QUARTERLY STATISTICAL BULLETIN ON COMMUNICATIONS IN GHANA

Volume 4 Issue 3

NATIONAL COMMUNICATIONS AUTHORITY

THIRD QUARTER

JULY - SEPTEMBER, 2019

Communications for Development

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LIST OF ABBREVIATIONS

BWA	Broadband Wireless Access
FM	Frequency Modulation
GH₵	Ghana Cedi
GHp	Ghana pesewas
GSM	Global System for Mobile communication
ICT	Information Communications Technology
MB	Megabytes
MNO	Mobile Network Operator
MoU	Minutes of Use
N/A	Not Applicable
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 – 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 the product of the responses from the monthly and quarterly questionnaires sent to the various licensees'; notably the mobile network operators and broadband wireless access operators. It also includes data on internet service providers, broadcasting entities, Mobile Number Portability 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".

DEFINITION OF TERMS

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

Cellular network or mobile network – refers to a communication network where the last link 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 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

A1. Service Providers Authorised/Licenced 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	139	96
FM Stations	477	380

B1. Total Subscriptions

SUBSCRIPTION	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q2 2019	Q3 2019	*Growth (%)*	Q3 2018	Q3 2019	*Growth (%)*	
Mobile Voice Subscription	41.11	40.46	*-1.59%*	40.05	40.46	*1.03%*	Million
Fixed Voice Subscription	0.279	0.279	*0.00%*	0.283	0.279	*1.43%*	Thousand
Mobile Data Subscription	28.2	28.3	*0.35%*	24.4	28.3	*-13.78%*	Million
Fixed Data Subscription	0.059	0.059	*0.00%*	0.057	0.059	*3.51%*	Thousand
Broadband Wireless Access	0.051	0.049	*-3.92%*	0.091	0.049	*-46.15%*	Thousand

B2. Voice, Data and SMS Traffic

TRAFFIC	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q2 2019	Q3 2019	*Growth (%)*	Q3 2018	Q3 2019	*Growth (%)*	
Mobile Voice Traffic	19.4	20.8	*7.22%*	17.40	20.8	*19.45%*	Billion
Fixed Voice Traffic	0.011	0.016	*45.45%*	0.012	0.016	*33.33%*	Million
Incoming International Traffic	0.01	0.06	*500.00%*	0.1	0.06	*-40.00%*	Billion
Outgoing International Traffic	0.135	0.128	*-5.19%*	0.151	0.128	*-15.23%*	Billion
Mobile Data Traffic (MB)	81.8	89.9	*9.90%*	65.90	89.9	*36.42%*	Billion MB
BWA Data Traffic (MB)	1.2	1.2	*0.00%*	1.4	1.2	*14.29%*	Billion MB
SMS Count	0.678	0.701	*3.39%*	0.626	0.701	*11.98%*	Million

B3. Penetration Rate (%)

PENETRATION RATE (%)	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q2 2019	Q3 2019	*Growth (%)*	Q3 2018	Q3 2019	*Growth (%)*	
Mobile Voice Subscription	137.80	139.80	*-2.18%*	136.70	139.80	*2.27%*	%
Fixed Voice Subscription	0.94	0.90	*-4.26%*	0.97	0.90	*-7.22%*	%
Mobile Data Subscription	94.61	91.38	*-3.41%*	83.37	91.38	*9.61%*	%
Fixed Data Subscription	0.20	0.20	*0.00%*	0.19	0.20	*5.26%*	%
Broadband Wireless Access	0.17	0.16	*-5.88%*	0.31	0.16	*-48.39%*	%

C1. Broadcasting Sector

FM/TV AUTHORISATION & OPERATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q2 2019	Q3 2019	*Growth (%)*	Q3 2018	Q3 2019	*Growth (%)*
FM Authorisation	476	477	*0.21%*	493	477	*-3.25%*
FM Station Operating	386	380	*-1.55%*	413	380	*-8.00%*
TV Authorisations	138	139	*0.72%*	136	139	*2.21%*
TV Stations Operating	90	96	*6.67%*	86	96	*11.63%*

C2. Categories of Authorised FM Radio Stations

CATEGORIES OF FM RADIO STATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q2 2019	Q3 2019	*Growth (%)*	Q3 2018	Q3 2019	*Growth (%)*
Public	31	31	*0.00%*	31	31	*0.00%*
Public Foreign	5	5	*0.00%*	5	5	*0.00%*
Campus	22	21	*-4.55%*	22	21	*-4.55%*
Community	72	73	*1.39%*	79	73	*-7.60%*
Commercial	351	347	*-1.14%*	356	347	*-2.53%*

1.0 Cellular 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[1], Glo, MTN and Vodafone.

1.1 Mobile Voice Subscriptions and Penetration

Mobile Voice subscriptions decreased from 41.1 million in the second quarter of 2019 to 40.46 million at the end of the third quarter of 2019, representing a decline of 1.59% (Table 1).

Year-on-year subscriptions grew from 40.05 million in the third quarter of 2018 to 40.46 million in the third quarter of 2019, representing 1.03% growth rate.

The penetration rate for mobile voice subscriptions at the end of the third quarter of 2019 was 134.80% as compared to 137.80% recorded in the second quarter of the same year, indicating a decline of 2.18%.

Table 1: Mobile Voice Subscriptions and Penetration Rate

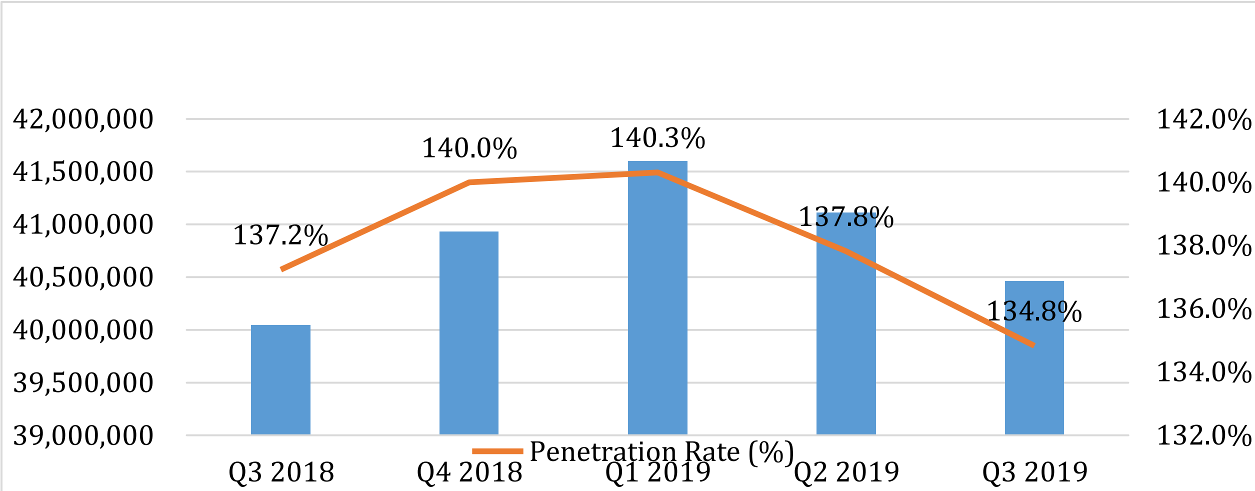
Subscription	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Mobile Subscription	40,046,590	40,934,875	41,602,324	41,113,131	40,460,203
Mobile Subscription Growth rate (%)	1.73%	2.22%	1.63%	-1.18%	-1.59%
Net additions	679,354	888,285	667,449	- 489,193	-652,928
Net additions Growth Rate (%)	39.95%	30.75%	-24.86%	-173.29%	-33.47%
Population[2]	29,181,863	29,240,226	29,652,054	29,830,322	30,009,663
Penetration Rate (%)	137.2%	140.0%	140.3%	137.8%	134.8%

Source: NCA; Mobile Network Operators, 2019

[1] Airtel and Tigo have merged to become AirtelTigo. Prior to the first quarter of 2019, the two service providers submitted their data separately to the Regulator as captured in the report.

[2] 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.

Figure 1: Mobile Voice Subscriptions and Penetration Rate



Source: NCA; Mobile Network Operators, 2019

1.1.1 Mobile Voice Subscriptions and Market Shares per Operator

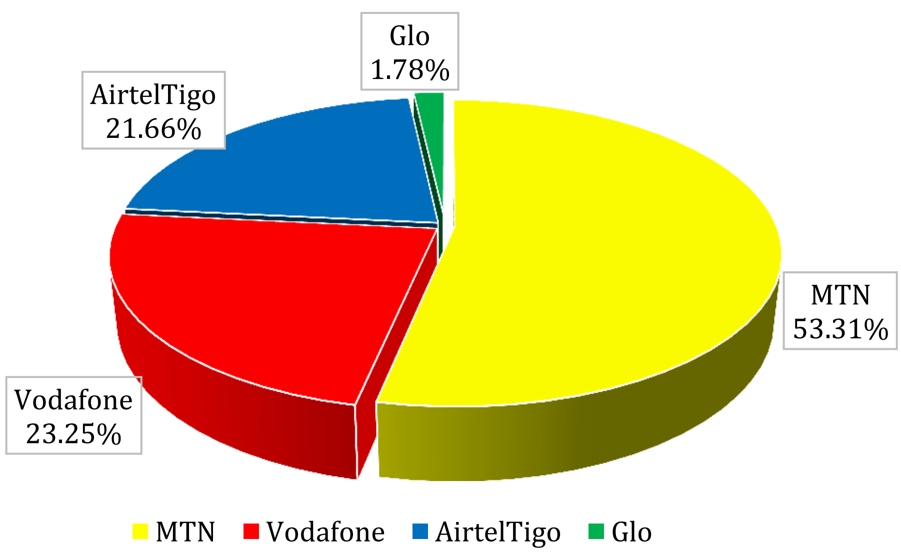
At the end of the third quarter of 2019, MTN had 53.31% of the market with 21.67 million subscriptions, followed by Vodafone with 9.41 million subscriptions (23.25%). AirtelTigo is the third largest mobile network operator by subscription with a market share of 21.66% and subscriber base of 8.76 million. Glo recorded 0.72 million subscriptions with a market share of 1.78% (Table 2).

Table 2: Mobile Voice Subscriptions and Market Share per Operator

Mobile Network Operator		Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
MTN	Subscriptions	19,424,295	20,092,798	20,776,731	21,342,887	21,569,033
	Market Share (%)	48.50%	49.08%	49.94%	51.91%	53.31%
Vodafone	Subscriptions	9,198,944	9,813,234	10,302,566	9,974,337	9,407,144
	Market Share (%)	22.97%	23.97%	24.76%	24.26%	23.25%
Tigo	Subscriptions	5,661,572	10,289,491	10,289,491	10,289,491	-
	Market Share (%)	14.14%	25.14%	24.73%	25.03%	-
Airtel	Subscriptions	4,982,176	-	-	-	-
	Market Share (%)	12.44%	-	-	-	-
AirtelTigo	Subscriptions	-	10,289,491	9,799,138	9,074,284	8,764,093
	Market Share (%)	-	25.14%	23.55%	22.07%	21.66%
Glo	Subscriptions	779,603	739,352	723,889	721,623	719,933
	Market Share (%)	1.95%	1.81%	1.74%	1.76%	1.78%
Total Industry Subscription		40,046,590	40,934,875	41,602,324	41,113,131	40,460,203

Source: NCA; Mobile Network Operators, 2019

Figure 2: Mobile Voice Subscriptions and Market Share per Operator



Source: NCA; Mobile Network Operators, 2019

1.1.2 Prepaid and Post-paid Mobile Voice Subscriptions

The market for mobile voice subscription is made up of 98. 52% prepaid subscribers with 39.9 million subscriptions whilst postpaid makes up 1.48 % with a subscription 0.599 million subscriptions (Table 3).

