



Name	Public Utilities Commission
Address	Lot 106 New Garden Street, Queenstown, Georgetown, Guyana.
Docket No.	CP-01/2022
Public Consultation	Telecommunications Quality of Service Standards
Consultation Period	May 16, 2022 – June 30, 2022

Overview

The Public Utilities Commission (hereinafter referred to as the “Commission”) is a statutory body, established initially under the Public Utilities Commission (PUC) Act of 1990. It is an independent, multi-sector regulator for the Electricity, Telecommunications, and Water and Sewerage sectors in Guyana.

On October 5, 2020, the telecommunications sector was liberalised paving the way for an open competitive sector which is anticipated to be attractive to new market entrants and investors. The liberalisation of the sector saw the issuance of licences to service providers Guyana Telephone & Telegraph Company Ltd (GTT), U Mobile (Cellular) Inc. (Digicel), and E-Networks Inc. On January 1, 2022, a licence was issued to Green Gibraltar Inc., bringing the total to four licenced telecommunications undertakings in the Republic of Guyana. The present Public Utilities Commission Act No. 19 of 2016 together with the Telecommunications Act No. 18 of 2016 was brought into force on the 5th day of October 2020. The various pieces of regulations to the Telecommunications Act became effective on the 23rd day of October 2020.

As part of the Commission’s mandate and in compliance with the provisions of the Telecommunications Act 2016 and the Telecommunications (Consumer Protection) Regulations 2020, the Commission is required to monitor the quality of service as offered by the telecommunications service providers as stipulated in Schedules 1 and 2 of the Telecommunications (Consumer Protection) Regulations 2020. This piece of Regulation makes provision for quality of service standards for both fixed and mobile public telecommunication services offered.

In October 2021, the Guyana Telephone and Telegraph Company Ltd (GTT) approached the Commission with its concerns as it relates to the quality of service standards for the residential narrowband (voice) access services and the broadband internet services for residential customers as contained in the aforementioned Schedule 1.

Further by way of a letter dated 6th day of April 2022, the Prime Minister (the Honourable Brigadier (ret’d) Mark Anthony Phillips MSS MP) who has oversight for the telecommunications

sector, urged the Commission to review the quality of service parameters as contained in Schedules 1 and 2 of the Telecommunications (Consumer Protection) Regulations 2020 with the recommendation that it includes the following parameters for review:

- i) Availability
- ii) Packet Loss Ratio (Upload and Download)
- iii) Average Throughput for Packet Data
- iv) Latency
- v) Jitter.

Immediately following the consultations with GTT and having given consideration to the Prime Minister's recommendations, the Commission determined that there was an urgent need to review the quality of service standards for fixed public telecommunications services and for mobile public telecommunications services as contained in Schedules 1 and 2 of the Telecommunications (Consumer Protection) Regulations 2020.

Therefore, in addition to the amending the standards set out for Residential narrowband (voice) access services in Schedule 1, we determined that technical standards were required for the following:

- Broadband internet services for residential consumers
- Fixed wireless broadband internet services
- Mobile broadband internet services

Additionally, the Commission recognised that in order to realise a fulsome investigative process, the following proposed additional standards should be included:

- i) Signal Strength
- ii) Data Service availability
- iii) Data Service access time
- iv) Installation and Reconnections
- v) Customer Care

The Commission is a creature of statute, and as such we are empowered by the Telecommunications (Consumer Protection) Regulations 2020 which allows the Commission "*on its own initiative at any time and after consulting with service providers and consumers that may be affected, make recommendations to the Minister that amendments be made .. to the Schedules though the Minister's exercise of his powers...*" That is, "*to add, remove, or revise any quality of service standard applicable to any of the telecommunications services.*"

The Commission was therefore of the view that it is in the best interest of stakeholders that it should embark upon this public consultation to garner from all operators, consumers and other interested persons their suggestions/comments/recommendations as it relates to the proposed quality of service parameters and standards.

On May 16, 2022, the Commission issued its Consultative Document (CP-01/2022), which is intended to form the basis for:

- (1) a review of the minimum QoS parameters for the reported and unreported fault clearances of the residential narrowband (voice) access services;
- (2) the consideration of new QoS parameters (technical) with respect to fixed and mobile public telecommunications services and
- (3) any other issues which touch and concern the quality of service for residential narrowband (voice) access services, fixed and mobile telecommunications services in Guyana.

The Commission duly embarked upon its consultative process by disseminating notices via the print media informing the public that:

- (1) the Consultative Document (CP-01/2022) was posted on the Commission's website www.puc.org.gy, and
- (2) requesting that stakeholders proffer any comments, suggestions and recommendations as it relates to the reform and revision of the standards and to submit same by June 30, 2022.

The relevant documentation found in Docket No. CP-01/2022 was dispatched to all telecommunications service providers, namely the Guyana Telephone & Telegraph Co. Ltd, U-Mobile (Cellular) Inc, E-Networks Inc and Green Gibraltar Inc. and the Guyana Consumers Associations together with other stakeholders, with the requirement that submissions/responses are to be addressed to the Chairman and submissions made via email to pucommission@gmail.com or via postal service to P.O. Box 1081.

To date, the Commission has received and processed a number of responses from the stakeholders inclusive of consumers and also comprising key personnel from the public and private sectors, Caricom Secretariat, the National Data Management Authority (NDMA) which has the responsibility for the implementation of the Guyana's eGovernment agenda; the Guyana Consumers Association (GCA); Green Gibraltar Inc.; Guyana Telephone and Telegraph Company Inc. (GTT) and U-Mobile (Cellular Inc).

Please find attached hereto at **Appendix A** the summary of the consumers' responses as it relates to each of the proposed quality of standards categories and **Appendix B**, containing the responses received from the service providers.

APPENDIX A

1.1 Residential narrowband voice (access) services

The following is a summary of stakeholders' responses to the Commission's Quality of Service consultancy as it relates to the proposed quality of service parameters for Residential narrowband (voice) access services.

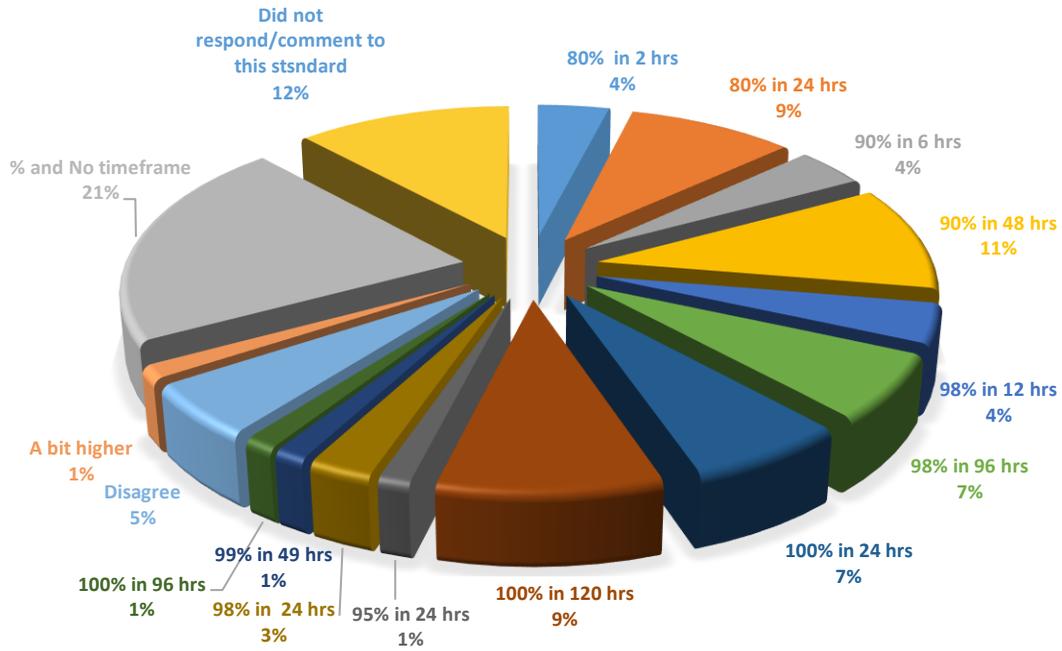
QUALITY OF SERVICE PARAMETERS	PUC's PROPOSED STANDARDS		ANALYSIS OF CONSUMERS' RESPONSES INCLUDING GUYANA CONSUMERS ASSOCIATION (GCA) AND NATIONAL DATA MANAGEMENT AUTHORITY (NDMA)	
	Duration (Hrs.)	Standard (%)		
% of unreported faults cleared within	24	80	<ul style="list-style-type: none"> ✓ 36.84% agreed with PUC. ✓ 15.79% suggested maintaining the existing standard. ✓ 5.26% suggested clearing 95% in 24 hours. ✓ 10.53% suggested clearing clear 80%. No timeframe was given. ✓ 5.26% each suggested <ul style="list-style-type: none"> ➤ 'A bit higher' ➤ 75% ➤ 85% ➤ 'Disagree' ✓ 10.53% did not respond/comment to this standard 	<p><u><i>Guyana Consumers Association</i></u></p> <p>Agreed to a standard of 80% of unreported faults cleared within 24 hours</p>
% of unreported faults cleared within	48	90	<ul style="list-style-type: none"> ✓ 42.11% agreed with PUC ✓ 15.79% suggested maintaining the existing standard. ✓ 5.26% each suggested that <ul style="list-style-type: none"> ➤ 99% be cleared in 49 hours ➤ 85%. No timeframe given ➤ 80%. No timeframe given ✓ 10.53% suggested 90%. No timeframe was given. ✓ 5.26% indicated 'disagree' ✓ 10.53% did not respond/comment to this standard 	<p><u><i>Guyana Consumers Association</i></u></p> <p>Agreed to a standard of 90% of unreported faults cleared within 48 hours</p>
% of unreported faults cleared within	96	98	<ul style="list-style-type: none"> ✓ 26.32% agreed with PUC ✓ 15.79% suggested maintaining the existing standard. ✓ 5.26% suggested clearing 100% within 96 hours. ✓ 10.53% suggested 98% cleared within 24 hours. ✓ 5.26% suggested 80%. No timeframe was given ✓ 10.53 suggested 98%. No timeframe was given ✓ 5.26% suggested 95%. No timeframe was given. ✓ 5.26% indicated 'disagree' ✓ 15.79% did not respond/comment to this standard 	<p><u><i>Guyana Consumers Association</i></u></p> <p>Agreed to a standard of 98% of unreported faults cleared within 96 hours</p>

% of unreported faults cleared within	120	100	<ul style="list-style-type: none"> ✓ 36.84% agreed with PUC ✓ 26.32% suggested maintaining the existing standard. ✓ 15.79% suggested clearing 100%. No timeframe was given. ✓ 5.26% suggested 80%. No timeframe was given. ✓ 5.26% indicated ‘disagree’ ✓ 10.53% did not respond/comment to this standard 	<p><u>Guyana Consumers Association</u></p> <p>Agreed to a standard of 100% of unreported faults cleared within 120 hours</p>
% of reported faults cleared within	24	75	<ul style="list-style-type: none"> ✓ 36.84% agreed with PUC ✓ 21.05% suggested maintaining the existing standard. ✓ 5.26% each suggested that <ul style="list-style-type: none"> ➤ Clearing 50% within 12 hours ➤ 20% be cleared. No timeframe was given. ➤ 75% be cleared. No timeframe was given. ➤ 80% be cleared. No timeframe was given. ➤ 24% be cleared. No timeframe was given. ➤ Indicated ‘disagree’ ✓ 10.53% did not respond/comment to this standard 	<p><u>Guyana Consumers Association</u></p> <p>Agreed to a standard of 75% of reported faults cleared within 24 hours</p>
% of reported faults cleared within	48	85	<ul style="list-style-type: none"> ✓ 26.32% agreed with PUC ✓ 21.05% proposed maintaining the existing standard. ✓ 5.26% suggested clearing 90% within 24 hours. ✓ 10.53% suggested 24 hours. No percentage was given. ✓ 5.26% suggested clearing 20%. No timeframe was given. ✓ 10.53% suggested clearing 85%. No timeframe was given. ✓ 5.26% suggested 90%. No timeframe was given. ✓ 5.26% indicated “disagree” ✓ 10.53% did not respond/comment to this standard 	<p><u>Guyana Consumers Association</u></p> <p>Agreed to a standard of 85% of reported faults cleared within 48 hours</p>
% of reported faults cleared within	96	98	<ul style="list-style-type: none"> ✓ 31.58% agreed with PUC ✓ 21.05% suggested maintaining the existing standard. ✓ 5.26% suggested clearing 100% within 98 hours. ✓ 10.53% suggested clearing 98% within 24 hours. ✓ 10.53% suggested 98%. No timeframe was given. ✓ 5.26% suggested 90%. No timeframe was given ✓ 5.26% suggested 20%. No timeframe was given ✓ 5.26 % indicated ‘disagree’ ✓ 5.26% did not respond/comment to this standard 	<p><u>Guyana Consumers Association</u></p> <p>Agreed to a standard of 98% of reported faults cleared within 96 hours</p>

