

# **Operation Guide**

# **Application Software**

# HA File Analyzer 3

Ver. 2.6x

HAH	le Analyze	r3																
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Oper	d	ose	Close All	Save (	Option	Save in	text	Report Se	tting Re	port Print	Rep	) Deatabili	ity					
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EC 8-2	(44.0) IEC_	Ed4_Ed2	1.hr3															
Harm Order	L1 Limit1 [A]	L1 Limit2 [A]	L1 Ave [A]	L1 Max [A]	L1 Limit Over[s]	L1 Judge	L2 Limit1 [A]	L2 Limit2 [A]	L2 Ave [A]	L2 Max [A]	L2 Limit Over[s]	L2 Judge	L3 Limit1 [A]	L3 Limit2 [A]	L3 Ave [A]	L3 Max [A]	L3 Limit Over[s]	L3 Judge
1			0.0002	0.0002		N/A			0.0000	0.0001		N/A			0.0001	0.0002		N/A
2	1.0800	2.1600	0.0000	0.0000	0.0	N/A	1.0800	2.1600	0.0000	0.0000	0.0	N/A	1.0800	2.1600	0.0000	0.0000	0.0	N/A
з	2.3000	4.6000	0.0000	0.0000	0.0	N/A	2.3000	4.6000	0.0000	0.0000	0.0	N/A	2.3000	4.6000	0.0000	0.0000	0.0	N/A
4	0.4300	0.8600	0.0000	0.0000	0.0	N/A	0.4300	0.8600	0.0000	0.0000	0.0	N/A	0.4300	0.8600	0.0000	0.0000	0.0	N/A
5	1.1400	2.2800	0.0000	0.0000	0.0	N/A	1.1400	2.2800	0.0000	0.0000	0.0	N/A	1.1400	2.2800	0.0000	0.0000	0.0	N/A
6	0.3000	0.6000	0.0000	0.0000	0.0	N/A	0.3000	0.6000	0.0000	0.0000	0.0	N/A	0.3000	0.6000	0.0000	0.0000	0.0	N/A
7	0.7700	1.5400	0.0000	0.0000	0.0	N/A	0.7700	1.5400	0.0000	0.0000	0.0	N/A	0.7700	1.5400	0.0000	0.0000	0.0	N/A
8	0.2300	0.4600	0.0000	0.0001	0.0	N/A	0.2300	0.4600	0.0000	0.0000	0.0	N/A	0.2300	0.4600	0.0000	0.0000	0.0	N/A
0	0.4000	0.0000	0.0000	0.0001	0.0	10/1	0.4000	0.0000	0.0000	0.0001	- 00	ALCO	0.4000	0.0000	0.0000	0.0001	0.0	11/1
V Scale	100 V/	div 👻	C Scale	0.1 A/dh	•				V Scale	1 mV/div	•	C Scale	0.01 m/	v/div ▼				
/I wa	eform 2	D harmor	nics an h	armonics	Current	trend	Harmor	- T- T	THC trend	l Vector	Test da	ata Me	asureme	nt List T	est Result	AC POW	er Souro	
L1[A]	CIOINT.		0011	difficiences (	urrent	0.000	LA		The order to	1 10000		116	Canhar	ie ase   i	ost noson	Incron		
1.00					Order				Tie Name				Culture	its .v e danimi		100 DHA	ndos luci	-
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1.00					Order				Limitation	Standard			IEC 610	4720 II.S ION-3-2 Fe	-44 N			
0.50	1.5.5						·		Moon For	nant Tark	mic		IEC 610	100 0 2 E	12.1			
L3[A]	135	/ 9111	3151/19	2123252	29313 Jurrent	0.000	39 - LOR 12 A	xer)	Wiring M	athod			1P2W					_
1.00					Order				Voltage F	lange			11,300	V. 12 30	1 V. L3 30	n v		
0.50									Current P	lance			L1 0.5	A. L2 0.5	A. L3 0.5	Α.		
	135	/ 9111	3 15 17 19	2123252	2729313	33537	39 - [Ord	er]	Current I	nput Terr	ninal		L1 Shur	nt. L2 Shi	unt, L3 Sh	unt		_
Current Input Terminal L1 Shunt, L2 Shunt, L3 Shunt									Clare				٨					

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# Introduction

This operation guide explains how to:

- Analyze the data of a test results file that is acquired during a harmonic current test using HarmoCapture3 or acquired with KHA3000, and
- · Print reports of test result files.

### Product versions that this guide covers

This operation guide applies to HA File Analyzer 3 with version 2.6x.

You can check the version from the help menu HA File Analyzer 3.

### Who should read this operation guide?

The intended audience of this operation guide is anyone using the KHA3000 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.

### Notations used in this guide

- In this guide, the KHA3000 Harmonic/Flicker Analyzer is also called "KHA3000."
- In this guide, the LIN3020JF, LIN1020JF and LIN40MA-PCR-L Line impedance network are also called "Line impedance network."
- In this guide, the PCR-WE series and PCR-WE2 series (including the PCR-WE2R, a model with a regeneration function) AC power supplies, in addition, the PCR-WEA series and PCR-WEA2 series (including the PCR-WEA2R, a model with a regeneration function) AC power supplies are also referred to as the "PCR-WE."
- In this guide, the PCR-LE series and PCR-LE2 series AC power supplies are also referred to as the "PCR-LE."
- In this guide, the PCR-LA series is also referred to as the "PCR-LA."
- In this guide, all the above AC power supply series may be referred to collectively as the "AC power supply."
- "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.

