

Channel Assignment
FM Stations, Class A, B, C
Frequency Assignment
Station Separation
Table of Assignments

Final rule making order adopted to permit the operation of an increased number of FM broadcast stations. Rule changes were needed to meet the demand for FM broadcast service that could not be satisfied under the present rules. New rules allow Class A stations to operate on all channels, authorize three new classes of stations, and reclassify existing stations, after a period of three years, according to their operating facilities.

-*FM Broadcast Stations*

BC Docket No. 80-90

FCC 83-259

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION**

WASHINGTON, D.C. 20554

In the Matter of

Modification of FM Broadcast Station
Rules to Increase the Availability of Com-
mercial FM Broadcast Assignments.

BC Docket No.
80-90
RM-2587
RM-3226
RM-3367

**REPORT AND ORDER
(PROCEEDING TERMINATED)**

(Adopted: May 26, 1983; Released: June 14, 1983)

BY THE COMMISSION: COMMISSIONER QUELLO DISSENTING AND
ISSUING A STATEMENT; COMMISSIONER
FOGARTY NOT PARTICIPATING; COMMISSIONER
RIVERA ISSUING A SEPARATE STATEMENT;
COMMISSIONER SHARP ABSENT.

INTRODUCTION

1. The Commission's *Notice of Proposed Rule Making* ("Notice") in this proceeding suggested a number of rule changes to increase the availability of FM stations within the present assignment structure.¹

¹ 78 FCC 2d 1235; 45 Fed. Reg. 17602; adopted February 28, 1980.

2. The FM band extends from 88-108 MHz and is divided into 100 channels numbered from 201 to 300. The lower 4 MHz contains Channels 201 to 220 and is reserved for noncommercial educational stations. The upper 80 channels between 92 MHz and 108 MHz may be used by both commercial and noncommercial stations. The use of these channels is governed by the FM Table of Assignments ("Table") found in Section 73.202(b) of the Commission's Rules. It provides a listing of communities in which stations are operating, or may operate, and the channel on which they must transmit.

3. When a new station is desired, the Table must be amended through a rule making proceeding to add the requested community and channel. The proposed station must be located a sufficient distance from pertinent co-channel and adjacent channel stations and still be capable of providing a strong signal over the desired community. The distance separation requirements are based upon the assumption that each station is currently, or at some future time will be, operating with maximum facilities (effective radiated power, "ERP," and antenna height above average terrain, "HAAT"). Thus, the Table permits stations to begin operating with less than maximum facilities and to increase them as their financial situations improve.

4. The Commission authorizes three classes of FM stations. Class A stations operate only on 20 designated channels and have a service radius of 15 miles. The service radius is determined from the co-channel distance separation requirements, which provide protection from interference to approximately the station's 1 mV/m contour. Class B or C stations operate on the remaining 60 channels. Whether a station is designated Class B or Class C depends upon its geographic location. Class B stations are assigned in the more densely populated parts of the nation and have a service radius of 40 miles, representing protection of their 0.5 mV/m contour. Areas where Class B stations may be located are designated Zones I and I-A. Class C stations are assigned elsewhere (Zone II) and have a service radius of 57 miles, representing protection of their 1 mV/m contour.

5. The *Notice* recognized that under the present allotment rules, additional service cannot be offered to many parts of the nation where demand has not been satisfied. Commission studies identified three existing standards that appeared to limit new FM service:

(a) Class A stations may operate only on 20 designated channels, thereby foreclosing substantial areas from using the 60 Class B/C channels for these smaller stations;

(b) the distance separation requirements assume stations are operating with maximum permissible facilities, although 80% of the Class C stations and 35% of all FM stations were not operating with maximum, or near maximum, facilities at the time the *Notice* was adopted; and

(c) the Class B separations, which reflect protection of the 0.5 mV/m field strength

contour rather than the 1 mV/m contour, prohibit many communities from obtaining additional FM allotments.

6. Based on these findings, the Commission proposed to respond to the continuing demand for FM assignments by:

(a) allowing stations with Class A facilities to operate on the 60 Class B/C channels if a Class A channel was not available;

(b) increasing the number of classes allowed from three to five by adding Class B1 (operating facilities between Classes A and B) and Class C1 (operating facilities between Classes B and C) stations, so protection would more closely approximate service area;

(c) permitting Class B stations to operate in the same areas as Class C stations (Zone II);

(d) adopting a new distance separation table based on providing uniform protection to the 1 mV/m (60 dBu) contour of all stations (the primary impact of the adoption of this proposal would be on Class B stations whose separations are now based on the 0.5 mV/m contour);

(e) requiring existing Class B and Class C stations operating with less than maximum, or near maximum, facilities to reach the minimum power and antenna height specified for the new classification system within three years, or be reclassified based on their actual operating facilities; and

(f) allowing *new* Class C stations six years to reach their minimum power and antenna height requirements because they would be the only class of station to have a minimum antenna height requirement.²

7. Central to the *Notice's* proposals was the retention of the basic Table of Assignments framework. It did not propose to modify the allotment structure represented by the Table. Instead, the Commission sought to focus on those changes that could achieve immediate benefits and to defer consideration of more complex proposals until a later date. These included such matters as terrain shielding, directional antennas, etc.

8. Those parties that submitted comments and reply comments that relate directly to our discussions are listed in Appendix A.* Seven months after the close of the reply comment period, the National Radio Systems Committee ("NRSC") submitted new FM receiver measurement data.³ On August 3, 1982, the Commission re-opened the record to accept the NRSC report and two others filed by

² The Commission also proposed to adopt the International System of Units (commonly termed the metric system) for the FM broadcast service because it was considering modifying many of the technical rules.

³ The National Radio Systems Committee is co-sponsored by the EIA and the NAB and "is comprised of persons from the broadcasting and electronics manufacturing industries and others interested in improving the overall technical quality of radio broadcasting and reception. The NRSC by its charter does not assume a position of advocacy on any matter before the Federal Communications Commission or any other governmental body. One function, however, is to provide agencies with information on transmitting and receiving technology which may be used in rulemaking proceedings."

[Committee description taken from the comments of the NRSC; October 16, 1981.]

the Advisory Committee on Radio Broadcasting ("Advisory Committee").⁴ In addition to accepting the reports, the Commission allowed 30 days for other parties to comment on these late-filed studies.⁵

9. Subsequently, the Advisory Committee submitted additional reports and again requested that the Commission re-open the record to accept them and to request comments on their findings.⁶ The Commission declined the Committee's request stating that it would consider the reports to be *ex parte* comments submitted under the guidelines governing non-restricted proceedings. Thus, the Commission could consider these reports in its deliberations and any other comments submitted in response to the filing of the reports could also be considered to be *ex parte* comments.

Summary of Actions Taken

10. The Commission has reviewed each of the comments filed. Based on that review, we have decided to amend the rules in the following manner:

- (a) Class A stations will be allowed on Class B/C channels;
- (b) the distance separation requirements will *not* be modified for existing station classes to reflect uniform protection to the 1.0 mV/m contour (thus, separations for Class B stations in Zones I and I-A still will be based on the 0.5 mV/m contour rather than the 1.0 mV/m proposed);
- (c) one new class of station, Class B1, with an expected service range of 45 kilometers (28 miles), will be allowed to operate in Zones I and I-A;
- (d) two new classes of stations, Classes C1 and C2, with expected service ranges of

⁴ The Commission acted in response to a petition from the Advisory Committee. This committee evolved from the "Advisory Committee on AM Broadcasting in Region 2." The latter committee was established to advise the staff of the Commission during its preparation for, and participation in, the International Telecommunications Union Regional Administrative Conference on AM Broadcasting in the Western Hemisphere. The purview of the AM conference committee was expanded to include FM broadcast issues when its charter was amended on September 10, 1980. It was renamed the "Advisory Committee on Radio Broadcasting" and its organization was altered to specify two subgroups within the committee. One subgroup was to address technical matters while the other concentrated on spectrum allocation matters. [See the *Memorandum Opinion and Order* issued by the Commission on September 22, 1980 (FCC 80-537).]

