



ASSOCHAM Response to TRAI's Consultation paper on QoS Regulation

At the outset, we thank the Authority for giving us the opportunity to comment on the consultation paper (CP) on "Review of Quality-of-Service Standards for Access Services (Wireless and Wireline) and Broadband Services (Wireless and Wireline); dated 18th August 2023. However, we submit that the existing standards /benchmarks are sufficient for monitoring and ensuring QoS. We also submit that a review of QoS standards is unnecessary at this time as 5G networks are still in their early stages. .Over-regulation could hinder the growth of 5G technology as well as of other technologies.

The CP seems to propose increased compliance requirements without adequate justification or supporting data. Additionally, it lacks reference to relevant international precedents.

We submit that regulatory impact assessment should be a necessary pre-requisite before introducing any regulation that could have a far-reaching impact. Crucial extraneous issues that are outside of control of Telecom Service Providers (TSPs) but have direct bearing on the QoS and QoE - such as Right of Way (RoW), presence of illegal repeaters/boosters, handset quality, the cost and availability of spectrum and tower installation regulations, also requires due consideration for such an impact assessment

Moreover, we disagree with the assumption that there is a degradation in service quality or a discrepancy between reported and experienced Quality of Service (QoS). It's crucial to recognize that stringent benchmarks carry financial implications and could impede rollout in areas where meeting these benchmarks is challenging. The increased costs to meet these tougher standards may ultimately lead to higher tariffs for consumers.

Regarding the proposed change in Reporting Periodicity – shifting from quarterly to monthly reporting – this would significantly escalate compliance efforts, potentially conflicting with the government's Ease of Doing Business (EoDB) objectives.

We also question the proposal to average compliance measurements over one month instead of a quarter. A longer timeframe helps to smooth out minor fluctuations and provides a more accurate trend analysis. Therefore, TRAI should maintain averaging over a quarter. We also highlight that India's telecom network is designed and created based on the 22 licensed service areas (LSAs) based licensing framework. TRAI's regulations and reporting requirements therefore should also be consistent with India's licensing regime.

Further, another major change proposed is assessing the call drop separately for different technologies, which earlier was technology agnostic. It is pertinent to mention that customer is not aware of technology used while making a call as such, assessing call drop separately is not required. It is also a natural characteristics of technology evolution that newer technologies will bring in better efficiencies and quality and the TSPs design the network as a whole. Thus, for call drop the assessment should happen at consolidated network layer and not for individual technologies.

While TRAI has played a key role in fostering a transparent and competitive telecommunications industry, its approach to QoS regulations has been increasingly stringent. This contrasts with its market-driven approach in other areas like tariffs and interconnections. **We suggest that TRAI reevaluate its stance on QoS, considering a more balanced approach that gradually shifts towards deregulation. Our recommendations are:**

- In the short term, implement a light-touch regulatory framework with fewer measured parameters.
- In the long term, fully deregulate QoS parameters, maintaining oversight through methods like drive tests or third-party surveys.

Adopting this shift towards deregulation and market reliance could enhance efficiency, innovation, and investment, ultimately improving service standards and customer satisfaction.

Our issues-wise response to the various questions raised by TRAI in the CP at Chapter-6 is given below:

Question-1: What are the possible reasons for increasing gaps between the QoS reported by the service providers and the QoS experienced by the consumers? How this gap can be bridged?

response:

We request that the Authority may consider sharing the data and evidence to support the contention.. We disagree with the notion that there exists a disparity between the Quality of Service (QoS) reported and the QoS experienced by customers, and further, that this gap is increasing. In our view, the QoS reported by the service providers provides a statistical basis for the assessment of QoS.. However, if the Authority has gathered any data indicating such a gap and its expansion, this information is not apparent in the consultation paper. We request that the Authority release these details as an addendum to the consultation paper, allowing us the opportunity to respond accordingly.

Question-2: To support emerging applications and use cases please suggest a transparent framework for measurement and reporting of QoS and QoE especially in 4G and 5G networks considering relevant standards and global best practices.

response:

The transparent framework for measurement and reporting of QoS and QoE is already established and there is no need for any more iterations in this aspect. Further, as the 5G use cases are still evolving and the framework for measurement of QoS & QoE can be more accurately assessed once the coverage is more ubiquitous and stabilized, therefore, is no need to make amendments at present. Globally, the best

practice is to facilitate the organic growth of such services without encumbering these with QoS requirements.

Question-3: What should be the QoS parameters and corresponding benchmarks for ultra-reliable low latency communication (uRLLC), and massive machine type communications (mMTC)?

response:

We believe that no country has prescribed any parameters for these services, as parameters for these technological advancements are still evolving and not settled. We should follow the global best practices of letting emerging applications and services evolve fully and let the processes and service offerings mature and be sufficiently prevalent in the markets before imposing any regulatory restrictions on these services. The Authority, itself has chosen not to regulate many nascent service offerings in the past. Further, being enterprise services, these will be governed by service-level agreements. Therefore, we request the Authority to keep these services out of the purview of QoS monitoring.

