QUARTERLY STATISTICAL BULLETIN ON COMMUNICATIONS IN GHANA

Volume 2 Issue 1

NATIONAL COMMUNICATIONS AUTHORITY

SECOND QUARTER

APRIL – JUNE 2017

Communications for Development

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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

LIST OF ABBREVIATIONS

BWA	Broadband Wireless Access
FM	Frequency Modulation
GB	Gigabytes
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
Q1	First Quarter
Q2	Second Quarter
Q3	Third Quarter
Q4	Fourth Quarter
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	6	6
Fixed Network Operators	3	2
Broadband Wireless Access	4	3
Television Stations	117	51
FM Stations	505	392
Tower Infrastructure Companies	3	3
International Submarine Cables	5	5
Domestic Fibre Operators	10	10

B1. Total Subscriptions/Connected lines

SUBSCRIPTION	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q2 2017	Q1 2017	*Growth (%)*	Q2 2017	Q2 2016	*Growth (%)*	
Mobile Voice Subscription	36.41	35.78	*1.76%*	36.41	36.61	*-0.55%*	Million
Fixed Voice Subscription	271	267	*1.50%*	271	256	*5.86%*	Thousand
Mobile Data Subscription	21.84	21.42	*1.96%*	21.84	18.76	*16.42%*	Million
Fixed Data Subscription	88	86	*2.33%*	88	84	*4.76%*	Thousand
Broadband Wireless Access	103	104	*-0.67%*	103	109	*-5.14%*	Thousand

B2. Traffic and SMS Count

TRAFFIC	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q2 2017	Q1 2017	*Growth (%)*	Q2 2017	Q2 2016	*Growth (%)*	
Mobile Voice Traffic (Minutes)	14.42	13.54	*6.50%*	14.42	12.30	*17.24%*	Billion
Fixed Voice Traffic (Minutes)	14.08	14.45	*-2.42%*	14.08	21.02	*-32.86%*	Million
Incoming International Traffic (Minutes)	128.2	130.2	*-1.49%*	128.2	152.8	*-16.11%*	Million
Outgoing International Traffic (Minutes)	147.9	151.2	*-2.18%*	147.9	178.9	*-17.33%*	Million
Mobile Data Traffic (MB)	33.9	27.2	*24.63%*	33.9	15.3	*121.57%*	Billion MB
BWA Data Traffic (GB)	3.68	3.39	*8.55%*	3.68	2.65	*38.87%*	Million GB
SMS Count	470	398	*18.09%*	470	386	*21.76%*	Million

B3. Penetration Rate

PENETRATION RATE (%)	QUARTER-ON-QUARTER			YEAR-ON-YEAR			Units
	Q2 2017	Q1 2017	*Growth (%)*	Q2 2017	Q2 2016	*Growth (%)*	
Mobile Voice Subscription	128.0	126.6	*0.01*	128.0	131.9	*-0.03*	%
Fixed Voice Subscription	0.95	0.94	*0.01*	0.95	0.92	*0.03*	%
Mobile Data Subscription	76.83	75.78	*0.01*	76.83	76.56	*0.00*	%
Fixed Data Subscription	0.31	0.31	*0.00*	0.31	0.30	*0.03*	%
Broadband Wireless Access	0.36	0.37	*-0.03*	0.36	0.39	*-0.08*	%

C1. Broadcasting Growth Rate

FM/TV AUTHORISATION & OPERATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q2 2017	Q1 2017	*Growth (%)*	Q2 2017	Q2 2016	*Growth (%)*
FM Authorisation	505	506	*-0.2%*	505	433	*16.6*
FM Station Operating	392	354	*10.7%*	392	345	*13.6%*
TV Authorisations	117	93	*25.8%*	117	75	*56.0%*
TV Stations Operating	51	51	*0.0%*	51	34	*50.0%*

C2. Categories of FM Radio Stations Growth Rate

CATEGORIES OF FM RADIO STATIONS	QUARTER-ON-QUARTER			YEAR-ON-YEAR		
	Q2 2017	Q1 2017	*Growth (%)*	Q2 2017	Q2 2016	*Growth (%)*
PUBLIC	31	31	*0.0%*	31	31	*0.0%*
PUBLIC FOREIGN	5	5	*0.0%*	5	5	*0.0%*
CAMPUS	81	81	*0.0%*	81	67	*20.9%*
COMMUNITY	22	22	*0.0%*	22	17	*29.4%*
COMMERCIAL	366	367	*-0.3%*	366	313	*16.9%*

INTRODUCTION

This Quarterly Statistical Bulletin on Communications is a reference document containing disaggregated data, industry trends, and anwwalysis of the Ghanaian communications sector. It is intended to enhance open and enriched public discussions on policies for telecom analyst, 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, broadband wireless access operators, internet service providers and broadcasting entities.

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

1.0 CELLULAR MOBILE NETWORK

1.1 Mobile Voice Subscription and Penetration

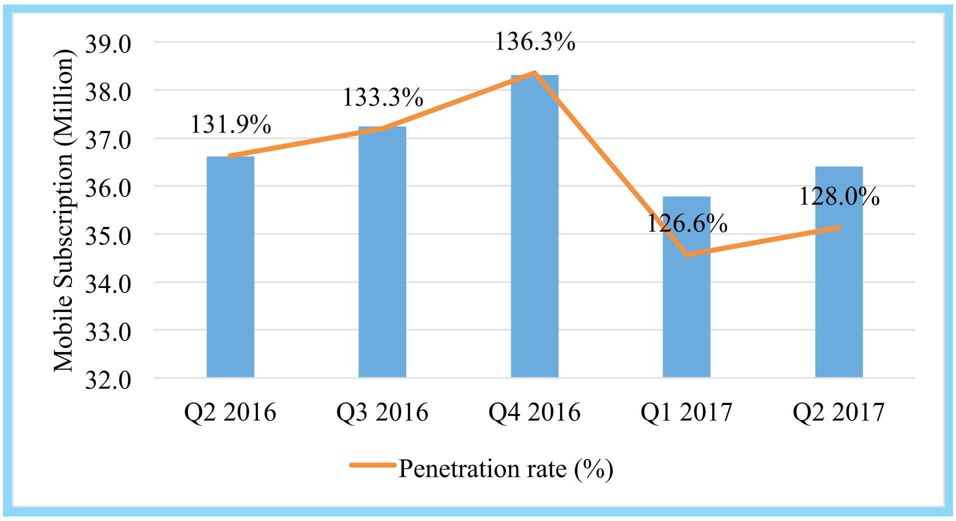
Mobile voice subscriptions at the end of the second quarter of 2017 increased (1.75%) from 35.8 million in the first quarter of 2017 to 36.4 million (Table 1). Year-on-year subscription decreased by 0.56% from 36.6 million in the second quarter of 2016 to 36.4 million at the end of the second quarter of 2017. Penetration rate at the end of the quarter increased from 126.6% in the previous quarter to 128.0% (Figure 1). Net additions in mobile subscriptions increased by 626,916 during the quarter under review.

Table 1: Mobile Voice Subscription and Penetration Rate

Subscription	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Mobile Subscription	36,613,987	37,239,720	38,305,078	35,780,667	36,407,583
Mobile Subscription Growth rate (%)	*1.32*	*1.71*	*2.86*	*-6.59*	*1.75*
Net additions	475,281	625,733	1,065,359	-2,524,411	626,916
Net additions Growth Rate (%)	*-57.95*	*31.66*	*70.26*	*-336.95*	*-124.83*
Population	27,760,032	27,926,926	28,094,823	28,263,729	28,433,651
Penetration rate (%)	*131.9*	*133.3*	*136.3*	*126.6*	*128.0*

Source: NCA; Mobile Network Operators, 2017

Figure 1: Mobile Subscription and Penetration Rate



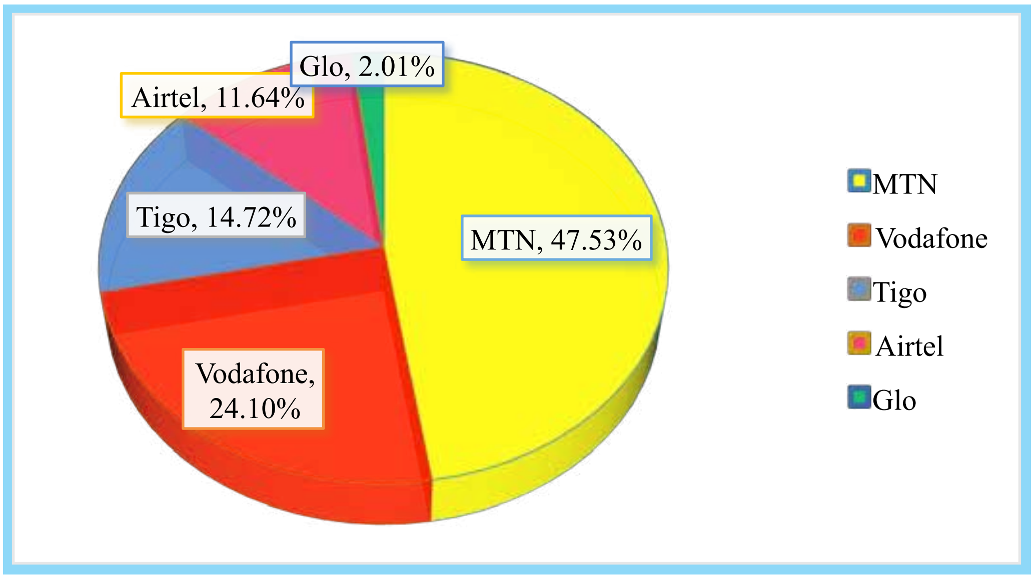
Source: NCA; Mobile Network Operators, 2017

1.1.1 Mobile Voice Subscription per Operator

Mobile voice subscriptions for MTN increased (3.07%) from 16.8 million in the first quarter of 2017 to 17.3 million at the end of the second of quarter of 2017 representing 47.53% of the total market share (Figure 2). Vodafone's subscription increased (2.23%) from 8.6 million in the previous quarter to 8.8 million with a market share of 24.10%.

Tigo's subscription also increased (5.14 %) from 5.1 million in the first quarter of 2017 to 5.4 million in the second quarter of 2017 with a share of 14.72%. Airtel's subscription declined by 5.87% from 4.5 million in the first quarter of 2017 to 4.2 million at the end of the second quarter of 2017 with a market share of 11.64%. Glo decreased (4.83%) its subscription to 732,483 at the end of the second quarter of 2017, down from 769,621 in the previous quarter (Table 2) with a market share of 2.01%. Expresso did not submit data on mobile voice subscription in the second quarter of 2017.

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



Source: NCA; Mobile Network Operators, 2017

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

Mobile Network Operator		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
MTN	Subscription	17,579,045	18,050,144	19,296,157	16,789,161	17,304,425
	Market Share (%)	*48.01*	*48.47*	*50.37*	*46.92*	*47.53*
Vodafone	Subscription	8,093,710	8,158,527	8,289,913	8,582,387	8,773,444
	Market Share (%)	*22.11*	*21.91*	*21.64*	*23.99*	*24.10*
Tigo	Subscription	5,261,454	5,402,668	5,339,052	5,098,480	5,360,443
	Market Share (%)	*14.37*	*14.51*	*13.94*	*14.25*	*14.72*
Airtel	Subscription	4,678,736	4,697,653	4,591,051	4,500,907	4,236,788
	Market Share (%)	*12.78*	*12.61*	*11.99*	*12.58*	*11.64*
Glo	Subscription	897,082	828,162	695,306	769,621	732,483
	Market Share (%)	*2.45*	*2.22*	*1.82*	*2.15*	*2.01*
Expresso	Subscription	103,960	102,566	93,599	40,111	-
	Market Share (%)	*0.28*	*0.28*	*0.24*	*0.11*	-
Total		36,613,987	37,239,720	38,305,078	35,780,667	36,407,583

Source: NCA; Mobile Network Operators, 2017

1.1.2 Prepaid and Post-paid Mobile Voice Subscription

Pre-paid subscriptions increased by 570,462 (1.61%) with a market share of 98.78% at the end of the quarter under review (Table 3). Post-paid subscription increased from 388,407 in the first quarter of 2017 to 444,860 at the end of the second quarter of 2017 with an increase in market share from 1.09% to 1.22% over the same period (Table 3).

Table 3: Prepaid and Post-paid Voice Subscription

Subscription		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Prepaid	Subscription	36,259,719	36,855,555	37,918,623	35,392,261	35,962,723
	Share (%)	*99.0*	*99.0*	*99.0*	*98.91*	*98.78*
Post-paid	Subscription	354,268	384,164	386,455	388,407	444,860
	Share (%)	*0.97*	*1.03*	*1.01*	*1.09*	*1.22*
Total mobile subscription		**36,613,987**	**37,239,720**	**38,305,078**	**35,780,667**	**36,407,583**

Source: NCA; Mobile Network Operators, 2017

1.2 Mobile Voice Traffic (Domestic)

During the second quarter of 2017, mobile voice traffic increased by 6.45% from 13.54 billion minutes in the first quarter of 2017 to 14.42 billion minutes. Year-on-year mobile voice traffic also increased (17.22%) to 14.42 billion minutes at the end of the second quarter of 2017, up from 12.30 billion minutes in the second quarter of 2016 (Figure 3).

On-net traffic grew by 8.75% quarter-on-quarter from 10.96 billion minutes in the previous quarter to 11.92 billion minutes at the end of the second quarter of 2017. Year-year on-net traffic also increased by 22.70% from 9.71 billion minutes in the previous year to 11.92 billion minutes at the end of the second quarter of 2017 (Table 4).

