

Portable FFT Analyzer Model CF-7200

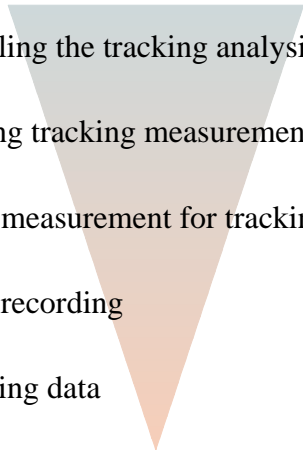
Offline tracking analysis using the recording function

In addition to the online analysis function, the optional tracking analysis software CF-0722 has the offline tracking analysis function to analyze the data recorded using the record function. This document describes the operations for data recording and offline tracking analysis.

While there are two types of tracking analysis, i.e., constant-ratio tracking analysis and constant-width tracking analysis, the CF-0722 software can be used for both methods by simply changing the setting in the Schedule dialog box. This document describes the operation procedures separately for the constant-ratio and constant-width tracking analysis methods.

Throughout this document, the name of any soft key on the screen will be presented in square brackets (e.g., [MAIN]), and the name of any operation button on the panel will be enclosed by single quotation marks (e.g., 'START'). In the text, "key" means a soft key on the screen and "button" means an operation button on the panel.

■ Operation Flow

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- [1] Enabling the tracking analysis function
 - [2] Setting tracking measurement conditions
 - [3] Trial measurement for tracking analysis
 - [4] Data recording
 - [5] Reading data
 - [6] Tracking analysis (constant-ratio tracking analysis)
 - [7] Tracking analysis (constant-width tracking analysis)
 - [8] Saving tracking data
 - [9] How to perform FFT analysis
 - [10] Returning to on-line analysis

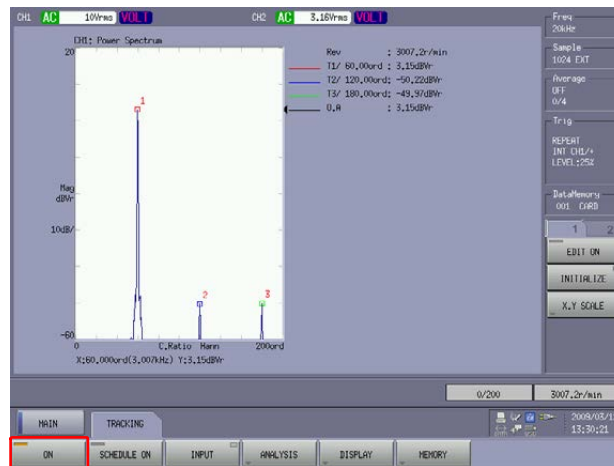
Note:

- 1. It is called "online analysis" when the signal being received is analyzed in real time. On the other hand, it is called "offline analysis" when any recorded data is used for the analysis.
- 2. To record the data, be sure to use the tracking analysis mode. If the data is recorded in the FFT analysis mode, offline tracking analysis cannot be made because the rotational information is not recorded. Note that any data recorded in the tracking analysis mode can be analyzed offline for both FFT analysis and tracking analysis.

■ Operation Procedure

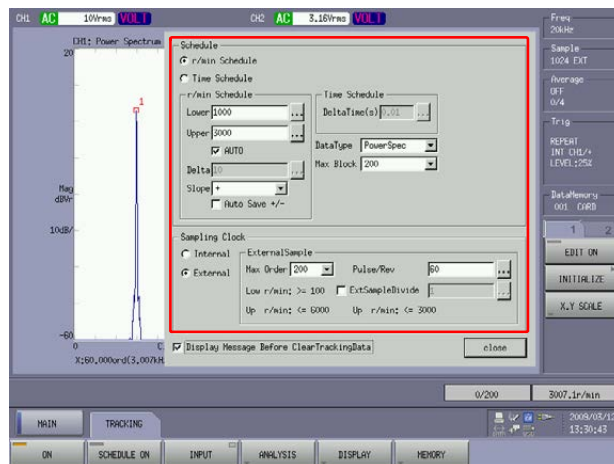
1. Enabling the tracking analysis function

Press the keys in the order [MAIN], [TRACKING], and [ON] to enable the tracking analysis function.



