54. *Discussion.* In order to expedite FM station license modifications in these circumstances, we propose to eliminate the two-step application process for FM translator and booster stations seeking to decrease ERP. We tentatively conclude that recent changes in Section 319 of the Communications Act permit the Commission to adopt this one step licensing procedure.[96] We seek comment on this view. In these instances, we would permit licensees to decrease their ERP after the filing of a license application proposing the power decrease. Initial construction permits for these secondary facilities are reviewed for compliance with border agreements, overlap with any authorized facilities, and overlap with channel 6 television reception. A proposal to decrease the authorized ERP of such a station would not require a further review of these issues. In addition, there are no minimum coverage requirements which would necessitate prior approval of reductions in power.[97] Accordingly, we tentatively conclude that the adoption of a one-step licensing procedure for these applications would be appropriate. We seek comment on this proposal.[98]

## F. Relaxed Noncommercial Educational FM and Translator Technical Requirements

### 1. Second-Adjacent Channel Interference Ratios for Predicting Prohibited Overlap in the Reserved Band

55. *Background.* The Commission's commercial FM station interference protection standards require stations operating on the same channel or any of the first three adjacent channels to meet certain minimum distance standards.[99] These minimum distances were derived by computing predicted interfering and predicted service contours of stations operating at class maximums. Thus, no prohibited overlap can occur if stations meet the full spacing requirements of Section 73.207. Noncommercial educational FM stations also are protected from interference by stations operating on co-and the first three adjacent channels under the rules, which generally prohibit the overlap of one station's protected service contour and a second stations interfering contour.[100] Analytically, where no overlap occurs, no interference is predicted. The noncommercial rules do not specify minimum distance separation requirements. Actual, rather than maximum class facilities are used to calculate whether prohibited overlap would occur. Thus, the location of a station's service and interfering contours determines the preclusionary impact of such stations on other potential cochannel and adjacent channel facilities. Pursuant to these requirements, a second-adjacent channel FM educational station operating on Channels 201 through 220 (88.1 MHz through 91.9 MHz) may not place its interfering contour over the protected contour of a station operating on a second-adjacent frequency. Similarly, an FM translator applicant must avoid overlap of its 80 dBu

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[96] In 1996, Congress amended Section 319 of the Act to authorize the Commission to waive the requirement for a construction permit for minor changes in the facilities of authorized broadcast stations. *Telecommunications Act of 1996*, Pub. L. No. 104-104, § 403(m), 110 Stat. 56 (1996).

[97] *See Ted Tucker and Jan Tucker*, 4 FCC Rcd 2816, 2817 (1989).

[98] In *Amendments of Parts 73 and 74 of the Commission's Rules to Permit Certain Minor Changes in Broadcast Facilities without a Construction Permit*, 12 FCC Rcd 12371 (1997) the Commission adopted a similar one-step license process for eligible FM commercial stations to decrease power.

[99] *See* 47 C.F.R. § § 73.207 and 73.215.

[100] *See* 47 C.F.R. § 73.509 (defining prohibited overlap contours for station operating on the same channel or any of the first three adjacent channels).

interfering contour with the protected contour of any other station operating on a second adjacent channel.[101] Although both commercial and noncommercial FM interference standards are derived from a common methodology, the commercial rules use a less preclusive 100 dBu interfering contour to calculate minimum distance separations for stations operating on second-adjacent frequencies.[102]

56. *Discussion.* We propose to eliminate the inconsistency between the commercial and noncommercial station interference protection standards. Specifically, we propose to modify Sections 73.509 and 74.1204(a) to specify a 100 dBu interfering contour for second-adjacent channel noncommercial educational and FM translator stations.[103] Based on our licensing experience in the commercial FM band, we believe that this preclusive standard better identifies areas of potentially degraded or lost service within a station's protected service area caused by another station operating on a second adjacent channel. We also believe it would afford certain FM educational and translator stations an opportunity to increase power and service, and provide flexibility to relocate facilities. In addition, the proposed change would permit some stations the opportunity to increase effective radiated power and, therefore, coverage at a relatively low cost. We find no reason for FM translators covered by 47 C.F.R. § 74.1204(a) to be held to more stringent requirements than full service FM commercial and noncommercial educational stations. We seek comment on this proposed rule change.

### 2. Minimum Coverage of the Community of License by NCE FM Stations

57. *Background.* The Commission's rules do not require NCE FM stations operating in the reserved band (Channels 201 to 220) to place a minimum field strength signal over their communities of license, unlike their commercial counterparts.[104] The Commission enacted this policy based on the fact that many NCE FM stations operate at low power levels and simply could not provide coverage to the entire area within the legal boundaries of its community of license.[105] The Commission also recognized that NCE FM stations are generally dependent on listener support, and may not have the financial resources to construct facilities that serve the entire community of license. In addition, a NCE FM station's programming is often oriented toward a particular audience (*e.g.*, a college campus). However, public interest concerns are raised where an NCE FM station covers *no* portion of its community of license

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[101] A second-adjacent translator must avoid overlap of its 77 and 74 dBu interfering contours with the protected contour of class B1 and B stations in the reserved band, respectively.

[102] This inconsistency can be traced to 1962 when the Commission modified the spacing requirements to require the transmitter site of any interfering second and third-adjacent channel station be located outside the protected station's service area. *See Revision of FM Rules*, 23 Rad. Reg. 1801 (1962). This modification eliminated any distinction between second and third-adjacent channel commercial stations for Section 73.207 purposes. No parallel modification was adopted for noncommercial educational stations or FM translators stations.

[103] The 97 and 94 dBu interfering contours will be specified for second-adjacent channel FM translator stations protecting class B1 and B stations in the reserved band, respectively.

[104] 47 C.F.R. § 73.315(a) requires commercial FM stations to place the 70 dBu F(50,50) contour over the community of license. The "Note" to this rule section specifically exempts noncommercial educational stations operating in the reserved band from this requirement.

[105] *See Amendments to Parts 73 and 74 of the Commission's Rules to Permit Certain Minor Changes in Broadcast Facilities Without a Construction Permit*, 12 FCC Rcd 12371, 12380 n. 11 (1997).

with its 60 dBu contour. The association of a broadcast station with a community of license is a basic tenet of the Commission's allocation scheme for broadcast stations.[106] The 60 dBu contour defines the area within which a station provides a generally listenable signal and which the Commission's rules protect from interference. Where no part of the community of license lies within the 60 dBu protected service contour, the community is at risk of losing all service from the station licensed to it should a second station obtain an authorization for new or modified facilities that precludes the ability of the first station to place its 60 dBu contour over the community of license.

58. *Discussion.* We propose to delete the note to Section 73.315(a) and to add a provision requiring FM noncommercial educational stations to provide 60 dBu (1 mV/m) service to at least a portion of the community of license. We recognize that many noncommercial educational stations cannot cover their entire community of license with a 60 dBu strength signal. We believe this proposal would give NCE FM applicants significant flexibility to locate technical facilities, consistent with the Commission's statutory licensing requirements. We seek comment on this proposal and on the percent of the population and/or area of the community that should be covered. In the event that an NCE FM community coverage standard is adopted, we propose to apply the rule only to new station and modification applications filed after the effective date of this new rule. We seek comment on these tentative conclusions.

### 3. Revisions to Class D Rules

59. *Background.* The Commission created a low power NCE FM Class D service in 1948, as an inexpensive means of encouraging the FM broadcasting service and as a substitute for the "campus broadcasting systems" then in use.[107] By 1976, however, the demand for NCE FM licenses had increased dramatically, prompting the Commission to initiate a rule making proceeding to determine how to foster the most effective use of NCE FM spectrum.[108] The Commission concluded that Class D stations constituted an inefficient use of spectrum, and adopted measures to minimize their negative impact on the development of the NCE FM radio service. Specifically, the Commission encouraged Class D stations to upgrade to Class A status. It required Class D stations that did not upgrade to migrate to a commercial FM channel or Channel 200, where they would have secondary status. Those stations unable to migrate would be required to move to the reserved band channel with "the least preclusionary impact on other potential stations[.]" In addition, the Commission ended Class D stations' protection against interference and imposed a permanent freeze on applications for new Class D stations.[109] These measures and others

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[106] *See* 47 U.S.C. § 307(b).

[107] *Memorandum Opinion and Order*, 16 FCC 2d 429, 429-430 (1969) (rejecting proposed increase in permissible transmitter output power for Class D stations).

