



Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

**PROPOSAL FOR REVIEW OF THE MANDATORY STANDARDS FOR QUALITY OF
SERVICE (PUBLIC CELLULAR SERVICE) (DETERMINATION NO.1 2015)**

08 APRIL 2021

This Public Inquiry Paper is prepared in fulfilment of Sections 58 and 61 of the Communications and Multimedia Act 1998.

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PREFACE

The Commission is hereby holding a Public Inquiry on the proposal for the revision of Mandatory Standards for Quality of Service (Public Cellular Service Network Performance) and invites members of the public and interested parties to participate in this inquiry by making written submissions on any matter they consider relevant to the inquiry. Written submissions, in both hard copy and electronic form, should be provided to the Commission in full by **12 noon, 04 June 2021** and addressed to:

Malaysian Communications and Multimedia Commission
MCMC Tower 1
Jalan Impact
Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan

Attention : Quality of Service Department
Or E-mail : qos.dept@cmc.gov.my
Or Fax : +60 3 86 88 10 00

In the interest of fostering informed and robust consultative process, the Commission may make available extracts of or entire submissions for others to read. Any commercially sensitive information should be provided under a separate cover and clearly marked "CONFIDENTIAL".

Respondents are encouraged to support their comments with reasons and where appropriate provide or refer to evidence or other relevant information in support of their comments.

Incomplete and/or late submissions will not be considered.

The Commission thanks the public and all interested parties for their participation in this consultative process and for providing their submissions and feedback.

GLOSSARY

CMA1998	Communications and Multimedia Act 1998 (Act 588)
Commission	Malaysian Communications and Multimedia Commission
MS	Mandatory Standards
MSQoS	Mandatory Standards for Quality of Service
OTT	Over The Top
PI	Public Inquiry
QoS	Quality of Service

PREAMBLE

1. The Determination No.1 of 2015, Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service) came into force on 1 January 2016. This MSQoS covers the standards for Quality of Service for delivery of voice over the public cellular platform. The MSQoS standards are segregated into two parts; network performance and customer service.
2. The review of the MSQoS for Public Cellular Service will separate the customer service standards into a new Mandatory Standards specifically focusing on customer service aspects. This PI will only cover modifications made on network performance standards in light of customer expectations and perception towards service delivery.
3. The review of this MSQoS will solely focus on QoS standards relating to network performance. Therefore, pursuant to section 104 and 106 of the CMA1998, the Commission hereby undertakes a review of Determination No.1 of 2015.
4. The proposed revision for network performance will be retained into this revised MSQoS (Public Cellular Service). The proposed revision also seeks to strengthen existing standards in relation to public cellular service in Malaysia.

PUBLIC INQUIRY PROCESS

5. Section 58(2) of the CMA1998 provides that the Commission may hold a public inquiry if it is satisfied that the matter is of significant interest to either the public or to current or prospective licensees under the CMA1998. The objective of such a public inquiry is to inform as well as to invite views of the public and the licensees under the CMA1998 on the matter at hand.
6. The Commission is of the view that it is appropriate in the circumstances to hold a public inquiry under section 58 (2)(b) of the CMA1998 in order to obtain industry and public comment, and to promote transparency in the exercise of its powers.
7. Under section 61 (1) (d) of the CMA1998, the Public Inquiry period shall be a minimum of forty-five (45) days, within which public submissions are invited. In the present Public Inquiry, licensees and the public are to formulate and submit their views on the matter within the stipulated period.
8. The Commission shall take into consideration all submissions received within the Public Inquiry period. The Commission is required under section 65 of the CMA1998 to publish a report setting out its findings as a result of any inquiry conducted, and such report shall be published within thirty (30) days of the conclusion of the inquiry. The Commission shall summarize the submissions received and publish the same in the report.

