

DS-0342 Servo Analysis Software

Basic description

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1. Forwards

The following figure 1 is the main screen of the DS-0342 Servo Analysis Software.

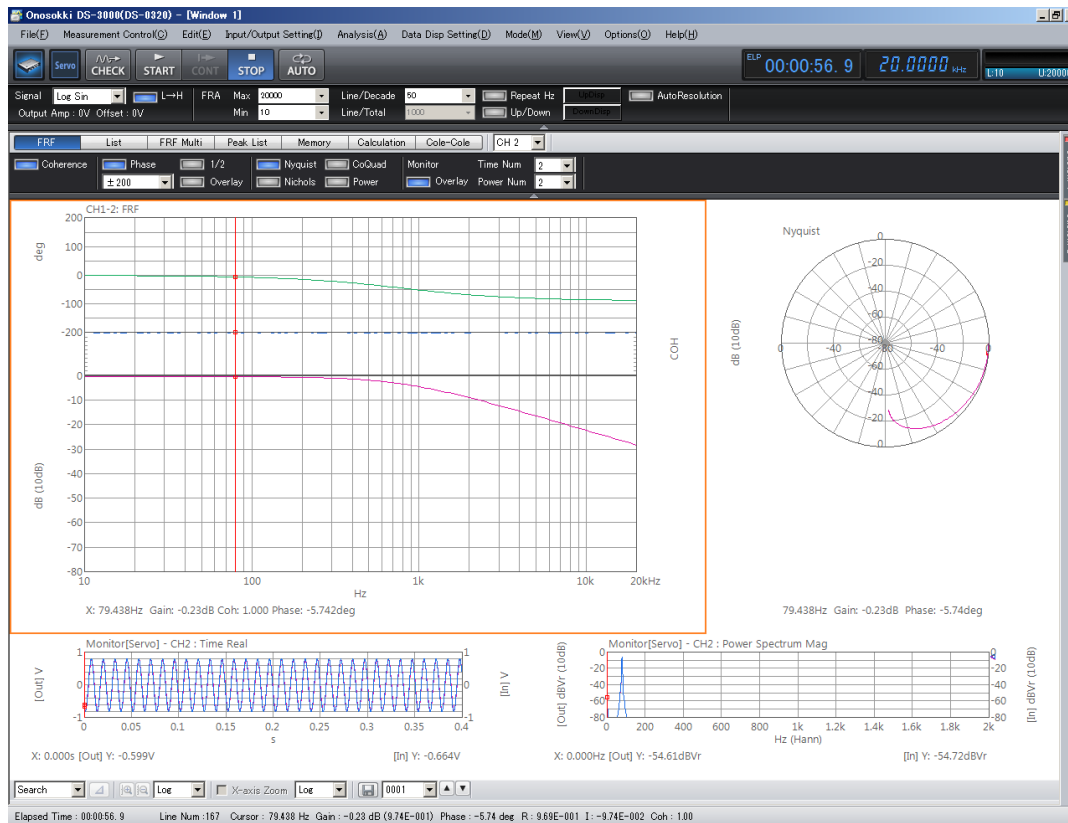


Figure 1-1 DS-0342 Servo analysis software main screen (FRF tab)

The screen is divided in three display area (bode graph, Nyquist graph, monitor) in this FRF screen tab display. By clicking any point in the area, the area is enclosed by an orange frame and selected. In the above example, bode graph area is selected. Please note that only selected area of the graph can be changed the display function.

The following is an explanation of each block.

2. Command section



Figure 2-1: Command section tool bar

① **Servo**

It shows that the analysis mode is selected as servo.

② **CHECK**

This is the mode to check if the measurement system including work is correctly connected or not. This mode checks only time waveform and its spectrum without operating FRF measurement. In the FRA mode, the start frequency (rising sweep: Min frequency, falling sweep: Max. frequency) is outputted.

③ **START**

Start the measurement.

④ **CONT**

When the sweep is stopped in the middle of analysis with the FRA mode, it starts continuously.

⑤ **STOP**

Stop the analysis in the middle.

⑥ **MIX IN**

It is activated when the addition function option (DS-0374) is equipped which inserts the signal for FRF measurement in the control loop. When the feedback signal from the control system is input to the MIN IN terminal of the DS-3000, and the signal added with the set signal is output from the SIGNAL OUT terminal and returned to the control system.

⑦ **Output frequency**

The frequency of sweep signal is displayed in the FRA mode. The frequency range in measurement is displayed in the FFT mode.

⑧ **Measurement in progress state**

In the FRA mode, it indicates how far it is sweeping in Min frequency to Max frequency range. In the FFT mode, it indicates current number of averaging.

3. Command section

The specification of this measurement section is changed according to the setting mode (FRA/ FFT).

3-1 Measurement section (FRA mode)

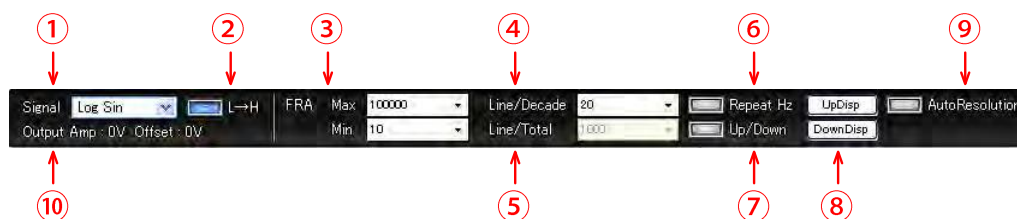


Figure 3-1 Measurement section measurement setting tool bar (FRA mode)

① Signal (output signal setting)

Select the signal source to measure the transfer function (FRA). The measurement mode (FRA and FFT) of the FRF is automatically changed according to the signal type.

Signal type	Measurement mode
Log Sin, Lin Sin	FRA mode
Random, Swept Sin, Pseudo, Impulse	FFT mode

The figure 3-1 shows the FRA mode.

② L→H (FRA mode)

Select the sweep direction (rising, falling) of the sine wave with the FRA mode.

③ FRA (Max Min)

Select the start frequency and stop frequency to be swept with the FRA mode. Select with the drop down list or input arbitrary numerical value.

- ♦ Rising sweep: Min; start frequency, Max; stop frequency
- ♦ Falling sweep: Max; start frequency, Min; stop frequency

④ Line/Decade

Select the sweep point for 1 decade (multiply 10) in the Log Sin sweep mode.

⑤ Line/Total

Select total sweep point in the Lin Sin sweep mode.

⑥ Repeat Hz

If you want to sweep again with the same condition after manually measure with the frequency interpolation function, turn this function ON and start the measurement.

⑦ **Up/Down**

Operate the rising and falling sweep continuously.

- ♦ When setting of ② is ON, rising and falling.
- ♦ When setting of ② is OFF, falling and rising.

⑧ **UpDisp and DownDisp**

Select the FRF measurement result in the continuous sweep measurement (rising/ falling) of ⑦.

⑨ **AutoResolution**

Turn the automatic resolution control function. Adjust the sweep interval automatically so that the FRF gain characteristic is within the set value (dB value) in the FRA mode (sine sweep).

⑩ **Output Amp and Offset**

Display the amplitude voltage and offset voltage of the signal being output during measurement (common to FRA and FFT mode).

3-2 Measurement section (FFT mode)

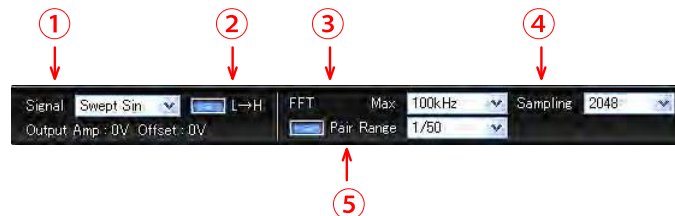


Figure 3-2 Measurement section measurement setting tool bar (FFT mode)

① **Signal (output signal setting)**

Select the signal source to measure the FRF. The measurement mode (FRA or FFT) of the FRF is changed automatically according to the signal type.

