

EMC TEST REPORT



Report No.: 18070041-FCC-E

Supersede Report No: N/A

Applicant	TECNO MOBILE LIMITED	
Product Name	Mobile phone	
Model No.	T632S	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2016, ANSI C63.4: 2014	
Test Date	January 12 to January 29, 2018	
Issue Date	January 30, 2018	
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"/>
Evans He	David Huang	
Evans He 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
18070041-FCC-E	NONE	Original	January 30, 2018

2. Customer information

Applicant Name	TECNO MOBILE LIMITED
Applicant Add	ROOMS 05-15, 13A/F., SOUTH TOWER, WORLD FINANCE CENTRE, HARBOUR CITY, 17 CANTON ROAD, TSIM SHA TSUI, KOWLOON, HONG KONG
Manufacturer	SHENZHEN TECNO TECHNOLOGY CO.,LTD.
Manufacturer Add	1-4th Floor,3rd Building,Pacific Industrial Park,No.2088,Shenyan Road,Yantian District,Shenzhen,Guangdong,China

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.	535293
IC Test Site No.	4842E-1
Test Software of Radiated Emission	Radiated Emission Program-To Shenzhen v2.0
Test Software of Conducted Emission	EZ-EMC(ver.lcp-03A1)

4. Equipment under Test (EUT) Information

Description of EUT:	Mobile phone
Main Model:	T632S
Serial Model:	N/A
Antenna Gain:	<p>GSM850: -0.2dBi</p> <p>PCS1900: 1.7dBi</p> <p>UMTS-FDD Band V: -0.2dBi</p> <p>UMTS-FDD Band II: 1.7dBi</p> <p>Bluetooth: -2.7dBi</p>
Antenna Type:	<p>GSM: PIFA antenna</p> <p>BT: PCB antenna</p>
Input Power:	<p>Adapter:</p> <p>Model: A31-500500</p> <p>Input: AC100-240V~50/60Hz,0.2A</p> <p>Output: DC 5.0V, 500mA</p> <p>Battery:</p> <p>Model: BL-5CAT</p> <p>Spec: 3.7V, 1150mAh, 4.255Wh</p> <p>Voltage: 4.2V</p>
Equipment Category :	JBP
Type of Modulation:	<p>GSM / GPRS: GMSK</p> <p>EGPRS: GMSK</p> <p>UMTS-FDD: QPSK</p> <p>Bluetooth: GFSK, π /4DQPSK, 8DPSK</p>
RF Operating Frequency (ies):	<p>GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz</p> <p>PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz</p> <p>UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz</p> <p>UMTS-FDD Band II TX: 1852.4 ~ 1907.6 MHz;</p> <p>RX: 1932.4 ~ 1987.6 MHz</p> <p>Bluetooth: 2402-2480 MHz</p>

GSM 850: 124CH

PCS1900: 299CH

Number of Channels: UMTS-FDD Band V: 102CH
UMTS-FDD Band II: 277CH
Bluetooth: 79CH

Port: USB Port, Earphone Port

Trade Name : TECNO

FCC ID: 2ADYY-T632S

GPRS Multi-slot class 8/10/11/12

Date EUT received: January 11, 2018

Test Date(s): January 12 to January 29, 2018

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

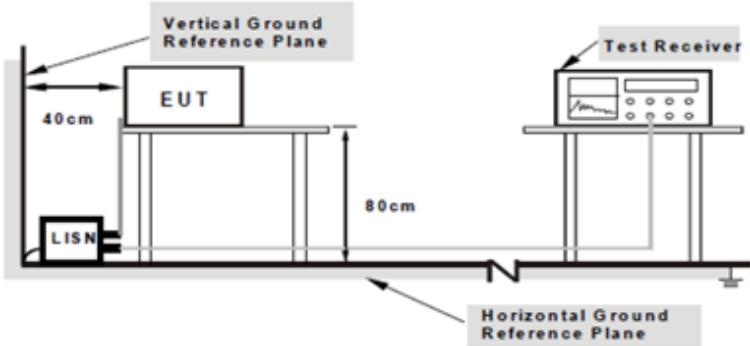
Parameter	Uncertainty
AC Power Line Conducted Emissions (150kHz~30MHz)	±3.11dB
Radiated Emission(30MHz~1GHz)	±5.12dB
Radiated Emission(1GHz~6GHz)	±5.34dB

6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	24 °C
Relative Humidity	55%
Atmospheric Pressure	1008mbar
Test date :	January 13, 2018
Tested By :	Evans He

Requirement(s):

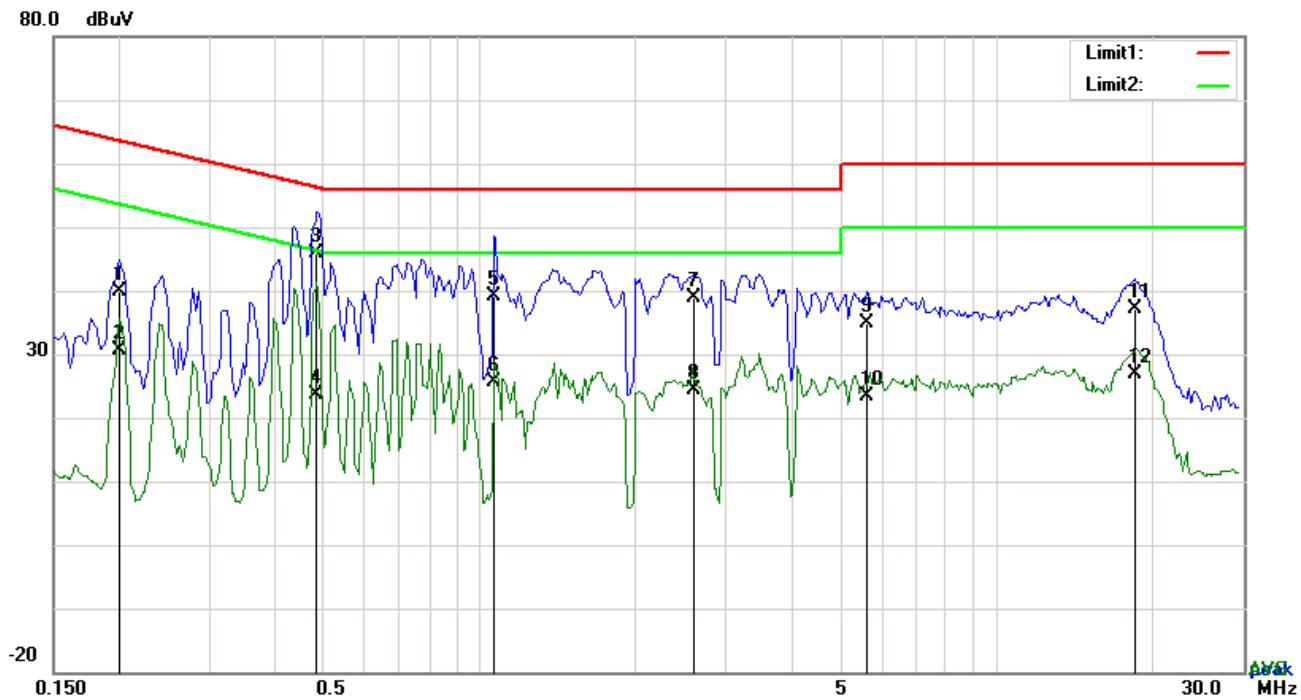
Spec	Item	Requirement	Applicable														
47CFR§15.107	a)	<p>For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] 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 (dB μ V)		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 (dB μ V)																
	QP	Average															
0.15 ~ 0.5	66 – 56	56 – 46															
0.5 ~ 5	56	46															
5 ~ 30	60	50															
Test Setup	 <p>The diagram illustrates the test setup for conducted emissions. An EUT (Equipment Under Test) is placed on a table. A LISN (Line Impedance Stabilization Network) is connected between the EUT and the power source. A test receiver is connected to the LISN. The setup is positioned on a horizontal ground reference plane. The distance between the LISN and the EUT is 40 cm, and the distance between the LISN and the test receiver is 80 cm. A vertical ground reference plane is also shown.</p> <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. 																

