of Service (QoS) parameter and should be removed from Regulation 6(1). In the alternative, if TRAI considers publication and validation of coverage maps necessary for consumer information and transparency purposes, the same may be retained only as a standalone compliance obligation without any QoS benchmark, compliance assessment, or financial disincentive linked to network performance.	Pls refer our comments given above to the Parameter related to Coverage Map under Regulation 6 as well as comments given below against the Schedule III.
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12	16 (1)	(1) If a service provider fails to meet the benchmark of QoS parameters specified under sub-regulation (1) of regulation 4 or sub-regulation (1) of regulation 6 or sub-regulation (1) of regulation 9 or sub-regulation (1) of regulation 10, it shall, without prejudice to the terms and conditions of its license, or the Act or rules or regulations or orders made, or directions issued, thereunder, be liable to pay an amount, by way of financial disincentive, not exceeding rupees one lakh per benchmark per compliance report for the first contravention as the Authority may, by order, direct:	Clarity is required as what constitutes “per compliance report”.	Clarity is required as what constitutes “per compliance report”.
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13	16 (A)	Provided that if the service provider fails to meet the benchmark of the same parameter consecutively in two or more subsequent months or quarters, as applicable, he shall be liable to pay, by way of financial disincentives, an amount not exceeding rupees two lakhs for the second consecutive contravention and not exceeding rupees three lakhs for each consecutive contravention occurring thereafter: Consequences for the failure of service providers to submit correct compliance reports. - (1) If the compliance report furnished by the service provider under regulation 13 is found to be false, it shall, without prejudice to the terms and conditions of its license or authorization, or the Act or rules or regulations or orders made, or, directions issued thereunder, be liable to pay an amount, by way of financial disincentive, not exceeding rupees two lakhs per benchmark per compliance report, for which such false report has been furnished, for the first contravention as the Authority may, by order, direct:	Explanation needs modification. First instance of any such reporting discrepancy irrespective of tolerance levels should result in an advisory, warning, or opportunity for correction. Regulatory consequences under the false reporting provisions may be invoked only in cases of repeated occurrence of the same discrepancy despite prior warning and corrective directions, such as where the same parameter is found to be non-compliant on three or more occasions, or where there is evidence of deliberate suppression, manipulation, or misrepresentation of information.	1. The proposed Explanation requires reconsideration to the extent it deems every mismatch beyond the prescribed tolerance level as "false reporting". The term "false reporting" ordinarily connotes willful misrepresentation, concealment, or deliberate furnishing of incorrect information. However, in cases where the Authority derives a different performance outcome from the very same raw data furnished by the TSPs, the variance may arise due to reconciliation processes, system configurations, or data processing logic rather than any deliberate act of misreporting. 2. A distinction may therefore be drawn between (i) cases where the Authority separately seeks or independently obtains underlying data and subsequently discovers that the data furnished by the service provider was incorrect, incomplete, or misleading, and (ii) cases where the service provider itself transparently submits both the underlying data and the corresponding calculated performance, and the Authority arrives at a different result while processing the same dataset. While the former may warrant examination under the provisions relating to false reporting, the latter should ordinarily be treated as a reporting discrepancy requiring reconciliation and corrective action rather than an instance of false reporting. 3. TSPs maintain extensive internal controls, validation checks, audit processes, and governance mechanisms to ensure reporting accuracy. However, considering the significant expansion of QoS parameters,
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	Provided that if the compliance report furnished by the service provider under regulation 13 is found to be false for the same parameter consecutively in two or more months or quarters, as applicable, the service provider shall be liable to pay, by way of financial disincentives, an amount not exceeding rupees five lakhs for the second consecutive false reporting and not exceeding rupees ten lakhs for each consecutive false reporting occurring thereafter.		monthly assessment requirements, shortened timelines, and increasing reporting granularity proposed under the Regulations, the overall compliance burden has increased substantially. In such an environment, isolated reporting discrepancies may inadvertently occur despite reasonable precautions and should not automatically attract penal consequences such as false reporting.
	Explanation: If, upon examination of the information in the compliance report or in any other report pertaining to the performance of QoS parameters furnished by the service provider, the Authority finds that there is a mismatch in the data or value of any parameter reported by the service provider and the performance calculated by the Authority from value or the data given by the service provider in its report or observed during the audit, to the extent that absolute value of difference exceeds 1% of the prescribed benchmark, then such events shall also be considered as false reporting.		4. Accordingly, it is submitted that the first instance of any such reporting discrepancy irrespective of tolerance levels should result in an advisory, warning, or opportunity for correction. Regulatory consequences under the false reporting provisions may be invoked only in cases of repeated occurrence of the same discrepancy despite prior warning and corrective directions, such as where the same parameter is found to be non-compliant on three or more occasions, or where there is evidence of deliberate suppression, manipulation, or misrepresentation of information. Such an approach would better align with the principles of Ease of Doing Business, proportionality, natural justice, and responsive regulation while maintaining the integrity of the reporting framework.

