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KEF's Blade One Meta**



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# KEF Blade One Meta

KEF's flagship Blade cuts to the heart of the music, and with 'MAT' on board its edge has never been keener  
 Review: **Andrew Everard & Paul Miller** Lab: **Paul Miller**

**M**ore than a decade after their launch, there's still nothing quite like the KEF Blade One speakers. Well, OK, there's the smaller Blade Two [HFN Jul '15], but the point still stands! The result of one of those 'no constraints' projects that speaker companies seem to love, the original 'Concept Blade' created a stir with its radical styling and carbon-fibre construction. The final retail version employed a more production-friendly high-density polycarbonate, but the speakers were unmistakably the same, and just as unmistakably odd.

Yes, KEF has previous form in this 'from concept to reality' thing: after all, it did make the huge – and arguably even more bonkers – Muon floorstanders [HFN May '08], which remain in the catalogue if you happen to have £180,000 burning a hole in your bank account. However, while the Blade One – now in its upgraded 'Meta' form – may look as startling as it did when it launched in 2011, with its seemingly top-heavy inverted propellor-vane shape, there is solid method in the apparent madness. In fact, the shape of the Blade is key to KEF's aim of a 'Single Apparent Source' loudspeaker, one in which the sound created by the speaker appears to emanate from a single point [see PM's boxout, p41].

## TAKING CENTRE STAGE

In practice, this is the thinking behind the company's Uni-Q drive unit – a mainstay of KEF designs since it debuted in 1988 – taken to its logical conclusion. The Uni-Q places the tweeter at the centre of the midrange driver with the intention of delivering the output of the two drivers as a single, coherent whole. The idea is to enhance stereo imaging, focus and soundstaging, in a way that's hard to achieve with conventional drive units spaced apart. In the Blade model, the combination of a single Uni-Q unit containing tweeter and midrange, plus multiple side-firing bass

units, endeavours to create the same effect, but with greatly extended frequency range. And at the risk of cutting to the chase so early in our review, it pulls this trick off in spectacular fashion.

While the treble/mid Uni-Q driver in the Blade One Meta may look familiar to owners of the 'single driver' LS50 standmount, the path of influence actually runs in the opposite direction. In fact it was the development of the Blade's Uni-Q that led to the emergence of the LS50 [HFN Jul '12], a year after the original Blade speaker to mark the company's 50th anniversary. Subsequently, it's hard to argue with the impact the LS50 design has had on the KEF range, spawning both wireless [HFN Oct '17] and compact versions over the past decade.

## BLACK HOLE

At the heart of the Blade One Meta is the latest version of the Uni-Q, now in its 12th

generation and complete with KEF's Metamaterial Absorption Technology – also used in the company's updated Meta versions of its Reference series. The driver combines a 25mm dome tweeter with a stiffened dome and a revised

tweeter gap damper to accommodate the metamaterial absorber behind it. This circular device uses a complex maze-shaped structure of channels to absorb a claimed 99% of the sound from the rear of the tweeter – or, as KEF puts it, it acts as 'an acoustic black hole' – to give a purer, cleaner mid/treble output [for a deep dive into Meta, see HFN Jun '21].

Finally, the company's familiar 'tangerine' segmented waveguide is used to control, and widen, treble dispersion. The tweeter sits in the throat of a 125mm aluminium-

**RIGHT:** Subtly remoulded, the latest Blade One (Meta)'s svelte polymer cabinet stands on a substantial oval plinth with sturdy feet (not shown). Five cabinet finishes and six driver cone colours are offered – the 'special order' Piano Black/copper Uni-Q variant is pictured here



## SPECIAL SOURCE

When Quad launched its ESL-63 electrostatic back in 1981 it took the opportunity not to drive the thin film panel uniformly over its entire surface. Instead it was driven from the centre outwards, in a series of concentric bands, the signal to each progressively delayed so that the entire panel delivered a spherical wavefront from a notional, and far smaller, acoustic centre. Easily achieved, perhaps, with only one 'driver' but trying to emulate single-point source, if not a spherical wavefront, with a multi-way moving-coil loudspeaker is trickier still. An extreme example is provided by Cabasse's La Sphère [HFN Feb '10], a four-way coaxial design that also relies on digital filtering and delay to achieve a truly coincidental acoustic centre. KEF attempted the same ideal, arguably with greater elegance, when it launched the original Blade 'Single Apparent Source' speaker in 2011.

