



Safety for Tunnel

EN 544

EN 5416

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An innovative solution from Ambient System

S4T – Safety for Tunnel



- *Based on use highly-directional loudspeakers (ABTTNL 100)*
- *A perfect choice for demanding acoustic environments such as tunnels with long reverberation time and reflection of sound waves*
- *Fully tested and measured under anechoic chamber conditions and on-site in 5km-long Eurasia Tunnel linking Asia with Europe*

The S4T logo, consisting of the letters 'S4T' in a large, bold, white sans-serif font, with a white semi-circular arch above the letters. The background is a dark, blue-tinted photograph of a tunnel interior with lights on the walls and a road leading into the distance.

S4T

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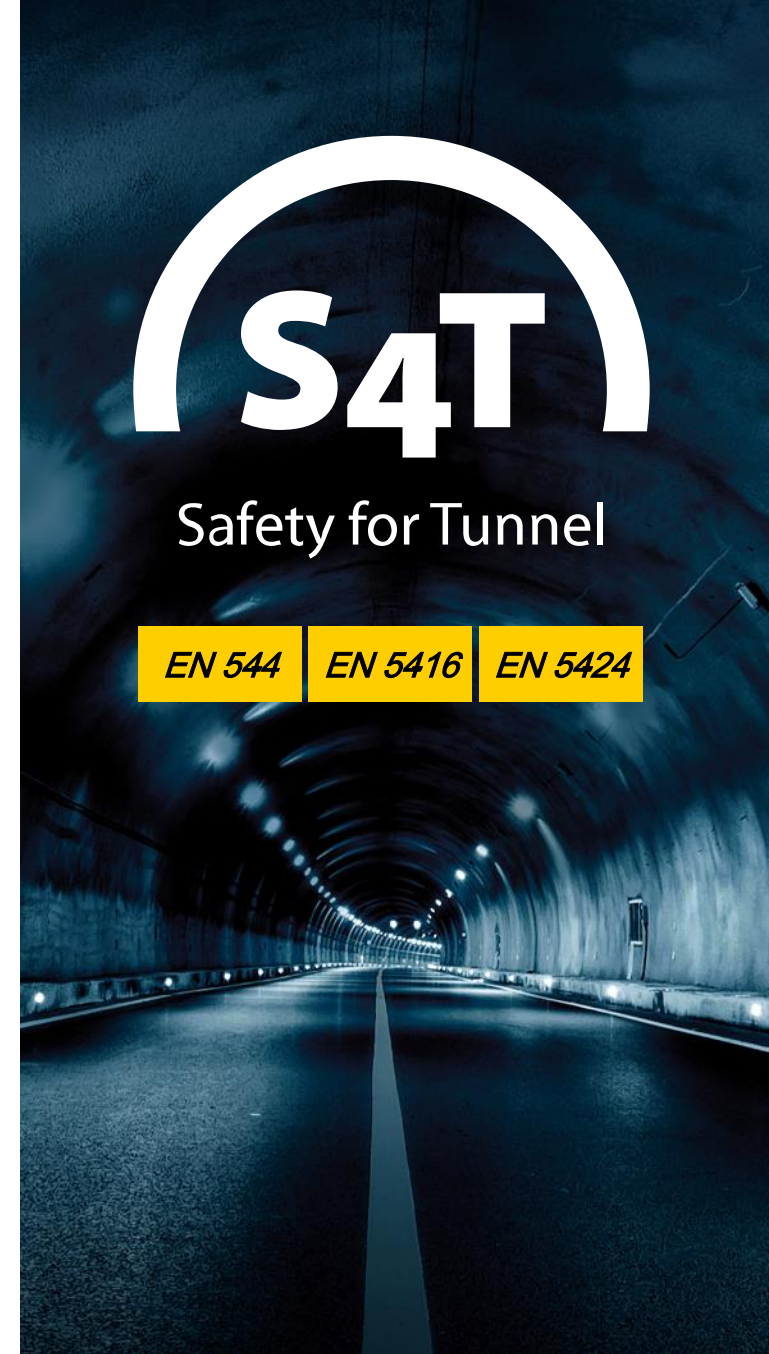
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S4T – Safety for Tunnel



- *Achieved required acoustic parameters: **Speech Pressure Level (SPL) of 105 dB** and **Speech Transmission Index (STI) of 0.45** even with **ABTNL 100** loudspeakers placed every 100metres*
- *Various materials tested i.e. concrete walls and ceilings and asphalt road surfaces*
- *100 W **ABTNL 100** with 300ms delays*
- *In-built **DSP-EQ** enabled precise setting of delays thus increasing speech intelligibility (STI of 0.1)*



