Symphony by numbers

Mike Clark reports on a record-breaking mass orchestral performance in St. Petersburg . . .

[Russia] This September, over 8,000 members of orchestras from 85 regions of Russia performed the Russian national anthem at the St. Petersburg's largest venue, Gazprom Arena, setting a new world record.

Representatives of the *Guinness Book of Records* officially confirmed that a world record was set in the category Largest Orchestra, also noting that 200 choirs sang along with the orchestra.

Scott Willsallen was the audio director for the impressive project while his company Auditoria provided the operators, including FOH, broadcast, monitors, orchestra, replay operator and the senior systems engineer, as well as technical consultancy for the project. "Auditoria was engaged for the project in St. Petersburg by producers Ceremonies Staging Agency (CSA) from Moscow, to whom I became known through FiveCurrents during the delivery of the Sochi 2014 Olympic Games ceremonies; CSA later contacted me when they first started talking about this project with the client," Willsallen explains. "I worked with the directors and producers from CSA to determine the most suitable venue layout and the strategy behind capture for broadcast and keeping the whole group of 8,000-plus musicians in time. Once we had a solid strategy and venue layout, I began work on the system design to deliver live and broadcast sound."

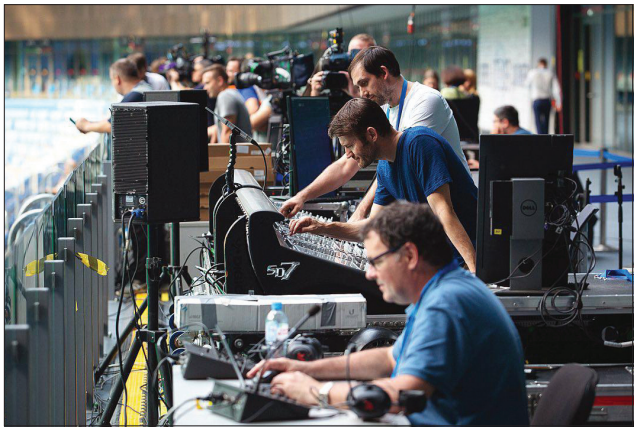
Auditoria's role on the project was audio consultant and included design, procurement, management on-site and operation of the system. In St. Petersburg, Auditoria specified every element of the system to ensure load-in was efficient and system performance was exactly as anticipated.

"The key hurdle to overcome was posed by the venue's size, as there was a reverb time of around 12 seconds with the roof closed. And with thousands of players, this wasn't a recipe for success, so one of the mitigation measures was to carpet the concrete floor where the musicians were located, and the whole crossover aisle. This massive effort reduced the reverb time by three or four seconds, which really helped with intelligibility," says Willsallen.

Another problem was that an overhead loudspeaker system had to be installed for the orchestra at 11m above the ground, but in a way that minimised obstruction to the LED screen and orchestra. This was accomplished by using a pipe grid suspended from a truss grid, which was visually discreet and supported 40 loudspeakers firing down into the orchestra. The pipe grid was also used to support 50 overhead microphones that helped add weight to the broadcast mix.

The kit was provided by Italian rental company Agorà. The 15-strong Agorà crew was led by project manager Giulio Rovelli and, as well as monitor engineer and RF tech Andrea Tesini, comprised three system engineers, four loudspeaker engineers, five stage techs/backliners and a comms tech.

The large L-Acoustics speaker system comprised 220 Kara modular line source units, 40 SB18 subwoofers, 40 X8 used to feed a mix of the core orchestra to the 8,000 mass orchestra on the stadium floor, 48 5XT as orchestra and choir monitor monitors, 12 108P as monitors at the consoles and 80 LA12X amplifiers.



From top: The stadium hosted 8,097 musicians and 200 supporting choirs

The L-Acoustics speaker system

An all-DiGiCo setup was used

Facing page: Andrey Nasonovskiy (CSA), audio director Scott Willsallen (centre), and Yuri Volynkin (CSA)

Willsallen explains the mic set-up: "For the occasion, the orchestra was divided in two parts: the 300 pro players of the 'core' orchestra were all individually captured with bugs and section microphones, while the mass orchestra of around 8,000 players were captured as an ensemble with overhead microphones."

Over 600 mics were fielded and, apart from the announcers' four RØDE NT2000, the strings were mic'd with a total of 130 DPA d:vote 4099 microphones; Schoeps was also out in force (another 130 mics) and other well-represented brands included Shure (93), AKG (84), Neumann (67) and Sennheiser (48). The broadcast mix had around 50 overhead mics for the mass orchestra and another 60 audience microphones suspended from the truss grid.

"The broadcast production team was provided a full stereo mix of the event, generated by Andy Rose from our team," says Willsallen. Given the quantity of inputs, the mixing strategy was unusual. We used a pair of dual-engine DiGiCo SD7 consoles, each with three racks full of inputs from the core orchestra (300 players). The core orchestra was mixed by Fabio Venturi to about 60 stems. An additional dual engine SD7 was used to mix the 100-voice core choir into stems." The rest of the all-DiGiCo console setup consisted of a pair of mirrored SD7s at FOH, two mirrored SD7Bs on broadcast, a dual-engine SD7 on monitors, a dual-engine SD7 on the choir and an SD11i for replay monitoring. An Optocore network comprising 18 network devices was deployed to link the MADI ports of the multiple SD7 consoles so that the stems could be accessed by FOH, monitors and broadcast mix engineers, respectively Justin Arthur, Andrea Tesini and Andy Rose.

"The main challenge was to create a broadcast mix that had the massive sound needed to convey such a large group of musicians but also provided clarity . . ."

- Scott Willsallen

Satisfied with the recording-breaking result, Willsallen concludes: "The quantity of inputs was challenging, but the main challenge was to create a broadcast mix that had the massive sound needed to convey such a large group of musicians but also provided clarity."

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