



Sound without compromise

OMN100 speaker – clear communication
in large-scale facilities.



We make everyday life safer

Safety and intelligibility in every environment

Public Address Voice Alarm Systems play a crucial role in ensuring safety and effective communication in public spaces and industrial facilities worldwide. The effectiveness of a PAVA relies on its primary function – delivering clear messages despite challenging acoustic environments or noise. This is directly linked to its fundamental purpose – the efficient evacuation of people from a building in an emergency.



Acoustic challenges of modern spaces

Designing effective sound systems in complex acoustic environments remains a significant challenge. Traditional sound systems often face issues with speech intelligibility (STI – Speech Transmission Index) especially in rooms with high noise levels, complex architectural geometry and long reverberation times.

How is this challenge approached in system design?

Algorithms used in standard acoustic simulation software, based on simple direct sound calculations and statistical reverberation estimates, are insufficient. They do not account for wave reflections from obstacles or uneven distribution of acoustic absorption.

This means that traditional approaches can produce unreliable results, leading to the need for installing a large number of loudspeakers or costly and time-consuming acoustic adaptations. The minimum STI value, according to standards such as PN-EN 50849 and CEN/TS 54-32, must not be lower than 0.5, which is difficult to achieve in acoustically challenging spaces without innovative solutions.

Well-designed and efficient loudspeakers can be the solution.

Ensuring optimal speech intelligibility, even under the most challenging conditions, demands loudspeakers that precisely direct sound to the listener and reduce the adverse effects of reverberation, while providing flexibility in both design and installation.