15	16 (B)	16B. Consequences for the failure of service providers to comply with any other provisions of the regulations.- (1) If a service provider fails to comply with any of the provisions of the regulations excluding provision mentioned in sub-regulation (1) of regulation (7), it shall, without prejudice to the terms and conditions of its license, or the Act or rules or regulations or orders made, or directions issued, thereunder, be liable to pay an amount, by way of financial disincentive, not exceeding rupees five lakh per instance of such non-compliance as the Authority may, by order, direct: Provided that if the service provider fails to comply the same provision of the regulations consecutively in two or more subsequent months or quarters, as applicable, he shall be liable to pay, by way of financial disincentives, an amount not exceeding rupees eight lakhs for the second consecutive contravention and not exceeding rupees ten lakhs for each consecutive contravention occurring thereafter: Provided that this regulation shall not be applicable if any non-compliance attracts the provision of regulation 16 or regulation 16A or regulation 17 or regulation 18.		Justification 1. The proposed Regulation 16B is drafted in extremely broad terms and empowers the Authority to impose financial disincentives for non-compliance with <i>any other provision</i> of the Regulations, irrespective of the nature, materiality, consumer impact, frequency or severity of the alleged non-compliance. 2. While Vi fully supports proportionate regulatory oversight and compliance enforcement, public policy and good regulatory governance principles require that financial penalties should be linked to clearly identified obligations and objectively determinable contraventions. 3. Regulatory provisions conferring wide discretionary powers without adequate distinction between substantive violations and procedural or technical non-compliances may create regulatory uncertainty and expose service providers to disproportionate compliance risks. Such an approach is inconsistent with the principles of predictability, transparency and ease of doing business, which are essential components of a stable regulatory ecosystem. 4. From a public policy perspective, modern regulatory frameworks increasingly favour risk-based and proportionate enforcement rather than broad residual penalty provisions. The objective of regulation should be to drive compliance and consumer welfare outcomes rather than create an environment where even minor procedural lapses, interpretational differences, reporting delays, or isolated administrative omissions may potentially attract substantial financial disincentives. 5. Particularly in the present QoS regulation, where the Regulations significantly expand the number of QoS parameters, reporting obligations, quarterly to monthly assessments and compliance
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				requirements, a residual provision of such wide amplitude may inadvertently encourage defensive compliance behaviour and increase compliance costs without delivering commensurate consumer benefits. 6. Accordingly, it is submitted that financial disincentives should be linked only to specifically identified obligations where the nature of contravention, consumer impact and enforcement consequences are clearly prescribed. Any residual or general non-compliance provision, if retained, should be limited to material and repeated violations after due notice and opportunity to remedy, thereby ensuring a balanced approach between regulatory accountability, proportionality and ease of doing business.
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Annexure-B

Comments to Schedule -I

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
1	4.1	4.1. Network Availability 4.1.1. Availability of service wise geospatial coverage map on service provider's website for percentage of working cells Accuracy of service wise geospatial coverage map published on service provider's website (i) Broad guidelines for publication of service wise geospatial coverage map by service providers on their website including methodology for validation of Coverage maps are detailed in Schedule-III. (ii) To report the performance against this parameter, service providers shall conduct physical or virtual drive test, as is already required under regulation 7, especially covering the locations where consumer feedback has been received in previous three months, to		Justification 1. While Vi supports the principle of providing coverage-related information to consumers and agrees that virtual or physical drive tests may be useful tools for network planning and validation purposes, the proposed framework seeks to convert a predictive engineering output into a regulatory performance metric. 2. Coverage maps are generated using propagation models, network design assumptions and engineering parameters, whereas actual user experience is influenced by several dynamic factors such as device characteristics (Rx sensitivity variation due to aging / use of protective cases, supported bands, Carrier aggregation capability (UE category etc.), indoor or outdoor location, surrounding environment, traffic loading and temporal variations in network usage. Consequently, measuring the "accuracy" of a predictive coverage map through drive tests and linking the outcome to a QoS compliance obligation may not provide a reliable representation of the quality of service experienced across an entire Licensed Service Area.



