

(i) *Antenna beamwidth.* (A) LPR devices operating under the provisions of this section within the 5.925–7.250 GHz and 24.05–29.00 GHz bands must use an antenna with a –3 dB beamwidth no greater than 12 degrees.

(B) LPR devices operating under the provisions of this section within the 75–85 GHz band must use an antenna with a –3 dB beamwidth no greater than 8 degrees.

(j) *Antenna side lobe gain.* LPR devices operating under the provisions of this section must limit the side lobe antenna gain relative to the main beam gain for off-axis angles from the main beam of greater than 60 degrees to the levels provided in Table 2.

TABLE 2—ANTENNA SIDE LOBE GAIN LIMITS

Frequency range (GHz)	Antenna side lobe gain limit relative to main beam gain (dB)
5.925–7.250	–22
24.05–29.00	–27
75–85	–38

(k) Emissions from digital circuitry used to enable the operation of the transmitter may comply with the limits in § 15.209 of this chapter provided it can be clearly demonstrated that those emissions are due solely to emissions from digital circuitry contained within the transmitter and the emissions are not intended to be radiated from the transmitter's antenna. Emissions from associated digital devices, as defined in § 15.3(k) of this part, e.g., emissions from digital circuitry used to control additional functions or capabilities other than the operation of the transmitter, are subject to the limits contained in subpart B, part 15 of this chapter. Emissions from these digital circuits shall not be employed in determining the –10 dB bandwidth of the fundamental emission or the frequency at which the highest emission level occurs.

(l) *Measurement procedures.* (1) Radiated measurements of the fundamental emission bandwidth and power shall be made with maximum main-beam coupling between the LPR and test antennas (boresight).

(2) Measurements of the unwanted emissions radiating from an LPR shall

be made utilizing elevation and azimuth scans to determine the location at which the emissions are maximized.

(3) All emissions at and below 1,000 MHz except 9–90 kHz and 110–490 kHz bands are based on measurements employing a CISPR quasi-peak detector.

(4) The fundamental emission bandwidth measurement shall be made using a peak detector with a resolution bandwidth of 1 MHz and a video bandwidth of at least 3 MHz.

(5) The provisions in § 15.35(b) and (c) of this part that require emissions to be averaged over a 100 millisecond period and that limits the peak power to 20 dB above the average limit do not apply to devices operating under paragraphs (a) through (l) of this section.

(6) Compliance measurements for minimum emission bandwidth of frequency-agile LPR devices shall be performed with any related frequency sweep, step, or hop function activated.

(7) Compliance measurements shall be made in accordance with the specific procedures published or otherwise authorized by the Commission.

[79 FR 12678, Mar. 6, 2014]

§ 15.257 Operation within the band 92–95 GHz.

(a) Operation of devices under the provisions of this section is limited to indoor use;

(1) Devices operating under the provisions of this section, by the nature of their design, must be capable of operation only indoors. The necessity to operate with a fixed indoor infrastructure, e.g., a transmitter that must be connected to the AC power lines, may be considered sufficient to demonstrate this.

(2) The use of outdoor mounted antennas, e.g., antennas mounted on the outside of a building or on a telephone pole, or any other outdoors infrastructure is prohibited.

(3) The emissions from equipment operated under this section shall not be intentionally directed outside of the building in which the equipment is located, such as through a window or a doorway.

(4) Devices operating under the provisions of this section shall bear the following or similar statement in a conspicuous location on the device or in

the instruction manual supplied with the device: “This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties.”

(b) Operation under the provisions of this section is not permitted on aircraft or satellites.

(c) Within the 92–95 GHz bands, the emission levels shall not exceed the following:

(1) The average power density of any emission, measured during the transmit interval, shall not exceed 9 uW/sq. cm, as measured at 3 meters from the radiating structure, and the peak power density of any emission shall not exceed 18 uW/sq. cm, as measured 3 meters from the radiating structure.

(2) Peak power density shall be measured with an RF detector that has a detection bandwidth that encompasses the band being used and has a video bandwidth of at least 10 MHz, or uses an equivalent measurement method.

(3) The average emission limits shall be calculated based on the measured peak levels, over the actual time period during which transmission occurs.

(d) Limits on spurious emissions:

(1) The power density of any emissions outside the band being used shall consist solely of spurious emissions.

(2) Radiated emissions below 40 GHz shall not exceed the general limits in § 15.209.

(3) Between 40 GHz and 200 GHz, the level of these emissions shall not exceed 90 pW/cm² at a distance of 3 meters.

(4) The levels of the spurious emissions shall not exceed the level of the fundamental emission.

(e) The total peak transmitter output power shall not exceed 500 mW.

(f) Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range –20 to + 50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

(g) Radio frequency devices operating under the provisions of this part are subject to the radio frequency radiation

exposure requirements specified in §§ 1.1307(b), 1.1310, 2.1091, and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(h) Any transmitter that has received the necessary FCC equipment authorization under the rules of this chapter may be mounted in a group installation for simultaneous operation with one or more other transmitter(s) that have received the necessary FCC equipment authorization, without any additional equipment authorization. However, no transmitter operating under the provisions of this section may be equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

[69 FR 3265, Jan. 23, 2004, as amended at 85 FR 18149, Apr. 1, 2020]

§ 15.258 Operation in the bands 116–123 GHz, 174.8–182 GHz, 185–190 GHz and 244–246 GHz.

(a) Operation on board an aircraft or a satellite is prohibited.

(b) Emission levels within the 116–123 GHz, 174.8–182 GHz, 185–190 GHz and 244–246 GHz bands shall not exceed the following equivalent isotropically radiated power (EIRP) limits as measured during the transmit interval:

(1) The average power of any emission shall not exceed 40 dBm and the peak power of any emission shall not exceed 43 dBm; or

(2) For fixed point-to-point transmitters located outdoors, the average power of any emission shall not exceed 82 dBm and shall be reduced by 2 dB for every dB that the antenna gain is less than 51 dBi. The peak power of any emission shall not exceed 85 dBm and shall be reduced by 2 dB for every dB that the antenna gain is less than 51 dBi. The provisions in this paragraph (b)(2) for reducing transmit power based on antenna gain shall not require that the power levels be reduced below the limits specified in paragraph (b)(1) of this section.