DS-0321 FFT Analysis Software

Operation manual

Basic Operation Procedure for FFT offline analysis and File View

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This document describes basic measurement procedure of method analyzing the recorded data saved in the ORF format.

Online analysis uses the data from a channel terminal, however, it is necessary to record the data in the ORF format for offline analysis in advance. The recorded data saved in the ORF format can be used for offline analysis such as vibration or noise in the same way as online analysis (refer to [Operation manual for Vibration Analysis], [Operation manual for Noise Analysis]). With the File View, you can see the entire recorded waveform and also its details to specify the analysis range. So you can perform the targeted analysis.

This manual describes the procedure of File View operation and FFT Analysis using recorded signals in ORF format from a sound level meter (CH1:voltage waveform, CH2:unit calibrated data).

The file in WAV format can be used for offline analysis other than the ORF file.

Basic operation procedures required for vibration or noise analysis are not covered in this document. For such procedures, refer to the respective operation manuals ([Operation manual for Vibration Analysis] and [Operation manual for Noise Analysis]).

This manual describes functions with the focus on what behavior will result from a single operation, and you are recommended to try various actions on the instrument.

Basic operations of the DS-3000 software are mostly executed in the Configuration window. As the operations in the Configuration window are correspondent with those of the Main menu, the Main menu operations are not included in this manual. For details on the Configuration window operations, refer to the respective procedure manuals (Basic operation procedure for configuration setting).

In this instruction manual, a series of clicking operations is described, for example, as follows; "Click "File" > "Project File"> "New Project" > "Exec".

■ Operation Flow

-1 Startup

-2 Loading ORF file

-3 Setting display screen

-4 Playback

-5 Setting Overlap amount

-6 Changing a record number (RECORD）

-7 File View operation

-8 Analysis

■ Operation Procedures

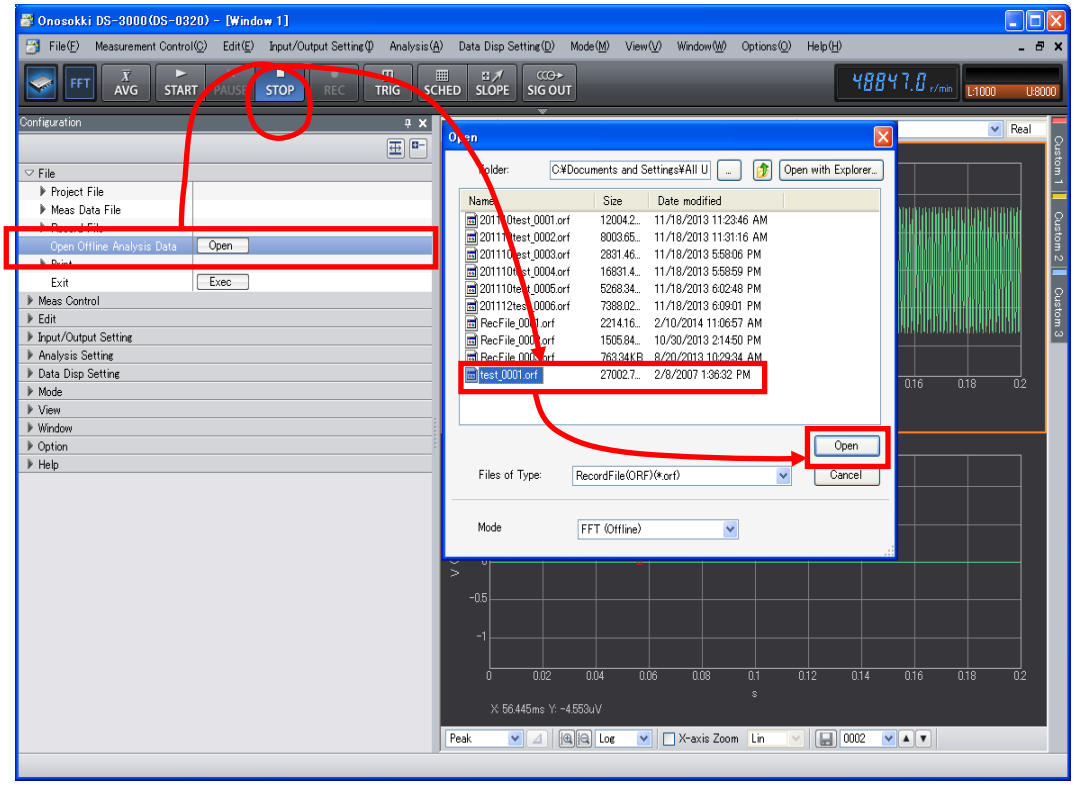
-1 Startup

Connect each device, turn the power on, and start the DS-0321 FFT Analysis software.

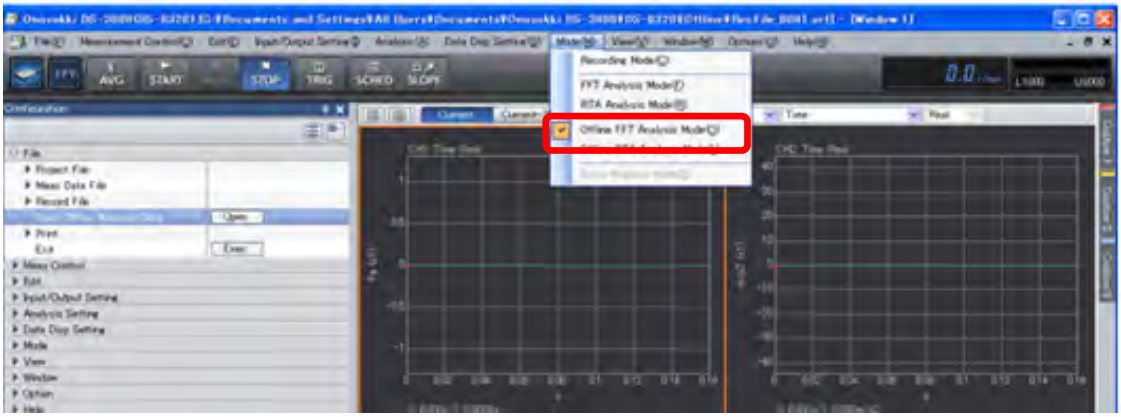
-2 Loading ORF file

① From the main menu, click "View" > "Configuration" to open the "Configuration" window.

② In the "Configuration" window, click "File" > "Record File" > "Open Offline Analysis Data" > " Open " and open the “Open file” dialog box. Specify the ORF file to be executed offline analysis in the “Open” window.

