Ke Mei Ou Laboratory Co., Ltd.

7A, Jiaxiangge, Jiahuixincheng, No.3027, Shennan Rd., Futian,
Shenzhen, Guangdong, P.R.China. Zip Code: 518033
Tel: + 86 755 83642690 Fax: + 86 755 83297077
www.kmolab.com

Ke Mei Ou Lab Corp.
FEDERAL COMMUNICATIONS COMMISSION
Registration Number: 125782

FCC TEST REPORT

Under
FCC Part 18 RF Lighting Device

Prepared For :

Kai Wo Trading Company

5th Floor, Unit 2, 22 & 23, Block B, Hi-Tech Industrial Centre, 491 Castle Peak Road,
Tsuen Wan, N.T. Hong Kong

FCC ID: M8KEBHPFCON
EUT: Electronic Ballasts
Model: EB-232T8-120-HPF-CON

January 5, 2004

Report Type: Original Report
Test Engineer: Peter Lin
Test Date: December 18, 2003
Review By: Apollo Liu / Manager

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1. General Information

1. 1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

1. 2 Testing Laboratory

Ke Mei Ou Laboratory Co., Ltd.

7A, Jiaxiangge, Jiahuixincheng, No.3027, Shennan Rd., Futian, Shenzhen, Guangdong, P.R.China.

Tel: +86 755 83642690 Fax: +86 755 83297077

Email: kmolab@tom.com

Internet: www.kmolab.com

1. 3 Details of Applicant

Name	**: Kai Wo Trading Company**
Address	**: 5th Floor, Unit 2, 22 & 23, Block B, Hi-Tech Industrial Centre, 491 Castle Peak Road, Tsuen Wan, N.T. Hong Kong**
Contact	**: Ms Eva Hau / Officer**
Tel	**: + 852 24157618**
Fax	**: + 852 24157613**

1. 4 Application Details

Date of Receipt of Application	: December 12, 2003
Date of Receipt of Test Item	: December 16, 2003
Date of Test	: December 18, 2003

1. 5 Test Item

Manufacturer	: See Applicant
Trade Name	: N/A
Model No.	: EB-232T8-120-HPF-CON, EB-232T8-120-HPF, EB-225T8-120-HPF, EB-225T8-120-HPF-CON, EB-224HO-120-HPF, EB-224HO-120-HPF-CON EB-217T8-120-HPF, EB-217T8-120-HPF-CON, EB-235HE-120-HPF-CON, EB-235HE-120-HPF, EB-228HE-120-HPF EB-228HE-120-HPF-CON, EB-221HE-120-HPF, EB-221HE-120-HPF-CON EB-239HO-120-HPF-CON, EB-239HO-120-HPF, EB-236-120-HPF EB-236-120-HPF-CON)
Description	: Electronic Ballasts

Additional Information

Frequency	: 0.022MHz~0.030MHz
Maximum Range	: N/A
Number of Channels	: N/A
Transmitter Antenna	: N/A
Power Supply	: 120VAC/60Hz
Current Consumption	: N/A

1. 6 Test Standards

FCC Part 18 RF Lighting Device: 2002

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

2. Technical Test

2. 1 Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 18	Conducted Test	**PASS**	The test results meet limit
FCC Part 18	Radiated Test	**PASS**	The test results meet limit.

Model	Rating	Power (W)
EB-232T8-120-HPF-CON	120VAC/60Hz 0.59A	63.14

3. EUT Modifications

No modification by Ke Mei Ou Laboratory Co., Ltd.

