

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

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In the Matter of: )  
 )  
Experimental Radio Station ) FCC File No. 0538-EX-PL-2010  
Construction Permit and License of )  
National Public Radio, Inc. )  
Call Sign WF2XQD )  
\_\_\_\_\_ )

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To: Office of Engineering and Technology  
Experimental Licensing Branch

NOV - 6 2011  
Federal Communications Commission  
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**OPPOSITION TO PETITION FOR RECONSIDERATION**

**Introduction**

National Public Radio, Inc. ("NPR") hereby opposes the Petition for Reconsideration filed by ABC, Inc. ("ABC") seeking rescission or cancellation of the experimental authorization granted to NPR in the above-captioned matter ("Experimental Authorization"). We address ABC's concerns below, which we believe are unfounded and do not support the requested action.

The purpose of the Experimental Authorization is to demonstrate the potential viability of a cognitive modulator to connect a variety of devices, such as cell phones, navigation aids, portable media players, and satellite radios, wirelessly to a vehicle's stereo system. The 87.7 MHz spectrum was chosen because it can be utilized by a large percentage of mobile FM receivers and, as determined in this study, it may be capable of concurrent, non-interfering use with channel 6 DTV service, thereby promoting an efficient use of the spectrum in the public interest. NPR is working with SiriusXM in this experimental program because of our mutual

interest in developing a modulator that addresses the consumer demand for such equipment while avoiding interference to the reception of broadcast signals, both television and FM radio.

**I. The Facility Authorized By The Commission Does Not Constitute An Unlicensed Television Band Device Under Subpart H of Part 15 of the Commission's Rules And Is Not Governed By The Technical Rules Set Forth Therein**

Two of the three arguments set forth in the ABC Petition appear to mistake the Experimental Authorization, granted pursuant to Section 5 of the Commission's Rules, for a Television Band Device ("TVBD") operation, authorized under Subpart H of Section 15 of the Commission's Rules. See Petition at 2-4. ABC's first argument contends that the Experimental Authorization permits operation according to technical parameters that are inconsistent with Section 15.707(b) of the Commission's Rules. Id. at 2-3. ABC's second argument contends that the Experimental Authorization permits operation within protected contours of co- or adjacent channel television stations, contrary to Section 15.712(a)(2) of the Commission's Rules. Id. at 3-4. Because the Experimental Authorization is not governed by Subpart H of Part 15 of the Commission's Rules, these arguments are misguided.

In authorizing the use of unlicensed TVBDs, there is no indication, let alone explicit direction, by the Commission that it intended to subject all Part 5 experimental authorizations involving spectrum allocated for television broadcast use to the requirements of Subpart H of Part 15. See In the Matter of Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, Second Memorandum Opinion And Order, 25 FCC Rcd. 18661 (2010) (adopting final rules for TVBDs). Doing so would constitute a radical departure from the Commission's longstanding construction of Part 5 of its Rules.

In order to stimulate technical innovation and facilitate the testing of novel technology, trials authorized under Part 5 need not comply with the usual rules

that govern permanent authorizations of wireless services, but instead are reviewed under streamlined procedures and more flexible standards. A distinct advantage of the Part 5 rules is that, for defined experiments, through one consolidated application process, parties may obtain authorization to conduct scientific research, technical demonstrations, and limited market trials -- activities that otherwise would not be permitted without various waivers of the Commission's rules.

In the Matter of 1998 Biennial Regulatory Review -- Testing New Technology, Notice Of Inquiry, 13 FCC Rcd 21879, 21887 (1998). Indeed, the Commission has since issued a Notice of Proposed Rulemaking to revise the Part 5 Rules to provide even greater flexibility regarding allowable frequency range, power, and emissions to further encourage innovation. In the Matter of Promoting Expanded Opportunities for Radio Experimentation and Market Trials under Part 5 of the Commission's Rules and Streamlining Other Related Rules, Notice of Proposed Rulemaking, 25 FCC Rcd. 16544 (2010) ("Part 5 NPRM"). Neither the existing Part 5 Rules nor the Part 5 NPRM provide support for the proposition that current Part 5 experimental operations are subject to Subpart H of Part 15 of the Commission's Rules.

That the Experimental Authorization does not reference Part 15 is not surprising because Part 15 unlicensed operations and Part 5 experimental authorizations involve very different uses of spectrum. Part 15 is intended to permit the manufacture and use of radiofrequency emitting devices on an ongoing basis without individual license or authorization. See 47 C.F.R. § 15.1. Part 5, on the other hand, involves short-term experimentation involving radio frequency radiation and requiring individual authorization by the Commission. Subjecting Part 5 experimental authorizations to technical or other requirements imposed under other, unspecified rule parts would engender confusion regarding the applicable requirements and undermine the experimentation and innovation the Commission intends to promote.

With specific regard to the Experimental Authorization, a TVBD as defined in Part 15 is an entirely different type of device. As specified in Section 15.709(a) of the Commission's Rules, fixed TVBDs may operate at up to 1 watt input into an antenna with gain of up to 6 dBi for fixed use at up to 30 meters above ground, and portable TVBDs may operate with an effective isotropic radiate power ("EIRP") of up to 100 milliwatts. 47 C.F.R. § 15.709(a). Given these power levels, the Commission clearly intended a system of ongoing TVBD use well outside any co-channel TV station's service area. The system contemplated in the Experimental Authorization, on the other hand, is intended to operate with a maximum power level of 20 microwatts, vastly lower than a TVBD's. Simply put, the experimental cognitive modulator that is the subject of the Experimental Authorization issued pursuant to Part 5 of the Commission's Rules is not an unlicensed TVBD for purposes of Subpart H of Part 15 of the Commission's Rules. See 47 C.F.R. § 15.703(m).

