

EMC TEST REPORT



Report No.: 15071166-FCC-E

Supersede Report No.:N/A

Applicant	Telecell Mobile (H.K) Co. Ltd.	
Product Name	Mobile Phone	
Model No.	F55L	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2014, ANSI C63.4: 2014	
Test Date	December 01 to December 28, 2015	
Issue Date	January 28, 2016	
Test Result	☒ Pass ☐ Fail	
Equipment complied with the specification ☒		
Equipment did not comply with the specification ☐		
<i>Winnie Zhang</i>	<i>David Huang</i>	
Winnie Zhang Test Engineer	David Huang 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	15071166-FCC-E
Page	3 of 31

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	9
6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS	10
6.1 AC POWER LINE CONDUCTED EMISSIONS.....	10
6.2 RADIATED EMISSIONS.....	16
ANNEX A. TEST INSTRUMENT.....	21
ANNEX B. EUT AND TEST SETUP PHOTOGRAPHS.....	22
ANNEX C. TEST SETUP AND SUPPORTING EQUIPMENT.....	27
ANNEX D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST	30
ANNEX E. DECLARATION OF SIMILARITY.....	31

1. Report Revision History

Report No.	Report Version	Description	Issue Date
15071166-FCC-E	NONE	Original	December 28, 2015
15071166-FCC-E	V1	Adding cable line information	January 28, 2016

2. Customer information

Applicant Name	Telecell Mobile (H.K) Co. Ltd.
Applicant Add	RM 1, 8/F Metro Centre 2, 21 Lam Hing Street. Kln Bay. Hong Kong
Manufacturer	Telecell Mobile (H.K) Co. Ltd.
Manufacturer Add	RM 1, 8/F Metro Centre 2, 21 Lam Hing Street. Kln Bay. Hong Kong

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:	Mobile Phone
Main Model:	F55L
Serial Model:	N/A
Antenna Gain:	GSM850: 1.6 dBi PCS1900: 3.8 dBi UMTS-FDD Band V: 1.7 dBi UMTS-FDD Band IV: 3.7 dBi UMTS-FDD Band II: 3.8 dBi Bluetooth/BLE: 3 dBi WIFI: 2.9 dBi LTE Band 2: 3.8 dBi LTE Band 4: 3.95 dBi LTE Band 5: 1.7 dBi LTE Band 7: 4.3 dBi LTE Band 12: 1.45 dBi LTE Band 17: 1.5 dBi GPS:1.6 dBi
Input Power:	Adapter: Model: SC/8WA050150US Input: AC 100-240V; 50/60Hz;0.3A Output: DC 5.0V,1.5A Battery: Model: C975339250P Spec:3.8V,2500mAh,9.5Wh
Equipment Category :	JBP

Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK UMTS-FDD: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK LTE Band: QPSK, 16QAM GPS:BPSK
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 IV TX:1712.4 ~ 1752.6 MHz; RX : 2112.4 ~ 2152.6 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 LTE Band 2 TX: 1852.5 ~ 1907.5 MHz; RX : 1932.5 ~ 1987.5 MHz LTE Band 4 TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz LTE Band 5 TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz LTE Band 7 TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz LTE Band 12 TX:699.7 ~ 715.3 MHz; RX : 729.7~ 745.3MHz LTE Band 17 TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz GPS RX:1575.42 MHz
Number of Channels:	GSM 850: 124CH PCS1900: 299CH UMTS-FDD Band V : 102CH UMTS-FDD Band IV: 202CH UMTS-FDD Band II : 277CH WIFI :802.11b/g/n(20M): 11CH WIFI :802.11n(40M): 7CH Bluetooth: 79CH BLE: 40CH GPS:1CH
Port:	Power Port, Earphone Port, USB Port

Test Report	15071166-FCC-E
Page	8 of 31

Trade Name : FIGO

FCC ID: 2ADX3F55L

Date EUT received: December 01, 2015

Test Date(s): December 01 to December 28, 2015

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
-	-	-

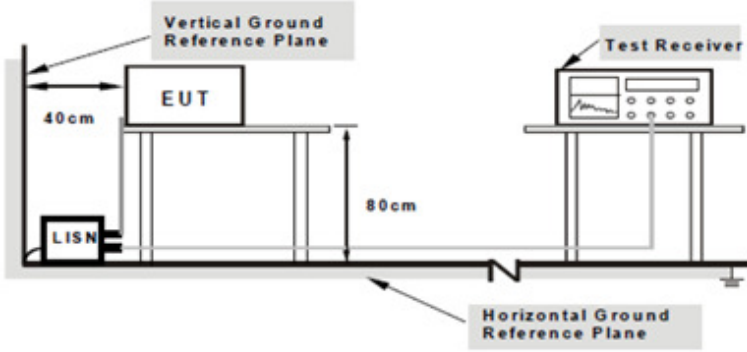
6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	24°C
Relative Humidity	53%
Atmospheric Pressure	1011mbar
Test date :	December 11, 2015
Tested By :	Winnie Zhang

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.			
		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	 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.
------------	---

Procedure	- 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 50Ω /50mH EUT LISN, connected to filtered mains.
-----------	--

