




EMC TEST REPORT



Report No.: 15070167-FCC-E1

Supersede Report No.: N/A

Applicant	HONGKONG IPRO TECH CO.,LTD	
Product Name	ELITE MINI	
Model No.	I9405	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2014, ANSI C63.4: 2014	
Test Date	April 10 to April 13, 2015	
Issue Date	April 24, 2015	
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"/>	
		
Kahn Yang Test Engineer	Chris You Checked By	
<p>This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only</p>		

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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1. Report Revision History

Report No.	Report Version	Description	Issue Date
15070167-FCC-E1	NONE	Original	April 24, 2015

2. Customer information

Applicant Name	HONGKONG IPRO TECH CO.,LTD
Applicant Add	707-713 NATHAN RD MONGKOK, HONGKONG
Manufacturer	shenzhen zhike communications co.,ltd
Manufacturer Add	8th Floor, B Bldg. Dianzi Fuhua Jidi, Taojindi, Longsheng community, Longhua District, Shenzhen(ShangTang Metro Station Exit A LongHua Line)

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:	ELITE MINI
Main Model:	I9405
Serial Model:	N/A
Date EUT received:	March 19, 2015
Test Date(s):	April 10 to April 13, 2015
Equipment Category :	JBP
Antenna Gain:	UMTS-FDD Band V/GSM850: 0 dBi PCS1900/UMTS-FDD Band II: 1 dBi Bluetooth/BLE: 2 dBi WIFI: 2 dBi
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK, 8PSK UMTS-FDD: QPSK 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK
RF Operating Frequency (ies):	GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz UMTS-FDD Band II TX: 1852.4 ~ 1907.6 MHz; RX: 1932.4 ~ 1987.6 MHz WIFI: 802.11b/g/n(20M): 2412-2462 MHz WIFI: 802.11n(40M): 2422-2452 MHz Bluetooth & BLE: 2402-2480 MHz
Number of Channels:	GSM 850: 124CH PCS1900: 299CH UMTS-FDD Band V : 102CH

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UMTS-FDD Band II : 277CH

WIFI :802.11b/g/n(20M): 11CH

WIFI :802.11n(40M): 7CH

Bluetooth: 79CH

BLE: 40CH

Port: Power Port, Earphone Port, USB Port

Battery:

Model: Elite mini

Spec: 3.8V 1250mAh

Limited charger voltage: 4.35V

Input Power:

Adapter:

Model: NTR-S05

Input: AC 100-240V; 50/60Hz 150mA

Output: DC 5.0V; 700mA

Trade Name : IPRO

GPRS/EGPRS Multi-slot class 8/10/12

FCC ID: PQ4IPROELITEMINI

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	21°C
Relative Humidity	56%
Atmospheric Pressure	1017mbar
Test date :	April 10, 2015
Tested By :	Kahn Yang

Requirement(s):

Spec	Item	Requirement	Applicable														
47CFR§15.107	a)	<p>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 [μ] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.</p> <table border="1"> <thead> <tr> <th rowspan="2">Frequency ranges (MHz)</th> <th colspan="2">Limit (dBμV)</th> </tr> <tr> <th>QP</th> <th>Average</th> </tr> </thead> <tbody> <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> </tbody> </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	<input checked="" type="checkbox"/>
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 style="text-align: center;"> 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>
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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.
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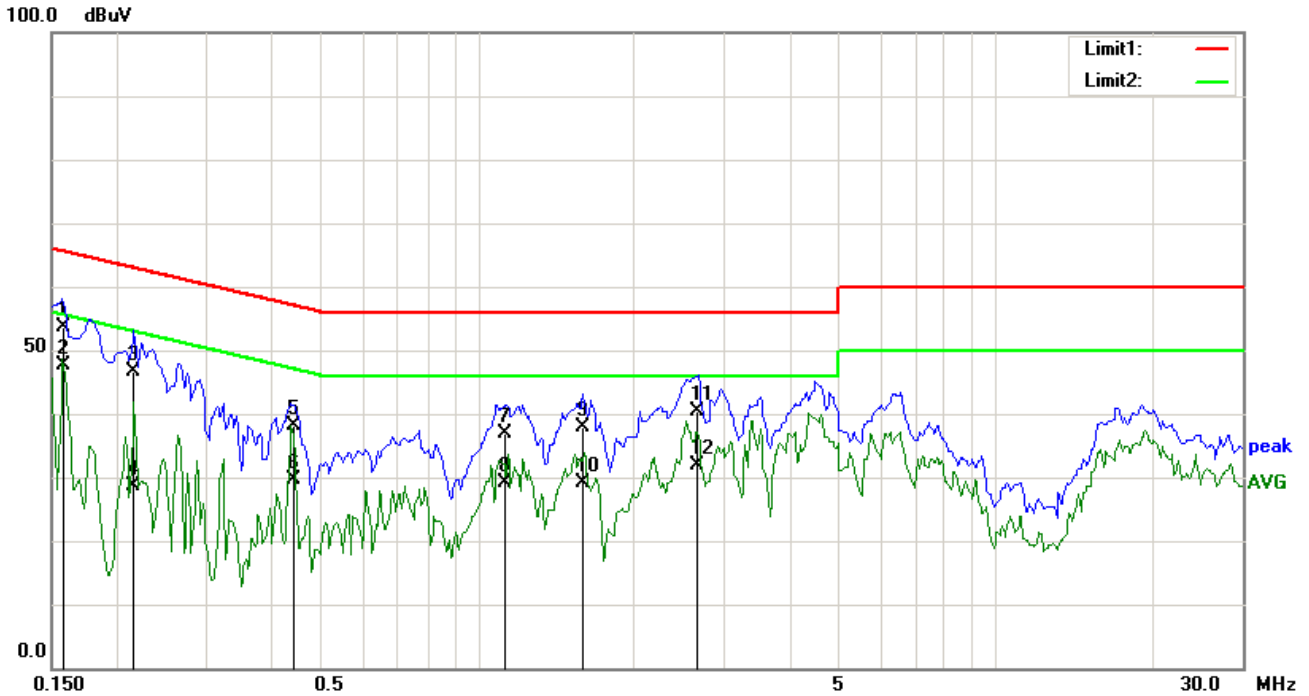
	<ol style="list-style-type: none"> 3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 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	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

