



FCC Report

Applicant: CanDo International, Inc.
Address of Applicant: 138 E Lemon Ave, Monrovia, CA 91016
Equipment Under Test (EUT)
Product Name: HD VCI
Model No.: VCI, HD Mobile
FCC ID: 2AKNY-IDMINIVCI
Applicable standards: FCC CFR Title 47 Part 15 Subpart B:2015
Date of sample receipt: December 16, 2016
Date of Test: December 16-20, 2016
Date of report issue: December 20, 2016
Test Result : PASS *

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

Authorized Signature:

The image shows a handwritten signature in black ink over a circular blue stamp. The stamp contains the text 'GTS' in large letters, 'GLOBAL UNITED TECHNOLOGY SERVICES CO., LTD.' around the perimeter, and 'LABORATORY' at the bottom. The signature is written across the center of the stamp.

Robinson Lo
Laboratory Manager


This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

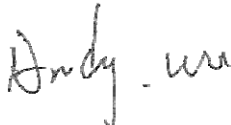
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2 Version

Version No.	Date	Description
00	December 20, 2016	Original

Prepared By:  **Date:** December 20, 2016

Check By:  **Date:** December 20, 2016

Project Engineer

Reviewer

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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:	CanDo International, Inc.
Address of Applicant:	138 E Lemon Ave, Monrovia, CA 91016
Manufacturer:	SHENZHEN FCAR TECHNOLOGY CO., LTD.
Address of Manufacturer:	8F, Chuangyi Bldg., No. 3025, Nanhai Ave., Nanshan, Shenzhen, China
Factory:	SHENZHEN FCAR TECHNOLOGY CO., LTD.
Address of Factory:	West 1F, Bldg. B, Hengchao Industrial Park, Tangtou North Ave., Bao'an, Shenzhen, China

5.2 General Description of EUT

Product Name:	HD VCI
Model No.:	VCI, HD Mobile
Power Supply:	DC 12V

5.3 Test mode

Test mode:	
Operation mode	Keep the EUT in normal operation mode.
PC connection mode	Keep the EUT in PC connection 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, June 26, 2013.

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 Approval
GS	Supreme maintenance Free	S5D26R-MFZ	9442804454	FCC DoC
FCAR	ECU	N/A	N/A	FCC DoC
FCAR	Tablet PC	F7S-W	N/A	FCC DOC
DELL	KEYBOARD	SK-8115	N/A	FCC DoC
DELL	MOUSE	N/A	N/A	FCC DoC
Apple	PC	A1278	C1MN99ERDTY3	FCC 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	9.2(L)*6.2(W)* 6.4(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	Spectrum Analyzer	Agilent	E4440A	GTS533	June 29 2016	June 28 2017
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 29 2016	June 28 2017
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June 29 2016	June 28 2017
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 29 2016	June 28 2017
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 29 2016	June 28 2017
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	June 29 2016	June 28 2017
10	Coaxial Cable	GTS	N/A	GTS211	June 29 2016	June 28 2017
11	Coaxial cable	GTS	N/A	GTS210	June 29 2016	June 28 2017
12	Coaxial Cable	GTS	N/A	GTS212	June 29 2016	June 28 2017
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 29 2016	June 28 2017
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 29 2016	June 28 2017
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 29 2016	June 28 2017
16	Band filter	Amindeon	82346	GTS219	June 29 2016	June 28 2017
17	Power Meter	Anritsu	ML2495A	GTS540	June 29 2016	June 28 2017
18	Power Sensor	Anritsu	MA2411B	GTS541	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	July 06 2016	July 05 2017

