

SPEAKERS? OR SYSTEM?



With D/A conversion, Bluetooth, DLNA streaming and intelligent DSP equalizers, KEF's LS 50 Wireless blurs the boundaries between active monitor and compact system



◀ From the outside, it is hard to see how the complexity of the UniQ driver in the LS50 Wireless.

One analog, one digital, USB and a subwoofer-out, plus LAN, WLAN and Bluetooth – the connectivity of the system is comprehensive. ▼

The growing appetite for active loudspeakers is boosting the variety of the species, to the point where we are increasingly confronted with self-amplified transducers that could replace a complete HiFi chain. The Avantgarde Acoustics Zero 1 and Dynaudio's superb Focus 20 XD are just two of the more prominent examples, but KEF's new LS 50 Wireless goes one step further, taking the concept of the digital/analog all-rounder with Bluetooth, and adding to it full streaming functions including access to subscription services.

In size, the compact speaker differs only slightly from the original LS 50, unveiled by the British manufacturer in 2011 on the occasion of its 50th anniversary. In fact, look at both from the front and you might think they were the same – but then all the clever stuff is round the back.

Proven qualities

In the last five years, KEF's designers have made a few fine improvements to the cabinet design, most notably the rear-venting elliptical bass reflex port: it consists mainly of flexible foam, the micro-porous



surface of which drastically reduces undesirable airflow noises.

However, they have left untouched the signature feature of all KEF speakers, the famous UniQ drive unit, which places the tweeter in the 'throat' of the mid/bass unit in an attempt to get the drivers closer to an ideal, coherent, 'point source'. The tweeter has waveguide fins to broaden its beam pattern, and the arrangement of the single UniQ unit in the centre of the baffle is of crucial importance, as the unavoidable reflections at the edges of the cabinet are thus distributed evenly, contributes to the homogeneous and extremely direct character of the LS 50 – according to the manufacturer. In addition to the dark red driver in a 'Titanium Gray' enclosure, as supplied for this review, the LS 50 Wireless is also available with a deep blue driver and a gloss black enclosure, or gloss white with a lustrous copper color to the drive unit.

Each is striking in its own way, and we wish more speaker designers would occasionally show a spark of such flair.

