

FCC TEST REPORT

FCC ID : SJ8RX230

Applicant : RDI Technology (Shenzhen) Co., Ltd.

Address : Building C1 Xingtang Industrial Park, East Baishixia, Fuyong,
Baoan, Shenzhen, PRC

Equipment Under Test (EUT) :

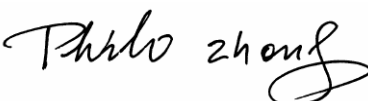
Product description : 900Mhz Wireless USB Receiver

Model No. : RX230

Standards : FCC Part 15 Subpart B

Date of Test : Oct.17, 2008

Test Engineer : Olic.huang

Reviewed By : 

Test Result :	PASS *
----------------------	---------------

* The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003. The test results have been reviewed against the Directives above and found to meet their essential requirements.

1 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 10GHz)	FCC PART 15, SUBPART B: 2003	ANSI C63.4: 2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15, SUBPART B: 2003	ANSI C63.4: 2003	Class B	PASS

Contents

1	COVER PAGE	1
1	TEST SUMMARY	2
	CONTENTS	3
2	GENERAL INFORMATION	4
2.1	CLIENT INFORMATION	4
2.2	GENERAL DESCRIPTION OF E.U.T.	4
2.3	DETAILS OF E.U.T.	4
2.4	DESCRIPTION OF SUPPORT UNITS	4
2.5	STANDARDS APPLICABLE FOR TESTING	4
2.6	TEST FACILITY	5
2.7	TEST LOCATION	5
3	EQUIPMENT USED DURING TEST	6
4	EMISSIONS TEST RESULTS	7
4.1	CONDUCTED EMISSION DATA	7
4.1.1	<i>E.U.T. Operation</i>	<i>7</i>
4.1.2	<i>EUT Setup</i>	<i>7</i>
4.1.3	<i>Conducted Emission Test Data</i>	<i>8</i>
4.1.4	<i>Photographs – Conducted Emission Test Setup</i>	<i>12</i>
4.2	RADIATION EMISSION DATA	13
4.2.1	<i>Measurement Uncertainty</i>	<i>13</i>
4.2.2	<i>EUT Setup</i>	<i>13</i>
4.2.3	<i>Spectrum Analyzer Setup</i>	<i>14</i>
4.2.4	<i>Test Procedure</i>	<i>14</i>
4.2.5	<i>Corrected Amplitude & Margin Calculation</i>	<i>15</i>
4.2.6	<i>Summary of Test Results</i>	<i>15</i>
4.2.7	<i>Photographs – Radiation Emission Test Setup</i>	<i>21</i>
5	PHOTOGRAPHS - CONSTRUCTIONAL DETAILS	22
5.1	EUT - COMPONENT VIEW	22
5.2	EUT - FRONT VIEW	22
5.3	EUT - BACK VIEW	23
5.4	ADAPTER - BACK VIEW	23
5.5	EUT - OPEN VIEW	24
5.6	PCB 1 -FRONT VIEW	24
5.7	PCB 1 - BACK VIEW	25
5.8	PCB 2 -FRONT VIEW	25
5.9	PCB 2-BACK VIEW	26
5.10	PCB (ADAPTER)-BACK VIEW	26
5.11	PCB (ADAPTER)-BACK VIEW	27
	FCC ID LABEL	28

2 General Information

2.1 Client Information

Applicant: RDI Technology (Shenzhen) Co., Ltd
Address of Applicant: Building C1 Xingtang Industrial Park, East Baishixia,
Fuyong, Baoan, Shenzhen, PRC

Manufacturer: RDI Technology (Shenzhen) Co., Ltd
Address of manufacturer: Building C1 Xingtang Industrial Park, East Baishixia,
Fuyong, Baoan, Shenzhen, PRC

2.2 General Description of E.U.T.

Product description: 900Mhz Wireless USB Receiver
Model No.: RX230

2.3 Details of E.U.T.

Power Supply: AC Input : 100~240V, 50/60Hz
DC Output : 5V, 0.5A

2.4 Description of Support Units

The EUT has been tested as an independent unit.

2.5 Standards Applicable for Testing

The customer requested FCC tests for a 900Mhz Wireless USB Receiver . The standards used were FCC Part 15 Subpart B.

2.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC – Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581.June 24,2008.

- **IC – Registration No.:IC7760**

Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760, July 24, 2008.

2.7 Test Location

All Emissions tests were performed at:-

1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen
518105,China

3 Equipment Used during Test

Equipment	Brand Name	Model	Related standards	Cal.Intal Months	Last Cal. Date	Serial No
3m Semi-anechoic chamber						
EMC Analyzer	Agilent	E7405A	ISO9001:2000	12	Jan-08	MY4511494 3
Trilog Broadband Antenne 30-3000 MHz	SCHWARZB ECK MESS- ELEKTROM	VULB9163	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	336
Broad-band Horn Antenna	SCHWARZB ECK MESS- ELEKTROM	BBHA 9120 D	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	667
Broadband Preamplifier	SCHWARZB ECK MESS- ELEKTROM	BBV 9718	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	9718-148
10m Coaxial Cable with N-male Connectors usable	SCHWARZB ECK MESS- ELEKTROM	AK 9515 H	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
10m 50 Ohm Coaxial Cable with N- plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZB ECK MESS- ELEKTROM	AK 9513	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
Positioning Controller	C&C LAB	CC-C-IF	ISO9001	12	Jan-08	MF7802108
Color Monitor	SUNSPO	SP-14C	ISO9001	12	Jan-08	-
EMI Shielded Room						
Test Receiver	ROHDE&SC HWARZ	ESPI	ISO9001	12	Jan-08	101155
Two-Line V-Network	ROHDE&SC HWARZ	ENV216	ISO9001 EN/ISO/IEC 17025	12	Jan-08	100115
Absorbing Clamp	ROHDE&SC HWARZ	MDS-21	ISO9001 EN/ISO/IEC 17025	12	Jan-08	100205
10m 50 Ohm Coaxial Cable with N- plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZB ECK MESS- ELEKTROM	AK 9514	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
Other						
Notebook	IBM	X31	/	/	/	/
PC	acer	AG1720	/	/	/	/
Moniter	viewsonic	S27996-1W	/	/	/	/
K/B	DELL	L100	/	/	/	/
Mouse	acer	M-UVACR1	/	/	/	/

4 Emissions Test Results

4.1 Conducted Emission Data

Test Requirement:	FCC Part15.107 Class B
Test Method:	ANSI C63.4:2003
Test Date:	Oct.17,2008
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dB μ V between 0.15MHz & 0.5MHz 56 dB μ V between 0.5MHz & 5MHz 60 dB μ V between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

4.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C

Humidity: 52 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation :

The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

4.1.2 EUT Setup

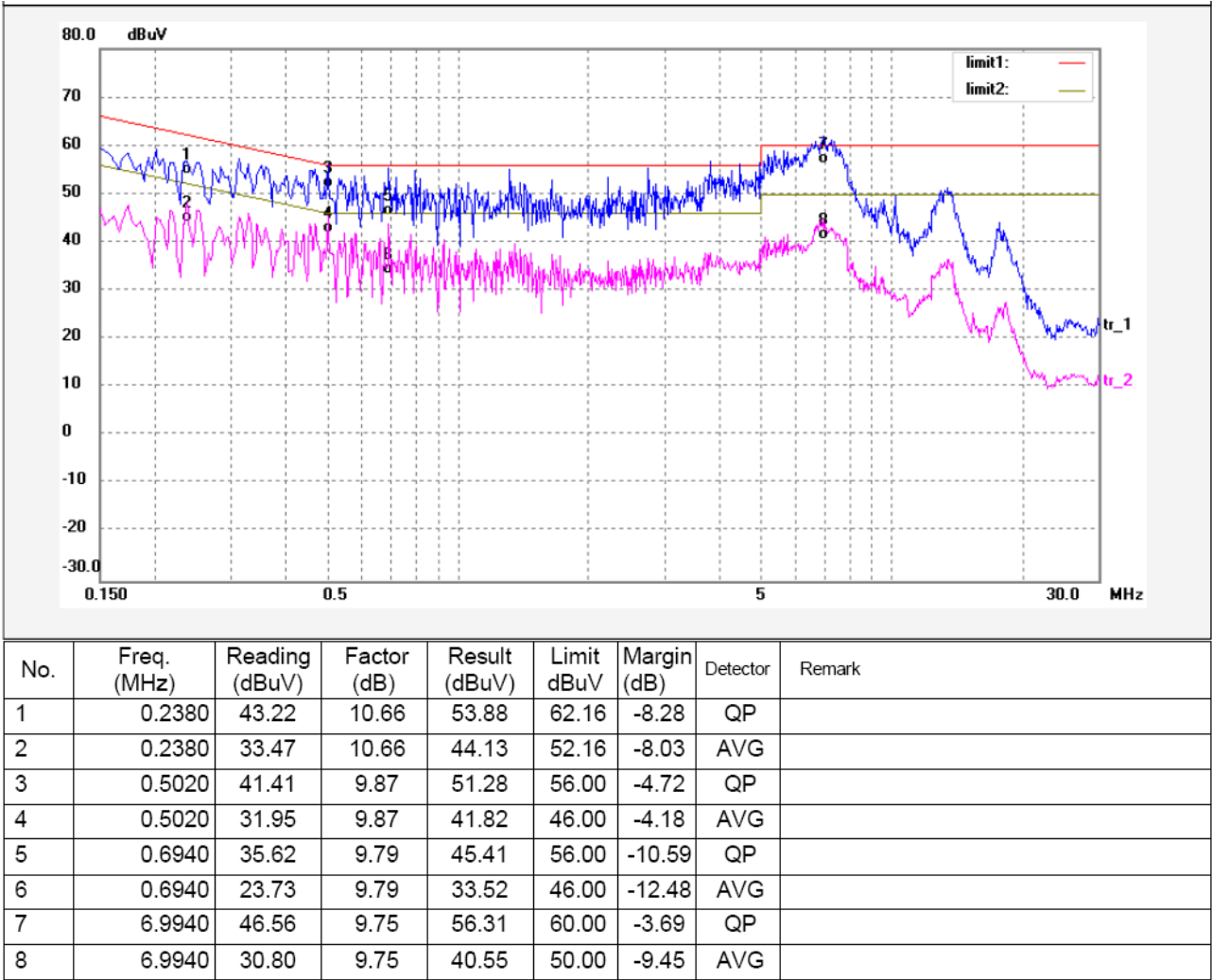
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15.107 Class B limits. The EUT was placed on the test table in working mode. The EUT has been pre-tested in two models and channels ,and the worst case is the channel 1,so the data was shown the channel 1 only in two models, for more details, please refer to the Conducted Emission Test Setup view .

4.1.3 Conducted Emission Test Data

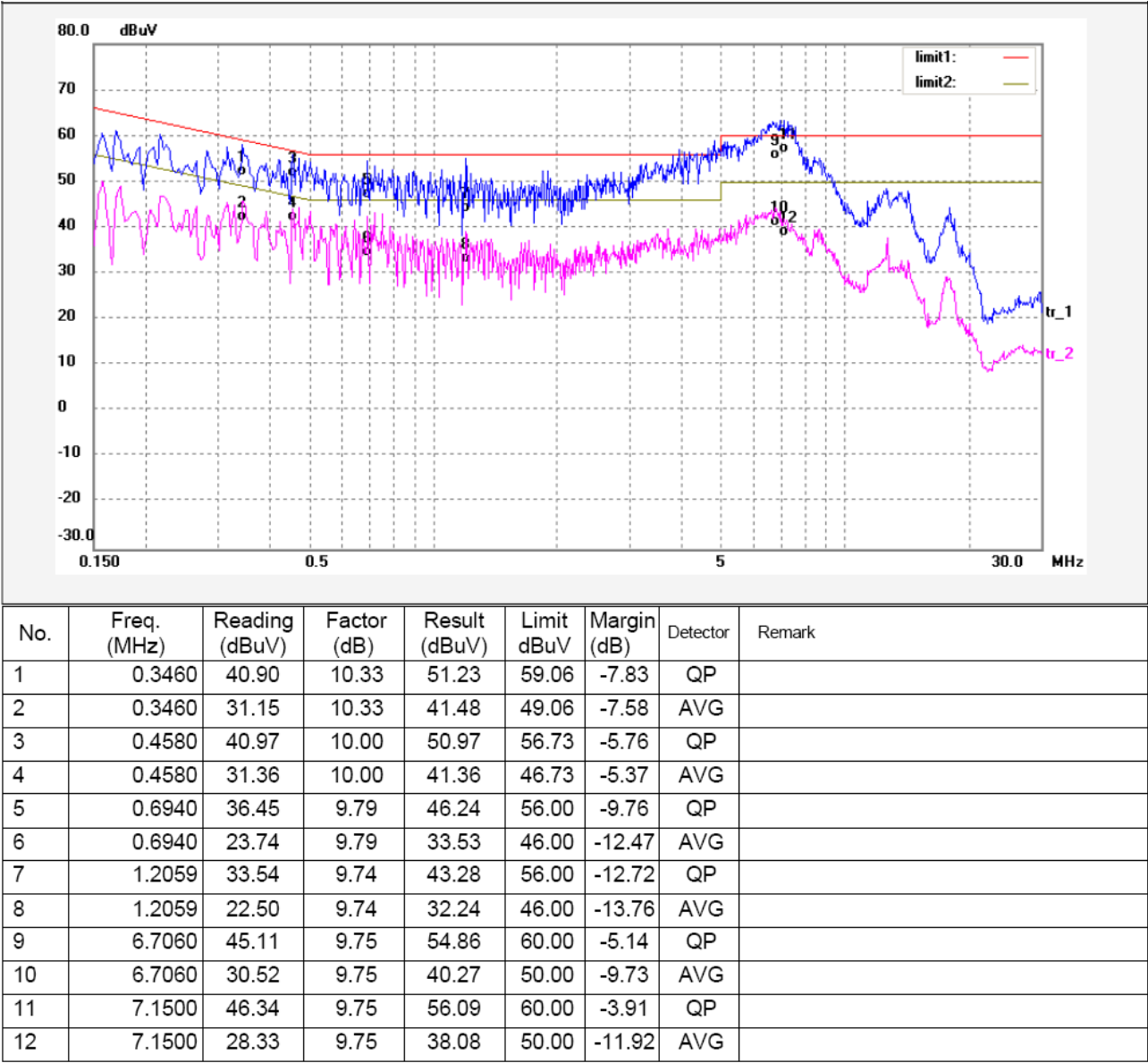
The conducted test data as below :