4. Conducted Power Line Test

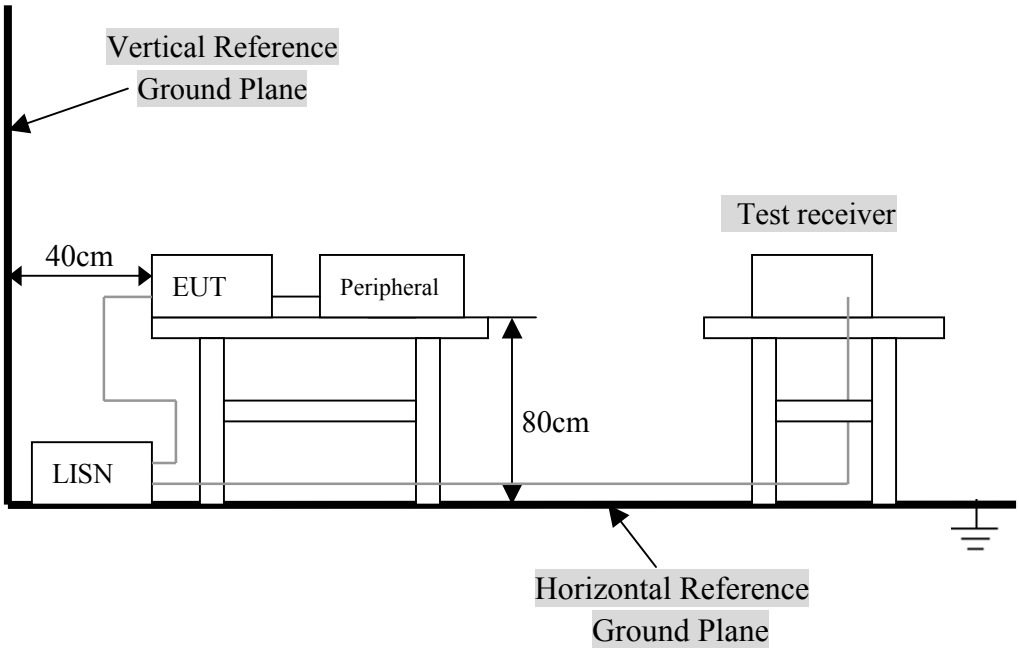
4. 1 Test Equipment

Please refer to Section 8 this report.

4. 2 Test Procedure

The EUT was tested according to ANSI C63.4 - 2001. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 uHenry as specified by section 5.1 of ANSI C63.4 - 2001. cables and peripherals were moved to find the maximum emission levels for each frequency.

4. 3 Test Setup



For the actual test configuration, Please refer to the related items– Photos of Testing.

4. 4 Configuration of the EUT

The EUT was configured according to ANSI C63.4-1992. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model #	FCC ID
Electronic Ballasts	Kai Wo Trading Company	EB-232T8-120-HPF-CON	M8KEBHPFCON

B. Internal Devices

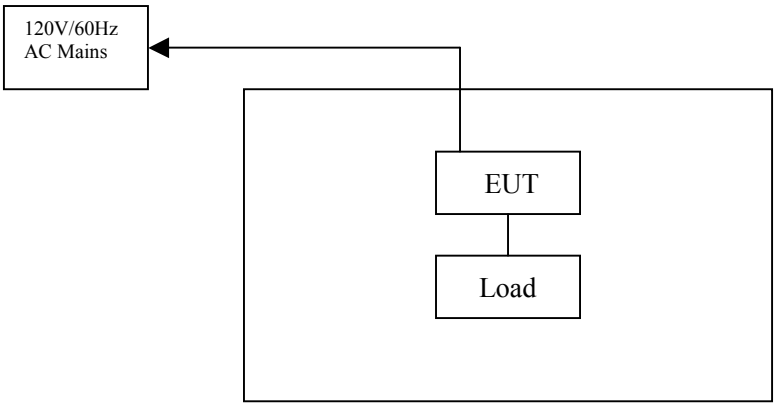
Device	Manufacturer	Model #	FCCID / DoC
N/A			

C. Peripherals

Device	Manufacturer	Model # Serial #	FCC ID/ DoC	Cable
Load	Philips	F32T8 32W	N/A	No-Shielded, 1.2m

4. 5 EUT Operating Condition

Operating condition is according to ANSI C63.4 - 2001.
A. Setup the EUT and simulators as shown on follow.
B. The EUT was connected to the power main through a Line Impedance Stabilization Network (LISN).
C. This provided a 50 ohm coupling impedance for the measuring equipment.



4. 6 Conducted Power Line Emission Limits

FCC Part 18 (dBuV)	
Frequency Range (MHz)	**Limits (dBuV)**
0.45 – 2.51	48
2.51 – 3.0	69.5
3.0 - 30	48

NOTE ：In the above table, the tighter limit applies at the band edges.

4. 7 Conducted Power Line Test Result

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All readings are quasi -peak values with a resolution bandwidth of 9 KHz.

