TEST REPORT

Report No.....:	**2021-90037**
FCC ID.....:	**2A3ZM-ECT409W**
Applicant.....:	**Sektor Group Ltd.**
Address.....:	525 Great South Road, Penrose, Auckland, New Zealand 1061
Manufacturer.....:	Sektor Group Ltd.
Address.....:	525 Great South Road, Penrose, Auckland, New Zealand 1061
Product Name.....:	**Mouse**
Trade Mark.....:	element™
Model/Type reference.....:	ECT409W
Listed Model(s).....:	ATM-PM06W, ATM-PM07W, ATM-PM08W, ATM-PM09W
Standard.....:	**FCC CFR Title 47 Part 15 Subpart C Section 15.249**
Date of Receipt.....:	December 17, 2021
Date of Test Date.....:	December 17, 2021 ~ January 06, 2022
Date of issue.....:	January 06, 2022
Test result.....:	**Pass**

Compiled by: (Printed name + Signature)	Chen Zhijun	chen zhijun
Supervised by: (Printed name + Signature)	Liu Canhui	LiuCanhui
Approved by: (Printed name + Signature)	Wang Weixiong	Wang Weixiong

Testing Laboratory Name.....:	**KSIGN Testing Co., Ltd.**
Address.....:	Building 5, No. 316, Jianghong South Road Binjiang District, Hangzhou 310052, China

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	January 06, 2022	Original

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1.3. Test Description

FCC Rules Part 15.249			
Test Item	Section in CFR 47	Result	Test Engineer
	FCC		
Antenna requirement	15.203	Pass	Chen Zhijun
AC Power Line Conducted Emissions	15.207	N/A	N/A
20dB Bandwidth	Section 15.215(c)	Pass	Chen Zhijun
Band edge Emissions	Section 15.249(d)	Pass	Chen Zhijun
Field Strength of Fundamental	Section 15.209	Pass	Chen Zhijun
Radiated Spurious Emissions	Section 15.205(a),Section 15.209(a), Section 15.249	Pass	Chen Zhijun

Note:

1. The measurement uncertainty is not included in the test result.
2. The product is battery powered.

1.4. Table of Carrier Frequency

Frequency Band	Channel Number	Frequency	Channel Number	Frequency
2400~2483.5MHZ	1	2408MHz	18	2442MHz
	2	2410MHz	19	2444MHz
	3	2412MHz	20	2446MHz
	4	2414MHz	21	2448MHz
	5	2416MHz	22	2450MHz
	6	2418MHz	23	2452MHz
	7	2420MHz	24	2454MHz
	8	2422MHz	25	2456MHz
	9	2424MHz	26	2458MHz
	10	2426MHz	27	2460MHz
	11	2428MHz	28	2462MHz
	12	2430MHz	29	2464MHz
	13	2432MHz	30	2466MHz
	14	2434MHz	31	2468MHz
	15	2436MHz	32	2470MHz
	16	2438MHz	33	2472MHz
	17	2440MHz	34	2474MHz

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1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the KSIGN(Guangdong) Testing Co., Ltd. system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Below is the best measurement capability for KSIGN(Guangdong) Testing Co., Ltd.

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.42 dB	(1)
Transmitter power Radiated	2.14 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(1)
Conducted Emissions 9kHz~30MHz	3.20 dB	(1)
Radiated Emissions 30~1000MHz	4.70 dB	(1)
Radiated Emissions 1~18GHz	5.00 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)
Occupied Bandwidth	2.80 dB	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

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2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Sektor Group Ltd.
Address:	525 Great South Road, Penrose, Auckland, New Zealand 1061
Manufacturer:	Sektor Group Ltd.
Address:	525 Great South Road, Penrose, Auckland, New Zealand 1061

2.2. General Description of EUT

Product Name:	Mouse
Trade Mark:	element™
Model/Type reference:	ECT409W
Listed Model(s):	ATM-PM06W, ATM-PM07W, ATM-PM08W, ATM-PM09W
Model Different:	The difference between product models only depends on the appearance and color of the models. Other power supply methods, internal structures, circuits and key components are the same, which does not affect safety and electromagnetic compatibility.
Power supply:	DC 1.5 V
Power supply(Battery):	N/A
Hardware version:	V1.0
Software version:	V1.0.0
Specification	
Modulation:	GFSK
Operation frequency:	2408MHz-2474MHz
Channel number:	34
Antenna type:	PCB antenna
Antenna gain:	-1.0dBi

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2.3. Description of Test Modes

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency: 2408MHz/2440MHz/2474MHz

Test mode

For RF test items:
The engineering test program was provided and enabled to make EUT continuous transmit.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

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2.4. Measurement Instruments List

Tonscend JS0806-2 Test system					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
1	Spectrum Analyzer	R&S	FSV40-N	101798	03/22/2022
2	Vector Signal Generator	Agilent	N5182A	MY50142520	03/18/2022
3	Analog Signal Generator	HP	83752A	3344A00337	03/18/2022
4	Power Sensor	Agilent	E9304A	MY50390009	03/18/2022
5	Power Sensor	Agilent	E9300A	MY41498315	03/18/2022
6	Wideband Radio Communication Tester	R&S	CMW500	157282	03/18/2022
7	Climate Chamber	Angul	AGNH80L	1903042120	03/18/2022
8	Dual Output DC Power Supply	Agilent	E3646A	MY40009992	03/18/2022
9	RF Control Unit	Tonscend	JS0806-2	/	03/18/2022

Transmitter spurious emissions & Receiver spurious emissions					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
1	EMI Test Receiver	R&S	ESR	102525	03/18/2022
2	High Pass Filter	Chengdu E-Microwave	OHF-3-18-S	0E01901038	03/22/2022
3	High Pass Filter	Chengdu E-Microwave	OHF-6.5-18-S	0E01901039	03/22/2022
4	Spectrum Analyzer	HP	8593E	3831U02087	03/22/2022
5	Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	01230	03/29/2023
6	Loop Antenna	Beijin ZHINAN	ZN30900C	18050	03/27/2022
7	Spectrum Analyzer	R&S	FSV40-N	101798	03/22/2022
8	Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	03/29/2023
9	Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	03/22/2022
10	Pre-Amplifier	EMCI	EMC051835SE	980662	03/22/2022

Note:
1)The Cal. Interval was one year.
2)The cable loss has calculated in test result which connection between each test instruments.

2.5. Test Software

Software name	Model	Version
Conducted emission Measurement Software	EZ-EMC	EMC-Con 3A1.1
Radiated emission Measurement Software	EZ-EMC	FA-03A.2.RE
Bluetooth and WIFI Test System	JS1120-3	2.5.77.0418

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3. TEST ITEM AND RESULTS

3.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

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.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

Note: The antenna is permanently fixed to the EUT

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3.2. Conducted Emission

Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

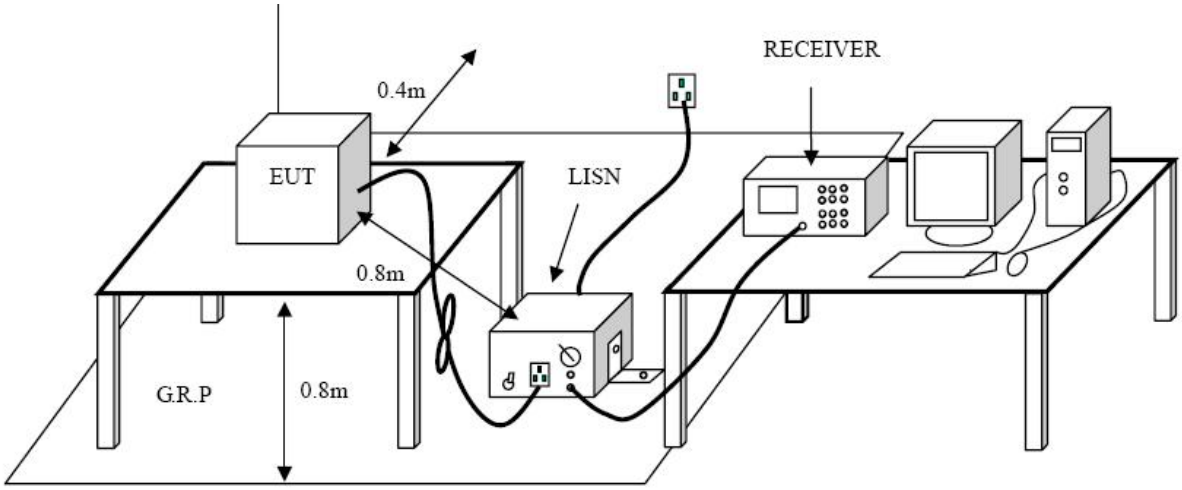
Notes:

(1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequencies.

(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment.
   The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

Test Results

EUT uses internal battery power supply, not applicable.

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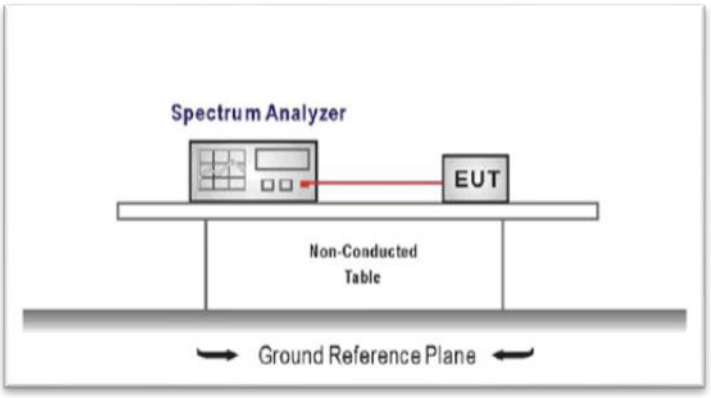
3.3. 20dB Bandwidth

Limit

Operation frequency range 2400MHz~2483.5MHz.

