

TEST REPORT

Product: TABLET PC

Model No.: PLT7770G, HN-M772, PLT77**("**"00-99), PLT76**("**"00-99),
HN-M77**("00-99)

Trade mark: N/A

Report No.: TCT161116E006

Issued Date: Nov. 30, 2016

Issued for:

SHENZHEN HARMONY INDUSTRIAL CO., LTD
BLOCK 2, JIAYUAN INDUSTRIAL ZONE, HEPING COMMUNITY HIGH-TECH
PARK, NO 2 FUYUANROAD, FUYONG, BAO'AN

Issued By:

Shenzhen Tongce Testing Lab
1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
TEL: +86-755-27673339
FAX: +86-755-27673332

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1. Test Certification

Product:	TABLET PC
Model No.:	PLT7770G, HN-M772, PLT77**("****"00-99), PLT76**("****"00-99), HN-M7**("00-99)
Applicant:	SHENZHEN HARMONY INDUSTRIAL CO., LTD
Address:	BLOCK 2, JIAYUAN INDUSTRIAL ZONE, HEPING COMMUNITY HIGH-TECH PARK, NO 2 FUYUANROAD, FUYONG, BAO'AN
Manufacturer:	SHENZHEN HARMONY INDUSTRIAL CO., LTD
Address:	BLOCK 2, JIAYUAN INDUSTRIAL ZONE, HEPING COMMUNITY HIGH-TECH PARK, NO 2 FUYUANROAD, FUYONG, BAO'AN
Test Voltage:	AC 120 V/ 60 Hz
Date of Test:	Nov. 22, 2016 ~ Nov. 25, 2016
Applicable Standards:	47 CFR FCC Part 15 Subpart B: 2016 ANSI C63.4: 2014

The above equipment has been tested by Shenzhen Tongce Testing Lab and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

Jerry

Date:

Nov. 25, 2016

Jerry

Check By:

Joe Zhou

Date:

Nov. 30, 2016

Joe Zhou

Approved By:

Tomsin

Date:

Nov. 30, 2016

Tomsin

2. Test Result Summary

Emission		
Test Method	Item	Result
FCC 47 CFR Part 15 Subpart B	Conducted Emission at Mains Terminals	Pass
	Radiated Emission	Pass

Note:

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. The information of measurement uncertainty is available upon the customer's request.

3. EUT Description

Product Name:	TABLET PC
Model No.:	PLT7770G
Product Parameter:	Adapter Information: Input: AC 100-240 V, 50/ 60 Hz, 0.6 A Max Output: DC 5 V, 2 A
AC Mains:	<input type="checkbox"/> Shielded <input type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Length:
DC Line:	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input checked="" type="checkbox"/> Un-detachable <input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Length: 1.2 m
USB Line:	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded, <input checked="" type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Length: 0.8 m
The Highest Frequency of The Internal Sources of the EUT	1.2 GHz

Model(s) List

No.	Model Number	Tested With
1	PLT7770G	<input checked="" type="checkbox"/>
Other models	HN-M772, PLT77**("***"00-99), PLT76**("***"00-99), HN-M7** (00-99)	<input type="checkbox"/>

Note: PLT7770G is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of PLT7770G can represent the remaining models.

4. Test Methodology

4.1. Decision of Final Test Mode

The EUT was tested together with the thereafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed:

Test Mode
Mode 1: Charging and Memory Playing
Mode 2: Charging and SD Playing
Mode 3: Charging and Camera Shooting
Mode 4: Charging and Data Transmitting

The following test mode was found to produce the highest emission level.

The Worst Test Mode		
Emission	Conducted Emission	Mode 1: Charging and Memory Playing
	Radiated Emission	Mode 4: Charging and Data Transmitting

