SECOND QUARTER SECTOR STATISTICS REPORT FOR THE FINANCIAL YEAR 2020/2021
(OCTOBER-DECEMBER 2020)

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***Disclaimer*:**
Although every effort has been made to ensure accuracy of the data contained in this report, the Authority is not liable for inaccuracies in any of the information contained in this report, which is contingent upon the operator's/service providers' compliance returns.

LIST OF ACRONYMS

B2B	Business to Business
B2C	Business to Customer
C2B	Customer to Business
C2G	Citizen to Government
DoS	Denial-of-Service
DTT	Digital Terrestrial Television
EASSy	Eastern Africa Submarine Cable Systems
FY	Financial Year
Gbps	Gigabits per second
ICTs	Information Communication Technologies
KE-CIRT/CC	National Kenya Computer Incident Response Team/Coordination Centre
LION2	Lower Indian Ocean Network
LTE	Long-Term Evolution
Mbps	Megabits per Second
MMS	Multimedia Services
MoU	Minutes of Use
MVNO	Mobile Virtual Network Operator
NCC	National Cybersecurity Centre
OTT	Over-The-Top
P2P	Person to Person
SEACOM	Sea Sub-Marine Communications Limited
SIM	Subscriber Identification Module
SMS	Short Messaging Service
STBs	Set Top Boxes
TCP	Transmission Control Protocol
TEAMS	The East African Marine System

PRELIMINARY NOTES

This report is based on data provided by the service providers in the ICT sector as per their license conditions.

The information provided in this report is subject to review in case of any revisions or updates from the service providers.

The Authority has also published and shared a manual on definitions and methodologies of collecting and reporting Telecommunication indicators with service providers and the public for purposes of common understanding of ICT indicators. The manual was developed in consultation with the International Telecommunications Union (ITU) and it adheres to the set international standards. The Manual is available on CA website https://ca.go.ke/wp-content/uploads/2020/03/ICT-Indicators-Manual-2019-.pdf

REPORT SUMMARY

The Sector Statistics Report for the Second Quarter of the 2020/21 Financial Year provides an overview of the performance and trends of the ICT sector for the period 1st October to 31st December 2020, on the following service categories:

Mobile Telephony Services
Fixed Telephony Services
Data/Internet Services
Cyber Security Landscape
Frequency Spectrum Management
Broadcasting Services

Contents

LIST OF TABLES

LIST OF FIGURES

Table 0: Summary of Key ICT Indicators

INDICATORS	Oct-Dec 2020 Q2	July-Sept 2020 Q1	% Change Q1 to Q2
Mobile Subscriptions (Millions)	61.41	59.84	2.6
Fixed Line Subscriptions	16,003	17,650	-9.3
Fixed Wireless Subscriptions	1,066	992	7.5
Fixed VoIP Subscriptions	49,577	47,038	5.4
MOBILE MONEY TRANSFER SERVICES			
Number of Registered Mobile Money Agents	264,390	245,124	7.9
Number of Active Registered Mobile Money Subscriptions (Millions)	32.46	31.79	2.1
Value of C2B Transfers in Kshs. (Billions)	983.78	735.90	33.7
Value of B2C Transfers in Kshs. (Billions)	648.82	530.77	22.2
Value of B2B Transfers in Kshs. (Billions)	1,704.04	1,336.55	27.5
Value of G2C Transfers in Kshs (Billions)	7.15	7.49	-4.5
Value of C2G Transfers in Kshs (Billions)	13.18	12.37	6.5
Volume of P2P Transfers (Millions)	871.47	713.96	22.1
Value of P2P Transfers in Kshs. (Billions)	1,031.82	896.50	15.1
Total value of Deposits in Kshs. (Billions)	1,101.14	888.11	24.0
VOICE TRAFFIC IN MINUTES			
Mobile On-Net Voice Traffic (Billions)	17.33	15.95	8.7
Mobile Off-Net Voice Traffic (Billions)	2.32	2.20	5.5
Mobile Network to Fixed Network (Million)	16.91	17.55	-3.6
International Incoming Mobile Voice Traffic (Millions)	106.80	135.83	-21.4
International Outgoing Mobile Voice Traffic (Millions)	125.06	121.41	3.0
Out-bound Roaming Incoming Voice Traffic (Minutes) (Millions)	85.84	74.15	15.8
Out-bound Roaming Outgoing Voice Traffic (Minutes) (Millions)	12.64	11.91	6.1
In-bound Roaming Incoming Voice Traffic (Minutes) (Millions)	38.18	46.26	-17.5
In-bound Roaming Outgoing Voice Traffic (Minutes) (Millions)	2.36	1.58	49.4
Total Local Fixed network traffic (Millions)	5.57	4.99	11.6

		MOBILE SMS TRAFFIC	
SMS On-Net (Billions)	12.92	15.64	-17.4
SMS Off-Net (Billions)	1.26	1.35	-6.7
International Incoming SMS (Millions)	9.46	9.31	1.6
International Outgoing SMS (Millions)	10.09	8.74	15.4
Out-bound Roaming Incoming SMS (Millions)	31.69	31.79	-0.3
Out-bound Roaming Outgoing SMS (Millions)	15.24	7.76	96.4
In-bound Roaming Incoming SMS (Millions)	17.68	14.70	20.3
In-bound Roaming Outgoing SMS (Millions)	1.09	0.71	53.5
		DATA/INTERNET SERVICES	
Data/ Internet Total Subscriptions (Millions)	44.38	43.45	2.1
Total Broadband Subscriptions	25.78	24.63	4.7
Total Available International Bandwidth (Gbps)	8,091.43	7,875.54	2.7
Total Used International Bandwidth (Gbps)	4,008.01	3,695.01	8.5
		CYBER SECURITY	
Total Cyber Threats Detected (Millions)	56.21	35.17	59.8
Total Cyber Threat Advisories	21,513	21,728	-1.0
Total Investigation Category	224	354	-36.7
Total Population in Kenya (Millions)*	47.6	47.6	0.0

