

Public Inquiry Document for Mandatory Standards for Quality of Service for Wired Broadband Access
Service



Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

**PROPOSAL FOR THE REVIEW OF
COMMISSION DETERMINATION ON THE MANDATORY STANDARDS FOR QUALITY OF
SERVICE (BROADBAND ACCESS SERVICE) (DETERMINATION NO. 1 OF 2007)**

18 SEPTEMBER 2015

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 to review the Commission Determination on Mandatory Standards for Quality of Services (Broadband Access Service) (Determination No. 1 of 2007) 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, 5 November 2015 (Thursday)** and addressed to:

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

Attention : Service Quality and Spectrum Operation Division

Or E-mail : smts@cmc.gov.my

Or Fax : +60 3 86 88 10 00

In the interest of fostering an 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)
DSLAM	Digital Subscriber Line Access Multiplexer
Commission	Malaysian Communications and Multimedia Commission
MS	Mandatory Standards
MSAN	Multi-Service Access Nodes
MSQoS	Mandatory Standards for Quality of Service
OLT	Optical Line Terminal
PI	Public Inquiry
QoS	Quality of Service

PREAMBLE

1. The Determination No. 1 of 2007, Commission Determination on the Mandatory Standards for Quality of Service (Broadband Access Service) that came into force on 1 January 2008 is hereby reviewed.
2. The Commission recognizes the need to review the MSQoS for Broadband Access Service in light of, technological migrations that is currently taking place due to technology advancements, the significant changes in network usage, and changes in customer expectations and perception towards service delivery. Therefore, pursuant to section 104 (2) of the CMA1998, the Commission hereby undertakes a review of Determination No. 1 of 2007. This MSQoS covers the standards for Quality of Service for delivery of data, video or voice over the internet protocol for wired systems.
3. The reviewed Determination shall later be known as Commission Determination on the Mandatory Standards for Quality of Service (Wired Broadband Access Service).
4. The proposed revision is based on international best practices where applicable, current network scenario and seeks to address current issues in relation to broadband service in Malaysia. This revision also seeks to prepare the nation in meeting quality of Broadband services towards a smart nation by year 2020. In order to meet the 2020 target, this MSQoS spells out a progressive phase of standards i.e:
 - a. Phase 1: Effective 1 January 2016 - 31 December 2017 and;
 - b. Phase 2: Effective 1 January 2018 – 1 January 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 being 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: INTERPRETATION PART OF THE STANDARDS

9. The following interpretations shall be used in the revised Mandatory Standards for Quality of Service for Wired Broadband Service:

“ASP” means Applications Service Provider;

“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, OLT) to aggregation layer (not limited to Metro-Ethernet, ATM switch)”

“complaint” means any verbal or written expression of dissatisfaction by customer to service provider regarding the service provider’s service and product, which requires action by the service provider to address the issues raised. A request by customer for information or advice or an inquiry seeking clarification will not be classified as a complaint. However, if no or inadequate action is taken by the service provider on a request for information or advice or inquiry seeking clarification, the subsequent follow up to the service provider would be classified as a complaint;

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

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

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

“MyIX” means the Malaysia Internet Exchange, a non-profit Internet Exchange where local Internet Service Providers and content providers connect to in order to exchange internet traffic.

“NSP” means Network Service Provider;

“reporting period” means the calendar quarters ending 31 March, 30 June, 30 September and 31 December;

“resolved” in relation to a complaint means that the complaint was addressed and the problem was rectified;

“service providers” means an Applications Service Providers or a Network Service Provider who provided wired broadband access service.

“wired broadband service” means a wired connectivity of communication bandwidth service that has a minimum downstream capacity of 650 kbps, with a minimum subscribed package of 1Mbps.

PART B: REQUIREMENT FOR REPORT SUBMISSION

10. The Commission intends to change the current reporting period to a calendar quarter, as practiced in many other jurisdictions. The Commission is of the view that the current reporting period (half yearly) does not provide sufficient granular data for end user information, nor will the Commission be in a position to effectively monitor the relevant QoS standards in a timely manner and react to any significant issue. This approach is also in line with the recommendation from the European Telecommunications Standards Institute (ETSI)¹.
11. The Commission is proposing for the Quality of service performance reports to be submitted to the Commission no later than 30 days from the end of the reporting period. The timelines for reporting are as follows:

¹ ETSI EG 202 057 4.7 Data collection period

Table 1: Reporting Timelines

No.	Reporting Period	QoS Report Submission Date
1.	1st January to 31st March	By 30th April of the same year
2.	1st April to 30th June	By 31st July of the same year
3.	1st July to 30th September	By 31st October of the same year
4.	1st October to 31st December	By 31st January of the next year

