



LS 3/5a Monitor



cicable PXO

- Upgrading of legendary loudspeakers with external crossovers ...

new!

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These speaker upgrades are outstanding!

Up to now most improvements of loudspeakers were accessory upgrades, like cables, stands, spikes etc.. This time the cicable® external crossover, designed by Derek Hughes, best known for his work at Spondor, shows the full potential of a really well engineered crossover / speaker combination.

These first covers, for the BBC-monitor LS3/5a and Spondor's BC1 speakers, show a remarkable sonic improvement.



Both cicable covers are designed as a "no compromise" device and will improve your high grade speaker system more than any other accessory.

The potential for possible improvements is greater than you might believe, for nearly any good speaker system. But it is not possible just with a change of components to achieve the performance of a cicable cover. Fine-tuning and new, rarely used, constructions of inductors gives a performance level which is not possible by normal production methods.

cicable® starts with with covers for the very well known BBC monitor **LS3/5a**. The covers support all brands of the LS3/5a as well as both versions, the original 15ohm version as well as the latest 11ohm version. The latter incorporates a specially designed autotransformer instead of the resistive ladder network.

Both versions will also include an extra tweeter impedance compensation circuit to reduce the effects of the T27 resonant frequency characteristic.

new!

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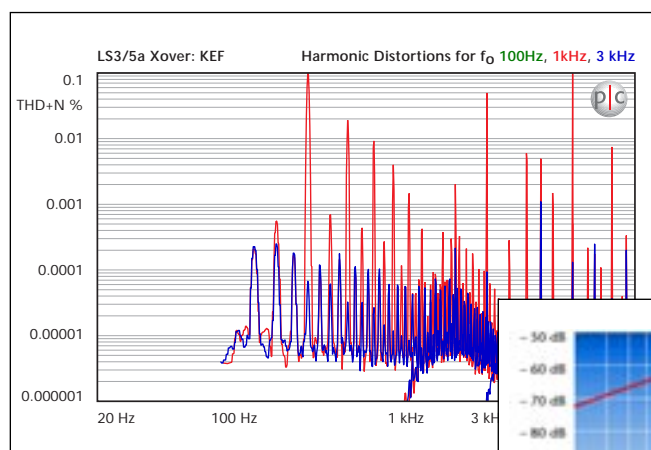
The first version for the legendary Sendor BC1 monitor is ready this month. The first listening tests show up an unbelievable sonic improvement.

Crossovers for other high end speakers are planned in the future. We also design and optimise individual solutions for customers on special request, - please call us for further information.

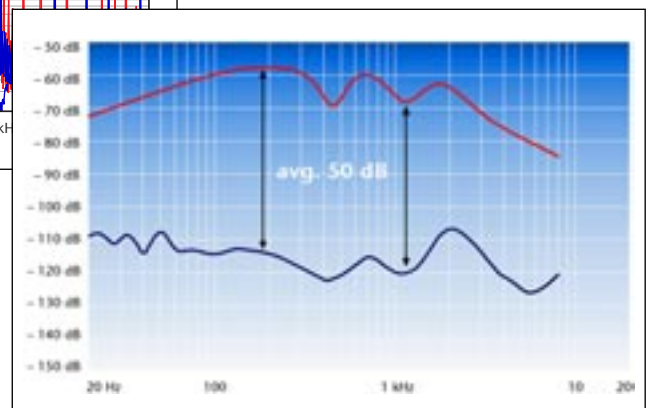
Concept, Design and Components

The crossover are designed as external units, so that they are not influenced by the loudspeaker cabinet vibrations and the magnetic field of the drive units.

Special over-dimensioned components will reduce the amount of distortion by more than 50 dB, so that distortion mainly depends on the amplifier and not on the loudspeaker xover design.



Distortions measurements prove the incredible improvement of the new xover in comparison to the original. Average the most significant k3-distortions are about 300 times lower !



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- clean sound
- silky top performance
- more natural
- improved stereo image
- less fatiguing and artificial
- unique blend of analytical and musical sound reproduction
- extremely distortion free
- improved amplifier matching [i.e. valve amps]
- individually matched

We use specially wound autotransformers to achieve lossfree level matching of the tweeters. A positive side-effect is a smoother impedance curve which is good for critical amps, especially valve amps. Special compensation networks smooth the impedance curve in the area of tweeter resonances even more.

The crossovers are individually adjusted to the customer's speakers. Therefore we can offer 0.3 dB frequency response tolerance due to 1% tolerances of the components.