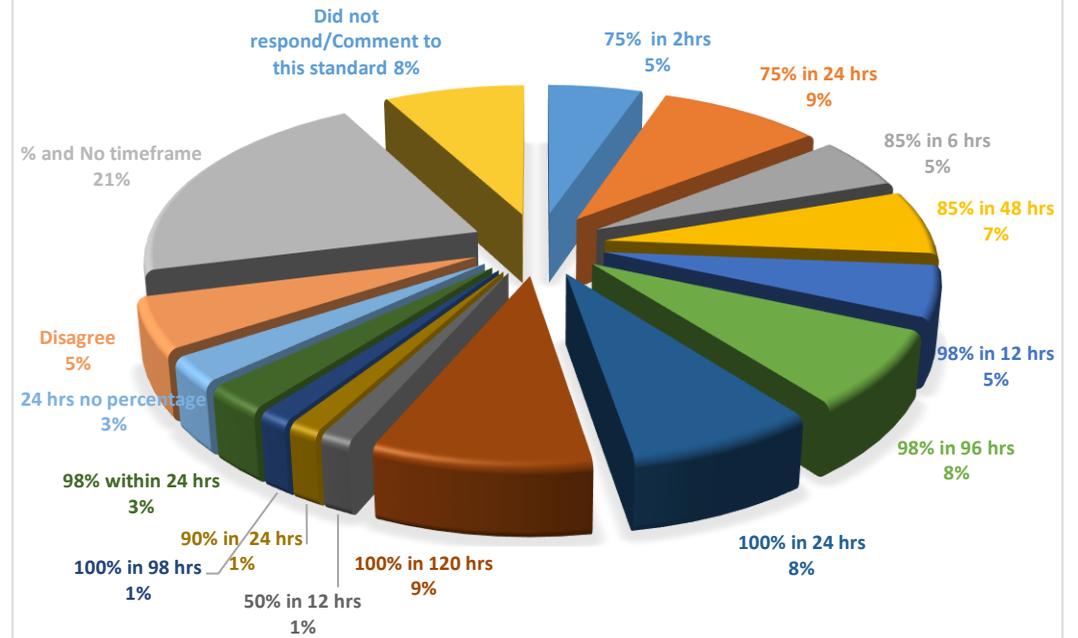
% of reported faults cleared within	120	100	<ul style="list-style-type: none"> ✓ 36.84% agreed with PUC ✓ 31.58% suggested maintaining the existing standard. ✓ 15.79% suggested 100%. No timeframe was given. ✓ 5.26% suggested 20%. No timeframe was given. ✓ 5.26% indicated 'disagree' ✓ 5.26% did not respond/comment to this standard 	<p><u>Guyana Consumers Association</u></p> <p>Agreed to a standard of 100% of reported faults cleared within 120 hours</p>
Reconnection of service within three hours after payment of overdue amounts	90%		<ul style="list-style-type: none"> ✓ 36.84% agreed with PUC ✓ 10.53% suggested 100% in 1 hour ✓ 10.53% suggested 99% ✓ 5.26% each suggested <ul style="list-style-type: none"> ➤ 95% ➤ 98% ➤ 100% ✓ 26.32% did not respond 	<p><u>Guyana Consumers Association</u></p> <p>Suggested that the standard should be 99% of services reconnected within three hours after payment of overdue amounts</p>
Customer Care Accessibility	100%		<ul style="list-style-type: none"> ✓ 73.68% agreed with PUC ✓ 5.26% indicated 'revised the standard' ✓ 21.05% did not respond/comment to this standard 	<p><u>Guyana Consumers Association</u></p> <p>Did not respond/comment on this standard.</p>

Note: Please find explanatory charts below.

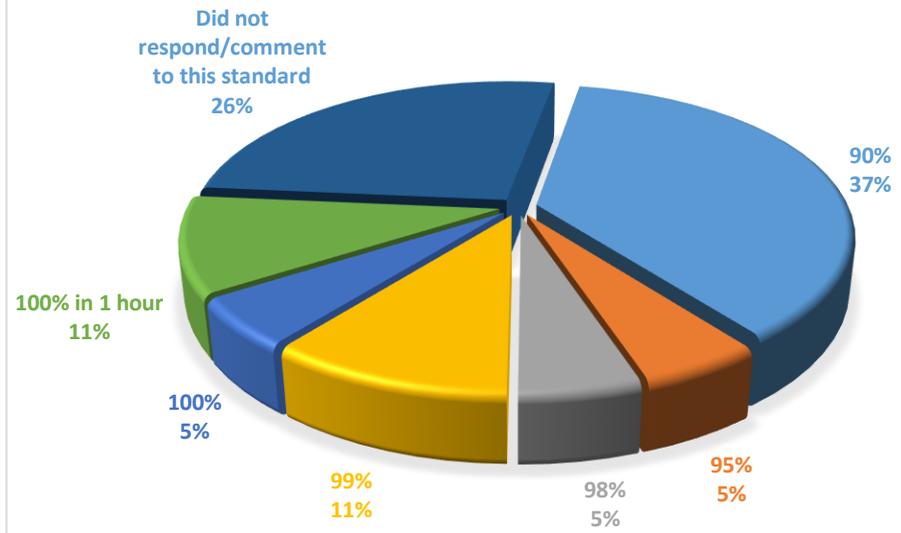
**RESIDENTIAL NARROWBAND (VOICE) ACCESS SERVICES
RESPONSES RECEIVED FOR UNREPORTED FAULTS**



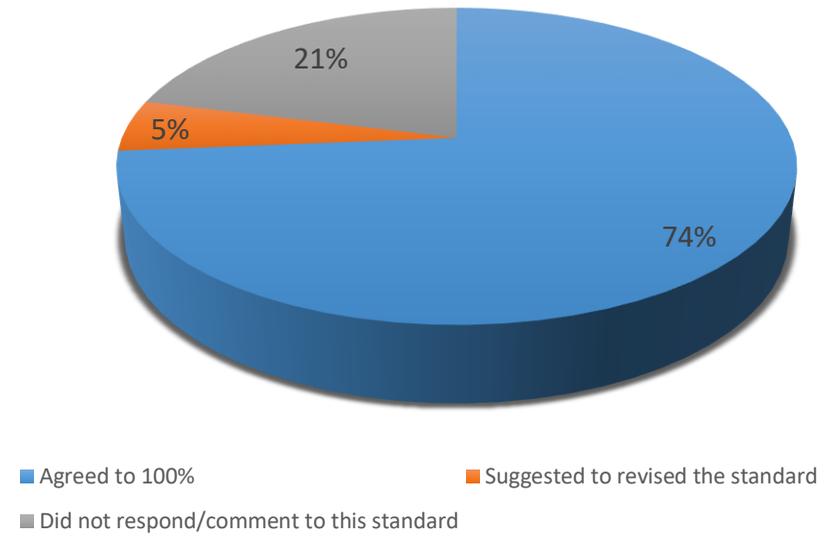
**RESIDENTIAL NARROWBAND (VOICE) ACCESS SERVICES
RESPONSES RECEIVED FOR REPORTED FAULTS**



RESIDENTIAL NARROWBAND (VOICE) ACCESS SERVICES
RESPONSES FOR RECONNECTION OF SERVICES AFTER
PAYMENT OF OVERDUE AMOUNTS

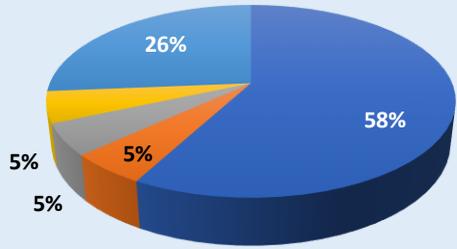


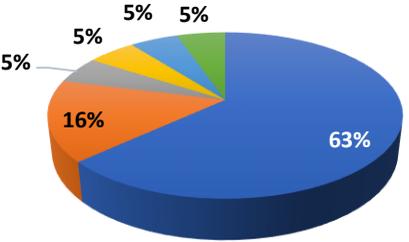
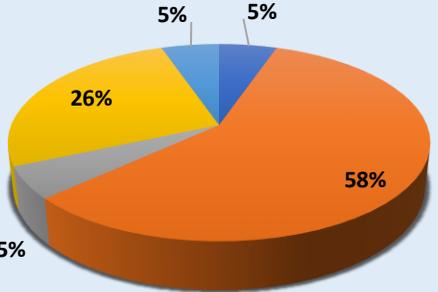
RESIDENTIAL NARROWBAND VOICE ACCESS SERVICES
RESPONSES FOR CUSTOMER CARE ACCESSIBILITY

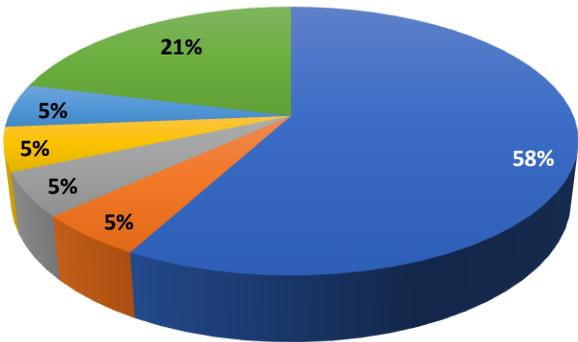
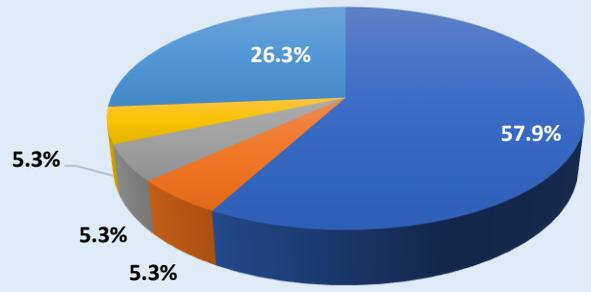


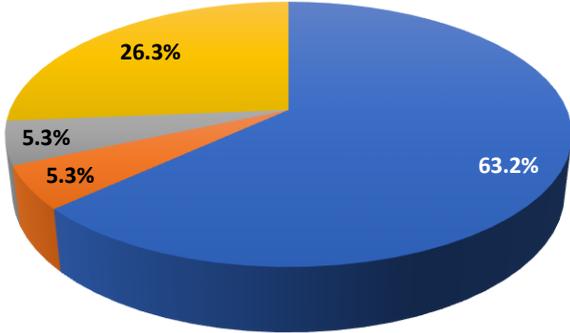
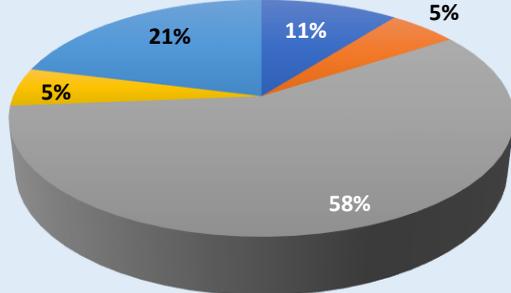
1.2 Schedule 1 (6) Broadband Internet services for residential customers

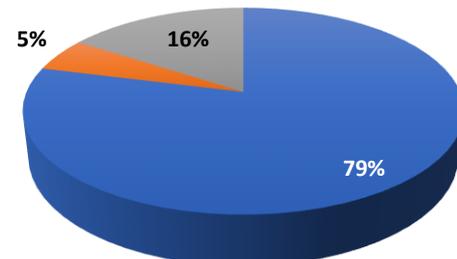
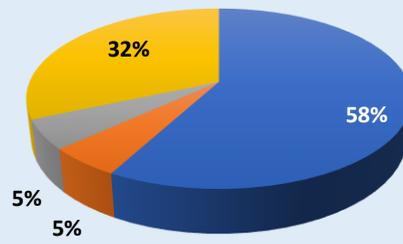
The following is a summary of stakeholders' responses to the Commission's Quality of Service public consultation on the proposed quality of service parameters for Broadband internet services for residential customers.

QUALITY OF SERVICE PARAMETERS	DEFINITIONS	PUC'S PROPOSED STANDARDS	SUMMARY OF CONSUMERS' RESPONSES INCLUDING GUYANA CONSUMERS ASSOCIATION (GCA) AND NATIONAL DATA MANAGEMENT AUTHORITY (NDMA)	
Availability	The percentage of the time that the service is available at any time.	Greater than or equal to 99%	<ul style="list-style-type: none"> ✓ 58% agreed to Greater than or equal to 99% ✓ 5% agreed to Greater than or equal to 100% ✓ 5% agreed to Greater than or equal to 99.9% ✓ 5% agreed to Greater than or equal to 98% ✓ 26% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to an availability standard of greater than or equal to 99%</p>	<p style="text-align: center;">AVAILABILITY</p>  <p>■ Agreed to Greater than or equal to 99% ■ Agreed to Greater than or equal to 100%</p> <p>■ Agreed to Greater than or equal to 99.9% ■ Agreed to Greater than or equal to 98%</p> <p>■ Did not respond/comment to this standard</p>

