TCT 通测检测
TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID: 2ACJAPLT8990

Product: TABLET PC

Model No.: PLT8990

Trade mark: N/A

Report No.: TCT151022E008

Issued Date: Oct. 30, 2015

Issued for:

ShenZhen Harmony Technology Co., Ltd
Block 2, Jiayuan Industrial Zone, Heping Community high-tech Park,
No 2 Fuyuan Road, Fuyong, Bao'an, Shenzhen,China

Issued By:

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

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. Test Certification

Product:	TABLET PC
Model No.:	PLT8990
Applicant:	ShenZhen Harmony Technology Co., Ltd
Address:	Block 2, Jiayuan Industrial Zone, Heping Community high-tech Park, No 2 Fuyuan Road, Fuyong, Bao'an, Shenzhen,China
Manufacturer:	ShenZhen Harmony Technology Co., Ltd
Address:	Block 2, Jiayuan Industrial Zone, Heping Community high-tech Park, No 2 Fuyuan Road, Fuyong, Bao'an, Shenzhen,China
Test Voltage:	AC 120 V/ 60 Hz
Date of Test:	Oct. 25, 2015-Oct. 29, 2015
Applicable Standards:	47 CFR FCC Part 15 Subpart B: 2014 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:	Derek Cai	***Date:***	***Oct. 30, 2015***
	Derek Cai		
Check By:	Davis Zhou	***Date:***	***Oct. 30, 2015***
	Davis Zhou		
Approved By:	Tomsin	***Date:***	***Oct. 30, 2015***
	Tomsin		

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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.

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3. EUT Description

Product Name:	TABLET PC
Model No.:	PLT8990
Product Parameter:	DC 5 V
Highest Frequency:	1.33GHz
AC Line(Monitor):	☐Shielded ☒Unshielded, ☒Detachable ☐Un-detachable ☐No applicable ☒Length: 1.2 m
DC Line (Adapter to EUT):	☐Shielded ☒Unshielded, ☒Detachable ☐Un-detachable ☐No applicable ☒Length: 1.0 m
HDMI Line (Monitor to EUT):	☐Shielded ☒Unshielded, ☒Detachable ☐Un-detachable ☐No applicable ☒Length: 1.0 m

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4. Test Methodology

4.1. Decision of Final Test Mode

The EUT was tested together with the thereinafter 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 + Data Transmitting
Mode 2: Charging + Camera recording
Mode 3: Charging + Memory Playing
Mode 4: Charging + HDMI Mode

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

The Worst Test Mode		
Emission	Conducted Emission	Mode 2: Charging + Camera recording
	Radiated Emission	Mode 1: Charging + 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.

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5. Setup of Equipment under Test

5.1. Description of Support Units

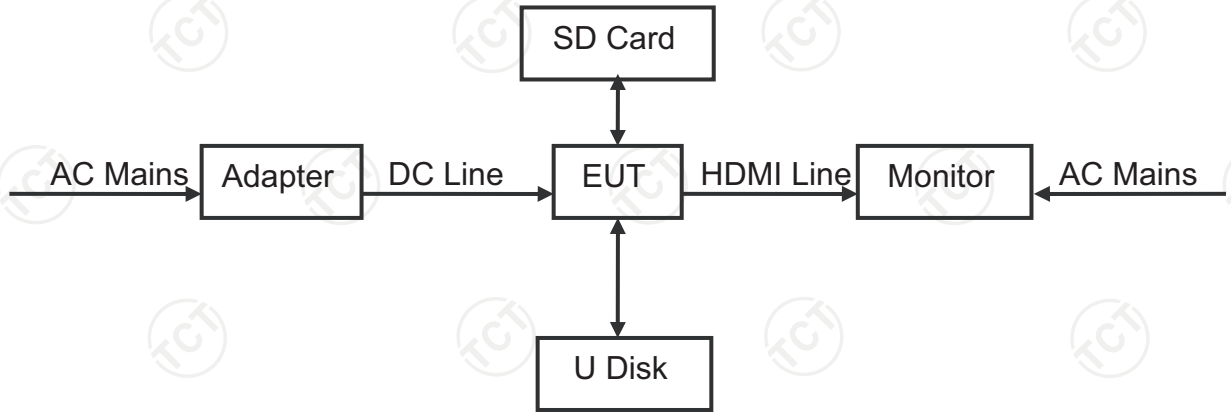
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Monitor	19PFL3120/T3	AU2A1241000762	DOC	PHILLPS
SD Card	SR-8C4	N/A	DOC	SONY
U Disk	DT101G2	N/A	DOC	Kingston

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)

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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.

● IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

● CNAS - Registration No.: CNAS L6165

Shenzhen TCT Testing Technology Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6165.

6.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

Tel: 86-755-36638142

6.3. Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

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 B dB(uV)	
	Quasi-peak	Average
0.15 - 0.5	66 – 56[a]	56 – 46[a]
0.50 - 5.0	56	46
5.0 - 30.0	60	50
a. Decreases with the logarithm of the frequency		

7.1.3. Test Instruments

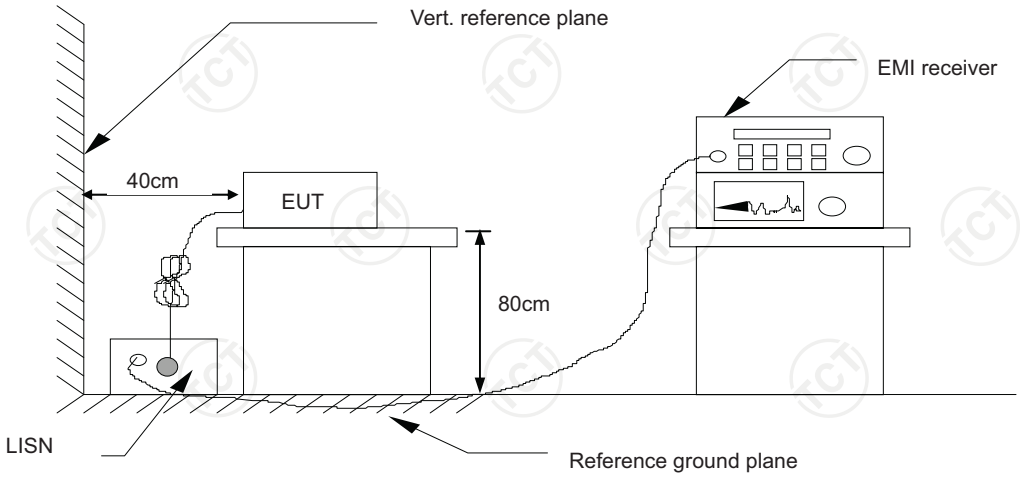
Conducted Emission Shielding Room Test Site (843)				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCS30	100139	Sep. 16, 2016
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 29, 2016
LISN	AFJ	LS16C	16010947251	Sep. 29, 2016
Coax cable	TCT	CE-05	N/A	Sep.15, 2016

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 ℃	Humid.:	54 %	Press.:	96 kPa
Test Mode:	Mode 2					
Test Voltage:	AC 120V/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)