12. The relevant NSPs and ASPs shall publish the report on their official websites.

PART C: EXISTING AND PROPOSED QUALITY OF SERVICE STANDARD

13. A summary of the existing QoS standard and proposed QoS standards are outlined in Table 2 below:

Table 2: Existing and proposed QoS standard

	Quality of Service Indicator	Existing Quality of Service Standard	Proposed Quality of Service Standard
i.	Network latency(ping time)	Network latency from the broadband user to the nearest edge node of regional broadband network or Broadband Remote Access Server (BRAS) shall be no more than 85ms, 95.0% of the time.	Network latency must be not more than 85 ms,95.0% of the time based on test sample Measurement using standard packet of 64 bytes to travel across the network from the end user to MyIX and back to the end user

ii.	Throughput (Broadband Speed)	Throughput or bandwidth utilization between the end user and the nearest node of regional broadband network or BRAS shall be no less than 90% of the subscribed level for 95% of the time for the purposes of uploading and downloading effective from 1 January 2009.	Throughput must be not less than: (a) 70.0% of the subscribed level for 90.0% of the time effective from 1 January 2016; and (b) 90.0% of the subscribed level for 90.0% of the time effective from 1 January 2018. The measurement for both uploading and downloading, between the end user and Mylx.
iii.	Packet loss	not exceeding 1% between the user and the nearest edge node of the regional broadband network or BRAS. Packet loss is measured by averaging sample measurement	not more than 1.0 %, computed based on the average of the test sample. The measurement between the end user and Mylx
iv.	Access Network utilization	*Not available	Access Network (not limited to DSLAM, MSAN, OLT etc.) uplink traffic utilization must be not more than 70% of the uplink bandwidth provided.
v.	Network service availability	Annual network service availability shall be 99.9% for all users and the measurement of the standard is described by the ratio	not less than 99.90% every calendar month
vi.	Advance notice of scheduled downtime	*Not available	New standard to be introduced (please see details below).
vii.	Service Disruption	*Not available	New standard to be introduced (please see details below).

viii.	Service activation fulfilment	<p>Installation orders shall be fulfilled in following time frames:</p> <p>(a) 80% of all installation orders shall be fulfilled within 24 hours from the time and date requested by customer;</p> <p>(b) 90% of all installation orders shall be fulfilled within 48 hours from the time and date requested by customer; and</p> <p>(c) 100% of all installation orders shall be fulfilled within 7 business days from the time and date requested by customer.</p>	<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>
ix.	Service restoration fulfilment	<p>Service restoration shall be effected within the following time frames:</p> <p>(a) 80% of all service restoration shall be fulfilled within 24 hours of receipt of request;</p> <p>(b) 90% of all service restoration shall be fulfilled within 48 hours of receipt of request; and</p> <p>(c) 100% of all service restoration shall be fulfilled within 7 days of receipt of request.</p>	<p>Not less than 95.0% of all service restorations scheduled to be fulfilled in a reporting quarter must be fulfilled within 24 hours.</p> <p>100.0% of all service restorations scheduled to be fulfilled in a reporting quarter must be fulfilled within 48 hours.</p>
x.	Percentage of billing related complaints	Shall not exceed 2% of the total number of bill issued during the billing period	Not more than 1% per quarterly reporting period
xi.	Non-billing related complaints per 1,000 customers	Shall not exceed 50 complaints per 1,000 customers in a 12-month period	Not more than 6.0 complaints per 1,000 customers per quarterly reporting period
xii.	Promptness in resolving	<ul style="list-style-type: none"> 90% of complaints resolved within 15 business days; 	<ul style="list-style-type: none"> 30% of complaints resolved within 3 business days;

	customer complaints	<ul style="list-style-type: none"> 95% of complaints resolved within 30 business days 	<ul style="list-style-type: none"> 95% of complaints within 5 business days; 99% of complaints within 15 business days
xiii.	Promptness in answering calls to Customer Hotline	*Not available	New standard to be introduced (please see details below).

PART D: QUALITY OF SERVICE INDICATORS, MEASUREMENTS, STANDARDS, NOTIFICATION AND REPORTS

14. The Mandatory Standards shall be segregated into two (2) parts, namely Network Performance and Customer Service Quality of Service. The applicable indicators, measurements and standards are listed in Tables 3 & 4.

15. 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 of 64 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 85 ms, 95.0% of the time based on test sample.	* No change in standard <ul style="list-style-type: none"> Revised interpretation to include MyIX as measurement point.
ii.	Broadband	This indicator measures the speed of	Throughput must be	Throughput is set for the

	speed (Throughput)	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.	not less than (a) 70.0% of the subscribed level of broadband speed, for 90.0% of the time effective from 1 January 2016 and (b) 90.0% of the subscribed level for 90.0% of the time effective from 1 January 2018.	70 % of subscribed level from 1 January 2016 until 31 December 2017 to address the broadband system is rely on copper technology and starting 1 January 2018 onwards the copper technology must be enhanced to get higher speed.
iii.	Packet loss	This indicator 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.	Packet loss must be not more than 1.0 %, computed based on the average of the test sample.	* No change in standard
iv.	Access Network Utilization	*Not available	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.	Uplink bandwidth traffic utilization must be monitored and managed on a monthly basis for 1% of total hours.
v.	Network service availability	Network service availability is the measure of the degree to which the broadband access network is operable and not in a state of failure or outage at any point of time for all users.	Network service availability of the access network must be not less than 99.90% every	Revised formula and standard. Calculation for current MS is based on annual

