FCC PART 15 CLASS B

EMI MEASUREMENT AND TEST REPORT

For

Ningbo Yinzhou Wireless Electronic Limited Company

Shanglijia Village, Yunlong Town, Yinzhou District, Ningbo City, China

FCC ID: SM7WRS-SMT

April 1, 2013

This Report Concerns: Original Report	Equipment Type: Electric winch wireless receiver
Test Engineer:	Anna Lv
Report No.:	SHBST2013031507-1Y-1ER-3
Receive EUT Date/Test Date:	March 27, 2013 / March 28 - April 1, 2013
Reviewed By:	Mike Moo
Prepared By:	**Shenzhen BST Technology Co.,Ltd.** 3F,Weames Technology Building, No. 10 Kefa Road,Science Park, Nanshan District,Shenzhen,Guangdong,China Tel: 0755-26747751-3 Fax: 0755-26747751-3 ext.826

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1. GENERAL INFORMATION

1.1. Test Facility

The test site used to collect the radiated data is located on the address of
Global United Technology Service Co., Ltd
(FCC Registered Test Site Number: 600491) on
2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China 518102
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

(95% confidence levels, k=2)

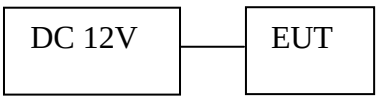
Test Item	**Uncertainty**
Uncertainty for Conduction emission test	1.38dB
Uncertainty for Radiation Emission test (below 1GHz)	4.68dB
Uncertainty for Radiation Emission test (above 1GHz)	4.89dB
Uncertainty for radio frequency	1×10^{-9}
Uncertainty for test site temperature and humidity	0.5℃
	2%

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant	:	Ningbo Yinzhou Wireless Electronic Limited Company
Address	:	Shanglijia Village, Yunlong Town, Yinzhou District, Ningbo City, China
Manufacturer	:	Ningbo Yinzhou Wireless Electronic Limited Company
Address	:	Shanglijia Village, Yunlong Town, Yinzhou District, Ningbo City, China
EUT Description	:	Electric winch wireless receiver
Trade Name	:	WRS
Model Number	:	WRS-SMT
Receiver frequency	:	315MHz
Power Supply	:	DC 12V

2.2. Block Diagram of EUT Configuration



2.3. Support Equipment List

Name	Model No	S/N	Manufacturer	Used "Yes/No"
N/A				

Remark: "N/A" means "Not applicable."

2.4. Test Conditions

Ambient conditions in the laboratory:

Items	**Required (IEC 68-1)**	**Actual**
Temperature (℃)	15-35	20-25
Humidity (%RH)	25-75	50-63
Barometric pressure (mbar)	860-1060	950-1000

3. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted disturbance	N/A
Radiated disturbance	Pass

Remark: “N/A” means “Not applicable.”

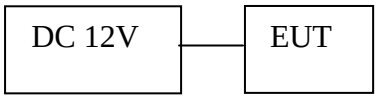
4. TEST EQUIPMENT USED

EQUIPMENT/FACILITIES	MANUFACTURER	MODEL	SERIAL NO.	DATE OF CAL.	CAL. INTERVAL
3m Semi-Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 20 2013	1 Year
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 04 2012	1 Year
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 25 2013	1 Year
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 30 2012	1 Year
Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 20 2013	1 Year
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Cable	Resenberger	N/A	NO.1	Mar. 20 2013	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Mar. 20 2013	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Mar. 20 2013	1 Year
Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 04 2012	1 Year
Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 04 2012	1 Year
Amplifier (18-26GHz)	R&S	AFS33-18002 650-30-8P-44	GTS218	June 30 2012	1 Year
Band filter	Amindeon	82346	GTS219	Mar. 20 2013	1 Year
Active Loop Antenna	Beijing Daze	ZN30900A	GTS215	Mar. 20 2013	1 Year
Power Meter	R&S	NRVS	GTS216	Mar. 20 2013	1 Year
Power Sensor	R&S	NRV-Z33	GTS220	Mar. 20 2013	1 Year
Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 08 2012	1 Year
EMI Test Receiver	R&S	ESCS30	GTS223	Jul. 04 2012	1 Year
10dB Pulse Limita	R&S	N/A	GTS224	Jul. 04 2012	1 Year
Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 04 2012	1 Year
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 04 2012	1 Year
Coaxial Cable	SCHWARZBECK	N/A	NO.4	Mar. 20 2013	1 Year
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Spectrum analyzer	agilent	E4440A	GTS251	N/A	N/A