Signal type	Measurement mode
Log Sin, Lin Sin	FRA mode
Random, Swept Sin, Pseudo, Impulse	FFT mode

The figure 4-1 shows the FFT mode.

② **L→H (FFT mode)**

Select the measurement order of low band and high band in the Pair Range mode.

③ **FFT (Max)**

Select the analysis frequency range in the FFT mode. High hand is selected for the Pair Range mode.

④ Sampling (FFT mode)

Select the sampling point N (measurement point) of the FFT time window. The relation with the analysis line number L in the single band mode (not in Pair Range mode) is $L=N/2.56$. Specifically, you can choose the type shown in the table below.

Table 3-1 FFT sampling point and analysis line number

Sampling point N	Analysis line No. L
64	25
128	50
256	100
512	200
1024	400
2048	800
4096	1600
8192	3200
16384	6400
32768	12800
65536	25600

(Note) 32768 and 65536 can be selected when the signal is Random.

⑤ Pair Range

The FFT mode is the method (single range mode) that specifies the maximum frequency range to be analyzed, so low frequency cannot be analyzed. Also, analysis resolution of low range may be insufficient because it is linear resolution. In order to compensate this drawback, this is a method (pair range mode) to analyze low band in addition to the high band which is specified in FFT Max of ③. Specify the ratio of low band to high band.

For example when the condition is as follows;

- Max Range: 100kHz
- Sampling point: 2048
- Pair Range: 1/10

the X-axis of FRF is;

- (1) Single mode; Min: 125 Hz, Max: 100 kHz, 800 line
- (2) Pair range mode Min: 12.5 Hz, Max: 100 kHz, 1520 line

4. Tab switching section



Figure 4-1 Tab

4-1 FRF tab

This is the standard tab for measurement screen. The following is an explanation of the tool bar for FRF tab.

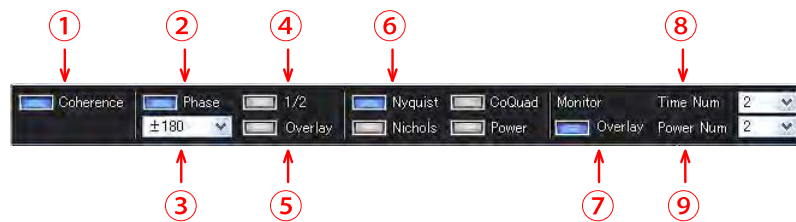


Figure 4-2 FRF tab

① Coherence

Turn ON/OFF the display of coherence function which is displayed in between the gain and phase in the bode graph. The initial display range is 0 to 1 and it is right side axis.

② Phase

Turn off the phase display in the bode graph display to display only gain (if the Coherence is also off). There is no display only phase.

③ (Phase scale) the initial setting is $\pm 200^\circ$

- $\pm 180^\circ$:Folding display in between -180° to $+180^\circ$
- $\pm 200^\circ$:Folding display in between -200° to $+200^\circ$
(Folding point display with hysteresis in $\pm 180^\circ$ display)
- UNWRAP: The phase display becomes manual scale mode and display without folding in between the upper and lower limit values.

④ 1/2

Display the phase display area in almost same height with the gain display in the bode graph.

⑤ Overlay

Overwrite display the gain and phase in the bode graph. Gain is in the left side axis, phase is in the right side axis.

⑥ Nyquist

Switching the display type in the Nyquist graph display area

Switching is possible with the following 4 types

Nyquist	Nyquist graph (gain/log switching is available) 1. Gain linear (horizontal axis: real number, vertical axis: imaginary number) 2. Gain log (polar coordinate display in the logarithmic gain and phase) (Note) Operate with the Log/Lin switching (not in X axis) in the following tool bar.
CoQuad	CoQuad graph (Overwriting the real part and imaginary part against the frequency axis.)
Nichols	Nichols graph (Phase to gain display)
Power	Power spectrum (Overwriting of Ch1 and output Ch)

⑦ Overlay (Monitor)

Specify whether to overwrite two input channels of time and power spectrum for measurement in the monitor display area. This is available when the setting of Time Num and Power Num are 2.

⑧ Time Num

0 : Not display time waveform

1 : Display only time waveform of output channel

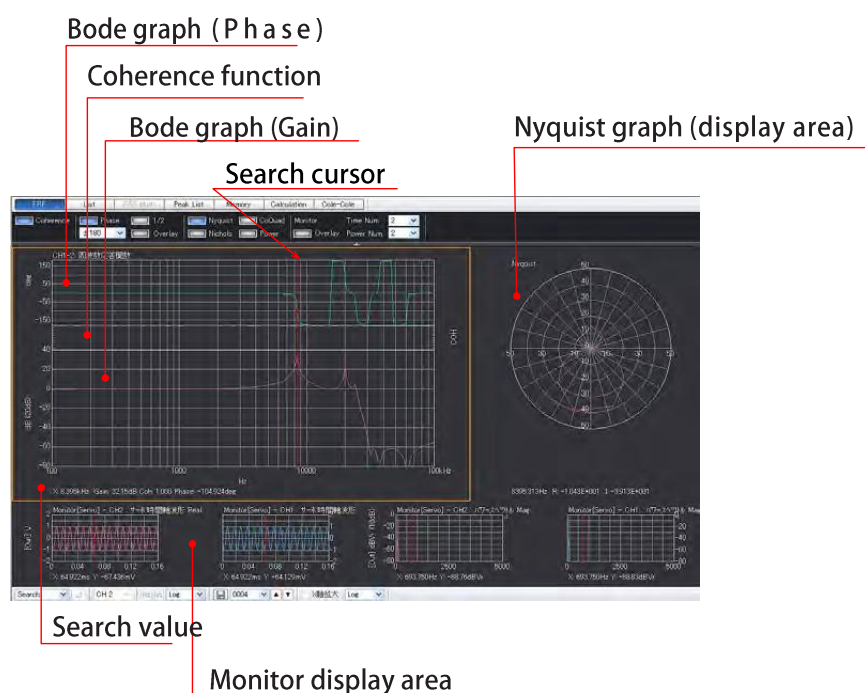
2 : When overwrite ON: 1 screen display, when overwrite OFF: 2 screen display

⑨ Power Num

0 : Not displaying power spectrum

1 : Display only power spectrum of output channel

2 : When overwrite ON: 1 screen display, when overwrite OFF: 2 screen display



(The time and spectrum are 2ch display and overlay OFF in this example)

Figure 4-3 Standard display in the FRF tab

4-2 Display related tool bar



Figure 4-4 Display related tool bar (lower part)

① Switch the search function (Search/Delta)

• Search function (Search)

The search function is the function that displays the search values of X and Y axes at the intersection of the graph and red vertical search cursor which displays by clicking on any point on the graph. The search cursor can be moved with left and right key of the key board.

• Delta function (Delta)

The delta function is a function that specifies the delta cursor beforehand and calculates and displays the difference (ΔX and ΔY) on the X and Y axes with the search cursor. Delta cursor is used for not only with the delta function but also [Enlarge the X-axis in the monitor graph] and [-3dB automatic search in FRF] functions.

<How to use>

- 1. Place the search cursor to the reference point.
- 2. Select search function (Delta).
- 3. Display the delta cursor by clocking the Δ mark (above ②).
- 4. Move the search cursor to the point to be calculated and read ΔX value and ΔY value. Turning OFF the either value of X axis or Y axis is available.
Select with the following order: [Data display setting] (menu) > [Cursor setting] > [Delta cursor setting].