Test Mode 1:	USB Mode
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Peak Detector ▬ Quasi Peak Limit ▬
Average Detector ▬ Average Limit ▬



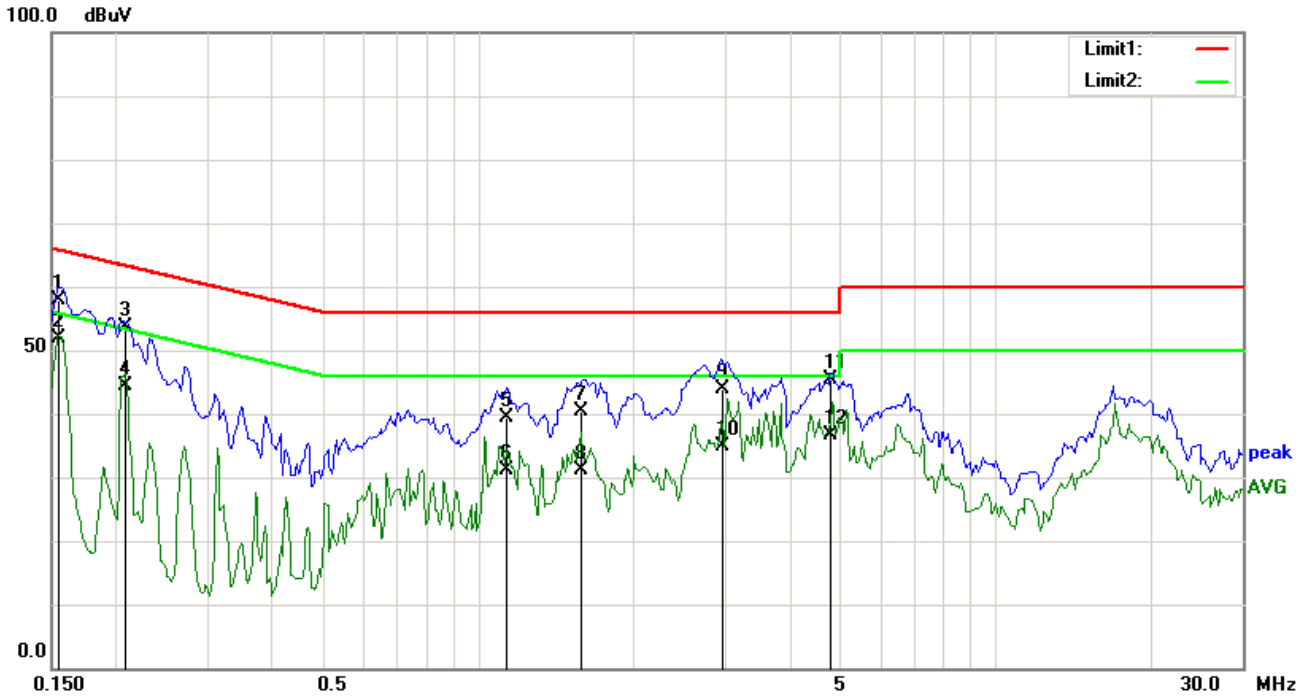
Test Data

Phase Line Plot at 230Vac, 50Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Comment
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)	
1	L1	0.1582	42.33	QP	11.30	53.63	65.56	-11.93	
2	L1	0.1582	36.37	AVG	11.30	47.67	55.56	-7.89	
3	L1	0.2164	35.44	QP	11.27	46.71	62.96	-16.25	
4	L1	0.2164	17.30	AVG	11.27	28.57	52.96	-24.39	
5	L1	0.4397	27.01	QP	11.16	38.17	57.07	-18.90	
6	L1	0.4397	18.37	AVG	11.16	29.53	47.07	-17.54	
7	L1	1.1344	26.08	QP	10.90	36.98	56.00	-19.02	
8	L1	1.1344	18.17	AVG	10.90	29.07	46.00	-16.93	
9	L1	1.5992	26.90	QP	10.90	37.80	56.00	-18.20	
10	L1	1.5992	18.18	AVG	10.90	29.08	46.00	-16.92	
11	L1	2.6500	29.52	QP	10.90	40.42	56.00	-15.58	
12	L1	2.6500	20.87	AVG	10.90	31.77	46.00	-14.23	

Test Mode 1:	USB Mode
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Peak Detector ▬ Quasi Peak Limit ▬
Average Detector ▬ Average Limit ▬



