

GoldenEar Triton Reference

The top model in this slimline range takes on the big boys – do built-in subwoofers give it sufficient clout?

Review: **Andrew Everard** Lab: **Keith Howard**

Our admiration of what GoldenEar's Triton Five model achieves for the money [*HFN* Mar '19] also prompted a desire to hear what the Maryland company could do when going for broke. Its ambitiously named 'Reference' flagship is definitely playing with the big boys at £9495, and with brands better known, at least in the UK. So it has its work cut out...

At first glance, the Reference looks very much like a scaled-up version of the Five, complete with a slimline enclosure, countering its relatively imposing near-1.5m height with a sub-24cm width. But while the Triton Five has an encompassing acoustic cloth 'sock', here there's a more conventional grille of half-circular profile over the front, designed to remain in place, and also grilles in the lower half of the piano-lacquered gloss side panels.

The tall but slender profile works well in visual terms and it's all a long way from some of the Brobdingnagian speakers we've had through editor PM's listening room of late, from the looming Focal Grande Utopia EM Evos [*HFN* Dec '18], to the eye-catching Avantgarde Acoustic UNO XD horns [*HFN* Feb '19] and tombstone-like ATC SCM100SE actives [*HFN* Apr '19].

BASS BONANZA

All three of those behemoths have some sub-bass trickery going on [see KH's boxout, p57]. The French Utopia EM uses electromagnets in the bass units' motors, along with offboard energisers, and the ATC is fully active, but both the UNO XD and Triton Reference speakers have active subwoofers built into the same enclosure as the rest of the drivers. Yes, that means the References need their own AC mains supply, but it opens up some intriguing

possibilities. They can either be used just as conventional speakers, with speaker-level connections from an amp or – as in a home theatre configuration – with the sub-bass section fed from the LFE output of an AV amp or processor, and the rest of the drive units powered via speaker cables.

SQUEEZE BOX

So what we have here is essentially a two-way loudspeaker sitting on top of a subwoofer. The main driver array is built around GoldenEar's version of the Heil

Air Motion Transformer tweeter, which the company calls its 'High Gauss Reference High-Velocity Folded Ribbon'. This works concertina-like, squeezing air rather than pushing and pulling it as does a

conventional dome-type tweeter. In this version, exclusive to the Reference model, the diaphragm is the same as that found in, for example, the Triton Five, but there's 50% more neodymium-enriched magnetic material, thus boosting sensitivity.

Straddling this are a pair of 15cm mid/upper bass drivers, which feature a specially developed polypropylene cone, a low-mass voice-coil and GoldenEar's Focused Field magnet structure that is designed to direct magnetic force into the surroundings of the voice coil. These drivers sit in their own asymmetrical enclosures within the main cabinet and, in place of a conventional dustcap on the end of the 'motor', have a finned extension of the pole-piece protruding through the centre of the diaphragm.

RIGHT: Exploded view [far right] reveals the three 6x10in actively-driven bass units (and four 10.5x9.5in ABRs), the two 6in upper-bass/mid drivers and HVFR (High-Velocity Folded Ribbon) tweeter, all concealed within the cabinet



POWERED BASS

We're increasingly seeing speaker designs, like the Triton Reference, in which passive midrange and treble drivers are married to an active bass section, with integral power amplification. It's a practical downside that the speaker now needs a mains connection as well as a signal connection, but in performance terms there are distinct advantages. There are the usual active benefits of improved drive unit damping, having an amplifier 'dimensioned' for the driver(s), freedom from passive low-pass crossover issues and the easy provision of fixed EQ to extend bass response. Even better, if the bass section isn't just active but equipped with user-adjustable equalisation, the speaker can be made adaptable to room positioning and room acoustics in a way that passive speakers – where the only tuning available, if any, typically involves constricting reflex port output with foam bungs – never are. It's a half-way house to full active operation, which offers benefits throughout the frequency range, but a cost-effective compromise with clear user benefit. **KH**

The bass section of the speakers, which occupies much of the internal cabinet volume, uses three 'racetrack'-shaped oval drivers, or 'Long-Throw Quadratic Reference Subwoofers', each 25x15cm. These again use that Focused Field magnet design, and are powered by a 1.8kW Class D amplifier, with the bass crossover and output level managed via custom DSP. Meanwhile, the 'upper half' of the speakers uses a conventional passive crossover to distribute signal to the tweeter and twin mid/bass drivers.

Reinforcing and tuning the output from this trio of drivers is a quartet of passive bass radiators – sorry, 'Quadratic Planar Infrasonic Radiators' – each with a diaphragm measuring just under 27cm by slightly over 24cm, firing through those side-mounted grille cloths. The Reference sits on a Medite plinth finished to match the rest of the cabinet and inserted into this is a steel plate to add mass and stability. The speaker also comes supplied with four levelling feet, along with spikes and floor protectors.

SOFA SHAKE

Those side-firing passive bass radiators have an effect on your placement options for the loudspeakers, as they are more affected than usual by interaction with side walls. In PM's listening room we ended up with them well out from the side walls, and angled in quite sharply toward the listening seat in order to get the best imaging. If you are forced to have them closer to the side wall, you can always turn down the bass using the control on the rear panel, but that's hardly ideal, as it robs the speakers of some of their major appeal.

And that appeal is all about the Triton References sounding like a much bigger, and much more expensive, speaker

than you might expect. Yes, almost ten grand is hardly snip money, but when it comes to sheer vivacity of music-making, the Reference also pulls off the same trick as its less expensive Triton Five sibling, overshadowing quite a few more expensive 'super-speakers'.

Right from the very first notes played, the simple piano and bass arrangement from 'Letters From Iwo Jima' [from Kyle Eastwood's *Time Pieces*; Jazz Village JV 570034] shows what the Triton Reference can do, with a sonorous but tightly controlled view of Eastwood's bass and wonderful weight and detail to Andrew McCormack's piano. And with the more upbeat 'Corner Of 3rd And 6th Avenue' that bass is just as persuasive, but here the speakers do a lovely job with the brass of Quentin Collins and Brandon Allen and the crisp percussion of Ernesto Simpson. It's punchy, thrilling and just sparks with life, with Simpson's drum break especially explosive in its impact.

What these speakers do so well is deliver massive weight, while being both nimble on their feet and creating a wide-open soundstage populated with tactile images. All this was clear with the DSD64 release of Yes's 'Roundabout' [*Fragile*; Atlantic WPCR-15904], where the clean, crystalline acoustic guitar of the opening gives way to the thundering bass of Chris Squire, Bill Bruford's powerhouse drumming and of course Rick Wakeman's tireless noodling and crashing Hammond organ. On too many loudspeakers this track can quickly thicken up and become a mess – not so here!

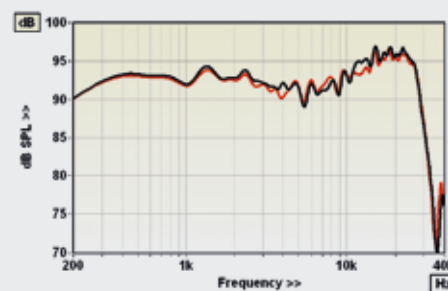
These speakers can deliver genuinely sofa-shaking bass while integrating it perfectly with the rest of the frequency range for a sound that's hugely satisfying. Even with a seemingly simple track like Elton John's 'Border Song', from his *➔*

LAB REPORT

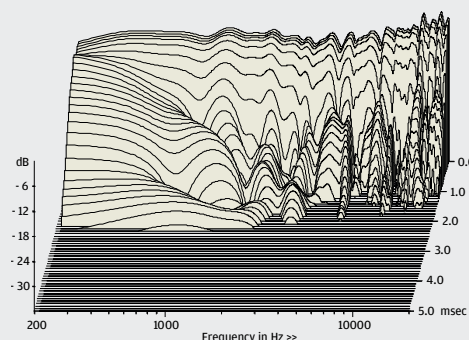
GOLDENEAR TRITON REFERENCE

I can't recall ever encountering a loudspeaker whose sensitivity is quoted to quarter-decibel accuracy like the Triton Reference (93.25dB) but our pink noise measurement result of 93.1dB is in close agreement with GoldenEar's figure. Although the nominal impedance is quoted as 'compatible with 8 ohms' this is in reality a 4ohm speaker, with our measurements recording a minimum of 3.4ohm/328Hz. Unfortunately, the impedance phase angles are very high at bass frequencies, despite the active subwoofer section, and so the EPDR (equivalent peak dissipation resistance) falls to a challenging low of 1.3ohm/69Hz.

The forward frequency responses for the review pair, measured at 1m on the tweeter axis, reveal a classic 'BBC dip' through the presence band and shelved-up extreme treble [see Graph 1, below]. Together these features raise the response errors to $\pm 4.0\text{dB}$ and $\pm 3.5\text{dB}$ (350Hz–20kHz), which is mildly disappointing for a flagship model. Notable too are the closely-spaced response ripples, caused by a reflection within the speaker which shows as a peak within the impulse response at a delay of 0.57ms, equivalent to a path length of 19.6cm. While it's impossible to say what this is due to, the curved grille – which is fixed – is a suspect. Pair matching over the same frequency range was also somewhat disappointing at $\pm 1.6\text{dB}$, the largest disparities occurring within the bandwidth of the HVFR (High-Velocity Folded Ribbon) tweeter. Because of the impossibility of accessing the bass drivers and ABRs for nearfield measurement, bass extension was very difficult to assess with accuracy – the figure in the table is a 'guesstimate'. The CSD waterfall [Graph 2] shows a succession of treble resonances. KH



ABOVE: The HVFR ribbon's boosted upper treble is less obvious off-axis. Note response ripples here too



ABOVE: Cabinet is well controlled at LF but there are numerous driver/structural resonances revealed >3kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – Mean/IEC/Music)	93.9dB / 93.1dB / 92.6dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	3.4ohm @ 328Hz 16.0ohm @ 20Hz
Impedance phase: minimum & maximum (20Hz–20kHz)	–80° @ 20Hz 27° @ 1.1kHz
Pair matching/Resp. error (350Hz–20kHz)	$\pm 1.6\text{dB}$ / $\pm 4.0\text{dB}$ / $\pm 3.5\text{dB}$
LF/HF extension (–6dB ref 200Hz/10kHz)	~30Hz / 30.2kHz/30.0kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.3% / 0.7% / <0.1%
Dimensions (HWD) / Weight (each)	1473x234x476mm / 49kg

LEFT: The passive and active units are addressed by single 4mm terminals. Alternatively, the RCA input connects the low-pass '0.1 channel' line output of an AV receiver/processor directly to the sub

been a given with these speakers – and instead enjoyed the lightness of touch and sense of space in 'Mercury', with no congestion at all when the orchestra kicks in full force midway and the skittering woodwind and strings quite lovely in their speed and precision.

I was enjoying it so much I let the music roll on into 'Jupiter', grabbed by the warmth and scale on offer and the ability of the speakers to deliver big, crashing dynamics, relax back into subtlety and then gather the power again. This was very much a full orchestra workout, with all tones, textures and colours much in evidence, and the sense of the presence of the orchestra very real.

OUT OF THIS WORLD

With the stripped-back retro sound of Steely Dan's cover of Duke Ellington's 'East St Louis Toodle-oo' [Pretzel Logic; Geffen UIGY-9568], the Triton Reference speakers again show their ability to get to the heart of a track. All the instruments sound striking here, with Walter Becker's talkbox guitar outstanding in its slightly other-worldly sound, and the swing of the track irresistible.

But then that's all part of the magic of these speakers. Whatever you care to play they are able to turn on the thunder when required, or simply let you enjoy the remarkable amount of detail, resolution and musical insight that they offer. ☺

HI-FI NEWS VERDICT

If the Triton 5 speakers reviewed in March were a striking bargain, the Reference is even more so: a very big-sounding, and very clever, slender floorstanding tower as adept with room-shaking power as it is with unearthing the finest nuances in a recording. Yes, it's in elevated company at nearly £10k, but the performance more than justifies that tag, and challenges more than a few designs with even loftier pricing.

Sound Quality: 88%



onymous first album [Mercury UIGY-9612; DSD64], the Triton References handle the vocal and piano with fine detail and fluidity, before showing what they can really do when the bass and choir kick in. And with the Hallé Orchestra under Mark Elder playing Holst's *The Planets* [Hyperion SACDA67270] they show their ability to marshal massed musical forces with unforced clarity, while still conveying all the scale and power of a large orchestra.

I somehow swerved the obvious temptation of shaking the fittings with 'Mars' – that ability would have