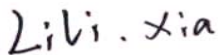



EMC TEST REPORT



Report No.: 14070564-FCC-E1

Supersede Report No.: N/A

Applicant	Wisdom International HongKong Co., Limited	
Product Name	MoonBox streaming player	
Model No.	MoonBox III	
Test Standard	FCC Part 15 Subpart B Class B:2013, ANSI C63.4: 2009	
Test Date	October 30 to November 04, 2014	
Issue Date	November 14, 2014	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification <input checked="" type="checkbox"/>		
Equipment did not comply with the specification <input type="checkbox"/>		
		
Lili Xia Test Engineer	Alex Liu Checked By	
This test report may be reproduced in full only 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

Test Report	14070564-FCC-E1
Page	3 of 27

This page has been left blank intentionally.

CONTENTS

1. REPORT REVISION HISTORY	5
2. CUSTOMER INFORMATION	5
3. TEST SITE INFORMATION	5
4. EQUIPMENT UNDER TEST (EUT) INFORMATION	6
5. TEST SUMMARY	7
6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS	8
6.1 AC POWER LINE CONDUCTED EMISSIONS	8
6.2 RADIATED EMISSIONS	14
ANNEX A. TEST INSTRUMENT	18
ANNEX B. EUT AND TEST SETUP PHOTOGRAPHS	19
ANNEX C. TEST SETUP AND SUPPORTING EQUIPMENT	23
ANNEX D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST	26
ANNEX E. DECLARATION OF SIMILARITY	27

1. Report Revision History

Report No.	Report Version	Description	Issue Date
14070564-FCC-E1	NONE	Original	November 14, 2014

2. Customer information

Applicant Name	Wisdom International HongKong Co., Limited
Applicant Add	Room 603, 6/F, Hang Pont Commercial Building, 31 Tonkin Street, Cheung Sha Wan, Kowloon, HongKong
Manufacturer	Wisdom International HongKong Co., Limited
Manufacturer Add	Room 603, 6/F, Hang Pont Commercial Building, 31 Tonkin Street, Cheung Sha Wan, Kowloon, HongKong

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	Labview of SIEMIC version 2.0

4. Equipment under Test (EUT) Information

Description of EUT:	MoonBox streaming player
Main Model:	MoonBox III
Serial Model:	N/A
Date EUT received:	October 13, 2014
Test Date(s):	October 30 to November 04, 2014
Antenna Gain:	WIFI: 2.5 dBi
Type of Modulation:	802.11b/g/n: DSSS, OFDM
RF Operating Frequency (ies):	WIFI:802.11b/g/n(20M): 2412-2462 MHz WIFI:802.11n(40M): 2422-2452 MHz
Number of Channels:	WIFI :802.11b/g/n(20M): 11CH WIFI :802.11n(40M): 7CH
Port:	Power Port, USB Port
Input Power:	Adapter: Model: JK050200-S04USA Input: AC 100-240V; 50/60Hz 0.5A Output: DC 5.0V; 2000mA
Trade Name :	N/A
FCC ID:	2ADET131010

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: 2009	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2009	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

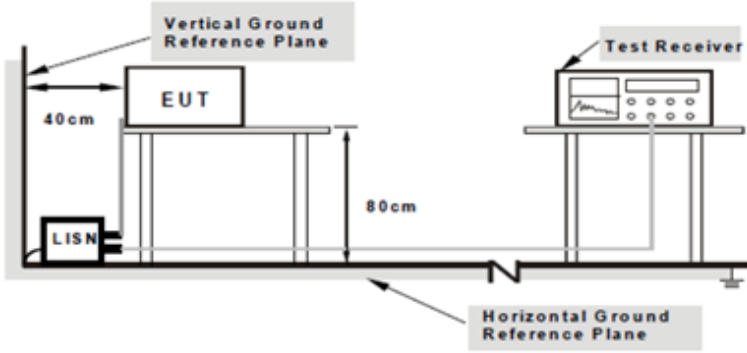
6. Measurements, Examination and Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	24°C
Relative Humidity	55%
Atmospheric Pressure	1012mbar
Test date :	October 30, 2014
Tested By :	Lili Xia

Requirement(s):

Spec	Item	Requirement	Applicable														
47CFR§15.107	a)	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>	Frequency ranges (MHz)	Limit (dBµV)		QP	Average	0.15 ~ 0.5	66 – 56	56 – 46	0.5 ~ 5	56	46	5 ~ 30	60	50	
Frequency ranges (MHz)	Limit (dBµV)																
	QP	Average															
0.15 ~ 0.5	66 – 56	56 – 46															
0.5 ~ 5	56	46															
5 ~ 30	60	50															

Test Setup	 <p>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.</p>
------------	---

Procedure	<ol style="list-style-type: none"> 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. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.
-----------	---