Mode : USB

L Line :

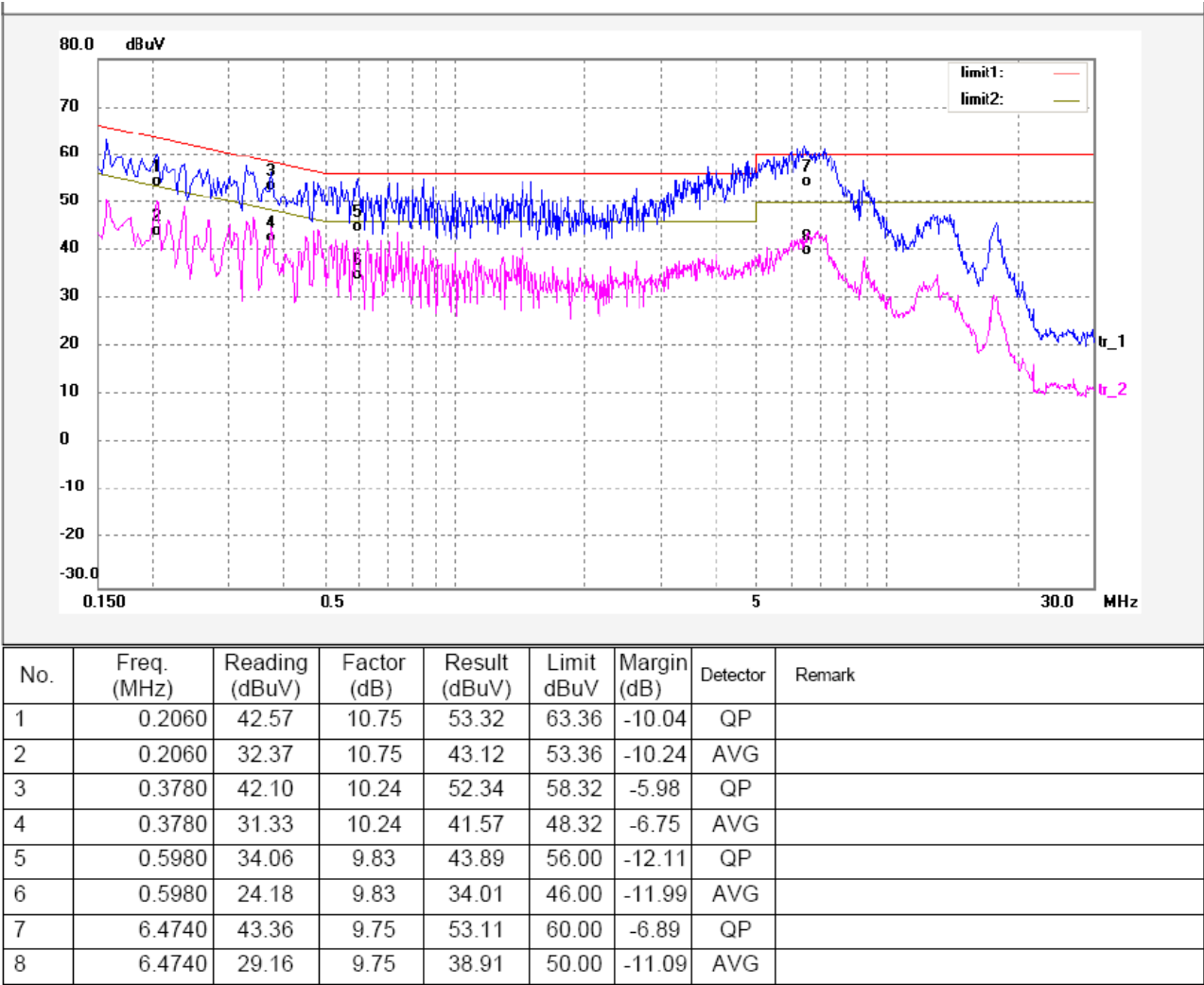


N Line :

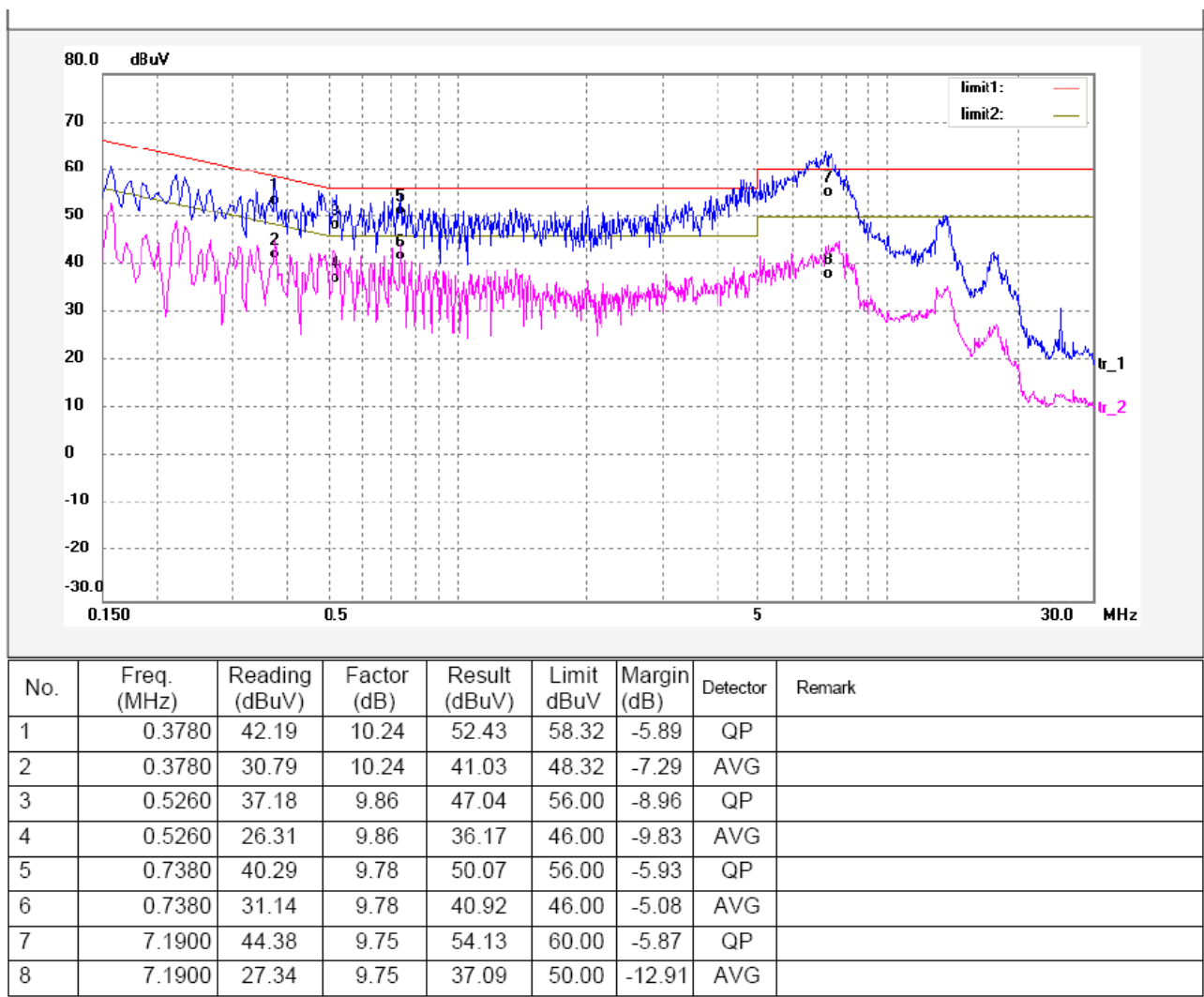


Mode : TV

L Line :



N Line :



4.1.4 Photographs – Conducted Emission Test Setup

USB Mode :



TV Mode :



4.2 Radiation Emission Data

Test Requirement:	FCC Part15 B
Test Method:	Based on ANSI C63.4:2003
Test Date:	Oct.17, 2008
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m zbove 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

4.2.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC lab is ± 2.9 dB.

