

RTA Measurement

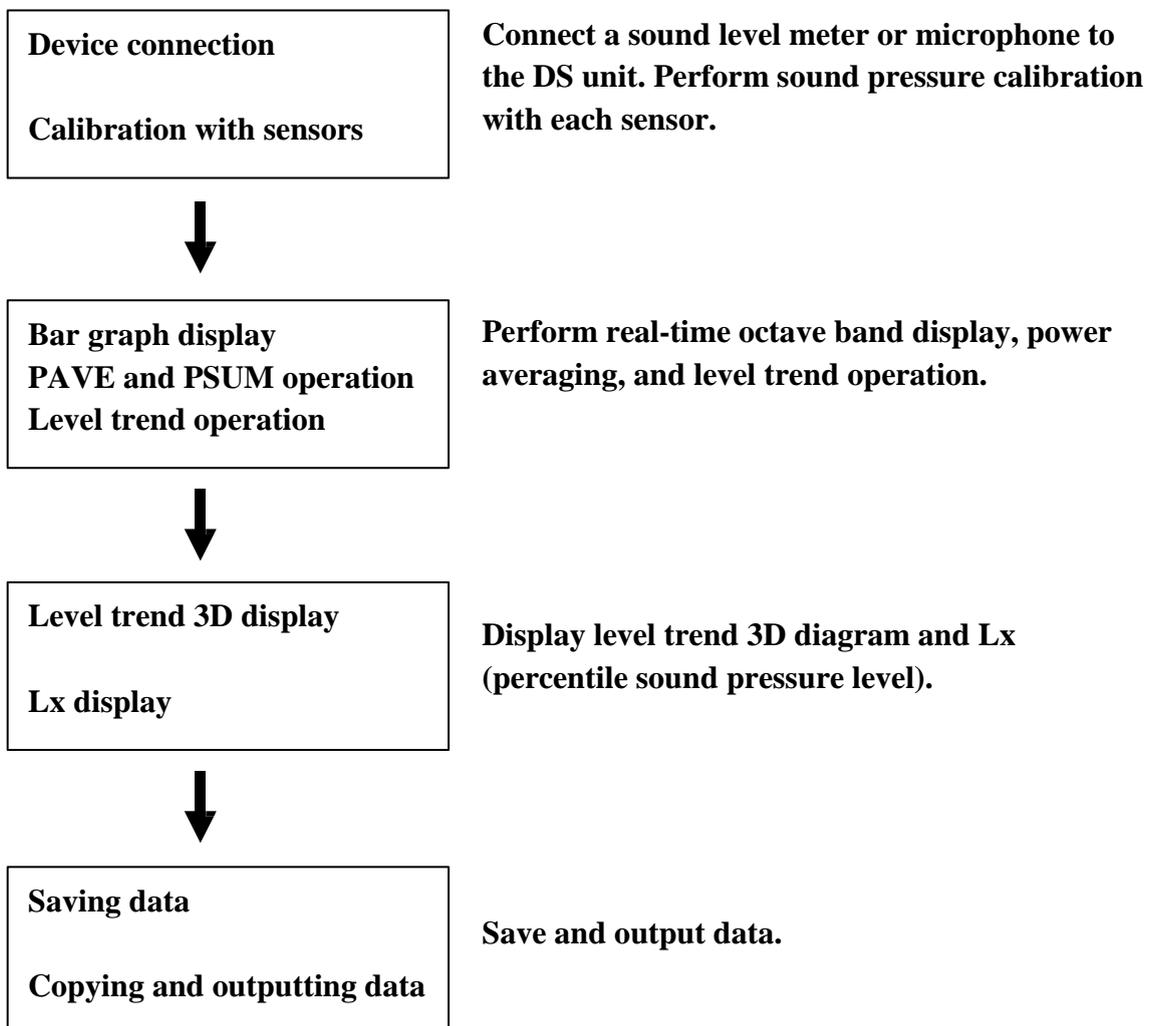
(Real-time Octave Analysis)



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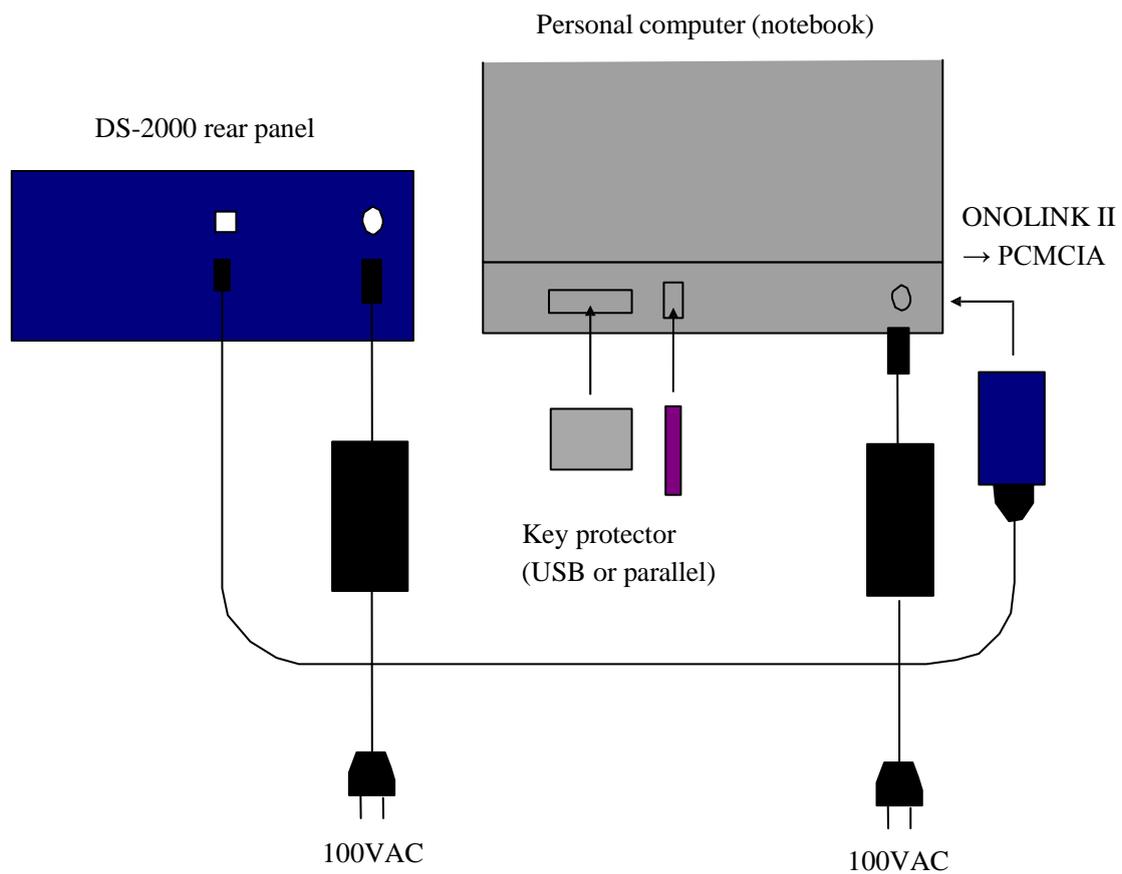
1. Flow Chart to Measurement



2. Device Connections

2-1 Device Connections

Connect the DS main unit and the PC.

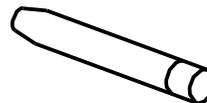
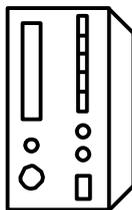


2-2 Connecting a Detector



* When the MI-1211 and MI-3210 are used, an option for direct input (DS-0286/0287) is available.

* When the MI-1211 and MI-3210 are combined, use the SR-1100 Microphone preamplifier.



* When the MI-1233/1431 and MI-3110 are combined, use BNC cables for direct connection.

* With the LA Series sound level meter, connect the AC output and the input section at the bottom of the DS-2000 with a supplied cable.

3. Real-time Octave Analysis Setup

3-1 Input Source Setup

Select an input source depending on a sensor used. When using a constant-current microphone (a combination of the MI-1233/1431 and MI-3110), select a constant current of 2.0mA.

Select “Voltage range” from the “Input” menu.

For Input Source, select a signal source suitable for the sensor type.

3-2 Display Layout Setup

Select the number of screens to be displayed in and a screen layout of the measurement screen.

Select the number of screens.

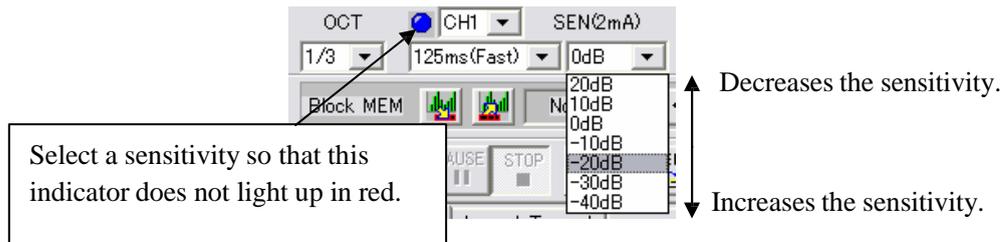
Select a screen layout (horizontal and vertical arrangements).

* When multiple screens are displayed, left-click the comment area at the top left of each screen to activate it.

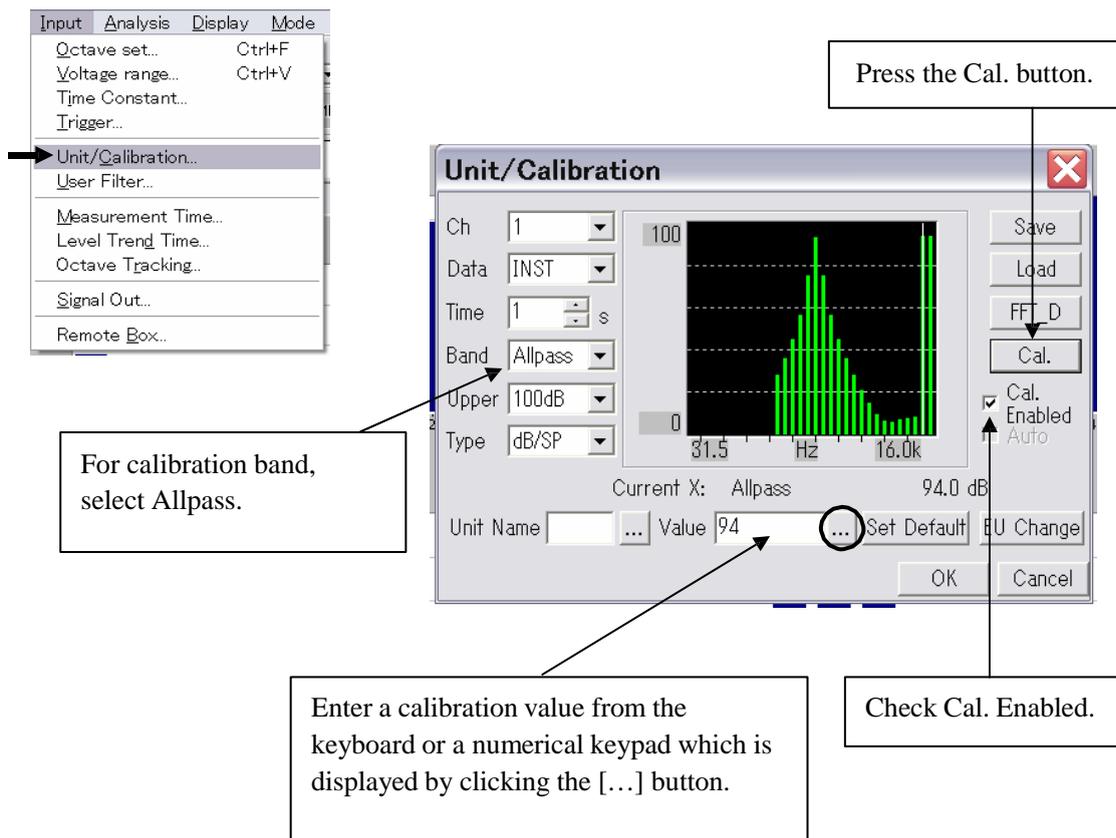
1/3
dB -CH1,INST

3-3 Calibration with Sensor

Perform calibration with a microphone. In the case of using a sound level meter, press the CAL button to output a calibration signal. When a microphone is connected, insert the calibrator into the microphone and output the calibration signal. (Do not change the level range after calibration.)
 Make sure that the sensitivity of the input signal is not exceeded.

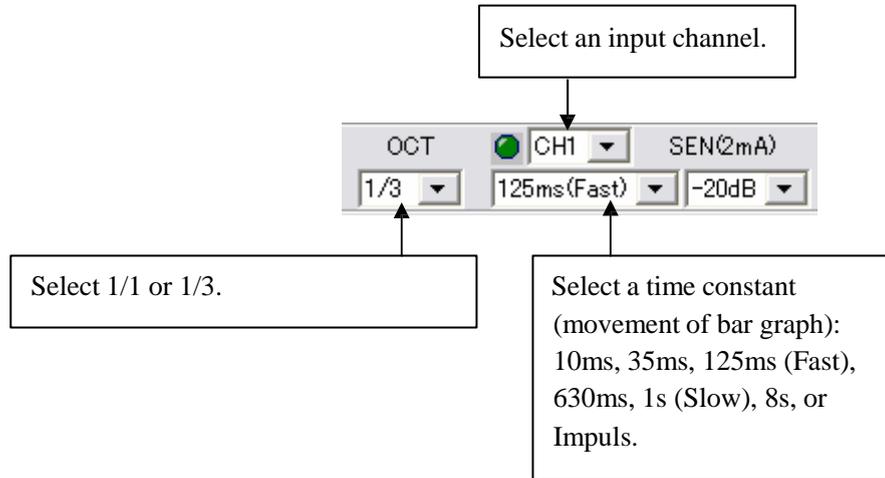


Select "Unit/Calibration" from the "Input" menu.



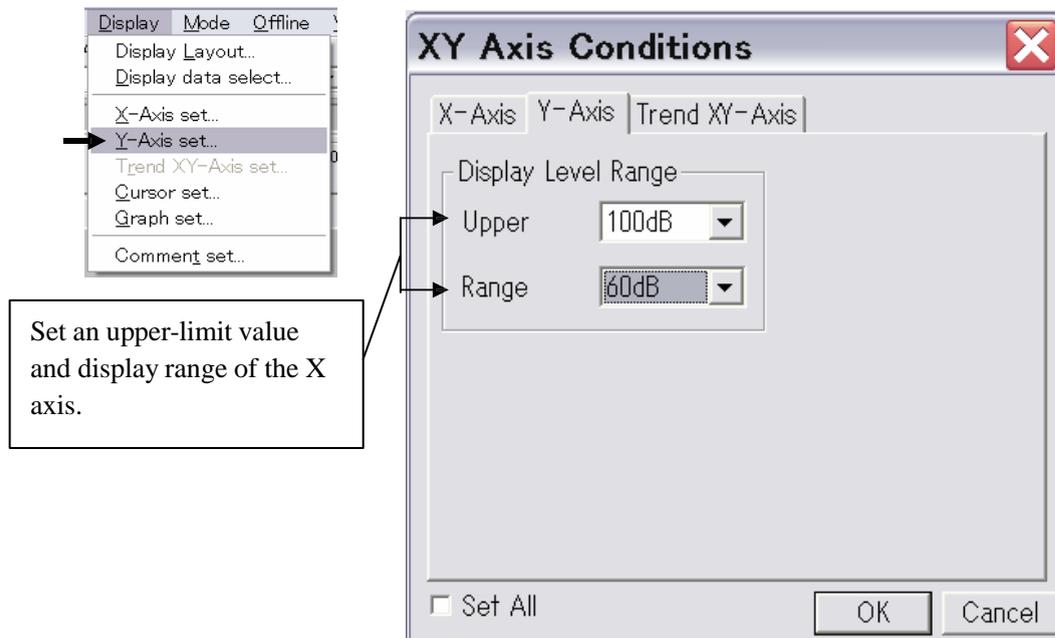
3-4 Displaying Instantaneous Data

Perform various setup of real-time octave analysis.



Set a display range of the Y-axis.

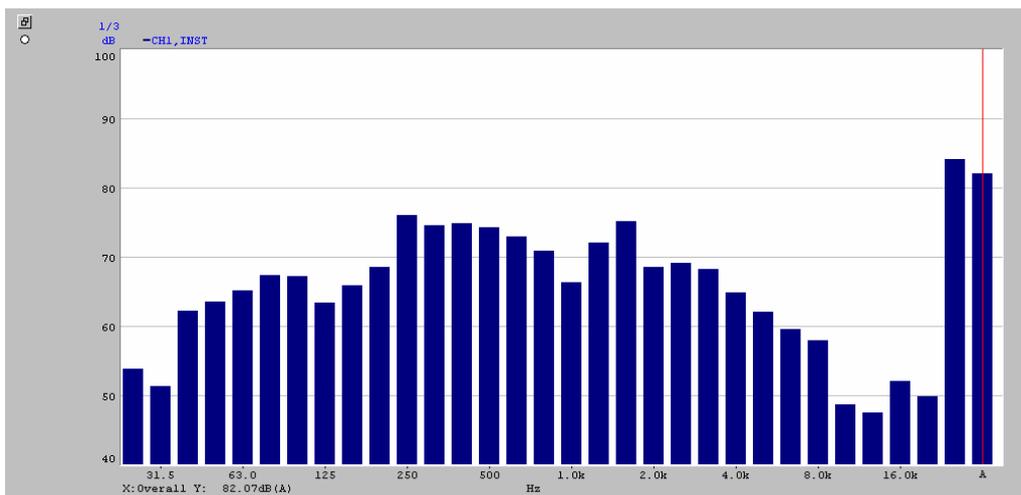
Select “Y-Axis set” from the “Display” menu.



Similarly, select “Display data select” from the “Display” menu.

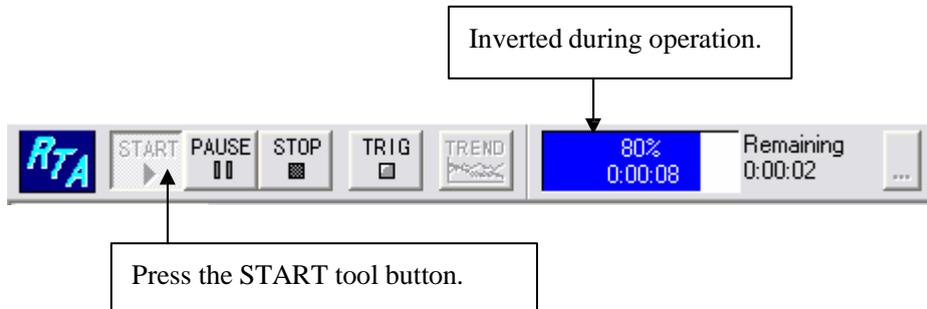
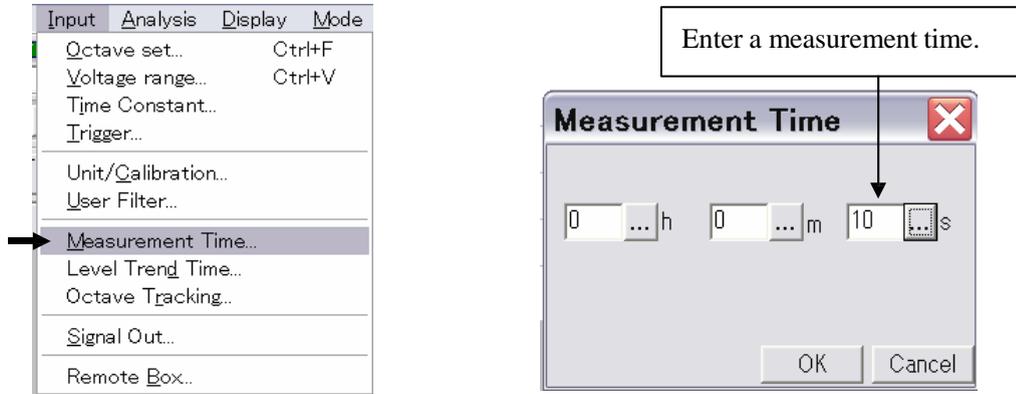
The image shows the 'Display Data Conditions' dialog box with several callouts:

- Select Graph.**: Points to the 'Display Type' dropdown menu, which is set to 'Graph'.
- Select a display channel.**: Points to the 'Channel' dropdown menu, which is set to '1'.
- Select INST for instantaneous data**: Points to the 'Type' dropdown menu, which is set to 'INST'.
- For microphone input, check this box to apply A-weighting only to overall.**: Points to the 'A-weight for Overall' checkbox, which is checked.
- Set a frequency-weighting filter. If A-weighting is set in the sound level meter, select FLAT.**: Points to the 'Freq.weighting' dropdown menu, which is set to 'FLAT'.

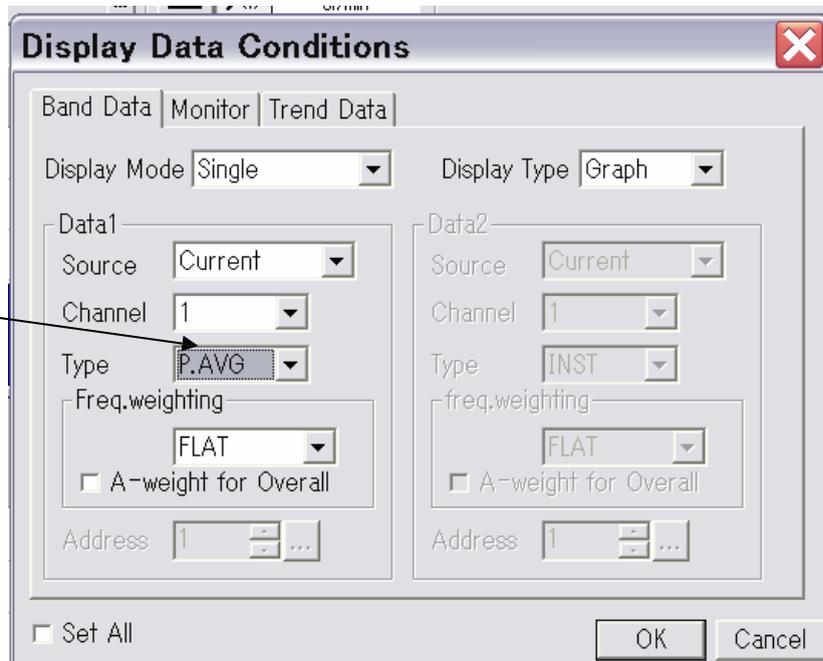


3-5 Calculating Power Average (Equivalent Sound Level Leq)

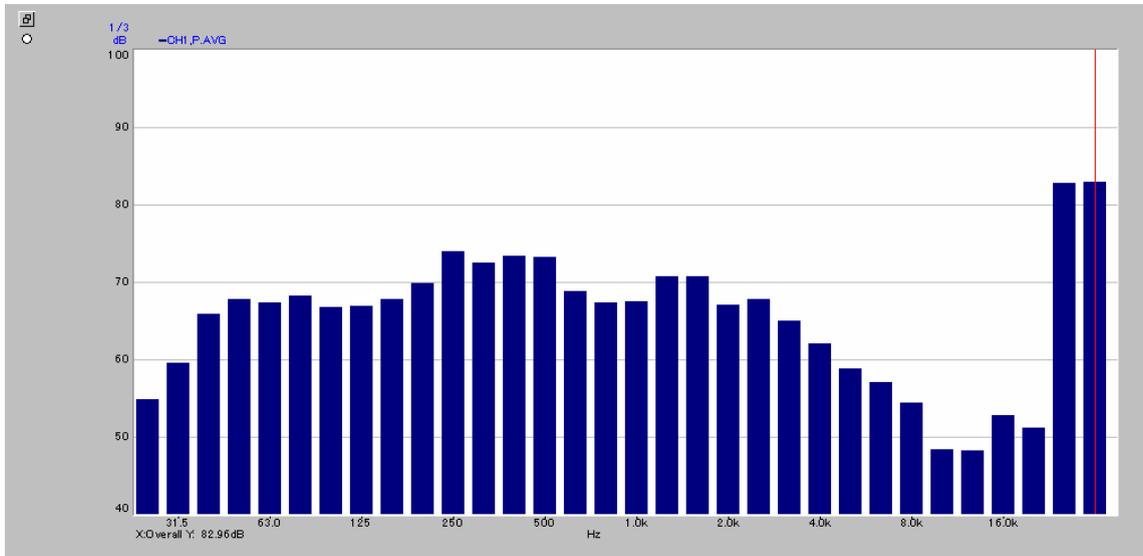
Select "Measurement Time" from the "Input" menu.



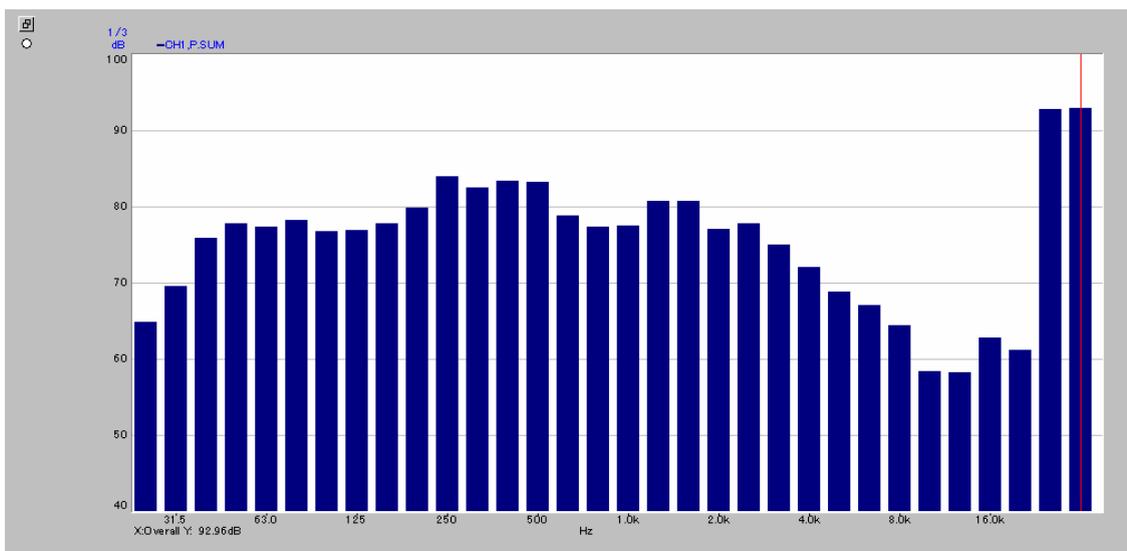
Select "Display data select" from the "Display" menu, and select P.AVG for Type. When P.SUM is input, the power summation value is displayed.



Power average display



Power sum total value display



3-6 Level Trend Analysis

Level trend analysis is performed to analyze how each band level changes with time.

Select "Level Trend Time" from the "Input" menu.

Select a sampling interval from 1ms to 10s.

Trend time length is determined by set Time interval x 2000 (points).

Set the trend mode and then start trend analysis. When the measurement time has elapsed, trend analysis automatically stops and trend operation starts.



Select "Display data select" from the "Display" menu.

Select this tab.

Select Trend.

Select the number of display data items.

Select frequency weighting.

Select line color respectively.

Set channel.

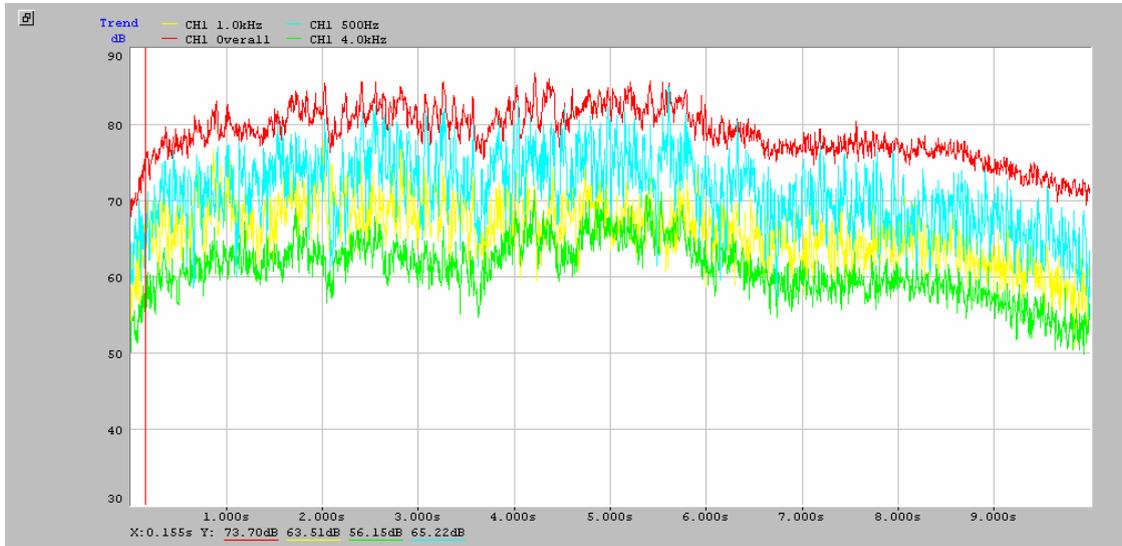
Select a band subjected to trend data display.

Select "Trend XY-Axis set" from the "Display" menu.

Select an upper-limit level and a range.

Since the initial value is 400, click [...] and enter 2000.

Level trend data

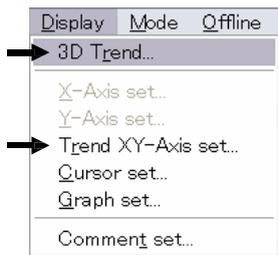


3D display of level trend

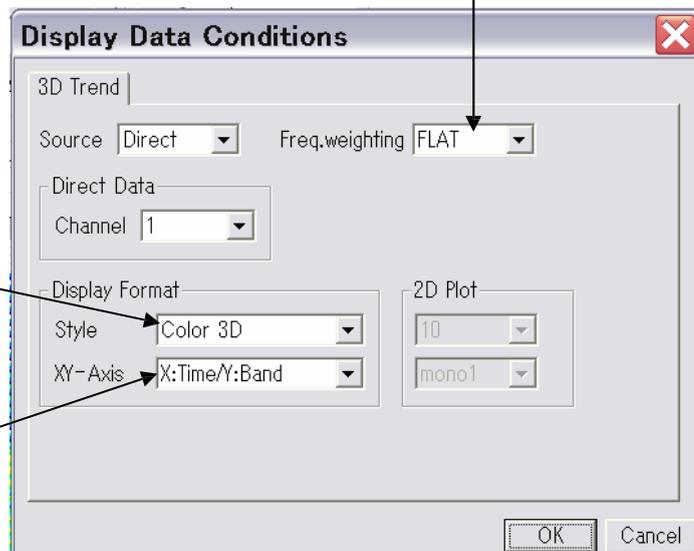


Select the Level Trend tab at the top left of the measurement screen.

Select "3D Trend" from the "Display" menu.



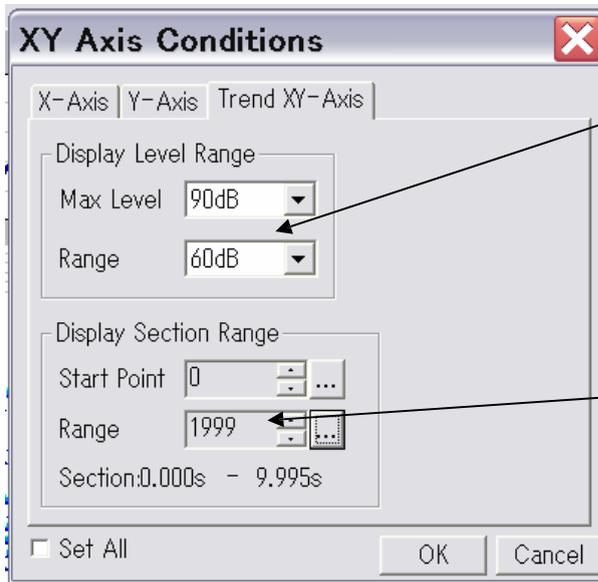
Select frequency weighting.



2D graph can be also selected.

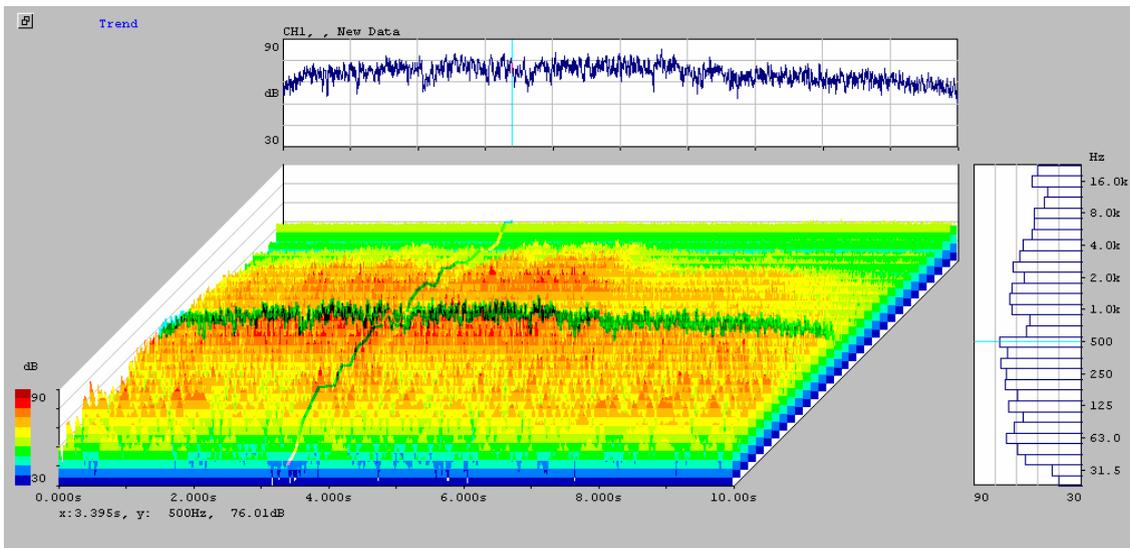
X:Band/Y:Time can be also selected.

Open Trend XY Axis Conditions.



Select Upper-limit level and Range same as level trend setup.

The initial value is 400 same as level trend setup, so enter 2000 (1999 is automatically displayed).



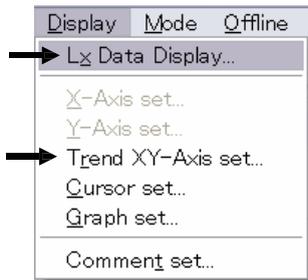
* Out of data for 2000 points, 1/3 octave band data for any desired point and level trend data for any desired band are displayed by using the cursor.

Displaying Lx

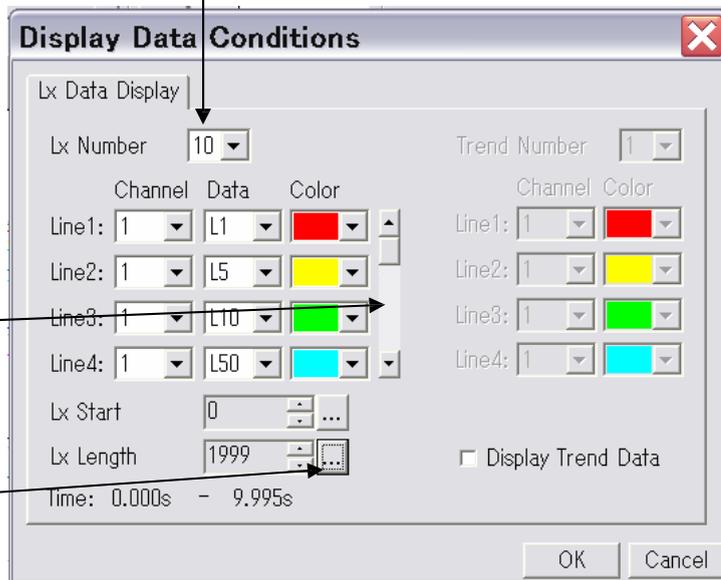
Lx operation for each band can be displayed using data for 2000 points sampled in level trend analysis. Lx indicates the percentile sound pressure level with which the number (frequency) of sampled data for each level is obtained. The DS-2000 simultaneously displays L1, L5, L10, L50, L90, L95, L99, Lmax, Lmin, and Lavg for each band.



Select "Lx Data Display" from the "Display" menu.

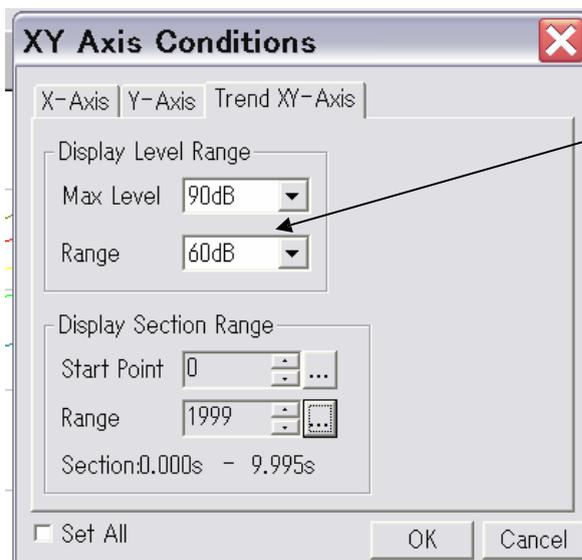


Select the number of data to be displayed.

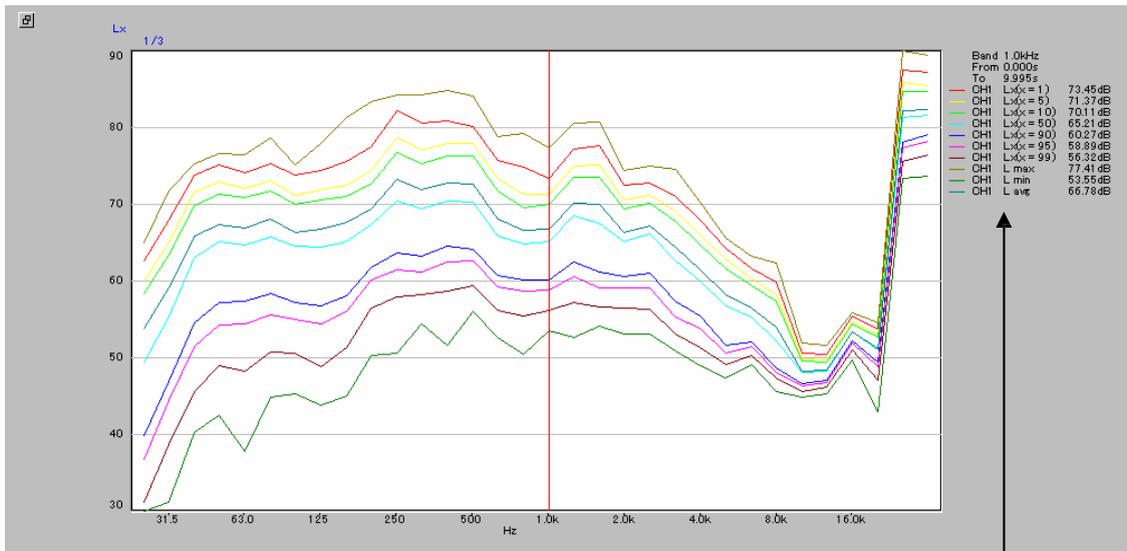


Select line color for L1 to Lavg by using the scroll bar.

Since the initial value is 400, and enter 2000.



Open "Trend XY-Axis set." Then, select Upper-limit level and Range same as level trend setup.



* Lx display for each band at 1kHz

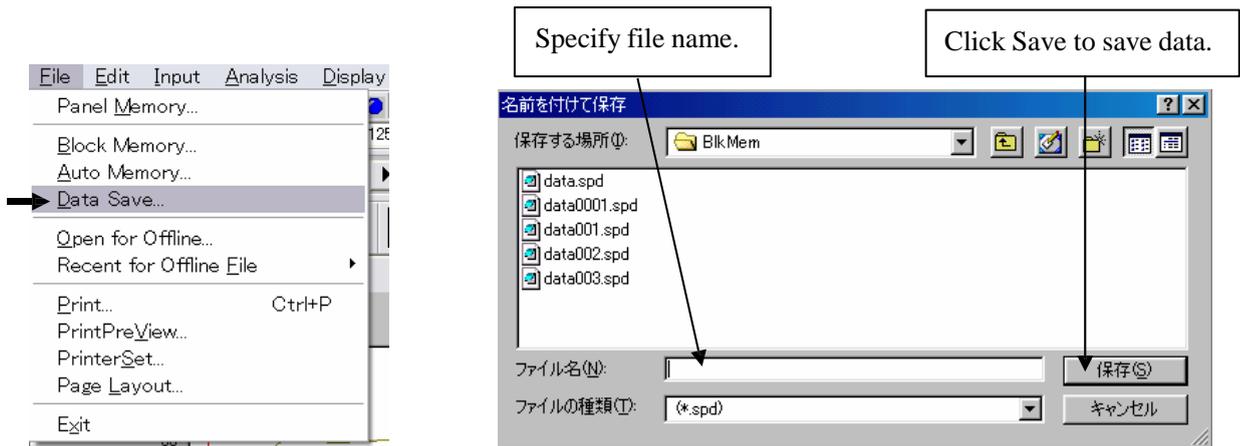
Displays L1, L5, L10, L50, L90, L95, L99, Lmax, Lmin, and Lavg for each band. L1 to Lavg are connected for each band.

4. Outputting and Saving Data

4-1 Saving Display Data

This function saves the power averaging data, power total value, and other graph data displayed in the measurement screen. (Trend data is saved by another operation.)

Select “Data Save” from the “File” menu.

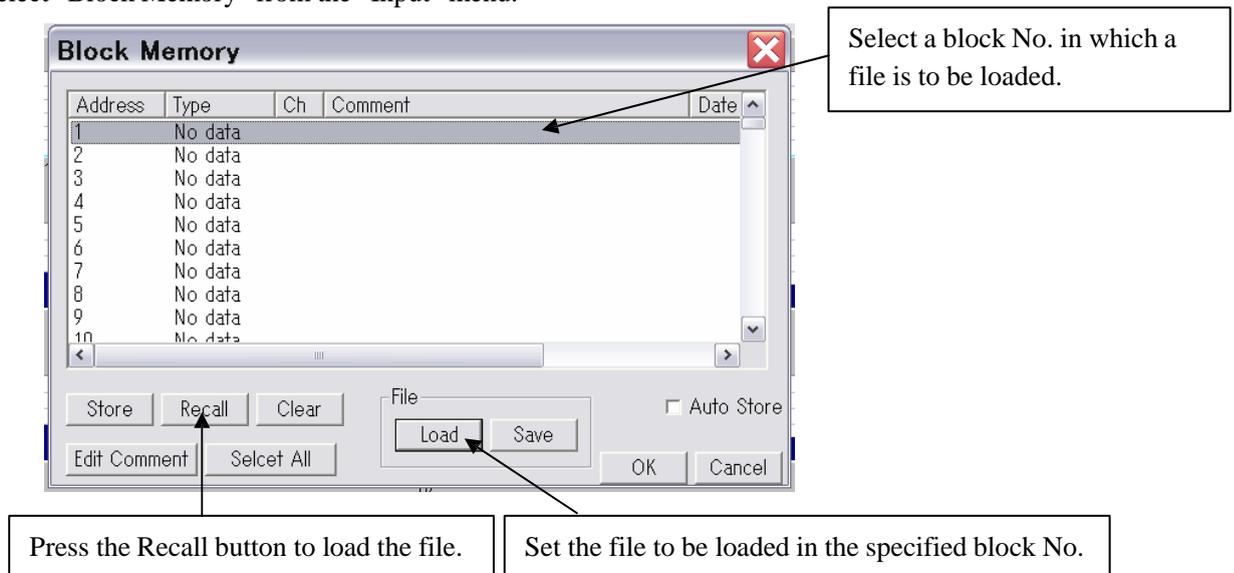


* Although the file name extension is only .spd, the saved file is a text file and therefore can be loaded in Excel, etc.

4-2 Loading Saved Data

Data saved in a file can be loaded through the block memory.

Select “Block Memory” from the “Input” menu.



4-3 Saving Level Trend Data

Level trend data is temporarily saved in the auto memory. The level trend data saved in the auto memory can be saved in a file.

