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Design and implementation of a three-dimensional seven
microphone vector intensity probe with low and high frequency
compensations

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A seven microphone vector intensity probe has been designed and implemented in this report with low and high frequency compensations. Measurements from plane wave tube and anechoic chamber are used for overall system calibration with corrected gain and phase mismatch errors. Measured and calculated intensity level from both plane wave tube and anechoic room settings showed close agreement with each other in comparison to separate low and high frequency components of the array. Particle velocity vectors and pressures determined for calculating intensity were also used to calculate sound power and total energy density components of various sources. This microphone array vector intensity probe is then used to explore various sound source identification and localization problems.