QUARTERLY STATISTICAL BULLETIN ON COMMUNICATIONS IN GHANA

Volume 5 Issue 4

NATIONAL COMMUNICATIONS AUTHORITY

FOURTH QUARTER

OCTOBER - DECEMBER, 2021

Communications for Development

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LIST OF ABBREVIATIONS

BWA	Broadband Wireless Access
LTE	Long-Term Evolution
FM	Frequency Modulation
GH₵	Ghana Cedi
GHp	Ghana pesewas
MB	Megabytes
MNO	Mobile Network Operator
MoU	Minutes of Use
NCA	National Communications Authority
SMS	Short Message Service
TV	Television

VISION AND MISSION

Vision

A world-class communications regulator that facilitates innovative, reliable and sustainable communication solutions to meet stakeholders' expectations.

Mission

Regulate the communications industry in a forward-looking and transparent manner that promotes fair and sustainable competition, stimulates innovation, encourages investment, protects stakeholders' interests and facilitates universal access to quality communications services for national development.

Core Values

- Teamwork
- Accountability
- Consistency
- Trust
- Innovation
- Transparency

Tag Line/Slogan – Communications for Development

INTRODUCTION

This Quarterly Statistical Bulletin on Communications is a reference document that entails segregated data, industry trends and analysis of the Ghanaian communications sector. The purpose of this document is to promote open and enriched public discussions on policies for telecom analysts, consumers, academia, policy makers, investors and other stakeholders for decision-making.

This bulletin is prepared from the monthly and quarterly data received from various licensees[1]. It also includes data on internet service providers and broadcasting entities and services providers that was gathered in-house.

The publication of this bulletin is consistent with the National Communications Authority's mandate under section 26 (2) (a) of the Electronic Communications Act 2008, Act 775; "to publish the result of research that it carries out or that is carried out on its behalf on its website and in any other manner that it considers appropriate to bring the results to the attention of the public".

[1] MTN, Vodafone, AirtelTigo, Glo, Surfline, BBH, Telesol and BLU

DEFINITION OF TERMS

Average SMS per subscriptions - This is calculated by dividing the total average volume of SMS for the quarter by the total average mobile subscriptions for that quarter.

BWA Data Usage per Subscriptions - This is calculated by dividing the total average volume of BWA's traffic for the quarter by the total BWA subscriptions for that quarter.

Cellular network or mobile network – refers to a communication network where the last mile connection is wireless. The network is distributed over land areas called cells, each served by at least one fixed-location transceiver, known as a cell site or base station. This base station provides the cell with the network coverage, which can be used for transmission of voice, data and others.

Fixed-line network - The term refers to all of the wired networks that are used for voice and data communications. A fixed-line can be seen as a connection to an end-user, by means of a cable, through which they can make phone calls or connect to the Internet.

Minutes of Use per Subscriptions - It is calculated by dividing the total average volume of traffic for that quarter with the total average subscriptions for that quarter.

Mobile Data-refers to active mobile data subscriptions to GPRS, EDGE, HSPA, UMTS, EV-DO, 3G, and LTE that have generated internet traffic (uploaded and/ or downloaded data) within the last ninety (90) days.

Mobile Data Usage per Subscriptions - It is calculated by dividing the total average volume of data traffic for the quarter with the total average mobile data subscriptions for that quarter.

Mobile Penetration or Teledensity – This represents the total number of mobile subscriptions per every 100 inhabitants in a geographical area.

Net Subscriptions Addition – It refers to the total number of new mobile network subscribers minus customers that terminate a service with the service provider at a given time.

On-net traffic - refers to phone calls made to a recipient on the same network as the caller.

Off-net traffic - refers to phone calls made to a recipient on a different network.

Quarter-on-quarter – This is a comparison of the quarter under review with the preceding quarter.

Q1 – First Quarter (January – March).

Q2 – Second Quarter (April – June).

Q3 – Third Quarter (July – September).

Q4 – Fourth Quarter (October – December).

Year-on-year – This is a comparison of a period under review (month, quarter etc.) with the same period of the preceding year.

THE COMMUNICATIONS INDUSTRY AT A GLANCE[2]

A1. Service Providers Authorised/Licensed to Operate

Operator/Service Providers	Number of Authorisation/Licences	Number in Operation
Mobile Network Operators	4	4
Fixed Network Operators	3	3
Broadband Wireless Access	5	5
Television Stations	143	115
FM Stations	630	459

B1. Total Subscriptions

SUBSCRIPTION	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q3 2020	Q4 2020	*Growth (%)*	Q4 2019	Q4 2020	*Growth (%)*	
Mobile Voice Subscription	40.35	40.46	*0.27%*	40.86	40.46	*-0.98%*	Million
Fixed Voice Subscription	299.96	307.67	*2.57%*	288.53	307.67	*6.63%*	Thousand
Mobile Data Subscription	25.81	26.47	*2.54%*	30.34	26.47	*-12.76%*	Million
Fixed Data Subscription	78.92	77.02	*-2.41%*	0.057	77.02	*34.03%*	Thousand
Broadband Wireless Access	43.65	42.19	*-3.36%*	46.05	42.19	*-8.38%*	Thousand

B2. Voice, Data and SMS Traffic

TRAFFIC	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q3 2020	Q4 2020	*Growth (%)*	Q4 2019	Q4 2020	*Growth (%)*	
Mobile Voice Traffic (Domestic)	25.23	26.63	*5.55%*	21.51	26.63	*23.80%*	Billion minutes
Fixed Voice Traffic	9.09	8.84	*-2.71%*	12.70	8.84	*-30.42%*	Million minutes
Incoming International Traffic (Direct to Network Only)	54.31	56.06	*3.22%*	56.81	56.06	*-1.32%*	Million minutes
Outgoing International Traffic	116.24	119.07	*2.43%*	121.35	119.07	*-1.88%*	Million minutes
Mobile Data Traffic (MB)	199.50	187.90	*-5.81%*	129.05	187.90	*45.61%*	Billion MB
BWA Data Traffic (MB)	4.88	4.92	*0.82%*	3.39	4.92	*45.04%*	Billion MB
SMS Count	483.3	554.9	*14.83%*	628	554.9	*-11.67%*	Million

[2] The decimals may not be exact due to the rounding-off of the actual figures.

B3. Penetration Rate (%)

PENETRATION RATE (%)	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q3 2020	Q4 2020	*Growth (%)*	Q4 2019	Q4 2020	*Growth (%)*
Mobile Voice Subscription	131.28	130.85	*-0.33%*	135.33	130.85	*-3.31%*
Fixed Voice Subscription	0.98	0.99	*1.96%*	0.96	0.99	*4.11%*
Mobile Data Subscription	83.98	85.60	*1.93%*	100.50	85.60	*14.83%*
Fixed Data Subscription	0.26	0.25	*-3.09%*	0.19	0.25	*30.86%*
Broadband Wireless Access	0.14	0.14	*0.00%*	0.15	0.14	*-10.55%*

C1. Broadcasting Sector

FM/TV AUTHORISATION & OPERATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q3 2020	Q4 2020	*Growth (%)*	Q4 2019	Q4 2020	*Growth (%)*
FM Authorisation	604	630	*4.30%*	513	630	*22.81%*
FM Station Operating	446	459	*2.91%*	381	459	*20.47%*
TV Authorisations	145	143	*-1.38%*	140	143	*2.14%*
TV Stations Operating	102	115	*12.75%*	96	115	*19.79%*

C2. Categories of Authorised FM Radio Stations

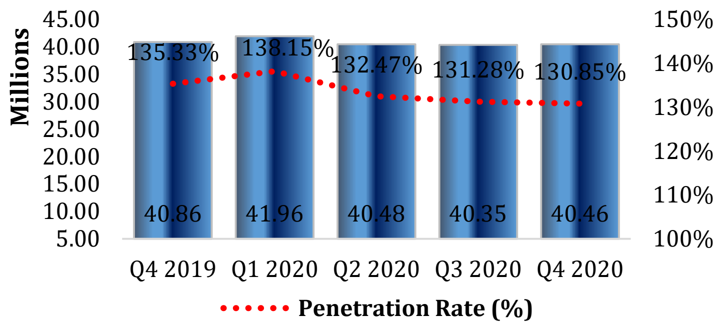
CATEGORIES OF FM RADIO STATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q3 2020	Q4 2020	*Growth (%)*	Q4 2019	Q4 2020	*Growth (%)*
PUBLIC	31	31	*0.00%*	31	31	*0.00%*
PUBLIC FOREIGN	5	5	*0.00%*	5	5	*0.00%*
CAMPUS	22	23	*4.55%*	21	23	*9.52%*
COMMUNITY	87	96	*10.34%*	73	96	*28.00%*
COMMERCIAL	459	475	*3.49%*	381	475	*24.67%*

1.0 Mobile Network

This section provides information on the Mobile Network Operators (MNOs) in Ghana by looking at the mobile voice subscriptions, net additions to voice subscriptions, mobile penetration, volume of voice/data traffic and mobile data subscriptions. There are four service providers licensed by the National Communications Authority (NCA) to provide mobile telecoms services in Ghana namely AirtelTigo, Glo, MTN and Vodafone.

1.1 Mobile Voice Subscriptions and Penetration Rate[3]

Figure 1: Mobile Voice Subscription and Penetration Rate



Mobile Voice subscriptions increased from 40.35 million at the end of Q3 2020 to 40.46 million at the end of Q4 2020, representing a growth of 0.27%.

Year-on-year subscriptions decreased from 40.86 million at the end of Q4 2019 to 40.46 million at the end of Q4 2020, recording a negative growth of 0.98%.

The penetration rate as at the end of the fourth quarter of 2020 was 130.85% as compared to 131.28% recorded in the third quarter of 2020, indicating a decline of 0.33% (Figure 1) (Appendix A, Table 1).

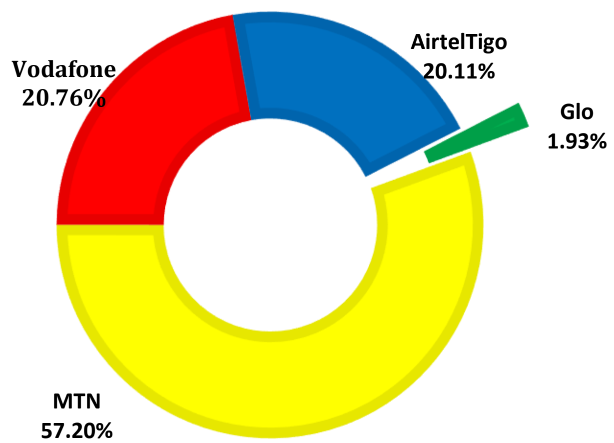
1.1.1 Market Share per Operator

At the end of Q4 2020, MTN had 57.20% of the market with 23.14 million subscriptions, followed by Vodafone with 8.40 million subscriptions (20.76%).

AirtelTigo is the third largest mobile network operator by subscription with a market share of 20.11% and subscriber base of 8.14 million.

Glo recorded 0.78 million subscriptions with a market share of 1.93% (Figure 2) (Appendix A, Table 2).

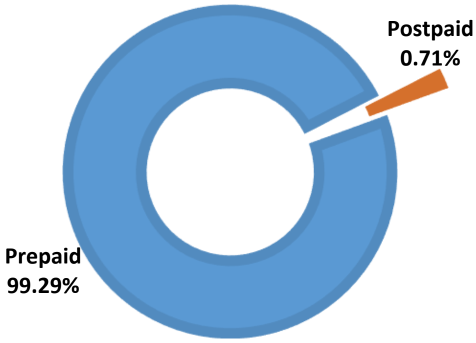
Figure 2: Market Share per Operator



[3]The mobile penetration rate is estimated by dividing the total number of mobile subscribers by the total population. Population of Ghana was estimated based on the 2010 Population Census figure 24,658,823 published by Ghana Statistical Service (GSS) with 0.2% projected monthly growth rate. The High Penetration Rate is partly attributed to people owning more than one SIM card.

