FCC Report

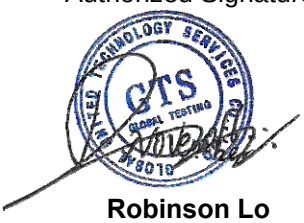
Applicant:	SHENZHEN GIEC DIGITAL CO., LTD
Address of Applicant:	No.1 Building,Factory,No.7 District,Dayang Development Areas,FuYongStreet,Baoan,Shenzhen,China

Equipment Under Test (EUT)

Product Name:	10.1 inch Tablet
Model No.:	MCR1015, MCR1015BK, MCR1015BL, MCR1015BG, MCR1015RSG
FCC ID:	2AHYKMCR1015
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B:2015
Date of sample receipt:	November 21, 2016
Date of Test:	November 22-24, 2016
Date of report issue:	November 25, 2016
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



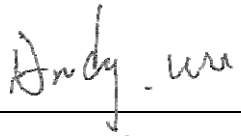
Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*November 25, 2016*	*Original*

Prepared By:  ***Date:*** *November 25, 2016*

Project Engineer

Check By:  ***Date:*** *November 25, 2016*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	PASS
Radiated Emissions	Part15.109	PASS

PASS: The EUT complies with the essential requirements in the standard.

Remark： Test according to ANSI C63.4:2014.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 Client Information

Applicant:	SHENZHEN GIEC DIGITAL CO., LTD
Address of Applicant:	No.1 Building,Factory,No.7 District,Dayang Development Areas,FuYongStreet,Baoan,Shenzhen,China
Manufacturer:	SHENZHEN GIEC DIGITAL CO., LTD
Address of Manufacturer:	No.1 Building,Factory,No.7 District,Dayang Development Areas,FuYongStreet,Baoan,Shenzhen,China

5.2 General Description of EUT

Product Name:	10.1 inch Tablet
Model No.:	MCR1015, MCR1015BK, MCR1015BL, MCR1015BG, MCR1015RSG
Test Model:	MCR1015
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The only difference is the model name for commercial purpose.	
Power Supply:	SWITCHING ADAPTER MODEL: HK15-HASF0502000 INPUT: AC 100-240V 50/60Hz 0.35A OUTPUT: DC 5.0V 2000mA Or DC 3.7V 6000mAh Li-ion Battery

5.3 Test mode

Test mode:	
HDMI mode	Keep the EUT in HDMI mode
REC mode	Keep the EUT in video record mode.
USB playing mode	Keep the EUT in USB flash disk playing mode.
TF card playing mode	Keep the EUT in SD card playing mode.
Burning test mode	Keep the EUT in PC working mode

5.4 Test Facility

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

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 22, 2016.

● **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	KEYBOARD	SK-8115	N/A	DOC
DELL	MOUSE	N/A	N/A	DOC

5.7 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

6 Test Instruments list

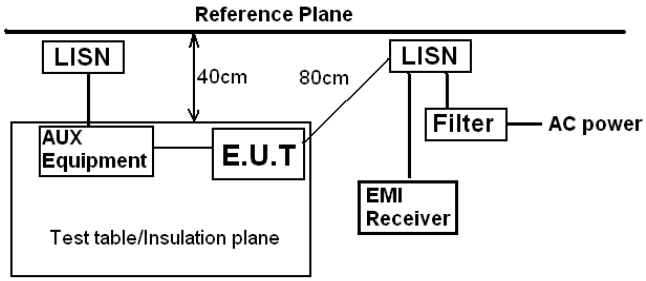
Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	June. 29 2016	June. 28 2017
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	June. 29 2016	June. 28 2017
5	Double-ridged horn antenna	SCHWARZBECK	9120D	GTS208	June. 29 2016	June. 28 2017
6	RF Amplifier	HP	8347A	GTS204	June. 29 2016	June. 28 2017
7	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	June. 29 2016	June. 28 2017
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	June. 29 2016	June. 28 2017
10	Coaxial Cable	GTS	N/A	GTS211	June. 29 2016	June. 28 2017
11	Thermo meter	N/A	N/A	GTS256	June. 29 2016	June. 28 2017