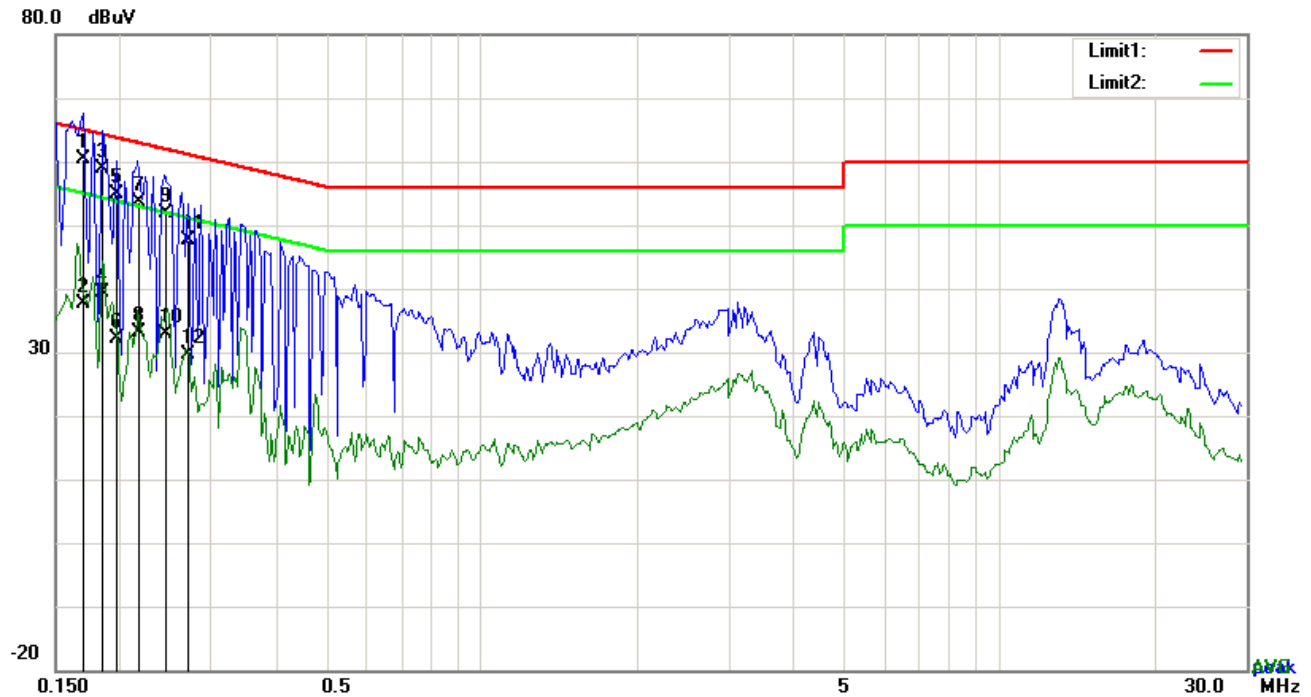
Test Report	15071166-FCC-E
Page	11 of 31

	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 : USB Mode

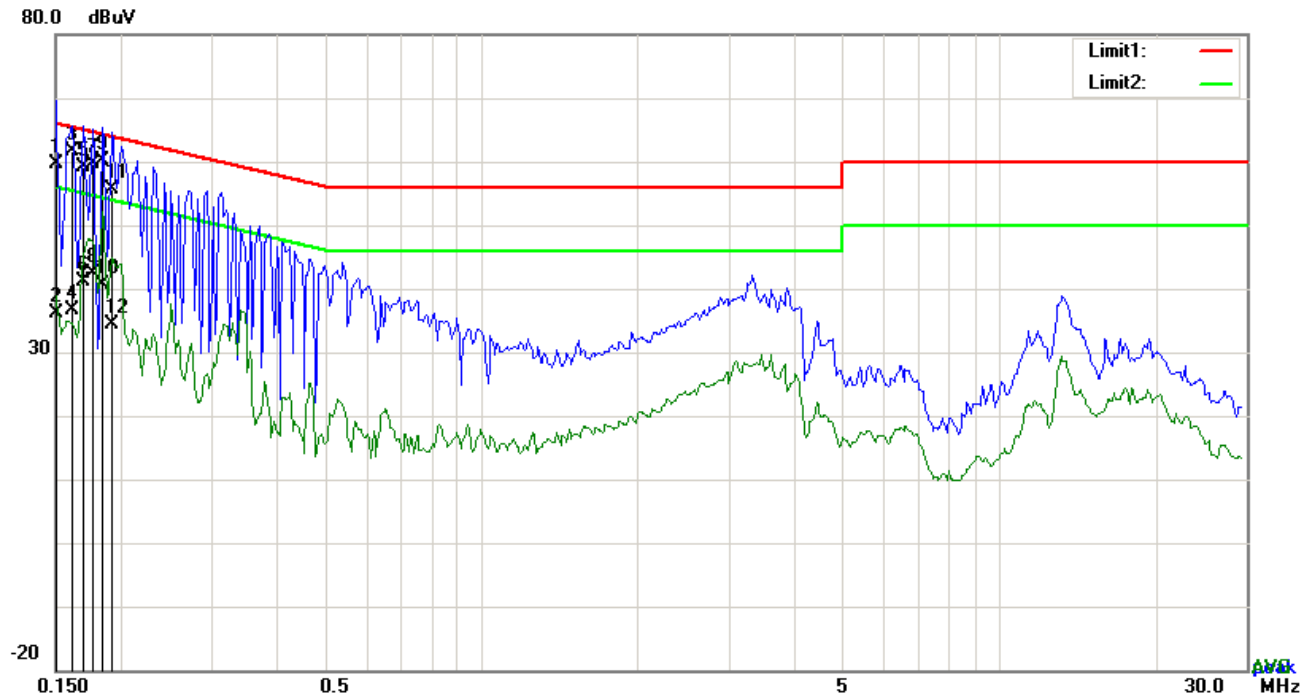


Test Data

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	50.39	QP	10.03	60.42	64.98	-4.56
2	L1	0.1695	27.62	AVG	10.03	37.65	54.98	-17.33
3	L1	0.1851	48.82	QP	10.03	58.85	64.25	-5.40
4	L1	0.1851	29.29	AVG	10.03	39.32	54.25	-14.93
5	L1	0.1968	44.82	QP	10.03	54.85	63.74	-8.89
6	L1	0.1968	22.21	AVG	10.03	32.24	53.74	-21.50
7	L1	0.2174	43.51	QP	10.03	53.54	62.92	-9.38
8	L1	0.2174	23.00	AVG	10.03	33.03	52.92	-19.89
9	L1	0.2455	41.93	QP	10.03	51.96	61.91	-9.95
10	L1	0.2455	22.86	AVG	10.03	32.89	51.91	-19.02
11	L1	0.2709	37.58	QP	10.03	47.61	61.09	-13.48
12	L1	0.2709	19.69	AVG	10.03	29.72	51.09	-21.37

