Electro-Voice and Dynacord for Greater Bay Stadium



The challenge facing the new stadium at the Greater Bay Area Sports and Cultural Center was to create a sound system that was powerful enough to evenly cover every seat, flexible enough to deliver for different styles of events, and robust enough to cope with high humidity and salinity, all while offering simple control. The answer to each of these challenges came from Electro-Voice and Dynacord.

The stadium was established as a key public sports venue to host football matches, multi-sport events, large-scale arts performances and community activities. With such a variety of uses, creating the right sound system for the 60,000-seat venue would always be complex. This job fell to Guangdong Province Architecture Design Institute, which provided the AV design, while Beijing Aotewei Technology served as the systems integrator and Guangzhou Gulaudio Technology worked as the installer.

The X1i line arrays for fixed installation were selected to provide even SPL distribution and qualified speech intelligibility across the stadium bowl. “The stadium required long throw distances while significant height differences among upper, middle, and lower stands made it difficult to achieve consistent SPL and even

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coverage for both near-field and far-field listening areas," explains Freddy Zhang from Electro-Voice. "Added to this, there were heavy reverberation and multi-path sound reflections that created major difficulties in meeting national STI standards for speech intelligibility. To meet these needs, the team opted for X1i arrays which deliver long throw performance and precise constant directivity control."

Powerful MTS series point source loudspeakers were selected to cover the playing field. With its 154 dB maximum SPL, it delivers a controlled solution that can focus sound on the field of play for programming such as opening ceremonies and special events. The solution was simulated using PREVIEW loudspeaker prediction software with uniform sound across the whole stadium achieved with extra EVH, ZX5 and ZX1 point-source cabinets, used as fills and delays. All of these loudspeakers ensured that the stadium could overcome the environmental challenges it faced. The project team chose weatherized versions which can handle the high humidity, high salinity, temperature fluctuations and wind and rain that come with the venue's coastal location.

While the loudspeakers play a key role in the fan experience, the electronics behind the system are just as important. Power for the solution is via Dynacord IPX series amplifiers. Nine IPX5:4 amplifiers drive the five hangs of 14 X1i in the west stand, while four IPX5:4 cover the five hangs of six X1i in the east stand. Both the north and south stands feature eight IPX5:4 to drive the five hangs of 12 X1i in each stand. Added to this, four IPX10:4 are used for the six MTS cabinets covering the field of play. A further pair of IPX5:4 drive the 66 ZX1i covering the viewing deck and a final two IPX5:4 are used for the portable ZX5 cabinets on the VIP rostrum.

The brains of the system combines the IPX amps with the six MXE5-64 Matrix Mix Engines and five TPC-1 touch panel controllers, all setup with SONICUE Sound System Software. These have been used to build a unified networked audio architecture integrating audio transmission, DSP processing, zone control, system monitoring and scene management. A unified management interface makes daily operation and maintenance easier while remote diagnostics and centralized control reduce long-term operating costs. MXE's open DSP architecture also leaves ample room for future expansion and functional upgrades.

The fully redundant IP network topology also plays an important role in the reliability of the stadium's sound system. Dynacord brings system-level reliability with the amplifiers and matrix mix engines combining with the Dante network to support hot-standby switching. When added to the dual digital and analog signal chain backups and multiple power supply options, this delivers confidence of a zero-failure level system.

The result is a unified ecosystem with an integrated interface for simple control. Following the installation, there has only been positive feedback from the end user. Zhang reports that the stadium team have described "stable and flawless system operation, with outstanding overall sound performance, and professional and reliable service".

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