EMC TEST REPORT

SIEMIC
GLOBAL TESTING & CERTIFICATIONS
YOUR CHOICE FOR- TCB FCB CB NB CAB RCB

Report No.: 16070699-FCC-E1

Supersede Report No.: N/A

Applicant	SAINARA(HK)LTD
Product Name	Speaker
Model No.	LI-S243
Serial No.	N/A
Test Standard	FCC Part 15 Subpart B Class B:2015, ANSI C63.4: 2014
Test Date	June 22 to September 13, 2016
Issue Date	September 14, 2016
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Loren Luo	David Huang	
Loren Luo Test Engineer	David Huang Checked By	

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Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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CONTENTS

1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070699-FCC-E1	NONE	Original	September 14, 2016

2. Customer information

Applicant Name	SAINARA(HK)LTD
Applicant Add	6-6a hart ave , 7/f hody comm bldg , t.s.t, Hong Kong
Manufacturer	GUANGZHOU DIWEIQI SPEAKER MANUFACTORY
Manufacturer Add	No.32 Zhushui 1st Road, Shenshan, Jianggao Town, Baiyun District, Guangzhou, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	Speaker
Main Model:	LI-S243
Serial Model:	N/A
Date EUT received:	June 21, 2016
Test Date(s):	June 22 to September 13, 2016
Equipment Category：	CXX
Antenna Gain:	4dBi
Antenna Type:	PCB antenna
Type of Modulation:	GFSK, π /4DQPSK, 8DPSK
RF Operating Frequency (ies):	2402-2480 MHz(TX/RX) 210.3MHz(Receiving frequency)
Number of Channels:	79CH
Port:	Power Port,MIC/Guitor Port, USB Port,Audio input Port,SD/MMC Port
Input Power:	RMS:150W Voltage:110V-120V,50Hz/60Hz
Trade Name :	LAX-MAX
FCC ID:	2AIT5LI-S243

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.107; ANSI C63.4: 2014	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2014	Radiated Emissions	Compliance

Measurement Uncertainty

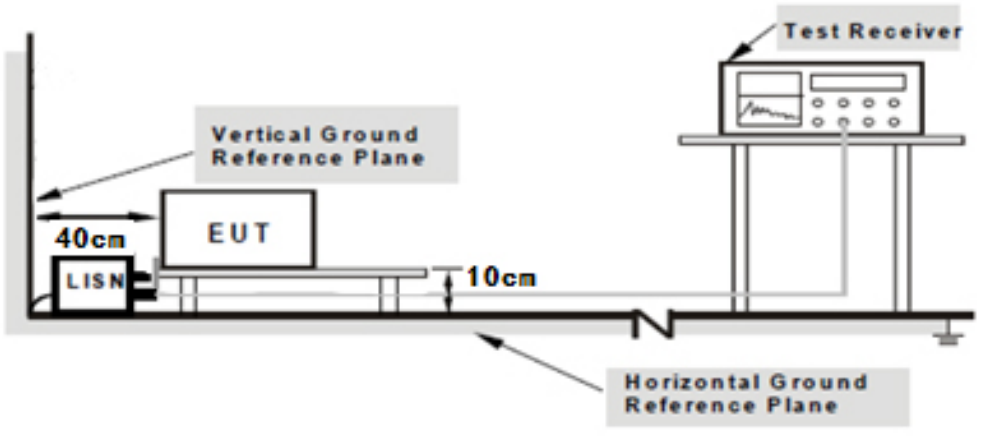
Emissions		
Test Item	**Description**	**Uncertainty**
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	22℃
Relative Humidity	51%
Atmospheric Pressure	1009mbar
Test date :	September 09, 2016
Tested By :	Loren Luo

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.107</td><td>a)</td><td>For Low-power radio-frequency devices 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 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.
<table>
<tr><th rowspan="2">Frequency ranges (MHz)</th><th colspan="2">Limit (dBμV)</th></tr>
<tr><th>QP</th><th>Average</th></tr>
<tr><td>0.15 ~ 0.5</td><td>66 – 56</td><td>56 – 46</td></tr>
<tr><td>0.5 ~ 5</td><td>56</td><td>46</td></tr>
<tr><td>5 ~ 30</td><td>60</td><td>50</td></tr>
</table>
</td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 

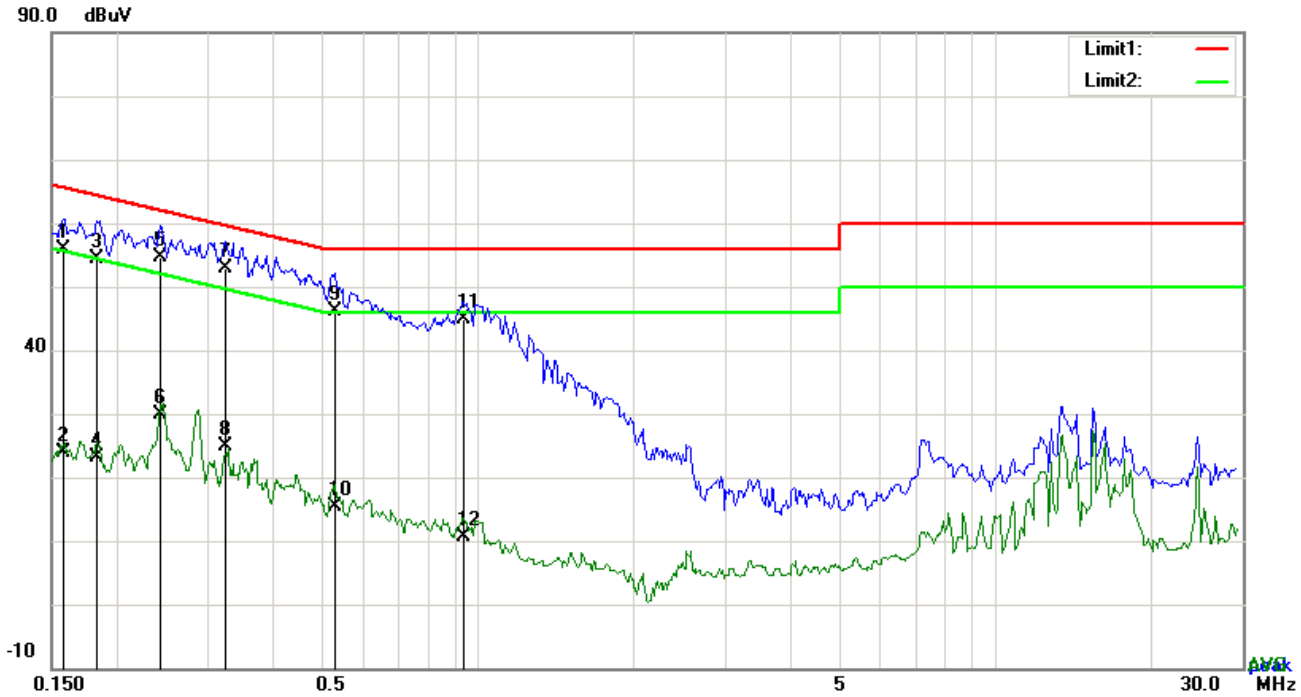
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</td></tr>
</table>

Procedure	1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. 2. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains. 3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver. 7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. 8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode:	Receiver Mode