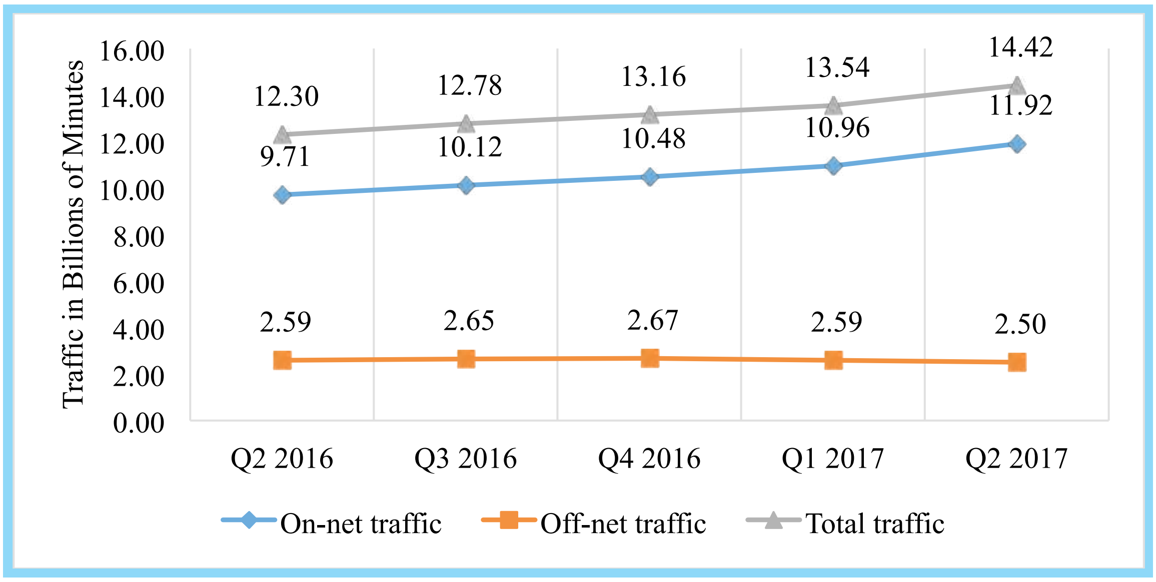
Off-net traffic dropped by 3.32% from 2.59 billion minutes in the first quarter of 2017 to 2.50 billion minutes at the end of the second quarter of 2017. This same downward trend was observed in the year-on-year off-net traffic, which dropped by 3.35% from 2.59 billion minutes in the second quarter of 2016 to 2.50 billion minutes at the end of the second quarter of 2017 (Table 4).

Table 4: Mobile Voice Traffic (Domestic)

Traffic	**Q2 2016**	**Q3 2016**	**Q4 2016**	**Q1 2017**	**Q2 2017**
Off-net traffic					
Traffic	2,588,294,623	2,652,712,749	2,671,763,781	2,587,441,912	2,501,583,680
Share (%)	*21.04*	*20.76*	*20.31*	*19.10*	*17.35*
Growth (%)	*-1.95*	*2.49*	*0.72*	*-3.16*	*-3.32*
On-net traffic					
Traffic	9,710,683,731	10,122,604,500	10,483,435,828	10,956,196,789	11,915,199,608
Share (%)	*78.96*	*79.24*	*79.69*	*80.90*	*82.65*
Growth (%)	*-0.07*	*4.24*	*3.56*	*4.51*	*8.75*
Total traffic	12,298,978,355	12,775,317,248	13,155,199,609	13,543,638,701	14,416,783,288

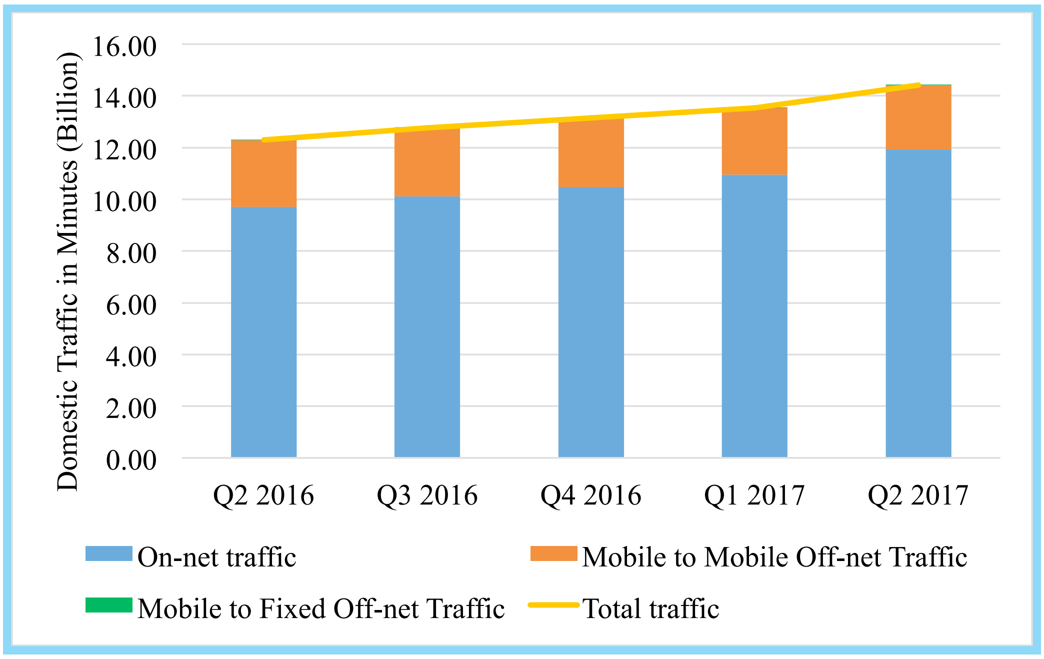
Source: NCA; Mobile Network Operators, 2017

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



Source: NCA; Mobile Network Operators, 2017

Figure 4: Breakdown of Domestic Voice Traffic in Minutes



Source: NCA; Mobile Network Operators

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

Quarter-on-quarter mobile to mobile off-net traffic decreased (3.35 %) from 2.58 billion minutes in the first quarter of 2017 to 2.49 billion minutes in the second quarter of 2017 with a share of 99.72%. Year-on-year mobile to mobile off-net traffic also decreased by 3.23% from 2.58 billion minutes in the first quarter of 2016 to 2.49 billion minutes at the end of the second quarter of 2017 (Table 5).

Mobile to fixed off-net traffic increased by 8.47% quarter-on-quarter from 6.42 million minutes to 6.96 million minutes with a share of 0.28%. Year-on-year mobile to fixed off-net traffic however decrease by 32.67% from 10.34 million minutes in the second quarter of 2016 to 6.96 million minutes in the second quarter of 2017 (Table 5).

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

Breakdown of Off-net Traffic	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Mobile to Mobile Networks					
Traffic	**2,577,957,526**	**2,646,830,836**	**2,665,813,679**	**2,581,025,238**	**2,494,623,807**
Share (%)	*99.60*	*99.78*	*99.78*	*99.75*	*99.72*
Growth (%)	*-1.89*	*2.67*	*0.72*	*-3.18*	*-3.35*
Mobile to Fixed Networks					
Traffic	**10,337,098**	**5,881,912**	**5,950,102**	**6,416,673**	**6,959,874**
Share (%)	*0.40*	*0.22*	*0.22*	*0.25*	*0.28*
Growth (%)	*-15.89*	*-43.10*	*1.16*	*7.84*	*8.47*
Total Off-net Traffic	**2,588,294,623**	**2,652,712,748**	**2,671,763,781**	**2,587,441,912**	**2,501,583,680**

Source: NCA; Mobile Network Operators, 2017

*1.2.2 Minutes of Use (MoU)**

Average minutes of use per subscription increased (11.15 %) from 119.4 minutes in the first quarter of 2017 to 132.7 minutes in the second quarter of 2017 (Figure 5). Year-on-year minutes of use also increased (18.17%) from 112.3 minutes in the second quarter of 2016 to 132.7 minutes in the second quarter of 2017. Minutes of use increased by 13.31 minutes and 20.40 minutes' quarter-on-quarter and year-on-year respectively (Table 6).

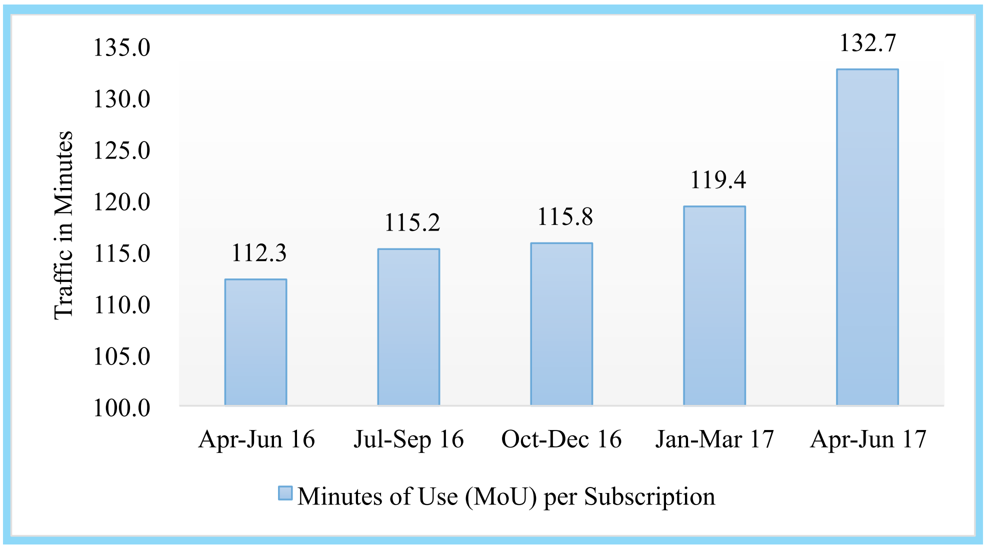
Table 6: Mobile Voice Traffic Minutes of Use (MoU) per Subscription

Traffic	Apr-Jun 16	Jul-Sep 16	Oct-Dec 16	Jan-Mar 17	Apr-Jun 17
Total mobile traffic (Minutes)	4,099,659,452	4,258,439,083	4,385,066,536	4,514,546,234	4,805,549,429
Mobile subscription	36,514,566	36,963,850	37,869,062	37,946,583	36,215,632
Minutes of Use (MoU) per Subscription	112.3	115.2	115.8	119.4	**132.7**
MoU growth rate (%)	-2.54	2.62	0.50	3.08	**11.16**

Source: NCA; Mobile Network Operators, 2017

* 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, 2017

1.3 International Traffic

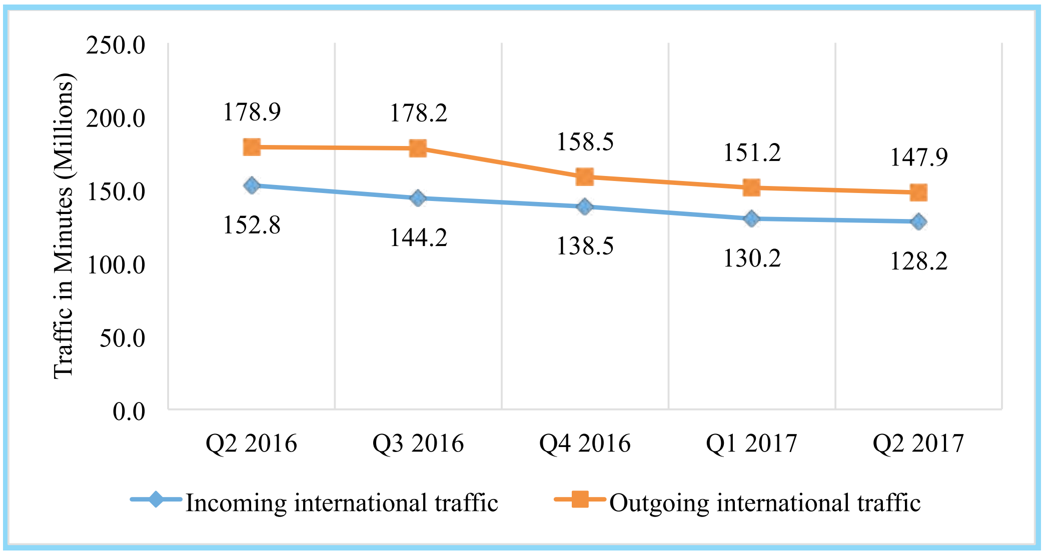
International incoming and outgoing voice traffic have been decreasing for the last five quarters. International incoming traffic decreased by 1.49% quarter-on-quarter from 130.1 million minutes to 128.1 million minutes (Table 7). Year-on-year incoming international traffic also decreased by 16.11%. International outgoing traffic reduced by 2.14% from 151.1 million minutes in the first quarter of 2017 to 147.9 million minutes at the end of the second quarter of 2017. Year-on-year outgoing international traffic also reduced by 17.30% from 178.9 million minutes to 147.9 million minutes.

Table 7: International Traffic

Traffic	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Incoming international traffic					
Traffic	152,830,342	144,175,704	138,515,521	130,152,496	128,211,973
Growth (%)	*-4.00*	*-5.66*	*-3.93*	*-6.04*	*-1.49*
Outgoing international traffic					
Traffic	178,879,037	178,203,087	158,524,688	151,173,654	147,940,726
Growth (%)	*-4.24*	*-0.38*	*-11.04*	*-4.64*	*-2.14*

Source: NCA; Mobile Network Operators, 2017

Figure 6: International Traffic



Source: NCA; Mobile Network Operators, 2017

1.4 Short Messages Service (SMS) per Operator

The telecommunication sector continued to register a positive development in SMS services. Total volume of SMS counts increased (18.21 %) to 470 million at the end of the second quarter of 2017 up from 398 million in the previous quarter. Year-on-year SMS counts similarly increased (21.75%) from 386 million in the second quarter of 2016 to 470 million at the end of the second quarter of 2017 (Figure 7).

