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October 14, 2003

Marlene Dortch
Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

Dear Ms. Dortch:

Enclosed are NAB's comments in MM Docket No. 99-25, which were filed electronically on October 14, 2003. The enclosed document contains the original affidavit.

Sincerely,


Ann West Bobeck
Assistant General Counsel

Enc.

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LIS/ANODE 

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ATTACHMENT: AFFIDAVIT OF CARL T. JONES CORPORATION

SUMMARY

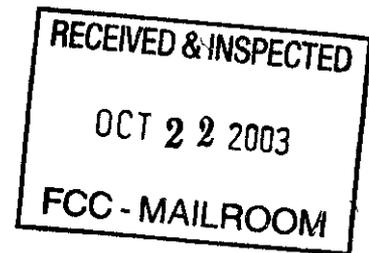
The National Association of Broadcasters submits these comments in the Commission's Low Power FM ("LPFM") proceeding. In passing the Radio Preservation Act of 2000, Congress instructed Commission to conduct field tests to determine in real world conditions whether LPFM stations would interfere with existing FM stations if LPFM stations were not subject to third adjacent channel spacing requirements. Existing broadcasters have a legitimate expectation that they can and will reach their audiences. The same is true for consumers who have purchased hundreds of millions of FM radios. As both the Commission and Congress have recognized, these listeners should not be deprived of their ability to receive free over-the-air broadcast service, including vital weather and other life-saving emergency information. Congress put the burden on the Commission to establish that these harms would not occur.

The Commission contracted with the MITRE Corporation ("MITRE") to conduct the field tests. Because MITRE's field test report ("*Report*") entirely fails to address two key Congressional mandates: (1) that independent audience listening tests be conducted to establish what is objectionable interference; and (2) that an economic analysis be performed to determine the impact on full power FM stations if third adjacent channel protections were eliminated, it fails to adhere to clear statutory conditions for any recommendation that third adjacent channel protections be altered.

Looking past the statutory deficiencies, the *Report* is fraught with major technical flaws, including site selection, frequency selection, receiver selection, receiver characterization and testing methodology, so that the resultant test data could in no way support *any* recommendation regarding the feasibility of relaxing third adjacent channel

spacing requirements for LPFM stations. Consequently, MITRE's distance separation formulas will not eliminate third adjacent channel interference and must be rejected out-of-hand. Moreover, MITRE's spacing formulas are premised on a static population assumption. But population shifts will inevitably occur: the Commission must ensure that *all* persons within a station's protected contour, including those who have relocated near a LPFM station, are not subjected to harmful interference when listening to their desired full power FM station.

Finally, the *Report* actually demonstrates the contrary of its purported conclusion, showing that listeners within a full power FM station's protected contour *will experience harmful interference* from LPFM stations located on third adjacent channels. As such, the Commission has no choice but to report to Congress that it *cannot recommend* the elimination of third adjacent channel protections for LPFM radio service based on the results of this study.



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

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

To: The Commission

COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS
ON THE MITRE CORPORATION REPORT

I. Introduction.

The National Association of Broadcasters (“NAB”)¹ submits these comments in response to the Commission’s *Public Notice*. Comment Sought on the MITRE Corporation’s Technical Report, Experimental Measurements of the Third-Adjacent-Channel Impacts of Low-Power FM Stations, *Public Notice*, MM Docket No. 99-25, rel. July 11, 2003 (hereinafter “*Notice*”). Congress instructed the Commission to conduct field tests to determine in real world conditions whether Low Power FM (“LPFM”) stations would interfere with existing FM stations if LPFM

¹ NAB is a nonprofit, incorporated association that serves and represents America’s radio and television broadcast stations.

stations were not subject to third adjacent channel spacing requirements.² The Commission contracted with the MITRE Corporation (“MITRE”) to conduct the field tests required by Congress, in a maximum of nine FM radio markets, including one market with a FM translator station.³

NAB retained the Carl T. Jones Corporation, a highly respected engineering consulting firm based in Springfield, Virginia, to examine MITRE’s field test *Report*.⁴ An affidavit of the Carl T. Jones Corporation attesting that the analysis of the MITRE *Report* contained in these comments reflects state-of-the-art engineering practices is attached to these comments.

