

# Phase Noise calculator

```
% Prompt user for input values
offset_freq = input('Enter the offset frequency in Hz: ');
main_peak_dBm = input('Enter the peak amplitude of the main signal in dBm: ');
offset_peak_dBm = input('Enter the peak amplitude of the offset signal in dBm: ');
RBW = input('Enter the resolution bandwidth in Hz: ');

% Calculate phase noise
phase_noise = offset_peak_dBm - main_peak_dBm - 10*log10(RBW);

% Display input data and phase noise
disp(['Input data:']);
```

Input data:

```
disp(['Offset frequency: ' num2str(offset_freq) ' Hz']);
```

Offset frequency: 100000 Hz

```
disp(['Peak amplitude of the main signal: ' num2str(main_peak_dBm) ' dBm']);
```

Peak amplitude of the main signal: -20 dBm

```
disp(['Peak amplitude of the offset signal: ' num2str(offset_peak_dBm) ' dBm']);
```

Peak amplitude of the offset signal: -77.508 dBm

```
disp(['Resolution bandwidth: ' num2str(RBW) ' Hz']);
```

Resolution bandwidth: 10000 Hz

```
disp(['']);
disp(['Phase noise is a measure of the frequency stability of a signal.']);
```

Phase noise is a measure of the frequency stability of a signal.

```
disp(['Phase noise: ' num2str(phase_noise) ' dBc/Hz']);
```

Phase noise: -97.508 dBc/Hz