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

Subscription	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Prepaid	39,554,833	40,391,558	41,052,360	40,573,825	39,861,332
	98.77%	98.67%	98.68%	98.69%	98.52%
Post-paid	491,757	543,317	549,964	539,306	598,871
	1.23%	1.33%	1.32%	1.31%	1.48%
Total mobile subscription	40,046,590	40,934,875	41,602,324	41,113,131	40,460,203

Source: NCA; Mobile Network Operators, 2019

1.2 Mobile Voice Traffic (Domestic)

Total domestic mobile voice traffic recorded a rise from 19.51 billion minutes in the previous quarter to 20.80 billion minutes, in the third quarter of 2019 representing 6.61% growth. Year-on-year mobile voice traffic also increased from 17.4 billion minutes at the end of the third quarter of 2018 to 20.80 billion minutes in the third quarter of 2019, representing a growth rate of 19.33% (Figure 3).

On-net traffic increased from 17.73 billion minutes in the previous quarter to 18.91 billion minutes in the quarter under review, representing a growth rate of 6.70%. Year-on-year on-net traffic also grew from 15.18 billion minutes in the third quarter of 2018 to 18.91 billion minutes at the end of the third quarter of 2019 (24.61%) (Table 4).

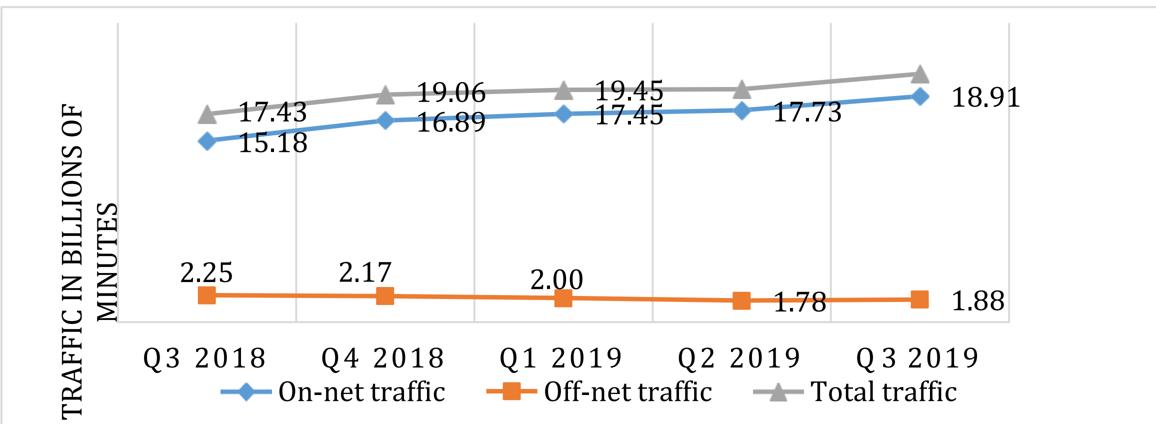
Off-net traffic increased from 17.78 billion minutes in the previous quarter to 18.85 billion minutes at the end of the third quarter of 2019, representing 5.79% increase. Year-on-year off-net traffic declined by 13.15%, from 2.25 billion minutes in the third quarter of 2018 to 1.88 billion minutes at the end of the third quarter of 2019 (Table 4).

Table 4: Mobile Voice Traffic (Domestic) in Billions of Minutes

Traffic	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Traffic(Offnet)	2,250,730,666	2,170,336,837	2,003,832,344	1,781,783,125	1,884,872,036
Share (%)	12.91%	11.39%	10.30%	9.13%	9.06%
Growth (%)	-4.41%	-3.57%	-7.67%	-11.08%	5.79%
Traffic(Onnet)	15,178,329,608	16,888,163,680	17,445,962,884	17,726,139,301	18,913,483,330
Share (%)	87.09%	88.61%	89.70%	90.87%	90.94%
Growth (%)	-4.97%	11.26%	3.30%	1.61%	6.70%
Total traffic	17,429,060,274	19,058,500,517	19,449,795,228	19,507,922,426	20,798,355,366

Source: NCA; Mobile Network Operators, 2019

Figure 3: Mobile Voice Traffic (Domestic) in Billions of Minutes



Source: NCA; Mobile Network Operators, 2019

1.2.1 Mobile Off-net Traffic Distribution between Mobile and Fixed Networks

Mobile-to-mobile off-net traffic increased from 1.77 billion minutes in the second quarter of 2019 to 1.87 billion minutes in the third quarter of 2019 (5.80%). Year-on-year mobile-to-mobile off-net traffic decreased from 2.24 billion minutes in third quarter of 2018 to 1.87 billion minutes in the third quarter of 2019, representing 16.37 growth.

Mobile to fixed off-net traffic rose from 10.05 million minutes to 10.39million minutes representing3.45% growth quarter-on-quarter. Year-on-year mobile-to-fixed off-net traffic increased from 9.23 million minutes in third quarter of 2018 to 10.39 million minutes in the third quarter of 2019, representing 12.56% growth (Table 5).

Table 5: Mobile Off-net Traffic Distribution between Mobile and Fixed Network

Breakdown of Off-net Traffic	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Mobile to Mobile					
Traffic	2,241,496,968	2,161,276,383	1,994,167,300	1,771,736,664	1,874,456,752
Share (%)	99.59%	99.58%	99.53%	99.44%	99.45%
Growth (%)	-4.44%	-3.58%	-7.73%	-11.15%	5.80%
Mobile to Fixed					
Traffic	9,233,698	9,060,404	9,512,847	10,046,461	10,393,342
Share (%)	0.41%	0.42%	0.47%	0.56%	0.55%
Growth (%)	3.37%	-1.88%	4.99%	5.61%	3.45%
Total Off-net Traffic	2,250,730,666	2,170,336,837	2,003,680,147	1,781,783,125	1,884,850,094

Source: NCA; Mobile Network Operators, 2019

1.2.2 Minutes of Use (MoU)[3]

Average minutes of use per subscription rose from 157.7 minutes in the second quarter of 2019 to 158.3 minutes (0.41%) in the quarter under review (figure 4). Year-on-year minutes of use per subscription grew from 139.5 minutes in the third quarter of 2018 to 158.3 minutes in the third quarter of 2019, representing 13.53% growth. (Table 6).

Table 6: Mobile Voice Traffic Minutes of Use (MoU) per Subscriptions

Traffic	Jul-Sep 18	Oct-Dec 18	Jan-Mar 19	Apr-Jun 19	Jul-Sep 19
Total mobile traffic	5,582,104,073	6,352,833,506	6,483,265,076	6,502,640,809	6,655,447,392
Mobile subscription	40,021,383	40,622,584	41,370,572	41,222,786	41,133,345
Minutes of Use (MoU) per Subscription	139.5	156.4	156.7	157.7	158.3
MoU growth rate (%)	-10.88%	12.13%	0.21%	0.63%	0.41%

Source: NCA; Mobile Network Operators, 2019

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

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

Source: NCA; Mobile Network Operators, 2019

1.3 International Traffic

During the quarter under review, inbound international traffic dropped from 95 million minutes to 61 million minutes, representing a decrease of 35.70%) (Table 7). Year-on-year inbound international traffic also declined from 124 million minutes to 61 million representing 51.00 %.

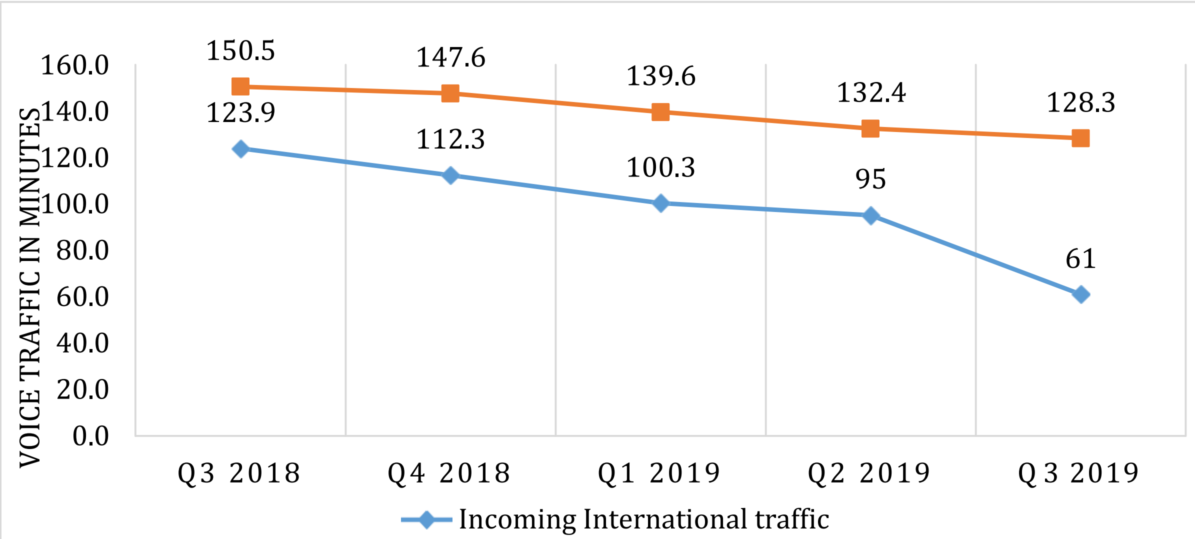
Outbound international traffic decreased from 132.4 million minutes in the second quarter of 2019 to 128.3 million minutes at the end of the third quarter of 2019, representing a decline of 3.07%. Year-on-year outbound international traffic also declined from 150.5 million minutes to 128.3 million minutes, indicating a decrease of 14.76%.

Table 7: International Traffic

Traffic	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Traffic(incoming)	123,879,779	112,308,053	100,300,254	94,897,262	61,018,472
Growth (%)	1.82%	-9.34%	-10.69%	-5.39%	-35.70%
Traffic(outgoing)	150,534,415	147,561,318	139,577,839	132,383,628	128,321,232
Growth (%)	10.52%	-1.98%	-5.41%	-5.15%	-3.07%
Incoming International traffic	123.9	112.3	100.3	95	61
Outgoing International traffic	150.5	147.6	139.6	132.4	128.3

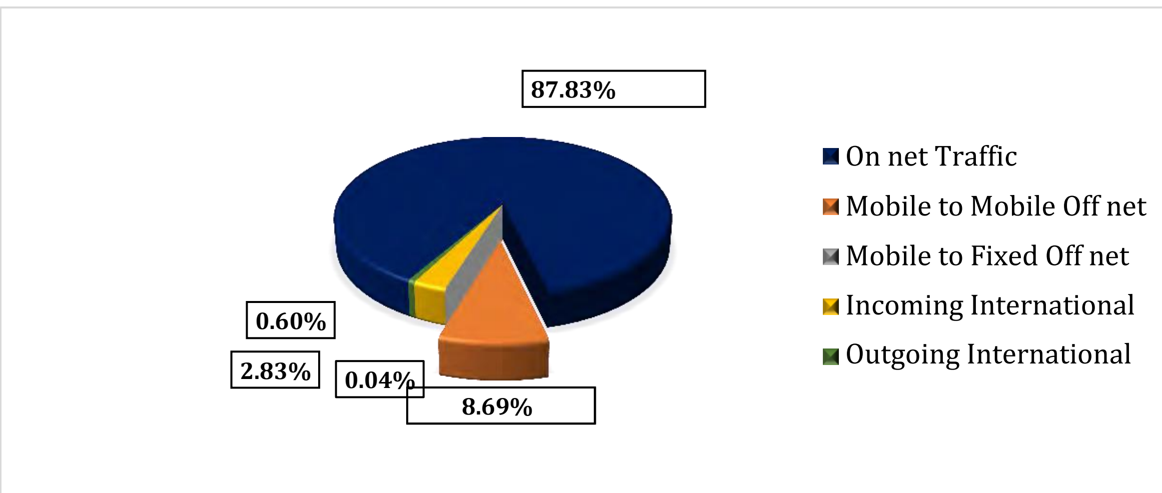
Source: NCA; Mobile Network Operators, 2019

Figure 5: International Traffic in minutes



Source: NCA; Mobile Network Operators, 2019

Figure 6: Breakdown of Mobile Voice Traffic in Minutes



Source: NCA; Mobile Network Operators, 2019

1.4 Short Messages Service (SMS) per Operator

The total number of short messages service (SMS) sent in the quarter under review was 701 million as compared to 725 million in the preceding quarter, recording a 3.38% decrease. Year-on-year SMS counts increased from 626 million in the third quarter of 2018 to 701 million at the end of the third quarter of 2019, representing a growth of 11.88% (Figure 7).

