

bandwidth to the channel size. For example, for a 6.25 kHz transmitter, set the measurement bandwidth to 6.25 kHz; for a 150 kHz transmitter, set the measurement bandwidth to 150 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the spectrum analyzer to give the power level in the measurement bandwidth. Record this power level in dBm as the "reference power level".

(2) *Measuring the power level at frequency offsets <600kHz.* Using a spectrum analyzer capable of ACCP measurements, set the measurement bandwidth as shown in the tables above. Measure the ACCP in dBm. These measurements should be made at maximum power. Calculate the coupled power by subtracting the measurements made in this step from the reference power measured in the previous step. The absolute ACCP values must be less than the values given in the table for each condition above.

(3) *Measuring the power level at frequency offsets >600kHz.* Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and sample mode detection. Sweep  $\pm 6$  MHz from the carrier frequency. Set the reference level to the RMS value of the transmitter power and note the absolute power. The response at frequencies greater than 600 kHz must be less than the values in the tables above.

(4) *Upper power limit measurement.* The absolute coupled power in dBm measured above must be compared to the table entry for each given frequency offset. For those mobile stations with power control, these measurements should be repeated with power control at maximum power reduction. The absolute ACCP at maximum power reduction must be less than the values in the tables above.

(c) *Out-of-band emission limit.* On any frequency outside of the frequency ranges covered by the ACCP tables in this section, the power of any emission must be reduced below the unmodulated carrier power (P) by at least  $43 + 10 \log (P)$  dB.

(d) *Authorized bandwidth.* Provided that the ACCP requirements of this section are met, applicants may re-

quest any authorized bandwidth that does not exceed the channel size.

#### § 90.545 TV/DTV interference protection criteria.

Public safety base, control, and mobile transmitters in the 764–776 MHz and 794–806 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 62, 63, 64, 65, 67, 68 or 69.

(a) *D/U ratios.* Licensees of public safety stations 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 40 dB at the hypothetical Grade B contour (64 dB $\mu$ V/m) (88.5 kilometers or 55.0 miles) of the TV station or 17 dB at the equivalent Grade B contour (41 dB $\mu$ V/m) (88.5 kilometers or 55.0 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 $\mu$ V/m) (88.5 kilometers or 55.0 miles) of the TV station or -23 dB at the equivalent Grade B contour (41 dB $\mu$ V/m) (88.5 kilometers or 55.0 miles) of the DTV station.

(b) *Maximum ERP and HAAT.* The maximum effective radiated power (ERP) and the antenna height above average terrain (HAAT) of the proposed land mobile base station, the associated control station, and the mobile transmitters shall be determined using the methods described in this section.

(1) Each base station is limited to a maximum ERP of 1000 watts.

(2) Each control station is limited to a maximum ERP of 200 watts and a maximum HAAT of 61 m. (200 ft).

(3) Each mobile station is limited to a maximum ERP of 30 watts and a maximum antenna height of 6.1 m. (20 ft.).

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(4) Each portable (handheld) transmitter is limited to a maximum ERP of 3 watts.

(5) All transmitters are subject to the power reductions given in Figure B of §90.309 of this chapter, for antenna heights higher than 152 meters (500 ft).

(c) *Methods.* The methods used to calculate TV contours and antenna heights above average terrain are given in §§73.683 and 73.684 of this chapter. Tables to determine the necessary minimum distance from the public safety

station to the TV/DTV station, assuming that the TV/DTV station has a hypothetical or equivalent Grade B contour of 88.5 kilometers (55.0 miles), are located in §90.309 and labeled as Tables B, D, and E. Values between those given in the tables may be determined by linear interpolation. The locations of existing and proposed TV/DTV stations during the transition period are given in Part 73 of this chapter and in the final proceedings of MM Docket No. 87–268. The DTV allotments are:

State	City	NTSC TV Ch.	DTV Ch.	ERP (kW)	HAAT (m)
California	Stockton	64	62	63.5	874
California	Los Angeles	11	65	688.7	896
California	Riverside	62	68	180.1	723
California	Concord	42	63	61.0	856
Pennsylvania	Allentown	39	62	50.0	302
Pennsylvania	Philadelphia	6	64	1000.0	332
Pennsylvania	Philadelphia	10	67	791.8	354
Puerto Rico	Aguada	50	62	50.0	343
Puerto Rico	Mayaguez	16	63	50.0	347
Puerto Rico	Naranjito	64	65	50.0	142
Puerto Rico	Aguadilla	12	69	691.8	665

The transition period is scheduled to end on December 31, 2006. After that time, unless otherwise directed by the Commission, public safety stations will no longer be required to protect reception of co-channel or adjacent channel TV/DTV stations.

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

(i) utilize the geographic separation specified in the tables referenced below;

(ii) submit an engineering study justifying the proposed separations based on the actual parameters of the land mobile station and the actual parameters of the TV/DTV station(s) it is trying to protect; or,

(iii) 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 stations 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 part. For base 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 part. 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 to the relevant TV/DTV station) an authorization will not be granted unless it can be shown in an engineering study (method 2) that actual terrain considerations are such as to provide the desired protection at the actual Grade B contour (64 dBµV/m for TV and 41 dBµV/m for DTV stations), or that the effective radiated power will be further reduced so that, assuming

free space attenuation, the desired protection at the actual Grade B contour (64 dBµV/m for TV and 41 dBµV/m coverage contour for DTV stations) will be achieved. Directions for calculating powers, heights, and reduction curves are listed in §90.309 for land mobile stations. Directions for calculating coverage contours are listed in §§73.683-685 for TV stations and in §73.625 for DTV stations.

