

Federal Communications Commission

§ 73.525

broadcast station concurring with the proposed Class D facilities.

[43 FR 39716, Sept. 6, 1978, as amended at 44 FR 48226, Aug. 17, 1979; 47 FR 28388, June 30, 1982; 50 FR 8326, Mar. 1, 1985; 85 FR 35573, June 11, 2020]

§ 73.513 Noncommercial educational FM stations operating on unre-served channels.

(a) Noncommercial educational FM stations other than Class D (secondary) which operate on Channels 221 through 300 but which comply with § 73.503 as to licensing requirements and the nature of the service rendered, must comply with the provisions of the following sections of subpart B: §§ 73.201 through 73.213 (Classification of FM Broadcast Stations and Allocations of Frequencies) and such other sections of subpart B as are made specially applicable by the provisions of this subpart C. Stations in Alaska authorized before August 11, 1982, using Channels 261-300 need not meet the minimum effective radiated power requirement specified in § 73.211(a). In all other respects, stations operating on Channels 221 through 300 are to be governed by the provisions of this subpart and not subpart B.

(b) When a noncommercial educational applicant is among mutually exclusive applications for an unre-served FM channel, the mutually exclusive applications will be considered pursuant to Subpart I—Competitive Bidding Procedures and not Subpart K—Application and Selection Procedures On Reserved Noncommercial Educational Channels.

[47 FR 30068, July 12, 1982, as amended at 65 FR 36378, June 8, 2000]

§ 73.514 Protection from interference.

Permittees and licensees of NCE FM stations are not protected from interference which may be caused by the grant of a new LPFM station or of authority to modify an existing LPFM station, except as provided in subpart G of this part.

[65 FR 67299, Nov. 9, 2000]

§ 73.515 NCE FM transmitter location.

The transmitter location shall be chosen so that, on the basis of effective

radiated power and antenna height above average terrain employed, a minimum field strength of 1 mV/m (60 dBu) will be provided over at least 50 percent of its community of license or reach 50 percent of the population within the community.

[65 FR 79779, Dec. 20, 2000]

§ 73.525 TV Channel 6 protection.

The provisions of this section apply to all applications for construction permits for new or modified facilities for a NCE-FM station on Channels 200-220 unless the application is accompanied by a written agreement between the NCE-FM applicant and each affected TV Channel 6 broadcast station concurring with the proposed NCE-FM facilities.

(a) *Affected TV Channel 6 station.* (1) An affected TV Channel 6 station is a TV broadcast station which is authorized to operate on Channel 6 that is located within the following distances of a NCE-FM station operating on Channels 201-220:

TABLE A

NCE-FM channel	Distance (kilometers)	NCE-FM channel	Distance (kilometers)
201	265	211	196
202	257	212	195
203	246	213	193
204	235	214	187
205	225	215	180
206	211	216	177
207	196	217	174
208	196	218	166
209	196	219	159
210	196	220	154

(2) Where a NCE-FM application has been accepted for filing or granted, the subsequent acceptance of an application filed by a relevant TV Channel 6 station will not require revision of the pending NCE-FM application or the FM station's authorized facilities, unless the provisions of paragraph (e)(3) of this section for TV translator or satellite stations apply.

(b) *Existing NCE-FM stations.* (1) A NCE-FM station license authorized to operate on channels 201-220 as of December 31, 1984, or a permittee, granted a construction permit for a NCE-FM station as of December 31, 1984, are not subject to this section unless they propose either:

(i) To make changes in operating facilities or location which will increase predicted interference as calculated under paragraph (e) of this section to TV Channel 6 reception in any direction; or,

(ii) To increase its ratio of vertically polarized to horizontally polarized transmissions.

(2) Applicants must comply with the provision of paragraphs (c) or (d) of this section unless the application for modification demonstrates that, for each person predicted to receive new interference as a result of the change, existing predicted interference to two persons will be eliminated. Persons predicted to receive new interference are those located outside the area predicted to receive interference from the station's currently authorized facilities ("existing predicted interference area") but within the area predicted to receive interference from the proposed facilities ("proposed predicted interference area"). Persons for whom predicted interference will be eliminated are those located within the existing predicted interference area and outside the proposed predicted interference area.

