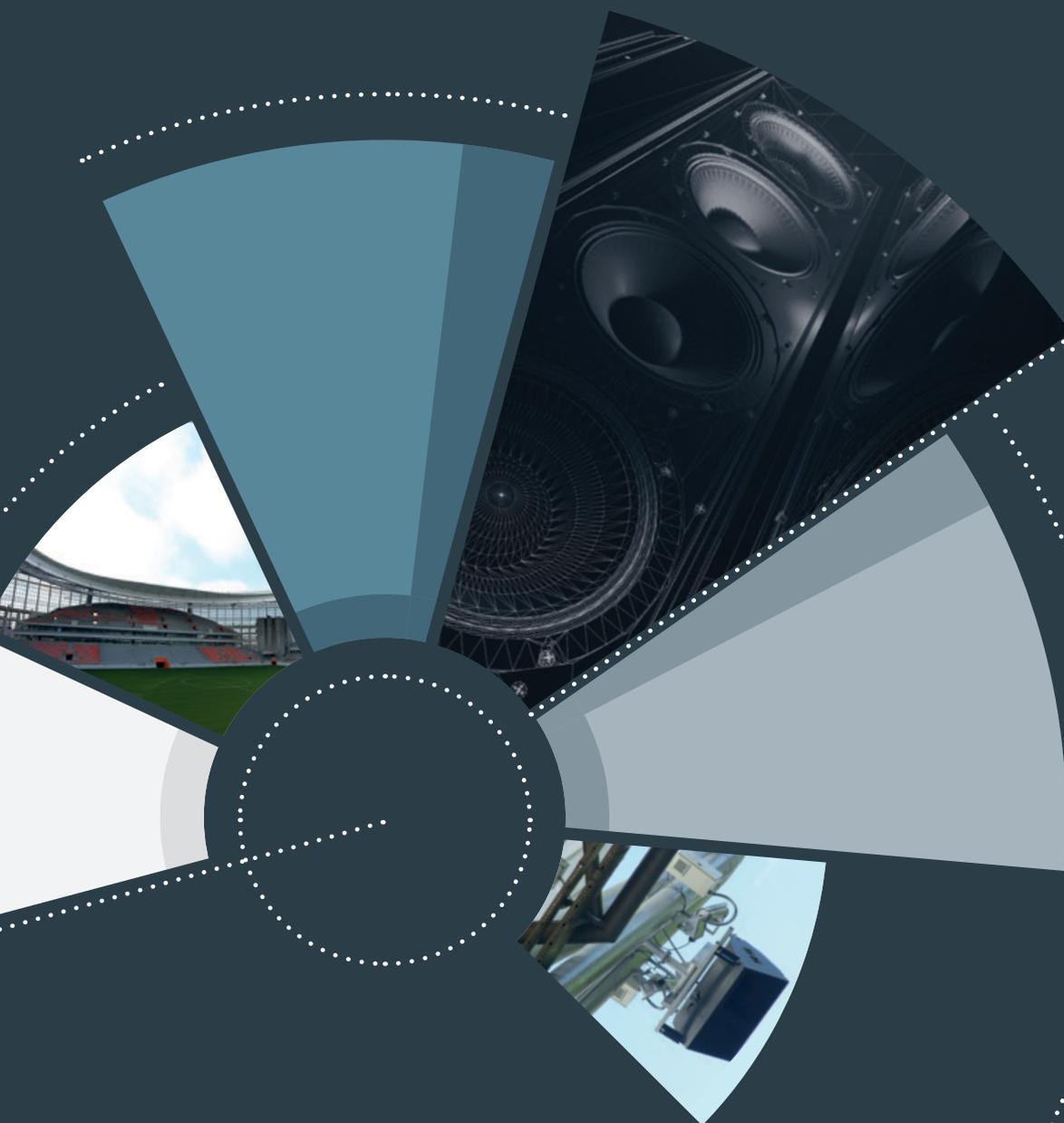


OUTLINE

YOUR PARTNERS IN STADIUM SOUND



Outline

OUTLINE

YOUR PARTNERS IN STADIUM SOUND

01

OUTLINE SRL

Founded in 1973, **Outline** is an **Italian company** that designs and manufactures **sound reinforcement systems** for concert venues, theatres, cinemas, places of worship, clubs, conference halls, multi-function centres, auditoriums, stadiums and arenas worldwide.