MTN generated 202 million messages on their network at the end of the second quarter of 2017 with a market share of 43.15%. Vodafone recorded 128 million messages during the quarter under review with a market share of 27.22%. Tigo recorded an increase in the number of messages during the second quarter of 2017 from 83 million to 113 million with a share of 24.13%. Airtel had a decrease in the total volume of SMS from 25 million in the previous quarter to 24 million messages at the end of the second quarter 2017 and a share of 5.15%. Glo registered the smallest share (0.34%) with a total SMS of 1.5 million (Table 8).

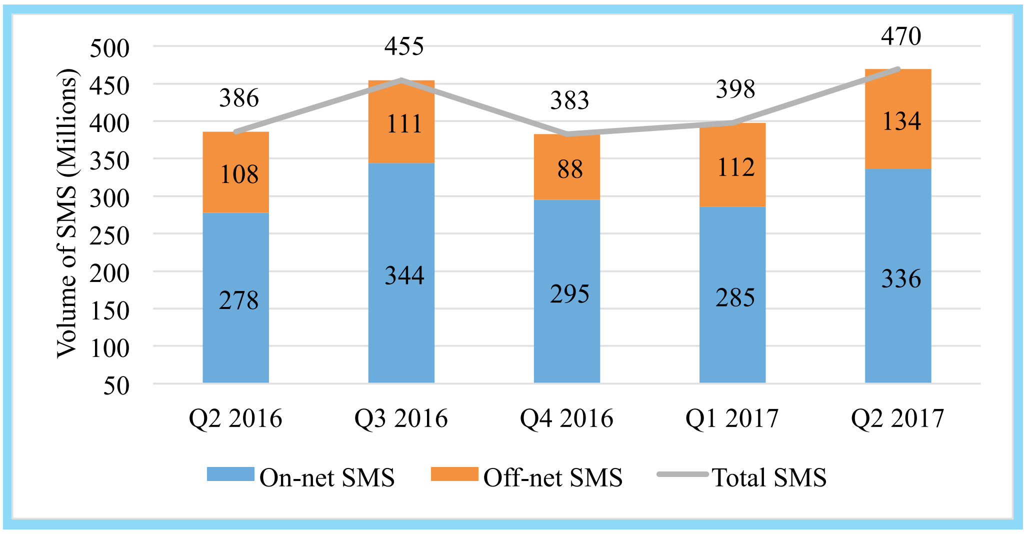
Table 8: Total Number of SMS per Mobile Network Operator

Mobile Operators	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
	Off-net SMS				
MTN	36,216,847	41,365,427	38,464,815	35,866,792	38,645,746
Vodafone	25,410,863	27,529,698	9,789,941	43,829,131	60,327,675
Tigo	20,458,520	23,146,290	19,079,594	17,733,576	20,525,144
Airtel	23,994,337	17,008,972	18,703,069	13,355,902	13,258,201
Glo	2,002,469	1,662,244	1,511,808	1,483,370	1,371,352
Total	**108,083,036**	**110,712,631**	**87,549,227**	**112,268,771**	**134,128,118**

	On-net SMS				
MTN	112,089,090	127,386,287	132,876,086	145,180,286	164,162,415
Vodafone	84,439,040	96,173,719	74,721,854	63,165,825	67,618,312
Tigo	65,019,211	100,986,018	72,610,909	64,938,743	92,894,117
Airtel	16,078,366	19,064,329	14,551,296	11,749,566	10,939,898
Glo	290,174	398,718	298,753	252,027	222,678
Total	**277,915,881**	**344,009,071**	**295,058,898**	**285,286,447**	**335,837,420**
	Total SMS				
MTN	148,305,937	168,751,714	171,340,901	181,047,078	202,808,161
Vodafone	109,849,903	123,703,417	84,511,795	106,994,956	127,945,987
Tigo	85,477,731	124,132,308	91,690,503	82,672,319	113,419,261
Airtel	40,072,703	36,073,301	33,254,365	25,105,468	24,198,099
Glo	2,292,643	2,060,962	1,810,561	1,735,397	1,594,030
Total	**385,998,917**	**454,721,702**	**382,608,125**	**397,555,218**	**469,965,538**

Source: NCA; Mobile Network Operators, 2017

Figure 7: Total Number of SMS



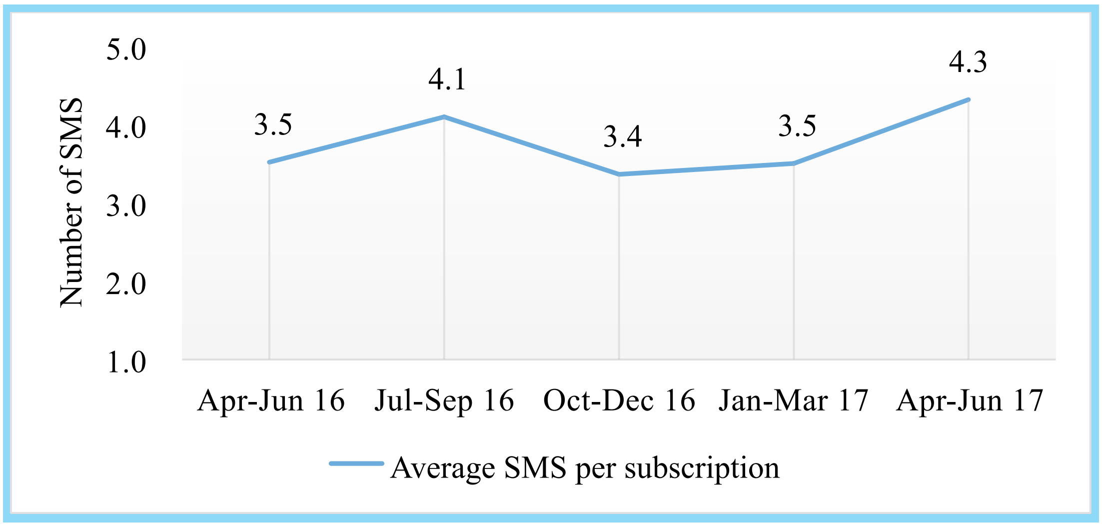
Source: NCA; Mobile Network Operators, 2017

*1.4.1 Average SMS per Subscription**

Average SMS sent or received per subscription during the quarter under review increased by 23.41% from 3.5 SMS per subscription to 4.3 SMS per subscription quarter-on-quarter. It increased (22.77 %) from 3.5 SMS per subscription to 4.3 SMS per subscription year-on-year (Figure 8).

* This is calculated by dividing the total average volume of SMS for the quarter with the total average mobile subscription for that quarter

Figure 8: Average SMS per Subscription



Source: NCA; Mobile Network Operators, 2017

1.5 Mobile Telecommunications Service Tariffs

Average default tariffs remained unchanged for on-net SMS and off-net SMS at the end of the second quarter of 2017. Tariff for on-net calls, off-net mobile calls and mobile data decreased by 1 pesewa each (Table 9). Reduction in average data tariff is attributed to a reduction in the tariff for Glo, from 12 pesewas in January 2017 to 3 pesewas in the subsequent months. Average tariff for on-net and off-net calls decreased due to a reduction in Glo's tariff in January 2017 from 12 pesewas and 14 pesewas respectively to 11 pesewas each.

Table 9: Average Tariff per Service (GHp)

Tariff	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Average on-net mobile tariff	11	11	12	12	11
Average off-net mobile tariff	13	13	13	13	12
Average on-net SMS tariff	5	6	6	5	5
Average off-net SMS tariff	6	6	6	6	6
Average data/Mb tariff	11	12	13	12	11

Source: NCA; Mobile Network Operators, 2017

1.6 Mobile Data Subscription and Penetration Rate (%)

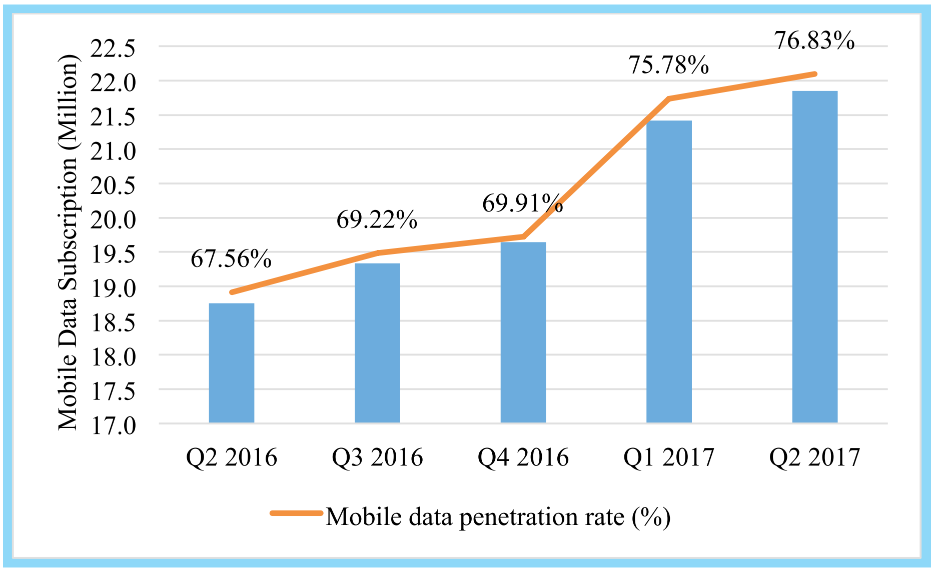
Data subscription increased by 1.98% from 21.4 million subscriptions to 21.8 million subscriptions during the quarter under review. Year-on-year subscription also increased by 16.47% from 18.9 million in second quarter of 2016 to 21.8 million in the second quarter of 2017 (Table 10). Mobile Data penetration stood at 76.83% at the end of the second quarter of 2017 (Figure 9).

Table 10: Mobile Data Subscription and Penetration

Subscription	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Mobile data subscription	18,755,928	19,331,239	19,642,152	21,419,477	21,844,613
Data Subscription Growth Rate (%)	*0.24*	*3.07*	*1.61*	*9.05*	*1.98*
Net Additions	44,092	575,311	310,913	1,777,326	425136
Net Additions Growth Rate (%)	*-93.52*	*1204.78*	*-45.96*	*471.65*	*-76.08*
Population	27,760,032	27,926,926	28,094,823	28,263,729	28,433,651
Mobile data penetration rate (%)	*67.56*	*69.22*	*69.91*	*75.78*	*76.83*

Source: NCA; Mobile Network Operators, 2017

Figure 9: Mobile Data Subscription and Penetration



Source: NCA; Mobile Network Operators, 2017

1.6.1 Mobile Data Prepaid and Post-paid Subscriptions

Mobile data prepaid subscription increased (1.86%) from 21.2 million to 21.6 million subscriptions quarter-on-quarter. Its market share however decreased from 99.14% to 99.02% (Table 11). Post-paid subscription increased (16.03%) from 184,861 to 214,492 with a corresponding increase of market share from 0.86% to 0.98% during the quarter under review (Table 11).

Table 11: Mobile Data Prepaid and Post-paid Subscriptions

Mobile Data Subscription		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Prepaid	Subscription	18,607,389	19,167,447	19,463,829	21,234,616	21,630,121
	Share (%)	*99.21*	*99.15*	*99.09*	*99.14*	*99.02*
Post-paid	Subscription	148,539	163,792	178,323	184,861	214,492
	Share (%)	*0.79*	*0.85*	*0.91*	*0.86*	*0.98*
Total mobile data subscription		18,755,928	19,331,239	19,642,152	21,419,477	21,844,613

Source: NCA; Mobile Network Operators, 2017

1.6.2 Mobile Data Subscription per Operator

MTN leads the mobile data subscription market with 12.2 million subscriptions (55.98%) followed by Vodafone, with 3.6 million subscriptions (16.68%). Tigo the third largest operator in terms of mobile data subscription (toppling Airtel) had 2.9 million subscriptions (13.59%) and Airtel had a total subscription of 2.7 million (12.63%). Glo ended the quarter with subscriptions of 245,729 (1.12%). Expresso did not submit information on data subscription during the second quarter of 2017 (Table 12).

