EMC TEST REPORT

Report No.: 17070288-FCC-E

Supersede Report No.: N/A

Applicant	EDMI(Shenzhen)Co.,Ltd
Product Name	HD16
Model No.	HD16
Serial No.	N/A
Test Standard	FCC Part 15 Subpart B Class B:2016, ANSI C63.4: 2014
Test Date	May 16 to November 22 , 2017
Issue Date	November 23, 2017
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Evans He	David Huang	
Test Engineer	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

Phone: +86 0755 2601 4629801 Email: China@siemic.com.cn

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
17070288-FCC-E	NONE	Original	November 23, 2017

2. Customer information

Applicant Name	EDMI(Shenzhen)Co.,Ltd
Applicant Add	Floor 2&3, Building 2, Zhong Yuntai Science&Technology Industrial Park, Tang Tou 1st Road, Tang Tou Community, Shi Yan Street, Bao An District, Shen Zhen.
Manufacturer	EDMI(Shenzhen)Co.,Ltd
Manufacturer Add	Floor 2&3, Building 2, Zhong Yuntai Science&Technology Industrial Park, Tang Tou 1st Road, Tang Tou Community, Shi Yan Street, Bao An District, Shen Zhen.

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.	535293
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	HD16
Main Model:	HD16
Serial Model:	N/A
Date EUT received:	May 16, 2017
Test Date(s):	May 16 to November 22，2017
Equipment Category：	CYY
Antenna Gain:	-4Bi
Antenna Type:	PCB Antenna
Type of Modulation:	FSK
RF Operating Frequency (ies):	433.3-434.5MHz(TX/RX)
Number of Channels:	1CH
Port:	Power Port
Input Power:	Adapter: Model: HKC0055010-4D INPUT: AC100-240V~50/60Hz, 0.2A OUTPUT: DC 5.0V, 1.0A
Trade Name :	EDMI
FCC ID:	2AC6HHD16

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

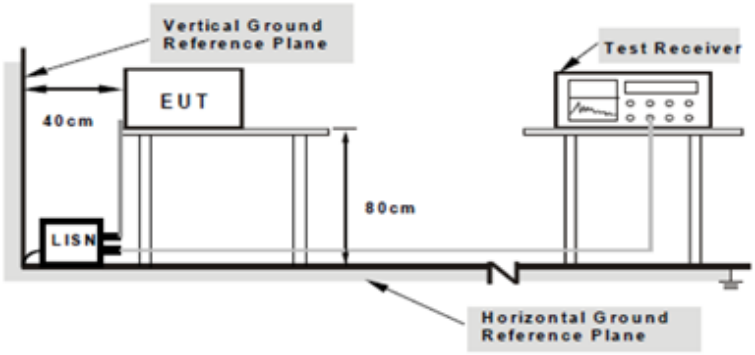
Parameter	Uncertainty
Conducted Emissions （150kHz~30MHz）	±3.11dB
Radiated Emissions（30kHz~1GHz）	±5.12dB
Radiated Emissions（1GHz~6GHz）	±5.34dB

6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	26℃
Relative Humidity	57%
Atmospheric Pressure	1025mbar
Test date :	October 25, 2017
Tested By :	Evans He

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"> 

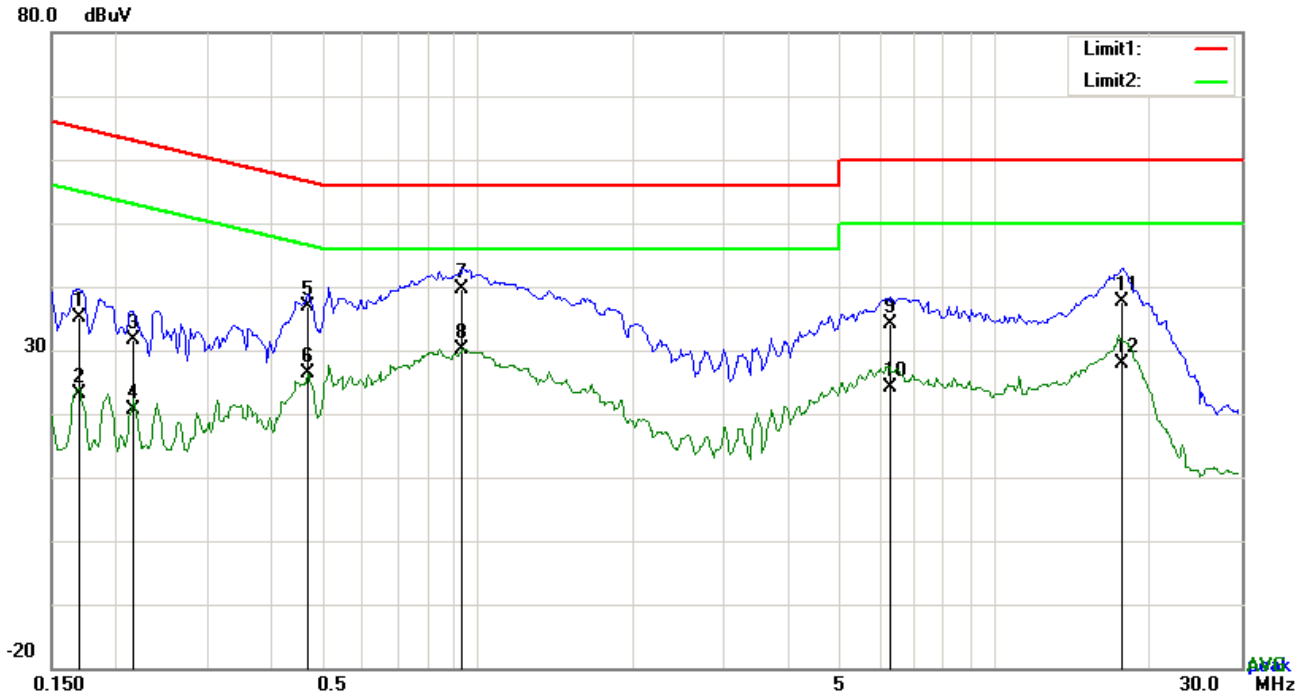
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT and supporting equipment were set up in accordance with the requirements of 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 50Ω /50mH EUT LISN, connected to filtered mains.</td></tr>
</table>

	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 ☐ N/A

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode :	Receiver 433.92MHz Mode

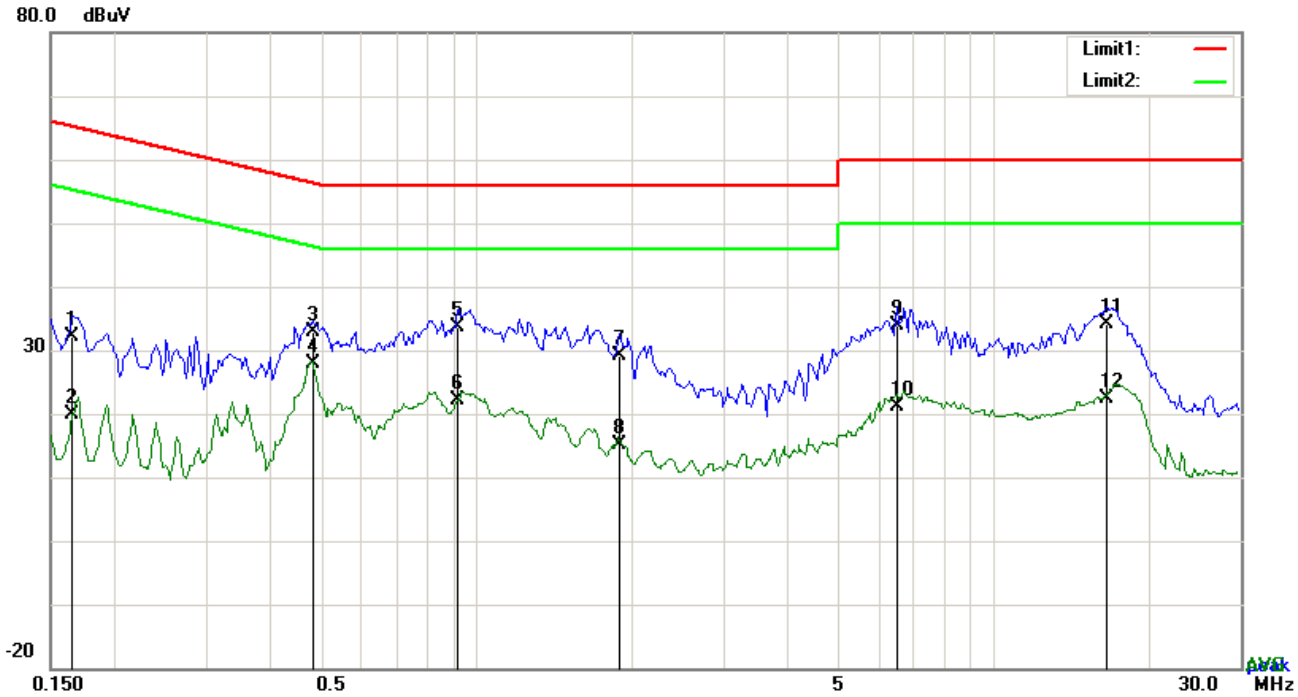


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1695	25.07	QP	10.03	35.10	64.98	-29.88
2	L1	0.1695	13.03	AVG	10.03	23.06	54.98	-31.92
3	L1	0.2163	21.65	QP	10.03	31.68	62.96	-31.28
4	L1	0.2163	10.51	AVG	10.03	20.54	52.96	-32.42
5	L1	0.4698	26.86	QP	10.03	36.89	56.52	-19.63
6	L1	0.4698	16.32	AVG	10.03	26.35	46.52	-20.17
7	L1	0.9378	29.49	QP	10.03	39.52	56.00	-16.48
8	L1	0.9378	20.11	AVG	10.03	30.14	46.00	-15.86
9	L1	6.2877	23.91	QP	10.10	34.01	60.00	-25.99
10	L1	6.2877	14.01	AVG	10.10	24.11	50.00	-25.89
11	L1	17.6445	27.29	QP	10.26	37.55	60.00	-22.45
12	L1	17.6445	17.60	AVG	10.26	27.86	50.00	-22.14