Outline products are, and have always been, **engineered** and **manufactured** at the company's headquarters in Flero (Brescia, Italy), located in Lombardy region, at the heart of the most economically and technologically advanced part of Europe.

Outline products also specify Italian electro-acoustic components throughout their portfolio, some manufactured exclusively for the company, to ensure optimum performance and greater reliability regardless of application.

02

SOUND REINFORCEMENT FOR STADIUMS

Modern stadiums require sound systems which can accurately reproduce a wide range of audio material, to standards commensurate with the quality of presentation expected by contemporary audiences. The most fundamental requirements include high sound pressure levels, uniform coverage, wide dynamic range and extended frequency response, to handle such things as advertising video trailers, presentations, music and anthems and of course the need to be heard above the noise of large crowds.

Sound systems which meet these criteria are **commonly similar to the mobile set ups used at concerts**, although in some respects a permanently installed system which is suitable for all uses of a stadium has to deliver additional qualities. The sheer scale of modern stadiums (in height, surface area and the location of the audience) is also a key issue which must be addressed in the design stages.

Outline's broad portfolio of loudspeakers, amplifiers and advanced control products has earned the company an enviable reputation as suppliers of stadium-spec systems over the last decade. For example, in the world of football Outline has supplied **high performance, permanently-installed sound systems** to stadiums in **Europe** and **Asia**, including a number used during the **2012 European Championships**:



LEGIA WARSAW - POLAND

OUTLINE

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LECH POZNAŃ - POLAND

Outline's **TRIPLA**, **DOPPIA**, **SPECTRA**, **BOMBER** and **MICRA** 'point-source' loudspeaker systems have been selected by a number of high-profile sports venues for their perfect suitability as components of a modern stadium sound system. Two Polish stadiums among those who hosted the 2012 European Soccer Championships featured all-Outline solutions:

- **LEGIA WARSAW** (31,800 seats) - The Polish capital's stadium has a sound reinforcement system comprising **48 Bomber** systems, powered by **Outline** PWM digital power amplifiers
- **LECH POZNAŃ** - With **58 TRIPLA** and **64 Micra** systems, powered by **Outline** PWM digital power amplifiers and bringing top-quality audio to all 43,270 seats

In Russia the futuristic 45,379-seat **Kazan Arena** features no less than **150 TRIPLA, SPECTRA** and **MICRA** products.



KAZAN ARENA - RUSSIA

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03

MOBILE SOUND SYSTEMS

It is sometimes the case that a client prefers a mobile sound solution - one such case is the **Associazione Sportiva Roma SpA**, whose soccer team is known as **AS Roma**. In 2013 they required sound reinforcement for their home ground, **Rome's huge Olympic stadium** (capacity 73,260) for all the team's home games. For various reasons a permanent system could not be installed and consequently it was decided to use a mobile set-up positioned at the sides of the pitch, which is installed and removed before and after matches. Outline **MANTAS line array systems** were chosen and positioned in eleven points round the perimeter of the pitch, with a total of **72** mid-high loudspeaker modules and **12** subwoofers, which not only delivered exactly what was required in audio terms but also in flexibility.



OLYMPIC STADIUM - ROME

It's worth noting that the excellent results obtained from this design, created by the **Outline** team, resulted in **AS Roma** reconfirming the systems' use for three more years.



OLYMPIC STADIUM - ROME

OUTLINE

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04

OUTLINE STADIA: THE NEW BENCHMARK

Outline's experiences described above, and others, led to the creation of STADIA, a one-of-a-kind loudspeaker product 'toolbox', conceived **exclusively** for sound reinforcement in stadiums and sports venues regardless of their dimensions.

STADIA is a completely new concept, designed from the ground up to deliver the ideal audio solution for stadium applications. Every component, from the smallest screw through the electro-acoustic design to the '**OutSIDE Coating Technology**', (a weatherproof three-layer elastoplastic coating material unique to Outline), STADIA was conceived **specifically** for this application. No other manufacturer is currently able to provide a comparable product.





