

# Line Array in theory & practice

In this and in the next feature we concentrate on line arrays. The stress of the second part is more put on the physical aspects, whereas the first part illuminates the historic background and has a look at the new PSSO Compact Line Array.

## Part I:

Line arrays have dominated the sound transmission in modern entertainment technology of music festivals and international sports events for more than ten years now. These sound reinforcement systems can easily be identified by their slightly bent shape which is a reason why they are sometimes called „bananas“ in colloquial speech. More and more, line arrays can be found at smaller venues like medium-sized concerts and political events. This opens the market for more compact systems with easy handling and modest costs in order to operate in a profitable way.

## In retrospect:

More than 50 years ago, the American engineer Harry F. Olson developed the theoretical basis for line arrays in his standard work „Acoustical Engineering“. Unfortunately, his insights were only realized in column speakers which can be seen in churches and other venues fighting with reverberation. In these column speakers, several loudspeakers ranging from 3 to 5 inches are vertically aligned for transmitting speech between 200 Hz and 4 kHz. These speakers are not perfectly suited for transmitting music. Another example is a hi-fi system designed by Rudy Bozak in the fifties and six-

ties with up to 12 vertically aligned tweeters.

In parallel, a radical change in requirements for voice and instrument amplification could be noted from the fifties and the upcoming of rock music. While jazz was performed mostly without any electric equipment way into the sixties, the success of rock and beat music was from the very beginning based on the volume presented at concerts. With amplifiers and voice amplification in the medium two-digit watt range, this volume could only be realized in dark and small basements in Hamburg or Liverpool where popular bands like the Beatles performed. A very important aspect why the

Beatles did not play any major concert after 1966 was the simple reason that the reinforcement systems available at that time, were not at all suitable for large sports arenas and for reinforcing the more and more complex music of the Fab Four.

In the United States, especially the band Grateful Dead tried to solve this problem via a gigantic piling up of loudspeakers. The „Wall of Sound“ was developed and optimized by the band's sound engineers for years and it included up to 641 individual loudspeakers with a total RMS power of 26.4 kW. In miniature, a similar concept was adopted by Udo Klempt-Gießing for the cult band Grobschnitt from Hagen, Germany.

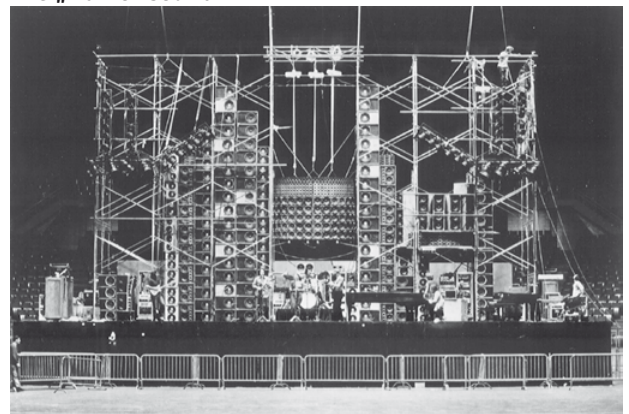
It was not before 1983 that Joseph D'Appolito suggested



PSSO CLA-228 LINE ARRAY Top, 2x8"  
+ PSSO CLA-115 LINE ARRAY Sub, 1x15"  
(open view)



The „wall of sound“



simultaneously using hi and mid speakers in several vertically aligned, but horizontally guided cabinets. It would take another decade until Christian Heil presented the first line array in its current definition to the market. Ever since, the triumphant success of line arrays could not have been stopped anymore.

#### The PSSO CLA (Compact Line Array system):

The Compact Line Array system by PSSO is the answer to the industry's tendency towards line arrays and against conventional amplification systems.

While most available line array systems on the market are not profitable for small to medium-sized venues, the PSSO CLA system was especially designed for this purpose. The innovative reinforcement system unites several core characteristics which make it very attractive for installation and hire:

The weight of the mid/high column is amazingly low, due to special plastic components for the cabinet and modern

neodymium technology for the speakers. Its modern design makes this system also adequate for mere voice amplification and gala performances.

By combining the tops with the matching 15" subwoofer and 18" subwoofer, the system can be upgraded to a full power line array system. And as the efficiency is more than convincing it provides enough sound for large halls and open-air events. The compact size is no obstacle.

What makes the compact line array unrivaled is its sophisticated and safe flying hardware. Only two technicians are needed to comfortably set up the entire system. All security-relevant parts are regularly tested by an accredited testing institute. A fact which sets the PSSO CLA apart from other manufactures in this price segment.

With the CLA system, PSSO offers a flexible tool for all kinds of different tasks in the sound reinforcement business. The system is an economical line array fulfilling all safety requirements, which can be easily installed and convinces by its sound, according to the slogan „I love Sound!“

Red Rocks amphitheater with the stage assembly of the band "Deadheads", better known as "the Grateful Dead" (1987)

