

Verification
On Behalf of
Azlan Logistics Limited

SP-1800P Pair 60w Active Loudspeakers
Model No.: SP-1800P

Prepared for : Azlan Logistics Limited
Address : Redwood 2, Chineham Business Park, Crockford Lane,
Basingstoke, Hampshire, RG248WQ, United Kingdom

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
Address : 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road,
Nanshan District, Shenzhen, Guangdong, China
Tel: (86) 755-26066544
Fax: (86) 755-26014772

Report Number : R011605501E
Date of Test : May 01~04, 2016
Date of Report : May 04, 2016

TABLE OF CONTENTS

Description

Page

Test Report Verification

1. GENERAL INFORMATION.....	4
1.1. Description of Device (EUT).....	4
1.2. Description of Test Facility.....	5
1.3. Measurement Uncertainty.....	5
1.4. Test Summary.....	5
2. POWER LINE CONDUCTED MEASUREMENT.....	6
2.1. Test Equipment.....	6
2.2. Block Diagram of Test Setup.....	6
2.3. Power Line Conducted Emission Measurement Limits (FCC Part 15 Class B).....	6
2.4. Configuration of EUT on Measurement.....	6
2.5. Operating Condition of EUT.....	7
2.6. Test Procedure.....	7
2.7. Power Line Conducted Emission Measurement Results.....	7
3. RADIATED EMISSION MEASUREMENT.....	10
3.1. Test Equipment.....	10
3.2. Block Diagram of Test Setup.....	10
3.3. Radiated Emission Limit (Subpart B Class B).....	10
3.4. EUT Configuration on Measurement.....	11
3.5. Operating Condition of EUT.....	11
3.6. Test Procedure.....	11
3.7. Radiated Emission Measurement Results.....	11
4. PHOTOGRAPH.....	14
4.1. Photo of Power Line Conducted Emission Test.....	14
4.2. Photo of Radiated Emission Test.....	14

APPENDIX I (Photos of EUT) (6 Pages)

TEST REPORT VERIFICATION

Applicant : Azlan Logistics Limited
Manufacturer : Azlan Logistics Limited
EUT : SP-1800P Pair 60w Active Loudspeakers
Model No. : SP-1800P
Rating : 16V== 5.4A
Trade Mark : VISION

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B 15.107, 15.109 & FCC / ANSI C63.4-2015

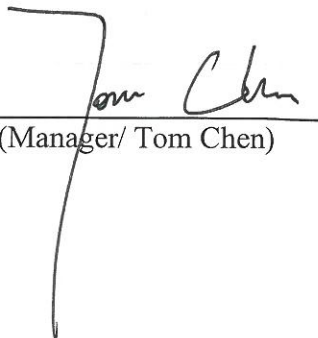
The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Test : May 01~04, 2016

Prepared by : 
(Engineer/ Kebo Zhang)

Reviewer : 
(Project Manager/ Oliay Yang)

Approve & Authorized Signer : 
(Manager/ Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description : SP-1800P Pair 60w Active Loudspeakers

Model Number : SP-1800P

Test Power Supply : AC 120V, 60Hz

Applicant : Azlan Logistics Limited
Address : Floor 2, Building 2, Guorun Industrial Park, Min Zhi,
Bao'an District, Shenzhen, China

Manufacturer : Azlan Logistics Limited
Address : Floor 2, Building 2, Guorun Industrial Park, Min Zhi,
Bao'an District, Shenzhen, China

Factory Address : Azlan Logistics Limited
Floor 2, Building 2, Guorun Industrial Park, Min Zhi,
Bao'an District, Shenzhen, China

Date of receipt : May 01, 2016

Date of Test : May 01~04, 2016

Adapter : Model: BX-16005400
Input: AC 100-240V, 50/60Hz, 1.8A Max
Output: DC 16V, 5400mA

DVD : Manufacturer: SONY
M/N: BDP-S380
S/N: 4065848
CE , FCC

1.2. Description of Test Facility

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

CNAS - LAB Code: L3503

Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021

Shenzhen Anbotek Compliance Laboratory Limited, 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 752021, July 10, 2013

IC-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, Feb. 22, 2013

Test Location

All Emissions tests were performed
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.3. Measurement Uncertainty

Radiation Uncertainty : Ur = 4.1dB (Horizontal)
Ur = 4.3dB (Vertical)

Conduction Uncertainty : Uc = 3.4dB

1.4. Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions.