	<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

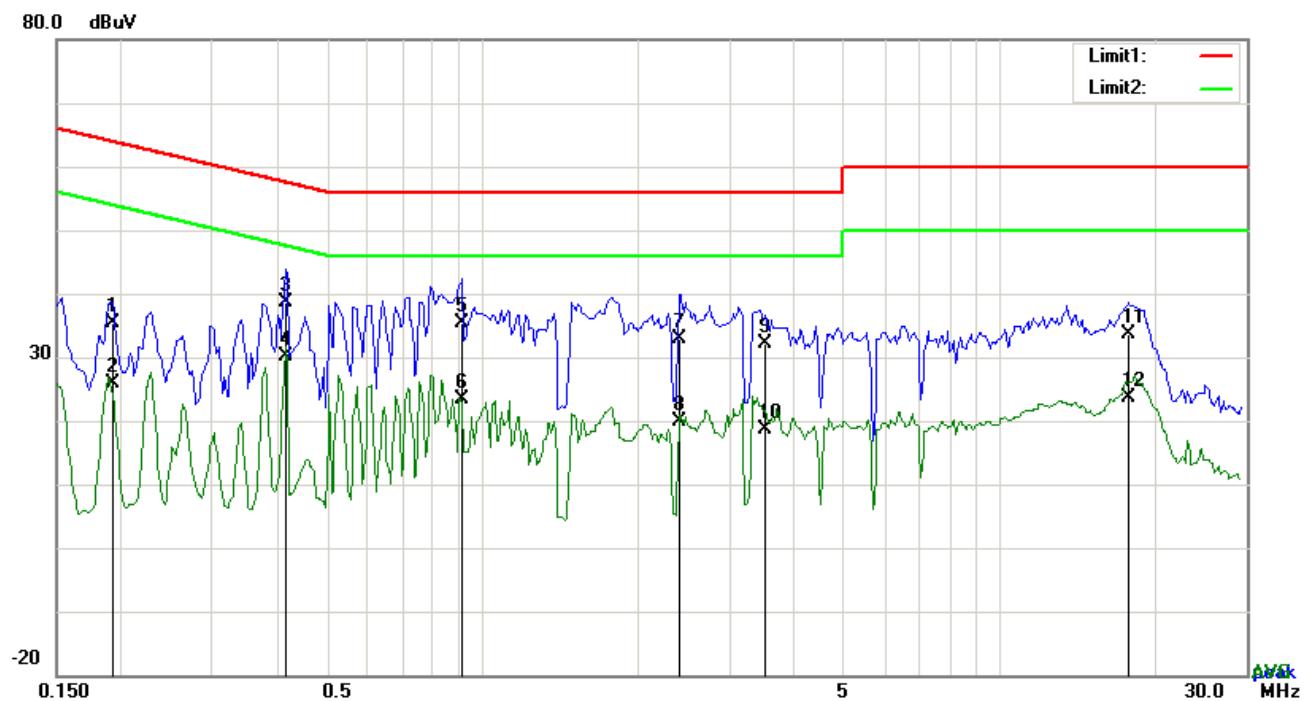


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	L1	0.2007	29.93	QP	10.03	39.96	63.58	-23.62
2	L1	0.2007	20.58	AVG	10.03	30.61	53.58	-22.97
3	L1	0.4854	35.90	QP	10.03	45.93	56.25	-10.32
4	L1	0.4854	13.59	AVG	10.03	23.62	46.25	-22.63
5	L1	1.0704	29.19	QP	10.03	39.22	56.00	-16.78
6	L1	1.0704	15.49	AVG	10.03	25.52	46.00	-20.48
7	L1	2.5992	28.74	QP	10.05	38.79	56.00	-17.21
8	L1	2.5992	14.32	AVG	10.05	24.37	46.00	-21.63
9	L1	5.6013	24.85	QP	10.09	34.94	60.00	-25.06
10	L1	5.6013	13.32	AVG	10.09	23.41	50.00	-26.59
11	L1	18.4401	26.92	QP	10.28	37.20	60.00	-22.80
12	L1	18.4401	16.67	AVG	10.28	26.95	50.00	-23.05

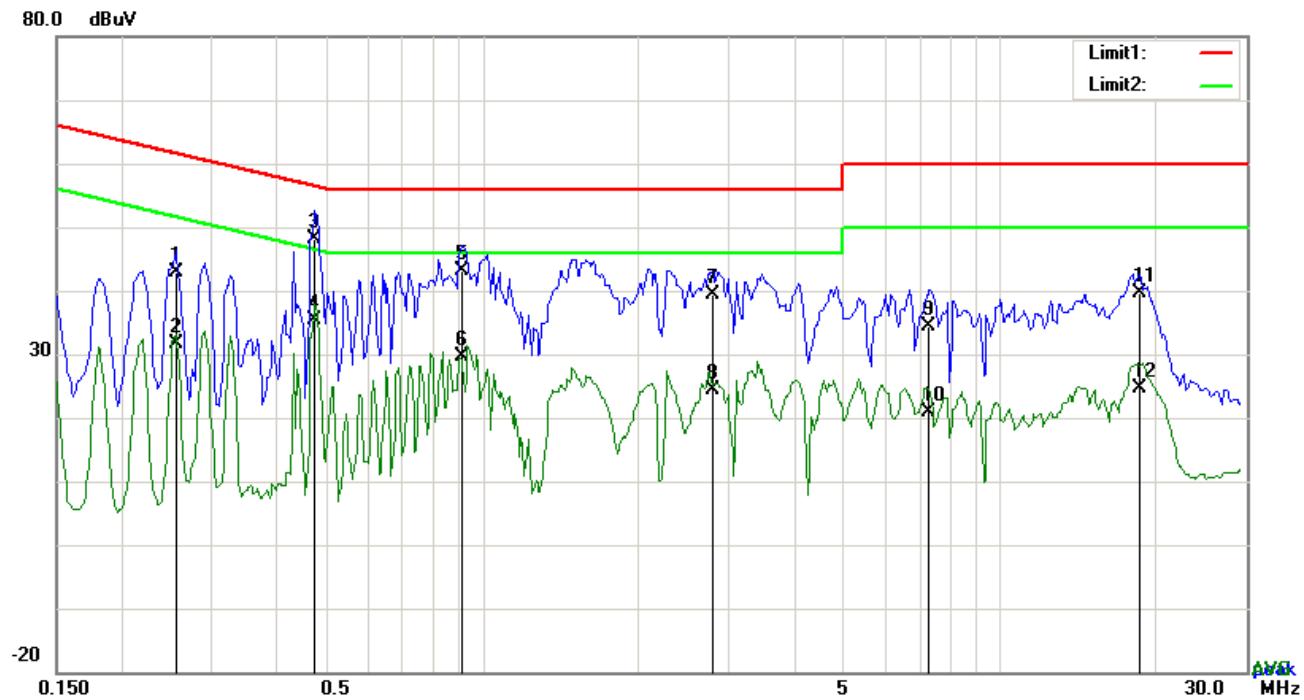
Test Mode: USB Mode



Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	N	0.1929	25.47	QP	10.03	35.50	63.91	-28.41
2	N	0.1929	15.79	AVG	10.03	25.82	53.91	-28.09
3	N	0.4152	28.65	QP	10.03	38.68	57.54	-18.86
4	N	0.4152	20.03	AVG	10.03	30.06	47.54	-17.48
5	N	0.9144	25.39	QP	10.03	35.42	56.00	-20.58
6	N	0.9144	13.34	AVG	10.03	23.37	46.00	-22.63
7	N	2.4081	22.72	QP	10.05	32.77	56.00	-23.23
8	N	2.4081	9.94	AVG	10.05	19.99	46.00	-26.01
9	N	3.5109	21.95	QP	10.06	32.01	56.00	-23.99
10	N	3.5109	8.62	AVG	10.06	18.68	46.00	-27.32
11	N	17.7576	23.37	QP	10.27	33.64	60.00	-26.36
12	N	17.7576	13.26	AVG	10.27	23.53	50.00	-26.47

Test Mode : **USB Mode**

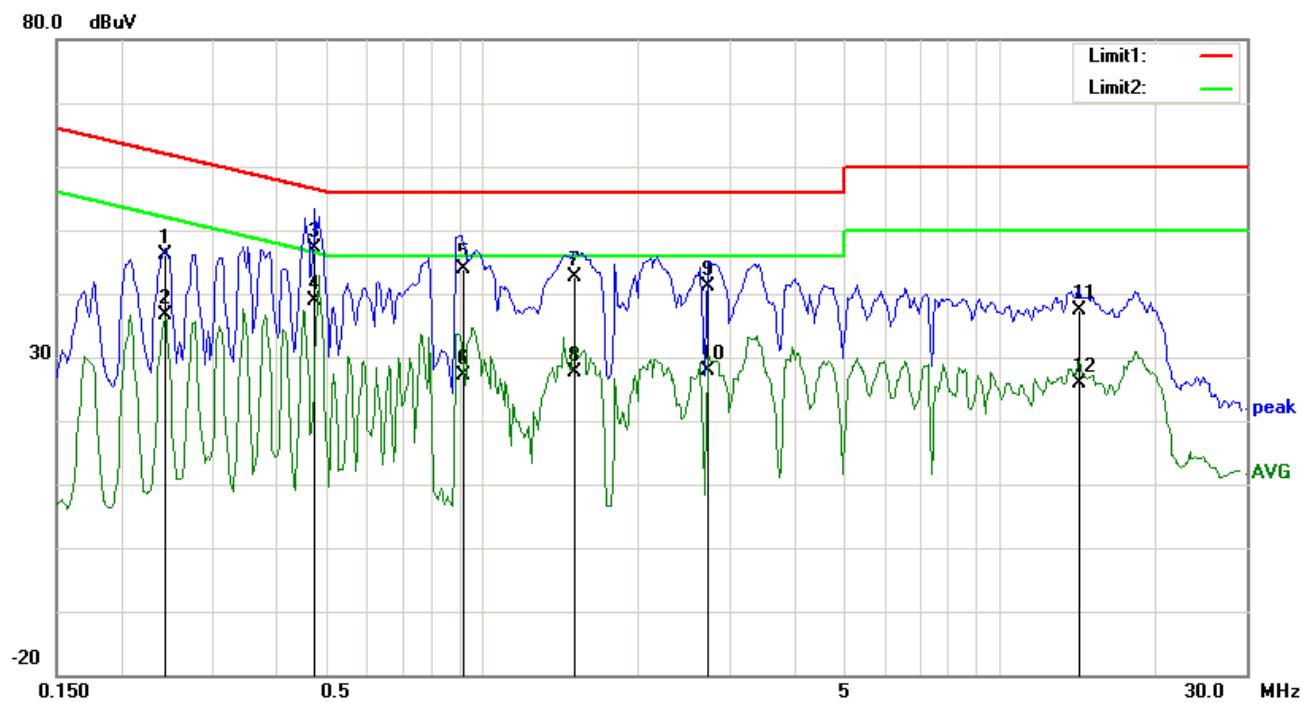


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	L1	0.2553	32.90	QP	10.03	42.93	61.58	-18.65
2	L1	0.2553	21.62	AVG	10.03	31.65	51.58	-19.93
3	L1	0.4737	38.12	QP	10.03	48.15	56.45	-8.30
4	L1	0.4737	25.46	AVG	10.03	35.49	46.45	-10.96
5	L1	0.9105	33.05	QP	10.03	43.08	56.00	-12.92
6	L1	0.9105	19.55	AVG	10.03	29.58	46.00	-16.42
7	L1	2.7903	29.28	QP	10.05	39.33	56.00	-16.67
8	L1	2.7903	14.25	AVG	10.05	24.30	46.00	-21.70
9	L1	7.3134	24.31	QP	10.11	34.42	60.00	-25.58
10	L1	7.3134	10.75	AVG	10.11	20.86	50.00	-29.14
11	L1	18.6507	29.38	QP	10.28	39.66	60.00	-20.34
12	L1	18.6507	14.26	AVG	10.28	24.54	50.00	-25.46