<p>Packet Loss</p>	<p>The reliability of a communication network path is expressed by the packet loss rate. This metric is equal to the number of packets not received divided by the total number of packets sent.</p>	<p>Less than 2%</p>	<ul style="list-style-type: none"> ✓ 63% agreed to less than 2% ✓ 5% agreed to less than 1.5% ✓ 5% agreed to less than 1% ✓ 5% agreed to less than 50% ✓ 5% agreed to less than 0% ✓ 16% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to packet loss standard of less than 2%</p>	<p style="text-align: center;">PACKET LOSS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ Agreed to Less than 2%</td> <td>■ Did not respond/comment to this standard</td> </tr> <tr> <td>■ Agreed to Less than 1.5 %</td> <td>■ Agreed to Less than 1%</td> </tr> <tr> <td>■ Agreed to Less than 50%</td> <td>■ Agreed to Less than 0%</td> </tr> </table>	■ Agreed to Less than 2%	■ Did not respond/comment to this standard	■ Agreed to Less than 1.5 %	■ Agreed to Less than 1%	■ Agreed to Less than 50%	■ Agreed to Less than 0%
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<p>Packet Throughput</p>	<p>The amount of information or material passed through or delivered in a specific period of time.</p>	<p>Greater than or equal to 90%</p>	<ul style="list-style-type: none"> ✓ 58% agreed to greater than or equal to 90% ✓ 5% agreed to greater than or equal to 98% ✓ 5% agreed to greater than or equal to 98.5% ✓ 5% agreed to greater than or equal to 99% ✓ 26% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to a packet throughput standard of greater than or equal to 90%</p>	<p style="text-align: center;">PACKET THROUGHPUT</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ Agreed to Greater than or equal to 98%</td> <td>■ Agreed to Greater than or equal to 90%</td> </tr> <tr> <td>■ Agreed to Greater than or equal to 98.5%</td> <td>■ Did not respond/comment to this standard</td> </tr> <tr> <td>■ Agreed to Greater than or equal to 99%</td> <td></td> </tr> </table>	■ Agreed to Greater than or equal to 98%	■ Agreed to Greater than or equal to 90%	■ Agreed to Greater than or equal to 98.5%	■ Did not respond/comment to this standard	■ Agreed to Greater than or equal to 99%	
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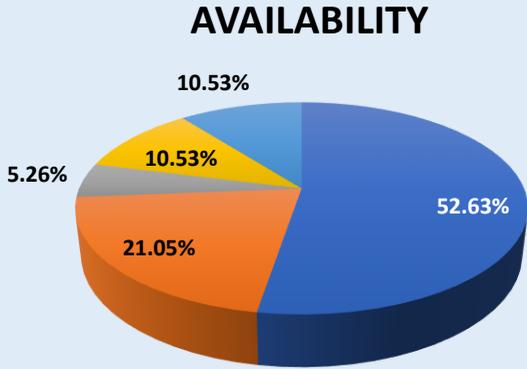
<p>Latency</p>	<p>The amount of time it takes for a packet of data to be captured, transmitted, processed through multiple devices, then received at its destination and decoded.</p>	<p>Less than or equal to 70milliseconds</p>	<ul style="list-style-type: none"> ✓ 58% agreed to less than or equal to 70milliseconds ✓ 5% agreed for it to be greater ✓ 5% agreed to less than or equal to 30milliseconds ✓ 5% agreed to less than or equal to 50milliseconds ✓ 5% suggest for it to be between 20 to 40milliseconds ✓ 21% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to a latency standard of less than or equal to 70 milliseconds</p>	<p style="text-align: center;">LATENCY</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ Agreed to be Less than or equal to 70ms</td> <td>■ Agreed for it to be Greater</td> </tr> <tr> <td>■ Agreed to Less than or equal to 30ms</td> <td>■ Agreed to Less than or equal to 50ms</td> </tr> <tr> <td>■ Should be between 20 to 40ms</td> <td>■ Did not respond/comment to this standard</td> </tr> </table>	■ Agreed to be Less than or equal to 70ms	■ Agreed for it to be Greater	■ Agreed to Less than or equal to 30ms	■ Agreed to Less than or equal to 50ms	■ Should be between 20 to 40ms	■ Did not respond/comment to this standard
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<p>Jitter</p>	<p>The variation in time delay between when a signal is transmitted and when it's received over a network connection.</p>	<p>Less than or equal to 30 milliseconds</p>	<ul style="list-style-type: none"> ✓ 57.9% agreed to less than or equal to 30milliseconds ✓ 5.3% agreed for it to be greater ✓ 5.3% agreed for it to be less than or equal to 10milliseconds ✓ 5.3% agreed to less than or equal to 20milliseconds ✓ 26.3% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to a jitter standard of less than or equal to 30 milliseconds</p>	<p style="text-align: center;">JITTER</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ Agreed to Less than or equal to 30milliseconds</td> <td>■ Agreed for it to be Greater</td> </tr> <tr> <td>■ Agreed to Less than or equal to 10 milliseconds.</td> <td>■ Agreed to Less than or equal to 20milliseconds</td> </tr> <tr> <td>■ Did not respond/comment to this standard</td> <td></td> </tr> </table>	■ Agreed to Less than or equal to 30milliseconds	■ Agreed for it to be Greater	■ Agreed to Less than or equal to 10 milliseconds.	■ Agreed to Less than or equal to 20milliseconds	■ Did not respond/comment to this standard	
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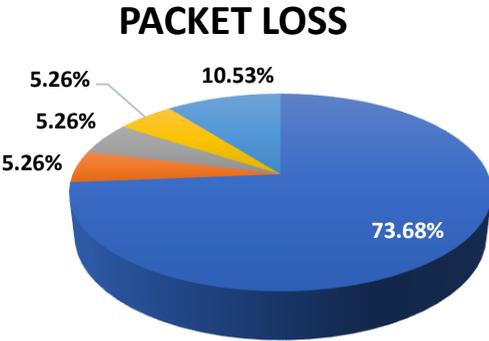
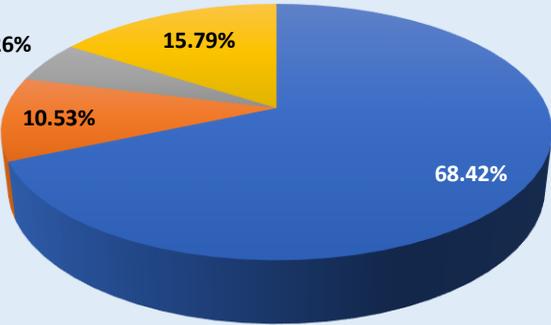
<p>Signal Strength</p>	<p>The wireless signal power level received by the wireless client.</p>	<p>Greater than or equal to -85 decibels</p>	<ul style="list-style-type: none"> ✓ 63.2% agreed to greater than or equal to -85decibels ✓ 5.3% agreed to greater than or equal to -67decibels ✓ 5.3% agreed to greater than or equal to -60decibels ✓ 26.3% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to a signal strength of greater than or equal to -85 decibels</p>	<p style="text-align: center;">SIGNAL STRENGTH</p>  <p style="text-align: center;"> ■ Agreed to Greater than or equal to -85 ■ Agreed to Greater than or equal to - 67 decibels ■ Agreed to Greater than or equal to -60 decibels ■ Did not respond/comment to this standard </p>
<p>Reconnection of service within three hours after payment of overdue amounts</p>		<p>90%</p>	<ul style="list-style-type: none"> ✓ 58% agreed to 90% ✓ 11% agreed to 100% ✓ 5% agreed to 98% ✓ 5% agreed to 99% ✓ 21% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to the reconnection of service within three hours after payment of overdue standard of 90%</p>	<p style="text-align: center;">RECONNECTION OF SERVICE AFTER PAYMENT WITHIN 3-HOURS</p>  <p style="text-align: center;"> ■ Agreed to -100% ■ Agreed to - 98% ■ Agreed to - 90% ■ Agreed to - 99% ■ Did not respond/comment to this standard </p>

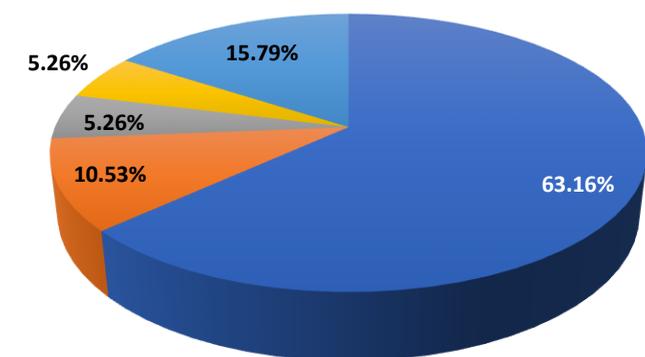
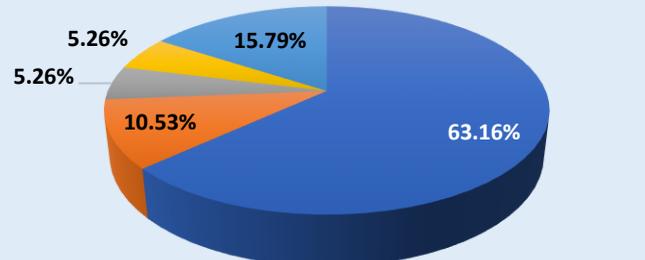
<p>Customer Care Accessibility</p>	<p>This is the service provider’s ability to ensure that all calls for assistance by customers are answered by a customer care personnel within a ten minutes timeframe.</p>	<p>100%</p>	<ul style="list-style-type: none"> ✓ 79% agreed to 100% ✓ 16% did not respond/comment to this standard ✓ 5% suggest revising the standard for clarity <p><u>Guyana Consumers Association</u> Agreed to the customer care accessibility standard of 100%</p>	<p style="text-align: center;">CUSTOMER CARE ACCESSIBILITY</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Agreed to - 100%</td> <td>79%</td> </tr> <tr> <td>Did not respond/comment to this standard</td> <td>16%</td> </tr> <tr> <td>Suggested to revise this standard for clarity.</td> <td>5%</td> </tr> </tbody> </table>	Response	Percentage	Agreed to - 100%	79%	Did not respond/comment to this standard	16%	Suggested to revise this standard for clarity.	5%		
Response	Percentage													
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<p>Data Service access time</p>		<p>Less than or equal to 5 seconds</p>	<ul style="list-style-type: none"> ✓ 58% agree to less than or equal to 5 seconds ✓ 5% agreed for it to be greater ✓ 5% agreed to less than or equal to 3 seconds ✓ 32% did not respond/comment to this standard <p><u>Guyana Consumers Association</u> Agreed to the data service access time standard of less than or equal to 5 seconds</p>	<p style="text-align: center;">DATA SERVICE ACCESS TIME</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Agreed to Less than or equal to 5 seconds</td> <td>58%</td> </tr> <tr> <td>Did not respond/comment to this standard</td> <td>32%</td> </tr> <tr> <td>Agreed for it to be greater</td> <td>5%</td> </tr> <tr> <td>Agreed to Less than or equal to 3 seconds</td> <td>5%</td> </tr> </tbody> </table>	Response	Percentage	Agreed to Less than or equal to 5 seconds	58%	Did not respond/comment to this standard	32%	Agreed for it to be greater	5%	Agreed to Less than or equal to 3 seconds	5%
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Agreed for it to be greater	5%													
Agreed to Less than or equal to 3 seconds	5%													

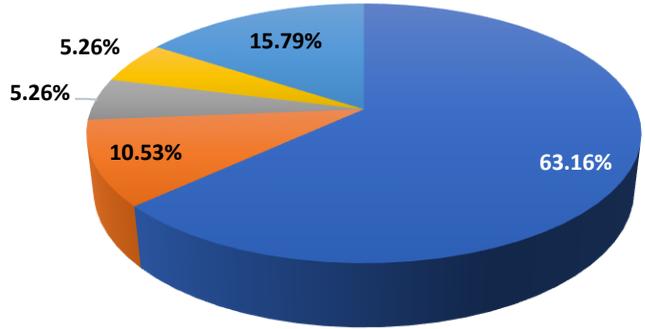
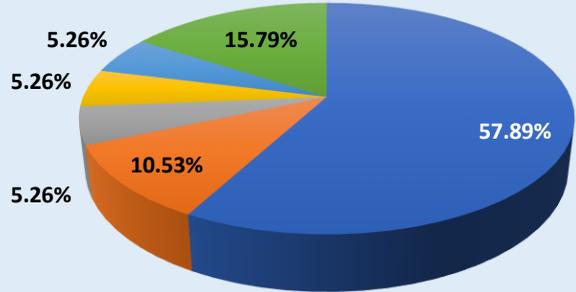
1.4 Schedule 1 (7) Fixed Wireless Broadband Internet services for residential customers

The following is a summary of stakeholders’ responses to the Commission’s Quality of Service consultancy as it relates to the proposed quality of service parameters for Fixed Wireless Broadband internet services for residential customers.

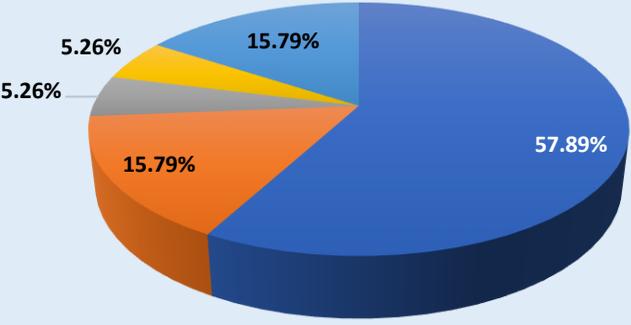
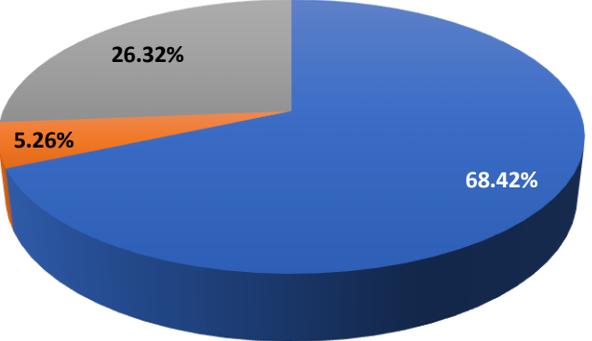
QUALITY OF SERVICE PARAMETERS	DEFINITION	PUC’S PROPOSED STANDARDS	SUMMARY OF CONSUMERS’ RESPONSES INCLUDING THE GUYANA CONSUMER ASSOCIATION (GCA) AND THE NATIONAL DATA MANAGEMENT AGENCY (NDMA)
Availability	Availability is the percentage of the time that the service is available at any time	Greater than or equal to 99%	<ul style="list-style-type: none"> ✓ 52.63% agreed to an availability standard of greater than and equal to 99% ✓ 21.05% suggested a standard of 100% availability at any time ✓ 5.26% suggested a standard of 98% availability at any time ✓ 10.53% suggested a standard of 99.90% availability at any time ✓ 10.53% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to an availability standard of greater than or equal to 99%</p> <div style="text-align: right;">  <p>AVAILABILITY</p> <ul style="list-style-type: none"> <li style="margin-right: 20px;">■ Greater than and Equal to 99% availability at any time <li style="margin-right: 20px;">■ 100% availability at any time <li style="margin-right: 20px;">■ 98% availability at any time <li style="margin-right: 20px;">■ 99.9% availability at any time ■ Did not respond/comment on this Standard </div>

