FCC TEST REPORT

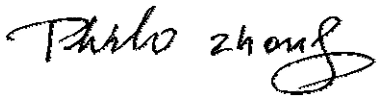
FCC ID : ZTJ- HAS-400T
Applicant : Shenzhen Uniwisdom Technologies Co., Ltd.
Address : Bldg.91-94 3rd Industrial Zone, Lisonglang, Gongming Town, Bao'an District, Shenzhen, P.R.China

Equipment Under Test (EUT) :
Product Name : Peavey Assisted Listening System
Model No. : HAS-400(Transmitter); PEAVEY ASSISTED LISTENING(Transmitter)

Standards : FCC Part 15.237:2009

Date of Test : July 27, 2011 ~ July 28, 2011
Date of Issue : July 29, 2011

Test Engineer : Hunk yan 

Reviewed By : Philo zhong 

Test Result	**: PASS**

Prepared By:
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✧ 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.

2 Test Summary

FCC Part 15 Subpart C Requirements			
Test Items	**Test Requirement**	**Test Method**	**Result**
Conducted Emission (150KHz to 30MHz)	FCC Part 15.207	ANSI C63.4: 2003	PASS
Radiated Emission (30MHz to 1GHz)	FCC Part 15.35 FCC Part 15.237(c)	ANSI C63.4: 2003	PASS
Emission Bandwidth	FCC Part 15.237(b)	ANSI C63.4: 2003	PASS

3 Contents

1 COVER PAGE 1

2 TEST SUMMARY 2

3 CONTENTS 3

4 GENERAL INFORMATION 4

4.1 CLIENT INFORMATION 4
4.2 GENERAL DESCRIPTION OF E.U.T. 4
4.3 DETAILS OF E.U.T. 4
4.4 DESCRIPTION OF SUPPORT UNITS 4
4.5 STANDARDS APPLICABLE FOR TESTING 4
4.6 TEST FACILITY 5
4.7 TEST LOCATION 5

5 EQUIPMENT USED DURING TEST 6

6 ANTENNA REQUIREMENT 8

7 CONDUCTED EMISSION 8

7.1 E.U.T. OPERATION 8
7.2 EUT SETUP 9
7.3 CONDUCTED EMISSION TEST RESULT 9
7.4 PHOTOGRAPH – CONDUCTED EMISSION TEST SETUP 12

8 RADIATION EMISSION DATA 13

8.1 TEST EQUIPMENT 13
8.2 MEASUREMENT UNCERTAINTY 13
8.3 EUT SETUP 14
8.4 SPECTRUM ANALYZER SETUP 14
8.5 TEST PROCEDURE 15
8.6 CORRECTED AMPLITUDE & MARGIN CALCULATION 15
8.7 RADIATED EMISSIONS LIMIT 16
8.8 TEST RESULTS 16
8.9 PHOTOGRAPH – RADIATION EMISSION TEST SETUP 19

9 EMISSION BANDWIDTH 20

9.1 TEST EQUIPMENT 20
9.2 TEST RESULT 20

10 PHOTOGRAPHS - CONSTRUCTIONAL DETAILS 22

10.1 PRODUCT VIEW 22
10.2 EUT – FRONT VIEW 22
10.3 EUT – BACK VIEW 23
10.4 EUT – OPEN VIEW 23
10.5 PCB – FRONT VIEW 24
10.6 PCB – BACK VIEW 24

11 FCC LABEL 25

4 General Information

4.1 Client Information

Applicant	: Shenzhen Uniwisdom Technologies Co., Ltd.
Address of Applicant	: Bldg.91-94 3rd Industrial Zone, Lisonglang, Gongming Town, Bao'an District, Shenzhen, P.R.China
Manufacturer	: Shenzhen Uniwisdom Technologies Co., Ltd.
Address of Manufacturer	: Bldg.91-94 3rd Industrial Zone, Lisonglang, Gongming Town, Bao'an District, Shenzhen, P.R.China

4.2 General Description of E.U.T.

Product Name	: Peavey Assisted Listening System
Model No.	: HAS-400(Transmitter); PEAVEY ASSISTED LISTENING(Transmitter)
Differences describe	: All of the models have the same circuit and apparence, only the model No. is different.
Operation Frequency	: 72.0MHz ~ 76.0MHz

Frequency List:

Channel	Frenquency (MHz)	Channel	Frequency (MHz)
A	72.1	E	72.9
B	72.3	F	75.5
C	72.5	G	75.7
D	72.7	H	75.9

4.3 Details of E.U.T.

Technical Data	: AC 120V/60Hz

4.4 Description of Support Units

The EUT has been tested as an independent unit. All the test was performed in the condition of AC 120V/60Hz input.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a Peavey Assisted Listening System. The standards used were FCC Part 15.237, Part 15.207.