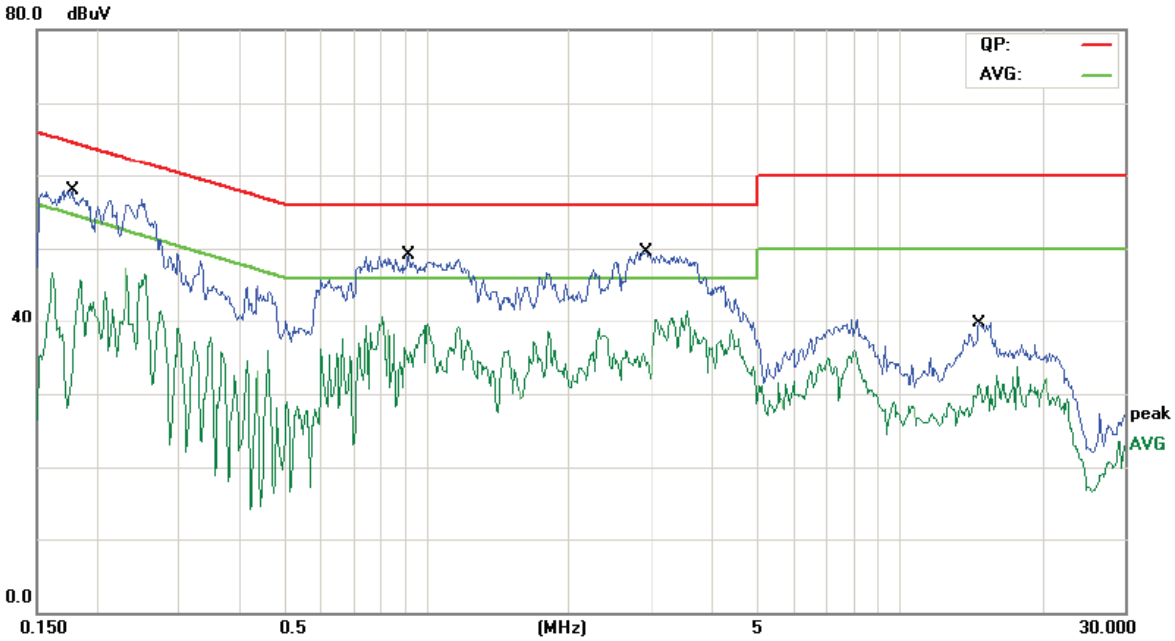
Limit dB(μV) = Limit stated in standard

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

Q.P. =Quasi-Peak

AVG=Average

Please refer to following diagram for individual



Site Chamber #2 Phase: *L1* Temperature: 23 (C)

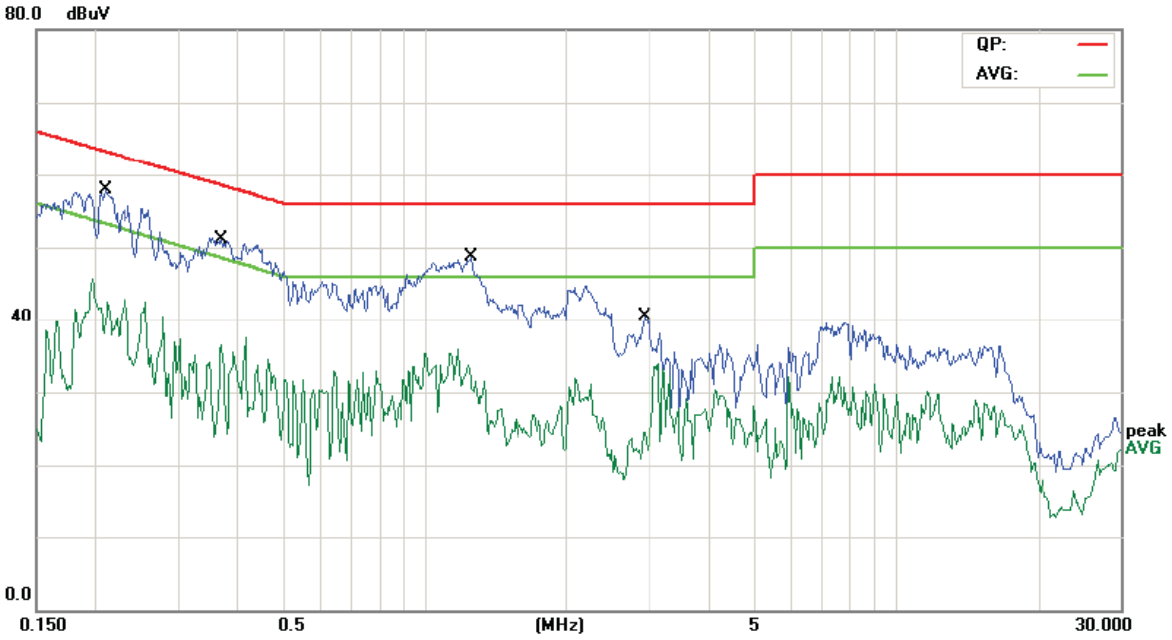
Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

Mode: Charging + Camera recording

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1777	44.23	11.50	55.73	64.59	-8.86	QP	
2		0.1777	32.51	11.50	44.01	54.59	-10.58	AVG	
3		0.9184	35.78	11.18	46.96	56.00	-9.04	QP	
4		0.9184	25.16	11.18	36.34	46.00	-9.66	AVG	
5	*	2.8997	36.99	11.37	48.36	56.00	-7.64	QP	
6		2.8997	26.65	11.37	38.02	46.00	-7.98	AVG	
7		14.7497	26.02	11.64	37.66	60.00	-22.34	QP	
8		14.7497	20.77	11.64	32.41	50.00	-17.59	AVG	

Note: Any value more than 10 dB below limit have not been specifically reported.