- Temperature : 26 ℃
- Humidity : 53 % RH

Product	: Electronic Ballasts	Test Mode	: EB-232T8-120-HPF-CON
Test Item	: General Conducted Emission Data	Temperature	: 25 ℃
Test Voltage	: 120VAC / 60Hz	Humidity	: 56%RH
Test Result	: **PASS**		

Frequency (MHz)	Emission (dBuV)	Va/Vb	Limits QP (dBuV)	Margin (dB)
0.470	43.1.	Va	48.0	-4.9
2.478	47.2	Va	48.0	-0.8
20.804	46.3	Va	48.0	-1.7
0.469	38.7	Vb	48.0	-9.3
2.474	47.6	Vb	48.0	-0.4
20.790	46.0	Vb	48.0	-2.0

Note:
1.Uncertainty in conducted emission measured is <+/ -2dB.
2.The emission levels of other frequencies were very low against the limit.
3.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
4.Emission = Meter Reading + Factor ; Factor = Insertion Loss + Cable Loss.
5.Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

5. Radiated Emission Test

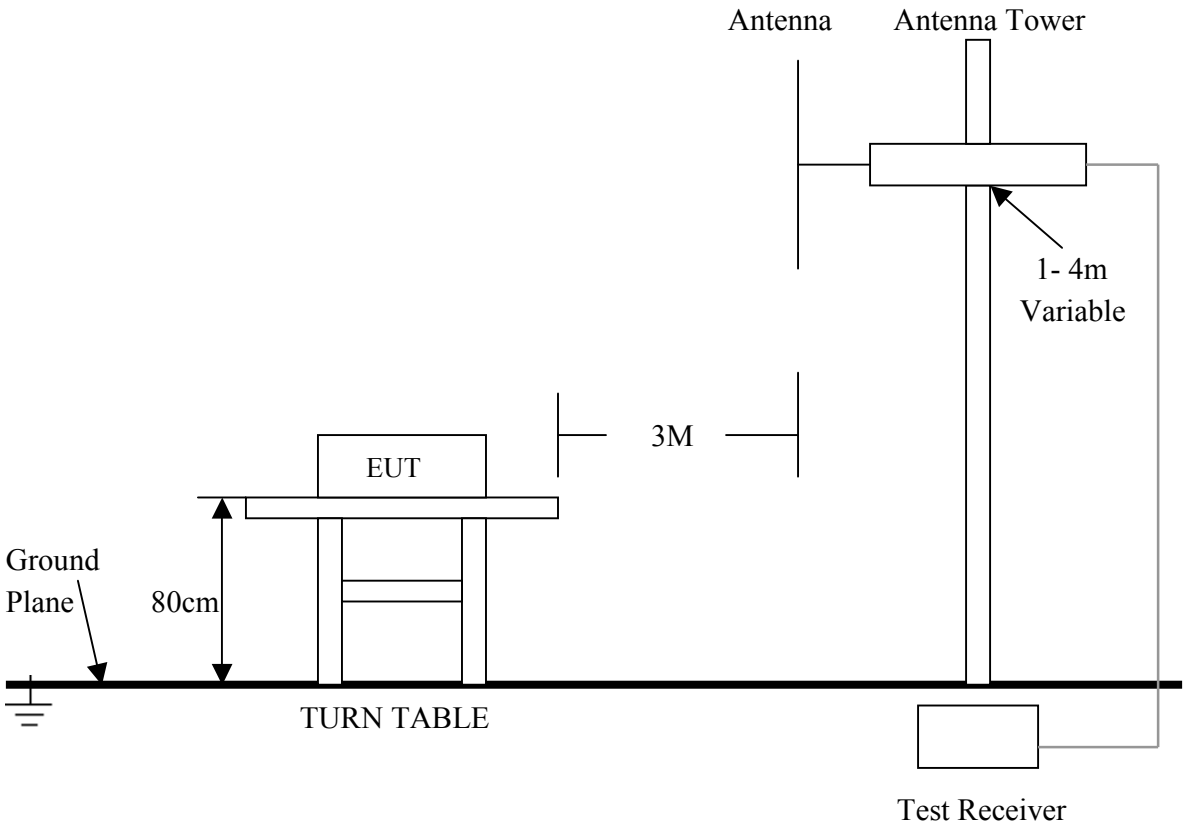
5. 1 Test Equipment

Please refer to Section 8 this report.

5. 2 Test Procedure

1. The EUT was tested according to ANSI C63.4 - 2001. The radiated test was performed at Ke Mei Ou Laboratory .This site is on file with the FCC laboratory division, Registration No. 125782.
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2001.
3. The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz , peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4. The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
5. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a " **QP**" in the data table.
6. The antenna polarization: Vertical polarization and Horizontal polarization.

5. 3 Radiated Test Setup



For the actual test configuration, please refer to the related items– Photos of Testing.

5. 4 Configuration of the EUT

Same as section 4.4 of this report

5. 5 EUT Operating Condition

Same as section 4.5 of this report.

5. 6 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below ：

Frequencies in restricted band are complied to limit on FCC Part 18.

Frequency (MHz)	Distance (m)	Field Strength (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 1000	3	46.0

Note:
(1) RF Voltage (dBuV) = 20 log RF Voltage (uV)
(2) In the Above Table, the tighter limit applies at the band edges.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

5. 7 Radiated Emission Test Result

Product	: Electronic Ballasts	Test Mode	: EB-232T8-120-HPF-CON
Test Item	: General Radiated Emission Data	Temperature	: 25 ℃
Test Voltage	: 120VAC / 60Hz	Humidity	: 56%RH
Test Result	: **PASS**		

Frequency (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
32.598	26.0	HORIZ	40.0	-14.0
43.179	25.0	VERT	40.0	-15.0
50.898	21.6	VERT	40.0	-18.4

Note:
(1) All Reading Levels below 1GHz are Quasi-Peak, above are peak and average value.
(2) Emission = Reading Level + Probe Factor + Cable Loss.
(3) Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

