TECHNICAL REPORT

Report No.:	FCC1912274
File Reference No.:	2020-01-10
Applicant:	Shenzhen Star Sources Electronic Technology Co., Ltd.
Product:	Wireless Bluetooth Mouse
Model No.:	IMACM212W-WM
Brand Name:	N/A
Test Standards:	FCC Part 15.249
Test Result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: January 10, 2020

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The 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 our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

Test Report Conclusion

Content

1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688

Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Shenzhen Star Sources Electronic Technology Co., Ltd.

Address: Room1102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District, Shenzhen, China

Telephone: --

Fax: --

1.3 Description of EUT

Product:	Wireless Bluetooth Mouse
Manufacturer:	Shenzhen Star Sources Electronic Technology Co., Ltd.
Address:	Room1102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District, Shenzhen, China
Brand Name:	N/A
Model Number:	IMACM212W-WM
Additional Model Name	N/A
Input Voltage:	DC3.0V, 2pcs AAA batteries
Modulation Type:	Bluetooth BRD/EDR : GFSK, Л/4D-QPSK, 8DPSK; BLE: GFSK
Operation Frequency	2402-2480MHz
Channel Separation	1MHz for Bluetooth BRD/EDR; 2MHz for BLE
Antenna Designation	PCB antenna with gain 0dBi Max

1.4 Submitted Sample

1 Sample

1.5 Test Duration

2019-12-27 to 2020-01-09

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by Terry Tang

Print Name: Terry Tang

2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100294	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100253	2019-06-21	2020-06-20
Ultra Broadband ANT	R&S	HL562	100157	2019-06-21	2020-06-20
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2019-06-21	2020-06-20
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2019-06-21	2020-06-20
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2019-06-21	2021-06-20
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2019-08-22	2020-08-21
Power sensor	Anritsu	MA2491A	32263	2019-08-22	2020-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic	--	--	N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2019-06-21	2020-06-20
EMI Test Receiver	RS	ESH3	860904/006	2019-06-21	2020-06-20
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2019-06-21	2020-06-20
Spectrum	HP/Agilent	E4407B	MY50441392	2019-06-21	2020-06-20
Spectrum	RS	FSP	1164.4391.38	2019-01-20	2020-01-19
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA	--	2019-06-21	2020-06-20
RF Cable	Zhengdi	7m	--	2019-06-21	2020-06-20
RF Switch	EM	EMSW18	060391	2019-06-21	2020-06-20
Pre-Amplifier	Schwarebeck	BBV9743	#218	2019-06-21	2020-06-20
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2019-06-21	2020-06-20

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	N/A	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	PASS	Complies
FCC Part 15, Paragraph 15.209 and RSS-210	Radiated Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	PASS	Complies

3.2 Test Standards

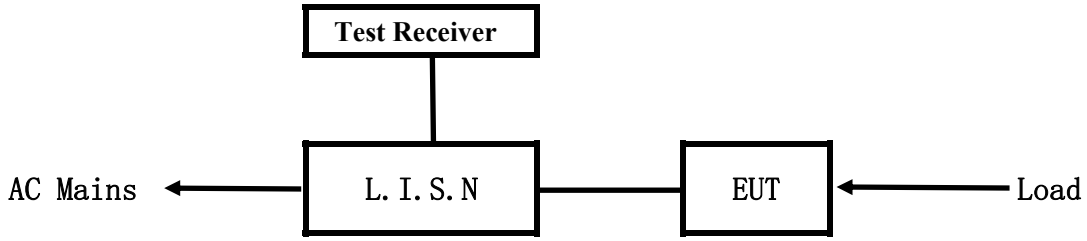
FCC Part 15 Subpart C, Paragraph 15.249 , ANSI C63.4 :2014 and ANSI C63.10 :2013

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

5. Power Line Conducted Emission Test

5.1 Schematics of the test

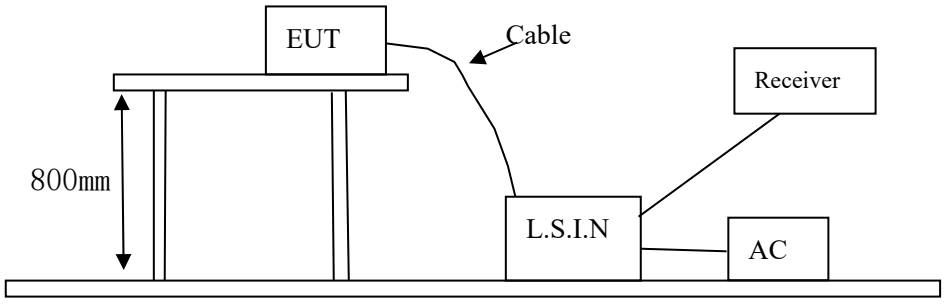


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2014.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2014. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
Wireless Bluetooth Mouse	Star Technology Industrial Co., Ltd.	IMACM212W-WM	ZJEIMACM212

B. Internal Device

Device	Manufacturer	Model	FCC ID/SDOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/SDOC/DOC

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2014

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.107 and 15.207

Frequency(MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

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

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results: N/A

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: EUT powered by AAA battery, this test item not applicable.

6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189

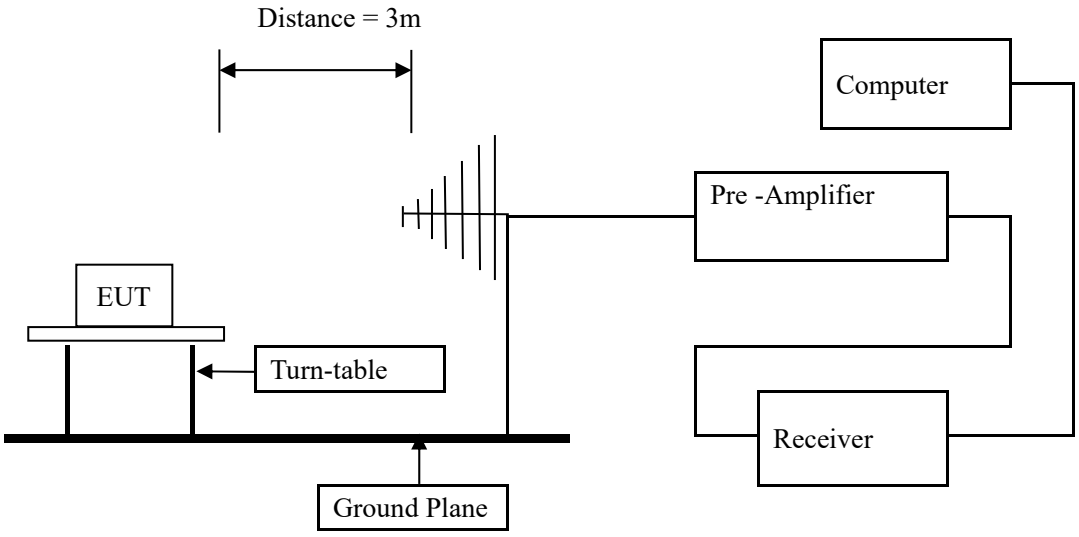
(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.

(3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.

(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency (MHz)	Field Strength of Fundamental (3m)			Field Strength of Harmonics (3m)		
	mV/m	**dBuV/m**		**uV/m**	**dBuV/m**	
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

Note: 1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)

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

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.