4.6 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: IC7760A**
  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 7760A, Aug.03, 2010.

- **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, May 26, 2011.

4.7 Test Location

All the tests were performed at:
Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-2010	Aug-2011	Wws20081596	±1dB
Trilog Broadband Antenne	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-2010	Aug-2011	-	±1dB
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug-2010	Aug-2011	-	f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-2010	Aug-2011	-	±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-2010	Aug-2011	-	-
10m 50 Ohm Coaxial Cable	SCHWARZBECK MESS-ELEKTROM / AK 9513	-	-	-	Aug-2010	Aug-2011	-	-
Positioning Controller	C&C LAB/ CC-C-IF	-	-	-	N/A	N/A	-	-
Color Monitor	SUNSPO/ SP-14C	-	-	-	N/A	N/A	-	-
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-2010	Aug-2011	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931	-	9k-1GHz	Aug-2010	Aug-2011	-	-
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50uH	Aug-2010	Aug-2011	Wws20080941	±10%
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V0745103095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-2010	Aug-2011	Wwd20081185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V0745103096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-2010	Aug-2011	Wws20081890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-2010	Aug-2011	Wwc20082396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-2010	Aug-2011	Wwc20082397	0.3-400 MHz：±4dB Other freq：±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365	-	-	Aug-2010	Aug-2011	Wws20081597	-
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current：100A-2.2KA	Aug-2010	Aug-2011	Wwc20082401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311	-	-	Aug-2010	Aug-2011	Wwc20082398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50uS	Aug-2010	Aug-2011	Wwc20082399	-

6 Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product has an antenna that uses a unique coupling to it, fulfill the requirement of this section.

7 Conducted Emission

Test Requirement:	FCC Part 15.207
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak & Average if maximised peak within 6dB of Average Limit

7.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C
Humidity: 51 % RH
Atmospheric Pressure: 1012 mbar

EUT Operation:

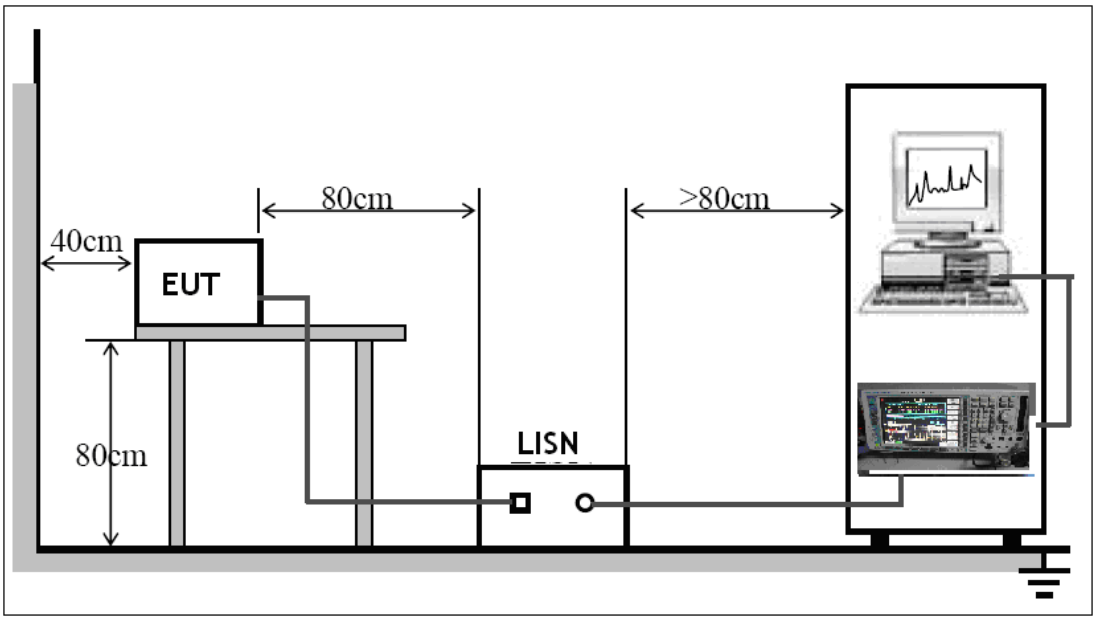
The EUT was test in continuously transmit mode.

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.

7.2 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 C 15.207 limits.