The S4T solution includes



- *MultiVESsystem
(including ABTCU11LCD
Control Units)*
- *Highly-directional
ABFTNL100
loudspeakers*
- *Training
(„Train Trainer” approach)*
- *On-site support
(1st installation)*
- *Annual maintenance
& support*

MultIVES / Public Address & Voice Evacuation System



- Flexible and scalable configuration*
- Fully digital audio transmission*
- Redundant communication between control units and fireman microphones*
- Modular construction of control units*
- Fully integrated with Fire Alarm Systems*
- Remote management via Ethernet & WAN*
- Intercom function between all microphones*
- A unique system of dynamical allocation of spare amplifiers*



ABT-TNL100 / Highly-directional tunnel loudspeaker

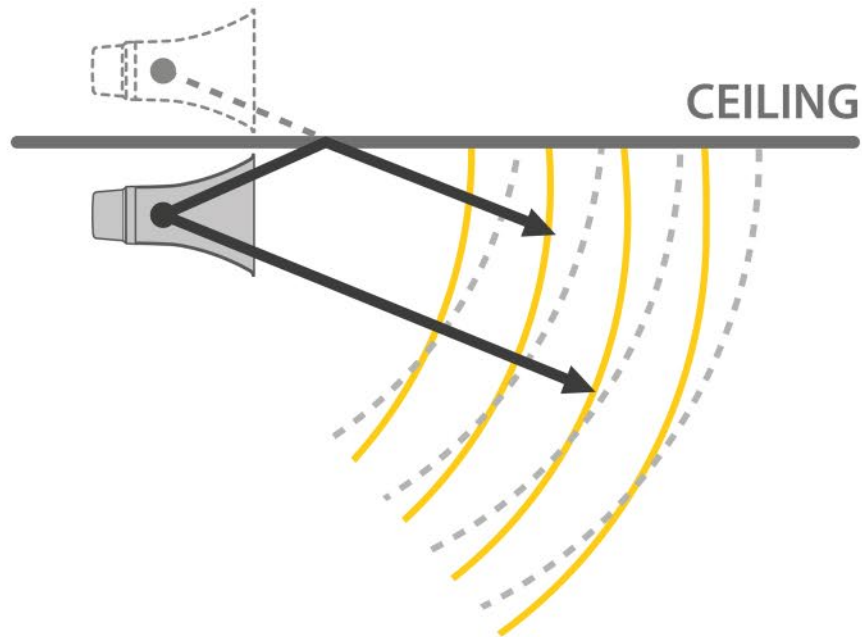


- Full compliance with EN 5424 Standards*
- Specially designed for tunnel applications*
- Excellent speech intelligibility*
- Stainless steel construction*
- Waterproof housing IP66*
- High power output 100 / 50 W*
- Highly-directional asymmetric horn*