Question-4: Will there be any likely adverse impact on existing consumer voice (VoLTE/VoNR) and data services (eMBB) upon the rollout of enterprise use cases of uRLLC or mMTC?

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Question-5: If the answer to Question-4 is 'No' then please explain how and if the answer is 'Yes' please suggest measures to ensure minimum guaranteed QoS for voice and data service for consumers.

response:

Under the modern 4G and 5G network architecture, the enterprise services are provided using technologies that ensure no impact on the generally available best-effort internet. Therefore, there will be no impact on consumer voice and data services, as these services will continue to be provided using the dedicated network resources for the same.

Question-6: To achieve QoS and QoE end-to-end, it is essential that all network segments deliver the minimum level of QoS required by the respective service, application or use case. In this context, please suggest QoS parameters and corresponding benchmarks for the National Long Distance (NLD) and International Long Distance (ILD) segments of the network with supporting global benchmarks.

response:

There is no global precedent of regulation or monitoring of QoS for carrier services. Therefore, we reiterate our submission that no change is required in this aspect. The carrier services i.e. NLD and ILD services work at agreed service level agreements (SLAs) and the competition in the carrier services market ensures that the SLAs are maintained, obviating the need for prescribing any additional regulation on NLD/ILD segments.

Question-7: What should be the approach for the adoption of the ‘QoS by Design’ framework by the service providers to ensure that new generation wireless networks are planned, implemented and maintained to deliver the required level of measurable QoS and QoE?

response:

No network is designed to provide sub-optimum QoS. Further, the highest level of QoS and QoE is maintained to meet the expectations of the customers and to retain the customer in view of the competition in the market, where customers can switch networks by simply generating a UPC. Therefore, ‘Quality by Design’, is already the guiding design principle for telecommunication networks and there is no need for providing for the same through Regulations.

Question-8: What measures are required to accelerate the adoption of AI for the management of QoE to reduce consumer complaints protectively and to enable near real-time reporting of QoS performance to consumers?

response:

AI and ML are emerging technologies featuring evolving use cases, gradually integrating into operations as deemed appropriate. We anticipate these technologies to grow more sophisticated over time. However, this development is expected to occur naturally, as inventions and innovations cannot be compelled through regulations. Therefore, we request no intervention.

Draft Regulation Clause-wise comments in the prescribed format

Sl. No.	Chapter No.	Regulation No /Clause No.	A proposed provision in the consultation paper	Suggested modification	Justification/ Global references with supporting data points if any
1	3	3(i)	Provision of service within 7 days of payment of demand note by the applicant Benchmark: 100%	Should be removed from monitoring as redundant If required can be kept part of the perception of service parameters.	Currently, both wireline and wireless services are provisioned on a demand basis, subject to technical feasibility and there is no need to monitor these legacy parameters.
2	3	3(ii)	Fault incidences (No. of faults per 100 subscribers per month) Benchmark: ≤ 5	Benchmark for this parameter should be changed to: ≤ 7	This benchmark for wireline services should be aligned with the current broadband service benchmarks, which are set at ≤ 7 . This is required due to various challenges beyond TPS's control like a) Difficult geographical characteristics of some regions preventing infrastructure deployment/rectification. b) Local community issues, including permissions and approvals, can impact the timely restoration of services. c) Re-establishing connectivity to the last mile, especially in remote or underserved areas, can be technically challenging. d) Interruptions in electrical supply can disrupt wireline services and affect fault resolution. e) Physical damage to fibre-optic cables, such as cuts, can lead to service interruptions and require time-consuming repairs

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3	3	3(iv)	<p>Fault repair within five days in Urban areas</p> <p>Benchmark: 100%</p>	<p>Benchmark for this parameter should be relaxed and revised to Fault repair within seven working days in Urban areas with relaxed benchmark of 95%</p>	<p>The 100% benchmark in 5 days is overly stringent. There are many issues that prevent 100% compliance, as mentioned above.</p> <p>The timeline for this parameter should be defined in working days.</p>
4	3	3(vi)	<p>Fault repair within seven days in rural and hilly areas</p> <p>Benchmark: 100%</p>	<p>This parameter should be reived to Fault repair within seven working days in rural and hilly areas with relaxed benchmark of 95%</p>	<p>We recommend maintaining benchmarks at a 95% service restoration rate within 7 working days. This adjustment takes into account the practical constraints beyond the control of TSPs that may prevent achieving 100% compliance within specified time limits.</p> <p>It is also submitted that in a competitive market, the TSPs cannot and will not delay Fault repair intentionally, but unnecessarily harsh benchmarks that are technically unattainable at all times, can have a negative impact on roll-out in sparsely populated areas and limit revenue potential.</p> <p>The timeline for this parameter should be defined in working days.</p>