(i) In making this calculation, the provisions contained at paragraph (e) will be used except as modified by paragraph (b)(3) of this section.

(ii) The following adjustment to the population calculation may be made: up to 1,000 persons may be subtracted from the population predicted to receive new interference if, for each person subtracted, the applicant effectively installs two filters within 90 days after commencing program tests with the proposed facilities and, no later than 45 days thereafter, provides the affected TV Channel 6 station (as defined in paragraph (a) of this section) with a certification containing sufficient information to permit verification of such installation. The required number of filters will be installed on television receivers located within the predicted interference area; provided that half of the installations are within the area predicted to receive new interference.

(3) Where an NCE-FM applicant wishes to operate with facilities in excess of that permitted under the provisions of

paragraphs (c) or (d) of this section, by proposing to use vertically polarized transmissions only, or to increase its ratio of vertically to horizontally polarized transmissions, the affected TV Channel 6 station must be given an option to pay for the required antenna and, if it takes that option, the NCE-FM vertically polarized component of power will be one half (–3 dB) that which would be allowed by the provisions of paragraph (e)(4) of this section.

(4) Applications for modification will include a certification that the applicant has given early written notice of the proposed modification to all affected TV Channel 6 stations (as defined in paragraph (a) of this section).

(5) Where the NCE-FM station demonstrates in its application that it must make an involuntary modification (e.g., due to loss of its transmitter site) that would not otherwise be permitted under this section, its application will be considered on a case-by-case basis. In such cases, the provisions of paragraph (b)(3) of this section do not apply.

(c) *New NCE-FM stations.* Except as provided for by paragraph (d) of this section, applicants for NCE-FM stations proposing to operate on Channels 201–220 must submit a showing indicating that the predicted interference area resulting from the proposed facility contains no more than 3,000 persons.

(1) In making these calculations, the provisions in paragraph (e) of this section will be used.

(2) The following adjustment to population may be made: up to 1,000 persons may be subtracted from the population within the predicted interference area if, for each person subtracted, the applicant effectively installs one filter within 90 days after commencing program tests and, no later than 45 days thereafter, provides the affected TV Channel 6 station with a certification containing sufficient information to permit verification of such installation. The required number of filters will be installed on television receivers located within the predicted interference area.

(d) *Collocated stations.* As an alternative to the provisions contained in paragraphs (b) and (c) of this section,

an application for a NCE-FM station operating on Channels 201–220 and located at 0.4 kilometer (approximately 0.25 mile) or less from a TV Channel 6 station will be accepted under the following requirements:

(1) The effective radiated power cannot exceed the following values:

TABLE B

NCE-FM channel	Power (kilowatt)	NCE-FM channel	Power (kilowatt)
201	1.1	211	26.3
202	1.9	212	31.6
203	3.1	213	38.0
204	5.0	214	46.8
205	8.3	215	56.2
206	10.0	216	67.6
207	12.0	217	83.2
208	14.8	218	100.0
209	17.8	219	100.0
210	21.4	220	100.0

(2) The NCE-FM application will include a certification that the applicant has coordinated its antenna with the affected TV station by employing either: The same number of antenna bays with radiation centers separated by no more than 30 meters (approximately 100 feet) vertically; or, the FM vertical pattern not exceeding the TV vertical pattern by more than 2dB.

(e) *Calculation of predicted interference area and population.* Predictions of interference required under this section and calculations to determine the number of persons within a predicted interference area for NCE-FM operation on Channels 201–220 are made as follows:

(1) The predicted interference area will be calculated as follows:

(i) The distances to the TV Channel 6 field strength contours will be predicted according to the procedures specified in §73.684, “Prediction of coverage,” using the F(50,50) curves in Figure 9, §73.699.

(ii) For each TV Channel 6 field strength contour, there will be an associated F(50,10) FM interference contour, the value of which (in units of dBu) is defined as the sum of the TV Channel 6 field strength (in dBu) and the appropriate undesired-to-desired (U/D) signal ratio (in dB) obtained from Figures 1 and 2, §73.599, corresponding to the channel of the NCE-FM applicant and the appropriate F(50,50) field strength contour of the TV Channel 6 station.

