



Malaysian Communications and Multimedia Commission
Suruhanjaya Komunikasi dan Multimedia Malaysia

Public Inquiry Report

Review of the Mandatory Standards for Quality of Service (Public Cellular Service) – Determination No.1 of 2015

3 July 2021

This Public Inquiry Report was prepared in fulfilment of Sections 61 and 65 of the Communications and Multimedia Act 1998.

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1. Summary of the Public Inquiry

1.1. Introduction

- 1.1.1. The Mandatory Standards for Quality of Service (“MSQoS”) for Public Cellular Service covers the network performance for the delivery of voice.
- 1.1.2. The Public Inquiry (“PI”) for the revised MSQoS focuses on the network performance parameters in which the Malaysian Communications and Multimedia Commission (“MCMC”) considers, would significantly improve the end user experience and better service delivery.
- 1.1.3. The voice service parameters in this MSQoS refers to voice calls on cellular network. IP calls using Over-The-Top (OTT) applications are not included because the performance for OTT is being considered under the wireless broadband standards.
- 1.1.4. In steering the industry to deliver enhanced quality of service (“QoS”) for consumers, proposed revisions of the mandatory standards are based on international best practices and seek to strengthen and streamline the QoS framework for current and future technologies. The revised MSQoS is targeted to be effective once the existing MSQoS is revoked.

1.2. Public Inquiry Exercise

- 1.2.1. In the PI document on the proposed revision of the MSQoS for Public Cellular Service issued on 8th April 2021, the MCMC outlined the proposed QoS parameters pertaining to:
 - i. Proposed revision on the interpretation part of the standards;
 - ii. Proposed revision on the quality of service indicators, measurements, standards, and notification;
 - iii. Proposed revision on the applicable guidelines.
- 1.2.2. The PI document welcomed feedback from public and relevant stakeholders on the MCMC’s proposed standards. The PI document specifically sought comments for all proposed revisions and the general views of the standards.

- 1.2.3. By the end of the PI period at 12 noon on 4th June 2021, MCMC received six (6) submissions from the following parties:

No.	Submitting Parties	Submission Date
1.	Celcom Axiata Berhad ("Celcom")	4 th June 2021
2.	Digi Telecommunications Sdn Bhd ("Digi")	4 th June 2021
3.	Maxis Broadband Sdn Bhd ("Maxis")	4 th June 2021
4.	Telekom Malaysia Berhad ("TM")	4 th June 2021
5.	U Mobile Sdn Bhd ("U Mobile")	4 th June 2021
6.	YTL Communications Sdn Bhd ("YTL")	4 th June 2021

Table 1: List of respondents to the PI

- 1.2.4. MCMC considered all six submissions and a summary of comments/suggestions are outlined in further sections of this report in which this PI Report is presented within the 30-day requirement from the closing date of submissions, as stipulated under Section 65 of the Communications and Multimedia Act 1998 ("CMA").

- 1.2.5. MCMC proposes to issue a Commission Determination that will reflect the Commission's final views expressed in this PI Report in respect of the MSQoS for Public Cellular Service.

1.3. Structure of the PI Report

- 1.3.1. The remainder of this PI Report is structured broadly to follow the PI Paper to provide context for MCMC's questions for comments, as follows:

- i. Section 2 provides the summary of input received on the proposed changes;
- ii. Section 3 describes MCMC's final views of the framework and responses; and
- iii. Section 4 highlights the way forward.

2. Input from the Public Inquiry

2.1 Revision on the Interpretation Part of the Standards

2.1.1 Interpretation

QUESTION 1: THE COMMISSION SEEKS VIEWS ON THE PROPOSED CHANGES TO THE INTERPRETATION PART OF THE MANDATORY STANDARDS FOR QUALITY OF SERVICE (PUBLIC CELLULAR SERVICE).