Test Mode : USB Mode

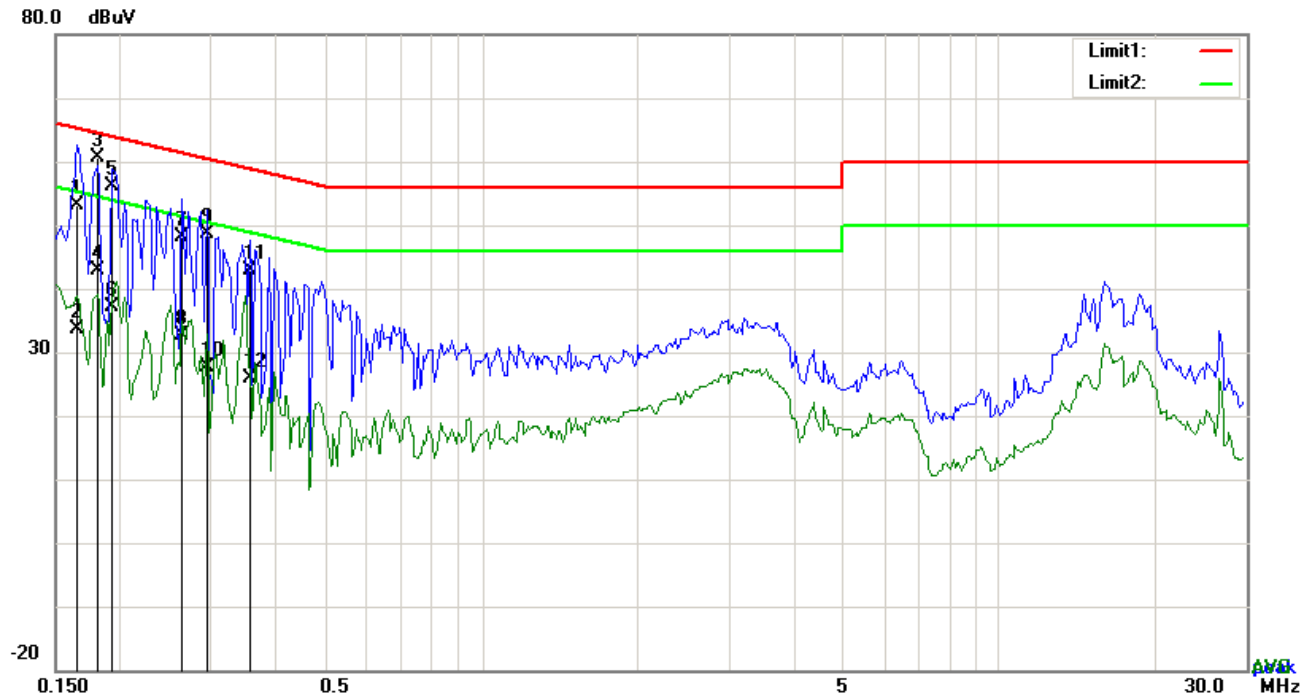


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1500	49.54	QP	10.02	59.56	66.00	-6.44
2	N	0.1500	26.10	AVG	10.02	36.12	56.00	-19.88
3	N	0.1617	51.61	QP	10.02	61.63	65.38	-3.75
4	N	0.1617	26.60	AVG	10.02	36.62	55.38	-18.76
5	N	0.1695	49.17	QP	10.02	59.19	64.98	-5.79
6	N	0.1695	31.13	AVG	10.02	41.15	54.98	-13.83
7	N	0.1773	49.68	QP	10.02	59.70	64.61	-4.91
8	N	0.1773	32.34	AVG	10.02	42.36	54.61	-12.25
9	N	0.1851	50.19	QP	10.02	60.21	64.25	-4.04
10	N	0.1851	30.70	AVG	10.02	40.72	54.25	-13.53
11	N	0.1929	45.52	QP	10.02	55.54	63.91	-8.37
12	N	0.1929	24.37	AVG	10.02	34.39	53.91	-19.52

Test Mode : USB Mode

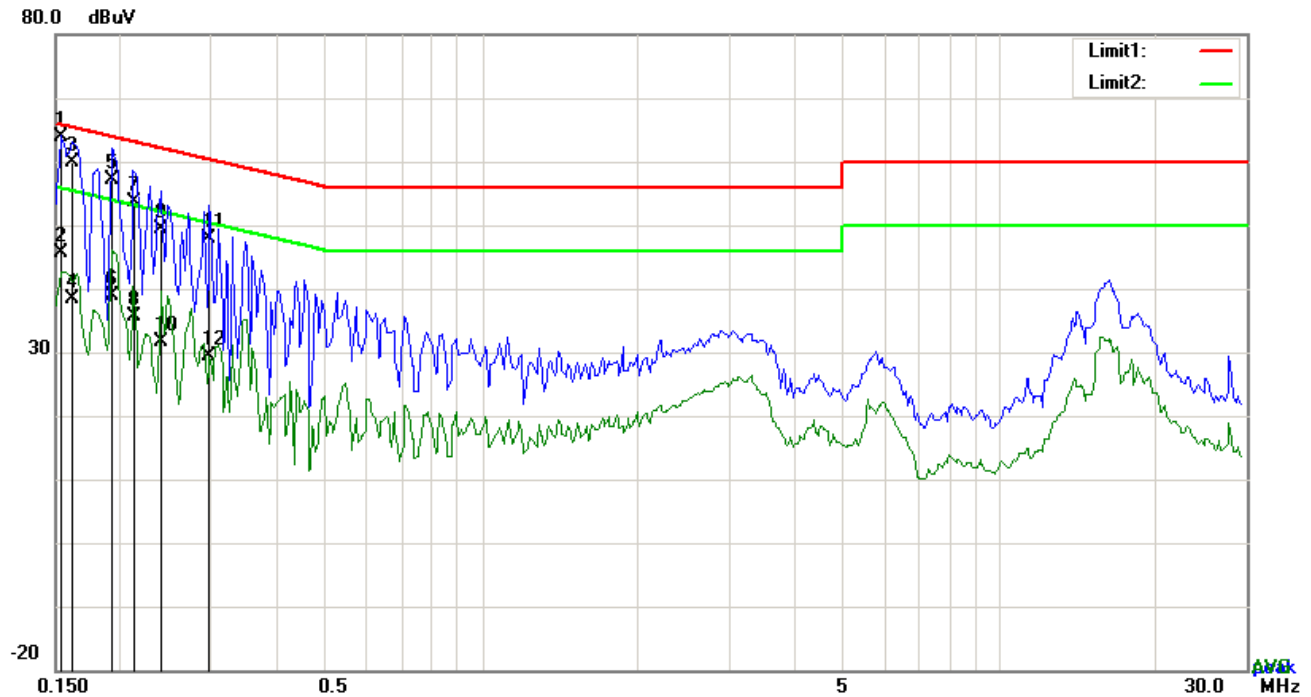


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1656	43.01	QP	10.03	53.04	65.18	-12.14
2	L1	0.1656	23.48	AVG	10.03	33.51	55.18	-21.67
3	L1	0.1812	50.66	QP	10.03	60.69	64.43	-3.74
4	L1	0.1812	32.75	AVG	10.03	42.78	54.43	-11.65
5	L1	0.1929	46.12	QP	10.03	56.15	63.91	-7.76
6	L1	0.1929	27.11	AVG	10.03	37.14	53.91	-16.77
7	L1	0.2631	38.20	QP	10.03	48.23	61.33	-13.10
8	L1	0.2631	22.60	AVG	10.03	32.63	51.33	-18.70
9	L1	0.2943	38.55	QP	10.03	48.58	60.40	-11.82
10	L1	0.2943	17.61	AVG	10.03	27.64	50.40	-22.76
11	L1	0.3567	32.77	QP	10.03	42.80	58.80	-16.00
12	L1	0.3567	15.92	AVG	10.03	25.95	48.80	-22.85