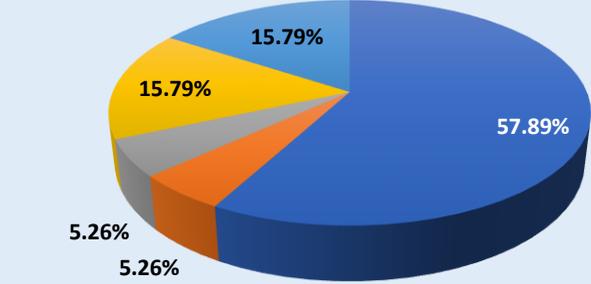
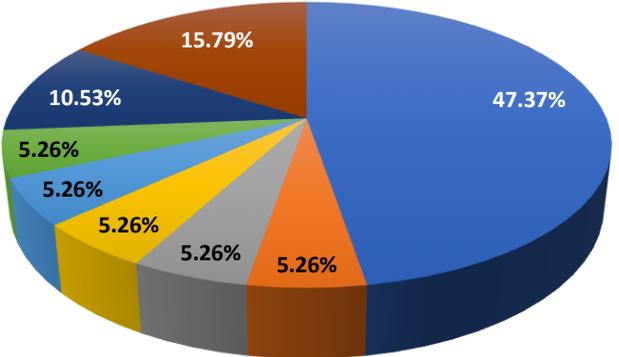
<p>Packet Loss</p>	<p>Packet loss is the reliability of a communication network path is expressed by the packet loss rate. This metric is equal to the number of packets not received divided by the total number of packets sent.</p>	<p>Less than 2%</p>	<ul style="list-style-type: none"> ✓ 73.68% agreed to a standard of less than 2% packet loss ✓ 5.26% suggested a standard of 10% packet loss ✓ 5.26% suggested a standard of less than 1% packet loss ✓ 5.26% suggested a standard of less than 1.5% packet loss ✓ 10.53% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of less than 2% packet loss</p>	<p style="text-align: center;">PACKET LOSS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Less than 2% packet loss</td> <td>73.68%</td> </tr> <tr> <td>10% packet loss</td> <td>5.26%</td> </tr> <tr> <td>Less than 1% packet loss</td> <td>5.26%</td> </tr> <tr> <td>Less than 1.5% packet loss</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>10.53%</td> </tr> </tbody> </table>	Standard	Percentage	Less than 2% packet loss	73.68%	10% packet loss	5.26%	Less than 1% packet loss	5.26%	Less than 1.5% packet loss	5.26%	Did not respond/comment on this Standard	10.53%
Standard	Percentage															
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Less than 1% packet loss	5.26%															
Less than 1.5% packet loss	5.26%															
Did not respond/comment on this Standard	10.53%															
<p>Packet Throughput</p>	<p>Packet throughput represents the amount of information or material passed through or delivered in a specific period of time.</p>	<p>Greater than or equal to 90%</p>	<ul style="list-style-type: none"> ✓ 68.42% agreed to a packet throughput standard of greater than or equal to 90% ✓ 10.53% suggested a standard of 95% packet throughput ✓ 5.26% suggested a standard of 98.50% packet throughput ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a packet throughput standard of greater than or equal to 90%</p>	<p style="text-align: center;">PACKET THROUGHPUT</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Greater than or equal to 90%</td> <td>68.42%</td> </tr> <tr> <td>95% Packet Throughput</td> <td>10.53%</td> </tr> <tr> <td>98.5% Packet Throughput</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>15.79%</td> </tr> </tbody> </table>	Standard	Percentage	Greater than or equal to 90%	68.42%	95% Packet Throughput	10.53%	98.5% Packet Throughput	5.26%	Did not respond/comment on this Standard	15.79%		
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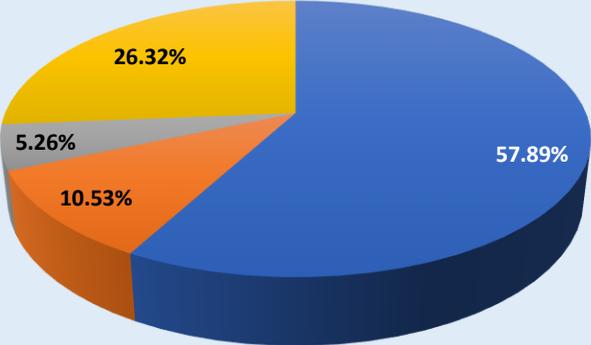
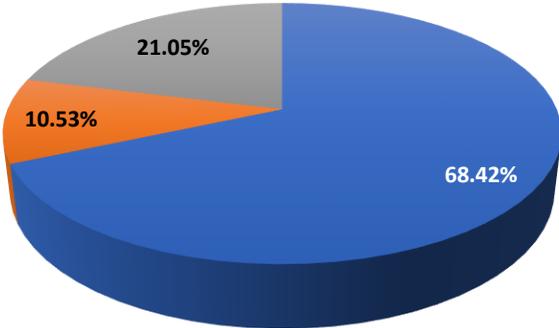
<p>Latency</p>	<p>Latency is the amount of time it takes for a packet of data to be captured, transmitted, processed through multiple devices, then received at its destination and decoded.</p>	<p>Less than or equal to 70 milliseconds</p>	<ul style="list-style-type: none"> ✓ 63.16% agreed to a standard of less than or equal to 70 milliseconds ✓ 10.53% suggested a standard of less than 80 milliseconds ✓ 5.26% suggested a standard of greater than 70 milliseconds ✓ 5.26% suggested a standard between 20-40 milliseconds ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of less than or equal to 70 milliseconds</p>	<p style="text-align: center;">LATENCY</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Less than or equal to 70 milliseconds</td> <td>63.16%</td> </tr> <tr> <td>Less than 80 milliseconds</td> <td>10.53%</td> </tr> <tr> <td>Greater than 70 milliseconds</td> <td>5.26%</td> </tr> <tr> <td>Between 20-40 milliseconds</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>15.79%</td> </tr> </tbody> </table>	Standard	Percentage	Less than or equal to 70 milliseconds	63.16%	Less than 80 milliseconds	10.53%	Greater than 70 milliseconds	5.26%	Between 20-40 milliseconds	5.26%	Did not respond/comment on this Standard	15.79%
Standard	Percentage															
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<p>Jitter</p>	<p>Jitter is the variation in time delay between when a signal is transmitted and when it is received over a network connection.</p>	<p>Less than or equal to 30 milliseconds</p>	<ul style="list-style-type: none"> ✓ 63.16% agreed to a standard of less than or equal to 30 milliseconds ✓ 10.53% suggested a standard 40 milliseconds ✓ 5.26% suggested a standard higher than 30 milliseconds ✓ 5.26% suggested a standard less than or equal to 20 milliseconds ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of less than or equal to 30 milliseconds</p>	<p style="text-align: center;">JITTER</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Less than or equal to 30 milliseconds</td> <td>63.16%</td> </tr> <tr> <td>Equal to 40 milliseconds</td> <td>10.53%</td> </tr> <tr> <td>Higher than 30 milliseconds</td> <td>5.26%</td> </tr> <tr> <td>Less than or equal to 20 milliseconds</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>15.79%</td> </tr> </tbody> </table>	Standard	Percentage	Less than or equal to 30 milliseconds	63.16%	Equal to 40 milliseconds	10.53%	Higher than 30 milliseconds	5.26%	Less than or equal to 20 milliseconds	5.26%	Did not respond/comment on this Standard	15.79%
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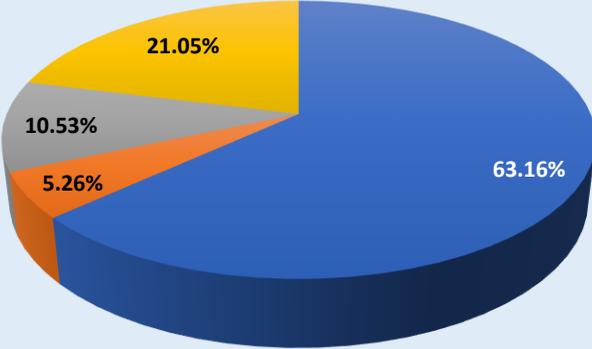
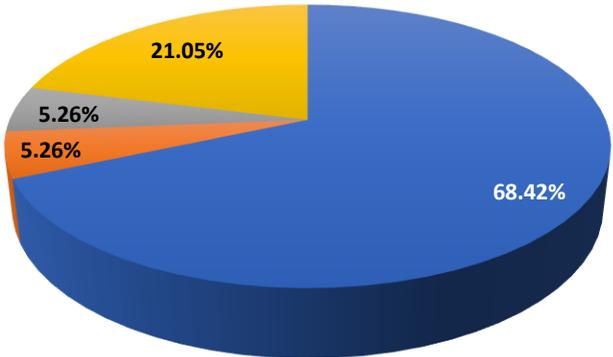
<p>Signal strength</p>	<p>Signal strength is the wireless signal power level received by the wireless client.</p>	<p>Greater than or equal to -85 decibels</p>	<ul style="list-style-type: none"> ✓ 63.16% agreed to a standard of greater than or equal to -85 decibels ✓ 5.26 % suggested a standard of greater than or equal to -65 decibels ✓ 10.53% suggested a standard of equal to -90 decibels ✓ 5.26% suggested a standard of greater than or equal to -70 decibels ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of greater than or equal to -85 decibels</p>	<p style="text-align: center;">SIGNAL STRENGTH</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ Greater than or equal to -85 decibels</td> <td>■ Equal to -90 decibels</td> </tr> <tr> <td>■ Greater than or equal to -65 decibels</td> <td>■ Greater than or equal to -70 decibels</td> </tr> <tr> <td>■ Did not respond/comment on this Standard</td> <td></td> </tr> </table>	■ Greater than or equal to -85 decibels	■ Equal to -90 decibels	■ Greater than or equal to -65 decibels	■ Greater than or equal to -70 decibels	■ Did not respond/comment on this Standard	
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■ Did not respond/comment on this Standard										
<p>Reconnection of service within three hours after payment of overdue amounts</p>		<p>90%</p>	<ul style="list-style-type: none"> ✓ 57.89% agreed to a standard of 90% within 3 hours ✓ 10.53% suggested a standard of 100% within 1 hour ✓ 5.26% suggested a standard of 100% within 3 hours ✓ 5.26% suggested a standard of 99% within 3 hours ✓ 5.26% suggested a standard of 98% within 3 hours ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 90% within 3 hours</p>	<p style="text-align: center;">RECONNECTION OF SERVICE</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ 90% within 3 hours</td> <td>■ 100% within 1 hour</td> </tr> <tr> <td>■ 100% within 3 hours</td> <td>■ 99% within 3 hours</td> </tr> <tr> <td>■ 98% within 3 hours</td> <td>■ Did not respond/comment on this Standard</td> </tr> </table>	■ 90% within 3 hours	■ 100% within 1 hour	■ 100% within 3 hours	■ 99% within 3 hours	■ 98% within 3 hours	■ Did not respond/comment on this Standard
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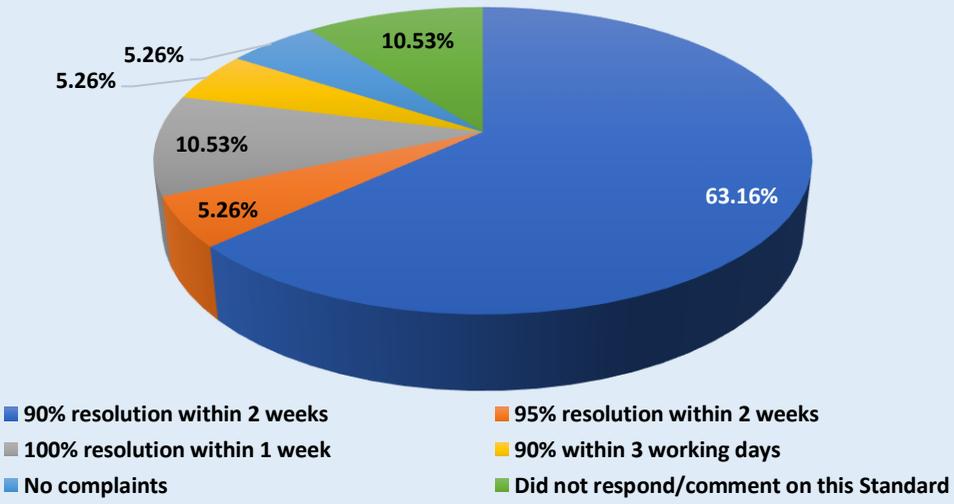
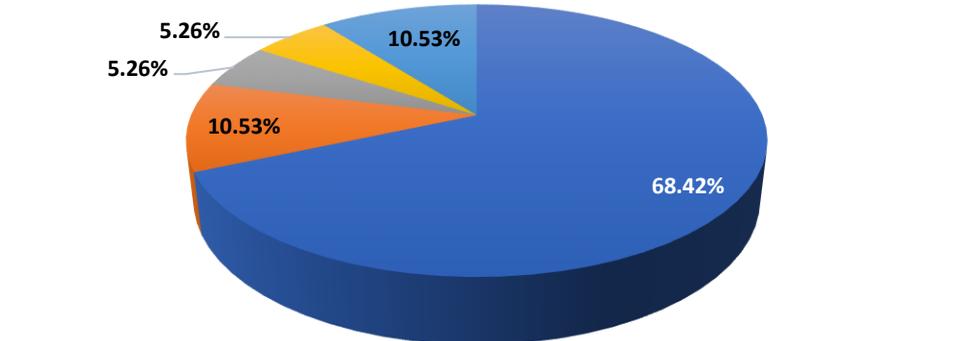
<p>Customer Care Accessibility</p>	<p>Customer Care Accessibility is a measure of the service provider ability to ensure all calls for assistance by customers are answered by a customer care personnel within a ten-minute timeframe.</p>	<p>100%</p>	<ul style="list-style-type: none"> ✓ 78.95% agreed to a standard of 100% ✓ 5.26% suggested that this standard should be revised ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 100%</p>	<div style="text-align: center;"> <h3>CUSTOMER CARE ACCESSIBILITY</h3> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Agreed to 100%</td> <td>78.95%</td> </tr> <tr> <td>Standard should be Revise</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>15.79%</td> </tr> </tbody> </table> </div>	Response	Percentage	Agreed to 100%	78.95%	Standard should be Revise	5.26%	Did not respond/comment on this Standard	15.79%
Response	Percentage											
Agreed to 100%	78.95%											
Standard should be Revise	5.26%											
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<p>Data Service Availability</p>		<p>Greater than or equal to 96%</p>	<ul style="list-style-type: none"> ✓ 57.89% agreed to a standard of greater than or equal to 96% ✓ 15.79% suggested a standard of 100% service availability ✓ 5.26% suggested a standard of 99% service availability ✓ 5.26% suggested 80% service availability ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of greater than or equal to 96%</p>	<p style="text-align: center;">DATA SERVICE AVAILABILITY</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Greater than or equal to 96%</td> <td>57.89%</td> </tr> <tr> <td>100% Service Availability</td> <td>15.79%</td> </tr> <tr> <td>99% Service Availability</td> <td>5.26%</td> </tr> <tr> <td>80% Service Availability</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>15.79%</td> </tr> </tbody> </table>	Category	Percentage	Greater than or equal to 96%	57.89%	100% Service Availability	15.79%	99% Service Availability	5.26%	80% Service Availability	5.26%	Did not respond/comment on this Standard	15.79%
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Did not respond/comment on this Standard	15.79%															
<p>Data Service access time</p>		<p>Less than or equal to 5 seconds</p>	<ul style="list-style-type: none"> ✓ 68.42% agreed to a standard of less than or equal to 5 seconds ✓ 5.26% suggested a standard of greater than 5 seconds ✓ 26.32% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of less than or equal to 5 seconds</p>	<p style="text-align: center;">DATA SERVICE ACCESS TIME</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Less than or equal to 5 seconds</td> <td>68.42%</td> </tr> <tr> <td>Greater than 5 seconds</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>26.32%</td> </tr> </tbody> </table>	Category	Percentage	Less than or equal to 5 seconds	68.42%	Greater than 5 seconds	5.26%	Did not respond/comment on this Standard	26.32%				
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<p>Supply time for initial connection (urban)</p>		<p>6 days</p>	<ul style="list-style-type: none"> ✓ 57.89% agreed to a standard of 6 days ✓ 5.26% suggested a standard of 3-5 working days ✓ 5.26% suggested a standard of 5-7 working days ✓ 15.79% suggested a standard of 5 days ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 6 days</p>	<p style="text-align: center;">SUPPLY TIME FOR INITIAL CONNECTION (URBAN)</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Urban Supply Time Data</caption> <thead> <tr> <th>Standard</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>6 days</td> <td>57.89%</td> </tr> <tr> <td>3-5 working days</td> <td>5.26%</td> </tr> <tr> <td>5-7 working days</td> <td>5.26%</td> </tr> <tr> <td>5 days</td> <td>15.79%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>15.79%</td> </tr> </tbody> </table>	Standard	Percentage	6 days	57.89%	3-5 working days	5.26%	5-7 working days	5.26%	5 days	15.79%	Did not respond/comment on this Standard	15.79%						
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Did not respond/comment on this Standard	15.79%																					
<p>Supply time for initial connection (rural)</p>		<p>20 days</p>	<ul style="list-style-type: none"> ✓ 47.37% agreed to a standard of 20 days ✓ 10.53% suggested a standard of 5 days ✓ 5.26% suggested a standard of 7-14 working days ✓ 5.26% suggested a standard of 15 working days ✓ 5.26% suggested a standard of 18 days ✓ 5.26% suggested a standard of less than 20 days ✓ 5.26% suggested a standard of 14 days ✓ 15.79% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 20 days</p>	<p style="text-align: center;">SUPPLY TIME FOR INITIAL CONNECTION (RURAL)</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Rural Supply Time Data</caption> <thead> <tr> <th>Standard</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>20 days</td> <td>47.37%</td> </tr> <tr> <td>7-14 working days</td> <td>15.79%</td> </tr> <tr> <td>5 days</td> <td>10.53%</td> </tr> <tr> <td>15 working days</td> <td>5.26%</td> </tr> <tr> <td>Less than 20 days</td> <td>5.26%</td> </tr> <tr> <td>14 days</td> <td>5.26%</td> </tr> <tr> <td>18 days</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>5.26%</td> </tr> </tbody> </table>	Standard	Percentage	20 days	47.37%	7-14 working days	15.79%	5 days	10.53%	15 working days	5.26%	Less than 20 days	5.26%	14 days	5.26%	18 days	5.26%	Did not respond/comment on this Standard	5.26%
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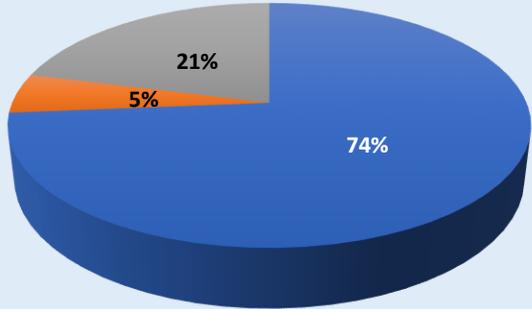
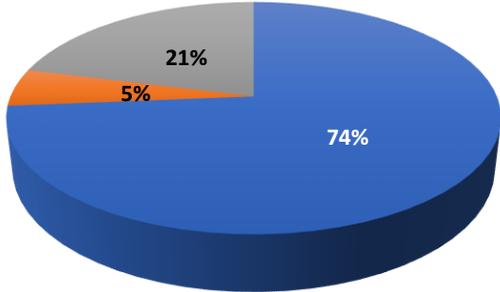
<p>% of technical complaints resolved within 12 hours</p>		<p>85%</p>	<ul style="list-style-type: none"> ✓ 57.89% agreed to a standard of 85% of complaints resolved within 12 hours ✓ 10.53% suggested a standard of 24% resolution within 12 hours ✓ 5.26% suggested that the Commission used the same standards as proposed for residential narrowband voice ✓ 26.32% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 85% of complaints resolved within 12 hours</p>	<p style="text-align: center;">% OF TECHNICAL COMPLIANTS RESOLVED WITHIN 12 HRS.</p>  <p style="text-align: center;"> ■ 85% within 12 hours ■ 24% within 12 hours ■ Same standards as Residential Narrowband Voice ■ Did not respond/comment on this Standard </p>
<p>% of technical complaints resolved within 24 hours</p>		<p>95%</p>	<ul style="list-style-type: none"> ✓ 68.42% agreed to standard of 95% of complaints resolution within 24 hours ✓ 10.53% suggested a standard of 24% complaints resolution within 24 hours ✓ 21.05% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 95% of complaints resolved within 24 hours</p>	<p style="text-align: center;">% OF TECHNICAL COMPLIANTS RESOLVED WITHIN 24 HOURS</p>  <p style="text-align: center;"> ■ 95% within 24 hours ■ 24% within 24 hours ■ Did not respond/comment on this Standard </p>