Site Chamber #2 Phase: N Temperature: 23 (C)

Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

Mode: Charging + Camera recording

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2094	44.40	11.48	55.88	63.23	-7.35	QP	
2	*	0.2094	34.61	11.48	46.09	53.23	-7.14	AVG	
3		0.3691	37.19	11.38	48.57	58.52	-9.95	QP	
4		0.3691	29.36	11.38	40.74	48.52	-7.78	AVG	
5		1.2554	35.78	11.31	47.09	56.00	-8.91	QP	
6		1.2554	27.31	11.31	38.62	46.00	-7.38	AVG	
7		2.9305	27.34	11.36	38.70	56.00	-17.30	QP	
8		2.9305	20.36	11.36	31.72	46.00	-14.28	AVG	

Note: Any value more than 10 dB below limit have not been specifically reported.

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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 6650 MHz
Measurement Distance:	3 m
Antenna Polarization:	Horizontal & Vertical

7.2.2. Limits

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

Note:
1. The lower limit shall apply at the transition frequencies.
2. Emission level dB(μV/m) = 20 log Emission level (μV/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	Sep. 16, 2016
Spectrum Analyzer	R&S	FSEM	848597-001	Sep. 16, 2016
Amplifier	HP	8447D	2727A05017	Sep. 16, 2016
Amplifier	EM	EM30265	07032613	Sep. 16, 2016
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 17, 2016
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 17, 2016
Antenna Mater	CCS	CC-A-4M	N/A	Sep.15 , 2016
Coax cable	TCT	RE-low-01	N/A	Sep.15 , 2016

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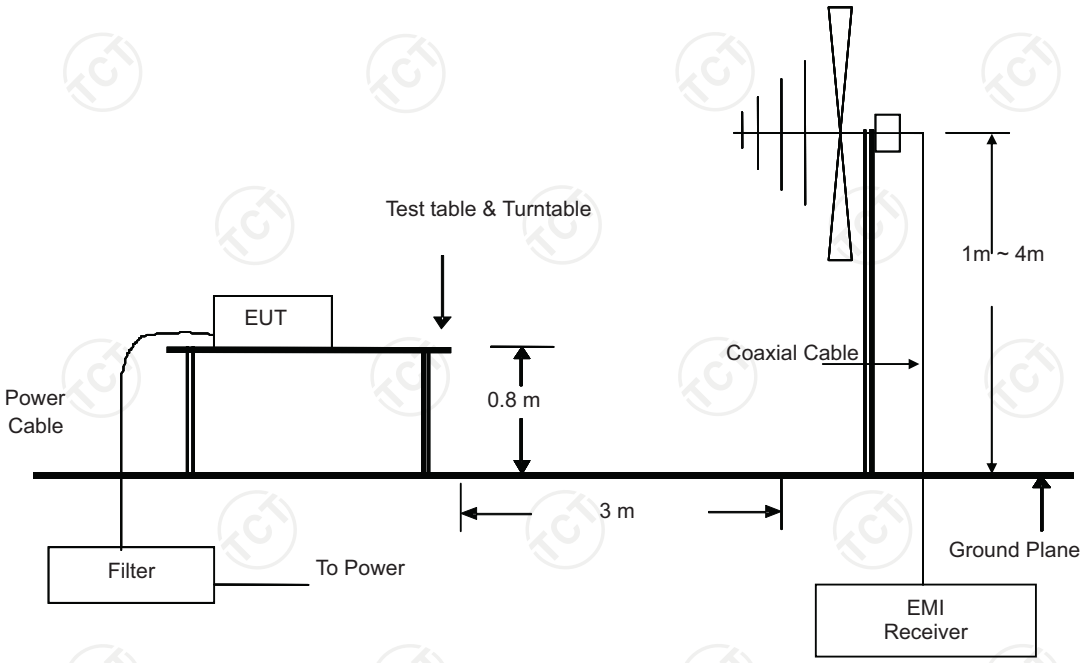
Coax cable	TCT	RE-high-02	N/A	Sep.15 , 2016
Coax cable	TCT	RE-low-03	N/A	Sep.15 , 2016
Coax cable	TCT	RE-high-04	N/A	Sep.15 , 2016

