

translator, Class A TV or TV booster stations or digital low power TV, TV translator or Class A TV stations within the following predicted contours:

- (1) 43 dBu for stations on Channels 2 through 6;
- (2) 48 dBu for stations on Channels 7 through 13; and
- (3) 51 dBu for stations on Channels 14 through 69.

(b) The digital low power TV or TV translator protected contour is calculated from the authorized effective radiated power and antenna height above average terrain, using the F(50,90) signal propagation method specified in § 73.625(b)(1) of this chapter.

[69 FR 69335, Nov. 29, 2004]

§ 74.793 Digital low power TV and TV translator station protection of broadcast stations.

(a) An application to construct a new digital low power TV or TV translator station or change the facilities of an existing station will not be accepted if it fails to meet the interference protection requirements in this section.

(b) Except as provided in this section, interference prediction analysis is based on the interference thresholds (D/U signal strength ratios) and other criteria and methods specified in § 73.623(c)(2) through (c)(4) of this chap-

ter. Predictions of interference to co-channel DTV broadcast, digital Class A TV, digital LPTV and digital TV translator stations will be based on the interference thresholds specified therein for “DTV-into-DTV.” Predictions of interference to co-channel TV broadcast, Class A TV, LPTV and TV translator stations will be based on the interference threshold specified for “DTV-into-analog TV.” Predictions of interference to TV broadcast, Class A TV, LPTV and TV translator stations with the following channel relationships to a digital channel will be based on the threshold values specified for “Other Adjacent Channels (Channels 14–69 only),” where N is the analog channel: N–2, N+2, N–3, N+3, N–4, N+4, N–7, N+7, N–8, N+8, N+14, and N+15.

(c) The following D/U signal strength ratio (db) shall apply to the protection of stations on the first adjacent channel. The D/U ratios for “Digital TV-into-analog TV” shall apply to the protection of Class A TV, LPTV and TV translator stations. The D/U ratios for “Digital TV-into-digital TV” shall apply to the protection of DTV, digital Class A TV, digital LPTV and digital TV translator stations. The D/U ratios correspond to the digital LPTV or TV translator station’s specified out-of-channel emission mask.

	Simple mask	Stringent mask	Full service mask
Digital TV-into-analog TV	10	0	Lower (–14)/Upper (–17)
Digital TV-into-digital TV	–7	–12	Lower (–28)/Upper (–26)

(d) For analysis of predicted interference from digital low power TV and TV translator stations, the relative field strength values of the antenna vertical radiation pattern if provided by the applicant will be used instead of the doubled values in Table 8 in OET Bulletin 69 up to a value of 1.0.

(e) Protection to the authorized facilities of DTV broadcast stations shall be based on not causing predicted interference to the population within the service area defined and described in § 73.622(e) of this chapter, except that a digital low power TV or TV translator station must not cause a loss of service to 0.5 percent or more of the population

predicted to receive service from the authorized DTV facilities.

(f) Protection to the authorized facilities of TV broadcast stations shall be based on not causing predicted interference to the population within the Grade B field strength contours defined and described in § 73.683 of this chapter, except that a digital low power TV or TV translator station must not cause a loss of service to 0.5 percent or more of the population predicted to receive service from the authorized TV broadcast facilities.

(g) Protection to the authorized facilities of Class A and digital Class A

TV stations shall be based on not causing predicted interference to the population within the service area defined and described in § 73.6010 (a) through (d) of this chapter, respectively, except that a digital low power TV or TV translator station must not cause a loss of service to 0.5 percent or more of the population predicted to receive service from the authorized Class A TV or digital Class A TV facilities.

(h) Protection to the authorized facilities of low power TV and TV translator stations and digital low power TV and TV translator stations shall be based on not causing predicted interference to the population within the service area defined and described in §§ 74.707(a) and 74.792, respectively, except that a digital low power TV or TV translator station must not cause a loss of service to 2.0 percent or more of the population predicted to receive service from the authorized low power TV, TV translator, digital low power TV or digital TV translator station.

[69 FR 69335, Nov. 29, 2004, as amended at 76 FR 44828, July 27, 2011]

§ 74.794 Digital emissions.

(a)(1) An applicant for a digital LPTV or TV translator station construction permit shall specify that the station will be constructed to confine out-of-channel emissions within one of the following emission masks: Simple, stringent or full service.

(2) The power level of emissions on frequencies outside the authorized channel of operation must be attenuated no less than following amounts below the average transmitted power within the authorized 6 MHz channel. In the mask specifications listed in § 74.794(a)(2) and (a)(3), A is the attenuation in dB and Δf is the frequency difference in MHz from the edge of the channel.

(i) *Simple mask.* At the channel edges, emissions must be attenuated no less than 46 dB. More than 6 MHz from the channel edges, emissions must be attenuated no less than 71 dB. At any frequency between 0 and 6 MHz from the channel edges, emissions must be attenuated no less than the value determined by the following formula:

$$A \text{ (dB)} = 46 + (\Delta f^2 / 1.44)$$

(ii) *Stringent mask.* In the first 500 kHz from the channel edges, emissions must be attenuated no less than 47 dB. More than 3 MHz from the channel edges, emissions must be attenuated no less than 76 dB. At any frequency between 0.5 and 3 MHz from the channel edges, emissions must be attenuated no less than the value determined by the following formula:

$$A \text{ (dB)} = 47 + 11.5 (\Delta f - 0.5)$$

(iii) *Full service mask:* (A) The power level of emissions on frequencies outside the authorized channel of operation must be attenuated no less than the following amounts below the average transmitted power within the authorized channel. In the first 500 kHz from the channel edge the emissions must be attenuated no less than 47 dB. More than 6 MHz from the channel edge, emissions must be attenuated no less than 110 dB. At any frequency between 0.5 and 6 MHz from the channel edge, emissions must be attenuated no less than the value determined by the following formula:

$$\text{Attenuation in dB} = -11.5([\Delta]f + 3.6);$$

Where:

[Δ] f = frequency difference in MHz from the edge of the channel.

(B) This attenuation is based on a measurement bandwidth of 500 kHz. Other measurement bandwidths may be used as long as appropriate correction factors are applied. Measurements need not be made any closer to the band edge than one half of the resolution bandwidth of the measuring instrument. Emissions include sidebands, spurious emissions and radio frequency harmonics. Attenuation is to be measured at the output terminals of the transmitter (including any filters that may be employed). In the event of interference caused to any service, greater attenuation may be required.

(3) The attenuation values for the simple and stringent emission masks are based on a measurement bandwidth of 500 kHz. Other measurement bandwidths may be used and converted to the reference 500 kHz value by the following formula:

$$A \text{ (dB)} = A_{\text{alternate}} + 10 \log (BW_{\text{alternate}} / 500)$$