Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

A Proposal for Creation of a Low Power
FM Broadcast Service (LPFM) MM Docket 99-25

COMMENTS OF
EVANS ASSOCIATES, CONSULTING ENGINEERS

Evans Associates, Consulting Communications Engineers, hereby submits its comments in response to the Commission's request for comments on what technical criteria should be applied in assigning Low Power FM Broadcast stations.

Evans Associates is a private consulting company primarily engaged in the practice of consulting engineering in communications technologies that are regulated by the Commission, including radio broadcasting. Our concerns with respect to the creation of a Low Power FM Broadcast Service are not about the justification for, nor merits of, such a service, rather, our concerns are concentrated on the criteria upon which LPFM stations will be authorized, and the means to prevent interference to existing FM broadcast stations. If it is given that the Commission will eventually allow an LPFM service, our goal is to help create a regulatory framework which will permit the orderly authorization of new LPFM stations without the creation of interference to established conventional broadcast stations. The experience over the last four decades with the authorization of FM translators, TV translators, and Low Power TV stations has shown that this can be done without compromising the integrity of the broadcast spectrum.

POWER AND ANTENNA HEIGHT REQUIREMENTS

We believe that the maximum power level that should be authorized for any LPFM station is 100 watts effective radiated power at 30 meters antenna height above average terrain. Unless subjected to all technical regulations and requirements that are applied to full-power FM broadcasters, LPFM stations operating at greater power would have the potential of inadvertently causing significant interference to existing full-power stations. In addition, authorization of an LPFM station with up to 1000 watts ERP in an urban area could have the preclusive effect of shutting out future additional LPFM stations in both local and distant areas, thus undermining the Commission's goal of "diversity in radio voices."

In our opinion, an LPFM class of 1000 watts is unwarranted and unnecessary, and that 100 watts ERP would be enough to serve a neighborhood, a college campus, a small town, or a community with common interests in an urban area. If an antenna height greater than 30 meters HAAT is specified, we advise that the maximum ERP be correspondingly reduced so that the distance to the predicted 1.0 mV/m contour in any direction is no greater than that of a 100-watt ERP, 30-meter HAAT facility. The minimum power authorized should be 1 watt.

INTERFERENCE PROTECTION CRITERIA

The Commission has proffered minimum distance separations as the method of preventing interference between LPFM stations and other FM facilities. This is certainly an attractive method because of its simplicity of use. However, in many cases, this method either overstates or understates the potential for interference, because it assumes that the antenna height above average terrain is the same in all directions from an antenna site. Furthermore, it excludes the option of the LPFM operator to specify a lower power

where the maximum-allowed power would cause predicted interference. A more logical approach would be the contour protection criteria identical to that used for FM translators (Paragraph 74.1204(a) of the Commission's rules).

We propose that, like an FM translator, an LPFM station be authorized without regard to interference to itself, and be required to protect commercial Class B stations to their 54 dBu F(50,50) contour, commercial Class B1's to their 57 dBu F(50,50) contour, and all other classes of FM stations, including NCE-FM stations, translators and other LPFM stations, to their 60 dBu F(50,50) contour. The undesired-to-desired signal ratios would be the same as for a translator, -20 dB for co-channel, -6 dB for first-adjacent channel, 20 dB for second-adjacent channel, and 40 dB for third-adjacent channel. Like a translator operating at less than 100 watts, an LPFM station would not be subject to an intermediate frequency (IF) separation requirement, since the maximum power for an LPFM station would be 100 watts.

As an alternative to contour protection as the only criteria, a minimum distance separation table for LPFM stations could be made as part of the LPFM regulations. LPFM operators would have a choice of either using the minimum spacings or the contour protection criteria to demonstrate the absence of interference.

RELAXATION OF 2ND- AND 3RD-ADJACENT CHANNEL PROTECTION

The Commission has proposed to eliminate third-adjacent channel protection, and relax or eliminate second-adjacent channel protection. It has long been acknowledged that, in many cases, stations operating at low power (100 watts or less) cause insignificant or no interference to a second- or third-adjacent channel full-broadcast station when the low power station is inside the predicted service area of the broadcast station.

