QUARTERLY STATISTICAL BULLETIN ON COMMUNICATIONS IN GHANA

Volume 3 Issue 1

NATIONAL COMMUNICATIONS AUTHORITY

FIRST QUARTER

JANUARY - MARCH, 2018

Communications for Development

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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 containing disaggregated data, industry trends and analysis of the Ghanaian communications sector. It is intended to enhance 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 licencees; notably the mobile network operators and broadband wireless access operators. It also includes data on internet service providers, broadcasting entities, Mobile Number Portability and Equipment Type Approval 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".

LIST OF ABBREVIATIONS

BWA	Broadband Wireless Access
FM	Frequency Modulation
GH₵	Ghana Cedi
GHp	Ghana pesewas
GSM	Global System for Mobile communication
ICT	Information Communication Technology
MB	Megabytes
MNO	Mobile Network Operator
MNP	Mobile Number Portability
MoU	Minutes of Usage
NCA	National Communications Authority
Q-o-Q	Quarter-on-Quarter
SMS	Short Message Service
TV	Television
Y-o-Y	Year-on-year

DEFINITION OF TERMS

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

BWA Data Usage per Subscription - This is calculated by dividing the total average volume of BWA's traffic for the quarter with the total BWA subscription 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.

Long-Term Evolution (LTE) - is a standard for high-speed wireless communication for mobile phones and data terminals, based on the GSM/EDGE and UMTS/HSPA technologies

Minutes of Use per Subscription - It is calculated by dividing the total average volume of traffic for that quarter with the total average subscription for that quarter

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

Mobile Number Portability (MNP) Service – This is a service that enables mobile telephone users to switch to a new operator or service provider and still retain their mobile telephone numbers.

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

Net Subscription 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 in the Communications Industry

Operator/Service Providers	Number of Authorisation/Licences	Number in Operation
Mobile Network Operators	5[1]	5
Fixed Network Operators	3	2
Broadband Wireless Access	5	5
Television Stations	128	71
FM Stations	503	414
Tower Infrastructure Companies	4	4
International Submarine Cables	5	5
Domestic Fibre Operators	10	10

B1. Total Subscriptions/Connected lines

SUBSCRIPTION	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q1 2018	Q4 2017	*Growth (%)*	Q1 2018	Q1 2017	*Growth (%)*	
Mobile Voice Subscription	38.88	36.71	*5.91%*	38.88	35.78	*8.66%*	Million
Fixed Voice Subscription	277	301	*-7.97%*	277	267	*3.75%*	Thousand
Mobile Data Subscription	23.9	23.46	*1.88%*	23.9	21.42	*11.58%*	Million
Fixed Data Subscription	51	56	*-8.93%*	51	86	*-40.70%*	Thousand
Broadband Wireless Access	85	87	*-2.30%*	85	104	*-18.27%*	Thousand

B2. Traffic and SMS Count

TRAFFIC	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q1 2018	Q4 2017	*Growth (%)*	Q1 2018	Q1 2017	*Growth (%)*	
Mobile Voice Traffic	17.69	17.05	*3.75%*	17.69	13.54	*30.65%*	Billion minutes
Fixed Voice Traffic	13.17	13.90	*-5.25%*	13.17	14.45	*-8.86%*	Million minutes
Incoming International Traffic	117.5	119.3	*-1.51%*	117.5	130.15	*-9.72%*	Million minutes

[1] There are 5 mobile network operators after the merger of Airtel and Tigo.

Outgoing International Traffic	136.93	139.2	*-1.63%*	136.93	151.17	*-9.42%*	Million minutes
Mobile Data Traffic (MB)	51.14	43.44	*17.73%*	51.14	27.25	*87.67%*	Billion MB
BWA Data Traffic (MB)	3.67	3.86	*-4.39%*	3.67	3.47	*6.63%*	Billion MB
SMS Count	633	529	*19.66%*	633	382	*65.71%*	Million

B3. Penetration Rate

PENETRATION RATE (%)	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q1 2018	Q4 2017	*Growth (%)*	Q1 2018	Q1 2017	*Growth (%)*	
Mobile Voice Subscription	134.3	127.6	*5.25%*	134.3	126.6	*6.08%*	%
Fixed Voice Subscription	0.96	1.05	*-8.57%*	0.96	0.94	*2.13%*	%
Mobile Data Subscription	82.57	81.54	*1.26%*	82.57	75.78	*8.96%*	%
Fixed Data Subscription	0.18	0.20	*-10.00%*	0.18	0.31	*-41.94%*	%
Broadband Wireless Access	0.30	0.30	*0.00%*	0.30	0.37	*-18.92%*	%

C1. Broadcasting Sector

FM/TV AUTHORISATION & OPERATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q1 2018	Q4 2017	*Growth (%)*	Q1 2018	Q1 2017	*Growth (%)*
FM Authorisation	503[2]	511	*-1.57%*	503	506	*-0.59%*
FM Station Operating	414	406	*1.97%*	414	354	*16.95%*
TV Authorisations	128	120	*6.67%*	128	93	*37.63%*
TV Stations Operating	71	54	*31.48%*	71	51	*39.22%*

C2. Categories of FM Radio Stations

CATEGORIES OF FM RADIO STATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q1 2018	Q4 2017	*Growth (%)*	Q1 2018	Q1 2017	*Growth (%)*
PUBLIC	31	31	*0%*	31	31	*0%*
PUBLIC FOREIGN	5	5	*0%*	5	5	*0%*

[2] There is a decline in the number of Authorised FM stations because some FM Stations had their authorisation revoked.

CAMPUS	82	82	*0%*	82	81	*1.23%*
COMMUNITY	22	22	*0%*	22	22	*0%*
COMMERCIAL	363	371	*-2.16%*	363	367	*-1.09%*

SOME KEY REGULATORY INTERVENTIONS IN THE FIRST QUARTER OF 2018

During the first quarter of 2018, the following are among the key regulatory interventions of the NCA to ensure competition and fairness in the industry.

- The National Communications Authority (NCA) embarked on a consumer outreach to educate consumers about the role of the NCA, Consumer Complaints procedure for dissatisfied services, Digital Television Transmission (DTT) migration and other services.

- The Authority conducted test drives in five (5) regions namely Ashanti, Eastern, Greater Accra, Northern and Western out of ten regions to measure the Quality of Service (Q.O.S) provided by the Mobile Network Operators (MNOs). The test drive covered 120 districts in Ghana and the results published on the NCA website and Daily Graphic newspaper.

- The NCA met with the MNO's to address consumers' concerns on Tariffs, Billing issues as well as Quality of Service. The MNO's are expected to address the following: Automatic migration to pay as you go when bundle is exhausted without consumer consent and notification, Automatic renewal of one-time bundles, Deceptive advertising of promotion and Lack of Proof of consent and retention of consumer information.

- The NCA closed down nine (9) commercial Frequency Modulation (FM) radio stations which led to a reduction in the number of authorised FM stations in Ghana from 511 to 503. The closure of the stations follows the expiration of the general amnesty granted to defaulting FM Stations, who were sanction based on the audit conducted by the NCA.

1.0 Cellular Mobile Network

This section assesses mobile network operators in Ghana using indicators of total number of mobile subscriptions, the net additions to subscriptions, mobile penetration, volume of voice/data traffic and mobile data subscription. The telecoms industry in Ghana has five mobile network operators namely: AirtelTigo[3], Expresso, Glo, MTN and Vodafone.

1.1 Mobile Voice Subscription and Penetration

Mobile voice subscriptions in Ghana at the end of the first quarter of 2018 was 38.9 million, and increase from 36.7 million at the end of the fourth quarter of 2017 representing a 5.90% percentage growth(Table 1). Year-on-year subscription also increased by 8.67% from 35.8 million in the first quarter of 2017 to 38.9 million at the end of the first quarter of 2018. Penetration rate at the end of the first quarter recorded an increase from 127.6% in the fourth quarter to 134.3% (Figure 1). Net additions in mobile subscriptions increased by 531.88% during the quarter under review.

Table 1: Mobile Voice Subscription and Penetration Rate

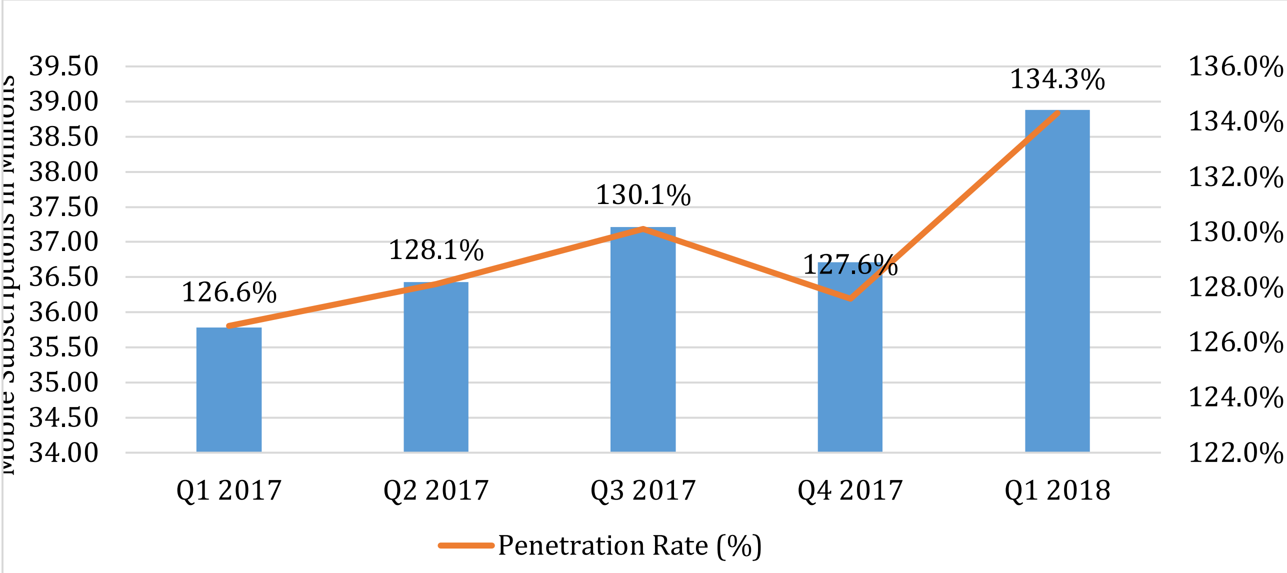
Subscription	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Mobile Subscription	35,780,667	36,430,847	37,217,302	36,715,761	38,881,806
Mobile Subscription Growth rate (%)	-6.59%	1.82%	2.16%	-1.35%	5.90%
Net additions	- 2,524,411	650,180	786,455	-501,541	2,166,045
Net additions Growth Rate (%)	-336.95%	-125.76%	20.96%	-163.77%	531.88%
Population[4]	28,263,729	28,433,651	28,604,594	28,776,565	28,949,570
Penetration rate (%)	126.6%	128.1%	130.1%	127.6%	134.3%

Source: NCA; Mobile Network Operators, 2018

[3] Despite the merger between Airtel and Tigo to form AirtelTigo, this bulletin still reports on the two entities separately because the data received from the operators were separated and the integration process is still work in progress. Beginning from the fourth quarter of 2018, the bulletin will report on AirtelTigo as a single entity.

[4] Population of Ghana was estimated based on 2010 population census figure 24,658,823 published by Ghana Statistical Service (GSS) WITH 0.2% monthly intercensal growth.

Figure 1: Mobile Voice Subscription and Penetration Rate



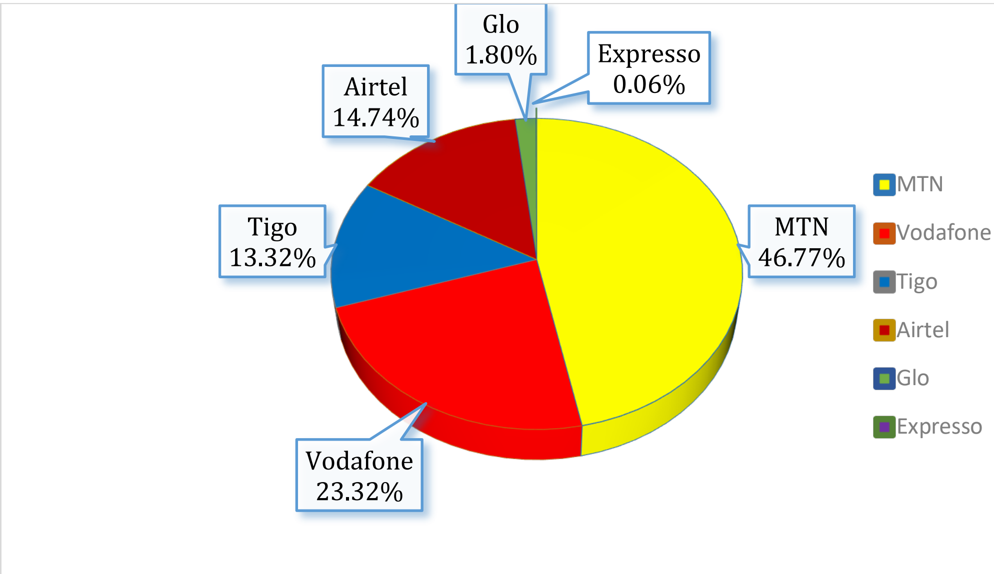
Source: NCA; Mobile Network Operators, 2018

1.1.1 Mobile Voice Subscription per Operator[5]

MTN's subscription increased by 1.97% from 17.83 million in the fourth quarter of 2017 to 18.18 million at the end of the first quarter of 2018 representing 46.77% of the total market share (Figure 2). Vodafone's subscription stood at 9.07 million with a market share of 23.32%. Tigo's experienced a decrease in subscriptions by 0.75 % from 5.22 million in the fourth quarter of 2017 to 5.18 million in the first quarter of 2018 with a share of 13.32%. Airtel's subscription increased to 5.73 million at the end of the first quarter of 2018 up from 3.99 million in the fourth quarter of 2017 recording a market share of 14.74%. Glo's subscription stood at 698,284 at the end of the first quarter of 2018 (Table 2) with a market share of 1.80%. Expresso's subscription remained at 23,264 recording a market share of 0.06%

[5] Expresso did not submit data for Q3 and Q4 2017 as well as Q1 2018.