4.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 B limits. The EUT was placed on the test table in working mode. a typical signal or an unmodulated CW signal at the operating frequency of the EUT shall be supplied to the EUT for all measurements.

4.2.3 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested 30 to 10000MHz.

Below 1G

Start Frequency.....	30 MHz
Stop Frequency.....	1000 MHz
Sweep Speed	Auto
IF Bandwidth	120 kHz
Video Bandwidth.....	100KHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	100KHz

Above 1G

Start Frequency.....	1000 MHz
Stop Frequency.....	10000MHz
Sweep Speed	Auto
IF Bandwidth	120 kHz
Video Bandwidth.....	1MHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	1MHz

4.2.4 Test Procedure

The radiated emissions test.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant 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 dBμV of specification limits), and are distinguished with a "Qp" in the data table.

The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

the EUT was pre-testrd in two mode:standby mode and receive mode.According to ANSI STANDARD C63.4-2003 12.1.1.2 OTHER TYPES OF RECEIVERS: In receive mode,a typical signal or an unmodulated CW signal at the operating frequency of the EUT shall be supplied to the EUT for all measurements. Such a signal may be supplied by either a signal

generator and an antenna in close proximity to the EUT or directly conducted into the antenna terminals of the EUT. The signal level shall be sufficient to the local oscillator of the EUT.

4.2.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

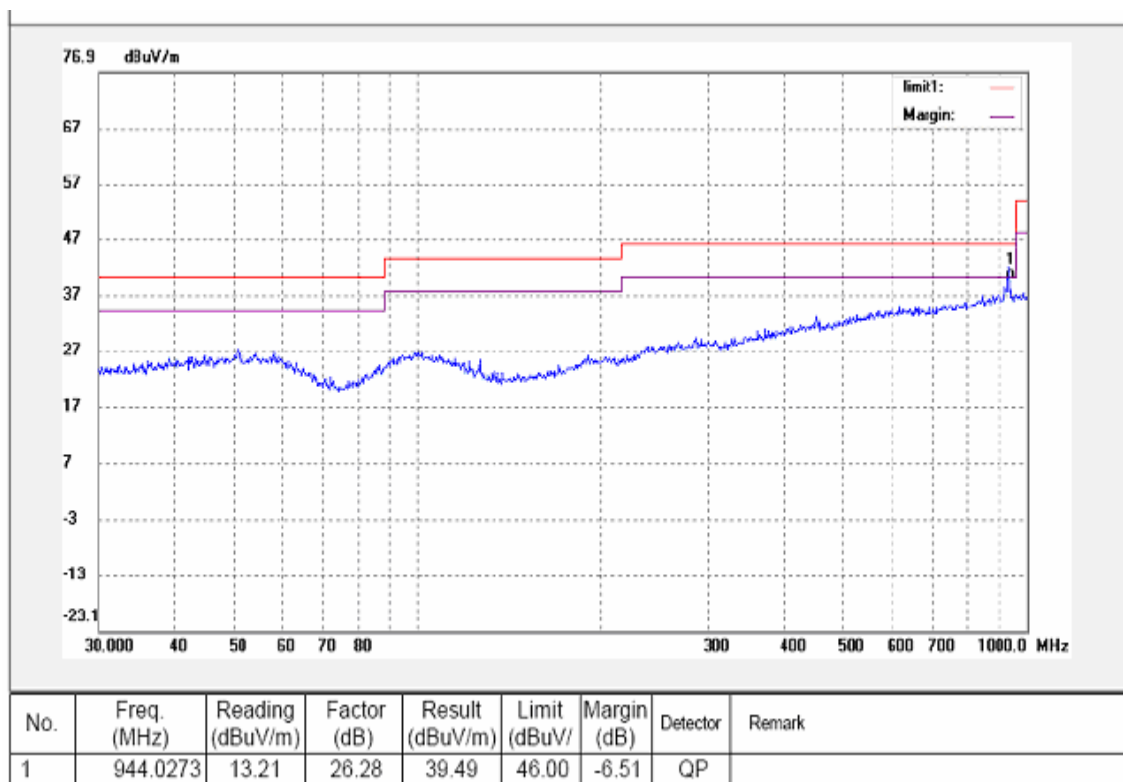
4.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 B standards.