REVISION OF THE MANDATORY STANDARDS ON QUALITY OF SERVICE

PART A: REVISION ON THE INTERPRETATION PART OF THE STANDARDS

9. The following interpretations shall be revised in this Mandatory Standards for Quality of Service (Public Cellular Service):

Table 1: Proposed revision on interpretation part of the standards

Existing Interpretation	Revised Interpretation	Remarks
“public cellular service” means an applications service involving a network of base stations or cells for the delivery of voice and data communications.	“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.	Data communications is covered by the MSQoS for Wireless Broadband Access Service. Separation of voice and data communications is needed to avoid duplication of standards.

10. The following interpretation shall be used in this revised MSQoS (Public Cellular Service). Other interpretations, which are not applicable, shall be removed from the standards.

“ASP” means Applications Service Provider;

“guidelines” means a guidelines issued by the Commission pursuant to paragraph 8 of the Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service);

“NSP” means Network Service Provider;

“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.

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

PART B: PROPOSED REVISION ON THE QUALITY OF SERVICE INDICATORS, MEASUREMENTS, STANDARDS AND NOTIFICATION

- 11. The review of the MSQoS for Public Cellular Service will contain the revised and existing standards focusing on network service performance only.
- 12. Six (6) QoS indicators currently within MSQoS for Public Cellular Service will be placed under the new MSQoS for Customer Service. The 6 items are shown in Table 2 below:

Table 2: QoS Indicators to be place under new MSQoS for Customer Service

Quality of Service Indicator	
i.	Advance notice of scheduled downtime
ii.	Service Disruption
iii.	Percentage of billing related complaints
iv.	Non-billing related complaints per 1,000 customers
v.	Promptness in resolving customer complaints
vi.	Promptness in answering calls to Customer Hotline

- 13. The demarcation of customer service standards into a new Mandatory Standards seeks to streamline Customer Service QoS indicators under one new unified document. Customer Service standards focuses on service providers’ responsibilities in regards to general services, service disruptions, customer complaint related matters, notifications and reporting timelines between service providers and the Commission. Network performance standards will solely focus on network and technical matters in regards to network service delivery.
- 14. The network performance standards are more technology specific. This will enable the Commission to review future network performance standards more efficient and in keeping up to date with the evolution of technology in telecommunication industry.
- 15. Currently, four service providers are enforced with Mandatory Standards for Quality of Service (Public Cellular Service). Previous years’ results¹ for Public Cellular Service shows that the service providers to achieve above the required existing standards for call setup success rate and dropped call rate.
- 16. Higher voice call setup success rate and lower dropped call rate standards will benefit the end user in terms of service availability.

¹ The Network Performance Report 2018 & 2019 - MCMC

17. It is also noted that service providers are utilizing more spectrum allocated to them for broadband service, i.e. 4G network, replacing their 2G and 3G network. It is also to be noted that the 3G service is currently in the process of migrating to 4G.
18. In order to ensure good performance of voice services across multi-technology network, service providers are encouraged to deploy Voice over LTE (VoLTE) on LTE network and enabling VoLTE on mobile phones. Service Providers are also encouraged to adopt voice service for new radio technology in the future.
19. VoIP calls made over OTT applications are not considered under Public Cellular Service.
20. Revised standards for network performance indicators are outlined in Table 3 below:

Table 3: Proposed Revision to Network Performance Indicators

	Quality of Service Indicator	Description / Definition / Formula / Measurement	Current Quality of Service Standard	Revise Quality of Service Standard
i.	Call setup success rate (CSSR)	<p>Call setup success rate measures the percentage of calls successfully established by a cellular mobile device, which enable communication to proceed.</p> <p>Formula:</p> $\left(\frac{\text{Number of successful call attempts}}{\text{Number of call attempts}} \right) \times 100 \%$ <p>Intra-network call means a call connection within the network service of same provider.</p> <p>Inter-network call means a call connection between the network services of two providers.</p>	Call setup success rate must be not less than 95.0% , for intra-network or inter-network calls.	Call setup success rate shall be not less than 98.0% , for intra-network or inter-network calls.

