The KEF Reference Series has, over the years, included more than its fair share of design classics. Model 107/2 represents a comprehensive revision of an already remarkable speaker, KEF’s original and enduringly successful, flagship Model 107. Powerful, extended bass, combined with high efficiency and reasonable size is a claim often made, but rarely substantiated. Model 107 firmly justifies those claims, being praised world-wide for quite remarkable bass extension, transparency and articulation, with exceptional levels of clarity and image capability in the midband. These characteristics are now further advanced by the incorporation of a new 25mm (1”) aluminium dome tweeter giving additional refinement at high frequencies, a re-balanced midrange section giving even greater resolution and accuracy in soundstaging, twin input terminals to allow bi-wiring or biamping, and a furtherance of the user-convenience facility derived from the inclusion of an entirely new KUBE (KEF User-variable Bass Equalizer).

The low-frequency system

Model 107/2 uses the twin coupled-cavity bass loading method perfected by KEF. Bass radiates vertically through a port in the top face, well clear of the floor and immediately adjacent to the midrange drive unit for the best output integration. The bass driver axes are vertically orientated, with each unit working from its own sealed enclosure towards the central cavity. A metal rod connects the two magnet systems rigidly together, cancelling the boom set up by the units themselves, and thereby preventing the transfer of energy to the main enclosure. This results in a very much lower level of non-linear distortion than is achievable using conventional techniques, with tight control maintained in the region around 90Hz where music power is concentrated.

An additional advantage of the complex cabinet construction is that the internal dividing panels add strategic non-symmetrical stiffening; this helps prevent vibration in the main cabinet structure and further reduces colouration.

The midrange and high-frequency system

The special head assembly, which set the original 107 at the forefront of stereo performance for a decade, is still one of the best ways to combine a rock solid stereo image with low levels of midrange colouration. The head has now been extensively re-engineered, to give slightly larger internal volume and greatly improved structural rigidity. The shape, which substantially eliminates diffraction effects, and provides proper time alignment for the drivers, has been retained.

High density mineral-loaded polymer, particularly useful in controlling midrange enclosure panel resonances, is injected into the cavity walls of the 107/2 head assembly, with a thick layer covering the entire inside of the rear panel. The head assembly is then bonded together, reducing midrange colouration still further. Connection between bass cabinet and the head is made by high quality gold plated XLR connectors.

The B110 midrange unit has an improved voice coil and polypropylene cone, raising sensitivity and power handling to exceptional levels, whilst high frequencies are generated by a new ferro-fluid cooled aluminium high-frequency unit of 25mm (1”) diameter.

Integrated source

Combining this head assembly with upward-vented low-frequency energy enables the entire audiobandwidth to be directed towards the listener from an area little larger than the human head. Integration is thus optimised, ensuring exceptionally smooth dispersion into the listening room. Low-frequency directional effects are almost non-existent when compared with conventional forward-facing bass units, and the bass vent’s height above the floor (830mm) virtually eliminates uneven floor reinforcement effects.

The head assembly may be rotated, allowing the main enclosure to be placed to suit furnishing arrangements, while maintaining optimum sound balance and stereo imaging at the listening position.

Kube 107/2

KUBE is an active low-level equaliser supplied with, and dedicated to, Model 107/2. It provides both fixed and variable equalisation.

Fixed equalisation extends the speaker’s bass response down from its normal unqualified cut-off frequency of around 50Hz to +6dB at 19Hz (G=0.5). Variable equalisation allows the user to adjust low and high frequency performance to suit both room and programme.

Kube – the hybrid network

Normal crossover networks perform three quite distinct functions. They divide the frequencies between the different drive units in the system. They ensure an appropriate load match for the driving amplifier. They provide equalisation to shape the overall response of the system.

Model 107/2 uses a conventional passive network situated within the loudspeaker cabinet to perform the first two functions.

In a passive network, equalisation involves substantial loss of sensitivity, and therefore of dynamic range, whereas active equalisation avoids all such losses. Some of the equalisation elements of Model 107/2’s network are contained within KUBE, creating a unique 'hybrid' active/passive design which increases bandwidth and maintains dynamic range.

Kube: user-variable equalisation

The listening room could be described as the final frontier in loudspeaker engineering, since all speakers interact both with the room in which they are used, and with their position within that room.

All rooms are different one from another, and every room imposes its own ‘signature’ to detract from the potential of the loudspeaker. No speaker can sound equally well in all rooms, and certainly not in all positions within those rooms.

In addition, an ideal reproducing system must have a very extended low-frequency response if the true character of the lowest musical sounds and recorded ambience are to be accurately conveyed. Although such information is present on modern recordings, it is seldom heard correctly due mainly to deficiencies in the low-frequency performance of conventional domestic loudspeaker systems.

Unfortunately, room problems are generally most serious at low frequencies. Sound radiates from the enclosure in all directions, the wavelengths corresponding to the main dimensions of the room. This causes reflections and standing waves, which have a disastrous effect on the loudspeaker’s performance.

Most important is the effect that reflection from nearby surfaces has upon the tonal balance of the loudspeaker system. This can cause a doubling of relative loudness of mid and low bass frequencies if the loudspeaker is close to a wall or corner compared with the balance when standing in free space.

