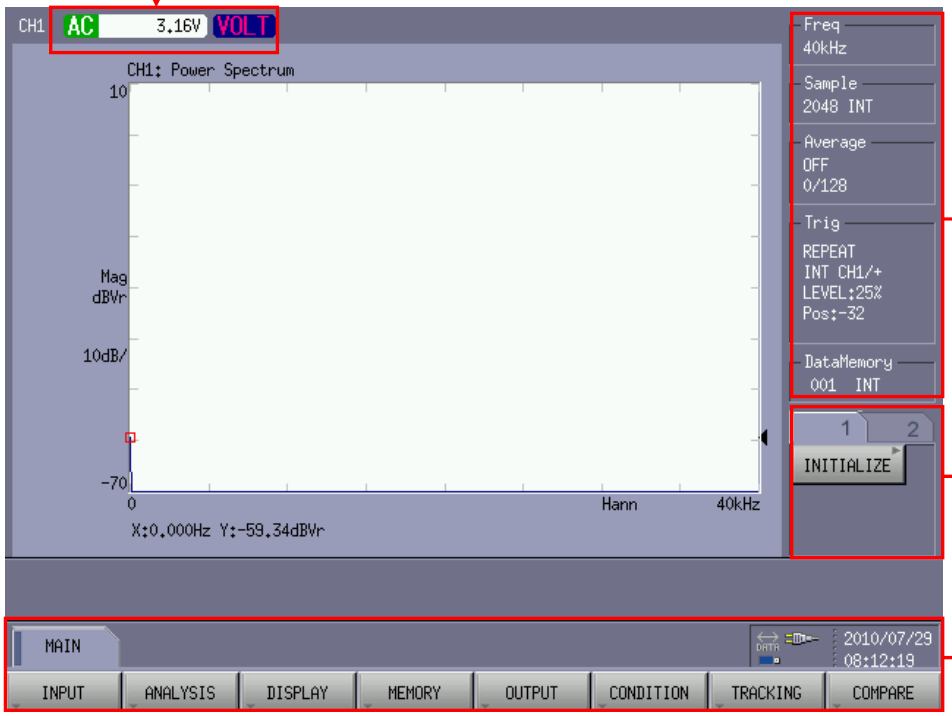
ONO SOKKI

Simplified Operation of CF-4500 FFT Comparator

Initial Window

The FFT comparator CF-4500 has two control key groups: bottom soft keys for setup and right panel keys for execution.

Shows the input signal conditions, being linked with the soft keys.



Measurement condition display area:
Touching the desired item changes the menu configuration of soft keys.

Short cut menu:
Frequently used soft keys are registered here.

Soft keys:
The upper tier selects a category, and the lower tier shows the keys in the category.

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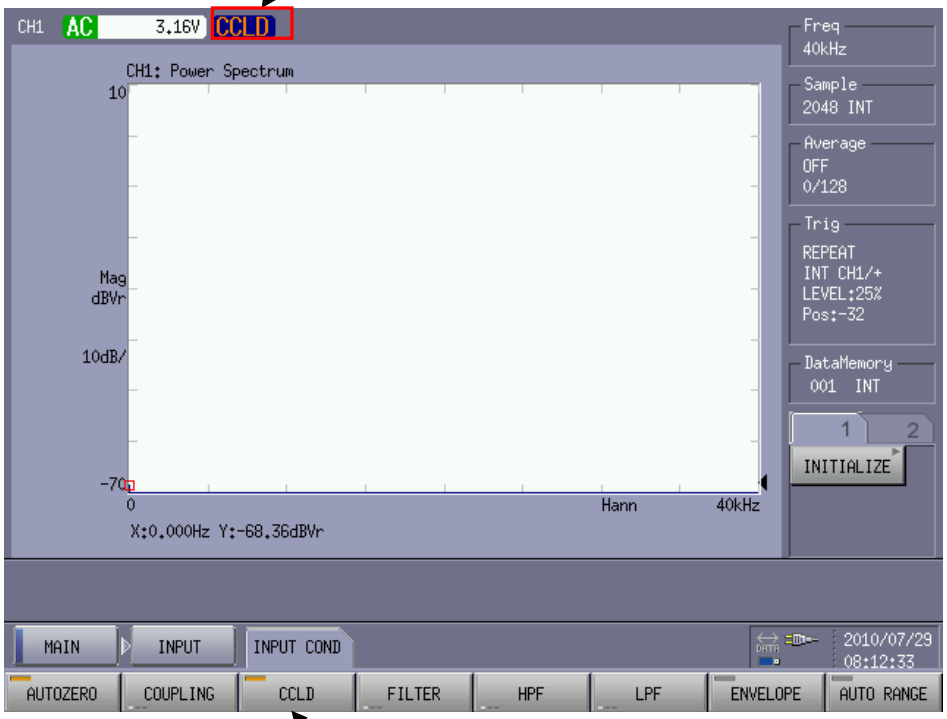
Contents

1. Block Comparator Setup

1. Set up the signal source.

If a constant current sensor is directly connected to the system, turn on CCLD.

Touch here.



Turn on CCLD.

2. Set the engineering unit for the Y axis.

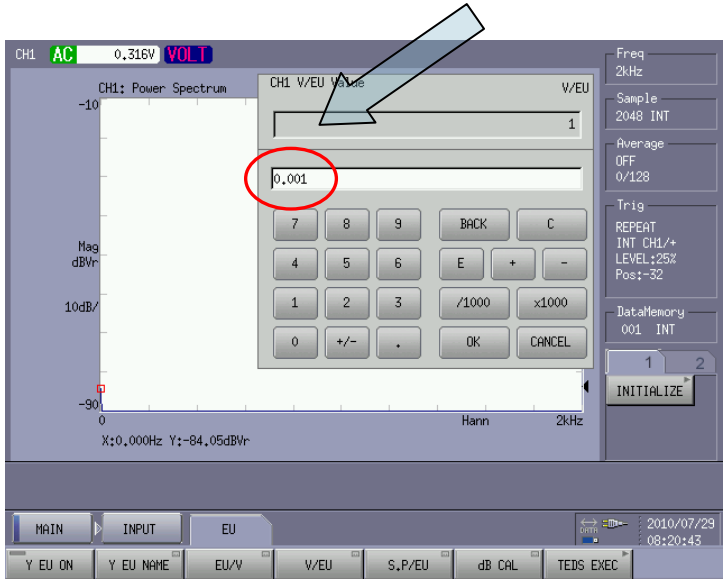
(Ex. For the case an acceleration sensor of 1 mV/(m/s²) is used)

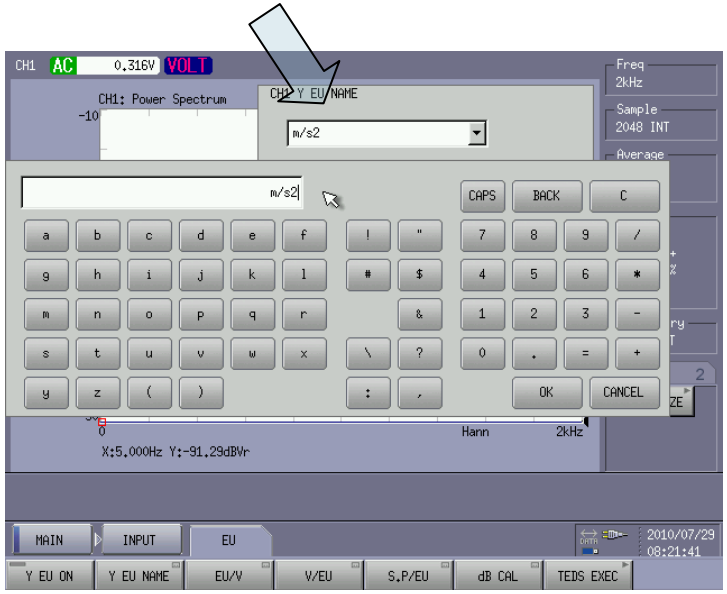
Main Menu

INPUT → EU → V/EU → Y EU NAME → Y EU ON

Enter “0.001” on the palette.

Enter “m/s2”.