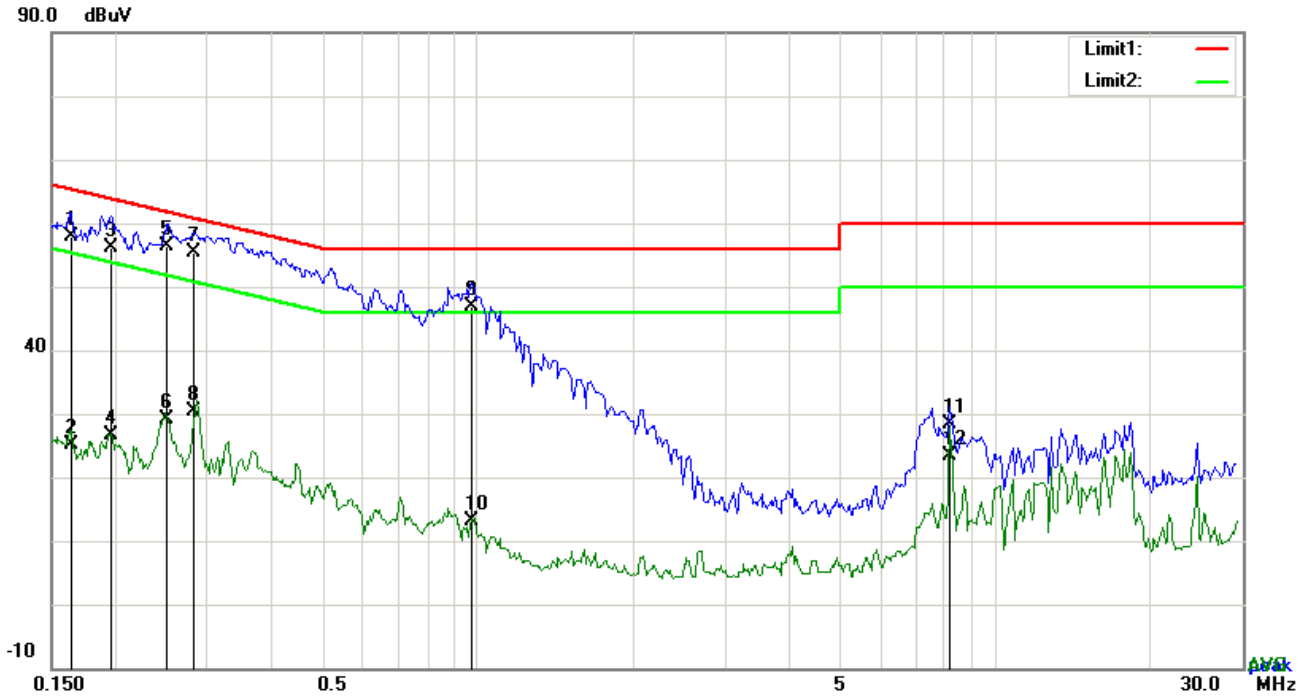


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1582	45.97	QP	10.03	56.00	65.56	-9.56
2	L1	0.1582	13.82	AVG	10.03	23.85	55.56	-31.71
3	L1	0.1835	44.42	QP	10.03	54.45	64.33	-9.88
4	L1	0.1835	13.03	AVG	10.03	23.06	54.33	-31.27
5	L1	0.2436	44.48	QP	10.03	54.51	61.97	-7.46
6	L1	0.2436	19.78	AVG	10.03	29.81	51.97	-22.16
7	L1	0.3255	42.97	QP	10.03	53.00	59.57	-6.57
8	L1	0.3255	14.93	AVG	10.03	24.96	49.57	-24.61
9	L1	0.5293	36.16	QP	10.03	46.19	56.00	-9.81
10	L1	0.5293	5.46	AVG	10.03	15.49	46.00	-30.51
11	L1	0.9381	34.75	QP	10.03	44.78	56.00	-11.22
12	L1	0.9381	0.53	AVG	10.03	10.56	46.00	-35.44

Test Mode:	Receiver Mode



Test Data

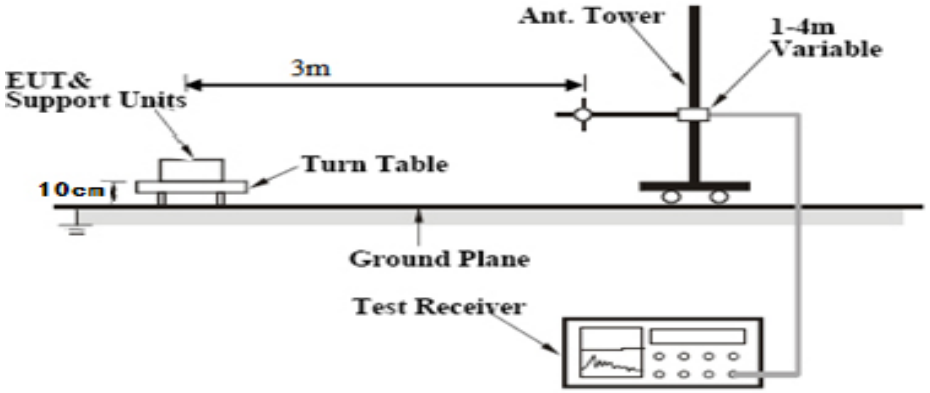
Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1641	47.87	QP	10.02	57.89	65.25	-7.36
2	N	0.1641	15.05	AVG	10.02	25.07	55.25	-30.18
3	N	0.1955	46.09	QP	10.02	56.11	63.80	-7.69
4	N	0.1955	16.56	AVG	10.02	26.58	53.80	-27.22
5	N	0.2514	46.43	QP	10.02	56.45	61.71	-5.26
6	N	0.2514	19.22	AVG	10.02	29.24	51.71	-22.47
7	N	0.2826	45.28	QP	10.02	55.30	60.74	-5.44
8	N	0.2826	20.48	AVG	10.02	30.50	50.74	-20.24
9	N	0.9735	36.82	QP	10.03	46.85	56.00	-9.15
10	N	0.9735	3.06	AVG	10.03	13.09	46.00	-32.91
11	N	8.1909	18.29	QP	10.11	28.40	60.00	-31.60
12	N	8.1909	13.22	AVG	10.11	23.33	50.00	-26.67

6.2 Radiated Emissions

Temperature	22℃
Relative Humidity	51%
Atmospheric Pressure	1009mbar
Test date :	September 09, 2016
Tested By :	Loren Luo

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.107(d)</td><td>a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (μV/m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 
</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
a. Vertical or horizontal polarization (whichever gave the higher emission level</td></tr>
</table>

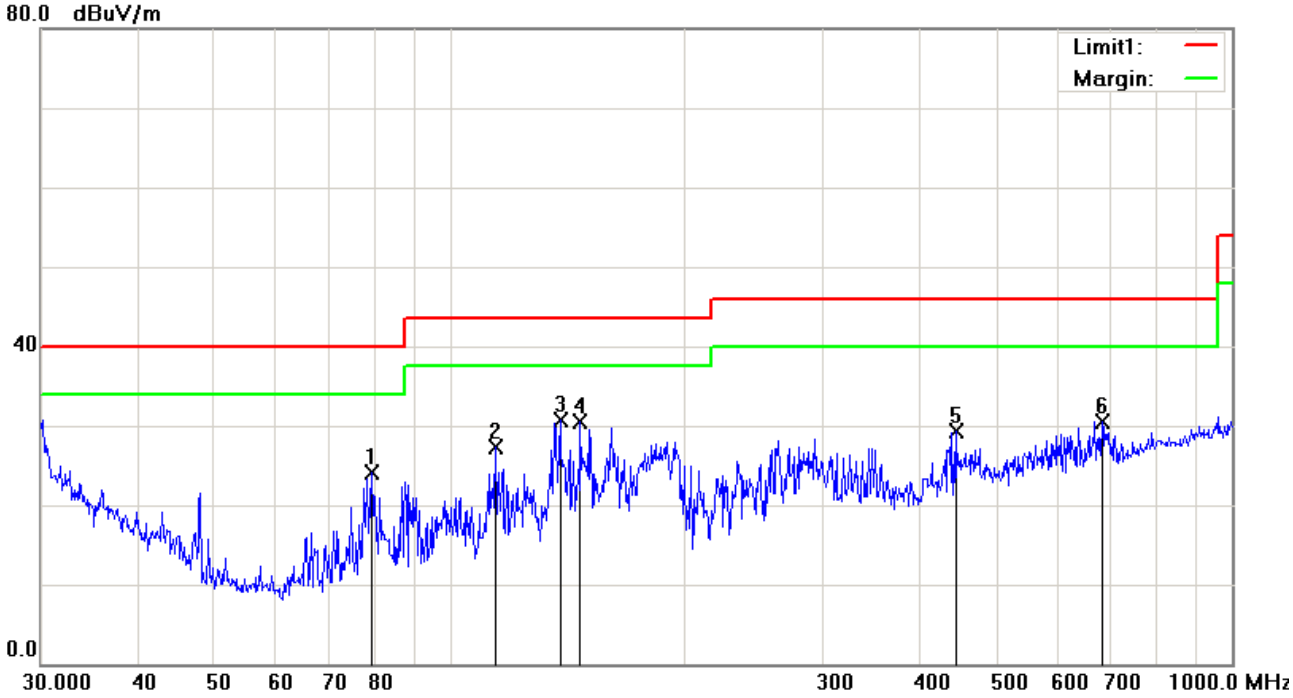
	over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz. 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth with Peak detection for Average Measurement as below at frequency above 1GHz. ■ 1 kHz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%) 5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode:	Receiver Mode

