

RADIO SPECTRUM DESIGNATION AND ALLOCATION IN THE UNITED STATES

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| | MEDIUM Frequency | | | | | | | | | | | | | | | HIGH Frequency (HF) | | | | | | | | | | VERY HIGH Frequency (VHF) | | | | | | | | | | ULTRA HIGH Frequency (UHF) | | | | | | | |
| Frequency (MHz) | 0.6 | 0.8 | 1.0 | 1.2 | 1.6 | 1.8 | 2.4 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 50 | 51 | 52 | 54 | 83 | 89 | 96 | 108 | 144 | 145 | 147 | 225 | 420 | 430 | 440 | 450 | 462 | 464 | 466 | 468 | | | | | | |
| Wavelength | 1,000 to 180 Meters | | | | | 160 to 10 Meters | | | | | | | | | | 6 Meters | | | 3 Meters | | 2 Meters | | 70 Centimeters | | 65 Centimeters | | | | | | | | | | | | | | | | | | |
| Radio Services | AM Commercial Radio | | | | | Shortwave and Amateur Radio HF | | | | | | | | | | Amateur Radio VHF | | | FM Commercial Radio | | Amateur Radio VHF | | Amateur Radio UHF | | FRS & GMRS | | | | | | | | | | | | | | | | | | |
| Mode | Typically AM or Amplitude Modulation | | | | | | | | | | | | | | | Typically FM or Frequency Modulation | | | | | | | | | | | | | | | | | | | | | | | | | | | |

- Notes:**
1. Frequency and wavelength are inversely related, i.e. as frequency increases, wavelength decreases.
 2. In the early days of radio, low and medium frequencies were favored by commercial broadcasters; Hams were given the "High Frequencies" (at the time) with the "short wave lengths." Now, technology has made the even shorter wavelengths very desirable for the communications industry including cell phone providers who typically operate at 800 + MHz.
 3. As frequency increases, the ability of the associated wave to pass through solid objects decreases. At UHF frequencies and higher, radio signals tend to be best received when there is a clear "line of sight" between the transmitter and the receiver. And at even higher frequencies, transmitter and receiver **MUST** be within that "line of sight"--these waves will not penetrate solid objects and can even be hindered by fog/smog or fine particles in the atmosphere.
 4. "Modulation" is the process of changing a radio wave so that it carries sound information or audio. Modulating a radio wave can be done in two ways: either by modulating the "amplitude" (distance from the highest point of the wave to the lowest, AM radio) or the "frequency" of the wave, FM radio.