ORIGINAL

January 11, 2000

RECEIVED

JAN 11 2000

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Magalie Roman-Salas
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

**Re: Notice of *Ex Parte* Presentation in MM Docket 99-25**

Dear Ms. Salas:

Yesterday, I met with Marsha MacBride of Commissioner Powell's office to discuss low power radio ("LPFM") on behalf of United Church of Christ ("UCC"), *et al.*

I explained to Ms. MacBride that UCC *et al.*'s technical analysis demonstrated significant flaws in the studies criticizing the technical feasibility of LPFM. For example, one-half of the radios the NAB tested did not meet their standard of technical performance, *before* any interference was introduced. I provided Ms. MacBride with a hand-out previously submitted to Commission staff summarizing UCC *et al.*'s technical conclusions. This document is attached. Further, I explained that, despite their small size, LPFM stations will be able to reach a significant number of listeners.

In addition, I explained that the NAB's recent response to UCC *et al.*'s technical analysis did not find any flaws in UCC *et al.*'s analysis. I provided Ms. MacBride with a written response to the NAB's January 5, 2000 filing, a copy of which is attached.

I explained to Ms. MacBride that neither proponent of digital radio had objected to a relaxation of third adjacent protection, and that USADR has objected to relaxing second adjacent protection only with respect to interference *outside* its protected contour. Lucent Digital Radio stated in its reply comments that it did not oppose relaxation of second adjacent protection as long as LPFM is a secondary service.

Finally, Ms. MacBride and I discussed the ability of the Commission to impose ownership limits, and I discussed UCC *et al.*'s proposals that will allow the Commission to identify when one non-profit organization is controlled by another entity.

Pursuant to section 1.1206(2) of the Commission's rules, two copies of this letter are being filed today.

Sincerely,

Cheryl A. Leanza
Deputy Director

Attachments
cc: Marsha MacBride

No. of Copies rec'd 0+2
List A B C D E

950 18TH STREET, NW SUITE 220 WASHINGTON, DC 20006
VOICE: (202) 232-4300 FAX: (202) 466-7656 http://www.mediaaccess.org

**United Church of Christ, *et al.* Response to NAB's Further Comments**
**January 10, 2000**

The National Association of Broadcasters ("NAB") could find nothing substantively incorrect in the technical analysis submitted by Dr. Rappaport on behalf of United Church of Christ ("UCC") *et al.* The NAB filed its *Further Comments* on January 5, 2000, which incorporated a technical response by Dr. Raymond L. Pickholtz and Dr. Charles L. Jackson ("*Pickholtz/Jackson Response*"). The NAB's *Further Comments* are the most persuasive evidence submitted thus far proving the technical feasibility of LPFM. Although the flaws of Pickholtz and Jackson's analysis are largely self-evident, UCC *et al.* itemizes and responds to them below in order to assist the Commission with its analysis:

- Pickholtz and Jackson did not respond to the core point in Dr. Rappaport's analysis: the FCC spacing ratios have nothing to do with radio performance, and thus the radio receiver analysis did little to demonstrate why the FCC's rules could not be changed to accommodate LPFM.

- Many of Pickholtz's and Jackson's criticisms make no sense and are not even technical. For example, they criticize Dr. Rappaport for taking a position on LPFM and for criticizing the NAB and CEMA studies, but not the FCC and OET studies. *Pickholtz/Jackson Response* at 2. Dr. Rappaport's position is no different from that of Pickholtz and Jackson themselves.

- Other criticisms blow hypoberlic smoke, but state nothing. Pickholtz and Jackson point out that, although the CEMA sample of radios was flawed, *some* conclusions about radio performance could be drawn from the study. While this is true, Pickholtz and Jackson could not point to anything about the CEMA study that counters Dr. Rappaport's conclusions. *Pickholtz/Jackson Response* at 3-4.

- Some criticisms are simply incorrect.

    - Dr. Rappaport's study extensively considered second and third adjacent interference. He calculated the possible interference under every possible condition -- considering full protection, relaxed protection, and partially relaxed protection for 10, 100, and 1000 watt stations. *See UCC Technical Analysis,* App. D at 1-29.

    - Contrary to Pickholtz and Jackson's claim, *Pickholtz/Jackson Study* at 7, Dr. Rapport properly calculated the *ratios* of people who gain service and who may potentially experience interference. Dr. Rappaport used the procedures in Part 73 to calculate average population densities over the *area* of a propagation region.

- Dr. Rappaport criticized the NAB Mapping study for excluding car radios from its analysis. Rappaport, Pickholtz, and Jackson agree that car radios and home radios operate differently, but Pickholtz and Jackson have not explained why the FCC should ignore the high performance of the radio that most listeners use for the most hours. *Pickholtz/Jackson Response* at 3. In fact, because of the unique needs of a radio that moves at high speeds, a car radio must be much better at rejecting interference than household radios. Thus, listeners in cars are *less* likely to experience interference from the introduction of LPFM.

- Pickholtz and Jackson fundamentally misrepresent Dr. Rappaport's criticism of the NAB's performance standards. First, Pickholtz and Jackson do not explain why fifty percent of the radios the NAB tested could not meet their standard of performance in the *absence* of interference. Clearly the 1977 standard referenced by Pickholtz and Jackson is irrelevant to most consumers. *Pickholtz/Jackson Study* at 4. In addition, Dr. Rappaport criticized the NAB study for using two measures of performance, not for using a relative measure of performance. *See Pickholtz/Jackson Study* at 5. Dr. Rappaport praised the OET study for using a relative measure of performance. *UCC Technical Analysis* at 35.