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5	3	3(xii)(b)	<p>Response Time to the customer for assistance</p> <p>Percentage of calls answered by the operators (voice to voice) within ninety seconds</p> <p>Benchmark: $\geq 95\%$</p>	Should not be considered as part of QoS KPIs to be monitored	<p>This parameter should be removed from monitoring due to the following reasons.</p> <p>a) No Impact on Service Quality: Human interface does not directly impact the quality of service provided by telecom service providers.</p> <p>b) Lack of International Standards: There are no standard international practices or established industry or country norms for monitoring such parameters.</p> <p>c) Technological Advancement: The rapid advancement of technology, including AI-driven automation, has reduced the need for traditional voice-based interactions.</p> <p>e) Automated Systems Enhancement: Automated systems have played a pivotal role in enhancing efficiency, providing 24/7 availability, and scalability, and ensuring customer reliability, which complements human operator services.</p> <p>f) No comparable precedence in India: This parameter is neither monitored nor enforced by any other regulator across various industries within the country or globally</p>
6	3	3(xiv)	Refund of deposits within 45 days of closures	<p>Refund of deposits should be allowed within 60 working days of closures.</p> <p>This parameter should</p>	Refunds are initiated after the billing cycle of the customer which is generally at the month end. Adjustment of the invoiced amount is carried out wherever applicable for initiating the refunds of the balance amounts to the customers.

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				<p>continue to be averaged on a quarterly basis and reporting should be continue as is on quarterly basis, instead of monthly as proposed by TRAI.</p>	<p>TSPs make several attempts to refund the deposits of the customer in case of failure in the initial attempts.</p> <p>There could be various customer related issues for such failures like customer not available, change of address which has not been updated with the TSP, etc.</p> <p>Hence, there would always be few cases which would not get closed within the 45 days timeframe. It is therefore suggested that the timeframe for refund be kept to 60 days and not revised to 45 days.</p> <p>All such attempts are time-consuming and reducing the time period for such refunds would be considered by the customer as misappropriation of their deposits with the TSPs, who would be bound to deposit such funds with CUTCEF.</p> <p>This would cause inconvenience to the customers as they would have to approach TRAI for seeking their refund of deposits .</p> <p>It is suggested that there should not be any changes made to this parameter.</p>
7	4	4(i)	Registration of demand for new wireline connection irrespective of technical	Should not be considered as part of QoS KPIs to be monitored & reported	<p>This requirement will only increase the compliance burden without significantly benefiting the consumers due to the following reasons:</p> <p>a) Considering the high competition</p>

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			<p>feasibility</p> <p>Benchmark: 100%</p>		<p>within the telecommunications sector TSPs are already actively expanding their wireline networks, contingent upon technical feasibility and commercial viability.</p> <p>b) Accumulating such details will pose significant challenges for service providers, particularly in areas where network expansion is not planned in the immediate future.</p> <p>c) The license does not mandate 100% roll-out, thus the requirements of mandating TSPs to register demand even in the absence of technical feasibility is unnecessary and will not serve any purpose.</p> <p>d) registering demand without any possibility of providing service can lead to unrealistic expectations and frustration among consumers.</p> <p>Further, The Department of Telecommunications (DoT), through the Sanchar Sarthi portal as part of Citizen Centric Services, is already working to provide consumers with information about the Internet Service Providers (ISPs) available in their respective areas, therefore to facilitate the collection of desired information in areas where no ISP is currently available, we propose that the Authority, either centrally or through a public entity like BSNL, establishes a short code accessible across all networks. This code would</p>

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					<p>allow consumers to register their demands for services that fall outside the coverage of any service provider. Based on the volume of such requests, these can be considered for service provisioning under the Universal Service Obligation Fund (USOF). This approach would enable more efficient data collection and address the needs of underserved areas while minimizing the burden on individual service providers.</p>
8	4	4(ii)	<p>Requests for Shift of Telephone Connection to be attended within three days</p> <p>Benchmark: 95%</p>	<p>Should not be considered as part of QoS KPIs to be monitored & reported</p>	<p>We recommend that the Authority should continue to include this parameter as part of the perception of service parameters. Shifting wireline connections within an extremely short timeframe, such as the stipulated 3 days, poses several challenges and complexities, as mentioned before. The Authority should strike a balance between ensuring prompt service and recognizing the limitations and challenges in providing wireline services.</p>

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9	4	4(iii)	<p>(a) Junctions between local Exchanges. Benchmark: 0.002</p> <p>(b) Outgoing junctions from Trunk Automatic Exchange (TAX) to local exchange. Benchmark: 0.005</p> <p>(c) Incoming junctions from local exchange to TAX. Benchmark: 0.005</p> <p>(d) Incoming or outgoing junctions between TAXs. Benchmark: 0.005</p>	Should not be considered as part of QoS KPIs to be monitored and reported	<p>We emphasize that the telecommunications industry has witnessed remarkable advancements, characterized by the widespread adoption of all IP-based networks and the deployment of highly advanced infrastructure. These technological strides have substantially enhanced the flexibility and capabilities of telecom networks.</p> <p>The relevance of these parameters may now vary significantly based on the network architecture in use. In contemporary IP-based networks, the traditional notion of "local exchanges" may no longer hold the same weight. The advent of IP-based networks and digital technology has supplanted many of the older analogue and circuit-switched systems, resulting in a more adaptable and efficient infrastructure.</p> <p>Moreover, it's worth noting that TSPs are already actively monitoring and reporting Points of Interconnection (PoI) congestion. Consequently, the necessity of adhering to conventional parameters has become increasingly obsolete.</p>