	<p>Formula:</p> $\frac{\text{Total operational minutes in month} - \text{Total minutes of service downtime in a month}}{\text{Total operational minutes in a month}} \times 100\%$ <p>The total minutes of service downtime in a month referred to in the formula above measures the network's total downtime in a month for all access network equipment including, but not limited to the switches, multiplexers, routers, servers, and connectivity to service providers. All Customer Premise Equipment are excluded.</p> <p>For the purpose of the formula above, all scheduled downtime (as defined in this Mandatory Standards) for the purposes of maintenance and upgrading of the network are to be excluded from the computation.</p>	<p>calendar month.</p> <p>Service provider must measure the network service availability every month and it must submit to the Commission for every quarterly reporting period, the monthly measurements.</p>	<p>data. The revised formula and standard will enable the Commission to take regulatory action on any service providers which does not comply with this requirement after the 30 days period instead of waiting for the annual reporting.</p> <p><u>Note:</u> Based on this proposed standard, the allowable downtime based on 99.9% network service availability is 0.72 hours i.e. 43.2 minutes in a 30 days period.</p> <p>1 year – 8.76 hours (8 hrs. 45 mins. and 36 secs) 30 days – 0.72 hours (43.2 minutes) 7 days – 10 minutes 1 day – 1.44 minutes</p> <p>The Working Group proposed the followings:</p> <ol style="list-style-type: none"> 1. Baseline is 30 days. 2. Term “at any point in time” is added. This means that the Commission has the discretion to
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				determine the cut-off date for the 30 days period to be reported.
vi.	Advance notice of scheduled downtime	Service provider is required to inform customers and the Commission in advance in respect of any network service downtime planned and scheduled by the service provider to take place for the purpose of maintenance and upgrading of the network.	<p>Every session of scheduled downtime due to occur in a quarterly reporting period must be notified to customers not less than 48 hours in advance; and</p> <p>Every session of scheduled downtime due to occur in a quarterly reporting period must be notified to the Commission in writing not less than 14 days in advance.</p>	<ul style="list-style-type: none"> This standard will assist the Commission to deal with possible complaints by customers due to disruption of services whilst ensuring that customers are notified about any service disruption caused by maintenance or upgrading of network.
vii.	Service Disruption	<p>Service disruption means the unplanned interruption of the services that a customer subscribes to but does not include disruption of service from scheduled downtime. A service provider is considered to have breached the service disruption standard where a single service disruption incident affected 500 or more customers and lasted for 30 minutes or longer.</p> <p>If more than one service disruption incident</p>	<p>Any single incident of service disruption must not affect 500 or more customers and last for 30 minutes or longer.</p> <p>Service provider must notify the Commission within 60 minutes of the occurrence of any</p>	<ul style="list-style-type: none"> Currently, the Commission obtains information about service disruption from complaints lodged by customers, after the incident has occurred. This is not acceptable as the Commission

	<p>occurring in a quarterly reporting period breach this standard, each and every one of such incidents are regarded as separate breaches of this standard.</p> <p>Service provider shall notify customers as soon as is practicable in respect of any service disruption incident.</p> <p>In the event of a single service disruption incident affected 500 or more customers and lasted for 30 minutes or longer, the service provider must submit a comprehensive report to the Commission within 7 business days of the incident.</p>	<p>single service disruption incident of any duration affecting 500 or more customers.</p> <p>Service provider must submit a comprehensive report to the Commission within 7 business days of the occurrence any single service disruption incident that affected 500 or more customers and lasted for 30 minutes or longer.</p>	<p>needs to have sufficient information to deal with customer complaints and to also ensure that the service providers take necessary steps to address the service disruption expeditiously.</p> <ul style="list-style-type: none"> • The report submitted by the service providers will also enable the Commission to monitor the disruption frequency and how effectively the service providers deal with the issues.
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16. Standards for Customer Service Quality of Service as Table 4 below:

Table 4: Customer Service Quality of Service

	Quality of Service Indicator	Description / Definition / Formula / Measurement / Reporting Requirement	Quality of Service Standard	Remarks / Rationale / Justification
i.	Service activation fulfilment	This indicator measures the duration from the time and date agreed by customer for the service to be activated, to the time when the	Not less than 95.0% of all service activations	Based on Analysis for Broadband Access Service Report

		<p>service is activated, excluding non-business days.</p> <p>Formula:</p> $\frac{\text{Total number of service activations fulfilled within the specific timeframe}}{\text{Total number of service activation scheduled to be activated within the reporting period}} \times 100\%$ <p>For the purpose of this indicator, deferment or cancellation of agreed date and time of service activation shall be upon customer request. Evidence of customer's agreement should be retained.</p> <p>Service activations that fail to meet the standard due to the following reasons are excluded from the computation:</p> <p>(a) damage to network facility due to force majeure or third parties; and (b) customer premises inaccessible or internal wiring not ready</p> <p>When service activation cannot be fulfilled due to the above reasons, new service activation time and date must be set and agreed between service provider and customer.</p>	<p>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>	<p>submitted from year 2004-2012 prepared by Monitoring and Compliance Dept. (MCD), the service providers are able to comply with the current standard. Please refer to Chart 1 for details. As such a more stringent requirement is suggested to raise the standard.</p>
Service restoration fulfilment		<p>This indicator measures the duration from the time and date a service fault is reported, to the time of service restoration, including non-business days. Where customer has requested for specific time and date of service restoration, restoration time is calculated from the specified time and date including non-business days.</p> <p>Formula:</p>	<p>Not less than 95.0% of all service restorations scheduled to be fulfilled in a reporting quarter must be fulfilled within 24 hours.</p>	<p>Based on Analysis for Broadband Access Service Report submitted from year 2004-2012 prepared by MCD, the service providers are able to comply with the current standard. As such a</p>