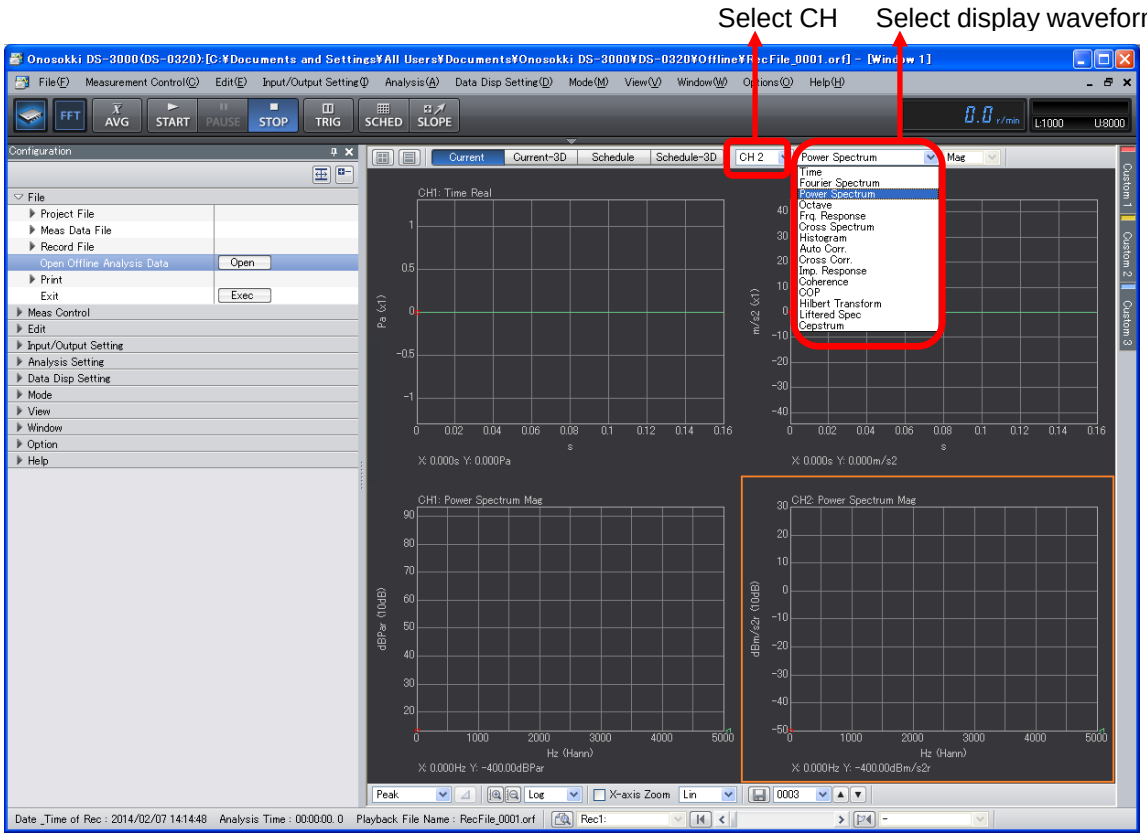


When the offline analysis data is opened, it will be automatically set to the “FFT (offline) Analysis Mode”. If you want to change the mode to Online analysis, click “Mode”> “FFT Analysis Mode” in the menu bar.



-3 Setting display screen

Set the graph in the upper screen partition to the "Time" view for each channel. Set the graph in the lower partition to the "Power Spectrum" view for each channel.

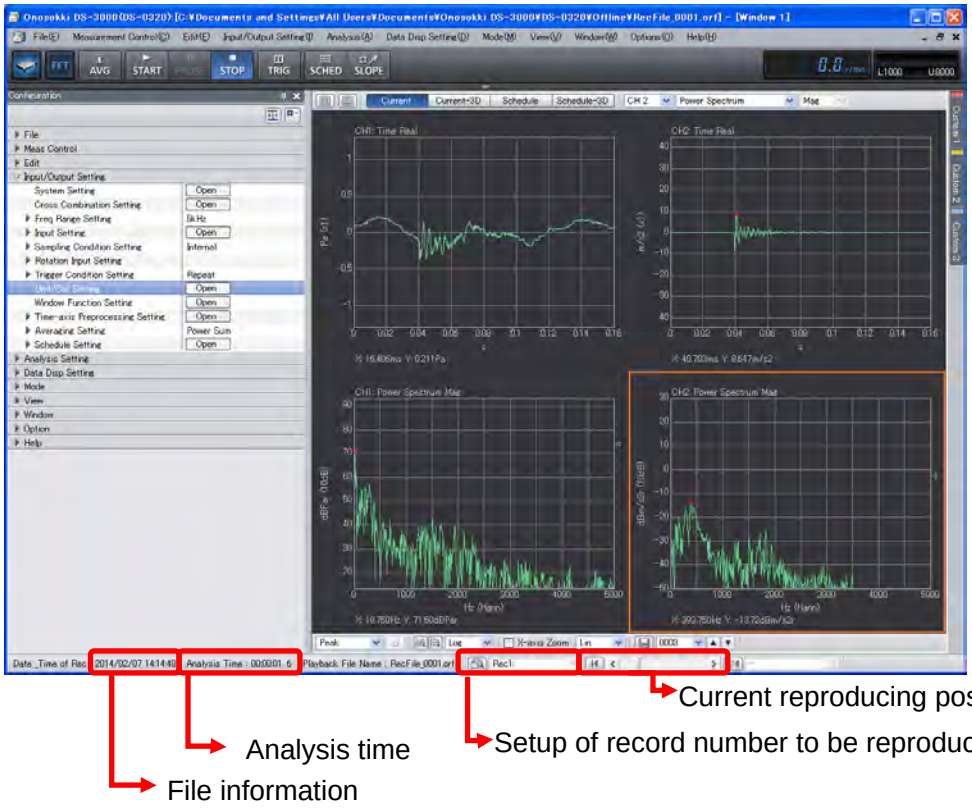


- When you click in the graph, it is enclosed with orange box lines to show that it is active.
- The settings in the "Configuration" window are reflected in the active screen partition, except for the measurement items related to all the channels, including the frequency and voltage ranges.
- No operations are permitted on some items unless the system is in the “STOP” state. For example, the character string indicating the average number of process times grays out during averaging measurement, meaning that the setting is unchangeable.

-4 Reproducing

Offline-analysis of various data can be performed while reproducing recorded ORF data with [START] button ON in the menu bar, in the same way as online analysis.