[108] *See Changes in the Rules Relating to Noncommercial Educational FM Broadcast Stations, Second Report and Order* in Docket No. 20735, 44 RR 2d 235, 236-39 (1978) ("*Second Report and Order*"), *modified, Memorandum Opinion and Order*, 70 FCC 2d 972, 974 (1979) ("*MO&O*").

[109] *See Second Report and Order*, 44 RR 2d at 244-47; *see also MO&O* at 977, n. 11. This notice neither makes nor proposes any change to this permanent freeze policy. We note that the Commission has requested public comment on two rulemaking petitions to establish a low power or microbroadcasting service. *See Public Notice*, Report No. 2254 (released February 5, 1998) (RM # 9208); *Public Notice*, Report No. 2262 (released March 12, 1998) (RM # 9242) (erratum).

adopted in the same proceeding have fostered a more efficient use of the NCE FM spectrum.[110]

60. The Commission remains committed to promoting the full use of the NCE FM channels. Congestion in the reserved band has increased during the past twenty years, and demand for NCE FM licenses remains high.[111] Furthermore, a recent staff study reveals that a number of the remaining Class D stations with reserved band authorizations are causing interference to full service NCE FM stations.[112] We believe, therefore, that certain modifications to our Class D policies are appropriate. We anticipate that the changes proposed herein would serve the Commission's original objective while avoiding the unnecessary cancellation of Class D licenses. In addition, we believe that the proposed changes would simplify and expedite Class D station licensing and renewal procedures.

61. *Discussion.* Under Section 73.512(a), Class D stations are required with each renewal cycle to migrate to an available commercial channel or Channel 200, or demonstrate the unavailability of such channels.[113] We do not believe the administrative burdens these requirements impose on both licensees and the Commission staff are warranted where an existing Class D station is operating on an NCE FM channel without objectionable interference. Accordingly, we propose to permit Class D stations to operate on any channel where no interference (as defined by Section 73.509(b)) would be caused to any broadcast station, and to eliminate the requirement that Class D licensees with reserved band authorizations demonstrate the unavailability of any commercial FM channel or Channel 200 in their license renewal applications. Under this proposal, the staff would handle channel location issues as they arise rather than addressing them as license renewal issues. In addition to reducing unnecessary administrative burdens, we anticipate that this proposal would simplify and expedite the renewal process for Class D stations. We also anticipate that this proposal would facilitate improved service by Class D stations. Whereas the current rules require Class D stations to migrate to available commercial channels or Channel 200 and contain no provision for such stations to move back to the reserved band, the proposed new rules would allow existing Class D stations to relocate to any available interference-free reserved or nonreserved channel in order to avoid receiving interference from full power FM stations, or for any other reason.

62. With regard to Class D stations that are causing or are predicted to cause interference (as defined by Section 73.509(b)) on their current channel, we propose to apply the following standards: first, stations would be required to move to an available interference-free channel; second, if no interference-free channel is available, stations would be required to move to an NCE FM channel that would result in only

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[110] For example, whereas there were 314 authorized NCE FM stations in 1966, when the issue of what to do with Class D stations first arose, *see Notice of Inquiry* in Docket 14185, 5 FCC 2d 587, 588-89 (1966), there are now 1,947 authorized NCE FM stations.

[111] *See, e.g., Educational Information Corp.*, 6 FCC Rcd 2207, 2208 (1991).

[112] The study reveals that 38 of the 70 Class D stations with reserved band licenses are causing interference.

[113] 47 C.F.R. § 73.512(a); *see Letter to Jerry A Kimbro*, Ref. No. 1800B3-BJB/KDY at 5, n. 11 (Chief, Audio Services Division Oct. 6, 1994) ("The Commission staff will determine a Class D station's compliance with 47 C.F.R. § 73.512(a) with every renewal cycle.").

second- and/or third-adjacent channel contour overlap;[114] and third, if no channel is available that would be either interference-free or create only second- and/or third-adjacent channel interference, the station would be required to obtain the consent of each affected NCE FM station subject to co- or first-adjacent channel interference as a condition for continued operation. The Commission has observed that co- or first-adjacent channel overlap is a more serious matter than second or third adjacent channel overlap because "the interference that may occur results in the loss of service over a wide area."[115] "Second or third adjacent channel overlap may result in the replacement of one signal by another (not the complete loss of service) and is confined to a very small area around the transmitter of the interfering station."[116] In the case of low power Class D stations, the potential interference area would be exceedingly small.[117] Accordingly, we believe that second- and third-adjacent NCE FM channel overlap should be permitted where there is no available interference-free channel for a Class D station. Should there be a number of potential channels for an existing Class D station in this situation to choose from, we propose to require applicants to adhere to the following frequency selection criteria: first, we would prefer overlap beyond an affected station's community of license to overlap within the licensed community; second, we would prefer third to second adjacent channel overlap; and third, we would prefer overlap involving the smallest percentage of population in a station's coverage area, so that there would be the least possible adverse impact on the affected station. In conjunction with these changes, we also propose to eliminate the "least preclusion" requirement, which is inadequately defined in the existing rules and has proved impracticable. *See* 47 C.F.R. § 73.512(a)(3). With regard to Class D stations presently causing second or third adjacent channel overlap in the NCE FM band, we invite comment as to whether such stations should be allowed to remain on their present channels absent actual complaints of interference or required to move in accordance with the standards proposed herein.[118]

63. A recent staff study reveals that every Class D station authorized to operate on a reserved band frequency has available at the present time an NCE FM channel on which it could operate free of co- or first-adjacent channel contour overlap. However, in the event that changes in NCE FM authorizations create a situation where no channel free of co- and first-adjacent channel interference is available, we propose to require the Class D station to obtain the consent of the affected NCE FM

[114] The current rules define Class D stations operating in the non-reserved band as "secondary," and we propose no change in this definition. *See* 47 C.F.R. § 73.506(a). Thus, under both the current rules and our proposal, no Class D station may be licensed to operate on a commercial FM channel with predicted interference to a full power station. For purposes of this Class D channel displacement discussion, Channel 200 is treated as an NCE FM channel.

[115] *Educational Information Corp.*, 6 FCC Rcd at 2208.

[116] *Id.* (In addition, the potential for such interference to occur depends to a great extent on the quality of the receivers used within the affected area.").

[117] *See id.*

[118] There is no present "actual interference" standard in the rules governing Class D stations. Rather, interference is determined based on predicted contour overlap. *See* 47 C.F.R. § 73.509(b). An "actual interference" standard is applied to FM translator and booster stations. *See id.* at § 74.1203.

station(s) as a condition for continued operation.[119] In the event that no agreement is reached, the Class D station would be required to cease operation when program tests for the affected station commence,[120] and would have up to one year to obtain the required consent.[121] We anticipate that such situations would arise only very rarely, and encourage affected stations to cooperate fully with each other. Nevertheless, we are mindful of the possibility that the proposed rules could result in the cancellation of some Class D licenses in the future. The Commission recognized the same possibility when it adopted the transitional Class D measures of the *Second Report and Order*.[122] Having balanced its competing concerns of inefficiency and fairness to Class D stations, however, it concluded that the potential public interest benefits involved warranted its action.[123] We tentatively reach the same conclusion here.

64. *Revise Class D Definition Based on Transmitter Power Output.* The current rules define Class D stations as stations with transmitter power output ("TPO") of 10 watts or less.[124] Higher class NCE FM stations, however, are defined by their predicted 1 mV/m (60 dBu) contour distances, as determined by power and antenna height in accordance with Section 73.211(b).[125] We propose to conform the definition of Class D stations to that of higher class NCE FM stations, by eliminating the TPO restriction and instead defining Class D stations as stations with predicted 60 dBu contour distances not exceeding five kilometers, as determined in accordance with Section 73.211(b). Because this standard would provide Class D stations with greater flexibility in choosing power and antenna height combinations, we anticipate that it would enable Class D stations to improve service without increasing their interference potential. We are aware of five Class D stations with predicted 60 dBu contour distances exceeding the proposed five kilometer restriction. We propose to grandfather such "superpowered" Class D facilities, permitting them to continue to operate as Class D stations at their present power and antenna height and to modify their facilities provided they do not extend their predicted 60 dBu contour distances. In this regard, we also propose to grandfather "underpowered" Class A facilities. These stations were authorized prior to the adoption of the Class A minimum power and antenna height requirements and do not currently meet such requirements. 47 C.F.R. § 73.211(a)(3). In practice, such stations currently are treated as Class A facilities.

65. *Classify Construction Permit Applications as Minor Changes.* As noted above, the Commission imposed a permanent freeze in 1978 on the filing of applications for new Class D stations. Certain Class D construction permit applications, including those proposing operation on a new channel, are treated as major change applications. We propose to consider all Class D facility applications as minor

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[119] We would allow Class D licensees to obtain such consent not only for the channel they are currently operating on but for any NCE FM channel or Channel 200.

