

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of
Creation of Low
Power Radio Service
MM Docket No. 99-25
RM-9208
RM-9242

MEMORANDUM OPINION AND ORDER ON RECONSIDERATION

Adopted: September 20, 2000

Released: September 28, 2000

By the Commission: Chairman Kennard and Commissioner Ness issuing separate statements;
Commissioner Furchtgott-Roth dissenting and issuing a statement; and Commissioner Powell concurring in
part, dissenting in part and issuing a statement.

TABLE OF CONTENTS

I. BACKGROUND 1
II. ISSUE ANALYSIS 5
A. Technical Rules 5
1. Second and Third Adjacent Channel Protection 5
2. Regulatory Status of LPFM Stations 27
3. Modulation 31
4. Cut-Off Date for Protection of Full Service Stations 33
5. Protection of Cable Television Headend 36
6. Translators 37
7. Spacing Table. 43
8. Directional Antennas 45
9. Service Area Issues 51
10. Digital Audio Broadcasting 56
B. Third Adjacent Channel Complaint and License Modification Procedure 58
C. Classes of Service 69

D.	Noncommercial Nature of LPFM Service .....	72
E.	Ownership and Eligibility .....	76
1.	Local Ownership Restrictions .....	76
2.	National Ownership Limit .....	78
3.	University-Licensed Student-Run LPFM Stations .....	82
4.	Time Periods for the Community-Based Requirement and for the National Ownership Cap .....	85
5.	Foreign Ownership and Non-Stock Entities .....	89
6.	Minority Broadcast Training Institutions .....	92
7.	Unlicensed Broadcasters .....	95
F.	Point System For Resolving Mutually Exclusive Applications .....	97
G.	Other Issues .....	101
III.	CONCLUSION .....	106
IV.	PROCEDURAL MATTERS AND ORDERING CLAUSES .....	107

## I. BACKGROUND

1. In January, we adopted a *Report and Order* establishing a low power FM radio service.<sup>1</sup> We authorized this new service to provide opportunities for new voices to be heard, while at the same time preserving the integrity and technical excellence of existing FM radio service and safeguarding its transition to a digital transmission mode. In this *Memorandum Opinion and Order on Reconsideration*, we dispose of petitions for reconsideration<sup>2</sup> of the *Report and Order*, make certain changes to our rules, and provide certain clarifications of our rules.<sup>3</sup>

2. In the *Report and Order*, the Commission authorized two new classes of FM radio service, known collectively as low power FM (LPFM). The LP100 class will consist of stations with a maximum power of 100 watts effective radiated power (ERP) at 30 meters antenna height above average terrain (HAAT), providing a signal level equivalent to the FM “protected” service (1 mV/m or 60 dBu) within a radius of approximately 3.5 miles. After a period of time sufficient to act on LP100 applications that are

<sup>1</sup> *Report and Order*, MM Docket No. 99-25, 15 FCC Rcd 2205 (2000).

<sup>2</sup> Hereinafter the *Memorandum Opinion and Order*. The list of petitioners is attached at Appendix E.

<sup>3</sup> Both Amherst Alliance and Don Schellhardt filed Motions for a Decision on their respective reconsideration petitions, urging the Commission to act on their reconsideration petitions before issuing licenses. We dismiss these motions as moot. To the extent the motions raise new arguments, we dismiss them as untimely filed Petitions for Reconsideration.

filed, the Mass Media Bureau will accept applications for LP10 stations.<sup>4</sup> These stations will have a maximum power of 10 watts ERP at 30 meters HAAT, providing the same signal strength out to approximately 1 or 2 miles from the station's antenna. To avoid compromising existing FM radio service, given the new nature of the LPFM service, we imposed separation requirements for LPFM with respect to full power stations operating on co-, 1<sup>st</sup> - and 2<sup>nd</sup> - adjacent and intermediate frequency (IF) channels. Based on our engineers' technical analysis and careful review of other analyses submitted, we determined that 100-watt LPFM stations operating without 3<sup>rd</sup> adjacent channel separation requirements will not result in unacceptable new interference to the service of existing FM stations.<sup>5</sup> We decided, therefore, not to impose 3<sup>rd</sup> adjacent channel separation requirements because doing so would unnecessarily and substantially restrict the number of LPFM stations that could be authorized, particularly in higher population areas.

3. We restricted LPFM service to noncommercial operations by noncommercial educational entities and public safety radio services. With certain narrow exceptions, we decided to restrict ownership to entities that have no attributable interest in any other broadcast station or other media subject to our ownership rules. We severely restricted the number of LPFM stations that a single entity can own and limited ownership to locally-based entities for the first two years. We determined not to permit the sale of an LPFM station. To resolve mutually exclusive applications, we decided to use a point system that favors local ownership and locally-originated programming, with time-sharing and successive license terms as tie-breakers. Finally, we have minimized the regulatory burdens imposed on these stations, consistent with their size and very localized operation. For example we decided not to impose specific requirements regarding main studio staffing or location, maintenance of public files, and the filing of ownership reports.

4. In this *Memorandum Opinion and Order*, we generally affirm the decisions we reached in the *Report and Order*, although we make some changes and clarify certain aspects of our rules. As explained below, we reject arguments by petitioners proposing more stringent channel separation requirements, as well as arguments in favor of relaxing those requirements. We adopt complaint and license modification procedures to ensure that if any unexpected, significant 3<sup>rd</sup> adjacent channel interference problems are caused by the operation of a particular LPFM station, it can be resolved expeditiously. We decline to modify the permissible power levels for the service. We modify the spacing standards adopted in the *Report and Order* to require that LPFM stations operating on 3<sup>rd</sup> adjacent channels protect stations operating radio reading services and, pending further study, will not authorize an LPFM station that would not be sufficiently geographically separated from any full-service FM station on a 3<sup>rd</sup> adjacent channel that operates a radio reading service as of the date of the adoption of this *Memorandum Opinion and Order*. We also decline to alter the noncommercial nature of the service. We affirm our decision to apply our character qualifications policy with respect to former illegal broadcasters. We increase the flexibility of the ownership rules for certain specific types of applicants: government, transportation and public safety entities, and universities. We provide clarifications on eligibility issues concerning Indian tribes, student stations, licensees in the Instructional Television Fixed Service (ITFS),

---

<sup>4</sup> We are accepting applications for LP100 stations on a geographically staggered basis. See Appendix C for the filing window schedule. The initial filing window for the first region closed June 8, 2000. The initial filing window for the fifth, and last, region is expected to be opened in May 2001.

<sup>5</sup> *Report and Order*, 15 FCC Rcd at 2206, ¶ 2.

and schools with multiple campuses. We affirm our tie-breaker criteria, with certain clarifications regarding the credit for programming that is locally originated. Finally, we address a number of questions and suggestions regarding individual elements of our rules.

## II. ISSUE ANALYSIS

### A. Technical Rules

#### 1. Second and Third Adjacent Channel Protection

5. In the *Report and Order*, we determined that it was not necessary to require that LPFM stations protect other full or low power FM stations operating on 3<sup>rd</sup> adjacent channels, *i.e.*, stations +/- 600 KHz apart.<sup>6</sup> Our decision on this issue was based on our finding that 100-watt LPFM stations operating on 3<sup>rd</sup> adjacent channels will not result in significant new interference to the service of existing FM stations. We concluded that any small amount of interference that may occur in individual cases would be outweighed by the benefits of new low power FM service. We also determined that the risk of interference from LPFM stations on 2<sup>nd</sup> adjacent channels may be somewhat higher than that from such operations on 3<sup>rd</sup> adjacent channels and therefore chose to retain 2<sup>nd</sup> adjacent channel protection requirements for LPFM stations.

6. These decisions were based on the substantial record of information and analyses on FM receiver performance characteristics that was developed in response to the *Notice of Proposed Rulemaking* in this proceeding.<sup>7</sup> The record included three technical studies of FM receivers that were filed by commenting parties: 1) *FM Interference Tests, Laboratory Test Report*, Thomas B. Keller, Robert B. McCutcheon, Consumer Electronics Manufacturers Association (CEMA), 1999, conducted under the auspices of National Public Radio (NPR), CEMA and the Corporation for Public Broadcasting (CPB) (CEMA study); 2) *Technical Studies and Reports* filed by the National Association of Broadcasters (NAB study); and 3) *Receiver Evaluation Project* conducted by Broadcast Signal Lab, LLP for the National Lawyers' Guild, Committee on Democratic Communications (NLG study).<sup>8</sup> The Commission's Office of Engineering and Technology also conducted a study of FM receivers that was placed in the record of the proceeding (OET study).<sup>9</sup> In addition, NAB and CEMA filed supplementary technical information in their

---

<sup>6</sup> For example, the 3<sup>rd</sup> adjacent channels to an FM station operating on 97.1 MHz are at 97.7 MHz and 96.5 MHz.

<sup>7</sup> The NPRM was adopted on January 28, 1999 in response to petitions for rulemaking and related comments indicating substantial interest in, and public support for, increased citizen access to the airwaves. After issuance of the NPRM, we received comments and letters from thousands of groups and individuals seeking license for new radio stations. These comments – from churches or other religious organizations, students, labor unions, community organizations and activists, musicians, and other citizens – reflect a broad interest in service from highly local radio stations strongly grounded in their communities.

<sup>8</sup> The NLG study was funded by NLG, UCC and several others.

<sup>9</sup> See *Second and Third Adjacent Interference Study of FM Broadcast Receivers*, OET Report FCC/OET TRB-99-1, prepared by William H. Inglis and David L. Means, July 1999.

reply comments and a *Technical Analysis of the Low Power FM Service* by Theodore S. Rappaport (August 26, 1999) was submitted by the Media Access Project as part of its replies (Rappaport study).

7. *3<sup>rd</sup> Adjacent Channel Protection.* In its petition, National Public Radio, Inc. (NPR) requests that we reconsider our decision not to apply 3<sup>rd</sup> adjacent channel protection requirements to LPFM stations. NPR disagrees with our findings that any risk of interference from 100-watt LPFM stations operating on 3<sup>rd</sup> adjacent channels is small and that any such interference that does occur is, on balance, outweighed by the benefits of the new service. It argues that neither of these premises, nor our decision to reduce the existing FM interference protections, are supported by the record. To remedy its concerns, NPR requests that we revise our rules to provide additional measures to avoid and ameliorate the potential for interference by LPFM stations to the services of existing FM full service, translator and booster stations operating on 3<sup>rd</sup> adjacent channels. It states that imposition of 3<sup>rd</sup> adjacent channel protections for LPFM stations is particularly justified to protect public radio stations. It also states that, at a minimum, we should amend the rules to provide a process that permits the challenge and denial of an LPFM application on a 3<sup>rd</sup> adjacent channel that would be likely to cause harmful interference within the service area of any existing or proposed full service, translator or booster station.

8. In arguing for this request, NPR contends that we justified our decision on 3<sup>rd</sup> adjacent channel protection by disregarding those laboratory tests that demonstrated a likelihood of interference, and relying instead on our own analysis. It asserts that in so doing, the *Report and Order* fails to address “the numerous fundamental flaws in the Commission’s testing and analysis.”<sup>10</sup> It also argues that our finding that any interference that may occur would be outweighed by the benefits of new low power FM service is flawed. As discussed below, we cannot concur in NPR’s arguments, and are denying its request that we amend the rules to provide protection for existing FM services against potential interference from 3<sup>rd</sup> adjacent channel LPFM operations.<sup>11</sup>

9. NPR asserts that we disregarded laboratory tests that demonstrated a likelihood of interference from 3<sup>rd</sup> adjacent channel LPFM operations. This is incorrect. We did, in fact, fully consider all of the receiver test data and evaluations presented in the record of this proceeding. We simply found that the test data supported different conclusions than those reached by NPR and other parties seeking to maintain 3<sup>rd</sup> adjacent channel protections for LPFM service -- specifically that licensing 100-watt and 10-watt LPFM channels on 3<sup>rd</sup> adjacent channels will not result in significant new interference to the service of existing FM stations. This is plainly evident from the *Report and Order*, which first summarizes the major FM receiver technical studies, and then explains our evaluation of the potential for interference from low power FM stations operating on 3<sup>rd</sup> adjacent channels based on this information. For example, we examined the potential for interference in the immediate vicinity of a 100-watt LPFM station using the NAB’s median receiver performance test results for its three “worst” performing FM receiver categories, *i.e.*, clock, personal and portable, and found that the area where such receivers could potentially experience

---

<sup>10</sup> NPR Petition at 4.

<sup>11</sup> We do, however, as discussed in detail below, ¶¶57-67, adopt a 3<sup>rd</sup> adjacent channel complaint and license modification procedure that will better protect stations from unacceptable 3<sup>rd</sup> adjacent channel interference.

degradation from interference is small, generally one kilometer or less from an LPFM antenna site.<sup>12</sup>

10. NPR next contends that there are three fundamental flaws in the testing and analysis underlying our decision on the 3<sup>rd</sup> adjacent channel protection issue. It first argues that we established no benchmark against which to determine what, if any, new interference might be acceptable. NPR contends that it is not enough to simply critique the internationally accepted benchmark, *i.e.*, ITU-R Recommendation 641, proposed by others, *i.e.*, NAB and CEMA, as we did in the *Report and Order*. It submits that without a point of reference of acceptability, it is meaningless to say that any new interference is acceptable. Consistent with our longstanding policy of allowing market forces to determine the performance capabilities of FM receivers, we chose not to use a benchmark standard for evaluating the acceptability of new FM interference. We believe it is better to refrain from specifying standards for interference rejection capabilities, and as stated by UCC in its reply comments, instead allow the market to identify the level of interference rejection performance consumers find to be acceptable for different types of FM radios.

11. The data from the several receiver studies indicate that there is, in fact, considerable variation in the immunity of FM radios to interference across different categories of receivers, and to some extent, across models of receivers in the same class. These differences reflect manufacturers' response to the demand for receivers that meet varying needs, such as for automobile installations, high fidelity listening, and non-critical listening, a wide range of price points, and other design considerations. As indicated in the *Report and Order*, we believe that consumers understand that there are performance differences among the classes of radios and that they accept the fact that lower cost radios may provide more limited service capabilities. It also appears that market forces are providing FM receivers with levels of interference immunity that adequately meet consumers needs. We therefore believe that a benchmark immunity standard is unnecessary and could, in fact, be detrimental to consumer interests. Instead, we compared receiver performance to the same desired-to-undesired (D/U) protection ratios that we have traditionally used in managing interference between FM stations.<sup>13</sup> We continue to believe that this is an appropriate approach for assessing the interference potential of low power FM stations.

12. In evaluating receiver performance, we did, however, find that the ITU-R Recommendation 641 50 dB S/N criterion used by NAB and the 45 dB S/N criterion used by CEMA were not appropriate criteria for today's FM radio service. In making this determination, we observed that the majority of the radios tested by NAB did not meet its 50 dB criterion with *no* interference present and with the strongest level of desired signal. Similarly, none of the radios tested by CEMA came close to meeting its target 45

---

<sup>12</sup> *Report and Order*, 15 FCC Rcd at 2245-46, ¶¶ 101-103.

<sup>13</sup> The existing FM interference protections, which are provided through spacing standards, are based on the following ratios: 20 dB co-channel D/U; 6 dB 1<sup>st</sup> adjacent channel D/U; -40 dB 2<sup>nd</sup> adjacent channel D/U for commercial FM stations and -20dB for noncommercial stations operating in the reserved FM band; -40 dB 3<sup>rd</sup> adjacent channel D/U. Receivers with the ability to reject interference at these ratios could be expected to provide interference free service within a station's 60 dBu contour service area. (Such radios might not, however, be able to receive service at all locations within that contour if they did not have sufficient sensitivity to receive signals at the 60 dBu level even in the absence of any interference.) Receivers with lower capabilities might experience interference within a station's service area, while those with higher capabilities might be able to reject interference at greater distances.

dB S/N criterion at the 20 dB D/U standard for co-channel interference used in the rules. We further noted that while the 20 dB co-channel D/U standard yields a *monophonic* S/N level of about 50 dB according to an earlier study by NAB, for the *stereophonic* operation used by FM stations today, the 20 dB protection ratio yields an audio S/N of only about 30 dB.<sup>14</sup>

13. NPR next argues that we failed to include any “Category I” radios, *i.e.*, clock radios, shower radios, and other small, inexpensive radios with internal antennas, in our testing, and thereby did not consider the likelihood of interference to what are among the most inexpensive and commonly used radio receivers. Contrary to NPR’s assertions and as UCC observes in its reply comments, we did consider data submitted on Category I radios by commenters in this proceeding. While our own initial study did not test inexpensive receivers with integral antennas because of the difficulty of providing test signals at accurately controlled levels to this type of device, we did rely on test data for these radios submitted by NAB, NPR/CEMA and NLG.<sup>15</sup> As indicated above and in the *Report and Order*, we considered the results from all of the receivers tested in the studies in this proceeding, including the “Category I” radios tested by others, in our decision on 3<sup>rd</sup> adjacent channel interference. For example, in the *Report and Order*, we calculated the radii of LPFM potential interference based on test data submitted by NAB for Category I radios. The results of those tests show that the area in which these receivers would experience any degradation in performance from interference from a 3<sup>rd</sup> adjacent channel LPFM station would be small, generally 1 km or less from the LPFM antenna site.<sup>16</sup>

14. Third, NPR argues that our examination of receiver issues was an interim study. It contends that while we recognized that our study was limited in both the size of the sample of receivers tested and in the range of tests performed, we conducted no further laboratory tests and no field tests of potential interference issues prior to the *Report and Order*.<sup>17</sup> As explained in the OET Study, that phase of the FCC Laboratory’s examination of FM receivers was limited to the issues of 2<sup>nd</sup> and 3<sup>rd</sup> adjacent channel interference performance of analog FM receivers with respect to analog FM interferers and was limited in size to a fairly small sample of 21 receivers. Additional research was anticipated to expand the study sample as well as to broaden the scope to include digital interference issues. Neither of these planned extensions of the OET study was essential to our decision on application of 2<sup>nd</sup> and 3<sup>rd</sup> adjacent channel interference protections for LPFM service. Additional data on receiver performance was, in fact, provided

---

<sup>14</sup> See National Association of Broadcasters, “Subjective Evaluation of Audio Degraded by Noise and Undesired FM Signals,” Laurence C. Middlekamp, November 17, 1982.

<sup>15</sup> See OET Study at 3. In addition, we did perform additional measurements on two “Walkman” type and two other radios (a clock radio and a portable “boom-box” unit) with integral antennas at our Laboratory. These tests were performed using a GTEM cell that does not require the radio under test to be modified. One of the radios tested was supplied by CEMA and was included in its testing. Our test of this radio produced results similar to those found by CEMA, confirming the NPR/CEMA results for that radio. However, our tests did find that this radio performed somewhat better than reported with the DX/LO switch in the opposite position from that tested by CEMA.

<sup>16</sup> *Report and Order*, 15 FCC Rcd at 2245-46, ¶¶101-102.

<sup>17</sup> NPR indicates that to help clarify the interference issues, it is conducting field tests that it expected to complete by July. To date, we have not received the results of NPR’s field testing.

through the NAB, CEMA, and NLG studies. By using the data from the three additional studies, we were able to evaluate information on a total of 75 different radio receivers. We believed that this additional data provided a sufficient basis, *in the aggregate*, for evaluating interference issues, even if each of the studies individually may have tested a relatively small sample of receivers. Thus, we found no need to expand the size of the receiver sample. We therefore do not find that the limits of the OET study impaired our ability to decide the 2<sup>nd</sup> and 3<sup>rd</sup> adjacent channel protection issues in this proceeding.<sup>18</sup>

15. We also do not find it necessary to include field test information in our decision. The interference issues involved in this matter relate to receiver performance, qualities which are best examined through laboratory testing of a sample of receivers.<sup>19</sup> There have been no questions raised in this proceeding that require new information on the propagation qualities of FM signals, and thus there was no reason to conduct field tests. Moreover, it would be difficult and costly to meaningfully conduct field tests for a sample of receivers, and we have no reason to believe that such tests would yield data on interference potential that would differ from that of the various laboratory studies. We therefore find no basis for delaying our decision on the 3<sup>rd</sup> adjacent channel protection issue to conduct field tests ourselves or to await the results of field tests conducted by others.