The crossovers are available in two versions, STANDARD and PREMIUM. The PREMIUM version has further refinement in performance because of even better components in the signal path as well as tighter tolerances.

First reports from England and Germany described the crossover in combination with a pair of LS3/5a as „killer crossovers“.

We believe that this upgrade path is for many hi-fi and music enthusiasts the solution that gives the greatest audible improvement to the quality of their system and will be an unrivalled accessory.

cicable crossovers – a must for any music- and hi-fi-enthusiast !



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Main features at a glance !

! Dramatic reduction of harmonic distortions to near the measurement limit [see graphs]

! The harmonic distortions merely depend on the ones generated by the amplifier and not by the xover.

! Optimised and smooth impedance response improves the inter-connection to amplifiers especially to valve amps.

! Highgrade air chokes reduces distortion by an average of 50dB.

! Low capacitance of the inducters [PREMIUM versions]

! 100% higher damping factor in the LF band because of extremely low DC resistance of high grade inductors.

! Many years experience in auto-transformer design provide an exact tweeter adjustment to each LF unit. This also improves performance of some amplifiers [especially valve amps!] due to higher and smoother load impedance.

! Use of autotransformers instead of resistor networks throughout to adjust the tweeter without losses for an optimal and load-friendly behaviour.

! Use of capacitors with $\leq 1\%$ tolerances

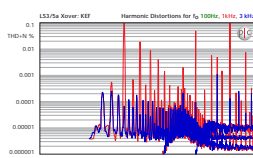
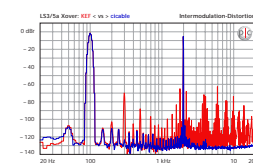
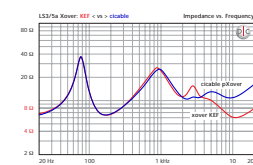
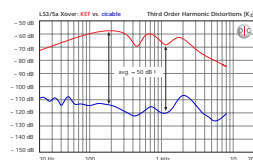
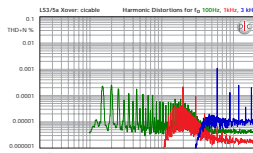
! 25 times lower dissipation factor of capacitors [250 times for premium version] with consequent improvement in linearity

! Change of dissipation factor at high frequencies reduced by 50%



new!

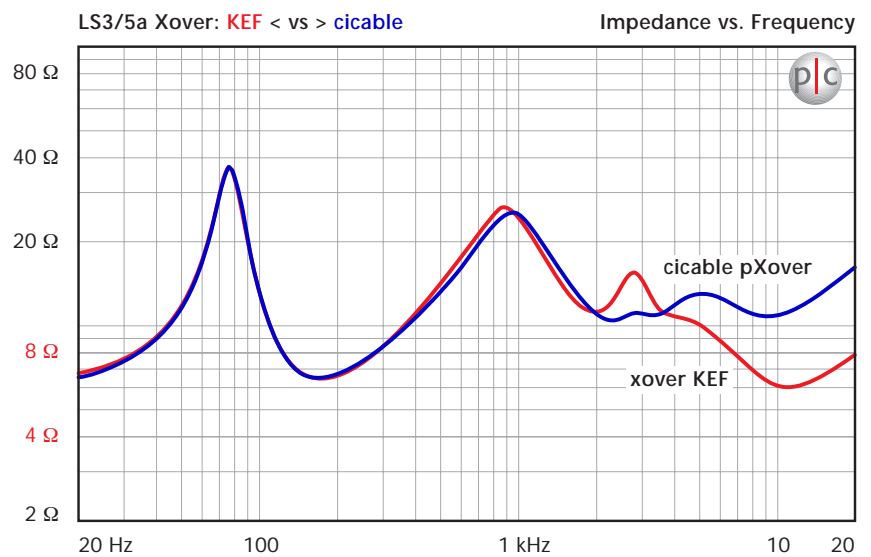
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- ! 95% improvement in linearity of tolerance at high frequencies
- ! Capacitance variation with temperature improved by about 400%
- ! 0.3 dB precision in filter pass-band [to -6dB point of filters] and pair matching of both the high-pass and low-pass filter
- ! Capacitance variation over time improved by about 5 times
- ! Bi-Wiring [and Bi-Amping] helps to improve the current flow by separating the HF & LF ground return currents.
- ! Up to 10 times reduction of static magnetic field and vibration due to crossover being outside the speaker [especially the static field near the inductors working like a „magnetic DC offset“]
- ! Less component „cross-talk“ due to spacious external box plus high grade PCB with low resistance tracks giving the opportunity to arrange components for best performance
- ! Close tolerances and pair matching to the customer's original crossovers via „customer questionnaire“.
- ! If you are interested in detailed technical data please see some of the measurements which were made with a 11Ω LS3/5a speaker > see following pages
- ! Individual customised solutions on special request