The foremost performance objective of STADIA is, of course, its audio performance. By combining **in a single element four modules of Outline's famous and road-proven Mantas** line-source design, Outline's R&D department have created a compact device which meets and exceeds the very tough SPL and dispersion characteristics required by this application.

05

A POWERFUL
LINE ARRAY IN A
SINGLE ELEMENT:
THE SOLUTION
THAT DIDN'T EXIST

STADIA's unique features include:

- Unbeatable performance:price ratio on the world market
- Extremely high SPL (149 dB peak - single cabinet)
- 8 kW power (peak - single cabinet)
- Very long throw and exceptional directional control
- A choice of three cabinets with different vertical dispersion angles (10°, 20°, 30°) to meet even the most complex design requirements
- Wide and smooth horizontal dispersion (100°)
- Very high intelligibility even in very reverberant environments, thanks to the use of four Outline D.P.R.W.G. waveguides (subject of an international patent)
- Eight 8" mid-woofers and four compression drivers with 3" voice coils
- Weighs in at just 73 kg, enhancing safety and deployment
- Cabinets are finished with OutSIDE Coating Technology for extraordinary resistance to severe weather conditions
- IP 55 protection rating

OUTLINE

YOUR PARTNERS IN STADIUM SOUND

06

THREE VERSIONS

STADIA is available in three versions, all of which have a horizontal dispersion of 100°. Vertical dispersion varies by model between 10°, 20° and 30° which gives sound designers the flexibility they need to create the perfect acoustic arrangement.

07

COST EFFECTIVE EASY TO USE

STADIA cabinets offer not only a unique acoustic solution but also a very compelling business case. When compared to a contemporary line-array system capable of delivering similar performance, the STADIA loudspeaker range costs around half that of the line-array.

Further, a single STADIA cabinet weighs just 73 kg which is very light compared to any other system of equivalent performance. This reduces installation costs, simplifies the design and allows STADIA to be deployed where other systems would exceed the safe loading specifications of the stadium roof.

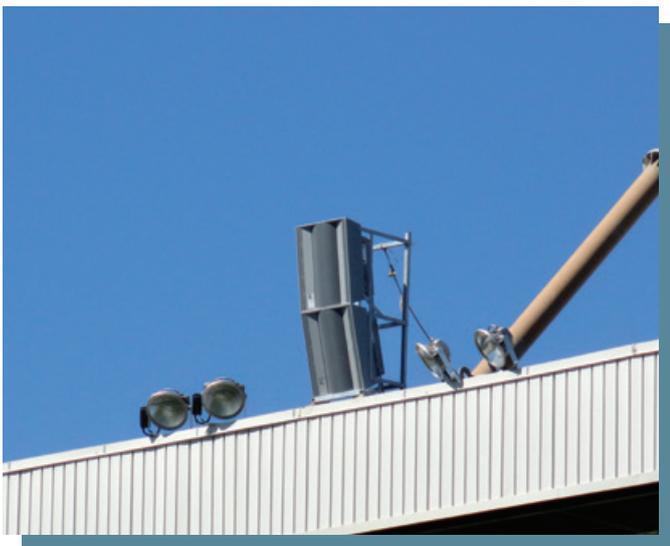
Audio equipment which is permanently installed outdoors can be subject to extremes of weather and with this in mind Outline have developed '**OutSIDE**', an innovative three-layer elastoplastic coating which is impervious to weather events. This, combined with a series of sophisticated ideas introduced in Outline's manufacturing process, guarantees the product's **IP 55 protection** rating.



PINO ZACCHERIA STADIUM - FOGGIA (ITALY)

The **STADIA** system has already been selected for various installations in Italian stadiums with a capacity of up to 20,000, such as **Foggia's Pino Zaccheria stadium**, the upgrade and expansion of which was inaugurated in September 2017.