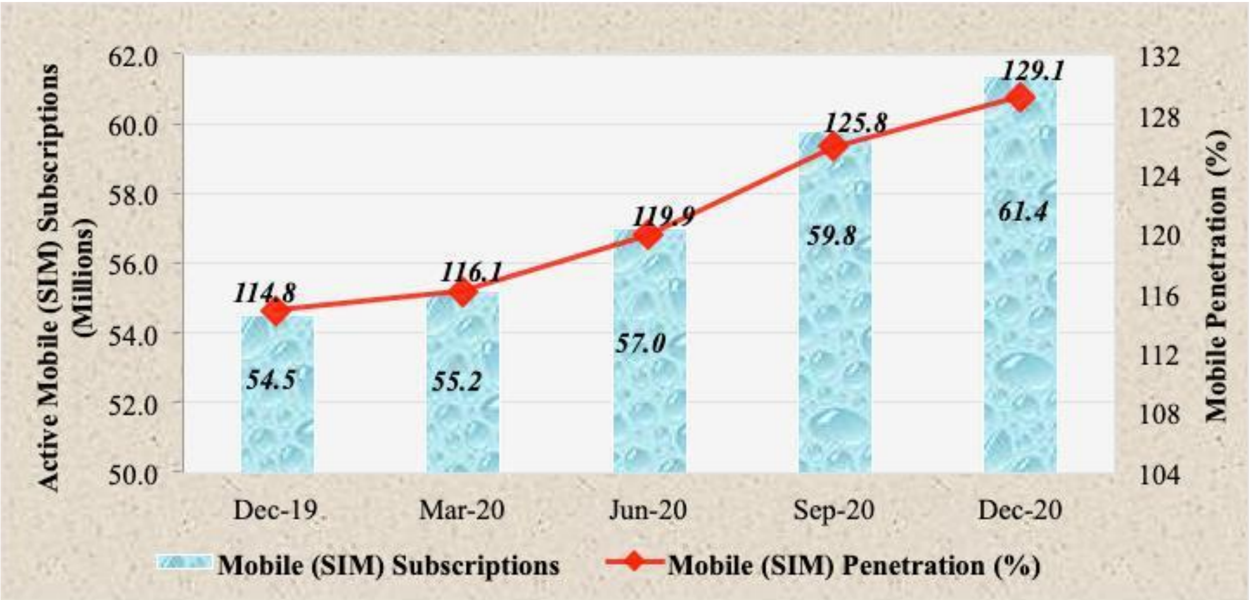
Source: 2019 Census Report

1 CELLULAR MOBILE SERVICES

1.1 Mobile Subscriptions

The number of active mobile subscriptions as at 31st December 2020 stood at 61.4 million, representing an increase of 2.6 percent from the preceding quarter. Subsequently, mobile (Sim) penetration grew by 3.3 percentage points to stand at 129.1 percent during the period under review. During the review period, the data for Jamii Telecommunications Limited is included in cellular mobile services sub-section whose main services is delivering mobile data through 4G but also includes Voice over LTE (VoLTE)[1].

Figure 1 illustrates the trends in mobile subscriptions and penetration levels.

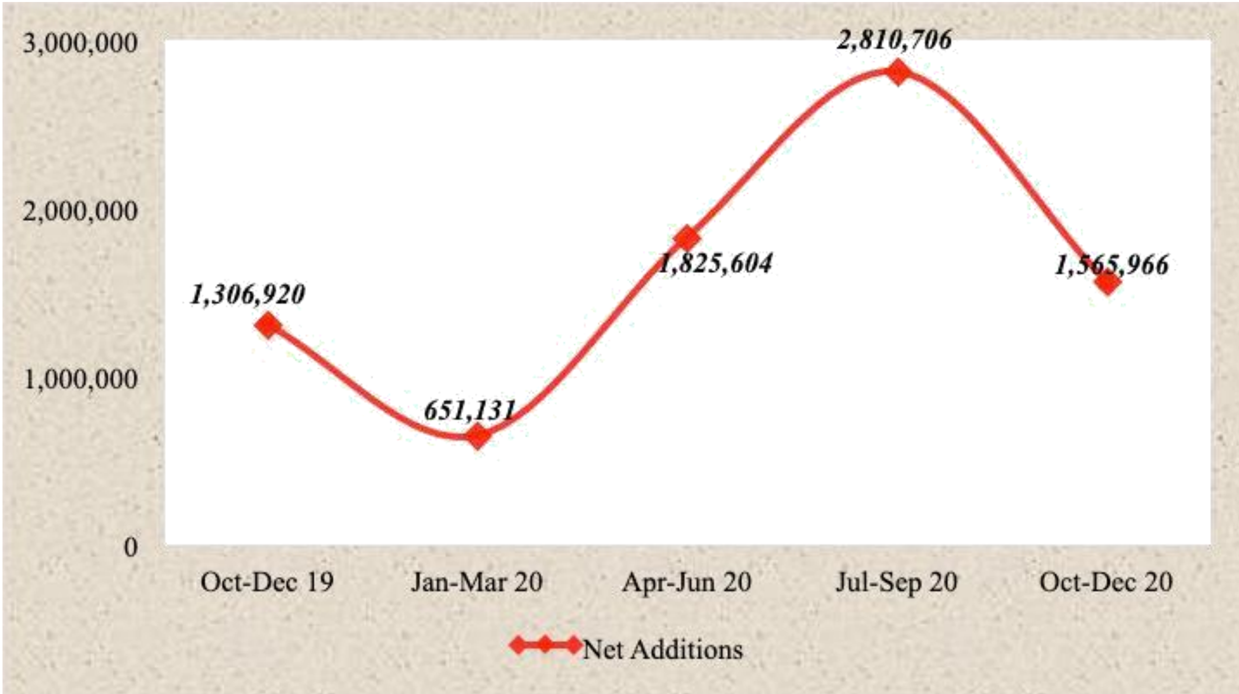


Source: CA, Operators' Returns

Figure 1: Mobile Subscriptions and Penetration

Contrary to the preceding 2 quarters, the number of SIM additions declined during the period under review to 1.6 million from 2.8 million net additions posted in September 2020.

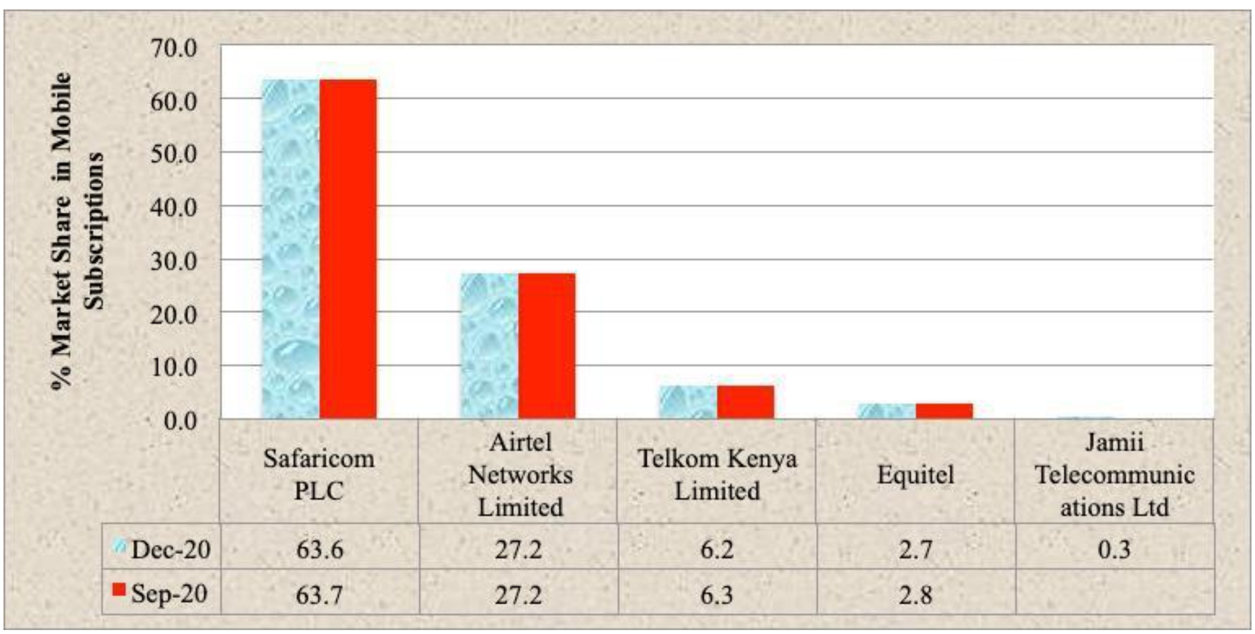
[1] The voice over LTE (VoLTE) is the service that aims to deliver voice and video communication over packet-based networks, which include LTE technology, on the access stratum. It means that either traditional fixed or mobile telecommunication operators who implemented LTE technology as access technology to its core IP network might provide VoLTE services



Source: CA, Operators' Returns

Figure 2: Net Additions

Figure 3 illustrates the trends in the market shares by operator over the two quarters.



