



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. 2 OF 2016**

SKMM(T) 06-SEIR/140.005/Jld.1(19)

JANUARY 2016

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GLOSSARY

BB	Broadband
CPE	Customer Premise Equipment
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
FTP	File Transfer Protocol
GPS	Global Positioning System
HTTP	Hypertext Transfer Protocol
ICMP	Internet Control Message Protocol
ISP	Internet Service Provider
Mbps	Megabits per second
MEF	Metro Ethernet Forum
MSAN	Multi-service Access Node
MyIX	Malaysian Internet Exchange
OLT	Optical Line Terminal
QoS	Quality of Service
TCP	Transport Control Protocol
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 8 of the Commission Determination on the Mandatory Standards for Quality of Service (MSQoS) on Wired Broadband Access Service, Determination No. 2 of 2016.
2. These guidelines set out the testing procedures, examples of computations, reporting templates, and explanatory notes to the standards in the MSQoS.

PART B: REQUIREMENT FOR REPORT SUBMISSION

3. All reports (including notices and notifications) that are required to be sent to the Commission should be sent to Monitoring & Compliance (Communications) Department's address and/or email as follows:

Monitoring & Compliance (Communications) Department
Monitoring and Enforcement Division
Malaysian Communications and Multimedia Commission
MCMC Tower 1, Jalan Impact, Cyber 6,
63000 Cyberjaya
Selangor Darul Ehsan
Email : qos.admin@cmc.gov.my

4. These reports shall be in the form and format as described in these guidelines. Each report shall be accompanied by a declaration signed by an officer of the Service Provider duly authorized by the board of directors, stating that each report is true and accurate.
5. The timelines for reporting are as follows:

Table 1: Reporting Timelines

No	Item	Reporting Period	QoS Report Submission Date
1.	QoS performance report (1 st Quarter)	1 st January to 31 st March	By 30 th April of the same year
2.	QoS performance report (2 nd Quarter)	1 st April to 30 th June	By 30 th July of the same year
3.	QoS performance report (3 rd Quarter)	1 st July to 30 th September	By 30 th October of the same year
4.	QoS performance report (4 th Quarter)	1 st October to 31 st December	By 30 th January of the next year
5.	Comprehensive report of Service Disruption	-	Within 7 business days

PART C: NETWORK PERFORMANCE QUALITY OF SERVICE

NETWORK LATENCY, THROUGHPUT AND PACKET LOSS

6. Network latency or ping time measures the round-trip time taken by a standard packet of 64 bytes to travel across the network from the end user to MyIX and back to the end user.
7. Broadband speed or throughput measures the speed of uploading and downloading data measured in units of Megabits per second (Mbps) between the end user and MyIX. This is to be measured and reported separately for uploading and downloading.
8. Packet loss measures the percentage of data packets transmitted from the source that failed to arrive at their destinations. It is computed based on the average number of samples measured between the end user and MyIX.

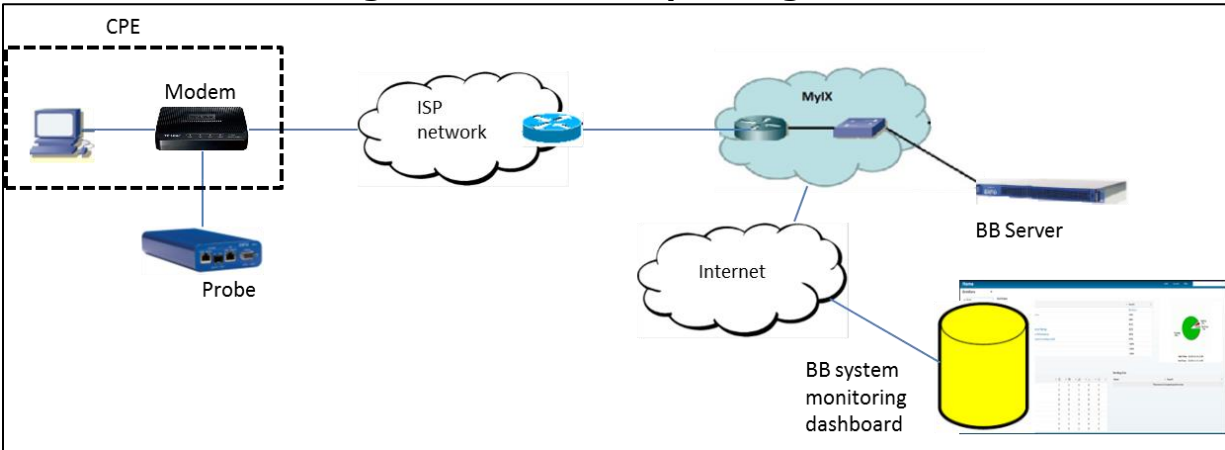
Location Identification

9. The tests are to be carried out in locations identified to have wired broadband service coverage.
10. 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. Based on Complaints received on individual Service Provider to the MCMC.