5. New battery were used during tests.

6. X,Y,Z axis of eut all have been tested， only worse case is reported.

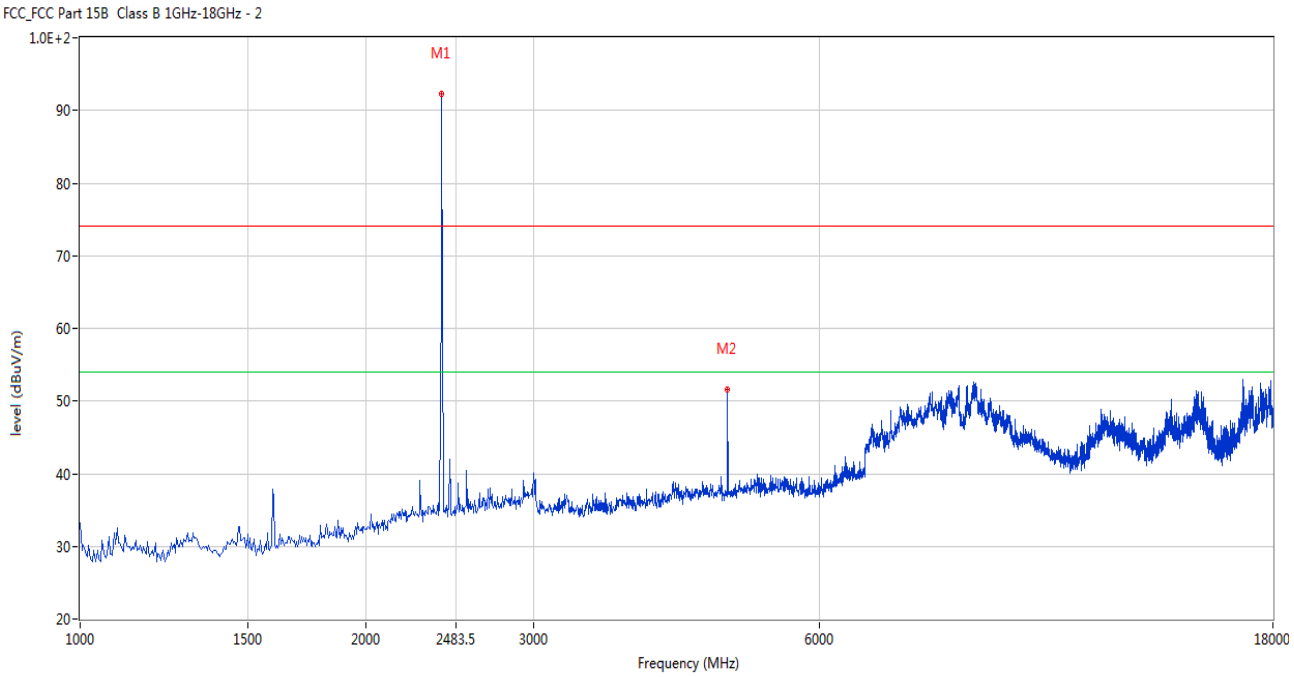
6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

BLE Mode

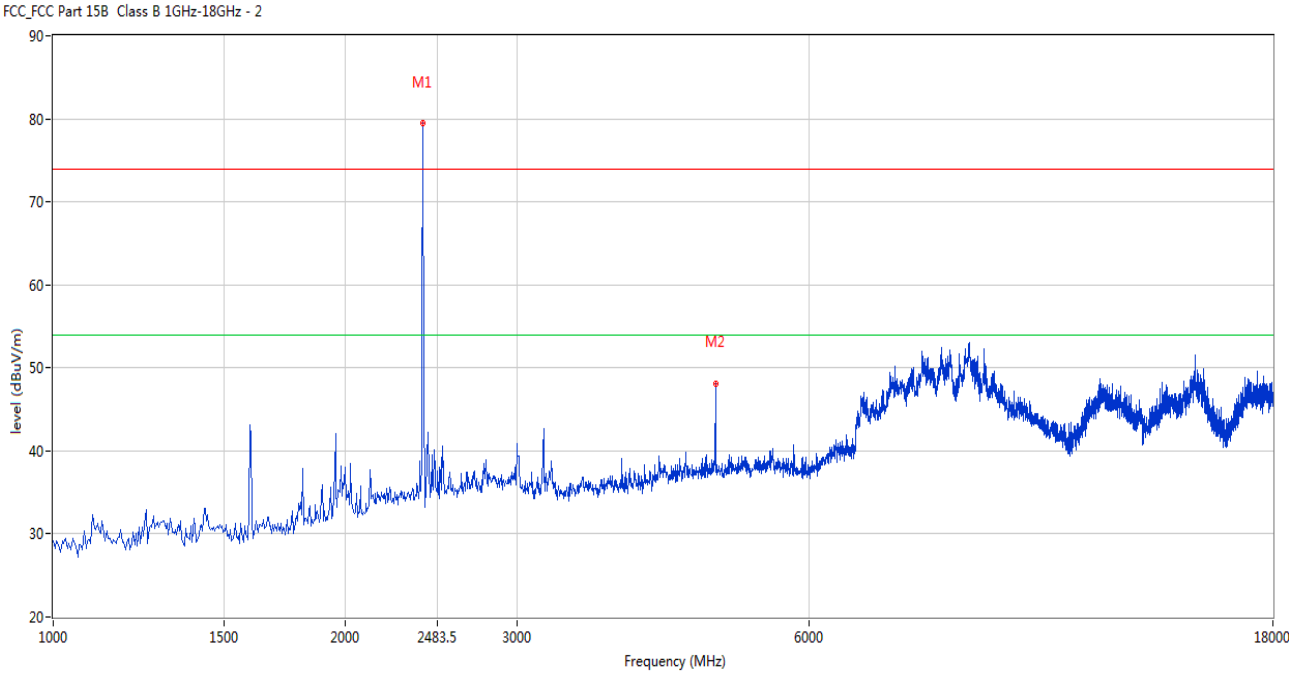
Please refer to the following test plots for details: Low Channel

Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2402.149	92.34	-3.57	94.0	-1.66	Peak	269.00	100	H	Pass
2	4802.799	51.61	3.12	54.0	-2.39	Peak	287.00	100	H	Pass

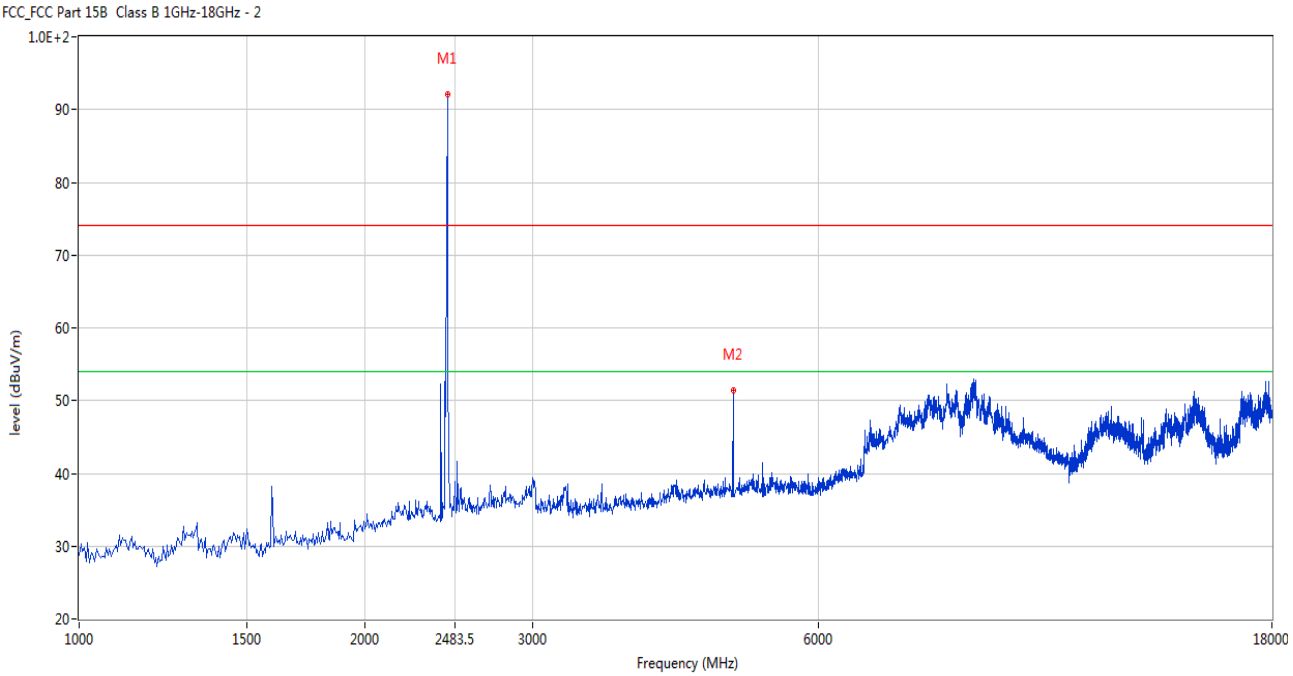
Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2402.149	79.48	-3.57	94.0	-14.52	Peak	5.00	100	V	Pass
2	4802.799	48.14	3.12	54.0	-5.86	Peak	147.00	100	V	Pass

