

EMC TEST REPORT



Report No.: 16070658-FCC-E

Supersede Report No.: N/A

Applicant	SMT TELECOMM HK LIMITED	
Product Name	Mobile Phone	
Model No.	X325	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2015, ANSI C63.4: 2014	
Test Date	April 23 to May 06, 2016	
Issue Date	June 07, 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

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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
16070658-FCC-E	NONE	Original	June 07, 2016

2. Customer information

Applicant Name	SMT TELECOMM HK LIMITED
Applicant Add	Unit C 8/F, CHARMHILL CTR 50 HILLWOOD RD TST KL
Manufacturer	SMT TELECOMM HK LIMITED
Manufacturer Add	Unit C 8/F, CHARMHILL CTR 50 HILLWOOD RD TST KL

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:	X325
Serial Model:	N/A
Date EUT received:	April 22, 2016
Test Date(s):	April 23 to May 06, 2016
Equipment Category :	Class B
Antenna Gain:	GSM850: -2.22dBi PCS1900: -1.14dBi UMTS-FDD Band V: -2.22dBi UMTS-FDD Band II: -1.14dBi Bluetooth/BLE: 2.93dBi WIFI: 2.93dBi GPS:0 dBi
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK UMTS-FDD: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK BLE: GFSK GPS:BPSK

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	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;
RF Operating Frequency (ies):	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 GPS RX: 1575.42 MHz
	GSM 850: 124CH PCS1900: 299CH UMTS-FDD Band V : 102CH UMTS-FDD Band II : 277CH
Number of Channels:	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
	Adapter : Model: PC325 Input: AC 100-240V~50/60Hz, 0.15A Output: DC 5.0V, 500mA
Input Power:	Battery: Model: BPX325 Spec: 3.7V, 4.44Wh Battery Capacity: 1200mAh Limited charger voltage : 4.2V
Trade Name :	N/A
FCC ID:	2AIMEX325

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
-	-	-

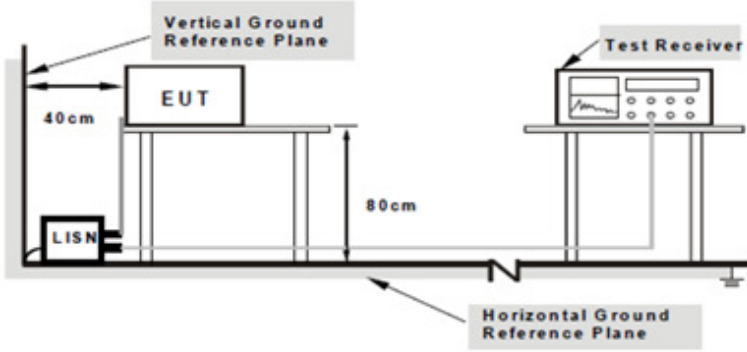
6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1003mbar
Test date :	May 03, 2016
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.															
		<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	 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.
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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 50W/50mH EUT LISN, connected to filtered mains.
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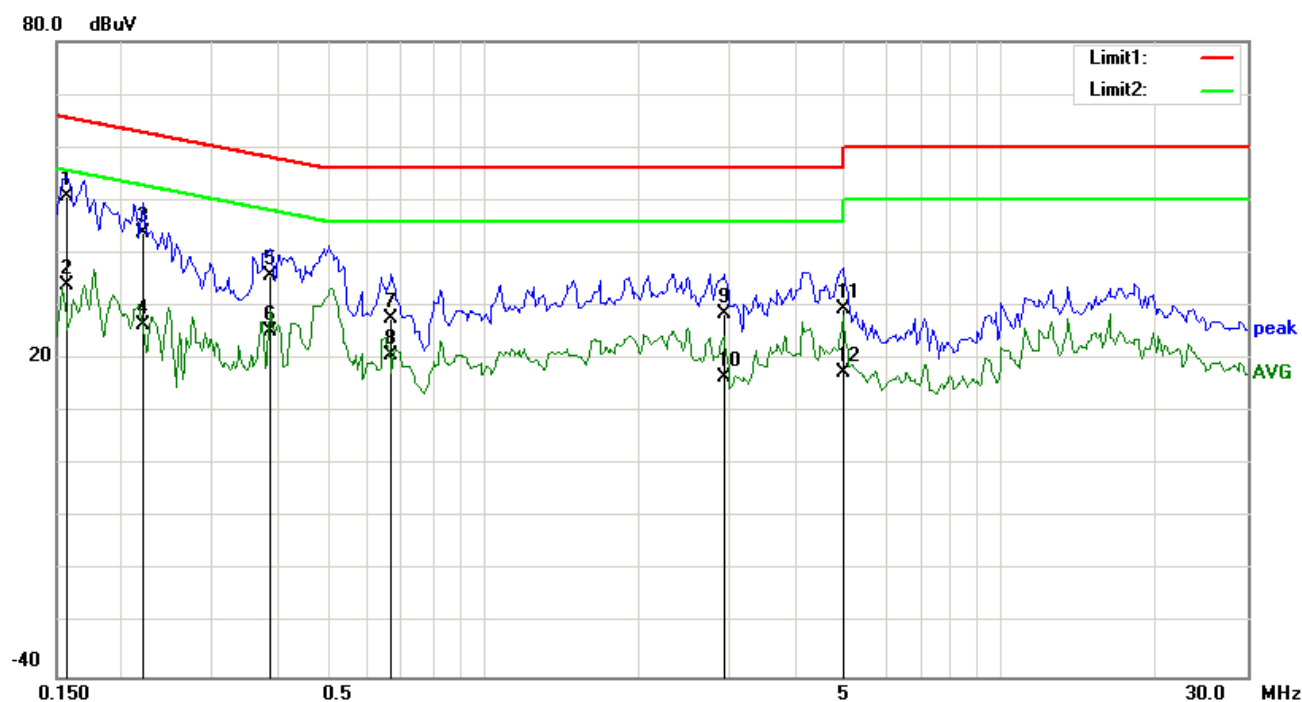
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	3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal 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

