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JH Audio Pearl Tri Amp Micro Speaker Management System with Ruby In-Ear Monitors

By: Mark Johnson

Jerry Harvey started in the production world when he was 16, working for bands in bars and nightclubs. He was fortunate to have people take him under their wings and teach him the basics of audio, which he was able to put into practice and, in turn, advance within the industry. Along the way, he held various positions including bass tech; in the '80s, he did monitors for The Cult's *Sonic Temple Tour*. From there, he pretty much never looked back.

The in-ear monitor sector of pro audio has certainly grown in recent years with several manufacturers (some well-known and others new to the scene) entering the fray. It's not clear who the first was to introduce an IEM to the marketplace but Jerry Harvey was among the first. In the mid-1990s, working as a monitor engineer for Van Halen, he searched for a solution for drummer Alex Van Halen. Harvey's first viable system was a custom-fit two-way design. Professional audio is a relatively small industry and word of mouth spread quickly, leading Harvey to start Ultimate Ears, which created IEM systems for the pro audio and music industries. In 2008, Logitech acquired Ultimate Ears, sending Harvey back to work as an in-demand monitor engineer.

An interest in aviation led Harvey to earn his pilot's license, becoming a private pilot in 2006. In 2007, he designed and built three different headset systems for private pilots under the auspices of his new company, Jerry Harvey Audio. JH Audio first started working out of an aircraft hangar before moving to its current



Pearl and Ruby system.

headquarters, a historic brick building in downtown Orlando, Florida.

Harvey reentered the pro audio world in 2009 with the introduction of the Jerry Harvey Audio Pro Series, the JH13 and the JH16. He went on to develop the lead-off to the Siren Series, Roxanne, which was the first

12-driver IEM system featuring independent adjustable bass. (He named subsequent systems after iconic women in music, either a real person or someone immortalized as a character in a song.) Roxanne continues to be one of JH Audio's biggest sellers.

Harvey felt that the IEMs should

“look as cool as they sound” and, as a result, inspiration was drawn from tattoo artists, knife craftsmen, and watchmakers for his products’ exterior designs. Additionally, materials such as titanium, polished stainless steel, and carbon fiber can be incorporated into the exterior of the shell.

Harvey holds multiple patents and has developed several industry firsts. While the quality of IEM systems from JH Audio is important, the company also develops strong relationships with working audio professionals and musicians. To help connect with the pro industry, JH Audio has four offices in the US: Manhattan, Austin, Nashville, and Burbank, in addition to the headquarters in Orlando.

One of the cooler aspects of reviewing audio products is that occasionally I get an inside look at something different and perhaps even revolutionary. Such is the case with the Ruby/Pearl system. This is the first actively (yes, I said actively) controlled IEM system. The earpiece is Ruby and the separate control processor is Pearl; together, they provide the most user-definable, accurate IEM system going.

Pearl offers 96K resolution and an extremely low latency of .62 to .82ms. The latency numbers are achieved by utilizing an actively controlled passive crossover (ACPX) design, keeping passive crossovers in the earpiece and actively controlling the lows, mids, and highs with an amplifier and processing for each frequency band. The design goal was to provide the user with complete control over the system, most certainly an advancement in IEM technology but, ironically, harkening back to the early days of large-scale sound system design. We’ve been doing this kind of system tuning in live sound for years. And this goes way beyond having an external rack-mount or plug-in equalizer to dial in your in-ears.

I have a few different in-ear monitor systems and I like them all but I think they all could use a little more of this

or less of that. In other words, they are close, but not quite there for my listening pleasure. Admittedly, the bar is set pretty high. After listening to a specific high-quality studio monitor for over 30 years, the sound signature is indelibly etched in my brain. The beauty of JH Audio’s Ruby and Pearl system is, one, if you don’t like the way it sounds, it’s pretty much your fault, and two, you can change it to whatever you want. At last, I can have an in-ear system that duplicates my studio monitor signature.

I have often said the line between professional audio for live production and audiophile is blurring. Now, with this system, it has virtually disappeared.