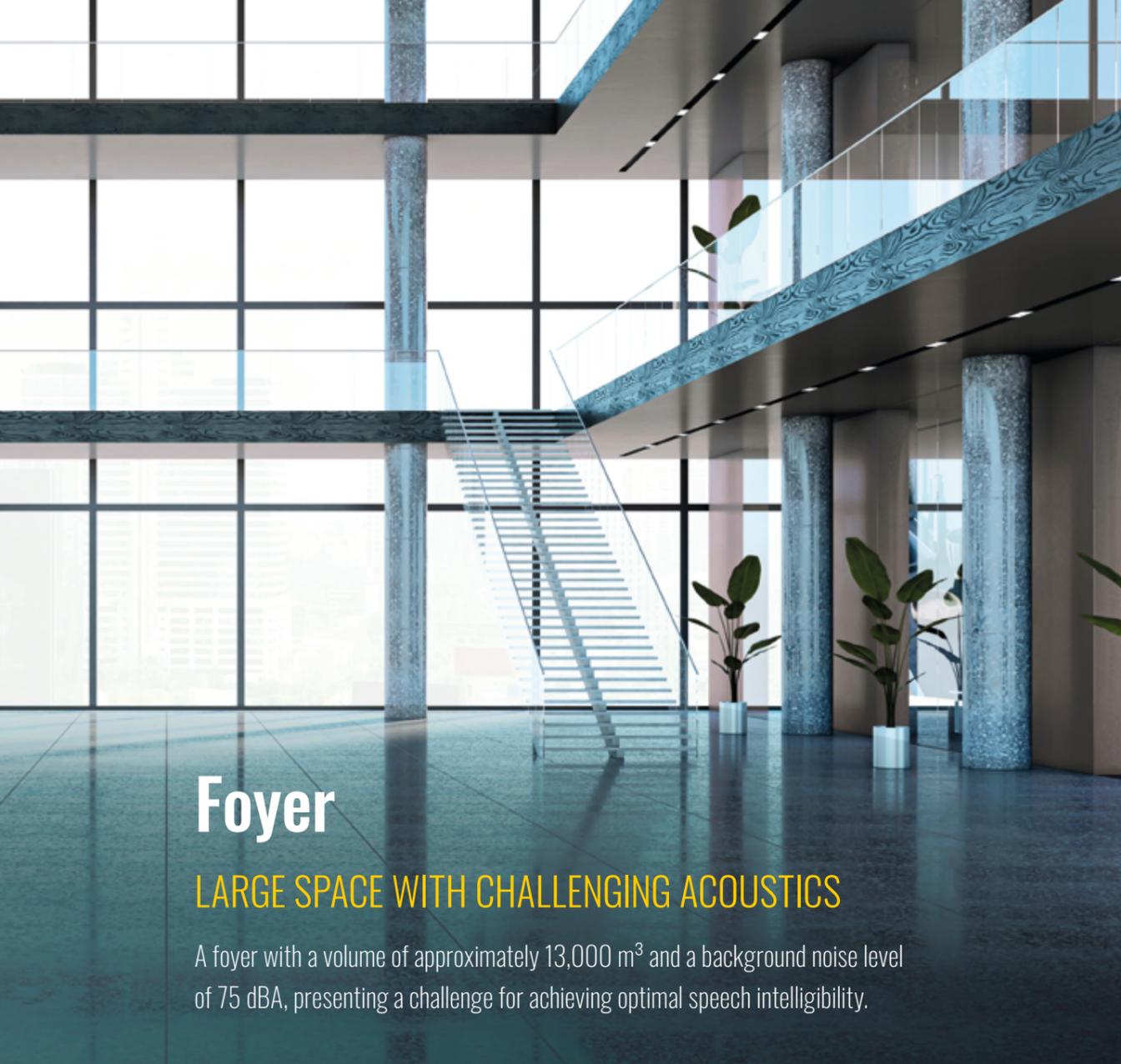


ABT-OMN100 loudspeaker

OPTIMIZATION, SAVINGS AND RELIABILITY

The ABT-OMN100 loudspeakers are the answer to these challenges. Designed for large, acoustically demanding spaces, they provide excellent speech intelligibility and even sound coverage, as confirmed by advanced simulations using the AURA method, which precisely models the propagation of sound waves in space.

The ABT-OMN100 is a 100W ceiling loudspeaker specially designed for installation in large facilities such as airport halls, high-bay warehouses, sports arenas, shopping centers, railway stations and museums. Thanks to its omnidirectional characteristic and wide dispersion angles, this loudspeaker enables uniform and efficient sound coverage of areas up to 500 m².



Foyer

LARGE SPACE WITH CHALLENGING ACOUSTICS

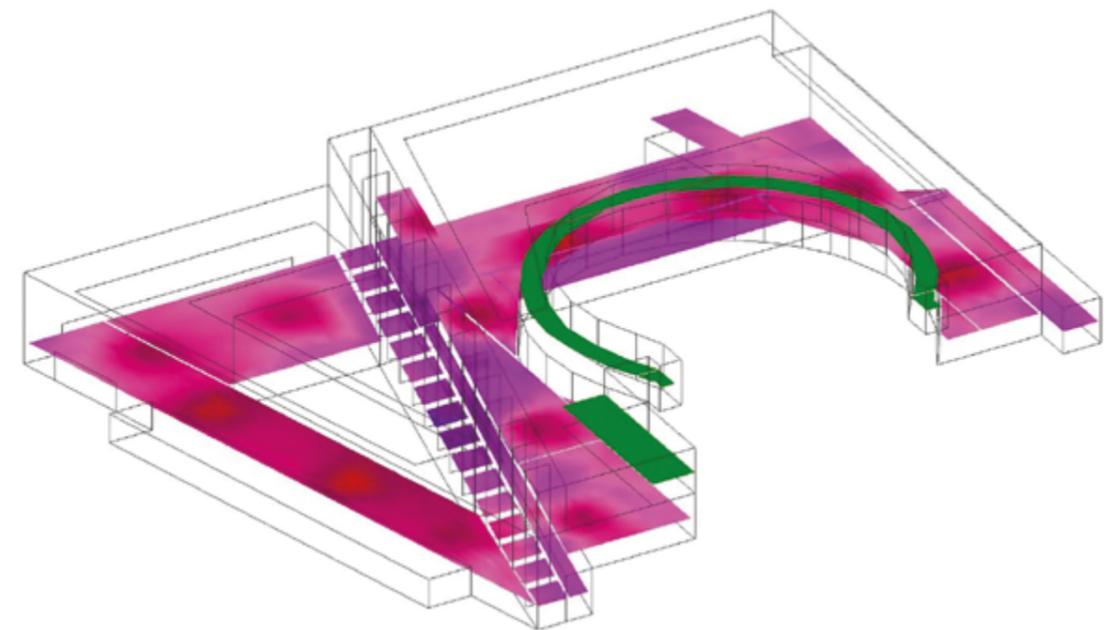
A foyer with a volume of approximately 13,000 m³ and a background noise level of 75 dBA, presenting a challenge for achieving optimal speech intelligibility.

