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[Computing & Information Technology](#) > [Radio communications](#) >

 **ENCYCLOPEDIA ARTICLE**

## Radio-wave propagation

**Sections:** Line-of-sight transmission; Ground effects; Fading; Radar transmission; Outer-space vehicles; Propagation beyond optical horizon; Radiation belts; Underground, underwater, and jungles; Noise

The means by which radio signals are transported through space from a transmitting antenna to a receiving antenna. Radio signals are electromagnetic waves which travel with the velocity of light and can be reflected, refracted, diffracted, scattered, and absorbed. Unlike visible light, radio frequencies cover many octaves, from about 10 kHz to 60,000 MHz (wavelengths from 30,000 m to 0.5 cm). Since frequency is an important parameter, radio propagation characteristics vary over a wide range. At the higher radio frequencies the similarity with visible light is evident. At the lower frequencies the radio waves follow the surface of the Earth by a mechanism that in geometrical optics is unimportant and relatively unknown.

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