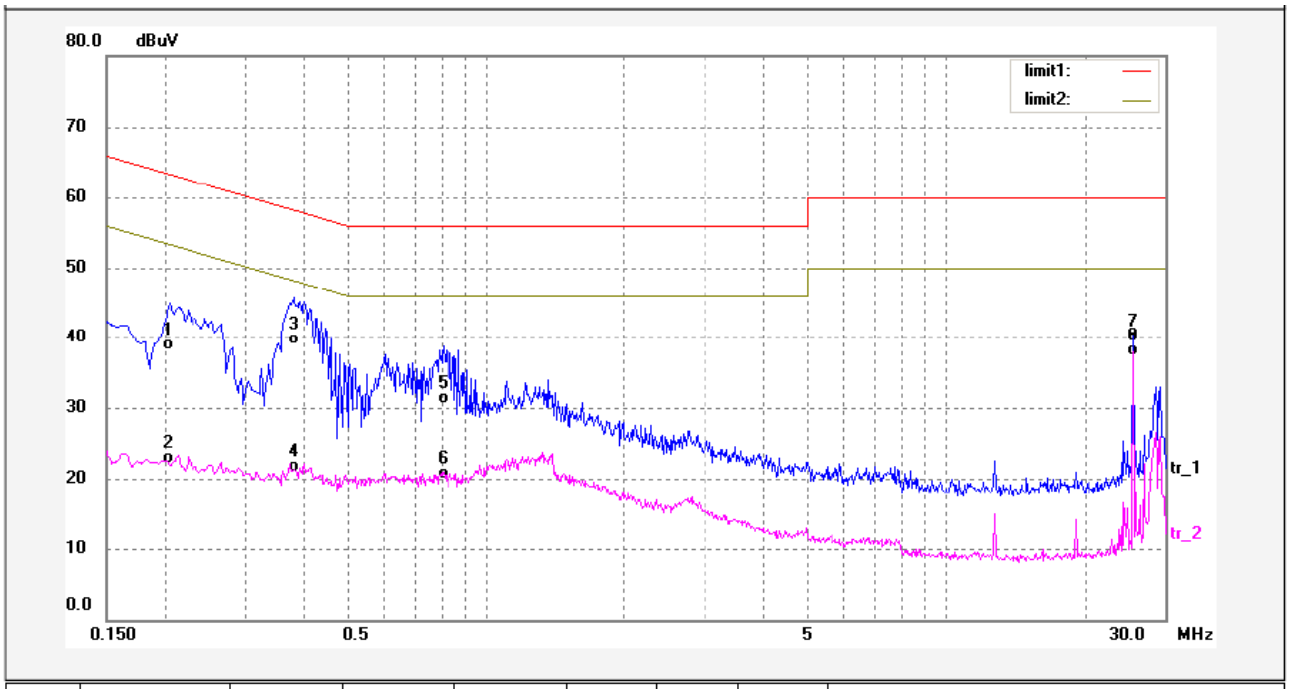


The EUT was placed on the test table in shielding room

7.3 Conducted Emission Test Result

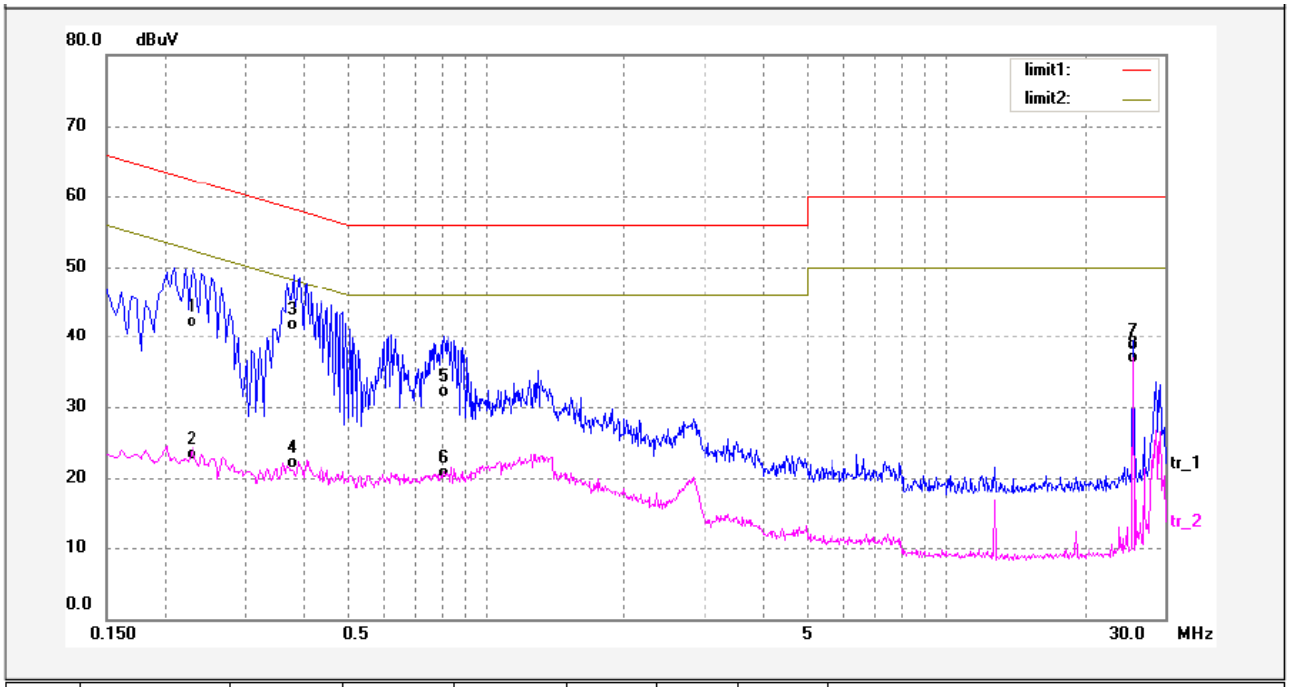
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2060	27.39	10.67	38.06	63.36	-25.30	QP	
2	0.2060	11.52	10.67	22.19	53.36	-31.17	AVG	
3	0.3820	28.25	10.71	38.96	58.23	-19.27	QP	
4	0.3820	10.24	10.71	20.95	48.23	-27.28	AVG	
5	0.8100	18.43	12.07	30.50	56.00	-25.50	QP	
6	0.8100	7.89	12.07	19.96	46.00	-26.04	AVG	
7	25.6020	26.51	12.72	39.23	60.00	-20.77	QP	
8	25.6020	24.58	12.72	37.30	50.00	-12.70	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2300	30.58	10.65	41.23	62.45	-21.22	QP	
2	0.2300	11.87	10.65	22.52	52.45	-29.93	AVG	
3	0.3820	30.10	10.71	40.81	58.23	-17.42	QP	
4	0.3820	10.62	10.71	21.33	48.23	-26.90	AVG	
5	0.8100	19.25	12.07	31.32	56.00	-24.68	QP	
6	0.8100	7.89	12.07	19.96	46.00	-26.04	AVG	
7	25.6020	25.26	12.72	37.98	60.00	-22.02	QP	
8	25.6020	23.38	12.72	36.10	50.00	-13.90	AVG	

7.4 Photograph – Conducted Emission Test Setup

8 Radiation Emission Data

Test Requirement:	FCC Part 15.35, Part15.237
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m

8.1 Test Equipment

Plesse refer to Section 5 of this report.