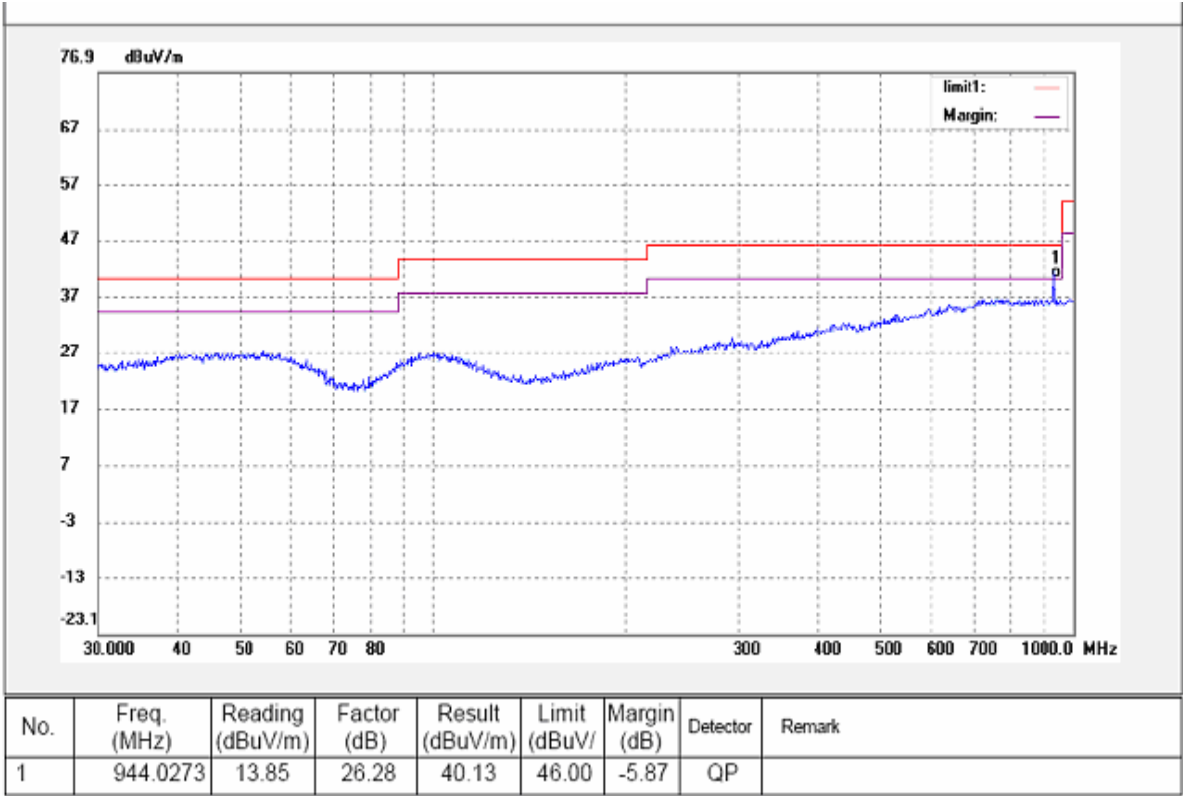
Below 1GHz

Test Polarization : Horizontal

Test channel : Ch1



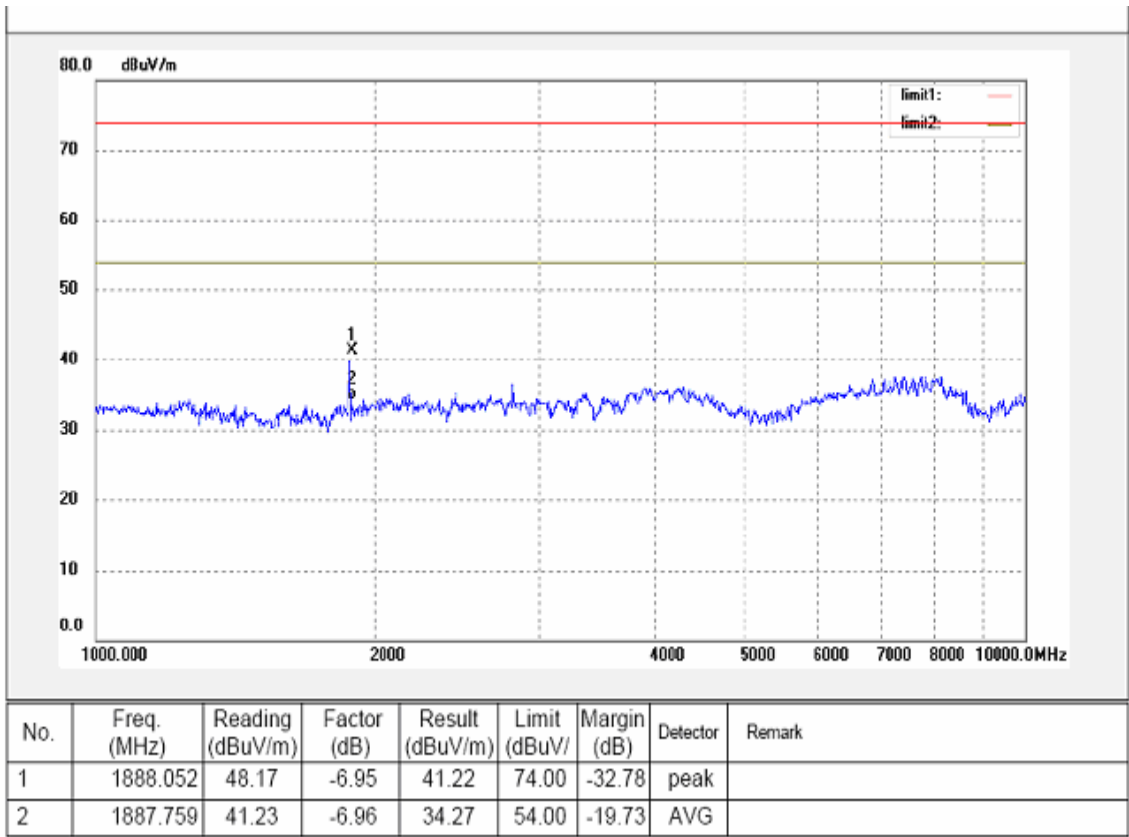
Test Polarization : Vertical
Test channel : Ch1



