

**SUPPLEMENTAL  
ENGINEERING STATEMENT  
AMENDMENT TO APPLICATION FOR  
SPECIAL TEMPORARY AUTHORITY  
FCC FILE NUMBER 0077-EX-ST-2005  
NATIONAL ASSOCIATION OF BROADCASTERS  
WASHINGTON, DC**

INTRODUCTION

This supplemental engineering statement has been prepared pursuant to Section 5.63 of the Federal Communications Commission (FCC) rules on behalf of the National Association of Broadcasters (NAB) in support of an amendment to the Application for Special Temporary Authority (STA) (FCC File No. 0077-EX-ST-2005) which was filed with the FCC's Office of Engineering and Technology on February 11, 2005.<sup>1</sup> The NAB has requested the facilities specified in the application in order to study the effects of low power FM (LPFM) broadcast station transmissions on the received audio quality of full power FM broadcast stations operating three channels removed from the LPFM station.

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<sup>1</sup> The FCC dismissed the NAB's application without prejudice by letter (Reference Number 3448) on February 14, 2005. The application is subject to reinstatement to allow consideration of this amendment.

DISCUSSION

The NAB conducted preliminary experiments during the summer of 2004 under the supervision of the undersigned using existing short spaced full power FM stations operating three channels removed from one another. These studies revealed that such operation had a significant detrimental impact on the desired station's audio quality as received in certain locations using popular portable consumer receivers. Of particular concern was the degradation to received audio quality caused near the extremes of the desired station's protected service area by a strong undesired station operating nearby on a channel three channels removed from that of the desired station. Since the primary and in the case of many models the only way to listen to portable FM receivers is through the use of headphones, the listener becomes immediately aware of any degradation to the quality of the received audio.

The NAB has requested an experimental authorization for the purpose of continuing its studies under conditions duplicating those of an actual LPFM station operating within the protected service contour of a full power FM station. It is virtually impossible for the NAB to use an existing LPFM station for the purposes of continuing its experimentation because, to

date, LPFM stations that do not meet third adjacent channel distance separation requirements mandated by Congress in 2000 have not been authorized.<sup>2</sup>

Authorization of the STA would allow the NAB to conduct field strength and received audio quality surveys under tightly controlled, real world conditions. The full power FM stations to be used in the testing have agreed to do so voluntarily. Use of accessible full power FM stations in the experiments and a portable LPFM test station will allow the survey data to be acquired accurately and expeditiously. All operating parameters for both the full power FM station and the LPFM station can be verified in advance, and, because the test station would be under the direct control of the engineers conducting the experiments, coordination with an existing LPFM station would not be required.

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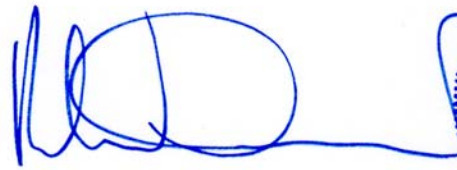

<sup>2</sup> There are three LPFM stations in the FCC database that do not appear to meet the third adjacent channel minimum distance separation requirement with respect to full power FM stations. An effort was made to ascertain the operating schedule of an LPFM station located in South Carolina, but it was not possible to do so.

Prior investigations of the impact of LPFM stations operating on third adjacent channels on existing FM service did not study audio degradation in portable receivers in motion. The earlier work done by the NAB has shown that an LPFM station operating on a third adjacent channel has the potential to degrade the audio quality of a portable receiver in motion to the point where the desired full power station is no longer listenable in areas near a third adjacent channel LPFM station. Use of low gain antennas by LPFM stations at sites in or proximate to populated areas further increases the potential for third adjacent channel interference to full power FM stations. A grant of the STA would allow the NAB to continue study of these effects and collect field strength data and audio samples to document the findings.

The NAB plans to use audio samples collected during the experiments to conduct evaluations of listener-perceived audio quality. This testing would be designed and administered by experts both in the field of objective estimation of perceived audio quality and in the field of subjective assessment of impairments in audio systems.

CONCLUSION

A grant of the STA will allow the NAB to investigate and collect new data on the impact of LPFM station operation on portable reception of a full power FM station operating on a third adjacent channel under real world conditions. Authorization of a temporary LPFM test station to operate in the Washington, D.C. area will permit local volunteer full power FM stations to be used so that strict control of all operating parameters can be maintained throughout the testing. The data collected will allow expert evaluation of audio quality and correlation of received audio quality with measured desired and undesired field strengths along the path of study. It is believed that the experimentation proposed by the NAB has a “reasonable promise of contribution to the expansion of current radio art” and that the testing of personal portable receivers in motion constitutes research “along lines not already investigated.”

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March 3, 2005