② Specify the delta cursor.

③ It enables when Y gain scale mode is set as default.

④ Switch the log or linear of Y-axis in the FRF or power spectrum graph. It is valid in the selected display area. Switch between the gain linear (X axis: real part, Y axis: imaginary part) or the gain log (polar coordinate display with logarithmic gain and phase). The initial setting is log.

- ⑤ Switch the ON/OFF of the X axis enlargement in the monitor display.
 - X axis enlargement function
 - 1. When graph is out of monitor area: It is possible to enlarge with the drag and drop with the mouse. Click near the X axis (upper left) you want to enlarge and drag it to the lower right to drop it. The opposite operation will return to the original size.
 - 2. When the graph is in the monitor area:
Specify the delta cursor on the left side of the X axis to be enlarged with the search cursor and turn on the X axis enlargement 5.
- ⑥ Switch the log/linear of the X axis.
Select the switching of the log or linear of the X axis in the frequency function of the FRF or power spectrum. Selection is possible regardless of the frequency resolution (log or linear). The initial setting is log.
- ⑦ Select the continuous number in the file storage.
- ⑧ Operate up/ down of the continuous number.
- ⑨ Select the output Ch to be displayed in FRF with the 4Ch unit. Input channel is fixed with Ch1.
If it is 2ch unit, the input channels is fixed with Ch2.

4-3 Y axis display scale

When left side of each graph is clicked, the dialog of [Servo analysis scale setting] according to the graph type is displayed.

-1. Bode graph

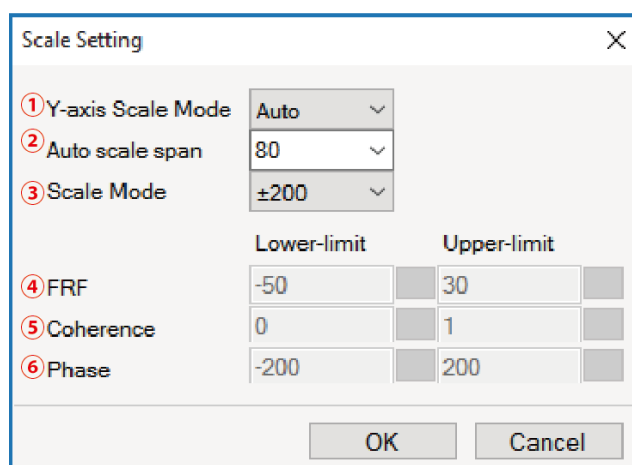


Figure 4-5 Y axis scale setting window (bode graph)

① Y-axis scale mode

Default	The display of the bode graph gain is selected as ± 50 dB when it is log. At this time, the 4-2 display related tool bar of +/- buttons are activated.
Auto	The minimum value which can display the gain maximum value of FRF is automatically selected as upper limit value (log: 10 dB step, linear: 1, 2 and 5 steps). The lower limit value is upper limit value-span setting value (② in the figure) in Log, and 0 in Linear.
Manual	The upper and lower limit values which selected in ④FRF are selected.

② Span setting

Select log display span (scale width), when the Y-axis scale mode is set as automatic.

③ Phase difference display mode

± 180	$\pm 180^\circ$ folding display the phase of FRF
± 200	$\pm 200^\circ$ turned display the phase of FRF. This display mode is the Hysteresis function to prevent this continuous folding when the phase is in approximate -180° or $+180^\circ$. This is an initial value.
Manual	Unwrap (no folding) display the phase in the upper and lower limit value selected in Phase ⑥.

④ FRF

Select the upper and lower limit value of manual display in the FRF gain display.

⑤ Coherence

Display the Coherence function. When the Y-axis scale mode is Default and Auto, the upper and lower limit is 0 to 1, when it is Manual, select the upper and lower limit value.

⑥ Phase

Select upper and lower limit value in the phase manual display.

-2. Nyquist graph

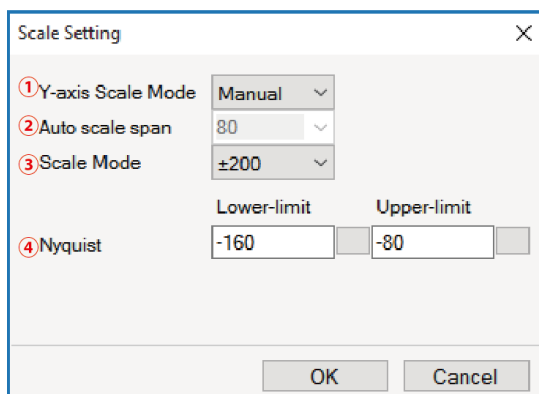


Figure 4-6 Y-axis scale setting window (Nyquist graph)

① Y-axis scale mode

The radius of the circle of Nyquist graph is related to the gain, so the following is same as the gain setting of the bode graph.

Default	The display of the bode graph gain is selected as ± 50 dB. At this time, the 4-2 display related tool bar of +/- buttons are activated.
Auto	The minimum value to display the maximum gain value of FRF is automatically set as the upper limit value (when log: 10 dB step, when linear: 1, 2, 5 steps). The lower limit value is upper limit value-span setting value (② in the figure) in Log, and 0 in Linear.
Manual	The upper limit value and lower limit value which are selected in ④FRF are applied.

② Span setting

Select span (scale width) of log display when Y-axis scale mode is Auto.

③ Phase display mode

It is ignored in the Nyquist graph.

④ Nyquist graph

The upper and lower limit value in manual display is selected.

-3. Co Quad graph

Co quad graph is overlaying display of real number and imaginary number. The real number is in left side axis, and imaginary number is in right side axis.

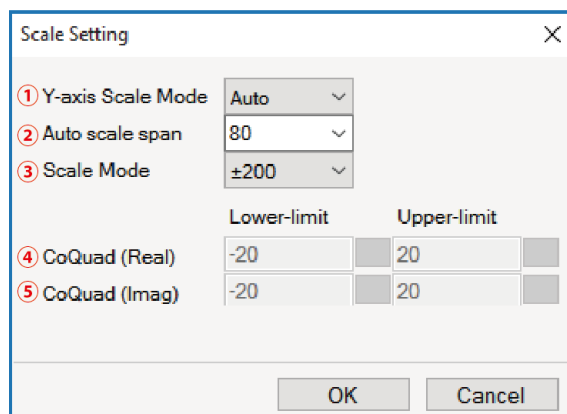


Figure 4-6 Y-axis scale setting window (Co quad graph)

① Y-axis scale mode

Set the \pm same value except for Manual mode.

Default	Output physical scale/ 100 times of input physical scale is initial value.
Auto	1, 2, 5 steps scale value which can be displayed the maximum value.
Manual	Select the upper and lower value with a numerical value.

② Span setting

This is ignored.

③ Phase display mode

This is ignored.

④ Co quad graph (Real)

Set the upper and lower value in the manual setting

⑤ Co quad graph (Imag)

Set the upper and lower value in the manual setting

-4 Nichols graph

Nichols graph is the horizontal axis is phase and vertical axis is gain (log) display.