Below 1GHz

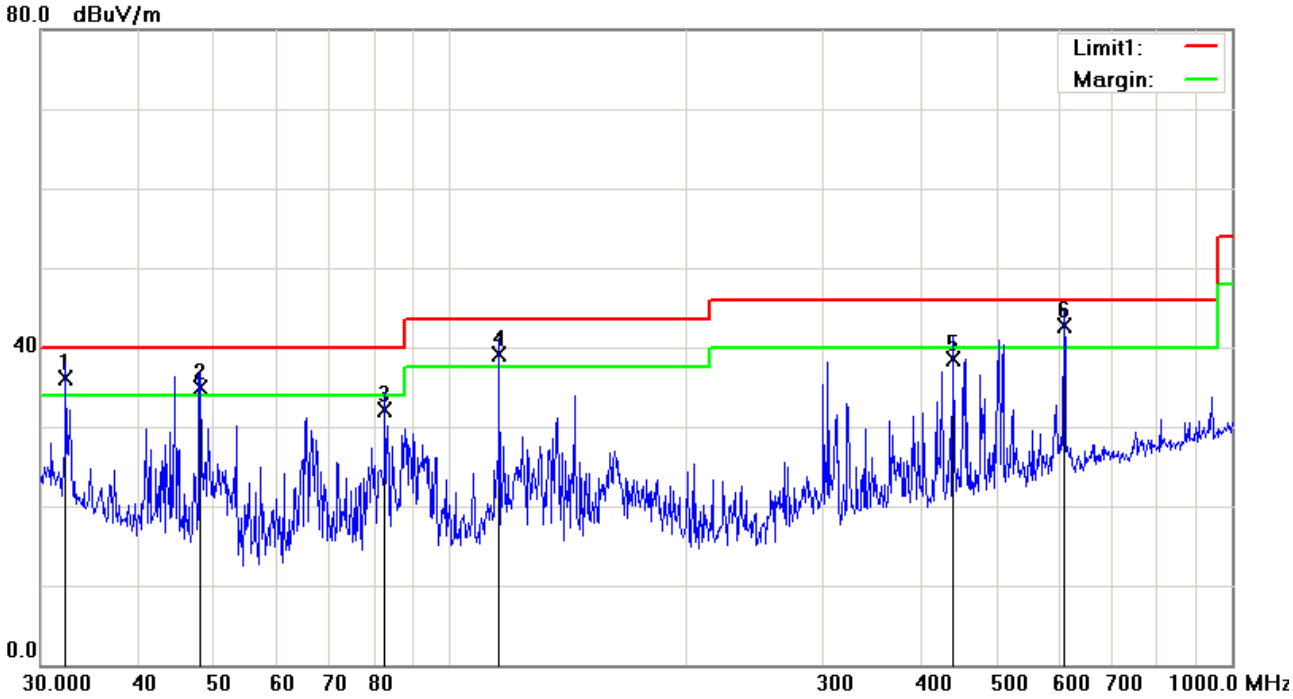


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	H	79.5209	37.88	peak	-13.77	24.11	40.00	-15.89	100	359
2	H	114.5146	35.59	peak	-8.24	27.35	43.50	-16.15	100	168
3	H	138.3873	39.17	peak	-8.45	30.72	43.50	-12.78	100	259
4	H	146.8877	38.98	peak	-8.44	30.54	43.50	-12.96	100	45
5	H	443.2943	32.58	peak	-3.24	29.34	46.00	-16.66	100	216
6	H	682.3485	29.40	peak	1.18	30.58	46.00	-15.42	100	203

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	32.2925	38.06	QP	-1.96	36.10	40.00	-3.90	100	104
2	V	47.9940	47.18	QP	-12.28	34.90	40.00	-5.10	100	308
3	V	82.6482	45.82	QP	-13.62	32.20	40.00	-7.80	100	122
4	V	115.7256	47.14	QP	-8.04	39.10	43.50	-4.40	100	122
5	V	440.1963	41.92	QP	-3.32	38.60	46.00	-7.40	100	122
6	V	609.9217	42.53	QP	0.17	42.70	46.00	-3.30	100	122

Above 1GHz

Frequency (MHz)	Amplitude (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
1557.12	49.15	67	130	V	-22.33	74	-24.85	PK
2069.55	49.35	120	110	V	-22.44	74	-24.65	PK
1777.34	50.21	78	120	V	-22.57	74	-23.79	PK
2182.47	50.18	66	165	H	-22.66	74	-23.82	PK
2876.85	49.77	125	120	H	-22.34	74	-24.23	PK
1877.45	49.55	78	100	H	-22.27	74	-24.45	PK

*Note1: The highest frequency of the EUT is 2480 MHz, so the testing has been conformed to 5*2480MHz=12,400MHz.*

Note2: The frequency that above 3GHz is mainly from the environment noise.

Note3, X-Axis, Y-Axis and –Axis were investigated. The results above show only the worst case.

Note4: The AV measurement performed, more than 20dB below limit so AV test data was not presented.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/17/2015	09/16/2016	☑
Line Impedance Stabilization Network	LI-125A	191106	09/25/2015	09/24/2016	☑
Line Impedance Stabilization Network	LI-125A	191107	09/25/2015	09/24/2016	☑
LISN	ISN T800	34373	09/25/2015	09/24/2016	☑
Transient Limiter	LIT-153	531118	08/31/2016	08/30/2017	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	☑
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	☑
Double Ridge Horn Antenna	AH-118	71259	09/24/2015	09/23/2016	☑