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10	6	A(i)(a)	<p>(a) % of commissioned cells for which the geospatial service coverage map is available on the service provider's website</p> <p>Benchmark: 100%</p>	Should not be considered as part of QoS KPIs to be monitored and reported	<p>This parameter is not possible to comply with due to the following reasons.</p> <p>a) Ensuring the 100% accuracy of the coverage map to consistently reflect real-time network coverage can be a complex task. Discrepancies may result in customer frustration, dissatisfaction, and an increase in complaints.</p> <p>b) Mandating updates to the map within a strict 2-week timeframe for any addition or removal of cells/sites presents operational challenges. Given the continuous expansion of the network, especially with the rollout of 5G, daily updates to the coverage map on the website may not be operationally feasible.</p> <p>c) The potential for incorrect interpretation of coverage information, such as distinguishing between indoor and outdoor coverage or assessing signal strength, poses a challenge. Coverage maps often provide a high-level overview, which may not capture variations in signal strength, network congestion, or indoor coverage accurately.</p> <p>d) Large coverage maps with extensive data can lead to slow loading times, particularly on mobile devices, affecting the user experience.</p>

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					<p>e) Instances may arise where a site or cell is technically live in the system but has been forcibly shut down due to local issues or disputes, leading to discrepancies between the map and the actual network status observed by the customer.</p> <p>Given these challenges, we propose an alternative approach. Instead of mandating that Telecom Service Providers (TSPs) display geospatial service coverage maps on their websites as part of Quality of Service (QoS) mandates, we recommend leaving this decision to the discretion of the TSPs.</p>

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11	6	A(i)(b)	<p>(b) Accumulated downtime (Cells not available for service)</p> <p>Benchmark: ≤1%</p>	<p>TRAI should not mandate this parameter at cell level.</p> <p>Reporting of this parameter should be continued on Quarterly Average at LSA level with existing benchmark of ≤ 2% instead of monthly average at cell level as proposed by TRAI</p>	<p>We do not agree with the Authority's rationale for revising the parameters from the Base Station (BS) level to the Cell level, citing that these parameters were prescribed in 2009 and that this level of granularity will address concerns related to non-availability of cells degrading Quality of Service (QoS).</p> <p>We submit that measuring cell-level downtime may not accurately represent network availability and service providers' service quality, as cell outages may not have a direct impact on services. In scenarios where one cell within a Base Transceiver Station (BTS) experiences downtime, the remaining cells within the same BTS can continue to serve the affected area. Therefore, it is incorrect to presume a lack of service availability if specific cells within a base station experience downtime, especially in rural areas;</p> <p>We further submit that while proposing to make the benchmarks more stringent, the Authority has assumed that advancements in technology, the expansion of LTE and 5G networks, the introduction of advanced Operations and Maintenance (O&M) tools, improved power availability, and streamlined Right of Way (RoW) processes have substantially reduced the challenges</p>
12	6	A(i)(c)	<p>(c) Worst affected Cells due to downtime (Cells not available for service for more than cumulative 24 hrs. in a month)</p>	<p>TRAI should not mandate this parameter at cell level.</p> <p>Reporting of this parameter should be continued on Quarterly basis, based on Quarterly Average at LSA level instead of monthly</p>	<p>We further submit that while proposing to make the benchmarks more stringent, the Authority has assumed that advancements in technology, the expansion of LTE and 5G networks, the introduction of advanced Operations and Maintenance (O&M) tools, improved power availability, and streamlined Right of Way (RoW) processes have substantially reduced the challenges</p>

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			Benchmark: ≤1%	average at cell level as proposed by TRAI	<p>associated with monitoring and maintaining networks. However, we believe that ground realities in many aspects continue to exhibit significant variation.</p> <p>It is also crucial to take into account the challenges and issues that service providers confront in ensuring network uptime, especially in remote service areas such as North East, Assam, Himachal Pradesh, Ladakh, etc. The Authority is itself aware of these issues and has referred to the same in its recommendations on Improving Telecom Infrastructure in Northeastern States of India dated 22nd September 2023. We have already listed most of these challenges in previous comments and request you to treat the same as part and parcel of this comment. We are not repeating the same for the sake of brevity.</p>
13	6	A(i)(d)	(d) Reporting of significant network outage to the Authority within 24 hrs of the start of the outage (Services not available in a district or State for more than 4 hours) Note: For significant network outages	<p>Introducing this additional parameter as part of QoS reporting is unnecessary.</p> <p>1. This should be part of reporting requirement and not a QoS parameter.</p>	Regarding the reporting of significant network outages lasting more than 24 hours, we submit that the Authority has already proposed QoS reports covering parameters such as Network availability, Connection Establishment, and Connection Maintenance, to be reported at the State, Union Territory along with LSA levels on monthly basis.