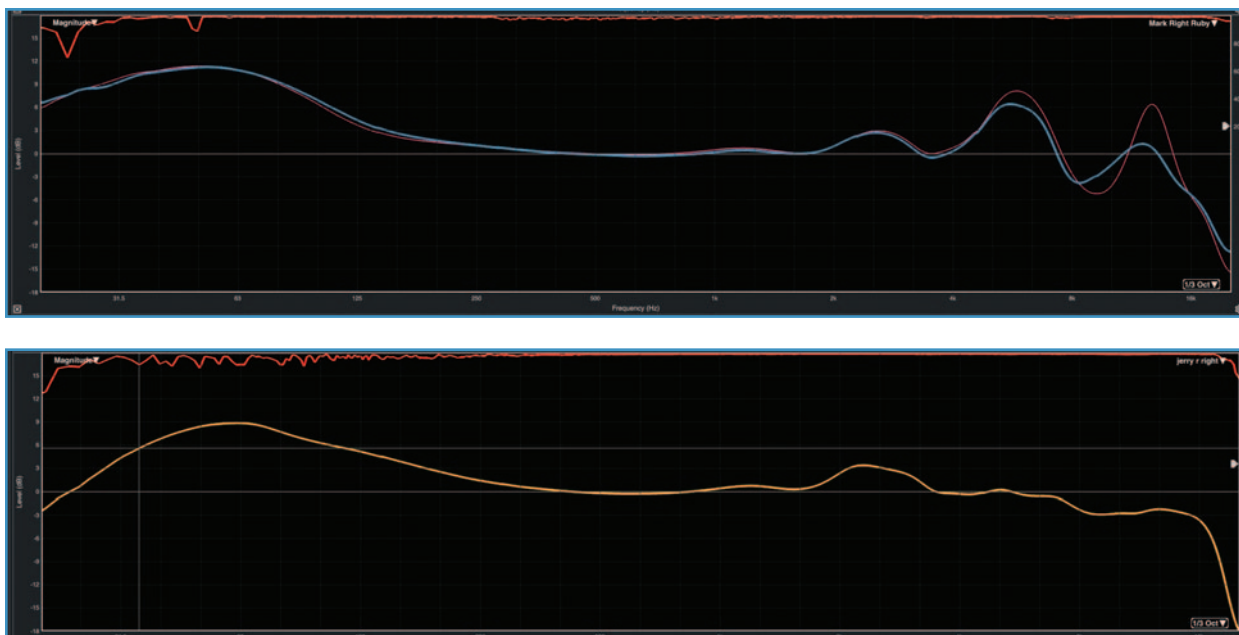
Pearl controller.



Pearl back with belt clip.



Ruby side view with power switch, LED, and USB port.



Top: The author's stored curve for the Pearl controller. Bottom: Jerry Harvey's curve.

Pearl

The Pearl control unit enclosure is a black powder-coated metal case design, available in either a Shure body-pack style, originally designed to piggyback onto a Shure wireless IEM receiver, or an add-on to a wireless Wisycom IEM receiver battery door. The cable coming from Pearl is a bit stouter than most other IEM systems because individual control of each frequency band requires separate lines. The cable is terminated in a 10-pin Lemo connector. The termination at Ruby is a screw-down four-pin connector. The earpiece connector also features a roughly 2" strain relief/guide that goes over the ear to help keep it secure.

My review Pearl unit has a belt clip fitted and, on the top, the Lemo connector and 3.5mm input for audio. There's also a green LED next to the audio input. One side of Pearl has a USB 3 port for charging and flashing the system with your preferred curve. There is also a flush-mounted switch and a blue LED that flashes when the system is activated. The front of Pearl features distinctive radiating wave casting and the JH Audio logo in chrome.

Early on, Harvey provided Ruby/Pearl systems to groups to use, test, and provide feedback on the system. He heard back that some were using the ability to tune the system to help compensate for hearing loss.

You gotta have friends...

The professional audio industry is small enough that many players have personal relationships with other manufacturers. Harvey was able to leverage his friendship with the people at Audiotonix to assist in the design and construction of the Pearl control unit. Audiotonix is well-known within the pro audio industry as the owner of several mixing console brands and therefore had access to various electronics and DSP engineers; the company also helped with naming the products. Harvey has large pictures in his office of Jimi Hendrix and Janis Joplin and an Audiotonix representative started referring to the project as "Pearl," a name that stuck. As for Ruby: With the control unit named Pearl, the company chose a number that suggests a precious gemstone as well as songs like "Ruby, Don't Take Your Love to Town" or "Ruby

Tuesday." The plan is that future products in this series will refer to so precious gemstones.

