FCC TEST REPORT

For

Wintop Electronics Co., Limited

Wireless Mouse

Model No.: WM-758, VM-758

Prepared For	:	Wintop Electronics Co., Limited
Address	:	Unit 04 7/F, Bright Way Tower 33, Mong Kok RD KL, Hong Kong
Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772
Report Number	:	R0217050034W
Date of Test	:	May 09~Jun. 02, 2017
Date of Report	:	Jun. 02, 2017

Contents

TEST REPORT

Applicant	:	Wintop Electronics Co., Limited
Manufacturer	:	Shenzhen Wintop Electronics Co., Limited
Product Name	:	Wireless Mouse
Model No.	:	WM-758, VM-758
Trade Mark	:	N.A.
Rating(s)	:	DC 3V by “AAA” Battery*2

Test Standard(s)	**:**	**FCC Part15 Subpart C, Paragraph 15.249**
Test Method(s)	**:**	**ANSI C63.10: 2013**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : : May 09~Jun. 02, 2017

Prepared by : : Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer : : Dolly Mo

(Project Manager / Dolly Mo)

Approved & Authorized Signer : : Tom Chen

(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	Wintop Electronics Co., Limited
Address	:	Unit 04 7/F, Bright Way Tower 33, Mong Kok RD KL, Hong Kong
Manufacturer	:	Shenzhen Wintop Electronics Co., Limited
Address	:	2, 3, 4/F, Building 46, Xinhe Road, Shangmugu, Pinghu Town, Longgang District, Shenzhen, China

1.2. Description of Device (EUT)

<table>
<tr><td>Product Name</td><td>:</td><td colspan="2">Wireless Mouse</td></tr>
<tr><td>Model No.</td><td>:</td><td colspan="2">WM-758, VM-758
(Note: All samples are the same except the model number and colour, so we prepare “WM-758” for test only.)</td></tr>
<tr><td>Trade Mark</td><td>:</td><td colspan="2">N.A.</td></tr>
<tr><td>Test Power Supply</td><td>:</td><td colspan="2">DC 3V Battery inside</td></tr>
<tr><td rowspan="5">Product Description</td><td rowspan="5">:</td><td>Operation Frequency:</td><td>2405-2470MHz</td></tr>
<tr><td>Number of Channel:</td><td>8 Channels
<table>
<tr><th>Channel</th><th>Frequency (MHz)</th><th>Channel</th><th>Frequency (MHz)</th></tr>
<tr><td>1</td><td>2405</td><td>5</td><td>2440</td></tr>
<tr><td>2</td><td>2413</td><td>6</td><td>2450</td></tr>
<tr><td>3</td><td>2422</td><td>7</td><td>2460</td></tr>
<tr><td>4</td><td>2430</td><td>8</td><td>2470</td></tr>
</table></td></tr>
<tr><td>Modulation Type:</td><td>FSK</td></tr>
<tr><td>Antenna Type:</td><td>PCB Antenna</td></tr>
<tr><td>Antenna Gain(Peak):</td><td>1.6 dBi</td></tr>
<tr><td colspan="4">Remark: 1)For a more detailed features description, please refer to the manufacturer’s specifications or the User’s Manual.</td></tr>
</table>

1.3. Auxiliary Equipment Used During Test

N.A.		

1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH01
Mode 2	CH04
Mode 3	CH08

For Conducted Emission	
Final Test Mode	Description
N/A	N/A

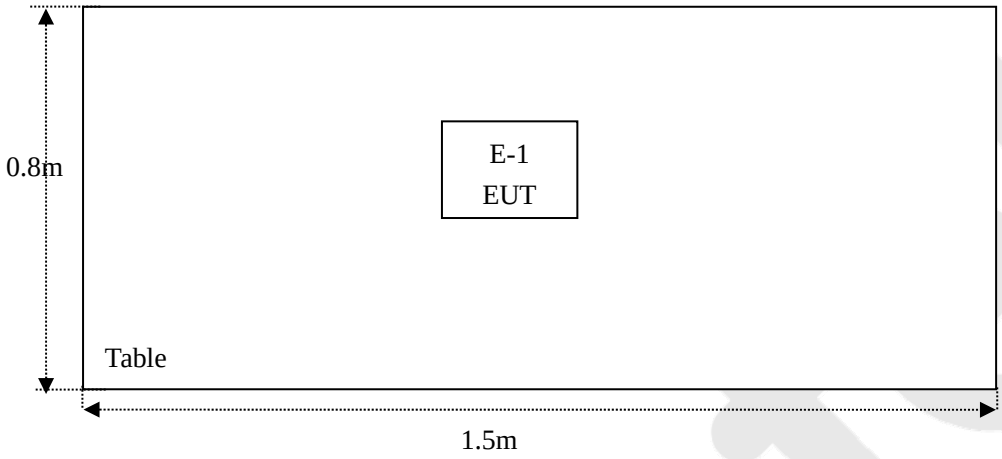
For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH04
Mode 3	CH08

1.5. List of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2405	5	2440
2	2413	6	2450
3	2422	7	2460
4	2430	8	2470

1.6. Description of Test Setup

RE



1.7. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Jul. 19, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Jun. 17, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Jun. 17, 2016	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Jul. 12, 2016	1 Year
5	Preamplifier	Instruments corporation	EMC011830	980100	Jun. 17, 2016	1 Year
6.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Jun. 17, 2016	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 06, 2017	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 06, 2017	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519	012	May 11, 2017	1 Year
10.	Pre-amplifier	SONOMA	310N	186860	Jun. 17, 2016	1 Year
11	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
12.	Power Sensor	Agilent	KFSW150502	15I00041SN045	Jun. 17, 2016	1 Year
13.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun. 17, 2016	1 Year
14.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun. 17, 2016	1 Year
15	Signal Generator	Agilent	E4421B	MY41000743	Jun. 17, 2016	1 Year
16.	DC Power supply	IV	IV-8080	YQSB0096	Jun. 17, 2016	1 Year
17.	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150 M8	SE-0137	Jun. 17, 2016	1 Year

1.8. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal)
		Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

1.9. Description of Test Facility

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

FCC-Registration No.: 752021

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 06, 2016.

IC-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A, June 13, 2016.

Test Location

All Emissions tests were performed at

Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

2. Summary of Test Results

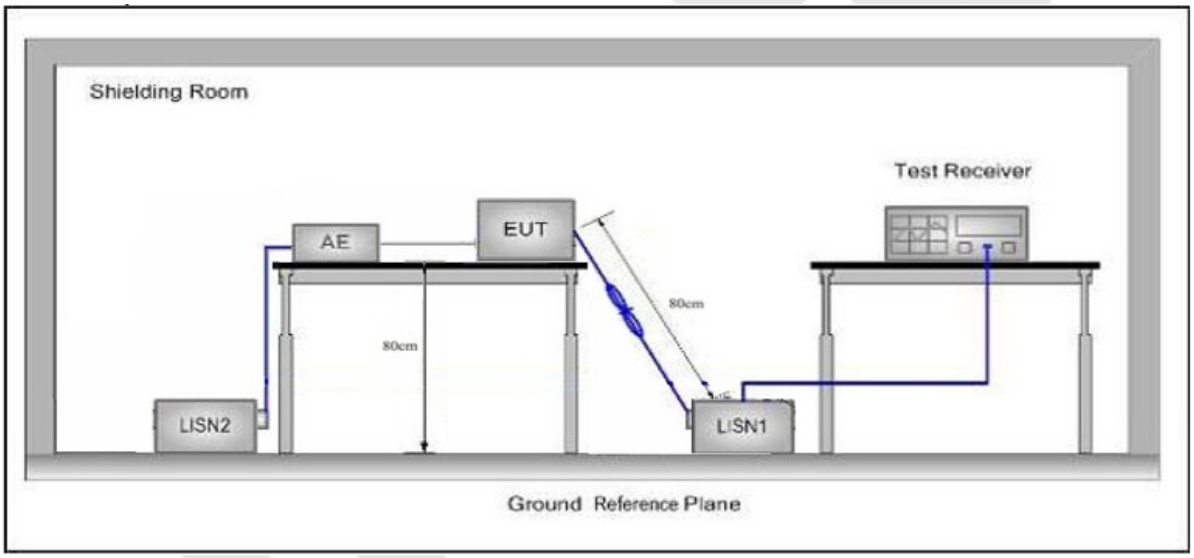
Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	N/A
15.249	Radiated Emission	PASS
15.215(c)	20dB Bandwidth	PASS
15.249(c)	Band Edge	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

The EUT is powered by DC 3.0V battery inside, so there is no need to conduct this test.

4. Radiated Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test Standard	FCC Part15 C Section 15.249					
Test Limit	Frequency (MHz)	Field Strength of fundamental ((millivolts /meter)	Field Strength of Harmonics (microvolts/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	2400~2483.5	50	-	114.0	Peak	3
	2400~2483.5	50	-	94.0	Average	3
	2400~2483.5	-	500	74.0	Peak	3
	2400~2483.5	-	500	54.0	Average	3

Remark:

(1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

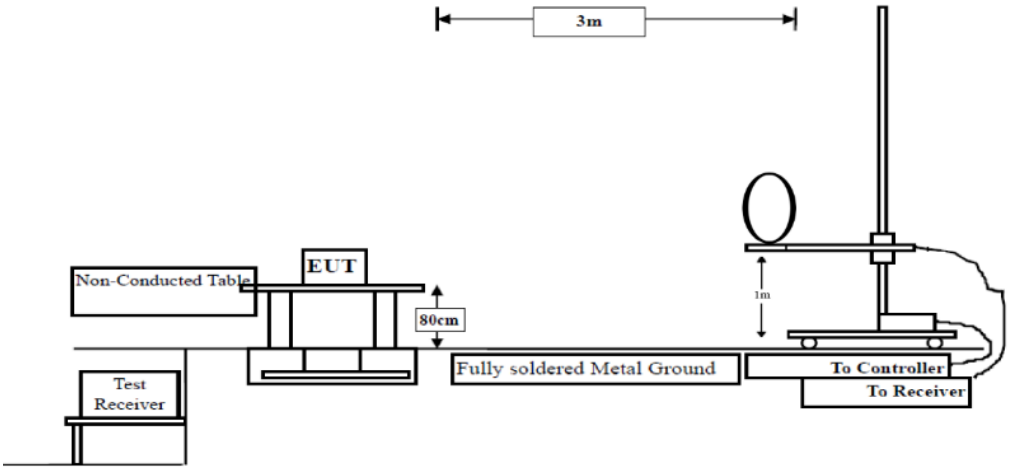


Figure 1. Below 30MHz

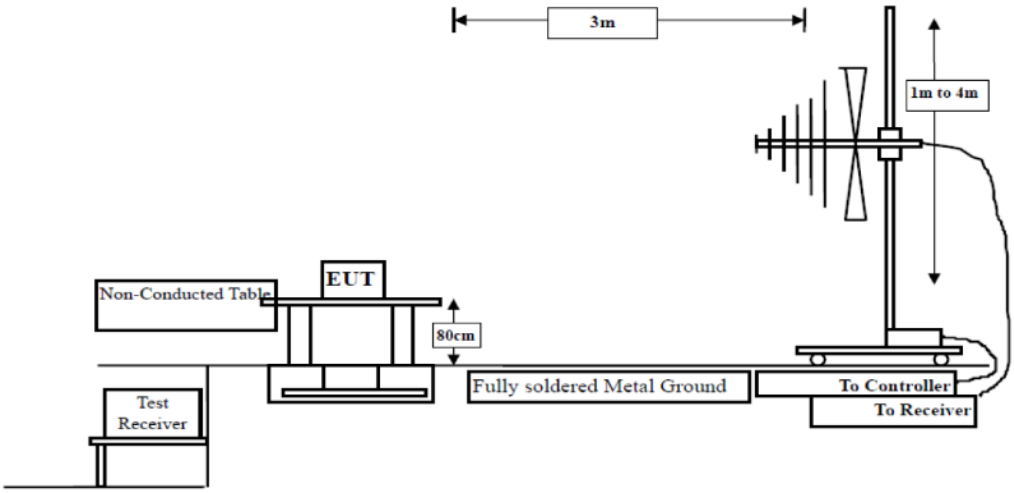


Figure 2. 30MHz to 1GHz

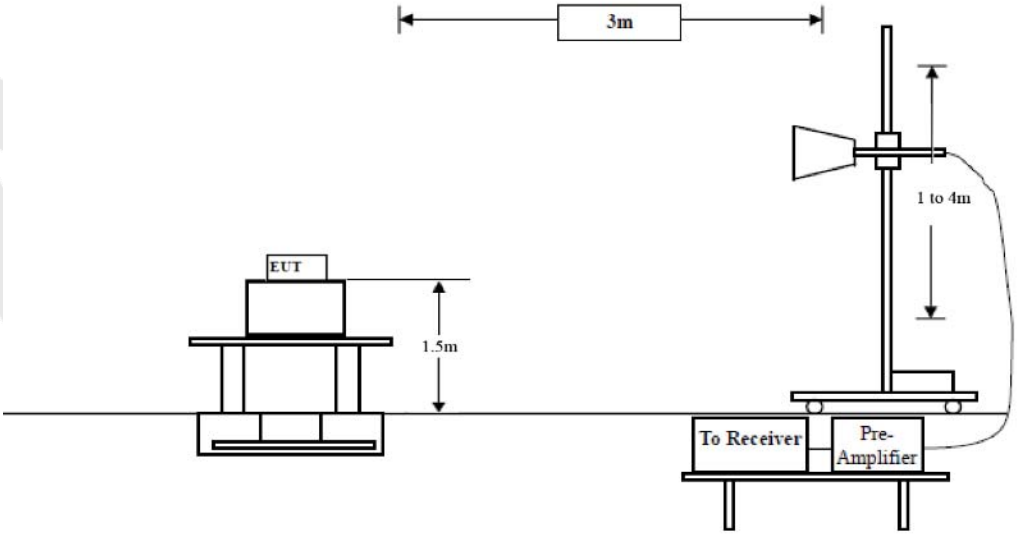


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.
For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.
The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.
.
For above 1GHz,Set the spectrum analyzer as:
RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.
RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

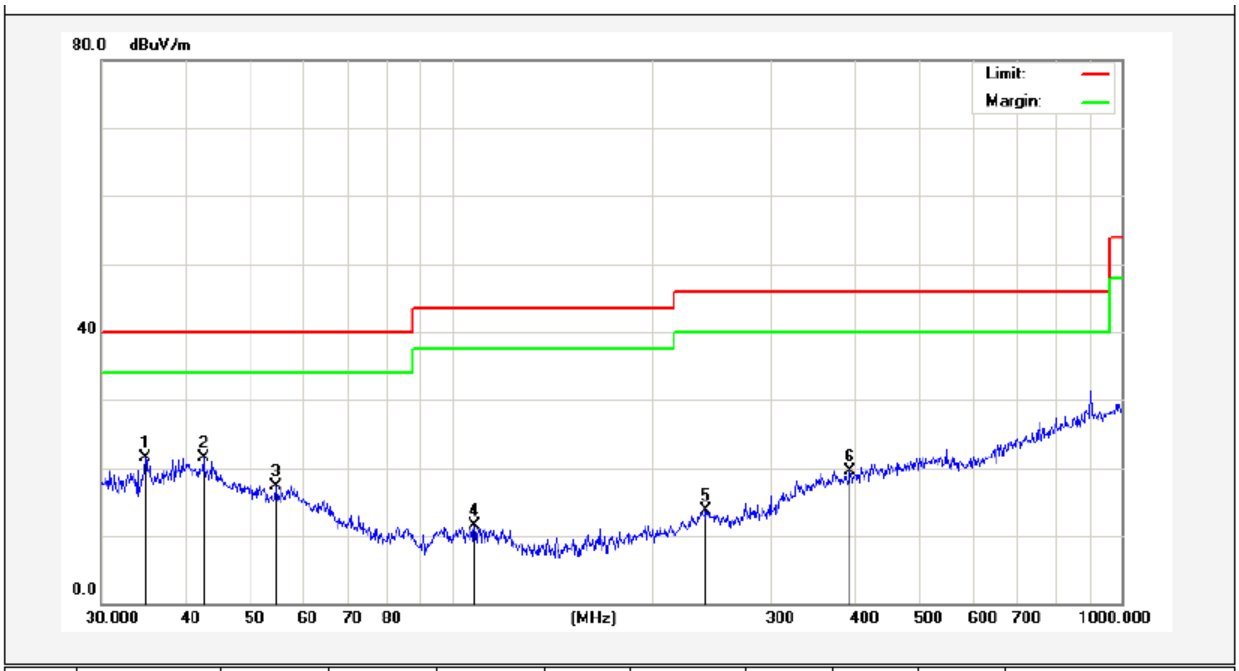
PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz and above 18000MHz are attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Test Results (30~1000MHz)

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode	Polarization:	Horizontal



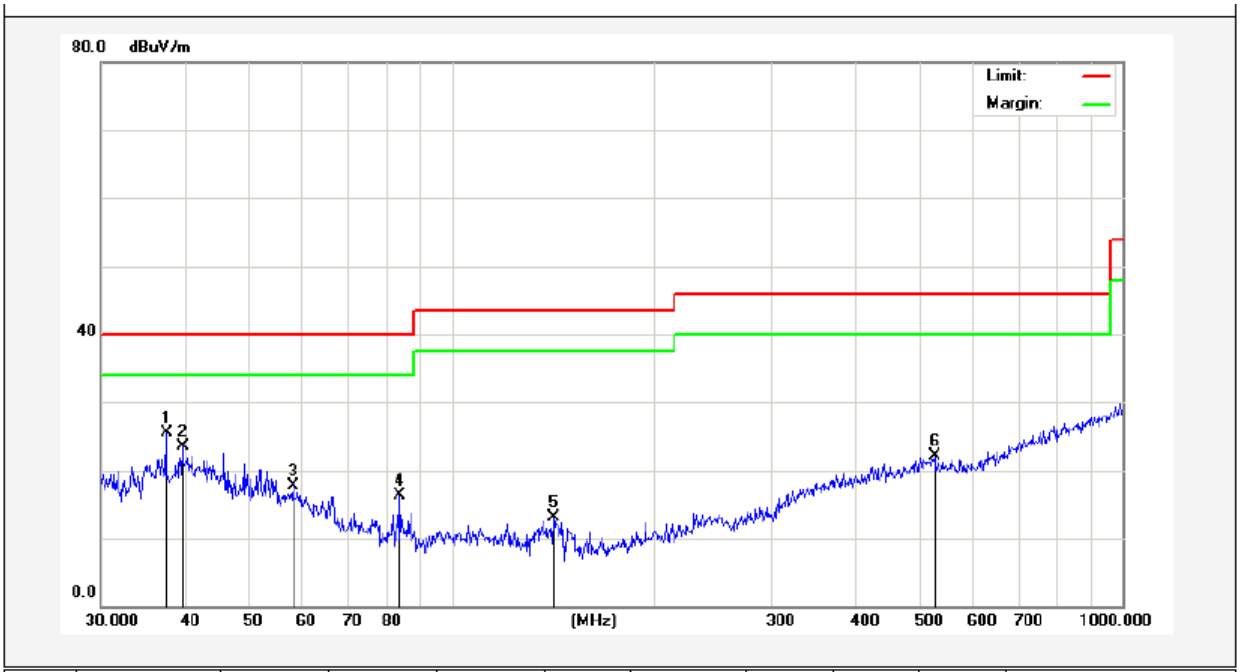
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	34.8823	35.92	-14.35	21.57	40.00	-18.43	peak			
2	42.6000	32.82	-11.39	21.43	40.00	-18.57	peak			
3	54.6429	32.25	-14.90	17.35	40.00	-22.65	peak			
4	108.2667	32.24	-20.65	11.59	43.50	-31.91	peak			
5	239.9874	31.80	-18.09	13.71	46.00	-32.29	peak			
6	393.4723	32.52	-13.00	19.52	46.00	-26.48	peak			