4.2. EUT System Operation

1. Set up EUT with the support equipments.
2. Make sure the EUT work normally during the test.

5. Setup of Equipment under Test

5.1. Description of Support Units

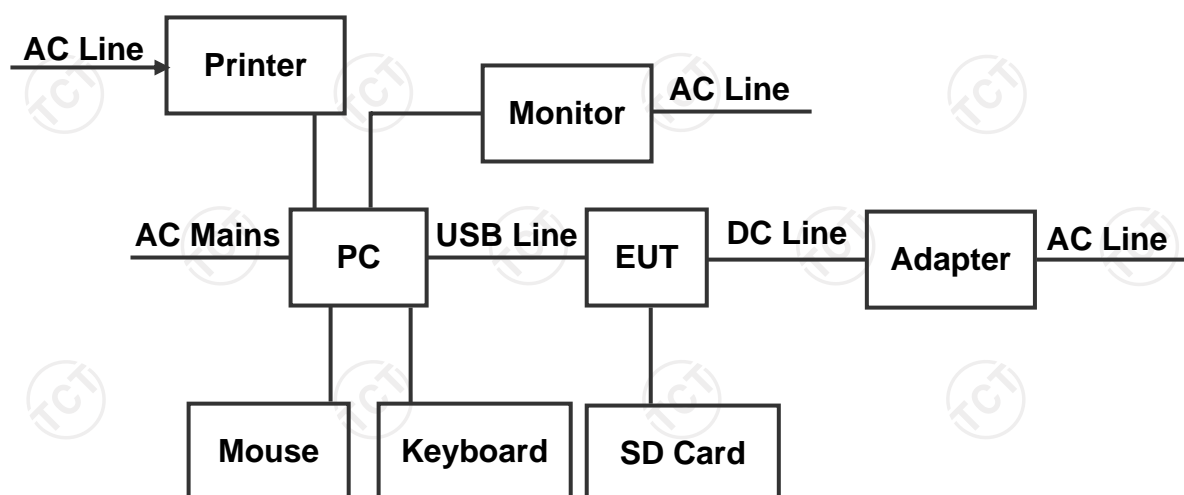
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
PC	BM6620	D1PFCG0008 HP	DOC	ASUS
Monitor	VX239	VX239H	DOC	ASUS
Keyboard	PK1100U	04G10418003 9DP	DOC	ASUS
Mouse	MOBTUO	04G12561017 0DP	DOC	ASUS
SD Card	SDSDU-016G	N/A	DOC	San Disk
Printer	L11121E	MQCA712843	DOC	CANON

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2. Configuration of System Under Test



(EUT: TABLET PC)

6. Facilities and Accreditations

6.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

FCC - Registration No.: 572331

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	MU
1.	Temperature	$\pm 0.1^{\circ}\text{C}$
2.	Humidity	$\pm 1.0\%$
3.	Spurious Emissions, Conducted (150 kHz to 30 MHz)	$\pm 2.56\text{ dB}$
4.	All Emissions, Radiated (30 MHz to 25 GHz)	$\pm 4.50\text{ dB}$

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k=2$.

7. Emission Test

7.1. Conducted Emission at Mains Terminals

7.1.1. Test Specification

Test Requirement:	FCC 47 CFR Part 15 Subpart B
Test Method:	ANSI C63.4: 2014
Frequency Range:	150 kHz to 30 MHz

7.1.2. Limits

Frequency (MHz)	Class A dB(uV)		Class B dB(uV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 – 56 ^a	56 – 46 ^a
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

a. Decreases with the logarithm of the frequency

7.1.3. Test Instruments

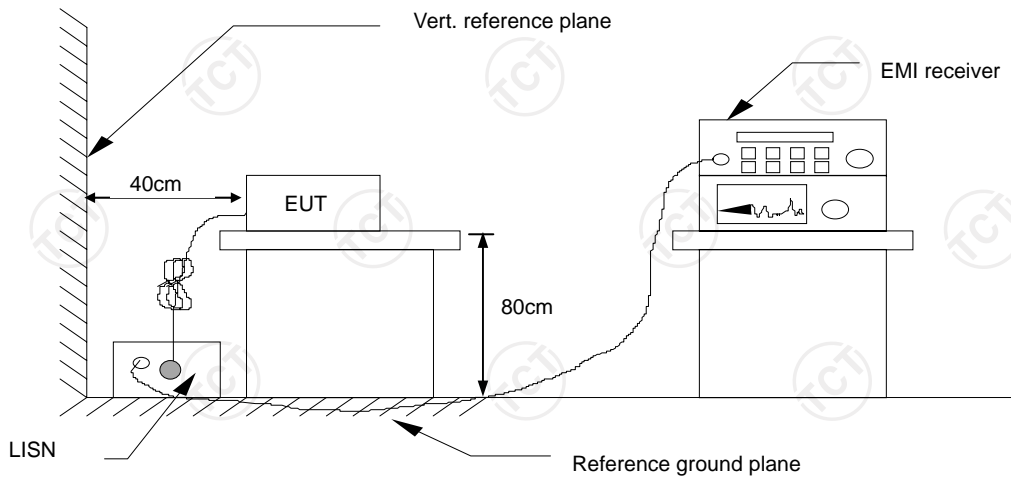
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	100139	Aug. 11, 2017
LISN	Schwarzbeck	NSLK 8126	8126453	Aug. 16, 2017

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

7.1.4. Test Method

The AMN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN

7.1.5. Block Diagram of Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.1.6. Test Results

Test Environment:	Temp.: 23 °C	Humid.: 54 %	Press.: 96 kPa
Test Mode:	Mode 1, Mode 2, Mode 3, Mode 4		
Test Voltage:	AC 120 V/ 60 Hz		
Test Result:	Pass		

Note:

L1 = Live Line / N = Neutral Line

“---” denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.