Traditional system

- ✓ 6 ABT-S206B ceiling loudspeakers
- ✓ 39 ABT-W6 surface-mounted loudspeakers
- ✓ 11 ABT-LA60 column loudspeakers

Solution

- ✓ 15 ABT-OMN100 ceiling loudspeakers

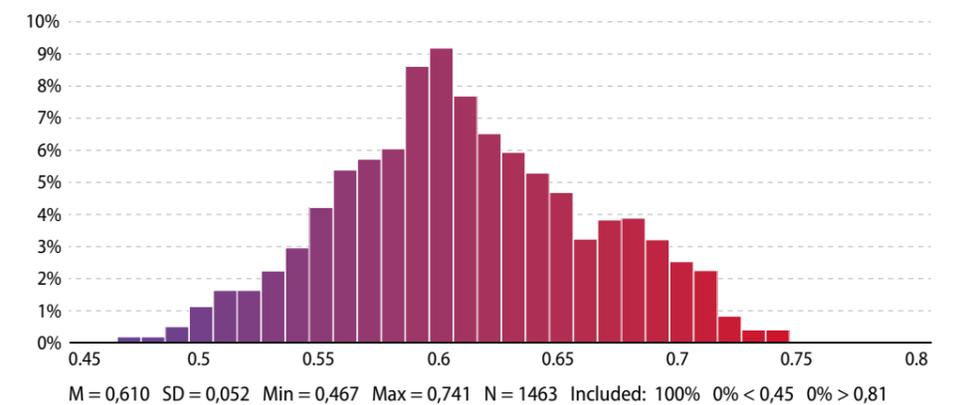


STI



Benefits of using ABT-OMN100 loudspeakers

STIPA(M) + N(Mask.) index distribution



The required area of sound-absorbing material was reduced by more than half – to approximately 650 m² – while still achieving the desired speech intelligibility performance.



Restaurant space

OPTIMISING THE NUMBER OF LOUDSPEAKERS

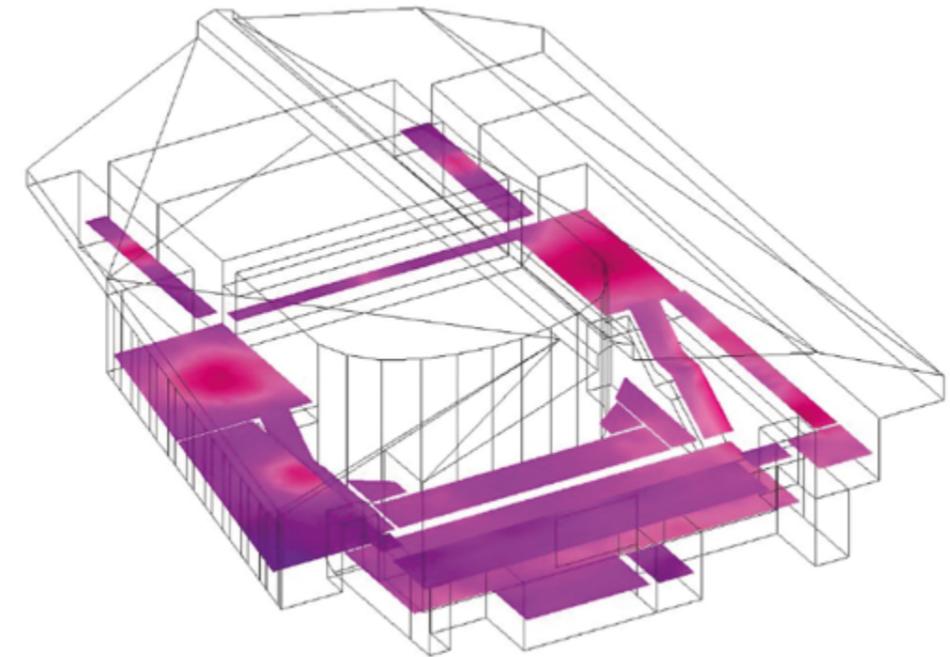
A venue with a volume of approximately 11,900 m³ and an area of 700 m², background noise level of 75 dBA and a reverberation time of 1.5 s. The goal was to reduce the number of loudspeakers while maintaining comparable speech intelligibility index (STI) values.

