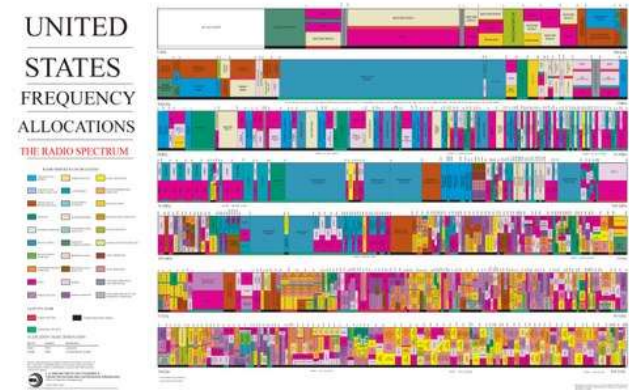


# Frequency allocation

**Frequency allocation** (or **spectrum allocation** or **spectrum management**) is the allocation and regulation of the electromagnetic spectrum into radio frequency bands, normally done by governments in most countries.<sup>[1]</sup> Because radio propagation does not stop at national boundaries, governments have sought to harmonise the allocation of RF bands and their standardization.



US frequency allocations chart, 2016

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## ITU definition

The International Telecommunication Union defines frequency allocation as being of "a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions".<sup>[2]</sup>

*Frequency allocation* is also a special term, used in national frequency administration. Other terms are:

Frequency distribution to:	ITU languages						ITU RR (article)
	French	English	Spanish	Arabic	Chinese	Russian	
<u>Radiocommunication services</u>	<b>attribution</b> (attribuer)	<b>allocation</b> (to allocate)	<b>atribución</b> (atribuir)		<b>划分</b>	<b>распределение</b> (распределять)	1.16
Regions or countries	allotissement (allotir)	allotment (to allot)	adjudicación (adjudicar)		分配	выделение (выделять)	1.17
<u>Radio stations</u>	assignation (assigner)	assignment (to assign)	asignación (asignar)		指配	присвоение (присваивать)	1.18

## Bodies

Several bodies set standards for frequency allocation, including:

- International Telecommunication Union (ITU)
- European Conference of Postal and Telecommunications Administrations (CEPT)
- Inter-American Telecommunication Commission (CITEL)

To improve harmonisation in spectrum utilisation, most service allocations are incorporated in national Tables of Frequency Allocations and Utilisations within the responsibility of the appropriate national administration. Allocations are:

- primary
- secondary
- exclusive or shared utilization, within the responsibility of national administrations.

Allocations of military usage will be in accordance with the ITU Radio Regulations. In NATO countries, military mobile utilizations are made in accordance with the NATO Joint Civil/Military Frequency Agreement (NJFA).

## **Examples of frequency allocations**

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Some of the bands listed (e.g., amateur 1.8–29.7 MHz) have gaps / are not continuous allocations.

Common frequencies <sup>[3]</sup>

Source	Frequency (MHz)	Typical radiated power (kW)	Meters (approx)
Longwave <u>BCB</u> (EU)	0.150–0.285	320	
AM <u>BCB</u> (EU & J)	0.525–1.605	500	630
AM <u>BCB</u> (US)	0.530–1.710	50	
<u>Amateur</u>	1.8–29.7	0.16 (mobile)	15
<u>Citizens band</u>	26.9–27.4	0.004	12
<u>Amateur</u>	28–30	0.2 (mobile)	10
Land mobile	29–54	0.1	
<u>Amateur</u>	50–54	0.2 (mobile)	6
TV low VHF	54–88	100	
Land mobile (EU)	65–85	0.1	
FM <u>BCB</u> (J)	76–90	44	
FM <u>BCB</u> (US & EU)	88–108	105	
Aircraft	108–136	1	
Land mobile (EU)	120–160	0.1	
Land mobile	132–174	18–100	
Land mobile (J)	142–170		
<u>Amateur</u>	144–148	0.2 (mobile)	2
TV high VHF	174–216	316	
Land mobile	216–222	0.2	
<u>Amateur</u>	222–225	0.1 (mobile)	1.25
Land mobile (J)	335–384		
Land mobile	406–512	0.1	
Land mobile (J)	450–470		.70
<u>Amateur</u>	430–450	0.1 (mobile)	
TV UHF	470–806	5000	
Land mobile	806–947	0.035	.33
Cellular AMPS	806–947	0.003	.33
Amateur Land mobile GPS	1200–1600		.23
Cellular PCS	1700–2000	0.003	
ISM <u>Bluetooth</u> <u>Wi-Fi</u>	2400–2500	0.0000025	

- BCB is an abbreviation for broadcast band, for commercial radio news and music broadcasts.

## See also

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- [Spectrum management](#)
- [Amateur radio frequency allocations](#)

## References

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1. Haim, Mazar (2008-08-01). *An Analysis of Regulatory Frameworks for Wireless Communications, Societal Concerns and Risk: The Case of Radio Frequency (RF) Allocation and Licensing* (<http://www.moc.gov.il/new/documents/frequencies/MazarThesisOct08.pdf>) (PDF). Middlesex University.
2. ITU Radio Regulations, Section IV. Radio Stations and Systems – Article 1.16, definition: allocation (of a frequency band).
3. "EMC Design Guide for PCB" (<http://www.fordemc.com/docs/download/EMC%20Design%20Guide%20for%20PCB.pdf>) (PDF). Ford EMC. 2003.

## External links

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- [International Telecommunication Union \(ITU\)](http://www.itu.int) (<http://www.itu.int>)
- [ITU Radio Regulations - Volume 1 \(Article 5\)](https://www.itu.int/en/publications/ITU-R/Pages/publications.aspx?lang=en&media=electronic&parent=R-REG) (<https://www.itu.int/en/publications/ITU-R/Pages/publications.aspx?lang=en&media=electronic&parent=R-REG>) international table of frequency allocation by ITU Region. Alternative at [ITU persistent link](http://handle.itu.int/11.1002/pub/80da2b36-en) (<http://handle.itu.int/11.1002/pub/80da2b36-en>)

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