1.1.2 Prepaid and Postpaid Mobile Voice Subscriptions

Figure 3: Prepaid and Postpaid Mobile Voice Subscriptions



Mobile voice subscription for prepaid subscribers is 40.17 million representing a market share of 99.29% whilst postpaid stood at 0.71% with a subscription of 0.29 million (Figure 3) (Appendix A, Table 3).

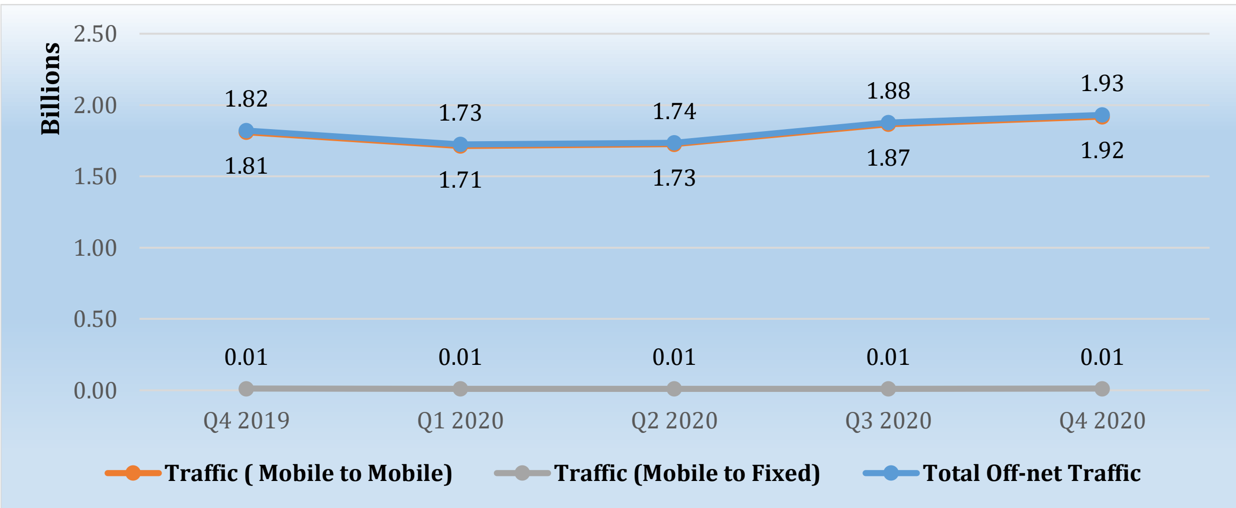
1.2 Off-net Mobile Voice Traffic (Domestic)

Mobile-to-mobile off-net traffic increased from 1.87 billion minutes at the end of Q3 2020 to 1.92 billion minutes at the end of Q4 2020 representing 2.84% growth.

Year-on-year mobile-to-mobile off-net traffic increased from 1.81 billion minutes at the end of Q4 2019 to 1.92 billion minutes at the end of Q4 2020, representing a growth of 6.07%.

Mobile to fixed off-net traffic increased from 10.96 million minutes to 12.24 million minutes representing 11.66% growth quarter-on-quarter. Year-on-year mobile-to-fixed off-net traffic increased from 11.64 million minutes at the end of Q4 2019 to 12.24 million minutes at the end of Q4 2020, representing 5.13% growth (Figure 4) (Appendix A, Table 4).

Figure 4: Off-net Traffic Distribution between Mobile and Fixed Networks



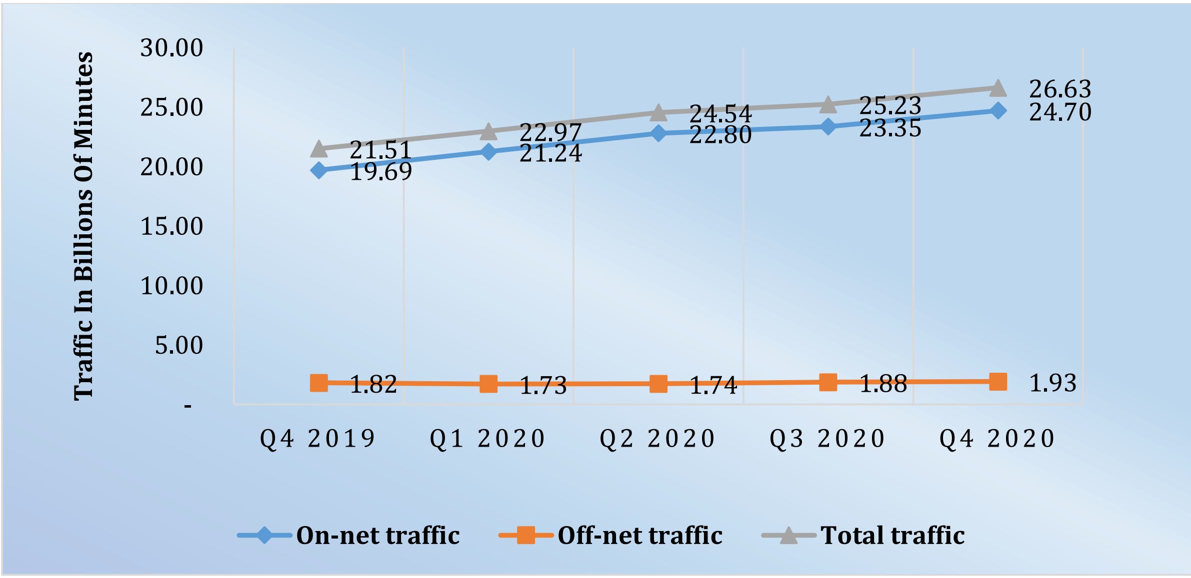
1.2.1 Total Domestic Mobile Voice Traffic

Total domestic mobile voice traffic recorded a rise from 25.23 billion minutes in the previous quarter to 26.63 billion minutes in Q4 of 2020, representing 5.55% growth. Year-on-year mobile voice traffic also increased from 21.51 billion minutes at the end of the fourth quarter of 2019 to 26.63 billion minutes in the fourth quarter of 2020, representing a growth rate of 23.80%

Off-net traffic increased from 1.88 billion minutes at the end of Q3 2020 to 1.93 billion minutes at the end of Q4 2020, representing a growth of 2.89%. Year-on-year off-net traffic increased by 6.07%, from 1.82 billion minutes in Q4 2019 to 1.93 billion minutes at the end of Q4 2020.

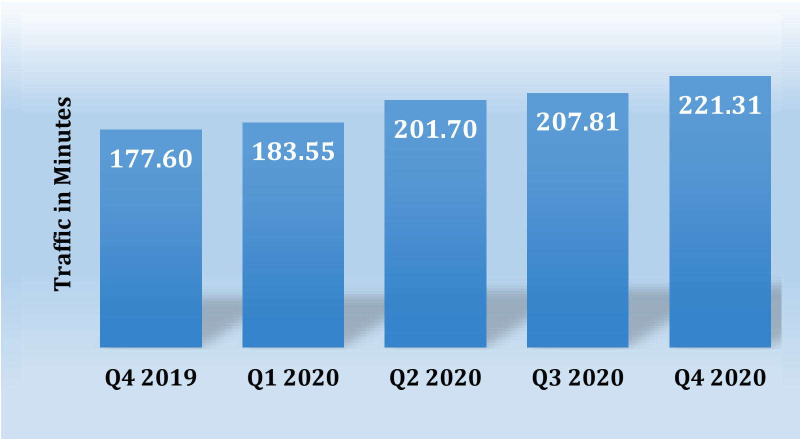
On-net traffic increased from 23.35 billion minutes in the previous quarter to 24.70 billion minutes during the quarter under review, representing a growth rate of 5.74%. Year-on-year on-net traffic also grew from 19.69 billion minutes in Q4 2019 to 24.70 billion minutes at the end of Q4 2020 representing 25.43% in growth rate. (Figure 5) (Appendix A, Table 5).

Figure 5: Total Domestic Mobile Voice Traffic in Billions of Minutes



1.2.2 Minutes of Use (MoU)[4]

Figure 6: Mobile Voice Traffic Minutes of Use (MoU) per subscriptions



Quarter-on-quarter average minutes of use per subscription rose from 207.81 minutes in Q3 2020 to 221.31 minutes (6.50%) in Q4 2020.

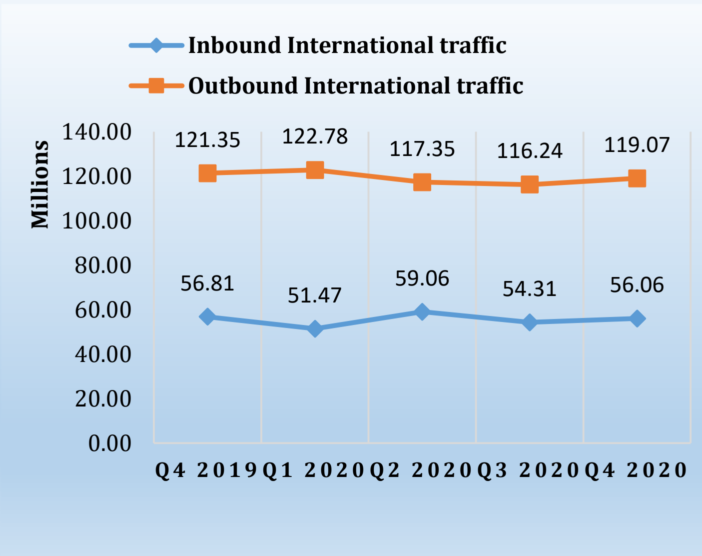
Year-on-year minutes of use per subscription grew from 177.60 minutes in Q4 2019 to 221.31 minutes in Q4 2020, representing 24.61% growth (figure 6) (Appendix A, Table 6).

1.3 International Traffic

During the quarter under review, inbound international traffic increased from 54.31 million minutes to 56.06 million minutes, representing an increase of 3.22%. Year-on-year inbound international traffic decreased from 56.81 million minutes to 56.06 million minutes representing a decrease in growth by 1.33%.

Outbound international traffic increased from 116.24 million minutes in Q3 2020 to 119.07 million minutes at the end of Q4 2020, representing an increase of 2.43%. Year- on –year outbound international traffic declined from 121.35 million minutes to 119.07 million minutes, indicating a decrease of 1.88% (Figure 7) (Appendix A, Table 7).

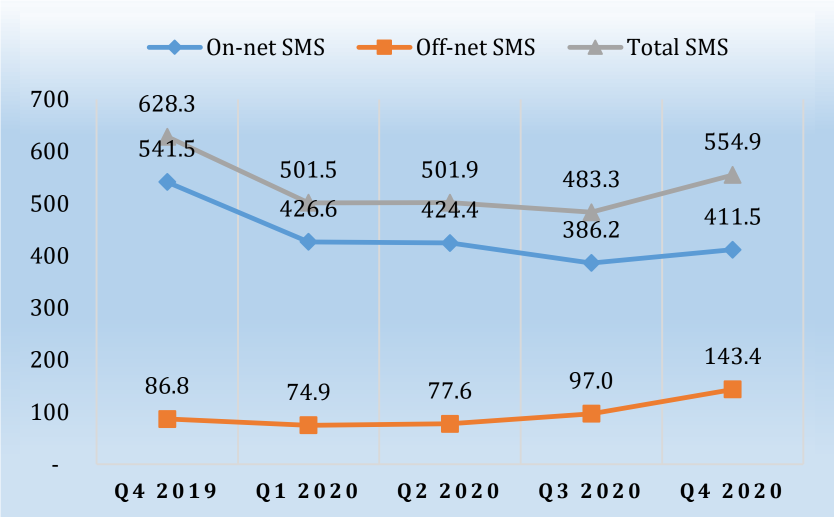
Figure 7: International Traffic in Minutes (Millions)



[4] Minutes of use per subscriptions is calculated by dividing the total average volume of traffic for the quarter by the total average subscriptions for that quarter.