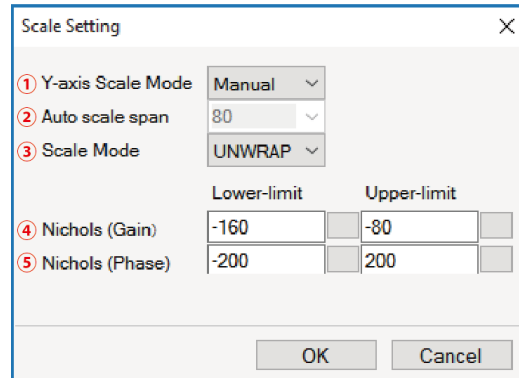


Figure 4-7 Y-axis scale setting window (Nichols graph)

- ① **Y-axis scale mode**
It is same as the gain in the bode graph.
- ② **Span setting**
It is same as the gain in the bode graph.
- ③ **Phase display mode**
It is same as the gain in the bode graph.
- ④ **Nichols graph (Gain)**
It is same as the gain in the bode graph.
- ⑤ **Nichols graph (Phase)**
It is same as the gain in the bode graph.

-5. Power spectrum

The power spectrum is overwriting display of the power spectrum of the input/output time signal in the transmission system. Output spectrum is displayed in the left-axis and input spectrum is in the right-axis.

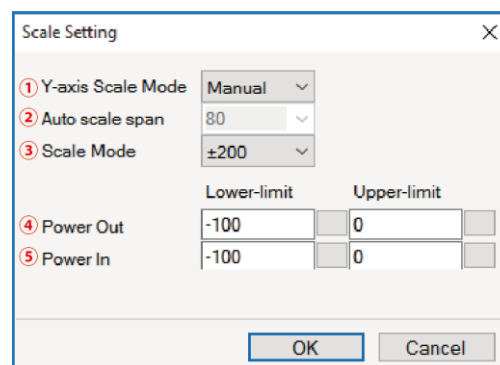


Figure 4-8 Y-axis scale setting window (power spectrum)

① **Y-axis scale mode**

Default	The physical quantity value corresponding to the input voltage range is the maximum scale. At this time, the 4-2 display related tool bar of +/- buttons are activated.
Auto	It is same as the gain of bode graph.
Manual	The upper and lower value selected in the ④ Power Out and ⑤ Power In is applied.

② **Span setting**

When the Y-axis scale mode is Auto, the log display scale width (span) is selected.

③ **Phase display mode**

This mode is ignored.

④ **Power Out**

Select the upper and lower limit value of the output power spectrum (left side axis).

⑤ **Power In**

Select the upper and lower limit value of the input power spectrum (right side axis).

-6. Monitor (time waveform)

Display the input output time waveform of the transfer system.

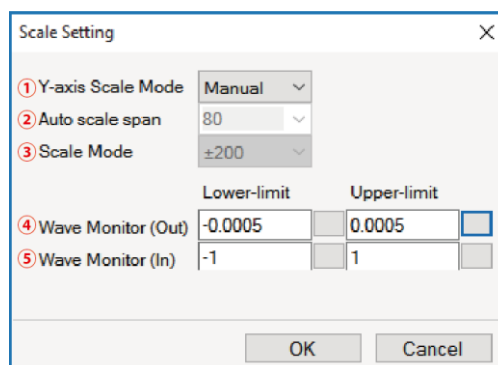


Figure 4-9 Y-axis scale setting window (monitor)

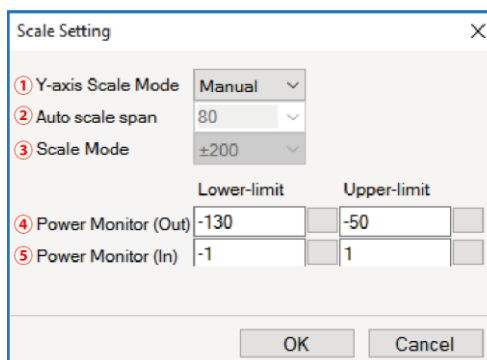
① **Y-axis scale mode**

Default	The physical quantity value corresponding to the input voltage range is the maximum/ minimum scale. At this time, the 4-2 display related tool bar of +/- buttons are activated.
Auto	Selected as the 1, 2, 5 steps scale value which can be displayed in the max. value.
Manual	The upper and lower limit value selected in the ④ time axis monitor Out and ⑤ time axis monitor In is applied.

- ② **Span setting**
This setting is ignored.
- ③ **Phase display mode**
This mode is ignored.
- ④ **Time axis monitor Out**
Select the upper and lower limit value of the output time waveform.
- ⑤ **Time axis monitor In**
Select the upper and lower limit value of the input time waveform.

-7. Monitor (Instantaneous spectrum)

Display the instantaneous power spectrum of the input and output of the transfer system. The setting is same as the -5 Power spectrum.



Setting	Value
① Y-axis Scale Mode	Manual
② Auto scale span	80
③ Scale Mode	±200
④ Power Monitor (Out)	Lower-limit: -130, Upper-limit: -50
⑤ Power Monitor (In)	Lower-limit: -1, Upper-limit: 1

Figure 4-10 Y-axis scale setting window (Instantaneous spectrum monitor)

4-4 List tab

CH1-2: FRF												
No.	Freq[Hz]	Gain[dB]	Phase[deg]	COH	Real	Imag	In[dB]	Out[dB]	Average	CH1[V]	CH2[V]	Sig[V]
1	10.000	-15.42	-89.52	0.61	1.42E-003	-1.70E-001	-22.73	-35.98	2	1.41	4.47	0.5
2	10.473	-17.60	28.67	0.83	1.16E-001	6.33E-002	-23.00	-39.80	2	1.41	4.47	0.5
3	10.965	-10.10	-7.21	0.98	3.10E-001	-3.92E-002	-23.00	-33.01	2	1.41	4.47	0.5
4	11.483	-14.89	156.68	0.91	-1.65E-001	7.13E-002	-23.00	-37.49	2	1.41	4.47	0.5
5	12.023	-21.10	43.00	0.65	6.44E-002	6.01E-002	-22.99	-42.24	2	1.41	4.47	0.5
6	12.590	-15.90	146.72	0.92	-1.34E-001	8.80E-002	-23.00	-38.52	2	1.41	4.47	0.5
7	13.183	-19.76	153.78	0.64	-9.22E-002	4.54E-002	-23.00	-40.82	2	1.41	4.47	0.5
8	13.805	-12.80	-99.94	0.96	-3.95E-002	-2.26E-001	-22.99	-35.62	2	1.41	4.47	0.5
9	14.455	-15.81	56.89	0.79	8.84E-002	1.36E-001	-22.99	-37.77	2	1.41	4.47	0.5

Figure 4-11 List display example of all FRF data

In the list tab, all the measured FRF data of the following items are displayed with the numerical value in each frequency.

Freq [Hz]	Frequency
Gain [dB]	FRF gain ($\cdot 10 \log \left(\frac{\text{Real}^2 + \text{Imag}^2}{\text{In}} \right) $)
Phase [deg]	Phase of FRF
COH	Coherence function
Real	Real number of FRF
Imag	Imaginary number of FRF
In [dB]	Power spectrum of input Ch (CH1)
Out [dB]	Power spectrum of output Ch
Average	Number of average
CH1 [V]	Voltage range of input Ch (display only in FRA method)
CH2 [V]	Voltage range of output Ch (display only in FRA method)
Sig [V]	Signal output voltage (display only in FRA method)

(Note) This data is same value as the CSV file of FRF.

4-5 FRF Multi tab

This tab is not displayed on the 2ch measurement mode (when output channel is 1). FRF of 1-2, 1-3, and 1-4 are displayed in 4ch measurement mode.

4-6 Peak List tab

The following three list function can be selected in this tab.

- Peak: Peak list
- Arbitrary: Arbitrary list
- Gain-Phase Margin: Gain and phase margin list

① Peak (Peak list)

The peak value of displayed FRF gain is automatically detected from maximum to 10 points and listed up the frequency, gain and phase of them. The listed points are marked on the gain graph of the bode diagram in the left side of the screen.