[120] *Cf.* 47 C.F.R. § 73.512(d).

[121] *See* 47 U.S.C. § 312(g) (station license expires at the end of consecutive 12-month period of silence).

[122] *Second Report and Order*, 44 RR 2d at 245; *see MO&O* at 980.

[123] *Id.*

[124] *See* 47 C.F.R. § 73.506(a).

[125] 47 C.F.R. § 73.211(b); *see id.* at § 73.511.

change applications that would be processed under our more efficient "first come/first served" procedures.[126] In light of the unprotected status of Class D stations, only other Class D applications would be affected by this proposal,[127] and mutually exclusive Class D applications are extremely unlikely due to the low power and relatively small number of Class D stations.[128] By eliminating the 30-day public notice period for Class D permit applications, we anticipate that this proposal would expedite processing of such applications, conferring an important benefit on displaced Class D stations. We invite comment as to whether an application by a Class D station proposing to upgrade to Class A status, a modification that would confer protected status on such station, should be classified as a major change.

66. Consistent with the above, we propose to permit Class D stations to propose changes of licensed community or of 50 percent or more of the area within their predicted 1 mV/m contour areas provided their applications demonstrate that they would maintain continuity of service to their core audience. The present rules prohibit such changes in order to prevent the establishment of "new" Class D stations.[129] We believe this proposal would better effectuate the purpose of the present rules while providing Class D stations with greater flexibility to propose service improvements. We seek comment on these proposals.

67. *Revise Contour Protection Requirements for Class B and B1 Stations.* Section 73.509(b) requires Class D stations to protect the 1 mV/m (60 dBu) contour of all other broadcast stations, regardless of class or location on the FM band.[130] Commercial Class B and B1 FM stations, however, traditionally have received greater protection to their 0.5 mV/m (54 dBu) and 0.7 mV/m (57 dBu) contours, respectively.[131] Accordingly, we propose to modify Section 73.509(b) to require Class D stations to protect commercial Class B and B1 stations, as well as NCE FM Class B and B1 stations operating on commercial channels, to their respective 54 dBu and 57 dBu contours. We invite comment as to whether Class D stations that currently are required to protect the 60 dBu contours of Class B or B1 stations but would not comply with the proposed new standard should be permitted to continue to operate at their present powers and antenna heights absent actual interference complaints.

68. We invite comment on these Class D station proposals. Are they warranted in the interest of improved NCE FM channel use? Would they promote more efficient use of NCE FM channels? Should we apply to Class D stations the "actual interference" standard applicable to FM translators?[132] Would the proposed changes sufficiently protect the ability of Class D stations to continue to operate?

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[126] 47 C.F.R. §§ 73.3573, 73.3580.

[127] 47 C.F.R. § 73.509(b); *see Second Report and Order* at 246-47.

[128] We are unaware of any mutually exclusive Class D applications during the past decade.

[129] 47 C.F.R. §§ 73.512(c), 73.3573(a)(1); *see supra*, n. 104 and accompanying text.

[130] 47 C.F.R. § 73.509(b).

[131] *See Amendment of Part 73 of the Commission's Rules to Permit Short-Spaced FM Station Assignments by Using Directional Antennas, Report and Order* in MM Docket 87-121, 4 FCC Rcd 1681, 1687 (1989).

[132] *See* 47 C.F.R. § 74.1203.

## IV. Minor Rule Changes

69. The following revisions are being made in this proceeding in order to clarify and correct existing rule sections. Because these revisions are non-controversial and will have no adverse effect on any party, we find that notice and comment procedures are unnecessary and need not be followed prior to their adoption.[133] Rule revisions are set forth in Appendix D to this *Notice*. We explain these revisions briefly below.

70. Numerous rule sections that require the submission of informal letters to the Commission for various types of notifications or requests state erroneous addresses where the submissions should be sent. Accordingly, we shall amend the following rule sections to include the proper address within the Commission to which the submission should be sent: Sections 73.45, 73.54, 73.58, 73.68, 73.258, 73.561, 73.1350, 73.1560, 73.1580, 73.1750, 73.3542, 73.3544, 73.3549, 74.734, 74.751, 74.763, 74.784, 74.1231, and 74.1234.

71. We shall adopt revisions to 47 C.F.R. § 74.1235 of the Commission's rules with respect to the protection that must be afforded to and received from FM translator stations within 320 kilometers of the Canadian and Mexican borders. These revised protection requirements were promulgated in the Agreement Between the Government of the United States of America and the Government of the United Mexican States Relating to the FM Broadcasting Service in the Band 88-108 MHz, dated August 11, 1992 and a separate exchange of Diplomatic Notes that modified provisions of the existing Agreement between the Government of the United States of America and the Government of Canada concerning the use of the 88 to 108 MHz frequency band for frequency modulation broadcasting (FM), dated February 25, 1991.[134] The rule revisions conform the rule to the Agreements. These changes will have no adverse effect on any existing or presently proposed FM translator station: in all cases, the revised protection requirements are less restrictive than the requirements presently specified in the rule.

72. We shall delete 47 C.F.R. § 73.33 ("Antenna systems; showing required") of the Commission's rules, which duplicates Section 73.45(a) ("AM antenna systems"). We also shall delete the reference to Section 73.1130 ("Station program origination") contained in the table of rule sections at the beginning of Part 73, subpart H of the Commission's rules. Section 73.1130 was eliminated by the *Report and Order* in MM Docket 86-406, 2 FCC Rcd 3215 (1987). In addition, we shall add references to Section 73.1692 of the Commission's rules, which was adopted in the *Report and Order* in MM Docket 96-58, 12 FCC Rcd 12371 (1997), to the index of rule sections at the end of Part 73. Furthermore, we shall correct a typographical error in Section 73.312(b) ("Topographic data"), an error in the instructions for use of the F(50,50) field strength chart in Section 73.313(c)(2) ("Prediction of coverage"), and convert the English unit measurements to metric units in Section 73.151 ("Field strength measurements to establish performance of directional antennas"), consistent with the rest of the Commission's rules.

73. In *Grandfathered Short-Spaced FM Stations*, 12 FCC Rcd 11840 (1997), the Commission clarified and revised the rules for pre-1964 grandfathered short-spaced FM radio broadcast stations to

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[133] *See* 5 U.S.C. § 553(a)(1), (b)(3)(B); 47 C.F.R. § 1.412(c).

[134] *See U.S.-Canada FM Agreement Modified to Permit Added Flexibility for FM Translators in 97-22, Public Notice*, DA 97-1595 (July 28, 1997); *cf. In the Matter of Amendment of Section 73.207(b) of the Commission's Rules Regarding Minimum Distance Separations to Mexican Broadcast Stations, Order*, FCC 97-272 (August 13, 1997).

streamline the method of proposing modifications to existing facilities. The order adopted rules allowing grandfathered stations to modify facilities based on the ratio method of interference calculation. We specifically rejected a commenter's suggestion that the Commission should ignore interference received beyond the current service contour.[135] Recognizing the need for flexibility in selecting tower sites, we acknowledged that applicants could increase interference received in conjunction with a corresponding decrease in interference caused. However, as written, the rule can be interpreted as permitting such an increase in interference received without a corresponding reduction in interference caused. Therefore, we are amending 47 C.F.R. Section 73.213(a) to conform it to the actions taken in that order.

74. Finally, we add two new rule sections, 47 C.F.R. §§ 73.3617 and 74.1290, that will refer interested parties to the information contained on the Mass Media Bureau's World Wide Web site.

## V. Administrative Matters

75. *Comments and Reply Comments.* Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, interested persons shall file comments within sixty (60) days of the date of publication of this Notice in the Federal Register and reply comments within ninety (90) days of the date of publication of this Notice in the Federal Register. To file formally in this proceeding, you must file an original plus six copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus eleven copies. You should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, 1919 M Street, N.W., Washington, D.C. 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, Room 239, Federal Communications Commission, 1919 M Street, N.W., Washington, D.C.