Table 1 : Tests Carried Out Under FCC Part 15 Subpart B

Standard	Test Items	Status
FCC Part 15 Subpart B	Power Line Conducted Emission Test (150KHz To 30MHz)	√
FCC Part 15 Subpart B	Radiated Emission Test (30MHz To 1000MHz)	√

√ Indicates that the test is applicable

x Indicates that the test is not applicable

2. POWER LINE CONDUCTED MEASUREMENT

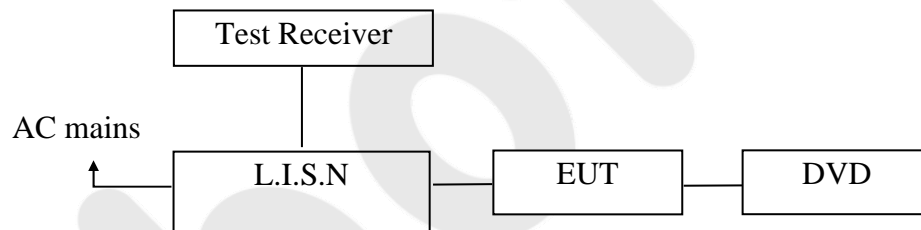
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Apr. 17, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 17, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 17, 2016	1 Year

2.2. Block Diagram of Test Setup

2.2.1. Block diagram of connection between the EUT and simulators



2.3. Power Line Conducted Emission Measurement Limits (FCC Part 15

Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown as Section 2.2.

2.5.2. Turn on the power of all equipment.

2.5.3. Let the EUT work in test mode (Aux Mode, AV Mode) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2015 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result are reported on Section 2.7.

2.7. Power Line Conducted Emission Measurement Results

PASS.

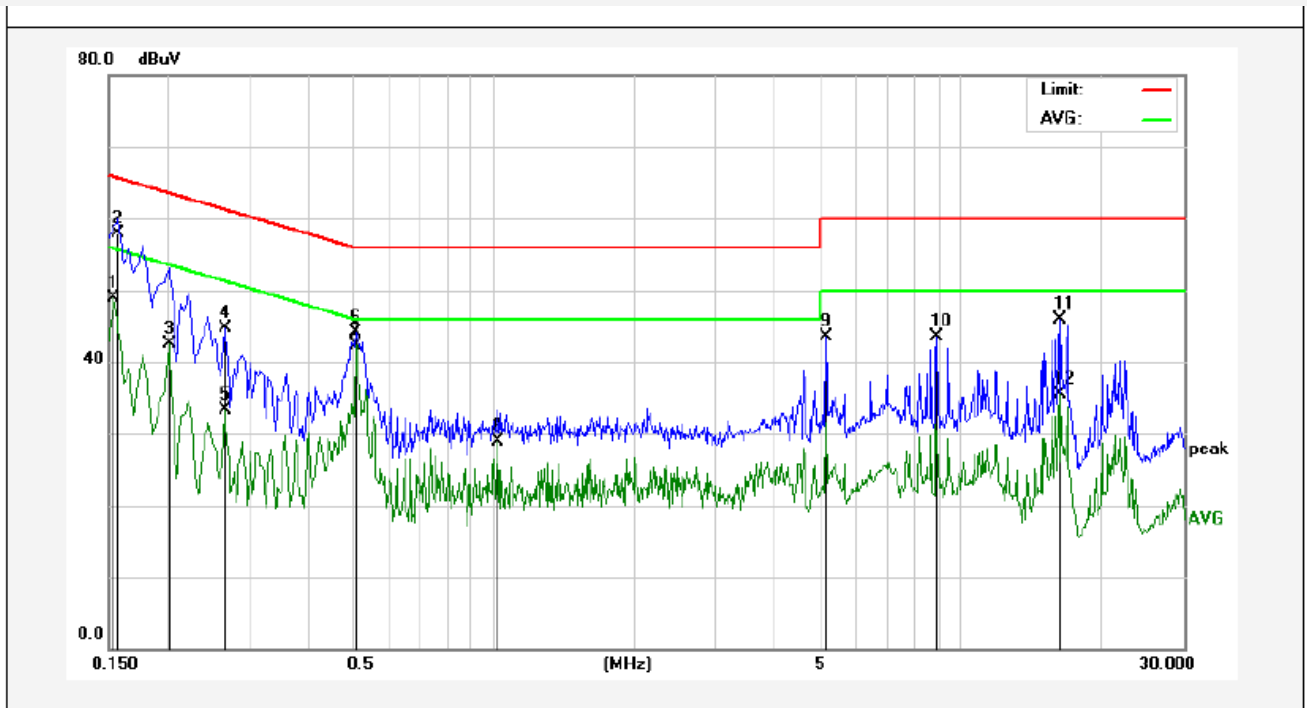
The frequency range from 150KHz to 30 MHz is investigated.