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

EUT - Front View

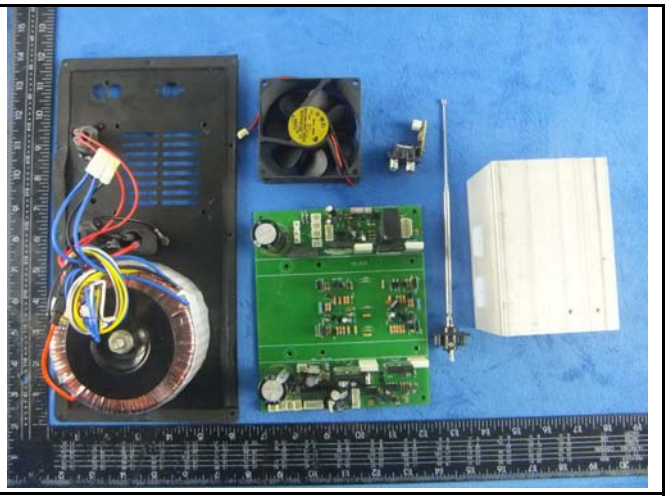
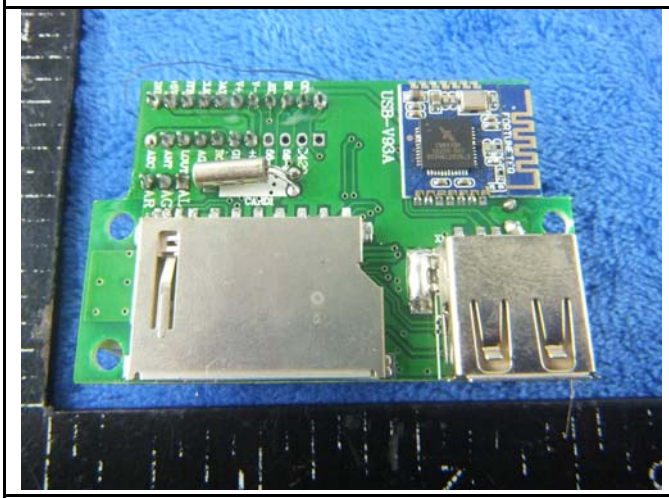
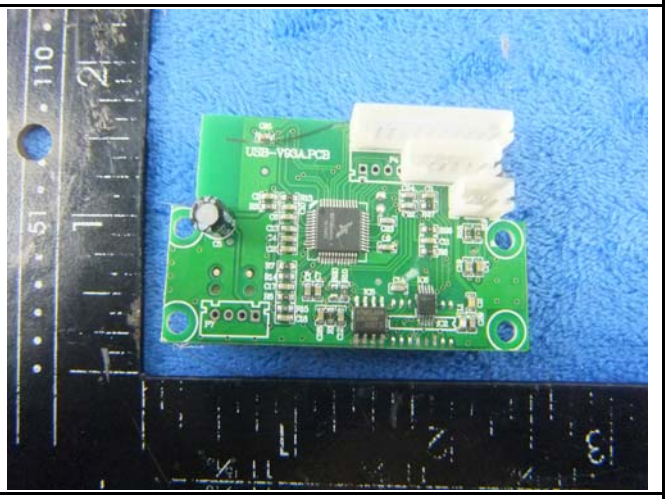
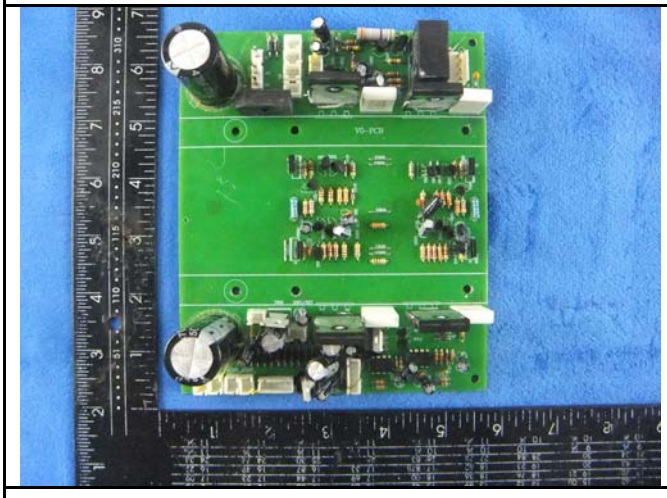
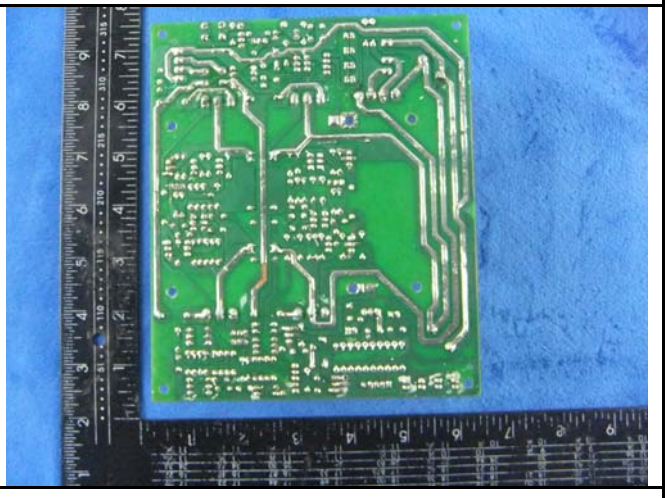
EUT - Rear View

EUT - Top View

EUT - Bottom View

	
EUT - Left View	EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Cover Off - Top View 1</td><td>Cover Off - Top View 2</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>SD card board - Front View</td><td>SD card board - Rear View</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Power amplifier board - Front View</td><td>Power amplifier board - Rear View</td></tr>
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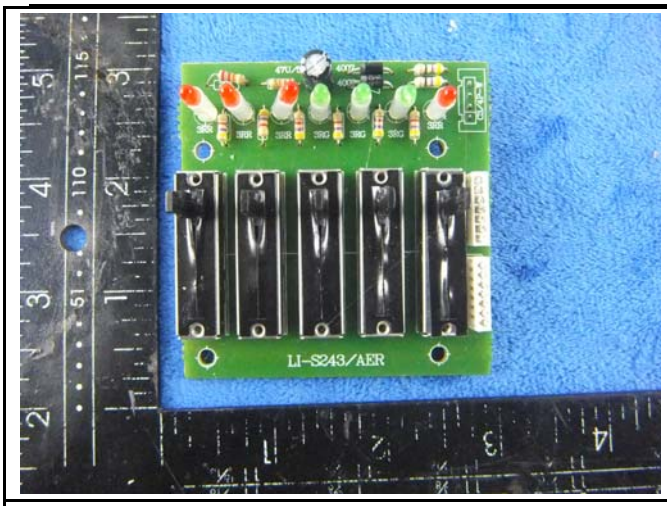
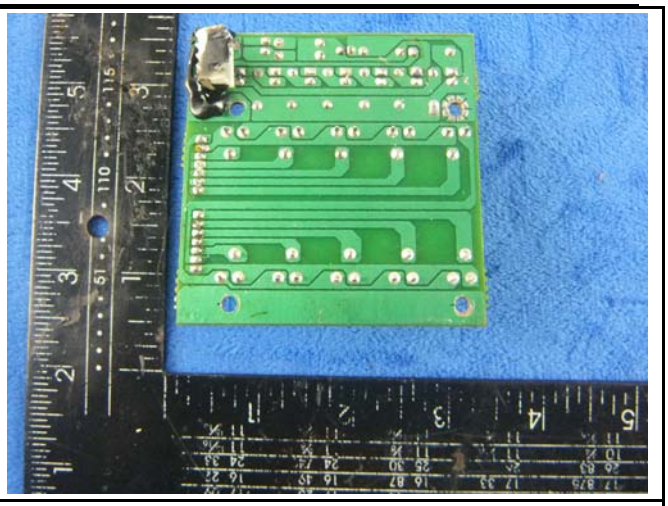
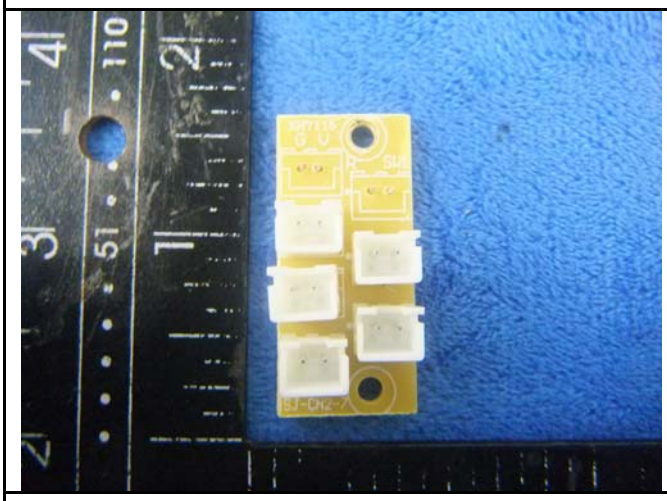