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# What is HA File Analyzer 3?

HA File Analyzer 3 is application software that analyzes the data of a test results file (xxx.hr3) that is acquired during a harmonic current test using HarmoCapture3 or acquired with KHA3000. HA File Analyzer 3 operates without being connected to the KHA3000.

HA File Analyzer 3 can be used to:

- Load the harmonic current test results file acquired by the KHA3000 or HarmoCapture3.
- 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.)

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# **Opening a Test Results File**

### **Opening a Test Results File Acquired by HarmoCapture3**

- 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 .hr3.

### **Opening a Test Results File Acquired by the KHA3000**

Follow the procedure below to load a test condition file that was acquired on the KHA3000 to the PC and open it with HA File Analyzer 3.

- **1** Remove the storage media (CompactFlash card or USB flash drive) that contains the test conditions from the KHA3000.
- 2 Connect the storage media to the PC.
- 3 Load the test condition file from the storage media to the PC.
- 4 Click **Open** on the toolbar. The Open dialog box appears.
- Select the file that you want to open.
   The test results file name extension for harmonic current tests is .HR3.

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# **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.



ltem	Description
Results List Pane	Lists the test results file for the harmonic current test.
See p. 6	
Graph and Data Pane	Displays a graph of test results file for the harmonic current test.
See p. 9	

### **Results List Pane**

	Data Fra	me O	🗧 Harm	Order 1	*	🗹 L1	🗹 L2	🗹 L3	Test	t Result	Pass		
ĺ	IEC3-2 Ed	2.2) HA2.hr3	3									D—	-Test result list
	Harm Order	L1 Limit1 [A]	L1 Limit2 [A]	L1 Ave [A]	L1 Max [A]	L1 Judge	L2 Limit1 [A]	L2 Limit2 [A]	L2 Ave [A]	L2 Max [A]	L2 Judge	L	selection tabs
I	1			0.0001	0.0001	N/A			0.0000	0.0001	N/A		
I	2	1.0800	1.6200	0.0000	0.0000	N/A	1.0800	1.6200	0.0000	0.0000	N/A	1.080.	
I	3	2.3000	3.4500	0.0000	0.0000	N/A	2.3000	3.4500	0.0000	0.0000	N/A	2.3000	
I	4	0.4300	0.6450	0.0000	0.0000	N/A	0.4300	0.6450	0.0000	0.0000	N/A	0.4300	- Test results
I	5	1.1400	1.7100	0.0000	0.0000	N/A	1.1400	1.7100	0.0000	0.0000	N/A	1.1400	list
I	6	0.3000	0.4500	0.0000	0.0000	N/A	0.3000	0.4500	0.0000	0.0000	N/A	0.3000	1100
I	7	0.7700	1.1550	0.0000	0.0000	N/A	0.7700	1.1550	0.0000	0.0000	N/A	0.7700	
	8	0.2300	0.3450	0.0000	0.0001	N/A	0.2300	0.3450	0.0000	0.0000	N/A	0.2300	
		0.4000	0.0000	0.0000	0.0004	1120	0.4000	0.0000	0.0000	0.0004	1120	0.400	)

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.
L1, L2, L3	Specify the phase to display.
Test Result	The final judgment results for the selected test result file appear. The judgment results that appear are Pass (in green), Warn (in yellow), and Fail (in red).
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	<ul> <li>The displayed items vary depending on the standard that was used for the test.</li> <li>IEC 61000-3-2 (Ed4.0, Ed3.0, Ed2.2), JIS C 61000-3-2</li> <li>IEC 61000-3-12</li> </ul>

### Time for data frame

Standards for	Measurement time						
measurement techniques	150 seconds or less	More than 150 seconds to 300 seconds	More than 300 seconds to 600 seconds				
IEC 61000-4-7 Ed2.1 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)				

Example: When the measurement time is set to 150 seconds in IEC 61000-4-7 Ed2.1 or IEC 61000-4-7 Ed2.0 standard, 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
IEC3-2 Ed4.0	IEC 61000-3-2 Ed4.0(2014)
IEC3-2 Ed3.0	IEC 61000-3-2 Ed3.0(2005)
IEC3-2 Ed2.2	IEC 61000-3-2 Ed2.2(2004)
JIS3-2 2011	JIS C 61000-3-2 (2011)
JIS3-2 2005	JIS C 61000-3-2 (2005)
IEC3-12 2011	IEC 61000-3-12 Ed2.0(2011)
IEC3-12 2004	IEC 61000-3-12 Ed1.0(2004)

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Item	Description					
Harm Order	Order	of harmonics.				
Lx Limit 1 (A rms)	Indicates the limit value or shows "". "" appears when there is no limit value or when the computed limit value is less than 0.0001 A (or less than 0.001 A for a range of 10 A or above).					
Lx Limit 2 (A rms)	tes 150 % of the limit value or shows "". opears when there is no limit value or when the computed limit value is an 0.0001 A (or less than 0.001 A for a range of 10 A or above).					
Lx Ave (A rms)	Averag	ge value of harmonic current in the total measurement time				
Lx Max (A rms)	Maxim	num value of harmonic current in the total measurement time				
Lx Limit Over (s)	Indicates the time (accumulated value within the total measurement ti which a measured value is greater than 150 % of its limit value but equ smaller than 200 %. Displayed in the test result of IEC 61000-3-2 Ed4.0 61000-3-2 Ed3.0 standard.					
Lx Judge	Judgment result of each order.					
	Pass	No limit value or (Margin X Lx limit 1 > average value) and (Margin X Lx limit 2 > maximum value)				
	Warn	(Limit 1 > average value) and (Limit 2 > maximum value) except for PASS				
	Fail	Other than listed above				
Lx: L1, L2, or L3						