Test Mode :	Receiver 433.92MHz Mode

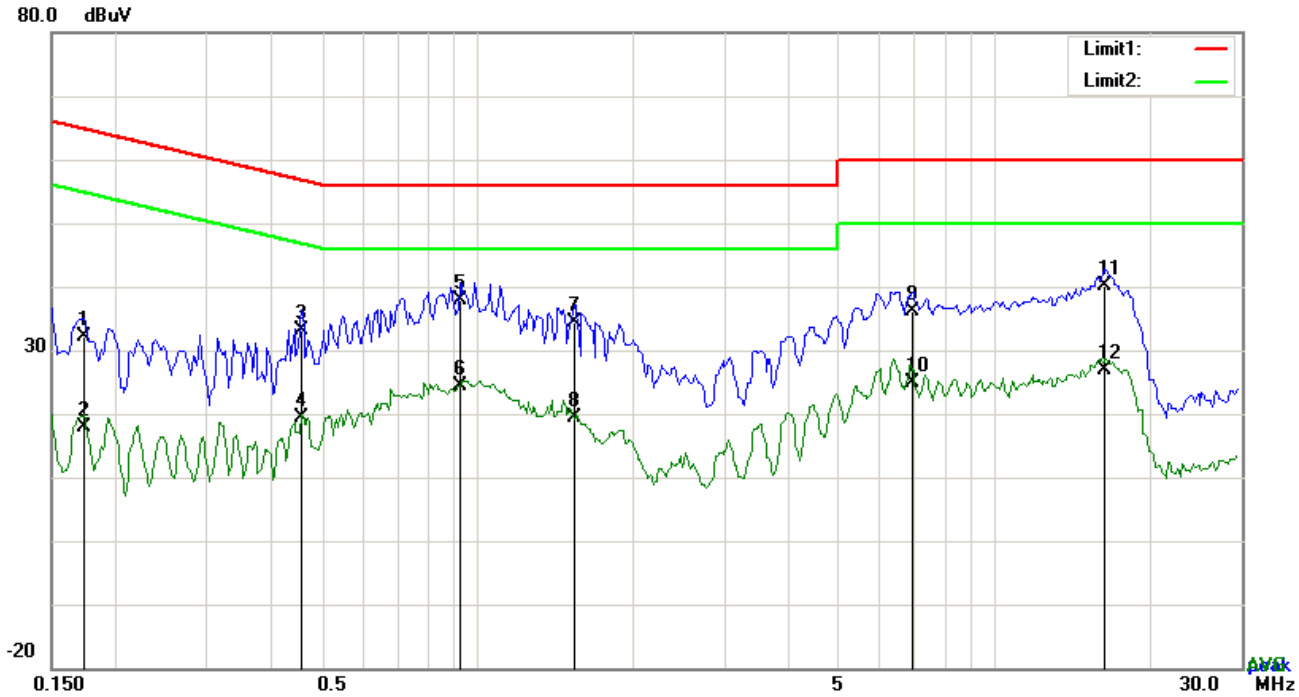


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1656	22.08	QP	10.02	32.10	65.18	-33.08
2	N	0.1656	9.82	AVG	10.02	19.84	55.18	-35.34
3	N	0.4815	22.92	QP	10.02	32.94	56.31	-23.37
4	N	0.4815	17.76	AVG	10.02	27.78	46.31	-18.53
5	N	0.9222	23.66	QP	10.03	33.69	56.00	-22.31
6	N	0.9222	12.03	AVG	10.03	22.06	46.00	-23.94
7	N	1.8933	19.12	QP	10.04	29.16	56.00	-26.84
8	N	1.8933	5.11	AVG	10.04	15.15	46.00	-30.85
9	N	6.5022	23.67	QP	10.09	33.76	60.00	-26.24
10	N	6.5022	11.00	AVG	10.09	21.09	50.00	-28.91
11	N	16.5057	23.95	QP	10.22	34.17	60.00	-25.83
12	N	16.5057	12.20	AVG	10.22	22.42	50.00	-27.58

Test Mode :	Receiver 433.92MHz Mode

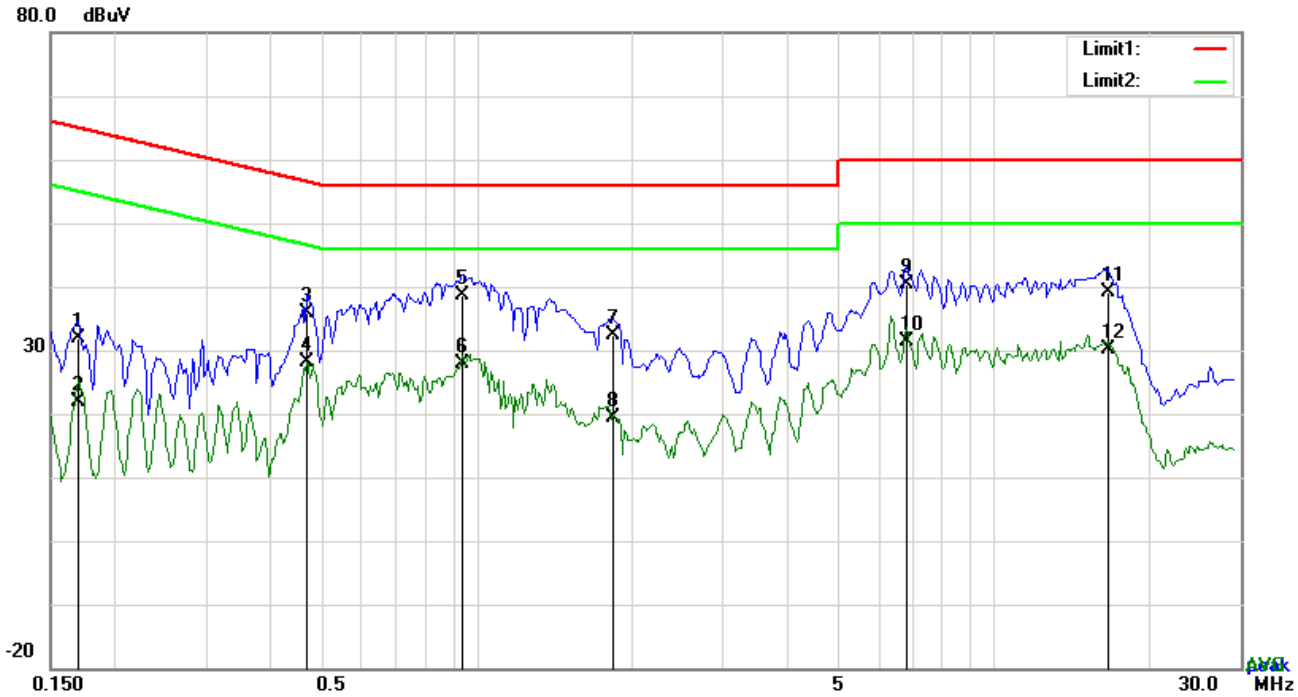


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1734	22.10	QP	10.03	32.13	64.80	-32.67
2	L1	0.1734	7.91	AVG	10.03	17.94	54.80	-36.86
3	L1	0.4581	23.20	QP	10.03	33.23	56.73	-23.50
4	L1	0.4581	9.30	AVG	10.03	19.33	46.73	-27.40
5	L1	0.9261	27.95	QP	10.03	37.98	56.00	-18.02
6	L1	0.9261	14.27	AVG	10.03	24.30	46.00	-21.70
7	L1	1.5423	24.32	QP	10.04	34.36	56.00	-21.64
8	L1	1.5423	9.22	AVG	10.04	19.26	46.00	-26.74
9	L1	6.9507	26.05	QP	10.11	36.16	60.00	-23.84
10	L1	6.9507	14.82	AVG	10.11	24.93	50.00	-25.07
11	L1	16.3692	29.90	QP	10.25	40.15	60.00	-19.85
12	L1	16.3692	16.57	AVG	10.25	26.82	50.00	-23.18

