ID: Type: **Oral**

# of laser measurements of a pressure driver in infrasound laboratory calibrations

Infrasound chambers are commonly used to calibrate infrasound sensors using a dynamic piston to generate pressure variations and a calibrated reference sensor against which to compare the observations of pressure. The reference sensor that is used in such a calibration system requires periodic recalibration in order to maintain traceability. As an alternate approach to traceability, the 1400 Liter infrasound calibration chamber at Sandia National Laboratories has recently been improved to include a laser on each of its two 10" diameter pressure drivers that measures the absolute displacement of the piston surface. By incorporating traceable measures of the piston surface area, chamber volume, chamber surface area, and absolute pressure, the displacement measurements of the laser-piston should be able to be used to predict the dynamic pressure observed within the infrasound chamber. Empirical measurements of the laser-piston displacement relative to calibrated reference sensors are compared with both adiabatic and isothermic models of the infrasound chamber.

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Track Classification: Measurement systems and calibration