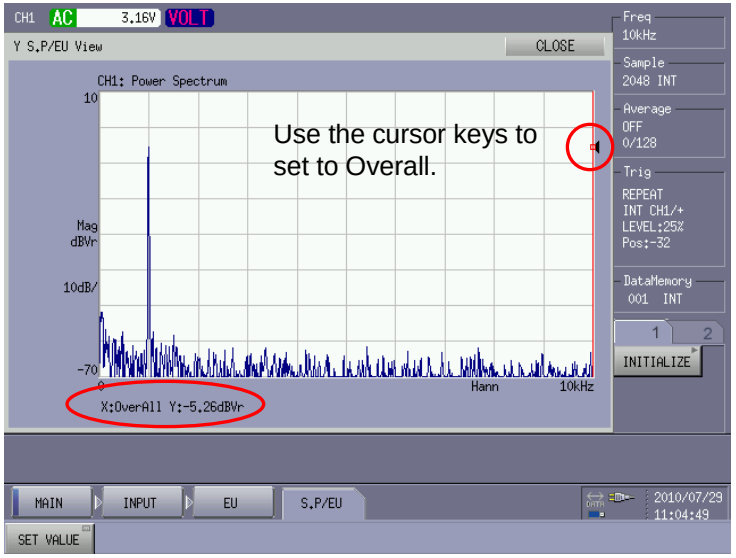
(Ex. For the case sound pressure calibration is made)

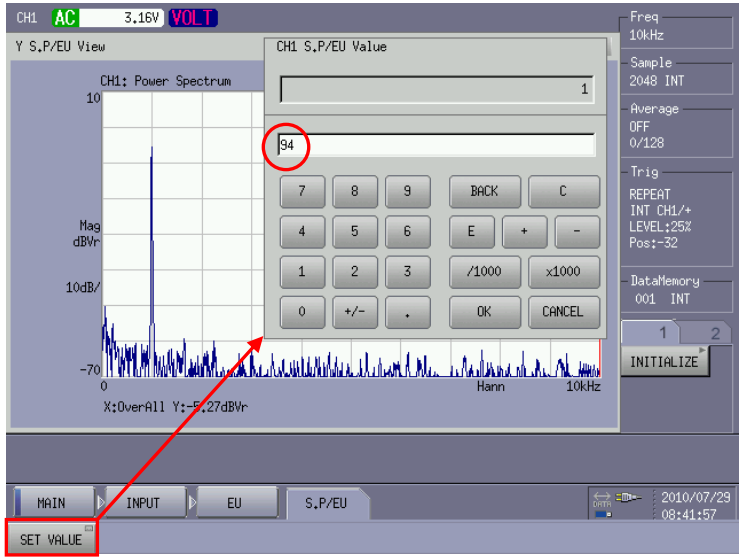
Main Menu

INPUT → EU → S.P/EU → SET VALUE → Y EU ON

When the monitor screen opens, set to Overall.

Enter the calibration value.





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3. Adjust the scale of Y axis.

Select LOG/LIN.

Main Menu

DISPLAY → X.Y UNIT → Y LOG

Set the scale of Y axis as desired.

Main Menu

DISPLAY → X.Y SCALE → Y-AXIS → DISPLAY → MANUAL

UP SCALE — Set the upper limit.

LOW SCALE — Set the lower limit.

4. Define a comparator block

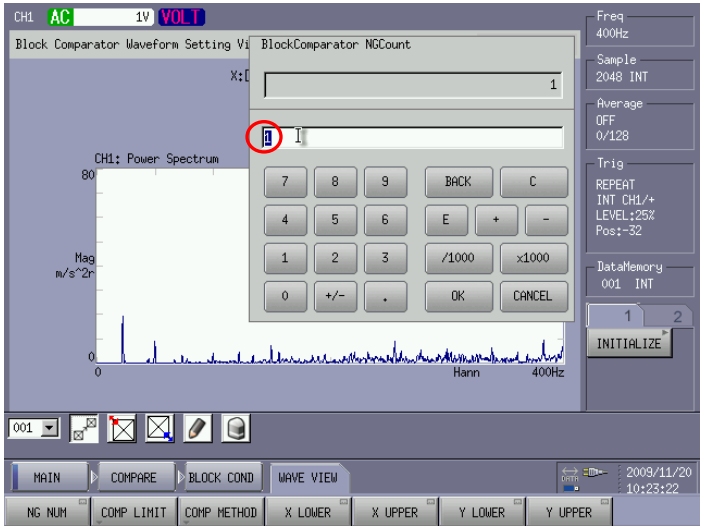
4-1. Set the NG count

(If the NG count is set to 0, the comparator block defined cannot be enabled. The default NG count for Block 1 is set to 1.)

Main Menu

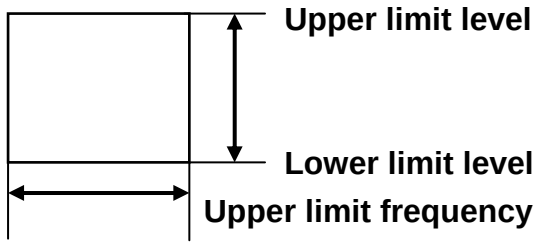
COMPARE → BLOCK COND → WAVE VIEW → NG NUM

(Enter “1”.)



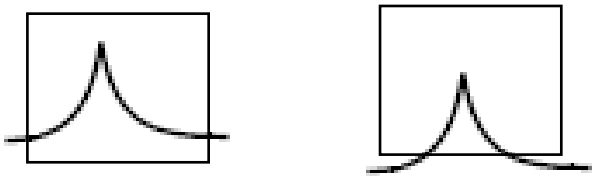
Decision rules of the block comparator

Block Definition



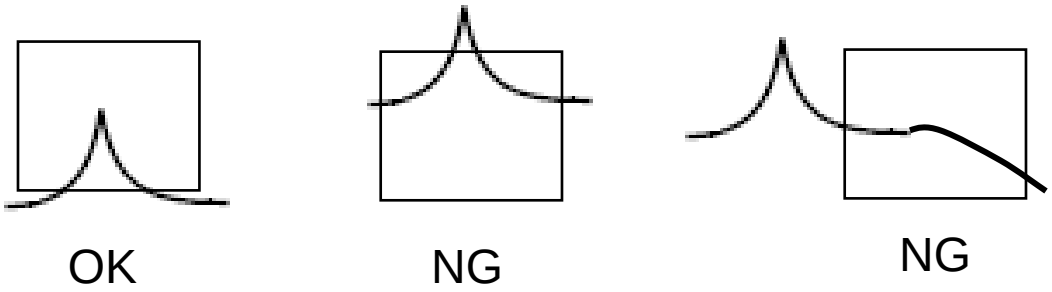
(1) LEVEL

If the waveform is contained in the block defined, the result is OK (Pass). Otherwise, NG (Fail).



(2) PK.MAX (Maximum Peak)

If the peak value of the waveform (i.e., the maximum level reached while the level is increased or decreased) is contained in the block defined, the result is OK (Pass). Otherwise, NG (Fail).

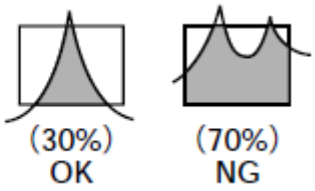


(3) AREA (Occupied Area)

The pass/fail decision is made based on the occupied area of the waveform within the block defined.

Maximum: 50%

Minimum: 20%

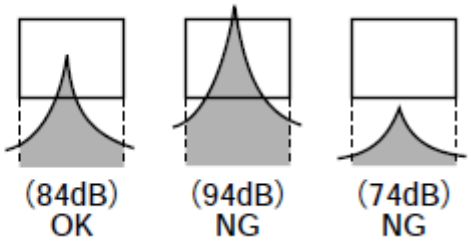


(4) P.O (Partial Overall)

The pass/fail decision is made based on the partial overall value within the block defined.

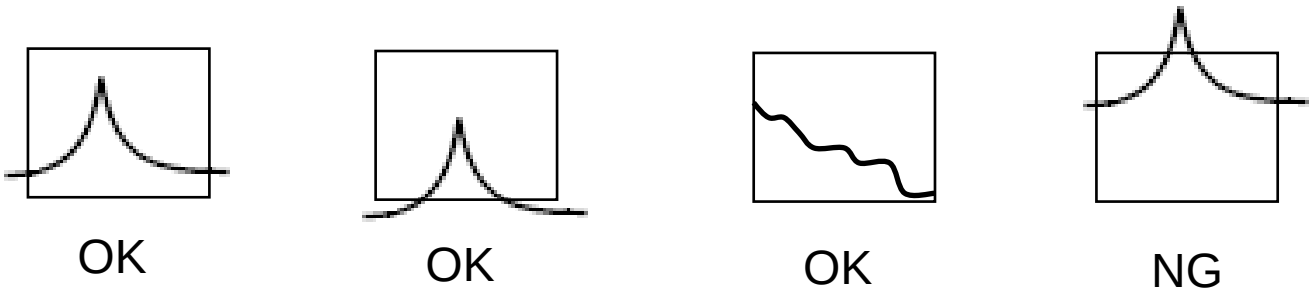
Maximum: 90 dB

Minimum: 80 dB



(5) PK.LEVEL (Peak Level)

If the peak value is within the frequency range defined, the result is OK (Pass). Otherwise, NG (Fail).



