TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID: 2AACA-OTT

Product: OTT

Model No.: 1OTT

Trade Mark: CLOUD media

Report No.: TCT150320E011

Issued Date: Apr. 13, 2015

Issued for:

Syabas Technology Hong Kong, Limited
FLAT/RM 316A 3/F, ENTERPRISE PLACE PHASE ONE HONG KONG SCIENCE PARK PAK SHEK KOK TAI PO NT HONG KONG

Issued By:

Shenzhen Tongce Testing Lab.

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

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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:	OTT
Model No.:	1OTT
Applicant:	Syabas Technology Hong Kong, Limited
Address:	FLAT/RM 316A 3/F, ENTERPRISE PLACE PHASE ONE HONG KONG SCIENCE PARK PAK SHEK KOK TAI PO NT HONG KONG
Manufacturer:	Syabas Technology Hong Kong, Limited
Address:	FLAT/RM 316A 3/F, ENTERPRISE PLACE PHASE ONE HONG KONG SCIENCE PARK PAK SHEK KOK TAI PO NT HONG KONG
Date of Test:	Mar. 25- Apr. 10, 2015
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247

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:	Beryl Zhao	***Date:***	***Apr. 10, 2015***
	Beryl Zhao		
Reviewed By:		***Date:***	***Apr. 13, 2015***
	Joe Zhou		
Approved By:	Tomsin	***Date:***	***Apr. 13, 2015***
	Tomsin		

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2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247 (c)	See Note 5
AC Power Line Conducted Emission	§15.207	Pass
Conducted Peak Output Power	§15.247 (b)(3)	See Note 5
6dB Emission Bandwidth	§15.247 (a)(2)	See Note 5
Power Spectral Density	§15.247 (e)	See Note 5
Band Edge	1§5.247(d)	See Note 5
Spurious Emission	§15.205/§15.209	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 result of the term is referred to the report which the number is TCT140514046F2-1

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3. EUT Description

Product Name:	OTT
Model :	1OTT
Additional Model:	N/A
Trade Mark:	CLOUD media
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel Separation:	5MHz
Number of Channel:	11 for 802.11b/802.11g/802.11n(H20) 7 for 802.11n(H40)
Modulation Technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation Technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Data speed (IEEE 802.11n):	Up to 135Mbps
Antenna Type:	Ceramic antenna
Antenna Gain:	2dBi
Power Supply:	DC 5V via Adapter Adapter information: Model: A361-0500550U Input: AC 100-240V, 50/60Hz Output: DC 5V, 1A

Operation Frequency each of channel For 802.11b/g/n(H20)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

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Operation Frequency each of channel For 802.11n (H40)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
--	--	4	2427MHz	7	2442MHz	--	--
--	--	5	2432MHz	8	2447MHz	--	--
3	2422MHz	6	2437MHz	9	2452MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

802.11b/802.11g/802.11n (H20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n (H40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

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4. Genera Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation
The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.	
Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.5Mbps
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation
According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20) and 13.5 Mbps for 802.11n(H40). Duty cycle setting during the transmission is 98.5% with maximum power setting for all modulations.	

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4.2. 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
/	/	/	/	/

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.

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5. Facilities and Accreditations

5.1. 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.

5.2. Location

Shenzhen Tongce Testing Lab
Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
Tel: 86-755-36638142

5.3. Measurement Uncertainty

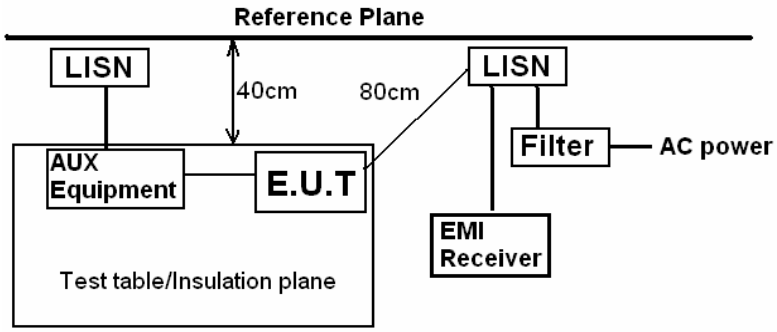
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

