FCC Part 15
EMI TEST REPORT

of

E.U.T. : A/V WIRELESS RECEIVER
FCC ID. : DT9R-8000
MODEL : R-8000
Working Frequency : 432.031 MHz

for

APPLICANT : JEBSEE ELECTRONICS CO., LTD.

ADDRESS : 24-3, SIN-LO ROAD, P.O. BOX 57, TAINAN, TAIWAN, R.O.C.

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO. 8 LANE 29, WENMIMG ROAD,
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Report Number : ET89R-09-079-02

TEST REPORT CERTIFICATION

Applicant	: JEBSEE ELECTRONICS CO., LTD. 24-3, SIN-LO ROAD, P.O. BOX 57, TAINAN, TAIWAN, R.O.C.
Manufacturer	: JEBSEE ELECTRONICS CO., LTD. 24-3, SIN-LO ROAD, P.O. BOX 57, TAINAN, TAIWAN, R.O.C.
Description of EUT	:
a) Type of EUT	: A/V WIRELESS RECEIVER
b) Trade Name	: JEBSEE
c) Model No.	: R-8000
d) FCC ID.	: DT9R-8000
e) Working Frequency	: 432.031 MHz
f) Power Supply	: Adaptor Model : U180010D12 I/P : 120V/60Hz; O/P 18VDC, 100mA
Regulation Applied	: FCC Rules and Regulations Part 15 Subpart B(1999)

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.

Issued Date : Nov. 3, 2000

Test Engineer : Jeff Chuang
(Jeff Chuang)

Approve & Authorized Signer : Will Yauo
Will Yauo, Supervisor
EMI Test Site of ELECTRONICS
TESTING CENTER, TAIWAN

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1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : A/V WIRELESS RECEIVER

b) Trade Name : JEBSEE

c) Model No. : R-8000

d) FCC ID. : DT9R-8000

e) Working Frequency : 432.031 MHz

f) Power Supply : Adaptor Model : U180010D12
I/P : 120V/60Hz; O/P : 18VDC, 100mA.

1.2 Characteristics of Device

The EUT has an antenna, power cord and a jack for the Infrared Extender. The EUT receives Radio Frequency (RF) transmission from the Extension Unit.

1.3 Test Methodology

For A/V WIRELESS RECEIVER, both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.4(1992). Other required measurements were illustrated in separate sections of this test report for details.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at No.34, Lin 5, Ding Fu Tsun, Linkou Hsiang, Taipei Hsien, Taiwan, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Feb. 10, 2000.

2. DEFINITION AND LIMITS

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

2.2 Limitation

(1) Conducted Emission Limits :

According to 15.107 , Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 450 kHz to 30 MHz shall not exceed 250 microvolts. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

Class B Line Conducted Emission Limits :

Frequency MHz	Emissions μ V	Emissions dB μ V
0.45 - 30.0	250	48.0

(2) Radiated Emission Limits :

According to 15.109 ,Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Class B Radiated Emission Limits :

Frequency MHz	Distance Meters	Radiated dB μ V/m	Radiated μ V/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
above 960	3	54.0	500

2.3 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.4 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3 SYSTEM TEST CONFIGURATION

3.1 Justification

All measurement were intentional to maximum the emissions from EUT by varying the connection cables, therefore, the test result is sure to meet the applicable requirement.

3.2 Devices for Tested System

Device	Manufacture	Model	Description
A/V WIRELESS RECEIVER*	JEBSEE ELECTRONICS CO., LTD.	R-8000	1.5m Unshielded Cable

Remark "*" means equipment under test.

4 RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For unintentional radiator, the radiated emission shall comply with § 15.109(a).

4.2 Measurement Procedure

1. Setup the configuration per figure 5 and 6 for frequencies measured below and above 1 GHz respectively.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the three frequencies of highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration

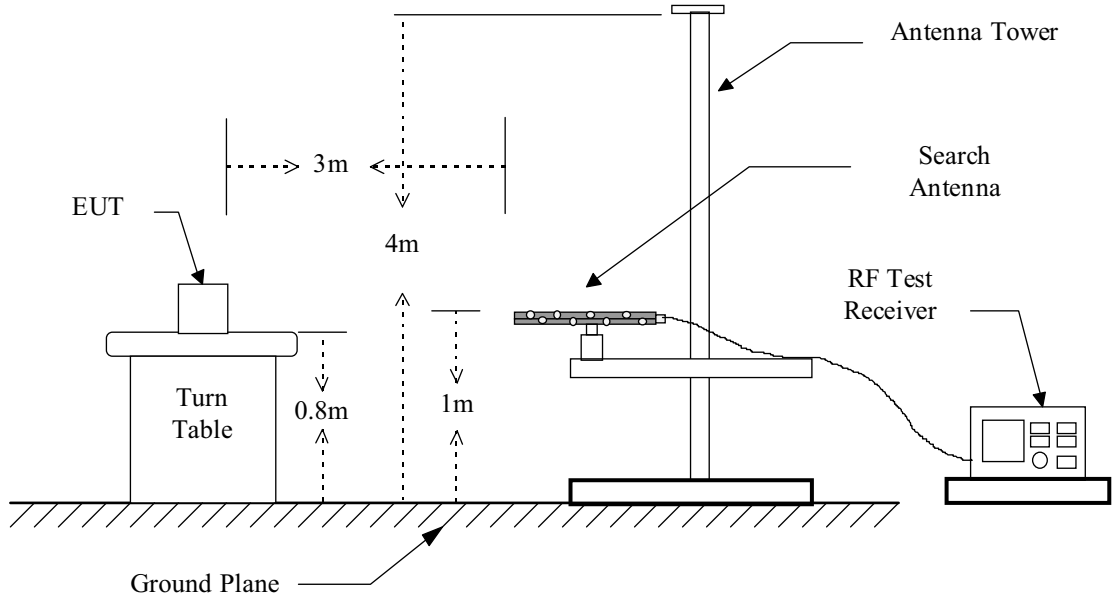
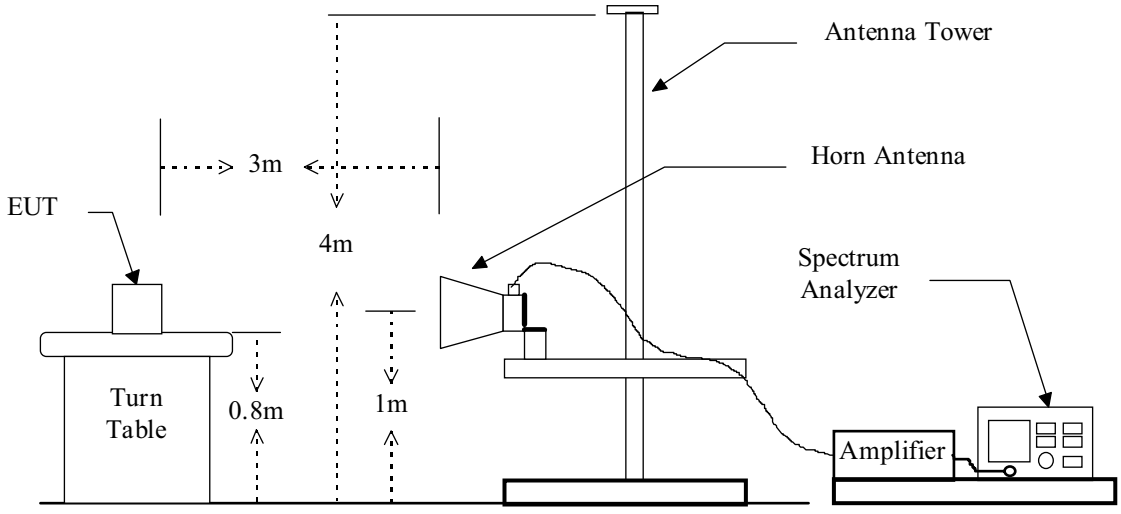


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.	Next Cal. Date
Spectrum Analyzer	Hewlett-Packard	8568B	01/05/2001
Pre-selector	Hewlett-Packard	85685A	01/10/2001
Quasi Peak Detector	Hewlett-Packard	85650A	01/10/2001
RF Test Receiver	Rohde & Schwarz	ESVS 30	01/10/2001
RF Test Receiver	Rohde & Schwarz	ESBI	10/01/2001
Log periodic Antenna	EMCO	3146	11/03/2000
Biconical Antenna	EMCO	3110B	11/03/2000
Horn Antenna	EMCO	3115	05/09/2001
Preamplifier	Hewlett-Packard	8449B	05/09/2001
Preamplifier	Hewlett-Packard	8447D	01/18/2001
Micro Wave EMI Test System	Hewlett-Packard	84125C	01/25/2001