76. *Initial Paperwork Reduction Act of 1995 Analysis.* This Notice proposes rule and procedural revisions that may contain information collection requirements. As part of our continuing effort to reduce paperwork burdens, we invite the general public and OMB to take this opportunity to comment on the information collection contained in this Notice, as required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13. Public and agency comments are due at the same time as other comments in this Notice; OMB comments are due 60 days from the date of publication of this Notice in the Federal Register. Comments should address: (a) whether the proposed collection of data is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. In addition to filing comments with the Secretary, a copy of any comments on the information collections contained herein should be submitted to Judy Boley, Federal Communications Commission, Room 234, 1919 M Street, N.W., Washington, DC 20554, or via the Internet to jboley@fcc.gov and to Timothy Fain, OMB Desk Officer, 10236 NEOB, 725 - 17th Street, N.W., Washington, DC 20503 or via the Internet to fain_t@al.eop.gov.

77. *Ex Parte Rules.* This proceeding will be treated as a "permit-but-disclose" proceeding subject to the "permit-but-disclose" requirements under Section 1.1206(b) of the rules. 47 C.F.R. §

[135] *See Grandfathered Short-Spaced FM Stations*, 12 FCC Rcd at 11844 ("we do not prohibit an increase in interference received, *provided it is offset by a decrease in interference caused*") (emphasis in original).

1.1206(b), as revised. *Ex parte* presentations are permissible if disclosed in accordance with Commission rules, except during the Sunshine Agenda period when presentations, ex parte or otherwise, are generally prohibited. Persons making oral *ex parte* presentations are reminded that a memorandum summarizing a presentation must contain a summary of the substance of the presentation and not merely a listing of the subjects discussed. More than a one- or two-sentence description of the views and arguments presented is generally required. See 47 C.F.R. § 1.1206(b)(2), as revised. Additional rules pertaining to oral and written presentations are set forth in Section 1.1206(b).

78. *Initial Regulatory Flexibility Analysis.* With respect to this Notice, an Initial Regulatory Flexibility Analysis ("IRFA") is contained in Appendix A. As required by the Regulatory Flexibility Act,[136] the Commission has prepared an IRFA of the expected significant economic impact on small entities by the policies and rules proposed in this Notice. Written public comments are requested on the IRFA. We ask a number of questions in our IRFA regarding the prevalence of small businesses in the industries covered by this Notice. Comments on the IRFA must be filed in accordance with the same filing deadlines as comments on the Notice and must have a distinct heading designating them as responses to the IRFA.

79. Accordingly, IT IS ORDERED, That pursuant to the authority contained in Sections 4(i), 4(j), 303, 308, 309 and 310 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 154(j), 303, 308, 309, 310, and 319 this Notice of Proposed Rule Making IS ADOPTED.

80. IT IS FURTHER ORDERED, That the minor rule changes set forth in paragraphs 69 to 74 ARE ADOPTED and shall become effective thirty days after publication in the Federal Register. This action is taken pursuant to Section 4(1) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. § § 154(i) and 303(r).

81. IT IS FURTHER ORDERED, That the Commission's Office of Public Affairs, Reference Operations Division, SHALL SEND a copy of this Notice, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

82. Additional Information. For additional information on this proceeding, please contact Peter Doyle or Dale Bickel, Audio Services Division, Mass Media Bureau (202) 418-2780.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Magalie Roman Salas
Secretary

[136] Pub. L. No. 96-354, 94 Stat. 1164, 5 U.S.C. § 601 *et seq.* (1981), as amended.

## APPENDIX A
## Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act ("RFA"),[135] the Commission has prepared this present Initial Flexibility Analysis ("IRFA") of the possible significant economic impact on small entities by the policies and rules proposed in this Notice of Proposed Rule Making ("Notice"). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments of the Notice provided above in ¶ 74. The Commission will send a copy of the Notice, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. *See* 5 U.S.C. § 603(a). In addition, the Notice and IRFA (or summaries thereof) will be published in the Federal Register. *See id.*

### I. Need For and Objectives of the Proposed Rules:

2. This rulemaking proceeding is initiated to obtain comments concerning the Commission's proposed amendment of certain technical rules and policies governing the radio broadcast services-- in order to enhance opportunities for improvement of facilities and service and eliminate unnecessary administrative burdens and delays, while maintaining the technical integrity of the radio broadcast services. This review is taken in conjunction with the Commission's current efforts to streamline its existing rules and eliminate unnecessary or redundant procedural requirements.

### II. Legal Basis:

3. Authority for the actions proposed in this *Notice* may be found in Sections 4(i), 4(j), 303, 308, 309, 310 and 319 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 154(j), 303, 308, 309, 310 and 319.

### III. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply:

4. RFA generally defines the term "small entity " as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[136] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[137] A small business concern is one which: (1) is independently owned and operated; (2) is not

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[135] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract with America Advancement Act of 1996, Pub. L. No. 194-12, 110 Stat. 848 (1996) ("CWAA"). Title II of the CWAA is the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA").

[136] *Id.* § 601(6).

[137] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3). While we tentatively believe that the SBA's definition of "small business" greatly overstates the number of radio broadcast stations that are small businesses and is not

dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[138] A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[139] Nationwide, as of 1992, there were approximately 275,801 small organizations.[140] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[141] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[142] This number includes 38,978 counties, cities, and towns; of these, 37,566, or 96 percent, have populations of fewer than 50,000.[143] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (91 percent) are small entities.

5. The proposed rules and policies will apply to radio broadcasting licensees and potential licensees. The Small Business Administration defines a radio broadcasting station that has no more than $5 million in annual receipts as a small business.[144] A radio broadcasting station is an establishment primarily engaged in broadcasting aural programs by radio to the public.[145] Included in this industry are commercial religious, educational, and other radio stations.[146] Radio broadcasting stations which primarily are engaged in radio broadcasting and which produce radio program materials are similarly included.[147] However, radio stations which are separate establishments and are primarily

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suitable for purposes of determining the impact of the proposals on small radio stations, for purposes of this *Notice*, we utilize the SBA's definition in determining the number of small businesses to which the proposed rules would apply, but we reserve the right to adopt a more suitable definition of "small business" as applied to radio broadcast stations subject to the proposed rules in this *Notice* and to consider further the issue of the number of small entities that are radio broadcasters or other small media entities in the future. *See Report and Order* in MM Docket No. 93-48 (*Children's Television Programming*), 11 FCC Rcd 10660, 10737-38 (1996), *citing* 5 U.S.C. § 601(3).

[138] Small Business Act, 15 U.S.C. § 632 (1996).

[139] 5 U.S.C. § 601(4).

[140] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

[141] 5 U.S.C. § 601(5).

[142] U.S. Dept. of Commerce, Bureau of the Census, "1992 Census of Governments."

[143] *Id.*

[144] 13 C.F.R. § 121.201, SIC 4832.

[145] Executive Office of the President, Office of Management and Budget, Standard Industrial Classification Manual (1987), SIC 4832.

[146] *Id.*

[147] *Id.*

engaged in producing radio program material are classified under another SIC number.[148] The 1992 Census indicates that 96 percent (5,861 of 6,127) radio station establishments produced less than $5 million in revenue in 1992.[149] Official Commission records indicate that 11,334 individual radio stations were operating in 1992.[150] As of January 31, 1998, official Commission records indicate that 12,241 radio stations were operating, of which 7,488 were FM stations.[151]

6. Thus, the proposed rules will affect some of the 12,241 radio stations, approximately 11,751 of which are small businesses.[152] These estimates may overstate the number of small entities since the revenue figures on which they are based do not include or aggregate revenues from non-radio affiliated companies.

7. In addition to owners of operating radio stations, any entity who seeks or desires to obtain a radio broadcast license may be affected by the proposals contained in this item. The number of entities that may seek to obtain a radio broadcast license is unknown. We invite comment as to such number.

## IV. Description of Projected Recording, Recordkeeping, and Other Compliance Requirements:

8. In addition to enhancing opportunities for improvement of radio broadcast technical facilities and service, a number of the measures proposed in this *Notice* would reduce the reporting requirements of prospective and current applicants, permittees and licensees. Among other things, we propose to eliminate the requirement that low power noncommercial educational FM ("NCE FM") Class D stations with reserved band authorizations migrate to available commercial FM channels or Channel 200 or demonstrate the unavailability of any such channel in their license renewal applications, and to replace the current two-step application process for coordinate corrections and FM translator power reductions with single-step application procedures. We also propose to extend our first come/first served procedures to AM, NCE FM and FM translator minor change applications and to expand the definition of "minor change" for these services. These measures are designed to reduce the overall administrative burdens of the Commission's rules on both regulatees and the Commission staff and shorten processing time frames for certain applications.

## V. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered:

9. This *Notice* solicits comment on a variety of alternatives discussed herein. These alternatives

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[148] *Id.*

[149] The Census Bureau counts radio stations located at the same facility as one establishment. Therefore, each co-located AM/FM combination counts as one establishment.