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%

6. Test Results and Measurement Data

6.1. Conducted Emission

6.1.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2009</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 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>
</td></tr>
<tr><td>Test Setup:</td><td> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Mode:</td><td>Reference to section 4.1 for details</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

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6.1.2. 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, 2015
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 29, 2015
Coax cable	TCT	N/A	N/A	Sep.15 , 2015
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

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

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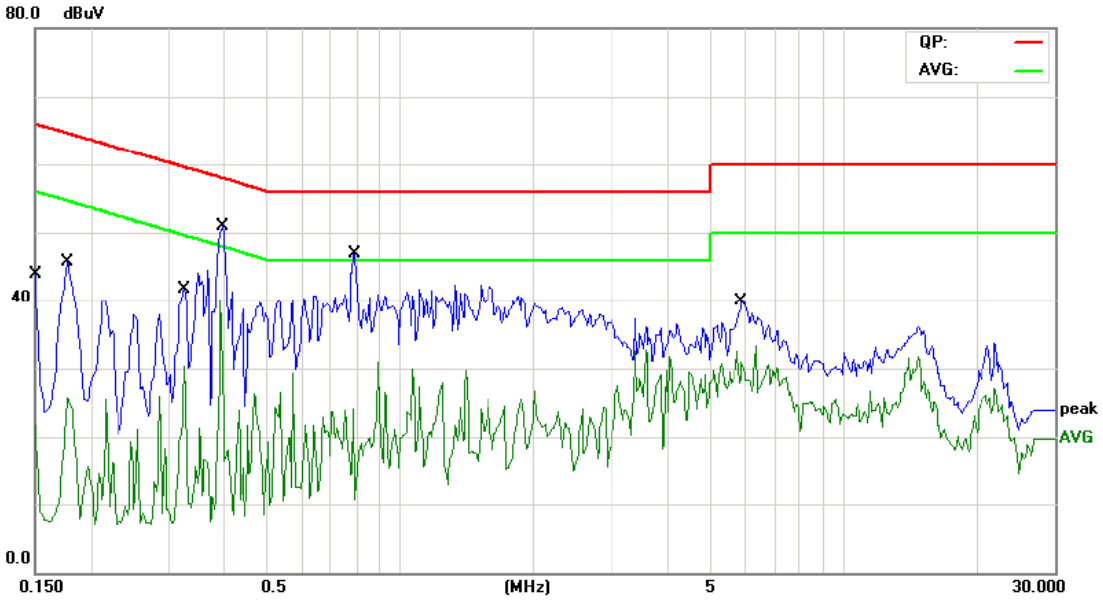
6.1.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)

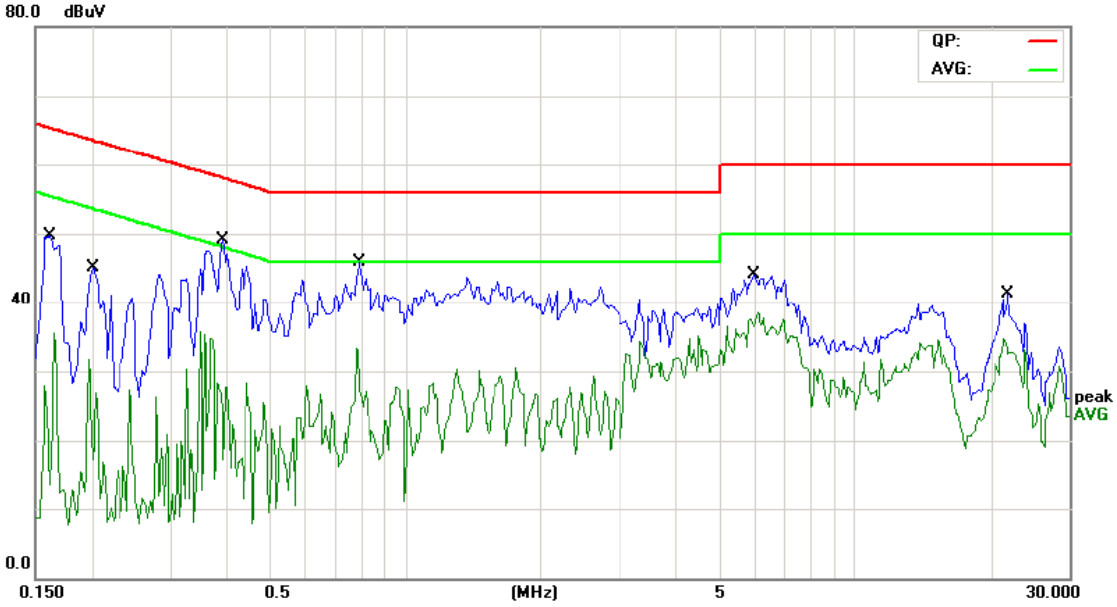


Site Chamber #2 Phase: *L1* Temperature: 22 (C)

