

# MEASUREMENT / TECHNICAL REPORT

COMPANY NAME: Japan Computer Industry Inc.  
MODEL: MLETB08  
FCCID: N6CZXE00537A  
DATE OF REPORT: August 28, 1999

This report concerns [check one]:  Original Grant  Class 2 change

Equipment Type : **Print Server**  Class A Digital Device  
 Class B Digital Device

Differed grand requested par CFR0.475(d)(1)(ii)?  Yes  No

If Yes, differ until:

\_\_\_\_\_ date

Applicant agrees to notify the Commission by

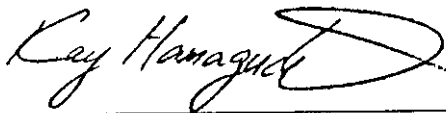
\_\_\_\_\_ date

of the intended date of announcement of the product so that the grant can be issued on the date.

Transition Rules Request per 15.37?  Yes  No

If No, Assumed Part 15.Subpart B for unintentional radiators – the new 47 CFR [10-1-90]Edition] provision.

Report prepared by :



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**Attachment**

- Users Manual
- Block Diagrams
- FCC ID Label Diagrams
- Conducted and Radiated Emission Test Data Sheets

## 1. GENERAL INFORMATION

### 1.1 Product Description

Trade Name	Model Name	Product Name	Description
A Ethernet Board 7100e plus	MLETB08	Japan Computer Industry Inc.	Print Server
Type of Processor : CP4.125MHz : JX25.000MHz		Clock Speed : 33MHz : 25MHz	
Number of Storage : None		Interface Ports : None	
Power Supply DC 5 V			
Similar Model(to be covered) : None		Description for Difference(s) :None	
<b>Accessories (to be sold with the model tested)</b>			
Model Name : None		Description : None	

Note: See attached user manual for further description.

### 1.2 Related Submittal(s) / grant(s)

- Original application  
 Modification and class 2 permissive change,  
 If this is a filling for class 2 permissive change.  
 List here the FCC's file on the original grant.  
 Original FCC ID: \_\_\_\_\_  
 FCC's file: \_\_\_\_\_

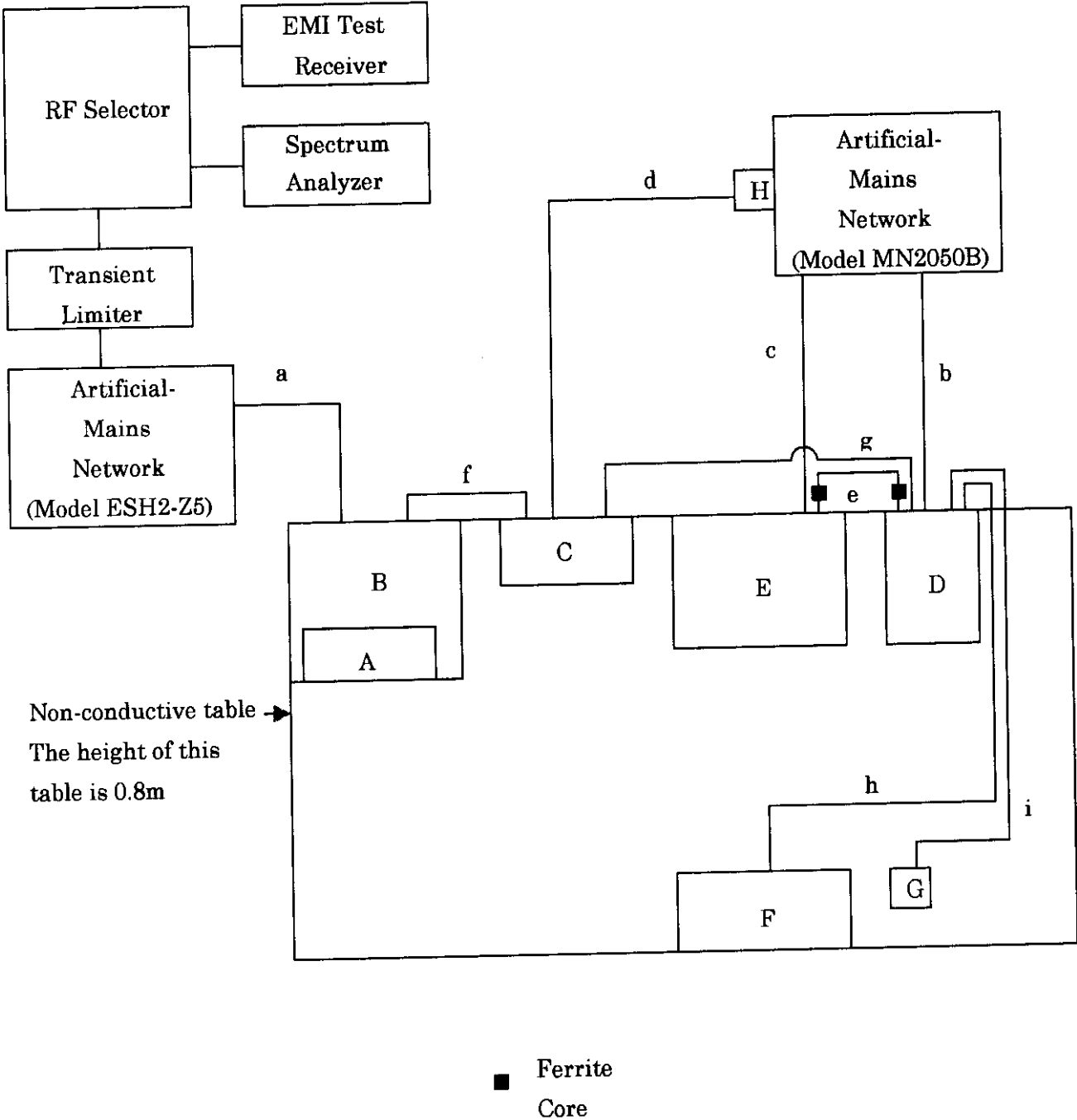
1. GENERAL INFORMATION (Continued)