16. With regard to our finding that any interference that may occur would be outweighed by the benefits of new low power FM service, NPR argues that we did not actually balance costs and benefits. Rather, it argues that we simply asserted that LPFM will be beneficial and then strove to minimize the technical evidence of countervailing interference costs. NPR then argues that we failed to account for the significant harm that is likely to occur to existing radio services, and, in particular, to public radio services, whether in individual cases or the aggregate.

---

<sup>18</sup> The Commission's concerns regarding interference to digital operations were also resolved based on the record in the proceeding. See ¶ 55-56.

<sup>19</sup> We continue to believe that the principal issue is receiver performance, i.e. the ability of modern FM radios to reject unwanted 3<sup>rd</sup> adjacent channel signals. Laboratory tests allow examination of individual receiver performance under controlled conditions. This permits precise control of both desired and interfering signals so that the interference performance of individual receivers can be accurately determined. Field testing, on the other hand, is generally used to confirm models or estimates of how both desired and interfering signals propagate to individual locations. For example, in the case of FM radio, estimates of desired field strength are based on the F(50, 50) field strength chart contained in Section 73.333 of the rules, 47 CFR § 73.333, while estimates of interference are based on the F(50, 10) field strength chart in that Section. These charts show the distances from their respective transmitters at which the desired signal strength is predicted to exceed a given level at 50 percent of the locations 50 percent of the time and at which the interfering signal strength is predicted to exceed a given level at 50 percent of the locations 10 percent of the time. In simple terms, this approach assumes that the desired signal is at an average level while the interfering signal is at a much stronger level, i.e., a "worse case" interference situation. These propagation and interference models have been used for many years for the FM radio and other services, and are independent of receiver performance. No questions have been raised by any of the parties in this proceeding regarding the propagation and interference models used for FM radio. Further, it is unclear as to what additional information, if any, field tests, would reveal about receiver performance, which is the principal technical issue in this matter affecting 3<sup>rd</sup> adjacent channel interference. Field test data, in our opinion, would merely assess the accuracy of our propagation predictions, rather than reveal information on receiver performance.



17. We disagree with NPR that we did not balance the costs of any new interference expected from low power FM stations with the benefits these stations will provide. In the *Report and Order*, we indicated that low power radio stations will serve the public interest by providing opportunities for new voices to be heard, and in particular will enhance opportunities for locally focused community-oriented radio broadcasting.<sup>20</sup> We observed that the comments in this proceeding -- from churches and other religious organizations, students, labor unions, community organizations and activists, musicians, and other citizens -- reflected a broad interest in the establishment of highly local radio stations strongly grounded in their communities, providing locally-based programming for listeners in those communities. We therefore believe that the low power FM service will provide substantial and important benefits to local radio audiences. We expect that LPFM stations will be technically able to serve significant local audiences, even in the presence of interfering signals from full-service FM stations. The 60 dBu service contour of a 100-watt LPFM station with an antenna height of 30 meters above average terrain (HAAT) extends 5.6 kilometers from the transmitting antenna site and encloses an area of 98.5 square kilometers. Without interference or other impairments to its signal, the non-directional LPFM facility could be expected to provide satisfactory signal coverage throughout this area. LPFM stations must be sufficiently geographically separated from full-service FM radio stations to prevent interference to any area within the FM station's protected service contour. For example, a separation of 67 kilometers is required to protect a Class A FM station at maximum permissible facilities; this distance includes the 20 kilometer interference buffer. LPFM stations, however, are not protected against receiving interference from existing or future FM stations.<sup>21</sup> A separation of 92 kilometers from a Class A FM station (which does not include a buffer distance) is necessary to prevent interference within an LP100 station's 60 dBu contour. Thus, an LP100 station located at the minimum required separation to protect the Class A FM station would be predicted to receive some interference within its 5.6 kilometer service contour. On average, the interference-free distance from the LP100 antenna site would be reduced to approximately 4 kilometers from the transmitting antenna site and the corresponding interference-free service area would be reduced to about 50 square kilometers. Thus, even in this worst-case example, the LP100 station could be expected to provide interference-free service within half of the area within its 60 dBu contour, an area that might well be large enough to include the station's intended audience, such as residents of a college campus, local school district, or a neighborhood.

18. In deciding to authorize LPFM stations, we also affirmed our intention to preserve the integrity and technical excellence of the existing FM service and not to impede its transition to a digital future.<sup>22</sup> To this end, we carefully considered the interference potential of LPFM operations to both existing FM stations and their future digital operations and adopted appropriate technical rules to minimize such interference. In the case of 3<sup>rd</sup> adjacent channel interference, we found that any interference that would occur from a low power station to an existing station's service would be limited to areas very close to the low power stations transmitter.<sup>23</sup> In addition, the required minimum spacings between low power

---

<sup>20</sup> *Report and Order*, 15 FCC Rcd at 2206-07, ¶¶ 2 - 3.

<sup>21</sup> For informational purposes, Section 73.807 provides minimum distance separations necessary for an LPFM station to receive no interference from the various classes of FM stations. 47 C.F.R. § 73.807.

<sup>22</sup> *Report and Order*, 15 FCC Rcd at 2206 ¶ 2.

<sup>23</sup> *Id.* at 2245-46, ¶¶ 102 – 104.

stations will greatly limit the maximum number of such stations that can operate within an existing station's service area on the 3<sup>rd</sup> adjacent channel. Thus, the level of new interference from LPFM stations will be very small. Accordingly, we have found, and continue to maintain, that the benefits of this new service outweigh the costs of any small amounts of interference that may occur.

19. We also disagree with NPR that interference from LPFM stations will be particularly harmful to public radio stations. NPR contends that we failed to account for the particular susceptibility of public radio stations to interference, especially in the case of reserved-spectrum stations. It submits that public radio stations are more likely to be affected by LPFM interference for a number of reasons. NPR first argues that stations in the reserved spectrum are more tightly "packed" together, and that our LPFM rules do not adequately address this congestion.<sup>24</sup> However, NPR provides no specific information in support of its contention. Our conclusion that LPFM stations would not create unacceptable interference to existing full power stations is in no way undermined by the differing allocation methodologies used in the reserved and non-reserved bands. Since the minimum LPFM distance separation requirements are applied uniformly throughout the entire FM band, a full power station that operates in a crowded portion of the reserved band would be no more likely to receive interference from an LPFM station than would a station operating in the non-reserved band. Furthermore, the plan is conservative in that LPFM station separation requirements are based on the assumption that full-service stations operate with the maximum permissible facilities for their station class. In any event, as noted by UCC, our plan for authorizing low power FM service automatically mitigates any such differential effect on public stations by allowing fewer low power stations where existing stations are more closely spaced. In other words, fewer low power stations will fit into the reserved band in areas where noncommercial stations are more tightly packed.

20. NPR next argues that public radio stations are particularly vulnerable to interference because their signals typically use minimum "loudness" processing to preserve the natural dynamic range of the programming. It states that the heavy processing used with Top 40 stations limits the dynamic range to emphasize loudness and that this processing tends to mask the effect of interfering signals. We recognize that many public broadcasting stations minimize their use of loudness processing in order to provide quality service to their listeners. At the same time, we observe that it is generally necessary to use a higher quality receiver, such as a home stereo system, in order to actually experience the broader dynamic range audio provided by these stations. As indicated by the various receiver tests, home stereo receivers, car radios, and other high fidelity FM receivers generally are also able to adequately reject signals on 3<sup>rd</sup> adjacent channels at the levels to be transmitted by LPFM stations. We conclude that the audio experience of public radio station listeners generally will not be degraded by the operation of LPFM stations.

21. NPR further argues that we failed to address the potential harm of LPFM operations to statewide radio networks. Individual stations in a statewide network are typically sited to achieve

---

<sup>24</sup> Stations on noncommercial reserved FM channels (channels 201-220, in the band 88-92 MHz) are authorized based on contour overlap, rather than the minimum spacing standards used for commercial stations. *See* section 73.509 of the rules, 47 C.F.R. § 73.509. The contour overlap standards for noncommercial stations are the same as the D/U ratios on which the spacing standards for commercial stations are based, with one exception. The exception is that the D/U ratio for 2<sup>nd</sup> adjacent channel protection for noncommercial stations is -20 dB, whereas the 2<sup>nd</sup> adjacent channel spacing standard for commercial stations is based on the less stringent D/U ratio of -40 dB.

maximum signal coverage to the maximum population based on actual receipt of a quality signal, rather than a predicted contour overlap. NPR contends that LPFM stations are likely to pose a significant threat to such operations. As indicated above, our plan for the LPFM service will tend to limit the number of LPFM operations in locations where noncommercial stations are more closely spaced. In such locations, to the extent that a small amount of interference would occur, in many instances the programming provided by the noncommercial station would be available from another station in the network. We therefore do not believe that LPFM stations on 3<sup>rd</sup> adjacent channels will have harmful consequences for statewide radio networks.

22. Finally, NPR states that interference from television service on TV channel 6 and the need to avoid interference to such service reduces the amount of reserved FM-band spectrum that might otherwise be available. It contends that the new LPFM rules introduce new sources of interference in a portion of the FM spectrum that is already significantly compromised. We believe that channel 6 operations will limit the opportunities for low power stations in that area. In addition, we recently expanded the opportunities for allocating additional reserved channels in the non-reserved portion of the FM band in areas where there are TV channel 6 transmissions.<sup>25</sup> We therefore find that allowing 3<sup>rd</sup> adjacent channel LPFM stations to operate in areas where noncommercial stations must be concerned with TV channel 6 signals will not have any significant effect on the amount of reserved FM-band spectrum that is otherwise available.

23. *Radio Reading Services.* In its petition, NPR requests that we provide additional interference protection for FM stations that operate radio reading services. Radio reading services, which provide access to printed news and other information sources for blind or print-disabled persons, are transmitted via FM station subcarrier (SCA) facilities. NPR asserts that the majority of these services are provided on public radio stations. Special radios that tune subcarrier signals are used to receive these services. NPR states that radio reading services are threatened by the new rules because subcarrier receivers are more vulnerable to interference than mass marketed receivers. It indicates that this is because subcarrier receivers are designed for wide-band reception, which makes them less selective in rejecting adjacent channel signals. It further states that because these receivers are designed to be modest in cost to meet the needs of the disabled constituency, their manufacture necessarily uses components that offer limited overload rejection and IF selectivity. It therefore asks that we revise the rules to apply the existing 3<sup>rd</sup> adjacent channel protection to those radio stations that offer radio reading services.

24. Like NPR, the Commission is concerned about the differential vulnerability of radio reading service receivers to 3<sup>rd</sup> adjacent channel interference. In this regard, we recognize the important and unique services that radio reading operations provide to blind and other print-disabled persons and the unique role of each radio reading service in its community. Accordingly, we are continuing to study how to best protect these services while preserving LPFM opportunities for as many applicants as is practical. For the immediate future we will require that LPFM stations operating on 3<sup>rd</sup> adjacent channels protect the SCA

---

<sup>25</sup> See Report and Order in MM Docket No. 95-31 (Reexamination of the Competitive Standards for Noncommercial Educational Applicants), FCC 00-120 (released April 24, 2000), at ¶¶ 114-115. In that action, we indicated that, in addition to considering interference from TV Channel 6 (radio only) and foreign stations (radio only), we would also provide a needs test for future rule making requests that ask that non-reserved channels not already in the FM or TV Table of Allotments be added and reserved for noncommercial educational use. Under this test the noncommercial educational proponent would have to demonstrate that the need for a noncommercial educational station is greater than the need for a commercial station.

operations of stations operating radio reading services. Until our studies are completed, we will not authorize an LPFM station that would not be sufficiently geographically separated from any full-service FM station on a 3<sup>rd</sup> adjacent channel that operated a radio reading service as of the date of adoption of this *Memorandum Opinion and Order*.<sup>26</sup> If the studies determine that these receivers are uniquely vulnerable to 3<sup>rd</sup> adjacent channel interference, prior to the second round of 100 watt filing windows we will protect stations that have added a radio reading service after the effective date of this *Memorandum Opinion and Order* and LPFM applications filed thereafter will be required to provide 3<sup>rd</sup> adjacent channel protection to those stations. In this regard, we will apply the minimum distance separations used for interference protection from LPFM stations on the 2<sup>nd</sup> adjacent channel, which is based on a desired-to-undesired signal strength ratio of -40 dB. This protection ratio also underlies station separation requirements between full-service NCE stations on 3<sup>rd</sup> adjacent channels. We believe that this approach will adequately protect existing radio reading services while we confirm whether radio reading service receivers are uniquely vulnerable to 3<sup>rd</sup> adjacent channel interference.

25. *2<sup>nd</sup> Adjacent Channel Operation.* J. Rodger Skinner and UCC request that we reconsider our decision to apply 2<sup>nd</sup> adjacent channel protection requirements to LPFM stations and revise the rules to allow operation of LPFM stations without regard to 2<sup>nd</sup> adjacent channel separation. They argue that maintaining 2<sup>nd</sup> adjacent channel protections for LPFM service will preclude the establishment of hundreds of new LPFM stations, mostly in major markets where they are needed. Skinner submits that our recent receiver tests, and the fact that no interference has been reported during the many years when short-spaced grandfathered full service stations were allowed to relocate without regard to 2<sup>nd</sup> or 3<sup>rd</sup> adjacent channel restrictions, are indicative that low power stations could operate on such channels without causing interference. UCC submits that, based on the findings of the Rappaport study, we could have relaxed 2<sup>nd</sup> adjacent channel protections for stations of 100 watts or less.

26. Skinner and UCC petitioners have not provided any new information on the 2<sup>nd</sup> adjacent channel issue that we did not have available and consider in deciding to retain 2<sup>nd</sup> adjacent channel protections for LPFM service. As we observed in the *Report and Order*, the receiver test data for 2<sup>nd</sup> adjacent channel interference rejection performance was generally on the order of 8-10 dB poorer than for 3<sup>rd</sup> adjacent channel performance. We therefore indicated that it appears that the risk of interference from 2<sup>nd</sup> adjacent channel LPFM operation may be somewhat higher. While the Rappaport study generally argues that elimination of 2<sup>nd</sup> and 3<sup>rd</sup> adjacent channel protections would result in a small potential for interference and therefore affect few FM listeners, the study's simulation results do indicate that in many situations there would be increased interference if 2<sup>nd</sup> adjacent channel protections were eliminated.<sup>27</sup> In addition, applying 2<sup>nd</sup> adjacent channel protection requirements to LPFM stations will preserve flexibility for the development of in-band, on-channel (IBOC) digital audio systems for FM stations, as discussed in paragraphs 55-56. Accordingly, we are denying the petitioners' request that we eliminate 2<sup>nd</sup> adjacent channel protection requirements for LPFM stations.

---

<sup>26</sup> A partial list of existing stations operating radio reading services is set forth in Appendix D. This information was provided by National Public Radio and the International Association of Audio Information Services.

<sup>27</sup> See Appendix D to Rappaport study.

### Regulatory Status of LPFM Stations

27. We decided in the *Report and Order* to require LPFM stations to protect existing full-power FM stations, translator, boosters, and vacant allotments, according to the separation requirements adopted, and not to protect LPFM stations from interference introduced by new or modified FM stations. We also decided that LPFM stations will be required to cease operation if they cause interference within the 3.16 mV/m contour of a subsequently authorized or modified FM station.

28. The general manager of a student radio station at the University of Wisconsin (Black), urges us to reconsider this status for LPFM stations, arguing that it will discourage investment in LPFM stations, as their signals can be subsequently overpowered by full-power FM stations.<sup>28</sup> We decline to reconsider our decision on this issue. One of our paramount goals in introducing LPFM service was that it not interfere with existing service.<sup>29</sup> We continue to believe that the rules we adopted strike a reasonable balance between the need to foster new service and our responsibility both to maintain the integrity of existing FM service and to allow for its expansion to better serve the public.

29. For the same reasons, we will not adopt the proposal in the Amherst Petition that we use a “modified primary” status for LPFM or that we establish “endangered species” or “demonstration” stations.<sup>30</sup> Each of these proposals would diminish interference protection to existing stations in the interest of creating more LPFM stations than would be allowed under our current rules. Amherst proposed that we establish “endangered species” exemptions where LPFM stations are few in number and face a high risk of displacement. This exception would, under Amherst’s proposal, automatically be extended to an LPFM applicant who applied for an LP10 license and who seeks that license where no more than three LPFM licenses are available. Amherst’s proposed demonstration stations would be permitted where there is no room for any LPFM stations under the current rules; they would be sited without 2<sup>nd</sup> adjacent channel separations and provide actual experience with such LPFM operations. “Modified primary status” would, like the other two proposals, diminish the protection we have granted to existing stations. We remain convinced that our analysis in the *Report & Order* struck an appropriate balance between the interest of new entrants and the importance of protection of existing broadcasters, and we decline to modify that balance.

30. *Translators.* FM translator stations may not continue to operate if any interference occurs in areas where a full service FM station has a “regularly used” signal, including locations beyond the full service station’s applicable protected contour.<sup>31</sup> However, LPFM stations are only required to protect subsequently authorized full service FM stations if interference is created within the full service station’s

---

<sup>28</sup> Black Petition at 1.

<sup>29</sup> *Report and Order*, 15 FCC Rcd at 2206, ¶ 2, at 2209, ¶ 6, at 2230, ¶¶ 62-63, at 2282, ¶ 198.

<sup>30</sup> Amherst Alliance Petition at 7.

<sup>31</sup> 47 C.F.R. § 74.1203(a)(3).

70 dBu principal community contour.<sup>32</sup> The Commission's decision permitting LPFM stations to continue operation if overlap occurs in an FM station's service area outside its 70 dBu contour was an attempt to balance the service needs of full service stations with the need for stability in the LPFM service. FM translators provide full service FM stations with a means of supplementing signal coverage made deficient due to terrain or other transmission issues, while LPFM stations will provide a new program origination service. Given the differing purposes of the LPFM and FM translator services we do not feel that it is necessary for both services to have identical interference protection requirements.

## 2. Modulation

31. In order to minimize the potential for interference from LPFM stations, the Commission concluded that LPFM stations would be required to meet current FM transmission standards. Additionally, in order to ensure that these standards are met, the *Report and Order* restricted LPFM stations to the use of FCC "type certified" transmitters.<sup>33</sup>

32. Craig L. Fox (Fox) argues that the rules adopted by the Commission are not sufficient to avoid the creation of interference via improper operation.<sup>34</sup> Specifically, Fox argues that the adopted rules do not address the problem of overmodulation caused by a high audio feed. Fox states that overmodulation was a common problem among "unlicensed operators" and that excessive frequency deviation in the signals of these stations resulted in additional interference. Accordingly, Fox concludes that the Commission should require LPFM stations to use calibrated modulation monitors. We believe this additional safeguard is unwarranted. We do not believe that unsupported anecdotal evidence regarding unauthorized broadcasters is a sufficient justification for placing additional burdens on legitimate LPFM licensees. Thus, we find Fox's arguments unpersuasive and do not modify our prior determination to require full service and LPFM stations to meet the same transmission standards.

## 3. Cut-Off Date for Protection of Full Service Stations

33. The *Report and Order* adopted a nationwide filing window for LP100 applications and tentatively set the first window for May 2000. The Commission directed the Mass Media Bureau to announce by Public Notice the opening of the first national window and to release this notice at least 30 days in advance. Subsequently, the Mass Media Bureau decided to accept LPFM applications in five

---

<sup>32</sup> On reconsideration, we are expanding this protection to include the community of license of commercial FM stations and the community of license of NCE FM stations provided that community is within the station's 60 dBu contour. See ¶ 52.

<sup>33</sup> "In most cases, these standards will be met through the use of certified equipment without need for further adjustment by the LPFM licensee. LPFM stations will be required to adhere to the 200 kHz channel bandwidth applicable to full service stations, as well as the out-of-channel signal attenuation requirements in 47 C.F.R. § 73.317 [via reference in § 73.508], the center frequency drift limits in 47 C.F.R. 73.1545(b), and the limits on modulation in 47 C.F.R. § 73.1570 (a) and (b)." *Report and Order*, 15 FCC Rcd at 2248, ¶109. In this regard, we note that one of the rules modified in the *Report and Order*, 47 C.F.R. § 73.1660, inadvertently specified verification rather than certification procedures for LPFM stations. We are correcting the rules accordingly to correspond to our decisions in the *Report and Order*.

