

User Calibration

User Calibration

User calibration is a function to correct the power value using correction data set for the following measurement results.

Measurement Mode	Measurement Value to be Corrected
Phase noise	Carrier signal level
AM Noise	Carrier signal level
Spectrum monitor	Measurement value (array)
Frequency/power measurement	Power measurement value (array)
Transient measurement	Power measurement value (array)

This section describes the following topics about User Calibration:

- Setting User Calibration Function
- Format of correction data
- Correction method

Setting User Calibration Function

Loading Correction Data From CSV File

Load a correction data file written in CSV format to the E5052B. Follow these steps.

1. Press **System** > **Instrument Setup** > **Correction** > **Import Power Correction Table**.
2. Select a correction data file you want to load from the softkey file list.

CSV files (extension: .csv) in the surgical folder in the F: drive are listed as softkeys.

NOTE

To load a correction data file from a floppy disk, other media, or another folder, follow these steps.

1. Press **System** > **Instrument Setup** > **Correction** > **File Dialog**
2. Select a correction data file you want to load from the file dialog box.

Turning On/Off User Correction Function

Reflect the loaded correction data. Follow these steps.

1. Press **System** > **Instrument Setup** > **Correction**.
2. Press **Power Correction** to turn on the user calibration function for correction data.

Other topics about User Calibration

Format of correction data file

- Writing Correction Data File
- Restrictions on Writing

Other topics about User Calibration

Correction data files must be written in CSV format.

Writing Correction Data File

Write a frequency value and a correction value for the frequency with a comma (,) separator. Deal them as a pair, and write pairs for all correction points with comma separators.

Line break characters are recognized as data separators in the same way as commas. Therefore, two formats as shown below are available: writing pairs in a single line, or writing a pair of a frequency value and a correction value in each line.

Write frequencies in Hz, and correction values in dB.

Example of Data Written in Single Line

10E+6,0.04,100E+6,0.06,200E+6,0.07,300E+6,0.06

Example of Data Written in Multiple Lines

10E+6,0.04
100E+6,0.06
200E+6,0.07
300E+6,0.06

Restrictions on Writing

There are some restrictions on writing correction data files. They are:

1. The maximum number of data items is 1001. Data after that is ignored when loaded.
2. Lines that start with a pound sign (#) are skipped as comment lines. Data in those lines is not recognized.
3. Data must be written in the order from data for the smallest frequency to data for the largest. If data for a frequency equal to or smaller than the previous one is read, the read operation ends immediately. This does not cause any error, and the correction data immediately before the end of the read operation is reflected.

Correction method

Power data correction is performed as follows. (The correction value is Corr shown below.)

Data after correction (dBm) = data before correction (dBm) + Corr (dB)

If the power data frequency to be corrected is smaller than the minimum frequency in the loaded data, the correction coefficient for the minimum frequency is used for correction.

If the power data frequency to be corrected is greater than the maximum frequency in the loaded data, the correction coefficient for the maximum frequency is used for correction.

If the power data frequency to be corrected does not match any frequency in the loaded data, the correction coefficient obtained by linear interpolation of the nearest 2 points is used for correction.

In this case, a correction coefficient after linear interpolation (Corr') is used for calculation.

Data after correction (Watt) = data before correction (Watt) x correction value (Corr')

$\text{Corr}' = 10 ^ {(\text{Corr} / 10)}$

NOTE

Note that correction is made before determining raw data. In other words, corrected values are stored as raw data. For more information on raw data, see Internal data processing in Reading/writing measurement data.

Other topics about User Calibration