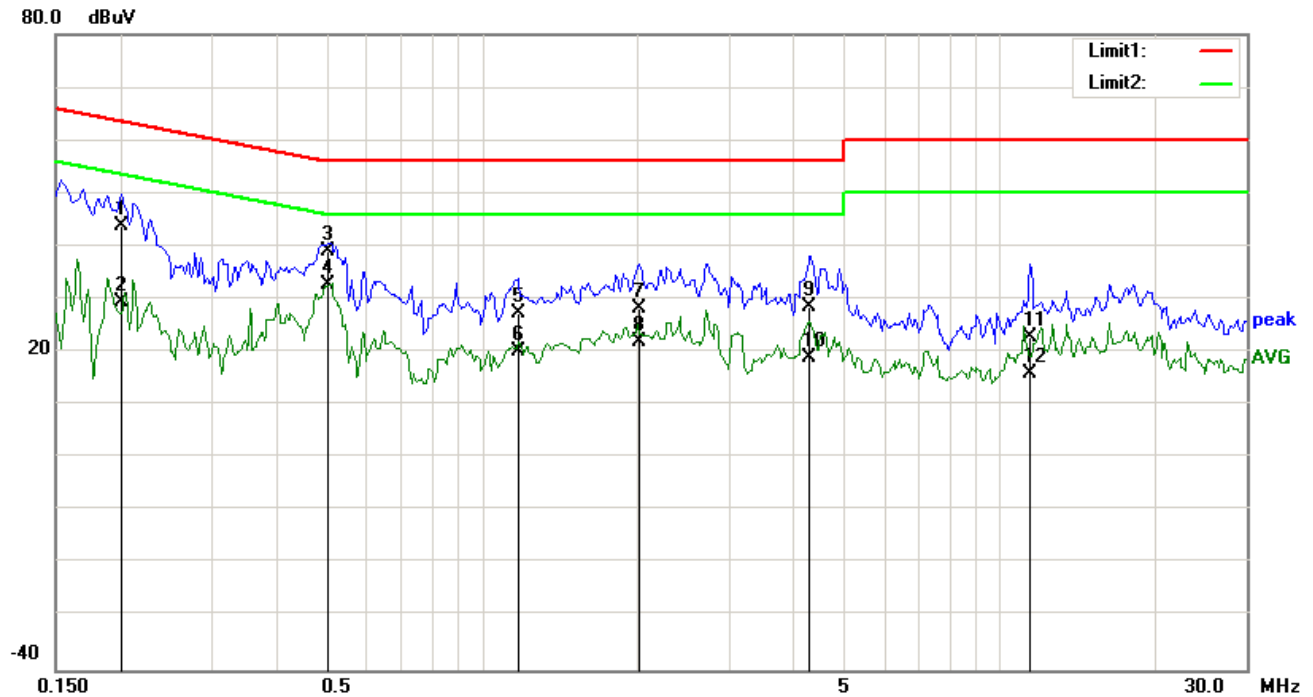


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1578	40.66	QP	10.03	50.69	65.58	-14.89
2	L1	0.1578	23.80	AVG	10.03	33.83	55.58	-21.75
3	L1	0.2203	33.81	QP	10.03	43.84	62.81	-18.97
4	L1	0.2203	16.33	AVG	10.03	26.36	52.81	-26.45
5	L1	0.3883	25.60	QP	10.03	35.63	58.10	-22.47
6	L1	0.3883	15.07	AVG	10.03	25.10	48.10	-23.00
7	L1	0.6656	17.70	QP	10.03	27.73	56.00	-28.27
8	L1	0.6656	10.64	AVG	10.03	20.67	46.00	-25.33
9	L1	2.9234	18.56	QP	10.05	28.61	56.00	-27.39
10	L1	2.9234	6.49	AVG	10.05	16.54	46.00	-29.46
11	L1	4.9727	19.50	QP	10.08	29.58	56.00	-26.42
12	L1	4.9727	7.27	AVG	10.08	17.35	46.00	-28.65

Test Mode: USB Mode

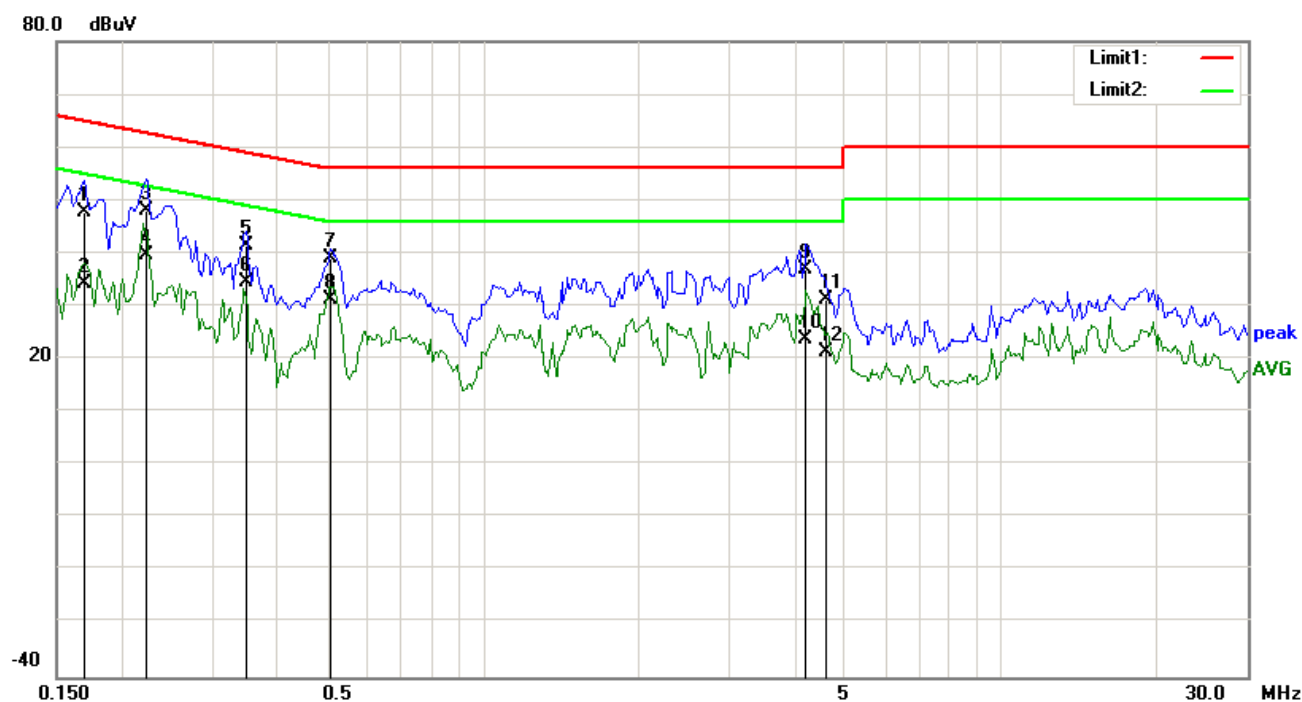


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.2008	33.90	QP	10.02	43.92	63.58	-19.66
2	N	0.2008	19.31	AVG	10.02	29.33	53.58	-24.25
3	N	0.5055	28.94	QP	10.02	38.96	56.00	-17.04
4	N	0.5055	22.60	AVG	10.02	32.62	46.00	-13.38
5	N	1.1734	17.26	QP	10.03	27.29	56.00	-28.71
6	N	1.1734	10.26	AVG	10.03	20.29	46.00	-25.71
7	N	2.0133	18.27	QP	10.04	28.31	56.00	-27.69
8	N	2.0133	11.88	AVG	10.04	21.92	46.00	-24.08
9	N	4.3125	18.46	QP	10.06	28.52	56.00	-27.48
10	N	4.3125	8.88	AVG	10.06	18.94	46.00	-27.06
11	N	11.4844	12.65	QP	10.16	22.81	60.00	-37.19
12	N	11.4844	5.87	AVG	10.16	16.03	50.00	-33.97

Test Mode: USB Mode

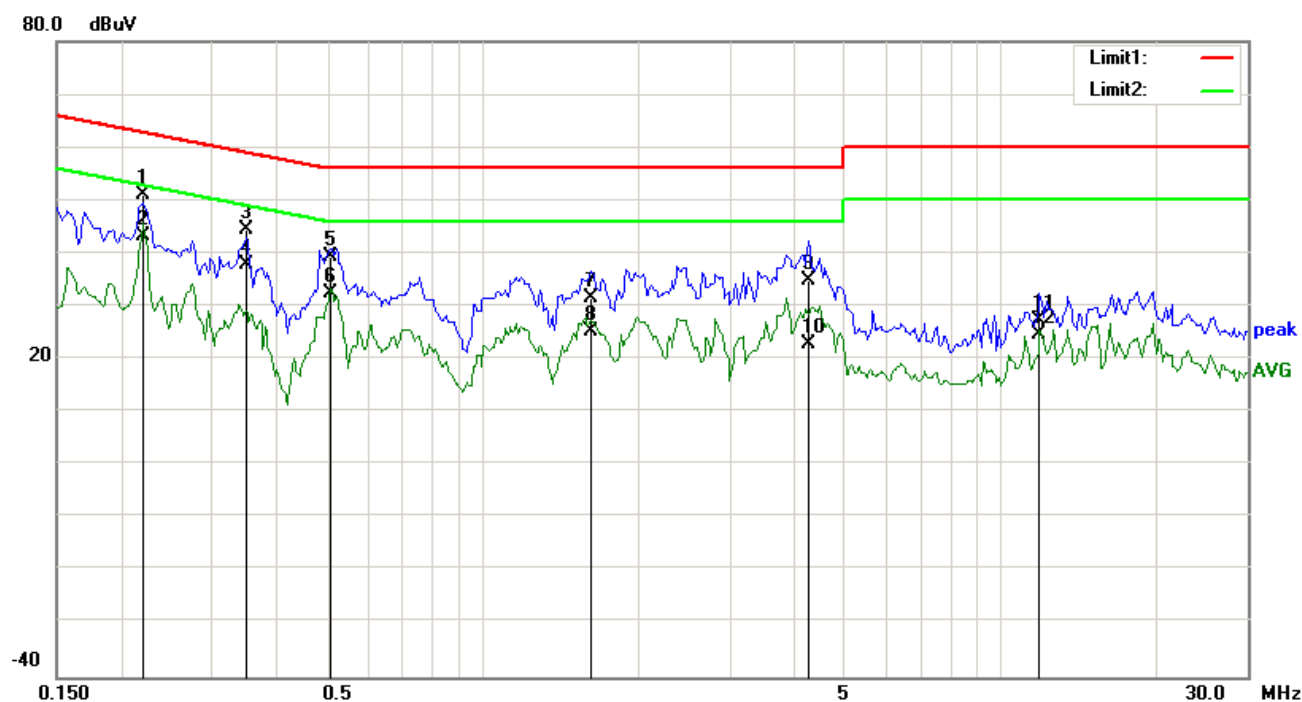


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.1695	37.79	QP	10.03	47.82	64.98	-17.16
2	L1	0.1695	24.08	AVG	10.03	34.11	54.98	-20.87
3	L1	0.2242	38.09	QP	10.03	48.12	62.66	-14.54
4	L1	0.2242	29.52	AVG	10.03	39.55	52.66	-13.11
5	L1	0.3492	31.40	QP	10.03	41.43	58.98	-17.55
6	L1	0.3492	24.40	AVG	10.03	34.43	48.98	-14.55
7	L1	0.5094	29.17	QP	10.03	39.20	56.00	-16.80
8	L1	0.5094	21.31	AVG	10.03	31.34	46.00	-14.66
9	L1	4.2109	26.74	QP	10.07	36.81	56.00	-19.19
10	L1	4.2109	13.77	AVG	10.07	23.84	46.00	-22.16
11	L1	4.5979	21.18	QP	10.07	31.25	56.00	-24.75
12	L1	4.5979	11.28	AVG	10.07	21.35	46.00	-24.65

