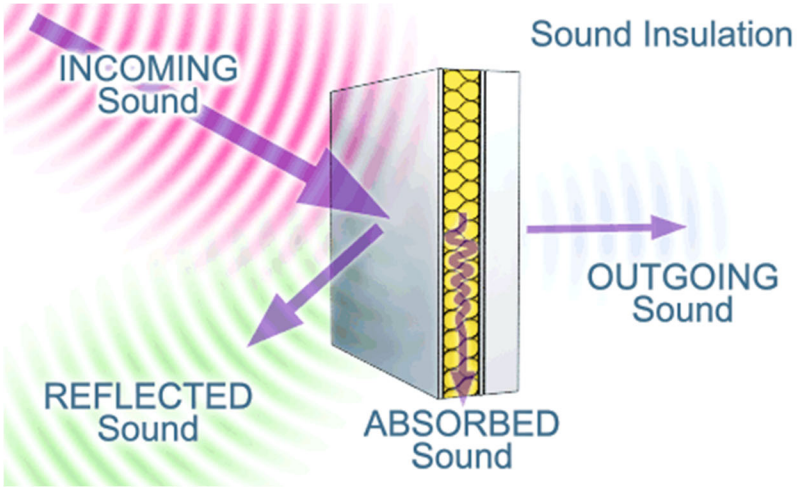
Sound Transmission Loss (STL)-

- It is defined as the ratio of sound power incident on a partition to the sound power transmitted through the partition.

$$\tau = \frac{Sound\ Power\ Transmitted}{Sound\ Power\ Incident}$$

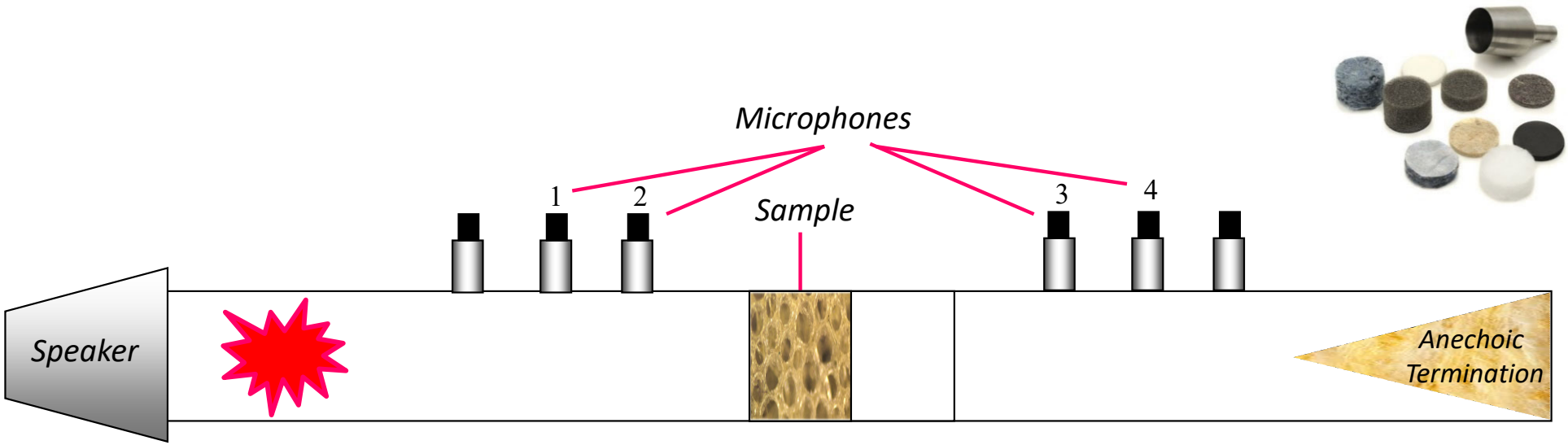
$$STL = 10\log\left(\frac{1}{\tau}\right) \quad [dB]$$