1.4 Short Messages Service (SMS)

Figure 8: Total Number of SMS



The total number of short messages service (SMS) sent at the end of Q4 2020 was 554.9 million as compared to 483.3 million in the preceding quarter, recording 14.83% increase.

Year-on-year SMS counts went down from 628.3 million in Q4 2019 to 554.9 million at the end Q4 2020, representing a decrease of 11.67% (figure 8) (Appendix A, Table 8).

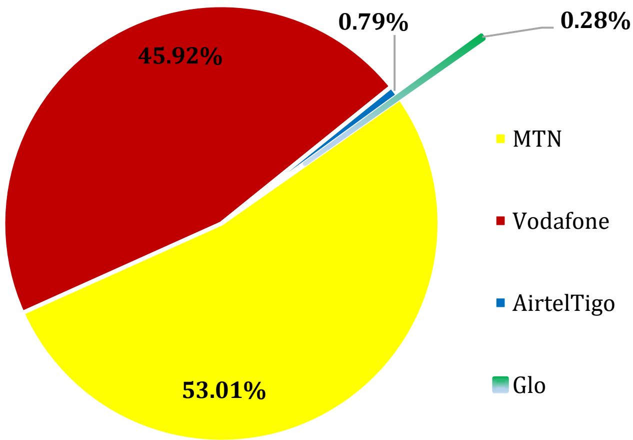
1.4.1 SMS Counts per Mobile Network Operator/Market Share

The volume of SMS traffic originating from MTN was 294.16 million at the end of Q4 2020; representing a market share of 53.01% of the total, SMS count.

The volume of SMS traffic from Vodafone was 254.85 million, representing a market share of 45.92% of the total SMS count.

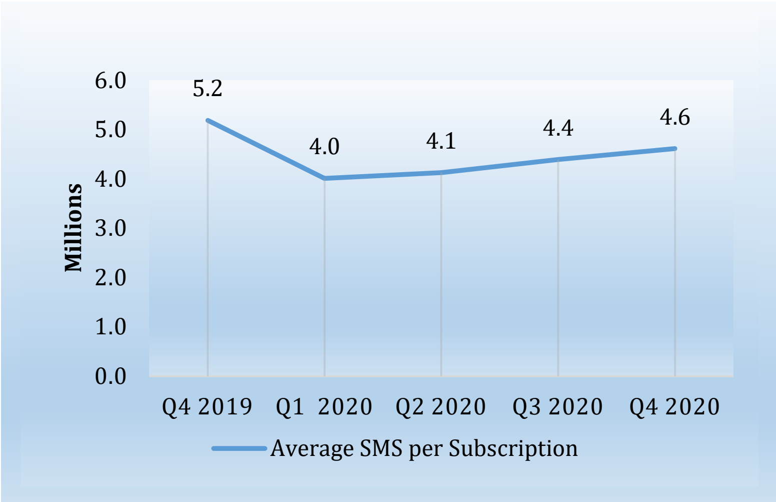
AirtelTigo had an SMS count of 4.36 million, representing 0.79% of the market share of the total SMS count. Glo generated 1.56 million SMS count recording a share of 0.28% (Figure 9) (Appendix A, Table 8).

Figure 9: Average SMS per Mobile Network Operator



1.4.2 Average SMS per subscription

Figure 10: Average SMS per Subscription



Quarter-on-quarter average SMS sent per subscription at the end of Q4 2020 was about 4.6 SMS, indicating an increase of 4.97% as compared to the end of Q3 2020, which was 4.4.

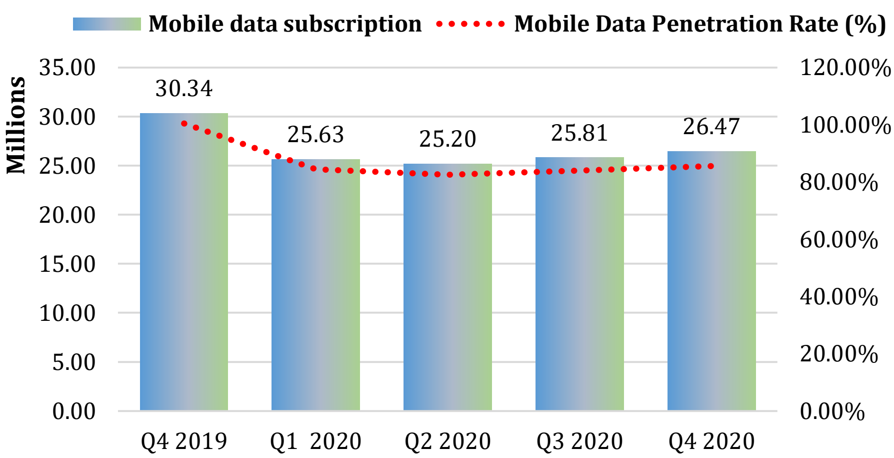
Year-on-year average SMS volume per subscription decreased from approximately 5.2 at the end of Q4 2019 to approximately 4.6 at the end of Q4 2020, recording a decrease of 11.11% (Figure 10) (Appendix A, Table 9).

1.5 Mobile Data Subscriptions and Penetration Rate (%)

Figure 11: Mobile Data Subscriptions and Penetration Rate (%)

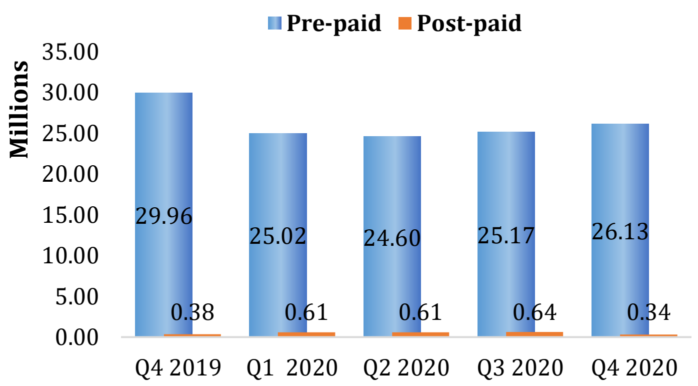
At the end of Q4 2020, mobile data subscriptions increased by 2.54% from 25.81 million at the end of Q3 2020 to 26.47 million.

Year-on-year subscriptions decreased by 12.76%, from 30.34 million at the end of Q4 2019 to 26.47 million at the end of Q4 2020 (Figure 11) (Appendix A, Table 10).



1.5.1 Mobile Data Pre-paid and Post-paid Subscriptions

Figure 12: Mobile Data Pre-paid and Post-paid Subscriptions



Mobile data pre-paid subscriptions increased from 25.17 million in the third quarter of 2020 to 26.13 million subscriptions at the end of the fourth quarter of 2020, representing 98.72% of the market share.

Post-paid subscriptions recorded a market share of 1.28% with a subscription of 0.34 million at the end of Q4 2020 (Figure: 12) (Appendix A, Table 10).

1.5.2 Mobile Data Subscriptions per Mobile Network Operator /Market Share

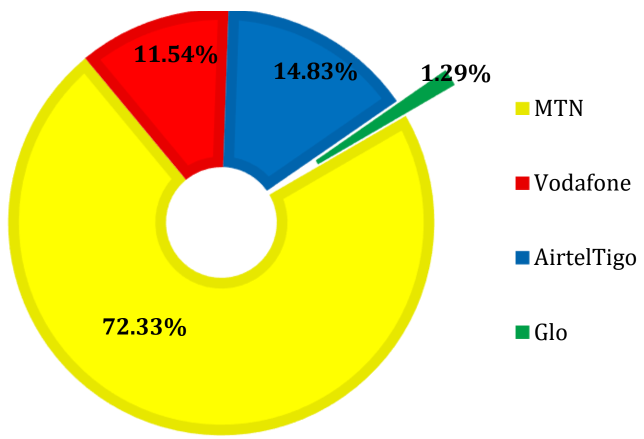
MTN recorded 19.15 million subscriptions with a market share of 72.33%.

Vodafone also recorded 3.05 million subscriptions with a market share of 11.54%.

AirtelTigo registered 3.93 million in mobile data subscriptions with a market share of 14.83%.

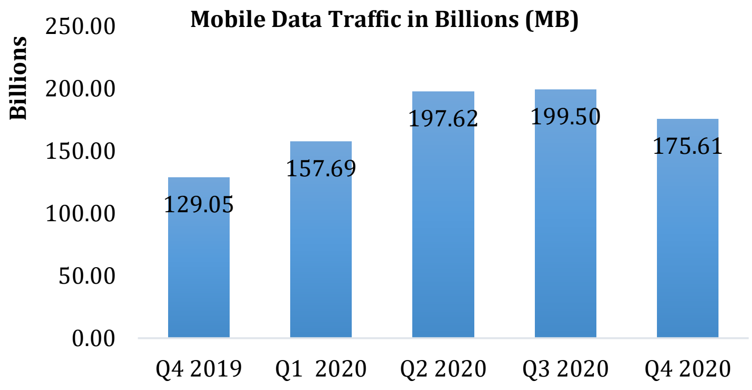
Glo ended the fourth quarter of 2020 with a total data subscription of 0.34 million and a market share of 1.29% (Figure 13).

Figure 13: Market Share per Operator



1.6 Mobile Data Traffic in Billions of Megabytes (MB)

Figure 14: Mobile Data Traffic in Billions of Megabytes (MB)



At the end of Q4 2020, internet traffic generated by the mobile network operators was 175.61 billion megabytes of data, recording a decline of 11.98% as compared to 199.50 billion megabytes of data at the end Q3 2020.

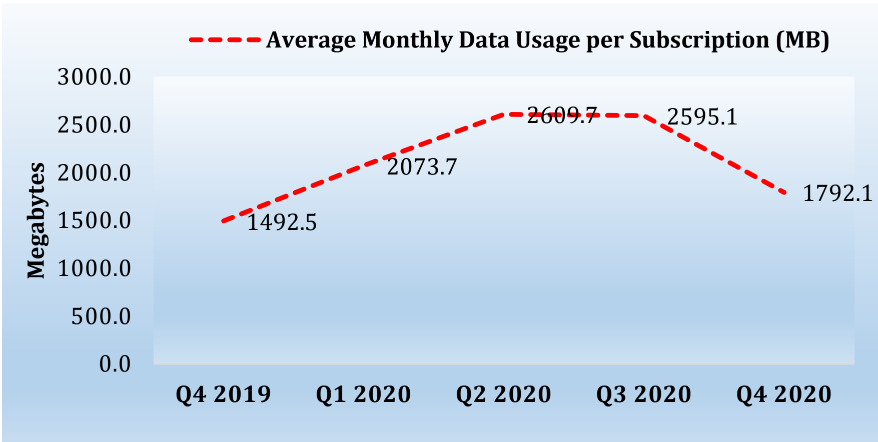
Year-on-year internet traffic increased from 129.05 billion megabytes at the end of Q4 2019 to 175.61 billion megabytes at the end of Q4 2020, representing an increase of 36.08% (Figure 14) (Appendix A, Table 11).