Test Mode :	Receiver 433.92MHz Mode



Test Data

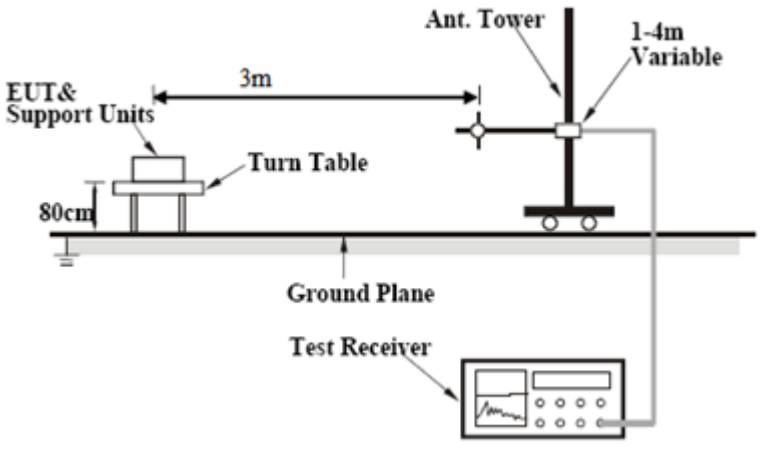
Phase Neutral Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1695	21.97	QP	10.02	31.99	64.98	-32.99
2	N	0.1695	11.96	AVG	10.02	21.98	54.98	-33.00
3	N	0.4698	25.76	QP	10.02	35.78	56.52	-20.74
4	N	0.4698	18.05	AVG	10.02	28.07	46.52	-18.45
5	N	0.9417	28.60	QP	10.03	38.63	56.00	-17.37
6	N	0.9417	17.83	AVG	10.03	27.86	46.00	-18.14
7	N	1.8348	22.42	QP	10.04	32.46	56.00	-23.54
8	N	1.8348	9.34	AVG	10.04	19.38	46.00	-26.62
9	N	6.7986	30.20	QP	10.10	40.30	60.00	-19.70
10	N	6.7986	21.28	AVG	10.10	31.38	50.00	-18.62
11	N	16.7241	28.80	QP	10.22	39.02	60.00	-20.98
12	N	16.7241	19.90	AVG	10.22	30.12	50.00	-19.88

6.2 Radiated Emissions

Temperature	26℃
Relative Humidity	57%
Atmospheric Pressure	1025mbar
Test date :	October 25, 2017
Tested By :	Evans He

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.109(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>

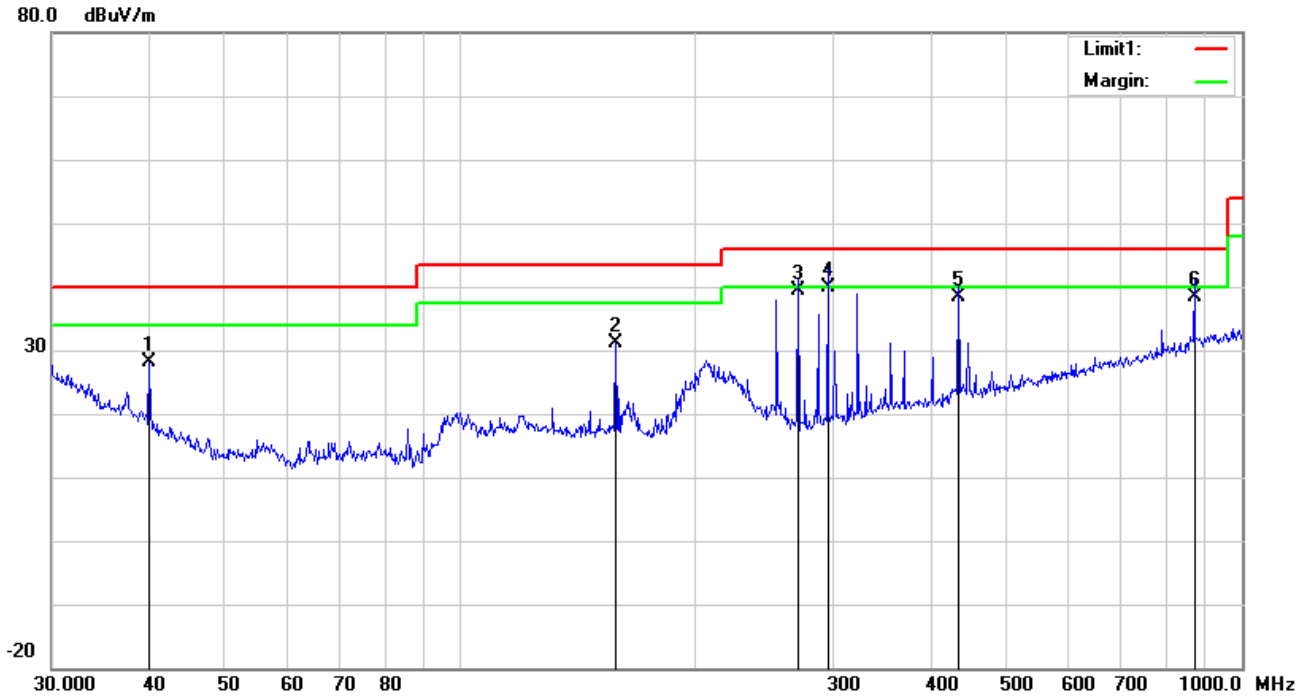
	over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 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 433.92MHz Mode

Below 1GHz



Test Data

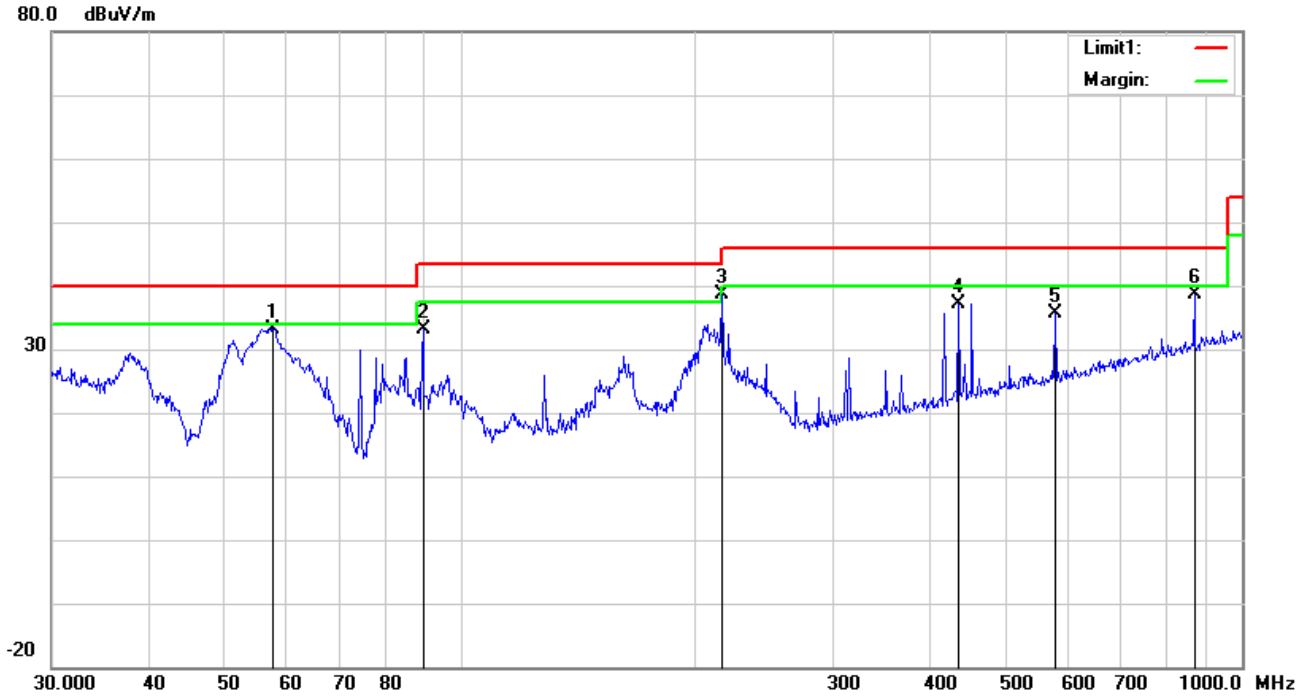
Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	H	39.9942	35.80	peak	13.90	22.28	0.79	28.21	40.00	-11.79	100	13
2	H	158.1123	39.37	peak	12.60	22.28	1.38	31.07	43.50	-12.43	100	131
3	H	270.3748	47.65	QP	12.30	22.29	1.74	39.40	46.00	-6.60	100	164
4	H	295.1469	46.92	QP	13.39	22.29	1.78	39.80	46.00	-6.20	100	322
5	H	434.0651	41.77	QP	16.38	21.94	2.09	38.30	46.00	-7.70	100	250
6	H	869.1302	34.35	QP	22.16	20.96	2.95	38.50	46.00	-7.50	100	163

Above 1GHz

Note: The frequency that above 1GHz is mainly from the environment noise.