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			of > 24 hrs: Proportional rent rebate as per plan charges for affected number of days shall be credited in next bill for post-paid consumers registered in the district. For the pre-paid consumers registered in the district, the validity of their pre-paid accounts as of the outage start date shall be increased by an equal number of days.	<p>2. Sufficient and reasonable time of 1 week should be provided for such reporting.</p> <p>3. The rent rebate provision should be dropped.</p>	We believe that such granular-level reporting already encompasses the monitoring of significant network outages. TSPs are already obligated to comply with the Authority's directive dated 28th March 2023. Therefore, introducing an additional parameter as part of QoS reporting is unnecessary, especially if it does not have a substantial impact on the quality of service provided to customers in general.
14	6	A(iii)(a)	(a) Network QoS DCR Spatial Distribution Measure for II. Packet Switched (4G/5G and beyond) network [PS_QSD(96, 96)] Benchmark: $\leq 2\%$	<p>The existing parameter and its existing benchmarks should continue and should not be revised making it more stringent.</p> <p>Technology-wise Bifurcation of Parameter should be dropped.</p>	<p>We submit that the Authority has already established one of the most rigorous benchmarks along with a percentile-based calculation methodology for Network QoS Drop Call Rate (Spatial and Temporal Distribution Measures) parameters.</p> <p>Any further reduction in the percentage of days and cells in the calculation methodology will make it</p>

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15	6	A(iii)(b)	<p>(b) Network QoS DCR Temporal Distribution Measure for II. Packet Switched (4G/5G and beyond) network [PS_QTD(97,96)]</p> <p>Benchmark: $\leq 3\%$</p>	<p>This parameter should be averaged on a quarterly basis and NOT monthly as proposed by TRAI.</p> <p>(</p>	<p>exceptionally challenging and unachievable for TSPs to meet such stringent benchmarks, considering the operational challenges they face in running and maintaining vast networks. Many of the same are already noted in previous responses.</p> <p>The mandate for QoS reporting and applicability of benchmarks at the State/UT level on a monthly basis makes it exceedingly difficult for TSPs to achieve the 96th percentile criteria, as they have a concession of only 1 day out of 30 days for network maintenance and restoration of such humongous networks.</p> <p>Further, due to more and more roll-out of 4G networks, the 2G cells have a substantial ratio of cells with low traffic volumes. Due to the low volume of traffic handled by these cells, even a few call drops may reflect high call drop rate in those cells. Therefore, if 2G/3G performance is seen in isolation, it will show a comparatively higher call drop value as compared to technology agnostic or stand-alone 4G value. Also, consumers do not correlate call drops with any technology, be it 2G or 4G. Therefore, the Dropped Call rate (DCR) parameter should be technology agnostic and it shouldn't be specific to 2G/3G and 4G/5G. Prescribing DCR parameters</p>

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					separately for 2G/3G and 4G/5G will lead to 2G offering TSP(s) becoming perpetual non-compliant. We reiterate that no regulatory body worldwide has imposed such stringent benchmarks and associated financial disincentives, particularly on commercial telecom service providers.
16	6	A(iii)(d)	(d) DL Packet Drop Rate for Packet Switched Network (4G/5G and beyond) [DLPDR_QSD(96, 96)] Benchmark: $\leq 2\%$	1. These parameters should not be part of the regulation as the main parameter "DCR" is already included in the regulation.	We submit that instead of solely focussing on problems related to call muting and muffling being caused by network reliability and maintainability, the Authority should also consider that these also depend on factors such as customers' location, distance from the network site, the number of connected users, the type of handset used, and usage patterns, whether it's steady or on-the-go.
17	6	A(iii)(e)	(e) UL Packet Drop Rate for Packet Switched Network (4G/5G and beyond) [DLPDR_QSD(96, 96)] Benchmark: $\leq 2\%$	2. These parameters should be averaged on a quarterly basis and NOT monthly as proposed by TRAI.	Further, interference in the TDD band, particularly concerning UL-PDR is another major reason that makes it impossible for TSPs to achieve such benchmarks based on the revised calculation methodology. Hence, it is important to continue with the existing calculation methodology.

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					Any further granularity and stringent calculation methodology associated with Financial disincentives can prevent network expansion in rural and remote areas.
18	6	A(iv)	<p>Messaging: Successful SMS delivery within the service provider's network in less than 20 seconds</p> <p>Benchmark: $\geq 95\%$</p>	<p>This parameter should be removed from the draft Regulations</p>	<p>It is not possible to comply with this new parameter in its current form and instead, we submit that the report can be generated for SMS messages that are originated and successfully delivered only within our own network. It is not technically feasible to generate a report for off-net SMS, as these SMSs do not land on terminating TSPs SMSC and therefore delivery report of such SMSs lies with the originating TSP only.</p> <p>Further, providing such details at the State/Union Territory level is not feasible due to limitations within our Short Message Service Center (SMSC) and core network equipment. These systems do not have geographical location details that would enable reporting at this level.</p> <p>The report is not possible for SMS messages that remain undelivered as the reasons for delivery failure may include factors beyond the control of TSPs such as:</p>