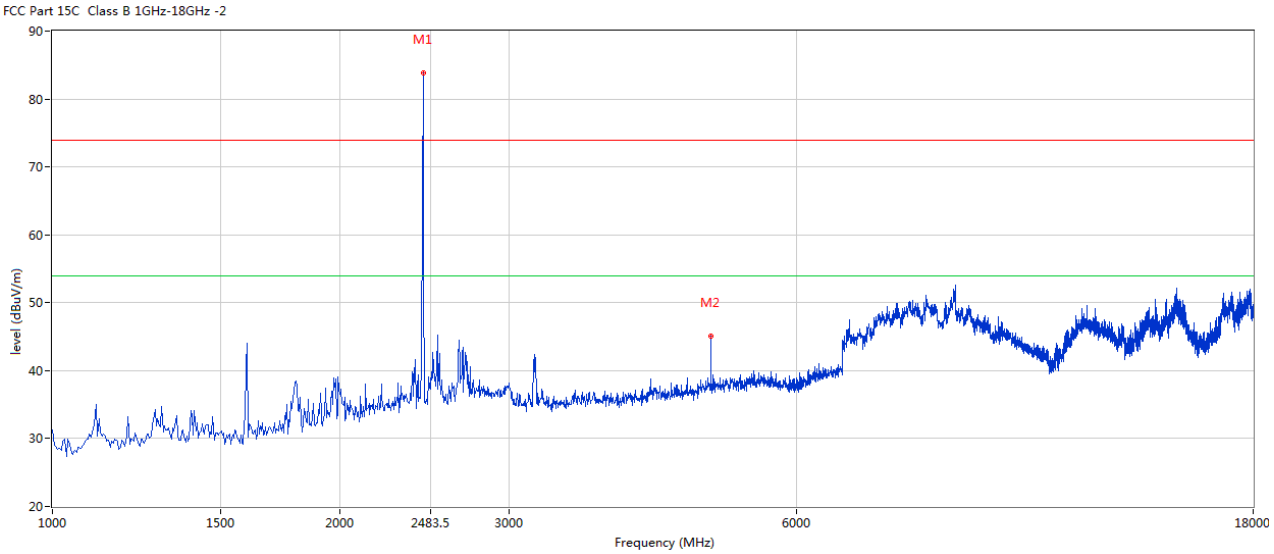
Please refer to the following test plots for details: Middle Channel

Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2440.390	92.10	-3.57	94.0	-1.90	Peak	272.00	100	H	N/A
2	4879.280	51.47	3.20	54.0	-2.53	Peak	109.00	100	H	Pass

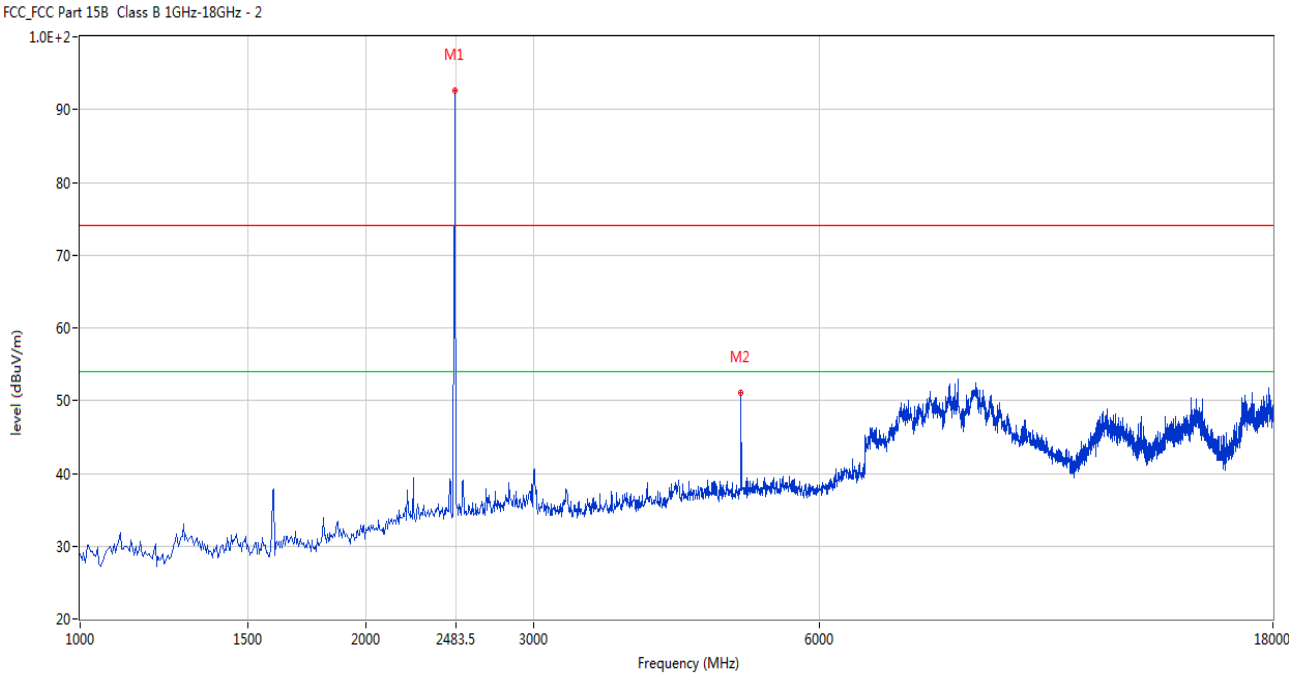
Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2440.390	83.82	-3.57	94.0	-10.18	Peak	97.00	100	V	N/A
2	4879.280	45.10	3.20	54.0	-8.90	Peak	88.00	100	V	Pass

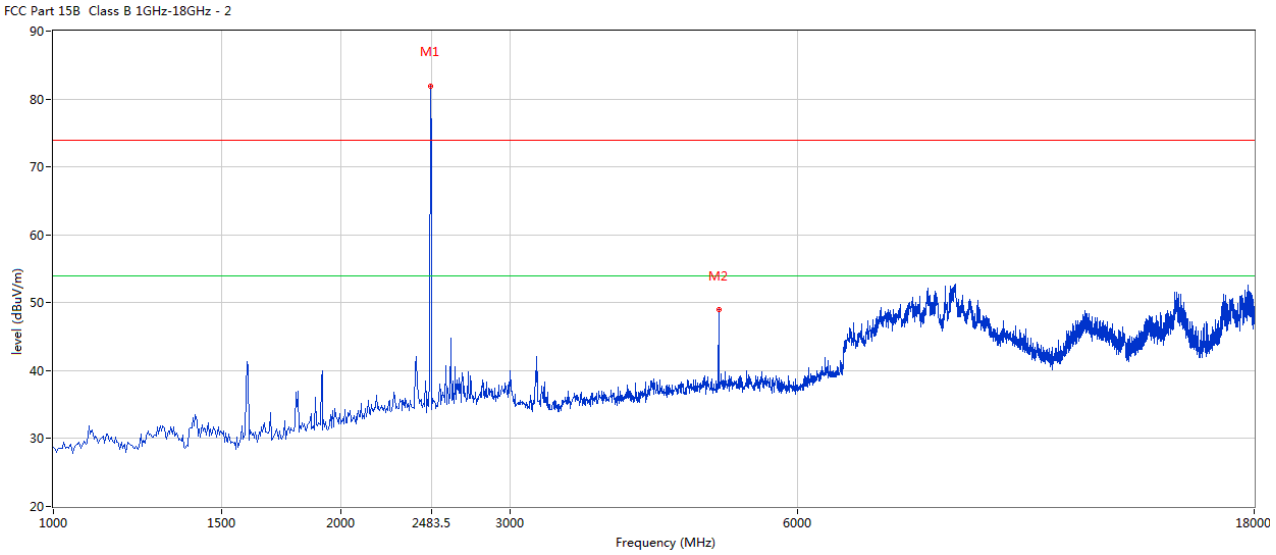
Please refer to the following test plots for details: High Channel

Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.630	92.64	-3.57	94.0	-1.36	Peak	279.00	100	H	Pass
2	4960.010	50.99	3.36	54.0	-3.01	Peak	265.00	100	H	Pass

Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.630	81.96	-3.57	94.0	-12.04	Peak	13.00	100	V	Pass
2	4960.010	48.92	3.36	54.0	-5.08	Peak	77.00	100	V	Pass

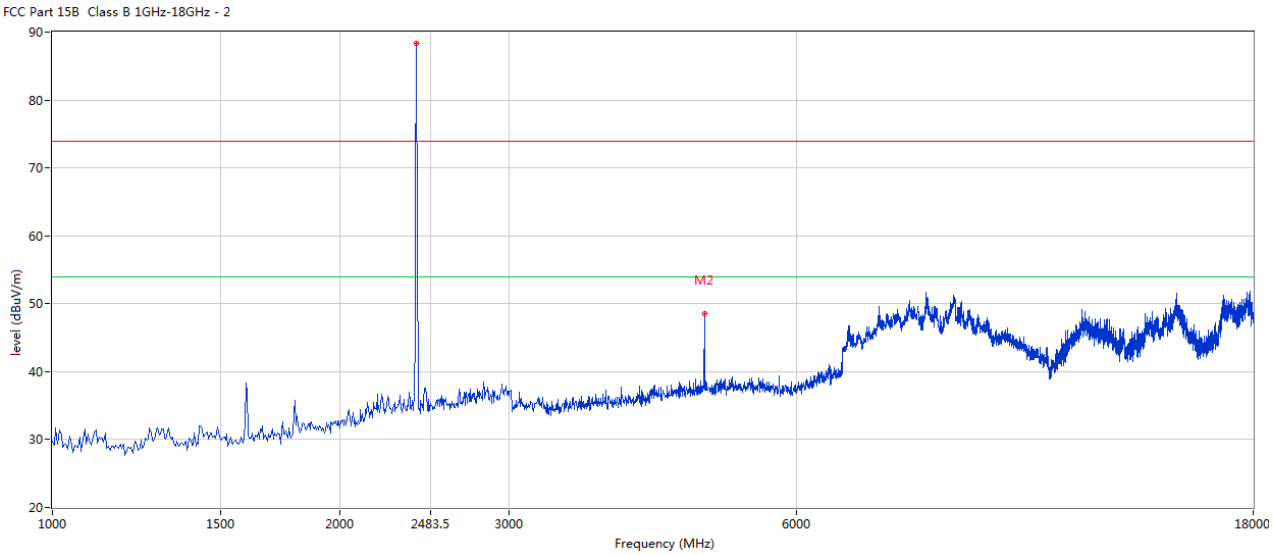
For emission above 18GHz, It is only the floor noise. No necessary to take down.

Note: (1) For Radiated emission below 30MHz and above 18GHz, it is only the floor noise
(2) Emission Level = Reading Level + Antenna Factor + Cable Loss - Pre-Amplifier
(3)Margin=Emission-Limits
(4)According to section 15.35(b), the peak limit is 20dB higher than the average limit
(5) For test purpose, keep EUT continuous transmitting
(6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

BT BDR/EDR Mode (GFSK Modulation was the worst case)

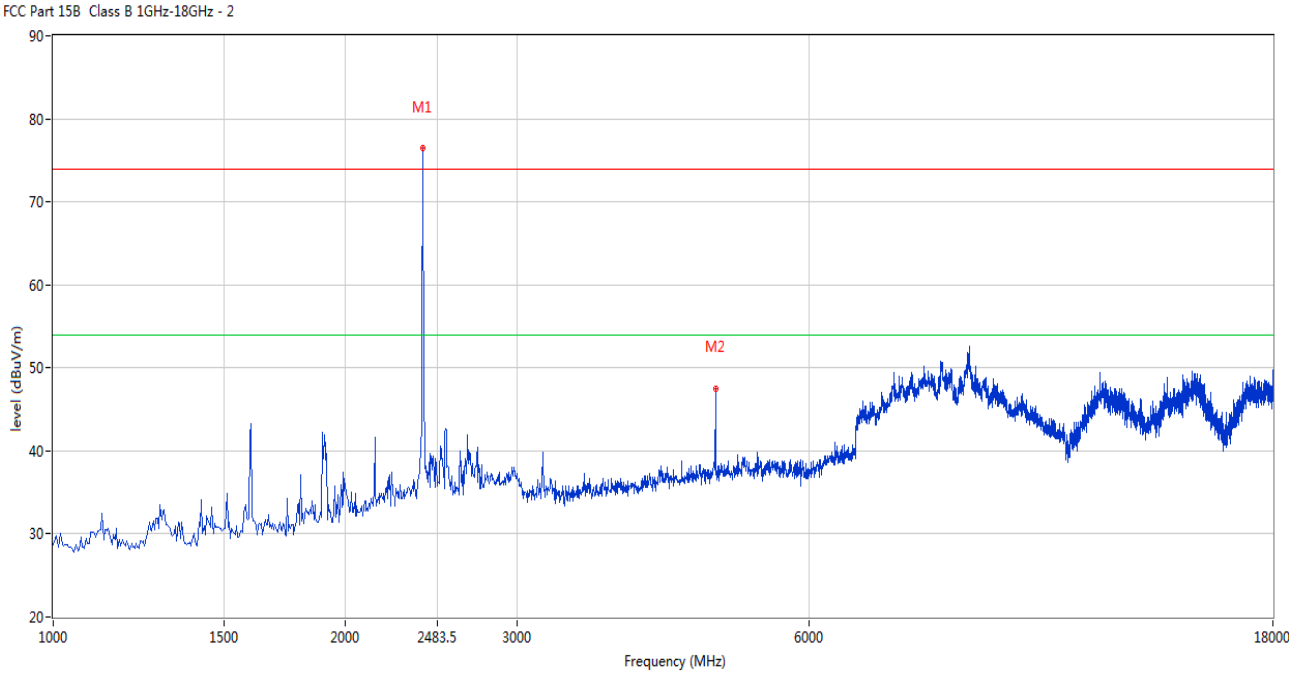
Please refer to the following test plots for details: Low Channel

Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2402.149	88.31	-3.57	94.0	-5.69	Peak	273.00	100	H	Pass
2	4802.799	48.56	3.12	54.0	-5.44	Peak	273.00	100	H	Pass

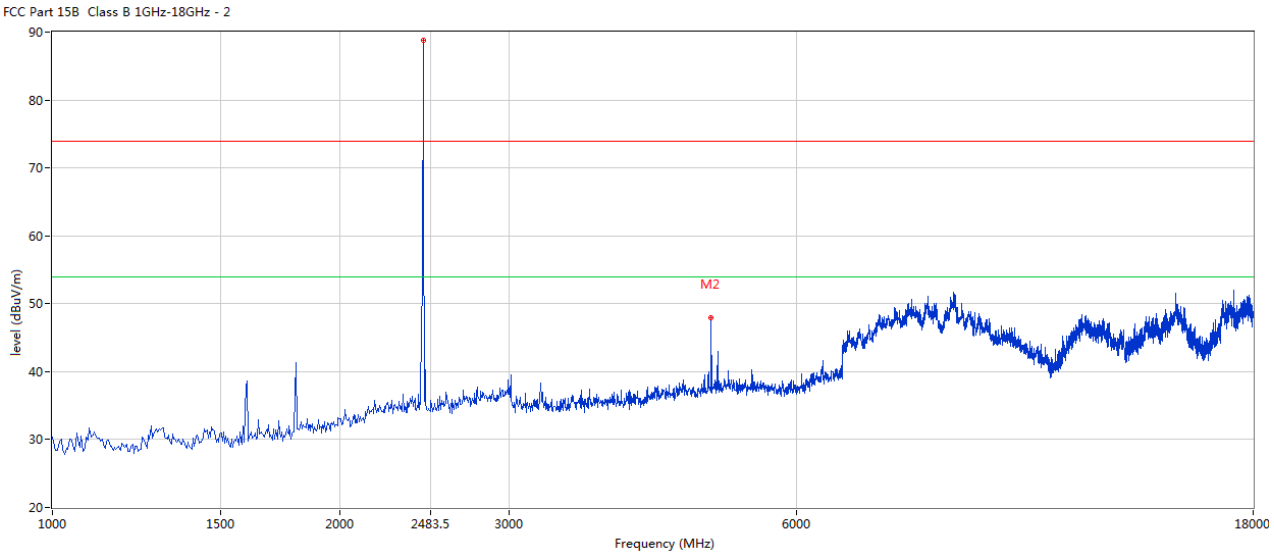
Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2402.149	76.50	-3.57	94.0	-17.50	Peak	178.00	100	V	N/A
2	4802.799	47.54	3.12	54.0	-6.46	Peak	64.00	100	V	Pass