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	0.2203	41.05	QP	10.02	51.07	62.81	-11.74
2	N	0.2203	33.17	AVG	10.02	43.19	52.81	-9.62
3	N	0.3492	34.34	QP	10.02	44.36	58.98	-14.62
4	N	0.3492	27.75	AVG	10.02	37.77	48.98	-11.21
5	N	0.5094	29.20	QP	10.02	39.22	56.00	-16.78
6	N	0.5094	22.43	AVG	10.02	32.45	46.00	-13.55
7	N	1.6148	21.60	QP	10.04	31.64	56.00	-24.36
8	N	1.6148	15.15	AVG	10.04	25.19	46.00	-20.81
9	N	4.2500	24.92	QP	10.06	34.98	56.00	-21.02
10	N	4.2500	12.92	AVG	10.06	22.98	46.00	-23.02
11	N	11.9023	17.25	QP	10.16	27.41	60.00	-32.59
12	N	11.9023	14.60	AVG	10.16	24.76	50.00	-25.24

6.2 Radiated Emissions

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1025mbar
Test date :	April 25, 2016
Tested By :	Winnie Zhang

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		
		Frequency range (MHz)		Field Strength (µV/m)
		30 – 88		100
		88 – 216		150
		216 960		200
		Above 960		500

Test Setup	
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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
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	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

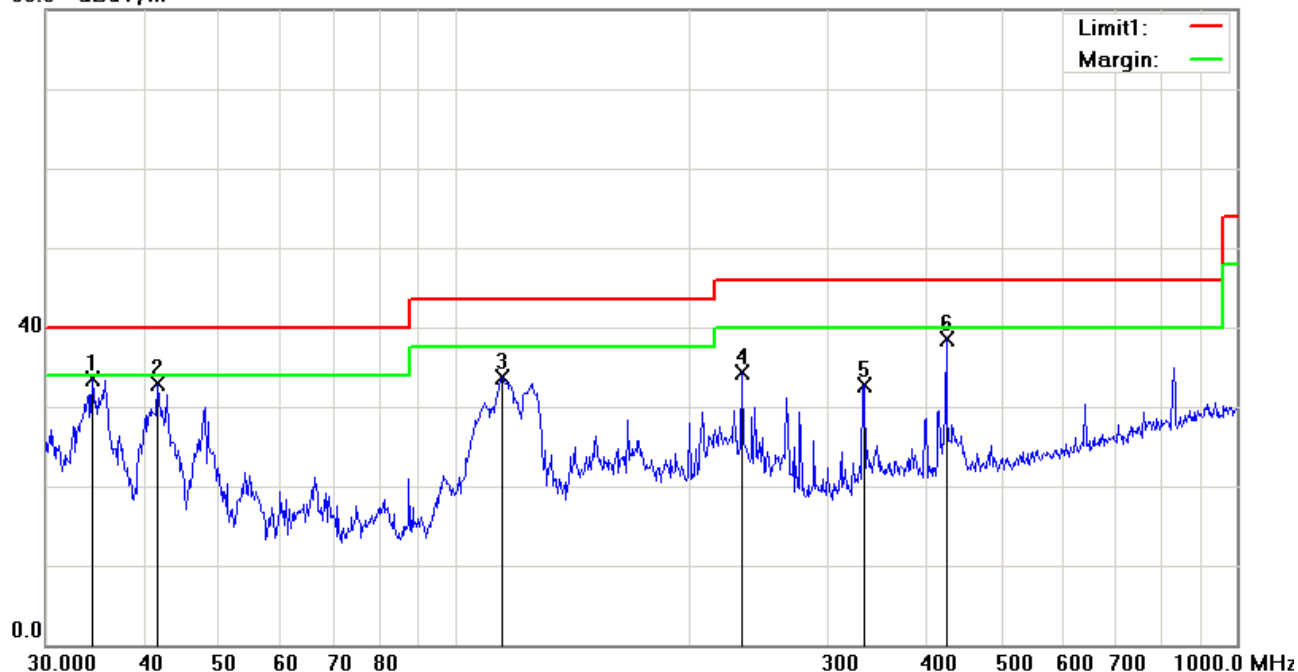
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Mode : USB Mode

Below 1GHz

80.0 dBuV/m

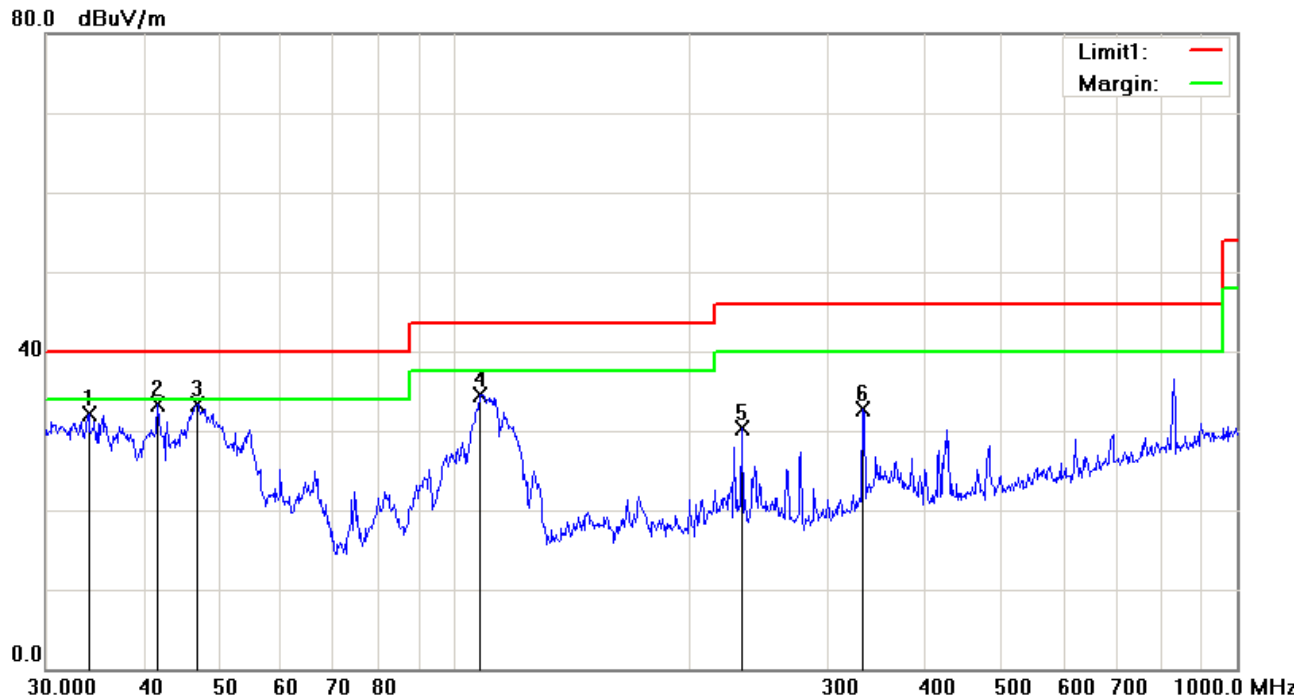


Test Data

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	34.3964	36.98	peak	-3.50	33.48	40.00	-6.52	100	15
2	H	41.7130	41.63	peak	-8.73	32.90	40.00	-7.10	100	276
3	H	114.9169	41.82	peak	-8.17	33.65	43.50	-9.85	100	169
4	H	232.5318	43.41	peak	-9.04	34.37	46.00	-11.63	100	68
5	H	333.6867	38.71	peak	-5.93	32.78	46.00	-13.22	100	157
6	H	425.0280	42.19	peak	-3.69	38.50	46.00	-7.50	100	218

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	34.0365	35.36	peak	-3.24	32.12	40.00	-7.88	100	336
2	V	41.7130	42.03	peak	-8.73	33.30	40.00	-6.70	100	348
3	V	46.8303	45.08	peak	-11.76	33.32	40.00	-6.68	100	186
4	V	107.8877	43.94	peak	-9.40	34.54	43.50	-8.96	100	352
5	V	232.5318	39.33	peak	-9.04	30.29	46.00	-15.71	100	243
6	V	332.5187	38.73	peak	-5.97	32.76	46.00	-13.24	100	0

Above 1GHz

Frequency (MHz)	Amplitude (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
936.33	56.23	55	167	V	-20.32	74	-17.77	PK
1022.35	57.41	123	164	V	-21.56	74	-16.59	PK
1093.48	53.55	89	145	V	-23.65	74	-20.45	PK
837.26	52.13	96	249	H	-23.42	74	-21.87	PK
1135.26	48.72	115	200	H	-21.56	74	-25.28	PK
1542.39	56.32	107	165	H	-21.69	74	-17.68	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.

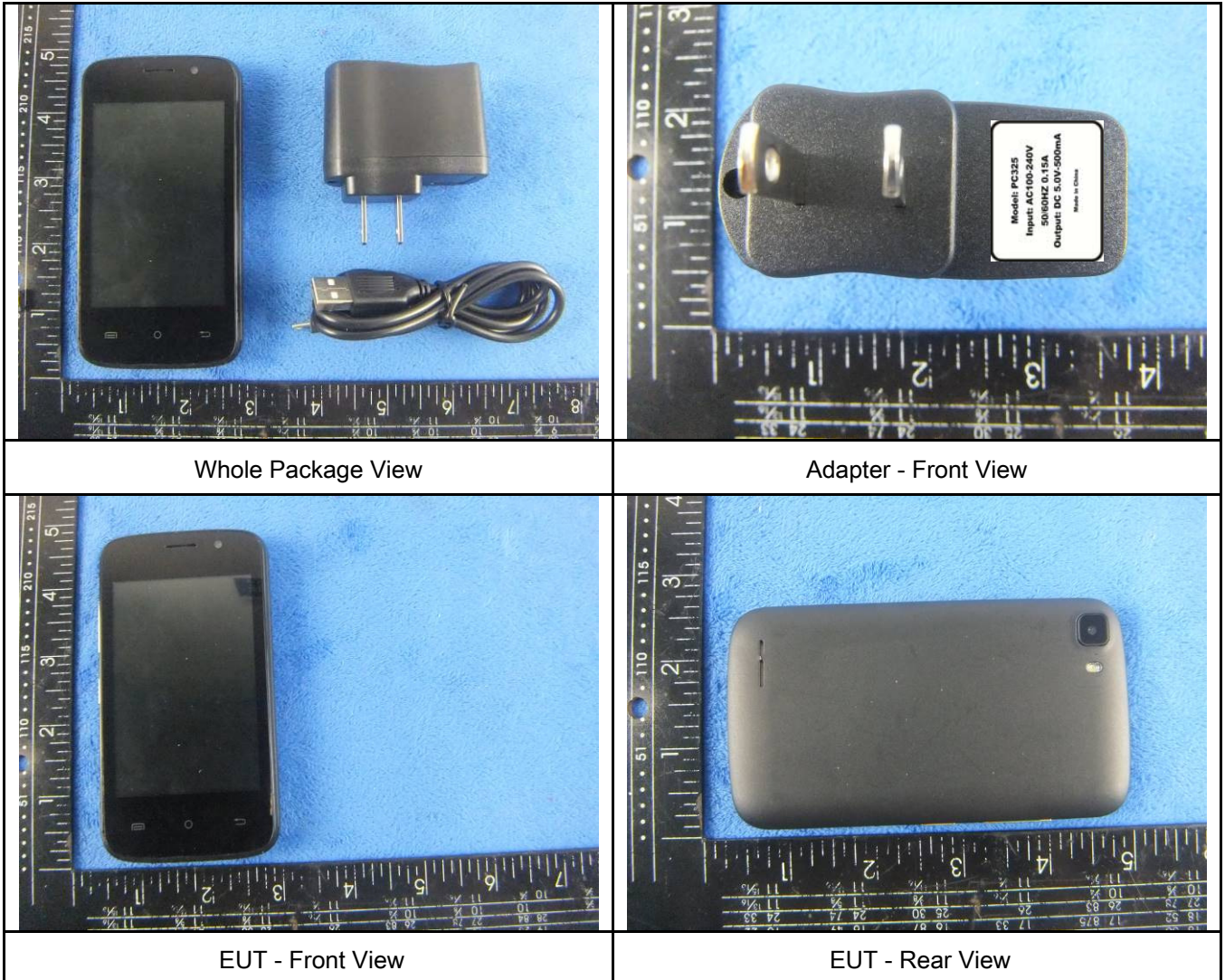
Note3: The AV measurement performed, more than 20dB below limit so AV test data was not presented.

