A high-tech wireless microphone system for the boardroom.

BY JOHN MCJUNKIN

The radio frequency spectrum is getting very crowded, and the scarcity of bandwidth is being compounded by legislation that is chopping up the available spectrum between more and more government agencies and other commercial bands. It continues to get harder and harder to find a clear frequency, and the more frequencies are required for a job, the more complex and difficult it gets. Contractors are in need of solutions that overcome these difficulties, and Audio-Technica has obliged with its SpectraPulse system. This is the only true ultrawideband (UWB) system in existence, and it brings some pretty high science to bear to solve the problems that contractors face. I spent time with a SpectraPulse system, and I was wowed by that high science but also impressed from a pragmatic standpoint. The system is simple to use and works exactly as advertised.

I’m not going to pretend to understand in great depth the technical workings of the SpectraPulse system, but allow me to offer a simplified explanation: The system is based upon time division multiple access (TDMA) channel access, the same technology used for most 2G and some 3G cell phones. The TDMA architecture allows 15 time slots of information per millisecond, and during the first of these time slots, the Audio-Technica drm141 digital receiver module transmits to synchronize and send status and control. Each of the system’s 14 transmitter channels then has an opportunity of one time slot in duration to transmit its data to the receiver. Each transmitter sends its data sequentially during its respective time slot, and during the other 13 time slots, it queues its data for transmission during its next slot. This limits latency to less than 1.5 milliseconds. This system facilitates fast bidirectional communication between transmitter and receiver, which in turn helps to avoid sync loss, and much faster reacquisition if sync is lost, typically 3 milliseconds or less. Basically, this is digital over the air, which provides ipso facto encryption and allows for the transmission of a multitude of signals with much less bandwidth. Since the system does not
I experimented with connecting a number of musical instruments to the mtu201 transmitters via a DI box ... I chose to do this because I had been skeptical about the system’s audio quality as a result of its limited bandwidth ... the quality was more than just passable.

This system is right out on the bleeding edge of wireless technology, and as a result, it is not inexpensive. If the budget allows, the system is worth the money because it’s simple to use while at the same time providing a good quality (if bandwidth-limited) signal that is as close to being 100 percent interference free as possible. The inherent signal security combined with the optional 128-bit encryption will satisfy even the most stringent requirements. I strongly recommend this system for high-end installs.

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PRODUCT SUMMARY
- Company: Audio-Technica
  www.audio-technica.com
- Product: SpectraPulse Wireless Microphone System
- Pros: Virtually 100 percent interference-free, no frequency hunting, no multipath interference.
- Cons: Limited to 100Hz-12kHz bandwidth, charger cannot be wall-mounted.
- Applications: Primarily boardroom, corporate, meeting-oriented applications.

SPECIFICATIONS
- Frequency bandwidth: 500MHz
- Center frequency: 6.350GHz
- AD/DA: 16 bits
- Sample rate: 24kHz
- Latency: 1.1ms
- Sync/reacquisition time: 3ms
- Range: 75ft.
- Simultaneous channels: 14
- Power input: 100-240VAC, 50/60Hz
- System frequency response: 100Hz-12kHz

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