08
STADIA
THE MOST RECENT
INSTALLATIONS



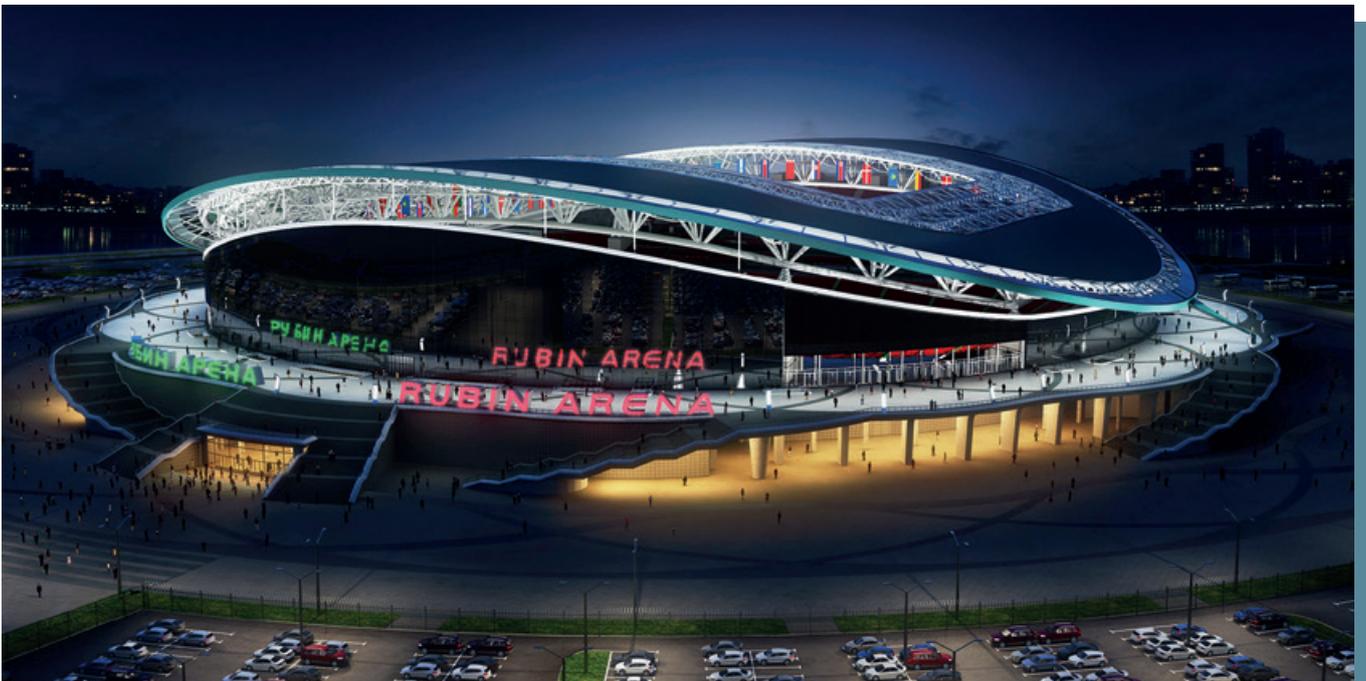
PINO ZACCHERIA STADIUM - FOGGIA (ITALY)

OUTLINE

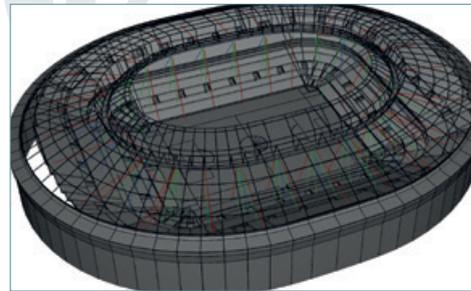
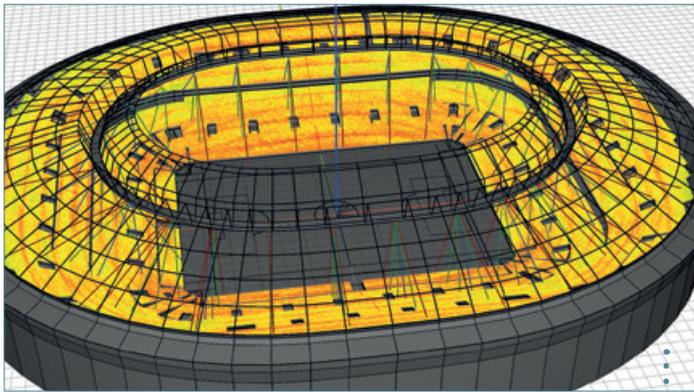
YOUR PARTNERS IN STADIUM SOUND

Two of the **Russian stadiums** hosting the **2018 World Cup soccer** matches in Russia - **Kazan Arena**, inaugurated in 2013, and **Ekaterinburg Arena**, redeveloped for the 2018 Championship – are equipped with Outline sound systems.