1.3 Tested System Details

Host Digital Device(Certified or Verified)				
Trade Name	Model Name	FCC ID Number	Description	
B Unknown	OKIPAGE20	B2KN22000A	Printer	
Peripheral Device(Certified or Verified)				
	Trade Name	Model Name	FCC ID Number	Description
C	Unknown	Switch 140	3C16730	Hub
D	Unknown	GP6-400C JP	Doc	Personal Computer
E	Unknown	E 7006	LAW7006	Color Display
F	Unknown	G9900	GYUR61SK	Keyboard
G	Unknown	1.1A PS/Z COMPATIBLE	C3KKMP5	Mouse
H	Unknown	SLD81308J	N / A	AC Adapter
Power Supply Cord				
<input type="checkbox"/> 2P <input checked="" type="checkbox"/> 3P <input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded <input type="checkbox"/> Equipment with filter				
Connection Cables				
	Type of Cable	Construction	Length	
a	AC Power Cord	U	1.7 m	
b	AC Power Cord	U	2.0 m	
c	AC Power Cord	U	2.3 m	
d	DC Power Cord	U	1.9 m	
e	Monitor Cable	S	2.0 m	
f	LAN Cable	U	10.0 m	
g	LAN Cable	U	20.0 m	
h	Keyboard Cable	U	1.7 m	
I	Mouse Cable	U	2.0 m	
Notes 1: S: Shielded    P: Plastic Hoods    F: Ferrite beans on Cable U: Unshielded    M: Metallic Hoods 2: For location of cables used, refer to item 1.4.				