**II. Operation Of The Authorized Facility Is Not Contrary To The Conditions Specified In The Experimental Authorization**

ABC's final argument is that operation under the Experimental Authorization is contrary to its specified conditions. Petition at 4-6. Those conditions are to coordinate with all co-channel licensees in the areas of operation and to terminate operations immediately in the event of actual interference to other licensed facilities. Experimental Authorization at 2. This argument is likewise unfounded.

With regard to the obligation to coordinate, a laboratory model and operational simulation had been completed at the time the Experimental Authorization was granted, but unexpected delays have since delayed the initiation of formal testing. In particular, challenges in constructing and testing the vehicle's cognitive modulator and integrating the cognitive modulator into the vehicle electronics have delayed the development of a detailed interference

measurement plan. Until this process is complete and the testing is reasonably imminent, there is nothing definitive to coordinate with ABC or other co-channel licensees.

We certainly intend to coordinate with ABC, and we would welcome their input. Had we known of their concerns regarding the Experimental Authorization prior to receiving the Petition, we would have consulted with them in the interest of allaying their concerns. Regardless of the degree of ABC's involvement, however, testing would immediately cease if harmful interference were to occur to WPVI-TV operations or those of other co-channel licensees, as required by the Experimental Authorization.

Not surprisingly, the ABC Petition cites no instances of actual interference to WPVI-TV, and we are unaware of claims of actual interference to other co-channel licensees. At most, ABC has claimed that the authorized operation is predicted to cause interference, but even that claim is subject to question.

ABC's technical analysis used the "Desired-to-Undesired signal ratio defined for interference protection to digital television stations," Petition, Engineering Statement at 4-5, which involves wideband DTV interference from another DTV station, rather than a narrowband signal to DTV. Studies indicate that the threshold D/U ratio of 10 dB is more than 5 dB lower for narrowband interfering signals than for co-channel DTV interfering signals. G. Sgrignoli & W. Bretl, W., Summary of the Grand Alliance VSB Transmission System Field and Laboratory Tests, International Conference on Consumer Electronics, 1996 Digest of Technical Papers. However, the Engineering Statement includes interference studies with D/U ratios of up to 25 dB, or as much as 15 dB above the appropriate narrowband signal interference ratios.

The analysis also uses the Longley/Rice signal propagation model, which, at the small distances illustrated in its Exhibit 2, determines interference using free-space propagation to

most locations. This neglects the effect of signal scattering and absorption by local ground clutter between the cognitive modulator's in-vehicle antenna, at a height of 2 meters, and surrounding television receive antennas at an assumed height of 10 meters above ground. Such scattering and absorption can substantially reduce the field intensity of signals from the cognitive modulator below what ABC assumes.

The analysis was also performed for the maximum effective radiated power ("ERP") of 20 microwatts using classical calculation techniques. Petition at 5, *citing* Engineering Statement at 4 and Exhibits 2-4. The analysis does not take into account that the Experimental Authorization concerns a cognitive modulator, which senses the transmitter power necessary to provide an acceptable signal for reception by the vehicle's FM receiver on 87.7 MHz. In this manner, the cognitive modulator is expected to radiate substantially less power over most of the area within the WPVI-TV protected contour, and increasing ERP only in areas nearest to the WPVI-TV transmitter where the WPVI-TV field strength is high and most resistant to interference.

The WPVI-TV viewer's received signal quality is determined solely by the received carrier to interference plus noise (C/I+N) ratio. Because of the designed linkage between cognitive modulator power and background signal from channel 6, those channel 6 receivers far from the transmitter that receive less desired carrier are expected to receive a low interfering signal from the cognitive modulator. Conversely, those receivers close to the channel 6 transmitter will receive a higher interfering signal from the cognitive modulator, but the C/I+N ratio would be maintained because the desired carrier increases, as well. It is expected, and will be determined in the study, that the coincidental increase in cognitive modulator emission with

ambient channel 6 TV signal will maintain a favorable C/I+N ratio that will not affect surrounding TV reception to WPVI-TV.

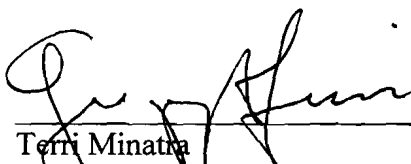
Due to the number of factors governing satisfactory operation in such an analysis and a shared concern for interference, a structured and carefully designed testing program could best demonstrate that the cognitive modulator would not cause interference to Channel 6 users. Indeed, that is an important reason for the Experimental Authorization.

### Conclusion

For the foregoing reasons, the Petition is without merit and should be denied.

Respectfully submitted,

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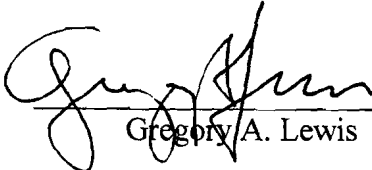
June 6, 2011

**Certificate Of Service**

I, Gregory A. Lewis, hereby certificate that, a copy of the foregoing Opposition was sent this 6th day of June 2011, by regular mail, postage pre-paid, to the following persons:

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