Limit: FCC PART15 Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	27.76	11.49	39.25	65.99	-26.74	QP	
2		0.1500	1.33	11.49	12.82	55.99	-43.17	AVG	
3		0.1773	32.14	11.48	43.62	64.61	-20.99	QP	
4		0.1773	16.52	11.48	28.00	54.61	-26.61	AVG	
5		0.3258	25.88	11.40	37.28	59.56	-22.28	QP	
6		0.3258	6.54	11.40	17.94	49.56	-31.62	AVG	
7	*	0.3961	36.65	11.35	48.00	57.93	-9.93	QP	
8		0.3961	18.13	11.35	29.48	47.93	-18.45	AVG	
9		0.7867	31.97	11.20	43.17	56.00	-12.83	QP	
10		0.7867	9.06	11.20	20.26	46.00	-25.74	AVG	
11		5.9141	21.43	10.75	32.18	60.00	-27.82	QP	
12		5.9141	6.37	10.75	17.12	50.00	-32.88	AVG	

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site Chamber #2 Phase: *N* Temperature: 22 (C)

Limit: FCC PART15 Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1617	35.73	11.51	47.24	65.37	-18.13	QP	
2		0.1617	14.94	11.51	26.45	55.37	-28.92	AVG	
3		0.2008	30.64	11.48	42.12	63.57	-21.45	QP	
4		0.2008	11.83	11.48	23.31	53.57	-30.26	AVG	
5	*	0.3922	29.25	11.36	40.61	58.02	-17.41	QP	
6		0.3922	11.84	11.36	23.20	48.02	-24.82	AVG	
7		0.7867	22.87	11.21	34.08	56.00	-21.92	QP	
8		0.7867	7.51	11.21	18.72	46.00	-27.28	AVG	
9		5.9727	29.40	10.78	40.18	60.00	-19.82	QP	
10		5.9727	12.19	10.78	22.97	50.00	-27.03	AVG	
11		21.9727	23.04	10.65	33.69	60.00	-26.31	QP	
12		21.9727	8.36	10.65	19.01	50.00	-30.99	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

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

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

Margin (dB) = Measurement (dBμV) – Limits (dBμV)