Test Data

Phase Neutral Plot at 230Vac, 50Hz

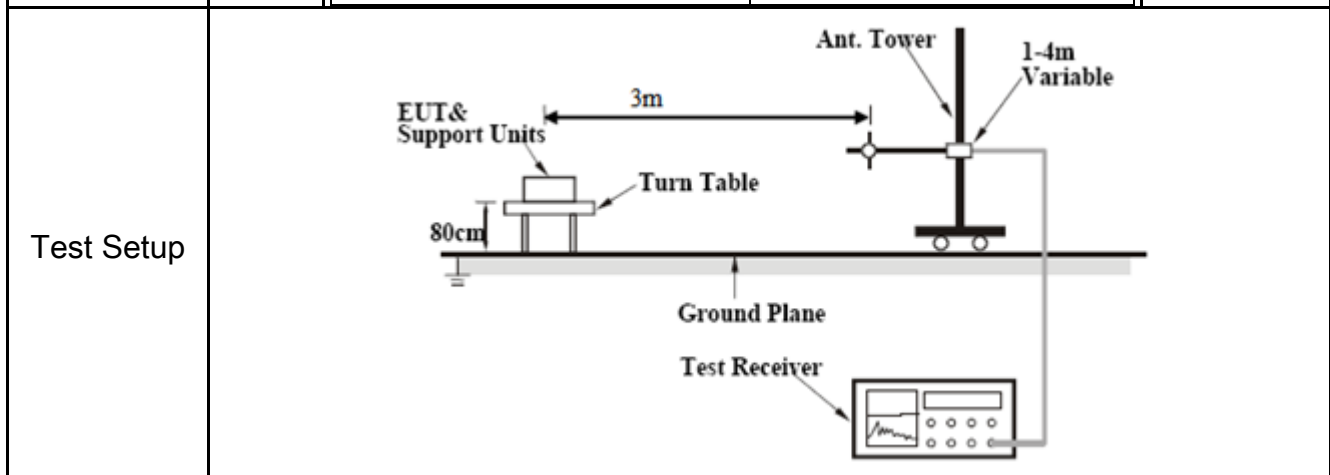
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Comment
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)	
1	N	0.1548	57.95	QP	0.00	57.95	65.74	-7.79	
2	N	0.1548	51.85	AVG	0.00	51.85	55.74	-3.89	
3	N	0.2086	53.75	QP	0.00	53.75	63.26	-9.51	
4	N	0.2086	44.30	AVG	0.00	44.30	53.26	-8.96	
5	N	1.1383	39.32	QP	0.00	39.32	56.00	-16.68	
6	N	1.1383	31.24	AVG	0.00	31.24	46.00	-14.76	
7	N	1.5851	40.50	QP	0.00	40.50	56.00	-15.50	
8	N	1.5851	31.13	AVG	0.00	31.13	46.00	-14.87	
9	N	2.9619	43.81	QP	0.00	43.81	56.00	-12.19	
10	N	2.9619	35.00	AVG	0.00	35.00	46.00	-11.00	
11	N	4.7969	45.48	QP	0.00	45.48	56.00	-10.52	
12	N	4.7969	36.53	AVG	0.00	36.53	46.00	-9.47	

6.2 Radiated Emissions

Temperature	25°C
Relative Humidity	53%
Atmospheric Pressure	1014mbar
Test date :	April 13, 2015
Tested By :	Kahn Yang

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	<input checked="" type="checkbox"/>										
		<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength ($\mu\text{V/m}$)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">30 – 88</td> <td style="text-align: center;">100</td> </tr> <tr> <td style="text-align: center;">88 – 216</td> <td style="text-align: center;">150</td> </tr> <tr> <td style="text-align: center;">216 960</td> <td style="text-align: center;">200</td> </tr> <tr> <td style="text-align: center;">Above 960</td> <td style="text-align: center;">500</td> </tr> </tbody> </table>		Frequency range (MHz)	Field Strength ($\mu\text{V/m}$)	30 – 88	100	88 – 216	150	216 960	200	Above 960	500
		Frequency range (MHz)		Field Strength ($\mu\text{V/m}$)									
		30 – 88		100									
		88 – 216		150									
216 960	200												
Above 960	500												



Procedure	<ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. Vertical or horizontal polarization (whichever gave the higher emission level
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
	<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 with Peak detection for Average Measurement as below at frequency above 1GHz. ■ 1 kHz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%)</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

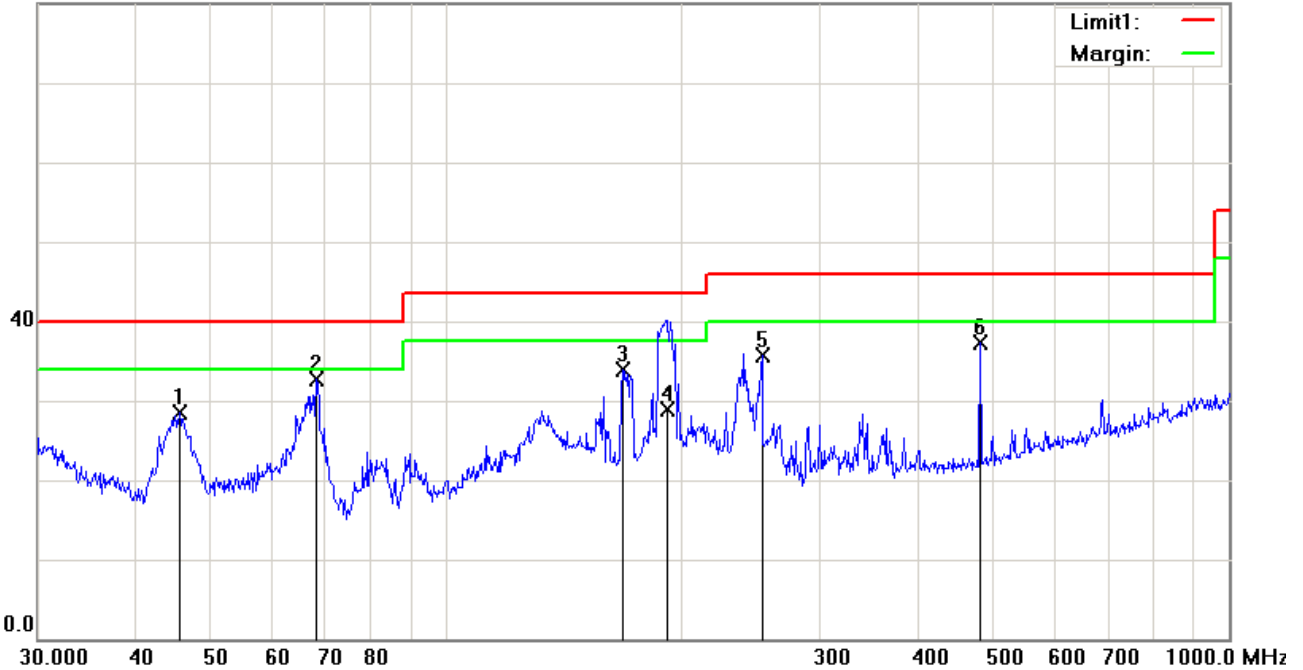
Test Plot Yes (See below) N/A

Test Mode: USB Mode

Below 1GHz

Peak Detector 
Quasi Peak Limit 

80.0 dBuV/m



Test Data



Horizontal Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ()	Comment
1	H	45.5348	30.24	peak	-1.71	28.53	40.00	-11.47	200	158	
2	H	68.1514	46.43	peak	-13.74	32.69	40.00	-7.31	200	345	
3	H	167.8243	42.74	peak	-8.92	33.82	43.50	-9.68	200	240	
4	H	190.9297	38.03	QP	-9.18	28.85	43.50	-14.65	100	231	
5	H	252.9482	44.69	peak	-9.05	35.64	46.00	-10.36	100	201	
6	H	480.5276	39.49	peak	-2.23	37.26	46.00	-8.74	200	98	

