



RJIL/TRAI/2018-19/08
06th April 2018

To,
Sh. Asit Kadayan
Advisor (QoS),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg, New Delhi 110002

Subject: Counter Comments on Consultation Paper on 'Voice Services to LTE users (including VoLTE and CS Fallback)' dated 26.02.2018.

Dear Sir,

Please find enclosed herewith counter comments of Reliance Jio Infocomm Ltd. on the consultation paper on Voice Services to LTE users (including VoLTE and CS Fallback) dated 26.02.2018, for your kind consideration.

Thanking You,
For **Reliance Jio Infocomm Limited,**

A handwritten signature in blue ink, appearing to read "Kapoor Singh Guliani", is written over a horizontal line.

Kapoor Singh Guliani
Authorised Signatory



Enclosure: As above.

**RELIANCE JIO INFOCOMM LTD'S COUNTER COMMENTS ON
TRAI'S CONSULTATION PAPER ON
"VOICE SERVICES TO LTE USERS (INCLUDING VOLTE AND CS FALLBACK)"
(Consultation Paper Dated 26th February, 2018)**

1. Reliance Jio Infocomm Ltd ("RJIL") thanks the Authority for initiating this consultation process to discuss, review and finalize the issues to identify Quality of Service key performance indicators (KPIs) and measurement procedure principles in this dynamically evolving sector witnessing a trend towards ubiquitous Long Term Evolution (LTE) services.
2. RJIL has submitted its views and comments on the questions raised by the Authority in the consultation paper vide its letter dated 28.03.2018. RJIL's key comments are summarized below:
 - a. The Authority should continue with the current prevailing principle of technology agnostic Quality of Service ("QoS") parameters to ensure regulatory stability and level playing field.
 - b. The QoS parameters and benchmarks should remain same for all technologies and only differentiation should be in technology specific measures for QoS parameters.
 - c. The Authority should seek to mandate only the parameters that have scientifically proven measures and should not go for unnecessary hype created by vested interests.
 - d. If at all differential QoS is required, VoLTE requires much less stringent QoS than the fast becoming obsolete legacy technologies. Being a core IP based service, VoLTE provides added QoS advantage to the users and addresses the common challenges faced by customers using Circuit Switched Fallback (CSFB) services like:
 - i. Failure to handover voice calls between LTE and 2G/ 3G leading to call drops.
 - ii. VoLTE generally provides much lower call set up time as compared with CSFB the difference can be as much as 4-5 times.
 - iii. VoLTE calls can be established without disturbing the ongoing data session, which is not the case with CSFB where data session is terminated on establishing a voice call. Further there are long delays in re-establishment of data sessions post completion of voice call.
 - e. Silence/Call Muting phenomenon referred by the Authority, is a common phenomenon to 2G/3G and VoLTE and there are no proven scientific measures for muting, however strict compliance to existing Radio network QoS parameters ensures that there is no muting.
3. RJIL also had the opportunity to review the comments made by other stakeholders on the subject. In this regard, we submit that we do not agree with certain comments, assertions



and rationale put forward by some of the operators' viz. Bharti Airtel Limited ("Airtel"), Vodafone India Limited ("Vodafone"), Associations like Broadband India Forum ("BIF") and 'Independent Auditor' like Phimetrics, Research organizations like Samsung Research and consumer groups like Consumer Protection Association ("CPA"). Submissions of these stakeholders are in contradiction to the existing regulatory framework and are without any rational or scientific basis. We are dealing with their submissions separately in the following paragraphs.

Submissions by Airtel

4. We submit that it appears that Airtel, though offering VoLTE services sporadically, is not confident of its abilities and is speaking from a position of lack of experience in deploying VoLTE technology.
5. Airtel in its response states that VoLTE lacks the dedicated resources for real-time voice thereby rendering the connection open to severe vulnerabilities of a packet connection, which is on Best Effort basis by design itself. It further states that VoLTE deployment and call reliability are still nowhere in competition with the legacy CS calls. By such statements Airtel is making an obvious attempt to portray VoLTE as an inferior technology that needs very stringent and excessive QoS monitoring. Airtel's response to the consultation paper is in an obvious contradiction to Airtel's public utterances on VoLTE, where all its officials are proud to offer this latest and best voice services, with its response to the consultation paper. Conspicuously, even Airtel website¹ refers to VoLTE as providing Clearer, Faster & Better Conversations and goes on to detail extensive benefits of VoLTE technology.