Table 12: Mobile Data Subscription per Operator

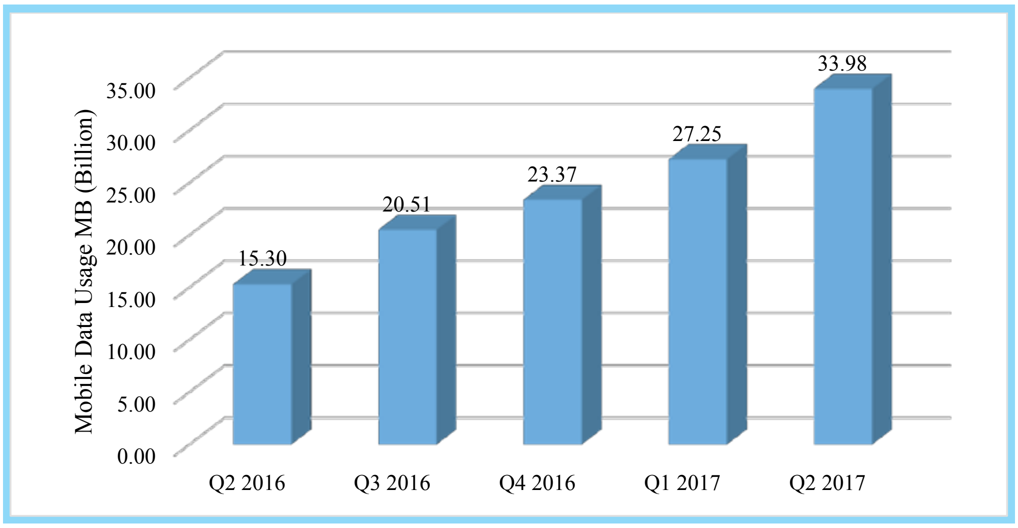
Mobile Network Operator		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
MTN	Subscription	9,369,407	9,745,986	10,226,520	11,903,262	12,229,090
	Market Share (%)	*49.95*	*50.42*	*52.06*	*55.57*	*55.98*
Vodafone	Subscription	3,271,790	3,314,912	3,474,090	3,685,895	3,643,298
	Market Share (%)	*17.44*	*17.15*	*17.69*	*17.21*	*16.68*
Tigo	Subscription	2,716,023	2,872,375	2,725,489	2,746,803	2,968,076
	Market Share (%)	*14.48*	*14.86*	*13.88*	*12.82*	*13.59*
Airtel	Subscription	3,058,545	3,092,700	2,902,009	2,802,097	2,758,420
	Market Share (%)	*16.31*	*16.00*	*14.77*	*13.08*	*12.63*
Glo	Subscription	298,622	265,085	277,372	263,919	245,729
	Market Share (%)	*1.59*	*1.37*	*1.41*	*1.23*	*1.12*
Expresso	Subscription	41,541	40,181	36,672	17,501	-
	Market Share (%)	*0.22*	*0.21*	*0.19*	*0.08*	-
Total		**18,755,928**	**19,331,239**	**19,642,152**	**21,419,477**	**21,844,613**

Source: NCA; Mobile Network Operators, 2017

1.7 Mobile Data Traffic

Mobile data traffic has shown a consistent growth over the last five quarters. At the end of the second quarter of 2017 data traffic generated by the mobile network operators increased (24.71%) from 27.25 billion megabytes in the first quarter of 2017 to 33.98 billion megabytes of data (Figure 10). Year-on-year data traffic increased (122.08%) from 15.30 billion megabytes in the previous year to 33.98 billion megabytes at the end of the second quarter of 2017 (Figure 10).

Figure 10: Mobile Data Traffic in Millions of Gigabyte (GB)

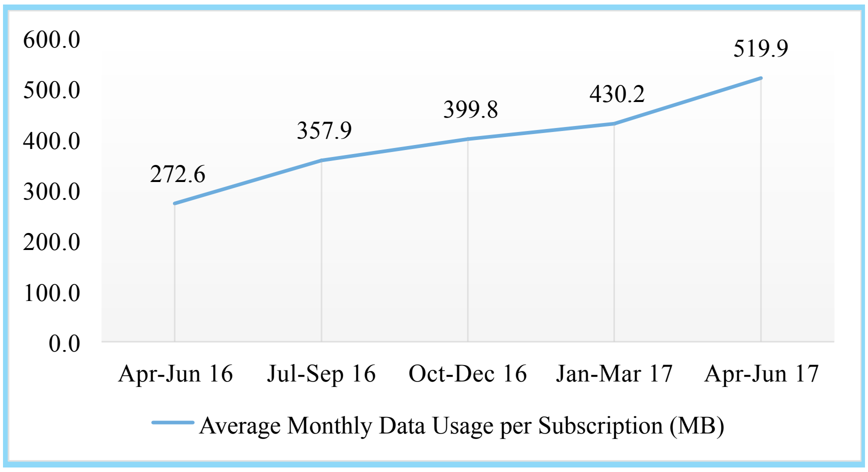


Source: NCA; Mobile Network Operators, 2017

*1.7.1 Mobile Data Usage per Subscription (MB)**

The average mobile data usage per subscription per month increased (20.85%) from 430.2 megabytes in the first quarter 2017 to 519.9 megabytes at the end of the second quarter of 2017 (Figure 11). Year-on-year data usage per subscription increased significantly (90.71%) from 272.6 megabytes per subscription in the previous year to 519.9 megabytes at the end of the second quarter of 2017 (Figure 11).

Figure 11: Mobile Data Usage per Subscription (MB)



Source: NCA; Mobile Network Operators, 2017

* 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

1.7.2 Mobile Data Traffic (MB) per Operator

MTN continues to lead the market in terms of data traffic (51.19%), generating 17.39 billion megabytes of data during the quarter under review. Vodafone maintained the second spot (21.60%) with data traffic of 7.34 billion megabytes, followed by Airtel with data traffic of 4.90 billion megabytes (14.48%). Tigo had 3.02 billion megabytes of data usage representing 8.90% of the total data usage. Glo generated the least data usage of 1.30 billion megabytes with a market share of 2.83% (Table 13). Expresso did not submit any information on mobile data traffic for the last five quarters.

Table 13: Mobile Data Traffic (MB) per Operator

Mobile Operator	Data Usage	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
MTN	Data Usage	6,336,106,079	9,340,761,161	11,452,168,764	13,568,944,709	17,392,496,730
	Market Share (%)	41.41	45.54	49.00	49.80	51.19
Vodafone	Data Usage	3,999,614,833	4,511,206,628	5,331,524,507	6,318,942,994	7,339,384,505
	Market Share (%)	26.14	21.99	22.81	23.19	21.60
Tigo	Data Usage	1,341,481,285	1,577,325,549	1,782,818,988	2,140,747,503	3,024,418,169
	Market Share (%)	8.77	7.69	7.63	7.86	8.90
Airtel	Data Usage	3,531,086,717	4,639,955,063	3,712,037,914	4,005,712,369	4,920,701,233
	Market Share (%)	23.08	22.62	15.88	14.70	14.48
Glo	Data Usage	91,290,793	442,737,209	1,092,310,255	1,211,478,791	1,299,907,316
	Market Share (%)	0.01	2.16	4.67	4.45	3.83
Total Industry Traffic (MB)		**15,299,579,707**	**20,511,985,610**	**23,370,860,429**	**27,245,826,366**	**33,976,907,953**

Source: NCA; Mobile Network Operators, 2017

1.8 Mobile Number Portability (MNP)

Promoting and sustaining competition in the communications industry is at the core of the regulatory policies of the National Communications Authority (NCA). The mobile number portability (MNP) is one of such policies, introduced by the Authority to stimulate competition among mobile network operators and provide the flexibility for subscribers to switch among service providers.

This sub-section assesses the total number of mobile numbers ported averagely 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.

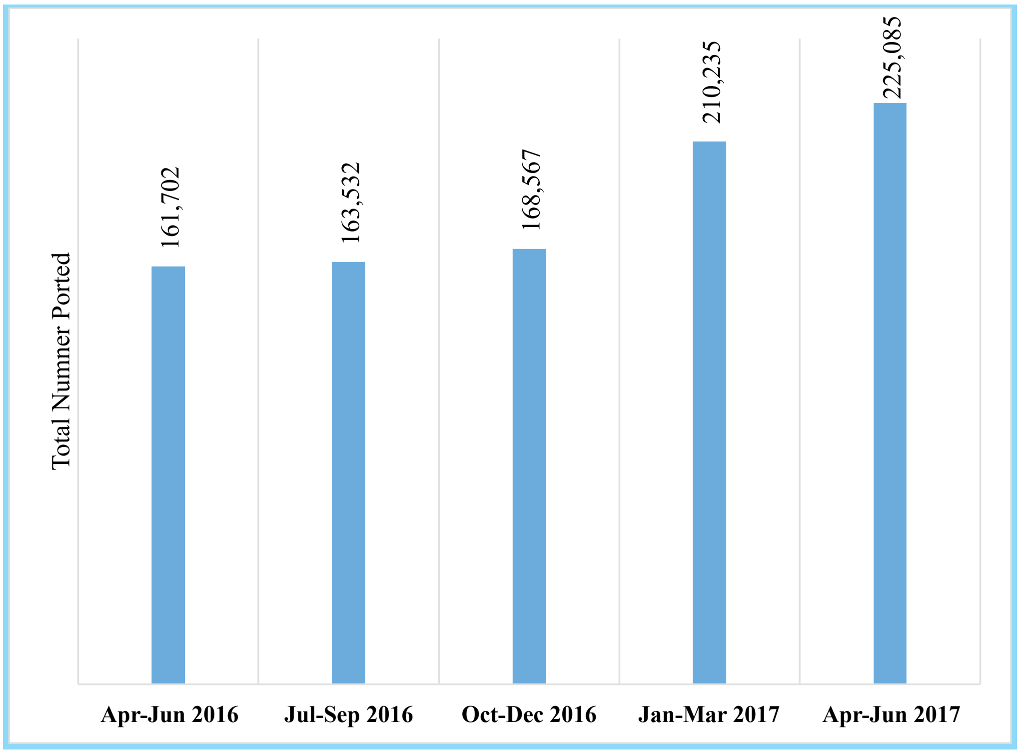
The number of mobile numbers ported increased by (7.06%) during the quarter under review, from 210,235 in the previous quarter to 225,085 in the second quarter of 2017 (Table 14). The total number ported during the period under review represents 0.62% of the total mobile voice subscriptions for the same period.

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

Porting	**Apr-Jun 2016**	**Jul-Sep 2016**	**Oct-Dec 2016**	**Jan-Mar 2017**	**Apr-Jun 2017**
Total Number Ported	161,702	163,532	168,567	210,235	225,085
Growth Rate (%)	*21.23*	*1.13*	*3.08*	*24.72*	*7.06*

Source: NCA; PortingXS; 2017

Figure 12: Mobile Number Portability



Source: NCA; PortingXS; 2017

2.0 BROADBAND WIRELESS ACCESS (BWA)

There are four operators who have been licensed by the National Communications Authority to provide broadband wireless services in Ghana, namely; Surfline, Broadband Home (BBH, formerly Zipnet), Blu Telecommunications and Goldkey. However, three out of the four are currently in operation.

2.1 BWA Subscription and Penetration

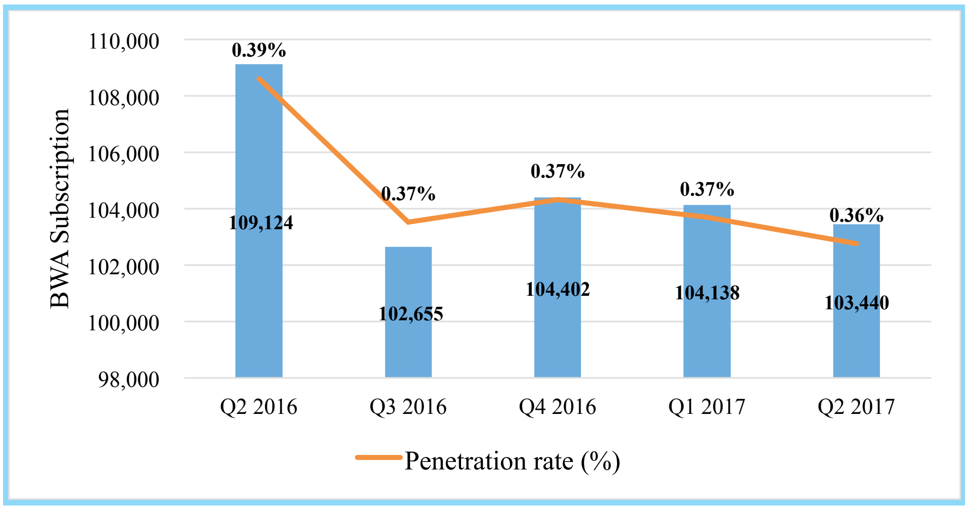
BWA subscription decreased (0.67) from 104,138 in the previous quarter to 103,440 at the end of the second quarter of 2017 (Figure 13). Year-on-year subscription also decreased (5.21%) from 109,124 in the second quarter of 2016 to 103,440 at the end of second quarter of 2017. Penetration rate for Broadband Wireless Access decreased to 0.36% at the end of the second quarter of 2017 (Table 15).