Test Mode : USB Mode



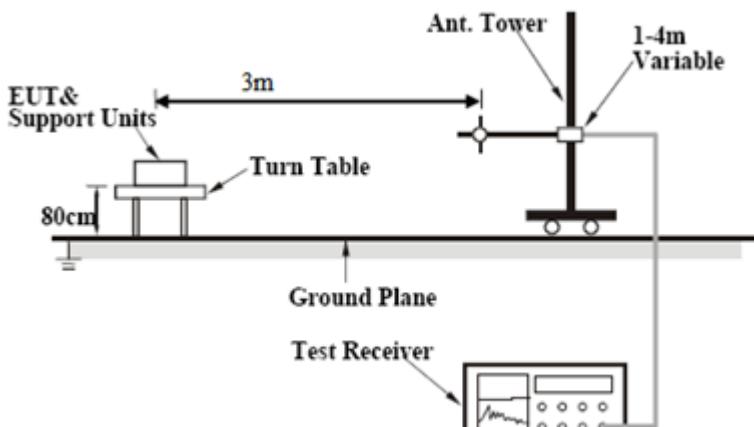
Phase Neutral Plot at 240Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	N	0.2436	35.98	QP	10.03	46.01	61.97	-15.96
2	N	0.2436	26.53	AVG	10.03	36.56	51.97	-15.41
3	N	0.4737	37.04	QP	10.03	47.07	56.45	-9.38
4	N	0.4737	28.82	AVG	10.03	38.85	46.45	-7.60
5	N	0.9184	33.79	QP	10.03	43.82	56.00	-12.18
6	N	0.9184	17.17	AVG	10.03	27.20	46.00	-18.80
7	N	1.5072	32.60	QP	10.04	42.64	56.00	-13.36
8	N	1.5072	17.49	AVG	10.04	27.53	46.00	-18.47
9	N	2.7318	31.03	QP	10.05	41.08	56.00	-14.92
10	N	2.7318	17.76	AVG	10.05	27.81	46.00	-18.19
11	N	14.2320	27.21	QP	10.21	37.42	60.00	-22.58
12	N	14.2320	15.77	AVG	10.21	25.98	50.00	-24.02

6.2 Radiated Emissions

Temperature	25 °C
Relative Humidity	57%
Atmospheric Pressure	1016mbar
Test date :	January 17, 2018
Tested By :	Evans He

Requirement(s):

Spec	Item	Requirement	Applicable										
47CFR§15. 109(d)	a)	<p>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</p> <table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength (µV/m)</th> </tr> </thead> <tbody> <tr> <td>30 – 88</td> <td>100</td> </tr> <tr> <td>88 – 216</td> <td>150</td> </tr> <tr> <td>216 - 960</td> <td>200</td> </tr> <tr> <td>Above 960</td> <td>500</td> </tr> </tbody> </table>	Frequency range (MHz)	Field Strength (µV/m)	30 – 88	100	88 – 216	150	216 - 960	200	Above 960	500	<input checked="" type="checkbox"/>
Frequency range (MHz)	Field Strength (µV/m)												
30 – 88	100												
88 – 216	150												
216 - 960	200												
Above 960	500												
Test Setup		 <p>The diagram illustrates the test setup. A 'Turn Table' is positioned on a 'Ground Plane'. An 'EUT & Support Units' is mounted on the turn table. A vertical 'Ant. Tower' is connected to the turn table. The distance between the EUT and the turn table is 3m. The height of the EUT is 80cm. The height of the Ant. Tower is 1-4m Variable. A 'Test Receiver' is connected to the Ant. Tower.</p>											
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) 											

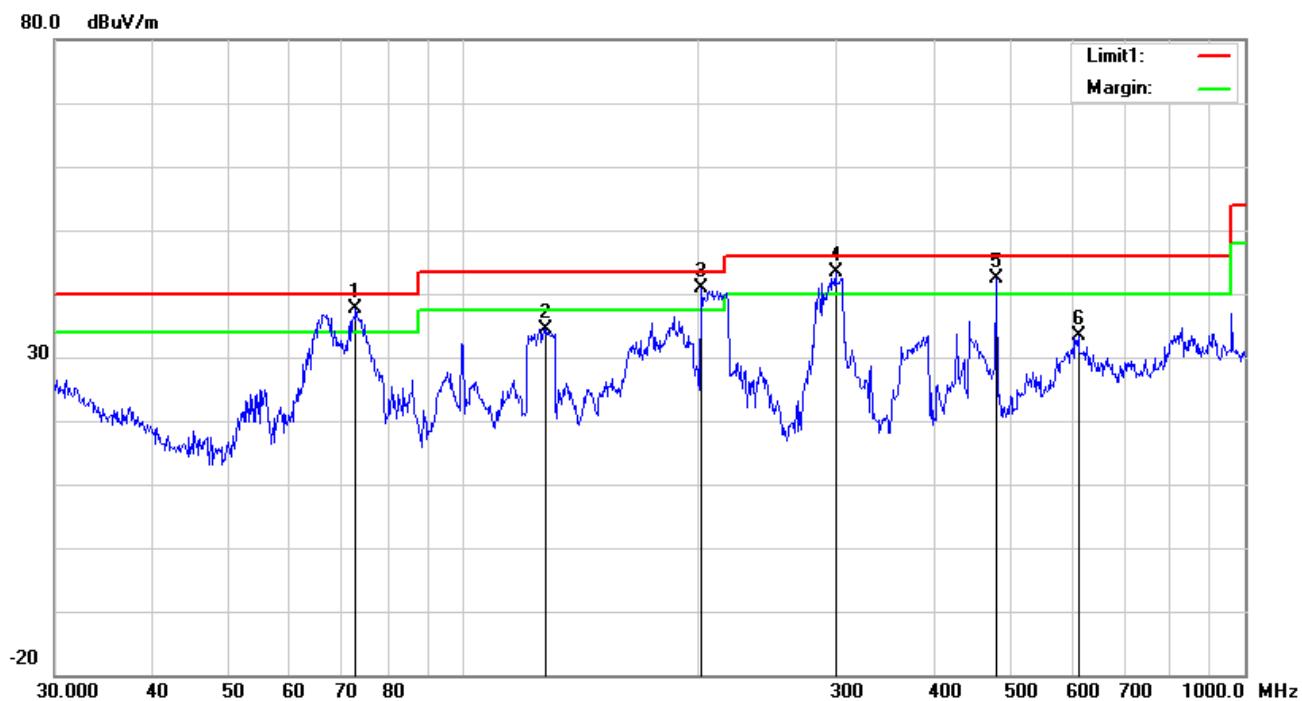
	<p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum 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.</p> <p>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.</p> <ul style="list-style-type: none"> ■ 1 kHz (Duty cycle < 98%) <input type="checkbox"/> 10 Hz (Duty cycle > 98%) <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