Proposed Revised Interpretation in PI	
<p>“public cellular service” means an application service involving a network of cellular base stations for the delivery of voice communications not including Trunked Radio Service.</p>	
Submitting Party	Comments
Celcom	<ul style="list-style-type: none"> • Proposes the following amendment: <p>“public cellular service” means an application service involving a network of cellular base stations for the delivery of circuit-switched voice service and VoLTE only.”</p> <p><u>Celcom justification:</u></p> <ul style="list-style-type: none"> • Celcom supports MCMC’s proposal to exclude Trunked Radio Service and VoIP calls over OTT applications in the MSQoS. • Celcom also proposes to exclude voice over new radio (VoNR) under this MSQoS. As mentioned in paragraph 20 of the PI on MSQoS (Wireless Broadband Access Service), standards for 5G will be different in terms of QoS network performance parameter. • Furthermore, the service providers can only access the 5G network via wholesale arrangement via the government-owned SPV.
Digi	<ul style="list-style-type: none"> • Agrees to separate voice and data communications, and the voice related measurements to be reflected on 2G voice and VoLTE only.
Maxis	<ul style="list-style-type: none"> • Agrees with the revised interpretation. • Proposes not to address VoNR in this MSQoS unless the 5G SPV has measurable quantifiable targets to assist access seekers to meet the end service QoS.

U Mobile	<ul style="list-style-type: none"> U Mobile has no comments on the proposed interpretation, but proposes the removal of VoNR from this MSQoS, as it is not being offered currently.
YTL	<ul style="list-style-type: none"> YTL opines that changing the definition may cause conflict with the definition in the Communications and Multimedia (Licensing) Regulations 2000.
TM	<ul style="list-style-type: none"> TM proposes the following amendment: “public cellular service” means an application service involving a network of cellular base stations based on standards such as GSM, UMTS and IMT Advance for the delivery of voice communications not including Trunked Radio Service. TM proposes to exclude VoNR in the MSQoS as it is enabled by 5G.

Table 2: Responses on the interpretation part

2.2 Revision on the Quality of Service Indicators, Measurements, Standards and Notifications

2.2.1 Call Setup Success Rate (CSSR)

QUESTION 2: THE COMMISSION SEEK VIEWS ON THE PROPOSED CHANGES TO CALL SETUP SUCCESS RATE STANDARD FOR THE MANDATORY STANDARD FOR QUALITY OF SERVICE (PUBLIC CELLULAR SERVICE).

Proposed Call Setup Success Rate (CSSR) standard in PI

Call setup success rate shall be not less than 98.0% for intra-network or inter-network calls.

Submitting Party	Comments
Celcom	<ul style="list-style-type: none"> Celcom proposes to amend the MSQoS for CSSR to: “Average CSSR for intra or inter-network circuit-switched voice calls and VoLTE must be not be less than 97% over 1 year period nationwide, based on the data from network statistics obtained from service provider’s own system.” <p><u>Celcom’s justification:</u></p> <ol style="list-style-type: none"> Global practice – assessment method