Source: CA, Operators' Returns

Figure 3: Market Shares in Mobile Subscriptions per Operator

Table 1 provides the number of active mobile subscriptions per operator by contract type.

Table 1: Mobile Subscriptions by Contract Type and Operator

Operator Name /Indicator	*Dec-20*			*Sep-20*			*Quarterly Variation (%)*
	Pre-paid	*Post-paid*	*Total*	*Pre-paid*	*Post-paid*	*Total*	
Total Mobile Subscriptions	**60,167,160**	**1,241,744**	**61,408,904**	**58,619,571**	**1,223,367**	**59,842,938**	**2.6**
Safaricom PLC	37,991,385	1,077,957	39,069,342	37,090,704	1,053,709	38,144,413	2.4
Airtel Networks Limited	16,578,051	99,006	16,677,057	16,161,174	106,218	16,267,392	2.5
Telkom Kenya Limited	3,758,676	64,781	3,823,457	3,702,906	63,440	3,766,346	1.5
Equitel	1,678,127	-	1,678,127	1,664,787	-	1,664,787	0.8
Jamii Telecommunications Ltd	160,921	-	160,921	-	-	-	-

Source: CA, Operators' Returns

1.2 Mobile Money Services

The number of active registered mobile money subscriptions stood at 32.5 million, whereas number of active mobile money agents stood at 264,390 during the period under review. The value of transfers across pay bill and till numbers grew significantly as shown in Table 2.

Table 2: Mobile Money Transfer Services

Indicator/Period	*Dec-20*	*Sep-20*	*Quarterly Variation (%)*
Agents	264,390	245,124	7.9
Active Registered Mobile Money Subscriptions	32,460,015	31,791,413	2.1
Value of C2B Transfers in KShs.	983,777,277,397	735,903,401,951	33.7
Value of B2C Transfers in KShs	648,818,098,982	530,771,471,386	22.2
Value of B2B Transfers in KShs	1,704,036,296,548	1,336,552,782,688	27.5
Value of G2C Transfers in KShs	7,150,984,960	7,489,510,294	-4.5
Value of C2GTransfers in KShs.	13,175,754,206	12,365,356,613	6.6
Volume of P2P Transfers	871,466,799	713,955,857	22.1
Value of P2PTransfers in KShs	1,031,820,276,516	896,495,417,382	15.1
Total value of Deposits in KShs	1,101,141,086,262	888,107,405,936	24.0

Source: CA, Operators' Returns,

1.3 Mobile Number Portability

As illustrated in the Figure 4, 508 numbers were ported between mobile operator's networks during the period under review. Safaricom PLC had the highest number of in-ports at 462 during the review period, whereas Airtel Networks Ltd and Telkom Kenya recorded 31 and 15 in-ports respectively.

Source: CA, Operators' Returns

Figure 4: Mobile Number Portability

1.4 Mobile Traffic and Usage Pattern

1.4.1 Local Voice Traffic

During the quarter under review, the total local mobile voice traffic grew by 8.2 percent to 19.7 billion minutes. The increase is mainly attributed to *Safaricom@20 Promotion* that aimed at availing new subscribers with attractive voice and data bundle offers, while offering similar incentives to their existing customers. The offer ran from 23rd October 2020 to 20th January 2021. Customers enjoyed 20 voice minutes and 20 Mbps for Kshs. 20 as well as free first call of the day with an FUP (Fair Usage Policy) of 20 minutes.

The volume of on-net mobile voice traffic rose by 8.6 percent to post 17.3 billion minutes, from 16.0 billion minutes registered in the last quarter. On a similar trend, off-net mobile voice traffic increased to 2.3 billion from 2.2 billion minutes recorded during the previous quarter. On the contrary, mobile to fixed network voice traffic declined by 3.7 percent to 16.9 million minutes, from 17.6 million minutes recorded in the last quarter.

Table 3 shows summary trends in local mobile voice traffic.

Table 3: Local Mobile Voice Traffic in Minutes

Mobile Traffic	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
Total Outgoing Traffic	**19,661,950,974**	**18,170,358,095**	8.2
Own Network – Own Network	17,325,415,414	15,951,044,360	8.6
Own Network to Other Mobile Networks	2,319,629,906	2,201,761,409	5.4
Mobile Network to Fixed Network	16,905,654	17,552,326	-3.7

Source: CA, Operators' Returns

1.4.2 Voice Traffic by Operator

During the period under review, Safaricom PLC recorded 13.6 billion minutes voice traffic up from 11.8 billion minutes reported during the first quarter. Consequently, its local mobile voice market share rose by 4.5 percentage points to 69.2 percent.

Airtel Networks Limited registered 5.6 billion minutes originating from its mobile network down from 5.8 billion minutes reported in the preceding quarter. As a result, its market shares for local voice declined to 28.5 percent from 32.1 percent recorded in the previous quarter.

The total outgoing local mobile voice traffic reported by Telkom Kenya Limited declined to 428.5 million from 539.0 million minutes reported in the previous quarter. Subsequently, its voice market share dropped by 0.8 percentage point to stand at 2.2 percent

Equitel recorded 25.0 million minutes of outgoing mobile voice traffic during the review period, a decline from 27.3 million minutes, posted in the last quarter.

Jamii Telecommunications Limited registered 1,140,945 minutes of outgoing voice traffic during the period.

The traffic volumes by service provider and the respective market shares are shown in Table 4.

Table 4: Local Mobile Voice Traffic by Operator

Period	*Name of Operator /Indicator*	*Safaricom PLC*	*Airtel Networks Kenya Limited*	*Telkom Kenya Limited*	*Equitel*	*Jamii Telecommunications Ltd*	*Total*
Oct-Dec 20	On-net	12,907,136,339	4,182,633,631	233,526,679	2,094,972	23,793	17,325,415,414
	Off-net	690,971,548	1,409,635,793	194,970,329	22,935,084	1,117,152	2,319,629,906
	Total	**13,598,107,887**	**5,592,269,424**	**428,497,008**	**25,030,056**	**1,140,945**	**19,645,045,320**

	Market share (%)	69.2	28.5	2.2	0.1	0.0	
Jul-Sep 20	On-net	11,127,308,928	4,493,918,359	327,239,102	2,577,971	_	15,951,044,360
	Off-net	623,340,771	1,332,862,563	211,805,929	24,752,146	_	2,201,761,409
	Total	**11,750,649,699**	**5,826,780,922**	**539,045,031**	**27,330,117**	**_**	**18,152,805,769**
	Market share (%)	64.7	32.1	3.0	0.2		

Source: CA, Operators' Returns

During the period under review, the average minutes of use per call for on-net and off-net local mobile voice traffic stood constant at 1.7 and 1.0 minutes respectively. Airtel Networks Limited subscribers recorded the highest call duration of on-net minutes per call, though it declined to 2.7 minutes from 3.4 minutes posted in the previous quarter. Jamii Telecommunications Limited registered the longest call duration of off-net per call at 1.4 minutes.