ii.	Dropped call rate (DCR)	<p>A dropped call means a call where a connection succeeds (i.e. the network is accessed and set up is successful) but is disconnected due to abnormal call release occurs when the call is terminated other than by the command from the calling party or the called party.</p> <p>Formula:</p> $\left(\frac{\text{Number of dropped calls}}{\text{Number of successful call attempts}} \right) \times 100 \%$	<p>Dropped call rate for Designated Routes and Areas must be not more than 2.0%, for intra-network or inter-network calls; and</p> <p>The dropped call rate for areas other than Designated Routes and Areas must be not more than 3.0%, for intra-network or inter-network calls.</p>	<p>Dropped call rate for shall be not more than 1.0% for intra-network or inter-network calls.</p>
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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).

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

PART C: APPLICABLE GUIDELINES

21. The Commission has developed a set of guidelines that sets out the testing procedures, examples of computations, reporting templates, explanatory notes and list of test routes, locations and areas to the standards proposed in this document. The said guideline is annexed in **Appendix** – Guidelines to the Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service).

QUESTION 4: THE COMMISSION SEEK 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).

QUESTION 5: THE COMMISSION SEEK 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.

QUESTION 6: THE COMMISSION SEEK 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).

APPENDIX



Suruhanjaya Komunikasi dan Multimedia Malaysia

Malaysian Communications and Multimedia Commission

**GUIDELINES TO THE COMMISSION DETERMINATION ON THE
MANDATORY STANDARDS FOR QUALITY OF SERVICE
(PUBLIC CELLULAR SERVICE),
DETERMINATION NO. "X" OF YYYY**

(SKMM(T)06-SEIR/140.003/Jld.1('x'))

DD MM YYYY

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GLOSSARY

GPS	Global Positioning System
LTE	Long Term Evolution
OTT	Over The Top
QoS	Quality of Service
UE	User Equipment
VoIP	Voice over Internet Protocol
VoLTE	Voice over LTE
VoNR	Voice over New Radio
WGS	World Geodetic System

PART A: OBJECTIVE AND SCOPE

1. These guidelines are developed by the Malaysian Communications and Multimedia Commission (the "Commission") pursuant to paragraph 'X' of the Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service), Determination No. 'X' of **YYYY** ("Mandatory Standards").
2. These guidelines set out the testing procedures, including test parameter and methodology, reporting templates and explanatory notes for the purpose of network QoS assessment.
3. These guidelines are applicable to public cellular access service. All calls including Circuit Switch calls, VoLTE and VoNR will be considered as voice calls. VoIP calls made over OTT applications are not to be included under Public Cellular Service.

PART B: NETWORK PERFORMANCE QUALITY OF SERVICE

Measurement Methodology

4. The test shall be by way of a drive test, static test, or walk test. The Commission will, at its sole discretion, decide on which test should be conducted.
5. These tests will be carried out by the Public Cellular Service Providers or Service Provider's appointed consultant. The measurement report shall be provided to the Commission in accordance with these guidelines.
6. The test shall produce relevant data as required in the network QoS reporting template in Part C of this guideline.
7. The Commission at its discretion may also perform tests on service provider where necessary.
8. All tests must be performed during workdays unless allowed by the Commission.

Routes or Locations Identification

9. Measurement to be conducted at least twice a year for the identified routes and locations. Same measurement routes shall not be repeated within the same reporting period.
10. Service Provider or the Commission may list out the identified test routes or location prior to the assessment exercise.
11. The tests are to be carried out along routes or locations that have been ascertained to have cellular coverage.
12. Cellular coverage will be ascertained in the following manner:
 - i. Through the coverage information advertised by the public cellular service providers; or
 - ii. Through the network indicator display on test phones; or
 - iii. Where complaints from consumers on individual services by a particular service provider (within service provider's advertised coverage area) are lodged to the Commission.