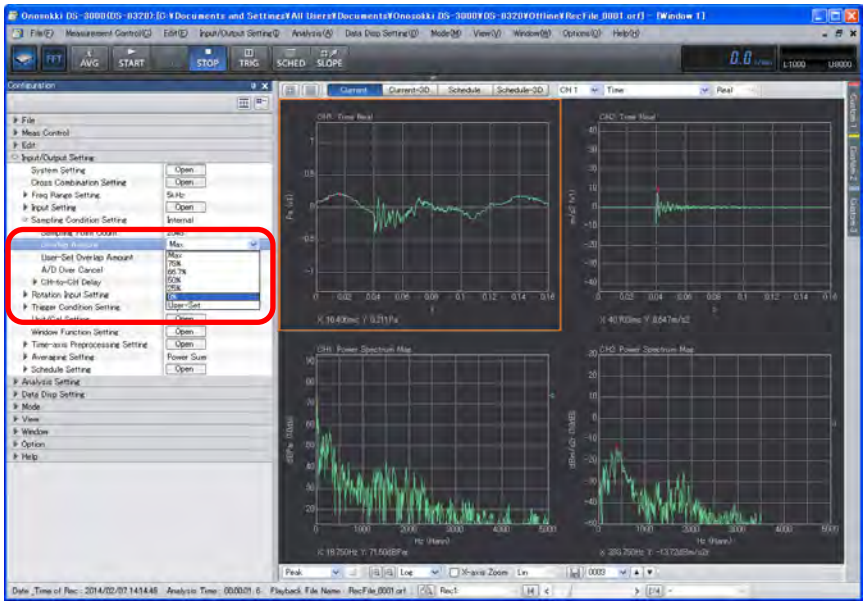
To stop the offline-analysis, turn the [STOP] button ON.
When you want to start reproduction from the beginning, press the tool bar for [current reproducing position and setup].
The reproduction is automatically stopped when it is completed. To reproduce the data again from beginning, press [START] button. The record information is displayed lower on the screen.



Recorded data already calibrated is displayed for CH2. This calibrated data is very useful because unit calibration of CH1 can be performed with those data.

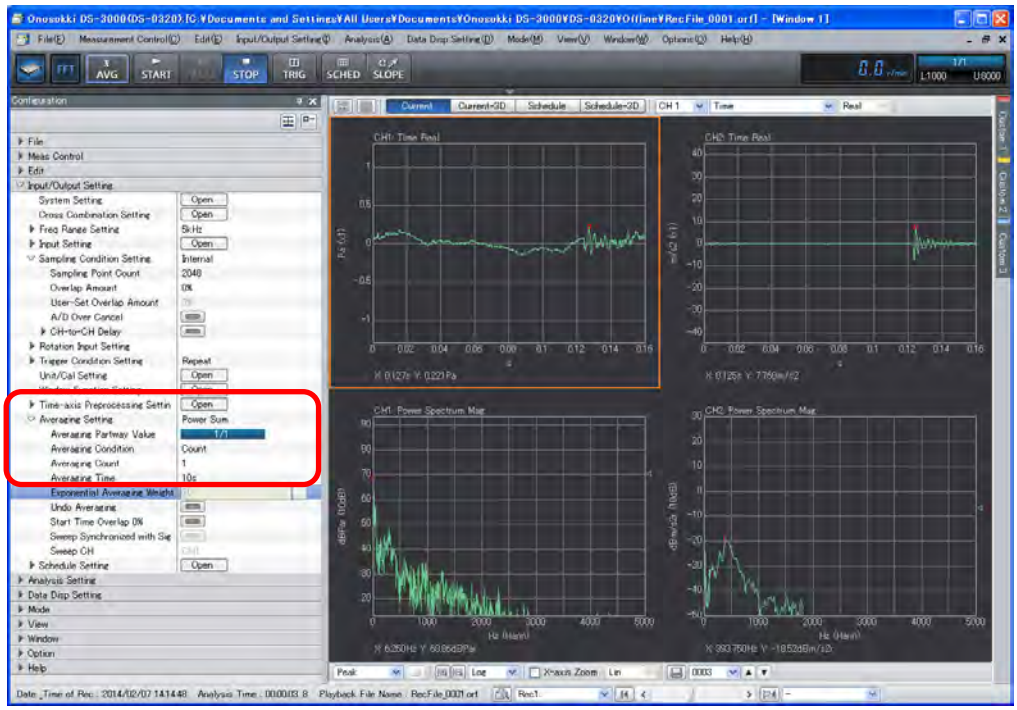
-5 Setting overlap amount

Reproduction time will be changed by setting overlap amount.
For example, FFT operation is performed for data every 2048 points when the number of samplings is set to 2048. At this time, FFT analysis is performed by overlapping the newly sampled data with the previous data. When the overlap amount is set to [max] during reproduction, it takes more time to reproduce because of data update delay.



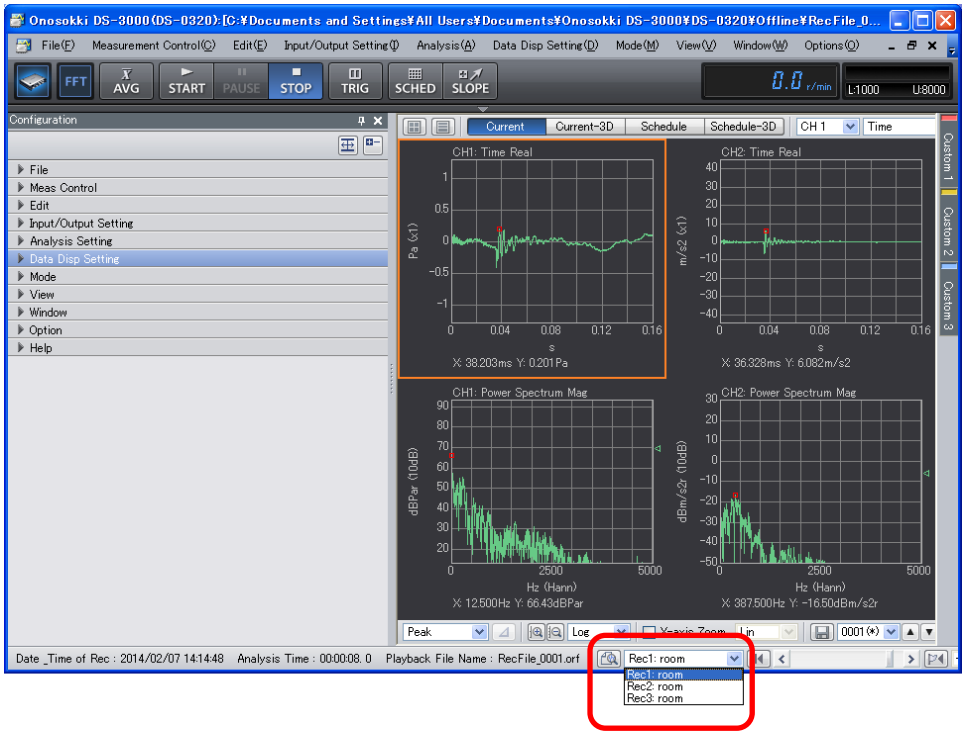
When you want frame feed reproduction, set it as follows. In this example, it is performed every 2048 points for 1 averaging.