Traditional system

- ✓ 19 ABT-P20 projector loudspeakers
- ✓ 1 ABT-W6 surface-mount loudspeaker
- ✓ 3 ABT-S206B ceiling loudspeakers

Solution

- ✓ 10 ABT-OMN100 loudspeakers
- ✓ 4 ABT-S206B ceiling loudspeakers
- ✓ 1 ABT-P20 projector loudspeaker

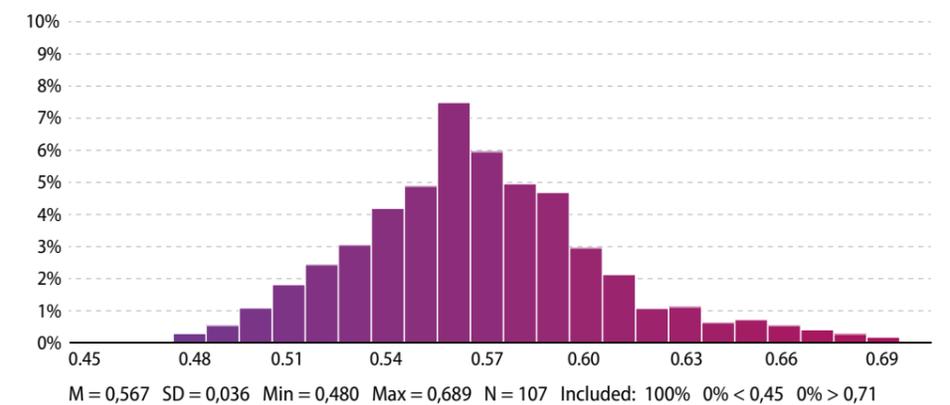


STI



Benefits of using ABT-OMN100 loudspeakers

STIPA(M) + N(Mask.) index distribution



A reduction in the number of loudspeakers from 23 to 15, while maintaining comparable speech intelligibility index (STI) values. This translates into significantly lower equipment and installation costs, as well as a simplified system design.



Three-story entrance hall

COMPLEX GEOMETRY AND HEIGHT

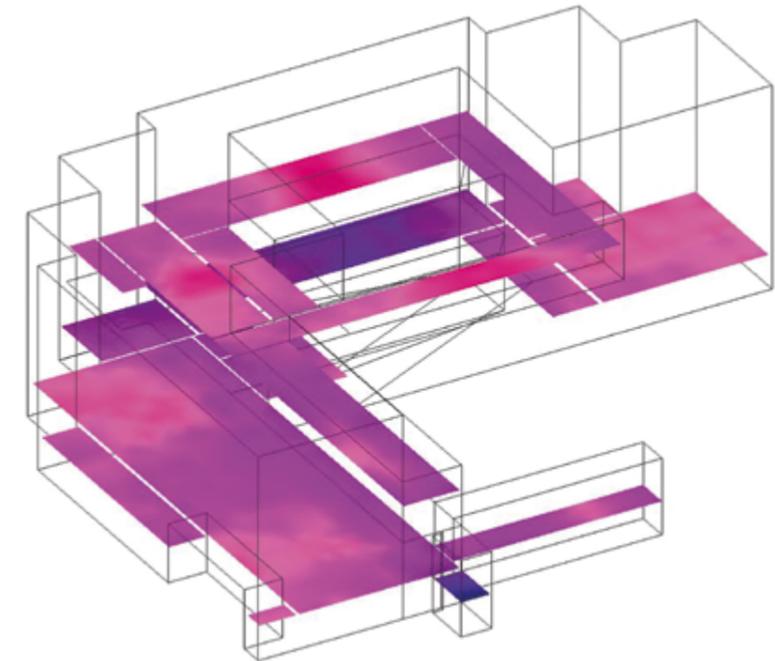
A hall with a volume of approximately 3950 m³ and a background noise level of 70 dBA, characterized by multiple floors and complex architecture.

Traditional system

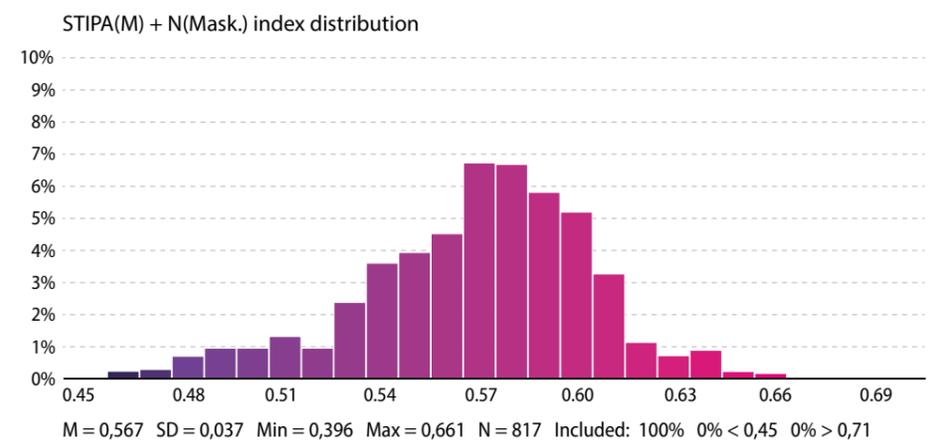
- ✓ 5 ABT-LA60 loudspeakers
- ✓ 20 ABT-S206B loudspeakers