⁵ The studies are entitled: (1) *Report to the National Radio Systems Committee from the FM Subcommittee Task Force*, July 24, 1981 ("NRSC Report"); (2) *FM Broadcasting Receiver Characteristics and Protection Criteria*, July 7, 1982, ("Technical Subgroup Report"); and (3) *Report on FM Allocation Policies*, July 9, 1982 ("Allocations Subgroup Report").

⁶ The studies submitted by the Advisory Committee are entitled: *Subjective Evaluations of Audio Degraded by Noise and Undesired FM Signals* ("Subjective Audio Study"), November 17, 1982; *A Study of FM Station Mileage Separations* ("Mileage Separations Study"), November 17, 1982; *Potential Effects of BC Docket No. 80-90 on FM SCA Operations* ("SCA Study"), November, 1982; and *A Study of Stereo Radio Listening* ("Stereo Listening Study"), December 7, 1982.

72 kilometers (45 miles) and 52 kilometers (32 miles), respectively, will be allowed to operate in Zone II;

(e) existing stations will be required to meet minimum facility requirements within three years or be reclassified to a station class based on the new classifications. For Class C stations, a minimum antenna height requirement of 300 meters (984 feet) HAAT will be adopted;

(f) new Class C stations will be required immediately to meet minimum facilities rather than being provided six years within which to comply; and

(g) the rules contained in the FM service will be converted to the International (metric) System of Units.

These amendments are intended to provide for additional FM stations in many parts of the country and still permit existing stations to provide service equivalent to that embodied in the present allotment rules. They represent, in our best judgment, the optimum rule changes necessary to allow new stations while preserving the unique qualities of the FM service.

ANALYSIS OF THE RECORD

11. Our analysis of the record in this proceeding first will set forth those comments that relate generally to the legal and policy issues presented in the *Notice*. After a summary and discussion of those comments, we will proceed to a recitation and analysis of those comments that addressed general technical issues. Then the record on each specific proposal set forth in the *Notice* will be summarized and discussed. Finally, we will discuss various matters that are ancillary to the adoption of the changes set forth in paragraph 10, *supra*, including the implementation of those changes.

Legal and Policy Matters

12. A number of parties argued that sufficient information was not available, nor sufficient thought given, for the proposals in the *Notice* to be satisfactorily considered. ABC, NAB, and other parties urged the Commission to develop a master plan for an integrated AM and FM aural broadcast service before seriously considering any deviations from the existing service structures. They claimed the current approach of instituting separate proceedings for each service represented a conviction to create new radio outlets without regard to public service costs. Cox and Multimedia supplied detailed historical perspectives of the development of the FM service. Noting FM's complementary nature to the AM service, they argued that the suggested modifications be considered in an omnibus proceeding.

13. ABC also argued that the instant proceeding is an ineffective mechanism for dealing with important issues such as demand, economic viability, appropriate service area size, assignment priorities, and viable alternatives. The Advisory Committee urged the Commission to make more extensive economic studies of FM stations

before taking final action. Its reports to the Commission, along with comments submitted by NBC and ABC, cited economic losses and small profit margins as indications that further competition would be undesirable in many situations. PAB and NRBA claimed that additional outlets in marginally profitable markets would result in less local news and public affairs programming. ABC pointed out that, according to several court decisions, the Commission is expected to assess the merits of adding new broadcast stations by balancing public service gains against losses.

14. Some parties argued that demand by potential broadcasters does not represent a public interest determination as required by the Communications Act. Still others claimed that adoption of the proposals in the *Notice* would violate Section 307(b) of the Communications Act, which requires a "fair, efficient and equitable distribution of radio services." They suggested that these factors only can be fully examined if the Commission issues a Notice of Inquiry into these subjects before proposing specifics in a Notice of Proposed Rule Making.

15. NBC contended that the current FM service is efficient and diverse. Quoting from the Spring 1980 Arbitron data, it stated that of the top 100 markets containing 71% of the population over 12 years of age, 88 markets contain 5 or more FM stations; and of the top 150 markets containing 77% of the population over 12 years of age, 123 markets contain 5 or more FM stations. A study performed by A.D. Ring & Associates ("A.D. Ring") was submitted to support the proposition that the proposals would not increase availability in larger markets. The study investigated potential FM stations under the proposed changes for 24 of the top 100 markets. It indicated that no additional FM stations were possible in any of the top 12 markets and only one was found in the top 15 markets. Of the 9 remaining markets studied (markets 16 to 24 at ten market intervals), it indicated that the proposed changes would result in no Class C or C1 stations, 4 Class B stations to 3 communities, 19 Class B1 stations to 7 communities, or 34 Class A stations to all 9 communities.⁷ Because no additions would be possible in the highest demand markets (*i.e.*, the top 12), several parties claimed that the proposed changes served no useful purpose.

16. After reviewing the comments submitted in this proceeding, we believe that no more appropriate forum exists within which to comprehensively examine the public interest need for additional FM radio service and the rule changes necessary to bring it about. Every effort has been made to establish as complete a record as possible and to encourage widespread public and industry involvement. We expanded the purview of the Advisory Committee to include the FM

⁷ Presumably, some combination of Classes A, B1, and B stations is possible in most of the communities. However, this is unclear from the data submitted.

service, extensively delayed this proceeding by extending the comment period several times, and even accepted late-filed comments. The Commission believes the record before us is adequate to explore all pertinent issues. All matters addressed by the commenting parties (including those studies concerning new receiver characteristics, average distance separations, and audio listener tests and surveys) have been fully examined and factored into our decision. The need for additional outlets and the rule changes necessary to accommodate them have been carefully weighed against the effects such changes would have on the present FM service. We have concluded that the public interest is best served by adopting most of the rule changes proposed. There exists no reason to investigate further the desirability of modifying the rules, as many parties suggested, because such an investigation would only re-confirm what the record before us already indicates and would needlessly delay the benefits of additional FM station availability. Moreover, as subsequent discussion indicates, we have been keenly aware of the interrelationships of the AM and FM services in satisfying our statutory mandate to

make such distributions of licenses, frequencies, hours of operation, and power among the several States and communities as to provide a fair, efficient, and equitable distribution of radio service to each of the same.⁸

17. When assigning radio broadcast stations, the Commission's basic objectives have been to provide

- at least one service to everyone,
- diversified service to as many persons as possible, and
- outlets for local expression addressing each community's needs and interests.⁹

We recognize that these goals can be self-contradictory; therefore it is necessary to strike compromises that both foster service to all and provide for outlets for local expression in as many communities as possible. Such compromises have been struck in the past, resulting in radio service in the United States to 98% of the population with at least one primary fulltime aural service (*i.e.*, one primary nighttime AM or one FM signal of 1 mV/m field strength or greater). *Further Notice of Proposed Rule Making*, Docket No. 20642, at paragraph 53. The rule changes adopted herein will foster the same goals,

⁸ Section 307(b) of the Communications Act of 1934, as amended; 47 U.S.C. §307(b).

⁹ The Commission recently simplified its FM allotment priorities and reaffirmed these goals for this broadcast service. New FM channels are to be allotted: first, where they will provide a first fulltime aural service; second, where they will provide a second fulltime aural service or a first local service; and third, where they are necessary to meet other public interest matters. (See the *Report and Order* in BC Docket No. 80-130, reconsideration pending, adopted on May 20, 1982.) Those comments seeking a re-examination of the FM priorities have been satisfied by Commission action in BC Docket No. 80-130.

providing opportunities for new local outlets while preserving existing primary service areas.

18. Some of the comments stated that demand for assignments does not represent the necessary Commission finding that such assignments are "in the public interest." Demand, however, does represent an applicant's judgement of a community's interest in and potential financial backing for a new station. We regard this as a fair basis on which to examine the public interest aspects of new proposals. As a practical matter, if a community really has little potential for establishing an additional station, we believe it unlikely that applicants or investors would be willing to extend the effort or financial backing that is required. As a second matter, potential competition should not be curtailed by the Commission second guessing a market's potential. Other comments claimed that increased competition could result in disservice to the public by reducing existing programming services. Our experience is that the public generally benefits from program diversity brought about by increased competition. In an individual situation, however, based on an application and appropriate pleadings, the Commission may be called upon to evaluate the overall adverse impact on service that could result from the institution of a new service in a community. See, e.g., *Carroll Broadcasting v. FCC*, 258 F.2d 440 (D.C. Cir. 1958).