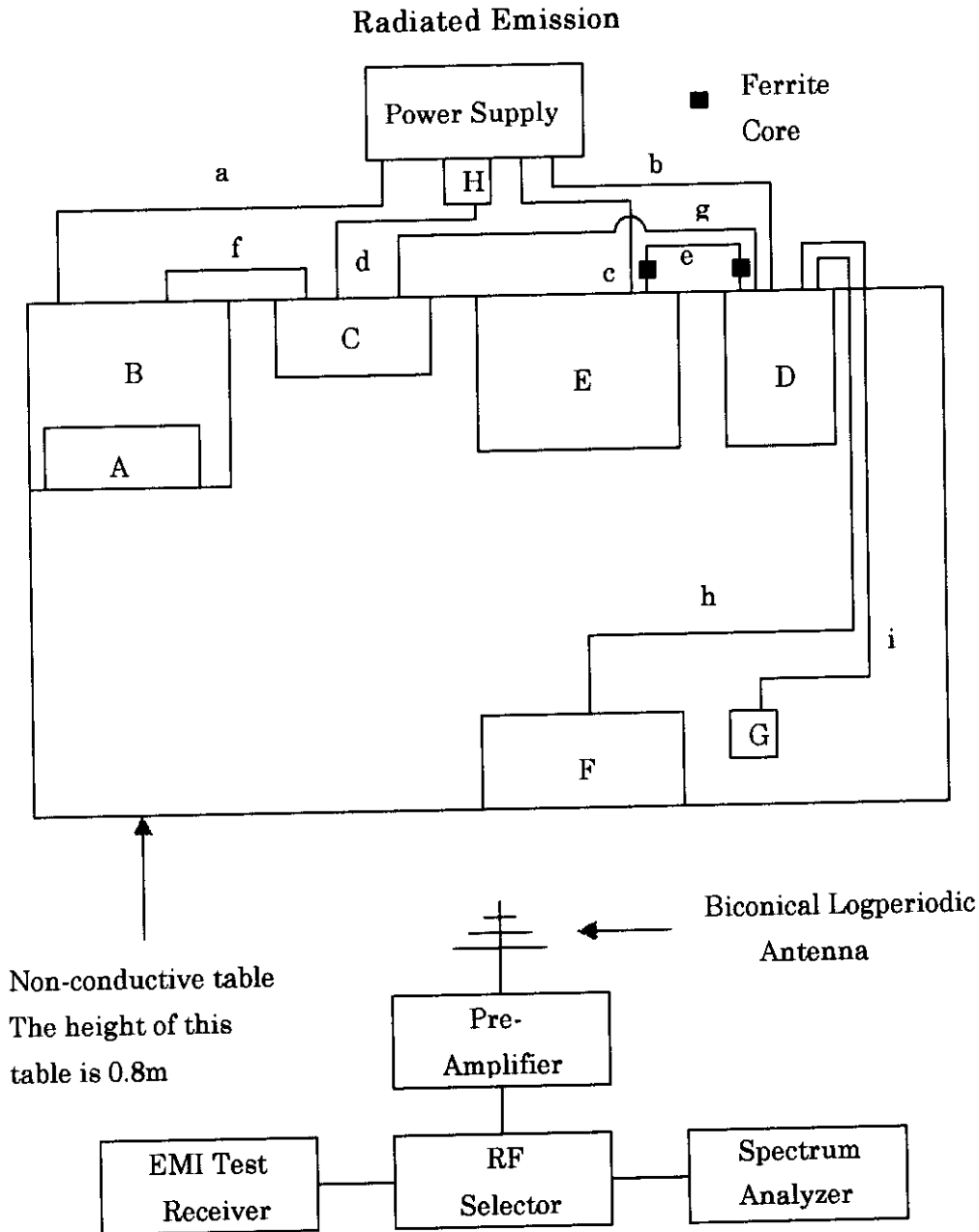
1. GENERAL INFORMATION (Continued)

1.4 Configuration of Tested System (Continued)  
Conducted Emission



# 1. GENERAL INFORMATION (Continued)

## 1.4 Configuration of Tested System (Continued)



## 1. GENERAL INFORMATION (Continued)

### 1.5 Test Methodology

Measurement Procedure:  MP-4(1987)  C63..4(1992)  
Radiation Measurement Distance:  3 meters  10 meters

### 1.6 Test Facility

Site for Radiated Emissions.

Cosmos EMC Lab.

543 Shimesasu, Watarai-cho, Watarai-gun, Mie-ken, 516-2119 Japan

Site for Conducted Emissions

Cosmos EMC Lab.

543 Shimesasu, Watarai-cho, Watarai-gun, Mie-ken, 516-2119 Japan

FCC Filing for the sites

The above sites have been fully reported to FCC dated May 23, 1996 and accepted in a letter dated July 10, 1996 (31040/SIT 1300F2). The listing letter has been updated on July 2, 1999. (Registration Number: 90522)



## 2. PRODUCT LABELING

### Figure 2.1 FCC ID Label

Please refer to figure 9.1 (photo) and the Attachment, FCC ID Label Diagram.

### Figure 2.2 Location of label on EUT

FCC ID LABEL: On the rear panel.

Please refer to the Attachment, FCC ID Label Diagram.

### 3. SYSTEM CONFIGURATION

#### 3.1 Justification

Since Japan Computer Industry Inc. has not introduced any class B Computer, Monitor and Printer in the US market, we used a class B computer and monitor manufactured by Gateway, class B printer manufactured by OKI that was available at our site. The system was tested in the printing mode with H.