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 29 2016	June. 28 2017
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 29 2016	June. 28 2017
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 29 2016	June. 28 2017
5	Coaxial Cable	GTS	N/A	GTS227	June. 29 2016	June. 28 2017
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 29 2016	June. 28 2017

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Barometer	ChangChun	DYM3	GTS257	Jun. 29 2016	Jun. 28 2017

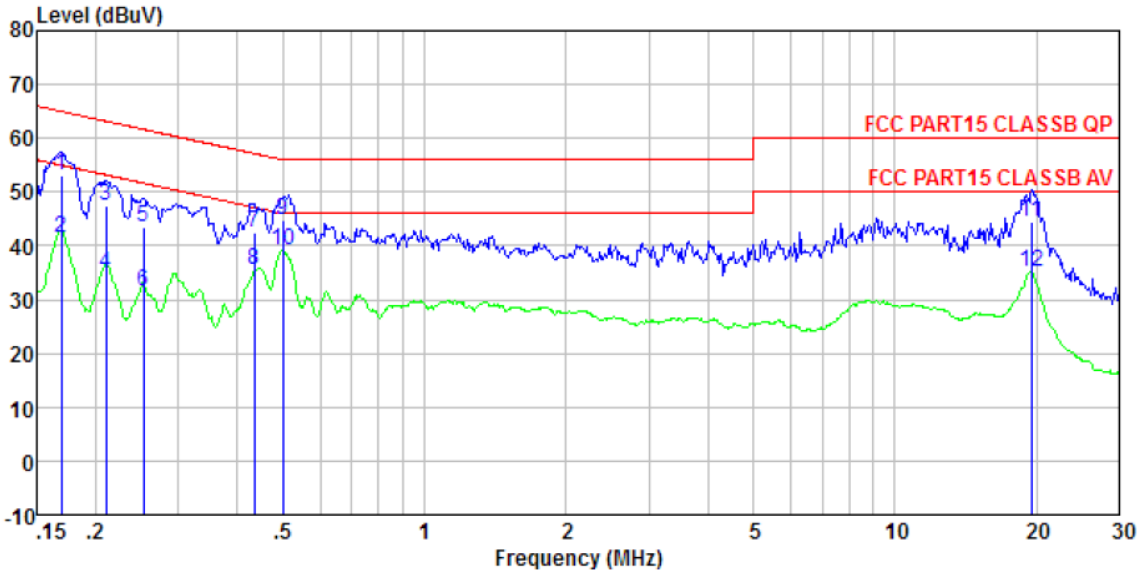
7 Test Results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107
Test Method:	ANSI C63.4:2014
Test Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	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: 2014 on conducted measurement.
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

