

FUJI XEROX CO., LTD
Environmental and Product Safety Department
2274, Hongo Ebina-shi, Kanagawa 243-0494, Japan



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FUJI XEROX

Name of the standard document;

EMC TEST REPORT

Form or Standard Number: EPS25-F001

Form revision: k1

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**EMC Test Report
For HIFX**

**EMC Test Site
Environment and Product Safety
FUJI XEROX CO., LTD.**

Test plan Number: EPS-2002-013

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FUJI XEROX CO., LTD
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.

Test plan Number: EPS-2002-013

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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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Appendix A

Data sheets for Electromagnetic Emission

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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	
Test Mode	RF ON and RF OFF	Engineer:		
Remarks	Pass	Temp. / Humidity	22	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	



Name of the standard document;

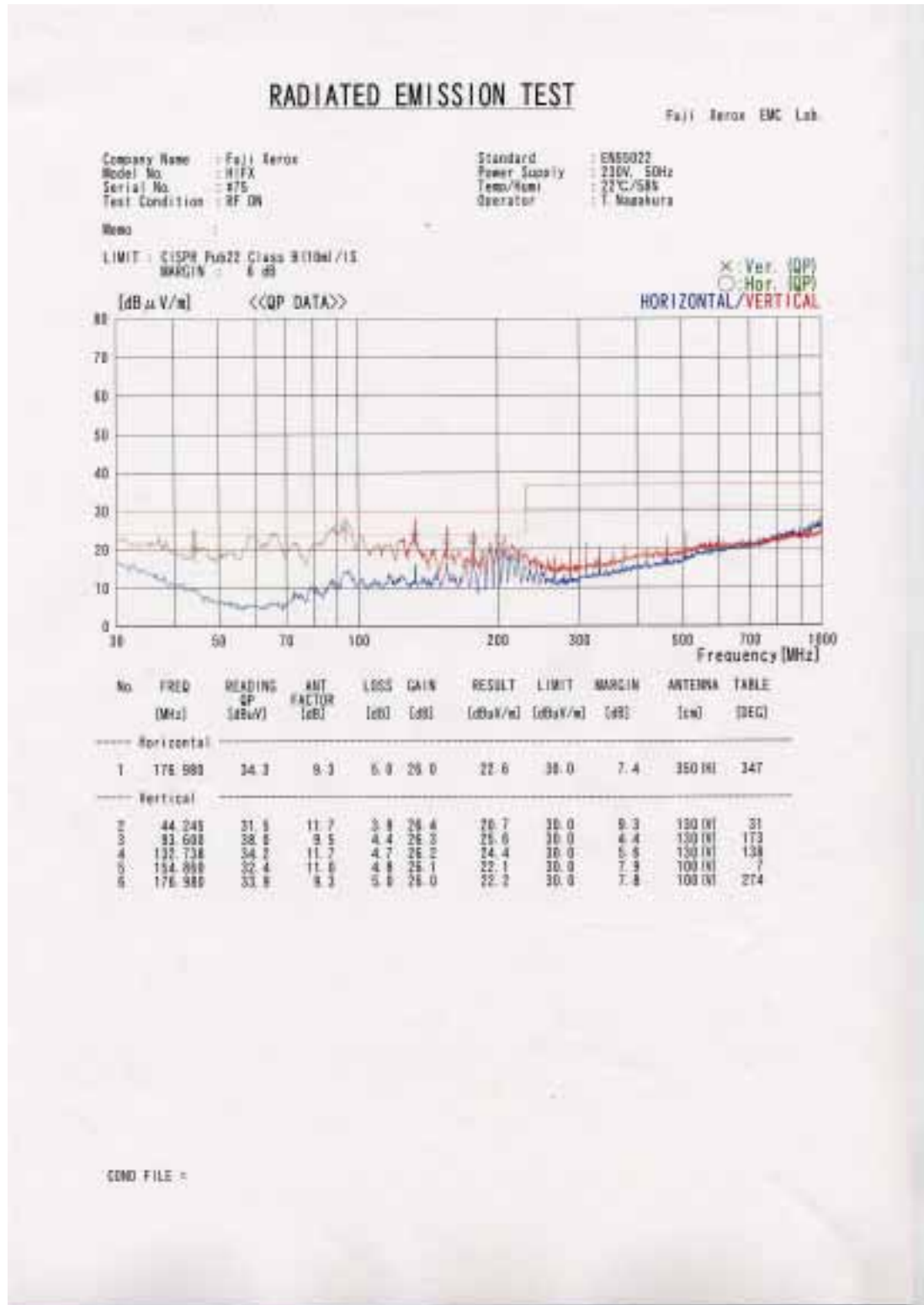
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Test Data





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EN301489 Radiated Emission test