[150] FCC News Release No. 31327, Jan. 13, 1993.

[151] FCC News Release "Broadcast Station Totals as of January 31, 1998."

[152] We use the 96% figure of radio station establishments with less than $5 million revenue from the Census data and apply it to the 12,241 individual station count to arrive at 11,751 individual stations as small businesses.

are intended to enhance opportunities for improvement of technical facilities and service and eliminate unnecessary administrative burdens and delays associated with our radio broadcast licensing processes. With regard to the proposed modifications of our low power NCE FM Class D station policies, the Commission has taken steps to avoid the unnecessary cancellation of Class D licenses while promoting the most efficient use of the NCE FM channels.[153] Any significant alternatives presented in the comments will be considered.

## VI. Federal Rules that Overlap, Duplicate, or Conflict with the Proposed Rules:

10. None.

[153] *See supra*, para. 58-65.

## APPENDIX B
## Point-to-Point Contour Prediction Model

***Introduction.*** This rulemaking proceeding proposes the use, in limited instances (see Paragraphs 28 to 34 of the *NPRM*), of an alternate method of contour prediction in the FM broadcast services which takes into account the effects of terrain not considered under the standard contour prediction method in 47 C.F.R. §§ 73.313 and 73.333. While the standard method only considers terrain lying between 3 km and 16 km from the transmitter site, the PTP model can consider the effects of terrain as close as 1 km from the transmitter site and as distant as 100 km (or more). The model produces output in terms of a contour, allowing use of the contour protection rules already in place in the FM broadcast service.

In the following sections, we explain the point-to-point contour prediction model developed by the Office of Engineering Technology and Mass Media Bureau to better incorporate the effects of terrain on contour prediction calculations. We also summarize the Fortran 77 code implementing the model and show some sample results.

***Criteria Used to Design the Model.*** The FCC's staff set the following requirements in designing the model. These were:

(1) The output from the model must be in terms of a *contour*, not small cells defining service or lack of service as employed for digital television. Contours are well understood by the broadcast industry, and have been generally effective for many years in preventing interference between FM stations. Use of contours also avoids the arduous task of rewriting the FM broadcast rules to redefine service and interference.

(2) The method employed must be sufficiently automatic so that all parties can achieve the same output, given the same input data. Program variables which require user judgement as to their applicability and value preclude consistent results and engender disputes between parties. "Judgment variables" also can be manipulated to produce a desired but not necessarily correct result. Consequently, we require that any method must automatically determine the program variables to be used.

The PTP model meets these requirements.

***Input data.*** The program requires only data which is readily available to applicants and their engineering consultants. Input parameters are coordinates, height of the antenna radiation center above mean sea level, the effective radiated power, frequency, the contour value sought and the choice of service or interfering contours.

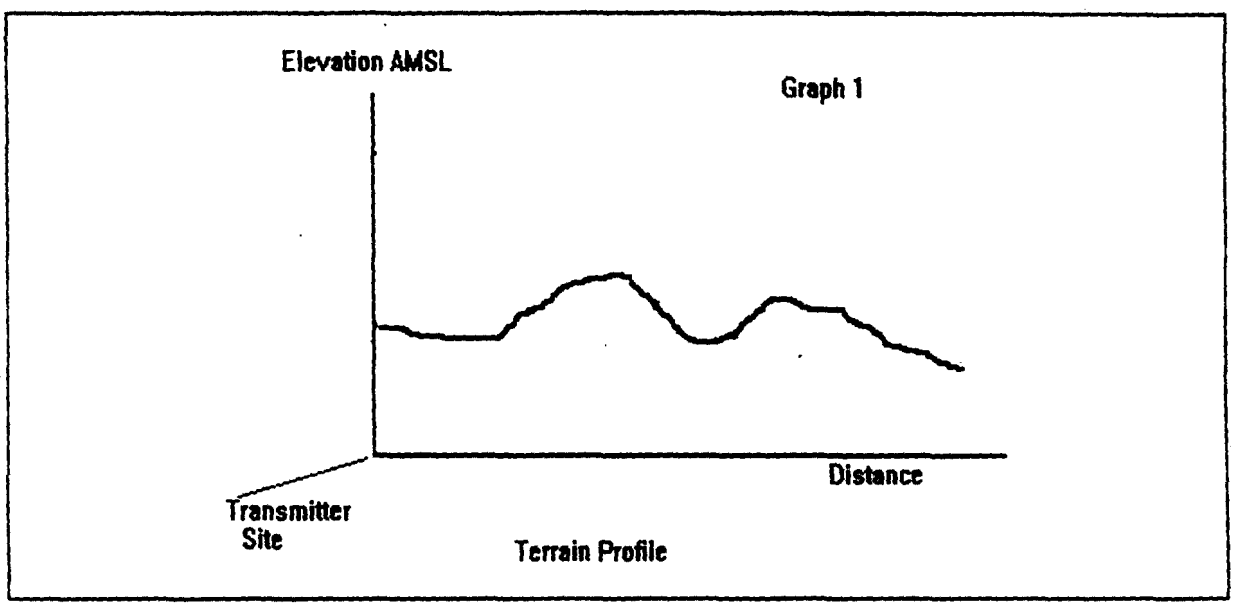
The model requires access to a 3 second or 30 second terrain database. In its present form, the Fortran program code is shown with references to the FCC's 30 second terrain database. These references must be modified to refer to the user's terrain database before the program can be used.

***Output.*** The program is designed to generate a contour as an output as opposed to a cluster of square cells denoting service or lack of it (as is used in digital television). Contour output allows use of the existing Commission rules for contour protection of stations.

Because terrain effects are more accurately represented, the contour produced generally varies more than the same contour predicted by the standard contour prediction method in 47 C.F.R. § 73.313. The effects of terrain on contours will be most noticeable in mountainous terrain.

***How the Program Works.*** In this section, we provide a brief explanation of the PTP program. We start by considering the analysis for an individual radial, since the combined results of a number of radials define the contour.

*Create Terrain Profile.* Using the terrain database, the PTP program locates a point 0.4 km (0.25 mile) distant from the transmitter site along the radial being considered, and computes the coordinates of that point. The program then finds the coordinates of the four nearest elevation points in the terrain database, and interpolates between these points to determine the elevation of the point under study. The program then repeats this process for the next point located 0.4 km (0.25 mi) further out along the radial. The process continues out to the maximum distance set by the program. These pairs of points and elevations are then used to generate a profile of the terrain along the radial. The terrain profile extends well beyond the location of the contour of interest. *See* Graph 1.




*Calculate Field Strength for Points on the Radial.* The field strength is then calculated for each point, beginning at the point on the radial located 1 km from the transmitter site and continuing outward at intervals of 0.4 km (0.25 mile). Each field strength value will correspond to a point on the terrain profile. The field strength in dB at any given point is computed by the formula

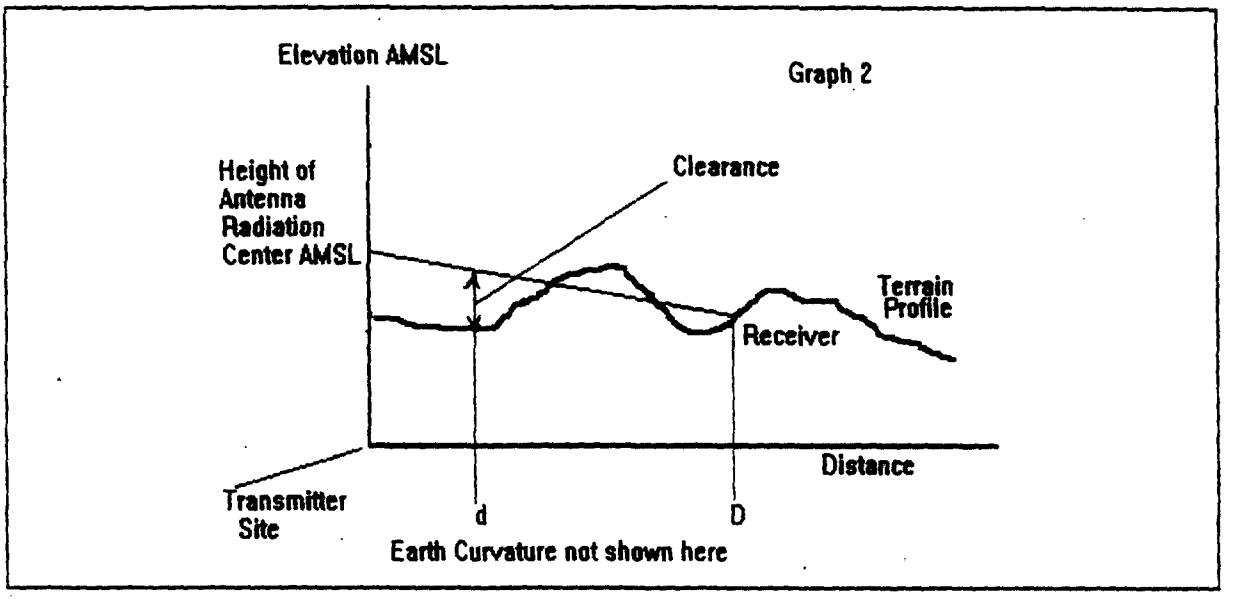
Field strength = Freespace + Diffraction Loss + Clutter Loss

where

Freespace (dB) = 106.9 - 20 $\log_{10}$ (distance) + ERP

where the ERP is in dBk (not kW) and the distance is in kilometers.[154] The freespace term assumes no other losses and its value decreases with the square of the distance from the transmitter.

