

FUJI XEROX CO., LTD Environmental and Product Safety Department 2274, Hongo Ebina-shi, Kanagawa 243-0494, Japan		 THE DOCUMENT COMPANY FUJI XEROX
Name of the standard document; EMC TEST REPORT		
Form or Standard Number: EPS25-F001	Form revision: k1	Page:1 of 57
EMC Test Report For HIFX EMC Test Site Environment and Product Safety FUJI XEROX CO., LTD.		
Test plan Number: EPS-2002-013		Produced © by FUJI XEROX CO., LTD.

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Environmental and Product Safety Department
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EMC Test Report

Company: Fuji Xerox Co., Ltd.
3-7-1 Funai, Iwatuki-shi, Saitama 335-8509, Japan

Trade mark: XEROX

Equipment: Passive Transponder

Type designation: HIFX(HIFX-C, HIFX-A, HIFX-T)

Serial number: #75

Test report number: EPS-RPT2002-025

Test plane number: EPS-2002-024

Standards: EN301 489-1,3

Date of investigation: 2003.01.07

Test result: Passed

Tested by Takashi Nagakura

Tested by

Jan. 07. 03 T. Nagakura

Date, Signature

Date, Signature

Tested by

Approved by Masayuki Hirata

.....

Date, Signature

M. Hirata 07 Jan. '03

Date, Signature

Remarks 1

This report doesn't contain a test plan. The test plan of the product is described in "the EMC test plan" independently. As for this result of a test, an examination was done based on this test plan.

Remarks 2

EN301489-1,3 isn't contained in the accreditation range of test site (out of scope). However, the standard that EN301489 quotes it is in the accreditation range.

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Summary of the testing results

Total Judgment: Passed

Table 1

Item	Passed	Failed	Quotation	Not applicable
Generic Standard				
EN50 081-1:1992				○
EN50 081-2:1993				○
EN50 082-1:1996				○
EN50 082-2:1995				○
EN 301 489-1:2002	○			
EN 301 489-3:2002	○			
Product Standard for EMI				
EN300328:				○
EN300386-1:1994:				○
EN300330-1:				○
EN55 011:1998, Class B (Radiation and Conduction test))				○
EN55 014: 1998, Class B (Conduction and Clamp test)				○
EN55 022: 1998, Class B (Radiation and Conduction test)				○
EN61 000-3-2: Class D (Harmonics)				○
EN61 000-3-3: (flicker)				○
CISPR Publication 11: 199X				○
CISPR Publication 14: 199X				○
CISPR Publication 22: 199X				○
IEC 61 000-3-2: Class A (Harmonics)				○
IEC 61 000-3-3: (Voltage fluctuation and flicker)				○
FCC Part 15A				○
FCC Part 15B				○
FCC Part15 C				○
FCC Part 68				○

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Item	Passed	Failed	Quotation	Not applicable
CNS13438: 1997				☐
AS/NZS 3548: 199X				☐
VCCI: 2001 (CISPR Publication 22: 1998)				☐
Product Standard for Immunity				
EN55 014-2:1998				☐
EN55 024:1998				☐
CISPR Publication 14-2:1998				☐
CISPR Publication 24				☐

Item	Reference	Not applicable
Relation Standard	☐	
IEC/EN 61 000-4-2: 2001	☐	
IEC/EN 61 000-4-3: 2001	☐	
IEC/EN 61 000-4-4: 2001	☐	
IEC/EN 61 000-4-5: 2001	☐	
IEC/EN 61 000-4-6: 2001	☐	
IEC/EN 61 000-4-8: 2001		☐
IEC/EN 61 000-4-11: 2001	☐	
IEC/EN61 000-3-2:2001 : (Harmonics)	☐	
IEC/EN61 000-3-3:2001 (flicker)	☐	
EN55 022: 1998, Class B (Radiation and Conduction test)	☐	

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1. Test site location

Environment and Product Safety

EMC test site

FUJI XEROX Co., Ltd.

2274, Hongo Ebina-shi, Kanagawa 243-0494, JAPAN

TEL: +81-(0) 46-238-3111

FAX: +81-(0) 46-237-1640

1.1 List of test and measurement equipment

List of the equipment used for the test.

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
Spectrum analyzer	Agilent Technology	E7405A	US41160299	2003.05.20
Spectrum analyzer	Agilenrt Technology	E7405A	US41160295	2003.05.07
RF Receiver	Rohde&Schwarz	ESS	832495/003	2003.08.16
RF Pre Amp	Agilent Technology	8447D	9244A06862	2003.10.05
RF Pre Amp	Agilent Technology	8447F	2805A02545	2003.08.24
Bilog antenna	CHASE	CBL6111	1151	2003.10.01
Bilog antenna	CHASE	CBL6111	1174	2003.06.01
LISN	Kyouritsu	KNW407	8-680-18	2003.09.20
Attenuator	Anritsu	MP721A	M42798	-
ESD Generator	HAEFELY	PESD1600	H705166	2002.12.02
EFT/B Generator	Schaffner	NSG3025	17432	2003.02.15
Surge Generator	BigBang	IPS3000	0201203	2003.01.13
CDN M3	FCC	FCC-801-M3-16	9823	-
BiLog Antenna	CHASE	CBL6143	5076	2003.09.02
Horn Antnna	Schwarzbeck	BBHA9120B	221	2003.06.15
Power Amp 30MGz~1GHz	KALMUS	7250LC	9216-1,1-70-82 6-003	-
Power Amp 1GHz~4GHz	MILMEGA	AS0104-55R	990094	-
Power Amp	AR	1000M11	753785	-



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Kind of equipment	Manufacturer	Type	S/N	Calibrated until
Signal generator	Agilent	E4422B	MY41000172	2002.08.27
Power meter	Rohde&Schwarz	NRVD	100253	2003.09.27
Power sensor	Rohde&Schwarz	NRV-Z51	10094	2003.09.27
Coupler	Werlaton	1460	5136	-
Attenuator	Werlaton	45-6-33	LC159	-
50 ohm terminator	TME	CT03BP	279166	-
50 ohm terminator	TME	CT03BP	279164	-
Bilog antenna	CHASE	CBL6111	1173	2003.11.01
Signal generator	Rohde&Schwarz	SMH	832311/027	2003.03.11
RF Switcher				
Power amp	AR	100W1000M3	14968	-
Power sensor	Bird	4022	4645	2003.09.15
Power meter	Bird	4421	2103	2003.09.15
Coupler				
Field probe	HOLADY	HI-6005	103180	-
Dip generator	HAEFELY	PLINE1610	080207-08	2003.10.14
Harmonics/Flicker meter	Voltech	PM3000A	AL28/2412	2003.04.15
RIN	NF	4151	195902	2003.05.10

2. Equipment under the test

2.1 Identification of the EUT

Company: Fuji Xerox Co., Ltd.
3-7-1 Funai, Iwatuki-shi, Saitama 335-8509, Japan

Trade mark: XEROX

Equipment: Passive Transponder

Type designation: HIFX(HIFX-C, HIFX-A, HIFX-T)

Serial number: #75

Applicable country: EU, EFTA



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2.2 Rating of the EUT

Input voltage	5.1V	3.3V
Frequency	dc	dc
Input current	0.14A	0.21A
Another information		

2.3 Documents reviewed

1. User manual
See Appendix A
2. Drawing
See Appendix B
3. Test data
See Appendix C

3. Measurement conditions

HIFX is a Passive Transponder, and they are not completed IT equipment. Therefore the test was enforced about the standard which influenced a wireless device.

3.1 Identification of all Optional Devices / Accessories available for the EUT

Model name	Trade mark / Company	Type designation	Serial NO.	Country
N/A				

3.2 All auxiliary equipment

List any test support equipment that will be used during testing and specify its connection specification. Test support equipment is equipment, which is not part of the EUT but is required to enable representative operation of the EUT during test.

Model name	Trade mark / Company	Class A/B ID number*	Serial NO.
Printer Engine	Fuji Xerox	Class B KAB-2	#75

- A special ROM was used to make RF- on/off possible.

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3.3 Description of the EUT

Configuration and the working mode of the equipment.

Configuration of the equipment

HIFX is the wireless parts identification device for an Inductive loop coupling. This system (HIFX) has three modules of the controller (HIFX-C), the antenna (HIFX-A) and TAG (HIFX-T). (See Fig.1)

A product set manufacturer uses this system for the inside of the product, so it shall not be sold to the user. This product is used for example checking the amount of toner of the printer.

HIFX was installed in the printer engine (KAB-2) to enforce an EMC (EMI and Immunity) test.

Measurement mode

A special program was used to enforce an EMC test. The RF power occurs by this program when the power supply of the printer is turned on. A LED lamp was fixed so that an engineer could confirm ON/OFF of RF power.

EMI measurement

The measurement was the 2 mode of RF power ON and RF power off.

About Harmonics, Class-A was applicable to the Harmonics test (EN61000-3-2) due to lighting of the heater of the printer.

Immunity test

The measurement was the 2 mode of RF power ON and RF power off.

Faulty operation or error was judged by confirming the power ON/OFF indication of the LED lamp.

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Operating Mode

Name of the mode	Description and commentary
RF-ON	RF : Continuation radiation
RF-OFF	RF : radiation standby

Cable Type

Cable No.	Cable Name	Cable Type & Length	TYPE	Maker	Terminal

Cable Type for use AE

Cable No.	Cable Name	Cable Type & Length	TYPE	Maker	Terminal
1	Power Cable	Un-Shielded (1.9m)	KS-31A	KAWASAKI	IOT ↔ Power Line

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4.Testing results for Emission (EMI)

4.1 General
 The test composition (cable type etc.) that isn't common to Emission and Immunity is described to this clause.

4.2 AC Mains
Judgment: Passed
 EN301489-1 (EN55022)
 Conducted

4.3 Harmonics / Flicker on AC mains
Judgment: Passed
 EN301489-1 (EN61000-3-2 / EN61000-3-3)

4.4 Enclosure
Judgment: Passed
 EN301489-1 (EN55022)
 Radiated

5.Testing results for Immunity

5.1 General
 The test composition (cable type etc.) that isn't common to Emission and Immunity is described to this clause.