19. We also believe there is ample evidence to support the need for more FM stations. The Station Requirement List, submitted to the Region 2 Conference on AM Broadcasting, represents approximately 3,000 separate locations where the Commission foresaw a potential need or demand for nearly 4,000 additional radio stations in the immediate future.¹⁰ The importance of the list for this

¹⁰ The Commission notified this list to the International Frequency Registration Board (IFRB) to insure international protection of our future radio needs. The list of potential station requirements for various countries in the Western Hemisphere was submitted to the Second Session of the Administrative Conference on AM Broadcasting in Region 2 held in November and December, 1981, to establish future planning needs. Although time did not allow adoption of all these requirements, provisions were made for adding them after the conference. (See *List of Requirements Concerning Stations to be Authorized between 1 January 1983 and 31 December 1987*; Appendix to Document No. 19-E, 16 October 1981.)

This inventory of potential interest or demand for additional fulltime radio stations was compiled from lists of:

- a) locations of all daytime-only AM stations;
- b) cities asserted as needing minority-owned or public radio stations as defined by National Black Media Coalition and National Public Radio in the *Report on New Station Demand and Viability* as submitted by the Advisory Committee on December 17, 1980;
- c) a few places where declarations of interest were filed in response to BC Docket No. 79-164 (the 9 kHz proceeding); and

proceeding is not the specific communities noted but the magnitude of the communities identified as being underserved. More than half of these assignments are in communities with no local AM or FM assignments, no local nighttime service, or are for additional minority-owned or local public radio stations. The Commission's studies have shown that additional AM stations possible as a result of our clear channel actions could only satisfy about 125 of these needs.

20. The A.D. Ring study on the availability of new allotments assumed that demand for new assignments exists only in the larger communities already having assignments. Nowhere in the *Notice* did we imply that the top 100 markets (sampled by A.D. Ring) represent the most serious cases of need. In this regard, the Commission undertook an extensive computer analysis of 200 entries from the Station Requirements List that had no local radio outlets, contained only daytime AM stations, or were asserted as needing additional minority-owned or public radio stations. Our study found that the existing FM allotment rules would allow a total of 57 new stations at 15 of 200 locations studied (see Table I of Appendix B). In other words, 7% of the locations studied could have at least one new FM outlet under the existing rules. For the various proposals under consideration, the studies indicated that the availability of at least one new outlet per location ranged from 41% to 61% of the study locations depending on which modifications are adopted. Thus, the potential of each of the Commission's individual proposals to satisfy the need for additional FM stations can readily be seen.¹¹

21. To determine if these results were indicative of availability at a larger number of communities, the Commission conducted another examination using 1000 entries. This study indicated that our earlier findings were conservative. It also showed that under the rules being adopted, additions could be made to approximately: 49% of the communities studied that have daytime AM stations only; 31% of the communities studied that have no local assignments; 40% of the communities studied that were asserted as requiring additional minority-owned stations; and 26% of the communities studied that were asserted as requiring additional public radio

d) communities of at least 2,500 persons which have no local AM or FM assignments and are located more than 10 miles from cities of at least 25,000 persons (compiled by the staff).

The Commission has made extensive use of this list for international negotiations as well as to evaluate AM service availability for the 9 kHz proceeding.

¹¹ For convenience, a summary of the studies and number of additions possible for each alternative is listed in Appendix B. Further explanation of these studies, their definition and limitations, can be found in a report entitled "Computer Project for BC Docket No. 80-90 (Increased FM Availability)", May 13, 1982, that has been placed in the docket file.

assignments that cannot be accommodated in the reserved portion of the FM band (82-92 MHz).¹²

22. Other indications of unsatisfied demand for additional FM service may be found in the comments of more than 35 parties who supported the proposals in this proceeding. Although the *Notice* specifically requested that commenters not submit requests for new FM allotments, approximately half indicated that additional FM stations needed in their communities were not available without the changes proposed. We also note that we receive approximately 200 petitions annually to amend the FM Table of Assignments, and that approximately 60% of the new assignments have two or more competing applications submitted.

23. In sum, we are persuaded that there exists a substantial demand for new FM service that cannot be satisfied under existing rules. We are persuaded further that the rule changes adopted herein provide the most efficacious means of accommodating that demand.

Technical Matters

24. Technical oppositions to the proposals in the *Notice* generally alleged that few stations operate with maximum facilities at minimum spacing. Therefore, stations are covering larger areas with a higher quality service than would be expected under the present rules.

25. The proposals contained in the *Notice* were, with one exception, based on the same technical assumptions as the allotment and assignment rules adopted in 1963. These rules consider interference protection to be determined solely by the separation, power, and antenna height limitations. They do not recognize concepts such as protected and interfering contours for individual stations. The distance separations provide protection from co-channel and first adjacent channel interference within a "primary" service range.¹³

¹² The difference in availability between the existing rules and the modifications adopted herein is shown in * Appendix B, Figures 1 and 2. These figures show the approximate distribution of additions for 1000 study locations throughout the contiguous United States. Every asterisk or star on Figure 1 indicates an approximate location (with respect to referenced communities) where an additional FM station may be added under the existing rules. Figure 2 indicates the possible station locations under the new rules adopted today, assuming all existing stations elect to increase facilities to avoid being reclassified.

¹³ When originally adopted in 1963, the minimum separations were based on the existing FM propagation curves. These curves are not expected to predict service or interference at any particular location at any one time. However, they are useful for predicting service on a large area basis and therefore are used to analyze general assignment questions. Thus, the predicted service area of a class of station is indicated by the propagation curves for the generalized situation and may, or may not, reflect the actual service provided by a given station. For this reason, the rules state that the only protection to which a station is entitled is

At that time, the Commission decided that service ranges of 15 miles for Class A stations, 40 miles for Class B stations, and 65 miles for Class C stations would provide reasonably adequate service areas while permitting a sufficient number of FM assignments to be made.¹⁴ Assuming that stations operate with maximum facilities, the minimum co-channel separations yielded protection of the 0.927 mV/m contour for Class A, 0.562 mV/m for Class B, and 0.944 mV/m for Class C stations. The *Notice* proposed separations that would have protected the 1.0 mV/m contour for all classes of stations; in other words it retained the approximate service areas of the Class A and Class C stations but reduced it for Class B stations.

26. In response, the comments claimed service far beyond these contours and noted that the present FM allotment rules result in an interference-limited service. That is, the predicted *interference-free* service areas are generally greater than those anticipated by the minimum separation requirements because few, if any, stations are limited in every direction by co-channel and adjacent channel stations operating with maximum facilities at minimum spacings. Several parties claimed that a signal at the 0.05 mV/m (34 dBu) level may be received. ABC noted that calculations provided by A.D. Ring indicated that a field strength of 0.063 mV/m (36 dBu) will permit satisfactory stereophonic service (in the absence of interference) while good monophonic reception is possible with a field strength of only 0.0056 mV/m (15 dBu). Still other parties noted that the CCIR, the International Radio Consultative Committee, recommends .25 mV/m (48 dBu) for general planning purposes.

27. Metromedia, Cox, Multimedia, and NBC submitted detailed showings of what they considered the interference-free service contours of their stations. ABC stated that an examination of their 7 owned and operated stations revealed that their existing interference-free service areas were greater than the area recognized by the minimum distance requirements. Metromedia submitted studies claiming the interference-free service offered by three of its stations would be reduced by 28, 37, and 43% of their geographic service areas if the proposals suggested in the *Notice* were adopted. Similar NBC studies indicated population losses for its stations of between 4.8 and 33% if their interference-free service areas were restricted by the proposals. It further noted that those losing service would not have it replaced by the new stations. NBC claimed that locations between 33 and 60 miles from New York City would lose most, if not

that provided by the distance separation requirements, not the predicted service area indicated by the propagation curves (see Section 73.209 of the Rules). We are not changing this concept in this proceeding.