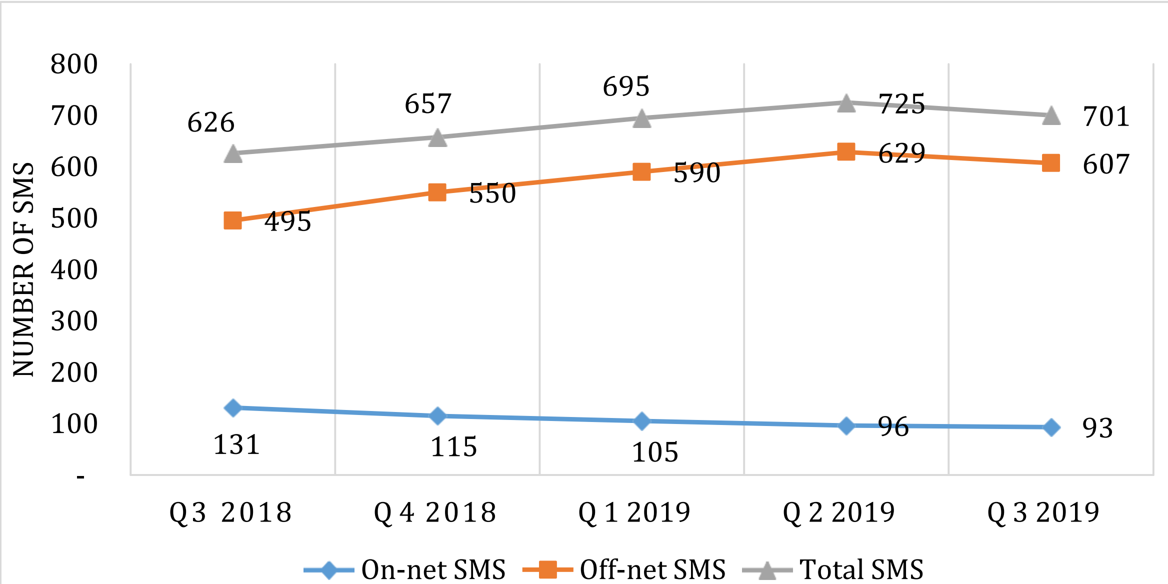
The volume of SMS traffic originating from MTN was 368 million in the third quarter of 2019, indicating 52.49% of the total SMS counts. The volume of SMS traffic from Vodafone was 318 million, representing45.33% of the total SMS counts. AirtelTigo had an SMS count of 14 million, representing 2.03%. In the quarter under review, Glo generated 1 million SMS counts recording a share of 0.15%. (Table 8).

Table 8: Total Number of SMS per Mobile Network Operator in Millions

Mobile Operators	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
OFF-NET SMS					
MTN	45,529,737	27,618,329	39,555,977	32,640,281.0	37,306,986
Vodafone	77,632,474	75,466,020	61,060,118	59,623,032	51,763,218
Tigo	-	2,508,089	-	-	-
Airtel	6,095,284	520,353	-	-	-
AirtelTigo	-	-	3,309,986	3,035,708	3,119,560
Glo	1,611,630	1,019,738	973,572	1,063,280	920,272
Total	**130,869,125**	**114,863,657**	**104,899,653**	**96,362,301**	**93,110,036**
ON-NET SMS					
MTN	295,034,464	257,782,465	309,840,024	313,244,554.0	330,421,743
Vodafone	200,081,206	280,334,432	264,511,026	302,909,431	265,778,541
Tigo	-	11,728,767	-	-	-
Airtel	-	-	-	-	-
AirtelTigo	-	-	15,685,847	12,408,355	11,121,701
Glo	188,082	168,064	89,345	106,512	118,848
Total	**495,303,752**	**550,013,728**	**590,126,242**	**628,668,852**	**607,440,833**
TOTAL					
MTN	340,564,201	285,400,794	349,396,001	345,884,835	367,728,729
Vodafone	277,713,680	355,800,452	325,571,144	362,532,463	317,541,759
Tigo	-	14,236,856	-	-	-
Airtel	6,095,284	520,353	-	-	-
AirtelTigo	-	-	18,995,833	15,444,063	14,241,261
Glo	1,799,712	1,187,802	1,062,917	1,169,792	1,039,120
Total	**626,172,877**	**657,146,257**	**695,025,895**	**725,031,153**	**700,550,869**

Source: NCA; Mobile Network Operators, 2019

Figure 7: Total Number of SMS



Source: NCA; Mobile Network Operators, 2019

1.4.1 Average SMS per Subscription[4]

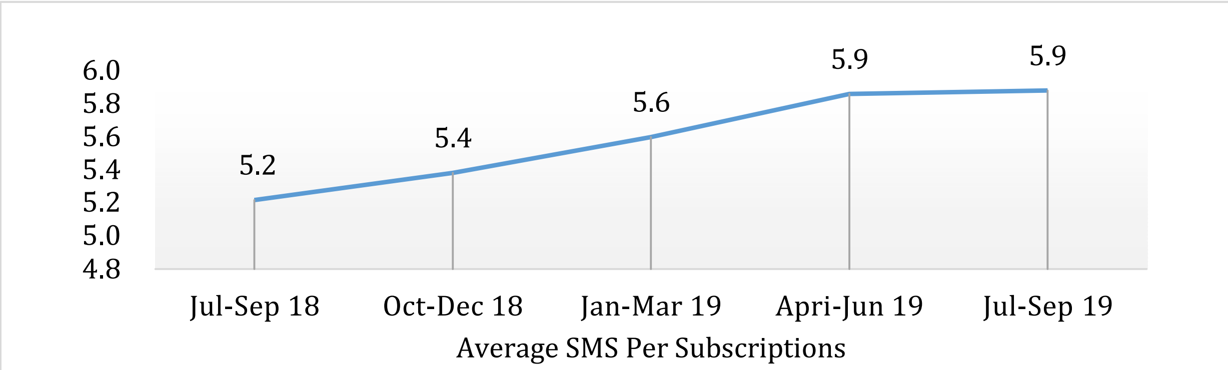
Average SMS sent per subscription during the quarter under review remained at 5.9 SMS, same as the previous quarter. Year-on-year average SMS volume per subscription rose from 5.2 in the second quarter of 2018 to 5.9 at the end of the third quarter of 2019, recording a growth of 13% (Figure 8).

Table 9: Average SMS per Subscription

	Jul-Sep 18	Oct-Dec 18	Jan-Mar 19	Apr-Jun 19	Jul-Sep 19
Total SMS	208,724,292	219,048,752	231,675,298	241,677,051	242,015,054
Mobile Subscription	40,021,383	40,622,584	41,370,572	41,222,786	41,133,345
Average SMS per Subscription	5.2	5.4	5.6	5.9	5.9

[4]This is calculated by dividing the total average volume of SMS for the quarter with the total average mobile subscriptions for that quarter.

Figure 8: Average SMS Per Subscriptions



Source: NCA; Mobile Network Operators, 2019

1.5 Mobile Telecommunications Service Tariffs

Quarter- on -quarter average tariffs for both mobile voice and SMS have not changed. However, the industry average tariff for mobile data declined to 0.09 pesewas per megabyte. (Table 10).

Table 10: Average Mobile Tariff per Service (GHp)

Tariff	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Average on-net mobile tariff	0.11	0.11	0.11	0.11	0.11
Average off-net mobile tariff	0.11	0.12	0.12	0.12	0.12
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	0.11	0.11	0.09	0.11	0.09

Source: NCA; Mobile Network Operators, 2019

1.6 Mobile Data Subscriptions and Penetration Rate (%)

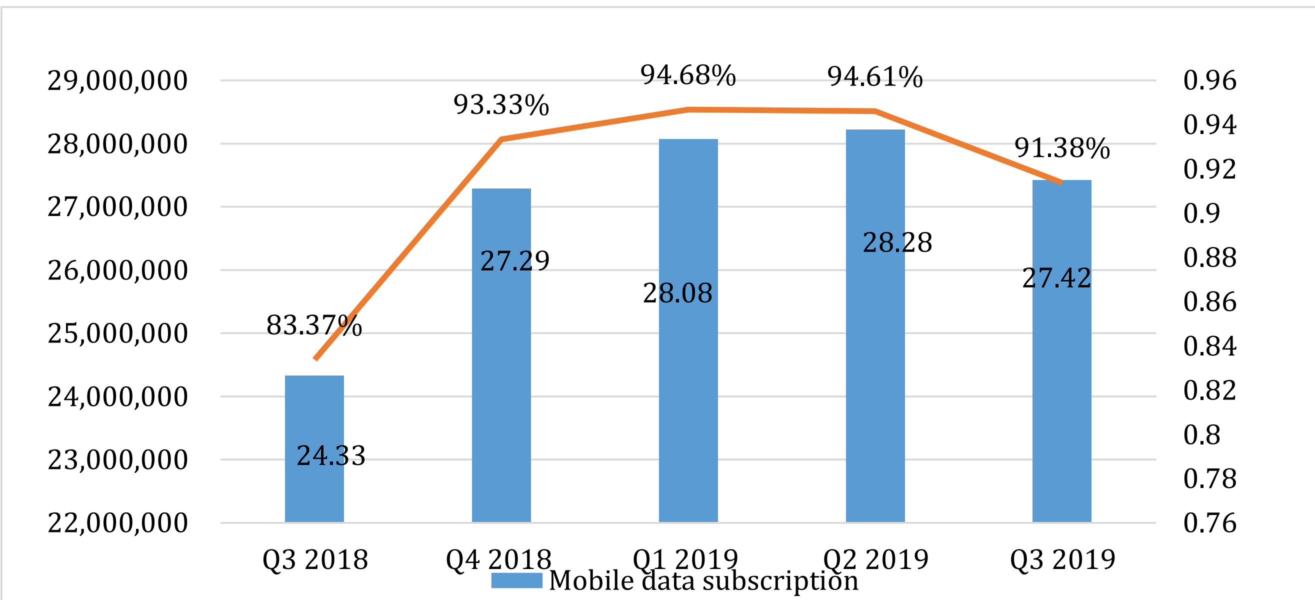
During the third quarter of 2019, mobile data subscriptions fell by 2.84%, decreasing from 28.22 million in the second quarter 2019 to 27.42 million. Year-on-year subscriptions also registered an increase of 12.71%, from 24.33 million in the third quarter of 2018 to 27.42 million at the end of the third quarter of 2019. In the quarter under review, mobile data penetration rate declined from 94.61% to 91.38% (Figure 9).

