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Adaptive Feedforward Cancellation (AFC) for low frequency noise reduction in laboratory settings

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The purpose of this study is to investigate how to reduce noise in sound fields using active noise control technique with an emphasis on Adaptive Feedforward Cancellation (AFC). The study is conducted in (1) a close room (6.7 m wide, 11 m long, and 2.87 m high), and (2) in an open space (8.2 m wide and 18 m long). In the laboratory experiments, low frequency noise at 200 Hz is generated by the 1,000 watt speaker (as noise source), and the 1,200 watt speaker is used as noise cancelling speaker. Error microphone and spectrum analyzer are installed for measuring noises. Results indicate that noise reductions of 14.38 dB and 10.73 dB can be made in a close room and in an open space, respectively. Applications and limitations for this study are also discussed.

Biography

Suparoek Junsupasen is a Lecturer in the Department of Instrumentation and Electronics Engineering, Faculty of Engineering, King Mongkut's University of Technology North Bangkok, Thailand. He received a Master's Degree in Electrical Engineering and Information Technology from Fachhochschule Rosenheim, Germany in 2005. His research interests include electrical system design and acoustic noise control.

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