



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 NO. 1 OF 2021**

(SKMM(T)06-SEIR/140.003/Jil. 2 (36))

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GLOSSARY

ACS	Automatic Configuration Server
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
Fibre	Optical fibre cable used for broadband which is connected directly to customer premises equipment from access node
FTP	File Transfer Protocol
GPS	Global Positioning System
Klang Valley	Area centered in Federal Territories of Kuala Lumpur and surrounding cities in Selangor districts
Mbps	Mega bit per second
MEF	Metro Ethernet Forum
Metro-E	Metro Ethernet
MSAN	Multi-service Access Node
ms	millisecond
MyIX	Malaysian Internet Exchange
OLT	Optical Line Terminal
QoS	Quality of Service
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 '8' of the Commission Determination on the Mandatory Standards for Quality of Service (Wired Broadband Access Service), Determination No. 1 of 2021 ("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.
3. These guidelines are applicable for wired broadband access service. All network performance of WiFi system are not to be included under these guidelines.

PART B: NETWORK PERFORMANCE QUALITY OF SERVICE

Measurement Methodology

4. 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 a dedicated test server located in Klang Valley and back to the end user.
5. 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 dedicated test server located in Klang Valley.
6. 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 the dedicated test server located in Klang Valley.
7. The test may be conducted by way of physical test probe or remotely via Automatic Configuration Server (ACS), using the same test protocol.
8. The tests shall be carried out by the wired broadband service providers or the service providers' appointed consultant in accordance to these guidelines and the measurement report shall be provided to the Commission.
9. The Commission at its discretion, may perform tests on any selected service provider deemed necessary.

10. All tests must be performed during workdays unless allowed by the Commission.

Location Identification

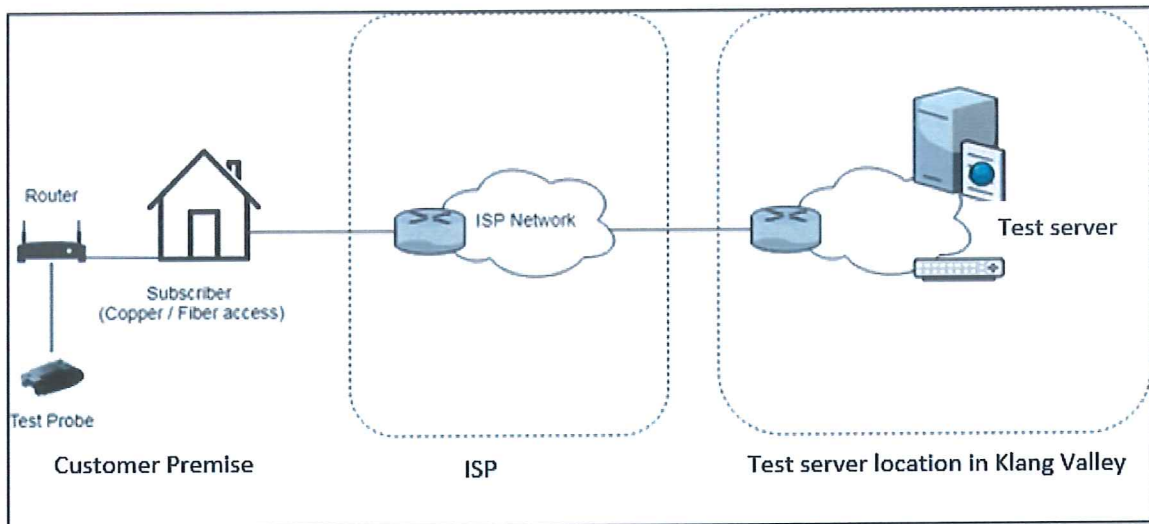
11. Service provider or the Commission may list out the locations prior to the assessment exercise. Locations of measurement shall not be the same unless requested by the Commission for retest or for verification of network improvements.
12. The tests are to be carried out in locations identified to have wired broadband service coverage.
13. The service coverage shall 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.
14. At least 30 locations shall be selected nationwide, subject to service availability on quarterly basis, evenly distributed across all regions. A minimum of 100 test samples per location is required.
15. The regions shall be categorized as below:

Northern:	Perak, Pulau Pinang, Kedah and Perlis.
Central:	Selangor, Negeri Sembilan, Wilayah Persekutuan Putrajaya and Kuala Lumpur.
Southern:	Johor and Melaka.
Eastern:	Pahang, Kelantan, and Terengganu.
Sabah:	Sabah and Wilayah Persekutuan Labuan.
Sarawak:	Sarawak.