Table 5 presents average Minutes of Use per Call per operator.

Table 5: Minutes of Use per Call per Operator

	Oct-Dec 20		***Jul-Sep 20***	
Operator	***On-net***	***Off-net***	***On-net***	***Off-net***
Total	**1.7**	**1.0**	**1.7**	**1.0**
Safaricom PLC	1.5	0.9	1.4	0.9
Airtel networks Limited	2.7	1.0	3.4	1.0
Telkom Kenya Limited	1.6	1.2	1.9	1.2
Equitel	2.1	1.3	2.0	1.3
Jamii Telecommunications Ltd	0.1	1.4	_	_

Source: CA, Operators' Returns

1.4.3 Domestic Short Messaging Service (SMS) Traffic

The total local SMS sent from mobile networks during the quarter declined by 16.5 percent to 14.2 billion messages from 17.0 billion recorded in the preceding quarter. The drop is a result of reduction in SMS bundle usage with many customers preferring to take advantage of the available voice and data offers instead, from the *Safaricom@20* promotion.

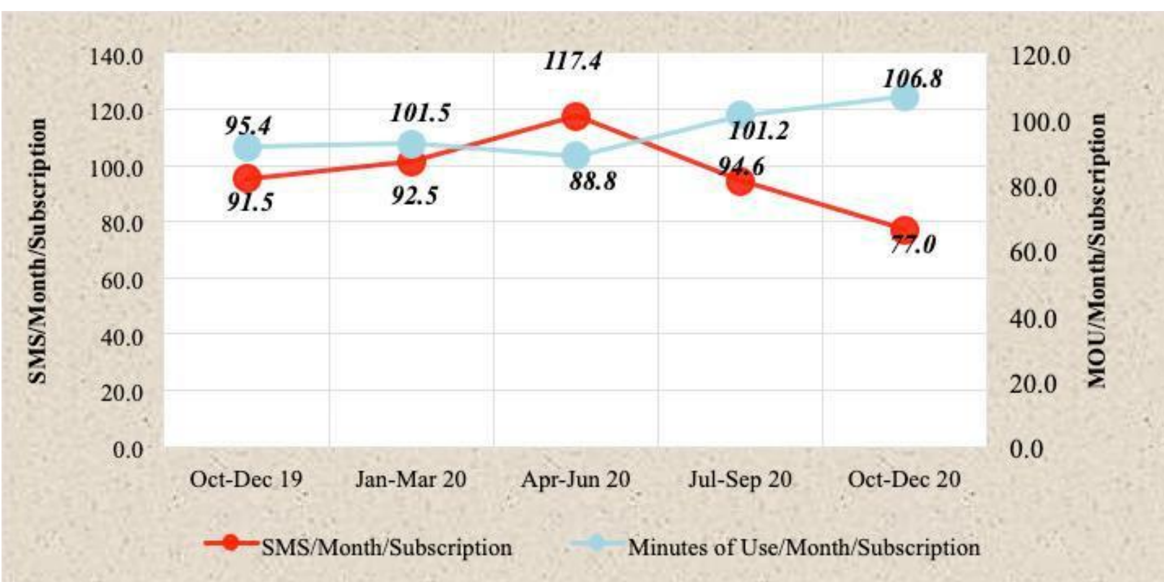
SMS traffic and the corresponding market shares per operator are as shown in Table 6.

Table 6: Local Mobile SMS Traffic by Operator

Period	*Name of Operator /Indicator*	*Safaricom PLC*	*Airtel Networks Kenya Limited*	*Telkom Kenya Limited*	*Equitel*	*Jamii Telecommunications Ltd*	*Total*
Oct-Dec 20	On-net	12,504,363,015	399,260,526	10,368,264	2,822,756	12,050	**12,916,826,611**
	Off-net	568,588,001	621,519,823	67,806,027	6,813,252	265,601	**1,264,992,704**
	Total	**13,072,951,016**	**1,020,780,349**	**78,174,291**	**9,636,008**	**277,651**	**14,181,819,315**
	Market share (%)	92.2	7.2	0.6	0.1	0.0	
Jul-Sep 20	On-net	15,354,488,945	265,492,097	12,719,175	3,344,630	_	**15,636,044,847**
	Off-net	637,175,501	632,149,693	74,685,591	6,870,143	_	**1,350,880,928**
	Total	**15,991,664,446**	**897,641,790**	**87,404,766**	**10,214,733**	_	**16,986,925,775**
	Market share (%)	94.1	5.3	0.5	0.1		

Source: CA, Operators' Returns

During the second quarter of FY 2020/21, the number of short messages sent per subscription per month dropped to 77.0 from 94.6 posted in the first quarter. On the other hand, Minutes of Use per Month per Subscription rose to 106.8 from 101.2 registered in the preceding quarter. The drop in SMS sent per Subscription per month is attributed to reduction in SMS bundle usage with many customers preferring to take advantage of the available voice and data offers instead, from the *Safaricom@20* promotion.



Source: CA, Operators' Returns

Figure 5: Voice vs SMS Market Shares per Operator

1.4.4 International Mobile Traffic

During the period under review, international mobile voice minutes originating from EAC countries declined significantly to 54.2 million from 79.9 million minutes posted in the preceding quarter. This drop is mainly attributed to the conclusion of several international voice promotions offered by MTN Rwanda during the previous period. Total international incoming mobile voice minutes dropped by 21.4 percent to 106.8 minutes. On the contrary, international outgoing mobile voice minutes grew by 3.0 percent to record 125.1 minutes during the review period.

The trends in international mobile voice and SMS traffic within the EAC region and other countries across the globe are as outlined in Table 7.

Table 7: International Mobile Traffic

Traffic	*Region*	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
International Incoming Mobile Voice Minutes	*EAC*	54,172,446	79,876,689	**-32.2**
	Others	52,631,556	55,955,682	**-5.9**
	Total	**106,804,002**	**135,832,371**	**-21.4**
International Outgoing Mobile Voice Minutes	*EAC*	61,410,399	58,093,028	**5.7**
	Others	63,652,278	63,321,292	**0.5**
	Total	**125,062,677**	**121,414,320**	**3.0**
International Incoming Mobile SMS		9,460,932	9,312,674	**1.6**
International Outgoing Mobile SMS		10,092,180	8,735,589	**15.5**

Source: CA, Operators' Returns

1.4.5 Roaming Traffic

The summary of out-bound and in-bound roaming for voice, SMS and data services are as illustrated in Table 8 and Table 9.

