



FCC ID : J2LXXA1PGXA

EMI TEST REPORT

REGULATION : FCC Part 15 B , Class B
MODEL : DocuPrint P12 (Modification)
FCC ID : J2LXXA1PGXA
TESTED DATE : July 1, 1998
CUSTOMER : Fuji Xerox Co., Ltd.
ATTENTION : Mr. Tsuneyo Imada
Manager
Environment & Products Safety

EMC Kashima Corporation
1614 , Mushihata , Omigawa - machi ,
Katori - gun , Chiba - ken , 289 - 0341
Japan

MEASUREMENT / TECHNICAL REPORT

Fuji Xerox
 Model DocuPrint P12

FCC ID : J2LXXA1PGXA

July 14, 1998

This report concerns (check one) : Original grant <input type="checkbox"/> Class II change <input checked="" type="checkbox"/>	
Equipment type : LASER PRINTER (ex. : computer , printer , modem , etc.)	
Deferred grant requested per 47 CFR 0.457 (d) (l) (ii) ? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	
If yes , defer until : _____ date	
Company Name agrees to notify the Commission by _____ date of the intended date of announcement of the product so that the grant can be issued on that date .	
Transition Rules Request per 15.37 ? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	
If no , assumed Part 15 , Subpart B for unintentional radiators - the new 47 CFR [10 - 1 - 90 Edition] provision .	
Report prepared by : <p style="text-align: center;"> MASARU NAKAYAMA, PRESIDENT EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373 </p>	

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1. GENERAL INFORMATION

Certificate

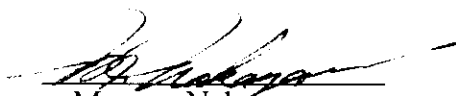
APPLICANT : Fuji Xerox Co.,Ltd.
REGULATION(S) : FCC Part 15 Subpart B, Class B
FCC ID : J2LXXA1PGXA
MODEL NUMBER : DocuPrint P12
KIND OF EQUIPMENT : Laser Printer
TESTED DATE : July 1, 1998
REPORT FILE NUMBER : TR2-98260F
TEST SITE : EMC Kashima Corporation
No.2 Open Test Site

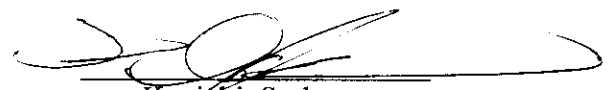
This equipment is in compliance with above regulation. We hereby certify that the data are contain a true representation of the emissions profile.

This test report clearly shows that the EUT model DocuPrint P12 Laser Printer is in compliance with the FCC Part 15B, Class B specification.

July 14, 1998

DATE


Masaru Nakayama
President


Kenichi Suda
Director

Product Description

The EUT, Fuji Xerox Model DocuPrint P12 (referred to as the EUT in this report) is a Laser Printer (Letter, A4, A5,B5,Legal) which mounts a Centronics interface.

The printing speed is 12.0 pages per minute (A4 size).

The printing resolution is 600 x 600dpi.

The highest clock frequency used in the EUT is 54.405MHz

The EUT provides optional devices as followings;

1. 500 Sheet Feeder
2. Memory Kit (16MB)

Tested System Details

The FCC IDs for the equipment used in the tested system are :

	Model & Serial No.	FCC ID	Description	Company
(1)	DocuPrint P12 none(EUT)	J2LXXA1PGXA	Laser Printer	Fuji Xerox
(2)	D4594B SG74350130	DoC*	Personal Computer	HP
(3)	444 540BA11AF392	BR8SM-1557	Color Monitor	COMPAQ
(4)	RT6656TWJP 52372139	AQ6-MTN4C15	Keyboard	HP
(5)	M-S34 LZA72258898	DZL211029	Mouse	HP
(6)	C202A 010305	BKM552C202A	Modem	EPSON
(7)	H00CAA 019812	N/A**	AC adapter	EPSON

note * : Authorized under a Declaration of Conformity

** : Not Applicable

Test Methodology

Both conducted and radiated tests were performed according to the procedures in ANSI C63.4-1992.

Radiated test was performed at a distance of 3 meters between an antenna and EUT.

Test Facility

The open area site and conducted measurement facility used to collect the radiated data are located on 1614, Mushihata, Omigawa-machi, Katori-gun, Chiba-ken, Japan.

No.2 test site has been fully described in a report dated October 3, 1995 submitted to your office, and accepted in a letter dated October 27, 1995 (31040/SIT 1300F2).

2. SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). The preliminary test was carried out for all available modes. Optional 16MB SIMM is equipped to EUT.

The continuous printing mode was found to be the worst case, and this mode was used to collect the included data .

