



Suruhanjaya Komunikasi dan Multimedia Malaysia

Malaysian Communications and Multimedia Commission

PROPOSAL FOR REVIEW OF THE MANDATORY STANDARDS FOR QUALITY OF SERVICE (WIRED BROADBAND ACCESS SERVICE) (DETERMINATION NO. 2 OF 2016)

25 October 2019

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 new Mandatory Standards for Quality of Services (Wired Broadband Access 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 hardcopy and electronic form should be provided to the Commission in full by **12 noon, 9 December 2019 (45 days)** 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
PI	Public Inquiry
QoS	Quality of Service

PREAMBLE

1. The Determination No. 2 of 2016, Commission Determination on the Mandatory Standards for Quality of Service (Wired Broadband Access Service) came into force on 1 February 2016. This MSQoS covers the standards for Quality of Service for delivery of data, video, or voice over the internet protocol for wired systems. The MSQoS standards are segregated into two parts; network performance and customer service.
2. The review of the MSQoS for Wired Broadband Access 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. This new 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.2 of 2016.
4. The proposed revision for network performance will be retained into this new MSQoS (Wired Broadband Access Service). The proposed revision also seeks to strengthen existing standards in relation to wired broadband service in Malaysia. This MSQoS is targeted to be effective in 2020.

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 given 45 days to formulate and submit their views on the matter.
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 it 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.

PART A: THE INTERPRETATION PART OF THE STANDARDS

9. The following interpretations shall be revised in this Mandatory Standards for Quality of Service (Wired Broadband Access Service):

Table 1: Proposed revision on interpretation part of the standards

Existing Interpretation	Revised Interpretation	Remarks
<p>“wired broadband access service” means a wired connectivity of communication bandwidth service has a minimum downstream capacity of 650 kbps, with a minimum subscribed package of 1 Mbps.</p>	<p>“wired broadband access service” means a wired connectivity of communication bandwidth service that is faster than primary rate interface of Integrated Service Digital Network (ISDN).</p>	<p>Recommendation ITU-T I.113</p> <ul style="list-style-type: none"> • Broadband defined as; qualifying a service or system requiring transmission channels capable of supporting rates greater than the primary rate. • The primary rate interface for ISDN is 2.0 Mbps.

10. The following interpretations shall be used in this Mandatory Standards for Quality of Service (Wired Broadband Access Service):

“ASP” means Applications Service Provider;

“ATM” means Asynchronous Transfer Mode;

“business day” means a day in which commercial banks in the respective states in Malaysia are normally open for business, and excludes gazetted public holidays;

“Uplink” means connectivity between access layer (not limited to DSLAM, MSAN or OLT) to aggregation layer (not limited to Metro-Ethernet or ATM switch)”

“CPE” means customer premises equipment;

“customer” means a person who, for consideration, acquires or subscribes to the wired broadband service;

“Digital Subscriber Line (DSL)” means a technology for bringing high bandwidth information over copper telephone lines;

“DSLAM” means Digital Subscriber Line Access Multiplexer;

“end user” means a person who receives, requires, acquires, uses or subscribes to the wired broadband service and may include a customer;

“fibre” means optical fibre cable used for broadband which is connected directly to customer premises equipment;

“guidelines” means guidelines issued by the Commission pursuant to this Determination;

“MSAN” means Multi-service Access Node;

“MyIX” means the Malaysia Internet Exchange;

“NSP” means Network Service Provider;

“OLT” means Optical Line Terminal;

“service provider” means an Applications Service Provider or a Network Service Provider which provide wired broadband access service;

“wired broadband access service” means a wired connectivity of communication bandwidth service that is faster than primary rate interface of Integrated Service Digital Network (ISDN).

PART B: PROPOSED REVISION ON THE QUALITY OF SERVICE STANDARDS

11. A summary of the proposed revision of the QoS standards are outline in the Table 2 below:

Table 2: Proposed Revision of the Quality of Service Standards

	Quality of Service Indicator	Present Quality of Service Standard	Proposed Revision of the Quality of Service Standard
i.	Network latency (ping time)	Network Latency must be not more than 85 ms , 95.0% of the time based on test sample.	Network latency must be not more than 20 ms for fibre or 85 ms for DSL, 95 % of the time based on test sample.
ii.	Broadband speed (Throughput)	Throughput must be not less than (a) 70.0% of the subscribed level of broadband speed, for 90.0% of the time effective from 1 February 2016 for DSL; and (b) 90.0% of the subscribed level for 90.0% of the time	Throughput must be not less than (a) 70.0% of the subscribed level of broadband speed, for 90.0% of the time effective 1 Jan 2020 for DSL (b) 90.0% of the subscribed level of broadband speed