	<u>Specification</u>	<u>Worst case</u>
User accessible processor speeds:	N / A	N / A
Band rates:	N / A	N / A
Interface Ports	RJ-45	RJ-45
Video Modes	N / A	N / A
<input type="checkbox"/> Default modes		
<input type="checkbox"/> Resolution modes		
Power Connection	Wall Outlet	Wall Outlet
I/O card Inserted	None	None
Other	None	None

#### 3.2 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

The software contained on a Hard Disc, and is starting by clicking track pointer to the fielder of this program. Once loaded, the program sequentially exercise each system components in turn. The sequence used is:

- (1) An H is printed on the monitor.
- (2) Printer prints an H.

### 3. SYSTEM CONFIGURATION

3.3 Special accessories needed connection EUT to achieve compliance.

None

In an instruction manual of set there is description which tells users to use the interface Cable to satisfy FCC standards.

3.4 Equipment Modifications

N/A

### 4. Block Diagrams

4.1 Block Diagram Description

Refer to Attachment.

## 6. CONDUCTED EMISSION DATA

6.1 The initial step in collection conducted data is a spectrum analyzer peak scan of the measurement range, Significant peaks are then marked as shown on the following data page and these signals are then quasi-peaked.

Following was the worst condition:

A) Continuous Operating (Printing "H" Pattern)  
AC Power Supply :                      Outlet on the wall

	Frequency (MHz)	Measured * (dB $\mu$ V)	Limit (dB $\mu$ V)
Neutral Line	0.53266	23.5	48.0
Neutral Line	0.64409	28.0	48.0
Neutral Line	6.29690	29.1	48.0
Neutral Line	8.96415	28.6	48.0
Neutral Line	12.92403	18.0	48.0
Neutral Line	17.93901	26.0	48.0
L Line	0.53492	34.1	48.0
L Line	2.98485	25.7	48.0
L Line	5.43988	27.7	48.0
L Line	7.99531	27.7	48.0
L Line	13.44438	18.2	48.0
L Line	19.94497	23.5	48.0

Uncertainty of measurement result:  $\pm$  2.26 dB

Tested Personal

Tester Signature: *K. Hasegawa*                      Date: July 16, 1999

Typed / Printed : K. Hasegawa : Cosmos EMC TEST DEPT.

For more detailed test results, refer to Attachment, EMC Test Data.

## 7. RADIATED EMISSION DATA

7.1 The following data lists the significant emission frequencies, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, the limit, plus margin. Explanation of the Correction Factor is given in paragraph.

Following was the worst condition:

B) Continuous Operating (Printing "H" Pattern)  
 AC Power Supply : Outlet on the wall

Note: Attached reading data are measured with 10m and below results are converted to 3m method from 10m results.

Real test data of 10m are attached as ATTACHMENT.

Frequency (MHz)	Antenna Polarity (H / V)	Meter Reading At 3m (dB $\mu$ V)	Correction Factor (dB/m)	Field Strength at 3m (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin dB
131.526	H	45.9	-16.4	29.5	43.5	14.0
141.111	H	45.2	-16.5	28.7	43.5	14.8
142.672	H	45.1	-16.6	28.5	43.5	15.0
149.960	H	49.9	-17.0	32.9	43.5	10.6
151.544	H	44.7	-17.1	27.6	43.5	15.9
135.012	V	45.6	-16.4	29.2	43.5	14.3

Note:

H / V: Horizontal / Vertical

\*: Quasi-peak mode

Uncertainty of measurement result:  $\pm$  3.234 dB

The worst data out of H and V are shown for identical frequencies.

Tested Personal

Tester Signature:

Date: July 15, 1999

Typed / printed Name: K. Hasegawa / Cosmos EMC TEST DEPT

## 8. METHOD OF CALCULATION

### 8.1 Radiated Emissions

Fielded Strength (dB [ $\mu$  V/m]) = S.A. reading (dB [ $\mu$  V/m]) + C.F.

#### Notes

(a) S.A. Reading: Reading of Spectrum Analyzer

- (b) C.F.  Antenna Factor (including balun loss) + Cable loss.  
 Antenna Factor (including balun loss) + Cable loss +  $20\text{Log}(10\text{m} / 3\text{m})$   
 Antenna Factor (including balun loss) + Cable loss + Amplifier gain  
 Antenna Factor (including balun loss) + Cable loss + Amplifier gain  
+ $20\text{Log}(10\text{m} / 3\text{m})$

### 8.2 Conducted Emissions

RF Voltage (dB [ $\mu$  V/m]) = S.A. Reading (dB [ $\mu$  V/m]) + C.F.(dB)

#### Notes

(a) S.A. Reading: Reading of Spectrum Analyzer

(b) C.F. : Correction Factor of LISN + Cable Loss

## 9. PHOTO OF TESTED EUT, Model MLETB08

The followings photos are attached.