The test curves are shown in the following pages.

The EUT was tested on (Aux Mode, AV Mode) modes, only the worst data of (AV Mode) are attached in the following pages.

CONDUCTED EMISSION TEST DATA

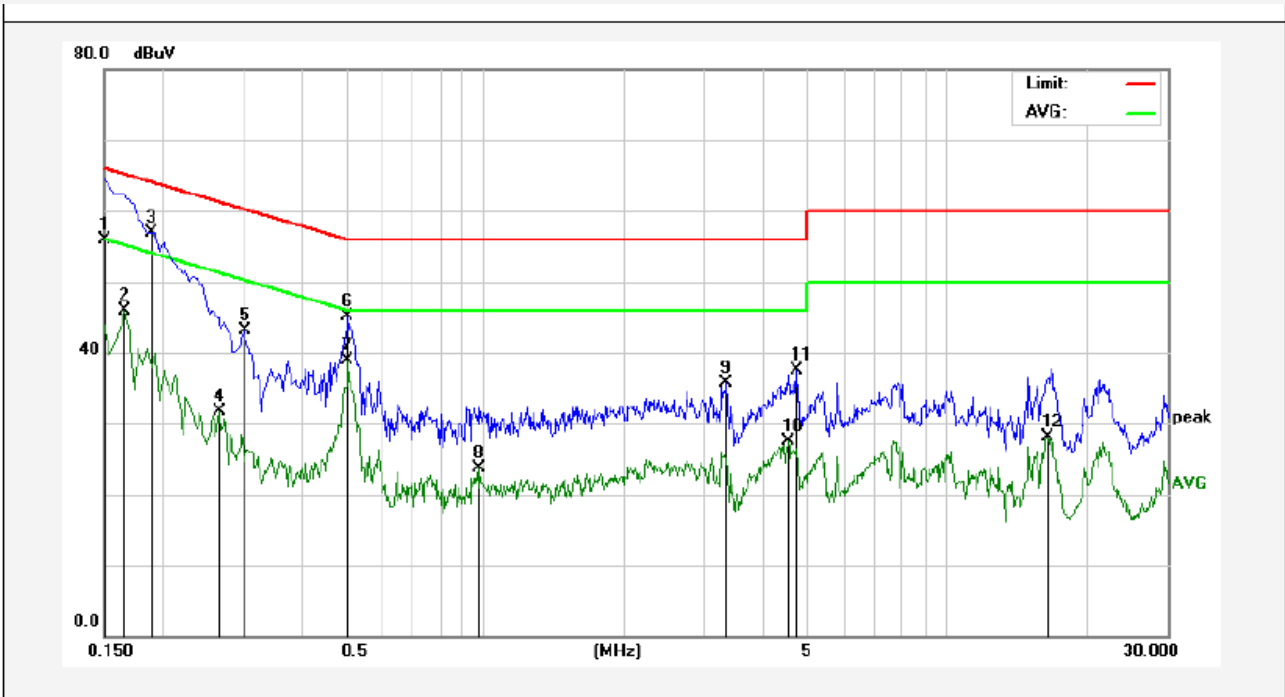
Test Site: 1# Shielded Room
 Operating Condition: AV Mode
 Test Specification: AC 120V, 60Hz
 Comment: L
 Temp.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1539	28.93	20.00	48.93	55.78	-6.85	AVG	
2	0.1580	37.89	20.00	57.89	65.56	-7.67	QP	
3	0.2020	22.41	20.00	42.41	53.52	-11.11	AVG	
4	0.2660	24.70	20.00	44.70	61.24	-16.54	QP	
5	0.2660	13.28	20.00	33.28	51.24	-17.96	AVG	
6	0.5100	24.12	20.00	44.12	56.00	-11.88	QP	
7	0.5100	22.34	20.00	42.34	46.00	-3.66	AVG	
8	1.0220	8.84	20.00	28.84	46.00	-17.16	AVG	
9	5.1540	23.44	20.00	43.44	60.00	-16.56	QP	
10	8.8700	23.51	20.00	43.51	60.00	-16.49	QP	
11	16.3740	25.98	20.00	45.98	60.00	-14.02	QP	
12	16.3740	15.58	20.00	35.58	50.00	-14.42	AVG	