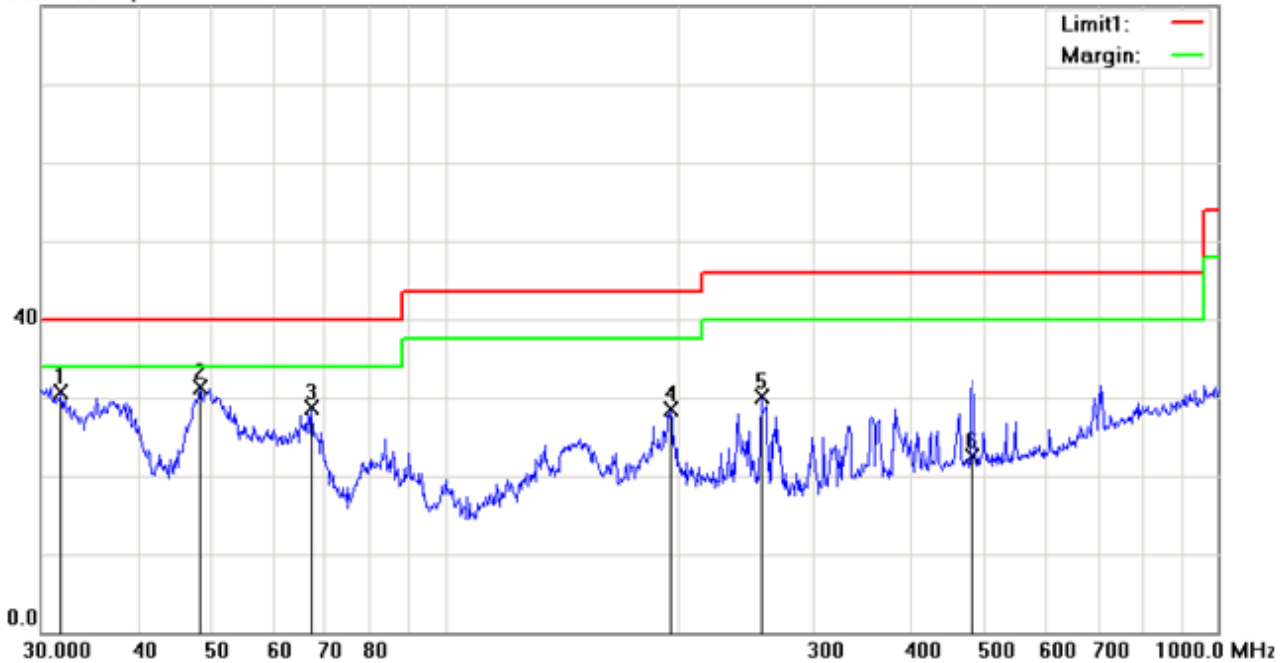
Above 1GHz

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

Below 1GHz

Peak Detector 
Quasi Peak Limit 

80.0 dBuV/m



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ()	Comment
1	V	31.8427	33.20	peak	-2.52	30.68	40.00	-9.32	100	49	
2	V	48.1626	44.38	peak	-13.15	31.23	40.00	-8.77	100	169	
3	V	67.2022	42.43	peak	-13.75	28.68	40.00	-11.32	100	53	
4	V	195.8220	36.80	peak	-8.26	28.54	43.50	-14.96	100	102	
5	V	256.5211	37.07	peak	-7.04	30.03	46.00	-15.97	200	149	
6	V	480.9931	25.29	QP	-2.69	22.60	46.00	-23.40	100	16	