Figure 2: Mobile Voice Subscription Market Share (%) per Operator



Source: NCA; Mobile Network Operators, 2018

Table 2: Mobile Voice Subscription and Market Share (%) per Operator

Mobile Network Operator		**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	**Q1 2018**
MTN	Subscription	16,789,161	17,304,425	17,589,527	17,832,546	18,184,132
	Market Share (%)	*46.92%*	*47.50%*	*47.29%*	*48.60%*	46.80%
Vodafone	Subscription	8,582,387	8,773,444	9,079,502	9,028,161	9,065,969
	Market Share (%)	*23.99%*	*24.08%*	*24.41%*	*24.60%*	23.33%
Tigo	Subscription	5,098,480	5,360,443	5,489,994	5,217,875	5,178,555
	Market Share (%)	*14.25%*	*14.71%*	*14.75%*	*14.21%*	13.33%
Airtel	Subscription	4,500,907	4,236,788	4,253,993	3,986,163	5,731,602
	Market Share (%)	*12.58%*	*11.63%*	*11.43%*	*10.86%*	14.75%
Glo	Subscription	769,621	732,483	781,022	627,752	698,284
	Market Share (%)	*2.15%*	*2.01%*	*2.10%*	*1.71%*	1.80%
Expresso	Subscription	40,111	23,264	23,264	23,264	23,264
	Market Share (%)	*0.11*	0.06	0.06	0.06	0.06
Total		**35,780,667**	**36,430,847**	**37,217,302**	**36,715,761**	**38,881,806**

Source: NCA; Mobile Network Operators, 2018

1.1.2 Prepaid and Post-paid Mobile Voice Subscription

Prepaid subscriptions increased by 5.99% with a market share of 98.89% at the end of first quarter of 2018 (Table 3). Post-paid subscription decreased by 1.68% at the end of the quarter under review with a market share of 1.11% (Table 3).

Table 3: Prepaid and Post-paid Voice Subscription

Subscription		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Prepaid	Subscription	35,392,261	35,985,016	36,798,071	36,275,284	38,881,806
	Share (%)	*98.91%*	*98.78%*	98.87%	98.80%	98.89%
Post-paid	Subscription	388,407	445,831	419,231	440,477	433,076
	Share (%)	*1.09%*	*1.22%*	1.13%	1.20%	1.11%
Total mobile subscription		**35,780,667**	**36,430,847**	**37,217,302**	**36,715,761**	**38,881,806**

Source: NCA; Mobile Network Operators, 2018

1.2 Mobile Voice Traffic (Domestic)

The total volume of mobile voice traffic stood at 17.69 billion minutes in the first quarter of 2018 from 17.05 billion minutes in the previous quarter recording an increase of 3.74%. Year-on-year mobile voice traffic also increased to 17.69 billion minutes at the end of the first quarter of 2018, up from 13.54 billion minutes in the first quarter of 2017 representing an increase of 30.62% (Figure 3).

On-net traffic grew by 5.34% quarter-on-quarter to 15.30 billion minutes at the end of the first quarter of 2018 from 14.52 billion minutes in the previous quarter . Year-on-year on-net traffic also grew by 39.63% from 10.96 billion minutes in the first quarter of 2017 to 15.30 billion minutes at the end of the first quarter of 2018 (Table 4).

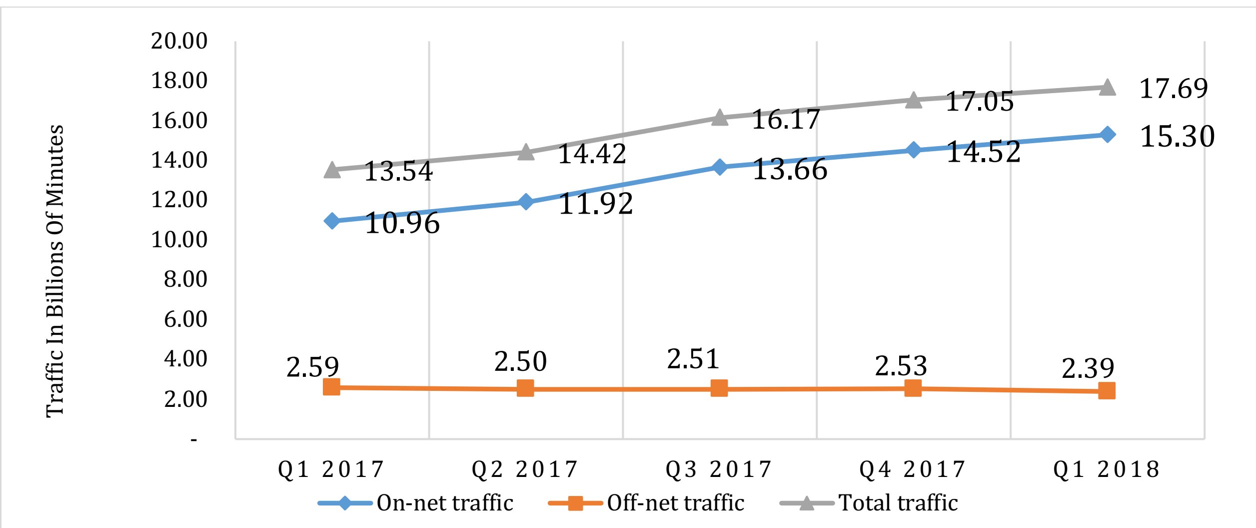
Off-net traffic declined by 5.47% from 2.53 billion minutes in the previous quarter to 2.39 billion minutes at the end of the first quarter of 2018. However, year-on-year off-net traffic declined by 7.54% to 2.39 billion minutes at the end of the first quarter of 2018 from 2.59 billion minutes in the first quarter of 2017 (Table 4).

Table 4: Mobile Voice Traffic (Domestic)

Traffic	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Off-net traffic					
Traffic	2,587,441,912	2,501,583,680	2,510,663,574	2,530,809,704	2,392,364,301
Share (%)	*19.10%*	*17.35%*	*15.53%*	*14.84%*	*13.52%*
Growth (%)	*-3.16%*	*-3.32%*	*0.36%*	*0.80%*	*-5.47%*
On-net traffic					
Traffic	10,956,196,789	11,915,199,608	13,659,942,184	14,522,936,427	15,298,495,949
Share (%)	*80.90%*	*82.65%*	*84.47%*	*85.16%*	*86.48%*
Growth (%)	*4.51%*	*8.75%*	*14.64%*	*6.32%*	*5.34%*
Total Traffic	**13,543,638,701**	**14,416,783,288**	**16,170,605,758**	**17,053,746,131**	**17,690,860,249**

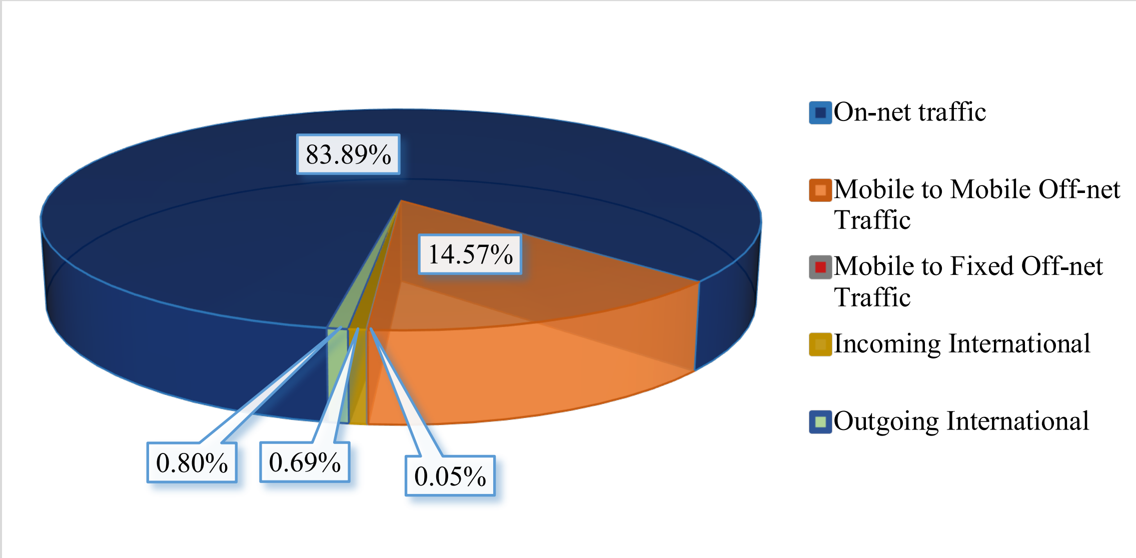
Source: NCA; Mobile Network Operators, 2018

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



Source: NCA; Mobile Network Operators, 2018

Figure 4: Breakdown of Mobile Voice Traffic in Minutes



Source: NCA; Mobile Network Operators, 2018

1.2.1 Distribution of Mobile off-net traffic between Mobile and Fixed Networks

Mobile to mobile off-net traffic declined by 7.26% to 2.34 billion minutes in the first quarter of 2018 from 2.52 billion minutes in the fourth quarter of 2017 with a share of 99.65%. Year-on-year mobile to mobile off-net traffic also decreased by 9.35% from 2.58 billion minutes in the first quarter of 2017 to 2.33 billion minutes at the end of the first quarter of 2018 (Table 5).

Mobile to fixed off-net traffic grew by 2.57% quarter-on-quarter from 7.98 million minutes to 8.18 million minutes with a share of 0.35%. Year-on-year mobile to fixed off-net traffic also increased by 27.54% to 8.18 million minutes in the first quarter of 2018 from 6.42 million minutes in the first quarter of 2017 (Table 5).

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

Breakdown of Off-net Traffic	**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	Q1 2018
			Mobile to Mobile Networks		
Traffic	2,581,025,238	2,494,623,807	2,503,235,845	2,522,830,698	2,384,180,518
Share (%)	*99.75%*	*99.72%*	*99.70%*	*99.68%*	*99.66%*
Growth (%)	*-3.18%*	*-3.35%*	*0.35%*	*0.78%*	*-5.50%*
			Mobile to Fixed Networks		

Traffic	6,416,673	6,959,874	7,427,729	7,979,006	8,183,793
Share (%)	*0.25%*	*0.28%*	*0.30%*	*0.32%*	*0.35%*
Growth (%)	*7.84%*	*8.47%*	*6.72%*	*7.42%*	*2.57%*
Total Off-net Traffic	**2,587,441,912**	**2,501,583,681**	**2,510,663,574**	**2,530,809,704**	**2,392,364,311**

Source: NCA; Mobile Network Operators, 2018

1.2.2 Minutes of Use (MoU)[6]

Average minutes of use per subscription during the quarter under review, decreased by 1.88 % to 152.8 minutes from 154.7 minutes in the fourth quarter of 2017 (Figure 5). Year-on-year minutes of use also increased from 119.4 minutes in the first quarter of 2017 to 152.8 minutes at the end of the first quarter of 2018 experiencing a growth of 33.35%(Table 6). Minutes of use decreased by 1.9 minutes and increased by 33.4 minutes quarter-on-quarter and year-on-year respectively.

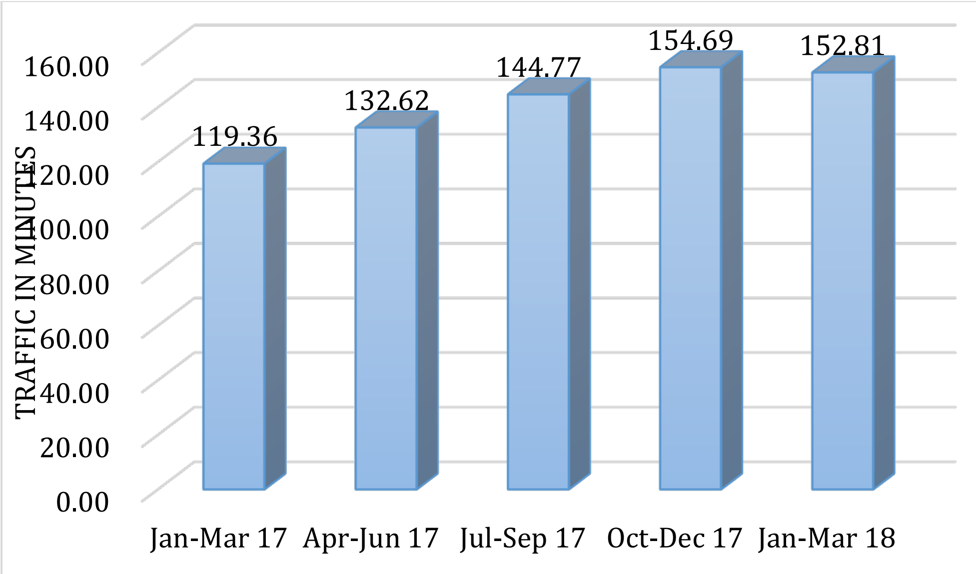
Table 6: Mobile Voice Traffic Minutes of Use (MoU) per Subscription

Traffic	Jan-Mar 17	Apr-Jun 17	Jul-Sep 17	Oct-Dec 17	Jan-Mar 18
Total mobile traffic	4,514,546,234	4,805,594,429	5,390,201,919	5,684,582,044	5,896,953,416
Mobile subscription	37,946,583	36,215,632	37,254,537	36,773,115	38,617,946
Minutes of Use (MoU) per Subscription	119.4	132.6	144.7	154.6	152.7
MoU growth rate (%)	3.08%	11.11%	9.10%	6.85%	-1.22%

Source: NCA; Mobile Network Operators, 2018

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

Figure 5: Mobile Voice Traffic Minutes of Use (MoU) per Subscription



Source: NCA; Mobile Network Operators, 2018

1.3 International Traffic

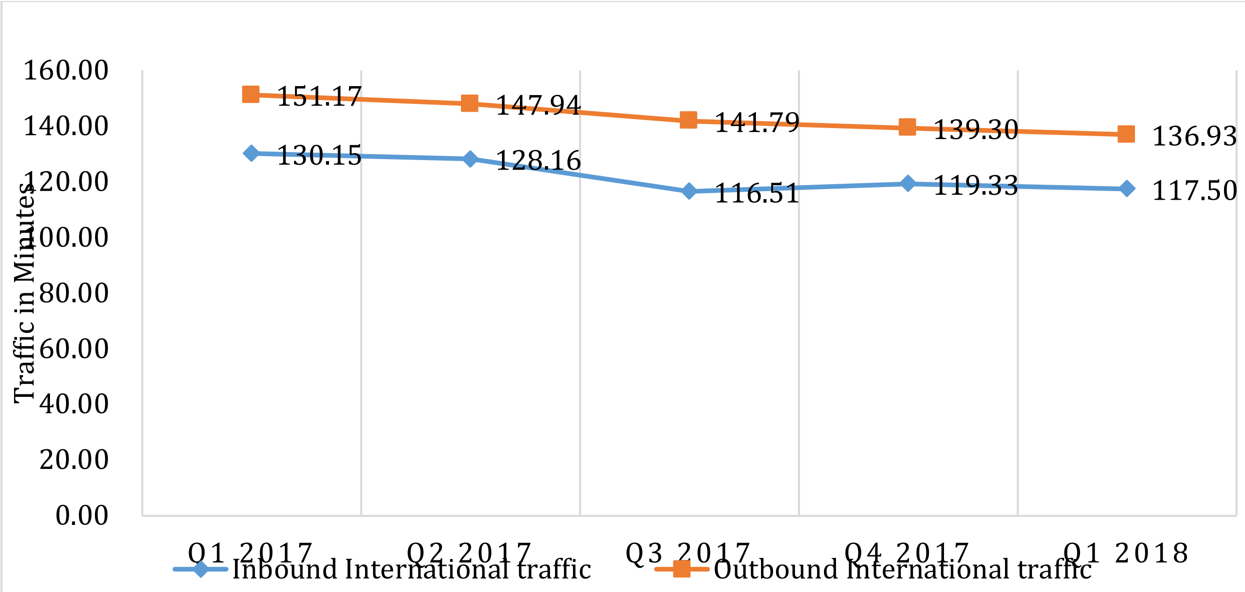
The volume of international inbound traffic decreased by 1.54% quarter-on-quarter from 119.3 million minutes to 117.5 million minutes (Table 7). Year-on-year inbound international traffic also decreased by 9.72%. International outbound traffic reduced by 1.70% from 139.3 million minutes in the fourth quarter of 2017 to 136.9 million minutes at the end of the first quarter of 2018. Year-on-year outbound international traffic also reduced by 9.42% from 151.2 million minutes to 136.9 million minutes.