MITRE’s field test report (hereinafter “*Report*”) entirely fails to address two key Congressional mandates: (1) that independent audience listening tests be conducted to establish what is objectionable interference; and (2) that an economic analysis be performed to determine the impact on full power FM stations if third adjacent channel protections were eliminated. Because the *Report* fails on the first cut to adhere to clear statutory requirements, the Commission has no basis to recommend to Congress any elimination of third adjacent channel protections.

Looking past the statutory deficiencies, the *Report* is fraught with major technical flaws, including site selection, frequency selection, receiver selection, receiver characterization and testing methodology, so that the resultant test data could in no way support *any* recommendation regarding the feasibility of relaxing third adjacent channel spacing requirements for LPFM

² District of Columbia Appropriations Act, FY 2001, Pub. L. No. 106-553, § 632, 114.Stat. 2762, 2762A-111(2000) (hereinafter “*Radio Preservation Act*”).

³ *Id.* at § 632(b)(1).

⁴ Four years ago NAB commissioned the Carl T. Jones Corporation to test an extensive sample of modern radio receivers to ascertain their susceptibility to second and third adjacent channel interference. See Receiver Performance Study, attached as Volume II of Comments of NAB, MM Docket No. 99-25, filed Aug. 2, 1999.

stations. Consequently, MITRE's argument that, with some minimal distance separations, the Commission can simply apply a formula and eliminate third adjacent channel interference, must be rejected out-of-hand.

This matter hinges on whether it is technically possible for the Commission to allow LPFM service to operate on third adjacent channels while not harming existing full power broadcasters and their listeners. Existing broadcasters have a legitimate expectation that they can and will reach their audiences. They have invested time, money and effort, all in good faith. The same is true for consumers who have purchased hundreds of millions of FM radios. As both the Commission and Congress have recognized, these listeners should not be deprived of their ability to receive free over-the-air broadcast service, including vital weather and other life-saving emergency information. Congress certainly put the burden on the Commission to establish that these harms would not occur.

Finally, the *Report* actually demonstrates the contrary of its purported conclusion, showing that listeners within a full power FM station's protected contour *will experience harmful interference* from LPFM stations located on third adjacent channels. As such, the Commission has no choice but to report to Congress that it *cannot recommend* the elimination of third adjacent channel protections for low power FM ("LPFM") radio service based on the results of this study.

II. Background.

Four years ago the Commission initiated a rulemaking proceeding for the creation of a LPFM radio service, part of which involved a proposal to make substantial adjustments to its interference protection criteria. In re Creation of a Low Power Radio Service, *Notice of Proposed Rulemaking*, MM Docket No. 99-25, 14 FCC Rcd 2471 (1999) at ¶¶ 42-50 (hereinafter

“*NPRM*”). Specifically, the Commission sought to eliminate second and third adjacent channel protections for LPFM stations. In soliciting studies from interested parties, the Commission received three receiver studies.⁵ Additionally, the Commission’s Office of Engineering and Technology (“OET”) began its own testing after the *NPRM* was released and subsequently placed its “Interim Report” in the docket after the comment deadline.⁶ In comments submitted on August 2, 1999, NAB addressed the Commission’s assumptions regarding the technical issues – primarily that receivers have improved enough to reject interference from second and third adjacent stations – and showed these assumptions to be unfounded.⁷ NAB provided a comprehensive receiver study that demonstrated that FM receivers had not improved, and indeed did not generally perform up to the Commission’s frequency planning assumptions. The NAB and Consumer Electronics Manufacturers Association (“CEMA” now “CEA”) data, while collected independently, came to virtually the same conclusion, that the Commission cannot eliminate second or third adjacent channel protections for LPFM because receivers generally will not be able to adequately reject the undesired signals that would be created.⁸ In contrast, OET

