

§ 27.59

facility. WCS and BRS/EBS licensees are expected to coordinate voluntarily and in good faith to avoid interference problems and to allow the greatest operational flexibility in each other's operations.

[62 FR 16498, Apr. 7, 1997, as amended at 69 FR 72034, Dec. 10, 2004]

§ 27.59 [Reserved]

§ 27.60 TV/DTV interference protection criteria.

Base, fixed, control, and mobile transmitters in the 698–758 MHz, 775–788 MHz, and 805–806 MHz frequency bands must be operated only in accordance with the rules in this section to reduce the potential for interference to public reception of the signals of existing TV and DTV broadcast stations transmitting on TV Channels 51 through 68.

(a) *D/U ratios.* Licensees must choose site locations that are a sufficient distance from co-channel and adjacent channel TV and DTV stations, and/or must use reduced transmitting power or transmitting antenna height such that the following minimum desired signal-to-undesired signal ratios (D/U ratios) are met.

(1) The minimum D/U ratio for co-channel stations is:

(i) 40 dB at the hypothetical Grade B contour (64 dB μ V/m) (88.5 kilometers (55 miles)) of the TV station;

(ii) For transmitters operating in the 698–746 MHz frequency band, 23 dB at the equivalent Grade B contour (41 dB μ V/m) (88.5 kilometers (55 miles)) of the DTV station; or

(iii) For transmitters operating in the 746–758 MHz, 775–788 MHz, and 805–806 MHz frequency bands, 17 dB at the equivalent Grade B contour (41 dB μ V/m) (88.5 kilometers (55 miles)) of the DTV station.

(2) The minimum D/U ratio for adjacent channel stations is 0 dB at the hypothetical Grade B contour (64 dB μ V/m) (88.5 kilometers (55 miles)) of the TV station or –23 dB at the equivalent Grade B contour (41 dB μ V/m) (88.5 kilometers (55 miles)) of the DTV station.

(b) *TV stations and calculation of contours.* The methods used to calculate TV contours and antenna heights above average terrain are given in §§ 73.683 and 73.684 of this chapter. Ta-

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bles to determine the necessary minimum distance from the 698–758 MHz, 775–788 MHz, and 805–806 MHz station to the TV/DTV station, assuming that the TV/DTV station has a hypothetical or equivalent Grade B contour of 88.5 kilometers (55 miles), are located in § 90.309 of this chapter and labeled as Tables B, D, and E. The locations of existing and proposed TV/DTV stations during the period of transition from analog to digital TV service are given in part 73 of this chapter and in the final proceedings of MM Docket No. 87–268.

(1) Licensees of stations operating within the ERP and HAAT limits of § 27.50 must select one of four methods to meet the TV/DTV protection requirements, subject to Commission approval:

(i) Utilize the geographic separation specified in Tables B, D, and E of § 90.309 of this chapter, as appropriate;

(ii) When station parameters are greater than those indicated in the tables, calculate geographic separation in accordance with the required D/U ratios, as provided in paragraph (a) of this section;

(iii) Submit an engineering study justifying the proposed separations based on the parameters of the land mobile station and the parameters, including authorized and/or applied for facilities, of the TV/DTV station(s) it is trying to protect; or,

(iv) Obtain written concurrence from the applicable TV/DTV station(s). If this method is chosen, a copy of the agreement must be submitted with the application.

(2) The following is the method for geographic separations. (i) Base and fixed stations that operate in the 746–758 MHz and 775–787 MHz bands having an antenna height (HAAT) less than 152 m. (500 ft.) shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table B (co-channel frequencies based on 40 dB protection) and Table E (adjacent channel frequencies based on 0 dB protection) in § 90.309 of this chapter. Base and fixed stations that operate in the 698–746 MHz band having an antenna height (HAAT) less than 152 m. (500 ft.) shall afford protection to adjacent channel DTV stations in accordance with the

values specified in Table E in § 90.309 of this chapter, shall afford protection to co-channel DTV stations by providing 23 dB protection to such stations' equivalent Grade B contour (41 dB μ V/m), and shall afford protection to co-channel and adjacent channel TV stations in accordance with the values specified in Table B (co-channel frequencies based on 40 dB protection) and Table E (adjacent channel frequencies based on 0 dB protection) in § 90.309 of this chapter. For base and fixed stations having an antenna height (HAAT) between 152-914 meters (500-3,000 ft.) the effective radiated power must be reduced below 1 kilowatt in accordance with the values shown in the power reduction graph in Figure B in § 90.309 of this chapter. For heights of more than 152 m. (500 ft.) above average terrain, the distance to the radio path horizon will be calculated assuming smooth earth. If the distance so determined equals or exceeds the distance to the hypothetical or equivalent Grade B contour of a co-channel TV/DTV station (*i.e.*, it exceeds the distance from the appropriate Table in § 90.309 of this chapter to the relevant TV/DTV station), an authorization will not be granted unless it can be shown in an engineering study (*see* paragraph (b)(1)(iii) of this section) that actual terrain considerations are such as to provide the desired protection at the actual Grade B contour (64 dB μ V/m for TV and 41 dB μ V/m for DTV stations) or unless the effective radiated power will be further reduced so that, assuming free space attenuation, the desired protection at the actual Grade B contour (64 dB μ V/m for TV and 41 dB μ V/m coverage contour for DTV stations) will be achieved. Directions for calculating powers, heights, and reduction curves are listed in § 90.309 of this chapter for land mobile stations. Directions for calculating coverage contours are listed in §§ 73.683 through 73.685 of this chapter for TV stations and in § 73.625 of this chapter for DTV stations.

