shall comply with the radiated emission limitations in this part, as measured with the antenna attached.

§ 15.113 Power line carrier systems.

Power line carrier systems, as defined in §15.5(t), are subject only to the following requirements:

(a) A power utility operating a power line carrier system shall submit the details of all existing systems plus any proposed new systems or changes to existing systems to an industry-operated entity as set forth in §90.35(g) of this chapter. No notification to the FCC is required.

(b) The operating parameters of a power line carrier system (particularly the frequency) shall be selected to achieve the highest practical degree of compatibility with authorized or licensed users of the radio spectrum. The signals from this operation shall be contained within the frequency band 9 kHz to 490 kHz. A power line carrier system shall operate on an unprotected, non-interference basis in accordance with §15.5 of this part. If harmful interference occurs, the electric power utility shall discontinue use or adjust its power line carrier operation, as required, to remedy the interference. Particular attention should be paid to the possibility of interference to Loran C operations at 100 kHz.

(c) Power line carrier system apparatus shall be operated with the minimum power possible to accomplish the desired purpose. No equipment authorization is required.

(d) The best engineering principles shall be used in the generation of radio frequency currents by power line carrier systems to guard against harmful interference to authorized radio users, particularly on the fundamental and harmonic frequencies.

(e) Power line carrier system apparatus shall conform to such engineering standards as may be promulgated by the Commission. In addition, such systems should adhere to industry approved standards designed to enhance the use of power line carrier systems.

(f) The provisions of this section apply only to systems operated by a power utility for general supervision of the power system and do not permit operation on electric lines which connect the distribution substation to the customer or house wiring. Such operation can be conducted under the other provisions of this part.


§ 15.115 TV interface devices, including cable system terminal devices.

(a) Measurements of the radiated emissions of a TV interface device shall be conducted with the output terminal(s) of the device terminated by a resistance equal to the rated output impedance. The emanations of a TV interface device incorporating an intentional radiator shall not exceed the limits in §15.109 or subpart C of this part, whichever is higher for each frequency. Where it is possible to determine which portion of the device is contributing a particular radio frequency emission, the emissions from the TV interface device portion shall comply with the emission limits in §15.109, and the emissions from the intentional radiator shall comply with subpart C of this part.

(b) Output signal limits:

(1) At any RF output terminal, the maximum measured RMS voltage, in microvolts, corresponding to the peak envelope power of the modulated signal during maximum amplitude peaks across a resistance (R in ohms) matching the rated output impedance of the TV interface device, shall not exceed the following:

(i) For a cable system terminal device or a TV interface device used with a master antenna, 692.8 times the square root of (R) for the video signal and 155 times the square root of (R) for the audio signal.

(ii) For all other TV interface devices, 346.4 times the square root of (R) for the video signal and 77.5 times the square root of (R) for the audio signal.

(2) At any RF output terminal, the maximum measured RMS voltage, in microvolts, corresponding to the peak envelope power of the modulated signal during maximum amplitude peaks across a resistance (R in ohms) matching the rated output impedance of the TV interface device, of any emission appearing on frequencies removed by more than 4.6 MHz below or 7.4 MHz above the video carrier frequency on
which the TV interface device is operated shall not exceed the following:

(i) For a cable system terminal device or a TV interface device used with a master antenna, \(692.8 \times \sqrt{R}\) times the square root of \(R\).

(ii) For all other TV interface devices, \(10.95 \times \sqrt{R}\) times the square root of \(R\).

(3) The term \textit{master antenna} used in this section refers to TV interface devices employed for central distribution of television or other video signals within a building. Such TV interface devices must be designed to:

(i) Distribute multiple television signals at the same time;

(ii) Distribute such signals by cable to outlets or TV receivers in multiple rooms in the building in which the TV interface devices are installed; and,

(iii) Distribute all over-the-air or cable signals.

\textbf{NOTE:} Cable-ready video cassette recorders continue to be subject to the provisions for general TV interface devices.

(c) A TV interface device shall be equipped with a transfer switch for connecting the antenna terminals of a receiver selectively either to the receiving antenna or to the radio frequency output of the TV interface device, subject to the following:

(i) When measured in any of its set positions, transfer switches shall comply with the following requirements:

(i) For a cable system terminal device or a TV interface device equipped for use with a cable system or a master antenna, as defined in paragraph (b)(3) of this section, the isolation between the antenna and cable input terminals shall be at least 80 dB from 54 MHz to 216 MHz, at least 60 dB from 216 MHz to 550 MHz and at least 55 dB from 550 MHz to 806 MHz. The 80 dB standard applies at 216 MHz and the 60 dB standard applies at 550 MHz. In the case of a transfer switch requiring a power source, the required isolation shall be maintained in the event the device is not connected to a power source or power is interrupted.

(ii) For all other TV interface devices, the maximum voltage, corresponding to the peak envelope power of the modulated video signal during maximum amplitude peaks, in microvolts, appearing at the receiving antenna input terminals when terminated with a resistance \((R \text{ in ohms})\) matching the rated impedance of the antenna input of the switch, shall not exceed \(0.346 \times \sqrt{R}\) times the square root of \(R\).

(iii) Measurement to determine compliance with the transfer switch limits shall be made using a connecting cable, where required, between the TV interface device and the transfer switch of the type and length:

(A) Provided with the TV interface device,

(B) Recommended in the instruction manual, or

(C) Normally employed by the consumer.

(2) A TV interface device shall be designed and constructed, to the extent practicable, so as to preclude the possibility that the consumer may inadvertently attach the output of the device to the receiving antenna, if any, without first going through the transfer switch.

(3) A transfer switch is not required for a TV interface device that, when connected, results in the user no longer having any need to receive standard over-the-air broadcast signals via a separate antenna. A transfer switch is not required to be marketed with a cable system terminal device unless that device provides for the connection of an external antenna. A transfer switch is not required for a device that is intended to be used as an accessory to an authorized TV interface device.

(4) An actual transfer switch is not required for a TV interface device, including a cable system terminal device, that has an antenna input terminal(s); provided, the circuitry following the antenna input terminal(s) has sufficient bandwidth to allow the reception of all TV broadcast channels authorized under part 73 of this chapter and:

For a cable system terminal device that can alternate between the reception of cable television service and an antenna, compliance with the isolation requirement specified in paragraph (c)(1)(i) of this section can be demonstrated; and, for all other TV interface devices, the maximum voltage appearing at the antenna terminal(s) does not exceed the limit in paragraph (c)(1)(ii) of this section.
§ 15.117 TV broadcast receivers.

(a) All TV broadcast receivers shipped in interstate commerce or imported into the United States, for sale or resale to the public, shall comply with the requirements of this section, except that paragraphs (f) and (g) of this section shall not apply to the features of such sets that provide for reception of digital television signals. The reference in this section to TV broadcast receivers also includes devices, such as TV interface devices and set-top devices that are intended to provide audio-video signals to a video monitor, that incorporate the tuner portion of a TV broadcast receiver and that are equipped with an antenna or antenna terminals that can be used for off-the-air reception of TV broadcast signals.