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Airtel VoLTE

Clearer, Faster & Better Conversations

Benefits of VoLTE

¹ <https://www.airtel.in/volte/>

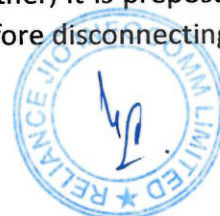


6. Clearly the Authority should not take Airtel's submissions at face value. Further we submit that all of the QoS parameters suggested by Airtel are actually used for engineering purposes and relevant only at network side as these are used to fine tune the network and are not relevant in measuring the QoS delivery to the customer.
7. The intent and purpose of the QoS regulations is to ensure measurable parameters for customer experience. The Authority has always refrained from mixing the engineering parameters with customer experience parameters and there is no reason for deviating for this practices that too only for a new technology. We submit that customers understand the basic experience metrics as defined by the Authority in simple language such as:

Accessibility: Ability to access the network

Retainability: Ability to retain and use the network

8. We reiterate our submissions that the current QoS parameters, as amended under the 5th amendment to QoS regulations are sufficient. If at all, there is only one new factor i.e. call drop due to handover that has emerged due to the slow and languid change of technology being implemented by some service providers. We submit that Call Drops on account of inter technology Handover failures should be included in the regulation as this leads to better customer experience.
9. We further submit that Airtel's submissions on call muting are self-serving as they have chosen to hide the fact that muting is also prevalent in 2G/3G networks as well. In 2G/3G networks, radio link timeout (RLT) leads to customers' experience of muting. This muting is of considerably larger durations than the ones experience in VoLTE networks, if at all, due to Real time transport Protocol (RTP) packet loss which are generally in Millie Seconds.
10. However, we reiterate that there are no scientifically proven measures for Silence/Call Muting phenomenon, thus the Authority should continue with the Radio Network parameters to ensure the optimum QoS to customers. Further, Probe based methodologies as discussed by Airtel to measure Voice Quality are only suitable for troubleshooting purpose and not used for QoS Reporting.
11. The Authority is also requested to ignore the self-serving, self-contradictory and scientifically unproven statements like "the, biggest impact on voice over the packet scenario would not come from drops" and "call drops on VoLTE is 4-5 times higher than that of 2G and 3G calls". As these statements are factually incorrect and made just for effect and contradict Airtel's own public statements and its website.
12. Airtel's statements on Media Inactivity Timer (MIT) are grossly exaggerated, in line with its rest of submissions. As the Authority is aware that MIT is a device feature and is implemented at much lower values by most of the OEMs. Further, it is preposterous to assume that a user will hold the muted call for upto 35 secs before disconnecting it.



13. Airtel's statements on Small Cells are also motivated and oblivious of the facts that Small Cells are deployed to improve indoor coverage and that too in a totally controlled environment inside the commercial buildings, malls and hotels etc., where Macro or outdoor BS deployment is not feasible. Thus the impact of Small Cells is to only enhance the customer experience. Further, in almost all the cases Small Cells radiate negligible EIRP thus they need not be kept part of the Regulation QoS Parameters.
14. Airtel's majority of submissions are out of place and irrelevant and in view of the above we request the Authority to ignore the same. We agree with the submission to keep the Low Call volume cells to be excluded from any regulation mandated for VoLTE measurement.