Test Configuration



Test Procedure

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:

   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

   RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW

   Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

Test Mode

Please refer to the clause 2.3..

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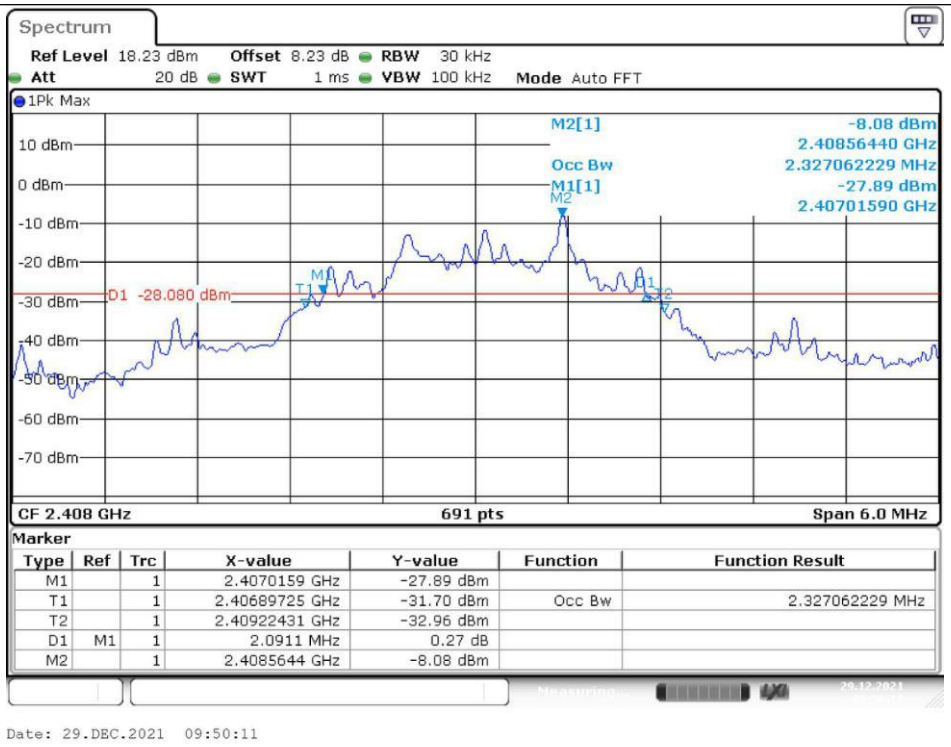
Test Results

Test Mode:	GFSK	
Channel frequency (MHz)	20dB Bandwidth [MHz]	Verdict
2408	2.0911	PASS
2440	2.0839	PASS
2474	2.1013	PASS
2408MHz		



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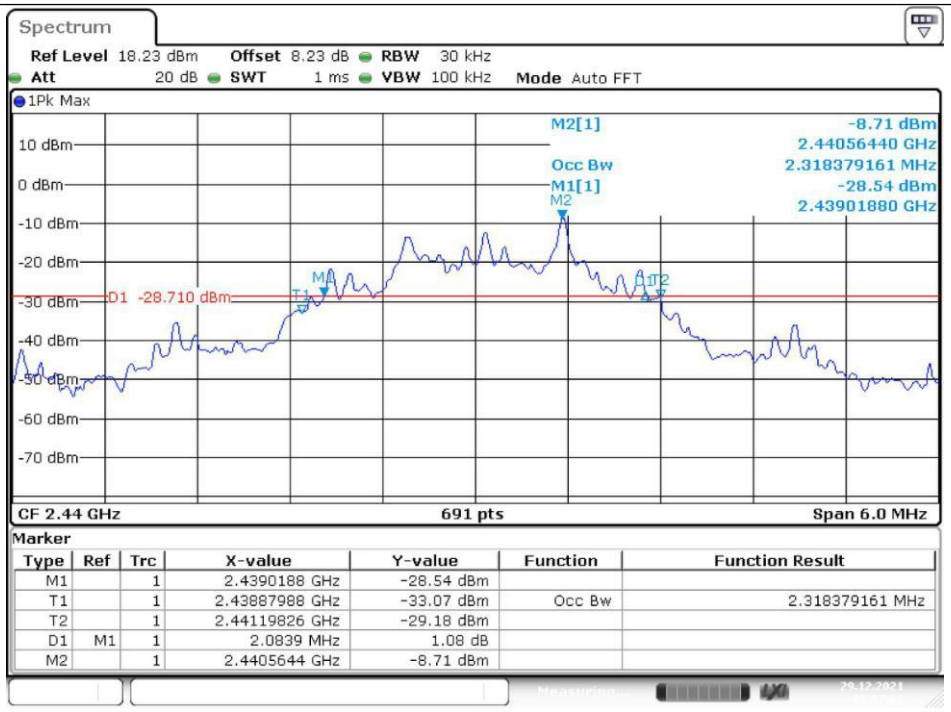
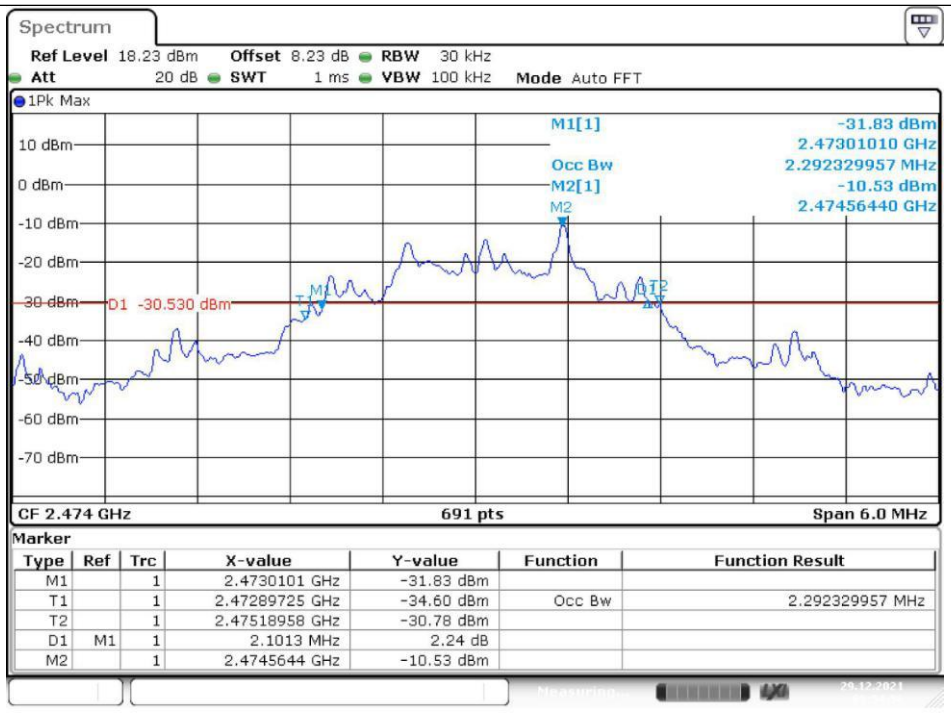
2440MHz



Date: 29.DEC.2021 09:52:02

2474MHz



Date: 29.DEC.2021 09:54:56

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3.4. Radiated Spurious Emissions

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209(a) and 15.205(a)

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0dB(μV)/m(Peak) 54.0dB(μV)/m (Average)	

Remark: (1) Emission level dBμV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

FREQUENCY RANGE OF RADIATED MEASUREMENT

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz RBW 1MHz/ VBW 1MHz for Peak, RBW 1MHz/ VBW 10Hz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