Solution

- ✓ 6 ABT-OMN100 loudspeakers
- ✓ 8 ABT-S206B ceiling loudspeakers



Benefits of using ABT-OMN100 loudspeakers



Reduction of loudspeakers from 25 to 14, which demonstrates the efficiency of ABT-OMN100 in covering large, multi-level spaces while ensuring high speech intelligibility.



Passage

LONG AND FLAT AREAS

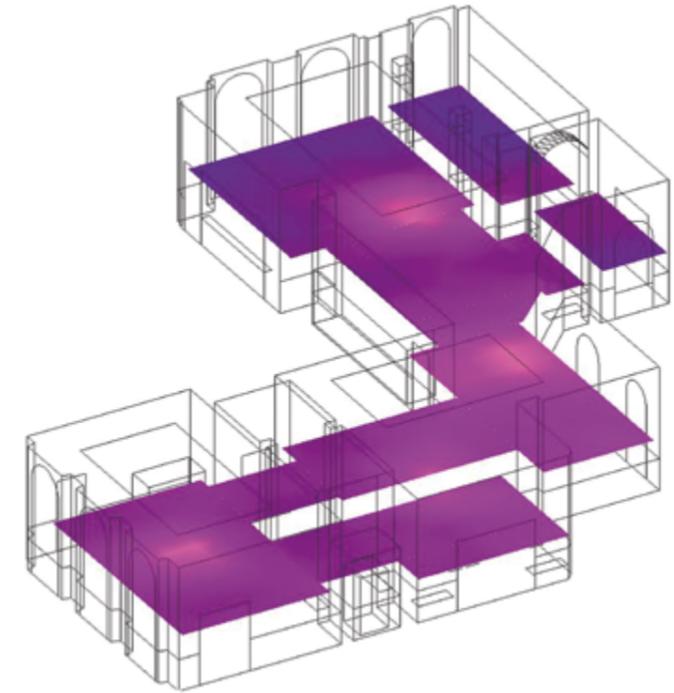
A passage with a volume of 900 m³ and a background noise level of 75 dBA. Its length and flat structure could lead to challenges in achieving even sound distribution.

Traditional system

- ✓ 7 loudspeakers ABT-LA40B

Solution

- ✓ 4 loudspeakers ABT-OMN100

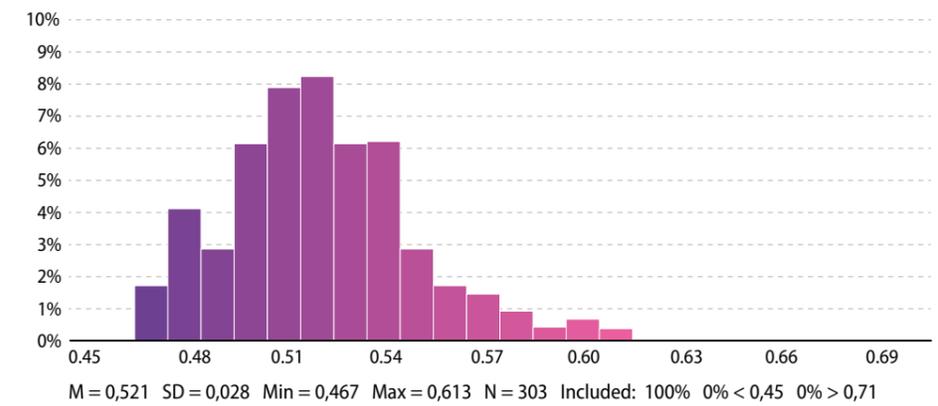


STI



Benefits of using ABT-OMN100 loudspeakers

STIPA(M) + N(Mask.) index distribution



Reduction of the number of loudspeakers from 7 to 4. The ABT-OMN100 loudspeakers provide optimal coverage of a wide area, which is crucial in elongated spaces, eliminating the need for multiple directional loudspeakers.