Table 7: International Traffic

Traffic	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Inbound international traffic					
Traffic	130,152,496	128,159,377	116,513,274	119,332,001	117,496,412
Growth (%)	*-6.04%*	*-1.53%*	*-9.09%*	*2.42%*	*-1.54%*
Outbound international traffic					
Traffic	151,173,654	147,940,726	141,787,356	139,296,008	136,928,316
Growth (%)	*-4.64%*	*-2.14%*	*-4.16%*	*-1.76%*	*-1.70%*

Source: NCA; Mobile Network Operators, 2018

Figure 6: International Traffic



Source: NCA; Mobile Network Operators, 2018

1.4 Short Messages Service (SMS) per Operator

The volume of Short Message System (SMS) increased by 19.52 % to 633 million at the end of the first quarter of 2018 from 528 million in the fourth quarter of 2017. Year-on-year SMS counts increased from 398 million in the first quarter of 2017 to 633 million at the end of the first quarter of 2018 representing a growth of 59.05% (Figure 7).

At the end of the quarter under review, MTN generated 243 million messages on their network with a market share of 38.38%. Vodafone[7] recorded 189 million messages during the quarter under review with a market share of 29.88%. Tigo recorded an increase in the number of messages during the first quarter of 2018 from 114 million to 165 million with a share of 28.82%. Airtel recorded a decrease in the total volume of SMS from 26 million in the previous quarter to 16 million messages at the end of the first quarter 2018 with a share of 2.59%. Glo registered the smallest share of 0.32% with a total SMS of 2.0 million (Table 8).

Table 8: Total Number of SMS per Mobile Network Operator

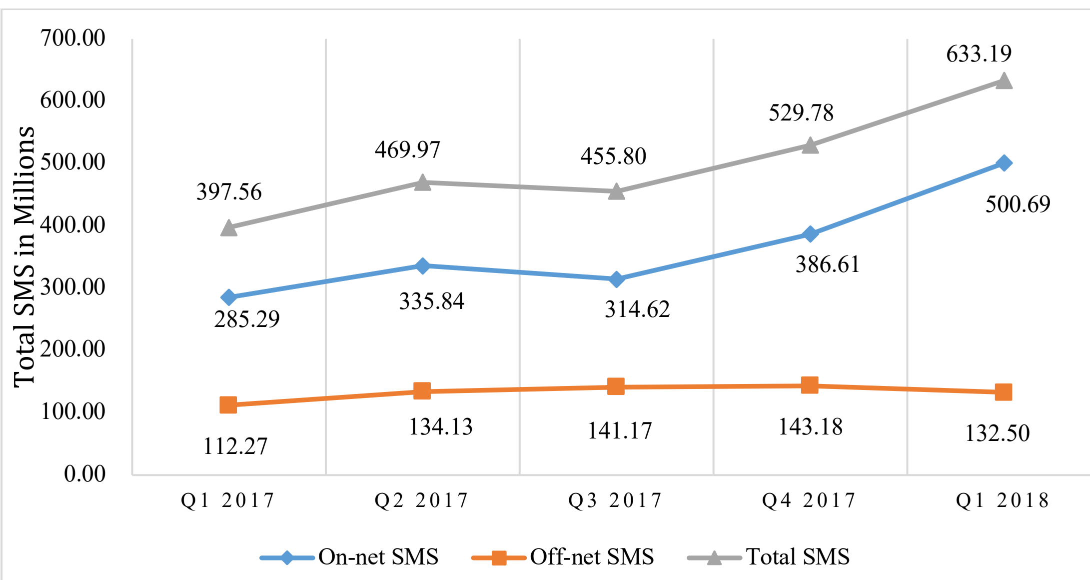
Mobile Operators	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018

[7] Vodafone did not submit data on On-net SMS for October, 2017.

Off-net SMS					
MTN	35,866,792	38,645,746	40,244,539	37,531,454	38,395,613
Vodafone	43,829,131	60,327,675	65,115,370	66,078,972	66,773,870
Tigo	17,733,576	20,525,144	20,873,632	18,830,247	16,779,179
Airtel	13,355,902	13,258,201	12,930,947	18,720,142	8,622,384
Glo	1,483,370	1,371,352	2,009,493	2,018,444	1,926,832
Total	**112,268,771**	**134,128,118**	**141,173,981**	**143,179,259**	**132,497,878**
On-net SMS					
MTN	145,180,286	164,162,415	171,597,670	181,089,398	204,638,654
Vodafone	63,165,825	67,618,312	14,143,291	83,196,946	122,431,865
Tigo	64,938,743	92,894,117	118,063,807	114,232,061	165,709,287
Airtel	11,749,566	10,939,898	10,642,389	7,968,583	7,807,379
Glo	252,027	222,678	177,750	118,445	103,274
Total	**285,286,447**	**335,837,420**	**314,624,907**	**386,605,433**	**500,690,459**
Total SMS					
MTN	181,047,078	202,808,161	211,842,209	218,620,852	243,034,267
Vodafone	106,994,956	127,945,987	79,258,661	149,275,918	189,205,735
Tigo	82,672,319	113,419,261	138,937,439	133,062,308	182,488,466
Airtel	25,105,468	24,198,099	23,573,336	26,688,725	16,429,763
Glo	1,735,397	1,594,030	2,187,243	2,136,889	2,030,106
Total	**397,555,218**	**469,965,538**	**455,798,888**	**529,784,692**	**633,188,337**

Source: NCA; Mobile Network Operators, 2018

Figure 7: Total Number of SMS

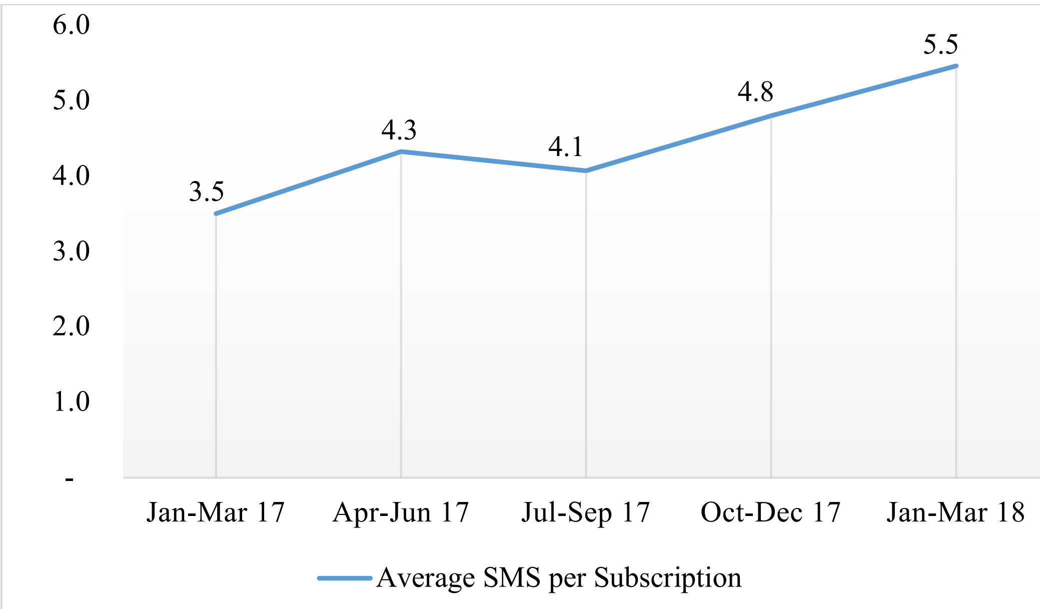


Source: NCA; Mobile Network Operators, 2018

1.4.1 Average SMS per Subscription[8]

Average SMS sent per subscription during the quarter under review increased by 13.77% to 5.5 SMS per subscription from 4.8 SMS per subscription quarter-on-quarter. Year-on-year average SMS volume per subscription grew from 3.5 in the first quarter of 2017 to 5.5 at the end of the first quarter of 2018 recording a growth of 55.94% (Figure 8).

Figure 8: Average SMS per Subscription



Source: NCA; Mobile Network Operators, 2018

1.5 Mobile Telecommunications Service Tariffs

Average default tariffs have remained unchanged for mobile telecommunications services for the last three quarters except the Average on-net SMS tariff.

Table 9: Average Mobile Tariff per Service (GHp)

Tariff	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Average on-net mobile tariff	0.12	0.11	0.11	0.11	0.11
Average off-net mobile tariff	0.13	0.12	0.12	0.12	0.12
Average on-net SMS tariff	0.05	0.05	0.05	0.05	0.06
Average off-net SMS tariff	0.06	0.06	0.06	0.06	0.06

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

Average data/Mb tariff	0.12	0.11	0.11	0.11	0.11

Source: NCA; Mobile Network Operators, 2018

1.6 Mobile Data Subscription and Penetration Rate (%)

Mobile data subscription grew by 1.87% during the period under review, increasing from 23.5 million to 23.9 million. Year-on-year subscription also increased by 11.59% to 23.9 million at the end of the first quarter of 2018 from 21.4 million in the first quarter of 2017 (Table 10). Mobile data penetration rate also increased to 82.57% from 81.54% during the period under review (Figure 9).

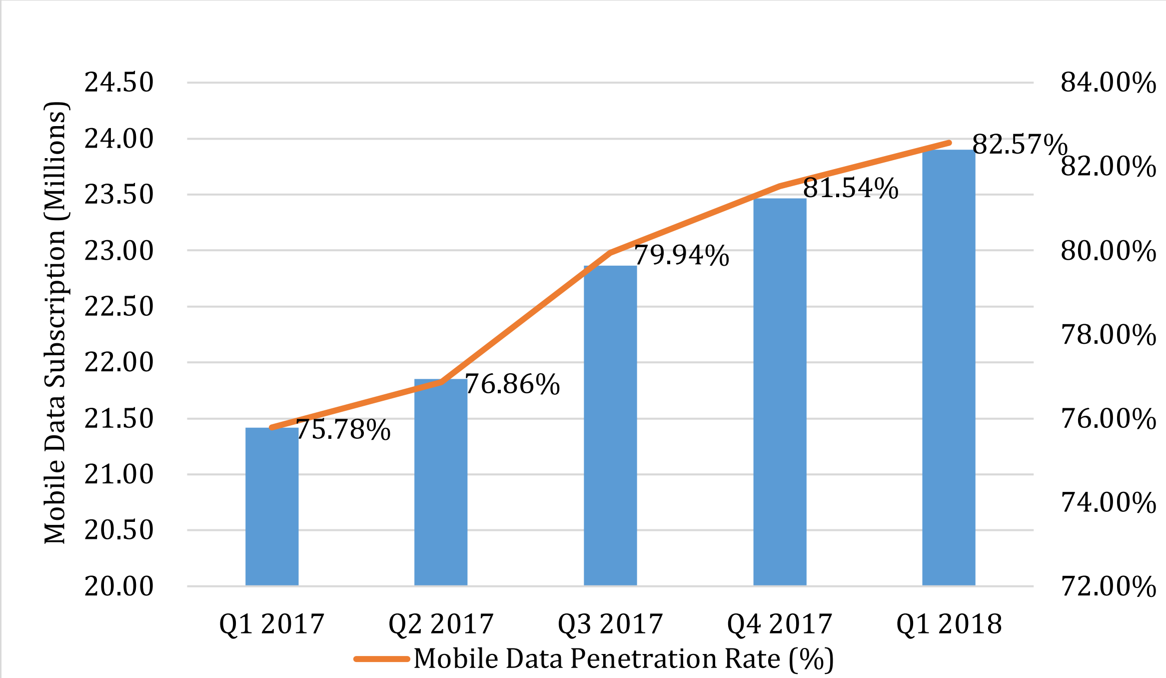
Table 10: Mobile Data Subscription and Penetration

Subscription	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Mobile data subscription	21,419,477	21,854,764	22,865,821	23,464,150	23,902,905
Data Subscription Growth Rate (%)	*9.05%*	*2.03%*	*4.63%*	*2.62%*	*1.87%*
Net Additions	1,777,326	435,287	1,011,057	598,329	438,755
Net Additions Growth Rate (%)	*471.65%*	*-75.51%*	*132.27%*	*-40.82%*	*-26.67%*
Population[9]	28,263,729	28,433,651	28,604,594	28,776,565	28,949,570
Mobile data penetration rate (%)	*75.78%*	*76.86%*	*79.94%*	*81.54%*	*82.57%*

Source: NCA; Mobile Network Operators, 2018

[9] Population of Ghana was estimated based on 2010 population census figure 24,658,823 published by Ghana Statistical Service (GSS) with 0.2% monthly intercensal growth rate.

Figure 9: Mobile Data Subscription and Penetration



Source: NCA; Mobile Network Operators, 2018

1.6.1 Mobile Data Prepaid and Post-paid Subscriptions

Mobile data prepaid subscription grew by 1.87% from 23.2 million to 23.7 million subscriptions quarter-on-quarter. The market is still dominated by prepaid subscriptions with market share of 98.98%.

Post-paid subscription increased by 1.53% from 239,049 to 242,713 subscriptions with a corresponding market share of 1.02% during the quarter under review (Table 11).

Table 11: Mobile Data Prepaid and Post-paid Subscriptions

Mobile Data Subscription		**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	**Q1 2018**
Prepaid	Subscription	21,234,616	21,640,272	22,634,197	23,225,101	23,660,192
	Share (%)	99.14%	99.02%	98.99%	98.98%	98.98%
Post-paid	Subscription	184,861	214,492	231,624	239,049	242,713
	Share (%)	0.86%	0.98%	1.01%	1.02%	1.02%
Total Mobile Data Subscription		**21,419,477**	**21,854,764**	**22,865,821**	**23,464,150**	**23,905,905**

Source: NCA; Mobile Network Operators, 2018

1.6.2 Mobile Data Subscription per Operator[10]

At the end of the first quarter of 2018, MTN's mobile data subscription increased to 14.4 million with a market share of 60.37%. Vodafone recorded 3.97 million subscriptions and a market share of 16.60%. Tigo, the third largest operator in terms of mobile data subscription, had 2.78 million subscriptions representing 11.64% and Airtel recorded a total subscription of 2.48 million with a market share of 10.37%. Glo ended the first quarter with a total subscription of 232,677 with a market share of 0.97 % (Table 12) whilst Expresso ended the quarter with a market share of 0.04% representing 10,151 subscriptions.