Note: 1) Factor = Antenna Factor + Cable Loss – Preamplifier Factor

2) Result = Reading + Factor

Test Results (30~1000MHz)

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode	Polarization:	Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	37.5479	37.72	-12.30	25.42	40.00	-14.58	peak			
2	39.7146	34.02	-10.59	23.43	40.00	-16.57	peak			
3	57.9993	32.88	-15.21	17.67	40.00	-22.33	peak			
4	83.8156	35.12	-18.73	16.39	40.00	-23.61	peak			
5	141.8262	31.58	-18.47	13.11	43.50	-30.39	peak			
6	524.5541	32.62	-10.53	22.09	46.00	-23.91	peak			

Note: 1) Factor = Antenna Factor + Cable Loss – Preamplifier Factor

2) Result = Reading + Factor

Test Results (Above 1000MHz)

Test Mode: CH01 (Low channel)									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Detector
2405.0000	92.56	31.21	2.17	35.30	90.64	114.00	-23.36	V	Peak
2405.0000	84.02	31.21	2.17	35.30	82.10	94.00	-11.90	V	AVG
4810.0000	45.55	34.01	2.56	34.71	47.41	74.00	-26.59	V	Peak
4810.0000	39.81	34.01	2.56	34.71	41.67	54.00	-12.33	V	AVG
7215.0000	41.33	36.16	2.98	35.15	45.32	74.00	-28.68	V	Peak
7215.0000	32.65	36.16	2.98	35.15	36.64	54.00	-17.36	V	AVG
9620.0000	*								
12025.0000	*								
14430.0000	*								
16835.0000	*								
2405.0000	88.56	31.21	2.17	35.30	86.64	114.00	-27.36	H	Peak
2405.0000	85.62	31.21	2.17	35.30	83.70	94.00	-10.30	H	AVG
4810.0000	44.38	34.01	2.56	34.71	46.24	74.00	-27.76	H	Peak
4810.0000	39.56	34.01	2.56	34.71	41.42	54.00	-12.58	H	AVG
7215.0000	41.12	36.16	2.98	35.15	45.11	74.00	-28.89	H	Peak
7215.0000	34.63	36.16	2.98	35.15	38.62	54.00	-15.38	H	AVG
9620.0000	*								
12025.0000	*								
14430.0000	*								
16835.0000	*								

Test Mode: CH17 (Middle channel)									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Detector
2430.0000	91.46	31.21	2.19	34.60	90.26	114.00	-23.74	V	Peak
2430.0000	80.29	31.21	2.19	34.60	79.09	94.00	-14.91	V	AVG
4860.0000	46.11	35.00	2.57	34.58	49.10	74.00	-24.90	V	Peak
4860.0000	40.38	35.00	2.57	34.58	43.37	54.00	-10.63	V	AVG
7290.0000	35.44	36.17	3.00	35.14	39.47	74.00	-34.53	V	Peak
7290.0000	30.77	36.17	3.00	35.14	34.80	54.00	-19.20	V	AVG
9720.0000	*								
12150.0000	*								
14580.0000	*								
17010.0000	*								
2430.0000	85.45	31.21	2.19	34.60	84.25	114.00	-29.75	H	Peak
2430.0000	77.12	31.21	2.19	34.60	75.92	94.00	-18.08	H	AVG
4860.0000	40.35	35.00	2.57	34.58	43.34	74.00	-30.66	H	Peak
4860.0000	35.22	35.00	2.57	34.58	38.21	54.00	-15.79	H	AVG
7290.0000	37.31	36.17	3.00	35.14	41.34	74.00	-32.66	H	Peak
7290.0000	30.82	36.17	3.00	35.14	34.85	54.00	-19.15	H	AVG
9720.0000	*								
12150.0000	*								
14580.0000	*								
17010.0000	*								

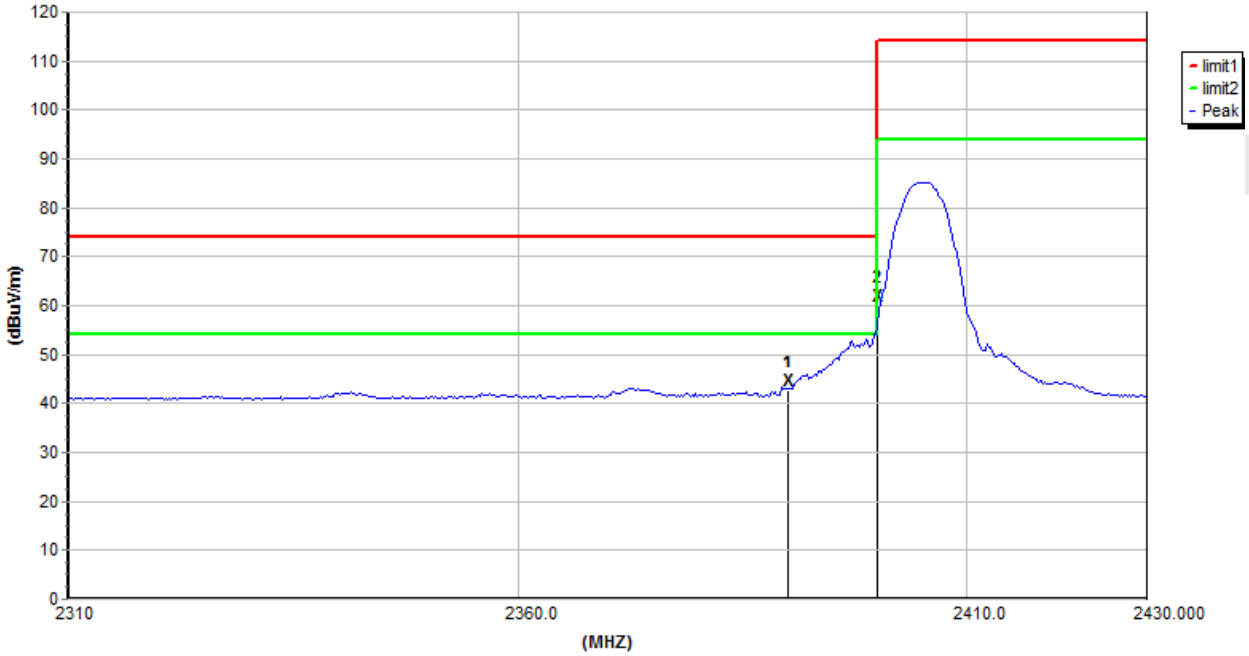
Test Mode: CH34 (High channel)									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Detector
2470.0000	90.65	31.65	2.20	36.00	88.50	114.00	-25.50	V	Peak
2470.0000	83.12	31.65	2.20	36.00	80.97	94.00	-13.03	V	AVG
4940.0000	49.02	35.06	2.58	34.79	51.87	74.00	-22.13	V	Peak
4940.0000	37.63	35.06	2.58	34.79	40.48	54.00	-13.52	V	AVG
7410.0000	34.12	36.19	3.02	34.90	38.43	74.00	-35.57	V	Peak
7410.0000	30.65	36.19	3.02	34.90	34.96	54.00	-19.04	V	AVG
9880.0000	*								
12350.0000	*								
14820.0000	*								
17290.0000	*								
2470.0000	87.65	31.65	2.20	36.00	85.50	114.00	-28.50	H	Peak
2470.0000	76.02	31.65	2.20	36.00	73.87	94.00	-20.13	H	AVG
4940.0000	44.12	35.06	2.58	34.79	46.97	74.00	-27.03	H	Peak
4940.0000	39.07	35.06	2.58	34.79	41.92	54.00	-12.08	H	AVG
7410.0000	40.77	36.19	3.02	34.90	45.08	74.00	-28.92	H	Peak
7410.0000	33.62	36.19	3.02	34.90	37.93	54.00	-16.07	H	AVG
9880.0000	*								
12350.0000	*								
14820.0000	*								
17290.0000	*								

Remark:

1. 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 test results of 9kHz-30MHz and above 18000MHz are attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Radiated Band Edge:

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH01	Polarization:	Horizontal
Detector	Peak		

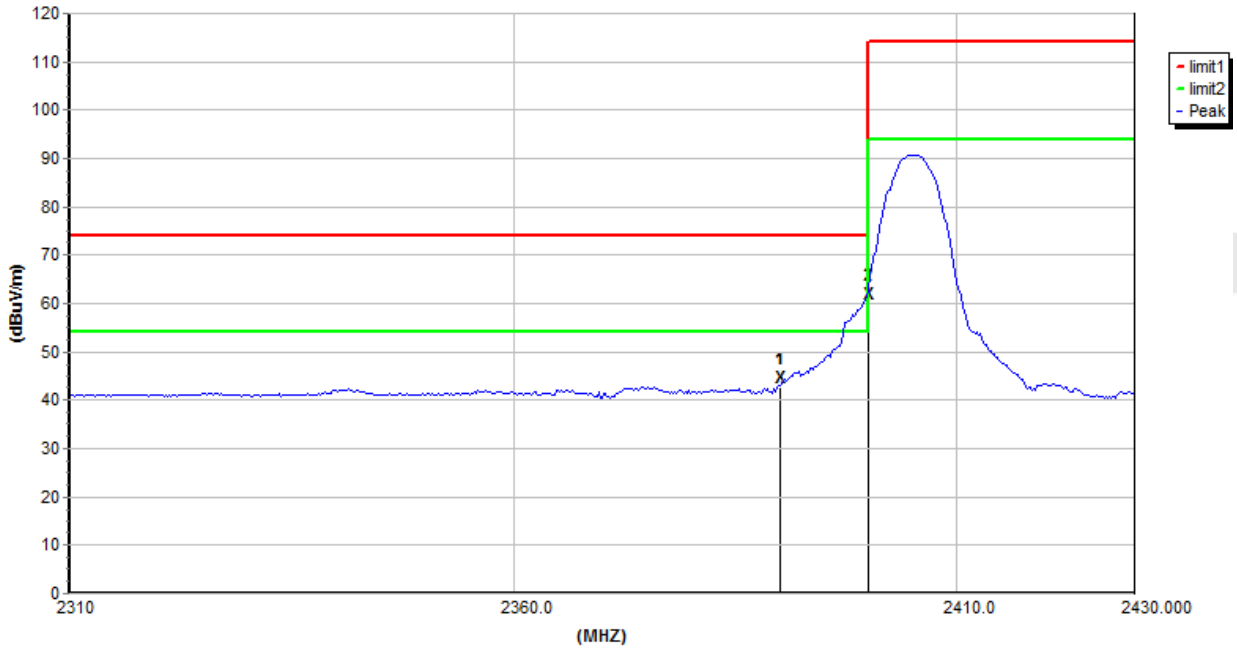


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2390.00	45.72	29.15	3.41	34.01	44.27	74.00	-29.73
2400.00	62.92	29.16	3.43	34.01	61.50	74.00	-12.50

