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Sennheiser evolution wireless D1 System

By: Mark Johnson

In 1945, shortly after World War II, Fritz Sennheiser and seven colleagues from the University of Hannover started work in a laboratory called Laboratorium Wennebostel, named after the village of Wennebostel. The name was soon shortened to "Labor W." Their initial product was a voltmeter.

MD 421 dynamic microphone. This classic, multipurpose microphone has been used to pick up everything from broadcast vocals to Leslie and electric guitar amp cabinets to drums.

In 1968, Sennheiser released the world's first open headphones, the HD 414. With sales of more than 10 million, the HD 414 played a key role in

wrapped together. But they still work.

Through the 1980s and '90s, Sennheiser continued to develop wireless microphone systems; in 1996, the company received an Emmy Award for its advancements in RF wireless technology. It continued innovating, introducing the evolution wireless series in 1999, and the high-end Digital 9000 wireless system in 2012. This brings us up to the current day and the product we are reviewing here—the first digital wireless offering within the evolution series, D1.



The evolution wireless D1 vocal set with handheld transmitter.

Within a year, Labor W started building microphones; the first was called the DM1. Further development resulted in the DM2, introduced in 1947. By 1955, Labor W had grown to 250 employees, manufacturing a variety of products that included geophysical equipment, a noise-canceling microphone, microphone transformers, mixers, and miniature magnetic headphones. Sennheiser's first wireless microphone, the Mikroport, was introduced in 1957. In 1958, Lab W was renamed Sennheiser electronic.

In 1960, Sennheiser introduced the

the promotion of Sennheiser as a headphone manufacturer, and helped to fuel the growth of the company. The 414 is considered to be the best-selling headphone of all time. The first models were constructed of white plastic headband and blue foam earpads. The later iteration sported a black headband and yellow earpads. The 414s were the first pair of pro audio headphones I owned. I still have them and use them from time to time, though the foam earpieces are disintegrating and the cable got pulled apart many years ago, so they are tie-

Four sets

Sennheiser's evolution wireless D1 offers four basic sets. The vocal set provides two choices, supplying a handheld transmitter with either an evolution 835 cardioid capsule or the evolution 845 super-cardioid capsule. If you are so inclined, any evolution vocal mic capsule can be fitted to the transmitter, all the way up to the e 965. The instrument set includes a body-pack transmitter and a 1/4" — 1/8" cable. The head mic set includes the ME 3-II model and a body-pack transmitter. The lavalier set incorporates an ME 2 mic.

The system provided for review was the handheld vocal set with an e 835 capsule. The transmitter has the familiar Sennheiser wireless handheld form factor, although, in this case, what is ordinarily the antenna is the battery carrier as well as the antenna. The power and pairing switches are located at the base of the "antenna." To get at the batteries, there are two spring-loaded latches on either side of the "antenna." An easy squeeze releases the battery carrier that houses two AA batteries in series, or the optional, USB-rechargeable BA 10 battery pack.

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TECHNICAL FOCUS: PRODUCT IN DEPTH

At the top of the transmitter, near the capsule, is a mic/mute switch. To help dissuade accidental switching, it takes a concerted effort to move the switch to either setting. Just above the switch is a small LCD screen that indicates battery strength, signal strength, and transmitter linking (to the receiver).

The D1 includes variants for EU transmission method (2.4GHz, fixed 10mW RF power) with UK or EU power supplies, or for US transmission method (2.4GHz, adaptive RF power up to 100mW), with US power supply or EU, UK, AU, and CH adapter.

Okay, so I've let the cat out of the bag...The system operates in the 2.4GHz range.

In recent history, wireless equipment manufacturers have faced an uphill battle. In addition to trying to sell their products in a competitive marketplace, they have had to deal with legislation that has not gone in their favor. Having been challenged with making the most of continuously shrinking airspace, they are compelled to develop products that can make the most of the existing frequencies. Though the 2.4MHz band has, in the past, been considered not ready for professional applications, many manufacturers are

now exploring options in that frequency band and have come up with imaginative ways of dealing with some of the perceived and real challenges of operating within the 2.4MHz band.

Feature set

As the market heats up with competition, coupled with the ever-shrinking airspace, wireless manufacturers look to provide useful features that will help to set them apart from the competition. Sennheiser has included a powerful feature set in the D1 system.

It comes packed in a convenient hard plastic case, nestled in die-cut, high-density foam rubber, ensuring safe and secure transport. The case is a very nice touch, a great idea for bands with a couple of units or an



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Rear panel.

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Handheld transmitter power and pairing switches.



Handheld transmitter status display.