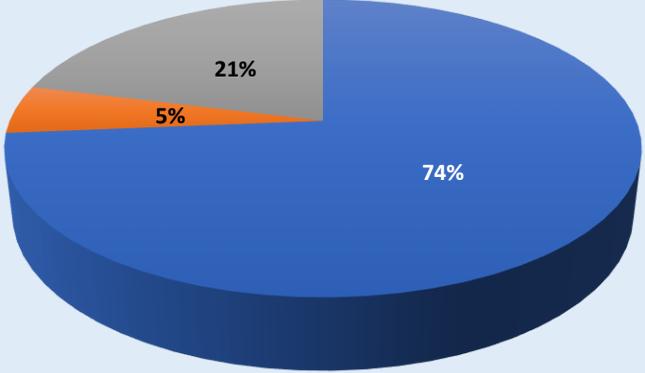
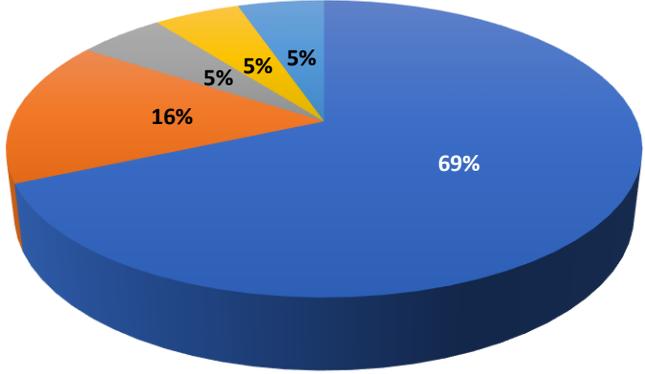
<p>% of technical complaints resolved within 36 hours</p>		<p>99%</p>	<ul style="list-style-type: none"> ✓ 63.16% agreed to a standard of 99% complaint resolution within 36 hours. ✓ 5.26% suggested a standard of 100% complaint resolution within 36 hours. ✓ 10.53% suggested a standard of 24% complaint resolution within 36 hours ✓ 21.05% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 99% of complaints resolved within 36 hours.</p>	<p style="text-align: center;">% OF COMPLAINTS RESOLVED WITHIN 36 HOURS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ 99% within 36 hours</td> <td>■ 100% within 36 hours</td> </tr> <tr> <td>■ 24% within 36 hours</td> <td>■ Did not respond/comment on this Standard</td> </tr> </table>	■ 99% within 36 hours	■ 100% within 36 hours	■ 24% within 36 hours	■ Did not respond/comment on this Standard
■ 99% within 36 hours	■ 100% within 36 hours							
■ 24% within 36 hours	■ Did not respond/comment on this Standard							
<p>Number of billing errors per 1000 bills</p>		<p>3</p>	<ul style="list-style-type: none"> ✓ 68.42% agreed to a standard of 3 billing errors for every 1000 bills ✓ 5.26% suggested a standard of 1 billing error per 1000 bills ✓ 5.26% suggested a standard of 0 errors ✓ 21.05% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Indicated that there should be no billing errors.</p>	<p style="text-align: center;">NUMBER OF BILLING ERRORS PER 1000 BILLS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ 3 billing errors per 1000 bills</td> <td>■ 0 error</td> </tr> <tr> <td>■ 1 billing error per 1000 bills</td> <td>■ Did not respond/comment on this Standard</td> </tr> </table>	■ 3 billing errors per 1000 bills	■ 0 error	■ 1 billing error per 1000 bills	■ Did not respond/comment on this Standard
■ 3 billing errors per 1000 bills	■ 0 error							
■ 1 billing error per 1000 bills	■ Did not respond/comment on this Standard							

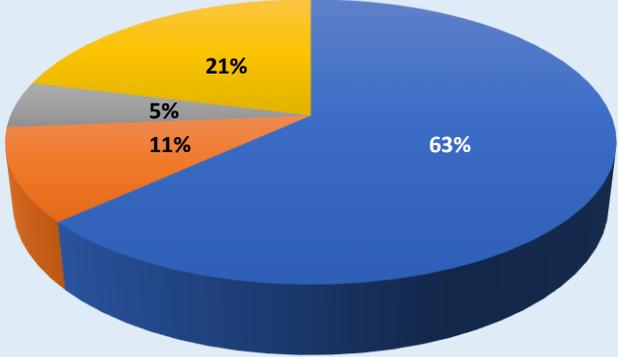
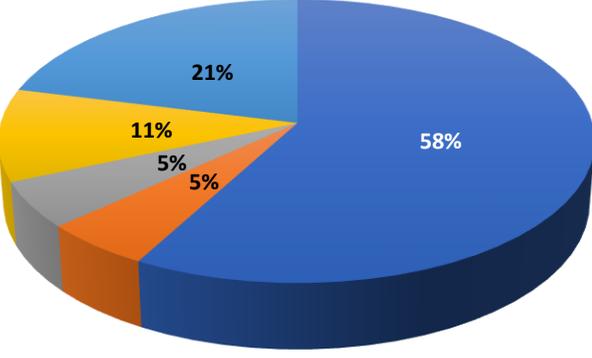
<p>% of billing complaints resolved within 2 weeks</p>		<p>90%</p>	<ul style="list-style-type: none"> ✓ 63.16% agreed to a standard of 90% complaints resolution within 2 weeks ✓ 5.26% suggested a standard of 95% complaints resolution within 2 weeks ✓ 10.53% suggested a standard of 100% complaints resolution within 1 week ✓ 5.26% suggested a standard of 90% complaints resolution within 3 working days ✓ 5.26% suggested that there should be no complaints ✓ 10.53% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of 90% of billing complaints resolved within 2 weeks</p>	<p style="text-align: center;">% OF BILLING COMPLIANTS RESOLVED WITHIN 2 WEEKS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>90% resolution within 2 weeks</td> <td>63.16%</td> </tr> <tr> <td>95% resolution within 2 weeks</td> <td>5.26%</td> </tr> <tr> <td>100% resolution within 1 week</td> <td>10.53%</td> </tr> <tr> <td>90% within 3 working days</td> <td>5.26%</td> </tr> <tr> <td>No complaints</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>10.53%</td> </tr> </tbody> </table>	Category	Percentage	90% resolution within 2 weeks	63.16%	95% resolution within 2 weeks	5.26%	100% resolution within 1 week	10.53%	90% within 3 working days	5.26%	No complaints	5.26%	Did not respond/comment on this Standard	10.53%
Category	Percentage																	
90% resolution within 2 weeks	63.16%																	
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90% within 3 working days	5.26%																	
No complaints	5.26%																	
Did not respond/comment on this Standard	10.53%																	
<p>% of billing complaints resolved within 3 weeks</p>		<p>100%</p>	<ul style="list-style-type: none"> ✓ 68.42% agreed to a standard of 100% complaints resolution within 3 weeks ✓ 10.53% suggested a standard of 100% complaints resolution within 1 week ✓ 5.26% suggested a standard of 100% complaints resolution within 5 working days ✓ 5.26% suggested that there should be no complaints ✓ 10.53% did not respond/comment on this standard. <p><u>Guyana Consumers Association:</u> Agreed to a standard of 100% of billing complaints resolved within 3 weeks</p>	<p style="text-align: center;">% OF BILLING COMPLAINTS RESOLVED WITHIN 3 WEEKS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>100% resolution within 3 weeks</td> <td>68.42%</td> </tr> <tr> <td>100% resolution within 1 week</td> <td>10.53%</td> </tr> <tr> <td>100% within 5 working days</td> <td>5.26%</td> </tr> <tr> <td>No complaints</td> <td>5.26%</td> </tr> <tr> <td>Did not respond/comment on this Standard</td> <td>10.53%</td> </tr> </tbody> </table>	Category	Percentage	100% resolution within 3 weeks	68.42%	100% resolution within 1 week	10.53%	100% within 5 working days	5.26%	No complaints	5.26%	Did not respond/comment on this Standard	10.53%		
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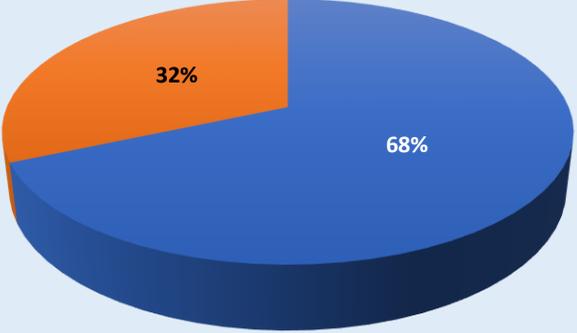
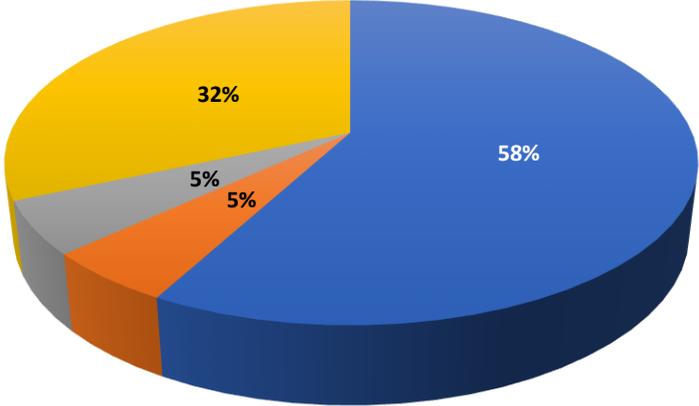
2.1 Schedule 2 (2) Mobile Broadband Internet Services

