

## Annexure A

### Idea Cellular response to TRAI Consultation paper on Voice Services to LTE Users (Including VoLTE and CS Fallback)

Our Query wise response is as under:

**Q1. Whether prescribed QoS parameters, as per existing QoS Regulations, are sufficient to effectively monitor QoS of VoLTE/CSFB calls? Please provide suggestions with justifications.**

Idea Submission:

It is submitted that the present QoS regulation exhaustively covers all KPIs needed for properly assessing QoS for Voice / Telephony services delivered through 2G,3G & VoLTE. The KPIs under present QoS regulation cover all the different aspects related to Availability, Accessibility and Retainability that are relevant to the measurement of customer experience, including voice quality. **Since existing QoS parameters are exhaustive and sufficient to monitor QoS pertaining to voice services, the same are also sufficient for the purpose of monitoring QoS pertaining to VoLTE and CSFB calls.**

It is further submitted that CSFB is only a mechanism to make the call fallback onto a 3G or 2G network in case the call is originated by the subscriber in a 4G network and the handset does not have VoLTE capability. Thus in respect of CSFB, all call related performance is already being captured as part of 2G or 3G voice KPIs, and does not require separate monitoring.

**Q2. If existing QoS parameters are not sufficient to monitor QoS of VoLTE/CSFB calls, then what new parameters can be introduced? Please provide details with justifications.**

Idea Submission:

As already submitted, the existing QoS parameters are exhaustive and sufficient to monitor QoS pertaining to voice services in respect of both VoLTE and CSFB calls. **Thus there exists no need for considering introduction of any new parameters.**

However as part of speech quality measurement, a mechanism to capture call muting in VoLTE networks may be considered.

**Q3. How to define instance of silence/voice mute? How many such instances may be accepted during voice call? Whether existing parameters like packet loss, jitter, latency, end-to-end delay are sufficient to identify or measure silence/voice mute or some other parameters are also needed to be factored to measure it? Please provide details with justifications.**

**Idea Submission:**

All the above- mentioned parameters (packet loss, jitter, latency, end-to-end delay) are possible causes of voice mute in VoLTE. However, it is submitted that not all these parameters are measurable through standard OSS counters other than the Packet loss rate, and hence an alternative mechanism would be required for measurement of instances of “silence / voice mute”. **Towards that end, it is submitted that a mechanism of measuring mute calls can be through conducting drive tests on sample basis during TRAI IDTs.**

However, it is pertinent to mention here that the measurement of silence/voice mute instances and duration of silence impacting customer experience has a lot of subjectivity in it. These kind of measurements are done by tapping data with probes from VoLTE forwarding plane, and KPIs/ KQIs (Key Quality Index) are derived based on customized algorithms devised by individual “probe vendors”. Also these KQI measurements are done on dip stick basis to evaluate customer experience trends and detect issues in the network/devices. These are non-standard/customized algorithms that are subjected to continuous tuning based on customer research surveys of experience and show variance of measurement output across probes from different vendors. Thus introducing such KPIs/KQIs as part of the regulation will not be advisable.

**Q4. How to measure, report and evaluate network or service from perspective of silence/voice mute problem? Which ITU measurement tools can be used to prepare framework for measurement of silence/voice mute problem? Please provide details with justifications.**

**Idea Submission:**

As elaborated above under answer to Q(3), there are no standard measurements available from equipment suppliers to monitor or measure “silence/ voice mute” on a “per call basis”. **A sample testing via the medium of drive tests may be one of the viable mechanisms to get an indication of the extent of this issue.**

It is also recommended that the regulator may consider prescribing standard capabilities of drive test tools for this purpose so that any subjectivity around testing is kept to a minimum and the process of measurement remains uniform across operators.

**Q5. Whether certain range of timers and constants are required to be prescribed which may affect VoLTE call quality assessment? If yes, which may be those timers and constants and what may be the suggested ranges of timers and constants? Please provide details with justifications.**

**Idea Submission:**

It is submitted that each OEM works on a certain range of values for the timers and constants as per the internal systems and network designs pertaining to applicable terrain, clutters etc. and uses them for the purpose of optimization.

**Hence, it is important that the values to be set for these timers and constants are not mandated and flexibility is left to the optimizers to tune these values for imparting the best customer experience.**

**Q6. What parameters like Post Dialing Delay (PDD) may be introduced to measure performance of users being served voice via CSFB? What may be the threshold? How to measure report and evaluate? Please provide details with justifications.**

**Idea Submission:**

It is submitted that there is no inherent mechanism in the 2G/3G/4G systems to measure end to end PDD from the standard OSS systems.

**However, if required, the same may be obtained through sample testing or drive test measurements. The measurement of PDD may thus be included as one of the measurements to be conducted during TRAI IDTs.**

**Q7. Any other issue which is relevant to this subject?**

**Idea Submission:**

It has been observed that VoLTE adoption among subscribers served by networks of TSPs already having legacy 2G / 3G networks is very low primarily because the customers do not perceive the need to upgrade their handsets to VoLTE as something major, when they are already enjoying good QoS on voice.

We believe that the Regulator would need to take a lead in efforts to cultivate enhanced awareness around VoLTE services and parallelly also drive handset ecosystem to improve adoption of VoLTE services.

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