

# FCC REPORT

Applicant: Shenzhen Chuan Qisheng Science and technology Co.,Ltd

Address of Applicant: Bock C,Huawan industrial park,Gushu Section,  
Baoan Rd.,Baoan district,ShenZhen City

Equipment Under Test (EUT)

Product Name: Remote control

Model No.: TS-Y150

FCC ID: Z9LTS-Y150R

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249

Date of sample receipt: Nov.07, 2011

Date of Test: Nov. 07-22, 2011

Date of report issued: Nov. 23, 2011

Test Result : PASS \*

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

Authorized Signature:



Stephen Guo  
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	Nov. 23, 2011	Original

**Prepared By:**

*Collin He*

**Date:**

*Nov. 23, 2011*

**Project Engineer**

**Check By:**

*Hans. Hu*

**Date:**

*Nov. 23, 2011*

**Reviewer**

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## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

*Pass: The EUT comply with the essential requirements in the standard.*

## 5 General Information

### 5.1 Client Information

Applicant:	Shenzhen Chuan Qisheng Science and technology Co.,Ltd
Address of Applicant:	Bock C,Huawan industrial park,Gushu Section, Baoan Rd.,Baoan district,ShenZhen City
Manufacturer/ Factory:	Shenzhen Chuan Qisheng Science and technology Co.,Ltd
Address of Manufacturer/ Factory:	Bock C,Huawan industrial park,Gushu Section, Baoan Rd.,Baoan district,ShenZhen City

### 5.2 General Description of E.U.T.

Product Name:	Remote control
Model No.:	TS-Y150
Operation Frequency:	2404MHz to 2479MHz
Channel numbers:	32
Modulation type:	GFSK
Antenna Type:	PCB antenna
Antenna gain:	0dBi
Power supply:	DC 5.0V ( USB port supply)

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:

Channel	Frequency
The lowest channel	2404MHz
The middle channel	2440MHz
The Highest channel	2479MHz

## 5.3 Test mode

Operation mode:	Keep the USB dongle unit in continuous transmitting mode		
Pre-Test Mode: (lowest channel=2404MHz)			
GTS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:			
Axis	X	Y	Z
Field Strength(dBuV/m)	81.38	80.04	79.68
Final Test Mode:			
According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”: X axis (see the test setup photo)			

## 5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
IBM,	Laptop	T42	L3-G0686	DoC

## 5.5 Test Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <p><b>FCC —Registration No.: 600491</b></p> <p>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, July 20, 2010.</p> <p><b>Industry Canada (IC)</b></p> <p>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-1.</p>
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## 5.6 Test Location

All tests were performed at:
<p>Global United Technology Services Co., Ltd.</p> <p>Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China</p> <p>Tel: 0755-27798480</p> <p>Fax: 0755-27798960</p>

## 5.7 Other Information Requested by the Customer

None.
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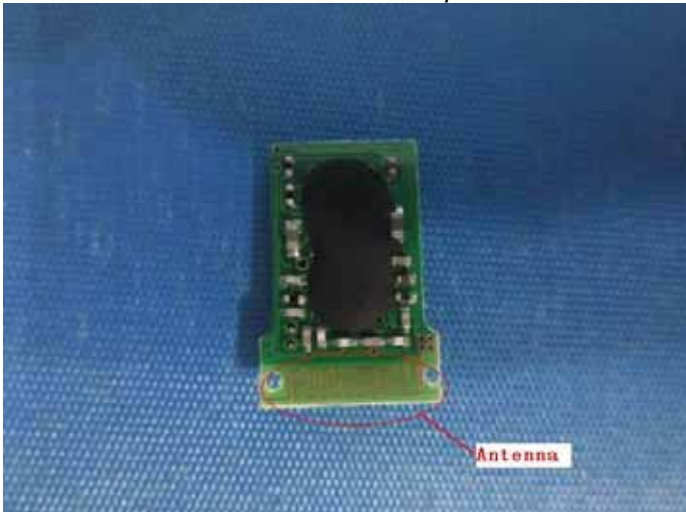
## 5.8 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2012
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 04 2011	Jul. 03 2012
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 26 2011	Feb. 25 2012
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 30 2011	June 29 2012
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2011	Mar. 29 2012
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Apr. 01 2011	Mar. 31 2012
9	Coaxial Cable	GTS	N/A	GTS211	Apr. 01 2011	Mar. 31 2012
9	Coaxial cable	GTS	N/A	GTS210	Apr. 01 2011	Mar. 31 2012
11	Coaxial Cable	GTS	N/A	GTS212	Apr. 01 2011	Mar. 31 2012
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 04 2011	Jul. 03 2012
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 04 2011	Jul. 03 2012
14	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 30 2011	June 29 2012
15	Band filter	Amindeon	82346	GTS219	June 30 2011	June 29 2012