Test Location





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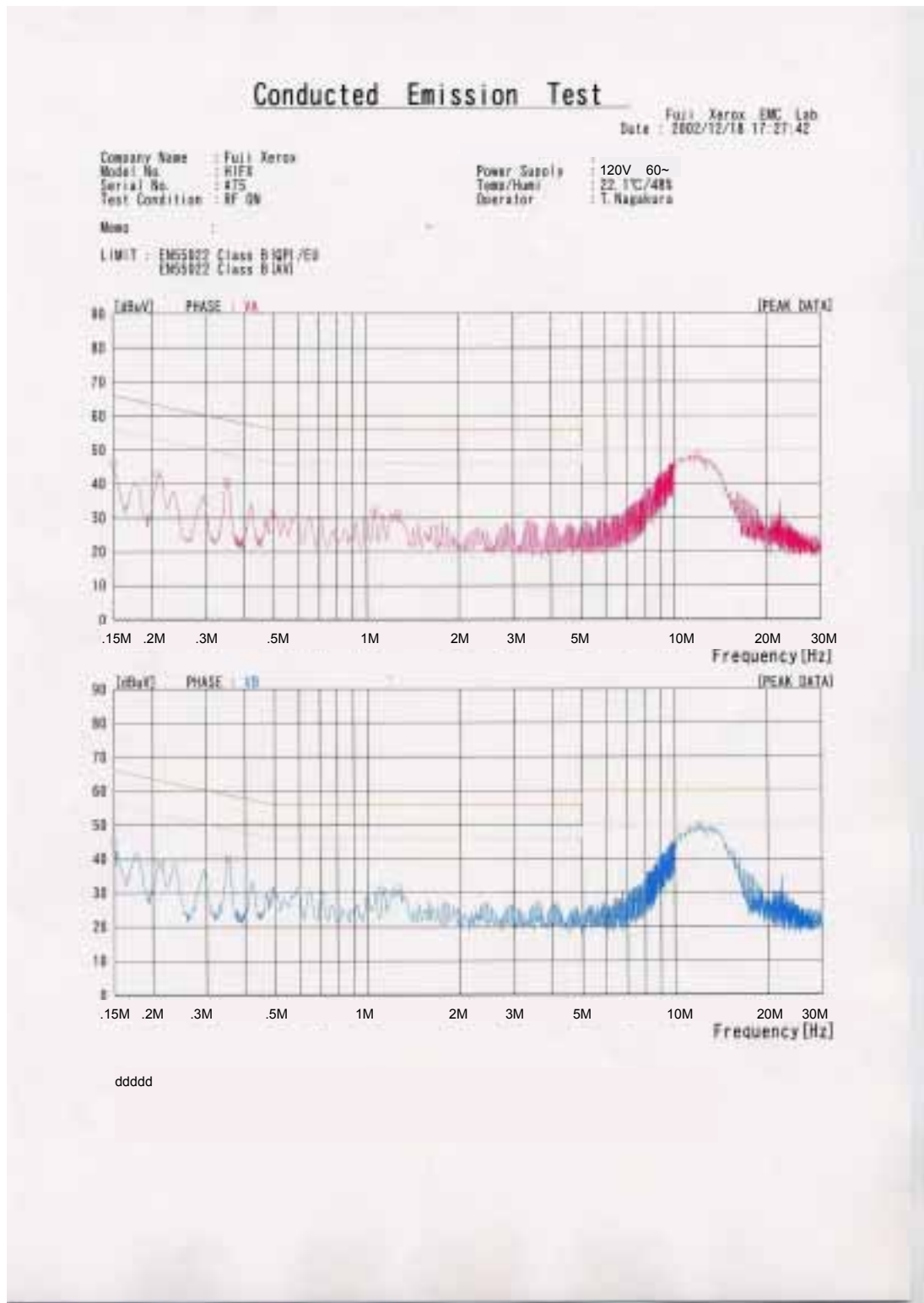
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Test Data





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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. : H1FX
 Serial No. : 475
 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 [dB]	AV [dB]			
1	0.1500	35.0	---	0.2	35.2	---	56.0	---	20.8	---	VA
2	0.2110	47.7	---	0.3	47.9	---	53.2	---	20.3	---	VA
3	0.3510	40.7	---	0.3	40.9	---	58.9	---	18.0	---	VA
4	1.0530	29.9	---	0.3	30.2	---	56.0	---	25.8	---	VA
5	1.2650	29.2	---	0.3	29.5	---	56.0	---	26.5	---	VA
6	12.0000	46.6	47.3	0.6	46.9	47.9	50.0	50.0	10.8	2.1	VA
7	0.1500	35.0	---	0.2	35.2	---	56.0	---	20.8	---	VB
8	0.2120	38.7	---	0.3	38.9	---	53.1	---	24.2	---	VB
9	0.3540	40.0	---	0.3	40.2	---	58.9	---	18.7	---	VB
10	1.1180	27.8	---	0.3	28.1	---	56.0	---	27.9	---	VB
11	1.2650	28.0	---	0.3	28.3	---	56.0	---	26.7	---	VB
12	12.0500	50.2	47.1	0.7	50.9	47.8	50.0	50.0	0.1	2.2	VB



Name of the standard document;