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	03/24/2016	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 - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo



Cover Off - Top View 1



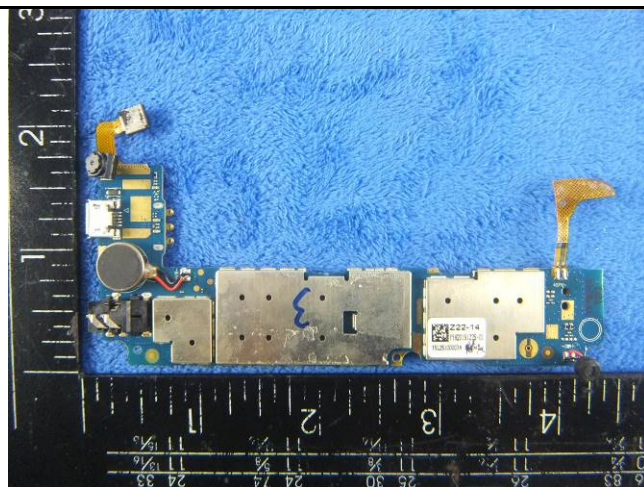
Cover Off - Top View 2



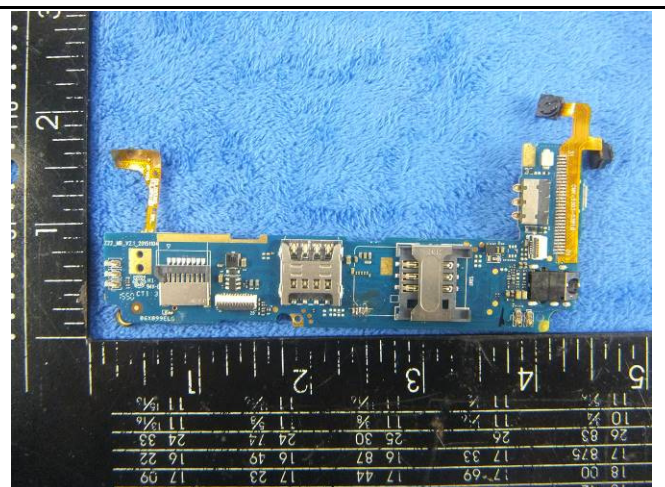
Battery - Front View



Battery - Rear View

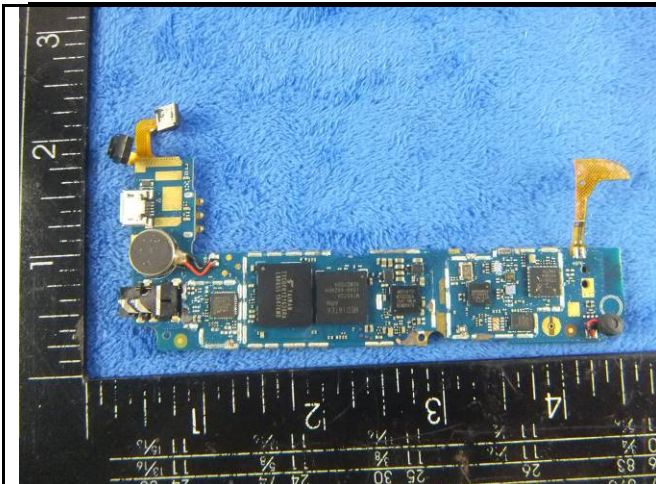


Mainboard with Shielding - Front View



Mainboard with Shielding - Rear View

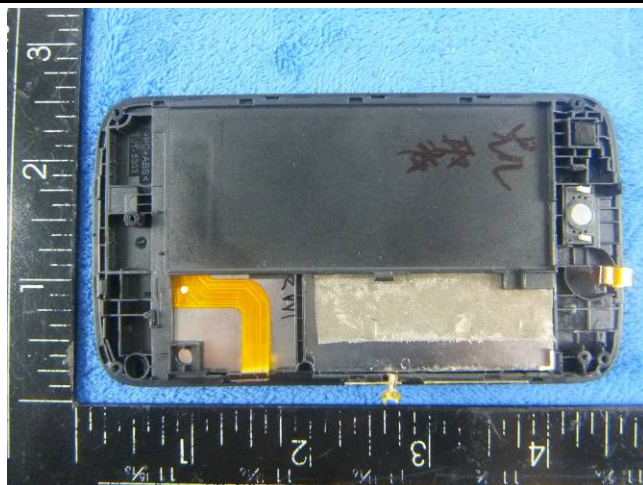
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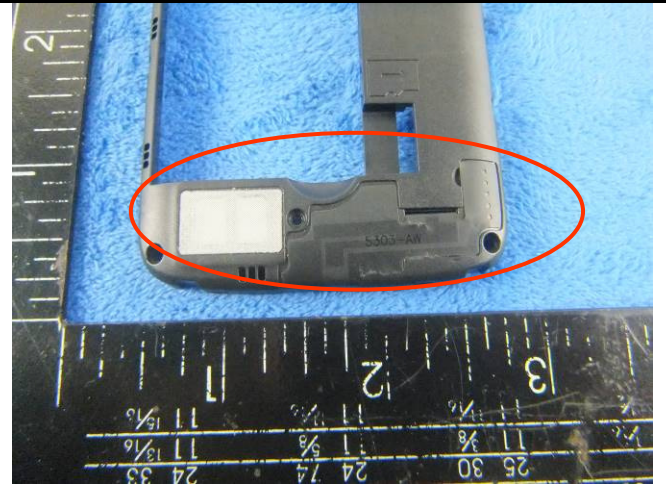
Mainboard without Shielding - Front View