Table 11: Mobile Data Subscriptions and Penetration

Subscription	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Mobile data subscription	24,330,202	27,290,960	28,075,236	28,223,237	27,422,481
Data Subscription Growth Rate (%)	8.46%	12.17%	2.87%	0.53%	-2.84%
Net Additions	1,897,816	2,960,758	784,276	148,001	- 800,756
Net Additions Growth Rate (%)	229.06%	56.01%	-73.51%	-81.13%	-641.05%
Population	29,181,863	29,240,226	29,652,054	29,830,322	30,009,663
Mobile Data Penetration Rate (%)	83.37%	93.33%	94.68%	94.61%	91.38%

Source: NCA; Mobile Network Operators, 2019

Figure 9: Mobile Data Subscriptions and Penetration



Source: NCA; Mobile Network Operators, 2019

1.6.1 Mobile Data Prepaid and Post-paid Subscriptions

In the third quarter of 2019, mobile data prepaid subscriptions fell from 28.22 million to 27.42 million subscriptions (decline of 2.84%). Post-paid subscriptions recorded a rise from 0.31 million to 0.34 million subscriptions (12.04%) during the quarter under review. (Table 12).

Table 12: Mobile Data Prepaid and Post-paid Subscriptions

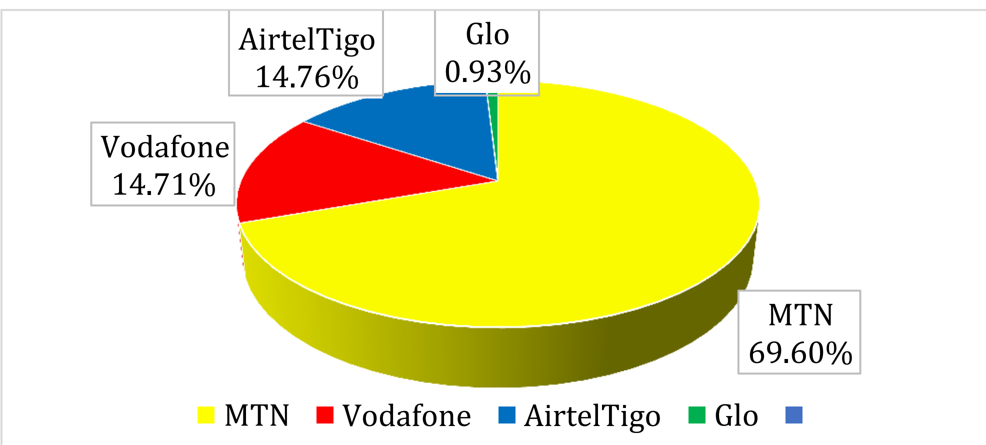
Mobile Data Subscriptions		Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Prepaid	Subscriptions	24,073,189	26,930,768	27,773,900	28,223,237	27,422,481
	Share (%)	*98.94*	*98.89*	*98.93*	*98.93*	*98.77*
Post-paid	Subscriptions	257,013	301,384	301,336	305,230	341,982
	Share (%)	*1.06*	*1.11*	*1.07*	*1.07*	*1.23*
Total mobile data subscriptions		**24,330,202**	**27,232,152**	**28,075,236**	**28,528,467**	**27,764,463**

Source: NCA; Mobile Network Operators, 2019

1.6.2 Mobile Data Subscriptions per Operator[5]

MTN recorded 19.09 million subscriptions with a market share of 69.60%. Vodafone also recorded 4.03 million subscriptions with a market share of 14.71%. AirtelTigo registered 4.05 in mobile data subscriptions with a market share of 14.76%. Glo ended the third quarter of 2019 with total subscriptions of 0.26 million and a market share of 0.93%.

Figure 10: Mobile Data Subscription per Operator



Source: NCA; Mobile Network Operators, 2019

[5] Expresso did not submit data from Q3 2017 to Q2 2018.

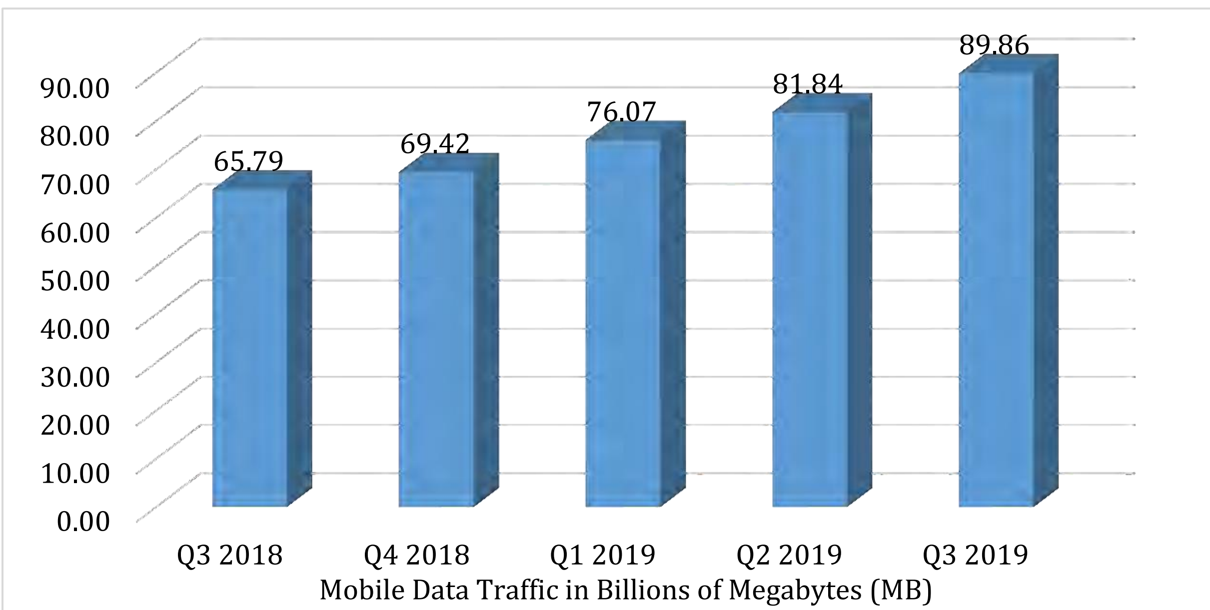
1.7 Mobile Internet Traffic

At the end of the third quarter of 2019, internet traffic generated by the mobile network operators was 89.86 billion megabytes of data, recording a growth rate of 10%. Year-on-year internet traffic increased from 65.79 billion megabytes in the previous year to 89.86 billion megabytes at the end of the third quarter of 2019, representing an increase of 36.59% (Figure 11).

Table 13: Mobile Data Traffic in Billions of Megabytes (MB)

Mobile Operator	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Mobile data usage (MB)	65,788,339,989	69,424,932,213	76,070,215,470	81,835,188,472	89,863,150,227

Figure 11: Mobile Data Traffic in Billions of Megabytes (MB)



Source: NCA; Mobile Network Operators, 2019

1.7.1 Mobile Internet Usage per Subscription (MB)[6]

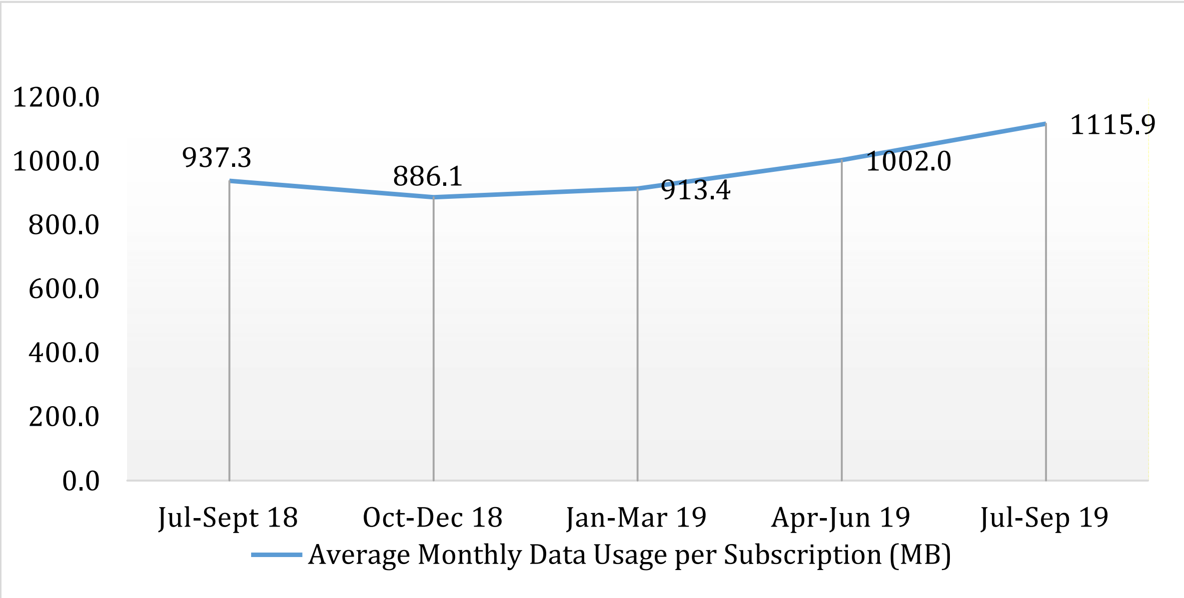
The monthly average mobile internet usage per subscription increased from 1002.0 megabytes in the second quarter of 2019 to 1115.9 megabytes at the end of the third quarter of 2019 recording a growth rate of 11.37% (Figure 12). Year-on-year internet usage per subscription rose from 937.3 megabytes per subscription to 1115.9 megabytes per subscription in the previous year representing a growth of 19.06% (Figure 12).

Table 14: Mobile Internet Usage per Subscription (MB)

Mobile Operator	Jul-Sept 18	Oct-Dec 18	Jan-Mar 19	Apr-Jun 19	Jul-Sep 19
Mobile data usage (MB)	21,929,446,663	23,141,644,071	25,356,738,490	27,278,396,157	30,641,656,479
Total Subscription	23,396,904	26,110,919	27,759,351	27,222,708	27,458,029
Average Monthly Data Usage per Subscription (MB)	937.3	886.1	913.4	1002.0	1115.9

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

Figure 12: Mobile Internet Usage per Subscription (MB)



Source: NCA; Mobile Network Operators, 2019

1.7.2 Mobile Internet Traffic (MB) per Operator

MTN generated the highest volume of internet traffic of 75.94 billion megabytes with a market share of 69.12%, followed by Vodafone with a traffic of 21.49 billion megabytes and a market share of 19.47%. AirtelTigo also registered 10.84 billion megabytes of data, recording a market share of 9.87%. Glo recorded the least data usage, generating 1.69 billion megabytes to capture1.54% of the market share.