Table 15: BWA Data Subscription and Penetration

BWA Operator	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Subscription	109,124	102,655	104,402	104,138	103,440
Growth rate (%)	*8.08*	*-5.93*	*1.70*	*-0.25*	*-0.67*
Net Additions	8,159	-6,469	1,747	-264	-698
Population	27,760,032	27,926,926	28,094,823	28,263,729	28,433,651
Penetration rate (%)	*0.39*	*0.37*	*0.37*	*0.37*	*0.36*

Source: NCA; Broadband Wireless Access Operators, 2017

Figure 13: BWA Data Subscription and Penetration



Source: NCA; Broadband Wireless Access Operators, 2017

2.1.1 *Subscription per Broadband Wireless Access (BWA) Operator*

Surfline's subscription decreased (0.73%) to 76,232 during the quarter under review but increased its market share to 73.70%. Broadband Home subscription also declined by 0.38% with a market share of 25.41%. Blu Telecommunications subscription also decreased by 3.94% with a market share of 0.90% (Table 16)

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

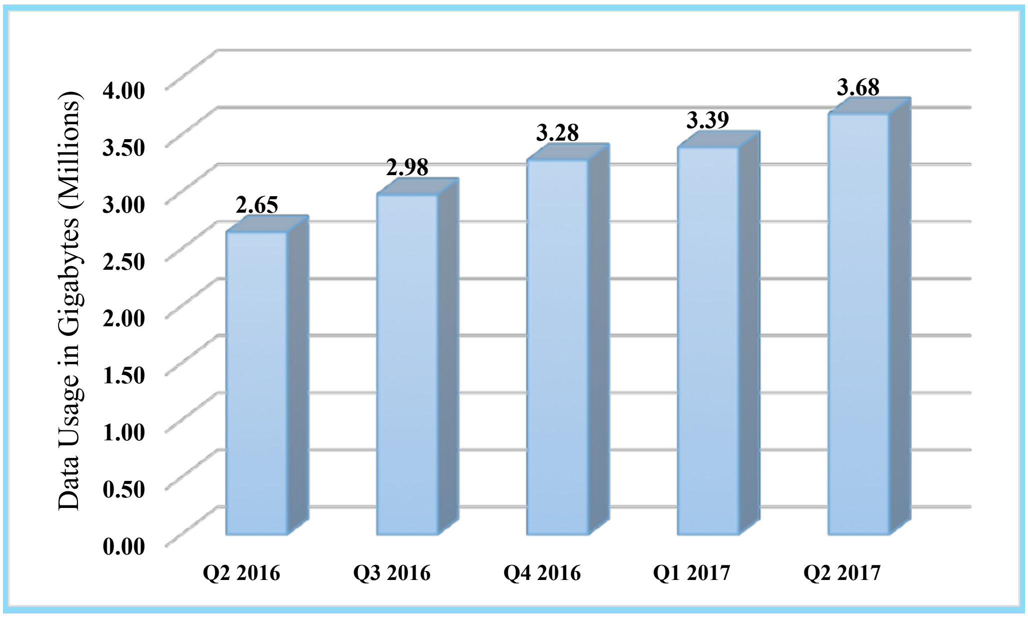
BWA operator		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Surfline	Subscription	81,325	75,065	76,919	76,792	76,232
	Market share (%)	*74.53*	*73.12*	*73.68*	*73.74*	*73.70*
BBH	Subscription	26,536	26,423	26,402	26,381	26,281
	Market share (%)	*24.32*	*25.74*	*25.29*	*25.33*	*25.41*
BLU	Subscription	1,263	1,167	1,081	965	927
	Market share (%)	*1.16*	*1.14*	*1.04*	*0.93*	*0.90*
Industry total		**109,124**	**102,655**	**104,402**	**104,138**	**103,440**

Source: NCA; Broadband Wireless Access Operators, 2017

2.2 Broadband Wireless Access (BWA) Volume of Data Traffic

Data traffic generated by BWA's increased (8.61%) from 3.39 million gigabytes of data in the previous quarter to 3.68 million gigabytes in the first quarter of 2017 (Figure 14). Year-on-year data traffic also increased (39.06%) from 2.65 million gigabytes of data in the previous year to 3.68 million gigabytes at the end of the second quarter of 2017.

Figure 14: BWA Data Usage in Gigabytes (millions)



Source: NCA; Broadband Wireless Access Operators, 2017

2.2.1 *Volume of Broadband Data Traffic per Operator*

At the end of the second quarter of 2017, Surfline's total volume of data traffic was 3,300,344 gigabytes representing 89.60% of the total volume of data traffic generated by the BWA's. BBH recorded the second highest volume of data traffic of 288,083 gigabytes

(7.82%). Blu generated the least volume of data traffic of 95,191 gigabytes representing 2.58% of the total volume of data (Table 17).

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

BWA operator		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Surfline	Data usage (GB)	2,253,167	2,564,837	2,902,870	3,015,547	3,300,344
	Market share (%)	*85.06*	*86.16*	*88.49*	*88.91*	*90.31*
BBH	Data usage (GB)	291,929	306,864	271,931	276,862	288,083
	Market share (%)	*11.02*	*10.31*	*8.29*	*8.16*	*7.88*
BLU	Data usage (GB)	103,879	104,983	105,556	99,135	95,191
	Market share (%)	*3.92*	*3.53*	*3.22*	*2.92*	*2.58*
Industry Total (GB)		**2,648,975**	**2,976,684**	**3,280,357**	**3,391,544**	**3,683,618**

Source: NCA; Broadband Wireless Access Operators, 2017

*2.2.2 Monthly Data Usage per BWA Subscription**

Average Data usage per BWA subscription per month increased (9.91%) from 10.80 gigabytes in the previous quarter to 11.87 gigabytes in the second quarter of 2017 (Figure 16). Year-on-year data usage per subscription also increased by 32.64% from 8.95 gigabytes in the second quarter of 2016 to 11.87 gigabytes at the end of the second quarter of 2017.

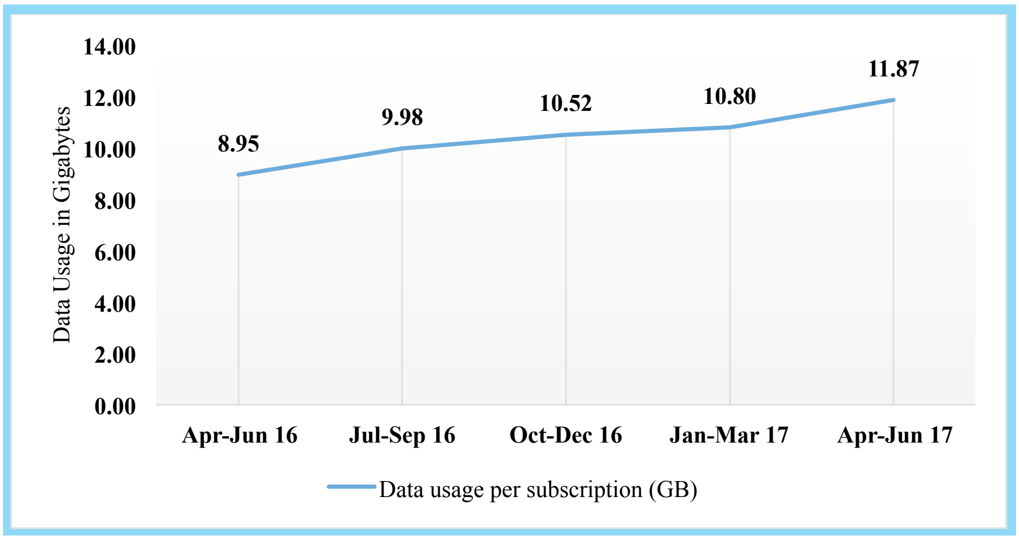
Table 18: Data Usage per BWA Subscription (GB)

BWA Operator	Apr-Jun 16	Jul-Sep 16	Oct-Dec 16	Jan-Mar 17	Apr-Jun 17
Volume of data traffic	882,992	992,228	1,093,452	1,130,515	1,227,873
Subscription	98,705	99,422	103,976	104,715	103,479
Data usage per subscription (GB)	8.95	9.98	10.52	10.80	11.87
Data usage per subscription (GB) Growth rate (%)	*13.86*	*11.56*	*5.38*	*5.66*	*9.91*

Source: NCA; Broadband Wireless Access Operators, 2017

* 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 15: Data Usage per BWA Subscription (GB)



Source: NCA; Broadband Wireless Access Operators, 2017

3.0 FIXED NETWORK

Three fixed network operators have been licensed by the National Communications Authority of which two are in operation (Vodafone and Airtel) and the remaining one (MTN) is yet to begin operation.

3.1 Fixed Network Voice Subscription and Penetration

Total fixed network subscriptions increased (1.79%) from 266,587 in the previous quarter to 271,356 at the end of the second quarter of 2016. Year-on-year fixed subscription also increased by 5.73% from 256,653 in the second quarter of 2016 to 271,356 at the end of the second quarter of 2017. Fixed penetration rate increased to 0.95% during the period under review (Figure 16).

Vodafone subscription increased (1.92%) to 264,606 up from 259,609 quarter-on-quarter and from 248,536 to 264,606 year-on-year (6.47%). Vodafone had a market share of 97.51% at the end of the second quarter of 2017 (Table 19).

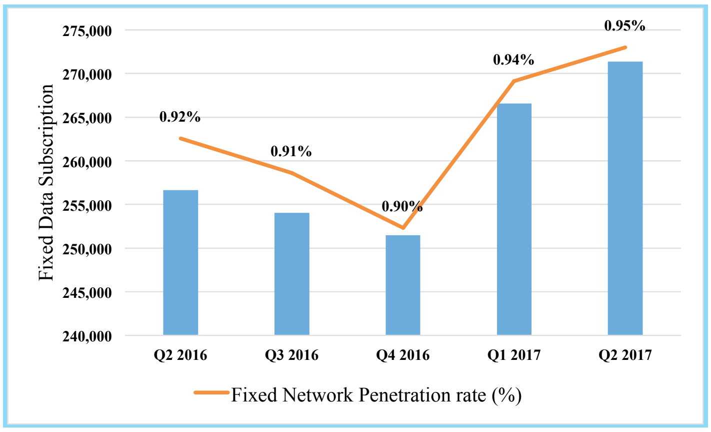
Airtel's subscription decreased by 3.27% from 6,978 in the second quarter of 2017 to 6,750 at the end of the second quarter of 2017. Year-on-year subscription decreased by 16.84%. Market share for Airtel at the end of the second quarter of 2017 was 2.49% (Table 19).

Table 19: Fixed Network Voice Subscription and penetration

Fixed Operator	Subscription	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Vodafone	Subscription	248,536	246,425	244,299	259,609	264,606
	Market share (%)	*96.84*	*97.01*	*97.14*	*97.38*	*97.51*
Airtel	Subscription	8,117	7,596	7,191	6,978	6,750
	Market share (%)	*3.16*	*2.99*	*2.86*	*2.62*	*2.49*
Total industry subscription		**256,653**	**254,021**	**251,490**	**266,587**	**271,356**
Population		27,760,032	27,815,552	28,094,823	28,263,729	28,433,651
Fixed network penetration rate (%)		*0.92*	*0.91*	*0.90*	*0.94*	*0.95*

Source: NCA; Fixed Network Operators, 2017

Figure 16: Fixed Network Voice Subscription and penetration



Source: NCA; Fixed Network Operators, 2017

3.2 Fixed Network Traffic

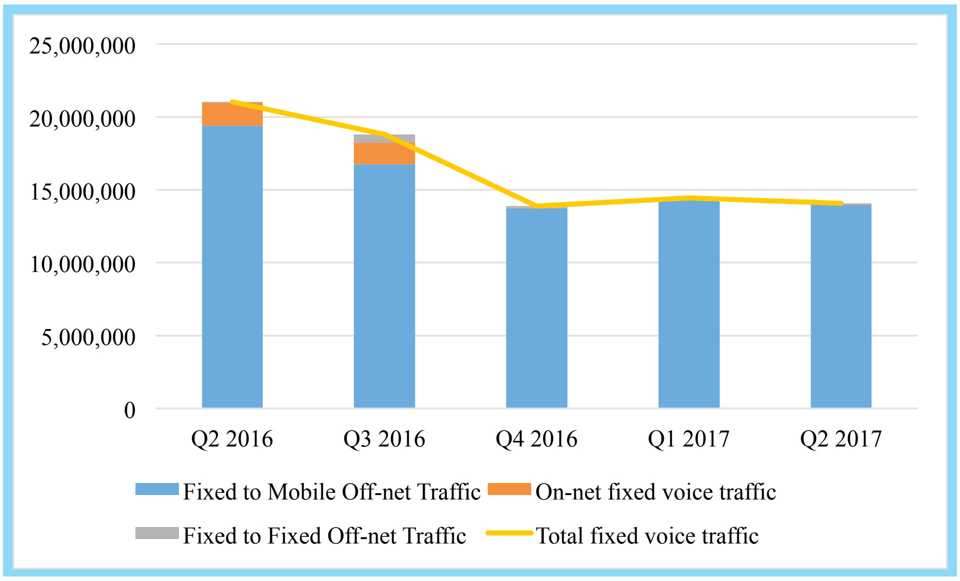
Total volume of fixed network traffic recorded a negative growth of 2.57% during the quarter under review from 14.45 million minutes to 14.08 million minutes (Table 20). Off-net and On-net traffic decreased by 2.56% and 4.64% respectively at the end of the quarter under review. It should be noted that on-net traffic for the last three quarters consist of data from Airtel only.

Table 20: Fixed Network Volume of Traffic in Minutes

Traffic	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
On-net fixed voice traffic	1,542,355	1,482,483	36,455	39,017	37,205
Off-net fixed voice traffic	19,487,240	17,321,284	13,830,301	14,414,674	14,045,122
Total fixed voice traffic	**21,029,595**	**18,803,767**	**13,866,756**	**14,453,691**	**14,082,327**

Source: NCA; Fixed Network Operators, 2017

Figure 17: Fixed Network Volume of Traffic in Minutes



Source: NCA; Fixed Network Operators, 2017

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

Fixed to mobile network traffic decreased by 2.49% to 13.97 million minutes during the quarter. Fixed to fixed network traffic also decreased (4.05%) to 82,860 minutes during the quarter under review up from 87,005 minutes recorded during the preceding quarter (Table 21).