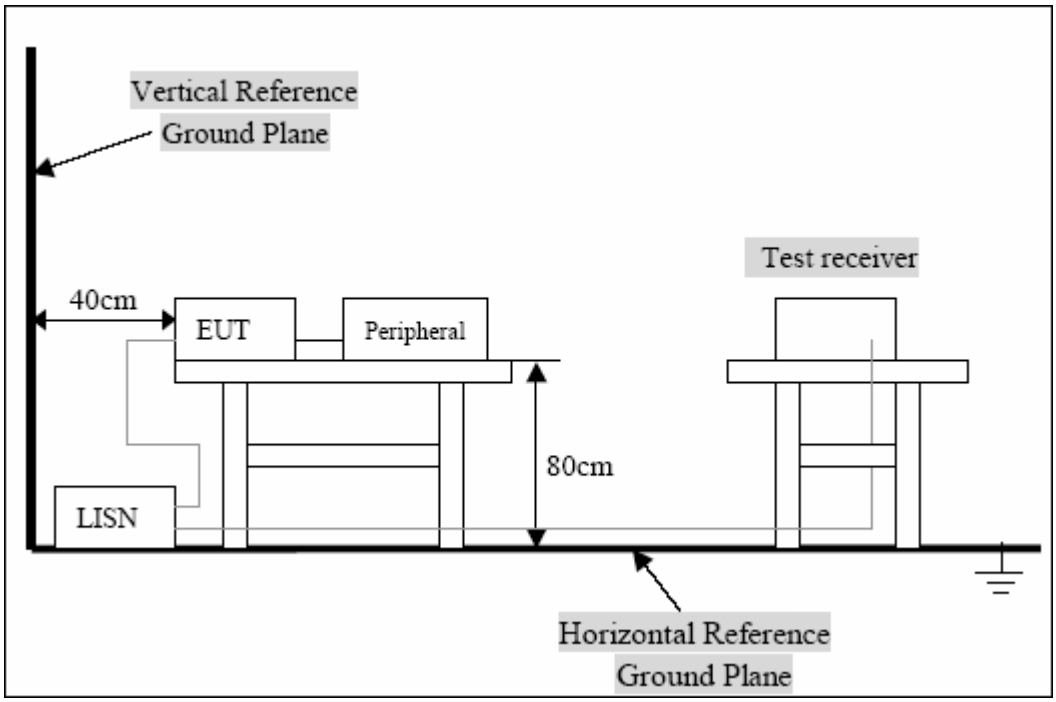
5. CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup

5.1.1.Block Diagram of connection between the EUT and the simulators



5.1.2.Test Setup Diagram



5.2. Test Standard

FCC Part 15 CLASS B

ANSI C63.4 2003

5.3. Conducted Emission Limit(Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.5. Operating Condition of EUT

5.5.1.Setup the EUT and simulators as shown in Section 5.1.

5.5.2.Turn on the power of all equipments.

5.5.3.Let the EUT work in test mode and test it.

5.6. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

5.7. Test Result

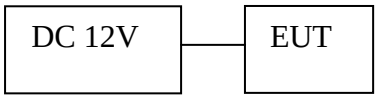
N/A.

This EUT is only powered by the battery, therefore this test item is not applicable.