LCD - Front View



LCD - Rear View



GSM/PCS/UMTS-FDD Antenna View

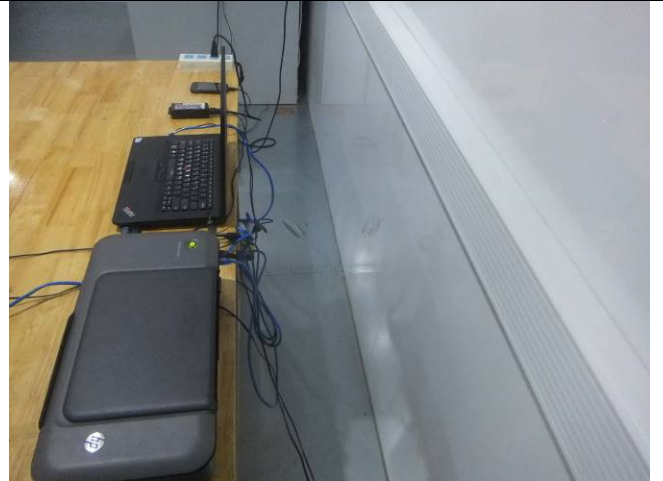


WIFI/BT/BLE/GPS - Antenna View

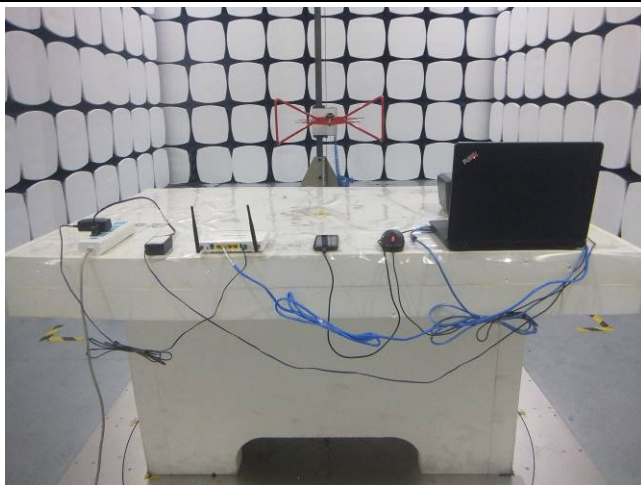
Annex B.iii. Photograph: Test Setup Photo



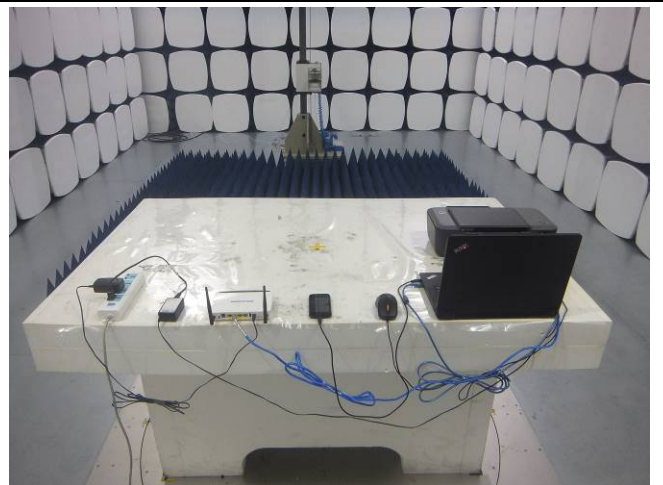
Conducted Emissions Test Setup – TF Card Front View