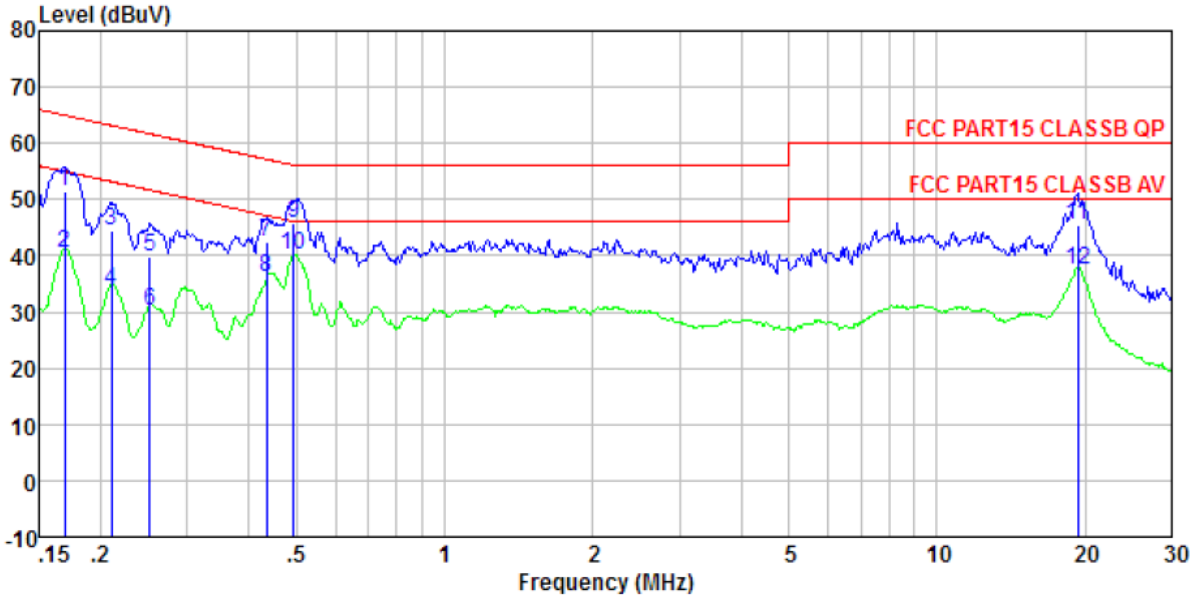
Line:



Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2016 LINE
Job No. : GTS201611000158
Test mode : Burning test mode
Test Engineer: Boy

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.169	52.47	0.42	0.12	53.01	64.99	-11.98	QP
2	0.169	41.02	0.42	0.12	41.56	54.99	-13.43	Average
3	0.211	46.84	0.43	0.13	47.40	63.18	-15.78	QP
4	0.211	34.37	0.43	0.13	34.93	53.18	-18.25	Average
5	0.253	42.93	0.44	0.11	43.48	61.64	-18.16	QP
6	0.253	30.84	0.44	0.11	31.39	51.64	-20.25	Average
7	0.435	41.94	0.40	0.11	42.45	57.15	-14.70	QP
8	0.435	35.04	0.40	0.11	35.55	47.15	-11.60	Average
9	0.499	44.25	0.38	0.11	44.74	56.01	-11.27	QP
10	0.499	38.56	0.38	0.11	39.05	46.01	-6.96	Average
11	19.532	43.86	0.30	0.22	44.38	60.00	-15.62	QP
12	19.532	34.49	0.30	0.22	35.01	50.00	-14.99	Average

Neutral:



Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2016 NEUTRAL
Job No. : GTS201611000158
Test mode : Burning test mode
Test Engineer: Boy

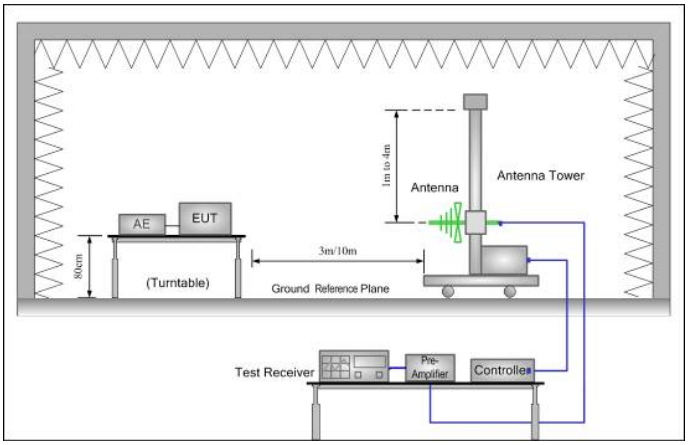
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.169	50.76	0.41	0.12	51.29	64.99	-13.70	QP
2	0.169	39.82	0.41	0.12	40.35	54.99	-14.64	Average
3	0.211	43.82	0.41	0.13	44.36	63.18	-18.82	QP
4	0.211	33.38	0.41	0.13	33.92	53.18	-19.26	Average
5	0.252	39.44	0.42	0.11	39.97	61.69	-21.72	QP
6	0.252	29.76	0.42	0.11	30.29	51.69	-21.40	Average
7	0.435	42.14	0.38	0.11	42.63	57.15	-14.52	QP
8	0.435	35.68	0.38	0.11	36.17	47.15	-10.98	Average
9	0.494	45.24	0.35	0.11	45.70	56.10	-10.40	QP
10	0.494	39.57	0.35	0.11	40.03	46.10	-6.07	Average
11	19.326	44.85	0.30	0.22	45.37	60.00	-14.63	QP
12	19.326	37.13	0.30	0.22	37.65	50.00	-12.35	Average