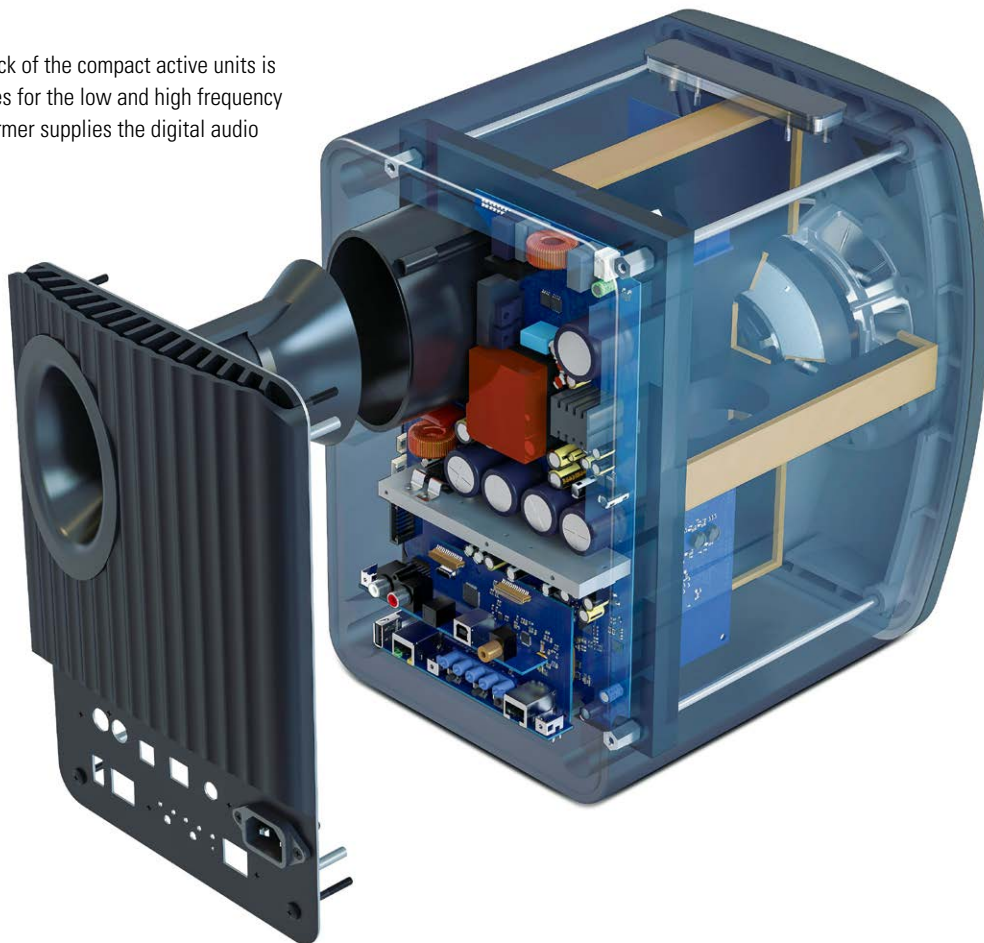
Despite all its similarities, the new wireless offers a number of advantages over its passive 'donor speaker' – not least is that, thanks to its built-in digital signal processing, it can do without an analog crossover. The digital equivalent overcomes all the weaknesses and losses an analog network causes, including the negative effect on the timing of a loudspeaker: the software-controlled equivalent with its phase-locked digital filters ensures a perfect melding of high frequencies and low/midrange sound. In addition, distortions in the driver and amplifier modules can be compensated for using digital correction.

Each speaker uses two amplifiers, with a 30 Watt Class A/B amp for the treble driver and 200W of Class D amplification for the mid/bass, although experience with the passive LS 50 suggests it wouldn't be a problem using this driver with even more amplifier power. However, here the DSP has a further advantage, in that the software knows exactly how the coaxial chassis behaves in the respective frequency ranges, allowing the wattage supplied at any time to be adjusted to the requirements, with a limiter available to



◀ The LS 50 Wireless can be controlled via remote control and touch-buttons even without a smartphone and app. However, you will not be able to access the DSP-EQ, and streaming is much simpler with the app.

A good part of the electronics at the back of the compact active units is to do with power, with separate supplies for the low and high frequency amplifiers. A third switch mode transformer supplies the digital audio section and DSP. ►



back off the power as soon as it becomes critical for the drivers.

All of this gives these active speakers a tone of voice richer, more voluminous and more dynamic than one would ever expect from a speaker of this size, an impression confirmed by our measurements. The bass ranges down to 48 Hertz, meaning that while a subwoofer output is provided, such assistance will hardly be needed in small and medium-sized rooms.

The two speakers in the system look different from behind, although both share heatsink fins for the built-in amplification: while the right-hand speaker offers a full range of analog and digital inputs, the left-hand speaker only has a LAN-style socket and a handy balance control for manually compensating for any level differences caused by the setup. Each speaker has its own phalanx of processing and a Wolfson WM8740-DAC from Cirrus Logic, which converts the signals from the signal processors with 192kHz/24bit precision and passes them on to the two power amplifiers.

Many input formats

Among the inputs for external sources there are one analog (cinch) and one for a digital player (optical, max. 24/96) are possible. This may seem a bit lean at first, but in practice it should be enough – after all, the number of digital connections can be increased by using separate switch boxes such as those from InLine (by 30 to 50 euros).

A USB Type B asynchronous connection for a computer is also provided, able to handle content at up to 192kHz/24bit: KEF provides a free driver for Microsoft and MacOS, and once this is installed, the LS 50 will accept from Windows PCs

the fine sounding ASIO, kernel and WASAPI drivers.

