Federal Communications Commission

§ 15.717 TVBDs that rely on spectrum sensing.

(a) Applications for certification. Parties may submit applications for certification of TVBDs that rely solely on spectrum sensing to identify available channels. Devices authorized under this section must demonstrate with an extremely high degree of confidence that they will not cause harmful interference to incumbent radio services.

(1) In addition to the procedures in subpart J of part 2 of this chapter, applicants shall comply with the following:

(i) The application must include a full explanation of how the device will protect incumbent authorized services against interference.

(ii) Applicants must submit a pre-production device, identical to the device expected to be marketed.

(2) The Commission will follow the procedures below for processing applications pursuant to this section.

(i) Applications will be placed on public notice for a minimum of 30 days for comments and 15 days for reply comments. Applicants may request that portions of their application remain confidential in accordance with §0.459 of this chapter. This public notice will include proposed test procedures and methodologies.

(ii) The Commission will conduct laboratory and field tests of the pre-production device. This testing will be conducted to evaluate proof of performance of the device, including characterization of its sensing capability and its interference potential. The testing will be open to the public.

(iii) Subsequent to the completion of testing, the Commission will issue by public notice, a test report including recommendations. The public notice will specify a minimum of 30 days for comments and, if any objections are received, an additional 15 days for reply comments.

(b) Power limit for devices that rely on sensing. The TVBD shall meet the requirements for personal/portal devices in this subpart except that it will be limited to a maximum EIRP of 50 mW per 6 megahertz of bandwidth on which the device operates and it does not have to comply with the requirements for geo-location and database
access in §15.711(b). Compliance with the detection threshold for spectrum sensing in §15.717(c), although required, is not necessarily sufficient for demonstrating reliable interference avoidance. Once a device is certified, additional devices that are identical in electrical characteristics and antenna systems may be certified under the procedures of Part 2, Subpart J of this chapter.

(c) Sensing requirements.
(1) Detection threshold.
   (i) The required detection thresholds are:
   (A) ATSC digital TV signals: –114 dBm, averaged over a 6 MHz bandwidth;
   (B) NTSC analog TV signals: –114 dBm, averaged over a 100 kHz bandwidth;
   (C) Low power auxiliary, including wireless microphone, signals: –107 dBm, averaged over a 200 kHz bandwidth.
   (ii) The detection thresholds are referenced to an omnidirectional receive antenna with a gain of 0 dBi. If a receive antenna with a minimum directional gain of less than 0 dBi is used, the detection threshold shall be reduced by the amount in dB that the minimum directional gain of the antenna is less than 0 dBi. Minimum directional gain shall be defined as the antenna gain in the direction and at the frequency that exhibits the least gain. Alternative approaches for the sensing antenna are permitted, e.g., electronically rotatable antennas, provided the applicant for equipment authorization can demonstrate that its sensing antenna provides at least the same performance as an omnidirectional antenna with 0 dBi gain.

   (2) Channel availability check time. A TVBD may start operating on a TV channel if no TV, wireless microphone or other low power auxiliary device signal is detected on a TVBD operating channel, all transmissions by the TVBD must cease within two seconds.

(4) Channel move time. After a TV, wireless microphone or other low power auxiliary device signal is detected on a TVBD operating channel, all transmissions by the TVBD must cease within two seconds.

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