

# WHAT IS

## GOOD SOUND WORTH?

*At Melbourne's Optus Oval, management was able to hear how budget decisions would impact the experience of patrons*

By Rebecca Hansen



### THE VENUE:

A 35,000-seat outdoor arena in Melbourne, Australia, home to the Carlton Football Club.

### THE CHALLENGE:

To provide loud, clear sound with even coverage across all seating areas, while preventing sound from spilling over to nearby neighborhoods.

### THE SOLUTION:

Use Bose® Modeler® software to determine loudspeaker placement, and use the Bose Auditor® audio demonstrator system to allow arena officials to hear how the system would sound – before any installation.

### THE RESULT:

“The demonstration gave us every reason to believe that we could deliver a very high-quality experience to all of our patrons. And Bose was willing to guarantee it.”

– Stephen Gough,  
Chief Executive, Carlton Football Club

**O**ptus Oval in Victoria, Melbourne, Australia, stands on ground where the Carlton Football Club has played football for nearly 125 years. In 1996 the outdoor arena nearly doubled in seating capacity, from 20,000 to 35,000. At the same time, management decided to upgrade the sound system.

“Most important for us was high-fidelity sound that would enable us to increase the use of music at games and deliver a more complete entertainment event,” explains Martin Shannon, venue manager. “The problem was our current audio. Even speech intelligibility was poor. There’d be a message for ‘Joe Richards’ to please come to the reception stand, and dozens of people would show up with names ranging from ‘Eastman’ to ‘Woolston.’”

Carlton management needed louder, clearer sound with smoother coverage across all seating areas, but they also needed sound they could keep inside the stadium. Optus Oval sits on state-owned land, and it must adhere to environmental regulations, including noise con-

trol. “We were concerned that a new sound system might cause complaints from neighboring residential areas,” recalls Shannon.

Bose accepted the challenge. Brian Chilcott, senior sound engineer at Bose Australia, and colleague Julie Hunter studied some 70 sheets of drawings before entering data into the Bose Modeler program. Using the software, they created a 3-D computer representation of the Oval. Then they “installed” the proposed audio system in various locations, generating maps showing loudness, sound coverage, and speech

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CARLTON FOOTBALL CLUB

intelligibility. They concluded there was only one location where installing the sound system cluster would deliver the desired results.

Unfortunately, it would mean moving the arena's new video scoreboard. Bose® also recommended that the Club reduce sound waves bouncing off windows and other flat surfaces by applying acoustic treatment to the billboards at the back of the new stand and tilting them forward 10 degrees.

"We knew this would require additional expense," recalls Des Williamson, Bose Professional Products Manager, "but we knew that if Optus management could hear the difference these changes would make, they would regard the expense as a worthwhile investment."

With the Bose Auditorioner® audio demonstrator, Shannon and Carlton Chief Executive Stephen Gough were able to hear the proposed sound system with the original scoreboard location and with the new recommended location. They also heard the system before and after acoustic treatment to the billboards. "Initially



I thought Auditorioner was a sales gimmick," says Shannon, "but I became very impressed by the differences I could hear with each adjustment to the design."

In addition, Shannon and Gough were able to virtually "sit" in various seats and listen. "We heard exactly what sort of sound we were going to get in every seat in the house," recalls Gough. "The demonstration gave us every reason to believe that we could deliver a very high-quality experience to all of our patrons. And Bose was willing to guarantee it."

Bose guaranteed that the owners would be satisfied with the sound quality of the final installation, or Bose would remove the system and refund its cost. The guarantee demonstrated the level of confidence Bose has in its systems and skilled designers – especially since the designers planned to use a revolutionary technology at Optus Oval.

"The ideal position for the loudspeaker cluster was within six meters of one of the seating areas," explains Williamson. "The challenge was to deliver enough bass to the people in the stands some 200 meters away to provide full-frequency sound without overpowering the people right near the speakers."

Traditionally this would have been impossible: bass frequencies have very wide dispersion patterns and conventional loudspeakers can do very little to control them. Bose, however, had recently developed a way of solving

this problem, and Chilcott put it to good use at Optus. While there is a difference between the amount of bass that patrons at either side of the field hear, according to Chilcott it's minimal. Equally impressive, two people standing just

below the bass cluster or in the security stairwell one meter behind it can easily carry on a conversation, something that would be impossible with a conventional sound system.

The cutting-edge sound system was installed and used at Optus Oval while other construction continued. With portions of the stadium partially open to the surrounding neighborhoods, this would test the system's ability to contain the sound. The Bose Panaray® LT loudspeakers, which were used to deliver the midrange and high end, project sound in very

narrow beams, outside of which sound energy falls off abruptly. This helped keep sound energy away from walls or, where walls didn't yet exist, from neighboring houses.

"We were able to cover the existing stands with tightly controlled sound," explains Chilcott.

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MARTIN SHANNON, VENUE MANAGER,  
OPTUS OVAL

The controlled dispersion of the Panaray LT loudspeaker also minimizes overlaps between signals from adjacent speakers. By carefully positioning each speaker within a cluster, Bose achieved seamless sound coverage throughout the Oval.

"I couldn't believe the quality," exclaims Shannon. "No matter where you're sitting, it's close to what you'd hear from a home stereo."

"We are delighted with the results," says Gough. "The system does exactly what the Auditorioner system predicted."

With their new system, Carlton management has added recorded music before games and during breaks in play. Next year, they plan to stage live bands, singers, and other performers.

"Today, when fans are paying higher ticket prices, they deserve more than just a bucket seat in a covered stand," asserts Shannon.

What's more, fans can hear commentary and announcements clearly. And when "Joe Richards" gets called to the reception stand, only Joe Richards shows up.

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