### Items in test results list (IEC 61000-3-2 (Ed4.0, Ed3.0, Ed2.2), JIS C 61000-3-2)

Items in test results list (IEC 61000-3-12)

### Item Description Harm Order Order of harmonics. Indicates the limit value or shows "---". Lx Limit 1 (A rms) "---" appears when there is no limit value or when the computed limit value is less than 0.0001 A (or less than 0.001 A for a range of 10 A or above). Indicates 150 % of the limit value or shows "---". Lx Limit 2 (A rms) "---" appears when there is no limit value or when the computed limit value is less than 0.0001 A (or less than 0.001 A for a range of 10 A or above). Lx Ave (%) Average value of the total measurement time. Ratio (%) to the reference fundamental current Lx Ave (A rms) Average value of harmonic current in the total measurement time Lx Max (%) Maximum value of the total measurement time. Ratio (%) to the reference fundamental current Lx Max (A rms) Maximum value of harmonic current in the total measurement time Lx Judge Judgment result of each order. Pass No limit value or (Margin X Lx limit 1 > average value) and (Margin X Lx limit 2 > maximum value) Warn (Limit 1 > average value) and (Limit 2 > maximum value) except for PASS Fail Other than listed above Lx: L1, L2, or L3

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### **Graph and Data Pane**



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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       • Measurement list         • 3D harmonics       • Test Result         • Current trend       • AC Power Source         • Harmonics trend       • THC trend					
	• Vector					

### 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.



When you have set the standard to IEC 61000-3-2 Ed4.0, the class to class C, and the limit values to 3rd/5th/Current Wave, the current waveform analysis diagram that is prescribed from IEC 61000-3-2 Ed3.0(2005)/ A2(2009) is displayed in place of the V/I waveform in the test results file. (Only valid for single-phase, two-wire circuits.)



### 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 HarmoCapture3 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 (up to 10 frames.)

V/I waveform 2D harmonics	3D harmonics	Current trend	Harmor 🔹 🕨
L1[A] []]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]			
8.59	<b>Witer</b> His	的研究	and the
1 3 5 7 9111315 L2[A]	17 19 21 23 25 2	27 29 31 33 35 37	739 [Order]
8:58	in the second second	ulter he	in the second
1 3 5 7 9111315 L3[A]	17 19 21 23 25 2	27 29 31 33 35 37	739 [Order]
8:58  ,	in an	eline in	ketter
1 3 5 7 9111315	17 19 21 23 25 2	27 29 31 33 35 37	739 [Order]

### 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 (data frame.)

V/I waveform	2D harmonics	3D harmonics	Current trend	Harmor 🔨 🔪
[A] 10.0 9.0 8.0 7.0		L1: - L2: - L3: - Time	-Current -Current -Current 0.000 s Fran	7 0770 A 7.0770 A 7.0450 A ne 0
5.0 4.0 3.0 2.0 1.0				
0.0 1	5.0 30.0 45.0 6	50.0 75.0 90.0	0 105.0120.01	35.0150.0[s]
<u> </u>				

### 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 (data frame.)

2D harmonics 3	BD harmonics    Curre	nt trend Harmonics	trena THC
[A] 1Harmo 10.0 9.0 8.0 7.0	onicsTrend	L1: -Current L2: -Current L3: -Current Time 0.000 s F	6.7550 A 6.7560 A 6.7100 A rame 0
6.0 5.0 4.0 3.0 2.0 1.0			
0.0 15.0	30.0 45.0 60.0 7	75.0 90.0 105.0120	.0135.0150.0[s]

### 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 (data frame.)



### Vector

Displays input voltages/current phases in vectors. Obtaining the phase difference of the current against the voltage, and the difference between each phase.



### Test data

The test conditions for the selected test result file appear.

3D harmonics Current trend Harmo	nics trend THC trend Vector Test data Measu	< >						
Items	Contents	^						
File Name	F:\data\HA2.hr3							
File Version	1.06							
Date of Test	3/16/2011 10:52:03 AM	Ξ						
Limitation Standard	IEC 61000-3-2 Ed2.2							
Measurement Technic	IEC 61000-4-7 Ed2.0							
Wiring Method	3P4W							
Voltage Range	L1 150 V, L2 150 V, L3 150 V							
Current Range	L1 0.5 A, L2 0.5 A, L3 0.5 A							
Current Input Terminal	L1 Shunt, L2 Shunt, L3 Shunt							
Class	A	~						

### Measurement list

The measurement data for the selected data frame appears

ltem	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
РОНС	Partial odd harmonic current of input current, effective value of harmonic current component of odd orders from 21st to 39th

### Test Result

The test result of each phase, the final test result and the maximum measurement data appear. The judgment results that appear are Pass (in green), Warn (in yellow), and Fail (in red).