Testing Parameters

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

Diagram 1: Test Set up Configuration



12. 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.
13. The tests are to be conducted up to transport layer (ICMP, TCP, UDP etc). Additional test up to application layer (HTTP, FTP etc) to simulate customers experience may be conducted by the Commission, if necessary.
14. Packet size of 64 bytes will be used for network latency or ping time measurement.
15. The software/measurement tools used for the tests shall be in compliance with the relevant recommendation from Metro Ethernet Forum (MEF) or equivalent.
16. Geographical positioning will be based on the Global Positioning System (GPS) and the WGS-84 digital map or its equivalent.

Designated Areas

17. The designated areas for wired broadband access service testing covers all 6 regions as follow:
- a. Central Region;
 - b. Northern Region;
 - c. Southern Region;
 - d. Eastern Region;
 - e. Sabah; and
 - f. Sarawak.

18. At least 15 locations will be selected based on the designated areas and a minimum of 100 samples per location is required on quarterly basis.
19. The selection of test locations is subject to the Commission's discretion.

QUALITY OF SERVICE PERFORMANCE REPORT

20. The Service Provider shall submit quarterly reports on quality of service as per the following format:

Table 2: Format for Quality of Service in Quarterly Reports for Throughput (for DSL)

No	Location (Address and Longitude & Latitude)	Throughput (for DSL)										
		Total No of Test Sample	Upload					Download				
			Subscribed Level (Mbps)	No of Test Sample $\geq 70.0\%$ of Subscribed Level	% Test Sample $\geq 70.0\%$ of Subscribed Level	QoS Standard	Compliance (YES/NO)	Subscribed Level (Mbps)	No of Test Sample $\geq 70.0\%$ of Subscribed Level	% Test Sample $\geq 70.0\%$ of Subscribed Level	QoS Standard	Compliance (YES/NO)
						70.0% of the subscribed level of broadband speed, for 90.0% of the time					70.0% of the subscribed level of broadband speed, for 90.0% of the time	

Table 3: Format for Quality of Service in Quarterly Reports for Latency and Packet Loss (for DSL)

No	Location (Address and Longitude & Latitude)	Latency					Packet Loss				
		Total No of Test Sample	No of Test Sample $\leq 85\text{ms}$	% Test of Sample $\leq 85\text{ms}$	QoS Standard	Compliance (YES/NO)	No of Total Packet Sent	No of Total Packet Loss	% of Packet Loss	QoS Standard	Compliance (YES/NO)
					$\leq 85\text{ms}$, 95.0% of the time based on test sample					$\leq 1.0\%$	

Table 4: Format for Quality of Service in Quarterly Reports for Throughput (for fibre)

No	Location (Address and Longitude & Latitude)	Throughput (for fibre)										
		Total No of Test Sample	Upload					Download				
			Subscribed Level	No of Test Sample $\geq 90.0\%$ of Subscribed Level	% Test Sample $\geq 90.0\%$ of Subscribed Level	QoS Standard	Compliance (YES/NO)	Subscribed Level	No of Test Sample $\geq 90.0\%$ of Subscribed Level	% Test Sample $\geq 90.0\%$ of Subscribed Level	QoS Standard	Compliance (YES/NO)
						90.0% of the subscribed level of broadband speed, for 90.0% of the time					90.0% of the subscribed level of broadband speed, for 90.0% of the time	

Table 5: Format for Quality of Service in Quarterly Reports for Latency and Packet Loss (for fibre)

No	Location (Address and Longitude & Latitude)	Latency					Packet Loss				
		Test Sample	No of Test Sample $\leq 85\text{ms}$	% Test of Sample $\leq 85\text{ms}$	QoS Standard	Compliance (YES/NO)	No of Total Packet Sent	No of Total Packet Loss	% of Packet Loss	QoS Standard	Compliance (YES/NO)
					$\leq 85\text{ms}$, 95.0% of the time based on test sample					$\leq 1.0\%$	

21. The raw data for every location measured shall be included.

ACCESS NETWORK UTILIZATION

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

Table 6: 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)