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

Breakdown of Fixed Traffic (Minutes)	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Fixed to Mobile Networks Off-net Traffic					
Traffic	19,394,046	16,754,687	13,743,296	14,331,815	13,965,622
Share (%)	*99.52*	*96.73*	*99.37*	*99.43*	*99.43*
Growth (%)	*-19.81*	*-13.61*	*-17.97*	*4.28*	*-2.56*
Fixed to Fixed Networks Off-net Traffic					
Traffic	93,193	566,597	87,005	82,860	79,500
Share (%)	*0.48*	*3.27*	*0.63*	*0.57*	*0.57*
Growth (%)	*6.32*	*507.98*	*-84.64*	*-4.76*	*-4.05*
Total Off-net Traffic	**19,487,240**	**17,321,284**	**13,830,301**	**14,414,674**	**14,045,122**

Source: NCA; Fixed Network Operators, 2017

3.2.2 Fixed Networks Volume of Traffic per Operator (minutes)

On-net traffic for Airtel decreased by 4.64%% from 39,017 minutes in the first quarter of 2017 to 37,205 minutes at the end of the second quarter of 2017, whereas year-on-year on-net traffic also (22.04%) from 47,725 minutes to 37,205 minutes. Off-net traffic decreased by 16.78% and 21.21% quarter-on-quarter and year-on-year respectively (Table 22).

Vodafone recorded a decreased (0.42%) in off-net traffic from 12.52 million minutes in the first quarter of 2017 to 12.47 million minutes at the end of the second quarter of 2017. Year-on-year off-net traffic also decreased by 28.69% from 17.49 million minutes in the second quarter of 2016 to 12.47 million minutes at the end of the second quarter of 2017. Vodafone did not submit information to NCA on on-net traffic for fixed network during the second quarter of 2017 (Table 22).

Table 22: Fixed Networks Volume of Traffic per Operator

Fixed network operator	Traffic	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
On-net traffic						
Vodafone	On-net traffic	1,494,630	1,445,594	-	-	-
	Market share (%)	*96.91*	*97.51*	-	-	-
Airtel	On-net traffic	47,725	36,889	36,455	39,017	37,205
	Market share (%)	*3.09*	*2.49*	*100.00*	*100.00*	*100.00*
Total on-net traffic		1,542,355	1,482,483	36,455	39,017	37,205
Off-net traffic						
Vodafone	Off-net traffic	17,488,864	12,724,955	12,040,453	12,522,710	12,470,586
	Market share (%)	*89.75*	*73.46*	*87.06*	*86.87*	*88.79*
Airtel	Off-net traffic	1,998,376	4,596,329	1,789,847	1,891,964	1,577,535
	Market share (%)	*10.25*	*26.54*	*12.94*	*13.13*	*11.21*
Total off-net traffic		19,487,240	17,321,284	13,830,301	14,414,674	14,045,122
Total traffic						
Vodafone	Total traffic	18,983,494	14,170,550	12,040,453	12,522,710	12,476,371
	Market share (%)	*0.90*	*0.75*	*86.83*	*86.64*	*88.54*
Airtel	Total traffic	2,046,101	4,633,218	1,826,302	1,930,981	1,614,740
	Market share (%)	*0.10*	*0.25*	*13.17*	*13.36*	*11.46*
Total fixed network traffic		**21,029,595**	**18,803,768**	**13,866,756**	**14,453,691**	**14,082,327**

Source: NCA; Fixed Network Operators, 2017

3.3 Fixed Network Minutes of Use*

Average fixed network minutes of use per subscription decreased (4.88%) from 18.4 minutes in the first quarter of 2017 to 17.5 minutes at the end of the second quarter of 2017 (Figure 18). Year-on-year minutes of use per subscription decreased (35.86 %) from 24.5 minutes in the second quarter of 2016 to 17.5 minutes at the end of the second quarter of 2017 (Table 23).

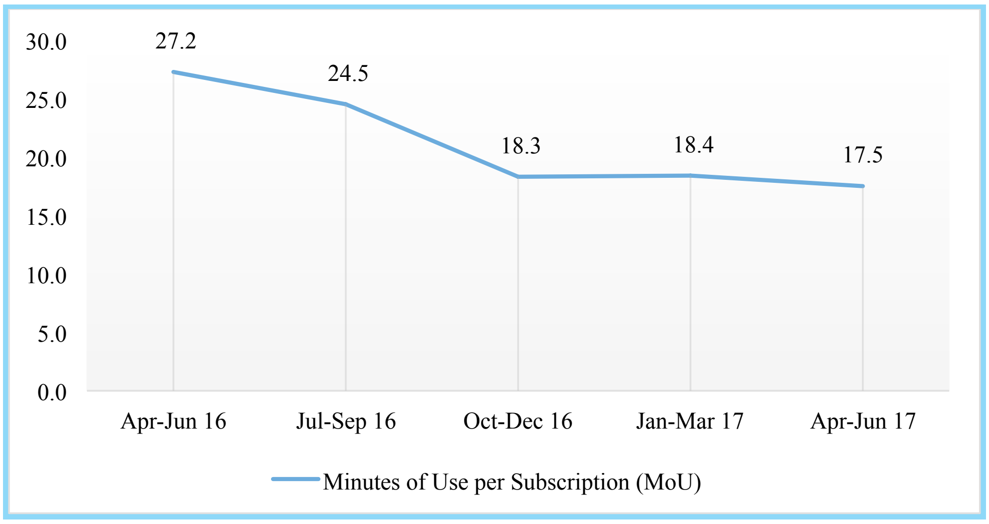
Table 23: Fixed Network Minute of Use per Subscription

Traffic	Apr-Jun 16	Jul-Sep 16	Oct-Dec 16	Jan-Mar 17	Apr-Jun 17
Total Fixed Voice Traffic	7,009,865	6,267,923	4,622,252	4,817,897	4,694,109
Subscription	257,215	256,037	252,737	262,264	268,545
Minutes of Use per Subscription (MoU)	27.2	24.5	18.3	18.4	17.5
Minutes of Use per Subscription (MoU) Growth (%)	*-15.96*	*-10.16*	*-25.31*	*0.49*	*-4.88*

Source: NCA; Fixed Network Operators, 2017

* 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 Data Subscription and Penetration

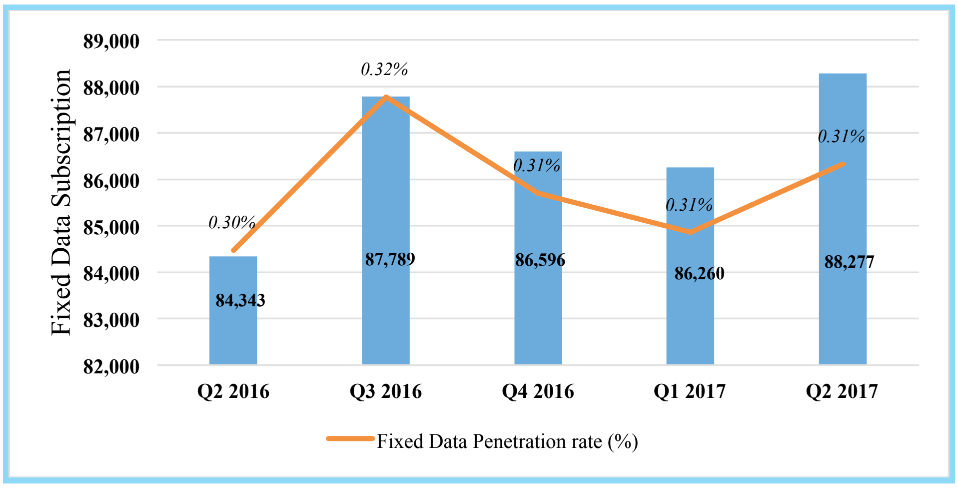
Fixed data subscription during the quarter under review increased (2.34%) from 86,260 in the previous quarter to 88,277. The year-on-year fixed data subscription also increased from 84,343 in the preceding year to 88,277 at the end of the first quarter of 2017. Fixed data penetration rate remained at 0.31% at the end of the second quarter of 2017 (Table 24).

Table 24: Fixed Data Network Subscription and Penetration

Data subscription	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Fixed data subscription	84,343	87,789	86,596	86,260	88,277
Fixed data subscription growth rate (%)	*9.09*	*4.09*	*-1.36*	*-0.39*	*2.34*
Net Additions	7,031	3,446	-1,193	-336	2,017
Net Additions growth rate (%)	*216.71*	*-50.99*	*-134.62*	*-71.84*	*-700.3*
Population	27,760,032	27,815,552	28,094,823	28,263,729	28,433,651
Fixed Data penetration rate (%)	*0.30*	*0.32*	*0.31*	*0.31*	*0.31*

Source: NCA; Fixed Network Operators, 2017

Figure 19: Fixed Data Network Subscription and Penetration



Source: NCA; Fixed Network Operators, 2017

3.5 Fixed Network Data Subscription per Operator

At the end second quarter of 2017 Vodafone's subscription stood at 86,928 representing 98.47% of the total fixed data subscription (Table 25). Airtel's fixed data subscription declined at the end of the second quarter of 2017 to 1,349 (1.53% of total market share). Vodafone quarter-on-quarter subscription increased by 2.39% while Airtel's subscription decreased by 0.59%. Year-on-year subscription for Vodafone grew by 5.06% whiles Airtel's subscription declined by 15.58% over the same period.

Table 25: Fixed Network Data Subscription per Operator

Fixed network operator	Data subscription	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Vodafone	Data subscription	82,745	86,283	85,190	84,903	86,928
	Market share (%)	*98.11*	*98.28*	*98.38*	*98.43*	*98.47*
Airtel	Data subscription	1,598	1,506	1,406	1,357	1,349
	Market share (%)	*1.89*	*1.72*	*1.62*	*1.57*	*1.53*
Total fixed data subscription		**84,343**	**87,789**	**86,596**	**86,260**	**88,277**

Source: NCA; Fixed Network Operators, 2017

4.0 EQUIPMENT TYPE APPROVAL

Type Approval certification is granted to a product that meets a minimum set of regulatory, technical and safety requirements in Ghana. The main objective of type approval is to ensure that all electronic communications equipment that are used in Ghana comply with international standards that protect consumers from products that are hazardous and ensure that their operation do not affect in any way the normal functioning of other equipment or the health of people around the operational areas. Also in compliance with section 3(n) of the National Communications Authority Act of 2008, Act 769; and Sections 66 and 67 of the Electronics Communication Act, Act 775 of 2008, all communications equipment in Ghana should be certified by the Authority.

4.1 Total Number of Certificates Issued

The number of certificates issued by the Authority for various communications equipment at the end of the second quarter of 2017 was 98 (Table 26).

Table 26: Total Number of Certificates Issued

Type approval	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Total number of approval issued	62	98	118	101	98

Source: National Communications Authority, 2017

5.0 BROADCASTING

5.1 Authorised Frequency Modulation (FM) Radio Stations

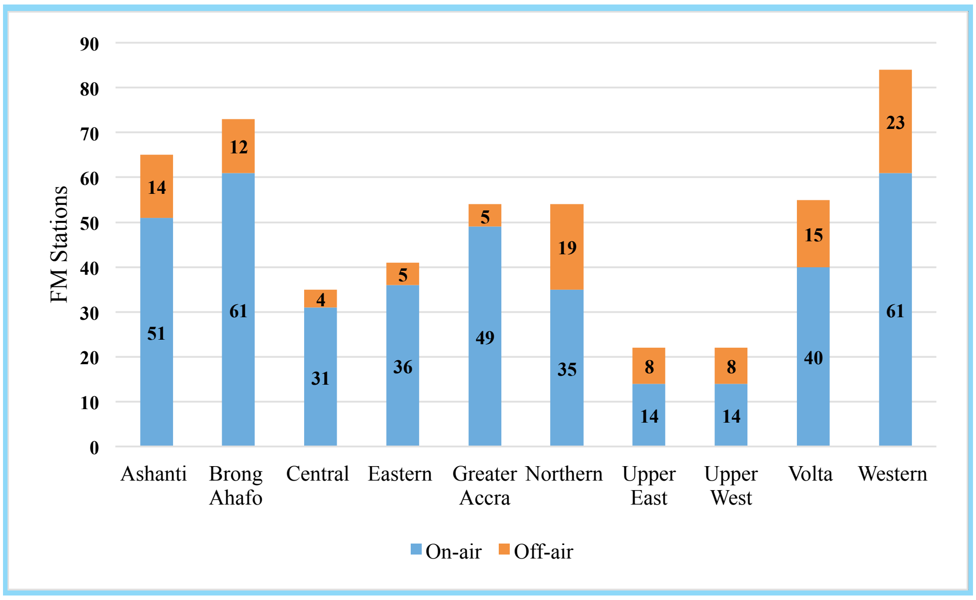
The total number of authorised Frequency Modulation (FM) radio stations at the end of the second quarter of 2017 reduced to 505 out of which 392 are operational. (Table 27). License for Akan FM (96.5MHZ) a community FM station at Kadjebi in the Volta Region was revoked.