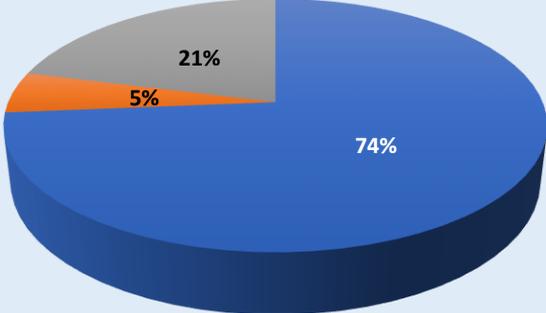
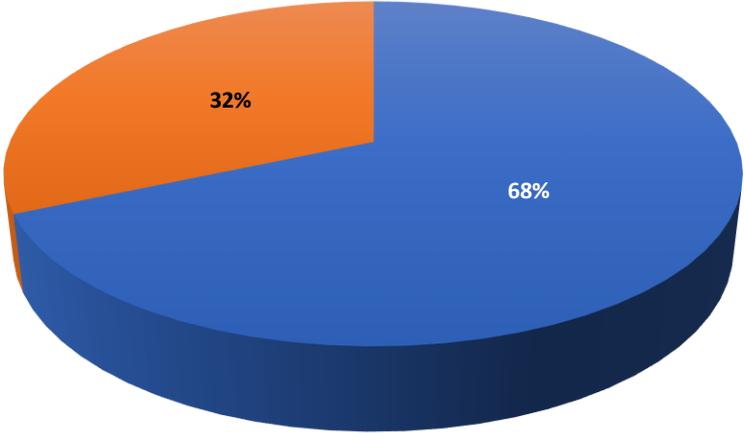
The following is a summary of stakeholders' responses to the Commission's Quality of Service consultancy as it relates to the proposed quality of service parameters for Mobile Broadband Internet Services.

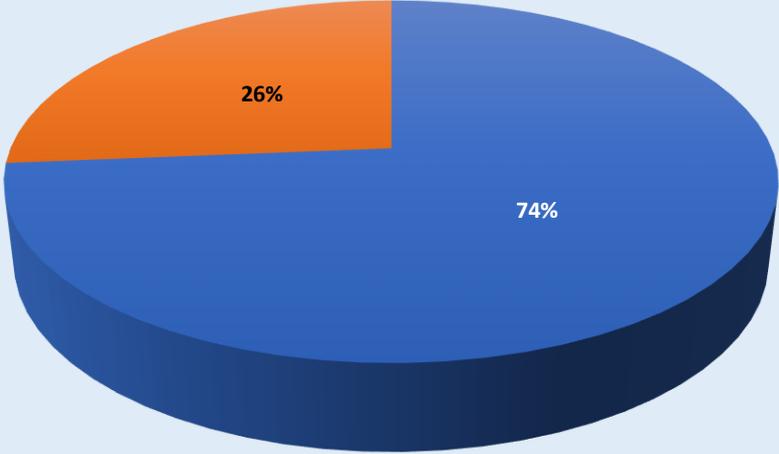
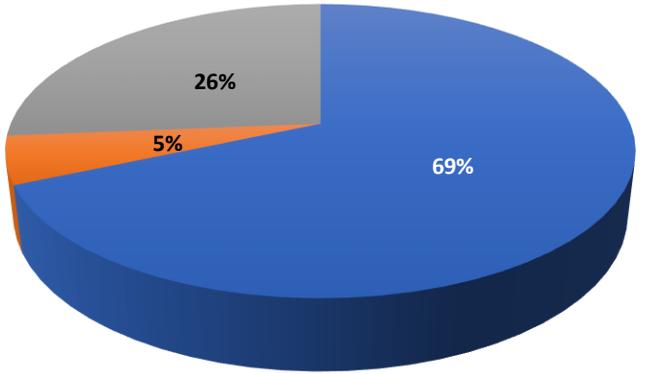
QUALITY OF SERVICE PARAMETERS	DEFINITION	PUC'S PROPOSED STANDARDS	SUMMARY OF CONSUMERS' RESPONSES INCLUDING THE GUYANA CONSUMER ASSOCIATION (GCA) AND THE NATIONAL DATA MANAGEMENT AGENCY (NDMA)	
Availability	The percentage of the time that the service is available at any time.	Greater than 99%	<ul style="list-style-type: none"> ✓ 74% agreed to greater than or equal to 99% ✓ 5% agreed to greater than or equal to 80% ✓ 21% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of greater than 99%</p>	<p style="text-align: center;">AVAILABILITY</p>  <p style="text-align: center;"> ■ Greater than or equal to 99% ■ Greater than or equal to 80% ■ Did not respond/comment on this standard </p>
Packet Loss	The reliability of a communication network path is expressed by the packet loss rate. This metric is equal to the number of packets not received divided by the total number of packets sent.	Less than 2%	<ul style="list-style-type: none"> ✓ 74% agreed to less than 2% ✓ 5% agreed to less than 10% ✓ 21% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of less than 2%</p>	<p style="text-align: center;">PACKET LOSS</p>  <p style="text-align: center;"> ■ Less than 2% ■ Less than 10% ■ Did not respond/comment on this standard </p>

<p>Packet Throughput</p>	<p>The amount of information or material passed through or delivered in a specific period of time.</p>	<p>Greater than 90%</p>	<ul style="list-style-type: none"> ✓ 74% agreed to greater than 90% ✓ 5% agreed to greater than 80% ✓ 21% did not respond/comment on this standard <p><u>Guyana Consumers Association:</u> Agreed to a standard of greater than 90%</p>	<p style="text-align: center;">PACKET THROUGHPUT</p>  <p style="text-align: center;"> ■ Greater than 90% ■ Greater than 80% ■ Did not respond/comment on this standard </p>
<p>Latency</p>	<p>The amount of time it takes for a packet of data to be captured, transmitted, processed through multiple devices, then received at its destination and decoded.</p>	<p>Less than or equal to 20 milliseconds</p>	<ul style="list-style-type: none"> ✓ 69% agreed to less than or equal to 20 milliseconds ✓ 16% agreed to less than or equal to 50 milliseconds ✓ 5% agreed to less than or equal to 70 milliseconds ✓ 5% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of less than or equal to 20 milliseconds</p>	<p style="text-align: center;">LATENCY</p>  <p style="text-align: center;"> ■ Less than or equal to 20 milliseconds ■ Less than or equal to 50 milliseconds ■ Less than or equal to 70 milliseconds ■ Service May Vary ■ Did not respond/comment on this standard </p>

<p>Jitter</p>	<p>The variation in time delay between when a signal is transmitted and when it's received over a network connection.</p>	<p>Less than 5 milliseconds</p>	<ul style="list-style-type: none"> ✓ 63% agreed to 5 milliseconds ✓ 11% agreed to 20 milliseconds ✓ 5% Commented service may vary ✓ 21% did not respond/comment on this standard <p><u><i>Guyana Consumers Association</i></u> Agreed to a standard of less 5 milliseconds</p>	<p style="text-align: center;">JITTER</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ Less than 5 milliseconds</td> <td>■ Less than 20 milliseconds</td> </tr> <tr> <td>■ Service May Vary</td> <td>■ Did not respond/comment on this standard</td> </tr> </table>	■ Less than 5 milliseconds	■ Less than 20 milliseconds	■ Service May Vary	■ Did not respond/comment on this standard	
■ Less than 5 milliseconds	■ Less than 20 milliseconds								
■ Service May Vary	■ Did not respond/comment on this standard								
<p>Reconnection of service within three hours after payment of overdue amounts</p>		<p>90%</p>	<ul style="list-style-type: none"> ✓ 58% agreed to 90% ✓ 5% agreed to 98% ✓ 5% agreed to 99% ✓ 11% agreed to 100% 21% did not respond/comment on this standard <p><u><i>Guyana Consumers Association</i></u> Agreed to a standard of 90%</p>	<p style="text-align: center;">RECONNECTION OF SERVICE WITHIN THREE HOURS AFTER PAYMENT OF OVERDUE AMOUNTS</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>■ 90%</td> <td>■ 98%</td> <td>■ 99%</td> <td>■ 100%</td> <td>■ Did not respond/comment on this standard</td> </tr> </table>	■ 90%	■ 98%	■ 99%	■ 100%	■ Did not respond/comment on this standard
■ 90%	■ 98%	■ 99%	■ 100%	■ Did not respond/comment on this standard					

<p>Customer Care Accessibility</p>	<p>Is the service provider's ability to ensure all calls for assistance by customers are answered by a customer care personnel within a ten minutes timeframe.</p>	<p>100%</p>	<ul style="list-style-type: none"> ✓ 68% agreed to 100% ✓ 32% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of 100%</p>	<p style="text-align: center;">CUSTOMER CARE ACCESSIBILITY</p>  <p style="text-align: center;"> ■ 100% ■ Did not respond/comment on this standard </p>
<p>Service Coverage</p>	<p>the coverage of a radio station is the geographic area where the station can communicate.</p>	<p>Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors)</p>	<ul style="list-style-type: none"> ✓ 58% agreed to Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors) ✓ 5% Indoors Greater than or equal to – 85, In vehicle Greater than or equal to – 70 Outdoors Greater than or equal to – 60 ✓ 5% Greater than 60dBN ✓ 32% did not respond/comment on this standard <p><u>Guyana Consumers Association</u></p> <p>Agreed to a standard of Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors)</p>	<p style="text-align: center;">SERVICE COVERAGE</p>  <p style="text-align: center;"> ■ Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors) ■ Indoors Greater than or equal to – 85, In vehicle Greater than or equal to – 70 Outdoors Greater than or equal to – 60 ■ Greater than 60milliwatts ■ Did not respond/comment on this standard </p>

<p>Call Connection Success Rate</p>	<p>the fraction of attempts to place a telephone call resulting in a successful connection to the dialled number.</p>	<p>Greater than 99%</p>	<ul style="list-style-type: none"> ✓ 74% agree to greater than 99% ✓ 5% agree to greater than 60% ✓ 21% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of greater than 99%</p>	<p style="text-align: center;">CALL CONNECTION SUCCESS RATE</p>  <p style="text-align: center;"> ■ Greater than 99% ■ Greater than 60% ■ Did not respond/comment on this standard </p>
<p>Data Service Access Time</p>		<p>Less than or equal to 5 seconds</p>	<ul style="list-style-type: none"> ✓ 68% agreed less than or equal to 5 seconds ✓ 32% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of less than or equal to 5 seconds</p>	<p style="text-align: center;">DATA SERVICE ACCESS TIME</p>  <p style="text-align: center;"> ■ Less than or equal to 5 seconds ■ Did not respond/comment on this standard </p>

<p>Data Access Success Rate</p>		<p>Greater than or equal to 99.9%</p>	<ul style="list-style-type: none"> ✓ 74% agreed to greater than or equal to 99.9% ✓ 26% did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of greater than or equal to 99.9%</p>	<p style="text-align: center;">DATA ACCESS SUCCESS RATE</p>  <p style="text-align: center;"> ■ Greater than or equal to 99.9% ■ Did not respond/comment on this standard </p>
<p>Data Service Drop Rate</p>		<p>Less than or equal to 1%</p>	<ul style="list-style-type: none"> ✓ 69% agreed to less than or equal to 1% ✓ 5% agreed to less than or equal to 30% ✓ 26% Did not respond/comment on this standard <p><u>Guyana Consumers Association</u> Agreed to a standard of less than or equal to 1%</p>	<p style="text-align: center;">DATA SERVICE DROP RATE</p>  <p style="text-align: center;"> ■ Less than or equal to 1% ■ Less than or equal to 30% ■ Did not respond/comment on this standard </p>

APPENDIX B
TELECOMMUNICATIONS QUALITY OF SERVICE STANDARDS
STAKEHOLDER RESPONSE DOCUMENT

Kindly use this form to complete all submissions.

