INDEX COMPUTATION

1) Time index:

- **Mean absolute value (MAV)**

$$\mathrm{MAV} = \frac{1}{N}\sum_{i=1}^{N}|x_i|.$$

- **Waveform length (WL)**

$$\mathrm{WL} = \sum_{i=1}^{N-1}|x_{i+1} - x_i|.$$

- **Root mean square (RMS)**

$$\mathrm{RMS} = \sqrt{\frac{1}{N}\sum_{i=1}^{N}x_i^2}.$$

- **Max value (Max) and Min value (Min)**

- **Mean Value (MV)**

$$\bar{x} = \frac{1}{n}\left(\sum_{i=1}^{n} x_i\right) = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

- **Standard Deviation**

$$\sigma_X = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu_X)^2},$$

- **Variance**

$$\operatorname{Var}(X) = \mathrm{E}\left[(X - \mu)^2\right].$$

2) Frequency index

- **Spectral Energy (SEN)**

$$E = \int_{-\infty}^{\infty} |x(t)|^2 dt.$$

- **Median Frequency (MDF)**

$$\sum_{j=1}^{MDF} P_j = \sum_{j=MDF}^{M} P_j = \frac{1}{2}\sum_{j=1}^{M} P_j$$

- **Mean Central Frequency (MNF)**

$$\mathrm{MNF} = \sum_{j=1}^{M} f_j P_j \Big/ \sum_{j=1}^{M} P_j,$$

- **Maximal and Minimum peak (Max_p & Min_p)**