1.6.1 Mobile Internet Usage per Subscription (MB) [5]

The average mobile internet usage per subscription decreased from 2595.1 megabytes at the end of Q3 2020 to 1792.1 megabytes at the end of Q4 2020 recording a decrease of 30.94%.

Year-on- year average data usage per subscription increased from 1492.5 at the end of Q4 2019 to 1792.1 at the end of Q4 2020, recording a growth of 20.07% (Figure 15) (Appendix A, Table 12).

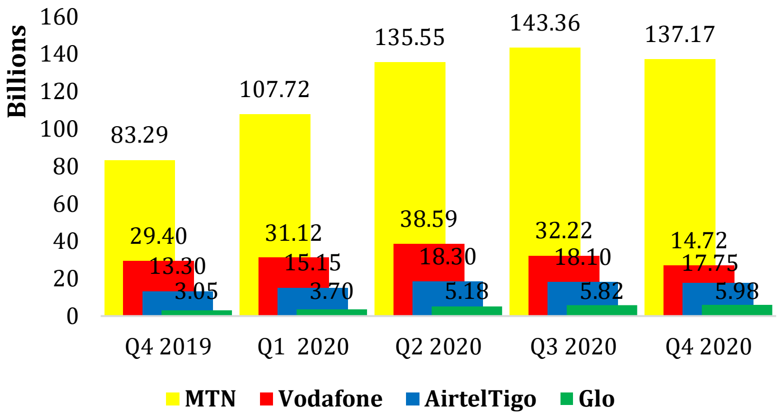
Figure 15: Mobile Data Usage per Subscription (MB)



[5] Mobile Internet usage per subscription is calculated by dividing the total average volume of internet traffic for the quarter by the total average mobile internet subscription for that quarter.

1.6.2 Mobile Internet Traffic (MB) per Mobile Network Operator

Figure 16: Mobile Internet Traffic (MB) per Operator



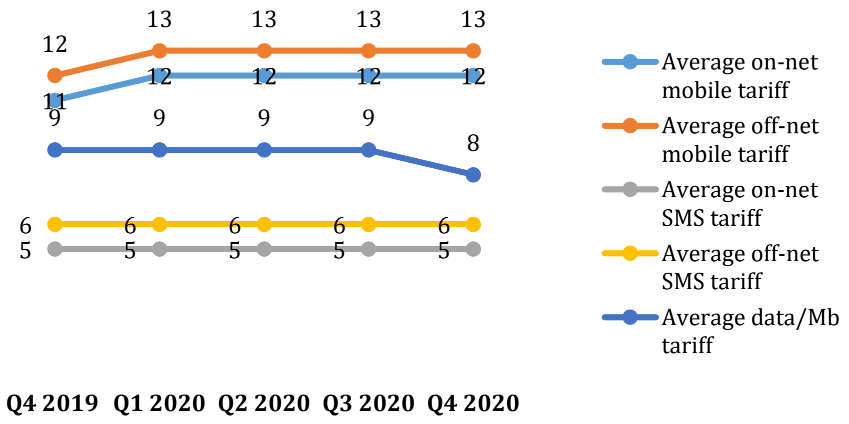
MTN generated the highest volume of internet traffic of 137.17 billion megabytes with a market share of 78.11%, followed by Vodafone with a traffic of 14.72 billion megabytes and a market share of 8.38%.

AirtelTigo also registered 17.75 billion megabytes of data, recording a market share of 10.10%.

Glo recorded the least data usage, generating 5.98 billion megabytes with a market share of 3.40% (Figure 16) (Appendix A, Table 13)

1.7 Mobile Telecommunications Service Tariffs

Figure 17: Average Mobile Tariffs per Service



Quarter- on -quarter average tariffs for SMS and mobile voice have not changed. The quarter-on-quarter data tariff changed from 0.9 to 0.8 pesewas per megabyte.

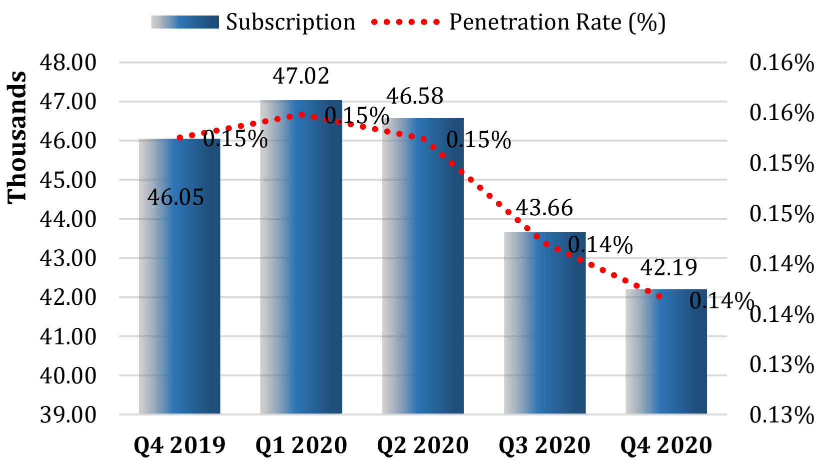
The industry average tariff for year-on-year on net and off net mobile tariff increased from 0.11 to 0.12 pesewas and 0.12 to 0.13 respectively. The average data tariff reduced by a pesewa to 0.08 pesewas per megabyte. The tariff for SMS however remained unchanged. (Figure 17) (Appendix A, Table 14).

2.0 BROADBAND WIRELESS ACCESS (BWA)

There are five (5) Broadband Wireless Access operators in Ghana namely; BLU Telecommunications, Broadband Home (BBH), Busy Internet, Surfline and Telesol. This quarter's report covers data from Surfline and Telesol only.

2.1 BWA Subscriptions and Penetration Rate

Figure 18: BWA Subscription and Penetration Rate



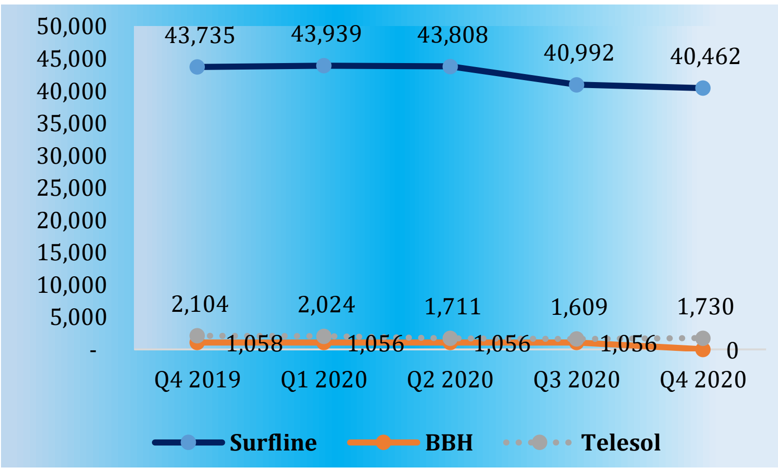
BWA subscriptions decreased from 43.66 in the third quarter of 2020 to 42.19 in the fourth quarter of 2020, representing a decrease by 3.36%.

Year-on-year subscriptions also decreased from 46.05 in the fourth quarter of 2019 to 42.19 at the end of the fourth quarter of 2020, recording a decrease by 8.38%.

Penetration rate for broadband wireless access remained 0.14% as in the previous quarter (Figure 18) (Appendix A, Table 15).

2.1.1 Subscriptions per Broadband Wireless Access (BWA) Operator

Figure 19: Subscriptions per Broadband Wireless Access (BWA) Operator

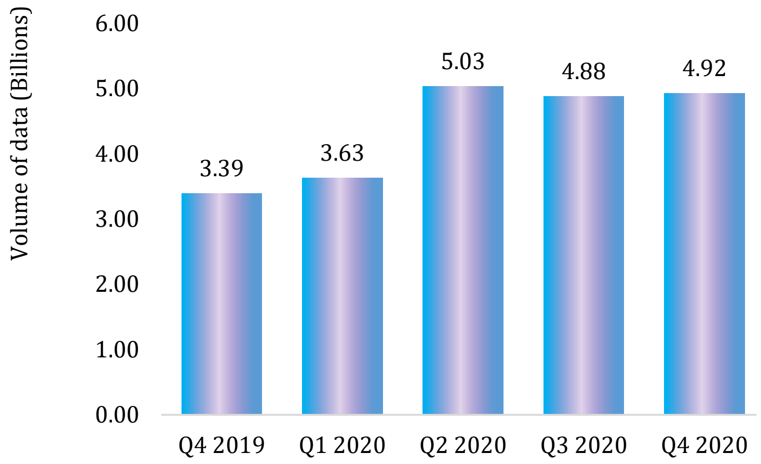


Surfline recorded a decrease in subscriptions from 40,992 at the end of Q3 2020 to 40,462 at the end of the quarter under review, representing a decrease by 1.29% and a market share of 95.90%.

Telesol recorded 1,730 subscriptions this quarter with an increase in growth by 7.52% and a market share of 4.10% (Figure 19) (Appendix A, Table 16).

2.2 Broadband Wireless Access (BWA) Volume of Internet Traffic

Figure 20: BWA Internet Traffic in Megabyte (MB)



The total volume of internet traffic generated by the BWAs increased from 4.88 billion megabytes at the end of Q3 2020 to 4.92 billion megabytes at the end of Q4 2020, indicating an increase of 0.82%.

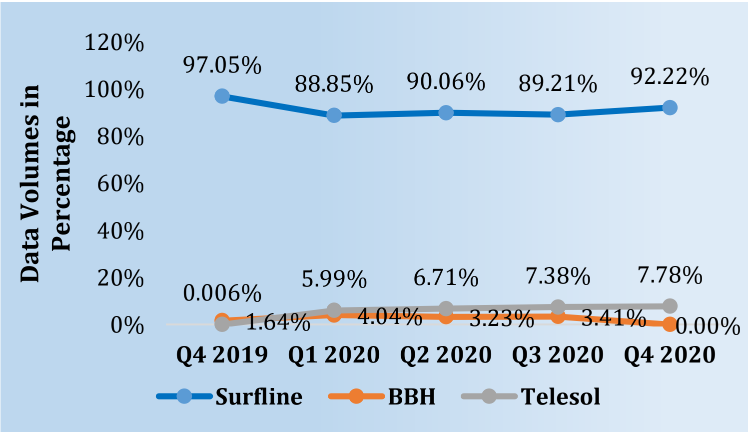
Year-on-year internet traffic increased from 3.39 billion megabytes at the end of Q4 2019 to 4.92 billion megabytes at the end of Q4 2020, representing a growth of 45.04% (Figure 20) (Appendix A, Table 17).

2.2.1 Volume of Broadband Wireless Access Traffic per Operator

Surfline's total volume of internet traffic for the quarter under review was 4.54 billion MB, representing 92.22% of the total volume of traffic.

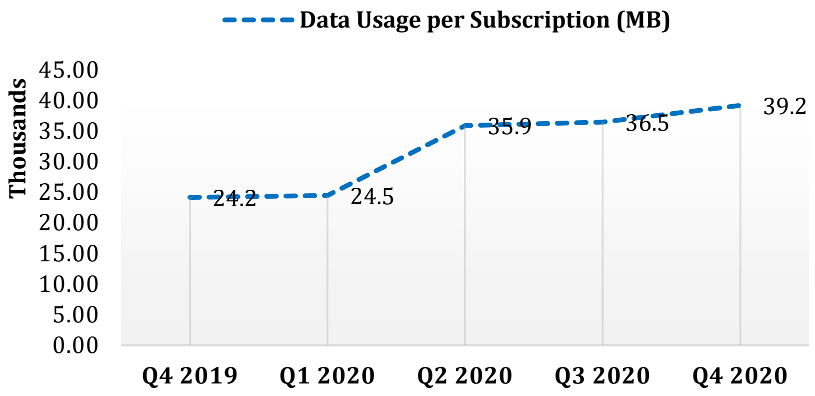
Telesol recorded 0.383 billion MB with a market share of 7.78% (Figure 21) (Appendix A, Table 17).