		effective from 1 February 2016 for fibre.	for 90% of the time effective from 1 Jan 2020 and 95% of the time effective from 1 Jan 2021 for fibre
iii.	Packet loss	Packet loss must be not more than 1.0 %, calculated based on the average of the test sample.	* No change in standard
iv.	Access Network utilization	Access Network (not limited to DSLAM, MSAN, OLT etc.) uplink traffic utilization must be not more than 70% of the uplink bandwidth provided in every calendar month.	* No change in standard
v.	Network Service Availability	Network Service Availability of the access network must be not less than 95.0% every calendar month. Service provider must measure the Network Service Availability every month for each of access network equipment. These measurements shall be made available to the Commission for audit purposes if required.	* No change in standard. Computation formula will be moved to the applicable guideline.
vi.	Advanced Notice of Scheduled downtime	Every session of scheduled downtime due to occur which affects customers must be notified to customers not less than 24 hours in advance.	* To be mandated under the new MSQoS for Customer Service
vii.	Service Disruption	Any single incident of Service Disruption must not be out of service for 3 hours or longer and affect 500 or more customers. Any single incident of Service Disruption that affects 500 or more customers and lasts for 3 hours or longer which occurs:	* To be mandated under the new MSQoS for Customer Service

		<p>(a) between 5AM to 12 midnight, must be rectified within 3 hours from the occurrence of the Service Disruption; and</p> <p>(b) between 12 midnight to 5AM, must be rectified no later than 6AM.</p> <p>The service provider must notify customers within 90 minutes of the occurrence of any single Service Disruption incident affecting 500 or more customers and lasts for 3 hours or longer.</p> <p>Service provider must submit a comprehensive report to the Commission within 7 business days of the occurrence of any single Service Disruption incident that affected 500 or more customers and lasted for 3 hours or longer.</p>	
viii.	Service activation fulfilment	<p>Not less than 95.0% of all service activations scheduled to be fulfilled in a reporting quarter must be fulfilled within 24 hours from the agreed time and date.</p> <p>100.0% of all service activations scheduled to be fulfilled in a reporting quarter must be fulfilled within 72 hours from the agreed time and date.</p>	* To be mandated under the new MSQoS for Customer Service

ix.	Service restoration fulfilment	Not less than 95.0% of all service restorations scheduled to be fulfilled in a reporting quarter must be fulfilled within 24 hours. 100.0% of all service restorations scheduled to be fulfilled in a reporting quarter must be fulfilled within 48 hours.	* To be mandated under the new MSQoS for Customer Service
x.	Percentage of billing related complaints	Percentage of billing related complaints must be not more than 1.0% per quarterly reporting period.	* To be mandated under the new MSQoS for Customer Service
xi.	Non-billing related complaints per 1,000 customers	Non-billing related complaints must be not more than 6.0 complaints per 1,000 customers per quarterly reporting period.	* To be mandated under the new MSQoS for Customer Service
xii.	Promptness in resolving customer complaints	The standard on promptness in resolving customer complaints, separately measured for billing related complaints and non-billing related complaints, for every quarterly reporting period is: (a) Not less than 60.0% must be resolved within 3 business days, and (b) Not less than 90.0% must be resolved within 5 business days, and (c) Not less than 95.0% must be resolved within 15 business days	* To be mandated under the new MSQoS for Customer Service
xiii.	Promptness in answering calls to Customer Hotline	At least 80.0% of calls to Customer Hotline that opted for human operator in a quarterly reporting period must be answered within 20 seconds.	* To be mandated under the new MSQoS for Customer Service

		At least 90.0% of calls to Customer Hotline that opted for human operator in a quarterly reporting period must be answered within 40 seconds.	
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PART C: REVISION ON THE QUALITY OF SERVICE INDICATORS, MEASUREMENTS, STANDARDS, NOTIFICATION AND REPORTS

12. Revised standards for Network Performance are outlined in Table 3 below:

Table 3: Network Performance

	Quality of Service Indicator	Description / Definition / Formula / Measurement / Reporting Requirement	Quality of Service Standard	Remarks / Rationale / Justification
i.	Network latency (ping time)	This indicator measures the round-trip time taken by a standard packet size between 32 bytes to 128 bytes to travel across the network from the end user to MyIX and back to the end user.	Network latency must be not more than 20 ms for fibre or 85 ms for DSL, 95 % of the time based on test sample.	<ul style="list-style-type: none"> • Network latency will test the responsiveness of the network from the end user to the destination server hosted locally in MyIX, Kuala Lumpur. • Based on other countries publication¹ on wired broadband latency, the DSL services latency varies from 25 ms to 80 ms. Better latency performance can be seen for fibre network between 12 ms to 20 ms.

