

Demonstration 4. The Decibel Scale (1:57)

In the first part of this demonstration, we hear broadband noise reduced in steps of 6, 3, and 1 dB in order to obtain a feeling for the decibel scale.

In the latter part, a voice is heard at distances of 25, 50, 100, and 200 cm from an omni-directional microphone in an anechoic room. Under these conditions, the sound pressure level decreases about 6 dB each time the distance is doubled. (In a normal room this will not be the case, since considerable sound energy reaches the microphone via reflections from walls, ceiling, floor, and objects within the room.)

Commentary

"Broadband noise is reduced in 10 steps of 6 decibels. Demonstrations are repeated once."

"Broadband noise is reduced in 15 steps of 3 decibels."

"Broadband noise is reduced in 20 steps of 1 decibel"

"Free-field speech of constant power at various distances from the microphone."

References

- ISO R532 (1966), "Method for calculating loudness levels," (International Standards Organization, Geneva, Switzerland).
- S.S.Stevens (1955), "The measurement of loudness," J. Acoust. Soc. Am. 27, 815-29.