Figure 21: BWA Traffic Market Share per Operator (MB)



2.2.2 Average Monthly Internet Usage per BWA Subscription[6]

Figure 22: Average Internet Usage per BWA Subscription



Average internet usage per BWA subscription increased to 39.2 thousand megabytes in the fourth quarter of 2020 from 36.5 thousand megabytes in the previous quarter.

Year-on-year internet usage per subscription also increased from 24.2 megabytes in the fourth quarter of 2019 to 39.2 megabytes at the end of the fourth quarter of 2020 (Figure 22) (Appendix A, Table 18).

[6] BWA data per subscriptions is calculated by dividing the total average volume of BWA's traffic for the quarter by the total average of BWA subscriptions for that quarter.

3.0 FIXED NETWORK

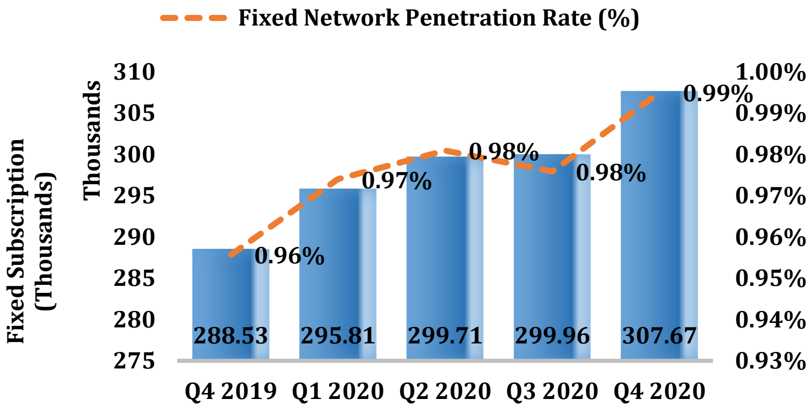
This section analyses the fixed telephone industry in Ghana. Three (3) operators namely Vodafone, AirtelTigo and MTN have been licensed by the NCA to provide this service.

3.1Fixed Voice Subscriptions and Penetration Rate

Total number of fixed line subscriptions increased from 299,959 in the third quarter of 2020 to 307,668 at the end of the fourth quarter of 2020. This shows a penetration rate of 0.99% and a 2.57% growth in subscriptions.

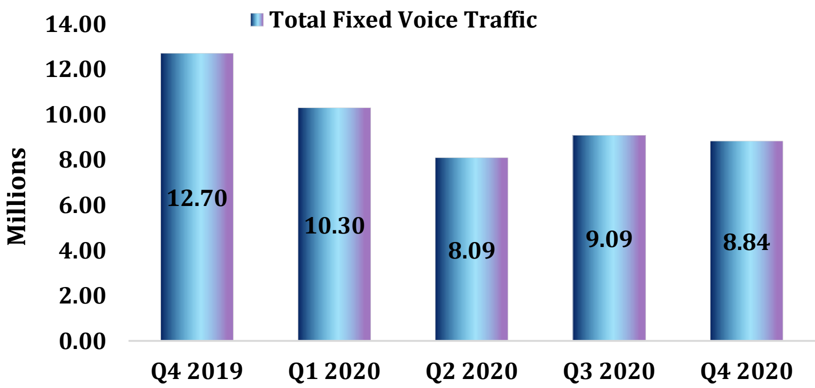
Year-on-year subscription increased from 288,531 in Q4 2019 to 307,668 at the end of Q4 2020, representing a growth of 6.63% (Figure 23) (Appendix A, Table 19).

Figure 23: Fixed Network Voice Subscription and Penetration Rate



3.2 Fixed Voice Network Traffic

Figure 24: Total Fixed Voice Traffic



Total fixed voice traffic decreased by 2.71% during the quarter under review, from 9.09 million minutes to 8.84 million minutes.

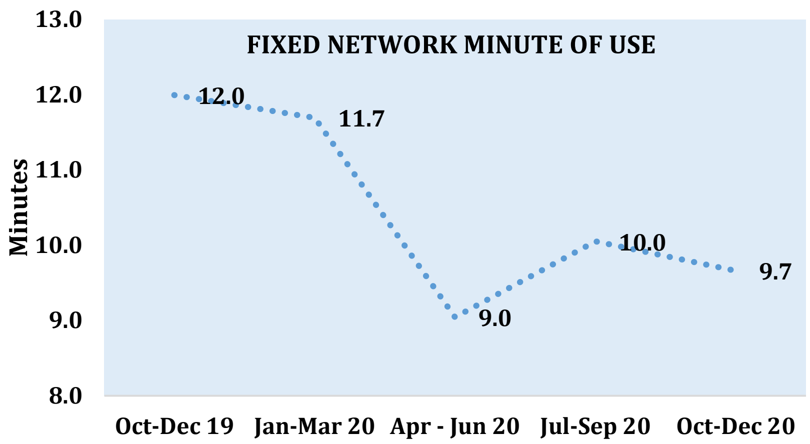
Year-on-year total fixed voice traffic decreased by 30.42%, from 12.70 million minutes to 8.84 million minutes (Figure 24) (Appendix A, Table 20).

3.3 Fixed Voice Average Minute of Use[7]

Average fixed voice traffic per subscription decreased from 10.0 to 9.7 minutes at the end of the fourth quarter of 2020 (3.88%).

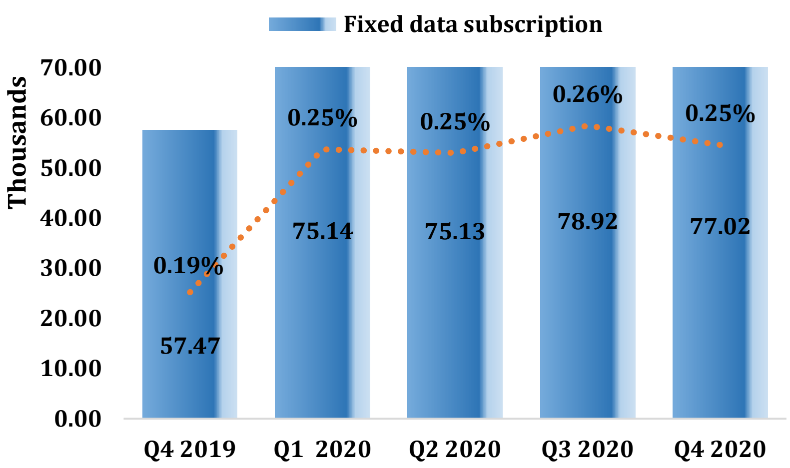
Year-on-year minutes of use per subscription declined from 12.0 minutes in the fourth quarter of 2019 to 9.7 minutes at the end of the fourth quarter of 2020 (19.46%) (Figure 25) (Appendix A, Table 21).

Figure 25: Fixed Network Minute of Use



3.4 Fixed Data Subscriptions and Penetration

Figure 26: Fixed Data Subscriptions and Penetration



Fixed Data subscriptions decreased from 78,924 in the previous quarter to 77,022 in the quarter under review recording a decline in growth by 2.41%.

Year-on-year fixed data subscriptions increased from 57,465 in the preceding year to 77,022 at the end of the fourth quarter of 2020, recording a growth of 34.03%.

Fixed data penetration rate decreased from 0.26% at the end of the third quarter of 2020 to 0.25% at the end of the fourth quarter of 2020. (Figure 26) (Appendix A, Table 22).

[7] Fixed Network Minutes of use per subscriptions is calculated by dividing the total average volume of traffic for the quarter by the total average fixed subscriptions for that quarter.

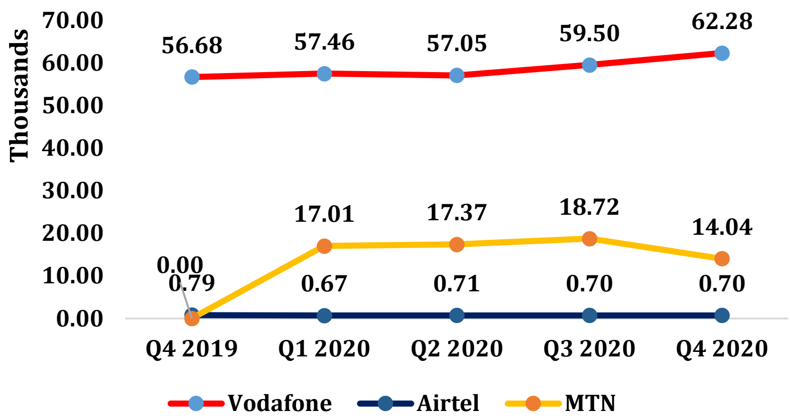
3.5 Fixed Data Subscriptions per Mobile Network Operator

Figure 27: Fixed Data Subscription per Operator

Vodafone's subscriptions at the end of the fourth quarter of 2020 was 62,284 representing 80.87% of the market share.

MTN's subscriptions at the end of the fourth quarter of 2020 was 14,038 representing 18.23% of the market share.

AirtelTigo recorded 700 subscriptions at the end of Q4 2020 with a market share of 0.91%. (Figure 27) (Appendix A, Table 23).



4.0 BROADCASTING

4.1 Authorised Frequency Modulation (FM) Radio Station

The total number of authorised FM stations in Ghana as at the end of the fourth quarter of 2020 was 630, indicating an increase by 26 FM stations from 604 in the previous quarter. The total number of operational FM stations is still at 459 in the quarter under review.

The Ashanti Region had the highest number of FM stations (92), representing 14.60% of the total number of authorised FM stations in the country. The North East Region recorded the least number of authorised FM Stations, with 9 stations, representing 1.43% of the total authorized FM Stations in the country. (Figure 28) (Appendix A, Table 24).