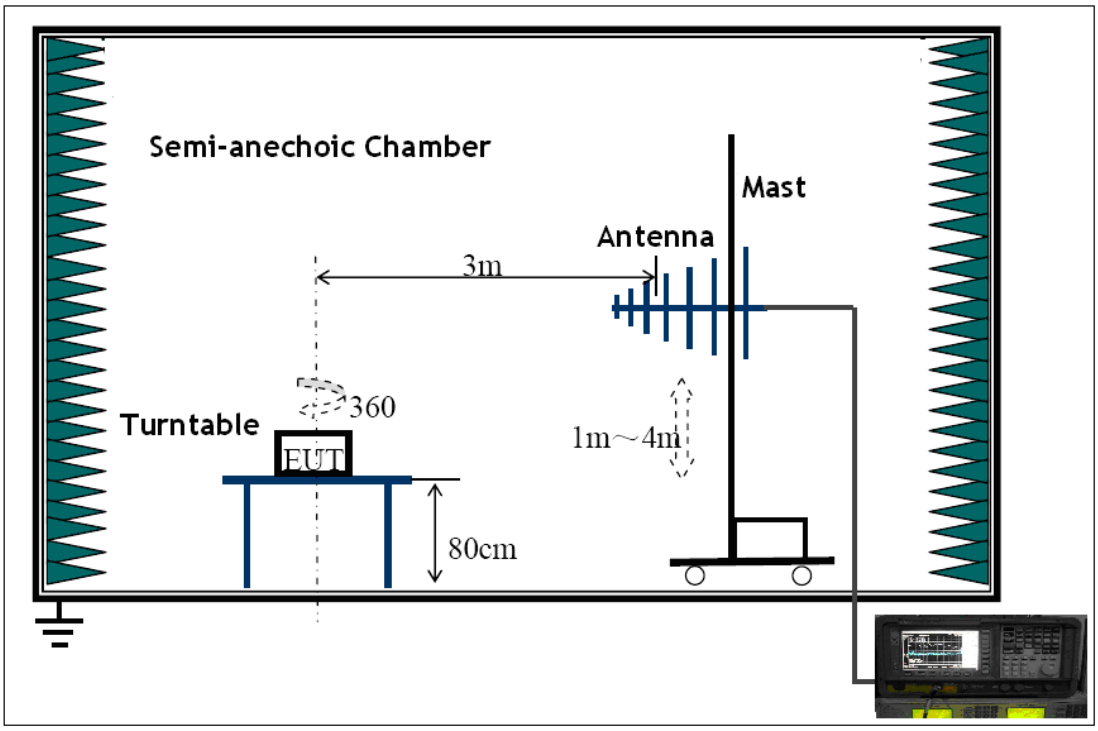
8.2 Measurement Uncertainty

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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is $\pm$5.03dB.

8.3 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 Part15.237 and Part 15.35 limits.



The EUT was placed on the test table in shielding room.

8.4 Spectrum Analyzer Setup

According to FCC Part15 C Rules, the system was tested 30 to 1000MHz.

Below 1GHz

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

8.5 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X(normal uses) axis positioning. And all the modes was tested in the report.Only the worst case is shown in the report.

8.6 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:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - 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:

Margin = Corr. Ampl. – Limit

8.7 Radiated Emissions Limit

The frequency range from 30 MHz to 1000 MHz was investigated to measure the fundamental frequency radiated emission, and other spurious emissions. The fundamental frequency emission must not exceed 80 millivolts/meter when measured at a distance of 3 meters and all other emissions must not exceed 1500 microvolts/meter at a measuring distance of 3 meters. Using the formula dBuV/m = 20 log(uV/m) the fundamental emission limit is 98.1 dBuV/m and the spurious emission limit is 63.5 dBuV/m. The limits are specified using average detection. The provisions of Section 15.35 for limiting peak emissions apply.

8.8 Test Results

Radiated Emission Test Data

Test Mode: Continuously Transmit

Temperature: 25.5 °C

Humidity: 51%RH

Test Result: PASS

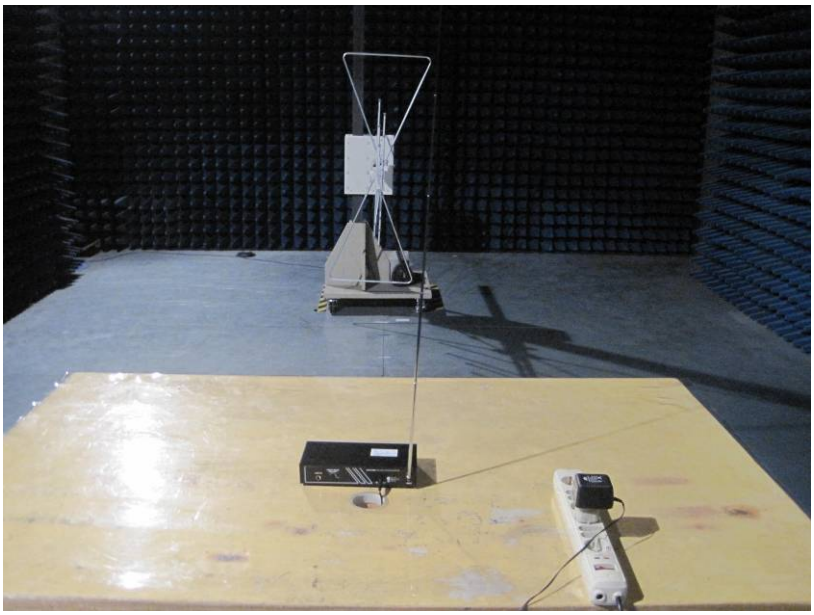
Test Data

Frequency (MHz)	Detector	Ant. Pol	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Channel A : 72.1MHz							
72.1	Peak	V	100.10	118.00	-17.90	1.0	95
144.2	Peak	V	72.80	83.50	-10.70	1.1	270
216.3	Peak	V	76.38	83.50	-7.12	1.0	160
288.4	Peak	V	56.12	83.50	-27.38	1.2	220
360.5	Peak	V	58.47	83.50	-25.03	1.1	180
432.6	Peak	V	53.26	83.50	-30.24	1.4	210
504.7	Peak	V	42.24	83.50	-41.26	1.8	240
576.8	Peak	V	50.39	83.50	-33.11	1.5	80
648.9	Peak	V	45.80	83.50	-37.70	2.0	190
721.0	Peak	V	40.68	83.50	-42.82	2.2	140
72.1	Peak	H	85.23	118.0	-32.77	1.9	60
144.2	Peak	H	59.84	83.50	-23.66	1.7	310
216.3	Peak	H	48.72	83.50	-34.78	1.0	95
288.4	Peak	H	45.64	83.50	-37.86	1.1	270

