

**FREQUENCY SPECTRUM ALLOCATION AND ASSIGNMENT REPORT
FOR THE PERIOD 1ST APRIL 2022 TO 30TH JUNE 2022**

PUBLIC VERSION

I. BACKGROUND

1. The radiofrequency spectrum is a national and natural resource that is held in trust and managed by the Authority on the behalf of the people of Kenya. The spectrum resource should be managed and utilized effectively and efficiently.
2. While exercising its mandate, the Authority plans, allocates, assigns, issues frequency licenses, monitors, carries out surveillance and coordinates the usage of the radio frequency spectrum resource to ensure optimal and efficient utilization.
3. The Authority has adopted suitable administrative and technical procedures to ensure various radio communication services operate without causing harmful interference. The Authority manages the radiofrequency spectrum resource efficiently to cater for various radio-communication services.

II. FREQUENCY ASSIGNMENTS AND AUTHORISATIONS

4. To facilitate uptake of radiocommunication services, the Authority assigned frequencies and issued authorisations to licensees for various radiocommunication services during the 4th Quarter of the 2021/22 financial year as highlighted hereunder:

A. FIXED LINKS

5. Fixed radio links are telecommunications systems deployed by network facilities providers, broadcasters, public utilities and emergency services to provide transmission capacity or backhaul for their networks and provide redundancy for other networks.
6. To facilitate the provision of communications services, the Authority assigned spot frequencies for 198 fixed links to various operators for deployment during the 4th quarter and also processed the decommissioning of 357 fixed links as summarized in table 1 below.

Table 1 – Summary of frequencies assigned for fixed links and decommissioned

Band	Purpose	End of 20/21	1 st Quarter		2 nd Quarter		3 rd Quarter		4 th Quarter	
			New	Decom	New	Decom	New	Decom	New	Decom
380 MHz	Broadcast Studio to Transmitter Link	108	3	2	3	0	3	0	0	0
5 GHz	Non-Protected Fixed Links for	2,121	5	4	5	0	0	0	0	3

Band	Purpose	End of 20/21	1 st Quarter		2 nd Quarter		3 rd Quarter		4 th Quarter	
			New	Decom	New	Decom	New	Decom	New	Decom
	WAN Fixed Internet Access									
6 GHz	Backhaul for Mobile Service Base stations	81	0	2	0	0	0	0	0	0
7/8 GHz		1,604	93	70	90	2	57	0	84	88
11 GHz	Fixed Links	6	0	4	0	0	0	0	0	0
13 GHz	Backhaul for Mobile Service Base stations	325	9	14	8	0	0	0	0	6
15 GHz		2,304	72	150	72	6	116	3	82	235
18 GHz		72	15	19	15	0	19	0	24	9
23 GHz		299	27	29	28	0	2	0	2	11
38 GHz	Backhaul for Mobile Service Base stations	85	4	36	4	0	1	0	0	0
71/81 GHz		352	12	33	12	1	12	1	8	5
Total			240	364	237	9	210	4	198	357

B. FIXED WIRELESS ACCESS SERVICE

7. Fixed Wireless Access systems use radio waves to create a connection between a Point-of-Presence cell tower and an external antenna located at a customer's premises. This is primarily used for wireless broadband service provision.
8. The Authority issues frequency assignments to Network Facilities Providers to deploy network infrastructure and provide connectivity to consumers typically within the 1.7, 3.3 and 3.5 GHz bands. The 3.5 GHz band, within which most FWA deployments have been activated in Kenya, will be re-farmed from fixed wireless access to mobile wireless access for 5G technology by 30th June 2022.
9. No frequency assignments for fixed wireless access were issued during the quarter.

C. MOBILE WIRELESS ACCESS SERVICE

10. Mobile Wireless Access networks, or cellular networks, consist of several base stations, each serving wireless transmission and reception of digital information in one or several 'cells', where a cell refers to a specific portion of the overall geographical area the network serves. In most deployment cases one base station is serving three cells through strategic antenna configurations and frequency planning.
11. The Authority issues frequency assignments to Network Facilities Providers to deploy network infrastructure and provide connectivity to consumers over 2G, 3G, 4G and soon 5G networks.
12. No frequency assignments for mobile wireless access were issued during the quarter.

