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Blaze Audio's Constant Curvature Array Loudspeakers Deliver Clarity of Message to the Congregation at Wake Chapel

Highly efficient loudspeakers require fewer enclosures to deliver optimum sound.

Raleigh, NC – February 2024... Wake Chapel Church is a caring community where help, hope and healing reside. There are two locations in the greater Raleigh area, and the Tarheel Club Road church recently installed a new sound reinforcement system. With a 3,000-seat sanctuary, church officials wanted a loudspeaker system that could deliver articulate speech and equally impressive music reproduction. They found it with the new Constant Curvature Array (CCA) loudspeaker series from Blaze Audio.

Hi Tech Electronics, Inc. of Greenville, NC, a design / build AV integration firm with a primary focus on the House of Worship and education markets, was contracted to design and deploy the new sound system at Wake Chapel. Hi Tech Electronics President David Williams, who oversees sales, engineering, and installation of the company's various projects, discussed the challenges of the job and his reasons for selecting the CCA Series from Blaze Audio.

"The sanctuary at Wake Chapel is a large space that measures 187 feet wide with a room depth of 137 feet from the front of the stage to the rear wall. To properly address a congregation of roughly 3,000 people in a space this wide and deep, we needed loudspeakers capable of delivering wide horizontal dispersion in addition to significant throw. Equally important, we wanted to maintain a clear line of sight to the stage area from the entire seating area. We were initially expecting to fly as many as 36 line array enclosures deployed in three hangs of 12—left / center / right—across the front of the stage area, but this would have impaired visibility, so we sought another solution. We found it with the CCA10i Constant Curvature Array series loudspeakers from Blaze Audio."

The Blaze Audio CCA10i is a compact, 3-way arrayable point source loudspeaker designed for medium-sized venues to large distributed systems that need a flexible, scalable loudspeaker solution. Mounted horizontally with tight acoustic centers to minimize comb filtering, each CCA10i enclosure provides a fixed 20-degree vertical coverage pattern and can be flown with additional enclosures in vertical arrays. The system's constant curvature waveguide provides unprecedented array coherence along with precision 160-degree symmetrical horizontal pattern control.

With the Blaze Audio CCA10i loudspeakers, Williams and his installation crew deployed a setup at the front edge of the stage area that consisted of three hangs (left / center / right), with each loudspeaker cluster containing 4 x CCA10i enclosures. There is also a delay system located 90 feet from the front edge of the stage. This group of loudspeakers were flown in three hangs (left / center / right), with each loudspeaker cluster containing 3 x CCA10i enclosures.

"The difference between using the Blaze Audio CCA10i loudspeakers as opposed to more traditional line array enclosures is huge," Williams explained. "By eliminating these large loudspeaker clusters across the front of the stage area, people can see the activity on stage better—and this goes a long way toward

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keeping the congregation engaged. Just like the exceptionally wide and tightly controlled horizontal coverage, the CCA10i enclosures are equally impressive in terms of vertical dispersion. According to Hugh Sarvis, Blaze Audio's lead loudspeaker design engineer, 'By fixing the vertical coverage at 20 degrees per unit, the need for splay angle calculation is eliminated, optimizing system configuration, shortening project deployment time, and improving the installation experience.' This is exactly what we experienced with the Blaze Audio CCA10i loudspeakers."

To help the church contain costs on the project, Williams elected to re-use the existing WorxAudio subwoofers (also designed by Hugh Sarvis) for low frequency support. Hence, he deployed 4 WorxAudio TL 218SSi-P subwoofers. Two enclosures (one each) were flown 5 feet behind the left and right loudspeaker clusters over the front stage while the remaining two enclosures were placed on the floor to the left and right sides of the stage.

For power amplification, Williams used 12 Blaze Audio PowerZone™ Connect 3004 Class-D amplifiers. For system control, Williams contracted with Selah Media Productions (selahmedia.net) of Mount Holly, NC. Selah Media supplied a Symetrix Prism 16 X 16 for the main array up front and a Symetrix Prism 8 X 8 for the delay loudspeaker system to accomplish the necessary DSP in the space. Using Symetrix Composer software, a custom DSP platform was programmed into the Symetrix units, supplying all the matrix, gain, EQ, and delay needed to tune the system. Blaze Audio's Hugh Sarvis and Buck Roberts, president of Selah Media, were both onsite to tune and commission the system.

The installation of the new Blaze Audio sound system at Wake Chapel commenced in November 2022 and was completed and placed into service in March 2023. Since that time, Williams reports the system has made a positive impression on all who encounter it, "I've received compliments from both church management and congregation members alike. Everyone comments about the clear and easy to understand speech and the equally impressive music reproduction. It's been very gratifying."

Steven Petersen, Lead Audio Engineer at Wake Chapel, is equally enthusiastic about the new sound system, "Everyone—both church personnel and congregation members—has been very impressed with the new Blaze Audio setup. The system's speech intelligibility is better than it's ever been, and this is crucial, as it enables people to gain the most out of what's being said. Likewise, music reproduction is terrific. Music sounds more natural and has more presence than we've ever had. Equally important, the system doesn't visually distract from what's taking place on stage—and that enables everyone to be more engaged. David and his crew did an excellent job, and we couldn't be happier."

To learn more about Wake Chapel Church, visit <https://www.wakechapel.org>. For more information about Hi Tech Electronics, Inc., call 252-413-8708.

Link to press kit, including images at https://blaze-audio.com/en_us/press-releases/blaze-audios-constant-curvature-array-loudspeakers-deliver-clarity-of-message-to-the-congregation-at-wake-chapel/

About Blaze Audio

Blaze Audio specializes in pro audio solutions tailored for the installed sound market. Our products deliver the power and exceptional sound performance demanded in commercial locations, and the technology, quality, and reliability expected by the professional audio market. To learn more about Blaze Audio, visit the company online at https://blaze-audio.com/en_us/ or contact Blaze Audio Americas office at 888-500-0109.

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