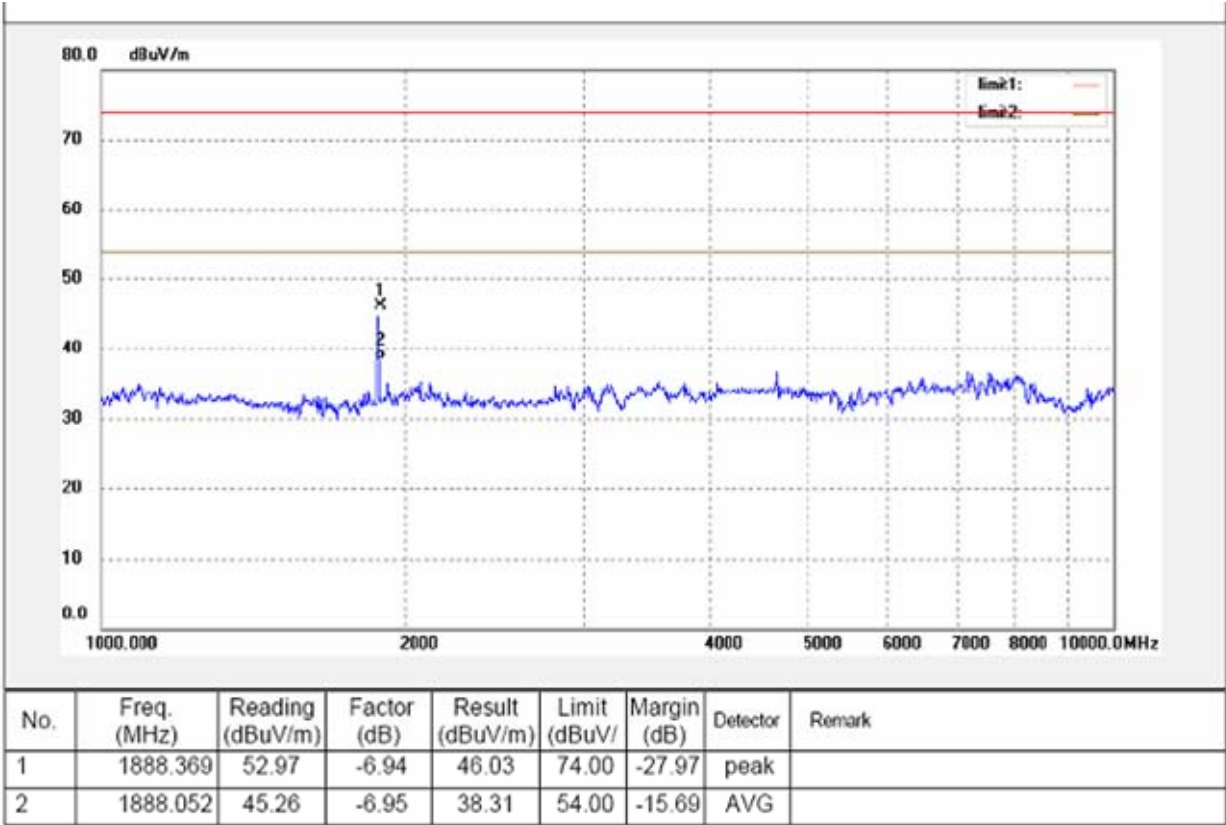
Above 1GHz

Test Polarization : Horizontal

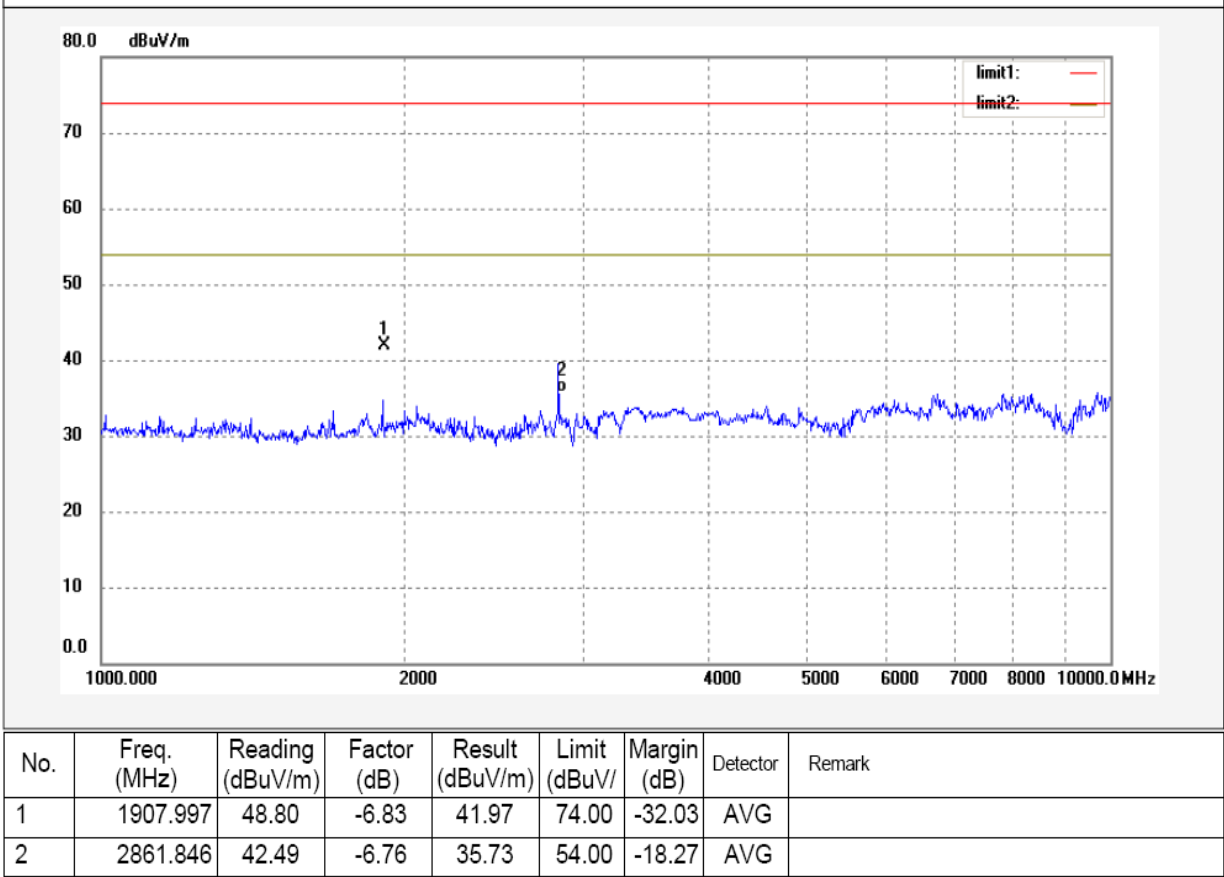
Test channel : Ch1



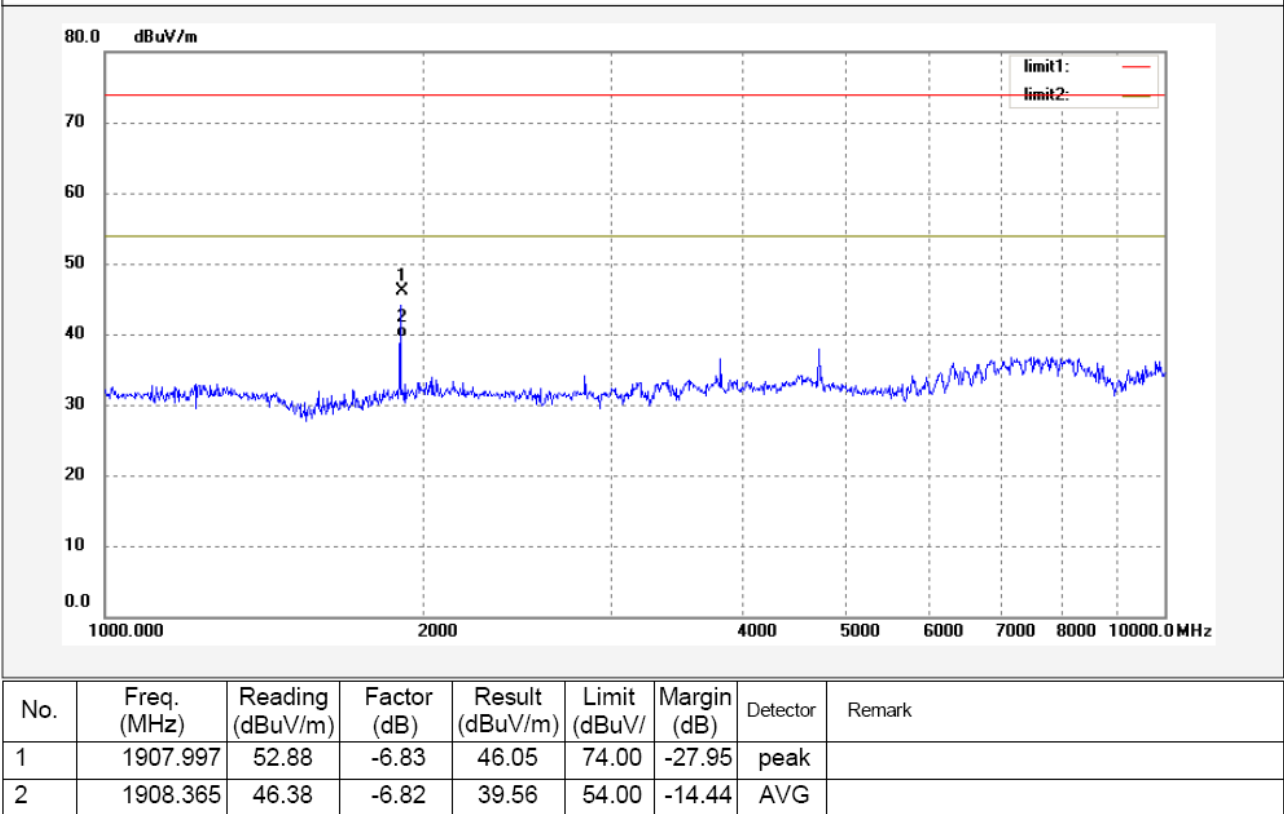
Test Polarization : Vertical
Test channel : Ch1