D. FM SOUND BROADCASTING SERVICE

13. FM broadcasting is a method of radio broadcasting using frequency modulation (FM) which is used for airing music, news or general audio content. The Authority issues frequency assignments and licenses to broadcasters to operate within the VHF band 87.5 – 108 MHz, though the frequency band for FM audio broadcasting is at saturation level at most broadcasting sites/areas of the country.
14. During the 4th quarter, the Authority assigned 13 FM sound broadcasting frequencies as summarized in the table below:

Table 2 - Summary of New FM Sound Broadcasting Frequency Assignments

Category	New Assignments 2020/21	New 1st Quarter	New 2nd Quarter	New 3rd Quarter	New 4th Quarter
Commercial	34	10	20	22	13
Community	11	2	4	8	0
Total	45	12	24	30	13

15. Following the public notice dated 22nd December 2021, the Authority revoked 33 FM sound broadcasting frequency assignments from 22 broadcasters who failed to meet/comply with the stipulated regulatory requirements.
16. Under the 2018-2023 strategic plan, the Authority is taking deliberate actions to further enable access to broadcasting services by developing a framework for Digital Sound Broadcasting.
17. The International Telecommunication Union (ITU) already allocated spectrum in the 174-230 MHz (VHF band III) for Digital Audio Broadcasting services as part of the GE06 Agreement thus, paving the way for DAB implementation globally.
18. The adoption of DAB is expected to address the constraints in the availability of frequencies in the designated band for FM sound broadcasting. The advantages of DAB over analogue broadcasting include better sound quality, greater variety of services, higher spectral efficiency, flexible bit rates for varying service profiles, and shared signal distribution infrastructure.
19. With the introduction of DAB broadcasting, the market structure for radio broadcasting will evolve in a number of ways. First, DAB requires a signal distribution network sub-system, which will introduce a new category of stakeholders in the radio market space. The function of radio broadcasters shall evolve to be majorly around content generation/development. Additionally, there will be a new market opportunity for selling/distribution of DAB compatible receivers. Ultimately, the introduction of DAB broadcasting will make it possible to license/authorise additional radio stations at commercial and community levels in the medium term.

E. SATELLITE EARTH STATIONS

20. A Satellite Earth station is a terrestrial radio station designed for telecommunication with space stations or reception of radio waves from astronomical radio sources. Earth stations communicate by transmitting and receiving radio waves in the super high frequency (SHF) or extremely high frequency (EHF) bands. The Authority issues frequency licenses to satellite earth station operators with Hubs in Kenya's territory.
21. There were no frequency assignments for satellite earth stations during the 4th quarter.

F. DIGITAL TERRESTRIAL TELEVISION BROADCASTING

22. Digital Terrestrial Television broadcasting involves the transmission of audio-visual signals, using digital encoding and decoding, through radio waves from ground-based transmitters to TV receivers.
23. There were no new assignments of frequencies for DTT broadcasting during the 4th quarter as compared to 16 assignments during the 3rd quarter.

Table 5 - Summary of Digital Terrestrial TV Broadcasting Stations

Category	No. of Licensees	End of 2020/21	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Broadcast Signal Distributors	2	229	0	0	16	0
Self-Provisioning Broadcasters	3	113	0	0	0	0
Total	5	342	0	0	16	0

G. PRIVATE MOBILE RADIO SERVICE

24. Private Mobile Radio (PMR) service is a land-mobile communication service that serves a closed user group and that is normally owned and operated by the same organization as its users. PMR systems are primarily used by business users who need to keep in contact over relatively short distances with a central base station and a number of mobile terminals and portable or handheld devices. PMR is also widely used by emergency services for public protection and disaster relief.
25. PMR systems generally provide facilities for closed user groups, group calls and push-to-talk communication and have call set-up times which are generally short compared with mobile cellular systems. Many PMR systems allow a direct mode of operation in which terminals can communicate with one another directly when they are out of the coverage area of a network.
26. During the 4th quarter, the Authority issued frequency assignments for 16 networks in the Private Mobile Radio service, compared to 20 during the previous quarter.