¹⁴ The propagation curves in use in 1963 predicted a 65 mile service range for Class C stations. Those curves were refined in 1975 (53 FCC 2d 855), and the new curves indicate that the 180 mile co-channel separation figure yields a 57 mile service range as indicated at paragraph 4, *supra*.

all, of the New York City service. Thus, it concluded, the suburban and rural populations surrounding the larger cities would suffer the greatest losses. Cox and Multimedia also claimed that the only practical way of serving many suburban areas is with wide-area metropolitan stations.

28. Another A.D. Ring study submitted by ABC claimed a net loss in service would result from the Commission's proposals. It contained several theoretical assignment situations where new stations were interjected into certain currently permitted station groupings. All additions resulted in a net loss of service area.¹⁵ It claimed this proved that any increases in FM availability would be to the detriment of present listening audiences.

29. NTIA, in reply, argued that stations should only be protected to "a primary service area" and service beyond that limit is properly considered secondary or unprotected. It also argued that the A.D. Ring study did not consider several factors, including the use of directional receiving antennas in rural areas (which would reduce the level of the interfering signal), the capture effect of FM receivers to distinguish the desired signal from the weaker undesired co-channel signal (which would reduce the large areas of degraded audio quality)¹⁶, and the population densities in the interference zone (which should be much smaller than those near new community outlets).

30. Upon review of these comments, we note that the Commission recognized in 1963 that certain amounts of potential interference-free service had to be discounted if a sufficient number of assignments were to be made. Thus, we adopted mileage separations which struck a balance between the size of a station's contemplated service area and the number of stations that could be authorized throughout the country. Our experience since then has indicated that the balance was not incorrectly determined. From 1,100 commercial FM stations in 1963, we now have 3,800, and the demand for new FM stations is evident by the number of new channel

¹⁵ The evaluations indicated a net loss in service area of:

(a) 2,075 square miles if a Class B station were located at the center of 4 Class B stations located at the four corners of a square 170 miles on a side;

(b) 563 square miles if a Class B1 station were located at the center of 4 Class B stations located at the four corners of a square 153 miles on a side;

(c) 1,695 square miles if a Class B station were located at the tip of a triangle 120 miles from 2 Class B stations that are 170 miles from each other; and,

(d) 2,649 square miles if a Class B1 station were located at the tip of a triangle 108 miles from 2 Class B stations that are 153 miles from each other.

¹⁶ Reception of one of two co-channel FM signals of nearly equal strengths is possible because FM receivers are capable of responding to the stronger of the two signals. AM receivers provide mixed reception in these cases.

allotments requested every year and the instances of competing applications for available channels.

31. We recognize that the introduction of new stations into the current scheme could cause interference to the reception of existing stations beyond their normally contemplated service areas. Indeed, this is the case under present rules where the Commission regularly receives letters complaining of lost FM service (outside the primary service area) when a new station is activated or an existing station modifies its facilities. Proposed rule changes that would permit additional new stations would similarly create losses of secondary services. The opponents of the rule changes, however, have failed to provide any information that the populations allegedly losing such extended services exceed the population gains from new stations.¹⁷ We believe that these losses are more than compensated for by the provision of new services, particularly to communities without local service. In this regard, we note that 98% of the population of the United States currently receives at least one fulltime primary aural service. The new stations contemplated herein would not adversely affect that primary service, but they would provide local service (or local fulltime service) to communities that are precluded under current rules. In this manner, the percentage of the population enjoying primary aural service and the number of communities with local stations may be increased. On balance, therefore, we believe that the provision of new primary service and first and/or second local service is a higher priority than the preservation of service beyond the normally protected service area of existing stations. This is particularly the case where that extended service may be adversely affected under current rules if: the providing station changes its location; a limiting station is authorized under current distance separation requirements; or an existing limiting station changes or increases its facilities within current restrictions. Accordingly, we do not believe it appropriate to protect these extended service areas at the expense of new primary service.

32. Some commenters also alleged that the present minimum separation requirements result in a low quality signal at the outer edge of a station's primary service range. They noted that while the original protection ratios are satisfactory for regular FM broadcast operations, they are unable to protect multiplexed operations

¹⁷ The previously referenced theoretical A. D. Ring study is limited to *areas* of alleged loss of service only. It, therefore, could not provide information on the population within those areas, the population that would receive primary service from the presumed new station, or the other services available in the asserted "loss" area. The interference-free service areas that Cox and Multimedia claimed for their stations, however, each contain between 17 and 34 FM stations located either within or directly along the claimed service contours of each station. Between 7 and 14 of these locally assigned FM stations are located within the areas they claim will lose service (except for Station WAIA, Miami, Florida, where the interference-free service is mostly over swamp land).

(stereophonic broadcasting and subsidiary communications operations). The comments urged sufficient protection of the service contour to permit "satisfactory" reception of these operations at the full extent of their service range.

33. In support of this argument, these comments called attention to the international standard for stereophonic reception which is based on a 50 dB audio frequency ("AF") signal to noise ("S/N") ratio. (The international standard is contained in the recommendations of the CCIR.) To provide for this level of quality, they argued that the distance separation requirements should be increased to provide higher radio frequency ("RF") desired to undesired ("D/U") signal protection ratios.¹⁸ The Technical Subgroup Report summarized several recent studies and submitted curves indicating the effect of various distance separations on co-channel protection ratios for a desired 1 mV/m (60 dBu) signal.¹⁹ This report and several comments noted that the NRSC Report concluded that reception of a signal yielding a 50 dB AF S/N ratio in the stereophonic mode requires RF D/U protection ratios of 40 dB for co-channel, 25 dB for first adjacent channel, and -20 dB for second adjacent channel stations.

34. Also, Group W alleged that FM subcarrier services could not be provided effectively if stations operated at minimum separation distances. They stated that any modifications which would decrease current protection could significantly reduce the quality of subcarrier services. The SCA Study, submitted by the Advisory Committee, echoed this argument and noted that further investigations should be performed.

35. Although the Commission was aware of the fact that some FM stations were providing stereo service in 1963 when it first addressed this issue in Docket No. 14185, and that such service required greater protection for high quality reception, it did not select separations to protect stereo service to the limit of the

¹⁸ The Advisory Committee, urging protection of stereophonic service, submitted three studies dealing with this topic: the Stereo Listening Study; the Subjective Audio Study; and the Mileage Separations Study. These studies indicated that (1) approximately one-half of all radio receivers are capable of stereophonic reception, with stereophonic listening about twice as common as monophonic listening; (2) a 50 dB AF S/N ratio was necessary for satisfactory stereophonic reception (if the presence of the interfering signal was to be only "slightly annoying" according to a panel of expert listeners); and (3) the average co-channel separation between stations yields a 34 to 40 dB RF D/U signal protection ratio.

¹⁹ The reports concerning protection standards are: *Report to the National Radio Systems Committee from the FM Subcommittee Task Force*, July 24, 1981; *Report of the National Quadraphonic Radio Committee to the Federal Communications Commission*, November 1975; *Recommendations and Reports of the CCIR*, 1978; and *A Study into Current FM Receiver Performance and the Relevance of FM Allocation Criteria*, Peter Cahn and Associates, April 1978.

otherwise contemplated service radius. The requests to increase protection ratios were rejected based on the need to provide for a sufficient number of necessary assignments and because stereophonic broadcasts were considered to be an optional enhancement of a station's entertainment programming.

36. Nonetheless, the Commission re-examined the desirability of requiring such protection in response to the comments received in this proceeding. We used the NRSC receiver data to determine the expected service ranges under the present rules for monophonic and stereophonic reception of signals having different qualities. A 30 dB AF S/N ratio was used to represent the "standard quality" monophonic service now provided by the separation requirements. (This figure generally is assumed to form the basis for present protection ratios although, in Docket No. 14185, the Commission did not acknowledge it as such.) A 50 dB AF S/N ratio was used to represent the "high quality" stereophonic service referenced by the comments. We developed the following table based on a receiver having the performance characteristics obtained by averaging the data contained in the NRSC report (assuming co-channel stations operating at minimum distance separations with maximum facilities):

Type of Reception	AF S/N Ratios	RF D/U Ratios	Predicted Primary Service Area (miles)		
			Class A	Class B	Class C
mono	30 dB	14 dB	19.4	47.5	63.5
stereo	30	*20	16.6	41.5	57.1
mono	50	35	7.9	27.1	41.3
stereo	50	40	6.2	22.6	36.1

*RF D/U ratio used to determine present co-channel separation distances.

