
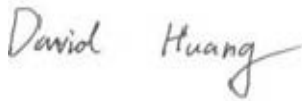



EMC TEST REPORT



Report No.: 16071234-FCC-E-V1

Supersede Report No: N/A

Applicant	SMT TELECOMM HK LIMITED	
Product Name	Mobile Phone	
Model No.	X455	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2015, ANSI C63.4: 2014	
Test Date	October 28 to November 07, 2016	
Issue Date	November 15, 2016	
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"/>	
		
Loren Luo 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

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
16071234-FCC-E	NONE	Original	November 08, 2016
16071234-FCC-E-V1	V1	Updated description of page19	November 15, 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:	X455
Serial Model:	N/A
Antenna Gain:	GSM850: -1.3dBi PCS1900: -1.4dBi UMTS-FDD Band V: -1.1dBi UMTS-FDD Band II: -0.7dBi Bluetooth/WIFI/BLE: -1.5dBi
Antenna Type:	PIFA antenna
Input Power:	Adapter: Model: PCX455 Input: AC100-240V~50/60Hz,0.15A Output: DC 5.0V-500mA Battery: Model: BPX455 Voltage: 3.7V Battery Capacity: 1300mAh(4.81Wh) Charging limit voltage: 4.2V
Equipment Category :	JBP
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

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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
 UMTS-FDD Band II: 277CH
 WIFI :802.11b/g/n(20M): 11CH
 WIFI :802.11n(40M): 7CH
 Bluetooth: 79CH
 BLE: 40CH

Port: USB Port, Earphone Port

Trade Name : N/A

FCC ID: 2AIMEX455

Date EUT received: October 27, 2016

Test Date(s): October 28 to November 07, 2016

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
-	-	-

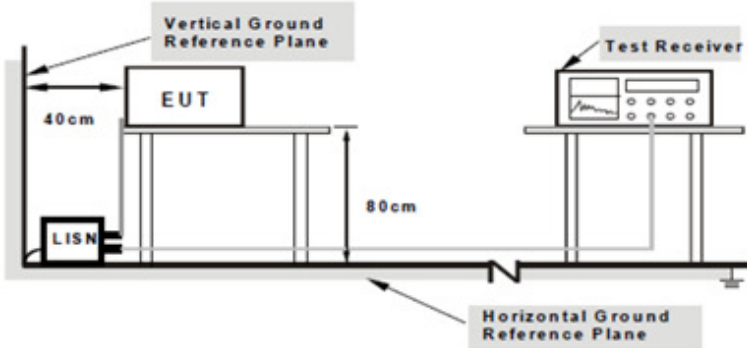
6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1003mbar
Test date :	November 03, 2016
Tested By :	Loren Luo

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>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 50Ω /50mH EUT LISN, connected to filtered mains.
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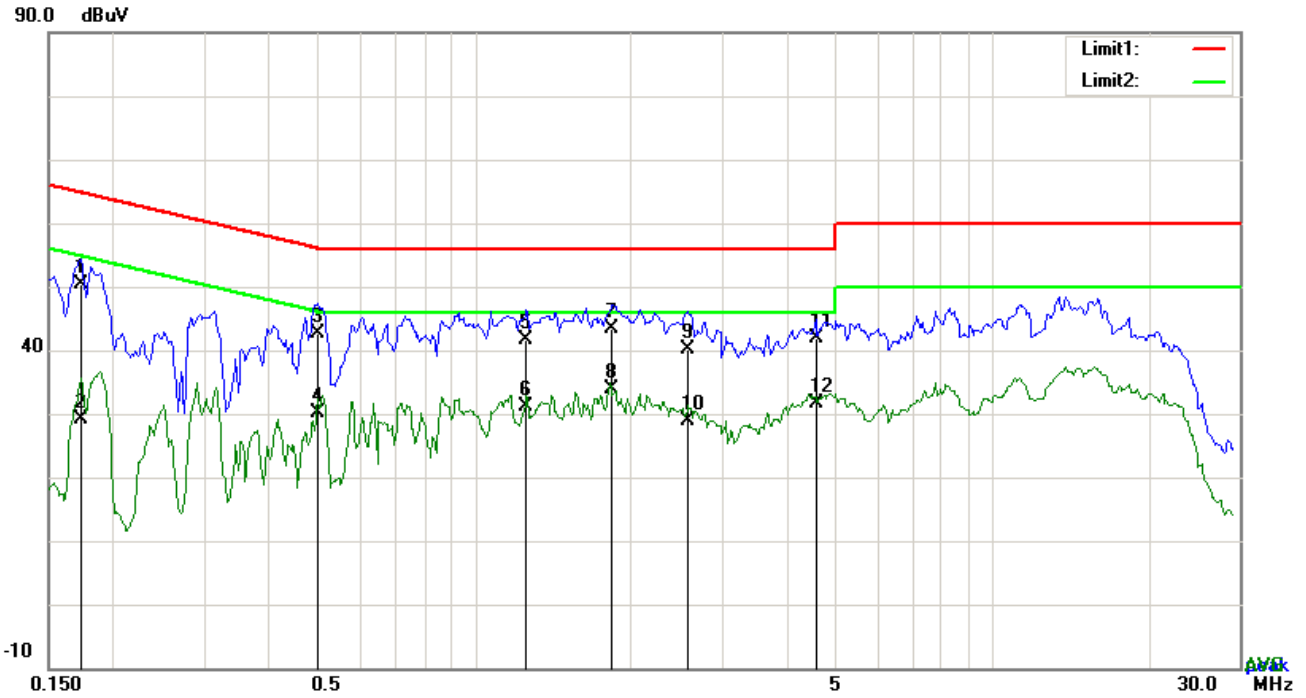
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	<ol style="list-style-type: none"> 3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and 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 : USB Mode