The Uni-Q driver [see exploded view, below, and MAT disc far right], with its treble dome located in the throat and sharing the same acoustic centre as the peripheral midrange driver, gives KEF a head start. However, marrying this point source to drivers covering frequencies below 350Hz required some leftfield thinking. Left and right, as it happens, with a combination of four bass drivers arranged in force-cancelling pairs on either side of the cabinet, equidistant above and below the Uni-Q driver. The opposing bass drivers necessarily have their acoustic centre where the two magnets meet in the centre line of the cabinet, the horizontal axis just fractionally behind that of the Uni-Q. But at bass frequencies, where wavelengths are very long and output increasingly omnidirectional, the acoustic centre of this cluster of bass drivers is coincident enough to that of the Uni-Q for KEF to claim a 'single apparent source'. PM



cone midrange unit with a new motor designed for extremely low distortion [see PM's interview with Jack Oclew-Brown, p43]. The surround is redesigned to allow longer excursion while the profiles have been reworked to smooth the transition from the face of the driver to the cabinet geometry.

## GOOD VIBRATIONS

The Blade One Meta's four bass drivers fire sideways in horizontally opposed pairs, thus cancelling out vibrations in the cabinet, with each pair in its own chamber within the enclosure. These 225mm woofers have slightly dished aluminium diaphragms, and employ the technique found in the original Blade of decoupling the voice coil from the cone, allowing lower-order crossovers to roll in the bass units at around 350Hz. As in the original design, twin sets of terminals

**LEFT:** Now in 12th-generation guise the Uni-Q driver comprises a 25mm alloy dome tweeter, with MAT rear absorber, set into the throat of a 125mm alloy midrange cone. Bass is handled by two pairs of opposed (force-cancelling) 225mm alloy woofers, reflex-loaded via two rear ports

are provided for bi-wire/bi-amping, with a novel twist selector that connects them for standard, single-wire operation.

The cabinets are shaped with complex parabolic curves to eliminate standing waves within, and are acoustically inert. The tapering design is stabilised by a hefty base, this contributing to the 57.2kg weight of the speakers. For finishes, you can mix 'n' match enclosure colours with a range of anodising options for the Uni-Q driver. So, you can have the Piano Black of the review pair with a copper or grey driver; Frosted Blue with blue or bronze driver; Charcoal Grey with red or bronze; Racing Red with a grey driver; or Arctic White with a champagne driver. And if that lot isn't choice enough, from June KEF will offer Pantone colours at a 10% premium.

## BLADES OF GLORY

Set up in PM's listening room in accordance with KEF's detailed instructions – they can be as close as 22.5cm from the rear wall, but need to be a metre from side walls due to those side-firing woofers – and with a slight toe-in (KEF suggests no more →



## LOUDSPEAKER

**RIGHT:** Pairs of 225mm alloy-coned bass drivers work into separate chambers, each set operating back-to-back to cancel out the large kinetic forces generated. Damping pads supplement the cabinet bracing in key areas

than 10°), the imposing visual impression created by these 1.59m-tall speakers is striking... but the sound is even more so.

Right from the subtle opening murmurs of Ravel's 'La Valse' [Sinfonia of London/John Wilson, Chandos CHSA 5280; 96kHz/24-bit], the Blade One Meta delighted with its combination of soundstaging and focus. This is clearly driven by those Meta-aided Uni-Qs, the precision being of the kind one would expect from very fine, but very small speakers. That, in essence, is just what these speakers sound like – only with a lot of added clout and extension from those big side-firing drivers, which really come into their own with the massed orchestra and the thunderous percussion. Yes, big drums can shake the room, but it's really the sheer impact that startles.

Similarly, the Blade One Metas sound magnificent with the opening of the Bach *St Matthew Passion* in the recently released Pygmalion/Raphaël Pichon recording [Harmonia Mundi HMM90269193; 96kHz/24-bit], where the intensity of both performance and engineering is immediately apparent in the dual orchestras and the way the two choirs ask and answer. These Blade flagships maintain the unfolding drama and the running commentaries of the arias, thanks to their wonderful presence and definition, most notably in the section we always used to call the 'lightning and thunder bit' when I sung in choirs all those years ago.

### SCINTILLATING SONICS

But you don't need *Sturm und Drang* to hear the special qualities of the Blade One Meta: with the title track of Doug MacLeod's *A Soul To Claim* [Fresh! Reference Recordings FR-746; 44.1kHz/24-bit], the immediate impression is of the intimacy of the voice and guitar before the band kicks in, and the solidity of the sonic picture of the whole ensemble. This kind of precision imaging is never a given with large, weighty speakers, and indeed seems to elude many big-ticket designs, however well they do scale and substance.

Once again, these tall, slender KEF Blades do that 'small speakers but big' thing in scintillating fashion, and in so doing sound like no other design I can recall – in a good way, of course.

**'Their sheer exuberance is often breathtaking'**

Track after track, album after album, these top Blades demonstrated that elusive 'musicians located in space' effect. Rarely have I heard a design so entirely able to create a sonic image free from the cabinets before the listener, and with such complete focus and apparent front-to-back depth.

This was as evident with the sense of the concert hall acoustic 'breathing' around Anna Fedorova's piano on her *Shaping Chopin* set [Channel Classics CCS 43621; DSD128] as it was with the intertwining instrumentation and driving rhythm section on Yes's 'Yours Is No Disgrace' [*The Yes Album*; Rhino WPCR-80305]. These innovative loudspeakers can play hard and deliver all the dynamic impact one could want, but do so with a speed, control and sheer exuberance that's frequently breathtaking, and all the while ↻



## JACK OCLEE-BROWN

KEF's VP of Technology, Jack Oclee-Brown, admitted to going 'all out' in this redesign of the Blade. Not only was this an opportunity to incorporate the latest Uni-Q driver, and MAT absorber, but KEF was also determined to reduce the complexity of the MF/LF crossover, achieve a smoother frequency response at wide horizontal angles and improve the clarity and precision of bass transients. The midrange driver excursion capability also needed to be increased and distortion reduced.

'Hitting these targets was very challenging', acknowledged Jack. 'We started by refining the motor – trading the single annular steel plate (forming the outside of the gap) for a steel-copper-steel laminate. The copper layer is right next to the voice coil, reducing inductance and upper midrange distortion. Also, with the strength of the motor now more constant over a wider range, this enhances cone travel and further reduces distortion.'

This re-imagining of the Uni-Q motor assembly also gave KEF the chance to better couple the MAT absorber onto the back of the driver. 'As both the HF and MF magnets are outside of the respective coil diameters, this gave us plenty of space *within* the coils to optimise the channel that leads rear-radiated sound into the MAT disc.'

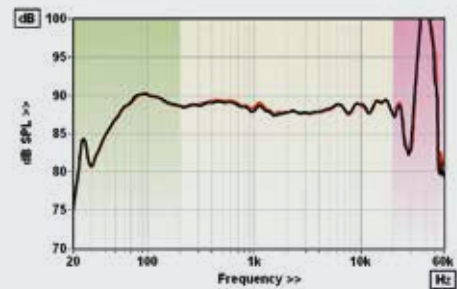
FEA software was used extensively in the modelling of the Blade One Meta's design. 'The driver chassis are designed to flex in a controlled fashion, decoupling vibrations from the cabinet body.' It's just one more innovation that keeps this flagship Blade at the cutting edge. PM



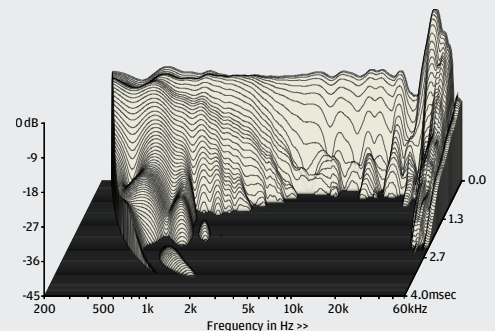
## KEF BLADE ONE META

While attention is inevitably focused on the efficacy of KEF's Meta disc in dissipating the Uni-Q driver's rear-radiation [see LS50 Meta, *HFN* Jun '21], the Blade One Meta's driver ensemble delivers a remarkably flat axial response [see Graph 1]. With response errors of just  $\pm 1.2\text{dB}$  and  $\pm 1.3\text{dB}$ , respectively, coupled with a precise  $0.45\text{dB}$  pair matching (all re.  $200\text{Hz}$ - $20\text{kHz}$ ), the Blade One Meta faces competition from a mere handful of active, DSP-corrected speakers [see *HFN* Apr '20] in the quest for 'flatness'. On the other hand, the extreme ultrasonic treble resonance at  $40\text{kHz}$  [ $+16\text{dB}$  re. mean midband output, pink shaded area] is specific to the Uni-Q driver, this breakup mode successfully deferred by a good  $10\text{kHz}$  or so courtesy of the dome's hybrid spherical/elliptical profile. It is clearly visible on both the forward response and CSD waterfall [Graph 2], the latter also illustrating the very 'clean' and quick decay of mid and treble – a likely benefit of its Meta technology.

The flat response also makes for an accurate and subjectively relevant sensitivity of  $88.5\text{dB}$  ( $1\text{kHz}$ ) and  $88.3\text{dB}$  ( $500\text{Hz}$ - $8\text{kHz}$ ), figures in tune with KEF's rated  $88\text{dB}$ . Bass extension, too, is impressive at  $34\text{Hz}$  ( $-6\text{dB}$  re.  $200\text{Hz}$ ), the  $46\text{Hz}$ - $350\text{Hz}$  ( $-6\text{dB}$ ) output of the quad woofers combining with the slickly judged  $26\text{Hz}$  port tuning [green shaded area, Graph 1]. Bass distortion is also very low at  $\sim 0.1\%$  (re.  $90\text{dB}$  SPL), but all this performance is gained at the expense of a fairly tough load, the impedance modulus dropping to just  $2.5\text{ohm}/500\text{Hz}$  with max. phase angles of  $-57^\circ/22\text{Hz}$  and  $+52^\circ/1\text{kHz}$ . The toughest  $\pm 47^\circ/4\text{ohm}$  regions occur in the low bass ( $24\text{Hz}$ ) and midrange ( $840\text{Hz}$ ). PM



ABOVE: Response including nearfield summed bass drivers/ports [green], freefield corrected to  $1\text{m}$  at  $2.83\text{V}$  [yellow], ultrasonic [pink]. Left, black; right, red



ABOVE: Uni-Q tweeter's HF resonance dominates the waterfall, but the mid is 'scrubbed clean' by Meta

**LEFT:** Two reflex ports serve the upper and lower pairs of bass units. KEF's split bass/mid crossover is accessed via two sets of bi-wire/bi-amp terminals that may be linked back together via a novel screw-tight connector

vocals sweet and well-placed. Again there was effortless soundstaging – without ever distracting from the passion of the performance by revealing the mechanics of what the speakers are doing.

Meanwhile, Franz Ferdinand's 'No You Girls' [*Hits To The Head*, Domino WIGCD473X] sounded glorious with its chugging rhythm section and catchy chorus. The track is big and dense, but KEF's Blade One Metas made sense of it, while proving they can get down and dirty with the best of them.

### ENJOYMENT OVERLOAD

I think I can safely say I didn't find a track I did not only enjoy, but delight in, during the time I spent with these slender but somehow ominous-looking Blades. They cruised through the ever-so-refined piano jazz of Dave Arch and John Parricelli's *True Colours* [Linn CKD 678;  $96\text{kHz}/24\text{-bit}$ ], thanks to that absolute focus, tight rhythms and superb soundstage size and depth. And the very same attributes also served well John Illsley's 'The Mission Song', with its reggae-tinged beats, added horns, and inevitable overtones of Dire Straits [*VIII*,  $100\%$  Records;  $100\text{CD}119$ ]. The feeling of a great band making hugely enjoyable music is palpable here – taking the magical sound of the Blade One Meta loudspeakers beyond argument. 🎧

### HI-FI NEWS VERDICT

'Marmite' industrial aesthetic aside, the magic of the Blade One Metas is realised in the sort of focus, imaging and definition you'd expect of the finest miniature, but written here into a big sonic picture without any compromise. They're weighty, fast and more than capable of shaking your chest without any slur or bloom. They really must be heard if you're shopping at this price... or even way above.

Sound Quality: 90%



making many contemporaries sound somewhat leaden by comparison.

Neither does one need to feed them a carefully curated selection of oh-so-audiophile recordings to be struck with just what they can do. 'My Most Beautiful Mistake', from Elvis Costello's current album [*The Boy Named If*, EMI CD2047], sounded like vintage Costello with the singer front and centre, band spiky and abrasive, and backing

### HI-FI NEWS SPECIFICATIONS

|   |   |
|---|---|
| Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)                        | 88.5dB / 88.3dB / 86.2dB                                  |
| Impedance modulus: minimum & maximum (20Hz–20kHz)                 | 2.5ohm @ 500Hz<br>14.8ohm @ 19Hz                          |
| Impedance phase: minimum & maximum (20Hz–20kHz)                   | $-57^\circ$ @ 22Hz<br>$+52^\circ$ @ 1.02kHz               |
| Pair matching/Resp. error (200Hz–20kHz)                           | $0.45\text{dB}$ / $\pm 1.2\text{dB}$ / $\pm 1.3\text{dB}$ |
| LF/HF extension ( $-6\text{dB}$ ref $200\text{Hz}/10\text{kHz}$ ) | $34\text{Hz}$ / $27.5\text{kHz}/28.5\text{Hz}$            |
| THD 100Hz/1kHz/10kHz (for $90\text{dB}$ SPL/1m)                   | $0.1\%$ / $0.06\%$ / $0.5\%$                              |
| Dimensions (HWD) / Weight (each)                                  | $1590 \times 363 \times 540\text{mm}$ / $57\text{kg}$     |