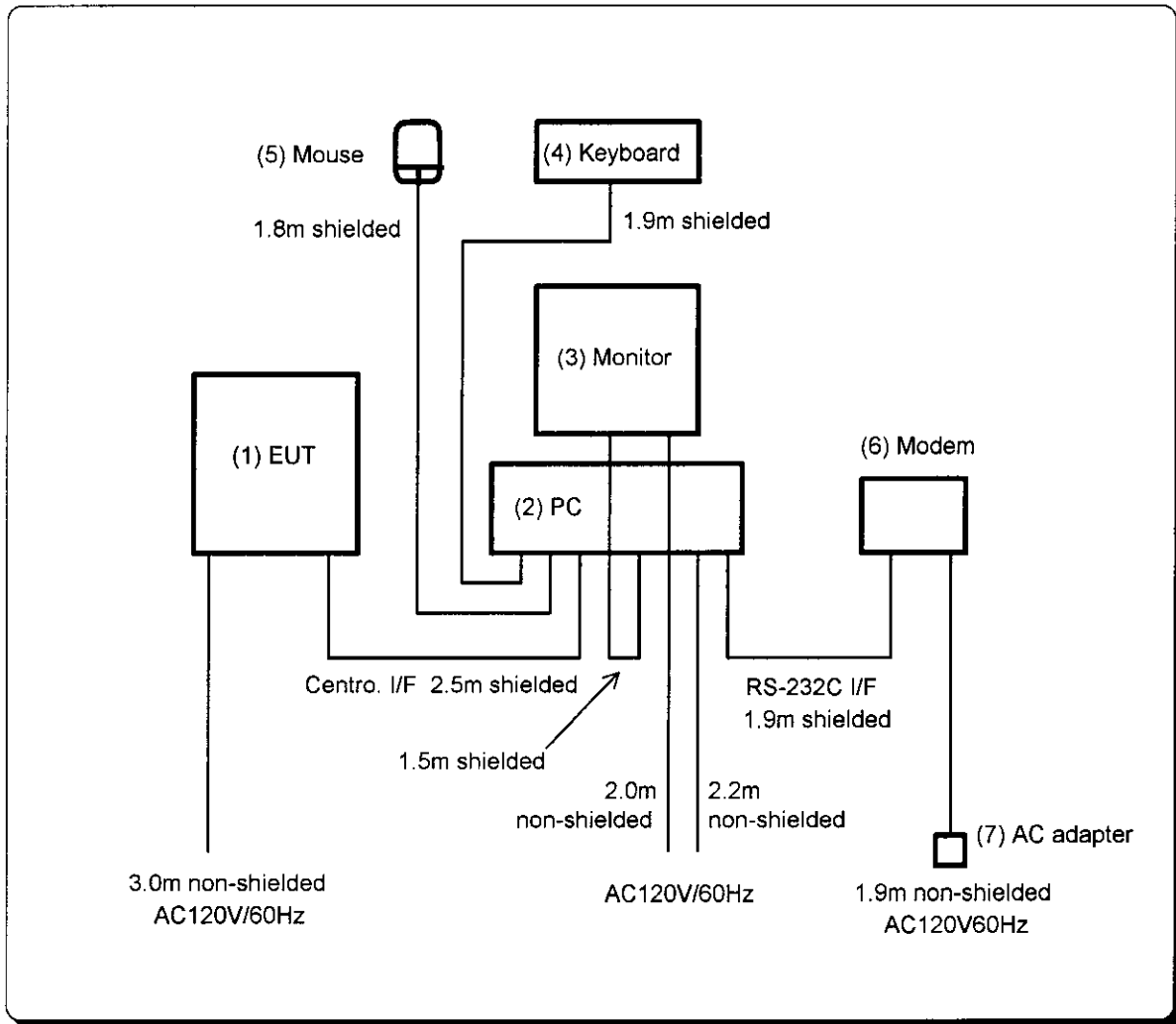
EUT Exercise Software

The EUT exercise program used during radiated and conducted tests was designed to exercise the various system components in a manner similar to a typical use . The program sequentially exercises each system component in turn .

The sequence used is :

- (1) CRT Monitor displays H (full screen) ,
- (2) EUT (Parallel I/F) prints H (Letter sheet),
- (3) EUT sends "H" to Modem,
- (4) Mouse is standby.

Configuration of Tested System



4. CONDUCTED EMISSION PROFILE

The initial step in collecting conducted data was a spectrum analyzer peak scan of the measurement range (450kHz~30MHz). The final data were reported in the worst-case emissions.

The minimum margins to the limits are as follows:

Frequency (MHz)	Reading** (dBuV)	Line* (N/L)	LISN Factor*** (dB)	Result (dBuV)	Limits (dBuV)	Margin (dB)
28.6349	37.0	N/L	1.8	38.8	48.0	9.2

Remarks : The test result of the print mode is higher than that of the standby mode.