5.2 AC Line
Judgment: Passed
 EN301489-1 (EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11)
 Electrical fast transient burst / Surge / Conducted radio frequency / Voltage variation, Dip, Interrupting

5.3 I/O Line
Judgment: N/A

5.4 Enclosure
Judgment: Passed
 EN301489-1 (EN61000-4-2, EN61000-4-3)
 Electro static discharge / Radiated radio frequency

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Radiated Emission Data Sheet

Company Name	Fuji Xerox	Test Date	2002/12/18	
EUT Name	Passive Transponder	Test Plan No.	EPS-2002-024	
Model No.	HIFX	Power / Cycle	100V	50Hz
Serial No.	#75	Facility Cont. No.	SAC	
T e s t Mode	RF ON and RF OFF	Engineer:		
Remarks	Pass	Temp. / Humidity	22°C	58%
Regulation /Class	EN301489 (EN55022)	B		

[Used Test Instrument] : Radiated Emission Test

	Model No.	Name	Manufacture	Control No.	Next Cal. Date
✓	E7405A	Spectrum Analyzer-1	AgilentTechnology	KEI-E005	'03/5/5
✓	E7405A	Spectrum Analyzer-2	Agilent Technology	KEI-E002	'03/5/7
✓	ESS	EMI Receiver	Rohde&Schwarz	KEI-E016	'03/8/16
✓	8447D	Pre Amp.(AM-1)	Agilent Technology	KEI-E052	'03/10/5
✓	8447F	Pre Amp.(AM-2)	Agilent Technology	KEI-E050	'03/8/24
✓	CBL6111	Antenna(AM-1)	CHASE	KEI-E039	'03/10/1
✓	CBL6111	Antenna(AM-2)	CHASE	KEI-E042	03/6/1
	87	True RMS Multimeter	JOHN FLUKE	KEI-I053	
	3026	Press.Temp.Humi.Meter	BARIGO	KEI-I054	

Test plan Number: EPS-2002-013

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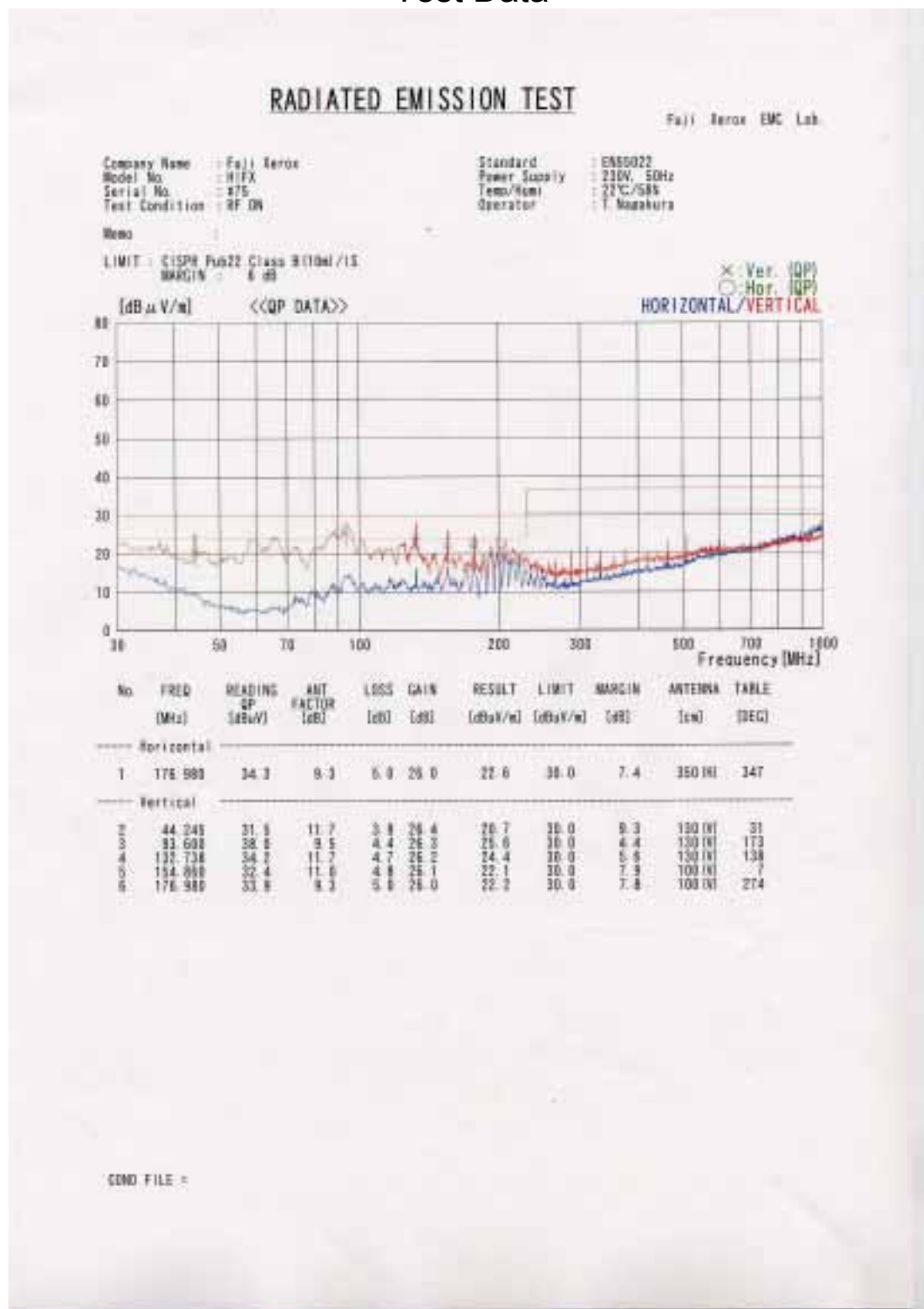
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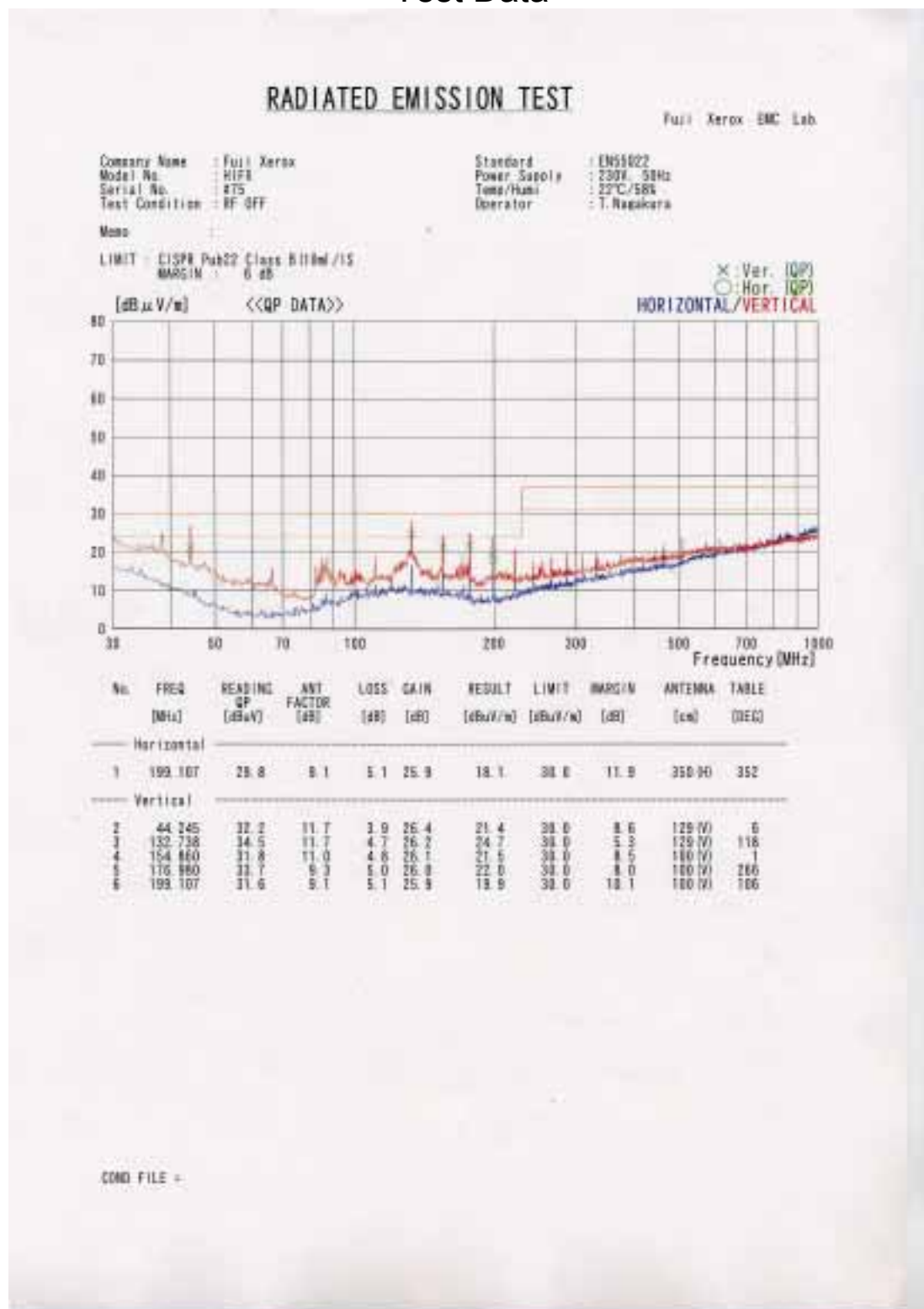
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EN301489 Radiated Emission test

Test Location



Test plan Number: EPS-2002-013

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Conducted Emission Data Sheet

Company Name	Fuji Xerox	Test Date	2002/12/18	
EUT Name	Passive Transponder	Test Plan No.	EPS-2002-024	
Model No.	HIFX	Power / Cycle	230V	50Hz
Serial No.	#75	Facility Cont. No.	SAC	
T e s t Mode	RF ON and RF OFF	Engineer:		
Remarks	PASS	Temp. / Humidity	22°C	48%
Regulation /Class	EN301489 (EN55022)	B		

[Used Test Instrument] : Conducted Emission Test

	Model No.	Name	Manufacture	Control No.	Next Cal. Date
✓	E7405A	Spectrum Analyzer-2	Agilent Technology	KEI-E002	'03/5/7
✓	ESS	EMI Receiver	Rohde&Schwarz	KEI-E016	'03/8/16
✓	KNW407	AMN	Kyoritsu elec	KEI-E066	'03/3/3
✓	KNW407	AMN	Kyoritsu Elec	KEI-E067	'03/9/20