Test Mode : USB 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	0.1539	53.91	QP	10.02	63.93	65.79	-1.86
2	N	0.1539	35.55	AVG	10.02	45.57	55.79	-10.22
3	N	0.1617	49.82	QP	10.02	59.84	65.38	-5.54
4	N	0.1617	28.30	AVG	10.02	38.32	55.38	-17.06
5	N	0.1929	47.05	QP	10.02	57.07	63.91	-6.84
6	N	0.1929	28.81	AVG	10.02	38.83	53.91	-15.08
7	N	0.2128	43.66	QP	10.02	53.68	63.10	-9.42
8	N	0.2128	25.56	AVG	10.02	35.58	53.10	-17.52
9	N	0.2397	39.40	QP	10.02	49.42	62.11	-12.69
10	N	0.2397	21.67	AVG	10.02	31.69	52.11	-20.42
11	N	0.2982	37.82	QP	10.02	47.84	60.29	-12.45
12	N	0.2982	19.38	AVG	10.02	29.40	50.29	-20.89

6.2 Radiated Emissions

Temperature	24°C
Relative Humidity	53%
Atmospheric Pressure	1011mbar
Test date :	December 11, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable	
47CFR§15.109(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	☒	
		Frequency range (MHz)		Field Strength (µV/m)
		30 – 88		100
		88 – 216		150
		216 960		200
		Above 960		500

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

Procedure	- 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: - Vertical or horizontal polarization (whichever gave the higher emission level
-----------	--

Test Report	15071166-FCC-E
Page	17 of 31

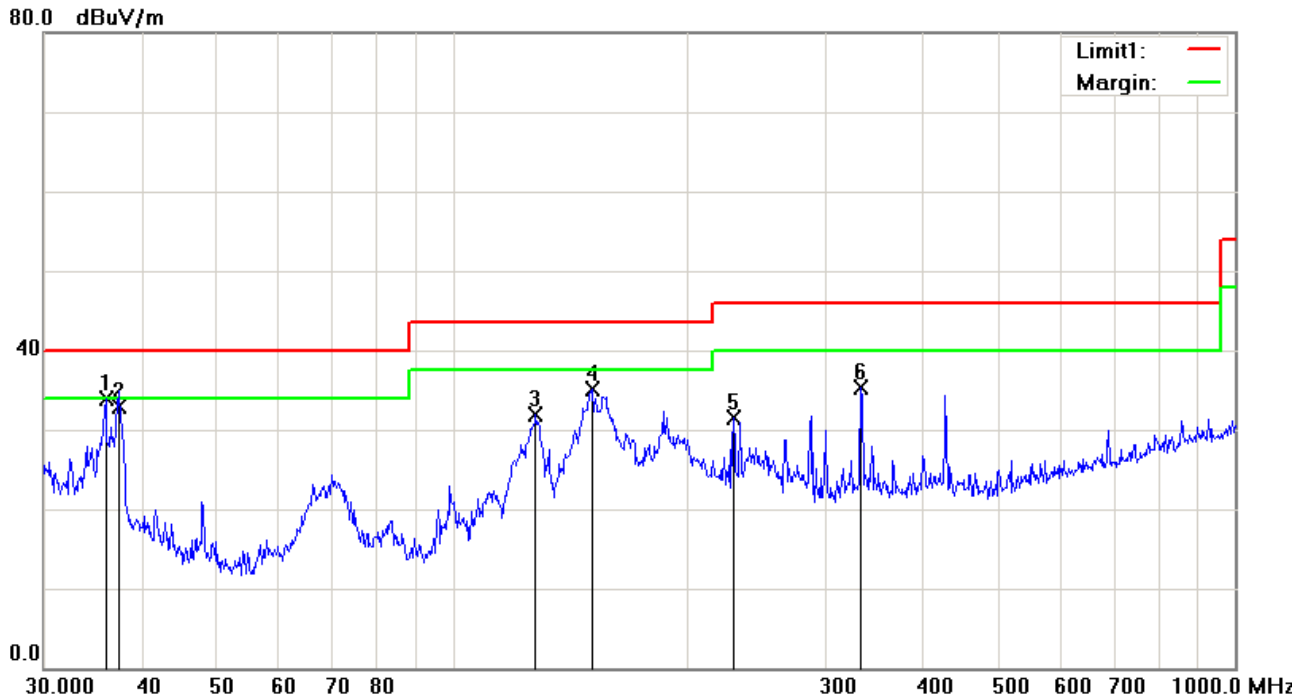
	over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120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