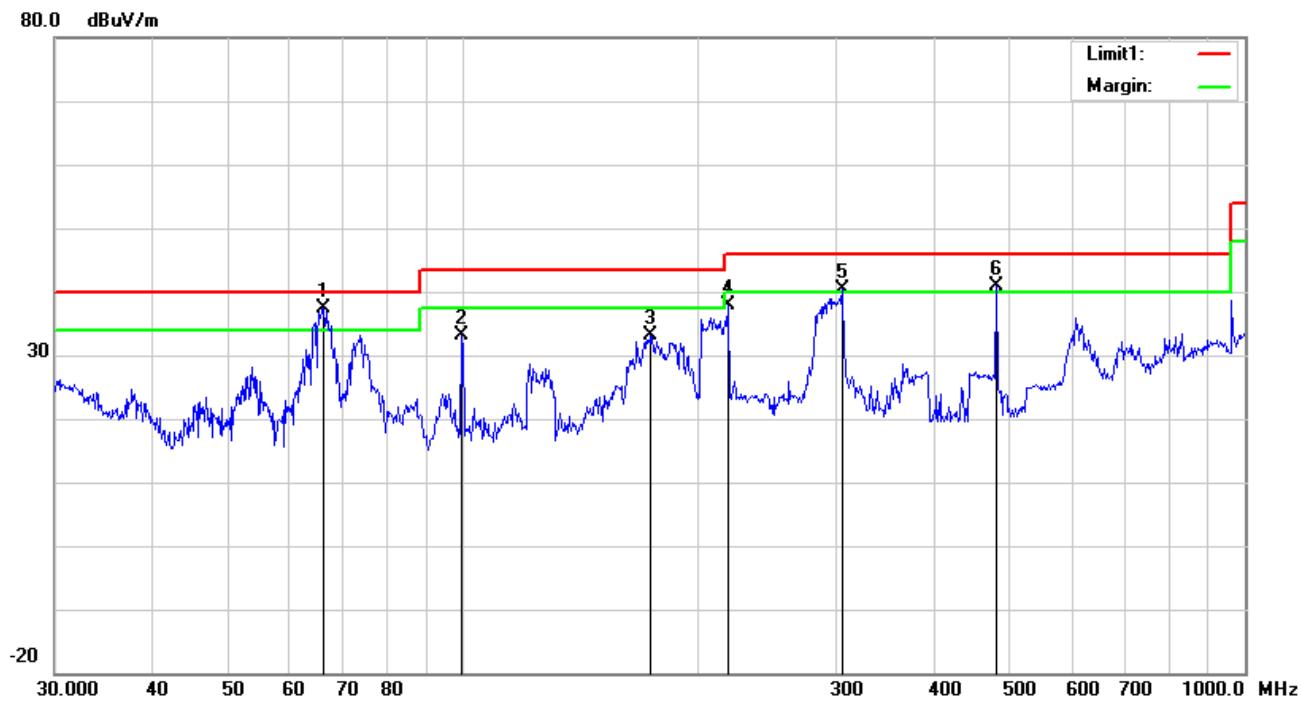


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/m)	Detector	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree
1	H	72.8466	51.24	QP	7.74	22.39	0.97	37.56	40.00	-2.44	200	60
2	H	127.6645	42.29	peak	13.40	22.38	1.19	34.50	43.50	-9.00	100	264
3	H	201.3930	49.55	QP	12.08	22.38	1.54	40.79	43.50	-2.71	100	141
4	H	299.3158	50.19	QP	13.57	22.29	1.79	43.26	46.00	-2.74	100	126
5	H	480.5276	44.62	QP	17.31	21.85	2.31	42.39	46.00	-3.61	100	244
6	H	612.0642	33.13	peak	19.23	21.55	2.52	33.33	46.00	-12.67	100	73