6. Photos of Testing

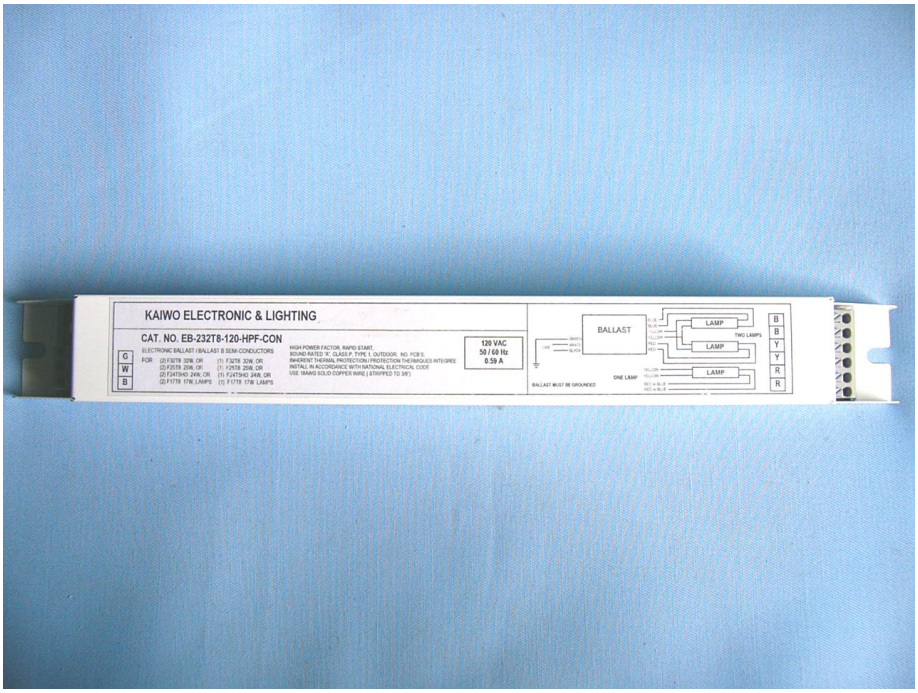
6. 1 EUT Test Photographs

Conducted emission test view

Radiated emission test view

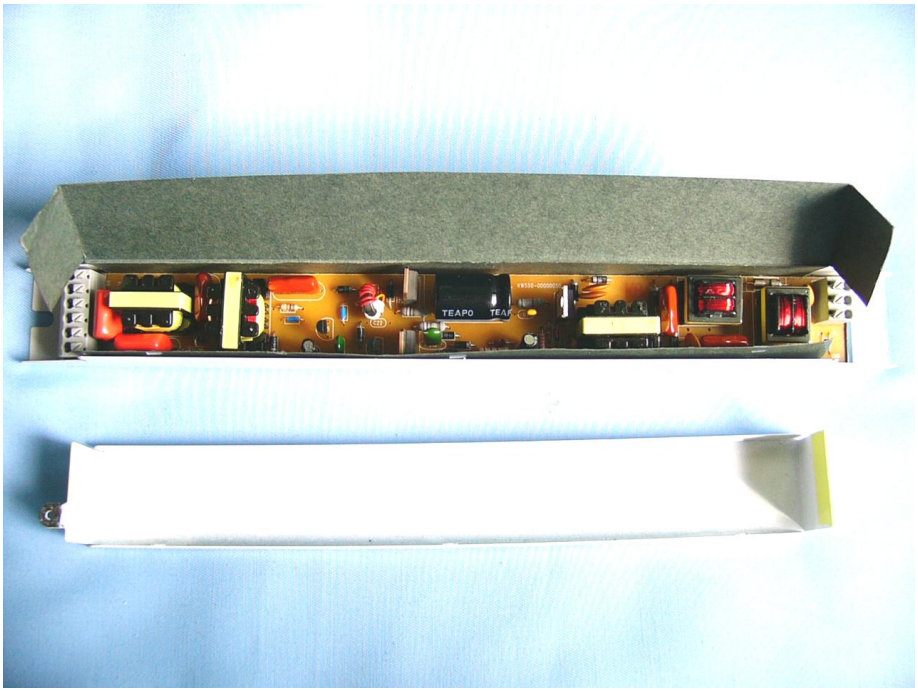
6. 2 EUT Detailed Photographs

EUT top view

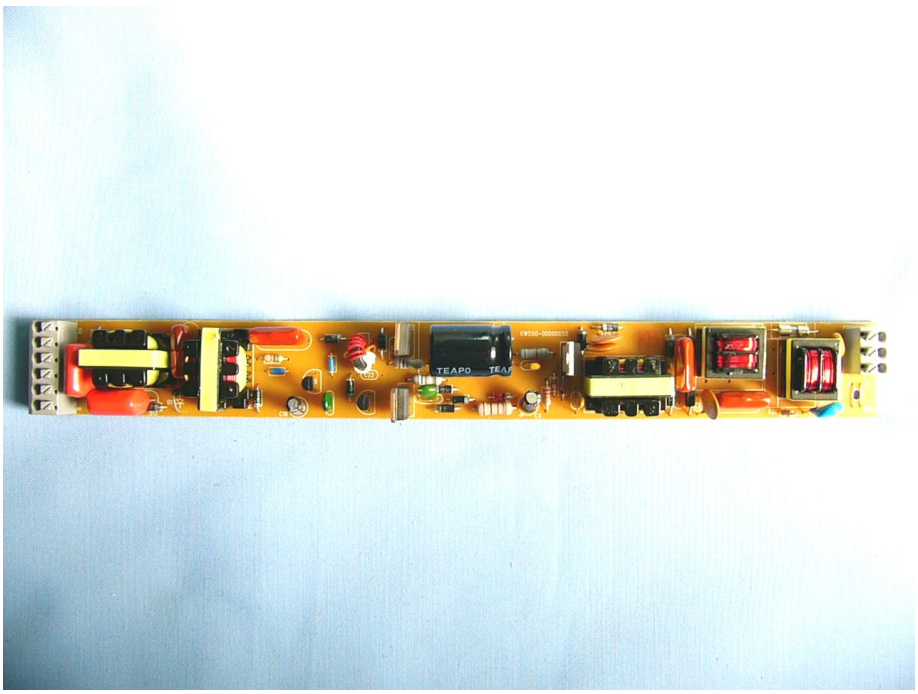


EUT bottom view

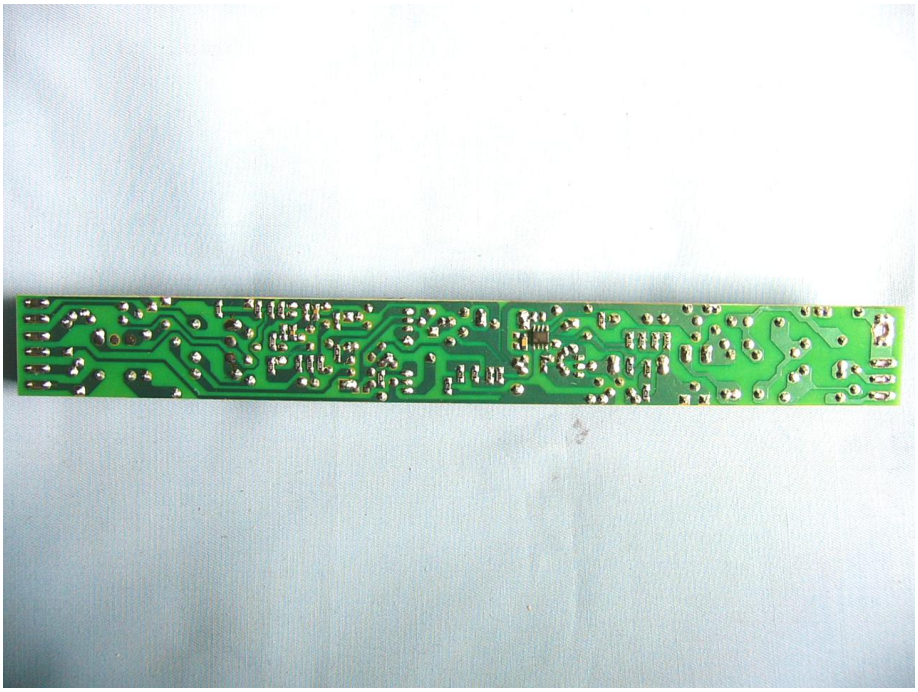
EUT inside whole view



Main board component side



Main board solder side



7. FCC ID Label

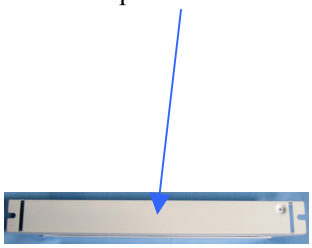
FCC ID: M8KEBHPFCON

The Label shown shall be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

The Label must not be a stick-on paper label. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Bottom View/Proposed FCC ID Label Location



8. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

Equipment/ Facilities	Manufacturer	Model #	Serial No.	Date of Cal.	Due Date
Turntable	KMO	KSZ001T	200306	NCR	NCR
Antenna Tower	KMO	KSZ002AT	200307	NCR	NCR
OATS	KMO	KSZSITE001	N/A	July 06, 2003	July 06, 2004
EMI Test Receiver	Rohde & Schwarz	ESPI3	100180	Oct.18, 2003	Oct.18, 2004
Signal Generator	Rohde & Schwarz	SMT03	100059	Feb.01, 2003	Feb.01, 2004
