

TEST REPORT

Report number : Z071C-08401

Issue date : February 2, 2009

The device, as described herewith, was tested pursuant to applicable test procedure and complies with the requirements of;

FCC Part15 Subpart B

Canada ICES-003

- Class II Permissive Change -

The test results are traceable to the international or national standards.

Applicant	: FUJITSU ISOTEC LIMITED 135, Higashinozaki, Hobara-machi, Date-shi, Fukushima 960-0695 Japan Phone: +81-24-574-2214 Fax: +81-24-574-2277
Equipment under test (EUT)	: Dot Matrix Printer
FCC ID	: KHZ003M33333A
Trade name	: FUJITSU ISOTEC
Model number	: M33333A
Serial number	: VX144428, VX142995
EUT condition	: Pre-production

Date of test : January 13,15, 2009

Test place : OATS

ZACTA Technology Corporation Yonezawa Testing Center
4149-7 Hachimanpara 5-chome
Yonezawa-shi Yamagata 992-1128 Japan
Phone:+81-238-28-2880 Fax:+81-238-28-2888

Test results : Complied

[EUT complies with Canadian Interference-Causing Equipment Standard ICES-003.]

The results in this report are applicable only to the equipment tested.

This report shall not be re-produced except in full without the written approval of ZACTA Technology Corporation.

This test report must not be used by client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Tested by:


Yoshiyuki Takahashi

Authorized by:


Katsumi Sumiyoshi
Manager of Quality Control Division

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1. Summary of Test

1.1 Purpose of test

EUT, FCC ID : KHZ003M33333A, has been granted on Sep, 9, 2004.
Purpose of test is retest of EUT by changing AC power supply unit.

1.2 Standards

CFR47 FCC Part 15 Subpart B

1.3 Emission measurement

Test item	Test method	Classification of EUT	Test
Conducted emission at mains port	ANSI C63.4-2003	Class B	Applied
Radiated emission	ANSI C63.4-2003	Class B	Applied

Note : None.

1.4 Deviation from the standard

None

1.5 Modification to the EUT by laboratory

None

2. Equipment Under Test

2.1 General Description of equipment

The EUT is Dot matrix Printer.

2.2 EUT information

No.	EUT	Company	Model No.	Serial No.	DoC/FCC ID	Comment
1	Dot Matrix Printer	FUJITSU ISOTEC LIMITED	M33333A	VX144428 VX142995	KHZ003M33333A	*1,*2*,*4 *3
2	RS232C Board	FUJITSU ISOTEC LIMITED	CA20160-B81X	N/A	N/A	Option
3	LAN Card	FUJITSU ISOTEC LIMITED	KA02004-0225	N/A	N/A	Option
4	Cut Sheet Feeder	FUJITSU ISOTEC LIMITED	ASF100-FJ3801(1bin) ASF100-FJ3811(2bin)	N/A N/A	N/A N/A	Option Option

*1: Used for Centronics I/F mode

*2: Used for USB I/F mode

*3: Used for RS232C I/F mode

*4: Used for LAN I/F mode

Max. used frequency : 33MHz

Oscillator(s)/Crystal(s) : Oscillator 4.0MHz (for Main) /6.0MHz (for USB) /
Operating frequency 4.125MHz, 25MHz (for LAN)
Processor clock 16MHz (for Main) /12MHz (for USB) /
33MHz, 25MHz (for LAN)
Switching Frequencies 42KHz to 63KHz

Power ratings : AC 100-120V 50/60Hz
[Power supply for EUT in testing was AC 120V 60Hz.]

Size : (W) 570 x (D) 330 x (H) 120 mm

Variation of model(s) : Not applicable

2.3 Operating mode

[H print, Centronics I/F mode]

[H print, USB I/F mode]

[H print, RS232C I/F mode]

[H print, LAN I/F mode]

- i) Print-data are transferred from personal computer to EUT
- ii) Printer feeds a paper from tractor unit
- iii) EUT prints "H" letters on the paper
- iv) i) to iii) is repeated.

3. Configuration of equipment

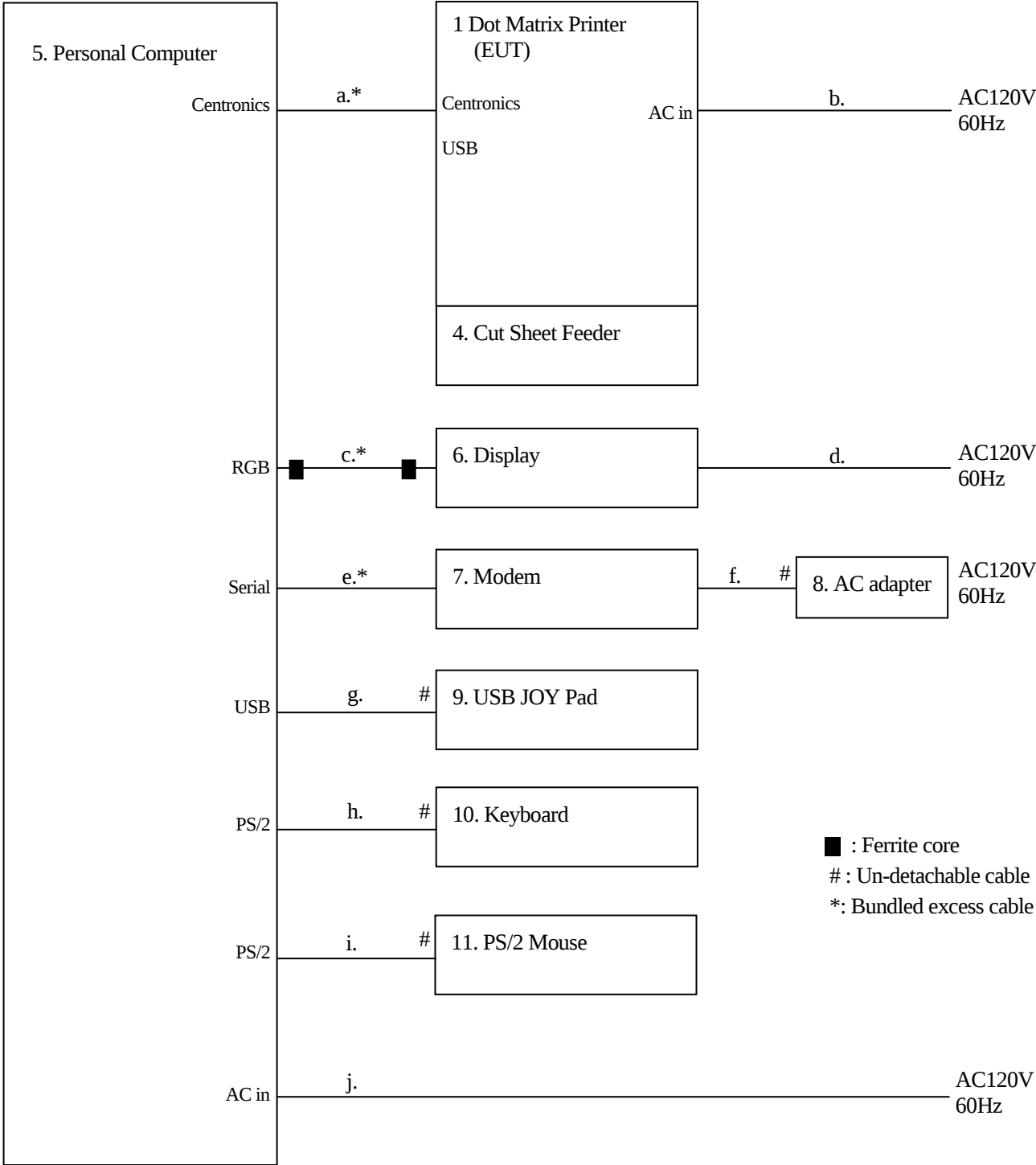
3.1 Peripheral(s) used [H print, Centronics I/F mode]

No.	Equipment	Company	Model No.	Serial No.	DoC/FCC ID	Comment
5	Personal Computer	DELL	MCM	9LX841S	DoC	-
6	Display	MITSUBISHI	L202EV	5Z304093YJ	DoC	-
7	Modem	US. Robotics	Sport_Ster 33.6Kbps	000839032BK6YV4J	DoC	-
8	AC Adaptor for Modem	US. Robotics	N/A	N/A	N/A	-
9	USB JOY Pad	Logitech	G-UF13	N/A	DoC	-
10	Keyboard	DELL	SK-8000	N/A	DoC	-
11	PS/2 Mouse	Logitech	M-S34	23-279294	N/A	-

3.2 Cable(s) used [H Print, Centronics I/F mode]

No.	Cable	Length[m]	Shield	Connector	Comment
a	Centronics cable	1.5	Yes	Metal	-
b	AC power cord for EUT	2.0	No	Plastic	-
c	RGB cable	1.5	Yes	Metal	-
d	AC power cord for Display	1.7	No	Plastic	-
e	Serial cable	3.0	Yes	Metal	-
f	DC cable for Modem AC adaptor	1.7	No	Plastic	-
g	Joy pad cable	1.8	Yes	Metal	-
h	Keyboard cable	2.2	No	Metal	-
i	Mouse cable	1.8	No	Metal	-
j	AC power cord for PC	1.8	No	Plastic	-

3.3 System configuration [H Print, Centronics I/F mode]



Note 1: Numbers assigned to equipment or cables on this diagram correspond to the list in “2.2 EUT information”, “3.1 Peripheral(s) used” and “3.2 Cable(s) used”.

Note 2: RGB cable (No.c) with two ferrite cores is accessory of Display (No.6).

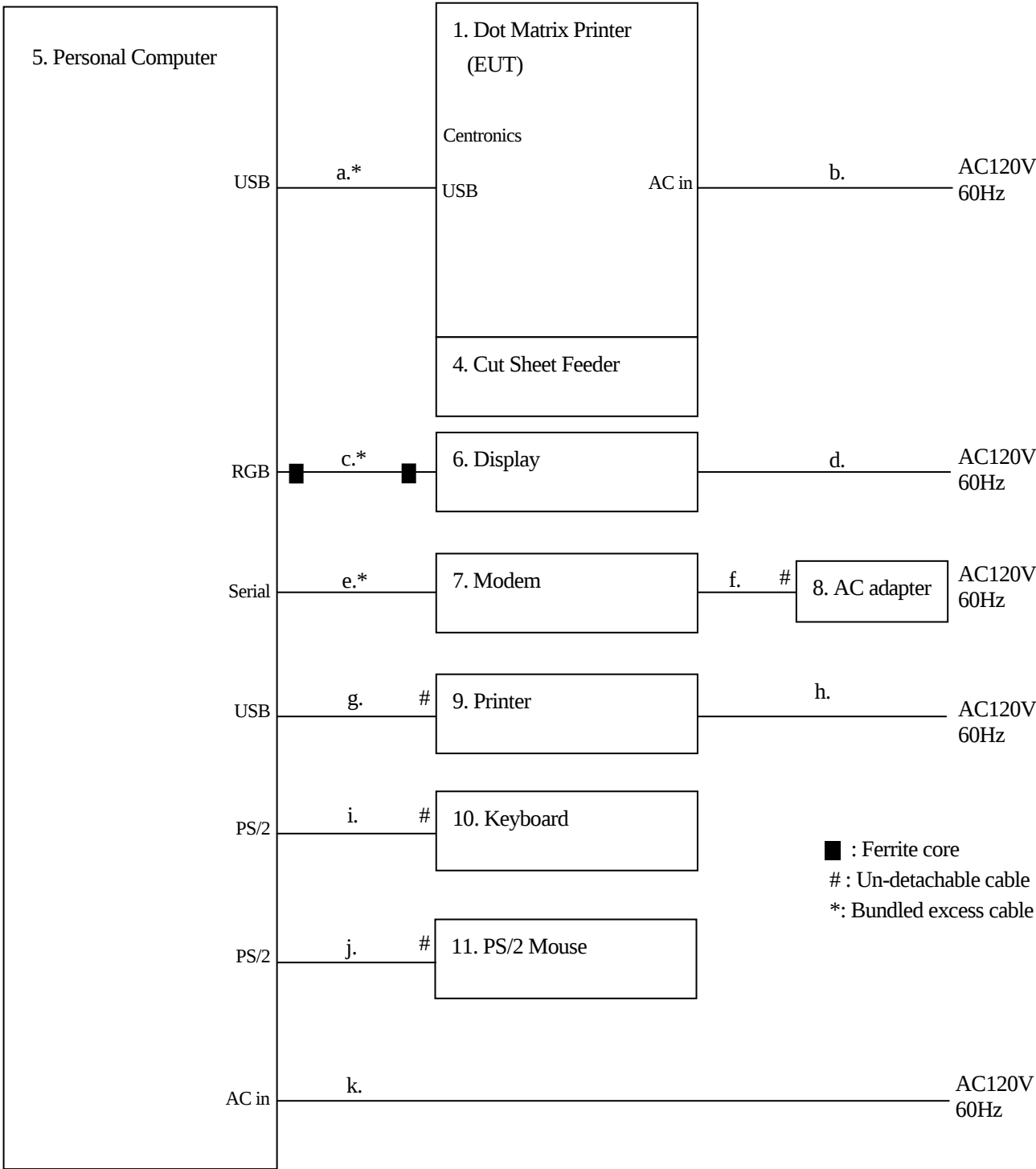
3.4 Peripheral(s) used [H Print, USB I/F mode]

No.	Equipment	Company	Model No.	Serial No.	DoC/FCC ID	Comment
5	Personal Computer	DELL	MCM	9LX841S	DoC	-
6	Display	MITSUBISHI	L202EV	5Z304093YJ	DoC	-
7	Modem	US. Robotics	Sport_Ster 33.6Kbps	000839032BK6YV4J	DoC	-
8	AC Adaptor for Modem	US. Robotics	N/A	N/A	N/A	-
9	Printer	HP	C4555A	US6BC212N	B94C4555X	-
10	Keyboard	DELL	SK-8000	N/A	DoC	-
11	PS/2 Mouse	Logitech	M-S34	23-279294	N/A	-

3.5 Cable(s) used [H Print, USB I/F mode]

No.	Cable	Length[m]	Shield	Connector	Comment
a	USB cable	1.4	Yes	Metal	-
b	AC power cord for EUT	2.0	No	Plastic	-
c	RGB cable	1.5	Yes	Metal	-
d	AC power cord for Display	1.7	No	Plastic	-
e	Serial cable	3.0	Yes	Metal	-
f	DC cable for Modem AC adaptor	1.7	No	Plastic	-
g	Parallel cable	3.0	Yes	Metal	-
h	AC power cord for Printer	2.8	No	Plastic	-
i	Keyboard cable	2.2	No	Metal	-
j	Mouse cable	1.8	No	Metal	-
k	AC power cord for PC	1.8	No	Plastic	-

3.6 System configuration [H Print, USB I/F mode]



Note 1: Numbers assigned to equipment or cables on this diagram correspond to the list in “2.2 EUT information”, “3.4 Peripheral(s) used” and “3.5 Cable(s) used”.

Note 2: RGB cable (No.c) with two ferrite cores is accessory of Display (No.6).

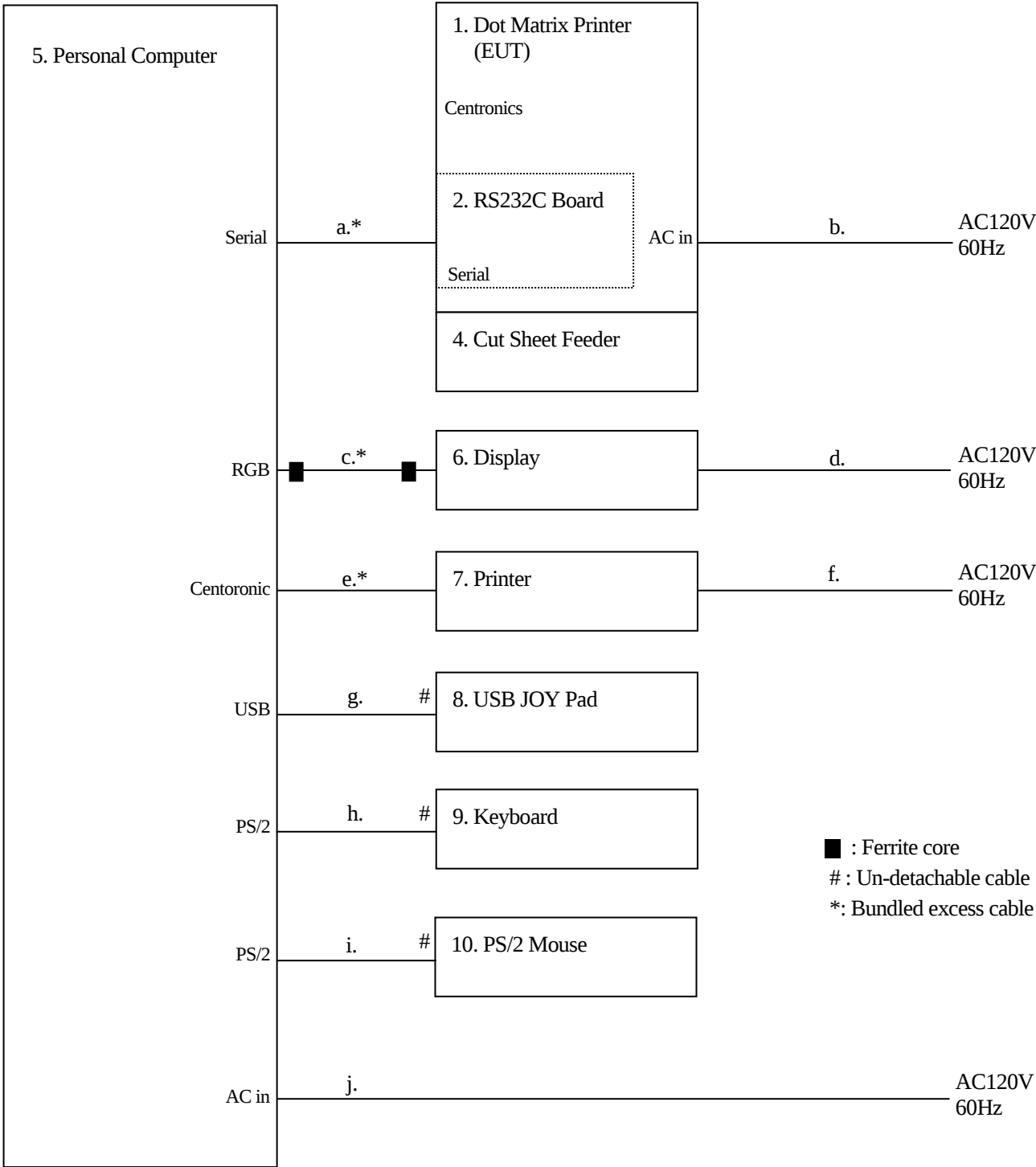
3.7 Peripheral(s) used [H Print, RS232C I/F mode]

No.	Equipment	Company	Model No.	Serial No.	DoC/FCC ID	Comment
5	Personal Computer	DELL	MCM	9LX841S	DoC	-
6	Display	MITSUBISHI	L202EV	5Z304093YJ	DoC	-
7	Printer	HP	C4555A	US6BC212N	B94C4555X	-
8	USB JOY Pad	Logitech	G-UF13	N/A	DoC	-
9	Keyboard	DELL	SK-8000	N/A	DoC	-
10	PS/2 Mouse	Logitech	M-S34	23-279294	N/A	-

3.8 Cable(s) used [H Print, RS232C I/F mode]

No.	Cable	Length[m]	Shield	Connector	Comment
a	RS232C cable	1.5	Yes	Metal	-
b	AC power cord for EUT	2.0	No	Plastic	-
c	RGB cable	1.5	Yes	Metal	-
d	AC power cord for Display	1.7	No	Plastic	-
e	Parallel cable	3.0	Yes	Metal	-
f	AC power cord for Printer	2.8	No	Plastic	-
g	Joy pad cable	1.8	Yes	Metal	-
h	Keyboard cable	2.2	No	Metal	-
i	Mouse cable	1.8	No	Metal	-
j	AC power cord for PC	1.8	No	Plastic	-

3.9 System configuration [H Print, RS232C I/F mode]



Note 1: Numbers assigned to equipment or cables on this diagram correspond to the list in “2.2 EUT information”, “3.7 Peripheral(s) used” and “3.8 Cable(s) used”.

Note 2: RGB cable (No.c) with two ferrite cores is accessory of Display (No.6).

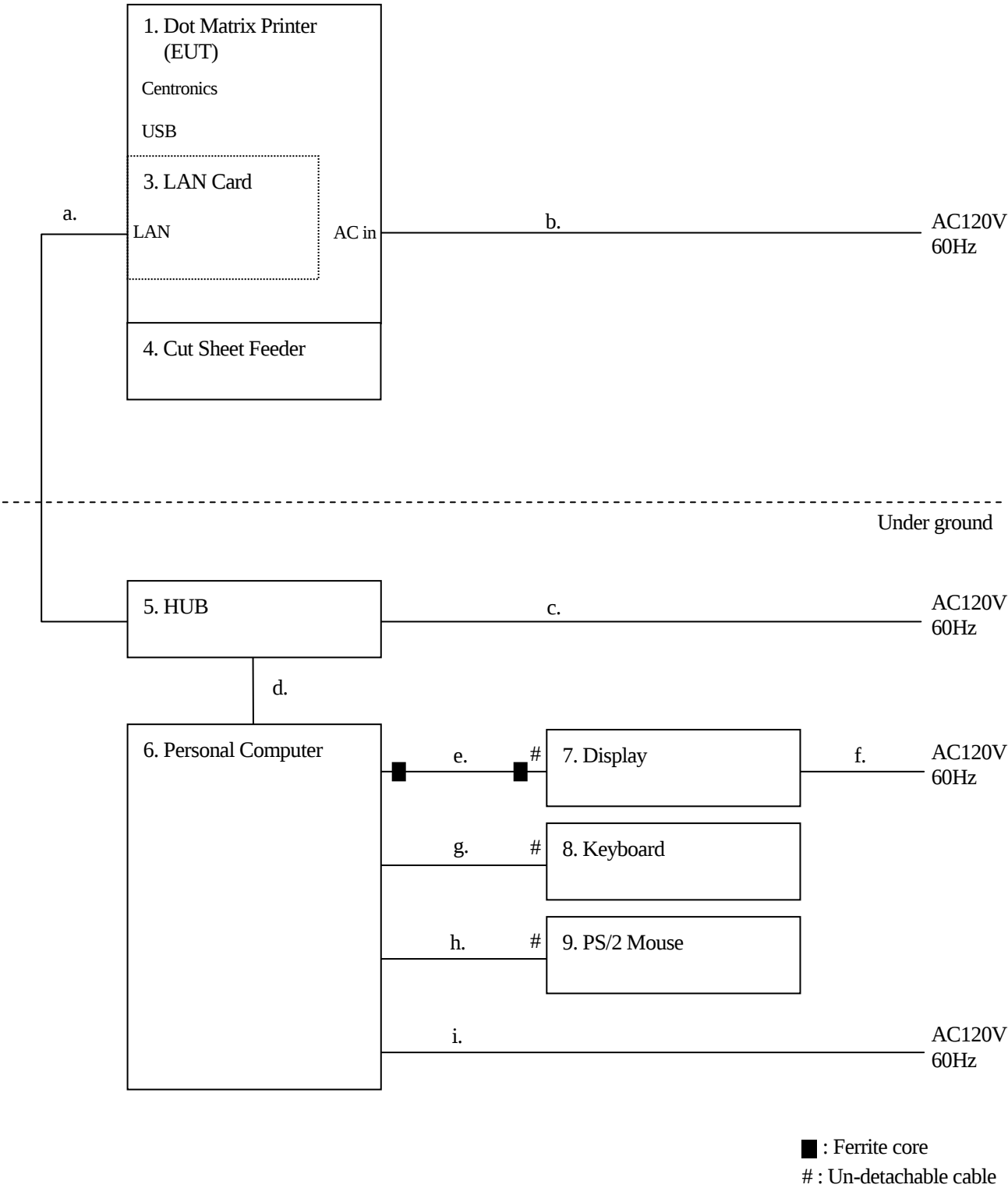
3.10 Peripheral(s) used [H Print, LAN I/F mode]

No.	Equipment	Company	Model No.	Serial No.	DoC/FCC ID	Comment
5	HUB	corega	CG-SW05GTR	1103750070201017 Rev.A2	N/A	-
6	Personal Computer	DELL	MCM	9LX841S	DoC	-
7	Display	MITSUBISHI	L202EV	5Z304093YJ	DoC	-
8	Keyboard	DELL	SK-8000	N/A	DoC	-
9	PS/2 Mouse	Logitech	M-S34	23-279294	N/A	-

3.11 Cable(s) used [H Print, LAN I/F mode]

No.	Cable	Length[m]	Shield	Connector	Comment
a	LAN cable	10.0	No	Plastic	-
b	AC power cord for EUT	2.0	Yes	Plastic	-
c	AC power cord for HUB	1.8	No	Plastic	-
d	LAN cable	1.2	No	Plastic	-
e	RGB cable	1.5	Yes	Metal	-
f	AC power cord for Display	1.7	No	Plastic	-
g	Keyboard cable	2.2	No	Metal	-
h	Mouse cable	1.8	No	Metal	-
i	AC power cord for PC	1.8	No	Plastic	-

3.12 System configuration [H Print, LAN I/F mode]



Note 1: Numbers assigned to equipment or cables on this diagram correspond to the list in “2.2 EUT information”, “3.10 Peripheral(s) used” and “3.11 Cable(s) used”.

Note 2: RGB cable (No.e) with two ferrite cores is accessory of Display (No.7).

4. Conducted emission at mains port test information

4.1 Measurement procedure

- Frequency range: 0.15MHz to 30MHz
- Test receiver setting
 - Detector: Quasi-peak, Average
 - Bandwidth: 9 kHz

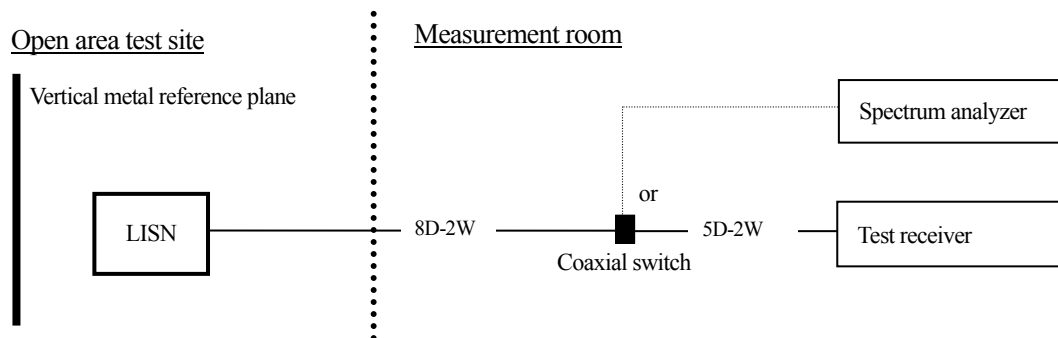
- Test procedure

Conducted emission at AC mains port measurements are performed at open area test site according to ANSI C63.4 section 7.

EUT is placed on wooden table of 2.3m(W) × 1.0m(D) × 0.8m(H) in size. EUT is connected to 50Ω/50μH Line Impedance Stabilization Network (LISN) which is placed on reference ground plane, and was placed 80cm away from EUT. Excess of AC power cable is bundled in center. Vertical Metal Reference Plane 2.4m (W) × 2.7m (H) in size is placed 0.4m away from EUT. LISN for peripheral is terminated in 50Ω.

EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, support equipment, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, support equipment and test equipment are provided in order for them to warm up to their normal operating condition.

- Test configuration for Conducted emission at mains port



4.2 Test equipment for Conducted emission at mains port

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. Date
Spectrum analyzer	Agilent Technologies	8568B 85662A	2732A03847 3026A19352	Jul.2009	Jul. 31, 2008
Test receiver	ROHDE&SCHWARZ	ESHS10	842884/009	Feb.2009	Feb. 27, 2008
Line impedance stabilization network for EUT	Kyoritsu Electrical Works, Ltd.	KNW-407	8-663-4	Mar.2009	Mar. 13, 2008
Line impedance stabilization network for peripheral	Kyoritsu Electrical Works, Ltd.	KNW-242C	8-1094-5	Mar.2009	Mar. 31, 2008
Coaxial cable	FUJIKURA	8D-2W/15m	YTCRFC#2C	May.2009	May. 31, 2008
Coaxial cable	FUJIKURA	5D-2W/1m	YTCRFC#2R,2C-001	May.2009	May. 31, 2008
Coaxial cable	FUJIKURA	5D-2W/1m	YTCRFC#2R,2C-002	May.2009	May. 31, 2008
Coaxial switch	ANRITSU	MP59B	6200331882	May.2009	May. 31, 2008
Transient limiter	Agilent Technologies	11947A	3107A03917	Jan.2010	Jan. 7, 2009
50Ω terminator	SUHNER	65-BNC-50-0-7	N/A	Mar.2009	Mar. 5, 2008
PC	IBM	6892-44J	97-42089	N/A	N/A
Software	ZACTA	EMI Data Sheet	Ver.2.81	N/A	N/A

4.3 Limit

Frequency	Class B limit	
	QP(dBμV)	AV(dBμV)
0.15MHz to 0.5MHz	66 to 56*	56 to 46*
0.5MHz to 5MHz	56	46
5MHz to 30MHz	60	50

*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

4.4 Calculation method

Emission level = Reading + (AMN. factor + Cable system loss)

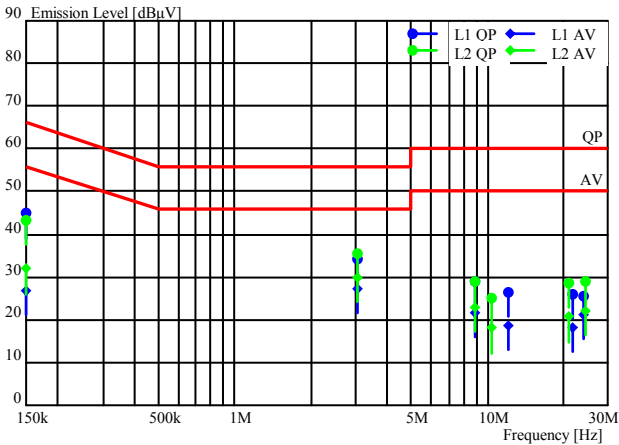
Margin = Limit – Emission level

4.5 Test data

***** CONDUCTED EMISSION at MAINS PORT *****

Sheet number : 1

Standard : FCC Part 15 Subpart B
Class : B
Terminal : Mains
Date of test : 2009/1/15
Test site : 2
Temperature [] : 16.2
Humidity [%] : 23.1
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M33333A
Serial number : VX144428
Test mode : H Print
Comment : Centronics I/F



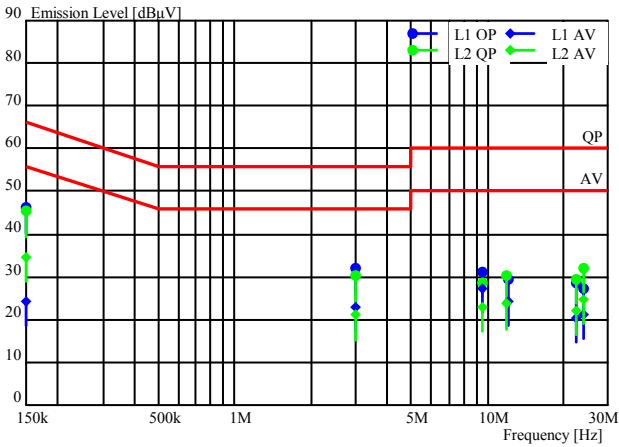
Phase	Frequency [MHz]	Reading		Factor	Emission level		Limit		Margin		Comment
		QP [dBμV]	AV [dBμV]		QP [dBμV]	AV [dBμV]	QP [dBμV]	AV [dBμV]	QP [dB]	AV [dB]	
L1	0.150	44.6	26.8	0.2	44.8	27.0	66.0	56.0	21.2	29.0	
L1	3.060	33.8	26.9	0.3	34.1	27.2	56.0	46.0	21.9	18.8	
L1	8.943	28.4	21.1	0.5	28.9	21.6	60.0	50.0	31.1	28.4	
L1	12.134	25.7	18.1	0.7	26.4	18.8	60.0	50.0	33.6	31.2	
L1	21.517	24.9	17.0	1.2	26.1	18.2	60.0	50.0	33.9	31.8	
L1	24.024	24.1	19.9	1.4	25.5	21.3	60.0	50.0	34.5	28.7	
L2	0.150	43.1	31.7	0.2	43.3	31.9	66.0	56.0	22.7	24.1	
L2	3.054	35.3	29.6	0.3	35.6	29.9	56.0	46.0	20.4	16.1	*
L2	8.934	28.3	22.5	0.5	28.8	23.0	60.0	50.0	31.2	27.0	
L2	10.444	24.4	17.4	0.6	25.0	18.0	60.0	50.0	35.0	32.0	
L2	20.855	27.5	19.4	1.2	28.7	20.6	60.0	50.0	31.3	29.4	
L2	24.547	27.8	20.6	1.4	29.2	22.0	60.0	50.0	30.8	28.0	

* : The worst emission. Factor : LISN Factor + Cable Loss Ver.2.81 F2#034

***** CONDUCTED EMISSION at MAINS PORT *****

Sheet number : 2

Standard : FCC Part 15 Subpart B
Class : B
Terminal : Mains
Date of test : 2009/1/15
Test site : 2
Temperature [] : 16.2
Humidity [%] : 23.1
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M33333A
Serial number : VX144428
Test mode : H Print
Comment : USB I/F



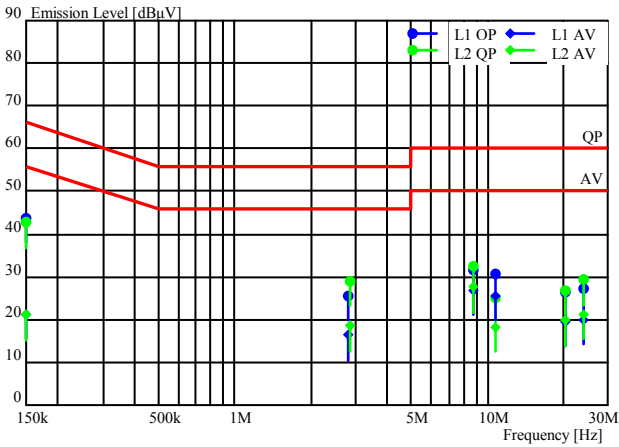
Phase	Frequency [MHz]	Reading		Factor	Emission level		Limit		Margin		Comment
		QP	AV		QP	AV	QP	AV	QP	AV	
		[dBμV]	[dBμV]	[dB]	[dBμV]	[dBμV]	[dBμV]	[dBμV]	[dB]	[dB]	
L1	0.150	45.9	24.0	0.2	46.1	24.2	66.0	56.0	19.9	31.8	*
L1	3.005	31.8	22.8	0.3	32.1	23.1	56.0	46.0	23.9	22.9	
L1	9.597	30.7	26.8	0.5	31.2	27.3	60.0	50.0	28.8	22.7	
L1	11.982	29.0	23.7	0.6	29.6	24.3	60.0	50.0	30.4	25.7	
L1	22.350	27.1	19.0	1.3	28.4	20.3	60.0	50.0	31.6	29.7	
L1	23.994	25.9	20.0	1.3	27.2	21.3	60.0	50.0	32.8	28.7	
L2	0.150	45.1	34.6	0.2	45.3	34.8	66.0	56.0	20.7	21.2	
L2	2.993	30.0	20.8	0.2	30.2	21.0	56.0	46.0	25.8	25.0	
L2	9.596	27.9	22.6	0.5	28.4	23.1	60.0	50.0	31.6	26.9	
L2	11.943	29.8	23.1	0.6	30.4	23.7	60.0	50.0	29.6	26.3	
L2	22.341	28.3	20.9	1.3	29.6	22.2	60.0	50.0	30.4	27.8	
L2	24.003	30.6	23.4	1.4	32.0	24.8	60.0	50.0	28.0	25.2	

* : The worst emission. Factor : LISN Factor + Cable Loss Ver.2.81 F2#034

***** CONDUCTED EMISSION at MAINS PORT *****

Sheet number : 3

Standard : FCC Part 15 Subpart B
Class : B
Terminal : Mains
Date of test : 2009/1/15
Test site : 2
Temperature [] : 16.2
Humidity [%] : 23.1
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M3333A
Serial number : VX142995
Test mode : H Print
Comment : RS232C I/F



Phase	Frequency [MHz]	Reading		Factor	Emission level		Limit		Margin		Comment
		QP	AV		QP	AV	QP	AV	QP	AV	
		[dBμV]	[dBμV]	[dB]	[dBμV]	[dBμV]	[dBμV]	[dBμV]	[dB]	[dB]	
L1	0.150	43.6	21.0	0.2	43.8	21.2	66.0	56.0	22.2	34.8	*
L1	2.826	25.4	16.1	0.2	25.6	16.3	56.0	46.0	30.4	29.7	
L1	8.825	31.2	26.3	0.5	31.7	26.8	60.0	50.0	28.3	23.2	
L1	10.732	30.2	25.1	0.6	30.8	25.7	60.0	50.0	29.2	24.3	
L1	20.413	25.3	18.3	1.2	26.5	19.5	60.0	50.0	33.5	30.5	
L1	23.922	25.9	18.6	1.3	27.2	19.9	60.0	50.0	32.8	30.1	
L2	0.150	42.5	20.8	0.2	42.7	21.0	66.0	56.0	23.3	35.0	
L2	2.831	28.9	18.3	0.2	29.1	18.5	56.0	46.0	26.9	27.5	
L2	8.822	31.8	27.1	0.5	32.3	27.6	60.0	50.0	27.7	22.4	
L2	10.742	24.5	17.6	0.6	25.1	18.2	60.0	50.0	34.9	31.8	
L2	20.418	25.6	18.5	1.2	26.8	19.7	60.0	50.0	33.2	30.3	
L2	23.925	28.0	19.9	1.3	29.3	21.2	60.0	50.0	30.7	28.8	

* : The worst emission.

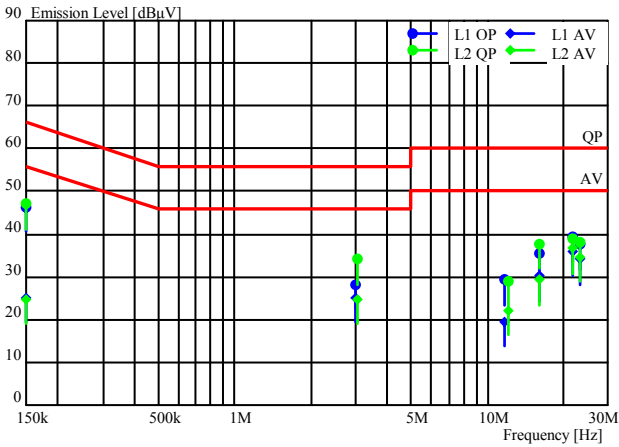
Factor : LISN Factor + Cable Loss

Ver.2.81 F2#034

***** CONDUCTED EMISSION at MAINS PORT *****

Sheet number : 4

Standard : FCC Part 15 Subpart B
Class : B
Terminal : Mains
Date of test : 2009/1/15
Test site : 2
Temperature [] : 16.2
Humidity [%] : 23.1
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M3333A
Serial number : VX144428
Test mode : H Print
Comment : LAN I/F



Phase	Frequency [MHz]	Reading		Factor	Emission level		Limit		Margin		Comment
		QP	AV		QP	AV	QP	AV	QP	AV	
		[dBμV]	[dBμV]	[dB]	[dBμV]	[dBμV]	[dBμV]	[dBμV]	[dB]	[dB]	
L1	0.150	46.3	25.0	0.2	46.5	25.2	66.0	56.0	19.5	30.8	
L1	2.995	28.0	25.0	0.2	28.2	25.2	56.0	46.0	27.8	20.8	
L1	11.659	28.7	18.9	0.6	29.3	19.5	60.0	50.0	30.7	30.5	
L1	16.016	34.7	29.2	0.9	35.6	30.1	60.0	50.0	24.4	19.9	
L1	21.661	38.3	34.7	1.2	39.5	35.9	60.0	50.0	20.5	14.1	
L1	23.127	36.2	32.8	1.3	37.5	34.1	60.0	50.0	22.5	15.9	
L2	0.150	46.8	24.6	0.2	47.0	24.8	66.0	56.0	19.0	31.2	
L2	3.065	33.7	24.4	0.3	34.0	24.7	56.0	46.0	22.0	21.3	
L2	12.155	28.1	21.4	0.7	28.8	22.1	60.0	50.0	31.2	27.9	
L2	16.013	36.7	28.4	0.9	37.6	29.3	60.0	50.0	22.4	20.7	
L2	21.665	37.6	35.5	1.2	38.8	36.7	60.0	50.0	21.2	13.3	*
L2	23.130	36.8	33.4	1.3	38.1	34.7	60.0	50.0	21.9	15.3	

* : The worst emission. Factor : LISN Factor + Cable Loss Ver.2.81 F2#034

5. Radiated emission test information

5.1 Measurement procedure

- Frequency range: 30MHz to 1000MHz

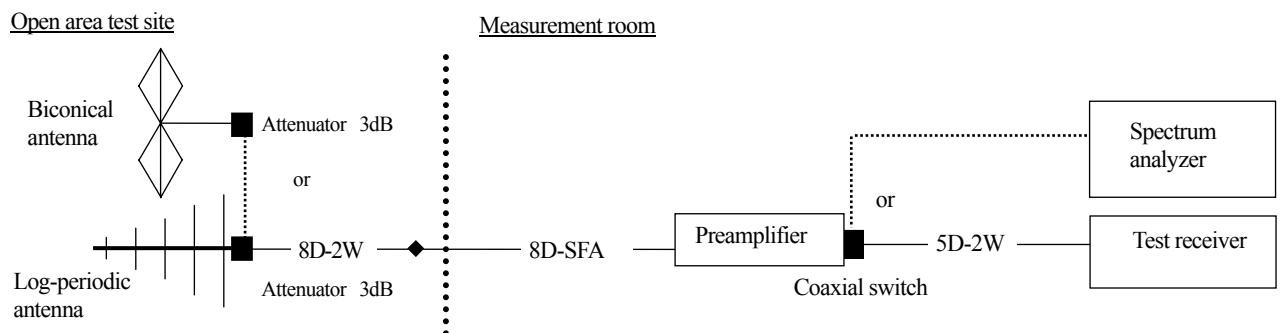
- Test receiver setting
Detector: Quasi-peak
Bandwidth: 120 kHz

- Test procedure

Radiated emission measurements are performed at open area test site according to ANSI C63.4 section 8.

EUT is placed on wooden table of $2.3\text{m(W)} \times 1.0\text{m(D)} \times 0.8\text{m(H)}$ in size. Distance from antenna to EUT is 3m. EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Then, emission measurements up to 1000MHz were performed with test receiver in above setting. In order to find the maximum emissions, antenna is adjusted between 1m and 4m in height and varied its polarization (horizontal and vertical), and EUT azimuth was also varied by rotating turntable 0 to 360 degrees. Sufficient time for EUT, support equipment and test equipment is provided in order for them to warm up to their normal operating condition.

- Test configuration for Radiated emission



5.2 Test equipment for Radiated emission

[#2 site]

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
Spectrum analyzer	Agilent Technologies	8568B	2732A03847	Jul. 2009	Jul. 31, 2008
		85662A	3026A19352		
Test receiver	ROHDE&SCHWARZ	ESVS10	832655/012	Oct. 2009	Oct. 21, 2008
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	1563	Jun. 2009	Jun. 14, 2008
Log periodic antenna	Schwarzbeck	UHALP9108A	0438	Jun. 2009	Jun. 14, 2008
Attenuator	TDC	TAT-43B-03	N/A	Aug. 2009	Aug. 8, 2008
Attenuator	TDC	TAT-43B-03	N/A	Aug. 2009	Aug. 8, 2008
Coaxial cable	FUJIKURA	8D-SFA/15m	YTCRFC#2R-001	May. 2009	May. 31, 2008
Coaxial cable	FUJIKURA	8D-SFA/15m	YTCRFC#2R-002	May. 2009	May. 31, 2008
Coaxial cable	FUJIKURA	8D-2W/8m	YTCRFC#2R-003	May. 2009	May. 31, 2008
Coaxial cable	FUJIKURA	5D-2W/1m	YTCRFC#2R,2C-001	May. 2009	May. 31, 2008
Coaxial cable	FUJIKURA	5D-2W/1m	YTCRFC#2R,2C-002	May. 2009	May. 31, 2008
Preamplifier	ANRITSU	MH648A	M96157	May. 2009	May. 31, 2008
Coaxial switch	ANRITSU	MP59B	6200331882	May. 2009	May. 31, 2008
Site attenuation	ZACTA Technology Corp.	N/A	N/A	Jul. 2009	Jul. 5, 2008
PC	IBM	6892-44J	97-42089	N/A	N/A
Software	ZACTA	EMI Data Sheet	Ver.2.81	N/A	N/A

5.3 Limit

Frequency	Class B limit
	(dBμV/m)
30MHz to 88MHz	40.0
88MHz to 216MHz	43.5
216MHz to 960MHz	46.0
960MHz to 1000MHz	54.0
Above 1000MHz	Peak:74.0 Average:54.0

5.4 Calculation method

Emission level = Reading + (Ant. factor + Cable loss + Attenuator – Amp. Gain)

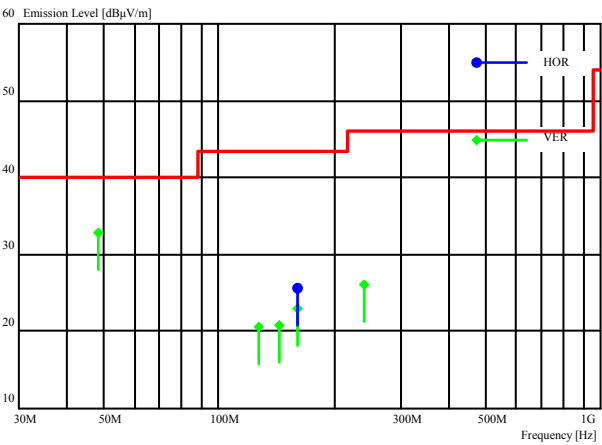
Margin = Limit – Emission level

5.5 Test data

***** RADIATED EMISSION *****

Sheet number : 1

Standard : FCC Part 15 Subpart B
Class : B
Distance [m] : 3
Date of test : 2009/1/13
Test site : 2
Temperature [] : 15.3
Humidity [%] : 32.2
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M3333A
Serial number : VX144428A
Test mode : H Print
Comment : Centronics I/F



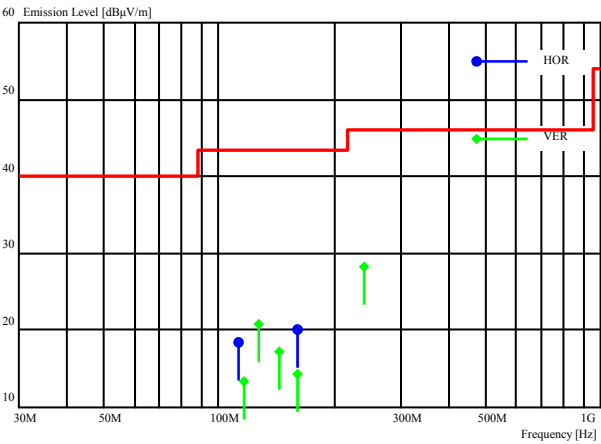
Antenna		Table	Reading		Factor	Emission	Limit	Margin	Comment
Pol.	Height	Radian	Frequency	Level		Level			
HOR/VER	[m]	[Deg.]	[MHz]	[dBμV]	[dB/m]	[dBμV/m]	[dBμV/m]	[dB]	
VER	1.0	115	48.00	47.1	-14.2	32.9	40.0	7.1	*
VER	1.0	100	127.79	32.2	-11.6	20.6	43.5	22.9	
VER	1.0	75	144.01	31.3	-10.6	20.7	43.5	22.8	
VER	1.0	270	159.99	32.8	-9.9	22.9	43.5	20.6	
HOR	2.2	335	160.01	35.5	-9.8	25.7	43.5	17.8	
VER	1.0	15	240.02	33.3	-7.3	26.0	46.0	20.0	

* : The worst emission. Factor : Antenna Factor + Attenuator + Cable Loss - Amp Gain Ver.2.81 F2#034

***** RADIATED EMISSION *****

Sheet number : 2

Standard : FCC Part 15 Subpart B
Class : B
Distance [m] : 3
Date of test : 2009/1/13
Test site : 2
Temperature [] : 15.3
Humidity [%] : 32.2
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M3333A
Serial number : VX144428A
Test mode : H Print
Comment : USB I/F



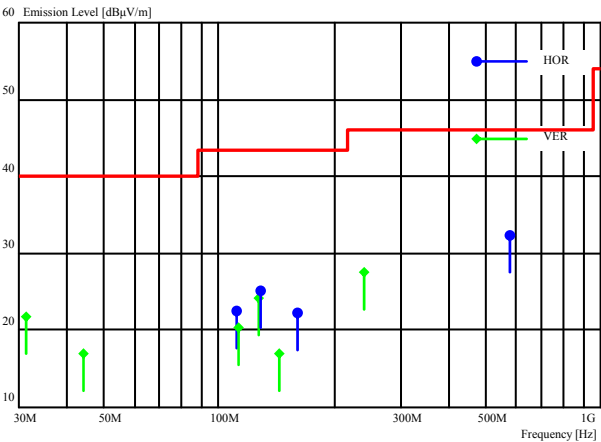
Antenna		Table	Reading		Factor	Emission	Limit	Margin	Comment
Pol.	Height	Radian	Frequency	Level		Level			
HOR/VER	[m]	[Deg.]	[MHz]	[dBμV]	[dB/m]	[dBμV/m]	[dBμV/m]	[dB]	
HOR	2.3	155	112.14	31.5	-13.2	18.3	43.5	25.2	
VER	1.0	90	116.11	26.1	-12.7	13.4	43.5	30.1	
VER	1.0	295	127.79	32.4	-11.6	20.8	43.5	22.7	
VER	1.0	135	144.04	27.8	-10.6	17.2	43.5	26.3	
VER	1.0	355	160.00	24.2	-9.8	14.4	43.5	29.1	
HOR	2.4	230	160.01	29.8	-9.8	20.0	43.5	23.5	
VER	1.0	355	240.03	35.6	-7.3	28.3	46.0	17.7	*

* : The worst emission. Factor : Antenna Factor + Attenuator + Cable Loss - Amp Gain Ver.2.81 F2#034

***** RADIATED EMISSION *****

Sheet number : 3

Standard : FCC Part 15 Subpart B
Class : B
Distance [m] : 3
Date of test : 2009/1/13
Test site : 2
Temperature [] : 15.3
Humidity [%] : 32.2
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M3333A
Serial number : VX142995
Test mode : H Print
Comment : RS232C I/F



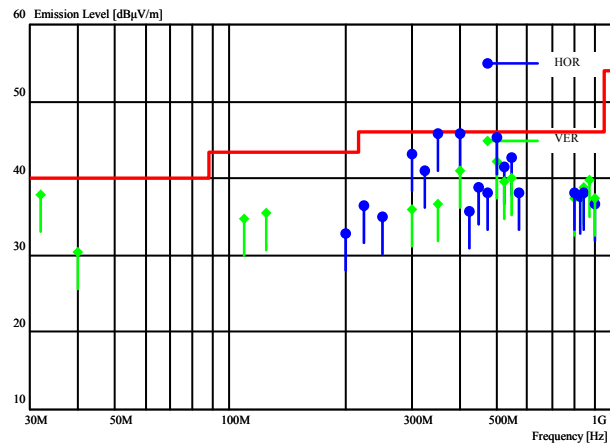
Antenna		Table	Reading		Factor	Emission	Limit	Margin	Comment
Pol.	Height	Radian	Frequency	Level		Level			
HOR/VER	[m]	[Deg.]	[MHz]	[dBμV]	[dB/m]	[dBμV/m]	[dBμV/m]	[dB]	
VER	1.0	335	31.15	30.0	-8.2	21.8	40.0	18.2	
VER	1.0	240	43.94	29.5	-12.6	16.9	40.0	23.1	
HOR	1.7	125	111.66	35.8	-13.3	22.5	43.5	21.0	
VER	1.0	125	111.96	33.6	-13.3	20.3	43.5	23.2	
VER	1.0	55	127.85	35.7	-11.6	24.1	43.5	19.4	
HOR	1.9	190	128.03	36.8	-11.6	25.2	43.5	18.3	
VER	1.0	245	144.05	27.5	-10.6	16.9	43.5	26.6	
HOR	2.1	105	160.01	32.0	-9.8	22.2	43.5	21.3	
VER	1.0	0	240.03	34.8	-7.3	27.5	46.0	18.5	
HOR	1.5	155	576.06	36.4	-4.1	32.3	46.0	13.7	*

* : The worst emission. Factor : Antenna Factor + Attenuator + Cable Loss - Amp Gain Ver.2.81 F2#034

***** RADIATED EMISSION *****

Sheet number : 4

Standard : FCC Part 15 Subpart B
Class : B
Distance [m] : 3
Date of test : 2009/1/13
Test site : 2
Temperature [] : 15.3
Humidity [%] : 32.2
Operator : Y.Takahashi
Company name : FUJITSU ISOTEC LIMITED
EUT : Dot Matrix Printer
Model number : M3333A
Serial number : VX144428
Test mode : H Print
Comment : LAN I/F



Antenna Pol.	Antenna Height [m]	Table Radian [Deg.]	Reading Frequency [MHz]	Reading Level [dBuV]	Factor [dB/m]	Emission Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Comment
VER	1.0	215	32.05	46.4	-8.6	37.8	40.0	2.2	
VER	1.0	190	40.02	41.9	-11.4	30.5	40.0	9.5	
VER	1.0	275	108.80	48.6	-13.8	34.8	43.5	8.7	
VER	1.0	190	125.01	47.4	-11.8	35.6	43.5	7.9	
HOR	2.5	125	200.02	41.1	-8.2	32.9	43.5	10.6	
HOR	2.0	35	225.02	43.7	-7.3	36.4	46.0	9.6	
HOR	1.9	65	250.03	41.7	-6.8	34.9	46.0	11.1	
HOR	1.0	65	300.01	53.7	-10.5	43.2	46.0	2.8	
VER	1.7	215	300.01	46.4	-10.5	35.9	46.0	10.1	
HOR	1.0	75	325.02	51.1	-10.0	41.1	46.0	4.9	
VER	1.5	145	350.00	46.3	-9.6	36.7	46.0	9.3	
HOR	1.0	130	350.02	55.3	-9.6	45.7	46.0	0.3	
HOR	1.0	165	400.00	53.6	-7.8	45.8	46.0	0.2	*
VER	1.5	175	400.01	48.7	-7.8	40.9	46.0	5.1	
HOR	1.0	110	424.99	42.7	-7.0	35.7	46.0	10.3	
VER	1.7	240	450.00	45.2	-6.4	38.8	46.0	7.2	
HOR	3.2	110	450.01	45.3	-6.4	38.9	46.0	7.1	
HOR	1.0	250	475.00	43.9	-5.7	38.2	46.0	7.8	
VER	1.8	20	500.00	48.0	-5.8	42.2	46.0	3.8	
HOR	1.0	290	500.03	51.2	-5.8	45.4	46.0	0.6	
HOR	1.0	275	525.00	46.8	-5.3	41.5	46.0	4.5	
VER	2.3	180	525.00	44.9	-5.3	39.6	46.0	6.4	
HOR	1.0	145	550.00	47.4	-4.7	42.7	46.0	3.3	
VER	2.2	180	550.00	44.7	-4.7	40.0	46.0	6.0	
HOR	1.0	245	575.02	42.2	-4.1	38.1	46.0	7.9	
VER	2.4	115	800.00	38.3	-0.9	37.4	46.0	8.6	
HOR	1.5	165	800.03	39.1	-0.9	38.2	46.0	7.8	
HOR	1.6	155	825.01	37.9	-0.3	37.6	46.0	8.4	
VER	2.3	115	850.00	38.2	0.6	38.8	46.0	7.2	
HOR	1.6	305	850.03	37.5	0.6	38.1	46.0	7.9	
VER	2.6	45	875.00	39.0	0.9	39.9	46.0	6.1	
HOR	1.5	75	900.03	35.4	1.3	36.7	46.0	9.3	
VER	2.6	40	900.03	36.1	1.3	37.4	46.0	8.6	

* : The worst emission. Factor : Antenna Factor + Attenuator + Cable Loss - Amp Gain Ver.2.81 F2#034

6. Uncertainty of measurement

Expanded uncertainties stated were calculated with a coverage Factor k=2.

Please note that these results are not taken into account when determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission at mains port (150kHz - 30MHz)	±3.7dB
Radiated emission (30MHz - 1000MHz)	±5.3dB

7. Laboratory description

1. Location: ZACTA Technology Corporation Yonezawa Testing Center
4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan
Phone: +81-238-28-2880 Fax: +81-238-28-2888

2. Facility filing information:

1) NVLAP accreditation: NVLAP Lab. code: 200306-0

2) FCC filing:

Site name	Registration Number	Expiry Date
Site 2, Site3	91065	November 19, 2011
3m Semi-anechoic chamber 10m Semi-anechoic chamber Shielded room No.1	540072	March 12, 2010

3) Industry Canada Oats site filing:

Site name	Sites on file: Oats 3m/10m	Expiry Date
Site 2	4224A-2	January 24, 2010
Site 3	4224A-3	January 24, 2010
3m Semi-anechoic chamber	4224A-4	January 24, 2010
10m Semi-anechoic chamber	4224A-5	January 24, 2010

4) VCCI site filing:

Site name	Radiated emission	Conducted emission for mains port	Expiry Date	Conducted emission for telecom port	Expiry Date
Site 2	R-137	C-133	Nov. 16, 2011	T-1477	Oct. 8, 2011
Site 3	R-138	C-134	Nov. 16, 2011	T-1478	Oct. 8, 2011
10m Semi-anechoic chamber	R-2480	C-2722	Dec. 19, 2009	T-1474	Oct. 8, 2011
3m Semi-anechoic chamber	R-2481	C-2723	Dec. 19, 2009	T-1475	Oct. 8, 2011
Shielded room No.1	-	C-2724	Dec. 19, 2009	T-1476	Oct. 8, 2011

5) Intertek authorization:

Authorized as an EMC test laboratory.

6) TUV Rheinland authorization:

Authorized as an EMC test laboratory.

7) BUREAU VERITAS certification:

Certified as an EMC test laboratory

8. Configuration photographs

Conducted emission at mains port [H Print, Centronics I/F mode]



The photographs show maximized emission configuration.

Radiated emission [H Print, Centronics I/F mode]



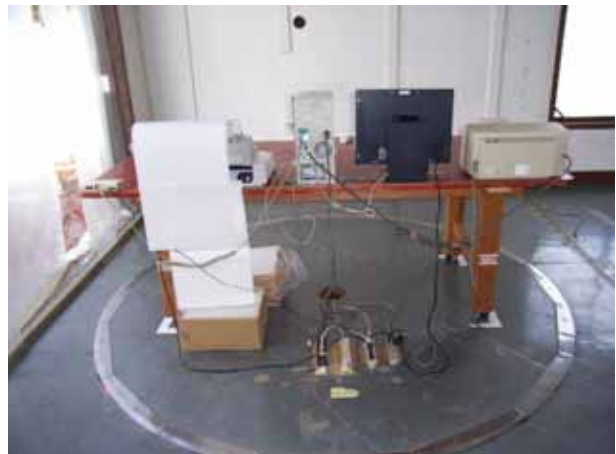
The photographs show maximized emission configuration.

Conducted emission at mains port [H Print, USB /FI mode]



The photographs show maximized emission configuration.

Radiated emission [H Print, USB I/F mode]



The photographs show maximized emission configuration.

Conducted emission at mains port [H Print, RS232C I/F mode]



The photographs show maximized emission configuration.

Radiated emission [H Print, RS232C I/F mode]



The photographs show maximized emission configuration.

Conducted emission at mains port [H Print, LAN I/F mode]



The photographs show maximized emission configuration.

Radiated emission [H Print, LAN I/F mode]



The photographs show maximized emission configuration.