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	66.2662	51.17	QP	7.61	22.39	0.91	37.30	40.00	-2.70	100	217
2	V	99.5281	44.08	peak	10.29	22.32	1.11	33.16	43.50	-10.34	100	131
3	V	173.8135	42.59	peak	11.49	22.26	1.36	33.18	43.50	-10.32	100	214
4	V	218.3085	46.69	peak	11.84	22.35	1.60	37.78	46.00	-8.22	200	84
5	V	305.6800	47.10	QP	13.72	22.27	1.82	40.37	46.00	-5.63	100	42
6	V	480.5276	43.03	QP	17.31	21.85	2.31	40.80	46.00	-5.20	100	121

Above 1GHz

Frequency (MHz)	Read_level (dB μ V/m)	Azimuth	Height (cm)	Polarity (H/V)	Level (dB μ V/m)	Factors (dB)	Limit (dB μ V/m)	Margin (dB)	Detector (PK/AV)
1376.2	68.29	326	100	V	-19.6	48.69	74	-25.31	PK
2308.46	60.09	77	100	V	-13.71	46.38	74	-27.62	PK
3510.69	60.5	293	100	V	-12.58	47.92	74	-26.08	PK
1378.95	64.56	50	100	H	-19.69	44.87	74	-29.13	PK
2313.44	61.35	297	100	H	-14.89	46.46	74	-27.54	PK
3875.14	56.6	21	100	H	-10.23	46.37	74	-27.63	PK

*Note1: The highest frequency of the EUT is 2480 MHz, so the testing has been conformed to 5*2480MHz=12,400MHz.*

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.

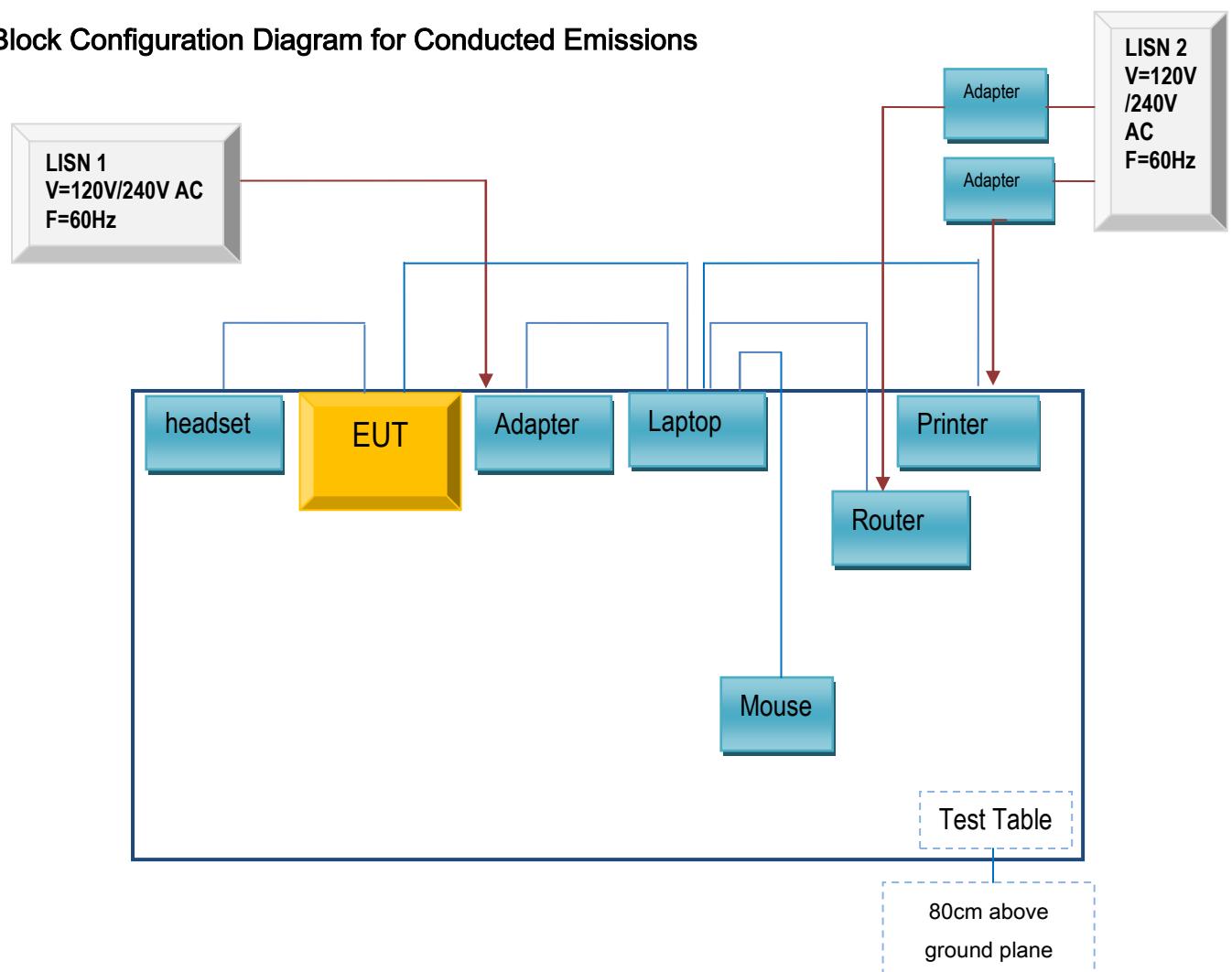
Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/15/2017	09/14/2018	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191106	09/23/2017	09/22/2018	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191107	09/23/2017	09/22/2018	<input checked="" type="checkbox"/>
ISN	ISN T800	34373	09/23/2017	09/22/2018	<input type="checkbox"/>
Transient Limiter	LIT-153	531118	08/30/2017	08/29/2018	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	E SL6	100262	09/15/2017	09/14/2018	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/30/2017	08/29/2018	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/23/2017	03/22/2018	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/19/2017	09/18/2018	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna	AH-118	71259	09/22/2017	09/21/2018	<input checked="" type="checkbox"/>