⁵ NAB submitted its receiver study as Volume Two of its Comments in MM Docket No. 99-25, filed Aug. 2, 1999; Consumer Electronics Manufacturers Association (“CEMA” now Consumer Electronics Association “CEA”), National Public Radio and the Corporation for Public Broadcasting submitted a joint receiver study on Aug. 2, 1999; The National Lawyers Guild (“NLG”) and other LPFM proponents filed a receiver study conducted by Broadcast Signal Lab as part of the NLG’s comments filed on Aug. 2, 1999.

⁶ Office of Engineering and Technology, Federal Communications Commission, Second and Third Adjacent Channel Interference Study of FM Broadcast Receivers, Project TRB-99-3, July 19, 1999 (placed in record on Aug. 3, 1999) (hereinafter “*OET Interim Report*”).

⁷ Comments of NAB in MM Docket No. 99-25, filed Aug. 2, 1999 (hereinafter “NAB Comments”).

⁸ *Id.* at 32; see also Comments of CEMA in MM Docket No. 99-25, filed Aug. 2, 1999 at 13. Note that although NAB’s study did show that most receivers cannot perform up to the existing

and the National Lawyers Guild (“NLG”) concluded that receivers are capable of adequately performing without second and third adjacent channel interference protections.⁹ However, when these studies were properly evaluated, they did not contradict our findings.¹⁰ The ultimate conclusion indicated from the testing of over seventy five (75) receivers was that the Commission cannot eliminate interference protections because doing so would cause substantial interference to existing services.

Notwithstanding ample evidence in the record that full power FM listeners would be adversely affected, in 2000 the Commission concluded that licensing LPFM stations on third adjacent channels would not result in significant interference to existing full power FM stations. *In Re Creation of Low Power Radio Service, Report and Order*, MM Docket No. 99-25, 15 FCC Rcd 2205 (2000) (“*LPFM Order*”). Despite the findings of four major FM technical studies, on reconsideration, the Commission rejected claims that it had ignored record evidence demonstrating a likelihood of interference from third adjacent LPFM stations, explaining that it had “simply found that the test data supported different conclusions than those reached by” LPFM opponents. *Memorandum Opinion and Order on Reconsideration*, MM Docket No. 99-25, 15 FCC Rcd 19208 (2000) at ¶ 9 (“*Reconsideration Order*”). Further, notwithstanding repeated objections to implementing LPFM service without real world testing, the Commission simply responded that:

interference standards under the Commission’s rules, NAB is not advocating that the Commission increase its interference protections.

⁹ See *OET Interim Report* at 1; See Comments of NLG, in MM Docket No. 99-25, filed Aug. 2, 1999 at XII.D.

¹⁰ Reply Comments of NAB, in MM Docket No. 99-25, filed Nov. 15, 1999.

interference issues involved in this matter relate to receiver performance, qualities which are best examined through laboratory testing of a sample of receivers. 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.

Id. at ¶ 15.

Congress, however, disagreed with the Commission's conclusions, reinstating third adjacent channel protections, and ordering the Commission to conduct field tests to determine in real world conditions whether LPFM stations would interfere with existing FM stations if LPFM stations were not subject to third adjacent spacing requirements.¹¹ Congress was also concerned the Commission's testing methodology in evaluating what is objectionable interference to the average radio listener was self-serving. As Representative Cliff Stearns stated:

[W]e think the FCC has rushed to judgment without resolving this critical part, which is the interference issue without fully consulting with us. Even the FCC witness testifying before our committee could not explain why the commission, the FCC commission, did not measure interference using signal-to-noise ratios. . . . by measuring distortion rather than using the internationally recognized standard for interference, the FCC cooked its own results in a way that allowed for it to move forward.¹²

It is obvious that Congress intended the field tests to be conducted by an independent, objective entity using standard, scientifically-accepted procedures. As discussed below, because MITRE failed to (1) follow proper procedures for determining harmful interference; and (2) adequately test interference to full power FM stations, the Commission cannot recommend to Congress that any change should be made in the third adjacent channel interference standards.