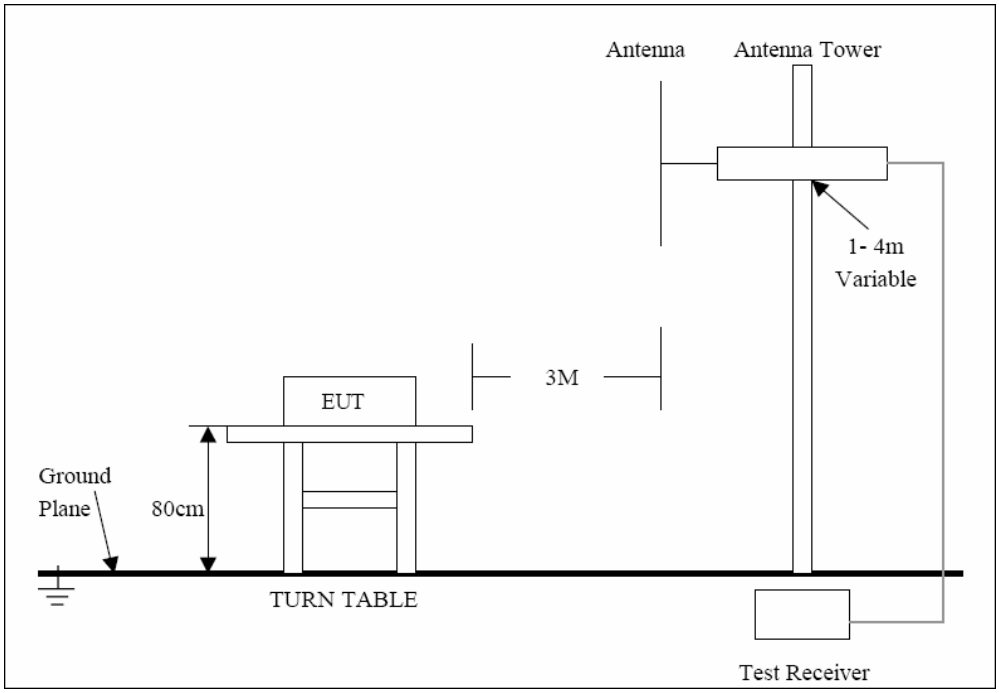
6. RADIATED EMISSION MEASUREMENT

6.1. Block Diagram of EUT Configuration

6.1.1.Block Diagram of connection between the EUT and the simulators



6.1.2.Semi-anechoic Chamber Test Setup Diagram



6.2. Test Standard

FCC Part 15 CLASS B
ANSI C63.4 2003

6.3. Radiated Emission Limit(Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
Above 1000	3	54.0

Note**:**(1) The smaller limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT or system.

6.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

6.5. Operating Condition of EUT

6.5.1.Setup the EUT as shown on Section 6.1

6.5.2.Turn on the power of all equipments.

6.5.3.Let the EUT work in test mode and test it.

6.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Calibrated Loop antenna is used as receiving antenna for frequencies below 30MHz, Calibrated Bilog antenna is used as receiving antenna for frequencies between 30 MHz and 1 GHz, Calibrated Horn antenna is used as receiving antenna for frequencies above 1000MHz. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz. and set at 1000kHz above1000MHz.

The final measurement in band above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The frequency range from 30MHz to 2000MHz is checked.All the test results are listed in Section 6.7. The measurements greater than 20dB below the limit are not report.

