Description of Proposed Experimental Operations

Audio-Technica U.S., Inc. has developed, manufactured and sold for commercial use a wireless communication system based upon a UWB transmission method. This product, the "SpectraPulse UWB Digital Wireless Microphone System" is operated under FCC Part 15, and has type approvals for CFR Part 15.517 Subpart F and RSS-220 for the transmitters and CFR Part 15 Subpart B and ICES-003 for the receivers. ID designators are "JFZMTU101," JFZMTU301" and IC: 1752B-MTU101 and 1752B-MTU301.

This product operates with a center frequency of 6.350GHz, which is well outside the highly congested and desirable UHF TV bands. This product has primarily been used for conference applications in indoor settings such as board rooms, meeting rooms, and auditoriums. It is a highly reliable technology which offers users freedom from interference in congested wireless spectrum. One notable use of the "SpectraPulse UWB Digital Wireless Microphone System" was on-air during the 2008 presidential debates.

The broadcaster for the debates chose the Audio-Technica UWB technology to avoid frequency coordination and spectrum congestion problems. As the demand for very desirable UHF band "beach front property" of spectrum increases, operating the necessary number of multiple simultaneous channels of wireless microphones becomes increasingly difficult due to frequency coordination and possible interference issues. We offer a very viable alternative to this spectrum crowding.

Our request is made in order to experiment (within defined reasonable limits) to determine the optimum performance conditions and boundaries of this technology as applied to use at broadcast events/venues. We believe this method can provide relief to spectrum crowding in many different applications.

In order to conduct these experiments, we would like to be able to:

Operate at various incremental increases in transmit levels, not to exceed 12dB increase over current power levels, in order to determine the trade-off point of optimum coverage/connectivity performance versus multipath/destructive interference.

Operate portable units to be used as hand-held or close to body conditions in both indoor and outdoor venues.

Conduct experimentation and research in up to 150 test locations/venues in various regions of the United States for a period of 2 years. (FCC will be notified of each location, dates and specifics of test).

Specific testing will be directed at quantifying the tradeoffs in power level, data rate, and range. In addition we believe that testing in a variety of potential professional environments will allow us to full investigate the potential of this technology to replace or augment current wireless microphone requirements.

Experiments will be conducted in various stages and for various purposes. Initially testing will include experiments performed in a controlled environment to characterize the effects of increasing power levels on range and data rates. We believe that increasing power levels will have differing effects in high and low multipath environments. It is important to be able to change the power level to better understand this effect. We do not believe that we will be able to achieve meaningful results if we are only able to decrease the power level from that of the product we have currently on the market. Therefore we would like to be allowed to increase the power level up to 12 dB over the currently allowed levels. We would perform these tests both indoors in med to high multipath environments as well as outdoors in low multipath environments. We will also seek to vary the data rate at various power levels and environments and determine the effect on the system's usable range.

Additional testing includes determination of the typical simultaneous channel operation for various output power levels. Can we increase channels with different antenna designs? Will the systems meet the operating range requirements at these power levels?

Propagation of signals in the 6.3 GHz range offers different challenges compared to typical UHF wireless microphone systems. We intend to determine if this can be turned into a positive attribute by making it possible to reuse the spectrum for another system within the same vicinity. Varying power levels during these experiments will allow us to fully investigate this possibility. In addition, the ability to increase the EIRP of the system would allow us to try higher gain antenna configurations in an attempt to optimize system operation for various requirements.

Further testing will include system tests during actual professional events. For these test we would partner with Part 74 license holders to try out the system during actual broadcast events. We would schedule testing of the UWB system with the coordinators of the event to test coexistence of our UWB system with the other systems typically in use in a real life application. This will include our ability to verify that our low power wireless microphone system does not interfere with any of the other systems operating near the 6.35GHz range. We will be specifically looking for tests that include coexistence with a C-band satellite downlink.

We seek use with a large number of units so that we can test use with a large number of simultaneous channels per system with multiple systems.