¹¹ See *Radio Preservation Act* at § 632(b)(1).

¹² 146 Cong. Rec. H2969 (daily ed. May 15, 2000) (statement of Rep. Stearns).

III. The MITRE Report Fails to Address Key Statutory Requirements.

A. The Commission Cannot Circumvent A Congressional Mandate Based on Cost Considerations.

Section 632(b)(2)(B) of the *Radio Preservation Act* specifies that the Commission shall hire an independent testing agency to conduct “field tests [which] shall include ... independent audience listening tests to determine what is objectionable and harmful interference to the average radio listener.” Yet, *with the acceptance of the Commission*, MITRE elected to use a *single* listener to judge whether or not harmful interference was present in the audio under test.¹³ MITRE abandoned audience listening tests (also known as subjective evaluations) because “the proposed cost of the listening tests was very high and substantially exceeded the available budget.”¹⁴ MITRE further explained that “costs were driven by the size of the sample audience that is needed to produce statistically significant results.” *Id.*

This, however, entirely circumvents Congress’ intention that actual listening is the critical component in quantifying what constitutes objectionable interference. Without statistically significant listening test results, *there can be no quantification of the level of interference resulting from LPFM stations sited in a relaxed third adjacent channel allocation environment.*¹⁵ There is a wealth of evidence in the technical literature that a single listener is no *substitute for a properly designed and executed subjective evaluation.*¹⁶

¹³ MITRE states “At the time of the recording, the subcontractor technician who was operating the workstation annotated the data sheet with his perception of the level of interference for each receiver type.” *Report*, Vol. 1 at 1-13. These perceptions were later verified from the CDs by a MITRE engineer who had received and passed a certified hearing examination.

¹⁴ *Report*, Vol. 1 at 1-14.

¹⁵ Moreover, without quantification of what constitutes objectionable interference, the Commission has no way of determining what level of interference LPFM stations may face *from*

In lieu of performing statistically valid audience listening tests, MITRE simply concluded that it “does not *feel* there is enough perceptible interference from LPFM stations operating on third-adjacent channels to warrant the expense of a formal listener test program.”¹⁷ Despite what MITRE “feels,” Congress specifically directed the Commission to “conduct audience listening tests to determine what is objectionable and harmful interference to the average radio listener.”¹⁸

MITRE’s failure to fulfill the Congressional mandate to conduct audience listening tests leaves the Commission with no basis to recommend altering third adjacent channel protections. Here Congress’ intent is unambiguous – independent audience tests are *required* because they form the basis for determining what is objectionable and harmful interference. When Congress’

full power FM stations. Under well established policies the Commission should not authorize new radio stations that will certainly receive interference from existing services. *See* Federal Communications Commission, FCC Standards of Good Engineering Practice Concerning FM Broadcast Stations (1945); *In the Matter of 1998 Biennial Regulatory Review – Streamlining of Radio Technical Rules*, MM Docket 98-93, 13 FCC Rcd 13513 (1998) at ¶ 20; *see also* NAB Comments, Vol. 1 at 4.

¹⁶ The International Telecommunications Union Radiocommunications Sector (ITU-R) has published a number of definitive recommendations on subjective evaluation including “*Methods for the Subjective Assessment of Small Impairments in Audio Systems Including Multichannel Sound Systems*,” Recommendation ITU-R BS.1116-1 (1997) and more recently “*Multi Stimulus Test With Hidden Reference and Anchors (MUSHRA) – EBU Method for Subjective Listening Tests of Intermediate Audio Quality*,” Preliminary Draft New Recommendation, ITU-R document 10-11Q/TEMP/33 (Feb. 2000). These recommendations are universally cited and referred to in the literature pertaining to subjective evaluations. In addition, NAB has extensive experience in the area of FM audio subjective evaluations through its participation in the National Radio Systems Committee (“NRSC”), co-sponsored by NAB and the Consumer Electronics Association (“CEA,” formerly CEMA). The NRSC’s purpose is to study and make recommendations for technical standards that relate to radio broadcasting and the reception of radio broadcast signals. *See, e.g.*, “Subjective Evaluation Program and Platform,” Appendix G, “Report to the National Radio Systems Committee - FM IBOC DAB Laboratory and Field Testing,” iBiquity Digital Corporation, Aug. 2001; *see also* “Dynastat – Audio Testing Methods and Procedures,” Appendix H, and “FM Subjective Evaluation Results,” *Id.* at Appendix I.