Conducted Emissions Test Setup – TF Card Side View



Radiated Emissions Test Setup Below 1GHz - TF Card Front View

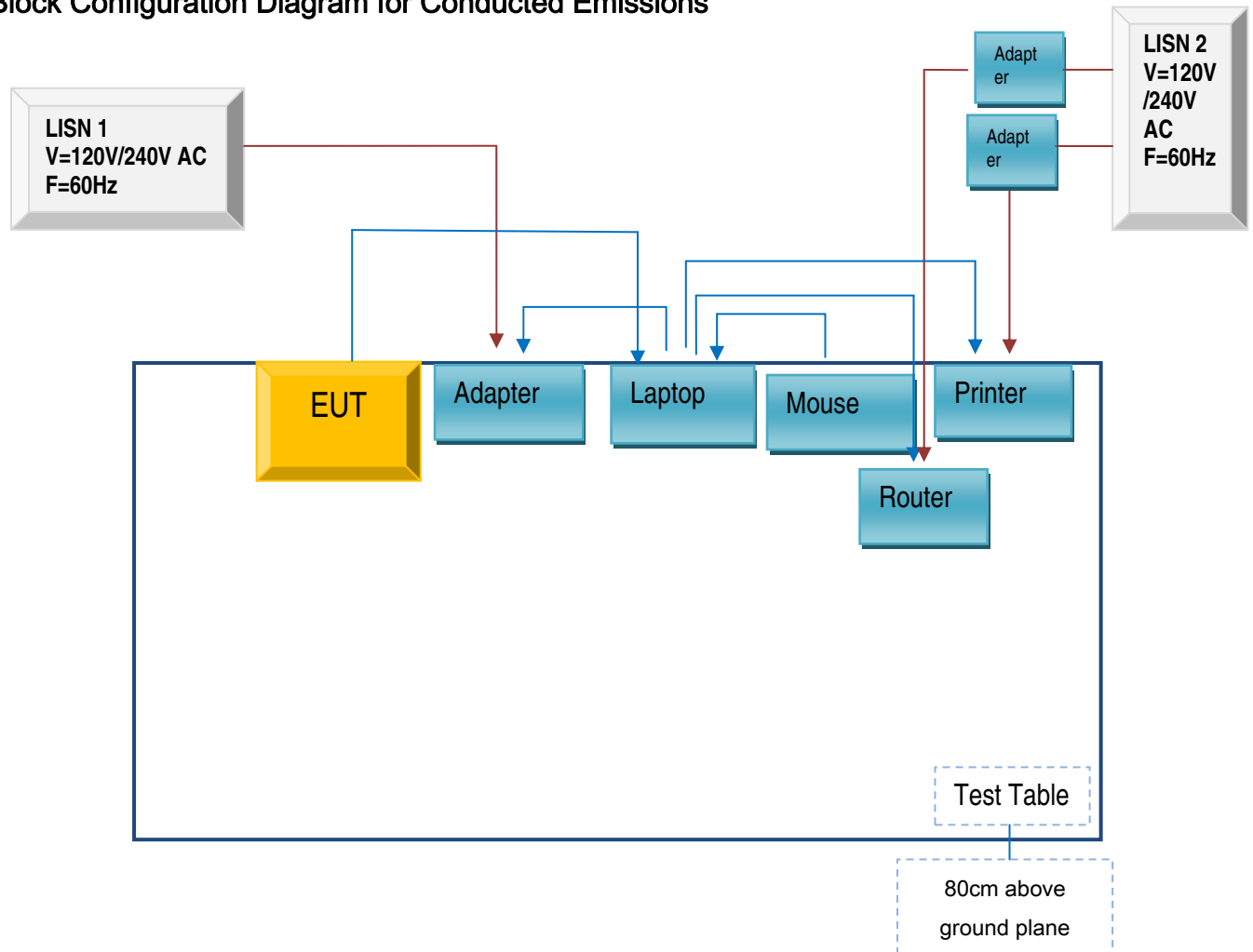


Radiated Emissions Test Setup Above 1GHz - TF Card Side View

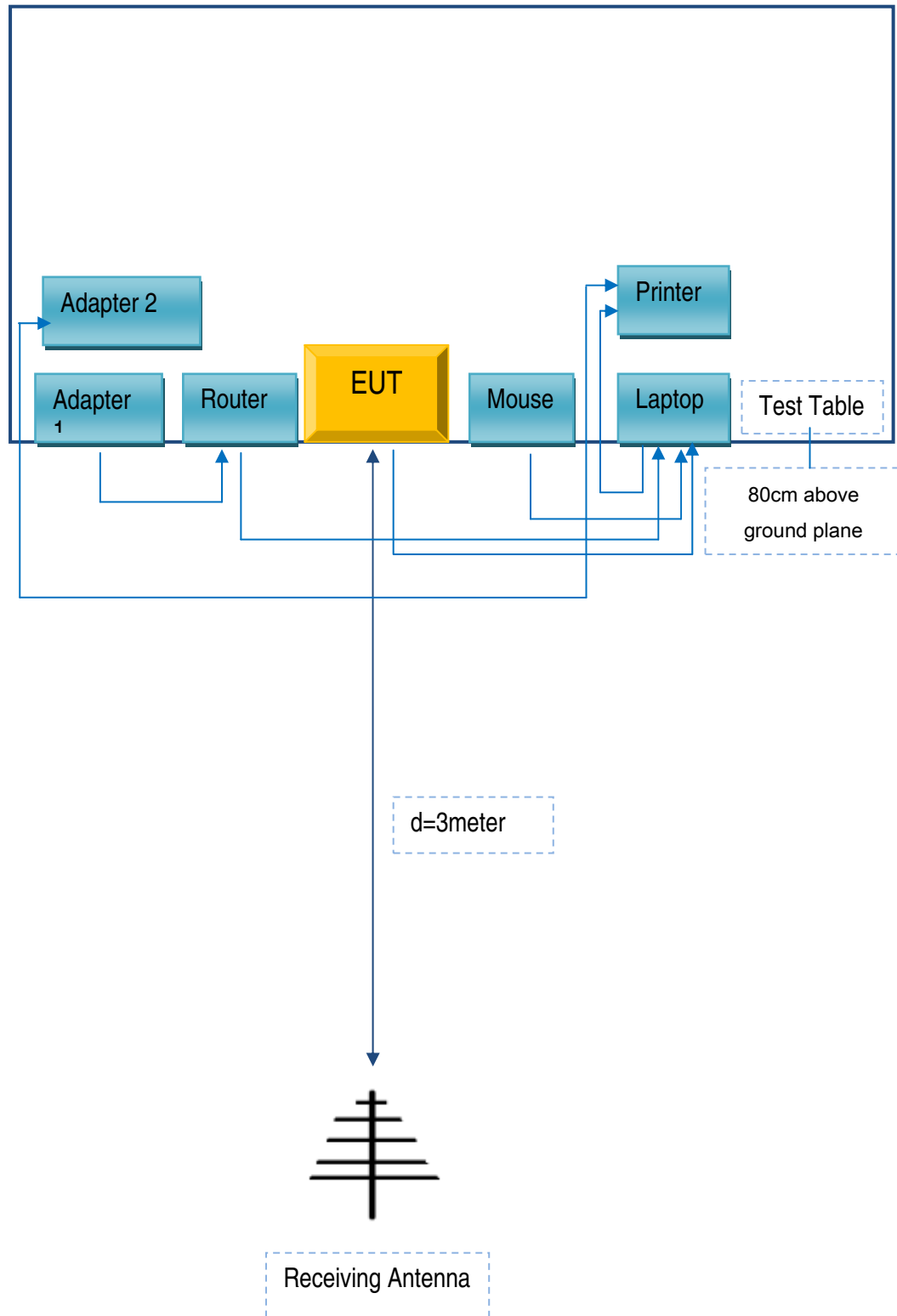
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

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	Lenovo Laptop	E40& 0579A52	LR-1EHRX
GOLDWEB	Router	R102	1202032094
HP	Printer	VCVRA-1003	CN36M19JWX
DELL	Mouse	E100	912NMTUT41481
SMT TELECOMM HK LIMITED	Adapter	PC325	P010253
BULL	Socket	GN-403	GN201203

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	2m	JX120051274
RJ45 Cable	Un-shielding	No	2m	KX156327541
Router Power cable	Un-shielding	No	2m	13274630Z
Printer Power cable	Un-shielding	No	2m	127581031
USB Cable	Un-shielding	No	0.8m	ST1274111
Power Cable	Un-shielding	No	0.8m	GT211032

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

N/A

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Annex E. DECLARATION OF SIMILARITY

N/A