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)	GTS252	Jul. 04 2011	Jul. 03 2012
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 04 2011	Jul. 03 2012
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 04 2011	Jul. 03 2012
4	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 04 2011	Jul. 03 2012
5	Coaxial Cable	GTS	N/A	GTS227	Apr. 01 2011	Mar. 31 2012
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

## 6 Test results and Measurement Data

### 6.1 Antenna requirement:

<b>Standard requirement:</b>	FCC Part15 C Section 15.203
<p>15.203 requirement:  <i>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.</i></p>	
<b>E.U.T Antenna:</b>	
<p><i>The antenna is no consideration of replacement. The best case gain of the antenna is 0dBi.</i></p> 	



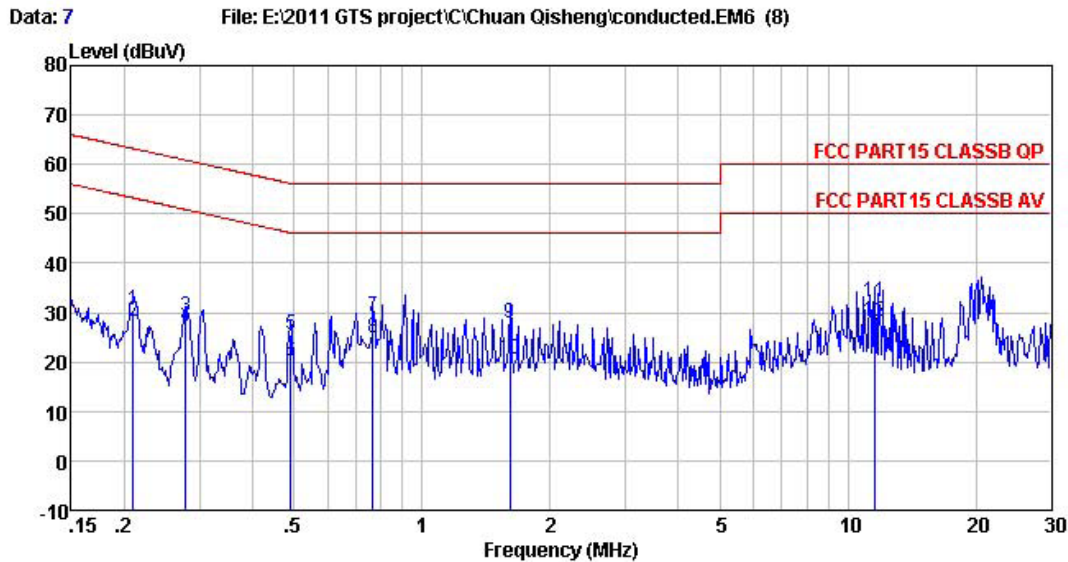
## 6.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.4:2009		
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 procedure	<div>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.</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 refers 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: 2009 on conducted measurement.</div>		
Test setup:	<div><div><div>Reference Plane</div><div><div><div>LISN</div><div>AUX Equipment</div><div>E.U.T</div></div><div>40cm</div><div>80cm</div><div><div>LISN</div><div>Filter</div><div>EMI Receiver</div></div><div>AC power</div><div>Test table/Insulation plane</div></div></div><div>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</div></div>		
Test Instruments:	Refer to section 5.8		
Test mode:	Refer to section 5.3		
Test results:	Passed		

