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IN-DEPTH REVIEW

AURALIC'S ALTAIR

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BOOKSHELF SPEAKER FROM AERIAL ACOUSTICSMARCH
2017

AELIUS II

MONAURAL POWER AMPLIFIER



AELIUS

AS WE SEE IT

BY JASON VICTOR SERINUS

THIS ISSUE: Audio shows are going head to head in 2017.

A Year of Dueling Shows

This year is not only one of fallout from the most divisive political campaigns of our time, but also one of competing audio shows too close for comfort. Southern California will see dueling audio shows three months and 35 miles apart, and New York City and Washington, DC will host shows on consecutive weekends. While a proliferation of audio shows potentially presents plenty of opportunities for audiophiles to hear new gear, such conflicts ultimately limit which manufacturers can exhibit where, and can render some shows a poor value.

As a result of changing priorities and a revolt against high prices for exhibitors, in January 2017 we saw the smallest high-end audio showing at any Consumer Electronics Show in recent memory. Brightening the horizon later this month is the second annual edition of the Montréal Audio Fest (March 24–26). The MAF arose in the 11th hour last year, when Michel Plante and Sarah Tremblay, the owners of the earlier Montreal show, came to the rescue after the UK's Chester Group abandoned its attempt to mount a Montreal show in 2016.¹ Managed by a committee of industry members, MAF expects to open 65 exhibit rooms plus a headphone exhibition.

Next month (April 23–25), the largest Audio Expo North America in history, to be held at Chicago's Westin O'Hare hotel, anticipates more than 125 listening rooms and an overflowing EarGear Expo. Joel Davis, founder and CEO of show promoter JD Events, says his ultimate goal is "to continue to grow AXPONA in Chicago so that it serves the entire North American market . . . and becomes like [High End in] Munich is to Europe, as the largest show in North America." Provocative words!

Munich's High End (May 18–21) has become the largest hybrid consumer-and-trade show in the world, with exhibitor space maxed out by more brands than you can name. High End is now *the* show for every audio company that can find space and swing the high cost of exhibiting.

Just two weeks later (June 2–4), the madness commences with the debut of the Los Angeles Audio Show, held in collaboration with the Los Angeles and Orange County Audio Society. LAAS came about when, following the death of Richard Beers, founder of T.H.E. Show Newport Beach, that event's new president, Maurice Jung, initially announced neither hotel nor dates for 2017. With investors eager to back a show, and show runner Marine Presson—whom LAOCAS president Bob Levi believes was "110% of the reason T.H.E. Show 2016 happened"—parting ways with Jung, Levi and his Orion Group quickly grabbed T.H.E. Show's usual weekend and found what sounds like an ideal location near LAX: at the Sheraton Gateway, site of *Stereophile's* 2006 show.

LAAS is "geared to the entertainment and excitement factors [of] very Hollywood tastes," Levi told *Stereophile*. As of late last year, Presson anticipated 115 exhibit rooms (down from the 150 rooms of T.H.E. Show Newport 2016), and

several huge displays destined to dazzle and dazzle.

When Capital Audiofest's Gary Gill moved his 2017 show from August to November 3–5, it looked like a quiet audio summer except for the huge Hong Kong High End A/V Show. Then Constantine Soo, whose summertime California Audio Show disappeared from the Bay Area without a whimper following its smallest edition ever, in 2015, announced on Facebook that CAS would return in 2017. As of press time, only he knew when.

The oy-vey season begins in September. Shortly after the CEDIA Expo home-technology show (September 6–9), which in the last few years has attracted increasing numbers of high-end companies, occupies the San Diego Convention Center, Maurice Jung's T.H.E. Show Anaheim arrives at the Hilton Anaheim (September 22–24). Just two weeks later (October 6–8) comes the most beloved and long-lived of current shows, the Rocky Mountain Audio Fest.

Two phone chats with Maurice Jung left me convinced that T.H.E. Show Anaheim's closeness to RMAF was born solely of schedule confusion, with no desire to undermine RMAF. "T.H.E. Show and Rocky Mountain have always been on good terms, with mutual support, and I want to try to keep that going and help promote other shows," Jung said. He promised shipping discounts from Anaheim to Denver, and at least three weeks between T.H.E. Show and RMAF in 2018.

By the time this issue of *Stereophile* has been published, RMAF's Marjorie Baumert will have announced whether or not her show will once again occupy Denver's Marriott Tech Center, with its insufficient number of large rooms and narrowed standard-size rooms. I'm rooting for a restart in fresh quarters.

Tentatively scheduled for October 27–29 is the Toronto AudioVisual Entertainment Show (TAVES), which last year had 48 high-end exhibit rooms rather than the expected 60. Then comes a sticky one. The Chester Group UK's New York Audio Show (November 10–12), which until now has been held each year in a different venue and month, returns to the Park Lane Hotel, opposite Manhattan's Central Park, just one weekend after Capital Audiofest (November 3–5) returns to the Hilton Hotel in Rockville, Maryland.

As tight as that sounds, it is actually a last-minute compromise. For more than five months, Roy Bird, head of the Chester Group, intended to hold the New York show on the same weekend as Capital Audiofest. Thankfully, just two days before Christmas, Bird changed his New York dates and promised to facilitate express shipping between the two shows. The rails and roads between Maryland and New York City could be very busy before Thanksgiving. ■

Jason Victor Serinus (STLetters@enthusiastnetwork.com) is a professional whistler. He was the voice of Woodstock in the Emmy-nominated *Peanuts* cartoon *She's a Good Skate*, Charlie Brown.

¹ See www.stereophile.com/content/salon-son-et-image-put-hold.

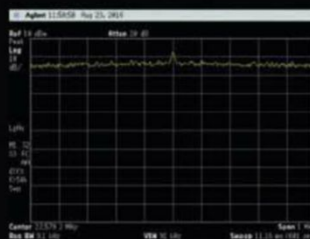


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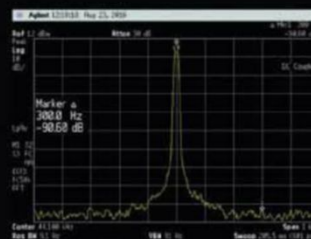
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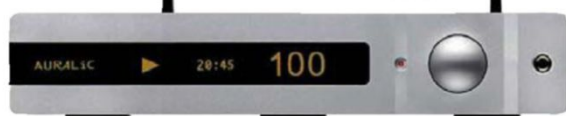
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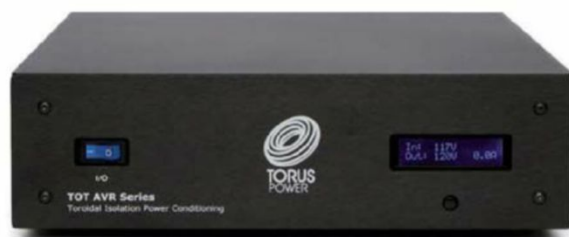
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month, we have a new recording of the Bach-Telemann *Sacred Cantatas*. In Rock/Pop we have new recordings from the Kentucky Headhunters and Okkervil River. In Jazz, we have the latest from Jorge Rossy and Phillipe Côté.

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Silencing the Noise

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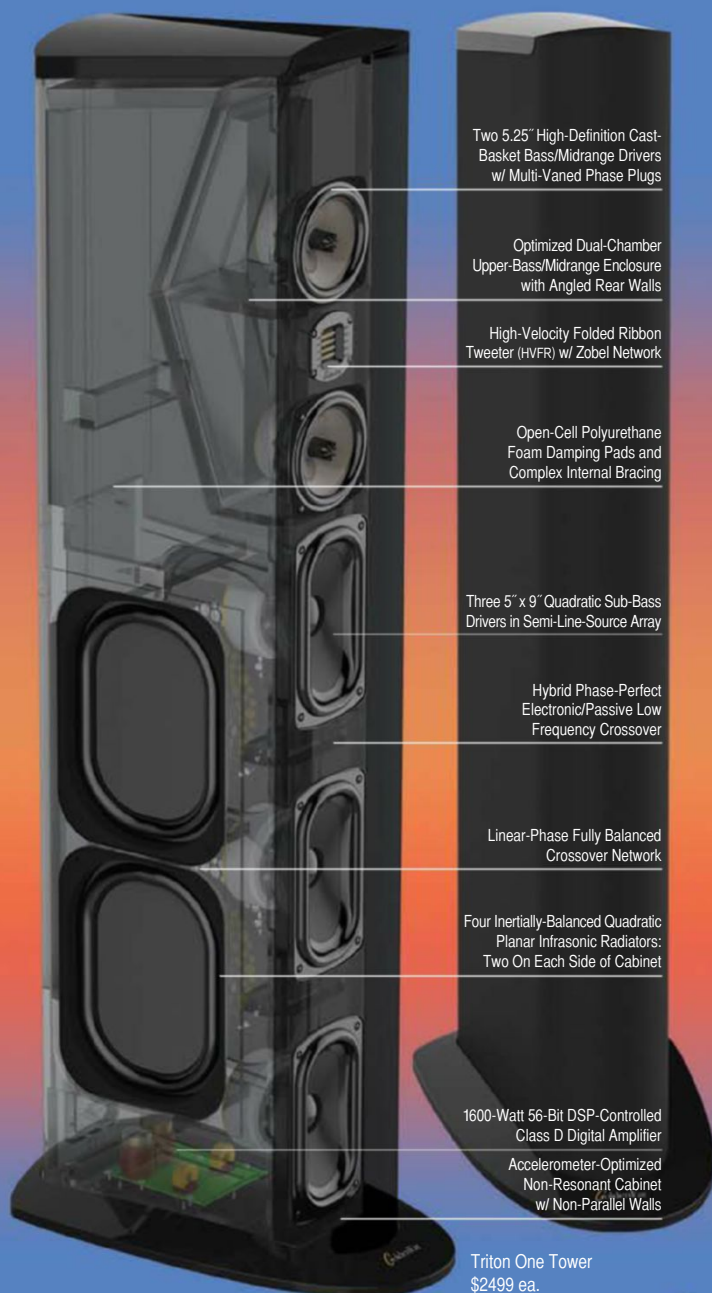
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GoldenEar's World-Beating New Triton One Wins Stereophile's 2015 Co-Loudspeaker-of-the Year!

"... the mere fact that it is not unreasonable to compare the sound of the \$4999 (pair) Triton One with the sounds of speakers costing tens of thousands of dollars more per pair says a lot about their level of performance ..." – Robert Deutsch, *Stereophile*



"A Giant-Killer Speaker ... Borderline Class A"

– *Stereophile Magazine*

Winning Stereophile's Loudspeaker-of-the-Year, is perhaps, the highest honor that a loudspeaker can achieve. Plus, this is doubly significant for such an affordable loudspeaker as the One, when you realize that the co-winner sells for \$25,000 a pair, winners often sell for \$50,000, \$100,000, or \$200,000 a pair, and you have to go back to 2007 to find another winner under \$20,000 a pair (at \$18,000, not much under). And, of course, Borderline Class A is a similar, very special achievement, when you realize the average Class A speaker, this year, sold for \$54,000 a pair.

"An absolute marvel ... shames some speakers costing ten times as much."

– Caleb Denison, *Digital Trends*

The Triton One is an evolutionary speaker that builds upon all the advanced technologies that have made the Tritons mega-hits around the world. This new top-of-the-line flagship was engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. How well have we succeeded? In the words of HD Living's Dennis Burger, the Triton One delivers, *"... the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile"*.

Triton One "creates visceral, tangible waves of pure audio bliss"

– Dennis Burger, *HD Living*

Great sound is what it is all about and the Triton Ones are, as HiFi+’s Chris Martens raved, *"jaw droppingly good ... one of the greatest high-end audio bargains of all time with a dazzling array of sonic characteristics that are likely to please (if not stun) the finicky and jaded of audiophiles"*. The Ones were specifically engineered to excel with all types of music as well as movies. Best of all, they offer previously unheard of value, as Brent Butterworth wrote in *Sound & Vision*, *"I heard a few people saying the Triton One sounded like some \$20,000-and-up high-end towers, but I disagree: I think they sounded better than most of them"*. Darryl Wilkinson summed them up best, *"A Masterpiece ... GoldenEar has fully ushered in the Golden Age of the Loudspeaker"*. Hear them for yourself and discover what all the excitement is about.

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LETTERS FEEDBACK TO THE EDITOR

Errata

My review of Keith Jarrett's *A Multitude of Angels* (ECM), our "Recording of the Month" for January 2017, should have stated that all four concerts were recorded on a Sonosax DAT deck (not a Sony), and that the *Modena* concert has one encore (not two). I apologize for any confusion my sloppy note taking may have caused. The expanded version of the review at *Stereophile.com* includes these corrections. —Richard Lehnert

Erratum

Editor:

Listening to Bach is proof there's something worse than hell.

—Joseph Michael Cierniak
Joeinfrostburg@aol.com

I Now Know I'm Not the Only One

Editor:

Jim Austin wrote, in the December 2016 issue, while reviewing the Lamm M1.2 Reference monoblock amplifier (and himself), "At heart, I'm a deep subjectivist with objectivist, classicist, scientific tendencies. . . . I have equal reverence for Art Dudley and for John Atkinson." I laughed out loud, analyzed exactly why I did, took a sip on my very reasonably priced craft brew, and then grabbed my iPad to write this letter (all while my wife looked on approvingly). Thank you, Jim! I now know I'm not the only one.

—Jay Jackson
jthorlando@gmail.com

The Sound of a Waterfall

Editor:

Audiophile: equipment or music? We should compromise and say that it's about sound. I once criticized a waterfall for not having enough bass, and a motorcycle for having too much treble. An audiophile criticizes the sound of a casino showroom or a restaurant ceiling without wanting to own any of that equipment. An audiophile asks a friend why he has his speakers on the floor, even though his taste in music is atrocious.

—Richard Sasaki
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The Sound of the Human Heart

Editor:

Jason Victor Serinus was so right when he penned: "But ultimate value can be

"Today's great audio equipment is priced way above my pay grade."

determined only by the beating of the human heart" ("As We See It," January 2017).

I realized a long time ago that audio numbers/metrics are like the quality of the road surface when riding a motorcycle. Sure, I can find a supersmooth and comfortable surface on the freeway, but the view can be rather boring and uninspiring. Whereas riding a secondary road can reveal so much more visceral information about the environment around me, experienced through sight, sound, smell, and touch, through the feel of the machine and the road. Even taste comes into play when the ride gets exhilarating—ever notice the metallic sensation in your mouth when your adrenals kick in?

For the most part, my interest in vintage audio equipment acknowledges that choice. What I "hear" is colored to great extent by my expectations, often calibrated to an earlier time in my life when anything on a stereo system sounded simply marvelous.

And don't even get me started on cost. If your thing is modern hi-fi, more power to you. I certainly don't fit the industry's new-buyer demographic. Today's great audio equipment is priced way above my pay grade, whereas the vintage equipment I drooled over as a young man is now within my reach. So beats the human heart. —Pete terHorst

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Now I Finally Get It

Editor:

As I finished my Round One of reading the January 2017 *Stereophile*—which, incidentally, seemed to be a particularly good issue—I put the magazine down and had a smile on my face. It finally struck me why I still feel such satisfaction reading *Stereophile*: the Measurements section included in each equipment review really turns me on, so to speak.

Why did it take so long for this to sink in, I asked myself? Even to my own surprise, really, I have been conditioned to read an equipment, speaker, or accessory review in *Stereophile*, and then immediately jump to the Measurements section to extract technical details so that, among other things, I can make my own "valuation assessment" based on retail price, sound evaluation, and technical measurements. Without the test evaluations, I am unable to complete this (very important to me) task.

As a continuing subscriber to *Stereophile* since 1984, I have to say that other high-end audio magazines do not include test measurements, and I am unfulfilled after reading equipment and speaker reviews in those other magazines. Keep up the good work, and I promise to be around for another 37 years as a subscriber.

—Scott Hagerman
machnart@aol.com

Made in the USA

Editor:

I am a longtime subscriber and have seen *Stereophile* change and evolve over the years.

In times past, it was fairly evident where a product under review was made. But now, with a globalized economy, it is not apparent. Thus, I suggest that in the "Specifications" section of a product under review, you should also indicate the country of manufacture. It may be useful information to some people. I know someone who bought something from a traditional US-based company and was mildly surprised to later discover that his new gear was not made in the US, though previous gear from the same company had been made in the US.

—Nathan Losman
New Hempstead, NY
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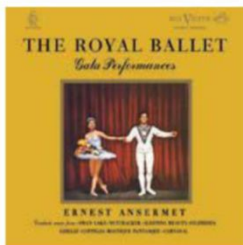


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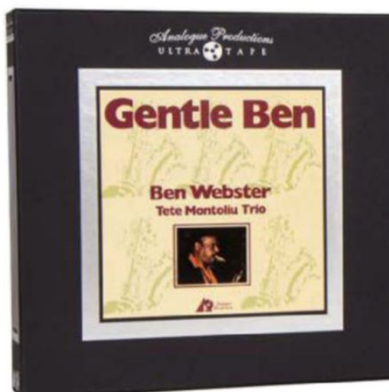
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INDUSTRY UPDATE

AUDIO NEWS & VIEWS

US: PROVO, UTAH

Jason Victor Serinus

Last December, I visited Wilson Audio Specialties, in Provo, Utah, for the launch of their WAMM Master Chronosonic loudspeaker! Given its huge size (ca 86" H with spikes by 26" W by 36.5" D), high price (\$685,000/pair), and limited production run of only 70 pairs, Wilson's ultimate speaker model is not slated for demos at dealers and audio shows. The only way prospective customers, dealers, and the press can experience Dave Wilson's magnum opus—the culmination of well over three decades of loudspeaker development—is to visit his home and hear the WAMM Designer Proof, which will take the place of the WAMM P2 Prototype I heard. But before I listened to the speaker, I discussed with Wilson his design of the new WAMM.

"Frankly, I designed the WAMM Master Chronosonic for me as a tool, and as a thing of beauty," Dave Wilson told me. "It was never designed as a product; I intended to build a limited number of them for friends of Wilson who chose to acquire them."

The WAMM has a 1" Convergent Synergy silk-dome tweeter, two 4" upper-midrange drive-units, two 7" lower-midrange drivers, and 10.5" and 12.5" woofers developed for the WAMM but first seen in Wilson's Alexx, as well as two rear-firing drive-units: a 1" tweeter and a 4" unit. But this imposing array of drivers, all of which are adjustable in position, is but one aspect of the WAMM's uniqueness. Wilson claims that it achieves an unparalleled degree of time alignment among the various drivers' outputs, with a time-coherent presentation of soundwaves at the listening position that clarifies information usually smudged by other loudspeakers. "The placement of the drivers relative to each other affects the synchronicity of the alignment of the leading edge of the transient," Wilson said. "Our patent on how we achieve time alignment dates back to 1984."

He then explained that soundwaves travel about 0.135" in 10 microseconds. Above 5kHz, 10μs lies at the threshold of what humans can detect

from a multi-driver loudspeaker when the waveforms' leading edges are not properly aligned. At lower frequencies, somewhat larger misalignments can be tolerated.

Wilson claimed that speakers that have only flat front baffles fixed at an angle of 90° to the vertical can have hundreds of microseconds' worth of error built into them. "One hundred microseconds, for example, is 1.3 inches," he said. "That's a lot."



Jason Victor Serinus (left) and David Wilson flank the ginormous new WAMM speaker.

To address audible timing incoherence, Wilson told me, the WAMM's "upper-frequency mechanisms allow for adjustments down to about 2 microseconds." He promised to provide nomograms that will be based on: 1) the speaker's distance from a seated listener's ears; 2) the distance of that listener's ears from the floor; and, equally important, 3) the time the signal takes to be passed through all upstream electronics and cables.

"Speed is not a main arbiter of [sound] quality; it's just a characteristic," Wilson said. "The WAMM

SUBMISSIONS: Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to JAtkinson@enthusiastnetwork.com at least eight weeks before the month of the event. The deadline for the May 2017 issue is February 20, 2017.

CALENDAR OF INDUSTRY EVENTS

ATTENTION ALL AUDIO SOCIETIES:

We have a page on the *Stereophile* website dedicated to you: www.stereophile.com/audiophile-societies. If you'd like to have your audio-society information posted on the site, e-mail Chris Vogel at info@XLinkAudio.com.

Please note that it is inappropriate for a retailer to promote a new product line in "Calendar" unless this is associated with a seminar or similar event.

CALIFORNIA

■ Sunday, March 19, 2-5pm: The **Los Angeles & Orange County Audio Society** will hold its monthly meeting at the new premises of **Upscale Audio** (2058 Wright Avenue, La Verne 91750). This fascinating event will feature the "Tube King" himself, Upscale Audio's own Kevin Deal, and include the grand opening of Upscale's new space: 10,000 square feet devoted to musical enjoyment! Kevin will present his latest personal tube-search adventures and will give tours of the new facility! **Eastwind Import** will be on hand to offer carefully selected vinyl and CDs for sale. A raffle is planned and an extraordinary lunch will be served. Free parking is nearby. Guests, visitors, and new members are invited. For more information, visit www.laocas.com or call Bob Levi at (714) 281-5850.

FLORIDA

■ Saturday, March 4, 1-4pm: The **Space Coast Audio Society** will hold its monthly meeting in the offices of **Opera Orlando** at the Lowndes Shakespeare Center (812 E. Rollins Street, Orlando 32803). Douglas Hurlburt (founder and designer) and David Skolnik (sales and marketing), of **Dynamic Sounds Associates**, will present the new 125W, pure class-A, solid-state Amp I monoblocks, along with the Phono II phono preamplifier

¹ See www.youtube.com/watch?v=cJ9gJTYfkrU.

Master Chronosonic system gives an unparalleled degree of precision of alignment. . . . It's all about time. Flat frequency response, low distortion, extended bandwidth, and accurate timing synchronicity are equally important. It's nice if you have phase coherence, but it is not necessary. What I'm interested in is the synchronicity of the leading edge of each note. If you were to look at what 10microseconds is on our measuring scale, you'll see that our adjustable driver positioning dissects that line. We are truly splitting hairs."

Wilson also said that while our hearing range decreases with age—high-frequency sensitivity may roll off above 6kHz—our ears' sensitivity to the *timing* of sounds remains strong, with perhaps only 10% loss with age. "There were several people I built the original WAMMs for who were in their 80s, and who could hear the timing, because it's not linked to high-frequency extension," he told me. "And my guess is that the ear is less sensitive to timing in the lower frequencies."

As a proof of design concept, the WAMM Master Chronosonic is destined to serve as lasting testimony to Dave Wilson's career. Although

it's a shame that so few of us will be able to enjoy it for more than a single afternoon, we mere mortals can at least console ourselves that its technological breakthroughs have trickled down to the Alexx (\$109,000/pair), which Michael Fremer is in the process of reviewing for *Stereophile*.

See <http://tinyurl.com/h6nruo8> for a much longer version of this report, including my listening impressions.

THE NETHERLANDS: EINDHOVEN

Paul Messenger

Marantz has introduced two new state-of-the-art components: the Reference SA-10 SACD/CD player (\$6999) and the Reference PM-10 integrated amplifier (\$7999). Both are significantly less costly than many of their high-end competitors, and both incorporate surprisingly radical features that deserve close scrutiny. The two Reference models were previewed in May 2016 in Munich, Germany, at the annual High End show, but became available only in February 2017. I visited Marantz in Eindhoven, the Netherlands, to learn more about the new models and to enjoy the excellent

and Pre I line stage. The system will also include components from **Kanso, Luminous, Ortofon, Spondor, Tweek Geek, and VPI**. RSVP to: Chris Vogel (SCAS) at scas@xlinkaudio.com or (386) 423-4650; or David Sckolnik (DSA) at david@dynamicssounds-assoc.com or (386) 873-2388.

■ Sunday, March 5, 2–4:30pm. Same location and system as March 4 event for "Opera on Record: 1950–1980," a special presentation by **Opera Orlando** and **Dynamic Sounds Associates** as part of the events leading up to Opera Orlando's March 24–26 performances of Mozart's *Don Giovanni*. RSVP to: Opera Orlando, info@operaorlando.org or (470) 512-1900; or David Sckolnik (DSA), david@dynamicssounds-assoc.com or (386) 873-2388.

GEORGIA

■ Sunday, February 19, 2–5pm: The **Audio Video Club of Atlanta**; Mike Burns, founder of **Wolfsong Audio**; and Gary Dayton, of **Bryston Ltd.**, will host a seminar and demonstration at the Dunwoody North Driving

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Clubhouse (4522 Kingsgate Drive, Dunwoody 30338) of several Bryston products: the BP26 preamplifier with MPS-2 power supply, 4B3 power amplifier, BDA-3 DAC, BDP- π streamer, BLP-1 turntable, and BP-2 phono preamp. Loudspeakers will include the **Ryan Speakers** R610 two-way and R630 three-way floorstanding models. Cables will be **DH Labs** Silver Sonic and Air Matrix. Guests welcome. For more information, contact John Morrison, President, at (770) 330-3919 or jhm3@bellsouth.net; or Chuck Bruce, VP, at (770) 550-1434 or cchucksaudio@mindspring.com. Visit the Club's website for latest details: www.a-vcoa.org.

ILLINOIS

■ Friday-Sunday, April 21-23: **Axpona 2017** takes place at the Westin O'Hare, in Rosemont. Details at www.axpona.com.

MINNESOTA

■ Tuesday, February 21, 6:45-8:30pm: The **Audio Society of**

listening room of brand ambassador Ken Ishiwata.²

The Reference SA-10, which replaces the SA-7 SACD/CD player, uses Marantz's SACD-M3 disc transport, and has S/PDIF optical and electrical and USB digital inputs, as well as analog outputs. But there's no onboard digital-to-analog converter, in the accepted sense of the term. Marantz is rather coy in describing its "non-DAC" approach—for which patents have yet to be granted—as a "two-stage process, MMM-Conversion and MMM-Stream." I prefer to describe it as upconverting PCM datastreams to high-speed DSD256, then applying a high-quality low-pass filter to generate the analog signal. Senior electronics engineer Rainer Finck, currently a leading executive for Marantz's parent company, the D+M Group (which also owns Boston Acoustics, Denon, McIntosh Laboratory, and Snell), once worked for Philips, Marantz's former owner, and was largely responsible for the development of "bitstream" DAC technology in the late 1980s.³

If the SA-10 is unusual, so is the Reference PM-10, a one-box, two-channel integrated amplifier that oper-

ates in balanced mode throughout and replaces the three-box combo of SC7 preamplifier and MA9 monoblocks. Since the single box can produce 400Wpc into 4 ohms or 200Wpc into 8 ohms, it's inevitable that its power-amp section comprises switch-mode power supplies. (To maintain the PM-10's fully balanced architecture, there are actually four power-amp modules.) The preamplifier section has its own, smaller linear power supply, and the PM-10 even has a discrete-component phono stage that can be switched to accommodate high- or low-output cartridges. Balanced operation helps to minimize noise, as does another supply dedicated to feeding the microprocessor that controls the volume and input switching. Copper sheets for shielding are used extensively in construction, along with nonmagnetic aluminum panels for much of the case.

I'm always reluctant to judge the sound quality of audio equipment outside the context of my own reference system, especially when the recordings

² See Jana Dagdagan's recent interview with Ken Ishiwata at <http://tinyurl.com/zffs3ow>.

³ See www.stereophile.com/content/pdm-pwm-delta-sigma-1-bit-dacs-john-atkinson.

Got Music On Your Mind?

Here are a few of OUR thoughts.

POWERLINE



High Fidelity Cables
MC-0.5 Magnetic
Wave Guide

ACOUSTICS



Synergistic Research
Atmosphere XL

COMPONENTS



Harbeth Loudspeakers
Monitor 30.1

HEADPHONES



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HD800-S

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Audio Desk Systeme
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played are entirely unfamiliar. But it would be a shame to say nothing about Ishiwata's excellent room and the music we listened to through a pair of relatively compact Q Acoustics Concept 500 loudspeakers.

The sound was very good overall, with a smooth tonal balance across a wide bandwidth. Stereo imaging was particularly impressive, dynamic range was notably wide, and I heard no unwanted artifacts that might have arisen from the more controversial aspects of these designs.

UK: RAYLEIGH, ESSEX

Paul Messenger

At the beginning of December 2016, news broke that longtime loudspeaker specialist Monitor Audio had acquired the prominent manufacturer Roksan Audio Ltd., primarily known for its turntables and electronics. Both companies are well established—Monitor was founded in 1972, Roksan in 1985—and their product portfolios barely overlap. (Though Roksan does make a couple of models of loudspeakers, they're not significant parts of the

company's product line.) And, as both organizations are British, the takeover makes a lot of sense.

Roksan's previous owner and managing director, cofounder Tufan Hashemi, has handed his company over to Monitor, which has named its former finance director, Philip Evans, as Roksan's new managing director. But, apparently, little else will change in the short term, and Roksan will continue to operate independently from its factory in Kingsbury, in North West London. ■

Minnesota will hold its February meeting. For this meeting, we will have an extended tour of the newly remodeled **Northrop Auditorium**, on the University of Minnesota campus. The transformation of this building is astonishing: It now features much better sightlines and acoustics. For the most current information regarding this meeting, please visit our website: www.audiomn.org.

■ Tuesday, March 21, 6:45-9pm: The **Audio Society of Minnesota** will hold its March meeting at the Pavak Museum of Broadcasting (3517 Raleigh Avenue,

St. Louis Park 55416). Refreshments will be served, and guests, visitors, and new members are always welcome to attend. For the most up-to-date information about the meeting, please visit www.audiomn.org.

WISCONSIN

■ Wednesday, March 22, 7-9pm: **Ultra Fidelis** (7125 W. North Avenue, Wauwatosa) will host an evening of music and conversation with Richard **Vandersteen**. RSVP to (414) 221-0200 or jonathan.spelt@ultrafi.com.

CANADA

■ Friday-Sunday, March 24-26: The **Montréal Audio Fest 2017** takes place downtown, in the newly renovated Hotel Bonaventure Montréal. This marks the 30th anniversary of audio shows in Montréal. Details at <http://montrealaudiofest.org>.

CZECH REPUBLIC

■ Friday-Sunday, March 31-April 2, 10am-6pm: The **Audio Video Show Prague** takes place at the Hotel Don Giovanni Prague (www.hotelgiovanni.cz). More details at www.audio-video-show.cz/en/.

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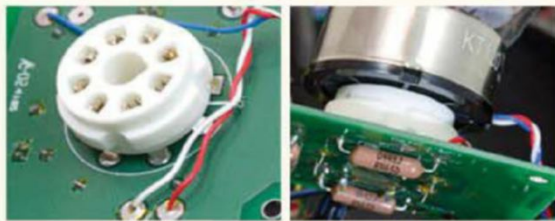
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Left: Top view of tube socket soldered to PCB. Right: Side view.*



PrimaLuna tube socket. Left: Bottom view, showing point to point wiring. Right: top view, showing socket bolted to panel.

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ANALOG CORNER

BY MICHAEL FREMER

THIS ISSUE: Audio Union's Döhmman Helix 1 turntable and Schröder CB tonearm.

Extraordinary Analog

Turntables, tonearms, and phono cartridges are tuned systems. That each of them can be adjusted to maximize the sound quality—especially the quality called *tunefulness*, which is difficult to quantify—drives vinyl deniers crazy. Today, one of them e-mailed me: “You are the stupidest motherfucker I have ever encountered. Go shove a tone-arm up your ass.” He followed that with this: “You are demented, deluded, and deaf. Records suck, and always have.”

Just ignore them. I do. (Well, I try.)

The ability to fine-tune a vinyl playback system is part of what makes it possible to combine an archaic technology with modern thinking and materials to create musical magic, and take listeners to new heights of ecstatic musical pleasure. It's why so many young people are tuning in to vinyl, and helps explain why just today, as I write this, it was announced in the UK that, for the first time, revenues from sales of vinyl exceeded those from downloads.

You can buy a turntable that's been pre-tuned by the designer—that is, the user can't adjust its combinations of mass, materials, suspensions, etc.—or you can buy one that offers a few things you *can* adjust to your own taste. Either approach can be valid.

You can also buy a turntable whose designer has decided that high mass and heroic amounts of damping will solve any problems in the system's electromechanical design, and has applied these with an iron fist but without careful, critical listening. You might as well buy a CD player.

I bring this up because both Audio Union's Döhmman Helix 1 turntable and the Schröder Captive Bearing tonearm include instructions outlining how one can tune them—in one case through the use of heavy brass weights, and in the other by various degrees of screw tightening. These options are spelled out in well-written manuals, not because the designs are unfinished or the designers uncertain, but because the player's international design team, headed by Mark Döhmman, consists of both scientists and careful, experienced listeners who understand the tuned nature of the system.

Audio Union

The last time we heard from Mark Döhmman, he was the chief designer at Continuum

Audio Labs—it says so right on his business card. There, he headed a design team that created the no-longer-in-production Caliburn turntable, Cobra tonearm, and Castellon stand. That was more than a decade ago.

I listened, I reviewed, I bought . . . and 11 trouble-free years later I'm still glad I did, though I've since replaced the Cobra with the Swedish Analog Technologies (SAT) arm (and am glad I did that, too). And I replaced the Castellon's original magnetic-repulsion isolation system with one from MinusK.

Döhmman is now a member of the Audio Union team, based in Sofia, Bulgaria. Rumen Artarski, who holds a degree in electrical engineering from the University of Denmark and who also manufactures the Thrax line of

electronics and loudspeakers, is Audio Union's executive director of engineering and marketing. The other Audio Union team members from around the world include names familiar and unfamiliar: world-renowned tonearm designer Frank Schröder; Dave and Tom Kleinbeck, of EnKlein cables (Dave is a telecommunications engineer, Tom a patent-holding mechanical and aeronautical engineer); Bo Christensen, of Bow Technologies (and previously of Primare); and Dr. David Platus, inventor of MinusK's vibration isolation technology. There are also two more Bulgarians: Stanislav Stoyanov, an aeronautical engineer who, among other things, oversees Artarski's state-of-the-art CNC machining facility; and Dr. Plamen Ivanov Valtchev, an expert in the use of advanced software visualization, FEA modeling, and acoustics. You can read more about the team at www.audio-union.com/Helix.php; if you do, you'll think they got together to design a great-sounding guided missile, but no—it's “just” a turntable project.

Döhmman Helix 1 turntable

Mark Döhmman's goals for the Helix 1 were the same as for his older designs: Isolate the groove-stylus interface from the outside world and from within. Drain away noise and various forms



of energy produced by the turntable's bearing, the motor, and the stylus/vinyl interface. And, of course, spin the platter at the correct and unvarying speed. (For details about how he accomplished this in the Continuum Caliburn, see my review in the January 2006 issue.)

The goals this time were the same, but with a desire to bring it in at far lower cost. By the time the Caliburn came to market, its retail price had soared past \$150,000, and it couldn't easily be dismantled for moving.

The Döhmman Helix 1 (\$40,000) looks unlike any other turntable on the market. Its design concept and execution are equally unique, beginning with the integrated MinusK Negative Stiffness isolation platform.² Simply put, MinusK is a totally passive leaf-spring design that isolates down to 0.5Hz vertically and 1.5Hz horizontally. Nothing from outside gets in. It wasn't invented for audio applications, but it sure works well under whatever you want to isolate.

Interesting as that is, it's probably the least intriguing aspect of the Helix 1's design. More fascinating are other design features, each with its initials:

Micro Signal Architecture (MSA), Mechanical Crossover Technology (MCT), Tonearm Damping System (TDS), and Resonance Tuned Suspension (RTS). You can read way more about these on Audio Union's website³ than I have space for here. The language is flowery, but I found it free of another pair of initials: BS.

Basically, the Helix 1's interior consists of various plates that can be thought of as leaves on a tree—or, as described on the website, “the bearing is the center of the ‘universe’ where ‘planets’ (motors and arms) sit on an orbital plane (the chassis/plinth). Vibrate the plane (chassis/plinth) by internal or external means and you get vibration patterns and nodes, which become visible to the naked eye using Chladni plate analysis.

“By placing the bearing and motor and arms into ‘optimal zones’ where vibration was well damped or controlled we provided the best possible place on the chassis for the sub-system to sit with the lowest possible vibration. Helix 1 chassis research created several eureka moments!” Want to know what “Chladni plate analysis” is? Go to the link.

In fact, if you want to see a Helix 1 partially assembled by Rumen Artarski at his factory, see my 25-minute video at https://youtu.be/5QYu6qRg_PA. More particulars include a plinth of 4"-thick, CNC-machined aluminum and structural alloys that, fully assembled, weighs 100 lbs. Not visible in the video are the aforementioned series of interlocking plates “fitted closely” to the MinusK platform, to which are attached the motor, the platter bearing, and two suspended, isolated platforms for mounting tonearms.

A “mechanical crossover,” produced by the various materials and their thicknesses and placements, creates, the manual claims, continuous, “smooth vibrational pathways that drive higher order vibrations generated through motor noise away from the bearing and platter via a complex coupling to the chassis.”

The 30-lb platter is a triple sandwich of layers of an “engineered thermoplastic” and a nonferrous alloy that's balanced and shaped for the lead-in groove and label areas of LPs. This is topped with a thin, permanently installed damping mat. The spindle is of brass.

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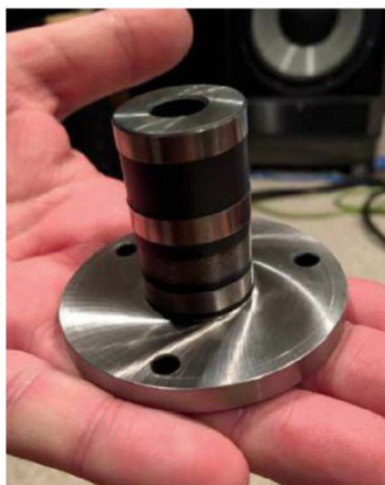
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The platter bearing is similar to the brilliant design used in the Spiral Groove turntables designed by Allen Perkins, who worked with Döhmman on the Helix 1 prototypes. The Helix 1's bearing—clearly shown in the video, and well worth a look—is manufactured in Europe to precision tolerances. The spindle and housing are of *maraging steel*—an alloy of iron possessing superior strength and toughness. The spindle rides on a single ceramic ball and thrust pad.

A high-torque, low-noise, zero-cogging motor capable of 100W of power drives the platter via two dissimilar O-rings. The belts are purposely machined to have different durometers (degrees of hardness), so that each belt “beats” differently, with the motor-control system doing the final smoothing. Döhmman says that a “springy” belt is good because it addresses motor-bearing noise and motor cogging—but because of inevitable bearing friction, the belt slows (we’re talking on a microscopic level of course) and needs retensioning, which produces a “beat.” With the addition of a second, less compliant belt—which, when added to the system, won’t stretch at the



same time or at the same rate—the two belts will then “average out,” smoothing the beat—and the motor controller can be programmed to further aid the improved belt performance. Döhmman figures that makers of turntables driven by two or more identical belts will eventually pick up on this.

The Helix 1's custom, software-based motor-control system is housed in a handsome case the size of a preamplifier. This digital, closed-loop

servo has greater than 16-bit resolution. The motor-control software was designed by Tom Kleinbeck, Rumen Artarski, and Stanislav Stoyanov. This international collaboration was necessary, Döhmman says, partly because of the different electrical needs of various nations, but also because they found ways to “voice” the motor with flexible programming. With each iteration of the software, each of the three independently listened, then shared his opinions with the other two. From the Audio Union website: “Absolute positioning reading occurs over 120,000 discrete positions of the rotor per revolution. The motor spins several hundred times to achieve one revolution of the platter thus increasing the system resolution by an order of magnitude over a direct drive topology.”

The Helix 1's two speeds, 33⅓ and 45rpm (78rpm is available on request), are set at the factory and, according to

1 See www.stereophile.com/turntables/106con/index.html.

2 For more about the Negative Stiffness system, see my September 2012 interview with MinusK's David Platus: www.analogplanet.com/content/minusks-david-platus-takes-stand-behalf-his-negative-stiffness-isolation-technology.

3 See www.audio-union.com/Helix.php.



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Audio Union, should not need adjusting. If they ever do, a smartphone/tablet app will do it—or the controller can be connected to the Internet, to allow AU's service techs to remotely diagnose and adjust, as well as download firmware and/or software updates. There's a screw-on record clamp. **SETUP AND USE:** The Döhmman Helix 1 comes in a compact road case and is relatively easy to set up. It sits on adjustable leveling feet, from which the turntable itself is completely decoupled. It's big: 23.4" wide by 5.2" high by 18.7" deep. The

MinusK suspension requires no tuning or tweaking, other than to adjust the vertical "travel" once the arm(s) has been installed: The suspension is very sensitive to weight.

Audio Union supplies a pair of thick, mirror-imaged aluminum armboards that can be machined to accommodate your choice of tonearm. The boards are bolted, from above, to suspended platforms. Once a board is in place, it can be leveled and/or raised to keep it from touching the frame below by adjusting two pairs of screws accessible from the top surface. In the front left corner of the chassis top are two illuminated pushbuttons: 33⅓ and 45rpm, and On/Off (the latter glows red for Off, green for On).

The first time you screw down the record clamp, you'll think you've done something wrong. The suspension will bottom out with a bang, and/or the chassis will twist horizontally, making you think the whole thing is about to slide off the shelf. It won't. That's the MinusK platform behaving normally. You just have to get used to it, and modify your usual screw-down technique. Rubber stoppers or bumpers would prevent the knocking, but I wonder if they'd affect the 'table's tuning...?

Schröder CB tonearm

Frank Schröder, the well-known German designer of tonearms, created his ingenious Captive Bearing (CB) arm for Audio Union. You can watch part of its assembly in the YouTube video mentioned above. (I was asked to edit out part of the procedure in order not

to give away any secrets.)

The deceptively simple-looking CB arm, available separately from Audio Union for \$4000, features a carbon-fiber armtube and offers nearly complete adjustment flexibility, though it lacks convenience features—such as on-the-fly adjustment of vertical tracking angle (VTA) and stylus rake angle (SRA)—found on some far more expensive arms. The CB uses ultralow-friction hybrid ceramic bearings that feature internal magnetic damping of horizontal motion. The antiskating is also applied magnetically.

The geometry is standard Rega: an effective length of 239.3mm, a pivot-to-spindle distance of 222mm—even the arm mount is the same as for the large, threaded pillars of Rega's older tonearms. The unbroken wiring, from cartridge clips to RCA jacks, is cryogenically treated, high-purity copper.

There's no arm lock because, the manual claims, they resonate—and will inevitably mar the armtube's finish. Nor is there a finger lift—if you're a fumbler, be careful! I won't go over the setup procedure, which is relatively straightforward but difficult to accomplish accurately, other than to commend the instructions for their clarity, completeness, and usefulness.

More useful is the manual's advice about vertical tracking force (VTF), especially the note about how the tightening of various screws affects the sound. The bottom half of the CB arm's two-piece, underslung counterweight can be screwed tightly to the upper half, the degree of tightness affecting the reproduction of the bass.

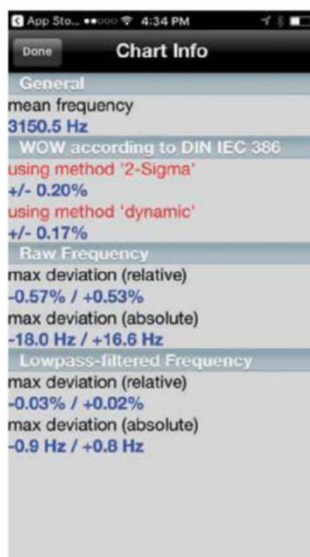
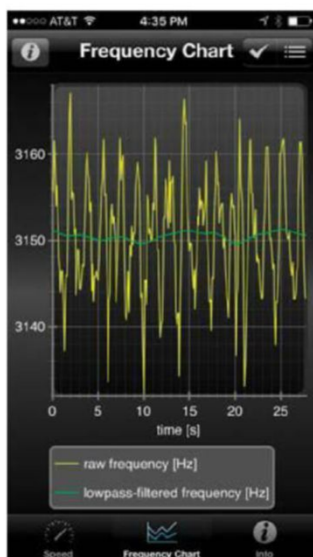


Fig.1 (far left) Audio Union Döhmman Helix 1, speed stability (raw frequency yellow; low-pass filtered frequency green). **Fig.2** (left) Audio Union Döhmman Helix 1, speed stability data.

Measurements

When he set up the Döhmman Helix 1 and Schröder CB in my listening room, Dave Kleinbeck used Dr. Feickert Analogue's PlatterSpeed app (not really of lab quality, but still useful) and got a mean frequency of 3149.4Hz for the Feickert test record's 3150Hz. When, a few months later, I remeasured, I got 3150.5Hz (figs. 1 and 2). In that time the Helix 1's dynamic wow

had risen slightly, from $\pm 0.11\%$ to $\pm 0.17\%$. The low-pass-filtered relative maximum speed deviation went from $\pm 0.01\%$ to $-0.03\%/+0.02\%$, while the low-pass-filtered absolute maximum deviation went from $-0.2\text{Hz}/+0.5\text{Hz}$ to $-0.9\text{Hz}/+0.8\text{Hz}$. These are exceptionally good, stable numbers.

Listening

The audible difference between a well-damped and a well-tuned turntable was apparent from the first record I played after having spent time with Acoustic Signature's Ascona Mk.2 turntable.⁴ Compared to the Döhmman Helix 1, the Ascona Mk.2 left the music in the box, sounding somewhat shut down and flat.

For my review of the Ascona I'd made a 24-bit/96kHz file of Ray Brown's *Soular Energy* (2 45rpm 200gm LPs, Concord Jazz/Analogue Productions APJ 45-268) and other albums, using the SAT arm, Lyra's Etna SL cartridge, and the Ypsilon VPS-100 Silver phono preamp—the only variable was the turntable.

I'm now playing files of that recording made with both turntables, and both sound very good—but the Helix lets the music erupt (as I wrote about the Caliburn 11 years ago), while the Ascona suppresses attacks and blunts sustains. The Helix allows both attacks and sustains to be fully expressed—from both Gene Harris's piano and, especially, Gerryck King's cymbals—while the Ascona Mk.2 blunts the shimmer and ring. This is what I heard

⁴ See my review in the December 2016 "Analog Corner."

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directly from these turntables; having these files is really useful for corroboration—and mea culpas!

I could hear from the Ascona the same blunting of individual piano notes, especially notes higher on the keyboard; they were tamped down, instead of having a more generous, natural sustain and decay. The Helix 1's tunefulness—its harmonic and rhythmic correctness from top to bottom—was immediately obvious, as was the absence of any identifiable mechanical artifacts that could give its sound a specific character.

The Helix's smooth, liquid flow reminded me of VPI's similarly priced Direct Drive turntable,⁵ which says a great deal about what Audio Union has managed in a belt-driven design in terms of speed stability and, especially, musical drive. I could describe, say, its bottom end as "fast and clean," etc., but breaking the 'table's performance down into pieces would give short shrift to its top-to-bottom coherency—and, because of its exceptional image stability and solidity, would detract from the overall sound's easy believability and consequent relaxed listening pleasure.

After a more-than-satisfying month or so of listening to the Schröder CB arm with the Lyra Etna cartridge, through either the Ypsilon VPS-100 phono preamp with MC10L step-up transformer or CH Precision's P1 phono stage with optional power supply, it was time to change one of the variables by swapping the Schröder for the SAT arm—but not before recording more files.

With the SAT on the Döhmman Helix 1, two things became obvious: First was that the Schröder was a strong performer for \$4000, or even more; and second, that the SAT on the Helix 1 put the Helix 1 and the Caliburn on a more level playing field. The SAT's superior bass performance was immediately obvious, but so was the Helix 1's ability to handle the SAT's explosiveness.

Also clear was that the Caliburn, overall, sounded slightly more laid-back than the Helix 1, which was somewhat more "present" and fast in terms of transient response. With "Exactly Like You," from *Soular Energy*, the Helix 1 produced sharper, more pleasing piano and bass attacks—but the Caliburn countered with richer textures in instrumental sustain and resulting harmonics.



I also digitized "All Roads to the River," from the reissue of Janis Ian's superb *Breaking Silence* (LP, Morgan Creek/Analogue Productions APP 027), mastered by the late Doug Sax, and I heard the same differences—which, through the Caliburn, produced a more fully fleshed-out reproduction of Ian's voice.

These are minor obsessive differences in the short term, and somewhat bigger ones long term—but so would be the Caliburn's almost four-times-higher price, were it still available. If I were offered a Helix 1 in exchange for the Caliburn plus cash for the difference in prices, I wouldn't do it—but I'd sure think about it!

Conclusions

I can't say that Audio Union's Döhmman Helix 1 is the equivalent of the Continuum Audio Caliburn, or that the Schröder CB performs as well as the Swedish Analog Technologies arm. But I'm not surprised that, overall, the two turntables, fitted with the same arm and cartridge, sounded more similar than different. The same chief designer oversaw both, keeping in mind the same carefully chosen goals.

More than a decade of thought and technological progress have allowed Mark Döhmman and another team of experts to find other ways to damp and tune, to house the motor outboard, and to avoid having to use an 86-lb platter of cast magnesium alloy (which is costly and difficult to cast), or any number of other expensive tactics that can now, for the most part, be accomplished far less expensively.

Had I installed the Helix 1 in the same 2005 system that provided the context for the Continuum, I'd have written about it what I felt about the Caliburn: "no turntable in my experience comes close to its sonic perfor-

mance and you are guaranteed to hear your favorite demo LPs, indeed all of your LPs, as you've never before heard them—I don't care what 'table you use or have heard."

Over the last decade or so, the best turntable designers have definitely upped their game, but I still think that, regardless of price, the Döhmman Helix 1 is at or near the top of the heap in terms of sound quality. What I said in the January 2006 issue about the Caliburn is equally true of the Helix 1: "What I marveled at most throughout the review period was not any particular sonic parameter in which the Caliburn performed well, but the unforced *believability* of almost everything I played, at whatever volume I played it." ■

Michael Fremer (fremer@analogplanet.com) is the editor of *AnalogPlanet.com*, a *Stereophile* website devoted to all things analogical.

5 See my review in the May 2014 "Analog Corner": www.stereophile.com/content/vpi-classic-direct-drive-signature-turntable.

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LISTENING BY ART DUDLEY

THIS ISSUE: Amplifying the output of a coil with a coil works wonders.

The Sky's the Limit

In contrast with such line-level source components as DACs and CD players, record players generate a lower-voltage signal that requires extra gain¹ from either a standalone phono preamplifier or the phono stage of another, more comprehensive component in one's system—typically, a full-function preamplifier or an integrated amp.

But when the phono cartridge of choice is a moving-coil (MC) type, which generates even less voltage than its moving-magnet (MM) and moving-iron (MI) friends, even *more* gain is required. This presents the user with an additional choice: he or she can select from among the many standalone phono preamps that offer sufficient gain, or augment an existing phono or full-function preamp or integrated amplifier with a phono step-up transformer, which boosts gain passively, without using tubes or transistors.²

A transformer can do this because it's naturally good at inverting ratios between certain electrical characteristics—in this case, current and voltage. An MC cartridge is a prodigious source of signal current but a poor generator of signal voltage; when you apply its signal to the primary coil of a transformer configured as a phono step-up, the transformer's secondary coil will output a signal that is comparatively low in current and high in voltage. Just like that.

Why would you buy a step-up transformer instead of just sticking with a high-gain phono preamp? Because, with exceptions, transformers offer better sound—providing more drama, more color, and, especially, greater touch and impact. (Your mileage may vary. Use only as directed. Offer not good after curfew in Sectors R or N.) It has long seemed to me that by loading the coils of a phono cartridge with the primary coil of a transformer, particularly in a system in which the voice-coils of the speakers are driven by the output transformers of a tube amp, a certain magic is achieved—a condition wherein music breathes in and out in a manner not unlike real music. As I wrote in the June 2010 edition of this column, “There may be no better way to load a coil or drive a coil than with a coil.”³

The primaries were fixed

Which brings us to the new Sky 40 stereo phono transformer (\$1250) from Bob's Devices, which joins the identically priced Sky 30.⁴ At present, the Sky 40 is available only with a 1:40 turns ratio—*ie*, the ratio between the number of turns of wire in its primary coil and the number of turns in its sec-

An MC cartridge is a prodigious source of signal current.

ondary, which determines the phono transformer's gain. (A higher ratio equals higher gain.) By multiplying the base-10 logarithm of its turns ratio by

20—a formula that works for any step-up transformer—we can predict that the Sky 40 will exhibit 32dB of gain.

According to Bob Sattin, of Bob's Devices, the transformers used in the Sky 40 are a completely new design: CineMag, the Canoga Park, California company that designs and winds those transformers, has reduced the number of turns by 20% compared with their previous phono-transformer design, the CineMag CM-1131. That benefits high-frequency performance—but in order to do so without also diminishing low-frequency performance, CineMag had to come up with a higher-performance core material. According to Sattin, the choices for CineMag were to switch to an amorphous core, or “to improve the [core] laminations to a level that had never been done before.” Because amorphous cores are said by Sattin to have “inconsistent” magnetic properties, CineMag's David Geren set about designing and making his own laminations—the metals used are a trade secret—with results that are

1 It also requires phono-specific equalization, a topic for another day. See my column in the January 2009 issue: www.stereophile.com/artdudleylistening/listening_73/index.html.

2 Head amps, defined by most phonophiles as *active* MC-appropriate gain stages without RIAA de-emphasis, are awfully rare these days, so I'm not going to mess with a perfectly good sentence structure just to fit them in.

3 See www.stereophile.com/artdudleylistening/listening_90/index.html.

4 See my May 2014 column: www.stereophile.com/content/listening-137.



reportedly superior to those achieved by CineMag's previous core supplier.

Other technical details are in keeping with previous offerings from Bob's Devices. The Sky 40 is supplied in a cast-aluminum case with a gloss-black powder-coat finish, fitted with gold-plated RCA input and output jacks, a gold-plated ground terminal, and a C&K toggle switch that lets the user lift the signal ground from the chassis ground when called for. (The need for this will vary from system to system, dictated by the presence of hum.)

Of even greater importance, the Sky 40's internal connections are made by means of *resistance soldering*, a process in which a combination of high current and an electrically resistive stainless-steel soldering contact are used to quickly heat *only* the solder join—thus avoiding the melting of fragile wires by means of heat conduction. (Interestingly, resistance-soldering stations require a voltage step-down transformer: more symmetry!) As a hobbyist who once ruined a pair of Quad ESL transformers while unsoldering the resistors within their integral crossovers,⁵ I am particularly sensitive to this matter.

Don't be denied

The first time I listened to the Bob's Devices Sky 40 in my system, even before it was broken in, two words occurred to me at more or less the same instant: *huge* and *detailed*. As I would learn in the weeks to come, those two qualities consistently worked together to make this one of the two or three very finest transformers I have ever heard.

I'd been listening to the Beatles' *Revolver* (Parlophone PCS 7009) using my Shindo-rebuilt Ortofon SPU pickup and an Auditorium 23 Hommage T1 step-up transformer—a combination that sounded magnificent: big, colorful, impactful, and nuanced, with lots of musical drive. Given the SPU's low output and low internal resistance (respectively, 0.2mV and 2 ohms), I guessed that the high-gain, high-impedance-ratio Sky 40 would suit it—and I guessed right. I went back to side 1 of *Revolver* and listened to "Eleanor Rigby," a recording in which the lead vocal appears in only the right channel during the verses,⁶ with its (auto-)double-tracked facsimile added to the left channel for the first two choruses—a bit of trickery, presumably

done in the mix, that also makes the recording space as a whole seem to increase in size during those choruses. The Sky 40 not only clarified the difference, it allowed the recording to sound even larger than through the Hommage.

Arguably more important, the Sky 40 delivered as much impact, drama, and overall involvement as the more expensive Hommage, so much so that I felt compelled to listen to the album all over again, beginning to end. By the end of "Love You To," I caught myself playing air tabla on my desktop (it seems the Sky 40 also allowed the music its fullest sense of drive), and I enjoyed, among other delights, the enhanced realism of the sound of Ringo's drum entrance—a ride-tom beat followed by a floor-tom beat—in "Here, There and Everywhere." (And, yes, as my dog could probably tell you, it was one of those listening moments when I also caught myself uttering, to the otherwise empty room, such erudite outbursts as "Holy shit" and "Wow.")

From there I proceeded to the Hungarian String Quartet's 1966 recording of Beethoven's Quartet 14 in c-sharp, Op.131 (Seraphim SID-6007). The Sky

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40 did a first-rate job of reproducing the unornamented, fugue-like first movement (*Adagio*) with both clarity and texture, and with a fine and ultimately thrilling sense of momentum. The brisker, sunnier fifth movement (*Presto*) was no less well served, pizzicato notes popping out as they should, while the sixth (*Adagio*) and seventh (*Allegro*) movements came across with texture, color, drama, and drive—all as well as I've heard from this record. (That said, I really wouldn't mind hearing an EMI original some day!)

And like all my favorite audio products, the Sky 40 allowed music to sound vivid. The massed violins in Stanislaw Skrowaczewski and the Minneapolis Symphony's recording of Schubert's Symphony 8 (Mercury Living Presence SR90218) comprised a honeyed, colorful, physically huge force that I couldn't have ignored if I'd wanted to. The massed voices and vibraphone in the first part of Britten's *Spring Symphony*, in the recording made by the composer, vocal soloists, and the orchestra and chorus of the Royal Opera House, Covent Garden (Decca SXL 2264), came through with vibrant colors, and the Sky 40 seemed to high-

light the dynamic interplay between soloists and chorus in the third part. Even the sound of that second-most-common of all instruments, the piano, became almost exotic in its vivid, colorful presence in the Melos Ensemble's recording of Schoenberg's Suite, Op.29 (L'Oiseau-Lyre SOL 282).

The Sky 40 also allowed the music its fullest sense of drive.

The Sky 40 was also an impact champ. Dave Mattacks's drums in "Tam Lin," from Fairport Convention's *Liege & Lief* (Island ILPS 9115), though compressed in the original recording and more than a little dull, had never sounded so forceful as they did through the new trannie. And in that album's hauntingly beautiful final number, "Crazy Man Michael," the sound of Richard Thompson's electric guitar, played through a Leslie rotating speaker—which itself compresses the signal before it even arrives at the mixing desk—had some of its touch restored on its trip through the Sky 40. The sound of Neil Young's shambolic

live album *Time Fades Away* (Reprise MS 2151) also gained in apparent realism. Apart from Johnny Barbata's kick drum, whose sound is small and oddly disconnected from the sound of the rest of his kit, the instrumental sounds on this record have a fine, raw sense of force, and the Sky 40 enhanced those qualities.

At first, I tended to think of the Sky 40 as a forward-sounding device, but it turned out to be both more and less than that: In even the subtlest recordings, it found those elements that should be pushed to the front of the stage, so to speak, and did so. In that sense, the Sky 40 had spatial nuance in a manner that escapes lesser transformers—spatial nuance allied with dynamic nuance. I thought of this as I listened to the opening bars of Charles Munch and the Boston Symphony Orchestra's recording of Debussy's *La Mer* (RCA Living Stereo LSC-2111) and heard, clearly, the differently timed chords played by the two harps—and how,

⁵ See my June 2006 column: www.stereophile.com/artdudleylistening/706listening/index.html.

⁶ Actually, for the first second of the first verse, the vocal appears in both channels, only to be suddenly dropped from the left.

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SPENDOR

as the piece progressed, the two harp parts diverged and then recombined. If a transformer can let me be grabbed by Debussy, it can do anything.

Mono a mano

Before returning my sample of the Bob's Devices Sky 40, I wanted to try it with something other than my Shindo SPU, brilliant though that match-up was. The nearest cartridge to hand was my EMT ODF 15 true mono⁷ pickup head, which outputs 5.75mV and has an internal resistance of 37 ohms—on paper, a terrible pairing! But, as many before me have experienced, there's something about the Hommage T1 transformer, which has the same apparent gain as the Sky 40 and which I presume to have a primary coil of similarly low impedance, that allows it to sound downright brilliant with every high-output mono EMT I've thrown at it.

So I tried it, all the while making sure to reduce the gain of my power amplifiers, in order to let the preamplifier's volume knob function within a reasonable portion of its range (which I also do when using the Hommage T1 with the EMT OFD 15 and the identically specced OFD 25). And here, the sounds of the Hommage and the Sky finally diverged, albeit not by a great deal.

As anyone with an ounce of engineering smarts will tell us, using a 37 ohm pickup to drive a transformer with a *ca* 5 ohm (presumed) primary coil should not work—and yet it did. Listening to my current favorite recording of Schubert's Piano Quintet in A, D.667, "Trout," by pianist Jörg Demus and the Schubert Quartet (Deutsche Grammophon LPEM 19 206), I was stunned by the way the Sky 40 endowed all of the stringed instruments, especially the cello, with a palpable sense of body. Musical momentum, too, was thrillingly good, as was also true when I listened to the Cappella Russian Male Chorus, conducted by Nicholas Afonsky, perform a Russian Orthodox Requiem—a sometimes frightening recording that exhales mystery with every note (Westminster XWN 18263). And when I turned to my old standby "Chelsea Bridge," from Gerry Mulligan Meets Ben Webster (Verve MGW-8343), I was pleased to hear the same presence and touch I hear through the Hommage—but not nearly all the bottom-end whomp I hear through the Hommage when, after

the first chorus, bassist Leroy Vinnegar switches from bowing to plucking his instrument.

That's no criticism of the Sky 40—which shouldn't work *at all* in this setting. (Short of sawing an Hommage in two to crack the secrets at its core, I doubt that anyone other than designer Keith Aschenbrenner will ever know why it works as crazy-well as it does.) The point seeming to be: If you own various different cartridges and/or pickup heads and you want to limit yourself to owning just a single step-up transformer, you might want to choose one that suits the lowest-output, lowest-impedance cartridge in your collection, because that transformer is likelier to also give satisfactory results with your higher-output cartridges than the other way around. (Although it's been a while since I tried using a low-output cartridge with a low-gain transformer, my experience suggests that the results are often musically dead and sonically dull.) Your higher-output cartridges may sound a bit too boisterous with that high-gain trannie, but it's easier to make up for that than to restore momentum and drama and impact that have gone missing.

The grander point, of course, is this: If you own an Ortofon SPU or similar low-output MC cartridge and you're looking for a giant-slayer of a step-up transformer, this may be the product you've been waiting for. The Bob's Devices Sky 40 won't make serious phonophiles forget all about the Hommage T1—or the Audio Note AN-S8, or the Western Electric 618B, or any of the other transformers that might lay claim to the title The Best—but it will give hobbyists of less-than-extravagant means a chance to wring even more enjoyment from their favorite records. ■

Art Dudley (Stletters@enthusiastnetwork.com) is drawn to audio systems that reproduce the flow and touch of live music.

7 Like EMT's OFD 25 and OFD 65, the OFD 15 contains only a single coil: although it has four output pins, signal appears on only the two right-channel pins, requiring a right-to-left jumper at the preamp stage.

CONTACTS

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MUSIC IN THE ROUND

BY KALMAN RUBINSON

THIS ISSUE: Three-Channel
Amplifiers from ATI and
Monoprice.

Love It or Lift It!

The power-amp saga continues. For months, I've been plowing through the market, searching for something to drive my three front speakers. (I use a two-channel amp for the surrounds.) It can be a three-channel amp or three monoblocks—it just has to sound great with my speakers, and be light enough that I can lift it by myself when I need to rearrange my system. I'd finally settled on Classe's Sigma Monos for their transparency, and because I can manage their weight, one at a time.¹ At the CEDIA Expo last September, I saw two more candidates worthy of consideration. Review samples of both arrived here almost simultaneously.

ATI AT543NC THREE-CHANNEL POWER AMPLIFIER

Amplifier Technologies, Inc. (ATI) is a well-established company founded by Morris Kessler, who first made a splash in audio in 1967 when he co-founded SAE. ATI makes a wide range of audio devices under its own name, as well as under brand names it has acquired, including B&K and Theta Digital, as well as SAE. In addition, it has produced amplifiers for many other companies which I will tactfully not list. Until recently, ATI expended all of its efforts on producing class-A/B amplifiers of solid engineering and performance, but Kessler and Theta Digital's Dave Reich have now stepped boldly into class-D with Theta's impressive Prometheus monoblock and Dreadnaught D modular multichannel amp, both based on Hypex's NCore technology. Larry Greenhill raved about the Prometheus,² and I was as enthusiastic about the Dreadnaught D.³

Class-D amplifiers, particularly those based on Hypex NCore modules, come in many flavors, depending on the manufacturer's choice of power supply, input stage, and bridging, and careful listeners have found that these can sound as different from each other as can conventional class-A/B amps. The use of conventional linear power supplies based on heavy-duty toroidal transformers results in amplifiers that are nearly as heavy as class-A/B designs of equivalent power. For example, the three-channel, 225Wpc

Dreadnaught D weighs about 90 lbs—too much for me.

So when I heard about ATI's new line of NCore amps, I figured that the same expertise was behind them, and that there should be some cost savings, particularly as they lacked anything like the Thetas' elegant cases. ATI's new line borrows from the flexible modular designs of the Dreadnaught D and so is quite comprehensive, comprising 200Wpc models of two through eight channels (\$1895–\$3995) and 500Wpc models of two, three, and four channels (\$2595–\$3995 plus \$95 for optional rack-mount kit), in two sizes of case. All cases are 17" wide and 5.75" high, but can be 10.625" or 15.5" deep. I opted for the three-channel, 500Wpc AT543nc (\$3295), which weighs 57.5 lbs—no lightweight, but I can move it when I must.

DESCRIPTION: Inside the AT543nc are two modules, one with two amplifiers and the other with only one. Each amp has a pair of NCore NC500

boards that are fed via ATI's custom input/gain stage and bridged for the high rated output. These are powered by a conventional linear power supply with a 950kVA toroidal transformer to power the two-channel module (with separate windings for each amp), and another 650kVA toroid for the single-channel module. This results in a theoretical difference between the single channel connected to the smaller transformer and the two that share the larger one; with that in mind, I used the latter to power the left and right speakers and the former to run the center—though it's unlikely that this strategy is of practical significance.

At the left of the AT543nc's interior is a self-configuring power supply, which ascertains the available supply voltage within a range of 90–135V or 200–260V, then configures the transformer taps for local usage. Only the fuse and the power cord might then need to be changed. This power supply also senses and protects against over/undervoltage, overheating, DC faults, and overload. The three small input boards are affixed to the rear panel, the amp modules to the bottom plate, and its two large toroidal transformers near the front panel.

On the right rear of the AT543nc are, from bottom to top: an IEC AC input, an AC fuse post, a ground

The ATI is no lightweight, but I can move it when I must.

1 See my review in November 2016: <http://tinyurl.com/htqc3b>.

2 See LG's review in the March 2015 issue: www.stereophile.com/content/theta-digital-prometheus-monoblock-power-amplifier.

3 See my March 2016 column: www.stereophile.com/content/music-round-77.



terminal, and a 3–24V remote trigger input. The rest of the panel has, for each channel, unbalanced (RCA) and balanced (XLR) input jacks and a pair of multiway speaker terminals. Next to each RCA input jack is a little toggle for switching that input between unbalanced and balanced operation. Into the XLR inputs I plugged AudioQuest Earth/DBS, and connected the speakers with AudioQuest Oak/DBS biwire, but none of my standard power cords fit the AT543nc. ATI uses a standard 20 amp IEC power inlet, type C20, with three heavy, flat, parallel blades, to ensure that no user substitutes an unsuitably lightweight cord. The provided cord, with matching C19 connector, was barely long enough for me.

On the front panel, from top to bottom at center, are the ATI logo, LEDs for Peak level and Standby, and an illuminated power switch. When the AT543nc is plugged in, the power switch pulses dimly blue to indicate standby mode. Push the button, the Standby LED lights up, and a few seconds later goes dark as the blue power LED glows full: the amp is ready. After 10 minutes without an input signal, the AT543nc shuts down all its high-power

functions and goes into Sleep mode; when it senses a signal, it powers itself back up. It has a soft start to minimize power surges, but was so efficient that I found no need to use my 12V trigger wire.

LISTENING: The AT543nc's sound was immediately appealing in terms of both balance and clarity. In orchestral recordings, the individuation of lower strings and winds and their melodic lines was notable. There was plenty of weight at the bottom end, but it was taut, with no loss of control at any volume level. The same was true of the upper midrange and treble, which were open and airy, but with no glint of brightness.

I played all the reference recordings I've used to evaluate other amps, but the AT543nc was not to be faulted. Every recording of solo voice—male or female, high or low—was reproduced as I would want it, and as I have heard it through this system with the very best amps I've tried. As I played recordings of larger and still larger ensembles, I heard no diminution in the AT543nc's clarity and balance. Power was generous; I got the Peak LED to wink only once, and it was my own fault: with the

gain set very high, I switched sources. The AT543nc's recovery was instantaneous and without consequence.

That brief paragraph characterizes the AT543nc's sound quality but is insufficient to distinguish it from other amps. With my Bowers & Wilkins 802 D3 speakers, the AT543nc ran toe to toe with the Classé Sigma Monos, except that the ATI was marginally less detailed in the upper midrange. This was not a significant problem except with some high-resolution files, such as the Color Field Quartet's recording of James Matheson's String Quartet (multichannel DSD256 download, Yarlung YAR25670/NativeDSD), and even those sounded startlingly transparent through the AT543nc.

In direct comparisons with Parasound's Halo A 31 three-channel amp, the AT543nc seemed to offer more lower midrange, less treble, marginally more richness, and a slight tilt in balance. The ATI seemed to present a bit less air and space, but I can't say whether the Parasound is any more accurate in this regard. However, all that was noted only briefly upon switching from one amp to the other. The ATI and Parasound both had smoother,

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more enjoyable sound with Focal's Sopra No3 speakers than did the Classé Sigma Monos, which unsympathetically revealed some upper-midrange glare in some recordings.

I also tried the AT543nc's unbalanced inputs, using Cardas Cross 10m

cables. The overall level was down about 6dB, as expected, but the sound quality was unchanged.

CONCLUSION: I am completely taken with ATP's AT543nc. It seemed to do everything right, and didn't get in the way while communicating the elements

and the spirit of the music. I wish I'd had on hand its older cousin, the Theta Dreadnaught D, for direct comparisons, but given the Theta's higher price (\$7099.95) and weight (90 lbs), any outcome could not possibly blemish the \$3295, 57.5-lb ATI AT543nc.

MONOPRICE MONOLITH 3 THREE-CHANNEL POWER AMPLIFIER

Monoprice.com is a popular website—a place where those in the market for cables, connectors, switching devices, or associated tools know they can find what they're looking for, and at reasonable prices. Monoprice's inventory is encyclopedic, and they offer great how-to aids for novices—when I rewired my cable TV system, I relied on them for the cable, connectors, tools, and guidance. Given their success, it's not surprising that they've branched out into more sophisticated offerings, such as their well-priced, high-speed, active HDMI cables and A/V products. Their Monolith line of power amps is, for them, a big step into a new market.

The Monoliths are 200Wpc class-A/B amplifiers offered in versions for two, three, five, and seven channels. All

models come in identical cases measuring 17" wide by 7" high by 13.3" deep; the only distinguishing features are the model number on the front panel, the number of connectors on the rear panel, and the weights, which range from 48 to 94 lbs. The prices range from \$999.99 (two channels) to \$1499 (seven channels). Like Goldilocks, I chose an in-between model, the three-channel Monolith 3, at 57 lbs and \$1099.90.

DESCRIPTION: The Monolith 3's appearance impresses as cleanly designed and executed. The main housing is rigid, with a central, illuminated On/Standby switch on the faceted faceplate. On the right of the sturdy rear panel, from bottom to top, are an IEC power inlet, the main power switch, a ground terminal, and a 12V trigger input. The rest of the rear panel is

occupied by an unbalanced input jack (RCA) and a pair of multiway speaker posts for each of the three channels. The speaker terminals are finger-friendly, but I plugged my cables' bananas right in. The gold-plated RCA jacks are firmly mounted on the rear panel, not on internal PC boards, from which they might be loosened by normal use. My only cavil is that the sheet metal of the case seemed a bit thin compared to the rest of the hardware. It didn't rattle or buzz in use, but it might benefit from the internal application of some damping material.

The Monolith 3's specifications are impressive. Its FTC full-bandwidth power output is 200Wpc into 8 ohms or 300Wpc into 4 ohms. Total harmonic distortion and intermodulation distortion are each less than 0.03%, and the A-weighted signal/noise ratio

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"...spend all the money you want on audiophile electronics but your room acoustics are the single most important factor in how good your audiophile system will sound."

is greater than 120dB, all referred to full output power. (In addition to listing the specs on their website, Monoprice supports them with an eight-page document of test results.⁴) The Monolith 3 weighs 57 lbs, most of that weight due to its single 1025VA toroidal power transformer. Unfortunately, the toroid is at the front left corner of the case; the uneven distribution of weight makes it a bit harder to heft the Monolith 3 than other amps of the same weight.

Since the Monolith 3 lacks balanced (XLR) inputs, I dragged from the back of my closet some 10m-long Cardas Cross cables terminated with RCA plugs and used them to link the Monoprice to my Parasound Halo P 7 7.1-channel preamplifier.

Stop a moment and reflect on all I've just described. The Monolith 3 is a well-constructed power amp with excellent specs and all the power that any normal listener with a trio of normal speakers to power can use. If it sounds good (it did) and doesn't blow up (it didn't), it's a bargain at only \$1099.90. And at this point, many of you might just stop reading and buy one.

For the rest of you, I press on . . . **LISTENING:** The music flowed. Despite the length of the unbalanced connection, I heard no problems with noise. The sound was right and full, with an emphasis on the lower end of the audioband. Remember, unless I'm reviewing a loudspeaker, I use the default target curve of Dirac's Live room-correction software for all of my auditioning and listening. So when I say that I hear a change in balance with any new component other than a speaker, that's based on what I hear relative to the component that the review sample has replaced, and not on any absolute reference. That said, the Monolith 3 sounded a bit warmer than any of the other amps I have on hand, and while this will be a positive for many, I am not among them.

Despite that, the Monolith 3's reproduction of tonalities was more than acceptable, and its soundstages, in stereo or in multichannel, were ample, wide, and deep, with voices and instruments stably positioned on them. The Monoprice's bass extension and power were formidable, and its midrange and treble seemed smoothly extended. I played all my standard test tracks, ranging from solo voices and instruments to raging massive forces. Through the Monolith 3 they sounded



The Monoprice's bass extension and power were formidable.

clean, unstrained, and rich—almost beyond criticism. Overall, the Monolith 3 was conducive to relaxed, extended enjoyment of music—until I put on my critic's cap and looked for trouble.

The troubles I had with the Monolith 3 were its lacks of air and space, and of the crisp delineation of individual voices and instruments. Given the amp's power capability, this did not correlate with volume level—the Monoprice sounded much the same at all levels. Rather, it seemed to correlate with instrumental complexity, and became more noticeable as the size of the ensemble increased. Some of this, undoubtedly, had to do with the amp's spectral balance—to be sure, the Monolith did not suffer from any excess brightness that might have emphasized space and detail. Well-recorded solo guitar and violin seemed a bit warmer than I am used to hearing from my system.

When I played that spectacular recording of Matheson's String Quartet, each of the four instruments sounded clear, but there was less differentiation of them when they all played together, as in the opening chord. And take almost any of the Channel Classics recordings by Iván Fischer and the Budapest Festival Orchestra—eg, Tchaikovsky's Symphony 6 (SACD/CD, CCS SA 37016)—which are notable for their realistic documentation of the sound of an orchestra in a sympathetic acoustic: Through the Monolith 3, the orchestral chords sound compacted and homogenous, and less like an ensemble of players.

CONCLUSIONS: Perhaps I'm being

unreasonable in judging this powerful, inexpensive, more-than-capable three-channel power amplifier by absolute standards. The Monoprice Monolith 3 was really easy to listen to, and, at the risk of insulting home-theater enthusiasts, it did a great job with the Blu-ray of *Star Trek: Beyond*. It might be more suitable with brighter speakers, or in rooms with insufficiently sound-absorbing furnishings. But the Monolith 3 is hard to recommend to critical music listeners who've been scrupulous about their systems.

Coming Around in the Round

As I write, the 2017 Consumer Electronics Show is just around the corner, and it seems that lots of interesting things are on their way: new multi-channel server/players from Baetis and Fidelizer, exaSound's new e38 DAC, and three-DAC stacks for multichannel from Playback Designs and Mytek. And a surprise. ■

Kalman Rubinson (Stletters@enthusiastnetwork.com) enjoys his music in surround in Manhattan and Connecticut.

⁴ See http://downloads.monoprice.com/files/manuals/14566_Report_160504.pdf.

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was another reason I kept going back. Until I went to jazz festivals in Europe, I did not understand that the future of America's only indigenous art form is no longer exclusively, or even predominantly, in the hands of Americans. Going forward, Europeans are going to have a major role in shaping jazz.

This recent tectonic shift is still misunderstood in the US. To most American fans, European jazz is a pale imitation of the real thing. That used to be true. Approximately two decades ago, it stopped being true. (Except for the "pale" part. Jazz in Europe is played almost entirely by white people.) Many of the best players on any given instrument are now European. Trumpet: Rava of Italy and Tomasz Stanko of Poland. Piano: Bollani, Rea, and Enrico

The Permanent Jazz Festival

THE RISE OF EUROPE AND THE FUTURE OF JAZZ by **THOMAS CONRAD**

True criticism recognizes itself as a mode of memoir.—*Harold Bloom*

THE first jazz festival I ever attended outside the United States was in Melbourne, Australia, in 2005. That year, the Umbria Jazz organization of Italy helped run the Melbourne International Jazz Festival, and the concerts were full of Italian musicians. They were all new to me.

Francesco Cafiso played on the first night. He had the purest, most powerful alto saxophone sound I had ever heard. He was 15 years old, and played ferocious, intricate, mind-boggling bebop. Charlie Parker was back from the dead. I thought I was delirious from jet lag. No 15-year-old could be that good.

He was. He played "Cherokee" (no one plays "Cherokee" anymore) and laid it to waste. There were other stunning Italians in Melbourne, like Stefano Bollani and Danilo Rea. I thought Bollani might be the best living jazz pianist not named Keith Jarrett. Again I suspected jet lag, but it turned out to be true.

The following summer, in 2006, I

went for the first time to the actual Umbria Jazz Festival, in Perugia, Italy. Cafiso was there. He performed twice with an Italian orchestra, using the original arrangements from the *Charlie Parker with Strings* albums. He played his own soaring improvisations, in that singing, celestial tone I now knew. (Check out the album *Francesco Cafiso & Strings: A Tribute to Charlie Parker*, Umbria Jazz, 2005.) I heard more formidable Italians in Perugia, like Enrico Rava and Giovanni Guidi.

I returned to Italy many more times, and have now been to festivals in Spain, Poland, Serbia, Norway, Estonia, Romania, Latvia, Macedonia, and Bosnia. European jazz festivals are the hang of your life. To be in Arena Santa Giuliana, in Perugia, on a summer night, the church steeples of the hill town above you lit by a full moon, is to know *la dolce vita*. But there

Pieranunzi of Italy, and Bobo Stenson of Sweden. Reeds: Jan Garbarek of Norway. Trombone: Gianluca Petrella of Italy. The list goes on. But the deeper significance of this globalization is not even the emergence of dominating virtuosi like Bollani. It is that, all over Europe, extraordinary young players keep popping up. Many have never visited the US. Most are unknown here.

They play jazz in new ways. All come from cultural backgrounds very different from those of musicians born in Brooklyn or Los Angeles. They grew up hearing different lullabies, different folk songs, different pop tunes. Many are conservatory trained. Wicked chops are so common that they are just assumed. But chops are secondary to imagination. These players love the great jazz tradition but are not beholden to it. They are inventing their own traditions and forms. Or they defy form.

Who are they? Start with David Helbock and Elias Stemeseder on piano and Siegmund Brecher on bass clarinet, all from Austria, and Filippo Vignato on trombone and Glauco Benedetti on tuba, both from Italy. (Yes, tuba. Europeans don't know you

can't solo on a tuba.) I heard them all at the Südtirol Jazz Festival in Bolzano, Italy, in the summer of 2016.

The most efficient way to find great young European players is at jazz festivals, which are different in Europe. There are many more of them, and they run year-round, often in small, obscure towns. They are more important to the social, economic, and creative health of the art form. Südtirol is the most physically beautiful festival I have ever seen. Concerts take place on rock outcroppings and in mountain meadows high in the Dolomites. In the fall of 2016 I attended a festival in Pančevo, Serbia, a town of 90,000 some 15km from Belgrade. No one has ever accused Pančevo of being beautiful. It is known for its petrochemical factories and was bombed by NATO in 1999. But Pančevo has a 380-seat auditorium with excellent acoustics. The program was strong in 2016. At both Südtirol and Pančevo I heard the most exciting young guitarist in jazz, Francesco Diodati.

The flowering of jazz in Europe is so important because jazz is an art form uniquely dependent on perpetual innovation. Jazz is like sharks that must keep swimming or die. Of course, most major jazz musicians are still American. But if jazz were to remain sealed off in the US, it would eventually run out of new ideas. It would miss out on the explosion of creative energy coming out of Europe. Jazz is the most open-ended of musical formats. It can absorb and be enriched by a vast range of external musical dynamics, and the single most important cultural resource of European players is classical music.

Much of today's European jazz can be described as the New Third Stream (to differentiate it from the original Third Stream movement in the US, *ca* 1960, which never got off the ground). The cross-pollination of classical music and jazz has now become viable because so many European players fluently speak both musical languages. They are people like Stefano Battaglia, Eberhard Weber, and Anja Lechner, all of whom record for ECM. It's difficult to overstate the importance of ECM in identifying, producing, distributing, and promoting leading-edge European jazz. Other relevant labels include CAM Jazz, ACT, Edition, Pirouet, Winter & Winter, and Auand. For readers of *Stereophile*, European jazz labels often provide a second benefit: superior sound. In America, so many jazz albums now get made on the

cheap, in home or project studios. European jazz is more likely to appear on actual labels owned by companies interested in sound quality.

From the teeming, diverse world of the current European scene, here are four players who exemplify what is happening right now:

Francesco Diodati first hit the radar when he turned up in Enrico Rava's new quartet. (There is one album: *Wild Dance*, ECM, 2015.) Rava has been Italy's most famous jazz musician since the 1960s, and his bands have contained the best young players in Italy, like Bollani, Petrella, and Guidi. I heard the new quartet in Perugia in 2015. With Diodati on guitar and no piano, the atmosphere of a Rava band was different. There was more open space. Rava thrived in it—his trumpet solos burned even deeper. In the ensemble, everything Diodati played slanted sideways, suggestively. Until he soloed. Then he might explode in rasping abstractions, then subside again. People asked, "Who is this guy?"

Diodati grew up in Rome. He has a master's degree in economics from Sapienza University but has never worked a day job. When Rava hired him, he says, "I checked out how Bollani and Giovanni [Guidi] played with Enrico, just to get a piano point of view. But of course I can't do things a piano can do. I try to imagine harmony using just one note, a couple of notes, instead of the whole chord. If I only imply the harmony, there is a tension in the air."

He agrees that "there is something going on in Europe. That doesn't mean it's better, just different." Diodati has played in Paris with people like Antonin-Tri Hoang and Julien Pontvianne.

He says, "I wouldn't find a saxophone player like Julien in New York. He is into Ligeti." In Pančevo, behind Rava, he created quietly seething soundscapes and took ravaging solos. But the new quartet with Rava, cool as it is, does not prepare you for Diodati's *Flow, Home*. (Auand, 2015). The music is all fascinating elements and fresh voices, assembled in surprising ways. Diodati functions first as composer and auteur of ensemble form, second as guitar visionary. He calls his band Yellow Squeeds. I heard them in Südtirol, with Glauco Benedetti on tuba, and Elias Stemeseder and Filippo Vignato as guests. It was perhaps the most remarkable concert I heard in 2016. It wasn't jet lag: I'd been in Europe for a week.

Dan Kinzelman is an interesting case. He was born and raised in Racine, Wisconsin, and attended the University of Miami. As soon as he graduated, in 2004, he left for Europe. He says, "I heard that you could play original music in Italy and get paid for it, which was amazing to me because at the time it usually cost me money to play my music, between gas and dinner." At first, it was not easy. "I slept in train stations. I had this system where I could sleep on a bench with my suitcase under my head and my saxophone under my feet."

Kinzelman is now firmly entrenched in the Italian scene—even if, at 6' 8", with strawberry-blond hair and blue eyes, he stands out. He plays many reed instruments brilliantly, primarily tenor saxophone and bass clarinet. His range of interests is so wide that he sounds different every time you hear him. With his own band, Dan Kinzelman's Ghost, he plays his arcane,



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LONG-LOST
STANDARDS YOU
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REMEMBER**

Tord Gustavsen

"Flawless"



"First and foremost, the amp's musical performance was flawless. The Orchestra Reference was as beautifully built as the somewhat more expensive Jadis I-35. Apart from three small circuit boards - the amp is hand-wired, point-to-point. The layout is sensible, the wiring and soldering are impeccably done, and the parts quality ranges from very good to superb.

The amp's sound was richly colorful and beautifully balanced, with very good musical drive. It was about as perfectly balanced an amp as I ever heard. The Orchestra made no secret of its dynamic expressiveness. And the steady, stately way in which the Orchestra played the melody and chorale-like harmonies of the Molto adagio was further testament to its superb musical timing.

In the long run, I could live with the Orchestra Reference quite happily. For a (mostly) tubed integrated of this performance level to sell for under \$5,000 is noteworthy. Rest assured the Jadis Orchestra Reference is extremely unlikely to disappoint. Strongly recommended."

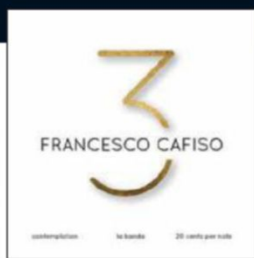
**- Art Dudley, Stereophile, January 2015,
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through-composed concepts with an ensemble of four horns. The sonorities are haunting. (The only album is *Stonebreaker*, on Parco della Musica, 2014.)

In Südtirol Kinzelman played with one of his other projects, Hobby Horse, an unpredictable, electronically modified saxophone trio (Joe Rehmer, bass; Stefano Tamborrino, drums). Kinzelman operates a Novation K-Station synthesizer plus filters and delays. Rehmer uses a vintage 1980s Casio. The electronic effects are used selectively, depending on the moment: soft oceanic backgrounds or hum and distortion. For a player with world-class chops, Kinzelman is selfless. He always serves the group mission. He can take halting, barely evolving lyricism into shrieking tantrums and back again, and make it all sound necessary. The wildly creative albums of Hobby Horse include *Eponymous* (2013) and *Rocketdine* (2016), both on Parco della Musica.

Kinzelman says, “What is really special here is that I’ve always played in bands where there are hardly ever substitutions. If someone in the band isn’t available, you don’t do the gig. Each band becomes a laboratory, a workshop, where you develop something very specific. When I talk to players in the States, I feel like everybody there is trying to work as much as possible. That means you fit yourself into whatever is available. Here, because we have the luxury of almost always playing with the same musicians, there’s a subtle dialog that happens. With jazz in Europe, even when it’s very structured, we’re always looking for escape routes, where we can improvise. Once you know each other, you can get into this free-association thing without breaking the flow.”

Tord Gustavsen has achieved a level of commercial success rare for a jazz musician, especially one who makes quiet, acoustic piano-trio albums. His first two ECM recordings, *Changing Places* (2003) and *The Ground* (2005), sold over 200,000 copies between them. Gustavsen can be understood as a quintessential example of the New Third Stream. His academic résumé is extensive, and he cites Ravel, Shostakovich, and Schoenberg as inspirations

(along with Keith Jarrett and Brad Mehldau). He was raised in a religious household, and the folk and church musics of Norway have been central in his life. When he was still too small to reach the piano keyboard, he sat on his father’s lap and picked out Norwegian hymns. A devotional quality infuses his music. His compositions are deceptively simple. Their pristine melodies sound like they’ve always been there, like long-lost standards you can’t quite remember. They get under your skin.

Gustavsen describes the experience of working with ECM’s legendary founder and producer, Manfred Eicher: “A very intense atmosphere is established in the studio. It is not about bringing in a list of songs. It is about one thing, in the present moment. Manfred sometimes makes suggestions about what is working and what is not—even about texture.” On the subject of sound, he says, “I am involved from the beginning, listening on high-quality headphones, help-

ing make decisions about where to place instruments in the mix and how much reverb.” He describes Eicher as “especially good at shaping the journey, through sequencing.”

Jazz critics, being jazz critics, have long worried whether Gustavsen would get stuck in a rut and just keep making beautiful, successful, similar records. (It goes back to that thing about sharks that must keep swimming or die.) Those critics can now relax. Gustavsen’s latest work, *What Was Said* (ECM, 2016), is a bold departure. It has only Gustavsen on piano and electronics, Jarle Vespestad on drums, and the soft, extraordinary, riveting voice of Simin Tander. He says, “The project grew from just playing a couple of ancient Norwegian hymns together in my rehearsal studio. Simin is half German and half Afghan. She sings in English and Pashto. She is a profound interpreter of melody, with such clarity and warmth, starting with fragments or small motifs and then up building layers. And the sound of Pashto, as sound, is so appealing.” *What Was Said* is spellbinding.

I saw Gustavsen in Belgrade in the fall of 2016, in a black, cave-like space called Sala Amerikana. I have been in that room for countless beer-soaked midnights of wild, noisy, skronky music. Gustavsen hushed Sala Amerikana with his first note. He turned it into a church.

Since I began with Francesco Cafiso, I will end with him. He, too, is an artist over whom critics have fretted for years. They said, “He is a virtuoso, but he can’t play bebop his whole life.” In 2014, with the release of *3*, a three-CD set (Artist First), Cafiso reinvented himself. He is more of a virtuoso than ever, but now he plays with greater freedom and daring and naked aggression, and he has become a major composer. The set contains three different ensembles, including one comprising 33 players from the London Symphony Orchestra. Much of *3* is inspired by the music of Cafiso’s native Sicily. You hear the revelry of marching bands and the piercing poignance of reclaimed memories. He says, “My goal is not to write and play complex music. I want to find new ways to use my cultural background to communicate feeling and tell stories.”

In Belgrade in 2015, I heard Cafiso play music from *3* in shattering runs, in fierce expletives and passionate cries. It was a new Cafiso. He was moving forward, swimming into uncharted waters. ■

Further Listening

In addition to the albums mentioned in the text, the following are recommended:

Stefano Battaglia: *Re: Pasolini* (ECM, 2007)

Jim Black (with Elias Stemeseder): *The Constant* (Intakt, 2016)

Stefano Bollani/Jesper Bodilsen/Morten Lund: *Gleda* (Stunt, 2005)

Doctor 3 (with Danilo Rea): *Doctor 3* (Parco della Musica, 2014)

Giovanni Guidi Trio: *This Is the Day* (ECM, 2015)

David Helbock: *Into the Mystic* (ACT, 2016)

Edi Nulz (with Siegmur Brecher): *An der vulgären Kante* (Unit, 2015)

Gianluca Petrella: *Indigo4* (Blue Note, 2005)

Enrico Pieranunzi/Marc Johnson/Joey Baron: *Live in Japan* (CAM Jazz, 2007)

Filippo Vignato: *Plastic Breath* (Auand, 2016)

Eberhard Weber: *Stages of a Long Journey* (ECM, 2007)

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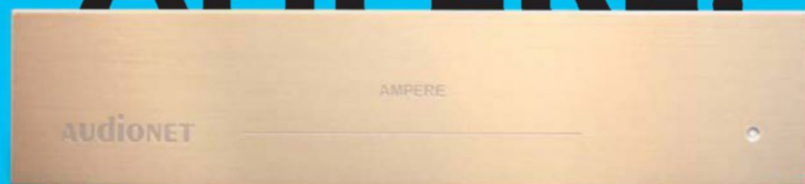
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JON IVERSON

Auralic Altair

D/A PROCESSOR

Now that we've entered a world of post-disc audio (sorry, AnalogPlanet.com), audiophile streaming and file-playback products have appeared by the hundreds, and many companies are on their second, third, or even fourth generation models.

The Chinese company Auralic Limited has been pushing bits around for seven years, releasing a half-dozen streaming and network devices. Their newest, the Altair, combines in a single package the functions of a DAC, streamer, and headphone amplifier with volume control, allowing it also to operate as an all-digital-system preamplifier. Just add power amp and speakers.

Auralic also makes standalone streamers, DACs, and headphone amps, but adding those separate boxes would result in spending several times the Altair's relatively modest price of \$1899. The company claims that the separate boxes do offer more, and that the Altair is not simply a mashup of their Aries wireless streaming bridge and Vega DAC. But I was curious to see what might have trickled down from those pricier separates while offering this much capability for a relative modest outlay of cash.

Inside the Box

The heart of the Altair is a computer: a proprietary hardware platform, called Tesla and developed by Auralic for their Aries streamers, sitting on a removable board that includes a quad-core ARM Cortex-A9 processor running at 1GHz, 1GB of DDR3 onboard memory, and 4GB of system storage. Auralic claims that this hardware will make it possible for the Altair to be upgraded for such planned

features as DSD upsampling, MQA, and room-optimization software.

Also inside the Altair is its dual-frequency Femto Master Clock, which drives an ESS Sabre DAC chip. Auralic says that the dual-frequency approach lets them optimize the clock to sampling rates at multiples of both 44.1 and 48kHz.

You can also add an optional 2.5" hard-disk drive (HDD) or solid-state drive (SSD) for internal storage of music (the review sample lacked this), and everything is driven by Auralic's Purer-Power linear power supply, which begins with an AC-purification section ahead of the custom-specification toroidal transformer, the latter no doubt contributing much of the Altair's 7 lbs and hefty feel.

Auralic's Lightning firmware is also included, which supports DXD and quad-rate DSD playback over a WiFi network. (The Altair includes an Intel dual-band wireless card.) The review sample's version of Lightning, v.4, was the latest, and supports multi-room use, resampling, and Memory Playback. That last feature allows the Altair to cache onboard an entire audio track for local playback without the need for continuous transfers of data via the network, which Auralic says can degrade audio quality.

Around the Box

Auralic boasts that the Altair can handle up to 15 digital input sources, some wired, some wireless. On the rear panel, starting at the left, are the balanced (XLR) and unbalanced (RCA) output jacks, each individually buffered and all active all the time, which means that they could be used for a second preamp/amplifier or subwoofer. Next to those are the

SPECIFICATIONS

Description RoonReady wireless streaming D/A processor. Inputs: network-shared folder, USB drive, internal music storage (with optional 2.5" HDD or SSD installed), uPnP/DLNA media server, Tidal & Qobuz, Internet Radio, AirPlay, Bluetooth, Songcast. Digital inputs: 1 AES/EBU, 1 coaxial, 1 TosLink, 1 USB device to computer, 2 USB host for storage & DAC, 1 RJ45 Gigabit Ethernet, 1 802.11b/g/n/ac dual-band WiFi. Analog outputs: bal-

anced (XLR, output impedance 10 ohms), single-ended (RCA, output impedance 50 ohms), 6.35mm headphone jack. File types supported: AAC, AIFF, ALAC, APE, DIFF, DSF, FLAC, MP3, OGG, WAV, WMA, WV. Digital formats supported: 44.1-384kHz PCM in 32-bit; DSD64/128/256 (352.8 & 384kHz, DSD via streaming & USB only; 32-bit via streaming and USB only). Frequency response: 20Hz-20kHz, ± 0.1 dB. THD+N: <0.001%, 20Hz-20kHz

at 0dBFS. Dynamic range: 121dB, 20Hz-20kHz, A-weighted. Output voltage: 2V RMS maximum with dynamic-loss-free digital volume. Control software: Auralic Lightning DS for iOS, Auralic RC-1 remote control, OpenHome compatible, uPnP A/V compatible. Display: OLED, 512x64 pixels. Power consumption: <10W, Sleep; 35W maximum. Play. **Dimensions** 12.9" (330mm) W by 2.5" (65mm) H by 9" (230mm) D. Weight: 7 lbs (3.2kg).

Finishes Silver, Black. **Serial number of unit reviewed** AL77LDH0. **Price** \$1899. Approximate number of dealers: 43; also sold direct. **Manufacturer** Auralic Limited, 1F Building No.7, 1A Chaoqian Road, Beijing 102200, China. Tel: (86) (0)10-57325784. US distributor: Auralic North America Inc., 711 Dawson Drive, Suite A, Newark, DE 19713. Tel: (302) 314-5555. Web: www.auralic.com.



The Altair can cache onboard an entire audio track for local playback.

digital inputs (AES, coax, TosLink, USB 2.0) and outputs: USB DAC (for bypassing the Altair's internal DAC), HDD (for connecting an external USB hard drive), and LAN (for wired Ethernet operation and connecting a DLNA/UPnP music server or NAS). At the right are the main power switch, fuse bay, and AC socket. At the top left and right of the inputs and outputs are two small jacks for the antennas (included) needed for wireless operation.

The first time you plug in the Altair and flip its rear-panel power switch, the Auralic logo at the left of the wide front-panel display dimly glows, indicating standby. Pressing the large round knob on the right—the only control on the front panel, which is also a stepped volume control—brings the Altair to life, and the display indicates which input is active. If not streaming, it shows the source's sample rate; when the Stream input is selected, the sampling rate goes away and you see the track play and sequence status from your source. At the right, the volume level is indicated in large characters, from "00" to "100." I really like this display—it doesn't blast a dark room with light, but it's easily read from a distance.

Operation is simple and direct, pressing the volume control brings up the main menu's six choices: Input, Balance, Phase, Filter, System, Quit. If you select nothing within the first few seconds, the menu times out. Selecting Input offers choices of AES, Coax, Stream, TosLink, and USB HS. Choosing System brings up submenus that let you program an overall volume setting, as well as where you left the volume for each input. There are also options for remote control, display, some network settings, and Reset. The choices offered in the Balance and Phase menus should be obvious; I'll get to the Filter settings in a bit.

All of this is wrapped up in a beautiful and tidy case about the size of a breakfast-cereal box, with a thick aluminum faceplate and a wraparound housing of brushed sheet metal, available in either all silver or all black. After several weeks

of operation, the Altair remained just moderately warm to the touch.

Altair as DAC

I first ran the Altair in my main system and strictly as a DAC, which required no setup other than plugging it in and connecting source cables. With the Altair connected to both my Meridian Sooloos Control 15 via coax and my laptop running Roon via USB, playing tracks from either was easy, and everything ran as expected. Using Roon on my computer and connected via USB permitted playback of both PCM and DSD files, the Altair correctly switching all sampling rates on the fly.

Altair as Streamer

Using the Altair as a streamer was not so simple, at least at first.

The first thing to do is to download from the Apple Store Auralic's Lightning DS app and set it up on your iPad (2 or later) and/or iPhone (4S or later). Sorry, no Android or computer versions yet, though Auralic promises they're on the way. The company says that Altair's streaming option is also compatible with OpenHome/UPnP control softwares such as BubbleDS Next and Roon, which can run on Android. However, you'll still need the iOS app to set up the Altair with your network, change settings, and perform updates.

After starting up the app, you choose your language, then set up the Lightning Device—in this case, the Altair. The menu leads you through choosing the correct product (the app can also be used to set up any model in Auralic's Aries line), plugging it in, and powering it up. Next, you use the Altair's own WiFi hotspot to connect your iPad directly to the Altair and continue setting up your network.

My iPad found the Altair's hotspot. The only hitch was waiting for the Altair to connect to my local open wire-



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less network: the app locked in to a continuous Scanning process, and choosing my network from the list did nothing. The Altair was 10' away from the latest Apple Airport Extreme, but no luck—and though my network was clearly there in the list at full signal strength (along with a couple from the neighbors), I couldn't choose it. Nor did restarting the entire process help.

So, before closing the app, I abandoned wireless operation and tried connecting the Altair to the router via Ethernet. But plugging the Ethernet cable into the Altair confused the app—at this point, I couldn't use the app to set up the wired connection. I unplugged the Ethernet cable and the Altair's AC cord, waited a few seconds, and started over from scratch.

At the appropriate place in the process I was directed to plug in the Ethernet cable, which I did. This seemed to work, though it required me to set up an Auralic account and provide an e-mail address, gender, and physical location. That done, I activated the device and checked for updates. I received a



Inside the Altair: note the Complex WiFi adapter in the foreground.

confirmation e-mail at the successful completion of each step, and crossed my fingers as I set up a library. It found my various servers but would not connect to them, even after I'd entered my user names and passwords.

Reluctantly, I abandoned the process and selected Setup Later. This dumped me into the Playback screen, where I could also try to set up a library. The online manuals weren't too helpful, but I was able to directly connect a USB drive to the Altair and, eventually, my DLNA/UPnP servers via the network. Finally, I was in business. I'm guessing there are Altair users who have had instant success with setup, but I wasn't one of them—even though I've successfully set up a dozen or so streamers on this same network.

Roon Relief

Getting Roon up and running was a bit easier: First, enable the Altair in Roon, then run the Altair as a Roon endpoint. Now I was able to use Roon's most

MEASUREMENTS

I measured the Auralic Altair with my Audio Precision SYS2722 system (see the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>). As well as the Audio Precision's optical and electrical digital outputs, I used Pure Music 3.0 to play WAV and AIFF test-tone files sourced via USB from my MacBook Pro running on battery power. To test the Altair's performance via its streaming connection, I loaded Auralic's Lightning DS app onto an iPad Mini and sourced the same WAV and AIFF files from an i7 Mac mini running Twonky server and with my NetGear router connected to the Altair by 30' of CAT-6 Ethernet cable. (I usually have bad

network karma but I didn't encounter the problems setting the Altair up that Jon Iverson had experienced.) Apple's USB Prober utility identified the Auralic DAC as "ALTAIR Outputs" from "AURALiC" and confirmed that its USB port operated in the optimal isochronous asynchronous mode. Apple's Audio-MIDI utility revealed that, via USB, the Altair accepted 16- and 24-bit integer data sampled at all rates from 44.1 to 384kHz. The optical and coaxial S/PDIF inputs locked to datastreams with sample rates of up to 192kHz; the AES/EBU input appeared to be limited to 96kHz.

Looking first at the performance of the Altair's analog outputs, the maxi-

mum output levels at 1kHz were 4.44V from the balanced jacks and 2.22V from the unbalanced and headphone jacks. All three sets of inputs preserved absolute polarity with Phase set to Normal, meaning that the balanced XLRs are wired with pin 2 hot. The output impedances didn't vary with frequency and were low, at 10 ohms balanced, 51 ohms unbalanced, and 3 ohms headphone.

The impulse responses of the Altair's digital reconstruction filters with 44.1kHz data indicated that the Precise and Dynamic filters are conventional linear-phase FIR types: fig.1 shows the Precise impulse response; the Dynamic was almost identical. The Balance filter

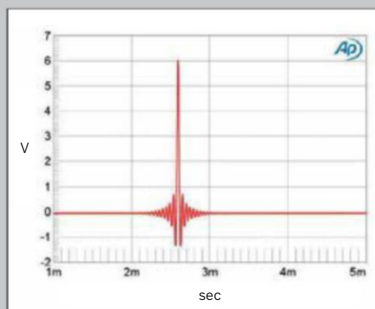


Fig.1 Auralic Altair, Precise filter, impulse response (one sample at OdBFS, 44.1kHz sampling, 4ms time window).

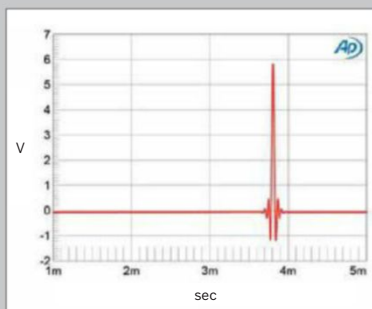


Fig.2 Auralic Altair, Balance filter, impulse response (one sample at OdBFS, 44.1kHz sampling, 4ms time window).

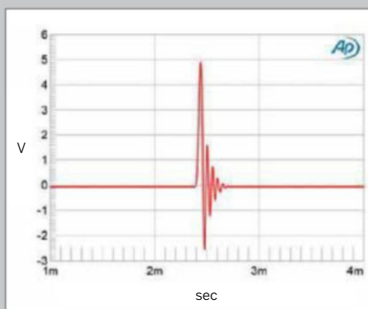


Fig.3 Auralic Altair, Smooth filter, impulse response (one sample at OdBFS, 44.1kHz sampling, 4ms time window).

excellent interface on any device, and access all of my networked music—no problem. So after a couple of frustrating hours of trying to set up the Altair, first wireless and then wired, I humbly submit that the easiest way to go would have been to use it as a Roon endpoint.

But if you don't want Roon running on additional hardware somewhere else, your simplest option, once everything is running, is either to order the Altair with the optional internal drive, or plug a USB drive directly into the Altair's rear panel and have the Auralic scan your library from the iPad app. After that, the next best thing would be to have the Altair locate a NAS on your network. You can then use Auralic's Lightning DS app interface to select and run your songs and playlists.

One nice if impractical feature of the Auralic was that I could use my iPad to use Roon and the Lightning DS app to control the Altair, simultaneously running different music libraries, the preference given to whichever app was last used. As I switched between Roon and Lightning, the track playing



Another look inside the Altair.

would quickly fade, then be replaced by the next track in the queue of whichever app was now up. Then I added in my desktop version of Roon, and now all three were controlling the Altair flawlessly.

At this point I had plenty of options active: the Altair running Roon via the network, which is set up on my main laptop using its music library; a USB drive with several thousand tracks connected directly to the Altair's rear USB HDD jack; my NAS, with thousands more tracks, accessed via the network; my Sooloos Control 15 connected to the Altair's coax S/PDIF jack, making accessible another 14,000 albums; and, finally, my other laptop, running Roon directly via the Altair's USB input.

Since the app can't do it, the easiest way to switch among all the inputs is with the Altair's supplied remote control. The only odd thing about this handset—clearly an off-the-shelf plastic model adapted for the Altair—is that one of the important input labels doesn't match anything on the Altair itself: *Stream* on the Altair is *iPod* on the remote.

measurements, continued

is a linear-phase type with fewer coefficients (fig.2), while the Smooth filter, which I preferred, is a short minimum-phase type (fig.3). With 44.1kHz-sampled white noise, the Precise filter offered a rapid rolloff above 21kHz (fig.4, red and magenta traces) with almost complete elimination of the aliased image at 25kHz of a full-scale 19.1kHz tone (blue, cyan). The Dynamic filter offered an even faster rolloff, while Balance and Smooth gave slower ultrasonic rolloffs (fig.5).

These graphs were taken with 44.1kHz USB data, as I needed to set the Audio Precision to its maximum

sample rate of 200kHz in order to analyze the spectrum up to 100kHz; sourcing the data from the network gave identical results. However, when I tried to measure the Altair using the Audio Precision's digital S/PDIF outputs (both coaxial and TosLink), I got anomalous results. While the Altair would lock to the datastream, its display would not show the sample rate (though it did with USB and Ethernet data). If I changed the rate of the Audio Precision's output data, the Auralic lost lock and muted until I either rebooted the DAC or reselected one of the filters with the front-panel menu. And even

then, regardless of which filter I selected, all were identical to the Precise filter in both the time and frequency domains.

When I repeated the tests using the TosLink output of my Astell&Kern AK100 portable player I got the same problematic behavior. Then I tried the TosLink output of my MacBook Pro. Mirabile dictu—now the Altair's display showed the sample rate, I could change the sample rate without the Altair losing lock, and the four filters behaved as they had with USB data. All I can think is that instead of monitoring the incoming S/PDIF datastream's

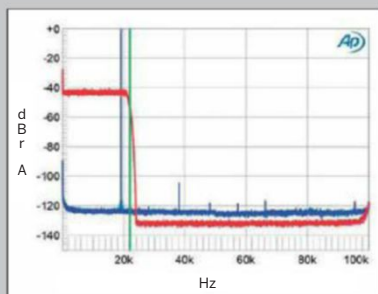


Fig.4 Auralic Altair, Precise filter, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

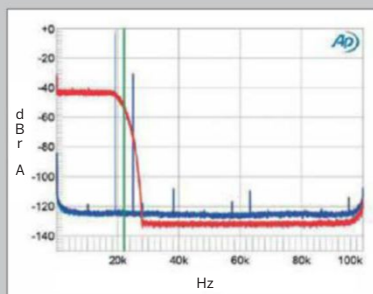


Fig.5 Auralic Altair, Smooth filter, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

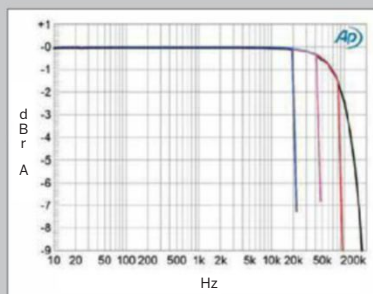


Fig.6 Auralic Altair, frequency response at -12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel green, right blue), 96kHz (left cyan, right magenta), 192kHz (left blue, right red), 384kHz (left green, right gray) (0.5dB/vertical div.).

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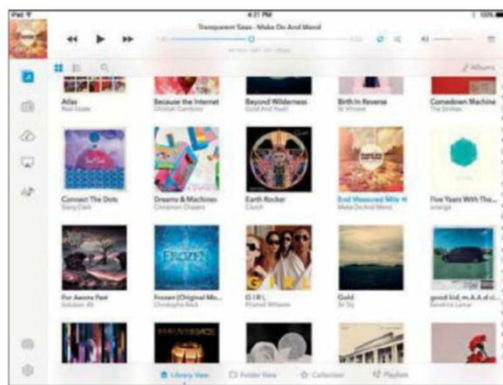
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The remote has extra buttons for HDMI, TV, Tuner, and Phono, which obviously don't do anything. Instead of these, it would have been nice to have buttons for directly selecting the Altair's filters, as are found on the remotes of some other products. The Altair's filters can be accessed by using the remote's Menu and navigation buttons, or directly from the app—but, alas, the app can be used to change settings only when the Altair is in Stream mode.

Another thing to watch out for is when you switch from the Stream input to a hardwired input such as Coax: The streaming function then stops, and it takes a few seconds to boot up again when you switch back to Stream. Here's the tricky part: the Stream input can be chosen only from the Altair's front panel or remote control, *not* from the app, which now has lost connection and, again, works only when Stream is engaged. Until I figured this out, the first few times I went to Stream after using the USB drive, the Lightning DS or Roon app would lose the Altair, and I'd restart the Altair to get going again. Eventually, I realized that this wasn't necessary, got used to the timing when switching from Stream to Coax or USB HS and back



The Altair can be controlled by Auralic's Lightning DS iPad app.

streaming again.

And, as with the wired connection, wireless playback of all streaming sources worked without a hitch at all resolutions (PCM up to 24-bit/192kHz and various rates of DSD) with no drop in sound quality, so I put away the Ethernet cable for good. At this point I also set up my Tidal account, streamed from my iPhone via AirPlay (although at a maximum sampling rate of only 44.1kHz), tried some Internet

again, and ignored the warnings of "CAN'T FIND DEVICE."

But after successfully running everything wired, I really did want to try streaming over WiFi, and again tried to set up the Altair as a wireless device. I used Google to find, in an online forum, another user who was having the same problem, but no luck. I started up the app anyway, selected Lightning Device, and switched the connection from Wired to Wireless. And it worked! I have no idea why it found my network this time and not before, but once I'd fired up Roon on my computer and selected the Altair, music was

measurements, continued

sample rate, which is the sensible way to do it, the Altair simply looks to see if the sample rate channel-status bit has been set. If the bit is undefined, the Altair will still lock to the datastream when a filter is selected, and appears to work correctly, but the DSP engine is unaware of the sample rate and so can't apply the appropriate filter. JI reported that the Altair didn't lose lock with his Meridian Sooloos system sending data to the Auralic via S/PDIF, so I assume the Sooloos was setting the channel-status bit correctly. On the other hand, he did find the audible differences between the filters to be, at

best, subtle.

The Precise filter's frequency responses with sample rates from 44.1 to 384kHz are shown in fig.6. The response at each of the four rates shown conforms to the same basic shape, but with a sharp rolloff just below half of each of the three lower sample rates. Channel separation was simply superb, at >120dB in both directions below 3kHz and still 116dB at the top of the audioband. The Altair's noise floor was free from any power-supply-related spurious—this is excellent analog engineering.

The noise floor was extremely low

in level, meaning that when I changed the bit depth of the incoming data from 16 to 24 with a dithered tone at -90dBFS, the floor dropped by 23dB (fig.7), implying resolution close to 22 bits, which is state-of-the-art DAC performance. This graph was taken with Ethernet data; you can see a slight spreading of the spectrum at the base of the 1kHz tone and some low-level odd-order harmonics, both which were absent with USB or S/PDIF data. With its very low level of analog noise and superb DAC linearity, the Altair's reproduction of an undithered tone at exactly -90.31dBFS

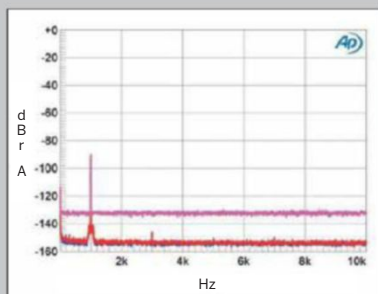


Fig.7 Auralic Altair, spectrum with noise and spurs of dithered 1kHz tone at -90dBFS with: 16-bit Ethernet data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

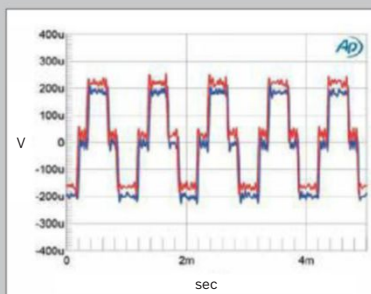


Fig.8 Auralic Altair, waveform of undithered 1kHz sine wave at -90.31dBFS, 16-bit Ethernet data (left channel blue, right red).

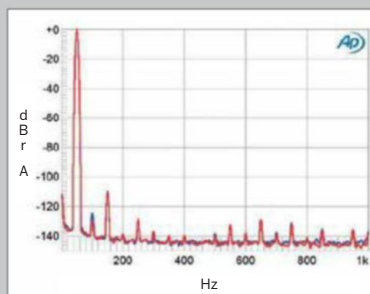


Fig.9 Auralic Altair, volume control set to maximum, spectrum of 50Hz sine wave, DC-1kHz, at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).

Radio, and generally ran as many sources as possible. This included a couple of MQA tracks, which streamed at 24/48—not MQA decoded, of course, but they worked.

Though at first I found Auralic's iPad app a tad nonintuitive and limited (I'm spoiled by the Roon and Sooloos apps), everything was eventually sorted out, and it was fairly easy to switch back and forth between various playback menus and views. The playback resolution and streaming rate of the track playing are shown near the top of the app's display, and everything looked correct. However, I encourage Auralic to make a simpler setup app that can control *everything*, even when not in Stream mode, for those of us who would go straight to another library app, such as Roon.

The Sound of Music

Setup issues and user quirks can be sorted and adjusted, but how a digital product sounds is how it sounds—unless you have some choices of digital filter to play with, which, as regular readers know, I love to do. The Auralic Altair offers four digital filters: Precise, Dynamic, Balance, and Smooth.

Auralic says that the Precise filter is tuned for perfect in-band ripple and out-band attenuation. Dynamic slightly rolls off the high frequencies, but otherwise has technical charac-

teristics similar to Precise; Balance has more high-frequency rolloff, but with less pre- and post-ringing; and Smooth is a minimum-phase design with no pre-ringing.

For whatever reason—John Atkinson might be able to reveal them in his measurements—these filters sounded more alike than have the filters of other, similarly endowed DACs I've heard, and I couldn't easily pick a clear overall winner. Still, I found myself using Smooth for most of my listening, because it sounded closest to what I hear from Ayre Acoustics' Codex¹ and T+A Elektroakustik's Bézier Interpolator plus IIR filter,² which have been my favorite DACs for the last few months. Though it opened up the top end, Precise

1 See my review in June 2016: www.stereophile.com/content/ayre-acoustics-codex-da-headphone-amplifier.

2 See my review in October 2016: www.stereophile.com/content/ta-elektroakustik-dac-8-dsd-da-processor.



The Altair's tidy rear panel.

All you need is the Altair and a USB drive stuffed with music.

measurements, continued

was essentially perfect, with a symmetrical waveform, the three DC voltage levels well defined, and the ringing of the reconstruction filter clearly visible (fig.8). With undithered 24-bit data, the Altair output a well-formed sinewave.

The spectral analyses in figs. 4 and 5 suggest that the Altair produced very low levels of harmonic distortion, and this was confirmed when I looked at the result with a full-scale 50Hz tone. Even into 600 ohms (fig.9), the highest-level harmonic, the third, lay at -110dB (0.0003%). Intermodula-

tion distortion was similarly minimal, though the suppression of the aliased images of the 19 and 20kHz tones I use to test for intermodulation depended on the filter chosen: Precise and Dynamic gave almost total suppression (fig.10), while Balance and Smooth gave very little suppression (fig.11).

The Altair was effectively immune to the effects of jitter in the incoming data. Fig.12 shows a narrowband spectral analysis while the Altair decoded 16-bit/44.1kHz J-Test data: all the odd-order harmonics of the $F_s/192$, LSB-level squarewave are close to the

correct levels (sloping green line), and no other sidebands are visible around the sharply defined spectral spike that represents the high-level $F_s/4$ tone. This test was taken with Ethernet data; the spectra with USB and S/PDIF data were identical to the Ethernet data. With 24-bit J-Test data, the resultant spectrum (not shown) was free from spurious of any kind.

Other than its anomalous behavior with S/PDIF and AES/EBU data, the measured performance of Auralic's Altair reveals superb audio engineering.—John Atkinson

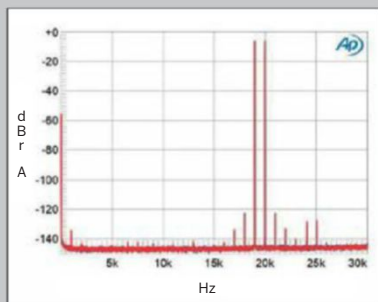


Fig.10 Auralic Altair, Precise filter, volume control set to maximum, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 0dBFS into 100k ohms, 44.1kHz data (left channel blue, right red; linear frequency scale).

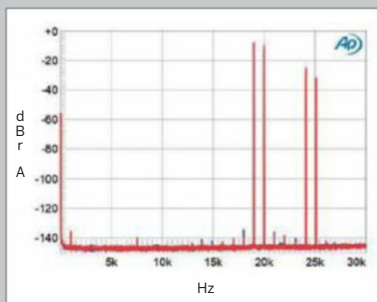


Fig.11 Auralic Altair, Balance filter, volume control set to maximum, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 0dBFS into 100k ohms, 44.1kHz data (left channel blue, right red; linear frequency scale).

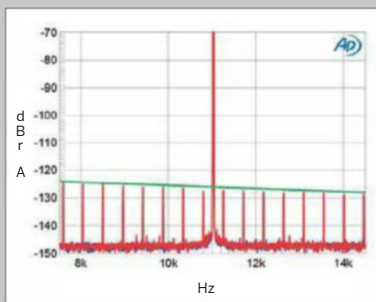


Fig.12 Auralic Altair, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit Ethernet data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, 43.5kHz.



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—John Atkinson, Stereophile Magazine

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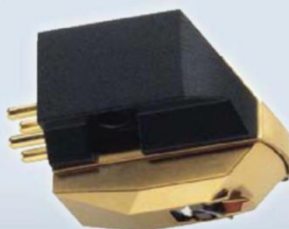
- Michael Fremer, *Stereophile* Vol.39 No.10 Oct 2016



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seemed a tad more hashy with cymbals, and Balance a bit too polite. But I didn't hear images move around as much as when switching among the filters of other DACs, and overall, tonality was very consistent.

I began my serious listening with Jake Shimabukuro's excellent new album, *Nashville Sessions* (JS 5852), played via Roon. Luckily, I have a 24/88.2 PCM version that the mastering engineer Dropboxed to me, and I picked a couple of the fusion tracks featuring acoustic ukulele, electric bass, and acoustic drums. I listened with my computer wired to the Altair's USB HS input, and wirelessly via the Stream input. "Celtic Tune" begins with solo ukulele, then a slow roll on the snare builds until the full drum kit and bass guitar kick in. Switching back and forth between the Altair's wired and wireless playback, I heard no differences. Details and textures were just as I'm used to hearing from this track, though when I compared the Auralic's playback directly with the T+A and then the Benchmark DAC2 HGC, both via USB, I noted a slight leanness in the Altair's sound.

The snap of the ukulele strings was excellent through the Altair, especially in the next track I tried, "Blue Haiku"—but there was greater dynamic impact with the other DACs, especially when the drums and bass kick in. The Altair's sound felt slightly more polite and laid-back. I tried the other filters, but the Altair's mellow character was consistent, especially in comparison with the other DACs.

The Benchmark is similar in price to the Altair, and the T+A costs twice as much—and neither functions as a streamer. But this comparison does offer some useful information about the Altair's DAC section. By this time I'd already sent the Ayre Codex to JA, but I would think it would be similar to the T+A in this comparison. The Benchmark has always emphasized the top end a bit more than all other DACs I've heard, but its bottom is clean and dynamic; the Altair was a bit shy.

Next I pulled up musician-producer Steven Wilson's 2016 remix of *Stand Up*, Jethro Tull's brilliant second album, from 1969 (Rhino 9029593286), to listen through various headphones. Both the flat transfers of the original mix tapes and Wilson's new mixes are offered in 24/96 PCM, and what a contrast! In Wilson's hands, gone are all the buzzes, grime, and random studio noises, and each instrument feels much more real and immediate. Various instruments and voices are also positioned and layered as in a more contemporary-sounding stereo mix, while keeping the overall balance familiar.

The subtle differences between DACs noted above were still present, but the Altair's headphone section performed well, offering plenty of headroom, and was easily the equal of the Benchmark's or T+A's headphone amp overall. However, my memory of the Ayre Codex's headphone sound put the Altair at a slight disadvantage. The Auralic's slightly softer sound made me end up preferring the Audeze LCD-X headphones over more rounded-sounding models such as AudioQuest's NightHawks, though the NightHawks did restore some overall warmth.

For something completely different, I finished my listening back in my main system, with Meredith Monk's *On Behalf of Nature* (ECM New Series 2473), which features a small, eclectic ensemble of acoustic instruments and a cast of human voices (Burmese piccolo and Macauan birdcalls, anyone?). Again, there was a subtle softening of the overall impact of percussion instruments, but in this case I felt the Altair better suited the nature of these organic textures. As

ASSOCIATED EQUIPMENT

Digital Sources Apple MacBook Pro computer (2.5GHz Intel Core i7, 16GB RAM, 512GB SSD) running OS 10.12.1, Roon v1.2 Build 165, JRiver Media Center 19, iTunes 12, Amarra Computer Music Player, VLC, Reaper 5.20.100, XLD; Western Digital NAS (2TB); Toshiba, Western Digital portable USB drives; Oppo Digital BDP-103 universal BD player; Meridian Sooloos Digital Media System (Control 15, QNAP TS-669 Pro NAS); Apple iPad Air 2 & iPhone 6; Ayre Acoustics Codex, Benchmark DAC1 USB & DAC2 HGC, Luxman DA-250, T+A Elektroakustik DAC 8 DSD DACs.

Preamplifier Marantz AV7005 in Pure Direct Mode.

Power Amplifiers Classé CAM 350 monoblocks (2).

Loudspeakers MartinLogan: Renaissance, Prodigy, Balanced-Force 212 subwoofers (2). Desktop & recording monitoring system: Emotiva 5, Velodyne Servo-F subwoofer.

Headphones AKG K 240, Audeze LCD-X, AudioQuest NightHawk, Grado Labs HP1, MrSpeakers Ether, NAD Viso, Sennheiser Amperior.

Cables USB: AudioQuest Diamond, Cardas Clear. Interconnects: AudioQuest HD6 Carbon (S/PDIF, studio to main listening room), Cardas Neutral Reference (S/PDIF) & Clear (balanced, headphones), various Kimber Kable (line level), XLO HT Pro (line level) & XLO (S/PDIF). Speaker: Kimber Kable BiFocal XL.

Accessories Dedicated 40A line (amplifiers & speakers), dedicated 15A lines (digital & analog components).

—Jon Iverson

sounds emerged in the large acoustic space, often appearing to float in mid-air before evaporating, the word that came to mind was *silky*. Magnificent.

Conclusions

Setup problems aside—problems that could have been caused by my network—once everything was running, the versatility of the Auralic Altair as a streaming or wired hub and DAC was obvious. To get started, all you need is the Altair and a USB drive stuffed with music. The Altair's sound quality was good, and about what I'd expect from so many features packed together and costing under two grand. I conjecture that this is where Auralic's more expensive, and more tricked-out Vega DAC³ might even the score with the other DACs I had on hand. And remember, the USB output jack on the Altair's rear panel provides an upgrade path to a better DAC.

Caveats: Auralic's Lightning DS app is quite usable as a basic tool for sorting and playing a music library's tracks, but it could use a final polish. And I didn't like the fact that of the three different ways of controlling the Altair—remote control, front panel, and iPad app—none could do everything, forcing the user to juggle controllers, depending on the result desired.

All of these issues are easily solved. For example: Run the Altair as a Roon endpoint, add Roon's metadata-rich app and its associated library running on a networked computer or NAS somewhere, and you've hit the sweet spot of streaming, state-of-the-art control, and decent sound—all for a reasonable price. ■

3 See JA's review in February 2014: www.stereophile.com/content/auralic-vega-da-processor.

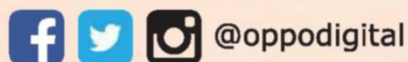


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JOHN ATKINSON

Bowers & Wilkins 805 D3

LOUDSPEAKER

I have had a long relationship with Bowers & Wilkins. The first B&W speaker I spent serious time with was the DM-6, the infamous “pregnant kangaroo,” which was reviewed by Allen Edelstein in December 1977¹ and which I borrowed for a while after interviewing the company’s founder, John Bowers. Ten years later, when I met the woman who was to become my third wife, she already owned a pair of B&W Matrix 801s, a speaker reviewed by Lewis Lipnick in December 1987.² Both of these models were floorstanders, but the B&W speaker that spent the longest time in my listening room was the stand-mounted John Bowers Silver Signature, which I reviewed in June 1994,³ subsequently purchased, and used as my reference until the magazine relocated from New Mexico to New York in summer 2000. The Silver Signature was launched in 1991, both to celebrate B&W’s 25th anniversary and, as its name also suggests, to pay tribute to John Bowers, who had passed away in 1987.

The Silver Signatures were not as simpatico with my Brooklyn listening room as they had been with my room in Santa Fe, so I stopped using them. However, I’ve always kept an eye and two ears on the brand. Then, at the beginning of summer 2016, I took a train trip to Boston, both to witness the launch of the Diamond Series 800 D3 loudspeaker from Bowers & Wilkins and to celebrate the British speaker maker’s 50th anniversary.

B&W’s new flagship, the 800 D3, enters the Diamond line above the 802 D3, which Kal Robinson reviewed in June 2016,⁴ and it did indeed sound superb in Boston. But that trip

Could this elegant two-way be both a descendant of and a replacement for the Silver Signature?

crystallized my thoughts about which B&W speaker I wanted to review. I asked, not for a pair of 800 D3s, but for a pair of the smallest model in the Diamond Series, the stand-mounted 805 D3s. The 805 D3 costs \$6000/pair, plus another \$1000 for the matching FS-805 D3 stands. There

1 See www.stereophile.com/content/bw-dm-6-loudspeaker.

2 See www.stereophile.com/content/bw-matrix-801-series-2-loudspeaker.

3 See www.stereophile.com/standloudspeakers/272/index.html.

4 See www.stereophile.com/content/bowers-wilkins-802-d3-diamond-loudspeaker.



SPECIFICATIONS

Description Two-way, stand-mounted, port-loaded loudspeaker. Drive-units: 1" (25.4mm) diamond-dome tweeter, 6.5" (165mm) Continuum-cone woofer. Frequency range: 34Hz–35kHz. Frequency response: 42Hz–28kHz, ±3dB. Sensitivity: 88dB/2.83V/m. Nominal impedance: 8 ohms. Mini-

mum impedance: 4.6 ohms. Harmonic distortion (second and third harmonic at 90dB at 1m on tweeter axis): <1%, 70Hz–20kHz; <0.6%, 120Hz–20kHz. Recommended amplification: 50–120W on unclipped program. **Dimensions** 16.7" (424mm) H by 8.4" (238mm) W by 13.6" (345mm) D. Weight:

28 lbs (12.6kg). **Finishes** Real-wood veneers, Gloss Black, Rosenut, and Satin White. **Serial numbers of units reviewed** 0000641, '642. **Price** \$6000/pair. Approximate number of dealers: 250. **Manufacturer** B&W Group Ltd., Dale Road, Worthing,

West Sussex BN11 2BH, England, UK. Tel: (44) 0800-232-1513. Web: www.bowers-wilkins.co.uk. US: B&W Group North America, 54 Concord Street, North Reading, MA 01864. Tel: (978) 664-2870. Fax: (978) 664-4109. Web: www.bowers-wilkins.com.

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has been an enormous amount of development in drive-unit technology in the past quarter century—could this elegant two-way be both a descendant of and a replacement for the Silver Signature?

Description

In his review of the 802 D3, Kal Robinson discussed the technology introduced with the Diamond Series. Briefly, whereas the midrange drive-units of B&W's speakers since the DM-6 had featured a distinctive yellow cone woven from fibers of DuPont's aromatic polyamide Kevlar, the Diamond Series models feature midrange units made of a material B&W refers to as Continuum. Still a coated, woven material (a technology B&W has been developing since 2007), Continuum performs in a manner similar to Kevlar in reducing the effects of cone breakup, but, according to B&W, to a much higher degree. The cone of the 805 D3's 6.5" woofer is made of Continuum, and the driver is reflex-loaded with a large flared port positioned below it on the front baffle. The port's flare is embossed with small dimples that, like those on a golf ball, are designed to smooth the flow of air.

For the 1" tweeter, Bowers & Wilkins has retained the diamond dome, produced by a vapor-deposition process, that they introduced in 2004, though they say that the motor system has been "improved considerably." As in the 802 D3, the 805 D3's tweeter is loaded with a transmission line, a feature first seen in the company's Nautilus models of 20 years ago, and mounted in an elongated bullet-shaped housing machined from solid aluminum and decoupled from the speaker's enclosure. No details are published for the crossover, though my measurements suggest that it's set at 3.3kHz with low-order filter slopes.

The ellipsoid-profiled cabinet (as seen from above) is fabricated from layers of beech wood, bent into shape under high pressure. Internal bracing, claimed to be an improved version of B&W's Matrix design, stiffens the enclosure.

The 805 D3s offered astonishing clarity in the midrange and treble.

Electrical connection is via two pairs of high-quality binding posts set into the rear panel. The review samples were finished in gloss black. Overall, the elegant-looking 805 D3 gives the impression of careful craftsmanship applied in the service of sound quality.

Setup & Listening

As with the Aerial Acoustics 5Ts, which I also review in this issue, I used 24"-tall Celestion stands with the 805 D3s, the speakers separated from the stands' top plates with small pads of Blu-Tack. The center pillars of the stands, which placed the tweeters 40" above the floor, were filled with a mix of sand and lead shot, and their bottom plates were spiked to the wooden floor beneath the carpet. As always, I experimented with the positions of the speakers in my room to get the best transition between the mid- and upper-bass regions. The speakers were single-wired using their supplied jumpers, and toed-in to the listening seat, and I didn't use the grilles.

Once I had the speakers set up to my satisfaction, I played the low-frequency, $\frac{1}{3}$ -octave warble tones on *Editor's Choice* (CD, Stereophile STPH016-2). The tones were reproduced at full level from 200Hz down to the 50Hz band, with an emphasis of the 125Hz tone and the 40 and 32Hz tones shelved down but still audible. With the 25 and 20Hz tones, I could hear a slight rattle coming from the right-hand speaker, though the tones themselves were inaudible, which suggests low distortion. The half-step-spaced tonebursts on *Editor's Choice* spoke more cleanly in the bass than I expect from a ported design and were evenly balanced, other than a touch of reticence in the low treble.

Dual-mono pink noise revealed a smooth, even balance, though the low treble was again slightly depressed. This was with my ears level with the tweeters. The balance didn't change significantly as I lowered my head a few inches, and the image of the noise was narrow, and didn't splash to the sides at any frequencies.

Though its stereo imaging wasn't quite up to the holographic standard set by the Aerial 5Ts, the 805 D3s offered astonishing clarity in the midrange and treble. Toward the end of my listening, I purchased Robert Silverman's recent set of 23 of Beethoven's 32 piano sonatas as MQA-encoded

MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Bowers & Wilkins 805 D3's frequency response in the farfield, and an Earthworks QTC-40 for the nearfield and in-room responses. The B&W's voltage sensitivity is specified as 88dB/2.83V/m; my estimate was slightly higher than this, at 88.4dB(B). The nominal impedance is 8 ohms; the solid trace in fig.1 reveals that the magnitude drops below 8 ohms between 100 and 750Hz and above 8kHz, with minima of 4.6 ohms at 180Hz and 22kHz. The electrical phase angle (fig.1, dotted trace) is occasionally extreme, with combinations of 6 ohms and -35°

at 118Hz and 8.2kHz. Tube amplifiers will probably work best with this speaker when used from their 4 ohm output-transformer taps.

Although it probably can't be seen at the scale this graph is printed in the magazine, there is a very slight discontinuity around 900Hz in the impedance traces. However, when I investigated the enclosure's vibrational behavior with a simple plastic-tape accelerometer I found no major problems in this region, though I did find a moderately strong mode on the curved sidewalls at 520Hz, and two lower-level modes at higher frequencies (fig.2).

The impedance-magnitude trace suggests that the large, flared port on

the front baffle is tuned to 50Hz or so. The minimum-motion notch in the woofer's nearfield output (fig.3, blue trace) occurs at 48Hz, and the port's

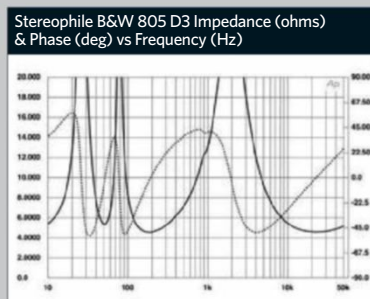


Fig.1 Bowers & Wilkins 805 D3, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).



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24-bit/88.2kHz FLAC files.⁵ Though this set appeared to have been recorded in a rather dry hall, what there was of the reverb tails when decoded by the Meridian UltraDAC (review to appear next month) could be heard through the B&W's to decay quickly and evenly, and the sound of Silverman's Steinway was both forceful and natural. This clarity was coupled with impressive dynamic capability. In the stabbing chords that punctuate the second movement of Beethoven's Sonata 4, Op.7, the piano's left-hand register was reproduced by the B&W's in the correct proportion to the instrument's midrange, and with no low-frequency hangover.

As I said in my review of the Magico S5 Mk.II in the February issue, an optimally tuned sealed-box speaker excels at reproducing bass instruments with the necessary control and power. The problem facing a designer who needs to use a ported enclosure to extend the low frequencies is that doing so can sacrifice this control. In the 805 D3, B&W's designers have managed an optimal balance between bass power and control. Charlie Haden's double bass in his superb album with guitarist Jim Hall, *Jim Hall/Charlie Haden* (CD, Impulse! 002176502), was reproduced with good weight, but also with the leading edges of the notes well defined. (A tip of the hat to Herb Reichert for recommending this 2014 CD, recorded in 1990 at the Montreal International Jazz Festival.) The double bass in "A Taste of Honey," from Patricia Barber's *Café Blue* (DSD64, Premonition/Acoustic Sounds), sounded palpable.

For a relatively small speaker, the 805 D3 did well with well-recorded drums. The drum solo that ends "Too Rich for My Blood," also from *Café Blue*, pounded from the



The elegant-looking 805 D3 gives the impression of careful craftsmanship applied in the service of sound quality.

⁵ Beethoven Piano Sonatas at La Petite Trianon. See www.stereophile.com/content/robert-silverman-plumbs-beethovens-depths-mqa-sound.

measurements, continued

response (red) peaks between 35 and 90Hz in classic fashion. (I haven't plotted the port's output above 500Hz, as the measurement at higher frequencies was contaminated by the woofer's output.) The woofer's response is relatively even (though with a couple of small peaks and dips visible) up to 3.3kHz, where it crosses over to the tweeter (green trace). The crossover filter slopes appear to be low-order, as the complementary rolloffs of the

two drive-units are initially gentle. The tweeter is balanced up to 5dB too high in level on its axis, but the primary dome resonance, and the usual dip below that resonance by a tweeter with a stiff, piston-like diaphragm, are both above the audioband.

The elevated tweeter output in the top two audio octaves can be seen in the 805 D3's farfield output, averaged

across a 30° horizontal window (fig.4), and a couple of small suckouts are visible in the upper midrange and low treble. The apparent rise in the upper bass in this graph is an artifact of the nearfield measurement technique.

The plot of the B&W's lateral dispersion, normalized to the tweeter-axis response (fig.5), has impressively even contour lines—other than a well-con-

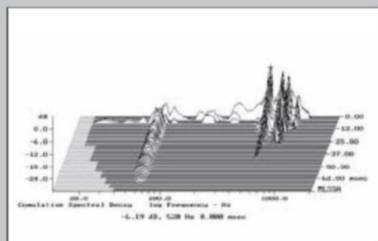


Fig.2 Bowers & Wilkins 805 D3, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of sidewall (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

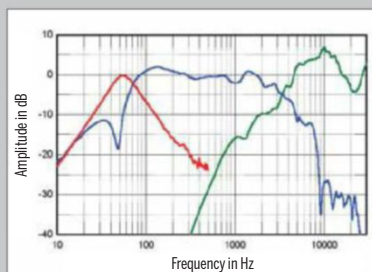


Fig.3 Bowers & Wilkins 805 D3, acoustic crossover on tweeter axis at 50°, corrected for microphone response, with nearfield responses of woofer (blue) and port (red), respectively plotted in the ratios of the square roots of their radiating areas below 300 and 500Hz.

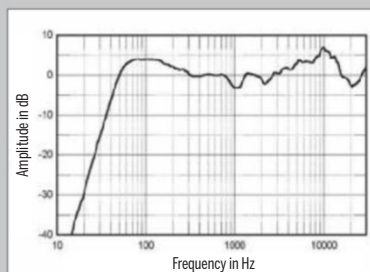


Fig.4 Bowers & Wilkins 805 D3, anechoic response on tweeter axis at 50°, averaged across 30° horizontal window and corrected for microphone response, with complex sum of nearfield woofer and port responses plotted below 300Hz.

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B&Ws, the speakers not being fazed by the loudness I craved: 100dB(C) at the listening position (measured with Studio Six Digital's SPL iPhone app set to Fast). And if you want to talk drums, my reference for a live drum recording is "Moby Dick," from Led Zepel's *How the West Was Won* (24/48 ALAC file ripped from DVD-A, Atlantic 83587-9). Eddie Kramer didn't just record the close sounds of John Bonham's kit; he also captured just enough of the auditorium's ambience to place you in the front row of the audience without smearing the impact of each drum's sound: masterful drumming laid bare by equally masterful engineering, as revealed by the B&Ws.

A word I kept returning to in my auditioning of the Bowers & Wilkineses was *brilliance*. Though the mid-treble seemed a touch laid-back—something this speaker shares with the Silver Signature—the top two octaves were present in full measure, especially when compared with the KEF LS50 and Aerial 5T. Analog tape hiss in old recordings was a little more audible than I expected—while the 805 D3s were in the system, I was archiving to digital some cassette recordings from the various bands I'd played with in the 1970s—as was the hiss from Jim Hall's guitar amplifier in the right channel of *Jim Hall/Charlie Haden*. Vocal sibilants were also emphasized to a small degree.

While I'd begun my auditioning with the B&Ws driven by MBL's Corona C15 monoblocks, the high frequencies



In the 805 D3, B&W's designers have managed an optimal balance between bass power and control.

in the Trondheim Soloists' superb performance of Vaughan Williams's *Fantasia on a Theme by Thomas Tallis* sounded a tad chromium-plated (from *Reflections*, MQA-encoded 24/352.8 FLAC file, 2L 2L-125). Changing to the Pass Labs XA60.5 monoblocks brought the top octaves into better balance, but this is a speaker that will verge on the edge of excess with

measurements, continued

trolled reduction in level, the speaker's balance doesn't change in an aggressive manner to its sides up to 8kHz or so, when the tweeter's increased directivity makes its presence known. Vertically, the use of low-order crossover filters means that a large suckout develops in the crossover region 5° below and 10° above the tweeter axis (fig.6).

Fig.7 shows the B&W 805 D3's spatially averaged response in my room. (I average 20 $\frac{1}{6}$ -octave-smoothed spectra, individually taken for the left and

right speakers using SMUGSoftware's FuzzMeasure 3.0 program and a 96kHz sample rate, in a rectangular grid 36" wide by 18" high and centered on the positions of my ears. This mostly eliminates the room acoustic's effects.) The balance is not as smooth as that of the Aerial 5T, which I also reviewed for this issue, and there is both a slight lack of energy in the presence region and a slightly boosted mid-treble.

The red trace in fig.8 is again the spatially averaged response of the

805 D3 in my room. The excess of mid-treble energy is apparent when compared both with the BBC LS3/5a (blue trace) and the KEF LS50 (green),¹ both measured under identical conditions. However, the B&W lacks the LS3/5a's small peak between 1 and 2kHz, which adds a touch of nasality to that vintage speaker's sound. The LS50's in-room response shelves down in the top octaves compared with the

¹ See www.stereophile.com/content/kef-ls50-anniversary-model-loudspeaker.

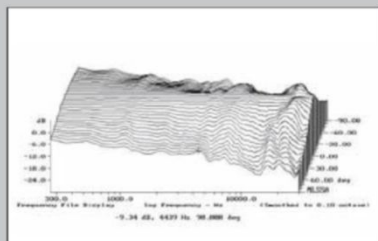


Fig.5 Bowers & Wilkins 805 D3, lateral response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 90°–5° off axis, reference response, differences in response 5°–90° off axis.

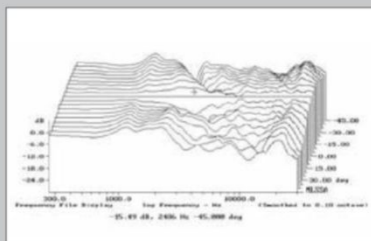


Fig.6 Bowers & Wilkins 805 D3, vertical response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 45°–5° above axis, reference response, differences in response 5°–45° below axis.

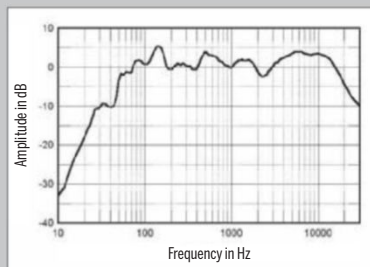


Fig.7 Bowers & Wilkins 805 D3, spatially averaged, $\frac{1}{6}$ -octave response in JA's listening room.

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unsympathetic ancillary components, or in a room that itself emphasizes the highs. In this respect, the 805 D3 is not dissimilar to my 1978 pair of BBC LS3/5a minimonitors. But it was very noticeable when I set up the KEF LS50s, which at first sounded dull in comparison, with a more colored midrange. However, extended listening convinced me that the KEF's top octaves were more naturally balanced.

But I kept returning to the B&W's magic, uncolored, transparent midrange. With the Pass Labs amplifiers, the string orchestra in Vaughan Williams's *Tallis Fantasia* sounded gloriously natural, rich, and detailed, with a solidly gutty foundation provided by the cellos and basses. Patricia Barber's vulnerable contralto in "A Taste of Honey" sent shivers down my spine, as did Robert Plant's tortured tenor in "Since I've Been Loving You," from *How the West Was Won*. And again, there was that clarity: the Rhodes piano John Paul Jones plays in the verses of "Loving You" before he switches to Hammond for the guitar solo isn't that loud in the mix, but was audible enough through the B&W's to make musical sense.

Summing Up

I very much enjoyed my time with the Bowers & Wilkins 805 D3. It is a superbly engineered, superb-sounding thoroughbred of a speaker. Its transparency, dynamic-range capability, and combination of low-frequency weight and control are something special. That somewhat elevated high treble will make it fussy when it comes to system and room matching, but in the right circumstances—and especially if piano recordings dominate your playlists—this might be all the speaker you'll need, at a lower price than you might think you have to pay.

To return to the question I posed at the start of this review: Is the 805 D3 the successor to my beloved Silver

ASSOCIATED EQUIPMENT

Analog Source Linn Sondek LP12 turntable with Lingo power supply, Linn Ekos tonearm, Linn Arkiv B cartridge.

Digital Sources Aurender N10 music server; Ayre Acoustics C-5xeMP universal player; dCS Rossini CD player & Rossini Clock; PS Audio PerfectWave DirectStream D/A converter with Bridge II network adaptor; Meridian Ultra-DAC; AudioQuest JitterBug, UpTone Audio ReGen USB cleaner-uppers; Mac mini running Pure Music 3, Audirvana, Twonky server; iPad Mini running PlugPlay, Aurender apps; Ayre Acoustics QA-9 USB A/D converter.

Phono Preamplifier Channel D Seta L.

Power Amplifiers MBL Corona C15, Pass Labs XA60.5 (both monoblocks).

Loudspeakers Aerial Acoustics 5T, Rogers LS3/5a, KEF LS50.

Cables Digital: AudioQuest Coffee. USB: Canare AES/EBU. Interconnect (balanced): AudioQuest Wild Blue, Cardas Clear. Speaker: Kubala-Sosna Elation!. AC: Kubala-Sosna Elation!, manufacturers' own.

Accessories Target TT-5 equipment racks; Ayre Acoustics Myrtle Blocks; ASC Tube Traps, RPG Abffusor panels; Shunyata Research Dark Field cable elevators; Audio Power Industries 116 Mk.II & PE-1 AC line conditioners (hard drive, computers). AC power comes from two dedicated 20A circuits, each just 6' from breaker box. —John Atkinson

Signature? For the answer to that question, you'll have to wait for me to retrieve those quarter-century-old speakers from my storage unit and write about the comparison in a Follow-Up. Stay tuned. ■

measurements, continued

B&W; in that respect the KEF's in-room behavior resembles that of the Aerial 5T. Both speakers sound less "brilliant" than the B&W, but I believe this is actually more neutral in-room behavior, given the increased absorptivity of the room furnishings in the high treble. The 805 D3 has a little more upper bass than the LS3/5a, but, like the KEF, its ported alignment results in a faster rolloff below the midbass.

Turning to the time domain, the Bowers & Wilkins' step response on the tweeter axis (fig.9) reveals that both drive-units are connected in positive acoustic polarity, but with the tweeter's output leading that of the woofer. In fact, the very slight discontinuity just before the 4ms mark suggests that the drive-units blend best if the listener's ears are slightly below the tweeter axis—although, as fig.5 showed, if you

sit much lower, a suckout develops in the crossover region. The cumulative spectral-decay or waterfall plot on the tweeter axis (fig.10) reveals a superb lack of delayed energy across the audioband.

The B&W 805 D3's measured performance indicates that it has a somewhat "tailored" frequency response in the treble, but in all other respects there is nothing amiss. —John Atkinson

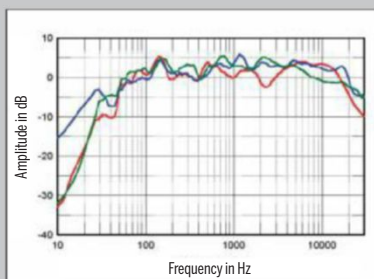


Fig.8 Bowers & Wilkins 805 D3, spatially averaged, 1/6-octave response in JA's listening room (red); of KEF LS50 (green); and of BBC LS3/5a (blue).

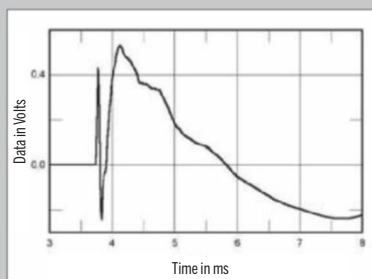


Fig.9 Bowers & Wilkins 805 D3, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

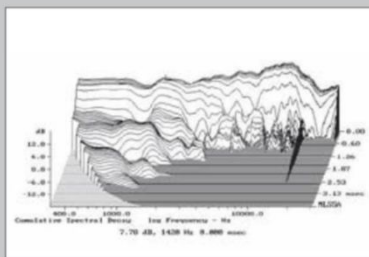


Fig.10 Bowers & Wilkins 805 D3, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

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LOUDSPEAKER

I wouldn't normally begin a review of an imported product with generalities about the culture from which it sprang, but this isn't just any imported product. It's a Scandinavian loudspeaker, and Scandinavian speakers are subject to a different and altogether more liberal set of rules.

For one thing, because they tend to be healthy and well educated, and because their governments are at peace and, for the most part, economically and politically sound, Scandinavians can take a joke. For another, Scandinavians are famous for not only *having* a loudspeaker industry—something that has thus far eluded Spaniards, Corsicans, Ethiopians, and the Maltese, among others—but also for the distinctiveness of the speakers they make. Like the Scandinavian people themselves, their speakers are intelligent, serene, uncompromising, outwardly serious and inwardly whimsical, outwardly tidy and inwardly complex, and a bit quirky.

Much of that applies to *everything* made and consumed in Scandinavia, from Volvos to Dux lounge chairs to Earth Shoes to Legos to salt licorice. Scandinavian speakers are exactly like salt licorice, if salt licorice could transform electrical signals into soundwaves.

Scandinavian speakers tend to be quirky in two distinct ways: the shapes of their enclosures are often more exotic than mere

rectangular boxes, and/or at least one drive-unit is pointed at a target other than the listener. Consider the classic Sonab OA-116, with its six every-which-way tweeters and a mid/woofer that looks up from the top of the cabinet at an angle suggesting the head of Ozymandias as Shelley might have imagined it. Then there's the three-way Gradient Helsinki 1.5, an open-frame speaker that resembles

Scandinavian speakers are exactly like salt licorice.

an abstract G-clef, and that I described in my August 2010 review¹ as a “must-hear” product. And how about Bang & Olufsen's BeoLab 90?² Of the 18 drivers in that \$85,000/pair floorstander, which looks like Picasso drew it, only three are aimed at the listener.

1 See www.stereophile.com/floorloudspeakers/gradient_helsinki_15_loudspeaker/index.html.

2 See www.stereophile.com/content/bang-olufsen-beolab-90-loudspeaker.



SPECIFICATIONS

Description Two-and-half-way, ported, floorstanding loudspeaker. Drive-units: 1" polymer-dome tweeter, two 1" fabric-dome tweeters, 7" carbon-fiber/pulp-cone midrange unit; 7.75" carbon-fiber/pulp-cone woofer.

Crossover frequencies: 300Hz, 2.5kHz, 5kHz (see text). Nominal impedance: 8 ohms. Sensitivity: 88dB.

Dimensions 36.1" (916mm) H by 10.9" (278mm) W by 12.9" (328mm) D. Weight: 55.1 lbs (25kg).

Finishes Cherry, Maple, White or Black Lacquer.
Serial numbers of units reviewed 1505157, 1505158.
Price \$6995/pair. Approximate number of dealers: 10.
Manufacturer Larsen HiFi, Bokgatan 11, 568 31

Skillingaryd, Sweden.
Tel: (46) 370-70-900.
Web: www.larsenhifi.com.
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Common to the designs of all of these speakers is an effort to liberate each from the deleterious effects of any room in which it's installed. That's also the prime directive behind the model 8 loudspeaker (\$6995/pair) from the Swedish manufacturer Larsen HiFi, whose products are influenced by the work of the late Stig Carlsson—a legendary Swedish designer whose products include the above-mentioned Sonab OA-116, as well as other speakers similarly hailed as both brilliant and eccentric. According to the Larsen website, company founder John Larsen, who designed the 8 with Anders Eriksson, worked with Stig Carlsson for 16 years. (Larsen HiFi, in business since 2007, is located in the central-Sweden town of Skillingaryd, once home to the now-defunct Sonab.)

Description

The Larsen 8 stands 36.1" tall and has a relatively small footprint: just 10.9" wide by 12.9" deep. Its bottom surface lacks threaded inserts or other means of attaching feet, pointed or otherwise; instead, Larsen includes ½"-thick soft-durometer (SD) pads for use under the speakers, "regardless of what surface you have," according to the two-page instruction sheet. Those circular pads are supplied in two diameters, 1.4" and 1.7", the smaller suggested for use under the cabinet's front corners, the larger for the rear corners.

The most visible of the Larsen's five drivers are a 1" polymer-dome tweeter and a 7" mid/woofer operated up to 2.5kHz, whose carbon-fiber cone is coated on both sides with air-dried pulp. Both drivers are attached to an MDF baffle that's mounted at angles to the back and the top of the speaker's main enclosure: approximately 45° inward toward

a centrally seated listener, and 40° upward toward that listener's ears. The bottom edge of this angled baffle rests against another, horizontal baffle, which forms the top of the main enclosure, and the back of the rectangular-cross-section cabinet is intended to remain parallel to the wall behind it. The Larsen 8 is sold in "handed" (mirror-imaged) pairs.

At first glance, I assumed that the Larsen 8 was, at least in part, an open-baffle design, but that proved not to be the case. Fastened to the backside of the angled baffle is a segment of an MDF tube—imagine a larger-than-average Quaker Oats container, sliced at an obtuse angle and glued in place. This structure, which encloses the back of the 7" mid/woofer, directs that driver's rear wave into a reflex-loaded chamber, ported to the rear, that extends approximately 13" down into the main enclosure. This chamber is stuffed with acoustic batting and also contains the various elements of the crossover network. The rear of the 1" tweeter is sealed with a metal cap; like all of the model 8's drivers, it comes from the Danish manufacturer Scan-Speak.

Fastened to the upper corner of the angled baffle is a stainless-steel plate, made with a round opening just large enough for half of the tweeter's dome to show through, and folded at an angle of about 135°. It seems that this plate both prevents waves propagated by half of the dome from reaching the listener and reflects at least some of the output of the unoccluded half; according to the Larsen HiFi website, this arrangement helps the Larsen 8 to reproduce upper octaves "with more body" and contributes to "a more linear frequency response."

The horizontal baffle at the top of the cabinet is home to the 8's next two drivers: two 1" fabric-dome tweeters spaced

MEASUREMENTS

I was intrigued by the Larsen 8 loudspeaker. More than 40 years ago, I had auditioned a pair of the late Stig Carlsson's unique Sonab speakers and come away with mixed feelings: While Carlsson's original designs, with their arrays of tweeters pointing in all directions, seemed to me innovative attempts to design an omnidirectional mono speaker, I felt they just didn't work when used in pairs for stereo.

But that was a long time ago, so I unpacked from their wooden crates the Larsen 8s that Art Dudley had shipped to me and set to work measuring sample 1505157. I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the frequency response in the farfield, and an Earthworks QTC-40 for the nearfield responses.

The Larsen 8's voltage sensitivity is specified as 88dB/2.83V/m. However, my estimate was significantly lower, at 84.5dB(B)/2.83V/m. Over most of the audioband the Larsen is an easy load for the partnering amplifier to drive,

with an impedance that remains above 7.33 ohms from 10Hz to 6kHz (fig.1, solid trace). However, the impedance drops sharply above that range to reach a minimum value of 3.4 ohms at 13kHz, and there is a current-hungry combination of 5 ohms and a -42° electrical phase angle at 8kHz. These suggest that a 4 ohm-rated amplifier will work best with this speaker.

The impedance traces are free from the small discontinuities that would suggest the presence of panel resonances, and when I investigated the

enclosure's vibrational behavior with a plastic-tape accelerometer, I found very little untoward. Fig.2 was taken with the accelerometer fastened to the center of the front baffle. Some low-level modes can be seen between 250 and 500Hz, and these were present at a higher level on the sidewalls, but I don't think they will color the Larsen's sound.

With its array of angled drive-units—the baffle on which are mounted the midrange unit and the front-firing tweeter is angled at 40° from the horizontal, 50° from the vertical—I had a hard time deciding

Stereophile Larsen Model 8 Impedance (ohms) & Phase (deg) vs Frequency (Hz)

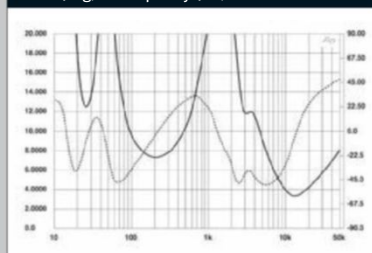


Fig.1 Larsen 8, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

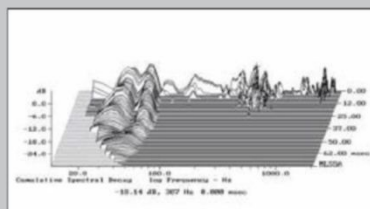


Fig.2 Larsen 8, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of front baffle (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).



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4.5" apart. These tweeters, which operate from 5kHz up and are attenuated by 10dB relative to the speaker's other drivers, fire straight up toward the ceiling, their dispersion controlled and contained by a triangular "blanket" of stiff, paper-packed insulation cut with a 1.8"-square opening for each tweeter and covered with black double-knit fabric. A similar but thicker fabric-covered triangular pad is held upright within a wooden frame at the top of the enclosure, adjacent to the angled baffle.

Finally, on the inner side panel of each enclosure is a U-shaped area where black fabric takes the place of veneer, and where another 7" mid/woofer—this one operated only up to 300Hz—and its reflex port handle the lowest low frequencies. Larsen claims bass extension down to 23Hz.

Setup

The Larsen 8 review samples arrived in individual wooden crates approximately 4" larger in each dimension than the speakers themselves; the inside surfaces of the crates were padded with two strips of plastic foam each, glued in place (although a couple of these had come unglued, as such things often do). Of the speakers themselves, it seemed that a glue joint between one enclosure's topmost strip of



wood and the rest of the enclosure had failed during shipping—but on closer examination it turned out that that relatively thin piece of wood had itself suffered a minor crack very near the glue joint. (In woodworking circles, one often hears the dictum that most modern adhesives form bonds far stronger than the materials being joined—here's at least one bit of evidence to support that.)

The Larsen 8's setup instructions urge the user to keep the backs of the enclosures within 3" of the wall behind them, without actually touching that wall. The instructions also suggest that, for best spatial performance, the distance between the listener and each speaker should be equal to or slightly greater than the distance between the speakers themselves, so that the axes of the tweeters on the angled baffles cross slightly in front of the seated listener.

In my 19' by 12' listening room, this was best accomplished by setting up the Larsen 8s along the long wall, just over 6' apart; I found that the speakers' bass output relative to the rest of the audio-band was most realistic and enjoyable with the cabinets as close to the wall as possible—in my case, just over 1" away. Near-wall installation of the Larsens is complicated by the fact the connectors

measurements, continued

on which axis to measure the Larsen 8's farfield behavior, or where to place the microphone. The manual was not much help, saying that "the drivers should be facing inward towards the listening position. The direct sound from the tweeters should 'hit' slightly in-front and above your seated listening position for optimal soundstage." This is a difficult problem in solid geometry to resolve. In the end, in order to achieve repeatable measurements, I placed the microphone on the tweeter axis, which is 34" from the floor, with the front of the speaker's enclosure facing straight ahead.

The black trace in fig.3 shows the response on this axis of the tweeter section (front-firing tweeter and the two upward-firing tweeters). It is relatively flat, other than being disturbed above 8kHz by interference among the three drive-units, and the tweeter crosses over with a steep filter slope to the midrange unit (green trace) at 2.3kHz. The midrange driver rolls off rapidly above this frequency, but its lower-frequency output is marred by

a narrow suckout centered just above 1kHz and a large peak between 400 and 900Hz. The side-firing woofer (blue trace) duplicates the midrange unit's output in the upper bass, and each has a minimum-motion notch in its output at 23Hz, which suggests both that the port does load the midrange unit as well as the woofer and that the port has a very low tuning frequency. The port's output does peak between 20 and 40Hz, but is too low in level to

fully extend the Larsen's output to its tuning frequency without the benefit of low-frequency "room gain."

Fig.4 shows the Larsen 8's farfield response, averaged across a 30° horizontal window on the axis of the front-firing tweeter. Above the region marred by the large peak—which I'm sure is the culprit behind AD's finding voices to be affected by a cupped-hands coloration—and the deep suckout, which would have affected

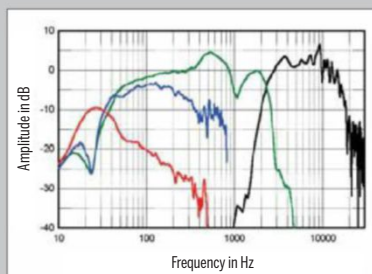


Fig.3 Larsen 8, acoustic crossover on tweeter axis at 50", corrected for microphone response, with nearfield responses of midrange unit (green), woofer (blue), and port (red), plotted in the ratios of the square roots of their radiating areas below 350, 800, and 500Hz, respectively.

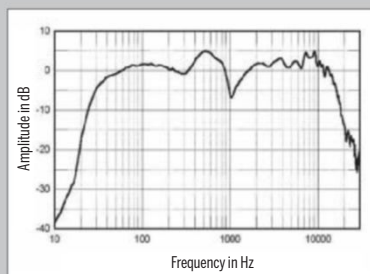


Fig.4 Larsen 8, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with complex sum of nearfield midrange, woofer, and port responses plotted below 300Hz.



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on these biwireable speakers are located on the rear panel; although the connectors are angled to minimize interference between cables and wall, cables that are exceedingly thick and stiff and/or have stupid-big terminations should be avoided. For the same reasons, it seems that in-line banana plugs, such as I use, are to be preferred to spade lugs. In my first hours of listening to the Larsens, I noted that having the speakers even slightly more than 3" from the wall behind them diminished bass extension and quality.

I also confirmed the merit of Larsen HiFi's advice to sit a bit farther from the speakers than the distance between them: too close, and the soundfield between the speakers lacked solidity and presence. That said, when I listened for sheer musical rather than aural pleasure—concentrating on pitches and dynamics and tone rather than spatial cues—the Larsen 8s were, in my experience, unique in their ability to be enjoyed from a seat literally anywhere in the room. Wherever I parked myself, sitting or standing, I never heard any colorations or changes in bottom-to-top tonal balance. It was uncanny—and liberating. The only downside was that I accomplished less work than usual

when the Larsens were playing: Even when seated at my desk in one corner of the listening room, I found their playback so engaging that I couldn't help getting wrapped up in the music.

Notwithstanding my love for both the appearance and the large size of my favorite vintage and vintage-inspired speakers, I

Its style is born of the essence of its minimalist, modernist, functionalist shape.



measurements, continued

my sensitivity measurement, the treble is relatively flat. However, it does roll off rapidly in the top octave, which is probably why AD felt that the high frequencies sounded "soft." The low frequencies extend at full level in this graph to 50Hz or so. However, remember that the measurement of the speaker's output in this region is taken in the nearfield, which, with a speaker having a flat low-frequency response, will produce an apparent boost in the mid-upper bass. The Larsen's bass lacked such a boost, which suggests that its low frequencies will be shelved down to an extent dependent on the proximity of the room's boundaries. I note that AD felt that 40Hz was the practical limit of low bass in his room.

Because the behavior in the horizontal plane of a speaker with laterally disposed drive-units will be complex, I have not followed my usual practice of showing a speaker's dispersion, in which I subtract the on-axis response from each of the off-axis responses in order to emphasize the differences between them; instead, I have shown

the actual responses. You can see in fig.5 that the peak and suckout in the upper midrange are maintained at all off-axis angles, and that while the Larsen 8's dispersion in the treble is complex, the overall pattern is relatively even. You can also see that there is very little top-octave energy present off axis, again supporting AD's finding that the Larsen's treble sounded "soft." However, as you move higher, there is a little more high-frequency energy present (fig.6).

I wondered whether the problems

with the loudspeaker's quasi-anechoic behavior would be ameliorated in-room. I therefore measured the Larsens' spatially averaged response in a rectangular vertical grid centered on the position of my ears in my listening seat, which is 36" from the floor. I placed the speakers as recommended in the manual, close to the nearest sidewall, and pointing straight ahead so that the front-facing tweeters were firing over my head. You can see from the resultant graph (fig.7) that the Larsen's bass, its lower midrange,

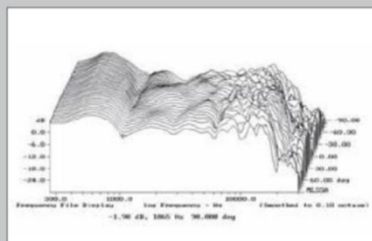


Fig.5 Larsen 8, lateral response family at 50", from back to front: responses 90°–5° off axis on tweeter side, reference response, responses 5°–90° off axis on midrange side.

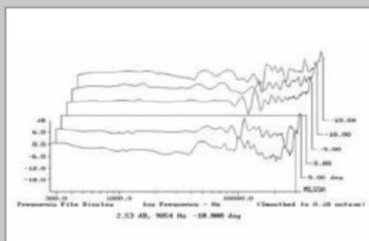


Fig.6 Larsen 8, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 15°–5° above axis, reference response, differences in response 5°–10° below axis.

enjoyed having in my room the relatively inconspicuous Larsen 8s. Though the ca-1966 Altec Flamenco might look at home in the drawing room of a Victorian hookah merchant, the Larsen 8 . . . well, the Larsen 8 simply wouldn't. Though it impresses as a stylish loudspeaker, its style is born not of filigree but of the very essence of its minimalist, modernist, functionalist shape.

Listening

My well-traveled review pair of Larsen 8s needed only a little time to run in—perhaps an hour or so—before their woofers woke up and remembered what they were supposed to be doing. Notably, at no time during their stay in our home did the Larsens add to the signals fed them any grit, spit, grain, or other artifacts.

Indeed, from their first day here to their last, the Larsen 8s sounded a bit rolled off at both frequency extremes. Trebles were soft—a recording in which vocal sibilants were borderline hot was instantly tamed, yet a distantly miked tambourine in the same recording lost a small measure of its musical effectiveness—and instruments with fundamentals in the lowest octaves sounded a little cushier than usual, though not unpleasantly so. Overall, the 8s were well balanced from top to bottom. Still, 23Hz tones were beyond their capabilities, at least in my installation; the lowest frequency at which they supplied plainly audible and useful output was about 40Hz.

Well-recorded jazz sounded wonderful through the Larsens: slightly scaled down compared to my Flamencos in spatial size and impact, but very convincing nonetheless. “Lorraine,” from Ornette Coleman’s *Tomorrow Is the Question!*

I accomplished less work than usual when the Larsens were playing.

(LP, Contemporary S7569), was beautifully colorful yet without apparent colorations, and the sense of impact from Shelly

Manne’s floor tom and

bass drum, and from the note attacks of bassist Red Mitchell, was very satisfying. Again, I didn’t hear the same amount of force as through my Altecs or the Auditorium 23 Hommage Cinemas, and the size of the Larsens’ soundstage was less than enormous. Yet, in a strange way, those two slight and seemingly interrelated shortcomings were less objectionable than I might have expected. Again, once I’d sat down and acclimated myself to the Larsens’ style of sound, the music itself was extremely satisfying. I never felt at a loss.

Similarly, in “Tanya,” from Dexter Gordon’s *One Flight Up* (LP, Blue Note/Cisco Music 84176), Art Taylor’s drumming and the inventive bass playing of Niels-Henning Ørsted Pedersen (a Dane!) were reproduced with good impact, while Gordon’s saxophone had superb tone, texture, and presence. And in “Taxman,” from the Beatles’ *Revolver* (LP, Parlophone PCS 7009), Paul McCartney’s similarly inventive bass playing had shockingly good depth, drive, and punch, and his superb guitar solos bristled with energy and snarly good tone—although John Lennon’s tambourine was, weirdly, almost entirely missing in action.

Only with certain examples of large-scale music, such as the Electric Recording Company’s reissue of soloist Leonid Kogan’s recording of the Brahms Violin Concerto with Kiril Kondrashin and the Philharmonia Orchestra (LP, Columbia

measurements, continued

and the entire treble region are in very good balance with one another. Compared with the quasi-anechoic response in fig.4, the upward-firing tweeters add more top-octave energy. However, that upper-midrange peak is still very much in evidence and I found it quite audible.

In the time domain, the Larsen 8’s step response on the tweeter axis (fig.8) shows the output of its two upward-firing tweeters preceding those of its front-firing tweeter (the sharp up/down spike just before the 4ms mark) and midrange unit. All of

the drive-units appear to be connected in positive acoustic polarity, but the midrange’s output is marred by what looks like a strong reflection half a millisecond later. This may well be the root of the speaker’s problematic frequency response. To create the cumulative spectral-decay plot for the Larsen 8 (fig.9), I subtracted the output of the top-firing tweeters, as they obscured what was happening. Other than that problem in the upper midrange and something untoward in the high treble, the Larsen’s decay is relatively clean.

AD wrote: “once I’d sat down and acclimated myself to the Larsens’ style of sound, the music itself was extremely satisfying. I never felt at a loss”; and “When I dropped the Larsen 8 loudspeakers into my system and set about enjoying them as a normal person might, I approached that ideal: I was *immensely* happy.” In my considered opinion, however, the Larsen 8’s measured performance reveals its audio engineering to be flawed. Like the legendary curate’s egg, this is a speaker that is “good in parts,” I feel.

—John Atkinson

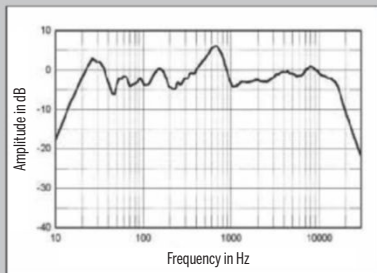


Fig.7 Larsen 8, spatially averaged, $\frac{1}{6}$ -octave response in JA's listening room.

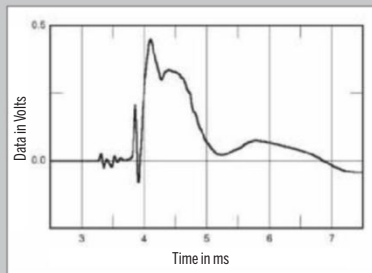


Fig.8 Larsen 8, step response on tweeter axis at 50° (5ms time window, 30kHz bandwidth).

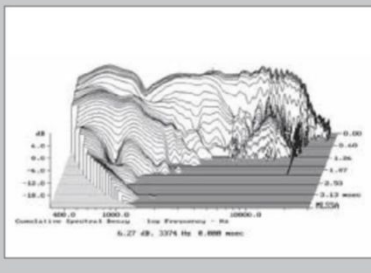


Fig.9 Larsen 8, cumulative spectral-decay plot on tweeter axis at 50° with upward-firing tweeters gated out (0.15ms risetime).

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SAX 2307/ERC 027), did I actually miss the scale and the drive—the latter especially in the low frequencies—of my own speakers. And even then, I wondered if perhaps giving the Larsens more amplifier power and/or a larger room—with speakers and listener spaced farther apart—might be more satisfying in those regards. (Larsen's US distributor submitted the 8s knowing that I'd be driving them with my 25W Shindo Corton-Charlemagne monoblocks. As for room size, although I considered using the 8s in my much larger living room, that space has no boundaries suitable for against-the-wall speakers.)

That said, when I played the very good Speakers Corner reissue of Hermann Scherchen and the Vienna State Opera Orchestra's recording of Rimsky-Korsakov's *Scheherazade* (LP, Westminster/Speakers Corner WST 14003)—one of those vinyl reissues that genuinely improves on even a mint copy of the original—I was impressed by the Larsens' good-for-their-enclosure-size sense of scale, their excellent touch with plucked strings, and their timbrally and texturally convincing portrayals of solo bassoon, oboe, and other woodwinds.

Playing to the Larsens' apparent strengths, I reverted to smaller-scale music, including the Seldom Scene's 1975 album *Live at the Cellar Door* (2 LPs, Rebel SLP-1547/48). The Larsen 8s presented the sounds of the group's acoustic instruments with clarity and very good spatial presence. The soundstage wasn't terribly deep, but soloists stood proud of the mix when needed, as with John Duffey's mandolin playing in "Rawhide"—also notable for its believably forceful note attacks. In "Muddy Waters," the harmonizing singers were convincingly spread across the stage—and, again, Duffey's mandolin solo had excellent force, eerily bent notes and all.

In "Emily," from Joanna Newsom's *Ys* (LP, Drag City 303), the Larsens succeeded in getting across the increasing intensity with which the strings—especially the bass viols—accompany Newsom's voice in the song's first minutes. As "Emily" proceeds and the arrangement grows in complexity, the Larsens reproduced the sounds of violins, violas, cellos, double basses, and even banjo and jaw harp with good image placement across a stage that was pleasantly wide but, again, not terribly deep. I also heard less blurring and greater precision of pitch in the improvisations by bassist Lee Sklar than I have through virtually any speaker other than the Quad ESL.

The only disappointment in the way the Larsens reproduced *Ys* was what appeared to be a very slight cupped-hands or "head-cold" coloration in Newsom's voice. I heard the same slight darkening in Joni Mitchell's voice in "Morning Morgantown" and "For Free," from her *Ladies of the Canyon* (LP, Reprise 6376). Male singers, perhaps owing to their different timbral balance, weren't affected to the same extent—yes, the great tenor Peter Pears sounded a semishade darker than usual in his recording, with Benjamin Britten on piano, of Schubert's *Die schöne Müllerin* (LP, Decca SXL 2200), but this was noticeable only in the bubblier numbers, and was lost in the welcome gravitas of the songs nearer the end of the cycle. It should also be noted that "Pause" sounded especially wonderful through the Larsens—a high point in this recording, both for Pears's brilliantly poetic interpretation and Britten's appropriately deliberate playing.

I didn't know what to expect from these speakers when playing mono records, and it turned out that they cast neither a big, chunky, well-centered block of sound—which is what I get from my Altecs, and is what I most enjoy when listening to mono recordings—nor the comparatively tidy, small sound I get from my Quad ESLs, but rather a flat and

ASSOCIATED EQUIPMENT

Analog Sources Garrard 301, Linn Sondek LP12, Thorens TD 124 turntables; Audio Origami UniArm, EMT 997, Rega Research RB 300 tonearms; EMT OFD 15 & TSD 15, Shindo Laboratory SPU pickup heads; Denon DL-103 cartridge.

Digital Sources AudioQuest DragonFly Black & DragonFly Red USB DACs; Apple iMac G5 computer running Audirvana Plus v.1.5.12; Sony SCD-777ES SACD/CD player.

Preamplification Auditorium 23 Hommage T1 & T2, Bob's Devices Sky 40 step-up transformers; Shindo Laboratory Masseto preamplifier.

Power Amplifiers Shindo Laboratory Corton-Charlemagne (monoblocks) & Haut-Brion (stereo).

Loudspeakers Altec Flamenco, Auditorium 23 Hommage Cinema.

Headphones AudioQuest NightHawk.

Cables USB: AudioQuest Carbon. Interconnect: Audio Note AN-Vx, Luna Red, Shindo Laboratory. Speaker: Auditorium 23. AC: Luna Orange, manufacturers' stock cords.

Accessories Box Furniture Company D3S rack (source & amplification components), Audiodesksysteme Gläss Vinyl Cleaner. —Art Dudley

surprisingly wide aural expanse. From the mono version of Procol Harum's *Shine On Brightly* (LP, Regal Zonophone LRZ 1004), both the title track and "Magdalene (My Regal Zonophone)" sounded enjoyably big—wider than through my Altecs, if not so tall.

Conclusions

Let's not beat around the bush: I think the Larsen 8 is a very good loudspeaker. While my large, horn-loaded Altecs are more to my taste, the Larsen is nonetheless musically and, for the most part, sonically satisfying. And the notion of pushing my preferences a few degrees to the left (yes, to the left) to accommodate such a thing is not outside the realm of the possible.

Pay the bills though it does, there is an aspect of audio reviewing that I dislike: It forces me to think in ways the mere record-loving me would never consider. Reviewing sometimes forces me to think like a neurotic audiophile: someone who thinks too much about the gear through which he's listening, and is thus more or less bent on ruining the hobby for himself.

Reluctant parasite that I am, I would prefer to simply endure, happily and mental-healthily, in my love of listening to good records through good gear, thinking be damned. When I dropped the Larsen 8 loudspeakers into my system and set about enjoying them as a normal person might, I approached that ideal: I was *immensely* happy. Once I got what they were all about, even the hazards of audiophilia—the fidgets, the neuroses, the fetishes—couldn't diminish my regard for the Larsen 8 experience.

So let me put it to you this way: The Larsen 8 isn't for everyone. It's for those who just want a pair of speakers that will last them the next 20 years or so, and will provide insight, enjoyment, comfort and ease, and the occasional thrill. If that's you—and especially if you're also the sort who wouldn't mind getting off the audio merry-go-round for a while—the Larsen 8 is an easy recommendation. ■

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HERB REICHERT

Wharfedale Diamond 225

LOUDSPEAKER

In the United Kingdom, the first seeds of perfectionism in audio separates were sown by Goodmans Industries, founded in 1925. Then, in 1930, Garrard (est. 1722) produced its first commercial gramophone. Shortly thereafter, England experienced the Great Slump, the British name for the worldwide catastrophe known in the US as the Great Depression. Near the beginning of this economic downturn, in 1932, Gilbert Briggs founded Wharfedale Wireless Works—and the first British “high-fidelity” audio amplifiers began being manufactured by H.J. Leak & Co. Ltd., founded by Harold Joseph Leak in 1934.

But British hi-fi didn't really pick up steam until after World War II, when Jim Rogers founded his loudspeaker company, Rogers International (1947), and Peter Walker established the Acoustical Manufacturing Co. Ltd., aka Quad (1949).

It wasn't until 1954 that rationing of gasoline and food ended in the UK. So, not surprisingly, the Brit-Fi flower didn't fully bloom until the first London Audio Fair, in 1956. This huge show attracted over 24,000 attendees and featured the first UK demonstration of stereo sound, the introduction of the Garrard 301 record player, and a preview of the world's first production electrostatic loudspeaker, the Quad ESL.

In the US, consumer hi-fi had begun in 1945, with the founding of

Avery Fisher's Fisher Electronics. Paul W. Klipsch founded his loudspeaker company, Klipsch and Associates, in 1946, in Hope, Arkansas. Brook Industries introduced Lincoln Walsh's legendary 10C and 12A amplifiers in 1948. But unquestionably, the high-fidelity shot heard 'round the world was fired in 1952, in Cambridge, Massachusetts, when Edgar Villchur and Henry Kloss established Acoustic Research. AR's first “acoustic suspension” speakers—the AR1, AR2, and AR3—ushered in a new era of handsome, living-room-friendly designs that traded efficiency for the ability to play full-range from a small box with low levels of distortion.¹

In the UK in the 1950s, Wharfedale's

1 See JA's discussion of efficiency vs sensitivity at <http://tinyurl.com/z38dveg>. Sensitivity can be converted into efficiency, and vice versa, using the on-line calculator at www.sengpielaudio.com/calculator-efficiency.htm.



Wharfedale's newest Diamond model is a prototypical British loudspeaker.

SPECIFICATIONS

Description Two-way, port-loaded, stand-mounted loudspeaker. Drive units: 1" (25mm) cloth-dome tweeter, 6.5" (165mm) woofer with woven-Kevlar cone. Crossover frequency: 2.3kHz. Frequency response: 45Hz–20kHz, ± 3 dB. Sensitivity: 87dB/2.83V/m. Impedance:

8 ohms nominal, 4.2 ohms minimum. Peak SPL: 96dB. Bass extension: 40Hz, -6 dB. Recommended amplification: 25–120W.

Dimensions 14" (355mm) H by 7.7" (196mm) W by 10.3" (262mm) D. Weight: 14.3 lbs (6.5kg).

Serial number of units

reviewed WH057516B-KF0083 (both).

Finishes Black, White, Walnut, Rosewood.

Price \$449/pair. Approximate number of dealers: 30.

Manufacturer Wharfedale, Unit 4, St. Margaret's Way, Stukeley Meadows Industrial Estate, Huntingdon,

Cambridgeshire PE29 6EB, England, UK.

Tel: (44) 01480-452561.

Web: www.wharfedale.co.uk.

US distributor: MoFi Distribution, 1811 W. Bryn Mawr Avenue, Chicago, IL 60660.

Tel: (312) 738-5025.

Fax: (312) 433-0011. Web: www.mofidistribution.com.

corner speakers (with sand-filled baffles) and their flat-panel SFB/3 (1956) were mirroring Klipsch's successes in the US; but it was Peter Walker's Quad ESL (1957) that moved British hi-fi into the global market. While Walker's original electrostatic design remained in production until 1985, Gilbert Briggs sold Wharfedale in 1958. Briggs's engineering partner, Raymond Cooke, left Wharfedale to found KEF, in 1961. Since then, in the UK and US, perfectionist audio has followed parallel but different paths.

In the US, postwar hi-fi began by making loudspeakers smaller² (AR, Advent), but since the 1980s, America being America, the drift has been toward an SUV-like mindset of bigger is better. US audiophiles now seem to favor bulky, heavily damped, glossy-lacquered, floorstanding speakers of low sensitivity and impedance, as well as the massive, high-powered amplifiers needed to drive them.

Meanwhile, the British have refined a more modest approach, favoring smaller, lighter, stand-mounted speakers with thin walls and natural wood finishes.

Wharfedale's newest Diamond model, the 225 (\$449/pair), is a prototypical British loudspeaker.

Description

Wharfedale introduced its first Diamond model in 1981. Short and stout—almost a cube—it was one of the best-selling audiophile speakers of all time. By comparison, the new Diamond 225 is tall and lean and deep, measuring 14" high by 7.7" wide by 10.3" deep. It has a 1" soft-dome tweeter, a 6.5" mid/woofer with a woven Kevlar cone, and a wood-veneered cabinet with a volume of 0.36 cubic feet. This reflex-loaded box has a "slot-loaded distributed port" that fires downward through a narrow *reveal* between the cabinet bottom and the Diamond's rubber-footed base. Overall, the 225 looks and feels considerably more expensive than its humble price suggests.

Call me a numpty or a sentimental old twit, but I still romanticize those good old days when little British companies were [*cough cough*] Little British companies in charming brick factories whose workers drove Morris Minors, rolled baccy, and spent their evenings in pubs drinking pints. But in 2017, Wharfedale is part of the International Audio Group (IAG), which also owns Quad, Mission, Castle, and a few others. Today's Wharfedale is a big-small company that produces in-house its own drivers, cabinets, and even wire—all in China, where the speakers are also assembled.

Today, most affordable audio products are designed not by independent pioneer innovators such as Henry Kloss, Gilbert Briggs, and Peter Walker, but by seasoned audio-industry professionals. The design of the Wharfedale Diamond 225 was supervised by Peter Comeau, IAG's director of acoustic design. Before joining IAG, Comeau cofounded Heybrook (1978) and was a director of engineering at Mission Electronics—two more UK companies with long histories of making quality loudspeakers.

Setup

Their down-firing ports made the Diamond 225s easy to place in my small listening room (13' long by 11' wide by 9' high). As I experimented with speaker positions and stand heights, I heard very few room-bounce colorations. In my room, the sweet spots for small speakers are about 27" from the front wall. That's where I put them, and I did my critical listening with the Diamonds sitting on both 24"- and 26"-high stands. Very early on, I switched from using single AudioQuest GO-4 speaker cables (a rich-sounding match) to biwiring the Wharfedales with AudioQuest's Type 4 cables. Both arrangements let the music flow easily and generated excellent piano tone, but I thought the Diamond 225s spoke

² That was the trend on the east coast, but to some west-coast companies, bigger was better, and remained so for years.

MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Wharfedale Diamond 225's frequency response in the farfield, and an Earthworks QTC-40 for the nearfield responses. Wharfedale specifies the Diamond 225's voltage sensitivity as 87dB/2.83V/m; my estimate was lower than that, at 85dB/2.83V/m. The speaker's impedance is specified as being "8 ohm compatible," with a minimum value of 4.2 ohms. My measurement is shown in fig.1—an 8 ohm rating would be fair, particularly given the generally moderate phase angle, but the minimum magnitude was 3.87 ohms between 190 and 200Hz.

There is a suspicious-looking discontinuity just above 400Hz in the impedance traces, and I did find a strong vibrational mode on the cabinet side-walls at 418Hz (fig.2). This resonance was also present on the top panel, at a

lower level, but there was also a strong mode at 1040Hz. However, I note that Herb Reichert didn't comment on any midrange congestion that could be laid at the feet of the lower-frequency mode.

Fig.3 shows the individual responses of the tweeter (green trace), the woofer (blue), and the slot-loaded port (red). The crossover appears to

occur at the specified 2.3kHz, with steep acoustic slopes. The rise in the woofer's output in the upper bass will be due to the nearfield measurement technique adopted below 350Hz and the port is tuned to 42Hz, the frequency of the lowest open string of the four-string bass guitar and double bass. The port's output extends a little higher than usual, not rolling off until

Stereophile Wharfedale Diamond 225 Impedance (ohms) & Phase (deg) vs Frequency (Hz)

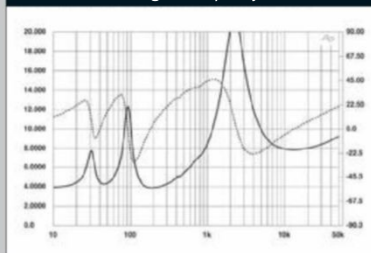


Fig.1 Wharfedale Diamond 225, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

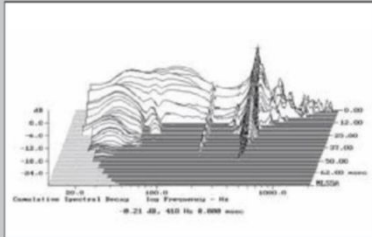


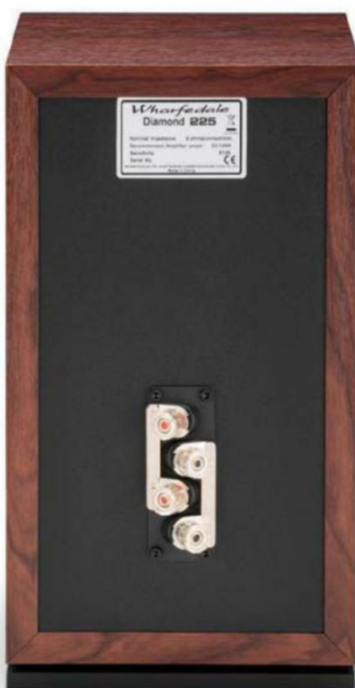
Fig.2 Wharfedale Diamond 225, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of sidewall (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

more openly and transparently when biwired—which was how I did the rest of my listening.

Listening with the Line Magnetic LM-518

Gilbert Briggs described the reproduction of the sound of an acoustic piano as the “sternest test” of a loudspeaker. The best way I know to get acquainted with a new speaker is to use a familiar amplifier and play recordings of solo piano that I’m very familiar with and understand. As the Diamond 225s relaxed and began to sound broken in, I reached for a disc that I play frequently, one I treat like a pilgrimage site with a spring of healing water: the Pierian Recording Society’s very first release, *Claude Debussy: The Composer as Pianist* (CD, Pierian 0001). This disc includes all of Debussy’s known recordings: four acoustic recordings with soprano Mary Garden, made for the Gramophone and Typewriter Co. in Paris in 1904, and 14 piano-roll recordings made for M. Welte & Söhne Recording Piano Co. in Paris in 1913.

With the Diamond 225s driven by Line Magnetic’s LM-518 IA integrated amplifier (22Wpc), Debussy’s approach was easy to appreciate. *Golliwog’s Cake Walk*, from his *The Children’s Corner*, displayed highly sensuous, richly colored piano tones whose fleshed-out textures commingled with surprise-filled cadences that delighted my heart. The



I thought the Diamond 225s spoke more openly and transparently when biwired.

225’s ability to deliver the essential but subtle features of Debussy’s art was extremely impressive for a speaker costing only \$449/pair.

This is an exquisitely recorded production. Every bit of Debussy’s poetic fingerings and soft-pedal expression captured on the paper Welte-Mignon rolls was “re-animated” on a carefully restored 1923 Feurich-Welte reproducing piano and recorded with a stereo pair of vintage Neumann KM 83 microphones. Through the Diamond 225s, Debussy’s piano sound was larger than I expected, tangibly solid and surprisingly three-dimensional. To the Wharfedales’ great credit and my pleasure, I enjoyed wooden hammers, metal strings, and some little sense of the piano’s sound-board.

Listening with the First Watt J2

Forget cake walks and froufrou Parisian modernists—bring us now the timeless teen thrash and hard-raking boogie machine we call Metallica. If you can’t get on and ride their explosive 1986 album,

Master of Puppets (CD, Elektra 60439-2), I feel sorry for your cheesy lounge-singer soul. Metallica’s guitar sounds and hyper-drivin’, amped-up rhythms never fail to cut me through to the gut.

I wanted to find out if the 25W of First Watt’s J2, designed by Pass Labs’ Nelson Pass, would be enough power to make me, Metallica, and the Wharfedale 225s skip, mosh, and fist-pump

above 100Hz.

This response, which was taken with the vestigial woofer and tweeter grilles in place, doesn’t look as good as I was expecting from Herb’s positive comments—I would have expected the boost in the tweeter’s output between 6 and 10kHz to make the sound rather

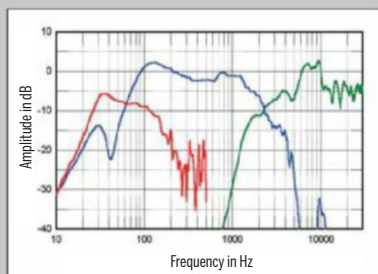


Fig.3 Wharfedale Diamond 225 with grille, acoustic crossover on tweeter axis at 50°, corrected for microphone response, with nearfield responses of woofer (blue) and port (red), plotted in the ratios of the square roots of the radiating areas below 350 and 500Hz, respectively.

bright. When I e-mailed him to ask if he had reached his conclusions with the speakers’ grilles in place, he responded that “with every speaker I always start with the grilles, then remove them. If they sound better with the grilles, I put them back on. With the 225s, all my observations were made without the

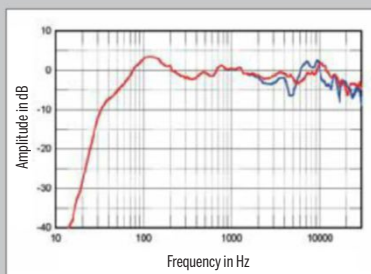


Fig.4 Wharfedale Diamond 225 with (blue) and without (red) grille, anechoic response on tweeter axis at 50°, averaged across 30° horizontal window and corrected for microphone response, with complex sum of nearfield woofer and port responses plotted below 300Hz.

grilles.”

Ah. Fig.4 shows the Wharfedale’s farfield response, averaged across a 30° horizontal window centered on the tweeter axis, with (blue trace) and without (red) the grilles. With the grilles, which is how I measured the sensitivity, there is a relative lack of energy between 2 and 6kHz, which goes some way toward explaining why the

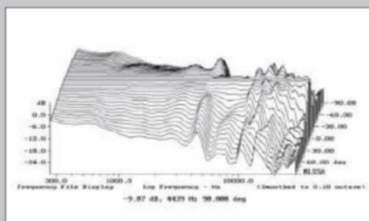


Fig.5 Wharfedale Diamond 225 with grille, lateral response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 90°–5° off axis, reference response, differences in response 5°–90° off axis.

Fact or Fantasy?

Dear Audiophile/Music Lover,

It's a **fact** that every system I have heard—in every audiophile's home that I have visited—is a pale shadow of what it could have been.

It doesn't matter who did it, what "rules" they followed, or how great the components were supposed to be. The sad **fact** is that if the system doesn't "play the room" properly, it is significantly underperforming its potential.

Fantasy

The **fantasy** is the belief that a new amp, preamp, or cable is somehow going to make it all happen. It might help, but not nearly as much as it could if your system was voiced properly to your room. This voicing is called **RoomPlay**.

The Real Deal

Here is an edited excerpt from a review by a **RoomPlay** client,* posted by Richfield_hunter on Audiogon.com:

*"As an audiophile, I was always searching for the next level of performance. I tried many equipment changes and tweaks over the years and most of the time achieved a higher level of performance. But I always wondered if the changes were how the sound was recorded and IF I was getting the most out of my sound room. I decided to schedule Jim Smith for one of his **RoomPlay** sessions.*

[RoomPlay] has been the single largest improvement in sound quality

that my system has ever experienced. I am amazed at the differences I hear.

The music now flows with more rhythm and tempo. The harmony and blend between the treble and bass is improved and it sounds more like live music. Music is more emotionally engaging.

It is as if I can see into the recording. The resolution of detail is remarkable on every song. The soundstage is more three-dimensional and the height, depth and width seem more right. Hearing the location of the performers on the soundstage has added an extra dimension of excitement to the listening experience.

I find myself just listening to the music and toe-tapping like never before. I truly am enjoying the music.

There is no bigger improvement that you can make to your system than to have it voiced properly to your room.

*Jim Smith has the vast experience and incredible ability to hear the changes and get the most out of our rooms and system components. Jim's **RoomPlay** sessions are worth every penny spent—you too can enjoy the music like never before."*

Fact vs. Fantasy

The **fact** is that I get comments like this after each and every **RoomPlay** session. These music lovers are astounded at how much their system has improved. **Fantasy** time is over



and the presence of emotionally involving music in their home is finally a reality.

Take Action

The **Get Better Sound** website has links to the

full comments and much more detail about **RoomPlay**, including the new, lower-priced, and highly acclaimed service I call **RoomPlay Reference**.

If you are ready for a real improvement in your system, visit www.getbetersound.com. For more info, contact me at jim@getbetersound.com or call 770-777-2095.

Best regards,

Jim Smith

PS—If you have a significant investment in your system, doesn't it make sense to hear what you purchased?

*Get more **RoomPlay** info—including testimonials—at GetBetterSound.com.



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through some densely vibrating air. I cranked “Battery” to old-man loud, and holy effing shit—these shiny little Brit boxes lit a hot flame that belied their size. They sawed fast and pounded hard. They got me *up*. I felt loose and free like I was 23. With easy clarity and ambitious drive, they powered my small room to average levels of 89dB and peaks of 96dB. No overcompressed muck. No congealed textures. No distortions of grainy hardness or stuttering vagary.

Listening with the Rogue Audio Sphinx

Every time I pull out Rogue’s 100W hybrid (tubed/class-D) integrated amp, I’m blown away by how ridiculously musical, authoritative, and transparent it sounds for \$1300. The Sphinx, and Schiit Audio’s Ragnarok (\$1699), continue to be the two most satisfying integrated amplifiers I know for less than \$2000.

You know me: I believe that, subtly or obviously, an audio product expresses the resonant character of whatever *stuff* it’s made of. One day, with the Rogue Sphinx, I realized I could hear the slightly inorganic Kevlarness of the Diamond’s mid/woofer cone. (To my ears, *all* speakers sound like their cone, magnet, and cabinet materials.) The Wharfedale’s Kevlar quality was most noticeable with timpani and massed strings. It was least noticeable with jazz, zydeco, or blues. The effect I’m talking about was *minuscule*; I had to listen extremely closely to hear it.

I don’t need synthesizers, pipe organs, or fast-plucked four-string Fenders to suss out a speaker’s bass performance. I just need 100W of class-D and Pepe Romero playing his bewitching performance of Joaquín Rodrigo’s *Bajando de la Meseta* on his Miguel Rodríguez guitar (LP, Philips 9500 915). The degree to which a loudspeaker can reproduce the physicality of an acoustic guitar is usually a good indicator of its resolution and transient control. The beauty and verity

of any speaker’s sound is anchored in the four midrange octaves from 80 to 1280Hz, and the splendor of these four octaves depends entirely on the wizardry of the speaker’s design. The meeting of Romero, Rodrigo, and the Diamond 225s was beyond revealing. It was splendorous. This beautiful Philips recording showed me the Wharfedale’s true nature.

The body of Romero’s guitar was the same size as my chest. I could sense the surface of the soundboard, and where the instrument’s neck overlaps and is connected to the body. I listened for the sound hole but couldn’t quite find it. Then it got spooky. Suddenly, I realized how good the 225s really were: Sitting on my couch, I could practically see the microphone, about 22” from the air pulsing off the soundboard’s surface. The Rogue Sphinx and Diamond 225s were doing everything right. The bass was clear, despite a noticeable softness below 120Hz. Guitar tone was fantastically accurate. Romero’s tempos were hyper-noticeable and pleasantly intoxicating. Right here is where my audio-critic DNA shifted and I fell crazy in love with the Diamond 225s. My experience of this excellent recording was profoundly good. My listening notes said, “What? How can this be?”

Raising Kane with the Schiit Ragnarok

I don’t like high-end audio that *sounds* like high-end audio. What does high-end audio sound like? It sounds like recorded information being pinched out at me in fake, hard, bas-relief detail and exaggerated three-dimensionality. The “black” spaces are really gray, but in a strangely unnoticeable way. To me, hardness represents distortion, as does opacity. Bad high-end audio feels distinctly inorganic—as if everything vital and mammalian has been leached out.

A mechanic can sharpen a file by soaking it in dilute acid.

measurements, continued

sensitivity I measured was 2dB lower than the specified figure. But without the grilles, the Diamond’s entire treble region is now in better balance with its midrange.

The Wharfedale’s lateral dispersion, taken with the grilles (fig.5), reveals that there is more presence-region energy off axis, and that the peak in the tweeter’s output is suppressed more than 25° to the speaker’s sides.

In the vertical plane (fig.6), a suckout develops in the crossover region 10° below the tweeter axis, which means the Wharfedales should not be used on high stands. However, the step response on the tweeter axis (fig.7) has a very small discontinuity between the decay of the tweeter’s step and the start of the woofer’s, which suggests that the optimal listening axis will be very slightly below the tweeter axis.

The cumulative spectral-decay plot (fig.8), taken without the grilles, is superbly clean.

Overall, the Wharfedale Diamond 225’s impressive measured performance lives up to what I expect from this classic British brand.¹—John Atkinson

¹ Following some failed experiments with home-brewed speakers in the late 1960s, I bought a pair of Wharfedale’s two-way Super Lintons, the model with the “purple jellyfish” tweeter, with which I lived happily for several years.

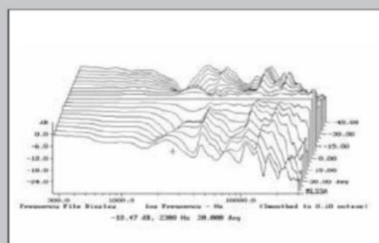


Fig.6 Wharfedale Diamond 225 with grille, vertical response family at 50”, normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.

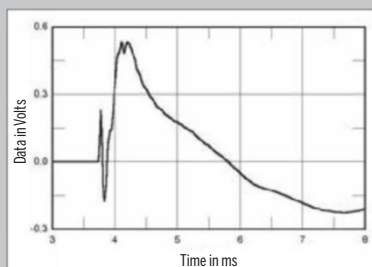


Fig.7 Wharfedale Diamond 225, step response on tweeter axis at 50” (5ms time window, 30kHz bandwidth).

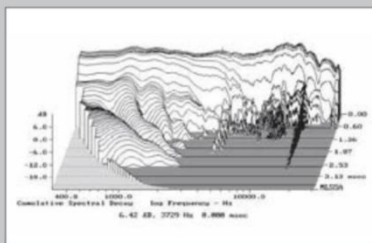


Fig.8 Wharfedale Diamond 225 without grille, cumulative spectral-decay plot on tweeter axis at 50” (0.15ms risetime).



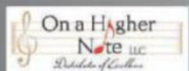
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Vivid Audio's lead designer Laurence Dickie will be there to explain his latest design and its innovations. Kyomi Audio's Prof. George Vatchnadze will play extracts from his latest Prokofiev album. On A Higher Note's Philip O'Hanlon will be there with some very special records played on a TechDAS Airforce 3 and needle drops from his personal collection, played back on the new Merging+ NADAC Player.

Saturday, February 11 at 1:00 pm Space is limited, please RSVP to:
Phone: +1 312 5132759 or Email: george@kyomiaudio.com

vividaudio.com

This procedure works well—up to a point. Eventually, the file's teeth get *too* sharp, and become all weak and pointy and bent over, like witches' teeth. That's what bad high-end audio (and a lot of re-mastered high-resolution digital) sounds like to me.

Driving the Wharfedale Diamond 225s, Schiit Audio's Ragnarok didn't sound at all like pointy witches' teeth. It sounded smooth, sharp (but not *too* sharp), and liquid. It played big orchestral compositions, such as Bernard Herrmann's *Welles Raises Kane*, with the composer conducting the London Philharmonic Orchestra (LP, Unicorn UNI-72008), with the supplest, non-hi-fi, nonmechanical sounds imaginable. Herrmann called this five-movement, 15-minute suite “a musical frolic . . . a portrait of Orson Welles at the time of his creation of the films *Citizen Kane* and *The Magnificent Ambersons*.” It features a fearsome orchestral mash-up that careens through a dozen musical genres.

The Schiit-Wharfedale combo reproduced this dynamic recording extremely well, except when the timpani and giant cymbals pounded hard in the climaxes. On the 98dB peaks I felt sharp cymbals cutting my forehead. The timpani sounded opaque, compressed, and distorted. The Ragnarok can put out 100Wpc into 8 ohms, so I doubt that it was clipping. It sounded to me as if the drivers themselves were stalling and skipping—exactly what I imagine cone/dome breakup sounds like. After failing during the *Overture of Welles Raises Kane*, the Diamond 225s carried on sweetly and engagingly until the *Finale—Pursuit and Happiness*, when things got a bit crunchy again. I can't believe I forgot that small speakers like the Diamond 225 sound best in small rooms when music is played at moderate levels. (I venture to say that anything over 90dB is likely to have some distortion. Overall, though, the Ragnarok and Diamonds sounded enjoyably lucid, so I turned down the volume and tried some other big orchestral works.

A longtime fan of Martha Argerich, Dietrich Fischer-Dieskau, and Claudio Abbado, I've always collected and used their DG recordings as tests for system musicality. Any system that makes DG discs sound hard, opaque, or less than charming is not for me. So I was pleased when the “not-full tulip”³ recording of Bartók's Piano Concertos 1 and 2, with soloist Maurizio Pollini and Claudio Abbado conducting the Chicago Symphony (LP, Deutsche Grammophon 2530 901), was reproduced with excellent tone and surprising transparency. Piano and percussion were fairly strong and present for such small speakers, and the space occupied by the orchestra's sound was remarkably deep. Pollini's keyboard playing is usually a bit inexpressive for my taste, but he really revs it up emotionally to lean into these edgy works and nail them down. Bravo, Maurizio! Bravo, Claudio! Bravo, Wharfedale!

Conclusions

Every day I listened to the Wharfedale Diamond 225s, part of me *wanted* to write, “Hey, these new speakers are nice, musical, even-tempered, and easy to live with. But they're nothing special. They're not designed in a wizard's shack behind a British row house and manufactured in some quaint Station Road factory with a pub down the way.” I almost wished I could say, “The 225s were created by some secret war-room consortium of *Dr. Strangelove* imperialists,” or to declare something like, “They play music *just pleasantly enough*—in a general, average sort of way—to fool the scruffy underclasses.”

But none of it was true.

ASSOCIATED EQUIPMENT

Analog Sources Palmer 2.5 turntable, Audio Origami PU-7 tonearm, AMG Teatro cartridge; Linn Sondek LP12 turntable, SME M2-9 tonearm, LP Gear Vessel cartridge.

Digital Sources Mytek Brooklyn, Schiit Audio Yggdrasil DACs; Hegel Music Systems Mohican CD player; Integra DPS-7.2 DVD-A player.

Preamplification Lounge Audio LCR Mk.III phono preamplifier & Copla MC step-up transformer; Parasound Halo JC 3+ phono stage; Pass Labs HPA-1 preamplifier.

Power Amplifiers First Watt J2, PrimaLuna ProLogue Premium.

Integrated Amplifiers Line Magnetic LM-518 IA, Rogue Audio Sphinx, Schiit Audio Ragnarok.

Loudspeakers DeVore Fidelity Orangutan O/93 & Gibbon 3XL, Falcon Acoustics LS3/5a, KEF LS50, Technics SB-C700.

Cables Interconnect: AudioQuest Cinnamon & Big Sur & Golden Gate, Auditorium 23, Kimber Kable Silver Streak, Wireworld Silver Eclipse 7. Speaker: AudioQuest Type 4 & GO-4, Auditorium 23. AC: AudioQuest NRG-2.

Accessories AudioQuest Niagara 1000 Low-Z power conditioner, PS Audio PerfectWave Power Base, Sound Anchor stands, Dr. Feickert Analogue Protractor NG & Adjust+ software, Acoustical-Systems SmarTractor cartridge-alignment protractor, Musical Surroundings Fozgometer azimuth-range meter, Moongel stylus cleaner, Shure stylus-pressure gauge.—Herb Reichert

Forget the Diamond's modest price. This humble wooden box is actually a connoisseur-level audio component. It could satisfy any sane music collector for decades. I liked the way the Diamond 225 played music more than I did the Elac Debut B6 (now \$229.99/pair—reduced from \$279.99/pair), which I reviewed in the March 2016 issue.⁴ The Elac is extremely good, and it does many things, including soundstaging and resolution, better than the Diamonds. But the Diamond 225 played music with more blushes and warm-blooded charm than the Debut B6. The Wharfedale felt more soulful and relaxed.

The Diamond 225 had a pacey, easy-flowing transparency that made my KEF LS50s sound slightly thick, my Technics SB-C700s sound slightly dry, my Falcon Acoustics LS3/5As sound a mite bright. I was hoping I wouldn't have to say those things, but that's what I heard.

The Wharfedale's biggest faults seemed to be a modicum of puffy vagueness in the lowest and highest octaves, and a little recession in the presence region. Together, these traits robbed the Diamond 225 of some precision, sharp focus, and punch.

At the beginning of my listening, I was impressed by the easy-flowing naturalness of the Diamond 225's sound. Then I thought its Kevlar cone was too audible. Then, while playing Pepe Romero's album of Rodrigo compositions for solo guitar, it was as if the speakers had walked over and kissed me. And *then*, when I played the Bartók piano concertos, I leaned back, smiled, and let out my breath. I've been smiling like that, and dreaming, ever since. Highly recommended. ■

³ See www.classic-choice.co.uk/collectorsguide.asp.

⁴ See www.stereophile.com/content/elac-debut-b6-loudspeaker.



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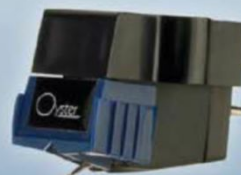
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 Output : 2mV
 Internal Ohms: 130Ω/1kHz
 Loading : 47kΩ
 Weight : 5.0 grams
 Tracking : 2.0 grams
 Magnets : Alnico



HANA EL
\$475

Stylus : Elliptical
 Output : 0.5mV
 Internal Ohms: 30Ω/1kHz
 Loading : >400Ω
 Weight : 5.0 grams
 Tracking : 2.0 grams
 Magnets : Alnico



HANA SH
\$750

Stylus : Shibata
 Output : 2mV
 Internal Ohms: 130Ω/1kHz
 Loading : 47kΩ
 Weight : 5.0 grams
 Tracking : 2.0 grams
 Magnets : Alnico



HANA SL
\$750

Stylus : Shibata
 Output : 0.5mV
 Internal Ohms: 30Ω/1kHz
 Loading : >400Ω
 Weight : 5.0 grams
 Tracking : 2.0 grams
 Magnets : Alnico



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Aerial Acoustics 5T

LOUDSPEAKER

Long-lived loudspeaker models are rare. So it's surprising that the two-way, stand-mounted Model 5, the smallest speaker made by Massachusetts-based Aerial Acoustics, was revised just once between 2015 and April 1997, when Robert Harley favorably reviewed it¹ and it cost \$1800/pair. The revised 5B was equally favorably reviewed by John Marks in July 2009.² This kept the original's 1" titanium-dome tweeter and sealed-box woofer loading but replaced the 7" polypropylene-cone woofer with a 7.1" laminated-fiber-cone woofer. Despite more than a decade's worth of inflation, the price rose only slightly, to \$2400/pair. However, at the 2016 Consumer Electronics Show, Aerial Acoustics announced the 5T. While this, too, is a two-way stand-mounted design, gone was the sealed-box loading: the 5T's cabinet has a slot port at the base of the baffle. Gone, too, was the conventional rectangular box—the 5T's enclosure's graceful curves are formed by bonding together multiple layers of wood under high pressure for 48 hours. Also gone was the metal-dome tweeter, high frequencies now being reproduced by the 1" ring-radiator tweeter used in Aerial's three-way 7T

The Aerial 5T had a similar balance to the KEF LS50, but played louder and deeper.

tower, favorably reviewed by Kal Rubinson in March 2012.³ The woofer is now a 6.7" drive-unit custom-made for the 5T and featuring a papyrus-blend cone. And the price is now \$3795/pair.

The 5T's drive-units are crossed over with what Aerial



MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Aerial 5T's frequency response in the farfield, and an Earthworks QTC-40 for the nearfield and in-room responses. The 5T's voltage sensitivity is specified as 87dB/2.83V/m; my estimate was somewhat lower, at 85.2dB(B). The Aerial's nominal impedance is specified as 4 ohms, with a minimum magnitude of 3 ohms. My measurement was significantly different, with a magnitude (fig.1, solid trace) that dipped below 6 ohms in just two regions—between 29 and 54Hz and between 110 and 310Hz—and a minimum value of 4.28 ohms at 160Hz. The electrical phase angle (fig.1, dotted trace) is occasionally extreme, and the

combination of 6 ohms and -38° at 108 ohms means a good 4 ohm-rated amplifier would be the best match for this speaker. The impedance traces are also unusual in that they seem atypical of a two-way design, which usually has a single impedance peak in the low treble due to the crossover filters. The 5T's magnitude trace has a second peak, centered on 5kHz, that suggests the presence of some sort of equalization network.

The impedance traces are free from the discontinuities that would imply the presence of cabinet-panel resonances, and the 5T's graceful-looking enclosure was indeed inert. The only resonant modes I could find, present on the top panel and both sidewalls, lay at 594Hz (fig.2), but these were very low in level.

The saddle centered just below 40Hz in the impedance-magnitude trace suggests that the tuning frequency of the slot port on the front baffle lies in this region. A nearfield measurement of the woofer's output (fig.3,

Stereophile Aerial 5T Impedance (ohms) & Phase (deg) vs Frequency (Hz)

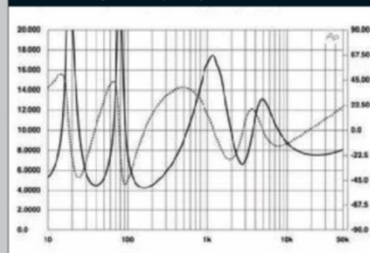


Fig.1 Aerial 5T, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

describes as “high-order multi-element” filters. The speaker’s baffle is decoupled to some extent from the enclosure with damping glue, and slopes back at a gentle angle. The cabinet walls are cross-braced, and the interior is filled with long-fiber New Zealand wool that Aerial says was “specifically chosen for its sonic character.” The review samples were finished in High Gloss Rosenut veneer, which looked stunning coupled with the gloss-black baffle. A Nero Metallic Black finish is available for the same price, but the premium High Gloss Ebony veneer adds \$400 to the price of a pair. Like all Aerial Acoustics speakers, the 5T is engineered and assembled in America.

Listening

As I did with the Bowers & Wilkins 805 D3, which I also review in this issue, I used 24"-high Celestion stands with the Aerials, with small pads of Blu-Tack separating the speakers from the stands’ top plates. (I left in place the small spikes that were fitted to each speaker; they cleared the top plate of the Celestion stand.) The center pillars of the stands were filled with a mix of sand and lead shot, and their bottom plates were spiked to the wooden floor beneath the carpet. The speakers were single-wired using the supplied jumpers, and toed-in to the listening seat, and I didn’t use the grilles.

Aerial recommends placing the 5Ts between 2" and 24" from a wall, but I began with the speakers placed

where the B&Ws had sounded best: well away from the room’s boundaries. However, while the midbass was still acceptably high in level, the upper bass sounded too warm (see the “Measurements” sidebar). After some experimentation, I positioned the left speaker 36" from the closest sidewall and the right speaker 49" from its closest sidewall, both 75" from the wall behind them. While this placement sacrificed some low-frequency weight, it resulted in evenly balanced bass, and maximized the stability and accuracy of the stereo imaging—an area in which, I found, the Aerials excelled.

The dual-mono pink-noise track from *Editor’s Choice* (CD, Stereophile STPH016-2) was reproduced with a stable, well-defined central image, but as I moved my head from side to side, I heard a bit of what the late J. Gordon Holt used to call “vertical venetian blinding”—a complicated interference pattern. If I sat up straight so that my ears were above the tweeter axis, the sound began to hollow out; but if I slouched in my chair, the pink noise started to sound a little midrange-prominent. To get the most neutral balance, the stands used with the 5Ts should place the listener’s ears level with the tweeters.

Even then, however, the high frequencies were somewhat reticent, especially in comparison with the B&Ws, which I described as being “brilliant.” David Gilmour’s “unplugged” version of “Comfortably

Numb” with Robert Wyatt, from Gilmour’s *In Concert: The Meltdown Concert from June 2001* (16-bit/44.1kHz ALAC file ripped from DVD-V, Capitol 92960 9), sounded a bit on the mellow side. The Aerial 5T had a similar balance to the KEF LS50, which I reviewed in December 2012,⁴ but played louder and deeper.

How much deeper? The low-frequency, $\frac{1}{3}$ -octave warble tones on *Editor’s Choice* were reproduced at full level down to the 63Hz band, with the 50 and 40Hz warbles shelved down, but not quite as much they were with the KEFs. The 32Hz tone was just audible, those at 25 and 20Hz missing in action. However, despite my misgiving about the slot port, no wind noise was audible at 32Hz or below, though I could feel the air moving with my hand. The half-step-spaced tonebursts on *Editor’s Choice* played evenly and with good control throughout the upper bass and midrange, and though I could hear some emphasis of the tones between 500 and 1000Hz with my ear close to the port, this was not noticeable at the listening position.

Piano is always good at revealing midrange problems, but when I played Daniel Barenboim’s recent solo

1 See www.stereophile.com/standloudspeakers/649/index.html.

2 See www.stereophile.com/standloudspeakers/aerial_model_5b_loudspeaker/index.html.

3 See www.stereophile.com/content/aerial-acoustics-model-7t-loudspeaker.

4 See www.stereophile.com/content/kef-ls50-anniversary-model-loudspeaker.

blue trace) reveals a minimum-motion notch at 38Hz. This is the frequency at which the woofer cone is held stationary by the back pressure from the port resonance, and the port’s output (fig.3, red trace) does peak broadly between 20 and 100Hz. However, a strong peak between 700 and 800Hz in the

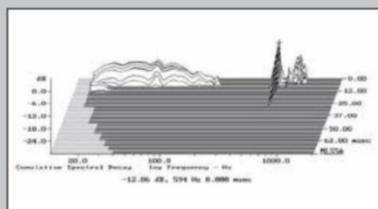


Fig.2 Aerial 5T, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of sidewall (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

port’s response coincides with a small suckout in the woofer’s farfield output (blue trace above 350Hz). The woofer crosses over to the tweeter (green

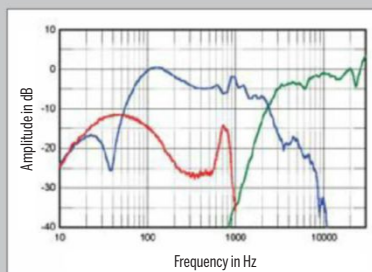


Fig.3 Aerial 5T, acoustic crossover on tweeter axis at 50°, corrected for microphone response, with nearfield responses of woofer (blue) and port (red), respectively plotted in the ratios of the square roots of their radiating areas below 300Hz and 1kHz.

trace) close to the specified 2.7kHz with steep filter slopes.

The tweeter appears to be set 2-3dB too high in level, but when the 5T’s

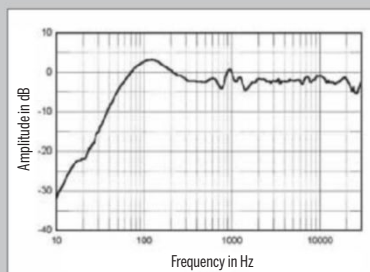


Fig.4 Aerial 5T, anechoic response on tweeter axis at 50°, averaged across 30° horizontal window and corrected for microphone response, with complex sum of nearfield woofer and port responses plotted below 300Hz.

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recording of Liszt's arrangement of "Solemn March to the Holy Grail," from Wagner's *Parsifal*, from Barenboim's *On My New Piano* (16/44.1 Tidal stream, Deutsche Grammophon 289 479 6724), I could hear nothing amiss. And the tolling in the left-hand register of Barenboim's unique straight-strung piano, developed in collaboration with instrument maker Chris Maene, sounded suitably majestic with the MBL Corona C15 monoblocks driving the Aerials. The bass guitar in "Black Magic Woman," from MoFi's "One-Step" reissue of Santana's *Abraxas* (2 45rpm LPs, Columbia/Mobile Fidelity Sound Lab MFSL-2-45013), spoke with authority in its lower register. This track segues into "Gypsy Queen"; when it did, Michael Shrieve's kick drum had the necessary impact.

I have no memory of downloading "#thatPower," by will.i.am and Justin Bieber (16/44.1 FLAC, from *#will-power*, Interscope), but there it was on the Aurender server. The kick drum and bass synth are mixed so high in this track that I had to get up from my chair and dance, but even as I did, I was impressed with the Aerials' superb bass control. This is a relatively small speaker, of course, and the maximum

Through the Aerial 5Ts "Shipbuilding" sound- ed simply magnificent.

SPL I could achieve with "#thatPower" was 94dB(C), measured with Studio Six Digital's SPL iPhone app set to Fast. I was tempted to turn up the volume, as I'd done with the B&Ws.

My doing so, however, gave rise to trouble when I then played "Vultures," from the John Mayer Trio's *Where the Light Is: John Mayer Live in Los Angeles* (16/48 ALAC file ripped from DVD-V, Sony 8697-722727-9): At the level this old rocker like to play this track, Steve Jordan's kick drum in the opening drum pattern drove the 5Ts' woofers against their end stops. But up to that point, there had been no hint that the 5T was running out of bass headroom.

Of course, it's fair to say that the 5T is not intended for playing dance music at head-banging levels. What it does do is present near-holographic stereo images. In Vaughan Williams's *Fantasia on a Theme by Thomas Tallis*, from the Trondheim Soloists' *Reflections* (MQA-encoded 24/352.8 FLAC file, 2L 2L-125), the clarity with which the tune

SPECIFICATIONS

Description Two-way, stand-mounted, port-loaded loudspeaker. Drive-units: 1" (25.4mm) ring-radiator tweeter, 6.7" papyrus-blend-cone woofer. Crossover frequency: 2.7kHz. Frequency response: 48Hz-25kHz, ± 2 dB. Sensitivity: 87dB/2.83V/m. Nominal impedance: 4 ohms. Minimum impedance: 3 ohms. Recommended amplification: 25-200W.

Dimensions 15" (380mm) H by 7.9" (200mm) W by 12.6" (323mm) D. Weight: 23 lbs (10.45kg) each, 56 lbs/pair (25.45kg/pair) shipping.

Finishes High-gloss Rosenut or Ebony, Nero metallic black.

Serial numbers of units reviewed 054145, 054146.

Price \$3795/pair; high-gloss Ebony finish, add \$400/pair. 24" or 28" stands cost \$500/pair. Approximate number of dealers: 50.

Manufacturer Aerial Acoustics Corporation, 100 Research Drive, Wilmington, MA 01887.

Tel: (978) 988-1600.

Web: www.aerialacoustics.com.

measurements, continued

farfield response is averaged across a 30° horizontal window (fig.4) the speaker's treble response is superbly flat. However, there is a complicated pattern of small peaks and suckouts between 500Hz and 1.5kHz, perhaps related to the port resonance noted above. The rise in the upper bass is due to the nearfield measurement technique, which assumes a 2pi acoustic environment. The Aerial 5T's ported woofer alignment is tuned for articulation rather than boom.

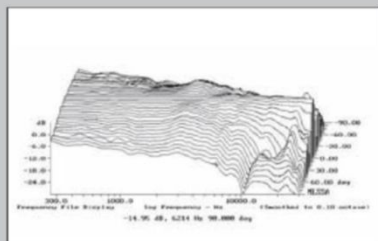


Fig.5 Aerial 5T, lateral response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 90-5° off axis, reference response, differences in response 5-90° off axis.

The plot of the Aerial's lateral dispersion (fig.5) reveals that its output above 7kHz does drop off rapidly to the speaker's sides. The contour lines in this graph are smooth, though the slight excess of energy to the speaker's sides in the low treble might make the 5T sound slightly bright in live rooms. In the vertical plane (fig.6), a suckout develops in the crossover region more than 5° above the tweeter axis, which suggests that the Aerial be used on high rather than low stands.

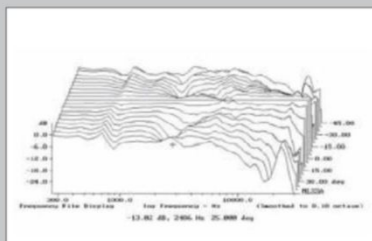


Fig.6 Aerial 5T, vertical response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 45-5° above axis, reference response, differences in response 5-45° below axis.

The 5T's spatially averaged in-room response (fig.7, red trace, taken with the speakers in the initial positions in the room) shows a generally smooth balance, though there is a slight excess of energy in the region where the lateral-dispersion plot showed a slight off-axis flare. Compared with the BBC LS3/5a (blue trace), the Aerial lacks the small peak between 1 and 2kHz, which adds a touch of nasality to the LS3/5a's sound, but the American speaker's limited top-octave dispersion

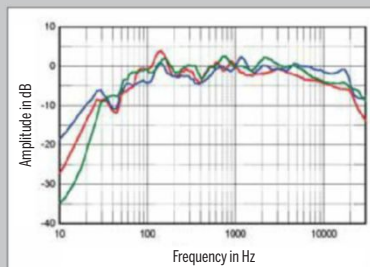


Fig.7 Aerial 5T, spatially averaged, 1/6-octave response in JA's listening room (red); of KEF LS3/5a (green); and of BBC LS3/5a (blue).

is handed off from one member of the solo quartet to another, each solidly and stably defined in the space between and behind the speakers, was close to being as good as I've heard in my room.

Since recording an arrangement for male voice choir of Eric Whitacre's *Lux Aurumque* in 2007, I have been collecting recordings of his choral works. A recent purchase as 24/96 Apple Lossless files from HDtracks is *Water Night* (Decca 001663602), an album of the composer conducting his own works. The performance for double choir by the Eric Whitacre Singers of *When David Heard*, the Hebrew king's lamentation on the death of his son Absalom, is definitive. From simple scale passages, Whitacre builds tone clusters that might be thought dissonant but are instead delicious. Aided by the clarity and solid stereo imaging of the 5Ts, I could readily hear how, at the first *adagio*, the staggered entries of the singers on the words *my son* under a held A-natural in the sopranos built a climactic atonal block chord expressing David's anguish. And when each singer subsequently re-enters across the stage, beginning with a solo tenor on the right, the vocal fragments paint the reverberant acoustic with the spatial equivalent of that block chord. *This is*



When used within their dynamic envelope, the Aerial 5Ts will excel at painting stable, musically convincing sonic pictures.

measurements, continued

results in less high-treble energy in-room. At the other end of the spectrum, the Aerial has more upper bass, but its ported alignment results in a faster rolloff in the midbass and below. In both respects, the 5T resembles the KEF LS50 (green trace).

Compared with the Bowers & Wilkins 805 D3, which I also review in this issue (fig.8, blue trace), the Aerial 5T (red) has a similar in-room response to the British speaker in the

midrange and upper bass, but more energy in the midbass and below. It lacks the B&W's depressed presence region, but the mid- and upper-treble regions are significantly lower in level. The two speakers did indeed sound as you would expect from this graph. With my room's increasing absorptivity in the treble, while the Aerial's balance was not as "brilliant" as the B&W's, the 5T's was closer to being truly neutral.

In the time domain, the Aerial's step

response on the tweeter axis (fig.9) reveals that both of its drive-units are connected in positive acoustic polarity, but the tweeter's step blends smoothly with the woofer's. The 5T's cumulative spectral-decay plot (fig.10) features superbly clean decay throughout the treble, but some delayed energy at the frequencies of the small peaks in the upper midrange in the quasi-anechoic farfield response.

Other than its port's peaky midrange output, Aerial's 5T demonstrates excellent speaker engineering. —John Atkinson

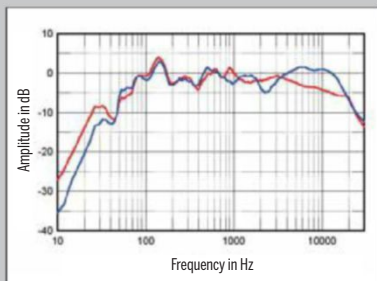


Fig.8 Aerial 5T, spatially averaged, 1/6-octave response in JA's listening room (red) and of Bowers & Wilkins 805 D3 (blue).

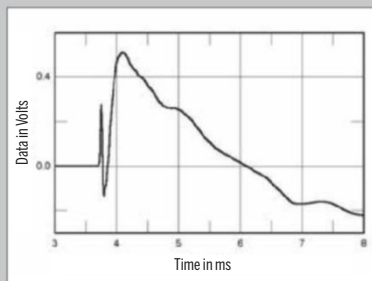


Fig.9 Aerial 5T, step response on tweeter axis at 50° (5ms time window, 30kHz bandwidth).

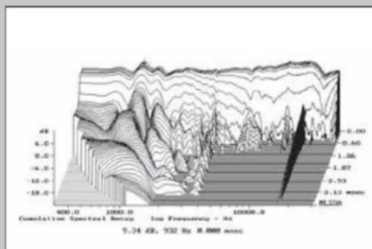


Fig.10 Aerial 5T, cumulative spectral-decay plot on tweeter axis at 50° (0.15ms risetime).

ASSOCIATED EQUIPMENT

Analog Source Linn Sondek LP12 turntable with Lingo power supply, Linn Ekos tonearm, Linn Arkiv B cartridge.

Digital Sources Aurender N10 music server; Ayre Acoustics C-5xe^{MP} universal player; dCS Rossini CD player & Rossini Clock; PS Audio PerfectWave DirectStream D/A converter with Bridge II network adaptor; Meridian UltraDAC; AudioQuest JitterBug, UpTone Audio ReGen USB cleaner-uppers; Mac mini running Pure Music 3, Audirvana, Twonky server; iPad Mini running PlugPlay, Aurender apps; Ayre Acoustics QA-9 USB A/D converter.

Phono Preamplifier Channel D Seta L.

Power Amplifiers MBL Corona C15, Pass Labs XA60.5 (both monoblocks).

Loudspeakers Bowers & Wilkins 805 D3, Rogers LS3/5a, KEF LS50.

Cables Digital: AudioQuest Coffee. USB: Canare AES/EBU. Interconnect (balanced): AudioQuest Wild Blue, Cardas Clear. Speaker: Kubala-Sosna Elation!. AC: Kubala-Sosna Elation!, manufacturers' own.

Accessories Target TT-5 equipment racks; Ayre Acoustics Myrtle Blocks; ASC Tube Traps, RPG Abffusor panels; Shunyata Research Dark Field cable elevators; Audio Power Industries 116 Mk.II & PE-1 AC line conditioners (hard drive, computers). AC power comes from two dedicated 20A circuits, each just 6' from breaker box.

—John Atkinson

how a pair of speakers with superbly accurate and stable stereo imaging can serve the music.⁵

I ended my final listening session with the Aerial 5Ts with “Shipbuilding,” from *The Very Best of Elvis Costello* (16/44.1 ALAC file ripped from CD, Universal Music). I first heard this

song, written during the Falklands Conflict in 1982, performed by Robert Wyatt on a 12" single, but Costello's version has been in constant rotation here for 30 years now. With suck-and-blow compression on the piano, Chet Baker's solo trumpet treated with repeat echo, Costello's voice balanced

preternaturally forward in the mix, and strings, organ, and drums all presented in different acoustics, there is *nothing* natural about the sound of this track. But through the Aerial 5Ts it sounded simply magnificent, Costello palpably hanging in space in front of me, the sound pulling me into the irony of the lyrics, which contrast the sinking of warships and the drowning deaths of sailors in the South Atlantic with the concomitant prosperity brought to shipyards back home. Magnificent.

Summing Up

The 5T lives up to Aerial Acoustics' reputation for producing fine-sounding, well-balanced loudspeakers. Though the price increase over its predecessor is a little alarming, the new speaker's fit and finish are superior to the original's more utilitarian appearance. When used within their dynamic envelope—these are *not* speakers for parties or dancing—the Aerial 5Ts will excel at painting stable, musically convincing sonic pictures between and behind them. ■

⁵ This performance, illustrated with an animated score, can be heard at <https://www.youtube.com/watch?v=dQBNDnrS8HY>.

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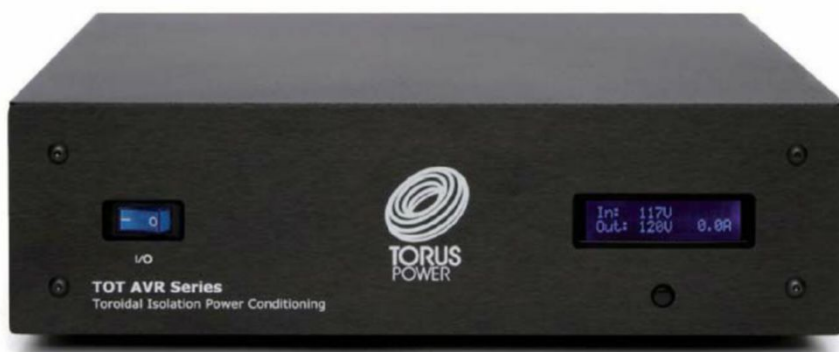
Torus Power TOT AVR

POWER CONDITIONER

Merriam-Webster's 11th Collegiate Dictionary defines *tot* as "1: a small child: TODDLER; 2: a small drink or allowance of liquor: SHOT." Torus Power used it to name their compact line of toroidal power conditioners. Although small in size, weight, and price, the TOT AVR includes the Automatic Voltage Regulation referred to in its name, as well as noise filtering and smart Ethernet control, and is available with series-mode surge suppression (SMSS) circuit protection.

Kevin Main, president of Torus Power, joined me for lunch in Las Vegas during the 2016 Consumer Electronics Show, to tell me the story of the TOT AVR. It began with a call from one of their Mexican sales representatives. Mexico City, where the nominal voltage is 127V, suffers from daily voltage variations, with swings from 85V to 145V that repeatedly stress the amplifier sections of stereo receivers, which eventually fail. Simply preventing voltage spikes can't protect electronics from wide variations in voltage that happen slowly, over minutes. Torus Power's AVR-15 power conditioner (\$3500) could stabilize the line voltage but proved too expensive, too big, and too heavy (56 lbs) to appeal to the owners of \$1200 stereo receivers. Torus's engineers adapted the AVR-15 into a lower-amperage design in a much smaller, lighter, and less expensive package that regulated voltage while also protecting against surges

and spikes, and called it the TOT AVR (\$2299). When it began shipping, in October 2016, customer response was strong, and Mexico City audiophiles were safe at last. At the end of this tale, Main offered me a review sample. I eagerly accepted. As the review progressed, I became aware of the TOT AVR's considerable strengths—as well as its limits.



Simply preventing voltage spikes can't protect from wide variations in voltage.

History and Description

The parent company of Torus Power is Plitron,¹ a 30-year-old Toronto company that builds power-supply transformers for Bryston, Krell, Mark Levinson, and Pass Labs amplifiers. At the time, Bryston also marketed a line of Plitron freestanding Power Isolation Units (PIUs) under the brand name Torus Power that combined surge suppression with AC-line noise filtering to provide clean AC power and protection from voltage

spikes. The parent company of Torus Power is Plitron, a 30-year-old Toronto company that builds power-supply transformers for Bryston, Krell, Mark Levinson, and Pass Labs amplifiers. At the time, Bryston also marketed a line of Plitron freestanding Power Isolation Units (PIUs) under the brand name Torus Power that combined surge suppression with AC-line noise filtering to provide clean AC power and protection from voltage

¹ Since February 2016, Torus Power has been independent of Plitron, and now has its own network of distributors and dealers.

SPECIFICATIONS

Description AC power isolation transformer and voltage regulator with six AC outlets. Nominal input voltage: 120V. Undervoltage limit: 85V (US). Overvoltage limit: 135V (US). Input frequency: 60Hz, ± 3 Hz. Input fuse: 10A, 250V. Output voltages: 120V, ± 5 V (US). Maximum continuous current output: 10A. Power VA/maximum continuous load: 1200VA (US). Output impedance:

<2 ohms. Efficiency at 1200VA: <1200VA resistive load, >99.6%; reactive load, >99.6%. Noise reduction: Narrow Bandwidth Technology (NBT) circuit using transformer as low-pass filter attenuating common-mode and differential-mode noise by >50dB, 2kHz-1MHz. Protection modes: L-N (line protected from neutral), L-G (line protected from ground), but not N-G (neu-

tral from ground), as neutral doesn't run through transformer. Series Mode Surge Suppression (SMSS) protection option: 6000V/3000A for 1000 repeats.

Dimensions 12.5" (318mm) W by 4" (101mm) H by 14.5" (369mm) D. Weight: 35.2 lbs (16kg).

Finishes Silver or black faceplate, black or white case.

Serial number of unit reviewed 201543-4690.

Price \$2299 (\$2549 as reviewed, including SMSS board). Options: Series Mode Surge Suppression (SMSS) board, \$250; rack-mount kit, \$79. Approximate number of dealers: 250. **Manufacturer** Torus Power, 2861 Sherwood Heights Drive, Unit 26, Oakville, Ontario L6J 7K1, Canada. Tel: (877) 337-9480, (416) 477-4799. Web: www.toruspower.com.

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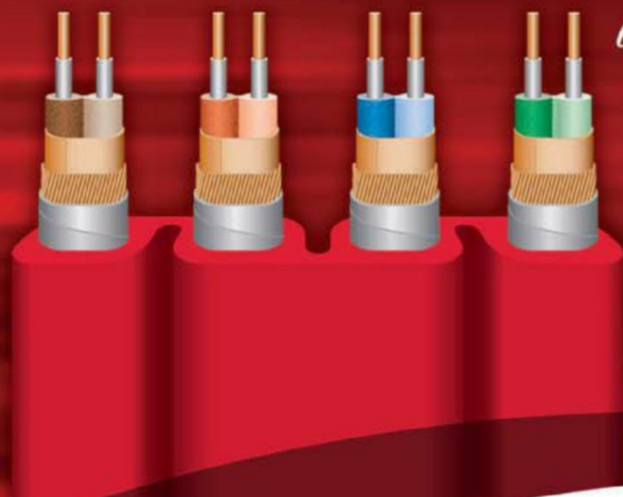
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spikes. Torus Power now manufactures three TOTs: the six-outlet TOT Mini, with a maximum current input limit of 7A, a power rating of 805VA, and a weight of 25.5 lbs; the eight-outlet TOT Max (15A, 1725VA, 50 lbs); and the six-outlet TOT AVR (10A, 1200VA, 35.2 lbs). The TOT AVR is 48.9 lbs lighter, 6.5" narrower, 2.5" shallower, 2.3" shorter, and \$1300 cheaper than the Torus Power RM 20 I've used for the last eight years.² Unlike the RM 20 and the two other TOTs, the TOT AVR can also regulate the AC line voltage so that it remains at 120V, $\pm 5V$.

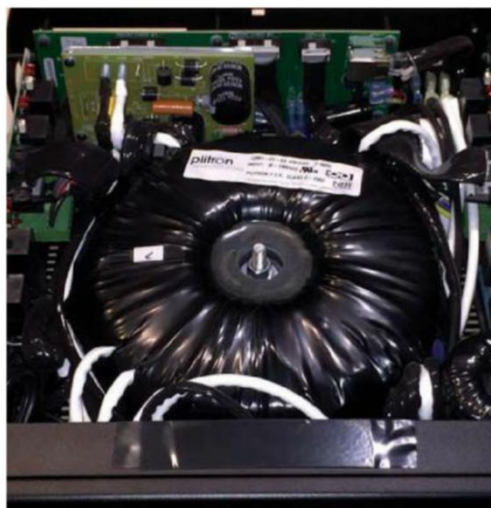
On the left of the TOT AVR's front panel is a large, illuminated power toggle switch; on the right is a two-line LCD display. A pushbutton below that screen switches between displays of the input voltage, output voltage, RMS current load, and the IP address of the TOT's internal webpage. The raked rear panel gives a good view of the TOT's six hospital-grade NEMA 5-15 AC outlets, an Ethernet jack, an RS-232 input for automation and external control, a 12V trigger on/off input, and a 12V fault output. There's also a courtesy USB charger outlet, a bay for a 10A fuse, and an IEC 320-C14 inlet for the three-pronged, 14AWG AC cord. Each of the TOT's six AC sockets is claimed to present a lower impedance source—often less than 2 ohms—than do most wall outlets.

The TOT's compact interior is dominated by an oversize, shock-mounted, 1200VA toroidal transformer attached by a pole piece to the bottom plate. This transformer is wrapped in Mylar tape, and has a Neoprene mount. It uses a triple-ground screen that functions as a low-pass filter to isolate the primary from the secondary windings in a way that is said to attenuate differential and common-mode, 2kHz–1MHz line noise from motors, lights, and dimmers. The TOT AVR's startup delay function protects electronics plugged into it when power is restored following a blackout.

The little remaining interior space is occupied by two smaller sensing transformers for the AVR stabilizer circuit, a board for other AVR components, and the optional SMSS board installed in my review sample (\$250). The internal wiring is large-gauge and carefully dressed, with sturdy push-on connectors for easy servicing. Any open electrical contacts are shielded with additional insulation. All wiring and components look extremely rugged, and the large wire gauge, quality of connectors, and shielding all appear topnotch—as good as any I've seen in high-end power amplifiers.

Circuitry and Function

The TOT AVR's Automatic Voltage Regulation (AVR) circuit is designed to maintain a stable voltage output of 120V, $\pm 5V$, within a range of 85–135V. As the line voltage changes, the AVR's microprocessor-based system switches among nine different transformer taps to maintain the 120V output. (A 20-second delay is built into the AVR system.) If the incoming voltage goes above or below the 85–135V range (high or low), the TOT shuts itself down. Internal software allows the TOT AVR to access the Web via its Ethernet



The TOT AVR's interior is dominated by an enormous Plitron transformer.

port, giving the user the ability to monitor and control its operation when away from home.

The optional Series Mode Surge Suppression (SMSS) board provides rapid, reliable, repeatable protection from voltage surges; in TOT AVRs sold in the US, the SMSS circuit clamps the voltage instantly if it rises more than 2V above the 135V limit. This replaces the TOT's standard metal-oxide varistors (MOVs), which Torus describes as "sacrificial" because they absorb the voltage surge by instantly dropping their resistance to zero, which they can handle for just a few cycles before being destroyed. Torus claims that the SMSS circuit provides reliable protection against voltage spikes of up to 6000V, current surges of up to 3000A, for up to 1000 repeated electrical events.

This capability protects audiophile equipment not only from Mexico City's overvoltage surges, but also from lightning strikes. The manual points out that the SMSS works only if the TOT AVR is left powered up, and warns that it is not designed to protect against any voltage irregularities that can occur during power blackouts and later restoration of power.

Setup

The TOT AVR had been designed for products whose current draw would not exceed its 10A limit. My Mark Levinson No.334 stereo amplifier can draw 5–6 amps to drive my 4 ohm Revel loudspeakers—well within the TOT's 10A limit. For example, the steady-state current draw of my No.334 amp never exceeded 9A (sustained) when playing the bass-heavy "Deeper Well," from Emmylou Harris's *Spyboy* (CD, Eminent 25001-2). On the other hand, each of my two JLA Audio Fathom f212 v2 powered subwoofers contains an amplifier capable of short-term output of 3600W—three times the TOT's spec of 1200VA. Brett Hanes, Home Audio Product Engineer for JLA, stated that the f212 v2 rarely exceeds peaks of 1000W with music, and thought the TOT AVR could handle the load. He proved to be correct. Even so, I kept a close eye on the TOT AVR's display, to track the steady-state current draw.

Installation involved placing the 35.2-lb TOT AVR atop the larger Torus RM-20, where it would get adequate ventilation. At different times, I plugged the cords of a variety of components into the TOT AVR's rear-panel jacks, with its own detachable power cord plugged into the wall. The TOT AVR supplied power to my Mark Levinson No.334 dual-mono stereo amplifier (125Wpc into 8 ohms), a Mark Levinson No.585 integrated amplifier (200Wpc into 8 ohms), my two JLA Fathom subs, and JLA's CR-1 electronic crossover (30W). Later, I plugged into it a pair of Mark Levinson No.536 monoblocks (400W into 8 ohms).

Sound

With the TOT AVR feeding my reference system of a Mark

² See my review of the Torus Power RM 20 in the January 2008 issue: www.stereophile.com/powerlineaccessories/108torus/index.html.

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TORUS POWER TOT AVR



Levinson No.334 stereo amplifier driving a pair of Revel Ultima Salon2s speakers, I heard subtle improvements in imaging, soundstage depth, and instrumental timbres, as well as in dynamic range, resolution, and tonal balance. The TOT created jet-“black” backgrounds that enhanced the three-dimensionality of images even when dynamics were extreme or the volume was loud. Removing the TOT AVR from my system made me aware of the slight line noise from my wall outlets. This was most evident when I listened to the prominent bongo drum that opens “Hotel California,” from the Eagles’ *Hell Freezes Over* (CD, Gefen GEFD-24725). Without the line noise, the drumbeats at center stage that anchor this passage were more clearly defined and separate from the crowd noise. The similarly massive bass chord that cuts in just after the opening of Emmylou Harris’s “Deeper Well,” from *Spyboy* (CD, Eminent 25001-2), was focused front and center, allowing me to hear her voice and the drums separately, farther back on the stage.

As I played music, the TOT AVR displayed the Mark Levinson No.334 amplifier’s current draw in real time. With no signal present and the amplifier idling, the current showed as 0.5A. The ML No.536 monoblocks raised the current draw at idle to 5A. “The Maker,” also from *Spyboy*, drew a continuous 6.4A from the No.334, and 11A from the ML No.536s. John Rutter’s *Lord, Make Me an Instrument of Thy Peace* pulled 2.6A, and his *Piè Jesu* drew 1.7A—both from *Requiem*, with Timothy Seelig conducting the Turtle Creek Chorale (CD, Reference RR-57CD)—and roughly twice those figures from the No.536s. The dense, solid bass-drum notes that erupt from Eiji Oue and the Minnesota Orchestra’s recording of Stravinsky’s *The Rite of Spring* (24-bit/176kHz PCM file, Reference RR-70) drew 7.5A from the No.334 and 12.6A from the No.536s.

Red, raked, and ready: the TOT AVR’s six sockets.

Incidentally, as I played this recording, the TOT AVR’s display reported a

drop in the line voltage to 110V, even as it maintained an output voltage of 123V.

I inadvertently confirmed the TOT AVR’s specified upper current limit of 1200W, 10A when I pushed the No.536s—each capable of drawing 1000W—even harder than I had before. During “Deeper Well,” the Torus’s display read 16A. The two No.536 monoblocks and Revel Ultima Salon2 speakers continued to show off their jaw-dropping dynamic range against noiseless backgrounds. But my joy was short-lived—the TOT AVR soon shut down. I removed the top plate, and while I saw no evidence of damage and there was no smell of burning parts, I couldn’t get the TOT AVR to turn back on. My digital multimeter confirmed that the TOT AVR’s 10A ceramic fuse had blown. A quick trip to Home Depot scored a new Eaton Bussmann fABC-10, a fast-acting, 10A ceramic fuse designed for use in microwave ovens. The TOT AVR instantly revived, no worse for wear.

Comparisons

My eight-year-old, 10-outlet Torus Power RM 20 (current price \$3299) uses the same filtering and toroidal-transformer isolation as the TOT AVR, and produces most of the same improvements in line-noise suppression, tonal balance, and resolution. On the other hand, the much smaller TOT AVR did a better job of improving the three-dimensionality of my system’s sound, and its reproduction of detail and palpability of imaging—but it did blow that fuse when supplying AC to my Levinson No.536 monoblocks. The RM 20 never broke a sweat.

I compared the AVR TOT’s specs and price with those of other power conditioners listed in *Stereophile*’s

"Recommended Components." All sport the same important features: line-noise filtering, surge suppression, an isolation transformer, and the use of non-MOV circuits to provide protection from voltage spikes following lightning strokes. PS Audio's Power Plant Premier AC Regenerator (36 lbs, 10 outlets, \$2195)³ matched the TOT AVR's 1200VA power rating, while PSA's newer PerfectWave P10 Power Plant AC Regenerator (82 lbs, 10 outlets, \$4999) can handle power up to 1500VA.⁴ AudioQuest's Niagara 7000 Low-Z Power Noise-Dissipation System (81 lbs, 2400VA, 12 outlets, \$7995), which shares many of the TOT AVR's features but can handle up to twice the power, was voted *Stereophile's* Joint Accessory of the Year for 2016.⁵ Audience LLC's AdeptResponse aR12-TS (15 lbs, 2400VA, 12 outlets, \$8995) includes non-MOV voltage-spike protection, line filtering, and power-factor correction.⁶ Setting aside the higher power-handling abilities and list prices of these recommended models, the TOT AVR provides most of their key operating features in a smaller, lighter, less expensive, lower-current package that also offers automatic voltage regulation.

Conclusions

The more I lived with Torus Power's TOT AVR, the more it delighted me. I enjoyed its modest size, moderate weight, and reasonable price, as well as the peace of mind of knowing that my

gear was safe from lightning. Its build quality is first-rate, and its feature list is more practical than exotic. In my system, the TOT AVR improved musical detail and three-dimensional imaging for a wide range of music. And did I say that I like its low price? As with the Apple iPad, I couldn't have imagined how much this little power conditioner could become a necessary part of my audio system until I'd lived with it for nearly a year.

The TOT AVR's only limitation is its power capacity. When considering adding a power conditioner—especially this one—to an audio system, the buyer should make sure its specs match the system's requirements. This means that the TOT AVR should not be used in systems whose steady-state current demands exceed 10A. For such systems—eg, my own when my 400W monoblocks are in use—use a 2400W-rated power conditioner such as AudioQuest's Niagara 7000, Audience's AdeptResponse aR12-TS, or Torus's own RM 20. Otherwise, I highly recommend the TOT AVR. ■

3 See Robert Deutsch's review in the February 2009 issue: www.stereophile.com/powerlineaccessories/ps_audio_power_plant_premier_ac_regenerator/index.html.

4 See Jim Austin's Follow-Up in the July 2016 issue: www.stereophile.com/content/ps-audio-perfect-wave-p10-power-plant-ac-regenerator.

5 See Michael Fremer's "Analog Corner" in the February 2016 issue: www.stereophile.com/content/audioquest-niagara-7000-low-z-power-noise-dissipation-system.

6 See Brian Damkroger's Follow-Up in the January 2012 issue: www.stereophile.com/content/adeptresponse-ar12-ts-january-2012.

ASSOCIATED EQUIPMENT

Analog Sources Linn Sondek LP12 turntable & Lingo power supply & Ittok tone-arm, Spectral cartridge; Day-Sequerra 25th Anniversary FM Reference tuner.

Digital Sources Bryston BCD-1 CD player & BDP-2 media player with IAD soundboard; Bryston BDA-3 DAC; Oppo BPD-103 universal Blu-ray player; Sony SCD-C555ES SACD/CD player; Lenovo P50 laptop computer running Windows 10 Pro (64-bit), Bryston USB driver, JRiver Media Center 22.

Preamplifiers Bryston BP-26, Mark Levinson No.526.

Power Amplifiers Mark Levinson No.334 (stereo) & No.536 (2 monoblocks).

Loudspeakers Revel Ultima Salon2, JL Audio Fathom f212 v2 subwoofers (2).

Cables Digital: Wireworld Starlight (coaxial). Interconnect: Bryston (balanced), Mark Levinson Silver, Pure Silver, Red Rose Silver One, Totem Acoustic Sinew (single-ended). Speaker: Coincident Speaker Technology CST 1, Pure Silver R50, QED X-Tube 400, Ultralink Excelsior 6N OFHC.

Accessories JL Audio CR-1 electronic crossover, Studio Six iTestMic, Apple iPhone 6 & iPad, Torus Power RM-20 power conditioner, Studio Six ProMic1 Audio Analyzer.

Listening Room 26' L by 13' W by 12' H with semi-cathedral ceiling, moderately furnished with sound-absorbing furniture. Left wall has large bay window covered by Hunter Douglas Duette Honeycomb fabric shades. Rear of room opens into 25' by 15' kitchen through 8' by 4' doorway. —Larry Greenhill

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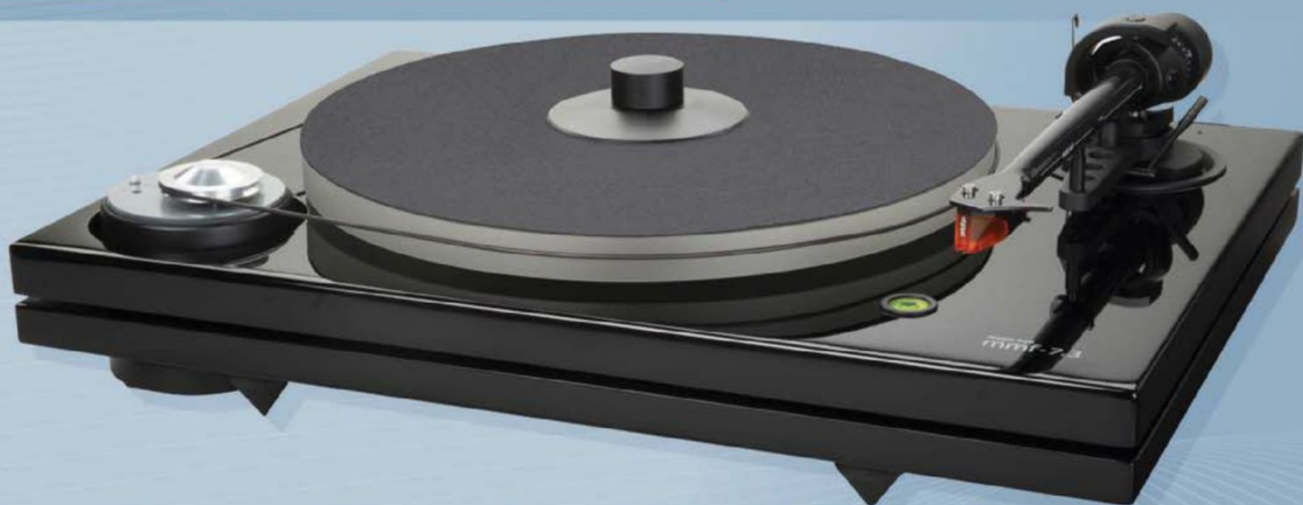
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FOLLOW-UP

BY JOHN ATKINSON & ART DUDLEY

THIS ISSUE: EAR's Acute Classic CD player gets a second look and listen.

EAR ACUTE CLASSIC CD PLAYER

When I measured the original sample of EAR's Acute Classic CD player (serial no. 615-002-A550), for Art Dudley's review of it in the February 2017 issue,¹ I found that its output with 0dBFS data at 1kHz and its volume control set to its maximum was 6.59V from the balanced output, 6.52V from the unbalanced output, and 3.26V from the headphone output. When EAR's Tim de Paravicini read the preprint of the review (we send these so that the manufacturer or distributor can submit a comment for publication), he felt that there may have been something wrong with that particular sample, as the maximum output level from the balanced and unbalanced line outputs should have been 5V. I therefore agreed to accept a second sample of the Acute Classic, to both measure and audition. The second sample (serial no. 644-014-A550) arrived after the February issue had been printed.

Before I shipped the second sample to Art Dudley for him to listen to, I examined its test-bench performance with my Audio Precision SYS2722 system (see the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>). All of the measurements were taken with the volume control set to its maximum, which is how Art had preferred the sound of the original sample, and from its balanced outputs. While the frequency response, channel separation, and line output impedances were all the same as I had found with the first sample, the maximum output levels were now 5.1V (balanced), 5.0V (unbalanced), and 2.57V (headphone). In addition, the headphone output impedance now ranged between 5.7 and 7.8 ohms, depending on frequency, instead of the original sample's 67 ohms, a change that Tim de Paravicini had implemented in production so that the Acute Classic would work better with low-impedance headphones.²

There were other improvements in the measured performance. For example, fig.1 shows a spectral analysis of the EAR's noise floor while it reproduced a full-scale 24-bit, 1kHz tone. The original sample had components at 60 and 180Hz approaching -100dB

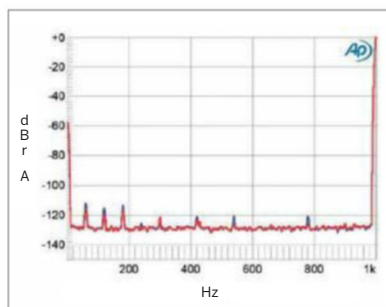


Fig.1 EAR Acute Classic, new sample, spectrum with noise and spurs of dithered 24-bit, 1kHz tone at 0dBFS (left channel blue, right red; 20dB/vertical div.).

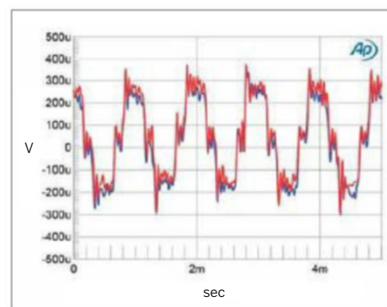


Fig.2 EAR Acute Classic, new sample, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit data (left channel blue, right red).

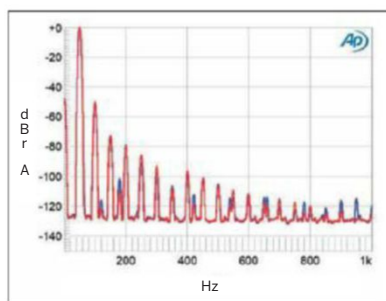


Fig.3 EAR Acute Classic, original sample, volume control set to maximum, spectrum of 50Hz sinewave, DC-1kHz, at 0dBFS into 100k ohms (left channel blue, right red; linear frequency scale).

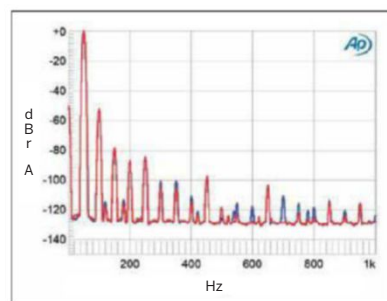


Fig.4 EAR Acute Classic, new sample, volume control set to maximum, spectrum of 50Hz sinewave, DC-1kHz, at 0dBFS into 100k ohms (left channel blue, right red; linear frequency scale).

in level, particularly in the left channel. These components, which are most likely due to magnetic interference from the AC transformer, are 6–10dB lower in level with the new sample. They would not have been audible with the original sample, but

1 The Acute Classic costs \$6795. Manufacturer: EAR Yoshino, 1 Chester Road, Colmworth Business Park, St. Neots, Cambridgeshire PE19 8YT, England, UK. Tel: (44) 1480-210004. Web: www.earyoshino.com. US distributor: EAR USA/Sound Advice, 1087 E. Ridgewood Street, Long Beach, CA 90807. Tel: (562) 422-4747. Web: www.ear-usa.com.

2 EAR says that the headphone output impedance of existing units can easily be reduced should their owners require it.

Authenticity



Before there was “surround sound,” “home theater,” “stereo,” and their many passing variants, the reproduction of high-quality sound in the home, and the gear that made that sound possible, was known as “hi-fi.”

The essence of the term is found in the pursuit of *authenticity*—striving to get as close as possible to the original performance or recording—thereby ensuring a stronger, more immersive, more *meaningful* listening experience.

Although the term *hi-fi* has become old-fashioned, it is every bit as important today as it was when it originated, 60 years ago. Whether you crave sublime immersion in music, the unexpected thrill of percussive explosions, or the crystalline clarity of beautiful dialogue, higher fidelity—greater *authenticity*—is the way to achieve it.

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FOLLOW-UP

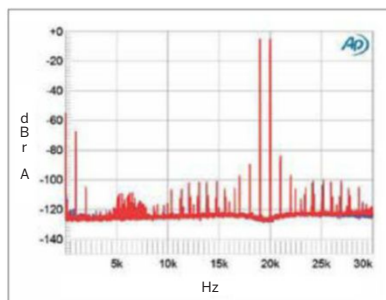


Fig.5 EAR Acute Classic, new sample, volume control set to maximum, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 0dBFS into 100k ohms, 44.1kHz data (left channel blue, right red; linear frequency scale).

it was good to see the reduced levels. And the new sample’s reproduction of an undithered 16-bit tone at exactly -90.31dBFS (fig.2) implied that the reconstruction filter was now a minimum-phase type rather than the linear-phase type used before.

Although the Acute Classic’s specified total harmonic distortion is on the high side, at 0.5%, de Paravicini had felt that the higher-than-specified output levels had compromised the measured performance. Fig.3 shows the spectrum of the first sample’s balanced output while it reproduced a 24-bit, 50Hz tone at 0dBFS into 100k ohms. The second harmonic lies at -50dB (0.3%) in both channels, with the third harmonic at -74dB (0.02%) and the fourth at -80dB (0.01%). Fig.4 shows the spectrum, taken under identical conditions, for the second sample. The level of the second harmonic is a little lower, at -53dB (0.25%) in both channels, with the third at -80dB (0.01%)

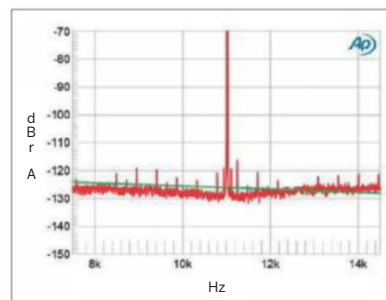


Fig.6 EAR Acute Classic, new sample, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS , sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit CD data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, 43.5kHz.

and the fourth at -86dB (0.005%).

On the other hand, though the noise floor with the player decoding an equal mix of 19 and 20kHz tones, each at -6dBFS with 24-bit data (fig.5), was cleaner than it had been with the first sample, the difference component at 1kHz had risen from -86dB (0.006%) to -68dB (0.033%). The first sample of the Acute Classic had not performed particularly well when tested for its rejection of word-clock jitter. The second sample behaved somewhat differently (fig.6). While the odd-order harmonics of the $F_s/192$, LSB-level squarewave are lower than they had been (fig.10 in the February review’s “Measurements” sidebar), they are still not at the correct levels (indicated by the sloping green line), or are obscured by analog noise.

What matters most, of course, is how the new sample of EAR’s Acute Classic CD player sounds. And for that, I hand you over to Art Dudley.—**John Atkinson**

EAR ACUTE CLASSIC CD PLAYER

At first glance, EAR’s Acute Classic CD player (\$6795) offers a great deal: USB input, 24-bit/192kHz Wolfson DAC, tubed gain stage, custom output transformers, and the pedigree of having been designed by Tim de Paravicini, one of audio engineering’s true giants (literally as well as figuratively: he’s exceedingly tall). All that plus casework that’s as pretty as it is reasonably sized (17" wide by 3" high by 12" deep, and weighing less than 18 lbs), and a price that, while not cheerfully cheap, is not beyond the credit limits of mortal men and women.

Thus my very real disappointment when the Acute Classic review sample endowed one after another recording with “grainy and ultimately edgy

trebles”—quirks with apparent possible corollaries in the measurements, by John Atkinson, that accompanied my review.

Tim de Paravicini responded to that review by noting that some of JA’s findings weren’t consistent with an up-to-spec Acute Classic. By mid-December, JA received from EAR USA a second review sample, which he confirmed behaved differently enough from the first to warrant another listen—and so sent it on to me after performing a complete set of measurements.

After a few hours of running-in the EAR with the volume turned down, I sat down for an afternoon of serious listening. If the first sample of the Acute Classic was an out-of-control

terrier, the second sample was the same dog after a couple of months at obedience school: It still had a good measure of energetic charm, but unlike before, never to excess: that energy was now under control.

With the second sample, I began by listening to XTC's *Skylarking* (CD, Geffen/Mobile Fidelity Sound Lab UDCD 615), partly because it was what I felt like hearing, partly because the recording is a bit bright and I wanted to hear how that quality would fare through the new review sample. I first listened to a couple of selections through my Sony SCD-777ES SACD/CD player, then repeated them through the EAR, and was delighted to hear, in the strings in "1000 Umbrellas," abundant texture and crisp note attacks—but not *too* crisp. Not only was the sound obviously more detailed through the EAR than the Sony, there was also greater musical incisiveness: more drive, more momentum, and sharper note attacks—but, again, not *too* sharp.

While in the mood for thoughtful, quasi-progressive UK rock—inspired, at least in part, by Jon Iverson's mention of *Stand Up* in his review of the Auralic Altair, elsewhere in this issue—I turned to Jethro Tull: specifically, "Witches Promise," from the surprisingly consistent odd-socks collection *Living in the Past* (2 CDs, Chrysalis/Mobile Fidelity Sound Lab UDCD 2-708). This is another brightish recording, and the second sample of the Acute Classic again communicated that, but without going overboard to make the music unlistenable. At times, drummer Clive Bunker's ride cymbal bordered on the relentless, but no more so than through my Sony player. And there was no excess of artificial-sounding grain, the likes of which I heard from so many CDs played on the first EAR sample.

It was time to revisit some of the selections with which the first Acute Classic disappointed, so I began with the Del McCoury Band's recording of "1952 Vincent Black Lightning," from *Del and the Boys* (Ceili Music CEIL 2006), focusing in particular on the sound of Del's lead vocal. What once was aggressive was now simply forward and punchy and vivid—listenable so. And once again, the new EAR sample impressed with its terrific momentum and drive.

And the voices—and the flutes!—in Mahler's *Das Lied von der Erde*, with

mezzo-soprano Michelle DeYoung, tenor Jon Villars, and the Minnesota Orchestra, conducted by Eiji Oue (CD, Reference RR-88CD), were no longer overbearing: the flutes sounded like the bright, silvery things they are, but no brighter and no more silvery than that. And the chord at the end of "The Drinking Song of the Earth's Sorrow" was to die for: big, forceful, and cutting—but not crunchy. Indeed, although I intended to listen to only a few brief snippets from this fine if forward-sounding recording, its sound through the new EAR—big, vivid, realistically textured, and colorful—compelled me to listen to the whole thing.

And that kind of says it all: While there were moments with the first Acute Classic sample when I would happily have packed it away and sent it back, the second sample kept me coming back for more, and as afternoon turned into evening, my wife and I enjoyed disc after disc for hours on end.

The next day I got out my AudioQuest NightHawks to check the new sample's headphone amp—and heard a categorically similar smoothing of rough edges, perhaps to an even greater degree than the improvements described above. Gene Ammons's *Boss Tenor* (CD, Prestige/JVC JVCXR-0033-2), which I recalled sounding especially edgy through EAR sample one, was now a delight. And with that treble stridency no longer in the way, I could relax and appreciate details both musical (the timing of Ray Barretto's congas in "Hittin' the Jug") and sonic (is it just me, or is all of the saxophone's reverb in that number in the right channel, even though the instrument itself is in the left?).

Make no mistake: Even this second sample of the Acute Classic could never be described as anything but a player whose sound is vivid, up-front, and detailed. It could sound crisp when called for, as with note attacks on flatpicked guitars and mandolins; and through it, flutes and brass had *metal*. All of those qualities were in realistic full measure—but they didn't cross the line.

Evidently, there was something awry in that first Acute Classic that *did* push those sounds over that line. With that idiosyncrasy out of the way, the EAR player goes from being one I can't recommend to one that seems a bargain, compared to the *ca* \$10,000 players I've been reviewing of late—and one that I can keenly recommend.—Art Dudley ■

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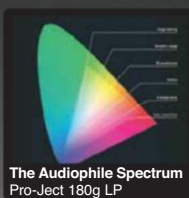
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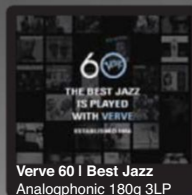
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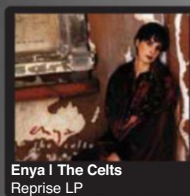
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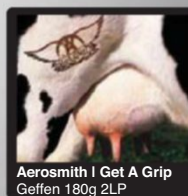
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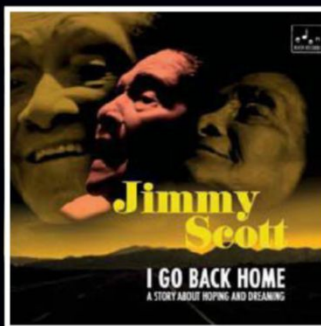
In 1992, just before Christmas, I sent out 24 copies of Jimmy Scott's newly released CD, *All the Way*, to friends, musical and otherwise. Most did not respond, but the eight or ten who did were on fire. "What is this?" "Who is this?" "How did I not know about this woman until now?"

Even in the world of music, where byzantine tales of success and failure are commonplace, the story of singer Jimmy Scott has an unusual amount of pathos. Orphaned at 13, when a drunk driver hit his mother and tore off her arm as she walked, the Cleveland, Ohio native was then stricken with Kallmann Syndrome, a genetic condition that stifles puberty and can, as in Scott's case, prevent the voices of teenaged boys from changing. Although Scott worked with Charlie Parker and Lester Young, among others, fame eluded him. The most crushing blow came in the mid-1950s, when Scott signed an ill-advised contract with the notorious Herman Lubinsky, of Savoy Records.

The Scott saga took a turn for the better in 1991, when, after years working on the loading dock of a Cleveland hotel, Scott sang a cappella at Doc Pomus's funeral. A number of record executives were in attendance, and in no time Scott was signed by Seymour Stein to Sire Records. Three albums followed. The first, *All the Way*, was produced by Tommy LiPuma and recorded by Al Schmitt at New York's Power Station (now Avatar Studios). It features top-drawer material by the likes of the Gershwins and Cole Porter, and an all-star band consisting of Kenny Barron, Ron Carter, and David "Fathead" Newman, among others. Filled with anguished, unforgettable performances—the finest examples ever recorded of Scott's crying tone and elongated, contorted phrasing—it remains the undisputed high point of Scott's entire recorded oeuvre.

Now comes one final project, organized as a soundtrack to a documentary film, both made for the German label Eden River. The label's founder, Ralf Kemper, was, as so many others have been before him, drawn by

EDITOR'S PICK RECORDING OF THE MONTH



JIMMY SCOTT *I Go Back Home: A Story About Hoping and Dreaming*

Eden River ERR-LP-01 (2 LPs). 2016.
Ralf Kemper, prod., mix; Geoff Gillette,
James Caruso, Sean O'Dwyer, Robert
Kirkpatrick, engs.; Phil Ramone, mix
prod.; Lawrence Manchester, Veith
Semrau, mix. DDA? TT: 56:58

PERFORMANCE ★★★★★
SONICS ★★★★★

Scott's siren song, and recorded Scott's parts in 2009, five years before the singer's death, in Las Vegas, at the age of 88.

As a longtime fan who interviewed him many times and shared some memorable hours with him, I have to say that Jimmy Scott was, in a word, a character. I saw him perform many times, particularly during the Sire years, when a performance at the Fairmont Hotel, in San Francisco, had me sobbing like a child. But sadly, his vaunted vocals skills—utterly unlike anyone else's, and admired by the likes of Billie Holiday and Sarah Vaughan—were fading as the 21st century dawned. A consummate pro, Scott in his later years could talk-sing his way through standards, and on *I Go Back Home* he often does just that. But what's best here, even though

many of these takes were done from a wheelchair, Scott still had a surprising amount of vocal power left in the tank. Although his vocals here come in short bursts rather than in spinning out the endless lines that were his specialty, he rises to the occasion on a number of tracks, beginning with "Everybody's Somebody's Fool," which was his first hit with Lionel Hampton's Band, in 1950.

One sure thing throughout these sessions is the core band of pianist Kenny Barron, bassist Michael Valerio, and drummer Peter Erskine. Scott has a number of vocal and instrumental duet partners, most of whose parts were recorded elsewhere and later flown into the mixes. As usual with this increasingly common practice, some of these tracks work better than others. (The late Phil Ramone, famed producer and engineer, was responsible for the final mixes.) Till Brönner's breathy trumpet solo in "If I Ever Lost You" is a highlight, as is Dee Dee Bridgewater's vocal in "For Once in My Life." Scott superfan and actor Joe Pesci takes two stabs at singing duets with Scott, aping his vocal style; in a swinging version of "The Nearness of You," the results range from passable to "for God's sake why?" While Pesci's name may lend star power to the project, perhaps a spoken-word tribute on one track might have been a classier, more appropriate addition.

Bridgewater's and Pesci's vocals were recorded live in the studio with Scott. The album was recorded in Pro Tools, mixed to analog on 1/2" tape at 15ips, and generally sounds well integrated, with decent amounts of presence and detail. The LP masters were cut at Abbey Road, and the LPs were pressed at Optimal, in Germany.

While this is not the inimitable singer of the mid-1990s, let alone his vocal peak of the early '60s, *I Go Back Home* is still Jimmy Scott, and every scrap of his singing remains a rare treasure of a voice that now is forever silenced. There will never again be a singer with his singular gift for phrasing. Congrats to Eden River for capturing his final artistic statements. —Robert Baird

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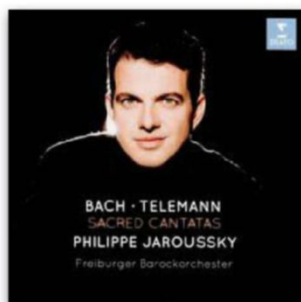
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Sacred Cantatas

Philippe Jaroussky, countertenor; Freiburg Baroque Orchestra, Petra Mülleians
 Erato 0190295925338 (CD). 2016. Alain Lanceron, Etienne Collard, prods.; Michel Pierri, eng. DDD.
 TT: 75:15

PERFORMANCE ★★★★★
SONICS ★★★★★

The coupling of two of Bach's best-known cantatas with relative unknowns by Telemann is not only refreshingly original, it helps make a magnificent CD even more valuable. "Vergnügte Ruh" takes the speaker from "Contented rest" through slow grief at the "haters" (with weird organ, violin, and viola accompaniment), and finally to a practically jolly plea to Jesus to take him, with wacky organ riffs commenting. "Ich habe genug" finds the speaker relaxedly ready to die—a movement of quiet bliss, with lolling strings and smooth oboe curlicues. "Schlummert ein" is a lullaby of colossal beauty, and the final aria is a gleeful dance welcoming impending death. Perhaps the most famous version of this cantata is sung by baritone Dietrich Fischer-Dieskau; his gravity is matched by Philippe Jaroussky's angelic purity and openness. These go straight to the heart.

In "Jesus liegt in letzten Zügen"—for two oboes, strings, and, originally, bass—the first aria describes Jesus on the Cross; the second, the speaker's wish to die with Him; and the last, a moment of spiritual joy. The first two are highly melodic, deep, and dark; the last is filled with jollity and coloratura—and you should hear the difference in tone Jaroussky manages! "Die stille Nacht" finds Jesus in agony on the Mount of Olives, and gets only darker and more still until He dies in exultation. It's practically a mini-opera, and Jaroussky's experience in that field pays off in drama as well as tone painting. Even in piety, Telemann's superb melodic sense never fails him. Exquisite playing adds even more luster.—**Robert Levine**

ROCK/POP


THE KENTUCKY HEADHUNTERS
On Safari

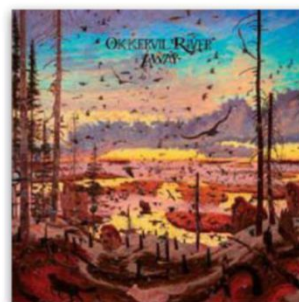
Plowboy PLOCD 1037 (CD). 2016. Kentucky Headhunters, prods.; David Barrick, eng., mix; Steve Wilson, eng.; Jim DeMain, mastering. DDD?
 TT: 39:57

PERFORMANCE ★★★★★
SONICS ★★★★★

Ronnie Van Zant never thought his band played country music. But today, Lynyrd Skynyrd is a foundation of contemporary country. They can thank the Kentucky Headhunters for that. In 1989, the Headhunters turned country music on its head by recording a series of country covers played with hard-rock fervor on their debut album, *Pickin' On Nashville*. Their cover of Bill Monroe's "Walk Softly On This heart of Mine" convinced rock-averse country programmers to play the band's music—CMA awards and a 1990 Country Music Grammy ensued.

The Headhunters were, in fact, a hard-rock band called Itchy Brother, which signed with Led Zeppelin's Swan Song label in 1980. Before storming Nashville they were a popular regional Kentucky rock band. The Headhunters have played on, moving into blues territory to back up Chuck Berry's longtime piano player, Johnny Johnson, and veering in and out of the country-music scene.

On their latest album, the Headhunters revert to their Itchy Brother roots as a no-nonsense hard-rock outfit. Lead guitarist Greg Martin, one of the most underrated players of his generation, meshes with his cousins Richard (rhythm guitar) and Fred (drums) Young, and bassist Doug Phelps, in a classic hard-rock format. The band's penchant for mythmaking surfaces in "Beaver Creek Mansion," and "Jukebox Full of Blues." "Big Time" rocks like the Rolling Stones did in their classic days. But the true indicator of this band's roots is the awesome cover of "Caught in a Dream," the opening track of Alice Cooper's classic album *Love It to Death*.—**John Swenson**


OKKERVIL RIVER
Away

ATO ATO0334 (2 LPs). 2016. Will Sheff, prod.; Phil Palazzola, Matt Murphy, Charles Burst, Matt Gerhard, James Yost, Jim Butler, engs. ADA? TT: 78:05

PERFORMANCE ★★★★★
SONICS ★★★★★

The latest Okkervil River album is essentially a Will Sheff solo record dotted with guests and studio musicians. As if to telegraph that notion, the first song, a stately, seven-minute mid-tempo narrative, is titled "Okkervil River R.I.P." and contains these pregnant lines: "They had some great songs / Must have been a great time so long ago." Indeed, taken as a whole, *Away* has a lyrically reflective, sonically downcast vibe far removed from Okkervil's 2005 classic, *Black Sheep Boy*. Only two tracks here could be called "rock": the thrumming, buoyant, Springsteenian "Judey on a Street," and the confessional sunshine pop of "The Industry."

Still, as *Away* unfolds, its aural delights gradually emerge from a sonic ambience equal parts *Pet Sounds* and *Astral Weeks*. Sheff plays the studio like a maestro conducting an orchestra, using woodwinds, strings, double bass, and keyboards to such great effect that one can readily visualize oneself sitting in the front row of a large theater. "Call Yourself Renee" has a tingly, unhurried delicacy that gradually builds to a grand climax, while the waltz-time "Frontman in Heaven" suggests the Beatles abetted by a George Martin orchestration.

The first pressing of the two gatefold-sleeved LPs is on transparent yellow/gold vinyl with red splatters. While the nine primary songs clock in at slightly under an hour, the second LP contains a bonus track not included in the CD or digital editions: "Away," at 20:42, takes up all of side 4, and is a nature recording similar to those old *Environments* albums: birds, crickets, rain, etc. Hardly essential, but some of these sounds also peek through on the album proper.—**Fred Mills**



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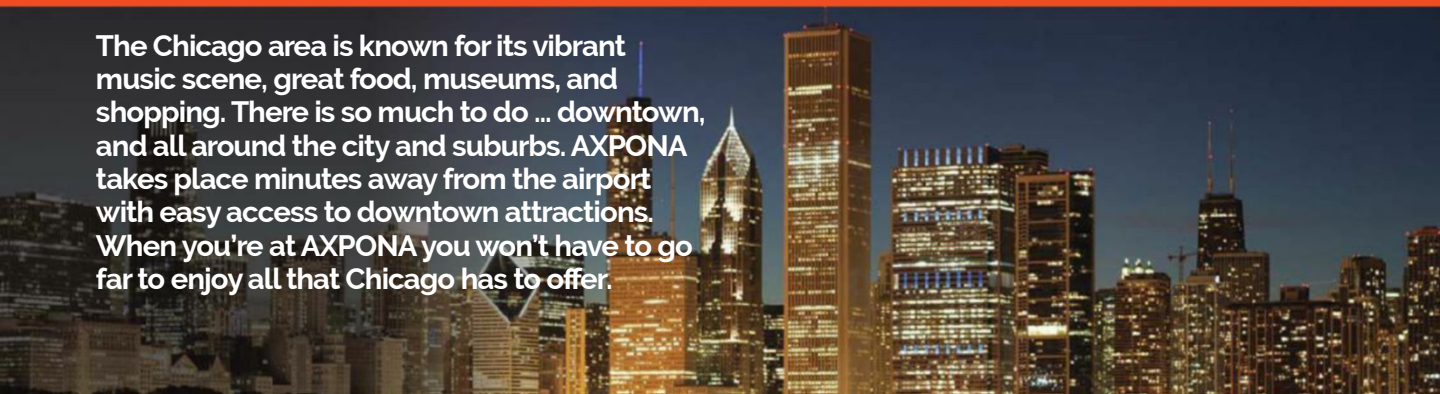
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THE ROLLING STONES
Blue & Lonesome

Interscope B0025916-02 (CD). 2016. Mick Jagger, Keith Richards, Don Was, prods.; Krish Sharma, eng. DDD. TT: 42:36

PERFORMANCE ★★★★★
SONICS ★★★★★

Having cut their teeth on Chicago blues, the Rolling Stones, now mostly septuagenarians, have returned to the idiom with an album consisting entirely of blues covers: four of Little Walter's records, two of Howlin' Wolf's, one each of Otis Rush's and Magic Sam's, plus two of records featuring Jimmy Reed and two of non-Chicago sides by Little Johnny Taylor and Lightnin' Slim. Although lacking the authenticity of the originals, the Stones' performances brim with their own brand of gusto.

An earthy, expressive singer with a brilliant harmonica technique, Little Walter was a prime influence on Mick Jagger. Jagger sings "Just Your Fool," "I Gotta Go," "Hate to See You Go," and the title track with bluesy feeling, but here as elsewhere on the album, he can't quite get the lyrics or the accent right. His harmonica solos, while not half bad, fall considerably short of Walter's, and Charlie Watts can't match Walter's sometime drummer Fred Below. But Keith Richards and Ronnie Wood, as prominent in the mix as Jagger, more than keep up with Walter's guitarists. Particularly striking is "Hate to See You Go," which rides a fierce vamp that Walter borrowed from Bo Diddley's "You Don't Love Me (You Don't Care)."

Another potent vamp is found in Howlin' Wolf's "Commit a Crime," where Jagger, while omitting the caustic line "You mixed my drink with a can of Red Devil lye," acquits himself remarkably well, even if Wolf's grav-

ely voice is inimitable. Jagger is less impressive in Wolf's "Just Like I Treat You," which rides a less gripping vamp, but Richards outplays Wolf's guitarist Hubert Sumlin. The guitars shine again in Jimmy Reed's wistful "Little Rain," where Jagger comes fairly close to duplicating Reed's high-register harmonica, if not his voice. Jagger again simulates Reed's harmonica in the chugging "Ride 'Em On Down," first recorded by Reed's regular guitar accompanist, Eddie Taylor; here the Stones both outplay and outsing the originators.

The Stones' cover of Magic Sam's "All Your Love" (here retitled "All of Your Love") is their biggest failure. Jagger's hoarse, reedy pipes can't compare to Sam's clarion tenor, and Richards doesn't even try to copy Sam's distinctive guitar style. Nor does Jagger's voice measure up to Otis Rush's in "I Can't Quit You Baby," but it's better controlled, and though guest guitarist Eric Clapton omits Rush's signature riff, he does play a hot solo of his own. In "Hoo Doo Blues," the Louisiana bluesman Lightnin' Slim's version of Sonny Boy Williamson's version of Louis Jordan's "Somebody Done Hoodooed the Hoodoo Man," Jagger affects a different, blacker voice, resulting in the most authentic-sounding, though not the most compelling, interpretation on the album. Clapton's bluesy slide guitar substitutes for the brassy accompaniment in Little Johnny Taylor's 1971 soul-blues hit "Everybody Knows About My Good Thing," the most recent song covered here, but though Jagger is hardly a stranger to soul music, he can't capture Taylor's ardor.

Despite seldom living up to their models' examples, the Rolling Stones remain exemplary rockers, and considered strictly as a Stones album, this one is mostly excellent. The guitar work is especially good, and the production is outstanding, with the key instrumentalists mixed as hot as the singer—just as they were at the outset of the group's recording career. The Stones have become more technically proficient over the years, and if they can't duplicate African-American blues or revive the rebellious spirit of their own early recordings, they can surely still rock'n'roll. —Larry Birnbaum

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JAZZ



PHILIPPE CÔTÉ
Lungta

Philippe Côté, compositions, arrangements, tenor saxophone; David Binney, alto saxophone; 23 others
Mythology MRO013 (CD). 2016. David Binney, prod.; Paul Johnston, eng. DDD. TT: 75:34

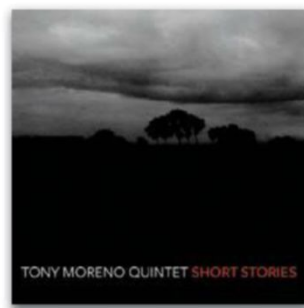
PERFORMANCE ★★★★★
SONICS ★★★★★

Economic barriers mean that there is never enough orchestral jazz to go around. People who love Gil Evans and Maria Schneider will want to know about *Lungta*.

Philippe Côté is a young composer based in Montreal who made this album by a “backward process.” He first laid down, in a studio, quintet tracks featuring alto saxophonist David Binney. Then he composed orchestral music to blend with what the quintet had played and improvised. Wanting “different colors,” he wrote scores for 17 wind instruments, including flutes, oboe, bassoon, and French horn. He recorded this second ensemble in a concert hall, then mixed the two recordings into one.

It all sounds improbable, but the outcome is organic and gorgeous. *Lungta* comprises 14 parts connected by recurring resonant motifs. The highlights are two extended forms, “The Rest Is Noise” and the title track. Côté’s strength is orchestration. With the wind ensemble he creates rich, deep, complex colors and textures, and keeps them in a state of continuous flow and evolution. His touch is subtle, but he understands dynamic tension. In “The Rest Is Noise,” the orchestra looms and broods behind Binney’s plangent alto, then gathers itself into a powerful, repetitive, oscillating figure. That figure reappears in “Lungta,” a long passage across lights and shadows of emotion. Binney produced this album and dominates the solo space. Côté’s writing inspires him to extraordinary, soaring, passionate lyricism.

Lungta has majesty. Majesty is like orchestral jazz: There is never enough to go around.—Thomas Conrad



TONY MORENO QUINTET
Short Stories

Tony Moreno, drums; Marc Mommaas, tenor saxophone; Ron Horton, trumpet; Jean-Michel Pilc, piano; Ugonna Okegwo, bass
Mayimba 815431020165 (2 CDs). 2016. Marti Cuevas, C. Martin Carle, prods.; Max Ross, eng. DDD? TT: 2:08:33

PERFORMANCE ★★★★★
SONICS ★★★★★

The irony of *Short Stories* is that it isn’t short: two CDs, each a full hour and change. But Tony Moreno has much to say. After losing nearly all his life possessions to Hurricane Sandy, the veteran drummer went through a period of intense struggle, and *Short Stories* is his comeback statement.

The quintet lineup couldn’t be more striking in terms of sheer ability and mix of personalities. Trumpeter Ron Horton is bracingly virtuosic. Tenor saxophonist Marc Mommaas has the most personal of tones on his instrument, burnished and warm even while favoring the middle to high registers. Pianist Jean-Michel Pilc turns in a landmark performance, bringing to the session another level of harmonic freedom, flux, and improvisatory fire. One quibble: Ugonna Okegwo, superb and seasoned bassist, is low in the mix, losing this recording some overall balance and oomph.

It could be that Moreno was after a true acoustic room sound, and *Short Stories* does have that immediacy. Each disc leads off with a tune from Kenny Wheeler’s classic *Double, Double You* (1984): “Foxy Trot” and “Three for D’reen.” The originals—nine by Moreno, one apiece by Mommaas and Horton—are richly melodic and varied, taking inspiration from figures as disparate as Erroll Garner, Miles Okazaki, and Ketil Bjørnstad.

But it’s the Ellington standard “C Jam Blues” that most surprises. The arrangement, credited to piano sage Art Lande and his students, turns the core melodic motif into something radically slow and haunting, each lingering note a new harmonic world.—David R. Adler

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JORGE ROSSY *Stay There*

Jorge Rossy, vibes, marimba; Mark Turner, tenor saxophone; Peter Bernstein, guitar; Doug Weiss, bass; Al Foster, drums
Pirouet PIT3096 (CD), 2016. Jason Seizer, prod.; Daniel Dettwiler, eng. DDD.
TT: 51:34

PERFORMANCE ★★★★★
SONICS ★★★★★

After several high-profile years as the drummer in pianist Brad Mehldau's trio, Jorge Rossy opted to become a full-time pianist himself, and his leader output on that instrument has attested to the refinement and broad scope of his musicianship. On *Stay There*, however, Rossy exclusively plays vibraphone and marimba, focusing on original music with a top-shelf and startlingly strong band.

On one level, this is a no-fuss date of swinging straight-ahead jazz. The quintet plays through the tunes, highlights the singing melodies, and stays within a calm, simmering dynamic range. But the blend of Rossy's vibes with Peter Bernstein's guitar and Mark Turner's tenor sax is beautiful and utterly refreshing, from the brief chamber-jazz ballad "Mark's Mode" to the hard-bop feel of "Mmmyeah" and "W Waltz."

There are shades here of Bobby Hutcherson with Grant Green, or perhaps Paul Desmond with Jim Hall. Yet Rossy's writing has its own harmonic push-and-pull that sends the players into areas they might not otherwise go. The result is some of Turner's most luminous work on record.

The presence of veteran drummer Al Foster, down to the inclusion of his own bossa nova-tinged "Pauletta," lends another layer of depth. (It also helps that Rossy hired Doug Weiss, Foster's bassist of choice.) Six of the 10 tracks feature Foster's lightly stepping, deeply bluesy brushwork. His surefootedness and sonic creativity stand out in Guillermo Klein's "ArteSano," a marimba feature full of irregular patterns and involved ensemble counterpoint.
—David R. Adler



JERI SOUTHERN *Blue Note, Chicago: March 1956*

Jeri Southern, vocals, piano; Al Bruno, double bass; Dominic "Mickey" Simonetta, drums
Uptown UPCD 27.84 (CD). Robert E. Sunenblick, MD, David A. Sunenblick, prods.; Frank Holzfiend, eng.; Doug Benson, audio restoration. ADD. TT: 68:15

PERFORMANCE ★★★★★
SONICS ★★★★★

Even great jazz artists are often forgotten, lost to the merciless ravages of time. Jeri Southern had a brief run in the 1950s. Singers such as Frank Sinatra and Nat "King" Cole respected her as a peer. But her career ended in 1962, when she was 36. She lived 30 more years, but stopped performing, due not to the usual pitfalls of the jazz life, but because she suffered from stage fright.

Today, her name is rapidly fading into the shadows of history.

Enter Dr. Robert E. Sunenblick. His Uptown label rescues lost music and publishes it in CD packages with informative liner notes, nostalgic photographs, and optimized sound.

Southern's art was introverted and nuanced. She often talked a song, in a small, little-girl-lost voice that recalls Blossom Dearie. But Southern had real pipes, and could ascend dramatic crescendos when she chose. Her intonation and diction were flawless. Torch songs were her sweet spot. Her versions of "You Better Go Now" (her only hit), "Scarlet Ribbons," and "He Was Too Good to Me" sound unadorned, almost matter-of-fact. But her clarity and sincerity place each song in a special, pure, standalone domain.

This album comes from a club long closed, whose long-deceased owner, Frank Holzfiend, made his own recordings. The sound is just good enough. Southern made you come to her. Then, as she sings a great, familiar song like "When I Fall in Love," you hear its brave, fragile human vow of faith as if for the first time.

—Thomas Conrad

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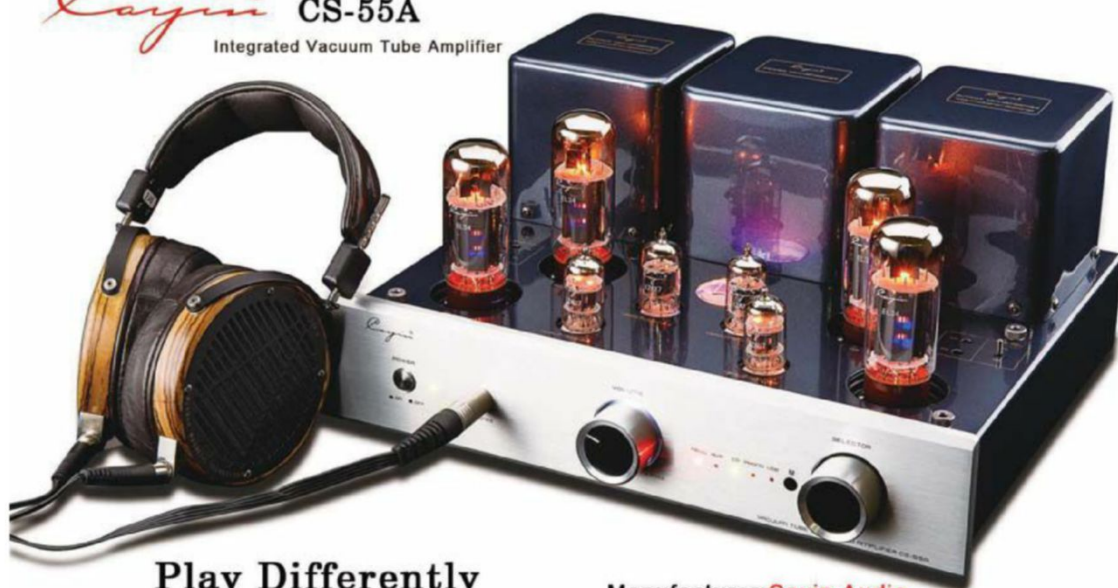
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MANUFACTURERS' COMMENTS

THIS ISSUE: Audio Union, Auralic, and Larsen respond to our reviews of their products.

Audio Union Döhmh Helix 1 & Schröder Captive Bearing

Editor:

Our thanks go to Michael Fremer and *Stereophile* for reviewing the Helix 1 turntable with the Captive Bearing tonearm. We are fortunate to have access to master tapes and reference tape machines from Studer and ATR: these were our points of reference for "voicing" the products.

*David W. Kleinbeck, President
Audio Union*

Auralic Altair

Editor:

I would like to thank Jon Iverson, John Atkinson, and *Stereophile* for reviewing and testing our Altair streaming DAC. Our team would like to take this opportunity to add more information about our technology and product.

Firstly, because WiFi streaming is network-based technology, setting up a WiFi streamer won't be as easy as setting up an amplifier or CD player; the overall user experience is closely related to the customer's home network infrastructure. Platforms like Auralic's Lightning streaming, which allows the user to stream quad-rate DSD via home WiFi, mostly depend on the network. In our years of experience, we have found that selling streaming devices requires more support before and after the sale. To satisfy this demand, Auralic has built a global support team to help customers make sure they can use Auralic's products smoothly and to provide continuous support.

Taking Jon Iverson's setup issue as an example: The Apple WiFi router is known to have problems handling some particular types of UDP-based network packages with the default WiFi setting (which is required by our platform). It needs only a simple setup change to get everything done and running smoothly. That's why John Atkinson, who claimed to have bad network karma, did not experience any problems, but Jon did. Jon could have written to our support team as a regular customer and gotten this issue resolved quickly, or even found a solution for it in our online knowledge base: <http://support.auralic.com/hc/en-us/articles/206072098>.

Regarding the anomalous result of the measurement of the S/PDIF digital

input, John is correct about the cause.

The Auralic Altair has a complex internal processing algorithm, as well as a unique way of handling clock synchronization: it does not compare or lock to the input system, but instead uses the DAC as a master clock, to achieve real zero-jitter performance. For this reason, the circuit has to know the input data's correct sample rate. With USB and streaming input, the processor can get the correct sampling rate from the datastream; for S/PDIF and AES/EBU inputs, however, we have to rely on the sampling-rate information in the data channel-status bits—any digital stream lacking this information will not be accepted.

*Wang Xuanqian, President & CEO
Auralic Ltd.*

Larsen 8

Editor:

We are very grateful to Art Dudley for all his high praise and many accolades of the Larsen 8 speaker in his insightful and positive review. We appreciate all his efforts. As Art rightfully states, the Larsen 8 is a speaker for music lovers who want to forget the gear, sit back, and enjoy their music. When you do that, the Larsen speaker makes you "immensely happy," as Art writes.

Larsen speakers continue the development of the highly acclaimed Carlsson Acoustics OA-52, which Stig Carlsson developed in the 1980s with John Larsen. John Larsen worked with Carlsson for 16 years, and when Stig Carlsson died, Larsen took over production of Carlsson Acoustics speakers and further improved on that innovative design to create the Larsen speakers.

Unlike conventional speakers, Larsen speakers are designed to work with the room, not against it, by eliminating early distorting (first) reflections. To eliminate boomy bass and early reflections, conventional speakers must be placed far from the walls, in an attempt to ignore the room. This means they perform very differently, depending on the room and the placement in the room. But we all listen in rooms with walls.

The effects of the room are incorporated into the design of Larsen speakers, which are designed to be placed against the wall. We then created a cabinet and

a crossover that incorporates that first reflection from the wall right behind the speakers. This placement, combined with the unique positioning and angles of the drivers, flanked by absorption material, virtually eliminates the wall behind the speakers, and eliminates early sound reflections from interfering with the initial direct sound from the speaker. Both the bass and the tonal balance of the Larsen speakers therefore sound much more consistently the same, regardless of the room, and the speakers offer a flat frequency response when set up correctly.

John Atkinson's attempts to apply irrelevant, conventional measuring techniques to this innovative speaker design, in an effort to somehow make the speaker fit those methods—as if it were a conventional, symmetrical box speaker placed against the wall—makes his measurements quite misleading. And nearfield measurements like these are not possible with many drivers firing in various directions. Larsen measures to determine how both speakers actually perform in the room—not how they would perform in a room without walls.

To measure how Larsen speakers actually perform in the room, we measure at the listening position—and not only the direct sound of the speakers, but the total sound, which includes reflections from the room. This is just like in a good concert hall, where direct sounds from the instruments blend with reflections from the walls. Voices and instruments heard without these reflections lose their natural timbres. The human brain knows that reflections are a fact of life; not hearing reflections sounds unnatural.

We are therefore very happy that Art's ears were "immensely happy" when listening to the Larsens, and invite all music lovers to come and enjoy Larsen speakers.

*John Larsen
Larsen HiFi*

Just to clarify: In the Measurements section that accompanies Art Dudley's review of the Larsen 8, fig.7 was taken at the listening position in my room, and does, therefore, include not just the direct sound of the speakers, but also the reflections from the room boundaries. The in-room measurement is not at odds with the quasi-anechoic measurements shown in figs.3–6.—John Atkinson

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AURAL ROBERT

BY ROBERT BAIRD

In a Perfect World

When we last heard from Foxygen—a meeting of two minds that revel in pop music from the Beatles, Brian Wilson, and the Kinks to ELO, Elton John, Hall & Oates, and every other 1970s band that had a hit on AM radio—they'd just made... *And Star Power*, a sprawling, two-LP adventure, that was a clash of priorities that worked for some, but for others was an unintelligible mess. Stung by the criticism, France and Rado decided that for their next album they needed, for the first time in their career, an actual recording studio instead of a series of computer-equipped garages and basements. They decided that the larger canvas presented by a studio gave them the opportunity to bring in a 40-piece orchestra, as well as Steven Drozd of the Flaming Lips, and Brian and Michael D'Addario, the teenaged brothers who are the Lemon Twigs, the phenomenal pop duo from Long Island, New York. The result is a record that may overtake Foxygen's 2013 breakthrough release, *We Are the 21st Century Ambassadors of Peace & Magic* (better known as the "Red Triangle Album," for its cover art), as their finest recording so far. Eyes roll when I mention the reception... *And Star Power* met with, and the accusations that it was a recording with no balance or central idea.

"I think *Star Power* was actually was pretty focused in the way that it was structured, in the way that it was unfocused," begins Rado, who does the band's music.

"We dedicated full-on to being unfocused," adds France, the duo's singer and frontman.

Rado keeps the serve alive: "Yeah, we really focused on how to be the most unfocused we could possibly be."

"That was the concept," France returns. "It just made sense to do the album that way."

So instead of going minimalist and tightening the focus, for *Hang* they decided to add a symphony orchestra?

"We knew, during the making of *21st Century*, that we wanted to make an album with a symphony orchestra," Rado says. "One of the nights we were recording *Star Power*, I was just sitting at the piano and I wrote the basic music for 'Follow the Leader,' 'Avalon,' 'Mrs. Adams,' 'America,' and 'Rise Up' [all from *Hang*] all in one sitting, showed it to Sam, and we were like, 'That's a good chunk of the next album.'"

Hang is the richest blend of pop influences Foxygen has recorded. After an ELO-like beginning, the first track, "Follow the Leader," swoops into a funky orchestral pop anthem. Opening with a barroom piano, "Avalon" has a touch of the Beatles' love of music-hall grandiosity. Built on

jump keyboards reminiscent of the '80s, "Mrs. Adams" is the band's tribute to Bowie. "On Lankershim" crosses the Eagles with Elton. And so it goes. Although France's hackles rise when I mention hearing a Waits-ian slant in some of his vocals, he does often descend to a lower range last heard in another L.A. masterpiece, Tom Waits's *Nighthawks at the Diner*. But 20th-century pop is just one of Foxygen's influences and ambitions.

"[For *Hang*,] we were thinking more like film music—1920s, 1930s film music," Rado says "Or Cole Porter, Tin Pan Alley, New Orleans jazz. Our education is in '70s pop, '60s pop; that's how we kind of write songs. It comes out

in the '70s, but what we were shooting for was American heritage music. Early pop music. That's unparalleled songwriting."

For their first-in-an-actual studio record this much-smarter-than-average band chose a doozy: Electro-Vox Recording Studios, in Hollywood, which opened in 1936 and has had a long and varied history. For the first time in Foxygen's brief history, no computers were used to record an album.

"The Steinway grand has been at Electro-Vox since the '30s. A lot of the stuff was at Capitol Records. We used Hal Blaine's old rototoms—they're on every track. The floor tiles were from Gold Star [Studios, now defunct], and the board is Wally Heider's old board."

"We wanted to make a hi-fi record, and I just can't achieve that in my garage. The sound of analog tape is something that we love. It does sound better than a computer, but also there's a mindset that you're in when you're not looking at your music—when it's not on a screen in front of you and you're not focusing on 'Oh, is this snare drum on beat, on the grid? Look at how loud the bass gets right here!' That's the wrong type of thinking for us."

As any good big-band leader knows, the secret ingredient of success is arranging, and for that, France and Rado brought in one of the jack-of-all-trades of this musical moment: Matthew E. White, founder of Spacebomb Records, in Richmond, Virginia.

"We wrote a guideline," Rado says, "a moment-by-moment breakdown of the album, every song—'We want this part to sound like 1930s big-band jazz, and we want this to sound like *Star Wars* cantina music,' or whatever—writing out exactly what we heard in those moments. White made them come to life, and he did that perfectly." ■

Music Editor Robert Baird (RBaird@enthusiastnetwork.com) finds all this talk of having too many records patently absurd.



France [left] and Rado.

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