

## **ACOUSTICS2008/911**

### **Design and construction of an acoustic lab facility**

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This paper will discuss the design and construction of a new acoustic lab facility. The lab consists of a hemi anechoic chamber and a reverberation chamber suite. The hemi anechoic chamber was designed to obtain a 0 dBA noise floor in the frequency range of interest. It features a 200 cubic meter volume inside the wedges. To achieve the design goals, several aspects were considered including ambient levels, vibration isolation, HVAC noise, and free field performance. The design solutions for each of these areas will be presented.

The reverb chamber suite consists of two reverberation chambers designed to perform transmission loss tests and sound absorption testing. The source chamber has an internal volume of 214 cubic meters and the receive room has an internal volume of 418 cubic meters. Design considerations will be discussed including vibration isolation, wall panel design, and diffuser placement. Additionally, the design and construction of the transmission loss coupling will be addressed.