Test plan Number: EPS-2002-013

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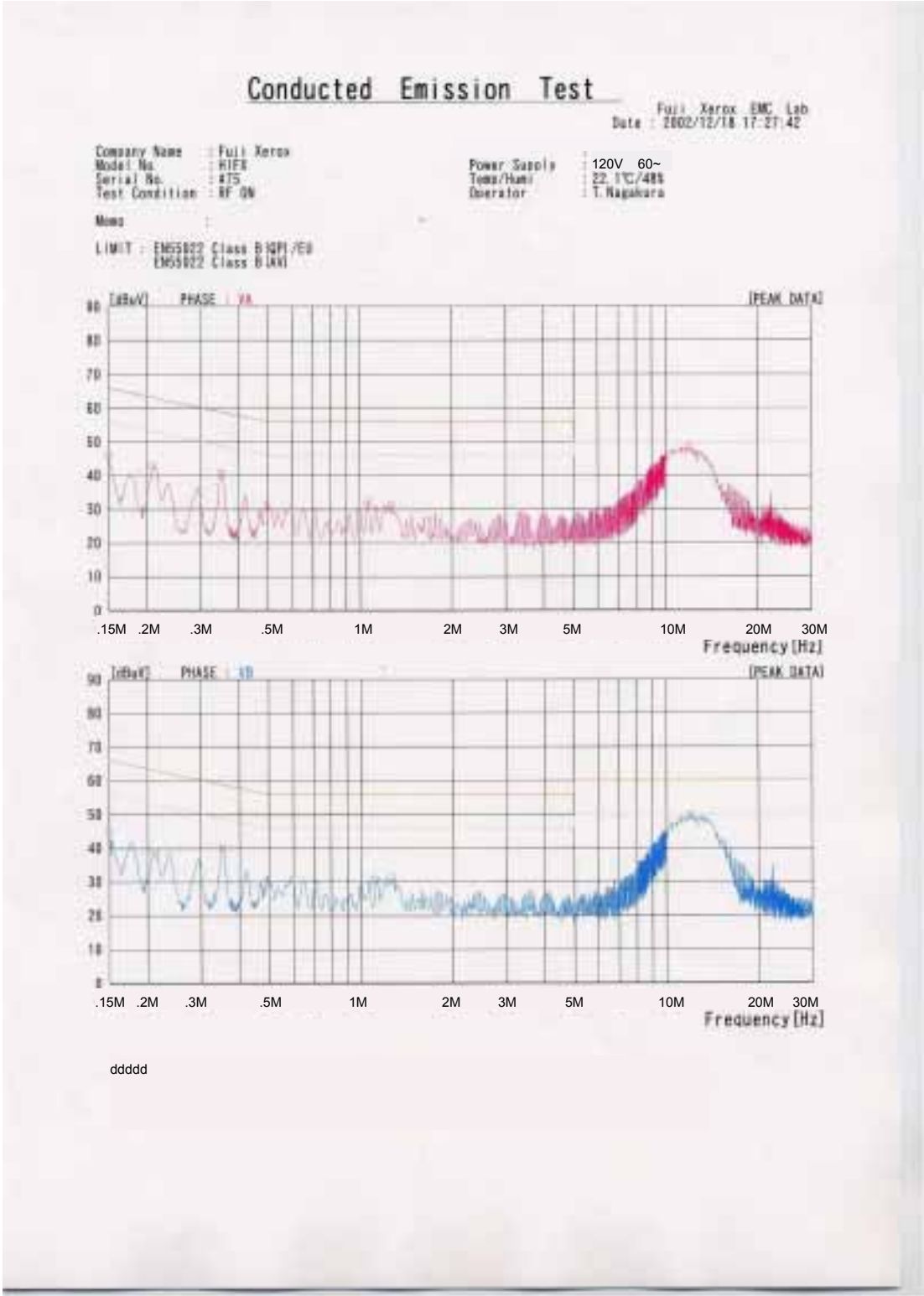
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Test Data





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Test Data

Conducted Emission Test

Fuji Xerox EMC Lab
Date : 2002/12/18 17:27:42

Company Name : Fuji Xerox
Model No. : HIFX
Serial No. : #75
Test Condition : RF ON

Standard : EN55022
Power Supply : 230V, 50Hz
Temp/Humi : 22 1°C/48%
Operator : T. Nagakura

Remark :

LIMIT : EN55022 Class B (QP)/EU
EN55022 Class B (AV)

NO.	FREQ [MHz]	READING		C.F	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
1	0.1500	35.0	---	0.2	35.2	---	55.0	---	20.8	---	VA
2	0.2110	42.7	---	0.2	42.9	---	53.2	---	10.5	---	VA
3	0.3510	40.7	---	0.2	40.9	---	50.9	---	10.2	---	VA
4	1.0530	29.9	---	0.2	30.1	---	55.0	---	25.9	---	VA
5	1.2650	29.2	---	0.2	29.4	---	55.0	---	25.8	---	VA
6	12.0000	48.6	47.3	0.6	49.2	47.9	60.0	59.0	10.8	2.1	VA
7	0.1500	35.0	---	0.2	35.2	---	55.0	---	20.8	---	VB
8	0.2120	38.7	---	0.2	38.9	---	53.1	---	14.2	---	VB
9	0.3540	40.0	---	0.2	40.2	---	50.9	---	10.7	---	VB
10	1.1100	27.6	---	0.2	27.8	---	55.0	---	27.2	---	VB
11	1.2650	28.0	---	0.2	28.2	---	55.0	---	26.8	---	VB
12	12.0500	59.2	47.1	0.7	59.9	47.8	60.0	59.0	9.1	2.2	VB



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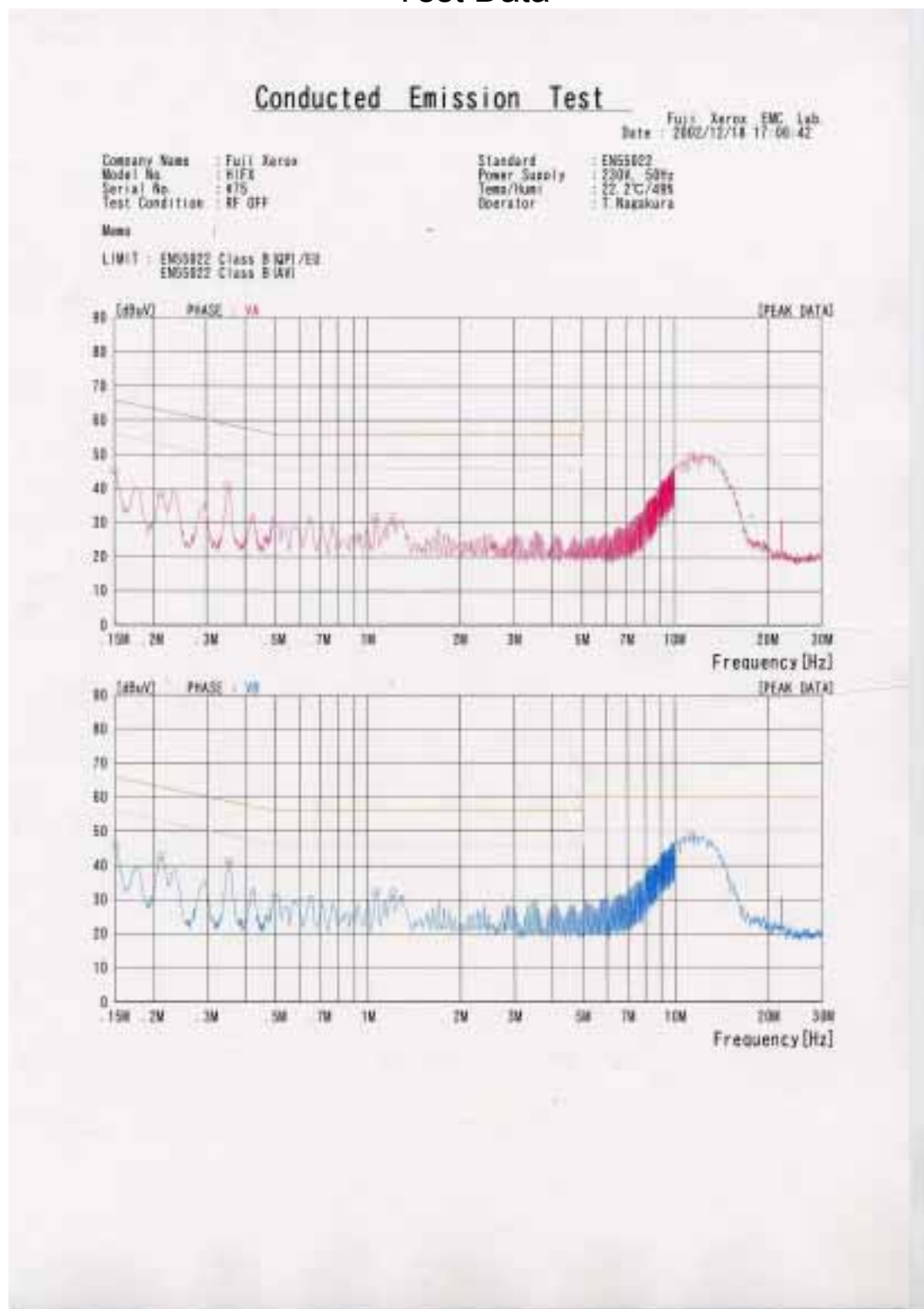
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Test Data

Conducted Emission Test

Fuji Xerox EMC Lab
Date : 2002/12/18 17:06:42

Company Name : Fuji Xerox
Model No. : HIFX
Serial No. : 475
Test Condition : RF OFF
Standard : EN55022
Power Supply : 230V, 50Hz
Temp/Humi : 22.2°C/48%
Operator : T. Nagakura

Memo

LIMIT : EN55022 Class B (QP)/EU
EN55022 Class B (AV)

NO	FREQ (MHz)	READING		C.F	RESULT		LIMIT		MARGIN		PHASE
		QP (dBuV)	AV (dBuV)		QP (dBuV)	AV (dBuV)	QP (dBuV)	AV (dBuV)	QP (dB)	AV (dB)	
1	0.1500	36.3	---	0.2	36.5	---	66.0	---	29.5	---	VA
2	0.2120	42.5	---	0.2	42.7	---	63.1	---	20.4	---	VA
3	0.3520	41.3	---	0.2	41.5	---	58.9	---	17.4	---	VA
4	1.0630	25.5	---	0.3	25.6	---	56.0	---	30.5	---	VA
5	1.2090	30.7	---	0.3	31.0	---	56.0	---	25.0	---	VA
6	11.3500	49.9	46.5	0.8	49.8	47.1	60.0	53.0	10.4	2.8	VA
7	0.1510	39.1	---	0.2	39.3	---	65.9	---	26.6	---	VB
8	0.2120	42.2	---	0.2	42.4	---	63.1	---	20.7	---	VB
9	0.3530	41.4	---	0.2	41.6	---	58.9	---	17.3	---	VB
10	1.0630	29.8	---	0.3	30.1	---	56.0	---	25.9	---	VB
11	1.2090	30.5	---	0.3	30.8	---	56.0	---	25.2	---	VB
12	11.3000	49.2	47.2	0.8	49.8	47.8	60.0	53.0	10.2	2.2	VB

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EN301489 Conducted Emission test

Test Location



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Voltage fluctuation and Flicker Test Data Sheet