Bilog Antenna	Chase	CBL6111C	2576	Feb.01, 2003	Feb.01, 2004
Ultra Broadband Antenna	Rohde & Schwarz	HL 562	100110	June.05, 2003	June.05, 2004
AMN	Rohde & Schwarz	ESH3-Z5	100196	Oct. 23,2003	Oct. 23, 2004
AMN	Rohde & Schwarz	ESH3-Z5	100197	Oct. 23,2003	Oct. 23, 2004
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
KMO Shielded Room	KMO	KMO-001	N/A	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESCS30	100003	Feb. 27, 2003	Feb.27, 2004
AMN	Rohde & Schwarz	ESH3-Z5	100002	Feb. 01, 2003	Feb.01, 2004
LISN	Kyoritsu	KNW-407	8-1441-8	Feb. 23, 2003	Feb.23, 2004
EMI Test Receiver	Rohde & Schwarz	ESI26	838786/013	Feb. 01, 2003	Feb.01, 2004
Bilog Antenna	Chase	CBL6112B	2591	Feb. 01, 2003	Feb.01, 2004
Horn Antenna	Rohde & Schwarz	HF906	100014	Feb. 01, 2003	Feb.01, 2004
Radio Communication Test Set	IFR	2955B	100015	Feb 01, 2003	Feb 01, 2004
Multifunction Synthesizer	Hewlett-Packard	8904A	100016	Feb 01, 2003	Feb 01, 2004
Temperature Chamber	TABAI	PSL-4GTW	N/A	Feb 06,2003	Feb 06, 2004
3m Semi-Anechoic Chamber	Albatross Projects	9mX6mX6m	N/A	Feb. 01, 2003	Feb.01, 2004