Table 8: Out-bound Roaming Traffic

Country/Indicator	*Incoming Voice (Minutes)*	*Incoming SMS*	*Outgoing Voice (Minutes)*	*Outgoing SMS*	*Data Volumes (MB)*
Uganda	73,823,739	4,069,599	5,536,944	4,279,158	12,328,960
Tanzania	313,462	7,116,425	307,341	1,197,712	1,525,248
Rwanda	5,933,056	76,317	480,470	329,663	879,120
Burundi	7,744	381,929	4,961	35,863	5,861
S. Sudan	4,523,880	549,538	986,788	852,772	155,310
Others	1,238,834	19,496,799	5,318,680	8,549,439	9,175,890
Totals	**85,840,715**	**31,690,607**	**12,635,184**	**15,244,607**	**24,070,389**

Source: CA, Operators' Returns

Table 9: In-bound Roaming Traffic

Country/Indicator	*Incoming Voice (Minutes)*	*Incoming SMS*	*Outgoing Voice (Minutes)*	*Outgoing SMS*	*Data Volumes (MB)*
Uganda	25,812,128	3,157,482	702,630	331,759	523,188
Tanzania	65,839	7,599,532	62,844	64,895	251,773
Rwanda	7,479,736	872,206	184,004	30,102	95,420
Burundi	377	16,570	822	218	40
S. Sudan	4,150,424	344,038	105,467	208,618	44,141
Others	672,901	5,691,310	1,307,056	452,670	40,573,935
Totals	**38,181,405**	**17,681,138**	**2,362,823**	**1,088,262**	**41,488,497**

Source: CA, Operators' Returns

2 FIXED TELEPHONE SERVICE

2.1 Fixed Network Subscriptions

As at 31st December 2020 fixed line and fixed wireless subscriptions stood at 16,003 and 1,066 respectively, whereas that of VoIP stood at 49,577. Table 10 shows trends in fixed network subscriptions.

Table 10: Fixed Network Subscriptions

Subscriptions	*Dec-20*	*Sep-20*	*Quarterly Variation (%)*
Fixed Line	16,003	17,650	-9.3
Fixed Wireless	1,066	992	7.5
Fixed VoIP	49,577	47,038	5.4

Source: CA, Operators' Returns

2.2 Fixed Network Traffic

As shown in Table 11, the total local fixed network traffic grew by 11.6 percent during the period under review to post 5.6 million minutes from 4.6 million minutes reported in the previous quarter.

Table 11: Local Fixed Network Traffic in Minutes

Local Fixed Network Traffic	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
Fixed-Fixed	144,392	167,134	-13.6
Fixed Wireless-Fixed Wireless	268,632	235,757	13.9
Fixed to Mobile	5,157,013	4,586,564	12.4
Total Local Fixed Network Traffic	**5,570,037**	**4,989,455**	**11.6**

Source: CA, Operators' Returns

2.3 International Fixed Voice Traffic

As illustrated in Table 12, there was a general decline in international fixed voice network traffic during the quarter under review.

Table 12: International Fixed Voice Network Traffic

International Fixed Network traffic	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
International Incoming Fixed Network Voice Traffic	4,283,828	5,686,332	-24.7
International Outgoing Fixed Network Voice Traffic	1,152,530	2,093,327	-44.9
International Outgoing Fixed VoIP Traffic	861,672	885,672	-2.7

Source: CA, Operators' Returns

3 DATA/INTERNET SERVICES

3.1 Data and Broadband Services

As the end of the 2020, more and more services had moved to online, which has lead to increase in consumption of data/internet. In addition, traffic growth has been fueled by more consumers viewing video content as a result of rising number of internet enabled phones as well as availability of high speed Internet in the country.

During the second quarter of FY 2020/21, the total data/Internet subscriptions amounted to 44.4 million subscriptions. These comprised 43.8 million wireless subscriptions and 572,982 fixed (wired) subscriptions.

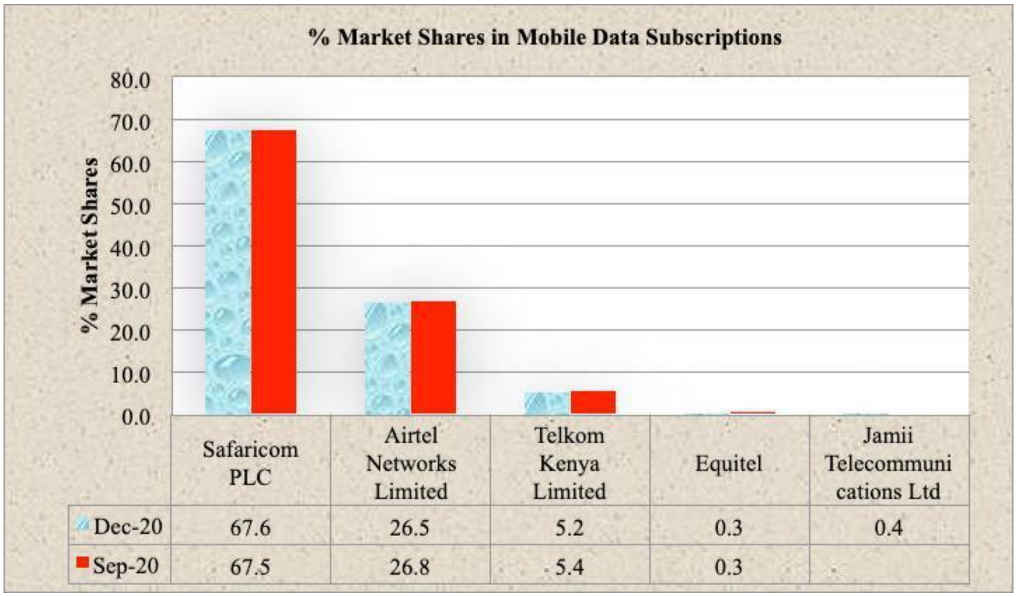
Table 13: Data/Internet Subscriptions

Indicator/Period	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
Total Wireless Subscriptions	**43,811,237**	**42,899,145**	**2.1**
Mobile Data Subscriptions	43,707,173	42,806,044	2.1
Terrestrial Wireless Data Subscribers	102,794	91,826	11.9
Satellite Data Subscribers	1,270	1,275	-0.4
Total Fixed (Wired) Subscriptions	**580,253**	**551,715**	**5.2**
Fixed DSL Data Subscribers (Copper)	870	995	-12.6
Fixed Fibre Optic Data Subscribers	400,355	373,835	7.1
Fixed Cable Modem Subscribers	178,224	176,081	1.2
Other Fixed Data Subscribers (e.g. Radio)	804	804	0.0
Total Subscriptions	**44,391,490**	**43,450,860**	**2.2**

Source: CA, Operators' Returns

3.2 Market Shares in Mobile Data/Internet Subscriptions by Operator

Figure 6 illustrates the market shares trends in Mobile Data/Internet Subscriptions by Operator.