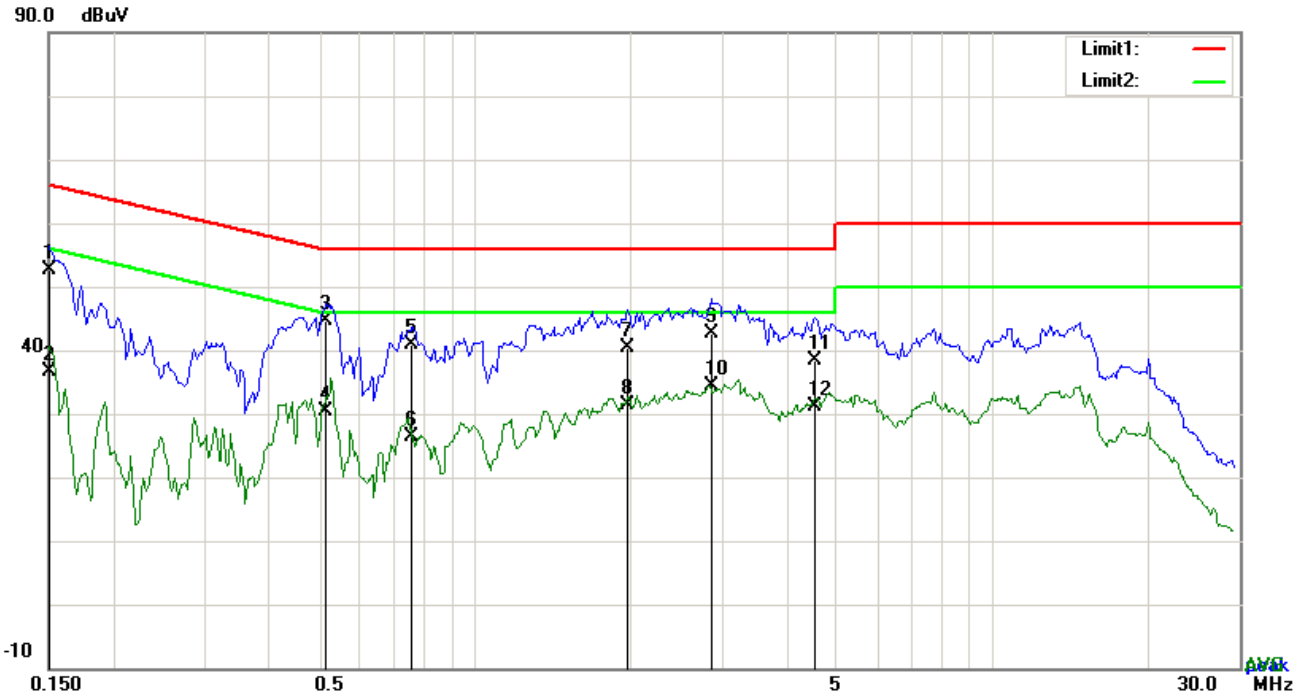


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.1734	40.25	QP	10.03	50.28	64.80	-14.52
2	L1	0.1734	19.02	AVG	10.03	29.05	54.80	-25.75
3	L1	0.4971	32.63	QP	10.03	42.66	56.05	-13.39
4	L1	0.4971	20.17	AVG	10.03	30.20	46.05	-15.85
5	L1	1.2615	31.69	QP	10.03	41.72	56.00	-14.28
6	L1	1.2615	21.13	AVG	10.03	31.16	46.00	-14.84
7	L1	1.8387	33.27	QP	10.04	43.31	56.00	-12.69
8	L1	1.8387	23.86	AVG	10.04	33.90	46.00	-12.10
9	L1	2.5836	30.08	QP	10.05	40.13	56.00	-15.87
10	L1	2.5836	18.77	AVG	10.05	28.82	46.00	-17.18
11	L1	4.5522	31.77	QP	10.07	41.84	56.00	-14.16
12	L1	4.5522	21.58	AVG	10.07	31.65	46.00	-14.35