Thus, the present co-channel Class C separation requirement of 180 miles permits "standard quality" monophonic reception at a distance of approximately 63 miles while "high quality" stereophonic reception is expected to a range of 36 miles. All minimum separations provide for an "inner ring" of high quality stereophonic service which gradually diminishes to standard quality monophonic service at the limit of the primary service range in the direction of the undesired station.

37. To provide stations with the 40 dB RF D/U protection necessary to achieve a 50 dB AF S/N ratio, however, would require the separation between co-channel Class C stations to be increased from 180 miles to 255 miles. Such an increase amounts to a Class C station's signal experiencing 20 dB RF D/U protection at a distance of 82 miles from the transmitter rather than 57 miles as currently expected. In other words, protection that results in 50 dB AF S/N stereophonic service simply extends a station's monophonic service range. If the new distance separations were the only ones based on the higher protection levels, the new station classes would require distances as great, or almost as great, as the present requirements

for the larger classes. For example, for a new Class C1 station to offer a minimal 34 dB RF protection level, it would have to be located at least 217 miles from an existing co-channel Class C station (while a new Class C would only have to be separated from an existing Class C station by 180 miles). Analysis of the adjacent channels yields analogous results.

38. To require protection at such levels would effectively preclude many new assignments. Even if this proceeding were broad enough to determine a minimum level for predicted stereo service, we do not believe that protection of that service beyond what was contemplated in 1963 would be appropriate. As we found 20 years ago, such protection would significantly increase the necessary separation between relevant channels and thereby substantially decrease the potential for new stations. We believe that the balance as originally struck provides adequate service areas to potentially support a station's operation while giving opportunities to create enough stations to provide a fair, equitable, and efficient distribution of radio service among the several States and communities. See 47 USC 307(b) (1936)

39. We recognize that permitting Class A stations on Class B/C channels and the intermediate classes of stations provide additional opportunities for the creation of stations that may have a limiting effect on the stereo service areas enjoyed by existing stations by virtue of their location at distances exceeding the minimums established in the rules. However, we believe that the potential gains of new service, consistent with the mandate of Section 307(b), far outweigh the losses of enhanced (stereophonic) service predicted by the commenting parties since protection was not afforded the affected areas under the existing rules. In making this judgment, we emphasize that such areas will continue to get the same protection for monaural service as was originally contemplated in 1963. That is to say, the balance is between new service and enhanced (stereophonic) service, and we find no compelling reason to increase previously granted protections at the expense of needed new service to communities that would otherwise be precluded from getting a new FM service.

40. In this regard, we again emphasize that the communities we have identified as potential locations for new FM assignments under these rules include a substantial percentage of places with no local service or with only daytime AM service where existing rules would not permit a new FM station. We believe that provision of such service outweighs a predicted loss of multiplex services that may already be severely curtailed by existing co- and adjacent channel stations.

41. The requests to increase the protection ratios on which the separations are based are directly related to the arguments concerning service beyond the theoretical protected contour. Parties have

argued that we should protect a station's stereophonic service to what had been the limit of its normally contemplated service radius. They assert that most stations are located at more than the minimum mileage required by our rules and such stations therefore receive stereophonic protection beyond what could be expected at the minimum distance. We do not doubt that this is the case. Our mileage requirements are *minimums* and have never been waived at the allotment stage. Moreover, persons seeking new FM stations desire to serve specific communities. That fact along with the minimum mileage requirement would result in a location at some greater distance in almost all cases. If the service areas were determined solely by the distance to co-channel stations, there would be many cases where an FM station provided monaural and stereophonic service to a significantly larger area than that contemplated by the co-channel separation figures. However, in many cases, limiting stations are those on adjacent channels.²⁰

42. Finding that a station's predicted stereo service area is limited by co-channel and adjacent channel stations does not mean that stereo service is unavailable in these areas or that the "losses" are irreversible. In fact, the new receiver data contained in the NRSC report indicates that the 20 dB RF D/U ratio provides for stereophonic reception, if possibly of lesser quality than some parties believe appropriate, and not just monophonic reception as previously thought by the Commission and many parties. Several parties used present protection ratios to claim that their service is being listened to and *enjoyed* at the outer edge of their interference-free contours. Therefore, the arguments suggesting that the signal quality at the present protection level is "unlistenable" appear highly exaggerated. Even the listening tests and surveys indicated only that a 30 dB AF S/N ratio was "annoying" for the "preferred" stereophonic reception mode. As an alternative to higher protection ratios, persons receiving service of inferior quality may easily improve it by installing a directional receiving antenna or improving the performance capability of their receiver. In this manner, persons residing in areas predicted to "lose" service may regain it if they so desire.

43. Several parties also stated that the Commission should protect a station's service range from second and third adjacent channel interference, rather than basing these separations on substitution of signals.²¹ Finally, many parties asserted that mobile

²⁰ For example, the stereo service area of station WPGC, Morningside, Maryland is limited by a single co-channel station (WJAC-FM, Johnstown, Pennsylvania) and three adjacent channel stations (WFLO-FM, Farmville, Virginia; WFTR-FM, Front Royal, Virginia; and WFLN-FM, Philadelphia, Pennsylvania).

²¹ Replacement service assumes that the service of one station will supplant, not simply interfere with, the service of another station. Using this concept, new stations must locate outside the predicted service area of stations 2 or 3 channels removed, and these stations must be outside the service area of the new station.

(i.e., automobile radio) reception problems would be exacerbated if the distance separations set forth in the *Notice* were adopted.

44. ABES and ABC both argued that the second and third adjacent channel separation requirements should recognize the same service area as the co-channel and first adjacent channel separation standards. Not doing so is a direct cause of mobile FM receivers randomly capturing undesired stations. ABES also claimed that tuning in the "educational band" (where the primary service range is given full second and third adjacent channel protection) is comparatively easy versus tuning in the "commercial band" (where the replacement service concept permits closer spacing of stations). It claimed that this difference illustrates the appropriateness of protecting the primary service contour rather than using the replacement service concept. As an example of tuning difficulties, ABES noted mobile reception problems in the Washington-Baltimore area where 56 stations are assigned in the "commercial" portion of the FM band. ABES recommended that *full* protection from second and third adjacent channel interference be afforded to each station's primary service range. ABC and AGK suggested that a compromise "guardband" solution be adopted if full second and third adjacent channel protection standards were unacceptable. Their guardband compromise was to base the distance separation requirements on a -40 dB RF D/U ratio for both second and third adjacent channel separations.²²

45. NTIA, on the other hand, found only minor interference problems with seven Los Angeles area FM stations that have second and third adjacent operations at less than minimum separations. The data did not address whether the public is experiencing reception problems, except to note that "several station managers knew of no interference problems." NAB, in reply, claimed that the resulting minor interference areas would not be typical because the receiver data referenced more expensive receivers than the average ones used by the public.

46. We recognize that some environments cause FM receivers, particularly mobile receivers, difficulty in maintaining suitable signal strengths to avoid second and third adjacent channel interference. Mobile receivers were not a major planning factor in the present separation requirements or those proposed in the *Notice*. Rather, we used the concept of replacement service. Mobile receivers, however, are subjected to wide variations in signal strength due to multipath reflections as they pass through different environments along highways. In these situations, they are likely to "lock onto" stronger adjacent channel signals rather than the desired signal. The Commission believes that the separation distances can be

²² This is the third adjacent channel protection standard required in the educational portion of the FM band (88-92 MHz). See Section 73.509 of the Rules.

modified to reduce mobile reception problems and only minimally affect the potential for additional FM stations. Thus, the rules we are adopting provide "guardband" protection on second and third adjacent channels as suggested by ABC and AGK.²³

47. Finally, several parties urged consideration of additional FM stations on a case-by-case basis, including consideration of directional antennas and terrain.²⁴ Cox/Multimedia, however, argued that a protected contour scheme risks engulfing the FM service with the interference and processing problems of the AM broadcast service. In any case, the Commission is not convinced that the benefits of the Table (*i.e.*, ease of comparing community needs, provision for future facility growth, and simplicity of processing procedures) should be abandoned at the present time. Even with the changes adopted herein, many, if not most, existing stations will be provided the opportunity for future growth. Although some parties indicated a preference for the "AM-type" method, this method is too time-consuming to comport with the Commission's goals to facilitate faster processing procedures. The changes adopted herein should provide the opportunity to establish additional radio stations in areas of greatest demand that should not be delayed by case-by-case processing procedures. A go/no-go method as represented by minimum distance requirements still is advantageous and preferred.