	<ul style="list-style-type: none">a. Regulator in Australia, Singapore, India and Sri Lanka assess the CSSR by using network statistics reported by the service providers.b. ITU collected data for CSSR and DCR based on network statistics only.c. Reflect actual network performance due to large samples collected 24x7 compare to limitation on drive/static/walk test. <p>2. Global practice – standard</p> <ul style="list-style-type: none">a. ITU Quality of Service Manual (2017) stated that:<ul style="list-style-type: none">i. Developed countries tend to adopt a light touch approach when enforcing QoSii. In some countries, persistent to achieve committed levels of QoS can be actionable as a matter of truth in advertising.b. CSSR standard set by other Regulators are relatively lower i.e. Australia ($\geq 90\%$), India ($\geq 95\%$) and Sri Lanka ($\geq 95\%$).c. Malaysia mobile market is highly competitive with MVNO and no dominant mobile service provider. Therefore, preferable to leave QoS to market forces and should adopt light regulation when enforcing QoS standards. <p>3. Decrease in voice traffic</p> <ul style="list-style-type: none">a. Celcom’s network data observed strong data traffic growth and decreasing voice traffic trend.b. Internet Users Survey 2020 depicted online calls increased to 20.5% compared to 2018. <p>4. Relaxation is required</p> <ul style="list-style-type: none">a. 3G spectrum will be re-farmed for LTE to meet the 3G sunset by end of 2021.b. Celcom foresees that most voice calls will still be on the 2G network, which is a less efficient technology, due to slow adoption of VoLTE capable devices.<ul style="list-style-type: none">i. More than 30% customers would only consider changing to VoLTE capable devices after 3G network shutdown.ii. From the latest Jaringan Prihatin campaign for B40, only less than 5% take up from 3G base station. <ul style="list-style-type: none">• Celcom opines that drive tests could be used for audit purposes ‘as and when’ deemed necessary whereby the results are not subject to enforcement/penalty. Celcom proposes for “the CSSR not less than 95% for intra-network or inter-network calls” as reference during the verification drive test.
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<p>Digi</p>	<ul style="list-style-type: none"> • Digi proposes the CSSR of not less than 97% for VoLTE and 2G networks based on network statistics submission. <p><u>Digi justification:</u></p> <ol style="list-style-type: none"> a. Data samples obtained from network statistics are much higher compared to data from drive testing, thus giving better view on the overall network performance. b. Data from network statistics reflect actual customer experience, whether indoor, outdoor, or mobile. c. Digi uses network statistics data to analyze and monitor network performance, quality and optimization tasks for service improvement. <ul style="list-style-type: none"> • Digi proposes for the exclusion of failures due to incidents such as planned maintenance, third party outages, force majeure, etc.
<p>Maxis</p>	<p>Maxis proposes the following amendments:</p> <ul style="list-style-type: none"> • Service providers to measure and submit the quarterly report based on network statistics or virtual drive test tool. The proposed standard is: "CSSR of not less than 97% for intra-network or inter-network calls measuring both 2G and VoLTE, taking into consideration that 3G sunset will be completed by year end." • MCMC to perform drive test if there is a requirement to audit the sites or customer complaint verification for monitoring and not for enforcement. The proposed standard is: "CSSR of not less than 95% for intra-network or inter-network calls" <p><u>Maxis' justification:</u></p> <ol style="list-style-type: none"> a. The proposed standard does not take into consideration of the cause of unsuccessful call setups on mobile networks such as lack of radio coverage, interference, imperfect in the functioning of the network, overload of different elements, etc. b. There is limitation to achieve the objective as the proposed minimum sample size to test may skew the results unfavorably.

U Mobile	<ul style="list-style-type: none"> U Mobile proposes to retain the current standard CSSR must not be less than 95.0% for intra-network or inter-network calls, measured by drive tests. Malaysia shows increasing data traffic trend, with slower growth in voice traffic. Moreover, many voice calls are via OTT applications.
YTL	<ul style="list-style-type: none"> YTL proposes to maintain the CSSR at not less than 95% and proposes gradual improvement as below: <ul style="list-style-type: none"> Year 2023: increase from 95% to 96% Year 2025: increase from 96% to 97%
TM	<ul style="list-style-type: none"> TM proposes the following MSQoS amendments: <ul style="list-style-type: none"> Not less than 97% by using network statistics data within LTE coverage, starting year 2023; and Maintained current standard for not less than 95.0% using drive test methodology, for audit purpose only, starting year 2023. 3G sunset will be completed by December 2021, hence relaxation should be given in 2022 to give time for the VoLTE to fully stabilize.

Table 3: Response to CSSR standards

2.2.2 Dropped Call Rate (DCR)

QUESTION 3: THE COMMISSION SEEKS VIEWS ON THE PROPOSED CHANGES TO DROPPED CALL RATE STANDARD FOR THE MANDATORY STANDARD FOR QUALITY OF SERVICE (PUBLIC CELLULAR SERVICE)

Proposed Dropped Call Rate (DCR) standard in PI	
<p>"Dropped call rate for Designated Routes and Areas must be not more than 1.0%, for intra or inter-network calls".</p>	
Submitting Party	Comments
<p>Celcom</p>	<ul style="list-style-type: none"> Celcom proposes to amend the MSQoS standard for DCR to: <p>"Average DCR for intra or inter-network circuit-switched voice calls and VoLTE must be not more than 2% over 1 year period nationwide, based on the data from network statistics obtained from service provider's own system."</p> <p><u>Celcom's justification:</u></p> <p>a. Refer to Celcom justification on Section 2.2.1.</p>

