

(i) Using log-log coordinate paper, plot field strengths as ordinate and distance as abscissa.

(ii) Using semi-log coordinate paper, plot field strength times distance as ordinate on the log scale and distance as abscissa on the linear scale.

(3) However, regardless of which of the methods in paragraph (a)(2) of this section is employed, the proper curve to be drawn through the points plotted shall be determined by comparison with the curves in § 73.184 as follows: Place the sheet on which the actual points have been plotted over the appropriate Graph in § 73.184, hold to the light if necessary and adjust until the curve most closely matching the points is found. This curve should then be drawn on the sheet on which the points were plotted, together with the inverse distance curve corresponding to that curve. The field at 1 kilometer for the radial concerned shall be the ordinate on the inverse distance curve at 1 kilometer.

(4) When all radials have been analyzed in accordance with paragraph (a)(3) of this section, a curve shall be plotted on polar coordinate paper from the fields obtained, which gives the inverse distance field pattern at 1 kilometer. The radius of a circle, the area of which is equal to the area bounded by this pattern, is the effective field. (See § 73.14.)

(5) The antenna power of the station shall be maintained at the authorized level during all field measurements. The power determination will be made using the direct method as described in § 73.51(a) with instruments of acceptable accuracy specified in § 73.1215.

(b) Complete data taken in conjunction with the field strength measurements shall be submitted to the Commission in affidavit form including the following:

(1) Tabulation by number of each point of measurement to agree with the maps required in paragraph (c) of this section, the date and time of each measurement, the field strength (E), the distance from the antenna (D) and the product of the field strength and distance (ED) (if data for each radial are plotted on semilogarithmic paper, see paragraph (a)(2)(ii) of this section) for each point of measurement.

(2) Description of method used to take field strength measurements.

(3) The family of theoretical curves used in determining the curve for each radial properly identified by conductivity and dielectric constants.

(4) The curves drawn for each radial and the field strength pattern.

(5) The antenna resistance at the operating frequency.

(6) Antenna current or currents maintained during field strength measurements.

(c) Maps showing each measurement point numbered to agree with the required tabulation shall be retained in the station records and shall be available to the FCC upon request.

[28 FR 13574, Dec. 14, 1963, as amended at 41 FR 44178, Oct. 7, 1976; 46 FR 11995, Feb. 12, 1981; 49 FR 49851, Dec. 24, 1984; 50 FR 18843, May 2, 1985; 50 FR 47055, Nov. 14, 1985; 51 FR 2707, Jan. 21, 1986; 52 FR 10570, Apr. 2, 1987; 66 FR 20757, Apr. 25, 2001]

#### § 73.187 Limitation on daytime radiation.

(a)(1) Except as otherwise provided in paragraphs (a)(2) and (3) of this section, no authorization will be granted for a Class B or Class D station on a frequency specified in § 73.25 if the proposed operation would radiate during the period of critical hours (the two hours after local sunrise and the two hours before local sunset) toward any point on the 0.1 mV/m contour of a co-channel U.S. Class A station, at or below the pertinent vertical angle determined from Curve 2 of Figure 6a of § 73.190, values in excess of those obtained as provided in paragraph (b) of this section.

(2) The limitation set forth in paragraph (a)(1) of this section shall not apply in the following cases:

(i) Any Class B or Class D operation authorized before November 30, 1959; or

(ii) For Class B and Class D stations authorized before November 30, 1959, subsequent changes of facilities which do not involve a change in frequency, an increase in radiation toward any point on the 0.1 mV/m contour of a co-channel U.S. Class A station, or the move of transmitter site materially closer to the 0.1 mV/m contour of such Class A station.

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(3) A Class B or Class D station authorized before November 30, 1959, and subsequently authorized to increase daytime radiation in any direction toward the 0.1 mV/m contour of a co-channel U.S. Class A station (without a change in frequency or a move of transmitter site materially closer to such contour), may not, during the two hours after local sunrise or the two hours before local sunset, radiate in such directions a value exceeding the higher of:

(i) The value radiated in such directions with facilities last authorized before November 30, 1959, or

(ii) The limitation specified in paragraph (a)(1) of this section.

(b) To obtain the maximum permissible radiation for a Class B or Class D station on a given frequency from 640 through 990 kHz, multiply the radiation value obtained for the given distance and azimuth from the 500 kHz chart (Figure 9 of § 73.190) by the appropriate interpolation factor shown in the  $K_{500}$  column of paragraph (c) of this section; and multiply the radiation value obtained for the given distance and azimuth from the 1000 kHz chart (Figure 10 of § 73.190) by the appropriate interpolation factor shown in the  $K_{1000}$  column of paragraph (c) of this section. Add the two products thus obtained; the result is the maximum radiation value applicable to the Class B or Class D station in the pertinent directions. For frequencies from 1010 to 1580 kHz, obtain in a similar manner the proper radiation values from the 1000 and 1600 kHz charts (Figures 10 and 11 of § 73.190), multiply each of these values by the appropriate interpolation factors in the  $K'_{1000}$  and  $K'_{1600}$  columns in paragraph (c) of this section, and add the products.

(c) *Interpolation factors.* (1) Frequencies below 1000 kHz.

fkHz	$K_{500}$	$K_{1000}$
640	0.720	0.280
650	0.700	0.300
660	0.680	0.320
670	0.660	0.340
680	0.640	0.360
690	0.620	0.380
700	0.600	0.400
710	0.580	0.420
720	0.560	0.440
730	0.540	0.460
740	0.520	0.480
750	0.500	0.500

fkHz	$K_{500}$	$K_{1000}$
760	0.480	0.520
770	0.460	0.540
780	0.440	0.560
800	0.400	0.600
810	0.380	0.620
820	0.360	0.640
830	0.340	0.660
840	0.320	0.680
850	0.300	0.700
860	0.280	0.720
870	0.260	0.740
880	0.240	0.760
890	0.220	0.780
900	0.200	0.800
940	0.120	0.880
990	0.020	0.980

(2) Frequencies above 1000 kHz.

f'kHz	$K'_{1000}$	$K'_{1600}$
1010	0.983	0.017
1020	0.967	0.033
1030	0.950	0.050
1040	0.933	0.067
1050	0.917	0.083
1060	0.900	0.100
1070	0.883	0.117
1080	0.867	0.133
1090	0.850	0.150
1100	0.833	0.167
1110	0.817	0.183
1120	0.800	0.200
1130	0.783	0.217
1140	0.767	0.233
1160	0.733	0.267
1170	0.717	0.283
1180	0.700	0.300
1190	0.683	0.317
1200	0.667	0.333
1210	0.650	0.350
1220	0.633	0.367
1500	0.167	0.833
1510	0.150	0.850
1520	0.133	0.867
1530	0.117	0.883
1540	0.100	0.900
1550	0.083	0.917
1560	0.067	0.933
1570	0.050	0.950
1580	0.033	0.967

[28 FR 13574, Dec. 14, 1963, as amended at 49 FR 43962, Nov. 1, 1984; 56 FR 64868, Dec. 12, 1991]

§ 73.189 Minimum antenna heights or field strength requirements.

(a) Section 73.45 requires that all applicants for new, additional, or different broadcast facilities and all licensees requesting authority to move the transmitter of an existing station, shall specify a radiating system, the efficiency of which complies with the requirements of good engineering practice for the class and power of the station.