Test Mode :	USB Mode
--------------------	-----------------

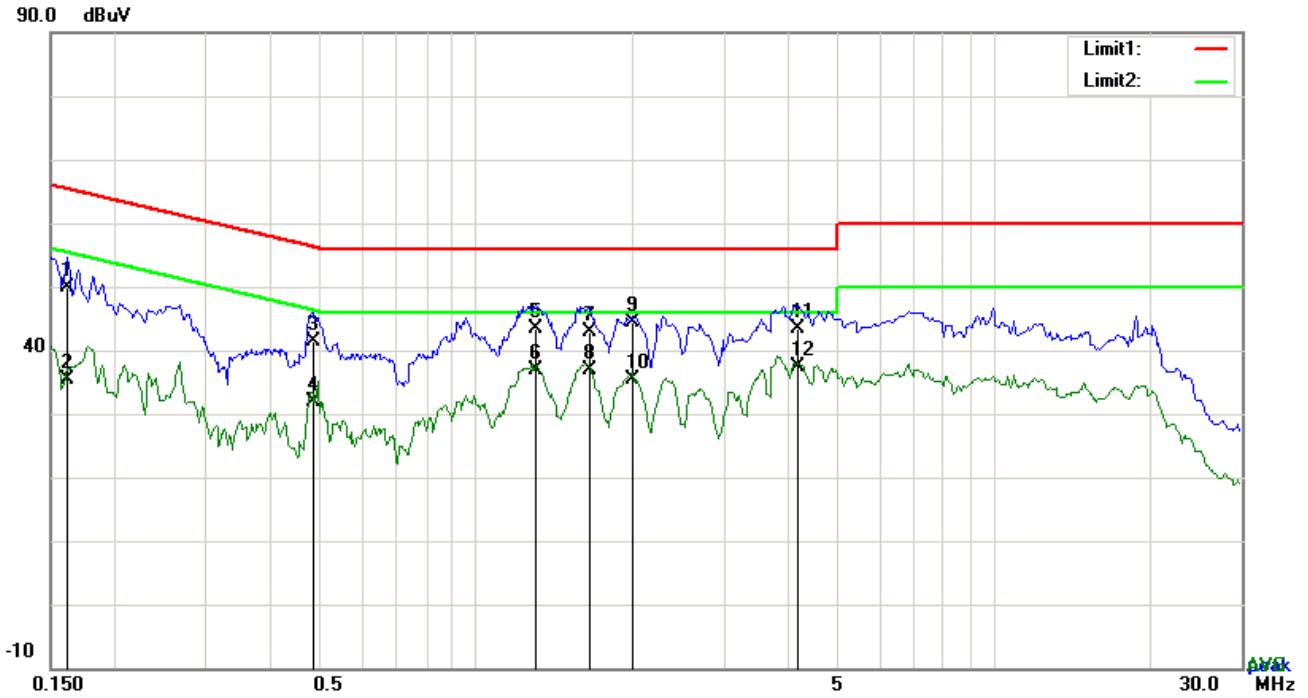


Test Data

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	42.63	QP	10.02	52.65	66.00	-13.35
2	N	0.1500	26.73	AVG	10.02	36.75	56.00	-19.25
3	N	0.5166	34.73	QP	10.02	44.75	56.00	-11.25
4	N	0.5166	20.31	AVG	10.02	30.33	46.00	-15.67
5	N	0.7584	30.95	QP	10.03	40.98	56.00	-15.02
6	N	0.7584	16.45	AVG	10.03	26.48	46.00	-19.52
7	N	1.9713	30.28	QP	10.04	40.32	56.00	-15.68
8	N	1.9713	21.31	AVG	10.04	31.35	46.00	-14.65
9	N	2.8566	32.51	QP	10.05	42.56	56.00	-13.44
10	N	2.8566	24.44	AVG	10.05	34.49	46.00	-11.51
11	N	4.5405	28.41	QP	10.07	38.48	56.00	-17.52
12	N	4.5405	20.97	AVG	10.07	31.04	46.00	-14.96

Test Mode : USB Mode

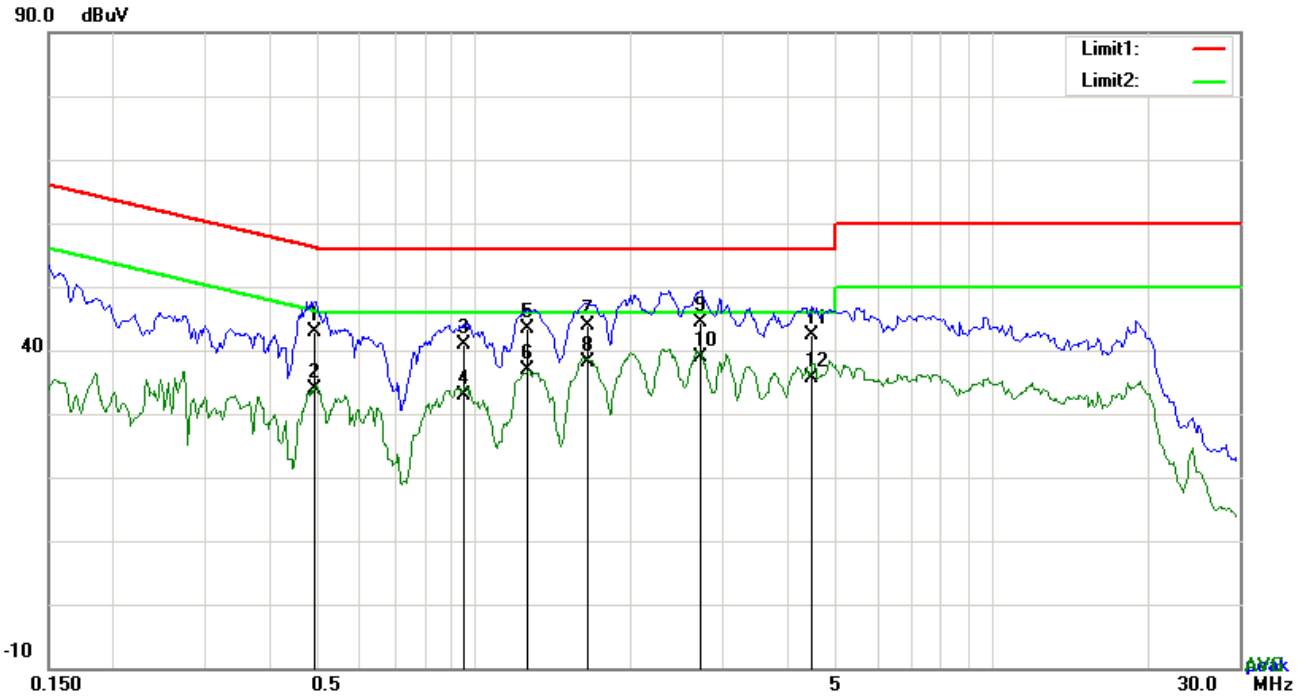


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB}	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	L1	0.1617	39.88	QP	10.03	49.91	65.38	-15.47
2	L1	0.1617	25.45	AVG	10.03	35.48	55.38	-19.90
3	L1	0.4812	31.46	QP	10.03	41.49	56.32	-14.83
4	L1	0.4812	21.97	AVG	10.03	32.00	46.32	-14.32
5	L1	1.2960	33.44	QP	10.03	43.47	56.00	-12.53
6	L1	1.2960	26.94	AVG	10.03	36.97	46.00	-9.03
7	L1	1.6476	32.86	QP	10.04	42.90	56.00	-13.10
8	L1	1.6476	26.75	AVG	10.04	36.79	46.00	-9.21
9	L1	2.0025	34.39	QP	10.04	44.43	56.00	-11.57
10	L1	2.0025	25.30	AVG	10.04	35.34	46.00	-10.66
11	L1	4.1583	33.35	QP	10.07	43.42	56.00	-12.58
12	L1	4.1583	27.29	AVG	10.07	37.36	46.00	-8.64

