

# Microwave Frequency Usage in Ghana

A microwave link is a communications system that uses a beam of radio waves in the microwave frequency range (frequencies greater than 5GHz) to transmit information between two fixed locations on the earth as indicated in fig. 1 below. They are crucial to many forms of communications and impact a broad range of industries. Broadcasters use microwave links to send programs from the studio to the transmitter location, which might be miles away. Microwave links carry cellular telephone calls between cell sites. Wireless Internet Service Providers use microwave links to provide their clients with high-speed Internet access without the need for cable connections.

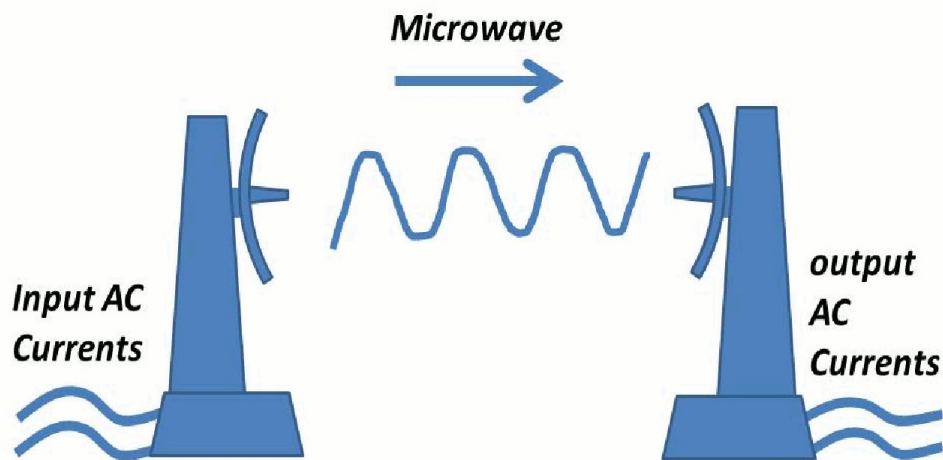


Fig. 1 indicates a microwave Point to Point transmission

Ghana has adopted the underlisted ITU-R recommendations for microwave channel usage.

*Table 1: ITU-R Microwave Bands Recommendations Adopted by Ghana*

Frequency Band	Band span	Spacing (MHz)	Duplex (MHz)	ITU-R Recommendation
Lower 6GHz (L6GHz)	5925-6425MHz	29.65	252.04	ITU-R F. 383
Upper 6GHz (U6GHz)	6425-7110MHz	40	340	ITU-R F. 384
7 GHz	7110-7750MHz	28	196/168	ITU-R F. 385, Annex 3
Lower 8GHz (L8GHz)	7725-7750MHz	29.65	311.32	ITU-R F. 386, Annex 6
Upper 8 GHz (U8GHz)	8275- 8500MHz	28	266	ITU-R F. 386, Annex 1
11 GHz	10.7-11.7GHz	40	530	ITU-R F. 387
13 GHz	12.75-13.25GHz	28	266	ITU-R F. 497
15 GHz	14.5-15.35GHz	28	420	ITU-R F. 636
18 GHz	17.7-19.7GHz	27.5	1010	ITU-R F. 595 Annex 1
23 GHz	22.0-23.6GHz	28	1008	ITU-R F. 637, Annex3
28 GHz	27.5-29.5GHz	28	1008	ITU-R F. 748, Annex 2

## Microwave frequency statistics as at September, 2020

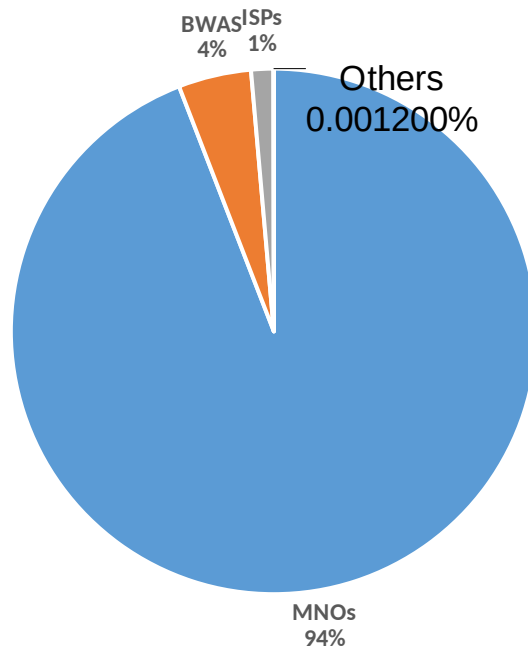
Service Providers that uses microwave to complement their services are the Mobile Network Operators (MNO's), Internet Service Providers (ISP's) and other state agencies. The Authority has a total of Fifteen (15) Service Providers using the microwave frequencies. Details on the companies and number of deployed links are listed below:

*Table 2: Microwave Frequency Users in Ghana*

S/N	Category	Company	Number of Deployed Links
1	MNOs	1. AirtelTigo	1,792
		2. GLO	724
		3. MTN	3,545
		4. Vodafone	1,456
2	BWAs	1. Blu Telecom	4
		2. Broadband Home	5
		3. Busy Internet	59
		4. Surflin	255
4	ISPs	1. Infinite Stream	3
		2. Comsys	35
		3. *Vodacom	37
		4. MainOne	19
		5. IS Internet Solutions	12
		6. African Online	3
5	Others	Ghana Civil Aviation Authority	2
<b>Total</b>		<b>15</b>	<b>7,951</b>

The distribution of the users of microwave frequencies by services in Ghana is depicted in the pie chart below. It is shown that the MNOs predominantly use the microwave frequencies with ninety-five percent (94%) usage.

## Microwave Usage Distribution by Service Types



■ MNOs ■ BWAS ■ ISPs ■ Others