(iii) An adjustment of 6 dB for television receiving antenna directivity will be added to each NCE-FM interference contour at all points outside the Grade A field strength contour (§73.683) of the TV Channel 6 station and within an arc defined by the range of angles, of which the FM transmitter site is the vertex, from 110° relative to the azimuth from the FM transmitter site to the TV Channel 6 transmitter site, counterclockwise to 250° relative to that azimuth. At all points at and within the Grade A field strength contour of the TV Channel 6 station, the 6 dB adjustment is applicable over the range of angles from 70° clockwise to 110° and from 250° clockwise to 290°.

(iv) The distances to the applicable NCE-FM interference contours will be predicted according to the procedures specified in §73.313, “Prediction of Coverage,” using the proposed antenna height and horizontally polarized, or the horizontal equivalent of the vertically polarized, effective radiated power in the pertinent direction and the F(50,10) field strength curves (Figure 1a, §73.333).

(v) The predicted interference area will be defined as the area within the TV Channel 6 station’s 47 dBu field strength contour that is bounded by the locus of intersections of a series of TV Channel 6 field strength contours and the applicable NCE-FM interference contours.

(vi) In cases where the terrain in one or more directions departs widely from the surrounding terrain average (for example, an intervening mountain), a supplemental showing may be made. Such supplemental showings must describe the procedure used and should include sample calculations. The application must also include maps indicating the predicted interference area for both the regular method and the supplemental method.

(vii) In cases where the predicted interference area to Channel 6 television from a noncommercial educational FM station will be located within the 90 dBu F(50,50) contour of the television Channel 6 station, the location of the FM interfering contour must be determined using the assumption that the Channel 6 field strength remains constant at 90 dBu everywhere within the

90 dBu TV contour. The FM to Channel 6 U/D signal strength ratio specified in § 73.599 corresponding to the Channel 6 TV field strength of 90 dBu shall be used.

(2) The number of persons contained within the predicted interference area will be based on data contained in the most recently published U.S. Census of Population and will be determined by plotting the predicted interference area on a County Subdivision Map of the state published for the Census, and totalling the number of persons in each County Subdivision (such as, Minor Civil Division (MCD), Census County Division (CCD), or equivalent areas) contained within the predicted interference area. Where only a portion of County Subdivision is contained within the interference area:

(i) The population of all incorporated places or Census designated places will be subtracted from the County Subdivision population;

(ii) Uniform distribution of the remaining population over the remaining area of the County Subdivision will be assumed in determining the number of persons within the predicted interference area in proportion to the share of the remaining area of the County Subdivision that lies within the predicted interference area; and,

(iii) The population of the incorporated places or Census designated places contained within the predicted interference area will then be added to the total, again assuming uniform distribution of the population within the area of each place and adding a share of the population proportional to the share of the area if only a portion of such a place is within the predicted interference area.

(iv) At the option of either the NCE-FM applicant or an affected TV Channel 6 station which provides the appropriate analysis, more detailed population data may be used.

(3) Adjustments to the population calculated pursuant to paragraph (e)(2) of this section may be made as follows:

(i) If any part of the predicted interference area is within the Grade A field strength contour (§ 73.683) of a TV translator station carrying the affected TV Channel 6 station, the number of persons within that overlap area will

be subtracted, provided the NCE-FM construction permit and license will contain the following conditions:

(A) When the TV translator station ceases to carry the affected TV Channel 6 station's service and the cessation is not the choice of the affected TV Channel 6 station, the NCE-FM station will modify its facilities, within a reasonable transition period, to meet the requirements of this section which would have applied if no adjustment to population for translator service had been made in its application.

(B) The transition period may not exceed 1 year from the date the NCE-FM station is notified by the TV Channel 6 station that the translator station will cease to carry the affected TV Channel 6 station's service or 6 months after the translator station ceases to carry the affected TV Channel 6 station's service, whichever is earlier.

(ii) If any part of the interference area is within the Grade B field strength contour (§ 73.683) of a satellite station of the affected TV Channel 6 station, the number of persons within the overlap area will be subtracted, provided the NCE-FM permit and license will contain the following conditions:

(A) If the satellite station ceases to carry the affected TV Channel 6 station's service and the cessation is not the choice of the affected TV Channel 6 station, the NCE-FM station will modify its facilities, within a reasonable transition period, to meet the requirements of this rule which would have applied if no adjustment to population for satellite station service had been made in its application.