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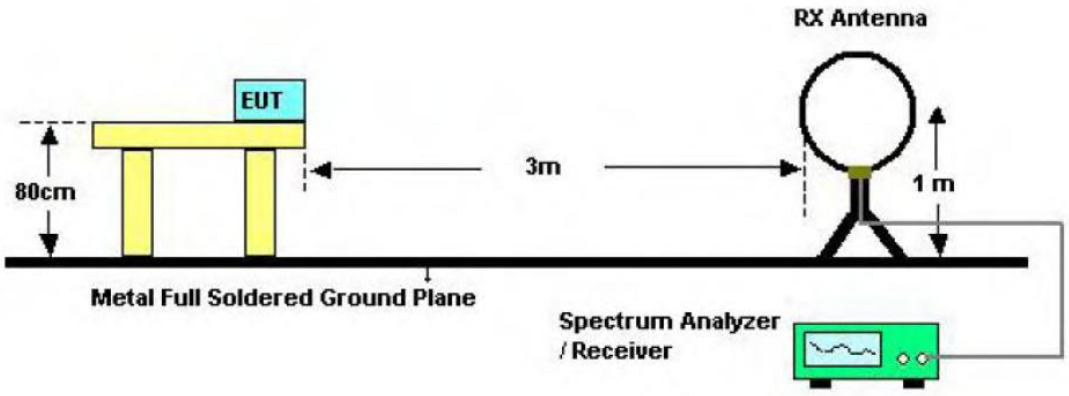
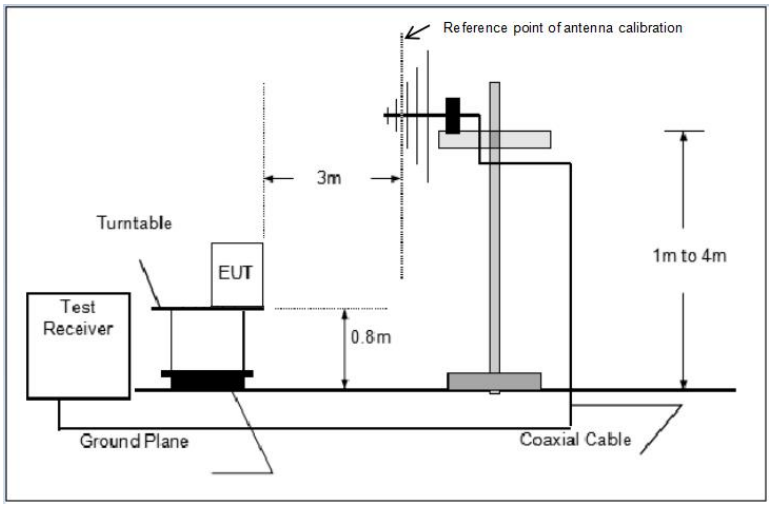
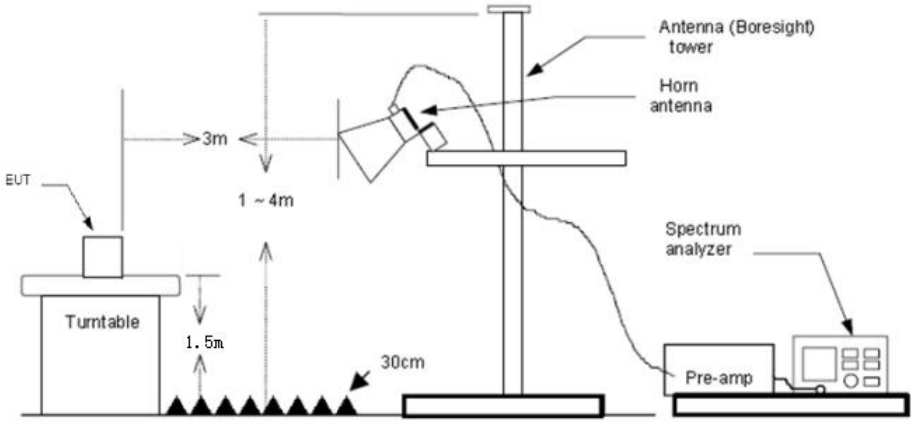
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

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Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Below 1 GHz:
   RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
   If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
   (3) From 1 GHz to 10th harmonic:
   RBW=1MHz, VBW=3MHz Peak detector for Peak value.
   RBW=1MHz, VBW=10Hz RMS detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

9 KHz~30 MHz and 18GHz~25GHz

From 9 KHz~30 MHz and 18GHz~25GHz: Conclusion: PASS

Note:

1) Final level = Reading level + Correct Factor
   Correct Factor=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.
3) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4) Pre-scan 2408MHz, 2440MHz and 2474MHz mode, and found the 2408MHz which it is worse case for 30MHz-1GHz , so only show the test data for worse case.
5) Pre-scan 2408MHz, 2440MHz and 2474MHz mode, and found the 2408MHz mode it is worse case for above 1GHz, so only show the test data for worse case.
6) 18GHz ~ 25GHz
   The EUT was pre-scanned the frequency band (18GHz~25GHz), found the radiated level(Background noise) lower than the limit, so don't show on the report. 3

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Radiated field strength of the fundamental signal

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dBuV/m)	Polarization	Test value
2408	91.84	-10.88	80.96	114	-33.04	Horizontal	Peak
2440	94.41	-10.88	83.53	114	-30.47	Horizontal	Peak
2474	93.76	-10.88	82.88	114	-31.12	Horizontal	Peak
2408	72.16	-10.88	61.28	94	-32.72	Horizontal	AVG
2440	73.41	-10.88	62.53	94	-31.47	Horizontal	AVG
2474	79.26	-10.88	68.38	94	-25.62	Horizontal	AVG

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dBuV/m)	Polarization	Test value
2408	92.18	-10.88	81.3	114	-32.70	Vertical	Peak
2440	93.84	-10.88	82.96	114	-31.04	Vertical	Peak
2474	93.09	-10.88	82.21	114	-31.79	Vertical	Peak
2408	73.11	-10.88	62.23	94	-31.77	Vertical	AVG
2440	72.80	-10.88	61.92	94	-32.08	Vertical	AVG
2474	77.66	-10.88	66.78	94	-27.22	Vertical	AVG

Note:
Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

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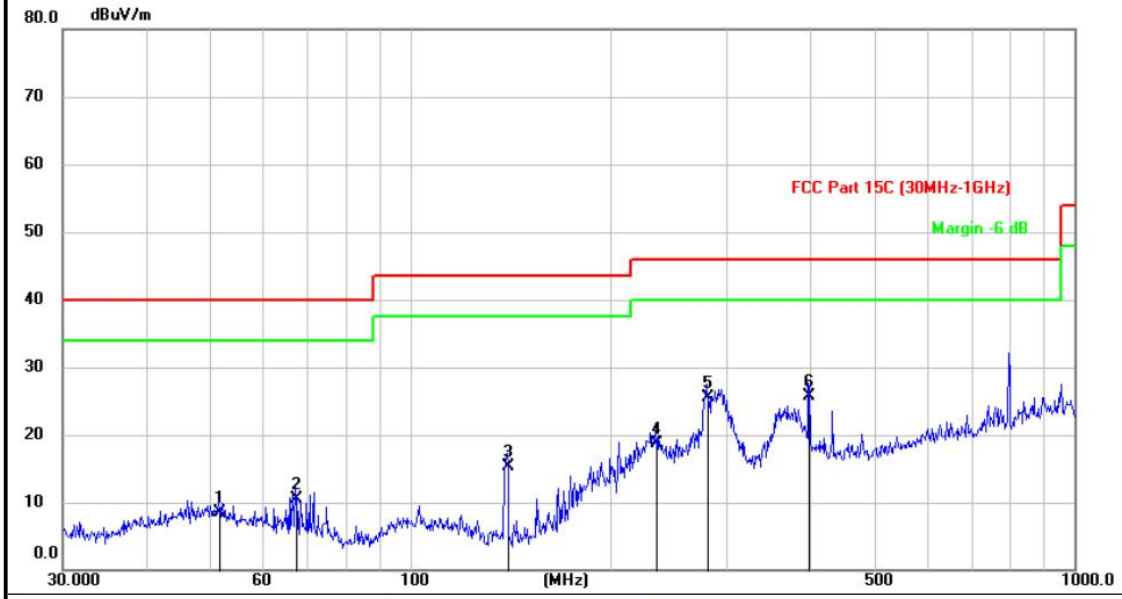
30MHz-1GHz

Test Voltage:	DC 1.5V
Ant. Pol.	Horizontal
Test Mode:	TX 2408MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		51.4988	24.40	-15.95	8.45	40.00	-31.55	QP
2		67.2965	29.74	-19.14	10.60	40.00	-29.40	QP
3		140.1454	36.59	-21.27	15.32	43.50	-28.18	QP
4		234.4148	35.01	-16.40	18.61	46.00	-27.39	QP
5		280.5152	40.71	-15.13	25.58	46.00	-20.42	QP
6	*	398.3312	36.62	-10.96	25.66	46.00	-20.34	QP

Emission Level= Read Level+ Correct Factor

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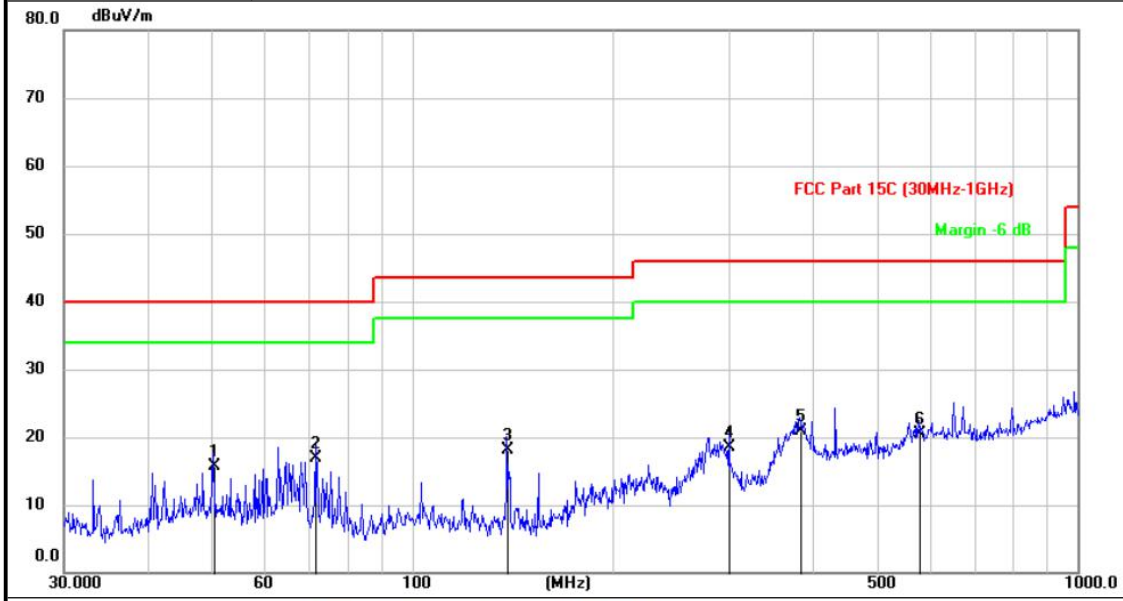
Test Voltage:	DC 1.5V
Ant. Pol.	Vertical
Test Mode:	TX 2408MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		50.3559	31.47	-15.71	15.76	40.00	-24.24	QP
2	*	71.6308	36.69	-19.88	16.81	40.00	-23.19	QP
3		139.0196	39.49	-21.29	18.20	43.50	-25.30	QP
4		300.0514	33.14	-14.66	18.48	46.00	-27.52	QP
5		383.6627	32.40	-11.45	20.95	46.00	-25.05	QP
6		577.0489	28.80	-8.24	20.56	46.00	-25.44	QP

