

Kii Three active loudspeaker concept

by Jason Kennedy

Put Bruno Putzeys' name into a search engine and you get plenty of results. He is ranked among such audio engineering luminaries as Nelson Pass and Siegfried Linkwitz, yet his name has yet to enter the wider audiophile hall of fame. Bruno started out designing Class D amplifiers for Philips where he developed the UCD circuit – a technology that saw him poached by Hypex who now build these amplifiers. Putzeys used his time with the company to develop NCore Class D modules that can be found in amplifiers from Bel Canto, Jeff Rowland, and others today. He created the Mola Mola brand while working with Hypex and went on to work on Grimm Audio active monitors. Now he has his own project... well not entirely; Kii Audio is a collaboration with Chris Reichardt from the pro audio field and software engineer Bart van der Laan.

The Kii Three is the first fruit of this collaboration and if the sound quality it produces is anything to go by, it should put both the company and Putzeys firmly on the audio map, especially when you see the loud shirts he sports at shows these days. It was developed to combat the bane of all loudspeakers; the room. The space that you put a speaker in has so much impact on the sound it produces that it is almost impossible to make a one size fits all design. What Kii has done is to create a fully active loudspeaker with a cardioid dispersion pattern that goes a long way to minimising the impact of the room. The Kii Three is designed to cancel the rearward output of bass and lower midrange by sending an inverted phase version of the signal to the rear and side drivers with a delay that's calculated to attenuate output. The problem with most speakers is that at higher frequencies output is highly directional while frequencies from the lower midrange down become more omnidirectional as they descend, so bass frequencies come out of the back to nearly the same degree as they exit the front. There are pros and cons with this, it means that the closer you put the speaker to the walls the more bass you get because it's bouncing off the wall(s) but the problem is that this energy is delayed relative to the direct sound and thus smears the signal you hear.

The Kii Three's six drivers are controlled by a DSP crossover that uses antiphase in the rear drivers to stop bass

from coming off the back of the box and bouncing off the walls. It's a genuinely radical solution to one of the biggest problems facing speaker designers that also attempts to deliver a flat response within half a decibel from 30Hz to 20kHz. And as if that were not enough, phase coherence is also promised. Such is the potential of DSP in crossover design that such things are theoretically possible; in fact, others have built speakers that aim to achieve the latter qualities but rarely has this been executed in a genuinely uncoloured and musically coherent product.

Digital Signal Processing means that traditionally, the signal has to be converted to digital and then converted back to analogue after the processing. The Kii Three has six drivers, each of which has its own channel of DSP, D/A conversion, and amplification. That's six 250 Watt NCore Class D power amps combining to produce 1,500 Watts, which is generous even for a professional monitor (there is a pro version of this speaker). The drive units they power consist of four 165mm bass units, a 127mm midrange and a 25mm wave-guided tweeter, but Kii won't tell you, or me, what the cones and domes are made of. There are three basic ways to use the Kii Three: direct analogue connection via XLR from a preamplifier, direct digital with a USB to AES/EBU cable from a laptop with Audirvana or similar software that has volume control, or the most flexible approach, which involves something called a Kii Controller. There is a fourth option of direct digital connection via a Weiss INT203 which provides digital volume control but that is a niche within a niche.

The Kii Controller connects to one speaker via RJ45 ethernet cable and the signal is passed to the second speaker with a similar cable. You can then use the Controller like a preamplifier for digital signals as it has optical, coaxial and USB inputs, it also has a knob for volume control, an IR receiver and a display where various parameters can be adjusted. These include boundary compensation across 12 settings for freestanding, against walls, and in corners. It also offers tilt style tone controls that allow subtle tailoring of the response to suit more or less reflective rooms. You can adjust latency, polarity, programme the presets on the Controller and ▶



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- ▶ adjust EQ for individual loudspeakers, which is useful if one has to be in a corner and the other has more space around it. Both speakers and Controller have coloured indicators to show status and these lights can be dimmed, and you can choose between auto standby or manual on/off for the system. Surprisingly the system incorporates a limiter to stop users damaging amps or drive units if the listener should get carried away or accidentally turn it up to 11 (or 99, which appears to be max output on the Controller), but in truth this is really for pro applications where some kind of visual indication might be handy for terminally deaf engineers!

Kii offers a dedicated stand for the Three which is unusually chunky with two beefy columns that are mass damped yet also have cable management routing, they stand at a higher than average 67cm without spikes and provide a stable platform for the speaker. You can connect any analogue source to the XLR inputs and adjust level with the Controller, so with digital inputs going to the latter there is the potential for four inputs with the Kii Three.

I started out by hooking up an Innuos Zenith SE server and AURALiC ARIES G2 network streamer to the USB input on the Controller, sending the signal over standard Ethernet cable to the speakers and powering them with Naim Powerline Lite mains cables. The resulting sound is a bit of a shock; the distributor told me to expect something a bit different and he was not wrong. This is because at low frequencies all loudspeakers interact with the room to some extent or another, the deeper the speaker goes the more this happens and ironically, the smaller the box the more bass comes out of the back and sides as a proportion of the total output. Take a large amount of that interaction out of the equation and you get a completely different sound that initially seems rather lean and lacking in low end waft, oomph, call it what you will. But after a while it becomes clear that the absence of this colouration allows significantly more detail to emerge from the speakers and you start to hear detail that eludes the vast majority of speaker/amp combinations. The resolution of voices, instruments and sounds of all stripes is quite uncanny.

The Kii Three is clean, detailed and even in the bass to an extent that is rare at almost any price, so it shows you both the nature of the original signal and the partnering electronics with considerable clarity. With some recordings

this can slide into a degree of exposure that is less appealing than you might hope. Van Morrison’s voice on *Astral Weeks* [Warner], for instance, sounds as if it’s a little too much for the microphones: there is an audible strain. At the same time, what he is singing and what the band is playing has never been clearer. If you want to decipher lyrics I’m certain there is not a better speaker for the purpose; this was made clear playing Radiohead’s *A Moon Shaped Pool* [XL] where Thom Yorke’s mutterings were made intelligible for the first time in my experience. I’m not saying they made much sense, but the words themselves were clear. Separation of instruments and voices is likewise transparently obvious, so that you can hear the characteristics of each with utmost ease. One visitor put on a Bob Dylan track he has been playing for decades [‘Absolutely Sweet Marie’ from *Blonde on Blonde*, Columbia] and was stunned by how much he could hear in the mix, the way the drums sounded being particularly novel. Material with plenty of bass was even more explicitly exposed; this is where the room has the greatest impact on the overall sound and by minimising this aspect the Kii Three opens up the lower registers and makes them as transparent as the mid and top.

There is a problem with this, however. Speakers that interact with the room are the norm, it’s what we’ve been listening to all our lives; the sound of our favourite music is a combination of speaker and room. Rooms and speakers may have changed but the summing effect has always been there. Take that away and you have a different sound, one that seems less familiar. Is it less enjoyable is really the question of course. And the answer is an emphatic ‘no’. The original performance is the same, but it’s just that you can hear more of it, and with a bit of familiarisation it becomes even more engaging and transporting. The emotional quotient takes a bit of recalibration to appreciate but it’s still very much there for the taking and I found myself becoming quite misty eyed with some old favourites. I also found that for once the Innuos Zenith SE server was not the best source for the job, which became apparent when I switched to a Melco N1ZS/2A. This server has a slightly warmer, smoother character that suits the explicit balance of the Kii Three very well indeed. Both servers were streaming through an AURALiC ARIES G2 before the signal went to the Kii Controller (which sounds a lot better than taking a direct USB output from either server), but the subtle ▶



TECHNICAL SPECIFICATIONS

Type: Six-driver, standmount speaker with active drive, DSP crossover and sealed enclosure

Driver complement: One 25mm tweeter; one 127mm midrange driver; four 165mm bass drivers. Materials not specified

Crossover frequencies: Not specified

Frequency response: $\pm 0.5\text{dB} - 25\text{kHz}$, 20Hz -6dB

Amplifier output: 6x250W full-custom Ncore

Input sensitivity: Not specified

Inputs: Analogue (via XLR), AES/EBU (via XLR), KiiLink (via RJ45)

Dimensions (HxWxD): 400 x 200 x 400mm

Weight: 19kg/each

Finishes: standard white, graphite

Price: £11,000/pair

Kii Controller: £1,500

Kii Stand: £1,000

Manufacturer: Kii Audio

Tel: +49 (0) 2202 - 2356289

URL: kiaudio.com

Distributor: Sound Design Distribution Ltd

Tel: +44 (0)2920 679779

URL: sounddesigndistribution.co.uk

► change in balance made the Melco the better partner, the one that with good recordings transcends the usual limitations of reproduced audio to create a palpably real musical experience. The recording that did this most effectively was Fiona Boyes' *Professin' the Blues* [Reference Recording], which always sounds good but here became so vivid that it was exhilarating.

Less 'audiophile' recordings also sounded extraordinary; Arab Strap's 'New Birds' [*Philophobia*, Chemikal Underground] revealed its unusually wide dynamic range and more of both the Glaswegian accent of the singer and the beautiful texture of the bass guitar. It all comes back to the bass; other speakers sound warmer and fuller because the bass is being reinforced by the room. Here, the bass seems leaner because it's not doing this but at the same time it extends very low and remains perfectly in time. The Kii Three doesn't sound like a typically fast or timely speaker but it stops and starts faster than virtually any other. The combination of high power active operation with minimal low frequency veiling means that

every nuance of the bass is that much easier to hear, and the denser the piece of music the more apparent this becomes. The dynamics on Beethoven's 5th are bang on and the bass on Steely Dan's 'Show Biz Kids' [*Countdown to Ecstasy*, ABC] is surprisingly deep and extended, suggesting that some tweaking must have been done for the digital release. But ultimately you are struck by how well put together this and other pieces of music are; the insight that this speaker provides makes this more apparent than ever.

I have to take my hat off to Bruno and his partners. In the Kii Three they have achieved what few others can match at a price that while high is almost a bargain by the standards of alternatives that can deliver similar resolution. Once you get a handle on what this speaker can do it's almost impossible to stop playing your old favourites and hearing stuff that is normally only hinted at. Fortunately (unfortunately for me) my pair was whipped away before the deadline, or otherwise you might have had to wait another month to find out! +