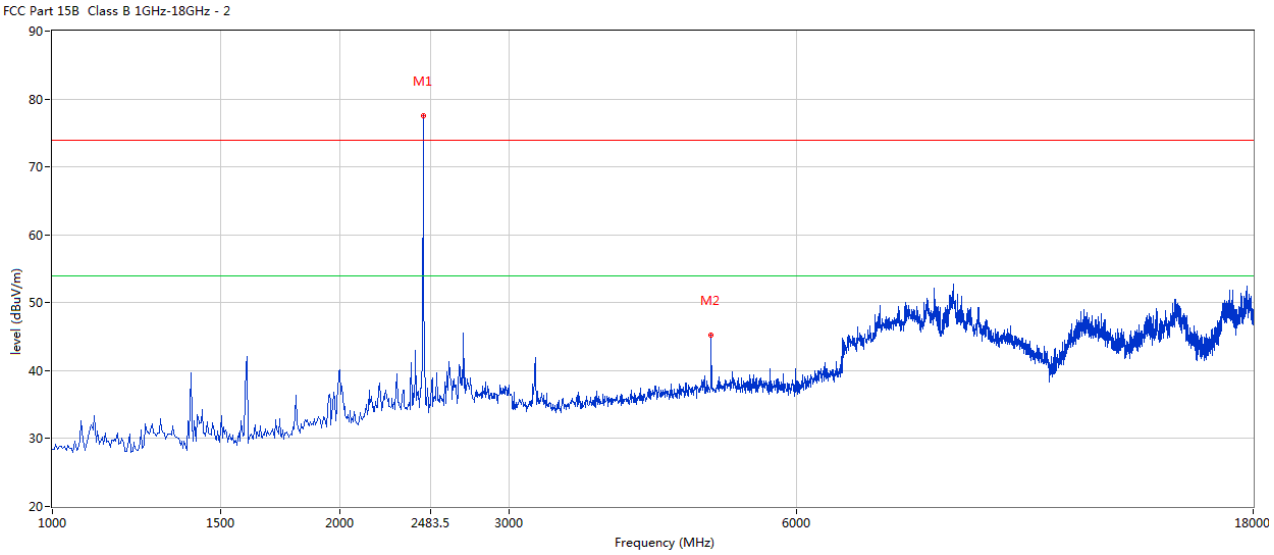
Please refer to the following test plots for details: Middle Channel

Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2441	88.75	-3.57	94.0	-5.25	Peak	277.00	100	H	Pass
2	4879.280	47.93	3.20	54.0	-6.07	Peak	117.00	100	H	Pass

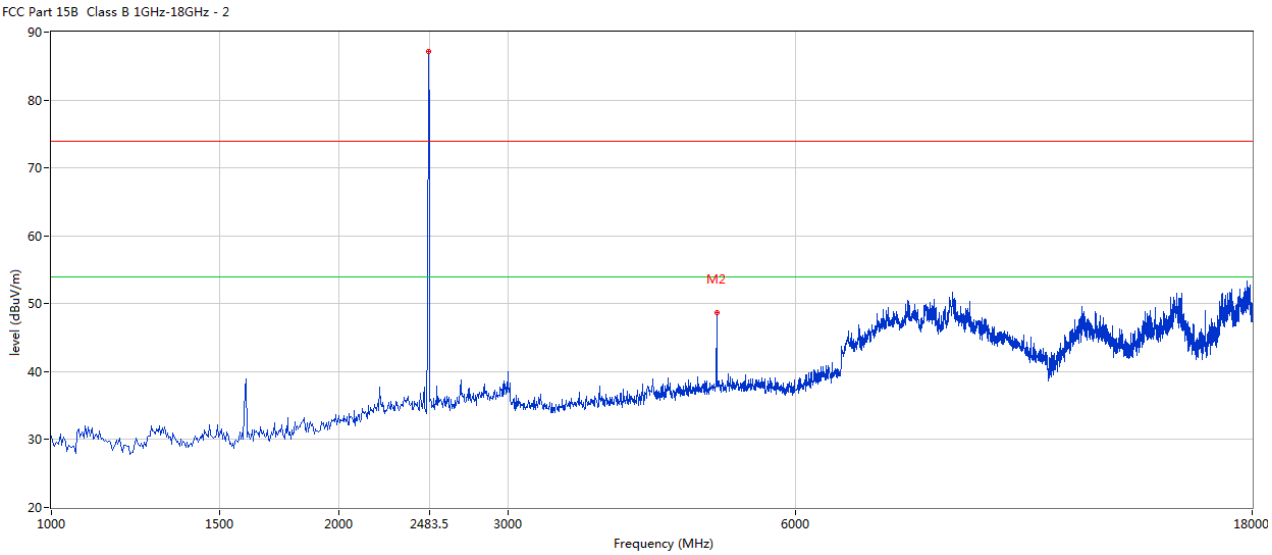
Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2441	77.57	-3.57	94.0	-16.43	Peak	9.00	100	V	Pass
2	4879.280	45.28	3.20	54.0	-8.72	Peak	65.00	100	V	Pass

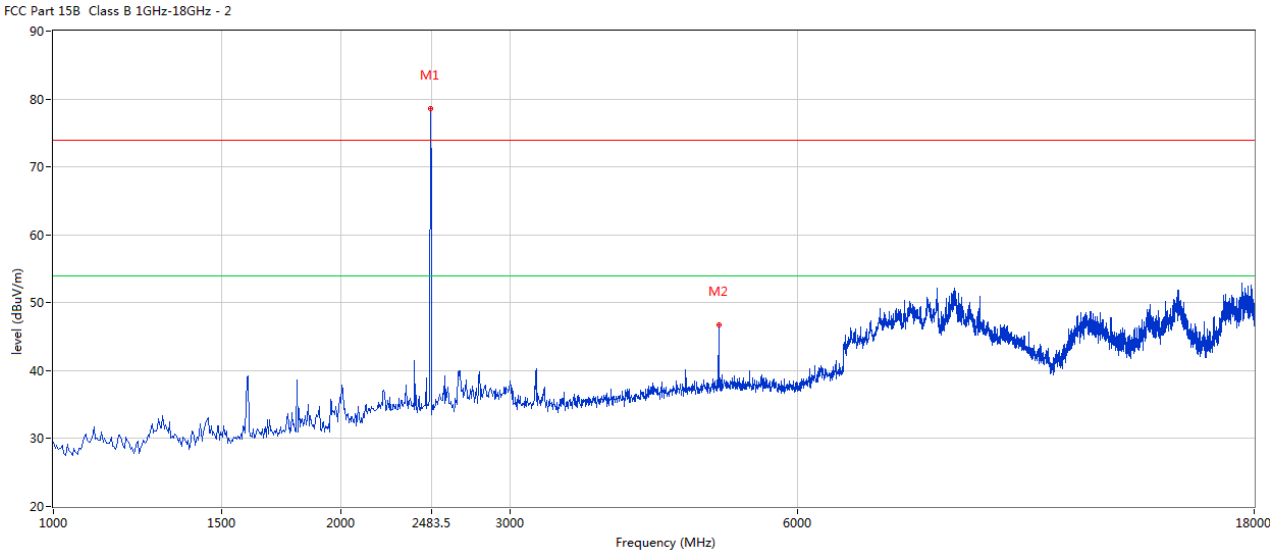
Please refer to the following test plots for details: High Channel

Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.630	87.17	-3.57	94.0	-6.83	Peak	291.00	100	H	N/A
2	4960.010	48.68	3.36	54.0	-5.32	Peak	277.00	100	H	Pass

Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.630	78.57	-3.57	94.0	-25.43	Peak	57.00	100	V	N/A
2	4960.010	46.74	3.36	54.0	-7.26	Peak	66.00	100	V	Pass

For emission above 18GHz, It is only the floor noise. No necessary to take down.