CONDUCTED EMISSION TEST DATA

Test Site: 1# Shielded Room
 Operating Condition: AV Mode
 Test Specification: AC 120V, 60Hz
 Comment: N
 Temp.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	35.93	20.00	55.93	65.99	-10.06	QP	
2	0.1660	25.81	20.00	45.81	55.15	-9.34	AVG	
3	0.1900	36.96	20.00	56.96	64.03	-7.07	QP	
4	0.2660	11.76	20.00	31.76	51.24	-19.48	AVG	
5	0.3020	23.18	20.00	43.18	60.19	-17.01	QP	
6	0.5060	25.11	20.00	45.11	56.00	-10.89	QP	
7	0.5060	18.92	20.00	38.92	46.00	-7.08	AVG	
8	0.9740	3.68	20.00	23.68	46.00	-22.32	AVG	
9	3.3340	15.75	20.00	35.75	56.00	-20.25	QP	
10	4.5420	7.56	20.00	27.56	46.00	-18.44	AVG	
11	4.7220	17.44	20.00	37.44	56.00	-18.56	QP	
12	16.4460	8.18	20.00	28.18	50.00	-21.82	AVG	

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

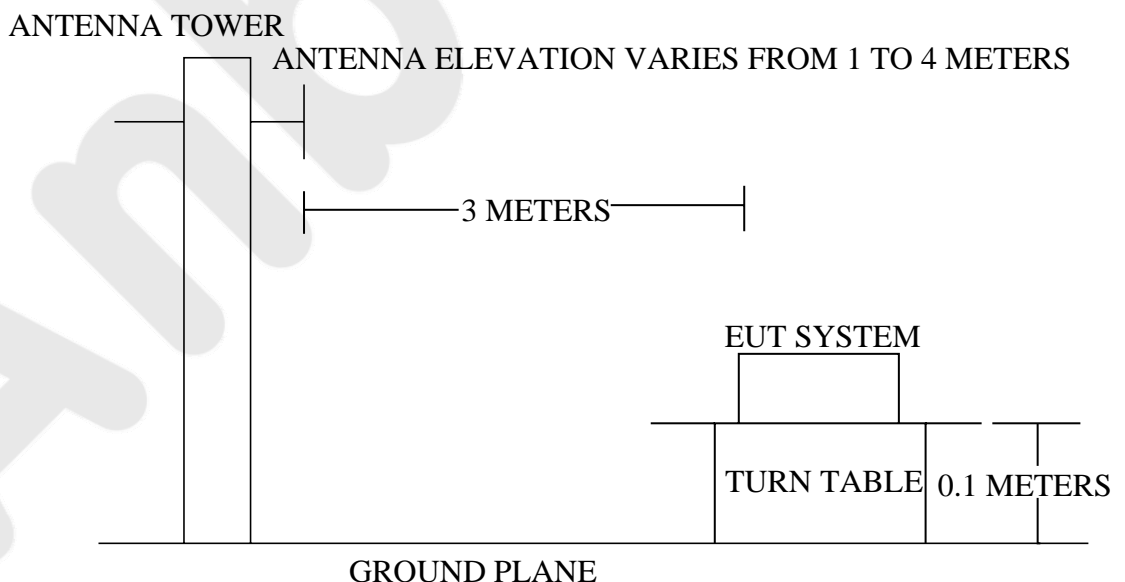
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2016	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2016	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2016	1 Year

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



3.2.2. Anechoic Chamber Test Setup Diagram



3.3. Radiated Emission Limit (Subpart B Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30~88	3	100	40.0

88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0

- Remark :
- (1) Emission level (dB) μ V = 20 log Emission level μ V/m
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2.