Figure 28: Regional distribution of authorized FM stations as at end of Q4 2020

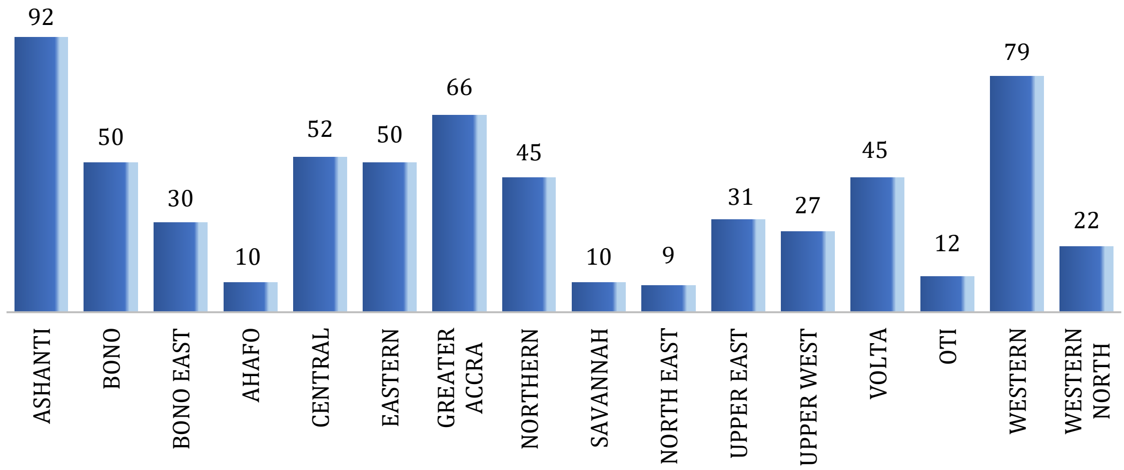


Figure 29: Regional distribution of On-air and Off-air FM stations as at end of Q4 2020

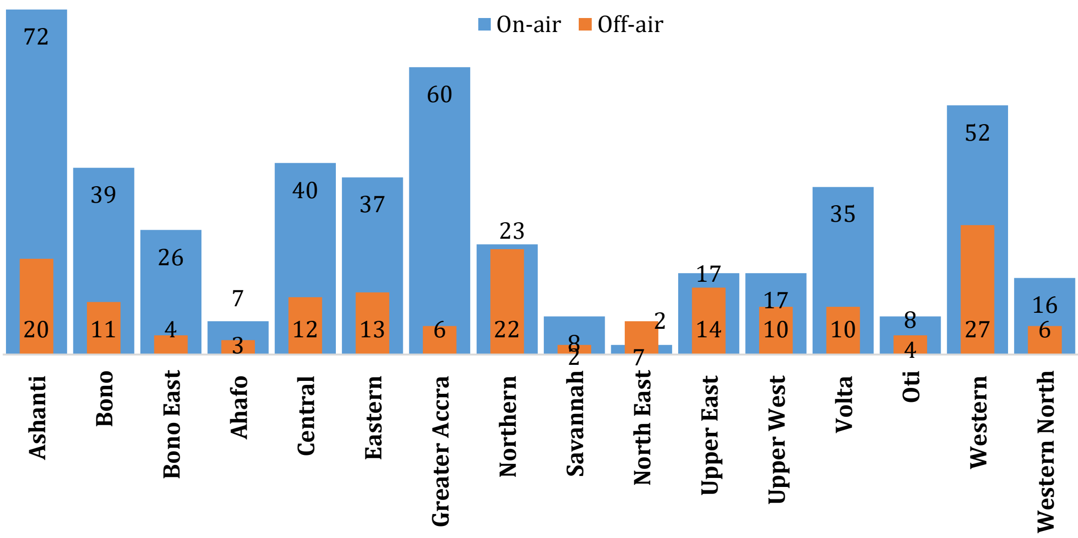
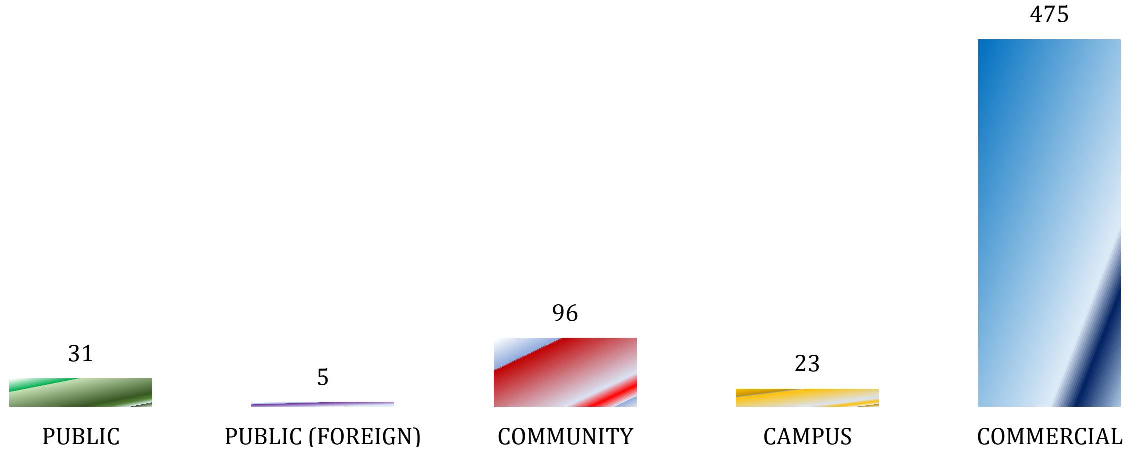


Figure 30: Purpose of Authorised Radio Stations as at Q4 2020



4.2 Authorised Television Stations

The total number of authorised TV stations in Ghana at the end of the fourth quarter of 2020 was 143, indicating a decrease of 1.38% compared to the previous quarter. (Figure 31) (Appendix A, Table 24).

A total of 115 TV stations were operational during the quarter under review, representing 80.42% of the total number of authorised TV stations in the country (Figure 32) (Appendix A, Table 24).

Figure 31: Authorised TV Stations Q4 2020

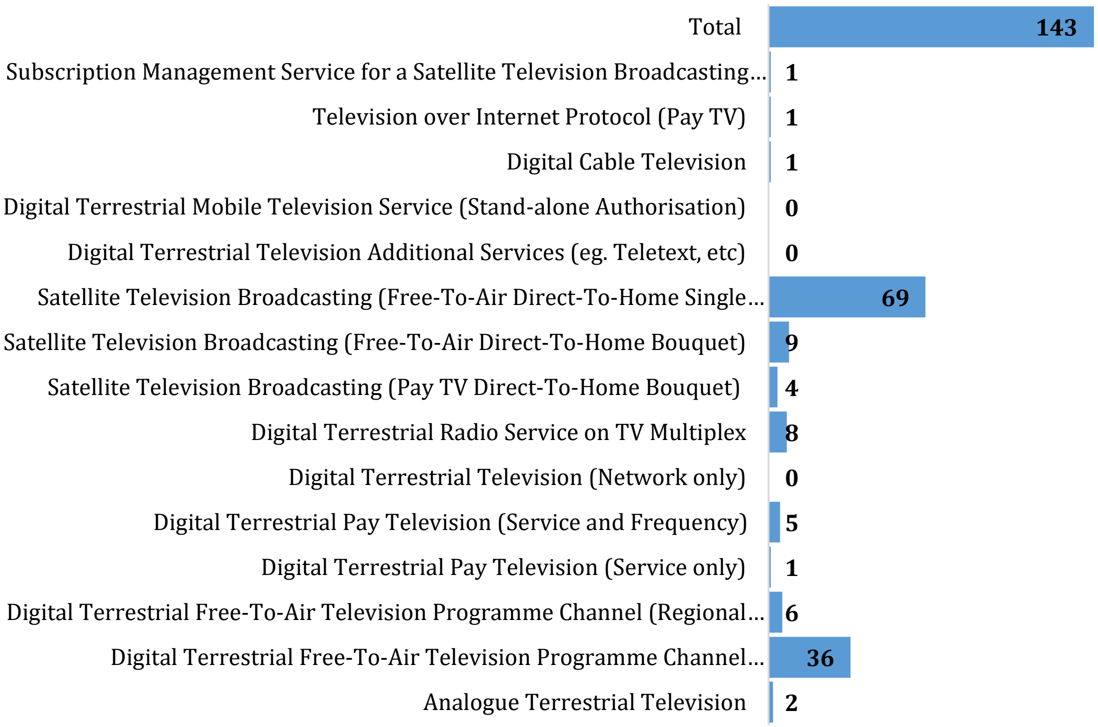
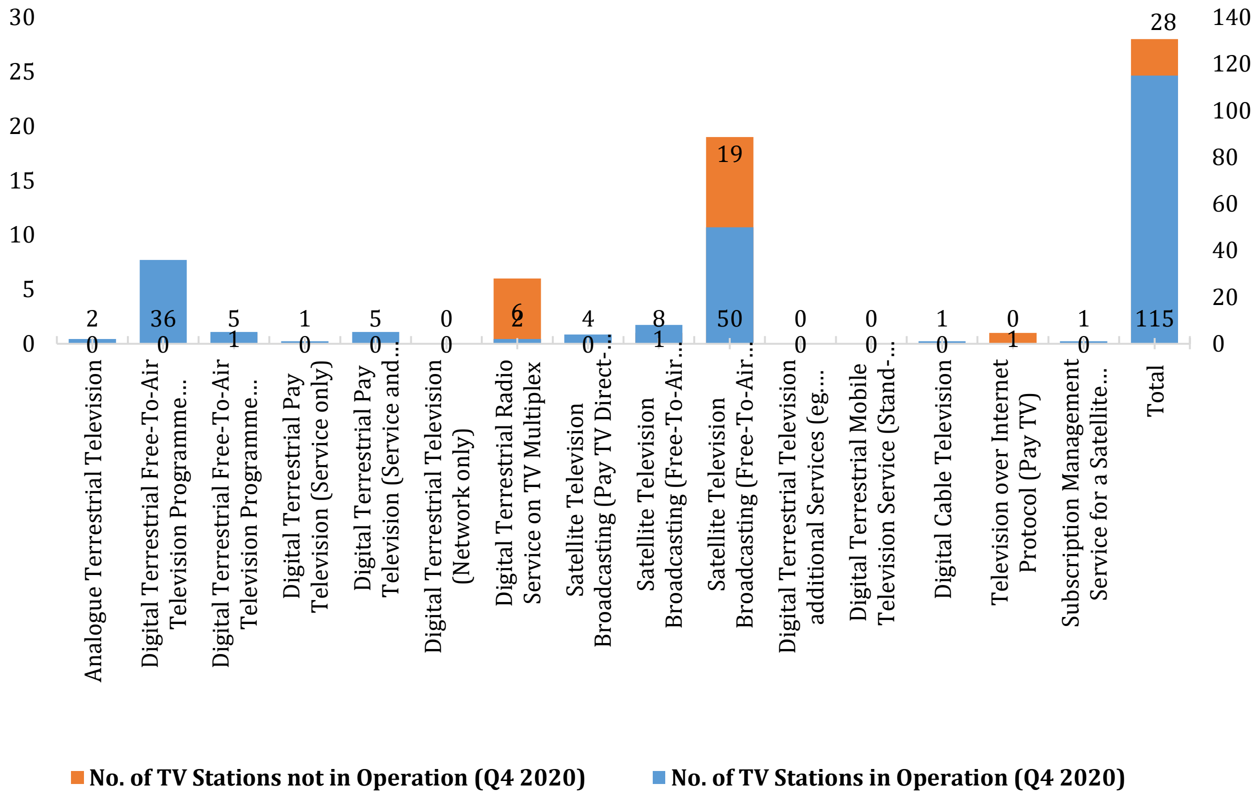


Figure 32: Distribution of Types of TV Services (On-Air and Off-Air TV Stations) as at end of Q4 2020



Appendix A (List of Tables)

Table 1: Mobile Voice Subscriptions and Penetration Rate

Subscription	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Mobile Subscription	40,857,077	41,959,298	40,476,556	40,352,913	40,461,609
Mobile Subscription Growth rate (%)	0.98%	2.70%	-3.53%	-0.31%	0.27%
Net additions	396,874	1,102,221	-1,482,742	-123,643.00	108,696.00
Net additions Growth Rate (%)	-160.78%	177.73%	-235%	-92%	-188%
Population[8]	30,190,081	30,371,584	30,554,178	30,737,870	30,922,666
Penetration Rate (%)	135.30%	138.15%	132.47%	131.28%	130.85%

Table 2: Mobile Voice Subscriptions and Market Share per Operator

Mobile Network Operator		Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
MTN	Subscriptions	22,555,848	23,945,672	23,277,698	23,722,910	23,144,302
	Market Share (%)	55.21%	57.07%	57.51%	58.79%	57.20%
Vodafone	Subscriptions	9,122,403	8,787,464	8,585,484	8,118,298	8,400,565
	Market Share (%)	22.33%	20.94%	21.21%	20.12%	20.76%
AirtelTigo	Subscriptions	8,453,053	8,498,008	7,866,500	7,749,026	8,135,618
	Market Share (%)	20.69%	20.25%	19.43%	19.20%	20.11%
Glo	Subscriptions	725,773	728,154	746,874	762,679	781.124
	Market Share (%)	1.78%	1.74%	1.85%	1.89%	1.93%
Total Industry Subscription		**40,857,077**	**41,959,298**	**40,476,556**	**40,352,913**	**40,461,609**

[8] Population of Ghana was estimated based on the 2010 Population Census figure 24,658,823 published by Ghana Statistical Service (GSS) with 0.2% projected monthly growth rate.