### 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 final judgment result are displayed. The judgment results that appear are Pass (in green), Warn (in yellow), and Fail (in red).

THC trend	Vector	Test data	Measure	ement List	Test Result	AC Power Sou	rce	< >
		Total		L1	L2		L3	
Judge		Fail		Fail	Fail		Fail	
L1 L2	L3							
Voltage	P	99.93	V R	requency	50.022	Hz		
Volt Pea	k+ 🛛	139.18	V C	urrent	0.0113	A		
Volt Pea	k-	-141.42	V P	hase V1-V2	0.00	deg		
Order		Max[%	6]	Limit	:[%]	Judge		^
1		100.0	10	0.	00	Pass		-11
2		0.15	5	0.	20	Pass		
3	3 1.25			0.	90	Fail		~

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# **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

Select the THC trend graph.

V Scale 50 V/div 💌 C Scale 0.5 A/div 💌	
3D harmonics Current trend Harmonics trend THC trend	Vector 🔹
[A] L1: -Current L2: -Current L3: -Current 4.00 3.50 2.50 	2.0510 A e 17
1.50 1.00 0.50 0.0 15.0 30.0 45.0 60.0 75.0 90.0 105.0120.01	35.0150.0[s]
-0	

# 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.

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.

### To find the harmonic spectrum at the time of maximum value of the THC

### Select the 2D harmonics graph.

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The harmonic spectrum of the data frame with the THC maximized is displayed.

V Scale 50 V/div Y C Scale 0.5 A/div Y
2D harmonics 3D harmonics Current trend Harmonics trend THC
L2[A] Current 6.7580 A 5.00 4.50 4.00 3.50 2.50 1.50 0.50 
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 [Order]

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

# 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.

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

### Viewing waveform



### To find the power with the THC maximized

### Select the Measurement list.

The measurement data of the actual data frame is displayed.

V	Scale 100 \	//div 🔽 🤇	Scale 5.0 A	ʻdiv 🔽		
Tł	HC trend Ve	ctor Test da	ta Measurem	ent List   Tes	t Result	$\leftrightarrow$
	Items	L1	L2	L3	sigma	^
1	Voltage rms	210.14 V	205.77 V	208.08 V	208.00 V	
1	Voltage P	292.14 V	286.52 V	291.12 V		
1	Voltage P	-292.04 V	-286.48 V	-291.46 V		
(	Current rms	7.0800 A	7.0770 A	7.0460 A	7.0680 A	Ξ
(	Current Pe	11.4440 A	11.0460 A	10.8640 A		
(	Current Pe	-11.2880 A	-11.1860 A	-10.9460 A		
F	Frequency	50.013 Hz	50.012 Hz	50.014 Hz		
1	Active Po	1273.36 W	-66.84 W	1140.68 W	2414.00 W	
1	Apparent	1487.86 VA	1472.66 VA	1449.86 VA	2546.30 VA	
F	Reactive P	769.59 var	1471.16 var	894.96 var	1664.50 var	~

# **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 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.

Data	Frame 22	2	Harm Ord	ler 11	\$	🗹 L	.1 🗹	L2 🔽	L3	Test R	esult 🗌	Pass							
(IEC3:	ear.0 HA	5.hr3																	
Harm Order	L1 Limit1 [A]	L1 Limit2 [A]	L1 Ave [A]	L1 Max [A]	L1 Limit Over[s]	L1 Judge	L2 Limit1 [A]	L2 Limit2 [A]	L2 Ave [A]	L2 Max [A]	L2 Limit Over[s]	L2 Judge	L3 Limit1 [A]	L3 Limit2 [A]	L3 Ave [A]	L3 Max [A]	L3 Limit Over[s]	L3 Judge	^
7	0.7700	1.1550	0.9016	0.9080	0.0	Fail	0.7700	1.1550	0.8059	0.8160	0.0	Fail	0.7700	1.1550	0.8282	0.8320	0.0	Fail	
8	0.2300	0.3450	0.0040	0.0060	0.0	N/A	0.2300	0.3450	0.0046	0.0070	0.0	N/A	0.2300	0.3450	0.0017	0.0040	0.0	N/A	
9	0.4000	0.6000	0.0601	0.0680	0.0	Pass	0.4000	0.6000	0.0560	0.0630	0.0	Pass	0.4000	0.6000	0.0048	0.0100	0.0	N/A	
10	0.1840	0.2760	0.0039	0.0050	0.0	N/A	0.1840	0.2760	0.0015	0.0030	0.0	N/A	0.1840	0.2760	0.0049	0.0060	0.0	N/A	
11	0.3300	0.4950	0.6388	0.6490	151.0	Fail	0.3300	0.4950	0.6794	0.6890	151.0	Fail	0.3300	0.4950	0.7005	0.7050	151.0	Fail	
12	0.1533	0.2300	0.0053	0.0070	0.0	N/A	0.1533	0.2300	0.0058	0.0080	0.0	N/A	0.1533	0.2300	0.0014	0.0020	0.0	N/A	
13	0.2100	0.3150	0.5178	0.5290	151.0	Fail	0.2100	0.3150	0.4056	0.4160	151.0	Fail	0.2100	0.3150	0.4115	0.4160	151.0	Fail	
14	0.1314	0.1971	0.0064	0.0090	0.0	N/A	0.1314	0.1971	0.0088	0.0110	0.0	N/A	0.1314	0.1971	0.0026	0.0050	0.0	N/A	
15	0.1500	0.2250	0.0382	0.0500	0.0	Pass	0.1500	0.2250	0.0449	0.0560	0.0	Pass	0.1500	0.2250	0.0195	0.0230	0.0	N/A	~

### To find the time of the maximum current value

Select the Harmonics trend graph.

