

13. Placement of Control Speaker for Active Noise Control - Effects of the Speaker Radiation Pattern -

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Active Noise Control (ANC) typically requires many control speakers and control microphones to decrease overall noise across a defined (large) area. However, there is a need to reduce noise effectively in small areas like workplaces for factory employees. If noise propagates from one or several directions into a small area, ANC requires one or several control speakers and control microphones to offset the noise in a small space. Such situations actually exist in factories and construction sites, etc. In order to consider the arrangement of control speakers, it is necessary to estimate the effort required by an ANC in a small defined area. We devised a method for estimating such effort by an ANC in a small area calculated using the amplitude ratio and the phase difference of the noise and the sound emitted by the control speaker. In this report, we verified the validity of the method by comparing the calculation results using this method with the measured values. As a result, the trend of the calculation results from this method and the measured values are consistent.

Key words: Active Noise Control, Radiation Pattern of Speaker, Placement method