Source: CA, Operators' Returns

Figure 6: Market Shares in Mobile Data Subscriptions per Operator

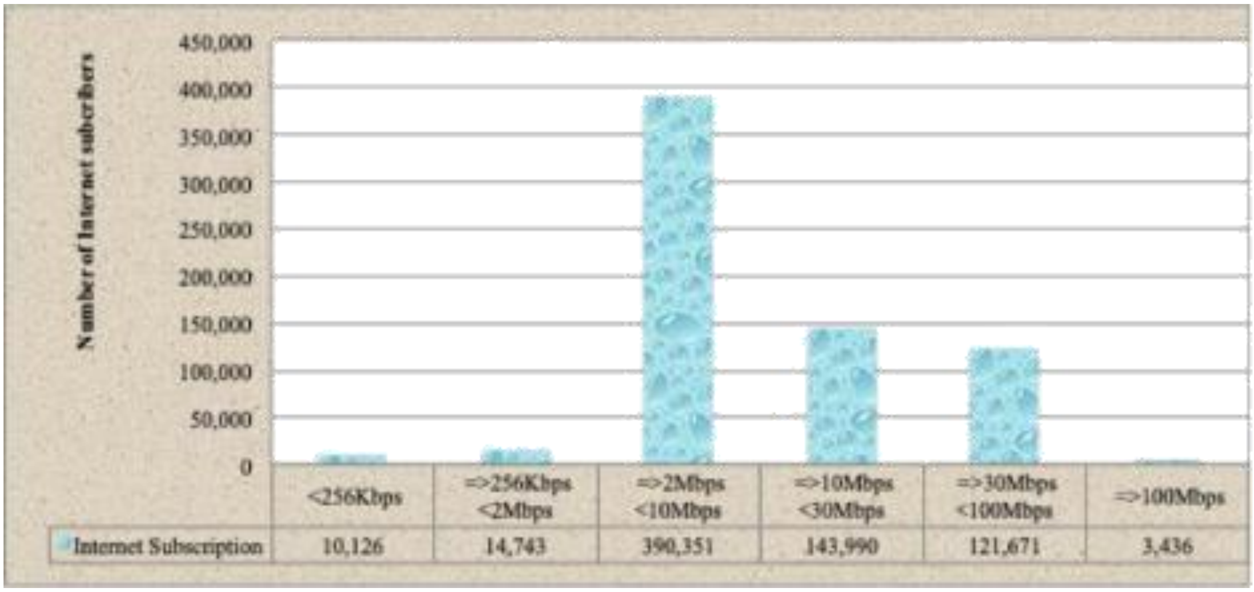
3.3 Fixed Data/Internet Subscriptions by Speed

During the referenced period, subscribers with a speed range equals to or greater than 2Mbps and less than10 Mbps recorded the highest subscriptions share of 57.3 percent, whereas subscribers of the range speed equals to or higher than 100Mbps recorded the least percentage share of 0.4 percent of the total fixed subscriptions.

Table 14: Fixed Data/Internet Subscriptions by Speed and Technology

Internet Technology/Speeds	*<256Kbps*	*=>256Kbps < 2Mbps*	*=>2 Mbps <10 Mbps*	*=>10Mbps <30 Mbps*	*=>30 Mbps <100Mbps*	*=>100 Mbps*	*Totals*
Cable Modem	-	-	128,786	26,505	22,283	650	178,224
Copper (DSL)	35	224	562	49	-	-	870
FTTH/O	5	4,668	178,261	115,556	99,148	2,717	400,355
Fixed Wireless	10,048	9,303	81,737	1,543	156	7	102,794
Satellite	38	443	650	139	-	-	1,270
Other Fixed	0	105	355	198	84	62	804
Totals	**10,126**	**14,743**	**390,351**	**143,990**	**121,671**	**3,436**	**684,317**

Source: CA, Operators' Returns



Source: CA, Operators' Returns

Figure 7: Number of Internet Subscribers by Internet Speed

Table 15 shows Fixed Data Subscriptions per Service Provider and their respective market shares.

Table 15: Fixed Data Subscriptions per Service Provider

Name of service Provider	***Number of data/internet subscriptions***	***Percentage Market share***
Safaricom PLC	243,623	35.6
*Wananchi Group (Kenya) Ltd**	206,989	30.2
Jamii Telecommunications Ltd	131,793	19.3
Poa Internet Kenya Ltd	59,614	8.7
Liquid Telecommunications Kenya	13,047	1.9
Mawingu Networks Ltd	11,501	1.7
Dimension Data Solutions East Africa Limited (formerly Internet Solutions Kenya Ltd)	9,578	1.4
Telkom Kenya Ltd	4,641	0.7
*Mobile Telephone Network (MTN)***	474	0.1
Other Fixed Service providers	3,057	0.4

Source: CA Operators' Returns, * includes Wananchi Group, Wananchi Telecom, ISAT and Simba net, **Provisional data

3.4 Broadband Services

3.4.1 Mobile Broadband

During the period under review, the total broadband subscriptions rose by 4.6 percent to 25.8 million, from 24.6 million subscriptions registered in the last quarter. The number of 3G broadband subscriptions dropped by 2.2 percent to 14.3 million subscriptions. On the other hand, 4G broadband subscriptions grew by 15.3 percent in the referenced period, which is an indication of growing uptake of 4G technology in the country

The volume of mobile data consumed during the period grew to 165.8 million from 142.6 million GB used in the previous quarter as shown in Table 16.

Table 16: Broadband Subscriptions

Indicator/Period	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
Total Broadband Subscriptions	**25,775,873**	**24,633,054**	**4.6**
Total Mobile Broadband Subscriptions	**25,114,693**	**23,998,306**	**4.7**
3G Broadband Subscriptions	14,270,593	14,596,041	-2.2
4G Broadband Subscriptions	10,844,100	9,402,265	15.3
Fixed Broadband Subscriptions	**661,180**	**634,748**	**4.2**
Consumed Mobile Data Volumes (GB)	165,783,102	142,640,432	16.2

Source: CA, Operators' Returns

3.4.2 Fixed Broadband Subscriptions

Table 17 illustrates broadband subscriptions by speed and technology.

Table 17: Fixed Broadband Subscriptions by Speed and Technology

Internet Technology/Speeds	*=>256Kbps < 2Mbps*	*=>2 Mbps <10 Mbps*	*=>10Mbps <30 Mbps*	*=>30 Mbps <100Mbps*	*=>100Mbps*	*Totals*
Cable Modem	-	128,786	26,505	22,283	650	178,224
Copper (DSL)	224	562	49	0	0	835
FTTH/O	4,668	178,261	115,556	99,148	2,717	400,350
Fixed Wireless	9,303	81,737	1,543	156	7	92,746
Satellite	443	650	139	-	-	1,232
Other Fixed	105	355	198	84	62	804
Totals	**14,743**	**390,351**	**143,990**	**121,671**	**3,436**	**674,191**

Source: CA, Operators' Returns

3.5 International Bandwidth

During the quarter under review, the total International Internet bandwidth available in the country grew by 2.7 percent to 8,091.43Gbps, from 7,875.54Gbps recorded in the preceding quarter.

The total utilized bandwidth capacity increased by 8.5 percent to 4,008.10; out of which 2,522.35Gbps was used in the country, while 1,485.66Gbps was sold to other countries.

The trends in International Lit/Equip and Used Bandwidth are as shown in Table 18.

Table 18: International Internet Bandwidth (Gbps)

Indicator/ Operator	*Oct-Dec 20*		*Jul-Sep 20*		*Quarterly Variation (%)*
Total Available (Lit/Equip) Bandwidth Capacity	**8,091.43**		**7,875.54**		**2.7**
Undersea Bandwidth Capacity	***SEACOM***	2,940.00	2,940.00		0.0
	TEAMS	1,618.00	1,618.00		0.0
	EASSY	3,160.00	2,940.00		7.5
	Lion 2	367.97	372.06		-1.1
Satellite Bandwidth Capacity	**5.46**		**5.48**		**-0.36**
Utilized Bandwidth in Gbps					
Total Utilized Bandwidth Capacity					
Undersea Bandwidth Capacity	***Sold In Kenya***	***Sold to other Countries***	***Sold In Kenya***	***Sold to other Countries***	
	2,522.35	1,485.66	2,329.35	1,365.66	8.5
Satellite Internet Capacity	**2.58**		**2.61**		**-1.15**

Source: CA, Operators' Returns

3.6 Registered Domain Names

The distribution of sub-domains in the country as at the end of December 2020 is as shown in Table 19.