Table 27: Regional Distribution of FM Stations as at the end of Q2 2017

Regions	End of Q2 2017	No. of FM Stations in Operation (Q2 2017)	No. of FM Stations not in Operation (Q2 2017)
Ashanti	65	51	14
Brong Ahafo	73	61	12
Central	35	31	4
Eastern	41	36	5
Greater Accra	54	49	5
Northern	54	35	19
Upper East	22	14	8
Upper West	22	14	8
Volta	55	40	15
Western	84	61	23
TOTAL	**505**	**392**	**113**

Source: National Communications Authority, 2017

Figure 20: Regional distribution of On-air and Off-air FM stations as at end of Q2 2017



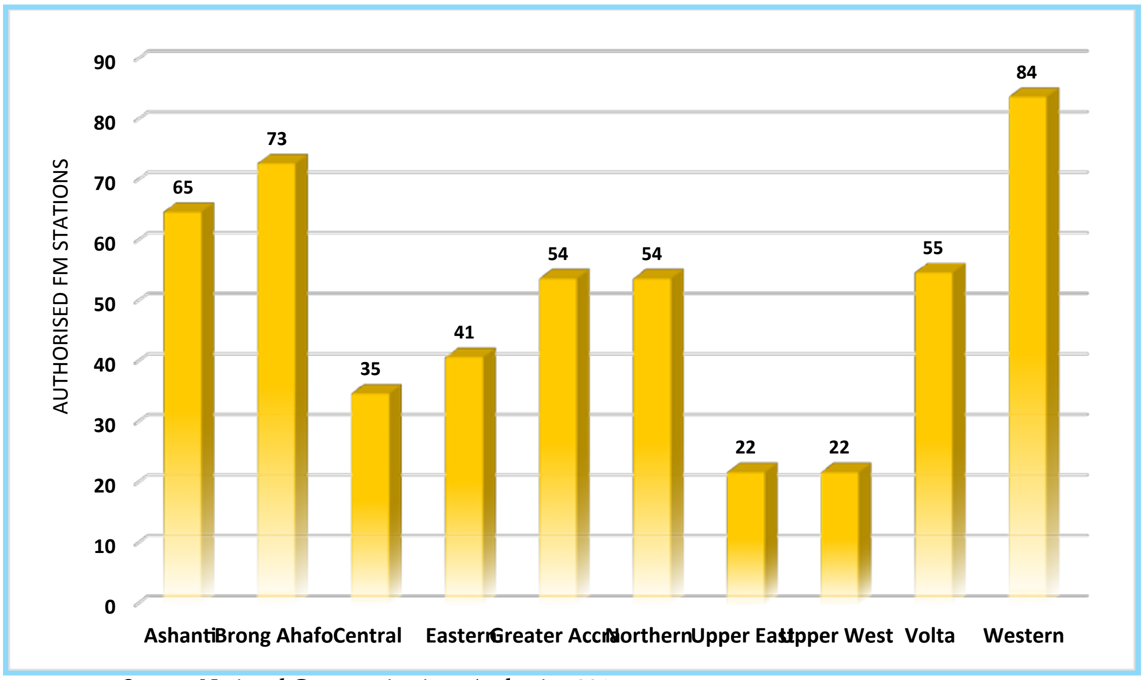
Source: National Communications Authority, 2017

Table 28: Regional Distribution of Authorised FM Stations by Purpose as at the end of Q2 2017

Name of Regions	Total no. Authorised	Public	Public (Foreign)	Campus	Community	Commercial
Ashanti	65	2	1	6	3	53
Brong Ahafo	73	3	0	6	3	61
Central	35	2	0	8	3	22
Eastern	41	2	0	6	1	32
Greater Accra	54	2	3	6	4	39
Northern	54	7	0	17	2	28
Upper East	22	2	0	8	1	11
Upper West	22	2	0	8	2	10
Volta	55	4	0	10	1	40
Western	84	5	1	6	2	70
Total	**505**	**31**	**5**	**81**	**22**	**366**

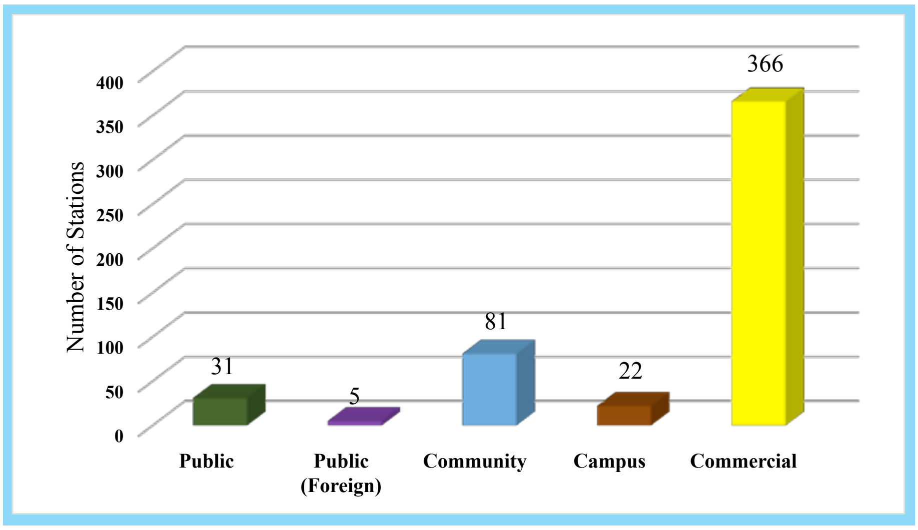
Source: National Communications Authority, 2017

Figure 21: Regional distribution of Authorised FM stations as at end of Q2 2017



Source: National Communications Authority, 2017

Figure 22: Purpose of Authorised Radio Stations as at Q2 2017



Source: National Communications Authority, 2017

5.2 Authorised Television Stations

Eighteen (18) new television stations received authorisations from the NCA during the second quarter of 2017, bringing the total number of authorised TV stations in Ghana to one hundred and seventeen (117), out of which fifty-one (51) TV stations are operational (Table 29). Twelve (12) of these 18 newly authorised TV stations are Digital Terrestrial Free-To-Air Television Programme Channel (National Coverage), four (4) are Digital Terrestrial Free-To-Air Television Programme Channel (Regional Coverage) and two (2) are Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel).

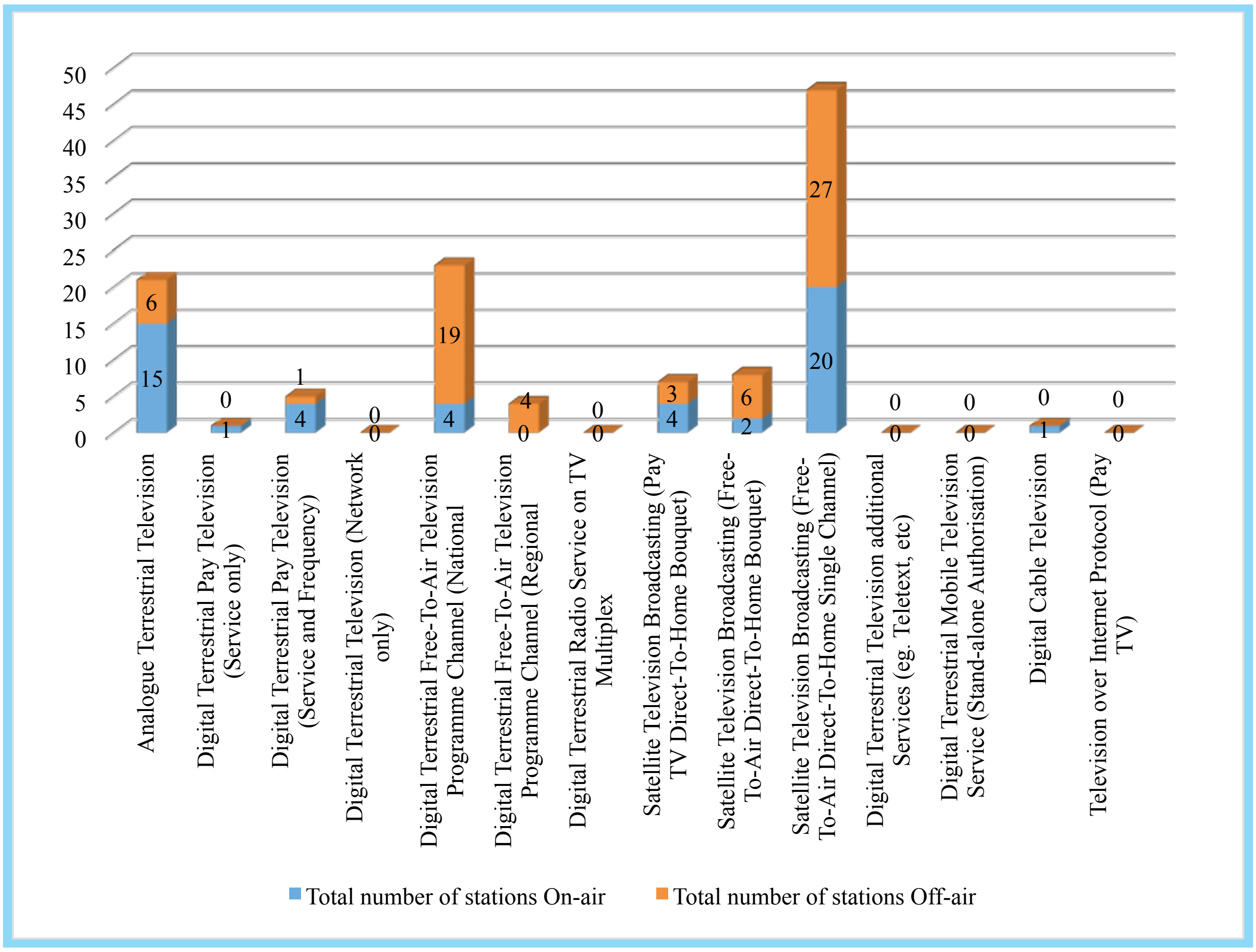
Table 29: Authorised TV Stations in Ghana as at end of Q2 2017

Types of TV stations	Authorised TV stations			No. of TV Stations in Operation (Q2 2017)
	End of Q1 2017	Q2 2017	End of Q2 2017	
Analogue Terrestrial Television	21	0	21	15
Digital Terrestrial Pay Television (Service only)	1	0	1	1
Digital Terrestrial Pay Television (Service and Frequency)	5	0	5	4
Digital Terrestrial Television (Network only)	0	0	0	0
Digital Terrestrial Free-To-Air Television Programme Channel (National Coverage)	11	12	23	4
Digital Terrestrial Free-To-Air Television Programme Channel (Regional Coverage)	0	4	4	0
Digital Terrestrial Radio Service on TV Multiplex	0	0	0	0
Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	7	0	7	4

Types of TV stations	Authorised TV stations			No. of TV Stations in Operation (Q1 2017)
	End of Q4 2016	Q1 2017	End of Q1 2017	
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Bouquet)	8	0	8	2
Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel)	45	2	47	20
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	0	1	1
Television over Internet Protocol (Pay TV)	0	0	0	0
Total	99	18	117	51

Source: National Communications Authority, 2017

Figure 23: Distribution of On-Air and Off-Air TV Stations as at end of Q2 2017



Source: National Communications Authority, 2017

6.0 CONCLUSION

The total mobile subscription in Ghana increased (1.75%) to 36,407,583 with a penetration rate of 128.0%. Volume of mobile voice traffic also increased by 6.45% to 14.42 billion minutes in the second quarter of 2017. Mobile data subscriptions increased (1.96%) to 21,844,613 data traffic also increased by 24.63% to 33.98 billion megabytes. BWA subscriptions decreased (0.67) to 103,440 but its data traffic increased (8.61%) to 3.68 million gigabyte. At the end of the second quarter of 2017, eighteen (18) additional television stations were authorised and FM stations reduced by one (1) bringing the total number of authorised television stations and FM radio stations in Ghana to 117 and 505 respectively.

7.0 APPENDICES

Table 1: Monthly Mobile Subscription

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	17,192,543	17,428,380	17,579,045	17,774,481	17,890,958	18,050,144	18,280,956	18,766,106	19,296,157	19,841,360	20,265,399	16,789,161	16,969,311	17,119,549	17,304,425
Vodafone	7,976,348	8,054,346	8,093,710	8,160,351	8,223,957	8,158,527	8,170,504	8,304,783	8,289,913	8,401,072	8,428,088	8,582,387	8,651,515	8,737,414	8,773,444
Tigo	5,213,398	5,203,063	5,261,454	5,211,811	5,225,021	5,402,668	5,362,642	5,365,318	5,339,052	5,257,424	5,160,279	5,098,480	5,187,936	5,342,817	5,360,443
Airtel	4,942,181	4,798,480	4,678,736	4,636,374	4,642,569	4,697,653	4,686,625	4,649,934	4,591,051	4,565,618	4,529,315	4,500,907	4,398,913	4,309,982	4,236,788
Glo	962,338	944,260	897,082	854,912	822,539	828,162	769,450	750,751	695,306	670,399	784,283	769,621	753,341	745,271	732,483
Expresso	108,292	106,082	103,960	101,881	106,975	102,566	99,489	95,548	93,599	88,993	66,852	40,111	23,264	-	-
Total	**36,395,100**	**36,534,611**	**36,613,987**	**36,739,810**	**36,912,019**	**37,239,720**	**37,369,666**	**37,932,440**	**38,305,078**	**38,824,866**	**39,234,216**	**35,780,667**	**35,984,280**	**36,255,033**	**36,407,583**

Table 2: Monthly Prepaid Mobile Subscription

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	17,027,426	17,262,177	17,411,418	17,598,073	17,711,566	17,865,305	18,091,304	18,573,076	19,100,570	19,644,531	20,068,227	16,586,063	16,766,424	16,875,001	17,041,208
Vodafone	7,838,186	7,915,864	7,950,796	8,015,711	8,078,374	8,003,589	8,011,304	8,160,418	8,143,344	8,262,055	8,286,576	8,440,200	8,507,272	8,595,414	8,633,561
Tigo	5,187,849	5,176,854	5,235,048	5,185,381	5,198,446	5,376,059	5,336,023	5,338,664	5,312,298	5,230,646	5,133,006	5,071,151	5,160,575	5,315,254	5,332,792
Airtel	4,930,206	4,786,471	4,666,702	4,624,331	4,629,707	4,684,772	4,673,725	4,637,026	4,578,126	4,552,662	4,516,344	4,487,922	4,385,908	4,296,973	4,223,767
Glo	961,172	943,123	896,019	853,948	821,639	827,307	768,604	749,798	694,375	669,486	783,283	768,488	752,161	744,134	731,395
Expresso	103,848	101,771	99,736	97,741	102,628	98,523	95,567	91,745	89,910	85,414	64,061	38,437	22,293	-	-
Total	**36,048,687**	**36,186,260**	**36,259,719**	**36,375,185**	**36,542,360**	**36,855,555**	**36,976,527**	**37,550,727**	**37,918,623**	**38,444,794**	**38,851,497**	**35,392,261**	**35,594,633**	**35,826,776**	**35,962,723**