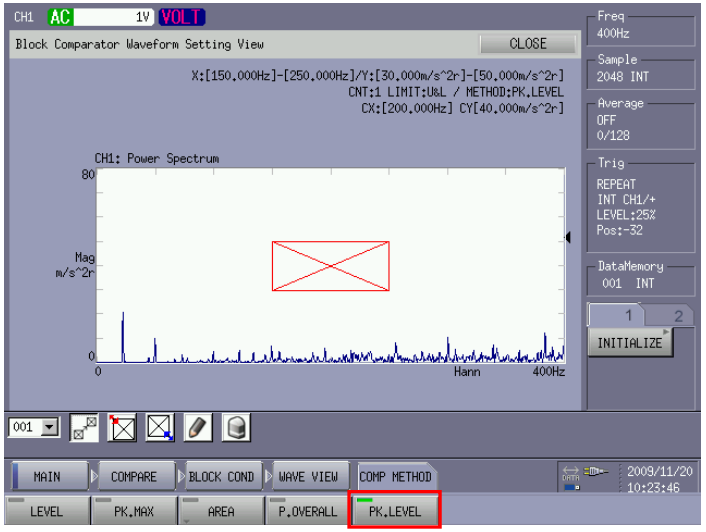
4-2. Set the decision rules. (Select PK.LEVL)

Main Menu

COMPARE → BLOCK COND

→ WAVE VIEW → COMP METHOD

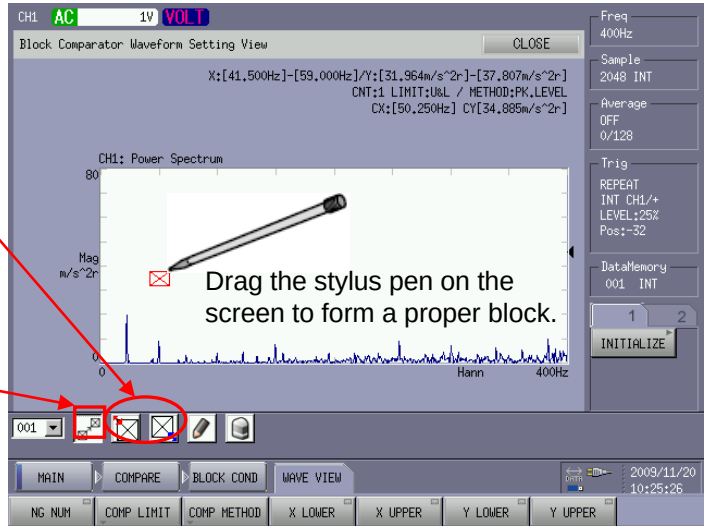
→ PK LEVEL



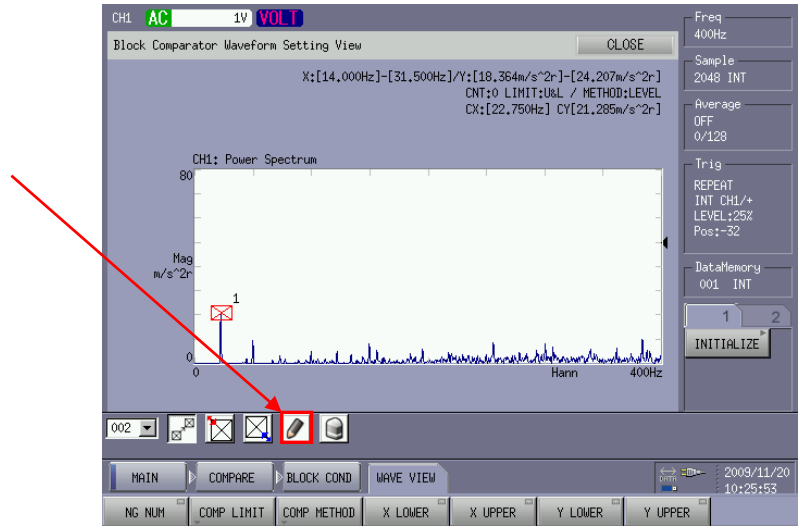
4-3. Define the judgment block.

Touching either button will enable the up/down and right/left cursor keys, for changing the size of the judgment block.

When the box is to be moved up/down and right/left, touch this button and then use the cursor keys.

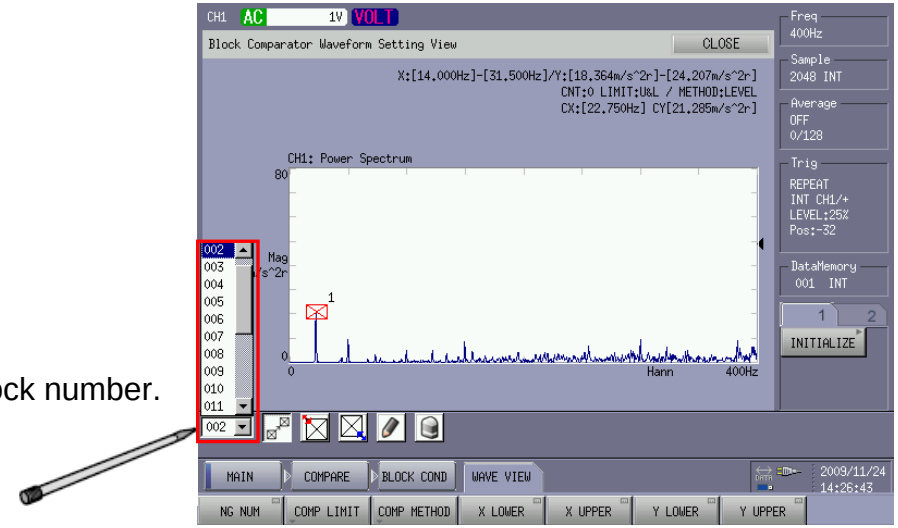


Once the judgment block is set to the target position, touch this key to complete the setup.



If more than one blocks are to be set, specify the block number and repeat the steps from 4-1.

Specify the block number.

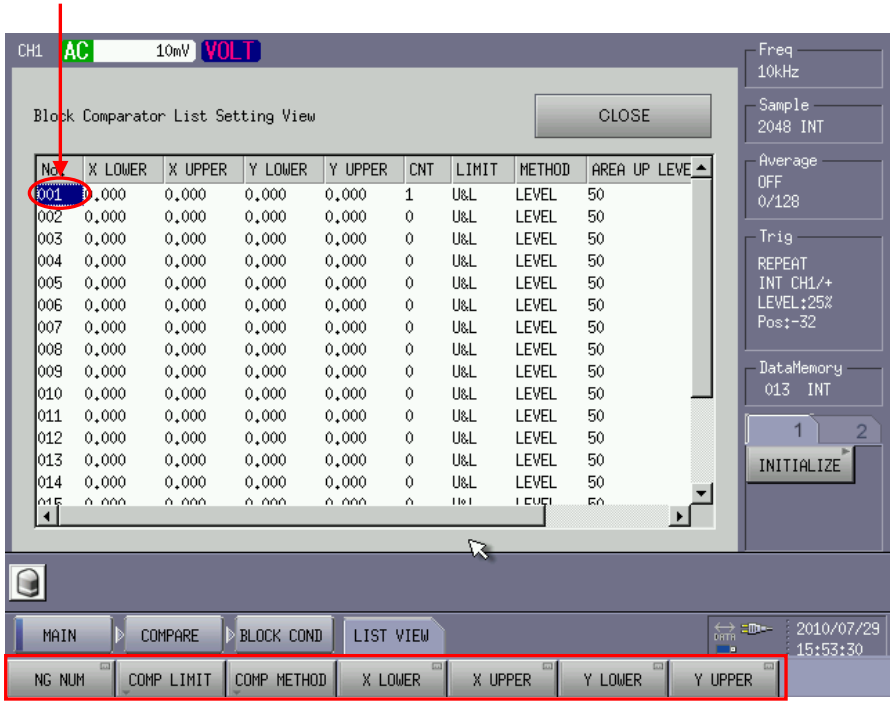


4-4. Set the decision area on the list setting view.

Main Menu

COMPARE → BLOCK COND → LIST VIEW

Use the cursor keys to select the desired block number to highlight (reverse display).



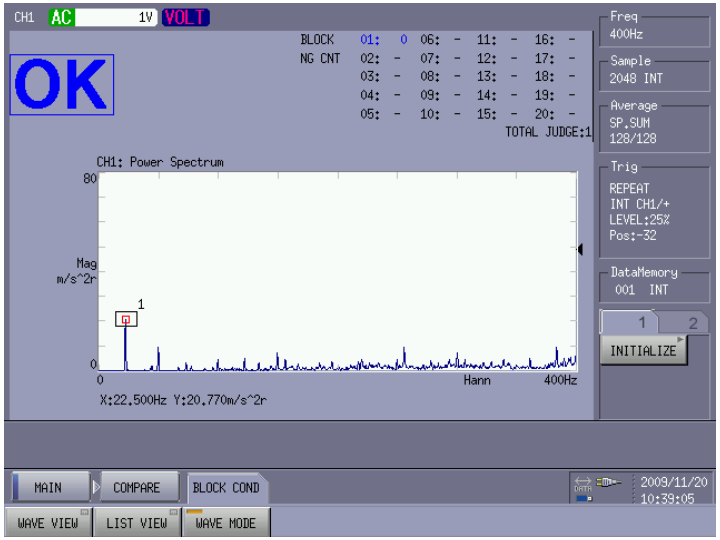
NG NUM	Enter the NG count (1 or above)
COMP LIMIT	Enable or disable the limits (i.e., upper/lower limits of the area and upper/lower limit levels)
COMP METHOD	Select one from 5 decision rules.
X LOWER	Set the lower limit frequency of the area.
X UPPER	Set the upper limit frequency of the area.
Y LOWER	Set the lower limit level of the area.
Y UPPER	Set the upper limit level of the area.

Note: For each setting, use a data entry palette on the screen.

4-5. Display the spectrum waveform and execute the judgment

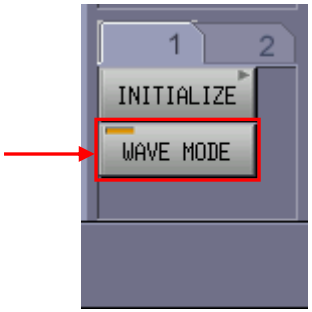
COMPARE → BLOCK COND

→ WAVE MODE



Note: This Wave Mode will not be reflected to the measurement condition memory. The system, once turned off, will be started up with the Wave Mode turned off. Thus, it is recommended to register the condition as a soft key short cut.

Once Wave Mode is registered as a short cut, you can omit the above soft key sequence to set Wave Mode.



5. Select the judgment method.

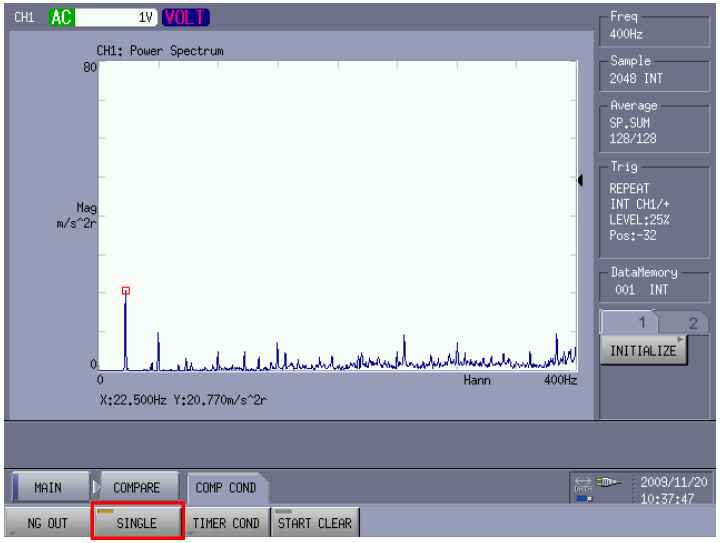
5-1. Judgment is made each time the COMPARE panel key is pressed. (Single mode)

Main Menu

COMPARE → COMP COND → SINGLE

COMPARE

Pressing the COMPARE key executes judgment.



Note: In the Single mode, judgment result will not be cleared until the COMPARE key is pressed again.

5-2. Judgment is executed upon completion of data analysis, and the judgment result is cleared when restarted.

Main Menu

COMPARE → BLOCK COND

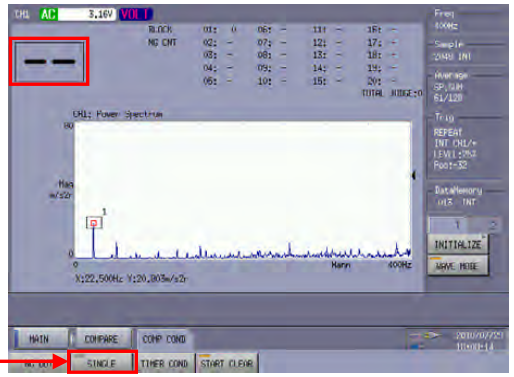
→ START CLEAR

COMPARE key must be always ON.

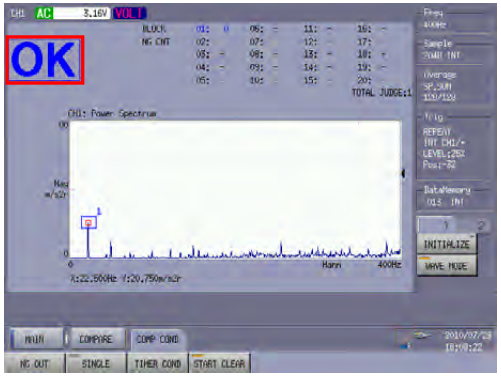
Performs judgment after completion of averaging.

SINGLE is off.

Displays “Judgment in progress” during measurement.



Displays the judgment result after completion of measurement.

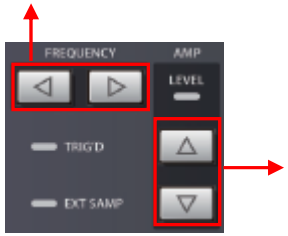


2. Shape Comparator Setup (for Time Waveform)

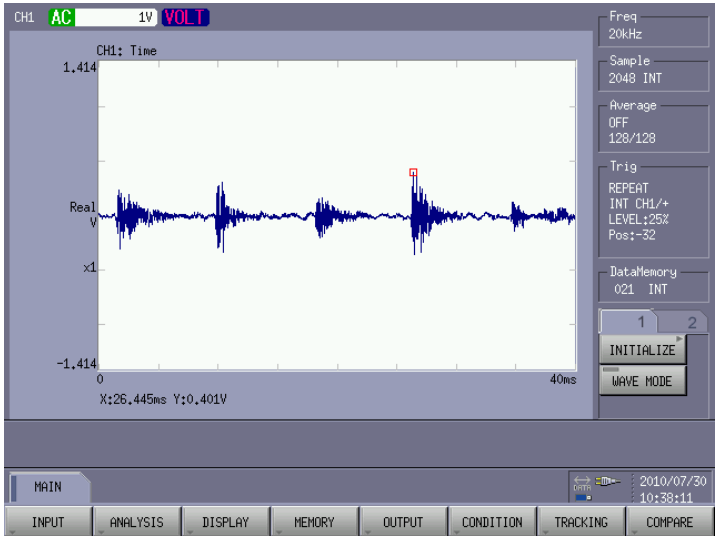
1. Display the time waveform.

Set the voltage sensitivity and frequency range to display the time waveform.

Set the frequency range.



Set the voltage sensitivity.

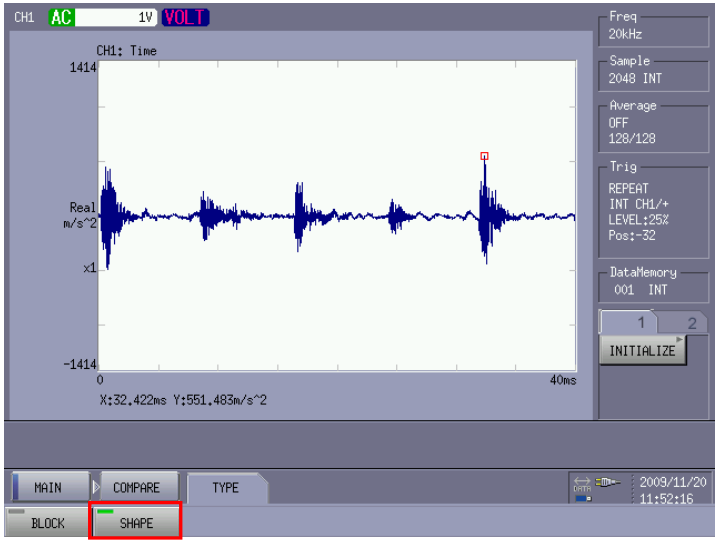


2. Set the judgment level.

2-1. Set to the SHAPE mode.

Main Menu

COMPARE → TYPE → SHAPE



2-2. Set the SHAPE conditions.

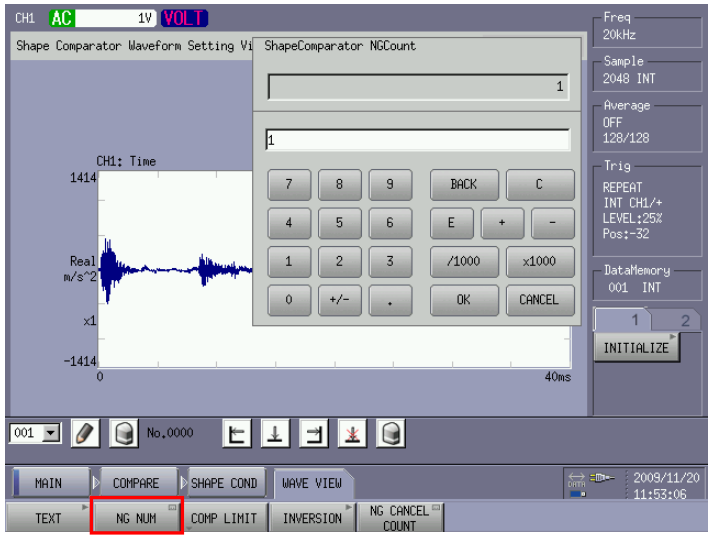
Set the NG count.

(If the NG count is set to 0, the shape line defined cannot be enabled. The default NG count for Line 1 is set to 1.)

Main Menu

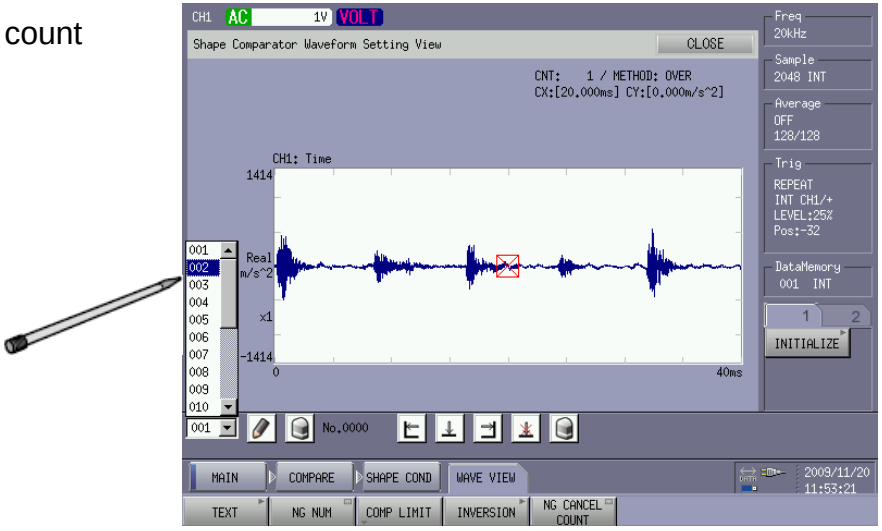
COMPARE → SHAPE COND → WAVE VIEW → NG NUM

(Enter “1”.)



In the case of time waveform, set the NG count of the judgment line 2 for vertical setup.

Touch “2” with the stylus pen.



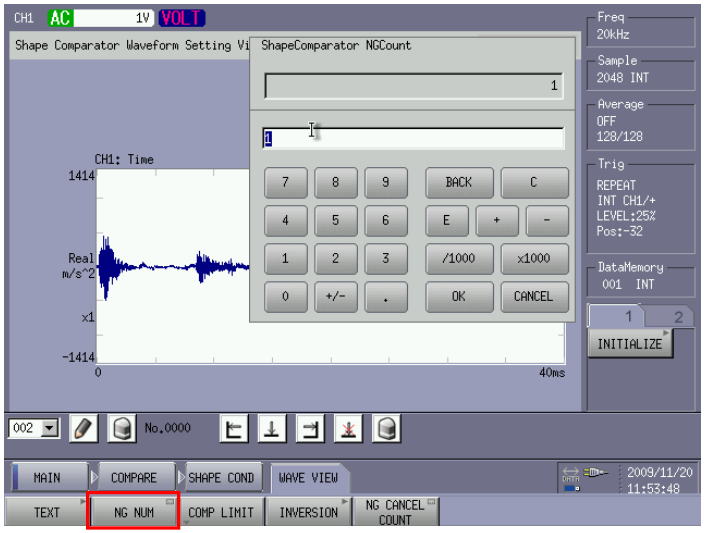
Set the NG count.

Main Menu

COMPARE → SHAPE COND

→ WAVE VIEW → NG NUM

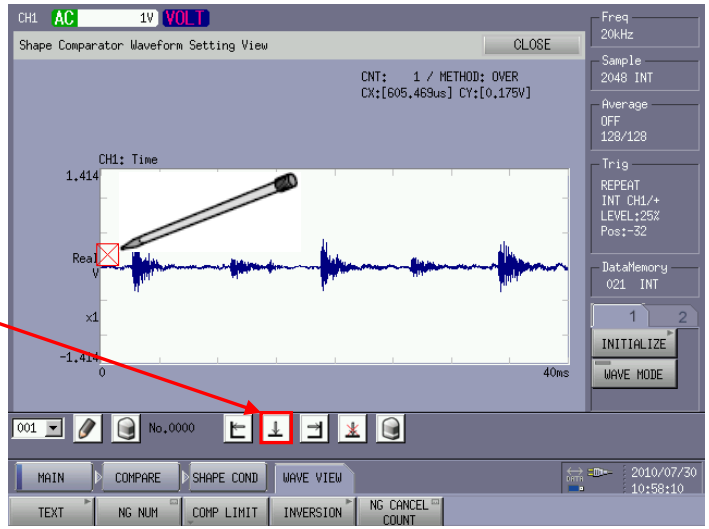
(Enter “1”.)



2-3. Set the shape (level).

With the stylus pen, touch the screen at a desired point to set the judgment level.

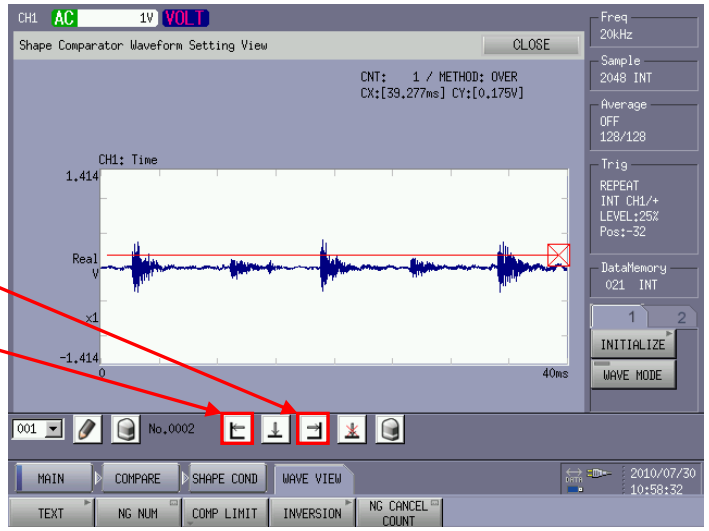
After specifying the point with the stylus pen, touch the confirm button to draw the line.



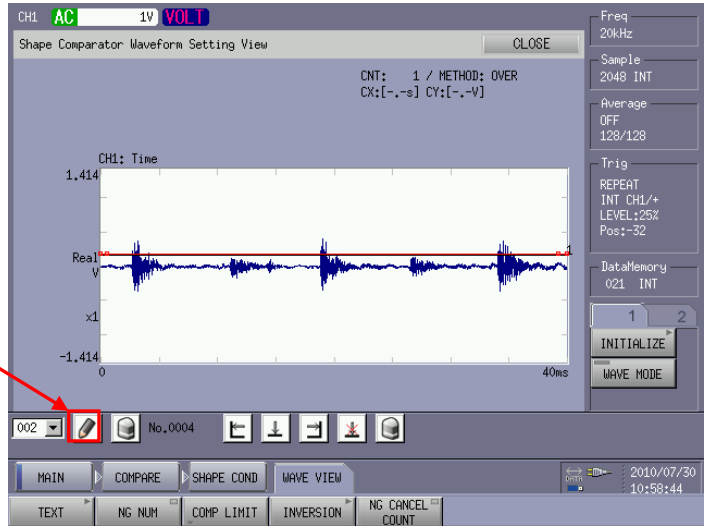
Specify two points to determine the level.

Extend the line to the right end of the scale.

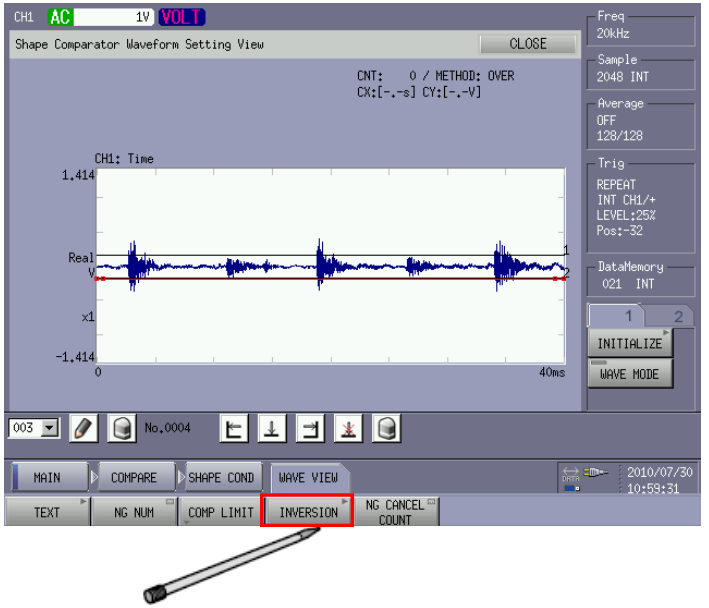
Extend the line to the left end of the scale.



Press the confirm button to complete the setting.



Pressing the INVERSION soft key inverses the judgment line drawn on the positive side of the time waveform to be displayed on the negative side of the waveform. By setting the judgment range at this point, these judgment limit lines are established to define the upper and lower limits for the time waveform.



2-4. Set the judgment range.

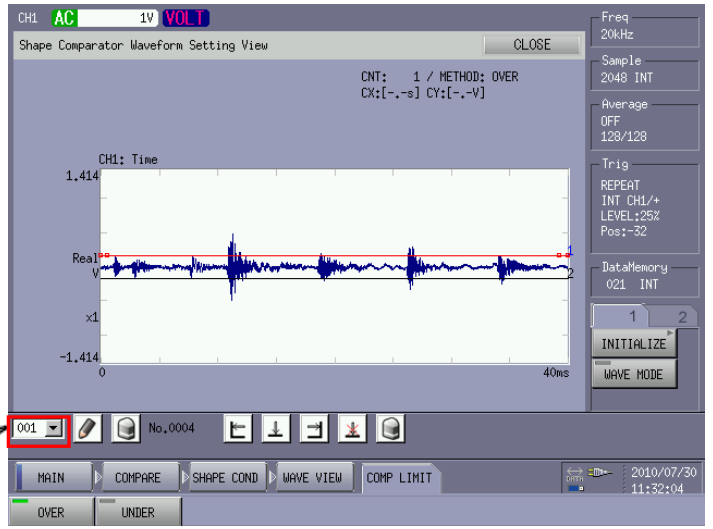
If the time waveform exceeds the upper line (positive side), it will be judged as NG.
Specify Line 1 and operate the soft keys as follows:

Main Menu

COMPARE → SHAPE COND

→ WAVE VIEW → COMP LIMIT

→ OVER



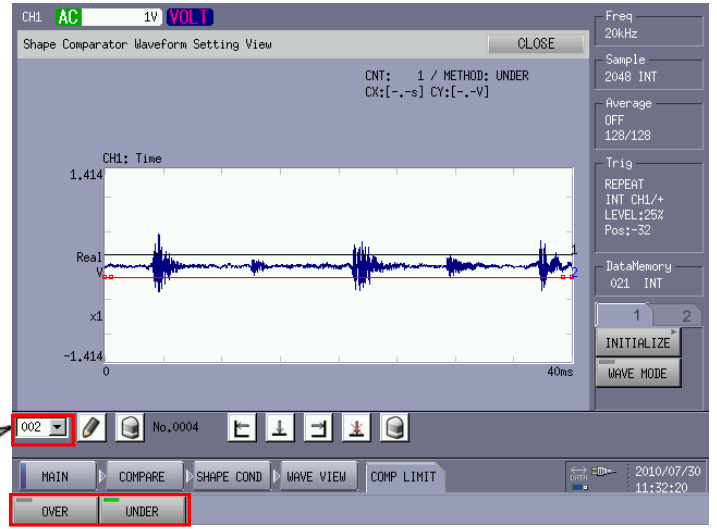
Specify “Line 1”.

Similarly, if the time waveform falls below the lower line (negative side), it will be judged as NG.

Main Menu

COMPARE → SHAPE COND → WAVE VIEW → COMP LIMIT → UNDER

Specify “Line 2”.

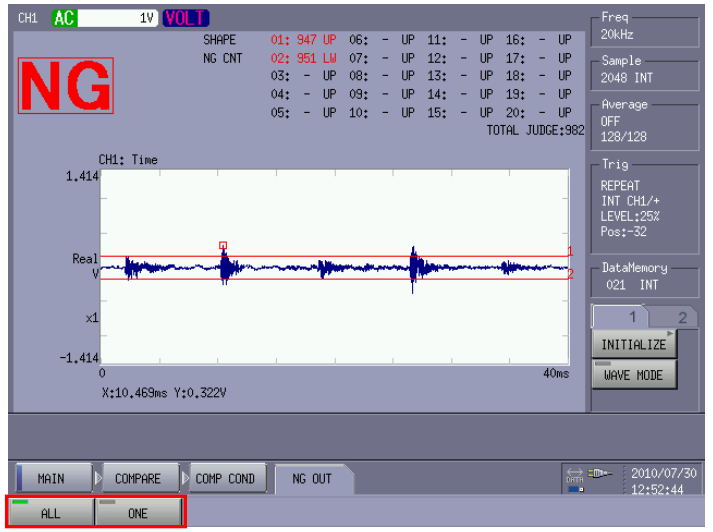


2-5. Execute judgment.

When ONE is selected, it will be judged as NG if the waveform exceeds either the upper or lower limit line. When ALL is selected, it will be judged as NG if both upper and lower limits are exceeded.

Main Menu

COMPARE → COMP COND → NG OUT → ONE / ALL



2-6. Execute the comparator for a time-averaged waveform.

When creating a time-averaged waveform, it is necessary to synchronize the phase of each time waveform. For this purpose, the trigger function is used.

Main Menu

INPUT → TRIGGER → TRIGGER VIEW

Use the cursor keys to specify the trigger position and trigger level.

Main Menu

ANALYSIS → AVERAGE → MODE → TIME → SUM

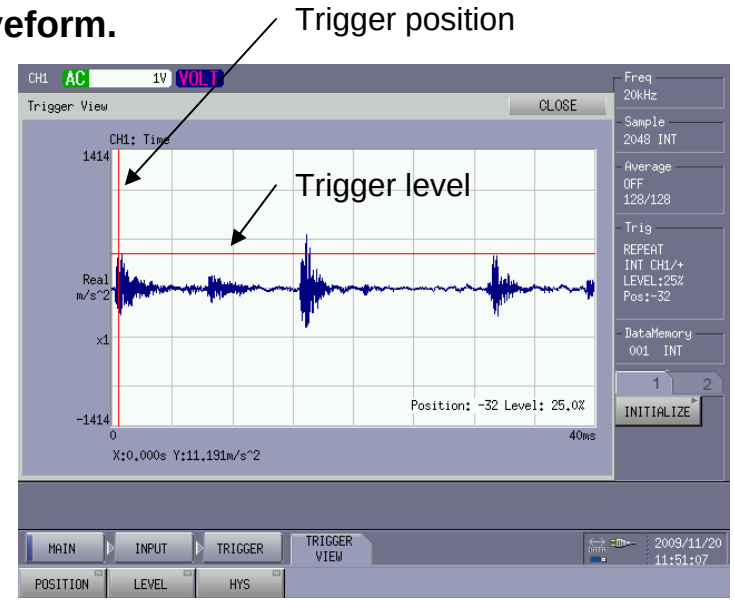
Main Menu

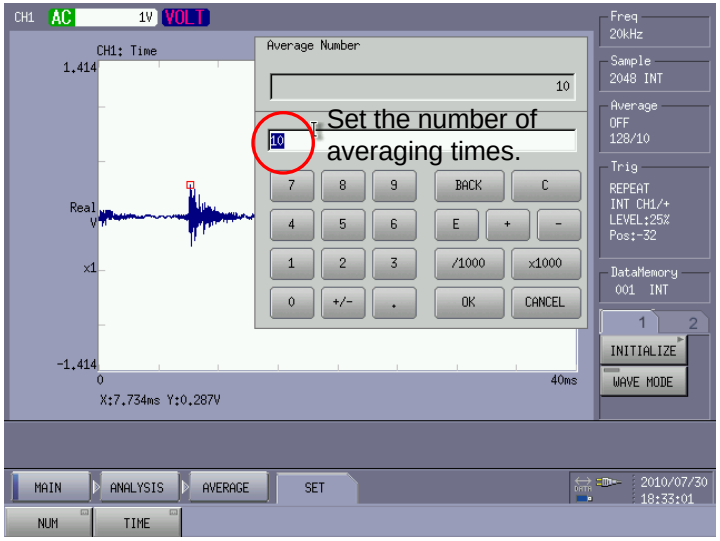
ANALYSIS → AVERAGE → TYP → NUM

Main Menu

ANALYSIS → AVERAGE → SET → NUM Set the number of averaging times.

Apply a trigger to execute the averaging process.





3. Shape Comparator for Tracking Waveform

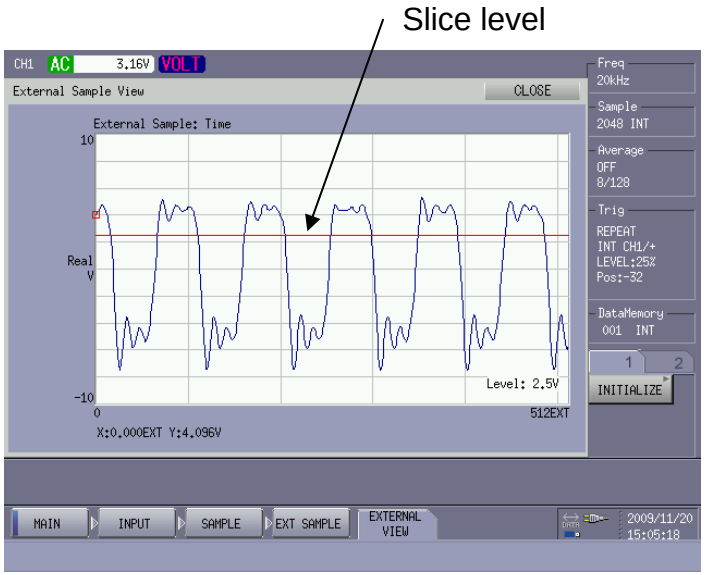
1. Perform tracking analysis.

1-1. Check the rotation pulse.

Main Menu

INPUT → SAMPLE → EXT SAMPLE

→ EXTERNAL VIEW



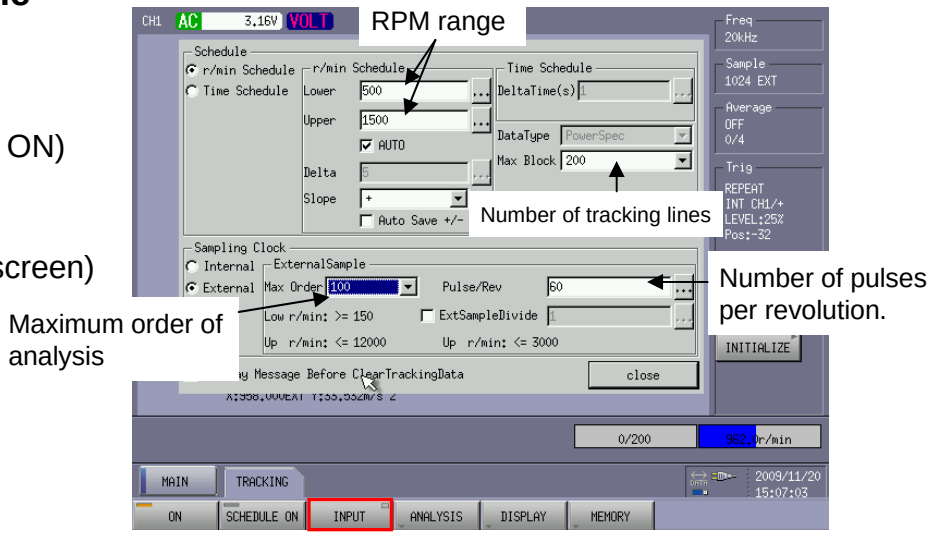
While observing the pulse level, use the cursor keys to adjust the slice level. Tracking analysis cannot be made unless the rotation pulse is observed.

1-2. Set to the Tracking mode and specify the analysis conditions.

Main Menu

TRACKING → ON (Tracking mode is ON)

→ INPUT (Tracking setup screen)



1-3. Set the tracking order of plots.

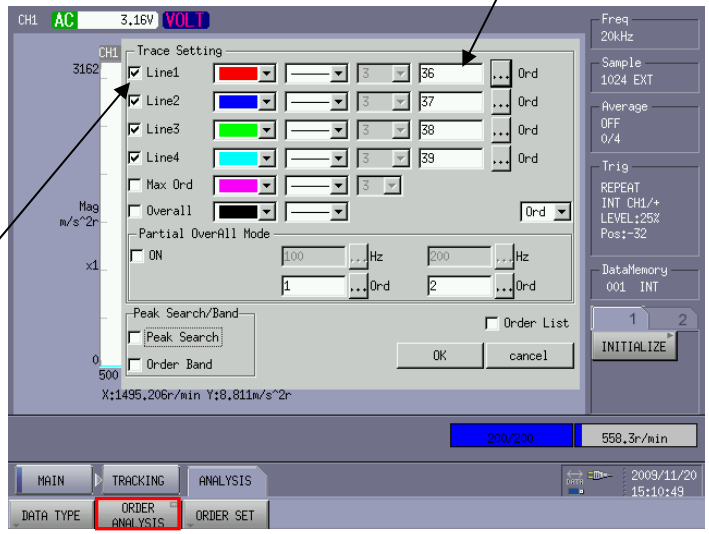
Main Menu

TRACKING → ANALYSIS

→ ORDER ANALYSIS

Enter the order of plots.

Check for execution.



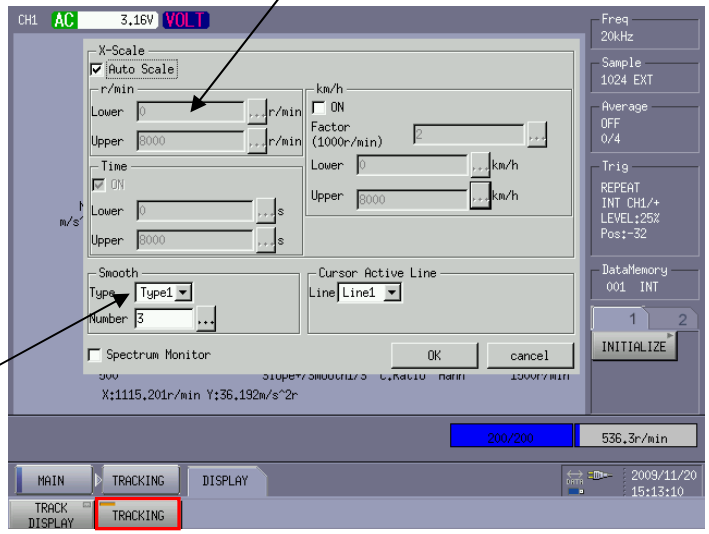
1-4. Set the tracking plot conditions.