# V Scale 100 V/div C Scale 0.1 A/div Current trend Harmonics trend THC trend Vector Test data Mc < ▶</td> [A] 11HarmonicsTrend L1: --Current --Current - 1.00 0.0400 A L2: --Current - 1.00 0.0000 A - - 0.90 0.80 - - 0.80 - - - 0.80 - - - 0.80 - - - 0.80 - - - 0.80 - - - 0.70 - - - 0.60 - - - 0.70 - - - 0.60 - - - 0.40 - - - 0.10 - - - 0.10 - - - 0.10 - - - 0.10 - - - </t

- 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.

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

See p. 17

### To find the harmonic spectrum at the time of maximum current value



### 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

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

The waveform of the current data frame is displayed.



•••••

### To find the power with the harmonic current maximized

### **11** Select the **Measurement list**.

The measurement data of the actual data frame is displayed.

	V Scale 100 \	//div 🔽 🤇	Scale 5.0 A/	(div 🔽		
ſ	THC trend Ve	ctor Test da	ta Measurem	ent List Test	: Result	< >
	Items	L1	L2	L3	sigma	^
	Voltage rms	210.13 V	205.89 V	208.07 V	208.03 V	
	Voltage P	294.28 V	287.20 V	291.54 V		
	Voltage P	-293.56 V	-286.98 V	-292.06 V		
	Current rms	7.0730 A	7.0690 A	7.0380 A	7.0600 A	
	Current Pe	11.4580 A	11.0300 A	10.8780 A		
	Current Pe	-11.2820 A	-11.1720 A	-10.9480 A		
	Frequency	49.995 Hz	49.996 Hz	49.997 Hz		
	Active Po	1271.53 W	-67.92 W	1139.67 W	2411.20 W	
	Apparent	1486.14 VA	1470.84 VA	1448.94 VA	2543.80 VA	
	Reactive P	769.30 var	1469.29 var	894.74 var	1664.00 var	~

**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		I	r	ľ	

### vestigate the judgment of the results list.

Data I	Frame 0	\$	Harm Ord	der 5	*	۱ 🗹	.1 🔽	L2 💽	2 L3	Test R	esult	Pass	5						
(IEC3-	IEC02 EARO HA5.hr3																		
Harm Order	L1 Limit1 [A]	L1 Limit2 [A]	L1 Ave [A]	L1 Max [A]	L1 Limit Over[s]	L1 Judge	L2 Limit1 [A]	L2 Limit2 [A]	L2 Ave [A]	L2 Max [A]	L2 Limit Over[s]	L2 Judge	L3 Limit1 [A]	L3 Limit2 [A]	L3 Ave [A]	L3 Max [A]	L3 Limit Over[s]	L3 Judge	•
1			25.7275	25.7570		N/A			25.4279	25.4640		N/A			25.3795	25.4080		N/A	
2	1.0800	1.6200	0.0283	0.0320	0.0	N/A	1.0800	1.6200	0.0299	0.0350	0.0	N/A	1.0800	1.6200	0.0089	0.0150	0.0	N/A	
3	2.3000	3.4500	0.3021	0.3200	0.0	Pass	2.3000	3.4500	0.4488	0.4860	0.0	Pass	2.3000	3.4500	0.1482	0.1720	0.0	Pass	
4	0.4300	0.6450	0.0122	0.0160	0.0	N/A	0.4300	0.6450	0.0143	0.0180	0.0	N/A	0.4300	0.6450	0.0250	0.0310	0.0	N/A	
5	1.1400	1.7100	5.3187	5.3420	151.0	Fail	1.1400	1.7100	5.5558	5.5700	151.0	Fail	1.1400	1.7100	5.6506	5.6670	151.0	Fail	
6	0.3000	0.4500	0.0044	0.0080	0.0	N/A	0.3000	0.4500	0.0045	0.0080	0.0	N/A	0.3000	0.4500	0.0036	0.0080	0.0	N/A	
7	0.7700	1.1550	3.3642	3.3820	151.0	Fail	0.7700	1.1550	2.9724	2.9870	151.0	Fail	0.7700	1.1550	3.1656	3.1840	151.0	Fail	
8	0.2300	0.3450	0.0086	0.0140	0.0	N/A	0.2300	0.3450	0.0158	0.0220	0.0	N/A	0.2300	0.3450	0.0141	0.0200	0.0	N/A	
9	0.4000	0.6000	0.3137	0.3310	0.0	Pass	0.4000	0.6000	0.2716	0.3040	0.0	Pass	0.4000	0.6000	0.0469	0.0680	0.0	N/A	Y

Set a failed harmonic order in the Harm order. 7

To find the time when the limit value is exceeded

### Select the Harmonics trend graph.

The trend graph of the specified harmonic order is displayed.



Move the cursor using the track bar while observing the current value on the Δ 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.

Stop the cursor when the current exceeds the limit value in the results list. 5 Time that is displayed at this point is the time elapsed after a test is started. A data frame is also displayed.