*Diffraction Loss.* To find the diffraction loss at the point being studied, the program first calculates the straight line path between the transmitting antenna radiation center to the receiving antenna, ignoring for the moment any obstacle which may intervene in this path. At any distance d between the transmitter site and the receiving antenna site (located at a distance D from the transmitter site), the height of the straight line path above the elevation of the terrain (including earth bulge or curvature[155]) is defined as "clearance." *See* Graph 2.




[154] *See IEEE Transactions on Vehicular Technology*, VT-26, No. 4 November 1977, where the freespace field equation is listed as $E_0=(30gP)^{0.5}/d$, where P is in watts, d is in meters, and $E_0$ is in V/m. Converting units to kilowatts, kilometers, and μV/m, and recognizing that g is the gain referenced to an isotropic radiator in that document while FM typically is referenced to a halfwave dipole (2.15 dB gain), results in the Freespace equation shown here.

[155] The model assumes a 4/3 earth, which accounts for standard atmospheric conditions as well as earth curvature.

At each incremental distance d, a clearance ratio R is computed using the formula

R = Clearance Ratio = Clearance / Fresnel Radius

where the first Fresnel radius is

$$\text{Fresnel Radius} = 548 * \sqrt{(d * (D-d) / (D * \text{Frequency})}$$

"D" is the total path length from the antenna radiation center to the point under study.[156] Frequency is the frequency in megahertz. The distance "d" relates to the point being examined, which lies between (but not including) the transmitter site and "D". Each "d" point is separated by 0.4 km (0.25 mile) intervals from the next or previous "d" point.

The clearance ratio for each d point is then examined to find the minimum value. The minimum clearance ratio locates the primary terrain obstacle between the transmitter and the point of study.[157]

We then calculate a $\Delta h$ factor[158] based on the terrain data points within 10 km of either side of this obstacle.[159] This is done initially by finding the best linear fit of the elevation points within this 20 km range. Assuming a normal distribution for these elevation points, 80% of the terrain elevations will fall within 1.282 standard deviations of the mean. The program then calculates the standard deviation of the elevation points in the 20 km interval, relative to the fitted line. $\Delta h$ is then computed using the formula

$$\Delta h = 2 * 1.282 * (\text{standard deviation})$$

where the factor 2 accounts for both the upper and lower terrain deviations from the mean. The roundness of the obstacle is modelled by

$$\text{Roundness} = 75 / (\Delta h + 75)$$

For flat terrain, $\Delta h$ is very small and the roundness approaches a value of 1.0. For varying terrain, $\Delta h$ will be larger and the roundness will be smaller.

Two additional variables are required to be calculated before the diffraction loss can be calculated. The knife edge and smooth earth diffraction losses form the outer bounds for the range of possible

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[156] The total path length D corresponds to $(d_1 + d_2)$ in the CCITT/CCIR Report *Propagation*, Appendix to Section B.IV.3 of the handbook *Economic and Technical Aspects of the Choice of Transmission Systems*, ITU, 1971.

[157] If the clearance is negative at some points, then the program searches for the most negative value.

[158] This $\Delta h$ factor is neither the $\Delta h$ used in Longley-Rice calculations nor the $\Delta h$ factor in 47 CFR Sections 73.313 and 73.684. Therefore, this $\Delta h$ cannot be combined with those prediction methods.

[159] Where the obstacle is located less than 10 km from the transmitter site (e.g., 5 km), the distance between the obstacle and antenna site is used in lieu of the 10 km terrain segment. However, on the side of the obstacle away from the antenna site, the full 10 km is used. Thus, the length of that segment is not 20 km but something less (e.g., 15 km).

diffraction loss values. The knife edge diffraction loss is modelled (with R = Clearance ratio) as:

For $R \geq -0.5$ Knife edge (dB) = $( -1.377 * R^2 ) + (11 * R) - 6$
For $R < -0.5$ Knife edge (dB) = $[ 50.4 / (1.6 - R) ] -36$

The Knife edge value will always be restricted to be less than or equal to zero. The Smooth earth diffraction loss is modelled as

Smooth earth (dB) = $( 38.68 * R ) - 21.66$

The Smooth earth diffraction value is restricted to be less than or equal to zero, and will also be less than or equal to the knife edge diffraction loss.

The program calculates the diffraction loss from the clearance ratio, the roundness, and an approximation of the diffraction losses which would occur for (1) knife-edge diffraction and (2) smooth edge diffraction.[60] Thus the diffraction loss between the antenna radiation center and the specified point becomes

Diffraction Loss = Knife Edge + ( Roundness * ( Smooth Earth - Knife Edge ))

*Clutter Loss.* Clutter loss, which accounts for the effects of vegetation, man-made structures, etc. on the received signal, is modelled by the following equations (R is the clearance ratio explained above):

Clutter loss (in dB) = $(( C -1 )( R - 0.4 )^2)/ 0.16 - C$

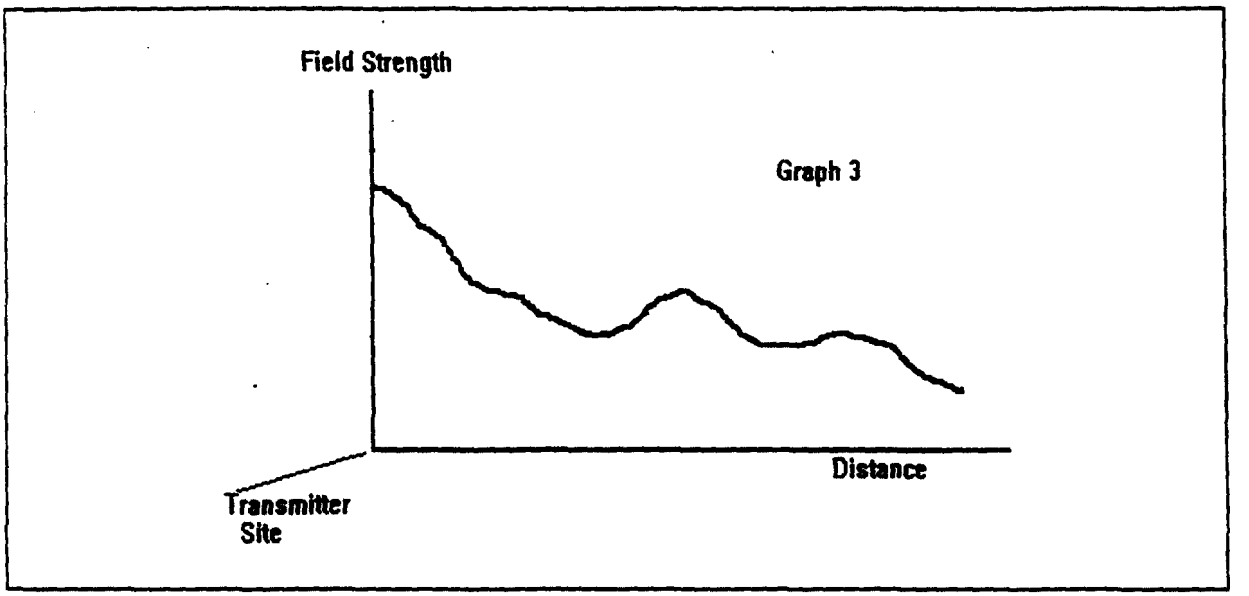
The clutter loss is restricted to values of zero or less. The value for C is here set at 5 dB and represents the median clutter loss in average suburban areas in the United States.