7 Test Results and Measurement Data

7.1 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109																							
Test Method:	ANSI C63.4:2014																							
Test Frequency Range:	30MHz to 25GHz																							
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																							
Receiver setup:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Detector</th> <th>RBW</th> <th>VBW</th> <th>Remark</th> </tr> </thead> <tbody> <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> </tbody> </table>				Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value	
Frequency	Detector	RBW	VBW	Remark																				
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value																				
Above 1GHz	Peak	1MHz	3MHz	Peak Value																				
	Peak	1MHz	10Hz	Average Value																				
Limit:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Limit (dBuV/m @3m)</th> <th>Remark</th> </tr> </thead> <tbody> <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> </tbody> </table>				Frequency	Limit (dBuV/m @3m)	Remark	30MHz-88MHz	40.00	Quasi-peak Value	88MHz-216MHz	43.50	Quasi-peak Value	216MHz-960MHz	46.00	Quasi-peak Value	960MHz-1GHz	54.00	Quasi-peak Value	Above 1GHz	54.00	Average Value	74.00	Peak Value
Frequency	Limit (dBuV/m @3m)	Remark																						
30MHz-88MHz	40.00	Quasi-peak Value																						
88MHz-216MHz	43.50	Quasi-peak Value																						
216MHz-960MHz	46.00	Quasi-peak Value																						
960MHz-1GHz	54.00	Quasi-peak Value																						
Above 1GHz	54.00	Average Value																						
	74.00	Peak Value																						
Test Procedure:	<ol style="list-style-type: none"> 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. 																							
Test setup:	Below 1GHz																							

	<p>Above 1GHz</p>
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details, Only show test data of the worse mode on the test report.
Test results:	Pass

Note:

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

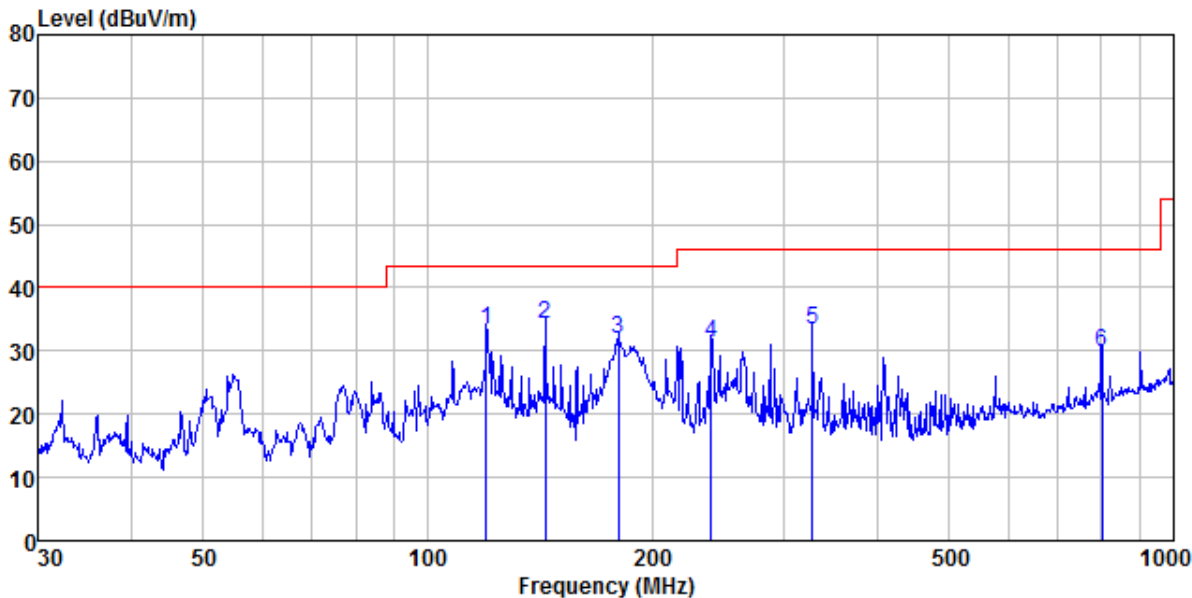
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

NOTE: For above 6GHz , no emission found , so only report worse case from 30MHz to 6GHz

Measurement Data

Below 1GHz

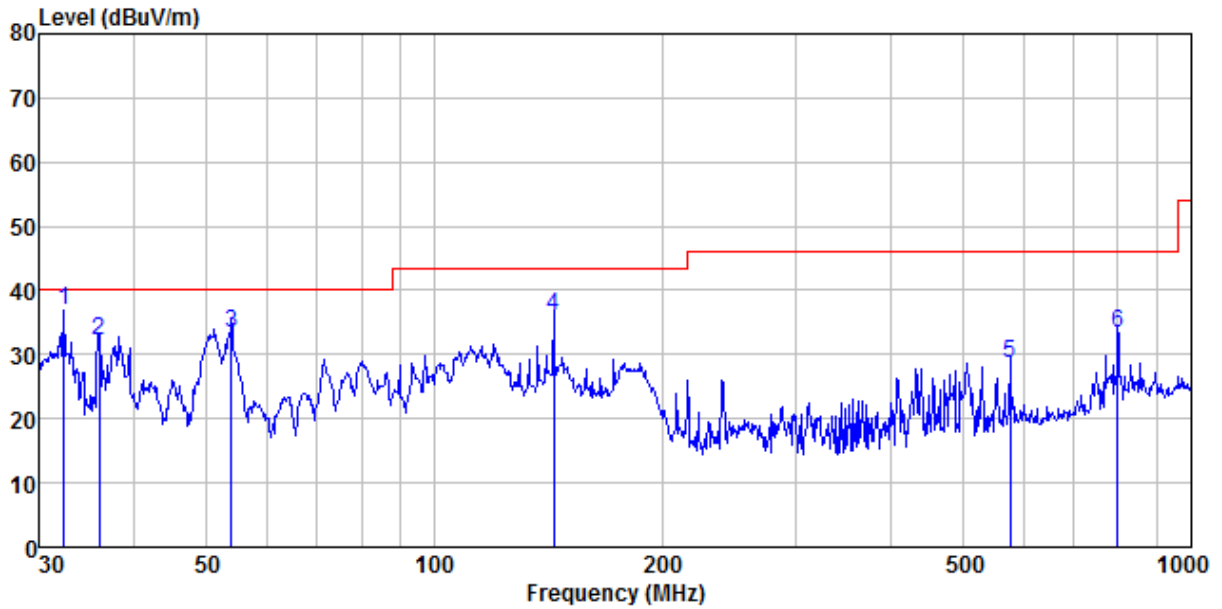
Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m HORIZONTAL
 Job No : GTS201612000086
 Test mode : PC connection mode
 Test Engineer: Sky

	Freq	Read 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	119.856	49.01	12.48	1.36	29.57	33.28	43.50	-10.22	QP
2	143.830	51.89	10.22	1.53	29.44	34.20	43.50	-9.30	QP
3	180.017	47.87	11.68	1.74	29.27	32.02	43.50	-11.48	QP
4	239.987	44.76	14.09	2.07	29.56	31.36	46.00	-14.64	QP
5	327.887	45.04	15.66	2.51	29.84	33.37	46.00	-12.63	QP
6	801.786	32.64	22.06	4.46	29.20	29.96	46.00	-16.04	QP

Vertical:

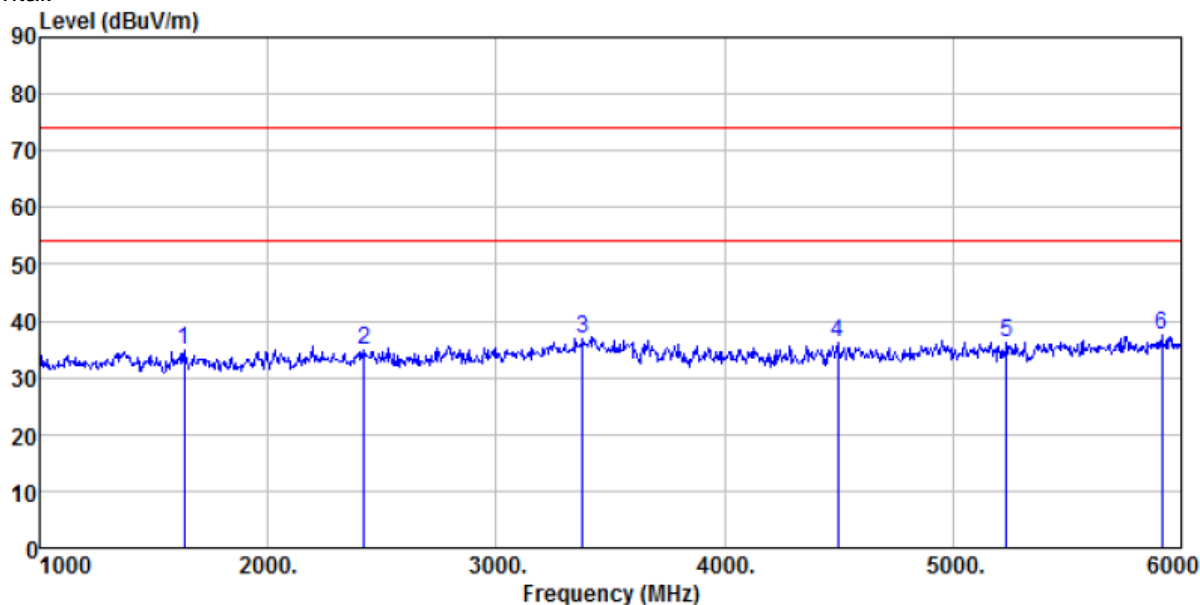


Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VERTICAL
 Job No : GTS201612000086
 Test mode : PC connection mode
 Test Engineer: Sky

	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	32.406	52.14	14.32	0.58	30.09	36.95	40.00 -3.05 QP
2	36.001	47.17	14.58	0.62	30.06	32.31	40.00 -7.69 QP
3	53.882	47.59	15.07	0.81	29.97	33.50	40.00 -6.50 QP
4	143.830	53.68	10.22	1.53	29.44	35.99	43.50 -7.51 QP
5	576.644	34.25	20.03	3.63	29.30	28.61	46.00 -17.39 QP
6	798.980	35.92	22.06	4.45	29.20	33.23	46.00 -12.77 QP

Above 1GHz

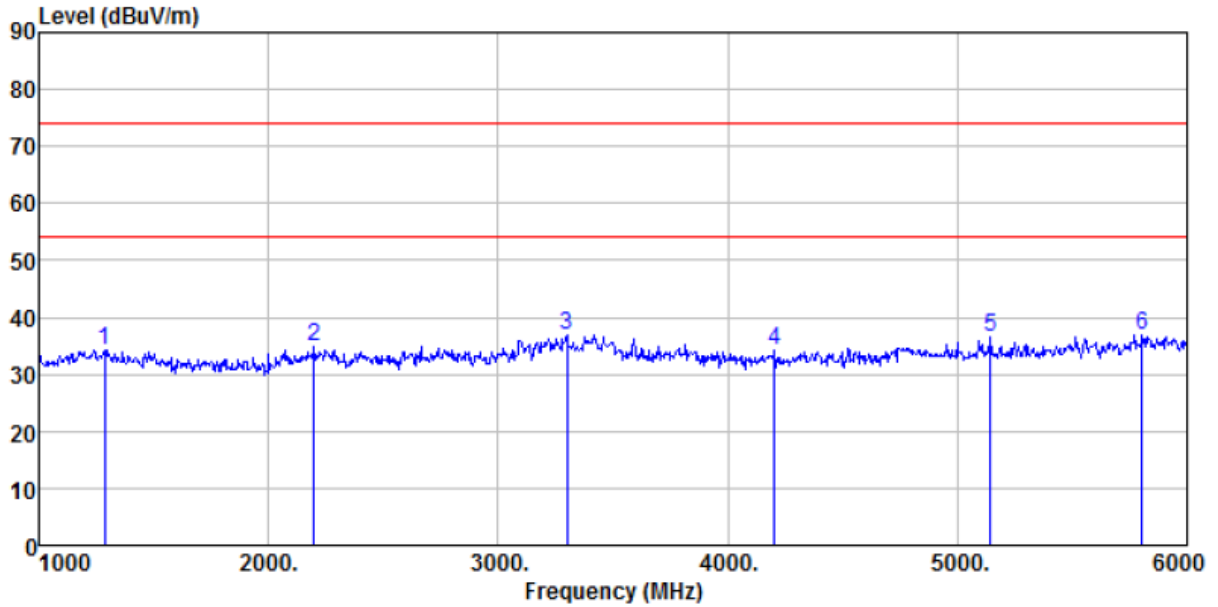
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m HORIZONTAL
 Job No. : GTS201612000086
 Test mode : PC connection mode
 Test Engineer: Sky

	Read	Antenna	Cable	Preamp	Level	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1635.000	39.05	24.90	4.76	33.82	34.89	74.00	-39.11 Peak
2	2420.000	35.85	27.54	5.41	33.97	34.83	74.00	-39.17 Peak
3	3380.000	34.63	28.54	6.72	32.89	37.00	74.00	-37.00 Peak
4	4495.000	28.52	31.32	8.33	31.94	36.23	74.00	-37.77 Peak
5	5235.000	27.54	31.88	9.13	32.30	36.25	74.00	-37.75 Peak
6	5915.000	26.86	32.78	10.09	32.18	37.55	74.00	-36.45 Peak

Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m VERTICAL
 Job No. : GTS201612000086
 Test mode : PC connection mode
 Test Engineer: Sky

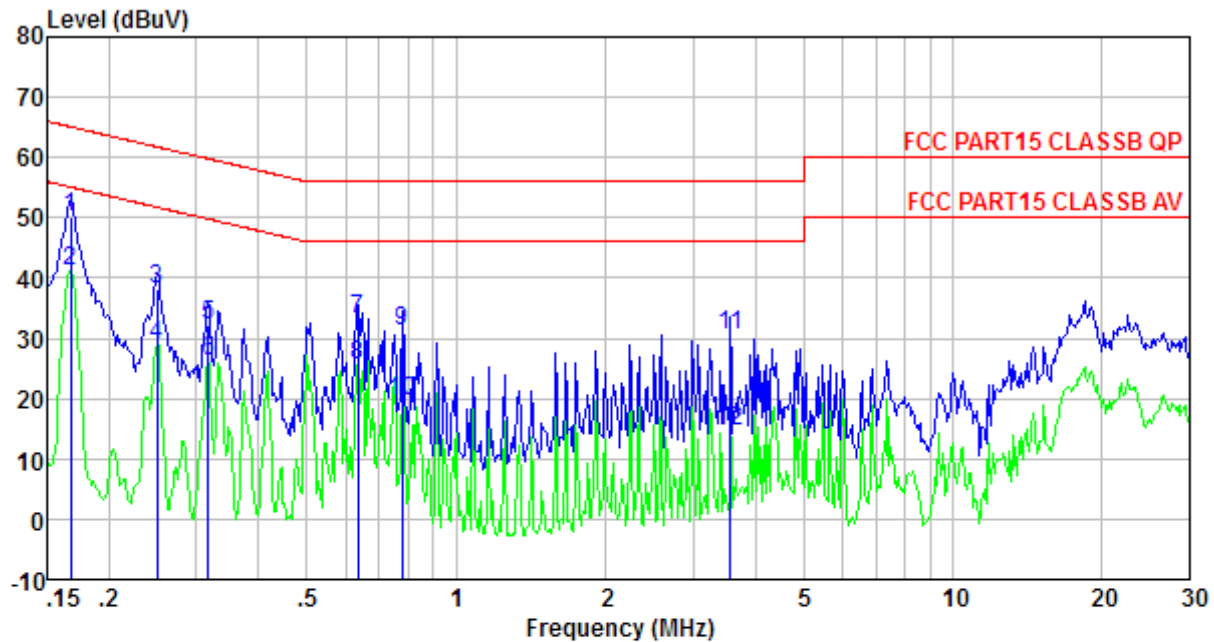
	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1285.000	37.37	25.60	4.53	33.24	34.26	74.00 -39.74 Peak
2	2200.000	36.03	27.95	5.19	34.23	34.94	74.00 -39.06 Peak
3	3300.000	34.82	28.35	6.56	32.99	36.74	74.00 -37.26 Peak
4	4205.000	27.95	30.22	8.07	31.94	34.30	74.00 -39.70 Peak
5	5145.000	27.58	32.06	8.99	32.26	36.37	74.00 -37.63 Peak
6	5805.000	26.39	32.66	9.93	32.24	36.74	74.00 -37.26 Peak

7.2 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														
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBμV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <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>0.5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dBμV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	0.5-30	60	50
Frequency range (MHz)	Limit (dBμV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
0.5-30	60	50													
Test setup:	<p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
Test procedure	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide 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 refers 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 environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar														
Test Instruments:	Refer to section 6 for details														
Test mode:	Refer to section 5.3 for details, Only show test data of the worse mode on the test report.														
Test results:	Pass														

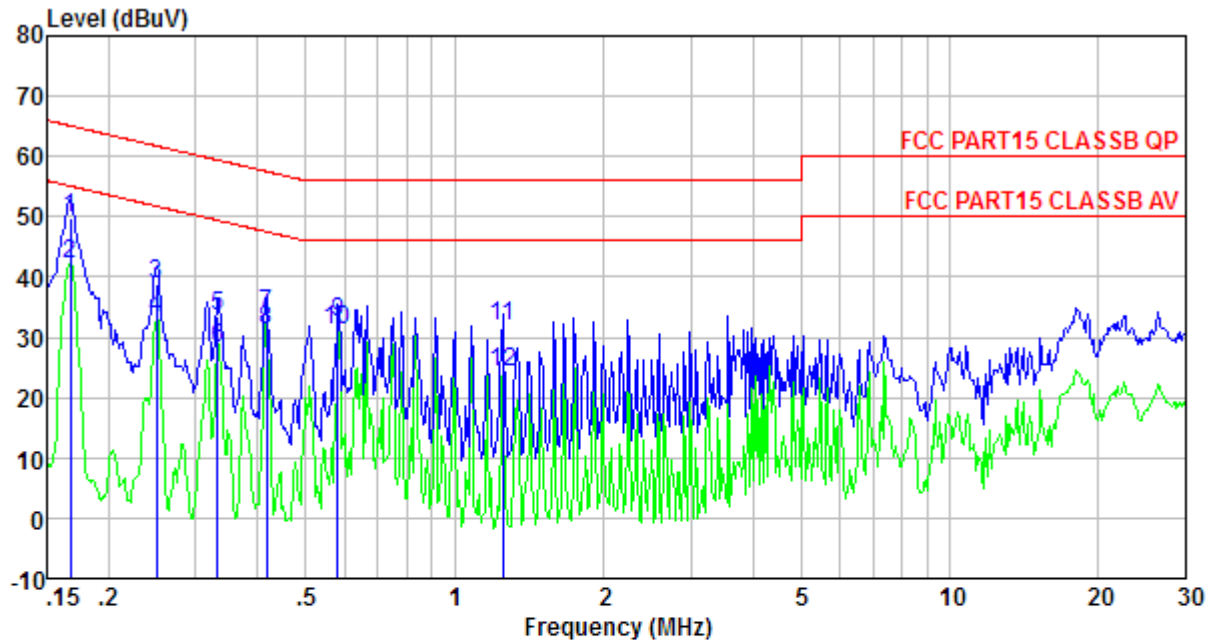
Measurement Data

Test mode:	PC connection mode	Phase Polarity:	Line
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Freq MHz	Reading level dBuV	IISN/ISN factor dB,	Cable loss dBuV,	level dB	Limit level dBuV,	Over limit dB	Remark
0.168	49.94	0.15	0.12	50.21	65.08	-14.87	QP
0.168	40.76	0.15	0.12	41.03	55.08	-14.05	Average
0.249	37.84	0.12	0.11	38.07	61.78	-23.71	QP
0.249	28.51	0.12	0.11	28.74	51.78	-23.04	Average
0.317	32.01	0.11	0.10	32.22	59.80	-27.58	QP
0.317	26.00	0.11	0.10	26.21	49.80	-23.59	Average
0.634	32.85	0.13	0.13	33.11	56.00	-22.89	QP
0.634	25.28	0.13	0.13	25.54	46.00	-20.46	Average
0.779	31.05	0.14	0.13	31.32	56.00	-24.68	QP
0.779	19.36	0.14	0.13	19.63	46.00	-26.37	Average
3.565	30.12	0.19	0.15	30.46	56.00	-25.54	QP
3.565	14.11	0.19	0.15	14.45	46.00	-31.55	Average

Test mode:	PC connection mode	Phase Polarity:	Neutral
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Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dBuV	level dB	Limit level dBuV	Over limit dB	Remark
0.168	49.59	0.07	0.12	49.78	65.08	-15.30	QP
0.168	42.02	0.07	0.12	42.21	55.08	-12.87	Average
0.249	38.64	0.06	0.11	38.81	61.78	-22.97	QP
0.249	33.06	0.06	0.11	33.23	51.78	-18.55	Average
0.332	33.33	0.06	0.10	33.49	59.40	-25.91	QP
0.332	27.94	0.06	0.10	28.10	49.40	-21.30	Average
0.417	33.69	0.06	0.11	33.86	57.51	-23.65	QP
0.417	31.05	0.06	0.11	31.22	47.51	-16.29	Average
0.579	32.44	0.07	0.12	32.63	56.00	-23.37	QP
0.579	30.94	0.07	0.12	31.13	46.00	-14.87	Average
1.249	31.55	0.08	0.13	31.76	56.00	-24.24	QP
1.249	23.99	0.08	0.13	24.20	46.00	-21.80	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

8 Test Setup Photo

Radiated Emission



Conducted Emission



9 EUT Constructional Details

Reference to the test report No. GTS201612000086E01

----- End-----