Emission Level= Read Level+ Correct Factor

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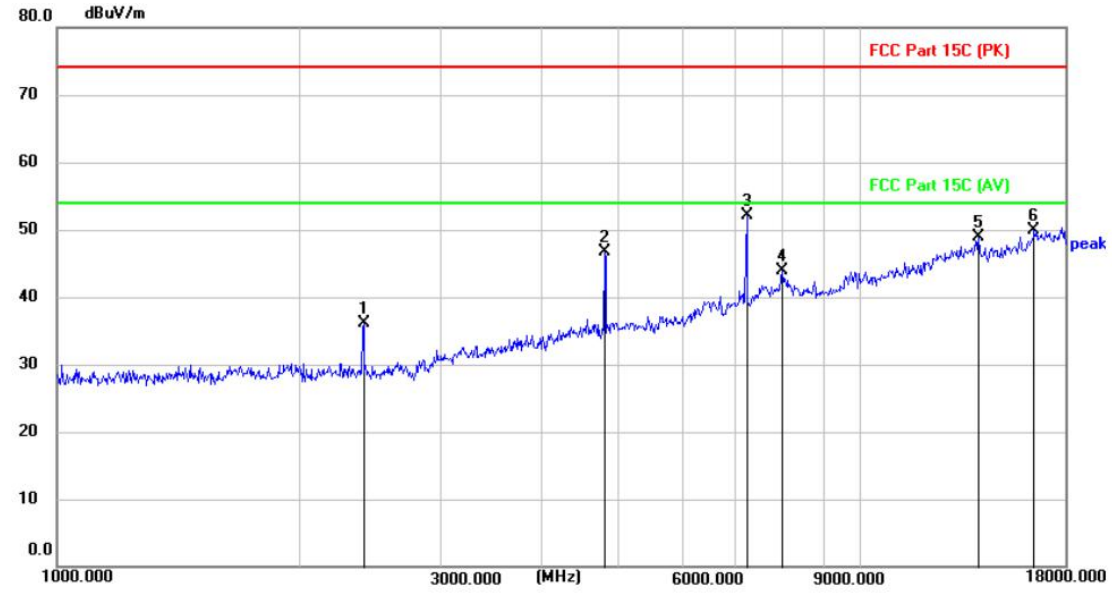
Adobe 1GHz

Test Voltage:	DC 1.5V
Ant. Pol.	Horizontal
Test Mode:	TX Mode 2408MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2409.300	47.09	-10.91	36.18	74.00	37.82	peak
2		4816.500	52.51	-5.88	46.63	74.00	27.37	peak
3	*	7225.400	52.08	-0.02	52.06	74.00	21.94	peak
4		8004.000	41.78	2.06	43.84	74.00	30.16	peak
5		14045.800	37.70	11.16	48.86	74.00	25.14	peak
6		16466.600	36.21	13.73	49.94	74.00	24.06	peak

Emission Level= Read Level+ Correct Factor

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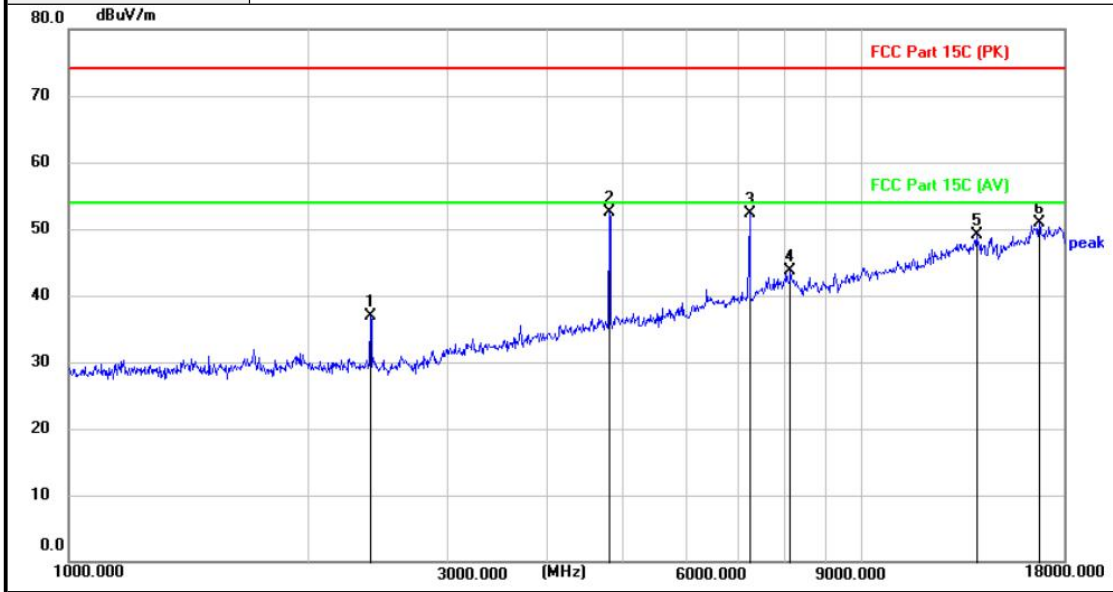
Test Voltage:	DC 1.5V
Ant. Pol.	Vertical
Test Mode:	TX Mode 2408MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2407.600	47.88	-10.91	36.97	74.00	37.03	peak
2	*	4816.500	58.46	-5.88	52.58	74.00	21.42	peak
3		7225.400	52.24	-0.02	52.22	74.00	21.78	peak
4		8141.700	41.73	2.04	43.77	74.00	30.23	peak
5		13964.200	37.83	11.18	49.01	74.00	24.99	peak
6		16755.600	37.45	13.41	50.86	74.00	23.14	peak

Emission Level= Read Level+ Correct Factor

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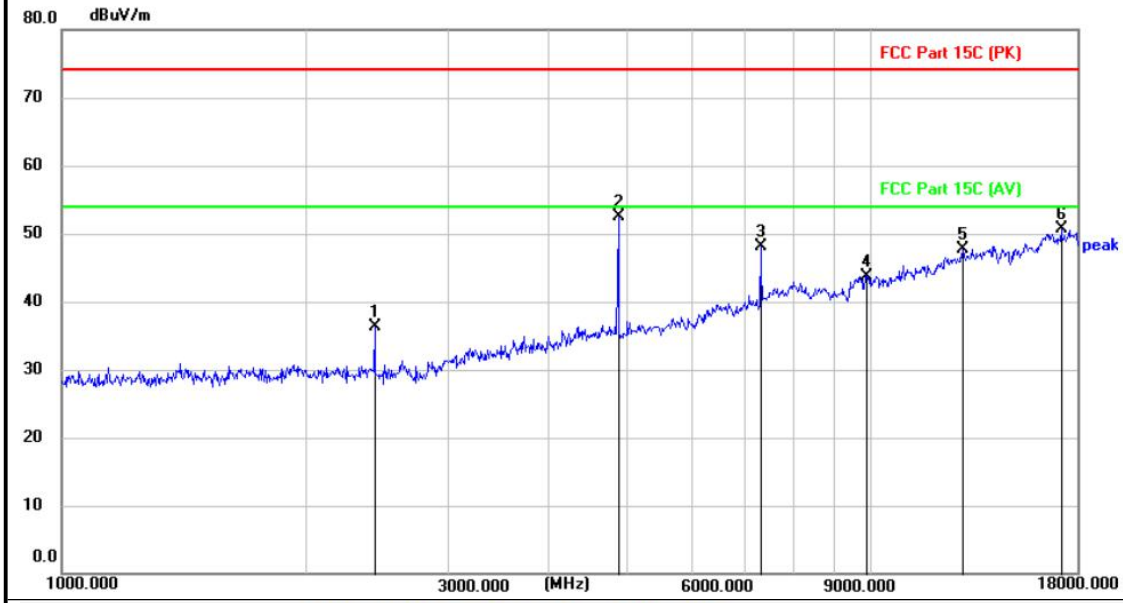
Test Voltage:	DC 1.5V
Ant. Pol.	Horizontal
Test Mode:	TX Mode 2440MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2439.900	47.27	-10.90	36.37	74.00	37.63	peak
2	*	4881.100	58.27	-5.71	52.56	74.00	21.44	peak
3		7318.900	47.78	0.27	48.05	74.00	25.95	peak
4		9884.200	39.98	3.82	43.80	74.00	30.20	peak
5		12988.400	37.83	9.90	47.73	74.00	26.27	peak
6		17221.400	37.53	13.19	50.72	74.00	23.28	peak