Date : Dec.20 '02 TEST PLAN No. EPS-2002-024

Company : Fuji Xerox Model : HIFX

Temp : 22°C Humi : 40% Press : 1009hPa

Regulation & Test Method ☒ EN61000-3-3 ☐ IEC61000-3-3 ☐ Other ()

EUT Power ☒ AC 230V 4A (50Hz/60Hz) ☐ Other ()

Test Mode ☒ RF ON and RF OFF

Location ☒ Harmonics / Flicker measurement area
☐ Other ()

Calibration ☒ Ok ☐ NG ()

Result ☒ Pass ☐ Failure

TEST CONDITIONS

Used test instruments:

Model	Name	Manufacturer	Control No.	Next cal
☒ 2003.4.15	PM3000A	Voltage Fluctuaion Flicker meter	Voltech	KEI-E085
☒	4151 RIN	NF	KEI-E084	2003.5.10
☐	3282	Digital Clamp on Hitester	HIOKI	KEI-I050
☐	3282	Digital Clamp on Hitester	HIOKI	KEI-I051
☐	8050A	Digital Multi Meter	JOHN FLUKE	KEI-I052
☐	87	TRUE RMS Multimeter	JOHN	FLUKE
☐	KEI-I053			
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I054
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I055
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I056
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I057

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Test Data

B M/F100V PRTA4 60Hz				
Product:	HIFX	2002 Dec 20 15:27		
Serial no:	#75	Page 1 of 1		
Description:	RF ON			
Result Name:	HIFX2			
Voltech IEC1000-3 Windows Software 3.02.03		Test Date: 2002 Dec 20 14:18		
Type of Test:	Flickermeter Test - Table			
Power Analyzer:	Voltech PM3000A v2.15 s/n 2412			
AC Source:	Mains / Manual Source			
Overall Result:	Notes:			
PASS	Measurement method - Voltage			
	Pst	dc (%)	dmax (%)	d(t) > 3%(ms)
Limit	1.000	3.000	4.000	500
Reading 1	0.798	0.690	2.574	0



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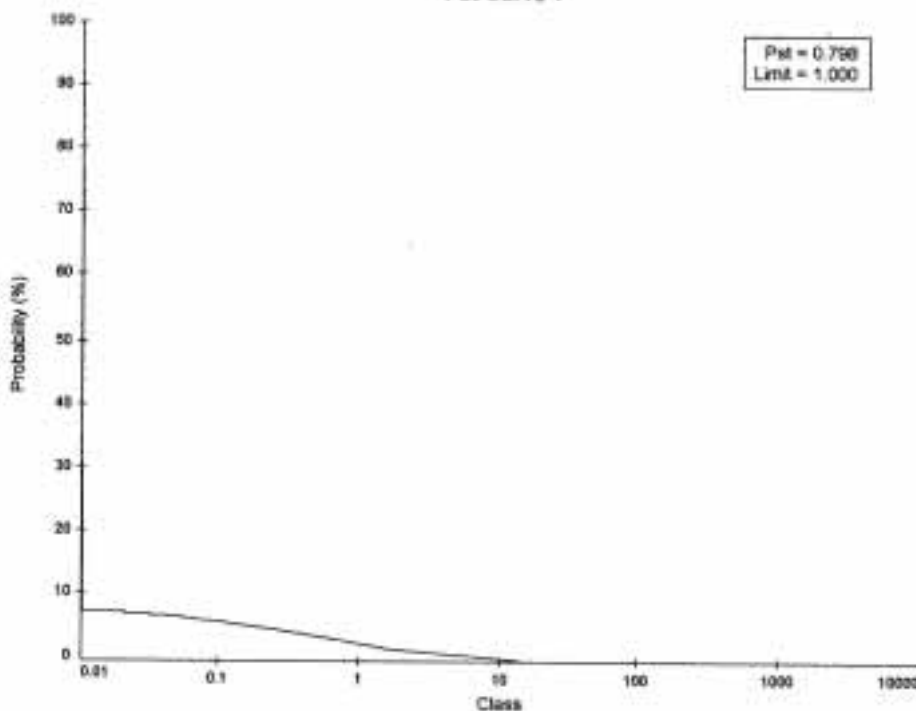
Form revision: k1

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Test Data

B M/F100V PRTA4 60Hz		
Product:	HIFX	2002 Dec 20 15:27 Page 1 of 1
Serial no:	#75	
Description:	RF ON	
Result Name:	HIFX2	
Voltech IEC1000-3 Windows Software 3.02.03		Test Date: 2002 Dec 20 14:16
Type of Test:	Flickermeter Test - Pst Curve	
Power Analyzer:	Voltech PM3000A v2.16 s/n 2412	
AC Source:	Mains / Manual Source	
Overall Result:	Notes: Measurement method - Voltage	
PASS		

Pst Curve 1





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Test Data

B M/F100V PRTA4 60Hz	
Product:	HFX
Serial no:	#75
Description:	RF OFF
Result Name:	HXFI
Votech IEC1000-3 Windows Software 3.02.03	
Type of Test:	Flickermeter Test - Table
Power Analyzer:	Votach PM3000A v2.16 s/n 2412
AC Source:	Mains / Manual Source
Overall Result:	Notes: Pit test duration 120 minutes Measurement method - Voltage
PASS	

	Pst
Limit	0.650
Reading	0.614

	Pst	dc (%)	dmax (%)	d(f) > 3%(ms)
Limit	1.000	3.000	4.000	500
Reading 1	0.785	0.697	2.627	0
Reading 2	0.785	0.690	2.619	0
Reading 3	0.781	0.690	2.612	0
Reading 4	0.764	0.690	2.610	0
Reading 5	0.782	0.690	2.633	0
Reading 6	0.765	0.690	2.618	0
Reading 7	0.071	0.017	0.062	0
Reading 8	0.071	0.017	0.062	0
Reading 9	0.071	0.017	0.062	0
Reading 10	0.071	0.017	0.062	0
Reading 11	0.071	0.017	0.062	0
Reading 12	0.071	0.017	0.060	0



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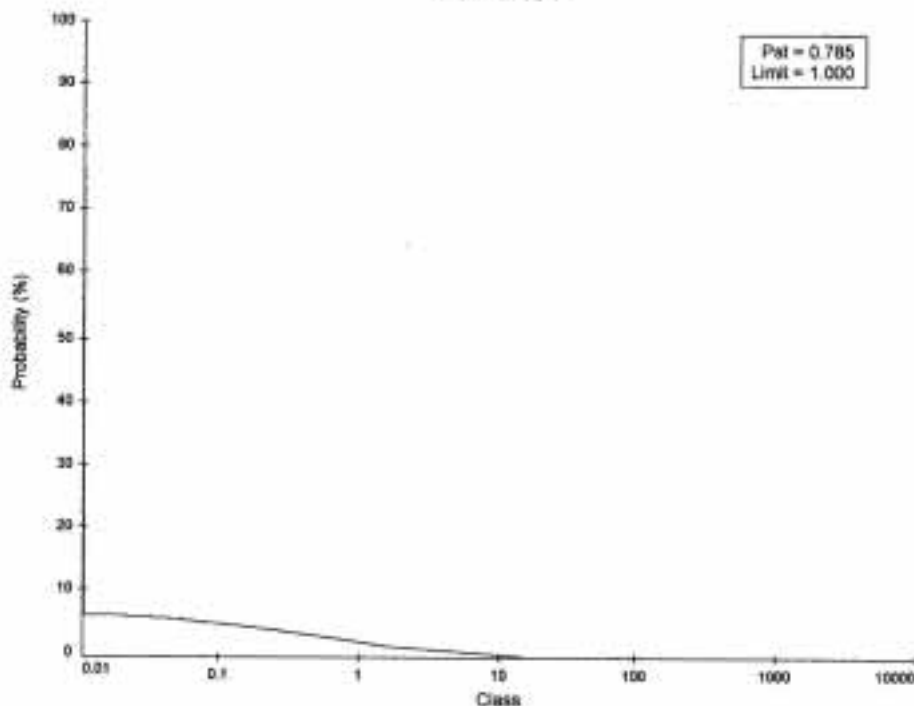
Form revision: k1

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Test Data

B M/F100V PRTA4 60Hz		
Product:	HIFX	2002 Dec 20 15:17 Page 1 of 1
Serial no:	#75	
Description:	RF OFF	
Result Name:	HXFI	
Voltech IEC1000-3 Windows Software 3.02.03		Test Date: 2002 Dec 20 11:55
Type of Test:	Flickermeter Test - Pst Curve	
Power Analyzer:	Voltech PM3000A v2.16 s/n 2412	
AC Source:	Mains / Manual Source	
Overall Result:	Notes: Measurement method - Voltage	
PASS		

Pst Curve 1





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Harmonics Test Data Sheet

Date: Dec.20 '02 TEST PLAN No. EPS-2002-024
Company: Fuji Xerox Model : HIFX
EUT Name: Passive Transponder Test Engineer:
Temp: 21°C Humidity: 40% Press: 1009hPa
Regulation & Test Method ☒ EN61000-3-2 ☐ IEC61000-3-2 ☐ Other ()
EUT Power ☒ AC 230 V 4 A (50Hz/60Hz) ☐ Other ()
Test Mode ☒ RF ON and RF OFF
Location ☒ Harmonics / Flicker measurement area
☐ Other ()
Calibration ☒ Ok ☐ NG ()
Result ☒ Pass ☐ Failure

TEST CONDITIONS

Used test instruments:

	Model	Name	Manufacturer	Control No.	Next cal
☒	PM3000	Harmonics meter	Voltech	KEI-E085	2003.4.15
	4151	RIN	NF		KEI-E087
		2003.5.10			
☐	3282	Digital Clamp on Hitester	HIOKI	KEI-I050	
☐	3282	Digital Clamp on Hitester	HIOKI	KEI-I051	
☐	8050A	Digital Multi Meter	JOHN FLUKE	KEI-I052	
☐	87	TRUE RMS Multimeter	JOHN FLUKE	KEI-I053	
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I054	
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I055	
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I056	
☐	3026	Press Temp Humi Meter	BARIGO	KEI-I057	

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Test Data

Product: HIFX		2002 Dec 20 15:19
Serial no: #75		Page 1 of 1
Description: RF OFF		
Test Date: 2002 Dec 20 14:30		
Result Name: HIFX		
Type of Test: EN51000-2001 Harmonics		
Limits: Class A		
Power Analyzer: Voltech PM3000A v2.18 s/n 2412		
AC Source: Mains / Manual Source		
Overall Result:	Notes:	
PASS		
Test Parameter Details		
Operating Frequency:	User Entered 50	Measured 49.9922
Operating Voltage:	230	230.4000
Specified Power:	0.0000	618.0938
Fundamental Current:	0.0000	2.7072
Power Factor:	0.0000	0.9913
Average Input Current:		0.3677
Maximum POHC:		0.0046
POHC Limit:		0.0779
Maximum THC:		0.0325
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	