Table 12: Mobile Data Subscription per Operator

Mobile Operator	Data Usage (MB)	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
MTN	Subscription	11,903,262	12,229,090	12,925,524	13,736,988	14,430,466
	Market Share (%)	55.78%	56.54%	57.95%	60.22%	60.37%
Vodafone	Subscription	3,685,895	3,643,298	3,889,821	4,097,805	3,968,168
	Market Share (%)	16.62%	17.02%	17.29%	16.56%	16.60%
Tigo	Subscription	2,746,803	2,968,076	3,029,361	2,848,021	2,783,154
	Market Share (%)	13.54%	13.25%	12.01%	11.61%	11.64%
Airtel	Subscription	2,802,097	2,758,420	2,718,966	2,532,873	2,478,289
	Market Share (%)	12.78%	12.07%	11.47%	10.57%	10.37%
Glo	Subscription	263,919	245,729	291,998	238,312	232,677
	Market Share (%)	1.20%	1.07%	1.23%	0.99%	0.97%
Expresso	Subscription	17,501	10,151	10,151	10,151	10,151
	Market Share (%)	0.08%	0.04%	0.04%	0.04%	0.04%
Total		21,923,981	22,859,006	23,703,929	23,963,124	23,902,905

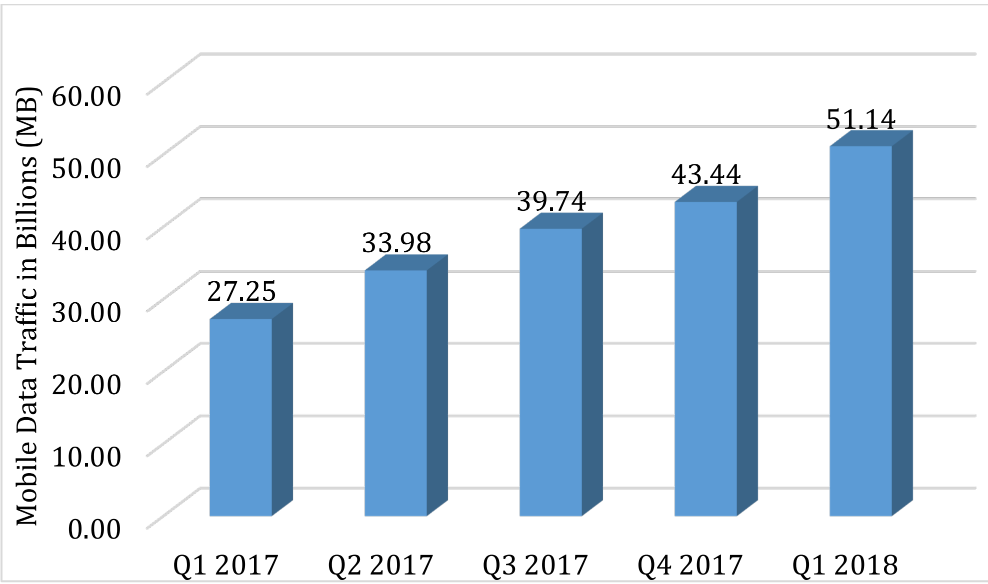
Source: NCA; Mobile Network Operators, 2018

[10] Expresso did not submit data for Q3, Q4 2017 and Q1 2018.

1.7 Mobile Data Traffic

At the end of the first quarter of 2018, data traffic generated by the mobile network operators stood at 51.14 billion megabytes of data recording a growth rate of 17.72% (Figure 10). Year-on-year data traffic increased from 27.25 billion megabytes in the previous year to 51.14 billion megabytes at the end of the first quarter of 2018 representing an increase of 118.83% (Figure 10).

Figure 10: Mobile Data Traffic in Billions of Megabytes (MB)



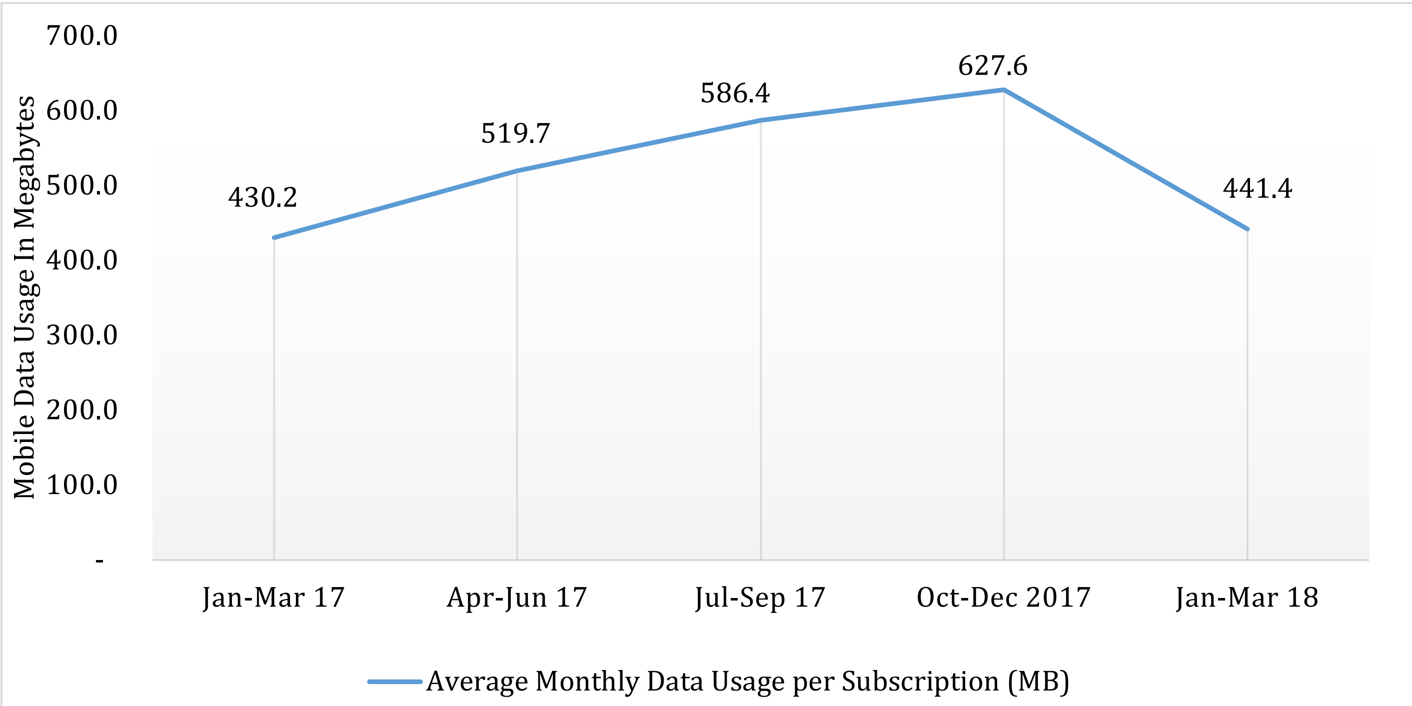
Source: NCA; Mobile Network Operators, 2018

1.7.1 Mobile Data Usage per Subscription (MB)[11]

The monthly average mobile data usage per subscription decreased by 29.66% from 627.6 megabytes in the fourth quarter 2017 to 441.4 megabytes at the end of the first quarter of 2018 (Figure 11). Year-on-year data usage per subscription decreased to 441.4 megabytes in the quarter under review from 430.2 megabytes per subscription in the previous year representing a growth of 2.61% (Figure 11).

[11] Mobile Data usage per subscription is calculated by dividing the total average volume of Data traffic for the quarter with the total average mobile data subscription for that quarter.

Figure 11: Mobile Data Usage per Subscription (MB)



Source: NCA; Mobile Network Operators, 2018

1.7.2 Mobile Data Traffic (MB) per Operator

MTN generated the highest amount of data usage with a share of 59.29% followed by Vodafone 22.01% and then Tigo 6.99%. Airtel had a share of 10.37% whilst Glo recorded a share of 0.97% (Table 13).

Table 13: Mobile Data Traffic (MB) per Operator

Mobile Operator	**Data Usage (MB)**	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
MTN	Data Usage (MB)	13,568,944,709	17,392,496,730	20,483,618,135	24,010,930,939	30,321,727,674
	Market Share (%)	49.80%	51.19%	51.55%	55.27%	59.29%
Vodafone	Data Usage (MB)	6,318,942,994	7,339,384,505	8,378,416,866	9,582,393,570	11,258,948,321
	Market Share (%)	23.19%	21.60%	21.08%	22.06%	22.01%

Tigo	Data Usage (MB)	2,140,747,503	3,024,418,169	3,246,164,928	3,447,708,960	3,573,668,444
	Market Share (%)	7.86%	8.90%	8.17%	7.94%	6.99%
Airtel	Data Usage (MB)	4,005,712,369	4,920,701,233	6,404,025,743	5,636,826,079	5,181,097,260
	Market Share (%)	14.70%	14.48%	16.12%	12.98%	10.13%
Glo	Data Usage (MB)	1,211,478,791	1,299,907,316	1,224,251,874	765,050,069	807,345,718
	Market Share (%)	4.45%	3.83%	3.08%	1.76%	1.58%

Source: NCA; Mobile Network Operators, 2018

1.8 Mobile Number Portability (MNP)[12]

This sub-section assesses the total number of mobile numbers ported in each quarter. It also accounts for the quarter-on-quarter and year-on-year growth in mobile number portability in Ghana. Mobile number portability in Ghana started in July 2011, as such, the calendar year for the MNP begins in July and ends in June. The first quarter is from July to September, second quarter comprise October to December, third quarter spans from January to March and April to June is the fourth quarter.

The number of mobile numbers ported at the end of the first quarter of 2018 decreased by 58.98%, to 63,779 from 155,484 in the previous quarter (Table 14). The total number ported during the period under review represents 0.17% of the total mobile voice subscriptions for the same period.

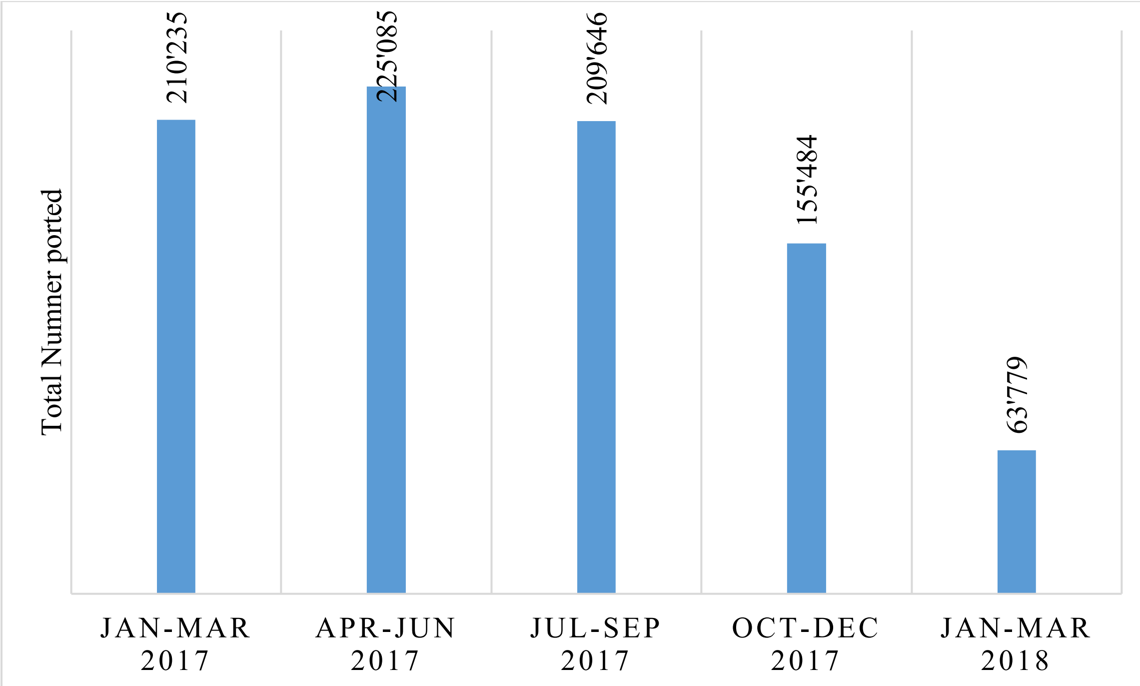
Table 14: Mobile Number Portability and Growth Rate (%)

Porting	**Jan-Mar 2017**	**Apr-Jun 2017**	**Jul-Sep 2017**	**Oct-Dec 2017**	**Jan-Mar 2018**
Total Number Ported	210,235	225,085	209,646	155,484	63,779
Growth Rate (%)	*24.72%*	*7.06%*	*-6.86%*	*-25.83%*	*-58.98%*

Source: NCA; PortingXS; 2018

[12] Mobile Number Portability (MNP) is a service that makes it possible for a mobile telecom subscriber to change a mobile service provider while retaining the same mobile phone number.

Figure 12: Mobile Number Portability



Source: NCA; PortingXS; 2018

2.0 BROADBAND WIRELESS ACCESS (BWA)

There are five operators offering broadband wireless access service in Ghana, namely; Surfline, Broadband Home (BBH, formerly Zipnet), G-Kwiknet Ltd, Goldkey Telecom Ltd and Blu Telecommunications. However, this report covers only three operators who submitted data to the NCA.

2.1 BWA Subscriptions and Penetration

BWA subscriptions have been decreasing over the last four quarters. It declined by 1.52% from 87,639 in the fourth quarter of 2017 to 86,311 at the end of the first quarter of 2018 (Figure 13). Year-on-year subscription also decreased by 17.12% from 104,138 in the first quarter of 2017 to 86,311 at the end of first quarter of 2018. Penetration rate for Broadband Wireless Access remained at 0.30% as at the end of the first quarter of 2018 (Table 15).