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH01	Polarization:	Vertical
Detector	Peak		

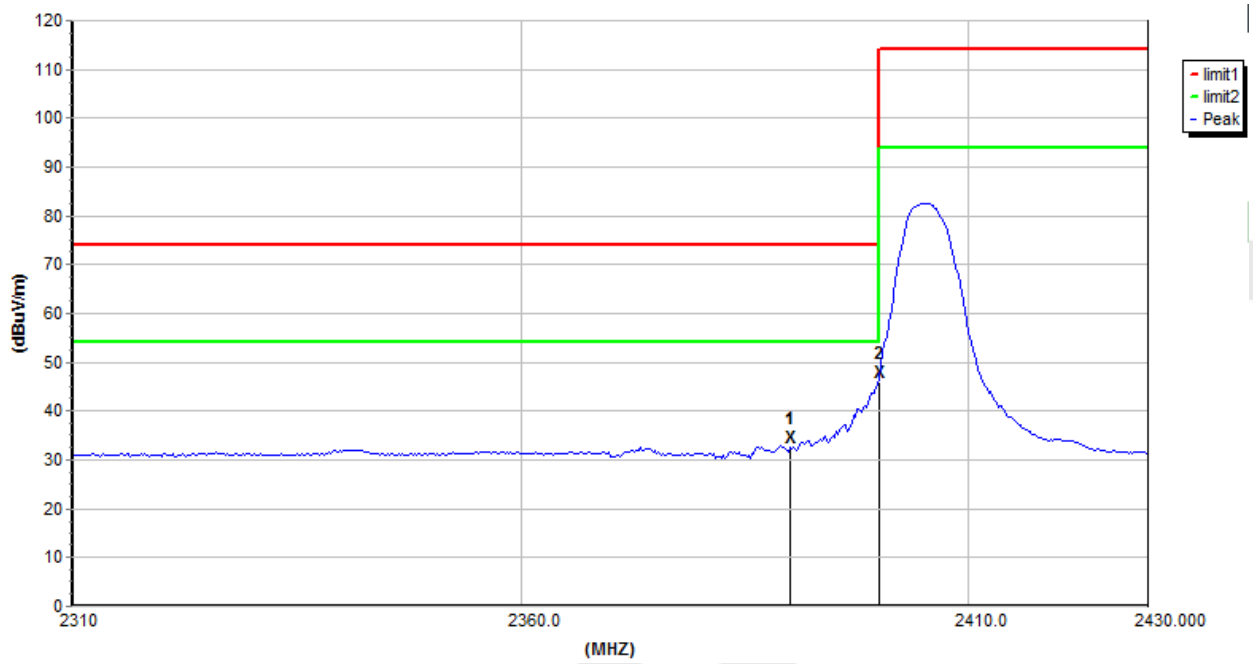


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2390.00	46.54	29.15	3.41	34.01	45.09	74.00	-28.91
2400.00	65.26	29.16	3.43	34.01	63.84	74.00	-10.16

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH01	Polarization:	Horizontal
Detector	AVG		

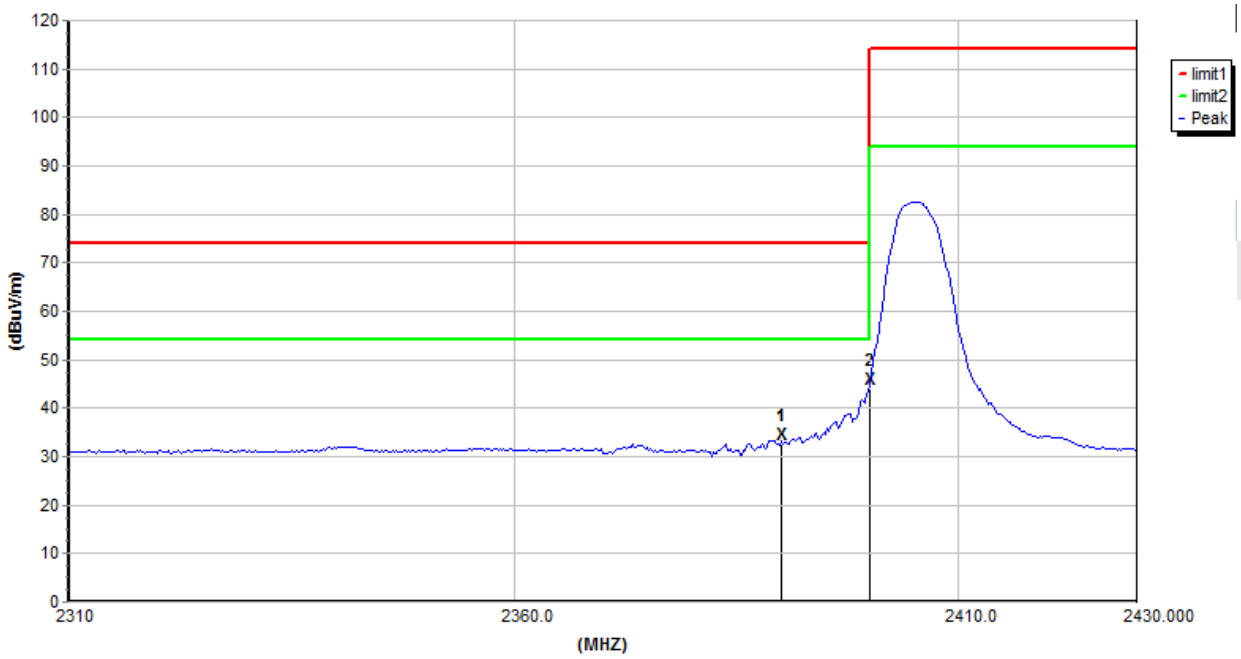


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2390.00	35.63	29.15	3.41	34.01	34.18	54.00	-19.82
2400.00	47.03	29.16	3.43	34.01	45.61	54.00	-8.39

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH01	Polarization:	Vertical
Detector	AVG		

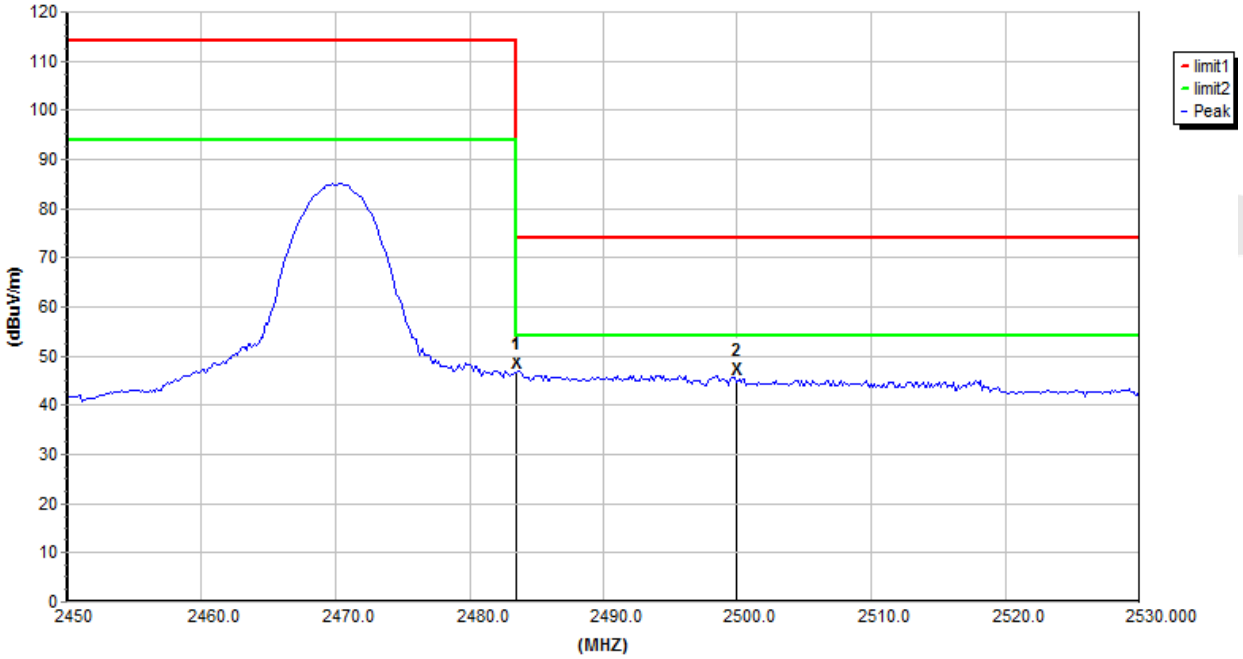


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2390.00	35.78	29.15	3.41	34.01	34.33	54.00	-19.67
2400.00	48.95	29.16	3.43	34.01	47.53	54.00	-6.47

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH08	Polarization:	Horizontal
Detector	Peak		