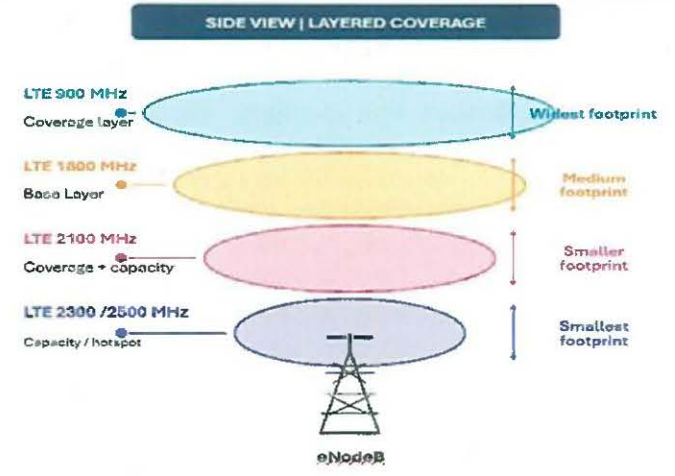
	assess the accuracy of their coverage maps. The supporting data shall be reported to the Authority in the format and manner which may be prescribed from time to time.” (i) Under this parameter, the Access Service (Wireless) providers shall provide service wise (2G/ 3G/ 4G/ 5G) geospatial coverage maps on their website. Compliance against this parameter shall be reported to the Authority as per the specified timelines in regulation 6. (ii) To provide up to date status of mobile coverage to the consumers, coverage maps should be updated by the service providers earliest upon the cells are either commissioned or decommissioned or coverage is changed significantly due to any other reason in the Licensed or Authorized Service Area (LSA) network. (iii) All the changes in network coverage, due to any action in month 'x', shall be reflected in coverage map within 'x+3' months. For example, the change in network coverage for any technology resulting due to		3. Further, the proposal requiring service providers to undertake drive tests, particularly in areas identified through consumer feedback, introduces significant operational complexity and subjectivity. Consumer feedback may be influenced by multiple factors beyond network coverage and may not always be suitable as a trigger for regulatory validation exercises. Such an approach could potentially result in selective assessment of isolated locations rather than an objective evaluation of the network as a whole. 4. The responsibility for monitoring, validating and continuously improving network coverage should appropriately remain with service providers, who are best positioned to deploy resources and optimize networks based on comprehensive operational data and consumer usage patterns. 5. We strongly urge that regulatory frameworks should focus on measuring actual service outcomes through objective, standardized and network-wide QoS parameters rather than imposing compliance obligations on predictive coverage representations. The proposed provisions under Schedule I and subsequently under the detailed validation framework under Schedule III significantly increase compliance and reporting obligations without a commensurate enhancement in consumer welfare outcomes. Accordingly, the proposed coverage map validation requirements, particularly those linked to
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	any activity, including cell commissioning, decommissioning, network optimization etc., in month of March of the year should be reflected in the coverage maps latest by the month of June of the concerned year. The log of changes made in coverage map for respective assessed month shall be maintained for the purpose of audit. (iv) As cell coverage is dependent upon the cell loading or cell traffic, as against its dimensioned traffic handling capacity, the coverage maps should be presented considering 50% cell traffic against the dimensioned capacity. It is expected that suitable backhaul bandwidth is provisioned to support cell traffic. (v) The cell coverage of respective technology shall be presented on the coverage map in prescribed color scheme having minimum prescribed signal strength, in line with license or authorization conditions or relevant standards, at the cell edges with its 50% loading. (vi) The link for network coverage map shall be provided in the home or	consumer feedback and drive-test based compliance assessment, may be reconsidered and, if retained, should be limited to a consumer-information and transparency measure rather than a QoS benchmark attracting compliance assessment and regulatory consequences. 6. Further, the consultation paper mentions that (a) variation of higher than "0 dB" with respect to drive test & (b) higher than 3 dB variation between MAP shown coverage and "TRAI my speed App captured value at any lat-long" will be tagged as error in Coverage MAP. 7. We would like to submit that the drive test data or crowdsourced data can never perfectly match the predicted coverage because they represent two fundamentally different domains and are not technically equivalent. Comparing them with each other technically flawed in nature. Key Factors Causing Variance Between Predicted and Measured Coverage especially for "Spot coverage assessment". 8. In Multiband scenario (900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz) Mobile latches on the capacity Layer and switches dynamically on different layers as per complex algorithms related to load balancing, interference optimization, link budget optimization. Hence "Spot instantaneous level" reported by drive test UE will not
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		landing page of the service provider's website at a prominent location for single click navigation. (vii) The maps shall be interactive as far as possible and shall provide options to at least see the coverage by (a) selecting technology (single, multiple or all) (b) entering latitude or longitude or both to see coverage in area of interest and (c) selecting or entering LSA/ State/ UT or district. (viii) The Authority may, from time to time, specify functional and technical requirements for display of service wise geospatial coverage maps on service provider's website by an order or direction.		match the predicted coverage which is for the coverage band / layer. 9. Also drive test handset will be "in car" condition which will introduce at least 6-10 dB attenuation. While the coverage maps depict average value of the grid (50m x 50m or 100m x 100 m), the drive test sample is spot (lat/long) specific. 10. TRAI in its consultation document captures in the Annexure 1(pg. 97, point "c"), under the heading "Global Best Practices for Publication of Coverage Map" the fact that "standard deviation of the prediction error of 8dB is allowable" with error margin of +/- 3 dB (i.e total margin of 11 dB) The excerpt is captured below: <i>"c) Prediction error: MNOs to provide predictions that have an average prediction error of between ± 3dB and with the standard deviation of the prediction error of less than 8dB when compared to drive survey measurements in the corresponding 100m x 100m pixel".</i> A pictorial representation of different layers in multi-band scenario is as below:
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				SIDE VIEW LAYERED COVERAGE 
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S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
2	4.1.3	4.1.3. Percentage of significant network outage (Services not available in a district for more than 4 hours) reported to the Authority within 24 hrs of start of the outage (i) Significant Network Outage (SNO) is a scenario when access (wireless) service is not available in any district for		Proposed Justification 1. While Vi's detailed comments on the revised Significant Network Outage (SNO) parameter have been submitted under the main QoS provision and should be read as part of this justification, similar concerns apply to the proposed definition incorporated in Schedule-I.



		more than 4 hours due to any reason Significant Network Outage is defined as an event where access service (wireless) in a district remains unavailable for a continuous period exceeding four (4) hours, or where more than ten percent (10%) of subscribers in the Licensed Service Area (LSA) experience complete loss of service for a continuous period exceeding four (4) hours due to any reason. All 'cells' physically located in the district shall be considered for deciding SNO.		2. The inclusion of an additional criterion based on "more than 10% of subscribers in the Licensed Service Area experiencing complete loss of service for more than four hours" introduces significant ambiguity regarding measurement methodology, identification of affected subscribers, treatment of inactive or transient users, roaming subscribers, and the determination of "complete loss of service". 3. In the absence of a clearly defined and objectively verifiable methodology, implementation and audit of this provision may lead to inconsistencies and disputes in compliance assessment. 4. From a regulatory and operational standpoint, Significant Network Outage determination should preferably be based on objective, auditable, and network-generated events that can be consistently measured across all service providers. Network-based criteria, such as outage of sites, cells, or network elements, provide a far more transparent and verifiable basis for compliance assessment than subscriber-impact estimation models. 5. Accordingly, the Authority may consider retaining the existing network-centric approach for defining SNO and avoid introducing subscriber-impact thresholds that may be difficult to measure accurately and uniformly across the industry.
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S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
3	4.4.4	4.4.4. Tariff offerings in which 80 th percentile value of measured test samples for which download and upload speed is $\geq$ offered typical download and upload speed for 4G/5G technology in tariff offerings	"Typical Speed" is not a recognized engineering KPI unlike latency, packet loss, CSSR, etc. - The Regulation proposes to effectively convert a disclosure requirement into a performance guarantee.	- The proposed parameter is based on the concept of "typical download and upload speeds", which is not a standardized telecom engineering metric and lacks the technical precision associated with established QoS parameters currently prescribed under the regulatory framework. - As a result, the term may be interpreted differently by service providers, auditors and consumers, creating uncertainty in measurement, reporting and compliance assessment. - Further, mobile broadband speeds in 4G and 5G networks are inherently dynamic and depend upon several factors beyond the control of the service provider, including customer device category and modem capability, device software and background applications, testing methodology, handset antenna performance, radio conditions, mobility patterns and localized congestion arising from a limited number of heavy users. - In practice, the proposed framework converts a statistical disclosure of "typical speed" into a de facto guaranteed performance obligation by requiring the measured 80th percentile speed to consistently exceed the declared



				speed. Such an approach does not adequately reflect the inherent variability of wireless networks and may create significant challenges in auditing and compliance verification across different locations, time periods and network conditions. 5. Moreover, the proposal may inadvertently discourage transparent disclosure, as operators could be compelled to declare conservative or artificially lower speed values to mitigate compliance risks. 6. Accordingly, if dissemination of speed-related information is considered necessary, the Authority may consider a more objective and technology-neutral approach based on representative network-level performance indicators derived through standardized methodologies such as maximum speed provisioned in HSS, drive tests, crowdsourced measurements or other accepted assessment mechanisms, rather than linking compliance obligations to tariff-specific "typical speed" declarations.
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S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
4	4.5	4.5. Network Slicing 4.5.1 Cells having daily PRB utilisation >80% (in 5G network) (i) A Physical Resource Block (PRB) is the fundamental unit of radio resource allocation in 4G LTE and 5G New Radio (NR) networks. It represents a defined portion of radio spectrum over a specific time interval and serves as the basic scheduling unit through which a base station allocates radio resources to user equipment (UE) for data transmission and reception. The higher level of PRB utilization for number of days, either continuously or periodically, indicates network congestion. (ii) PRB Utilization in 5G NR is a measure of how fully the physical resource blocks are being used in the network. Ideally, it should be managed to avoid congestion while utilizing available capacity efficiently.		Justification 1. The proposed parameter relating to <i>Cells having daily PRB utilisation >80% (in 5G network)</i> and the associated network slicing framework may require reconsideration from both technical and regulatory perspectives. 2. Network slicing is fundamentally intended to manage situations where network resources are under contention and differentiated treatment of traffic is required. Where sufficient spare capacity exists, all users can access available resources without the need for slice-based prioritization, and therefore the practical impact of network slicing is limited. 3. Consequently, using a PRB utilisation threshold of 80% as a regulatory trigger for network slicing may not be technically appropriate, since high PRB utilisation merely indicates resource scheduling activity and does not, by itself, establish service degradation or the need for slice-based differentiation. 4. Further, a cell may continue to deliver satisfactory throughput, latency, packet loss and overall user experience even at utilisation levels exceeding 80%, particularly under favourable radio conditions, efficient