Please utilize Times New Roman or Calibri font, font sized 12 with 1.5 line spacing.

To request a hard copy of the consultative document, kindly visit any of our offices at:

1. 106 New Garden Street, Queenstown, Georgetown; Telephone number 227-3534
2. Lot AV, Free Yard, Port Mourant, Corentyne, Berbice; Telephone number 336-6077
3. 97-98 Republic Avenue, McKenzie Linden; Telephone number 444-2045/444-2046
4. Lot 7E Henrietta Village, Essequibo Coast; Telephone number 624-6000

Alternatively, email us at pucommission@gmail.com or call 227-3534. You may WhatsApp us for further information at +592 623-3222.

The deadline for submissions is the 30th of June 2022.

All responses received on/by that date will be subject to the Commission's review.

B (1): PROPOSED QUALITY OF SERVICE STANDARDS TO BE INCLUDED IN SCHEDULE 1 (FIXED PUBLIC TELECOMMUNICATIONS SERVICES)

1.1 Schedule 1 (2) Residential narrowband (voice) access

Quality of Service Parameters	Existing Standards		PUC's Proposed Revision of Standards		Stakeholder Suggested Standards	Comments
	Duration (Hrs.)	Standard (%)	Duration (Hrs.)	Standard (%)		
% of unreported faults cleared within	2	80	24	80		Agree with proposed revision
% of unreported faults cleared within	6	90	48	90		Agree with proposed revision
% of unreported faults cleared within	12	98	96	98		Agree with proposed revision
% of unreported faults cleared within	24	100	120	100		Agree with proposed revision
% of reported faults cleared within	2	75	24	75		Agree with proposed revision
% of reported faults cleared within	6	85	48	85		Agree with proposed revision
% of reported faults cleared within	12	98	96	98		Agree with proposed revision
% of reported faults cleared within	24	100	120	100		Agree with proposed revision
Proposed Additional Standards					Stakeholder Suggested Standards	Comments
Reconnection of service within three hours after payment of overdue amounts.			90%			Agree with proposed revision
Customer Care Accessibility			100%			Consideration should be given if customer care accessibility is impacted by 3 rd party (such as fixed lines)

1.2 Schedule 1 (6) Broadband Internet services for residential customers

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%		Agree with proposed standard
Packet Loss	Less than 2%		Agree with proposed standard
Packet Throughput	Greater than or equal to 90%		Agree with proposed standard
Latency	Less than or equal to 70 milliseconds		Green Gibraltar would propose that consideration needs to be given to separate standards for urban vs rural areas due to technology limitations. In certain rural areas, where connectivity is only feasible by satellite, we suggest Latency should be less than or equal to 600 milliseconds
Jitter	Less than or equal to 30 milliseconds		Agree with proposed standard
Signal strength	Greater than or equal to -85 decibels		Agree with proposed standard
Reconnection of service within three hours after payment of overdue amounts.	90%		Agree with proposed standard
Customer Care Accessibility	100%		Consideration should be given if customer care accessibility is impacted by 3 rd party (such as fixed lines)
Data Service access time	Less than or equal to 5 seconds		Agree with proposed standard

1.4 Schedule 1 (7) Fixed Wireless Broadband Internet services for residential customers

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%		Agree with proposed standard
Packet Loss	Less than 2%		Agree with proposed standard
Packet Throughput	Greater than or equal to 90%		Agree with proposed standard
Latency	Less than or equal to 70 milliseconds		Green Gibraltar would propose that consideration needs to given to separate standards for urban vs rural areas due to technology limitations. In certain rural areas, where connectivity is only feasible by satellite, we suggest Latency should be less than or equal to 600 milliseconds
Jitter	Less than or equal to 30 milliseconds		Agree with proposed standard
Signal strength	Greater than or equal to -85 decibels		Agree with proposed standard
Reconnection of service within three hours after payment of overdue amounts	90%		Agree with proposed standard
Customer Care Accessibility	100%		Consideration should be given if customer care accessibility is impacted by 3 rd party (such as fixed lines)
Data Service Availability	Greater than or equal to 96%		Agree with proposed standard
Data Service access time	Less than or equal to 5 seconds		Agree with proposed standard
Supply time for initial connection (urban)	6 days		Agree with proposed standard
Supply time for initial connection (rural)	20 days		Agree with proposed standard
% of technical complaints resolved within 12 hours	85		Agree with proposed standard
% of technical complaints resolved within 24 hours	95		Agree with proposed standard
% of technical complaints resolved within 36 hours	99		Agree with proposed standard
Number of billing errors per 1000 bills	3		Agree with proposed standard
% of billing complaints resolved within 2 weeks	90		Agree with proposed standard
% of billing complaints resolved within 3 weeks	100		Agree with proposed standard

B2: PROPOSED QUALITY OF SERVICE STANDARDS TO BE INCLUDED IN SCHEDULE 2 (MOBILE PUBLIC TELECOMMUNICATIONS SERVICES)

2.1 Schedule 2 (2) Mobile Broadband Internet Services

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Less than 99%		Agree with proposed standard
Packet Loss	Less than 2%		Agree with proposed standard
Packet Throughput	Greater than 90%		Agree with proposed standard
Latency	Less than or equal to 20 milliseconds		Green Gibraltar would propose that consideration needs to given to separate standards for urban vs rural areas due to technology limitations. In the hinterlands, where connectivity is only feasible by satellite, we suggest Latency should be less than or equal to 600 milliseconds
Jitter	Less than 5 milliseconds		Agree with proposed standard
Reconnection of service within three hours after payment of overdue amounts.	90%		Agree with proposed standard
Customer Care Accessibility	100%		Consideration should be given if customer care accessibility is impacted by 3 rd party (such as fixed lines)
Service Coverage	Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors)		Agree with proposed standard
Call connection success rate	Greater than 99%		Agree with proposed standard
Data Service access time	Less than or equal to 5 seconds		Agree with proposed standard
Data Access success rate	Greater than or equal to 99.9%		Agree with proposed standard
Data Service drop rate	Less than or equal to 1%		Agree with proposed standard

Additional information/comments may be added as a separate word document.

OPTIONAL

PUC thanks you for your participation and we look forward to further engaging with you in this exercise or other similar initiatives.

You may provide us with the required information herein for our records. This information is optional.

Title: Please tick the appropriate Mr. Ms. Mrs. Miss Dr.

Surname Tillotson **Forename(s)** Sam

Age 38

Name of Organisation Representing Green Gibraltar Inc.

Designation/Qualification(s)

Consultant

Postal address

Email addresses

(1) sam.tillotson@mobiliseglobal.com

(2)

(3)

Date 6/30/2022



GTT's Comments
to
The Public Utilities Commission Consultative Document
on
The Telecommunications Quality of Service
Standards as set out in Schedules 1 & 2 of Regulation No.
19 of 2020 - The Telecommunications (Consumer
Protection) Regulations 2020

June 30th, 2022

OFFICIAL STATEMENT

GTT extends its gratitude to the Commission for providing the opportunity to make a submission on the review of the Telecommunications Quality of Service (QOS) Standards as set out in Schedules 1 & 2 of Regulation No. 19 of 2020 - The Telecommunications (Consumer Protection) Regulations 2020.

In light of the foregoing, GTT submits its comments to the specific areas which are being consulted upon as contained in the form provided by the Commission. However, GTT further submits additional proposals for areas which were omitted from the consultative document and form, labeled Annex A.

Subject to our recommendations and comments, GTT resubmits its procedures on the following:

- i. installation of landline services (labeled Annex B)
- ii. resolution of fibre faults (labeled Annex C)
- iii. resolution of landline and DSL faults (labeled Annex D)

Further, in reviewing the consultative document, GTT seeks to understand the rationale applied by the Commission in proposing the said standards and is available to facilitate such discussions.

Additionally, GTT wishes to advise that while the Company accepts some of the parameters and standards proposed, we ask that the Commission remain cognizant of events of force majeure, such as inclement weather, which may affect the Company's ability in achieving the standard set out.

GTT looks forward to engaging further with the Commission on our submission.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Reynolds', is written over a horizontal line.

Mark Reynolds,
General Counsel
GTT

APPENDIX B

TELECOMMUNICATIONS QUALITY OF SERVICE STANDARDS STAKEHOLDER RESPONSE DOCUMENT

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Please utilize Times New Roman or Calibri font, font sized 12 with 1.5 line spacing.

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1. 106 New Garden Street, Queenstown, Georgetown; Telephone number 227-3534
2. Lot AV, Free Yard, Port Mourant, Corentyne, Berbice; Telephone number 336-6077
3. 97-98 Republic Avenue, McKenzie Linden; Telephone number 444-2045/444-2046
4. Lot 7E Henrietta Village, Essequibo Coast; Telephone number 624-6000

Alternatively, email us at pucommission@gmail.com or call 227-3534. You may WhatsApp us for further information at +592 623-3222.

The deadline for submissions is the 30th of June 2022.

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B (1): PROPOSED QUALITY OF SERVICE STANDARDS TO BE INCLUDED IN SCHEDULE 1 (FIXED PUBLIC TELECOMMUNICATIONS SERVICES)

1.1 Schedule 1 (2) Residential narrowband (voice) access

Quality of Service Parameters	Existing Standards		PUC’s Proposed Revision of Standards		Stakeholder Suggested Standards	Comments
	Duration (Hrs.)	Standard (%)	Duration (Hrs.)	Standard (%)		
% of unreported faults cleared within	2	80	24	80	36 hours	GTT recommends the extension of the timelines as unreported faults can occur country wide and would therefore require mobilization of crew and truck roll. In some cases, the crew would not know of the nature of the fault until they arrive at the site, as such, additional resources and crew may be needed. In instances where the fault is due to a cable damage, it may take the crew some time to locate that damage, as the system will not show the exact location of the damage, only a range. This means that the crew must travel along the cable route.
% of unreported faults cleared within	6	90	48	90	72 hours	
% of unreported faults cleared within	12	98	96	98	120 hours	
% of unreported faults cleared within	24	100	120	100	168 hours	

						Further, it is recommended that the unreported faults be categorized into urban and rural areas.
% of reported faults cleared within	2	75	24	75	36 hours	Reported faults may include technical issues/damage of the telephone instrument, damaged cable and/or broken pole etc. These issues require the mobilization crew and truck roll to the site where the fault has been reported for various checked to be done to determine the fault.
% of reported faults cleared within	6	85	48	85	72 hours	In some cases, the reason for the fault may be unclear and only when certain tests are conducted, can the crew determine the actual cause such as a cable issue and additional crew is required.
% of reported faults cleared within	12	98	96	98	120 hours	Additionally, delays can occur where the subscriber is unavailable or unreachable to facilitate the crew entering their premises to conduct tests to the telephone instrument.
% of reported faults cleared within	24	100	120	100	168 hours	It is further recommended that reported faults be categorized into urban and rural areas.

Proposed Additional Standards		Stakeholder Suggested Standards	Comments
Reconnection of service within three hours after payment of overdue amounts.	90%		GTT accepts the proposed QOS Parameter
Customer Care Accessibility	100%	95%	GTT recommendation is based on our preliminary reports that indicates that customer generally abandon their calls after approximately two (2) minutes. Currently, GTT's system records the answer time for all calls. However, we are working developing a method that we can categorize business and residential calls.