Test Polarization : Horizontal
Test channel : Ch2

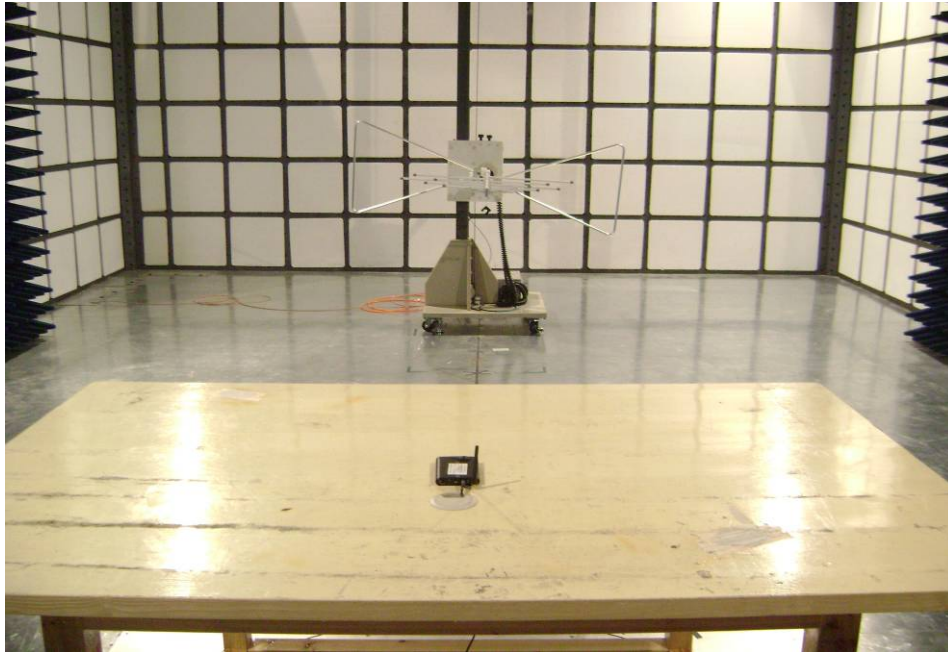


Test Polarization : Vertical
Test channel : Ch2

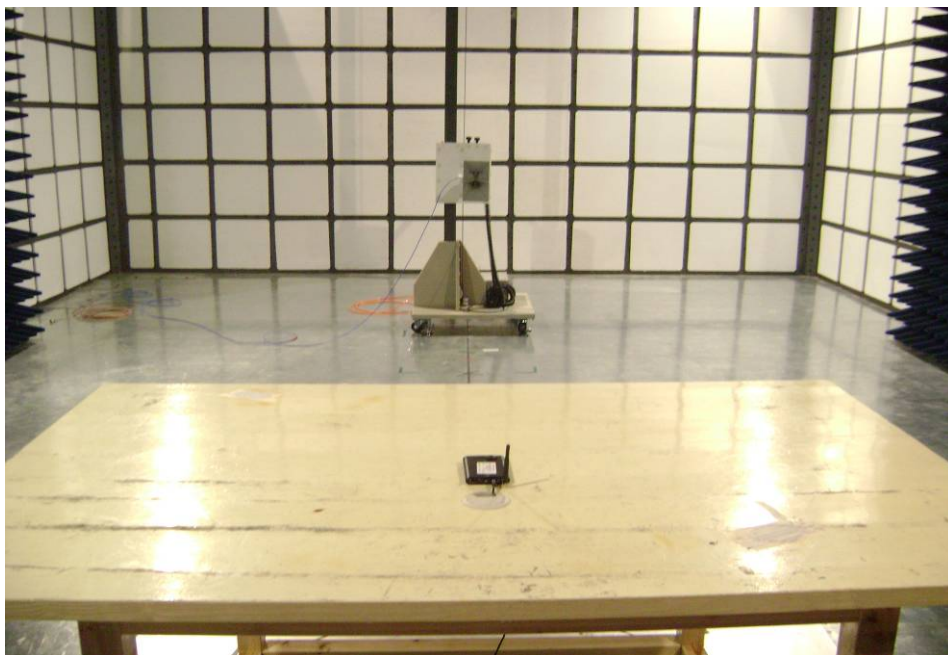


4.2.7 Photographs – Radiation Emission Test Setup

Below 1G



Above 1G



5 Photographs - Constructional Details

5.1 EUT - Component View



5.2 EUT - Front View



5.3 EUT - Back View



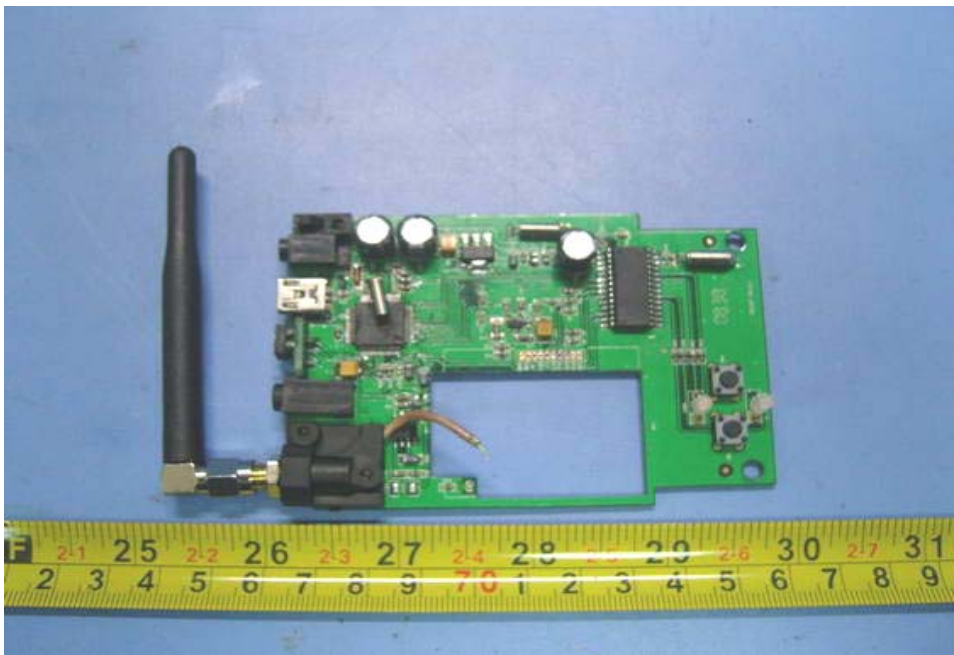
5.4 Adapter - Back View



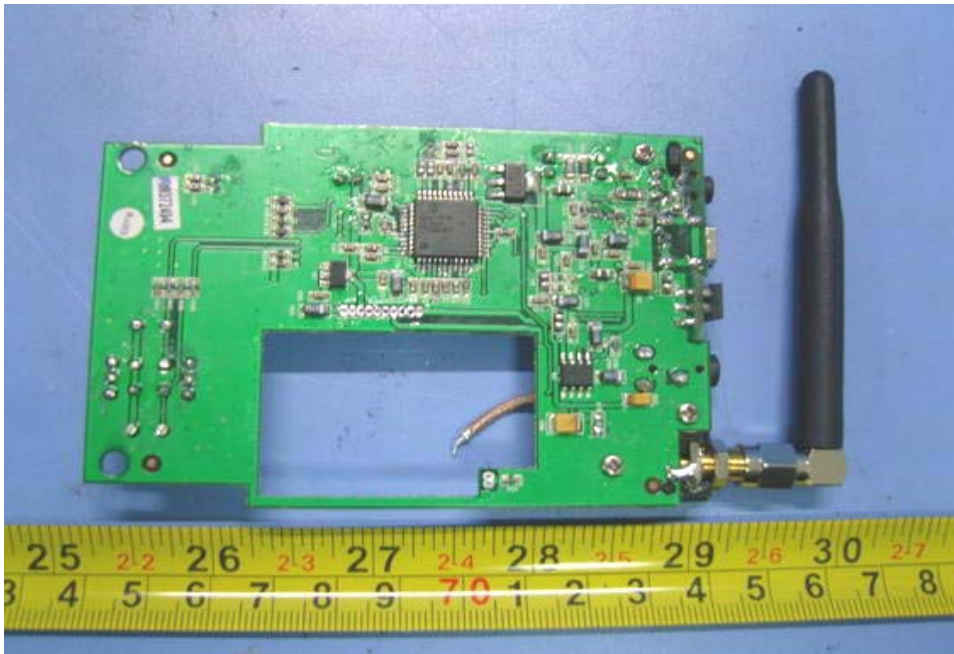
5.5 EUT - Open View