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Test Data

B M/F100V PRTA4 60Hz	
Product: HIFX	2002 Dec 20 15:19
Serial no: #75	Page 1 of 1
Description: RF OFF	
Result Name: HIFX	
Votech IEC1000-3 Windows Software 3.02.03	
Type of Test: Fluctuating Harmonics Test - Worst Case Table (2001)	Test Date: 2002 Dec 20 14:30
Power Analyzer: Votech PM3000A v2.16 s/n 2412	
AC Source: Mains / Manual Source	
Overall Result:	
PASS	

Class	Class A
Class Multiplier	1

Item	Limit 1	Limit 2	Average Reading	+L1 -L2	Max Reading	-L2	Pass/Fail	Item	Limit 1	Limit 2	Average Reading	+L1 -L2	Max Reading	-L2	Pass/Fail
3	1.00A	1.00A	0.00mA	✓✓	40.00mA	✓	N/A	3	2.00A	3.45A	98.00mA	✓✓	100.00mA	✓	Pass
4	430.00mA	440.00mA	1.00mA	✓✓	50.00mA	✓	N/A	5	1.14A	1.71A	92.65mA	✓✓	92.97mA	✓	Pass
6	300.00mA	450.00mA	0.00mA	✓✓	3.20mA	✓	N/A	7	710.00mA	1.10A	83.84mA	✓✓	94.30mA	✓	Pass
8	330.00mA	345.00mA	0.00mA	✓✓	3.20mA	✓	N/A	9	400.00mA	500.00mA	73.00mA	✓✓	73.80mA	✓	Pass
10	184.00mA	270.00mA	0.70mA	✓✓	1.00mA	✓	N/A	11	330.00mA	490.00mA	60.00mA	✓✓	61.27mA	✓	Pass
12	103.20mA	120.30mA	0.00mA	✓✓	1.00mA	✓	N/A	13	210.00mA	310.00mA	48.00mA	✓✓	49.01mA	✓	Pass
14	131.40mA	131.40mA	0.00mA	✓✓	1.20mA	✓	N/A	15	150.00mA	220.00mA	30.70mA	✓✓	30.80mA	✓	Pass
16	110.00mA	110.00mA	0.70mA	✓✓	1.00mA	✓	N/A	17	100.00mA	100.00mA	20.00mA	✓✓	24.60mA	✓	Pass
18	100.00mA	100.00mA	0.70mA	✓✓	1.00mA	✓	N/A	19	110.00mA	170.00mA	14.10mA	✓✓	14.40mA	✓	Pass
20	80.00mA	90.00mA	0.70mA	✓✓	1.00mA	✓	N/A	21	100.00mA	100.00mA	9.00mA	✓✓	9.00mA	✓	Pass
22	80.00mA	90.00mA	0.70mA	✓✓	1.00mA	✓	N/A	23	100.00mA	100.00mA	6.70mA	✓✓	1.00mA	✓	N/A
24	70.00mA	70.00mA	0.70mA	✓✓	1.00mA	✓	N/A	25	80.00mA	80.00mA	3.00mA	✓✓	4.00mA	✓	N/A
26	70.00mA	70.00mA	0.70mA	✓✓	1.00mA	✓	N/A	27	60.00mA	60.00mA	0.00mA	✓✓	0.00mA	✓	Pass
28	60.00mA	60.00mA	0.70mA	✓✓	1.00mA	✓	N/A	29	70.00mA	70.00mA	0.00mA	✓✓	0.00mA	✓	Pass
30	60.00mA	60.00mA	0.70mA	✓✓	1.00mA	✓	N/A	31	70.00mA	70.00mA	0.00mA	✓✓	0.00mA	✓	Pass
32	50.00mA	50.00mA	0.70mA	✓✓	1.00mA	✓	N/A	33	60.00mA	60.00mA	0.00mA	✓✓	0.00mA	✓	N/A
34	50.00mA	50.00mA	0.70mA	✓✓	1.00mA	✓	N/A	35	60.00mA	60.00mA	0.00mA	✓✓	0.00mA	✓	N/A
36	50.00mA	50.00mA	0.70mA	✓✓	1.00mA	✓	N/A	37	60.00mA	60.00mA	0.00mA	✓✓	0.00mA	✓	N/A
38	40.00mA	40.00mA	0.70mA	✓✓	1.00mA	✓	N/A	39	50.00mA	50.00mA	0.00mA	✓✓	0.00mA	✓	N/A
40	40.00mA	40.00mA	0.70mA	✓✓	1.00mA	✓	N/A								

+L1 -L2 Reading is below limit 1.

+L2 -L2 Reading is below limit 2.

N/A - Harmonics current below 0.05% of rated current or 5mA, whichever is greater, are disregarded.

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Form or Standard Number: EPS25-F001

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Test Data

Product: HIFX		2002 Dec 20 15:28
Serial no: #75		Page 1 of 1
Description: RF ON		
Test Date: 2002 Dec 20 14:58		
Result Name: HIFX2		
Type of Test: EN51000:2001 Harmonics		
Limits: Class A		
Power Analyzer: Voltech PM3000A v2.16 sh 2412		
AC Source: Mains / Manual Source		
Overall Result:	Notes:	
PASS		
Test Parameter Details		
Operating Frequency:	User Entered 50	Measured 49.9893
Operating Voltage:	230	230.4000
Specified Power:	0.0000	615.9531
Fundamental Current:	0.0000	2.8962
Power Factor:	0.0000	0.9920
Average Input Current:		0.0362
Maximum POHC:		0.0046
POHC Limit:		0.0779
Maximum THC:		0.0326
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	



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Test Data

B M/F100V PRTA4 60Hz	
Product: HIFX	2002 Dec 20 15:28
Serial no: #75	Page 1 of 1
Description: RF ON	
Result Name: HIFX2	
Voltech IEC1000-3 Windows Software 3.02.03	
Type of Test: Fluctuating Harmonics Test - Worst Case Table (2001)	Test Date: 2002 Dec 20 14:58
Power Analyzer: Voltech PM3000A v2.16 a/n 2412	
AC Source: Mains / Manual Source	
Overall Result:	
PASS	

Class	Class A
Class Multiplier	1

Item	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass / Fail	Item	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass / Fail
2	1.0mA	1.0mA	0.22mA	✓	0.37mA	✓	Pass	3	2.0A	2.0A	88.0mA	✓	106.1mA	✓	Pass
4	400.00mA	545.00mA	1.07mA	✓	8.23mA	✓	Pass	5	1.1A	1.1A	82.3mA	✓	92.8mA	✓	Pass
6	300.00mA	400.00mA	0.88mA	✓	3.2mA	✓	Pass	7	770.00mA	1.15A	82.80mA	✓	84.20mA	✓	Pass
8	200.00mA	345.00mA	0.32mA	✓	2.48mA	✓	Pass	9	400.00mA	500.00mA	73.07mA	✓	75.40mA	✓	Pass
10	184.00mA	270.00mA	0.79mA	✓	1.98mA	✓	Pass	11	350.00mA	480.00mA	60.86mA	✓	61.30mA	✓	Pass
12	183.33mA	183.33mA	0.79mA	✓	1.48mA	✓	Pass	13	210.00mA	310.00mA	48.24mA	✓	48.84mA	✓	Pass
14	131.43mA	131.43mA	0.80mA	✓	1.34mA	✓	Pass	16	180.00mA	220.00mA	55.64mA	✓	58.88mA	✓	Pass
16	110.00mA	110.00mA	0.77mA	✓	1.21mA	✓	Pass	17	133.33mA	180.00mA	34.37mA	✓	34.78mA	✓	Pass
18	182.22mA	102.22mA	0.78mA	✓	0.80mA	✓	Pass	19	116.43mA	121.83mA	14.33mA	✓	14.55mA	✓	Pass
20	82.00mA	92.00mA	0.76mA	✓	1.07mA	✓	Pass	21	167.14mA	107.14mA	6.21mA	✓	6.57mA	✓	Pass
22	82.86mA	82.86mA	0.76mA	✓	0.84mA	✓	Pass	23	97.60mA	97.60mA	0.77mA	✓	0.88mA	✓	Pass
24	78.67mA	78.67mA	0.77mA	✓	0.95mA	✓	Pass	26	80.00mA	80.00mA	3.05mA	✓	4.72mA	✓	Pass
26	70.77mA	70.77mA	0.76mA	✓	0.83mA	✓	Pass	27	83.33mA	83.33mA	6.75mA	✓	6.90mA	✓	Pass
28	66.71mA	66.71mA	0.76mA	✓	0.83mA	✓	Pass	29	77.59mA	77.59mA	6.40mA	✓	7.48mA	✓	Pass
30	61.25mA	61.25mA	0.76mA	✓	0.87mA	✓	Pass	31	72.59mA	72.59mA	5.96mA	✓	6.23mA	✓	Pass
32	57.50mA	57.50mA	0.76mA	✓	0.80mA	✓	Pass	33	68.18mA	68.18mA	4.89mA	✓	5.21mA	✓	Pass
34	54.12mA	54.12mA	0.76mA	✓	0.88mA	✓	Pass	35	64.29mA	64.29mA	5.28mA	✓	5.32mA	✓	Pass
36	51.11mA	51.11mA	0.76mA	✓	0.76mA	✓	Pass	37	60.61mA	60.61mA	1.74mA	✓	1.81mA	✓	Pass
38	46.43mA	46.43mA	0.76mA	✓	0.85mA	✓	Pass	39	57.89mA	57.89mA	0.84mA	✓	2.30mA	✓	Pass
40	46.00mA	46.00mA	0.76mA	✓	0.76mA	✓	Pass								

<L1 : Reading is below limit 1.

<L2 : Reading is below limit 2.

N/A : Harmonic current below 0.05% of rated current or 50mA, whichever is greater, are disregarded.

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Name of the standard document; EMC TEST REPORT		
Form or Standard Number: EPS25-F001	Form revision: k1	Page:33 of 57
Appendix B Data sheets for Immunity		
Test plan Number: EPS-2002-013		Produced © by FUJI XEROX CO., LTD.