Test Mode : USB Mode



Test Data

Phase Neutral Plot at 240Vac, 60Hz

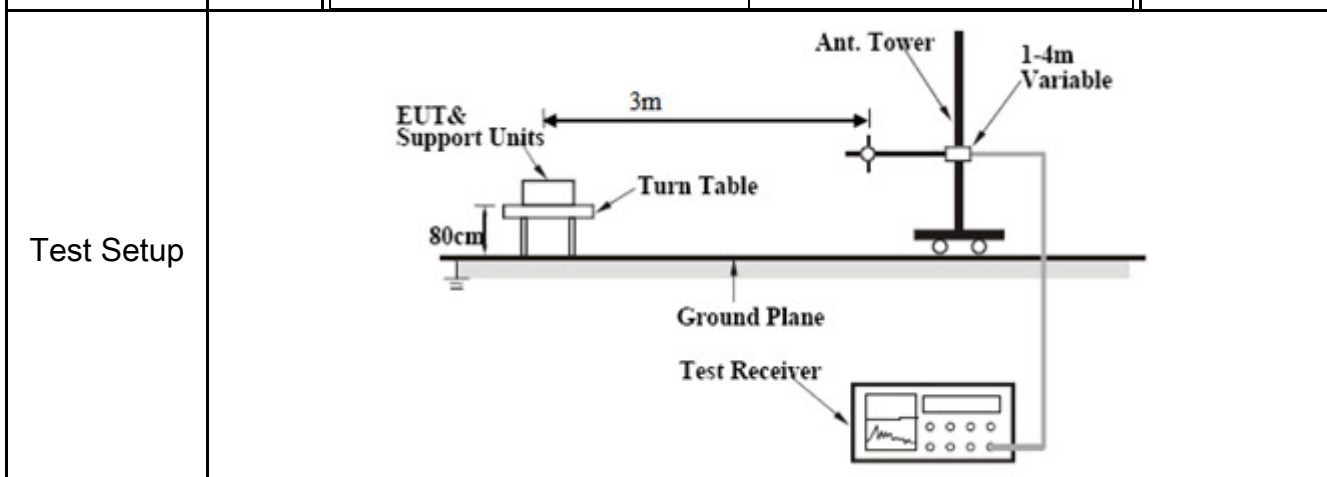
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	N	0.4893	32.92	QP	10.02	42.94	56.18	-13.24
2	N	0.4893	23.91	AVG	10.02	33.93	46.18	-12.25
3	N	0.9481	30.94	QP	10.03	40.97	56.00	-15.03
4	N	0.9481	22.76	AVG	10.03	32.79	46.00	-13.21
5	N	1.2654	33.36	QP	10.03	43.39	56.00	-12.61
6	N	1.2654	26.97	AVG	10.03	37.00	46.00	-9.00
7	N	1.6476	33.95	QP	10.04	43.99	56.00	-12.01
8	N	1.6476	28.14	AVG	10.04	38.18	46.00	-7.82
9	N	2.7240	34.45	QP	10.05	44.50	56.00	-11.50
10	N	2.7240	28.93	AVG	10.05	38.98	46.00	-7.02
11	N	4.4820	32.42	QP	10.06	42.48	56.00	-13.52
12	N	4.4820	25.46	AVG	10.06	35.52	46.00	-10.48

6.2 Radiated Emissions

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1003mbar
Test date :	November 03, 2016
Tested By :	Loren Luo

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	<input checked="" type="checkbox"/>										
		<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength ($\mu\text{V}/\text{m}$)</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 ($\mu\text{V}/\text{m}$)	30 – 88	100	88 – 216	150	216 - 960	200	Above 960	500
		Frequency range (MHz)		Field Strength ($\mu\text{V}/\text{m}$)									
		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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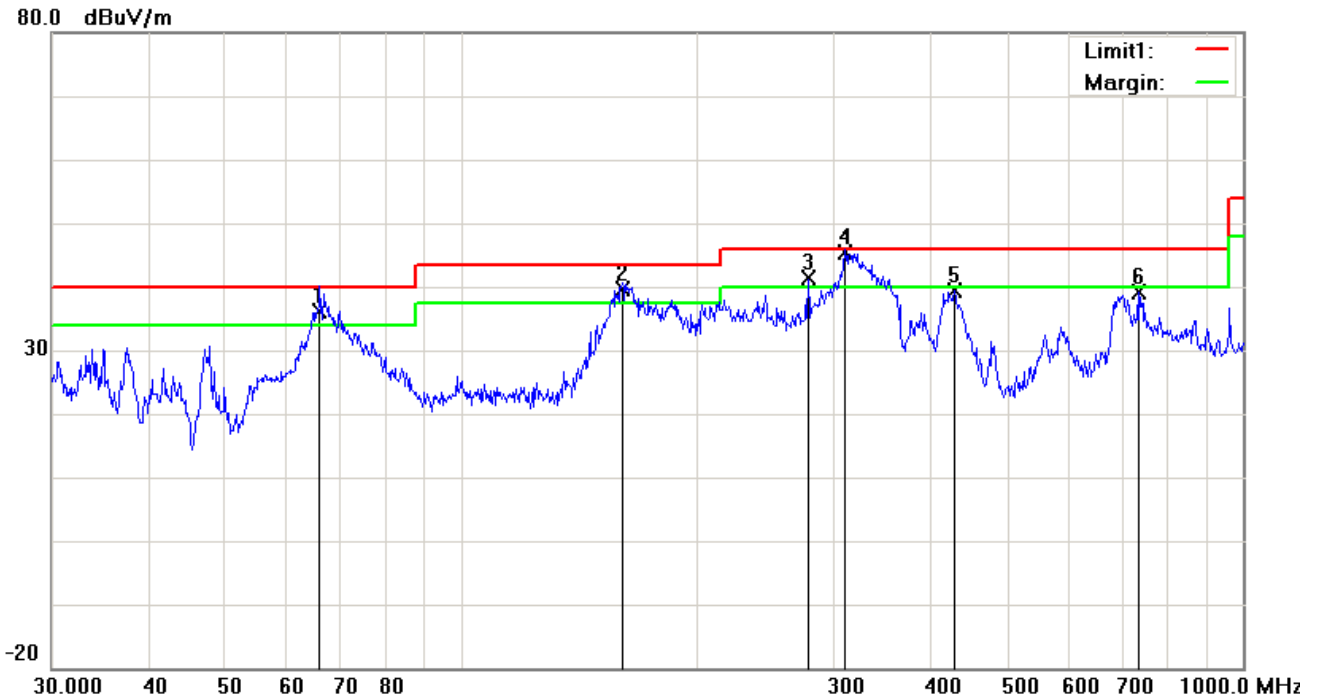
	<p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum 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

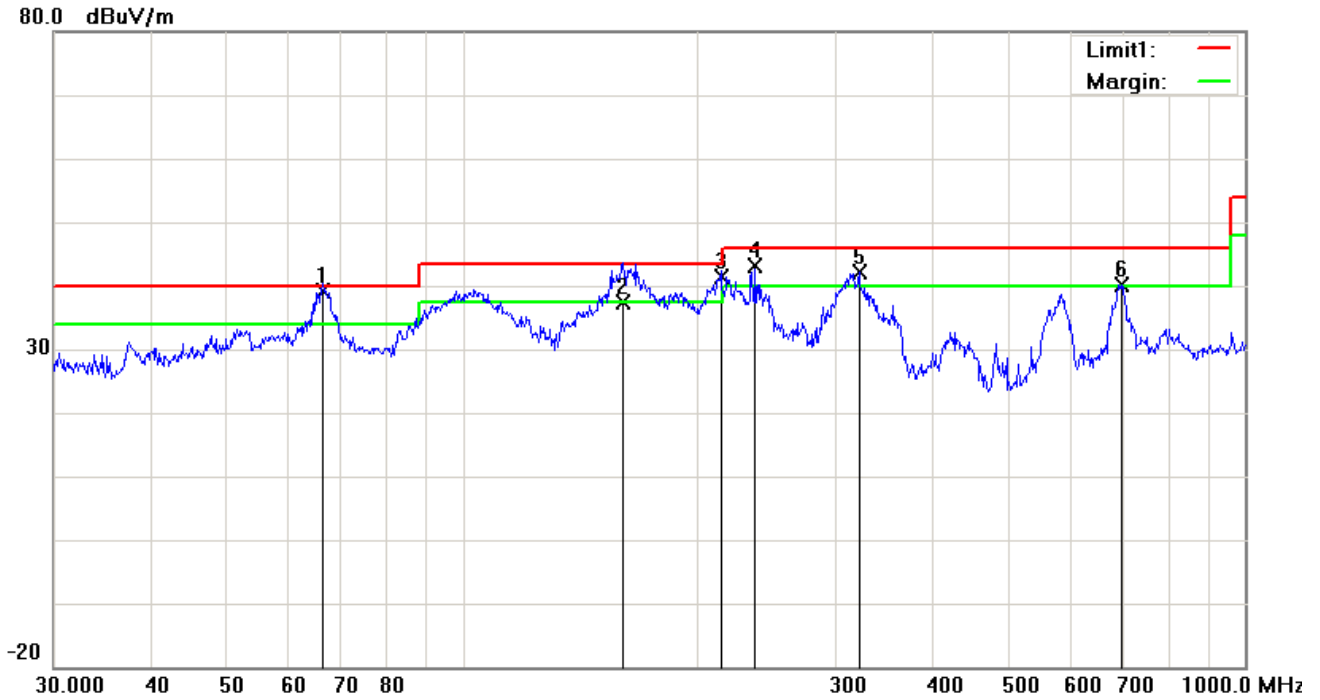


Test Data

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	66.0342	49.99	QP	-13.89	36.10	40.00	-3.90	100	195
2	H	160.9089	48.05	QP	-8.35	39.70	43.50	-3.80	100	64
3	H	278.0669	49.41	QP	-7.91	41.50	46.00	-4.50	100	318
4	H	309.9977	52.01	QP	-6.61	45.40	46.00	-0.60	100	286
5	H	428.0193	42.92	peak	-3.61	39.31	46.00	-6.69	100	53
6	H	734.4913	37.10	peak	2.09	39.19	46.00	-6.81	100	121

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	66.2662	52.97	QP	-13.87	39.10	40.00	-0.90	100	34
2	V	160.3457	45.71	QP	-8.31	37.40	43.50	-6.10	100	154
3	V	213.7634	50.22	QP	-8.87	41.35	43.50	-2.15	100	128
4	V	236.6447	52.19	QP	-9.06	43.13	46.00	-2.87	100	130
5	V	321.0608	48.47	QP	-6.29	42.18	46.00	-3.82	100	229
6	V	694.4174	38.87	QP	1.32	40.19	46.00	-5.81	100	58