3.5.2. Let the EUT work in test mode (Aux Mode, AV Mode) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.1 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2015 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

The test mode (On) is tested in chamber and all the test results are listed in Section 3.7.

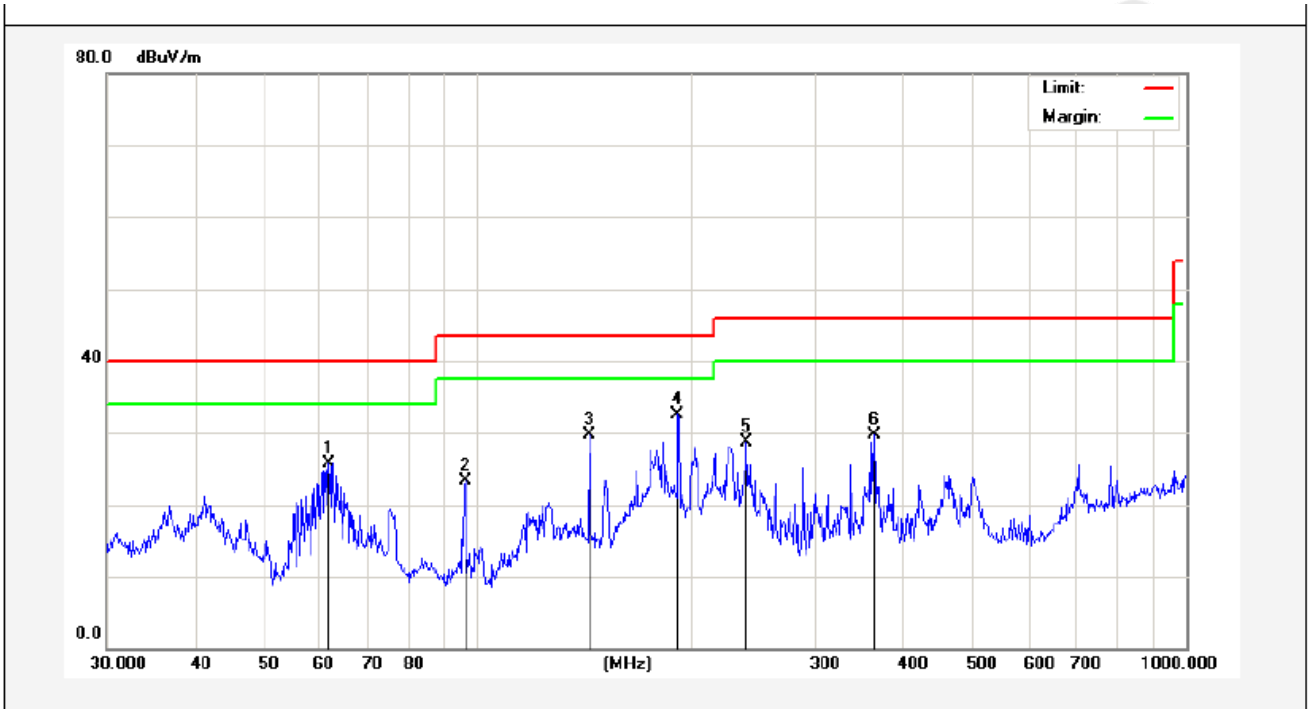
3.7. Radiated Emission Measurement Results

PASS.

The test curves are shown in the following pages.