Table 19: .KE Domains

SUB-DOMAIN	USE	Oct-Dec 20		Jul-Sep 20	
		Domains	% Users	Domains	% Users
CO.KE	Companies	93,776	95.2	90,494	95.2
OR.KE	Non-Profit-Making Organizations	1,930	2.0	1,860	2.0
AC.KE	Institutions of Higher Education	962	1.0	912	1.0
SC.KE	Lower and Middle Level Institutions	838	0.9	815	0.9
NE.KE	Personal Websites and E-mail	51	0.1	52	0.1
ME.KE	Personal Websites and E-mail	182	0.2	179	0.2
MOBI.KE	Mobile Content	43	0.0	40	0.0
INFO.KE	Information	156	0.2	152	0.2
GO.KE	Government Institutions	606	0.6	597	0.6
Total		**98,544**		**95,101**	

Source: CA, Operators' Returns

4 National Cyber Threat Landscape

4.1 Cyber Threats Statistics

During the period under review, the National KE-CIRT/CC detected 56,206,097 cyber threat events. This was a 59.8 percent increase from the previous period, where 35,173,937 cyber threat events had been detected. This was mainly attributed to the significant increase in Malware, DDoS/Botnet and Web Application attacks recorded during the period. The increase in cyber threat events detected is attributed to the systematic resumption to normalcy amongst sectors and services that were previously dormant due to the restrictions surrounding the Covid-19 pandemic. Trends in detected Cyber threats are illustrated in Table 20.

Table 20: Cyber Threats Detected

Cyber Threat	*Oct-Dec 20*	*Jul-Sep 20*	*Quarterly Variation (%)*
Total	**56,206,097**	**35,173,937**	**59.8**
Malware	46,069,525	31,842,635	44.7
DDOS/Botnet	2,260,036	1,245,451	81.5
Web Application Attacks	7,847,457	2,057,369	281.4
System vulnerabilities	29,079	28,482	2.1

Source: National KE-CIRT/CC

In response to the threat events detected, the National KE-CIRT/CC issued 21,513 advisories, which was a 1.0 percent decrease compared to the 21,728 advisories issued in the previous period. Cyber threats advisories is illustrated in Table 21.

Table 21: Cyber Threats Advisories

Cyber Threat Advisories	Oct-Dec 20	Jul-Sep 20	Quarterly Variation (%)
Total	**21,513**	**21,728**	**-1.0**
Malware	850	1,003	-15.3
DDOS/Botnet	234	326	-28.2
Web Application Attacks	625	305	104.9
System Vulnerabilities	19,521	19,674	-0.8
Others	283	420	32.6

Source: National KE-CIRT/CC

As shown in Table 22, during the quarter under review, the National KE-CIRT/CC received 224 investigation related requests as compared to 354 requests in the previous period, which represents a decline of 36.7 percent. The decline is attributed to the National KE-CIRT/CC concerted cyber awareness efforts to counter these harmful online practices. In the investigation category, there was a decrease in impersonation, online fraud, online abuse (incitement and Cyber bullying) and child abuse cases, reported to the National KE-CIRT/CC. Child abuse cases decrease was mainly attributed to the National KE-CIRT/CC collaborative efforts with the Directorate of Criminal Investigation's Child Protection Unit (DCI CPU).

Table 22: Investigation Category

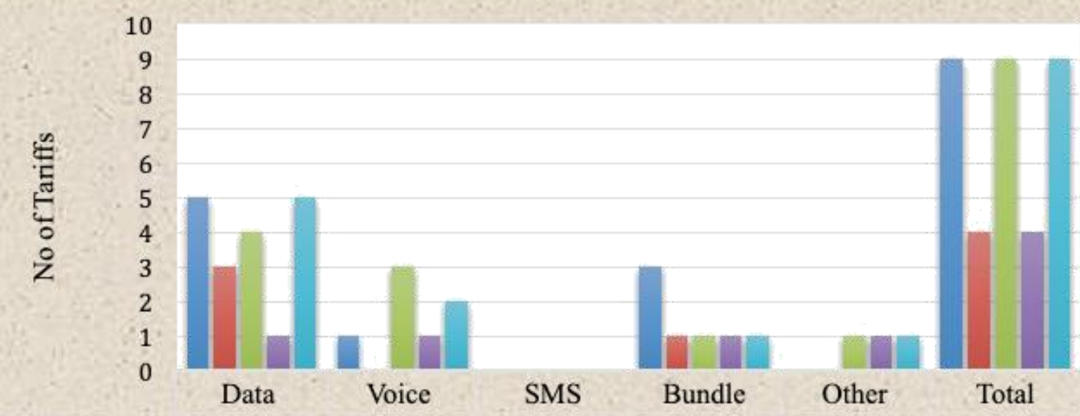
Investigation Category	Oct-Dec 20	Jul-Sep 20	Quarterly Variation (%)
Total	**224**	**354**	**-36.7**
Impersonation	121	123	-1.6
Online Fraud	32	97	-67.0
Online Abuse	69	128	-46.1
Child Abuse	2	6	-66.7

Source: National KE-CIRT/CC

5 TARIFFS, PROMOTIONS AND SPECIAL OFFERS

During the quarter under review, the Authority received 27 applications for new tariffs and promotions & special offers, as compared to 16 applications received in the previous quarter. This represented a growth of 68.8 percent. Further, the Authority received 6 applications for revision of existing tariffs, and promotions & special offers during the second quarter of the FY 2020/21.

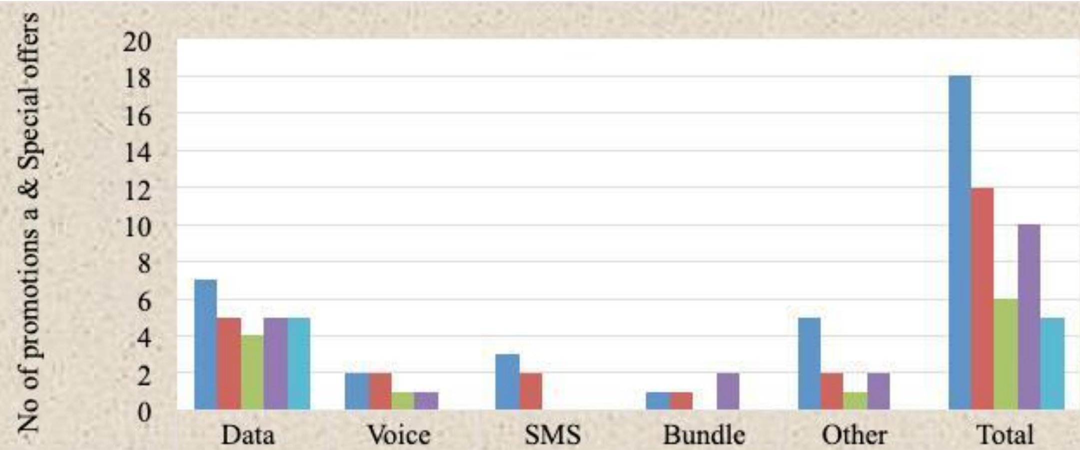
A detailed distribution of new applications for tariffs, and promotions & special offers over the past five quarters is illustrated in Figures 8 and 9 respectively.