- Figure 9.1 Printer Server Board (Panel side)
- Figure 9.2 Printer Server Board (Connector side)
- Figure 9.3 Printer Server Board (Components side)
- Figure 9.4 Printer Server Board (Foil side)
- Figure 9.5 Installed in the Printer (OKIPAGE20)

10. List of Test Equipment

Conducted Emission

Manufacturer	Instruments	Model / Type	Serial No.	Calibration Date Next Calibration
ROHDE & SCHWARZ	Spectrum Analyzer	FSB / DISPLAY	838497/005 / 838301/009	May, 1999 May, 2000
ROHDE & SCHWARZ	EMI Test Receiver	ESHS10	842121/012	May, 1999 May, 2000
ROHDE & SCHWARZ	Artificial-Mains Network	ESH2-Z5	842210/010	May, 1999 May, 2000
CHASE ELECTRONICS LIMITED	Artificial-Mains Network	MN2050B	1140	May, 1999 May, 2000

Radiated Emission

Manufacturer	Instruments	Model / Type	Serial No.	Calibration Date Next Calibration
ROHDE & SCHWARZ	Spectrum Analyzer	FSB / DISPLAY	838497/005 / 838301/009	May, 1999 May, 2000
ROHDE & SCHWARZ	EMI Test Receiver	ESVS10	842122/014	May, 1999 May, 2000
CHASE ELECTRONICS LIMITED	Pre-Amplifier	CPA9231	3045	February, 1999 February, 2000
SCHAFFNER CHASE EMC LTD.	Biconical Logperiodic Antenna	CBL6111C	2531	April, 1999 April, 2000



\*\*\*\*\* Cosmos Corp. \*\*\*\*\*  
 <<< Conducted Emission >>>

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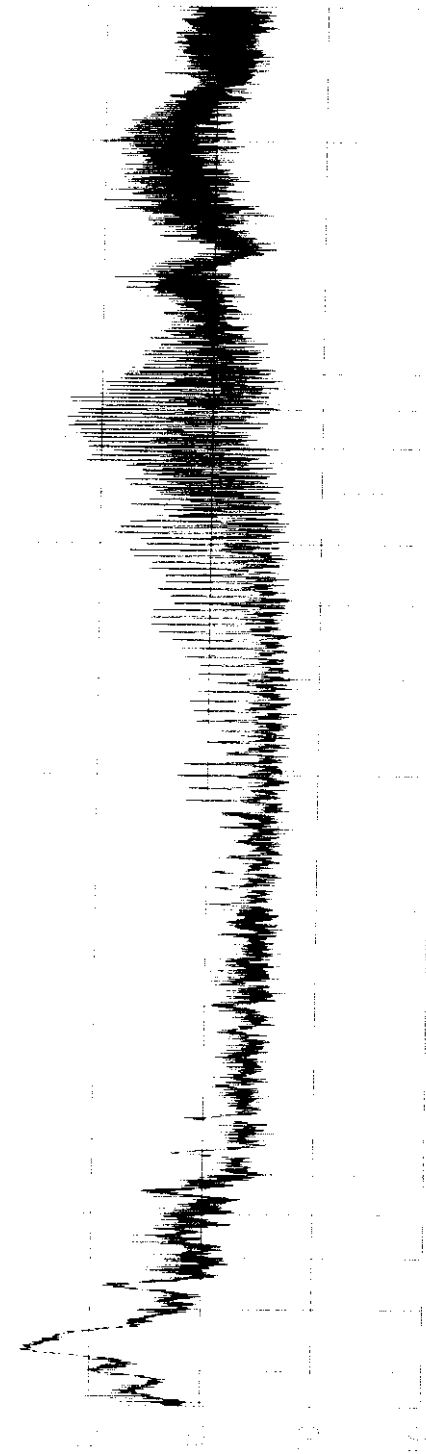
Model      :
Serial No. :
Standard   : FCC Part 15 Class B
Condition File : FCC-B
Remark     : Operated (Printing "H" Pattern)
            : EUT1 ; M/N: MLETB08, S/N: None, DC 5 V
            : EUT2 ; M/N: OKIPAGE20, S/N: None, AC 120 V, 60 Hz
  
```