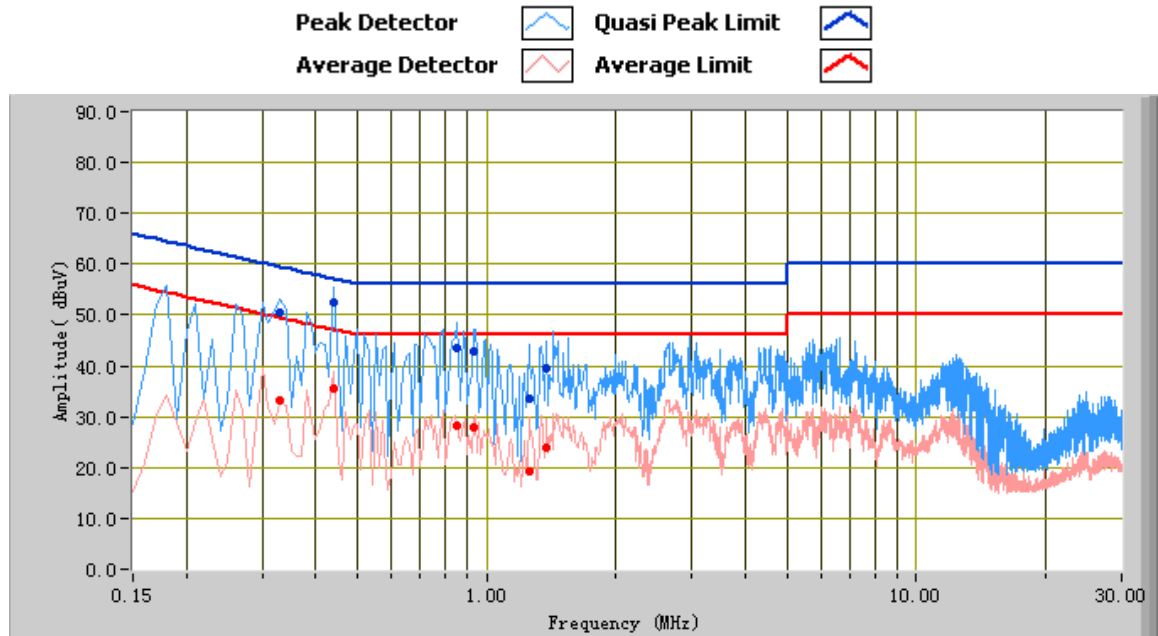
Test Report	14070564-FCC-E1
Page	9 of 27

	<p>3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</p> <p>4. All other supporting equipment were powered separately from another main supply.</p> <p>5. The EUT was switched on and allowed to warm up to its normal operating condition.</p> <p>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.</p> <p>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.</p> <p>8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).</p>
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Mode: Multi-Media Mode

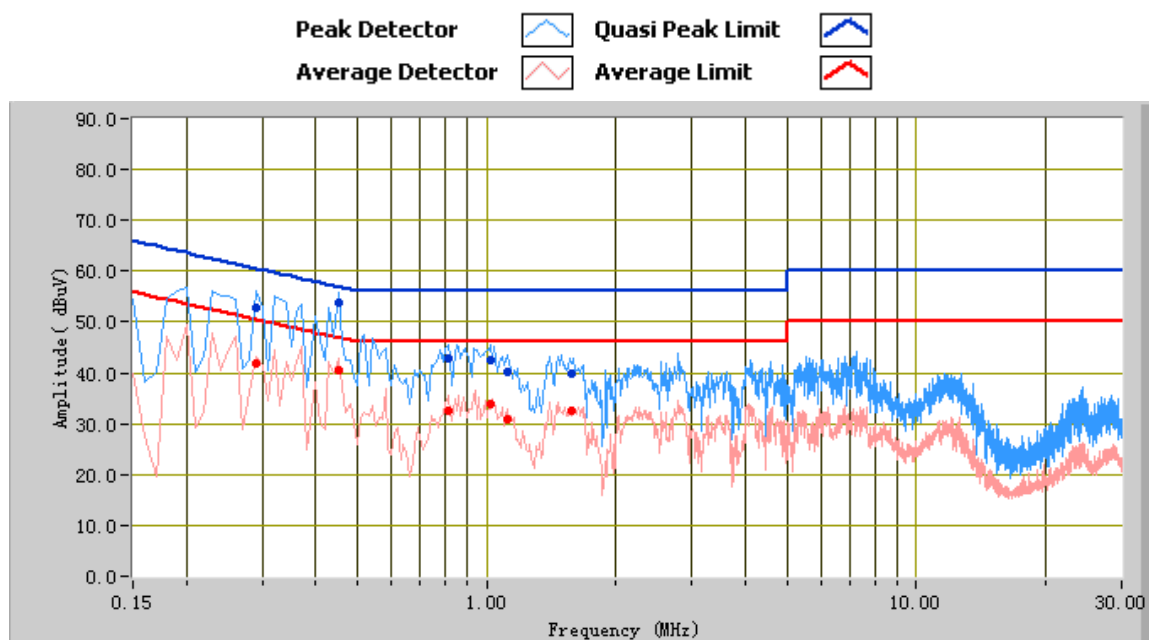


Test Data

Phase Line Plot at 120Vac, 60Hz

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Factors (dB)
0.44	52.50	57.06	-4.56	35.64	47.06	-11.42	10.81
0.33	50.62	59.45	-8.83	33.22	49.45	-16.23	11.34
0.85	43.65	56.00	-12.35	28.21	46.00	-17.79	10.37
0.93	42.96	56.00	-13.04	27.76	46.00	-18.24	10.33
1.38	39.66	56.00	-16.34	23.76	46.00	-22.24	10.33
1.25	33.60	56.00	-22.40	19.41	46.00	-26.59	10.31