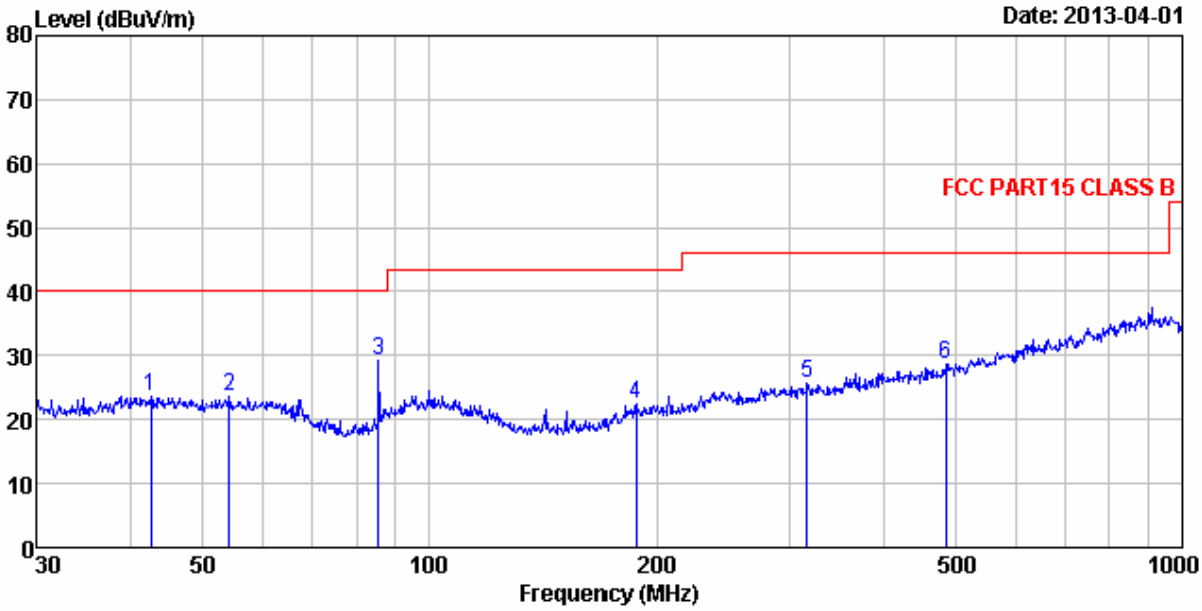
6.7. Test Result

PASS

The frequency range from 30MHz to 2000MHz is checked.

For 30MHz-1000MHz Spurious

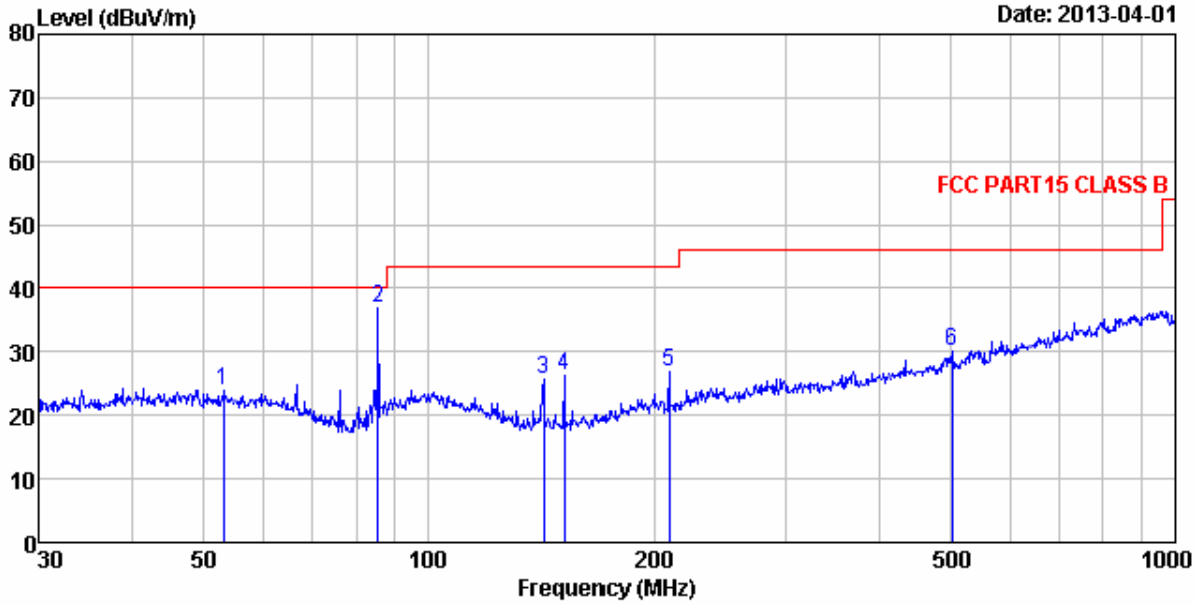
Horizontal



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 HORIZONTAL
EUT :
Model :
Test mode : RX mode
Power Rating :
Test Engineer: Edward
Remark : 小接收

	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	42.600	38.43	16.57	0.69	32.03	23.66	40.00	-16.34	Peak
2	54.261	38.59	16.14	0.81	31.95	23.59	40.00	-16.41	Peak
3	85.598	46.16	13.76	1.07	31.74	29.25	40.00	-10.75	Peak
4	187.753	39.27	13.44	1.78	32.11	22.38	43.50	-21.12	Peak
5	316.589	39.12	16.30	2.45	32.12	25.75	46.00	-20.25	Peak
6	483.910	38.81	18.26	3.23	31.61	28.69	46.00	-17.31	Peak

Vertical

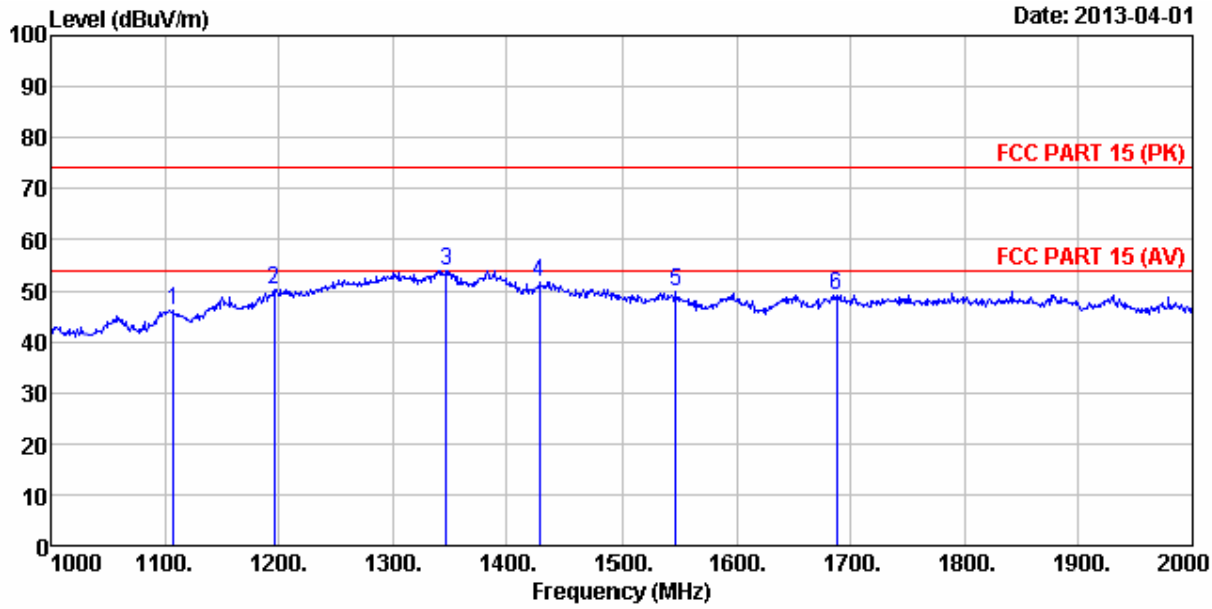


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 VERTICAL
EUT :
Model :
Test mode : RX mode
Power Rating :
Test Engineer: Edward
Remark : 小接收

	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	53.131	38.89	16.19	0.80	31.95	23.93	40.00	-16.07	Peak
2	85.598	53.94	13.76	1.07	31.74	37.03	40.00	-2.97	Peak
3	142.824	44.85	11.22	1.52	31.95	25.64	43.50	-17.86	Peak
4	152.130	45.26	11.42	1.58	31.99	26.27	43.50	-17.23	Peak
5	209.313	43.34	13.90	1.89	32.14	26.99	43.50	-16.51	Peak
6	501.179	39.85	18.63	3.31	31.56	30.23	46.00	-15.77	Peak

For Above 1000MHz Spurious

Horizontal

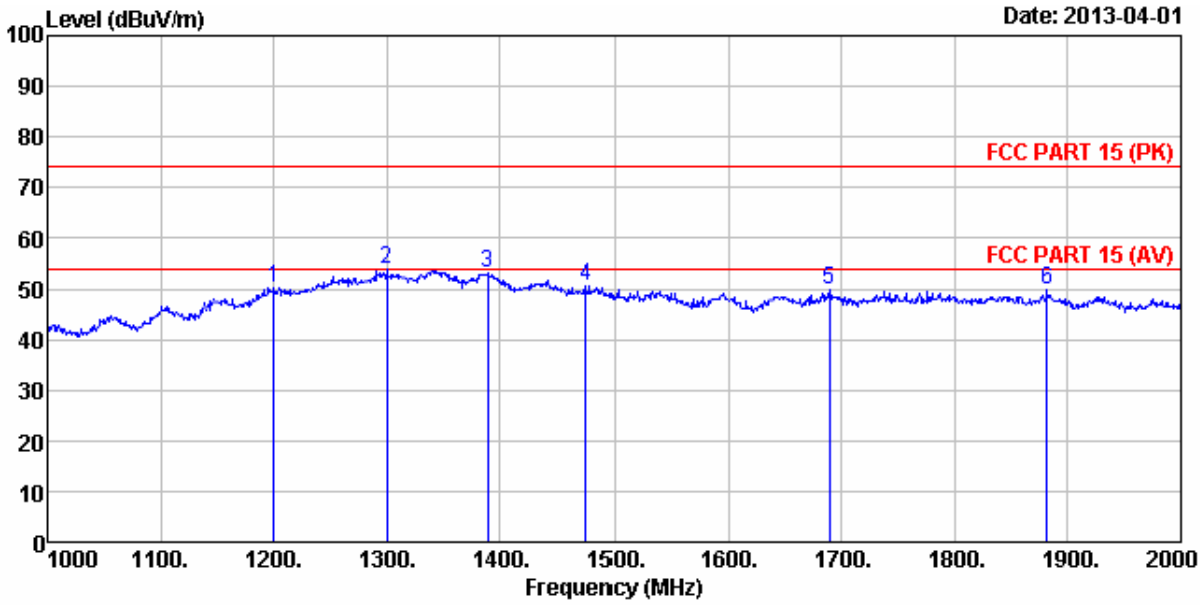


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
EUT :
Model :
Test mode : RX mode
Power Rating :
Test Engineer: Edward
Remark : 小接收

	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	1108.000	34.93	24.79	4.39	17.96	46.15	74.00	-27.85	Peak
2	1196.000	39.61	25.33	4.46	19.09	50.31	74.00	-23.69	Peak
3	1347.000	44.49	25.70	4.58	20.79	53.98	74.00	-20.02	Peak
4	1429.000	43.93	25.44	4.64	22.42	51.59	74.00	-22.41	Peak
5	1547.000	45.06	25.10	4.71	25.08	49.79	74.00	-24.21	Peak
6	1688.000	46.76	24.95	4.80	27.31	49.20	74.00	-24.80	Peak

Note: The average measurement was not performed when the peak measured data under the limit of average detection.

Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
EUT :
Model :
Test mode : RX mode
Power Rating :
Test Engineer: Edward
Remark : 小接收

	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	1200.000	39.35	25.34	4.47	19.09	50.07	74.00	-23.93	Peak
2	1300.000	43.77	25.63	4.54	20.22	53.72	74.00	-20.28	Peak
3	1389.000	44.22	25.60	4.61	21.35	53.08	74.00	-20.92	Peak
4	1476.000	44.24	25.28	4.67	23.48	50.71	74.00	-23.29	Peak
5	1689.000	47.25	24.96	4.80	27.31	49.70	74.00	-24.30	Peak
6	1882.000	48.77	25.67	4.90	29.63	49.71	74.00	-24.29	Peak

Note: The average measurement was not performed when the peak measured data under the limit of average detection.