- When click the Freq [Hz]: Sort by frequency ascending /descending order
- When click the Gain [dB]: Sort in ascending / descending order of magnitude of gain

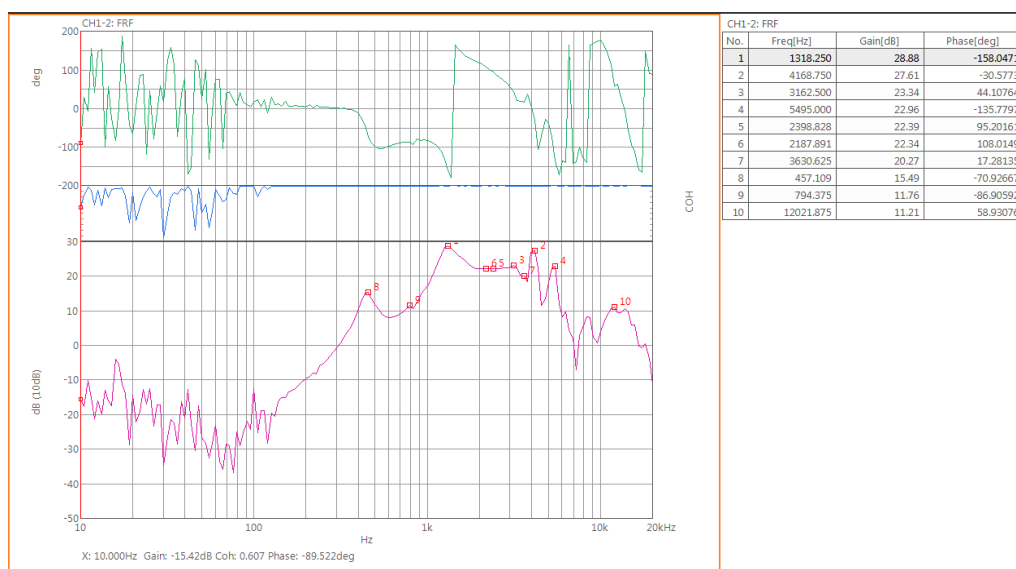


Figure 4-12 Peak list display example

• Hysteresis and threshold level setting

This is the function not to list up the noise peak point and a small peak of absolute value as a peak point. Select the [Data display setting] - [List display] - [Peak list] in this order.

Hysteresis	The peak value that the difference between peak and valley of the FRF gain is smaller than (full scale value) × (% value/100) is eliminated.
Threshold value	The peak value that is smaller than (full scale value) × (% value/100) + lower limit display level of FRF gain value is eliminated.

② Arbitrary (Arbitrary list)

Use the search cursor to list arbitrary points. Click an arbitrary point to indicate the search cursor, then select [Register Arbitrary List] from the right click drop-down list.

③ Gain-Phase Margin (gain margin and phase margin list)

In the loop gain graph, click the point when the gain is more than 0 dB and the frequency is lower, and select the [Register Gain/ Phase Margin] from the right-click drop down list, the phase margin (the point when the gain is 0 dB) and gain margin (point when the phase is -180 deg) can be listed.

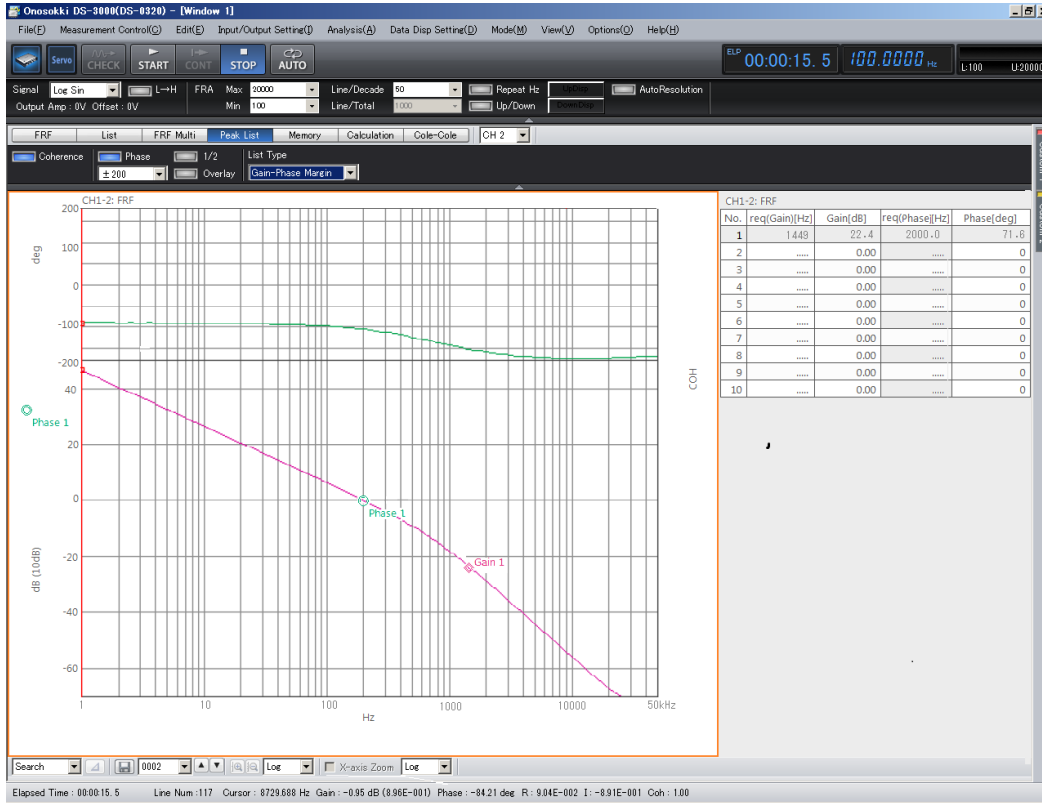


Figure 4-13 Display example of gain and phase margin in a loop

4-7 Memory tab

In this tab, the maximum of measured FRF data can be memorized and overwritten. The display area is divided into three areas such as FRF display area, memory list area, memory data overwrite area.

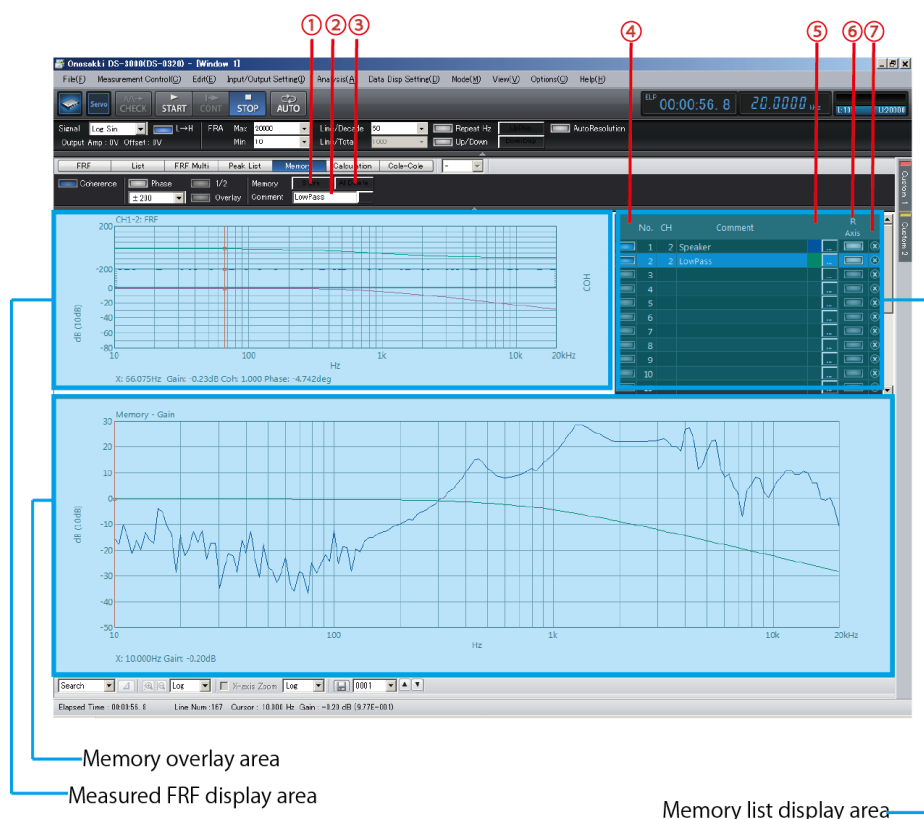


Figure 4-14 Display example of over write data of memory tab

- ① Displayed FRF data is saved in the memory of the number selected in the memory list (No. 2 in the example in the figure). If the number already had a data, the warning message about overlaying will appear.
- ② Comment can be added to the FRF data to be saved.
- ③ Delete all saved data at once. Warning message about deleting will appear.
- ④ Turn ON/OFF the memory data display of arbitrary number in the memory data overlaying area.
- ⑤ Select the line color of the graph to be overlaying.
- ⑥ Y-axis is in the left side in general, but right side axis can be selected separately by turning ON this button.
- ⑦ Delete the memory data which is saved in the selected number. The warning message will appear.

- ⑧ Display the search value of the selected FRF data with the overlaying data. When selecting the memory number which has no data to be displayed. Be careful of this matter.

- How to save/ open the memory data

- 1. When right click on the graph to be saved, the drop down list is appeared. Select [Memory Data] > [Save Data] in this order to save the data. All the memory data is saved as the extension of [.sdi].
- 2. When right click on the graph to be opened, the drop down list is appeared. Select [Memory Data] > [Open Data] in this order to open the data. The display condition such as Y-axis scale is displayed simultaneously.

Note: The saved memory data cannot be deleted by initializing with the [New Project] (file menu).

4-7 Calculation tab

In this tab, the arithmetic operation (addition, subtraction, multiplication, and division in complex number) result through the FRF data can be displayed and saved in non-saved memory number. When selecting the FRF on the left side as [Base] and on the right side as [Target], the following complex number calculation will be performed.

Addition	Base + Target
Subtraction	Base - Target
Multiplication	Base × Target
Division	Base ÷ Target

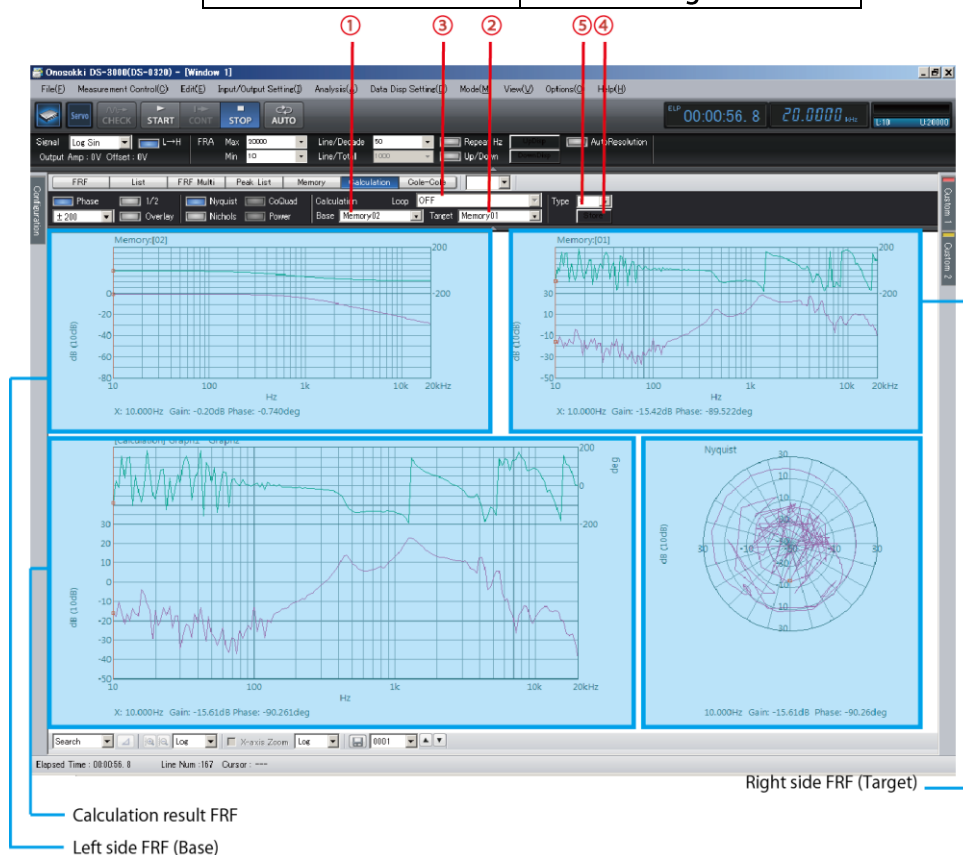


Figure 4-15 Calculation result display example in the calculation tab

- ① Select the Base of the FRF.
- ② Select the Target of FRF
- ③ Perform the open/close loop calculation on the FRF of calculation result.
- ④ Save the calculation result of FRF to the non-saved memory number.
- ⑤ Select the calculation type: OFF (no calculation), + (addition), - (deceleration), * (multiplication), / (division)

4-8 Cole-Cole tab

In this tab, display the Cole-Cole plot which is often used for the display of chemistry impedance such as Nyquist diagram. When selecting the real number of the impedance Z as Z' and imaginary number as Z'' , the Z' is displayed on the horizontal axis (X-axis) and Z'' is displayed on the vertical axis (Y-axis). Three graphs such as Bode diagram, CoQuad diagram, and Cole-Cole plot are displayed, so select Cole-Cole plot display area and turn ① ON.