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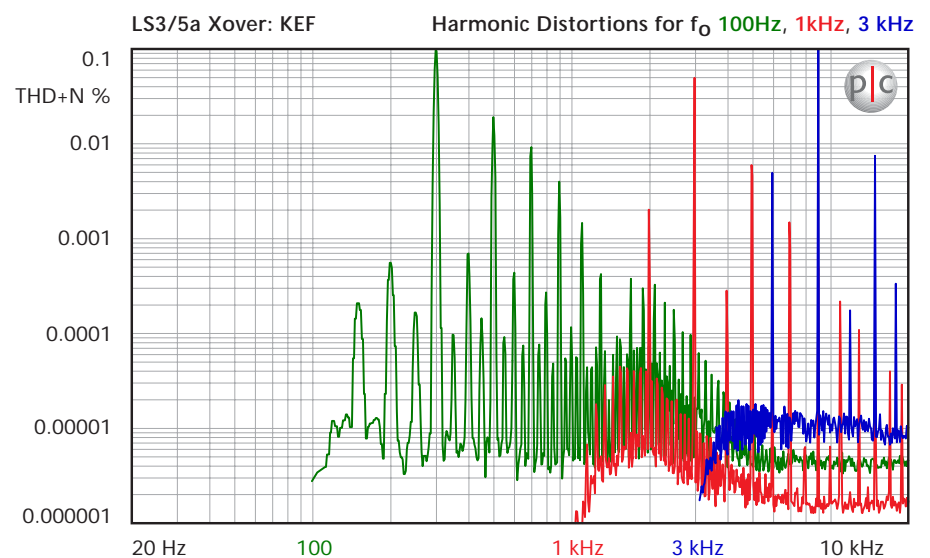


Impedance [example of a LS3/5a]

The impedance curve shows the difference between the original 11ohm KEF xover and the new cicable xover. - It is obvious that the response is smoother especially in the area where the units cross.



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Harmonic Distortions > LS3/5a 11Ω KEF

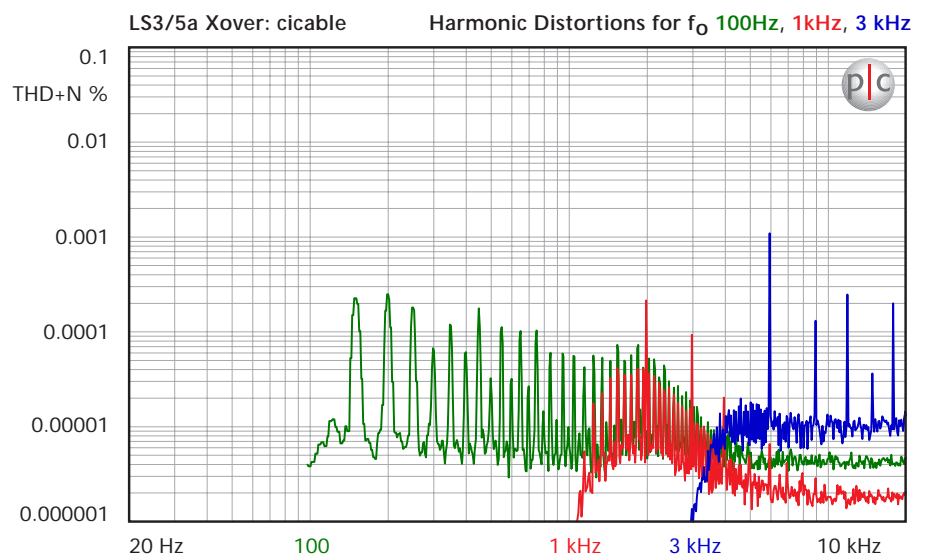
The measurements showing the spectral distortions for three frequencies: 100 Hz, 1kHz and 3kHz which are filtered out by a notch filter. The rest you can see consist of harmonics, noise and intermodulation artefacts which are not harmonically related to the input frequencies [$> 100\text{Hz}$, 1k, 3k].

