

## **12. A Study on Optimized Layout of Control Points on Active Sound Field Control -Basis Examination for Noise Reduction in the Specific Area-**

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One of the noise control methods is active noise control (ANC). ANC is a method for controlling noise by reducing noise through the interference of sound waves by emitting sound waves in opposition to the noise at a position where noise should be reduced. As a benefit of ANC, low-range noise that could hardly be controlled by conventional methods such as preventing the propagation of noise using soundproofing panels can be effectively reduced. Noise is reduced through the interference of sound waves. There are therefore no needs for encircling the source of the noise or for installing walls at locations where noise control is required.

In this study, considerations were given to the application of ANC with a feedback system for controlling noise in an area with a certain area where the source of the noise existed in one and the same space (referred to as the specific space below). As a result, the sound pressure level in a specific space with an area of 3 m x 3 m could be reduced to approximately 5 dB in an indoor space where 400-Hz noise constantly occurred.

**Key words:** ANC, filtered-X-LMS, feedback, feed forward, industrial noise, construction noise