1.2 Schedule 1 (6) Broadband Internet services for residential customers

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%		GTT accepts the proposed QOS Parameter
Packet Loss	Less than 2%		GTT accepts the proposed QOS Parameter

Packet Throughput	Greater than or equal to 90%		GTT accepts the proposed QOS Parameter
Latency	Less than or equal to 70 milliseconds		GTT accepts the proposed QOS Parameter
Jitter	Less than or equal to 30 milliseconds		GTT accepts the proposed QOS Parameter
Signal strength	Greater than or equal to -85 decibels	N/A	GTT recommends that this parameter be removed as it is a wireless parameter and therefore not relevant for Fixed Broadband Internet Service.
Reconnection of service within three hours after payment of overdue amounts.	90%		GTT accepts the proposed QOS Parameter
Customer Care Accessibility	100%	95%	Currently, our system records the answer time for all calls. The Company is not able to separate business and residential calls. Additionally, our data indicates that customers generally abandon their call after approximately two (2) minutes.
Data Service access time	Less than or equal to 5 seconds		GTT accepts the proposed QOS Parameter

1.4 Schedule 1 (7) Fixed Wireless Broadband Internet services for residential customers

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%		GTT accepts the proposed QOS Parameter
Packet Loss	Less than 2%		GTT accepts the proposed QOS Parameter
Packet Throughput	Greater than or equal to 90%		GTT accepts the proposed QOS Parameter
Latency	Less than or equal to 70 milliseconds		GTT accepts the proposed QOS Parameter
Jitter	Less than or equal to 30 milliseconds		GTT accepts the proposed QOS Parameter
Signal strength	Greater than or equal to -85 decibels		GTT accepts the proposed QOS Parameter
Reconnection of service within three hours after payment of overdue amounts	90%		GTT accepts the proposed QOS Parameter
Customer Care Accessibility	100%	95%	Currently, our system records the answer time for all calls. The Company is not able to separate business and residential calls. Additionally, our data indicates that customers generally abandon their call after approximately two (2) minutes.
Data Service Availability	Greater than or equal to 96%		GTT accepts the proposed QOS Parameter

Data Service access time	Less than or equal to 5 seconds		GTT accepts the proposed QOS Parameter
Supply time for initial connection (urban)	6 days		GTT is unable to accept the proposed QOS Parameter as Fixed Wireless Broadband Services are being offered in Rural areas only.
Supply time for initial connection (rural)	20 days		GTT's fixed wireless broadband service is currently being offered in rural areas. At the moment, equipment is not available to facilitate further installations.
% of technical complaints resolved within 12 hours	85	72 hours	Where a technical complaint is reported, in order to rectify same, technicians may be required to visit the customer's premises. Delays can occur where the customer is unavailable or cannot be contacted.
% of technical complaints resolved within 24 hours	95	120 hours	
% of technical complaints resolved within 36 hours	99	168 hours	
Number of billing errors per 1000 bills	3		
% of billing complaints resolved within 2 weeks	90		GTT accepts the proposed QOS Parameter
% of billing complaints resolved within 3 weeks	100		GTT accepts the proposed QOS Parameter

B2: PROPOSED QUALITY OF SERVICE STANDARDS TO BE INCLUDED IN SCHEDULE 2 (MOBILE PUBLIC TELECOMMUNICATIONS SERVICES)

2.1 Schedule 2 (2) Mobile Broadband Internet Services

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%		GTT accepts the proposed QOS Parameter
Packet Loss	Less than 2%		GTT accepts the proposed QOS Parameter
Packet Throughput	Greater than 90%		GTT accepts the proposed QOS Parameter
Latency	Less than or equal to 20 milliseconds		GTT accepts the proposed QOS Parameter
Jitter	Less than 5 milliseconds		GTT accepts the proposed QOS Parameter
Reconnection of service within three hours after payment of overdue amounts.	90%		GTT accepts the proposed QOS Parameter
Customer Care Accessibility	100%	95%	Currently, our system records the answer time for all calls. The Company is not able to separate business and residential calls. Additionally, our data indicates that customers generally abandon their call after approximately two (2) minutes.

Service Coverage	Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors)		GTT accepts the proposed QOS Parameter
Call connection success rate	Greater than 99%		GTT accepts the proposed QOS Parameter
Data Service access time	Less than or equal to 5 seconds		GTT accepts the proposed QOS Parameter
Data Access success rate	Greater than or equal to 99.9%	98%	GTT's recommendation is based on industry standards as set by the ITU and GSM Association
Data Service drop rate	Less than or equal to 1%	2%	GTT's recommendation is based on industry standards as set by the ITU and GSM Association

Additional information/comments may be added as a separate word document.

ANNEX A

GTT'S ADDITIONAL RESPONSE

1.3 Schedule 1 (2) Residential narrowband (voice) access

Quality of Service Parameters	Existing Standard	Stakeholders Response	Comments
Supply of time for initial connection (urban)	5 days	5 working days (Once facilities are available)	GTT recommends that the timeline be specified in working days and runs from the time when facilities are communicated to the customer to be available and reserved for the provision of the service.
Supply of time for initial connection (rural)	14 days	14 working days (Once facilities are available)	The timeline also considers the journey of the application through various departments and also where there is an error in the customer's application. Some customers may be unreachable to correct this information (e.g., applicant out of Guyana).

APPENDIX B
TELECOMMUNICATIONS QUALITY OF SERVICE STANDARDS
STAKEHOLDER RESPONSE DOCUMENT

Kindly use this form to complete all submissions.

Please utilize Times New Roman or Calibri font, font sized 12 with 1.5 line spacing.

To request a hard copy of the consultative document, kindly visit any of our offices at:

1. 106 New Garden Street, Queenstown, Georgetown; Telephone number 227-3534
2. Lot AV, Free Yard, Port Mourant, Corentyne, Berbice; Telephone number 336-6077
3. 97-98 Republic Avenue, McKenzie Linden; Telephone number 444-2045/444-2046
4. Lot 7E Henrietta Village, Essequibo Coast; Telephone number 624-6000

Alternatively, email us at pucommission@gmail.com or call 227-3534. You may WhatsApp us for further information at +592 623-3222.

The deadline for submissions is the 31st of May 2022.

All responses received on/by that date will be subject to the Commission's review.

U-Mobile (Cellular) Incorporated

B (1): PROPOSED QUALITY OF SERVICE STANDARDS TO BE INCLUDED IN SCHEDULE 1 (FIXED PUBLIC TELECOMMUNICATIONS SERVICES)

1.1 Schedule 1 (2) Residential narrowband (voice) access

Quality of Service Parameters	Existing Standards		PUC's Proposed Revision of Standards		Stakeholder Suggested Standards	Comments
	Duration (Hrs.)	Standard (%)	Duration (Hrs.)	Standard (%)		
% of unreported faults cleared within	2	80	24	80	70	70% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of unreported faults cleared within	6	90	48	90	80	80% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of unreported faults cleared within	12	98	96	98	90	90% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of unreported faults cleared within	24	100	120	100	98	98% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of reported faults cleared within	2	75	24	75	65	65% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of reported faults cleared within	6	85	48	85	75	75% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of reported faults cleared within	12	98	96	98	85	85% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.
% of reported faults cleared within	24	100	120	100	98	98% Suggested given the time it takes to repair fixed cable faults, and the geographic challenges quite often faced by the team to travel to rural areas.

Proposed Additional Standards		Stakeholder Suggested Standards	Comments
Reconnection of service within three business hours after payment of overdue amounts.	90%	80	This Standard should be amended to reflect reconnection within <u>three (3) business hours</u> , in order to avoid future dispute where payment is either made outside business hours, on weekends, or online at a time that would make it impractical to expect reconnection <u>within three hours</u> . This should also be <u>communicated to customers</u> .
Customer Care Accessibility	100%	95	We believe the current measure should be retained.

1.2 Schedule 1 (6) Broadband Internet services for residential customers

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%	97%	Consideration must be given to the fact that a number of extraneous issues, for example, utility pole strikes, or breakage of cables, are not within the control of the operator, and often require significant man-hours to restore, after the issue is investigated and or becomes known to operators.
Packet Loss	Less than 2%	2% (subject to further clarity as discussed in the Comments section)	Boundaries or Parameters are presently unknown, and must be defined. This is critical before these Standards are finalised or imposed on the industry. Operators can only manage and control packet loss within its own network, and subsequently only those packet losses for, which boundaries and parameters are known. Digicel welcomes further information before it can provide its final comments.
Packet Throughput	Greater than or equal to 90%	1Mbps	PUC should consider amending this Standard to the extent that reference is made instead to a minimum speed as the KPI. Customers are more likely to relate to such Standards as opposed to percentages. Further, <u>mobile networks operate on shared capacity, and therefore referring to a minimum speed (as opposed to a percentage) is a more appropriate measure for this Standard.</u>

Latency	Less than or equal to 70 milliseconds	NA	This KPI is <u>not required</u> and should be removed. Latency is measured between two end points, which is not specified. Most user traffic passes through servers in the USA, and therefore local operators cannot be held responsible for latency out of Guyana. PUC must consider removing this Quality of Service Parameter. Digicel welcomes PUC's response and otherwise reserves its final comments until such time.
Jitter	Less than or equal to 30 milliseconds	NA	This KPI is <u>not required</u> as packet loss is already being measured. Digicel welcomes PUC's response and otherwise reserves its final comments until such time.
Signal strength	Greater than or equal to -85 decibels	NA	This Quality of Service Parameter is <u>not applicable</u> for fixed broadband, which service is largely delivered through fiber and copper. The average customer will therefore not relate to such KPI or Standards and or the Parameters. Digicel refers to and repeats its recommendations, as contained under Comments for fixed wireless.
Reconnection of service within three business hours after payment of overdue amounts.	90%	4 hours	This should be amended to reflect reconnection within four (4) business hours following payment for reasons as set out in earlier Comment in relation to Reconnection timelines.
Customer Care Accessibility	100%	95	We believe the current measure should be retained.
Data Service access time	Less than or equal to 5 seconds	NA	This Quality of Service Parameter should be removed. Data service access on the internet cannot be measured by the operator. Digicel welcomes PUC's response and otherwise reserves its final comments until such time.

1.4 Schedule 1 (7) Fixed Wireless Broadband Internet services for residential customers

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%	96%	96% Suggested given the Geographic challenges quite often faced by the team to travels to rural areas.
Packet Loss	Less than 2%	2%	This must be applicable for and therefore restricted to traffic on the respective operators' own network only, as packets can drop on other networks during a data session, which is outside the control of the primary operator.
Packet Throughput	Greater than or equal to 90%	1Mbps	PUC should consider amending this Standard to the extent that reference is made instead to a minimum speed as the KPI. Customers are more likely to relate to such Standards as opposed to percentages. Further, mobile networks operate on shared capacity, and therefore referring to a minimum speed (as opposed to a percentage) is a more appropriate measure for this Standard.
Latency	Less than or equal to 70 milliseconds	NA	This KPI is not required - Latency is measured between two end points, which is not specified. Most of the user traffic goes to servers in the USA and local operators cannot be held responsible for latency out of Guyana. Latency will also vary based on the fixed wireless Technology (3G,4G or5G).
Jitter	Less than or equal to 30 milliseconds	NA	This KPI is not required as packet loss is already being measured and should therefore be removed.
Signal strength	Greater than or equal to -85 decibels	-95	This will vary depending on the distance between the customer and the site, and the frequency band utilised. - 95 would therefore be a more realistic Standard.
Reconnection of service within three business hours after payment of overdue amounts	90%	4 hours	This should be amended to reflect reconnection within four (4) business hours following payment for reasons as set out in earlier Comment in relation to Reconnection timelines.
Customer Care Accessibility	100%	95	We believe the current measure should be retained.
Data Service Availability	Greater than or equal to 96%	NA	Network Availability is already being captured and therefore this QoS Parameter is not required and is superfluous.

Data Service access time	Less than or equal to 5 seconds	NA	The operator cannot measure data service access on the internet. This QoS Parameter should therefore be removed.
Supply time for initial connection (urban)	6 days	14 business days	14 business Days is a more reasonable and accepted industry standard. While operators will make every effort to provide the service and connect customers within a much shorter timeframe, this may not be achievable in every circumstance and flexibility is therefore required.
Supply time for initial connection (rural)	20 days	30 business Days	30 business Days suggested for the same reasons as set out in the Comments immediately above.
% of technical complaints resolved within 12 hours	85	70	70
% of technical complaints resolved within 24 hours	95	85	85
% of technical complaints resolved within 36 hours	99	90	90
Number of billing errors per 1000 bills	3	5	
% of billing complaints resolved within 2 weeks	90	80	
% of billing complaints resolved within 3 weeks	100	90	

B2: PROPOSED QUALITY OF SERVICE STANDARDS TO BE INCLUDED IN SCHEDULE 2 (MOBILE PUBLIC TELECOMMUNICATIONS SERVICES)

2.1 Schedule 2 (2) Mobile Broadband Internet Services

Quality of Service Parameters	PUC's Proposed Standards	Stakeholder Suggested Standards	Comments
Availability	Greater than or equal to 99%	98%	98% Suggested given the Geographic challenges often faced by the teams to travel to rural areas.
Packet Loss	Less than 2%	2%	Points of testing should be defined clearly. Until this is done, Digicel is unable to properly provide its comment. For example, is this a reference Standard between the customer device and the Network Core? Digicel reserves the right to provide comments once this is clarified.

Packet Throughput	Greater than 90%	1Mbps	PUC should consider amending this Standard to the extent that reference is made instead to a minimum speed as the KPI. Customers are more likely to relate to such Standards as opposed to percentages. Further, mobile networks operate on shared capacity, and therefore referring to a minimum speed (as opposed to a percentage) is a more appropriate measure for this Standard.
Latency	Less than or equal to 20 milliseconds	NA	This KPI is not required. Latency is measured between two end points, which is not specified. Most of the user traffic goes to servers in the USA and local operators cannot be held responsible for latency out of Guyana. Latency will also vary based on Technology 3G,4G,5G
Jitter	Less than 5 milliseconds	NA	This KPI is not required as packet loss is already being measured. Points of testing should be defined clearly .Will vary based on Technology 3G,4G,5G
Reconnection of service within three hours after payment of overdue amounts.	90%	4	Within 4 business hours for the reasons as earlier set out under the Comments section related to reconnection of service times.
Customer Care Accessibility	100%	95	We believe the current measure should be retained.
Service Coverage	Greater than or equal to 75 decibel milliwatts (for indoors), Greater than or equal to 85 decibel milliwatts (for inside vehicle), Greater than or equal to 95 decibel milliwatts (for outdoors)	-	The suggested Standards are not practical. Digicel proposes, for Indoor, service coverage should be -100, within vehicles should be -95, and outdoor should be -85. The PUC's proposed measure will depend on the distance a customer is from a cell site as well as the technology used and frequency bands being utilised. It is also unclear how an operator can measure this for all customers to provide an average measure. We believe this measure should be reconsidered and maybe used only as a benchmark rather than measure on which an operator is expected to report since the operator cannot measure the same.
Call connection success rate	Greater than 99%	NA	Data calls are largely made via OTT services, for example Facebook and WhatsApp. For this reason, this is not a Parameter that can be measured by the operator. This should therefore be reconsidered as a QoS Parameter.
Data Service access time	Less than or equal to 5 seconds	NA	Data service access on the internet cannot be measured by the operator.
Data Access success rate	Greater than or equal to 99.9%	NA	Data service access on the internet cannot be measured by the operator.
Data Service drop rate	Less than or equal to 1%	NA	Packet loss is already being captured.

Additional information/comments may be added as a separate word document.