Note: (1) For Radiated emission below 30MHz and above 18GHz, it is only the floor noise
(2) Emission Level = Reading Level + Antenna Factor + Cable Loss - Pre-Amplifier
(3)Margin=Emission-Limits
(4)According to section 15.35(b), the peak limit is 20dB higher than the average limit
(5) For test purpose, keep EUT continuous transmitting
(6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

B. General Radiated Emission Data

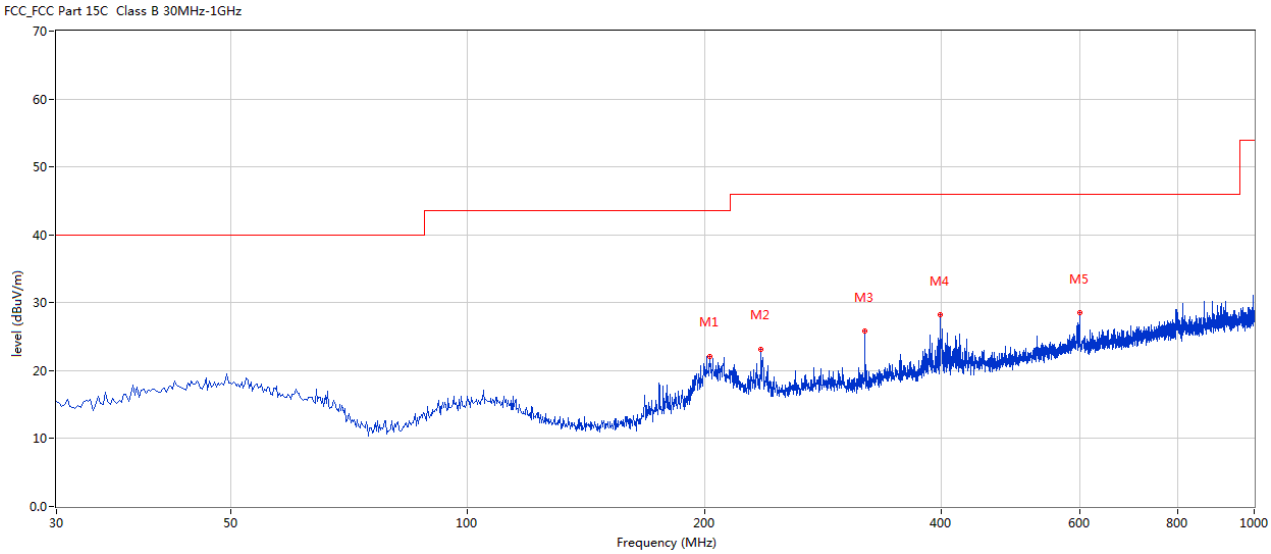
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Mode: **BLE**

Results: **Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	203.102	22.15	-13.44	43.5	-21.35	Peak	100.00	200	H	Pass
2	235.831	23.17	-12.45	46.0	-22.83	Peak	101.00	100	H	Pass
3	319.958	25.81	-10.60	46.0	-20.19	Peak	0.00	200	H	Pass
4	398.508	28.23	-8.65	46.0	-17.77	Peak	0.00	200	H	Pass
5	599.733	28.47	-4.98	46.0	-17.53	Peak	0.00	200	H	Pass

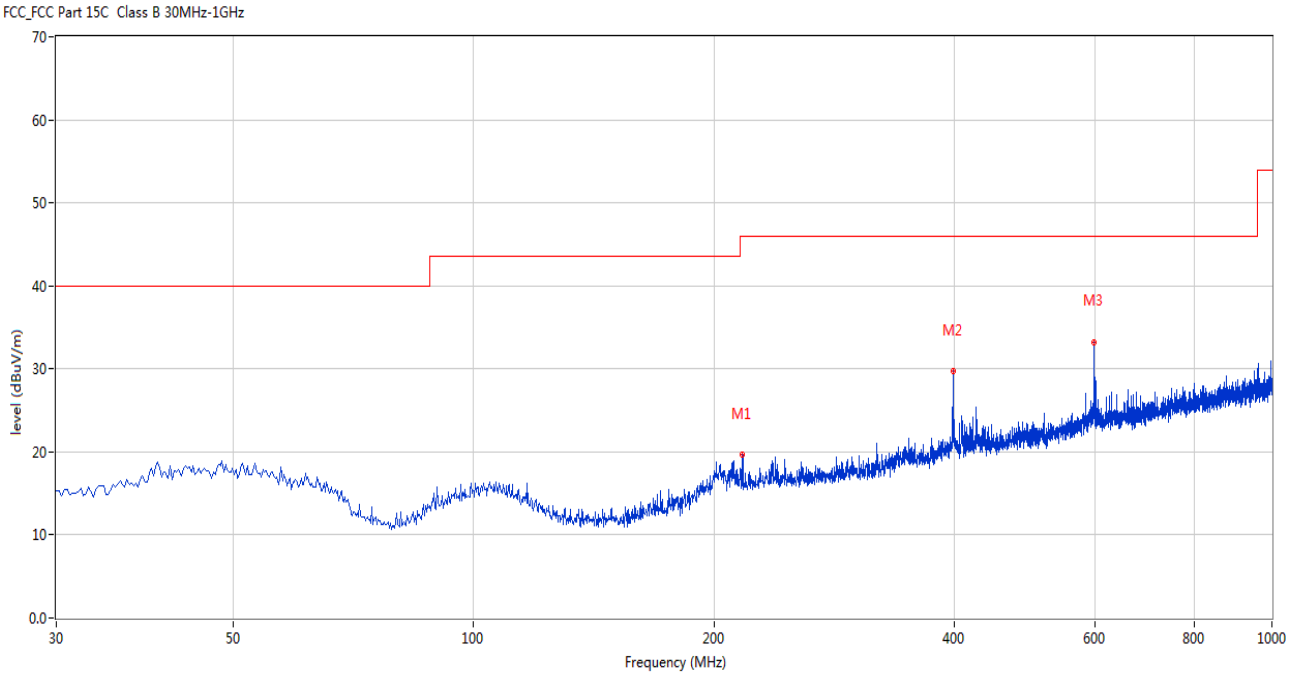
Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Mode: BLE

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	217.163	19.64	-13.49	46.0	-26.36	Peak	155.00	200	V	Pass
2	398.265	29.67	-8.67	46.0	-16.33	Peak	158.00	100	V	Pass
3	599.248	33.27	-5.04	46.0	-12.73	Peak	63.00	100	V	Pass

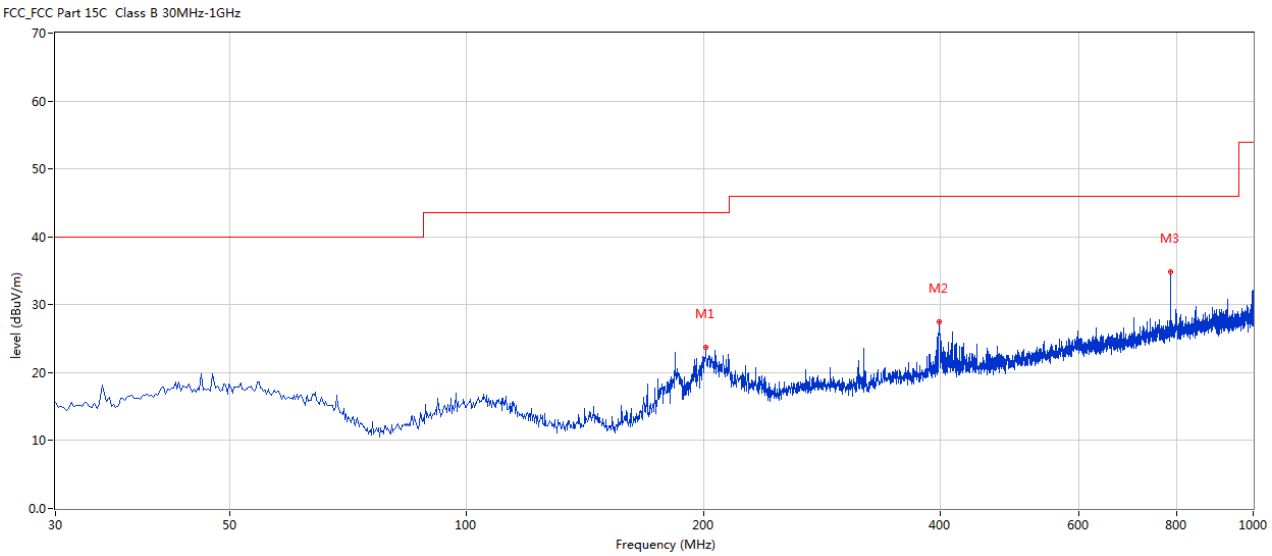
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Mode: Bluetooth BDR/EDR (GFSK Modulation was the worst case)