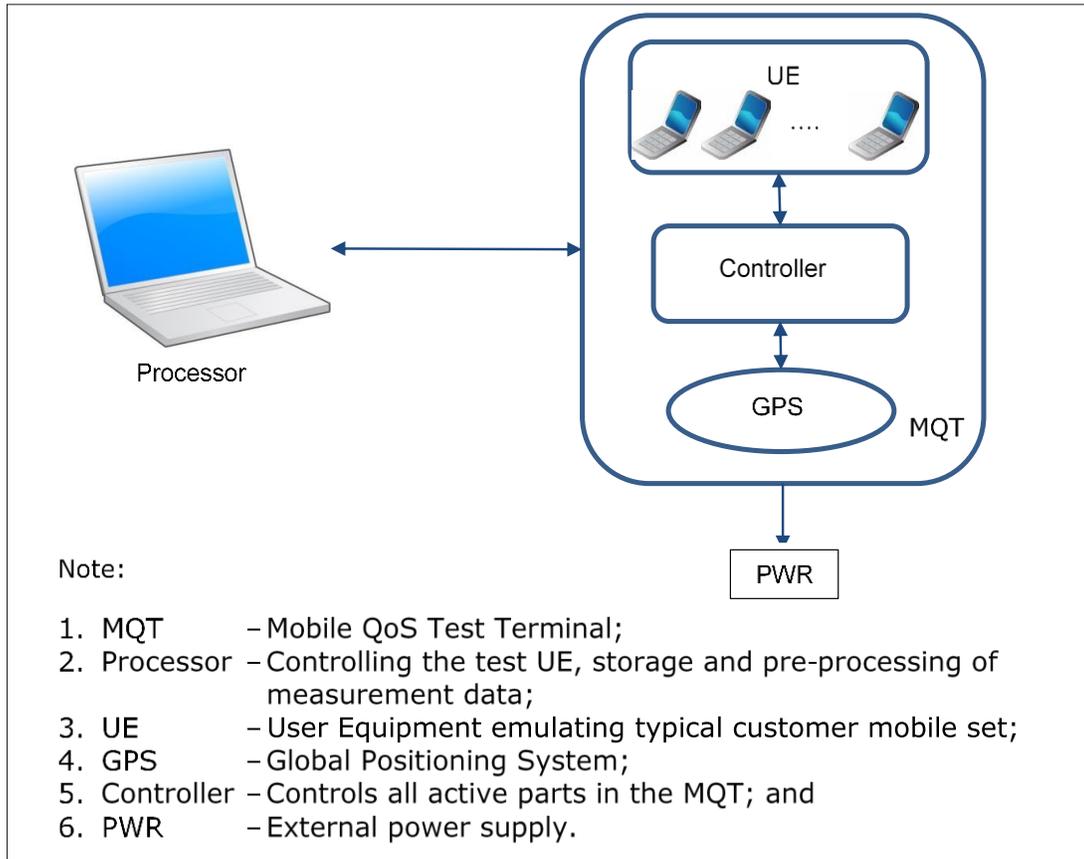
Testing Equipment

13. UE supporting frequency bands in Malaysia are to be installed with QoS monitoring software for cellular based systems measurement and testing.
14. The software/measurement tools used for the tests shall comply with the relevant recommendations from European Telecommunications Standards Institute (ETSI)'s standards or equivalent.
15. The measurement logs produced by the tools must be compatible with the Commission's requirement for the purpose of the Commission's verification and analysis procedure.

Testing Procedures

16. The test set up configuration is as shown below:

Diagram 1: Test set up configuration



17. The test call number will be a switch terminating number (for inter-network and intra-network testing) i.e. the test will only measure the call setup success rate and dropped call rates of the mobile originated call network.