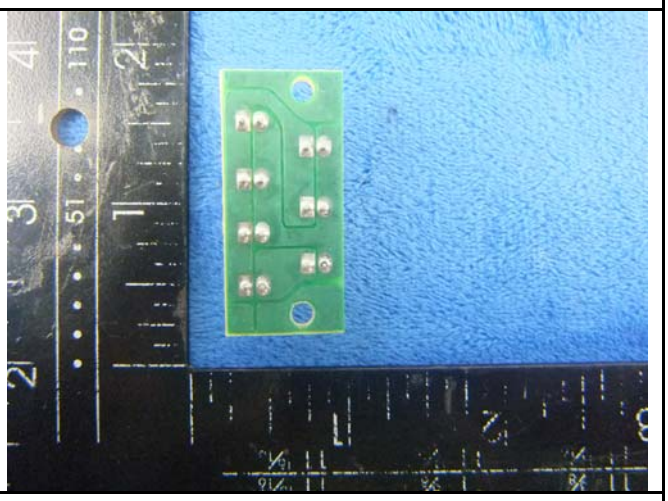
PCB board - Front View



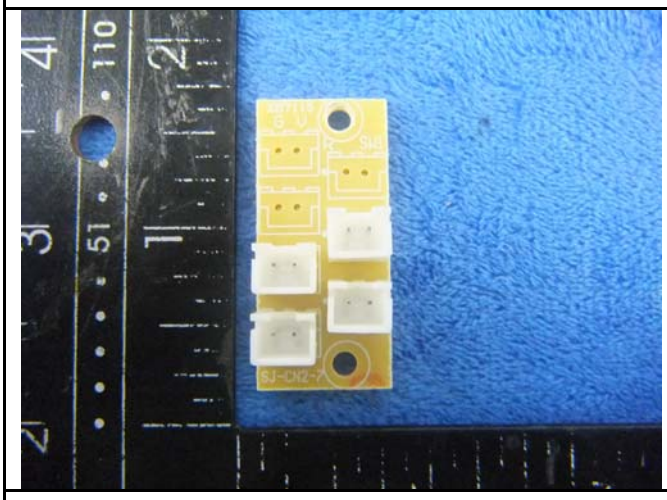
PCB board - Rear View



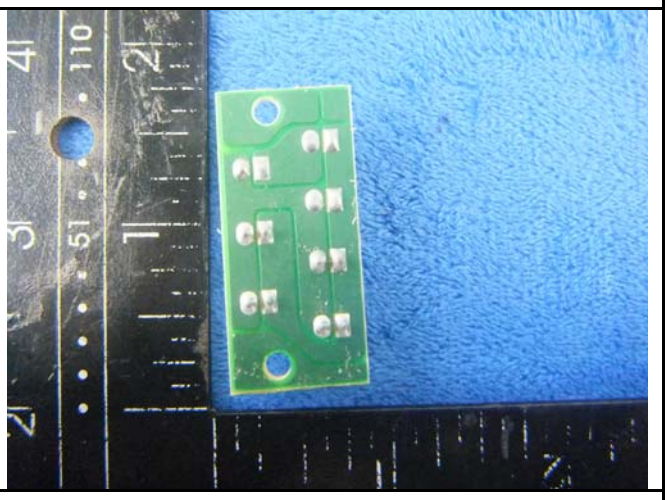
Connect board 1- Front View



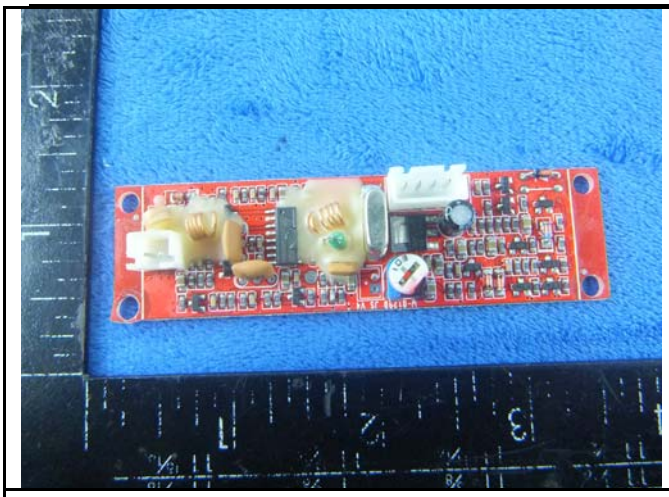
Connect board 1- Rear View



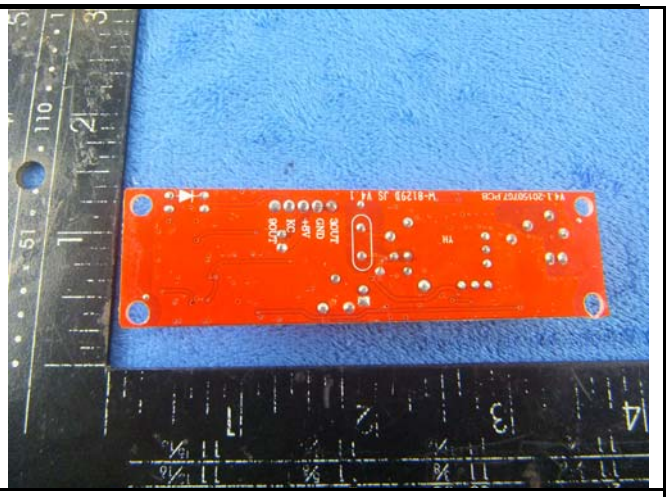
Connect board 2- Front View



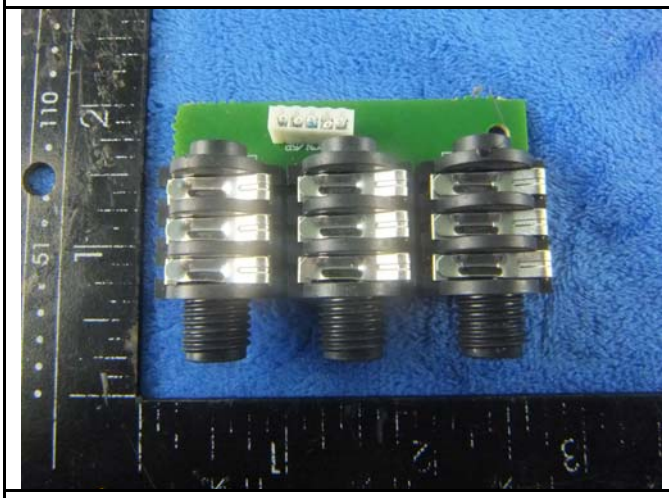
Connect board 2- Rear View



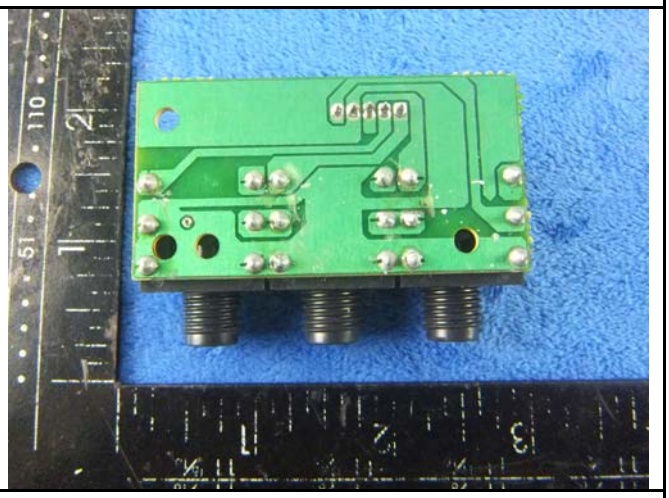
Receiver board - Front View



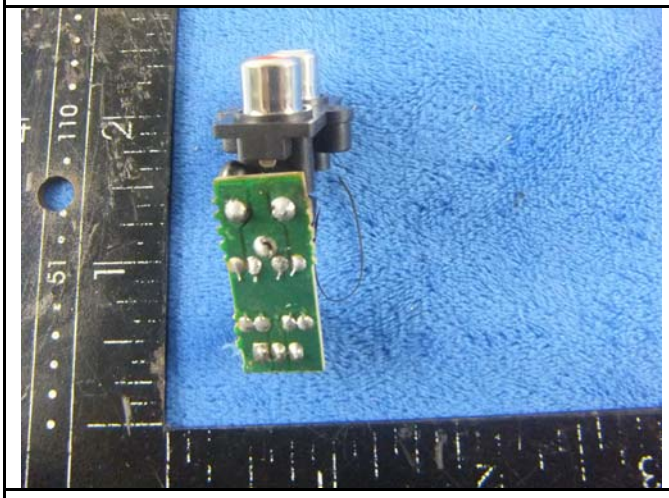
Receiver board - Rear View