- * N : Neutral L : Line
- ** All readings are quasi-peak mode.
- *** LISN Factor + Cable Factor

5. RADIATED EMISSION PROFILE

The initial step in collecting radiated data was a spectrum analyzer peak scan of the measurement range (30MHz~1000MHz). The final data was reported in the worst-case emissions.

The minimum margins to the limits are as follows:

Frequency (MHz)	Polarity* (H/V)	Reading** (dBuV)	Correction*** Factor (dB)	Result (dBuV/m)	3 Meter Limit (dBuV/m)	Margin (dB)
126.94	H	42.0	-4.0	38.0	43.5	5.5

Remarks : The test results are same in the standby and print modes.

* H : Horizontal V : Vertical

** All readings are quasi-peak mode.

*** Antenna Factor + Cable Factor + Antenna Pad - Amplifier Gain

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor , Cable Factor and Antenna Pad (Attenuator) , and subtracting the Amplifier Gain from the measured reading . The sample calculation is as follows :

$$FS = RA + AF + CF + AT - AG$$

where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Factor
AT = Antenna Pad
AG = Amplifier Gain

Assume a receiver reading of 42.0 dBuV is obtained . The antenna Factor of 13.7 dB , Cable Factor of 2.1 dB and Antenna Pad (Attenuator) of 6.0 dB is added . The Amplifier Gain of 25.8 dB is subtracted , giving a field strength of 38.0 dBuV/m.

$$\begin{aligned} FS &= RA + AF + CF + AT - AG \\ &= 42.0 + 13.7 + 2.1 + 6.0 - 25.8 = 38.0 \text{ dBuV/m} \end{aligned}$$

6. TEST EQUIPMENT USED

NAME	MANUFACTURER	MODEL	SERIAL
Spectrum Analyzer	Hewlett Packard	8567A(display unit) (RF unit)	3144A20764 3217A11810
Quasi Peak Adapter	Hewlett Packard	85650A	3145A01647
Test Receiver	Rohde & Schwarz	ESVS10	825475/003
Test Receiver	Rohde & Schwarz	ESHS10	826865/008
Pre-Amplifier	Hewlett Packard	8447D	2944A07219
L.I.S.N.	Rohde & Schwarz	ESH3-Z5	838576/017
L.I.S.N.	Rohde & Schwarz	ESH3-Z5	828874/019
L.I.S.N.	Anritsu	MN425B	M09456
Dipole Antenna	Schwarzbeck	VHA9103	-----
Dipole Antena	Schwarzbeck	UHA9103	-----
Biconical Antena	Schwarzbeck	BBA9106	-----
Logperiodic Antenna	EMCO	3146	2259

APPENDIX A

All Test Data

DATA OF CONDUCTION TEST**EMC Kashima Corporation**
No.2 Test Site

COMPANY : FUJI XEROX CO.,LTD.
 TRADE NAME : FUJI XEROX
 EQUIPMENT : LASER PRINTER
 MODEL : DocuPrint P12
 POWER : AC120V/60Hz
 DESCRIPTION :
 REMARKS : STANDBY

REPORT No. : TR2-98260F
 REGULATION : FCC Part 15 Subpart B
 CLASS : Class B
 DATE : 98/07/01
 FCC ID : J2LXXA1PGXA


 ENGINEER : KENICHI SUDA

No	FREQ [MHz]	N		L		LISN FACTOR [dB]	-13dB [dB]	RESULT [dB μ V]	LIMITS [dB μ V]	MARGIN [dB]
		QP [dB μ V]	AV	QP [dB μ V]	AV					
1	0.4886	32.5	-	34.0	-	0.3	0	34.3	48.0	13.7
2	0.6102	27.0	-	29.0	-	0.3	0	29.3	48.0	18.7
3	1.1012	21.0	-	18.0	-	0.4	0	21.4	48.0	26.6
4	11.2263	28.5	-	28.0	-	1.0	0	29.5	48.0	18.5
5	19.7077	33.0	-	33.0	-	1.4	0	34.4	48.0	13.6
6	21.8300	34.0	-	34.0	-	1.6	0	35.6	48.0	12.4
7	28.6349	34.0	-	34.0	-	1.8	0	35.8	48.0	12.2

Sample Calculation : Result = Reading(Higher data of N/L) + LISN factor

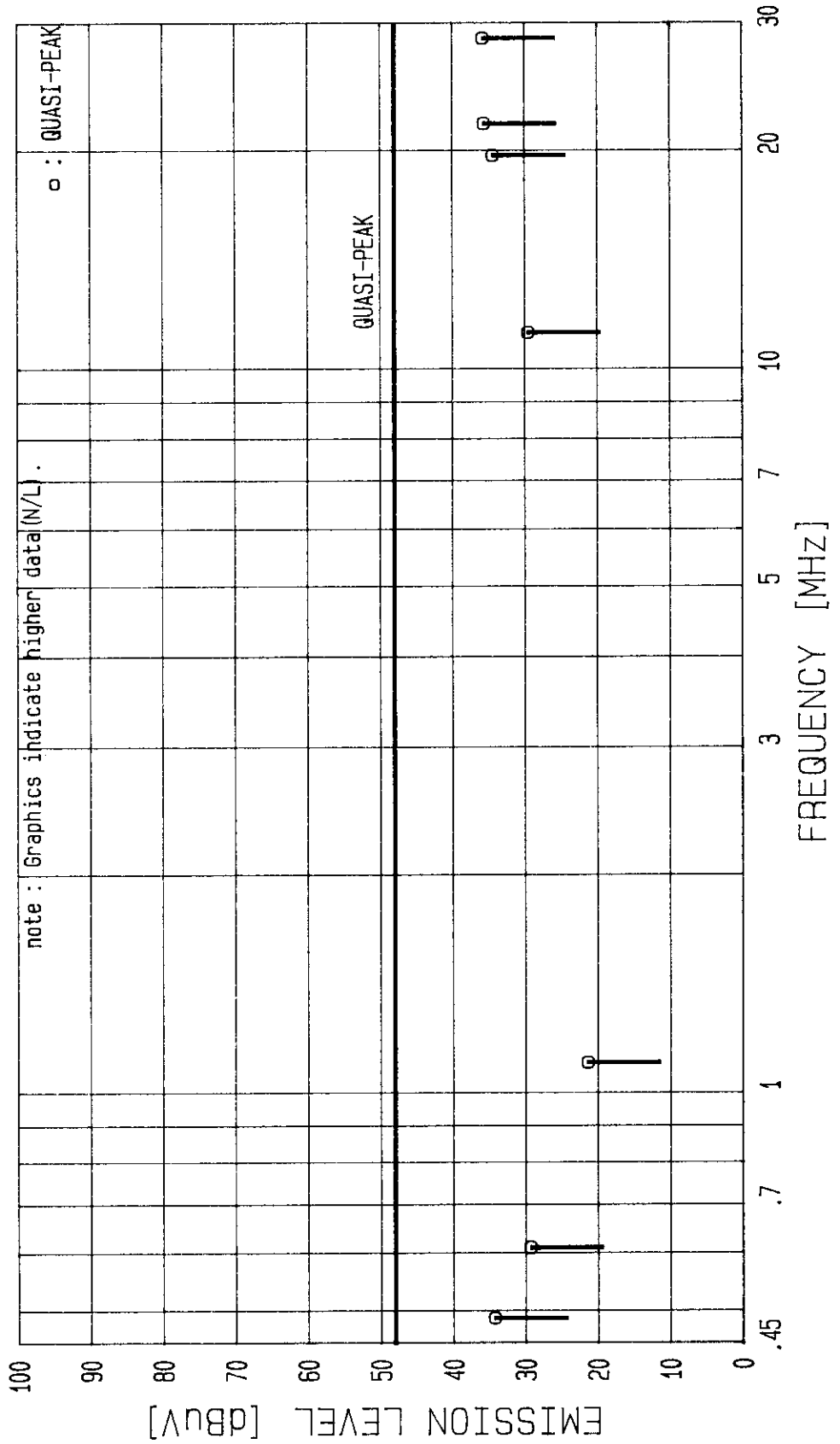
note : The LISN factor includes the cable loss.

CONDUCTION TEST

EMC Kashima Corporation
No.2 Test Site

COMPANY : FUJI XEROX CO., LTD.
TRADE NAME : FUJI XEROX
EQUIPMENT : LASER PRINTER
MODEL : DocuPrint P12
POWER : AC120V/60Hz
DESCRIPTION :
REMARKS : STANDBY

REPORT No. : TR2-98260F
REGULATION : FCC Part 15 Subpart B
CLASS : Class B
DATE : 98/07/01
FCC ID : J2LXXA1PGXA
ENGINEER : KENTICHI SUDA



DATA OF CONDUCTION TEST**EMC Kashima Corporation**
No.2 Test Site

COMPANY : FUJI XEROX CO.,LTD.
 TRADE NAME : FUJI XEROX
 EQUIPMENT : LASER PRINTER
 MODEL : DocuPrint P12
 POWER : AC120V/60Hz
 DESCRIPTION :
 REMARKS : PRINT

REPORT No. : TR2-98260F
 REGULATION : FCC Part 15 Subpart B
 CLASS : Class B
 DATE : 98/07/01
 FCC ID : J2LXXA1PGXA


 ENGINEER : KENICHI SUDA

No	FREQ [MHz]	N		L		LISN FACTOR [dB]	-13dB [dB]	RESULT [dB μ V]	LIMITS [dB μ V]	MARGIN [dB]
		QP [dB μ V]	AV	QP [dB μ V]	AV					
1	0.4896	34.5	-	33.5	-	0.3	0	34.8	48.0	13.2
2	0.8578	33.0	-	28.0	-	0.3	0	33.3	48.0	14.7
3	1.4721	29.0	-	23.0	-	0.4	0	29.4	48.0	18.6
4	11.1776	31.0	-	31.0	-	1.0	0	32.0	48.0	16.0
5	19.2276	33.0	-	32.5	-	1.4	0	34.4	48.0	13.6
6	21.8300	36.0	-	35.5	-	1.6	0	37.6	48.0	10.4
7	28.6349	37.0	-	37.0	-	1.8	0	38.8	48.0	9.2

Sample Calculation : Result = Reading(Higher data of N/L) + LISN factor

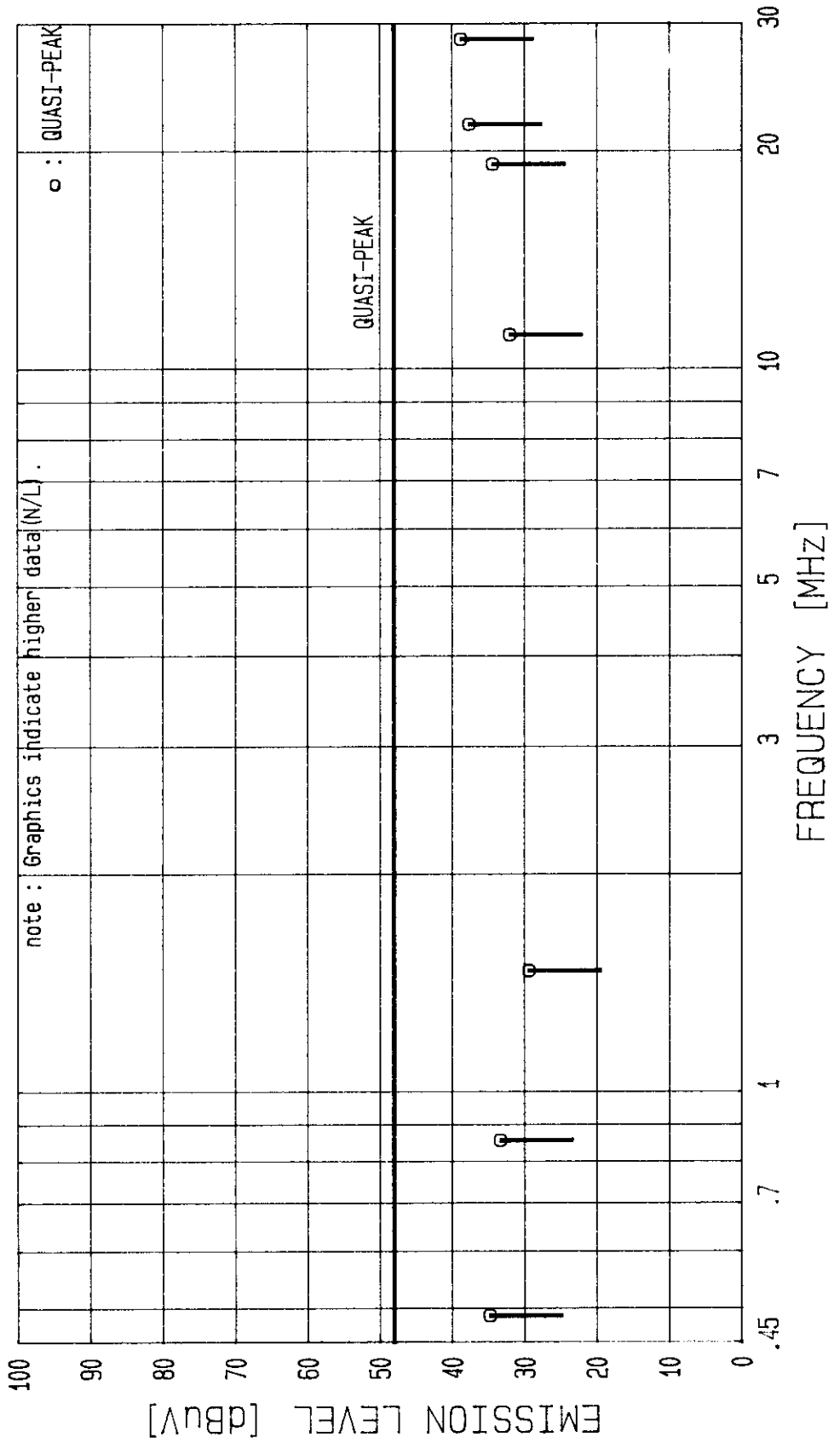
note : The LISN factor includes the cable loss.

CONDUCTION TEST

EMC Kashima Corporation
No.2 Test Site

COMPANY : FUJI XEROX CO., LTD.
TRADE NAME : FUJI XEROX
EQUIPMENT : LASER PRINTER
MODEL : DocuPrint P12
POWER : AC120V/60Hz
DESCRIPTION :
REMARKS : PRINT


REPORT No. : TR2-98260F
REGULATION : FCC Part 15 Subpart B
CLASS : Class B
DATE : 98/07/01
FCC ID : J2LXXA1PGXA
ENGINEER : KENICHI SUDA



DATA OF RADIATION TEST**EMC Kashima Corporation**
No.2 Test Site

COMPANY : FUJI XEROX CO.,LTD.
 TRADE NAME : FUJI XEROX
 EQUIPMENT : LASER PRINTER
 MODEL : DocuPrint P12
 POWER : AC120V/60Hz
 DESCRIPTION :
 REMARKS : STANDBY
 TESTED DATE : 98/07/01
 FCC ID : J2LXXA1PGXA

REPORT No. : TR2-98260F
 REGULATION : FCC Part 15 Subpart B
 CLASS : Class B
 DISTANCE : 3 m
 ATTENUATOR : 6 dB


 ENGINEER : KENICHI SUDA

No	FREQ [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	CABLE LOSS [dB]	AMP GAIN [dB]	RESULT		FCC LIMITS [dB μ V/m] 3m	MARGIN	
			HOR [dB μ V] 3m	VER				HOR [dB μ V/m] 3m	VER		HOR [dB]	VER
1	42.39	BC	-	34.0	13.7	1.2	26.0	-	28.9	40.0	-	11.1
2	108.81	BC	39.0	36.0	12.0	1.9	25.8	33.1	30.1	43.5	10.4	13.4
3	126.94	BC	42.0	35.5	13.7	2.1	25.8	38.0	31.5	43.5	5.5	12.0
4	163.21	BC	35.5	28.0	15.0	2.5	25.6	33.4	25.9	43.5	10.1	17.6
5	192.52	BC	37.0	-	16.0	2.7	25.4	36.3	-	43.5	7.2	-
6	197.52	BC	34.5	-	16.1	2.7	25.3	34.0	-	43.5	9.5	-
7	202.52	LP	34.5	-	11.5	2.8	25.3	29.4	-	43.5	14.1	-
8	544.05	LP	29.0	-	18.4	4.8	26.7	31.5	-	46.0	14.5	-
9	924.89	LP	27.5	30.0	23.5	6.3	26.2	37.1	39.6	46.0	8.9	6.4
10	979.30	LP	25.0	27.0	24.2	6.9	25.9	36.2	38.2	54.0	17.8	15.8

Sample Calculation :

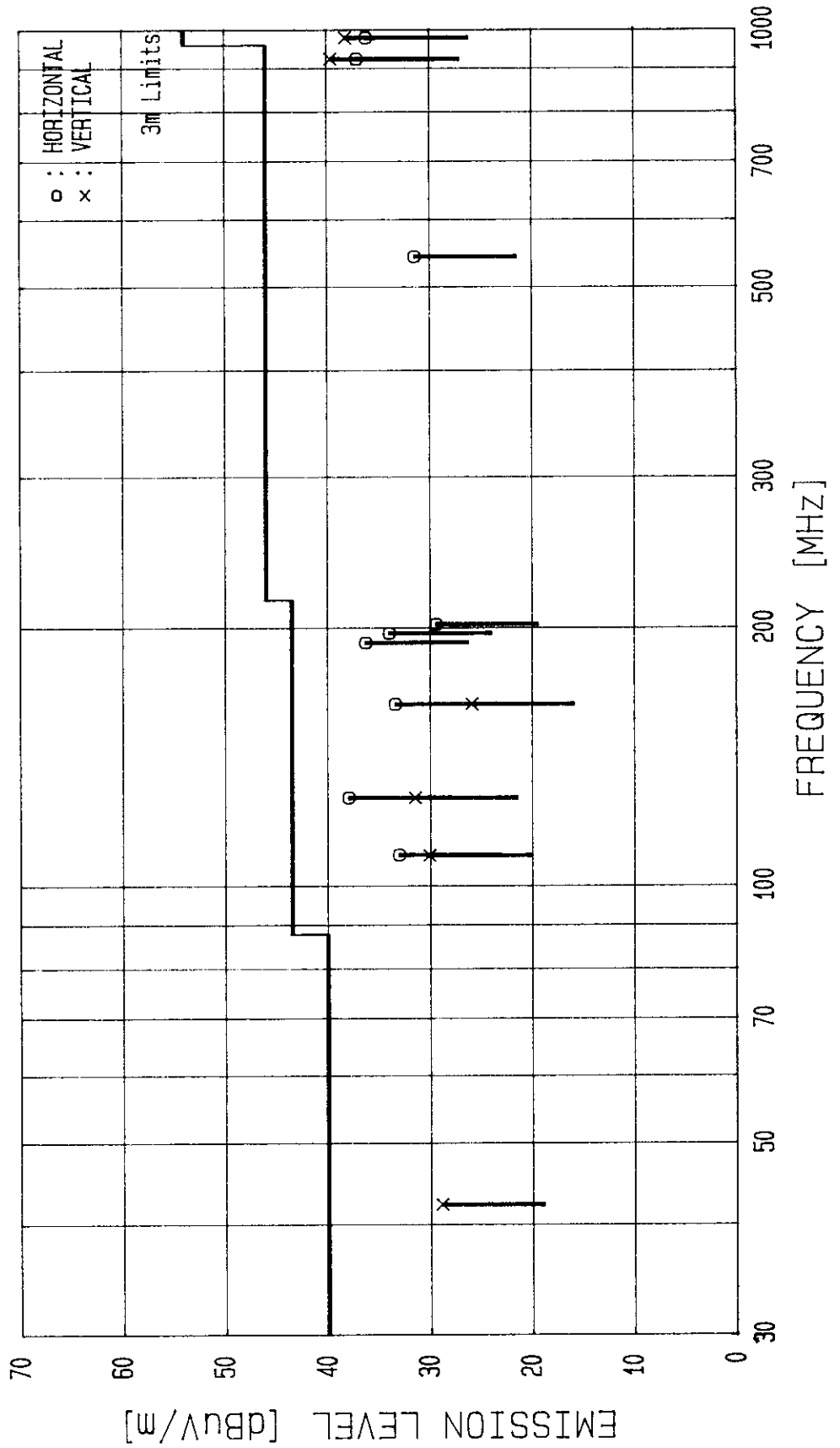
Result = Reading + Ant.Factor + Cable Loss - Amp.Gain + Atten.

COMPANY : FUJI XEROX CO., LTD.
 TRADE NAME : FUJI XEROX
 EQUIPMENT : LASER PRINTER
 MODEL : DocuPrint P12
 POWER : AC120V/60Hz
 DESCRIPTION :
 REMARKS : STANDBY

REPORT No. : TR2-98260F
 REGULATION : FCC Part 15 Subpart B
 CLASS : Class B
 DATE : 98/07/01
 FCC ID : J2LXXA1P6XA
 ENGINEER : KENICHI SUDA

RADIATION TEST

EMC Kashima Corporation
 No.2 Test Site



DATA OF RADIATION TESTEMC Kashima Corporation
No.2 Test Site

COMPANY : FUJI XEROX CO.,LTD.
 TRADE NAME : FUJI XEROX
 EQUIPMENT : LASER PRINTER
 MODEL : DocuPrint P12
 POWER : AC120V/60Hz
 DESCRIPTION :
 REMARKS : PRINT
 TESTED DATE : 98/07/01
 FCC ID : J2LXXA1PGXA

REPORT No. : TR2-98260F
 REGULATION : FCC Part 15 Subpart B
 CLASS : Class B
 DISTANCE : 3 m
 ATTENUATOR : 6 dB


 ENGINEER : KENTICHI SUDA

No	FREQ [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	CABLE LOSS [dB]	AMP GAIN [dB]	RESULT		FCC LIMITS [dB μ V/m] 3m	MARGIN	
			HOR	VER				[dB μ V] 3m	[dB μ V/m] 3m		HOR	VER
1	42.39	BC	-	34.0	13.7	1.2	26.0	-	28.9	40.0	-	11.1
2	108.81	BC	39.0	36.0	12.0	1.9	25.8	33.1	30.1	43.5	10.4	13.4
3	117.89	BC	41.0	34.0	12.9	2.0	25.8	36.2	29.2	43.5	7.3	14.3
4	126.94	BC	42.0	36.0	13.7	2.1	25.8	38.0	32.0	43.5	5.5	11.5
5	163.21	BC	37.0	30.0	15.0	2.5	25.6	34.9	27.9	43.5	8.6	15.6
6	192.52	BC	36.0	-	16.0	2.7	25.4	35.3	-	43.5	8.2	-
7	197.52	BC	34.5	-	16.1	2.7	25.3	34.0	-	43.5	9.5	-
8	202.52	LP	36.0	-	11.5	2.8	25.3	30.9	-	43.5	12.6	-
9	544.05	LP	29.0	-	18.4	4.8	26.7	31.5	-	46.0	14.5	-
10	924.89	LP	27.5	30.0	23.5	6.3	26.2	37.1	39.6	46.0	8.9	6.4
11	979.30	LP	25.0	27.0	24.2	6.9	25.9	36.2	38.2	54.0	17.8	15.8

Sample Calculation :

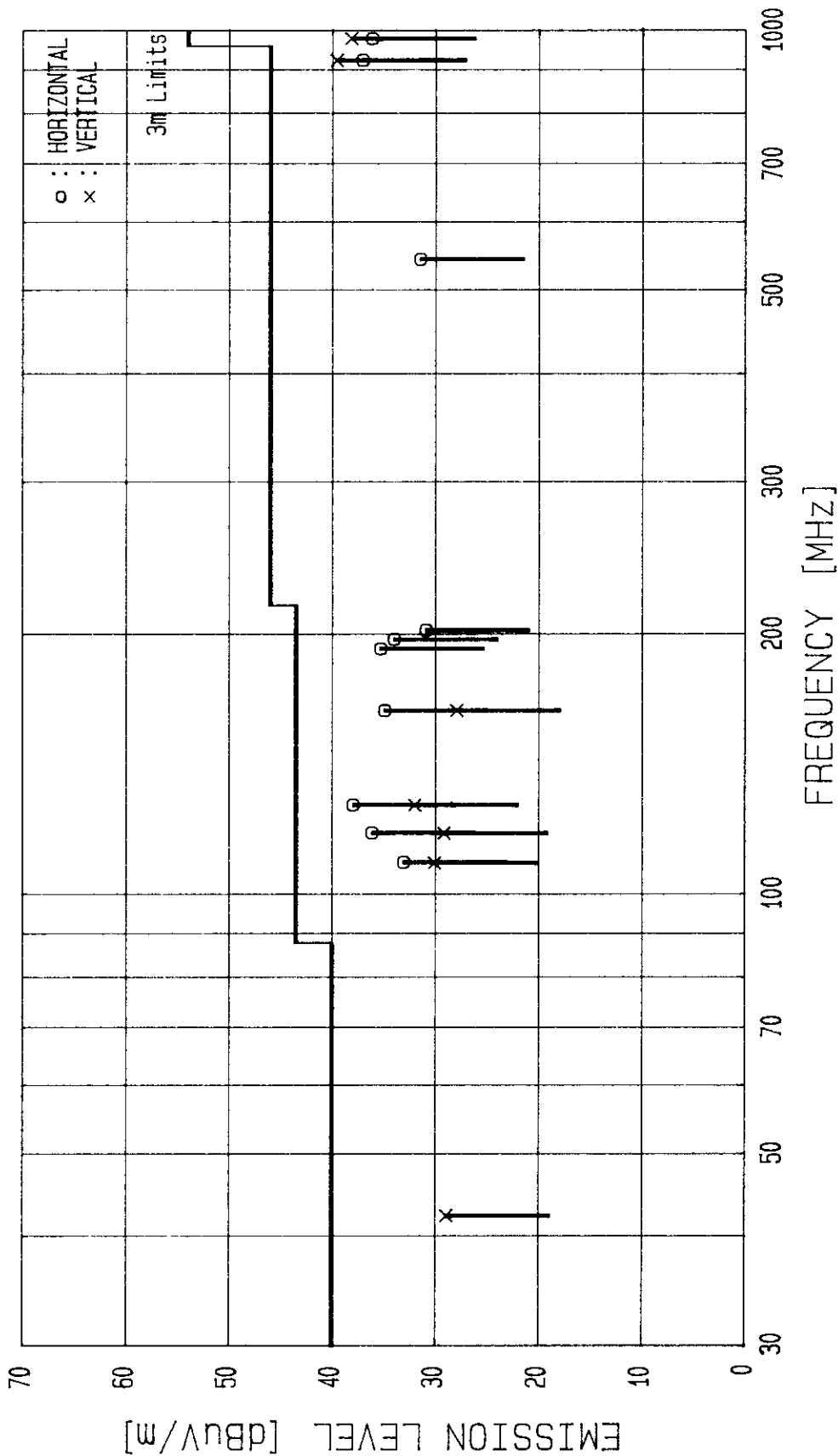
Result = Reading + Ant.Factor + Cable Loss - Amp.Gain + Atten.

REPORT No. : TR2-98260F
 REGULATION : FCC Part 15 Subpart B
 CLASS : Class B
 DATE : 98/07/01
 FCC ID : J2LXA1P6XA
 ENGINEER : KENICHI SUDA

COMPANY : FUJI XEROX CO., LTD.
 TRADE NAME : FUJI XEROX
 EQUIPMENT : LASER PRINTER
 MODEL : DocuPrint P12
 POWER : AC120V/60Hz
 DESCRIPTION :
 REMARKS : PRINT

RADIATION TEST

EMC Kashima Corporation
 No.2 Test Site



APPENDIX B

Photos of Tested EUT