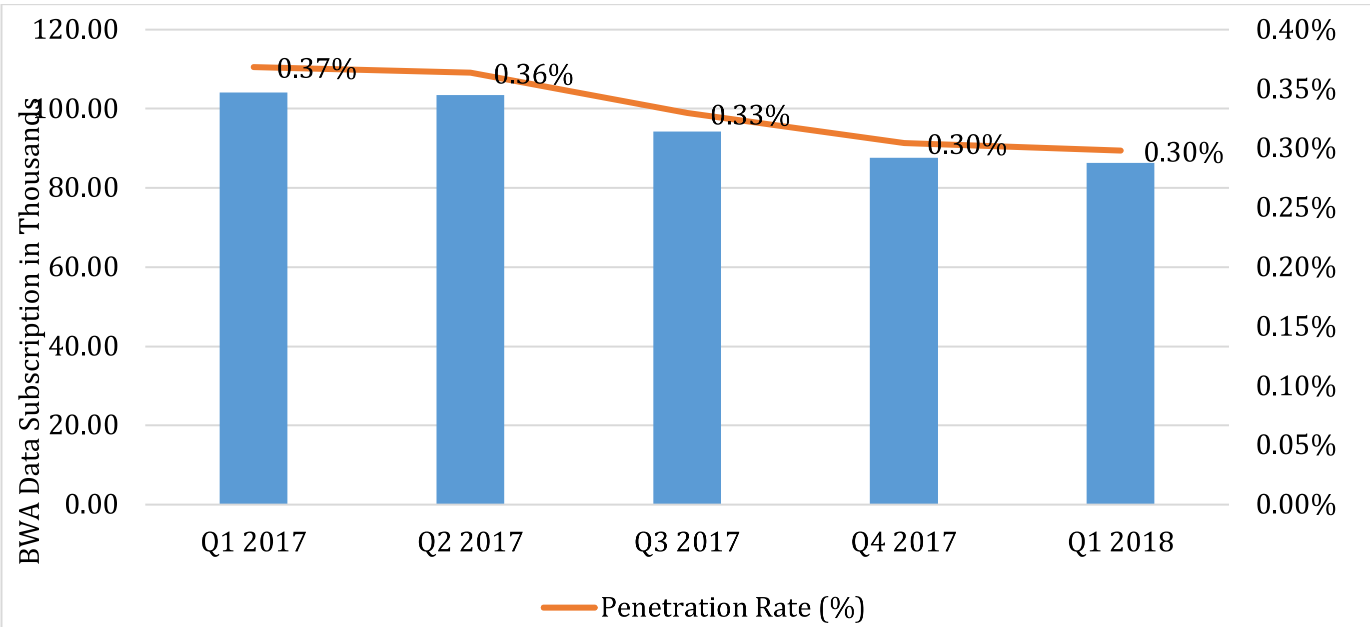
Table 15: BWA Data Subscriptions and Penetration

BWA Operator	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Subscription	104,138	103,440	94,275	87,639	86,311

Growth rate (%)	*-0.25%*	*-0.67%*	*-8.86%*	*-7.04%*	*-1.52%*
Net Additions	-264	-698	-9,165	-6,636	-1,328
Population	28,263,729	28,433,651	28,604,594	28,776,565	28,949,570
Penetration rate (%)	*0.37%*	*0.36%*	*0.33%*	*0.30%*	*0.30%*

Source: NCA; Broadband Wireless Access Operators, 2018

Figure 13: BWA Data Subscription and Penetration



Source: NCA; Broadband Wireless Access Operators, 2018

2.1.1 Subscription per Broadband Wireless Access (BWA) Operator

Surfline's subscription declined by 1.79% to 60,325 at the end of the quarter under review from 61,426 in the previous quarter with a market share of 69.89%. Broadband Home subscription declined by 0.31% with a market share of 29.52%. Blu telecommunications subscription stood at 506 with a market share of 0.59% (Table 16).

Table 16: Subscription per Broadband Wireless Access (BWA) Operator

BWA operator		**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	**Q1 2018**
Surfline	Subscription	76,792	76,232	67,702	61,426	60,325
	Market share (%)	73.74%	73.70%	71.81%	70.09%	69.89%

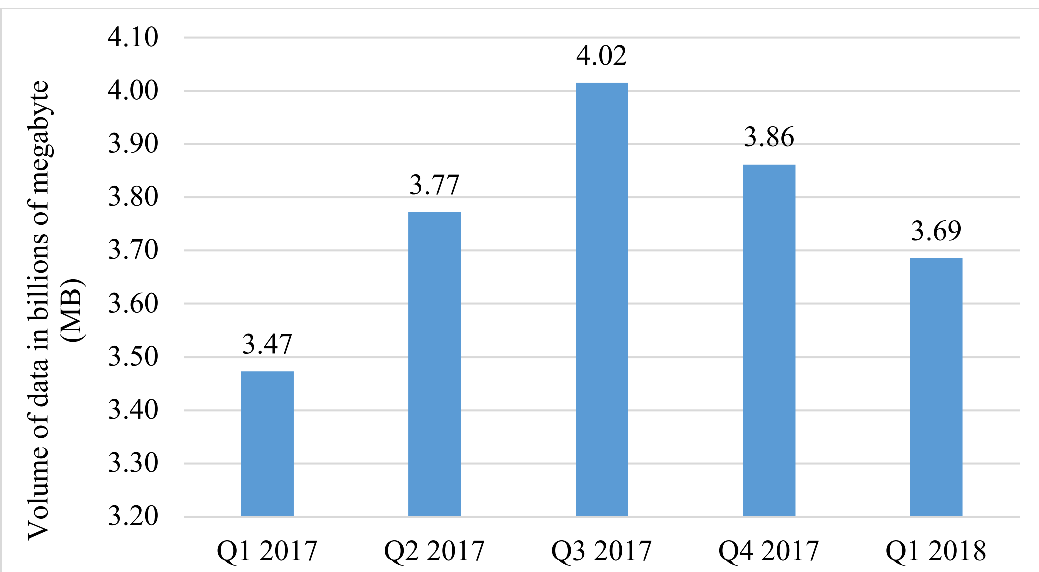
BBH	Subscription	26,381	26,281	25,689	25,560	25,480
	Market share (%)	25.33%	25.41%	27.25%	29.17%	29.52%
BLU	Subscription	965	927	884	653	506
	Market share (%)	0.93%	0.90%	0.94%	0.75%	0.59%
Industry total		**104,138**	**103,440**	**94,275**	**87,639**	**86,311**

Source: NCA; Broadband Wireless Access Operators, 2018

2.2 Broadband Wireless Access (BWA) Volume of Data Traffic

Data traffic generated by BWAs decreased by 4.56% to 3.69 billion megabytes at the end of the first quarter of 2018 from 3.86 billion megabytes of data in the fourth quarter of 2017 (Figure 14). Year-on-year data traffic however increased from 3.47 billion megabytes of data in the previous year to 3.69 billion megabytes at the end of the first quarter of 2018 representing a growth of 6.12%.

Figure 14: BWA Data Traffic in billions of megabyte (MB)



Source: NCA; Broadband Wireless Access Operators, 2018

2.2.1 Volume of Broadband Data Traffic per Operator

Surfline's total volume of data traffic decreased to 3.4 billion MB representing 91.79% of the total volume of data traffic. BBH recorded the second highest volume of data traffic of 0.3 billion MB with a market share of 7.44%. Blu generated the least volume of data traffic of 0.03 billion MB megabytes representing 0.77% of the total volume of data (Table 17).

Table 17: Data Traffic (MB) per Broadband Wireless Access (BWA) Operator

BWA operator		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Surfline	Data usage (MB)	3,087,920,005	3,379,552,635	3,628,935,619	3,482,916,243	3,382,718,828
	Market share (%)	88.91%	89.60%	90.38%	90.20%	91.79%
BBH	Data usage (MB)	283,507,187	295,861,531	283,750,000	288,850,492	274,112,221
	Market share (%)	8.16%	7.82%	7.07%	7.48%	7.44%
BLU	Data usage (MB)	101,513,925	97,475,096	102,422,369	89,671,516	28,485,946
	Market share (%)	2.92%	2.58%	2.55%	2.32%	0.77%
Industry Total (MB)		**3,472,941,118**	**3,772,025,012**	**4,015,107,988**	**3,861,438,251**	**3,685,316,995**

Source: NCA; Broadband Wireless Access Operators, 2018

2.2.2 Average Monthly Data Usage per BWA Subscription[13]

Average Data usage per BWA subscription per month decreased to 14.22 thousand megabytes in the first quarter of 2018 from 14.21 thousand megabytes in the previous quarter (Figure 15). Year-on-year data usage per subscription also increased by 31.93% from 11.06 thousand megabytes in the fourth quarter of 2017 to 14.22 thousand megabytes at the end of the first quarter of 2018.

Table 18: Data Usage per BWA Subscription (MB)

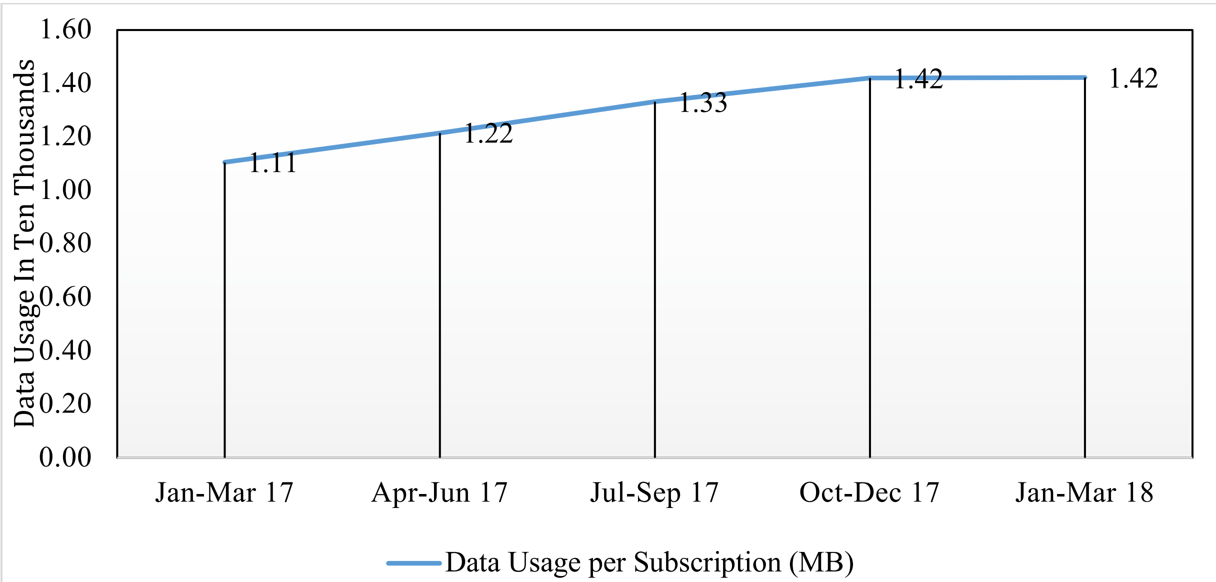
BWA Operator	Jan-Mar 17	Apr-Jun 17	Jul-Sep 17	Oct-Dec 17	Jan-Mar 18
Volume of data traffic	1,157,647,039	1,257,341,671	1,338,369,329	1,287,146,084	1,228,438,998
Subscription	104,715	103,479	100,460	90,597	86,725
Data usage per subscription (MB)	11,055.18	12,150.65	13,322.37	14,207.3	14,164.8

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

Data usage per subscription(MB) Growth rate (%)	2.66%	9.91%	9.64%	6.64%	-0.30%

Source: NCA; Broadband Wireless Access Operators, 2018

Figure 15: Data Usage per BWA Subscription (MB)



Source: NCA; Broadband Wireless Access Operators, 2018

3.0 FIXED NETWORK

This section assesses the performance of the fixed telephone industry in Ghana over the past one year. Three (3) operators namely Vodafone, Airtel and MTN have been licenced by the National Communications Authority to provide fixed telephone services in Ghana. However, MTN has not yet commenced operation .

3.1 Fixed Network Voice Subscription and Penetration

Total number of fixed line subscriptions decreased to 277,310 at the end of the quarter (Table 19). Subsequently, fixed voice subscription penetration rate also decreased to 0.96% as at the end of first quarter of 2018 from 1.05% from previous quarter. This represents a decrease in subscription by 8.04% quarter-on-quarter and an increase of 19.91% year-on-year (Figure 16).

Vodafone subscription declined by 9.39% from 294,915 to 267,216 quarter-on-quarter and recorded a 2.93% increase year-on-year from 259,609 to 267,216. Vodafone ended the quarter with a market share of 96.36% (Table 19).

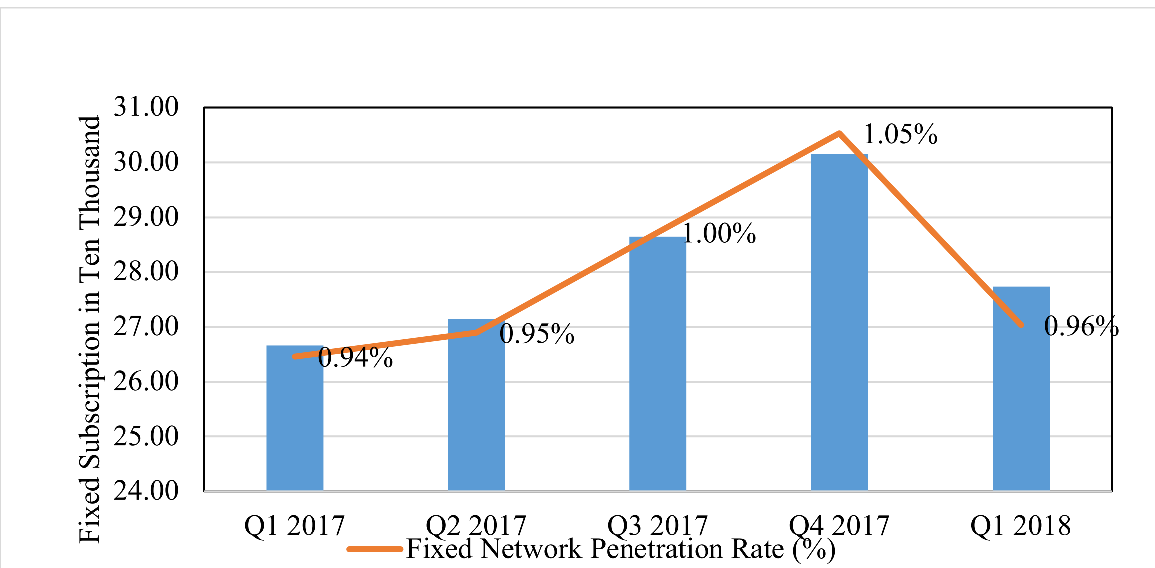
Airtel's subscription increased by 52.11% from 6,636 in the fourth quarter of 2017 to 10,094 at the end of the first quarter of 2018. Year-on-year subscription increased by 44.65% with a market share at 3.64% (Table 19).

Table 19: Fixed Network Voice Subscription and penetration

Fixed Operator	Subscription	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Vodafone	Subscription	259,609	264,606	279,681	294,915	267,216
	Market share (%)	97.38%	97.51%	97.62%	97.80%	96.36%
Airtel	Subscription	6,978	6,750	6,812	6,636	10,094
	Market share (%)	2.62%	2.49%	2.38%	2.20%	3.64%
Total industry subscription		**266,587**	**271,356**	**286,493**	**301,551**	**277,310**
Population[14]		28,263,729	28,433,651	28,604,594	28,776,565	28,949,570
Fixed network penetration rate (%)		0.94%	0.95%	1.00%	1.05%	0.96%

Source: NCA; Fixed Network Operators, 2018

Figure 16: Fixed Network Voice Subscription and penetration



Source: NCA; Fixed Network Operators, 2018

3.2 Fixed Network Traffic

Total volume of fixed network traffic declined by 5.26% during the quarter under review to 13.17 million minutes from 13.90 million minutes (Table 20). On-net traffic decreased by 11.87% and off-

[14] Population of Ghana was estimated based on 2010 population census figure 24,658,823 published by Ghana Statistical Service (GSS) with 0.2% monthly intercensal growth rate.