Test Mode: Multi-Media Mode

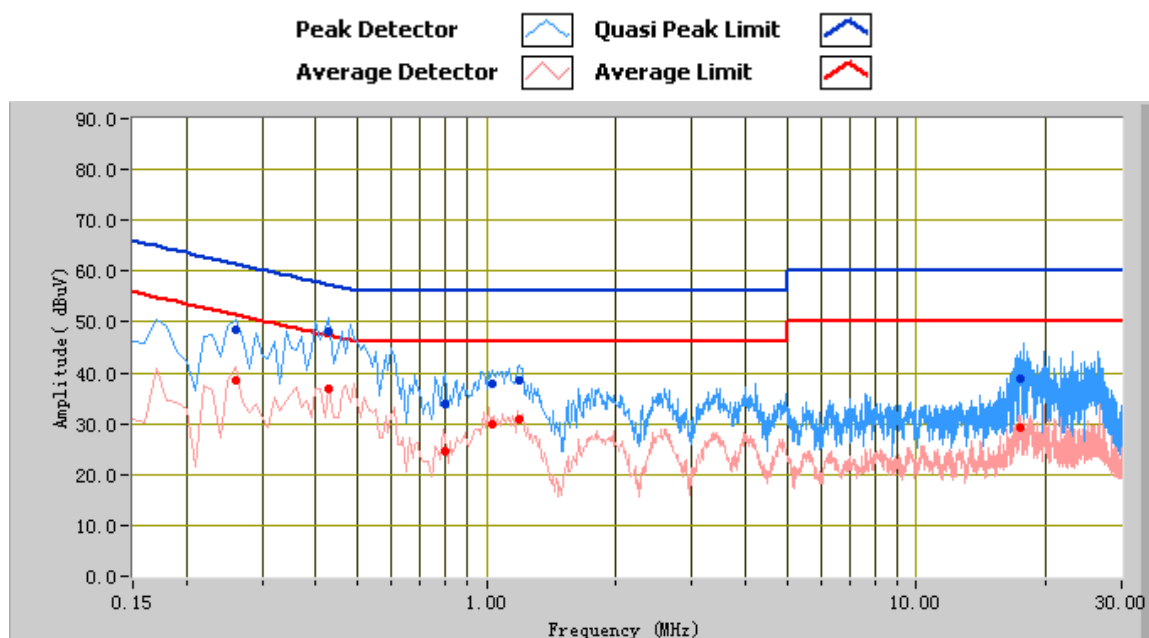


Test Data

Phase Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Factors (dB)
0.45	53.71	56.87	-3.17	40.44	46.87	-6.43	10.79
0.29	52.89	60.52	-7.63	41.88	50.52	-8.64	11.57
0.81	42.91	56.00	-13.09	32.60	46.00	-13.40	10.39
1.02	42.61	56.00	-13.39	33.74	46.00	-12.26	10.29
1.12	40.15	56.00	-15.85	30.92	46.00	-15.08	10.29
1.58	39.95	56.00	-16.05	32.58	46.00	-13.42	10.36

Test Mode: Ethernet Mode

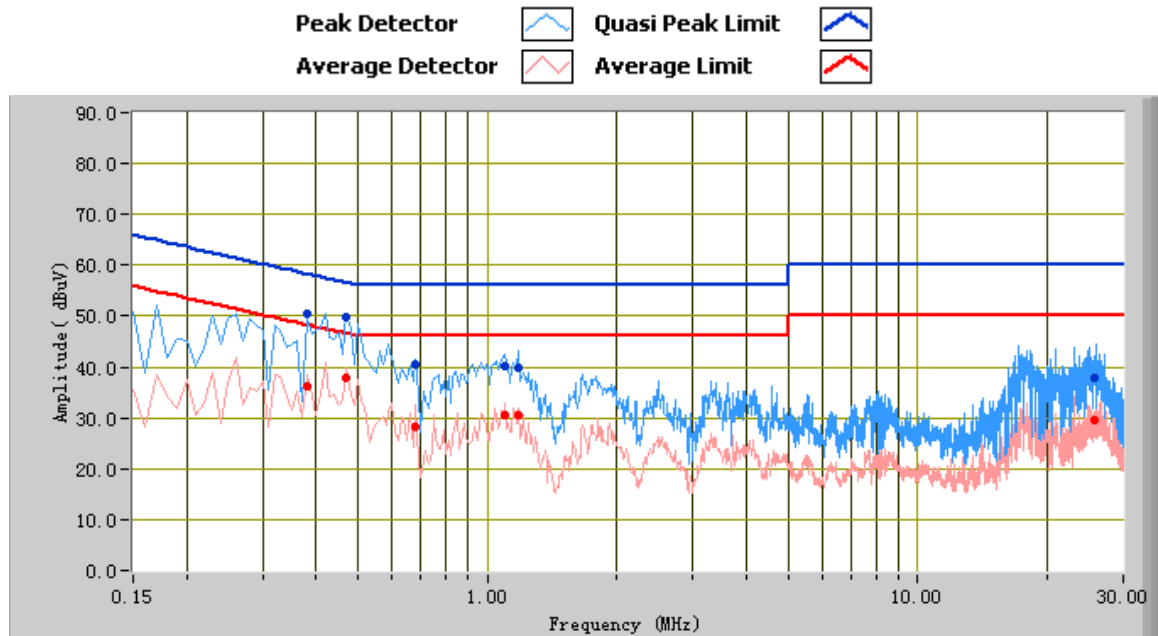


Test Data

Phase Line Plot at 120Vac, 60Hz

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Factors (dB)
0.43	48.04	57.25	-9.21	36.99	47.25	-10.26	10.86
0.26	48.41	61.43	-13.02	38.48	51.43	-12.95	11.74
1.19	38.50	56.00	-17.50	30.90	46.00	-15.10	10.30
1.03	37.88	56.00	-18.12	29.86	46.00	-16.14	10.29
0.80	33.76	56.00	-22.24	24.70	46.00	-21.30	10.40
17.42	38.77	60.00	-21.23	29.16	50.00	-20.84	14.10

Test Mode: Ethernet Mode



Test Data

Phase Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Factors (dB)
0.47	49.94	56.51	-6.57	37.70	46.51	-8.81	10.70
0.38	50.59	58.28	-7.69	36.16	48.28	-12.12	11.08
1.18	39.73	56.00	-16.27	30.45	46.00	-15.55	10.29
1.10	40.11	56.00	-15.89	30.65	46.00	-15.35	10.29
0.68	40.57	56.00	-15.43	28.36	46.00	-17.64	10.46
25.82	37.86	60.00	-22.14	29.48	50.00	-20.52	15.73

