

**§ 15.231**

**47 CFR Ch. I (10–1–23 Edition)**

(b) As an alternative to the limit in paragraph (a) of this section, perimeter protection systems may demonstrate compliance with the following: the field strength of any emissions within this band shall not exceed 500 microvolts/meter at 3 meters, as determined using measurement instrumentations employing an average detector. The provisions in §15.35 for limiting peak emissions apply where compliance of these devices is demonstrated under this alternative emission limit.

(c) The field strength of any emissions appearing outside of this band shall not exceed the general radiated emission limits in §15.209.

(d) The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

[54 FR 17714, Apr. 25, 1989, as amended at 55 FR 33910, Aug. 20, 1990]

**§ 15.231 Periodic operation in the band 40.66–40.70 MHz and above 70 MHz.**

(a) The provisions of this section are restricted to periodic operation within the band 40.66–40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not per-

mitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

(b) In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66–40.70	2,250 .....	225
70–130 .....	1,250 .....	125
130–174 ....	<sup>1</sup> 1,250 to 3,750 .....	<sup>1</sup> 125 to 375
174–260 ....	3,750 .....	375
260–470 ....	<sup>1</sup> 3,750 to 12,500 .....	<sup>1</sup> 375 to 1,250
Above 470	12,500 .....	1,250

<sup>1</sup> Linear interpolations.

(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a

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CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

(d) For devices operating within the frequency band 40.66–40.70 MHz, the bandwidth of the emission shall be confined within the band edges and the frequency tolerance of the carrier shall be  $\pm 0.01\%$ . This frequency tolerance shall be maintained for a temperature variation of  $-20$  degrees to  $+50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(e) Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) of this section and may be employed for any type of operation, including operation prohibited in paragraph (a) of this section, provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this section, except the field strength table in paragraph (b) of this section is replaced by the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emission (microvolts/meter)
40.66–40.70	1,000 .....	100
70–130 .....	500 .....	50
130–174 ....	500 to 1,500 <sup>1</sup> .....	50 to 150 <sup>1</sup>
174–260 ....	1,500 .....	150
260–470 ....	1,500 to 5,000 <sup>1</sup> .....	150 to 500 <sup>1</sup>
Above 470	5,000 .....	500

<sup>1</sup> Linear interpolations.

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

[54 FR 17714, Apr. 25, 1989; 54 FR 32340, Aug. 7, 1989, as amended at 68 FR 68546, Dec. 9, 2003; 69 FR 71383, Dec. 9, 2004]

### § 15.233 Operation within the bands 43.71–44.49 MHz, 46.60–46.98 MHz, 48.75–49.51 MHz and 49.66–50.0 MHz.

(a) The provisions shown in this section are restricted to cordless telephones.

(b) An intentional radiator used as part of a cordless telephone system shall operate centered on one or more of the following frequency pairs, subject to the following conditions:

(1) Frequencies shall be paired as shown below, except that channel pairing for channels one through fifteen may be accomplished by pairing any of the fifteen base transmitter frequencies with any of the fifteen handset transmitter frequencies.

(2) Cordless telephones operating on channels one through fifteen must:

(i) Incorporate an automatic channel selection mechanism that will prevent establishment of a link on any occupied frequency; and

(ii) The box or an instruction manual which is included within the box which the individual cordless telephone is to be marketed shall contain information indicating that some cordless telephones operate at frequencies that may cause interference to nearby TVs and VCRs; to minimize or prevent such interference, the base of the cordless