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15.615 General administrative requirements.

Subpart H—White Space Devices

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Subpart A—General

§ 15.1 Scope of this part.

(a) This part sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of part 15 devices.

(b) The operation of an intentional or unintentional radiator that is not in accordance with the regulations in this part must be licensed pursuant to the provisions of section 301 of the Communications Act of 1934, as amended, unless otherwise exempted from the licensing requirements elsewhere in this chapter.

(c) Unless specifically exempted, the operation or marketing of an intentional or unintentional radiator that is not in compliance with the administrative and technical provisions in this part, including prior equipment authorization, as appropriate, is prohibited under section 302 of the Communications Act of 1934, as amended, and subpart I of part 2 of this chapter. The equipment authorization procedures are detailed in subpart J of part 2 of this chapter.

[54 FR 17714, Apr. 25, 1989, as amended at 82 FR 50830, Nov. 2, 2017]

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§ 15.3 Definitions.

(a) *Auditory assistance device.* An intentional radiator used to provide auditory assistance communications (including but not limited to applications such as assistive listening, auricular training, audio description for the blind, and simultaneous language translation) for:

(1) Persons with disabilities: In the context of part 15 rules (47 CFR part 15), the term “disability,” with respect to the individual, has the meaning given to it by section 3(2)(A) of the Americans with Disabilities Act of 1990 (42 U.S.C. 12102(2)(A)), *i.e.*, a physical or mental impairment that substantially limits one or more of the major life activities of such individuals;

(2) Persons who require language translation; or

(3) Persons who may otherwise benefit from auditory assistance communications in places of public gatherings, such as a church, theater, auditorium, or educational institution.

(b) *Biomedical telemetry device.* An intentional radiator used to transmit measurements of either human or animal biomedical phenomena to a receiver.

(c) *Cable input selector switch.* A transfer switch that is intended as a means to alternate between the reception of broadcast signals via connection to an antenna and the reception of cable television service.

(d) *Cable locating equipment.* An intentional radiator used intermittently by trained operators to locate buried cables, lines, pipes, and similar structures or elements. Operation entails coupling a radio frequency signal onto the cable, pipes, etc. and using a receiver to detect the location of that structure or element.

(e) *Cable system terminal device (CSTD).* A TV interface device that serves, as its primary function, to connect a cable system operated under part 76 of this chapter to a TV broadcast receiver or other subscriber premise equipment. Any device which functions as a CSTD in one of its operating modes must comply with the technical requirements for such devices when operating in that mode.

(f) *Carrier current system.* A system, or part of a system, that transmits radio

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frequency energy by conduction over the electric power lines. A carrier current system can be designed such that the signals are received by conduction directly from connection to the electric power lines (unintentional radiator) or the signals are received over-the-air due to radiation of the radio frequency signals from the electric power lines (intentional radiator).

(g) *CB receiver*. Any receiver that operates in the Personal Radio Services on frequencies designated for CB Radio Service stations, as well as any receiver provided with a separate band specifically designed to receive the transmissions of CB stations in the Personal Radio Services. This includes the following:

(1) A CB receiver sold as a separate unit of equipment;

(2) The receiver section of a CB transmitter;

(3) A converter to be used with any receiver for the purpose of receiving CB transmissions; and

(4) A multiband receiver that includes a band labelled "CB" or "11-meter" in which such band can be separately selected, except that an Amateur Radio Service receiver that was manufactured prior to January 1, 1960, and which includes an 11-meter band shall not be considered to be a CB receiver.

(h) *Class A digital device*. A digital device that is marketed for use in a commercial, industrial or business environment, exclusive of a device which is marketed for use by the general public or is intended to be used in the home.

(i) *Class B digital device*. A digital device that is marketed for use in a residential environment notwithstanding use in commercial, business and industrial environments. Examples of such devices include, but are not limited to, personal computers, calculators, and similar electronic devices that are marketed for use by the general public.

NOTE: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as a Class B device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may

classify such a digital device as a Class B digital device, regardless of its intended use.

(j) *Cordless telephone system*. A system consisting of two transceivers, one a base station that connects to the public switched telephone network and the other a mobile handset unit that communicates directly with the base station. Transmissions from the mobile unit are received by the base station and then placed on the public switched telephone network. Information received from the switched telephone network is transmitted by the base station to the mobile unit.

NOTE: The Domestic Public Cellular Radio Telecommunications Service is considered to be part of the switched telephone network. In addition, intercom and paging operations are permitted provided these are not intended to be the primary modes of operation.

