



## **FCC Report**

**Applicant:** Distribuidora Sinn, S.A. de C.V.

**Address of Applicant:** Lago Zurich No.219 Piso 12, Colonia Ampliacion Granada, Del. Miguel Hidalgo, Mexico City, Mexico

**Equipment Under Test (EUT)**

Product Name: 3G Bar Phone

Model No.: R310

Trade mark: RINNO

**FCC ID:** 2AGTFR310

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart B:2014

**Date of sample receipt:** May 10, 2016

**Date of Test:** May 11-17, 2016

**Date of report issue:** May 18, 2016

**Test Result :** PASS \*

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

Authorized Signature:

**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	May 18, 2016	Original

Prepared By:

*Edward Pan*

Date:

May 18, 2016

**Project Engineer**

Check By:

*Andy Wu*

Date:

May 18, 2016

**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*

### Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 26.5GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(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:	Distribuidora Sinn, S.A. de C.V.
Address of Applicant:	Lago Zurich No.219 Piso 12, Colonia Ampliacion Granada, Del. Miguel Hidalgo, Mexico City, Mexico
Manufacturer:	ZTECH communication (shenzhen ) Co.,Ltd
Address of Manufacturer:	7 floor. D block.ZHIGU .Xixiang,BAOAN District, ShenZhen, China, 518000

### 5.2 General Description of EUT

Product Name:	3G Bar Phone
Model No.:	R310
Power supply:	Adapter Model No.: R310-A Input: AC 100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 0.3A or DC 3.7V Li-ion Battery

### 5.3 Test mode

Test mode:	
PC mode	Keep the EUT in exchanging data mode.
Video Playing mode	Keep the EUT in video playing mode.
REC mode	Keep the EUT in video recording 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 28, 2013.

- **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.

Address: 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
Apple	PC	A1278	C1MN99ERDTY3	FCC DoC
DELL	KEYBOARD	SK-8115	N/A	FCC DoC
DELL	MOUSE	MOC5UO	N/A	FCC DoC
DELTA	ADAPTER	ADP-60ADT	N/A	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	9.0(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	July. 03 2015	July. 02 2016
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	July. 06 2015	July. 05 2016
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	July. 06 2015	July. 05 2016
6	RF Amplifier	HP	8347A	GTS204	July. 03 2015	July. 02 2016
7	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	July. 03 2015	July. 02 2016
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	July. 05 2015	July. 04 2016
10	Coaxial Cable	GTS	N/A	GTS211	July. 05 2015	July. 04 2016
11	Thermo meter	N/A	N/A	GTS256	July. 06 2015	July. 05 2016

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	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2015	Sep. 06 2016
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	June 30 2015	June 29 2016
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	June 30 2015	June 29 2016
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 30 2015	June 29 2016
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	June 30 2015	June 29 2016
6	Coaxial Cable	GTS	N/A	GTS227	June 30 2015	June 29 2016
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

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 07 2015	July 06 2016

## 7 Test Results and Measurement Data

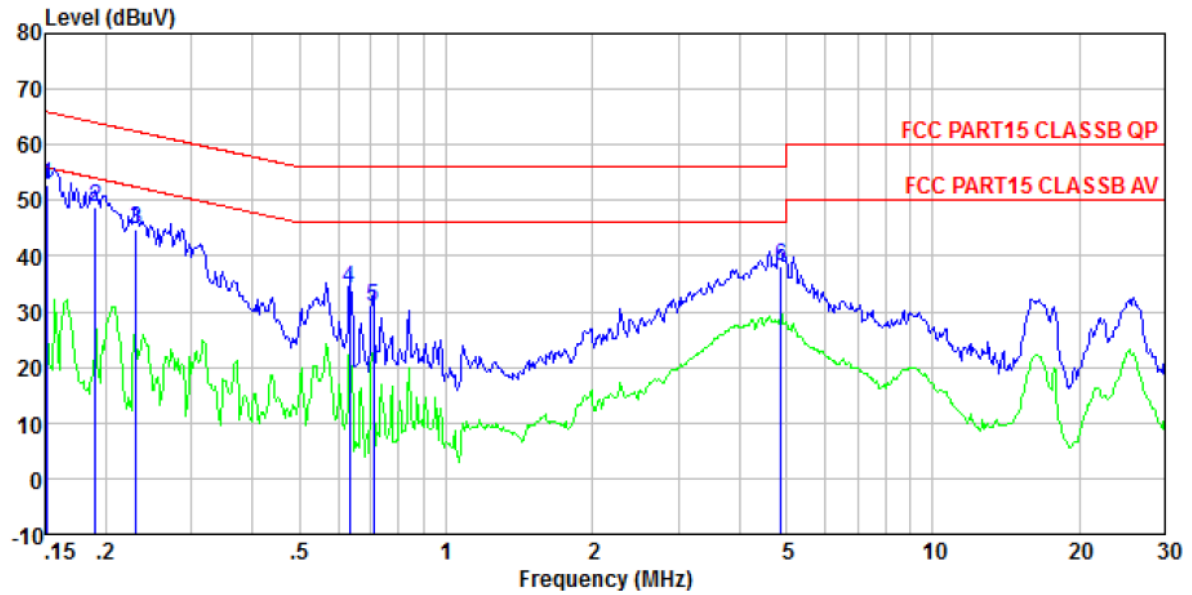
### 7.1 Conducted Emissions

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:	<div><p style="text-align: center;"><b>Reference Plane</b></p><p style="text-align: center;">Test table/Insulation plane</p><p><i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i></p></div>		
Test procedure:	<div><div>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.</div><div>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).</div><div>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.</div></div>		
Test Instruments:	Refer to section 6 for details		
Test mode:	Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.		
Test results:	Pass		



## Measurement Data

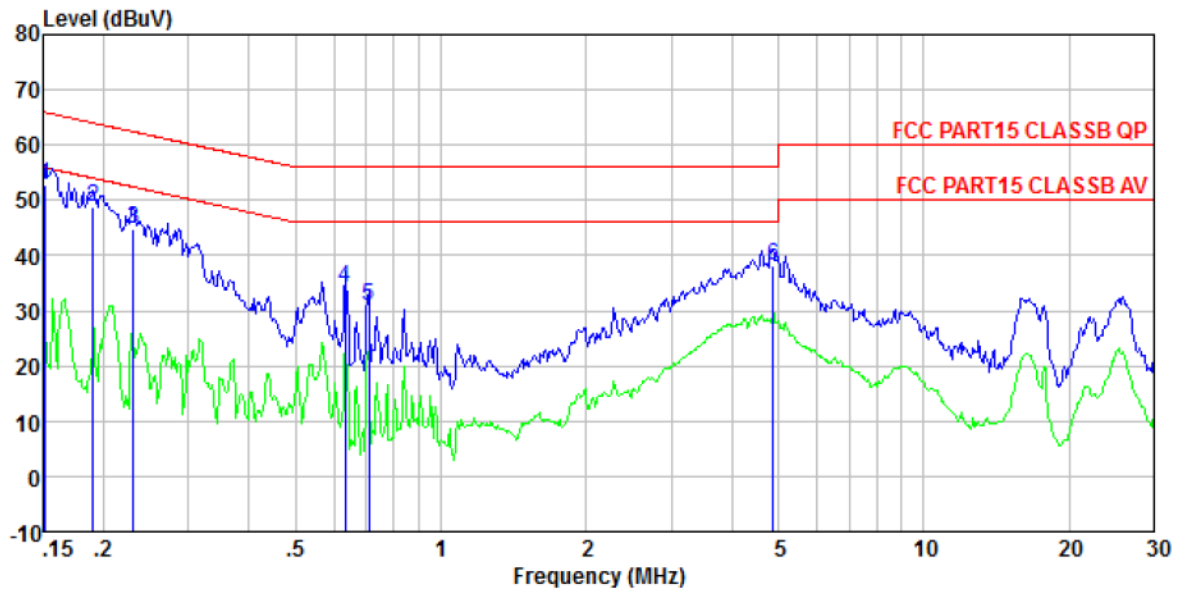
Line:



Site : Shielded room  
 Condition : FCC PART15 CLASSB QP LISN-2013 LINE  
 Job No. : 0069  
 Test mode : PC mode  
 Test Engineer: Sky

	Freq	Read Level	Level	Cable Loss	LISN Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.152	52.37	52.64	0.12	0.15	65.91	-13.27	QP
2	0.190	48.57	48.84	0.13	0.14	64.02	-15.18	QP
3	0.230	44.70	44.94	0.12	0.12	62.44	-17.50	QP
4	0.634	33.81	34.07	0.13	0.13	56.00	-21.93	QP
5	0.708	30.50	30.77	0.13	0.14	56.00	-25.23	QP
6	4.874	37.93	38.29	0.15	0.21	56.00	-17.71	QP

## Neutral:



Site : Shielded room  
 Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL  
 Job No. : 0069  
 Test mode : PC mode  
 Test Engineer: Sky

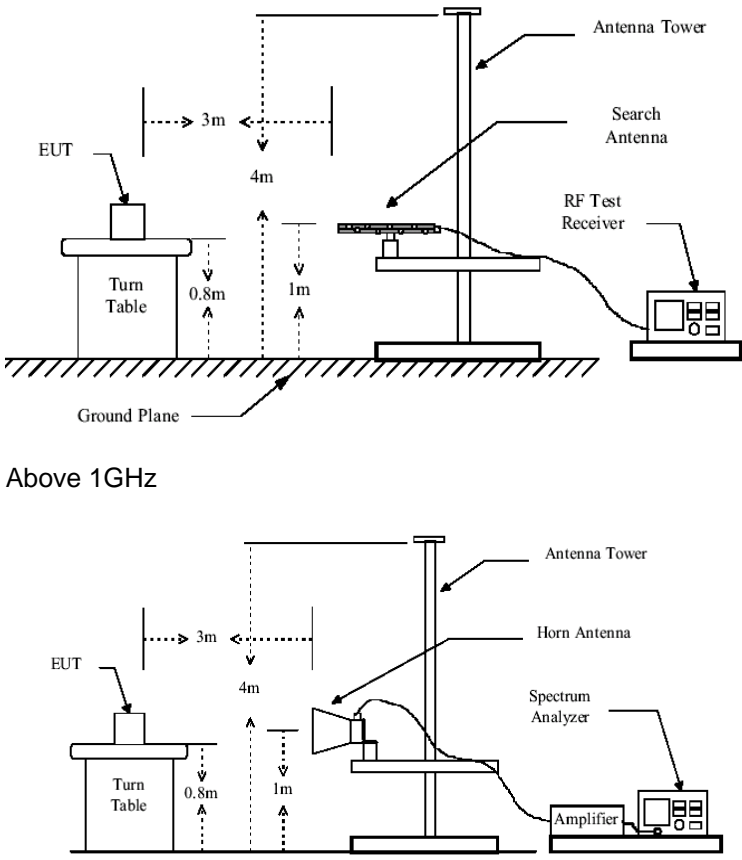
	Freq	Read Level	Level	Cable Loss	LISN Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.152	52.37	52.64	0.12	0.15	65.91	-13.27	QP
2	0.190	48.57	48.84	0.13	0.14	64.02	-15.18	QP
3	0.230	44.70	44.94	0.12	0.12	62.44	-17.50	QP
4	0.634	33.81	34.07	0.13	0.13	56.00	-21.93	QP
5	0.708	30.50	30.77	0.13	0.14	56.00	-25.23	QP
6	4.874	37.93	38.29	0.15	0.21	56.00	-17.71	QP

## 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

Test Requirement:	FCC Part15 B Section 15.109																																					
Test Method:	ANSI C63.4:2014																																					
Test Frequency Range:	30MHz to 6GHz																																					
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																																					
Receiver setup:	<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>					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														
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	Peak	1MHz	10Hz	Average Value																																		
Limit:	<table><tr><td colspan="2">Frequency</td><td>Limit (dBuV/m @3m)</td><td colspan="2">Remark</td></tr><tr><td colspan="2">30MHz-88MHz</td><td>40.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">88MHz-216MHz</td><td>43.50</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">216MHz-960MHz</td><td>46.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">960MHz-1GHz</td><td>54.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2" rowspan="2">Above 1GHz</td><td>54.00</td><td colspan="2">Average Value</td></tr><tr><td>74.00</td><td colspan="2">Peak Value</td></tr></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																																			
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960MHz-1GHz		54.00	Quasi-peak Value																																			
Above 1GHz		54.00	Average Value																																			
		74.00	Peak Value																																			
Test Procedure:	<div>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.</div> <div>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.</div> <div>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.</div> <div>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.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>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.</div>																																					
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:	Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.
Test results:	Pass

## Note:

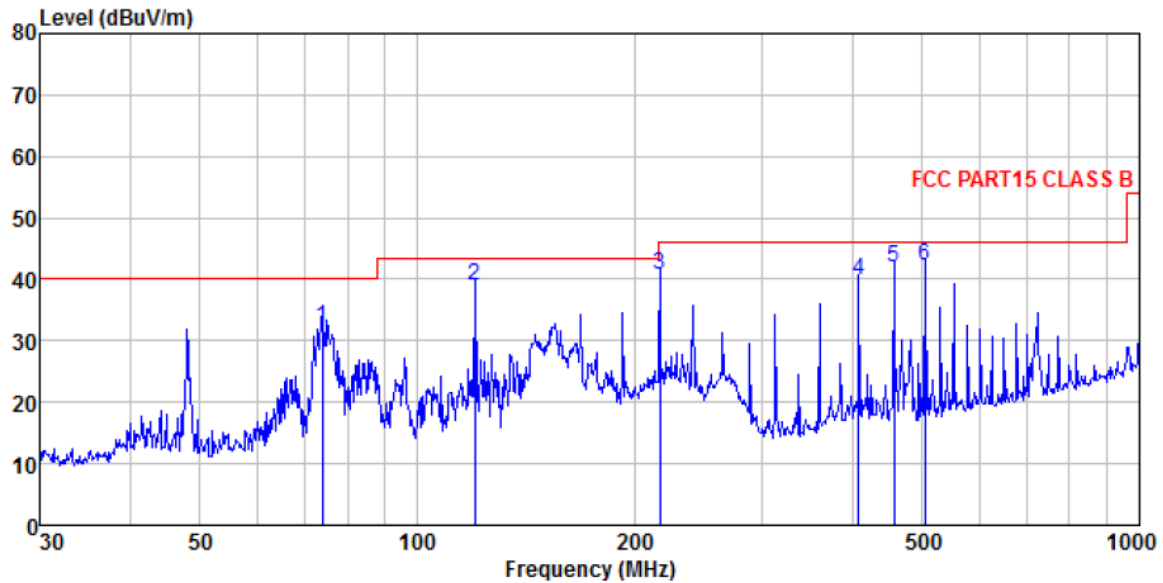
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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

## Measurement Data

Below 1GHz

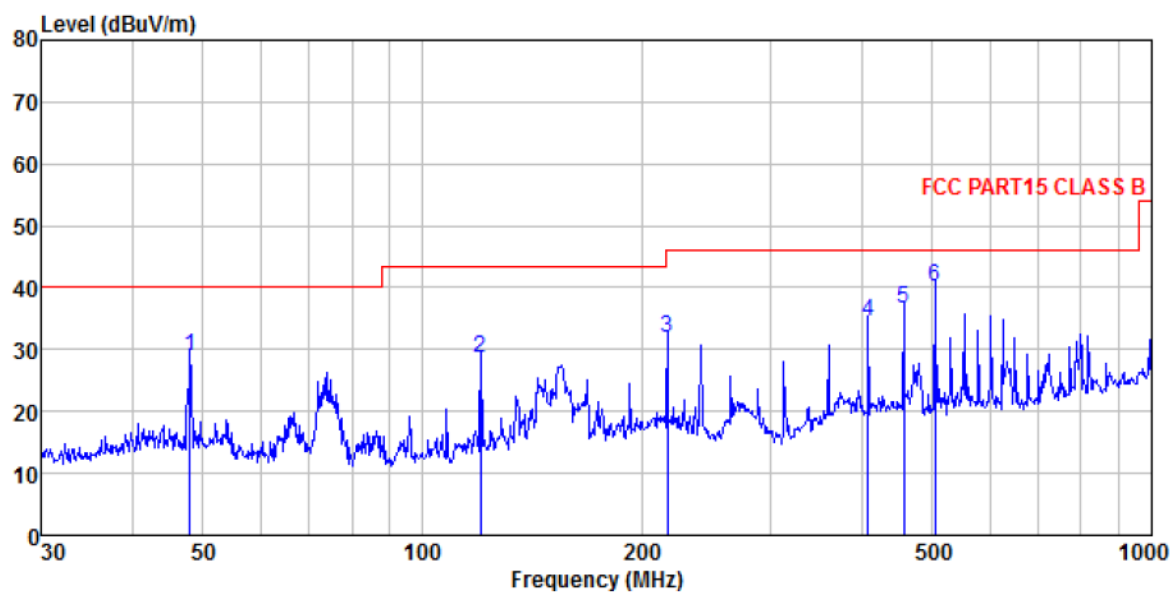
Horizontal:



Condition : FCC PART15 CLASS B VULB9163-2013M HORIZONTAL  
 Job No. : 0069  
 Test Mode : PC mode  
 Test Engineer: Leo

	Freq	ReadAntenna	Cable Preamp		Limit	Over		
		Level Factor	Loss Factor	Level	Line	Limit	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	73.876	50.94	10.00	0.97	29.83	32.08	40.00	-7.92 QP
2	120.277	54.72	12.38	1.36	29.57	38.89	43.50	-4.61 QP
3	216.783	55.10	13.10	1.94	29.36	40.78	46.00	-5.22 QP
4	408.946	49.04	17.26	2.90	29.48	39.72	46.00	-6.28 QP
5	457.507	50.48	17.59	3.12	29.38	41.81	46.00	-4.19 QP
6	504.706	49.64	18.68	3.33	29.30	42.35	46.00	-3.65 QP

Vertical:



Condition : FCC PART15 CLASS B VULB9163-2013M VERTICAL

Job No. : 0069

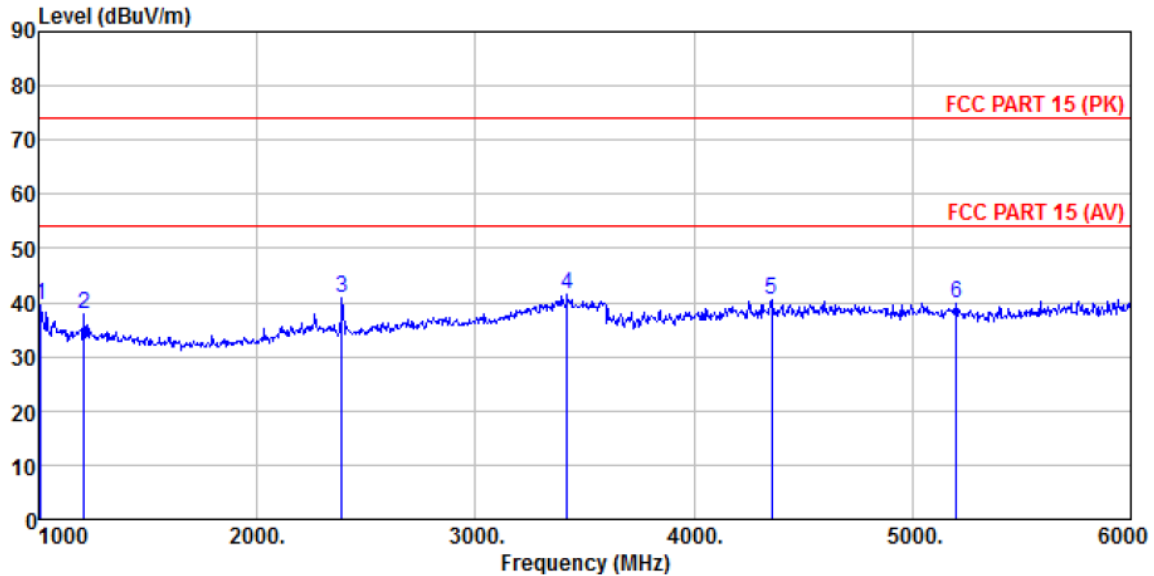
Test Mode : PC mode

Test Engineer: Leo

	Freq	ReadAntenna	Cable Preamp		Limit	Over		
		Level	Factor	Loss Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	47.994	42.91	15.36	0.75	30.01	29.01	40.00	-10.99 QP
2	120.277	44.42	12.38	1.36	29.57	28.59	43.50	-14.91 QP
3	216.783	46.07	13.10	1.94	29.36	31.75	46.00	-14.25 QP
4	408.946	43.82	17.26	2.90	29.48	34.50	46.00	-11.50 QP
5	457.507	45.38	17.59	3.12	29.38	36.71	46.00	-9.29 QP
6	504.706	47.36	18.68	3.33	29.30	40.07	46.00	-5.93 QP

Above 1GHz

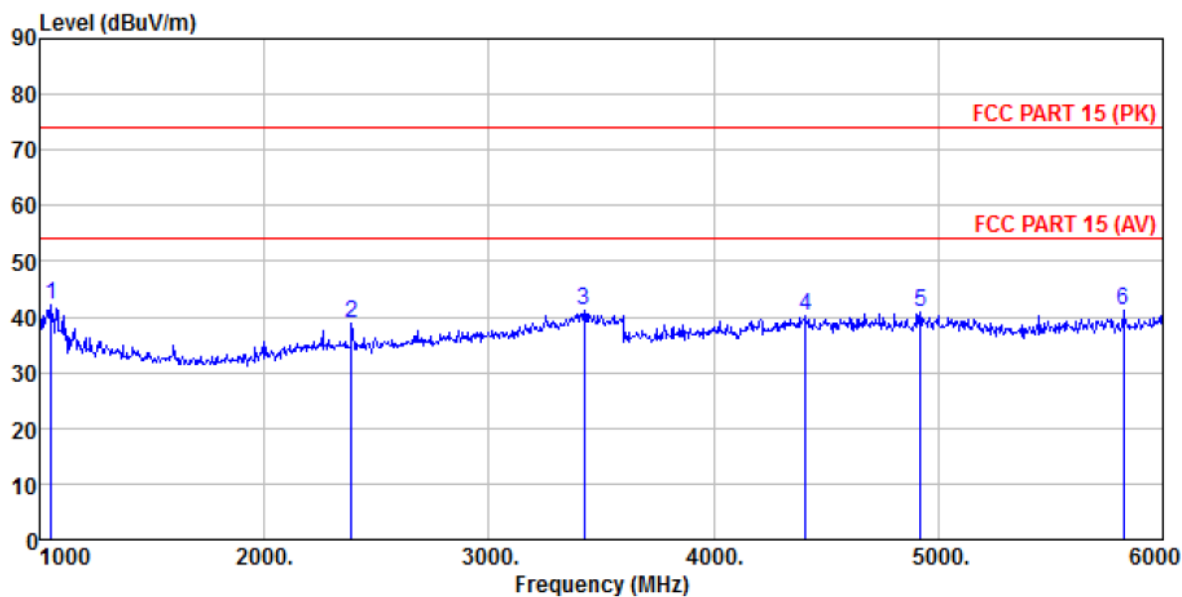
Horizontal:



Condition : FCC PART 15 (PK) BBHA9120D ANT(>1GHZ) HORIZONTAL  
 Job No. : 0069  
 Test Mode : PC mode  
 Test Engineer: Leo

	ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1010.000	43.60	24.54	4.30	32.78	39.66	74.00
2	1210.000	40.99	25.39	4.47	33.10	37.75	74.00
3	2390.000	41.90	27.59	5.38	34.01	40.86	74.00
4	3420.000	39.00	28.67	6.80	32.85	41.62	74.00
5	4355.000	33.10	30.93	8.21	31.86	40.38	74.00
6	5200.000	31.11	31.97	9.06	32.28	39.86	74.00

Vertical:



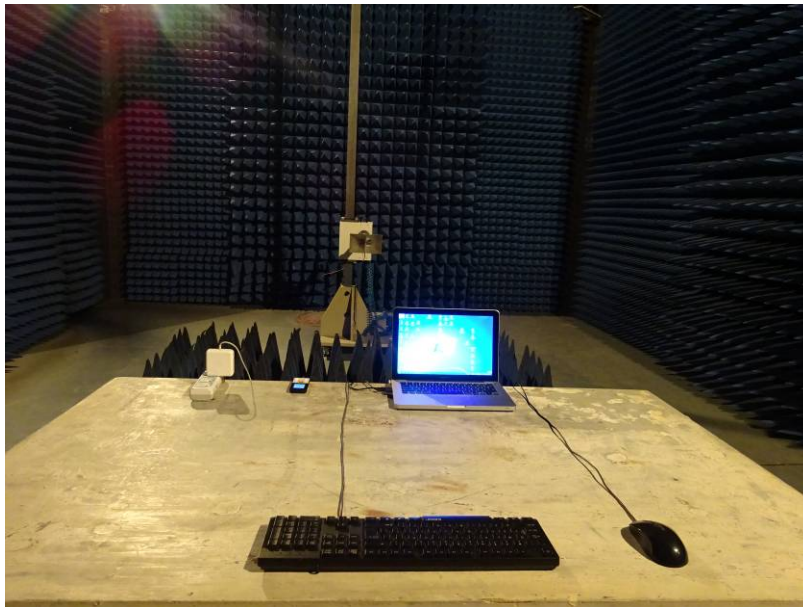
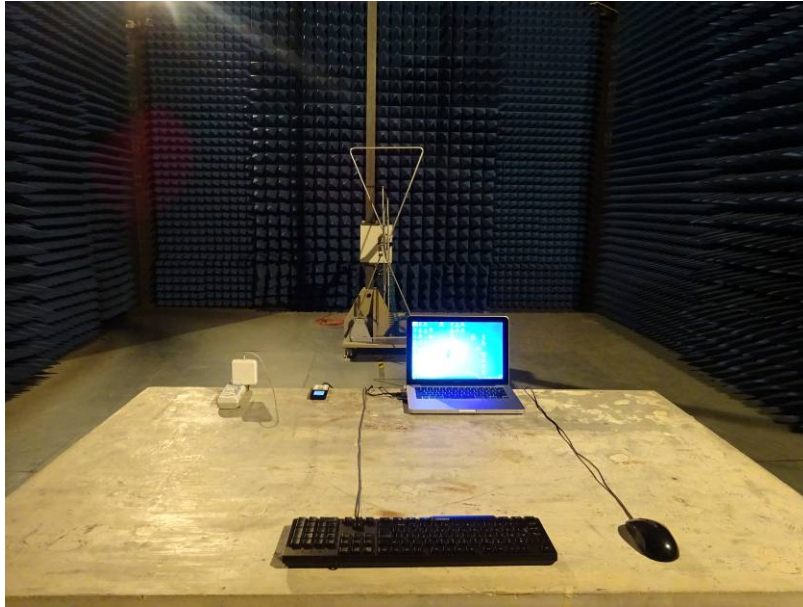
Condition : FCC PART 15 (PK) BBHA9120D ANT(>1GHZ) VERTICAL  
 Job No. : 0069  
 Test Mode : PC mode  
 Test Engineer: Leo

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1050.000	45.96	24.62	4.34	32.84	42.08	74.00	-31.92 Peak
2	2390.000	40.03	27.59	5.38	34.01	38.99	74.00	-35.01 Peak
3	3425.000	38.48	28.72	6.82	32.83	41.19	74.00	-32.81 Peak
4	4410.000	32.56	31.13	8.25	31.90	40.04	74.00	-33.96 Peak
5	4920.000	32.27	31.89	8.69	32.15	40.70	74.00	-33.30 Peak
6	5825.000	30.62	32.68	9.97	32.23	41.04	74.00	-32.96 Peak



## 8 Test Setup Photo

Radiated Emission



Conducted Emission



## 9 EUT Constructional Details

Reference to the test report No. GTS201605000069E01

----- end-----