	<ul style="list-style-type: none"> • Celcom opines that the drive test methodology could be used for audit purposes 'as and when' deemed necessary whereby the results are not subjected to enforcement/penalty. • Celcom proposes for "DCR not more than 3% for intra or inter-network calls" to be used for reference during the verification drive test.
<p>Digi</p>	<ul style="list-style-type: none"> • Digi proposes DCR of not more than 2% for VoLTE and 2G networks based on network statistics submission. <p><u>Digi's justifications:</u></p> <p>a. Refer to Digi's justification on Section 2.2.1.</p>
<p>Maxis</p>	<p>Maxis proposes the following amendments:</p> <ul style="list-style-type: none"> • Service providers are to measure and submit quarterly reports based on network statistics or virtual drive test tool. The proposed standard is: <p>"DCR of not more than 2% for intra-network or inter-network calls measuring both 2G and VoLTE, taking into consideration that 3G sunset will be completed by year end."</p> <ul style="list-style-type: none"> • MCMC to perform drive tests if there is a requirement to audit the sites or customer complaint verification for monitoring and not for enforcement. The proposed standard is: <p>"DCR of not more than 3% for intra-network or inter-network calls"</p> <p><u>Maxis justification for the proposals:</u></p> <p>a. The main reasons for dropped calls are lack of radio coverage, radio interference, imperfections in the functioning of the network, overload of different elements of the network, etc</p> <p>b. Ofcom (UK) and ACMA (Australia) do not mandate public cellular services standard. IMDA (Singapore) mandated the standards for nationwide outdoor coverage, in-buildings and tunnels coverage, and the reports are submitted by service providers based on the quarterly network statistics.</p>

U Mobile	<ul style="list-style-type: none"> U Mobile proposes to retain the current standard DCR for Designated routes and areas must be not more than 2% for intra-network or inter-network calls, and areas other than designated routes must be not more than 3% for intra-network or inter-network calls, measured by drive tests. U Mobile proposes that any implementation of new MSQoS are made only after the completion of 3G sunset by end of 2021.
YTL	<ul style="list-style-type: none"> YTL proposes to maintain current standards within each service provider’s respective published coverage area.
TM	<ul style="list-style-type: none"> TM proposes for the following MSQoS amendments: <ul style="list-style-type: none"> Not more 2% using network statistics data within LTE coverage, starting year 2023; Maintained current standard of 3% nationwide using drive test methodology, for audit purpose only, starting year 2023.

Table 4: Response to DCR standards

2.3 Revision on the applicable guidelines

2.3.1 Methodology

QUESTION 4: THE COMMISSION SEEKS VIEWS ON THE PROPOSED MEASUREMENT METHODOLOGY AS STATED IN THE GUIDELINE OF THE COMMISSION DETERMINATION ON MANDATORY STANDARD FOR QUALITY OF SERVICE (PUBLIC CELLULAR SERVICE).

Submitting Party	Comments
Celcom	<ul style="list-style-type: none"> Celcom proposes the following amendments: <p>(i) <u>Measurement methodology</u></p> <ol style="list-style-type: none"> Remove paragraphs 4-8 from the Guidelines (these paragraphs are related to drive/static/walk and not applicable to self-reporting based on network statistics. Amend the measurement methodology to: <p>“The performance of CSSR and DCR shall be measured based on the network statistics obtained from the respective PCS provider’s OSS.”</p>