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					<p>1. Customer Unreachable: SMS delivery may fail when the customer's mobile phone is in a no-network zone (e.g., in-flight) or switched off or no-network coverage area etc.</p> <p>2. Dual SIM Handsets: SMS delivery may be delayed until the customer is using the relevant SIM card (voice calls), especially in dual SIM handsets.</p> <p>3. Non-Operational Numbers: Although an SMS is initiated by the user or the system, it may not be delivered if the recipient's number is not in use, disconnected, suspended, or in similar states.</p> <p>Moreover, there are different types of SMSs (P2P, A2P, P2A, I2P) also involving third parties using independent platforms. It is practically infeasible to measure and assure delivery of reports in 20 seconds because of dynamics involved in various types of SMS.</p> <p>In view of the same, it is suggested that this parameter should be removed from the draft Regulations.</p>

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19	6	B(vii)	<p>Resolution of billing/charging complaints within four weeks</p> <p>Benchmark: 100% within 4 weeks</p>	These parameters should be removed from Draft Regulations.	<p>Since, TRAI has already issued a separate regulation on Audit on Metering & Billing accuracy, covering audit of metering & billing accuracy, resolution of billing complaints, application of credit/waiver etc. related scenarios including complaints for both prepaid/postpaid. Therefore, it is suggested that this parameter should be removed from monitoring & reporting under the QoS Regulations.</p> <p>1. Further, in case TRAI continues with this parameter, it is suggested that the reporting should be based only on Quarterly average and not on monthly as proposed by TRAI</p>
20	6	B(ix)(b)	<p>Response Time to the customer for assistance</p> <p>Percentage of calls answered by the operators (voice to voice) within ninety seconds</p> <p>Benchmark: $\geq 95\%$</p>	It is suggested that this parameter should be completely removed from the Draft Regulations.	<p>1. We request for withdrawal of monitoring of the percentage of calls answered by operators (voice to voice) basis the detailed reasoning provided on the same parameter in the previous section.</p>

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21	3	B(xi)	Refund of deposits within 45 days of closures	<p>There should not be any changes in the existing parameter i.e. refund of deposits within 60 days after closures.</p> <p>This parameter should be averaged on a quarterly basis and NOT monthly as proposed by TRAI.</p>	<p>a. Refunds are initiated after the billing cycle of the customer which is generally at the month end. Adjustment of the invoiced amount is carried out wherever applicable for initiating the refunds of the balance amounts to the customers.</p> <p>b. TSPs make several attempts to refund the deposits of the customer in case of failure in the initial attempts.</p> <p>c. There could be various customer related issues for such failures like customer not available, change of address which has not been updated with the TSP, etc.</p> <p>d. Hence, there would always be few cases which would not get closed within the 45 days timeframe. It is therefore suggested that the timeframe for refund be kept to 60 days and not revised to 45 days.</p> <p>e. All such attempts are time-consuming and reducing the time period for such refunds would be considered by the customer as misappropriation of their deposits with the TSPs, who would be bound to deposit such funds with CUTCEF.</p> <p>f. This would cause inconvenience to the customers as they would have to approach</p>

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					<p>TRAI for seeking their refund of deposits .</p> <p>g. It is suggested that there should not be any changes made to this parameter.</p> <p>1.</p>
22	7	1	Registration of demand for wireless services in case services cannot be provided due to non-availability of wireless service	Should not be considered as part of QoS KPIs to be monitored & reported	Please refer to our response under clause 4(i)
23	7	2	<p>Service Coverage</p> <p>(i) Signal strength at street level shall be as specified in TSTP for rollout obligation issued by the Central Government for respective technology</p> <p>(ii) Signal strength in-vehicle shall be up to 10dBm below the street level signal strength for respective technology</p> <p>(iii) Signal strength for indoor as per</p>	Should not be considered as part of QoS KPIs to be monitored & reported	<p>1. We suggest this parameter should not be considered as part of QoS monitored and reported rather this can continue to be part of the perception of service parameters in view of the following;</p> <p>a) TSPs are already complying with the TEC standards related to service coverage and signal strength at different levels (outdoor/indoor/in-vehicle) and the same are duly verified by the LSA Units of DoT at the time of verifying and certifying compliance of roll-out obligations by TSPs in adherence to license conditions and NIA for spectrum auction.</p>

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			applicable standard or as per rollout obligation for respective technology		<p>b) Further, measuring in-vehicle and indoor signal strength accurately can be technically complex. Indoor signal strength can vary widely depending on the building's size, construction, and location or below ground level. It may not be practical to set uniform benchmarks for all indoor environments.</p> <p>c) Customers have the option to choose from available solutions such as In-Building Solutions (IBS), Wi-Fi calling, Offloading data through Cellular Enhancement Products (ODCEP), Fixed Wireless Access (FWA), and more to improve their indoor coverage.</p> <p>2. In a competitive telecom market, service providers have an incentive to improve indoor coverage to attract and retain customers. Market forces might be sufficient to drive investments in this area without the need for regulatory mandates. Rather, regulatory authorities may encourage the adoption of such technologies to enhance overall network quality and customer satisfaction.</p> <p>3. Further, for operator-assisted drive tests, a Signal-to-Noise plus Interference Ratio (SNIR)</p>