### Measurement Data

## Measurement Data

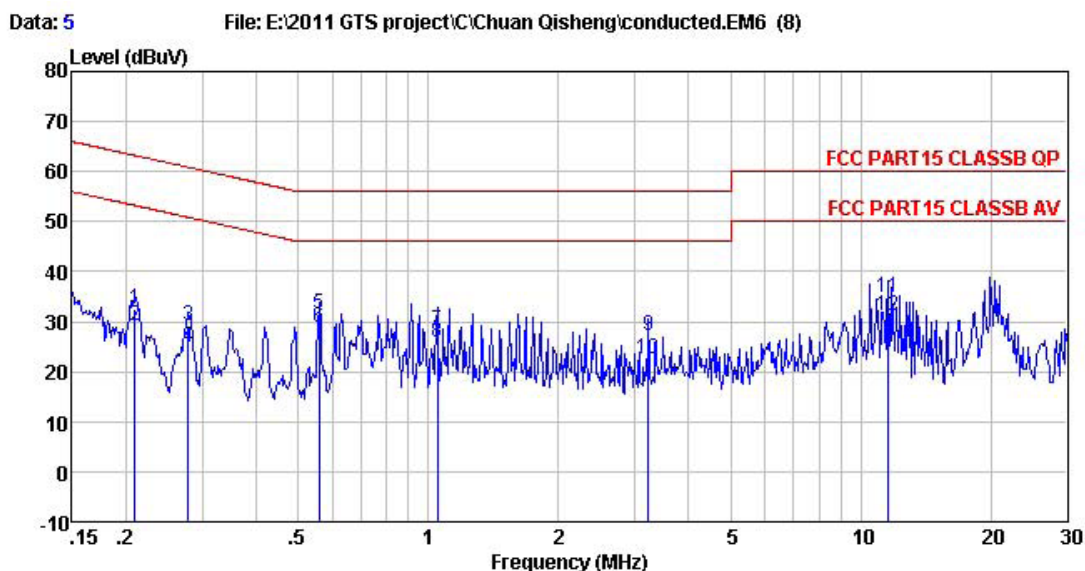
Live Line:



Condition : FCC PART15 CLASSB QP LISN(2011) LINE  
 Job No. : 894RF  
 Test Mode : Operation mode  
 Test Engineer: Gavin

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.209	29.68	0.65	0.10	30.43	63.23	-32.80	QP
2	0.209	27.49	0.65	0.10	28.24	53.23	-24.99	Average
3	0.279	28.49	0.62	0.10	29.21	60.85	-31.64	QP
4	0.279	26.35	0.62	0.10	27.07	50.85	-23.78	Average
5	0.491	24.84	0.56	0.10	25.50	56.14	-30.64	QP
6	0.491	19.58	0.56	0.10	20.24	46.14	-25.90	Average
7	0.767	28.66	0.51	0.10	29.27	56.00	-26.73	QP
8	0.767	24.26	0.51	0.10	24.87	46.00	-21.13	Average
9	1.610	27.42	0.42	0.10	27.94	56.00	-28.06	QP
10	1.610	20.02	0.42	0.10	20.54	46.00	-25.46	Average
11	11.559	31.69	0.21	0.20	32.10	60.00	-27.90	QP
12	11.559	27.83	0.21	0.20	28.24	50.00	-21.76	Average

Neutral Line:



Condition : FCC PART15 CLASSB QP LISN(2011) NEUTRAL  
 Job No. : 894RF  
 Test Mode : Operation mode  
 Test Engineer: Gavin