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

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

### Select the **2D harmonics** graph. The harmonic spectrum of the failed data frame is displayed. V Scale 100 V/div 🔽 C Scale 1.0 A/div ¥ 2D harmonics 3D harmonics Current trend Harmonics trend THC L3[A] Current Order 5.6660 A 10.09.0 6.0 5.0 4.0 [Order] 3 5 7 9111315171921232527293133353739

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

Q

7

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

The waveform of the current data frame is displayed.



# **Checking Repeatability**

### **Comparing Test Results Files**

### 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 they are compared under different standards, the message is displayed.

......



3 Select the test results file to be referenced for the comparison.

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  $\pm 5$  % 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**

Δ

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.

🔣 HJ	A File Ana	alyzer 3											<
Ble	⊆ompare	e Help											
						3	3	0					
: 0;	pen	Close Clo	se All Save (	Option Save I	n text   Repo	rt Setting Repl	ort Print Rep	eatability					
Data	a Frame	) 🛟 Hari	n Order 1	🗘 🗹 L	.1 🗹 L2	🗹 L3	Test Result						7
(IEC E	643.01.0) H	ARESO02.HR3	(IECEd2010) H	ARESOC3.HR3	IECEd3.01.0 H	ARESOD4.HR3 R	epeatability						
Ref			File			File Info	mation	L: Wors	1 L t[%] Wor:	.2 st[%]	L3 Worst[%]	Judge	
	HAR	E5002.HR3			Curr I	IEC 61000-3-2/4 Range L1:10.0A	-7, Ed3.0/Ed1.0 L2:10.0A, L3:10	.0A -49	9.1 -4	9.2	-51.8	Fall	
	HAR	E5003.HR3			Curr	IEC 61000-3-2/4 Range L1:40.0A	-7, Ed3.0/Ed1.0 L2:40.0A, L3:40	.0A 99	.0 9	B.O	97.1	Fall	
	HAR	ESCO4.HR3			Curr	IEC 61000-3-2/4 Range L1:20.0A	-7, Ed3.0/Ed1.0 L2:20.0A, L3:20						Interfile judgement
													diamlay
													usplay
$\epsilon$	and or	L1 Rof [A]	L1 More [6]	L1 Dec [95]	L3 Rof [6]	12 Mox [0]	1.2 Dec [95]	L2 Rof [A]	12 Mars IV	1 12	Dox [96]	audao 🖉	
- °	1	13 0542	6 7533	_48.3	12 044R	6 7500	_47.0	12 g202	6 7082	() 55	-48.1	Fal	
	2	0.0222	0.0193	-40.5	0.0229	0.0142	-47.5	0.0199	0.0062	-		rai	
	2	0.1525	0.0456		0.02249	0.1159		0.0910	0.0926				
	4	0.0085	0.0034		0.0101	0.0075		0.0019	0.0069				
	5	2.6727	1.4388	-46.2	2,8053	1,4910	-46.9	2,8669	1.5645		-45.4	Fail	
	6	0.0039	0.0030		0.0037	0.0030		0.0020	0.0014				
	7	1.7718	0.9016	-49.1	1.5859	0.8059	-49.2	1.6556	0.8282		-50.0	Fail	
	8	0.0056	0.0040		0.0062	0.0046		0.0054	0.0017				
	9	0.1606	0.0601		0.1479	0.0560		0.0147	0.0048				
	10	0.0041	0.0039		0.0028	0.0015		0.0035	0.0049				Interfile order
	11	1.1152	0.6388	-42.7	1.2558	0.6794	-45.9	1.2573	0.7005		-44.3	Fail	
	12	0.0033	0.0053		0.0038	0.0058		0.0027	0.0014				to all a sure a set all a set all as a
	13	1.0016	0.5178	-48.3	0.7955	0.4056	-49.0	0.8542	0.4115		-51.8	Fail	I judgement display
		0.0070	0.0004		0.0000	0.0000	1	0.00.00	0.0004			×	

### 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
Lx 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 IEC3-2 Ed4.0 : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / limit value X 100 %} $< \pm 5$ % Fail : {(Measured value – reference value) / limit value X 100 %} $\geq \pm 5$ %
	In other standards : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / reference value X 100 %} $< \pm 5$ % Fail : {(Measured value – reference value) / reference value X 100 } $\geq \pm 5$ %

Lx: L1, L2, orL3

### 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**.

ltem	Description
Harm order	Indicates the harmonic order.
Lx Ref (A rms)	Effective value of the harmonic current of the comparison reference results file.
Lx Meas (A rms)	Effective value of the harmonic current of the compared results file.
Lx Per (%)	Ratio of current test results to reference value {(Meas – Ref) / Ref} x 100 %
Judge	In IEC3-2 Ed4.0 : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / limit value X 100 %} $< \pm 5$ % Fail : {(Measured value – reference value) / limit value X 100 %} $\geq \pm 5$ %
	In other standards : Reference or measured value is less than 3 % of current range Pass : {(Measured value – reference value) / reference value X 100 %} $< \pm 5$ % Fail : {(Measured value – reference value) / reference value X 100

Lx: L1, L2, orL3

### 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.





# 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.

- 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.
- 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.

### Click the **Save** button.

7

If a text file with the same name already exists, the message is displayed.

