

## § 15.705

21–36) and 614–698 MHz (TV channels 38–51).

(j) *Receive site*. The location where the signal of a full service television station is received for rebroadcast by a television translator or low power TV station, including a Class A TV station, or for distribution by a Multiple Video Program Distributor (MVPD) as defined in 47 U.S.C. 602(13).

(k) *Sensing only device*. A personal/portable TVBD that uses spectrum sensing to determine a list of available channels. Sensing only devices may transmit on any available channels in the frequency bands 512–608 MHz (TV channels 21–36) and 614–698 MHz (TV channels 38–51).

(l) *Spectrum sensing*. A process whereby a TVBD monitors a television channel to detect whether the channel is occupied by a radio signal or signals from authorized services.

(m) *Television band device (TVBD)*. Intentional radiators that operate on an unlicensed basis on available channels in the broadcast television frequency bands at 54–60 MHz (TV channel 2), 76–88 MHz (TV channels 5 and 6), 174–216 MHz (TV channels 7–13), 470–608 MHz (TV channels 14–36) and 614–698 MHz (TV channels 38–51).

(n) *TV bands database*. A database system that maintains records of all authorized services in the TV frequency bands, is capable of determining the available channels as a specific geographic location and provides lists of available channels to TVBDs that have been certified under the Commission's equipment authorization procedures. TV bands databases that provide lists of available channels to TVBDs must receive approval by the Commission.

[75 FR 75835, Dec. 6, 2010]

## § 15.705 Cross reference.

(a) The provisions of subparts A, B, and C of this part apply to TVBDs, except where specific provisions are contained in subpart H.

(b) The requirements of subpart H apply only to the radio transmitter contained in the TVBD. Other aspects of the operation of a TVBD may be subject to requirements contained elsewhere in this chapter. In particular, a TVBD that includes a receiver that

## 47 CFR Ch. I (10–1–13 Edition)

tunes within the frequency range specified in §15.101(b) contains digital circuitry not directly associated with the radio transmitter is also subject to the requirements for unintentional radiators in subpart B.

## § 15.706 Information to the user.

(a) In addition to the labeling requirements contained in §15.19, the instructions furnished to the user of a TVBD shall include the following statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the rules for TV bands devices, pursuant to part 15 of the FCC rules. These rules are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- (1) Reorient or relocate the receiving antenna.
- (2) Increase the separation between the equipment and receiver.
- (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- (4) Consult the manufacturer, dealer or an experienced radio/TV technician for help.

(b) In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

[74 FR 7326, Feb. 17, 2009, as amended at 75 FR 75836, Dec. 6, 2010]

## § 15.707 Permissible channels of operation.

(a) All TVBDs are permitted to operate available channels in the frequency bands 512–608 MHz (TV channels 21–36) and 614–698 MHz (TV channels 38–51), subject to the interference protection requirements in §§15.711 and 15.712, except that operation of TVBDs is prohibited on the first channel above and

the first channel below TV channel 37 (608–614 MHz) that are available, *i.e.*, not occupied by an authorized service. If a channel is not available both above and below channel 37, operation is prohibited on the first two channels nearest to channel 37. These channels will be identified and protected in the TV bands database(s).

(b) Operation on available channels in the bands 54–60 MHz (TV channel 2), 76–88 MHz (TV channels 5 and 6), 174–216 MHz (TV channels 7–13) and 470–512 MHz (TV channels 14–20), subject to the interference protection requirements in §§ 15.711 and 15.712, is permitted only for fixed TVBDs that communicate only with other fixed TVBDs.

(c) Fixed and Mode II TVBDs shall operate only on available channels as identified in paragraphs (a) and (b) of this section and as determined by a TV bands database in accordance with the interference avoidance mechanisms of §§ 15.711 and 15.712.

(d) Mode I TVBDs shall operate only on available channels as identified in paragraphs (a) and (b) of this section and provided from a fixed or Mode II TVBD in accordance with § 15.711(b)(3)(iv).

[75 FR 75836, Dec. 6, 2010]

#### § 15.709 General technical requirements.

(a) *Power limits for TVBDs.* (1) For fixed TVBDs, the maximum power delivered to the transmitting antenna shall not exceed one watt per 6 megahertz of bandwidth on which the device operates. The power delivered to the transmitting antenna is the maximum conducted output power reduced by the signal loss experienced in the cable used to connect the transmitter to the transmit antenna. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For personal/portable TVBDs, the maximum EIRP shall not exceed 100 milliwatts (20 dBm) per 6 megahertz of bandwidth on which the device operates with the following exceptions; Mode II personal/portable TVBDs that do not meet the adjacent channel separation

requirements in § 15.712(a) and Mode I personal/portable TVBDs that operate on available channels (provided by a Mode II TVBD) that do not meet the adjacent channel separation requirements of § 15.712(a) are limited to a maximum EIRP of 40 milliwatts (16 dBm) per 6 megahertz of bandwidth on which the device operates.

(3) TVBDs shall incorporate transmit power control to limit their operating power to the minimum necessary for successful communication. Applicants for equipment certification shall include a description of a device's transmit power control feature mechanism.

(4) Maximum conducted output power is the total transmit power over the occupied bandwidth delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(5) The power spectral density from the TVBD shall not be greater than the following values when measured in any 100 kHz band during any time interval of continuous transmission.

(i) Fixed devices: 12.6 dBm conducted power. If transmitting antennas of directional gain greater than 6 dBi are used, this conducted power level shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Personal/portable device operating adjacent to occupied TV channels: –1.4 dBm EIRP.

(iii) Sensing-only devices: –0.4 dBm EIRP.

(iv) All other personal/portable devices: 2.6 dBm EIRP.

(6) TVBDs shall incorporate adequate security measures to prevent the TVBD from accessing databases not approved by the FCC and to ensure that unauthorized parties can not modify