	(iv) Performance of all Cells including those cells which are part of Carrier Aggregation (CA) are to be included while calculating the performance using above mentioned formula. (v) Whenever PRB utilisation exceeds 80% for any five days in a month, service provider must take necessary action to augment the capacity in timely manner so that PRB utilisation reduces below 80%. However, in case PRB utilisation cannot be reduced below 80% even after a period of month then such cells must be removed from network slicing. In other words, service provider will ensure that the same cells reported in PMR of a month with more than 80% PRB utilization for more than five days are not repeated beyond two consecutive months. (vi) In addition, before launch of any new network slice, service provider must ensure that sufficient capacity is available in the network and shall submit the details, as per the format and manner prescribed by the Authority, before launch of such network slicing."		coding schemes, carrier aggregation and advanced scheduling techniques. 5. The proposed threshold of limiting cells with utilisation above 80% to less than 1% appears particularly stringent and may not adequately reflect real-world mobile network operations. Traffic demand is inherently uneven and geographically concentrated, with certain cells experiencing temporary or recurring spikes due to localized demand patterns, commercial hubs, transportation corridors, events and other asymmetric traffic conditions. As a result, some cells may exceed 80% utilisation despite the overall network continuing to deliver satisfactory service quality. 6. Spectrum being a scarce national resource, high utilisation during busy periods may in fact demonstrate efficient use of available capacity rather than poor network management. Requiring service providers to maintain substantial unused headroom across virtually all cells could unintentionally convert a network dimensioning tool into an over-provisioning mandate, particularly in areas where customer QoS remains satisfactory, traffic peaks are predictable and temporary, additional spectrum is unavailable, site expansion faces right-of-way and permission constraints, or load-balancing alternatives are limited. 7. The proposed framework also introduces significant operational complexity. Monitoring, validating and
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reporting cell-specific utilisation conditions across very large networks comprising hundreds of thousands of cells would create substantial compliance and audit overhead with limited incremental consumer benefit.

8. From a regulatory policy perspective, QoS frameworks are generally most effective when focused on consumer-facing outcomes such as throughput, latency, packet loss, service availability and user experience rather than internal network resource utilisation indicators.
9. To the extent that the Authority has already proposed parameters relating to service performance and network experience, introduction of an additional compliance obligation based on PRB utilisation may lead to duplication without a corresponding improvement in consumer welfare outcomes.
10. **Technology Neutral Differentiated QoS/data service offering:** The proposal is confined to 5G network slicing, whereas differentiated service experiences and prioritized resource allocation can be delivered through a variety of technological approaches across different generations of networks. Regulatory provisions should ideally remain technology-neutral and outcome-driven, allowing innovation in network design while focusing on consumer outcomes rather than technology-specific implementations.



				11. Accordingly, differentiated QoS and service offerings should be permitted irrespective of whether they are delivered through 4G, 5G or future technologies. 12. If the Authority nevertheless considers retaining a PRB-based parameter, the methodology should be simplified, the threshold should be reviewed, and any utilisation trigger should be linked only to sustained resource contention conditions. 13. In the specific context of network slicing, a utilisation threshold exceeding 90% would be a more meaningful indicator that resources are genuinely under contention and that network slicing is likely to materially influence service differentiation, as compared to the proposed 80% threshold which may be crossed during normal and efficient network operations.
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S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
5	5.7	5.7 Silence Call Rate (i) A call which has any instance of continuous RTP gap ≥ 4 sec is considered as a 'Silence Call'.	Silence Call Rate as a QoS parameter should be dropped.	Proposed Justification 1. The proposed <i>Silence Call Rate</i> parameter may be reconsidered for inclusion within the QoS regulatory framework.