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Electro static discharge Immunity Test Data Sheet

Data. 2002.12.19

TESTPLAN No.: EPS-2002-024

Company: Fuji Xerox

Model : Passive Transponder

EUT Name: HIFX

Test Engineer : Takashi Nagakura

Temp: 24 Degree C

Humi: 54%

Press: 1016hPa

Regulation ☐ EN55024 ☐ CISPR Publ.24 ☒ Other (EN301489)

Test Method ☐ EN61000-4-2 ☐ IEC61000-4-2 ☐ Other ()

EUT Power ☒ AC 230 V 4A (50Hz/60Hz) ☐ Other ()

Test Level ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ Other ()

Discharge method ☒ Air ☒ Contact ☒ Indirect ☐ Other ()

Location ☒ Shield Room1 ☐ Other ()

Calibration ☒ Ok ☐ NG ()

Result ☒ Pass ☐ Failure ()

Test point	Value [kV]	Method Air/Con/In	Comment	Result
Front	4.0	Indirect	examination by using the PCV	A
Right	4.0	Indirect	↑	A
Left	4.0	Indirect	↑	A
Under	4.0	Indirect	examination by using the PCH	A
1	4.0	Con		A
2	4.0	Con		A
3	4.0	Con		A
4	4.0	Con		A
5	8.0	Air	it doesn't discharge electricity	A
6	8.0	Air	it doesn't discharge electricity	A
7	8.0	Air	it doesn't discharge electricity	A
8	8.0	Air	it doesn't discharge electricity	A
9	8.0	Air	it doesn't discharge electricity	A
10	8.0	Air	it doesn't discharge electricity	A
11	8.0	Air	it doesn't discharge electricity	A
12	8.0	Air	it doesn't discharge electricity	A
13	8.0	Air	it doesn't discharge electricity	A

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Test point	Value [kV]	Method Air/Con/In	Comment	Result
14	8.0	Air	it doesn't discharge electricity	A
15	8.0	Air	it doesn't discharge electricity	A

Note 1 : Refer to attached photograph for the test point from the number 1 to 15 .

Note 2 :

Used Test Instrument:

√	Model	Name	Manufacturer	Control Number	Next Cal
√	PESD	ESD Generator	HAEFELY	KEI-I001	2003.12
	54845A	Oscilloscope	Agilent Technology	KEI-E094	
	8753E	Network Analyzer	Agilent Technology	KEI-E095	
	-	BNC Cable	-	TOL-0022	
	85032 Type N	Network Analyzer Calibration kit	Agilent Technology	KEI-E107	
	766-20	Attenuator	Narda	TOL-0002	-
	766-6	Attenuator	Narda	TOL-0014	-
	CT-03NP	Terminator	-	TOL-0005	-
	33N-BNC-50-1	Connector	Suhner	TOL-0020	-
	8050A	Digital Multi Meter	JOHN FLUKE	KEI-I052	
	3026	Press Temp Humi Meter	BARIGO	KEI-I054	
	3026	Press Temp Humi Meter	BARIGO	KEI-I055	
	3026	Press Temp Humi Meter	BARIGO	KEI-I056	
	3026	Press Temp Humi Meter	BARIGO	KEI-I057	
	Model 3000	ESD Generator	Bigbang	KEI-I002	

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The photograph of the test point



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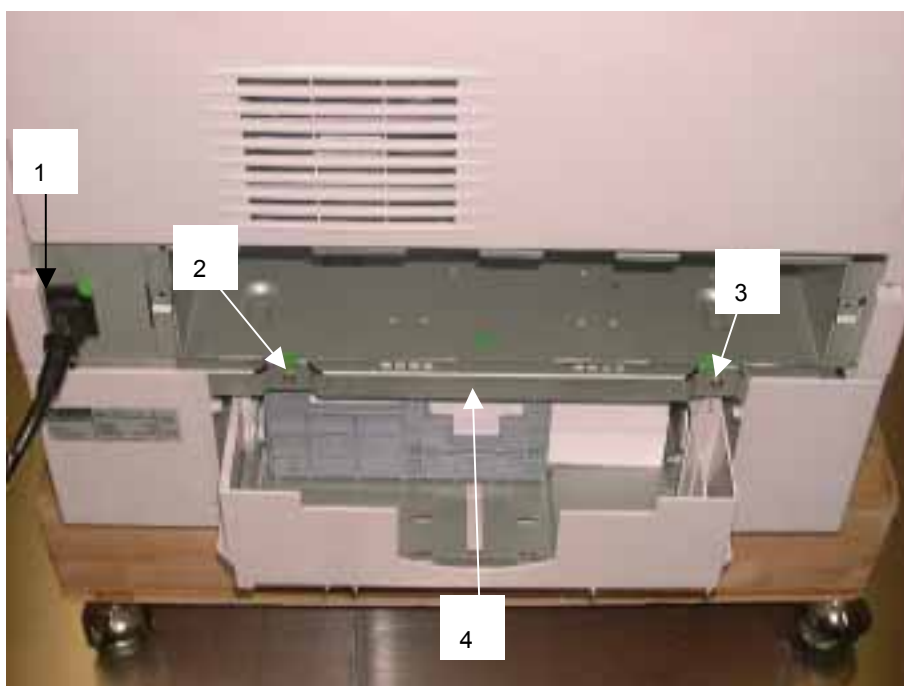
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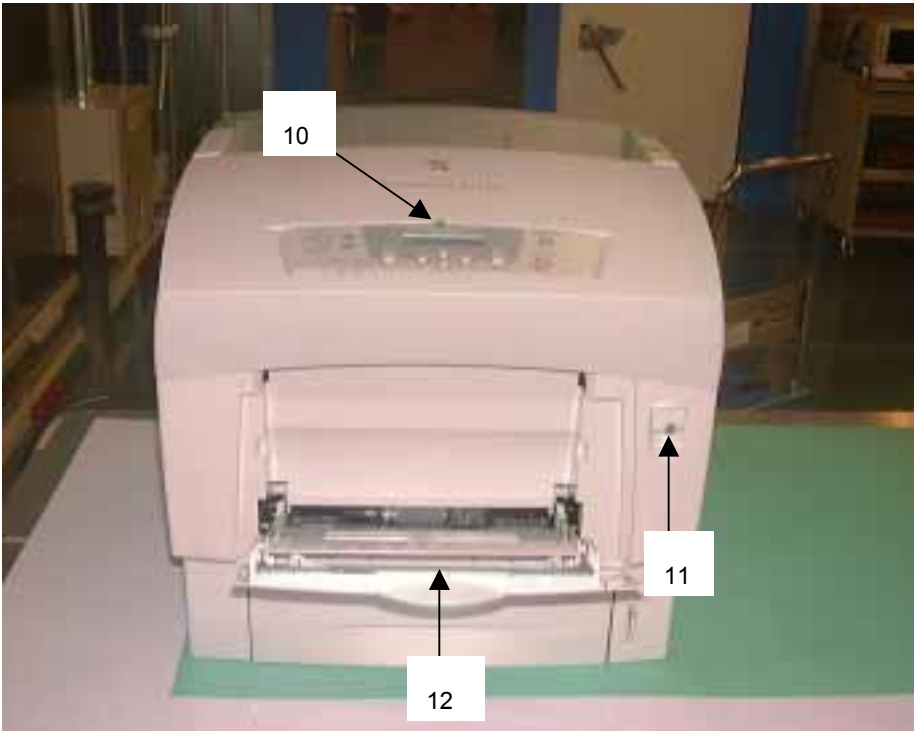
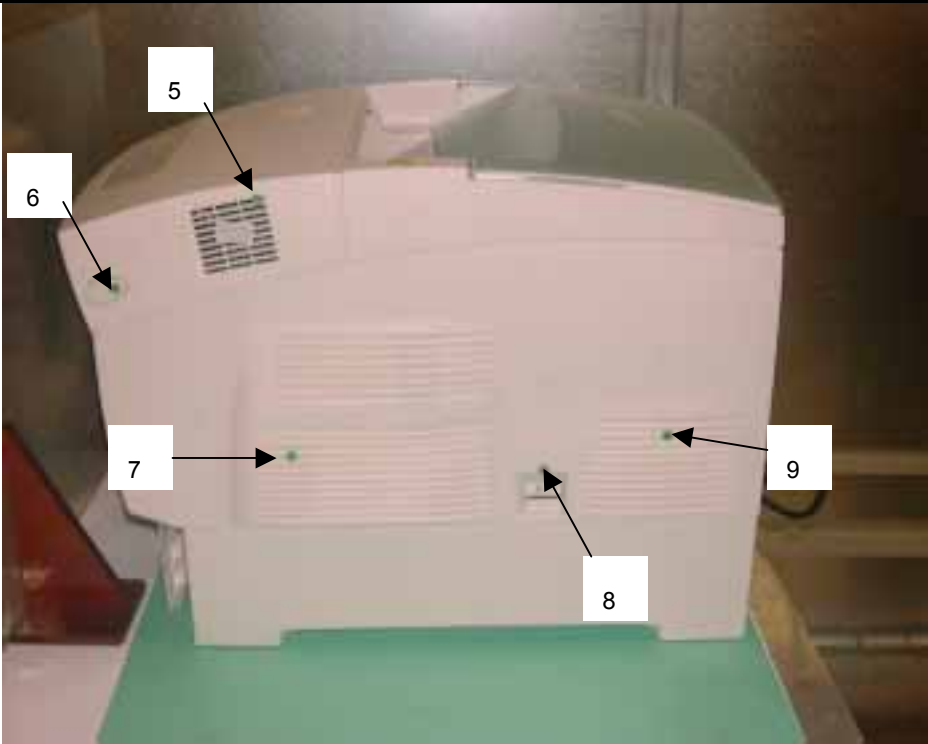
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Electrical fast transient/burst Immunity Test Data Sheet

Data. 2002.12.16

TESTPLAN No.: EPS-2002-024

Company: Fuji Xerox

Model : Passive Transponder

EUT Name : HIFX

Test Engineer : Takashi

Nagakura

Temp: 23 Degree Humi: 51% Press: 1014hPa

Regulation ☐ EN55024 ☐ CISPR Publ.24 ☒ Other (EN301489)

Test Method ☒ EN61000-4-4 ☐ IEC61000-4-4 ☐ Other ()

EUT Power ☒ AC 230 V 4A (50Hz/60Hz) ☐ Other ()

Test Level ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ Other ()

Repetition Rate ☒ 5kHz ☐ 2.5kHz ☐ Other ()

Used Device ☒ CDN ☐ Capacitive coupling Clamp
☐ Other ()

Test Time ☒ 1Min ☐ Other () Min

Location ☒ Shield Room1 ☐ Other ()

Calibration ☒ Ok ☐ NG ()

Result ☒ Pass ☐ Failure ()

Test point	Value [kV]	Coupling CDN/CCC	Comment	Criteria
AC Port	1.0	CDN		A

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Used Test Instrument:

√	Model	Name	Manufacturer	Control Number	Next Cal
	PEFT1.0	Burst Genaretor	HAEFELY	KEI-I010	
	54845A	Oscilloscope	Agilent Technology	KEI-E094	
	8753E	Network Analyzer	Agilent Technology	KEI-E095	
	-	BNC Cable	-	TOL-0022	
	-	BNC Cable	-	TOL-0023	
	85032 Type N	Network Analyzer Calibration kit	Agilent Technology	KEI-E107	
	LC159	Attenuator	Weinschel	TOL-0001	-
	34-30-34	Attenuator	Weinschel	TOL-0003	-
	766-6	Attenuator	Narda	TOL-0014	-
	-	Reference plane	-	TOL-0015	-
	-	Reference plane	-	TOL-0016	-
	CT-03NP	Terminator	-	TOL-0005	-
	HRM-555S	Connector	Hirose Elec	TOL-0021	-
	32 N-50-0-1	Connector	Suhner	TOL-0018	-
	31N-50-0-2	Connector	Suhner	TOL-0019	-
	33N-BNC-50-1	Connector	Suhner	TOL-0020	-
	8050A	Digital Multi Meter	JOHN FLUKE	KEI-I052	
	3026	Press Temp Humi Meter	BARIGO	KEI-I054	
	3026	Press Temp Humi Meter	BARIGO	KEI-I055	
	3026	Press Temp Humi Meter	BARIGO	KEI-I056	
	3026	Press Temp Humi Meter	BARIGO	KEI-I057	
	IP2A	Capacitive Coupling Clamp	HAEFLY	KEI-I042	-
√	NSG3025	Burst Genarator	Schaffner	KEI-I011	2003.4.15



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Surge Transients Test Data Sheet

Data. 2002.12.17

TESTPLAN No.: EPS-2002-024

Company: Fuji Xerox

Model : Passive Transponder

EUT Name : HIFX

Test Engineer : Takashi Nagakura

Temp: 24 DegreesC

Humi: 56%

Press: 1016hPa

Regulation ☐ EN55024

☐ CISPR Publ.24

☒ Other (EN301489)

Test Method ☒ EN61000-4-5

☐ IEC61000-4-5

☐ Other ()

EUT Power ☒ AC 230V 4A (50Hz/60Hz)

☐ Other ()

Power Line ☐ 2-Pin

☒ 3-Pin

☐ Other ()

Use Device ☒ C.D.N

☐ Coupling Unit

☐ Other ()

Test Level

☒ 0.5kV

☒ 1.0kV

☐ 1.5kV

☐ 2.0kV

☐ 4.0kV

☐ Other ()

Test Phase

☒ 0 °

☒ 90 °

☒ 180 °

☒ 270 °

Interval

☐ 20Seconds

☐ 40Seconds

☒ 60Seconds

☐ Other ()

Location

☒ Shield Room1

Use Tester

☐ HAEFELY PC6-288

☒ BIGBANG IPS-3000

Calibration

☒ Ok

☐ NG

(

)

Result

☒ Pass

☐ Failure

Test Line	Level	Phase	Comment	Results
L-N Pos & Neg (Normal)	0.5kV	0 °		A
		90 °		A
		180 °		A
		270 °		A
L-GND Pos & Neg (Common)	1.0kV	0 °		A
		90 °		A
		180 °		A
		270 °		A
N-GND Pos&Neg (Common)	1.0kV	0 °		A
		90 °		A
		180 °		A
		270 °		A

Performance criteria

A : Passed criterion A

B : Passed criterion B

C : Passed criterion C

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TEST CONDITIONS (SURGE TRANSIENTS)

The Measurements of the immunity against surge Transients was performed in Shield room.

Test Location:

☒ Shield room

☐ Other ()

Used test Instruments:

<u>Model</u>	<u>Name</u>	<u>Manufacture</u>	<u>Control No.</u>	<u>Next cal</u>
☐ PC6-288	Surge Tester	HAEFELY KEI-I012		
☐ FP20/3-3	Coupling Filter	HAEFELY KEI-I038		
☐ FP16/3-1	Coupling Filter	HAEFELY KEI-I039		
☒ IPS3000	Surge Simulator	BIGBANG KEI-I059	2003.01	
☐ TRH-CA	Thermo-Hygro Meter SHINSEI	—		



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Radiated, radio-frequency, electromagnetic field immunity Test Data Sheet

Date: 2003.12.19 TEST PLAN No. **EPS-2002-024**
Company: Fuji Xerox Model : **Passive Transponder**
EUT Name: **HIFX** Test Engineer: Takashi Nagakura
Temp: 24 Degrees C Humi: 60% Press: 1018hPa
Regulation ☐ EN55024 ☐ CISPR Publ.24 ☒ Other (EN301489)
Test Method ☒ EN61000-4-3 ☐ IEC61000-4-3 ☐ Other (_____)
EUT Power ☒ AC 230 V 4 A (50Hz/60Hz) ☐ Other (_____)
Test Mode ☐ _____
Test Level ☒ 3V/m ☐ 4.5V/m ☐ Other (_____)
Frequency ☒ 80~1000MHz ☐ 900MHz ☒ Other (1.4GHz to 2 GHz)
Modulation ☒ AM80% 1kHz ☐ FM_%_kHz ☐ Other (_____)
Frequency ☐ 1%/0.5sec ☒ 1%/1.0sec ☐ 1%/__sec ☐ __%/__sec
Location ☒ Moon ☒ FAC ☐ Other (_____)
Polarization of antenna ☒ Horizontal ☒ Vertical ☐ Other (_____)
Calibration ☒ Ok ☐ NG (_____)
Result ☒ Pass ☐ Failure

Polarization	Machine Degree	Result	Comment
Horizontal	0	A	80MHz to 1GHz
Horizontal	90	A	↑
Horizontal	180	A	↑
Horizontal	270	A	↑
Vertical	0	A	↑
Vertical	90	A	↑
Vertical	180	A	↑
Vertical	270	A	↑
Horizontal	0	A	1.4GHz to 2.0GHz
Horizontal	90	A	↑
Horizontal	180	A	↑
Horizontal	270	A	↑
Vertical	0	A	↑
Vertical	90	A	↑
Vertical	180	A	↑
Vertical	270	A	↑

Performance criteria A : Passed criterion A, B : Passed criterion B, C : Passed criterion C



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Form revision: k1

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TEST CONDITIONS (RADIATED FIELDS)

The Measurements of the immunity against radiated fields was performed in anechoic room.

Test location:

- Moon : 80MHz to 1GHz
- FAC : 1.4GHz to 2.0GHz

Used test instruments:

Model	Name	Manufacturer	Control No.	Next cal	
■	SMH	Signal Generator	R&S	KEI-I033	2003.3
■	1000M11	Power Amplifier	AR	KEI-I006	-
■	4421	Power Meter	Bird	KEI-I034	2003.11
■	CBL6111	BiLog Antenna	CHASE	—	
■	HI-6005	Field Probe	HOLADY	KEI-I017	2003.11
■	E4422B	Signal Generator	Agilent	KEI-I036	2003.8
■	7250C	Power Amplifier	KALMUS	KEI-I004	-
■	NRVD	Power Meter	R&S	KEI-I037	2003.9
■	CBL6143	BiLog Antenna	CHASE	KEI-E043	-
■	HI-6005	Field Probe	HOLADY	KEI-I018	2003.6
☐	3282	Digital Clamp on Hitester		HIOKI	KEI-I050
☐	3282	Digital Clamp on Hitester		HIOKI	KEI-I051
☐	8050A	Digital Multi Meter	JOHN FLUKE	KEI-I052	
☐	87	TRUE RMS Multimeter		JOHNFLUKE	KEI-I053
☐	3026	Press Temp Humi Meter		BARIGO	KEI-I054
☐	3026	Press Temp Humi Meter		BARIGO	KEI-I055
☐	3026	Press Temp Humi Meter		BARIGO	KEI-I056
☐	3026	Press Temp Humi Meter		BARIGO	KEI-I057



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Conducted Disturbance Data Sheet

Data. 2002.12.17

TESTPLAN No.: EPS-2002-024

Company: Fuji Xerox

Model : Passive Transponder

EUT Name : HIFX

Test Engineer : Takashi Nagakura

Temp: 24 Degrees C

Humi: 56%

Press: 1016hPa

Regulation ☐ EN55024 ☐ CISPR Publ.24 ☒ Other(EN301489)

Test Method ☒ EN61000-4-6 ☐ IEC61000-4-6 ☐ Other ()

EUT Power ☒ AC 230 V 4 A (50Hz/60Hz) ☐ Other ()

Frequency ☒ 0.15 to 80MHz ☐ 0.15 to 230MHz ☐ Other ()

Test Level ☒ 3.0V ☐ 10.0V ☐ Other ()

Modulation ☐ Un-Modulation ☒ AM80%, 1KHz ☐ Other ()

Used Device ☒ CDN ☐ EM-Clump ☐ Direct-Jig ☐ Other ()

Test Time ☐ 3Seconds ☒ Other (1.5) Seconds

Location ☒ Shield Room1 ☐ Other ()

Calibration ☒ Ok ☐ NG ()

Result ☒ Pass ☐ Failure

Test Line	Level	Coupling	Comment	Criteria
AC Port	3.0V	CDN		A

Performance criteria

A : Passed criterion A

B : Passed criterion B

C : Passed criterion C

Note 1 :

Note 2 :

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TEST CONDITIONS (Conducted Disturbance)

The Measurements of the immunity against Conducted Disturbance was performed in Shield room.

Test Location

☒ Shield room

☐ Other ()

Used test instruments

✓	Model	Name	Manufacture	Control No	Next cal
	8648A	Signal generator	Agilent	KEI-I019	
✓	8648C	Signal generator	Agilent	KEI-I035	2003.2
✓	4300	Power Meter	Booton	KEI-I020	2003.10
✓	75A250M1	Power Amp	AR	KEI-I021	-
	1460	De-Coupler	WERLATON	KEI-I022	
	51011	Power Sensor	Booton	KEI-I023	
	FCC-801-M1-16	CDN M1	FCC	KEI-I024	
	FCC-801-M2-16	CDN M2	FCC	KEI-I025	
✓	FCC-801-M3-16	CDN M3	FCC	KEI-I026	-
	FCC-801-M5-32	CDN M5	FCC	KEI-I027	
	FCC-801-T2	CDN T2	FCC	KEI-I028	
	FCC-801-T4	CDN T4	FCC	KEI-I029	
	FCC-801-T8	CDN T8	FCC	KEI-I030	
	FCC-801-C1BN C	CDN BNC	FCC	KEI-I031	
	EM101	EM Clamp	Luthi	KEI-I032	
	45-6-33	Attenuator	Weinshel	TOL-0001	
	45-6-33	Attenuator	Weinshel		
	CT-03NP	Terminator	TME	TOL-0004	
	CT-03NP	Terminator	TME		
	CT-03NP	Terminator	TME		
	CT-03BP	Terminator	TME	TOL-0005	
	CT-03BP	Terminator	TME		
✓	SUCOFLEX106	RF Cable	SUHNER	CAB-105	-
✓	SUCOFLEX106	RF Cable	SUHNER	CAB-106	-
	TYPE33BNC-N	BNC Plug/N jack	SUHNER	TOL-0020	
	TRH-CA	Thermo-Hygro Meter	SHINSEI		