Above 1GHz

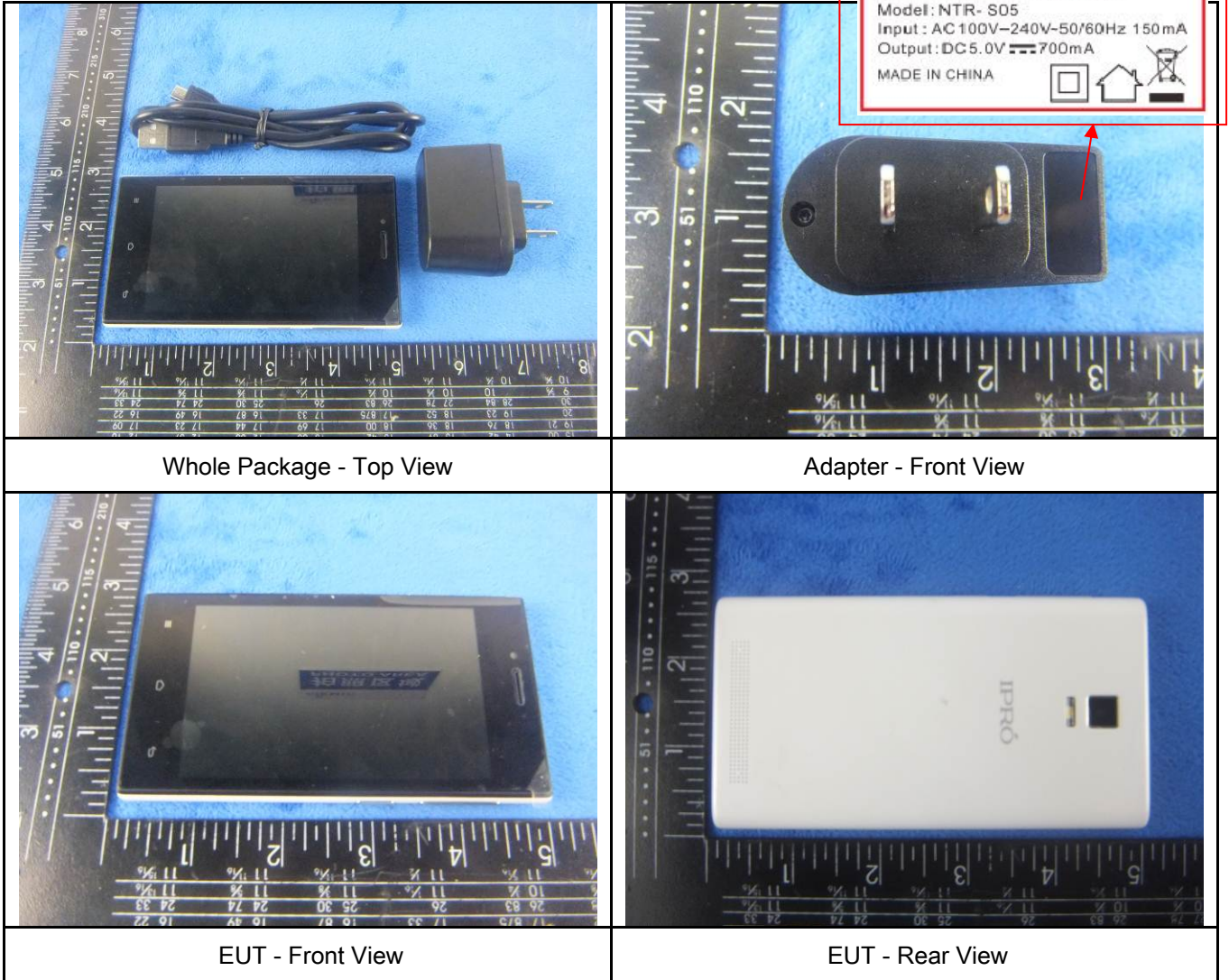
Note: The frequency that above 1GHz is mainly from the environment noise.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/18/2014	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 (1 ~ 26.5GHz)	8449B	3008A02402	10/04/2015	10/04/2016	<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"/>

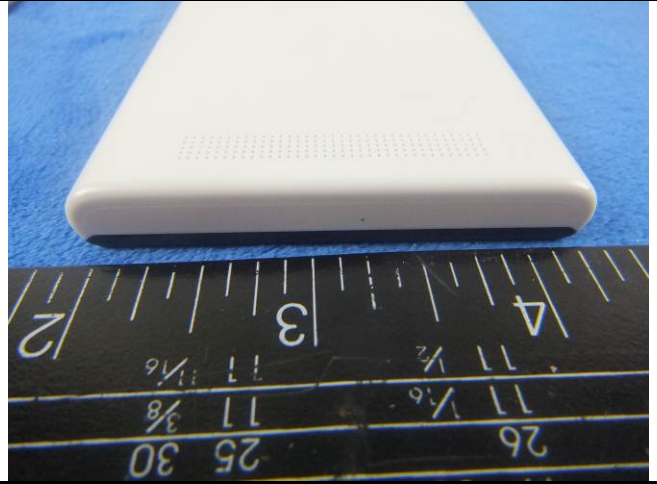
Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo





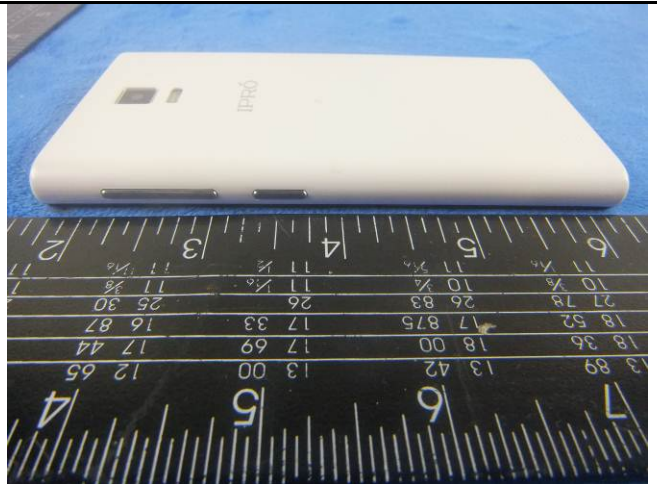
EUT - Top View



EUT - Bottom View



EUT - Left View

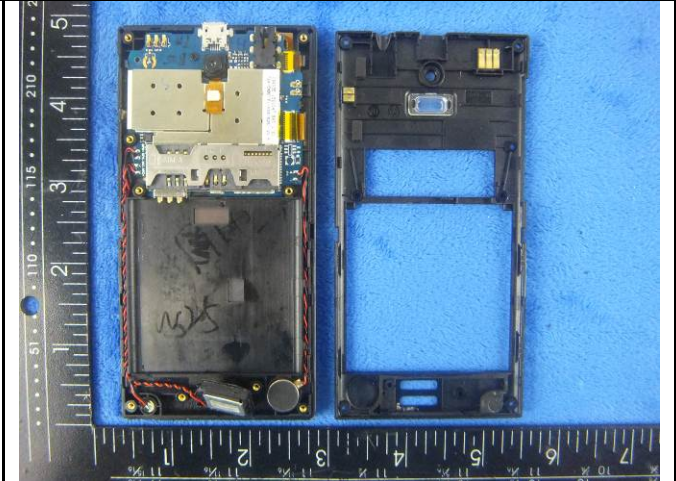


EUT - Right View

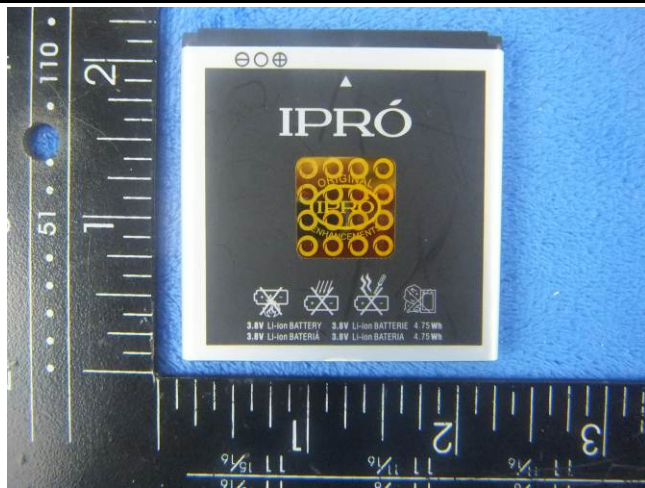
Annex B.ii. Photograph: EUT Internal Photo