Above 1GHz

Frequency (MHz)	Amplitude (dB μ V/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dB μ V/m)	Margin (dB)	Detector (PK/AV)
1535.15	50.25	89	161	V	-21.35	74	-23.75	PK
2043.77	49.11	90	127	V	-22.45	74	-24.89	PK
1668.32	50.55	43	166	V	-21.69	74	-23.45	PK
2172.45	49.37	71	177	H	-22.37	74	-24.63	PK
2882.33	48.69	43	148	H	-21.48	74	-25.31	PK
1893.67	50.21	81	135	H	-21.33	74	-23.79	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	09/16/2016	09/15/2017	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191106	09/24/2016	09/23/2017	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191107	09/24/2016	09/23/2017	<input checked="" type="checkbox"/>
LISN	ISN T800	34373	09/24/2016	09/23/2017	<input checked="" type="checkbox"/>
Transient Limiter	LIT-153	531118	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/16/2016	09/15/2017	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/20/2016	09/19/2017	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna	AH-118	71259	09/23/2016	09/22/2017	<input checked="" type="checkbox"/>

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Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

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Annex B.ii. Photograph: EUT Internal Photo

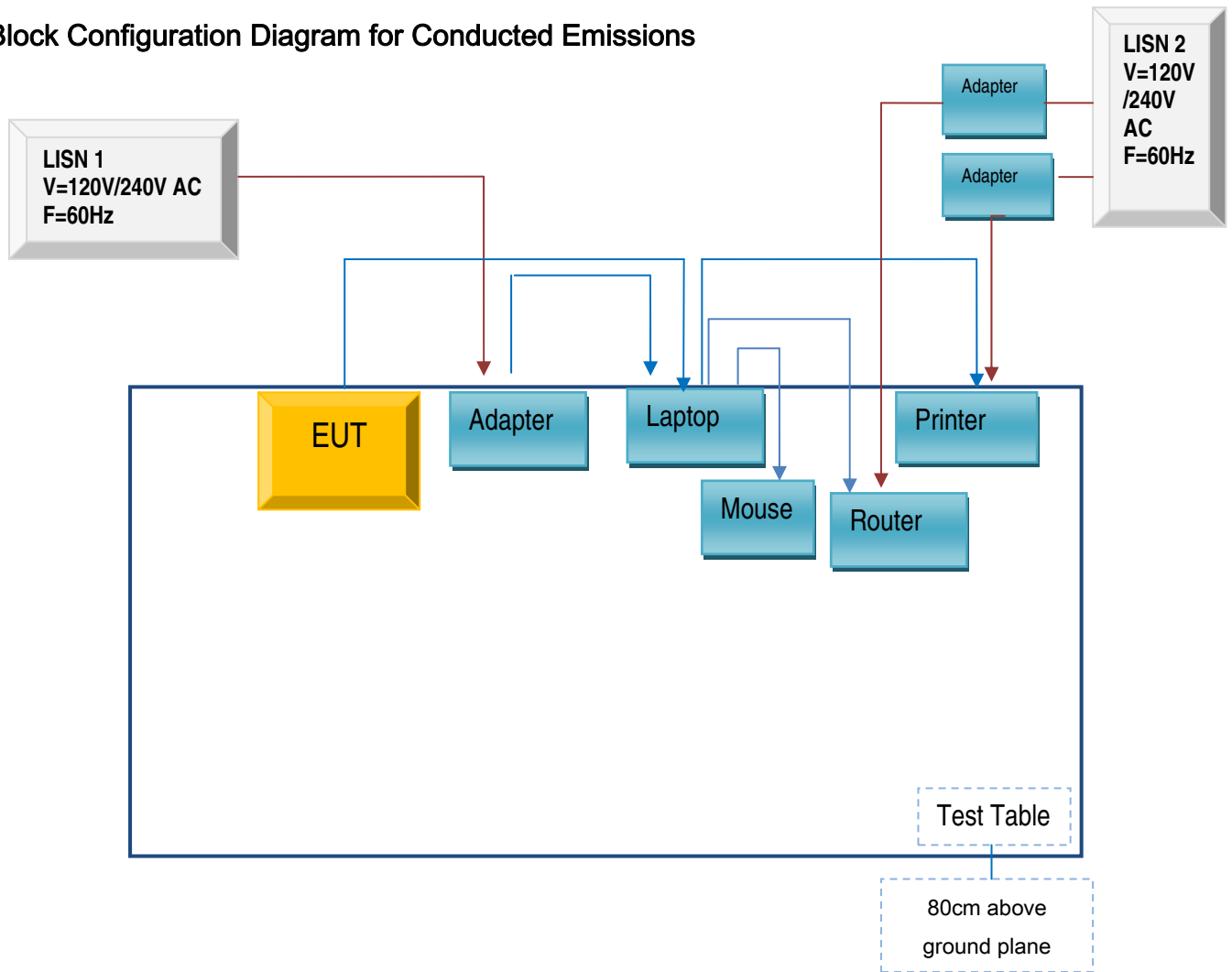
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Annex B.iii. Photograph: Test Setup Photo