Most obvious are odd harmonics [k3, k5, k7 and so on], with the third harmonic [k3] dominant at 0.1% which equals to -60dB.

Please note that the measurements were taken with at a level equal to about 30Watts @8 ohm, a very practical value.



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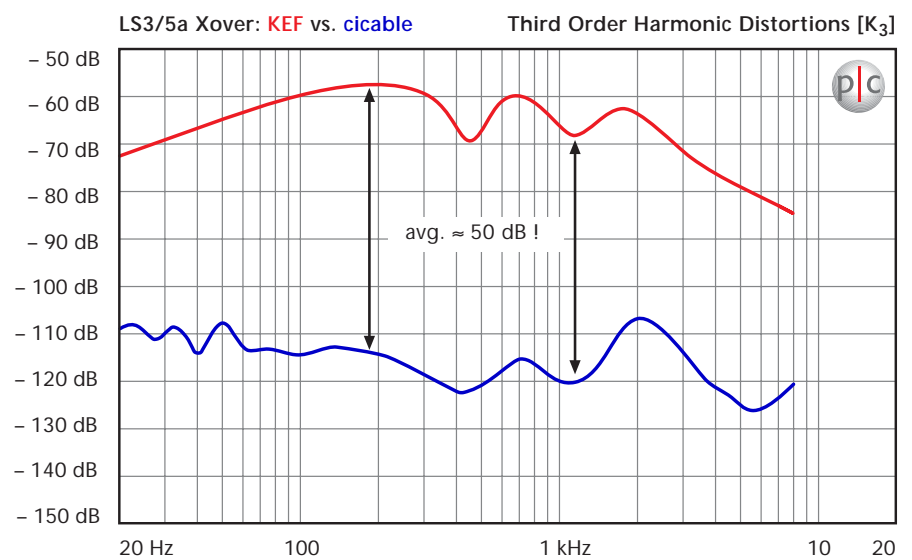


Harmonic Distortions > cicable xover KEF 11Ω

As before, the measurements show the spectral harmonic distortions via the cicable cover. The spectrum at the output of the cover is about 40dB lower [third harmonics]. All other distortions are even further down! and are almost completely masked by the noise of the test amplifier.



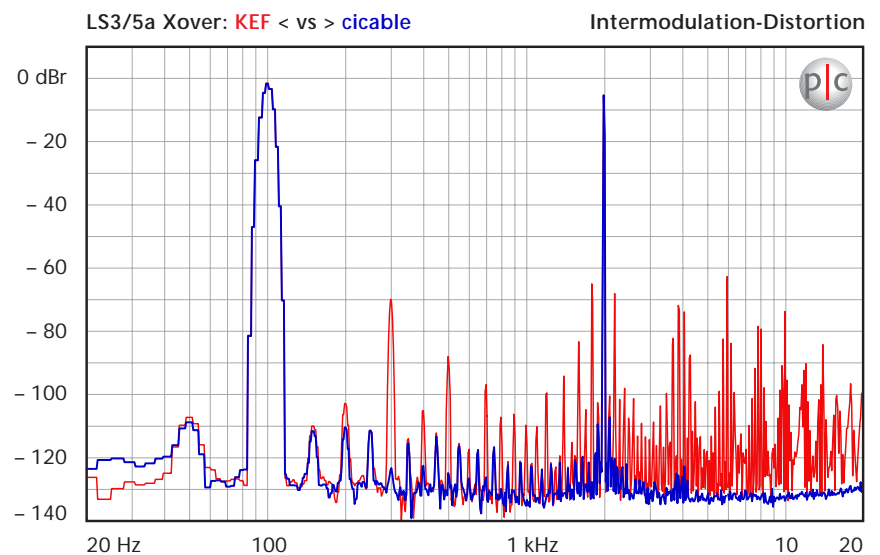
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Third harmonic distortions [K₃]

As explained before third harmonics are dominant. The above measurement shows third harmonic distortions over frequency only for both crossovers the original KEF and the cicable. The result is nearly a 100% improvement because of an average reduction of -50dB!

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Intermodulation Distortions

How great the improvement is becomes obvious by looking for the spectrum of the intermodulation distortion, - here for the two frequencies of 100Hz and 2kHz in the low frequency path. Density and quantity of the sideband distortions especially of the third harmonics lets one imagine how much the audible „detail“ improvements will be especially in the mid-band. The average improvement of intermod distortion is about 45dB !!