The NAB has produced nothing undermining the technical feasibility of low power radio. The FCC should approve a LPFM service that relaxes both second and third adjacent protection for LPFM stations of 100 watts or less.

**United Church of Christ *et al.* Technical Presentation on LPFM**
**December 10, 1999**

**Dr. Theodore Rappaport, P.E., Wireless Valley Communications, Inc.**
**Cheryl A. Leanza, Deputy Director, Media Access Project**

***Adoption of LPFM will serve the goals of the FCC: it will preserve existing services and provide new service offerings by increasing spectrum utilization.***

---

Proposed technical compromise:

**Eliminate both second and third adjacent protection for 100 or fewer watt stations. Make no change in protection standards for 1000 watt stations.**

---

UCC *et al.*'s technical submission. Through significant financial support of the John D. and Catherine T. MacArthur Foundation and George Soros's Open Society Institute, in addition to others, Dr. Rappaport and the staff at Wireless Valley undertook a thorough review of the studies and information submitted to the FCC. In addition to analyzing information submitted by others, Dr. Rappaport engaged in extensive computer modeling to demonstrate the feasibility of low power radio stations of 100 or fewer watts.

❖ **Adoption of 100 or fewer watt stations retains the benefits of the LPFM proposal while alleviating the technical concerns of the industry.**

- These smaller stations will make almost no impact on current broadcasts.

- At least *600 low power radio stations* of 100 or fewer watts can be deployed *in the top 60 markets alone* without harming current radio broadcasts.

- At most, *1.6 percent of the listeners served will experience interference.* That 1.6 percent will experience interference only under the following circumstances:

  - First, the listener must want to hear only one particular incumbent station of the many available.
  - Second, the LPFM station must be near the coverage fringe of that incumbent station.
  - Third, that incumbent station must transmit on a channel 2 or 3 channels above or below the LPFM station's assigned frequency.
  - Fourth, the radio receiver must be a poor performing table radio such as a clock radio.
  - *Fifth, the listener must not be able to relocate his or her radio to improve reception.*

- Eliminating both second and third adjacent protections for 100 watts and fewer increase substantially the number of stations that can be authorized, thus making the creation of LPFM more meaningful.

- The industry's arguments themselves demonstrate that they are not concerned about stations with 100 or fewer watts. For example, both the NAB and Disney/ABC criticize lower wattage stations for the interference they will *incur*, not the interference they will cause.

- Currently, the blanketing interference accepted by the FCC for full power stations, which eliminates listener reception of *all* broadcasters, exceeds the second and third adjacent channel interference that LPFM stations would cause, which affects only broadcasters on adjacent channels.

  - For example, the largest full power stations, a class A station, emits a blanketing interference area of almost 19 square miles, whereas a 100 watt station would cause adjacent interference in a 0.6 square mile area.

❖ **The NAB and CEMA studies ask the wrong question.**

- Contrary to the proposition of NAB and CEMA, FCC protection ratios do not accurately measure consumer satisfaction with radio reception.

- In order to accept the conclusions of the NAB and CEMA, one must conclude that most radios today do not perform acceptably. This is clearly false.

- No comparison was made between older radio receivers and newer radio receivers.

- Radio receiver performance is based on the actual real world environment, the tolerance of the consumer, and the design/cost tradeoffs made by the manufacturer, and has absolutely nothing to do with how the FCC assigns FM broadcast station licenses. The studies bear this out. The radios tested did not meet the standards assumed by FCC protection ratios, but they are common radios in use in the market today.

- The real-world interference environment is much more forgiving than the FCC ratios indicate, which is why modern receivers are designed less stringently than the ratios indicate.

- The NAB and CEMA favor a double standard: if the Commission were to adhere to the sound standards utilized by the NAB and CEMA for LPFM, the Commission would be forced to reduce the number of full-power stations currently authorized.

- The NAB chose a sound quality threshold that *fifty-four percent* of the radios tested *failed to meet, absent projected LPFM interference.*

❖ **The NAB mapping study is engineered to misrepresent interference caused by LPFM.**

- The NAB's mapping study counts the number of radios, not the number of listeners, that might experience interference under the NAB's unusually high standards for listening quality.

- The NAB admits that it combines the worst performing characteristics of different radios to create a hypothetical "worst radio." Not only does the NAB provide no evidence that such a radio exists, but the NAB's initial selection of low-performing radios makes the hypothetical worst radio even less defensible.

- The NAB chose to map the worst of their three test results, when another measure would have been the most representative choice.

- The NAB mapping study does not hold up to peer review because it does not disclose the underlying methodology used to produce its maps.

- The NAB maps visually over represent interference with LPFM because they combine current full-power station interference with LPFM projected interference.

❖ **Digital Radio Will Not Be Precluded by Adoption of LPFM.**

- Digital radio is being engineered to perform in the current FM interference environment. When compared to the current FM interference environment, LPFM will be a minuscule interference source because it will impact a very small percentage of the current listening public, and in very small zones.

- Digital radio advocates' concerns about interference are not based on technical infeasibility, but on the cost of future digital radio receivers. But digital radio manufacturers will be able to make the same cost/performance trade-offs that analog manufacturers have made.

- USADR's engineering submission expresses no concern about third adjacent protection. USADR's concerns relating to second adjacent protection occur *outside* stations' protected contours.

- USADR's technology is robust. USADR intends to transmit duplicative information in both the upper and lower sidebands. If interference temporarily interrupts the upper sideband, the transmission can be reconstructed from the lower sideband and vice versa. IBOC would be threatened by simultaneous first adjacent interference on both sidebands, a highly unlikely scenario.

❖ **Although NPR and NAB argue that reading for the blind services will be harmed, they produce no evidence or data about these services.**