The **Ekaterinburg Arena** features no less than **223 Outline loudspeaker systems**: 121 STADIA, 48 ST SUB (enclosures dedicated to the STADIA system for the reproduction of low frequencies) and 54 VEGAS 24, ultra-compact enclosures that weigh just 3 kilograms but feature astonishing performance, for the VIP and guest zones. More than 300 individual channels of Outline amplification power the huge system with a combined total power of **over one million watts**.



KAZAN ARENA - RUSSIA



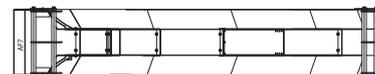
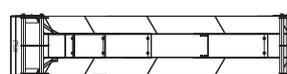
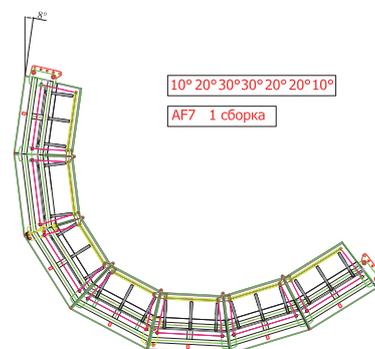
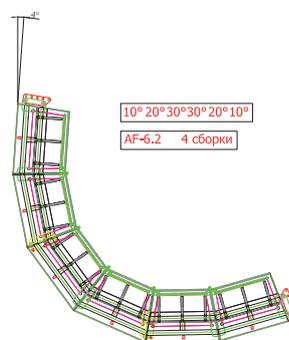
ACOUSTIC SIMULATIONS MADE WITH
OUTLINE'S OPENARRAY3D SOFTWARE



EKATERINBURG ARENA - RUSSIA



FIFA WORLD CUP
RUSSIA 2018



OUTLINE

YOUR PARTNERS IN STADIUM SOUND

09

THE STADIA SOLUTION

Outline **STADIA** offers a dedicated concept for stadium sound, created through a thorough understanding of the factors that determine the success of these projects. Further, **it offers an extraordinarily cost-effective**, well-engineered and lightweight solution that is presently unmatched by any other manufacturer.

10

CONSULTATION
& SUPPORT

For its distributors, Outline's R&D team can create any type of bespoke audio design by means of the use of sophisticated acoustic simulation and 3D modelling software which can accurately predict the results obtainable with their products. This allows Outline to produce system designs tailored to the location, in some cases before it is even built.