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					<p>value greater than -6 should be considered, compared to the current practice, where many good samples with SINR values greater than 0 are left out and cannot be measured for LTE and advanced networks. We recommend that our earlier submissions be taken into account when finalizing the new QoS regulations in this regard.</p>
24	7	4	<p>Point of Interconnection (POI) performance for interconnection between packet-switched networks(4G/5G) at the LSA level</p> <p>(i) Latency<30ms (ii) Jitter<20ms (iii) Packet loss<1%</p>	<p>Should not be considered as part of QoS KPIs to be monitored & reported</p>	<p>We reiterate that, as of the current state, these parameters can only be measured within the individual service provider networks and not between different service providers. Thus, end-to-end measurement of these parameters across operators, irrespective of the type of POI (IP or TDM), is not technically feasible.</p> <p>Therefore, these parameters should be removed from the draft regulations.</p>

Sl. No.	Chapter No.	Regulation No /Clause No.	A proposed provision in the consultation paper	Suggested modification	Justification/ Global references with supporting data points if any
25	9	1	<p>Latency Benchmark: ≤ 100 ms (in 4G and 5G networks) & <50 ms in wireline network</p>	<p>We submit that the benchmark of latency for Wireless services should be reduced in a phase-wise manner over a period of the next few years i.e. reduce the threshold from current value of 250 ms to 200 ms and then to 150 ms gradually and for Wireline Services should be <120 ms.</p> <p>This parameter should be averaged on a quarterly basis and NOT monthly as proposed by TRAI.</p>	<p>While revising the benchmarks, the Authority has referred to international examples where individual telecom service providers have achieved ultra-low latency. However, it's essential to note that such stringent benchmarks have not been widely prescribed by regulators worldwide.</p> <p>Moreover, we believe that the achievement of such benchmarks should primarily be driven by market forces to attract and retain customers.</p> <p>When recommending these stringent benchmarks, the Authority should also consider various operational challenges and factors:</p> <p>a) Backhaul Network Challenges: Achieving higher benchmarks, regardless of deploying advanced packet core networks with LTE, LTE-Advanced, or 5G technology, depends on the quality and capacity of the backhaul network. Challenges such as challenging terrain, Right of Way (RoW) issues, the cost of fiberizing base transceiver stations (BTS), local issues, and more can impact network performance.</p>

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					<p>b) Routing Variations: Depending on route occupancy and network conditions, traffic may take different paths, such as the shortest or longest route. This variation in routing can lead to latency differences.</p> <p>c) Submarine Cable Damage: In the event of damage to submarine cables or major fibre cuts, traffic may be rerouted through alternative paths, resulting in higher observed latency.</p> <p>d) Network Congestion: High numbers of connected users and a vast subscriber base, especially when compared to other nations, can lead to network congestion, resulting in higher observed latency.</p> <p>e) Interference: Wireless networks, in particular, can suffer from interference, leading to latency variations. Interference may arise from physical obstacles, competing wireless signals, or environmental factors.</p> <p>f) Cloud-Based Services: The use of cloud-based services can introduce additional latency, as data needs to travel to and from remote cloud servers. The</p>

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					<p>geographical location of these servers can impact latency.</p> <p>g) Decisions outside the purview of TSP- It is pertinent to mention here that in many cases the decisions taken by non-licensees like CDN providers also affect the latency. For instance, a content provider's decision to have or not have CDN in a TSP network will impact the latency.</p> <p>h) Security Measures: Security measures like firewalls, intrusion detection systems, and encryption can introduce processing delays, affecting overall latency.</p> <p>Given that latency is measured from the user reference point at the Point of Presence (POP) or Internet Service Provider (ISP) gateway node to the international gateway (IGSP/NIXI), we recommend maintaining the same benchmarks as <250ms for wireless networks and <120ms for wireline networks.</p>

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26	9	2	<p>Jitter</p> <p>Benchmark: ≤ 50 ms (in 4G and 5G networks) & < 40 ms in wireline network</p>	Should not be considered as part of QoS KPIs to be monitored and reported	Jitter is a measure for variance in latency and this micro-level parameter is used only for fault analysis, whereas latency is a self-sufficient parameter to give an insight into the QoE of the user. Therefore, the requirement does not serve any purpose.
27	9	5	<p>Minimum download and upload speed against the minimum subscribed speed in offered data plans.</p> <p>Benchmark: $> 80\%$ of the minimum speed for wireless and 100% of the minimum speed for wireline</p>	<p>We submit that as a broader principle/ approach, in the short term, the Authority may consider moving towards a light touch regulatory framework for QoS. In the long-term, the Authority should deregulate the QoS parameters while maintaining the oversight.</p> <p>Thus, this parameter should not be mandated and should be removed from the proposed Draft Regulations.</p>	<ol style="list-style-type: none"> 1. Regarding the minimum download speed for wireless networks, we would like to emphasize that neither TSPs prescribe any minimum download speed nor is it possible to guarantee any minimum speed in the case of wireless networks. 2. The speed experienced by a customer on a wireless network depends on various factors, including the customer's handset, location (indoor or outdoor), distance from the cell site, the number of connected users, the type of website or app being accessed, whether the website is on IPv6 or IPv4, topography, backhaul connectivity, various topographical issues and much more. These factors are not under the control of telecom service providers. 3. Given the points mentioned above and considering the industry's submission of the consultation paper for