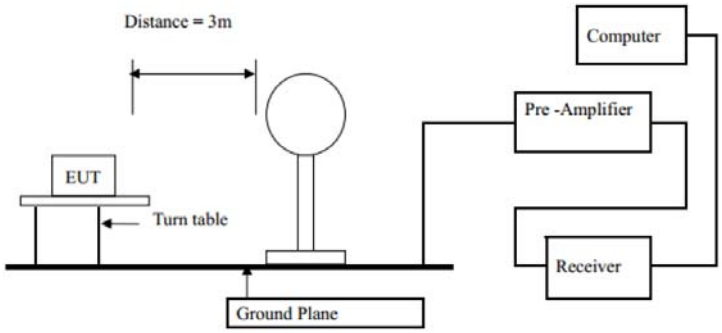
Q.P. =Quasi-Peak

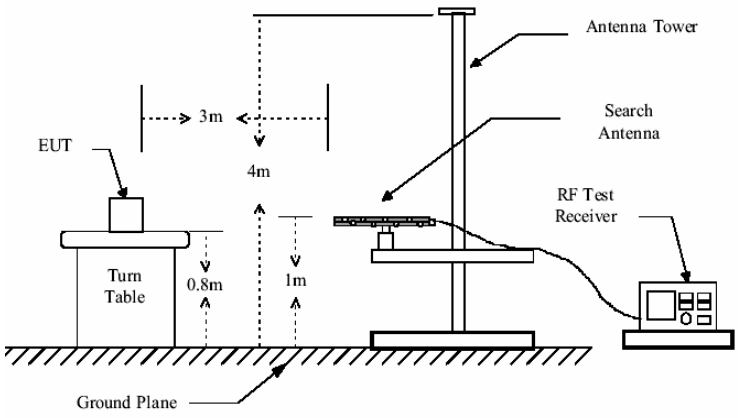
AVG =average

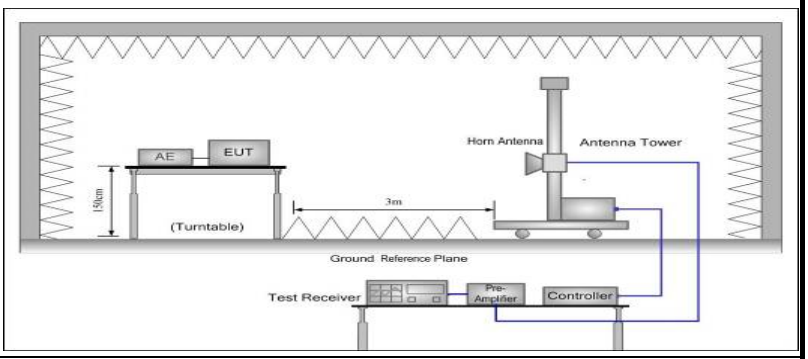
** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.*

6.2. Radiated Spurious Emission Measurement

6.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4: 2009 and ANSI C63.10-2013</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 25 GHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td>For radiated emissions below 30MHz
 

30MHz to 1GHz
 
</td></tr>
</table>

	Above 1GHz 
Test Procedure:	1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02. 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. 3. The EUT was placed on a turntable with 0.8 meter above ground in below1GHz, 1.5 meter for above 1GHz 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. 5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 7. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for f < 1 GHz; VBW ⩾RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ⩾ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test results:	Pass

6.2.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
ESPI Test Receiver	ROHDE&SCHWARZ	ESVD	100008	Sep.16 , 2015
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	Sep.16 , 2015
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep.16 , 2015
Pre-amplifier	HP	8447D	2727A05017	Sep.16 , 2015
Loop antenna	ZHINAN	ZN30900A	12024	Dec.14 , 2015
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep.16 , 2015
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep.16 , 2015
Coax cable	TCT	N/A	N/A	Sep.15 , 2015
Coax cable	TCT	N/A	N/A	Sep.15 , 2015
Coax cable	TCT	N/A	N/A	Sep.15 , 2015
Coax cable	TCT	N/A	N/A	Sep.15 , 2015
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

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

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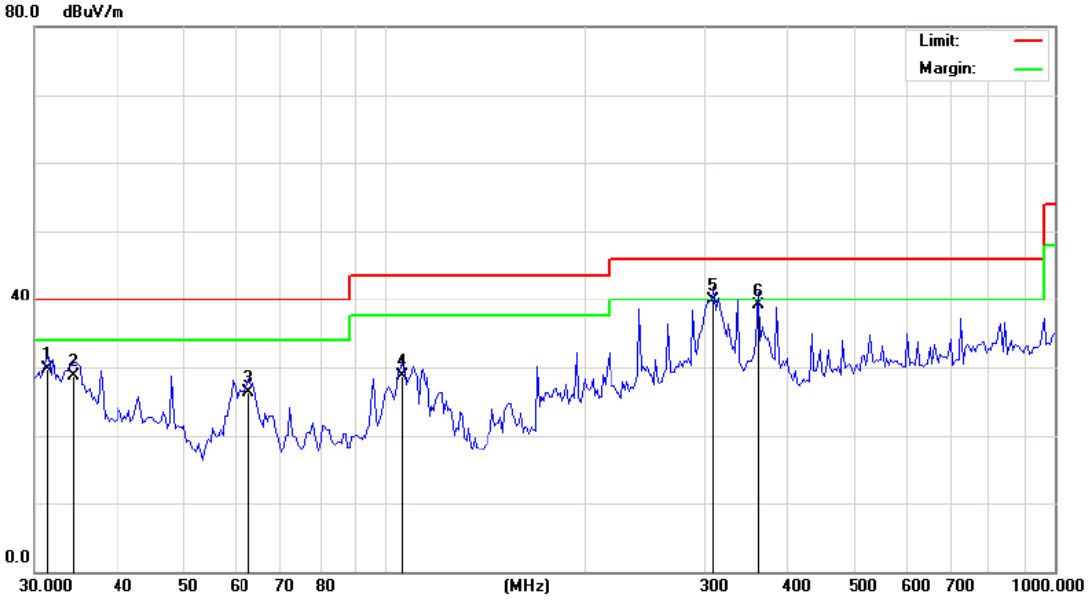
6.2.3. Test Data