Freq. = Emission frequency in MHz

Reading level dB(μV) = Receiver reading

Corr. Factor (dB) = Attenuator factor + Cable loss

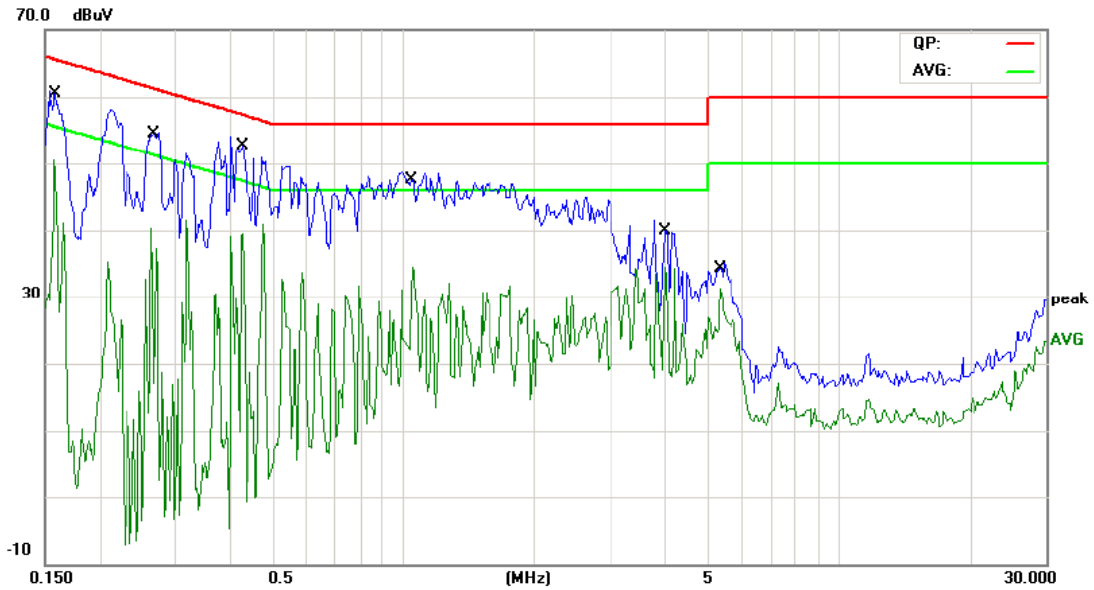
Level dB(μV) = Reading level dB(μV) + Corr. Factor (dB)

Limit dB(μV) = Limit stated in standard

Margin (dB) = Level dB(μV) – Limits dB(μV)

Q.P. =Quasi-Peak

AVG=Average



Site Chamber #2 Phase: **N** Temperature: 23 (C)
 Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %
 Mode: Charging and Memory Playing
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1577	46.56	11.49	58.05	65.58	-7.53	QP	
2	*	0.1577	39.05	11.49	50.54	55.58	-5.04	AVG	
3		0.2631	40.25	11.44	51.69	61.33	-9.64	QP	
4		0.2631	28.78	11.44	40.22	51.33	-11.11	AVG	
5		0.4237	39.25	11.35	50.60	57.37	-6.77	QP	
6		0.4237	28.24	11.35	39.59	47.37	-7.78	AVG	
7		1.0523	34.20	11.23	45.43	56.00	-10.57	QP	
8		1.0523	23.27	11.23	34.50	46.00	-11.50	AVG	
9		3.9958	26.56	10.98	37.54	56.00	-18.46	QP	
10		3.9958	23.43	10.98	34.41	46.00	-11.59	AVG	
11		5.3398	21.25	10.67	31.92	60.00	-28.08	QP	
12		5.3398	20.70	10.67	31.37	50.00	-18.63	AVG	

7.2. Radiated Emission

7.2.1. Test Specification

Test Requirement:	FCC 47 CFR Part 15 Subpart B
Test Method:	ANSI C63.4: 2014
Frequency Range:	30 MHz to 25 GHz
Measurement Distance:	3 m
Antenna Polarization:	Horizontal & Vertical

7.2.2. Limits

Frequency (MHz)	Class A (at 3m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	49.0	40.0
88 ~ 216	53.5	43.5
216 ~ 960	56.4	46.0
960 ~ 1000	59.5	54.0

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level dB(μ V/m) = 20 log Emission level (μ V/m).