Submissions by Vodafone

15. We agree with Vodafone's submission that there is no imminent need to change QoS and that QoS should primarily be driven by market forces than regulatory intervention and that Authority should persist with current technology agnostic approach with light touch regulations. We also agree that from the end-user perspective also there is no difference in voice services whether provided using VoLTE or otherwise.
16. We do not agree with Vodafone's suggestion that Mean Opinion score ("MOS") can be a new parameter to assess QoS and muting, in medium term, for the following reasons:
- i. MOS is a subjective measure and is completely dependent on the sample size and type.
 - ii. Further being a subjective measure MOS is also prone to various mathematical properties and biases. Therefore it is not widely accepted measure for Quality of experience.
 - iii. The most pertinent concern with MOS type ratings is the interval bias, it has been proved that for categorical rating scales, the individual items are not perceived equidistant by subjects leading to incorrect results and biases.
 - iv. Other well-known bias is "range-equalization bias", which implies that the subjects tend to cover the entire spectrum of ratings during a subjective experiment leading to the conclusion that MOS is never an absolute measure of quality.
 - v. There are other contextual issues that influence the MOS and impair comparability of two MOS scores.
17. Thus clearly, MOS is not a reliable scientifically proven measure and thus cannot be introduced as a QoS parameter.



18. We reiterate that the Authority should give sufficient time to the changes brought in vide the 5th amendment to QoS parameters and should initiate a new consultation in medium term, if any revision is warranted.

BIF and SAMSUNG Submissions

19. BIF and Samsung have also relied heavily upon MOS as a parameter in their submissions. We have already shared our view on MOS in above paragraphs.

20. Samsung has also shared various research and engineering specific parameters and constants, which have no relevance to the actual QoS delivery to customer. Further, it has not specified how these suggestions are an improvement on the existing parameters and are thus should be disregarded.

21. BIF's majority submissions pertain to hybrid networks that are offering circuit switched services along with VoLTE and should be viewed only from that perspective. While we agree with its suggestion that the mute calls cannot be measured at present we do not agree with other submissions.

Phimetrics Submissions

22. We are surprised to observe the submissions by the 'Independent Auditor' appointed by the Authority to conduct drive-tests to measure quality of service. The submissions by the 'Independent Auditor' are a testament to its established bias against VoLTE services.

23. While it has attempted to masquerade its suggestions as being applicable to both VoLTE and CSFB, however, quite obviously the suggestions are primarily for VoLTE. We have already highlighted the biased approach of the 'Independent Auditor' to the Authority vide our various representations and we request the Authority to treat these comments by Phimetrics as manifestation of said bias and reject them completely.

24. The 'Independent Auditor' has further submitted that the actual voice samples should be collected to measure quality of experience. This suggestion is in contravention to customer privacy and cannot be considered. All other suggestions are without scientific basis and should be rejected.

25. We submit that it would be in the interest of the credibility of drive tests that the 'Independent Auditor' remains independent and refrains from having opinions on the issues it is required to audit. Further, in the interest of transparency of testing methods and the credulity of the test results, measures suggested earlier may be implemented.



CPA Submissions

26. Submissions by the CPA, that the unintended call drop in VoLTE is 5 times the call drop in legacy networks is without any scientific basis and contrary to actual experiences all over the world. In fact as mentioned above VoLTE has inherent advantages over the legacy call services and guarantees superior voice quality.
27. The submissions have confused the quality of voice in an Over the top ("OTT") network with the quality in a bearer network and are thus not relevant. We have already responded to the applicability of MOS to QoS.
28. There are certain alarmist suggestions of VoLTE being a threat to users and to data privacy. We submit that these submission are one unfounded and two irrelevant to the consultation process.

Additional Submissions

29. In addition to our previous submissions, we submit that there are further changes required in the reporting of dropped call rate ("DCR"). Currently most service providers have multiple cells in the network with low call volumes even in cell busy hour. These cells exist in border areas, rural Area and include newly deployed eNodeB.
30. Further, in a multicarrier technology, certain bands are preferred for Voice calls hence volume of calls in some frequency bands are always lower. Such cells can vary from 20% to 35% from LSA to LSA. Even 2-3 call drops in such cells, for 3-4 days in a quarter make them poor performing cells for the quarter which does not give the actual picture.
31. We submit that all individual cells representing all frequency bands in a particular sector of the site should be clubbed as one while reporting the DCR. This would be a logical and representative move from cell level reporting to sector level reporting.