*Find the Field Strength.* Now that all of the terms have been defined, the computed field strength at the point under study can be computed using the equation

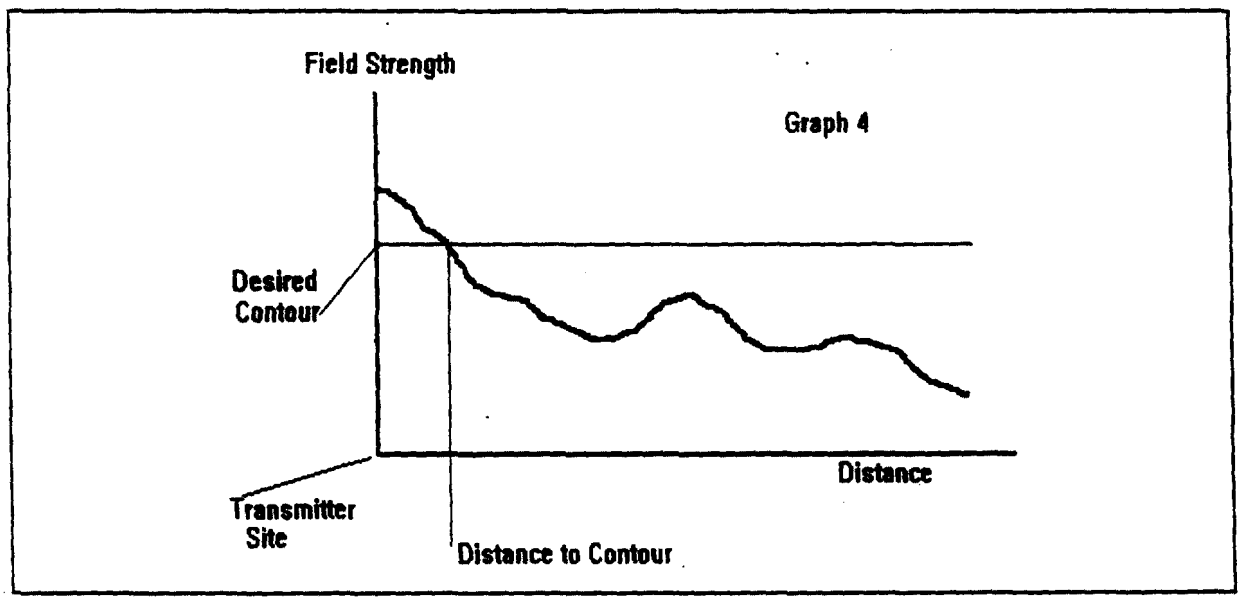
Field strength = Freespace + Diffraction Loss + Clutter Loss

as set forth above. The process is repeated for each point, out to the maximum distance specified as input or the default value specified by the program. The result is a distribution of points similar to that shown in Graph 3.

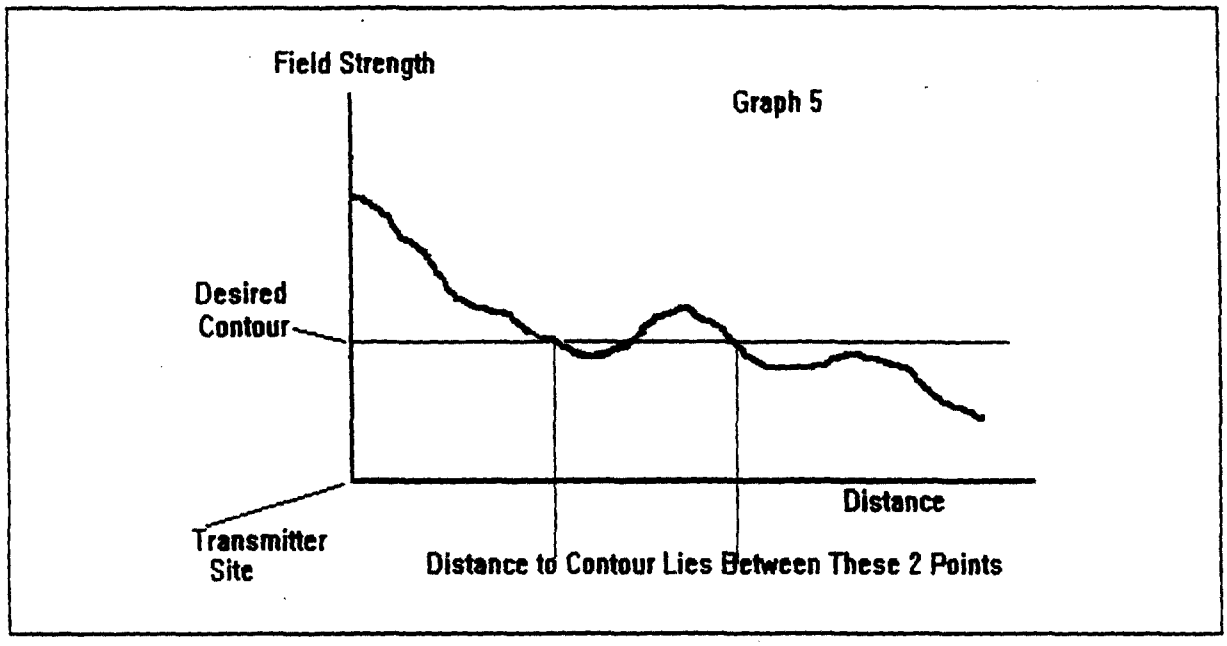
[60] This model of the loss is a simple fit of the diffraction loss curves for a knife edge and smooth earth as found in CCITT/CCIR Report *Propagation*, Appendix to Section B.IV.3 of the handbook *Economic and Technical Aspects of the Choice of Transmission Systems*, ITU, 1971.



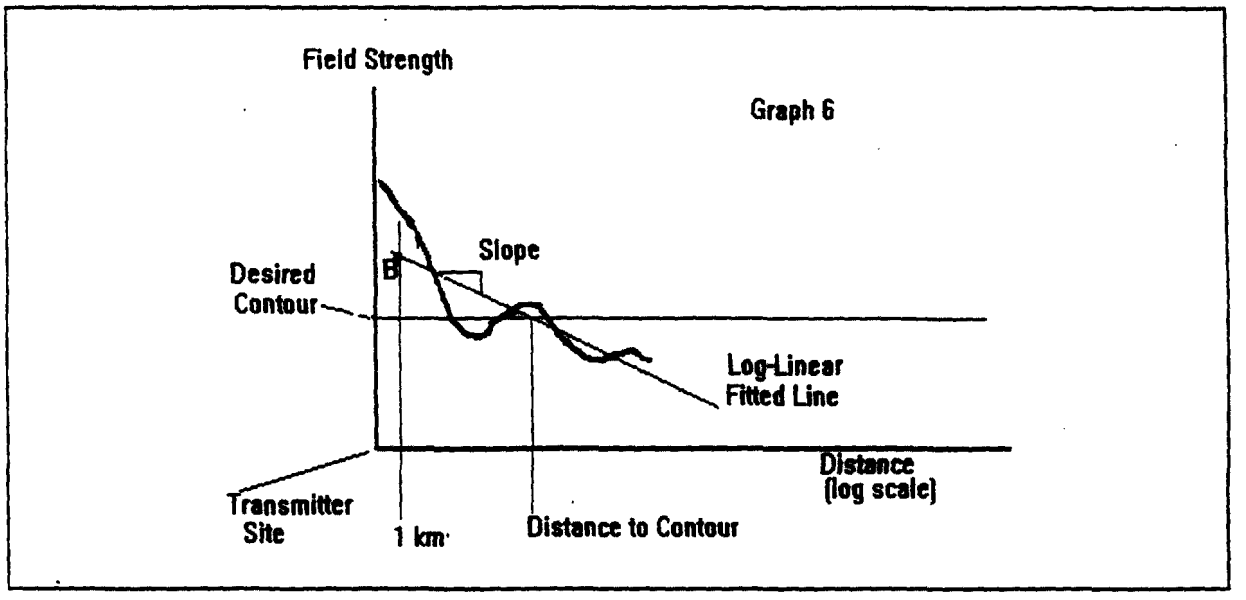

*Locate the Contour Distance.* The program identifies the locations along the radial at which the field strength values correspond to the desired contour value. In the simplest case, where the signal strength gradually falls off with increasing distance, there is only one point at which the predicted field strength corresponds to the desired contour. That crossing-point will be defined as the distance to the desired contour along that radial. See Graph 4.



If the field strength value dips below the desired contour value at some point, and later rises above the desired contour value for some distance, then multiple crossing points will exist. The contour lies between the first point at which the signal strength dips below the contour value and the last point at which the signal strength drops below the contour value. *See* Graph 5.