Below 1GHz

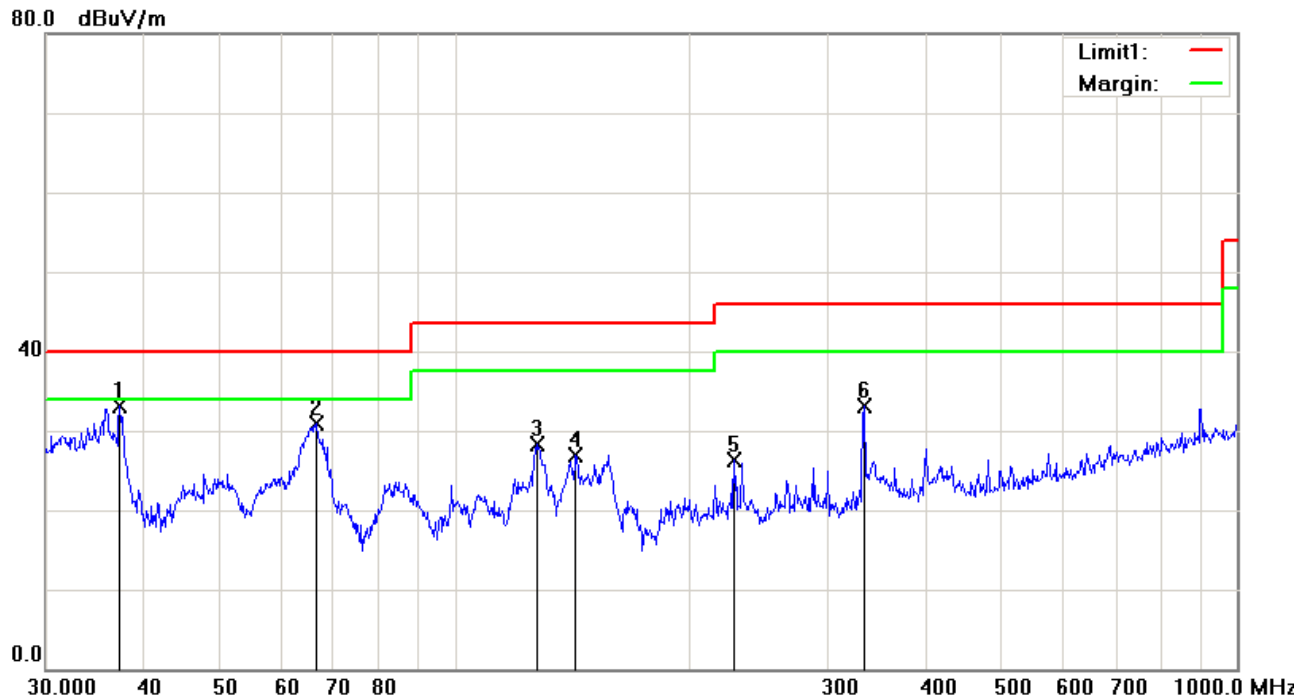


Test Data

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	36.0007	38.58	peak	-4.67	33.91	40.00	-6.09	100	355
2	H	37.4165	38.62	QP	-5.70	32.92	40.00	-7.08	100	33
3	H	127.6645	39.65	peak	-7.79	31.86	43.50	-11.64	100	104
4	H	150.5378	43.53	peak	-8.40	35.13	43.50	-8.37	100	239
5	H	228.4904	40.53	peak	-9.00	31.53	46.00	-14.47	100	303
6	H	332.5187	41.27	peak	-5.97	35.30	46.00	-10.70	100	119

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	37.2855	38.70	peak	-5.61	33.09	40.00	-6.91	100	1
2	V	66.4989	44.71	peak	-13.86	30.85	40.00	-9.15	100	353
3	V	127.2176	36.01	peak	-7.76	28.25	43.50	-15.25	100	293
4	V	142.8244	35.41	peak	-8.50	26.91	43.50	-16.59	100	237
5	V	227.6906	35.24	peak	-8.99	26.25	46.00	-19.75	100	199
6	V	333.6867	38.99	peak	-5.93	33.06	46.00	-12.94	100	293

Above 1GHz

Frequency (MHz)	Amplitude (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
1586.12	49.82	50	170	V	-22.10	74	-24.18	PK
2125.03	50.32	150	150	V	-21.42	74	-23.68	PK
1677.43	48.13	70	180	V	-22.23	74	-25.87	PK
2300.23	50.08	45	210	H	-21.34	74	-23.92	PK
2733.45	49.75	100	168	H	-22.47	74	-24.25	PK
1897.66	49.92	63	152	H	-23.88	74	-24.08	PK

Note1: The highest frequency of the EUT is 2480 MHz, so the testing has been conformed to $5 \times 2480 \text{ MHz} = 12,400 \text{ MHz}$.

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

Note3: 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	09/01/2015	08/31/2016	☒
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	☒
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	☒
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/25/2015	03/24/2016	☒
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	☒

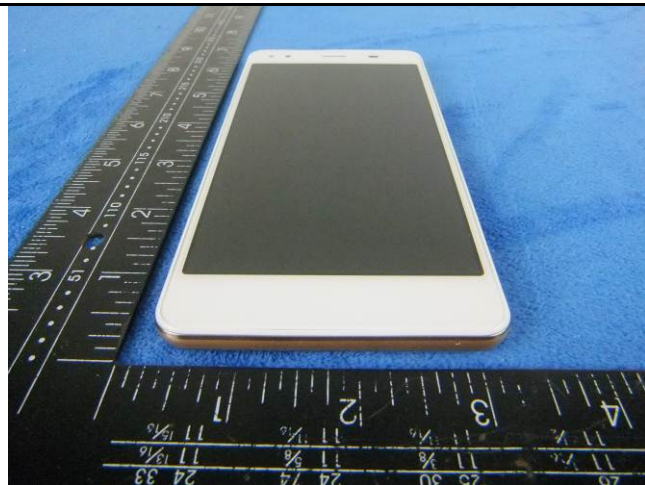
Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