2. Setting tracking measurement conditions

Press the keys in the order [MAIN], [TRACKING], and [INPUT] to open the "Schedule" dialog box and set the tracking measurement conditions.



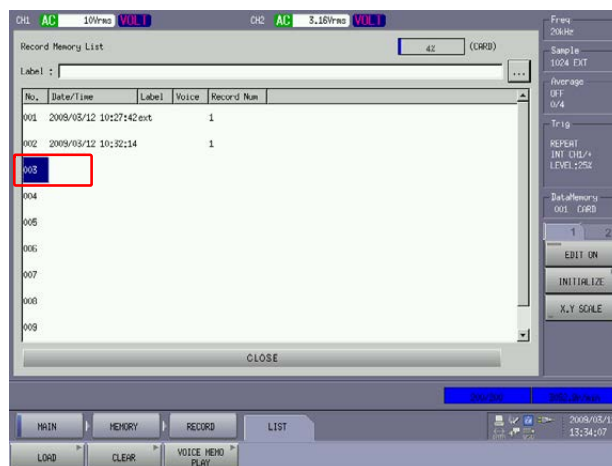
- Select "r/min Schedule". Set the range of the rotation speed using the "Lower" and "Upper" r/min fields, set "Slope" for the direction of the measurement (i.e., whether to increase or decrease the rotation speed during the measurement), and set other parameters as appropriate to the purpose of the analysis.
- Set the number of pulses per rotation in the "Pulse/Rev" field. Set the maximum order of analysis in the "max ord" field.

3. Trial measurement for tracking analysis

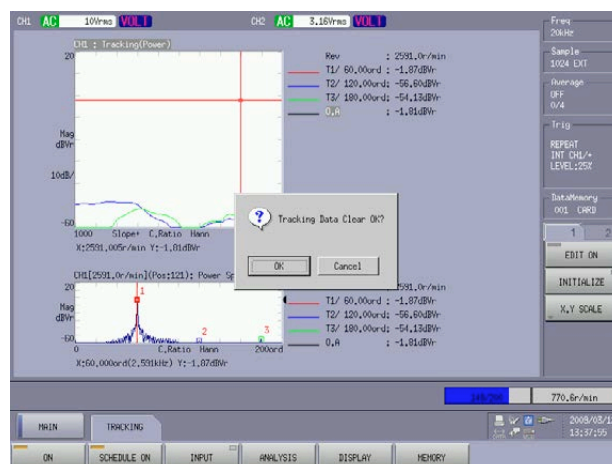
- 1. Press the keys in the order [MAIN], [TRACKING], and [SCHEDULE ON] to enable the "Schedule (rotation/time) switching" function.
- 2. Press the 'START' button on the control panel (the red lamp turns on) to perform trial measurement for tracking analysis, and check that the voltage range and other measurement conditions are properly set.

4. Data recording

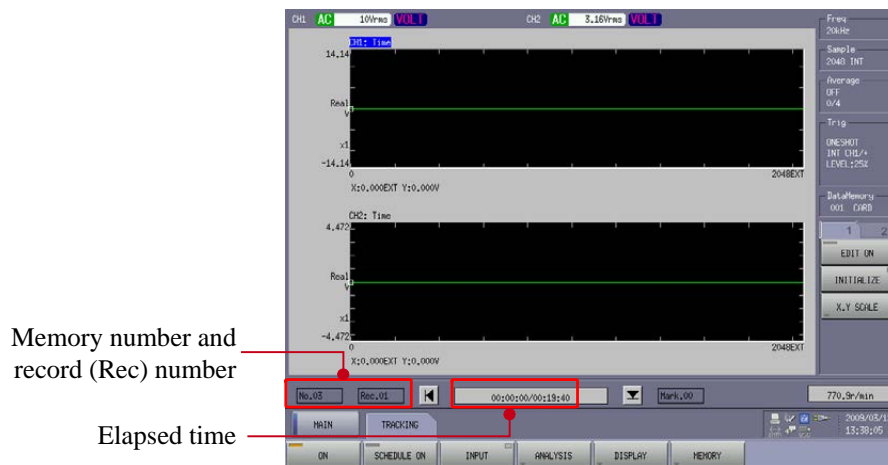
- 1. Press the keys in the order [MAIN], [TRACKING], and [ON] to make sure that the tracking analysis function is enabled (i.e., the "ON" lamp is on).
- 2. Press the keys in the order [MAIN], [MEMORY], [RECORD], and [LIST] to show the list of record memories. Click on an unused memory number (here, No. 003 is used). The data will be saved with this number. You should be careful because specifying a number already used for recording will overwrite the recorded data.