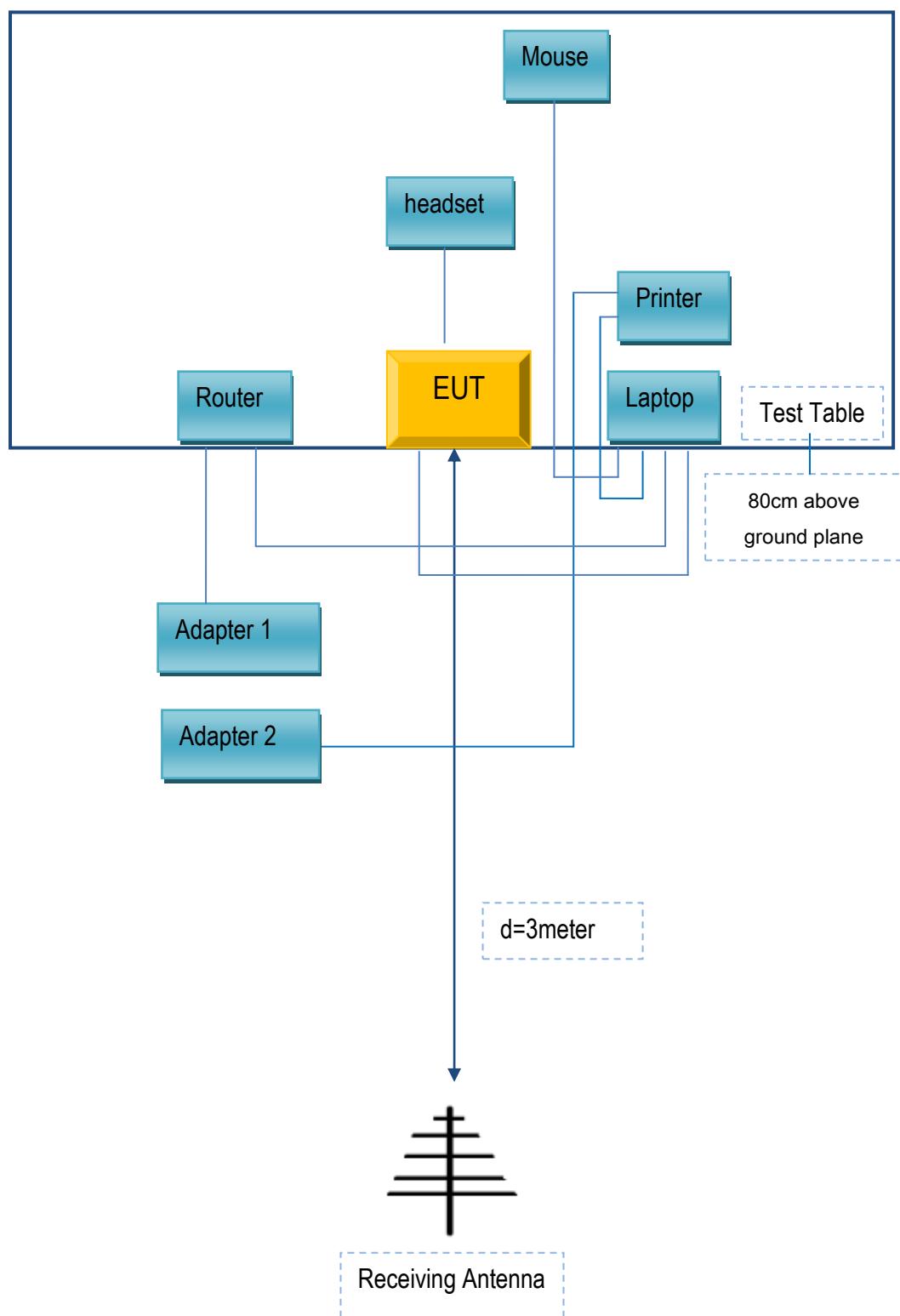
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

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
SAMSUNG	headset	HS330	N/A

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

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

Please see the attachment

Annex E. DECLARATION OF SIMILARITY

N/A