7.2.3. Test Instruments

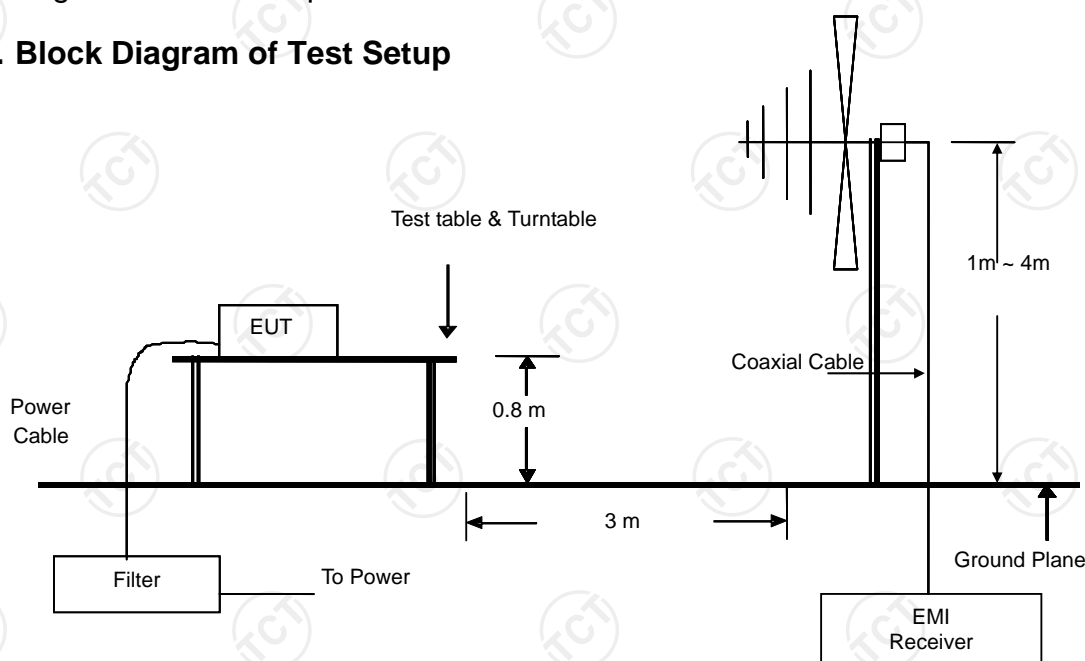
Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESVD	100008	Aug. 11, 2017
Spectrum Analyzer	R&S	FSEM	848597-001	Aug. 11, 2017
Amplifier	HP	8447D	2727A05017	Aug. 11, 2017
Amplifier	EM	EM30265	07032613	Aug. 11, 2017
Broadband Antenna	Schwarzbeck	VULB9163	340	Aug. 13, 2017
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Aug. 13, 2017

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

7.2.4. Test Method

Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable. Block Diagram of Test Setup.