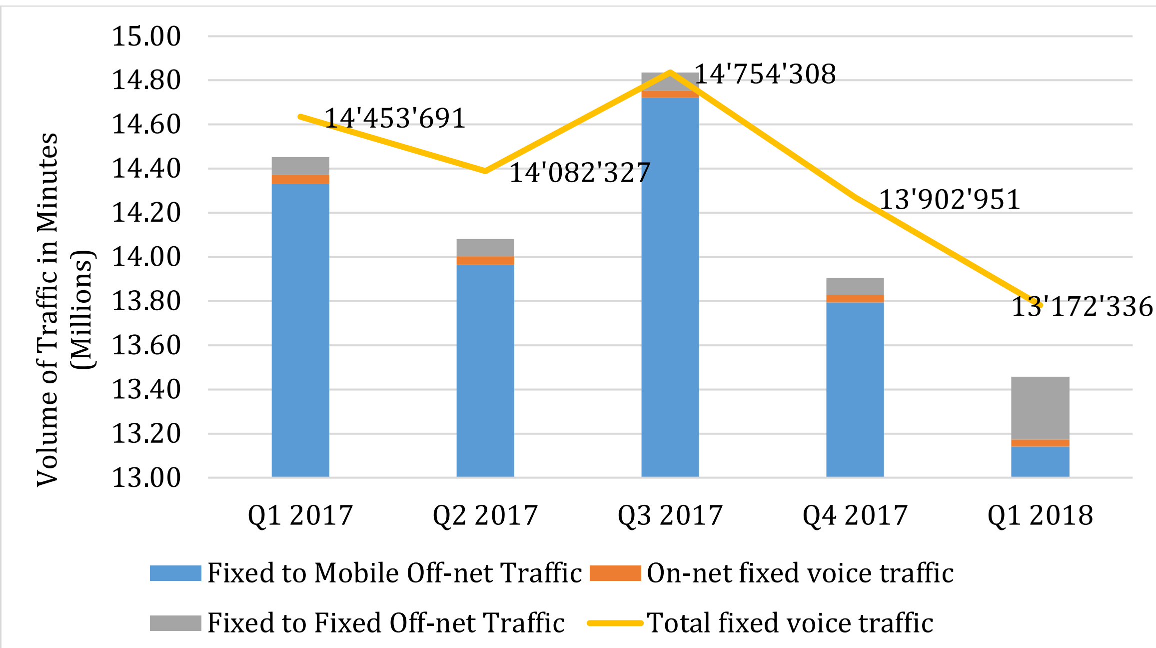
net traffic decreased by 23.09% at the end of the quarter under review. It should be noted that only Airtel submitted on-net traffic.

Table 20: Fixed Network Volume of Traffic in Minutes

Traffic	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
On-net fixed voice traffic	39,017	37,205	31,537	35,209	31,029
Off-net fixed voice traffic	14,414,674	14,045,122	14,722,771	13,867,742	10,665,184
Total fixed voice traffic	**14,453,691**	**14,082,327**	**14,754,308**	**13,902,951**	**13,172,336**

Source: NCA; Fixed Network Operators, 2018

Figure 17: Breakdown of Fixed Network Volume of Traffic in Minutes



Source: NCA; Fixed Network Operators, 2018

3.2.1 Distribution of fixed off-net traffic between mobile and fixed networks

Fixed to mobile network traffic declined by 6.87% to 12.85 million minutes during the quarter. Fixed to fixed network traffic also increased by 283.45% from 74,566 in the fourth quarter of 2017 to 285,921 at the end of the first quarter of 2018 (Table 21).

Table 21: Distribution fixed off-net traffic between mobile and fixed networks

Breakdown of Fixed Traffic	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Fixed to Mobile Networks					

Traffic	14,331,815	13,965,622	14,642,170	13,793,176	12,845,401
Share (%)	*99.43%*	*99.43%*	*99.45%*	*99.21%*	*97.52%*
Growth (%)	*4.28%*	*-2.56%*	*4.84%*	*-5.80%*	*-6.87%*
Fixed to Fixed Networks					
Traffic	82,860	79,500	80,600	74,566	285,921
Share (%)	*0.57%*	*0.57%*	*0.55%*	*0.54%*	*2.17%*
Growth (%)	*-4.76%*	*-4.05%*	*1.38%*	*-7.49%*	*283.45%*
Total Off-net Traffic	**14,414,674**	**14,045,122**	**14,722,770**	**13,902,951**	**13,172,336**

Source: NCA; Fixed Network Operators, 2018

3.2.2 Fixed Networks Volume of Voice Traffic per Operator [15](minutes)

On-net traffic for Airtel fell by 11.87% from 35,209 minutes in the fourth quarter of 2017 to 31,029 minutes at the end of the first quarter of 2018. Year-on-year on-net traffic decreased (20.47%) from 39,017 minutes to 31,029 minutes. Off-net traffic decreased by 35.20% quarter-on-quarter and 40.33% year-on-year (Table 22).

Vodafone recorded a decrease of 3.37% in off-net traffic to 11.72 million minutes at the end of the first quarter of 2018 from 12.13 million minutes in the fourth quarter of 2017. Year-on-year off-net traffic decreased by 6.44% from 12.52 million minutes in the first quarter of 2016 to 11.72 million minutes at the end of the first quarter of 2018 (Table 22).

Table 22: Fixed Networks Volume of Voice Traffic per Operator

Fixed network operator	Traffic	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
On-net traffic						
Airtel	On-net traffic	39,017	37,205	31,537	35,209	31,029
	Market share (%)	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
Total on-net traffic		**39,017**	**37,205**	**31,537**	**35,209**	**31,029**
Off-net traffic						
Vodafone	Off-net traffic	12,522,710	12,470,586	12,901,930	12,125,470	11,716,422
	Market share (%)	*86.87%*	*88.79%*	*87.63%*	*87.44%*	*91.21%*

[15] Vodafone does not submit data on on-net traffic for fixed network.

Airtel	Off-net traffic	1,891,964	1,574,536	1,820,841	1,742,272	1,128,979
	Market share (%)	*13.13%*	*11.21%*	*12.37%*	*12.56%*	*8.79%*
Total off-net traffic		**14,414,674**	**14,045,122**	**14,722,771**	**13,867,742**	**12,845,401**
Total traffic						
Vodafone	Total traffic	12,522,710	12,470,586	12,901,930	12,125,470	11,716,422
	Market share (%)	*86.64%*	*88.55%*	*88.53%*	*87.22%*	*88.95%*
Airtel	Total traffic	1,930,981	1,611,741	1,852,378	1,777,481	1,455,914
	Market share (%)	*13.36%*	*11.45%*	*12.71%*	*12.78%*	*11.05%*
Total fixed network traffic		**14,453,691**	**14,082,327**	**14,574,308**	**13,902,951**	**13,172,336**

Source: NCA; Fixed Network Operators, 2018

3.3 Fixed Network Minute of Use[16]

Average fixed network minutes of use per subscription increased to 15.90 minutes at the end of the first quarter of 2018 from 15.7 minutes in the fourth quarter of 2017 by 1.28%(Figure 18). Year-on-year minutes of use per subscription decreased by 13.46% from 18.37 minutes in the first quarter of 2017 to 15.90 minutes at the end of the first quarter of 2018 (Table 23).

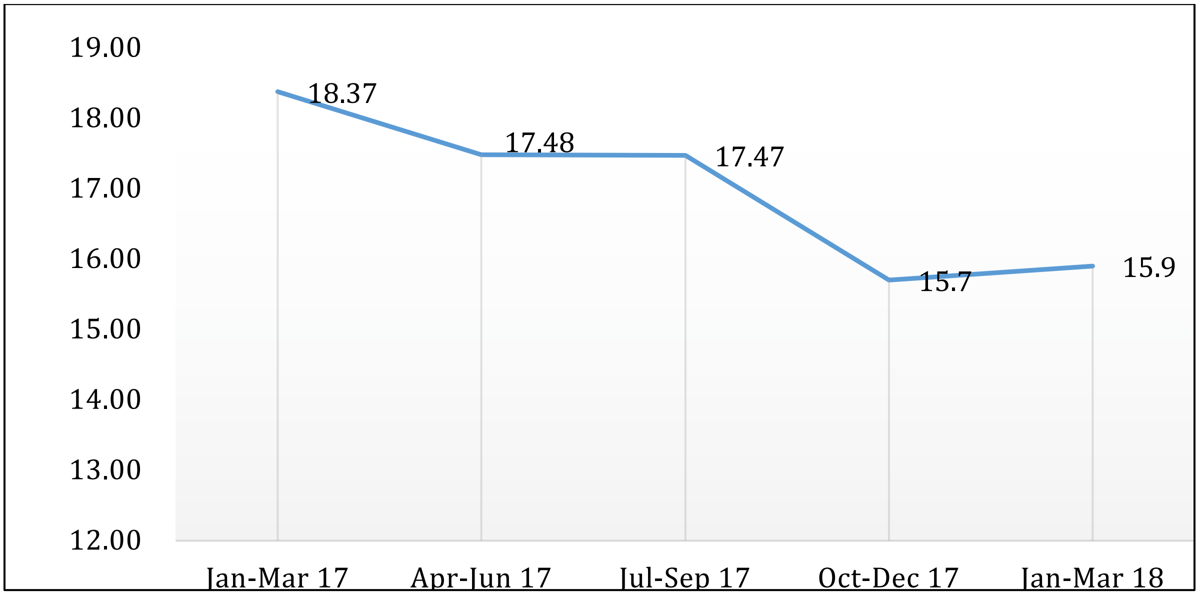
Table 23: Fixed Network Minute of Use per Subscription

Traffic	Jan-Mar 17	Apr-Jun 17	Jul-Sep 17	Oct-Dec 17	Jan-Mar 18
Average Fixed Voice Traffic	4,817,897	4,694,109	4,918,103	4,634,317	4,390,779
Subscription	262,264	268,545	281,619	295,713	276,203
Minutes of Use per Subscription (MoU)	18.37	17.48	17.47	15.7	15.9
Minutes of Use per Subscription (MoU) Growth (%)	*0.49%*	*-4.88%*	*-0.03%*	*-10.14%*	*1.28%*

Source: NCA; Fixed Network Operators, 2018

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

Figure 18: Fixed Network Minute of Use



Source: NCA; Fixed Network Operators, 2017

3.4 Fixed Broadband Data Subscription and Penetration

Fixed Broadband internet data subscription declined to 51,814 in the quarter under review from 56,810 in the previous quarter recording a decrease of 8.79%. The year-on-year fixed data subscription also declined from 88,277 in the preceding year to 51,814 at the end of the first quarter of 2018 showing a decrease of 39.93%. Fixed data penetration rate subsequently decreased from 0.20% in the fourth quarter of 2017 to 0.18% at the end of the first quarter of 2018 (Table 24).

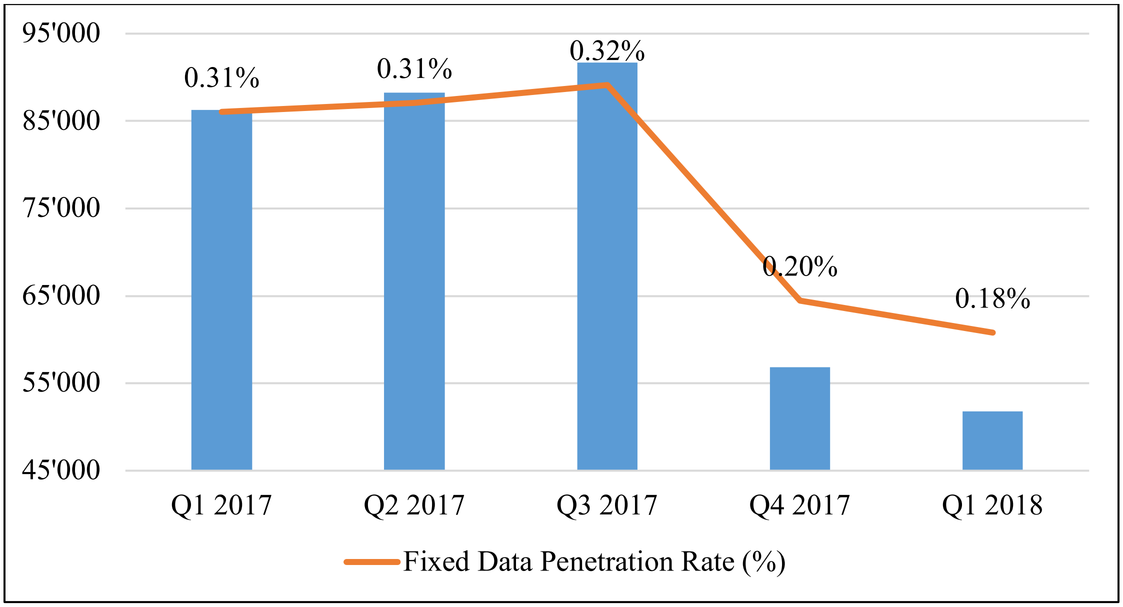
Table 24: Fixed Broadband Data Subscription and Penetration

Data subscription	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Fixed data subscription	86,260	88,277	91,708	56,810	51,814
Fixed data subscription growth rate (%)	*-0.39%*	*2.34%*	*3.89%*	*-38.05%*	*-8.79%*
Net Additions	(336)	2,017	3,431	(34,898)	(4,996)
Net Additions growth rate (%)	*-71.84%*	*-700.30%*	*70.10%*	*-1117.14%*	*-85.68%*
Population[17]	28,263,729	28,433,651	28,604,594	28,776,565	28,949,570
Fixed Data penetration rate (%)	*0.31%*	*0.31%*	*0.32%*	*0.20%*	*0.18%*

Source: NCA; Fixed Network Operators, 2018

[17] Population of Ghana was estimated based on 2010 population census figure 24,658,823 published by Ghana Statistical Service (GSS) with 0.2% monthly intercensal growth rate

Figure 19: Fixed Broadband Data Subscription and Penetration



Source: NCA; Fixed Network Operators, 2018

3.5 Fixed Broadband Data Subscription per Operator

Vodafone's subscription at the end of the first quarter of 2018 stood at 50,499 representing 97.46% of the total fixed data subscription (Table 25). Airtel recorded 1,315 fixed data subscription representing a 0.18% total market share. Though Vodafone's quarter-on-quarter subscription declined by 9.22%, Airtel's subscription increased by 11.16%. Year-on-year subscription for Vodafone and Airtel decreased by 40.52% and 3.10% respectively over the same period.

Table 25: Fixed Network Data Subscription per Operator

Fixed network operator	**Data subscription**	**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	**Q1 2018**
Vodafone	Data subscription	84,903	86,928	90,396	55,627	50,499
	Market share (%)	*98.43%*	*98.47%*	*98.57%*	*97.92%*	*97.46%*
Airtel	Data subscription	1,357	1,349	1,312	1,183	1,315
	Market share (%)	*1.57%*	*1.53%*	*1.43%*	*2.08%*	*2.54%*
Total fixed data subscription		**86,260**	**88,277**	**91,708**	**56,810**	**51,814**
Population[18]		28,263,729	28,433,651	28,604,594	28,776,565	28,949,570
Fixed Data penetration rate (%)		*0.31%*	*0.31%*	*0.32%*	*0.20%*	*0.18%*

Source: NCA; Fixed Network Operators, 2018

[1818] Population of Ghana was estimated based on 2010 population census figure 24,658,823 published by Ghana Statistical Service (GSS) with 0.2% monthly intercensal growth rate

5.0 BROADCASTING

5.1 Authorised Frequency Modulation (FM) Radio Stations[19]

The total number of authorised FM stations in Ghana at the end of the first quarter was 503 out of which 414 are operational (Table 26).