(k) *Digital device*. (Previously defined as a computing device). An unintentional radiator (device or system) that generates and uses timing signals or pulses at a rate in excess of 9,000 pulses (cycles) per second and uses digital techniques; inclusive of telephone equipment that uses digital techniques or any device or system that generates and uses radio frequency energy for the purpose of performing data processing functions, such as electronic computations, operations, transformations, recording, filing, sorting, storage, retrieval, or transfer. A radio frequency device that is specifically subject to an emanation requirement in any other FCC Rule part or an intentional radiator subject to subpart C of this part that contains a digital device is not subject to the standards for digital devices, provided the digital device is used only to enable operation of the radio frequency device and the digital device does not control additional functions or capabilities.

NOTE: Computer terminals and peripherals that are intended to be connected to a computer are digital devices.

(l) *Field disturbance sensor*. A device that establishes a radio frequency field in its vicinity and detects changes in that field resulting from the movement of persons or objects within its range.

(m) *Harmful interference.* Any emission, radiation or induction that endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with this chapter.

(n) *Incidental radiator.* A device that generates radio frequency energy during the course of its operation although the device is not intentionally designed to generate or emit radio frequency energy. Examples of incidental radiators are dc motors, mechanical light switches, etc.

(o) *Intentional radiator.* A device that intentionally generates and emits radio frequency energy by radiation or induction.

(p) *Kit.* Any number of electronic parts, usually provided with a schematic diagram or printed circuit board, which, when assembled in accordance with instructions, results in a device subject to the regulations in this part, even if additional parts of any type are required to complete assembly.

(q) *Perimeter protection system.* A field disturbance sensor that employs RF transmission lines as the radiating source. These RF transmission lines are installed in such a manner that allows the system to detect movement within the protected area.

(r) *Peripheral device.* An input/output unit of a system that feeds data into and/or receives data from the central processing unit of a digital device. Peripherals to a digital device include any device that is connected external to the digital device, any device internal to the digital device that connects the digital device to an external device by wire or cable, and any circuit board designed for interchangeable mounting, internally or externally, that increases the operating or processing speed of a digital device, e.g., “turbo” cards and “enhancement” boards. Examples of peripheral devices include terminals, printers, external floppy disk drives and other data storage devices, video monitors, keyboards, interface boards, external memory expansion cards, and other input/output devices that may or may not contain digital circuitry. This definition does not include CPU boards, as defined in para-

graph (bb) of this section, even though a CPU board may connect to an external keyboard or other components.

(s) *Personal computer.* An electronic computer that is marketed for use in the home, notwithstanding business applications. Such computers are considered Class B digital devices. Computers which use a standard TV receiver as a display device or meet all of the following conditions are considered examples of personal computers:

(1) Marketed through a retail outlet or direct mail order catalog.

(2) Notices of sale or advertisements are distributed or directed to the general public or hobbyist users rather than restricted to commercial users.

(3) Operates on a battery or 120 volt electrical supply.

If the responsible party can demonstrate that because of price or performance the computer is not suitable for residential or hobbyist use, it may request that the computer be considered to fall outside of the scope of this definition for personal computers.

(t) *Power line carrier systems.* An unintentional radiator employed as a carrier current system used by an electric power utility entity on transmission lines for protective relaying, telemetry, etc. for general supervision of the power system. The system operates by the transmission of radio frequency energy by conduction over the electric power transmission lines of the system. The system does not include those electric lines which connect the distribution substation to the customer or house wiring.

(u) *Radio frequency (RF) energy.* Electromagnetic energy at any frequency in the radio spectrum between 9 kHz and 3,000,000 MHz.

(v) *Scanning receiver.* For the purpose of this part, this is a receiver that automatically switches among two or more frequencies in the range of 30 to 960 MHz and that is capable of stopping at and receiving a radio signal detected on a frequency. Receivers designed solely for the reception of the broadcast signals under part 73 of this chapter, for the reception of NOAA broadcast weather band signals, or for operation as part of a licensed service are not included in this definition.

(w) *Television (TV) broadcast receiver.* A device designed to receive television pictures that are broadcast simultaneously with sound on the television channels authorized under part 73 of this chapter.

(x) *Transfer switch.* A device used to alternate between the reception of over-the-air radio frequency signals via connection to an antenna and the reception of radio frequency signals received by any other method, such as from a TV interface device.