7.2.5. Block Diagram of Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

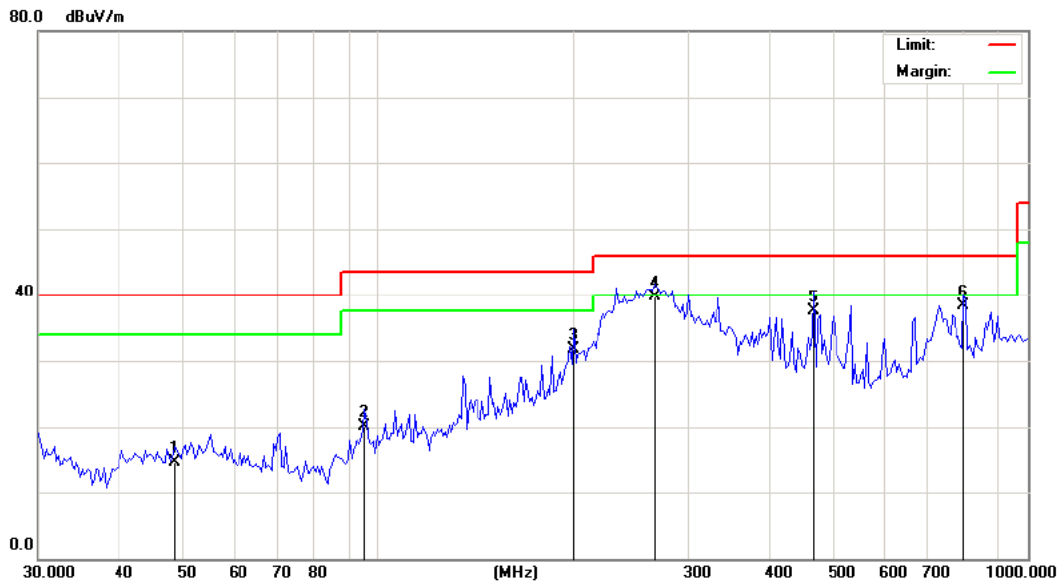
7.2.6. Test Results

Test Environment:	Temp.: 23 °C	Humid.: 54%	Press.: 96 kPa
Test Mode:	Mode 1, Mode 2, Mode 3, Mode 4		
Test Voltage:	AC 120 V/ 60 Hz		
Test Result:	Pass		
Note:	Only report worse case from 30MHz to 6GHz		

Note:

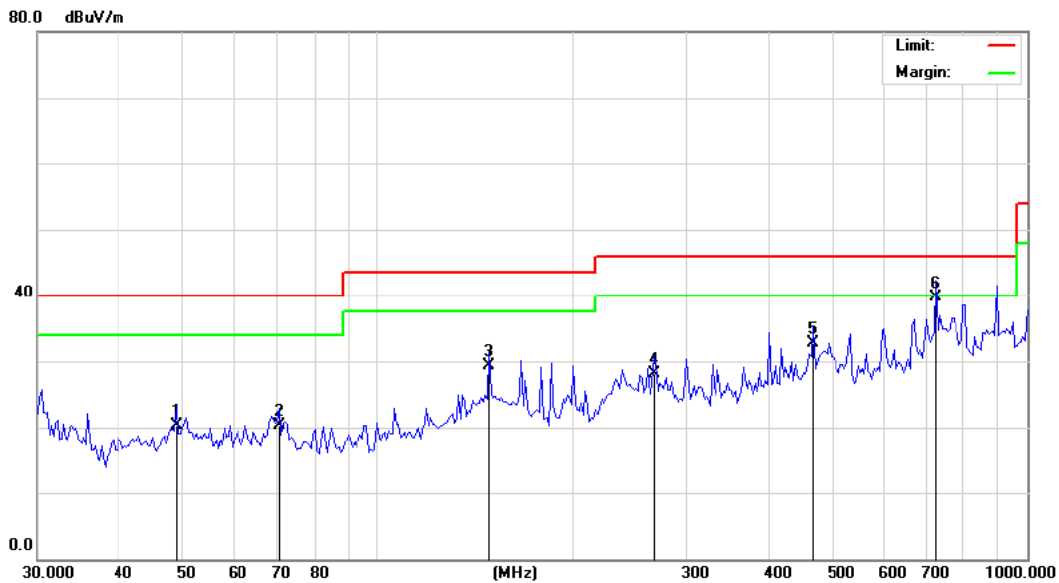
- Freq. = Emission frequency in MHz
- Reading level dB(μV) = Receiver reading
- Corr. Factor (dB) = Antenna factor + Cable loss
- Measurement dB(μV/m) = Reading level dB(μV) + Corr. Factor (dB)
- Limit dB(μV/m) = Limit stated in standard
- Margin (dB) = Measurement dB(μV/m) – Limits dB(μV/m)
- Q.P. =Quasi-Peak