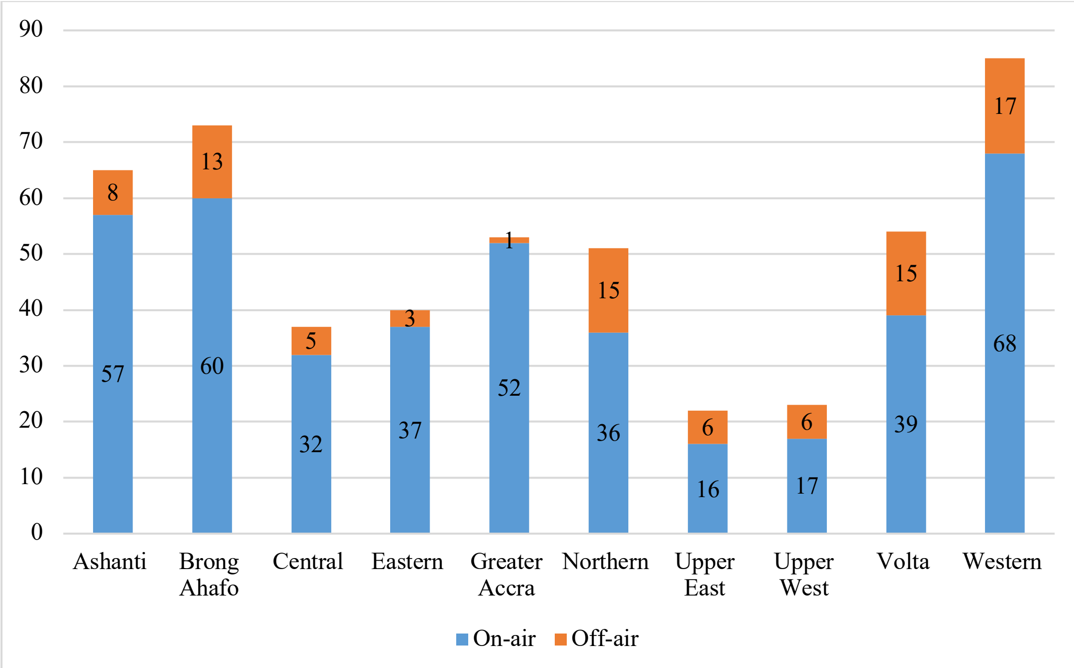
Table 26: Regional Distribution of FM Stations as at the end of Q1 2018

Regions	Authorised FM Stations		No. of FM Stations in Operation (Q1 2018)
	End of Q4 2017	End of Q1 2018	
Ashanti	65	65	57
Brong Ahafo	74	73	60
Central	37	37	32
Eastern	41	40	37
Greater Accra	54	53	52
Northern	54	51	36
Upper East	22	22	16
Upper West	22	23	17
Volta	56	54	39
Western	86	85	68
TOTAL	**511**	**503**	**414**

Source: NCA, 2018

[19] The number of FM stations decreased at the end of the first quarter of 2018 due to the revoking of some FM Radio Stations authorisations.

Figure 20: Regional distribution of On-air and Off-air FM stations as at end of Q1 2018



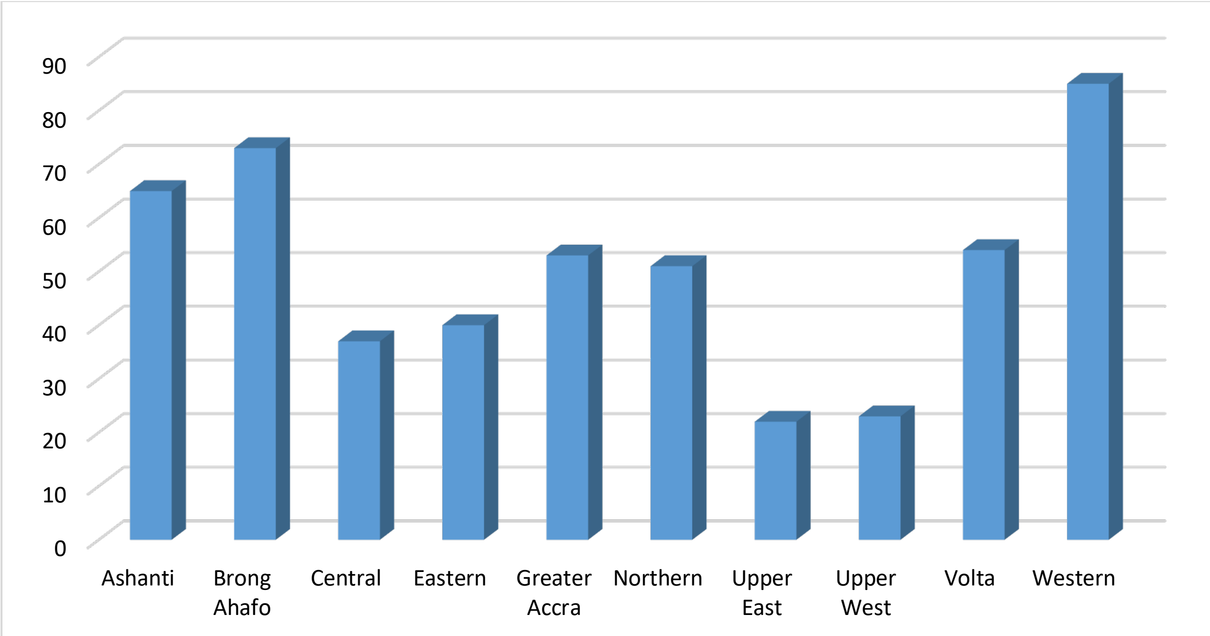
Source: NCA, 2018

Table 27: Regional Distribution of Authorised FM Stations by Purpose as at the end of Q1 2018

Name of Regions	Total no. Authorised	Public	Public (Foreign)	Community	Campus	Commercial
Ashanti	65	2	1	6	3	53
Brong Ahafo	73	3	-	6	3	61
Central	37	2	-	9	3	23
Eastern	40	2	-	6	1	31
Greater Accra	53	2	3	6	4	38
Northern	51	7	-	17	2	25
Upper East	22	2	-	8	1	11
Upper West	23	2	-	8	2	11
Volta	54	4	-	10	1	39
Western	85	5	1	6	2	71
Total	**503**	**31**	**5**	**82**	**22**	**363**

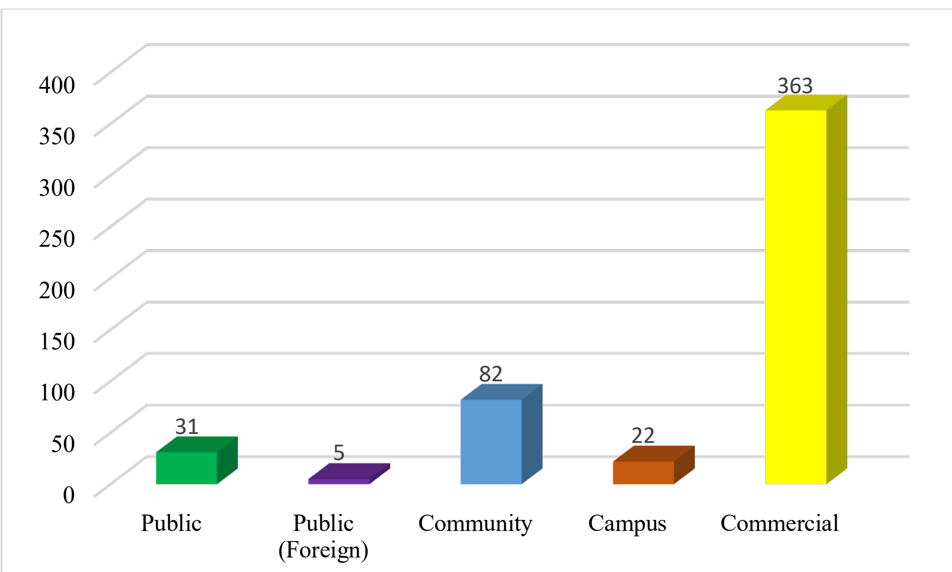
Source: NCA, 2018

Figure 21: Regional distribution of Authorised FM stations as at end of Q1 2018



Source: NCA, 2018

Figure 22: Purpose of Authorised Radio Stations as at Q1 2018



Source: NCA, 2018

5.2 Authorised Television Stations

The total number of authorised TV stations in Ghana at the end of the first quarter was 128, out of which seventy-one (71) TV stations are operational (Table 28). In the quarter under review, seven (7) companies received authorisation to operate a Digital Terrestrial Radio Service on TV Multiplex and two (2) other companies received authorization to migrate to the Digital Terrestrial Free-to-Air Television programme Channel (Nationwide coverage). One (1) company received authorisation to operate a Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel).

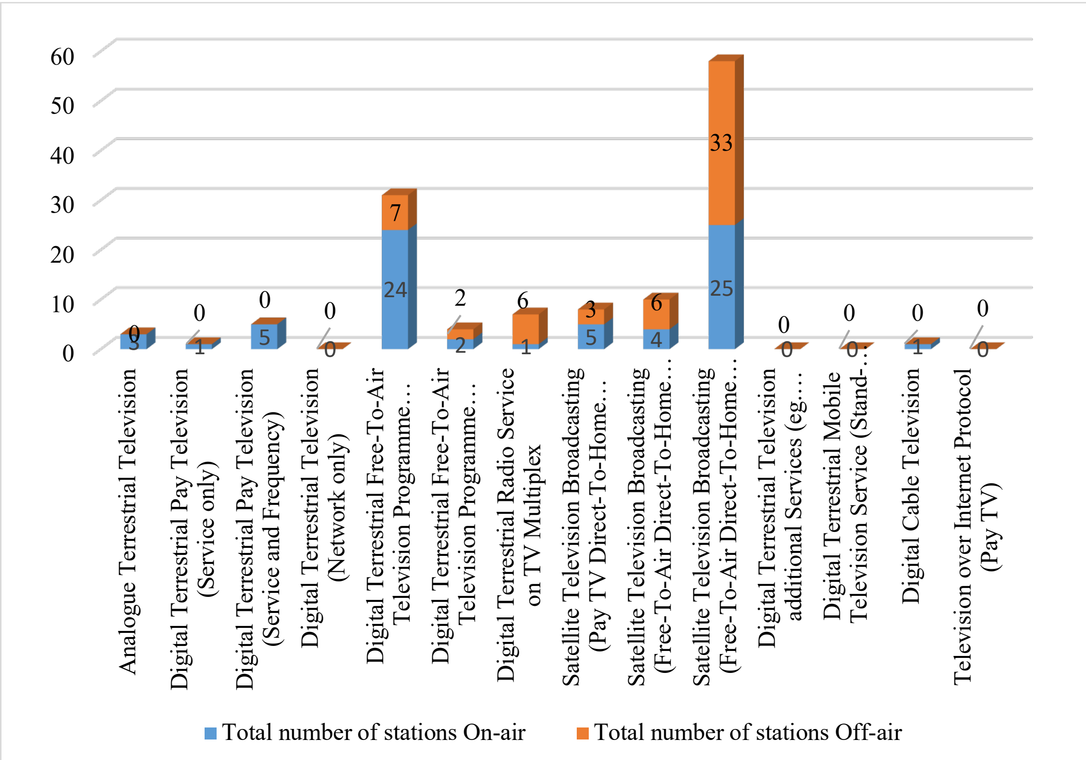
Table 28: Authorised TV Services in Ghana as at end of Q1 2018

Types of TV stations	Authorised TV stations			No. of TV Stations in Operation (Q1 2018)	No. of TV Stations not in Operation (Q1 2018)
	End of Q4 2017	Q1 2018	End of Q1 2018		
Analogue Terrestrial Television	5	-2	3	3	0
Digital Terrestrial Pay Television (Service only)	1	0	1	1	0
Digital Terrestrial Pay Television (Service and Frequency)	5	0	5	5	0
Digital Terrestrial Television (Network only)	0	0	0	0	0
Digital Terrestrial Free-To-Air Television Programme Channel (National Coverage)	29	2	31	24	7
Digital Terrestrial Free-To-Air Television Programme Channel (Regional Coverage)	4	0	4	2	2
Digital Terrestrial Radio Service on TV Multiplex	0	7	7	1	6
Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	8	0	8	5	3
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Bouquet)	10	0	10	4	6
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel)	57	1	58	25	33
Digital Terrestrial Television Additional Services (eg. Teletext, etc)	0	0	0	0	0
Digital Terrestrial Mobile Television Service (Stand-alone Authorisation)	0	0	0	0	0
Digital Cable Television	1	0	1	1	0

Television over Internet Protocol (Pay TV)	0	0	0	0	0
Total	**120**	**8**	**128**	**71**	57

Source: NCA, 2018

Figure 23: Distribution of On-Air and Off-Air TV Stations as at end of Q1 2018



Source: NCA, 2018

5.3 Digital Terrestrial Television (DTT) Migration in Ghana

At the end of the first quarter of 2018, fourteen (14) out of thirty-one (31) stations authorised to operated Digital Terrestrial Television (DTT)nationwide coverage were broadcasting in both analogue and digital transmission (simulcasting).

6.0 CONCLUSION

The total mobile subscription in Ghana increased by 5.91% with a subscription of 38,881,806 and a penetration rate of 134.3%. Volume of mobile voice traffic increased by 3.75% from 17.05 billion minutes to 17.69 billion minutes during the quarter under review. Mobile data subscriptions increased (1.88%) to 23,902,905. Its data traffic also decreased by 23.50% to 33.23 billion megabytes. BWA subscriptions decreased (2.30%) to 85,805 with a decrease (68.17%) in its data traffic to 3.67 billion megabytes. At the end of the first quarter of 2018, total number of authorised TV stations and FM stations were 128 and 503 respectively.