[Overlap Amount: 0 %],[Averaging setting: Power Spectrum, Power Sum], [Averaging Count: 1]



-6 Changing record number (OSRECO)

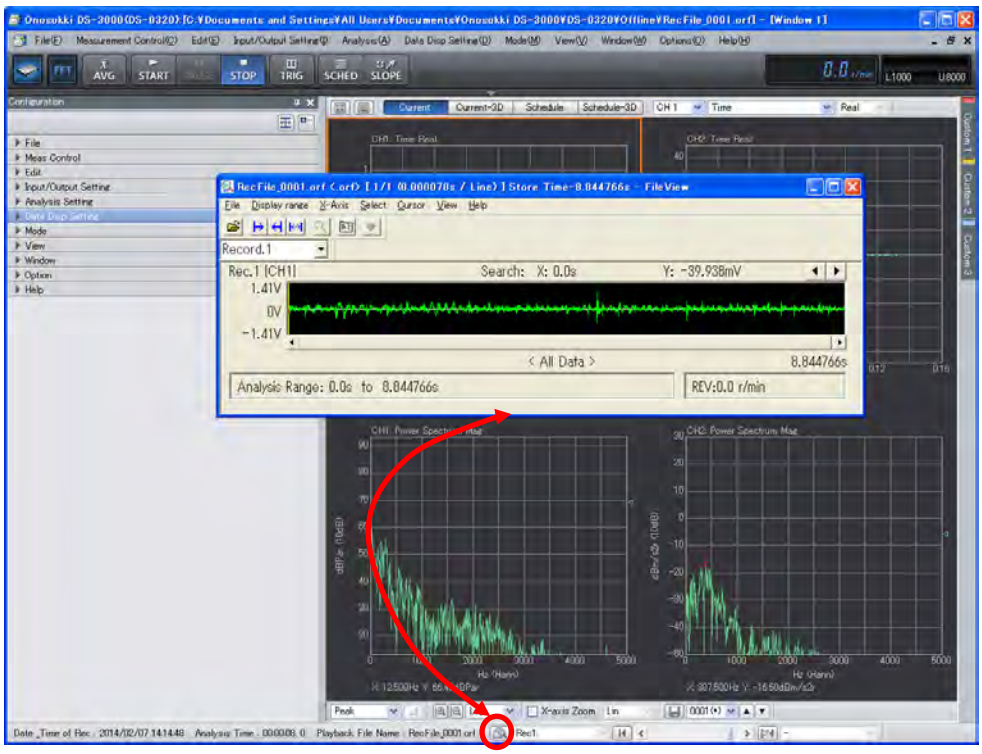
The record number to be reproduced (analyzed) can be changed with the tool [Record number] lower left of the screen.



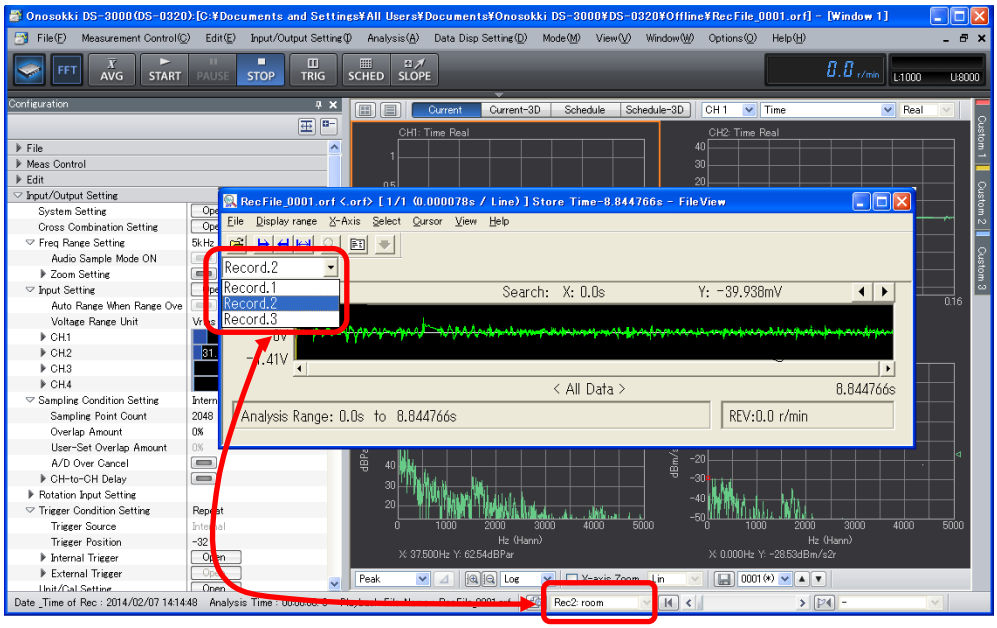
-7 File View operation

Whole waveform recorded in ORF format can be checked with [File View]. The specified range can be analyzed on the [File View] window.

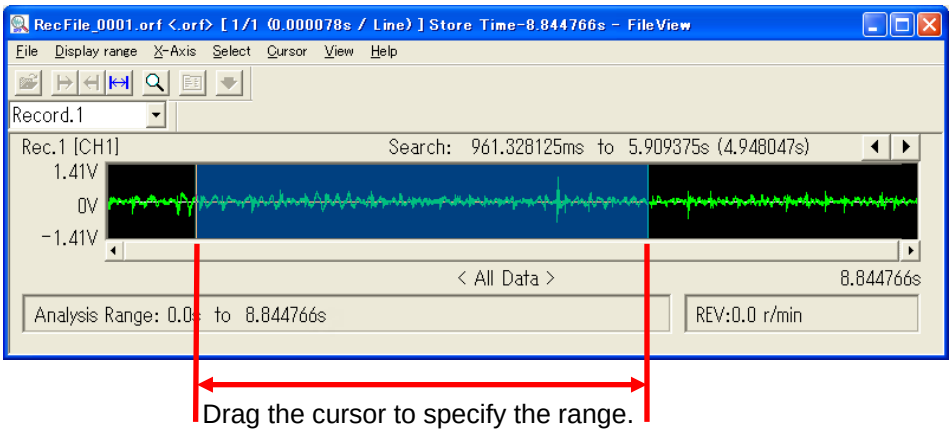
① Click [File View] button to open File View window.



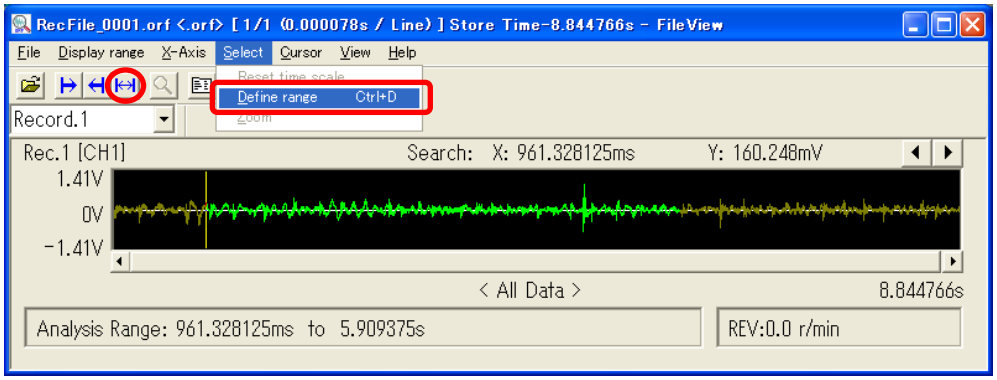
② Select the record number to be reproduced and analyzed. Whole waveform can be checked. At this time, the record number on the DS-0321 side is linked to change.



③ Drag the cursor to specify the range that you want to analyze on a File View window. The specified range will be shown in blue.

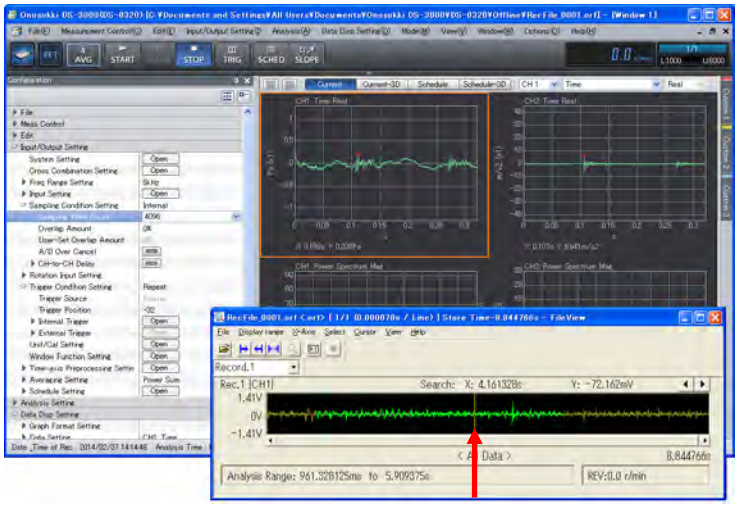


④ Click the [Display range specification] tool or click “Select”>”Define range”. The specified waveform range will be shown in green. Analysis is performed in this specified range here.

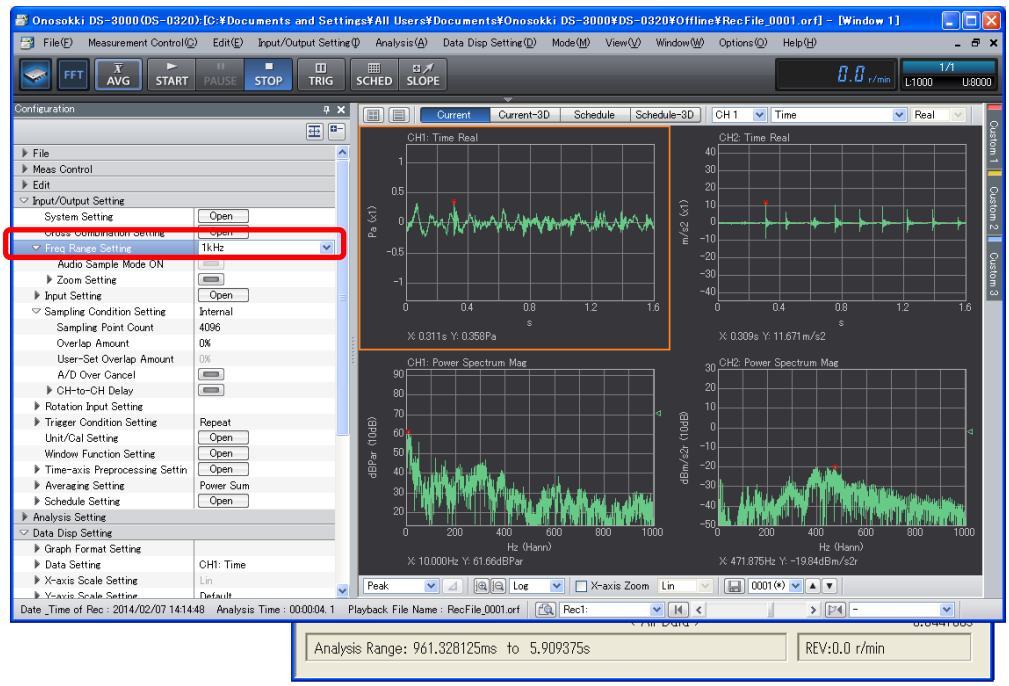


-8 Analysis

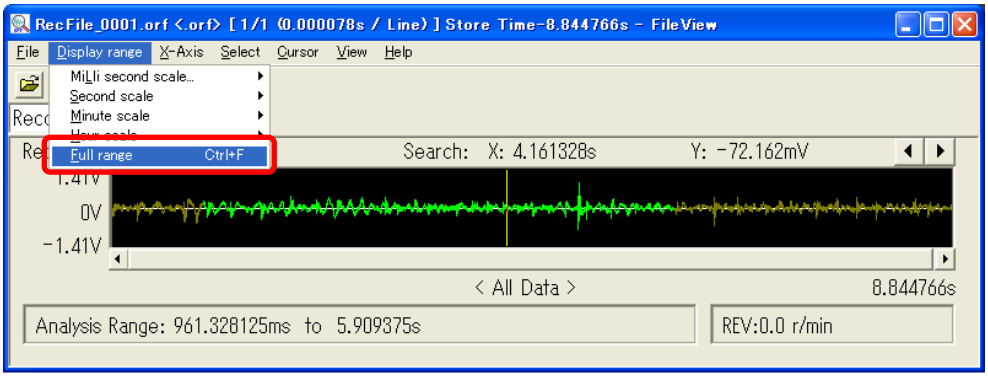
① Press [START] button to ON in the main window and then perform the analysis. The cursor position in the File View window shows the current analysis point.

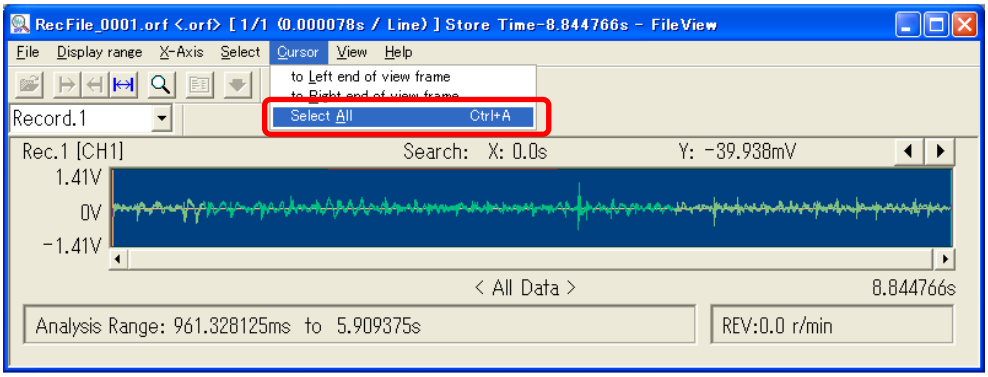


② It is possible to change to the frequency range that is dividable by integer and smaller than the frequency range at the time of recording. The following window shows the analysis in the 1 KH.

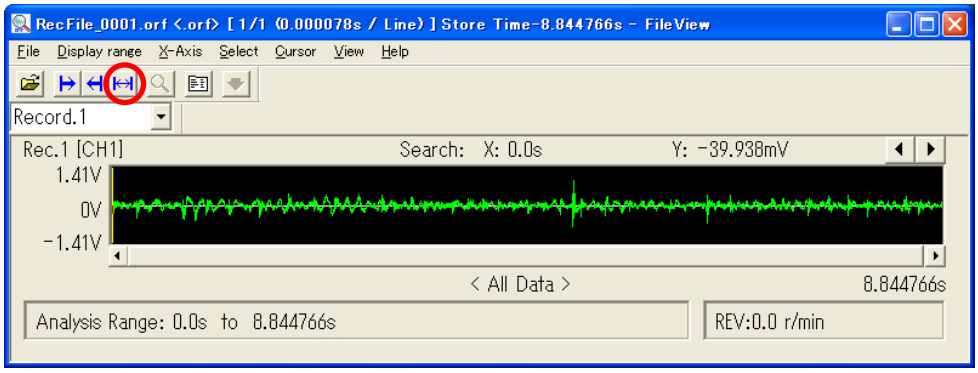


③ To return to the whole waveform display, click “Display range”> “full range”, and “Cursor”>”Select all” in the File View menu. Whole data range will be shown in blue.



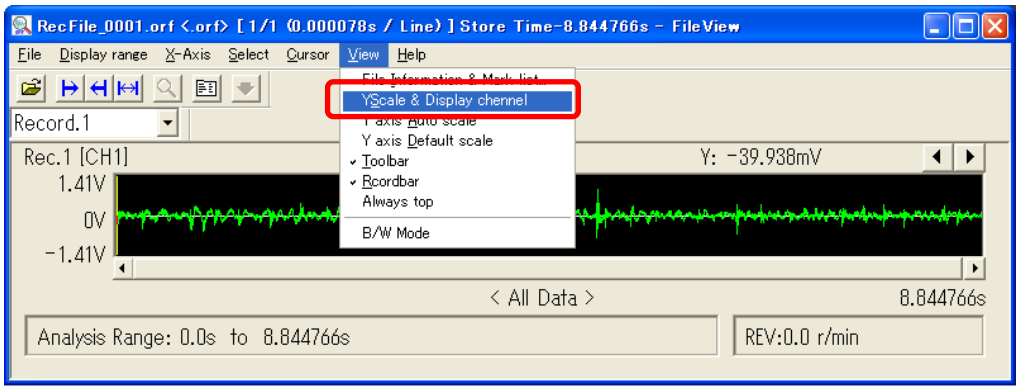


Select “Display range” in the File View tool.

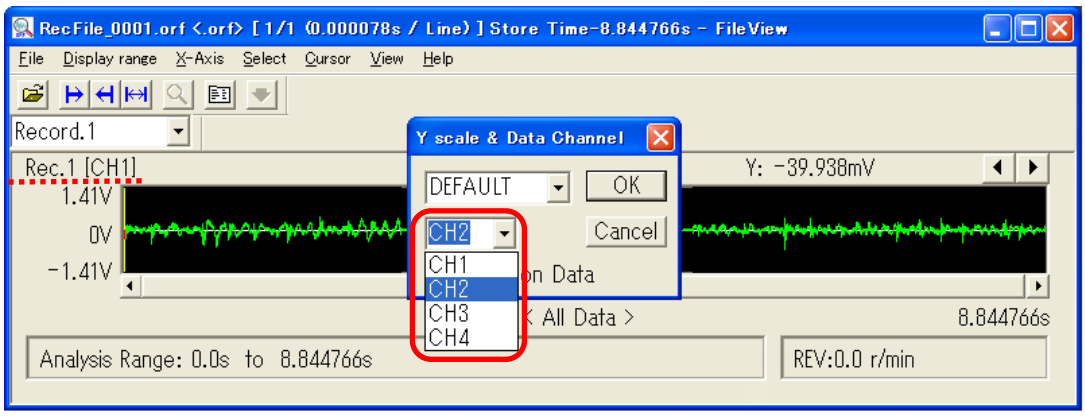


④ Displaying CH and Y-axis scale can be changed. Plural CH data are stored with the same record number. You can select to display the desired data and check that waveform.

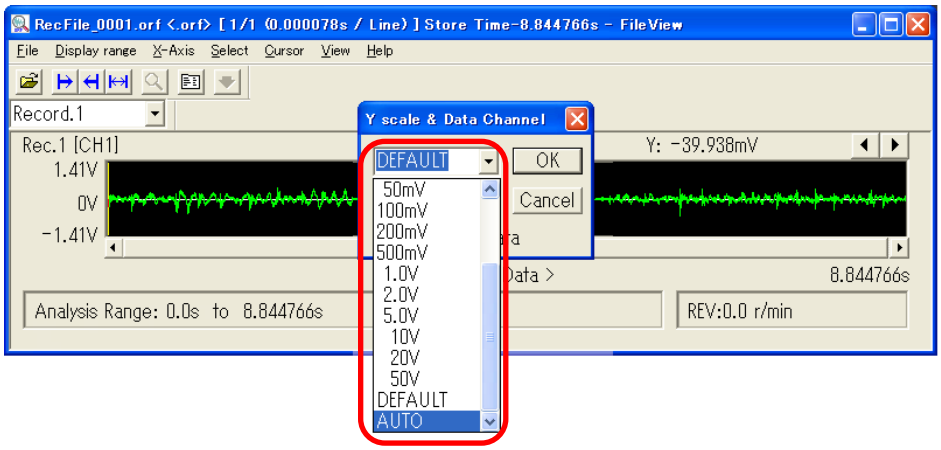
●Select “View”>”YScale&Display channel” from the File View menu, and open the “Y scake & Data channel” dialog.



●Select 「CH2」. The following shows the dialog box that is changing the channel to CH2.

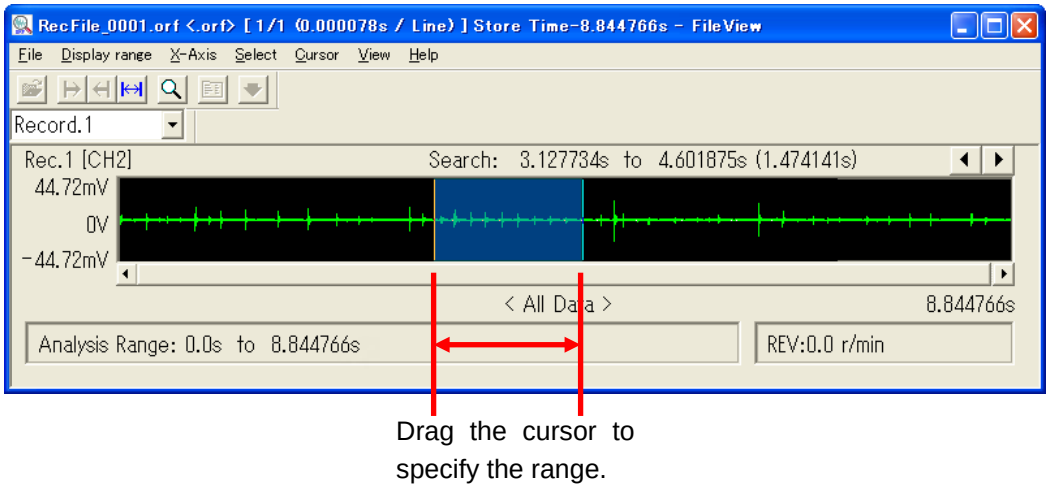


●Y scale & Data can be changed in this [Y scale & Data Channel] dialog box.

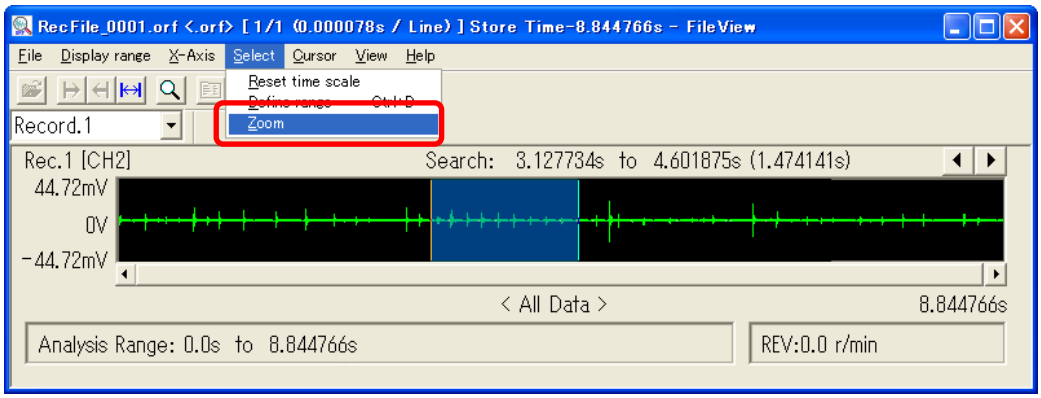


⑤ Waveform in the File View window can be zoomed up.

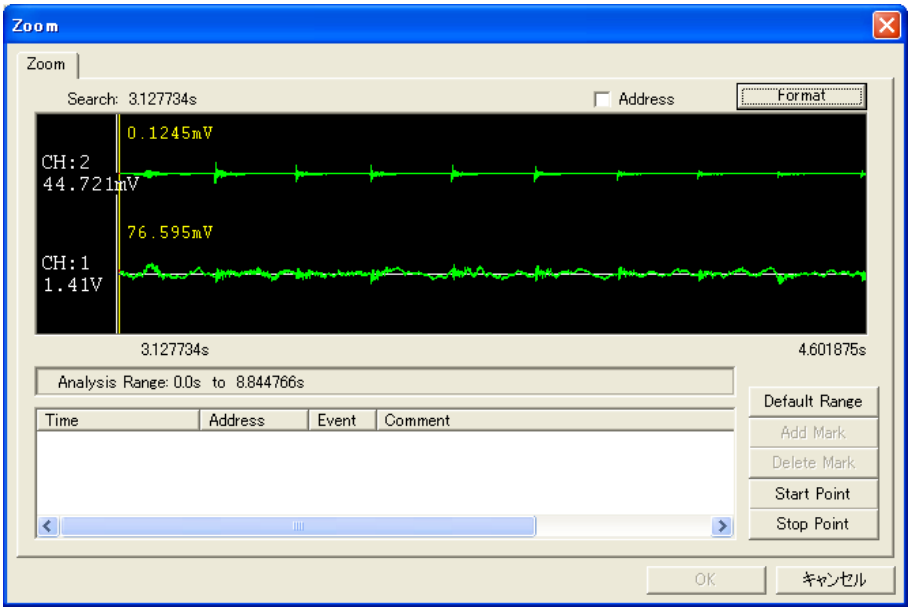
●Drag the waveform range in a File View you want to zoom. The specified range will be shown in blue.