Please refer to following diagram for individual



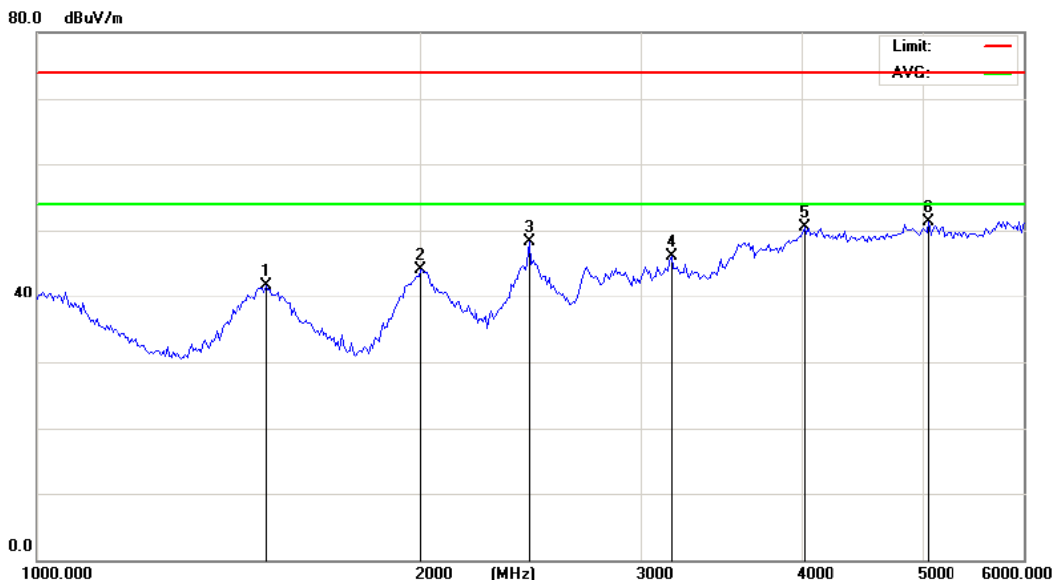
Site: _____ Polarization: **Horizontal** Temperature: 23
 Limit: FCC Part 15B Class B RE_3 m Power: AC 120V/60Hz Humidity: 54 %
 Mode: Charging and Data Transmitting
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree
1		48.7190	24.22	-9.76	14.46	40.00	-25.54	QP	0
2		95.6484	31.02	-10.99	20.03	43.50	-23.47	QP	0
3		200.0432	41.55	-9.82	31.73	43.50	-11.77	QP	0
4	*	266.8394	48.22	-8.42	39.80	46.00	-6.20	QP	0
5		468.1650	41.03	-3.53	37.50	46.00	-8.50	QP	0
6		798.6204	33.22	5.09	38.31	46.00	-7.69	QP	0



Site: Polarization: **Vertical** Temperature: 23
 Limit: FCC Part 15B Class B RE_3 m Power: AC 120V/60Hz Humidity: 54 %
 Mode: Charging and Data Transmitting
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		49.0627	30.02	-9.71	20.31	40.00	-19.69	QP		0	
2		70.7047	34.22	-13.99	20.23	40.00	-19.77	QP		0	
3		148.9175	44.26	-14.90	29.36	43.50	-14.14	QP		0	
4		266.8395	36.59	-8.42	28.17	46.00	-17.83	QP		0	
5		468.1650	36.15	-3.53	32.62	46.00	-13.38	QP		0	
6	*	723.7930	35.11	4.52	39.63	46.00	-6.37	QP		0	



Site: Polarization: **Horizontal** Temperature: 23
 Limit: FCC Part 15B Class B Above 1GHz RE(PK) Power: AC 120V/60Hz Humidity: 54 %
 Mode: Charging and Data Transmitting
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1516.676	53.53	-11.77	41.76	74.00	-32.24	peak		0	
2		2006.909	53.61	-9.57	44.04	74.00	-29.96	peak		0	
3		2445.096	55.46	-7.17	48.29	74.00	-25.71	peak		0	
4		3166.462	51.44	-5.41	46.03	74.00	-27.97	peak		0	
5		4027.685	48.03	2.39	50.42	74.00	-23.58	peak		0	
6	*	5050.089	45.79	5.47	51.26	74.00	-22.74	peak		0	



Site: Polarization: **Vertical** Temperature: 23
 Limit: FCC Part 15B Class B Above 1GHz RE(PK) Power: AC 120V/60Hz Humidity: 54 %
 Mode: Charging and Data Transmitting
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		1500.426	53.00	-11.75	41.25	74.00	-32.75	peak		0	
2		1985.407	52.64	-9.80	42.84	74.00	-31.16	peak		0	
3		2427.600	52.74	-7.27	45.47	74.00	-28.53	peak		0	
4		2723.194	51.13	-6.47	44.66	74.00	-29.34	peak		0	
5		4042.173	47.33	2.40	49.73	74.00	-24.27	peak		0	
6	*	5031.988	45.28	5.41	50.69	74.00	-23.31	peak		0	

8. Photographs of Test Configuration

Conducted Emission Test View



Radiated Emission Test View





9. Photographs of EUT

Refer to test report TCT161116E008

******END OF REPORT******