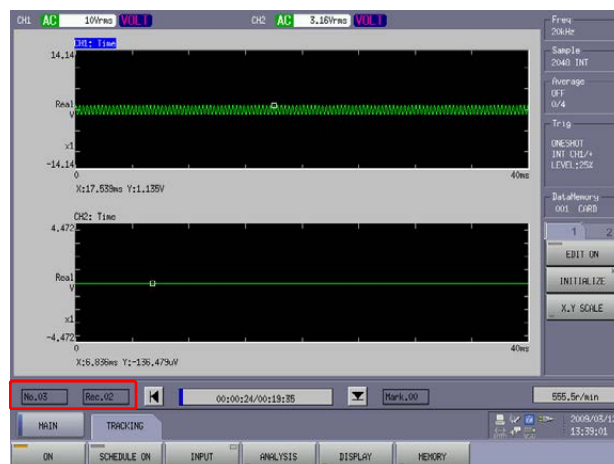
- 3. Press the 'REC' button on the operation panel. After a while, as the message "Tracking Data Clear OK?" will be displayed, click "OK". The "REC" button turns on in red, and the "Schedule" key turns off automatically.



- 4. While running the measurement target device at around the starting speed, press the 'START' button on the operation panel. It starts recording the data. Increase (or decrease) the rotation speed of the measurement target device. During the recording process, no tracking analysis can be made. Tracking analysis is to be made after the recording. On the display screen, the record memory number: No.3, record number: Rec.01 and the elapsed time will be shown. You can save multiple data records in the same memory number, and each record is identified by the record number, Rec. XX. In offline analysis, this record number is specified for performing the tracking analysis.



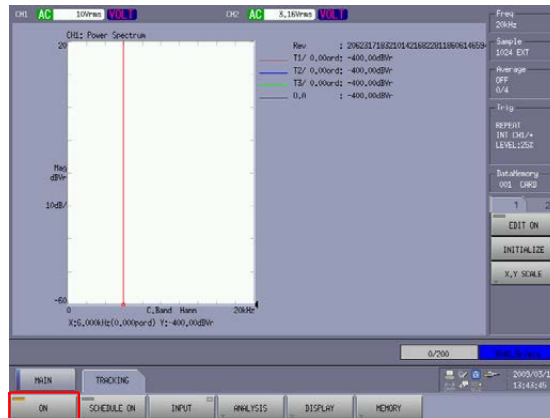
- 5. When the rotation speed has reached the upper limit rotation of the measurement, press the 'STOP' button on the operation panel. This completes the recording of the "REC.01" record.
- 6. While the red lamp of the 'REC' button on the operation panel is lit, repeat the above steps 4-4 to 4-5 to record the Rec.02 data.



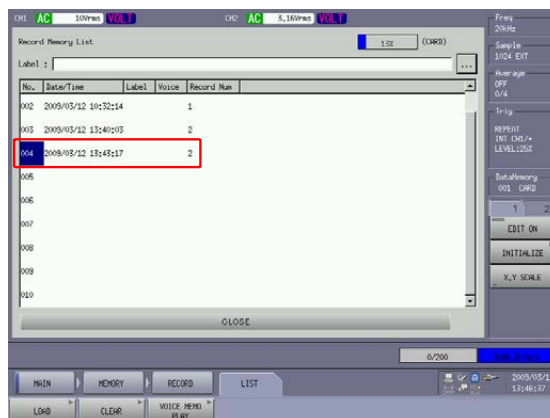
- 7. Press the 'REC' button on the operation panel again (the red lamp turns off) to finish data recording to the record memory No.3. At this point, the record memory No.3 contains the Rec.01 and Rec.02 records, and the data is saved into a file with the extension .orf.
- 8. By repeating the above steps 4-2 to 4-7, you can record the data using a new memory number.

5. Reading data

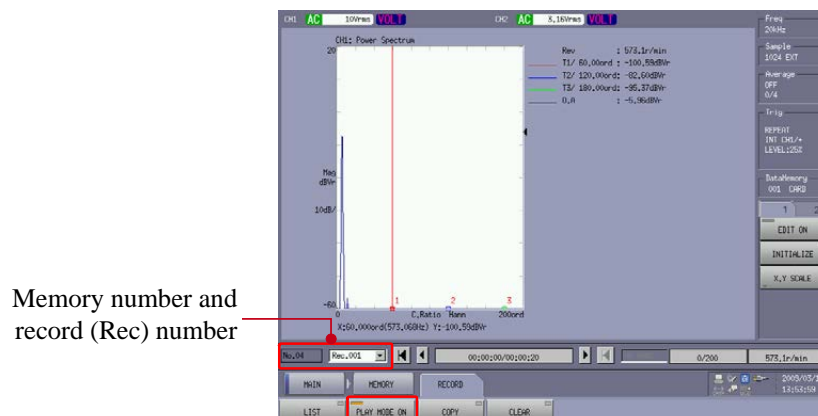
1. Press the keys in the order [MAIN], [TRACKING], and [ON]. Check that the tracking analysis function is enabled (i.e., the lamp is on).



2. Press the keys in the order [MAIN], [MEMORY], [RECORD], and [LIST] to show the list of record memories.
3. Click the memory number (here, No. 004) of the data to be analyzed.

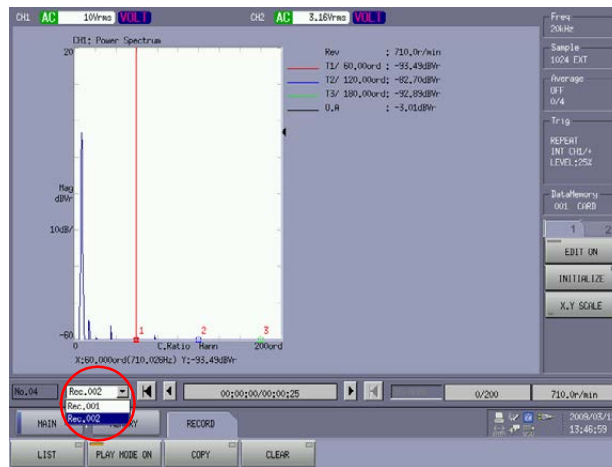


4. Press the keys in the order [MAIN], [MEMORY], [RECORD], and [LOAD] to read the data. It will take some time before the data is fully read. After the data is read, the memory number and record number will be displayed, and the lamp on the [PLAY MODE ON] key turns on automatically.



6. Tracking analysis (constant-ratio tracking analysis)

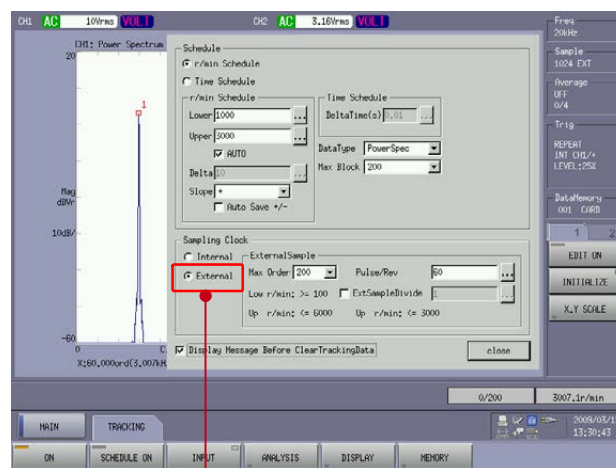
- 1. Select the record number of the record to be analyzed.



- 2. Press the keys in the order [MAIN], [TRACKING], and [INPUT] to open the "Schedule" dialog box, and set the tracking analysis conditions. Selecting "External" in the "Sampling Clock" section as shown below results in the constant-ratio tracking analysis.

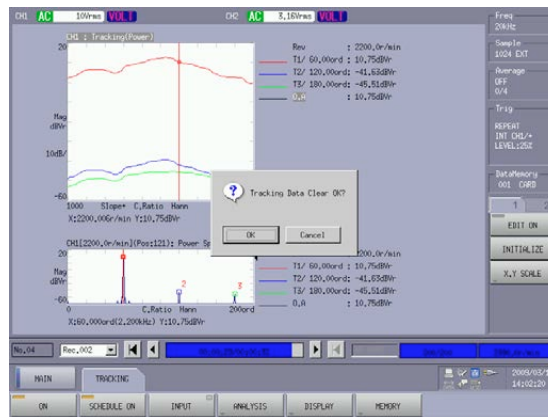
Note:

Even if the data has been recorded with "Internal" sampling clock, the constant-ratio analysis can be made.



Selecting "External" for "Sampling Clock" enables the constant-ratio tracking analysis.

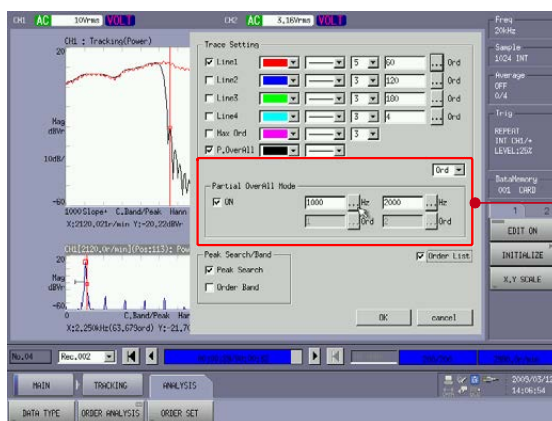
- 3. Press the keys in the order [MAIN], [TRACKING], and [SCHEDULE ON] to turn on the schedule function (i.e., turn on the lamp). When the "Tracking Data Clear OK?" message is displayed, clicking "OK" clears the data being analyzed.



- 4. Press the 'START' button on the operation panel to turn on the red lamp and start the analysis. The data of the specified record number (i.e., Rec.002 in this example) will be analyzed.

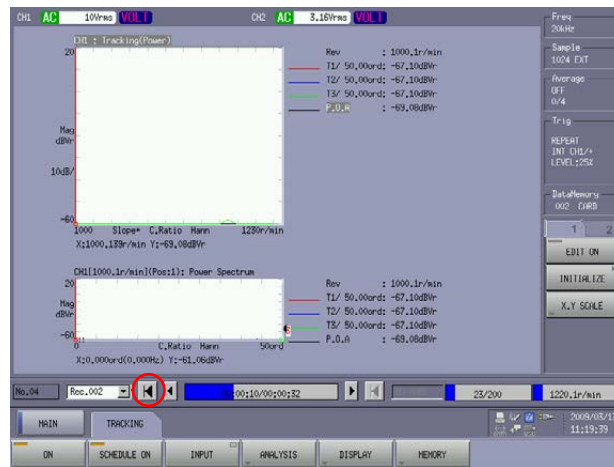


- 5. Press the keys in the order [MAIN], [TRACKING], [ANALYSIS], and [ORDER ANALYSIS] to show the "Trace Setting" dialog box. Here, you can change the order of analysis and other parameters to display the results.



Shows the Partial Overall (i.e., overall mode in the specified frequency range) setting.

- 6. If the analysis has been interrupted, you can repeat the analysis from Step 6-4 by clicking the left-end arrow button to return to the start position.



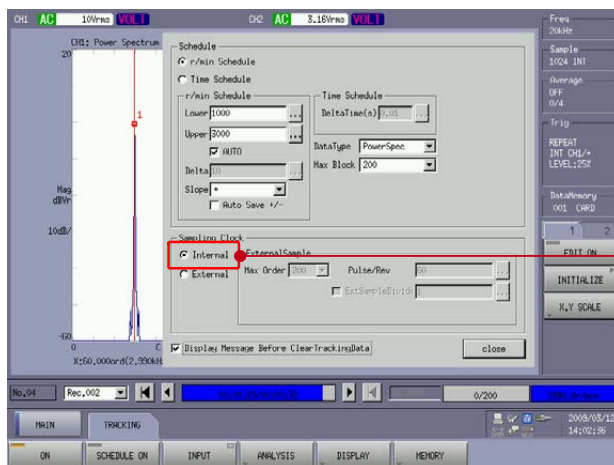
7. Tracking analysis (constant-width tracking analysis)

While the above procedure in Section 6 is for the constant-ratio tracking analysis, you can use the same recorded data to perform the constant-width tracking analysis.

- 1. Press the keys in the order [MAIN], [TRACKING], and [SCHEDULE ON] to turn off the schedule function (i.e., turn off the lamp).
- 2. Press the keys in the order [MAIN], [TRACKING], and [INPUT] to open the "Schedule" dialog box. Then, select "Internal" in the "Sampling Clock" section to enable the constant-width tracking analysis. This setting selects the constant-width tracking analysis mode. Set other parameters as appropriate to the purpose of the analysis.

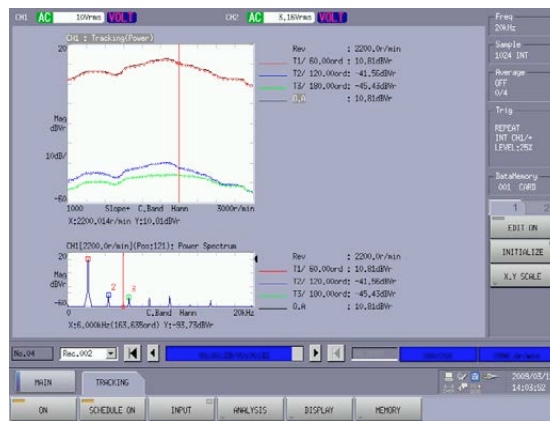
Note:

Even if the data has been recorded with "External" sampling clock, the constant-width analysis can be made.

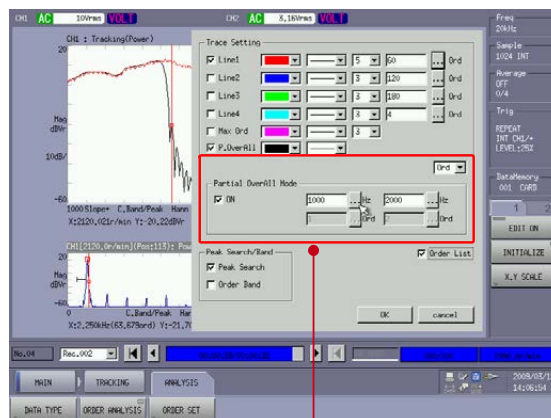


Selecting "Internal" for "Sampling Clock" enables the constant-width tracking analysis.