(B) The transition period may not exceed 1 year from the date the NCE-FM station is notified by the TV Channel 6 station that the satellite station will cease to carry the affected TV Channel 6 stations's service or 6 months after the satellite station ceases to carry the affected TV Channel 6 station's service, whichever is earlier.

(iii) If any part of the predicted interference area is located outside the affected TV Channel 6 station's Area of Dominant Influence (ADI), outside the Grade A field strength contour (§ 73.683), and within the predicted city grade field strength contour (73.685(a))

of a TV broadcast station whose only network affiliation is the same as the only network affiliation of the affected TV Channel 6 station, the number of persons within that part will be subtracted. (For purposes of this provision, a network is defined as ABC, CBS, NBC, or their successors.) In addition, the ADI of an affected TV Channel 6 station and the program network affiliations of all relevant TV broadcast stations will be assumed to be as they were on the filing date of the NCE-FM application or June 1, 1985, whichever is later.

(iv) In calculating the population within the predicted interference area, an exception will be permitted upon a showing (e.g., as survey of actual television reception) that the number of persons within the predicted interference area should be reduced to account for persons actually experiencing co-channel or adjacent channel interference to reception of the affected TV Channel 6 station. The area within which such a showing may be made will be limited to the area calculated as follows:

(A) The distances to the field strength contours of the affected TV Channel 6 station will be predicted according to the procedures specified in § 73.684, "Prediction of coverage," using the F(50,50) curves in Figure 9, § 73.699.

(B) For each field strength contour of the affected TV Channel 6 station, there will be an associated co-channel or adjacent channel TV broadcast station interference contour, the value of which (in units of dBu) is defined as the sum of the affected TV Channel 6 station's field strength (in dBu) and the appropriate undesired-to-desired signal ratio (in dB) as follows:

Co-channel, normal offset, -22 dB
 Co-channel, no offset, -39 dB
 Adjacent channel, +12 dB

(C) The distances to the associated co-channel or adjacent channel TV broadcast station interference contour will be predicted according to the procedures specified in § 73.684, "Prediction of coverage," using the F(50,10) curves in Figure 9a, § 73.699.

(D) The area within which the showing of actual interference may be made will be the area bounded by the locus of

intersections of a series of the affected TV Channel 6 station's field strength contours and the associated interference contours of the co-channel or adjacent channel TV broadcast station.

(4) The maximum permissible effective radiated power (ERP) and antenna height may be adjusted for vertical polarity as follows:

(i) If the applicant chooses to use vertically polarized transmissions only, the maximum permissible vertically polarized ERP will be the maximum horizontally polarized ERP permissible at the same proposed antenna height, calculated without the adjustment for television receiving antenna directivity specified in paragraph (e)(1)(iii) of this section, multiplied by either: 40 if the predicted interference area lies entirely outside the limits of a city of 50,000 persons or more; or 10 if it does not.

(ii) If the applicant chooses to use mixed polarity, the permissible ERP is as follows:

$[H + (V/A)]$ is no greater than P

Where:

H is the horizontally polarized ERP in kilowatts for mixed polarity;

V is the vertically polarized ERP in kilowatts for mixed polarity;

A is 40 if the predicted interference area lies entirely outside the limits of a city of 50,000 persons or more, or 10 if it does not; and

P is the maximum permitted horizontally polarized-only power in kilowatts.

(f) *Channel 200 Applications.* No application for use of NCE-FM Channel 200 will be accepted if the requested facility would cause objectionable interference to TV Channel 6 operations. Such objectionable interference will be considered to exist whenever the 15 dBu contour based on the F(50,10) curves in § 73.333 Figure 1a would overlap the 40 dBu contour based on the F(50,50) curves in § 73.699, Figure 9.

[50 FR 27963, July 9, 1985; 50 FR 30187, July 24, 1985; 50 FR 31379, Aug. 2, 1985, as amended at 51 FR 26250, July 22, 1986; 52 FR 25867, July 9, 1987; 62 FR 51059, Sept. 30, 1997]