SERVICE DISRUPTION

23. The Service Provider shall submit quarterly reports on Service Disruption as per the following format:

Table 7: Format for Service Disruption in Quarterly Reports

No	Date and Time	QoS Standard	Compliance
1.	(a)Start: (date/time) (b)End : (date/time)	Any single incident of Service Disruption must not be out of service for 3 hours or longer and affect 500 or more customers.	(Yes/No)
2.		Any single incident of Service Disruption that affects 500 or more customers and lasts for 3 hours or longer which occurs:	(a) between 5AM to 12 midnight, must be rectified within 3 hours from the occurrence of the Service Disruption; and
			(b) between 12 midnight to 5AM, must be rectified no later than 6AM.
3.		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.	(Yes/No)

4.		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.	(Yes/No)
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24. The 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. The details of the report shall be presented in the following format:

Table 8: Format for Service Disruption Comprehensive Report

No	Report Items	Details/Remarks
1.	Date and time of Service Disruption	(a) Start: (date/time) (b) End : (date/time)
2.	Area affected by the Service Disruption	
3.	Exact duration of Service Disruption	
4.	Type of services affected and service impact	
5.	Number of affected customers	
6.	Status of Service Disruption	<i>*The date and time are to be specified if the service is fully restored</i>
7.	Photographic evidence of faulty network element (if applicable)	
8.	Description of the cause and problem	
9.	Rectification steps taken to restore the service	
10.	Preventive actions to avoid the recurrence of the same or similar Service Disruption	
11.	Compensation Plan offered to affected customers, if any	

25. Service Provider shall notify customers via electronic media (i.e. website and social media) within 90 minutes of the occurrence of any single Service Disruption.

PART D: CUSTOMER SERVICE QUALITY OF SERVICE

SERVICE ACTIVATION FULFILMENT

26. Service Provider shall submit quarterly reports on service activation fulfilment as per the following format:

Table 9: Format for Service Activation Fulfilment in Quarterly Reports

No	Report Items	1 st month	2 nd month	3 rd month	Total	QoS Standard	Non-Compliance
1.	No. of service activations scheduled to be activated						
2.	Fulfilled within 24 hours						
3.	Fulfilled within 72 hours						
4.	Fulfilled more than 72 hours						
5.	Number of activation yet to be activated						
6.	% Fulfilled within 24 hours					Not less than 95.0%	(Yes/No)
7.	% Fulfilled within 72 hours					100.0%	(Yes/No)

27. Service Provider shall submit quarterly reports on unresolved complaints excluded from the above report as per the following format:

Table 10: Format for Exclusion Clause based on Table 10

No	Exclusion	No. of unresolved complaints excluded from the computation for 3 months of the reporting period
1.	Damage to network facility due to force majeure or by third parties.	
2.	Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring.	
3.	Customer premises inaccessible.	

Total	
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SERVICE RESTORATION FULFILMENT

28. Service Provider shall submit quarterly reports on service restoration fulfilment as per the following format:

Table 11: Format for Service Restoration Fulfilment in Quarterly Reports

No	Report Items	1 st month	2 nd month	3 rd month	Total	Qos Standard	Non-Compliance
1.	No. of service fault received						
2.	Fulfilled within 24 hours						
3.	Fulfilled within 48 hours						
4.	Fulfilled more than 48 hours						
5.	Number of restoration yet to be activated						
6.	% Fulfilled within 24 hours					Not less than 95.0%	(Yes/No)
7.	% Fulfilled within 48 hours					100.0%	(Yes/No)

29. Service Provider shall submit quarterly reports on unresolved complaints excluded from the above report as per the following format:

Table 12: Format for Exclusion Clause based on Table 12

No	Exclusion	No. of unresolved complaints excluded from the computation for 3 months of the reporting period
1.	Damage to network facility due to force majeure or by third parties.	
2.	Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring.	
3.	Customer premises inaccessible.	

Total	
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PERCENTAGE OF BILLING RELATED COMPLAINTS

30. Service Provider shall submit quarterly reports on billing related complaints as per the following format:

Table 13: Format for Billing Related Complaints Quarterly Reports

No	Report Items	Total number over the reporting period	QoS Standard	Compliance
1.	Total number of active customers at the end of the reporting period			
2.	Total number of billing related complaints received at the end of the reporting period			
3.	% of billing related complaints		not more than 1.0% per quarterly reporting period	(Yes/No)

31. Service Provider is required to provide details on the types of billing related complaints received in a quarter as per the following format:

Table 14: Format for Types of Billing Related Complaints Quarterly Reports

No	Types of Billing related complaints	No. of complaints received in a reporting period
		Total 3 Months
1.	Wrongly billed / payment not credited	
2.	Double charges	
3.	Non-refund of deposits	
4.	Late bills	
5.	Non-receipt of bills	
6.	Fraud	

7.	Wrongly addressed	
8.	Other billing errors	
9.	(Please list other types of billing related complaints, if any)	

32. The above list of types of billing related complaints is not exhaustive. The report shall include all billing related complaints and not just those specified in the report format.