		<p><i>Total number of service restorations fulfilled within the specific timeframe</i></p> <hr/> <p><i>Total number of service fault reports received within the reporting period</i></p> <p>× 100%</p> <p>For the purpose of this indicator, deferment or cancellation of agreed date and time of service restoration shall be upon customer request. Evidence of customer’s agreement should be retained.</p> <p>Service restorations that fail to meet the standard due to the following reasons are excluded from the computation:</p> <p>(a) faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring; (b) network facility damage due to force majeure or third parties; and (c) customer premises inaccessible.</p> <p>When service restoration cannot be fulfilled due to the above reasons, new service restoration time and date must be set and agreed between service provider and customer.</p>	<p>100.0% of all service restorations scheduled to be fulfilled in a reporting quarter must be fulfilled within 48 hours.</p>	<p>more stringent requirement is suggested to raise the standard and also to ensure better customer experience. Please refer to Chart 2 for details.</p>
ii.	<p>Percentage of billing related complaints</p>	<p>This indicator measures the percentage of billing related complaints to the number of customers per reporting period.</p> <p>Billing related complaint is any complaint related to the service provider’s billing made or charges</p>	<p>Percentage of billing related complaints must be not more than 1.0% per quarterly reporting period.</p>	<ul style="list-style-type: none"> Despite the compliance rate of the service providers to the current standard (2%), complaints received by the

		<p>imposed on customers including, but not is limited to, complaints regarding payments made and wrongly credited or not credited, non-refund of deposits, late billing, non-receipt of bills, fraud, wrongly addressed bills and other billing errors. Bills issued by service provider may include, but are not limited to, bills sent by postal service, email or accessible online by customer. Billings of pre-paid and post-paid services are included for this indicator.</p> <p>Formula:</p> $\frac{\text{Total number of billing related complaint received at the end of the reporting period}}{\text{Total number of active customer at the end of the reporting period}} \times 100\%$		<p>Commission on billing and charging dispute² are high.</p> <ul style="list-style-type: none"> The proposed standard seeks to compel the service providers to take additional measures to improve their process and billing system.
iii.	<p>Non-billing related complaints per 1,000 customers</p>	<p>This indicator measures the percentage of non-billing related complaints per 1,000 customers per reporting period.</p> <p>Non-billing related complaint means any complaint other than billing related complaint. It includes, but is not limited to, complaints received on service matters including late or no service activation after a report has been made, unprofessional staff or contractors and other complaints related to customer service.</p> <p>Formula:</p>	<p>Non-billing related complaints must be not more than 6.0 complaints per 1,000 customers per quarterly reporting period.</p>	<ul style="list-style-type: none"> The telecommunication sector topped the number of customer complaints registered by NCC³ for three straight years which may indirectly suggest that there is a need for improvement on the QoS.

² Billing and charging is the 2nd highest type of complaint received by the Commission from 2008-2013.

³ National Complaints Centre (NCC) 2012 Annual Report

		<p>Total number of non – billing related complaint received in the reporting period</p> <hr/> <p>Total number of active customer at the end of the reporting period</p> <p>× 100%</p>		<ul style="list-style-type: none"> It should be noted that the current standard was set in 2002 and the penetration rate for public cellular services has increased substantially since then. Due to the pervasiveness and high dependence by end users on the services, standards for the manner in which complaints are dealt with by service providers have to be more stringent.
iv.	Promptness in resolving customer complaints	<p>This indicator measures the percentage of customer complaints resolved by the service provider within specified timeframes, measured from the day the complaint was received to the time the complaint was resolved.</p> <p>Formula:</p> <p>Total number complaints resolved within the specific timeframe</p> <hr/> <p>Total number of complaints received within the reporting period</p> <p>× 100%</p> <p>This Quality of Service indicator is to be separately measured and reported for billing</p>	<p>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:</p> <p>Not less than 30.0% must be</p>	<ul style="list-style-type: none"> With the significantly large numbers of customers that rely on public cellular services, it is incumbent upon service providers to resolve complaints effectively and quickly. The proposed standards are achievable as there are a few tiers