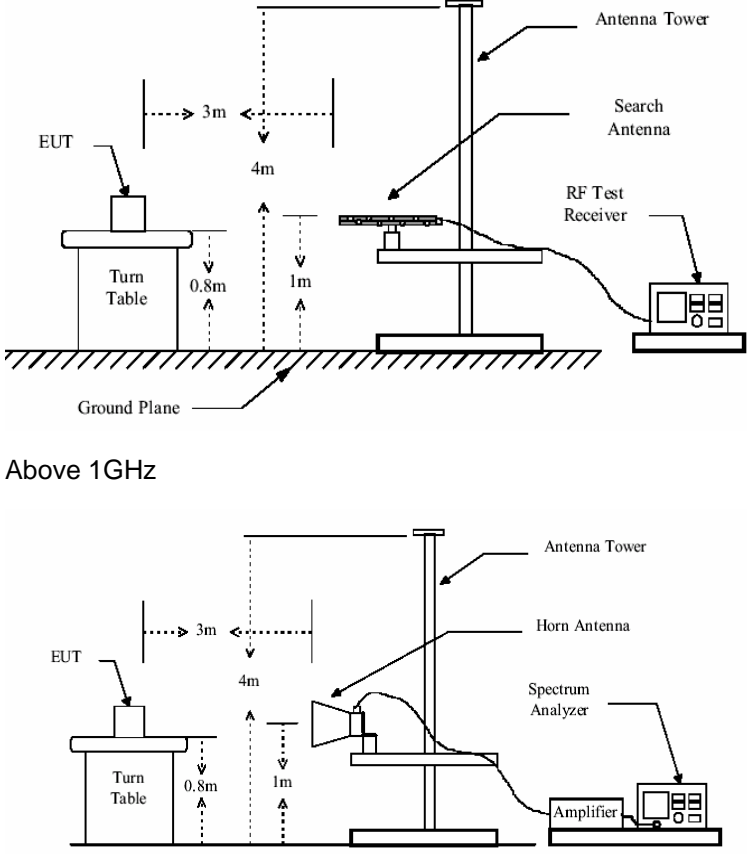
	Read	LISN	Cable		Limit	Over	
Freq	Level	Factor	Loss	Level	Line	Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.209	31.63	0.65	0.10	32.38	63.23	-30.85 QP
2	0.209	28.52	0.65	0.10	29.27	53.23	-23.96 Average
3	0.279	28.48	0.62	0.10	29.20	60.85	-31.65 QP
4	0.279	24.11	0.62	0.10	24.83	50.85	-26.02 Average
5	0.558	30.98	0.54	0.10	31.62	56.00	-24.38 QP
6	0.558	28.18	0.54	0.10	28.82	46.00	-17.18 Average
7	1.049	27.64	0.47	0.10	28.21	56.00	-27.79 QP
8	1.049	25.14	0.47	0.10	25.71	46.00	-20.29 Average
9	3.224	26.78	0.35	0.10	27.23	56.00	-28.77 QP
10	3.224	22.23	0.35	0.10	22.68	46.00	-23.32 Average
11	11.559	34.48	0.21	0.20	34.89	60.00	-25.11 QP
12	11.559	30.66	0.21	0.20	31.07	50.00	-18.93 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 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.249 and 15.209				
Test Method:	ANSI C63.4:2009				
Test Frequency Range:	30MHz to 25000MHz				
Test site:	Measurement Distance: 3m				
Receiver setup:					
	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit: (Field strength of the fundamental signal)					
	Frequency		Limit (dBuV/m @3m)	Remark	
	2400MHz-2483.5MHz		94.00	Average Value	
			114.00	Peak Value	
Limit: (Spurious Emissions)					
	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		
Limit: (band edge)	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.				
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 rotatable 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 Instruments:	Refer to section 5.8
Test mode:	Refer to section 5.3
Test results:	Passed

## Measurement Data

### 6.3.1 Field Strength Of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2404.00	81.55	27.54	3.83	34.84	78.08	114.00	-35.92	Horizontal
2404.00	82.54	27.54	3.83	34.84	79.07	114.00	-34.93	Vertical
2440.00	80.96	27.46	3.85	34.85	77.42	114.00	-36.58	Horizontal
2440.00	81.17	27.46	3.85	34.85	77.63	114.00	-36.37	Vertical
2479.00	83.56	27.52	3.89	34.86	80.11	114.00	-33.89	Horizontal
2479.00	84.83	27.52	3.89	34.86	81.38	114.00	-32.62	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2404.00	72.69	27.54	3.83	34.84	69.22	94.00	-24.78	Horizontal
2404.00	73.66	27.54	3.83	34.84	70.19	94.00	-23.81	Vertical
2440.00	71.67	27.46	3.85	34.85	68.13	94.00	-25.87	Horizontal
2440.00	72.55	27.46	3.85	34.85	69.01	94.00	-24.99	Vertical
2479.00	74.89	27.52	3.89	34.86	71.44	94.00	-22.56	Horizontal
2479.00	75.36	27.52	3.89	34.86	71.91	94.00	-22.09	Vertical