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	201.405	23.68	-13.42	43.5	-19.82	Peak	74.00	100	H	Pass
2	399.235	27.45	-8.60	46.0	-18.55	Peak	360.00	200	H	Pass
3	785.684	34.78	-3.08	46.0	-11.22	Peak	107.00	100	H	Pass

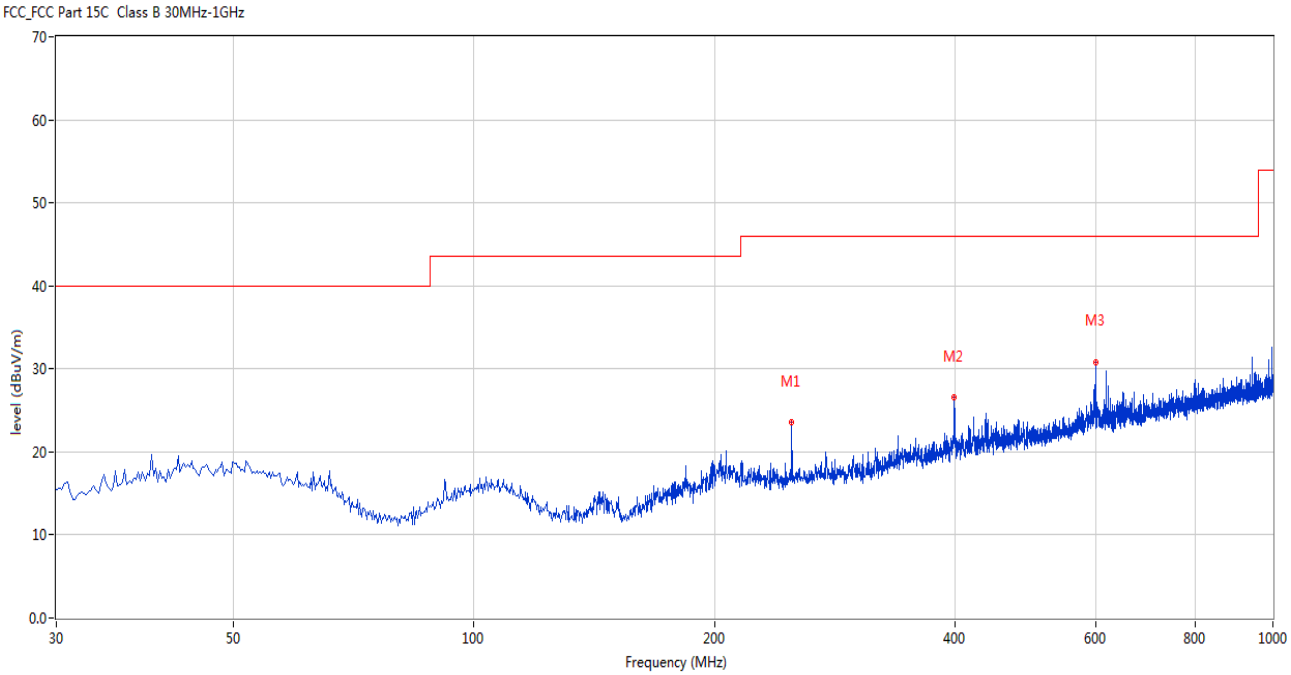
Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Mode: Bluetooth BDR/EDR (GFSK Modulation was the worst case)

Results: Pass

Please refer to following diagram for individual



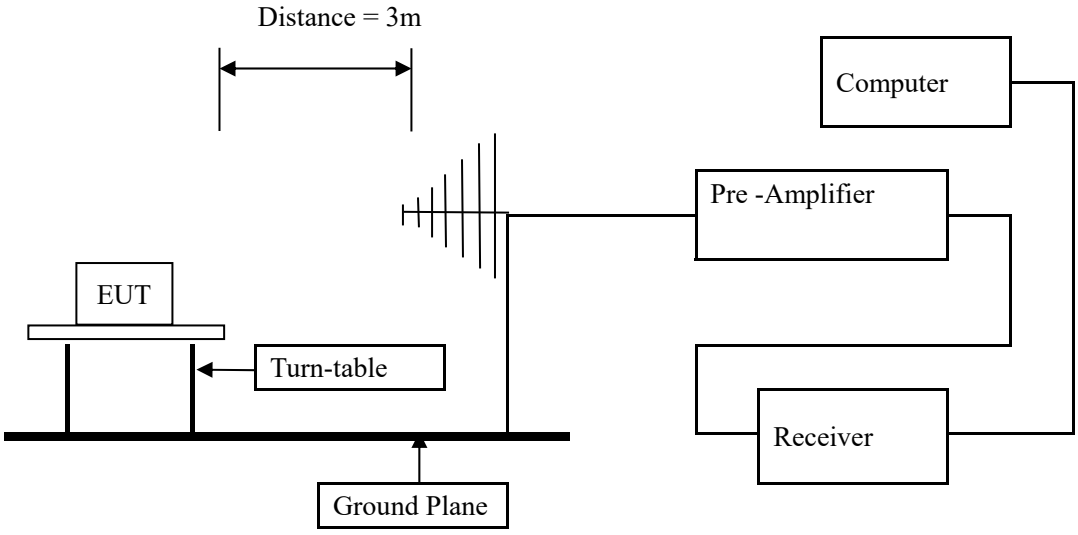
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	249.893	23.59	-12.08	46.0	-22.41	Peak	33.00	100	V	Pass
2	398.750	26.55	-8.63	46.0	-19.45	Peak	63.00	100	V	Pass
3	599.975	30.83	-4.95	46.0	-15.17	Peak	128.00	100	V	Pass

7. Band Edge

7.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
(2) Set Spectrum as RBW=1MHz,VBW=3MHz and Peak detector used
(3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
(4) The antenna polarization: Vertical polarization and Horizontal polarization.

7. 2 Radiated Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing

7.3 Configuration of The EUT

Same as section 5.3 of this report

7.4 EUT Operating Condition

Same as section 5.4 of this report.