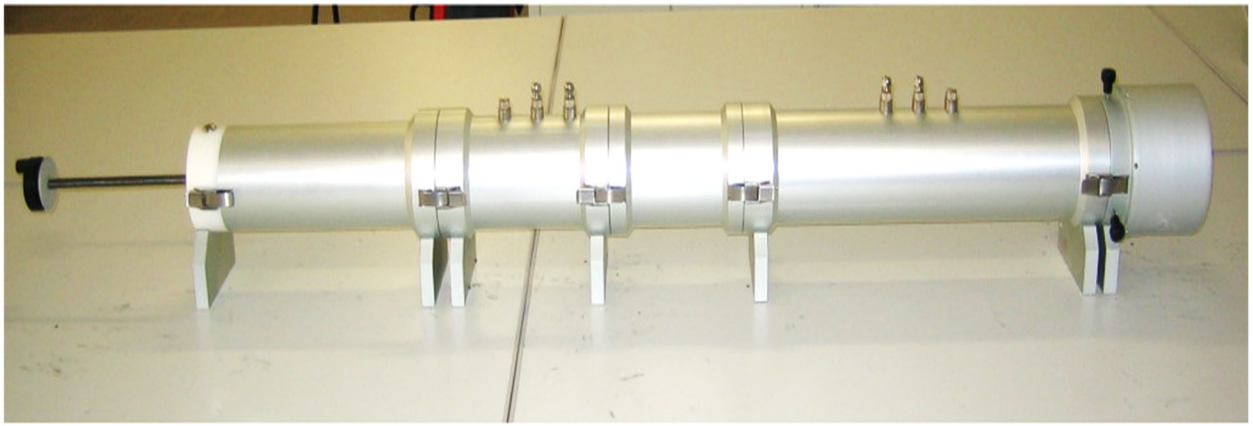


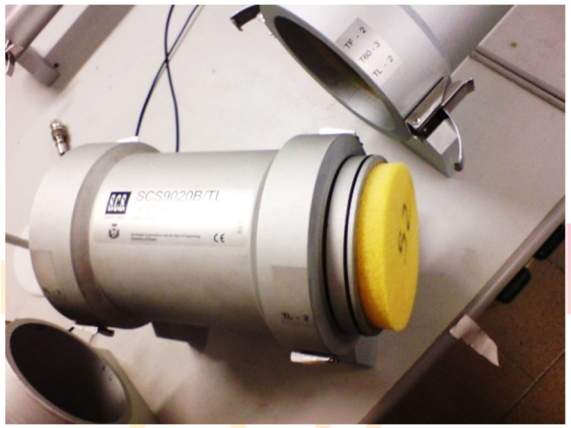
- Normal incidence sound transmission loss -Two Microphone Tube
- Random incidence sound transmission loss -Reverberation Suite

Normal Incidence STL Measurement -

- Sample Size – 45 mm diameter sample.
- Lost cost and time saving test







Random Incidence STL Measurement-

- Two adjacent reverberation rooms are arranged with an opening between them in which the test partition is installed as per ASTM E90.
- Sound Transmission loss is related to Noise reduction as

$$TL = NR + 10\log_{10}\left(\frac{S}{A}\right)$$

S - Area of the sample

A - Room constant of the receiving room

- Noise Reduction is simply the difference between sound pressure levels on opposite sides of a wall

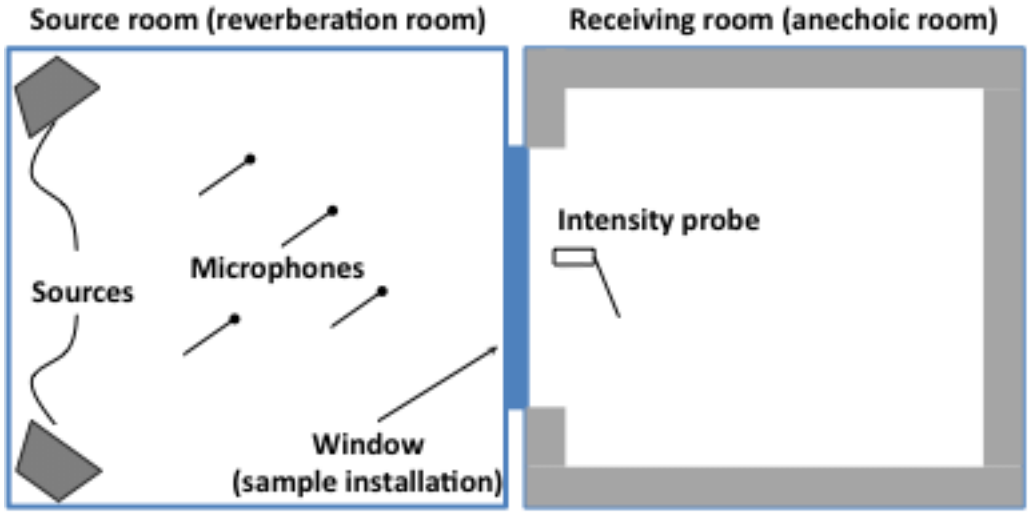
SPL_1 – Sound Pressure Level in the Room 1

