

### § 73.45

used, the carrier frequency reference field strength to be used in order of preference shall be:

(1) The measure non-directional field strength.

(2) The RMS field strength determined from the measured directional radiation pattern.

(3) The calculated expected field strength that would be radiated by a non-directional antenna at the station authorized power.

(e) Licensees of stations complying with the ANSI/EIA-549-1988, NRSC-1 AM Preemphasis/Deemphasis and Broadcast Transmission Bandwidth Specifications (NRSC-1), prior to June 30, 1990 or from the original commencement of operation will, until June 30, 1994, be considered to comply with paragraphs (a) and (b) of this section, absent any reason for the Commission to believe otherwise. Such stations are waived from having to make the periodic measurements required in § 73.1590(a)(6) until June 30, 1994. However, licensees must make measurements to determine compliance with paragraphs (a) and (b) of this section upon receipt of an Official Notice of Violation or a Notice of Apparent Liability alleging noncompliance with those provisions, or upon specific request by the Commission.

[47 FR 8588, Mar. 1, 1982, as amended at 49 FR 3999, Feb. 1, 1984]

#### § 73.45 AM antenna systems.

(a) All applicants for new, additional, or different AM station facilities and all licensees requesting authority to change the transmitting system site of an existing station must specify an antenna system, the efficiency of which complies with the requirements for the class and power of station. (See §§ 73.186 and 73.189.)

(1) An application for authority to install an AM broadcast antenna must specify a definite site and include full details of the antenna system design and expected performance.

(2) All data necessary to show compliance with the terms and conditions of the construction permit must be filed with the application for the station license to cover the construction. If the station has constructed a directional antenna, a directional proof of

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performance must be filed. See §§ 73.150 through 73.157.

(b) The simultaneous use of a common antenna or antenna structure by more than one AM station or by a station of any other type or service may be authorized provided:

(1) Engineering data are submitted showing that satisfactory operation of each station will be obtained without adversely affecting the operation of the other station(s).

(2) The minimum field strength for each AM station complies with § 73.189(b).

(c) Should any changes be made or otherwise occur which would possibly alter the resistance of the antenna system, the licensee must commence the determination of the operating power by a method described in § 73.51(a)(1) or (d). (If the changes are due to the addition of antennas to the AM tower, see § 1.30003.) Upon completion of any necessary repairs or adjustments, or upon completion of authorized construction or modifications, the licensee must make a new determination of the antenna resistance using the procedures described in § 73.54. Operating power should then be determined by a direct method as described in § 73.51. Notification of the value of resistance of the antenna system must be filed with the FCC in Washington, DC as follows:

(1) Whenever the measurements show that the antenna or common point resistance differs from that shown on the station authorization by more than 2%, FCC Form 302 must be filed with the information and measurement data specified in § 73.54(d).

(2) Whenever AM stations use direct reading power meters pursuant to § 73.51, a letter notification to the FCC in Washington, DC, Attention: Audio Division, Media Bureau, must be filed in accordance with § 73.54(e).

[43 FR 53735, Nov. 17, 1978, as amended at 45 FR 28141, Apr. 28, 1980; 47 FR 8589, Mar. 1, 1982; 50 FR 32416, Aug. 12, 1985; 51 FR 2707; Jan. 21, 1986; 51 FR 26250, July 22, 1986; 63 FR 33875, June 22, 1998; 67 FR 13231, Mar. 21, 2002; 78 FR 66298, Nov. 5, 2013]

#### § 73.49 AM transmission system fencing requirements.

Antenna towers having radio frequency potential at the base (series

fed, folded unipole, and insulated base antennas) must be enclosed within effective locked fences or other enclosures. Ready access must be provided to each antenna tower base for meter reading and maintenance purposes at all times. However, individual tower fences need not be installed if the towers are contained within a protective property fence.

[51 FR 2707, Jan. 21, 1986]

**§ 73.51 Determining operating power.**

(a) Except in those circumstances described in paragraph (d) of this section, the operating power shall be determined by the direct method. The direct method consists of either:

(1) using a suitable instrument for determining the antenna's input power directly from the RF voltage, RF current, and phase angle; or

(2) calculating the product of the licensed antenna or common point resistance at the operating frequency (see § 73.54), and the square of the indicated unmodulated antenna current at that frequency, measured at the point where the resistance has been determined.

(b) The authorized antenna input power for each station shall be equal to the nominal power for such station, with the following exceptions:

(1) For stations with nominal powers of 5 kW, or less, the authorized antenna input power to directional antennas shall exceed the nominal power by 8 percent.

(2) For stations with nominal powers in excess of 5 kW, the authorized antenna input power to directional antennas shall exceed the nominal power by 5.3 percent.

(3) In specific cases, it may be necessary to limit the radiated field to a level below that which would result if normal power were delivered to the antenna. In such cases, excess power may be dissipated in the antenna feed circuit, the transmitter may be operated with power output at a level which is less than the rated carrier power, or a combination of the two methods may be used, subject to the conditions given in paragraph (c) of this section.

(i) Where a dissipative network is employed, the authorized antenna current and resistance, and the authorized

antenna input power shall be determined at the input terminals of the dissipative network.

(ii) Where the authorized antenna input power is less than the nominal power, subject to the conditions set forth in paragraph (c) of this section, the transmitter may be operated at the reduced power level necessary to supply the authorized antenna input power.

(c) Applications for authority to operate with antenna input power which is less than nominal power and/or to employ a dissipative network in the antenna system shall be made on FCC Form 302. The technical information supplied on section II-A of this form shall be that applying to the proposed conditions of operation. In addition, the following information shall be furnished, as pertinent:

(1) Full details of any network employed for the purpose of dissipating radio frequency energy otherwise delivered to the antenna (see § 73.54).

(2) A showing that the transmitter has been type accepted or notified for operation at the proposed power output level, or, in lieu thereof:

(i) A full description of the means by which transmitter output power will be reduced.

(ii) Where the proposed transmitter power output level(s) is less than 90% of the rated power of the transmitter, equipment performance measurements must be made to confirm that the station transmissions conform to the emission limitation specified in § 73.44, under all conditions of program operation.

(iii) A showing that, at the proposed power output level, means are provided for varying the transmitter output within a tolerance of  $\pm 10$  percent, to compensate for variations in line voltage or other factors which may affect the power output level.

(d) When it is not possible or appropriate to use the direct method of power determination due to technical reasons, the indirect method of determining operating power (see paragraphs (e) and (f) of this section) may be used on a temporary basis. A notation must be made in the station log indicating the dates of commencement and termination of measurement using