

Data Calculation Algorithms for Spectrum Width

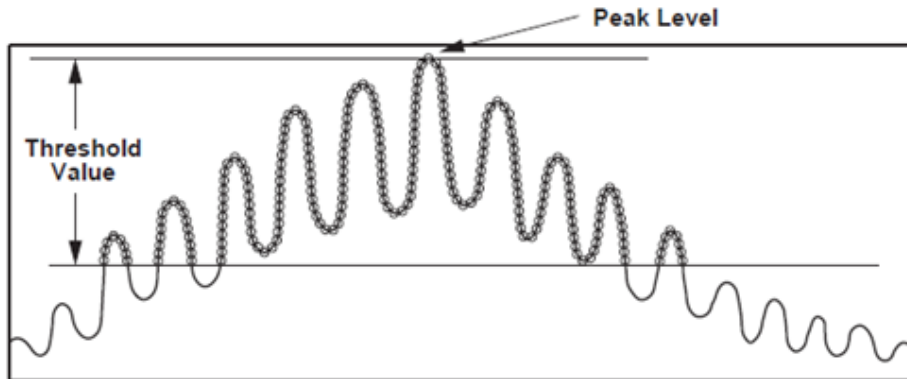
RMS Method

Use the RMS method to obtain the spectrum width and its center wavelength.

Following table shows the details of parameters for the RMS method.

Parameter	Abbreviation	Default Value	Setting Range	Unit	Description
THRESH	TH	20.00	0.01 to 50.00	dB	Threshold value
K	K	2.00	1.00 to 10.00	-	Multiplying factor

Algorithms for the analysis are described below.



- Take out the data points exceeding the threshold value TH, within the displayed waveform, and find the spectrum width by the following calculation.
- When the wavelength at each point is λ_i and the level at the point is P_i , the mean wavelength λ_c can be found by the following expression.

$$\lambda_c = \frac{\sum P_i \times \lambda_i}{\sum P_i}$$

- By using the mean wavelength λ_c , find the spectrum width $\Delta\lambda$ by the following expression.

$$\Delta\lambda = K * \sqrt{\frac{\sum P_i \times (\lambda_i - \lambda_c)^2}{\sum P_i}}$$