

ME 458 Noise Control Laboratory #6
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## Enclosures

**Objectives:** Measure and calculate the insertion loss of a noise enclosure

**Background:** In this lab, you will have the opportunity to consolidate much of the understanding that you have hopefully gained about sound propagation in rooms, the absorption of sound in materials and the transmission of sound through panels and openings. You are to verify the insertion loss relation derived in class for an enclosure. The enclosure's walls are made of assorted materials (plexiglas, chipboard, etc). The interior is lined with acoustic foam of varying thickness.

**Procedure:**

**Prediction of Insertion Loss**

- 1) Carefully measure the dimensions of each surface of the chamber
- 2) Look up (from material tables) the absorption and transmission loss values for the various materials for frequencies from 250 to 4000 Hz.
- 3) Compute the insertion loss for the enclosure in each octave band.

Surface	Area	α	τ

**Measurement of Insertion Loss and Sound Power**

- 4) Measure the SPL of the ILG source, uncovered and covered by the enclosure. (in octave bands from 250 to 4000 Hz)
- 5) Calculate the insertion loss (the difference in levels with and without the enclosure)

	Measured	Calculated
Insertion Loss (dB)		

**Reporting Requirements:** Submit a brief, concise lab report. Comment on the agreement between predicted and measured insertion loss. What are some possible reasons for any observed discrepancies? What design changes could be made to improve the effectiveness of the enclosure?