

# Radio Wave Characteristics

Electromagnetic is the type of wave that carries radio signals between transmitting and receiving stations. (T3A07) The usual name for electromagnetic waves that travel through space is radio waves. (T5C07) As the name would imply, the two components of a radio wave are electric and magnetic fields. (T3B03)

One important parameter of a radio wave is its frequency, or the number of cycles that it goes through per second. The unit of frequency is the Hertz (Hz). (T5C05) One Hz is one cycle per second. A radio wave travels at the speed of light through free space. (T3B04) The velocity of a radio wave as it travels through free space is 286,282 miles per second or 299,792,458 meters per second. (T3B11)

Another important parameter of a radio wave is its wavelength. Wavelength is the name for the distance a radio wave travels during one complete cycle. (T3B01) Because radio waves travel at the speed of light, no matter what their frequency happens to be, the wavelength gets shorter as the frequency increases. (T3B05) The formula for converting frequency to wavelength in meters is wavelength in meters equals 300 divided by frequency in megahertz. (T3B06)

The approximate wavelength of radio waves is often used to identify the different frequency bands. (T3B07) For example, when we refer to the 2 meter band, we are referring to the amateur radio band that spans 144 MHz to 148 MHz. A radio wave with a frequency of 148 MHz, would have a wavelength of 2.03 meters.

The abbreviation “RF” refers to radio frequency signals of all types. (T5C06) For convenience, we split the entire range of radio frequencies into sub-ranges, including high frequency (HF), very high frequency (VHF), and ultra-high frequency (UHF). The frequency range 3 to 30 MHz is referred to as HF. (T3B10) The frequency limits of the VHF spectrum are 30 to 300 MHz. (T3B08) The frequency limits of the UHF spectrum are 300 to 3000 MHz. (T3B09)

## REVIEW QUESTIONS: (14)

T3A07	T5C07	T3B03	T5C05	T3B04
T3B11	T3B01	T3B05	T3B06	T3B07
T5C06	T3B10	T3B08	T3B09	