	(ii) The performance against the parameter shall be calculated through the following formula: Silence call rate = (Count of silence call instances during TCBH / Total calls established during TCBH) x 100 (iii) A call may have multiple instances of RTP gap of ≥ 4 sec. Each of such instance, within a call, will be added to calculate total instances for all calls during the TCBH to calculate the numerator value.		- As elaborated in our comments on the corresponding QoS parameter, "silence" is not a standard network event or signaling indicator available through standardized OSS counters deployed across telecom networks. - The proposed metric is dependent upon specialized monitoring tools and proprietary analytical methodologies, which may vary across vendors and implementations. Consequently, the parameter lacks uniform measurability, standardization and auditability at the Licensed Service Area level. - Further, the metric is presently derived through drive test or media-analysis methodologies and does not represent network-wide performance in the manner that traditional OSS-based QoS parameters do. - From a regulatory perspective, QoS benchmarks should ideally be based on standardized, objectively measurable and network-wide indicators capable of consistent implementation across all service providers. In view of the challenges relating to measurement methodology, comparability, operational feasibility and the absence of industry-standard OSS counters, the Authority may consider not introducing Silence Call Rate as a regulatory QoS compliance parameter at this stage. If assessment of silence-related call quality issues is considered necessary, the same may continue to be evaluated through Independent Drive Tests or other specialized assessment
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				mechanisms until a standardized, industry-accepted and OSS-measurable methodology becomes available.
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S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
6	8	8. Modification in the Schedule In view of technological advancement, the details mentioned in the schedule can be modified by the Authority through direction or order.	Any material changes to the schedules, methodologies, measurement parameters, reporting formats or compliance obligations should be preceded by an appropriate stakeholder consultation process, except where purely administrative, clarificatory or procedural changes are involved.	Justification 1. The proposed provision empowering the Authority to modify the technical requirements, methodologies and parameters contained in the Schedules through subsequent directions or orders, on the grounds of technological advancement, may require appropriate safeguards. 2. While it is recognized that telecom technologies evolve rapidly and regulatory frameworks need sufficient flexibility to keep pace with innovation, the technical provisions contained in the Schedules directly impact network design, operational processes, reporting obligations, compliance requirements and potential financial disincentives for service providers. Accordingly, any substantive modification to such provisions should be undertaken through a transparent and consultative process involving service providers and other relevant stakeholders. 3. Predictability, Transparency and Stakeholder consultation are essential elements of a stable regulatory framework.



				Frequent or unilateral modifications through direction or order may create uncertainty regarding compliance obligations, increase operational and investment risks, and adversely impact ease of doing business. 4. Consultation with industry stakeholders helps identify practical implementation challenges, technological limitations and unintended consequences before regulatory measures are finalized. 5. Accordingly, it is submitted that any material change to the schedules, methodologies, measurement parameters, reporting formats or compliance obligations should be preceded by an appropriate stakeholder consultation process, except where purely administrative, clarificatory or procedural changes are involved. Such an approach would ensure that regulatory objectives are met while preserving transparency, regulatory certainty and collaborative policy development.
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Annexure-C