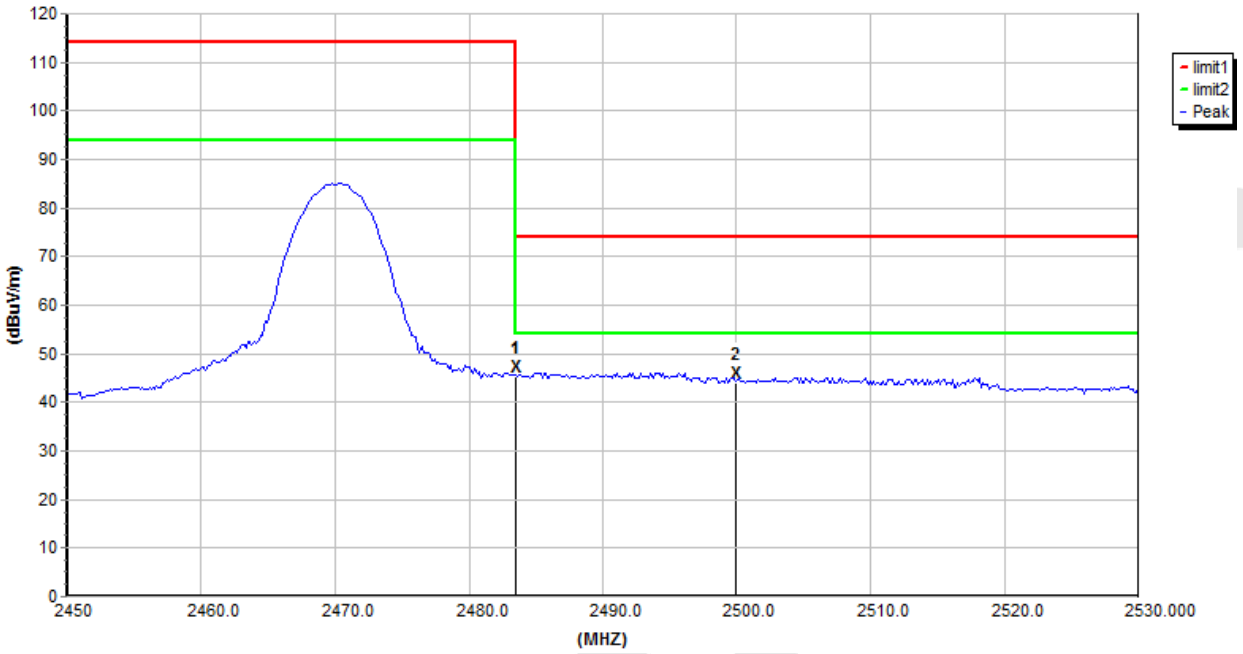


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2483.50	48.16	29.28	3.53	34.03	46.94	74.00	-27.06
2500.00	46.79	29.30	3.56	34.03	45.62	74.00	-28.38

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH08	Polarization:	Vertical
Detector	Peak		

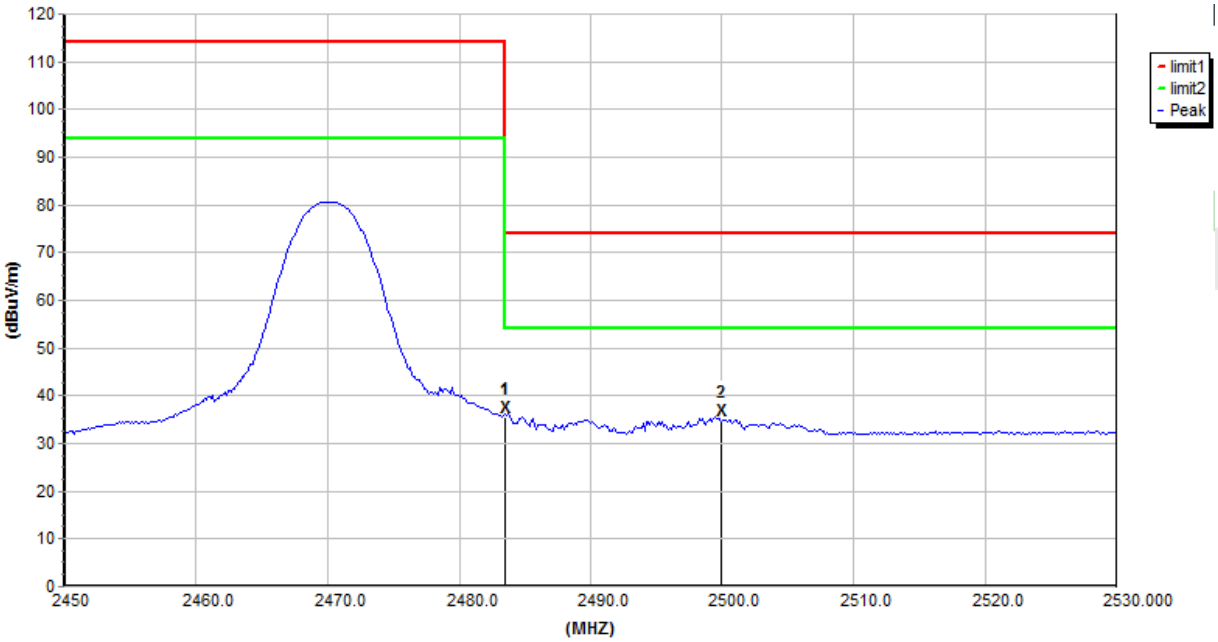


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2483.50	49.48	29.28	3.53	34.03	48.26	74.00	-25.74
2500.00	48.06	29.30	3.56	34.03	46.89	74.00	-27.11

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH08	Polarization:	Horizontal
Detector	AVG		

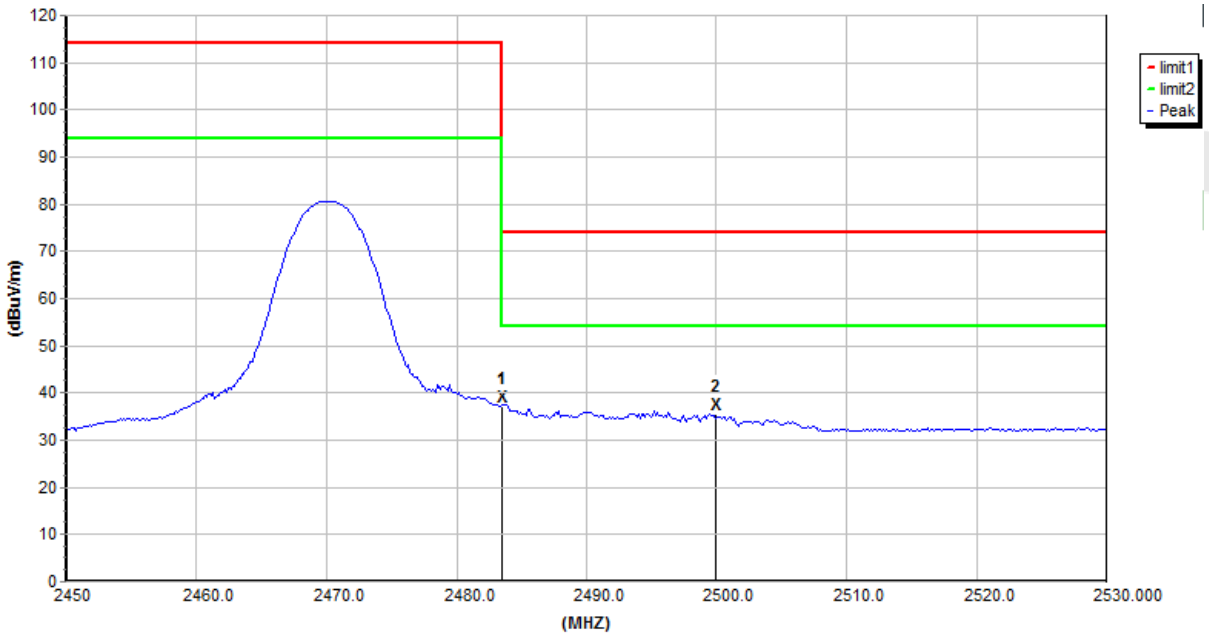


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2483.50	38.49	29.28	3.53	34.03	37.27	54.00	-16.73
2500.00	37.81	29.30	3.56	34.03	36.64	54.00	-17.36

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.:	0217050034W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	DC 3V Battery inside
Test Mode:	TX Mode CH08	Polarization:	Vertical
Detector	AVG		



Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)
2483.50	39.94	29.28	3.53	34.03	38.72	54.00	-15.28
2500.00	38.26	29.30	3.56	34.03	37.09	54.00	-16.91

Remark:

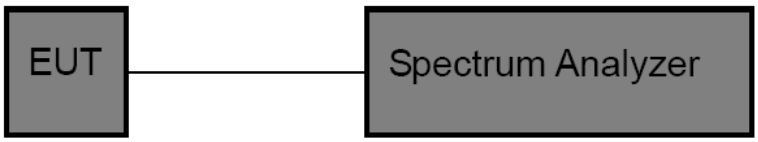
1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

5. 20dB Bandwidth Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.249

5.2. Test Setup



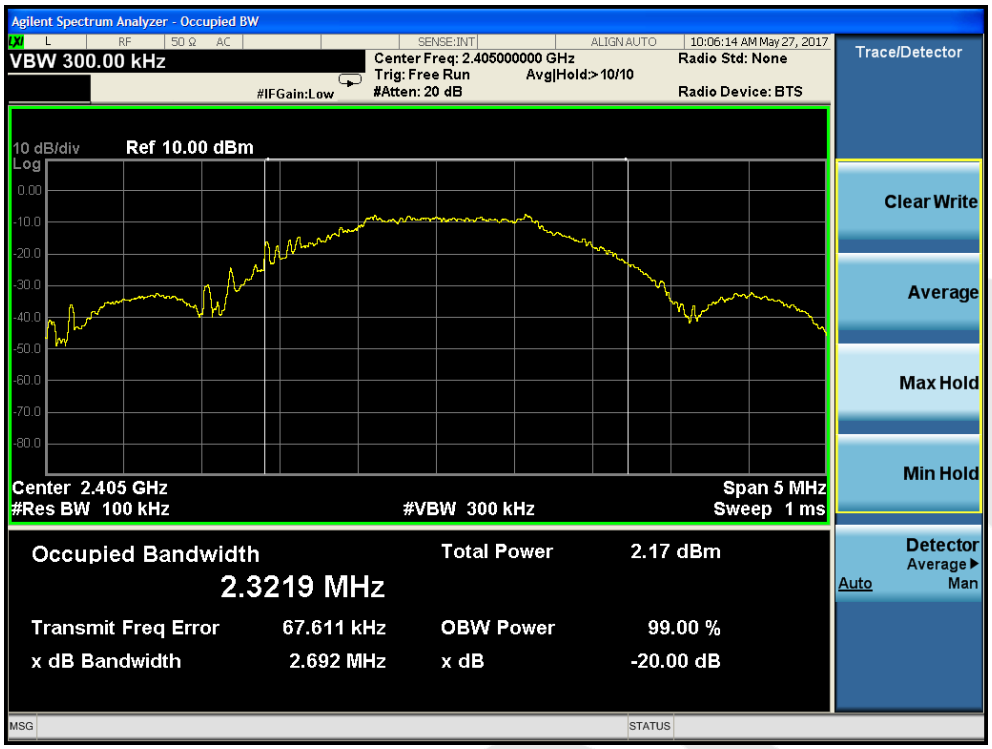
5.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
   RBW = 100kHz, VBW≥3*RBW =300kHz,
   Detector= Average
   Trace mode= Max hold.
   Sweep- auto couple.
4. Mark the peak frequency and –20dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

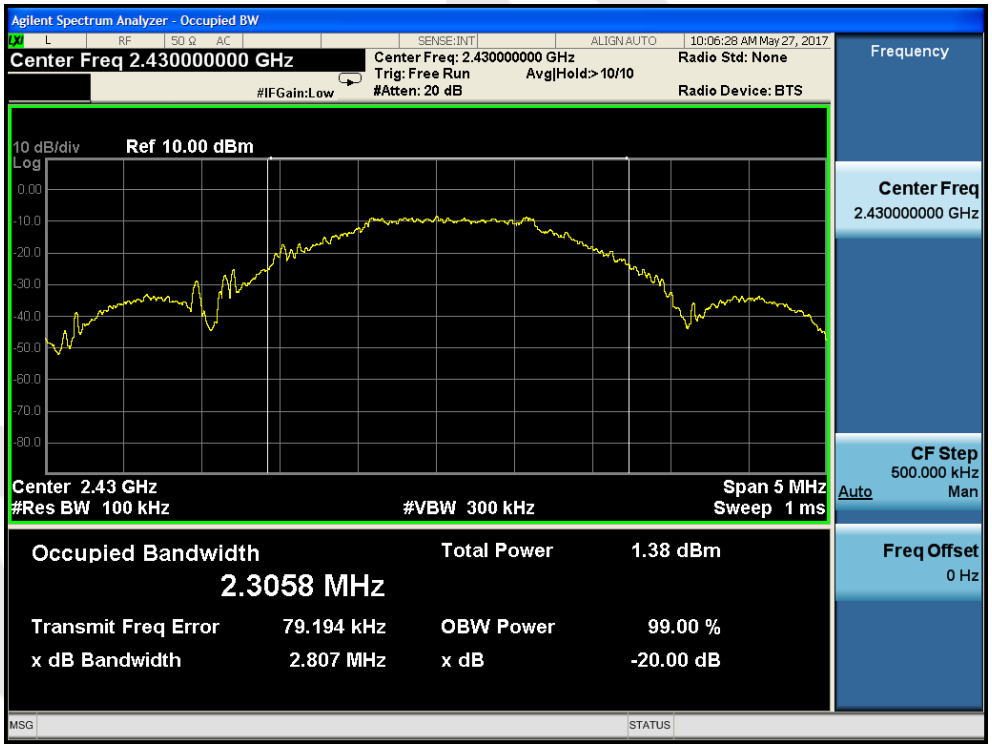
5.4. Test Data

Test Item	:	20dB Bandwidth	Test Mode	:	TX Mode
Test Voltage	:	DC 3V	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

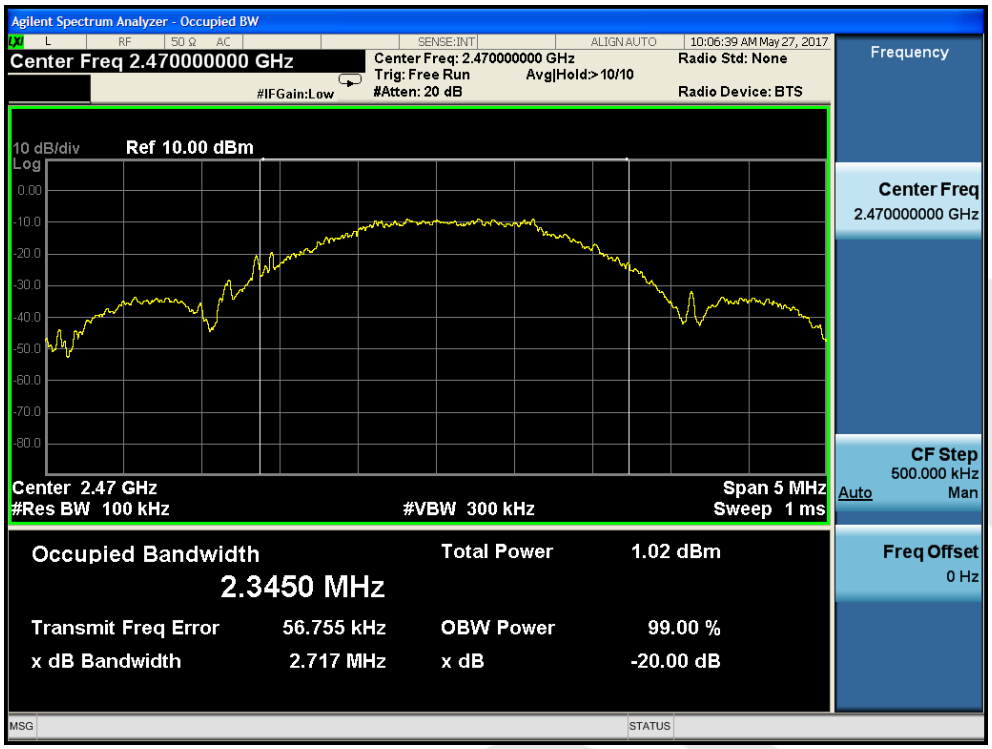
Frequency (MHz)	Bandwidth (kHz)	Result
2405MHZ	2692.0	PASS
2430MHZ	2807.0	PASS
2470MHZ	2717.0	PASS



Test Mode: Low



Test Mode: Middle



Test Mode: High

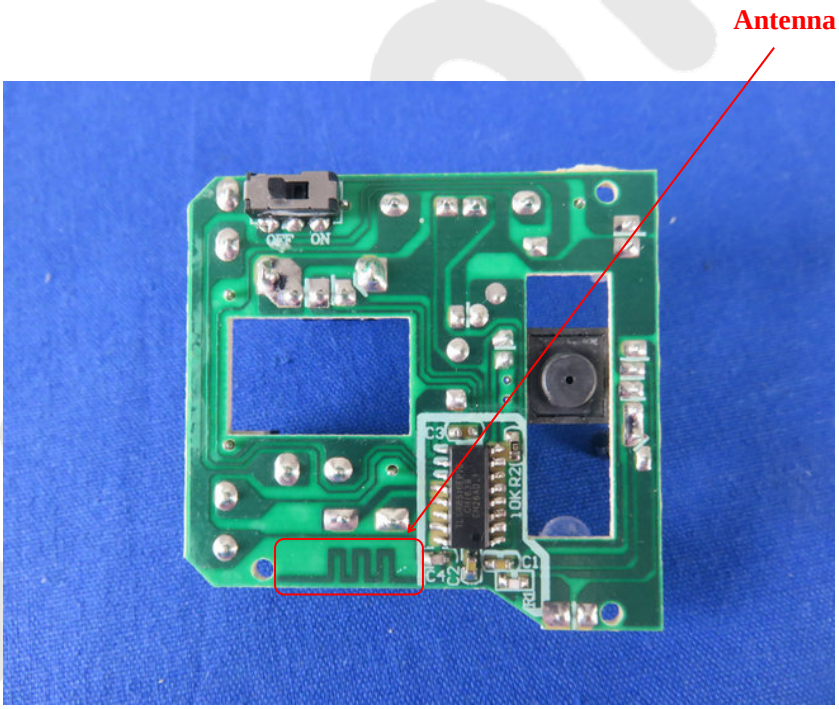
6. Antenna Requirement

6.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	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.

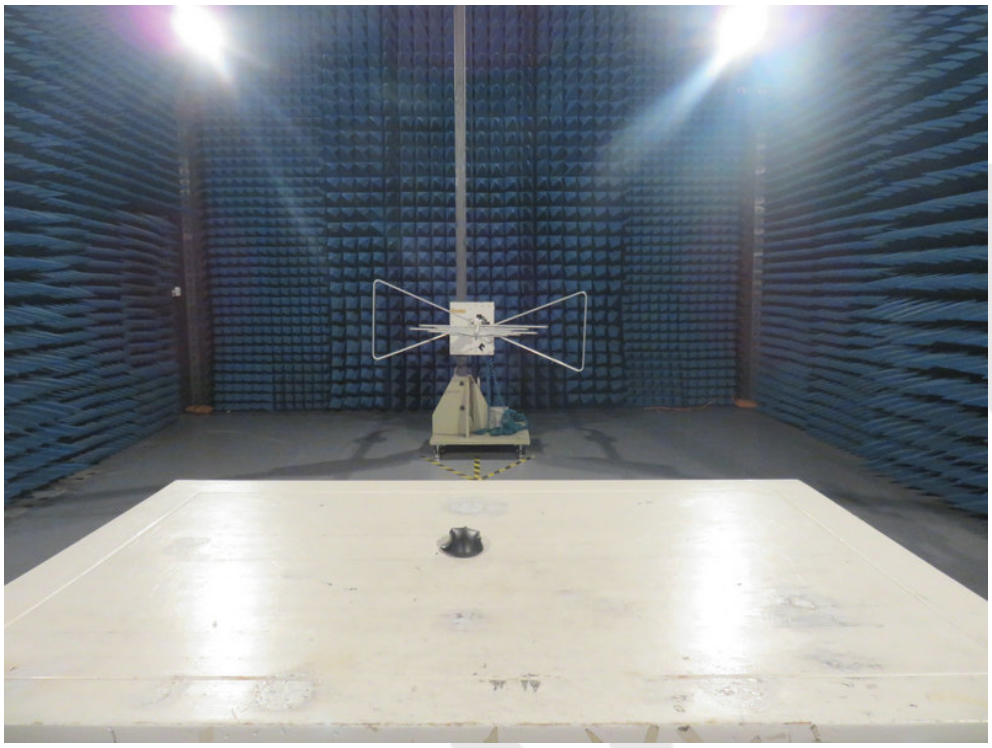
6.2. Antenna Connected Construction

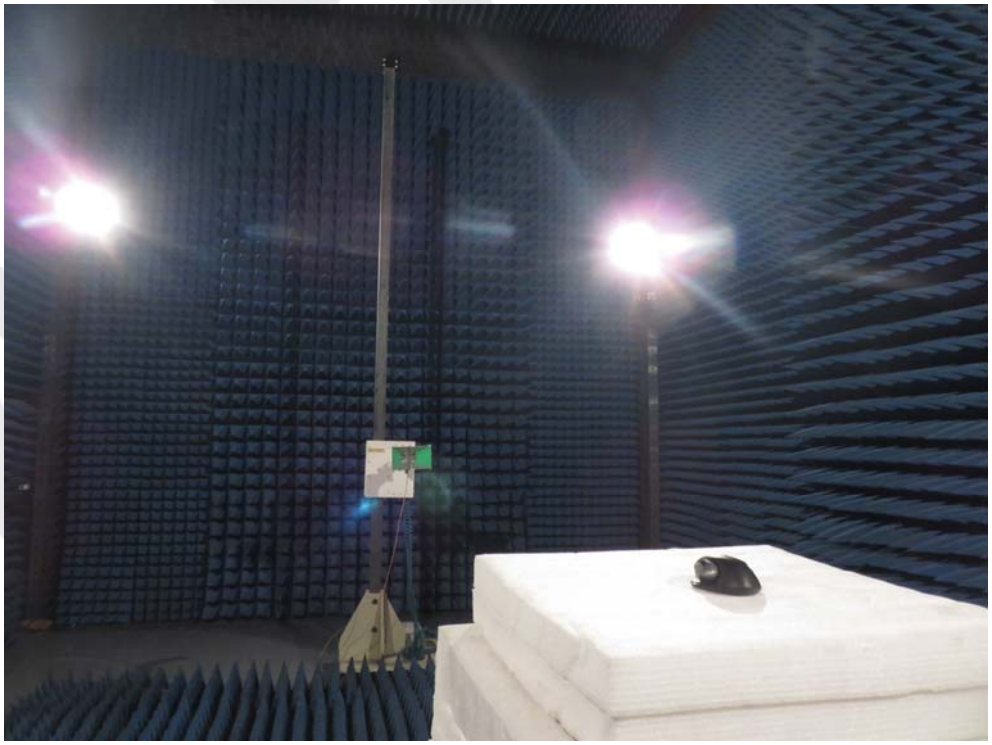
The antenna is a PCB Antenna which permanently attached, and the best case gain of the antenna is 1.6dBi. It complies with the standard requirement.



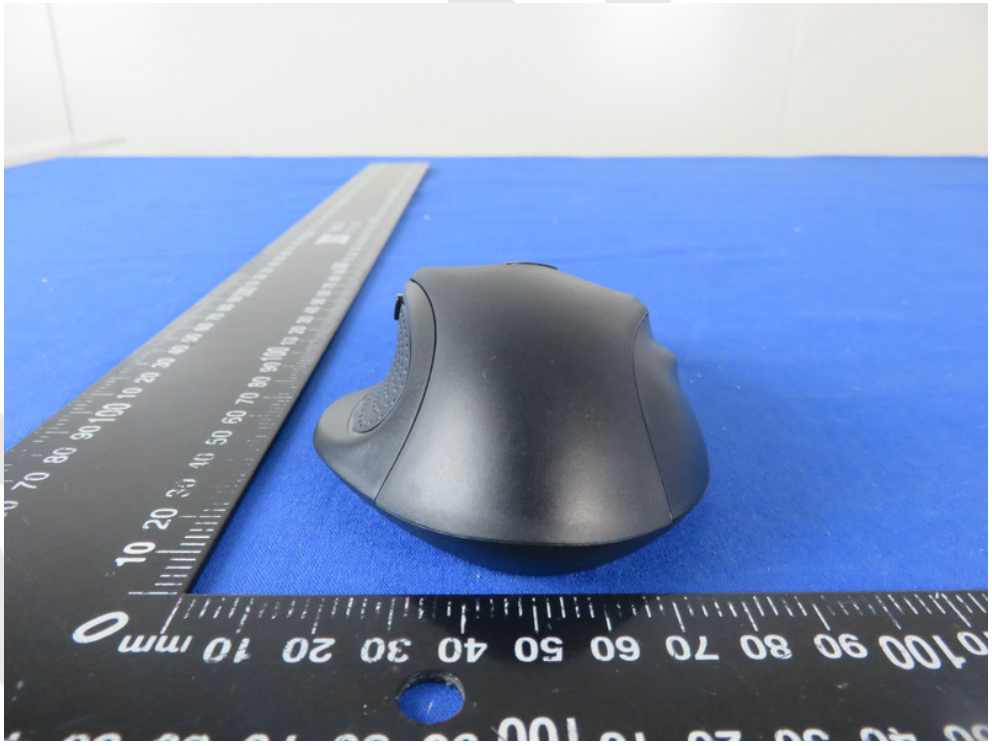
APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Radiation Emission Test

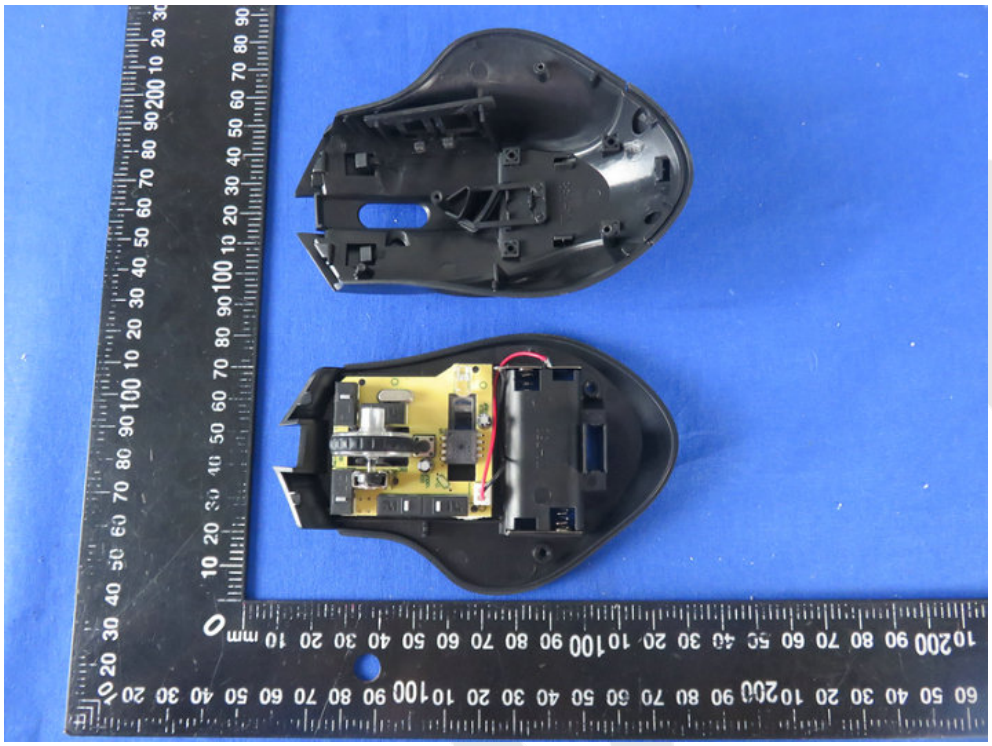


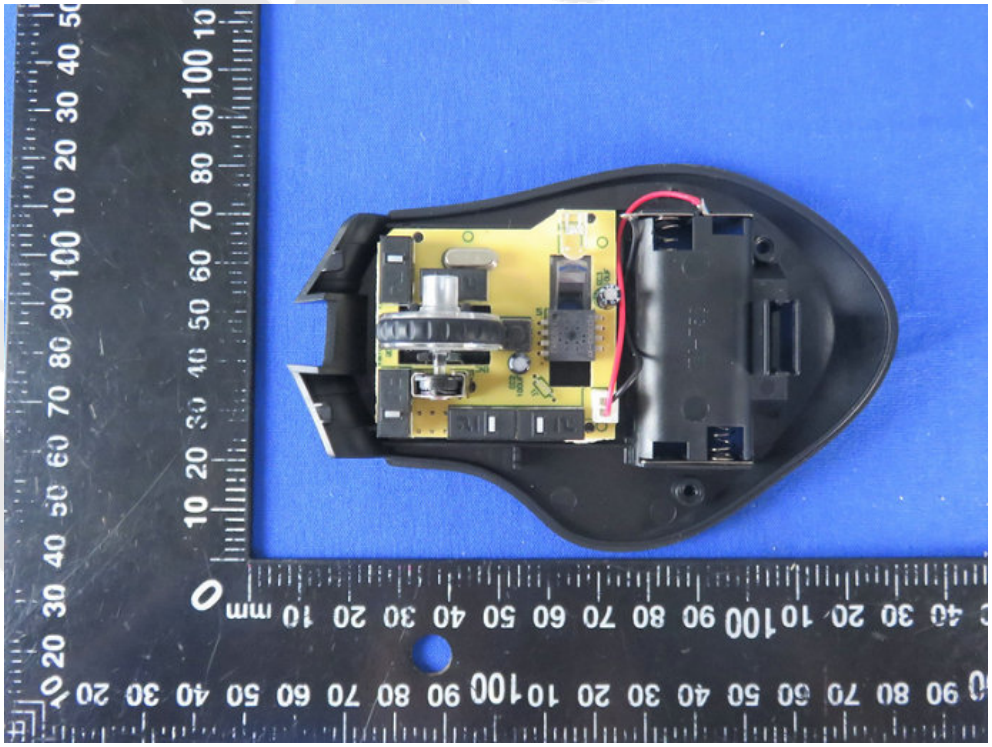


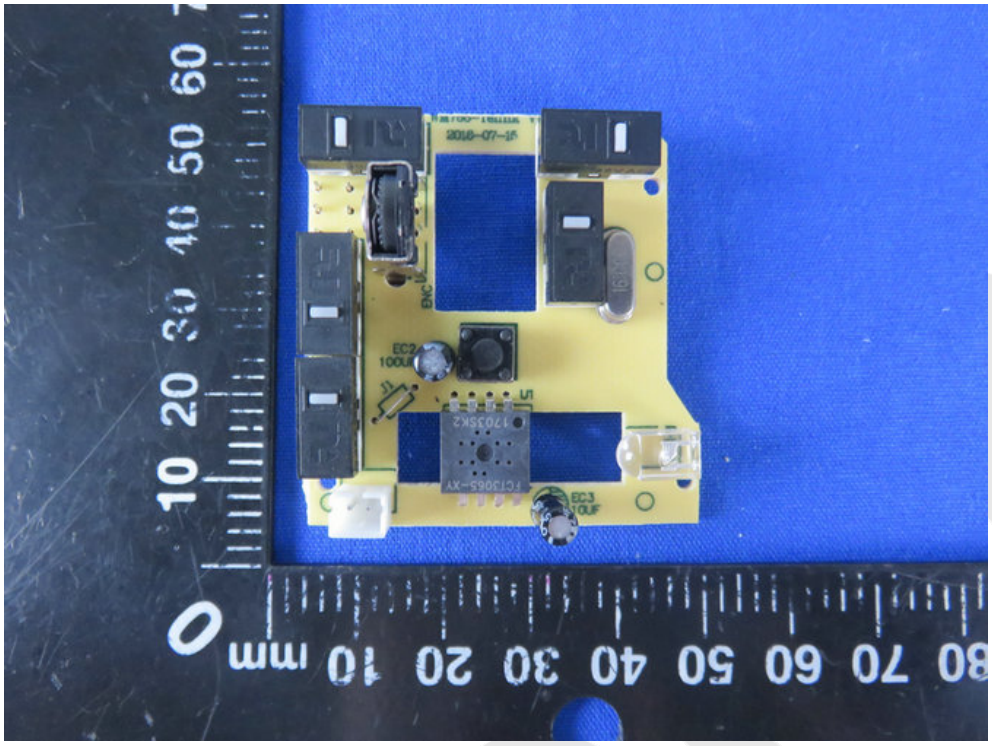
APPENDIX II -- EXTERNAL PHOTOGRAPH

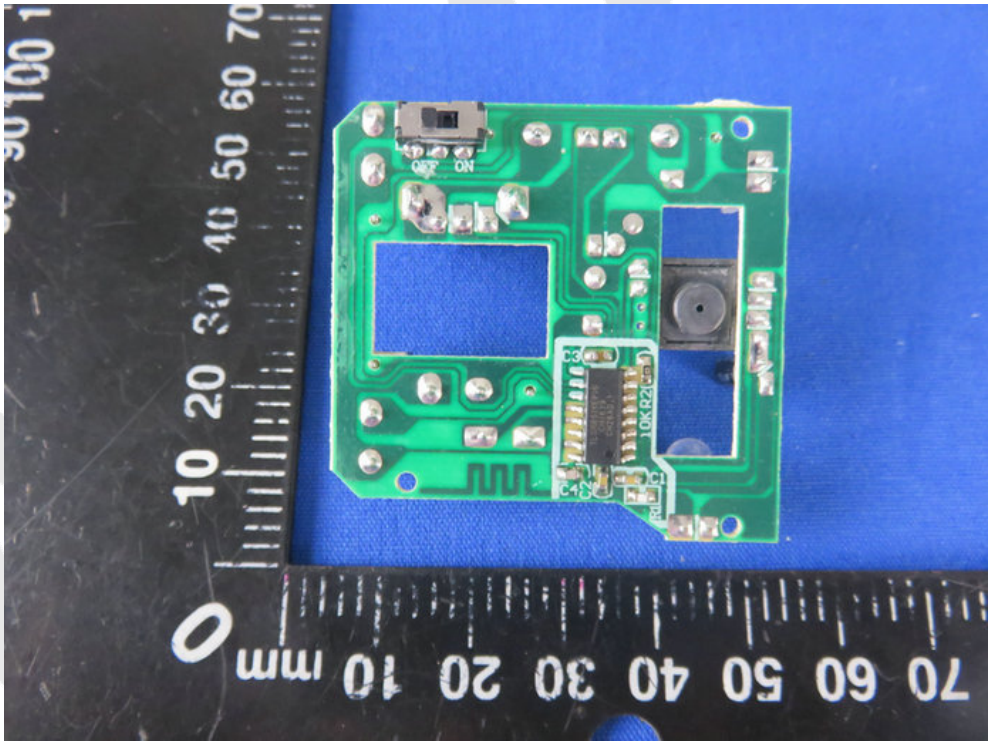


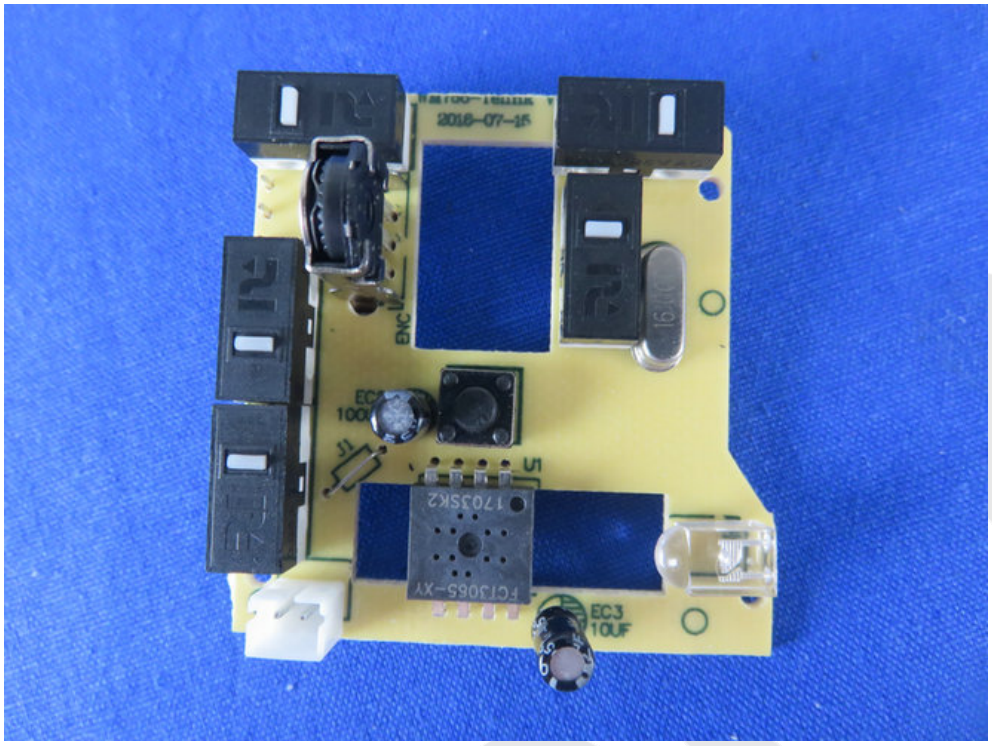
APPENDIX III -- INTERNAL PHOTOGRAPH

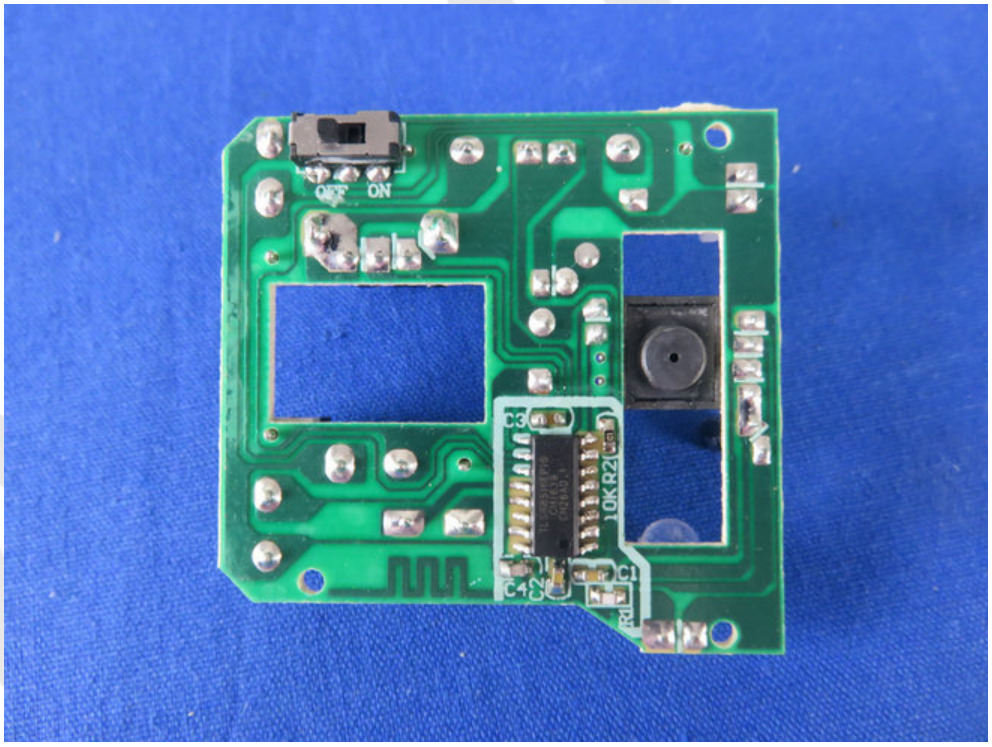









2016-07-15
EC3
10UF


OFF ON
10K R2