Specific proposals

48. Before turning to a discussion of each proposed change, it may be helpful to reiterate the results of the Commission's computer studies on the potential benefits of those changes. Using 200 locations identified as needing additional radio services, the studies determined how many of these could have an allotment under the existing rules and each proposed rule change separately. The resulting progression demonstrates the incremental increase in availability, *i.e.*, the percentage of locations for which at least one new allotment was found, for the individual proposals. (The benefits of each option are set forth in more detail in the individual discussion of each proposed change and in Appendix B.)

²³ Also, the NRSC Report indicated that the second adjacent channel interfering signal can be 50 dB greater than the desired signal (-50 dB RF D/U) and still provide a 30 dB AF S/N stereophonic output signal. Thus, the -40 dB RF D/U ratio appears generous for distance separation requirements based on a monophonic reception standard.

²⁴ Although the use of directional antennas, terrain shielding, and co-location of transmitters were not proposed in this proceeding, the Commission did request additional information. We sought guidance on how these methods might be incorporated into our present Table structure. A variety of information on increasing FM availability and the potential problems of employing these techniques were submitted. Specific suggestions related to preservation of the Table were not provided.

<i>Options</i>	<i>Availability</i>
1. Existing rules	7%
2. Class A stations on Class B/C channels	41%
3. Class B stations in Zone II	41%
4. Additional station classes B1, C2, and C1	43%
5. Uniform protected contour	55%
6. Reclassification (with Option 5)	61%
(without Option 5)	57%

49. *Option 2, Class A Stations on Class B/C Channels.* This proposal was opposed by ABC, NBC, and others who suggested that, although it could result in new assignments in areas outside the larger radio markets (*i.e.*, outside the top 12 markets), this service would represent an inefficient use of channels reserved for the wider area stations.²⁵ NTIA, on the other hand, suggested that reserving certain channels for Class A use should be eliminated altogether. They argued that any class of station should be allowed to operate on any channel. NAB, in reply comments, argued that this idea would be contrary to the basic principle of the Table which ensures stations for smaller sized markets.

50. Several parties claimed, and our studies confirmed, that this proposal would provide the single largest increase in availability for most locations. Our study of 200 locations found that availability of at least one new station per location would increase from 7% under the present rules to 41% if this proposal were adopted. Many argued that these outlets would be a new source of interference outside the primary service range of existing stations. As stated previously, however, the Commission believes that the opportunity to establish additional stations should not be curtailed by providing protection to secondary service areas. Therefore, we will allow Class A stations to operate on all channels.

51. NTIA also proposed that Class B and Class C stations be allowed to operate on Class A channels. However, that change should offer few potential assignments, and those that are possible would preclude large areas from future Class A allotments. Therefore, at this time we will allow Class A operations on any channel, but other station classes will not be permitted to operate on the Class A channels.

52. The *Notice* further suggested that Class A stations be permitted to occupy a Class B/C channel only if a Class A channel were not available. No specific comments addressed this proposed restriction. The Commission, however, is concerned that defining

²⁵ These parties also argued that adoption of this proposal would result in some Class A stations operating at a competitive disadvantage to higher power stations. This issue was addressed in BC Docket No. 80-130. The Commission found there that intermixture of different classes of stations within the same community should not be foreclosed as a matter of general policy. In any case, the issue now before us is not whether different classes of stations may be intermixed in the same market but whether Class A stations should occupy Class B/C channels.

availability (*i.e.*, reasonable site, city grade coverage, co-location with AM transmitter, antenna farms, etc.) would be difficult. Therefore, we have decided not to adopt this restriction because it would require extensive showings and would be administratively cumbersome to enforce. We believe the applicant to be the best judge of its particular situation and accordingly shall not restrict its choice. Likewise, we will not require these channels to be used by the larger class of station first, as some parties urged. To do so might be counterproductive to the establishment of a local station if a potential applicant lacked the financial resources to construct and operate the larger class of station.

53. *Options 3 and 4, Intermediate Classes of Stations.* The *Notice* proposed creating two new classes of stations: Class B1 with facilities between Classes A and B and Class C1 with facilities between Classes B and C. It also suggested allowing Class B stations to operate nationwide. Thus, three classes of stations (Classes A, B1, and B) would be permitted in Zones I and I-A and all five classes (Classes A, B1, B, C1, and C) in Zone II.

54. Most comments did not focus on allowing Class B stations in Zone II independently of the other proposals. As pointed out in the *Notice*, simply allowing Class B stations to operate in Zone II would not allow many additional assignments unless the distance separations were changed.²⁶ [The FCC computer studies confirmed that no increase in availability was possible (Option 3 compared to Option 2) and only 12 of the Class A stations from Option 2 could become Class B stations (see Table II of Appendix B).] Consequently, the *Notice* proposed to reduce the protected contour of all Class B stations from 0.5 mV/m to 1.0 mV/m.

55. As for the creation of the proposed Class B1 and Class C1 stations, ABC claimed that the A.D. Ring studies proved they would not be beneficial to the public. It noted that no Class C1 stations could be identified and the Class B1 stations that were found would cause interference to existing services over geographic areas that would exceed the gains from the new services. ABES noted that additional classes of stations could be supported if variations of the *Notice's* proposals that would provide adequate protection to existing stations were adopted. Specific modifications were not suggested, however, except to urge protection of existing *interference-free* service areas. NTIA again urged an even greater number of station classes. It argued that the distribution of service areas for existing Class B and Class C stations would be more uniform if seven rather than five classes were adopted. In reply, Cox/Multimedia claimed that NTIA's proposal for seven classes does not contain any detailed

²⁶ This occurs because the existing rules require Class B stations to be separated from co-channel Class C stations by 170 miles, or only 10 miles less than the co-channel Class C to C requirement of 180 miles.

technical analysis but merely an assumption that "if five classes of channels are efficient, seven would be even more efficient." They argued that NTIA failed to address the effects of tighter constraints on station growth, licensee costs, greater levels of predictable interference, and administrative impact.

56. Although NTIA's seven class proposal may represent more uniform statistical distribution of existing stations, this is a benefit of little value and great cost. An analysis of its proposal indicated only slight differences between co-channel separation requirements for different classes of stations. For example, NTIA's Class C1 station would be separated from a Class C station by 160 miles, while a Class B station would be separated from the same Class C station by only 156 miles, a difference of only 4 miles. These separations would not allow stations sufficient room for facility growth or adequate transmitter site selection. It also would be administratively cumbersome for the Commission to oversee. While we believe additional station classes are desirable, a balance must be reached between complexity and the numbers of potential assignments. Therefore, we shall not adopt the classes proposed by NTIA.

57. The Commission explored the gains possible if stations with Class B facilities were assigned in Zone II and protected to the proposed 1 mV/m contour (*i.e.*, denoted as Class C2).²⁷ We also explored the proposal to create additional classes of stations so that existing stations would receive protection more in keeping with the service rendered. The FCC computer studies examined the number of assignments possible if three new classes (B1, C2, C1) of stations were added. Thus, separate classes were studied for the two zones: Classes A, B1, and B in Zones I and I-A and Classes A, C2, C1 and C in Zone II. These studies assumed protection of existing stations equal to that embodied in the present separation requirements. This option found that availability would only be 43%, compared to the 41% expected by permitting Class A stations to operate on Class B/C channels (Option 4 versus Option 2). However, the study also indicated that the stations assigned could operate with greater facilities. An additional 11 Class B1, 46 Class C2, and 16 Class C1 stations were found (see Table II of Appendix B).

