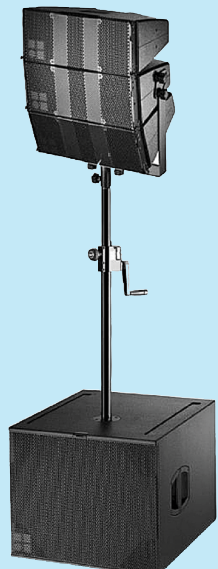
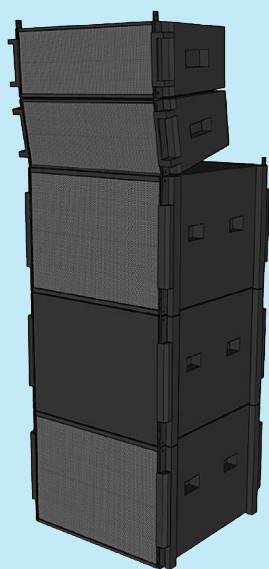


# Improving Outdoor Sound During Covid-19, Part 2

By David Kennedy



Note: Even with the clocks changing to standard time and the approach of winter solstice on Dec. 21, socially distanced outdoor events with (P.A. systems) are still taking place. These range from tree lighting ceremonies, winter carnivals, sports events and even religious services. With that in mind, we decided to expand the coverage of this topic (which began in FOH's Sept. 2020 issue, page 23), with some simple, yet effective, approaches to providing outdoor sound. —Ed.

With social distancing and many areas placing building capacity limits (typically 25%) on indoor performances and church services, attendees must be spaced over a wide area. In such cases, simulation/modeling of sound coverage of a worship space, concert or meeting venue becomes perhaps even more important now than before Covid-19. [For more on modeling of sound coverage, review FOH's "Tech Feature" articles in the March to June 2019 issues.]

In the September 2020 issue, we focused on loudspeaker systems for small outdoor events and worship, with several manufacturers offering suggestions for portable, stage-stacked arrays with approximately 90° of horizontal dispersion. In such cases, I typically recommended one to three main boxes plus up to three small subwoofer boxes per side in a cardioid sub array. This month, we'll continue that discussion with some other leading manufacturers.

As I write this, in late-November, the place of worship where I am the A1 will move its worship services back inside. So about 75% of the sanctuary's hard floor will be exposed, raising the reverberation time and sound level. Perhaps in a future issue, we'll look at the impact such low occupancy has on the sound operation and quality.

## » Questions, Questions...

"As church leaders determine how to facilitate the re-gathering of their congregations, while still ensuring everyone's health and safety, there's more to think about than location," says Amanda Roe of Bose Professional. "Many churches are holding services outside. But this adds a new level of complexity that FOH engineers must address: Which of the church's audio equipment can be used and supported outside? How do I ensure it will

project music and voice intelligibly to those in the back, without assaulting those in front? How do I ensure we don't lose the voice pocket and have to deal with audio dropouts? And how do I manage this if the budget has no wiggle room? All this must be addressed while at the same time, planning for days when the weather isn't so cooperative."

There are other factors as well, Roe continues. "FOH engineers are dealing with a changing audio landscape almost weekly as many churches determine how to re-gather — whether it's inside with a fraction of their congregants socially distanced or outside in the parking lot." Brian Kam of Bose offered one possible solution — a Bose Professional ShowMatch stack, with two array cabinets mounted directly atop three subwoofers.

## » The d&b Approach

Suggestions from Nick Malgieri of d&b audiotechnik of small ground-stacked or flown line arrays included the company's "T-Series (a rotatable horn selects line source or point source), Y-Series, or V-Series cabinets — all available with dispersion options that range from 80° to 120°. These typically require four or more boxes. However, a small array cluster of T-Series boxes is light enough for a speaker stand," Malgieri says, adding, "Our A-Series can be deployed as a single 60°x30° box and 90°x30° is optional. It can also be arrayed vertically or horizontally, up to four boxes with adjustable inter-box splay angles. A two-box array can be in a vertical orientation with either 60° or 90° horizontal dispersion. Alternatively, the same array can be turned on its side to allow for dispersion that is adjustable between 50° to 70°." If a larger array is needed on a budget, d&b also offers the remanufactured J series.

## » L-Acoustics' Versatile A15

Commenting on the company's 2-way 15" A15 Focus loudspeaker, Scott Sugden at L-Acoustics replied: "Combined with the KS21 (compact 21" subwoofer) the A15 is an excellent choice, and with the ability of its Panflex system to offer 110-, 90- or 70-degree dispersion, it should fit many outdoor needs for reasonable-sized audiences. This would also represent a good starting point for a mobile P.A. that can easily grow into larger setups as the need grows."

Some medium-size outdoor audience solutions (left to right): a 3D model of a Bose Professional ShowMatch ground stack; d&b audiotechnik's compact T-Series and J12 speaker stacks; two L-Acoustics A15s atop two KS21 subs; and RCF's NXL-44 column on two sub cabinets.

## » RCF's Column Arrays

"RCF's NXL-44, a self-powered column array enclosure comprising three 10" LF and a 1.5" HF drivers, [is] built for pole-mount or ground stacked applications and, if the latter, [it can] be extended by stacking an additional NXL-44a on top of the first," says the company's Jim Reed. "Its narrow 30° vertical waveguide is ideal for longer-throw applications, high-SPL requirements and prioritizing vocal intelligibility. The TTL-4a Series is another column array solution, not only built with RCF's highest-grade components, but also equipped with network capabilities. Ideal for distributed system designs where delayed

enclosures are needed, the user can access all parameters remotely via a PC or use the onboard DSP settings from the back of the enclosure. This is a very flexible solution, as it can be pole-mounted, ground-stacked or expanded in vertical or horizontal arrays." FOH

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After starting out with a larger system, Luminate Church found a solution for its socially distanced outdoor services with left/right stacks, each with three Meyer LINA arrays on two 900-LFC subwoofers (shown in inset).

## Meyer Sound's Outdoor Worship Solution

Luminate Church in Southern California held outdoor services with a Meyer Sound LINA/900-LFC system. The system includes, per side, (3) LINA very compact linear line array loudspeaker over (2) 900-LFC compact low-frequency control elements. The LINA loudspeaker has 90-degree horizontal coverage.

Bob McCarthy, Meyer's director of system optimization, commented on the setup. "I have looked at some additional photographs that show the area that these speakers are covering. It is a level sports field — no grandstands, no elevation. Therefore, the total amount of vertical coverage required (at the height of this P.A.) amounts to the difference between a short person sitting and a tall person standing. In addition, there was no one close in, so essentially you need only a few degrees (2° or 3° maybe) of vertical coverage. It would be optimal for front/back coverage uniformity to raise the system up. But if you raise it up enough to even out the level, then three boxes won't be enough vertical. So, what I see is a logical application of K.I.S.S. It's a simple plug-and-play using the subs as speaker stands."