To locate the actual distance in this range, the program determines a log-linear fit of the field strength values.[161] *See* Graph 6.



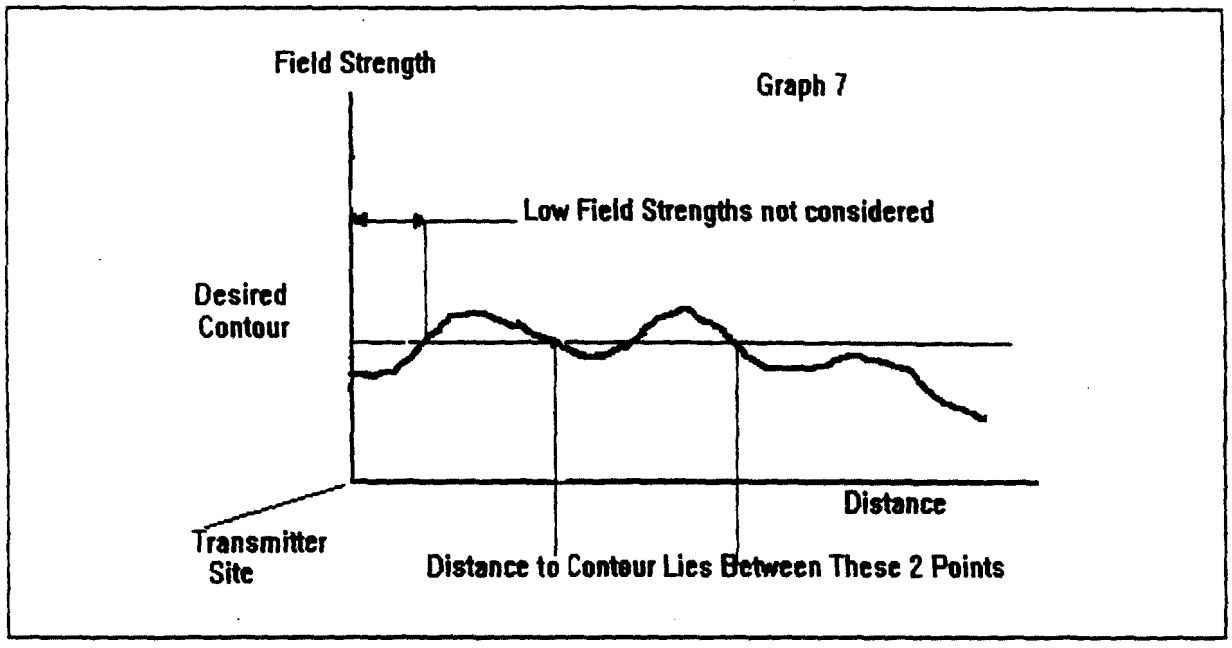

The distance to the contour is

$$\text{Contour Distance} = 10^{[\,(\text{Desired Field Strength Contour} - B)\,/\,\text{Slope}]}$$

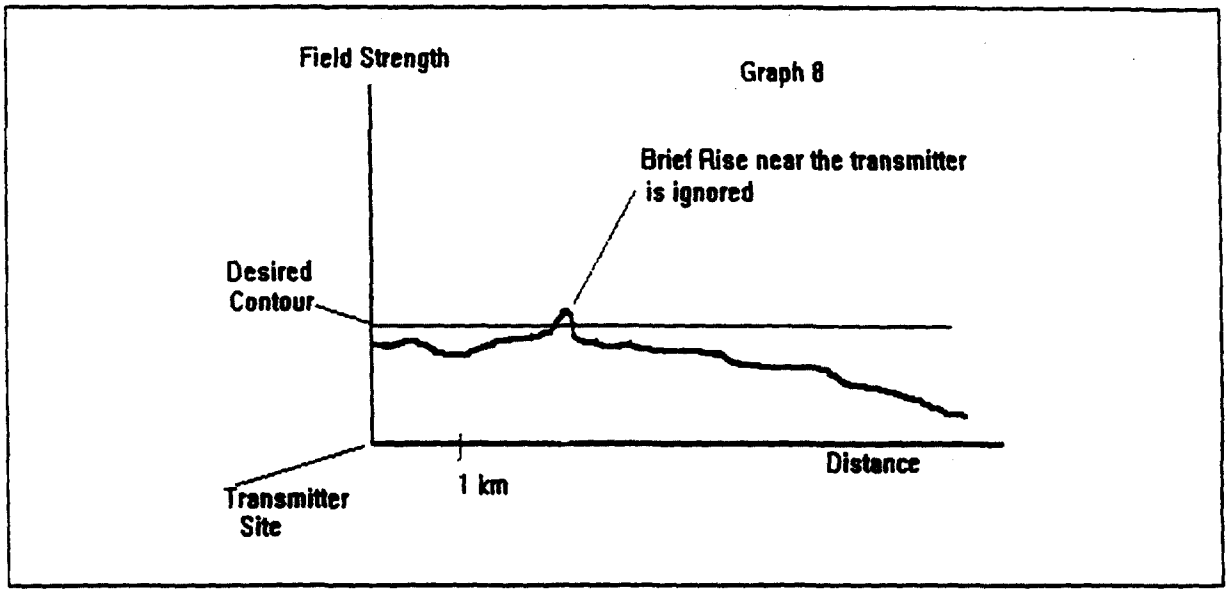
B corresponds to that field strength value of the fitted curve extrapolated back to a distance of 1 km ($\log_{10}$ 471 km = 0 ) from the transmitter site. Slope refers to the slope of the fitted line. This provides a unique value or the distance to the contour along the specified radial.

[161] The field strength values included in the calculation include those from the transmitter site out to 1.6 km (4 points) beyond the distance at which the calculated field strength value falls below the desired contour value for the last time.

In a few rare instances, an obstruction close to the transmitter site may cause some low signal values near the transmitter site, but the signal strength at greater distances will rise above the desired contour level. If the signal strength remains above the desired contour value for some distance, the low close-in field strengths will be ignored, since they represent only a small portion of the station's service area. The distance to the contour will be calculated as discussed above. *See* Graph 7.



If the calculated field strength is low near the transmitter site but later briefly rises above the desired contour value, we ignore the higher field strengths since the region receiving those field strengths is very small.[162] In this case, the distance to the contour will be less than 1 km from the transmitter site. *See* Graph 8.




Two other situations can occur, which generally represent incorrect data input. First of all, the predicted field strength may never fall below the desired contour value. This indicates that either the length of the radial is not long enough, or that a very low field strength value has been selected. Generally, the default value for the length of the radial should avoid this problem for desired contour values of 34 dBu or greater.

The second situation is that the field strength along the radial never exceeds the desired field strength value. This indicates that the field strength value chosen is abnormally high for contour prediction (well in excess of 100 dBu) or that a large terrain obstruction exists immediately adjacent to the transmitter site.

To produce an actual contour, this process is iterated over a number of evenly spaced radials at different azimuths. The distances to the contours for the various radials are then joined by a smooth curve to represent the location of the contour.

[162] The "brief rise" is ignored if the *number of field strength points*, located between the transmitter site and the distance at which the calculated field strength first rises up to the desired contour value, is greater than half of the total number of points between the transmitter site and that distance at which the field strength dips below the desired contour value for the last time. These "brief rise" points are ignored because the median field strength would be less than the contour level.

*Additional Step Required to Locate the Interfering Contour.* The preceding discussion will locate the service contours of a station. To find the interfering contour, a time fading adjustment is required. Specifically, once the field strength for a particular point is located (see the section *Find the Field Strength* above), an adjustment is made using the difference between the standard F(50,50) and F(50,10) propagation curves at the station's ERP, HAAT, and distance from the transmitter site. This adjustment accounts for attenuation caused by long-term time fading effects. Thus, the field strength formula becomes

Field strength = Freespace + Diffraction Loss + Clutter Loss + [ F(50,10) FS - F(50,50) FS]

where FS is the field strength value obtained from the F(50,50) or F(50,10) propagation curves.

***Where to obtain the source code.*** The Fortran 77 source code for this computer program is available through the Internet at http://www.fcc.gov/mmb/asd/ptp.html. This code contains all of the necessary subroutines. It does not include access to the FCC's 30 second terrain database, and some modifications to the program will be necessary to retrieve data from a local version of a terrain database.

***Questions.*** Questions on the point-to-point method set forth above may be referred to Harry Wong, Office of Engineering Technology, at 202-418-2437. Questions on the Fortran program may be referred to Jorden Brinn at 202-418-2664.