Even so, we are not convinced that the second- and third-adjacent channel protection requirements should be disposed of entirely. While it might be appropriate to relax or eliminate these requirements for LPFM-to-LPFM protection, the Commission must acknowledge that it is possible for even a 100-watt station to cause interference to a second- or third-adjacent channel full-power station which serves the same area. On the other hand, if the present protection requirements are not changed, very few, if any, new LPFM stations could be authorized in the larger urban areas. A balance must be struck somewhere in between.

We propose that an application for a new LPFM station whose site is within the protected contour of a second- or third-adjacent channel full-broadcast station, and which fully protects all pertinent co- and first-adjacent channel stations, and which specifies a power no greater than that shown below, would be accepted for filing:

- 50 watts, if the full-broadcast station is a 3rd-adjacent Class A, C3, C2, C1, C on a commercial channel , or an NCE-FM station on a reserved channel.
- 25 watts, if the full-broadcast station is a 3rd-adjacent Class B1 on a commercial channel.
- 13 watts, if the full-broadcast station is a 3rd-adjacent Class B on a commercial channel.
- 3 watts, if the full-broadcast station is a 2nd-adjacent station of any class on a commercial or reserved channel.

If the LPFM station site is outside the full-broadcast station's protected contour, and if the maximum power for the LPFM station using the contour protection criteria is less than that listed above, then the power listed above would be the maximum permitted power for the LPFM station.

The reason for the different maximum powers for commercial Class B1 and B stations is that, unlike the other classes of stations which are protected to their 60 dBu contour, Class B1 and B stations are protected to their 57 dBu and 54 dBu contours, respectively.

If the LPFM operator chooses to be authorized as per the above, it is proposed that it be required to:

1. Send a copy of the application to the licensee of the affected station.
2. If authorized a construction permit by the Commission, to notify the licensee of the affected station at least 10 days prior to the start of program tests.
3. Operate the station for one year without complaints of interference before a permanent license is issued.

We propose that the affected full-broadcast station have an opportunity to file with the Commission an objection to proposed LPFM station at the application stage, if, in the opinion of the full-power station, the LPFM station would cause objectionable interference. Objectionable interference would be presumed to occur if the full-power station demonstrates one of the following:

- There are 300 or more residents within the LPFM interference contour, as determined by the protected contour level for the class of the full-power station, regardless of the predicted signal level in the area of the LPFM station.
- The Commission receives at least three letters of objection from listeners of the affected station who reside in the predicted interference area determined above.

RESTRICTIONS ON LICENSED LPFM STATIONS
AFFECTING 2ND- AND 3RD-ADJACENT FULL-POWER STATIONS

We propose that an LPFM licensee be required to resolve any known complaints of interference to the affected second- or third-adjacent channel full-power station, within the affected station's predicted protected contour after the initial one-year period of no interference. With regard to actual co- and adjacent-channel interference, we feel that an operating LPFM station should not be required to address complaints of interference to stations that the LPFM station fully protects under the contour protection criteria, as long as it operates within the specified parameters.

We further propose that a licensed LPFM station that affects a 2nd- or 3rd-adjacent channel as above should be able to request a doubling of power, but not exceeding 100 watts, if:

1. The increase would not result in interference with any co- or first-adjacent channel station.
2. If the LPFM station has not formerly operated at or below the requested power level and caused interference to the affected 2nd- or 3rd-adjacent channel station.
3. If the LPFM station notifies the affected station as per above.

In other words, an LPFM station whose site is within a second-adjacent commercial Class B station's 54 dBu contour would be initially authorized a power level no greater than 13 watts. If, after a year, the station does not cause interference, and receives a permanent license, it could apply for an increase to 26 watts, if no other stations would be affected.

USE OF CHANNEL 200 FOR LPFM

We propose that the Commission allow Channel 200 (87.9) to be assigned to LPFM stations in areas where it can be demonstrated that no interference would be caused to TV Channel 6 stations.

CONCLUSION

It is our opinion that the regulatory framework for LPFM proposed herein would strike a fair balance between the demand for community-oriented stations and the concern of interference to existing stations.

Respectfully submitted,

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