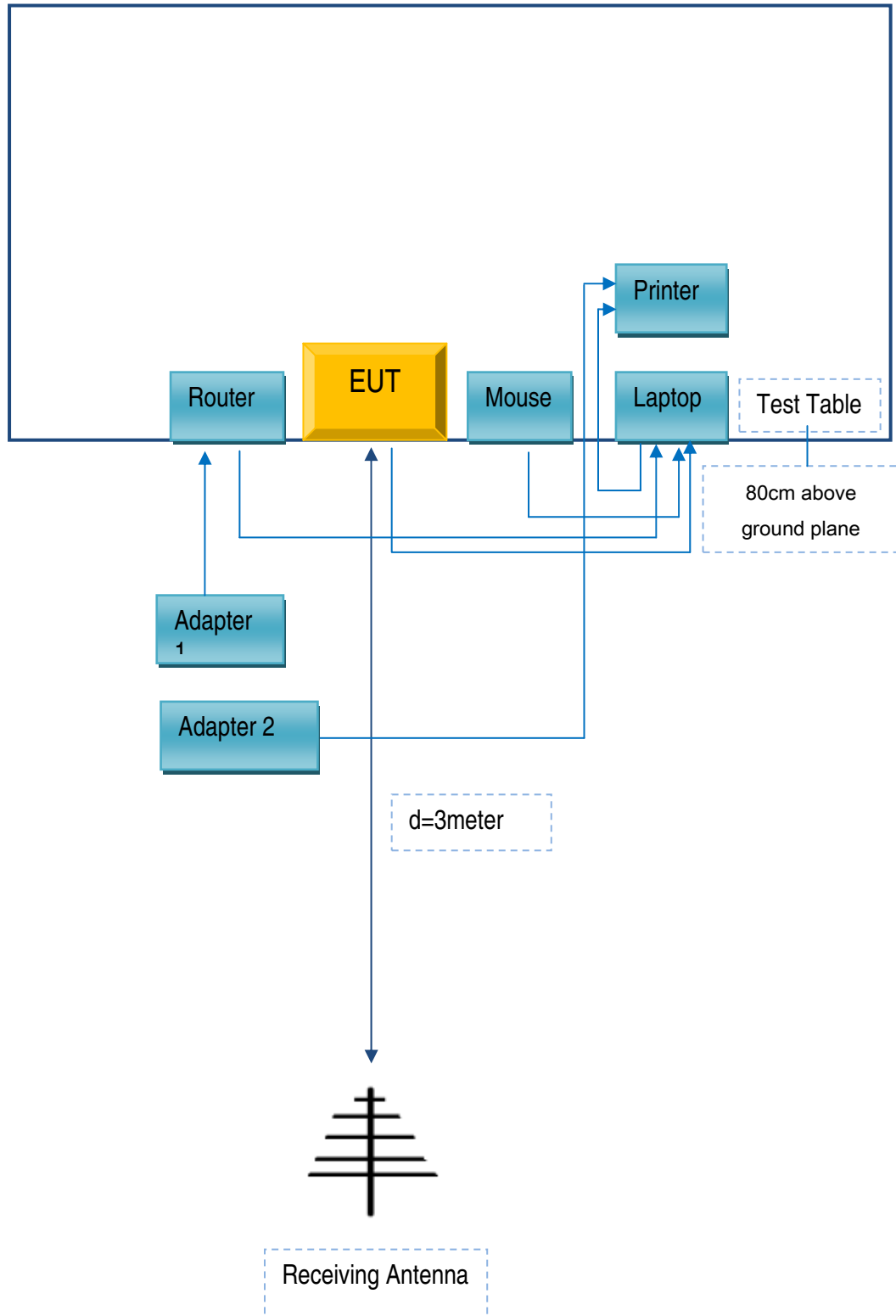
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

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
Lenovo	AC Adapter	42T4416	21D9JU
HP	Printer	VCVRA-1003	CN36M19JWX
DELL	Mouse	E100	912NMTUT41481
BULL	Socket	GN-403	GN201203

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	2m	JX120051274
USB Cable	Un-shielding	No	2m	CBA3000AH0C1
RJ45 Cable	Un-shielding	No	2m	KX156327541
Router Power cable	Un-shielding	No	2m	13274630Z
Printer Power cable	Un-shielding	No	2m	127581031
Power Cable	Un-shielding	No	0.8m	GT211032

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

Please see the attachment

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Annex E. DECLARATION OF SIMILARITY

N/A