<sup>34</sup> Fox Petition.

separate filing windows to “ensure the expeditious implementation of the LPFM service and to promote the efficient use of Commission resources.”<sup>35</sup> The *Report and Order* also established protection rights for both full service and low power stations. LPFM applications must protect all full service FM station applications on file as of the date of the public notice in accordance with the minimum distance separation requirements adopted in the *Report and Order*. Full service FM applications filed on or after the public notice date would be protected only to the extent that the applicant’s 3.16 mV/m contour is affected by an LPFM facility.<sup>36</sup>

34. Amherst Alliance concurs with our decision that LPFM applications must protect full service station applications on file as of a certain filing date. However, it disagrees with the date selected by the Commission. Specifically, Amherst argues that existing broadcasters will attempt to “warehouse” the spectrum by filing applications for the sole purpose of blocking LPFM applicants. Accordingly, Amherst suggests we change the “grandfathered” date to either February 26, 1999, the date the Commission required unlicensed broadcasters to cease operation if they wished to retain filing eligibility or, alternatively, January 20, 2000, the date of the adoption of the *Report and Order*.<sup>37</sup> We decline to adopt a different “cut-off” date based on Amherst’s speculative spectrum warehousing contention. We believe that we have adequate remedies to ensure that there will not be warehousing of spectrum.<sup>38</sup> We have seen no evidence that broadcasters have chosen to circumvent Commission rules and policies by warehousing spectrum. Moreover, we conclude that imposing an extended freeze on full service applications would result in significant hardships to many stations without any countervailing benefits. We therefore reject this Amherst proposal.

35. However, in light of our decision to use multiple filing windows to implement the LPFM service, we clarify our LPFM cut-off rules. We will use the release date of each public notice announcing the opening of the next LP100 window as the “cut-off” date for protection of pending full service FM applications. Thus, LPFM applicants in subsequent filing windows will be required to protect all full service applications on file as of the date of the public notice for their particular window. This includes applications that may not have been protected in previous windows.

#### 4. Protection of Cable Television Headend

36. NPR argues that the Commission should revise the LPFM rules to require that LPFM stations correct any interference that may occur in the vicinity of a cable television headend as a result of LPFM broadcasts. Of major concern to NPR are listeners that receive radio programming, including radio reading services which are typically transmitted on a radio station’s subcarrier frequency, as part of their

---

<sup>35</sup> See *Public Notice* entitled “FCC Announces Five-Stage National Filing Window for Low Power FM Broadcast Station Applications,” released March 17, 2000, DA 00-621. See also the discussion in ¶ 52 of this *Memorandum Opinion & Order*.

<sup>36</sup> *Report and Order*, 15 FCC Rcd at 2256-57, ¶¶ 130-133.

<sup>37</sup> Amherst Alliance Petition at 11-15.

<sup>38</sup> *Report and Order* in MM Docket No. 98-43, 13 FCC Rcd. 23056 (1998); *Memorandum Opinion and Order* in MM Docket No. 98-43, 14 FCC Rcd. 17525 (1999).

cable service.<sup>39</sup> In the *Report and Order*, the Commission made LPFM stations subject to the existing full service station requirements regarding the amelioration of blanketing interference.<sup>40</sup> Cable headends are among the facilities covered by this rule. To the extent NPR refers to off-air reception problems caused by interference other than blanketing, we note that cable headend facilities receive no such specific protection from full service FM or FM translator stations. We are not persuaded that LPFM stations should be subject to more stringent requirements in this regard than other FM stations.

## 5. Translators

37. As part of its overall plan to protect FM stations from interference, the Commission adopted FM translator/booster-LPFM station minimum distance separation requirements. Because FM translator and booster stations generally do not have specific class limitations, the separation requirements were determined by analyzing the 60 dBu contours of authorized stations and grouping them into three cohorts based on station power and height. Additionally, we also amended Part 74 rules to require that FM translator and booster stations protect the 1 mV/m contour of LP100 stations.<sup>41</sup>

38. NPR complains that the Commission has adopted rules that have rendered FM translators “secondary” to LPFM stations. NPR cites the numerous federal Public Telecommunications Facilities Program (PTFP) grants awarded to FM translator licensees each year as evidence of the recognized public interest benefits of translator service. According to NPR, this funding is provided because in many instances a translator station is the only source of public radio service in a given area.<sup>42</sup> NPR argues that FM translator applicants that receive PTFP funding should not be required to protect LPFM stations. Additionally, NPR argues that LPFM station protection requirements may limit the ability of translators to relocate or change output frequencies when displaced by full service FM stations. It objects to this policy, contending that it could result in the potential loss of FM translator service. NPR requests that FM translators in this situation be allowed to make modifications that may result in interference to authorized LPFM stations.

39. We do not agree with NPR’s characterization that the separation requirements adopted in the *Report and Order* make FM translators “secondary” to LPFM stations. The interference protections that were added to the translator and LPFM service rules place LPFM stations and FM translators on essentially equal footing in providing reciprocal interference protection. LPFM stations must meet FM translator distance separation minimums and FM translators must protect the 60 dBu contour of LP100 stations. We wish to clarify the application of 47 C.F.R. § 74.1204(a)(4), the rule section requiring FM translators to protect the 60 dBu contour of co- and 1<sup>st</sup> adjacent channel LP100 stations. In issuing LPFM construction permits we will specify an acceptable range of ERP based on the proposed antenna HAAT. Any subsequently filed license authorization will include a specific operating ERP. An FM translator application must protect the maximum facility authorized in an LP100 construction permit until the LP100 station is licensed. In fact, some aspects of the rules provide greater protections for FM translator stations.

---

<sup>39</sup> NPR Petition at 16-17.

<sup>40</sup> *Report and Order*, 15 FCC Rcd at 2249, ¶ 113.

<sup>41</sup> *Id.* at 2233-34, ¶¶ 70-71.

<sup>42</sup> NPR Petition at 17-19



For example, FM translators were divided into three broad categories based upon coverage area, with the same LPFM spacing applied to the smallest and largest facility in each category. Thus, with the exception of the largest authorized FM translator facilities, the spacing rules adopted for LPFM stations will usually result in an FM translator receiving more protection than an LP100 station which receives protection based on its actual contours. Additionally, FM translator stations are not required to protect LP10 stations. We believe that NPR's proposal to make LPFM stations secondary to translators is fundamentally contrary to current Commission policy, which treats translators as a secondary service. "The proper role of FM translators among aural services to the public is to provide secondary service to areas in which direct reception of signals from FM broadcast stations is unsatisfactory due to distance or intervening terrain obstructions."<sup>43</sup> We acknowledge that FM translators have provided useful service to unserved or underserved areas, but we believe that our LPFM rules adequately protect operating translator stations. We are not persuaded that our technical rules should be modified to eliminate the protections afforded LP100 stations – essentially rendering LPFM stations "secondary" to translators – either with respect to subsequently filed FM translator applications generally or with respect to the narrower class of translator stations that receive PTFP funding.

40. Nonetheless, we agree with NPR that maintaining translator-based delivery of broadcast programming is an important objective. We invite parties concerned with this issue to submit suggested improvements in these areas to the staff of the Mass Media Bureau's Audio Service Division, so that we can facilitate relocation of displaced translators when necessary. Based on the comments received the Bureau is authorized to reexamine our rules, filing procedures and processing standards and to suggest what steps the Commission can take to increase the flexibility accorded to displaced translator licensees seeking replacement facilities, if necessary.

41. NPR and the National Translator Association (NTA) state that the Commission should modify its rules to protect the input signals of FM translators that receive the signal of their primary stations via direct off-air reception.<sup>44</sup> NPR is particularly concerned about the effects upon translator network "chains" in which each translator station output signal provides the input signal to the next. In this regard, we concur with the petitioners that protecting the input signals of FM translator stations is an important component of our overall policy goal of developing LPFM technical rules that protect existing FM translator service. We conclude that we should follow the procedures currently used to resolve allegations of interference caused by one FM translator to the input signal of another FM translator to resolve such interference caused by an LPFM station.<sup>45</sup> However, contrary to NTA's suggestion, we will not make such interference a routine consideration prior to the grant of an application. Where a translator station demonstrates that an LPFM station is interfering with the translator station's input signal in use at the time the LPFM station is authorized, the LPFM station will be required immediately to cease operation until appropriate remedial actions have been taken.

42. *Protection of Class A TV, Low Power Television and Television Translator Stations*

---

<sup>43</sup> See *In the Matter of Amendment of the Commission's Rules Concerning FM Translator Stations*, 5 FCC Rcd at 7219, ¶ 48 (1990).

<sup>44</sup> NPR Petition at 21; NTA Petition at 3.

<sup>45</sup> See 47 C.F.R. § 74.1203(a)(2).

*Operating on TV Channel 6.* In order to protect TV Channel 6 stations from LPFM station interference, we adopted a rule (47 C.F.R. § 73.825) requiring LPFM stations proposing operation in the NCE portion of the FM Band (Channels 201-220) to meet minimum distance separation requirements with respect to TV Channel 6 stations.<sup>46</sup> Section 73.825 does not specifically address Class A TV, low power television (LPTV) and television translator stations operating on TV Channel 6. Accordingly, we will amend § 73.825 to include additional minimum distance separation requirements which we believe will be adequate to protect the service provided by the Class A TV, LPTV and television translator facilities.<sup>47</sup>

## 6. Spacing Table.

43. An anomaly in the minimum distance separation requirements of 47 C.F.R. § 73.807(g) has come to our attention. Specifically, the tables specify greater 2<sup>nd</sup> adjacent channel spacing requirements to Canadian stations from LP10 stations than from LP100 stations. When considering low-powered facilities at very high signal strengths, the Commission's F(50,50) curves often must be used instead of its F(50,10) curves. However, in some cases the staff must utilize the "free space equation" formula to determine contour distances. "In those cases where the distance calculated from the free space equation is greater than 5280 feet [one mile], but the F(50,50) curves show a distance of less than one mile, we use a distance of one mile."<sup>48</sup> Although the staff properly used the treaty-required +20 dBu undesired-to-desired signal ratio to determine 2<sup>nd</sup> adjacent channel interfering contours near the Canadian border area, the staff failed to account for the fact that, in cases where the free space equation yields a result greater than 1.6 kilometers (one mile), 1.6 kilometers must be used as the contour distance. We have recalculated the minimum separation distances for 2<sup>nd</sup> adjacent channel LP10 stations near the Canadian border and are amending § 73.807 accordingly.<sup>49</sup> For the same reason, we are also amending the IF frequency separation

<sup>46</sup> *Report and Order*, 15 FCC Rcd at 2249-50, ¶ 114.

<sup>47</sup> The current distance requirements listed in § 73.825 are premised upon a TV Channel 6 station operating with 100 kW ERP at 610 meters HAAT and the interference ratios proscribed by 47 C.F.R. § 73.525. However, these requirements overstated the potential for interference created by LP10 and LP100 stations. Accordingly, we are amending § 73.825 to eliminate this discrepancy. The requirements we are adopting for Class A TV, LPTV and television translator protection are based upon these stations operating with 3 kW ERP at 610 meters HAAT and the appropriate ratios of § 73.525 and are thus much less restrictive than the requirements for protection of full service TV Channel 6 stations

<sup>48</sup> "And, if the distances involved are below one mile, it is necessary to use the free space equation to determine the signal strength of the undesired signal. The free space equation which we use is derived from 'Radio Propagation at Frequencies above 30 Megacycles,' by Kenneth Bullington, Proceeding of the I.R.E., page 1122, October 1947. After taking into account the fact that FM broadcast antenna effective radiated power is referenced to half-wave dipole, rather than an isotropic antenna, we have:

$$\text{Distance (feet)} = \frac{23 \text{ Square Root (effective radiated power in watts)}}{\text{Field Strength (V/m)}}$$

*In re Application of City College of New York*, 47 RR 2d 1095 (1980).

<sup>49</sup> When conducting our review of the minimum separation requirements within the Canadian border zone we became aware of a miscalculation in the requirements with respect to co- and 1<sup>st</sup>- adjacent channel Canadian (continued....)

requirements for Class LP100 stations with respect to Class A and Class D stations, and Class B stations in Puerto Rico and the US Virgin Islands.

44. In addition to the anomaly in 47 C.F.R. § 73.807(g), we have determined that low power FM stations within Canada and Mexico<sup>50</sup> had not been specifically protected from new domestic LPFM stations in the *Report and Order*. While these stations are protected by treaty, the *Report and Order* failed to include spacing tables explicitly protecting Canadian and Mexican low power FM Stations. To eliminate any uncertainty with respect to Canadian and Mexican stations, we are supplementing the international spacing tables specified in 47 C.F.R. § 73.807 to include specific distance separation requirements. To determine the spacings, we took the maximum facilities allowed for Canadian and Mexican FM translator stations, calculated the distance to the F(50,50) protected contour, and added the distance to the F(50,10) interfering curve from the domestic LPFM station required to protect those stations. In doing so, we determined that Canadian low power FM stations should receive the same protections provided to Canadian Class A1 facilities. Therefore, the Class A1 spacings in 47 C.F.R. §§ 73.807(g)(1) & (g)(3) will also be used for protecting Canadian low power FM Stations. However, due to the differences in treaty requirements, Mexican low power FM stations require unique spacing distances, and 47 C.F.R. §§ 73.807(g)(2) & (g)(4) are amended accordingly.

## 7. Directional Antennas

45. In the *Report and Order* we determined not to authorize directional antennas for LPFM stations.<sup>51</sup> We concluded that directional antennas are unnecessary due to our reliance on a minimum distance separation methodology for interference protection, which assumes the use of a non-directional antenna. We also reasoned that authorizing only nondirectional antennas would simplify the preparation and processing of applications, thereby facilitating the expeditious implementation of the service.

46. The New York State Thruway Authority (NYSTA) and the consulting engineering firm of Lohnes and Culver request that LPFM stations be permitted to operate with directional antennas.<sup>52</sup> They contend that directional antennas are useful engineering tools for enhancing a station's ability to avoid interference and for allowing more efficient operation by not wasting signal energy over unpopulated areas or areas where service is not intended. As suggested by Lohnes and Culver, use of a higher gain directional antenna to achieve a station's effective radiated power could reduce station costs by permitting the use of a lower power transmitter. NYSTA asserts that use of directional antennas would enable more opportunities for LPFM service, and that a blanket prohibition against directional antennas is not sufficiently justified on  
(Continued from previous page) \_\_\_\_\_

Class C stations. Accordingly we are modifying 73.807(g)(1) and (g)(3) to reflect the correct values. Additionally, we are clarifying 73.807(g)(6) to acknowledge the Commission's responsibility to coordinate with the appropriate government in all cases where such coordination is necessary to maintain compliance with existing international agreements.

<sup>50</sup> The Treaties between the United States and Canada and the United States and Mexico refer to secondary facilities as "Low Power FM Stations." Low power FM Stations are authorized on a secondary basis in both Canada and Mexico, just as FM Translator stations are authorized in the United States.

<sup>51</sup> *Report and Order*, 15 FCC Rcd at 2248, ¶ 108.

<sup>52</sup> NYSTA Petition at 2-4; Lohnes and Culver Petition at 2.

the ground that it would simplify application requirements.

47. As we stated in the *Report and Order*, there are compelling needs for the services that will be provided by LPFM stations. As part of a streamlined application process to expedite the authorization and implementation of the service, we prohibited the use of directional antennas by LPFM stations. We continue to believe that given the low power levels in the LPFM service, authorizing stations to limit power in particular directions would not generally yield benefits sufficient to offset our concerns about the complexities of directional antenna authorizations. As noted by NYSTA, applicants seeking directional full service FM radio facilities are subject to strict requirements involving radiation pattern and antenna installation.<sup>53</sup> Authorization of directional antennas entails the submission and staff evaluation of radiation patterns and related information. Applicants for directional FM station licenses are required to submit measurement data to verify the radiation characteristics of directional antennas, as installed. Station proposals involving non-directional antennas can be authorized more quickly and with much less information from applicants. Such antennas will also facilitate uniform signal coverage within an LPFM station's service contour. Moreover, the conservative distance separation requirements established for LPFM stations will ensure that other stations are adequately protected against interference without the use of directional antennas. For these reasons, we generally affirm our determination not to authorize directional antennas for LPFM stations.

48. As noted by the petitioners, however, we recognize that there could be tangible benefits to allowing the use of directional antennas, particularly for licensees whose service is generally tailored to directional signal paths. NYSTA notes that it, as well as transportation agencies of other states, operates a Traveler's Information Service (TIS) that provides travel advisory and public safety information to motorists. TIS systems include numerous stations strategically located to provide signal coverage along roadways. NYSTA seeks to replace AM radio TIS facilities with LPFM stations. According to NYSTA, use of directional antennas would "focus coverage along the Thruway's right-of-way, thereby minimizing the stations' coverage contours and potential for interference, while still allowing the Thruway to ensure that its public safety information reaches the motorists using the roadway."<sup>54</sup> As suggested by Lohnes and Culver, directional antennas in such systems could reduce system costs and minimize environmental impact.<sup>55</sup>

49. For these reasons, we will make a limited exception to the prohibition of LPFM directional antennas and permit such antennas to be used only by public safety and transportation entities in connection with the operation of TIS services.<sup>56</sup> However, under no circumstances will a specific antenna

---

<sup>53</sup> These requirements, given in 47 C.F.R. § 73.316, include the submission of measurements of directional antenna relative field patterns to ensure the accuracy of radiated emissions. The determination and verification of directional antenna radiation characteristics can be exceedingly complicated, particularly for composite antenna systems comprised of multiple antennas.

<sup>54</sup> NYSTA Petition at 1-3.

<sup>55</sup> Lohnes and Culver Petition at 3.

<sup>56</sup> To enable such systems in the FM radio band, we are also providing a conditional exemption to government, public safety and transportation organizations to apply for multiple LPFM station licenses. See the discussion of National Ownership Limit at ¶ 77.

pattern be considered when determining compliance with our LPFM interference requirements with respect to other stations. Thus, we affirm that all such applicants must propose LPFM locations that comply with the LPFM distance separation requirements; requirements which assume use of a nondirectional antenna. Additionally, the use of a directional antenna will not affect a licensee's obligation to operate at its authorized ERP and will therefore not result in any extension of predicted coverage. Use of a high gain directional antenna will require a corresponding transmitter output power and transmission line loss that produces the authorized ERP.

50. TIS applicants wishing to utilize directional antennas will be limited to the use of a single "off-the-shelf" antenna with pattern characteristics pre-set by the manufacturer. A composite antenna consisting of more than one antenna mounted together may not be utilized. Nor will we permit multiple directional antennas and transmitters to be used from a single licensed facility. When filing an application for license to cover a construction permit (FCC Form 319), permittees will be required to certify that the gain of the specified antenna and transmitter power output (TPO), coupled with the necessary transmission line, produces the licensed ERP.<sup>57</sup> For the purposes of station authorizations and our engineering database, all LPFM stations, including those of TIS stations, will be considered "non-directional." Thus, we will not require applicants for station licenses to submit any data beyond antenna make and model. We will expect all licensees to install their antennas in accordance with the manufacturer's specifications.

## 8. Service Area Issues

51. In order to avoid the creation of interference to existing FM broadcast stations, the *Report and Order* adopted minimum distance separation requirements that were premised on the lack of prohibited overlap to each station class' maximum protected contour.<sup>58</sup> In addition, in an effort to account for modifications to existing full service stations, and minimize interference, an additional 20 kilometer "buffer" was added to the co- and 1<sup>st</sup> adjacent channel separation requirements. Greater protection still was given to several superpowered stations operating within the reserved portion of the FM band.<sup>59</sup> Finally, although a full service station proposing a facility modification could potentially be required to accept some interference from an operating LPFM station, the rules require that LPFM stations fully protect FM station modifications to their principal community (70 dBu) contours.<sup>60</sup>

52. Alan W. Jurison (Jurison) and NPR allege that the rules adopted by the Commission do not adequately protect the service areas of full service licensees.<sup>61</sup> Both petitioners state that the modification rule that requires LPFM stations to protect the 70 dBu contour of full power station modifications from

---

<sup>57</sup> Applicants for LPFM construction permits are not required to specify antenna information on FCC Form 318.

<sup>58</sup> The 1 mV/m contour for Class A, C3, C2, C1 and C stations; the .7 mV/m contour for Class B1 stations; and the .5 mV/m contour for Class B stations.

<sup>59</sup> *Report and Order*, 15 FCC Rcd at 2233, ¶ 70.

<sup>60</sup> *Id.* at 2231-32, ¶¶ 65-67.

<sup>61</sup> Jurison Petition at 3; NPR Petition at 6.

interference appears to fall short of the Commission's stated intention of protecting the service areas of existing stations.<sup>62</sup> We do not believe that reconsideration of these complementary policies is warranted. New LPFM station separation requirements and the protection afforded to full service modifications are intended to serve different aspects of our overall interference policy. The spacing rules require the full protection of all full power authorizations and prior-filed applications in order to minimize the potential for interference that could result from an initial LPFM station authorization. The Commission adopted a different approach to subsequently-filed modifications of full service stations in order to provide a degree of stability for the new and untested LPFM service while providing maximum technical flexibility for full power stations to initiate or enhance service. The Commission has long recognized the importance of preserving existing broadcast services. As a result, we believe the qualified cut-off protection that LPFM stations enjoy *vis-a-vis* subsequently filed full power proposals is warranted, especially when the role of LPFM stations in providing new outlets for community-based organizations is taken into account. We note that our decision to protect full power stations to maximum facilities and to require that new LPFM stations meet an additional buffer zone protection requirement should substantially limit the number of cases where a site relocation results in interference received by a full power station.<sup>63</sup>

53. NPR questions the use of the 70 dBu contour as a benchmark for protecting the community of license of noncommercial educational FM stations. Specifically, NPR argues that NCE FM stations operating within the reserved band are not required to cover their communities of license with a 70 dBu strength signal. Thus, under the LPFM rules as originally adopted, a full service NCE FM station could receive interference from an LPFM station within those portions of its community of license that it serves with less than a city grade strength signal. We concur that this result does not serve our intended goal of protecting service within each station's community of license.<sup>64</sup> Accordingly, we will revise the pertinent rule sections to require that LPFM stations not cause interference within the community of license of an NCE FM station, provided that the community is within the 60 dBu contour of the affected NCE FM station. Extending this protection to stations with communities of license located beyond the 60 dBu contour is not warranted since such stations are already potentially subject to interference from other full service stations within their communities of license. Commercial FM stations are deemed to "substantially comply" with the community of license coverage requirements if at least 80% of the community of license is located within the 70 dBu contour.<sup>65</sup> Accordingly, we will also protect the community of license of commercial FM stations, even in instances where a portion is located outside the 70 dBu contour.

---

<sup>62</sup> See 47 C.F.R. § 73.209(c) (*Protection from interference*); § 73.514 (*Protection from interference*); and § 73.809 (*Interference Protection for full service FM stations*).

<sup>63</sup> We wish to clarify 47 C.F.R. § 73.809 as it relates to determining interference caused by LPFM stations to full service stations operating on IF frequency channels. That section states that interference will be shown by demonstrating contour overlap based upon the interference ratios of 47 C.F.R. § 73.215. However, § 73.215 does not apply to IF frequency channel stations. Accordingly, we are amending § 73.809 to state that IF frequency channel interference will be determined via overlap of the 91 dBu F(50,50) (36 mV/m) contours. This contour was utilized to calculate the LPFM IF frequency channel spacing requirements.

<sup>64</sup> See *In the Matter of 1998 Biennial Regulatory Review – Streamlining of Radio Technical rules in parts 73 and 74 of the Commission's Rules*, (13 FCC Rcd 14849, 14875-76, ¶¶ 57-58 (1998)).

<sup>65</sup> See *John R. Hughes*, 50 Fed. Reg. 5679 (1985).

54. NPR has expressed additional concerns about the service areas of NCE FM stations. NPR is concerned that, although the Commission indicated that the distance separation requirements often result in greater protection to stations operating with less than maximum class facilities, stations operating at maximum class facilities do not receive any “additional” protection.<sup>66</sup> We do not share NPR’s concern in this regard. The “additional protection” referred to by NPR is simply a consequence of using a minimum distance separation methodology based upon maximum class facilities instead of a contour overlap methodology based upon actual authorized facilities.<sup>67</sup> Additionally, NPR expresses concern that stations operating in statewide networks are vulnerable to interference because “[i]ndividual stations in a statewide network are typically sited to achieve maximum population based upon the receipt of a quality signal rather than predicted contour overlap.”<sup>68</sup> With the exception of the 20 kilometer “buffer” added to the co- and 1<sup>st</sup> adjacent channel spacing requirements, the Commission did not provide for protections beyond stations’ service areas based on maximum facilities for the station class. More generally, it is axiomatic that our technical rules protect NCE stations only to their “protected” contours and not some undefined otherwise unprotected contour relating to the location of a desired station audience. Requiring greater protection could unduly limit LPFM licensing opportunities and is at odds with protections provided in the full power service. We conclude that this fundamental departure from our license assignment policies is unwarranted.

55. Jurison also expressed concern about existing grandfathered superpowered FM stations operating in the non-reserved band.<sup>69</sup> Specifically, Jurison states that the Commission did not explain why non-reserved band superpowered stations were not granted the additional protections provided for reserved band superpowered stations.<sup>70</sup> Under current Commission rules, superpowered stations operating within the non-reserved band are protected not on the basis of their actual facilities but on the basis of the station’s maximum class facilities.<sup>71</sup> In contrast, full service superpowered stations operating within the reserved band are protected on the basis of their authorized facilities, which exceed the maximum facilities for the station class.<sup>72</sup> Jurison has not established sufficient justification for requiring LPFM stations to provide non-reserved band superpowered stations with greater protection than that currently provided by existing full service stations. Jurison also expresses concern that LPFM stations would receive excessive interference from superpowered stations, despite being located at distances where our rules<sup>73</sup> state that there would be “no interference received.” While this situation may occur in some instances, we do not believe

---

<sup>66</sup> NPR Petition at 9.

<sup>67</sup> *Report and Order*, 15 FCC Rcd at 2228, ¶ 58.

<sup>68</sup> NPR Petition at 10.

<sup>69</sup> “Superpowered” FM stations have been authorized to operate with facilities that exceed the ERP/HAAT limitations of §73.211 or §73.511 for their specific class of station.

<sup>70</sup> Jurison Petition at 2-3.

<sup>71</sup> All full service stations operating in the non-reserved band, regardless of facilities, must be protected under the provisions of 47 C.F.R. § 73.207 (distance separations based upon maximum class facilities) or § 73.215 (lesser separation requirements based upon the lack of contour overlap with maximum class facilities).

<sup>72</sup> *See* 47 C.F.R. § 73.509.

<sup>73</sup> 47 C.F.R. § 73.807.

that it warrants increasing the LPFM minimum separation requirements toward all superpowered stations. LPFM minimum distance separation requirements may permit stations to operate in areas where they may be subject to received interference. To the extent that the “no interference received” values may be misleading in some instances, we will change the tables to read “For No Interference Received From Maximum Class Facility.” It will be the LPFM applicant’s responsibility to consider the facilities of nearby superpowered stations when considering its choices for site and/or frequency.

## 9. Digital Audio Broadcasting

56. The Commission’s decision to retain 2<sup>nd</sup> adjacent channel LPFM protection requirements but eliminate 3<sup>rd</sup> adjacent channel standards was designed, in part, to ensure that the introduction of the LPFM service did not impede the development of in-band on-channel (IBOC) digital audio broadcasting (DAB) technologies. Both USA Digital Radio Partners, L.P. (USADR) and Lucent Digital Radio (LDR) have expressed concern about the robustness of their technologies with respect to 2<sup>nd</sup> adjacent channel signals, including LPFM signals. However, neither proponent raised concerns about 3<sup>rd</sup> adjacent channel operations and USADR has stated that “digital reception is essentially not susceptible to 3<sup>rd</sup> adjacent channel interference.”<sup>74</sup> On this basis, the Commission concluded that the LPFM operations on 3<sup>rd</sup> adjacent channels will not have an adverse impact on digital IBOC signals.<sup>75</sup>

57. Neither USADR nor LDR seeks reconsideration of our decision not to establish 3<sup>rd</sup> adjacent channel protection standards for LPFM stations. NPR, however, argues that the technical standards adopted in the *Report and Order* fail adequately to assure the compatibility of LPFM and a future DAB service. It urges the Commission to retain full service 3<sup>rd</sup> adjacent channel interference protections or to authorize LPFM stations “on a secondary basis to all full power, translator, and booster stations operating pursuant to a DAB authorization.”<sup>76</sup> We believe that such additional restrictions on LPFM licensing are unwarranted. The *Report and Order* takes a technically conservative approach to minimize potential impacts on terrestrial digital radio services. The retention of 2<sup>nd</sup> adjacent channel protections, the additional 20-kilometer buffer zone protection afforded all full service stations operating on co- and 1<sup>st</sup> adjacent channels, and the decision not to create a 1000-watt class of LPFM stations collectively demonstrate the Commission’s commitment to ensuring a smooth transition to DAB. We believe that we have incorporated sufficient protections into our LPFM technical rules and, therefore, reaffirm our prior conclusion that LPFM is very unlikely to impede the development of a DAB service or cause interference in particular cases to digital IBOC signals.

### B. Third Adjacent Channel Complaint and License Modification Procedure

58. Based on the Commission’s technical analyses and its review of several independent studies submitted in this proceeding we decided not to require LPFM stations to provide 3<sup>rd</sup> adjacent channel protection to full power stations. As discussed above, no issues have been raised on reconsideration that

---

<sup>74</sup> *Report and Order*, 15 FCC Rcd at n.145.

<sup>75</sup> *Report and Order*, 15 FCC Rcd at 2241, ¶ 93.

<sup>76</sup> NPR Petition at 25.



have persuaded us to reconsider our findings and conclusions on this matter.<sup>77</sup> We continue to believe that the risk of interference from LPFM stations is small, and that the interference that may occur in individual cases would be vastly outweighed by the benefits of initiating a new service that will create new outlets for locally based community-oriented voices.

59. National Public Radio (NPR) urges the Commission to adopt an expedited process for the review of complaints of alleged interference to full power stations caused by LPFM stations operating on third adjacent channels. NPR proposes a pre-license complaint procedure, stating that “the Commission should implement a process that permits the challenge and denial of an LPFM application on a 3rd adjacent channel at the initial processing stage...”<sup>78</sup> In the alternative, however, NPR proposes that the Commission adopt rules that would allow a “licensee of a full power, translator, or booster station to file an interference complaint at any time after final licensing of the facility LPFM operation.”<sup>79</sup>

60. As a preliminary matter, we reject NPR’s pre-license predicted interference complaint procedure because it is in fundamental conflict with our conclusion that the benefits of this new service far outweigh the isolated instances of interference that may occur. **We continue to adhere to this policy judgment.** Our studies establish that FM receiver performance varies widely. Many receivers are highly immune to 3rd adjacent channel interference while poorer quality receivers may experience some additional interference from the operation of LPFM stations. Moreover, as noted in the *Report and Order*, any interference would most likely occur in a small area in the immediate vicinity of the LPFM transmission facility that is, itself, located at the outer edge of a full power FM station’s service area. Listeners using low-end receivers are unlikely to experience “actual interference” in such a situation because in locations at the outer edge of a station’s service area those receivers probably are not able to receive that station.

61. We concluded in the *Report and Order* that the licensing of LPFM stations on 3<sup>rd</sup> adjacent channels would not result in significant new interference to existing FM stations, *i.e.* that very few listeners would be able to detect additional interference as a result of commencement of LPFM service on a 3<sup>rd</sup> adjacent channel. Although we expect it to be the rare case where an LPFM station operating on a 3<sup>rd</sup> adjacent channel causes more than a *de minimis* level of interference within the service area of a full power station protected by the distance separation requirements for other channel relationships, such a result would be unacceptable if it were to occur. Accordingly, we conclude on reconsideration that it would be prudent to establish procedures that would encourage cooperation between the parties and permit the Commission to take prompt remedial action where a significant level of interference can be traced to the commencement of broadcasts by a new LPFM station. As a result of these new procedures, there may be circumstances where, contrary to what we said in the *Report and Order*,<sup>80</sup> an LPFM station will be required to take steps to resolve complaints that its signal is interfering with the reception of a full power FM station even though the LPFM station is operating in accordance with the relevant rules.

---

<sup>77</sup> See discussion in ¶ 5-18.

<sup>78</sup> NPR Petition at 13.

<sup>79</sup> *Id.*

<sup>80</sup> *Report and Order*, 15 FCC Rcd at 2282, ¶ 64.

62. This marks the first time that the Commission has departed from a purely “predicted interference” approach for an aural service that has program origination authority and that enjoys certain protections generally thought of as “primary” stations rights. Our willingness to do so is based on a unique combination of factors. Most importantly, we are confident about the technical conclusions we have reached in the proceeding. Specifically, we continue to believe that it is unlikely that more than a few listeners will detect any additional interference to the reception of an existing FM station at locations that would be entitled to protection under our full power third adjacent channel interference methodology. Thus, the post-construction “actual interference” complaint procedure we are establishing should not pose a significant threat to the viability or stability of the LPFM service.

63. Moreover, an efficient complaint procedure will promote the fullest interference-free use of the FM broadcast spectrum. At this time there are few, if any, full power FM station opportunities in most of the highly populated areas of the country. In fact, staff studies in this proceeding establish that there are no available FM channels for LP100 stations in a number of major markets. In many communities broadcasters have fully taken advantage of the Commission’s policy of licensing efficient high-power stations that serve wide areas with limited technical preclusiveness. As a result, most Americans enjoy abundant radio service. LPFM is not, as some argue, in conflict with these principles. Rather it is a complementary way to serve the needs of communities within a mature broadcast service. It is grounded on the success of the Commission’s licensing policies and is designed to efficiently match the little spectrum that remains with the demonstrable demand for locally based programming. We conclude that an efficient, limited complaint procedure fairly balances the interests of incumbent broadcasters against the benefits of fostering a new and different kind of radio service.

64. For purposes of the complaint process we will consider interference to occur whenever reception of a full power station is impaired by the operation of an LPFM station operating on a third adjacent channel station. We believe that it is unnecessary to adopt a more technically objective standard for determining whether a listener is experiencing “actual” interference. The “any impairment” standard has worked successfully over the past decade in the FM translator context.<sup>81</sup> A particular listener’s perception of signal impairment is dependent on many factors, including the receiver used, the programming, listener sound quality expectations, and listener auditory discrimination capabilities. As a result, we are reluctant to adopt a single “objectionable interference” standard. We are also concerned that this approach could add a level of factual complexity to the complaint process set forth below without any clear public interest justification.

65. The complaint process may be invoked where an LPFM station’s transmission facilities are located inside the predicted 60 dBu contour of an existing full power FM station operating on a 3rd adjacent channel<sup>82</sup>; that is, the 60 dBu contour corresponding to the station facilities that existed at the time construction of the LPFM station was authorized.<sup>83</sup> Complaints will be limited to receivers located at

---

<sup>81</sup> See 47 C.F.R. § 74.1203.

<sup>82</sup> Predicted 60 dBu contours must be calculated in accordance with 47 C.F.R. § 73.313(a).

<sup>83</sup> That contour, which encompasses the area that would have been protected had a 3<sup>rd</sup> adjacent channel distance separation requirement been applied to LPFM stations, will bound the complaint area. With regard to LPFM protection of subsequently modified, upgraded, or new full-service FM stations, we will conform 3<sup>rd</sup> (continued....)

fixed, identifiable locations within the full power station's 60 dBu contour that are not more than one kilometer from the LPFM transmitter site. This geographic limitation is intended to address broadcasters' specific concern about the lack of LPFM station 3rd adjacent channel interference protection requirements. An LPFM station's interfering contour would extend slightly less than one kilometer from the LPFM transmitter site.<sup>84</sup> The fixed receiver requirement is based on our desire to put in place a manageable and efficient complaint procedure. Mobile receiver complaints are generally much more difficult to identify and resolve. A mobile receiver, such as a car or portable radio, will encounter constantly varying signal strengths from various stations, resulting in a continuously variable potential for interference.<sup>85</sup> The complaint must be received by either the LPFM or full power station within one year of the date on which the LPFM station commenced operation. This time frame is necessary to limit uncertainty regarding the potential modification or cancellation of an LPFM station's license and such station's financial obligation to resolve interference complaints. Any interference caused by the LPFM station should be detectable within one year after it commences operation. The one-year cure period is similar to the technical requirement that each FM permittee resolve at its sole expense all blanketing interference complaints for a one-year period beginning with the commencement of program tests.<sup>86</sup> The Commission will consider the modification of a station's license, including its cancellation, where as a result of the process described below, *bona fide* complaints from at least one percent of the households or thirty households, whichever is less, within the specified complaint area remain unresolved.<sup>87</sup> We do not anticipate this level of interference as a result of licensing LPFM stations on 3<sup>rd</sup> adjacent channels and will not consider it *de minimis*.

66. The first stage of the complaint process is designed to facilitate cooperative efforts between LPFM and full power FM licensees to identify and resolve *bona fide* interference complaints. A listener who believes that an LPFM station signal is interfering with the reception of a full power station may initiate the complaint procedure by providing the full power station an affidavit that describes the nature  
(Continued from previous page) \_\_\_\_\_

adjacent channel protection responsibilities to the generally applicable provisions in ¶ 66 of the *Report and Order* and as codified in 47 C.F.R. § 73.809. In this manner, operating LPFM stations will be permitted to interfere within the 60 dBu contour of a new or subsequently modified FM station, but not within such a station's 70 dBu "city grade" signal contour or principal community of license, as applicable (*see* discussion of service area issues, above).

<sup>84</sup> Under the Commission's interference methodology for FM stations, 3<sup>rd</sup> adjacent channel interference is predicted where the undesired signal is more than 40 dB stronger than the desired signal level, *e.g.*, where the 3<sup>rd</sup> adjacent channel station's 100 dBu contour overlaps the desired signal level. *See, e.g.*, 47 C.F.R. § 73.509. The predicted 100 dBu contour of an LPFM station operating at maximum facilities would extend slightly less than one kilometer from the LPFM's transmitter site.

<sup>85</sup> Because of these complexities, the Commission generally does not hold an FM radio station responsible for alleviating interference problems caused to mobile receivers.

<sup>86</sup> *See* 47 C.F.R. § 73.318.

<sup>87</sup> The exact number of complaints necessary to satisfy this one-percent threshold can only be calculated on the basis of a specific antenna location of an allegedly interfering LPFM station. Assuming uniform population distribution within a community of license, the number of complaints necessary to reach this threshold would be, for example, approximately 19 in Charlottesville, Virginia, 29 in Minneapolis, Minnesota, and 12 in Frederick, Maryland. As noted above, in no event would this procedure require more than 30 *bona fide* complaints.

and location of the alleged interference. LPFM stations receiving complaints directly from listeners will be required to forward promptly such complaints to the affected full power FM stations. The full power FM station will be required to identify those complainants who reside at locations covered by these procedures, and provide copies of all such *bona fide* complaints to the LPFM station. Initially, an LPFM station will have the opportunity to resolve individual interference complaints. For example, an LPFM station may agree to provide new receivers to impacted listeners or to install filters at the receiver site. The LPFM station also may wish to consider a power reduction or other facility modification to alleviate the interference. We expect the LPFM station to make serious and diligent efforts to resolve each *bona fide* complaint received.

67. In the event that the LPFM station concludes that it is not the source of the interference and the number of unresolved complaints equals at least one percent of households or 30 households -- whichever is less -- in the complaint area, the LPFM and full power stations must cooperate in an “on-off test” to determine whether the interference is traceable to the LPFM station. To the extent necessary and where practical, we instruct our Enforcement Bureau field personnel to assist the parties in determining the source of the interference and identifying possible solutions. The Commission will consider a complaint resolved if the complainant does not reasonably cooperate with the LPFM station’s investigatory and remedial efforts. If the licensees fail to reach agreement and the requisite number of complaints remain unresolved, the full power FM station licensee may request that the Commission initiate a proceeding to consider whether the LPFM station’s license should be modified or cancelled. To expedite this process, LPFM licenses will include a condition permitting the Commission to modify or cancel such licenses where the Commission determines that the LPFM station is causing more than *de minimis* levels of 3rd adjacent channel interference to the reception of a full power FM station in the complaint area, *i.e.*, where the number of *bona fide* complaints meets or exceeds the one-percent-of-households or thirty-households threshold set forth above. This modification procedure will be conducted pursuant to 47 U.S.C. § 316 and any such modification proceeding will be completed within 90 days of the filing of the complaint with the Commission, provided that the parties may seek extensions of this deadline consistent with our procedural rules.

68. An LPFM station may stay this procedure by voluntarily ceasing operations and filing a “displacement” application on Form 318 within twenty days of the commencement of this modification procedure. A displacement application may propose a station relocation and/or channel change to any available channel. It will be treated as a “minor” change that is not subject to competing applications, provided that a requested LP100 station site change is not greater than 2 kilometers or, in the case of an LP10 station, 1 kilometer.

### C. Classes of Service

69. The *Report and Order* established two classes of LPFM stations. LP100 stations will be authorized to operate with maximum facilities of 100 watts effective radiated power (ERP) at 30 meters (100 feet) antenna height above average terrain (HAAT). LP10 stations will be licensed with the equivalent of 10 watts ERP at 30 meters HAAT. The Commission declined to create a 1000 watt class of low power stations because of potential interference concerns, and because it determined that LP100 and

LP10 stations would create more opportunities for community-oriented service.<sup>88</sup>

70. Skinner urges us to reconsider our decision not to authorize 1000 watt stations, because he believes that restricting LPFM stations to lower power operation will adversely affect their economic viability. He argues that 1000 watt stations should be allowed in areas where it could be shown that operation would be possible without the creation of prohibited contour overlap.<sup>89</sup> We continue to believe for the reasons stated in the *Report and Order* that the combination of LP100 and LP10 stations will best promote the goals of a community-based radio service.<sup>90</sup> Moreover, we believe that our reasons for rejecting a contour protection methodology for protecting stations from interference<sup>91</sup> is even more compelling with regard to higher power LPFM stations. Skinner has not provided any additional information that would lead us to reconsider these conclusions.

71. Our conclusion that licensing these two classes of service at this time would serve the public interest is warranted by changes in the radio industry. In the past we have struck the balance in favor of licensing higher powered stations to ensure that large audiences were served.<sup>92</sup> Now, when radio service is widely available throughout the country and very little spectrum remains available for new full-powered stations, we conclude that licensing very low powered stations will fill in the gaps in the spectrum that would otherwise go unused. This will maximize the use of the available spectrum, rather than create the inefficiencies we sought to avoid in the past.<sup>93</sup> Consistent with this approach, we are licensing LP100 stations before LP10 stations. As we stated in the *Report and Order*, [w]e adopt this sequential process in order to provide the larger (100 watt) stations with their greater service areas the first opportunity to become established. Given that some LP10 stations can be sited where LP100 stations cannot, we expect that opportunities will remain for LP10 stations after the initial demand for LP100 stations has been accommodated. Additionally, our own resources will be better spent *first* advancing services to relatively greater areas.<sup>94</sup> Our decision to begin licensing low power FM radio stations at this time is also in response to the dramatic changes in the radio industry during the last four years since our radio multiple

---

<sup>88</sup> *Report and Order*, 15 FCC Rcd at 2211, ¶ 11.

<sup>89</sup> Skinner Petition at 7.

<sup>90</sup> *Report and Order*, 15 FCC Rcd at 2211, ¶ 12.

<sup>91</sup> *Id.* at 2233, ¶ 70.

<sup>92</sup> *In re Revision of FM Broadcast Rules*, 21 RR 1655 ¶ 7 (1961); *In re Revision of FM Broadcast Rules*, 23 RR 1859, ¶ 19-20 (1963); *In re Changes in the Rules Relating to Noncommercial Educational FM Broadcast Stations*, 69 FCC 2d 240, ¶ 23-24 (1978).

<sup>93</sup> In the past, we have declined to authorize low power FM radio broadcast stations because of our concern that they would "preclude the establishment of more efficient, stable, full powered stations." *Dunifer*, 11 FCC Rcd 718, ¶ 15 (1995). At this time, however, we are creating an LPFM service that is designed to allow small stations to operate where full powered stations cannot. Moreover, we have adopted rules to ensure that the operation of LPFM stations does not undermine the technical integrity of the existing FM radio service.

<sup>94</sup> *Report and Order*, 15 FCC Rcd at 2211, ¶ 11 (emphasis added).

ownership limits were relaxed pursuant to the 1996 Act.<sup>95</sup> Given the substantial consolidation of radio station ownership in recent years, the need for adding diverse voices to the airwaves has grown. Because we have concluded that taking this step will not undermine our spectrum efficiency goals, we affirm our decision to create these two new classes of FM radio service.

#### **D. Noncommercial Nature of LPFM Service**

72. In the *Report and Order*, we determined that only noncommercial educational entities would be eligible to hold LPFM licenses. Skinner argues that restricting the service to noncommercial service reduces LPFM stations' economic viability and eliminates a potential advertising medium for small businesses.<sup>96</sup>

73. Our goals in establishing the LPFM service were to create opportunities for new voices on the airwaves and to allow local groups, including schools, churches, and other community-based organizations, to provide programming responsive to local community needs and interests.<sup>97</sup> As discussed extensively in the *Report and Order*, although we considered the entrepreneurial opportunities a commercial LPFM service would create, we concluded that a noncommercial service would best serve the Commission's goals in this proceeding. Skinner has not persuaded us to alter that decision.

74. Amherst Alliance requests that the Commission clarify that "entertainment"<sup>98</sup> programming can qualify as "educational" under the Commission's rules.<sup>99</sup> As discussed in the *Report and Order*, we have not required that programming be exclusively educational for an entity to qualify as an NCE entity eligible for non-commercial licenses.<sup>100</sup> In 1998 the Commission stated with regard to full power NCE stations that "NCE stations must promote a primarily educational purpose and not air commercials. Within those limits, there are many programming choices on NCE stations, such as instructional programs, programming selected by students, bible study, cultural programming, in-depth news coverage, and

---

<sup>95</sup> The 1996 Act eliminated the Commission's national ownership limits and relaxed the local radio ownership limits. In response, the radio industry has consolidated ownership during the past four years, with the number of radio owners declining by approximately 1000. In 1996, the largest radio group owner had fewer than 40 radio stations nationwide. In March 2000, the two largest radio group owners each have over 440 radio stations, and there are several radio owners with more than 100 radio stations. Approximately two-thirds of all commercial radio stations are owned as a part of radio groups. *FCC Staff Analysis of BIA Master Access*, BIA research, Inc., March 2000.

<sup>96</sup> Skinner Petition at 7.

<sup>97</sup> *Report and Order* at 2213, ¶ 17.

<sup>98</sup> Amherst Alliance Petition at 9-11.

<sup>99</sup> *Report and Order*, at 2213-14, ¶¶ 17-20.

<sup>100</sup> *Id.* at 2214, ¶ 20 ("it is not necessary that the proposed programming be exclusively educational," citing *Memorandum Opinion and Order*, In re Application of Lower Cape Communications, Inc., FCC 80-453, 47 RR 2d 1577, 1579 (1980)).

children's programs such as Sesame Street that entertain as they teach."<sup>101</sup> We will apply the same standards we have applied to full power NCE stations to LPFM stations.

75. Specific questions were raised as to whether Indian tribes may apply for LPFM stations, or whether only their educational institutions may apply. As long as they meet the NCE criteria and other eligibility rules applicable to all applicants, Indian tribes may apply for LPFM construction permits. We have granted NCE radio station licenses to Indian tribes and to educational institutions operated by Indian tribes and thus, this LPFM eligibility rule follows current policy. We will apply the NCE criteria to Indian tribe applicants -- and all applicants -- in the same manner in LPFM as we have in the existing FM radio service.

## **E. Ownership and Eligibility**

### **1. Local Ownership Restrictions**

76. In the *Report and Order* we prohibited common ownership of more than one LPFM station in the same area and cross-ownership of *any* LPFM by any other broadcast station, including translator and low power television stations, as well as other media subject to our ownership rules.<sup>102</sup> Lawson & Langford request that AM licensees be permitted to file LPFM applications, in part, they argue, because of the higher number of minorities that are AM station licensees.<sup>103</sup> As discussed extensively in the *Report and Order*,<sup>104</sup> we believe that strict ownership rules are an important mechanism for assuring the diversity of ownership that is so critical to this service. We concluded that the interest in bringing new voices to the airwaves would be best served by barring cross-ownership between LPFM licensees and existing broadcast owners and other media entities. We believe that the rules we have adopted for the LPFM service -- *including* the strict cross ownership ban -- will lead to more access by all segments of the population to the airwaves. We will, therefore, maintain the cross-ownership restrictions set forth in the *Report and Order*.<sup>105</sup> As noted in the *Report and Order*, if a licensee of an AM station (or any other station) agrees to divest its interest in its license upon grant of the LPFM license, it may apply for an LPFM license.

77. Cohn & Marks ask us to clarify that an entity may hold both an ITFS license and an LPFM license. Cohn & Marks state that many universities and colleges hold ITFS stations, which transmit a signal to fixed receiving locations and may only be used to transmit formal educational programming offered for credit to enrolled students of accredited schools. We clarify that ITFS is neither a broadcast service nor other "media subject to our ownership rules" and is therefore not encompassed by the LPFM

---

<sup>101</sup> *Further Notice of Proposed Rulemaking*, In the Matter of Reexamination of the Comparative Standards for Noncommercial Educational Applicants, 13 FCC Rcd 21167, 21168 (n.2) (1998).

<sup>102</sup> *Report and Order*, 15 FCC Rcd at 2216-18, ¶ 26-30.

<sup>103</sup> Lawson & Langford Petition at 3.

<sup>104</sup> *Report and Order*, 15 FCC Rcd at 2217-18, ¶¶ 29-30.

<sup>105</sup> Lawson & Langford alternatively request that AM stations be allowed to provide programming and other support to LPFM stations. This would only be permissible if it did not violate the ban on rebroadcasting or other rules, such as the restriction of LPFM to noncommercial, educational service.

cross-ownership restrictions.<sup>106</sup>

## 2. National Ownership Limit

78. The Commission established a staged national ownership rule. For the first two years after a filing window opens, an entity may own only one LPFM station. After the first two years we will allow one entity to own up to five stations nationwide; after three years, we will allow an entity to own up to ten stations nationwide. The purpose of this staged approach is to foster diversity by initially disallowing common ownership of LPFM stations, but eventually permitting common ownership where local applicants fail to come forward.<sup>107</sup> As noted above, since adoption of the *Report and Order* we adopted staggered filing windows based on geographic regions. We clarify that this two year limitation -- as well as other time periods tied to the opening of a filing window -- will begin to run in a geographic region based on the opening of that region's filing window.

79. *Public Safety and Transportation.* In addition to NCEs, state or local governments or not-for-profit organizations that operate public safety or emergency services<sup>108</sup> are also eligible owners for LPFM licenses.<sup>109</sup> The NYSTA requests that the Commission relax the national ownership rules to allow such government, public safety and transportation entities, such as itself, to hold multiple licenses.<sup>110</sup> It argues that in order to disseminate traffic, safety, and other information over a large geographic area, these entities should be able to operate a string of stations along certain roadways. Upon reconsideration, we will allow government, public safety and transportation entities to apply for more than one license without waiting for the expiration of the two year period where no mutually exclusive application is filed in the same window. We agree that government, public safety and transportation agencies have separate and distinct needs from other local organizations that might seek LPFM licenses.<sup>111</sup> However, we need to balance those needs with our goal of LPFM ownership diversity. We believe that allowing a limited exception to the ownership restrictions for government, public safety and transportation entities where they

---

<sup>106</sup> The Commission has maintained that ITFS licensees are not broadcasters for the purposes of regulation. 47 U.S.C. § 153(o).

<sup>107</sup> *Report and Order*, 15 FCC Rcd at 2222, ¶ 39.

<sup>108</sup> These eligible services are defined in Section 309(j)(2)(A) of the Communications Act as “public safety radio services, including private internal radio services used by State and local governments and non-government entities and including emergency road services provided by not-for-profit organizations, that – (i) are used to protect the safety of life, health, or property; and (ii) are not made commercially available to the public.” 47 U.S.C. § 309(j)(2)(A).

<sup>109</sup> NPR argues that the Commission authorized LPFM “travel advisory services” without consideration of the technical and feasibility issues relevant to such a service. NPR Petition at 6. These entities will have to comply with the technical rules applicable to all LPFM licenses; thus, we have no reason to believe this use of the service will cause technical difficulties. As to feasibility issues, we trust that the entities themselves can best determine whether LPFM licenses will serve their needs.

<sup>110</sup> NYSTA Petition at 4 and 6 (seeking relaxation of 10-station national cap as well as 2-year 1-station national cap and phase-in caps).

<sup>111</sup> NYSTA Petition at 7.



do not face competing applications strikes the right balance.

80. Thus, we will allow government, public safety and transportation organizations to apply for more than one license, but they must designate a “priority” application among those applications. The “priority” application will undergo the usual selection process as outlined in the *Report and Order* whether or not it encounters mutually exclusive applicants. The other applications they submit will be dismissed if they are mutually exclusive with any other applications but will be eligible for grant in the absence of competing applications.

81. *Schools with Multiple Campuses.* Several schools with multiple campuses sought clarification of the national ownership rules to permit the separate licensing of LPFM stations at several campuses. We believe the LPFM attribution exception should be expanded to cover separate school campuses in most cases, allowing schools to have LPFM stations on separate campuses notwithstanding our national ownership rule.<sup>112</sup> For example, if several high schools in an area seek LPFM licenses but are all governed by a local school board, the high schools can assert that they are local chapters of a large organization and can apply for their own licenses. If multiple campuses of the same university apply for LPFM licenses, they too would be considered separate local entities under that exception. The same principle will apply to charter schools that are a part of a larger school system but seek their own licenses.

### 3. University-Licensed Student-Run LPFM Stations

82. As noted above, in the *Report and Order*, we determined that no broadcaster or other media entity subject to our ownership rules, or any party with an attributable interest in a broadcaster or media entity subject to our ownership rules, could hold an attributable ownership interest in an LPFM licensee.<sup>113</sup> Moreover, we restricted local ownership, allowing an entity to own only one LPFM station in a community.<sup>114</sup> Finally, for purposes of our national ownership limits, an entity may own only one LPFM station during the first two years of LPFM service.<sup>115</sup>

83. Two petitioners ask us to create an exception to these LPFM multiple and cross-ownership rules to allow universities that hold full-power FM radio licenses to obtain LPFM licenses for student-run

---

<sup>112</sup> This LPFM exception is inapplicable to full service NCE stations, for which there are no national ownership limits. Schools with multiple campuses applying for full service NCE stations are directed to the definition of attribution and the selection standards in 47 C.F.R. § 73.7000 and § 73.7003. *Report and Order*, 15 FCC Rcd at 2225, ¶ 50.

<sup>113</sup> *Id.* at 2217, ¶ 29.

<sup>114</sup> *Id.* at 2223, ¶ 44. We use the term “community” to refer to the very small area and population group that makes up a station’s potential service area and audience. *Id.* For purposes of the LPFM local ownership rules, we require that no entity own or have an attributable interest in two or more LPFM stations located within seven miles of each other. *Id.*

<sup>115</sup> *Id.* at 2222, ¶ 39. While we will disallow common ownership of LPFM stations for the first two years of LPFM service, we will permit multiple ownership of LPFM stations nationally, up to a maximum of 10 LPFM stations over a phased-in period, to bring into use whatever low power stations remain available but unapplied for. *Id.*

stations.<sup>116</sup> Specifically, petitioners contend that our LPFM ownership rules preclude students from operating a university-licensed LPFM station where the university already holds licenses for radio broadcast stations, including NPR affiliated stations. Petitioners argue that students are not permitted to participate in the operation of these full-power stations and that our LPFM ownership rules deny students the opportunity to operate LPFM stations.<sup>117</sup> UCC supports an exception for student organizations cautioning the Commission “to place strict limits on what constitutes a student-run station,” but not to “limit university support for student-run LPFM stations.”<sup>118</sup>

84. We will allow universities that hold licenses for full-power broadcast stations that are not student-run to apply for LPFM licenses for stations that would be managed and operated on a day-to-day basis by students, provided that they do not face any competing applications. We find that allowing this limited exception to our LPFM ownership rules will promote our goals of maximizing diversity of ownership in a community and providing a medium for new speakers, including students, to gain experience in the broadcast field. Accordingly, if a university’s full-power station does not provide the university’s students with a meaningful opportunity to participate in the management and operation of that station, we will allow the university to apply for a license for a student-run LPFM station on that campus.<sup>119</sup> If a license is granted, the station must be managed and operated by students of the university, although as the licensee, the University must retain ultimate control of the station’s operations. However, in those cases where a university already holds an attributable interest in a broadcast station, its LPFM application will be eligible for grant only if it does not face competing applications. If the university is a

---

<sup>116</sup> Black Petition; *Petition for Reconsideration* of Michael Camarillo, on Behalf of KAMP Student Radio of the University of Arizona (Camarillo Petition).

<sup>117</sup> Black argues that because the Board of Regents for the University of Wisconsin holds licenses for campus stations and NPR affiliates at various campuses in the University of Wisconsin system, our ownership rules “disenfranchise” those students who would like to obtain an LPFM license for the Madison campus. Black Petition at 1-2. Black states that the Madison campus has a constituency of more than 40,000 students, and the capability and resources to operate a student-run LPFM station 24 hours per day, seven days per week. *Id.* at 1. Another petitioner, Camarillo, states that KAMP Student Radio is ineligible under our ownership rules for an LPFM license because the “Arizona Board of Regents holds several operating licenses in the state and three of the Board of Regent’s NPR licenses are located at the University of Arizona.” Camarillo Petition at 1. According to Camarillo, the NPR station at the Tucson campus “is not a student-run organization, and students attending the university do not benefit from its operation by being able to express themselves over the station airwaves.” *Id.*

<sup>118</sup> UCC Opposition at 8-9.

<sup>119</sup> See ¶ 80 (stating that individual campuses of a single university system would be considered a separate local entity under the attribution exception for national or other large organizations). We note that many AM campus radio systems use carrier current technology where the radio signal is carried along electrical power lines. *In the Matter of 1998 Biennial Regulatory Review – Conducted Emissions Limits Below 30 MHz for Equipment Regulated under Parts 15 and 18 of the Commission’s Rules*, ET Docket No. 98-80, *Notice of Inquiry*, FCC 98-102, 1998 WL 292826, ¶ 5 (June 8, 1998); 47 C.F.R. § 15.3(f). The exception we are creating today to our ownership rules applies where the university already holds a license for a full-power broadcast station that does not provide students with the opportunity to manage and operate the station. We will not consider campus carrier current systems in determining whether to grant an LPFM license under this exception because those systems are neither broadcasters nor other media entities subject to our ownership rules.

licensee and its LPFM application faces a competing application, the university's LPFM application will be dismissed.<sup>120</sup> We believe this exception properly balances the interests of local groups in acquiring a first broadcast facility and of university licensees that desire to provide a distinct media outlet for students.

#### 4. Time Periods for the Community-Based Requirement and for the National Ownership Cap

85. In the *Report and Order*, the Commission established a two-year time period during which only local, community-based applicants are eligible, and an entity can only own one station nationwide. UCC asks that we extend both of these time periods in order to give more local groups enough time to organize and submit their applications.<sup>121</sup>

86. We deny UCC's request that we extend the two-year time periods for the community-based requirement and the national cap. We considered UCC's concerns when we adopted the *Report and Order* and concluded that we struck an appropriate balance between the interests of local groups and the interest in insuring that the service is used fully.

87. When deciding on the two-year time period for the community-based requirement, we weighed our interest in putting LPFM stations into the hands of local and diverse entities against our interest in ensuring that available spectrum does not go unused. As noted above, we have adopted a staggered filing window approach for accepting LPFM applications based on geographic region. We clarify that the two-year period for the community-based requirement for each jurisdiction starts on the date of the filing window for that jurisdiction. Therefore, in Alaska, California, District of Columbia, Georgia, Indiana, Louisiana, Maine, Mariana Islands, Maryland, Oklahoma, Rhode Island and Utah, for which we opened a filing window on May 30, 2000, the two-year period began running on that date. In the remainder of the jurisdictions, in which LPFM filing windows have not yet opened, the two-year period has not yet begun to run. Thus, applicants in these jurisdictions that have not yet had a filing window will have additional time to organize and prepare their applications. Amherst argues that it will take longer than two years for groups to organize themselves and apply for licenses. We believe that the simplified application process we created for LPFM will ameliorate this concern.

88. With regard to the two-year time period for the national ownership cap, UCC argues that national entities do not have the "experience and connections with a tiny 3 or 7 mile area of a neighborhood necessary to serve that neighborhood."<sup>122</sup> They seem to be arguing against allowing national entities to

---

<sup>120</sup> We note that our decision is based on petitioners' request that the university be able to hold the student-run LPFM license. Black argues that the university must hold the license to provide the students with the "oversight, continuity, and institutional support they need." Black Petition at 1. Specifically, Black asserts that the university must be able to insure the station and provide students with needed legal advice. *Id.* While this exception applies to the situation where a university holds a license for a full-power broadcast station that does not provide students with the opportunity to manage and operate the station, we note that students or student organizations may apply for an LPFM license that is not associated with the university.

<sup>121</sup> UCC Petition at 4.

<sup>122</sup> Amherst Petition at 5.

hold licenses at all, rather than arguing against the two-year time period for the national ownership cap. Amherst's arguments do not convince us that our decision to maintain a two-year time period was imprudently made.

## 5. Foreign Ownership and Non-Stock Entities

89. Questions have arisen with respect to the application of statutory foreign ownership requirements to LPFM applicants and licensees. As we explained in the *Notice*,<sup>123</sup> all low-power facilities will be subject to the statutory requirements of Section 310(b) of the Act, which limits foreign ownership and voting interests in radio station licenses, including broadcast licenses.<sup>124</sup> Sections 310(b)(1) and (b)(2) prohibit the grant of a license to a foreign government or a representative of a foreign government; an alien or representative of an alien; or a corporation organized under the laws of a foreign government.<sup>125</sup> While foreign parties may act as officers or directors of corporate licensees,<sup>126</sup> Section 310(b)(3) prohibits foreign entities from owning or voting more than 20 percent of the capital stock of a broadcast licensee.<sup>127</sup> Section 310(b)(4), which limits foreign ownership in parent corporations, allows us to deny a license application, upon a determination that denial is in the public interest, where more than 25 percent of the parent corporation's capital stock is owned or voted by foreign entities.<sup>128</sup> The Commission has determined that Section 310(b) applies not only to corporate interests, but also to partnership and other non-corporate interests.<sup>129</sup> Thus, we will apply our foreign ownership rules and policies on a case-by-case basis to all entities that are LPFM applicants and licensees, guided by Commission precedent.

---

<sup>123</sup> *Notice of Proposed Rule Making*, 14 FCC Rcd at 2496-97.

<sup>124</sup> 47 U.S.C. § 310(b). Section 310(b) also limits foreign ownership in common carrier, aeronautical en route and aeronautical fixed radio station licenses. *Id.*

<sup>125</sup> 47 U.S.C. § 310(b)(1) and (2).

<sup>126</sup> Telecommunications Act of 1996, Pub. L. No. 104-104, § 403(k), 110 Stat. 56 (1996); *In the Matter of Amendment of Parts 20, 21, 22, 24, 26, 80, 87, 90, 100, and 101 of the Commission's Rules to Implement Section 403(k) of the Telecommunications Act of 1996, Order*, 11 FCC Rcd 13072 (1996) (*Citizenship Requirements Order*). Prior to enactment of the Telecommunications Act of 1996, Section 310(b)(3) precluded a license from being granted to a corporation with any foreign officers or directors, and Section 310(b)(4) provided that the Commission could deny an application or revoke a license where any officer of the parent corporation is a foreign party. *Citizenship Requirements Order*, 11 FCC Rcd at 13073, ¶ 2.

<sup>127</sup> 47 U.S.C. § 310(b)(3). If either the foreign ownership or voting interest in an applicant or licensee exceeds the 20 percent benchmark, we are required by law to revoke the license or refuse to grant the license application. In the Matter of Request for Declaratory Ruling Concerning the Citizenship Requirements of Sections 310(b)(3) and (4) of the Communications Act of 1934, as amended, *Declaratory Ruling*, 103 F.C.C. 2d 511, 517-18, ¶ 12 & n.33, 520, ¶ 16 (1983) (*Wilner and Scheiner I*), clarified upon reconsideration, 1 FCC Rcd 12 (1986).

<sup>128</sup> 47 U.S.C. § 310(b)(4).

<sup>129</sup> See *Wilner and Scheiner I*, 103 F.C.C. 2d at 514-15, ¶ 7, 516, ¶ 10 (stating that the Commission has applied the strictures of Section 310(b) to a variety of non-corporate entities, including unincorporated associations and partnerships).

90. We recognize that many entities that will hold LPFM licenses will be non-stock corporations or other non-stock entities,<sup>130</sup> and that non-stock entities do not have “owners” in the traditional sense. As the Commission has explained, the specific citizenship requirements of Section 310(b) reflect a deliberate judgment on the part of Congress to prevent undue foreign influence in broadcasting.<sup>131</sup> Thus, for the purpose of determining whether a non-stock LPFM applicant or licensee complies with the statutory foreign ownership requirements, we will first consider the citizenship of those individuals who would have the ability, comparable to that of a traditional owner, to influence or control the licensee. In making these determinations we will be guided by Commission precedent.

91. An applicant or licensee must directly inform us that an ownership structure may or does in fact exceed the foreign ownership benchmarks in Section 310(b) of the Act.

## 6. Minority Broadcast Training Institutions

92. Minority Media and Telecommunications Council (MMTC) filed a supplementary pleading contending that the Commission should award the first LPFM licenses exclusively to minority broadcast training institutions (MBTIs). MMTC argues that such a provision is necessary to ensure that MBTIs receive licenses wherever they are available in order to assist them in their mission of educating minorities in broadcasting, to prevent discrimination, to remedy past discrimination and its consequences, and to promote diversity.<sup>132</sup> We decline to grant MMTC’s proposal. First, we do not believe it is necessary to grant MBTIs the right to receive the first wave of LPFM licenses in order to provide them a significant opportunity to participate in LPFM. Although MMTC argues that the chances of MBTIs winning many licenses are remote, it concedes that they would likely be able to earn points under our selection criteria for mutually exclusive applications.<sup>133</sup> Thus, as long as MBTIs agree to time-share or, as a last resort, accept a shorter license term as part of a group, they will be likely to be granted a license under the tie-breaker procedures.<sup>134</sup>

93. Second, although we agree that providing minority broadcast education would be a valuable use of the LPFM service, it is not the only valuable use. We believe our current eligibility rules will lead to the ownership of LPFM stations by a wide variety of groups, which will best promote our goals in this proceeding.

94. Finally, notwithstanding MMTC’s argument that *Adarand Constructors v. Pena*<sup>135</sup> would

---

<sup>130</sup> *Report and Order*, 15 FCC Rcd at 2224, ¶ 49.

<sup>131</sup> *Wilner and Scheiner I*, 103 F.C.C. 2d at 517, ¶ 11.

<sup>132</sup> MMTC later supplemented its pleading with an ex parte letter suggesting that all educational institutions be granted an additional point in the point system for resolving mutually exclusive applications. We consider this issue below in the section on the point system

<sup>133</sup> MMTC Petition at 9.

<sup>134</sup> MMTC argues that time-sharing is impractical for these institutions, but we believe the value of allowing more voices on the air outweighs any procedural hurdles MBTIs must overcome to time-share.

<sup>135</sup> 515 U.S. 200 (1995).

not apply to their proposal, we believe the legal issues underlying the proposal would pose a risk of delaying the introduction of LPFM service to the public. As we stated in the *Report and Order* in response to requests for preferences for entities controlled by minorities, the Commission is conducting fact-finding studies as to whether such preferences may be justified consistent with *Adarand*.<sup>136</sup> Depending on the outcome of these studies, as well as our experience with LPFM, we will consider in the future whether to adjust our rules to facilitate participation of more minority-oriented organizations in the service.

## 7. Unlicensed Broadcasters

95. In the *Report and Order*, we determined that unauthorized broadcasters would not be eligible for LPFM licenses unless they could certify that they (1) promptly ceased operation when directed by the Commission to do so if that direction was received prior to February 26, 1999, or (2) voluntarily ceased operation by February 26, 1999 (within 10 days of the publication of the *Notice* in the *Federal Register*).<sup>137</sup> In no event will an unlicensed broadcaster be eligible for an LPFM license if it continued illegally broadcasting after February 26, 1999.<sup>138</sup> Don Schellhardt requests that we allow unlicensed broadcasters to apply for LPFM licenses if: (1) the unauthorized broadcaster challenged the legality of an FCC order to cease operations and/or sought an injunction to bar the FCC from enforcing such an Order, and (2) the court “allowed” the unlicensed broadcaster to continue operating while the legal challenge was pending.<sup>139</sup>

96. We reject Shellhardt’s request. As discussed in the *Report and Order*, our rule on unlicensed broadcasters was based on our concern that past illegal broadcast operations reflect on the entity’s proclivity to deal truthfully with the Commission and to comply with our rules and policies. We continue to believe that a party that continued to operate in contravention of an FCC direction to cease operations should not be eligible to apply for an LPFM license. Such a party should have ceased its illegal broadcast while pursuing any legal challenge to a Commission order.<sup>140</sup> Any party ignoring our order has demonstrated an unwillingness to comply with the Commission’s rules and thus should not be rewarded with an LPFM license. For the same reasons, we reject Schellhardt’s request that those who flagrantly violated a Commission order to cease operating and “continued to broadcast while in hiding” or after losing a court challenge be eligible for “probationary licenses.”<sup>141</sup>

---

<sup>136</sup> *Report and Order*, 15 FCC Rcd at 2262, ¶ 146.

<sup>137</sup> *Report and Order*, 15 FCC Rcd at 2225-27, ¶¶ 51-55.

<sup>138</sup> We have modified Rule 73.854 to make clear that no unlicensed broadcaster that continued to broadcast after February 26, 1999 will be eligible for an LPFM license.

<sup>139</sup> Schelhardt Petition at 1-2.

<sup>140</sup> We are not aware of any circumstances in which a court has ordered a stay of an FCC order to cease illegal broadcast operations.

<sup>141</sup> Schelhardt Petition at 6.

## F. Point System For Resolving Mutually Exclusive Applications

97. In the *Report and Order*, the Commission created a point system to determine selection among mutually exclusive applications. The point system includes three selection criteria: (1) established community presence; (2) proposed operating hours; and (3) local program origination. The system will employ voluntary time-sharing as an initial tie-breaker; that is, tied applicants will have an opportunity to aggregate points by submitting time-share proposals. Successive license terms will be used as a final tie-breaker.

98. Kenneth Bowles seeks clarification of the local program origination point language.<sup>142</sup> Under the point system, applicants that pledge to originate locally at least eight hours of programming per day will be assigned one point.<sup>143</sup> In the *Report and Order* we defined local origination as the production of programming within 10 miles of the proposed transmitting antenna.<sup>144</sup> Bowles argues that this point should be broadened to include programming that “covers local persons and/or their activities and/or local issues.”<sup>145</sup> We agree with Bowles that our definition of locally originated programming should be clarified, but we find Bowles’ preferred substitute to be too broad and difficult to enforce. In the *Report and Order*, we explained that the local origination criteria

derives from the service requirements for full-service broadcast stations, which are required to maintain the capacity to originate programming from their main studios. LPFM licensees will not be subject to main studio requirements, and will have discretion to determine the origination point of their programming. As a comparative selection factor, local program origination can advance the Commission’s policy goal of addressing unmet needs for community-oriented radio broadcasting. In this regard, we believe that an applicant’s intent to provide locally-originated programming is a reasonable gauge of whether the LPFM station will function as an outlet for community self-expression.<sup>146</sup>

We believe that these goals will be better served by defining local program origination as the production of programming *by the licensee* within 10 miles of the proposed transmitting site. The intent behind awarding a point for pledges to provide such programming is to encourage licensees to maintain production facilities and a meaningful staff presence within the community served by the station. We clarify that this rule does not necessarily preclude an applicant from claiming a point for local origination based on coverage of a high school away game played more than ten miles away (an example Bowles provided), so long as the production involves facilities located within a 10-mile radius of the antenna. By focusing on who is producing the programming and where, the rule does not require the Commission to evaluate the content of the station’s broadcasts to determine their local nature, as Bowles’ proposal would.

---

<sup>142</sup> Bowles Petition at 3.

<sup>143</sup> *Report and Order*, 15 FCC Rcd at 2261, ¶ 144.

<sup>144</sup> *Id.*

<sup>145</sup> Bowles Petition at 3.

<sup>146</sup> *Report and Order* at ¶144.

99. Black seeks reconsideration of the voluntary time-sharing tie-breaker, alleging that the point skews LPFM allocation against stations that could provide 24-hour-per-day programming.<sup>147</sup> We understand that an applicant will have the incentive to propose time-sharing even if it could provide full-day programming in order to maximize its points and increase the likelihood it will be selected. Although this may result in the loss of some valuable programming from a particular source, it will be replaced by programming from a different source. We believe that the benefit of bringing more voices to the radio service outweighs any disadvantages of the time-sharing approach.

100. MMTC argues that all educational institutions should be awarded an extra point in order to ensure that the first wave of LPFM licensees is “seeded” by stable, enduring enterprises that will promote the success and spectrum integrity of the FM service.<sup>148</sup> We will not change the point system to award a greater preference to educational institutions. Educational institutions generally enjoy the ability to achieve the highest comparative advantage available, due to their longevity, community presence, resources, and ability to provide significant amounts of programming and locally-originated programming. They are not, however, the only institutions with such merits. In most cases educational institutions will be able to receive licenses as long as they are willing to time-share.<sup>149</sup> Although some schools might be reluctant to time-share or have to overcome certain internal procedural hurdles to do so, as MMTC argues, the same could probably be said of many other community institutions. Operating on a less than full-time basis would not necessarily significantly diminish their ability to contribute to the community, or, in the case of MBTIs, to train a significant number of broadcast professionals. Moreover, as discussed above, the time-sharing incentives will increase access by more members of the community to the airwaves.

#### G. Other Issues

101. *Public File and Ownership Reporting.* We deny a request by UCC that we impose public file and ownership reporting requirements on LPFM licensees.<sup>150</sup> As a general matter, we agree with UCC’s assertion that these are important sources of citizen information about a station’s programming, ownership, and compliance with Commission rules.<sup>151</sup> As we have already stated in the *Report and Order*, however, these requirements would impose a burden that is out of proportion to the small noncommercial nature of the stations. We also continue to believe that the community-oriented nature of the stations’ service further reduces the justification for such requirements. We are not swayed by UCC’s argument that nonlocal entities, which may hold LPFM licenses after the initial two years of licensing, will not have an

---

<sup>147</sup> Black Petition at 1.

<sup>148</sup> MMTC raises this proposal in its “Suggestion for a Compromise Resolution of the Issues Raised in the Petition to Correct Inadvertent Omission,” filed on May 17, 2000. Although this letter was filed after the comment deadline, we are considering it here because it raises a significant issue and no party is prejudiced by our consideration.

<sup>149</sup> Given that most schools would be able to achieve the full three points, giving them an extra point would virtually be tantamount to giving them an absolute preference.

<sup>150</sup> See UCC Petition.

<sup>151</sup> *Report and Order*, 15 FCC Rcd at 2277, ¶ 185.



incentive to be responsive to their communities. The unknown extent of such nonlocal ownership and the nature of resulting operations do not warrant the imposition of a disproportionate burden on all LPFM licensees at this time.

102. *Low Power Advisory Committee.* We will not establish a low power advisory committee as suggested by the Amherst Alliance.<sup>152</sup> LPFM broadcasters and other interested parties are free, of course, to form a private organization to promote LPFM, support and assist its members and their operations, and address technical issues with each other and, where appropriate, raise them with the Commission. Amherst Alliance has not raised a compelling reason, however, for governmental institution of such an organization at this time.

103. *Automatic Program Review.* We will not establish an “automatic program review” as also urged by the Amherst Alliance.<sup>153</sup> It is possible that, in time, our experience with LPFM, as with any new service, will lead us to consider changes in our rules to enhance the quality of the radio service the public receives. Amherst specifically suggests that we plan to revisit our determinations to require 2<sup>nd</sup> adjacent channel separations, to require “buffer zones” in our channel separations, and to reject low power AM service.<sup>154</sup> They also suggest we consider authorizing 250 watt service in small cities and rural areas, and adjusting wattage ceilings in some urban environments.<sup>155</sup> Although we are open to proposing, or considering proposals, to revise our rules after we have had experience with the service, we do not find it necessary to commit now to a review in the future.

104. *Transfers of Control – Nonstock Entities.* In the *Report and Order*, we established that LPFM licenses (and licensees) cannot be sold or transferred to another entity. We will here clarify, in response to Colorado Christian University’s Petition for Reconsideration, that the gradual change of a governing board or membership body to the point that a majority of its members are new since the authorization was granted will not, by itself, constitute a prohibited transfer of control. This policy is consistent with the Commission’s practice in responding to these gradual changes in nonstock entities when they occur for full-power NCE licensees.<sup>156</sup>

105. *Regulatory Flexibility.* As required by the Regulatory Flexibility Act, 5 U.S.C. § 601 *et seq.*, a Supplemental Final Regulatory Flexibility Analysis has been completed and is attached as Appendix B hereto.

### III. CONCLUSION

106. In this *Memorandum Opinion and Order*, we generally affirm the decisions we reached in

---

<sup>152</sup> Amherst Petition at 2.

<sup>153</sup> Amherst Petition at 4.

<sup>154</sup> Amherst Petition at 2-6.

<sup>155</sup> Amherst Petition at 6.

<sup>156</sup> See *Notice of Inquiry*, MM Docket No. 89-77 (Transfers of Control of Certain Licensed Non-Stock Entities), 4 FCC Rcd 3403 (1989).

the *Report and Order*. We do, however, clarify certain rules to provide better guidance to the public, and make minor revisions to improve our procedures and the quality of the LPFM service, and to protect stations operating radio reading services, while at the same time preserving the quality of full power FM service. We also establish a process to ensure prompt resolution of certain interference problems in the unlikely event they occur.

#### IV. PROCEDURAL MATTERS AND ORDERING CLAUSES

107. Authority for issuance of this *Memorandum Opinion and Order* is contained in Sections 4(i), 303(r), 403, and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 403, and 405.

108. The actions taken in this *Memorandum Opinion and Order* have been analyzed with respect to the Paperwork Reduction Act of 1995, and found to impose no new or modified reporting and record-keeping requirements or burdens on the public.

109. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Memorandum Opinion and Order* including the Supplemental Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

110. Accordingly, IT IS ORDERED that the petitions for reconsideration or clarification listed in Appendix E ARE GRANTED to the extent provided herein and otherwise ARE DENIED pursuant to Sections 4(i), 303(r), 403, and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 403, and 405, and Section 1.429(i) of the Commission's rules, 47 C.F.R. § 1.429(i).

111. IT IS FURTHER ORDERED that the Motion of The Amherst Alliance *et al.* for a Decision on the Motion for Reconsideration of the Amherst Alliance filed June 5, 2000, and the Motion of Don Shellhardt *et al.* for a Decision on the Motion for Reconsideration of Don Shellhardt filed June 5, 2000, are to the extent provided herein DISMISSED as untimely and moot pursuant to Sections 4(i), 303(r), and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 403, and 405, and Sections 1.429(d) and (i) of the Commission's rules, 47 C.F.R. § 1.429(d) and (i).

112. IT IS FURTHER ORDERED that the Commission's rules ARE AMENDED as set forth in Appendix A. IT IS FURTHER ORDERED that the provisions of this *Memorandum Opinion and Order* and the Commission's rules, as amended in Appendix A, SHALL BECOME EFFECTIVE 30 days after publication in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Secretary

---

**Appendix A****Low Power FM Service Rule Modifications**

Part 73 of Title 47 of the U.S. Code of Federal Regulations is amended to read as follows:

**Part 73 – Radio Broadcast Services**

1. The authority citation for Part 73 continues to read as follows:

**Authority:** 47 U.S.C. 154, 303, 334, 336

2. Section 73.209 is modified as follows

**§ 73.209 Protection from interference.**

\* \* \* \* \*

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

3. Section 73.514 is modified, as follows

**§ 73.514 Protection from interference.**

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

4. Section 73.807 is modified as follows:

**§73.807 Minimum distance separation between stations.**

Minimum separation requirements for LP100 and LP10 stations, as defined in Section 73.811 and Section 73.853 of this Part, are listed in the following subsections. An LPFM station will not be authorized unless these separations are met. Minimum distances for co-channel and first-adjacent channel are separated into two columns. The left-hand column lists the required minimum separation to protect other stations and the right-hand column lists (for informational purposes only) the minimum distance necessary for the LPFM station to receive no interference from other stations assumed to operating at the maximum permitted facilities for the station class. For second-adjacent channels and IF channels, the required minimum distance separation is sufficient to avoid interference received from other stations.

(a)(1) An LP100 station will not be authorized initially unless the minimum distance separations in the following table are met with respect to authorized FM stations, applications for new and existing FM stations filed prior to the release of the public notice announcing an LPFM window period for LP100 stations, authorized LP100 stations, LP100 station applications that were timely-filed within a previous window, and vacant FM allotments. LP100 stations are not required to protect LP10 stations. LPFM modification applications must either meet the distance separations in the following table or, if short-spaced, not lessen the spacing to subsequently authorized stations.

Station Class Protected by LP100	Co-channel Minimum Separation (km)	First-adjacent Channel Minimum Separation (km)	Second-adjacent Channel Minimum Separation (km)	I.F . Channel minimum separations
	For No Interference Received From Max. Class Facility Required	For No Interference Received From Max. Class Facility Required	Required	10.6 or 10.8 MHz

LP100	24	24	14	14	None	None
D	24	24	13	13	6	3
A	67	92	56	56	29	6
B1	87	119	74	74	46	9
B	112	143	97	97	67	12
C3	78	119	67	67	40	9
C2	91	143	80	84	53	12
C1	111	178	100	111	73	20
C	130	203	120	142	93	28

(a)(2) LP100 stations must satisfy the second-adjacent channel minimum distance separation requirements of subsection (a)(1) with respect to any third-adjacent channel FM station that, as of September 20, 2000 (the adoption date of this *Memorandum Opinion and Order*) broadcasts a radio reading service via a subcarrier frequency.

(b)(1) An LP10 station will not be authorized unless the minimum distance separations in the following table are met with respect to authorized FM stations, applications for new and existing FM stations filed prior to the release of the public notice announcing an LPFM window period for LP10 stations, vacant FM allotments, or LPFM stations.

Station Class Protected by LP10	Co-channel Minimum Separation (km)	First-adjacent Channel Minimum Separation (km)	Second-adjacent Channel Minimum Separation (km)	I.F . Channel minimum separations
	For No Interference Received From Max. Class Facility Required	For No Interference Received From Max. Class Facility Required	Required	10.6 or 10.8 MHz

LP100	16	22	10	11	None	None
LP10	13	13	8	8	None	None
D	16	21	10	11	6	2
A	59	90	53	53	29	5
B1	77	117	70	70	45	8
B	99	141	91	91	66	11
C3	69	117	64	64	39	8
C2	82	141	77	81	52	11
C1	103	175	97	108	73	18
C	122	201	116	140	92	26

(b)(2) LP10 stations must satisfy the second-adjacent channel minimum distance separation requirements of subsection (b)(1) with respect to any third-adjacent channel FM station that, as of September 20, 2000 (the adoption date of this *Memorandum Opinion and Order*) broadcasts a radio reading service via a subcarrier frequency.

(c) In addition to meeting or exceeding the minimum separations for Class LP100 and Class LP10 stations in subsections (a) and (b) of this rule section above, new LP100 and LP10 stations will not be authorized in Puerto Rico or the Virgin Islands unless the minimum distance separations in the following tables are met with respect to authorized or proposed FM stations:

(1) LP100 stations in Puerto Rico and the Virgin Islands:

Station Class Protected by LP100	Co-channel Minimum Separation (km)		First-adjacent Channel Minimum Separation (km)		Second-adjacent Channel Minimum Separation (km)	I.F . Channel minimum separations  10.6 or 10.8 MHz
	Required	For No Interference Received From Max. Class Facility	Required	For No Interference Received From Max. Class Facility	Required	
A	80	111	70	70	42	9
B1	95	128	82	82	53	11
B	138	179	123	123	92	19

(2) LP10 stations in Puerto Rico and the Virgin Islands:

Station Class Protected by LP10	Co-channel Minimum Separation (km)		First-adjacent Channel Minimum Separation (km)		Second-adjacent Channel Minimum Separation (km)	I.F . Channel minimum separations  10.6 or 10.8 MHz
	Required	For No Interference Received From Max. Class Facility	Required	For No Interference Received From Max. Class Facility	Required	

A	72	108	66	66	42	8
B1	84	125	78	78	53	9
B	126	177	118	118	92	18

**Note: Minimum distance separations towards “grandfathered” superpowered Reserved Band stations, subsections (a), (b), and (c) above :**

Full service FM stations operating within the reserved band (Channels 201-220) with facilities in excess of those permitted in § 73.211(b)(1) or § 73.211(b)(3) shall be protected by LPFM stations in accordance with the minimum distance separations for the nearest class as determined under § 73.211. For example, a Class B1 station operating with facilities that result in a 60 dBu contour that exceeds 39 kilometers but is less than 52 kilometers would be protected by the Class B minimum distance separations. Class D stations with 60 dBu contours that exceed 5 kilometers will be protected by the Class A minimum distance separations. Class B stations with 60 dBu contours that exceed 52 kilometers will be protected as Class C1 or Class C stations depending upon the distance to the 60 dBu contour. No stations will be protected beyond Class C separations.

(d) \*\*\*\*\*

(e) \*\*\*\*\*

(f) \*\*\*\*\*



(g) *International considerations within the border zones*

(1) Within 320 km of the Canadian border, LP100 stations must meet the following minimum separations with respect to any Canadian stations:

Canadian Station Class	Co-channel (km)	First-Adjacent Channel (km)	Second-Adjacent Channel (km)	Third-Adjacent Channel (km)	Intermediate Frequency (IF) Channel (km)
A1 & Low Power	45	30	21	20	4
A	66	50	41	40	7
B1	78	62	53	52	9
B	92	76	68	66	12
C1	113	98	89	88	19
C	124	108	99	98	28

(2) Within 320 km of the Mexican border, LP100 stations must meet the following separations with respect to any Mexican stations:

Mexican Station Class	Co-channel (km)	First-Adjacent Channel (km)	Second- /Third-Adjacent Channel (km)	Intermediate Frequency (IF) Channel (km)
Low Power	27	17	9	3
A	43	32	25	5
AA	47	36	29	6
B1	67	54	45	8
B	91	76	66	11
C1	91	80	73	19
C	110	100	92	27

- (3) Within 320 km of the Canadian border, LP10 stations must meet the following minimum separations with respect to any Canadian stations:

Canadian Station Class	Co-channel (km)	First-Adjacent Channel (km)	Second-Adjacent Channel (km)	Third-Adjacent Channel (km)	Intermediate Frequency (IF) Channel (km)
A1 & Low Power	33	25	20	19	3
A	53	45	40	39	5
B1	65	57	52	51	8
B	79	71	67	66	11
C1	101	93	88	87	18
C	111	103	98	97	26

- (4) Within 320 km of the Mexican border, LP10 stations must meet the following separations with respect to any Mexican stations:

Mexican Station Class	Co-channel (km)	First-Adjacent Channel (km)	Second- /Third-Adjacent Channel (km)	Intermediate Frequency (IF) Channel (km)
Low Power	19	13	9	2
A	34	29	24	5
AA	39	33	29	5
B1	57	50	45	8
B	79	71	66	11
C1	83	77	73	18
C	102	96	92	26

- (5) \*\*\*\*\*

- (6) The Commission will initiate international coordination of a LPFM proposal even where the above Canadian and Mexican spacing tables are met, if it appears that such coordination is

necessary to maintain compliance with international agreements.

5. Section 73.809 is modified as follows:

**§ 73.809 Interference protection to full service FM stations.**

(a) It shall be the responsibility of the licensee of an LPFM station to correct at its expense any condition of interference to the direct reception of the signal of any subsequently authorized commercial or NCE FM station that operates on the same channel, first-adjacent channel, second-adjacent channel or intermediate frequency (IF) channels as the LPFM station, where interference is predicted to occur and actually occurs within (1) the 3.16 mV/m (70 dBu) contour of such stations; (2) the community of license of a commercial FM station; or (3) any area of the community of license of an NCE FM station that is predicted to receive at least a 1 mV/m (60 dBu) signal. Predicted interference shall be calculated in accordance with the ratios set forth in Section 73.215(a)(1) and (2) of this Part. Intermediate Frequency (IF) channel interference overlap will be determined based upon overlap of the 91 dBu F(50,50) contours of the FM and LPFM stations. Actual interference will be considered to occur whenever reception of a regularly used signal is impaired by the signals radiated by the LPFM station.

(b) An LPFM station will be provided an opportunity to demonstrate in connection with the processing of the commercial or NCE FM application that interference as described in subsection (a) is unlikely. If the LPFM station fails to so demonstrate, it will be required to cease operations upon the commencement of program tests by the commercial or NCE FM station.

(c) Complaints of actual interference by an LPFM station subject to subsections (a) and (b) must be served on the LPFM licensee and the Federal Communications Commission, attention Audio Services Division. The LPFM station must suspend operations within twenty-four hours of the receipt of such complaint unless the interference has been resolved to the satisfaction of the complainant on the basis of suitable techniques. An LPFM station may only resume operations at the direction of the Federal Communications Commission. If the Commission determines that the complainant has refused to permit the LPFM station to apply remedial techniques that demonstrably will eliminate the interference without impairment of the original reception, the licensee of the LPFM station is absolved of further responsibility for the complaint.

(d) \*\*\*\*\*

(e) \*\*\*\*\*

12. A new Section 73.810 is added as follows:

**§ 73.810. Third Adjacent Channel Complaint and License Modification Procedure.**

(a) An LPFM station is required to provide copies of all complaints alleging that the signal of such LPFM station is interfering with or impairing the reception of the signal of a full power station to such

affected full power station.

- (b) A full power station shall review all complaints it receives, either directly or indirectly, from listeners regarding alleged interference caused by the operations of an LPFM station. Such full power station shall also identify those that qualify as *bona fide* complaints under this section and promptly provide such LPFM station with copies of all *bona fide* complaints. A *bona fide* complaint:
  - (i) is a complaint alleging third adjacent channel interference caused by an LPFM station that has its transmitter site located within the predicted 60 dBu contour of the affected full power station as such contour existed as of the date the LPFM station construction permit was granted;
  - (ii) must be in the form of an affidavit, and state the nature and location of the alleged interference;
  - (iii) must involve a fixed receiver located within the 60 dBu contour of the affected full power station and not more than one kilometer from the LPFM transmitter site; and
  - (iv) must be received by either the LPFM or full power station within one year of the date on which the LPFM station commenced broadcasts with its currently authorized facilities.
- (c) An LPFM station will be given a reasonable opportunity to resolve all interference complaints. A complaint will be considered resolved where the complainant does not reasonably cooperate with an LPFM station's remedial efforts.
- (d) In the event that the number of unresolved complaints plus the number of complaints for which the source of interference remains in dispute equals at least one percent of the households within one kilometer of the LPFM transmitter site or thirty households, whichever is less, the LPFM and full power stations must cooperate in an "on-off" test to determine whether the interference is traceable to the LPFM station.
- (e) If the number of unresolved and disputed complaints exceeds the numeric threshold specified in subsection (d) following an "on-off" test, the full power station may request that the Commission initiate a proceeding to consider whether the LPFM station license should be modified or cancelled, which will be completed by the Commission within 90 days. Parties may seek extensions of the 90 day deadline consistent with Commission rules.
- (f) An LPFM station may stay any procedures initiated pursuant to subsection (e) by voluntarily ceasing operations and filing an application for facility modification within twenty days of the commencement of such procedures.

Section 73.816 is modified as follows:

**§ 73.816 Antennas.**

- a) Permittees and licensees may employ nondirectional antennas with horizontal only polarization, vertical only polarization, circular polarization or elliptical polarization.
- b) Directional antennas will not be authorized and may not be utilized in the LPFM service, except as provided in subsection (c) of this section.
- c) Public safety and transportation permittees and licensees, eligible pursuant to § 73.853(a)(ii) of this

part, may utilize directional antennas in connection with the operation of a Travelers' Information Service (TIS) provided each LPFM TIS station utilizes only a single antenna with standard pattern characteristics that are predetermined by the manufacturer. In no event may composite antennas (i.e. antennas that consist of multiple stacked and/or phased discrete transmitting antennas) and/or transmitters be employed.

d) LPFM TIS stations will be authorized as nondirectional stations. The use of a directional antenna as provided for in subsection (c) will not be considered in the determination of compliance with any requirements of this part.

Section 73.825 is modified as follows:

**§73.825 Protection to Reception of TV Channel 6**

(a) LPFM stations will be authorized on Channels 201 through 220 only if the pertinent minimum separation distances in the following table are met with respect to all full power TV Channel 6 stations.

FM Channel Number	Class LP100 to TV Channel 6 (km)	Class LP10 to TV Channel 6 (km)
-------------------	-------------------------------------	------------------------------------

---

201	140	136
202	138	134
203	137	133
204	136	133
205	135	132
206	133	131
207	133	131
208	133	131
209	133	131
210	133	131
211	133	131
212	132	131
213	132	131
214	132	130
215	131	130
216	131	130
217	131	130
218	131	130
219	130	130
220	130	130

(b) LPFM stations will be authorized on Channels 201 through 220 only if the pertinent minimum separation distances in the following table are met with respect to all low power TV, TV translator, and Class A TV stations authorized on TV Channel Six.

FM Channel Number	Class LP100 to LPTV Channel 6 (km)	Class LP10 to LPTV Channel 6 (km)
201	98	93
202	97	92
203	95	91
204	94	91
205	93	90
206	91	90
207	91	89
208	91	89
209	91	89
210	91	89
211	91	89
212	90	89
213	90	89
214	90	89
215	90	89
216	89	89
217	89	89
218	89	89
219	89	89
220	89	88

A new Section 73.827 is added, as follows

**§ 73.827 Interference to the Input Signals of FM Translator or FM Booster Stations.**

(a) An authorized LPFM station will not be permitted to continue to operate if an FM translator or FM booster station demonstrates that the LPFM station is causing actual interference to the FM translator or FM booster station's input signal, provided that the same input signal was in use at the time the LPFM station was authorized.

(b) Complaints of actual interference by an LPFM station subject to subsection (a) must be served on the LPFM licensee and the Federal Communications Commission, attention Audio Services Division. The LPFM station must suspend operations upon the receipt of such complaint unless the interference has been resolved to the satisfaction of the complainant on the basis of suitable techniques. Short test transmissions may be made during the period of suspended operation to check the efficacy of remedial measures. An LPFM station may only resume full operation at the direction of the Federal Communications Commission. If the Commission determines that the complainant has refused to permit the LPFM station to apply remedial techniques that demonstrably will eliminate the interference without impairment of the original reception, the licensee of the LPFM station is absolved of further responsibility for the complaint.

Section 73.854 is modified as follows:

**§ 73.854 Unlicensed operations.**

No application for an LPFM station may be granted unless the applicant certifies, under penalty of perjury, to one of the following statements:

(a) Neither the applicant, nor any party to the application, has engaged in any manner including individually or with persons, groups, organizations or other entities, in the unlicensed operation of any station in violation of Section 301 of the Communications Act of 1934, as amended, 47 U.S.C. Section 301.

(b) To the extent the applicant or any party to the application has engaged in any manner, individually or with other persons, groups, organizations or other entities, in the unlicensed operation of a station in violation of Section 301 of the Communications Act of 1934, as amended, 47 U.S.C. Section 301, such an engagement:

(1) ceased voluntarily no later than February 26, 1999, if not previously directed by the FCC to cease operation; or

(2) ceased operation within 24 hours of being directed by the FCC to terminate unlicensed operation of any station but in no event later than February 26, 1999.

Section 73.855 is modified as follows:

**§ 73.855 Ownership Limits**



\*\*\*

- (b) Except as provided in subsection (b)(4) of this section, nationwide ownership limits will be phased in according to the following schedule:
  - (4) Not-for-profit organizations and governmental entities with a public safety purpose may be granted multiple licenses only if:
    - (i) one of the multiple applications is submitted as a priority application, and;
    - (ii) the remaining non-priority applications do not face a mutually exclusive challenge.

Section 73.860 is modified as follows:

### **§ 73.860 Cross Ownership**

\*\*\*

- (a) Except as provided in subsection (b) of this subsection, no license for an LPFM station shall be granted to any party if the grant of such authorization will result in the same party holding an attributable interest in any other non-LPFM broadcast station, including any FM translator or low power television station, or any other media subject to our broadcast ownership restrictions.
- (b) A party with an attributable interest in a broadcast radio station must divest such interest prior to the commencement of operations of an LPFM station in which the party also holds an interest unless such party is a college or university that can certify that the existing broadcast radio station is not student run. This exception applies only to parties that:
  - (i) are accredited educational institutions, and;
  - (ii) own attributable interest in non-student run broadcast stations;
  - (iii) apply for an authorization for an LPFM station that will be managed and operated on a day-to-day basis by students of the accredited educational institution; and
  - (iv) do not face competing applications for the LPFM authorization.

Section 73.870 is modified as follows:

### **§ 73.870 Processing of LPFM Broadcast Station applications.**

\* \* \* \* \*

(c) Applications subject to subsection (b) that fail to meet the Section 73.807 minimum distance separations with respect to all applications and facilities in existence as the date of the pertinent Public Notice in subsection (b), other than to LPFM station facilities proposed in applications filed in the same window, will be dismissed without any opportunity to amend such applications.

\* \* \* \*

Section 73.872 is modified as follows:

**§ 73.872 Selection procedure for mutually exclusive application.**

\*\*\*

(3) Local program origination. The applicant must pledge to originate locally at least eight hours of programming per day. For purposes of this criterion, local origination is the production of programming, *by the licensee*, within ten miles of the coordinates of the proposed transmitting antenna.

Section 73.877 is modified as follows:

**§ 73.877 Station Logs for LPFM stations.**

The (a) is removed at the outset of that paragraph, although the content of “(a)” remains, and the numbers are changed to letters.

Section 73.1660 is modified as follows:

**§73.1660 Acceptability of broadcast transmitters.**

(a)(1) An AM, FM, or TV transmitter shall be verified for compliance with the requirements of this part following the procedures described in Part 2 of the FCC rules.

(a)(2) An LPFM transmitter shall be certified for compliance with the requirements of this part following the procedures described in Part 2 of the FCC rules.

(b) \* \* \* \* \*

Part 74 of Title 47 of the U.S. Code of Federal Regulations is amended to read as follows:

**PART 74 – EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES**

1. The authority citation for Part 74 continues to read as follows:

**Authority:** 47 U.S.C. 154, 303, 334, 336

2. Section 74.1204 Subpart L in Part 74, is modified as follows:

**§74.1204 Protection of FM broadcast, FM Translator and LP100 stations.**

(a) An application for an FM translator station will not be accepted for filing if the proposed operation would involve overlap of predicted field contours with any other authorized commercial or noncommercial educational FM broadcast stations, FM translators, and Class D (secondary) noncommercial educational FM stations; or if it would result in new or increased overlap with an LP100 station, as set forth below:

(1) \* \* \*

(2) \* \* \*

(3) \* \* \*

(4) LP100 stations (Protected Contour: 1 mV/m)

Frequency separation	Interference contour of proposed translator station	Protected contour of LP100 LPFM station
Cochannel 200 kHz	0.1 mV/m (40 dBu)	1 mV/m (60 dBu)
	0.5 mV/m (54 dBu)	1 mV/m (60 dBu)

**Note:** For the purposes of determining overlap pursuant to this subsection, LPFM applications and permits that have not yet been licensed must be considered as operating with the maximum permitted facilities. All LPFM TIS stations must be protected on the basis of a nondirectional antenna.