(ii) Control, fixed, and mobile stations (including portables) that operate in the 787-788 MHz and 805-806 MHz bands and control and mobile stations (including portables) that operate in the 698-757 MHz and 776-787 MHz bands are limited in height and power and

therefore shall afford protection to co-channel and adjacent channel TV/DTV stations in the following manner:

(A) For control, fixed, and mobile stations (including portables) that operate in the 787-788 MHz and 805-806 MHz bands and control and mobile stations (including portables) that operate in the 746-757 MHz and 776-787 MHz bands, co-channel protection shall be afforded in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection for TV stations and 17 dB for DTV stations) in § 90.309 of this chapter.

(B) For control and mobile stations (including portables) that operate in the 698-746 MHz band, co-channel protection shall be afforded to TV stations in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection) and to DTV stations by providing 23 dB protection to such stations' equivalent Grade B contour (41 dB μ V/m).

(C) For control, fixed, and mobile stations (including portables) that operate in the 787-788 MHz and 805-806 MHz bands and control and mobile stations (including portables) that operate in the 698-757 MHz and 776-787 MHz bands, adjacent channel protection shall be afforded by providing a minimum distance of 8 kilometers (5 miles) from all adjacent channel TV/DTV station hypothetical or equivalent Grade B contours (adjacent channel frequencies based on 0 dB protection for TV stations and -23 dB for DTV stations).

(D) Since control, fixed, and mobile stations may affect different TV/DTV stations than the associated base or fixed station, particular care must be taken by applicants/licensees to ensure that all appropriate TV/DTV stations are considered (*e.g.*, a base station may be operating within TV Channel 62 and the mobiles within TV Channel 67, in which case TV Channels 61, 62, 63, 66, 67 and 68 must be protected). Control, fixed, and mobile stations shall keep a minimum distance of 96.5 kilometers (60 miles) from all adjacent channel TV/DTV stations. Since mobiles and portables are able to move and communicate with each other, licensees must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations.

NOTE TO § 27.60: The 88.5 km (55mi) Grade B service contour (64 dBµV/m) is based on a hypothetical TV station operating at an effective radiated power of one megawatt, a transmitting antenna height above average terrain of 610 meters (2000 feet) and the Commission's R-6602 F(50,50) curves. See § 73.699 of this chapter. Maximum facilities for TV stations operating in the UHF band are 5 megawatts effective radiated power at an antenna HAAT of 610 meters (2,000 feet). See § 73.614 of this chapter. The equivalent contour for DTV stations is based on a 41 dBµV/m signal strength and the distance to the F(50,90) curve. See § 73.625 of this chapter.

[72 FR 48852, Aug. 24, 2007, as amended at 79 FR 599, Jan. 6, 2014]

§§ 27.61–27.62 [Reserved]

§ 27.64 Protection from interference.

Wireless Communications Service (WCS) stations operating in full accordance with applicable FCC rules and the terms and conditions of their authorizations are normally considered to be non-interfering. If the FCC determines, however, that interference which significantly interrupts or degrades a radio service is being caused, it may, after notice and an opportunity for a hearing, require modifications to any WCS station as necessary to eliminate such interference.

(a) *Failure to operate as authorized.* Any licensee causing interference to the service of other stations by failing to operate its station in full accordance with its authorization and applicable FCC rules shall discontinue all transmissions, except those necessary for the immediate safety of life or property, until it can bring its station into full compliance with the authorization and rules.

(b) *Intermodulation interference.* Licensees should attempt to resolve such interference by technical means.

(c) *Situations in which no protection is afforded.* Except as provided elsewhere in this part, no protection from interference is afforded in the following situations:

(1) *Interference to base receivers from base or fixed transmitters.* Licensees should attempt to resolve such interference by technical means or operating arrangements.

(2) *Interference to mobile receivers from mobile transmitters.* No protection is

provided against mobile-to-mobile interference.

(3) *Interference to base receivers from mobile transmitters.* No protection is provided against mobile-to-base interference.

(4) *Interference to fixed stations.* Licensees should attempt to resolve such interference by technical means or operating arrangements.

(5) *Anomalous or infrequent propagation modes.* No protection is provided against interference caused by tropospheric and ionospheric propagation of signals.

(d) *Harmful interference to SDARS operations requiring resolution.* The following conditions will be presumed to constitute harmful interference to SDARS operations from WCS operations in the 2305–2320 MHz and 2345–2360 MHz bands and require WCS operators to work cooperatively with SDARS operators to address areas where such power levels are exceeded and harmful interference occurs:

(1) A WCS ground signal level greater than –44 dBm in the upper or lower A or B block, or –55 dBm in the C or D block, present at a location on a roadway, where a test demonstrates that SDARS service would be muted over a road distance of greater than 50 meters; or

(2) A WCS ground signal level exceeding –44 dBm in the upper or lower A or B block, or –55 dBm in the C or D block on a test drive route, which is mutually agreed upon by the WCS licensee and the SDARS licensee, for more than 1 percent of the cumulative surface road distance on that drive route, where a test demonstrates that SDARS service would be muted over a cumulative road distance of greater than 0.5 percent (incremental to any muting present prior to use of WCS frequencies in the area of that drive test).

[62 FR 9658, Mar. 3, 1997, as amended at 78 FR 9621, Feb. 11, 2013]

§ 27.65 Acceptance of interference in 2000–2020 MHz.

(a) Receivers operating in the 2000–2020 MHz band must accept interference from lawful operations in the 1995–2000 MHz band, where such interference is due to: