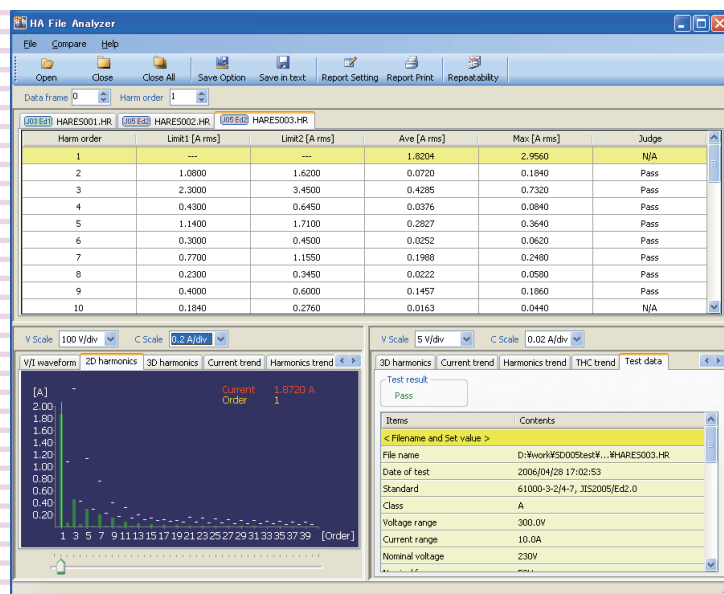# Operation Guide

Application Software

HA File Analyzer

Ver. 3.5

About This Guide

This PDF version of the Operation Guide is provided so that you can print all or any portion of it.

■ Copyrights

Contents

Introduction

This operation guide explains how to:

- Analyze the data of a test results file that is acquired during a harmonic current test using HarmoCapture or acquired with KHA1000, and
- Print reports of test result files.

■ Product versions that this guide covers

This operation guide applies to HA File Analyzer with version 3.5.

You can check the version from the help menu **HA File Analyzer**.

■ Who should read this operation guide?

The intended audience of this operation guide is anyone using the KHA1000 to control a harmonic current and voltage fluctuation test system or anyone teaching operators how to use such a system.

Explanations are given under the presumption that the reader has electrical knowledge related to harmonic current and voltage fluctuation tests.

■ Trademark acknowledgements

Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Other company names and product names that appear in this guide are trademarks or registered trademarks of their respective companies.

■ Notations used in this guide

- The KHA1000 Harmonic/Flicker Analyzer may be called the KHA1000.

- "Personal computer" and "PC" are generic terms for personal computers and workstations.

- The following symbols are used with the explanations in this guide.

⚠ CAUTION   This symbol indicates a potentially hazardous situation. Ignoring the symbol may result in damage to the product or other property.

NOTE   Indicates information that you should know.

What is HA File Analyzer?

HA File Analyzer is application software that analyzes the data of a test results file (xxx.hr) that is acquired during a harmonic current test using HarmoCapture or acquired with KHA1000. HA File Analyzer operates without being connected to the KHA1000.

HA File Analyzer can be used to:

- Load the harmonic current test results file acquired by the KHA1000 or HarmoCapture.
- Display test results lists (pass/fail judgment.)
- Display graphs (V/I waveform, 2D harmonics, 3D harmonics, current trend, harmonics trend, THC trend, and vector.)
- Check AC power source.
- Check repeatability.
- Save test results files as text.
- Print reports (comments, test conditions, results lists, and various waveform graphs.)

Opening a Test Results File

Opening a Test Results File Acquired by HarmoCapture

1 **Click Open on the toolbar.**
The **Open** dialog box appears.

2 **Select the file that you want to open.**
The test results file name extension for harmonic current tests is .hr.

## Opening a Test Results File Acquired by the KHA1000

Follow the procedure below to load a test condition file that was acquired on the KHA1000 to the PC and open it with HA File Analyzer.

1 **Remove the CompactFlash card that contains the test conditions from the KHA1000.**

2 **Connect the CompactFlash card to the PC.**

3 **Load the test condition file from the CompactFlash card to the PC.**

4 **Click Open on the toolbar.**
The **Open** dialog box appears.

5 **Select the file that you want to open.**
The test results file name extension for harmonic current tests is .HR.
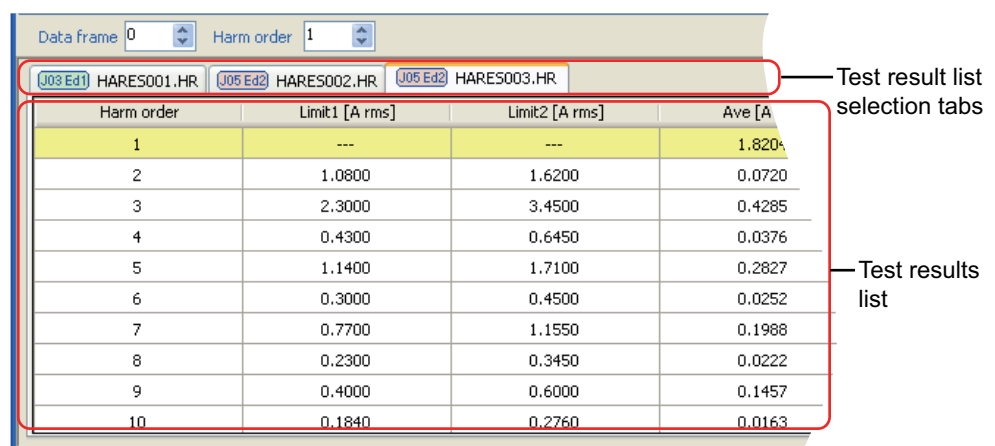
Window Configuration

HA File Analyzer consists of the following upper and lower panes.

You can change a ratio of the results list pane and the graph and data pane by dragging the splitter.
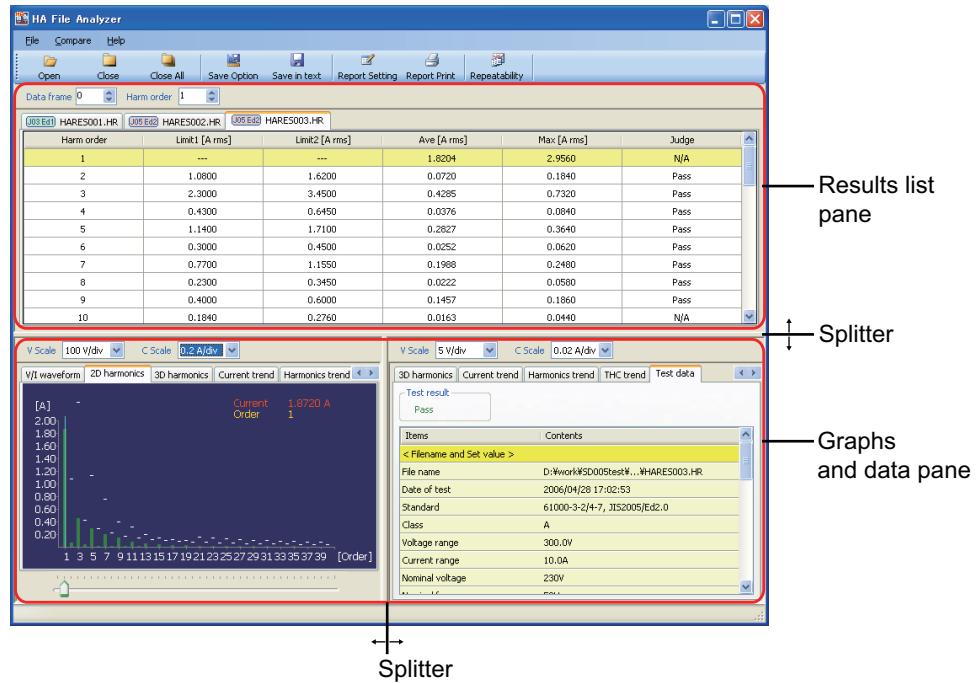
Item	Description
Results List Pane See p. 6	Lists the test results file for the harmonic current test.
Graph and Data Pane See p. 9	Displays a graph of test results file for the harmonic current test.

Results List Pane

Item	Description
Data frame	The measurement time is divided equally so that the displayed data can be controlled. An individual division of the measurement time is referred to as a data frame. You can specify what data to display using data frame numbers. Time for data frame depends on the measuring time in the test conditions. As the time extends, the value increases (the setting resolution becomes rough), linking with the results list and graphs.
Harm order	The harmonic order is set. In the test results list, the specified order is distinguished by different colors.
Test result list selection tabs	When multiple test result files are open, use these tabs to select a file. The test standard is displayed in abbreviated form in the tabs.
Test results list	Indicates the test results of harmonics from the fundamental to the 40th harmonic and the limit and maximum values of each order. The values that are displayed for the JIS 03 Ed1.0 standard are different from the values that are displayed for all other standards.

■ Time for data frame

Standards for measurement techniques	Measurement time		
	150 seconds or less	More than 150 seconds to 300 seconds	More than 300 seconds to 600 seconds
IEC 61000-4-7 Ed2.0	0.2 second	0.4 second	0.8 second
IEC 61000-4-7 Ed1.0	0.32 second (50 Hz) or 0.266 second (60 Hz)	0.64 second (50 Hz) or 0.532 second (60 Hz)	1.28 seconds (50 Hz) or 1.06 seconds (60 Hz)
JIS C61000-4-7		Not applicable	Not applicable

Example: When the measurement time is set to 150 seconds in IEC 61000-4-7 Ed2.0, a data frame is set to 0 to 750 seconds. Five data frames per second is set.

■ Abbreviated standard display

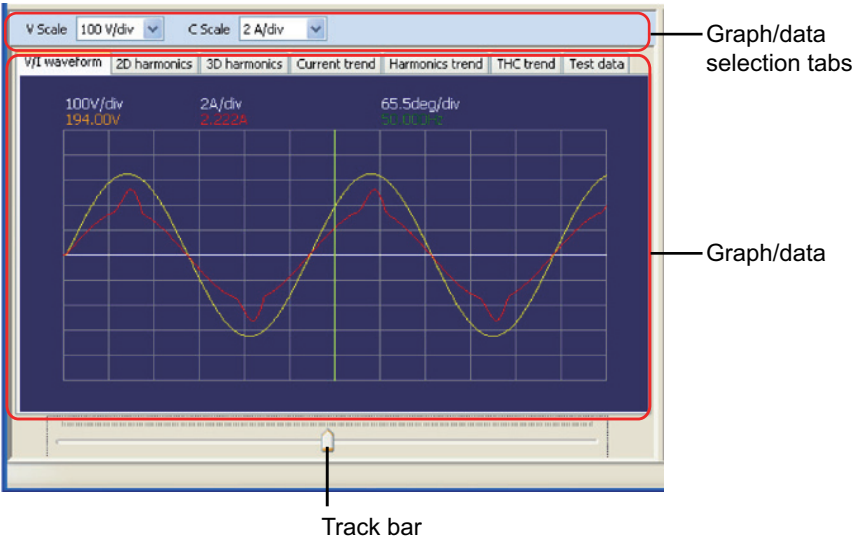| Tab display	Standards for limits	Standards for measurement techniques
IEC Ed2.2 2.0	IEC 61000-3-2:Ed2.2(2004)	IEC 61000-4-7:Ed2.0(2002)
JIS 05 Ed2.0	JIS C61000-3-2(2005)	IEC 61000-4-7:Ed2.0(2002)
JIS 03 Ed1.0	JIS C61000-3-2(2003)	JIS C61000-4-7(1997)
IEC Ed2.2 1.0	IEC 61000-3-2:Ed2.2(2004)	IEC 61000-4-7(1991)
JIS 05 Ed1.0	JIS C61000-3-2(2005)	JIS C61000-4-7(1997)
IEC Ed3.0 2.0	IEC 61000-3-2:Ed3.0(2005)	IEC 61000-4-7:Ed2.0(2002)
IEC Ed3.0 1.0	IEC 61000-3-2:Ed3.0(2005)	IEC 61000-4-7(1991)
IEC Ed3.0A22.0	IEC 61000-3-2:Ed3.0(2005)/A2(2009)	IEC 61000-4-7:Ed2.0(2002)/A1(2008)
IEC Ed3.0A21.0	IEC 61000-3-2:Ed3.0(2005)/A2(2009)	IEC 61000-4-7(1991)

Results List Pane (continued)

■ Items in test results list

Item	Description
Harm Order	Order of harmonics.
Limit 1 (A rms)	Indicates the limit value or shows "---". "---" indicates that a measured value is smaller than 0.6 % of the input current or 5 mA, whichever is larger, obtained by comparing them.
Limit 2 (A rms)	Indicates 150 % of the limit value or shows "---". "---" indicates that a measured value is smaller than 0.6 % of the input current or 5 mA, whichever is larger, obtained by comparing them.
Ave (A rms)	Average value of harmonic current
Max (A rms)	Maximum value of harmonic current
Judge	Judgment result of each order.
	Pass — No limit value or (Margin X limit 1 > average value) and (Margin X limit 2 > maximum value)
	Warn — (Limit 1 > average value) and (Limit 2 > maximum value) except for PASS
	Fail — Other than listed above

■ Items in test results list (JIS 03 Ed1.0)

| Item	Description
Harm Order	Order of harmonics.
Limit 1 (A rms)	Indicates the limit value or shows "---". The limit value is not indicated if a measured value is smaller than 0.6 % of the input current or 5 mA, whichever is larger, obtained by comparing them. However, it is indicated when **Ignor ≤ 5 mA, 0.6 %** is selected in the test conditions settings of HarmoCapture or the KHA1000.
Limit 2 (A rms)	Indicates 150 % of the limit value or shows "---". The limit value is not indicated if a measured value is smaller than 0.6 % of the input current or 5 mA, whichever is larger, obtained by comparing them. However, it is indicated when **Ignor ≤ 5 mA, 0.6 %** is selected in the test conditions settings of HarmoCapture or the KHA1000.
Exceeding 100 %	Indicates the ratio (%) of time (accumulated value within the total measurement time), in which a measured value is greater than 100 % of its limit value but equal to or smaller than 150 %, to total measurement time.
Exceeding margin (%)	Indicates the ratio (%) of time (accumulated value within the total measurement time), in which a measured value is greater than 100 % of its margin value set but equal to or smaller than 150 %, to total measurement time. It is a maximum value within the total measurement time of a harmonic current.
Max (A rms)	Maximum value of harmonic current
Lx Judge	Judgment result of each order.
	Pass — Exceeding 100 % accounts for 10 % in all frames. (Limit value of each frame × 1.5 > measured value of each frame)
	Warn — Exceeding margin accounts for 100 % or more in Pass
	Fail — Other than listed above

Graph and Data Pane

Graph/data selection tabs

Graph/data

Track bar

Item	Description
V Scale	Use to enlarge or reduce the graph voltage scale.
C Scale	Use to enlarge or reduce the graph current scale.
Track bar	Use to specify the location of the cursor on the graph.
Graph/data selection tabs	Use these tabs to select the graph or data that you want to display.
Graph/ Data	The graph or data of the tab that you select appears. • V/I waveform • Test data • 2D harmonics • AC power source • 3D harmonics • Current trend • Harmonics trend • THC trend

■ V/I waveform

The V/I waveform graph of the input voltage and current of a data frame selected. The vertical axis indicates the voltage and current. The horizontal axis indicates the time.
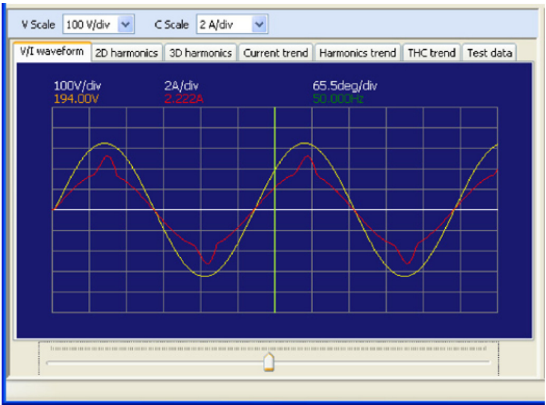
Graph and Data Pane (continued)

When you have set the standard to IEC Ed3.0A2/Ed2.0A1 or IEC Ed3.0A2/Ed1.0, the class to class C, and the limit values to 3rd/5th/Current Wave, the current waveform analysis diagram that is required in IEC 61000-3-2: Ed3.0 (2005)/A2 (2009) is displayed in place of the V/I waveform in the test results file.
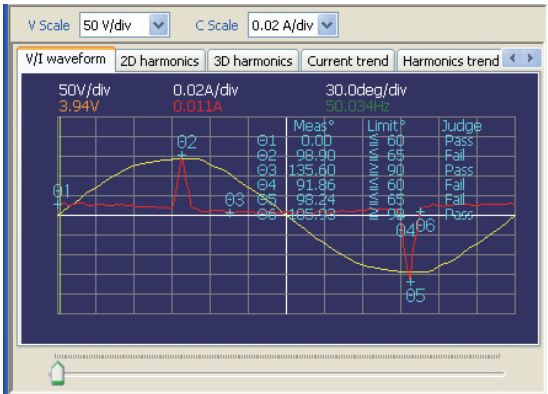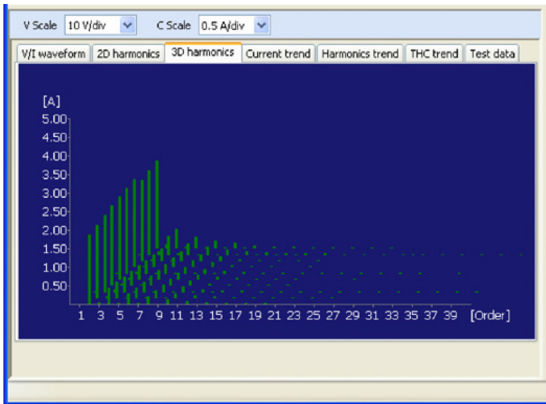

■ 2D harmonics

The harmonic current spectrum of a data frame selected. Harmonic current values up to the 40th harmonic are displayed in bar graphs with each data frame. The vertical axis indicates the current. The horizontal axis indicates the order.

A white mark above a graph indicates a limit value. Parts for which the measured value exceeds 100 % of the limit value are displayed in red. Parts that are equal to or smaller than the margin value set are displayed in green, and those that are greater than the margin value set but equal to or smaller than 100 % of the limit value are displayed in yellow. The limit value is not displayed if it exceeds the maximum value of the vertical axis scale. To display the limit value within the vertical axis scale, reduce the display scale factor of the vertical axis scale. The limit value can also be displayed by extending the current range when setting the HarmoCapture test conditions.
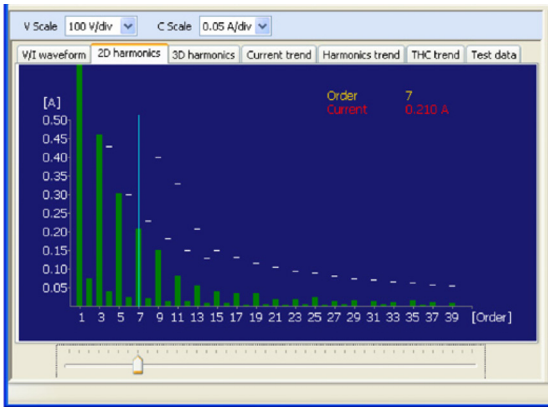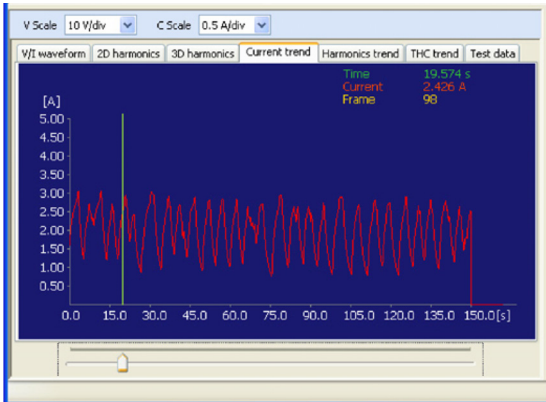
■ **3D harmonics**

The elapsed time for the harmonic current spectrum of a data frame selected. The vertical axis indicates the current. The horizontal axis indicates the harmonic order and the depth indicates the data frame.
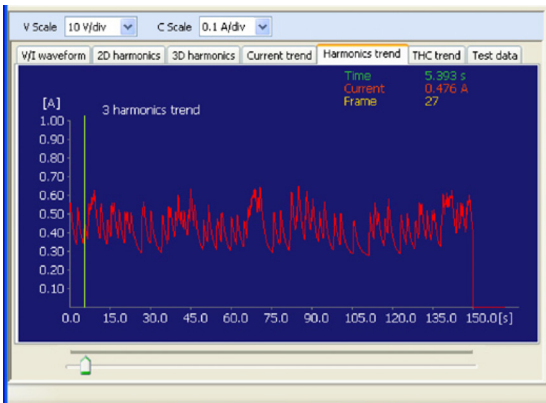

■ **Current trend**

The transition of input current in the total measurement time. The vertical axis indicates the effective value of the current. The horizontal axis indicates the time.


■ **Harmonics trend**

The transition of harmonic current in the total measurement time with each order. The vertical axis indicates current values. The horizontal axis indicates the time.

Graph and Data Pane (continued)

■ **THC trend**

The transition of THC (the total harmonic current of input current, the effective value of the 2nd to the 40th harmonic current components) in the total measurement time. The vertical axis indicates the THC. The horizontal axis indicates the time.
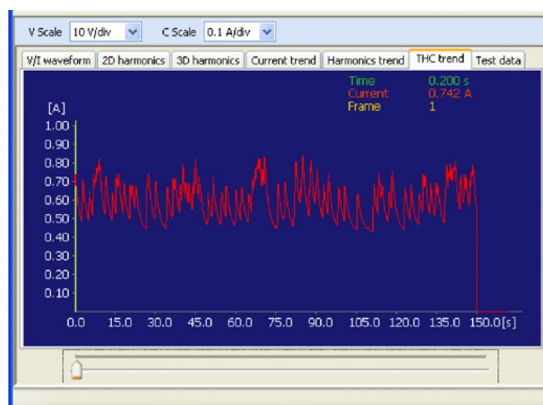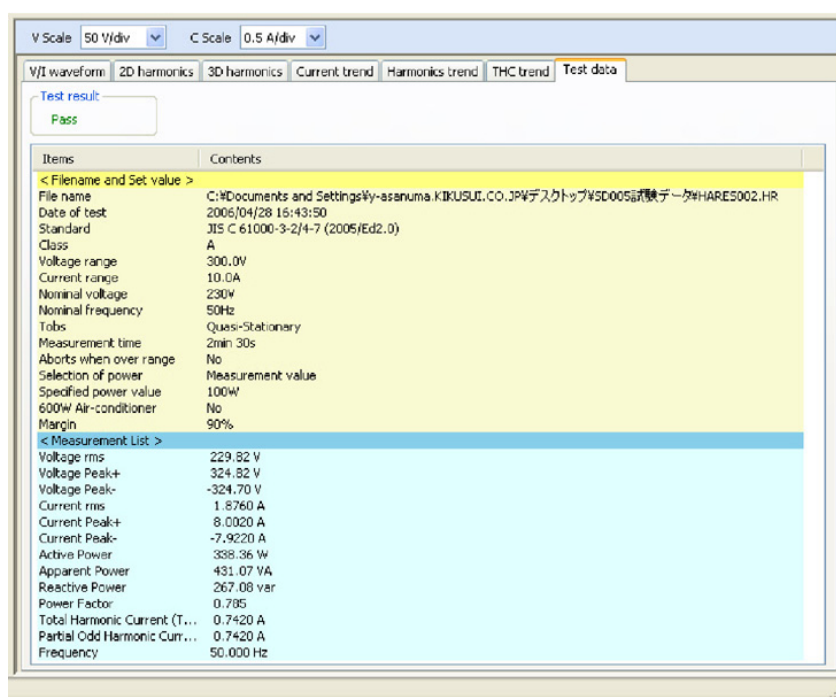

• Test result

Displays the fainal test result of a file. **Pass** is displayed in green, **Warn** is displayed in yellow, and **Fail** is displayed in red.

■ **Test data**

The file name, set value, measurement list, and fainal test result (test data) of a test results file currently selected.

- File name and set value

Test item	IEC Ed3.0A22.0, IEC Ed3.0 2.0, IEC Ed2.2 2.0, IEC Ed3.0A21.0, IEC Ed3.0 1.0, IEC Ed2.2 1.0	JIS 05 Ed2.0, JIS 05 Ed1.0	JIS 03 Ed1.0
File name	File name of test results file displayed		
Date of test	Test execution time		
Standard	Test standard		
Class	Class of EUT		
Voltage range	150 V, 300 V		
Current range	0.5 A, 1 A, 2 A, 5 A, 10 A, 20 A		
Nominal voltage	100 V, 120 V, 200 V, 230 V		
Nominal frequency	50 Hz, 60 Hz		
Tobs	Measuring interval (Quasi-Stationary, Short Cycle, Random, and Long cycle)		-
Measurement time	Elapsed time since starting the measurement[1]		
Aborts when over range	Yes/No		
Selection of power	Measurement and Specified value		Every window, average value, and specified value[2]
Specified power value	0 W to 4000 W		0 W to 4000 W[2]
PF & Fundamental current	Measurement and Specified value[2]		
Specified PF value	0.00 to 1.00[2]		
Specified fund curr value	0.00 A to 20.0 A[2]		
Limit value (35 W or less)	Normal, Class A, and Class D[2]		Normal, Class D and Ignore[2]
600 W Air-conditioner	-	Yes/No[2]	
19th over, mono decrease	-		Yes/No
Smoothing	-		Disable, 1.5 seconds, and average 4 times
5 mA, 0.6 % or less	-		Ignore or Don't Ignore
75 W or less	-		Ignore or Don't Ignore
Margin	Margin (%) for standard limit value. Standard limit value is assumed as reference (100 %).		

[1]. For details on the relationship between a data frame and the measurement time, see Time for data frame.

[2]. Some are not displayed, depending on the class of test standard.

Graph and Data Pane (continued)

- Measurement list

The measurement data for the selected data frame appears.

Item	Description
Voltage rms	Effective value of input voltage
Voltage Peak +	Positive amplitude peak value of input voltage
Voltage Peak –	Negative amplitude peak value of input voltage
Current rms	Effective value of input current
Current Peak +	Positive amplitude peak value of input current
Current Peak –	Negative amplitude peak value of input current
Active Power	Active power of EUT
Apparent Power	Apparent power of EUT
Reactive Power	Reactive power of EUT
Power Factor	Power factor of EUT
THC	Total harmonic current of input current, effective value of 2nd to 40th harmonics current components
POHC	Partial odd harmonic current of input current, effective value of harmonic current component of odd orders from 21st to 39th
Frequency	Input frequency measured at input voltage

■ AC power source

This displays the results of the AC power test source performance check.

The results of the judgments performed on the limit values of each order and the overall judgment result are displayed.

Analyzing Data

This section gives three examples of how to use the displayed graphs and data to examine the operation of the EUT.

- Finding the Maximum Value of the THC and Its Time of Occurrence

- Finding the Maximum Value of the Harmonic Current and Its Time of Occurrence

- Finding the Time when the Harmonic Limit Value Is Exceeded

Finding the Maximum Value of the THC and Its Time of Occurrence

To analyze the operating state of EUT, the time when the THC is maximized is found. The time is the elapsed time since starting the meaturement. The harmonic spectrum at that time, the harmonic order that applies to most effective for change of the THC, and its current waveform are found.

■ **To find the time of the maximum value of the the THC**

1   Select the **THC trend** graph.
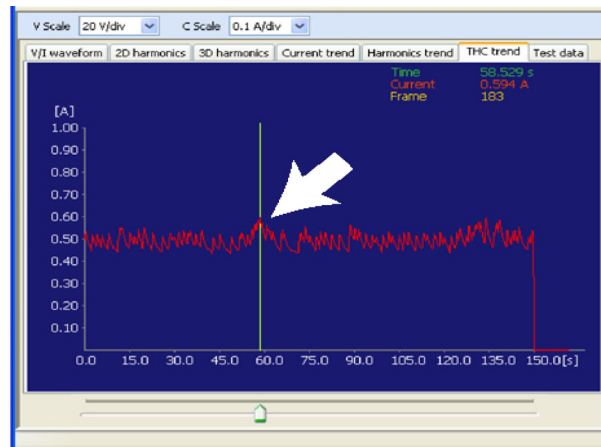
2   **Move the cursor to the position that you regard as the maximum current value on the waveform using the track bar.**
If it is difficult to find the maximum value, increase **C Scale** factor or increase the horizontal size of the window by dragging the window splitter.

3   **Find the maximum value from the current value displayed by moving the cursor.**
The track bar is also moved with the <− and −> keys. This is useful for finely adjusting the cursor position.

4   **Stop the cursor at the maximum value of the current.**
Time that is displayed at this point is the elapsed time since starting the measurement.

Finding the Maximum Value of the THC and Its Time of Occurrence (continued)

■ **To find the harmonic spectrum at the time of maximum value of the THC**

5 Select the **2D harmonics** graph.

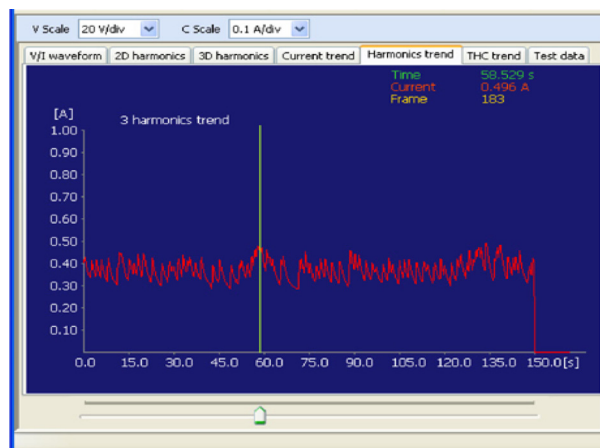The harmonic spectrum of the data frame with the THC maximized is displayed.
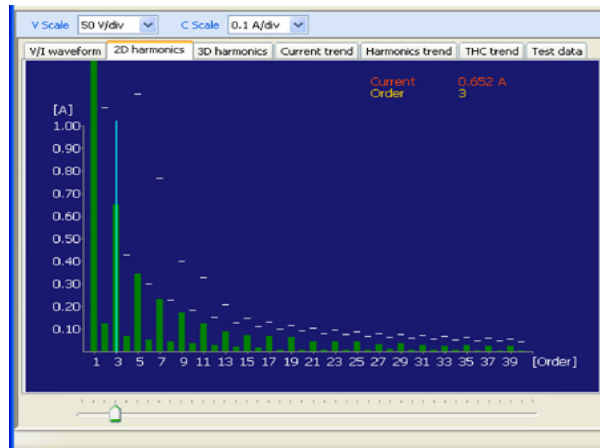
6 Select an order using a track bar.

Harmonic current values are displayed. Each color is displayed for each limit value.

■ **To find the harmonic order that applies to most effective for the change of the THC**

7 Select the **Harmonics trend** graph.

8 Observe the current change in the cursor position from the trend graph.

If it is difficult to recognize the change, increase **C Scale** factor or increase the horizontal size of the window by dragging the window splitter.

9 To find other orders, make new settings in the **Harm order.**

■ **Viewing waveform**

10 Select the **V/I waveform** graph.
The waveform of the current data frame is displayed.
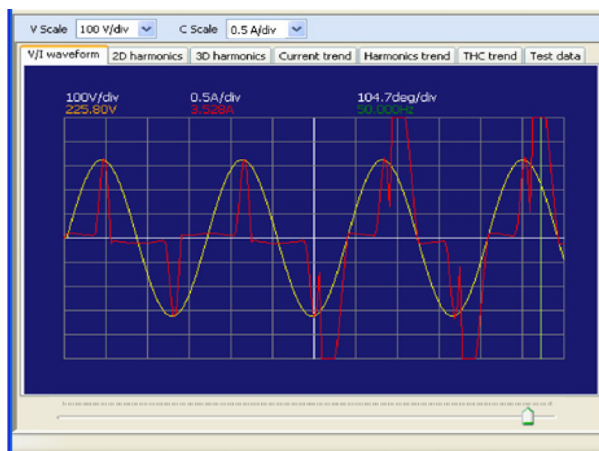
■ **To find the power with the THC maximized**

11 Select the **Measurement list.**
The measurement data of the actual data frame is displayed.

12 Read the power value from the list.

Finding the Maximum Value of the Harmonic Current and Its Time of Occurrence

To analyze the operating state of EUT, the time when the harmonics are maximized is found. The time is the elapsed time since since starting measurement. The harmonic spectrum and current waveform at that time are found.

■ To find the maximum current value with harmonic order specified

1 **From the maximum values in the results list, determine the harmonic order that you wish to investigate.**

■ To find the time of the maximum current value

2 **Select the Harmonics trend graph.**
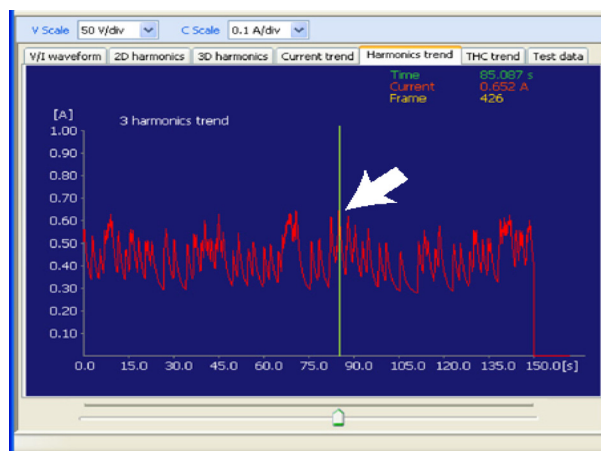
3 **Set a harmonic order that you wish to find in the Harm order.**

The trend graph of the specified harmonic order is displayed.

4 **Move the cursor to the position that you regard as the maximum current value on the waveform using the track bar.**

If it is difficult to find the maximum value, increase **C Scale** factor or increase the horizontal size of the window by dragging the window splitter.

5 **Find the maximum value from the current value displayed by moving the cursor.**

The track bar is also moved with the <− and −> keys. This is useful for finely adjusting the cursor position.

**6** **Stop the cursor at the maximum value of the current.**

Time that is displayed at this point is the elapsed time since starting the measurement.

7 **If you wish to find another harmonic order, return to Step 3 .**

■ **To find the harmonic spectrum at the time of maximum current value**

8 **Select the 2D harmonics graph.**

The harmonic spectrum of the data frame in which the current of the specified harmonic order is maximized is displayed.
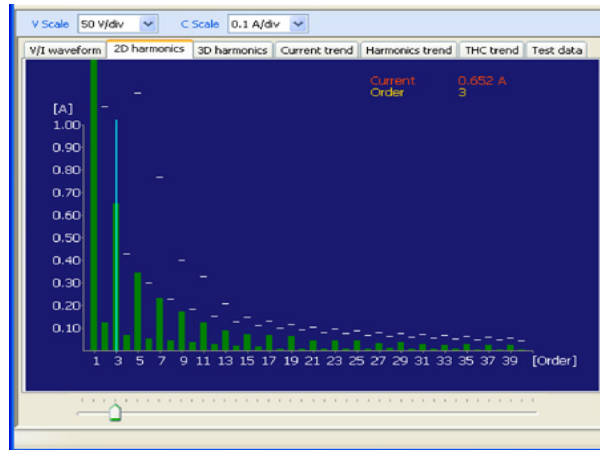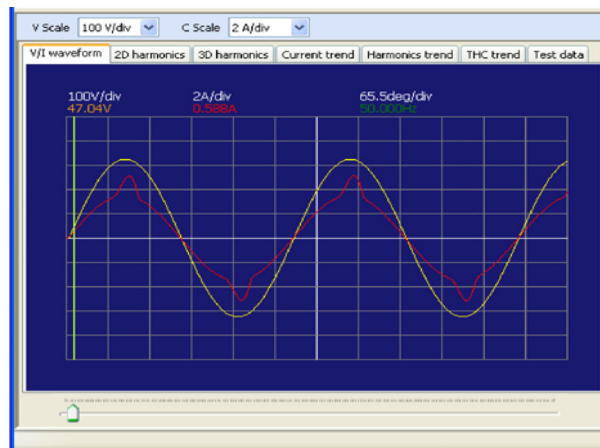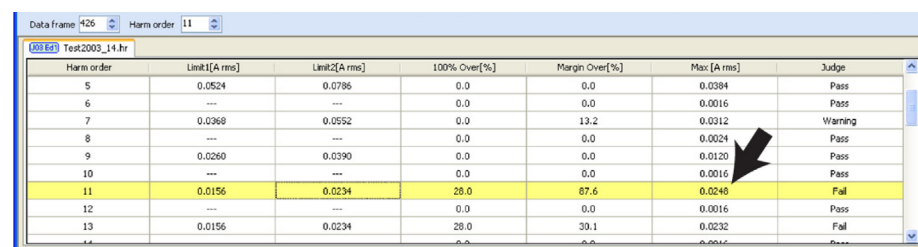

9 **If you wish to find another harmonic order, specify the order using the track bar.**

Harmonic current values are displayed. Each color is displayed for each limit value.

■ **Viewing waveform**

10 **Select the V/I waveform graph.**

The waveform of the current data frame is displayed.

Finding the Maximum Value of the Harmonic Current and Its Time of Occurrence (continued)

■ **To find the power with the harmonic current maximized**

11 Select the **Measurement list.**

The measurement data of the actual data frame is displayed.
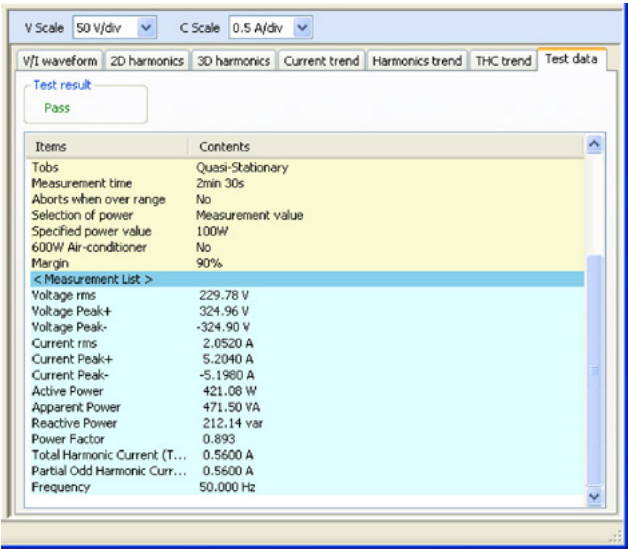
12 Read the power value from the list.

Finding the Time when the Harmonic Limit Value Is Exceeded

To find the operating state of EUT when the limit value is exceeded, find the time when the limit value is exceeded. The time is the elapsed time since starting the measurement. The harmonic spectrum and waveform at that time are also found.

To search for the time when a limit value is exceeded, each harmonic is compared with its limit value in data frames.

■ **To find the harmonics that exceed limit values**

1 Investigate the judgment of the results list.

2 Set a failed harmonic order in the **Harm order.**

■ **To find the time when the limit value is exceeded**

3 Select the **Harmonics trend** graph.

The trend graph of the specified harmonic order is displayed.
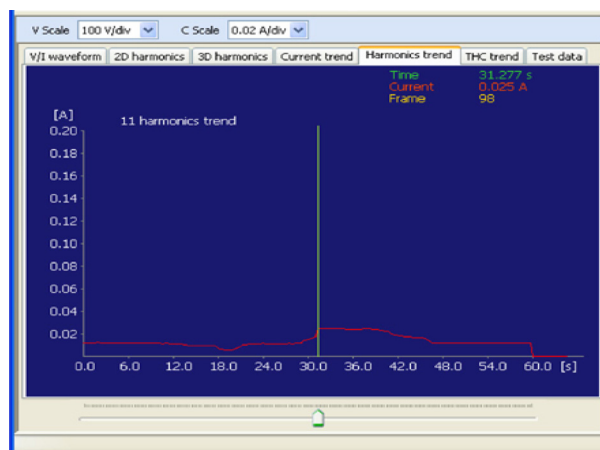
4 Move the cursor using the track bar while observing the current value on the waveform.

If it is difficult to find the current value, increase the **C Scale** factor or increase the horizontal size of the window by dragging the window splitter.

5 Stop the cursor when the current exceeds the limit value in the results list.

Time that is displayed at this point is the time elapsed after a test is started. A data frame is also displayed.

6 If the current exceeds the limit value in the results list in two or more positions, move the cursor to each position and read the time.

Finding the Time when the Harmonic Limit Value Is Exceeded (continued)

■ **To find the harmonic spectrum at the time when the limit value is exceeded**

7 Select the **2D harmonics** graph.

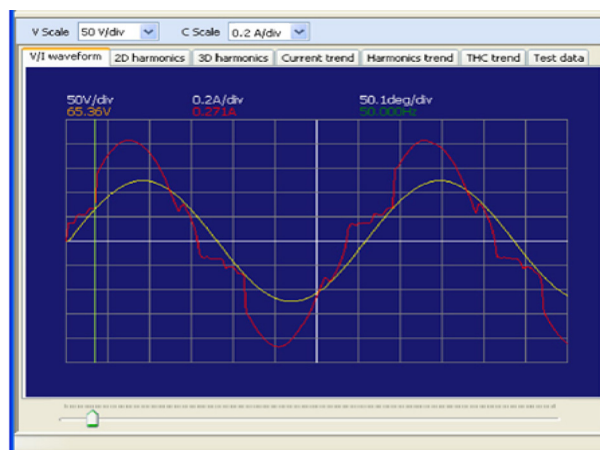The harmonic spectrum of the failed data frame is displayed.
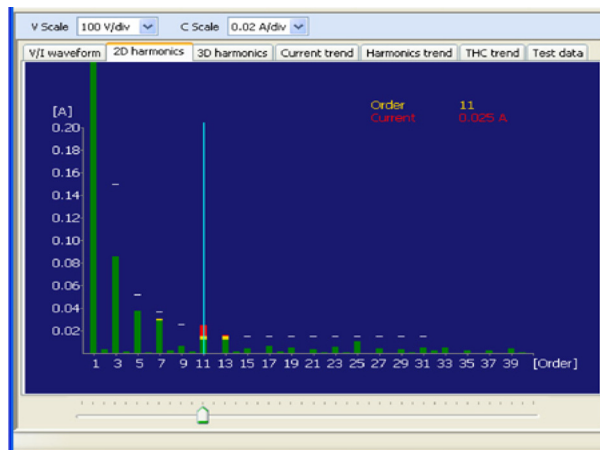
8 If you wish to investigate another harmonic order, specify the order using the track bar.

Harmonic current values are displayed. Each color is displayed for each limit value.

■ **Viewing waveform**

**9** Select the **V/I waveform** graph.

The waveform of the current data frame is displayed.

Checking Repeatability

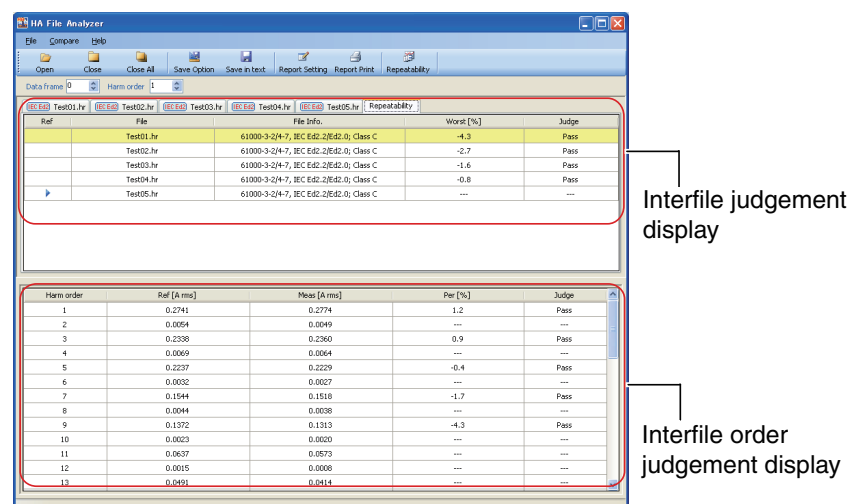## Comparing Test Results Files

1 **Open test results files to be compared.**

The repeatability check allows the comparison of 2 to 15 test results files.

2 **Click the Test data tab in the graph and data pane and check the test conditions of each test result file.**

To check repeatability, compare test results files under the same test conditions. If the standard (including the class and limit values) is not the same, the following message is displayed.
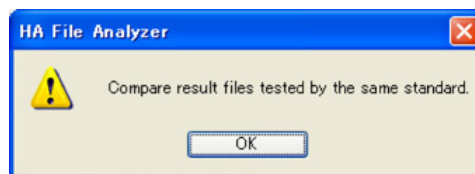
3 **Select the test results file to be referenced for the comparison.**

4 **Click the Repeatability button on the toolbar.**

The Repeatability tab appears in the results list pane, and the judgment results appear.

The values are compared in each harmonic order, a difference within ±5 % of the reference value is automatically checked. The results are displayed in the judgment column of each order in the repeatability check window.

You can also change the reference file and the files for comparison from the repeatability check window.

Results of Repeatability Check

The interfile comparison results are displayed in the results list pane, and the comparison results of each order are displayed in the graph and data pane.

Results of Repeatability Check (continued)

Interfile judgment display

The reference test results file of each order and each test results file are compared. The results of each file are displayed as **Pass**, **---**, or **Fail**.

Item	Description
Ref	Indicates the reference test result file with a ▶. You can select the reference test result file by clicking the button.
File	File name of test results
File Info.	Test target standard and class
Worst (%)	Ratio of the values of the order with the largest current difference.
Judge	Judgment result for the order with the largest current difference.
	In IEC Ed3.0A22.0 --- : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / limit value X 100 %} < ±5 % Fail : {(Measured value – reference value) / limit value X 100 %} ≥ ±5 %
	In other standards --- : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / reference value X 100 %} < ±5 % Fail : {(Measured value – reference value) / reference value X 100 %} ≥ ±5 %

Interfile order judgment display

The reference test results file of each order and the test results file (displayed in yellow) that is specified in the result list pane are compared. The results of repeatability check are displayed as **Pass**, **---**, or **Fail**.

Item	Description
Harm order	Indicates the harmonic order.
Ref (A rms)	Effective value of the harmonic current of the comparison reference results file.
Meas (A rms)	Effective value of the harmonic current of the compared results file.
Per (%)	Ratio of current test results to reference value
	In IEC Ed3.0A22.0 {(Meas – Ref) / limit} x 100 %
	In other standards {(Meas – Ref) / Ref} x 100 %
Judge	In IEC Ed3.0A22.0 --- : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / limit value X 100 %} < ±5 % Fail : {(Measured value – reference value) / limit value X 100 %} ≥ ±5 %
	In other standards --- : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / reference value X 100 %} < ±5 % Fail : {(Measured value – reference value) / reference value X 100 %} ≥ ±5 %

Changing the file for comparison or the reference file

A ▶ appears next to the reference file. Click the button to change the reference file.

The file for comparison is displayed in yellow. Click the file's cell to change the file for comparison.


The results of the repeatability analysis of the reference file and the file for comparison are displayed.

Saving a Test Results File as Text

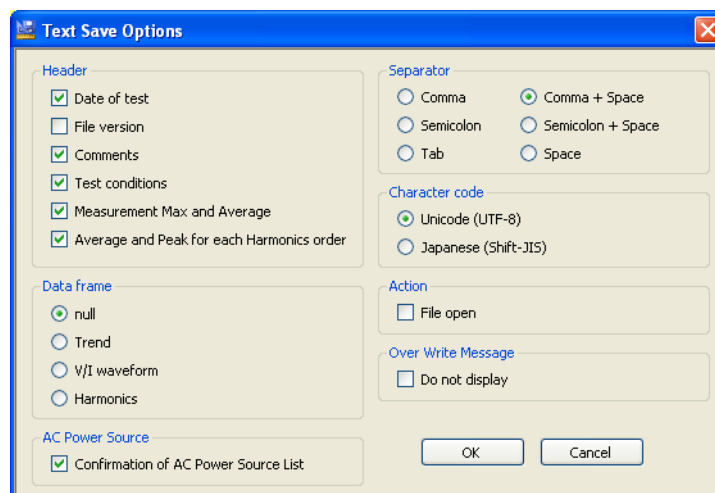A test results file can be saved as text for use in Microsoft Excel and other application software.

1 **Select a test results list that you wish to save.**

2 **Click the Save Option button on the toolbar.**
The Text Save Options dialog box is displayed.

3 **Select an item to be saved as a text file.**

4 **Click the OK button.**

5 **Click the Save in Text button on the toolbar.**
The **Save Text** dialog box is displayed.

6 **Enter a file name and select file extension .txt or .csv.**

7 **Click the Save button.**
If a text file with the same name already exists, the message is displayed.
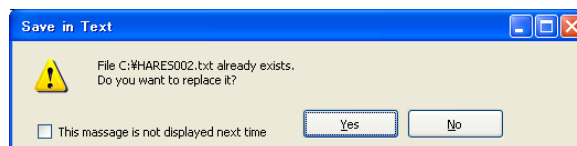
If you select the **This message is not displayed next time** check box, the message will not appear the next time. You can clear this check box in the **Text Save Options** dialog box.

Text Save Options

Click the **Save Option** button on the toolbar to display the **Text Save Options** dialog box. In the **Text Save Options** dialog box, you can specify which options can be selected when you save the test results to a text file.

HA File Analyzer

■ **Header**

Check the items that you want to save.

Item	Description
Date of test	Test date
File version	Version of test results file
Comments	Information on EUT (memo, model name, type, and serial number) (The comments and test information included in the test result file)
Test conditions	Test conditions information (standard, class, voltage/current range, nominal voltage/frequency, and measurement time)
Measurement Max and Average	Maximum value of voltage/current/power, average value of power, maximum value of apparent power/power factor, maximum value of THC, and maximum and average values of POHC
Average and Peak for each Harmonics order	Average and peak values with each order, and exceeding 100 % and margin

■ **Data frame**

Item	Description
null	The Trend, V/I waveform, Harmonics options are not selected.
Trend	Trend for all data frames with the items listed below. Actual, average, and ± peak values of current and voltage, power, apparent power, THC, POHC, and frequency.
V/I waveform	Instantaneous values of voltage and current of data frame that is set with the upper part of the results list pane. Counts are positioned in the time-axis direction.
Harmonics	Instantaneous values of harmonic order, harmonics, and limit value of data frame that is set with the upper part of the results list pane.

■ **AC Power Source**

The AC power source check list is also saved in the text file.

■ **Separator**

Select the text separator.

■ **Character code**

Set the character code of a text file.

| Item	Description
Unicode (UTF-8)	Save it in a test file that supports Unicode (UTF-8).
Japanese language (Shift-JIS)	Save it in a text file that supports the Japanese language (Shift-JIS).

■ **Action**

After the text file is saved, you can open it with the software that text files are associated with.

Text Save Options (continued)

■ **Over Write Message**

If you save a file with the same name already exists, a file overwrite message appears. The **Do not display** check box is used to enable or disable this message.

If you select the **This message is not displayed next time** check box in the file overwrite dialog box, the **Do not display** check box in the **Text Save Options** dialog box is also selected. If you clear the **Do not display** check box, the PDF file overwrite message is enabled.
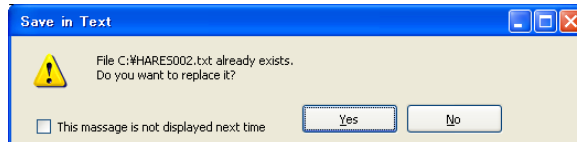
Printing a Report

Reports are printable PDF files of test result files. Numeric value data, various waveform graph, and results of repeatability check can be printed. You can include comments in reports, such as the company name and test environment.

Reports are automatically saved in the same folder as test result files using the same file name as the test result file that they are converted from and a .pdf extension.

NOTE   To print PDF files, you need a PDF viewing application such as Adobe Reader.

1 On the results list pane, select the results file to be printed in a report.

2 Open the Report Setting dialog box, and select the data to print.

3 Click **Print.**
Your PDF viewing application (such as Adobe Reader) starts, and the report appears.

■ **If you selected the repeatability check list in step 2.**

The **Select a File for Repeatability** dialog box appears.

Select a reference file , select a file to compare, and then click **OK**. The results file that you selected in Step 1 is the reference file.

If you open multiple test result files for comparison in repeatability checking, all the files will appear in the **Select a File for Repeatability** dialog box.

Select a file for comparison.
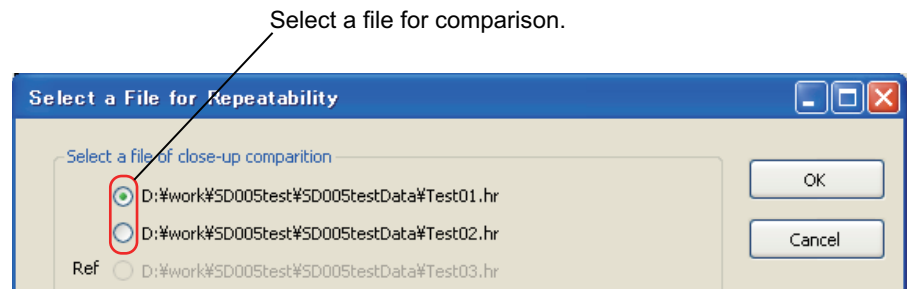
■ **When a PDF file with the same name exists**

The message is displayed.
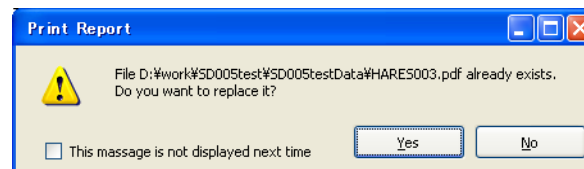
Click **Print in pdf as** to save the report as a PDF file with a different file name.

If you select the **This message is not displayed next time** check box, the message will not appear the next time. You can clear this check box in the **Report Setting** dialog box.

4 **Print the report from your PDF viewing application.**

Configuring the Report Format

- • Select the data to print.
- • Enable or disable the PDF file overwrite message.

Entering Comments, Test Information and Alias Standard

You can print the comments, test information, and alias standards.

Up to 20 characters can be printed in a report for the Comment and Test Information items.

The information that you enter into the boxes is registered when you click **Print**. Up to eight previous entries are stored in the boxes' lists. The oldest entry is removed first.

HA File Analyzer

■ **Comment replacement**

You can select which comments to print in the report: the comments included in the test results file or the comments in the boxes listed under the "Use these comments" check box.

Item	Description
Use these comments	If you select this check box, the comments in the boxes listed under this check box will be printed in the report.
Memo	
Model Name	The name of the EUT
Type	The model number of the EUT
Serial No.	The serial number of the EUT

■ **Test information**

You cannot set the test information from the KHA1000 panel.

Item	Description
Company	
Test Engineer	
Operating Mode	
Climatic Condition	
Supply Source	
Reference Impedance	

■ **Alias standard**

You can enter up to 31 characters for the alias standards.

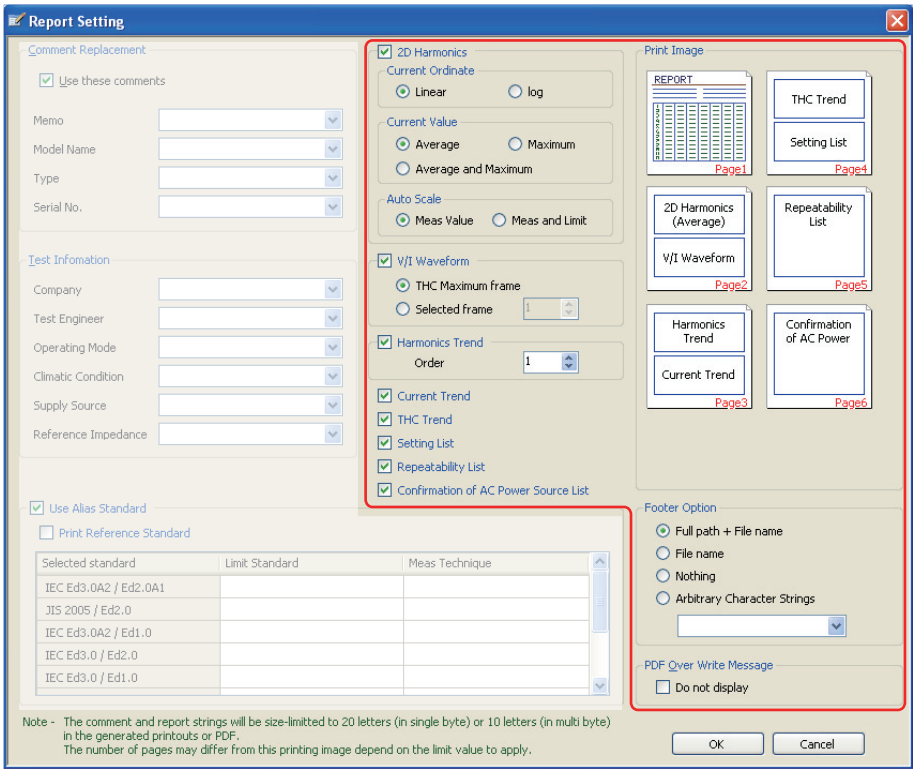| Item	Description
Use Alias Standard	Select this option to print standard names other than the default standard names on the report.
Print Reference Standard	Select this option to print on the report the standard names also that are displayed when you select the test standards using the KHA1000 or the HarmoCapture.

Deleting characters

Press **Delete** to delete a character. To clear a combo box, enter one space. If you do not enter any characters, the corresponding comment is not updated. After you close the dialog box, the previous comment will return.

In the Report Setting dialog box, you can:

Selecting which Data to Print

You can select which data and graphs to print in reports using the check boxes. After selecting which data to print, you can preview how the report will be printed.
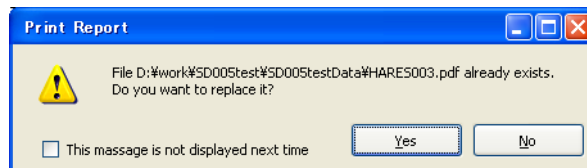

Item	Description
2D Harmonics	Prints the judgment results of each order of harmonic current using 2D harmonics bar graph. You can set the current scale to **linear** or **log** (logarithmic.) You can select whether to print the **average** or **maximum** value or both in the report.
V/I Waveform	Prints the voltage and current waveforms of a frame. You can select the frame to **THC Maximum frame** or **Selected frame**. Select a particular frame using the Up/Down box.
Harmonics Trend	Prints the harmonics trend of each order. Specify an orderoption the Up/Down box.
Current Trend	Prints the current trend waveform.
THC Trend	Prints the THC trend waveform.
Setting List	Prints a list of test conditions.
Repeatability List	Prints a list of the results of interfile repeatability check.
Comfirmation of AC Power Source List	Prints the results of the AC power test source performance check.
Footer Option	Adds a footer to a report. You can select any one of **Full path + File name**, **File name**, **Nothing**, or **Arbitrary Character Strings**. The character strings that you enter in the **Arbitrary Character Strings** combo box are stored, when you click the **OK**. Up to eight of the most recent characters are stored.

PDF Overwrite Message

If you select a test result file that you have printed before, a PDF file overwrite message appears. The **Do not display** check box is used to enable or disable this message.
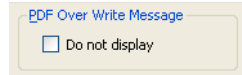
If you select the **This message is not displayed next time** check box in the PDF file overwrite dialog box, the **Do not display** check box in the **Report Setting** dialog box is also selected. If you clear the **Do not display** check box, the PDF file overwrite message is enabled.

Menu Reference

Menu	Description
File	
Open...[*1]	Opens a test condition file (.hr extension) that you created using HarmoCapture or a test condition file that you saved on the KHA1000.
Close[*1]	Closes a test results file that was selected in the results list pane.
Close All[*1]	Closes all test results files currently open.
Save in text...[*1]	Saves a test results file selected in text format with another name.
Save in text As...[*1]	Saves a test results file selected in text or CSV format with another name.
Save Option...[*1]	You can specify which options can be selected when you save the test results to a text file.
Report Setting...[*1]	You can specify which data and graphs to print in reports.
Print Report...[*1]	Creates a report (PDF) from a test results file and prints it.
Exit	Exit from HA File Analyzer.
Compare	
Repeatability[*1]	Checks whether or not a test results file selected is repetitive.
Help	
Contents (Japanese)	Opens the HA File Analyzer Japanese Operation Guide.
Contents (English)	Opens the HA File Analyzer English Operation Guide.
User's Manual (Japanese)	Opens the HA File Analyzer Japanese PDF Operation Guide.
User's Manual (English)	Opens the HA File Analyzer English PDF Operation Guide.
About HA File Analyzer...	Displays the version of HA File Analyzer.

[*1]   The toolbar provides buttons.