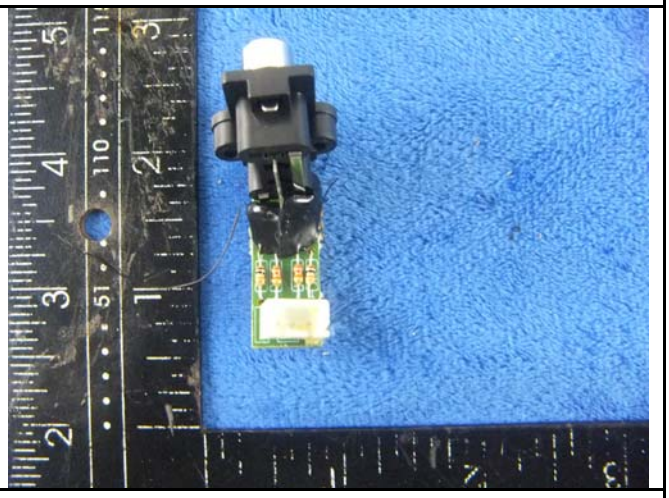
MIC&Guitor in board - Front View



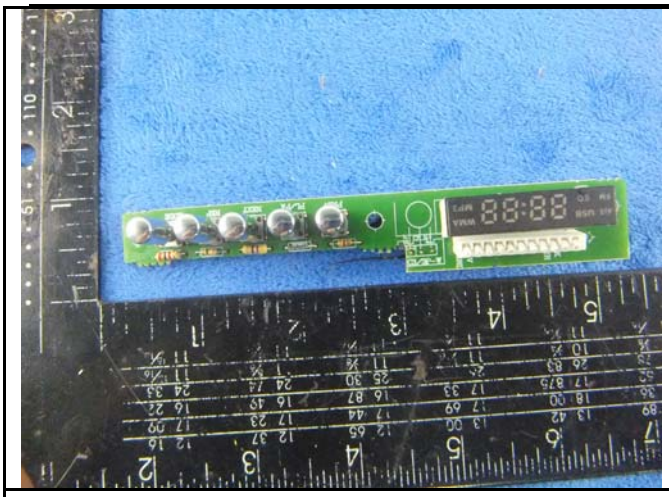
MIC&Guitor in board - Rear View



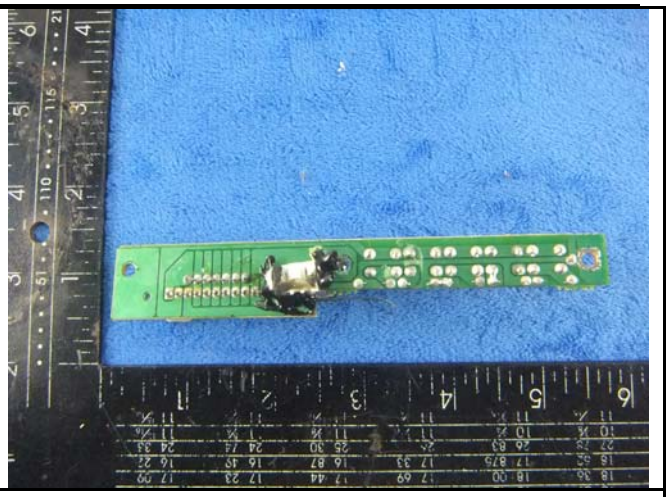
MIC board - Front View



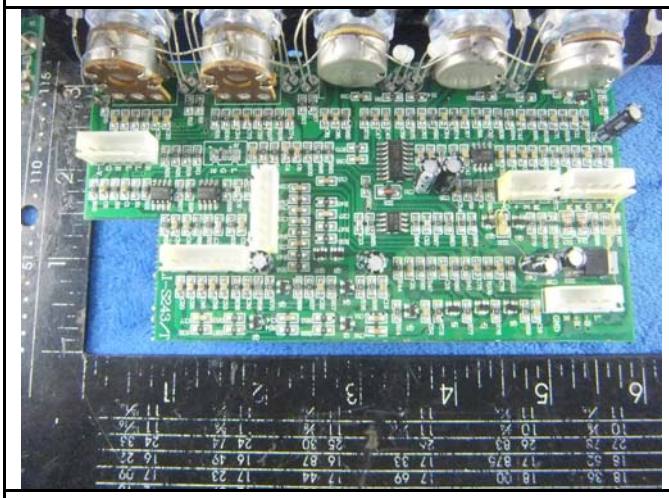
MIC board board - Rear View



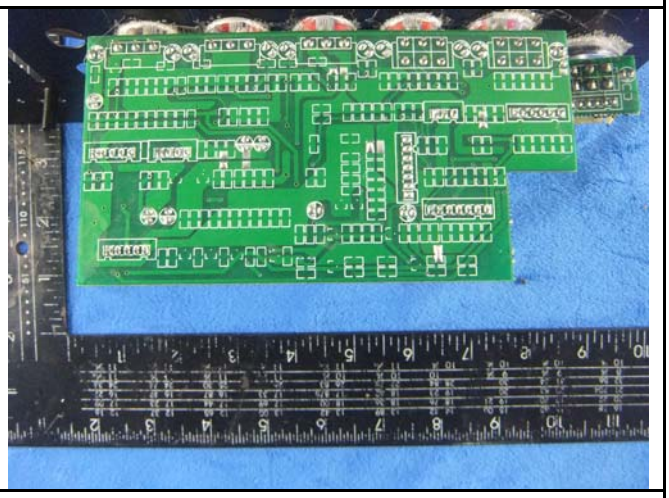
Button board – Front View



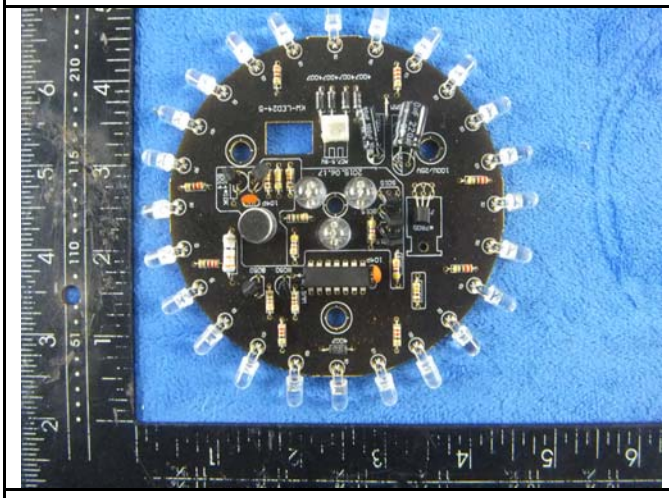
Button board – Rear View



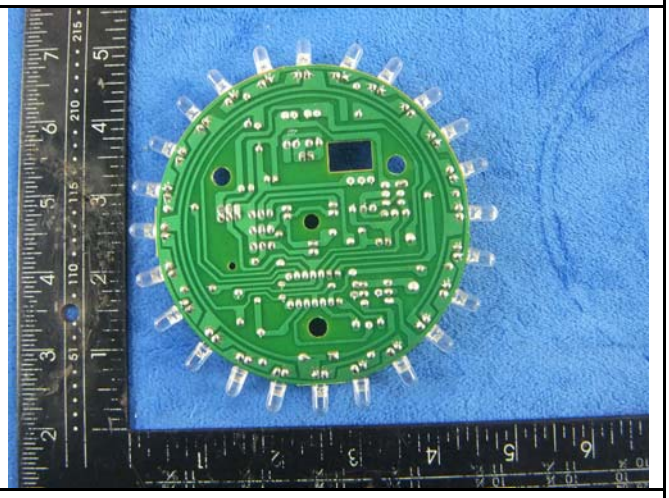
Adjustment board – Front View



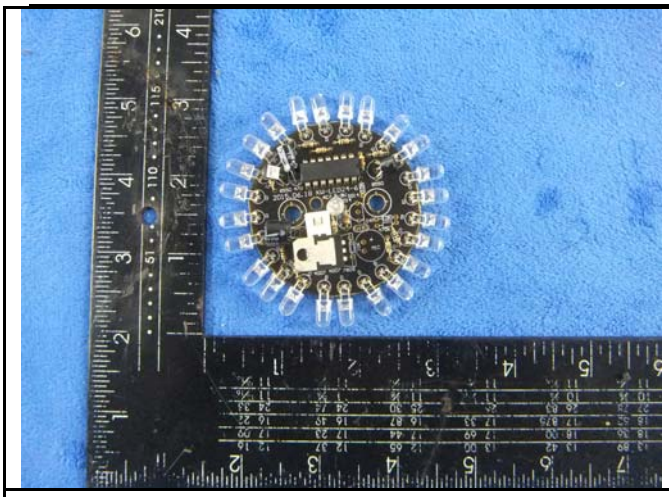
Adjustment board – Rear View