6.2 Radiated Emissions

Temperature	22°C
Relative Humidity	55%
Atmospheric Pressure	1012mbar
Test date :	November 04, 2014
Tested By :	Lili Xia

Requirement(s):

Spec	Item	Requirement	Applicable	
47CFR§15. 107(d)	a)	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	<div><input checked="" type="checkbox"/></div>	
		Frequency range (MHz)		Field Strength (µV/m)
		30 – 88		100
		88 – 216		150
		216 960		200
		Above 960		500

Test Setup	
------------	--

Procedure	<ol style="list-style-type: none"> The EUT was switched on and allowed to warm up to its normal operating condition. 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: <ol style="list-style-type: none"> Vertical or horizontal polarization (whichever gave the higher emission level
-----------	--

Test Report	14070564-FCC-E1
Page	15 of 27

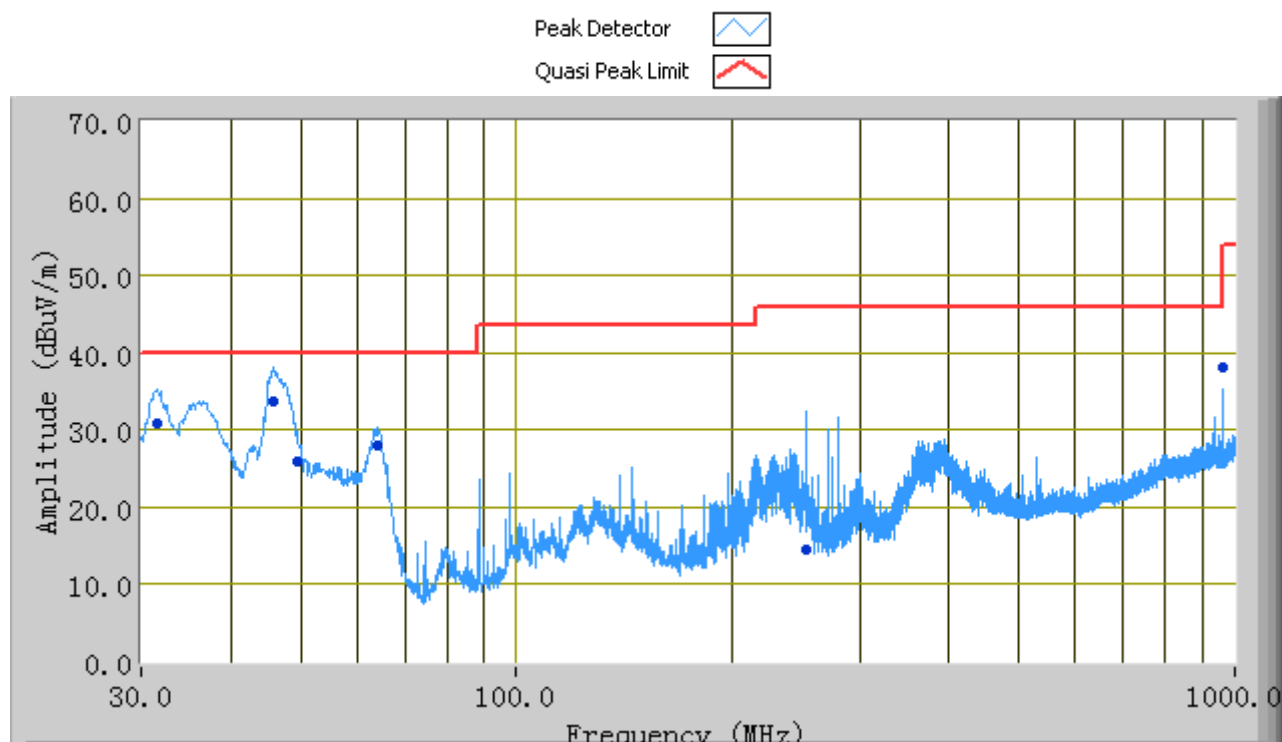
	<p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz.</p> <p>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 is 10Hz with Peak detection for Average Measurement at frequency above 1GHz.</p> <p>5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</p>
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Mode: Multi-Media Mode

(Below 1GHz)



