



Suruhanjaya Komunikasi dan Multimedia Malaysia

Malaysian Communications and Multimedia Commission

**GUIDELINES TO THE COMMISSION DETERMINATION
ON THE MANDATORY STANDARDS FOR
QUALITY OF SERVICE (WIRELESS BROADBAND ACCESS SERVICE),
DETERMINATION 1 OF 2016**

SKMM(T) 06-SEIR/140.005/Jld.1(18)

JANUARY 2016

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GLOSSARY

ASN GW	Access Service Network Gateway
BB	Broadband
CPE	Customer Premises Equipment
FDD	Frequency Division Duplex
FTP	File Transfer Protocol
GPS	Global Positioning System
HTTP	Hypertext Transfer Protocol
ICMP	Internet Control Message Protocol
ISP	Internet Service Provider
LTE	Long Term Evolution
Mbps	Megabits per second
MEF	Metro Ethernet Forum
MME	Mobility Management Entity
MyIX	Malaysian Internet Exchange
QoS	Quality of Service
SGSN	Serving GPRS Support Node
TCP	Transport Control Protocol
TDD	Time Division Duplex
UDP	User Datagram Protocol
UE	User Equipment
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 (Wireless Broadband Access Service), Determination No. 1 of 2016 ("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: 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
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 authorised 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 July of the same year
2.	QoS performance report (2 nd Quarter)	1 st April to 30 th June	
3.	QoS performance report (3 rd Quarter)	1 st July to 30 th September	By 30 th January of the next year
4.	QoS performance report (4 th Quarter)	1 st October to 31 st December	

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 size 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 downloading data measured in units of Megabits per second (Mbps) between the end user and MyIX.
8. 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.

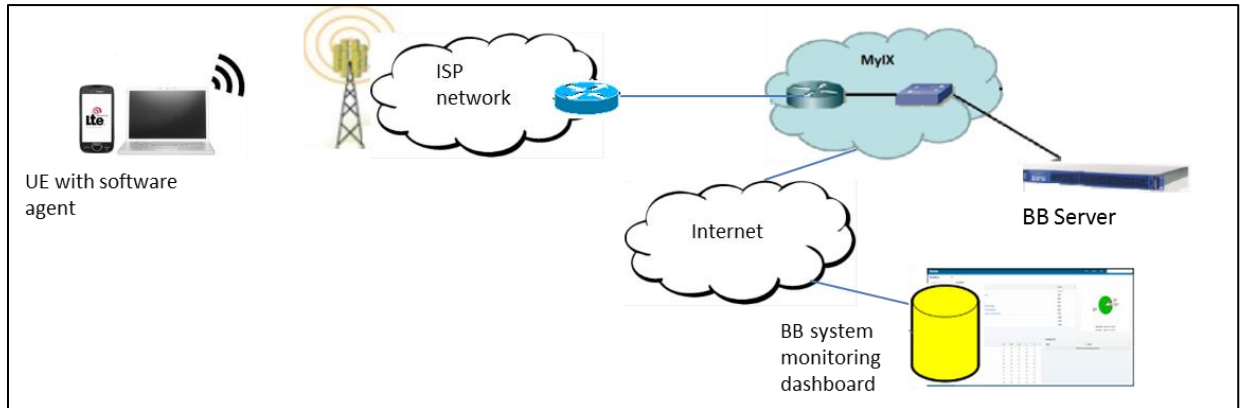
Location Identification

9. The tests are to be carried out 'static' at locations identified to at least have 3G broadband service coverage/WIMAX.
10. The service coverage will be identified in the following manner:
 - a. Confirmation from the wireless broadband Service Providers; or
 - b. Through the service coverage information as advertised in the wireless broadband Service Providers' websites; or
 - c. Through the network indicator display on user equipment (UE) device with minimum RF signal strength equivalent to -90 dBm or 3 bars; or
 - d. Where complaints from consumers on individual services by a particular Service provider is lodged to the MCMC

Testing Parameters

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

Diagram 1: Test Set up Configuration



12. A dongle specific to the Service Provider will be used for laptops or UE with minimum device of Category 3 (100 Mbps) for cellular based systems. A test server or a 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 (web browsing http, ftp, etc.) to simulate customer's 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 recommendations 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 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

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

QUALITY OF SERVICE PERFORMANCE REPORT

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

Table 2: Format for Quality of Service for Throughput per Quarter (for TDD)

No	Location (Address and Longitude & Latitude)	Throughput Download				Compliance (YES/NO)
		Total No of Test Sample	Average	No of Test Sample \geq 650Kbps	% Test Sample \geq 650Kbps	
					QoS Standard not less than 650Kbps, 80.0% of the time for TDD	

Table 3: Format for Quality of Service for Latency and Packet Loss per Quarter (for TDD)

