

Line Array Microphones?

Another "new idea" rediscovered

By John Murray

At the 2004 NSCA Expo in March, Altec Lansing was showing a new loudspeaker for flat-panel displays dubbed "The World's Smallest Line Array."

Called the SLS6221, the mid-high device includes six miniature transducers and is tri-amplified while standing only about 14 inches tall. And it may well live up to its claim.

Some may laugh, but a 14-inch line array can be quite effective, with a 40-degree vertical pattern control above 1.5 kHz. Keep in mind that it's the pat-

tern control in the bass region that requires a much longer array length.

Ironically, in the same Expo hall, Microtech Gefell (distributed in North America by JP Cabletek of British Columbia) was also showing a 14-inch line array, this one with eight transducers. However, the KEM970 is a *microphone* line array, not a loudspeaker array.

Its pick-up pattern is very similar to the polar pattern of loudspeaker arrays. Indeed, both response patterns are a toroid, the namesake of transformers made in the same doughnut-like shape. The mic array's phase relationship of the drivers has been adjusted to yield a slightly narrower 30-degree vertical pick-up pattern.

The KEM970 goes even one step further in shaping the array's response. Using rear ports, it produces a line-array cardioid modification of the toroid pick-up pattern to reject sound sources arriving at the rear of the array. This "pinches" the toroid shape from behind the microphone to reject sound pick-up from the rear.

What possibly could be the purpose of a microphone

using the 3 dB-per-doubling distance that line array loudspeakers exhibit? For starters, more source volume from a greater distance, so that a talker can stand back further, and also, less level variance from a close talker.

Gain-before-feedback can be improved as well. And, the vertical pattern control could lessen the effect of comb filtering from the reflection of the source off a podium or tabletop.

What a great idea! Why didn't anyone think of it before? Well... They did.

When I was working for a sound-contracting firm in the 1980s, Bell Labs produced a line array microphone named after a Dr. Gant who worked for the company.

The mic was intended for the then emerging teleconferencing market. It stood about three feet tall, comprised of electret mic elements that were frequency shaded toward the center, like the column loudspeakers of the day. If placed in the center of a round table, it picked up all voices relatively evenly due to its toroidal pick-up pattern.

It was eventually forgotten, primarily because superior echo-cancellation schemes worked better in a wider variety of environments.

But the ancients keep stealing our inventions, don't they? ■

Live Sound Technical Editor John Murray is a 27-year industry veteran who has worked for several leading manufacturers. He has also presented two published AES papers, chaired four Syn-Aud-Con workshops, is a member of the TEF advisory committee and an ICIA Adjunct Faculty member. He can be reached at jmurray@livesoundint.com.



The KEM970 line array microphone.