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	57.5939	47.29	peak	7.56	22.40	0.76	33.21	40.00	-6.79	100	256
2	V	89.5900	46.52	peak	7.98	22.32	0.96	33.14	43.50	-10.36	200	162
3	V	216.0240	47.53	peak	11.88	22.35	1.59	38.65	46.00	-7.35	100	349
4	V	434.0651	40.51	peak	16.38	21.94	2.09	37.04	46.00	-8.96	100	25
5	V	576.6443	35.98	peak	18.77	21.63	2.49	35.61	46.00	-10.39	100	133
6	V	869.1302	34.50	peak	22.16	20.96	2.95	38.65	46.00	-7.35	100	311

Above 1GHz

Note: The frequency that above 1GHz is mainly from the environment noise.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/15/2017	09/14/2018	☑
Line Impedance Stabilization Network	LI-125A	191106	09/23/2017	09/22/2018	☑
Line Impedance Stabilization Network	LI-125A	191107	09/23/2017	09/22/2018	☑
ISN	ISN T800	34373	09/23/2017	09/22/2018	☐
Transient Limiter	LIT-153	531118	08/30/2017	08/29/2018	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/15/2017	09/14/2018	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/30/2017	08/29/2018	☑
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/23/2017	03/22/2018	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/19/2017	09/18/2018	☑
Double Ridge Horn Antenna	AH-118	71259	09/22/2017	09/21/2018	☑

Annex B. EUT And Test Setup Photographs

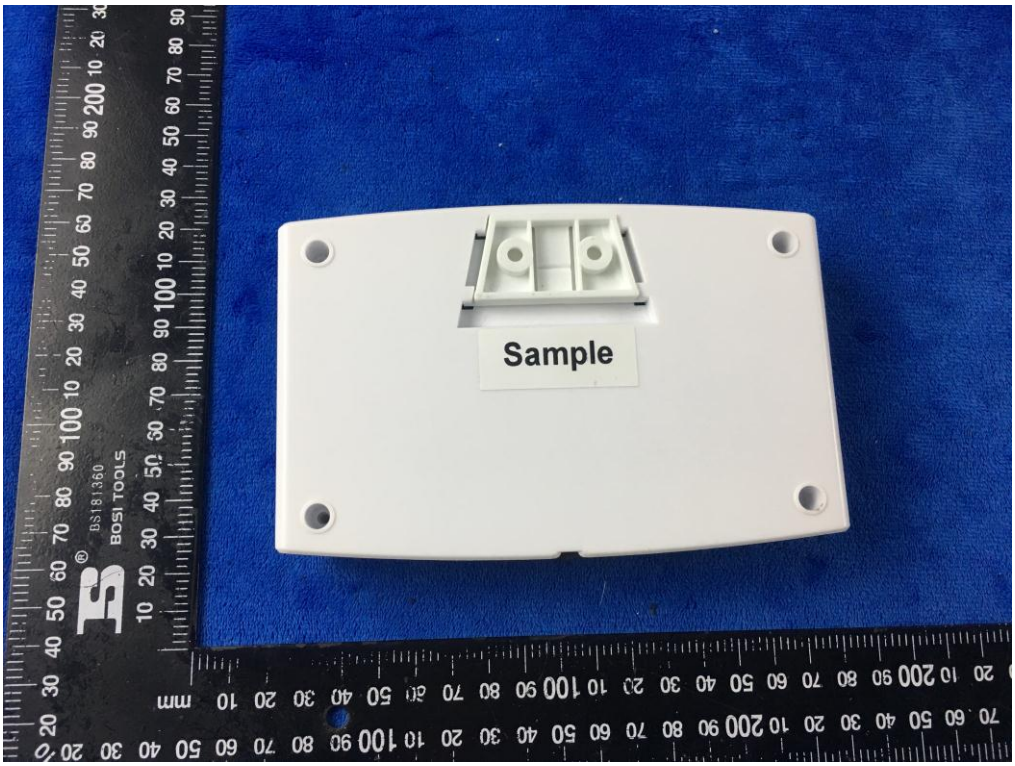
Annex B.i. Photograph: EUT External Photo