Table 15: Mobile Data Traffic (MB) per Operator

Mobile Operator	Data Usage (MB)	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
MTN	Data Usage (MB)	39,712,114,000	41,601,302,161	46,540,643,000	51,065,520,052	75,944,166,843
	Market Share (%)	*60.36%*	*59.92%*	*61.18%*	*62.40%*	*69.12%*
Vodafone	Data Usage (MB)	16,292,929,952	18,262,375,366	18,435,292,768	19,125,129,557	21,389,474,355
	Market Share (%)	*24.77%*	*26.31%*	*24.23%*	*23.37%*	*19.47%*
Tigo	Data Usage (MB)	4,441,426,486	-	-	-	-
	Market Share (%)	*6.75%*	-	-	-	-
Airtel	Data Usage (MB)	4,073,367,223	-	-	-	-
	Market Share (%)	*6.19%*	-	-	-	-
AirtelTigo	Data Usage (MB)	-	8,221,194,104	9,670,376,838	10,059,886,695	10,840,834,228
	Market Share (%)	-	11.84%	12.71%	12.29%	9.87%
Glo	Data Usage (MB)	1,268,502,327	1,340,060,583	1,423,902,864	1,584,652,168	1,691,107,038
	Market Share (%)	*1.93%*	*1.93%*	*1.87%*	*1.94%*	*1.54%*
Total Industry Traffic (MB)		**65,788,339,989**	**69,424,932,213**	**76,070,215,470**	**81,835,188,472**	**109,865,582,464**

Source: NCA; Mobile Network Operators, 2019

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. However, this quarter's report will cover four broadband wireless access providers due to non-availability of data on Busy Internet.

2.1 BWA Subscriptions and Penetration

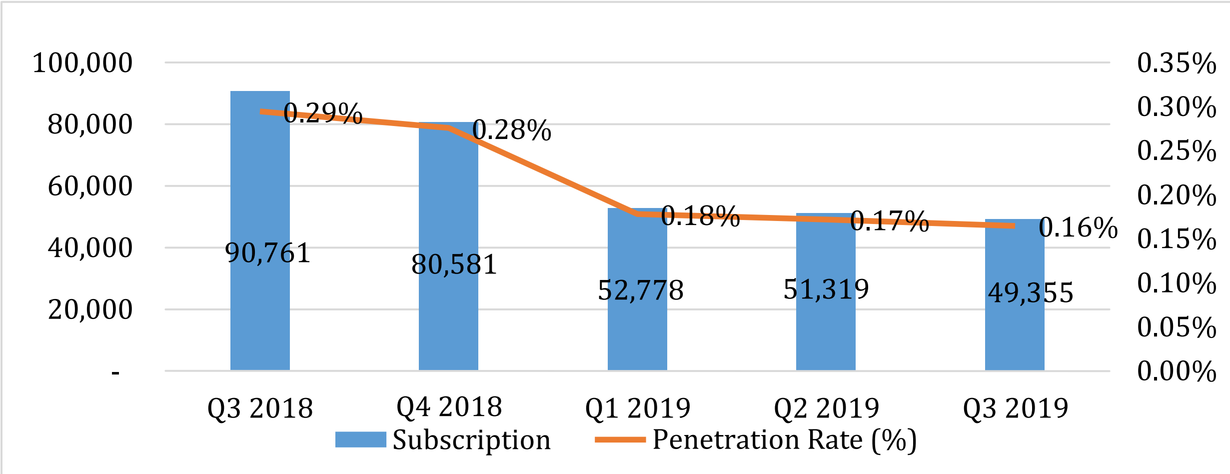
BWA subscriptions declined from 51,319 in the second quarter of 2019 to 49,355 in the quarter under review, recording a 3.83% decrease (Figure 13). Year-on-year subscriptions also decreased from 90,761 in the third quarter of 2018 to 49,355 at the end of the third quarter of 2019, recording a 45.62% decrease. Penetration rate for broadband wireless access decreased from 0.17% to 0.16% (Table 16).

Table 16: BWA Data Subscriptions and Penetration

BWA operator	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Surfline	64,966	55,134	51,350	48,432	46,462
	71.58%	68.42%	94.92%	94.37%	94.14%
BBH	25,425	25,100	1,083	1,060	1,058
	28.01%	31.15%	2.00%	2.07%	2.14%
BLU	370	347	345	284	235
	0.41%	0.43%	0.64%	0.55%	0.48%
Telesol	-	-	1,323	1,543	1,600
	-	-	2.45%	3.01%	3.24%
Industry total	**90,761**	**80,581**	**54,101**	**51,319**	**49,355**

Source: NCA; Broadband Wireless Access Operators, 2019

Figure 13: BWA Data Subscriptions and Penetration



Source: NCA; Broadband Wireless Access Operators, 2019

2.1.1 Subscriptions per Broadband Wireless Access (BWA) Operator

Surfline recorded a change in subscriptions from 48,432 in the previous quarter to 46,462 at the end of the quarter under review, representing a decline by 4.07% and a market share of 94.14%. Broadband Home (BBH) subscriptions decreased by 0.19%, (from 1,060 subscriptions to 1,058 subscriptions) with a market share of 2.14%. Blu telecommunications subscriptions stood at 235, with a market share of 0.48%. Telesol registered 1,600 subscriptions with a market share of 3.24% .

Table 17: Subscriptions per Broadband Wireless Access (BWA) Operator

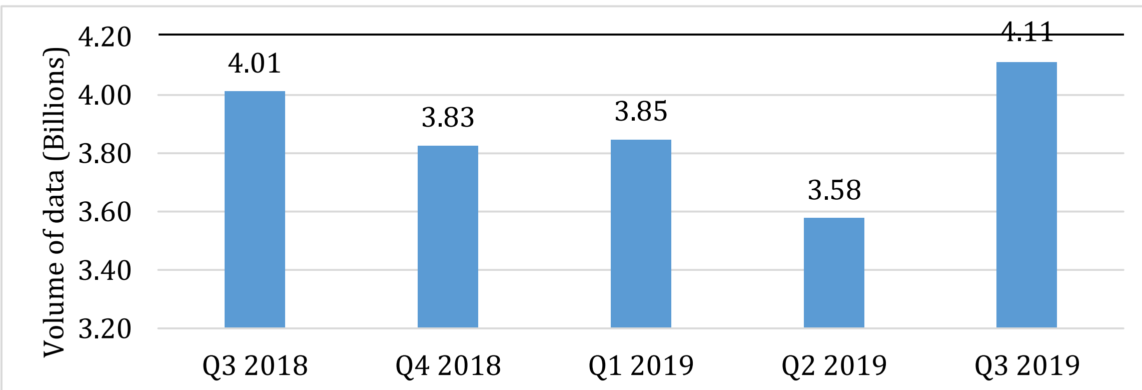
BWA operator	Subscription and Market Share	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Surfline	Subscription	64,966	55,134	51,350	48,432	46,462
	Market share (%)	71.58%	68.42%	94.92%	94.37%	94.14%
BBH	Subscription	25,425	25,100	1,083	1,060	1,058
	Market share (%)	28.01%	31.15%	2.00%	2.07%	2.14%
BLU	Subscription	370	347	345	284	235
	Market share (%)	0.41%	0.43%	0.64%	0.55%	0.48%
Telesol	Subscription	-	-	1,323	1,543	1,600
	Market share (%)	-	-	2.45%	3.01%	3.24%
Industry Total		**90,761**	**80,581**	**54,101**	**51,319**	**49,355**

Source: NCA; Broadband Wireless Access Operators, 2019

2.2 Broadband Wireless Access (BWA) Volume of Internet Traffic

The total volume of internet traffic generated by the BWAs increased from 3.58 billion megabytes in the second quarter of 2019 to 4.11 billion megabytes at the end of the third quarter of 2019, indicating a growth of 14.94% (Figure 14). Year-on-year internet traffic also increased from 4.01 billion megabytes in the previous year to 4.11 billion megabytes at the end of the third quarter of 2019, representing an increase of 2.49%.

Figure 14: BWA Internet Usage in Megabyte (MB)



Source: NCA; Broadband Wireless Access Operators, 2019

2.2.1 Volume of Broadband Internet Traffic per Operator

Surfline's total volume of internet traffic for the quarter under review was 3.32 billion MB, representing 80.71% of the total volume of traffic. BBH recorded 0.66billion MB of internet traffic, representing 16.06% of the market. BLU and Telesol registered 0.132 (3.22% market share) billion MB and 0.002 (0.01% market share) billion MB of data respectively.

Table 18: Data Traffic (MB) per Broadband Wireless Access (BWA) Operator

BWA operator		Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Surfline	Data usage (MB)	3,654,957,470	3,526,460,670	3,568,114,190	3,286,417,500	3,320,389,950
	Market share (%)	91.06%	92.15%	92.73%	91.82%	80.71%
BBH	Data usage (MB)	268,736,625	200,386,607	176,264,864	166,853,980	660,855,380
	Market share (%)	6.70%	5.24%	4.58%	4.66%	16.06%
BLU	Data usage (MB)	90,113,024	99,876,934	96,217,583	80,785,806	132,424,093
	Market share (%)	2.25%	2.61%	-	2.26%	3.22%
Telesol	Data usage (MB)			7,193,006	45,093,461	183,264
	Market share (%)	-	-	0.1	1.26	0.01
Industry Total (MB)		**4,013,807,119**	**3,826,724,211**	**3,847,789,643**	**3,579,150,748**	**4,113,852,687**

Source: NCA; Broadband Wireless Access Operators, 2019

2.2.2 Average Monthly Internet Usage per BWA Subscription[7]

Average internet usage per BWA subscription increased to 24.6 thousand megabytes in the third quarter of 2019 from 23.0 thousand megabytes in the previous quarter, indicating a growth of 6.87% (Figure 15). Year-on-year data usage per subscription also increased by 43.81%, (from 17.1 thousand megabytes in the third quarter of 2018 to 24.6 thousand megabytes at the end of the third quarter of 2019).

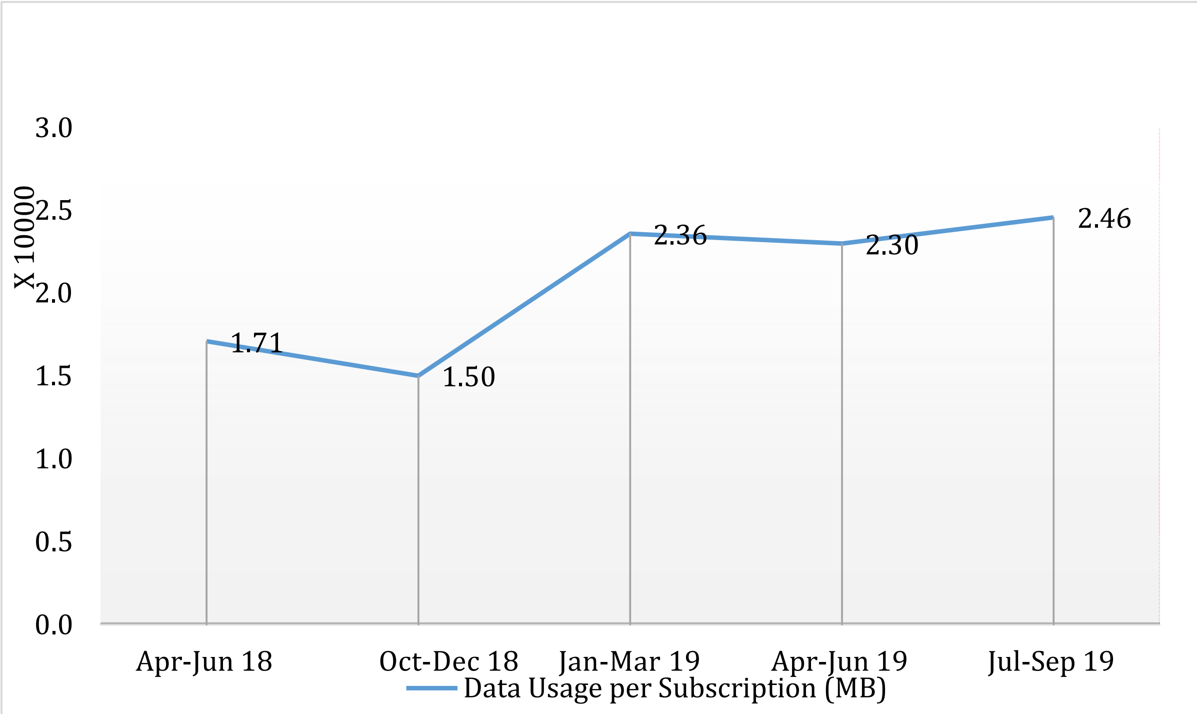
Table 19: Internet Usage per BWA Subscriptions (MB)