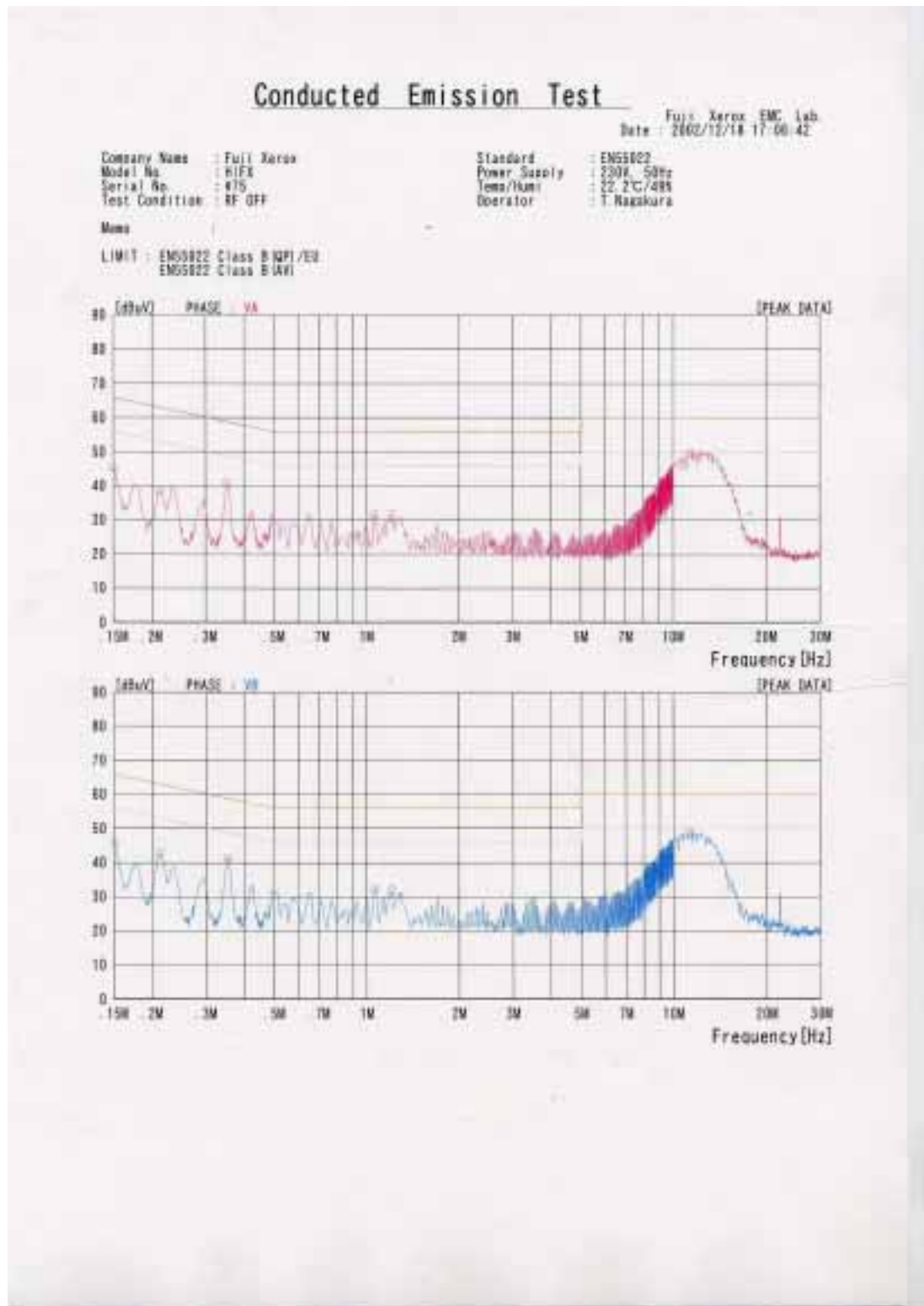
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EN301489 Conducted Emission test

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 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			
	Pat	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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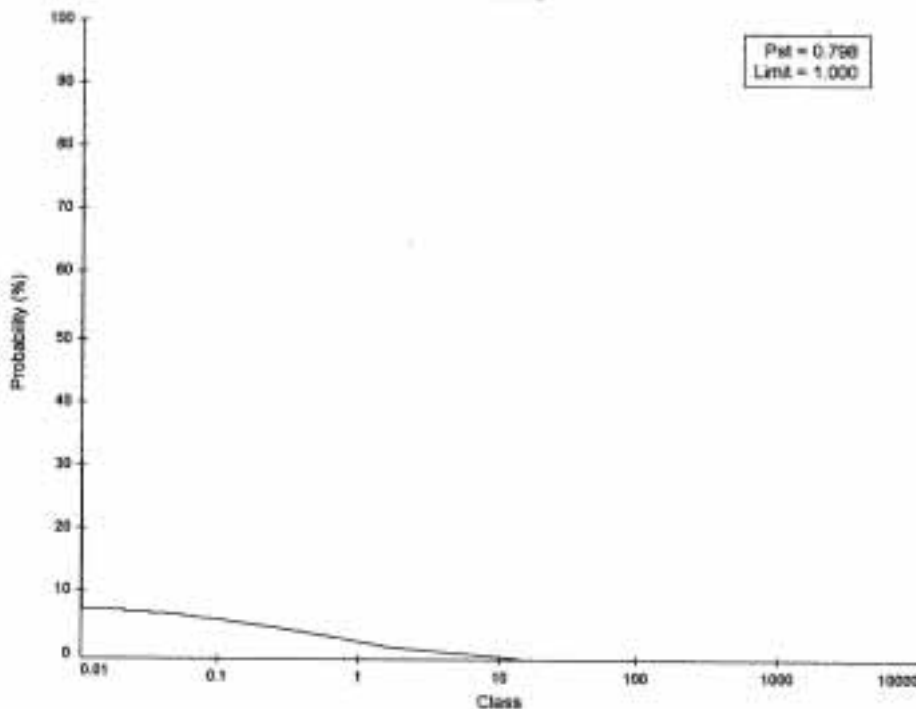
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Test Data

