

A term describing how fast something repeats itself. For an oscillating or varying current, frequency is the number of complete cycles per second in alternating current (AC) direction. The standard unit of frequency is the hertz (Hz). If a current completes one cycle per second, then the frequency is 1 Hz; 60 cycles per second equals 60 Hz (the standard alternating-current utility frequency in some countries, including the US). Larger units of frequency include the kilohertz (kHz) representing thousands of cycles per second, the megahertz (MHz) representing millions of cycles per second, and the gigahertz (GHz) representing billions of cycles per second. Occasionally the terahertz (THz) is used representing trillions of cycles per second. Be aware that these prefixes represent specific powers of 10, in contrast to the prefixes for multiples of bytes, which represent specific powers of 2. Computer clock speed is generally specified in megahertz and, more recently, in gigahertz. Frequency is important in wireless communications, where the frequency of a signal is mathematically related to the wavelength. If f is the frequency of an electromagnetic field in free space as measured in megahertz, and w is the wavelength as measured in meters, then the wireless frequency formulae are:

1. $w = 300/f(\text{mhz})$, and
2. $f(\text{mhz}) = 300/w$

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