Double setup

However, the main inputs are likely to be the LAN connection and the invisible dual-band Wi-Fi antenna, allowing easy integration of the speaker into any home network. In addition to DHCP (automatic allocation of the network parameters) it is also possible to impose a static IP address by entering the network address of the 50s - which you can find out in Explorer or in the Finder of a networked computer - in a web browser. The same view will also allow you to allocate a name to your pair of speakers, which is handy if you run multiple LS 50 Wireless systems on the same home network.

To gain access to all parameters of the loudspeaker, you need to install KEF's free "LS 50 Wireless" app on your Android or iOS smartphone or tablet: from this you can manage several pairs of boxes in

parallel and define all necessary environment variables in two different menu levels. These access to identical parameter sets, but they are prepared for beginners and professionals in terms of labeling and complexity: while beginners can simply specify how large their listening room is, whether the speakers are on a desk or

stands, and the distance they are placed from a rear wall, experienced users can, for example set the exact frequency at which the high-pass filters should operate.

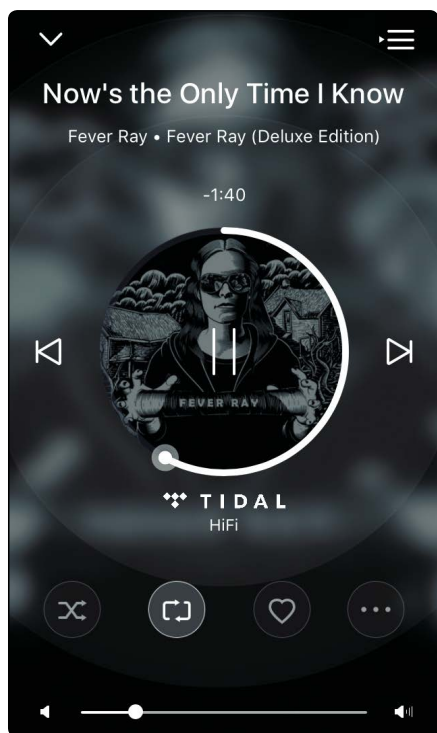
The complex equalizers, which even take into account the distance to the side walls, allow the precise adjustment of the active monitors. For example, we operated the LS 50 on one of our editorial desks with an extremely short

distance to the wall behind them wall distance, and just a few simple steps in the app were enough to tune the EQs such that the sound was so light-footed, transparent and focused it was as if there was no wall. However, in such near-field

KEYWORD

COAXIAL DRIVER:

This is the term for loudspeaker drivers in which several drive units are combined – as here, where the tweeter is 'nested' inside the throat of the mid/bass driver. Some loudspeakers combine up to four drivers: for example, in Geithain loudspeakers individual drivers are overlaid on each other.



▲ The remote app for the LS 50 masters DLNA streaming and also accesses Tidal.

situations, it can be worthwhile to invest in 'studio style' foam angle pads on which the LS 50 can be tilted slightly backwards. Thomann and other studio equipment manufacturers are already offering such a package for 20 to 30 euros.

Wide-angle sound

In general, we noticed that the KEF doesn't concentrate the sound on a restricted listening position: as you can see in our measurements on the right, the frequency response is almost identical right on axis and at an angle of 30 degrees. This is really unusual for a coax driver, since the surrounding woofer/midrange driver acts physically like a horn opening for the central tweeter. The KEF developers have really done a lot of work, meaning we didn't have to worry too much about angling the speaker.

All this also applies to use in the listening room, although course, the active 50s can easily be adapted to suboptimal locations such as shelves or sideboards with their sound controls. We were amazed at how transparent, open and

punchy the 50's are when you adapt your EQs to a near-wall position with just a small adjustment, but of course the speakers sound best on stands with a suitable distance to the wall, which bring its drivers to eye level.

So positioned, they projected Carolin No's "Still Waters Run Deep" from our hearing test CD VIII into the small STEREO listening room, the voice of the singer having incredible presence and conveying a high degree of emotion. The synth bass resounding in the background sounded full and deep, but without any compression effects – we could hardly believe how dynamic and steady these little speakers sounded.