58. Because the larger class of station represents improved efficiency in terms of service-rendered compared to interference-caused, the Commission is convinced that adopting these additional classes of stations would be beneficial.²⁸ We believe that allowing

²⁷ Since the Class B minimum separation requirements depend upon the zone of operation, stations operating with Class B facilities in Zone II will be termed Class C2 to avoid confusion with Class B facilities in Zone I.

²⁸ Efficiency according to Docket No. 14185 is defined as: $\text{Eff.} = 363 \times (R/S)^2$, where R is the primary service radius of a station and S is the spacing between stations (see *Notice of Inquiry, Notice of Proposed Rule Making, and Memorandum*

stations with Class B facilities with modified separation requirements in Zone II (Class C2) and creating intermediate classes of stations (Classes B1 and C1) that serve larger areas than Class A stations represent major benefits in terms of spectrum efficiency.

59. *Option 5, Uniform Protected Contour (1 mV/m)*. Several parties submitted detailed showings indicating that changing the minimum separation requirements to represent a uniform 1 mV/m protected service contour could severely limit a station's primary service range, especially that of Class B stations. Metromedia and various other parties pointed out that there were specific reasons for Class B stations currently being based on a 40 mile service range. They noted that, in 1963, the Commission found that the large metropolitan communities of the northeast averaged 33 to 40 miles in radius. They argued, therefore, that a minimum limit of 33 miles for Class B stations was totally unacceptable for many communities located in Zone I. ABES stated that such a reduction would be a 32% loss in primary service area for Class B stations and, in one particular case, a loss in population of 175,000 persons for each station located at Indianapolis, Indiana.

60. ABC and others argued that a 1 mV/m protected contour was previously considered and rejected in 1963 in Docket No. 14185. They noted that the Commission refused to create a squeezed-in service by "protecting only the 1 mV/m contour." Cox submitted that reducing the minimum spacing would create a system similar to the AM service and would waste FM's unique potential for wide-area service. ABC claimed that this proposal would not represent any appreciable increase in new FM assignments because only one addition in the A.D. Ring study was due to reduced separation requirements. Because the other proposals yielded greater numbers of potential FM additions, it argued that the uniform protection proposal would not be instrumental in providing for additional FM assignments in needy areas. NTIA in reply claimed that both Class A and Class C stations "have done well" with a 1 mV/m protected contour and suggested that Class B stations "should be able to also." They argued that a decrease in separations would allow new stations at intermediate distances.

61. ABES focused on the impact of the protection of mobile receivers and submitted detailed analyses of several situations in the northeast where several stations are spaced less than the minimum separation requirements. It claimed that the resulting protection of only the 1 mV/m contour in these cases has made matters so severe as to render many signals "unlistenable." Consequently, reducing the minimum separation requirements would result in similar areas where only garbled signals could be received. Because more cities

Opinion and Order at paragraph 39). Thus, the efficiency of co-channel Class C1 stations is 32%, while co-channel Class A stations are only 19% efficient.

have acquired "New York City-like" architecture that causes increased signal reflection and diffraction since the present distance separations were developed, it suggested the Commission avoid any action that would increase interference to these receivers. ABES stated that in today's environment (*i.e.*, tree-lined highways, bridge abutments, super-highway signs, downtown buildings, etc.), "[t]he desired signal is subject to very rapid changes in level, beyond the ability of the receiver signal "leveling" or automatic volume control to avoid." It further cited cases in New York City, Philadelphia, and along the U. S. Route 1 corridor where co-channel and first adjacent channel stations located at less than minimum spacings have resulted in many cases of "limited coverage within myriads of interference." Thus, ABES argued that greater protection is needed and the distance separations should not be decreased.

62. The Commission recognized in the *Notice* that this proposal would have a substantial impact on the primary service area of existing Class B stations. Because the present separation requirements for Class A and Class C stations afford protection to approximately the 1 mV/m contour (at .912 and 1.023 mV/m, respectively, using current propagation curves), they are, for the most part, unaffected by the proposed change. For the Class B station, however, this proposal would reflect a change from the .524 mV/m to the 1.0 mV/m field strength contours or a decrease in primary service range from 40 miles to 33 miles. The *Notice*, however, questioned whether the increases in availability justified reducing the Class B stations' primary service area. The majority of the commenting parties, citing the A.D. Ring study statistic of only 1 addition, argued the negative. The FCC computer studies, on the other hand, revealed that availability would increase from 43% (Option 4) to 55% with this proposal. Thus, 110 of the 200 study locations would be provided an opportunity for additional outlets instead of 86 (see Table I of Appendix B). Also, the number of stations allowed at these communities would increase from 235 to 332. This new availability, unlike the other proposals under consideration, would be at the expense of the primary service areas of existing stations. In view of this impact and because urbanized areas have grown since 1963, the argument against this proposal is most compelling. The Commission does not consider the incremental increase in availability to justify the loss of existing primary service areas. Again, balancing the total number of potential stations against the potential service rendered, we cannot justify reducing a station's expected service area at this time.²⁹

63. *Option 6, Reclassification of Existing Stations.* The *Notice*

²⁹ As noted in comments submitted by Bob Zwick, the Commission is aware that the 1 mV/m contour may be located at a distance of 40 miles by allowing an increase in facilities for Class B stations. However, this suggestion would not foster the goal of increasing the availability of FM stations.

further proposed to reclassify all existing stations, after a period of three years, according to their actual operating facilities. The Commission noted that many existing stations are operating substantially below the maximum facilities permitted. Because the minimum separation requirements assume maximum facilities, these stations preclude other FM stations from being authorized, yet do not furnish primary service over the area intended. The three year period was suggested to give each station the opportunity to explore its ability to increase facilities and submit an application for modification of its license.

64. NBC suggested that reclassification of stations where the need for mutual protection could be demonstrated should not occur. They argued that if existing stations chose to operate below minimum facilities, the new assignment "should protect all existing service areas." Metromedia did not technically oppose reclassification stating that ". . . it was a more reasonable approach than reduced distance requirements of providing increased service to the less populated areas in the West." Cox and several others, however, opposed this change, stating that part of FM's unique identity, which allows for future expansion, could be destroyed. They argued that existing licensees would be faced with an unappealing choice. They either would have to risk present economic investment to increase their facilities based on estimates of future community growth, or otherwise be foreclosed from realizing their full potential due to present circumstances. ABES and others noted that stations may not be operating with maximum facilities due not only to economic reasons, but for other reasons as well. They cited the Commission's multiple ownership restrictions (Section 73.240), FAA air hazard limitations, and local zoning restrictions as examples. Because many of these limitations restrict antenna heights, ABES suggested that stations be allowed to increase their power to attain the equivalence of operating with maximum effective radiated power (ERP) and antenna height above average terrain (HAAT).

65. The Commission realizes that many stations are operating at less than "full" facilities because of other Commission regulations, other government agencies' limitations, or restrictions of local jurisdictions. It is exactly this inconsistency, between the Commission providing for expansion when the possibility is virtually non-existent, that we wish to rectify. Rather than viewing reclassification as discriminatory, the Commission believes that recognizing actual facility limitations is a realistic means of allowing for additional outlets. In fact, we view the preclusion of new stations from relatively underserved communities by stations operating substantially below maximum facilities as being the real case of discrimination. Additional FCC computer studies verified that availability of new FM stations could increase from 43% to 57% if reclassification were considered (see Table III of Appendix B). Because a station's

classification should reflect its potential, either by spacing requirements, economics, or government limitations, the Commission views reclassification as desirable.

66. The ABES' suggestion that stations unable to increase their antenna height be allowed to increase power to attain equivalence of a station operating at the maximum facilities was considered in Docket 14185 and rejected. The Commission stated ". . . an increase in power increases interference more than it does service. Therefore, we should obviously encourage improvement in service through greater antenna height rather than greater power, and affording an opportunity for power increase, without limit or at least to a greater extent, would work in the other direction." [*First Report and Order* at para. 79] Because this argument is true today, we must again reject this alternative.