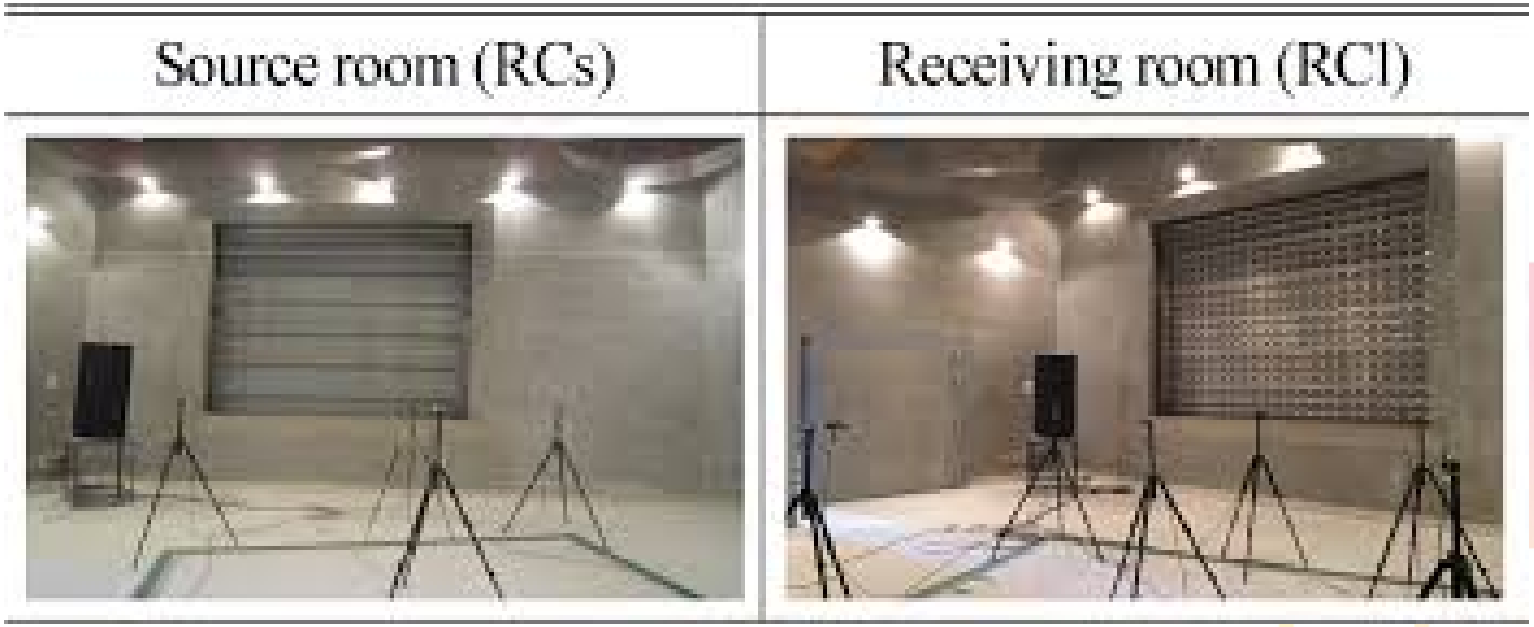
SPL_2 – Sound Pressure Level in the Room 2

$$NR = SPL_1 - SPL_2$$

Random Incidence STL Measurement-

- Requires large size sample
- High cost, but results are near to real application





Thank You!

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Silence through Science

An ISO 9001: 2015 Company

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