Emes Owl Speaker System

FIELD TEST

by Barry Rudolph

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The Owl Speaker System is an active, two-way studio monitor loudspeaker system that projects a stereo sound image from a single enclosure. This new system allows single-point source monitoring of programs that are mixed in stereo, mono, Dolby Pro Logic, Dolby Digital, DTS, Roland RSS and Q-Sound formats. As an adjunct to your mixing monitoring speakers, the Owl System offers an acoustical way to check your mix's sum (mid or L+R) and difference (side or L-R) components without the speaker angle and distance influences of spaced, left and right monitor speakers--a sonic verification of your audioscope's display. The Owl uses patents developed by Embracing Sound Experience (ESE) of Stockholm, Sweden, and is manufactured by Emes Studio Monitor Systems in Germany.

THE FACE OF THE OWL SYSTEM

Upon first inspection, I thought that the Owl was just two near-fields stuck together, because, strangely, there are both left and right powered speaker back panels, each with its own AC connector and power switch; separate dip switches to set input levels and high/low-frequency curves; and individual power amplifier heat sinks. Actually, the Owl is two Emes' Violett HR powered monitors mounted side-by-side in a single cabinet. Each monitor uses two Danish-made Scan Speak drivers: a high-frequency, silk-dome driver with 28mm voice coil and an 18cm carbon paper, low-frequency unit. Each enclosure is self-contained using a

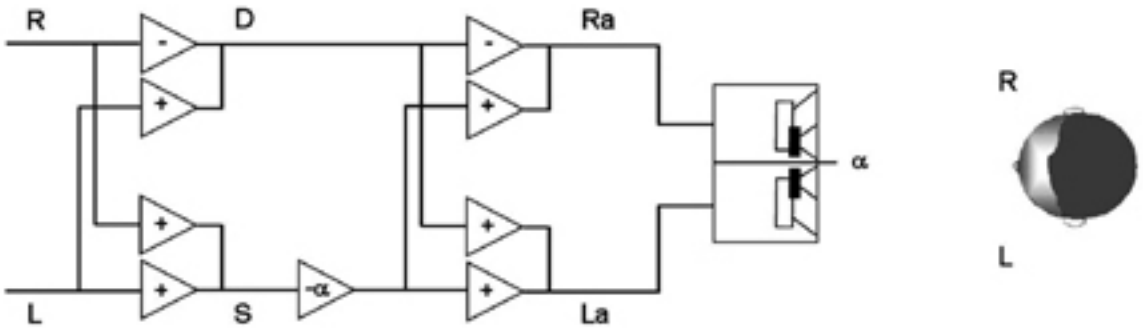
bass-reflex design and a flush-mounted, 20mm-long biradial horn array in front of each tweeter. This smooth, dual-mouthed horn, with a total width of 180 mm, is said to minimize distortion at the 1.1kHz crossover point. With the LF drivers, the two tweeters are positioned close together on the cabinet's centerline, making the front look like an owl's face. As if to enhance this owl look, a detachable, short, red-colored baffle sticks out of the front panel, thereby bifurcating the two LF units. This "beak" stabilizes the Owl's center imaging.

Frequency response is rated 58 to 20kHz (-/+2 dB), and sensitivity is 90 dB with 1W/1 m at 0.3% THD. Max sensitivity is 107 dB. The Owl will accept most any level/impedance from -10dBv unbalanced to +4dBm balanced, but only XLR connectors are provided, **not** those cool 1/4-inch/XLR Neutriks. The four identical channel power amplifiers (one for each driver) are rated at 100 watts RMS each (120 watts peak), and each pair of amps has a single switching power supply. These Class-A/B amplifiers are single, large chip circuits using MOSFETs and feature onboard power-up muting. Just below the tweeter is a tri-colored LED status indicator: green is normal, yellow indicates 5% below maximum output and red means to take an ear break. The tweeter is further protected by a series thermistor. The electronic crossover uses 12dB/octave Butterworth filters.

The Owl measures 380 X 380 X 300 mm (W X H X D), weighs 44.88 pounds, and comes with a pair of 38.1cm-wide clear acrylic "acoustic wings" that attach to both sides of the cabinet with weak magnets. These extend the front baffle area as if the speakers were soffit-mounted. This results in a wider sweet spot that is more noticeable when you are listening farther away. Using the wings is optional and a little problematic: They make the speaker system a total width of 45 inches and difficult to fit atop some meter bridges, precluding the use of other near-fields for quick A/Bs. They do look modernistic in a George Jetson way, but because they are not permanently bolted to the cabinets, they tend to fall off easily if bumped; my set now has cracked corners.

HOW THE OWL HOOTS

The patented Embracing Sound System (EMES says that it is the first licensed studio monitor manufacturer to feature this) relies on the left and right speakers positioned as close together as possible and housed in separated volumes of a single box. This careful construction, known as Embracing Sound Source, along with an electronic dematrixing circuit named the Embracing Sound Processor, forms the Embracing Sound System. The figure below shows a block diagram of this matrix circuit, where the fixed internal parameters/setup are determined by the speakers' physical dimensions, including the size and exact placement of the drivers, the beak, the front baffle area and intended listener distance. Not only is the sum signal reduced to compensate for the left- and right-channel acoustical buildup, but the relation between the sum and difference is exactly maintained, making it possible to perceive a 180 degree sound image directly in front of the cabinet.



The Owl is designed for listening distances of 100 to 350 cm (3 to 11 feet), and I found the sweet spot to be the same size as for similar-sized conventional near-fields. Hard-panned left and right mono sound-source images (no effects and dry) are reduced to points left and right that are (in distance) double the LF drivers' diameter. Imaging is easy to hear and natural-sounding with all sum and difference information intact. The Owl system reproduces all spatial cues and information encoded into your mix without the hype of time/distance/angle differences that are introduced by two-spaced monitor speakers-- whether it's created with reverb and effects or already present as found in realistic-sounding acoustical recordings.

ACOUSTICAL DIFFERENCE VS. ACOUSTICAL MODULATED REPRODUCTION

The idea of stereo sound stage reproduction goes back to the 19th century. In 1931, a method called Acoustical Difference Reproduction (ADR) was developed by Alan Blumlein, who used it to complement his other invention, stereo-vinyl disc cutting. ADR relies on the discrete localization of two loudspeakers to convey realistic stereophonic sound to a large group of people in theaters or concert halls. One immediate problem with wide speaker spacing is the difficulty of producing a strong sum or mono--the phantom center image. This is the *raison d'être* for the center channel in LCRS theater sound or 5.1 surround sound.

ESE posits that ADR in small domestic areas is obsolete, and therefore promotes Acoustical Modulated Reproduction, which also uses M/S reproduction without the angle and distance variables of two widely spaced loudspeakers. With a speaker such as the Owl facing the listener, the sum and difference components modulate each other in the air in front of the two closely spaced drivers. It is thought that because distance, location and speaker angle are now out of the equation, a more accurate picture of the actual stereo recording is presented.

To project M/S audio into the air requires the opposite of an M/S microphone. A stereo M/S microphone has a front-facing cardioid microphone (M or mid) and a side facing, figure-8 microphone (S or side). In speaker parlance, the analogy would be a monopole and a dipole. A monopole speaker radiates sound from one side only; the sound coming from the rear is not allowed to be coupled to the air by way of the enclosure design. A dipole speaker is made with two speakers facing the sides and wired out-of-phase, creating a null plane that is perpendicular to the axis of the driver's cone/voice coil movement.

M/S SPEAKERS

Aspen Pittman and Drew Daniels used a monopole/dipole speaker arrangement in a

patented speaker design for a guitar/keyboard amp originally called CPS (Center-Point Stereo), and later renamed SFX for Stereo Field Expansion. (See George Petersen's write-up of SFX in *Mix*, July 1998.) The CPS' dipole was actually two speakers that were bolted together to face each other and then mounted directly behind a single forward-facing monopole speaker. A 2-channel power amp, supplied with M and S components derived (using a special circuit) from a normal stereo signal, was used to drive the monopole and dipole. Later, Fender Musical Instruments licensed Pittman's and Daniels' concept and design for use in the Acoustisonic amp, a self-contained, single-point stereo acoustic, guitar stage amplifier.

While both ESE and SFX systems produce strong sum and difference signals, the advantage of the ESE method is the reproduction of hard left and right sound images. For Aspen and Daniels, as designers and purveyors of musical instrument amplifiers, the SFX speaker's inability to reproduce static left or right images was not deemed important. Electric instrument musicians originate musical performances and consider their instrument/amp/speaker combination as a single instrument, whereas monitor speaker designers and manufacturers are concerned with accurate and lifelike reproduction.

Barry Rudolph

IN THE STUDIO

I set up the Owl with wings in three very different listening environments: home, studio and a MIDI-programming room. My initial impressions from both home and the MIDI room were all verified in the studio tests. In the studio after using my main and near-field monitors and then cross-checking my mixes on the Owl, I was immediately able to make corrections in phase-related effects, panning and treatments that sounded great in stereo and summed mono (L+R), but subsequently not as perfect elsewhere. For example, I immediately heard an unbalanced stereo reverb return--too loud on the right that I had missed on my trusty ol' near-fields. I found that my particular optimal-listening position was close--about 20 to 30 inches--and that I preferred the wings. Old habits die hard, but I could adjust panning on the Owl as easily as with two widely spaced speakers. Unlike conventional monitoring, I could always hear the far-driver set, even though I was sitting closer to the other. This was true when I was listening in the room.

The speakers' sound quality is excellent, with loads of preamp gain for volume levels that will run you out of the control room. My preference was to bump the low frequency (+2 dB @ 50 Hz) and leave the high frequency flat. One observation: Most DAW users like to have their computer screen directly in front of them with the two stereo speakers on either side. I don't see a way around this and still use the Owl. My cohorts' reactions ran the gamut from great enthusiasm all the way to "What the %?$#@$%&!" However, with the way that the Owl fills the room with stereo sound directly in front of it, all of my cohorts agreed that the Owl is the perfect speaker for mixing stereo, high-definition television sound.

The Emes Owl is a completely new concept in stereo monitoring to grasp and use. It seems and certainly looks strange, until you actually listen and take advantage of this analytical but

direct way to monitor, check and verify stereo audio. I found that it was great to aurally "watch" my audioscope's action, and used the Owl as a third monitor after my mains and near-fields to check my work.

MSRP is $3,499 for the complete Owl Speaker System.

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