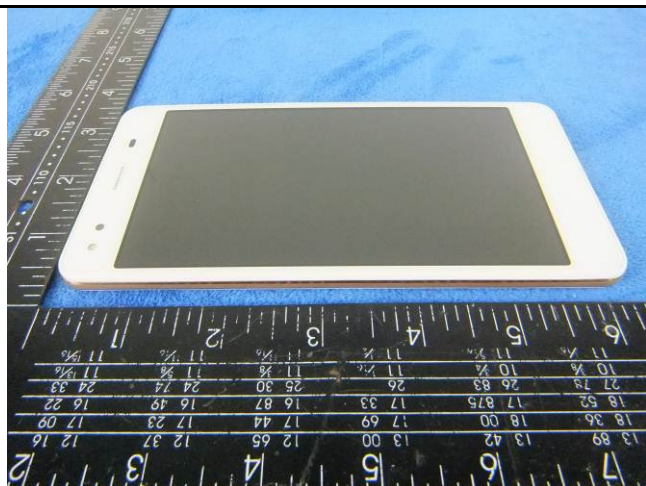




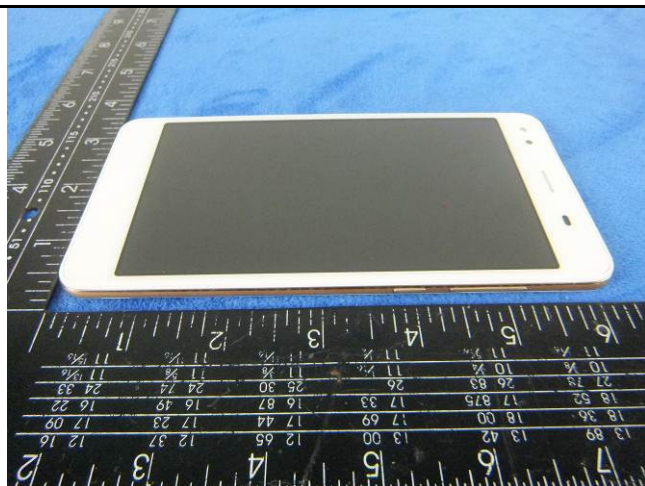
EUT - Top View



EUT - Bottom View

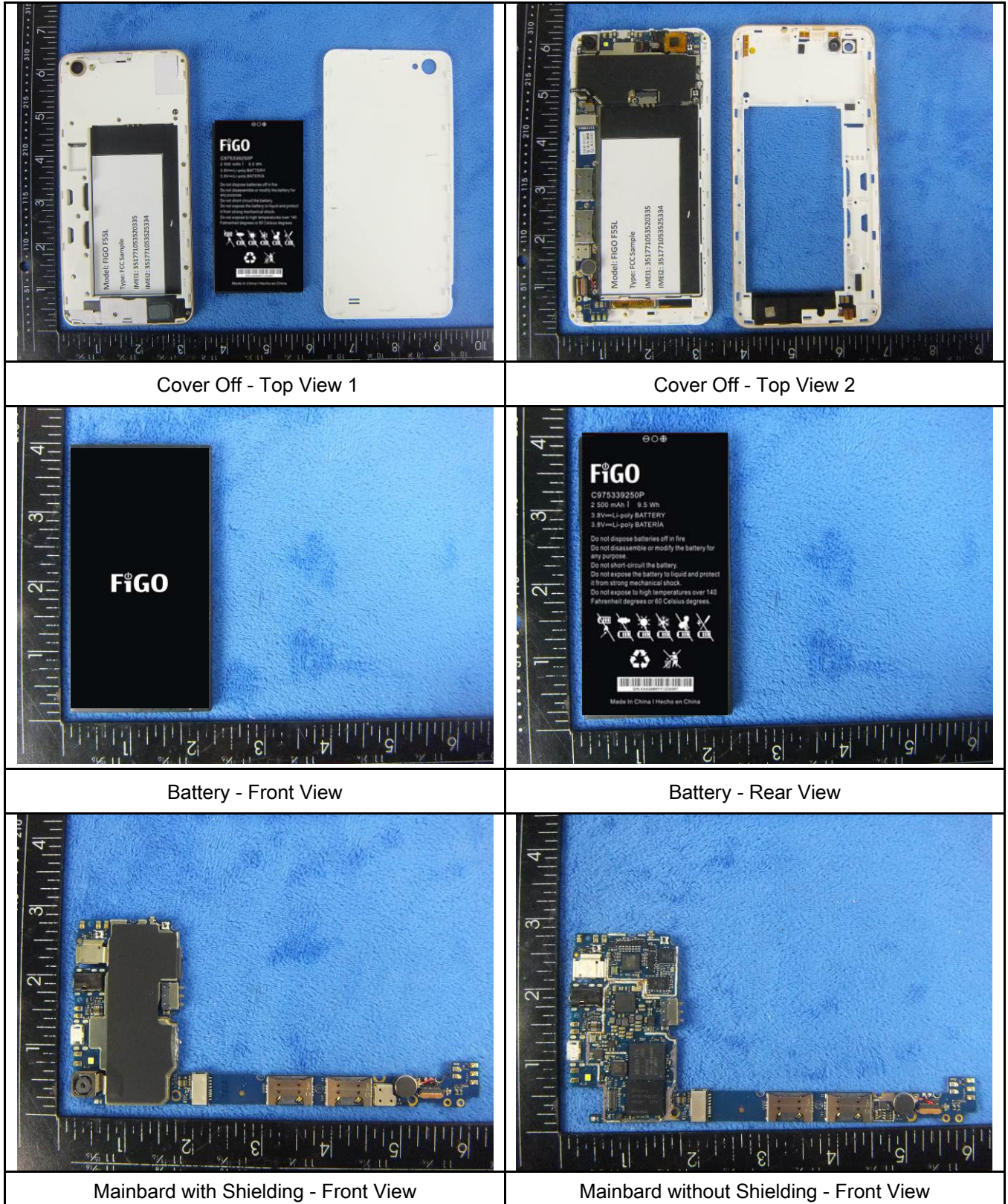


EUT - Left View

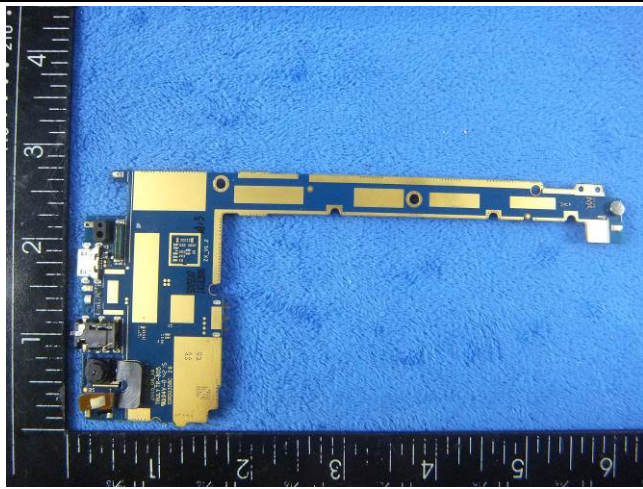


EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo



Test Report	15071166-FCC-E
Page	25 of 31



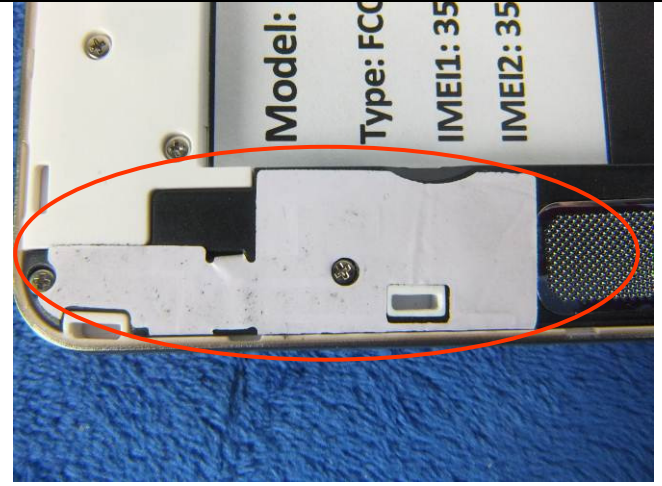
Mainboard – Rear View