		<p>related complaints and non-billing related complaints, where the same QoS standard is applicable for both categories of complaints.</p> <p>Unresolved complaints due to the following are excluded from the computation:</p> <p>(a) damage to network facility due to force majeure or third parties;</p> <p>(b) customer premises inaccessible; and</p> <p>(c) faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring.</p> <p>Service provider is required to inform customers of their right to refer any unresolved complaint to the Consumer Forum of Malaysia (CFM).</p>	<p>resolved within 3 business days, and</p> <p>Not less than 95.0% must be resolved within 5 business days, and</p> <p>Not less than 99.0% must be resolved within 15 business days</p>	<p>provided depending on the complexity of the issue.</p> <ul style="list-style-type: none"> • These standards are also in accordance with measures imposed in certain other countries⁴.
v.	<p>Promptness in answering calls to Customer Hotline</p>	<p>This indicator measures the service provider's promptness in answering customer phone calls to the Customer Hotline, from the time when the customer presses the button opting for a human operator to the time it is answered by a human operator. The duration when the call is attended to by the interactive voice response system (IVRS) before being transferred to a human operator's phone is excluded.</p> <p>Formula:</p> $\frac{\text{Number of calls answered by human operator within the specific timeframe}}{\text{Total number of calls to Customer Hotline opting for human operator assistance in the reporting period}} \times 100\%$	<p>At least 80.0% of calls to Customer Hotline that opted for human operator in a quarterly reporting period must be answered within 15 seconds.</p> <p>100.0% of calls to Customer Hotline that opted for human operator in a quarterly reporting period must be answered</p>	<ul style="list-style-type: none"> • The Commission has also received complaints relating to unanswered calls to the customer hotline, long waiting period and the need to repetitively press a number of buttons before being finally connected to human operator. As such, this new standard is introduced to address these complaints.

⁴ Qatar set that 95% complaints must be solved within 5 working days

			within 30 seconds.	<ul style="list-style-type: none"> The standard is based on benchmarking of standard on the promptness in answering calls to customer hotline imposed by other countries⁵.
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PART E: 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 2** – Guideline to the Commission Determination on the Mandatory Standards for Quality of Service (Wired Broadband Access Service).

