



Electromagnetic waves are waves that propagate through space while an electric field and a magnetic field interact with each other. The shorter the wavelength is (the higher the frequency is), the higher the energy of an electromagnetic wave. The energy of radiation is expressed in electron volts (eV). 1 eV equals  $1.6 \times 10^{-19}$  Joule (J).

While X-rays and γ-rays differ in the mechanisms of how they are generated, they are both electromagnetic waves with high energy.

Thus, an electromagnetic wave sometimes behaves like a wave and may be expressed as a waveform perpendicular to its direction of propagation, as shown in the figure above.

Included in this reference material on March 31, 2013

Updated on March 31, 2015