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

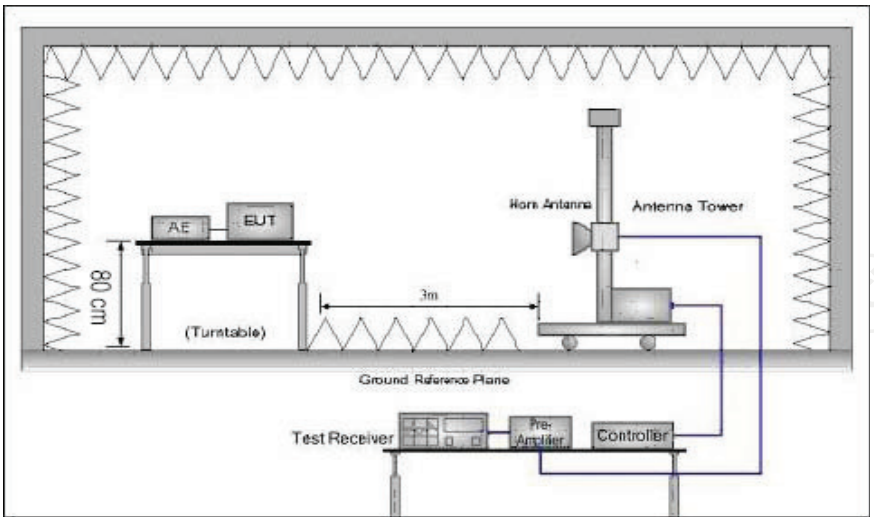
7.2.4. Test Method

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



(30MHz to 1GHz)



(Above 1GHz)

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

7.2.6. Test Results

Test Environment:	Temp.:	25 ℃	Humid.:	55 %	Press.:	96 kPa
Test Mode:	Mode 1					
Test Voltage:	AC 120 V/60 Hz					
Test Result:	Pass					

Note:

Freq. = Emission frequency in MHz

Reading level dB(μV) = Receiver reading

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

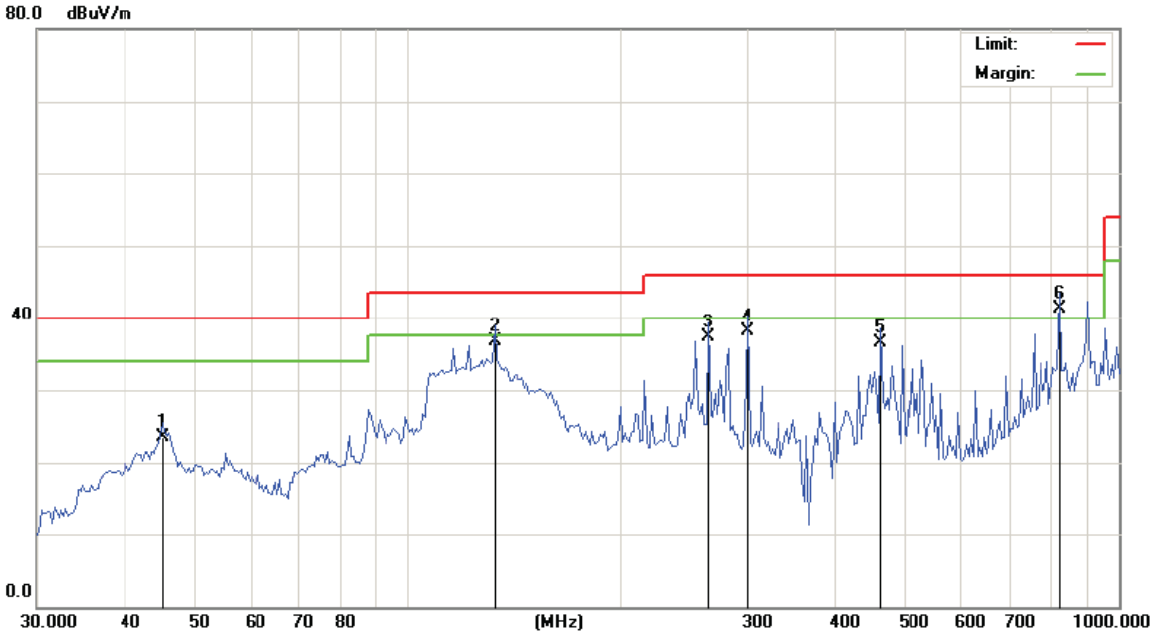
Measurement dB(μV/m) = Reading level dB(μV) + Corr. Factor (dB)

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

Limit: FCC Part 15B Class B RE_3 m

Mode: Charging + Data Transmitting

Note:

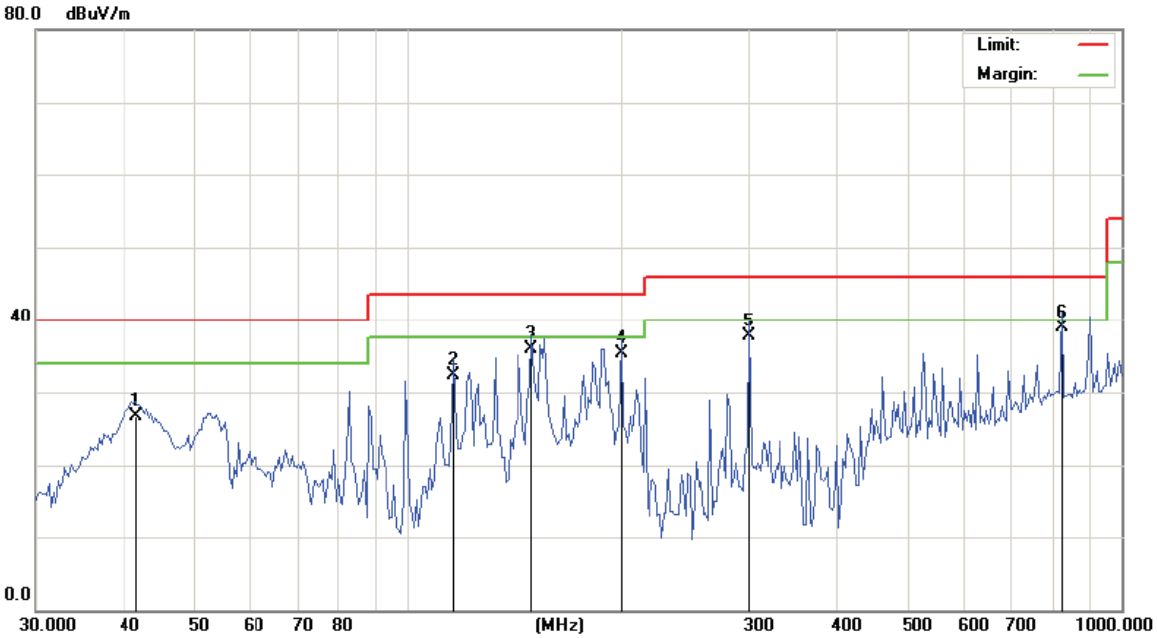
Polarization: *Horizontal*

Power: AC 120V/60Hz

Temperature: 25

Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		45.0951	35.70	-12.25	23.45	40.00	-16.55	QP		0	
2		132.1490	51.90	-15.11	36.79	43.50	-6.71	QP		0	
3		264.9707	46.70	-9.45	37.25	46.00	-8.75	QP		0	
4		300.6988	46.40	-8.25	38.15	46.00	-7.85	QP		0	
5		461.6313	40.70	-4.21	36.49	46.00	-9.51	QP		0	
6	*	827.1793	39.60	1.79	41.39	46.00	-4.61	QP		0	



Site

Limit: FCC Part 15B Class B RE_3 m

Mode: Charging + Data Transmitting

Note:

Polarization: *Vertical*

Power: AC 120V/60Hz

Temperature: 25

Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		41.4483	39.10	-12.42	26.68	40.00	-13.32	QP		0	
2		115.6320	45.30	-12.93	32.37	43.50	-11.13	QP		0	
3		148.9173	51.10	-15.18	35.92	43.50	-7.58	QP		0	
4		198.6424	47.10	-11.77	35.33	43.50	-8.17	QP		0	
5		300.6988	45.90	-8.25	37.65	46.00	-8.35	QP		0	
6	*	827.1793	37.20	1.79	38.99	46.00	-7.01	QP		0	

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Site

Limit: FCC Part 15B Class B RE_3 m 1-6G PK

Mode: Charging + Data Transmitting

Note:

Polarization: *Horizontal*

Power: AC 120V/60Hz

Temperature: 25

Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1323.228	52.17	0.00	52.17	74.00	-21.83	peak		0	
2		1323.228	37.50	0.00	37.50	54.00	-16.50	AVG		0	
3		1589.151	50.37	0.00	50.37	74.00	-23.63	peak		0	
4		1589.151	36.60	0.00	36.60	54.00	-17.40	AVG		0	
5		2418.898	51.19	0.00	51.19	74.00	-22.81	peak		0	
6		2418.898	36.80	0.00	36.80	54.00	-17.20	AVG		0	
7		3564.800	51.37	0.00	51.37	74.00	-22.63	peak		0	
8		3564.800	35.10	0.00	35.10	54.00	-18.90	AVG		0	
9		4889.498	50.48	0.00	50.48	74.00	-23.52	peak		0	
10	*	4889.498	38.40	0.00	38.40	54.00	-15.60	AVG		0	
11		5851.070	47.84	0.00	47.84	74.00	-26.16	peak		0	
12		5851.070	37.80	0.00	37.80	54.00	-16.20	AVG		0	