BWA Operator	Apr-Jun 18	Oct-Dec 18	Jan-Mar 19	Apr-Jun 19	Jul-Sep 19
Volume of data traffic	1,320,323,095	1,275,574,737	1,280,198,879	1,192,833,362	1,236,648,960
Subscription	77,221	84,961	54,241	51,845	50,294
Data Usage per Subscription (MB)	17,097.9	15,013.6	23,602.1	23,007.7	24,588.4

Source: NCA; Broadband Wireless Access Operators, 2019

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

Figure 15: Data Usage per BWA Subscriptions (MB)



Source: NCA; Broadband Wireless Access Operators, 2019

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 National Communications Authority to provide fixed telephone services in Ghana. However, this section reports on Vodafone and AirtelTigo only due to non-availability of data on MTN.

3.1 Fixed Voice Subscriptions and Penetration

Total number of fixed line subscriptions increased from 283,261 in the second quarter of 2019 to 285,931 at the end of the third quarter of 2019 with a fixed voice penetration rate of 0.95%. This represents a decrease in subscriptions by 0.94%quarter-on-quarter. Year-on-year subscription changed from 283,072 in the third quarter of 2018 to 285,931 at the end of the third quarter of 2019 indicating a growth of 1.01% (Figure 16).

Vodafone subscriptions increased from 273,398 in the second quarter 2019 to 279,247 in the third of 2019, representing 2.14% growth in subscription. Year-on-year subscription for Vodafone also increased from 273,286 to 279, 247, indicating a growth of 2.18%. They ended the quarter with a market share of 97.66%.

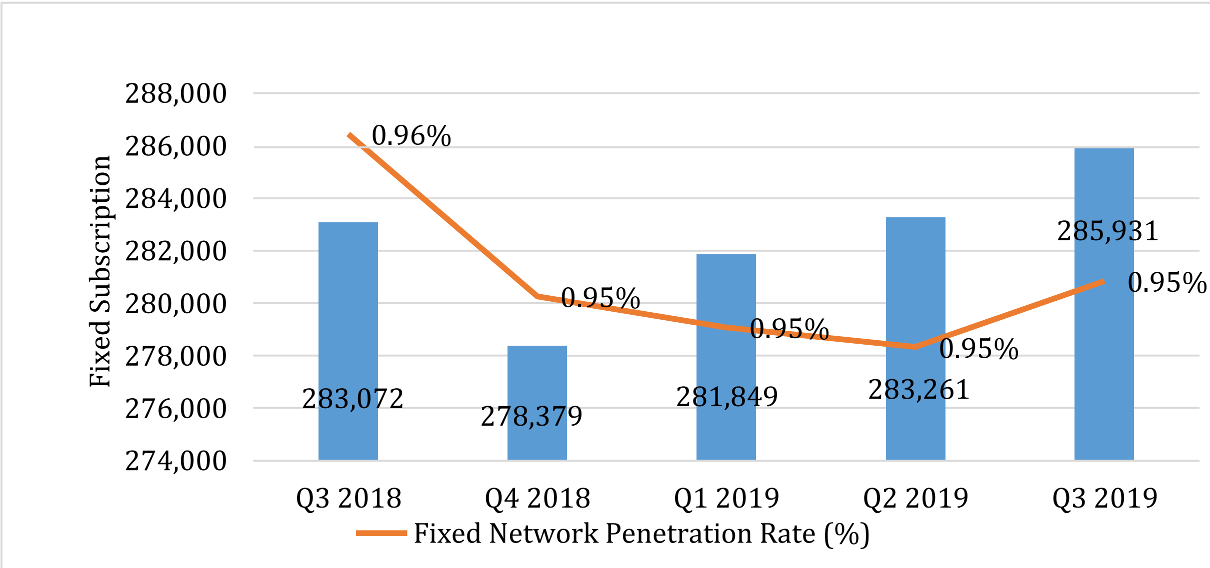
AirtelTigo's subscriptions decreased from 9,863 in the second quarter of 2019 to 6,684 at the end of the third quarter of 2019 (-32.23%). Year-on-year subscriptions decreased by 31.70%. Its market share stood at 2.34%.

Table 20: Fixed Network Voice Subscriptions and penetration

Fixed Operator	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Vodafone	273,286	271,732	272,661	273,398	279,247
	96.54%	97.61%	96.74%	96.52%	97.66%
AirtelTigo	9,786	6,647	9,188	9,863	6,684
	3.46%	2.39%	3.26%	3.48%	2.34%
Total industry subscription	283,072	278,379	281,849	283,261	285,931
Population	29,181,863	29,240,226	29,652,054	29,830,322	30,009,663
Fixed Network Penetration Rate (%)	0.96%	0.95%	0.95%	0.95%	0.95%

Source: NCA; Fixed Network Operators, 2019

Figure 16: Fixed Network Voice Subscriptions and penetration



Source: NCA; Fixed Network Operators, 2019

3.2 Fixed Network Traffic[8]

Total volume of off-net fixed network traffic increased by 57.96% during the quarter under review, from 9.99 million minutes to 15.79 million minutes. Year-on-year total volume of off-net fixed network traffic also increased by 30.72%, from 12.08 million minutes to 15.79 million minutes.

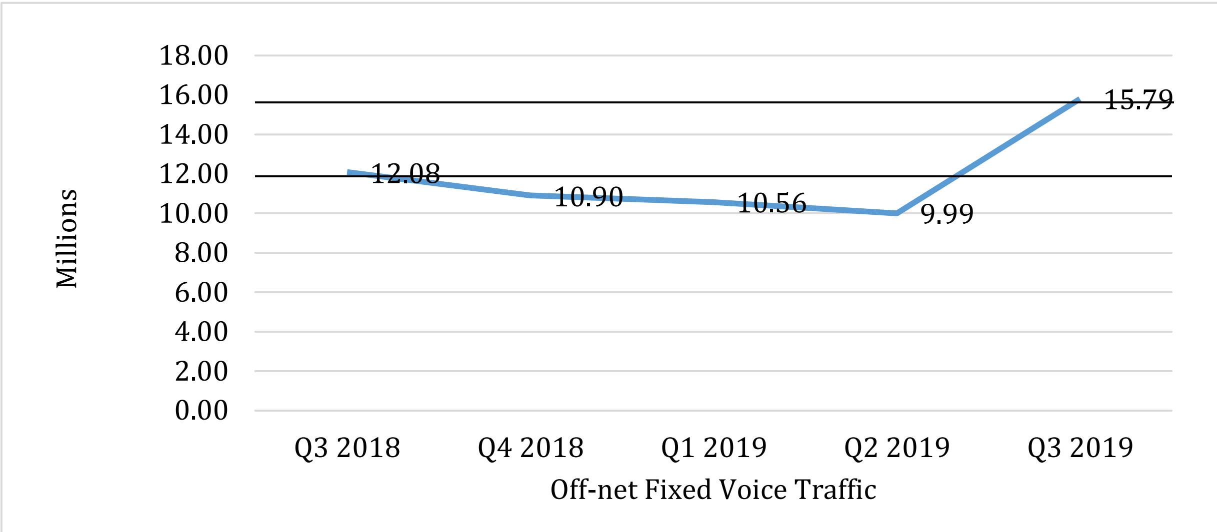
Table 21: Fixed Network Volume of Traffic in Minutes

Traffic	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
On-net Fixed voice traffic	-	-	-	-	-
Off-net fixed voice traffic	12,076,972	10,887,797	10,558,609	9,994,343	15,786,823
Total Fixed Voice Traffic	12,076,972	10,887,797	10,558,609	9,994,343	15,786,823

Source: NCA; Fixed Network Operators, 2019

[8] On-net data for Vodafone and AirtelTigo not available.

Figure 17: Off-net fixed voice traffic



Source: NCA; Fixed Network Operators, 2019

3.3 Fixed Voice Average Minute of Use[9]

Average fixed voice traffic per subscription increased from 11.8 to 12.2 minutes at the end of the third quarter of 2019 (3.51%).

Year-on-year minutes of use per subscription also declined from 14.2 minutes in the third quarter of 2018 to 12.2 minutes at the end of the third quarter of 2019 (14.13%).

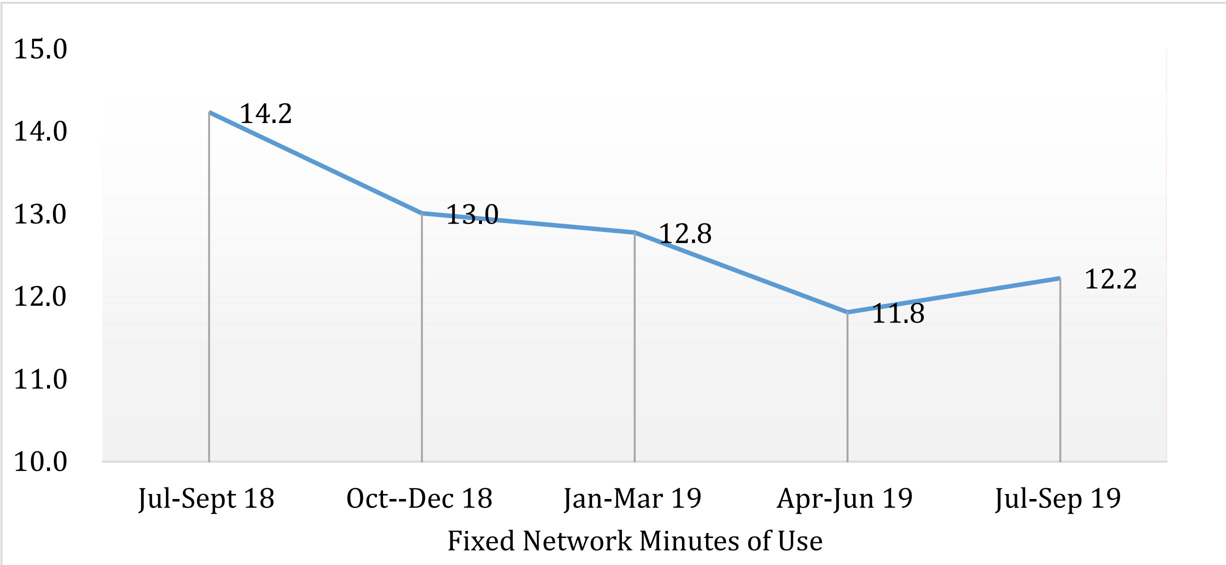
Table 22: Fixed Network Minute of Use per Subscriptions