BA 10 battery carrier.

organization that provides support for meeting and convention breakouts. There can be any number in the inventory, systemized and ready to be deployed. The receiver is a 1 RU, half-rack unit. A Spartan front panel has a LCD display in the center; just to the left of the display is a “pair” button. To the right of the screen is a navigation knob (turn and push) with, just to the right, an ESC button. To the right of this is the power button, and immediately to the right of that is an LED indicator (red equals stand by and green indicates operational.) The rear of the receiver is spartan, as well; two connectors for the antennas on either side of the back panel, DC power input (12V/350mA from a wall wart that, thankfully, is angled so that it doesn’t take more than one outlet on a power

strip), unbalanced 1/4" audio out, XLR balanced audio out, and an Ethernet connector. The main display shows battery strength, RF signal strength, and audio level. Also on the display are tabs for EQ, DE-S, and AGC. These are “grayed out” until they are activated. Dead center on the display is the model—ewD1. Pushing the navigation knob brings up a menu: audio settings, system settings, network settings, name, walk test, and exit. The latter brings you back to the main display, or you can just push the ESC button. If the transmitter is off or otherwise not linked, the display indicates “no link” and then alternate between white and black backgrounds and the power indicator turns red—a prominent sign that the transmitter is not functioning.

No frills, but nice features

Controls and features are dialed up and initiated via the D1’s three-level menu structure:

The home level is basically the start screen with the home screen and a secondary home screen. The next level provides audio settings, system settings, network settings, name, and walk test.

Calling up audio settings yields a low cut (on or off), EQ provides 12 presets, and a custom setting brings up a seven-band EQ for you to tailor the response of the system to your liking. Otherwise, the presets offer two selections for acoustic guitar, telephone, megaphone, high cut, high boost, low mid cut, high mid cut, two mid cut presets, presence boost, and a vocals setting.

Available choices for the de-esser setting are off, broad, or selective. The AGC setting provides a choice of soft or hard. The effects reset lets you decide yes or no. Audio level provides an adjustment from 0dB — 30dB, and output type changes the output of the receiver to mic or line level output.

After scrolling through the EQ presets, my interest was piqued, especially about the telephone and megaphone settings. I connected the system to my test rig, allowing me to run it through my mixer, as there was no headphone-out connection on the receiver. While I had anticipated a drastic change in the audio quality that could be employed in a production setting for an effect, the change was more subtle than expected. The AGC setting could be nice when you’re looking for a safety net when your signal source is not a known quantity (such as a variety of presenters during an event).

Calling up the system settings menu provides access to auto lock, mute switch, display brightness, help, system info, and factory reset.

Conspicuously absent from the menus was anything having to do with frequency selection. D1 systems will automatically find their own operating



D1 vocal set in case.

frequency. If interference is detected, the D1 moves to a new frequency, with no interruption to the audio signal. When multiple systems are used at the same time, D1 systems will automatically coordinate their frequencies.

Downloadable documentation includes a quick start guide, an FAQ, manual, handling guide, and multi-channel operation guide (when 7 — 15 systems are used at the same time). While it's a cinch to get the system up and running, having in-depth documentation that provides more information and detail for additional application was very handy.

As with other 2.4GHz wireless systems, line of sight from the transmitter to the receiver antennas is highly recommended for optimal operation. Ordinarily or when used singly, the antennas are affixed to the back of the receiver. An optional rack-mount kit is available that provides for mounting the antennas on the front, which is handy when multiple systems are used or installed. Under optimal conditions, Sennheiser says that up to 15 systems can be used simultaneously.

Networking

One of the cooler aspects of the D1 is that you can control, monitor, and do firmware updates to multiple receivers

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and transmitters in a system with a mobile device or a computer. These acts are facilitated via the recently released WSR (wireless system remote) app, which can be had from either the Apple App Store or the Google Play Store. Firmware updates will also be doable through Sennheiser D1 SL Updater software, due for release shortly.

Since the D1 is a 2.4GHz system, a dual band Wi-Fi router set to 5GHz—with the 2.4GHz band deactivated—is recommended when using a computer, tablet, or smartphone for controlling the D1 receiver remotely.

As mentioned, the system is extremely easy to use. The EQ presets are handy in situations where the mic would be used in the same way over an extended period, like a house of worship, or meeting and convention audio support. While they can seem useful on the surface, if the system is

used in multiple applications, I get the feeling that unless you get in the habit of checking the setting each time the system is fired up, they probably won't be adjusted much.

In use, the system performed as expected. It sounded good and was easy to set up and use. Sennheiser says in the D1 manual to expect about six hours of battery life. Though I didn't have an opportunity to run the system continuously, that's about what it added up to between checking the system out and using it for a couple of events that consisted primarily of people presenting (speech). It was great that I did not have to worry about interference with other wireless in the area. No frequency coordination, no muss, no fuss. For those concerned about Wi-Fi interference, I tested the system at my home office, with the receiver about 5' away from my router, with no issues. For the events, I was in

an intimate "coffee-house" type of venue, with Wi-Fi users aplenty in attendance, again with nary a problem.

At a retail price of \$699, the Sennheiser D1 provides just the right amount of bells and whistles. Having the interchangeable mic capsules is definitely a plus. You can get a performance upgrade by just changing the capsule. Add the other available options and you have a system that will work well in a good cross-section of applications, from presentations to music. The D1 will fare just as well in nightclubs, either as an installed house system, traveling with a band, in an A/V system for meetings and conferences, or in a house of worship. It will also be at home in a regional arts facility. The Sennheiser D1 has a solid design, great performance, and just enough of the right features to help set it apart from the competition. 📶



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