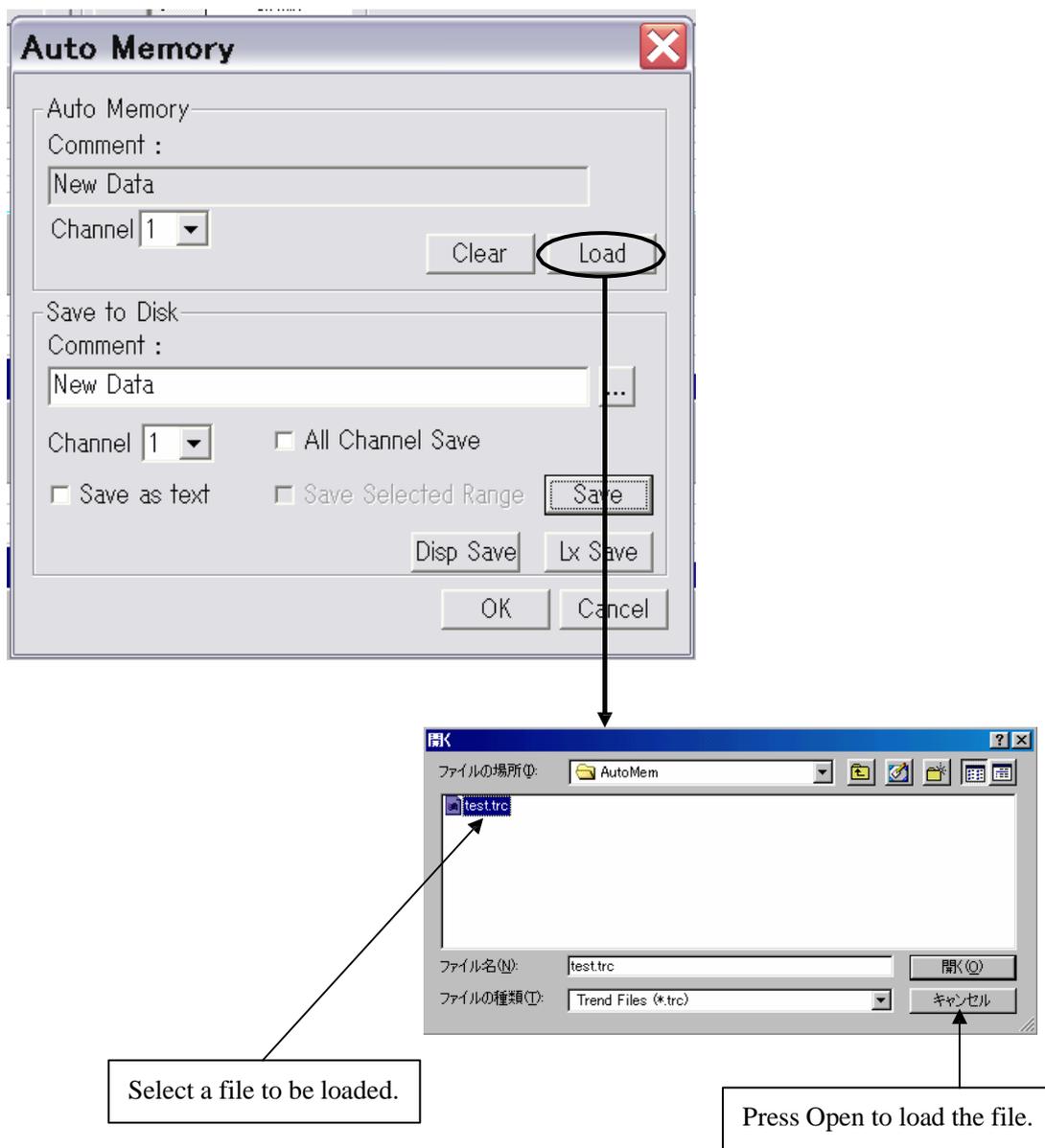
Select “Auto Memory” from the “Input” menu.

The image shows two windows from a software application. The top window is titled "Auto Memory" and contains two sections: "Auto Memory" and "Save to Disk". The "Auto Memory" section has a "Comment:" field with "New Data" entered, a "Channel" dropdown set to "1", and "Clear" and "Load" buttons. The "Save to Disk" section has a "Comment:" field with "New Data", a "Channel" dropdown set to "1", and checkboxes for "All Channel Save", "Save as text", and "Save Selected Range". A "Save" button is circled in this section. Below the "Save to Disk" section are "Disp Save", "Lx Save", "OK", and "Cancel" buttons. A callout box points to the "Comment:" field in the "Save to Disk" section with the text: "Set a comment as required. The comment is reflected when a file is loaded." Another callout box points to the "Channel" dropdown in the "Save to Disk" section with the text: "Select a channel of saved data." A third callout box points to the "Save as text" checkbox with the text: "Check this box to save data in a text file (that cannot be reloaded by the application)."

The bottom window is titled "名前を付けて保存" (Save with name) and shows a file save dialog. The "保存する場所" (Save in) field is set to "AutoMem". The "ファイル名" (File name) field is empty. The "ファイルの種類" (File type) dropdown is set to "Trend Files (*.trc)". There are "保存(S)" (Save) and "キャンセル" (Cancel) buttons. A callout box points to the "ファイル名" field with the text: "Specify file name." Another callout box points to the "保存(S)" button with the text: "Press Save to save data."

4-4 Loading Level Trend Data

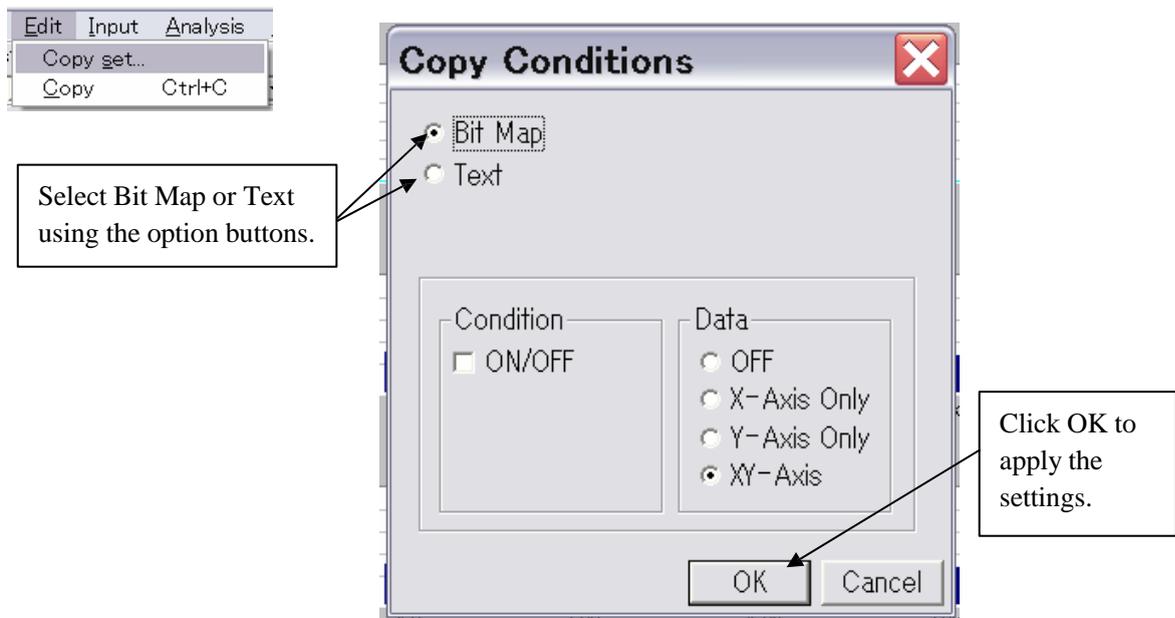
The following procedure loads and displays level trend data saved in a file.
 Select “Auto Memory” from the “Input” menu just as when saving the data.



4-5 Copy Function

Measurement data can be temporarily put in the clipboard. The data in the clipboard can be easily pasted to other applications without saving.

Select “Copy set” from the “Edit” menu.



After determining the data format with “Copy set,” select “Copy” from the “Edit” menu.

CAUTION:

1. The copyright of this procedure manual is reserved by Ono Sokki Co., Ltd.
2. Duplication without prior permission is prohibited.
3. This procedure manual explains general measurement procedures. Ono Sokki assumes no responsibility for data obtained through a specific operation performed by the customer.