Swimming Pool Hall

HIGH REVERBERATION AND HUMIDITY

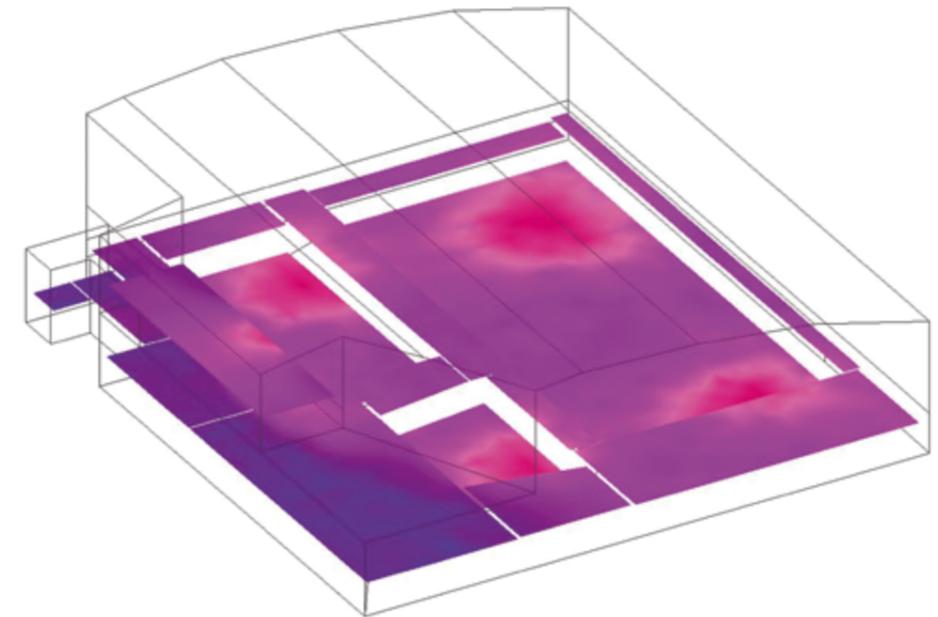
A swimming pool hall with a volume of approximately 8,800 m³ and an area of 1,000 m², characterized by high reverberation time (2.2 s) and background noise level of 75 dBA.

Traditional system

- ✓ 17 ABT-LA60 loudspeakers
- ✓ 3 ABT-SW176 loudspeakers

Solution

- ✓ 5 ABT-OMN100 loudspeakers

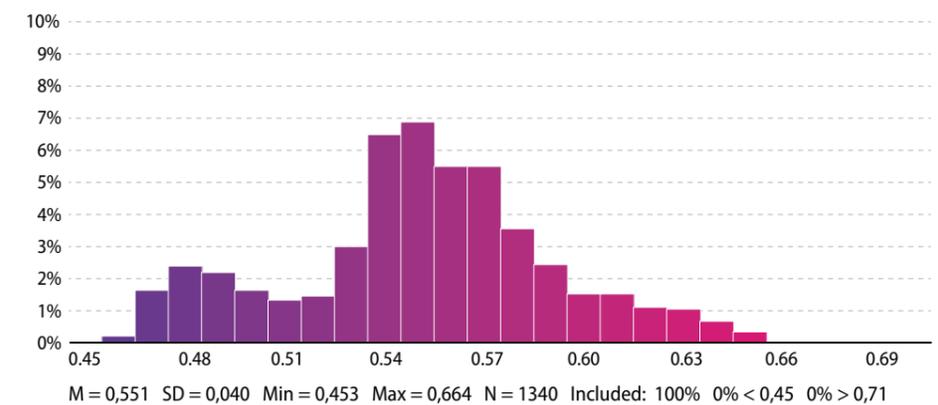


STI



Benefits of using ABT-OMN100 loudspeakers

STIPA(M) + N(Mask.) index distribution



Reduction of the number of loudspeakers from 20 to 5 while maintaining a high speech intelligibility index.



The future of safe and efficient communication

ABT-OMN100 loudspeakers are a breakthrough in designing PAVA for complex acoustic environments. Their omnidirectional characteristic combined with the ability to ensure speech intelligibility (STI) even in difficult conditions allows for a significant reduction in the number of required loudspeakers and a reduction in acoustic adaptation costs.

The use of advanced simulation methods such as AURA ensures precise system design and reliable operation. Thanks to its versatility and compliance with the EN 54-24 standard, the ABT-OMN100 is an ideal solution for facilities where safety, cost efficiency and high-quality communication are priorities. It is an investment that enhances safety simplifies management and optimizes the project budget.



We make everyday life safer

Ambient System products are continually improved. All specifications are therefore subject to change without prior notice.

EN / 07.2025