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					<p>wireless data services, we kindly request the authority to remove the proposed benchmarks from the QoS regulations.</p> <p>4. Further, for the benchmarks of 100% for the minimum download speed in the case of wireline networks, the calculation methodology appears to be erroneous. The authority is proposing 100% benchmarks based on the average of the lower 10% of all respective test calls. This approach seems incorrect if the benchmark is set at 100%.</p> <p>a. Nevertheless, considering the challenges highlighted for network latency and its applicability to wireline networks where the speed observed may exhibit some variation, we recommend that the authority retains the existing benchmarks of >80% in the case of wireline networks. The reporting of the same should continue to be on Quarterly basis instead of Monthly as proposed by TRAI.</p>
28	10	(i)	Registration of demand for new wireline broadband connection irrespective of technical feasibility	Should not be considered as part of QoS KPIs to be monitored & reported	Please refer to our response under clause 4(i)

Sl. No.	Chapter No.	Regulation No /Clause No.	A proposed provision in the consultation paper	Suggested modification	Justification/ Global references with supporting data points if any
			Benchmark: 100%		
29	12 & 13	12.1& 12.2 & 13.1	(1) The service provider shall maintain documented process of online collection and processing of data for each QoS parameter specified by the Authority under regulation 3, regulation 4, regulation 6, regulation 7, regulation 9 and regulation 10, as applicable, and submit to the Authority, within sixty days of notification of these regulations, the documented online process of collection and processing of data of each QoS parameter,	<p>These parameters should not be mandated and should be removed from the proposed Draft Regulations</p> <p>The regulation should only mandate providing the report (processed data) through online access. The requirement to provide primary/raw data should be dropped.</p>	<ol style="list-style-type: none"> 1. The QoS data is prepared post extracting and processing the primary data from multiple nodes/sources spread over the geography. 2. This processing involves multiple iterations, tagging exercises through automated processes using the formula prescribed by TRAI to generate the report. 3. Additionally, post processing, the raw reports and coding is verified for exception identification and rectification, if required. 4. Therefore, as already implemented, it is possible to automate the report submission with processed data. However, it is not possible to provide access to primary data.

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			<p>indicating the correlation with the primary data which are derived from system counters or codes in Operation and Maintenance Centre or Network Management System or Mobile Switching Centre or telephone exchange, along with any aggregation, transformation or computations applied including record keeping procedure.</p> <p>(2) Every service provider shall maintain and provide online access of complete and accurate records of primary and processed data relating to the compliance of benchmark of each QoS</p>		<p>5. Therefore, the requirement of automated access to primary data is not possible to meet due to above mentioned technical reasons and should be removed from the Regulations.</p> <p>6. It is also pertinent to mention here that there are no international precedents of Regulator collecting primary network data from the TSPs.</p>

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			<p>parameters specified in regulations 3, regulation 4, regulation 6, regulation 7, regulation 9 and regulation 10, as applicable, in such manner and in such formats as may be directed by the Authority, from time to time.</p> <p>13.1 (1)Every service provider shall create secure online system within six months of notification of these regulations for collection of primary data, its processing, generation and submission of online compliance reports to the Authority with online access of required supporting</p>		

Sl. No.	Chapter No.	Regulation No /Clause No.	A proposed provision in the consultation paper	Suggested modification	Justification/ Global references with supporting data points if any
			<p>primary data in respect of each QoS parameters specified under regulation 3 , regulation 4, regulation 6, regulation 7, regulation 9 and regulation 10 in such manner and format, at such periodic intervals and within such time limit as may be specified by the Authority, from time to time, by an order or direction.</p>		
30	13	13.2	<p>(2) The benchmark of each QoS parameters specified in sub-regulation (1) shall be measured, reported, and complied at State or Union Territory (UT) and License Service Area level, as may be</p>	<p>The provision for state/UT level should be dropped. The parameter of reporting should continue at LSA level.</p>	<ol style="list-style-type: none"> 1. The TSP license is issued on LSA-basis and the network is also planned and designed on network basis. 2. As many LSAs spawn over multiple states and some cater to only part of a state, it is not possible to realign the network to meet such requirements. 3. Thus, the QoS Regulation requirement should continue to

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			<p>specified by order or direction issued by the Authority time to time:</p> <p>Provided that the Authority may notify list of districts and QoS parameters for measurement, reporting and compliance of QoS benchmarks based on identification of areas experiencing degraded QoS.</p>		<p>be for LSA ONLY. Accordingly, we request you to remove this requirement from the Regulations.</p>

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					4. to remove this requirement from the Regulations.