Test plan Number: EPS-2002-013

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Voltage Dips, Interruptions, Variations and Fluctuation Immunity Test Data Sheet

Data. 2002.12.16

TESTPLAN No.: EPS-2002-024

Company: Fuji Xerox

Model : Passive Transponder

EUT Name : HIFX

Test Engineer : Takashi Nagakura

Temp: Humidity: Atmospheric pressure:

Regulation ☐ EN55024 ☐ CISPR Publ.24 ☒ Other (EN301489)

Test Method ☒ EN61000-4-11 ☐ IEC61000-4-11 ☐ Other () Atmospheric pressure

EUT Power ☐ AC 230 V 4 A (50Hz/60Hz) ☐ Other ()

Power Line ☐ 2-Pin ☐ 3-Pin ☐ Other ()

Test Mode ☐

Test Level ☒ 30% 0.5Cycle ☒ 30% 5 Cycle ☒ >95% 250 Cycle

☐ Other ()

Test Phase ☒ 0 ° ☒ 90 ° ☒ 180 ° ☒ 270 °

Location ☒ Shield Room1 ☐

Use Tester ☒ HAEFELY PLINE-160 ☐

Calibration ☒ Ok ☐ NG ()

Result ☒ Pass ☐ Failure

Repetition: 1 times Intervals:10sec

Start phase	Reduction	Cycle	Result	Comment
0 °	30%	0.5	A	
90 °	30%	0.5	A	
180 °	30%	0.5	A	
270 °	30%	0.5	A	
0 °	30%	5	A	
90 °	30%	5	A	
180 °	30%	5	A	
270 °	30%	5	A	
0 °	>95%	250	C	
90 °	>95%	250	C	
180 °	>95%	250	C	
270 °	>95%	250	C	

Performance criteria

A : Passed criterion A

Test plan Number: EPS-2002-013

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B : Passed criterion B

C : Passed criterion C

Note 1 :

Note 2 :

Note 3 :

TEST CONDITIONS (AC VARIATION)

The Measurements of the influence of AC Variations and Interruptions were performed in a shielded room.

Used test instruments:

	Model	Name	Manufacturer	Control No.	Next cal
✓	PLINE-160	AC Variation Simulator	HAEFELY	KEI-I015	2003.10
	3282	Digital Clamp on Hitester	HIOKI	KEI-I050	
	3026	Press Temp Humidity Meter	BARIGO	KEI-I054	

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Appendix 3 Functional Description		
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Functional description for RF unit of HIFX

HIFX is the wireless parts identification device for an Inductive loop coupling. This system (HIFX) has three modules of the controller (HIFX-C), the antenna (HIFX-A) and TAG (HIFX-T). (See Fig.1)

A product set manufacturer uses this system for the inside of the product, so it shall not be sold to the user. This product is used for example checking the amount of toner of the printer. (The example when it is installed in the printer is shown in Annex.)



HIFX-C

Control PWBA



HIFX-A/Ante

HIFX-T/Ta

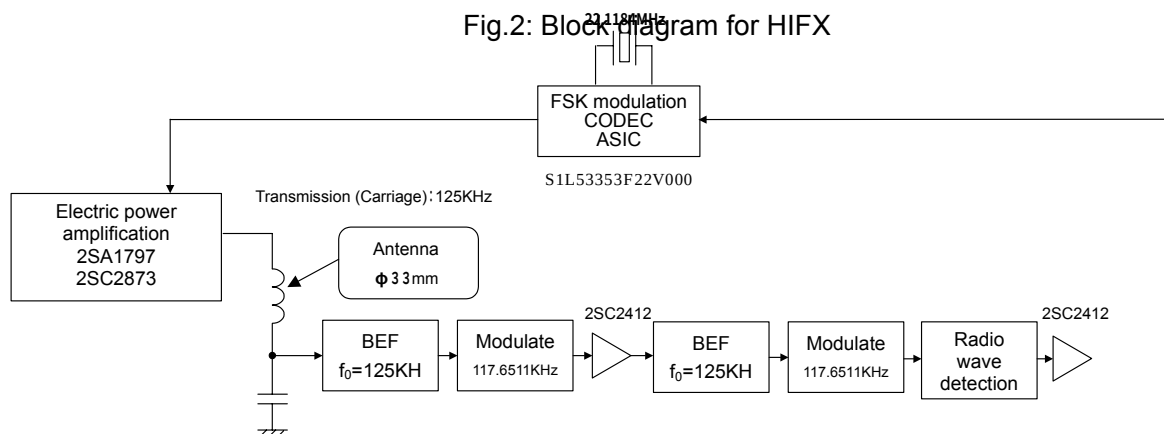
HIFX-C : RF Control PWB Assy.

HIFX-A : Inductive loop Antenna

HIFX-T : Tag (Receiving Antenna)

Fig.1: System of HIFX

Fig.2: Block diagram for HIFX





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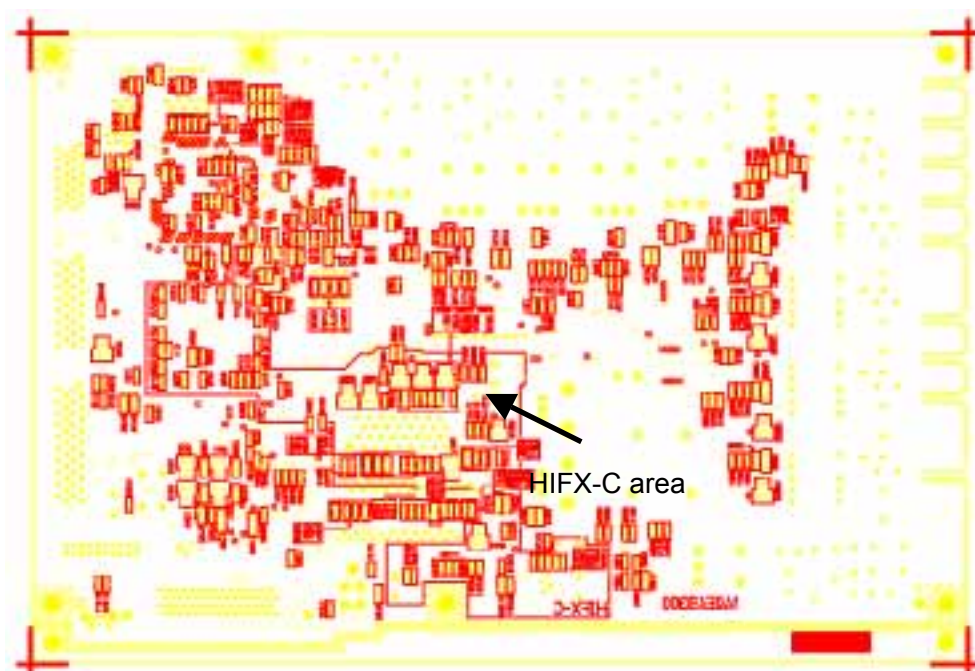
Explains about the details of each part in the following.

1. HIFX-C

HIFX-C is the RF circuit that exists in the unit of the MCU (Main Control Unit). MCU is classified in a High Voltage Power Supply (HVPS) area and a command control area and the RF area. In the RF area is composed of the part which is likely to influence all wireless functions (ex. output power, frequency control and Modulation etc.) Because of that, special control of re-designs is required in this area. (see Fig.3)

The IC with the crystal of 22.1184MHz makes the RF frequency of 125kHz, and regular forwarded power occurs in the electric power amplification IC. Add the amplitude modulation of 117.6511kHz in the career signal of 125kHz at the time of the communication. Data of changing modulation is received through TAG and Loop antenna, and in the modulation signal of 117.6511kHz is analyzed.

Fig.3: Area of HIFX for silk layout



2. HIFX-A

HIFX-A is the antenna unit which has four Loop antenna's. The career signal of 125kHz which is outputted in from HIFX-C is supplied through 2 pin special connector.

3. HIFX-T

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HIFX-T is TAG which doesn't have electric power. The internal IC information of TAG is transmitted to HIFX-A by TAG's inducting coupling with HIFX-A. However, TAG doesn't radiate the RF.		
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The installation example of HIFX

1. Installation to the printer of RF unit

1.1 HIFX-C installs

HIFX-C is PWBA that a printer and RF are controlled.

An introduction example is shown in the following.



Printer Rear view

Into Sealed Box



HIFX-C

1.2 HIFX-A installs

HIFX-A's are Antenna and Antenna PWBA. Usually, HIFX-A is installed to the plastic cover.

An introduction example is shown in the following.



Printer Rear view
Without Rear cover

Set Antenna

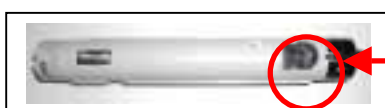


HIFX-A

1.1 HIFX-T install

HIFX-T is TAG and with the installed in the toner cartridge.

An introduction example is shown in the following.



Toner cartridge

Set Tag



HIFX-T



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2. The working example of the printer

2.1 Set the Toner

The toner is set so that a printer engine become stand-by condition.

The mechanical inter-lock switch installed with the antenna PCB detects the existence of toner.

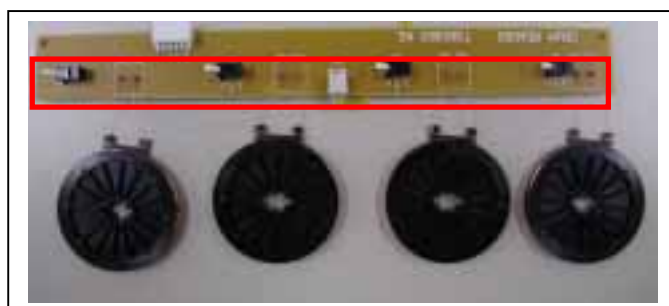


Antenna installed under
117.6511KHz



Set the CRUM

(The arrow of the photograph shows the position of the mechanical inter-lock and antenna.)



Interlock switch

Inter lock and loop antenna PCB

2.2 First check of Toner

When toner is set; printer engine starts an initials check. After that, the Non-volatile memory information of toner is acquired due to electromagnetic induction. The equipment doesn't become ready condition when the maximum radiation time of the electric (magnetic) wave is about 4.5 seconds and exceeds this. (It is only several mm seconds in case of normal communication.)

The equipment starts a warm-up sequence when the check of toner is completed.

The wireless system doesn't work during the warm-up time and the running of the equipment.

2.3 Other movements of wireless system

The wireless system works after the initial check only at the time of the following condition.

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- After the print is outputted. (after the motor stop) - After the printer cover opening and closing operation. (after the motor stop) The wireless system functions work when mechanical movement of the device was always finished.		
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