/ Engineered Sound Wireless Case Study

Simple, High-Performance Microphone Solution for a Missouri School District

– **Industry:** Education
– **Location:** Missouri
– **Client:** Hazelwood School District
– **Project:** Simplify and improve the microphone solution used for large administrative meetings.
– **Project participants:** Audio-Technica, Schillers Audio Visual, Hazelwood School District
– **Solution:** Audio-Technica Engineered Sound® (ES) Wireless

/ A Large Suburban School District
The Client

Hazelwood School District in suburban St. Louis, Missouri, is the second-largest district in St. Louis County with close to 20,000 students in 19 elementary schools, six middle schools and three high schools along with early childhood education, gifted student and alternative learning programs. The district's students, faculty, and schools consistently receive recognition at the state and national levels for academic and professional achievements.

Meetings involving all the 70+ administrators in the Hazelwood School District, are held at its East Early Childhood Education (ECE) center in what was once a church sanctuary. In late 2020, after finding a rented microphone system for large meetings cost-prohibitive long-term, Hazelwood School District administration requested a permanent microphone system be developed for its large meeting space. The solution that evolved placed four wired dynamic microphones on small stands on each of 18 tables in the space, connected by two huge analog snakes to a pair of small-format, 32-channel digital mixing consoles.

Over time, the wired microphone system proved cumbersome to deploy and use. The District's Video Communications Specialist, Alex Peterson, worked with St. Louis integration firm Schillers AV to develop a cost-effective, easy-to-operate-and-deploy, high-performance microphone solution.

/ Implement a Microphone Infrastructure
The Challenge

"It looked like a huge spiderweb when it was all put together," says Hazelwood's Peterson of the previous system. "You can imagine 100-foot cables going across the floor, taped down. It worked, though there were some kinks in it." Meeting participants, he explained, had to be reminded to turn their mics off when not in use to reduce noise and avoid feedback. The switched dynamic mics were connected in pairs to passive Y cabling and only one of the mics in each pair could be on at a time. Assuming the operators remembered to turn them off, the mic switches could be flipped back on inadvertently when returning the mics to their stands. Taping the cables down left residue that required carpet cleaning.

In 2023, Peterson began discussing new approaches with David Wyne, AV Sales Manager for Schillers AV, who introduced the concept of Dante networking. A subsequent demo that Peterson was given during The NAB Show 2023 convinced him that a digital audio networking approach should be deployed for system wiring. In the discussions, Wyne also presented Audio-Technica's Engineered Sound Wireless (ES Wireless) system, which delivers the benefits of both a wireless microphone system and a Dante infrastructure, along with a high channel count.

/ Audio-Technica Engineered Sound® (ES) Wireless
The Solution

Thirty ESW-T4107 wireless rechargeable desk stand transmitters, each fitted with an ES925 12-inch gooseneck and cardioid microphone element, are now deployed at the Hazelwood School District's ECE center for large meetings. Four ESW-R4180DAN receivers, mounted at the junction of the walls and the sloped ceiling, capture the microphone RF signals. The receivers are each programmed to mix up to eight active mic channels down to a single Dante audio channel connected by a Cat5e cable to a LAN router. A LAN connection to the Dante port on one of the facility's existing digital audio mixers delivers the four receiver submixes to the mixer where each is assigned to a fader channel. "I'm not even using half of the inputs on a single mixer," says Peterson, where the previous system had required two mixers to handle all the mics. "People now enjoy talking into the mics. They're easy to operate. They're absolutely wonderful."

"I just fell in love with the system," adds Peterson. So much so that a "troublesome" wireless system deploying a mishmash of mics of varied brands and models used in the board room at the Hazelwood School District central offices was replaced with an additional 14-channel Audio-Technica Engineered Sound Wireless system.

/ Hazelwood School District Conferencing System

The Installation

The Engineered Sound Wireless System installation included the following components per room:

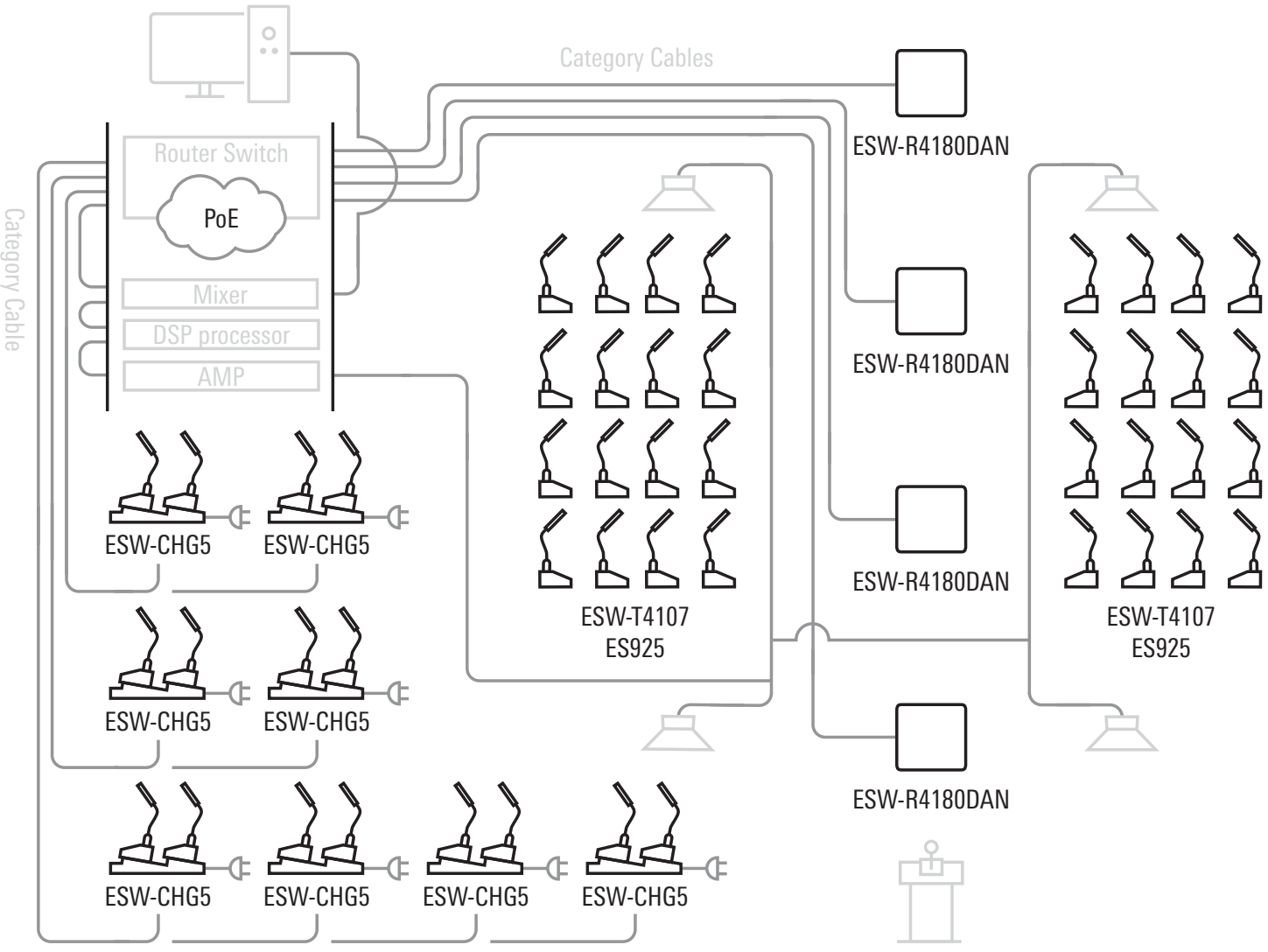
System Receivers
ESW-R4180DAN 8-Channel Receiver
Qty: 4

Table Microphones
ESW-T4107 Desk Stand Transmitter incorporating ES925 microphone with cardioid element
Qty: 32

Transmitter Charging Stations
ESW-CHG5 Four-bay Charging Station for desk stand transmitters
Qty: 8

Other System Components
Behringer X32 digital console
Computer AV interface
Symetrix DSP processing
Amplification and wall-mounted speakers

Audio Chain



/ A DECT wireless system

The Technologies

Audio-Technica's Engineered Sound Wireless System is a 96-channel-capable DECT wireless system that offers simple, smart, and scalable high-quality audio. This system overcame the many challenges faced by the Hazelwood School District for their large meeting space, beginning with the elimination of the wiring clutter and trip hazard of the previous 72-channel wired mic system. Setup now involves simply taking the ESW system transmitters from their charging stations and placing them on the conference area tables, as opposed to running mic cables and snakes. The compact microphone transmitters are easily shared by adjacent meeting participants.

"It's so simple that I'm able to tell a person over the phone how to turn everything on."

— Alex Peterson
Video Communications Specialist
Hazelwood School District

Where two 32-channel mixers were used in tandem to handle the previous system, the onboard mixing capabilities of the ESW system receivers cut the channel count to 13 total faders on the mixer, simplifying mixing enormously. "It's so simple that I'm able to tell a person over the phone how to turn everything on and how to operate the mics," says Peterson, with color-coding on groups of mics and on their corresponding mixer fader giving visual cues for mixing and setup. The additional challenges that would have been in play with conventional wireless microphones, such as frequency coordination and the limited number of microphones simultaneously in use, were completely avoided by deploying the ES Wireless system.

As a single Cat5e connection to a PoE switch delivers power to the ES Wireless receivers and provides Dante signal distribution, the initial installation of the ES Wireless system was also easy. Seamless setup and management, such as naming channels and configuring mixing options, is controlled via Audio-Technica's Wireless Manager software, which can manage multiple A-T wireless systems, including UHF wireless systems, from a single screen. In addition, AES256 encryption comes standard, providing superior security and reliable operation. Dante Controller software manages networked audio channel assignments. Schillers AV transparently configured the Hazelwood ECE system during installation.

"Everything is even-keeled with this system," concludes Peterson. "The batteries last longer than we've ever needed them for a meeting, it's easy to operate and sounds good. I love these mics."

/ An easy-to-set-up, easy-to-operate, high channel-count and reliable wireless microphone system

The Impact

Hazelwood School District's new solution:

– Eliminates troublesome issues caused by an unwieldy and complicated wired microphone system
– Is easy to operate and appreciated by meeting participants
– Provides a high channel count while reducing mixing complexity
– Reduces setup time and allows for a clean and safe meeting environment
– Sounds great

If you want to expand or improve your hybrid meeting audio, visit https://www.audio-technica.com/en-us/es-wireless