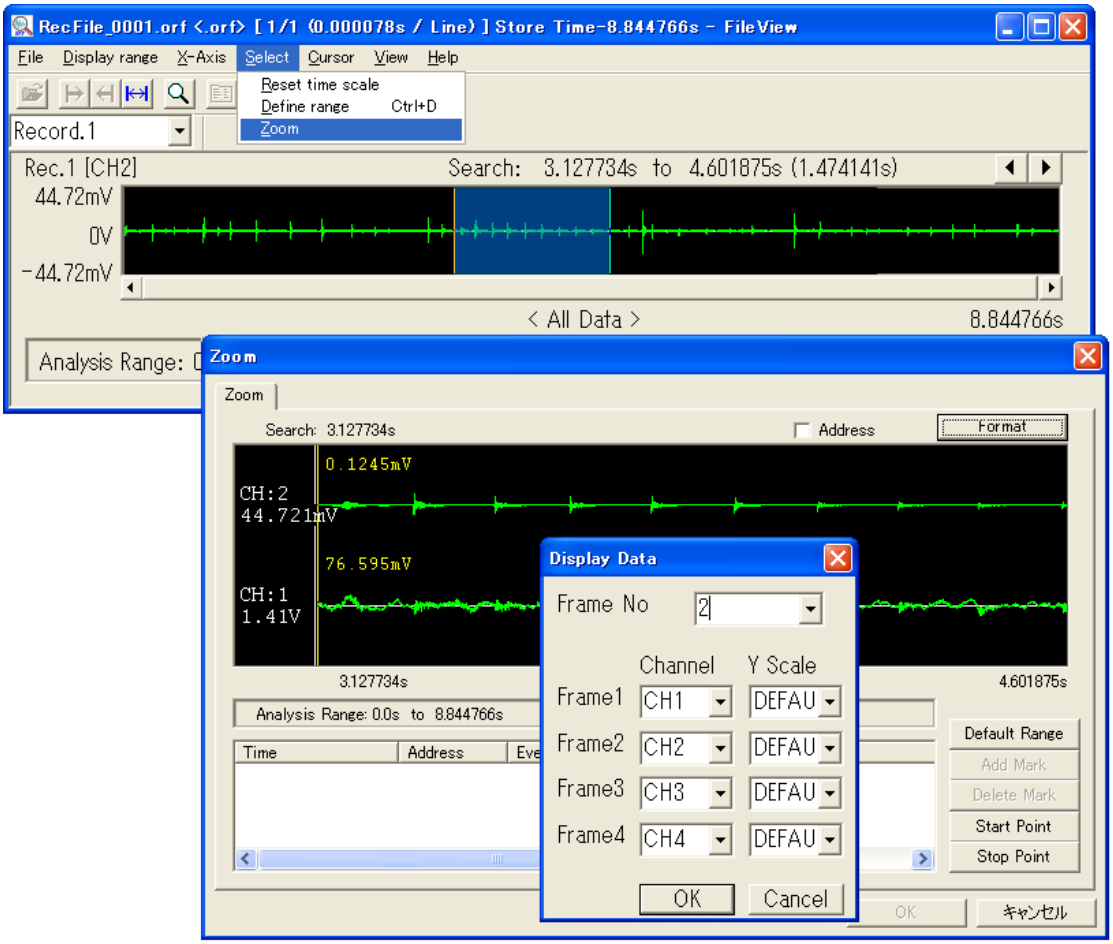
●Select “Select”>”Zoom” in the File View.



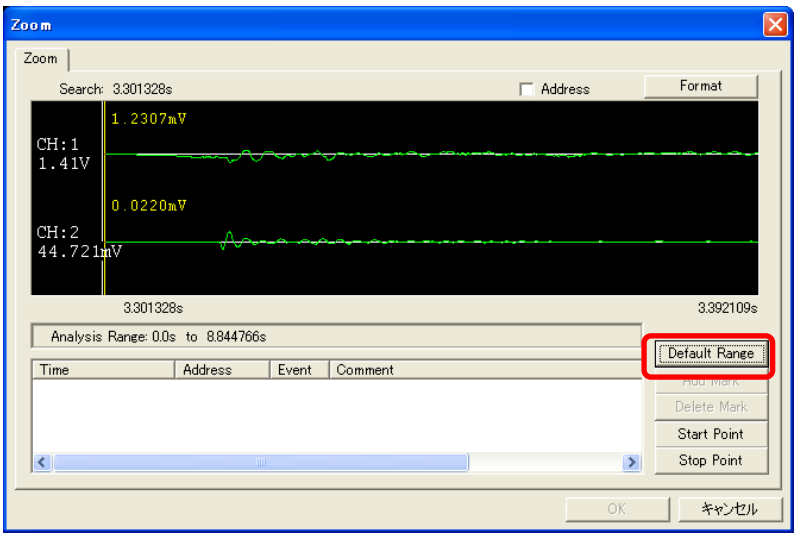
●”Zoom” is open.



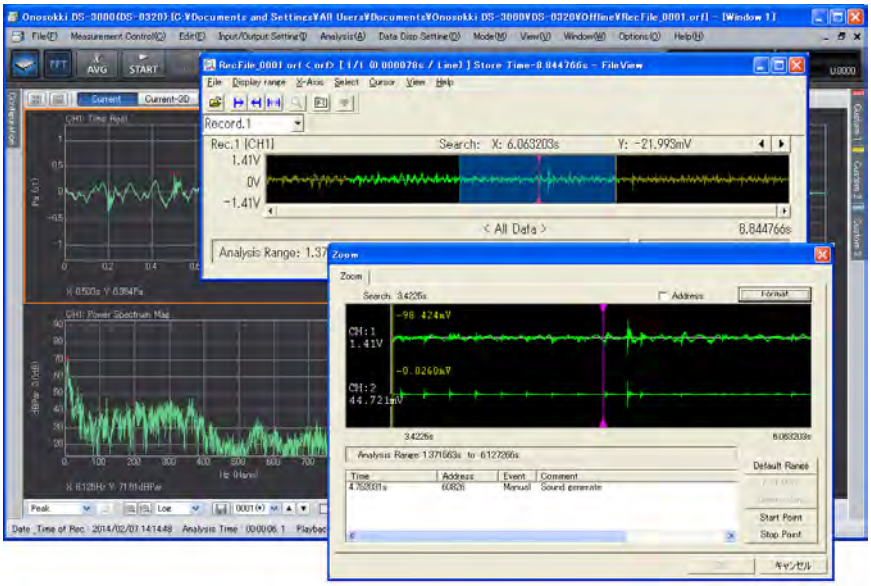
●Select “Format” in the Zoom dialog to open “Display Data” dialog.
Then select “Frame No” to set channels and Y Scale for each frame.



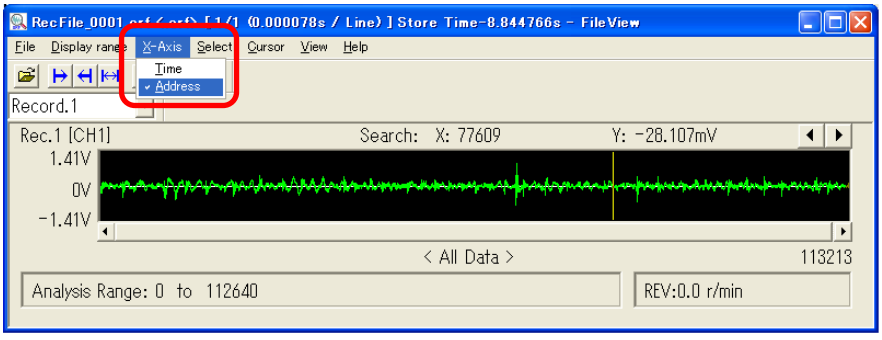
●To zoom data in “Zoom” dialog, drag the data you want to zoom. It returns to the first display when "Default Range" in the “Zoom” dialog is selected.



⑥ When a marker is put during data recording, it is displayed in a purple vertical line.



⑦ X scale unit of displayed waveform in a File View can be changed from time to address unit. When the unit is changed to the address unit, data is displayed in sampled sequential number. To change the X scale unit to address, select “X-Axis” > “Address” in File Viewer menu.



End