Table 6 - Summary of Private Mobile Radio Service Assignments

Category	End of 2020/21	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Private Mobile Radio Licenses	1222	13	7	20	16

H. VHF RADIO ALARM SERVICE

27. A VHF radio alarm system comprises a transmitter connected to a premise alarm panel, panic button or guard monitoring unit that communicates to a security control room to indicate the status of the system. The alarm activation data is encrypted by the transmitter and sent via VHF frequency signal to the decoder in the security control room.
28. The authority assigns spot frequencies for use by security firms that are licensed to operate private mobile radio networks, who respond to alarms triggered by their clients. The Authority assigned frequencies for 5 VHF radio alarm networks, compared to 2 during the previous quarter.

Table 7 - Summary of VHF Radio Alarm Radio Service Assignments

Category	End of 2020/21	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
VHF Radio Alarm Licenses	158	5	3	2	5

I. AERONAUTICAL RADIO SERVICE

29. Aeronautical radio stations are radio installations aboard aircraft that provide ground to ground and air to ground communication services to aviation operators. The authority authorizes access to HF and VHF aeronautical bands by licensing Aircraft stations and other aeronautical radio installations.
30. During the 4th quarter, 416 aeronautical radio service licenses were issued to aircraft compared to 12 during the previous quarter. This is attributed to the close of the financial year where aircrafts are required to renew their radio licenses

Table 3 - Summary of Aeronautical Radio Service Authorisations

Category	End of 2020/21	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Aeronautical Radio Stations	715	17	20	12	416

J. AMATEUR RADIO SERVICE

31. Amateur radio service uses radio frequency spectrum for purposes of non-commercial exchange of messages, wireless experimentation, self-training, recreation and emergency communication. The Authority licenses radio amateurs categorized as Novice, Temporary or Permanent.
32. Temporary licenses are issued to visiting Hams who have amateur radio operator certificates from countries that reciprocate with Kenya. The full/permanent license is issued to those who have attained qualifications as administered by the Radio Society of Kenya, RSK.
33. During the quarter, no new amateur radio service licenses were issued, as was the case during the previous quarter.

Table 9 - Summary of Amateur Radio Service Authorisations

Category	End of 2020/21	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Amateur Radio Service	44	1	4	0	0

K. MARITIME RADIO SERVICE

34. A maritime mobile service is a mobile radio service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations. The service is also used by survival-craft stations (lifeboats) and emergency position-indicating radio beacon stations.
35. Maritime Mobile Service Identity numbers define a series of nine digits transmitted over a radio frequency channel to uniquely identify ship stations, ship earth stations, coast stations and coast earth stations. During the quarter, three (3) Maritime radio service Identity Number authorisations were issued.
36. Through a Memorandum-of-Understanding (MoU), the Communications Authority of Kenya (CA) actively collaborates with the Kenya Maritime Authority (KMA) in the enforcement and implementation of international maritime conventions, due to the overlap of responsibilities in maintaining Safety-of-Life-at-Sea (SOLAS).
37. The MoU provides a cooperation framework for the administration and regulation of maritime radio communication and coordination of port operation frequencies. The collaboration ensures that both government agencies meet their obligations in their sectors by leveraging on their respective mandates, i.e., KMA conducts inspection of maritime vessels and shares the reports with CA for issuance of maritime/ship radiocommunication licenses.
38. Over the last two years, this collaboration has contributed to an increase in the compliance level of maritime vessels and an increase in the number of vessels with radio licenses.

Category	End of 2020/21	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Maritime Frequency assignments	16	0	0	0	1
Maritime Mobile service identity numbers	44	0	0	0	3