Please refer to following diagram for individual

Below 1GHz

Horizontal:



Site

Limit: FCC Part 15B Class B RE_3 m

Polarization: *Horizontal*

Power: AC 120V/60Hz

Temperature: 23

Humidity: 52 %

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		31.2913	43.17	-13.56	29.61	40.00	-10.39	QP		0	
2		34.2852	41.95	-13.19	28.76	40.00	-11.24	QP		0	
3		62.7432	40.10	-13.83	26.27	40.00	-13.73	QP		0	
4		106.2810	40.40	-11.79	28.61	43.50	-14.89	QP		0	
5	*	309.2710	48.02	-8.07	39.95	46.00	-6.05	QP		0	
6		360.9775	46.18	-6.99	39.19	46.00	-6.81	QP		0	

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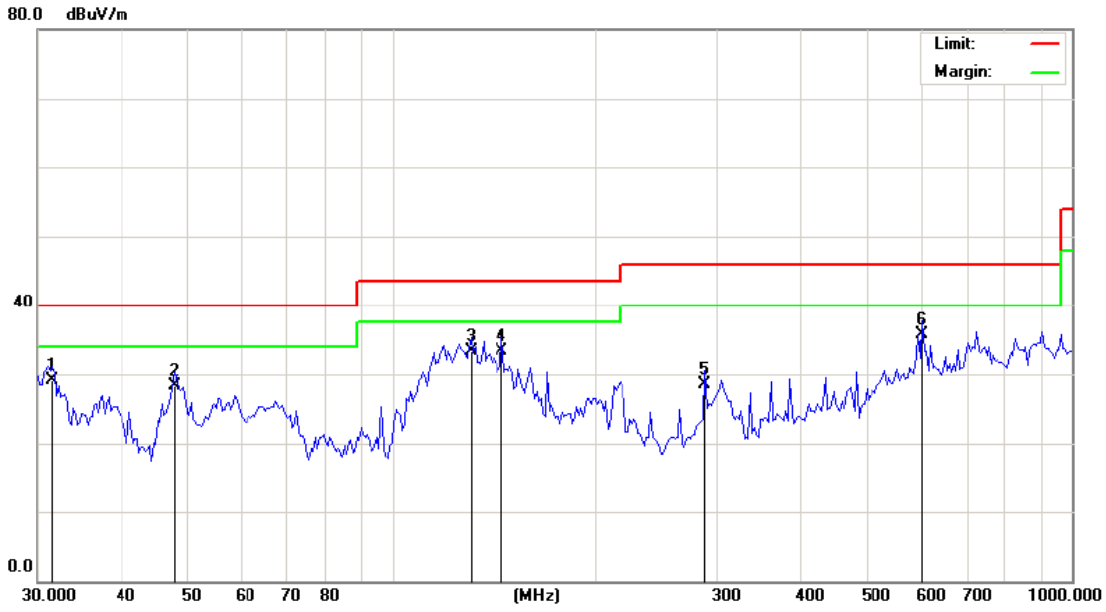
Vertical:



Site

Limit: FCC Part 15B Class B RE_3 m

Polarization: *Vertical*

Power: AC 120V/60Hz

Temperature: 23

Humidity: 52 %

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		31.5121	42.60	-13.53	29.07	40.00	-10.93	QP		0	
2		47.7028	40.40	-12.13	28.27	40.00	-11.73	QP		0	
3	*	130.3048	48.42	-15.04	33.38	43.50	-10.12	QP		0	
4		144.7898	48.51	-15.28	33.23	43.50	-10.27	QP		0	
5		288.2840	37.23	-8.65	28.58	46.00	-17.42	QP		0	
6		602.9287	37.61	-1.87	35.74	46.00	-10.26	QP		0	

Remark: The result of the term about above 1G referred to the report which the number is TCT140514046F2-1

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