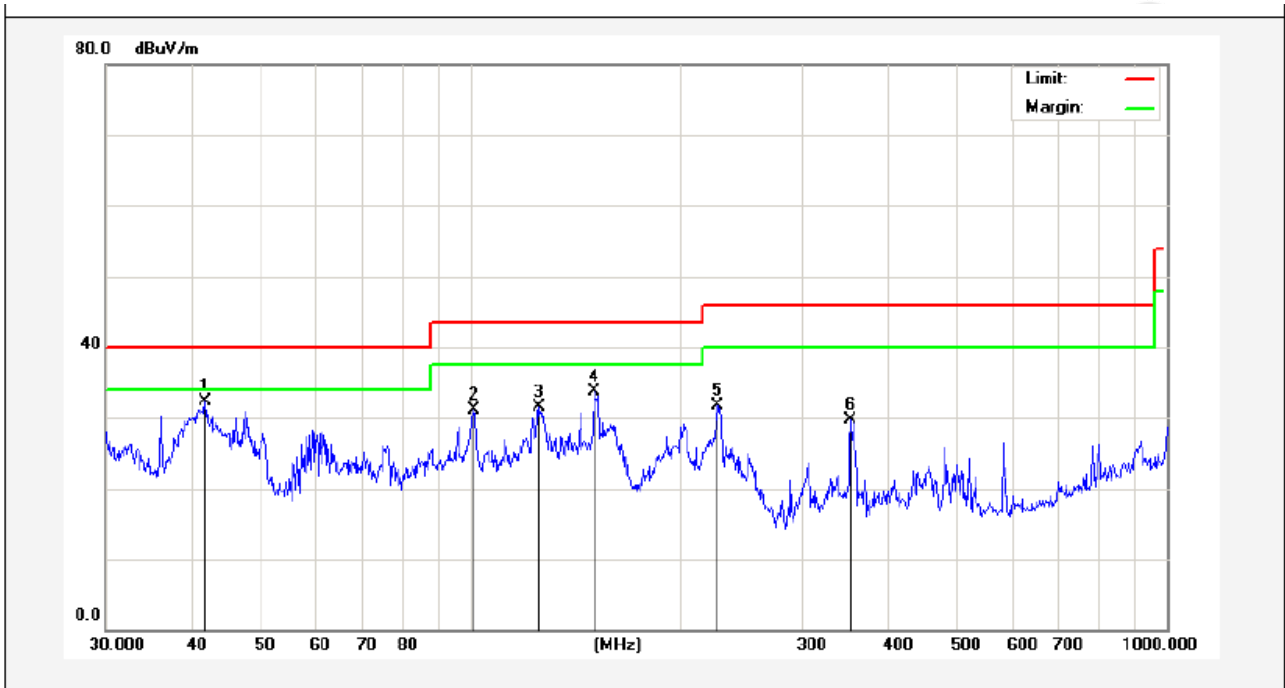
The EUT was tested on (Aux Mode, AV Mode) modes, only the worst data of (AV Mode) are attached in the following pages.

Job No.:	AT011605501E	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B_3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Temp.(°C)/Hum.(%RH):	24.3(°C)/55%RH
Mode:	AV Mode	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	61.7781	54.49	-28.74	25.75	40.00	-14.25	peak			
2	96.0986	55.38	-32.04	23.34	43.50	-20.16	peak			
3	143.8295	63.86	-34.10	29.76	43.50	-13.74	peak			
4	191.7450	63.93	-31.33	32.60	43.50	-10.90	peak			
5	239.9874	56.86	-28.25	28.61	46.00	-17.39	peak			
6	362.9844	53.38	-23.70	29.68	46.00	-16.32	peak			

Job No.: AT011605501E **Polarization:** Vertical
Standard: (RE)FCC PART15 B_3m **Power Source:** AC 120V, 60Hz
Test item: Radiation Test **Temp.(°C)/Hum.(%RH):** 24.3(°C)/55%RH
Mode: AV Mode **Distance:** 3m