Table 3: Prepaid and Post-paid Voice Subscriptions and Market Share

Subscription	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Prepaid	40,216,604	41,287,248	39,747,560	39,589,962	40,173,414
Market Share	98.43%	98.40%	98.20%	98.11%	99.2%
Post-paid	640,473	672,050	728,996	762,951	288,195
Market Share	1.57%	1.60%	1.80%	1.89%	0.71%
Total mobile subscription	**40,857,077**	**41,959,298**	**40,476,556**	**40,352,913**	**40,461,609**

Table 4: Mobile Off-net Traffic Distribution between Mobile and Fixed Network

Breakdown of Off-net Traffic	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Mobile to Mobile					
Traffic	1,809,660,639	1,713,795,345	1,725,360,859	1,866,455,132	1,919,526,571
Share (%)	99.36%	99.35%	99.40%	99.42%	99.37
Growth (%)	-3.46%	-5.30%	0.67%	8.18%	2.84
Mobile to Fixed					
Traffic	11,642,232	11,209,671	10,414,394	10,961,513	12,239,493
Share (%)	0.64%	0.65%	0.60%	0.58%	0.63%
Growth (%)	12.02%	-3.72%	-7.09%	5.25%	11.66%
Total Off-net Traffic	**1,821,302,871**	**1,725,005,017**	**1,735,775,253**	**1,877,416,645**	**1,931,766,009**

Table 5: Total Domestic Mobile Voice Traffic in Billions of Minutes

Traffic	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Traffic (Off-net)	1,821,302,871	1,725,005,017	1,735,775,253	1,877,416,645	1,931,766,009
Share (%)	8.47%	7.51%	7.07%	7.44%	7.25%
Growth (%)	-3.37%	-5.29%	0.62%	8.16%	2.89%
Traffic (On-net)	19,689,209,019	21,243,213,654	22,800,072,201	23,354,795,602	24,696,111,020
Share (%)	91.53%	92.49%	92.93%	92.56%	92.75%
Growth (%)	4.10%	7.89%	7.33%	2.43%	5.74%
Total traffic	**21,510,511,890**	**22,968,218,671**	**24,535,847,454**	**25,232,212,246**	**26,627,877,029**

Table 4: Mobile Voice Traffic Minutes of Use (MoU) per Subscriptions

Traffic	Oct-Dec 19	Jan-Mar 20	Apr-Jun 20	Jul-Sep 20	Oct-Dec 20
Total mobile voice traffic (Average)	7,170,170,630	7,656,072,890	8,178,615,818	8,410,737,415	8,879,234,579
Mobile voice subscription (Average)	40,372,522	41,710,048	40,547,599	40,473,681	40,120,522
Minutes of Use (MoU) per Subscription	177.60	183.55	201.70	207.81	221.31
MoU growth rate (%)	8.68%	3.35%	9.89%	3.03%	6.50%

Table 5: International Traffic

Traffic	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Incoming International Traffic	56,814,366	51,473,267	59,056,445	54,307,726	56,058,034
Growth (%)	-6.89%	-9.40%	14.73%	-8.04%	3.22%
Outgoing International Traffic	121,347,629	122,784,014	117,349,645	116,240,940	119,070,166
Growth (%)	-5.43%	1.18%	-4.43%	-0.94%	2.43%

Table 6: Total Number of SMS per Mobile Network Operator in Millions

Mobile Operators	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Off-net					
MTN	32,595,204	26,738,362	25,239,001	30,951,874	40,197,534
Vodafone	51,687,036	46,047,085	49,753,675	63,289,966	100,306,049
AirtelTigo	2,260,095	1,876,630	1,676,701	1,718,367	1,553,674
Glo	231,790	257,432	898,516	1,084,803	1,357,237
Total	**86,774,125**	**74,919,509**	**77,567,893**	**97,045,010**	**143,414,494**
On- net					
MTN	305,060,095	271,939,194	287,142,138	247,832,376	253,965,866
Vodafone	228,752,668	150,323,428	133,299,083	134,817,468	154,547,726
AirtelTigo	7,655,834	4,296,095	3,794,801	3,397,444	2,811,206
Glo	12,461	26,331	141,095	173,986	207,205
Total	**541,481,058**	**426,585,048**	**424,377,116**	**386,221,274**	**411,532,003**
Total					
MTN	337,655,299	298,677,555	312,381,139	278,784,250	294,163,400
Vodafone	280,439,704	196,370,513	185,008,652	198,107,434	254,853,775
AirtelTigo	9,915,929	6,172,444	5,471,401	5,115,811	4,364,880
Glo	244,251	680,990	1,039,611	1,258,789	1,564,442
Total	**628,255,183**	**501,504,557**	**501,945,009**	**483,266,284**	**554,946,497**

Table 7: Average SMS per Subscription

	Oct-Dec 19	**Jan-Mar 20**	**Apr-Jun 20**	**Jul-Sep 20**	**Oct-Dec 19**
Total SMS (Average)	209,418,394	167,168,186	167,315,003	177,806,807	184,982,166
Mobile Subscription (Average)	40,372,522	41,710,048	40,547,599	40,473,681	40,120,522
Average SMS per Subscription	5.2	4.0	4.1	4.4	4.6

Table 8: Mobile Data Subscriptions (Prepaid/Postpaid)

Mobile Data Subscriptions		**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Prepaid	Subscriptions	29,960,572	25,021,986	24,595,169	25,173,301	26,130,249
	Market Share (%)	98.75	97.63	97.59	97.52	98.72%
Post-paid	Subscriptions	380,721	608,454	608,125	641,433	339,714
	Market Share (%)	1.25	1.62	2.41	2.48	1.28
Total mobile data subscriptions		**30,341,293**	**25,630,440**	**25,203,294**	**25,814,734**	**26,469,963**

Table 9: Mobile Data Traffic in Billions of Megabytes (MB)

Mobile Operator	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Mobile data usage (MB)	129,046,495,642	157,693,533,779	197,623,989,682	199,503,199,952	175,611,369,727

Table 10: Mobile Internet Usage per Subscription (MB)

Mobile Operator	**Oct-Dec 19**	**Jan-Mar 2020**	**Apr-Jun 20**	**Jul-Sep 20**	**Oct-Dec 20**
Average Mobile data usage (MB)	43,015,498,547	52,564,511,260	65,874,663,227	66,501,066,651	62,634,127,708
Average Total Subscription	28,820,282	25,348,558	25,242,452	25,625,826	26,209,072
Average Data Usage per Subscription (MB)	1492.5	2073.7	2609.7	2595.1	2389.8

Table 11: Mobile Data Traffic (MB) per Operator

Mobile Operator	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
MTN	83,293,912,024	107,722,839,616	135,550,242,371	143,363,912,915	137,170,247,517
	64.55%	68.31%	68.59%	71.86%	78.11%
Vodafone	29,399,350,038	31,118,840,152	38,594,683,077	32,215,967,959	14,720,575,836
	22.78%	19.73%	19.53%	16.15%	8.38%
AirtelTigo	13,302,050,366	15,153,701,450	18,295,463,956	18,099,179,067	17,745,451,865
	10.31%	9.61%	9.26%	9.07%	10.10%
Glo	3,051,183,214	3,698,152,561	5,183,600,278	5,824,140,011	5,975,094,509
	2.36%	2.35%	2.62%	2.92%	3.40%
Total Industry Traffic (MB)	**129,046,495,642**	**157,693,533,779**	**197,623,989,682**	**199,503,199,952**	**175,611,369,727**

Table 12: Average Mobile Tariff per Service (GHp)

Tariff	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Average on-net mobile tariff	0.11	0.12	0.12	0.12	0.12
Average off-net mobile tariff	0.12	0.13	0.13	0.13	0.13
Average on-net SMS tariff	0.05	0.05	0.05	0.05	0.05
Average off-net SMS tariff	0.06	0.06	0.06	0.06	0.06
Average data/Mb tariff	0.09	0.09	0.09	0.09	0.08

Table 13: BWA Data Subscriptions and Penetration

BWA Operator	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Subscription	46,050	47,019	46,575	43,657	42,192
Growth rate (%)	-6.70%	2.10%	-0.94%	-6.27%	-3.36%
Net Additions	-3,305	969	-444	-2,918	-1,465
Population	30,190,081	30,371,584	30,554,178	30,737,870	30,922,666
Penetration Rate (%)	0.15%	0.15%	0.15%	0.14%	0.14%

Table 14: Subscriptions per Broadband Wireless Access (BWA) Operator

BWA operator	Subscription and Market Share	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Surfline	Subscription	43,735	43,939	43,808	40,992	40,462
	Market share (%)	94.97%	93.45%	94.06%	93.90%	95.90%
Telesol	Subscription	2,104	2,024	1,711	1,069	1,730
	Market share (%)	4.57%	4.30%	3.67%	3.69%	4.10%
BBH	Subscription	1,058	1,056	1,056	1,056	-
	Market share (%)	2.30%	2.25%	2.27%	2.42%	-
BLU	Subscription	211	-	-	-	-
	Market share (%)	0.46%	-	-	-	-
Industry Total		**46,050**	**47,019**	**46,575**	**43,657**	**42,192**

Table 15: Data Traffic (MB) per Broadband Wireless Access (BWA) Operator

BWA operator		Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Surfline	Data usage (MB)	3,294,049,738	3,224,680,819	4,534,304,590	4,355,618,160	4,539,650,270
	Market share (%)	97.05%	94.51%	90.06%	89.21%	92.22%
BBH	Data usage (MB)	55,572,920	146,550,970	162,793,380	166,554,120	-
	Market share (%)	1.64%	4.30%	3.23%	3.41%	0.00%
BLU	Data usage (MB)	44,302,566	40,655,523	-	-	-
	Market share (%)	1.31%	1.19%	-	-	-
Telesol	Data usage (MB)	213,833	217,302	337,791,640	360,497,460	383,119,900
	Market share (%)	0.01%	0.01%	6.71%	7.38%	7.78%
Industry Total (MB)		**3,394,139,057**	**3,412,104,614**	**5,034,889,610**	**4,882,669,740**	**4,922,770,170**

Table 16: Internet Usage per BWA Subscriptions (MB)

BWA Operator	Oct-Dec 19	Jan-Mar 20	Apr-Jun 20	Jul-Sep 20	Oct-Dec 20
Volume of data traffic(Average)	1,193,050,112	1,137,368,205	1,678,296,064	1,627,556,864	1,640,923,136
Subscription (Average)	49,373	46513	46,760	44,651	41,873
Data Usage per Subscription (MB)	24,163.9	24,452.9	35,891.45	36,450.35	39,188.10

Table 17: Fixed Network Voice Subscriptions and penetration

Fixed Operator	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Vodafone	280,321	289,106	292,661	294,157	299,802
	97.15%	97.73%	97.65%	98.07%	97.44%
AirtelTigo	8,210	6,669	7,032	5,776	6,389
	2.85%	2.25%	2.35%	1.93%	2.08%
MTN	-	39	21	26	1477
	-	0.01%	0.01%	0.01%	0.48%
Total industry subscription	288,531	295,814	299,714	299,959	307,668
Population	30,190,081	30,371,584	30,554,178	30,737,870	30,922,666
Fixed Network Penetration Rate (%)	0.96%	0.97%	0.98%	0.98%	0.99%