STADIA 100-10 LA



STADIA 100-20 LA

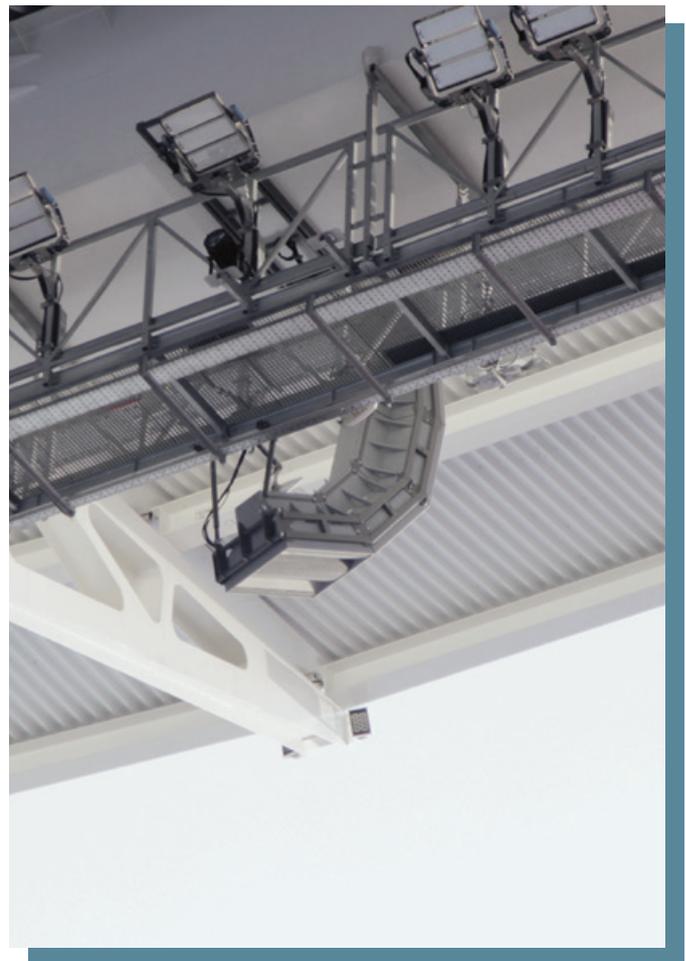


STADIA 100-30 LA



11

OUTLINE PROJECTS



EKATERINBURG ARENA - RUSSIA

Design and construction work by CROC inc.