	<p><u>Celcom justification:</u></p> <ul style="list-style-type: none">a. Celcom opines MCMC to adopt network statistics measurement instead of drive/static/walk test as being used by regulators in Australia, Singapore, India and Sri Lanka.b. Network statistics reflect actual network performance due to millions of samples collected 24x7 nationwide.c. Drive/static/walk test incurs unnecessary additional cost and manpower.d. Drive test could be used for audit purposes but not subject to enforcement/penalty. <p>(ii) <u>Routes or Locations Identification</u></p> <ul style="list-style-type: none">a. Remove paragraph 9-10 from the Guidelines (these paragraphs are related to drive/static/walk test and not related to network statistics reporting)b. Amend paragraph 12 to: "The cellular coverage will be ascertained in the following manner:<ul style="list-style-type: none">a) Through the coverage information advertised by the PCS providers' websites; andb) Confirmation from the PCS providers" <p><u>Celcom justification for proposals:</u></p> <ul style="list-style-type: none">a. Refer to Celcom justification in (i) Measurement methodology.b. Only coverage information advertised at service provider's official website shall be deemed as official notification.c. Celcom opines that it is not a fair assessment if the test is conducted at complaint area especially when coverage is an issue. <p>(iii) <u>Testing Procedures</u></p> <ul style="list-style-type: none">a. Remove paragraph 19-20 from the Guidelines (these paragraphs are related to drive/static/walk test and not related to network statistics reporting). <p><u>Celcom's justification :</u></p> <ul style="list-style-type: none">a. Refer to Celcom justification in (i) Measurement methodology.b. Minimum of 1,600 call samples for each month in every state in Malaysia for drive tests are too extensive. Global best practice is to use network statistics.
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	<p>(iv) <u>Service Prioritization and Misrepresentation</u></p> <p>a. Remove paragraphs 25-27 from the Guidelines as the paragraphs are not applicable to self-reporting based on network statistics.</p> <p><u>Celcom justification:</u></p> <p>a. Refer to Celcom’s justification in (i) Measurement methodology</p> <p>(v) <u>Part C: Requirement for Report Submission</u></p> <p>a. Amend table 1 of paragraph 30 as follows:</p> <table border="1" data-bbox="532 688 1430 852"> <thead> <tr> <th>No</th> <th>Item</th> <th>Reporting Period</th> <th>Report Submission Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Monthly Measurement Report for PCS*</td> <td>Quarterly</td> <td>By 30th of the following month of each quarter</td> </tr> </tbody> </table> <p>*Obtained from network statistics for CSSR and DCR</p> <p>b. Remove paragraphs 31-32 from the Guidelines (these paragraphs are not applicable to self-reporting based on network statistics)</p> <p><u>Celcom’s justification:</u></p> <p>a. Refer to Celcom’s justification in (i) Measurement methodology.</p> <p>b. To allow sufficient time for the service provider to prepare a report at end of every quarter, thus allowing service provider to focus on enhancement of customer experience.</p>	No	Item	Reporting Period	Report Submission Date	1	Monthly Measurement Report for PCS*	Quarterly	By 30th of the following month of each quarter
No	Item	Reporting Period	Report Submission Date						
1	Monthly Measurement Report for PCS*	Quarterly	By 30th of the following month of each quarter						
Digi	<ul style="list-style-type: none"> Digi proposes to review the methodology in the Guidelines later because of the proposal to use network statistics data for CSSR and DCR. 								
Maxis	<ul style="list-style-type: none"> Maxis proposes for the performance measurement report to be based on network statistics. The data gathered will be a mixture of static and mobility samples. Maxis agrees on the proposed reporting template in Part C of the Guidelines. Maxis agrees on the test to be performed during weekdays unless allowed by the Commission. 								
U Mobile	<ul style="list-style-type: none"> U Mobile proposes to change ‘or’ to ‘and’ for item (i) and (ii) paragraph 12 of the guideline. Coverage maps are simulated prediction and different devices behave differently. 								

	<ul style="list-style-type: none"> • U Mobile proposes to remove item (iii) paragraph 12 of the guideline. • U Mobile proposes the following for the testing procedures: <ul style="list-style-type: none"> ○ To conduct drive tests: 1,600 call samples per quarter. ○ To measure all regions in each quarter (not all states) ○ To blend designated routes into central region ○ To alternate routes; routes in Q1 is repeated in Q3, and Q2 repeated in Q4. • U Mobile proposes the reporting timeline to be submitted on a quarterly (nationwide) basis. • U Mobile proposes the MS to be enforced on per location measured, per year nationwide basis. Existing drive test model enables sufficient amount of data to be collected, and allow service providers to have sufficient time to improve and rectify weak spots.
YTL	<ul style="list-style-type: none"> • YTL proposes the drive test shall be carried out within each service provider’s coverage area, with a minimum of 1,600 call samples each quarter, in every region in Malaysia.
TM	<ul style="list-style-type: none"> • TM proposes MCMC to use the network statistics methodology. This method provide accurate network performance, samplings from real subscribers’ experience, faster reporting, not dependent to on-site measurement and optimized resource utilization. • TM proposes to maintain 1,600 call samples per quarter, and to do at all regions in each quarter (not all states).