⁵ Brazil:95% in 10s, Qatar:75% in 15s, Romania: 90% in 30s, India: 60% in 60s

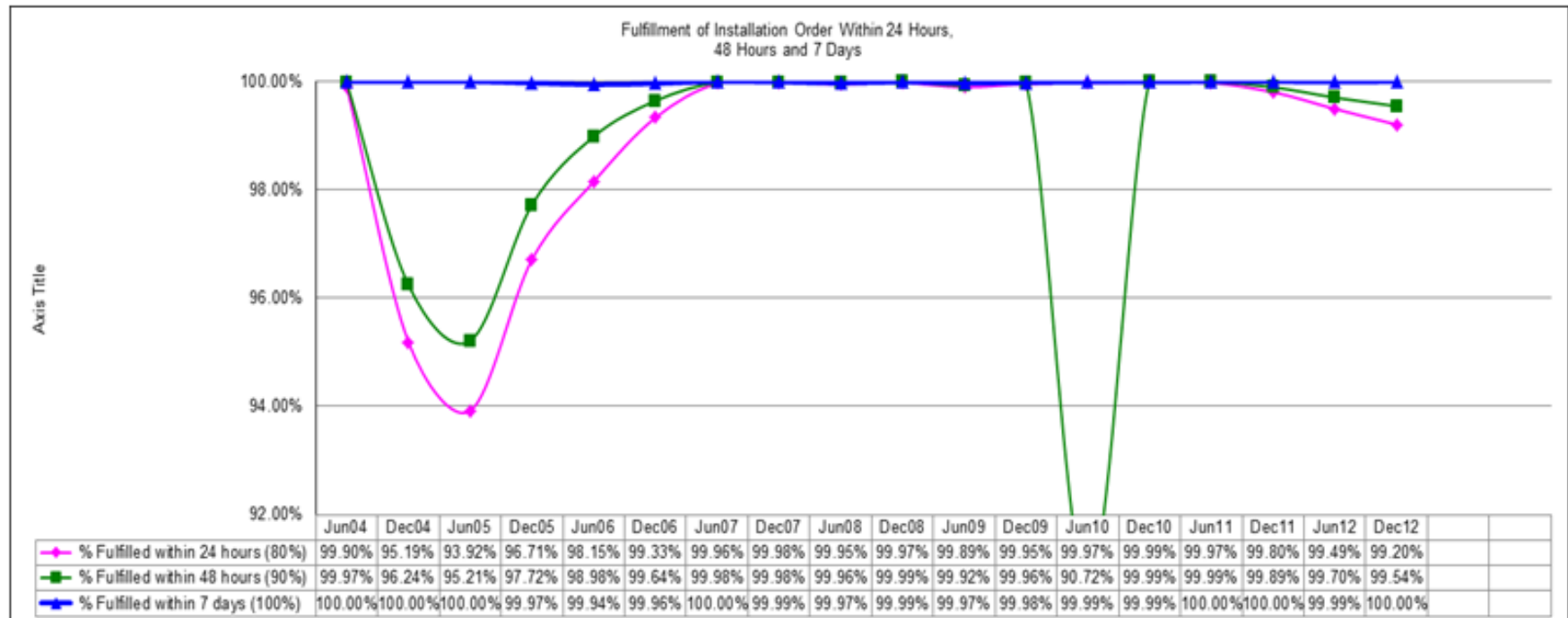
PART F: VIEWS SOUGHT

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

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

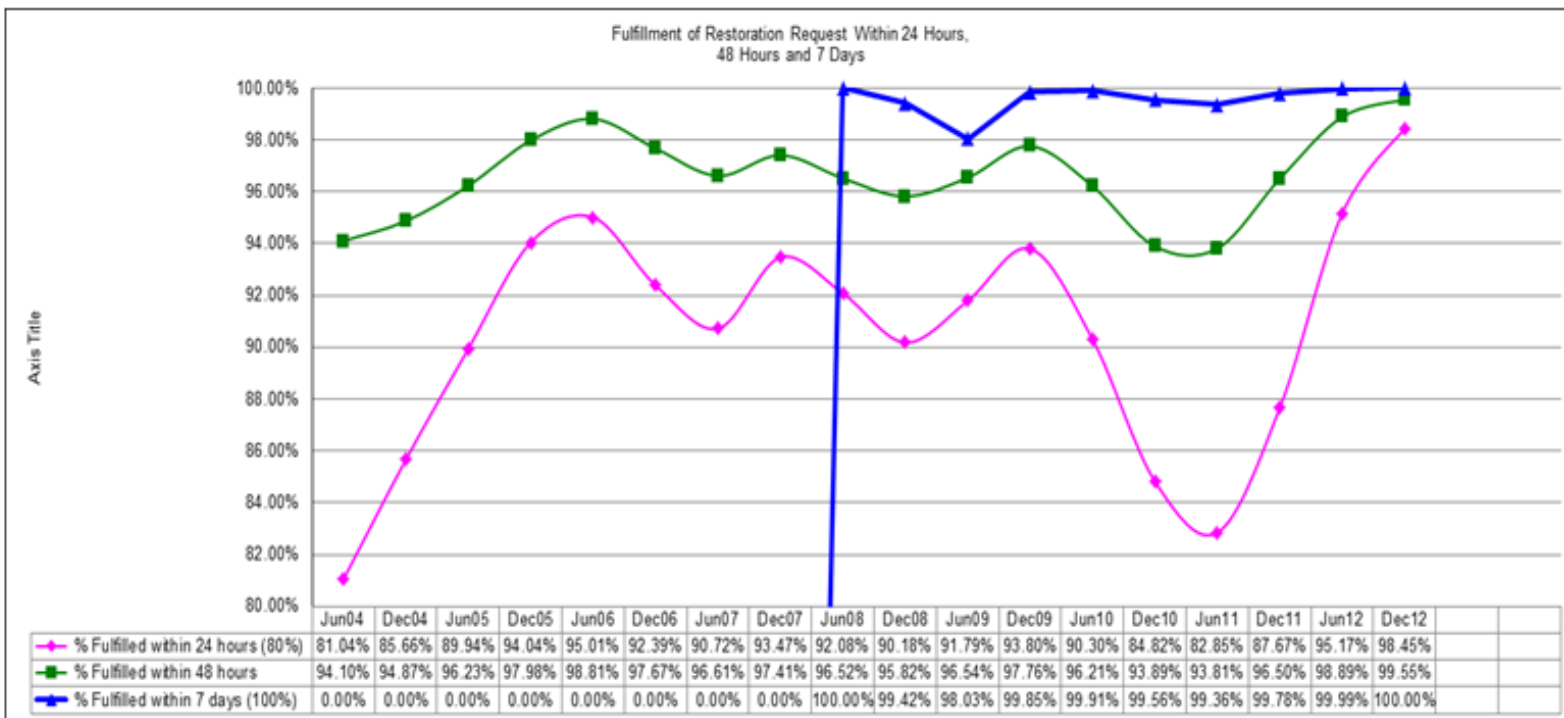
20. **The Commission also seeks views on other possible approaches that may be employed to improve quality of service for the Wired Broadband Access Services in Malaysia.**

Chart 1 – Fulfillment of Installation Orders Report Analysis MS for QoS for Broadband Access Service



Source: Analysis for BB MS Report submitted from year 2004-2012 based on standards, MCD

Chart 2 – Service Restoration Performance Report Analysis MS for QoS for Broadband Access Service



Source: Analysis for BB MS Report submitted from year 2004-2012 based on standards, MCD



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 2015**

(MCMC/SQSOD/CIA/No. 'X' of 2015)

18 SEPTEMBER 2015

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GLOSSARY

BB	Broadband
CPE	Customer Premise Equipment
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
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 'X' of the Commission Determination on the Mandatory Standards for Quality of Service (Wired Broadband Access Service), Determination 'X' of 2015 ("Mandatory Standards").
2. These guidelines set out the testing procedures, examples of computations, reporting templates, explanatory notes and list of designated routes and areas to the standards proposed 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)	1st January to 31st March	By 30th April of the same year
2.	QoS performance report (2 nd Quarter)	1st April to 30th June	By 31st July of the same year

3.	QoS performance report (3 rd Quarter)	1st July to 30th September	By 31st October of the same year
4.	QoS performance report (4 th Quarter)	1st October to 31st December	By 31st January of the next year
5.	Advance notice of scheduled downtime	-	72 hours in advance
6.	Notification of service disruption (<i>via email only</i>)	-	Within 60 minutes
7.	Comprehensive report of service disruption	-	Within 7 working 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 fails to arrive at their destinations. It is computed based on the average of sample measurements between the end user and MyIX.
9. 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, if necessary.