Cover Off - Top View 1



Cover Off - Top View 2



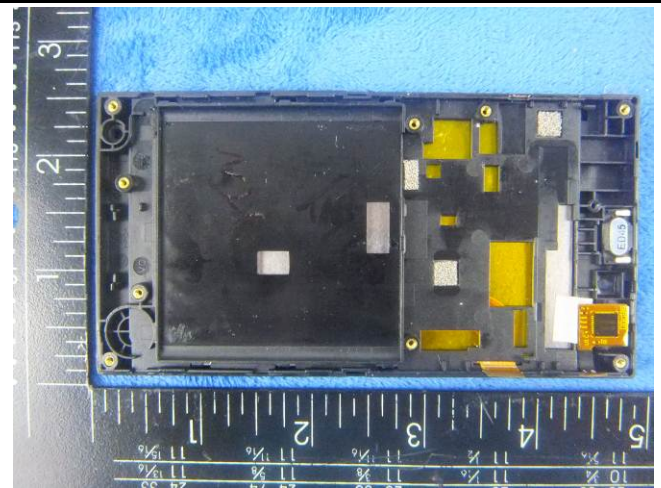
Battery - Top View



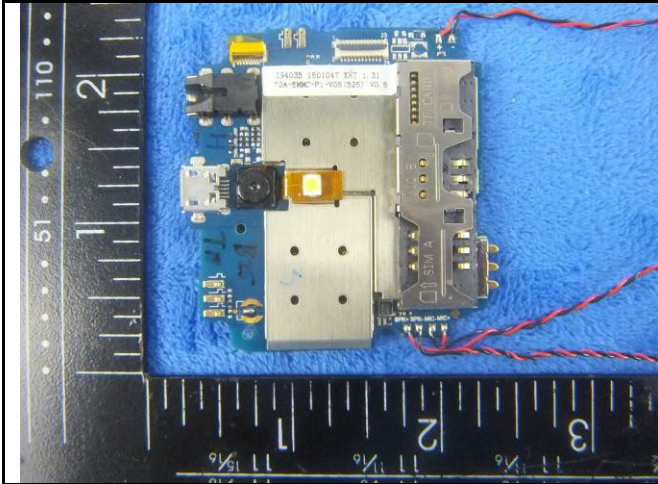
Battery - Bottom View



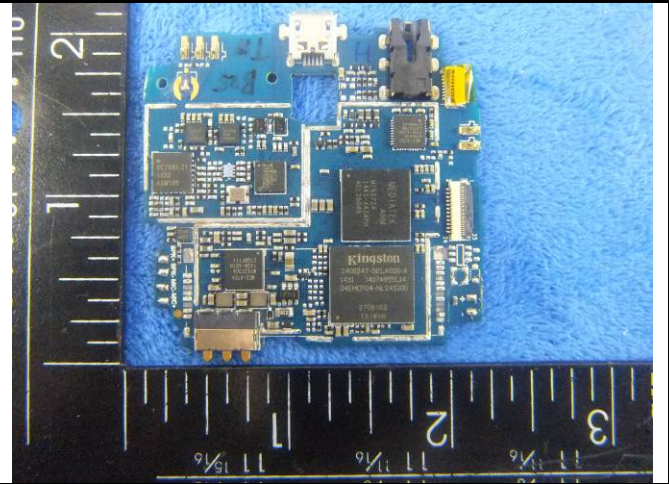
LCD - Front View



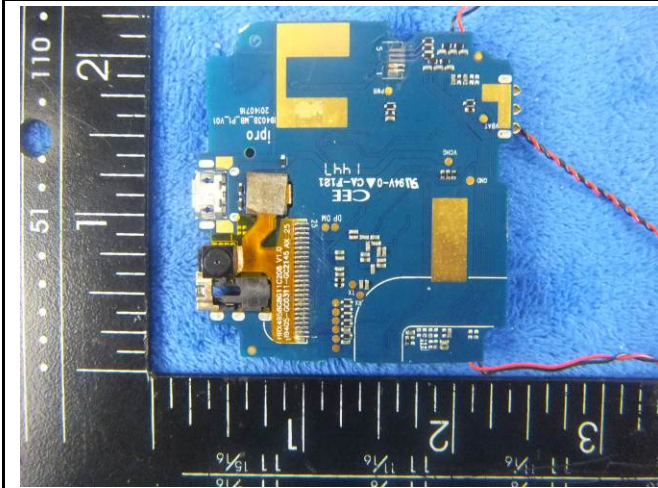
LCD - Rear View



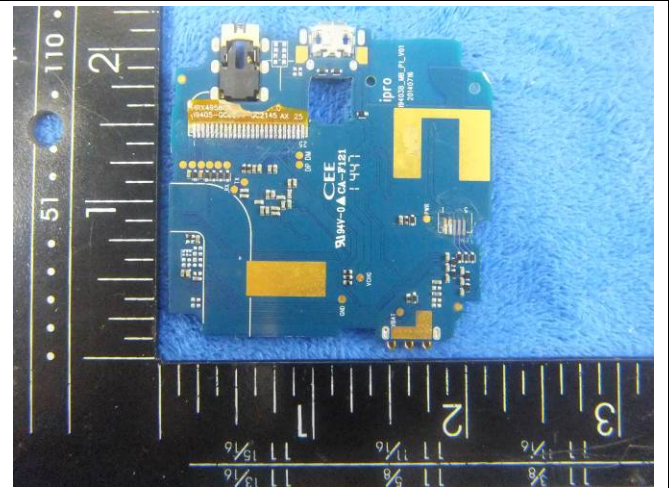
Mainboard With Shielding - Front View