Comments to Schedule III

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
1		Schedule III - Broad guidelines for publication of service-wise geospatial coverage maps	The proposed Schedule III should be withdrawn from the QoS compliance framework. If retained, coverage maps should remain a consumer-information measure without an accuracy benchmark, financial disincentive or prescriptive validation obligation.	1. Coverage maps are prediction-based engineering representations, not measurements of actual service quality. Converting them into a monthly QoS benchmark by comparing modelled outdoor coverage with selective field or app samples would combine fundamentally different datasets and create material uncertainty. 2. Any detailed framework should therefore be developed through industry consultation, applied uniformly across TSPs and limited to transparency rather than regulatory performance enforcement.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
2	1.1	1.1 Service providers shall publish technology-wise (2G/3G/4G/5G) geospatial coverage maps for all areas where wireless	No objection to technology-wise publication as a consumer-information measure, subject to deletion of the proposed QoS accuracy benchmark and	1. Technology-wise maps can aid consumer awareness, but they should not be treated as proof of actual service availability at every location. Coverage depends on frequency band, device, indoor or outdoor conditions, traffic loading and the surrounding environment.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
		voice or broadband is available for subscription.	validation-linked financial consequences.	2. Publication should therefore carry suitable limitations and should remain distinct from QoS compliance.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
3	1.2	1.2 Coverage maps may be based on measurement, network analytics or prediction models; accuracy shall be at least 98%, with self-validation and possible audit by the Authority.	Delete the 98% benchmark and related compliance treatment. If prediction models are retained, TRAI should first prescribe uniform model, calibration and tuning principles after consultation with TSPs.	1. Different propagation tools, clutter databases, terrain inputs and model-tuning practices can produce different predictions even for the same network. 2. A uniform, consultative methodology is therefore essential for comparability. Since predictive maps cannot replicate every real-world condition, a 98% regulatory benchmark is unduly stringent and should not attract QoS non-compliance or financial disincentives.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
4	1.3	1.3 Service providers may adjust displayed coverage levels to reflect real-world service performance where signal strength alone does not ensure expected quality.	The discretion to alter displayed coverage levels should be replaced with one uniform industry-wide methodology applicable consistently to all TSPs.	1. Allowing each TSP to adjust coverage categories using its own interpretation would reduce comparability and may confuse consumers. 2. If categories such as Excellent, Good and Fair are prescribed, the thresholds, adjustment factors, underlying assumptions and update process should be common, transparent and finalized through consultation with the industry.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
5	1.7	Coverage levels shall be displayed using outdoor signal-strength thresholds at cell edge with 50% cell loading.	Clarify that the proposed 50% loading refers to downlink utilisation and prescribe a uniform measurement and modelling basis across technologies and TSPs.	1. The term '50% cell loading' is incomplete unless the relevant link direction, traffic basis, averaging period and treatment of carriers or bands are specified. 2. Since coverage and user experience can differ materially between downlink and uplink and across spectrum layers, the methodology should be technically precise and uniformly implementable before being used for publication or validation.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
6	Table-1	Table 1 - Technology-wise signal-strength thresholds for Excellent, Good, Fair and No Coverage.	The thresholds and the treatment of consolidated or multi-band coverage should be finalized only after detailed industry consultation.	Defining indicative signal ranges is feasible, but a subscriber may dynamically camp on different spectrum bands with materially different propagation characteristics. A single spot measurement may therefore not correspond to the coverage layer represented in the prediction. The rules for band selection, carrier aggregation, consolidated coverage and technology preference require a common industry methodology.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
7	1.6	Coverage-level descriptions linking Excellent, Good, Fair and No Coverage with expected outdoor and indoor availability of voice, SMS and data.	The narrative descriptions should be reviewed and standardized in consultation with TSPs; predictive outdoor signal strength should not be represented as assurance of indoor service availability.	Indoor availability depends on building penetration, construction material, floor, device performance and other location-specific factors that are not captured by an outdoor prediction. Linking broad signal categories to expected indoor availability may therefore create consumer expectations that the map cannot reliably support. The descriptions should remain indicative and include clear qualifications.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
8	1.8	1.8 Areas below the prescribed 'No Coverage' signal threshold at 50% loading may be treated as no-coverage areas.	Replace 'No Coverage' with 'Limited Coverage' and permit 4G/5G coverage to be depicted up to -120 dBm, subject to an industry-agreed methodology.	Mobile services may remain usable below the proposed -110 dBm threshold, particularly in low-interference conditions and rural areas. An absolute 'No Coverage' label may therefore be inaccurate and potentially misleading. A 'Limited Coverage' category with an additional lower slab, developed through technical consultation, would better reflect actual network behaviour.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
9	1.9	Service providers may align coverage maps to ground-level performance expected under Excellent, Good and Fair categories.	Do not allow operator-specific alteration of prescribed categories; adopt one transparent and consistent yardstick for all TSPs.	A common consumer is unlikely to understand operator-specific technical adjustments. If the Authority prescribes coverage categories, permitting unilateral modification of the thresholds would undermine comparability and auditability. Any adjustment methodology should be common across the industry and should distinguish clearly between predicted signal coverage and actual service-performance indicators.

S.No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
11		Publication of the date of the last update for each LSA at the bottom of the coverage map.	Permit disclosure of a clearly defined network-data cut-off or map-generation date, with reasonable update cycles, rather than requiring granular LSA tagging for every network change.	1. Coverage maps are generated from network and planning datasets that undergo continuing changes. 2. The Authority should clarify what constitutes an 'update' and allow a practical periodic publication cycle based on a defined data cut-off. This would provide meaningful transparency without implying that every network-level change is immediately reflected in the published map.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
121	7.6	Grid-based coverage using hexagonal cells.	If hexagonal grids are retained, TRAI should provide one common national grid, unique identifiers and technical specifications for use by all TSPs, along with adequate implementation time.	1. Independent creation of hexagonal grids by each TSP could lead to misalignment and prevent like-for-like comparison. A common grid reference and tagging convention is therefore necessary. 2. Implementation will require development changes and cost on existing coverage platforms, which should be evaluated and supported by proportionate timelines before any compliance obligation is introduced.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
13	5.2	5.2 TRAI may audit and validate maps using samples from Independent Drive Tests or TRAI Apps with latitude and longitude.	Validation should not compare predicted outdoor grid coverage directly with in-vehicle, indoor or spot app measurements. TRAI should first consult TSPs and standardize band, device, antenna, environment and sampling conditions.	1. Predicted maps represent expected outdoor coverage over a grid, whereas IDT samples may be in-vehicle and app samples may be indoor or outdoor, device-dependent and captured on a different spectrum layer. These datasets are not technically equivalent. 2. Validation can be meaningful only after normalizing the environment, band, equipment, antenna configuration, grid aggregation and time of measurement through a common industry-agreed protocol.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
14	5.5.1	Margin of error: +3 dBm for TRAI App samples and 0 dBm for IDT samples.	The proposed tolerances should be withdrawn and recalibrated through industry consultation; 0 dBm for IDT and +3 dBm for app samples do not account for measurement-environment and prediction variability.	1. TRAI Apps do not establish whether a sample is indoors or outdoors, while IDT measurements may be taken in-vehicle and therefore include penetration loss. App results also depend on device sensitivity and the band on which the user is camped. 2. A standardized outdoor procedure, such as a defined roof-mounted antenna configuration and gain, or scientifically validated correction factors, is required before measured samples can be compared with predicted coverage.