7.0 APPENDICES

Table 1: Monthly Mobile Subscription

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	19,841,360	20,265,399	16,789,161	16,969,311	17,119,549	17,304,425	17,654,968	17,715,212	17,589,527	17,569,990	17,796,820	17,832,546	17,726,007	17,935,273	18,184,132
Vodafone	8,401,072	8,428,088	8,582,387	8,651,515	8,737,414	8,773,444	8,920,617	9,108,424	9,079,502	8,882,832	8,940,765	9,028,161	9,103,179	9,149,617	9,065,969
Tigo	5,257,424	5,160,279	5,098,480	5,187,936	5,342,817	5,360,443	5,510,992	5,505,146	5,489,994	5,407,875	5,176,012	5,217,875	5,102,245	5,111,319	5,178,555
Airtel	4,565,618	4,529,315	4,500,907	4,398,913	4,309,982	4,236,788	4,217,490	4,244,759	4,253,993	4,242,478	4,111,020	3,986,163	5,680,460	5,794,817	5,731,602
Glo	670,399	784,283	769,621	753,341	745,271	732,483	809,269	812,904	781,022	737,662	691,601	627,752	651,783	670,803	698,284
Expresso	88,993	66,852	40,111	23,264	23,264	23,264	23,264	23,264	23,264	23,264	23,264	23,264	23,264	23,264	23,264
Total	**38,824,866**	**39,234,216**	**35,780,667**	**35,984,280**	**36,278,297**	**36,430,847**	**37,136,600**	**37,409,709**	**37,217,302**	**36,864,101**	**36,739,482**	**36,715,761**	**38,286,938**	**38,685,093**	**38,881,806**

Table 2: Monthly Prepaid Mobile Subscription

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	19,644,531	20,068,227	16,586,063	16,766,424	16,875,001	17,041,208	17,390,942	17,485,710	17,361,781	17,343,167	17,569,997	17,603,332	17,490,219	17,696,112	17,942,965
Vodafone	8,262,055	8,286,576	8,440,200	8,507,272	8,595,414	8,633,561	8,780,095	8,965,248	8,931,071	8,716,967	8,768,355	8,851,707	8,920,857	8,986,935	8,908,935
Tigo	5,230,646	5,133,006	5,071,151	5,160,575	5,315,254	5,332,792	5,483,209	5,477,251	5,462,082	5,388,230	5,156,325	5,198,153	5,082,533	5,091,583	5,158,812
Airtel	4,552,662	4,516,344	4,487,922	4,385,908	4,296,973	4,223,767	4,204,465	4,231,727	4,240,956	4,229,364	4,097,869	3,973,004	5,667,298	5,781,625	5,718,382
Glo	669,486	783,283	768,488	752,161	744,134	731,395	808,190	811,810	779,888	736,583	690,581	626,795	650,868	669,876.0	697,343.0
Expresso	85,414	64,061	38,437	22,293	22,293	22,293	22,293	22,293	22,293	22,293	22,293	22,293	22,293	22,293	22,293
Total	**38,444,794**	**38,851,497**	**35,392,261**	**35,594,633**	**35,849,069**	**35,985,016**	**36,689,194**	**36,994,039**	**36,798,071**	**36,436,604**	**36,305,420**	**36,275,284**	**37,834,068**	**38,248,424**	**38,448,730**

Table 3: Monthly Post-Paid Mobile Subscription

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	196,829	197,172	203,098	202,887	244,548	263,217	264,026	229,502	227,746	226,823	226,823	229,214	235,788	239,161	241,167
Vodafone	139,017	141,512	142,187	144,243	142,000	139,883	140,522	143,176	148,431	165,865	172,410	176,454	182,322	162,682	157,034
Tigo	26,778	27,273	27,329	27,361	27,563	27,651	27,783	27,895	27,912	19,645	19,687	19,722	19,712	19,736	19,743
Airtel	12,956	12,971	12,985	13,005	13,009	13,021	13,025	13,032	13,037	13,114	13,151	13,159	13,162	13,192	13,220
Glo	913	1,000	1,133	1,180	1,137	1,088	1,079	1,094	1,134	1,079	1,020	957	915	927.0	941.0
Expresso	3,579	2,791	1,675	971	971	971	971	971	971	971	971	971	971	971	971
Total	**380,072**	**382,719**	**388,407**	**389,647**	**429,228**	**445,831**	**447,406**	**415,670**	**419,231**	**427,497**	**434,062**	**440,477**	**452,870**	**436,669**	**433,076**

Table 4: Monthly Mobile Data Subscription

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	10,505,087	10,865,059	10,866,873	12,110,284	12,310,158	12,229,090	12,442,647	12,888,465	12,925,524	12,822,655	13,081,674	13,736,988	14,084,254	14,641,325	14,430,466
Vodafone	3,579,362	3,616,216	3,685,895	3,657,020	3,717,118	3,643,298	3,641,806	3,738,710	3,889,821	4,008,301	4,093,539	4,097,805	4,117,293	3,975,622	3,968,168
Tigo	2,708,016	2,723,389	2,746,803	2,802,950	2,876,905	2,968,076	3,028,013	3,063,109	3,029,361	2,970,911	2,896,720	2,848,021	2,831,365	2,810,970	2,783,154
Airtel	2,859,238	2,841,368	2,802,097	2,761,521	2,763,982	2,758,420	2,734,649	2,744,033	2,718,966	2,677,315	2,590,377	2,532,873	2,516,032	2,491,996	2,478,289
Glo	272,084	269,466	263,919	242,973	239,207	245,729	246,201	295,951	291,998	294,350	262,826	238,312	221,897	224,853	232,677
Expresso	35,572	29,169	17,501	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151
Total	**19,959,359**	**20,344,667**	**20,383,088**	**21,584,899**	**21,917,521**	**21,854,764**	**22,103,467**	**22,740,419**	**22,865,821**	**22,783,683**	**22,935,287**	**23,464,150**	23,780,992	24,154,917	23,902,905

Table 5: Monthly Prepaid Data Subscription

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	10,364,316	10,722,880	10,722,880	11,968,222	12,170,245	12,055,478	12,254,885	12,697,751	12,734,386	12,630,942	12,883,830	13,538,189	13,883,965	14,437,224	14,224,233
Vodafone	3,565,495	3,602,419	3,672,051	3,643,148	3,703,223	3,629,394	3,627,933	3,724,833	3,876,212	3,994,417	4,079,729	4,084,010	4,106,889	3,965,527	3,958,138
Tigo	2,699,719	2,715,050	2,738,478	2,794,650	2,868,606	2,959,779	3,019,725	3,054,823	3,021,068	2,962,617	2,888,418	2,839,714	2,823,058	2,802,663	2,774,845
Airtel	2,841,622	2,823,735	2,784,438	2,743,842	2,746,303	2,740,731	2,716,960	2,726,344	2,701,277	2,659,626	2,572,687	2,515,183	2,498,341	2,474,295	2,460,586
Glo	271,019	268,411	262,879	241,960	238,236	244,739	245,224	294,977	291,103	293,856	262,347	237,854	221,467	224,420	232,239
Expresso	35,572	29,169	17,501	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151	10,151
Total	**19,777,743**	**20,161,664**	**20,198,227**	**21,401,973**	**21,736,764**	**21,640,272**	**21,874,878**	**22,508,879**	**22,634,197**	**22,551,609**	**22,697,162**	**23,225,101**	**23,543,871**	**23,914,280**	**23,660,192**

Table 6: Monthly Post-Paid Mobile Data Subscription

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	140,771	142,179	143,993	142,062	139,913	173,612	187,762	190,714	191,138	191,713	197,844	198,799	200,289	204,101	206,233
Vodafone	13,867	13,797	13,844	13,872	13,895	13,904	13,873	13,877	13,609	13,884	13,810	13,795	10,404	10,095	10,030
Tigo	8,297	8,339	8,325	8,300	8,299	8,297	8,288	8,286	8,293	8,294	8,302	8,307	8,307	8,307	8,309
Airtel	17,616	17,633	17,659	17,679	17,679	17,689	17,689	17,689	17,689	17,689	17,690	17,690	17,691	17,701	17,703
Glo	1,065	1,055	1,040	1,013	971	990	977	974	895	494	479	458	430	433.0	438.0
Expresso	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**181,616**	**183,003**	**184,861**	**182,926**	**180,757**	**214,492**	**228,589**	**231,540**	**231,624**	**232,074**	**238,125**	**239,049**	**237,121**	**240,637**	**242,713**

Table 7: Off-net SMS to other Networks

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	13,003,557	10,798,163	12,065,072	12,088,691	13,328,951	13,228,104	13,169,640	14,177,471	12,897,428	12,358,680	11,957,368	13,215,406	13,842,081.0	11,373,527.0	13,180,005.0
Vodafone	11,993,964	13,557,469	18,277,698	19,428,793	19,849,587	21,049,295	20,198,494	22,780,783	22,136,093	19,301,483	21,272,544	25,504,945	21,176,399.0	20,663,282.0	24,934,189.0
Tigo	6,254,220	5,349,512	6,129,844	6,395,209	7,080,086	7,049,849	7,183,129	7,512,558	6,177,945	5,527,660	6,179,839	7,122,748	5,992,100.0	4,975,751.0	5,811,328.0
Airtel	4,888,948	4,080,113	4,386,841	4,511,899	4,434,059	4,312,243	4,270,309	4,656,766	4,003,872	3,584,550	6,892,816	8,242,776	3,269,361.0	2,503,882.0	2,849,141.0
Glo	444,720	522,217	516,433	482,567	438,788	449,997	546,402	665,234	797,857	726,097	693,317	599,030	597,401.0	601,361.0	728,070.0
Total	**36,585,409**	**34,307,474**	**41,375,888**	**42,907,159**	**45,131,471**	**46,089,488**	**45,367,974**	**49,792,812**	**46,013,195**	**41,498,470**	**46,995,884**	**54,684,905**	**44,920,443**	**40,160,935**	**47,545,893**

Table 8: On-net SMS

Mobile Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
MTN	50,226,720	44,474,853	50,478,713	50,688,361	56,963,188	56,510,866	53,949,351	60,470,497	57,177,822	58,439,718	58,436,148	64,213,532	71,260,365.0	60,705,710.0	72,672,579.0
Vodafone	25,055,506	17,860,758	20,249,561	23,603,345	25,732,219	18,282,748	14,143,291	-	-	-	43,224,058	39,972,888	42,048,387	40,401,865	39,981,613
Tigo	21,776,008	19,479,421	23,683,314	25,287,352	33,792,775	33,813,990	36,245,891	41,596,407	40,221,509	38,180,963	30,027,041	46,024,057	51,014,521	49,702,446	64,992,320
Airtel	4,475,446	3,496,238	3,777,882	3,871,181	3,617,306	3,451,411	3,491,084	3,823,127	3,328,178	2,681,961	2,494,687	2,791,935	2,954,769	2,318,925	2,533,685
Glo	79,675	84,287	88,065	77,504	80,148	65,026	61,566	63,555	52,629	42,530	45,402	30,513	31,583.0	29,831.0	41,860.0
Total	**101,613,355**	**85,395,557**	**98,277,535**	**103,527,743**	**120,185,636**	**112,124,041**	**107,891,183**	**105,953,586**	**100,780,138**	**99,345,172**	**134,227,336**	**153,032,925**	**167,352,726**	**153,201,909**	**180,265,217**

Table 9: Mobile Voice On-net Tariff per Operator (GHp)

Table 10: Mobile Voice Off-net Tariff per Operator (GHp

Mobile Network Operator	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
MTN	13	13	13	13	**13**
Vodafone	13	13	13	13	**13**
Tigo	13	13	13	13	**13**
Airtel	12	12	12	12	**12**
Glo	12	11	11	11	**11**
Expresso	-	-	-	-	**-**
Industry Average	**13**	**12**	**13**	**14**	**12**

Table 11: SMS On-net Tariff per Operator (GHp)

Mobile Network Operator	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
MTN	5	5	5	5	5
Vodafone	6	6	6	6	6
Tigo	8	8	8	8	8
Airtel	4	4	4	4	4
Glo	5	5	5	5	5
Expresso	-	-	-	-	-
Industry Average	**5**	**5**	**5**	**5**	**6**

Table 12: SMS Off-net Tariff per Operator (GHp)

Mobile Network Operator	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
MTN	6	6	6	6	6
Vodafone	7	7	7	7	7
Tigo	8	8	8	8	8
Airtel	5	5	5	5	5
Glo	5	5	5	5	5
Expresso	-	-	-	-	-
Industry Average	**6**	**6**	**6**	**6**	**6**

Table 13: Data Tariff per Megabyte per Operator (GHp)

Mobile Network Operator	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
MTN	10	10	10	10	10
Vodafone	13	13	13	13	13
Tigo	14	14	14	14	14
Airtel	16	16	16	16	16
Glo	6	3	3	3	3
Expresso	-	-	-	-	
Industry Average	**12**	**11**	**11**	**11**	**11**

Table 14: Monthly Voice Fixed Subscription

Fixed Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Vodafone	246,205	259,863	259,609	259,189	261,384	264,606	270,062	274,818	279,681	280,724	291,318	294,915	265,029	266,186	267,216
Airtel	7,116	7,022	6,978	6,893	6,812	6,750	6,748	6,736	6,812	6,794	6,751	6,636	10,002	10,082	10,094
Total	**253,321**	**266,885**	**266,587**	**266,082**	**268,196**	**271,356**	**276,810**	**281,554**	**286,493**	**287,518**	**298,069**	**301,551**	**275,031**	**276,268**	**277,310**

Table 15: Monthly Data Fixed Subscription

Fixed Network Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Vodafone	85,410	83,873	84,903	86,380	85,376	86,928	88,545	89,270	90,396	92,256	91,929	55,627	57,600	56,567	50,499
Airtel	1,367	1,368	1,357	1,353	1,346	1,349	1,333	1,339	1,312	1,282	1,220	1,183	1,193	1,196	1,315
Total	**86,777**	**85,241**	**86,260**	**87,733**	**86,722**	**88,277**	**89,878**	**90,609**	**91,708**	**93,538**	**93,149**	**56,810**	**58,793**	**57,763**	**51,814**

Table 16: Monthly BWA Subscription

BWA Subscription	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Surfline	77,306	77,882	76,792	76,554	75,827	76,232	76,969	76,236	67,702	68,933	62,332	61,426	61,104	60,592	60,325
BBH	26,394	26,383	26,381	26,378	26,374	26,281	26,126	25,945	25,689	25,605	25,593	25,560	25,560	25,500	25,480
BLU	1,051	992	965	945	920	927	910	920	884	873	817	653	538		
Total	**104,751**	**105,257**	**104,138**	**103,877**	**103,121**	**103,440**	**104,005**	**103,101**	**94,275**	**95,411**	**88,742**	**87,639**	**87,202**	**86,092**	**85,805**

Table 17: Monthly BWA Traffic (GB)

BWA Operator	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Surfline	1,032,359	924,189	1,058,999	1,059,012	1,118,630	1,122,702	1,180,339	1,220,283	1,143,260	1,179,789	1,087,536	1,133,960	1,160,704.09	1,022,286	1,120,446
BBH	91,144	92,148	93,570	97,480	95,397	95,206	91,670	89,941	95,488	92,910	94,022	95,148	94,455	82,660	90,573.09
BLU	34,286	30,460	34,389	32,809	33,380	29,001	32,960	34,118	32,943	33,537	30,624	23,409	27,818		
Total	**1,157,789**	**1,046,797**	**1,186,958**	**1,189,302**	**1,247,407**	**1,246,910**	**1,304,969**	**1,344,343**	**1,271,692**	**1,306,237**	**1,212,182**	**1,252,517**	**1,282,977**	**1,104,946**	**1,211,019**

Disclaimer:
The National Communications Authority has been diligent to ensure the data in this bulletin are accurate. However, the Authority is not liable for inconsistencies, errors, and gaps in any data or information contained in this bulletin, which is dependent upon the various licensees data submissions to the Authority.