With Ruby and Pearl, as I worked to dial in the EQ curve that I liked (with Jerry looking over my shoulder, which was a bit nerve-racking!), I went gradually from listening for the things I wanted to modify to listening to the music and starting to do what I call the "head bob," nodding along with the music rather than critically listening and just enjoying what I was listening to. We also discovered our EQ curves were very similar. Also, there is already a library of saved curves from many different well-known studio monitors and headphones.

Initially, the Pearl controller was only accessible via a Windows computer, which would have been my main criticism of the product; however, if you are a Mac user like me a, don't fret, because Pearl should be usable with a Mac as well, hopefully, by the time you read this. Fortunately for me, JH Audio is about 12 miles away from my house (as the car drives), so I was able to make multiple trips there, making adjustments and getting to know the

Pearl unit under Jerry's watchful eye. That's the beauty of most things digital: They are relatively easy to update and, in this case, make usable with either platform.

If at first it doesn't fit...

Ruby/Pearl was designed to be a universal or custom-fit product to provide greater accessibility to an extremely high-quality IEM system. The review version I received had universal-fit earpieces. I've always had trouble getting a good seal with universal-fit IEMs. Since I was at the JH Audio, Jerry was kind enough to have me get goop injected into my ears for a custom fit. As for the universal fit aspect, I ultimately ditched the silicone tips in favor of foam and was able to get a really good seal, actually very close to the customs. If you are not used to universal-fit IEMs, it's important to try the various ear tip sizes and compositions (silicone and foam). According to Harvey, 83% of people should be able to get a good seal using the universal tips. There are three or four silicone sizes and three different foam sizes.

Having the control electronics and amps separate allows the Ruby shell to be 40% smaller in size, which helps to provide a better fit. Historically, the marketplace for JH Audio products is 60% touring sound and 40% audiophile. While incorporating technological and design advances, the other goal for Ruby/Pearl is providing a product that can reach an expanded market with its universal fit; Harvey will be targeting the distribution channels that provide a greater reach, so keep your

eyes (and ears) peeled.

Ruby

Ruby is a 12-driver, three-way system with 100Hz Tru Sub for superior low-frequency response. I was able to achieve a solid low frequency, the best I've heard in an IEM. In the olden days of IEMs, the crossovers were passive, and frequency response was determined via the length of the tube connected to the individual drivers in the shell. Since this is an active unit, all of the signal processing is in Pearl, allowing the earpiece size to be considerably reduced. No tubes are required.

The system comes in two magnetic side closure black boxes with the Jerry Harvey Audio logo embossed on the top. Each box utilizes a dense rubber foam with cutouts to secure the product. Inside one box is Pearl; when you remove the upper compartment, you'll find a storage compartment with specific dongles and adapters needed. There is also a thumb drive with the Pearl Control software and Pearl Loader program, as well as some preset curves that JH Audio is kind enough to include to get you started. The library of curves is ever-expanding as well. The Pearl box also includes a card with a QR code that will link you to the user manual. Ruby's box contains a carbon fiber container encased in a milled aluminum frame and, of course, Ruby resides in said container.

The belt-pack version provides about 11 to 13 hours of battery life, and the battery door of the Wisycom will give you about three hours and 45 minutes. Harvey plans updates



Universal-fit Ruby IEMs with foam earpieces.

and other versions such as with Bluetooth connectivity in the future.

The words "made in USA" have become more significant to consumers in recent years and all JH Audio systems are designed and built in the JH Audio headquarters in Orlando, Florida.

The Ruby/Pearl tri-amp micro speaker management IEM system is quite an investment at \$3,500, starting at \$3,700 for customs, but for live sound professionals, recording engineers, audiophiles, or anyone looking to own a great pair of IEMs and the ability to customize their IEM sound to their liking, or to use one of the curves from JH Audio's ever-expanding library, this is the system right here. Run, don't walk to your nearest audio equipment provider (or your computer to order from your favorite online provider). The Ruby/Pearl system is like nothing else available in the IEM marketplace. 📶