**Lab Manual**

**ERGONOMICS**

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# *Experiment No. 01*

**Objective:**

 **To determine the sound levels of different places of the campus using digital sound level meter.**

**Apparatus:**

 Digital Noise Meter

**Theory:**

1. **Digital Noise Meter:**

It is an instrument use to determine the sound level of a location.

1. **Specifications of Digital Noise Meter:**
2. **Resolution:** 0.1 dB
3. **Overall Range:**
	* 30 to 130 dB "A"
	* 35 to 130 dB "C"
4. **Basic Accuracy:** ±1.5 dB
5. **Power:** 4 x AA 1.5V alkaline cells or 1 9V (6F22)
6. **Sound:**

Sound is a [mechanical wave](http://en.wikipedia.org/wiki/Mechanical_wave) that is an [oscillation](http://en.wikipedia.org/wiki/Oscillation) of [pressure](http://en.wikipedia.org/wiki/Pressure) transmitted through a [solid](http://en.wikipedia.org/wiki/Solid), [liquid](http://en.wikipedia.org/wiki/Liquid), or [gas](http://en.wikipedia.org/wiki/Gas), composed of [frequencies](http://en.wikipedia.org/wiki/Frequencies) within the range of hearing and of a [level sufficiently strong](http://en.wikipedia.org/wiki/Threshold_of_hearing) to be heard, or the sensation stimulated in organs of hearing by such vibrations

**Units of sound:**

1. [**Bel**](http://en.wikipedia.org/wiki/Bel) :

 A [logarithmic unit](http://en.wikipedia.org/wiki/Logarithmic_scale) of sound pressure equal measured a tenth of it in decibels dB.

1. [**dB**](http://en.wikipedia.org/wiki/Decibel)**:**

The decibel (dB) is a [logarithmic unit](http://en.wikipedia.org/wiki/Logarithmic_unit) that indicates the ratio of a physical quantity relative to a specified or implied reference level.

1. [**sone**](http://en.wikipedia.org/wiki/Sone)**:**
2. [**phon**](http://en.wikipedia.org/wiki/Phon)
3. **Mel**

1. **Noise:**

 Noise is a term often used to refer to an unwanted sound. In science and engineering, noise is an undesirable component that obscures a wanted signal.

1. **Effects of noise on performance:**

Elevated noise levels can create stress, increase workplace accident rates, and stimulate aggression and other anti-social behaviors.

 **Some examples of Sound Level:**

|  |  |
| --- | --- |
| **Breathing**  | 10 dB |
| **Home Office**  | 50 dB |
| **Electric Shaver**  | 60 dB |
| **Piano Practice 65** | 65 dB |
| **Manual Machines** | 80 dB |
| **Average Factory Noise** | 100dB |
| **Shot Gun**  | 120dB |
| **Loudest sound possible** | 194dB |

**Procedure:**

1. Select the place where sound level is to be measured.
2. Then press GREEN button (ON).
3. Then place the microphone on the selected place, for 10 sec.
4. Observe and note the values.

**Observation:**

|  |  |  |
| --- | --- | --- |
| **Sr No.** |   **Location** |  **Sound level****Max. Min** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |
| 6. |  |  |  |

**Comments:**