360.5	Peak	H	58.92	83.50	-24.58	1.0	160
432.6	Peak	H	53.30	83.50	-30.20	1.2	220
504.7	Peak	H	42.36	83.50	-41.14	1.1	180
576.8	Peak	H	48.78	83.50	-34.72	1.4	210
648.9	Peak	H	39.87	83.50	-43.63	1.8	240
721.0	Peak	H	41.14	83.50	-42.36	1.5	80
72.1	AVG	V	85.41	98.00	-12.59	2.0	190
144.2	AVG	V	59.92	63.50	-3.58	2.2	140
216.3	AVG	V	56.41	63.50	-7.09	1.9	60
288.4	AVG	V	45.41	63.50	-18.09	1.7	310
360.5	AVG	V	46.51	63.50	-16.99	1.2	100
432.6	AVG	V	37.34	63.50	-26.16	1.4	120
504.7	AVG	V	32.11	63.50	-31.39	1.5	280
576.8	AVG	V	28.71	63.50	-34.79	1.3	75
648.9	AVG	V	26.58	63.50	-36.92	1.1	160
721.0	AVG	V	20.63	63.50	-42.87	1.5	240
72.1	AVG	H	69.57	98.00	-28.43	2.0	90
144.2	AVG	H	48.50	63.50	-15.00	1.8	160
216.3	AVG	H	39.63	63.50	-23.87	1.9	80
288.4	AVG	H	28.32	63.50	-35.18	2.2	270
360.5	AVG	H	51.05	63.50	-12.45	2.1	300
432.6	AVG	H	41.14	63.50	-22.36	1.7	210
504.7	AVG	H	30.58	63.50	-32.92	1.2	100
576.8	AVG	H	24.34	63.50	-39.16	1.4	120
648.9	AVG	H	28.65	63.50	-34.85	1.5	280
721.0	AVG	H	25.62	63.50	-37.88	1.3	75
Channel H : 75.9MHz							
75.9	Peak	V	99.45	118.00	-18.55	1.5	240
151.8	Peak	V	70.86	83.50	-12.64	2.0	90
227.7	Peak	V	75.14	83.50	-8.36	1.8	160
303.6	Peak	V	53.68	83.50	-29.82	1.9	80
379.5	Peak	V	56.32	83.50	-27.18	2.2	270
455.4	Peak	V	50.84	83.50	-32.66	2.1	300
531.3	Peak	V	43.75	83.50	-39.75	1.7	210

607.2	Peak	V	52.46	83.50	-31.04	1.5	250
683.1	Peak	V	47.21	83.50	-36.29	1.2	130
759.0	Peak	V	42.51	83.50	-40.99	1.0	230
75.9	Peak	H	84.63	118.0	-33.37	1.4	140
151.8	Peak	H	57.18	83.50	-26.32	1.6	40
227.7	Peak	H	46.36	83.50	-37.14	1.0	200
303.6	Peak	H	47.05	83.50	-36.45	2.4	210
379.5	Peak	H	55.91	83.50	-27.59	2.1	140
455.4	Peak	H	53.74	83.50	-29.76	1.9	220
531.3	Peak	H	44.21	83.50	-39.29	1.7	50
607.2	Peak	H	45.30	83.50	-38.20	2.0	330
683.1	Peak	H	38.75	83.50	-44.75	2.2	80
759.0	Peak	H	42.54	83.50	-40.96	1.5	250
75.9	AVG	V	87.03	98.00	-10.97	1.2	130
151.8	AVG	V	54.74	63.50	-8.76	1.0	230
227.7	AVG	V	53.06	63.50	-10.44	1.4	140
303.6	AVG	V	42.57	63.50	-20.93	1.6	40
379.5	AVG	V	44.10	63.50	-19.40	1.0	200
455.4	AVG	V	38.63	63.50	-24.87	2.4	210
531.3	AVG	V	33.16	63.50	-30.34	2.1	140
607.2	AVG	V	26.96	63.50	-36.54	1.9	220
683.1	AVG	V	27.23	63.50	-36.27	1.7	50
759.0	AVG	V	22.52	63.50	-40.98	2.0	330
75.9	AVG	H	67.36	98.00	-30.64	2.2	80
151.8	AVG	H	47.15	63.50	-16.35	1.6	60
227.7	AVG	H	37.06	63.50	-26.44	1.3	75
303.6	AVG	H	30.52	63.50	-32.98	1.9	160
379.5	AVG	H	50.55	63.50	-12.95	2.6	210
455.4	AVG	H	40.06	63.50	-23.44	2.1	280
531.3	AVG	H	32.12	63.50	-31.38	2.4	90
607.2	AVG	H	26.82	63.50	-36.68	1.5	30
683.1	AVG	H	25.98	63.50	-37.52	1.7	120
759.0	AVG	H	24.66	63.50	-38.84	2.0	230