Whole Package View

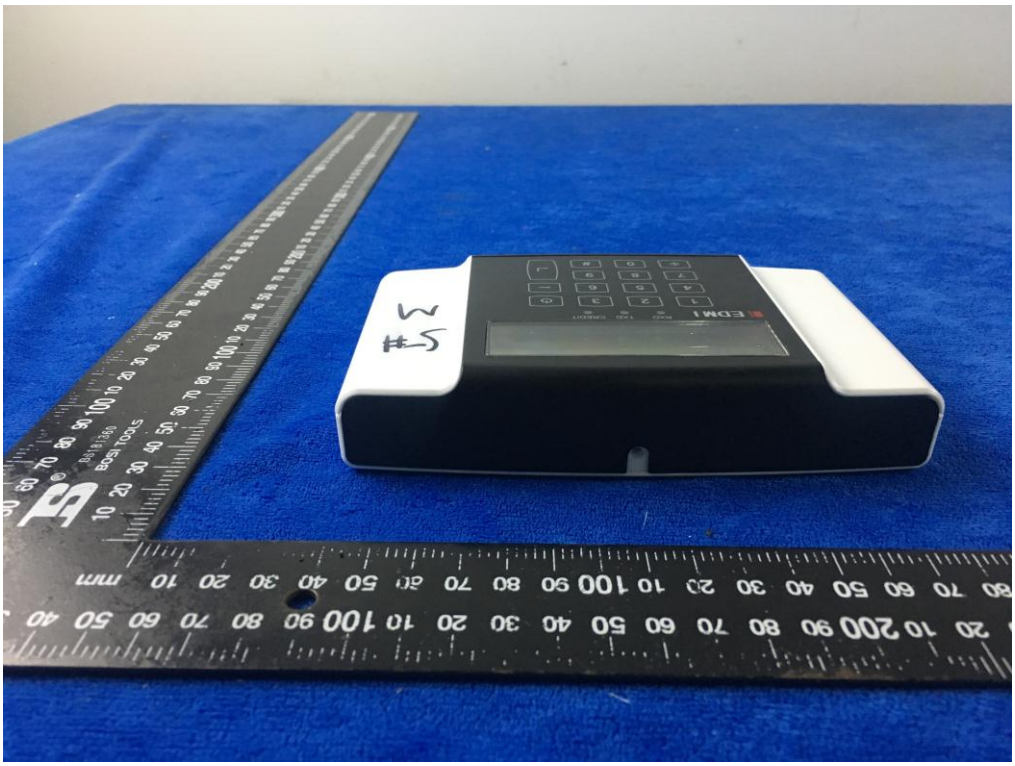
Adapter LableView

EUT - Front View

EUT - Rear View

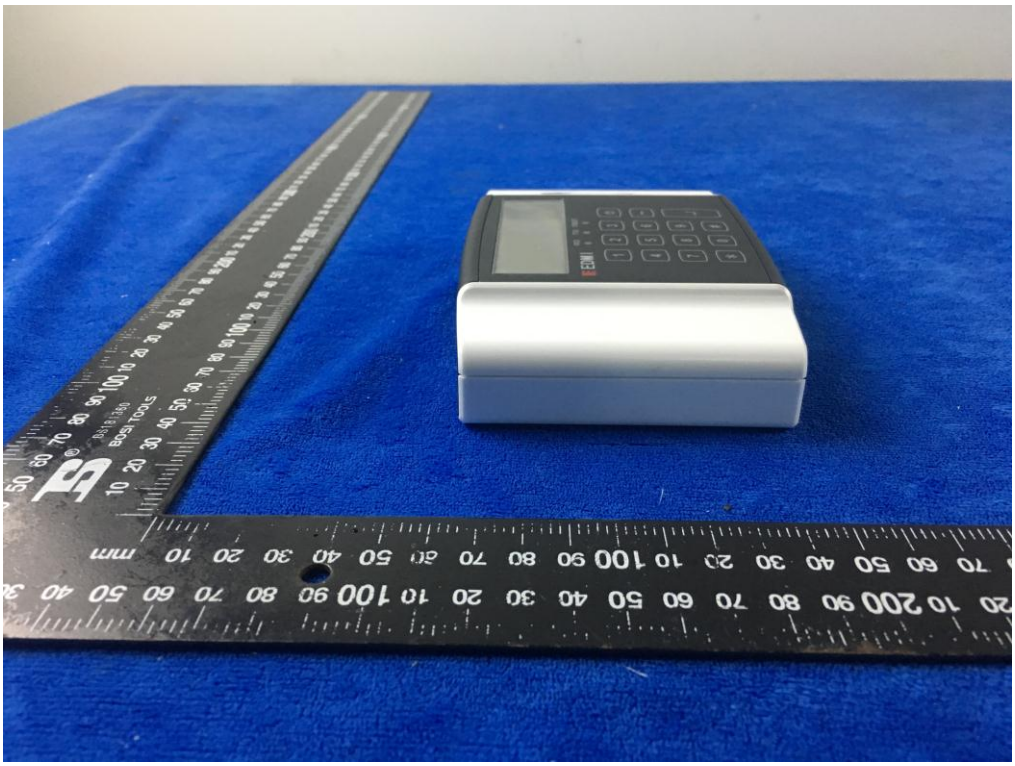


EUT - Top View

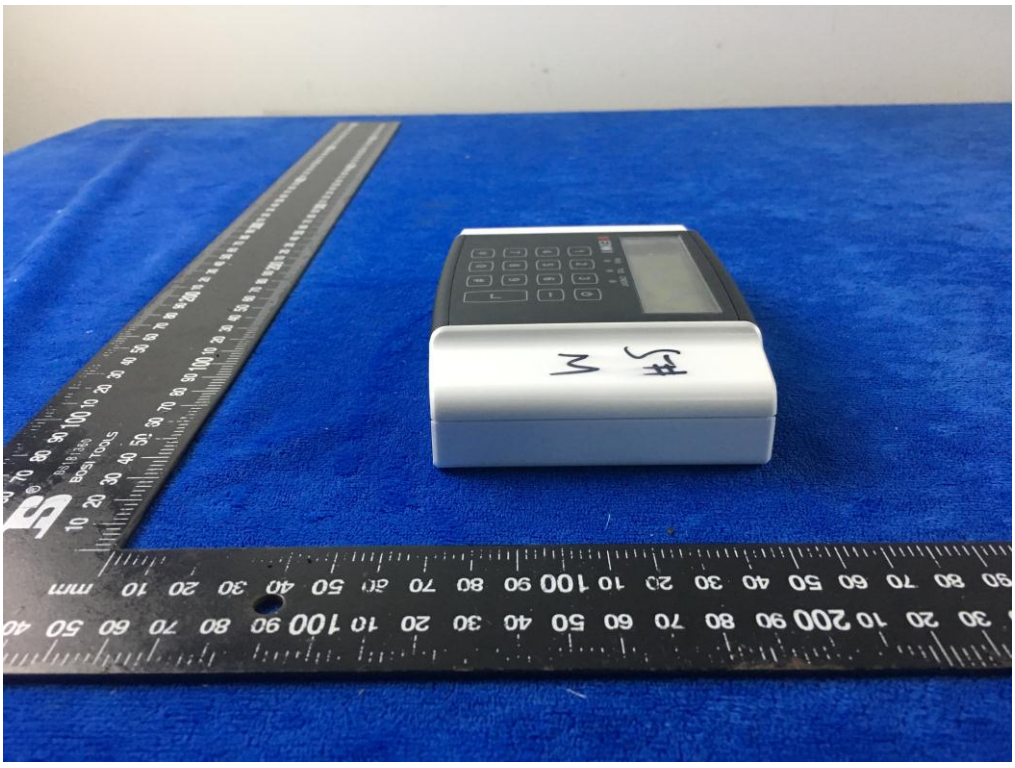


EUT - Bottom View

EUT - Left View

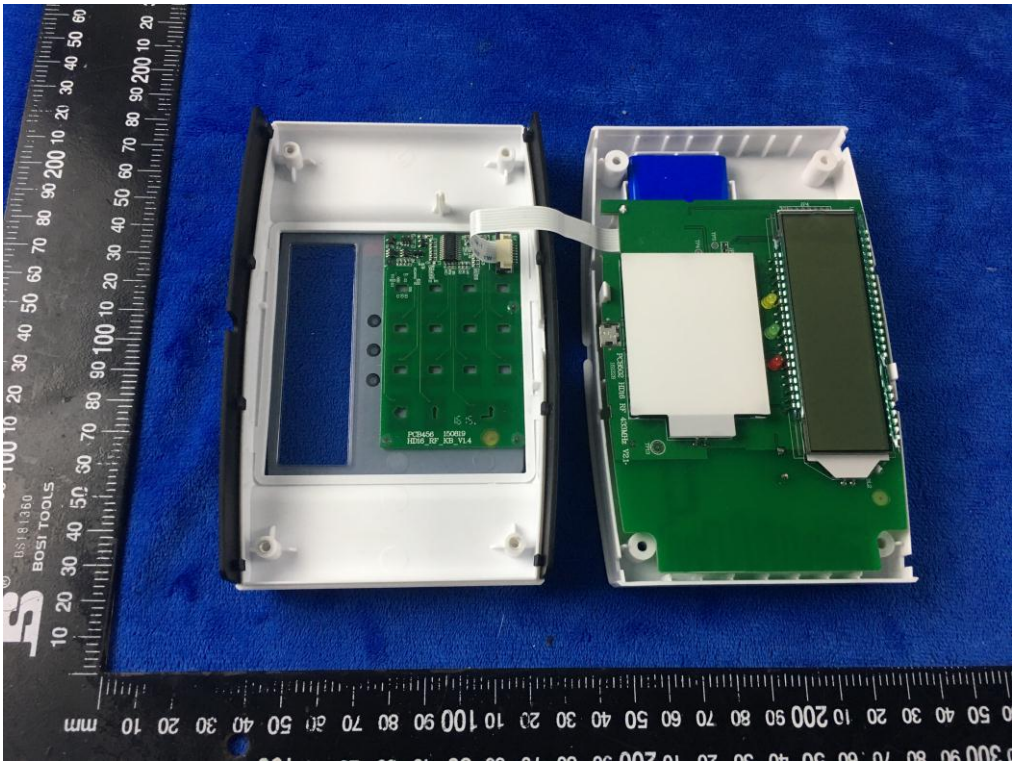


EUT - Right View

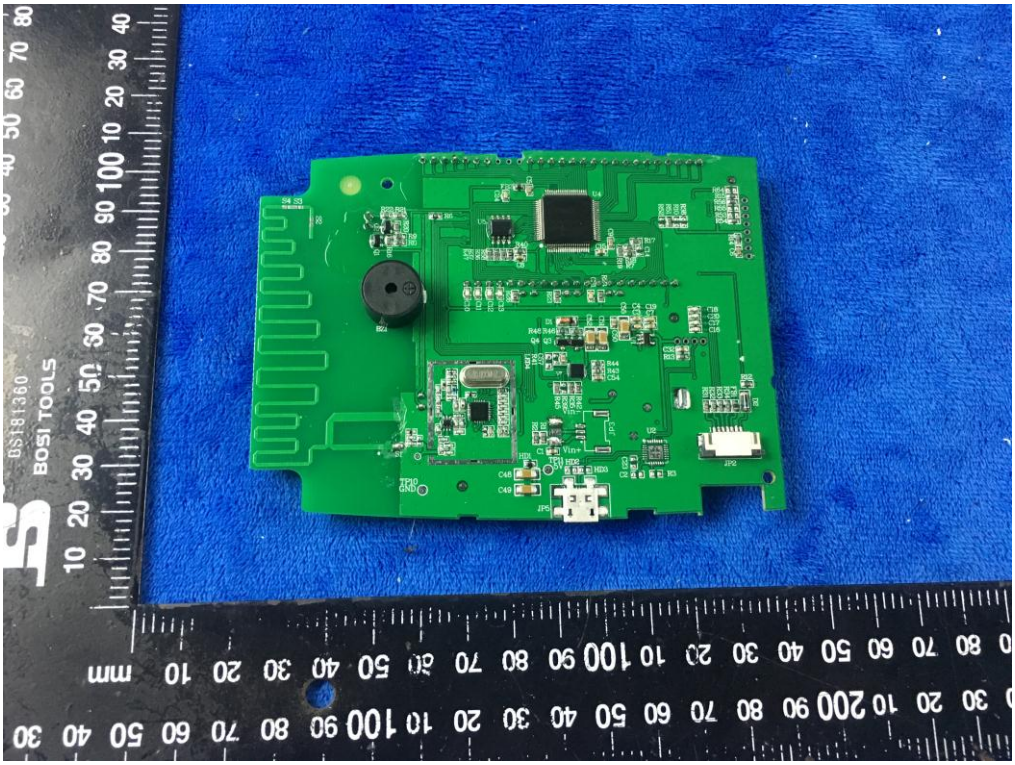


Annex B.ii. Photograph: EUT Internal Photo