Table 5: Response to the applicable guidelines

2.3.2 Enforcement

QUESTION 5: THE COMMISSION SEEKS VIEWS ON THE PROPOSAL TO ENFORCE THE MANDATORY STANDARD FOR QUALITY OF SERVICE (PUBLIC CELLULAR SERVICE) FOR THE ROUTES MEASURED ON MONTHLY BASIS, AS STATED IN THE GUIDELINE OF THE COMMISSION DETERMINATION

Submitting Party	Comments
Celcom	<ul style="list-style-type: none"> • Celcom proposes to enforce the MS QoS (PCS) yearly based on the average value of nationwide CSSR and DCR from network statistics obtained from service provider’s own system. • The proposal is also to be reflected in paragraph 34 of the Guidelines as follows:

	<p>“The Mandatory Standards for public cellular service shall be enforced yearly based on the average value of nationwide CSSR and DCR from network statistics obtained from service provider’s own system.”</p> <p><u>Celcom justification:</u></p> <ol style="list-style-type: none"> a. To Celcom’s knowledge, no regulator in the world enforces the QoS standard on each route measured on a monthly basis. The common approach is to enforce on average value over certain period. b. High QoS standard comes with high costs for both the service providers and consumers. c. Current approach by MCMC on yearly enforcement based on the average value nationwide is fair and provides a balance between good customer experience and affordable cost.
Digi	<p>Digi proposes the following amendments:</p> <ul style="list-style-type: none"> • Maintain the quarterly report submissions. The report shall be submitted by the 30th of the month after the end of the previous quarter. • Enforcement shall be performed on a yearly basis based on the average nationwide results. <p><u>Digi’s justification:</u></p> <ol style="list-style-type: none"> a. Network is constantly undergoing optimization, rollouts and new upgrades where constant attention is given towards improving customer experience. b. Time is required in the event a fault is discovered to rectify.
Maxis	<ul style="list-style-type: none"> • Maxis proposes usage of network statistics or virtual drive data compared to the twice a year measurement data for the identified routes and locations. • Maxis proposes the identified test routes or locations to only be applicable to identify audit test routes. Service providers will verify the data based on network statistics or the virtual drive test data. • Maxis opines that test area under consumer complaints shall only be considered when there are network indicator display on the test phones, and the coverage information on the website should be read together with the “Disclaimer” shown under the coverage map. • Maxis proposes to enforce the MS at national level on yearly basis. • Maxis disagrees to enforce the standard per identified

	<p>routes measured, as this approach is too stringent and not the best practice in other countries.</p>
U Mobile	<ul style="list-style-type: none"> • U Mobile proposes the enforcement of the MS should be on per year basis (nationwide). • This will grant adequate time for service providers to optimize the measured area. Furthermore, a shorter period of assessment could be skewed by unforeseen/ad hoc issues that does not reflect the quality of network.
YTLC	<ul style="list-style-type: none"> • YTLC proposes the report should be submitted on a quarterly basis. Test routes should be within each service providers' published coverage area and not repeated in the same location in the same reporting period. • YTLC proposes the MSQoS for PCS shall be enforced per identified routes, within service providers published coverage area, measured on a yearly basis. • The test route in Q1 will be repeated in Q3, while for Q2 will be repeated in Q4.
TM	<ul style="list-style-type: none"> • TM proposes for any revision of the MSQoS guidelines is to be enforced based on yearly average, nationwide. <p><u>Routes or Locations Identification</u></p> <ul style="list-style-type: none"> • The measurement in Q1 will be repeated in Q3, and Q2 will be repeated in Q4 for the same measurement routes. • TM disagrees to include the criteria of test location based on consumer complaints because some issues may arise due to protests from residents even though plans for upgrades at these locations have been confirmed. Some other factors that are beyond service providers' control are the type of device used and customer behavior. <p><u>Subjected areas for MS</u></p> <ul style="list-style-type: none"> • TM agrees that the MS for PCS should be enforceable to all states and federal territories in Malaysia. • TM disagrees with enforcement per identified routes. TM prefers enforcement per year nationwide. Enough time for TM to improve since the route will be repeated in second half.

Table 6: Response to the enforcement part

2.3.3 General changes

QUESTION 6: THE COMMISSION SEEKS VIEWS ON ANY OF THE GENERAL CHANGES PROPOSED TO THE GUIDELINE OF THE COMMISSION DETERMINATION ON MANDATORY STANDARD FOR QUALITY OF SERVICE (PUBLIC CELLULAR SERVICE).