8.9 Photograph – Radiation Emission Test Setup



9 Emission Bandwidth

Test Requirement:	FCC Part 15.237
Test Method:	Based on ANSI C63.4:2003
Limit:	Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency ranges specified in 15.237.

9.1 Test Equipment

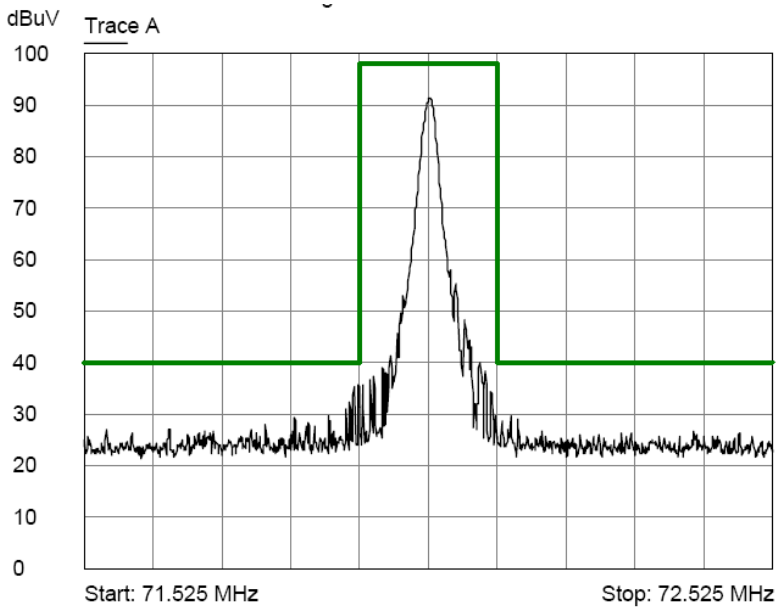
Please refer to Section 5 of this report

9.2 Test Result

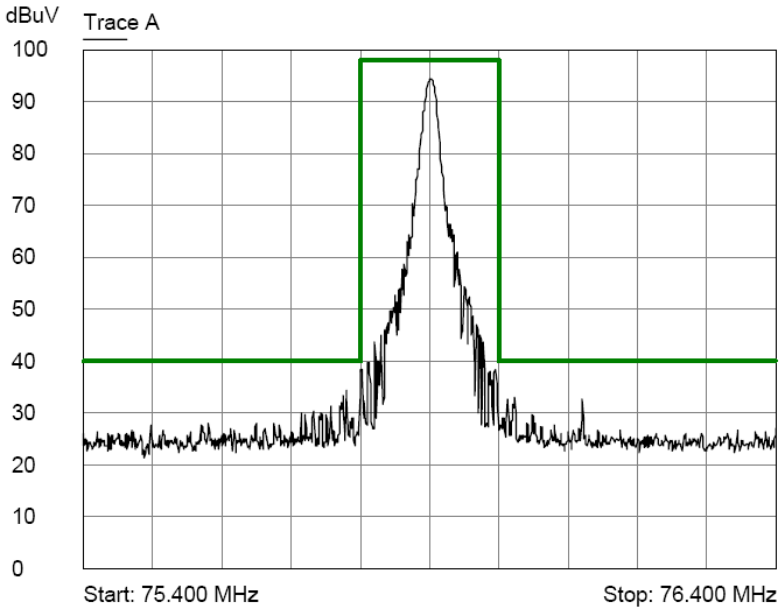
The EUT comply with the requirements of the Specification.

