

Federal Communications Commission

§ 15.255

as a vehicle-mounted field disturbance sensor. Operation under the provisions of this section is not permitted on aircraft or satellites.

(b) The radiated emission limits within the bands 46.7–46.9 GHz and 76.0–77.0 GHz are as follows:

(1) If the vehicle is not in motion, the power density of any emission within the bands specified in this section shall not exceed 200 nW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(2) For forward-looking vehicle-mounted field disturbance sensors, if the vehicle is in motion the power density of any emission within the bands specified in this section shall not exceed 60 µW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(3) For side-looking or rear-looking vehicle-mounted field disturbance sensors, if the vehicle is in motion the power density of any emission within the bands specified in this section shall not exceed 30 µW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(c) The power density of any emissions outside the operating band shall consist solely of spurious emissions and shall not exceed the following:

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

(2) Radiated emissions outside the operating band and between 40 GHz and 200 GHz shall not exceed the following:

(i) For vehicle-mounted field disturbance sensors operating in the band 46.7–46.9 GHz: 2 pW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(ii) For forward-looking vehicle-mounted field disturbance sensors operating in the band 76–77 GHz: 600 pW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(iii) For side-looking or rear-looking vehicle-mounted field disturbance sensors operating in the band 76–77 GHz: 300 pW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(3) For radiated emissions above 200 GHz from field disturbance sensors operating in the 76–77 GHz band: the

power density of any emission shall not exceed 1000 pW/cm² at a distance of 3 meters from the exterior surface of the radiating structure.

(4) For field disturbance sensors operating in the 76–77 GHz band, the spectrum shall be investigated up to 231 GHz.

(d) The provisions in § 15.35 limiting peak emissions apply.

(e) 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.

(f) Regardless of the power density levels permitted under this section, devices operating under the provisions of this section are subject to the radio-frequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

[61 FR 14503, Apr. 2, 1996, as amended at 61 FR 41018, Aug. 7, 1996; 63 FR 42279, Aug. 7, 1998]

§ 15.255 Operation within the band 57–64 GHz.

(a) Operation under the provisions of this section is not permitted for the following products:

(1) Equipment used on aircraft or satellites.

(2) Field disturbance sensors, including vehicle radar systems, unless the field disturbance sensors are employed for fixed operation. For the purposes of this section, the reference to fixed operation includes field disturbance sensors installed in fixed equipment, even if the sensor itself moves within the equipment.

(b) Within the 57–64 GHz band, emission levels shall not exceed the following:

(1) For products other than fixed field disturbance sensors, the average power density of any emission, measured during the transmit interval, shall not exceed $9 \mu\text{W}/\text{cm}^2$, as measured 3 meters from the radiating structure, and the peak power density of any emission shall not exceed $18 \mu\text{W}/\text{cm}^2$, as measured 3 meters from the radiating structure.

(2) For fixed field disturbance sensors that occupy 500 MHz or less of bandwidth and that are contained wholly within the frequency band 61.0–61.5 GHz, the average power density of any emission, measured during the transmit interval, shall not exceed $9 \mu\text{W}/\text{cm}^2$, as measured 3 meters from the radiating structure, and the peak power density of any emission shall not exceed $18 \mu\text{W}/\text{cm}^2$, as measured 3 meters from the radiating structure. In addition, the average power density of any emission outside of the 61–61.5 GHz band, measured during the transmit interval, but still within the 57–64 GHz band, shall not exceed $9 \text{ nW}/\text{cm}^2$, as measured 3 meters from the radiating structure, and the peak power density of any emission shall not exceed $18 \text{ nW}/\text{cm}^2$, as measured three meters from the radiating structure.

(3) For fixed field disturbance sensors other than those operating under the provisions of paragraph (b)(2) of this section, the peak transmitter output power shall not exceed 0.1 mW and the peak power density shall not exceed $9 \text{ nW}/\text{cm}^2$ at a distance of 3 meters.

(4) Peak power density shall be measured with an RF detector that has a detection bandwidth that encompasses the 57–64 GHz band and has a video bandwidth of at least 10 MHz, or using an equivalent measurement method.

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

(c) Limits on spurious emissions:

(1) The power density of any emissions outside the 57–64 GHz band 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 ex-

ceed $90 \text{ pW}/\text{cm}^2$ at a distance of 3 meters.

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

(d) Only spurious emissions and transmissions related to a publicly-accessible coordination channel, whose purpose is to coordinate operation between diverse transmitters with a view towards reducing the probability of interference throughout the 57–64 GHz band, are permitted in the 57–57.05 GHz band.

NOTE TO PARAGRAPH (d): The 57–57.05 GHz is reserved exclusively for a publicly-accessible coordination channel. The development of standards for this channel shall be performed pursuant to authorizations issued under part 5 of this chapter.

(e) Except as specified elsewhere in this paragraph (e), the total peak transmitter output power shall not exceed 500 mW.

(1) Transmitters with an emission bandwidth of less than 100 MHz must limit their peak transmitter output power to the product of 500 mW times their emission bandwidth divided by 100 MHz. For the purposes of this paragraph (e)(1), emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (e.g. for frequency hopping devices).

(2) Peak transmitter output power shall be measured with an RF detector that has a detection bandwidth that encompasses the 57–64 GHz band and that has a video bandwidth of at least 10 MHz, or using an equivalent measurement method.

(3) For purposes of demonstrating compliance with this paragraph (e), corrections to the transmitter output power may be made due to the antenna and circuit loss.

(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) Regardless of the power density levels permitted under this section, devices operating under the provisions of this section are subject to the radio-frequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. 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.

(i) For all transmissions that emanate from inside of a building, within any one second interval of signal transmission, each transmitter with a peak output power equal to or greater than 0.1 mW or a peak power density equal to or greater than 3 nW/cm², as measured 3 meters from the radiating structure, must transmit a transmitter identification at least once. Each application for equipment authorization for equipment that will be used inside of a building must declare that the equipment contains the required transmitter identification feature and must specify a method whereby interested parties can obtain sufficient information, at no cost, to enable them to fully detect and decode this transmitter identification information. Upon the completion of decoding, the trans-

mitter identification data block must provide the following fields:

(1) FCC Identifier, which shall be programmed at the factory.

(2) Manufacturer's serial number, which shall be programmed at the factory.

(3) Provision for at least 24 bytes of data relevant to the specific device, which shall be field programmable. The grantee must implement a method that makes it possible for users to specify and update this data. The recommended content of this field is information to assist in contacting the operator.

[63 FR 42279, Aug. 7, 1998, as amended at 66 FR 7409, Jan. 23, 2001; 68 FR 68547, Dec. 9, 2003]

§ 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.