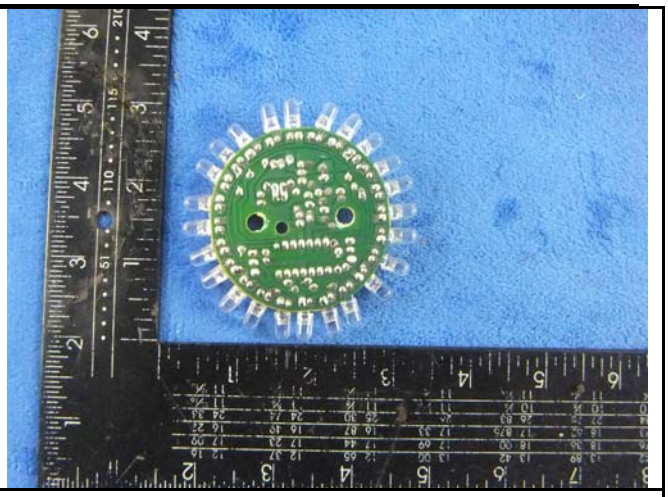
LCD board - Front View



LCD board - Rear View

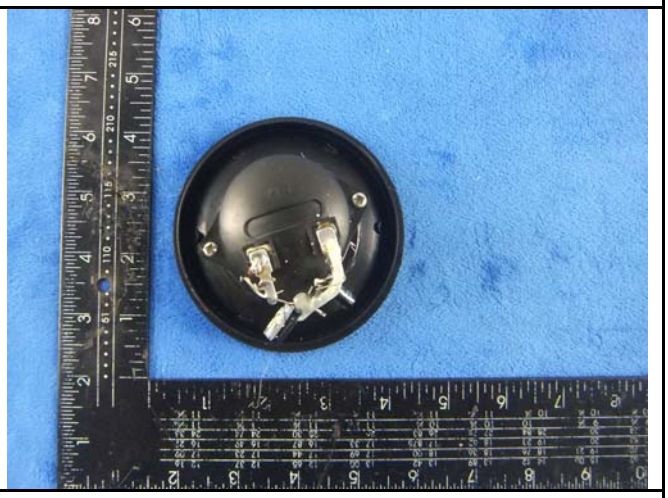


Small LCD board - Front View



Small LCD board - Rear View

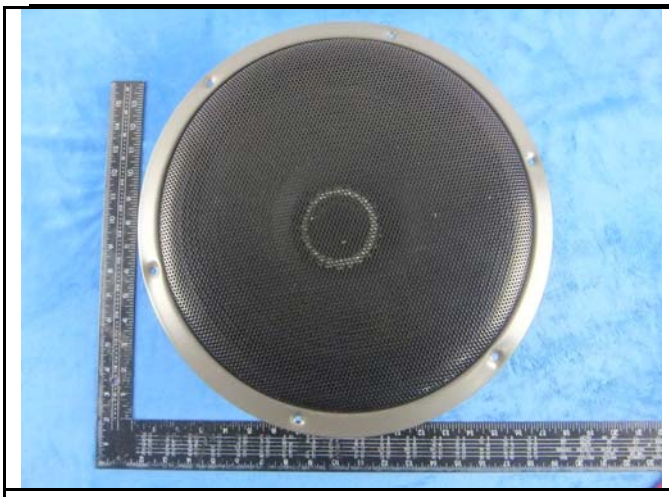
LCD - Front View



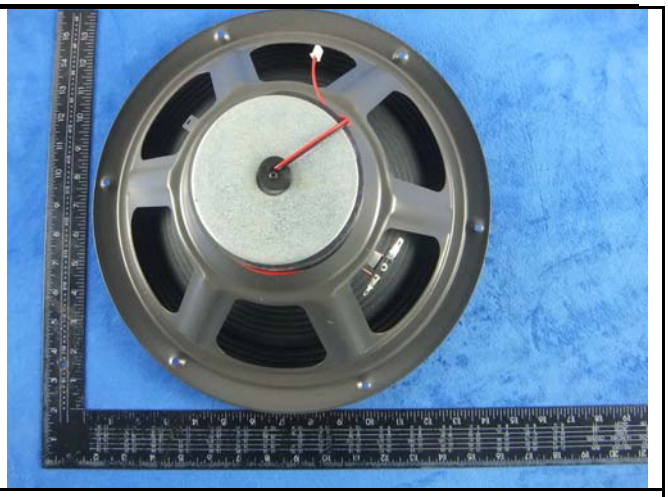
LCD - Rear View

Speaker - Front View

Speaker - Rear View

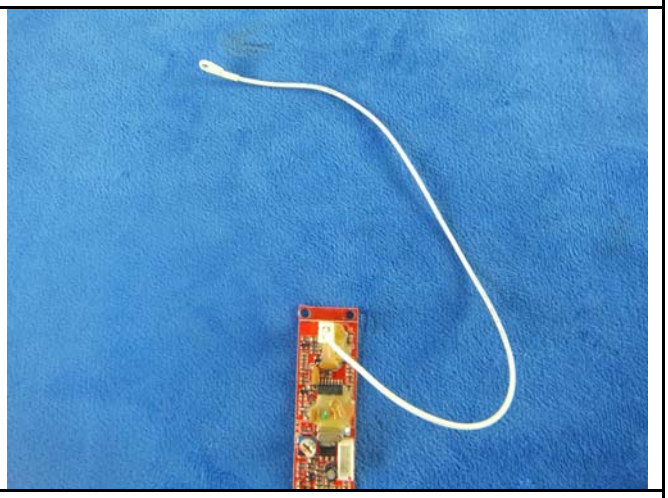


Speaker - Front View

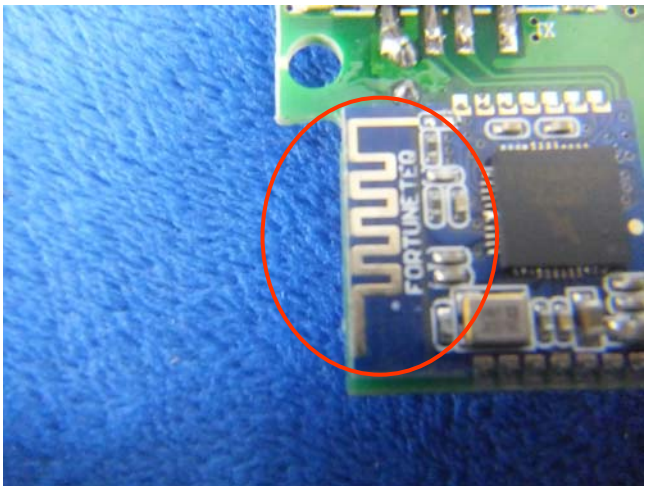


Speaker - Rear View

FM Antenan View

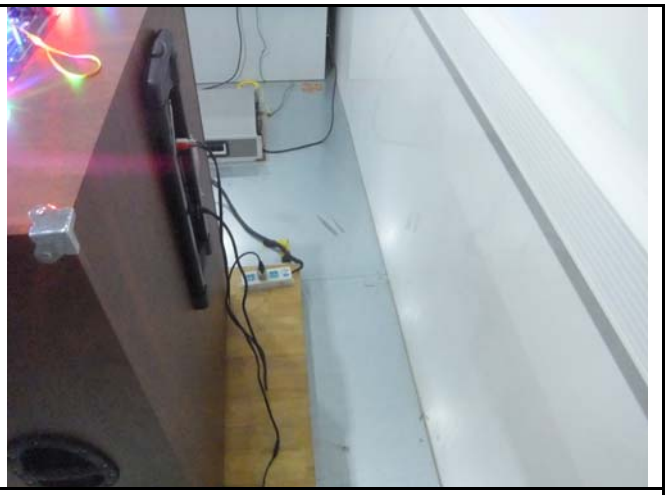
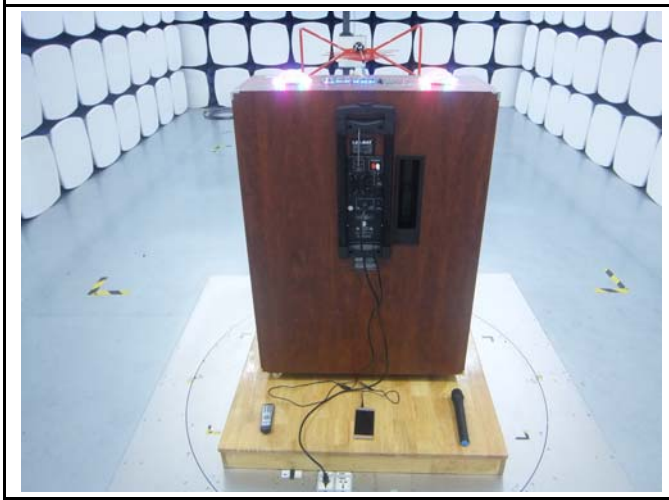