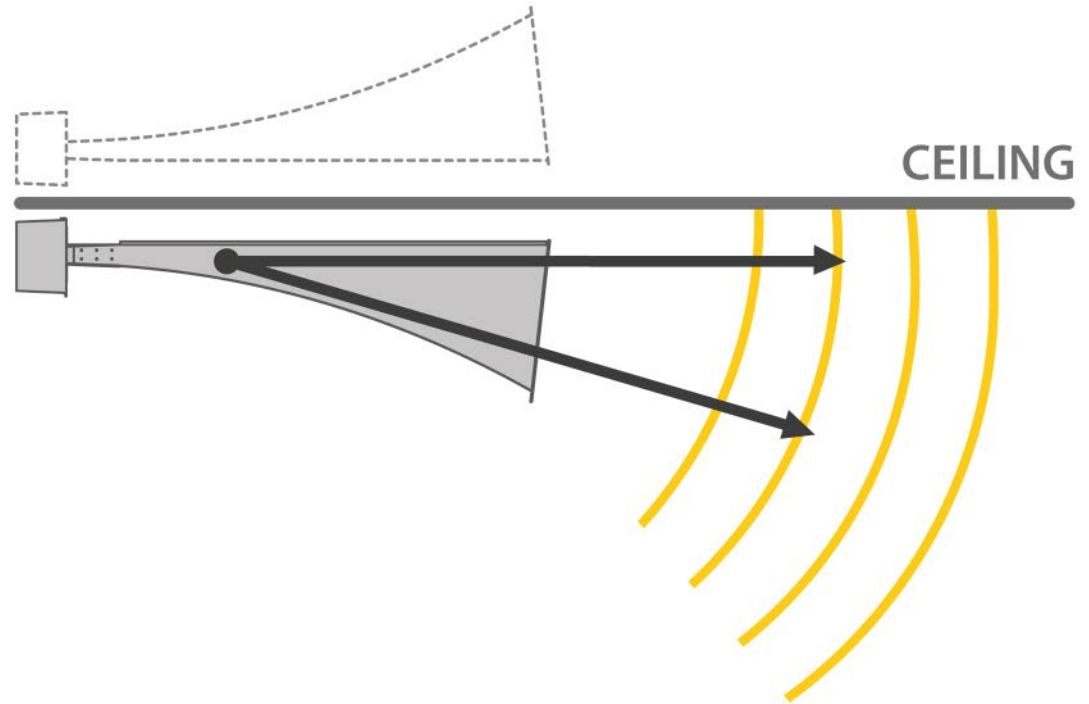


Why highly-directional speakers

Conventional Loudspeaker



ABFTNL 100 Tunnel Loudspeaker



ABT-TNL100 loudspeakers



- *Asymmetric construction allows flattening of the acoustic wave. By installing ABTNL 100 on the roof and reducing the impact of additional reflections, the roof of the tunnel becomes a boundary surface and waveguide of coherent acoustic wave.*
- *In contrast to the conventional horn loudspeakers, which have to be mounted at a distance from the wall or ~~the~~ use of ABTNL 100 prevents the occurrence of undesirable acoustic effects and adverse impact of wave interference*

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S4T

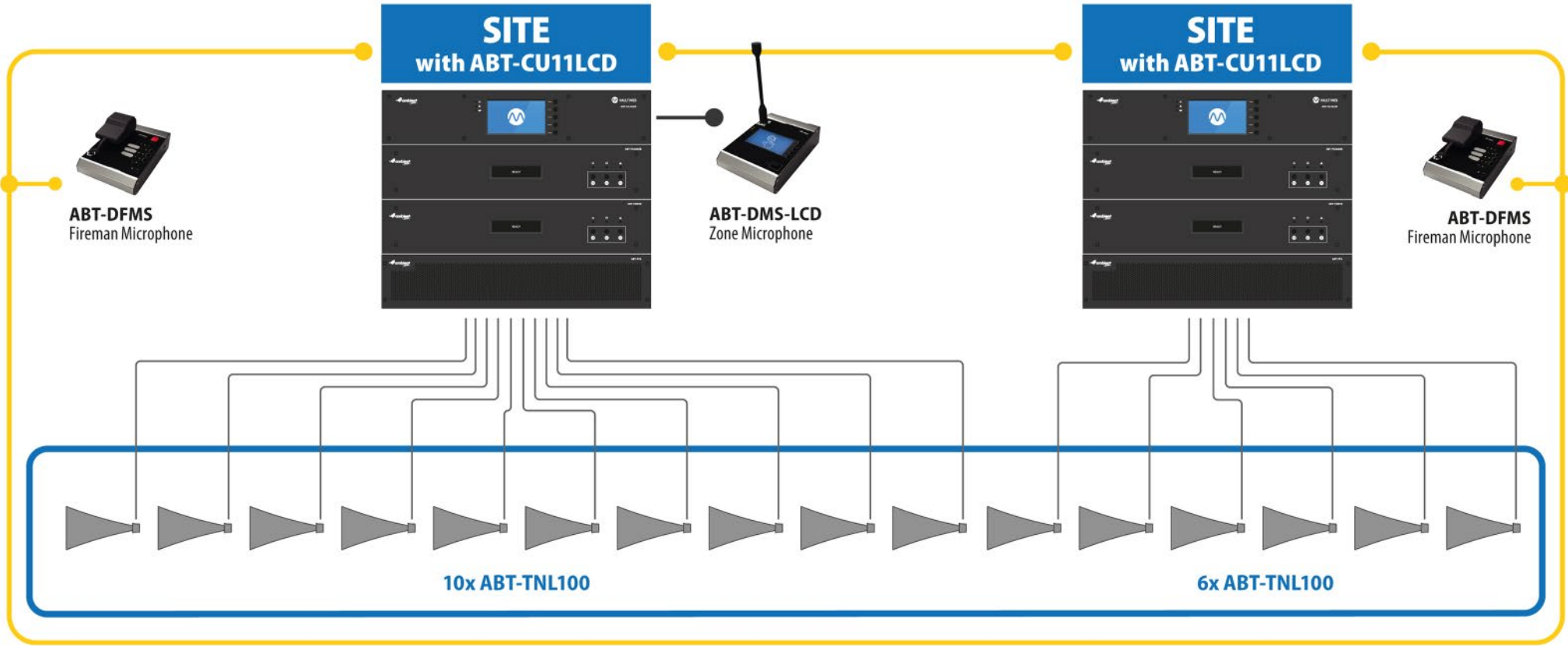
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S4T – system example



Way Forward >>>



- Fully tested solution in our Portfolio*
- On-going commercial discussions in Europe and Asia*
- Live sites expected by mid-2020*