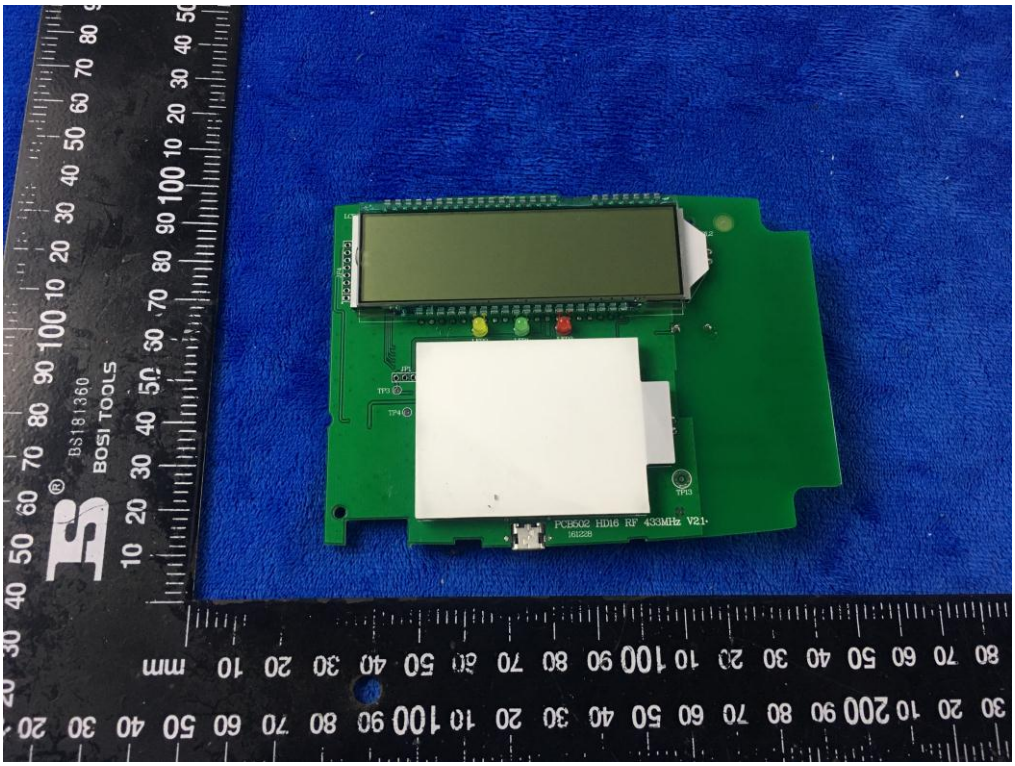
Cover Off - Top View



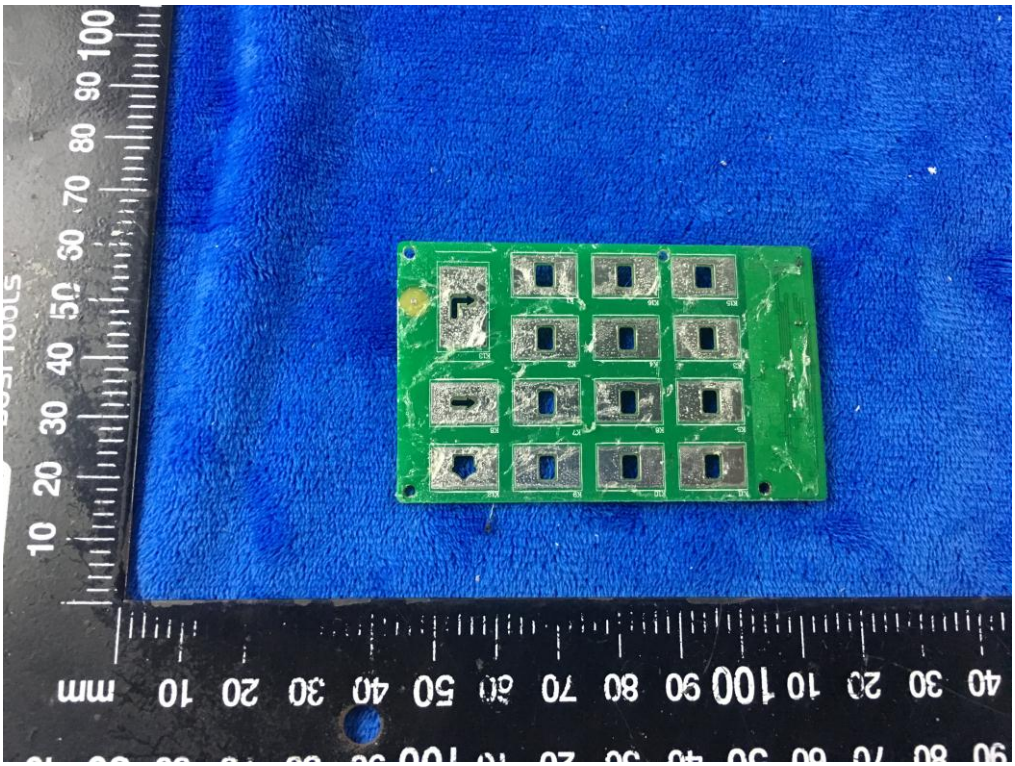
Mainboard - Front View



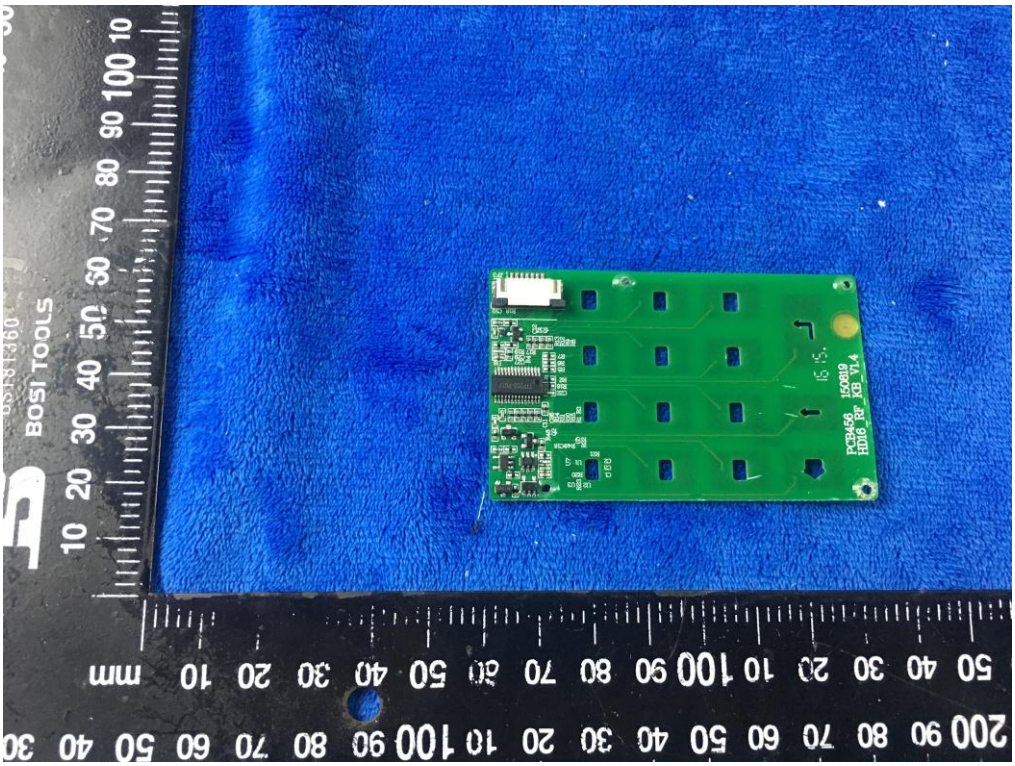
Mainboard – Rear View



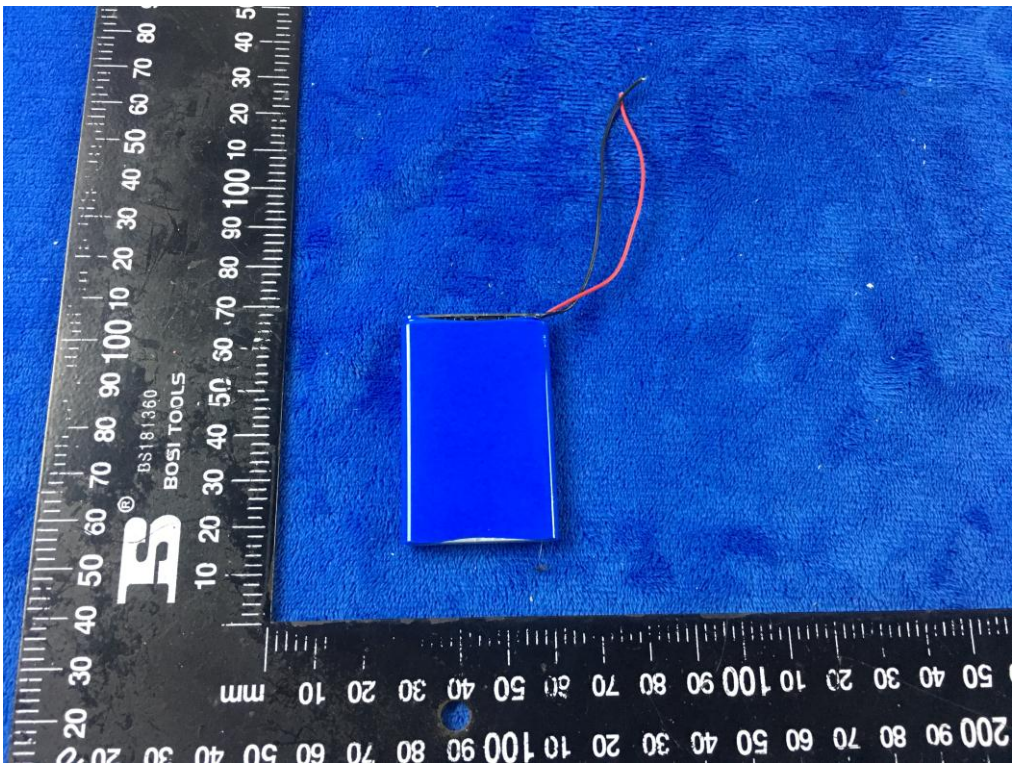
Smallboard - Front View



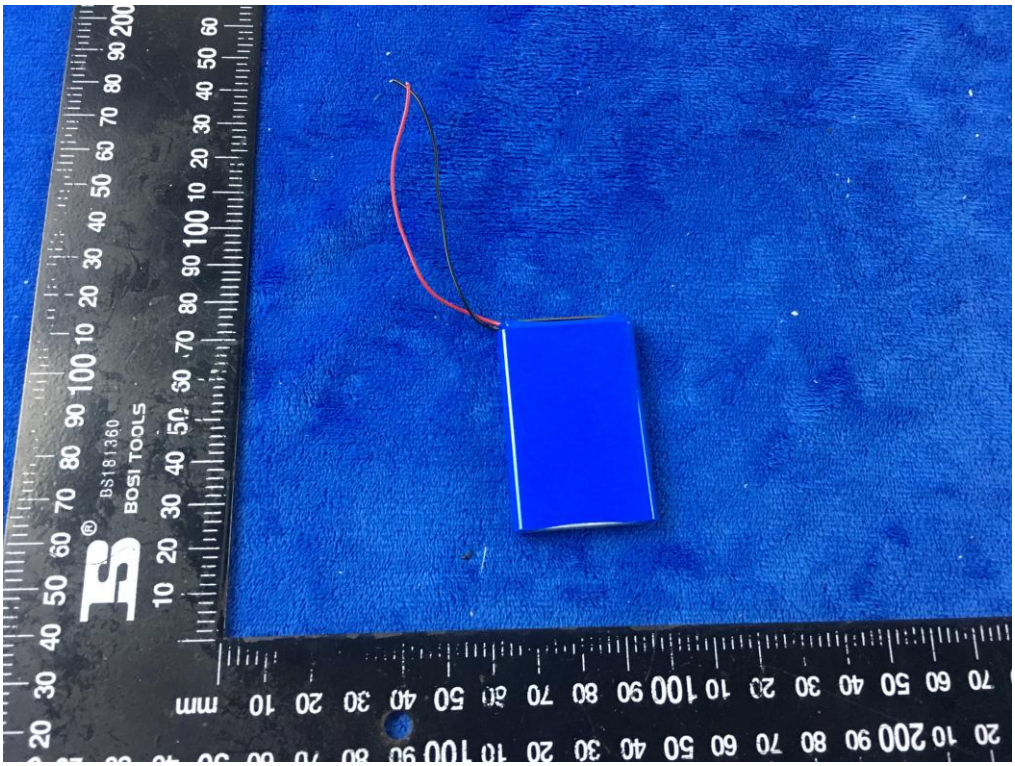
Smallboard – Rear View



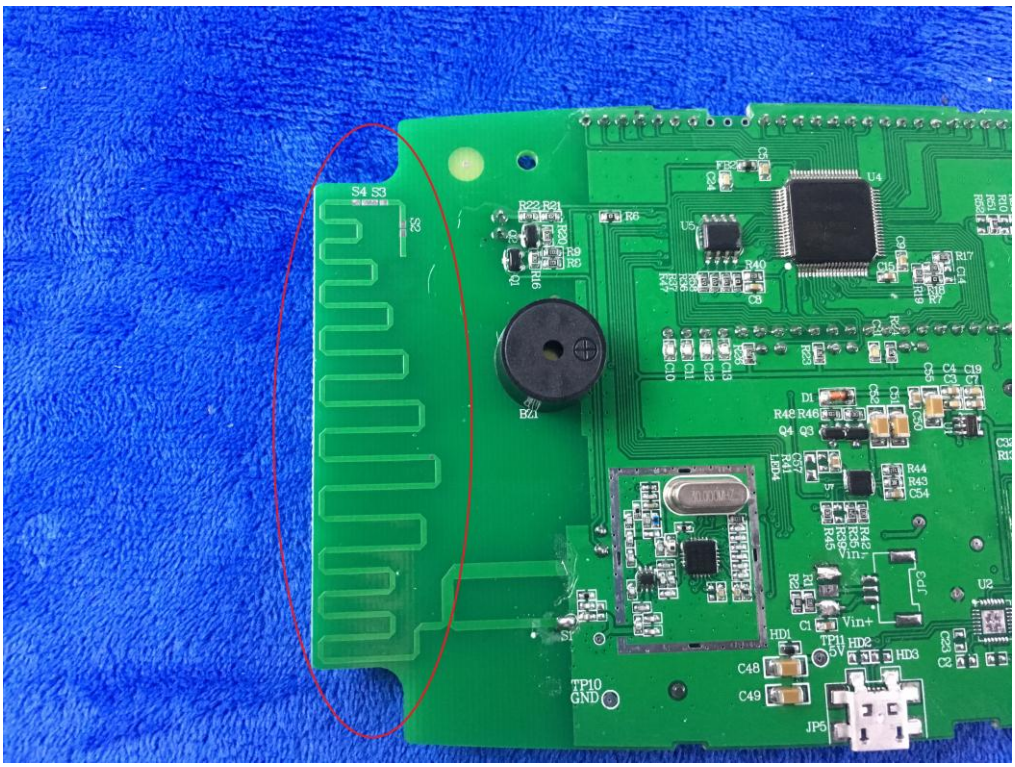
Battery – Front View



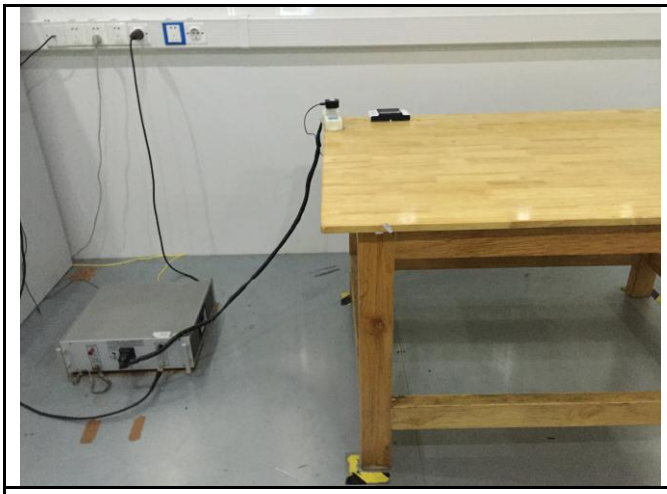