Testing procedure

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

Diagram 1: Test set up configuration



17. A test probe shall be connected to customer premise equipment (CPE) via LAN cable prior to generate traffic and simulate end-user experience while a test server or responder shall be configured at MyIX or the respective service providers' server located in Klang Valley to act as the target server.
18. Test can also be conducted using Automatic Configuration Server (ACS) on FTP protocol and shall be able to replicate physical probe test by measuring from consumer's router and connect to the respective service providers' servers located in Klang Valley. The test using ACS shall be based on standards by Broadband Forum.
19. Packet size of 32/64/128 bytes shall be used for network latency or ping time measurement.
20. The throughput test to be conducted via File Transfer Protocol (FTP). The selection of file size is subject to the Commission's discretion.
21. The software/measurement tools used for the tests shall be in compliance with the relevant recommendations from Metro Ethernet Forum (MEF) or equivalent.
22. Geographical positioning shall 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.

Service Prioritization & Misrepresentation

24. 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, port number, IP address, type of service and etc.
25. Any service provider found to perform alteration to the network configuration or manipulation during test measurement such as service prioritization, shall be considered as non-compliance and shall be penalized with the following, but not limited to:
 - a. All results found to be manipulated during the said test shall be zeroed.
 - b. The zeroed results shall be included into the overall calculation for compliance.
26. The report of the test shall not be misrepresented. Any misrepresentation or false reporting of measurement and report shall be considered as non-compliance to the Mandatory Standards.

Network Utilization

27. Service providers shall provide to the Commission the statistics obtained from the service providers' actual network monitoring on the following parameters:
 - a. Percentage of access node utilization for each system not limited to DSLAM, MSAN, OLT, etc.
 - b. Percentage of aggregation node utilization for each system not limited to Metro-Ethernet, core network, etc.

PART C: REQUIREMENT FOR REPORT SUBMISSION

28. All reports that are required to be sent to the Commission should be sent to address and/or email as below. The Commission shall notify the service providers of any changes to the reporting address or email.

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 the Chief Executive Officer (or any other person that holds an equivalent designation) of the service provider duly authorised by the board of directors, stating that each report is true and accurate.
30. The service providers shall submit the report based on the following timelines:

Table 1: Reporting Timeline

No	Item	Reporting Period	Report Submission Date
1	Quarterly Measurement Report for Wired Broadband Access Service	Quarterly	By 30 th of the following month of each quarter
2	Quarterly Report on Network Utilization	Quarterly	By 30 th of the following month of each quarter

31. The reports submitted shall include all relevant information regarding the test conducted including but not limited to:
- Time and date for each test conducted for each location.
 - Information on the test tools used for the test.
32. The service providers shall submit network QoS measurement assessment report based on the format as described in **Attachment 1** of this document.
33. The service providers shall submit network utilization report pertaining to own network elements based on the format as described in **Attachment 2** of this document. The Commission shall request proof of rectifications and any relevant data and/or access to data for verification.

Subjected Areas for Mandatory Standards

34. The Mandatory Standards for wired broadband access service shall be enforced in all states and federal territories in Malaysia.
35. The Mandatory Standards for wired broadband access service measurement shall be enforced per location.
36. The Mandatory Standards for wired broadband access service network utilization shall be enforced per access node and/or aggregated node.

PART D: EFFECTIVE DATE AND COMMISSION CONTACT

37. These guidelines shall come into effect on 1 August 2021, and shall continue to be effective unless modified, varied or revoked by the Commission. For avoidance of doubt, all actions under investigation initiated, actions taken and/or decisions made, under the revoked guidelines, shall continue to be valid and effective in relation to whom they apply, until discontinued or revoked, as the case may be.
38. These guidelines shall replace the Guidelines to The Commission Determination on the Mandatory Standards for Quality of Service (Wired Broadband Access Service) - Determination No. 2 of 2016.

Attachment 1

Table 2: Format for Wired Broadband Access Service Measurement Report

No.	Location Name/ Address	Coordinate (Latitude, Longitude)	State	Technology (Fiber/DSL)	Upload			Download			Total Sample for Latency	[3] No of Sample \leq QoS standard	% Sample \leq QoS standard	Total Packet Sent	No of sample Packet Loss	% of Packet Loss
					Subscribed speed (Mbps)	Total Sample	[1] No of Sample \geq QoS Standard	% Sample \geq QoS Standard	Subscribed speed (Mbps)	Total Sample						
1																
2																
.																
n																

[1] QoS Standard refer to upload speed $\geq 70.0\%$ of the subscribed speed for DSL or $\geq 90.0\%$ of the subscribed speed for fibre

[2] QoS Standard refer to download speed $\geq 70.0\%$ of the subscribed speed for DSL or $\geq 90.0\%$ of the subscribed speed for fibre

[3] QoS Standard refer to latency ≤ 50 ms for fibre or ≤ 85 ms for DSL

Table 3: Format for Network Utilization Report

No.	Network Node ID	Location Name/ Address	Coordinate (Latitude, Longitude)	State	Type of Access or aggregation node (DSLAM, RDSLAM, MSAN, OLT, Metro-E etc.)	Network capacity	[1] Utilization of 1 st Month	[1] Utilization 2 nd Month	[1] Utilization 3 rd Month
1									
2									
.									
n									

[1] Percentage of Monthly Average utilization