¹⁷ *Report*, Vol. 1 at 1-14 (emphasis added).

¹⁸ *Radio Preservation Act* at § 632(b)(2)(B).

intent is clear, “the court, as well as *the agency, must give effect to the unambiguously expressed intent of Congress.*” *Chevron U.S.A. Inc., v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-43 (1984) (emphasis added). The Supreme Court has also told us that Congress intends “each of its terms to have meaning.”¹⁹

Moreover, the language of Section 706(1) of the Administrative Procedures Act is clear: the word “shall” is interpreted strictly as mandatory, nondiscretionary duty. *See, e.g., Pierce v. Underwood*, 487 U.S. 552 (1988); *United States v. Monsanto*, 491 U.S. 600, 607 (1989) (noting that “shall” is the strongest language Congress could possibly use.); *Association of Civilian Technicians v. Federal Labor Relations Auth.*, 22 F.3d 1150, 1153 (D.C. Cir. 1994) (stating that “[t]he word ‘shall’ generally indicates a command that admits no discretion on the part of the person instructed to carry out the directive.”) Thus, the express language of Congress mandates the Commission to conduct audience listening tests.

Even assuming, *arguendo* that the statutory language is not entirely clear, the legislative history of the Act provides guidance:

The Committee expects there to be a meaningful opportunity for the public to comment on the structure and methodology of the field tests. The independent entity must, at a minimum, accept comments from the public on the extent to which the experimental stations create interference, *and conduct audience listening tests in order to establish the level of interference that is objectionable to the average radio listener.* In making the latter determination, the Committee intends that the independent testing entity take into account the effects of interference on all kinds of radios in the market, and further, to rely, as appropriate, on international and academic standards for determining interference.

¹⁹ *Roland J. Bailey v. United States*, 516 U.S. 137, 146 (1995); “we have stated time and again that courts must presume that legislature says in a statute what it means and means in a statute what it says there.” *Connecticut Nat. Bank v. Germain*, 503 U.S. 249, 254 (1992); *see also United States v. Ron Pair Enterprises, Inc.* 489 U.S. 235, 241-242 (1989); *United States v. Goldenberg*, 168 U.S. 95 (1987) (An agency rule would be arbitrary and capricious if the agency . . . [e]ntirely failed to consider an important aspect of the problem.”)

H. Res. 472, Report No. 106-575, 106th Cong. 2d Sess. (2000) at 8 (emphasis added). Without independent listening tests, the threshold for determining objectionable or harmful interference cannot be established. Thus, the Commission erred in allowing MITRE to omit the audience listening tests.

When an agency is incapable of fulfilling a statutory requirement due to financial constraints, the agency should communicate the problem to Congress before simply disobeying clear congressional content. Indeed, the D.C. District Court has held “it is beyond this Court’s authority to excuse Congressional mandates for budgetary reasons.” *American Lands Alliance v. Norton*, 242 F. Supp. 2d 1, 18 (D.D.C. 2003). The Commission is already thirty-two (32) months past due in reporting to Congress the findings of the field tests.²⁰ In order to produce statistically significant results for audience listening tests, at any time during the past three years the Commission could have simply requested Congress to appropriate funds. Its failure to do so does not excuse lack of compliance with the specific testing procedures Congress dictated.