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	300 Hz

4.4 Radiated Emission Data

4.4.1 Rx Portion

Operation Mode : Receiver

Test Date: SEP. 27, 2000 Temperature : 23 ℃ Humidity: 50 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
432.031	V	41.1	-5.5	35.6	46.0	-10.4	90	1.10
864.062	V	30.2	2.3	32.5	46.0	-13.5	180	1.50
1296.093	V	46.5	-8.4	38.1	54.0	-15.9	180	1.00
1728.124	H/V	---	-6.2	---	54.0	---	---	---
2160.155	H/V	---	-4.0	---	54.0	---	---	---
2592.186	H/V	---	-2.4	---	54.0	---	---	---
3024.217	H/V	---	-1.1	---	54.0	---	---	---
3456.248	H/V	---	-0.1	---	54.0	---	---	---
3888.279	H/V	---	1.6	---	54.0	---	---	---
4320.310	H/V	---	2.0	---	54.0	---	---	---

4.4.2 Other Emissions

Operation Mode : Receiver

Test Date: SEP. 27, 2000 Temperature : 23 ℃ Humidity: 50 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
342.018	H	42.5	-9.3	33.2	46.0	-12.8	180	1.50
356.254	H	46.1	-9.3	36.8	46.0	-9.2	145	1.60
370.172	H	47.4	-6.8	40.6	46.0	-5.4	270	1.50
384.152	V	48.5	-6.1	42.4	46.0	-3.6	360	1.00
398.092	V	45.8	-6.4	39.4	46.0	-6.6	345	1.10
425.230	V	49.3	-5.5	43.8	46.0	-2.2	180	1.30

Note :

1.Remark "---" means that the emissions level is too low to be measured.

2.Item of margin shown in above table refers to Q.P. limit.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where Corrected Factor

= Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

4.6 Photos of Radiation Measuring Setup

Please see setup photos in Exhibit F.

5 CONDUCTED EMISSION MEASUREMENT

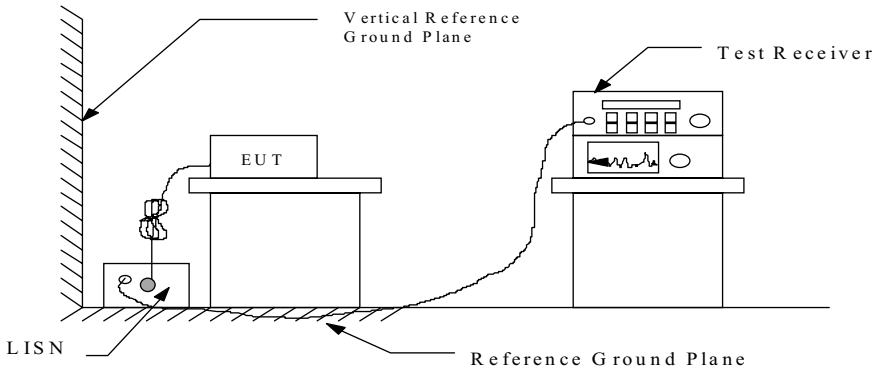
5.1 Standard Applicable

For intentional device, Line Conducted Emission Limits are in accordance to § 15.207(a), any emissions level shall not exceed 48 dBuV.

5.2 Measurement Procedure

1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 3 : Conducted emissions measurement configuration



5.3 Conducted Emission Data

Operation Mode : Receiver
Test Date : SEP. 27, 2000 Temperature : 23 ℃ Humidity: 50 %

Frequency	Reading (dBuV)		Factor	Result (dBuV)		Limit	Margin
(MHz)	N	L1	(dB)	N	L1	(dBuV)	(dB)
0.4606	24.6	30.5	0.2	24.8	30.7	48.0	-17.3
0.4737	24.7	31.9	0.2	24.9	32.1	48.0	-15.9
0.4963	24.4	24.1	0.2	24.6	24.3	48.0	-23.4
0.5200	23.8	27.5	0.2	24.0	27.7	48.0	-20.3
23.6465	21.0	23.4	1.0	22.0	24.4	48.0	-23.6
25.2429	22.2	23.5	1.0	23.2	24.5	48.0	-23.5

Note : Please see appendix 1 for Plotted Data

5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dB μ V is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dB μ V.

