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 chapter. 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 ratios (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 TV broadcast, 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
Digital TV-into-analog TV	10	0
Digital TV-into-digital TV	−7	−12

(d) For analysis of predicted interference from digital low power TV and TV translator stations, the relative field strength values of the assumed antenna vertical radiation pattern in Table 8 in OET Bulletin 69 shall be doubled 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]

§ 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 or stringent.

(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:

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

(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:

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

(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:

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

where A(dB) is the measured or calculated attenuation value for the reference 500 kHz bandwidth, and $A_{alternate}$ is the measured or calculated attenuation for a bandwidth $BW_{alternate}$. Emissions include sidebands, spurious emissions and radio 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 by out-of-channel emissions, greater attenuation may be required.

(b) In addition to meeting the emission attenuation requirements of the simple or stringent mask (including attenuation of radio frequency harmonics), digital low power TV and TV translator stations authorized to operate on TV channels 22–24, (518–536 MHz), 32–36 (578–608 MHz), 38 (614–620 MHz), and 65–69 (776–806 MHz) must provide specific ''out of band'' protection to Radio Navigation Satellite Services in the bands: L5 (1164–1215 MHz); L2 (1215–1240 MHz) and L1 (1559–1610 MHz).

(1) An FCC-certificated transmitter specifically certified for use on one or more of the above channels must include filtering with an attenuation of not less than 85 dB in the GPS bands, which will have the effect of reducing harmonics in the GPS bands from what is produced by the digital transmitter, and this attenuation must be demonstrated as part of the certification application to the Commission.

(2) For an installation on one of the above channels with a digital transmitter not specifically FCC-certificated for the channel, a low pass filter or equivalent device rated by its manufacturer to have an attenuation of at least 85 dB in the GPS bands, which will have the effect of reducing harmonics in the GPS bands from what is produced by the digital transmitter, and must be installed in a manner that will prevent the harmonic emission content from reaching the antenna. A description of the low pass filter or equivalent device with the manufacturer's rating or a report of measurements by a qualified individual shall be retained with the station license. Field measurements of the second or third harmonic output of a transmitter so equipped are not required.

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