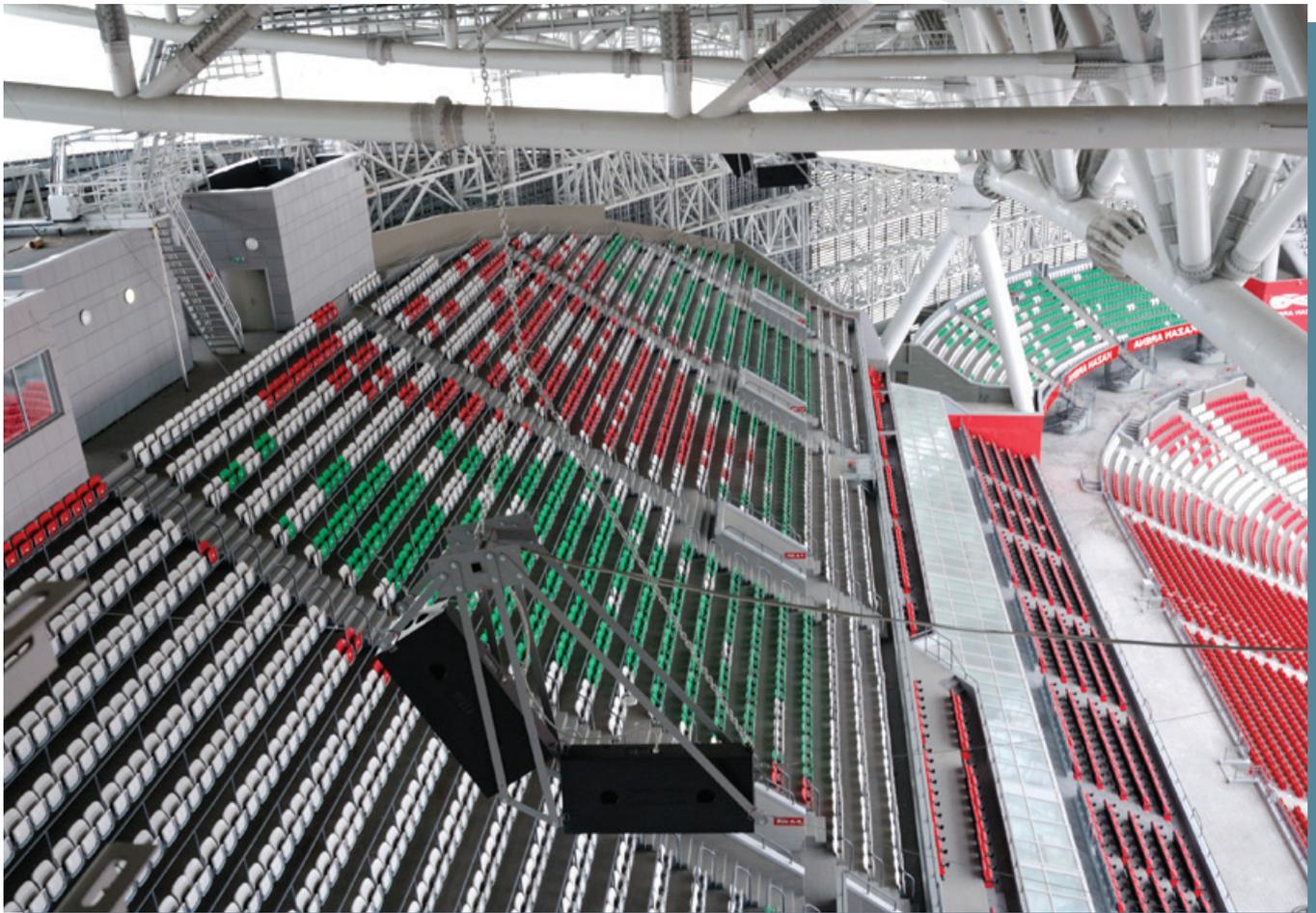
OUTLINE

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LEGIA WARSAW - POLAND





KAZAN ARENA - RUSSIA

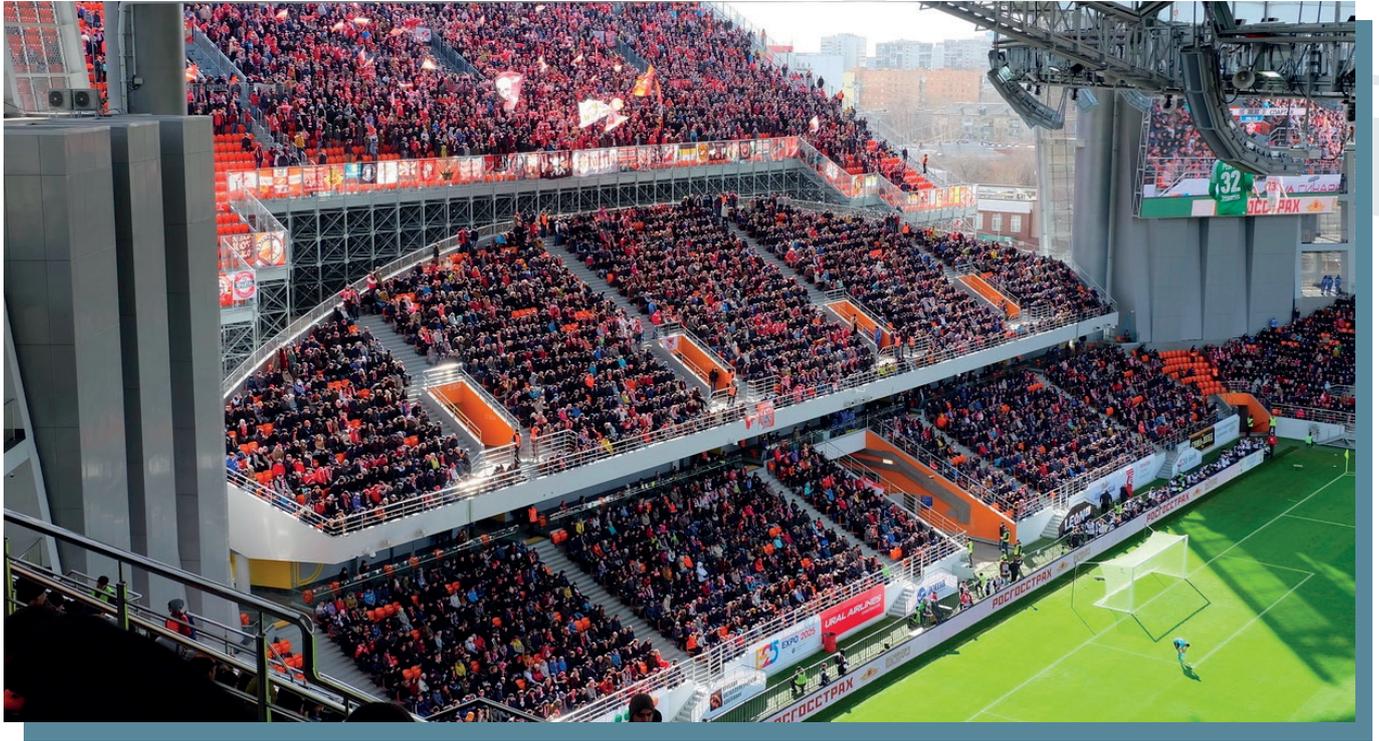


OUTLINE

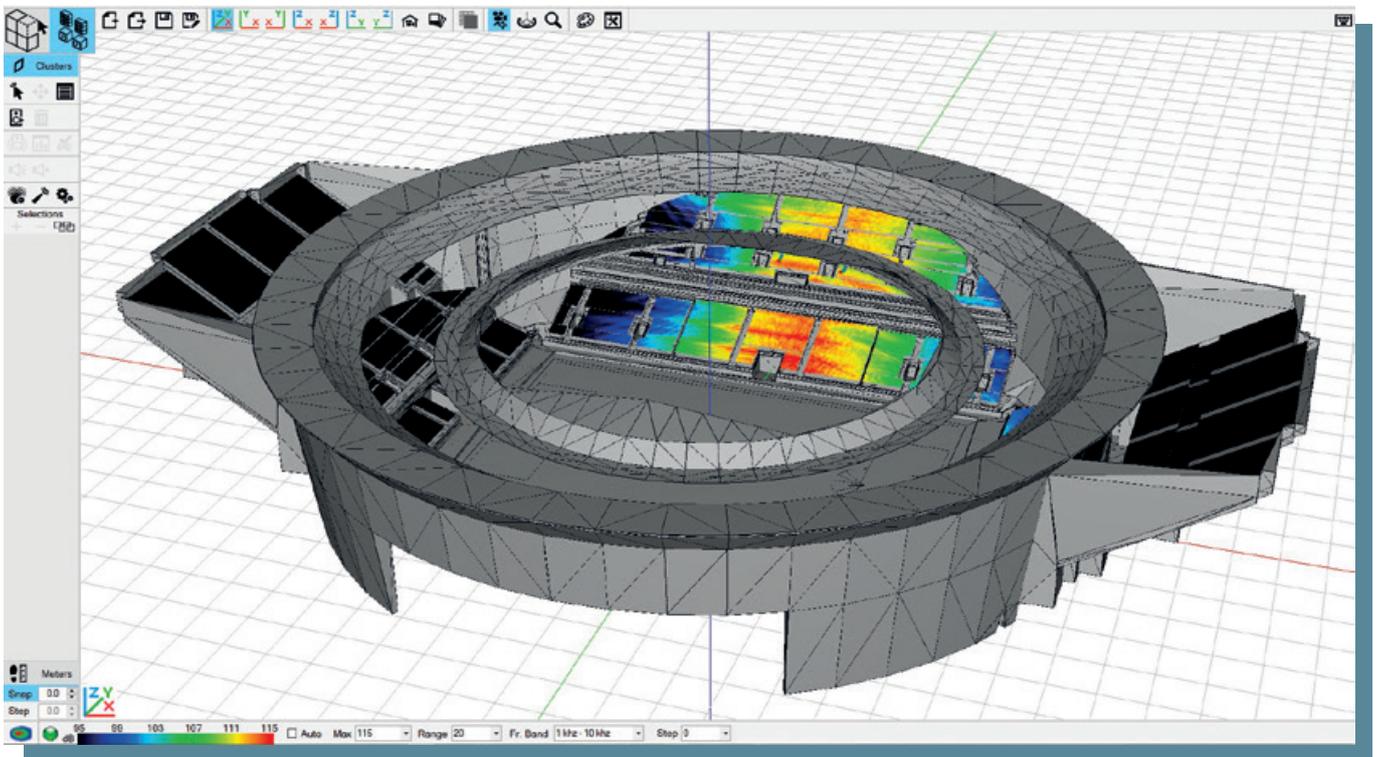
YOUR PARTNERS IN STADIUM SOUND

OUTLINE SOUND
SYSTEMS AT NATIONAL
PARK STADIUM
(WASHINGTON D.C.)
AND YANKEE STADIUM
(NEW YORK)





EKATERINBURG ARENA - RUSSIA



EKATERINBURG ARENA - 3D ACOUSTIC SIMULATION



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