RESULT = 22.5 + 0.1 = 22.6 dB μ V
Level in μ V = Common Antilogarithm[(22.6 dB μ V)/20]
= 13.48 μ V

5.5 Conducted Measurement Equipment

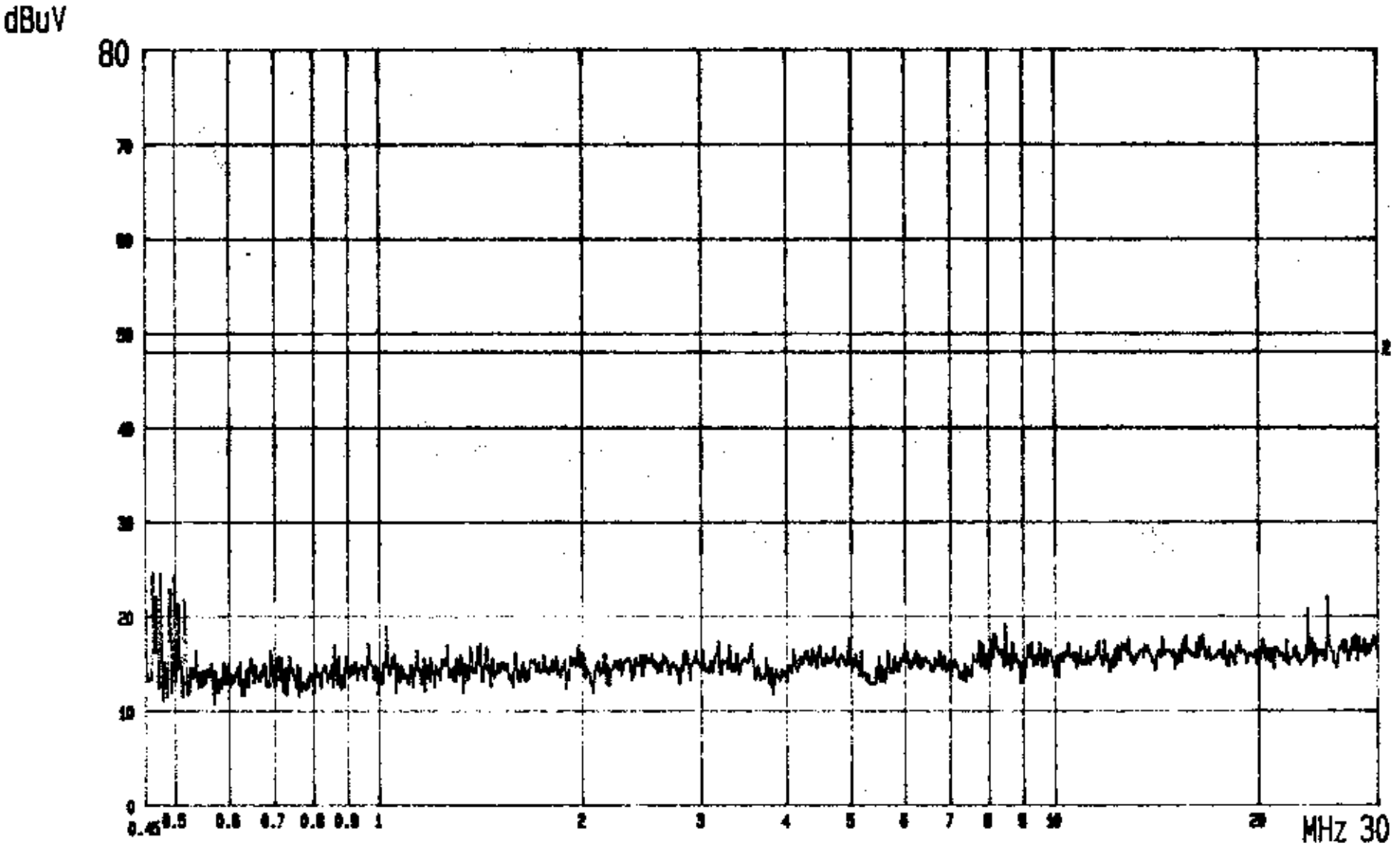
The following test equipment are used during the conducted test .

Equipment	Manufacturer	Model No.	Next Cal. Date
RF Test Receiver	Rohde and Schwarz	ESH3	01/10/2001
Spectrum Monitor	Rohde and Schwarz	EZM	N.C.R.
Line Impedance Stabilization network	Kyoritsu	KNW-407	11/30/2000
Plotter	Hewlett-Packard	7440A	N/A
Shielded Room	Riken	N/A	N.C.R.