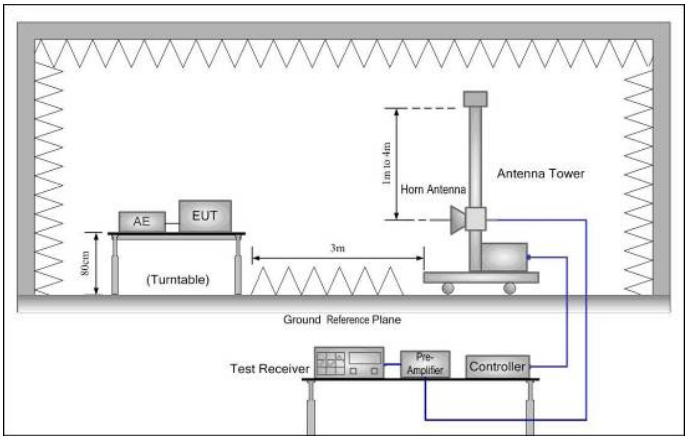
Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.109</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2014</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></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><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.00</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.50</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.00</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.00</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average Value</td></tr>
<tr><td>74.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>
1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz</td></tr>
</table>

<table>
<tr><td></td><td> 

Above 1GHz

</td></tr>
<tr><td>Test environment:</td><td>Temp.: 25 °C Humid.: 52% Press.: 1 012mbar</td></tr>
<tr><td>Measurement Record:</td><td>Uncertainty: ± 4.5dB</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

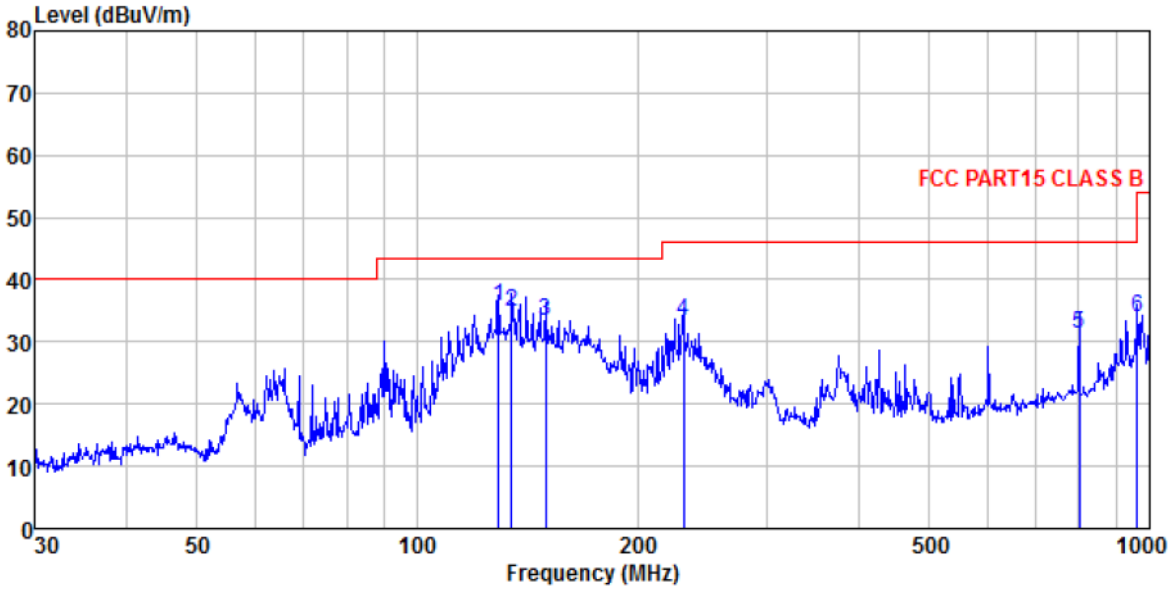
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

For above 1GHz test ,1GHz to 25GHz all have been tested, only worse case 1GHz to 6GHz is reported, from 6GHz to 25GHz, no emission is found.

