

**An Analytical Method of Noise Contribution Ratio in a Railway Vehicle Using a Small Speaker  
and an Acoustic Particle Velocity Sensor**

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To apply a noise reduction countermeasure properly in a railway vehicle, it is significant to clarify the contribution ratio from each noise generation site at a noise evaluation position. The acoustic characteristics at the evaluation position in enclosed space can be represented as the product of acoustic particle velocity near the noise source and the acoustic transfer function between the noise source and the evaluation position. Therefore, the authors have been developed a new analytical method to estimate the acoustic characteristics at an arbitrary evaluation position in the space and noise contribution ratio using an acoustic particle velocity sensor and a small loudspeaker. This paper describes the outline of the method and verification results in stationary test vehicle excitation test.