Mainboard Without Shielding - Front View



Mainboard With Shielding - Rear View



Mainboard Without Shielding - Rear View

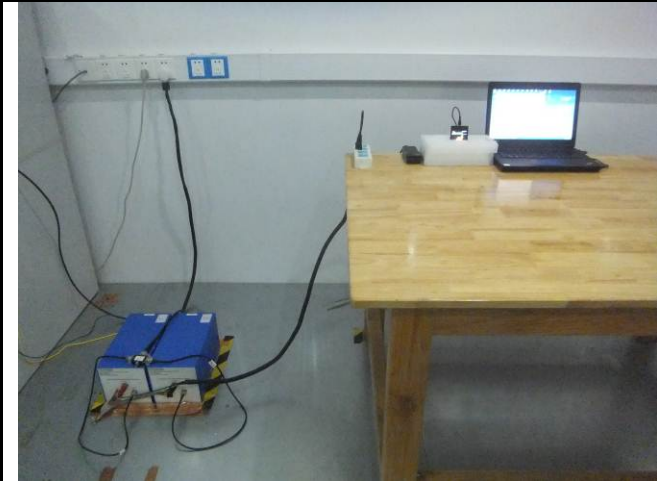


GSM/PCS/UMTS-FDD Antenna View



BT/BLE/WIFI Antenna View

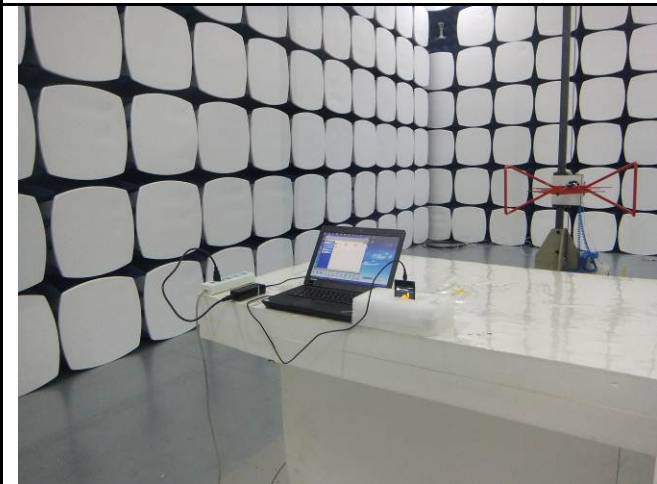
Annex B.iii. Photograph: Test Setup Photo



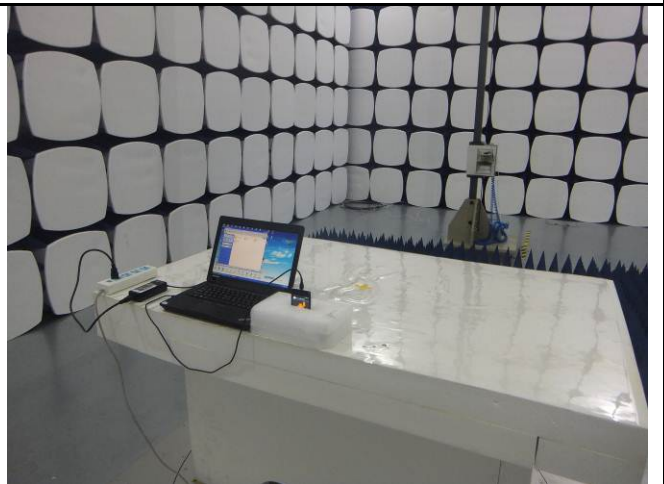
Conducted Emissions Test Setup – Front View