B M/F100V PRTA4 60Hz	
Product: HFX	2002 Dec 20 15:27
Serial no: #75	Page 1 of 1
Description: RF ON	
Result Name: HFX2	
Voltech IEC1000-3 Windows Software 3.02.03	
Type of Test: Flickermeter Test - Pst Curve	Test Date: 2002 Dec 20 14:16
Power Analyzer: Voltech PM3000A v2.16 s/n 2412	
AC Source: Mains / Manual Source	
Overall Result: PASS	Notes: Measurement method - Voltage

Pst Curve 1





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Test Data

B M/F100V PRTA4 60Hz	
Product:	HFX
Serial no:	#75
Description:	RF OFF
Result Name:	HXF1
Voitech IEC1000-3 Windows Software 3.02.03	
Type of Test:	Flickermeter Test - Table
Power Analyzer:	Voitech PM3000A v2.16 s/n 2412
AC Source:	Mains / Manual Source
Overall Result:	Notes: Pit test duration 120 minutes Measurement method - Voltage
PASS	

2002 Dec 20 15:17
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	P _s
Limit	0.650
Reading	0.614

	P _{st}	dc (%)	d _{max} (%)	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	0.052	0
Reading 8	0.071	0.017	0.052	0
Reading 9	0.071	0.017	0.052	0
Reading 10	0.071	0.017	0.052	0
Reading 11	0.071	0.017	0.052	0
Reading 12	0.071	0.017	0.060	0



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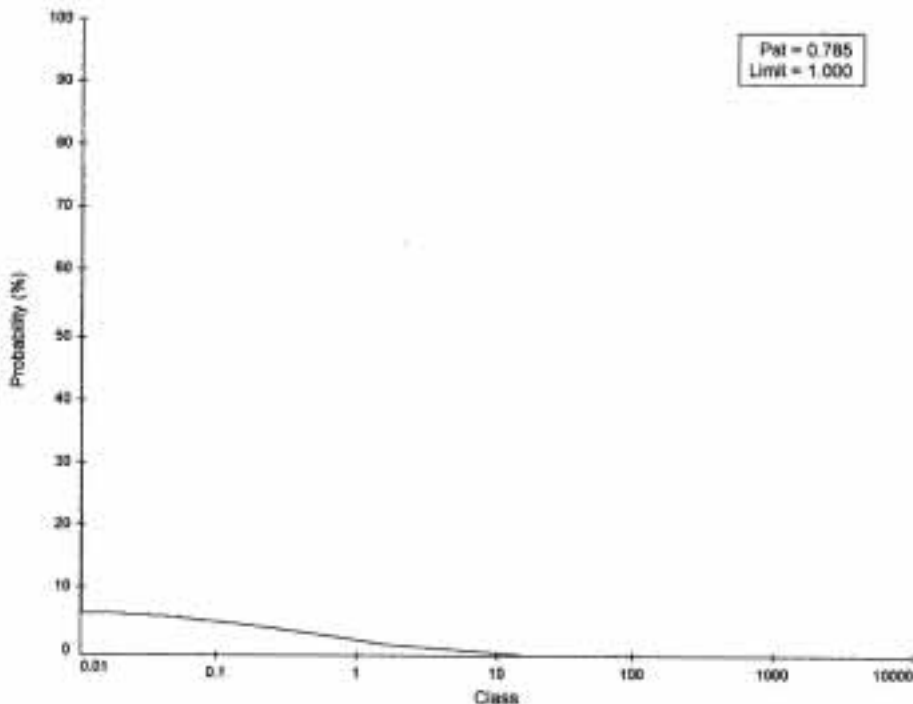
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Test Data