Emission Level= Read Level+ Correct Factor

Add：Building 5, No. 316, Jianghong South Road Binjiang District, Hangzhou 310052, China
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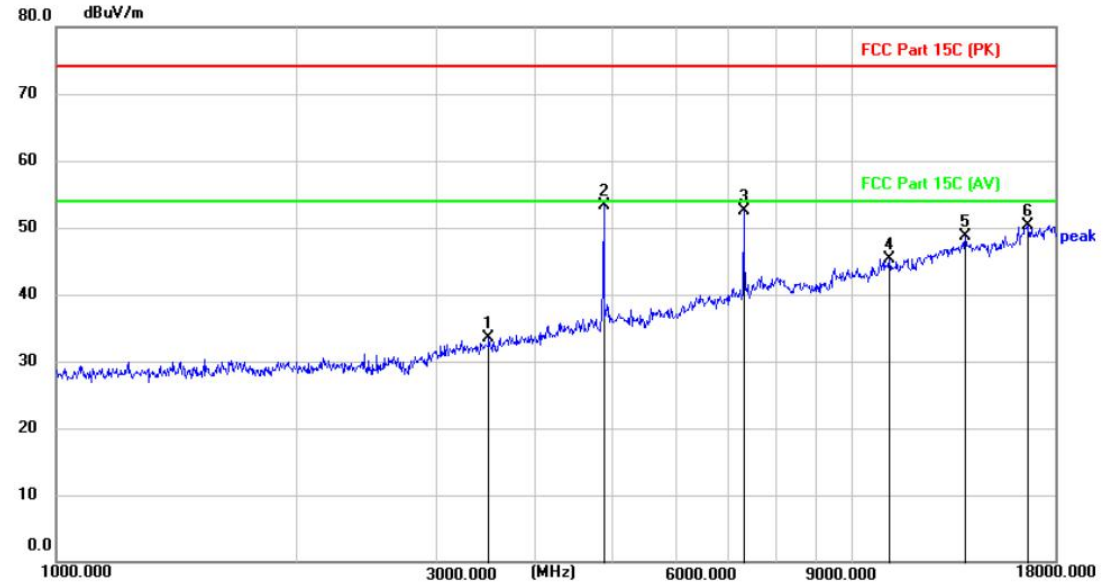
Test Voltage:	DC 1.5V
Ant. Pol.	Vertical
Test Mode:	TX Mode 2440MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		3500.700	43.10	-9.68	33.42	74.00	40.58	peak
2	*	4881.100	59.09	-5.71	53.38	74.00	20.62	peak
3		7320.600	52.24	0.27	52.51	74.00	21.49	peak
4		11171.100	39.31	6.09	45.40	74.00	28.60	peak
5		13908.100	37.65	11.12	48.77	74.00	25.23	peak
6		16612.800	36.75	13.63	50.38	74.00	23.62	peak

Emission Level= Read Level+ Correct Factor

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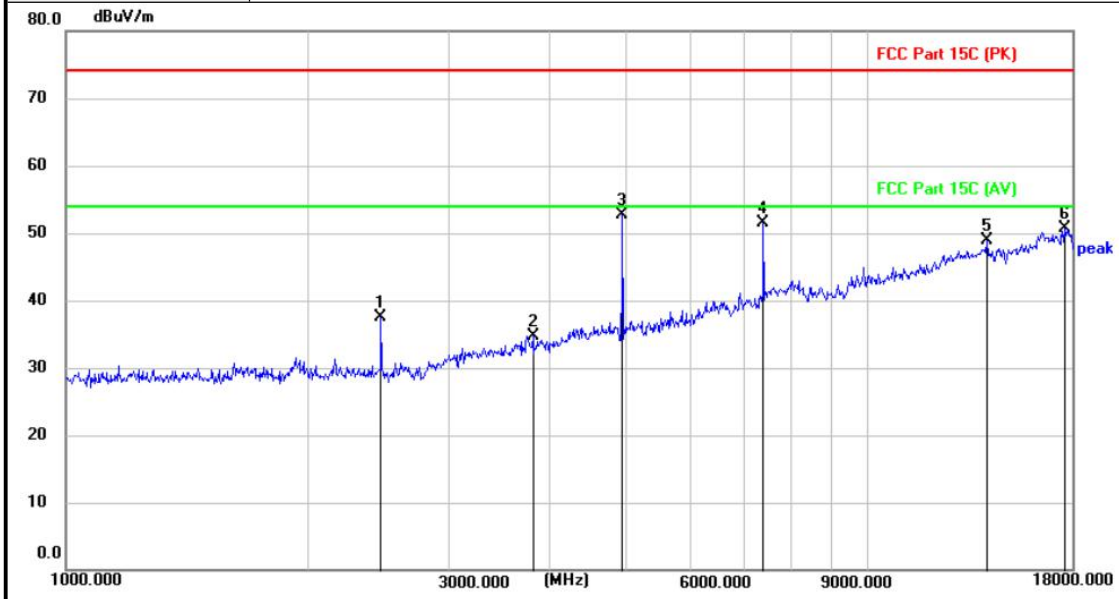
Test Voltage:	DC 1.5V
Ant. Pol.	Horizontal
Test Mode:	TX Mode 2474MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2473.900	48.39	-10.89	37.50	74.00	36.50	peak
2		3827.100	43.61	-8.87	34.74	74.00	39.26	peak
3	*	4947.400	58.18	-5.53	52.65	74.00	21.35	peak
4		7424.300	50.83	0.59	51.42	74.00	22.58	peak
5		14113.800	37.90	11.08	48.98	74.00	25.02	peak
6		17588.600	37.21	13.43	50.64	74.00	23.36	peak

Emission Level= Read Level+ Correct Factor

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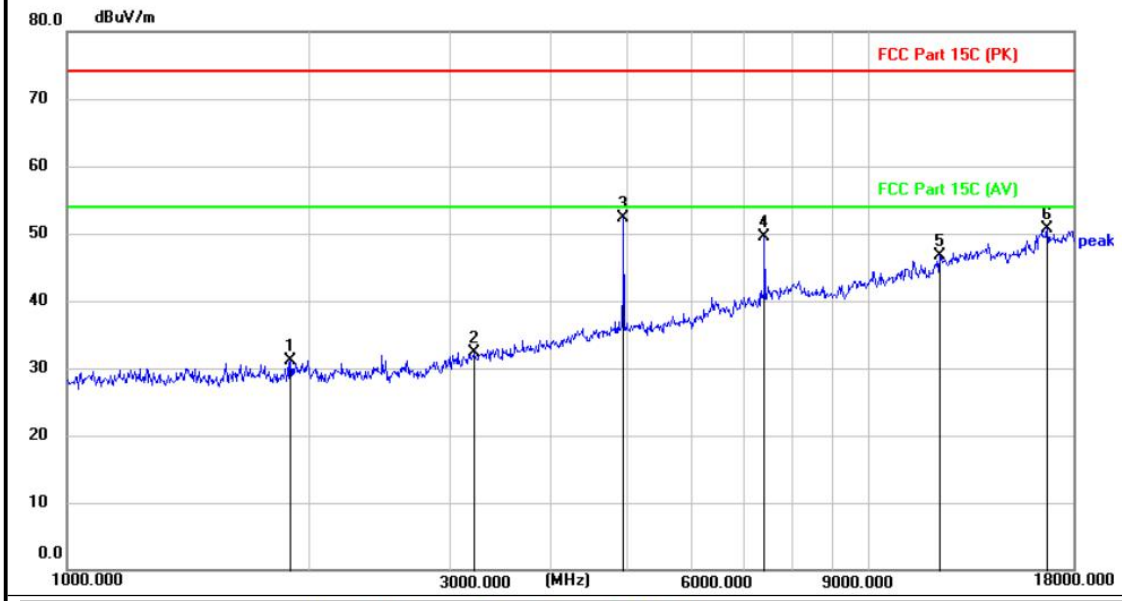
Test Voltage:	DC 1.5V
Ant. Pol.	Vertical
Test Mode:	TX Mode 2474MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1904.400	42.25	-11.14	31.11	74.00	42.89	peak
2		3221.900	42.44	-10.19	32.25	74.00	41.75	peak
3	*	4947.400	57.82	-5.53	52.29	74.00	21.71	peak
4		7420.900	49.01	0.58	49.59	74.00	24.41	peak
5		12281.200	38.30	8.50	46.80	74.00	27.20	peak
6		16708.000	37.28	13.49	50.77	74.00	23.23	peak

Emission Level= Read Level+ Correct Factor

Note:
1.18GHz-26.5GHz is the background of the site, there is no radiated spurious.

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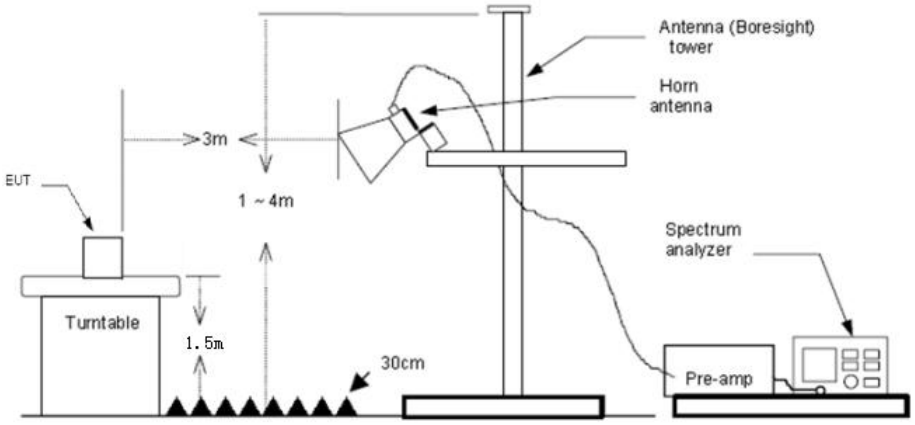
3.5. Band Edge Emissions(Radiated)

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

   (1) Span shall wide enough to fully capture the emission being measured;

   RBW=1MHz, VBW=3MHz PEAK detector for Peak value.