Conducted Emissions Test Setup – Side View



Radiated Spurious Emissions Test Setup Below 1GHz

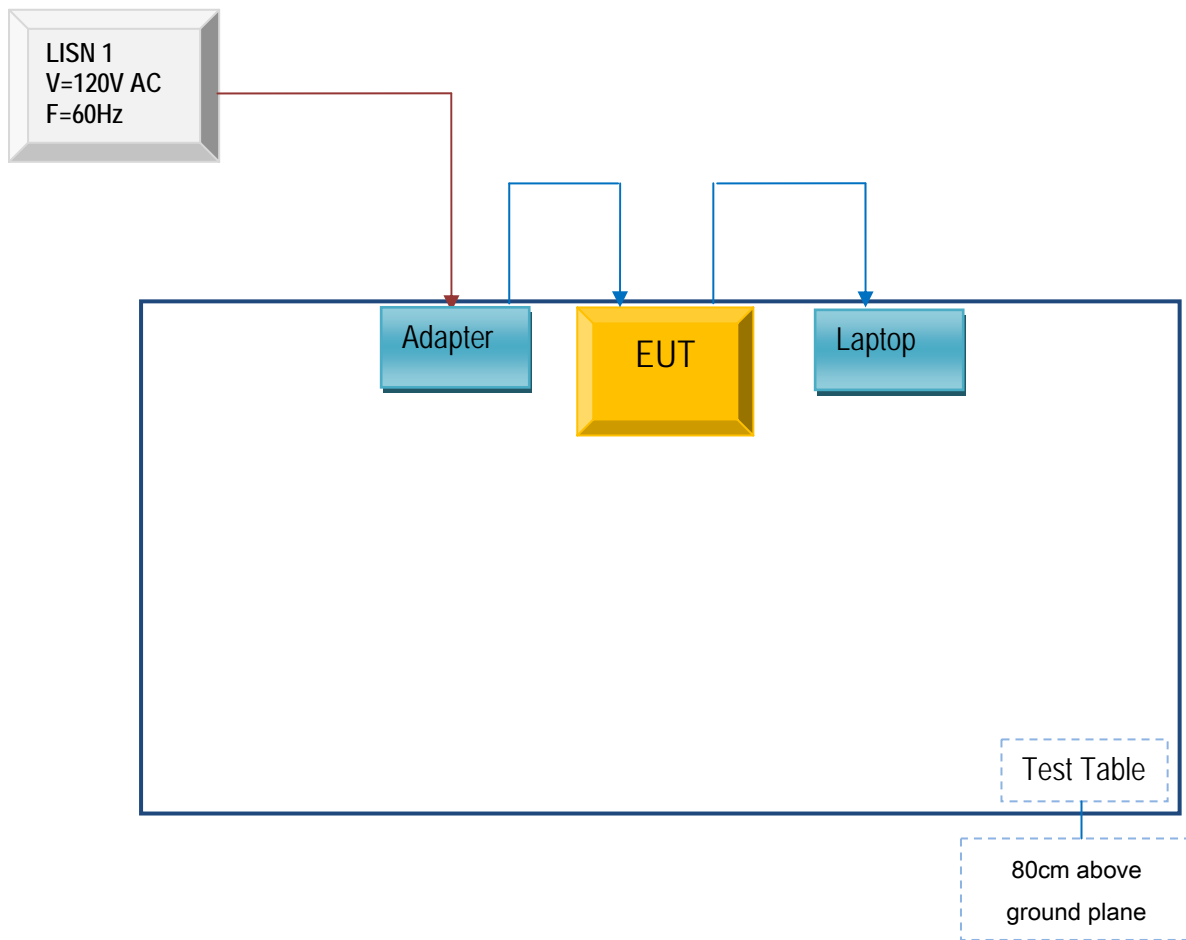


Radiated Spurious Emissions Test Setup Above 1GHz

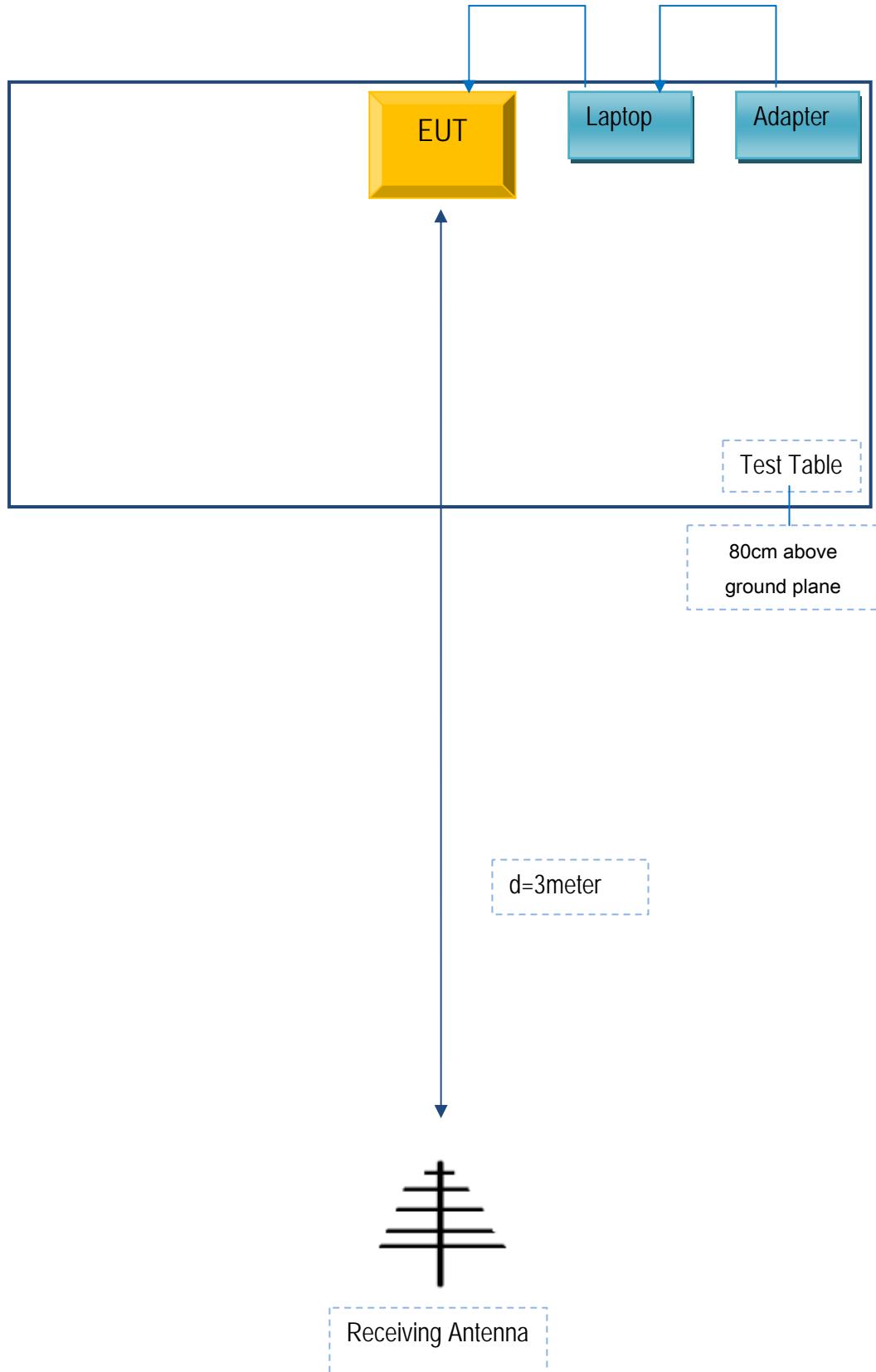
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



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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
Lenovo	Lenovo Laptop	E40& 0579A52	N/A	N/A

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

Please see Attachment

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Annex E. DECLARATION OF SIMILARITY

N/A