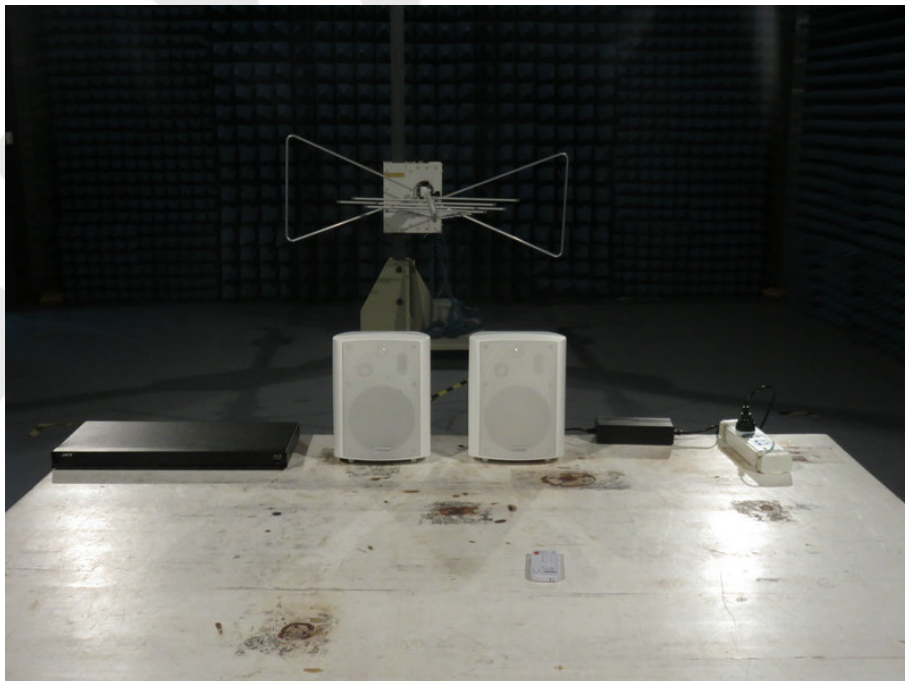
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	41.7129	54.04	-21.68	32.36	40.00	-7.64	peak			
2	101.2885	57.80	-26.64	31.16	43.50	-12.34	peak			
3	125.4457	59.41	-27.90	31.51	43.50	-11.99	peak			
4	150.5378	62.59	-28.96	33.63	43.50	-9.87	peak			
5	226.0994	56.67	-25.03	31.64	46.00	-14.36	peak			
6	351.7079	52.66	-22.97	29.69	46.00	-16.31	peak			

4. PHOTOGRAPH

4.1. Photo of Power Line Conducted Emission Test



4.2. Photo of Radiated Emission Test



APPENDIX I
(Photos of EUT)