Save in Text			
1	File F:\data\HA1.txt already exists. Do you want to replace it?		
🔲 This ma	assage is not displayed next time	<u>Y</u> es	No

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.

Header	Separator
Basic items and Result judgment     Comments	Comma     Comma + Space     Semicolon     Semicolon + Space
	Character code
✓ L1 — ✓ L2 — ✓ L3 —	<ul> <li>Unicode (UTF-8)</li> </ul>
☑ Result List	O Japanese (Shift-JIS)
✓ V/I Waveform Frame 0	⊂Action ☑ File Open
Trend	Over Write Message
Harmonics Trend Order 1	🗌 Do not display
Current Trend	
THC Trend	
Confirm AC Power Source List	

### Header

Check the items that you want to save.

.

Item	Description
Basic items and Result judgment	Test date, 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)

### Channel

Check the items that you want to save.

ltem	Description
L1, L2, L3	Phase data selection
Result list	Final judgment result and margin for a limit value
V/I waveform	Instantaneous values of the specified voltage and current Counts are positioned in the time-axis direction.
Trend	Harmonics trend, current trend, and THC trend of the specified order
Confirm AC Power Source List	The results of the AC power test source performance check

### Separator

Select the text separator.

### Character code

Set the character code of a text file.

ltem	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.

### 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.

Save in Text			X
1	File F:\data\HA1.txt already exists. Do you want to replace it?		
🔲 This ma	assage is not displayed next time	<u>Y</u> es	No

# **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 Pl	DF viewing application such as Ad	dobe Reader.
		<b>1</b> On the results list par	ne, select the results file to be	e printed in a report.
See p. 32		2 Click <b>Print Setting</b> Open the Report Settin	) on the toolbar. g dialog box.	
		3 Select the data to pri	nt.	
		4 Click <b>Print Report</b> The Select Comment di	on the toolbar. alog box appears.	
		The comments and test — information saved on the KHA3000 (included in the test result file)	Replacement comments and to         Select Comments         File Kame : C1\User\Deaktop\01_ECED3A2_4-7ED2A1_001.1v3	Replacement Comments      Memo (VF)      Model Itame ABC100      Type Standard Equipment      Seral No. ABC1234      Company Kikusul Electronics      Test Engineer Kikusul      Operating Mode Normal      Operating Mode
		You cannot set the test — information from the KHA3000 panel.	Cinatic Condition 2320 60% Supply Source PCR500LE Reference Impedance 0.400hm-ijn0.250hm  Use Alas Standard  Print Reference Standard  Red Alas from ths file	Climatic Condition 22°C, 60% • • Supply Source PCRS00LE • • Reference Impedance 0.40;4):00.250 • •
		The alias standards —— specified on the KHA3000 (included in the test result file)	Umt Standard EC01000-3-2E44.0 Meas Technique EC01000-4-7E62.0A1	Linit Standard Mess Technique

# 5 Select the comments, test information, and test standard that you want to print on the report.

ltem	Description
Read Comments from this file	The comments and test information in the test result file are printed on the report.
Replacement comments	The comments and test information in the box are printed on the report.
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 KHA3000 or the HarmoCapture3.
Read Alias from this file	The alias standards specified on the KHA3000 are printed on the report.
Replacement alias	The alias standards in the Report Setting dialog box are printed on the report.

See p. 30

For more information about replacement comments, see "Entering Comments, Test Information and Alias Standard."

### 6 Click **Print**.

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

See p. 28

If you selected the repeatability check list in step 2. The Select a File for Repeatability dialog box appears.

Select a reference file using the arrow buttons, select a file to compare, and then click OK. 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.



### 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.

Print the report from your PDF viewing application.

### **Entering Comments, Test Information and Alias Standard**

You can print the comments, test information, and alias standards that you enter in the Select Comment dialog box.

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.

lemo	Memo	Memo	Memo (VF)		
lodel Name	ABC1234	Model Name	ABC1000	•	<b>a</b>
ype	StandardModel	Туре	Standard Equipment	•	<ul> <li>Comments</li> </ul>
erial No.	ABC1234	Serial No.	ABC1234	· ]	
ompany	KikusuiElectronics	Company	Kikusui Electronics	- -	
est Engineer	Kikusui	Test Engineer	Kikusui	•	
perating Mode	Normal	Operating Mode	Normal	-	Test information
matic Condition	23°C 60%	Climatic Condition	23°C, 60%	•	- rest mormation
upply Source	PCR500LE	Supply Source	PCR500LE	<b>•</b>	
eference Impedance	0.40ohm+jn0.25ohm	Reference Impedance	0.4Ω+jn0.25Ω	J	
Use Alias Standard					
Print Reference	Standard				
Read Alias from this	file	Replacement Alias			
imit Standard	IEC61000-3-2Ed4.0	Limit Standard		•	
leas Technique	IEC61000-4-7Ed2.0A1	Meas Technique		· )	— Alias standard

### Comments and test information

For each of these sets of comments and test information, the maximum number of characters that can be printed on reports is 20 characters. You can enter text that exceeds 20 characters, but only the first 20 characters will be printed.

Memo:	
Model Name:	The name of the EUT
Type:	The model number of the EUT
Serial No. :	The serial number of the EUT

You cannot set the test information from the KHA3000 panel.

