FCC/IC REPORT

Applicant:	Lightwave Technology
Address of Applicant:	400 Rue Wright, Saint-Laurent, Quebec, Canada, H4N 1M6
Equipment Under Test (EUT)	
Product Name:	Connected, CarLink
Model No.:	RX3200, CL3200
FCC ID:	2ABSL3200
Canada IC:	11732A-LWRTX3200
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 RSS-Gen Issue 4, November 2014 RSS-247 Issue 2, February 2017
Date of sample receipt:	19 Jan., 2018
Date of Test:	22 Jan., 27 to Feb., 2018
Date of report issued:	28 Feb., 2018
Test Result:	PASS *

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

Authorized Signature:

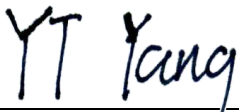
Bruce Zhang
Laboratory Manager

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 theCCISproduct certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

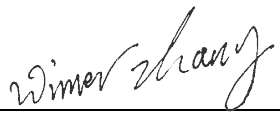
This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

2 Version

Version No.	Date	Description
00	*28 Feb., 2018*	*Original*

Tested by:  ***Date:*** *28 Feb., 2018*

Test Engineer

Reviewed by:  ***Date:*** *28 Feb., 2018*

Project Engineer

3 Contents

Page

4 Test Summary

Test Items	Section		Result
	FCC	IC	
Antenna Requirement	15.203/15.247 (c)	/	Pass
AC Power Line Conducted Emission	15.207	RSS-GEN Section 8.8	Pass
Conducted Peak Output Power	15.247 (b)(3)	RSS-247 Section 5.4 (d)	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	RSS-247 Section 5.2 (a)	Pass
Power Spectral Density	15.247 (e)	RSS-247 Section 5.2 (b)	Pass
Band Edge	15.247(d)	RSS-GEN Section 8.10 RSS-247 Section 5.5	Pass
Conducted and Radiated Spurious Emission	15.205 & 15.209	RSS-GEN Section 6.13 RSS-247 Section 5.5	Pass
Pass: The EUT complies with the essential requirements in the standard.			

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

5 General Information

5.1 Client Information

Applicant:	Lightwave Technology
Address:	400 Rue Wright, Saint-Laurent, Quebec, Canada, H4N 1M6
Manufacturer/ Factory:	DONGGUAN PORTMAN ELECTRONIC SCIENCE AND TECHNOLOGY CO., LTD
Address:	NO.10, LUYI 2 ROAD, TANGXIA TOWN, DONGGUAN CITY, GUANGDONG PROVINCE CHINA

5.2 General Description of E.U.T.

Product Name:	Connected, CarLink
Model No.:	RX3200, CL3200
Operation Frequency:	911.85 MHz
Channel numbers:	1
Modulation technology:	CSS
Antenna Type:	Internal Antenna
Antenna gain:	911.85MHz: 0.5dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V, 130mAh
Remark:	The No.: Rx3200, CL3200, Advanced were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being product name, model name and shell, for different customer

5.3 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(below 1GHz)/1.5m(above 1GHz) 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. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.	

5.4 Description of Support Units

N/A

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.6 Laboratory Facility

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

- **FCC - Registration No.: 727551**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing 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 L6048.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.8 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 SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2020
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
6	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
8	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
9	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
10	Loop antenna	Laplace instrument	RF300	EMC0701	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
11	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	07-22-2017	07-21-2020
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
3	LISN	CHASE	MN2050D	CCIS0074	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
4	LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2017	07-20-2018
5	Coaxial Cable	CCIS	N/A	CCIS0086	02-25-2017	02-24-2018
					02-20-2018	02-19-2019
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Power Sensor	D.A.R.E	RPR3006W	17I00015SNO27	11-10-2017	11-09-2018
8	Power Sensor	D.A.R.E	RPR3006W	17I00015SNO28	11-10-2017	11-09-2018

6 Test results and Measurement Data

6.1 Antenna requirement:

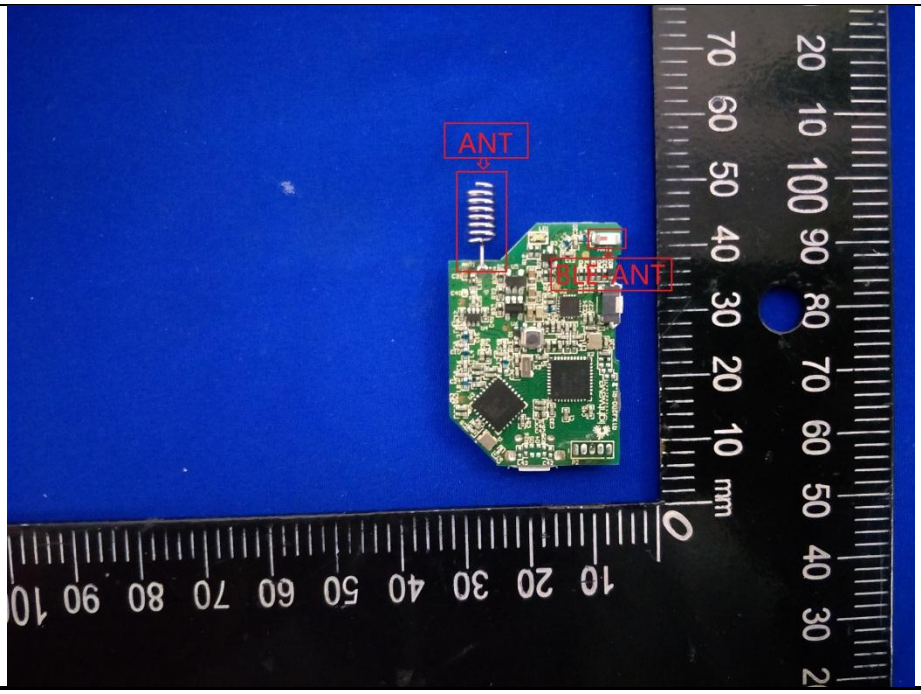
Standard requirement:	FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

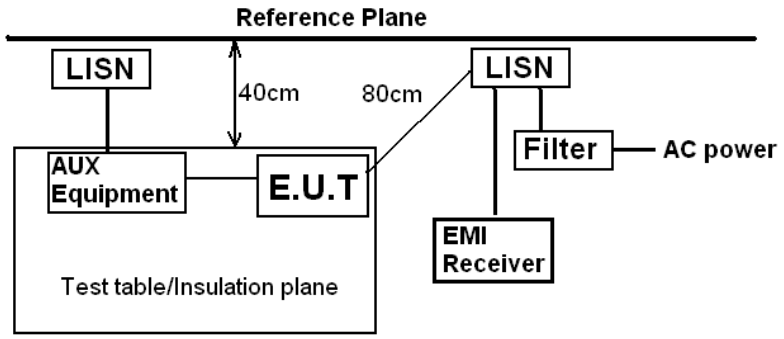
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

E.U.T Antenna:	

The antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 0.5 dBi.

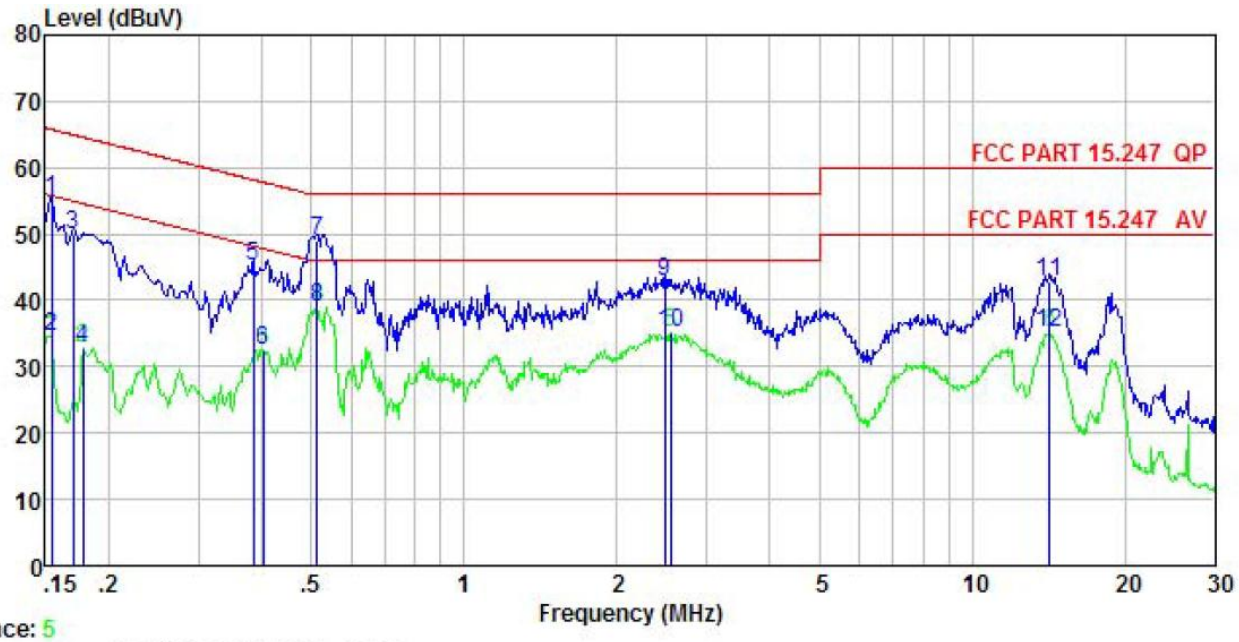


6.2 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15.207 RSS-GEN Section 8.8		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
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 procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which 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 setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

Measurement Data:

Neutral:



Trace: 5

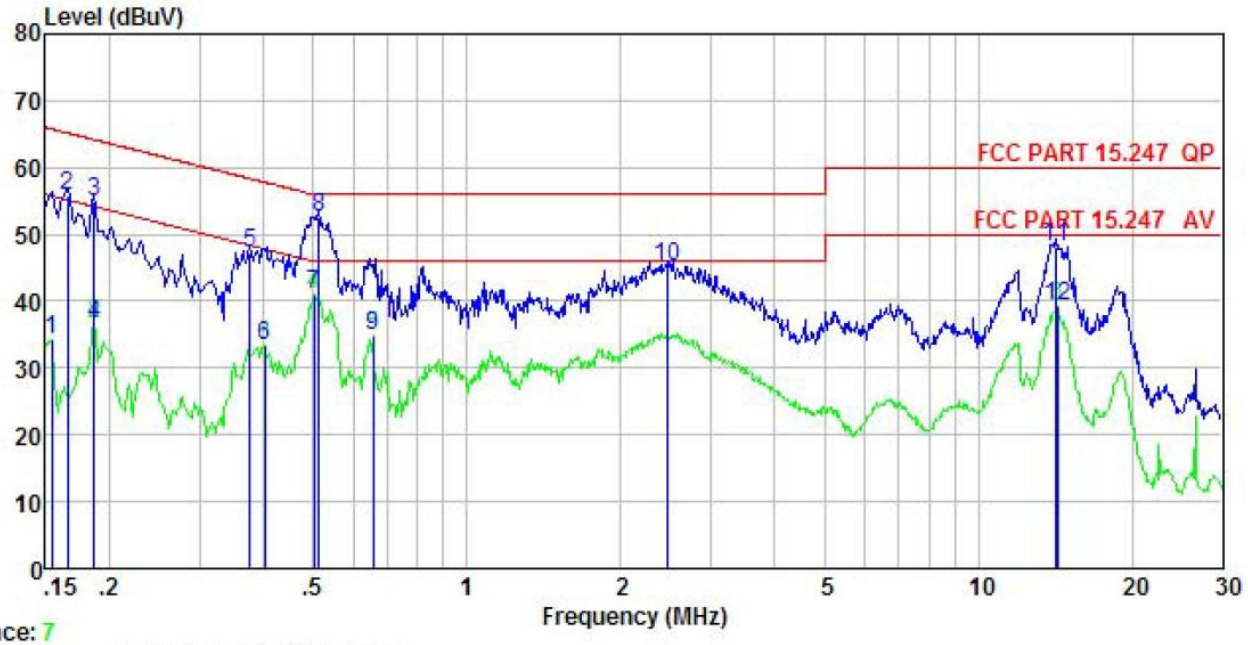
Site : CCIS Shielding Room
Condition : FCC PART 15.247 QP LISN(RS) NEUTRAL
EUT : Connected
Model : RX3200
Test Mode : TX mode
Power Rating : AC 120V/60Hz
Environment : Temp: 23 .5℃ Huni:57% Atmos:101KPa
Test Engineer: YT
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	43.66	0.70	10.78	55.14	65.78	-10.64	QP
2	0.154	23.09	0.70	10.78	34.57	55.78	-21.21	Average
3	0.170	38.35	0.70	10.77	49.82	64.94	-15.12	QP
4	0.178	21.39	0.66	10.77	32.82	54.59	-21.77	Average
5	0.385	33.89	0.62	10.72	45.23	58.17	-12.94	QP
6	0.402	21.26	0.62	10.72	32.60	47.81	-15.21	Average
7	0.513	37.58	0.61	10.76	48.95	56.00	-7.05	QP
8	0.513	27.69	0.61	10.76	39.06	46.00	-6.94	Average
9	2.487	31.18	0.68	10.94	42.80	56.00	-13.20	QP
10	2.554	23.63	0.68	10.94	35.25	46.00	-10.75	Average
11	14.213	31.32	0.69	10.91	42.92	60.00	-17.08	QP
12	14.213	23.67	0.69	10.91	35.27	50.00	-14.73	Average

Notes:

1. *An initial pre-scan was performed on the live 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.*

Line:



Trace: 7

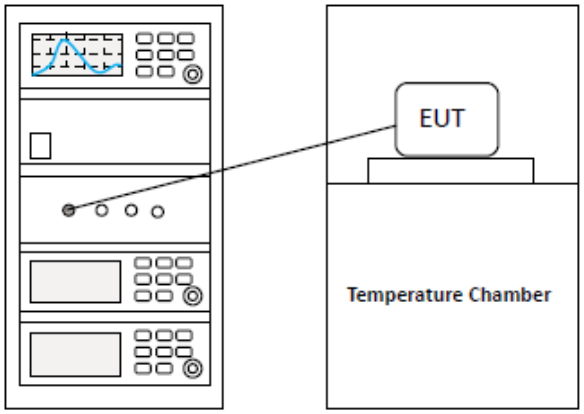
Site : CCIS Shielding Room
Condition : FCC PART 15.247 QP LISN(RS) LINE
EUT : Connected
Model : RX3200
Test Mode : TX mode
Power Rating : AC 120V/60Hz
Environment : Temp: 23 .5℃ Huni:57% Atmos:101KPa
Test Engineer: YT
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	22.65	0.71	10.78	34.14	55.78	-21.64	Average
2	0.166	44.45	0.71	10.77	55.93	65.16	-9.23	QP
3	0.186	43.40	0.73	10.76	54.89	64.20	-9.31	QP
4	0.186	25.19	0.73	10.76	36.68	54.20	-17.52	Average
5	0.377	35.70	0.75	10.72	47.17	58.34	-11.17	QP
6	0.402	21.93	0.75	10.72	33.40	47.81	-14.41	Average
7	0.502	29.65	0.76	10.76	41.17	46.00	-4.83	Average
8	0.513	41.15	0.76	10.76	52.67	56.00	-3.33	QP
9	0.654	23.29	0.77	10.77	34.83	46.00	-11.17	Average
10	2.474	33.37	0.78	10.94	45.09	56.00	-10.91	QP
11	14.138	36.62	0.70	10.91	48.23	60.00	-11.77	QP
12	14.288	27.52	0.70	10.90	39.12	50.00	-10.88	Average

Notes:

1. *An initial pre-scan was performed on the live 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.*

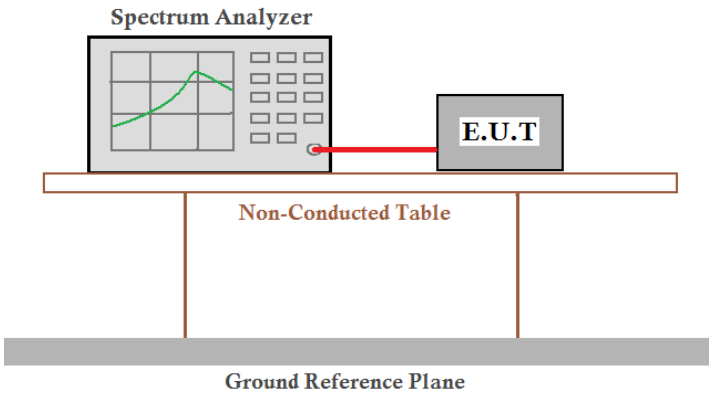
6.3 Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3) RSS-247 section 5.4(d)
Test Method:	ANSI C63.10:2013 and 558074
Limit:	30dBm
Test setup:	
Test procedure:	1. Use a fast power sensor suitable for 2,4 GHz and capable of 1 MS/s. 2. Connect the power sensor to the transmit port, sample the transmit signal and store the raw data, every channel 25 bursts. Use these stored samples in all following steps. 3. Find the start and stop times of each burst in the stored measurement samples. 4. Between the start and stop times of each individual burst calculate the RMS power over the burst. Save these Pburst values, as well as the start and stop times for each burst. 5. The highest of all P_{burst} values (value "A" in dBm) will be used for maximum e.i.r.p. calculations. Add the (stated) antenna assembly gain "G" in dBi of the individual antenna. The RF Output Power (P) shall be calculated using the formula below: P = A + G
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test Frequency	Maximum Conducted Output Power (dBm)	Limit(dBm)	Result
911.85 MHz	20.40	30.00	Pass

6.4 Occupy Bandwidth

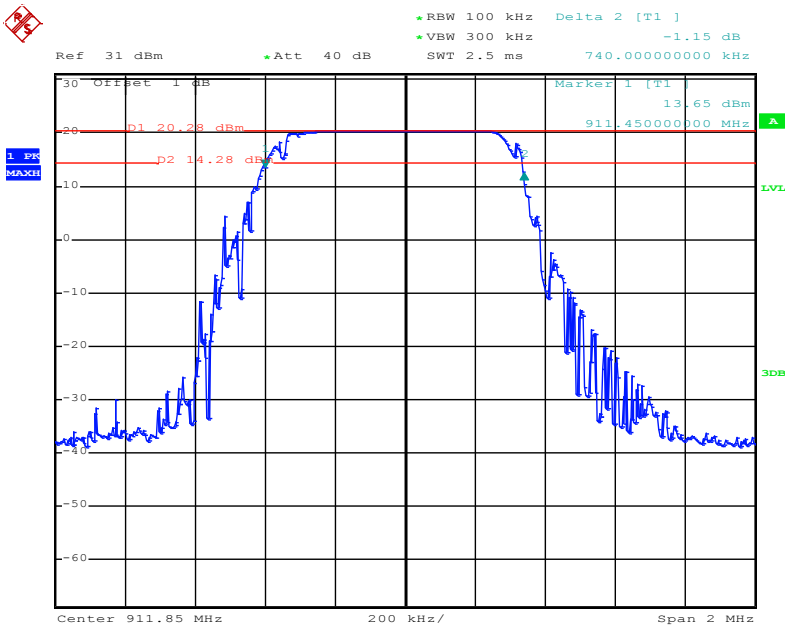
Test Requirement:	FCC Part15 C Section 15.247 (a)(2) RSS-247 section 5.2(a)
Test Method:	ANSI C63.10:2013 and 558074
Limit:	>500kHz
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test Frequency	6dB Emission Bandwidth (MHz)	Limit(kHz)	Result
911.85 MHz	0.740	>500	Pass
Test Frequency	99% Occupy Bandwidth (MHz)	Limit(kHz)	Result
911.85 MHz	0.764	N/A	N/A

Test plot as follows:

6dB EBW



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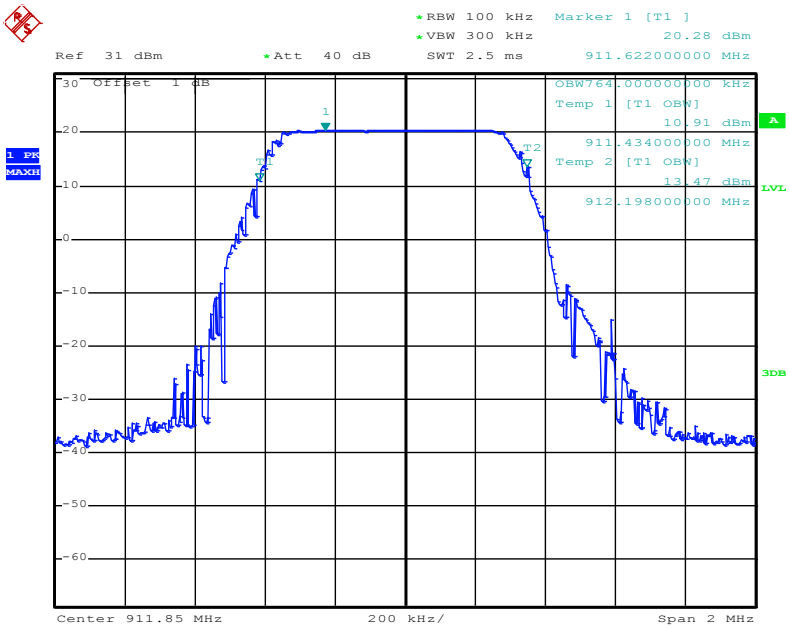
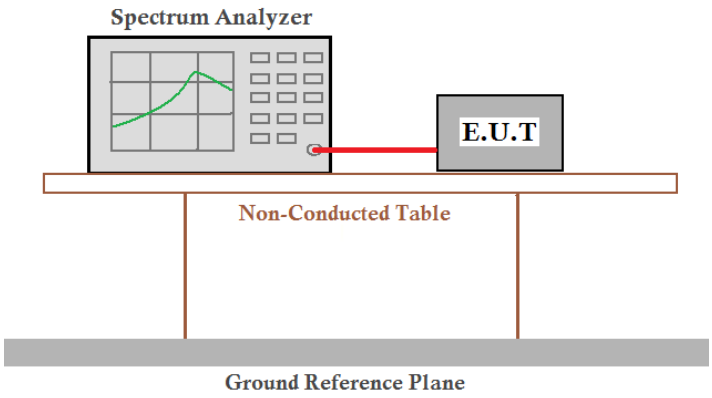
99% OBW



Date: 30.JAN.2018 05:56:02

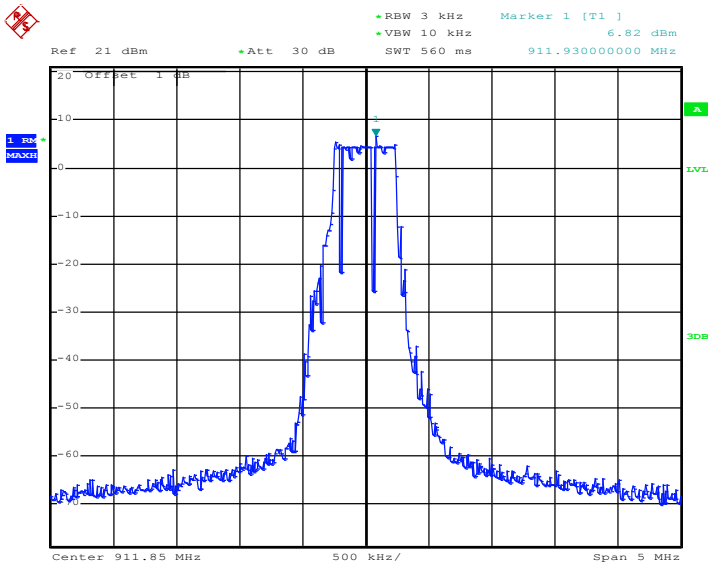
6.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e) RSS-247 section 5.2(b)
Test Method:	ANSI C63.10:2013 and 558074
Limit:	8dBm
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test Frequency	Power Spectral Density (dBm)	Limit(dBm)	Result
911.85 MHz	6.82	8.00	Pass

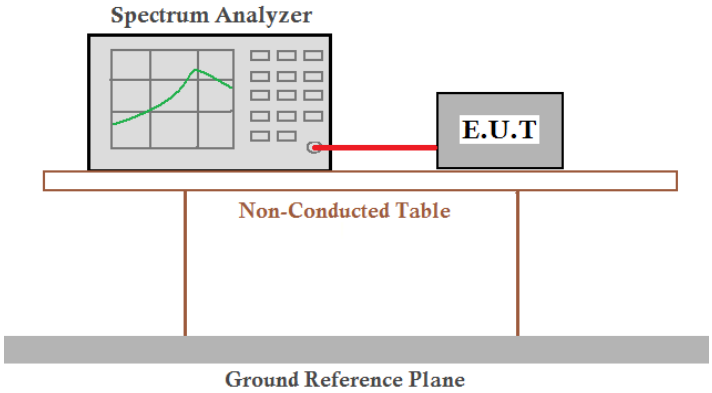
Test plots as follow:



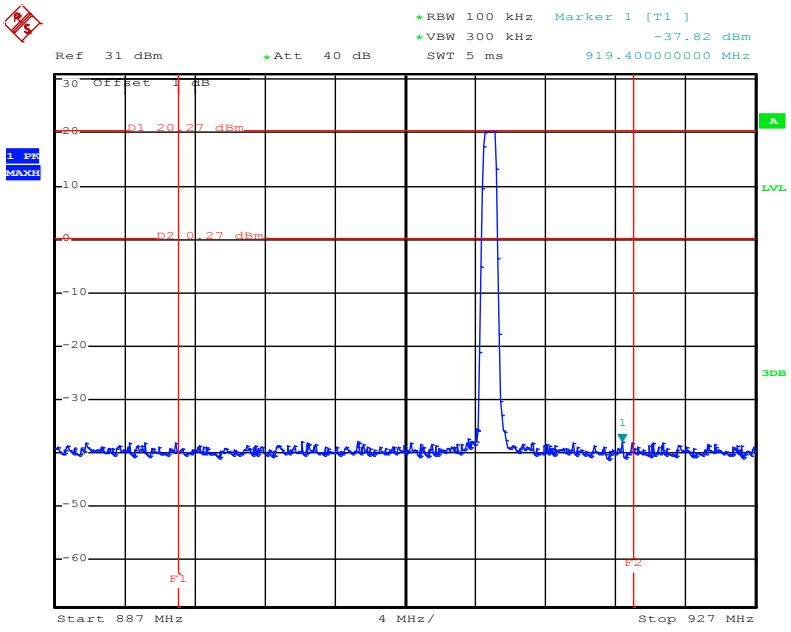
Date: 30.JAN.2018 06:07:13

6.6 Band Edge

6.6.1 Conducted Emission Method

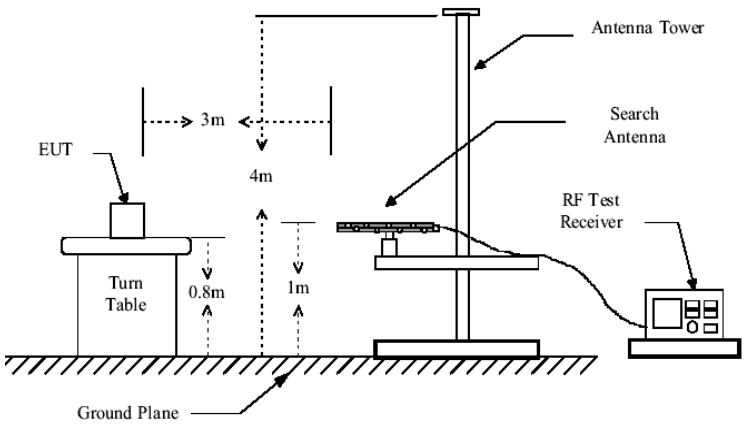
Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-247 section 5.5
Test Method:	ANSI C63.10:2013 and 558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

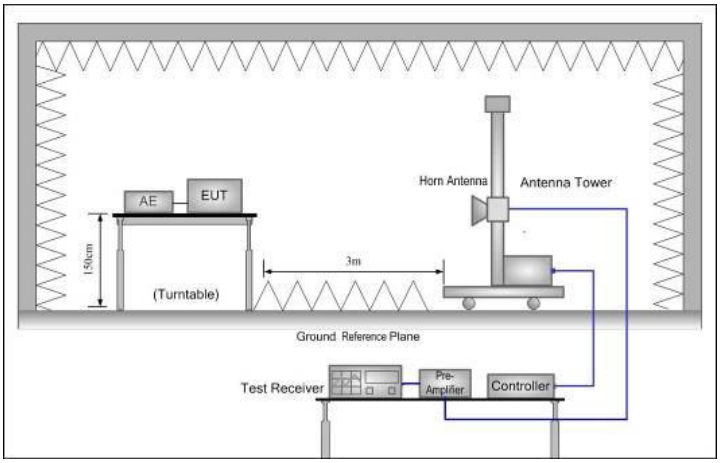
Test plots as follow:



Date: 30.JAN.2018 06:01:03

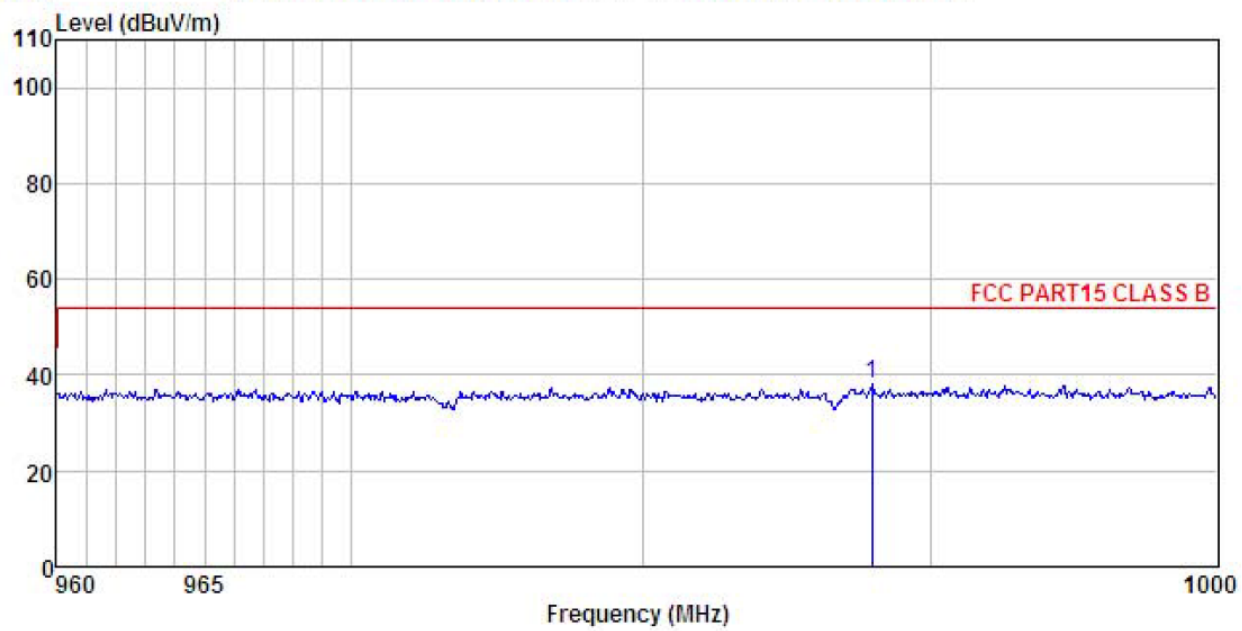
6.6.2 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205
RSS-GEN section 8.10</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013and 558074</td></tr>
<tr><td>Test Frequency Range:</td><td>960MHz to 1.240GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</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>960MHz-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>RMS</td><td>1MHz</td><td>3MHz</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>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 0.8m(below 1GHz) /1.5m(above 1GHz) above the groundat a 3 meter chamber.The table was rotated 360 degrees todetermine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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 thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz
 
</td></tr>
</table>

	Above 1GHz 
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test channel: Lowest

Horizontal:

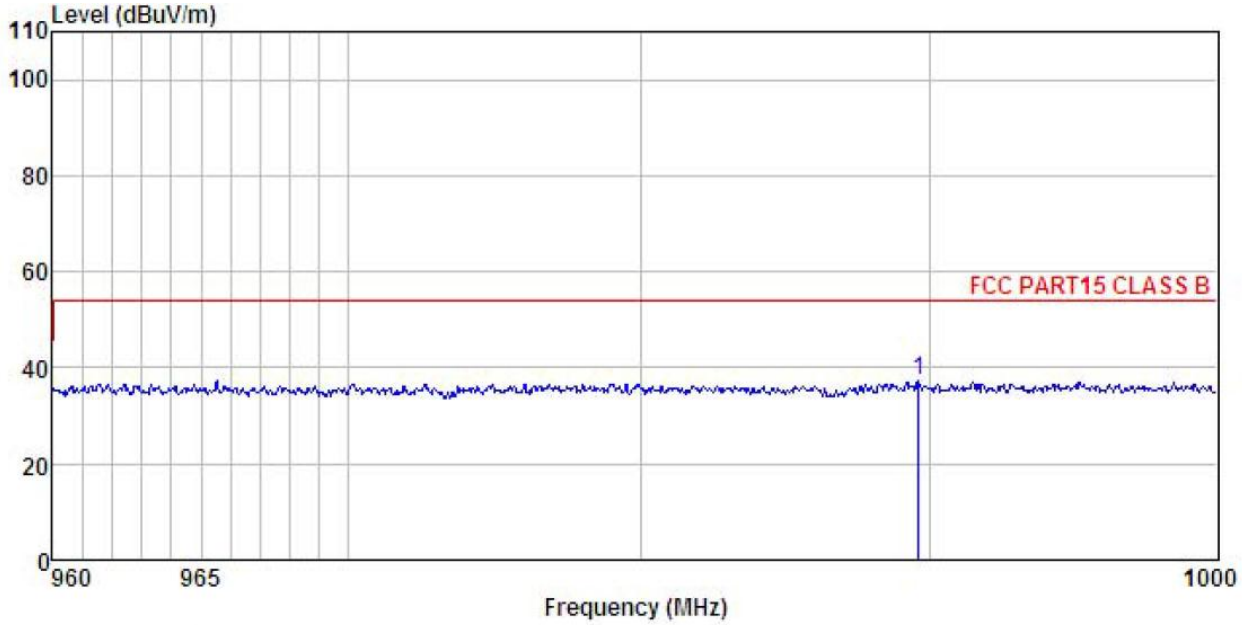


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) HORIZONTAL
EUT : Connected
Model : RX3200
Test mode : TX mode
Power Rating : DC 3.7V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: YT
Remark :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	987.909	12.01	21.65	4.41	0.00	38.07	54.00	-15.93	

Test channel: Lowest

Vertical:

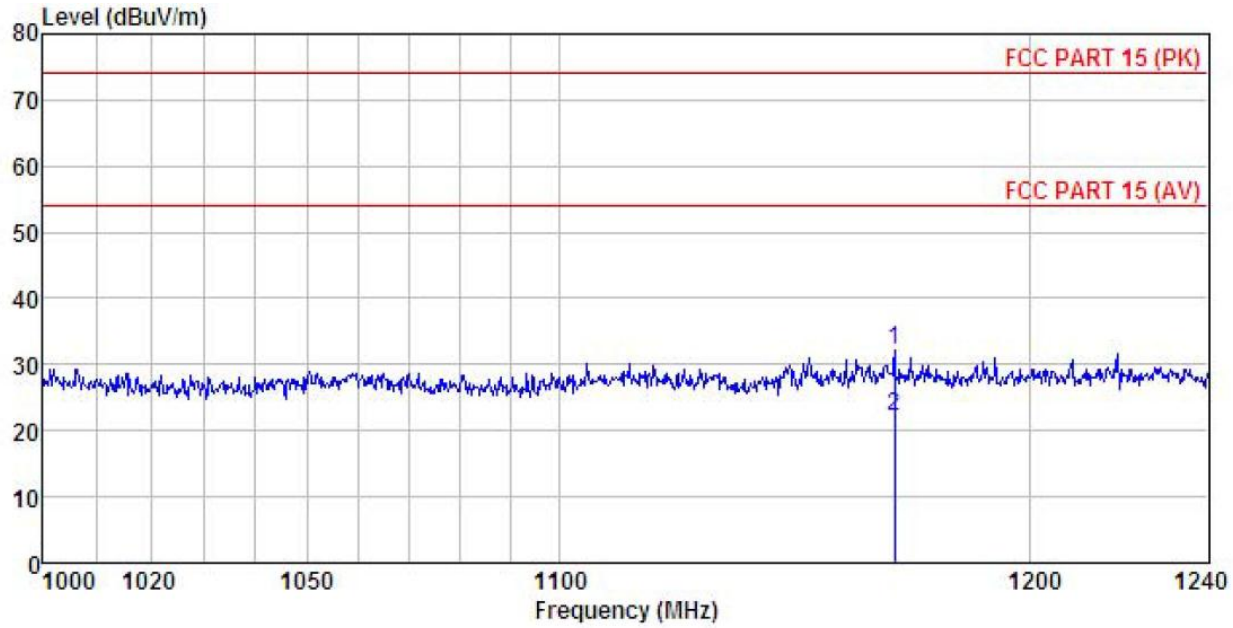


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) VERTICAL
EUT : Connected
Model : RX3200
Test mode : TX mode
Power Rating : DC 3.7V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: YT
Remark :

	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	989.564	11.26	21.67	4.41	0.00	37.34	54.00	-16.66	QP

Test channel: Highest

Horizontal:

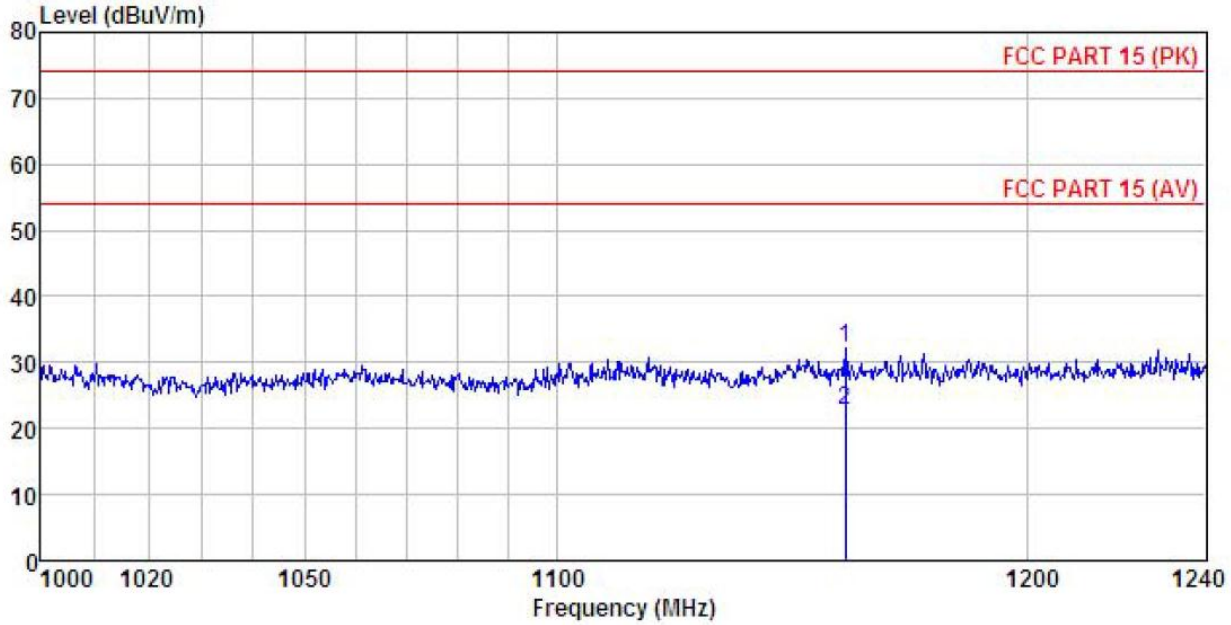


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT : Connected
Model : RX3200
Test mode : TX mode
Power Rating : DC 3.7V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: YT
Remark :

	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	1170.284	47.23	23.70	0.00	41.11	32.25	74.00	-41.75	Peak
2	1170.284	37.24	23.70	0.00	41.11	22.26	54.00	-31.74	Average

Test channel: Highest

Vertical:

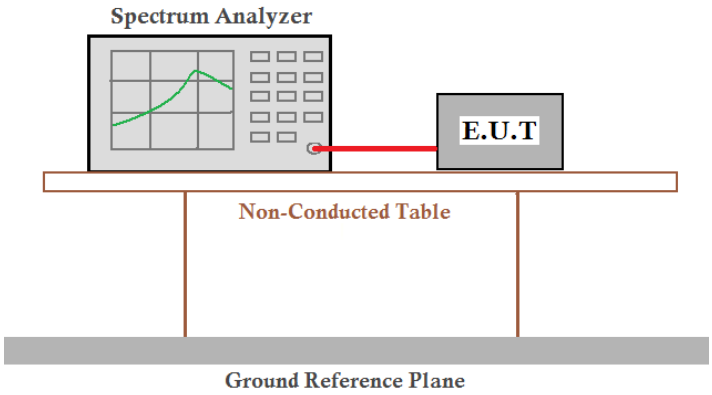


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : Connected
Model : RX3200
Test mode : TX mode
Power Rating : DC 3.7V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: YT
Remark :

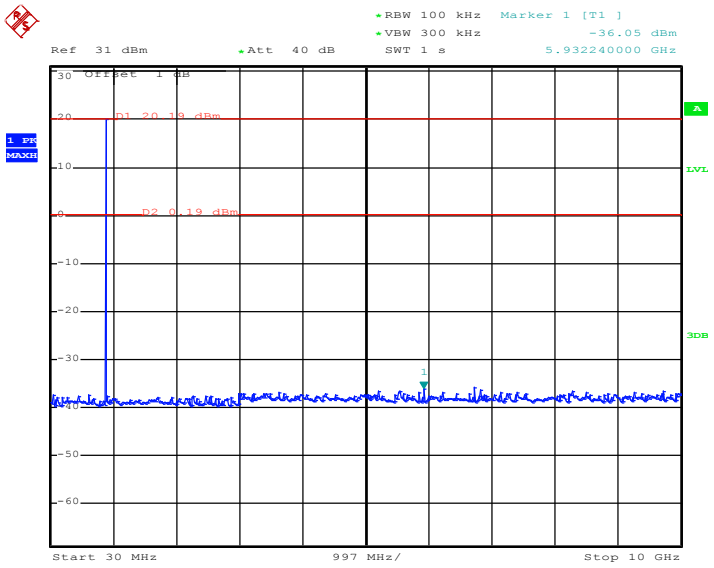
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1160.257	47.02	23.75	0.00	41.12	32.05	74.00	-41.95	Peak
2	1160.257	37.64	23.75	0.00	41.12	22.67	54.00	-31.33	Average

6.7 Spurious Emission

6.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-247 section 5.5
Test Method:	ANSI C63.10:2013 and 558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plot as follows:

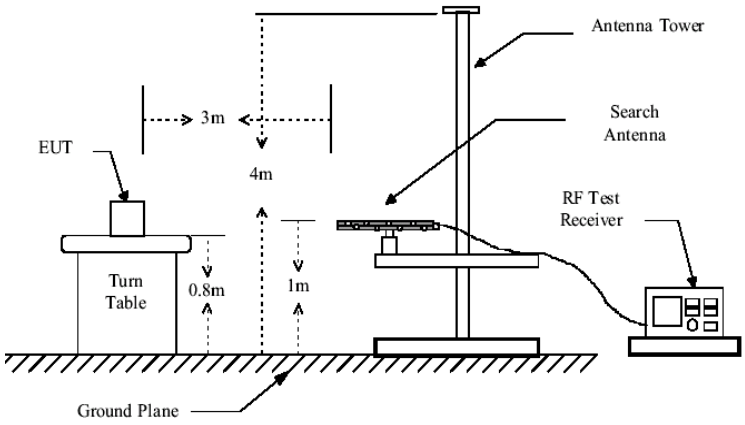
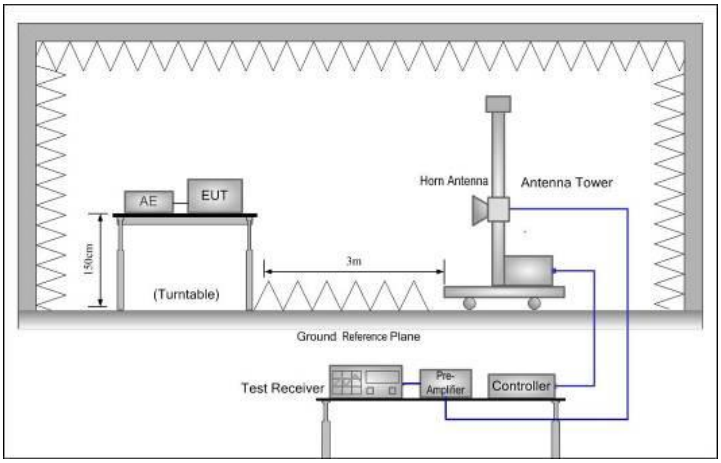


Date: 30.JAN.2018 05:54:12

30MHz~10GHz

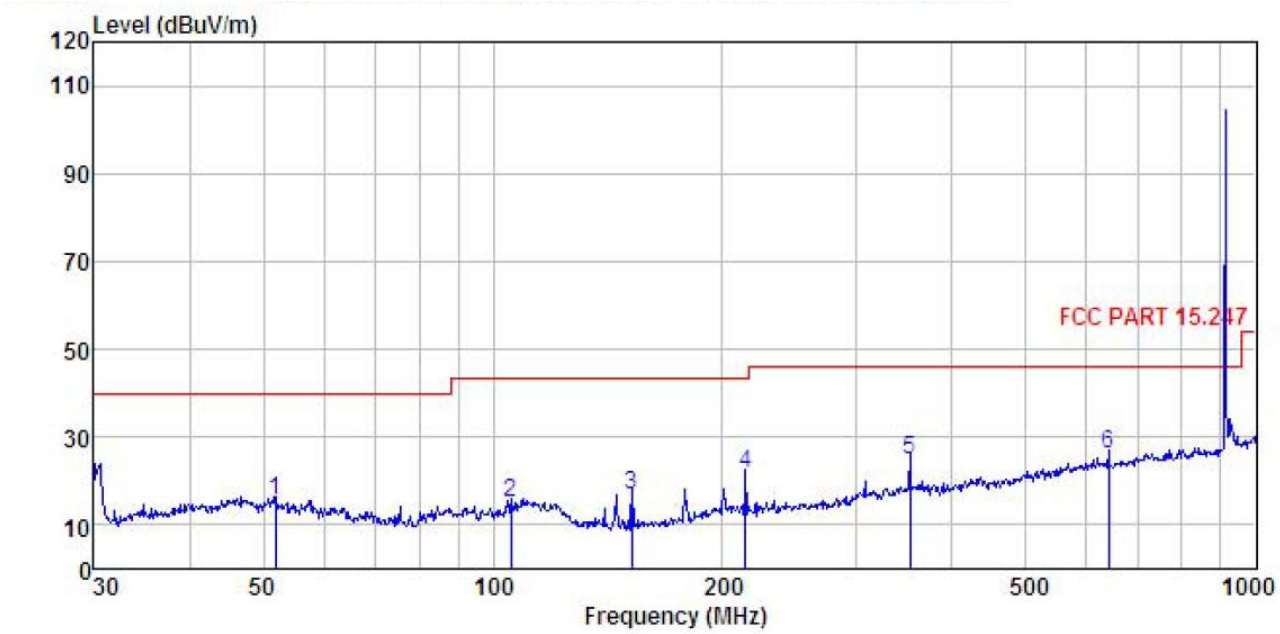
6.7.2 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205
RSS-Gen section 6.13</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9KHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</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>RMS</td><td>1MHz</td><td>3MHz</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 Procedure:</td><td>1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the groundat a 3 meter chamber.The table was rotated 360 degrees todetermine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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 thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.</td></tr>
</table>

Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 2. 9 kHz to 30MHz is too low, so only shows the data of above 30MHz in this report.

Below 1GHz

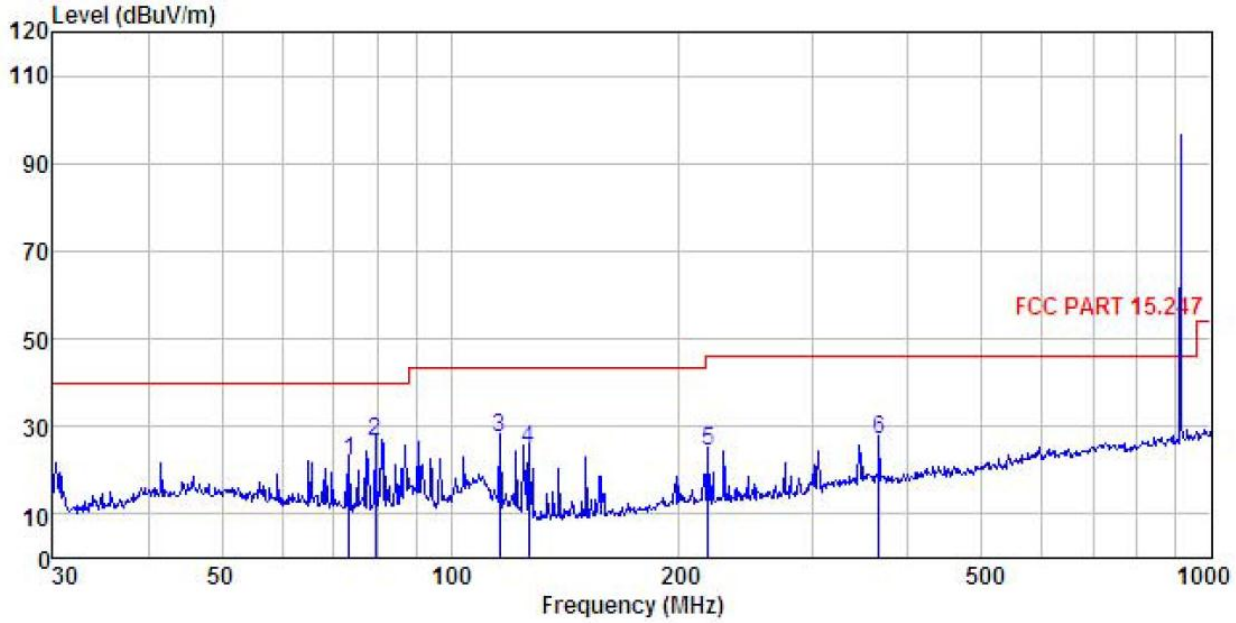
Horizontal:



Site : 3m chamber
Condition : FCC PART 15.247 3m VULB9163(30M2G) HORIZONTAL
EUT : Connected
Model : RX3200
Test mode : TX mode
Power Rating : DC 3.7V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: YT
Remark :

	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	51.843	29.93	14.08	1.27	29.81	15.47	40.00	-24.53	QP
2	105.642	30.41	12.12	2.00	29.49	15.04	43.50	-28.46	QP
3	152.130	35.16	8.52	2.53	29.20	17.01	43.50	-26.49	QP
4	214.514	36.13	11.30	2.85	28.74	21.54	43.50	-21.96	QP
5	351.708	35.62	14.77	3.10	28.57	24.92	46.00	-21.08	QP
6	640.611	32.32	18.54	3.88	28.81	25.93	46.00	-20.07	QP

Vertical:



Site : 3m chamber
Condition : FCC PART 15.247 3m VULB9163(30M2G) VERTICAL
EUT : Connected
Model : RX3200
Test mode : TX mode
Power Rating : DC 3.7V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: YT
Remark :

	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	73.617	40.81	9.52	1.61	29.69	22.25	40.00	-17.75	QP
2	79.521	46.26	8.50	1.65	29.64	26.77	40.00	-13.23	QP
3	116.132	43.58	10.98	2.12	29.42	27.26	43.50	-16.24	QP
4	126.772	42.78	9.28	2.25	29.35	24.96	43.50	-18.54	QP
5	218.309	38.76	11.30	2.85	28.72	24.19	46.00	-21.81	QP
6	365.539	38.02	14.58	3.09	28.63	27.06	46.00	-18.94	QP

Above 1GHz

Peak value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1830.00	65.32	23.17	4.15	41.27	51.37	74.00	-22.63	Vertical
2745.00	62.15	24.67	5.08	41.72	50.18	74.00	-23.82	Vertical
3660.00	53.25	29.33	5.95	41.62	46.91	74.00	-27.09	Vertical
4575.00	46.25	34.89	6.87	42.12	45.89	74.00	-28.11	Vertical
5490.00	45.14	34.66	7.55	41.89	45.46	74.00	-28.54	Vertical
6405.00	47.69	35.91	8.24	41.92	49.92	74.00	-24.08	Vertical
1830.00	64.02	23.17	4.15	41.27	50.07	74.00	-23.93	Horizontal
2745.00	63.46	24.67	5.08	41.72	51.49	74.00	-22.51	Horizontal
3660.00	54.51	29.33	5.95	41.62	48.17	74.00	-25.83	Horizontal
4575.00	47.35	34.89	6.87	42.12	46.99	74.00	-27.01	Horizontal
5490.00	47.15	34.66	7.55	41.89	47.47	74.00	-26.53	Horizontal
6405.00	48.41	35.91	8.24	41.92	50.64	74.00	-23.36	Horizontal
Average value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1830.00	59.62	23.17	4.15	41.27	45.67	54.00	-8.33	Vertical
2745.00	58.15	24.67	5.08	41.72	46.18	54.00	-7.82	Vertical
3660.00	49.62	29.33	5.95	41.62	43.28	54.00	-10.72	Vertical
4575.00	45.25	34.89	6.87	42.12	44.89	54.00	-9.11	Vertical
5490.00	45.26	34.66	7.55	41.89	45.58	54.00	-8.42	Vertical
6405.00	46.39	35.91	8.24	41.92	48.62	54.00	-5.38	Vertical
1830.00	60.57	23.17	4.15	41.27	46.62	54.00	-7.38	Horizontal
2745.00	60.02	24.67	5.08	41.72	48.05	54.00	-5.95	Horizontal
3660.00	50.47	29.33	5.95	41.62	44.13	54.00	-9.87	Horizontal
4575.00	44.62	34.89	6.87	42.12	44.26	54.00	-9.74	Horizontal
5490.00	46.19	34.66	7.55	41.89	46.51	54.00	-7.49	Horizontal
6405.00	45.79	35.91	8.24	41.92	48.02	54.00	-5.98	Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*