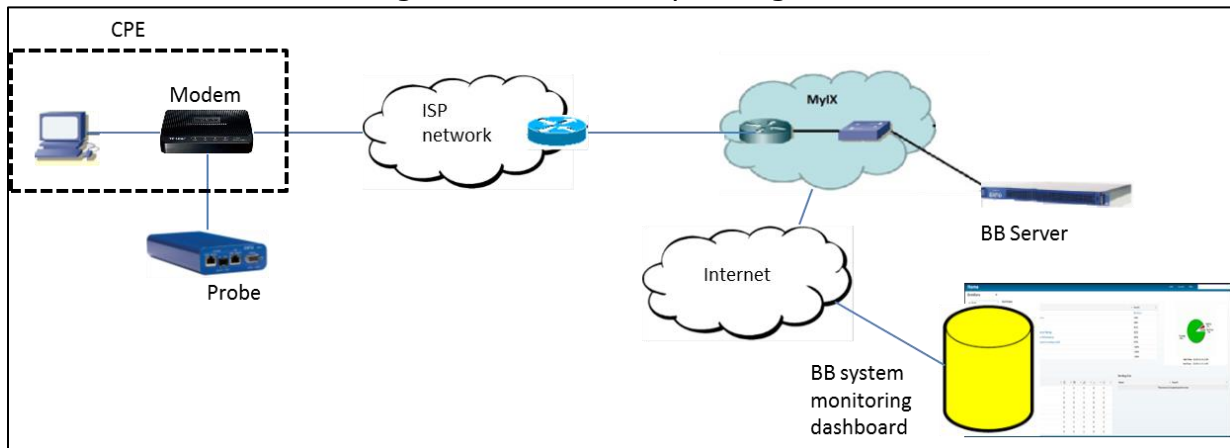
Location Identification

10. The tests are to be carried out in locations identified to have wired broadband service coverage.
11. 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.

Testing parameters

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

Diagram 1: Test set up configuration



13. 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.
14. 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.
15. Packet size of 64 bytes will be used for network latency or ping time measurement.

16. The software/measurement tools used for the tests shall be in compliance with the relevant recommendation from Metro Ethernet Forum (MEF) or equivalent.
17. Geographical positioning will be based on the Global Positioning System (GPS) and the WGS-84 digital map or its equivalent.

Designated areas

18. 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
 - f. Sarawak
19. 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.
20. The selection of test locations is subject to the Commission’s discretion.

QUALITY OF SERVICE PERFORMANCE REPORT

21. 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

No	Location (address and Longitude & latitude)	Upload			Throughput			Latency				Packet Loss						
		No of total sample	Average	No of sample ≥ 70% of subscribed level	% sample ≥ 70 %of subscribed level	Compliance (YES/NO)	Average	No of sample ≥ 70% of subscribed level	% sample ≥ 70% of subscribed level	Compliance (YES/NO)	No of total sample	No of sample ≤ 85ms of subscribed level	% sample ≤ 85ms of subscribed level	Compliance (YES/NO)	Total Packet sent	Total Packet Loss	% of Packet Loss	Compliance (YES/NO)

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

ACCESS NETWORK UTILIZATION REPORT

23. The Service Provider shall submit access network utilization reports as per the following format:

No	Type of Access Network (DSLAM, MSAN, OLT etc.)	Location (District, State)	Total minutes \geq 70% of uplink bandwidth

NETWORK SERVICE AVAILABILITY

24. 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
Total operational Minutes in a month (exclude schedule downtime)						
Total Down time (minutes)						
% of network availability					Not less than 99.90%	Yes/No

ADVANCE NOTICE OF SCHEDULED DOWNTIME

25. Advance notice of scheduled downtime to customers via service provider's official website should clearly state at least the following:
- a. Date, time and area affected by the scheduled downtime;
 - b. Type of service affected; and
 - c. Details of Helpline.

26. Advance written notice of scheduled downtime to the Commission should at the very least clearly state the following:
- a. Date, time and area affected by the scheduled downtime;
 - b. Type of service affected;
 - c. Details of Helpline; and
 - d. Justification for the scheduled downtime.