Submitting Party	Comments
Celcom	<ul style="list-style-type: none"> • Celcom proposes the following amendments: <p>(i) <u>Remove VoNR from MSQoS (PCS)</u></p> <ul style="list-style-type: none"> • Amend paragraph 3 of the Guidelines as below: <p style="margin-left: 40px;">“These Guidelines are applicable to public cellular access service. Circuit switch calls and VoLTE will be considered as voice calls. Trunked radio service, VoIP calls made over OTT applications and VoNR are not to be included under Public Cellular Service.”</p> <p><u>Celcom’s justification:</u></p> <p>a. Refer to Section 2.1.</p> <p>(ii) <u>Inclusion of Exclusion Clauses</u></p> <ul style="list-style-type: none"> • Celcom proposes to add the following exclusion clauses in the MSQoS and guidelines: <p style="margin-left: 40px;">“Public cellular service providers shall report any failures caused by third parties, other service providers, force majeure or non/low coverage to the Commission and the following shall be excluded from the compliance rate calculation:</p> <ul style="list-style-type: none"> ✓ Network facility damaged by third parties i.e. vandalism, theft, power outage etc. ✓ Failure due to ad hoc/planned maintenance or network upgrading works conducted by the service provider ✓ Fault due to other service providers ✓ Damage to network facilities due to force majeure ✓ Accessibility problems at external host/ provider ✓ Faulty measurement tools ✓ MORAN ✓ Non/ low coverage”

	<p><u>Celcom’s justification:</u></p> <p>a. Service providers should not be held responsible for failure beyond their control such as failure due to other service providers/third party, force majeure or non/low coverage.</p> <p>(iii) <u>Specify the Licensees Subject to the MS QoS</u></p> <ul style="list-style-type: none"> • Celcom proposes to add the following under “Licenses subject to the MS QoS”: <p>“All NSPs and ASPs providing public cellular service via own deployed network are subject to these mandatory standards. For avoidance of doubt, in the event a NSP or ASP providing public cellular service via a combination of own and other service providers’ network, the mandatory standards shall only be imposed at areas where the NSP or ASP deploys own network.”</p> <p><u>Celcom’s justification:</u></p> <p>a. MVNO is highly dependent on the major providers to comply with the MSQoS</p> <p>b. In the event that the PCS service is provided by the service provider via combination of own and other service providers’ network, the MSQoS shall be imposed at areas where service providers deploys own network.</p>
Digi	<ul style="list-style-type: none"> • Digi proposes for the standard in PCS should not include 5G VoNR. <p><u>Digi’s justification:</u></p> <p>a. Quality of 5G services would rest on DNB who is responsible for the 5G radio condition.</p> <p>b. 5G will be based on service provider’s strategy and may not be rolled out at all locations.</p> <ul style="list-style-type: none"> • Overall complaints on voice calls or SMS are very low. Therefore, standards for voice should follow global practice by using network statistics. • Drive tests may be applied for audit purposes by the Commission or service providers. However, the test results shall be used for reporting only and not be made mandatory.

Maxis	<ul style="list-style-type: none"> • Maxis proposes to use the latest device and measurement tools for audit conducted by MCMC. • Maxis agrees on the proposed testing procedures and this will only applicable to the audit/complaint verification done by MCMC. • Maxis proposes data from network statistics to replace the minimum call samples and call synchronization for the multi-network testing. • Maxis proposes MCMC to engage with the industry when developing the validation procedure. • Maxis proposes for the measurement report based on network statistics to be submitted on quarterly basis, by 30th of the following month after end of each quarter.
U Mobile	<ul style="list-style-type: none"> • U Mobile proposes measurement tools used by MCMC must be consistent, with features on par with latest network capabilities. • U Mobile seeks a grace period of minimum 12 months for services providers to: <ul style="list-style-type: none"> ○ Make necessary preparations from the commencement date of any new standards introduced. ○ Analyze and fine tuning of network parameters, configuration and conduct optimization after completion of the 3G sunset project. • U Mobile proposes the assessment should be based on one whole year's average measurement nationwide. The measurement performance on monthly individual states will not be a fair reflection of the network performance.
YTL	<ul style="list-style-type: none"> • YTL highlights that VoLTE testing is to commence in 2023 onward when the ecosystem for devices is more matured. • YTL prefers to wait for the recommendation to be given by the WG on VoLTE implementation.
TM	<ul style="list-style-type: none"> • TM proposes to implement network statistics methodology because it covers more samplings and optimize resource utilization. <p><u>Part C: Requirement for report submission</u></p> <ul style="list-style-type: none"> • TM agrees with the monthly measurement report but proposes to submit the report on quarterly basis, by end of 30th of the following month.