(y) *TV interface device.* An unintentional radiator that produces or translates in frequency a radio frequency carrier modulated by a video signal derived from an external or internal signal source, and which feeds the modulated radio frequency energy by conduction to the antenna terminals or other non-baseband input connections of a television broadcast receiver. A TV interface device may include a stand-alone RF modulator, or a composite device consisting of an RF modulator, video source and other components devices. Examples of TV interface devices are video cassette recorders and terminal devices attached to a cable system or used with a Master Antenna (including those used for central distribution video devices in apartment or office buildings).

(z) *Unintentional radiator.* A device that intentionally generates radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

(aa) *Cable ready consumer electronics equipment.* Consumer electronics TV receiving devices, including TV receivers, videocassette recorders and similar devices, that incorporate a tuner capable of receiving television signals and an input terminal intended for receiving cable television service, and are marketed as "cable ready" or "cable compatible." Such equipment shall comply with the technical standards specified in §15.118 and the provisions of §15.19(d).

(bb) *CPU board.* A circuit board that contains a microprocessor, or frequency determining circuitry for the microprocessor, the primary function

of which is to execute user-provided programming, but not including:

(1) A circuit board that contains only a microprocessor intended to operate under the primary control or instruction of a microprocessor external to such a circuit board; or

(2) A circuit board that is a dedicated controller for a storage or input/output device.

(cc) *External radio frequency power amplifier.* A device which is not an integral part of an intentional radiator as manufactured and which, when used in conjunction with an intentional radiator as a signal source, is capable of amplifying that signal.

(dd) *Test equipment* is defined as equipment that is intended primarily for purposes of performing measurements or scientific investigations. Such equipment includes, but is not limited to, field strength meters, spectrum analyzers, and modulation monitors.

(ee) *Radar detector.* A receiver designed to signal the presence of radio signals used for determining the speed of motor vehicles. This definition does not encompass the receiver incorporated within a radar transceiver certified under the Commission's rules.

(ff) *Access Broadband over Power Line (Access BPL).* A carrier current system installed and operated on an electric utility service as an unintentional radiator that sends radio frequency energy on frequencies between 1.705 MHz and 80 MHz over medium voltage lines or over low voltage lines to provide broadband communications and is located on the supply side of the utility service's points of interconnection with customer premises. Access BPL does not include power line carrier systems as defined in §15.3(t) or In-House BPL as defined in §15.3(gg).

(gg) *In-House Broadband over Power Line (In-House BPL).* A carrier current system, operating as an unintentional radiator, that sends radio frequency energy by conduction over electric power lines that are not owned, operated or controlled by an electric service provider. The electric power lines may be aerial (overhead), underground, or inside the walls, floors or ceilings of user premises. In-House BPL devices may establish closed networks within a

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user’s premises or provide connections to Access BPL networks, or both.

(hh) *Slant-Range distance.* Diagonal distance measured from the center of the measurement antenna to the nearest point of the overhead power line

carrying the Access BPL signal being measured. This distance is equal to the hypotenuse of the right triangle as calculated in the formula below. The slant-range distance shall be calculated as follows:

$$d_{slant} = \sqrt{(h_{pwr_line} - h_{ant})^2 + (d_h)^2}$$

Where:

d_{slant} is the slant-range distance, in meters (see Figure 1, below);

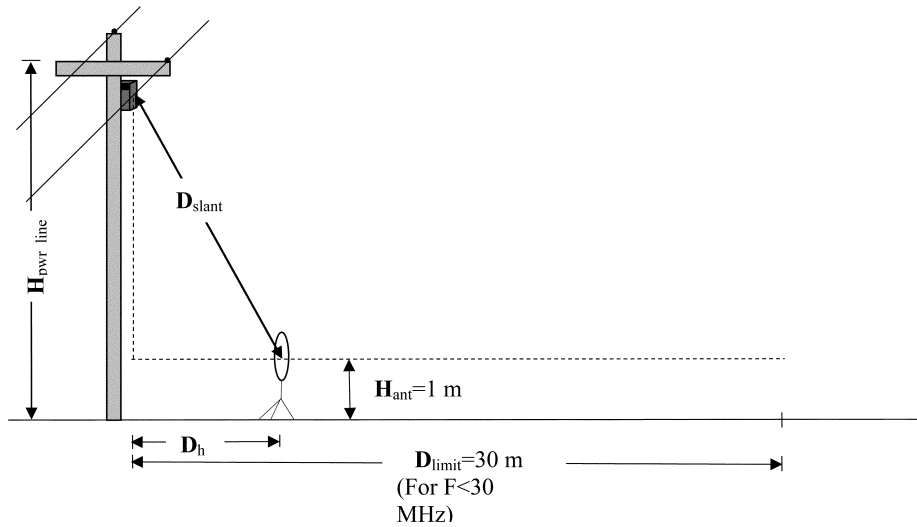
d_h is the horizontal (lateral) distance between the center of the measurement antenna and the vertical projection of the

overhead power line carrying the BPL signals down to the height of the measurement antenna, in meters;

h_{pwr_line} is the height of the power line, in meters; and

h_{ant} is the measurement antenna height, in meters.