SERVICE DISRUPTION

27. The Service Provider shall submit quarterly reports on service disruption as per the following format:

Table 4: Format for service disruption in quarterly reports

Report Items	Impact of single incident of service disruption	QoS Standard	Compliance
Total number of customers affected		Shall not affect more than 500 customers; and Not last for more than 30 minutes	Yes/No
Duration of service disruption			

28. The Service Provider must notify the Commission within 60 minutes after the occurrence of any single service disruption incident that affected 500 or more customers and lasted for 30 minutes or longer. The details of the report shall be presented in the following format:

Table 5: Format for service disruption notification 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.	Type of services affected and service impact	
4.	Current status of service disruption	

29. The service provider shall submit a comprehensive report to the Commission within 7 business days of the occurrence for any single service disruption incident that affects equal or more than 500 customers that lasted for 30 minutes or longer. The details of the report shall be presented in the following format:

Table 6: 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	
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30. Service Provider shall notify customers via electronic media (i.e. website and social media) as soon as is practicable in respect of any service disruption incident.

PART D: CUSTOMER SERVICE QUALITY OF SERVICE

SERVICE ACTIVATION FULFILMENT

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

Table 7: Format for Service Activation Fulfilment in quarterly reports

Report Items	1 st month	2 nd month	3 rd month	Total	QoS Standard	Non-Compliance
No. of service activations scheduled to be activated						
Fulfilled within 24 hours						
Fulfilled within 72 hours						
Fulfilled more than 72 hours						
Number of activation yet to be activated						
% Fulfilled within 24 hours					95%	Yes/No
% Fulfilled within 72 hours					100%	Yes/No

32. Service Provider shall submit quarterly reports on the service activations excluded from the above report as per the following format:

Table 8: Format for excluded service activation quarterly reports

No.	Exclusion	No. of service activation order		
		1 st month	2 nd month	3 rd month
1.	Damage to network facility due to force majeure or third parties			
2.	Customer's premise inaccessible or internal wiring not ready			
Total				

SERVICE RESTORATION FULFILMENT

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

Table 9: Format for Service Restoration Fulfilment in quarterly reports

Report Items	1 st month	2 nd month	3 rd month	Total	Qos Standard	Non-Compliance
No. of service fault received						
Fulfilled within 24 hours						
Fulfilled within 48 hours						
Fulfilled more than 48 hours						
Number of restoration yet to be activated						
% Fulfilled within 24 hours					95%	Yes/No
% Fulfilled within 48 hours					100%	Yes/No

34. Service provider shall submit quarterly reports on the service restorations excluded from the above report as per the following format:

Table 10: Format for excluded (from Table 9) service restoration quarterly reports

No.	Exclusion	No. of service restoration order		
		1 st month	2 nd month	3 rd month
1.	Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring			
2.	Network facility damage due to force majeure or third parties			
3.	Customer premises inaccessible			
Total				

PERCENTAGE OF BILLING RELATED COMPLAINTS

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

Table 11: Format for billing related complaints quarterly reports

Report Items	Total number over the reporting period	QoS Standard	Compliance
Total number of active customers at the end of the reporting period			
Total number of billing related complaints received at the end of the reporting period			
% of billing related complaints		not more than 1.0%	Yes/No

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

Table 12: 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 / 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)	

37. 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 1000 CUSTOMERS

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

Table 13: Format for non-billing related complaints quarterly reports

Report Items	Total number over the reporting period	QoS Standard	Compliance
Total number of active customers at the end of reporting period			
Total number of non-billing received in the reporting period			

No. of non-billing related complaints per 1000 customer per reporting period		not more than 6.0	Yes/No
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39. 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 14: Format for types of non-billing related complaints quarterly reports

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

40. 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

41. For this standard, the indicator is to be separately measured and reported for (a) billing related complaints and (b) non-billing related complaints.
42. Service Provider shall submit quarterly reports on performance of promptness in resolving customer complaints as per the following format:
- a. Billing related complaints

Table 15: Format for performance of promptness in resolving customer complaints (billing related) quarterly reports

Report items	Total for 3 months of the reporting period	QoS Standards	Compliance
No. of complaints received			

No. of complaints resolved			
Resolved within 3 business days		Not less than 60.0%	Yes/ No
Resolved within 5 business days		Not less than 90.0%	Yes/ No
Resolved within 15 business days		Not less than 95.0%	Yes/ No

b. Non-billing related complaints

Table 16: Format for performance of promptness in resolving customer complaints (non-billing related) quarterly reports

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

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

Table 17: Format for excluded (from Table 9 & Table 10) unresolved complaints quarterly reports

	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.	Customer premises inaccessible.	
3.	Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring.	
Total		

PROMPTNESS IN ANSWERING CALLS TO CUSTOMER HOTLINE

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

Table 18: Format for promptness in answering calls to Customer Hotline quarterly reports

Report items	Total for 3 months of the reporting period	QoS Standards	Compliance
No. of calls opted for human operator			
No. of calls answered by human operator			
Answered within 20 seconds			
Answered within 40 seconds			
% answered within 20 seconds		Not less than 80.0%	Yes/ No
% answered within 40 seconds		Not less than 90.0%	Yes/ No

PART E: EFFECTIVE DATE AND COMMISSION CONTACT

45. These guidelines shall come into effect on 1 January 2016, and shall continue to be effective unless modified, varied or revoked by the Commission.
46. 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. The Monitoring & Compliance (Communications) Department
Phone : 03-8688 8000
Email : gqs.admin@cmc.gov.my

With respect to Customer Service Quality of Service: