

Legend Acoustics

Kumbar Wirri (Big Red) Loudspeakers



Legend Acoustics is an Australian company with a remarkable design heritage that places it in a position of unique strength in the Australian market and stands it amongst the 'world class' in the crowded International loudspeaker arena. Legend's proprietor and chief designer, Dr Rod Crawford's prior speaker designing stint at Linn Audio was a factor in that company's 'golden age' of speaker production and resulted in some of Linn's most highly regarded models, amongst them the Kaber, Nexus, Keltik and Tukan.

The Equipment

The speaker that's the subject of this review is Legend Acoustics' new, top-of-the-line, 'Kumbar Wirri'—like all the speakers in Legend's line-up, they have an name in Australian Aboriginal language. It means 'Big Red' which is a species of kangaroo. The Kumbar Wirri is a two box per channel design made up of a slightly modified Kurre (Version 5) acting as the mid- and high-frequency transducer, sitting atop the Kurlo, a 500-watt Class-D powered bipolar subwoofer. Both designs are available individually—albeit in a slightly different

form for the Kurlo. The Kurre uses the highly-regarded Scanspeak 8545 driver (as used on many of the best speaker designs) for midrange/midbass duties and a 25mm Visaton KE25SC pure ceramic tweeter for the top end. The Kurlo is a cut-off pyramidal bi-polar subwoofer whose dual purpose is to serve as the stand for the Kurre, placing the tweeter at the ideal ear level, and provide the prodigious low frequency output of which this system is capable.

Contained within the elegant Kurlo are two Peerless XLS 254mm (10 inch) drivers, one either side of the enclosure. These are driven (in parallel) by the previously-mentioned 500-watt Class-D amplifier, which has a linear power supply. Connections and features are a-plenty, including a 180° phase switch, volume control, variable crossover frequency control (50–160Hz) and an auto stand-by power switch and circuit. Methods of signal connection are via low-level line input (RCA connectors) and high-level via conventional speaker binding posts.

My review pair of Kumbar Wirris came in a gorgeous piano black finish. The speakers will be soon available in real wood veneers such as Jarrah and Cherry, which will be

lacquered and polished to an equivalently high gloss.

Legend's Kumbar Wirri comes in two versions. The model I have described so far is technically known as the 'passive' version, though because of the active subwoofer, it would be more accurately described as 'semi-passive.' This speaker system retails for \$9,990. In addition, this flagship model is available in a fully active configuration (\$14,990) which includes DEQX's superb new PDC-3 digital 'Swiss Army knife' processor/amplifier.

The DEQX PDC-3 is an Australian-made 'all-in-the-one-box' digital solution that not only contains four Hypex Class-D amplifiers to power the Kurre's mid/high-frequency drive units individually, but astonishingly at the price, this extremely clever solution also provides room correction software via the supplied calibration microphone, speaker correction, timing error correction in real time, an active digital crossover, a preamplifier with analogue volume control and a 24-bit/192kHz digital-to-analogue converter (DAC).

What this means is that all an astute audio enthusiast needs in terms of additional

Brand: Legend Acoustics
Model: Kumbar Wirri (Big Red)
Category: Active Loudspeakers
RRP: \$9,990–\$14,990 (See Copy)
Warranty: Ten Years
Distributor: Legend Acoustics
Address: PO Box 448
 Huonville
 TAS 7109
T: (03) 6266 3600
F: (03) 6266 3643
E: info@legendspeakers.com.au
W: www.legendspeakers.com.au

“the Kumbar Wirris were on par with my far more expensive Wilson WATT/Puppy System 6 reference. Every finger-pluck and string vibration was reproduced clearly and cleanly with superb harmonic content”

hardware is a CD or DVD transport with a digital output to connect straight to the PDC-3's digital input and *voilà*, a fully operational system with complete and comprehensive DSP capabilities materialises in front of you. In addition, the PDC-3 includes further inputs, both digital and analogue, so that it can accommodate sophisticated multiple-source systems or for those who wish to utilise their precious exotic valve preamplifiers. Yet another (partially active) version is available where you may use the DEQX for all the DSP processing and DAC duties but use your own preferred amplification.

The Kurre's sensitivity is rated at 87dB SPL, about average for a speaker of its size, and presents a reasonably amplifier-friendly 7Ω impedance. System frequency response is claimed as 20Hz to 25kHz, but no dB down-points are stated. Recommended power for the top module is between 50 and 400-watts. Legend Acoustics provides a generous and confidence-inspiring 10 year warranty.

Fitting in the Pouch

I first configured the Kumbar Wirris in the active DEQX format. After placing the speakers in roughly the same position as my reference, Kim Ryrrie from DEQX and Rod Crawford began the reasonably straightforward process of calibrating and equalising the speakers in the context of my larger-than-average listening room. By the way, this installation did not constitute preferential treatment: a DEQX representative or a similarly-trained retailer will perform the same service for anyone who buys a pair of Kumbar Wirris, according to Crawford. Mind you, even if you're only modestly 'computer savvy' you can have a lot of fun setting up and playing around with the various software intricacies without the aid of a professional.

Using the supplied calibration microphone and a laptop, captured PDC-3 generated test tones resulted in a room response that Ryrrie graphed as being reasonably flat throughout the treble and down to the midrange. Good news so far. However, further south of the midrange

is where most rooms exhibit bass issues. And indeed, my room proved no different, with Ryrrie noting a couple of peaks in the 120Hz and 60Hz regions and a horrid dip round-about 35Hz. This is where the DEQX proves to be an incredibly powerful tool for audio enthusiasts. With a flick of a computer mouse Ryrrie literally dragged the curve into proper alignment, flattening it at the frequency points where it peaked and troughed to compensate for the inherent room modes. The subsequent sonic result was a total exorcism of room-related bass boom, with the upshot being tight, punchy and detailed bass like I've never before heard in my room.

In addition to the 'flat' room-corrected response, four individual EQ profiles can be stored in memory for your listening pleasure. The correct 'flat' version was stored as 'Profile 1', after which I asked Ryrrie to store a further profile with a 2dB lift in the overall bass region, purely to cater to my indulgence and warped sense of fun. Subsequent formal listening sessions were carried out using both profiles depending on the nature and recorded quality of each music piece.

Listening Impressions—Active

One of my reference recordings is the superbly produced Duet by guitar virtuosos Sylvain Luc and Bireli Lagrene. Legend's Kumbar Wirris conveyed an enormous amount of detail and power from the aggressively strummed guitar chords. Indeed, in those areas—as well as in transient speed—the Kumbar Wirris were on par with my far more expensive Wilson WATT/Puppy System 6 reference. Every finger-pluck and string vibration was reproduced clearly and cleanly with superb harmonic content confirming the quality of the ceramic tweeter and the seamless crossover to the midrange driver.

Voices, whether male or female, were crisp and extremely present—if slightly forward—giving the impression of vocalists being with me in the room. The micro-detail was outstanding, with low-level vocal intonations and subtleties clearly discernible.

Complex music such as the Flamenco/Indian-flavoured beats of Curandero's *Aras* is intricately separated, making all instruments within the mix easily discernable and yet the Kumbar Wirris maintained the musical whole coherently. They are extremely accurate transducers and with good recordings, they present the music with an uncanny sense of realism. Having said that, they can also be ruthlessly revealing, in that they will transmit all the hardness, compression and frequency-muddling that unfortunately is the product of mediocre audio engineering and poor studio techniques that is recorded on many CDs.

On Patricia Barber's superb *Modern Cool* disc, the Legends present her image locked centre-stage, the speakers never compromising their tight focus on all images. Soundstage width is almost wall-to-wall and depth is adequate. This recording features realistically captured upright bass and it's here that the Kumbar Wirris also excelled. Overall bass quality is outstanding, with power, depth and punch being as good as it gets. Rarely have I heard such detail and pitch accuracy when combined with 20 cycle depth. Bass notes stop and start on a dime, such is the speed of these 10-inchers, and there's a chest-numbing wallop in the kick drum sound that propels the music along and makes rock recordings very enjoyable indeed.

But how did this impressive all-in-one active performer compare with the passive version when hooked up to my reference amplification, equipment and cabling?

Listening Impressions—Passive

Hooked up to my reference gear via the passive mode, feeding the Kurre from my power amps and the Kurlo from the second preamp output, and using the supplied outboard crossovers, the Kumbar Wirris sounded a whole lot different. The presentation became more laid back, and the



soundstage grew deeper in depth while still maintaining its impressive width. Having said that, the expansion of the presentation in the depth perspective made the music less present and in turn less hyper-real than it was in active mode. Whereas in active mode the Luc/Lagrene sounded exceptionally realistic to me, in the passive mode the guitars were placed further back, away from the listener, and therefore less 'in the room' and more like 'in the concert hall'. In other words, the listening experience re-created by the Kumbar Wirris in passive mode was like sitting in a performance hall in the middle row, and the active interpretation was more intimate... like being in the front row at a small club or pub. Both are legitimate presentations, yet quite different in practice and boil down to listener preference.


Bass quality, however, took a turn for the bloomier and slightly boomier when I auditioned in passive mode. It's here that the room correction really proves its mettle. When passively configured, I found I had to often, depending on the recording, err, actively 'futz around' with the Kurlo's volume level to control the room's interaction and prevent the mid-bass issues from becoming problematic. Mind you, I was compensating for issues with my room's acoustics—not any inherent issue with the passive Kurlo. In fact, barring room issues, the bass quality in terms of detail, speed and pitch accuracy was still excellent... if not as superlatively controlled as in the active version.

I thought the other difference worthy of note was in the midrange. Via my valve preamplifier there is a sense of body and harmonic richness which is the trade-off for the active's more accurate and precise presentation. Listening to Patricia Barber, the passive Kumbar Wirris romanticised her voice, my valved preamp sweetening Patricia's tone, whereas the actively-configured Kumbar Wirris (via the in-built solid-state preamplification stage) cut her image with uncanny accuracy and dynamism. What's more, if you prefer a sweeter more valve-like sound, then you can always experiment with the DEQX to achieve

an added level of warmth throughout the midband frequencies.

Conclusion

Passively configured, Legend Acoustics' Kumbar Wirri loudspeakers are superb performers. The presentation perspective is more laid-back and not quite as razor-sharp accurate as in their active mode, allowing a listener a more relaxed, distant and slightly less dynamic musical experience that is however, still very enjoyable and equals or exceeds other high quality passive designs in its price range.

Invoking the active route transforms the Kumbar Wirris into more extroverted performers that pull no punches when it comes to revealing mediocre production values. In this mode, quality recordings present the listener with a dynamic and highly detailed reality-approaching facsimile of live music that can sometimes startle. The fact that the asking price includes all the amplification, digital-to-analogue conversion, digital crossover and room correction software inherent in the state-of-the-art DEQX unit is, for this high-spirited writer, the cream on a very flavoursome cake. 

Edgar Kramer

LAB REPORT

Readers interested in a full technical appraisal of the performance of the Legend Acoustics Kumbar Wirri (Big Red) Loudspeakers should continue on and read the LABORATORY REPORT published on the following pages. All readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

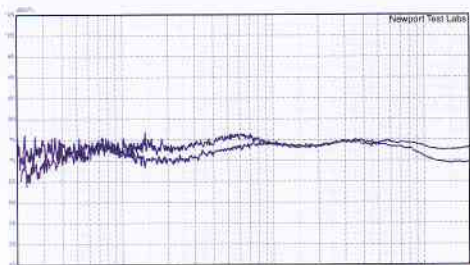
Test Results

Newport Test Labs tested the fully-active, DEQX-enabled version of Legend Acoustics' Kumbar Wirri, but because this enables the DEQX equalisation to be by-passed, many of the laboratory's measurements were made twice: once with equalisation applied, then again without. *Graph 1* is the first of such measurements. It shows the frequency response of the speakers using pink noise as the test stimulus, with and without DEQX equalisation. The results are not smoothed, hence the 'jagged' nature of the traces. You can see that the responses are remarkably similar, so the 'unequalised' response of the Kumbar Wirri is so good it doesn't actually need too much equalisation. It's immediately obvious that even unsmoothed, both traces essentially lie within a 5dB envelope, putting the Kumbar Wirri's frequency response at 20Hz to 20kHz ± 2.5 dB when measured at 3.0 metres, which is around the usual listening position.

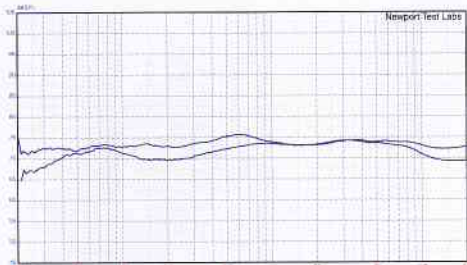
Graph 2 is essentially a duplicate of *Graph 1*, except that the two frequency responses have been post-smoothed by software to third-octave, so that you can better see the shapes of the traces. On this graph you can see that the slight roll-off below 40Hz has been boosted by the DEQX to the median level of the overall trace (shown as 72.5dB SPL on this graph), and the level between 100Hz and 300Hz lifted by 2.5dB, as has the level between 10kHz and 20kHz. The only slight anomaly remaining is a very slight 'bump' in the trace at around 600Hz. To put this in perspective, the 'equalised' trace is 20Hz to 20kHz ± 2.1 dB!

Graph 3 shows the Legend Acoustic Kumbar Wirri's DEQX-calibrated response between 500Hz and 20kHz. The stimulus for this trace was a gated sine signal, which simulates a quasi-anechoic environment, but introduces a technical limitation that prevents acquiring frequencies below a certain limit: in this case, 500Hz. As you can see, the Kumbar Wirri's response is phenomenally flat. Indeed this is the best and flattest response I've seen from any commercial loudspeaker design. Between 500Hz and 10kHz, the response is ± 0.8 dB, which is simply an amazingly good result. Above 10kHz, the response dips a little (1.9dB) to 15kHz, before rising to be just 1.2dB down. Normalised, this puts the Legend Acoustics Kumbar Wirri's response at 500Hz to 20kHz ± 1.2 dB.

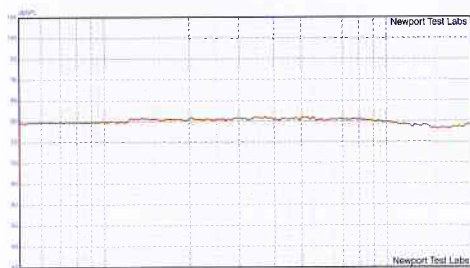
The nearfield response of the bass section (*Graph 4*) shows excellent linearity. It appears that Legend (or DEQX) is deliberately rolling off the frequency response below



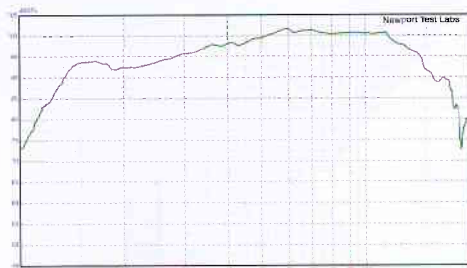
Graph 1: Pink noise frequency responses (unsmoothed) for DEQX-equalised and unequalised, measured at 3.0 metres. Legend Acoustics Kumbar Wirri (Big Red).



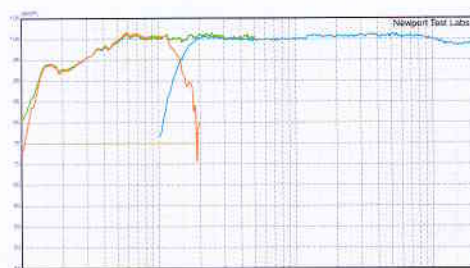
Graph 2: Pink noise frequency responses (unsmoothed) for DEQX-equalised and unequalised, measured at 3.0 metres. Legend Acoustics Kumbar Wirri (Big Red).



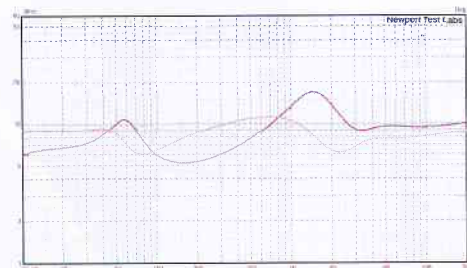
Graph 3: Gated sine frequency response (unsmoothed) of mid/high high-frequency section only, DEQX-equalised, measured at 1.0 metres. Legend Acoustics Kumbar Wirri (Big Red).



Graph 4: Nearfield response of lower section, after DEQX equalisation. Legend Acoustics Kumbar Wirri (Big Red).



Graph 5: Composite trace showing near-field response of lower section (red trace), near-field response of midrange driver spliced (at 450Hz) to gated response of tweeter (blue trace) and computer-summed response (green trace, see copy) of bass and midrange sections for Legend Ac. Kumbar Wirri (Big Red), with DEQX active equalisation.




Graph 6: Impedance vs frequency, plus phase, of Legend Acoustics Kumbar Wirri (Big Red) loudspeaker, top section only, measured using external passive crossover network.

14Hz. The high-frequency response of the bass section is deliberately rolled-off above 120Hz to ensure it integrates properly with the midrange driver, as shown in *Graph 5*.

Graph 5 is a composite trace, where *Newport Test Labs* has extracted the nearfield response of the bass section (red trace), spliced the nearfield response of the midrange driver to the one-metre response of the tweeter (blue trace) and then placed both traces on the graph. The lab has then used software to 'add' the two traces together, to simulate the acoustic summing that would take place if it were possible to make such a measurement in real life. This 'summed' response is shown as the green trace. You can see that it spans the 'gap' at 150Hz so neatly that this is truly a 'textbook' example of good design and indisputable proof of DEQX crossover technology.

The final graph (*Graph 6*) shows the impedance of the top section of the Kumbar Wirri, measured using Legend Acoustics' external passive crossover network. As you can see, the impedance never drops below 5Ω, and the phase swings less than ±30° so the speaker will be very easy to drive.

I am certainly most impressed by the performance of Legend Acoustics' Kumbar Wirri speakers, most particularly by the incredible linearity of their frequency response. I am not, however, surprised, because until the arrival of the Kumbar Wirri, the speaker that held the record as being the flattest ever measured was NHT's Xd—and this speaker system also used DEQX technology. 

Steve Holding

