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September 27, 2006

**VIA ELECTRONIC FILING**

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Suite 300  
3000 K Street NW  
Washington, DC  
20007-5116

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, DC 20554

Re: **NOTICE OF *EX PARTE* MEETINGS**

**ET Docket No. 04-186; Unlicensed Operation in the TV Broadcast  
Bands**

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Dear Ms. Dortch:

Boston  
Hartford  
London  
Los Angeles  
New York  
Orange County  
San Francisco  
Silicon Valley  
Tokyo  
Walnut Creek  
Washington

On September 26th, 2006, Shure Incorporated (“Shure”) met with Julius Knapp, Acting Chief, Bruce Romano, Associate Chief (Legal), Ira Keltz, Chief (Electromagnetic Compatibility Division), Alan Stillwell, Senior Associate Chief (Policy), Geraldine Matisse (Policy and Rules Division), Rashmi Doshi, Chief (Laboratory Division), Hugh Van Tuyl, Engineer, and Steve Martin, Engineer, from the Office of Engineering and Technology (“OET”) to discuss issues raised in the pending Notice of Proposed Rulemaking (“NPRM”) in the above-referenced docket. Attending this meeting on Shure’s behalf was Jeff Krull, Vice President, Ahren Hartman, Principal Engineer, and Catherine Wang, of Bingham McCutchen, outside counsel to Shure. We discussed Shure’s position and concerns with respect to harmful interference to wireless microphone operations likely to result from the rule change proposed in the NPRM and as set forth in further detail in Shure’s filings in this docket.

A summary of Shure’s positions and concerns was provided to OET and is attached to this filing.

If you have any questions regarding these meetings, please do not hesitate to contact the undersigned.

Very truly yours,

/s/

Catherine Wang

cc (by email): Julius Knapp  
Bruce Romano

Marlene H. Dortch, Secretary  
June 7, 2006  
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Bingham McCutchen LLP  
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Ira Keltz  
Alan Stillwell  
Geraldine Matisse  
Rashmi Doshi  
Hugh Van Tuyl  
Steve Martin

September 26, 2006

**Technical Rules for Operation of Unlicensed Devices in the  
TV Bands ET Docket 04-186**

1. **Shure supports the plans announced in the September 11 Public Notice insofar as it:**
  - **Calls for meaningful analysis and study of proposed interference protection solutions such as spectrum sensing,**
  - **Establishes the importance of field testing in ensuring interference protection to other services, and**
  - **Recognizes that sufficient time is needed to develop technical standards to prevent interference to other services**
2. **The FCC's initial Notice of Proposed Rulemaking ("NPRM") stated that the FCC would not change its rules to permit unlicensed devices in the "white spaces" if it could not ensure that incumbent services would be protected from harmful interference.**
  - **Wireless microphones and related audio services are important incumbent services**
  - **Wireless microphones are critical to broadcasters, newscasters, sporting events, large-audience events such as the political conventions, large church services, music, theatre and entertainment productions.**
  - **Many important user groups have expressed their concern regarding the potential impact interference to wireless microphones will have on their operations: the National Music Merchants Association ("NAMM"), the National Academy of Recording Arts & Sciences, the Recording Artists Association, the Grand Ole' Opry, numerous news, entertainment, sports, and religious organizations, including the news networks, ESPN, NRB, BET, MTV, and major sports leagues, including the NFL, NBA, MLB, PGA, NHL, MLS, and NCAA. Harmful interference and disruption to these uses and users would be against the public interest.**
3. **Shure proved that unlicensed devices would cause harmful interference to wireless microphones contrary to the assumptions in paragraph 38 of the Commission's NPRM.**
4. **The First Report and Order announced in the Commission's recent Public Notice must include requirements to protect wireless microphones from interference.**
  - **The FCC record is replete with concerns that remain unresolved in the industry**
  - **Unlicensed devices in fixed applications present more manageable interference issues than mobile/nomadic devices -- the Commission's plans for this proceeding announced in the Public Notice do not acknowledge this disparity.**
5. **The Notice rightfully reflects the need to prove and test interference solutions, but it is imperative that the testing requirements, procedures and standards measure proposed or adopted by the Commission address the impact on wireless microphones-- not only TV equipment.**

6. **The Public Notice recognizes that "spectrum sensing" is a potential technology solution that has not yet been defined in this context or proven to be effective. The record in 04-186 currently reflects that a "spectrum sensing" approach can provide only partial protection to lower power operations like wireless microphones.**
- Spectrum sensing has not proven itself to be effective at detecting the relatively weak signals (generally <50mW) generated by wireless microphones
  - Hidden node problems remain unresolved
  - Shure has provided to the FCC and the IEEE 802.22 a model for spectrum sensing, along with other methods, to protect microphones
7. **It is critical that First Report and Order and Further Notice of Proposed Rulemaking contemplate the full panoply of solutions that may be necessary to allow unlicensed devices into this spectrum.**
- "Spectrum sensing" cannot be the only potential interference protection solution that the FCC sanctions and targets for further exploration and definition.
  - It is critical that additional interference solutions be addressed and explored including for example
  - The need to designate certain spectrum for certain uses and/or limit unlicensed devices from operating in certain frequencies (through an adjacent channel or reserve channel plan), and
  - beacon systems, and
  - other appropriate measures.