Measurement Data

Below 1GHz

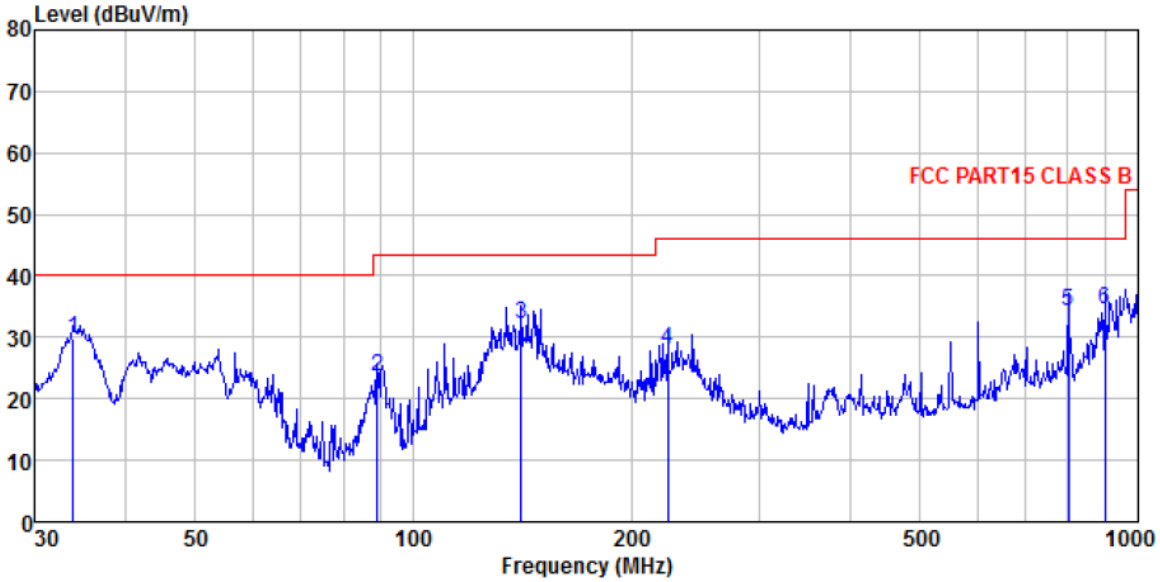
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m HORIZONTAL
Job No. : GTS201611000158
Test Mode : Burning test mode
Test Engineer: Sky

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	129.015	52.59	11.12	1.43	29.52	35.62	43.50	-7.88	QP
2	134.559	52.16	10.56	1.47	29.49	34.70	43.50	-8.80	QP
3	149.486	50.87	10.26	1.56	29.41	33.28	43.50	-10.22	QP
4	230.907	47.26	13.67	2.02	29.48	33.47	46.00	-12.53	QP
5	801.786	34.12	22.06	4.46	29.20	31.44	46.00	-14.56	QP
6	962.162	34.47	23.49	5.09	29.10	33.95	54.00	-20.05	QP

Vertical:

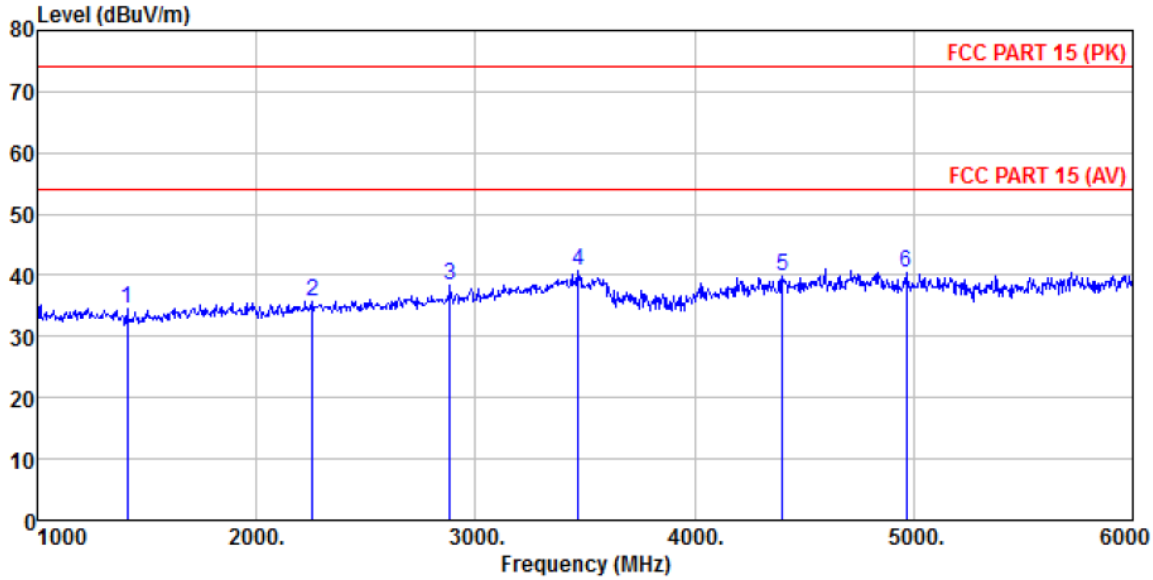


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VERTICAL
Job No. : GTS201611000158
Test Mode : Burning test mode
Test Engineer: Sky

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	33.917	45.11	14.31	0.60	30.08	29.94	40.00	-10.06	QP
2	89.276	38.55	13.76	1.10	29.75	23.66	43.50	-19.84	QP
3	140.835	49.90	10.20	1.51	29.45	32.16	43.50	-11.34	QP
4	224.519	42.21	13.41	1.99	29.43	28.18	46.00	-17.82	QP
5	801.786	36.93	22.06	4.46	29.20	34.25	46.00	-11.75	QP
6	900.147	35.65	23.09	4.85	29.10	34.49	46.00	-11.51	QP

Above 1GHz

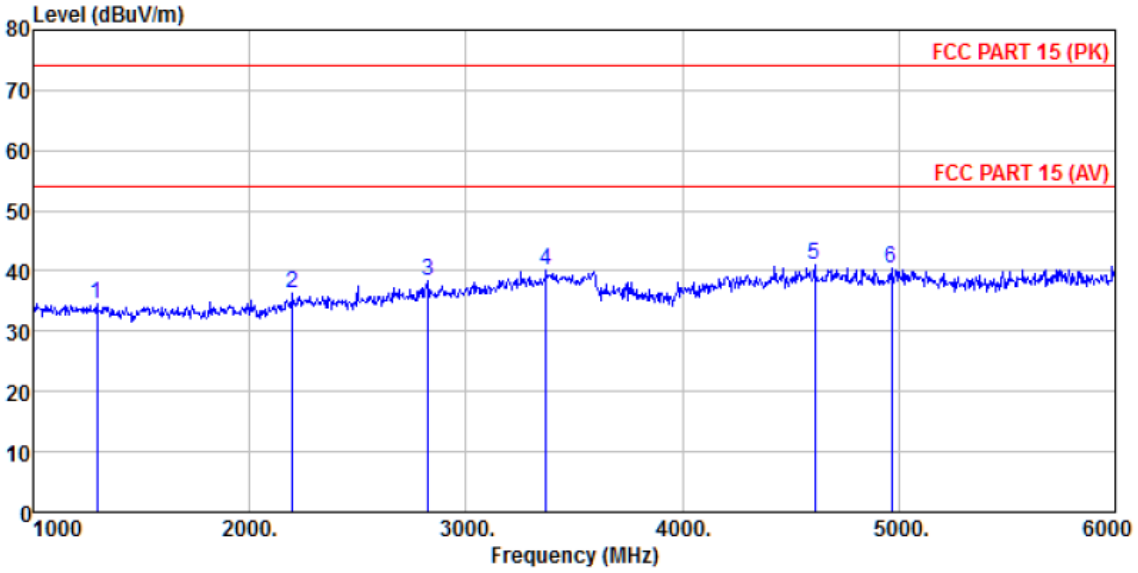
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m HORIZONTAL
Job No. : GTS201611000158
Test Mode : Burning test mode
Test Engineer: Sky

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1410.000	37.91	25.53	4.62	33.45	34.61	74.00	-39.39	Peak
2	2255.000	36.77	28.01	5.24	34.17	35.85	74.00	-38.15	Peak
3	2885.000	37.45	28.42	5.83	33.45	38.25	74.00	-35.75	Peak
4	3470.000	37.90	28.87	6.89	32.79	40.87	74.00	-33.13	Peak
5	4400.000	32.26	31.09	8.25	31.89	39.71	74.00	-34.29	Peak
6	4965.000	32.07	31.93	8.73	32.16	40.57	74.00	-33.43	Peak

Vertical:

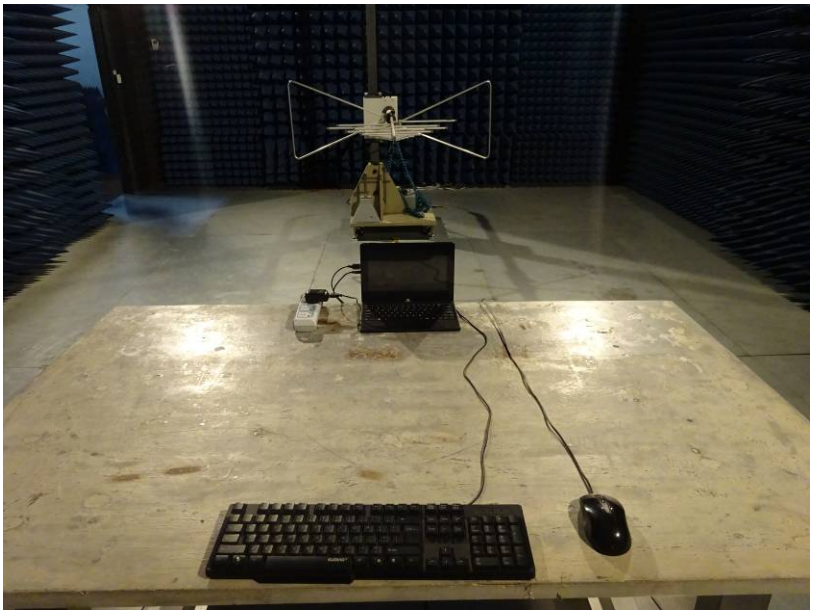


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m VERTICAL
Job No. : GTS201611000158
Test Mode : Burning test mode
Test Engineer: Sky

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1295.000	37.69	25.62	33.24	4.54	34.61	74.00	-39.39	Peak
2	2200.000	37.47	27.95	34.23	5.19	36.38	74.00	-37.62	Peak
3	2825.000	37.63	28.40	33.53	5.78	38.28	74.00	-35.72	Peak
4	3370.000	37.92	28.51	32.91	6.70	40.22	74.00	-33.78	Peak
5	4610.000	33.08	31.53	31.99	8.44	41.06	74.00	-32.94	Peak
6	4965.000	31.97	31.93	32.16	8.73	40.47	74.00	-33.53	Peak

8 Test Setup Photo

Radiated Emission



Conducted Emission

9 EUT Constructional Details

Reference to the test report No. GTS201611000158E01

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