Test Data

Channel A: 72.1MHz



Channel H: 75.9MHz



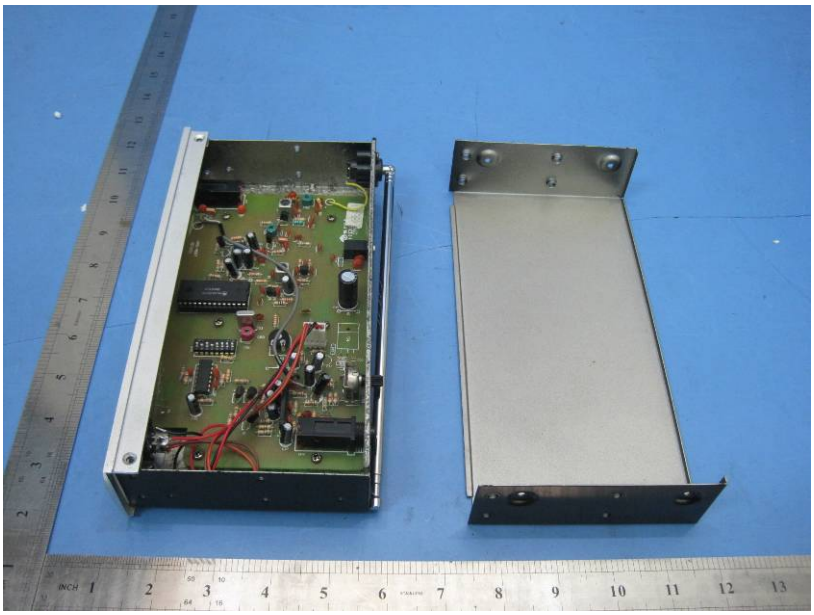
10 Photographs - Constructional Details

10.1 Product View

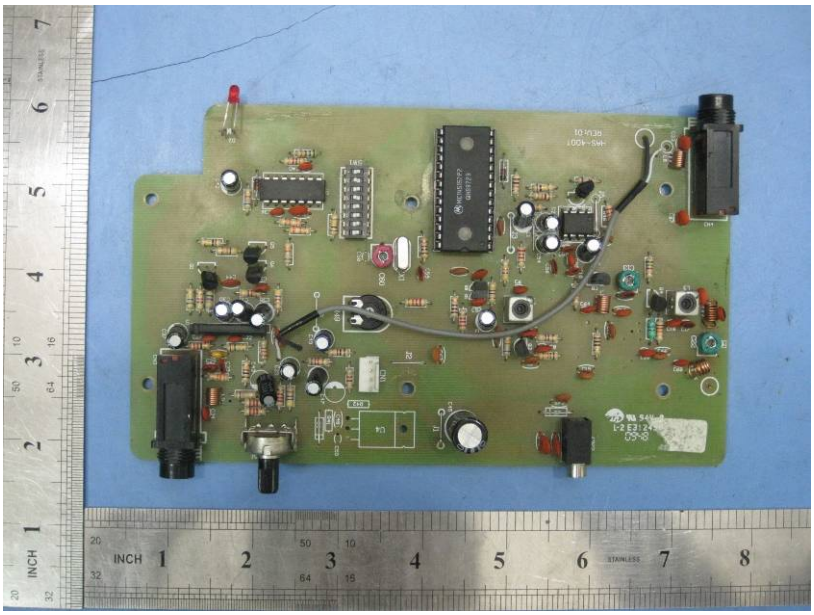
10.2 EUT – Front View

10.3 EUT – Back View

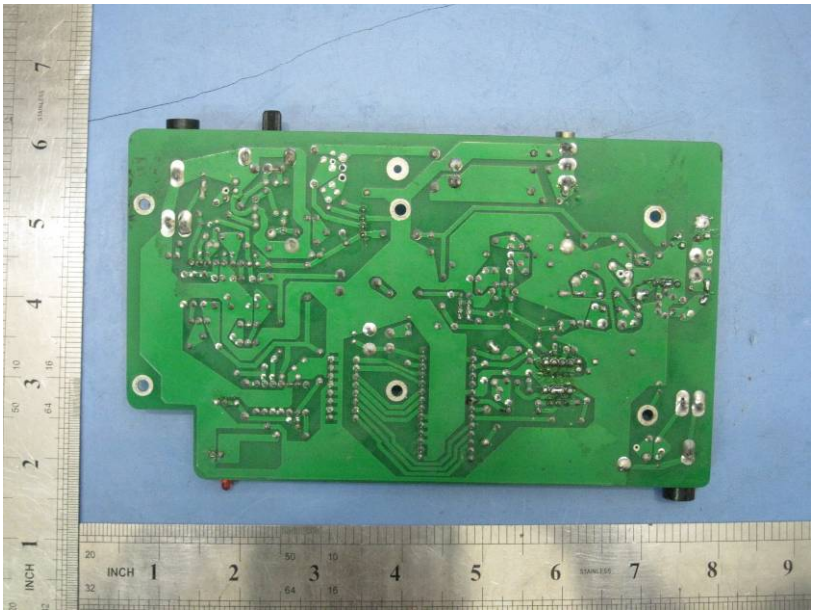
10.4 EUT – Open View



10.5 PCB – Front View



10.6 PCB – Back View



11 FCC 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.