Table 3: Monthly Post-Paid Mobile Subscription

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	165,117	166,203	167,627	176,408	179,392	184,839	189,652	193,030	195,587	196,829	197,172	203,098	202,887	244,548	263,217
Vodafone	138,162	138,482	142,914	144,640	145,583	154,938	159,200	144,365	146,569	139,017	141,512	142,187	144,243	142,000	139,883
Tigo	25,549	26,209	26,406	26,430	26,575	26,609	26,619	26,654	26,754	26,778	27,273	27,329	27,361	27,563	27,651
Airtel	11,975	12,009	12,034	12,043	12,862	12,881	12,900	12,908	12,925	12,956	12,971	12,985	13,005	13,009	13,021
Glo	1,166	1,137	1,063	964	900	855	846	953	931	913	1,000	1,133	1,180	1,137	1,088
Expresso	4,444	4,310	4,224	4,140	4,347	4,042	3,921	3,804	3,689	3,579	2,791	1,675	971	-	-
Total	**346,413**	**348,350**	**354,268**	**364,625**	**369,659**	**384,164**	**393,138**	**381,714**	**386,455**	**380,072**	**382,719**	**388,407**	**389,647**	**428,257**	**444,860**

Table 4: Monthly Mobile Data Subscription

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	9,163,083	9,288,548	9,369,407	9,429,065	9,608,952	9,745,986	9,875,422	9,981,935	10,226,520	10,505,087	10,865,059	10,866,873	12,110,284	12,310,158	12,229,090
Vodafone	3,334,093	3,340,452	3,271,790	3,278,834	3,301,319	3,314,912	3,340,171	3,345,418	3,474,090	3,579,362	3,616,216	3,685,895	3,657,020	3,717,118	3,643,298
Tigo	2,703,106	2,704,110	2,716,023	2,743,364	2,817,896	2,872,375	2,857,291	2,782,031	2,725,489	2,708,016	2,723,389	2,746,803	2,802,950	2,876,905	2,968,076
Airtel	3,048,954	3,067,502	3,058,545	3,052,219	3,082,800	3,092,700	3,052,100	2,971,378	2,902,009	2,859,238	2,841,368	2,802,097	2,761,521	2,763,982	2,758,420
Glo	312,746	306,336	298,622	281,724	271,756	265,085	263,817	245,874	277,372	272,084	269,466	263,919	242,973	239,207	245,729
Expresso	43,254	42,389	41,541	40,710	42,746	40,181	38,975	37,806	36,672	35,572	29,169	17,501	10,151	-	-
Total	**18,605,236**	**18,749,337**	**18,755,928**	**18,825,916**	**19,125,469**	**19,331,239**	**19,427,776**	**19,364,442**	**19,642,152**	**19,959,359**	**20,344,667**	**20,383,088**	**21,584,899**	**21,907,370**	**21,844,613**

Table 5: Monthly Prepaid Data Subscription

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	9,070,263	9,188,625	9,262,152	9,315,265	9,489,759	9,622,891	9,746,707	9,846,347	10,089,003	10,364,316	10,722,880	10,722,880	11,968,222	12,170,245	12,055,478
Vodafone	3,320,472	3,326,492	3,257,985	3,264,915	3,287,493	3,301,040	3,326,321	3,331,546	3,460,195	3,565,495	3,602,419	3,672,051	3,643,148	3,703,223	3,629,394
Tigo	2,694,441	2,695,461	2,707,376	2,734,718	2,809,253	2,863,782	2,848,696	2,773,763	2,717,222	2,699,719	2,715,050	2,738,478	2,794,650	2,868,606	2,959,779
Airtel	3,031,449	3,049,952	3,040,994	3,034,667	3,065,233	3,075,133	3,034,532	2,953,807	2,884,424	2,841,622	2,823,735	2,784,438	2,743,842	2,746,303	2,740,731
Glo	311,866	305,498	297,341	280,504	270,585	264,420	263,173	244,793	276,313	271,019	268,411	262,879	241,960	238,236	244,739
Expresso	43,254	42,389	41,541	40,710	42,746	40,181	38,975	37,806	36,672	35,572	29,169	17,501	10,151		
Total	**18,471,745**	**18,608,417**	**18,607,389**	**18,670,779**	**18,965,069**	**19,167,447**	**19,258,404**	**19,188,062**	**19,463,829**	**19,777,743**	**20,161,664**	**20,198,227**	**21,401,973**	**21,726,613**	**21,630,121**

Table 6: Monthly Post-Paid Mobile Data Subscription

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	92,820	99,923	107,255	113,800	119,193	123,095	128,715	135,588	137,517	140,771	142,179	143,993	142,062	139,913	173,612
Vodafone	13,621	13,960	13,805	13,919	13,826	13,872	13,850	13,872	13,895	13,867	13,797	13,844	13,872	13,895	13,904
Tigo	8,665	8,649	8,647	8,646	8,643	8,593	8,595	8,268	8,267	8,297	8,339	8,325	8,300	8,299	8,297
Airtel	17,505	17,550	17,551	17,552	17,567	17,567	17,568	17,571	17,585	17,616	17,633	17,659	17,679	17,679	17,689
Glo	880	838	1,281	1,220	1,171	665	644	1,081	1,059	1,065	1,055	1,040	1,013	971	990
Expresso	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**133,491**	**140,920**	**148,539**	**155,137**	**160,400**	**163,792**	**169,372**	**176,380**	**178,323**	**181,616**	**183,003**	**184,861**	**182,926**	**180,757**	**214,492**

Table 7: Off-net SMS to other Networks

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	11,867,000	12,052,204	12,297,643	13,260,101	14,768,315	13,337,011	12,992,266	12,123,754	13,348,795	13,003,557	10,798,163	12,065,072	12,088,691	13,328,951	13,228,104
Vodafone	7,363,743	8,676,972	9,370,148	10,331,648	9,501,292	7,696,758	-	-	9,789,941	11,993,964	13,557,469	18,277,698	19,428,793	19,849,587	21,049,295
Tigo	6,701,949	6,873,332	6,883,239	7,373,151	8,228,736	7,544,403	6,729,420	5,884,314	6,465,860	6,254,220	5,349,512	6,129,844	6,395,209	7,080,086	7,049,849
Airtel	9,260,675	9,769,462	4,964,200	5,411,524	6,166,528	5,430,920	9,250,086	4,528,356	4,924,627	4,888,948	4,080,113	4,386,841	4,511,899	4,434,059	4,312,243
Glo	1,031,624	534,474	436,371	533,346	592,661	536,237	511,721	480,347	519,740	444,720	522,217	516,433	482,567	438,788	449,997
Total	**36,224,991**	**37,906,444**	**33,951,601**	**36,909,770**	**39,257,532**	**34,545,329**	**29,483,493**	**23,016,771**	**35,048,963**	**36,585,409**	**34,307,474**	**41,375,888**	**42,907,159**	**45,131,471**	**46,089,488**

Table 8: On-net SMS

Mobile Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
MTN	37,018,658	36,792,435	38,277,997	39,098,337	45,044,809	43,243,142	43,213,681	41,951,350	47,711,055	50,226,720	44,474,853	50,478,713	50,688,361	56,963,188	56,510,866
Vodafone	29,585,775	25,271,071	29,582,194	32,617,714	37,121,468	26,434,537	25,483,546	21,623,136	27,615,172	25,055,506	17,860,758	20,249,561	23,603,345	25,732,219	18,282,748
Tigo	-	32,753,041	32,266,170	34,335,759	33,090,602	33,559,657	28,742,141	21,127,360	22,741,408	21,776,008	19,479,421	23,683,314	25,287,352	33,792,775	33,813,990
Airtel	5,560,721	5,204,833	5,312,812	6,093,711	6,751,037	6,219,581	5,388,074	4,528,356	4,634,866	4,475,446	3,496,238	3,777,882	3,871,181	3,617,306	3,451,411
Glo	151,429	138,745	-	129,214	145,038	124,466	109,840	91,828	97,085	79,675	84,287	88,065	77,504	80,148	65,026
Total	**72,316,584**	**100,160,124**	**105,439,173**	**112,274,735**	**122,152,953**	**109,581,383**	**102,937,282**	**89,322,030**	**102,799,586**	**101,613,355**	**85,395,557**	**98,277,535**	**103,527,743**	**120,185,636**	**112,124,041**

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

Mobile Network Operator	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
MTN	11	11	11	11	11
Vodafone	11	11	11	11	11
Tigo	11	12	13	13	13
Airtel	11	11	11	11	11
Glo	14	14	14	12	11
Expresso	10	10	-	-	-
Industry Average	**11**	**11**	**12**	**12**	**11**

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

Mobile Network Operator	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
MTN	13	13	13	13	13
Vodafone	13	13	13	13	13
Tigo	11	12	13	13	13
Airtel	12	12	12	12	12
Glo	14	14	14	12	11
Expresso	15	15	-	-	
Industry Average	**13**	**13**	**13**	**13**	**12**

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

Mobile Network Operator	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
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	4	4	-	-	-
Industry Average	**5**	**6**	**6**	**5**	**5**

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

Mobile Network Operator	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
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	4	4	-	-	-
Industry Average	**6**	**6**	**6**	**6**	**6**

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

Mobile Network Operator	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
MTN	10	10	10	10	10
Vodafone	13	13	13	13	13
Tigo	14	14	14	14	14
Airtel	14	15	16	16	16
Glo	12	12	12	6	3
Expresso	5	5	-	-	
Industry Average	**11**	**12**	**13**	**12**	**11**

Table 14: Monthly Voice Fixed Subscription

Fixed Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Vodafone	248,819	248,053	248,536	248,463	249,043	246,425	246,425	245,550	244,299	246,205	259,863	259,609	259,189	261,384	264,606
Airtel	8,105	10,015	8,117	8,877	7,708	7,596	7,425	7,322	7,191	7,116	7,022	6,978	6,893	6,812	6,750
Total	**256,924**	**258,068**	**256,653**	**257,340**	**256,751**	**254,021**	**253,850**	**252,872**	**251,490**	**253,321**	**266,885**	**266,587**	**266,082**	**268,196**	**271,356**

Table 15: Monthly Data Fixed Subscription

Fixed Network Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Vodafone	76,396	81,514	82,745	85,703	86,107	86,283	82,084	86,345	85,190	85,410	83,873	84,903	86,380	85,376	86,928
Airtel	1,591	1,596	1,598	1,555	1,539	1,506	1,477	1,446	1,406	1,367	1,368	1,357	1,353	1,346	1,349
Total	**77,987**	**83,110**	**84,343**	**87,258**	**87,646**	**87,789**	**83,561**	**87,791**	**86,596**	**86,777**	**85,241**	**86,260**	**87,733**	**86,722**	**88,277**

Table 16: Monthly BWA Subscription

BWA Subscription	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Surfline	65,378	65,757	81,325	66,935	73,244	75,065	76,269	76,171	76,919	77,306	77,882	76,792	76,554	75,827	76,232
BBH	26,630	26,585	26,536	26,535	26,479	26,423	26,417	26,411	26,402	26,394	26,383	26,381	26,378	26,374	26,281
BLU	1,343	1,299	1,263	1,235	1,184	1,167	1,132	1,127	1,081	1,051	992	965	945	920	-
Total	**93,351**	**93,641**	**109,124**	**94,705**	**100,907**	**102,655**	**103,818**	**103,709**	**104,402**	**104,751**	**105,257**	**104,138**	**103,877**	**103,121**	**102,513**

Table 17: Monthly BWA Traffic (GB)

BWA Operator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Surfline	743,072	748,391	761,705	795,672	864,605	904,560	933,994	948,395	1,020,481	1,032,359	924,189	1,058,999	1,059,012	1,118,630	1,122,702
BBH	91,602	100,630	99,697	88,681	91,543	126,641	88,604	91,610	91,718	91,144	92,148	93,570	97,480	95,397	95,206
BLU	34,266	37,396	32,216	36,441	37,553	30,989	36,307	35,001	34,247	34,286	30,460	34,389	32,809	33,380	-
Total	**868,939**	**886,417**	**893,618**	**920,793**	**993,701**	**1,062,190**	**1,058,905**	**1,075,006**	**1,146,446**	**1,157,789**	**1,046,797**	**1,186,958**	**1,189,302**	**1,247,407**	**1,217,908**

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.

NCA CONTACTS AND PRESENCE COUNTRYWIDE

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

- ### Accra, Head Office

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

Complaints:
Hotline: +233 (0) 30 701 1419, Toll Free: 0800 110 622
complaints@nca.org.gh

- ### Bolgatanga Office

National Communications Authority,
H/No ZB 70, Zorbisi Estates
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,
Residency Road
Behind New Juabeng Municipal Library
Private Mail Bag, Koforidua, Eastern Region
Tel: +233 (0) 3420 28378, 28380, 28382
E-Mail: complaints.koforidua@nca.org.gh

- ### Kumasi Office

National Communications Authority,
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

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Plot No 83/D Penkwase
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
P. O. Box SL 409, Sekondi,
Western Region, Ghana
Tel: +233 (0) 31 202 8073 / 31 202 8049
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- ### Tamale Office

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Watherson Residential Area
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Northern Region, Ghana
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NCA