18. The tests would be based on the following parameters:

- Call holding time = 120 seconds
- Interval time = 30 seconds
- Call setup timeout = 20 seconds
- Test samples = minimum of 100 samples

Note: Call window = 170 seconds = (a + b + c)

19. For benchmarking purposes, all relevant Service Providers shall carry out the test at the identified locations at the same time.
20. The tests shall be carried out with minimum number of 1600 call samples each month in every states in Malaysia.
21. For the purposes of multi-network testing, the test call windows must be synchronized. If there are calls that have failed or dropped, the next call attempt shall be made only when the next call window arrives.
22. Geographical positioning will be based on the Global Positioning System (GPS) and the WGS-84 digital map or its equivalent.
23. All test log files shall be kept accordingly and must be presented to the Commission as and when required.
24. The Commission, at its discretion, may conduct sampling audits for the identified locations that have been tested.

Service Prioritization & Misrepresentation

25. A validation procedure shall be applied to avoid any service/application prioritization in order to ensure the test is conducted in a fair manner representing real user experience. These prioritizations include but not limited to the following:
 - i. SIM based prioritization.
 - ii. Service prioritization such as serving site transmit power manipulation during test.
26. Any service provider found to perform alteration to the network configuration or manipulation during test measurement such as service prioritization, which did not represent real user experience will be penalized with the following, but not limited to:
 - i. All results found to be manipulated during the said test will be considered as non-compliance.
27. The report of the test shall not be misrepresented. Any intentional misrepresentation or false reporting of measurement and report shall be considered as non-compliance to the Mandatory Standards.

PART C: REQUIREMENT FOR REPORT SUBMISSION

28. All reports (including notices and notifications) that are required to be sent to the Commission should be sent to Quality of Service Department's address and/or email as follows:

Quality of Service Department
Malaysian Communications and Multimedia Commission
MCMC Tower 1, Jalan Impact, Cyber 6,
63000 Cyberjaya
Selangor Darul Ehsan
Email: qos.dept@mcmc.gov.my

29. These reports shall be in the form and format as described below. Each report shall be accompanied by a declaration signed by an officer of the Service Provider duly authorised by the board of directors, stating that each report is true and accurate.
30. The Service Provider shall submit the report based on the following timelines:

Table 1: Reporting Timeline

No	Item	Reporting Period	Report Submission Date
1	Monthly Measurement Report for Public Cellular Service	Each Month	By 15 th of the following month

31. The report submitted shall include all relevant information with regards to the test conducted including but not limited to:
- Time for each test conducted for each location
 - Information on the UE used for the test
32. The Service Provider shall submit network QoS assessment report based on the format as described in **Attachment 1** of this document.

Subjected Areas for Mandatory Standards

33. The Mandatory Standards for public cellular service shall be enforceable to all states and federal territories in Malaysia.
34. The Mandatory Standards for public cellular service shall be enforced per identified routes measured on monthly basis.

PART D: EFFECTIVE DATE AND COMMISSION CONTACT

35. These guidelines shall come into effect on **DD MM YYYY**, and shall continue to be effective unless modified, varied or revoked by the Commission.
36. These guidelines shall replace the Guidelines to The Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service) - Determination No. 1 of 2015.
37. For any queries and further information on these Guidelines please contact:

Quality of Service Department
Malaysian Communications and Multimedia Commission
MCMC Tower 1, Jalan Impact, Cyber 6,
63000 Cyberjaya
Selangor Darul Ehsan

Phone : 03-8688 8000
Email : qos.dept@mcmc.gov.my

Attachment 1

No	State	District	Location	Call Analysis	Result
1				Call attempt	
				Call attempt failure ^[1]	
				Call connected	
				Call dropped ^[2]	
				Successful call	
				Call setup success rate ($\geq 98\%$)	
				Call dropped rate ($\leq 1\%$)	

Table 2: Format for Public Cellular Service Measurement Report

[1] Provide the latitude and longitude only for the location in the event of call attempt failure.

[2] Provide the latitude and longitude only for the location in the event of dropped call.