Traffic	Jul-Sept 18	Oct--Dec 18	Jan-Mar 19	Apr-Jun 19	Jul-Sep 19
Total Fixed Voice Traffic	4,025,657	3,631,980	3,519,536	3,331,448	3,463,802
Subscription	282,807	279,162	275,512	282,091	283,366
Minutes of Use per Subscription (MoU)	14.2	13.0	12.8	11.8	12.2
Growth Rate	-9.11%	-8.62%	-1.79%	-7.55%	3.51%

Source: NCA; Fixed Network Operators, 2019

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

Figure 18: Fixed Network Minute of Use



Source: NCA; Fixed Network Operators, 2019

3.4 Fixed Broadband Internet Subscriptions and Penetration

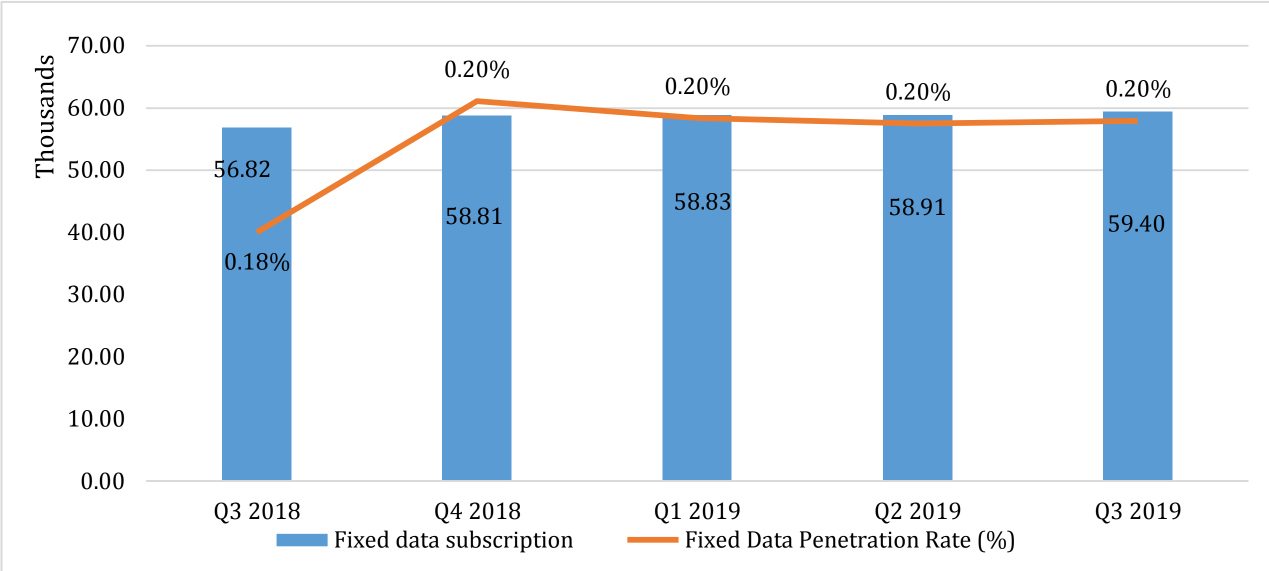
Fixed Broadband Internet subscriptions rose from 58,911 in the previous quarter to 59,401 in the quarter under review recording an increase of 0.83%. The year-on-year fixed data subscriptions increased from 56,822 in the preceding year to 59,401 at the end of the third quarter of 2019, recording an increase of 4.55%. Fixed data penetration rate stood at 0.20% at the end of the third quarter of 2019 (Figure 19).

Table 23: Fixed Broadband Data Subscriptions and Penetration

Fixed network operator	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Vodafone	55,371	57,216	57,305	58,123	58,697
	97.45%	97.29%	97.41%	98.66%	98.81%
Airtel	1,451	1,592	1,521	788	704
	2.55%	2.71%	2.59%	1.34%	1.19%
Total fixed data subscription	56,822	58,808	58,826	58,911	59,401
Population	29,181,863	29,240,226	29,652,054	29,830,322	30,009,663
Fixed Data penetration rate (%)	0.18%	0.20%	0.20%	0.20%	0.20%

Source: NCA; Fixed Network Operators, 2019

Figure 19: Fixed Broadband Data Subscriptions and Penetration



Source: NCA; Fixed Network Operators, 2019

3.5 Fixed Broadband Data Subscriptions per Operator

Vodafone's subscriptions at the end of the third quarter of 2019 was 58,697, representing 98.81% of the market share. Its quarter-on-quarter subscriptions increased by 0.99% whilst the year-on-year subscriptions increased by 6.01 %.(Table 24).

AirtelTigo recorded 704 fixed data subscriptions with a 1.19% market share. Its subscriptions decreased by 10.66% and 51.48% quarter-on-quarter and year-on-year respectively over the same period.

Table 24: Fixed Network Data Subscriptions per Operator

Fixed network operator	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Vodafone	55,371	57,216	57,305	58,123	58,697
	97.45%	97.29%	97.41%	98.66%	98.81%
Airtel	1,451	1,592	1,521	788	704
	2.55%	2.71%	2.59%	1.34%	1.19%

Source: NCA; Fixed Network Operators, 2019

4.0 BROADCASTING

4.1 Authorised Frequency Modulation (FM) Radio Station

The total number of authorised FM stations in Ghana at the end of the third quarter of 2019 was 477, increasing from 458 in the previous quarter. The total number of operational FM stations increased from 375 to 380 in the quarter under review.

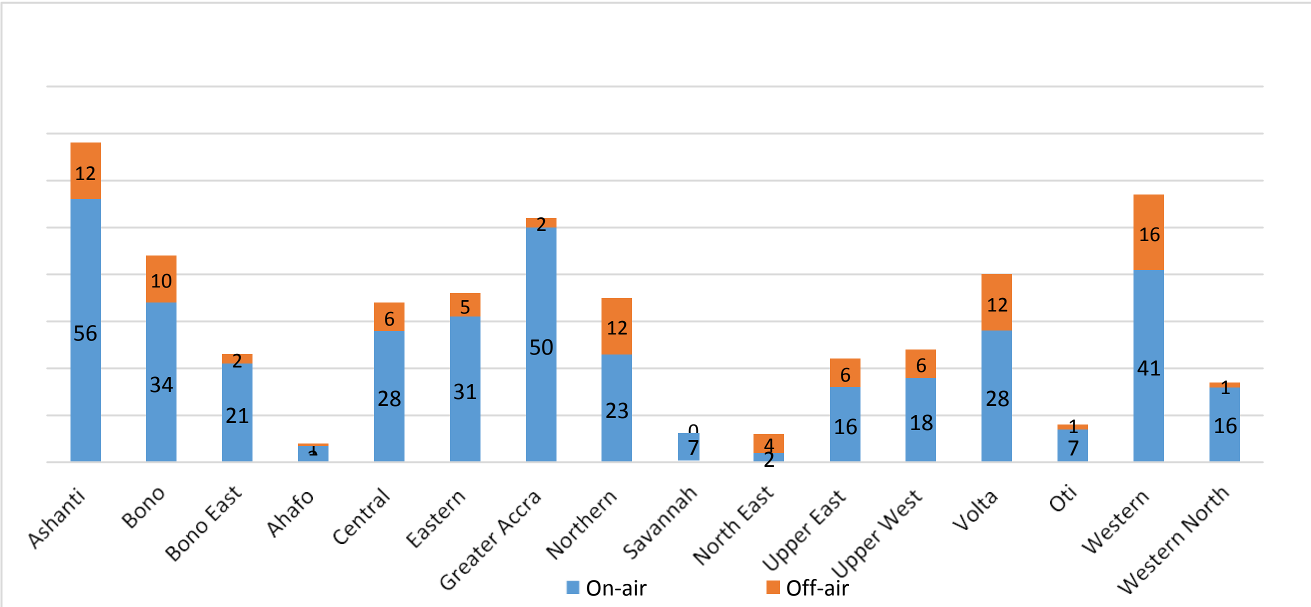
The Ashanti Region had 56 stations, representing 14.74% of the total number of operational FM stations in the country. The North East on the other hand, recorded the least number of operational FM Stations, with 2 stations, representing 0.53% (Figure 20).

Table 25: Regional Distribution of FM Stations as at the end of Q3 2019

Name Of Regions	Authorised Fm Stations (End Of Q3 2019)	Fm Stations In Operation (Q3 2019)
Ashanti	**68**	**56**
Bono	**44**	**34**
Bono East	**23**	**21**
Ahafo	**4**	**3**
Central	**34**	**28**
Eastern	**36**	**31**
Greater Accra	**52**	**50**
Northern	**35**	**23**
Savannah	**7**	**7**
North East	**6**	**2**
Upper East	**22**	**16**
Upper West	**24**	**18**
Volta	**40**	**28**
Oti	**8**	**7**
Western	**57**	**41**
Western North	**17**	**16**
Total	**477**	**380**

Source: NCA, 2019

Figure 20: Regional distribution of On-air and Off-air FM stations as at end of Q3 2019



Source: NCA, 2019

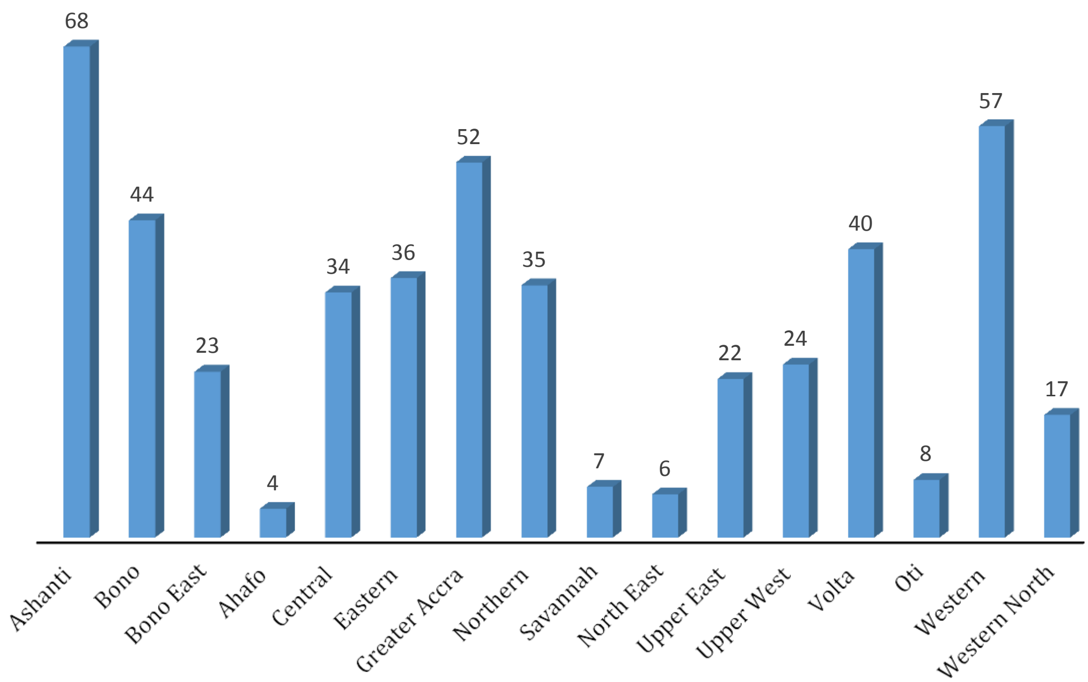
Table 26: Regional Distribution of Operational FM Stations by Purpose (Q3 2019)