Table 18: Fixed Network Volume of Traffic in Minutes

Traffic	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
On-net Fixed voice traffic	-	-	-	-	-
Off-net fixed voice traffic	12,702,490	10,296,410	8,093,500	9,085,387	8,838,739
Total Fixed Voice Traffic	12,702,490	10,296,410	8,093,500	9,085,387	8,838,739

Table 19: Fixed Network Minute of Use per Subscriptions

Traffic (Average)	**Oct-Dec 19**	**Jan-Mar 2020**	**Apr-Jun 20**	**Jul-Sep 20**	**Oct-Dec 20**
Total Fixed Voice Traffic	3,446,917	3,432,137	2,697,833	3,028,462	2,946,246
Subscription (Average)	287,395	293,536	298,359	301,354	304,998
Minutes of Use per Subscription (MoU)	12.0	11.7	9.0	10.0	9.7
Growth Rate	2.58%	-2.51%	-22.67%	11.14%	-3.88%

Table 20 : Fixed Broadband Data Subscriptions and Penetration

Fixed network operator	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Vodafone	56,677	57,458	57,053	59,497	62,284
	98.63%	76.47%	75.94%	75.39%	80.87%
Airtel	788	673	706	703	700
	1.37%	0.90%	0.94%	0.89%	0.91%
MTN	-	17,006	17,373	18,724	14,038
	-	22.63%	23.12%	23.72%	18.23%
Total fixed data subscription	57,465	75,137	75,132	78,924	77,022
Population	30,190,081	30,371,584	30,554,178	30,737,870	30,922,666
Fixed Data penetration rate (%)	0.19%	0.25%	0.25%	0.26%	0.25%

Table 21: Fixed Network Data Subscriptions per Operator

Fixed network operator	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**
Vodafone	56,677	57,458	57,053	59,497	62,284
	98.63%	76.47%	75.94%	75.39%	80.87%
AirtelTigo	788	673	706	703	700
	1.37%	0.90%	0.94%	0.89%	0.91%
MTN	-	17,006	17,373	18,724	14,038
	-	22.63%	23.12%	23.72%	18.23%

Table 22: Regional Distribution of FM Stations by Purpose

Name of Regions	Public	Public (Foreign)	Community	Campus	Commercial
Ashanti	2	1	12	3	74
Bono	1	-	3	2	44
Bono East	2	-	4	-	24
Ahafo	-	-	1	-	9
Central	2	-	10	3	37
Eastern	2	-	11	1	36
Greater Accra	2	3	8	4	49
Northern	3	-	7	2	33
Savannah	3	-	4	-	3
North East	1	-	4	-	4
Upper East	2	-	9	3	17
Upper West	2	-	8	2	15
Volta	3	-	4	1	37
Oti	1	-	3	-	8
Western	2	1	8	2	66
Western North	3	-	0	-	19
Total	**31**	**5**	**96**	**23**	**475**

Table 23: Regional Distribution of FM Stations as at the end of Q4 2020

Name Of Regions	Authorised FM Stations	FM Stations In Operation
Ashanti	92	72
Bono	50	39
Bono East	30	26
Ahafo	10	7
Central	52	40
Eastern	50	37
Greater Accra	66	60
Northern	45	23
Savannah	10	8
North East	9	2
Upper East	31	17
Upper West	27	17
Volta	45	35
Oti	12	8
Western	79	52
Western North	22	16
Total	**630**	**459**

Table 24: Authorised TV Services in Ghana as at end of Q4 2020

Type of Television Service	Authorised TV stations		No. of TV Stations in Operation (Q4 2020)	No. of TV Stations not in Operation (Q4 2020)
	End of Q3 2020	End of Q4 2020		
Analogue Terrestrial Television	2	2	2	0
Digital Terrestrial Free-To-Air Television Programme Channel (Nationwide Coverage)	36	36	36	0
Digital Terrestrial Free-To-Air Television Programme Channel (Regional Coverage)	6	6	5	1
Digital Terrestrial Pay Television (Service only)	1	1	1	0
Digital Terrestrial Pay Television (Service and Frequency)	5	5	5	0
Digital Terrestrial Television (Network only)	0	0	0	0
Digital Terrestrial Radio Service on TV Multiplex	8	8	2	6
Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	3	4	4	0
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Bouquet)	9	9	8	1
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel)	72	69	50	19
Digital Terrestrial Television additional Services (eg. Teletext, etc)	0	0	0	0
Digital Terrestrial Mobile Television Service (Stand-alone Authorisation)	0	0	0	0
Digital Cable Television	1	1	1	0
Television over Internet Protocol (Pay TV)	1	1	0	1
Subscription Management Service for a Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	1	1	1	0
Total	**145**	**143**	**115**	**28**

Source: NCA, 2020

NCA CONTACTS AND PRESENCE COUNTRYWIDE

The Authority currently has eight (8) regional offices to support its operations. Their addresses are listed below

- ### Accra, Head Office

National Communications Authority,
NCA Tower, No 6 Airport City
Close to the Marina Mall
P. O. Box CT 1568, Cantonments, Accra
Tel: +233 (0) 302 776621, 771701
Fax: +233 (0) 302 763449
E-mail: info@nca.org.gh
Complaints: +233 (0) 30 701 1419
complaints@nca.org.gh
Website: www.nca.org.gh

- ### Accra Office

National Communications Authority
1st Rangoon Close,
Switchback Road, Cantonment, Accra
P. O. Box CT 1568,
Cantonment, Accra
Tel: +233 (0) 553 369862, (0) 553 432215
E-mail: complaints.accra@nca.org.gh

- ### Bolgatanga Office

National Communications Authority,
Zorbisi Zaare Residential Area in Bolgatanga Municipality
Private Mail Bag, Bolgatanga,
Upper East Region
Tel: +233 (0) 3820 21141
E-mail: complaints.bolgatanga@nca.org.gh

- ### Ho Office

National Communications Authority,
Plot No. 75, Stadium Road, Kabore Junction
P. O. Box HP1576, Ho, Volta Region
Tel: +233 (0) 3620 26339
E-Mail: complaints.ho@nca.org.gh

- ### Koforidua Office

National Communications Authority,
Block C along the Galloway Road
Private Mail Bag, Koforidua, Eastern Region
Tel: +233 (0) 3420 28378, 28380, 28382
E-Mail: complaints.koforidua@nca.org.gh

- ### Kumasi Office

National Communications Authority,
Fuller Road, Danyame, Kumasi
P. O. Box KS 10768, Kumasi,
Ashanti Region, Ghana
Tel: + 233 (0) 32 202 0014 / 32 202 0018 / 32 202 0019
Fax: (+233) 32 002 0064
E-Mail: complaints.kumasi@nca.org.gh

- ### Sunyani Office

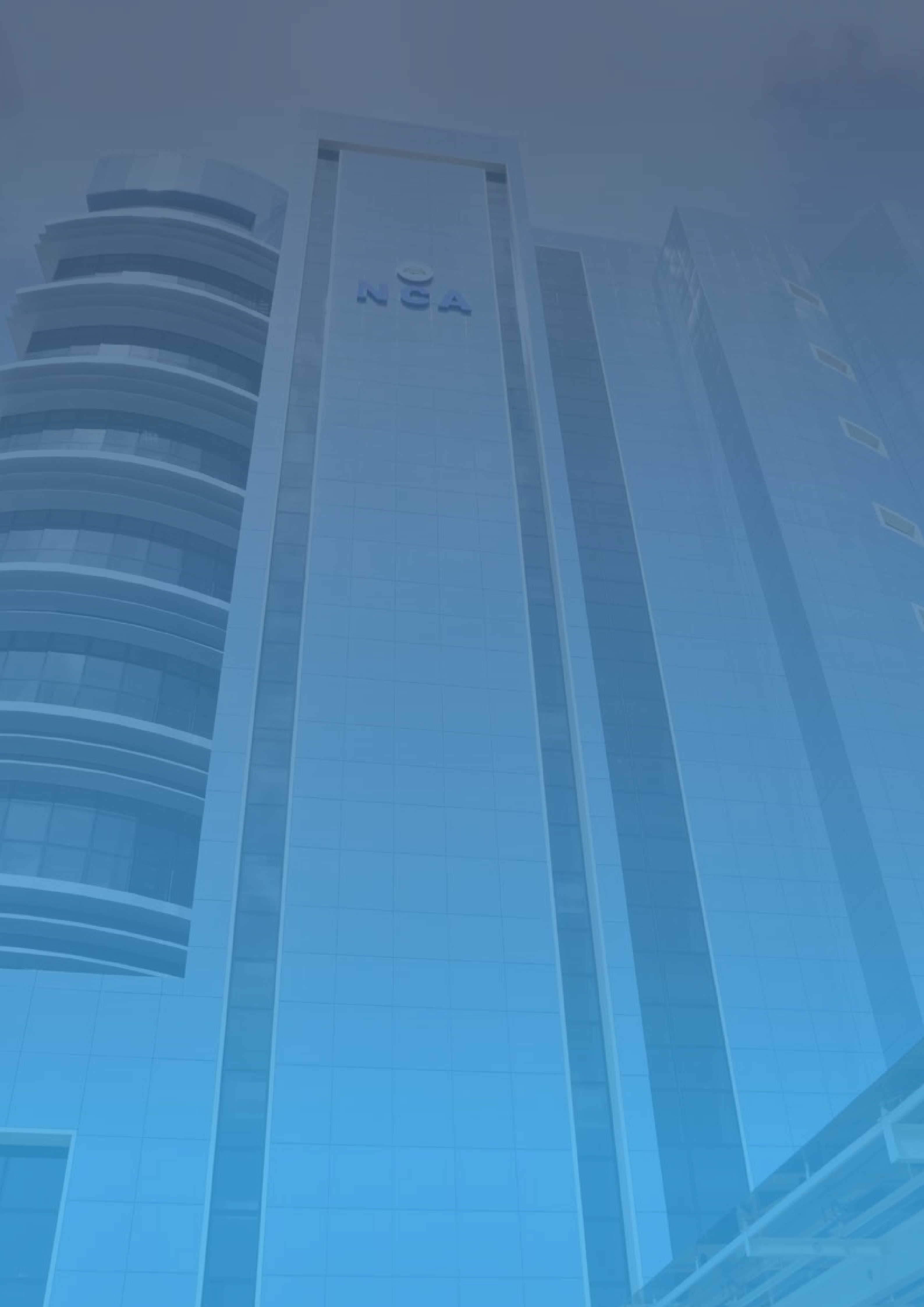
National Communications Authority,
House No 83, North Nkwabeng
P. O. Box SY125, Sunyani, Brong Ahafo Region
Tel: +233 (0) 3520 27564
E-Mail: complaints.sunyani@nca.org.gh

- ### Takoradi Office

National Communications Authority,
Bakado, 3kms away from the Prisons
(R.S.,K. Barnes Ct, Sekondi - Takoradi
P. O. Box SL 409, Sekondi,
Western Region, Ghana
Tel: +233 (0) 31 202 8073 / 31 202 8049
Fax: +233 (0) 31 202 8063
E-Mail: complaints.takoradi@nca.org.gh

- ### Tamale Office

National Communications Authority,
Watherson Residential Area
Plot No. 3 & 4, Tamale
P. O. Box TL 1590, Tamale,
Northern Region, Ghana
Tel: + 233 (0) 37 202 8105 / 37 020 8104
Fax: +233 (0) 37 202 8104
E-Mail: complaints.tamale@nca.org.gh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