Table 7: Responses on the general views of the standards

3. Summary of the Commission’s Final Views

The following section summarizes the Commission’s final views based on feedbacks received from the PI and taking into consideration the interest of the public:

Question	The Commission’s final view
1	<ul style="list-style-type: none"> “public cellular service” means an application service involving a network of public cellular base stations for the delivery of voice communications.
2	<p><u>Standards:</u></p> <ul style="list-style-type: none"> Call Setup Success Rate (CSSR) shall be not less than 98%, based on drive and static test. <p><u>Justifications:</u></p> <ul style="list-style-type: none"> Voice calls are still a necessary service to mobile phone users, especially during pandemic or emergency cases whereby they provide accessibility and mobility to communicate. Based on MCMC Hand Phone Users Survey 2018, the demand for voice call services increased, where 95.4% of respondents used hand phone for voice calls compared to 93.8% of respondents in 2017. Based on the above and MCMC’s measurement data, the proposed CSSR standard is set higher.
3	<p><u>Standards:</u></p> <ul style="list-style-type: none"> Dropped Call Rate (DCR) shall be not more than 2.0% prior to 2023 and not more than 1.0% starting 2023. <p><u>Justifications:</u></p> <ul style="list-style-type: none"> Although imperfection is inevitable in a wireless network, it is important to ensure that service providers keep their services up to a certain level and maintain the reliability of the voice call services. Taking into consideration of the ongoing 3G sunset progress by end of 2021 and the need to fully adopt VoLTE capabilities, the new proposed DCR standard is proposed to be improved gradually.

4	<p><u>Standards:</u></p> <ul style="list-style-type: none"> • The method of measurement will be maintained, as drive test and static test. • Service providers are required to conduct a minimum of 1,000 call samples per month, covering all regions, evenly distributed. • Service providers are required to provide reports to the Commission on a quarterly basis, by the 30th of the following month after each quarter. <p><u>Justifications:</u></p> <ul style="list-style-type: none"> • Although network statistics data can provide larger samples and more variants of sampling involved, it will be a challenge to the Commission to validate the data submitted. • The drive test or static test are able to be kept in logfiles, and can be verified by the Commission. • Drive test and static test method is more suitable for regulatory instrument.
5	<p><u>Standards:</u></p> <ul style="list-style-type: none"> • This MSQoS shall be enforced per state basis. <p><u>Justifications:</u></p> <ul style="list-style-type: none"> • To ensure that problematic areas can be rectified, while maintaining a good number of call samples. • To ensure the quality of service for every state is maintained at a satisfactory performance level.
6	<ul style="list-style-type: none"> • VoNR will be retained as part of the guidelines since it still reflects the voice call service used by the mobile users, the same as VoLTE or circuit-switch voice call. • Even though it is still in its infancy stage, foreseeing fast 5G network to be deployed in Malaysia by end of 2021. • Once VoNR has been deployed, the standard can be applied accordingly.

Table 8: The Commission’s final views on the standards

4. The Way Forward

- 4.1 MCMC is of the view that the proposed revision of the MSQoS for Public Cellular Service would ensure enhancements to existing levels of quality of service by the service providers and further improve consumers' experience.
- 4.2 In selecting a particular benchmark for the quality of service, the MCMC has endeavored to make certain that the benchmark is meaningful to the customer and enables the customer to assess and make informed decisions on the levels of quality they are experiencing. The benchmark will be equally useful for the MCMC to gauge the performance of the service providers in fulfilling its role to monitor the industry.
- 4.3 MCMC intends to consider all the general views and proposed approaches, from respondents to improve the state of the Public Cellular Service in Malaysia.
- 4.4 The revised MSQoS for Public Cellular Service will take effect starting 1st August 2021 and the existing MSQoS will be revoked.