NON-BILLING RELATED COMPLAINTS PER 1,000 CUSTOMERS

33. Service Provider shall submit quarterly reports on non-billing related complaints as per the following format:

Table 15: Format for Non-Billing Related Complaints Quarterly Reports

No	Report Items	Total number over the reporting period	QoS Standard	Compliance
1.	Total number of active customers at the end of reporting period			
2.	Total number of non-billing related complaints received in the reporting period			
3.	No. of non-billing related complaints per 1,000 customer per reporting period		Not more than 6 complaints per 1,000 customers per quarterly reporting period	(Yes/No)

34. Service Provider is required to provide details of the types of non-billing related complaints received in a quarter as per the following format:

Table 16: Format for Types of Non-Billing Related Complaints Quarterly Reports

No	Types of non-billing related complaints	Total no. of complaints for 3 months
1.	None or late service activation	
2.	None or late service restoration	
3.	Customer service related complaints	
4.	(Please list other types of non-billing related complaints, if any)	

35. The above list of types of non-billing related complaints is not exhaustive. The report shall include all non-billing related complaints and not just those specified in the report format.

PROMPTNESS IN RESOLVING CUSTOMER COMPLAINTS

36. With regards to promptness, the indicator is to be separately measured and reported for (a) billing related complaints and (b) non-billing related complaints.

37. Service Provider shall submit quarterly reports on performance of promptness in resolving customer complaints as per the following format:

a. Billing related complaints

Table 17: Format for Performance of Promptness in Resolving Customer Complaints (Billing Related) Quarterly Reports

No	Report items	Total for 3 months of the reporting period	QoS Standards	Compliance
1.	No. of complaints received			
2.	No. of complaints resolved			
3.	Resolved within 3 business days		Not less than 60.0%	(Yes/ No)
4.	Resolved within 5 business days		Not less than 90.0%	(Yes/ No)
5.	Resolved within 15 business days		Not less than 95.0%	(Yes/ No)

b. Non-billing related complaints

Table 18: Format for Performance of Promptness in Resolving Customer Complaints (Non-Billing Related) Quarterly Reports

No	Report items	Total for 3 months of the reporting period	QoS Standards	Compliance
1.	No. of complaints received			
2.	No. of complaints resolved			
3.	Resolved within 3 business days		Not less than 60.0%	(Yes/ No)
4.	Resolved within 5 business days		Not less than 90.0%	(Yes/ No)
5.	Resolved within 15 business days		Not less than 95.0%	(Yes/ No)

* No. of complaints resolved as per the template refers to the number of complaints resolved regardless of the number of days it took to resolve the complaints.

38. Service Provider shall submit quarterly reports on unresolved complaints excluded from the above report as per the following format:

Table 19: Format for Exclusion Clause Based on Table 18 and Table 19

No	Exclusion	No. of unresolved complaints excluded from the computation for 3 months of the reporting period
1.	Damage to network facility due to force majeure or by third parties.	
2.	Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring.	
3.	Customer premises inaccessible.	
	Total	

PROMPTNESS IN ANSWERING CALLS TO CUSTOMER HOTLINE

39. Service Provider shall submit quarterly reports on promptness in answering calls to Customer Hotline as per the following format:

Table 20: Format for Promptness in Answering Calls to Customer Hotline Quarterly Reports

No	Report items	Total for 3 months of the reporting period	QoS Standards	Compliance
1.	No. of calls opted for human operator			
2.	No. of calls answered by human operator			
3.	Answered within 20 seconds			
4.	Answered within 40 seconds			
5.	% answered within 20 seconds		Not less than 80.0% per quarterly reporting period	(Yes/ No)
6.	% answered within 40 seconds		Not less than 90.0% per quarterly reporting period	(Yes/ No)

PART E: EFFECTIVE DATE AND COMMISSION CONTACT

40. These guidelines shall come into effect on 1 February 2016 for Network Performance QoS and 1 July 2016 for Customer Service QoS, and shall continue to be effective unless modified, varied or revoked by the Commission.
41. For any queries and further information on these Guidelines please contact:
 - a. Service Quality and Spectrum Operations Division
Phone : 03-8688 8000
Email : smts@cmc.gov.my
With respect to Network Performance.
 - b. Monitoring & Compliance (Communications) Department
Monitoring and Enforcement Division
Phone : 03-8688 8000
Email : gos.admin@cmc.gov.my
With respect to Customer Service Quality of Service.