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 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 Serial no: #75 Description: RF OFF Test Date: 2002 Dec 20 14:30 Result Name: HIFX		2002 Dec 20 15:19 Page 1 of 1
Type of Test: EN61000-2001 Harmonics Limits: Class A Power Analyzer: Voltech PM3000A v2.18 s/n 2412 AC Source: Mains / Manual Source		
Overall Result: <p style="font-size: 2em; text-align: center;">PASS</p>	Notes:	
Test Parameter Details	User Entered	Measured
Operating Frequency:	50	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		Test Date: 2002 Dec 20 14:30	
Type of Test:	Fluctuating Harmonics Test - Worst Case Table (2001)		
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	1.98A	1.00A	3.08mA	✓✓	40.89mA	✓	NA	3	2.38A	3.45A	98.00mA	✓✓	100.16mA	✓	Pass
4	430.00mA	845.00mA	1.09mA	✓✓	10.55mA	✓	NA	5	1.14A	1.71A	50.65mA	✓✓	52.97mA	✓	Pass
6	306.00mA	450.00mA	0.93mA	✓✓	3.29mA	✓	NA	7	710.00mA	1.10A	83.84mA	✓✓	94.36mA	✓	Pass
8	336.00mA	345.00mA	6.93mA	✓✓	3.28mA	✓	NA	9	480.00mA	500.00mA	73.09mA	✓✓	73.88mA	✓	Pass
10	184.00mA	276.00mA	0.78mA	✓✓	1.26mA	✓	NA	11	330.00mA	480.00mA	60.82mA	✓✓	61.27mA	✓	Pass
12	103.23mA	123.33mA	0.89mA	✓✓	1.86mA	✓	NA	13	210.00mA	315.00mA	48.83mA	✓✓	49.81mA	✓	Pass
14	151.43mA	121.43mA	5.02mA	✓✓	1.28mA	✓	NA	15	150.00mA	225.00mA	32.76mA	✓✓	38.89mA	✓	Pass
16	119.00mA	118.00mA	0.78mA	✓✓	1.37mA	✓	NA	17	182.00mA	198.00mA	23.89mA	✓✓	14.64mA	✓	Pass
18	102.22mA	102.22mA	0.77mA	✓✓	1.36mA	✓	NA	19	118.42mA	177.02mA	14.11mA	✓✓	14.44mA	✓	Pass
20	82.00mA	90.00mA	0.77mA	✓✓	1.27mA	✓	NA	21	107.14mA	107.14mA	9.84mA	✓✓	9.50mA	✓	Pass
22	80.84mA	80.84mA	0.77mA	✓✓	1.27mA	✓	NA	23	97.80mA	97.80mA	6.75mA	✓✓	1.33mA	✓	NA
24	78.67mA	78.67mA	0.77mA	✓✓	1.04mA	✓	NA	25	86.00mA	90.00mA	3.67mA	✓✓	4.89mA	✓	NA
26	70.77mA	70.77mA	0.76mA	✓✓	1.17mA	✓	NA	27	68.23mA	82.23mA	5.87mA	✓✓	6.19mA	✓	Pass
28	60.77mA	60.77mA	0.76mA	✓✓	1.06mA	✓	NA	29	77.00mA	77.00mA	6.47mA	✓✓	7.87mA	✓	Pass
30	61.30mA	61.30mA	0.77mA	✓✓	1.04mA	✓	NA	31	72.50mA	72.50mA	5.90mA	✓✓	6.23mA	✓	Pass
32	57.58mA	57.58mA	0.76mA	✓✓	1.04mA	✓	NA	33	66.18mA	66.18mA	4.99mA	✓✓	5.20mA	✓	NA
34	54.13mA	54.13mA	0.76mA	✓✓	0.87mA	✓	NA	35	64.25mA	64.25mA	3.23mA	✓✓	3.47mA	✓	NA
36	61.11mA	61.11mA	0.76mA	✓✓	0.87mA	✓	NA	37	60.81mA	60.81mA	1.04mA	✓✓	1.04mA	✓	NA
38	48.42mA	48.42mA	0.76mA	✓✓	0.90mA	✓	NA	39	57.88mA	57.88mA	0.85mA	✓✓	2.08mA	✓	NA
40	48.00mA	48.00mA	0.76mA	✓✓	0.89mA	✓	NA								

+L1 -L2 Reading is below limit 1.

-L2 Reading is below limit 2.

NA: Harmonics scored below 0.5% of rated current or 3mA, whichever is greater, are disregarded.

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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: EN61000.2001 Harmonics		
Limits: Class A		
Power Analyzer: Voltech PM3000A v2.16 s/n 2412		
AC Source: Mains / Manual Source		
Overall Result:	Notes:	
PASS		
Test Parameter Details	User Entered	Measured
Operating Frequency:	50	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:		0.0026
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	



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Test Data

B M/F100V PRTA4 60Hz		2002 Dec 20 15:28 Page 1 of 1
Product:	HIFX	
Serial no:	#75	
Description:	RF ON	
Result Name:	HIFX2	
Voltech IEC1000-3 Windows Software 3.02.03		Test Date: 2002 Dec 20 14:58
Type of Test:	Fluctuating Harmonics Test - Worst Case Table (2001)	
Power Analyzer:	Voltech PM3000A v2.16 aim 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	3.23mA	✓✓	33.37mA	✓	NA	3	2.25A	3.45A	88.08mA	✓✓	106.14mA	✓	Pass
4	400.00mA	645.00mA	1.07mA	✓✓	8.23mA	✓	NA	5	1.14A	1.71A	82.34mA	✓✓	92.86mA	✓	Pass
6	200.00mA	400.00mA	0.86mA	✓✓	3.23mA	✓	NA	7	770.00mA	1.15A	82.80mA	✓✓	84.20mA	✓	Pass
8	230.00mA	340.00mA	0.32mA	✓✓	2.48mA	✓	NA	8	400.00mA	600.00mA	73.07mA	✓✓	75.40mA	✓	Pass
10	184.00mA	276.00mA	2.78mA	✓✓	1.98mA	✓	NA	11	250.00mA	460.00mA	60.96mA	✓✓	61.30mA	✓	Pass
12	180.00mA	180.00mA	0.79mA	✓✓	1.48mA	✓	NA	13	210.00mA	310.00mA	48.24mA	✓✓	48.88mA	✓	Pass
14	121.42mA	121.42mA	0.80mA	✓✓	1.34mA	✓	NA	16	180.00mA	220.00mA	55.64mA	✓✓	56.88mA	✓	Pass
16	110.00mA	110.00mA	0.77mA	✓✓	1.21mA	✓	NA	17	120.00mA	180.00mA	34.27mA	✓✓	34.78mA	✓	Pass
18	180.00mA	100.00mA	0.78mA	✓✓	0.80mA	✓	NA	19	110.43mA	121.83mA	14.22mA	✓✓	14.50mA	✓	Pass
20	80.00mA	80.00mA	0.76mA	✓✓	1.07mA	✓	NA	21	187.14mA	107.14mA	6.21mA	✓✓	6.57mA	✓	Pass
22	80.88mA	80.88mA	0.76mA	✓✓	0.84mA	✓	NA	23	87.80mA	97.80mA	0.77mA	✓✓	0.88mA	✓	NA
24	78.67mA	78.67mA	0.77mA	✓✓	0.95mA	✓	NA	25	88.00mA	90.00mA	3.95mA	✓✓	4.72mA	✓	NA
26	70.77mA	70.77mA	0.76mA	✓✓	0.80mA	✓	NA	27	80.20mA	80.20mA	6.75mA	✓✓	6.80mA	✓	Pass
28	80.71mA	80.71mA	0.76mA	✓✓	0.83mA	✓	NA	28	77.50mA	77.50mA	6.40mA	✓✓	7.48mA	✓	Pass
30	81.20mA	81.20mA	0.76mA	✓✓	0.81mA	✓	NA	31	70.00mA	70.00mA	5.96mA	✓✓	6.20mA	✓	Pass
32	57.90mA	57.90mA	0.76mA	✓✓	0.80mA	✓	NA	32	88.18mA	88.18mA	4.98mA	✓✓	5.21mA	✓	NA
34	54.12mA	54.12mA	0.78mA	✓✓	0.88mA	✓	NA	35	84.20mA	84.20mA	3.28mA	✓✓	3.22mA	✓	NA
36	81.21mA	81.21mA	0.76mA	✓✓	0.76mA	✓	NA	37	80.81mA	80.81mA	1.74mA	✓✓	1.81mA	✓	NA
38	49.43mA	49.43mA	0.76mA	✓✓	0.83mA	✓	NA	38	57.80mA	57.80mA	0.84mA	✓✓	2.00mA	✓	NA
40	46.80mA	46.80mA	0.76mA	✓✓	0.76mA	✓	NA								

+L1 / Reading is below limit 1.
 -L2 / Reading is below limit 2.
 NA - Harmonic content below 0.05% of rated current or 50mA, whichever is greater, are disregarded.

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Appendix B

Data sheets for Immunity



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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





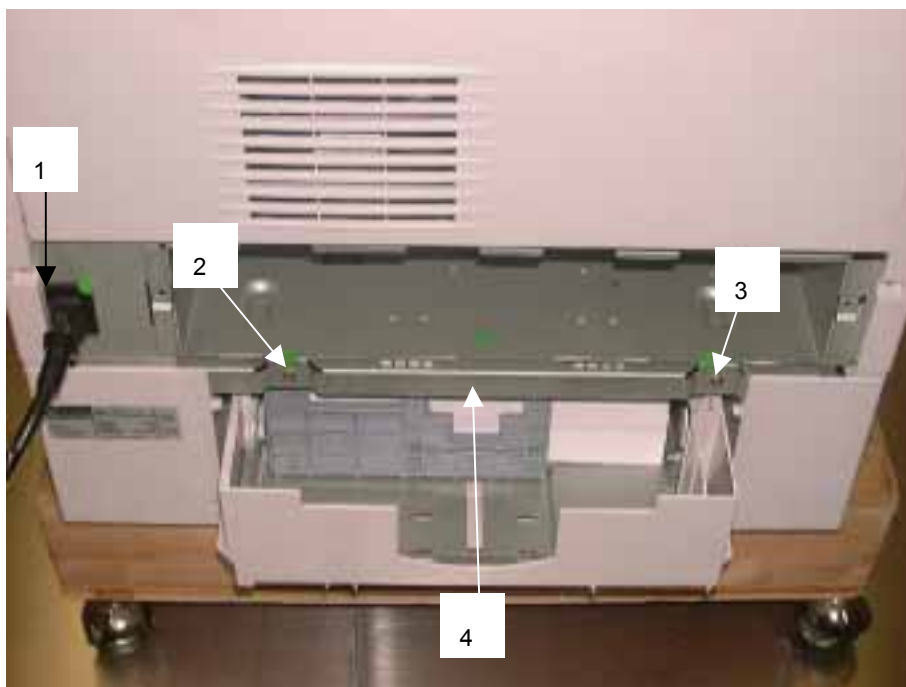
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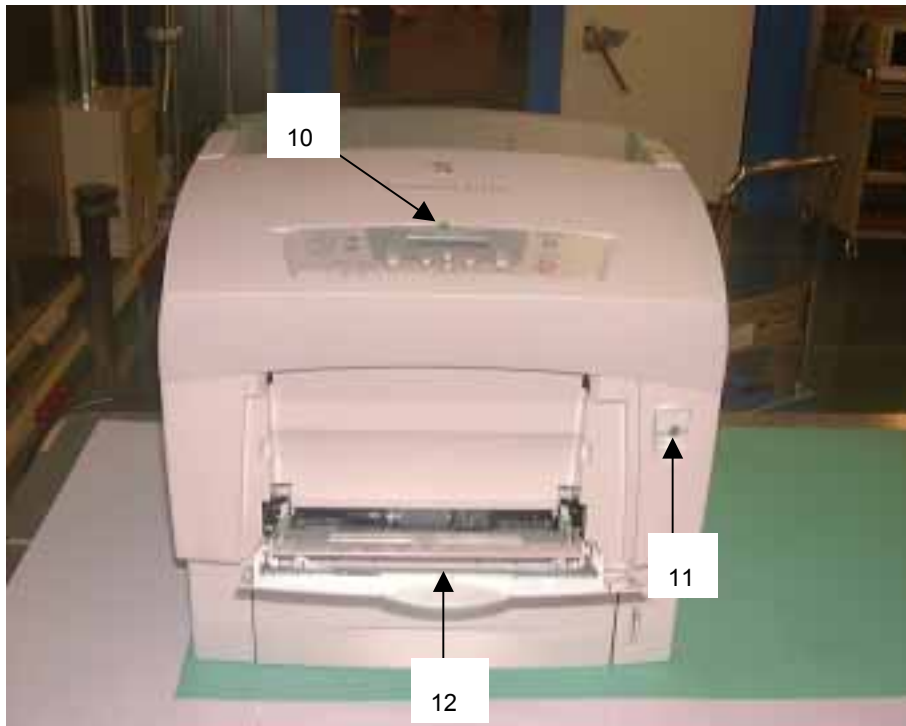
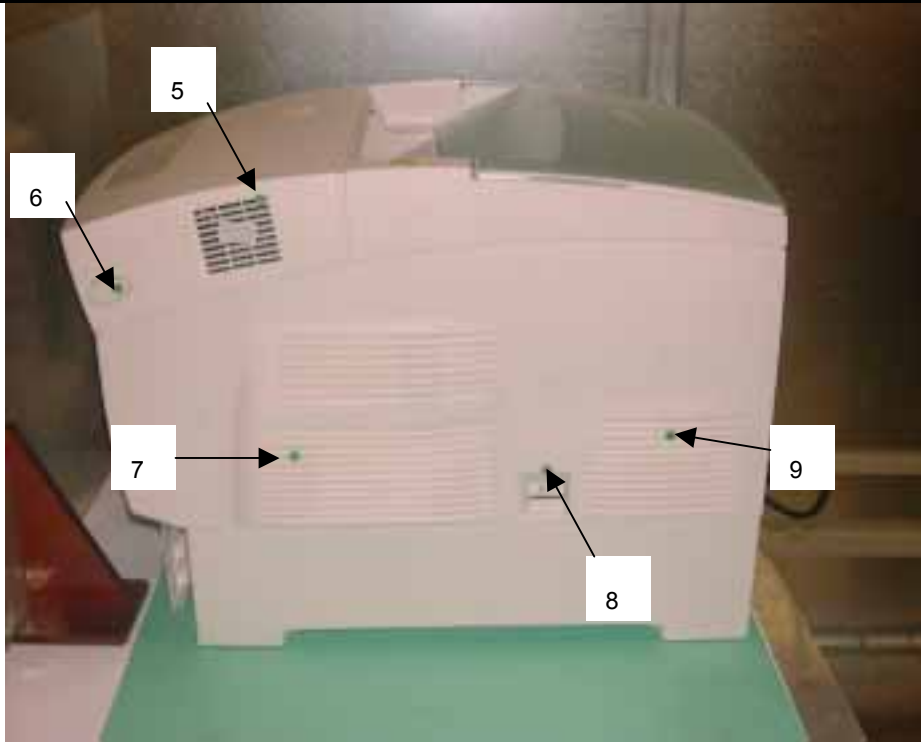
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Note 2 :



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Used Test Instrument:

√	Model	Name	Manufacturer	Control Number	Next Cal
	PEFT1.0	Burst Genaretor	HAEFELY	KEI-I010	
	54845A	Oscilloscope	Agirent Technology	KEI-E094	
	8753E	Network Analyzer	Agirent Technology	KEI-E095	
	-	BNC Cable	-	TOL-0022	
	-	BNC Cable	-	TOL-0023	
	85032 Type N	Network Analyzer Calibration kit	Agirent 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

Note 1 :

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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	-		

Test plan Number: EPS-2002-013

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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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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	Boonton	KEI-I020	2003.10
✓	75A250M1	Power Amp	AR	KEI-I021	-
	1460	De-Coupler	WERLATON	KEI-I022	
	51011	Power Sensor	Boonton	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		

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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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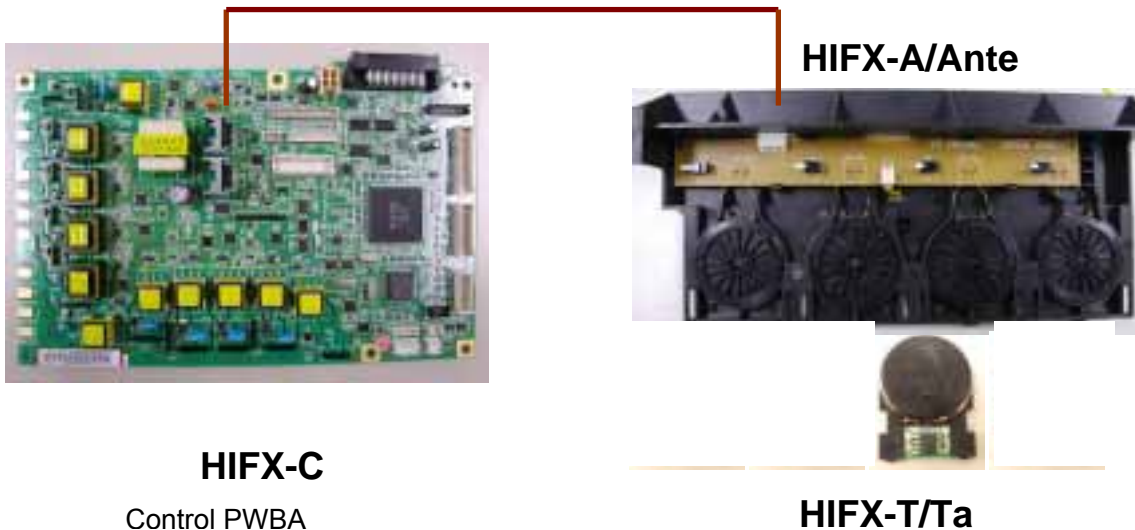
Form revision: k1

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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)

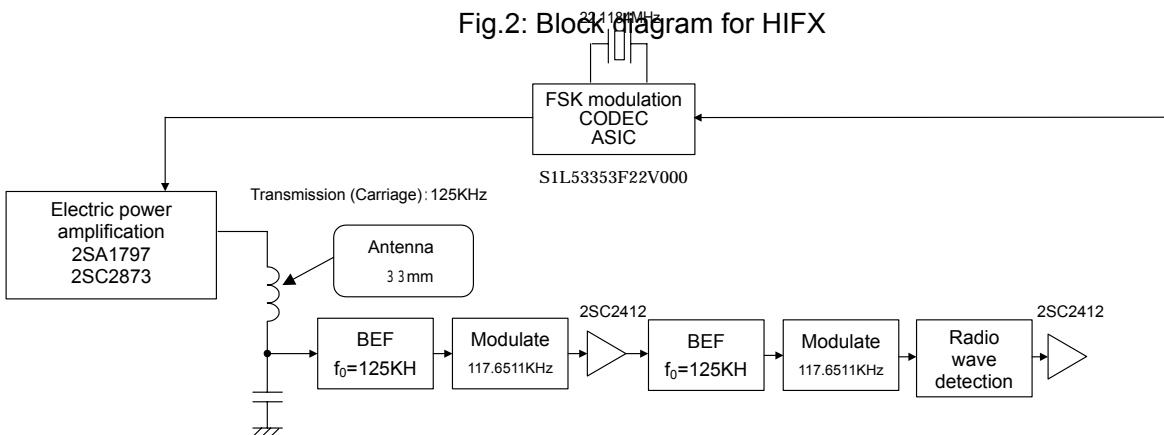
A product set manufacturer uses this system for the inside of the product, so it shall not be sold to the user. This product is used for example checking the amount of toner of the printer. (The example when it is installed in the printer is shown in Annex.)



- HIFX-C : 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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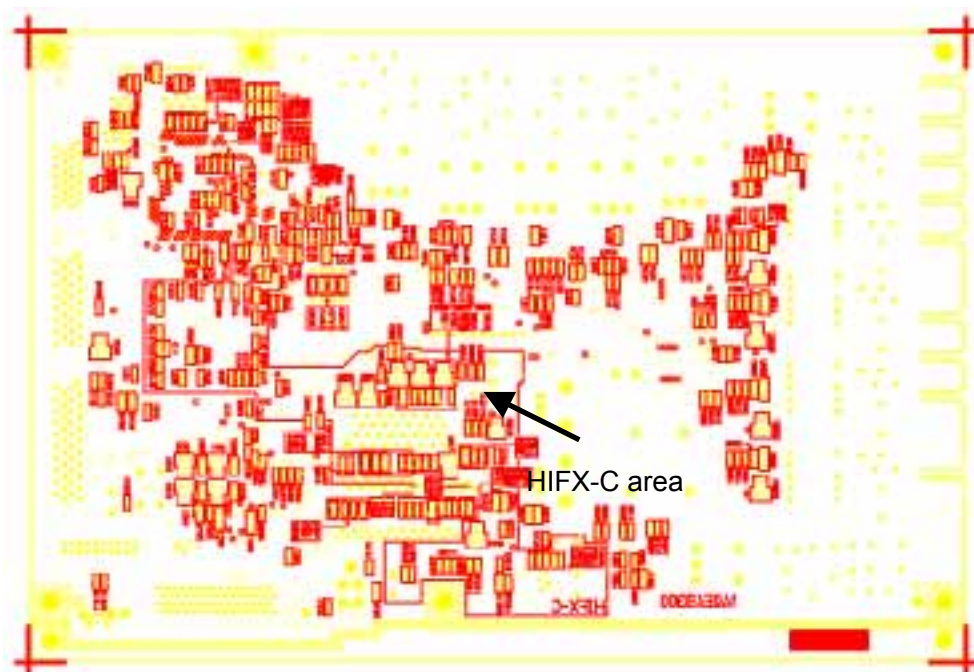
Explains about the details of each part in the following.

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.

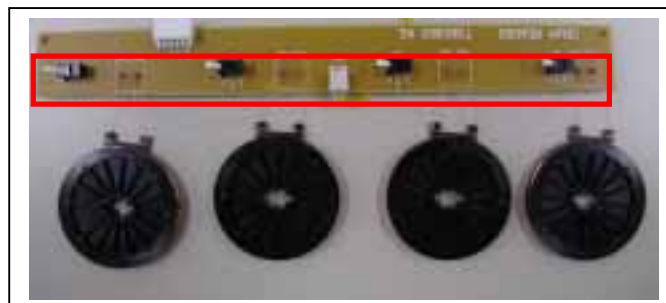


Antenna installed under
117.6511KHz



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.