No	Location (Address and Longitude & Latitude)	Latency				Packet Loss				Compliance (YES/NO)	
		Total No of Test Sample	No of Test Sample \leq 250Kbps	% Test Sample \leq 250Kbps	QoS Standard	No of Total Packet Sent	No of Total Packet Loss	% of Packet Loss	QoS Standard		
					must be not more than 250 ms, 70.0% of the time based on test samples.					must be not more than 3.0%,	

Table 4: Format for Quality of Service for Throughput per Quarter (for FDD)

No	Location (Address and Longitude & Latitude)	Throughput Download				Compliance (YES/NO)
		Total No of Test Sample	Average	No of Test Sample \geq 650Kbps	% Test Sample \geq 650Kbps	
					QoS Standard not less than 650Kbps, 65.0% of the time for FDD	

Table 5: Format for Quality of Service for Latency and Packet Loss per Quarter (for FDD)

No	Location (Address and Longitude & Latitude)	Latency				Packet Loss				Compliance (YES/NO)	
		Total No of Test Sample	No of Test Sample \leq 250Kbps	% Test Sample \leq 250Kbps	QoS Standard	No of Total Packet Sent	No of Total Packet Loss	% of Packet Loss	QoS Standard		
					must be not more than 250 ms, 70.0% of the time based on test samples.					must be not more than 3.0%,	

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

SERVICE DISRUPTION

22. The Service Provider shall submit half yearly reports on Service Disruption as per the following format:

Table 6: Format for Service Disruption per Quarter

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 Service Disruption incident that involves a SGSN, MME or ASN GW being out of service	(a) between 5AM to 12 midnight, must be rectified within 60 minutes from the occurrence of the Service Disruption; and
			(b) between 12 midnight to 5AM, must be rectified no later than 6AM.
3.		Service Provider must notify customers within 60 minutes from the occurrence of the Service Disruption, of any single Service Disruption incident that involves a SGSN, MME or ASN GW being out of service.	(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 involves a SGSN, MME or ASN GW being out of service for the specified duration and affecting customers.	(Yes/No)

23. 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 involves a SGSN, MME or ASN GW being out of service for the specified duration and affecting customers. The details of the report shall be presented in the following format:

Table 7: Format for Service Disruption (involving RNC/eNodeB/ASN) 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	

24. Service Provider shall notify customers via electronic media (i.e. website and social media) within 60 minutes from the occurrence of the Service Disruption.

PART D: CUSTOMER SERVICE QUALITY OF SERVICE

PERCENTAGE OF BILLING RELATED COMPLAINTS

25. Service Provider shall submit half yearly reports on billing related complaints as per the following format:

Table 8: Format for Billing Related Complaints per Quarter

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

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

Table 9: Format for Types of Billing Related Complaints per Quarter

No	Types of Billing related complaints	No. of complaints received per quarter
		Total 3 Months
1.	Wrongly / 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)	

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

NON-BILLING RELATED COMPLAINTS PER 1,000 CUSTOMERS

28. Service Provider shall submit half yearly reports on non-billing related complaints as per the following format:

Table 10: Format for Non-Billing Related Complaints per Quarter

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

29. 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 11: Format for Types of Non-Billing Related Complaints per Quarter

No	Types of non-billing related complaints	Total no. of complaints for 3 months
1.	No or late service activation	
2.	No or late service restoration	
3.	Customer service related complaints	
4.	(Please list other types of non-billing related complaints, if any)	

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

PROMPTNESS IN RESOLVING CUSTOMER COMPLAINTS

31. For this standard, the indicator is to be separately measured and reported for (a) billing related complaints and (b) non-billing related complaints.

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

a. Billing related complaints

Table 12: Format for Performance of Promptness in Resolving Customer Complaints (Billing Related) per Quarter

No	Report items	Total per quarter	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 13: Format for Performance of Promptness in Resolving Customer Complaints (Non-Billing Related) Half Yearly Reports

No	Report items	Total per quarter	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
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* 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.

33. Service Provider shall submit half yearly reports on the unresolved complaints excluded from the above report as per the following format:

Table 14: Format for Exclusion Clause Based on Table 12 & 13

No	Exclusion	No. of unresolved complaints excluded from the computation per quarter
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

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

Table 15: Format for Promptness in Answering Calls to Customer Hotline per Quarter

No	Report items	Total per quarter	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 quarter	Yes/ No
6.	% answered within 40 seconds		Not less than 90.0%	Yes/ No

			per quarter	
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PART E: EFFECTIVE DATE AND COMMISSION CONTACT

35. These guidelines shall come into effect on 1st February 2016 for Network Performance QoS and 1st July 2016 for Customer Service QoS, and shall continue to be effective unless modified, varied or revoked by the Commission.
36. 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 : qos.admin@cmc.gov.my
With respect to Customer Service Quality of Service