### 6.3.2 Spurious Emissions

30MHz~1GHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
54.643	44.74	13.06	0.34	31.99	26.15	40.00	-13.85	Vertical
67.913	46.19	9.47	0.39	31.89	24.16	40.00	-15.84	Vertical
115.726	42.75	11.21	0.53	31.79	22.70	43.50	-20.80	Vertical
366.823	37.41	14.48	1.19	32.31	20.77	46.00	-25.23	Vertical
499.425	42.02	16.58	1.46	31.62	28.44	46.00	-17.56	Vertical
912.862	40.09	21.18	2.18	31.47	31.98	46.00	-14.02	Vertical
52.760	43.33	13.14	0.33	31.99	24.81	40.00	-15.19	Horizontal
103.080	42.74	12.87	0.49	31.71	24.39	43.50	-19.11	Horizontal
199.286	40.19	10.57	0.70	32.25	19.21	43.50	-24.29	Horizontal
290.017	38.00	12.86	1.05	32.30	19.61	46.00	-26.39	Horizontal
499.425	39.59	16.58	1.46	31.62	26.01	46.00	-19.99	Horizontal
906.482	39.42	21.15	2.17	31.46	31.28	46.00	-14.72	Horizontal

### Above 1GHz

Test channel:	Lowest	Level:	Peak
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4808.00	44.16	31.53	5.87	35.46	46.10	74.00	-27.90	Vertical
7212.00	44.89	36.47	7.10	35.31	53.15	74.00	-20.85	Vertical
9616.00	45.08	38.10	9.01	35.72	56.47	74.00	-17.53	Vertical
12010.00	*					74.00		Vertical
14412.00	*					74.00		Vertical
4808.00	43.48	31.53	5.87	35.46	45.42	74.00	-28.58	Horizontal
7212.00	44.21	36.47	7.10	35.31	52.47	74.00	-21.53	Horizontal
9616.00	44.40	38.10	9.01	35.72	55.79	74.00	-18.21	Horizontal
12010.00	*					74.00		Horizontal
14412.00	*					74.00		Horizontal

Test channel:	Lowest	Level:	Average
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4808.00	35.31	31.53	5.87	35.46	37.25	54.00	-16.75	Vertical
7212.00	36.04	36.47	7.10	35.31	44.30	54.00	-9.70	Vertical
9616.00	36.23	38.10	9.01	35.72	47.62	54.00	-6.38	Vertical
12010.00	*					54.00		Vertical
14412.00	*					54.00		Vertical
4808.00	34.75	31.53	5.87	35.46	36.69	54.00	-17.31	Horizontal
7212.00	35.48	36.47	7.10	35.31	43.74	54.00	-10.26	Horizontal
9616.00	35.67	38.10	9.01	35.72	47.06	54.00	-6.94	Horizontal
12010.00	*					54.00		Horizontal
14412.00	*					54.00		Horizontal

### Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*” means this data is too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test channel:	Middle	Level:	Peak
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4880.00	44.80	31.58	5.91	35.48	46.81	74.00	-27.19	Vertical
7320.00	46.52	36.48	7.14	35.27	54.87	74.00	-19.13	Vertical
9760.00	44.66	38.45	9.06	35.75	56.42	74.00	-17.58	Vertical
12205.00	*					74.00		Vertical
14480.00	*					74.00		Vertical
4880.00	44.12	31.58	5.91	35.48	46.13	74.00	-27.87	Horizontal
7320.00	45.84	36.48	7.14	35.27	54.19	74.00	-19.81	Horizontal
9760.00	43.98	38.45	9.06	35.75	55.74	74.00	-18.26	Horizontal
12205.00	*					74.00		Horizontal
14480.00	*					74.00		Horizontal

Test channel:	Middle	Level:	Average
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4880.00	35.95	31.58	5.91	35.48	37.96	54.00	-16.04	Vertical
7320.00	37.67	36.48	7.14	35.27	46.02	54.00	-7.98	Vertical
9760.00	35.81	38.45	9.06	35.75	47.57	54.00	-6.43	Vertical
12205.00	*					54.00		Vertical
14480.00	*					54.00		Vertical
4880.00	35.39	31.58	5.91	35.48	37.40	54.00	-16.60	Horizontal
7320.00	37.11	36.48	7.14	35.27	45.46	54.00	-8.54	Horizontal
9760.00	35.25	38.45	9.06	35.75	47.01	54.00	-6.99	Horizontal
12205.00	*					54.00		Horizontal
14480.00	*					54.00		Horizontal

**Remark:**

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*”, means this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test channel:	Highest	Level:	Peak
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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
4958.00	44.51	31.69	5.97	35.49	46.68	74.00	-27.32	Vertical
7437.00	45.10	36.60	7.18	35.23	53.65	74.00	-20.35	Vertical
9916.00	45.56	38.66	9.11	35.78	57.55	74.00	-16.45	Vertical
12400.00	*					74.00		Vertical
14646.00	*					74.00		Vertical
4958.00	43.83	31.69	5.97	35.49	46.00	74.00	-28.00	Horizontal
7437.00	44.42	36.60	7.18	35.23	52.97	74.00	-21.03	Horizontal
9916.00	44.88	38.66	9.11	35.78	56.87	74.00	-17.13	Horizontal
12400.00	*					74.00		Horizontal
14646.00	*					74.00		Horizontal

Test channel:	Highest	Level:	Average
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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
4958.00	35.66	31.69	5.97	35.49	37.83	54.00	-16.17	Vertical
7437.00	36.25	36.60	7.18	35.23	44.80	54.00	-9.20	Vertical
9916.00	35.71	38.66	9.11	35.78	47.70	54.00	-6.30	Vertical
12400.00	*					54.00		Vertical
14646.00	*					54.00		Vertical
4958.00	35.10	31.69	5.97	35.49	37.27	54.00	-16.73	Horizontal
7437.00	35.69	36.60	7.18	35.23	44.24	54.00	-9.76	Horizontal
9916.00	35.15	38.66	9.11	35.78	47.14	54.00	-6.86	Horizontal
12400.00	*					54.00		Horizontal
14646.00	*					54.00		Horizontal

**Remark:**

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*”, means this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

## 6.3.3 Band edge (Radiated Emission)

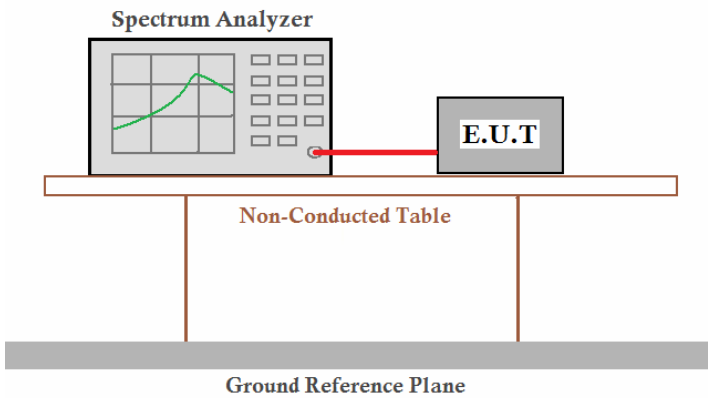
Test channel:		Lowest			Level:		Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	42.56	27.58	3.81	34.83	39.12	74.00	-34.88	Horizontal
2400.00	54.29	27.58	3.83	34.83	50.87	74.00	-23.13	Horizontal
2390.00	43.86	27.58	3.81	34.83	40.42	74.00	-33.58	Vertical
2400.00	55.96	27.58	3.83	34.83	52.54	74.00	-21.46	Vertical

Test channel:		Lowest			Level:		Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	33.27	27.58	3.81	34.83	29.83	54.00	-24.17	Horizontal
2400.00	45.83	27.58	3.83	34.83	42.41	54.00	-11.59	Horizontal
2390.00	34.16	27.58	3.81	34.83	30.72	54.00	-23.28	Vertical
2400.00	46.28	27.58	3.83	34.83	42.86	54.00	-11.14	Vertical

Test channel:		Highest			Level:		Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	57.01	27.52	3.89	34.86	53.56	74.00	-20.44	Horizontal
2500.00	46.93	27.55	3.90	34.87	43.51	74.00	-30.49	Horizontal
2483.50	57.94	27.52	3.89	34.86	54.49	74.00	-19.51	Vertical
2500.00	47.31	27.55	3.90	34.87	43.89	74.00	-30.11	Vertical

Test channel:		Highest			Level:		Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	47.89	27.52	3.89	34.86	44.44	54.00	-9.56	Horizontal
2500.00	37.67	27.55	3.90	34.87	34.25	54.00	-19.75	Horizontal
2483.50	48.67	27.52	3.89	34.86	45.22	54.00	-8.78	Vertical
2500.00	38.89	27.55	3.90	34.87	35.47	54.00	-18.53	Vertical

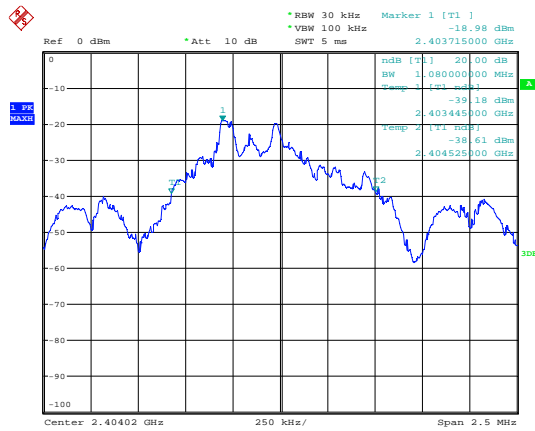
## 6.4 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.4:2009
Receiver setup:	RBW=30KHz, VBW=100KHz, detector: Peak
Limit:	Operation Frequency range 2400MHz-2483.5MHz
Test Procedure:	<ol style="list-style-type: none"> <li>1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>2. Set the EUT to proper test channel.</li> <li>3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.</li> <li>4. Read 20dB bandwidth.</li> </ol>
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.78for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

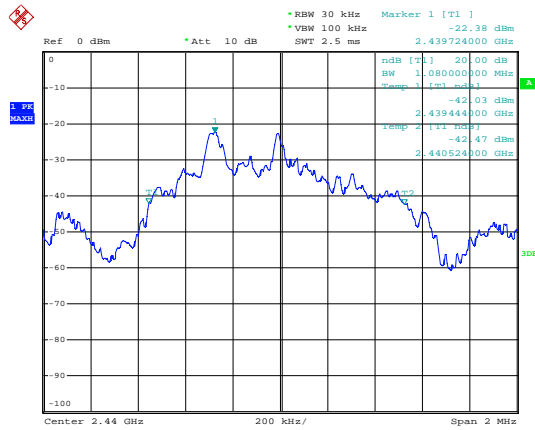
### Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	1.080	Pass
Middle	1.080	Pass
Highest	1.112	Pass

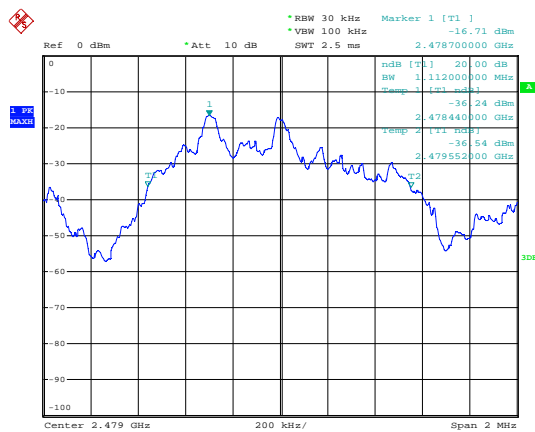
Test plot as follows:



Lowest channel



Middle channel



Highest channel