KEF KUBE provides the user with the most effective means ever devised for adjustment of system balance to suit room conditions and musical preference.

The LF Contour control compensates for the effects of nearby room boundaries on bass reproduction, while HF Contour gives the listener the ability to adjust high-frequency level to compensate for live or dead rooms, or off-axis listening positions.

What about the music?

Every aspect of 107/2’s design has been carried out with specific demands of music reproduction in mind. Coupled Cavity bass loading places maximum power handling and tight control where the musical demands are greatest. Careful load matching and hybrid network design ensure that the system’s dynamic range and sensitivity are maximised.

Coloursations caused by diffraction interferences are eliminated by the contoured head assembly, and those caused by resonances are subdued by damping and the force-canceling system employed in the low-frequency section.

Precise matching of amplitude and phase, and careful control of on and off-axis response ensure that the directional and ambient information contained in the recording is preserved accurately in reproduction.

For years loudspeaker designers have dreamed of reproducing accurately the difficult bottom octave below 40Hz. Conventional technology requires an enclosure volume greater than 500 litres for satisfactory performance at high efficiency. Such cabinets are clearly impractical for domestic use.

In the KEF Model 1072 an enclosure volume of only 72 litres provides response extending downwards to 10Hz and below, with all that implies in terms of bringing recorded music to life. With KEF Model 1072, no longer is it necessary to trade bandwidth and size for efficiency. With KUBE the listener has both at his fingertips.
<table>
<thead>
<tr>
<th>Model</th>
<th>107/2</th>
<th>Model</th>
<th>KUBE 107/2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Response</strong></td>
<td>20Hz - 20kHz ± 2dB at 2m on reference axis.</td>
<td><strong>Type</strong></td>
<td>SP2163</td>
</tr>
<tr>
<td><strong>Directional Characteristics</strong></td>
<td>Within 2dB of response on reference axis up to 15kHz for ± 10° vertically, up to 10kHz for ± 30° horizontally.</td>
<td><strong>Description</strong></td>
<td>Active equaliser providing fixed and variable equalisation.</td>
</tr>
<tr>
<td><strong>Maximum Output</strong></td>
<td>112dB spl on programme peaks under typical listening conditions</td>
<td><strong>Controls LF Contour</strong></td>
<td>Continuously variable shelf control allowing boost or attenuation over the range +4 to -60dB. Shelf centre frequency 160Hz.</td>
</tr>
<tr>
<td><strong>Enclosure Volumes</strong></td>
<td>Low frequency enclosure: 72 litres. MF/HF enclosure 8.5 litres.</td>
<td><strong>HF Contour</strong></td>
<td>Continuously variable control allowing boost or attenuation over the range +2.5 to -3.6dB. Centre frequency 4.5kHz.</td>
</tr>
<tr>
<td><strong>Amplifier Requirements</strong></td>
<td>Suitable for use with amplifiers capable of providing between 50 and 300W into 4 ohms resistive load.</td>
<td><strong>Rear Panel</strong></td>
<td>All signals inputs and outputs via gold plated phono (RCA) sockets.</td>
</tr>
<tr>
<td><strong>Nominal Impedance</strong></td>
<td>4 ohms resistive from 20 - 20,000kHz (anechoic conditions)</td>
<td><strong>Connections</strong></td>
<td>Power in (low voltage AC) via 5-pin DIN connector</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>45 kg (99lb)</td>
<td><strong>Input Impedance</strong></td>
<td>51 k ohms</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>x 448 mm (45.9 x 13 x 17.8 in)</td>
<td><strong>Max. Input Voltage</strong></td>
<td>&gt; 1.9Vrms above 20Hz</td>
</tr>
<tr>
<td><strong>Height of Origin of Reference Axis</strong></td>
<td>1020mm (40&quot;) above case of cabinet (not including feet)</td>
<td><strong>Output Noise Level</strong></td>
<td>&lt; 6uV A-weighted</td>
</tr>
<tr>
<td><strong>Angle of Reference</strong></td>
<td>+ 1.5° from horizontal</td>
<td><strong>Signal to Noise Ratio</strong></td>
<td>&gt; 104dB A ref 1Vrms</td>
</tr>
<tr>
<td><strong>Distortion</strong></td>
<td>&lt; 0.005% for 1Vrms input @ 1kHz</td>
<td><strong>Power Supply</strong></td>
<td>230V AC @ 0.3 A from factory supplied power unit</td>
</tr>
<tr>
<td><strong>Net Weight</strong></td>
<td>650gms (2.87lb)</td>
<td><strong>Dimensions</strong></td>
<td>65 x 152 x 234mm (2.6 x 6.5 x 9.2 in)</td>
</tr>
</tbody>
</table>

**NOTE:** Further information on the technology incorporated in the Reference Series Loudspeakers is contained in the brochure "The KEF Reference Series", available from your Dealer, or direct from KEF (part No: PL544EN01).

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KEF reserve the right to incorporate developments and amend specifications without prior notice in line with continuous research and product improvement.