

**A Road Traffic Noise Evaluation System Considering A Stereoscopic Sound Field Using
Virtual Reality Technology**

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This paper presents a road traffic noise evaluation system considering a stereoscopic sound field using virtual reality technology. The system is based on the geometric acoustic theory based on ASJ-2008 for realizing the real time simulation, and exposes users the computed road traffic noise level both with the auditory information by the driving sound of the vehicle and with the visual information by the CG image. In order to realize the stereoscopic sound field, we employed a computational method based on the ambisonics method. The noise of the vehicle is measured and the data is implemented in the system. In order to check the agreement between acoustic information created by the present system and the computational results, the acoustic information is measured by a sound level meter. The present system is shown to be a useful tool to evaluate the road traffic noise in planning and designing road environment.

Keywords: Geometric acoustic theory, Road traffic noise, Stereoscopic sound field, Virtual reality