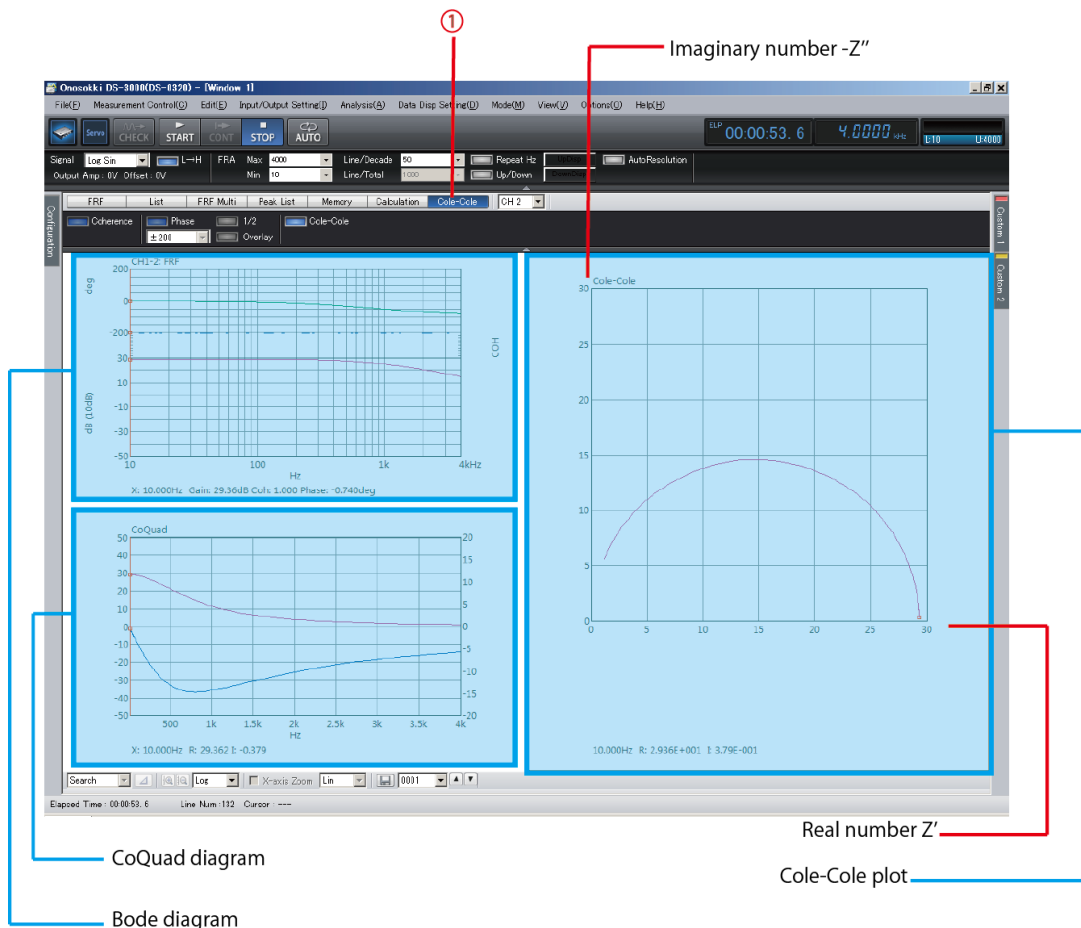


Figure 4-16 Example of display of Cole-Cole plot tab

5. Save the measured data and project file

5-1 Save the measured data-1

- ① Select [Save Data] from the file menu.

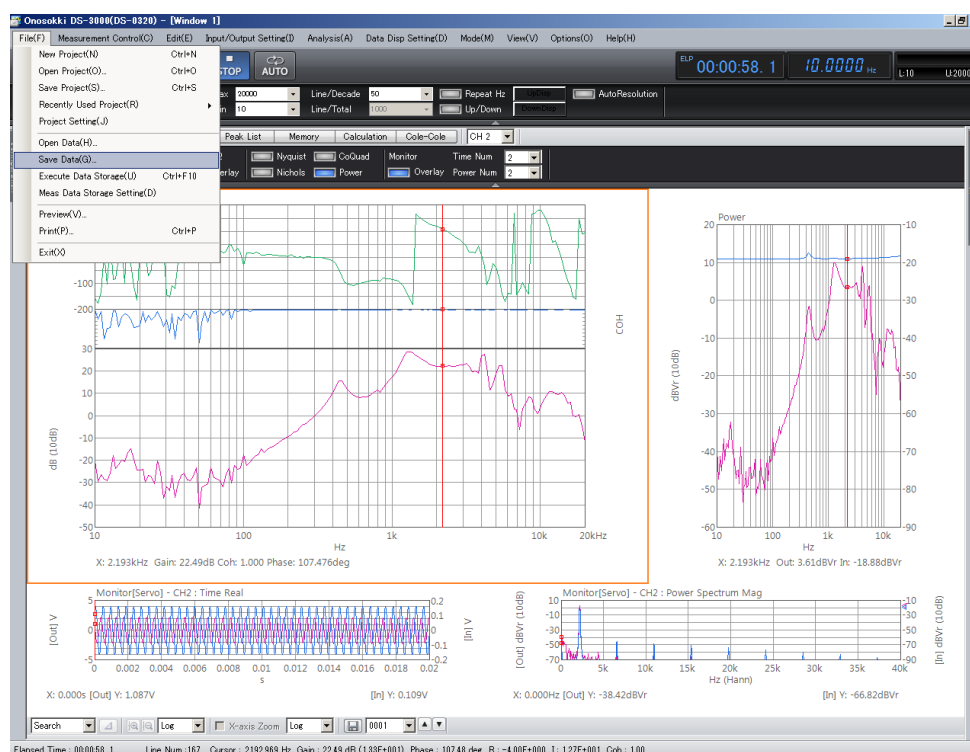


Figure 5-1 Storing the measured data

It can be saved as binary format (.sdt) and text format (.text) simultaneously.

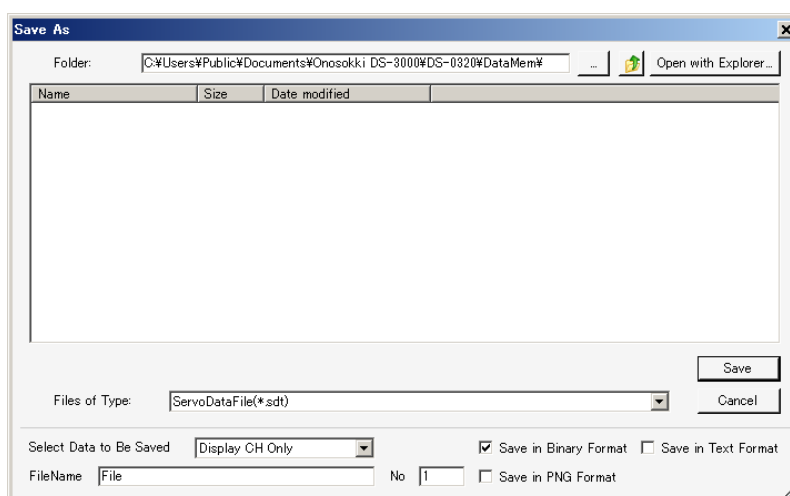


Figure 5-2 Binary format (.sdt)

When you open the data which is measured by FRA method and saved with the binary format (.sdt), the time waveform and power spectrum of the measurement point can be displayed.

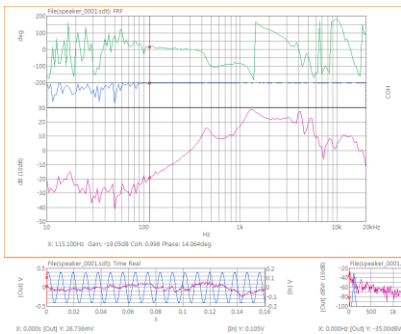


Figure 5-3 Saved data display-1

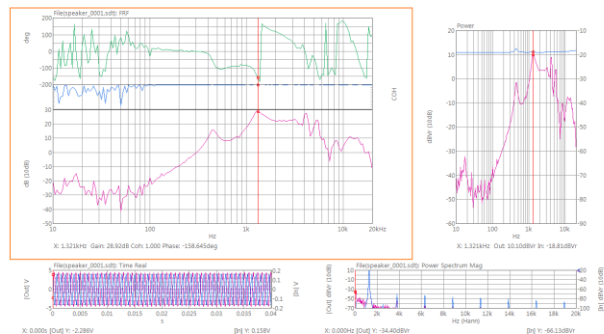


Figure 5-4 Saved data display-2

The time waveform and power spectrum in the point selected by the cursor can be displayed. Also, Tab function of List, FRF Multi, Peak List, Memory, Calculation, and Cole-Cole can be used.

The following data can be saved in the text format (.text)

Freq, Gain, Phase, Coherence, Real, Imag, In-P, Out-P, Average, Voltage (CH1), Voltage (CH2), SigV

5-2 Save the measured data -2

You can copy the measured data as a displayed image or text format from “Edit” menu and paste it on Excel sheet.

- ① Select [Measurement Control] > [Edit] > [Copy] > [Select Format] in this order.

