

Analysis of dynamic properties of an aeroacoustic anechoic room

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Abstract: The objective of the paper is to present experimental results of the acoustic field inside an aeroacoustic anechoic chamber especially built to investigate sound phenomena correlated to aerodynamic flows. This aeroacoustic anechoic chamber was especially designed as an unusual modern test facility with all flat surfaces only to avoid additional noise phenomena due to the air flows inside the room. To check its parameters, the acoustic field inside the empty room was measured using sound generator and obtained characteristics were compared with the ISO standards. Additionally, an accelerometer was used to check dynamic properties of the chamber. Since, for such rooms, very low frequencies of the sound are critical, the transducer was connected to the main wall. This allowed testing interactions between emitted sound and the wall vibrations. All experimental investigations have been carried out at the Institute of Turbomachinery of Lodz University of Technology, Poland.

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