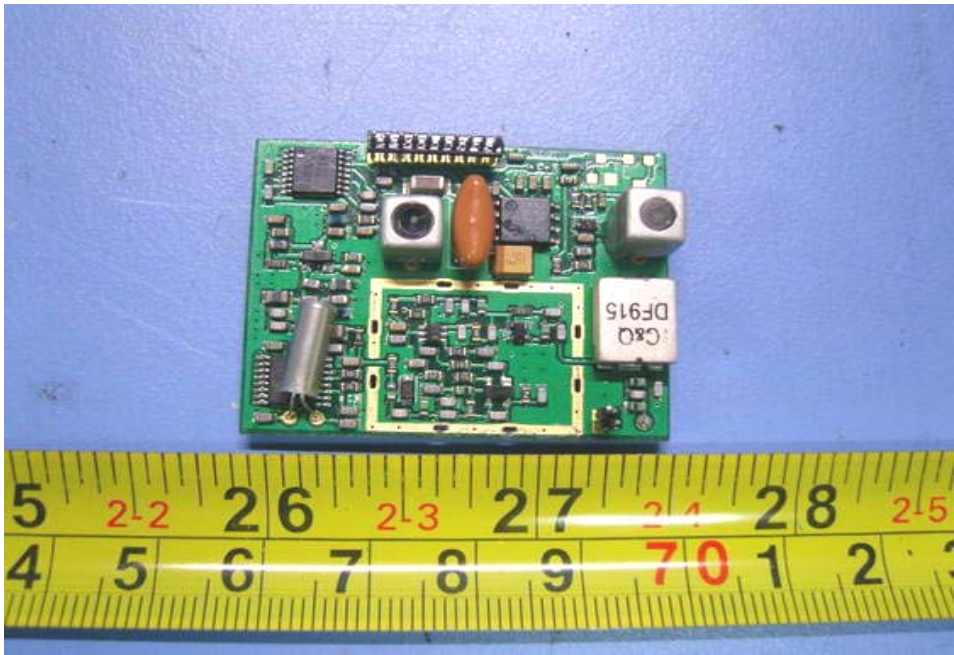
5.6 PCB 1 -Front View



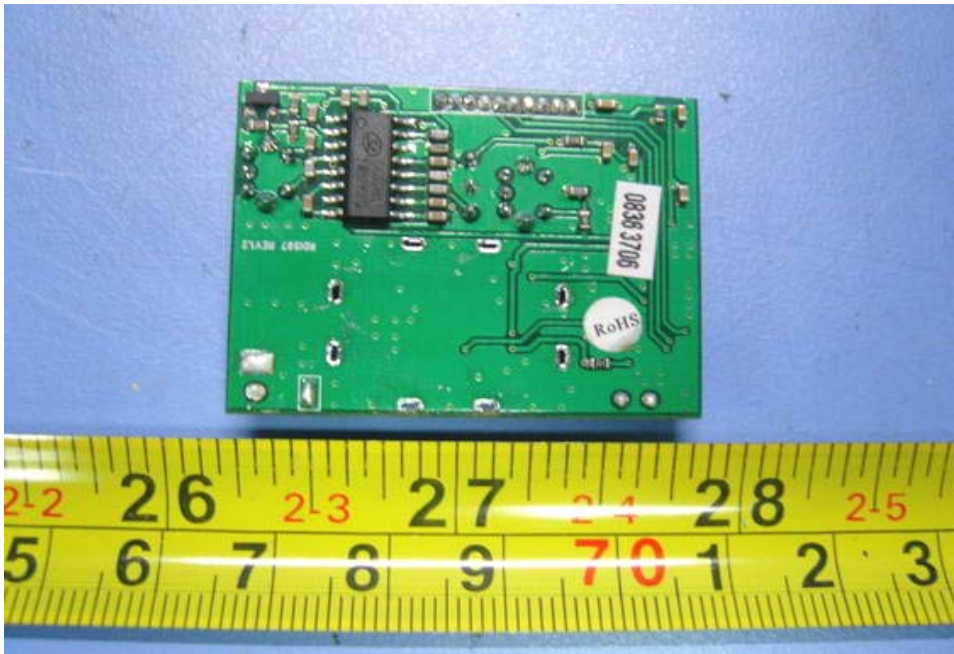
5.7 PCB 1 - Back View



5.8 PCB 2 -Front View



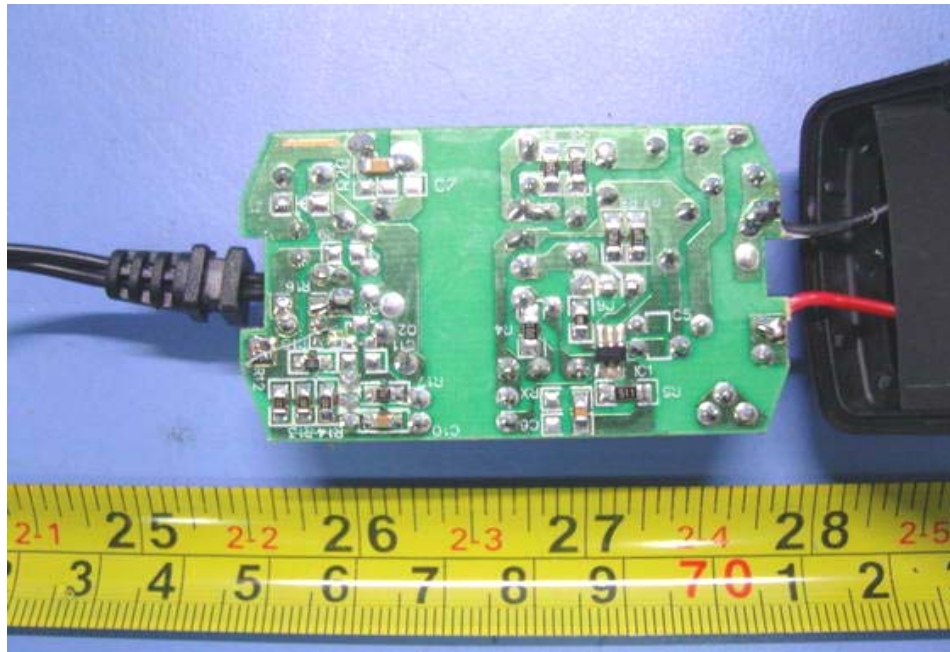
5.9 PCB 2-Back View



5.10 PCB (Adapter)-Front View



5.11 PCB (Adapter)-Back View



FCC ID Label

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.

The Label must not be a stick-on paper. 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 Top View/ proposed FCC Label Location

