PANPHONICS
Audio Innovations

Panphonics coaxial two-way audio element

Panphonics produces electrostatic audio elements which consist of two porous layers and a diaphragm attached in between them. The thin and lightweight structure enables speaker elements to be installed in locations where traditional cone speakers would not be applicable.

If the whole area of a large Panphonics transducer is excited with one input signal, plane waves are produced by the whole diaphragm moving in phase. Another option is to divide the element into multiple channels, driven by separate inputs. This enables the production of multi-channel elements, or active beamforming by controlling the timing and amplitude of the separate signals.

The small distance between the stators and the diaphragm makes it possible to use considerably lower voltages than in typical electrostatic loudspeakers. However, the same distance limits the movement amplitude of the diaphragm, restricting the low frequency output. One solution to this is to produce larger movement amplitude of the element surface by attaching a voice coil or several voice coils to it. If the attachment of the element is flexible, the whole element is moved according to the low frequency excitation of the voice coils. A two-way audio element is produced by joining the advatages of two loudspeaker technologies: the voice coil and the electrostatic principle.

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