¹ Ofcom Report for 2018 - Measuring Fixed Broadband - Eighth Report

ii.	Broadband speed (Throughput)	This indicator measures the speed of uploading and downloading data measured in units of megabits per second (Mbps) between the end user and MylX. This is to be measured and reported separately for uploading and downloading.	Throughput must be not less than (a) 70.0% of the subscribed level of broadband speed, for 90.0% of the time effective 1 Jan 2020 for DSL (b) 90.0% of the subscribed level of broadband speed for 90% of the time effective from 1 Jan 2020 and 95% of the time effective from 1 Jan 2021 for fibre	<ul style="list-style-type: none"> • No change in standard for DSL technology. • As for fibre, higher standards imposed as the technology is able to maintain consistency to cater for higher throughput.
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13. Eight (8) items from from MS QoS for Wired Broadband Access Service will be moved under the new MS QoS for Customer Service. The 8 items are:

- a. Advanced Notice of Scheduled Downtime
- b. Service Disruption
- c. Service activation fulfilment
- d. Service restoration fulfilment
- e. Percentage of billing related complaints;
- f. Non-billing related complaints per 1000 customers;
- g. Promptness in resolving customer complaints; and
- h. Promptness in answering call to Customer Hotline

14. The review of the MSQoS for Wired Broadband Access Service will contain the revised and existing standards for network performance.

15. 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 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.

16. The demarcation also will enable the Commission to efficiently review future network performance standards in accordance to the evolution of technology in the telecommunication industry.

PART D: APPLICABLE GUIDELINES

17. The Commission has developed a set of guidelines that sets out the testing procedures, examples of computations, reporting templates, explanatory notes and list of designated routes 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 (Wired Broadband Access Service).

PART E: VIEW SOUGHT

18. **The Commission seeks views on the proposed interpretations and the proposed Mandatory Standards highlighted in Parts A, B and C above, including comments on the proposed Guidelines stated in Part D, which will be used for the purpose of the Determination.**

19. **The Commission also welcomes comments on related matters that stakeholders or respondents believe are relevant to improve the Mandatory Standards for Quality of Service (Wired Broadband Access Service).**

20. **The Commission also seeks views on other possible approaches that may be employed to improve quality of service for the wired broadband services in Malaysia.**

APPENDIX



Suruhanjaya Komunikasi dan Multimedia Malaysia

Malaysian Communications and Multimedia Commission

**GUIDELINES TO THE COMMISSION DETERMINATION
ON THE MANDATORY STANDARDS FOR
QUALITY OF SERVICE (WIRED BROADBAND ACCESS SERVICE),
DETERMINATION 'X' OF 2020**

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

DD MM 2020

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GLOSSARY

BB	Broadband
FTP	File Transfer Protocol
GPS	Global Positioning System
HTTP	Hypertext Transfer Protocol
ICMP	Internet Control Message Protocol
ISP	Internet Service Provider
Mbps	Mega bit per second
MEF	Metro Ethernet Forum
MyIX	Malaysian Internet Exchange
QoS	Quality of Service
RF	Radio Frequency
TCP	Transport Control Protocol
UE	User Equipment
UDP	User Datagram Protocol
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 (Wired Broadband Access Service Network Performance), Determination 'X' of 2020 ("Mandatory Standards").
2. These guidelines set out the testing procedures, examples of computations, reporting templates, explanatory notes and list of designated areas to the standards in the Mandatory Standards.

PART B: NETWORK PERFORMANCE QUALITY OF SERVICE

Test Methodology

3. Network latency or ping time measures the round-trip time taken by a standard packet size of 32 to 128 bytes to travel across the network from the end user to MyIX and back to the end user.
4. Broadband speed or throughput measures the speed of uploading or downloading data measured in units of megabits per second (Mbps) between the end user and MyIX.
5. Packet loss measures the percentage of data packets transmitted from the source that fails to arrive at their destinations. It is computed based on the average of sample measurements between the end user and MyIX.
6. These tests will be carried out by the Commission or the Commission's appointed consultant in accordance with these guidelines. However, the Commission may, at its sole discretion, request the Broadband Service Providers to conduct the tests and provide the report, if necessary.
7. The Commission at its discretion, may perform test on any selected service provider deemed necessary.