\* \* \* \* \*

## Appendix B

### SUPPLEMENTAL FINAL REGULATORY FLEXIBILITY ANALYSIS

As required by the Regulatory Flexibility Act (RFA),<sup>157</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rulemaking (Notice)* and a Final Regulatory Flexibility Analysis (FRFA) was incorporated in the *Report and Order*.<sup>158</sup> The Commission sought written public comment on the proposals in the *Notice* and the *Report and Order*, including comment on the IRFA and FRFA. No comments were received in response to the IRFA and the one comment received in response to the FRFA is addressed below. This present Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA) conforms to the RFA.<sup>159</sup>

#### **Need for, and Objectives of, the *Memorandum Opinion and Order***

In the *Report and Order*, the Commission adopted a 100-watt class (LP100) and a 10-watt class (LP10) of small radio stations. Because of the predicted lower construction and operational costs of LPFM stations as opposed to full power facilities, the Commission expects that small entities would be expected to have few economic obstacles to becoming LPFM licensees. Therefore, as discussed in the *Report and Order* and the FRFA, this new service may serve as a vehicle for small entities and under-represented groups (including women and minorities) to gain valuable broadcast experience and to add their voices to their local communities. The Commission received petitions for reconsideration of the *Report and Order* that requested reconsideration of a variety of issues. This *Memorandum Opinion and Order* resolves those issues.

We do not change most of the determinations made in the *Report and Order*. We do, however, adopt the following few changes. We adopt complaint and license modification procedures to ensure that if any unexpected, significant 3<sup>rd</sup> adjacent channel interference problems are caused by the operation of a particular LPFM station, it can be resolved expeditiously. We modify the spacing standards adopted in the *Report and Order* to require that LPFM stations operating on 3<sup>rd</sup> adjacent channels protect stations operating radio reading services and we increase the flexibility of the ownership rules for certain specific types of applicants.

#### **Summary of Significant Issues Raised by Public Comments in Response to the FRFA**

J. Rodger Skinner (Skinner), who submitted one of the original Petitions for Rulemaking regarding LPFM

---

<sup>157</sup> 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. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

<sup>158</sup> Creation of a Low Power Radio Service, MM Docket No. 99-25, *Notice of Proposed Rulemaking*, 14 FCC Rcd 2471, 2530-2534 (1999) (*Notice*); *Report and Order*, 15 FCC Rcd 2205, Appendix C (2000).

<sup>159</sup> See 5 U.S.C. § 604.

on February 5, 1998, contends in his Comments that the *Report and Order's* FRFA analysis was flawed in claiming that the institution of LPFM service would "create significant opportunities for new small businesses."<sup>160</sup> Skinner argues that the rejection of commercial service, the imposition of 3<sup>rd</sup> adjacent channel separations and the refusal to include 1000 watt stations undercut the Commission's expectation of new stations in the LPFM service. His argument, however, that the alternative resolutions he proposes were not considered and their rejection explained is mistaken. Both the *Report and Order* and the *Memorandum Opinion and Order* address each issue that he raises. In instituting this new LPFM service and in determining the rules that will govern it, we were concerned with the impact of our rules on small businesses, and took many steps to ensure the availability of this service to new entities. For instance, we adopted strict ownership limitations, made electronic filing voluntary, and refrained from main studio requirements for LPFM stations.<sup>161</sup> At the same time, we explicitly weighed the best manner in which to achieve our goals in protecting existing service and creating this service against the benefits of commercial service, less stringent interference protection and higher power limits. Skinner's argument that small local businesses will be deprived of a potential economical advertising outlet also is insufficient to outweigh the reasons for our determination to make LPFM a strictly noncommercial service.

### **Description and Estimate of the Number of Small Entities to Which Rules Will Apply**

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the rules.<sup>162</sup> The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."<sup>163</sup> In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.<sup>164</sup> A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>165</sup> A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."<sup>166</sup>

---

<sup>160</sup> Skinner Petition at 3.

<sup>161</sup> See *Report and Order* Appendix C.

<sup>162</sup> 5 U.S.C. § 603(b)(3).

<sup>163</sup> 5 U.S.C. § 601(6).

<sup>164</sup> 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).

<sup>165</sup> Small Business Act, 15 U.S.C. § 632 (1996).

<sup>166</sup> 5 U.S.C. § 601(4).

Nationwide, as of 1992, there were approximately 275,801 small organizations.<sup>167</sup> “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.”<sup>168</sup> 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 per cent) are small entities.

The SBA defines a radio broadcasting station that has \$5 million or less in annual receipts as a small business.<sup>169</sup> A radio broadcasting station is an establishment primarily engaged in broadcasting aural programs by radio to the public.<sup>170</sup> Included in this industry are commercial, religious, educational, and other radio stations.<sup>171</sup> The 1992 Census indicates that 96 percent (5,861 of 6,127) radio station establishments produced less than \$5 million in revenue in 1992.<sup>172</sup> Official Commission records indicate that 11,334 individual radio stations were operating in 1992.<sup>173</sup> As of September 30, 1999, Commission records indicate that 12,615 radio stations were operating, of which 7,832 were FM stations.<sup>174</sup>

The rules will apply to a new category of FM radio broadcasting service. It is not known how many entities may seek to obtain a low power radio license. Nor do we know how many of these entities will be small entities. We note, however, that in the eighteen months since we issued the *Notice*, the Commission’s LPFM website has received approximately 100,000 hits, demonstrating the interest of individuals and groups in operating such a facility. In addition, we expect that, due to the small size of low power FM stations, small entities would generally have a greater interest than large ones in acquiring them.

### Description of Projected Reporting, Recordkeeping and Other Compliance Requirements

Most of the provisions of the *Report and Order* are unchanged by the *Memorandum Opinion and Order*. As noted in the *Report and Order*, the new service will require the collection of information for the

---

<sup>167</sup> 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).

<sup>168</sup> 5 U.S.C. § 601(4).

<sup>169</sup> 13 C.F.R. § 121.201, SIC code 4832.

<sup>170</sup> 1992 Census, Series UC92-S-1, at Appendix A-9.

<sup>171</sup> *Id.* The definition used by the SBA also includes radio broadcasting stations which also produce radio program materials. Separate establishments that are primarily engaged in producing radio program material are classified under another SIC number, however. *Id.*

<sup>172</sup> The Census Bureau counts radio stations located in the same facility as one establishment. Therefore, each co-located AM/FM combinations counts as one establishment.

<sup>173</sup> FCC News Release, No. 31327 (Jan. 13, 1993).

<sup>174</sup> FCC News Release, "Broadcast Station Totals as of September 30, 1999" (Nov. 22, 1999).

purposes of processing applications for (among other things) initial construction permits, assignments and transfers, and renewals. We will also require lower power radio stations to comply with some of the reporting, recordkeeping, and other compliance requirements of full power radio broadcasters.

The portions of the *Report and Order* that were altered by the *Memorandum Opinion and Order* follow: (1) radio reading services will be protected on the 3<sup>rd</sup> adjacent channel, (2) corrections were made to the spacing table, (3) a complaint procedure was added, (4) transportation entities will be permitted to hold multiple stations in certain instances, and (5) an ownership exception was created for university-licensees of low power radio stations. We do not anticipate that these changes will result in any changes to the reporting and recordkeeping requirements of LPFM licensees.

### **Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

The RFA requires agencies to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.<sup>175</sup>

The Commission believes that the LPFM service is likely to create significant opportunities for new small businesses. None of the changes made by the *Memorandum Opinion and Order* alter that belief. This *Memorandum Opinion and Order* alters the LPFM rules by allowing an expedited complaint process, creating additional interference protection for radio reading services, and increasing flexibility for specific licensees (university and public safety entities). The Commission believes that none of these revisions will have a significant economic impact on a substantial number of small entities. However, in an abundance of caution we will examine any potential impact to potential LPFM licensees.

The Commission does not anticipate that LPFM service will cause interference to existing stations. Due to concern expressed by parties about potential interference, however, the Commission has adopted complaint and license modification procedures to ensure that if any unexpected, significant 3<sup>rd</sup> adjacent channel interference problems are caused by the operation of a particular LPFM station, they can be resolved expeditiously. We believe this process will assist small entities by providing resolution to problems without delays and the potential for incurring legal and consulting expenses.

The Commission offered additional protection to the radio reading services, pending its analysis of a Commission study conducted to assess radio reading service's performance as compared with other receivers. While awaiting the results of the study, the Commission will not license LPFM stations on 3<sup>rd</sup> adjacent channels to existing stations with radio reading services. Because radio reading services provide such a valuable service, we have modified the rules to assure that interference to radio reading services does not occur. The only other alternative considered would have been to leave the rules as originally drafted in the *Report and Order*. We decided against that alternative until such a time as the Commission can confirm that no unacceptable interference would occur.

---

<sup>175</sup> 5 U.S.C. § 603(c)(1)-(4).

The Commission makes a few other changes to the *Report and Order*. We allow transportation and public safety entities to hold multiple LPFM stations in certain instances and create an ownership exception for university-licensees of low power radio stations. Petitioners showed the Commission that these exceptions were merited based on the specific circumstances of these potential licensees. The only other alternative was to leave the rules as adopted in the *Report and Order*; to do so would not have accounted for the beneficial service, and unique circumstances, of particular applicants.

### **Report to Congress**

The Commission will send a copy of the *Memorandum Opinion and Order*, including this Supplemental FRFA, in a report to be sent to Congress pursuant to the SBREFA.<sup>176</sup> In addition, the Commission will send a copy of the *Memorandum Opinion and Order*, including the Supplemental FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Memorandum Opinion and Order* and Supplemental FRFA (or summaries thereof) will also be published in the Federal Register.<sup>177</sup>

---

<sup>176</sup> 5 U.S.C. § 801(a)(1)(A).

<sup>177</sup> See 5 U.S.C. § 604(b).



**Appendix C**  
**Filing Schedule**

The country has been divided into five groups of states accepting LPFM applications. The FCC has accepted applications from the first and second groups of states:

1<sup>st</sup>: Alaska, California, District of Columbia, Georgia, Indiana, Louisiana, Maine, Mariana Islands, Maryland, Oklahoma, Rhode Island, Utah

2<sup>nd</sup>: Connecticut, Illinois, Kansas, Michigan, Minnesota, Mississippi, Nevada, New Hampshire, Puerto Rico, Virginia, Wyoming.

The remaining three groups of states' LPFM applications are anticipated to be accepted as follows:

3<sup>rd</sup>: American Samoa, Colorado, Delaware, Hawaii, Idaho, Missouri, New York, Ohio, South Carolina, South Dakota, Wisconsin (Public Notice October 2000; filing window: November 2000)

4<sup>th</sup>: Arizona, Florida, Iowa, New Jersey, North Dakota, Oregon, Tennessee, Texas, U.S. Virgin Islands, Vermont, West Virginia (Public Notice January 2001; filing window: February 2001)

5<sup>th</sup>: Alabama, Arkansas, Guam, Kentucky, Massachusetts, Montana, Nebraska, New Mexico, North Carolina, Pennsylvania, Washington (Public Notice April 2001; filing window: May 2001)

**Appendix D**  
**Existing Stations With Radio Reading Services<sup>178</sup>**

<u>Call Sign</u>	<u>Licensee City, State</u>
KANU-FM	Lawrence, KS
KANZ-FM	Garden City, KS
KAPC-FM	Butte, MT
KAUS-FM*	Austin, MN
KAXE-FM	Grand Rapids, MN
KBHE-FM*	Rapid City, SD
KBPR-FM	Brainerd, MN
KBSX-FM	Boise, ID
KCCM-FM*	Moorhead, MN
KCHO-FM	Chico, CA
KCND-FM	Bismarck, ND
KCRB-FM*	Bemidji, MN
KCSD-FM*	Sioux Falls, SD
KCSM-FM	San Mateo, CA
KCUR-FM	Kansas City, MO
KDPR-FM	Dickinson, ND
KDSD-FM*	Pierpont, SD
KERA-FM	Dallas, TX
KESD-FM*	Brookings, SD
KFAE-FM	Richland, WA
KFJM-FM*	Grand Forks, ND

---

<sup>178</sup> The information in this Appendix was provided by National Public Radio. Stations identified by an asterisk (\*) are non-NPR stations identified by the International Association of Audio Information Services (IAAIS) as providing radio services.

---

KGAC-FM*	St. Peter, MN
KGNU-FM	Boulder, CO
KGPR-FM	Great Falls, MT
KHCC-FM	Hutchinson, KS
KHKE-FM	Ceder Falls, IA
KHPR-FM	Honolulu, HI
KIOS-FM	Omaha, NE
KJJK-FM*	Fergus Falls, MN
KJZZ-FM	Phoenix, AZ
KLCD-FM*	Decorah, IA
KLSE-FM*	Rochester, MN
KMPR-FM	Minot, ND
KMUW-FM	Wichita, KS
KNAA-FM	Show Low, AZ
KNAQ-FM	Flagstaff, AZ
KNAU-FM	Flagstaff, AZ
KNOW-FM	St. Paul, MN
KNPR-FM	Las Vegas, NV
KOPB-FM	Portland, OR
KPBS-FM	San Diego, CA
KPBX-FM	Spokane, WA
KPPR-FM	Williston, ND
KPRJ-FM	Jamestown, ND
KPSD-FM*	Faith, SD
KPUB-FM	Prescott, AZ
KQMN-FM*	Thief River Falls, MN
KQSD-FM*	Lowry, SD
KRCC-FM	Colorado Springs, CO
KRIC-FM	Rexburg, ID
KRNW-FM	Chillicothe, MO
KRPS-FM	Pittsburg, KS
KRSU-FM*	Appleton, MN

---

KRSW-FM	Worthington-Marshall, MN
KSJR-FM*	Collegeville, MN
KSKA-FM	Anchorage, AK
KSUI-FM	Iowa City, IA
KTEP-FM	El Paso, TX
KTPR-FM	Fort Dodge, IA
KTSD-FM*	Reliance, SD
KUAC-FM	Fairbanks, AK
KUAT-FM	Tucson, AZ
KUCV-FM	Lincoln, NE
KUFM-FM	Missoula, MT
KUFN-FM	Hamilton, MT
KUHF-FM	Houston, TX
KUHM-FM	Helena, MT
KUKL-FM	Kalispell, MT
KUND-FM	Grand Forks, ND
KUOW-FM	Seattle, WA
KUSD-FM	Vermillion, SD
KUSU-FM	Logan, UT
KUT-FM	Austin, TX
KVCR-FM	San Bernardino, CA
KXCV-FM	Maryville, MO
WABE-FM	Atlanta, GA
WABR-FM	Tifton, GA
WACG-FM	Augusta, GA
WAMC-FM	Albany, NY
WATD-FM*	Marshfield, MA
WBCL-FM*	Ft. Wayne, IN
WBEZ-FM	Chicago, IL
WBHM-FM	Birmingham, AL
WBLU-FM	Grand Rapids, MI
WBLV-FM	Twin Lake, MI

---

WBRU-FM*	Providence, RI
WCBU-FM	Peoria, IL
WCNY-FM	Syracuse, NY
WCPN-FM	Cleveland, OH
WCVE-FM	Richmond, VA
WDAQ-FM*	Danbury, CT
WDCO-FM	Cochran, GA
WDET-FM	Detroit, MI
WDPG-FM*	Greenville, OH
WDPR-FM*	West Carrollton, OH
WDUQ-FM	Pittsburgh, PA
WEPR-FM	Greenville, SC
WERS-FM*	Boston, MA
WESM-FM	Princess Anne, MD
WETA-FM	Washington, DC
WFAE-FM	Charlotte, NC
WFAL-FM	Falmouth, MA
WFCR-FM	Amherst, MA
WFDD-FM	Winston-Salem, NC
WFSS-FM	Fayetteville, NC
WFSU-FM	Tallahassee, FL
WFYI-FM	Indianapolis, IN
WGCU-FM	Fort Myers, FL
WGGL-FM*	Houghton, MI
WGTE-FM	Toledo, OH
WGUC-FM	Cincinnati, OH
WHAI-FM*	Greenfield, MA
WHIL-FM	Mobile, AL
WHMC-FM	Conway, SC
WHQR-FM	Wilmington, NC
WHRV-FM	Norfolk, VA
WHUS-FM*	Storrs, CT

---

WHYY-FM	Philadelphia, PA
WICN-FM	Worcester, MA
WIGH-FM*	Lexington, TN
WIPA-FM	Pittsfield, IL
WIRR-FM*	Virginia-Hibbing, MN
WITF-FM	Harrisburg, PA
WIUM-FM	Macomb, IL
WIUW-FM	Warsaw, IL
WJCT-FM	Jacksonville, FL
WJFF-FM*	Jeffersonville, NY
WJMJ-FM*	Hartford, CT
WJSP-FM	Warm Springs, GA
WJWV-FM	Fort Gaines, GA
WJWJ-FM	Beaufort, SC
WKAR-FM	East Lansing, MI
WKCR-FM*	New York, NY
WKSB-FM*	Williamsport, PA
WLCA-FM*	Godfrey, IL
WLJK-FM	Aiken, SC
WLRH-FM	Huntsville, AL
WLRN-FM	Miami, FL
WLTR-FM	Columbia, SC
WMAB-FM	Mississippi State, MS
WMAE-FM	Booneville, MS
WMAH-FM	Biloxi, MS
WMAO-FM	Greenwood, MS
WMAU-FM	Bude, MS
WMAV-FM	Oxford, MS
WMAW-FM	Meridian, MS
WMFE-FM	Orlando, FL
WMHT-FM	Schenectady, NY
WMJQ-FM*	Buffalo, NY

---

WMPN-FM	Jackson, MS
WMRA-FM	Harrisonburg, VA
WNCW-FM	Spindale, NC
WNGU-FM	Dahlonega, GA
WNHU-FM*	West Haven, CT
WNIJ-FM	Rockford, IL
WNIN-FM	Evansville, IN
WNSC-FM	Rock Hill, SC
WNXT-FM*	Portsmouth, OH
WODE-FM*	Easton, PA
WOI-AM	Ames, IA
WOI-FM	Ames, IA
WOSU-FM	Columbus, OH
WPKN-FM*	Bridgeport, CT
WPPR-FM	Demorest, GA
WQCS-FM	Fort Pierce, FL
WQUB-FM	Quincy, IL
WRBH-FM*	New Orleans, LA
WRJA-FM	Sumter, SC
WRHV-FM	Poughkeepsie, NY
WSCD-FM*	Duluth, MN
WSCI-FM	Charleston, SC
WSIU-FM	Carbondale, IL
WSLU-FM	Canton, NY
WSVH-FM	Savannah, GA
WTEB-FM	New Bern, NC
WTHN-FM*	Ellenville, NY
WTSU-FM	Montgomery/Troy, AL
WUAL-FM	Tuscaloosa, AL
WUFT-FM	Gainesville, FL
WUGA-FM	Athens, GA
WUIS-FM	Springfield, IL

---

WUKY-FM	Lexington, KY
WUNC-FM	Chapel Hill, NC
WUNV-FM	Albany, GA
WUSF-FM	Tampa, FL
WVIA-FM	Scranton, PA
WVIK-FM	Rock Island, IL
WVLC-FM*	Mannsville, KY
WVTF-FM	Roanoke, VA
WVTR-FM	Marion, VA
WVTU-FM	Charlottesville, VA
WVTW-FM	Charlottesville, VA
WWET-FM	Valdosta, GA
WWGC-FM	Carrolton, GA
WXVS-FM	Waycross, GA
WXXI-FM	Rochester, NY
WYMS-FM*	Milwaukee, WI
WYPL-FM*	Memphis, TN
WYSU-FM	Youngstown, OH
WZIP-FM*	Akron, OH
WZRU-FM	Roanoke Rapids, NC



**Appendix E**  
**Petitioners in the Creation of Low Power FM Radio Station**  
**"Report & Order"**  
**MM 99-25**

***Petition for Reconsideration:***

1. Amherst Alliance
2. Black, David S.
3. Bowles, Kenneth W.
4. Camarillo, Michael
5. Colorado Christian University
6. Fox, Craig L.
7. Jurison, Alan W.
8. Lawson, James W. and Larry Langford, Jr.
9. Lohnes and Culver
10. Minority Media and Telecommunications Council
11. National Public Radio, Inc.
12. National Translator Association
13. New York State Thruway Authority
14. Schellhardt, Don
15. Skinner, Rodger
16. TRA Communications Consultants, Inc.
17. United Church of Christ, et al. (UCC)

***Oppositions to Petitions for Reconsideration:***

18. National Public Radio
19. United Church of Christ et al. (UCC)

***Reply to Opposition to Petitions for Reconsideration:***

1. National Public Radio