S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
15	5.5.3	A published level better than the identified level of a sample shall be treated as an inaccurate sample; otherwise it shall be accurate.	Do not classify a map as inaccurate on the basis of an unnormalized spot sample. Accuracy should be assessed through statistically representative, band-matched and environment-normalized samples aggregated at the same grid level as the prediction.	A coverage prediction is an average expected value for a grid, while a latitude-longitude sample is instantaneous and location-specific. Multiband mobility, fading, clutter, terrain and indoor or in-vehicle loss can create legitimate differences without indicating an error in the map. The proposed one-sided test may also encourage conservative under-reporting of coverage rather than accurate consumer information.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
16	5.6	Financial consequences under Regulations 16 and 16A for failure to meet 98% map accuracy or for a difference between reported and Authority-calculated accuracy.	Delete financial disincentives linked to coverage-map accuracy. No penal consequence should arise until a standardized, statistically valid and industry-consulted validation methodology is established.	1. Differences are foreseeable because predictive outdoor maps, IDT readings and crowdsourced app measurements use different environments, devices, bands and spatial bases. 2. Penalizing such methodological variance would be disproportionate and may classify genuine technical differences as non-compliance or false reporting. 3. Coverage maps should remain a transparency measure, with reconciliation and corrective opportunity rather than financial consequences.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
17	6.1-6.2	Users may challenge coverage through a feedback button, with specified details provided or auto-captured.	Consumer feedback may be used as an input for network review, but should not by itself determine map accuracy, compliance or mandatory map alteration.	1. A user sample cannot reliably establish whether the device was indoors or outdoors, its radio capability, the band used, local interference or temporary conditions. Since the published map is based on outdoor coverage at a defined loading assumption, unverified individual feedback is not directly comparable. 2. Consumer feedback should therefore be treated as a diagnostic lead and validated through TSP network analysis before regulatory reliance.

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18	6.3	User feedback shall inform corrective action and map updates; 3D digital maps are stated to be essential in urban areas.	Make use of consumer feedback and 3D maps facilitative, not mandatory. Any 3D-map requirement should be separately consulted and supported by a cost-benefit and feasibility assessment.	1. 3D digital maps may not be consistently available for all cities or an entire LSA, require significant investment and can become outdated as the built environment changes. 2. Similarly, individual consumer feedback may reflect indoors, devices or band-specific conditions. TSPs should retain flexibility to use appropriate planning data and validated field inputs rather than face a universal 3D-map mandate.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
19	6.4	Areas shown better than actual, based on consumer feedback or Authority validation, shall be displayed in amber using a 30-metre circumradius hexagonal grid until performance aligns.	Delete mandatory amber tagging based on individual or limited feedback. Any corrective display should follow representative technical validation, a common grid and a defined rectification process.	1. A single or small number of samples may relate to a particular device, indoor location or higher-frequency band and may not represent service available to other users through a lower band. Marking the entire 30-metre grid as deficient could therefore be inaccurate and misleading. 2. The trigger, minimum sample size, band matching, validation process and removal criteria must be objectively defined before any such display obligation is considered.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
20	7.1	Sharing of published coverage maps with TRAI.	The requirement, data format, frequency, security controls and implementation timeline should be finalized after technical consultation and impact assessment.	Machine-readable sharing may require changes to existing map-generation and publication platforms and could involve large geospatial datasets. Before mandating such submission, TRAI should define the regulatory purpose, common schema, update cycle, access controls and acceptance criteria, while allowing adequate time for system development and testing.

S. No	Para number of Draft notification	Proposed Regulation	Input/Comment	Justification with supporting reference, if any
21	5.2	Validation of predicted maps against drive-test and crowdsourced samples, including treatment of variance as coverage-map error.	Predicted, drive-test and crowd-sourced datasets should not be treated as directly interchangeable. TRAI should replace spot-error classification with a statistically valid, grid-based and normalized validation framework developed with TSPs.	Propagation models are statistical and average terrain, clutter and radio variability, while actual environments change through buildings, vegetation, infrastructure and seasonal effects. In multiband networks, devices dynamically change layers, and in-vehicle or indoor measurements introduce additional loss. The consultation itself refers to prediction error parameters in global practice. Accordingly, validation must compare like with like across the same band, outdoor condition, pixel or grid, calibrated equipment and representative sample set.