Name of Regions	Total No. Operational	Public	Public (Foreign)	Community	Campus	Commercial
Ashanti	56	2	1	8	3	54
Bono	34	1	-	3	2	38
Bono East	21	2	-	3	-	18
Ahafo	3	-	-	1	-	3
Central	28	2	-	9	3	20
Eastern	31	2	-	4	1	29
Greater Accra	50	2	3	3	4	40
Northern	23	3	-	8	2	22
Savannah	7	3	-	3	-	1
North East	2	1	-	4	-	1
Upper East	16	2	-	8	1	11
Upper West	18	2	-	7	2	13
Volta	28	3	-	5	1	31
Oti	7	1	-	3	-	4

Western	41	2	1	4	2	48
Western North	16	3	-	-	-	14
Total	**380**	**31**	**5**	**73**	**21**	**347**

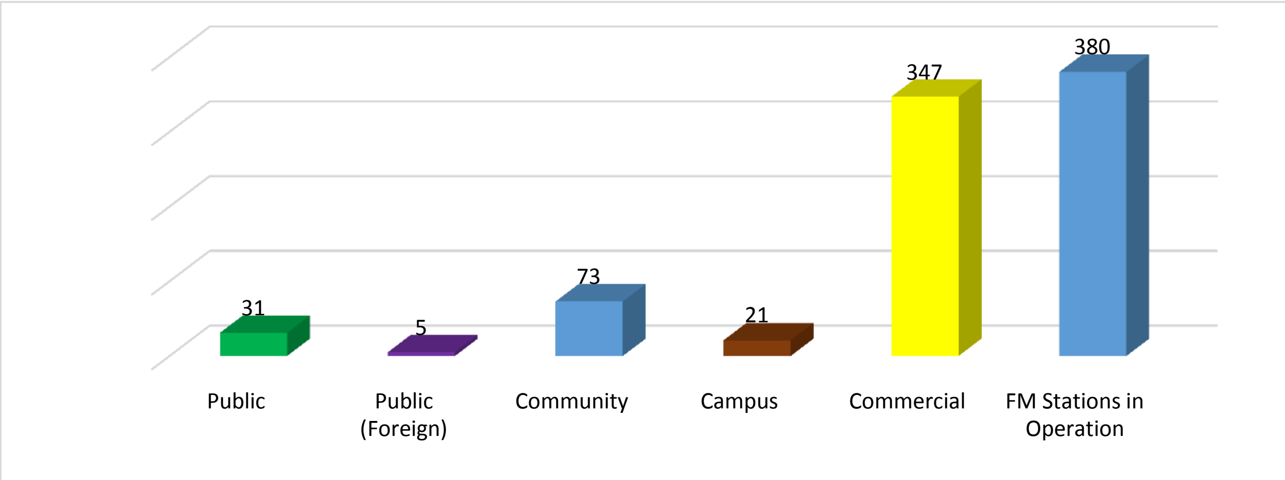
Source: NCA, 2019

Figure 21: Regional distribution of authorised FM stations as at end of Q3 2019



Source: NCA, 2019

Figure 22: Purpose of Authorised Radio Stations as at Q3 2019



Source: NCA, 2019

4.2 Authorised Television Stations

The total number of authorised TV stations in Ghana at the end of third quarter was 139, out of which 96 were operational.

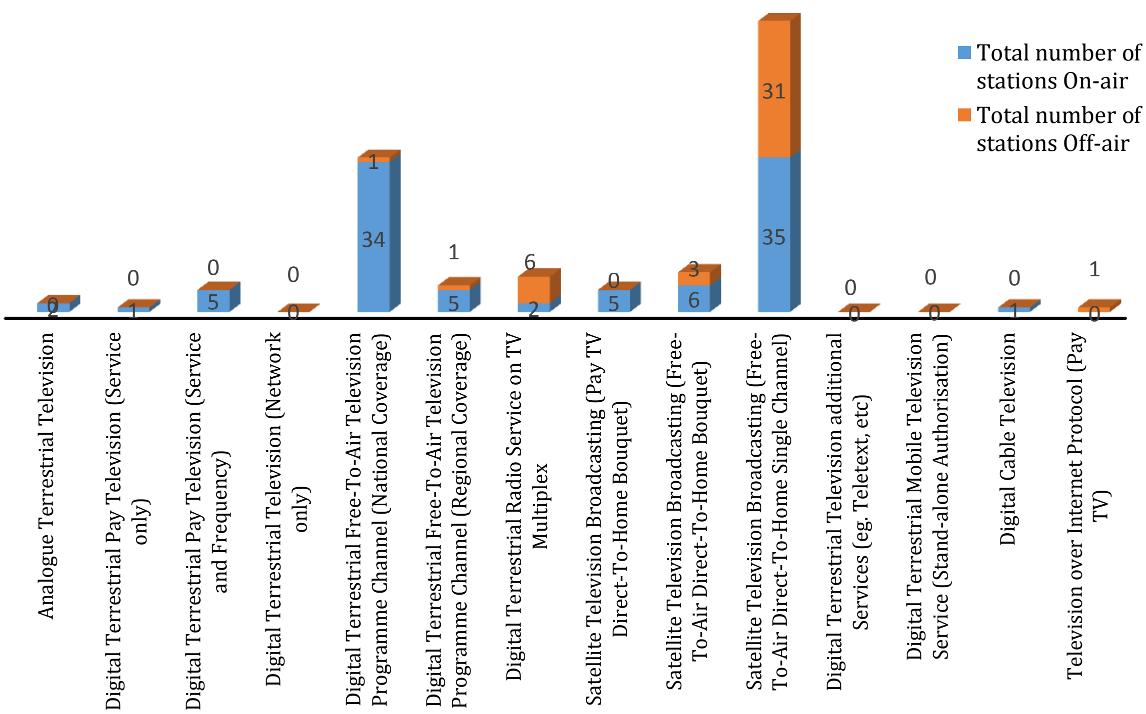
Table 27: Authorised TV Services in Ghana as at end of Q3 2019

Types of TV stations	Authorised TV stations		No. of TV Stations in Operation (Q3 2019)	No. of TV Stations not in Operation (Q3 2019)
	End of Q2 2019	End of Q3 2019		
Analogue Terrestrial Television	2	2	2	0
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 Free-To-Air Television Programme Channel (National Coverage)	35	35	34	1
Digital Terrestrial Free-To-Air Television Programme Channel (Regional Coverage)	6	6	5	1
Digital Terrestrial Radio Service on TV Multiplex	8	8	2	6

Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	5	5	5	0
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Bouquet)	9	9	6	3
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel)	65	66	35	31
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
Total	**138**	**139**	**96**	**43**

Source: NCA, 2019

Figure 23: Distribution of On-Air and Off-Air TV Stations as at end of Q3 2019



Source: NCA, 2019

NCA CONTACTS AND PRESENCE COUNTRYWIDE

The Authority currently has eight (8) regional and zonal 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
Private Mail Bag, Bolgatanga, Upper
East Region
Tel: +233 (0) 3820 21141
E-mail: complaints.bolgatanga@nca.org.gh

- ### Ho Office

National Communications Authority,
H/No A6/29, Stadium Road
P. O. Box HP1576, Ho, Volta Region
Tel: +233 (0) 3620 26339
E-Mail: complaints.ho@nca.org.gh

- ### Koforidua Office

National Communications Authority,
Plot No. 31, Sector 5 Block C along the
Galloway Road
Private Mail Bag, Koforidua, Eastern Region
Tel: +233 (0) 3420 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

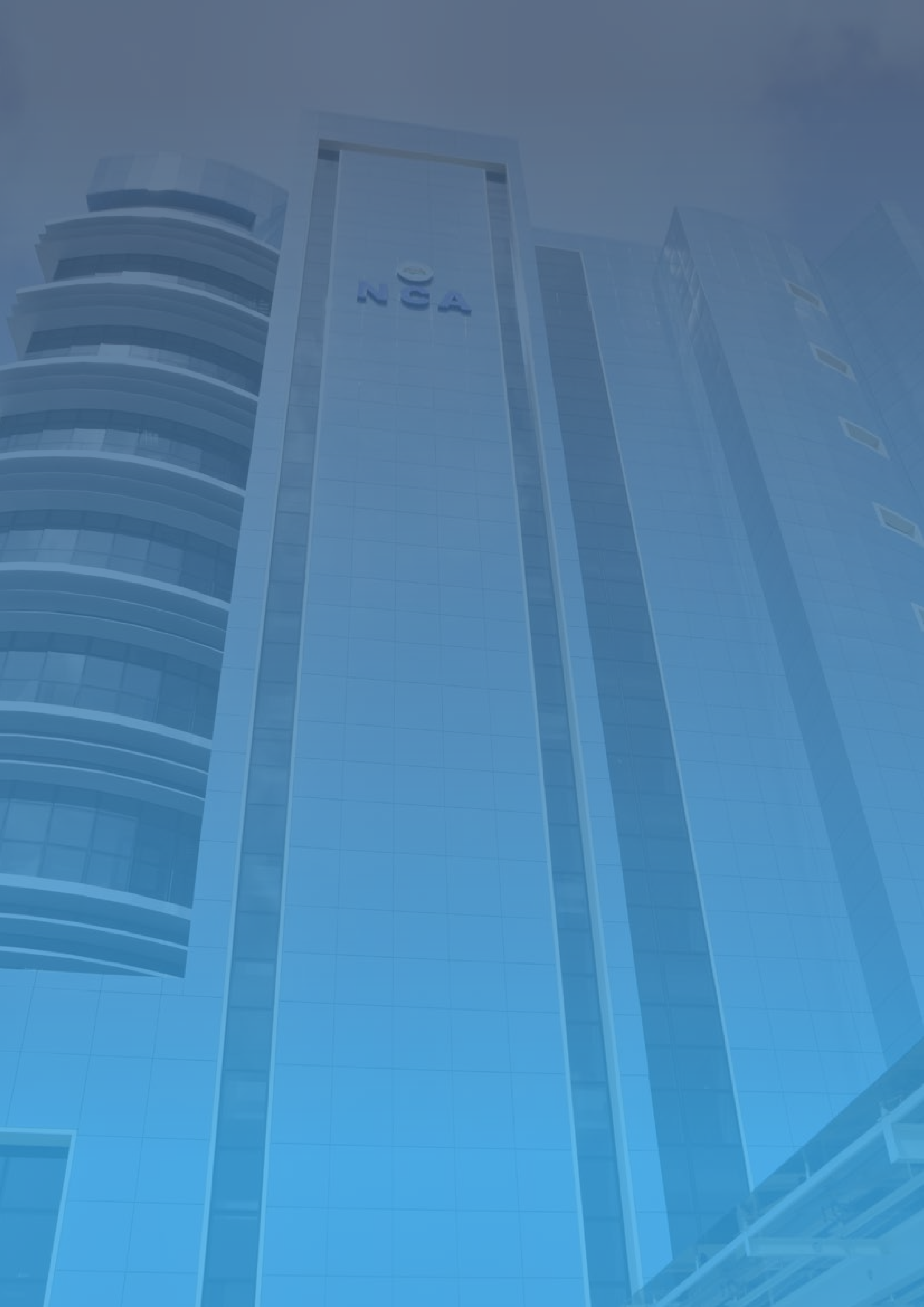
National Communications Authority,
Plot No 114 Ridge Residential Area, Sector 5
P. O. Box SY125, Sunyani, Brong Ahafo Region
Tel: +233 (0) 3520 27564
E-Mail: complaints.sunyani@nca.org.gh

- ### Takoradi Office

National Communications Authority,
Bakado, 1.2kms 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
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


NCA