Location Identification

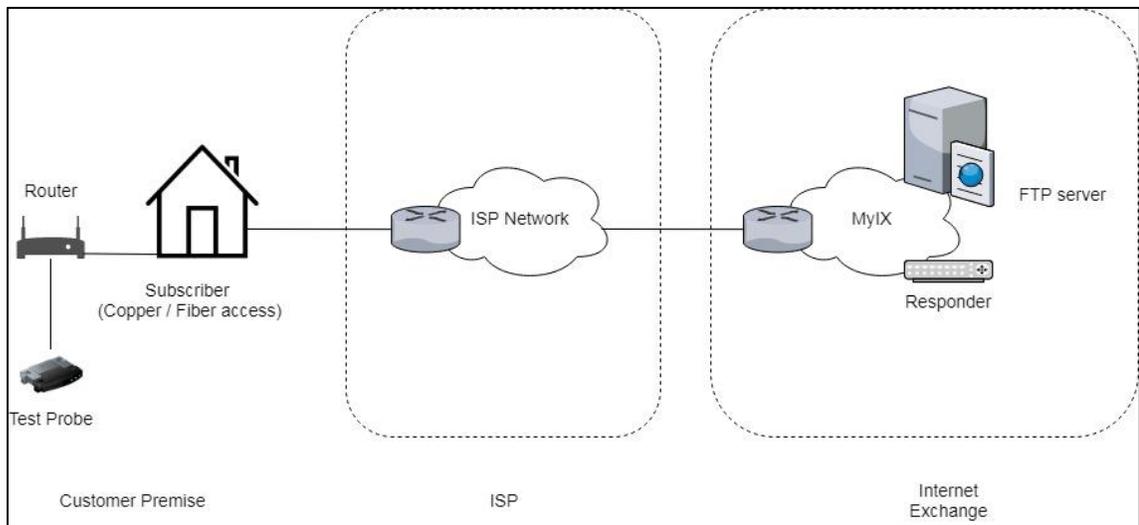
8. The tests are to be carried out in locations identified to have wired broadband service coverage

9. The service coverage will be identified in the following manner:
 - a. Confirmation from the wired broadband service providers; or
 - b. Through the service coverage information as advertised in the wired broadband service providers' websites; or
 - c. Where complaints from consumers on a particular service provider is lodged to the MCMC.

Testing parameters

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

Diagram 1: Test set up configuration



11. A test probe will be attached at customer premise equipment (CPE) prior to generate traffic and simulate end-user experience while a test server or responder will be configured at MyIX to act as the target server.
12. The tests are to be conducted up to transport layer (ICMP, TCP, UDP, etc.). Test on application layer (web browsing http, ftp, etc.) utilizing the relevant transport protocol to simulate customer's experience may be conducted by the Commission, if necessary.
13. Packet size of 32 to 128 bytes will be used for network latency or ping time measurement.

14. The software/measurement tools used for the tests shall be in compliance with the relevant recommendations from Metro Ethernet Forum (MEF) or equivalent.
15. Geographical positioning will be based on the Global Positioning System (GPS) and the WGS-84 digital map or its equivalent.
16. 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 service based prioritization such as, application name, port number, IP address, type of service and etc.
17. 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:
 - a. All results found to be manipulated during the said test will be zeroed.
 - b. The zeroed results will be included into the overall calculation for compliance.

Designated areas

18. The designated areas for wireless broadband access service testing covers all 6 regions as follow:
 - a. Central Region
 - b. Northern Region
 - c. Southern Region
 - d. Eastern Region
 - e. Sabah
 - f. Sarawak
19. At least 30 locations will be selected based on the above designated areas and a minimum of 100 samples per location is required on quarterly basis.
20. The selection of test location is subject to the Commission's discretion.

PART C: REQUIREMENT FOR REPORT SUBMISSION

21. 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

22. 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.
23. The Service Provider shall submit the report based on the following timelines:

Table 1: Reporting timeline

No	Item	Reporting Period	Report Submission Date
1	Report (1 st Quarter)	1 January – 31 March	By 30 April of the same year
2	Report (2 nd Quarter)	1 April – 30 June	By 30 July of the same year
3	Report (3 rd Quarter)	1 July – 30 September	By 30 October of the same year
4	Report (4 th Quarter)	1 October – 31 December	By 30 January of the following year

ACCESS NETWORK UTILIZATION

24. The Service Provider shall submit Access Network Utilization reports as per the following format:

Table 2: Format for Access Network Utilization in Quarterly Reports

No	Type of Access Network (DSLAM, MSAN, OLT, etc.)	Location (Address and Longitude & Latitude)	QoS Standard	Compliance
			Not more than 70.0% of the uplink bandwidth provided	(Yes/No)

NETWORK SERVICE AVAILABILITY

25. The Service Provider shall submit network service availability reports as per the following format:

Table 3: Format for network service availability in quarterly reports

Report Items	1 st Month	2 nd Month	3 rd Month	Total	QoS Standard (per calendar month)	Compliance
A. Total uptime (minutes)						
B. Total Down time (minutes)						
C. % of network availability $C = \left(\frac{A}{A+B}\right) \times 100\%$					Not less than 95%	Yes/No

PART D: EFFECTIVE DATE AND COMMISSION CONTACT

26. These guidelines shall come into effect on **DD MM 2020**, and shall continue to be effective unless modified, varied or revoked by the Commission.
27. For any queries and further information on these Guidelines please contact:
 - A. Quality of Service Department
Network Security and Monitoring Division
Phone : 03-8688 8000
Email : qos.dept@mcmc.gov.my