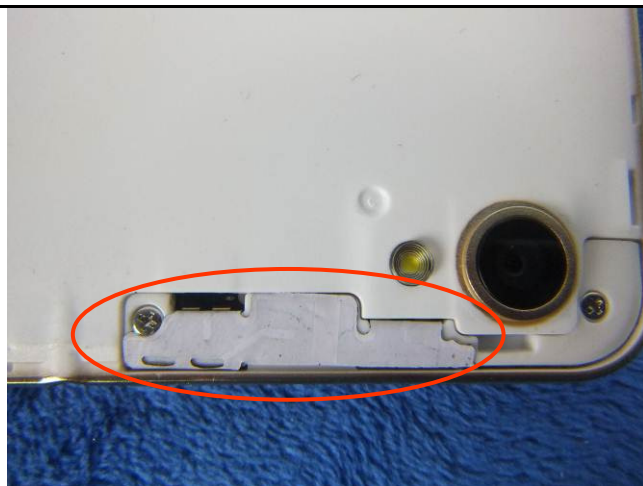
LCD – Front View



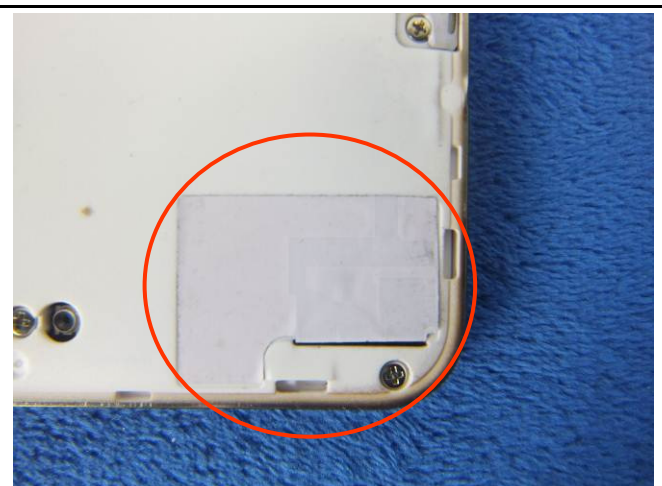
LCD – Rear View



GSM/PCS/UMTS-FDD/LTE Antenna View



WIFI/BT/BLE - Antenna View



GPS - Antenna View

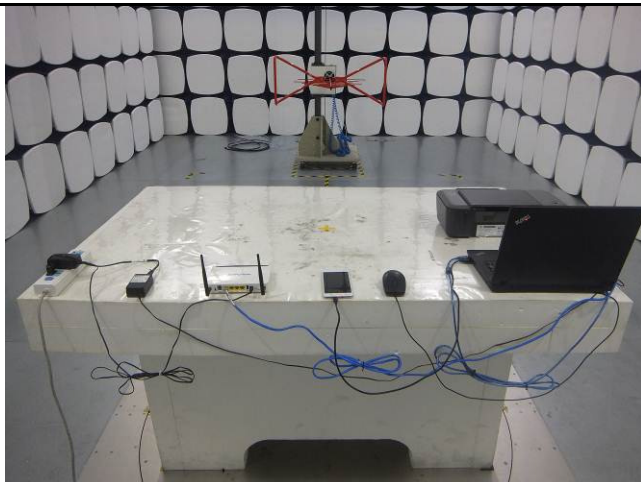
Annex B.iii. Photograph: Test Setup Photo



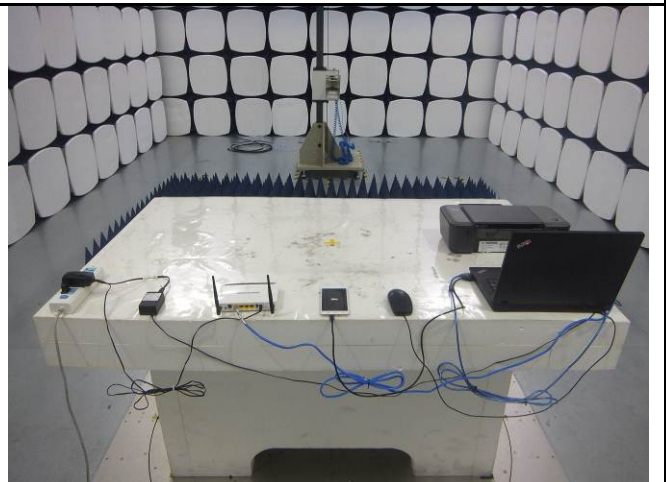
Conducted Emissions Test Setup – Front View



