

§ 15.501

from the horizon to 21 dBm (125 mW) to protect fixed satellite services.

[63 FR 40836, July 31, 1998, as amended at 69 FR 2687, Jan. 20, 2004; 69 FR 54036, Sept. 7, 2004; 79 FR 24579, May 1, 2014; 79 FR 56988, Sept. 24, 2014; 79 FR 76903, Dec. 23, 2014; 81 FR 19901, Apr. 6, 2016; 85 FR 18149, Apr. 1, 2020; 85 FR 31411, May 26, 2020]

Subpart F—Ultra-Wideband Operation

SOURCE: 67 FR 34856, May 16, 2002, unless otherwise noted.

§ 15.501 Scope.

This subpart sets out the regulations for unlicensed ultra-wideband transmission systems.

§ 15.503 Definitions.

(a) *UWB bandwidth.* For the purpose of this subpart, the UWB bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna. The upper boundary is designated f_H and the lower boundary is designated f_L . The frequency at which the highest radiated emission occurs is designated f_M .

(b) *Center frequency.* The center frequency, f_C , equals $(f_H + f_L)/2$.

(c) *Fractional bandwidth.* The fractional bandwidth equals $2(f_H - f_L)/(f_H + f_L)$.

(d) *Ultra-wideband (UWB) transmitter.* An intentional radiator that, at any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

(e) *Imaging system.* A general category consisting of ground penetrating radar systems, medical imaging systems, wall imaging systems through-wall imaging systems and surveillance systems. As used in this subpart, imaging systems do not include systems designed to detect the location of tags or systems used to transfer voice or data information.

(f) *Ground penetrating radar (GPR) system.* A field disturbance sensor that is designed to operate only when in contact with, or within one meter of, the ground for the purpose of detecting

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or obtaining the images of buried objects or determining the physical properties within the ground. The energy from the GPR is intentionally directed down into the ground for this purpose.

(g) *Medical imaging system.* A field disturbance sensor that is designed to detect the location or movement of objects within the body of a person or animal.

(h) *Wall imaging system.* A field disturbance sensor that is designed to detect the location of objects contained within a “wall” or to determine the physical properties within the “wall.” The “wall” is a concrete structure, the side of a bridge, the wall of a mine or another physical structure that is dense enough and thick enough to absorb the majority of the signal transmitted by the imaging system. This category of equipment does not include products such as “stud locators” that are designed to locate objects behind gypsum, plaster or similar walls that are not capable of absorbing the transmitted signal.

(i) *Through-wall imaging system.* A field disturbance sensor that is designed to detect the location or movement of persons or objects that are located on the other side of an opaque structure such as a wall or a ceiling. This category of equipment may include products such as “stud locators” that are designed to locate objects behind gypsum, plaster or similar walls that are not thick enough or dense enough to absorb the transmitted signal.

(j) *Surveillance system.* A field disturbance sensor used to establish a stationary RF perimeter field that is used for security purposes to detect the intrusion of persons or objects.

(k) *EIRP.* Equivalent isotropically radiated power, *i.e.*, the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna. The EIRP, in terms of dBm, can be converted to a field strength, in dBuV/m at 3 meters, by adding 95.2. As used in this subpart, EIRP refers to the highest signal strength measured in any direction and at any frequency from the UWB device, as tested in accordance with the procedures specified in §15.31(a) and 15.523 of this chapter.