Test Data

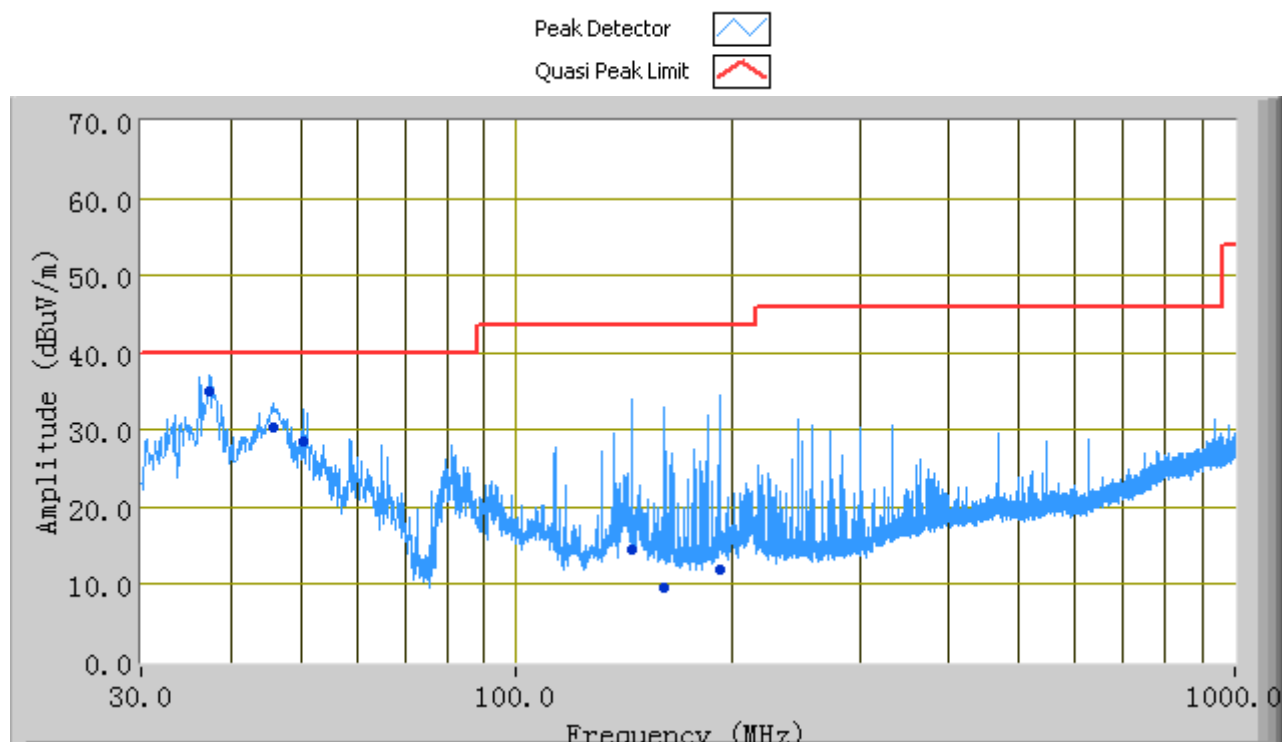
Vertical & Horizontal Polarity Plot @3m

Frequency (MHz)	Quasi Peak (dBuV/m)	Azimuth	Polarity (H/V)	Height (cm)	Factors (dB)	Limit (dBuV/m)	Margin (dB)
45.85	33.60	327.00	V	135.00	-11.93	40.00	-6.40
31.58	30.98	134.00	V	114.00	-2.48	40.00	-9.02
63.90	27.98	50.00	V	102.00	-13.84	40.00	-12.02
49.54	25.85	344.00	V	122.00	-13.71	40.00	-14.15
960.01	38.12	157.00	H	123.00	5.72	46.00	-7.88
253.27	14.43	245.00	H	100.00	-7.35	46.00	-31.57

Note: The above 1GHz frequency was pre-scanned and the result which was 20dB lower than the limit line per 15.109 was not recorded.

Test Mode:	Ethernet Mode
------------	---------------

(Below 1GHz)



Test Data

Vertical & Horizontal Polarity Plot @3m

Frequency (MHz)	Quasi Peak (dBuV/m)	Azimuth	Polarity (H/V)	Height (cm)	Factors (dB)	Limit (dBuV/m)	Margin (dB)
37.37	34.94	196.00	V	102.00	-5.69	40.00	-5.06
45.83	30.26	110.00	V	100.00	-11.99	40.00	-9.74
50.41	28.64	273.00	V	111.00	-14.00	40.00	-11.36
191.33	12.03	279.00	H	100.00	-8.45	43.52	-31.49
144.59	14.60	105.00	H	202.00	-7.22	43.52	-28.92
159.93	9.49	228.00	V	284.00	-8.15	43.52	-34.03

Note: The above 1GHz frequency was pre-scanned and the result which was 20dB lower than the limit line per 15.109 was not recorded.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/18/2014	09/17/2015	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191106	09/26/2014	09/25/2015	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191107	09/26/2014	09/25/2015	<input checked="" type="checkbox"/>
LISN	ISN T800	34373	09/26/2014	09/25/2015	<input checked="" type="checkbox"/>
Transient Limiter	LIT-153	531118	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/18/2014	09/17/2015	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Microwave Preamplifier (0.5 ~ 18GHz)	PAM-118	443008	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/22/2014	09/21/2015	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna	AH-118	71259	09/25/2014	09/24/2015	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo



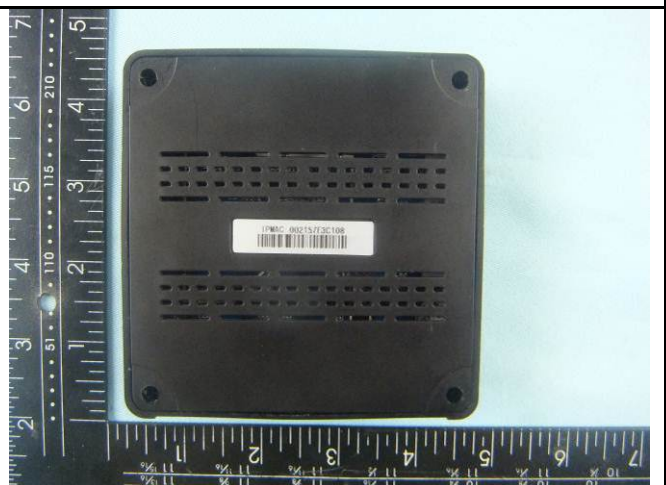
Whole Package - Top View



Adapter - Front View



EUT - Front View



EUT - Rear View



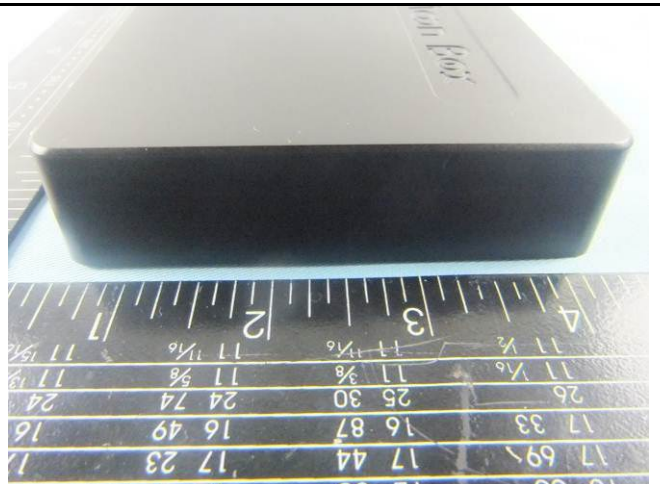
EUT - Top View



EUT - Bottom View

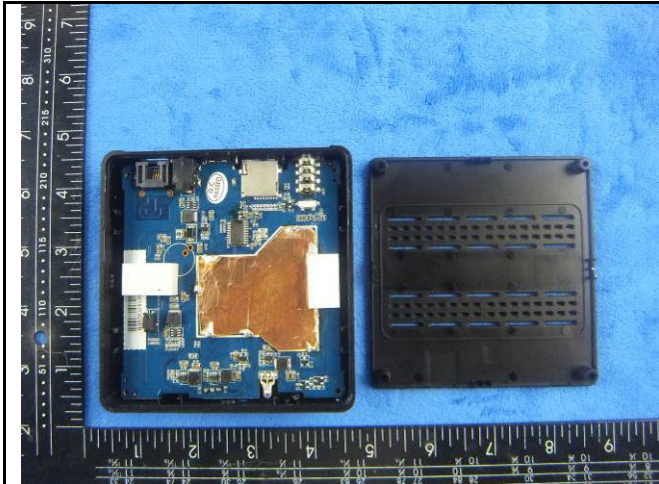


EUT - Left View

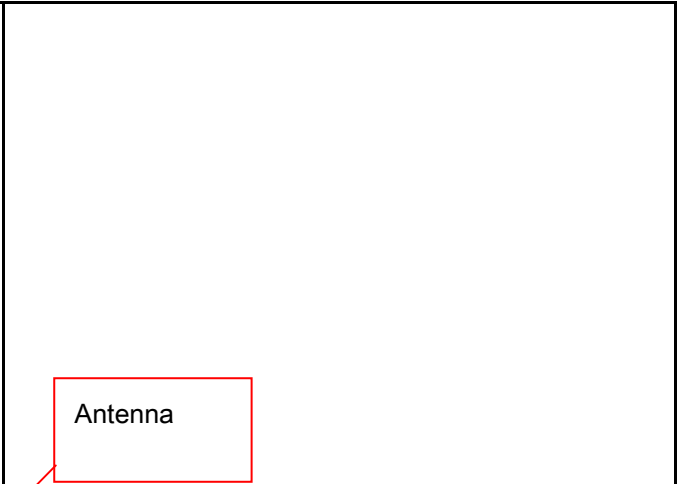


EUT - Right View

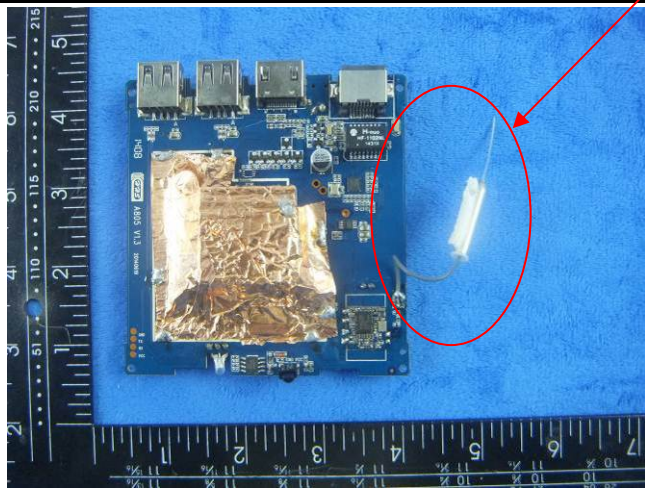
Annex B.ii. Photograph: EUT Internal Photo