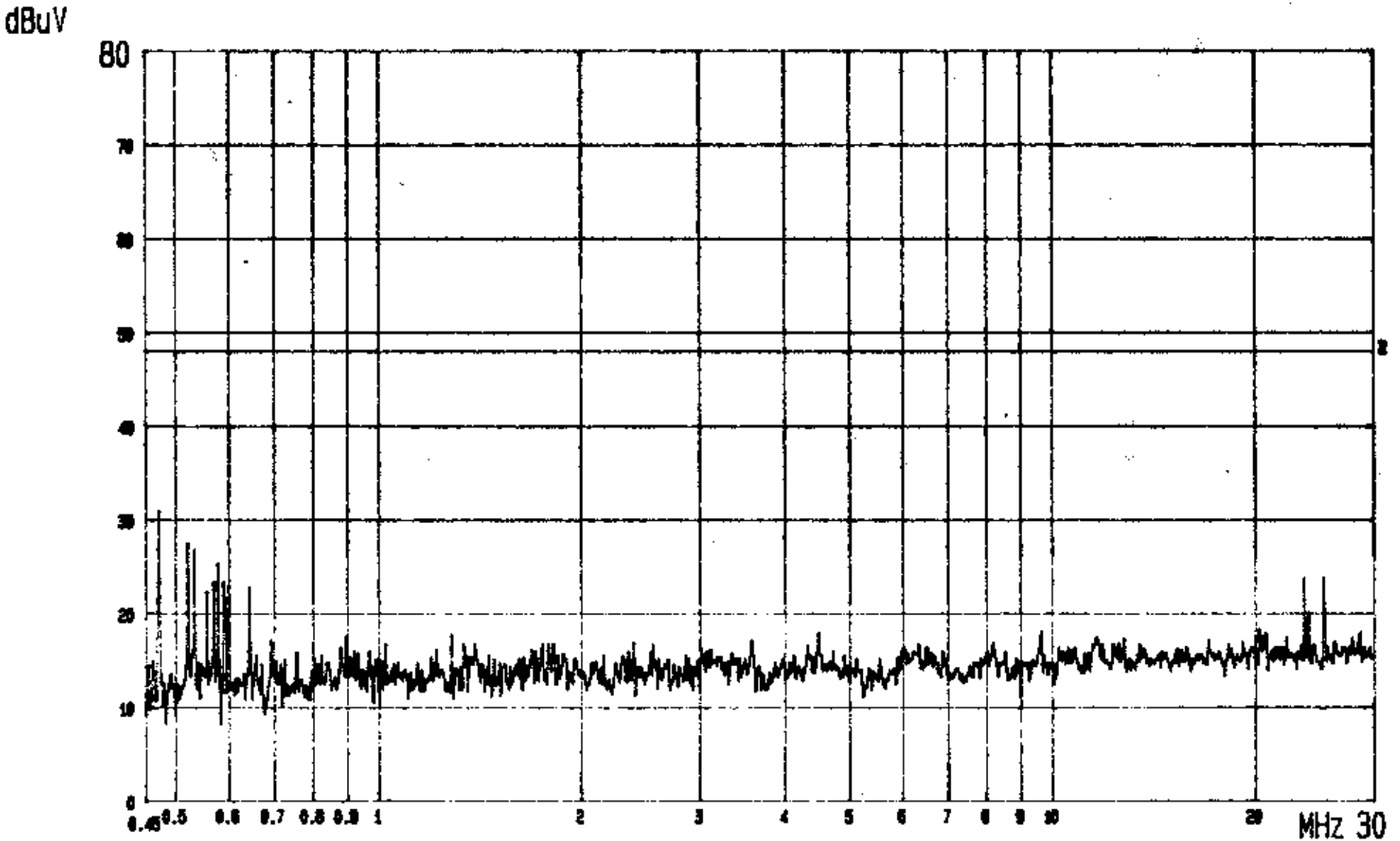
5.6 Photos of Conduction Measuring Setup

Please see setup photos in Exhibit F.

APPENDIX 1 : PLOTTED DATA FOR CONDUCTED EMISSION



FCC CONDUCTED TEST EUT: INFRARED REMOTE EXTENDER 2: QP CLASS B LIMIT
MODEL: R-8000 MODE: RX POWER: 120V/60Hz LISN: N ETC EMI LAB.



FCC CONDUCTED TEST EUT: INFRARED REMOTE EXTENDER 2: QP CLASS B LIMIT
MODEL: R-8000 MODE: RX POWER: 120V/60Hz LISN: L1 ETC EMI LAB.