67. *Time Permitted to Upgrade Facilities.* The *Notice* suggested that existing stations would be given three years to improve their facilities to the minimum for their class, before any reclassification took place. It further proposed that new Class C stations have a period of six years within which to reach minimum facilities before being reclassified. Since these two proposals consistently were confused, an explanation appears in order. The first period of 3 years would apply to *all existing* licenses, construction permits, or applications that were authorized, or on file, on the effective date of this order. Thus, one announced date would be used for evaluating the facilities of existing stations. The later proposal would continually be permitted when *future Class C* applications were authorized. Because the Class C stations would be the only class with a minimum antenna height requirement, this time would provide new Class C stations with an initial opportunity to obtain revenue before possibly constructing a large antenna tower.

68. The comments failed to provide any specific data that would support a deadline either longer or shorter than those proposed in the *Notice*. ABC argued that three years may be inadequate for licensees to reach any minimum operating requirements. They suggested that the Commission authorize liberal extensions of any deadlines. NTIA fully supported reclassification and submitted 24 months (2 years) as a more than adequate time for expansion. However, the reply comments of Cox/Multimedia urged that 2 years was an unrealistic time period to allow stations to make an application for a change in facilities. Several parties wished to have an unlimited time in which to effect the changes. Finally, the difference in the time permitted existing and future stations received no comment.

69. Lacking details, it is incumbent upon us to balance the public interest benefits of the new services possible after reclassification against the inconvenience to broadcasters. On balance, we believe that, for simplicity, a single date should apply to all instances. We

cannot allow an open-ended time period continually to frustrate the opportunity to establish the new stations. Nor do we intend to provide time that is inadequate to consider and submit applications for facilities equal to or greater than the minimum for a class of station. In this regard, we emphasize that licensees can protect their classification merely by filing an application to upgrade their facilities. It is not necessary that the application be granted or the construction be completed by the deadline date. Additionally, we expect that any group seriously contemplating a new Class C service station should have good economic support and be able to begin operations with the larger facilities. Specifying a different six year period for each new Class C authorization would create confusion and be administratively difficult to implement.

70. Based on a weighing of the benefits and inconveniences, and considering the delays in reaping the benefits of the other changes adopted herein, we will indicate a date three years from the effective date of this order by which *all* stations must apply for appropriate minimum facilities. After the 3 year time period for expansion has expired, a complete listing of the FM Table of Assignments will be published to indicate the new class designations that reflect the facilities authorized, or those for which an application has been filed.³⁰

71. The Commission is also using the opportunity presented by this proceeding to modify its rules governing "major" and "minor" modifications of station authorizations. Currently, any modification that represents a change of 50%, or more, in the area within a station's predicted 1 mV/m field strength contour is considered a major modification of an authorized FM station. Because the distance separation requirements are based on using maximum facilities, we believe the procedure to increase facilities (that will be encouraged by adopting the reclassification proposal) could be greatly simplified. Therefore, we shall designate these changes as minor modifications.

Miscellaneous

72. *Preferences.* Many existing licensees of either Class A or short-spaced stations requested they be given preference in the assignment of any new channels which may become available. NPR and CPB also requested similar preferential treatment be afforded to

³⁰ The Commission does not consider reclassification as a modification of a station's license. Because the license authorizes only the station's actual facilities, it would not have to be altered in anyway. Reclassification is merely the re-designation of a station's potential status in a geographic table of channel reservations. Even if our action could be construed as a license modification, the record adduced in response to present *Notice* is entirely sufficient to explore licensees' concerns, and they would not be entitled to separate hearings based upon reclassification. See, *WBEN, Inc. v. U.S.*, 396 F.2d 601 (2nd Cir. 1968)

educational, noncommercial entities in either the allotment or the assignment process.³¹ ABC supported establishing assignment priorities including favoring applicants that seek to convert daytime only AM stations to fulltime local outlets. Several licensees of short-spaced stations submitted detailed examples of how mutual interference problems have curtailed their primary service areas. They also requested preference in the use of any new allotment that could alleviate their present circumstances.

73. The Commission is not convinced that this proceeding is the best vehicle for considering preferences of this type. It has focused on FM allotment matters rather than questions of channel usage by a particular entity or group. We believe these questions are more appropriately considered in separate rule making proceedings focused on licensing policies rather than allotment rules. For example, we note that the outstanding *Notice of Inquiry and Notice of Proposed Rule Making* in BC Docket No. 82-538, has asked for comments on the desirability of providing licensees of daytime-only AM stations a preference for the use of any FM allotments that might become available in their communities. 47 Fed. Reg. 38937 (published September 3, 1982). We believe that preferences for daytime-only AM licensees, existing short-spaced FM licensees and other worthy groups are best resolved in proceedings specifically devoted to such matters.³²

74. *Puerto Rico*. Portorican American Broadcasting Co. requested special consideration of the problems encountered in Puerto Rico because of terrain. It submitted a detailed explanation of the difficulties experienced trying to improve the facilities of its FM station WOQL, Ponce, Puerto Rico, by changing its transmitter site. It urged the Commission to allow flexibility for existing stations to improve their service before permitting additional outlets on the island.

75. The Commission again is reluctant to consider rule changes for individual situations. Instead, we prefer to account for any specific problems through the present processing methods. In reviewing Portorican's comments, we note that its request involves a waiver to locate at less than minimum spacings to existing FM stations on the island. Further, it urges grant of the waiver using calculations employed in the noncommercial, educational section of the rules (§ 73.509), which is based on protection of existing contours.

³¹ NPR specifically requested individual channels be reserved for future use in communities lacking adequate public radio service.

³² We recognize that many licensees of existing stations, including AM daytime stations, will be interested in seeking the use of the new FM allotments that will be available as a result of this proceeding. In light of this interest, and in recognition of the valuable community service that these licensees have provided, we intend shortly to issue a Notice of Proposed Rule Making proposing procedural means to facilitate such improvements of existing service.

Inequities because of terrain in Puerto Rico were addressed in the *Fourth Report and Order* (Docket No. 14185) adopted in 1964 and again in a recent *Report and Order* (BC Docket No. 81-421). We prefer to continue this pattern and will address any particular problems that are unique to Puerto Rico in separate proceedings when needed.

76. *Aviation.* The Commission also had a request by ARINC and AOPA to recognize potential increases in interference to aeronautical navigation and communication services that are immediately adjacent to the FM broadcast band at 108-136 MHz.³³ AOPA noted that according to its surveys 43 locations currently experience interference and "innumerable" other cases have had to be rectified through reassignment of aeronautical frequencies. Both argued that the proposals set forth in the *Notice*, except for Class A additions, would have an adverse impact on aviation. They and the FAA also expressed concern over the encouragement of tall antenna towers, especially of Class C stations, that intrude into navigable airspace.

77. The problem of potential interference to avionics by FM stations is well known to the Commission. It has been handled satisfactorily in the past via coordination procedures with the FAA, and we are confident that any potential interference problems can continue to be handled effectively. Finally, we note that the minimum requirement for antenna height above average terrain (HAAT) is not a requirement on the antenna tower structure itself. Thus, it is difficult to estimate the problems that could arise due to the Class C minimum HAAT requirement. Antenna tower heights normally are supplied to the FAA at the application stage when individual antenna height above ground is known. This procedure should continue to enable us to sort out any potential problems due to tower heights.

78. *Existing short-spaced stations.* Short-spaced stations are those licensed prior to adoption of the minimum distance separation requirements that failed to meet the new spacings (*Fourth Report and Order* in Docket No. 14185). ABES urged the Commission to correct the defects adopted for consideration of short-spaced stations in Docket No. 14185 (see Section 73.213). They recommended that the short-spaced station rules be amended to accord full protection from second and third adjacent channel interference. They suggest these cases be administered in a manner similar to the educational rules (Section 73.509), where actual signal strengths are used to determine allowable radiation.

79. The *Notice* stated that the rules governing existing short-spaced stations would be examined later if necessary. In the

³³ These parties indicated that interference to aviation services can be caused by intermodulation products of two or more FM broadcast signals or by the combined field strengths from high powered FM stations causing receiver desensitization.