Anbotek

Figure 1
The EUT- Overall View



Figure 2
The EUT- Front View



Figure 3
The EUT- Back View



Figure 4
The EUT- Side View



Figure 5
The EUT- Partial View



Figure 6
The EUT- Partial View



Figure 7
The EUT- Inside View

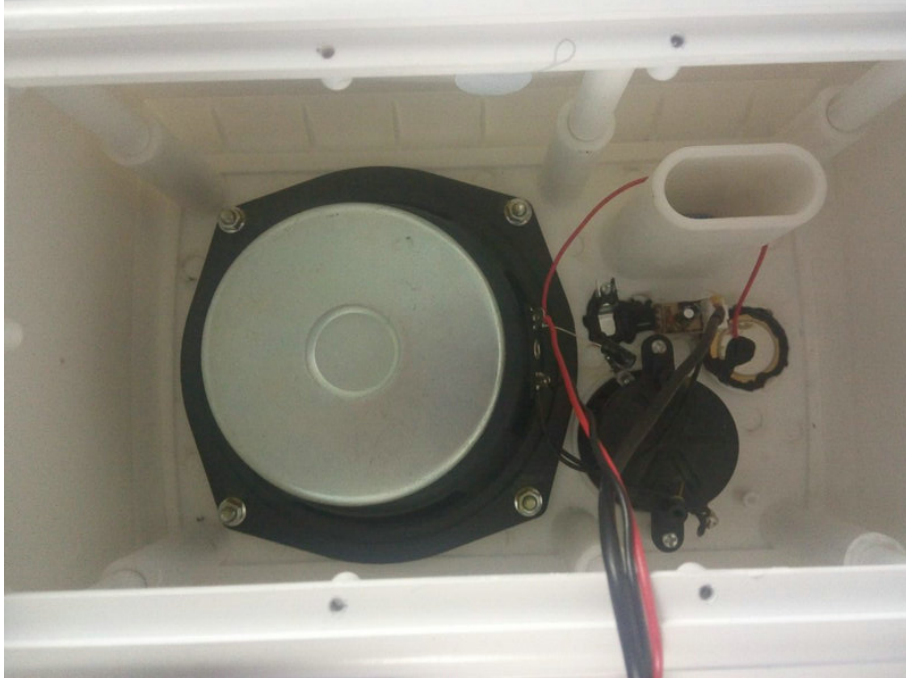


Figure 8
The EUT- Inside View

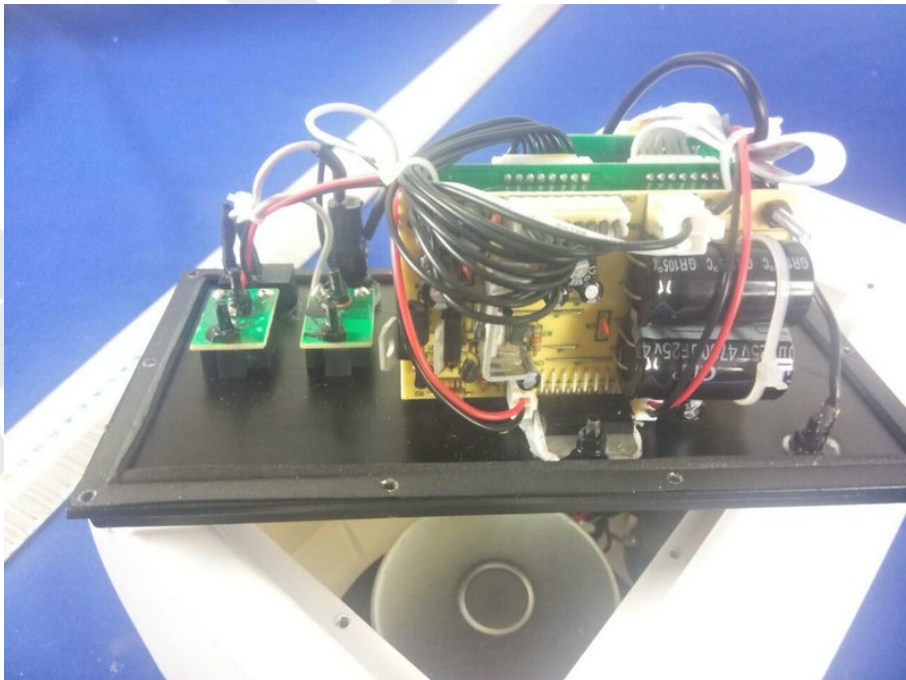


Figure 9
The EUT- Inside View

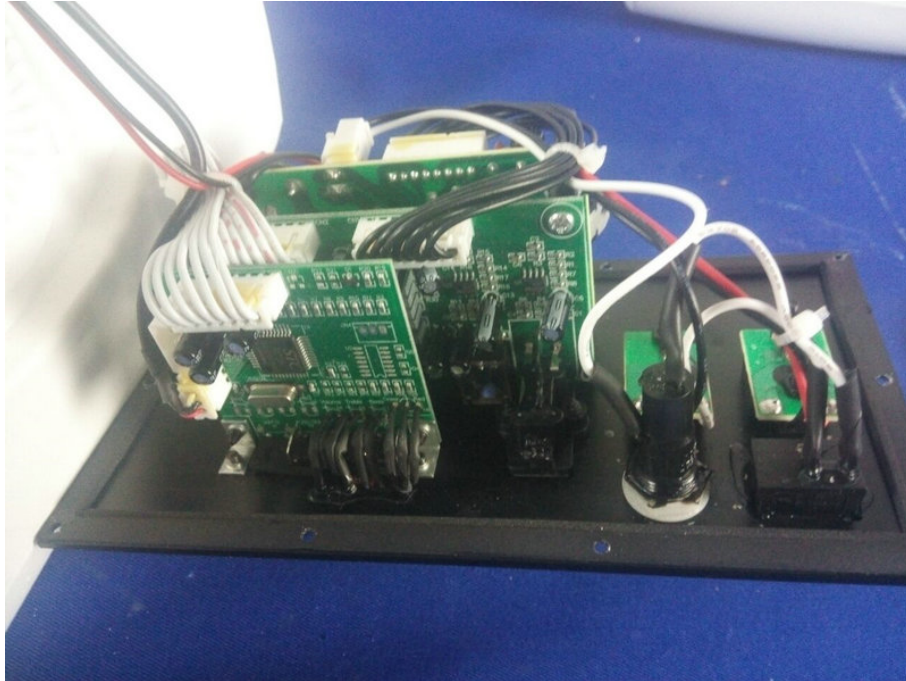


Figure 10
The EUT- Remote Control View



Figure 11
The EUT- Adapter View