Conducted Emissions Test Setup – Side View



Radiated Emissions Test Setup Below 1GHz

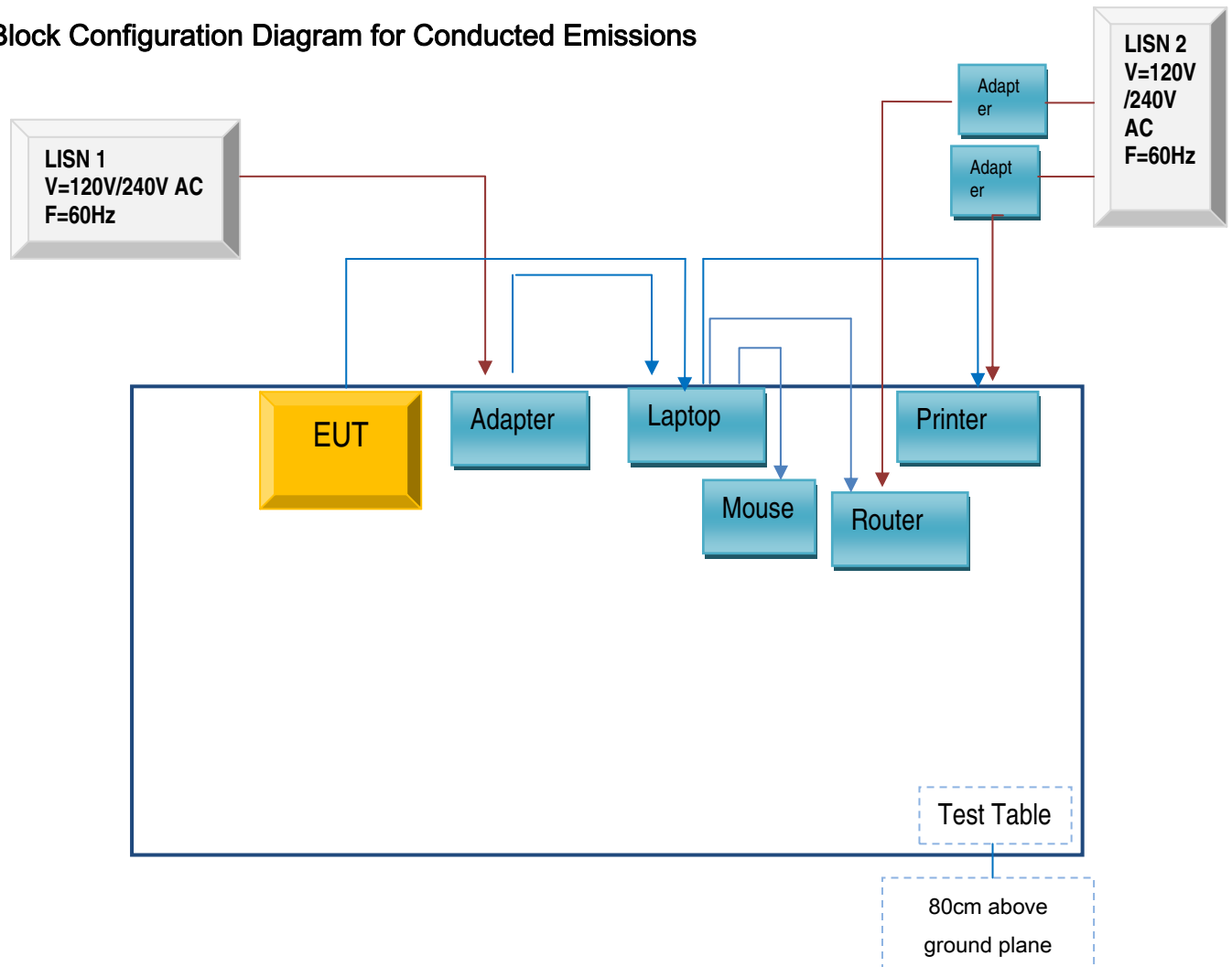


Radiated Emissions Test Setup Above 1GHz

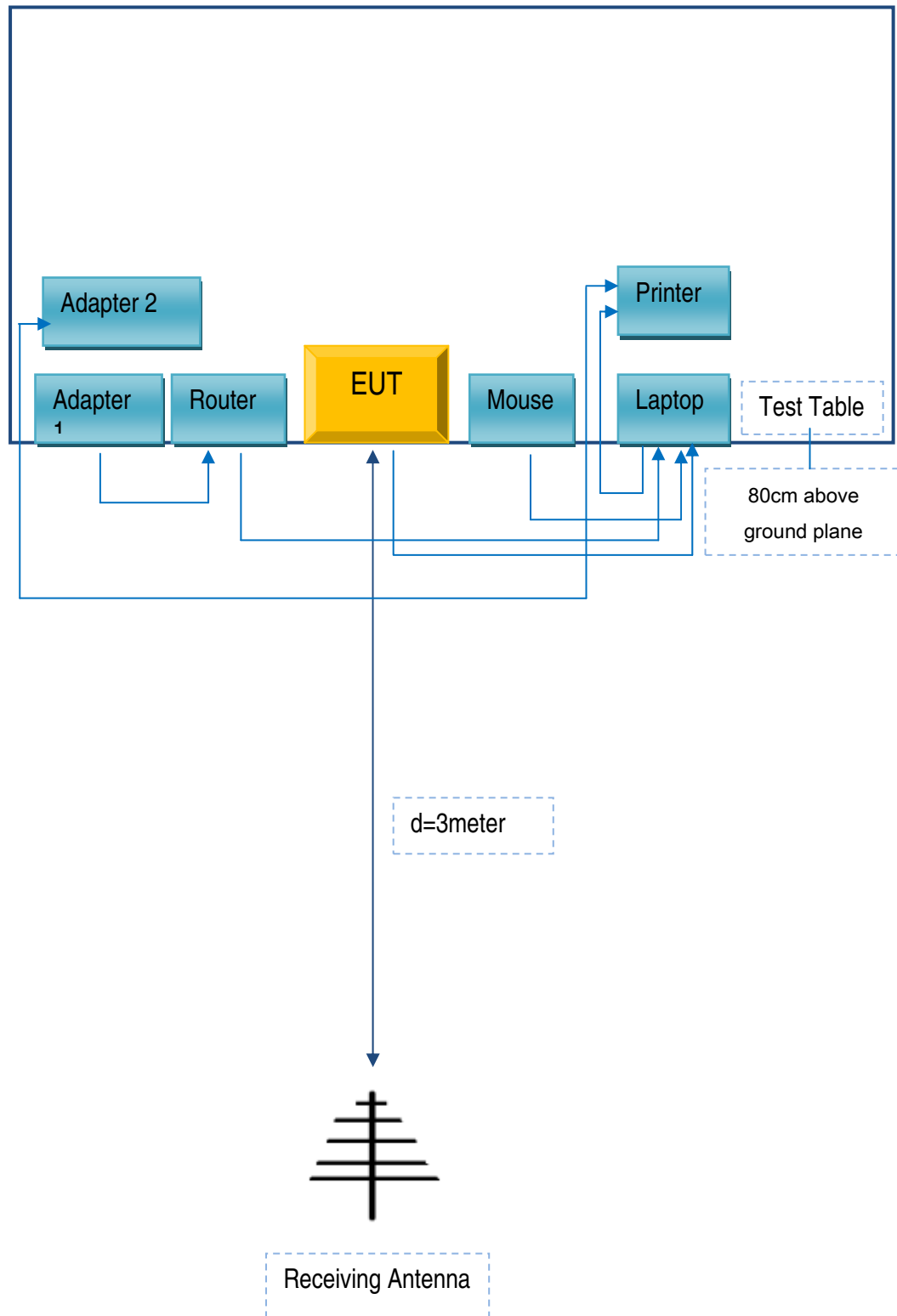
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



Annex C. ii. 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
Lenovo	Laptop	E40	LR-1EHRX
GOLDWEB	Router	R102	1202032094
HP	Printer	VCVRA-1003	CN36M19JWX
DELL	Mouse	E100	912NMTUT41481

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	2m	JX120051274
USB Cable	Un-shielding	No	2m	JX110725002
RJ45 Cable	Un-shielding	No	2m	KX156327541
Router Power cable	Un-shielding	No	2m	13274630Z
Printer Power cable	Un-shielding	No	2m	127581031

Test Report	15071166-FCC-E
Page	30 of 31

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

Please see Attachment

Test Report	15071166-FCC-E
Page	31 of 31

Annex E. DECLARATION OF SIMILARITY

N/A