Company: Test Engineer: Operating Mode: Climatic Condition: Supply Source: Reference Impedance:

### Alias standard

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

### **Deleting characters**

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

....

## **Clearing combo box history**

The **Comment** and other combo boxes retain histories of entries that you make even when you close HA File Analyzer3. You can select these entries from the list the next time. However, there may be cases in which it is better to reset the combo boxes to their default conditions (without the histories) if another user is going to use HA File Analyzer3. To clear the histories of all combo boxes, follow the procedure below.

Click **Print Report** button on the toolbar.

The Select Comments dialog box appears.

2 Click Clear of Combo records button.

The message appears.



### Click **OK** button.

3

The histories of the Comment, Test Information, and Standard Name combo boxes are cleared.

elect Comments			
File Name : C:\Users\Desl	<pre>ktop\01_IECED3A2_4-7ED2A1_001.hr3</pre>		
Read from this file		Replacement Comments	
Memo	Memo	Memo	•
Model Name	ABC1234	Model Name	•
Туре	StandardModel	Туре	•
Serial No.	ABC1234	Serial No.	•
Company	KikusuiElectronics	Company	
Test Engineer	Kikusui	Test Engineer	
Operating Mode	Normal	Operating Mode	•
Climatic Condition	23°C 60%	Climatic Condition	-
Supply Source	PCR500LE	Supply Source	•
Reference Impedance	0.40ohm+jn0.25ohm	Reference Impedance	•
Use Alias Standard -			
📃 Print Reference	Standard		
Read Alias from this	file	Replacement Alias	
Limit Standard	IEC61000-3-2Ed4.0	Limit Standard	-
More Technicus	IEC61000-4-7Ed2.0A1	Meas Technique	•

# **Configuring the Report Format**

In the Report Setting dialog box, you can:

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

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### **Selecting which Data to Print**

See p. 33

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You can select which phase data (L1, L2, and L3) 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.



ltem	Description	
Select Print Channel	The phase data that will be printed (L1, L2, and L3).	
Result List	The data displayed in the results list pane.	
2D Harmonics <sup>*1</sup>	Prints the judgment results of each order of harmonic current using 2D harmonics bar graph. You can set the current scale to <b>linear</b> or <b>log</b> (logarithmic.) You can select whether to print the <b>average</b> or <b>maximum</b> value or both in the report. You can set whether to determine the optimal current scale from <b>Meas Value</b> or <b>Meas and Limit</b> .	

\*1 When you have set the standard to IEC 61000-3-2 Ed3.0 A2, the class to class C, and the limit values to 3rd/5th/Current Wave, the printout of the test result file will not contain the maximum value of 2D harmonics. The number of pages in the print preview may differ from the actual number of pages that will be printed.

Item	Description	
Footer Option	Adds a footer to a report. You can select any one of <b>Full path + File name</b> , <b>File name</b> , <b>Nothing</b> , or <b>Arbitrary Character Strings</b> . The character strings that you enter in the <b>Arbitrary Character Strings</b> combo box are stored, when you click the <b>OK</b> . Up to eight of the most recent characters are stored.	
V/I Waveform	I Waveform Prints the voltage and current waveforms of a frame. You can select the frame to <b>THC Maximum frame</b> or <b>Selected frame</b> . 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.	
Confirmation of Prints the results of the AC power test source performance check. AC Power Source List		

### **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.

PDF Over Write Message	
🗌 Do not display	

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.

Print Repor	t		
⚠	File C:\Documents and Settings\F already exists. Do you want to re	IA\Ver1_03_01_IEC3-2_ClassA_BAL-3P\HARES004.pdf ppace π?	
🔲 This m	nassage is not displayed next time	Yes No Print in pdf as	

# Menu Reference

Menu		Description	
File			
	Open <sup>*1</sup>	Opens a test condition file (.hr3 extension) that you created using HarmoCapture3 or a test condition file that you saved on the KHA3000.	
	Close <sup>*1</sup>	Closes a test results file that was selected in the results list pane.	
	Close All <sup>*1</sup>	Closes all test results files currently open.	
	Save Option <sup>*1</sup>	You can specify which options can be selected when you save the test results to a text file.	
	Save in text As <sup>*1</sup>	Saves a test results file selected in text or CSV format with another name.	
	Report Setting*1	You can specify which phase data (1, L2, and L3) and graphs to print in reports.	
	Print Report <sup>*1</sup>	Creates a report (PDF) from a test results file and prints it.	
	Exit	Exit from HA File Analyzer 3.	
Compa	Compare		
	Repeatability <sup>*1</sup>	Checks whether or not a test results file selected is repetitive.	
Help			
	User's Manual (Japanese)	Opens the HA File Analyzer 3 Japanese Operation Guide.	
	User's Manual (English)	Opens the HA File Analyzer 3 English Operation Guide.	
_	About HA File Analyzer 3	Displays the version of HA File Analyzer 3.	

\*1 The tool bar provides buttons.

If you find any misplaced or missing pages in the manuals, they will be replaced. If the manual gets lost or soiled, a new copy can be provided for a fee. In either case, please contact your Kikusui agent or distributor. At that time, inform your agent or distributor of the "Part No." written on the front cover of this manual.

Every effort has been made to ensure the accuracy of this manual. However, if you have any questions or find any errors or omissions, please contact your Kikusui agent or distributor.

After you have finished reading this manual, store it so that you can use it for reference at any time.

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