```

AC Power      : V Hz
Temperature   : 24 deg.
Humidity      : 52 %
Operator      : K.Hasegawa
  
```

----- Results -----

No.	Phase N	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV]	Limit [dBuV]	Margin [dB]
1	0.53266		23.5	10.7	34.2	48.0	13.8
2	0.64409		28.0	10.9	38.9	48.0	9.1
3	6.29690		29.1	11.0	40.1	48.0	7.9
4	8.96415		28.6	10.9	39.5	48.0	8.5
5	12.92403		18.0	11.3	29.3	48.0	18.7
6	17.93901		26.0	12.4	38.4	48.0	9.6



Amplitude [V]

\*\*\*\*\*  
 <<< Conducted Emission >>>  
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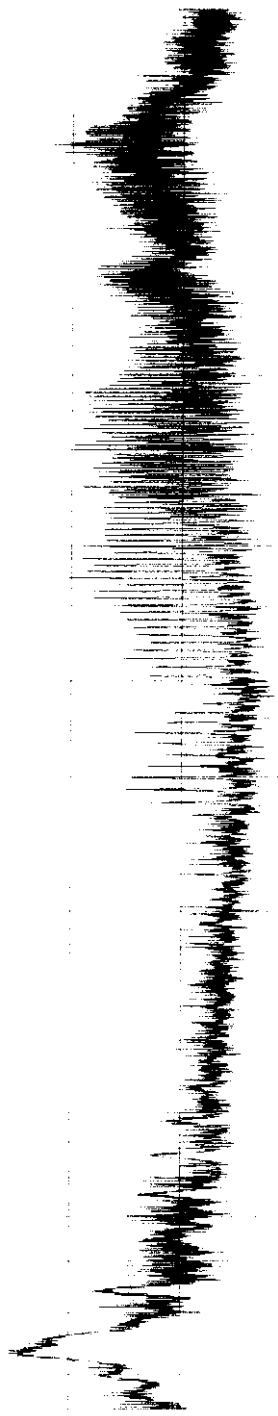
Model :
Serial No. :
Standard : FCC Part 15 Class B
Condition File : FCC-B
Remark : Operated (Printing "H" Pattern)
: EUT1 ; M/N: MLETB08, S/N: None, DC 5 V
: EUT2 ; M/N: OKIPAGE20, S/N: None, AC 120 V, 60 Hz
:
AC Power : V Hz
Temperature : 24 deg.
Humidity : 52 %
Operator : K.Hasegawa
  
```

\*\*\*\*\*  
 ----- Results -----  
 \*\*\*\*\*

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV]	Limit [dBuV]	Margin [dB]
1	0.53492	34.1	10.7	44.8	48.0	3.2
2	2.98485	25.7	10.8	36.5	48.0	11.5
3	5.43988	27.7	11.0	38.7	48.0	9.3
4	7.99531	27.7	10.5	38.2	48.0	9.8
5	13.44438	18.2	11.4	29.6	48.0	18.4
6	19.94497	23.5	12.7	36.2	48.0	11.8

0  
 2  
 3  
 4

0  
 1



```

Model      :
Serial No. :
Standard   : FCC Part 15. Class B 10m
Condition File : 10(m)
Condition   : Operated (Printing "H" Pattern)
Remarks    : EUT1; M/N: MLETB08, S/N: None, DC 5 V
            : EUT2; M/N: OKIPAGE20, S/N: None, AC 120 V, 60 Hz
  
```

```

AC Power      : V Hz
Temperature   : 26 deg.
Humidity      : 62 %
Operator      : K.Hasegawa
  
```

----- Final Result -----

**QP**

- Horizontal Polarization -			
No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]
1	131.526	35.9	-16.4
2	141.111	35.2	-16.5
3	142.672	35.1	-16.6
4	149.960	39.9	-17.0
5	151.544	34.7	-17.1
		Result [dBuV/m]	Limit [dBuV/m]
		19.5	33.5
		18.7	33.5
		18.5	33.5
		22.9	33.5
		17.6	33.5
		Result [dBuV/m]	Margin [dB]
		19.2	14.0
		19.2	14.8
		19.2	15.0
		19.2	10.6
		19.2	15.9
- Vertical Polarization -			
No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]
6	135.012	35.6	-16.4
		Result [dBuV/m]	Limit [dBuV/m]
		19.2	33.5
		Result [dBuV/m]	Margin [dB]
		19.2	14.3