B. The MITRE Report Fails to Provide Any Economic Analysis.

In addition to the lack of audience listening tests, the *Report* does not include the statutorily mandated economic analysis of the impact LPFM stations would have on full power stations were third adjacent channel requirements to be eliminated. In creating the LPFM service, the Commission made a sweeping and unsupported assertion that “any small amount of interference that may occur in individual cases would be outweighed by the benefits of new low power FM service.” *LPFM Order* at ¶ 104. Apart from stating its conclusion, the Commission engaged in virtually no analysis to weigh the benefits of LPFM service against the costs. The

²⁰ Section 632(b)(1)(B)(3) of the *Radio Preservation Act* states that the Commission shall, after publishing the field test results and affording the public and opportunity to comment, report back to Congress “not later than February 1, 2001.”

Commission failed, for example, to estimate the audiences of the LPFM stations and compare these numbers in any way to the number of listeners affected by new interference. Nor did the Commission consider the economic impact such a service would have on existing broadcasters.

The Commission has recognized that “the industry’s ability to function in the ‘public interest, convenience and necessity’ is fundamentally premised on its economic viability.”²¹ And as the Chairman observed, the record reflects that numerous existing stations – particularly those in rural communities – could face dire economic consequences from LPFM stations. *See* Dissenting Statement of Michael K. Powell, (noting the “erosion of economic viability” of small market broadcasters resulting from the Commission’s *LPFM Order*). *LPFM Order* at 15 FCC Rcd 2323-25 . Before the Commission drops third adjacent channel protections it must carefully weigh any benefits in service it foresees against the loss of service its proposals will engender.

Congress directed the Commission to conduct an economic analysis on the impact of reducing third adjacent channel protections for LPFM service on incumbent broadcasters, in particular, on minority and small broadcasters. Indeed, in passing the *Radio Preservation Act*, Congress recognized that:

the introduction of LPFM service may have a deleterious effect on the service now provided to listeners by many small market and minority-owned radio stations. The Committee concludes that these concerns are well-justified ... [and] further requires the FCC, to conduct further studies of the potential for interference to LPFM stations and over the impact of LPFM service.

H. Res. 472, Report No. 106-575, 106th Cong. 2d Sess. (2000) at 4. Congress acknowledged the importance of assessing the costs and benefits on the viability of current FM radio stations.

²¹ Revision of Radio Rules and Policies in MM Docket No. 91-140, 7 FCC Rcd 2755 (1992) at ¶ 10.

MITRE declined to conduct an economic analysis because it assumed a showing of interference was a prerequisite for the statutory requirement.²² That assumption, however, is incorrect. Congress did not tie the requirement of an economic impact study to any finding of interference. Rather, Congress directed the Commission to examine the economic impact on incumbent broadcasters, and in particular, small market and minority broadcasters, were the third adjacent channel protections to be altered and hundreds or thousands of new LPFM stations authorized. Congress was concerned that the audience diversion caused by additional LPFM stations would hurt existing radio service whether or not the new LPFM stations created interference. Thus, MITRE's failure to conduct an economic analysis rested on a faulty understanding of Congress' intent. The failure to conduct an economic analysis makes it equally impossible for the Commission to recommend any changes to third adjacent channel standards.

Moreover, as discussed below in Section IV, because the field test data is not scientifically valid, the Commission cannot *ex post facto* fill in MITRE's omissions. Simply stated, the data collected is so inherently unreliable that the Commission cannot utilize the recordings obtained to conduct future audience listening tests and, based on the results of those tests, perform an economic analysis on the impact LPFM stations on third adjacent channels may have on full power FM stations. In making its recommendation to Congress, the Commission need not look further than these statutory deficiencies.²³ In turning to the work product MITRE *did* perform, it is evident that the field tests were bereft with major technical flaws so that the collected data is rendered unusable.

²²*Report*, Vol. 1 at 1-14.

²³ Not only will the Commission fall short of fulfilling its statutory requirements, any reliance on the *Report* will likely be deemed arbitrary and capricious for failing to "consider an important