Figure 1 – Illustration of Slant-Range Distance



D_{slant} is the slant-range distance, in meters; D_h is the horizontal (lateral) distance between the center of the measurement antenna and the vertical projection of the overhead power line carrying the BPL signals down to the height of the measurement antenna, in meters;

D_{limit} is the distance at which the emission limit is specified in Part 15 (e.g., 30 meters for frequencies below 30 MHz);

H_{pwr_line} is the height of the power line, in meters; and

H_{ant} is the measurement antenna height, in meters.

(ii) *Level Probing Radar (LPR):* A short-range radar transmitter used in a wide range of applications to measure the amount of various substances, mostly liquids or granulates. LPR

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equipment may operate in open-air environments or inside an enclosure containing the substance being measured.

[54 FR 17714, Apr. 25, 1989, as amended at 55 FR 18340, May 2, 1990; 57 FR 33448, July 29, 1992; 59 FR 25340, May 16, 1994; 61 FR 31048, June 19, 1996; 62 FR 26242, May 13, 1997; 64 FR 22561, Apr. 27, 1999; 65 FR 64391, Oct. 27, 2000; 66 FR 32582, June 15, 2001; 67 FR 48993, July 29, 2002; 70 FR 1373, Jan. 7, 2005; 76 FR 71907, Nov. 21, 2011; 78 FR 34927, June 11, 2013; 79 FR 12677, Mar. 6, 2014; 82 FR 41103, Aug. 29, 2017]

§ 15.5 General conditions of operation.

(a) Persons operating intentional or unintentional radiators shall not be deemed to have any vested or recognizable right to continued use of any given frequency by virtue of prior registration or certification of equipment, or, for power line carrier systems, on the basis of prior notification of use pursuant to § 90.35(g) of this chapter.

(b) Operation of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station, by another intentional or unintentional radiator, by industrial, scientific and medical (ISM) equipment, or by an incidental radiator.

(c) The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected.

(d) Intentional radiators that produce Class B emissions (damped wave) are prohibited.

[54 FR 17714, Apr. 25, 1989, as amended at 75 FR 63031, Oct. 13, 2010]

§ 15.7 [Reserved]

§ 15.9 Prohibition against eavesdropping.

Except for the operations of law enforcement officers conducted under lawful authority, no person shall use, either directly or indirectly, a device operated pursuant to the provisions of this part for the purpose of overhearing or recording the private conversations

of others unless such use is authorized by all of the parties engaging in the conversation.

§ 15.11 Cross reference.

The provisions of subparts A, H, I, J and K of part 2 apply to intentional and unintentional radiators, in addition to the provisions of this part. Also, a cable system terminal device and a cable input selector switch shall be subject to the relevant provisions of part 76 of this chapter.

§ 15.13 Incidental radiators.

Manufacturers of these devices shall employ good engineering practices to minimize the risk of harmful interference.

§ 15.15 General technical requirements.

(a) An intentional or unintentional radiator shall be constructed in accordance with good engineering design and manufacturing practice. Emanations from the device shall be suppressed as much as practicable, but in no case shall the emanations exceed the levels specified in these rules.

(b) Except as follows, an intentional or unintentional radiator must be constructed such that the adjustments of any control that is readily accessible by or intended to be accessible to the user will not cause operation of the device in violation of the regulations. Access BPL equipment shall comply with the applicable standards at the control adjustment that is employed. The measurement report used in support of an application for Certification and the user instructions for Access BPL equipment shall clearly specify the user-or installer-control settings that are required for conformance with these regulations.

(c) Parties responsible for equipment compliance should note that the limits specified in this part will not prevent harmful interference under all circumstances. Since the operators of part 15 devices are required to cease operation should harmful interference occur to authorized users of the radio frequency spectrum, the parties responsible for equipment compliance are encouraged to employ the minimum