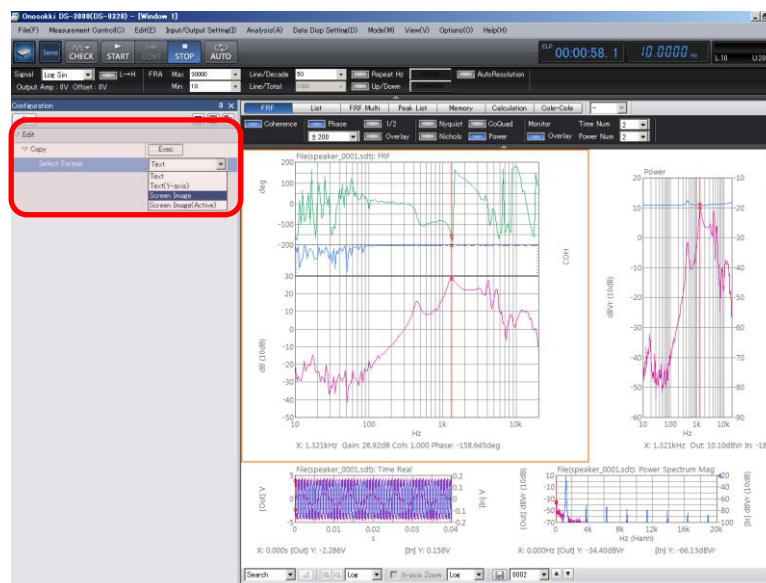


Figure 5-5 Saving the measured data-2

The data can be copied with the following three formats.

Text	Copies the data in the active graph area as text format
Screen Image	Copies the data in the active window screen data as a screen image
Screen Image (Active)	Copies the selected graph (orange frame) in the active window screen data as a screen image

The copy can be executed with the right click on the screen.

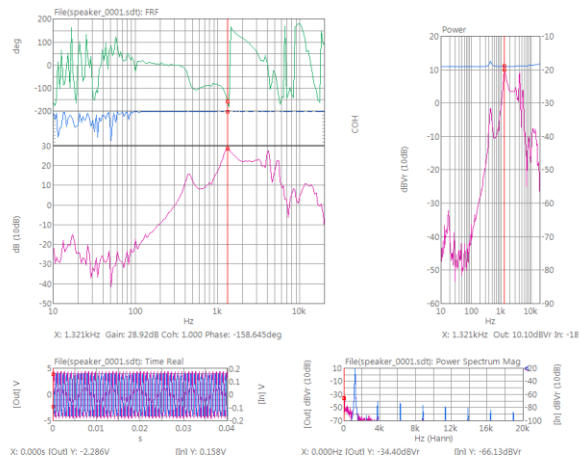


Figure 5-6 Example of screen image

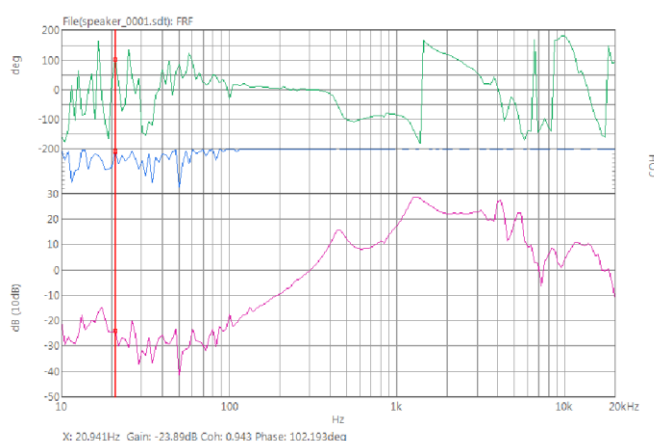


Figure 5-7 Example of screen image (active)

5-3 Save the project file

By saving the project file when performing the measurement with same setting and measurement condition next time, you can eliminate the need of setting again.

- ① Select [Save Data] from the file menu.

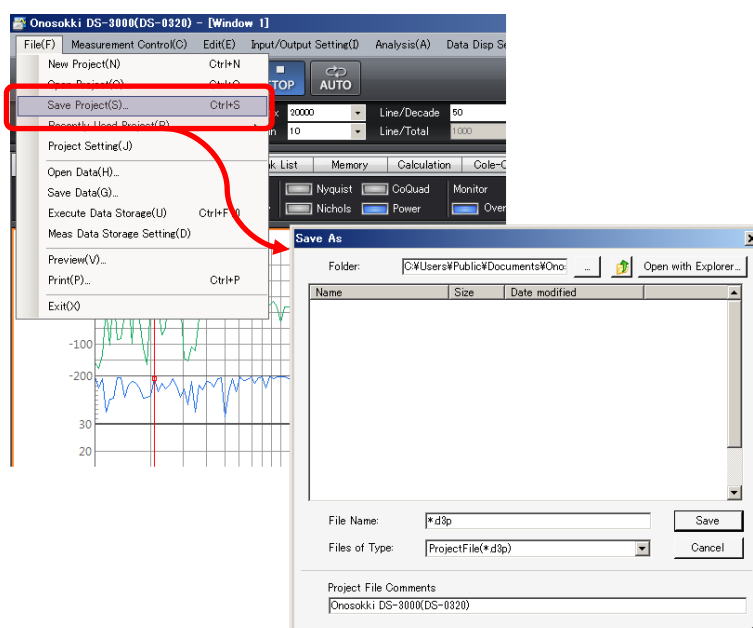


Figure 5-8 Saving the project file

5-4 Save the Memory data

- ① To save the result of data comparison in [Memory], right-click the overlaid measurement result screen and select [Memory Data] > [Save Data] in this order.

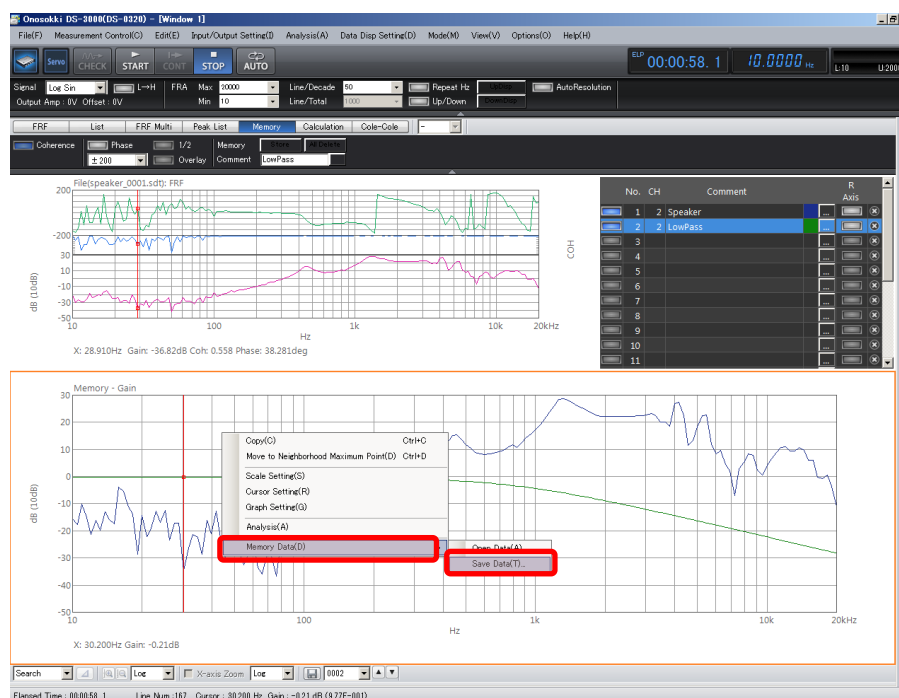


Figure 5-9 Saving the memory data

- ② The data is saved in [.sdi] format. All the compared data (Gain and Phase) is saved.

— END —