	Data	Voice	SMS	Bundle	Other	Total
Oct- Dec 2020	5	1	0	3	0	9
July - Sept 2020	3	0	0	1	0	4
April- June 2020	4	3	0	1	1	9
Jan - March 2020	1	1	0	1	1	4
Oct- Dec 2019	5	2	0	1	1	9

Source: CA, filed tariffs, promotions and special offers

Figure 8: Tariffs



	Data	Voice	SMS	Bundle	Other	Total
Oct- Dec 2020	7	2	3	1	5	18
July - Sept 2020	5	2	2	1	2	12
April- June 2020	4	1	0	0	1	6
Jan - March 2020	5	1	0	2	2	10
Oct- Dec 2019	5	0	0	0	0	5

Source: CA, filed tariffs, promotions and special offers

Figure 9: Promotions and Special Offers

6 FREQUENCY SPECTRUM MANAGEMENT

Radio frequency spectrum is a national resource that should be managed and utilized effectively and efficiently. The Authority while exercising its mandate has to plan, allocate, assign, issue frequency licenses, monitor, carry out surveillance and coordinate the usage of the radio frequency spectrum resource to ensure optimal & efficient utilization. Below are highlights on spectrum management, however the full is annexed at the end of this report.

To facilitate provision of communications services, the Authority made offer for frequencies for 104 microwave links to various operators for deployment in 2nd Quarter of 2020/2021. Similarly, the Authority processed the decommissioning of 11 fixed during the same period. Further, the Authority assigned fourteen FM broadcasting frequencies and authorized five frequency assignments in the 1800MHz, 2100 MHz and 3.5GHz bands. There were no assignments of frequencies with respect to Fixed Wireless Access (FWA) systems, earth stations and digital broadcasting.

7 BROADCASTING SERVICES

By the end of the second quarter of FY 2020/21, subscriptions for broadcasting services had grown by 2.2 percent from the first quarter with a total of 5,404,827 subscribers at the close of the quarter. This consists of 3,935,960 subscribers on Digital Terrestrial Television (DTT) platform, 1,389,839 subscribers on Direct to Home (DTH) platform and 79,028 subscribers on the cable TV platform.

8 CONCLUSION

The ICT sector has transformed and evolved immensely as a result of the global pandemic that began early this year. The outbreak resulted in increased demand and acquisition of telecommunication services and products by consumers. The pandemic has exposed market gaps and need for research areas that can be used to update the Kenya's Digital Economy Blueprint in order to actualize a digitally transformed nation and to also ensure that there is growth in the digital economy. This can be achieved through government intervention and innovative partnerships aimed at improving the digital scope of the country, by assuring access, equity and affordability of telecommunication services to all.

ANNEX 1: FREQUENCY SPECTRUM ALLOCATION AND ASSIGNMENT REPORT

FOR THE PERIOD 1ST OCTOBER 2020 TO 31ST DECEMBER 2020

1. INTRODUCTION

Radiofrequency spectrum is a national resource that should be managed and utilized effectively and efficiently. In the exercise of its mandate, the Authority plans, allocates and assigns frequency resources to support a host of wireless services. Also, the Authority monitors and undertakes surveillance and coordination of the usage of the radio frequency spectrum resource to ensure optimal and efficient utilization.

The Authority has committed to increasing the number of licensees in the sector. In the 2nd Quarter, the Authority received 33 applications, processed and issued a total of 29 licenses, representing 87% of total applications. Four (4) pending licence applications are undergoing due process, which represents 13% of the total applications.

2. RADIO FREQUENCY SPECTRUM MANAGEMENT ACTIVITIES

Highlights of spectrum management activities concerning various radiocommunication services that were undertaken during the 2nd quarter are provided below.

2.1. FIXED LINKS

To facilitate backhaul for mobile network traffic, the Authority assigned frequencies in the 5, 7/8, 15, 18, 71 GHz bands to various operators for deployment of 104 microwave links and processed the decommissioning of 11 fixed links.

2.2. FM SOUND BROADCASTING

During the 2nd quarter, the Authority assigned 14 additional FM sound broadcasting frequencies to broadcasters to serve Embu, Garissa, Kiambu, Mandera, Marsabit, Meru, Nakuru, Nyeri, Siaya and Wajir.

2.3. DIGITAL TERRESTRIALTV (DTT) BROADCASTING

No assignments of frequencies for Digital Terrestrial Television Broadcasting services were issued.

2.4. MOBILE CELLULAR SERVICES

During the quarter, the Authority issued frequency authorisations in the 3.5 GHz band to four (4) licensees in the 1800 and 2100 MHz band to one licensee.

2.5. PRIVATE MOBILE RADIO SERVICE

The Authority received 23 applications for Private Mobile Radio License applications. Nineteen (19) applicants were granted licences while four (4) are undergoing the due process. Notably, 53 % of applications were made by security firms.

2.6. RADIO ALARM SERVICE

Seventy one (71) licences for VHF alarm systems were issued.

2.7. AERONAUTICAL RADIO STATION SERVICE

Aeronautical radio stations are radio installations aboard aircraft that provide ground – to - ground and air - to -ground communication services to aviation operators. The Authority manages access to the HF and VHF aeronautical bands by licensing Aircraft stations and other aeronautical radio installations. As per the ICAO rules, all aircraft must have a radio licence before they are permitted to fly.

During the quarter under review, 38 licences for Aeronautical radio stations were issued.

2.8. AMATEUR RADIO SERVICE

Amateur radio refers is a service that uses radio frequency spectrum for purposes of non-commercial exchange of messages, wireless experimentation, self-training, private recreation, contesting, and emergency communication.

The Authority licenses radio amateurs under the categories of Novice, Temporary and Permanent. A novice licence is given to beginners and students who take up this service. Temporary licences are issued to visiting Hams who have amateur radio operator certificates from countries that reciprocate with Kenya. The full/permanent licence is issued to those who have attained qualifications as administered by The Amateur Radio Society of Kenya (ARSK). The Authority collaborates with the radio society in the issuance of certificates, in accordance with global best practice.

No authorisations for Amateur radio service were issued during the 2nd Quarter.

2.9. CITIZEN BAND SERVICE

Citizens band radio is a land mobile radio system that allows short-distance person-to-person bidirectional voice communication between individuals. Citizens band is distinct from the Amateur Radio Service.

Two (2) authorisations for Citizen Band radio service were issued during the 2nd Quarter.

2.10. MARITIME SERVICE

Five (5) vessels were issued with Maritime Mobile Service Identity numbers, which is a series of nine digits that are sent in digital form over a radio frequency channel to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations, and group calls. No assignments of frequencies for Maritime service applications services were issued during the 2nd Quarter.

2.11. FIXED WIRELESS ACCESS SERVICES

No assignments of frequencies for Fixed Wireless Access systems were issued during the review period.

2.12. SATELLITE SERVICE

No assignments of frequencies for Satellite Earth Stations were issued.