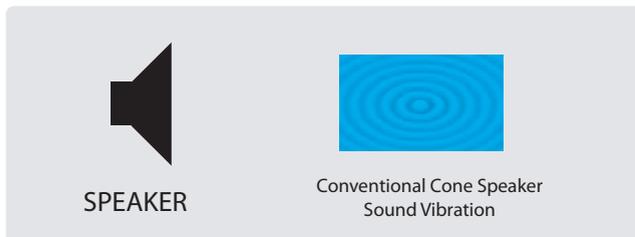


Layered Sound LST

What is a conventional speaker ?

A conventional loudspeaker uses the diaphragm---whatever its shape and whatever its means of motivation---as a piston, at least over much of its operating range. It is intended to move as a rigid, coordinated whole to displace the air at its surface.

It is an inevitable feature of conventional speakers that they are very directional.



What is a Distributed Mode Loudspeaker?

Pioneered by NXT, a DML in its simplest form is a flat, thin and light panel that radiates acoustic energy by sustaining bending waves, rather than by pistonic motion. By initiating and exploiting multiple, organized bending resonances in the panel, this distributed-mode behaviour results in complex vibration, which in turn creates the sound you hear.

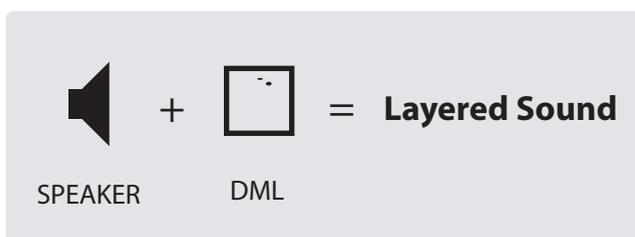
A feature of DMLs is that they are non-directional.



What is Layered Sound ?

Layered Sound is the term used to describe the process of combining a conventional and a distributed mode loudspeaker, to produce the same audio signal.

This combination, when used in the correct configuration, delivers to the listener sound that is clear, spacious, better imaged and more pleasant to listen to.



Can you hear me at the back ?

Increasing the sound output level on a conventional speaker set-up, just to ensure that the people at the back can hear, is not a solution. Too much energy in the audio stream creates all sorts of problems in terms of destructive interference, balance, intelligibility, and in extreme cases, physical pain. If a listener does not receive a natural balance of onsets and reflections, they cannot enjoy, or in the case of voice announcements, understand, regardless of the loudness. Natural sound is received as a mixture of direct, or correlated, signals and indirect, reflected, or de-correlated signals. It is the correct quantity and balance between correlated and de-correlated sound that provides clearer understanding and enjoyment. The mixing of conventional and distributed mode loudspeakers (Layered Sound) creates a more natural sound in any audio environment. Layered Sound installers are required to complete a one day training course to fully understand how to apply this in any given situation.

" Testing, testing.....one, two.....one, two "

Concert halls around the World are judged by their sound quality.

The main objective measure for spaciousness is :

IACC-Inter Aural Cross-Correlation coefficient

IACC measures the cross-correlation between the signals that arrive at the two ears of a listener, The more dissimilar the signals, the more spaciousness is perceived.

Here are some such measurements.

Concert Hall	IACC
Amsterdam, Concertgebouw	0.62
Basel, Stadt-Casino	0.64
Berlin, Konzerthaus	0.66
Boston, Symphony Hall	0.65
Tokyo, Hamarikyu Asahi	0.70
Vienna, Gr.Musikvereinssall	0.71
Zurich, GroBer Tonhalleaal	0.71

Layered Sound has been tested both in anechoic chambers and real-life concert hall installations and proven to significantly improve the IACC measurement.

Layered Sound installers are required to complete a one day training course in measurement systems before any installation they have completed can be certified as Layered Sound.

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