Receiving Antenan View



BT- Antenna View

Annex B.iii. Photograph: Test Setup Photo

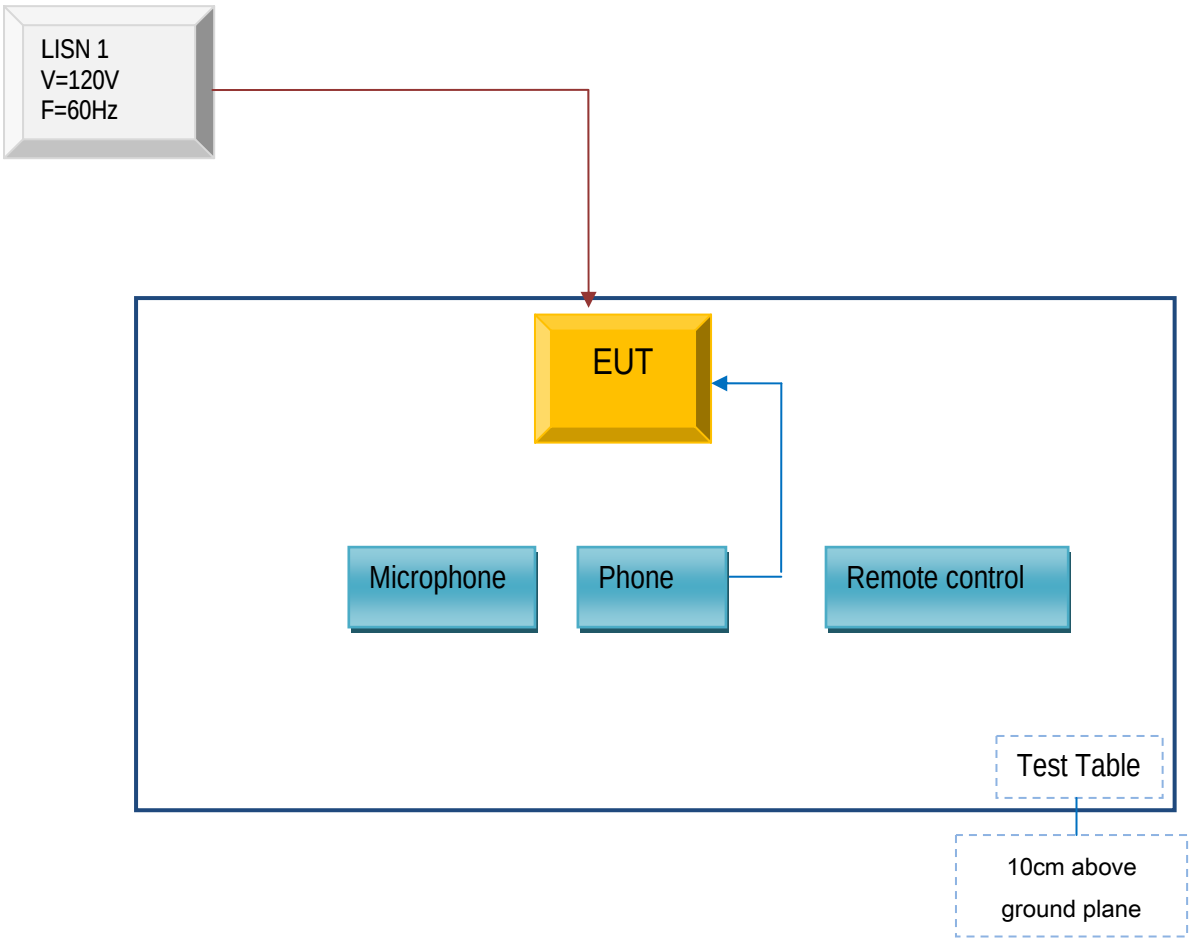
	
Conducted Emissions Test Setup Front View	Conducted Emissions Test Setup Side View
	
Radiated Emissions Test Setup Below 1GHz	Radiated Emissions Test Setup Above 1GHz

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

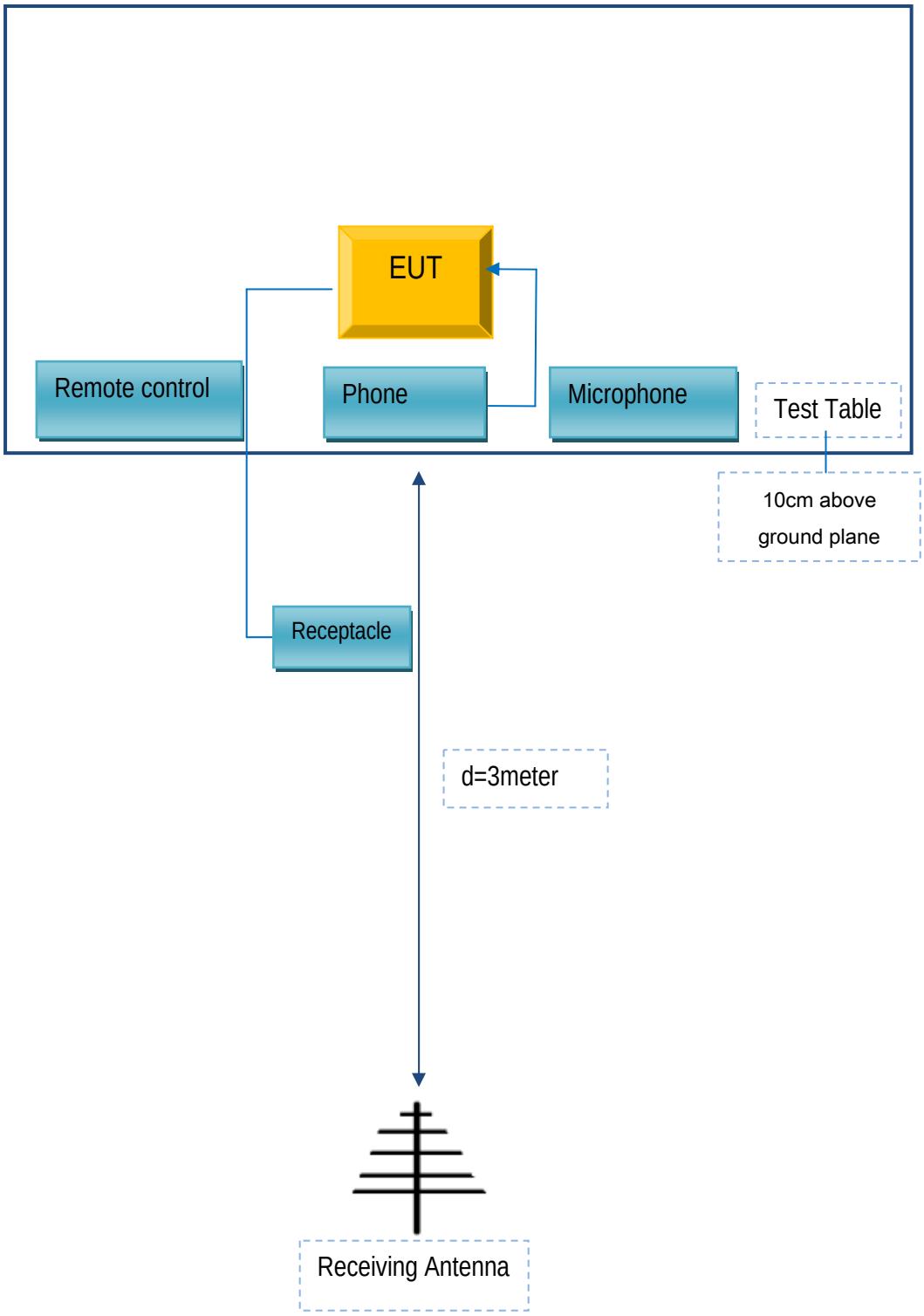
Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting Equipment:

Manufacturer	Equipment Description	Model	Serial No
MI	Phone	MI 4W	W01400
Lenovo	Laptop	E40	LR-1EHRX

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	0.8m	H0502313
Power Cable	Un-shielding	No	0.8m	XC003155

Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

Annex E. DECLARATION OF SIMILARITY

N/A