EUT Cover Off - Top View



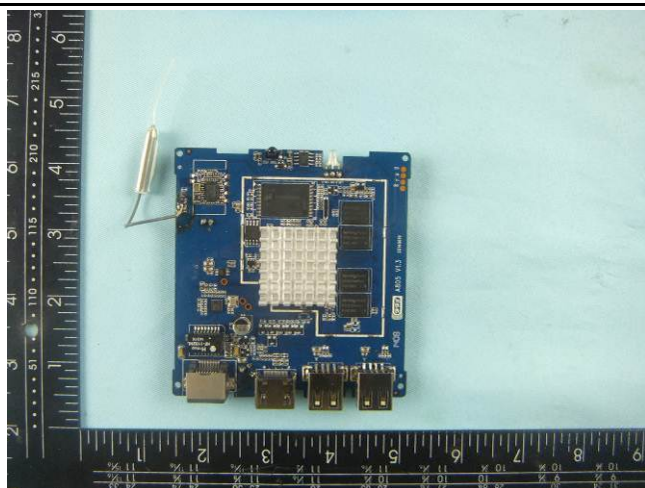
Antenna



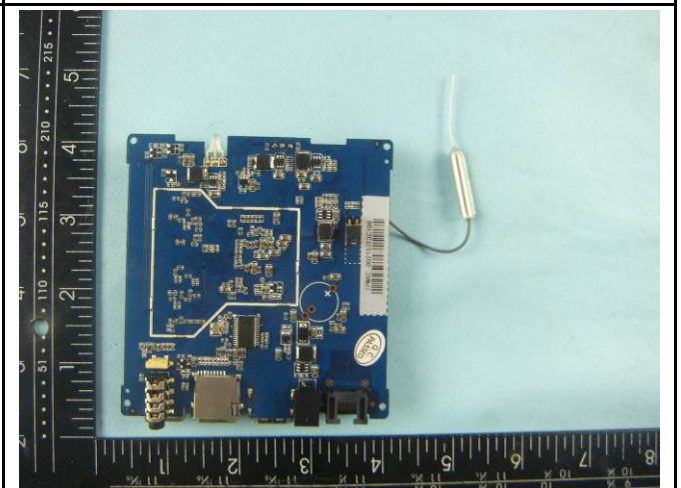
Mainborad With Shielding - Front View



Mainborad Without Shielding - Front View



Mainborad With Shielding - Front View



Mainborad Without Shielding - Rear View

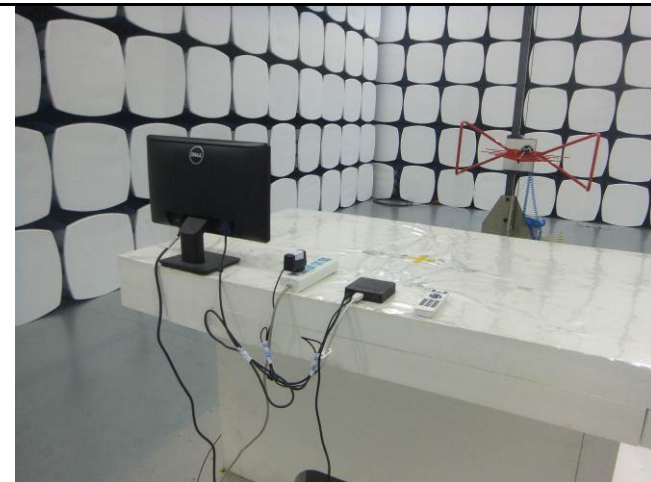
Annex B.iii. Photograph: Test Setup Photo



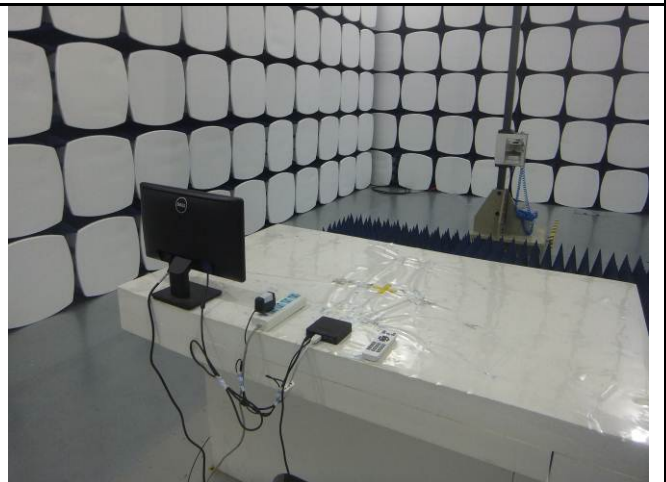
Conducted Emissions Test Setup – Front View



