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An automated 3 dimensional scanning system for validation of acoustical simulation results

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To validate acoustical simulation results, a great number of measurement points are needed especially in 3 dimensional cases. These measurements can be extremely laborious when done manually. Also, the spatial information of the measurement points has to be accurate. In this work, an automated 3-D scanning system with high spatial resolution for validation of acoustical simulation results is introduced. The system consists of a multi channel data acquisition hardware, a microphone array and a 3-D scanning system. The movement of the microphone array is controlled by the data acquisition hardware. The performance of the automated 3-D scanning system is demonstrated and the experimentally measured pressure fields are compared to simulation results.