Main Menu

TRACKING → DISPLAY → TRACKING

PRM range to be plotted

Set the smoothing type and the number of averaging.

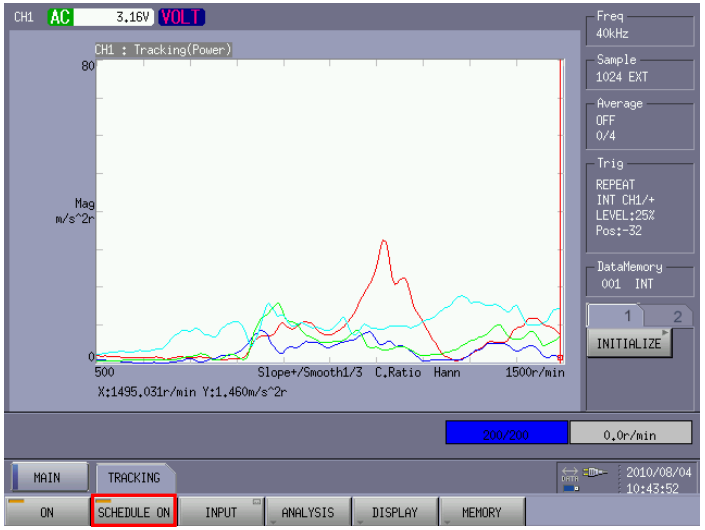


1-5. Record the tracking data.

Main Menu

TRACKING → SCHEDULE ON

Press the START panel key to execute the tracking analysis.



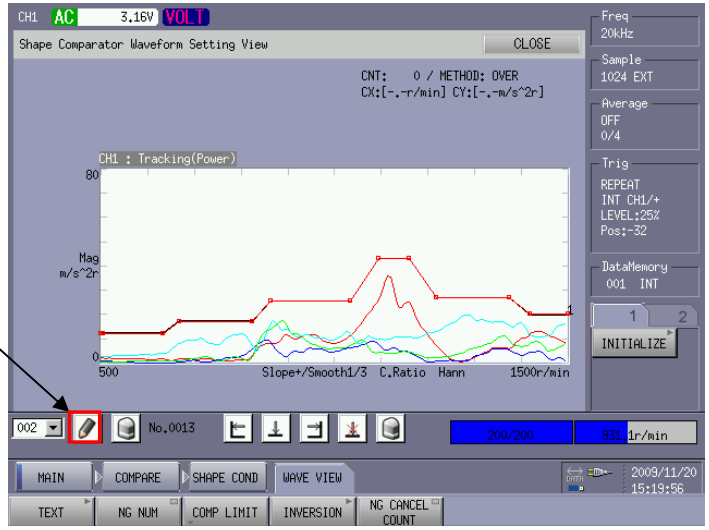
2. Specify the tracking judgment line.

Operate the system according to Section 2 “Shape Comparator” at 2-3. Set the shape (level).

With the stylus pen, touch the screen at desired points to specify the judgment line.

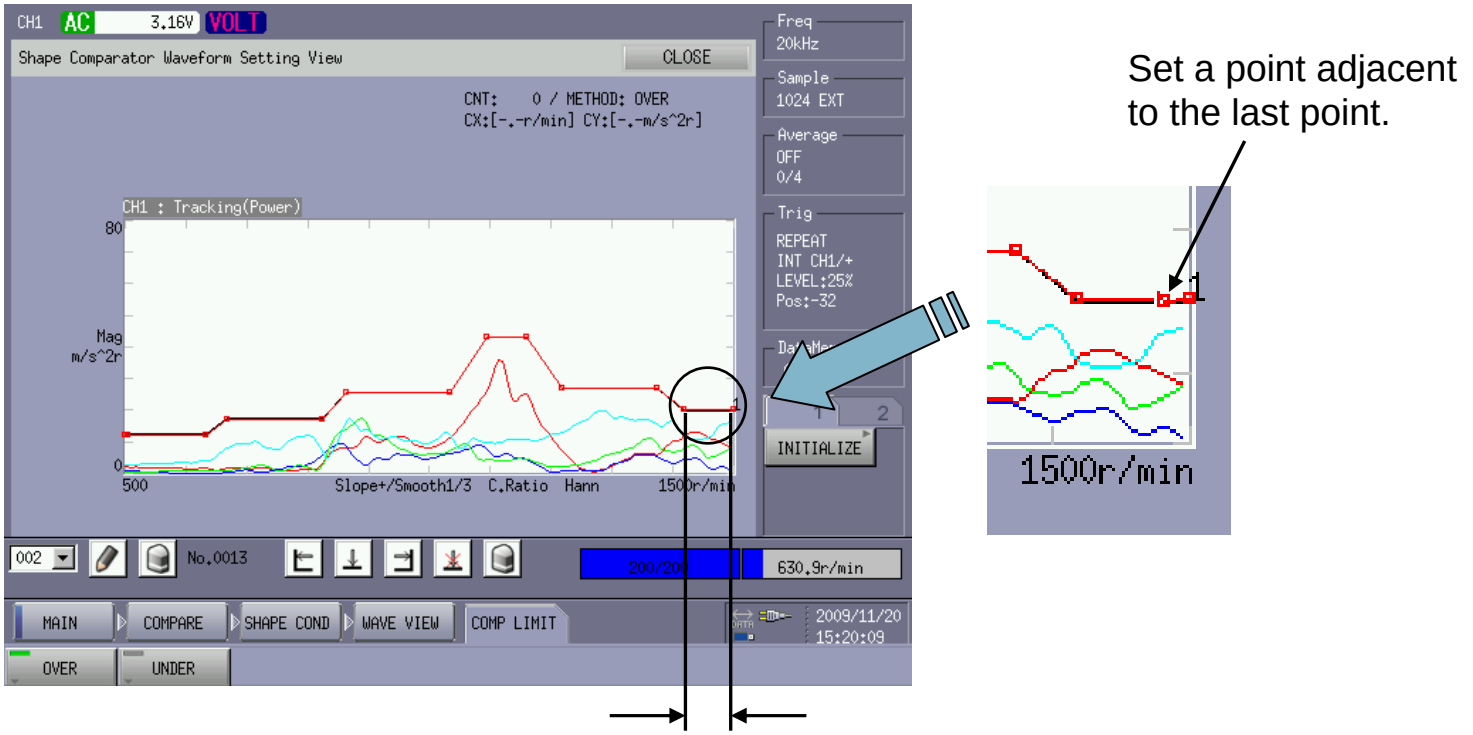
After specifying all the points with the stylus pen, touch the confirm button to draw the line.

Press the setting button to complete the setting.



Note:

In the case of the tracking shape comparator, the last line will become invalid. If it is desired to specify the judgment line to cover the entire tacking diagram, it is advised that the last but one point be specified as close as to the last tracking analysis point.

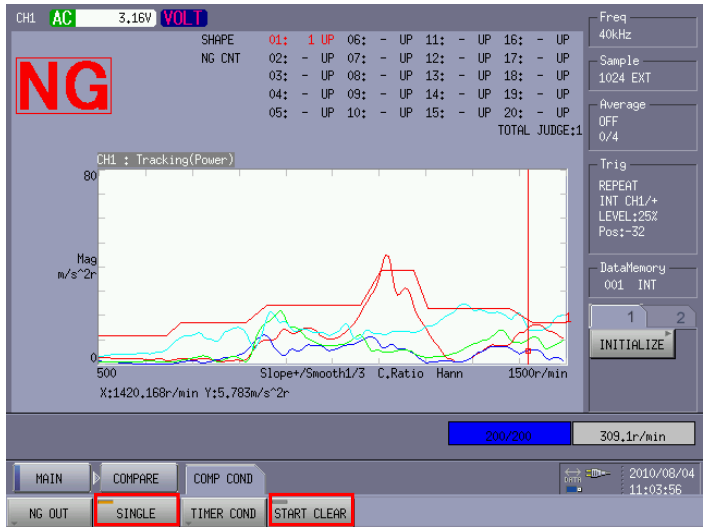


3. Performs tracking judgment.

3-1. Set to the Single mode.

Main Menu

COMPARE → COMP COND → SINGLE



Upon completion of the tracking analysis, press the COMPARE panel key to execute the judgment process.

3-2. Judgment is made each time tracking analysis is made. It is set to “judgment in progress” when the analysis is started.

Main Menu

COMPARE → COMP COND → START CLEAR

SINGLE must be “OFF”.