(ii) Control and mobile stations (including portables) are limited in height and power and therefore shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection) in §90.309 of this part and 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). Since control and mobile stations may affect different TV/DTV stations than the associated base station, particular care must be taken by applicants to ensure that all the appropriate TV/DTV stations are considered (e.g., a base station may be operating on TV Channel 64 and the mobiles on TV Channel 69, in which case TV Channels 63, 64, 65, 68, and 69 must be protected). Since mobiles and portables are able to move and communicate with each other, licensees or coordinators must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations, and advise the mobile operators of these areas and their restrictions.

(iii) In order to protect certain TV/DTV stations and to ensure protection from these stations which may have extremely large contours due to unusual height situations, an additional distance factor must be used by all public safety base, control and mobile stations. For all co-channel and adjacent channel TV/DTV stations which have an HAAT between 350 and 600 meters, public safety stations must add the following DISTANCE FACTOR to the value obtained from the referenced Tables in §90.309 and to the distance for

control and mobile stations on adjacent TV/DTV channels (96.5 km).

DISTANCE FACTOR = (TV/DTV HAAT - 350) ÷ 14 in kilometers, where HAAT is the TV or DTV station antenna height above average terrain obtained from its authorized or proposed facilities, whichever is greater.

(iv) For all co-channel and adjacent channel TV/DTV stations which have an antenna height above average terrain greater than 600 meters, public safety stations must add 18 kilometers as the DISTANCE FACTOR to the value obtained from the referenced Tables in §90.309 and to the distance for control and mobile stations on adjacent TV/DTV channels (96.5 km).

NOTE TO §90.545: The 88.5 km (55.0 mi) 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.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53646, Sept. 5, 2000]

EFFECTIVE DATE NOTE: At 65 FR 53646, Sept. 5, 2000, §90.545 was amended by revising paragraph (c)(2)(ii), effective Nov. 6, 2000. For the convenience of the reader, the superseded text is set forth as follows:

**§ 90.545 TV/DTV interference protection criteria.**

\* \* \* \* \*

(c) \* \* \*

(2) \* \* \*

(ii) Control and mobile stations (including portables) are limited in height and power and therefore shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection) in §90.309 of this part and 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). Since control and mobile stations may affect different TV/DTV stations than the associated base station, particular

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care must be taken by applicants to ensure that all the appropriate TV/DTV stations are considered (e.g., a base station may be operating on TV Channel 64 and the mobiles on TV Channel 69, in which case TV Channels 63, 64, 65, 68, and 69 must be protected). Control 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 or coordinators must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations, and advise the mobile operators of these areas and their restrictions.

\* \* \* \* \*

**§ 90.547 Interoperability channel capability requirement.**

Mobile and portable transmitters designed pursuant to standards adopted by the National Coordination Committee to operate in the 764-776 MHz and 794-806 MHz frequency bands must be capable of operating on any of the designated nationwide narrowband interoperability channels approved by the Commission.

**§ 90.549 Transmitter certification.**

Transmitters operated in the 764-776 MHz and 794-806 MHz frequency bands must be certificated as required by § 90.203.

**§ 90.551 Construction requirements.**

Each station authorized under this subpart to operate in the 764-776 MHz and 794-806 MHz frequency bands must be constructed and placed into operation within 12 months from the date of grant of the authorization. However, licensees may request a longer construction period, up to but not exceeding 5 years, pursuant to § 90.155(b).

**Subpart S—Regulations Governing Licensing and Use of Frequencies in the 806-824, 851-869, 896-901, and 935-940 MHz Bands**

**§ 90.601 Scope.**

This subpart sets out the regulations governing the licensing and operations of all systems operating in the 806-824/851-869 MHz and 896-901/935-940 MHz bands. It includes eligibility require-

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ments, and operational and technical standards for stations licensed in these bands. It also supplements the rules regarding application procedures contained in part 1, subpart F of this chapter. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in these frequency bands.

[63 FR 68967, Dec. 14, 1998]

**APPLICATION FOR AUTHORIZATIONS**

**§ 90.603 Eligibility.**

The following persons are eligible for licensing in the 806-824 MHz, 851-869 MHz, 896-901 MHz, and 935-940 MHz Bands.

(a) Any person eligible for licensing under subparts B, C, D, or E of this part.

(b) Any person proposing to provide communications service to any person eligible for licensing under subparts B or C of this part on a not-for-profit, cost-shared basis.

(c) Any person eligible under this part and proposing to provide on a commercial basis base station ancillary facilities as a Specialized Mobile Radio Service System operator, for the use of individuals, federal government agencies and persons eligible for licensing under subparts B or C of this part.

[47 FR 41032, Sept. 16, 1982, as amended at 53 FR 1025, Jan. 15, 1988; 60 FR 15495, Mar. 24, 1995; 62 FR 18934, Apr. 17, 1997]

**§ 90.605 Forms to be used.**

Applications for conventional and trunked radio facilities must be prepared on FCC Form 601 and must be submitted or filed in accordance with § 90.127 and part 1, subpart F of this chapter.

[63 FR 68967, Dec. 14, 1998]

**§ 90.607 Supplemental information to be furnished by applicants for facilities under this subpart.**

(a) Where the applicant is a person proposing to provide service to eligibles under this part on a commercial basis, the applicant must supply: