

**EPSON**

SEIKO EPSON CORPORATION

***RFI MEASUREMENT TEST REPORT***

***FCC PART 15B CLASS B***

\*\*\*\*\* CLASS B DIGITAL DEVICES AND PERIPHERALS \*\*\*\*\*

APPLICANT : SEIKO EPSON CORPORATION

EQUIPMENT : PRINTER

TRADE NAME : EPSON

MODEL NUMBER : XYA-1

FCC ID NUMBER : BKMFBXYA-1

TEST REPORT No. : E-103-98121



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**TEST CERTIFICATION****Applicant Information**

Company : SEIKO EPSON Corporation  
 Division/Section : TP Product Safety Design Group  
                                   Imaging & Information Products Operations  
 Address : 80, Harashinden, Hirooka, Shiojiri-shi, Nagano, 399-0785 Japan  
                                   PHONE : +81-263-53-6024   FAX : +81-263-53-3544

**Test Performed**

Company : SEIKO EPSON Corporation  
 Division/Section : EMC Group, CS/Quality Assurance Office  
 Location : 80, Harashinden, Hirooka, Shiojiri-shi, Nagano, 399-0785 Japan  
                                   PHONE: +81-263-52-5094   FAX : +81-263-54-5806  
                                   10 meter Semi-anechoic Chamber  
                                   FCC File No. : 31040 / SIT 1300F2  
                                   NVLAP Lab Code : 200157-0

Test started : 16 June, 1998  
 Test completed : 22 June, 1998  
 Purpose of test : Compliance with standards  
 Test specification(s) : FCC Part 15B Class B (Unintentional Radiators)  
 Test procedure(s) : ANSI C63.4-1992

Test engineer : Toshiyuki Omori T. Omori  
                                   EMC group, CS/Quality Assurance Office

Report checked by : Takeshi Ono Takeshi Ono  
                                   Chief Engineer, EMC group, CS/Quality Assurance Office

Report approved by : Atsushi Shinozaki A. Shinozaki  
                                   Chief Engineer, EMC group, CS/Quality Assurance Office  
                                   NVLAP signatory

Report issue date : 10 July, 1998

The test item under the test conditions and configuration shown in this test report complies with above standard.

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## 1. DETAILED DESCRIPTION OF TEST ITEM

### 1-1 Equipment Under Test (EUT)

Kind of equipment : Printer

Shape : Floor-standing type

Manufacturer : SEIKO EPSON Corporation

Trade Name : EPSON

Model Number : XYA-1

FCC ID : BKMFBXYA-1

Serial Number : 000001

Voltage input : AC 120 V / 60 Hz

Rated current : 0.5 A

Port(s) / Connector(s) : 100 Base-TX (RJ-45, standard)  
Parallel (Centronics, standard)  
Serial (RS-232C, option)

Oscillator(s) / Crystal(s) : 67.1749 MHz, 66.6666 MHz, 50 MHz

Maximum used frequency : 133.333 MHz

Remarks : With Large capacity paper unit (C81303)  
Multibin unit (C81305)  
Duplex unit (C81304)  
Envelope feeder (C81307)  
Serial interface card (C82307)

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**1-2 Auxiliary equipment (AE)**

AE	Name	Model (Serial number)	Manufacturer	FCC ID	Voltage input Power consumption	
1	Large Capacity Paper Unit	C81303 (98060201)	SEIKO EPSON Corp.	N/A	-	a)
2	Multibin Unit	C81305 (98060301)	SEIKO EPSON Corp.	N/A	-	a)
3	Duplex Unit	C81304 (98060401)	SEIKO EPSON Corp.	N/A	-	a)
4	Envelope Feeder	C81307 (98060501)	SEIKO EPSON Corp.	N/A	-	a)
5	Computer	D5605A (SG81151767)	Hewlett Packard	N/A (DoC)	AC 120 V/ 60 Hz 5.0 A	
6	Monitor	D2825 (MY80833366)	Hewlett Packard	JVP7154E	AC 120 V/ 60 Hz 2.0 A	
7	Keyboard	SK-2502 (M9802147789)	Hewlett Packard	GYUR41SK	DC 5.0 V 60 mA	b)
8	Mouse	M-S34 (LZA75287348)	Hewlett Packard	DZL211029	DC 5.0 V 15 mA	b)
9	HUB	ES3008-TX (N/A)	ACCTON	N/A	AC 120 V/ 60 Hz 1.5 A	
10	Serial interface card	C82307 (N/A)	SEIKO EPSON Corp.	BKMC82307	DC 5.0 V 160 mA	a) c)

- a) Option of EUT
- b) Supply from AE5
- c) Supply from EUT

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a) **1-3 Relevant Signal and Power lines**

AE = Auxiliary equipment, EUT = Equipment Under Test = Test item

<b>Line</b>	<b>Name</b>	<b>From</b>	<b>To</b>	<b>Length</b>	<b>Shield</b>	<b>Remarks</b>
1	Mouse I/F cable	AE8 mouse	AE5 mouse out	1.8 m	Yes	Metal connector
2	Keyboard I/F cable	AE7 keyboard	AE5 keyboard out	1.8 m	Yes	Metal connector
3	Video I/F cable	AE6 video in	AE5 video out	1.4 m	Yes	Metal connector
4	Parallel I/F cable	EUT parallel in	AE5 parallel out	2.0 m	Yes	Metal connector
5	Serial I/F cable	AE10 serial in	AE5 serial out	2.0 m	Yes	Metal connector
6	Large Capacity Paper Unit Cable	AE1 signal in	EUT signal out	0.4 m	Yes	Metal connector
7	Multibin Unit Cable	AE2 signal in	EUT signal out	0.6 m	Yes	Metal connector
8	Duplex Unit Cable	AE3 signal in	EUT signal out	0.5 m	Yes	Metal connector
9	100 Base-TX I/F Cable	EUT 100 Base-TX in	AE9 100 Base-TX out	10.0 m	Yes	Metal connector
10	100 Base-TX I/F Cable	AE9 100 Base-TX in	AE5 100 Base-TX out	10.0 m	Yes	Metal connector
11	HUB AC cable	AE9 AC 120 V in	Main AC 120 V	2.0 m	No	
12	Computer AC cable	AE5 AC 120 V in	Main AC 120 V	2.0 m	No	
13	Monitor AC cable	AE6 AC 120 V in	Main AC 120 V	2.0 m	No	
14	Printer AC cable	EUT AC 120 V in	Main AC 120 V	2.0 m	No	

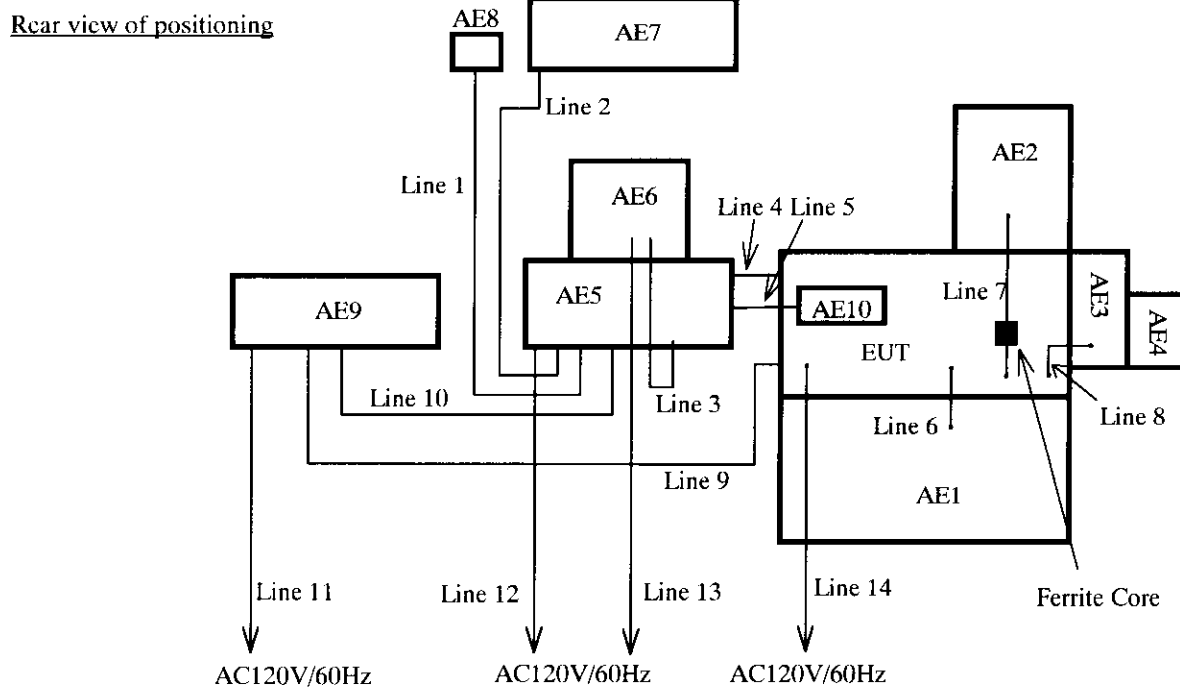
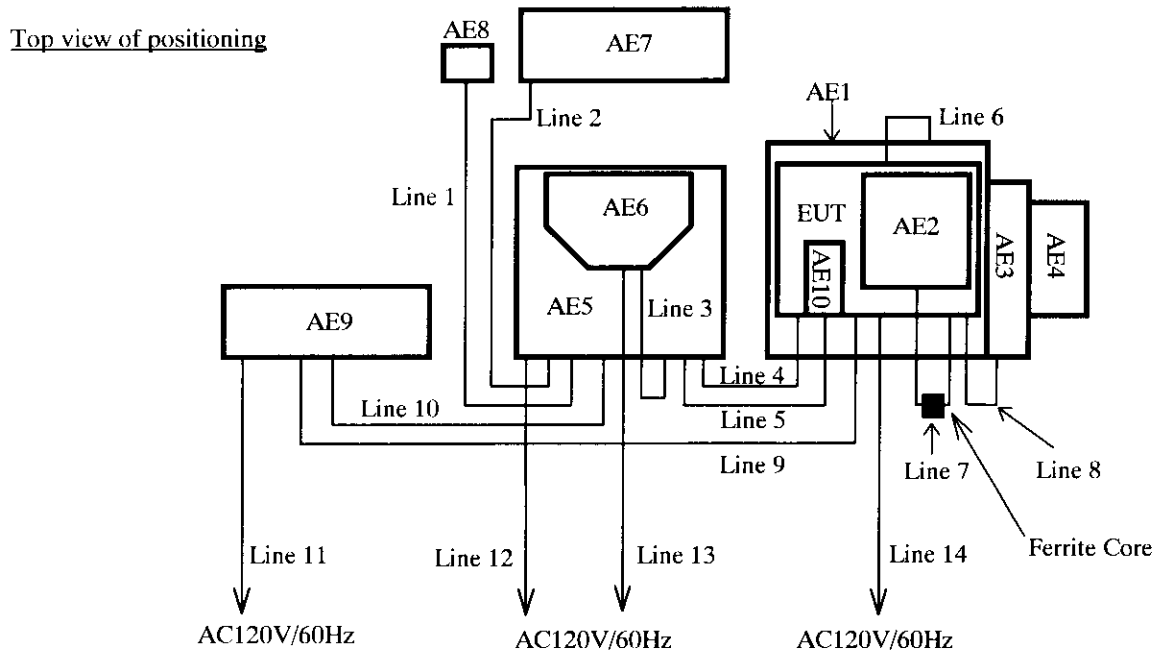
Note : Line 7 (Multibin Unit Cable) has a ferrite core permanently attached.

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## 1-4 Positioning of Equipment

The positioning of EUT during testing is as follows.



Abbreviations shown in the above diagram correspond to equipment or cables in tables in Section 1-1, 1-2, 1-3.

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## 2. OPERATING CONDITIONS

The EUT is operated under the following conditions during the tests.

### 2-1 Operating modes

Mode 1 : 100 Base-TX interface mode

The EUT continuously printing character 'H' via the 100 Base-TX interface (line 9) with below operating cycles.

Mode 2 : Parallel interface mode

The EUT continuously printing character 'H' via the parallel interface (line 4) with below operating cycles.

Mode 3 : Serial interface mode

The EUT continuously printing character 'H' via the serial interface (line 5) with below operating cycles.

### 2-2 Operating cycles

Performed following operation continuously.

- 1: Print data are transferred from computer(AE5)
- 2: Print 'H' characters by EUT
- 3: Monitor(AE6) displays 'H' characters on the full screen

Note The data transfer rate on the 100 Base-TX I/F is 100 M bps.  
The data transfer rate on the serial I/F (RS-232C) is 9600 bps.



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### 3. TEST PROCEDURE(S)

This test is carried out with the test procedure(s) drawn up by our laboratory based on the following test procedure(s).

Test Item	Test procedure used	Scanned Frequency Range
Conducted Emission	ANSI C63.4 - 1992	0.45 - 30 MHz
Radiated Emission	ANSI C63.4 - 1992	30 - 2000 MHz



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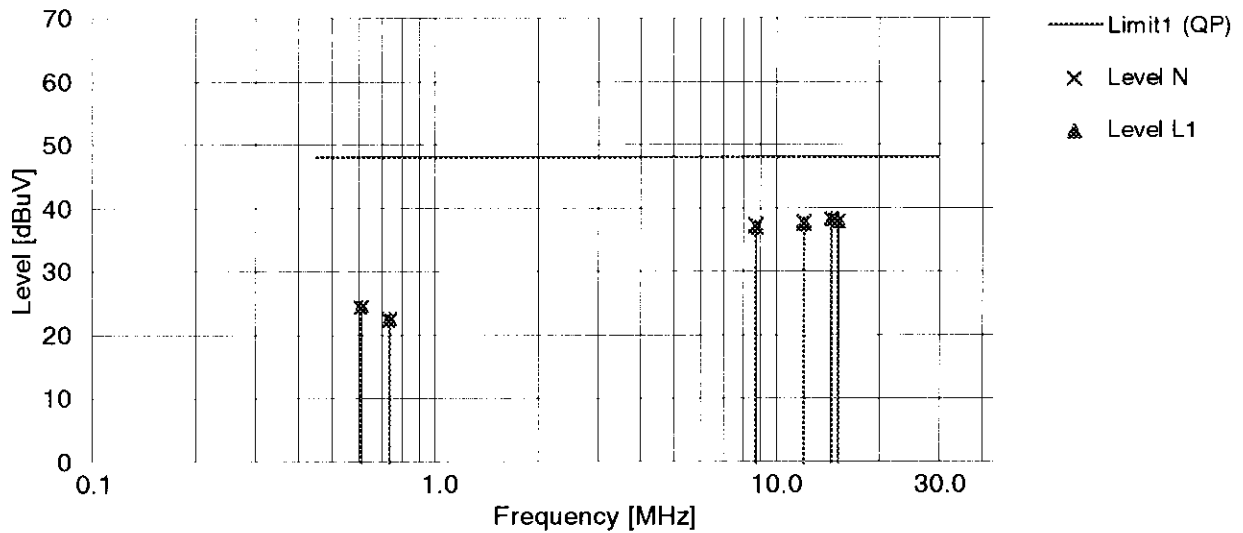
### 4. EVALUATION OF TEST RESULTS

#### 4-1 Conducted Emission Test

##### Mode 1 : 100 Base-TX interface

Kind of Equipment	: Printer	Temperature	: 22 C
Model Name	: XYA-1	Humidity	: 55 %
Serial No.	: 000001	Engineer	: T. Omori
Comment	: 100 Base-TX	Date	: 98/6/22
Detector	: QP	EMI Receiver(s)	: R/S ESH 2
Points	: 6		

Limit1 : [ FCC ] Class B



Frequency [MHz]	Reading N		Reading L1		QP-AVE [dB]	QP/AVE -13 [dB]	Correction Factor [dB]	Level N [dBuV]	Level L1 [dBuV]	Limit [dBuV]	Margin [dB]
	QP [dBuV]	AVE [dBuV]	QP [dBuV]	AVE [dBuV]							
0.6109	24.0	-	24.0	-	-	-	0.3	24.3	24.3	48.0	23.7
0.7379	22.0	-	22.0	-	-	-	0.3	22.3	22.3	48.0	25.7
8.7260	36.0	-	35.5	-	-	-	1.3	37.3	36.8	48.0	10.7
12.0700	36.0	-	35.5	-	-	-	1.8	37.8	37.3	48.0	10.2
14.5433	36.0	-	36.0	-	-	-	2.2	38.2	38.2	48.0	9.8
15.1735	35.5	-	35.5	-	-	-	2.3	37.8	37.8	48.0	10.2

Note : All other frequencies in the range from 450 kHz to 30 MHz have emission level of more than 10 dB below the limit.

Level = Reading + Correction Factor

Correction Factor = LISN factor + Cable Loss

Level is rounded off to one decimal place.

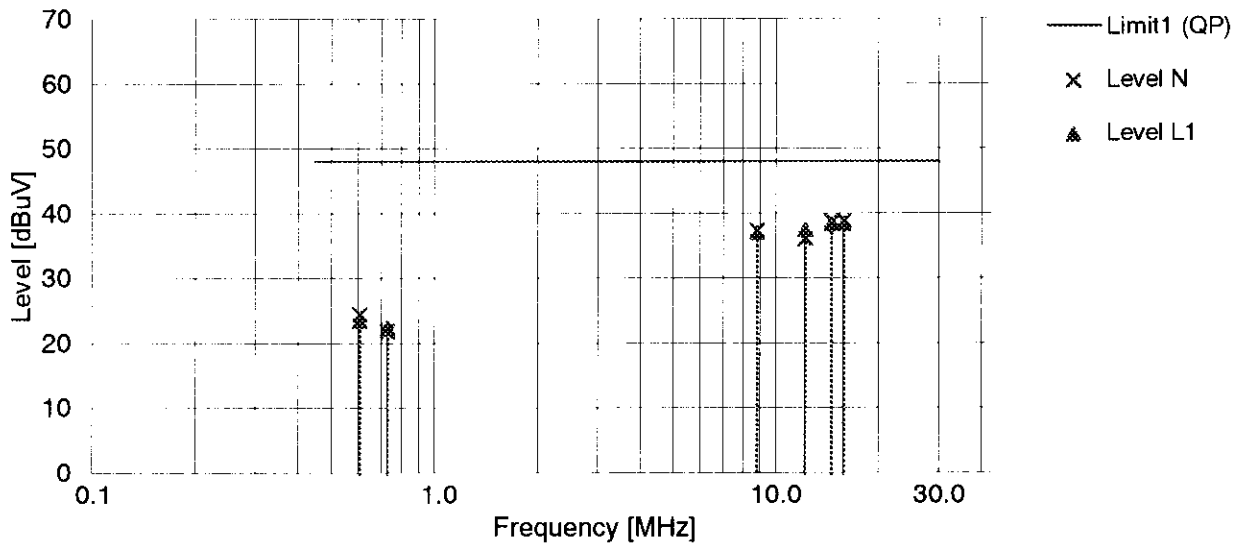


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**Mode 2 : Parallel interface**

Kind of Equipment	: Printer	Temperature	: 22 C
Model Name	: XYA-1	Humidity	: 55 %
Serial No.	: 000001	Engineer	: T. Omori
Comment	: Parallel I/F	Date	: 98/6/22
Detector	: QP	EMI Receiver(s)	: R/S ESH 2
Points	: 6		

Limit1 : [ FCC ] Class B



Frequency [MHz]	Reading N		Reading L1		QP-AVE [dB]	QP/AVE -13 [dB]	Correction Factor [dB]	Level N [dBuV]	Level L1 [dBuV]	Limit [dBuV]	Margin [dB]
	QP [dBuV]	AVE [dBuV]	QP [dBuV]	AVE [dBuV]							
0.6084	24.0	-	23.0	-	-	-	0.3	24.3	23.3	48.0	23.7
0.7333	21.5	-	22.0	-	-	-	0.3	21.8	22.3	48.0	25.7
8.8239	36.0	-	35.5	-	-	-	1.3	37.3	36.8	48.0	10.7
12.2096	34.0	-	35.5	-	-	-	1.8	35.8	37.3	48.0	10.7
14.5919	36.5	-	36.0	-	-	-	2.2	38.7	38.2	48.0	9.3
15.8310	36.5	-	36.0	-	-	-	2.3	38.8	38.3	48.0	9.2

Note :All other frequencies in the range from 450 kHz to 30 MHz have emission level of more than 10 dB below the limit.

Level = Reading + Correction Factor

Correction Factor = LISN factor + Cable Loss

Level is rounded off to one decimal place.

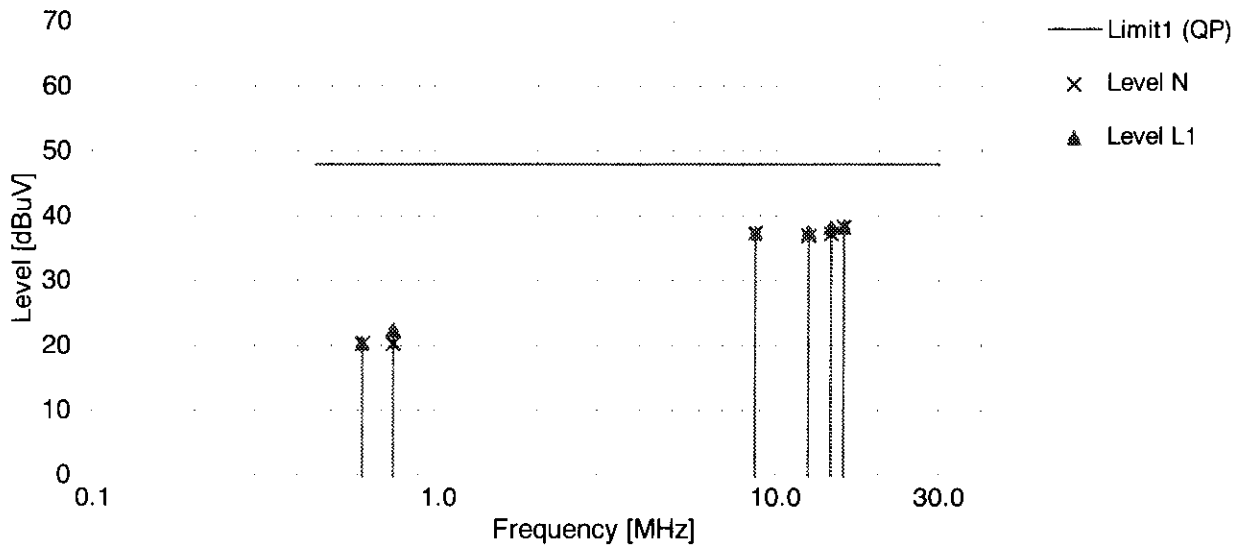


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**Mode 3 : Serial interface**

Kind of Equipment	: Printer	Temperature	: 22 C
Model Name	: XYA-1	Humidity	: 55 %
Serial No.	: 000001	Engineer	: T. Omori
Comment	: Serial I/F		
Detector	: QP	Date	: 98/6/22
Points	: 6	EMI Receiver(s)	: R/S ESH 2

Limit1 : [ FCC ] Class B



Frequency [MHz]	Reading N		Reading L1		QP-AVE [dB]	QP/AVE -13 [dB]	Correction Factor [dB]	Level N [dBuV]	Level L1 [dBuV]	Limit [dBuV]	Margin [dB]
	QP [dBuV]	AVE [dBuV]	QP [dBuV]	AVE [dBuV]							
0.6191	20.0	-	20.0	-	-	-	0.3	20.3	20.3	48.0	27.7
0.7624	20.0	-	22.0	-	-	-	0.3	20.3	22.3	48.0	25.7
8.7265	36.0	-	36.0	-	-	-	1.3	37.3	37.3	48.0	10.7
12.4605	35.0	-	35.5	-	-	-	1.9	36.9	37.4	48.0	10.6
14.5423	35.0	-	36.0	-	-	-	2.2	37.2	38.2	48.0	9.8
15.8525	36.0	-	36.0	-	-	-	2.3	38.3	38.3	48.0	9.7

Note :All other frequencies in the range from 450 kHz to 30 MHz have emission level of more than 10 dB below the limit.

Level = Reading + Correction Factor

Correction Factor = LISN factor + Cable Loss

Level is rounded off to one decimal place.

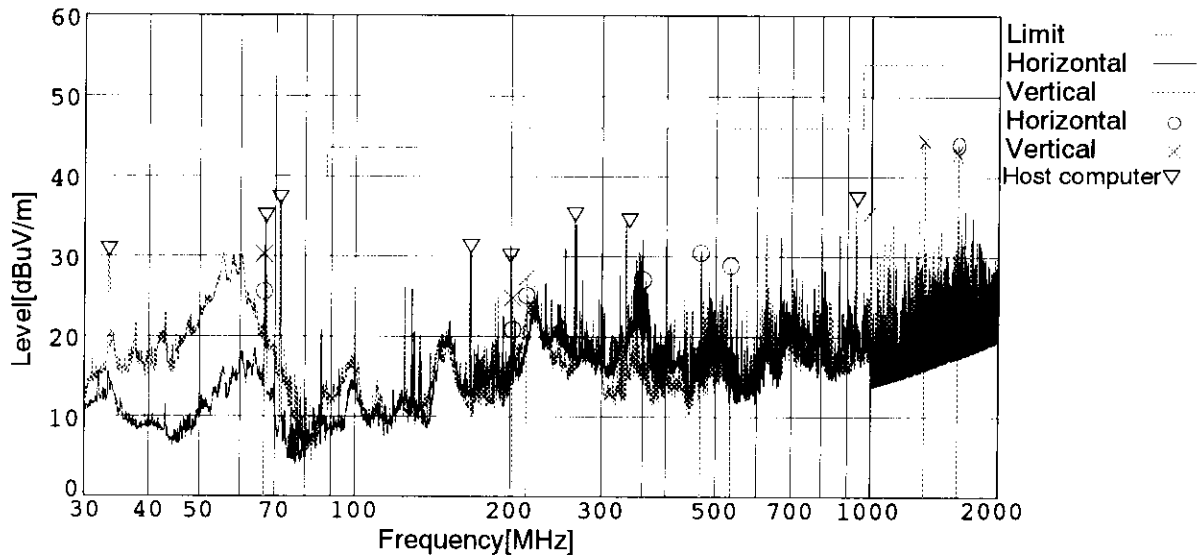
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### 4-3 Radiated Emission Test

#### Mode 1 : 100 Base-TX interface

Kind of Equipment	: Printer	Temperature	: 22 C
Model Name	: XYA-1	Humidity	: 55 %
Serial No.	: 000001	Engineer	: T. Omori
Comment	: 100Base-TX	Date	: 1998/6/16 10:59
Detector	: QP(30-1000 MHz)	EMI Receiver(s)	: ESS(30-1000 MHz)
	Peak(above 1000 MHz)		8566B(above 1000 MHz)
Points	: 13		
Limit:	[FCC] Class B<3m>		



Frequency [MHz]	Meter Reading [dBuV]	Ant. Type	Antenna Factor [dB]	Total Loss [dB]	Level [dBuV/m]	Angle [degree]	Height [cm]	Pola.	Limit [dBuV/m]	Margin [dB]
66.667	42.2	BC	7.6	-19.6	30.2	348	100	Vert.	40.0	9.8
66.667	37.6	BC	7.6	-19.6	25.6	259	286	Hori.	40.0	14.4
201.525	22.0	BC	16.6	-17.8	20.8	1	298	Hori.	43.5	22.7
201.525	26.0	BC	16.6	-17.8	24.8	37	100	Vert.	43.5	18.7
214.820	25.7	BC	17.0	-17.6	25.1	247	400	Hori.	43.5	18.4
214.821	27.9	BC	17.0	-17.6	27.3	5	100	Vert.	43.5	16.2
359.932	29.5	LP	13.9	-16.2	27.2	277	100	Hori.	46.0	18.8
466.667	30.1	LP	15.9	-15.5	30.5	173	100	Hori.	46.0	15.5
533.336	27.0	LP	17.0	-15.1	28.9	169	100	Hori.	46.0	17.1
1000.000	24.2	LP	23.1	-11.8	35.5	100	100	Vert.	54.0	18.5
1336.330	38.3	HN	26.1	-20.3	44.1	358	100	Vert.	54.0	9.9
1599.720	36.6	HN	27.1	-19.7	44.0	153	100	Hori.	54.0	10.0
1599.920	35.7	HN	27.1	-19.7	43.1	358	100	Vert.	54.0	10.9

Note : All other frequencies in the range from 30 MHz to 2000 MHz have emission level of more than 10 dB below the limit.

Level = Meter Reading + Antenna Factor + Total Loss (Total Loss = Cable Loss + Antenna Pad Loss - Amplifier Gain)

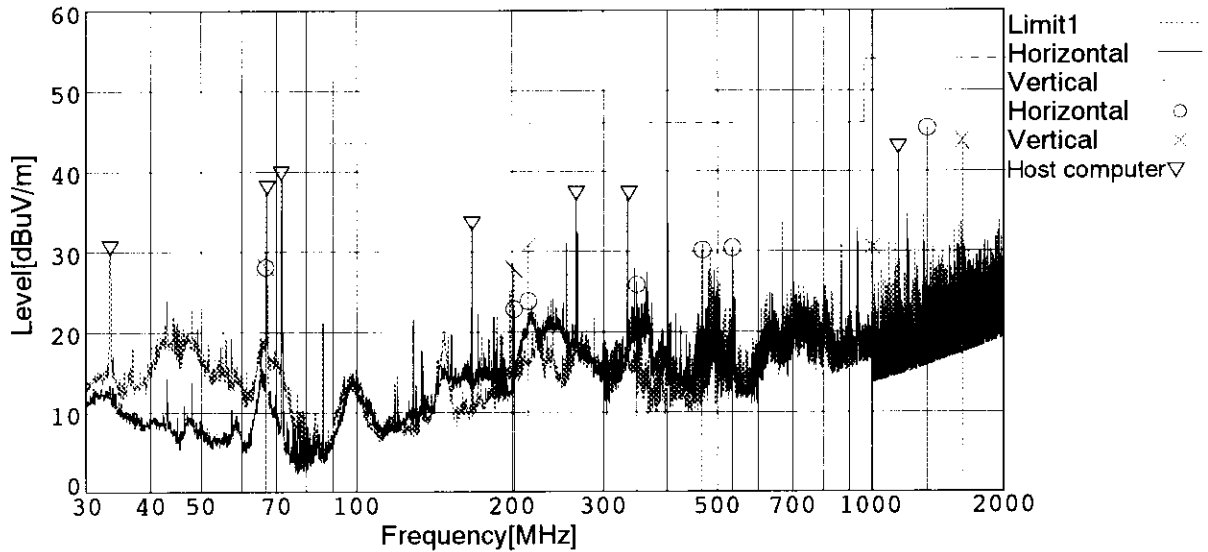
Level is rounded off to one decimal place.

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**Mode 2 : Parallel interface**

Kind of Equipment	: Printer	Temperature	: 22 C
Model Name	: XYA-1	Humidity	: 55 %
Serial No.	: 000001	Engineer	: T. Omori
Comment	: Parallel I/F		
Detector	: QP(30-1000 MHz)	Date	: 1998/6/16 18:01
	Peak(above 1000 MHz)	EMI Receiver(s)	: ESS(30-1000 MHz)
Points	: 12		8566B(above 1000 MHz)
Limit1:	[FCC] Class B<3m>		



Frequency [MHz]	Meter Reading [dBuV]	Ant. Type	Antenna Factor [dB]	Total Loss [dB]	Level [dBuV/m]	Angle [degree]	Height [cm]	Pola.	Limit [dBuV/m]	Margin [dB]
66.666	40.2	BC	7.6	-19.6	28.2	309	100	Vert.	40.0	11.8
66.668	40.1	BC	7.6	-19.6	28.1	263	290	Hori.	40.0	11.9
201.520	29.0	BC	16.6	-17.8	27.8	292	100	Vert.	43.5	15.7
201.523	24.0	BC	16.6	-17.8	22.8	358	367	Hori.	43.5	20.7
214.817	24.4	BC	17.0	-17.6	23.8	233	400	Hori.	43.5	19.7
214.817	31.4	BC	17.0	-17.6	30.8	41	100	Vert.	43.5	12.7
348.051	28.5	LP	13.7	-16.3	25.9	281	100	Hori.	46.0	20.1
466.659	29.8	LP	15.9	-15.5	30.2	174	100	Hori.	46.0	15.8
533.343	28.6	LP	17.0	-15.1	30.5	9	100	Hori.	46.0	15.5
1000.000	19.3	LP	23.1	-11.8	30.6	254	100	Vert.	54.0	23.4
1336.400	39.6	HN	26.1	-20.3	45.4	141	100	Hori.	54.0	8.6
1603.690	36.5	HN	27.1	-19.7	43.9	0	100	Vert.	54.0	10.1

Note : All other frequencies in the range from 30 MHz to 2000 MHz have emission level of more than 10 dB below the limit.

Level = Meter Reading + Antenna Factor + Total Loss (Total Loss = Cable Loss + Antenna Pad Loss - Amplifier Gain)

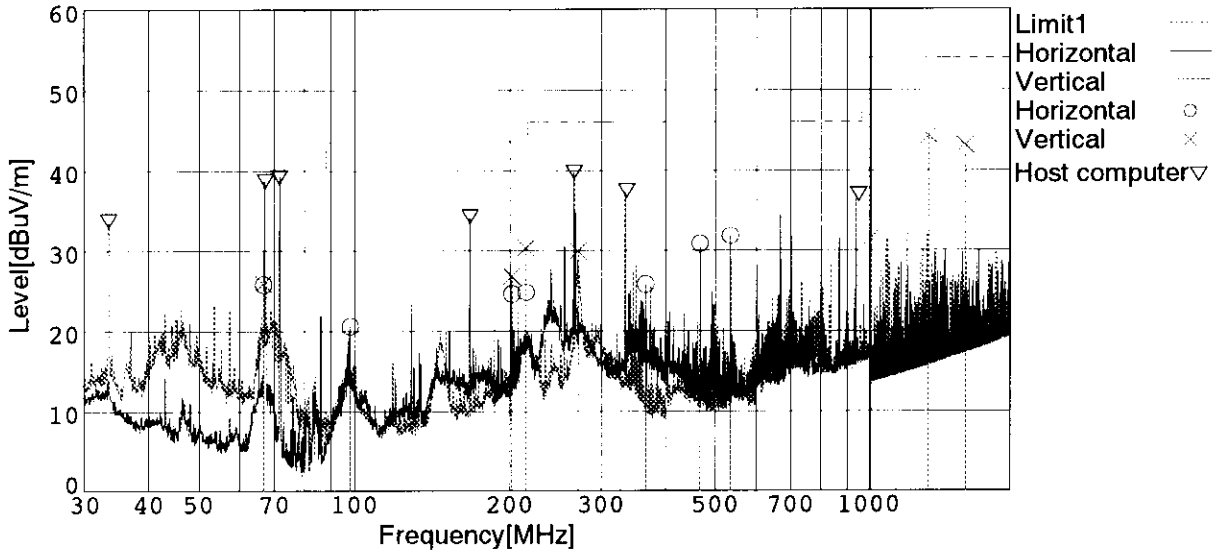
Level is rounded off to one decimal place.

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**Mode 3 : Serial interface**

Kind of Equipment : Printer	Temperature : 22 C
Model Name : XYA-1	Humidity : 55 %
Serial No. : 000001	Engineer : T. Omori
Comment : Serial I/F	
Detector : QP(30-1000 MHz)	Date : 1998/6/16 19:07
Peak(above 1000 MHz)	EMI Receiver(s) : ESS(30-1000 MHz)
	8566B(above 1000 MHz)
Points : 14	
Limit: [FCC] Class B<3m>	



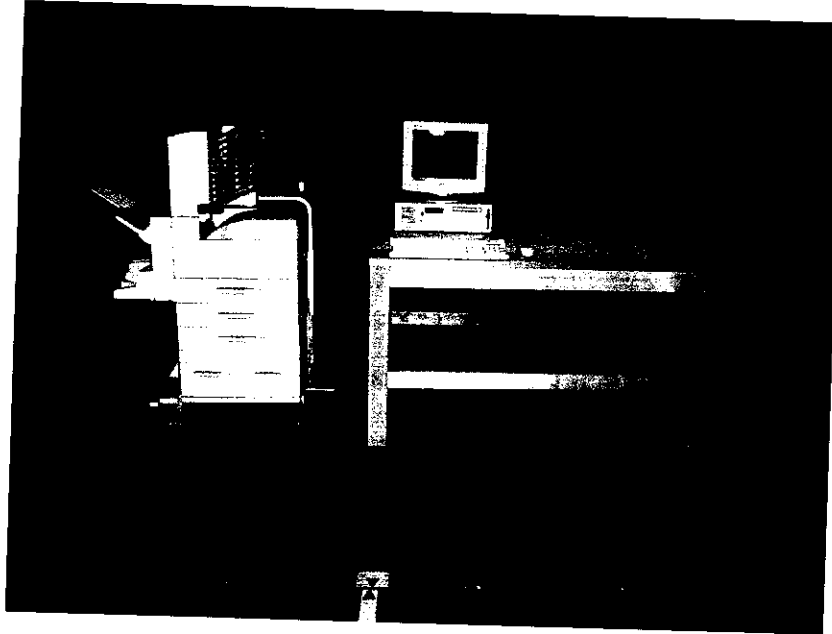
Frequency [MHz]	Meter Reading [dBuV]	Ant. Type	Antenna Factor [dB]	Total Loss [dB]	Level [dBuV/m]	Angle [degree]	Height [cm]	Pola.	Limit [dBuV/m]	Margin [dB]
66.663	37.9	BC	7.6	-19.6	25.9	321	100	Vert.	40.0	14.1
66.666	37.8	BC	7.6	-19.6	25.8	275	311	Hori.	40.0	14.2
98.120	29.9	BC	9.6	-18.9	20.6	351	353	Hori.	43.5	22.9
201.521	28.0	BC	16.6	-17.8	26.8	270	100	Vert.	43.5	16.7
201.525	25.8	BC	16.6	-17.8	24.6	347	239	Hori.	43.5	18.9
214.820	25.4	BC	17.0	-17.6	24.8	250	377	Hori.	43.5	18.7
214.821	30.9	BC	17.0	-17.6	30.3	11	100	Vert.	43.5	13.2
270.920	28.4	BC	18.5	-17.0	29.9	5	100	Vert.	46.0	16.1
366.038	27.9	LP	14.0	-16.1	25.8	17	100	Hori.	46.0	20.2
466.668	30.5	LP	15.9	-15.5	30.9	165	100	Hori.	46.0	15.1
533.333	29.9	LP	17.0	-15.1	31.8	214	100	Hori.	46.0	14.2
1000.000	20.2	LP	23.1	-11.8	31.5	244	136	Vert.	54.0	22.5
1336.430	38.2	HN	26.1	-20.3	44.0	148	100	Vert.	54.0	10.0
1603.780	35.5	HN	27.1	-19.7	42.9	135	100	Vert.	54.0	11.1

Note : All other frequencies in the range from 30 MHz to 2000 MHz have emission level of more than 10 dB below the limit.

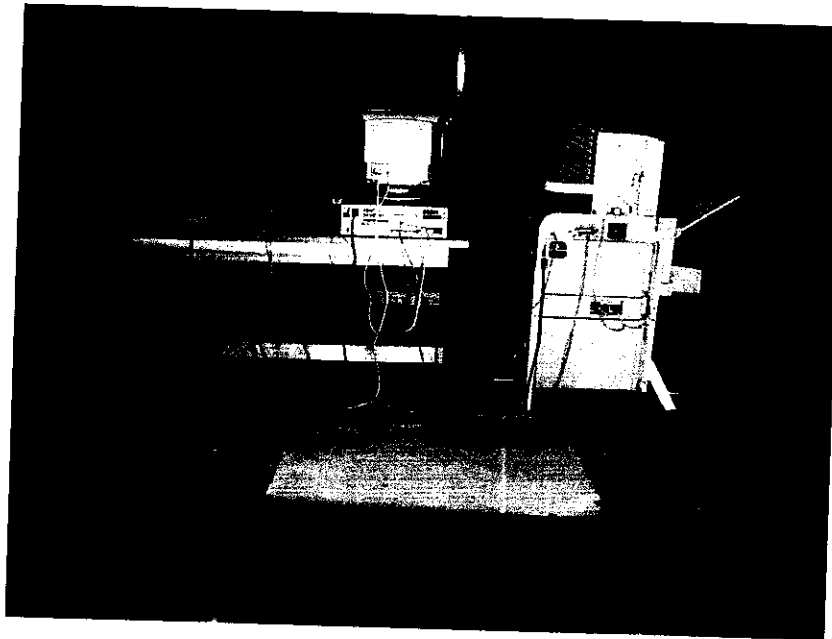
Level = Meter Reading + Antenna Factor + Total Loss (Total Loss = Cable Loss + Antenna Pad Loss - Amplifier Gain)

Level is rounded off to one decimal place.

## 4-4 Photographs of Radiated Emission Test



Front view



Rear view

Test set-up complies with ANSI C63.4 - 1992

This configuration of the equipment and cable produce the highest radiated emissions.



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## 5. SUMMARY

### 5-1 Test Results

This test report clearly shows that the EUT complies with the FCC Part 15B Class B specification.

The minimum margins to the limits are as follows:

- Conducted measurement      9.2 dB      at      15.8310 MHz (Mode 2)
- Radiation measurement      8.6 dB      at      1336.400 MHz (Mode 2)

This data represent the worst case emissions.

### 5-2 Sample Calculations

#### 5-2-1 Conducted Emission

Example 15.8310 MHz (Mode 2)

$$\begin{array}{rcll}
 \text{Emission Level} & = & \text{Meter Reading} & 36.5 \text{ dBuV} \\
 & & + \text{ Correction Factor} & + 2.3 \text{ dB} \\
 & & & \hline
 & & = & 38.8 \text{ dBuV} \\
 \\ \\
 \text{Margin} & = & \text{Limit} & 48.0 \text{ dBuV} \\
 & & - \text{ Emission Level} & - 38.8 \text{ dBuV} \\
 & & & \hline
 & & = & 9.2 \text{ dB}
 \end{array}$$

Meter reading = Test receiver reading

The numerical value are rounded off to one decimal place.

#### 5-2-2 Radiated Emission

(frequency range : 30 MHz - 1000 MHz)

Example 66.667 MHz (Mode 1)

$$\begin{array}{rcll}
 \text{Emission Level} & = & \text{Meter Reading} & 42.2 \text{ dBuV} \\
 & & + \text{ Antenna Factor} & + 7.6 \text{ dB} \\
 & & + \text{ Total Loss} & - 19.6 \text{ dB} \\
 & & & \hline
 & & = & 30.2 \text{ dBuV/m} \\
 \\ \\
 \text{Margin} & = & \text{Limit} & 40.0 \text{ dBuV/m} \\
 & & - \text{ Emission Level} & - 30.2 \text{ dBuV/m} \\
 & & & \hline
 & & = & 9.8 \text{ dB}
 \end{array}$$

Meter reading = Test Receiver reading

The numerical values are rounded off to one decimal place.

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(frequency range : above 1000 MHz)

Example 1336.400 MHz (Mode 2)

Emission Level	=	Meter reading		39.6	dBuV
		+ Antenna Factor	+	26.1	dB
		+ Total Loss	-	20.3	dB
				<hr/>	
			=	45.4	dBuV/m

Margin	=	Limit		54.0	dBuV/m
		- Emission Level	-	45.4	dBuV/m
				<hr/>	
			=	8.6	dB

Meter reading = Spectrum analyzer reading

Resolution band width and video band width set 1 MHz.

The numerical values are rounded off to one decimal place.

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**6. LIST OF UTILIZED TEST EQUIPMENT****6-1 Conducted Emission Measurement**

Instrument	Manufacturer	Model Number	Serial Number	Last Calibration Date	Period
Spectrum Analyzer	Hewlett Packard	8567A	2718A00363	April 28, 1998	1 Year
Quasi-peak Adapter	Hewlett Packard	85650A	2521A00798	April 3, 1998	1 Year
Test Receiver	Rhode & Schwarz	ESH2	879013/027	April 1, 1998	1 Year
LISN	Rhode & Schwarz	ESH2-Z5	890484/004	August 20,1997	1 Year

**6-2 Radiated Emission Measurement**

Instrument	Manufacturer	Model Number	Serial Number	Last Calibration Date	Period
Spectrum Analyzer	Hewlett Packard	8566B	2332A02675	July 25, 1997	1 Year
Quasi-peak Adapter	Hewlett Packard	85650A	2043A00284	July 25, 1997	1 Year
Pre-amplifier	Hewlett-Packard	87405A	3207A00888	March 18,1998	1 Year
Test Receiver	Rhode & Schwarz	ESS	844362/001	August 14, 1997	1 Year
Biconical Antenna	Schwarzbeck	BBA9106	-	February 11, 1998	1 Year
Log-periodic Antenna	EMCO	3146	8910-2511	November 24, 1997	1 Year
Double ridge guide horn antenna	EMCO	3115	4944	September 21, 1997	1 Year

Note : The utilized instruments are calibrated by a body that can provide traceability to a national standard.

The abbreviation of antenna types which indicate on the radiated emission test table are follows:

BC : Biconical Antenna      LP : Log-periodic Antenna

HN : Double ridge guide horn antenna

**6-3 Measurement Uncertainties**

Measurement uncertainties are shown as below.

Conducted Emission Measurement	$\pm 2.33$ dB
Radiated Emission Measurement	5.15 dB / -4.56 dB

Repeating and reproducing maximum emission set-up are not discussed herein.

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## **7. VALIDITY OF TEST REPORT**

- 1: The test result of this report is effective for equipment under test itself and test configuration described on the report.
- 2: This test report shall not be reproduced without the written approval of the laboratory.
- 3: This test report must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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## 8. DESCRIPTION OF TEST LABORATORY

### Bibliography

Since commencing operation in 1942 as a watch manufacturer, Seiko Epson Corporation has utilized its own original micromechatronics technologies, gained while developing quartz watches, to diversify into a variety of fields, as computers, printers and electronic devices, including semiconductors and liquid crystal displays. The phrase "highly functional and highly compact" best describes the policy of our product development activities.

Since the initial electrical printer was manufactured in 1971, Seiko Epson Corporation has been working for EMC field. It is a combination of precise machine technology and electric technology.

Now EMC group has 3 semi-anechoic chambers and 8 EMI/EMC test facilities and full responsibilities on EMC testing. It is independent from any other business organizations and admired by the president as neutral and it's independency.

### Filing, Certification and Accreditation List

#### EMC testing

FCC	(USA)
NVLAP (Lab. Code: 200157-0)	(USA)
NMi	(Netherlands)
VCCI	(Japan)
NEMKO	(Norway)