Conducted Emissions Test Setup – Side View



Radiated Spurious Emissions Test Setup Below 1GHz

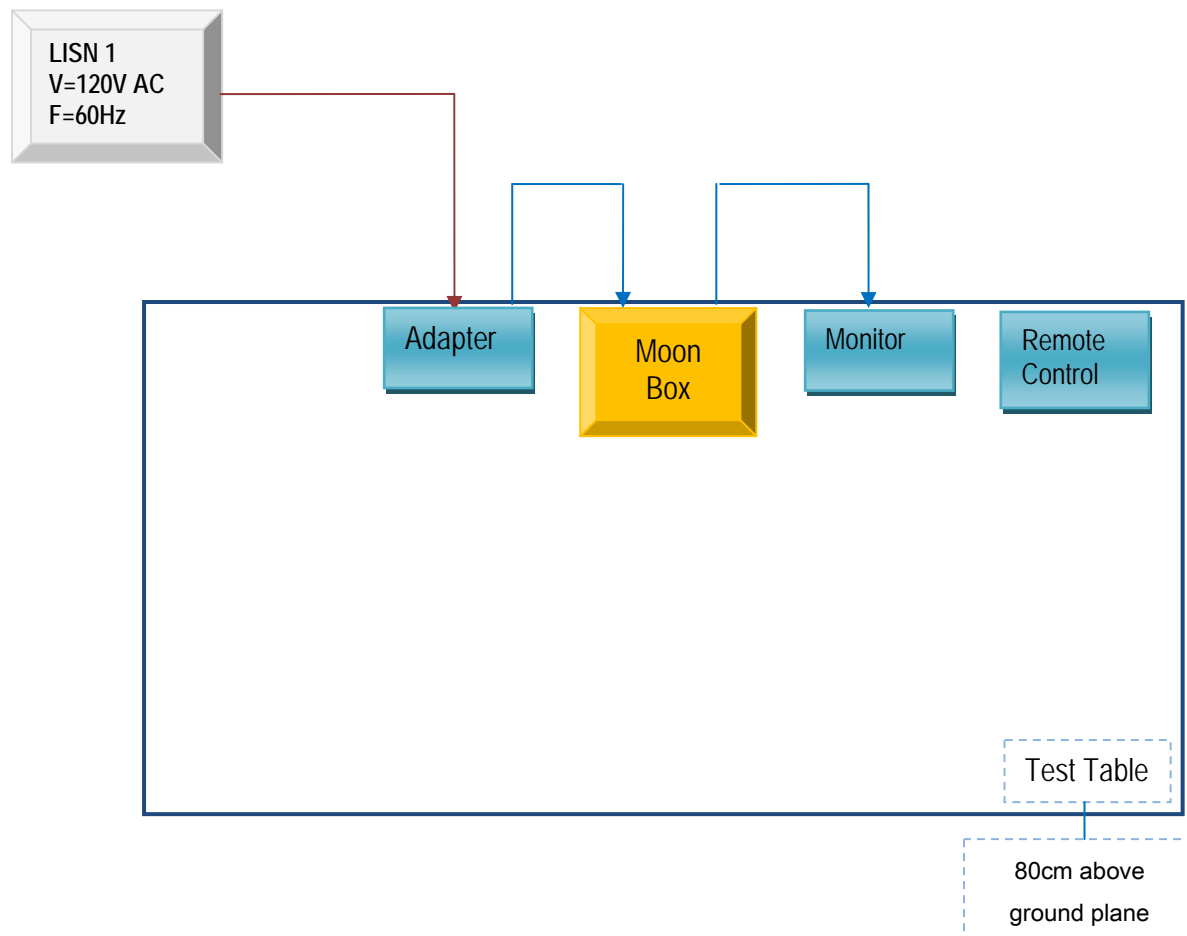


Radiated Spurious Emissions Test Setup Above
1GHz

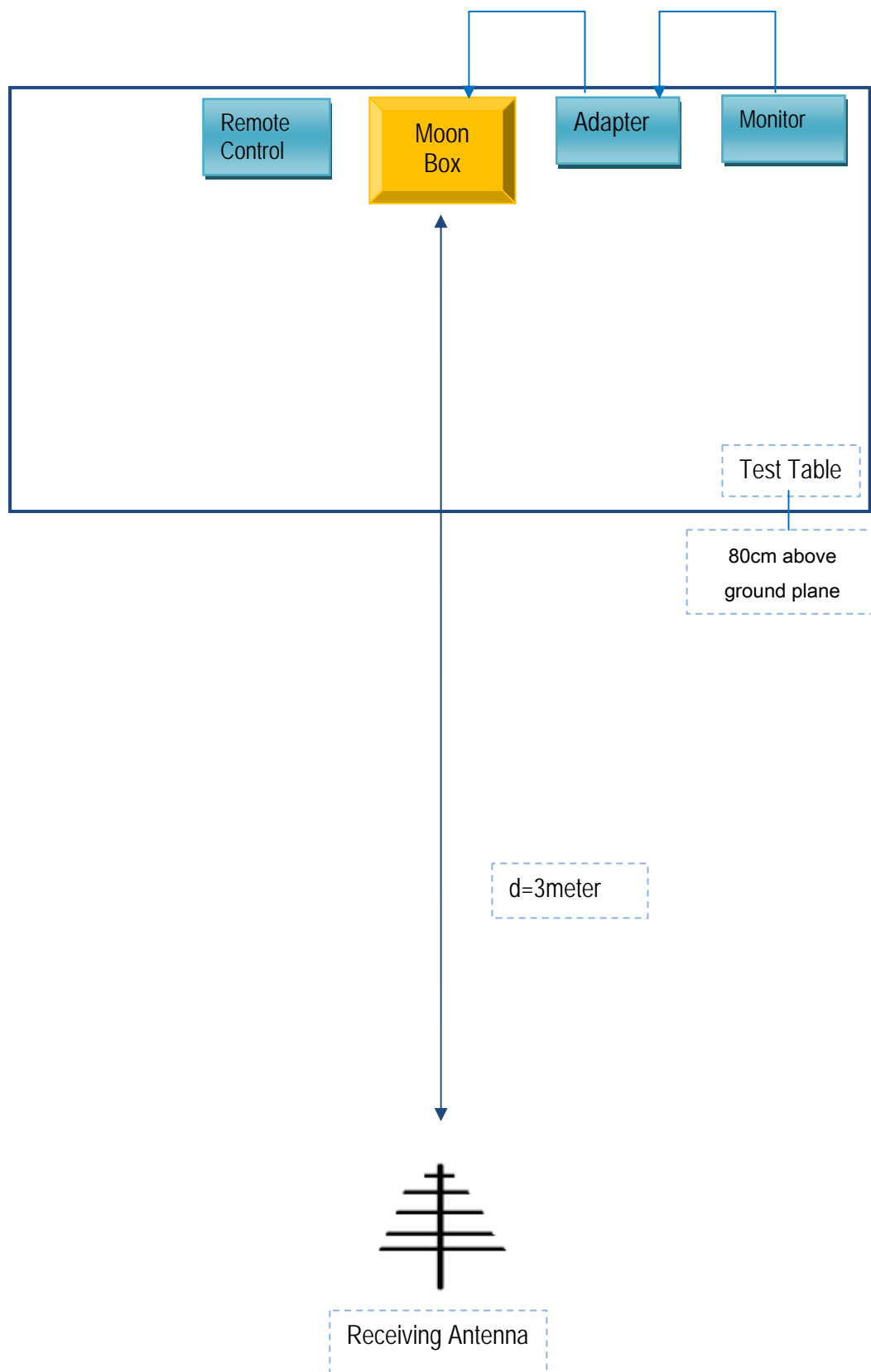
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



Test Report	14070564-FCC-E1
Page	25 of 27

Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

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

Manufacturer	Equipment Description	Model	Calibration Date	Calibration Due Date
DELL	Monitor	IN1940MW	N/A	N/A

Test Report	14070564-FCC-E1
Page	26 of 27

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

Please see Attachment

Test Report	14070564-FCC-E1
Page	27 of 27

Annex E. DECLARATION OF SIMILARITY

N/A