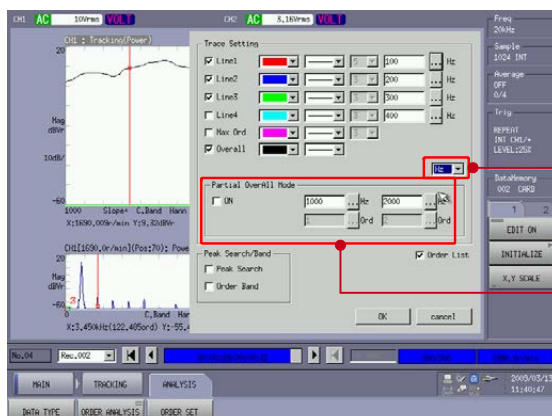
- 3. Press the keys in the order [MAIN], [TRACKING], and [SCHEDULE ON] to turn on the schedule function (i.e., turn on the lamp). When the "Tracking Data Clear OK?" message is displayed, clicking "OK" clears the data being analyzed.
- 4. Press the 'START' button on the operation panel to start the constant-width tracking analysis.



- 5. Press the keys in the order [MAIN], [TRACKING], [ANALYSIS], and [ORDER ANALYSIS] to show the "Trace Setting" dialog box. Here, you can change the range of the order (or frequency) to be displayed.



Shows the Partial Overall (i.e., overall mode in the specified frequency range) setting.

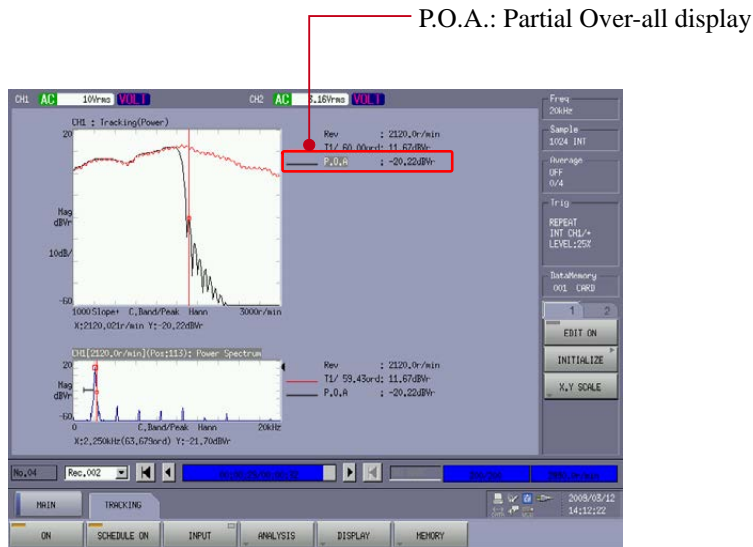


Ord: Specifies the order range for the tracking analysis

Hz: Specifies the frequency range for the tracking analysis

This setting can be used to change the unit for Lines 1 to 4 (i.e., to Ord or Hz).

Setting of the partial overall mode



8. Saving tracking data

Pressing the 'SAVE' button on the operation panel saves the data of the tracking analysis results and display conditions in a trc file (with extension .trc). The "trc" file contains the tracking analysis data obtained according to the parameters specified in the "Schedule" dialog box. After reading the content of a trc file, you can change the parameters in the "Trace Setting" dialog box that opens when the keys are pressed in the order [MAIN], [TRACKING], [ANALYSIS], and [ORDER ANALYSIS].

9. How to perform FFT analysis

Press the keys in the order [MAIN], [TRACKING], and [ON] to turn the lamp off (i.e., to disable the tracking analysis function). Press the 'TIME' button to display the time waveform or press the 'SPECT' button to display the spectrum. Pressing the 'START' button enables the FFT analysis of the recorded data. Note that the frequency range for the analysis can be lowered from that used in the data recording. As there are some restrictions on changing the frequency range, it is allowed to select only the available frequency range.

Remarks

You can perform offline FFT analysis even if the optional tracking analysis software is not used. You can use data that has been recorded with the [ON] lamp turned off (i.e., without enabling the tracking analysis mode), after selecting the keys [MAIN] and [TRACKING].

10. Returning to online analysis

Press the keys in the order [MAIN], [MEMORY], [RECORD], and [PLAY MODE ON] to turn off the offline analysis function (i.e., turn the lamp off).

-END-
(2015/06/05)