Streaming aboard

LAN and WLAN are there to do more than merely connect the LS 50 Wireless with the App: their actual task of network access is streaming, and the KEF can be networked with any UPnP and DLNA server via its app, swallowing everything up to 24/192 – although not DSD or MQA.

It also works with Tidal, one of the two lossless subscription providers, and a patch is planned for Spotify, meaning LS 50 Wireless owners should occasionally look for software updates on the manufacturer's homepage, which may contain further interesting features and improvements in detail. Updates can be carried

out using a Windows computer only at the moment, but a Mac OS updater is on the way, we're told.

If you don't have a Tidal subscription, no need to mourn: audio signals from smartphones, computers and tablets can also be directed into the loudspeakers via Bluetooth, and sound awfully good thanks to aptX. In particular, the data of lossy services such as Apple Music is transported into the loudspeaker via Bluetooth without any discoloration, the annoying artifacts and the digital frenzy of earlier Bluetooth standards having long since disappeared.

With the combination of its lively sound and extensive features, the LS 50 Wireless is definitely a multimedia monitor of the highest quality. This smart active approach virtually guarantees great entertainment!

Carsten Barnbeck

KEYWORD

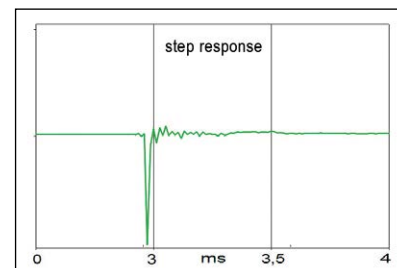
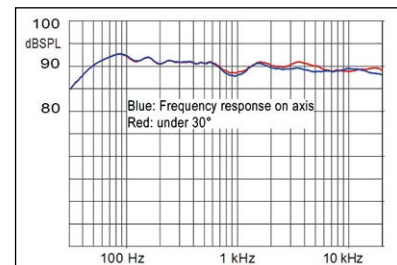
WASAPI: Just like „Kernel“, a WASAPI driver bypasses the Windows operating system's own mixer console. The audio signals are therefore not converted (Windows works internally with 24bit/48kHz), and in WASAPI exclusive mode, additional audio signals from the computer (system tones, etc.) are also suppressed. This gives the best possible playback from a computer.

KEF LS50 WIRELESS

Price: € 2300
 Warranty: 2 years
 Dimensions: 20 x 30 x 31 cm (WxHxD)
 Contact: KEF
 www.kef.com

Conclusion: Excellent active loudspeaker with a lively sound, covering a huge range of applications from desktop monitors to multimedia hi-fi speakers.

MEASUREMENT RESULTS



Lower cut-off frequency (-3 dB SPL)	48 dB
Distortion factor 63 3k 10k Hz	1.0 0.3 0.1 %
Power consumption	
Standby Idle	0.5 13.4 Watt

LABORATORY COMMENTARY: Balanced frequency response, superb step response. In bass the cabinet reaches down to 48 Hertz.

CONFIGURATION

Functions: Active loudspeakers with internal level control and flexible DSP-controlled equalizers: simple room presets can be set via buttons on the rear of the right speaker, with more extensive adjustment available via a free remote app (Android/iOS).

Connections: analog input, optical input (24bit/96kHz), USB audio (24bit/192kHz), LAN, WLAN (dual band), Bluetooth 4.0 incl. AptX

Sound formats: FLAC, AIFF, LPCM and Ogg up to 24bit/192kHz, WAV up to 24bit/48kHz, MP3, WMA and AAC up to the maximum data rate in each case

Accessories supplied: remote control, USB cable, power cables, two Ethernet-type cables for LAN and connection between the speakers

STEREO-TEST

SOUND QUALITY **63%**

PRICE/PERFORMANCE

★ ★ ★ ★ ★
OUTSTANDING