Remark: No emission found at above 6GHz

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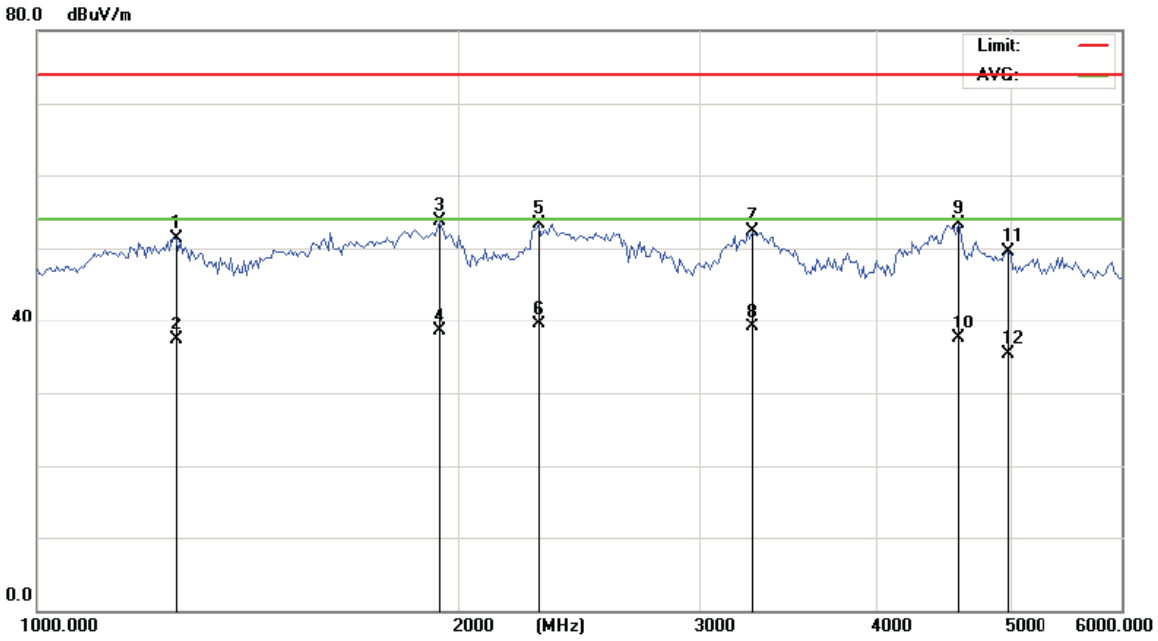

Site | Polarization: *Vertical* | Temperature: 25

Limit: FCC Part 15B Class B RE_3 m 1-6G PK | Power: AC 120V/60Hz | Humidity: 55 %

Mode: Charging + Data Transmitting

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1258.354	51.27	0.00	51.27	74.00	-22.73	peak		0	
2		1258.354	37.30	0.00	37.30	54.00	-16.70	AVG		0	
3		1943.090	53.61	0.00	53.61	74.00	-20.39	peak		0	
4		1943.090	38.60	0.00	38.60	54.00	-15.40	AVG		0	
5		2292.062	53.40	0.00	53.40	74.00	-20.60	peak		0	
6	*	2292.062	39.60	0.00	39.60	54.00	-14.40	AVG		0	
7		3258.739	52.38	0.00	52.38	74.00	-21.62	peak		0	
8		3258.739	39.10	0.00	39.10	54.00	-14.90	AVG		0	
9		4583.473	53.36	0.00	53.36	74.00	-20.64	peak		0	
10		4583.473	37.50	0.00	37.50	54.00	-16.50	AVG		0	
11		4978.074	49.58	0.00	49.58	74.00	-24.42	peak		0	
12		4978.074	35.30	0.00	35.30	54.00	-18.70	AVG		0	

Remark: No emission found at above 6GHz *******END OF REPORT********

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