Battery – Rear View



Antenna View

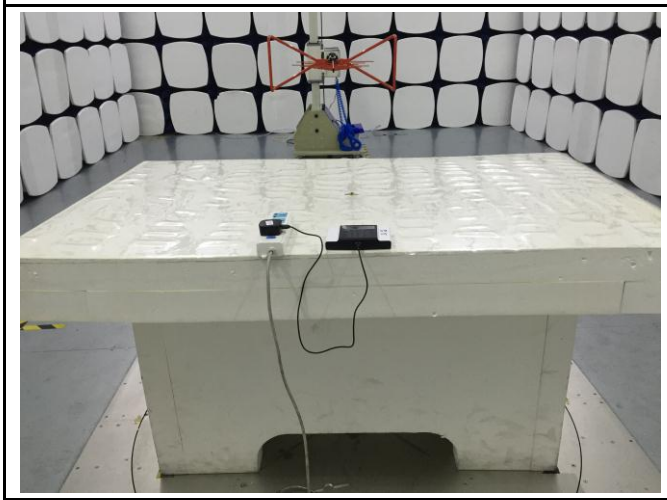


Annex B.iii. Photograph: Test Setup Photo

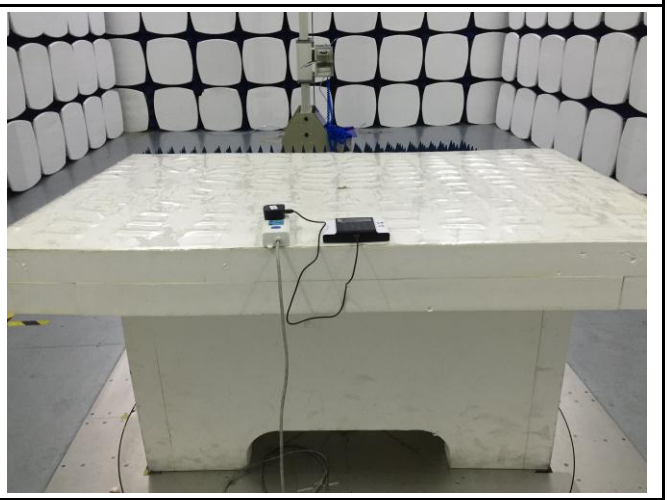


Conducted Emissions Test Setup – Front View

Conducted Emissions Test Setup – Side View



Radiated Emissions Test Setup Below 1GHz

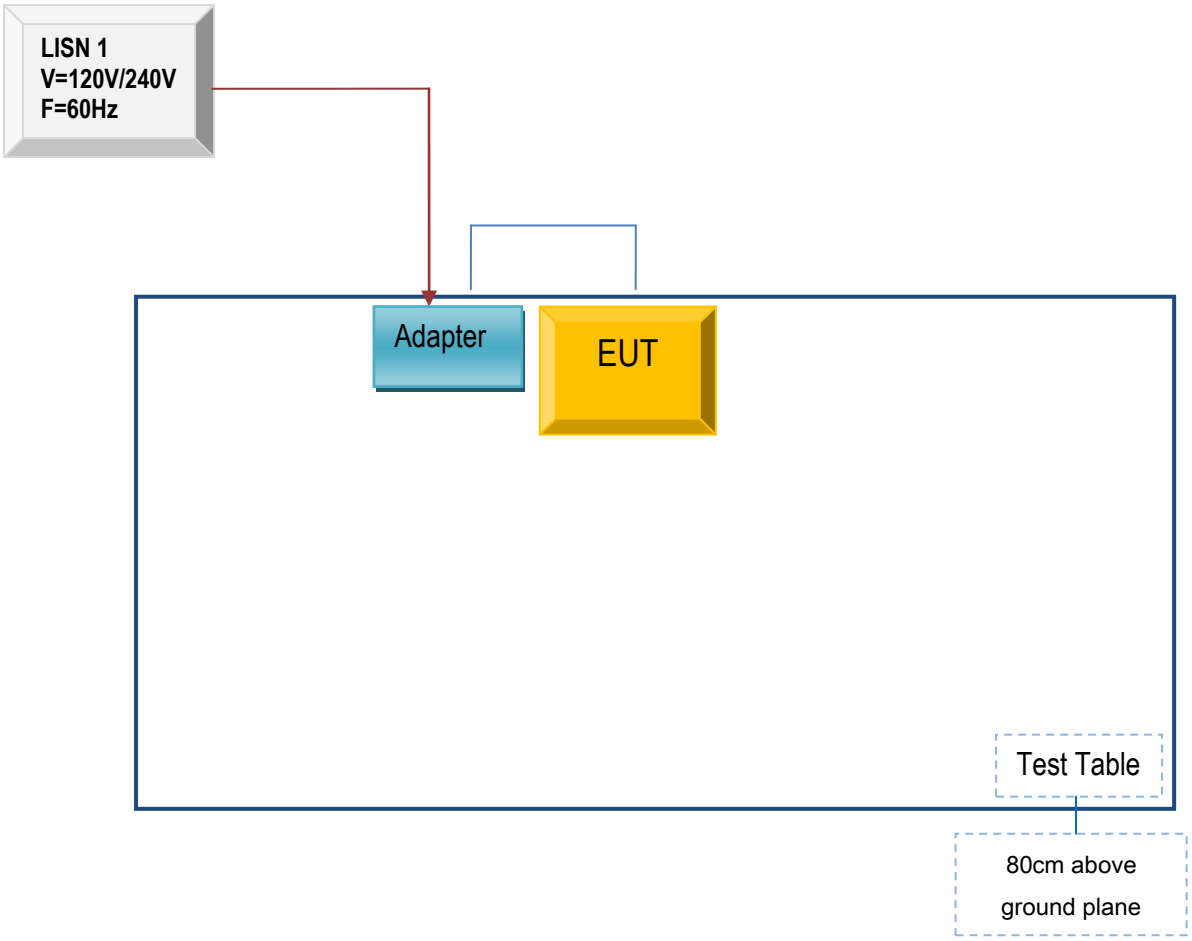


Radiated Emissions Test Setup Above 1GHz

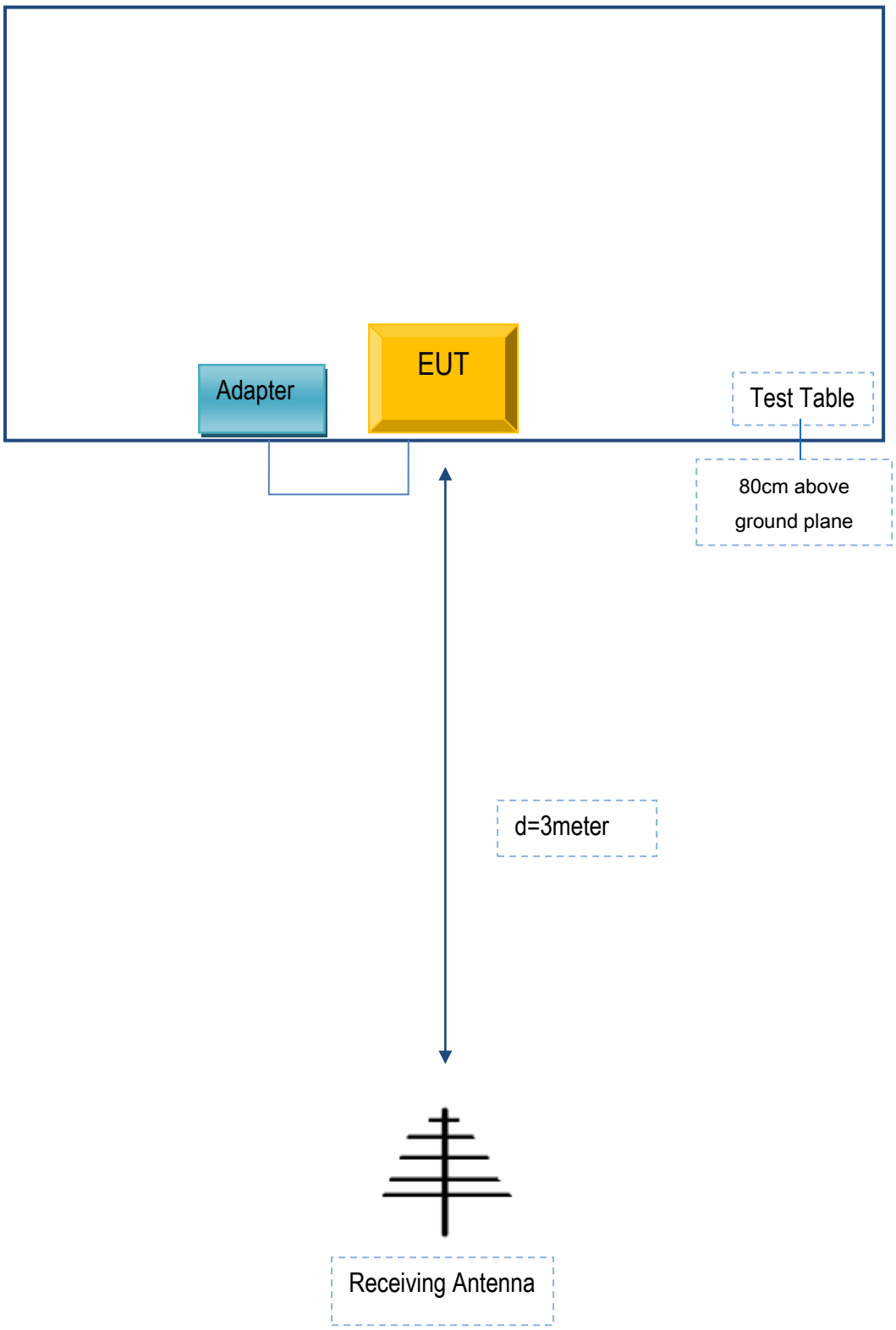
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for 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
EDMI(Shenzhen)Co.,Ltd	Adapter	HKC0055010-4D	D05A90167V000854

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
Power Cables	Un-shielding	No	0.8m	D05A90167V000854

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

Please see Attachment

Annex E. DECLARATION OF SIMILARITY

N/A