   RBW=1MHz, VBW=10Hz with Average Detector for Average Value.

Test Mode

Please refer to the clause 2.3.

Test Results

☒ **Passed** ☐ **Not Applicable**

Note:

1) Final level= Read level + Antenna Factor + Cable Loss - Preamp Factor

2) Correction Factor = Antenna factor + cable loss

3) The peak level is lower than average limit(54dBuV/m), this data is the too weak instrument of signal is unable to test.

4) The emission levels of other frequencies are very lower than the limit and not show in test report.

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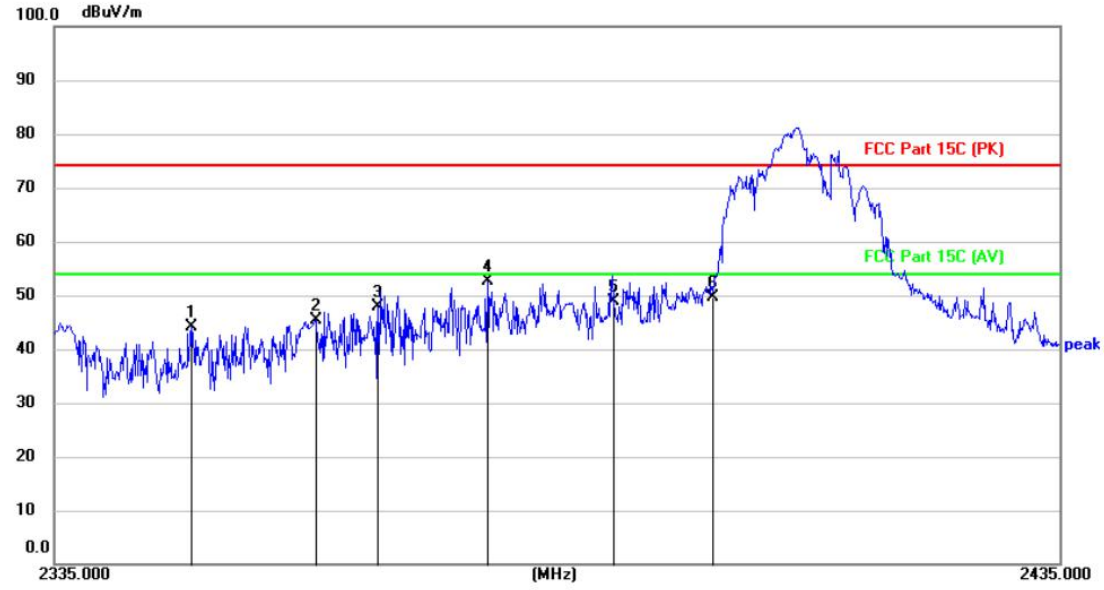
Test Voltage:	DC 1.5V
Ant. Pol.:	Horizontal
Test Mode:	TX Mode 2408MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2348.430	55.16	-10.93	44.23	74.00	29.77	peak
2		2360.660	56.42	-10.93	45.49	74.00	28.51	peak
3		2366.780	58.83	-10.93	47.90	74.00	26.10	peak
4	*	2377.620	63.44	-10.93	52.51	74.00	21.49	peak
5		2390.000	59.81	-10.92	48.89	74.00	25.11	peak
6		2400.000	60.57	-10.92	49.65	74.00	24.35	peak

Emission Level= Read Level+ Correct Factor

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Test Voltage:	DC 1.5V
Ant. Pol.	Vertical
Test Mode:	TX Mode 2408MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2352.910	46.15	-10.94	35.21	74.00	38.79	peak
2		2376.060	51.94	-10.93	41.01	74.00	32.99	peak
3		2382.290	53.27	-10.92	42.35	74.00	31.65	peak
4		2390.000	53.58	-10.92	42.66	74.00	31.34	peak
5	*	2394.920	61.48	-10.91	50.57	74.00	23.43	peak
6		2400.000	55.64	-10.92	44.72	74.00	29.28	peak

Emission Level= Read Level+ Correct Factor

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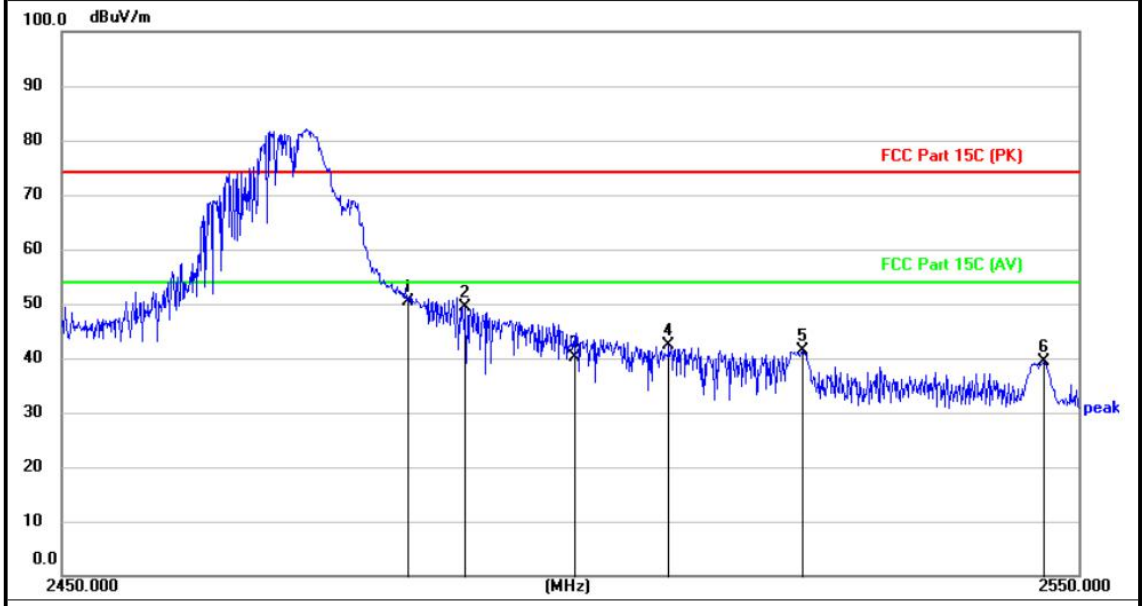
Test Voltage:	DC 1.5V
Ant. Pol.	Horizontal
Test Mode:	TX Mode 2474 MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1	*	2483.500	61.24	-10.88	50.36	74.00	23.64	peak
2		2489.290	60.33	-10.89	49.44	74.00	24.56	peak
3		2500.000	50.94	-10.88	40.06	74.00	33.94	peak
4		2509.260	53.33	-10.87	42.46	74.00	31.54	peak
5		2522.470	52.28	-10.87	41.41	74.00	32.59	peak
6		2546.600	50.31	-10.85	39.46	74.00	34.54	peak

Emission Level= Read Level+ Correct Factor

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Test Voltage:	DC 1.5V
Ant. Pol.	Vertical
Test Mode:	TX Mode 2474 MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1	*	2483.500	55.01	-10.88	44.13	74.00	29.87	peak
2		2489.230	51.33	-10.89	40.44	74.00	33.56	peak
3		2492.600	51.14	-10.89	40.25	74.00	33.75	peak
4		2500.000	43.93	-10.88	33.05	74.00	40.95	peak
5		2522.470	46.36	-10.87	35.49	74.00	38.51	peak
6		2536.760	42.96	-10.86	32.10	74.00	41.90	peak

Emission Level= Read Level+ Correct Factor

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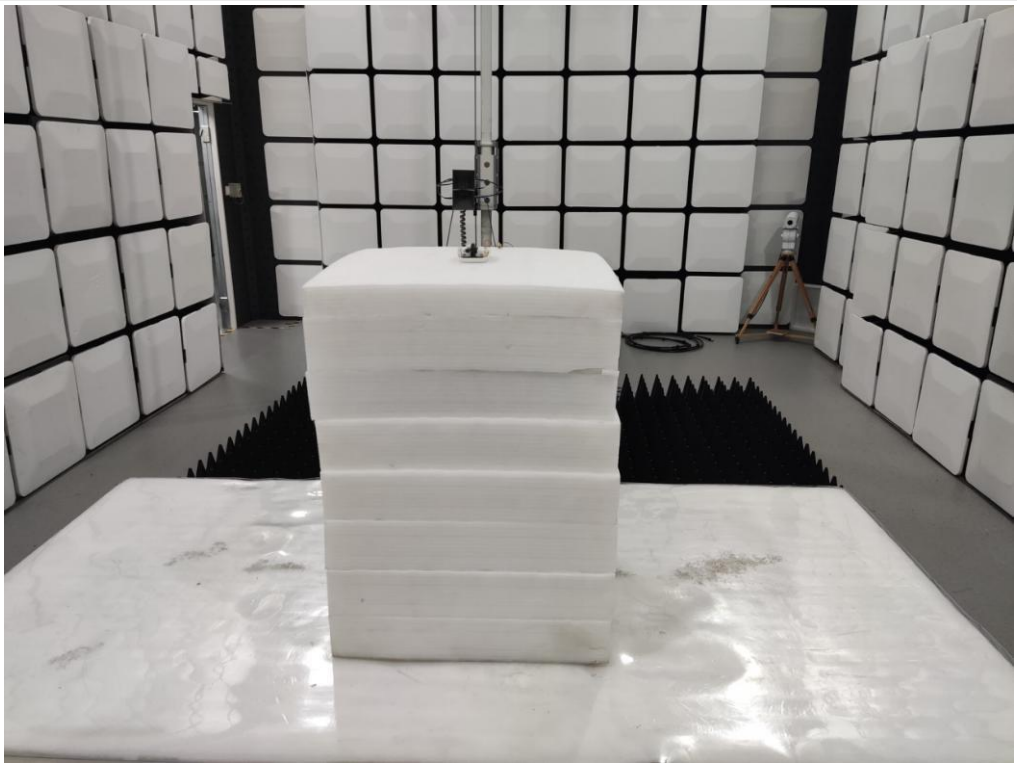
4.EUT TEST PHOTOS

Radiated Measurement (Below 1GHz)
Radiated Measurement (Above 1GHz)


Add：Building 5, No. 316, Jianghong South Road Binjiang District, Hangzhou 310052, China
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5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

External Photographs

Photo 1

Photo 2

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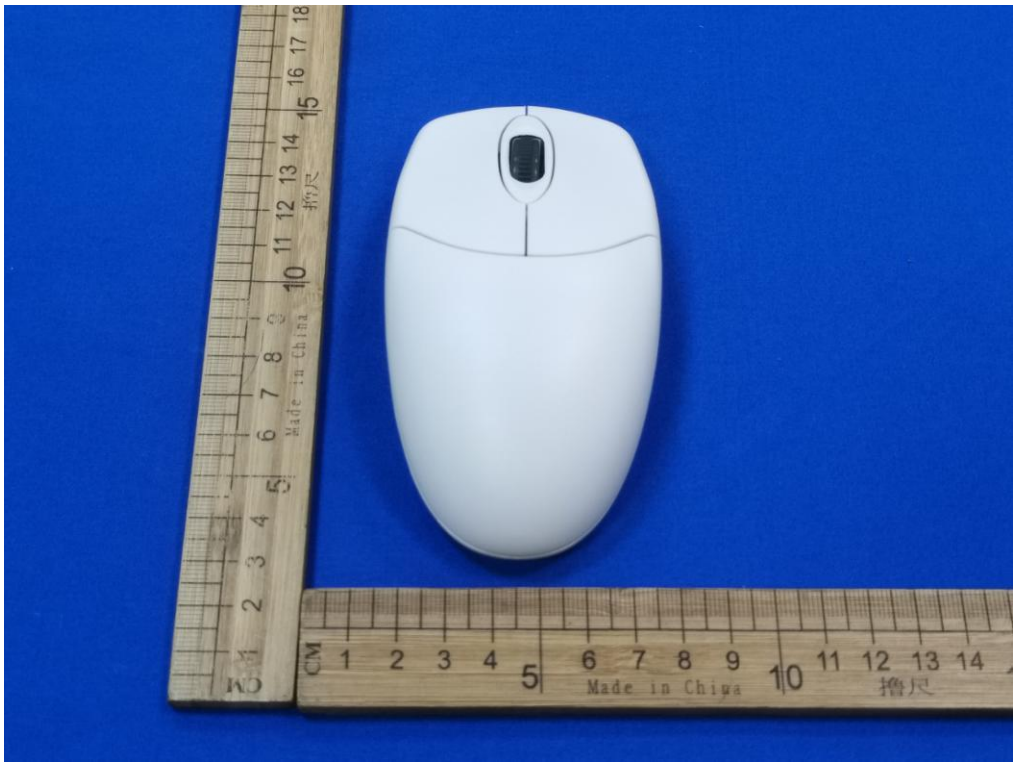
Photo 3

Photo 4



Add：Building 5, No. 316, Jianghong South Road Binjiang District, Hangzhou 310052, China
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Photo 5

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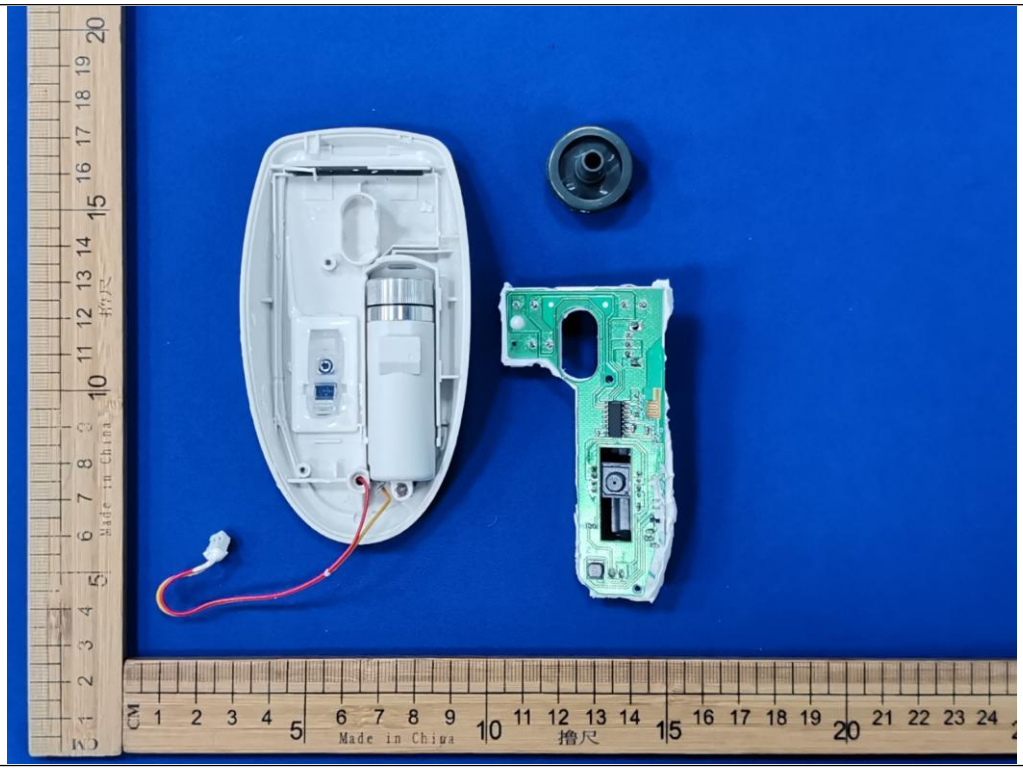
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Internal Photographs

Photo 1
Photo 2


Add：Building 5, No. 316, Jianghong South Road Binjiang District, Hangzhou 310052, China
Tel：+(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail：info@gdksign.cn Web: www.gdksign.com

Photo 3

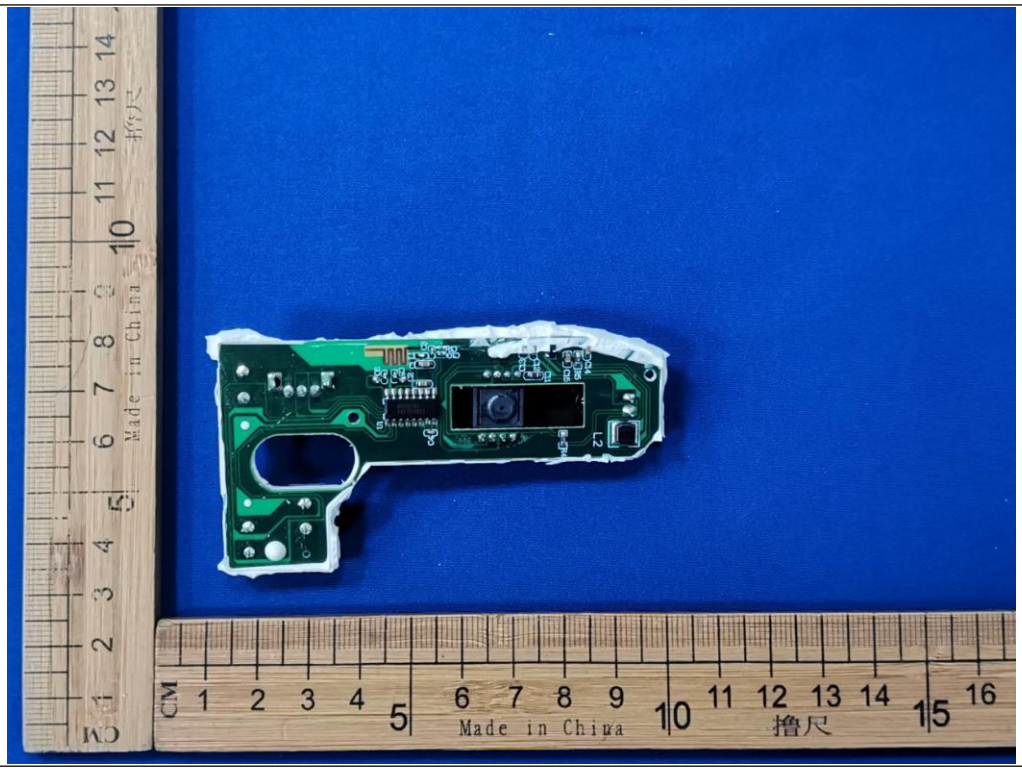


Photo 4

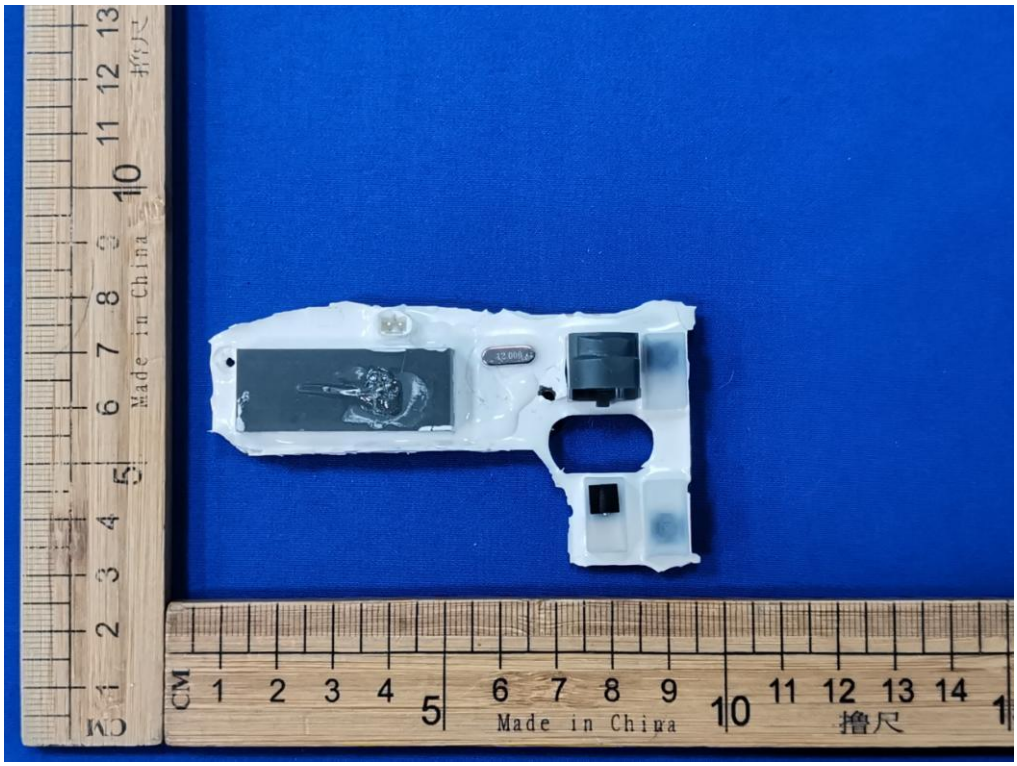


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Photo 5

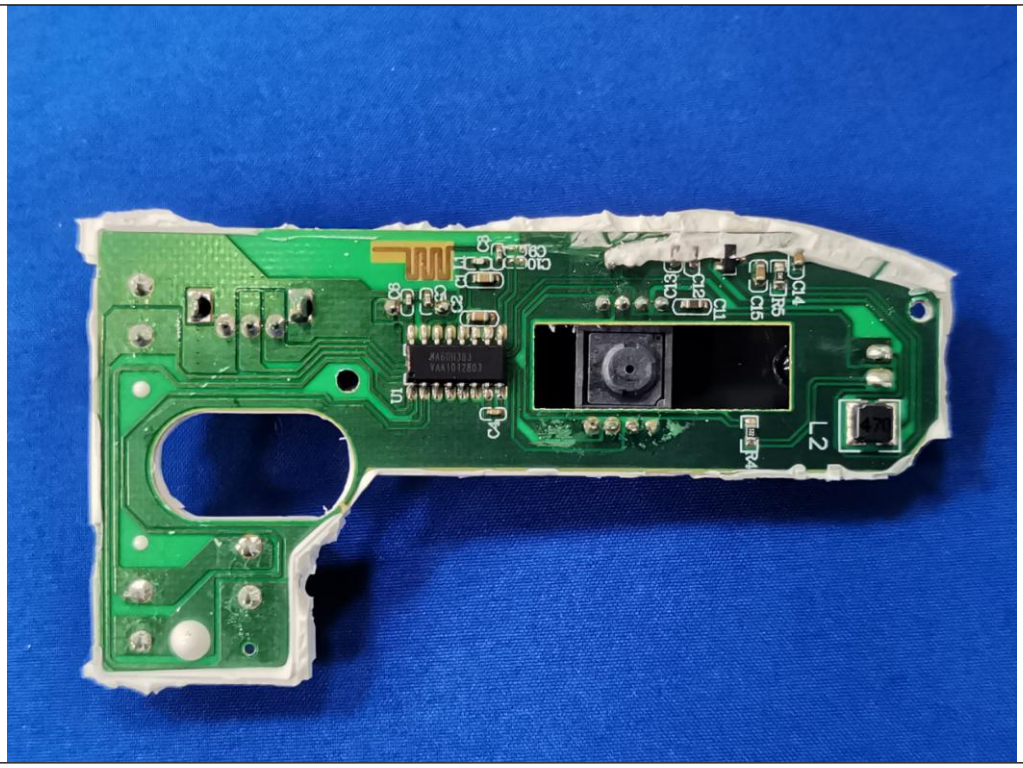

Photo 6

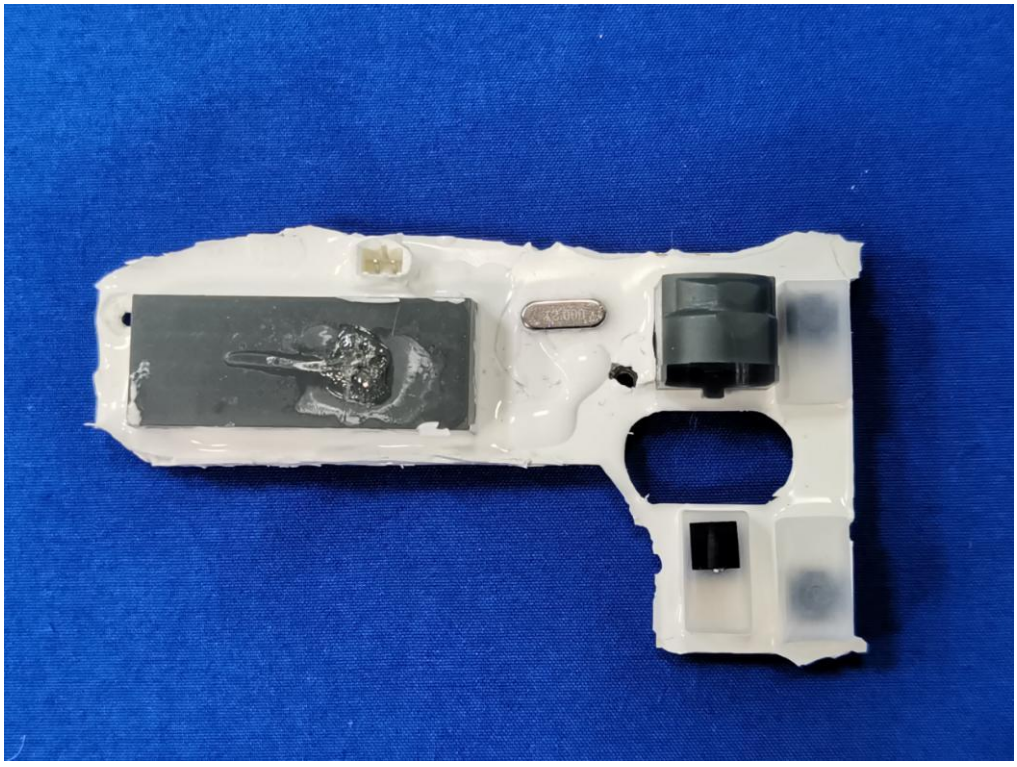

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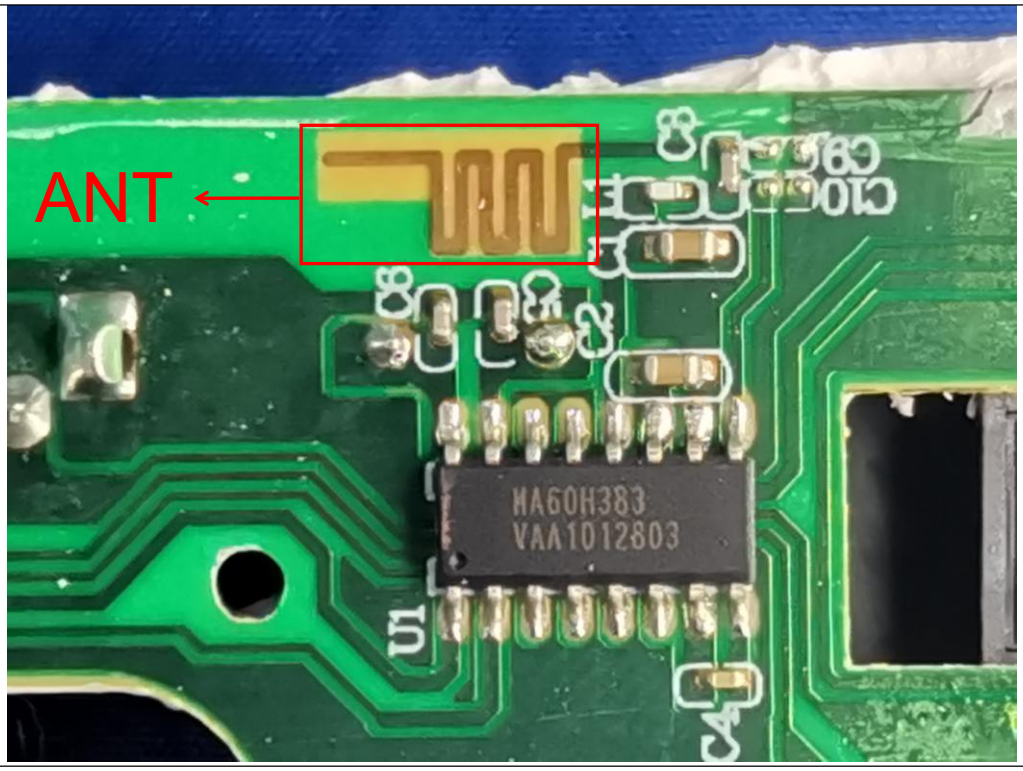
Photo 7


--THE END--

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