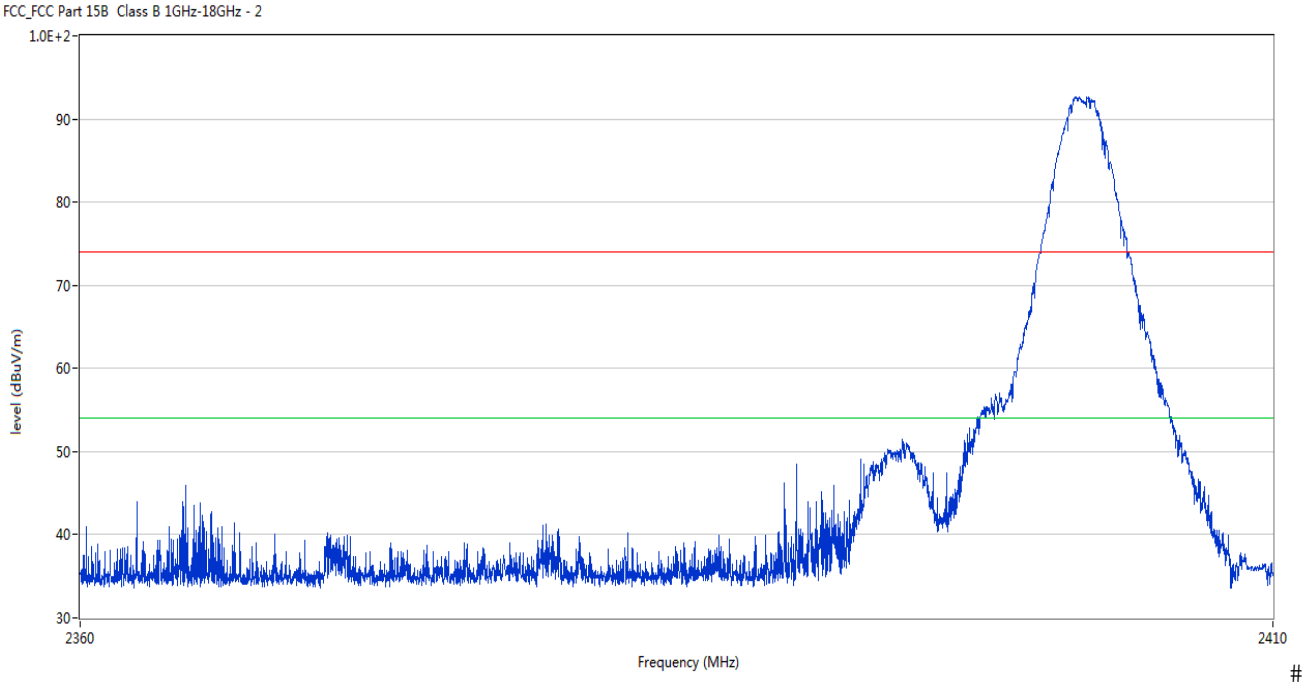
7.5 Band Edge Limit

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.

7.6 Test Result

BLE Mode

Product:	Wireless Bluetooth Mouse	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



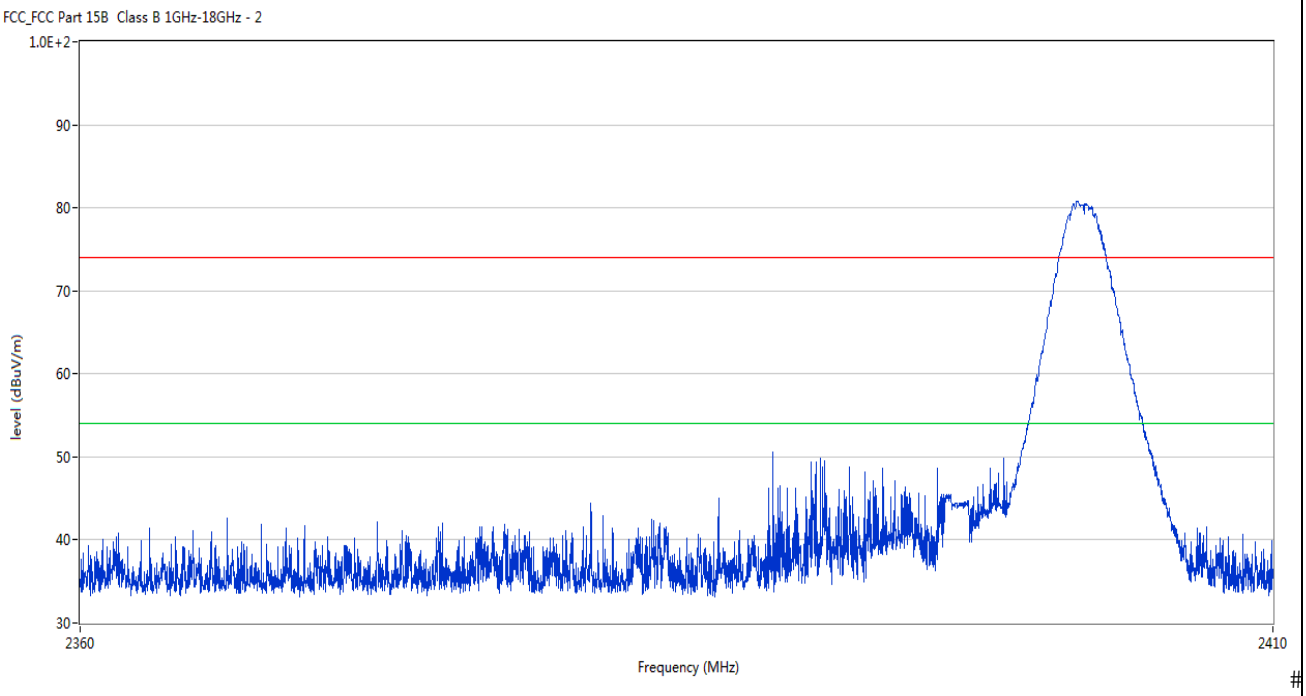
#

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390	48.44	-3.53	54.0	-5.56	Peak	150.00	100	H	Pass
2**	2400	38.14	-3.57	54.0	-15.86	AV	189.00	100	H	Pass
2	2400	68.89	-3.57	74.0	-5.11	Peak	189.00	100	H	Pass

#

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

Product:	Wireless Bluetooth Mouse	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



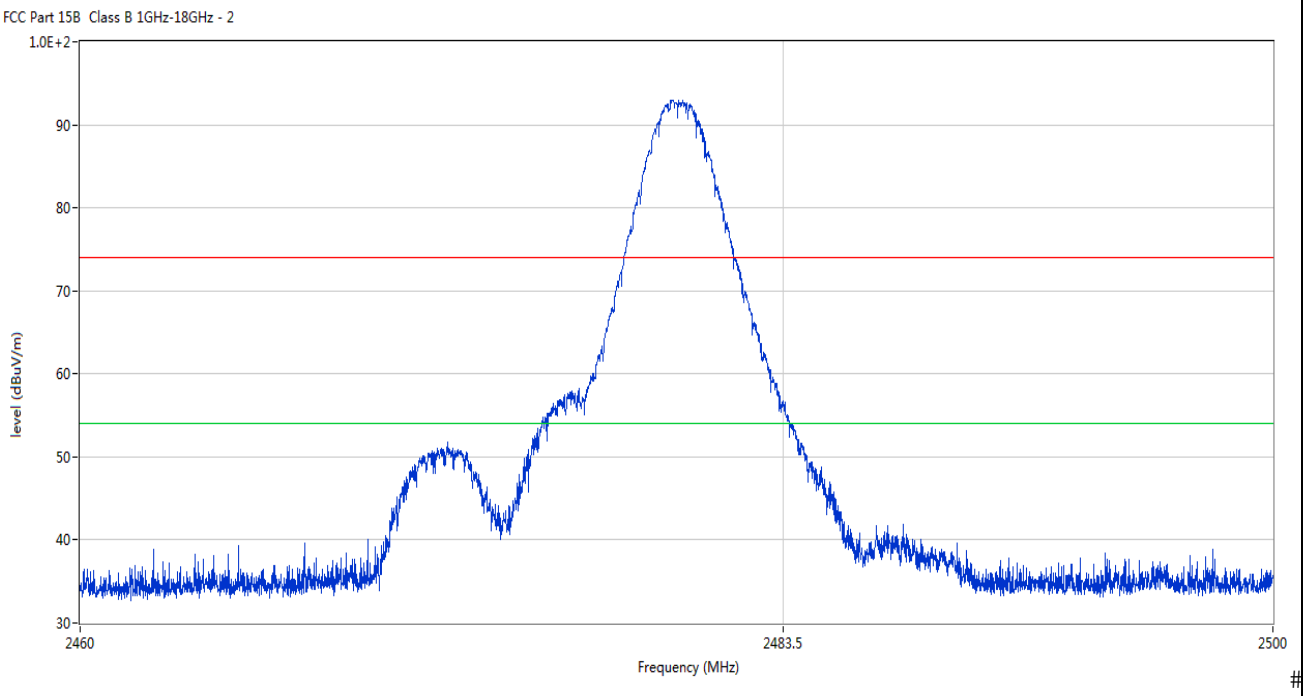
#

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	2390	45.86	-3.53	54.0	-8.14	Peak	120.00	100	V	Pass
1**	2400	33.60	-3.57	54.0	-20.40	AV	45.00	100	V	Pass
1	2400	59.04	-3.57	74.0	-14.96	Peak	45.00	100	V	Pass

#

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

Product:	Wireless Bluetooth Mouse	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--

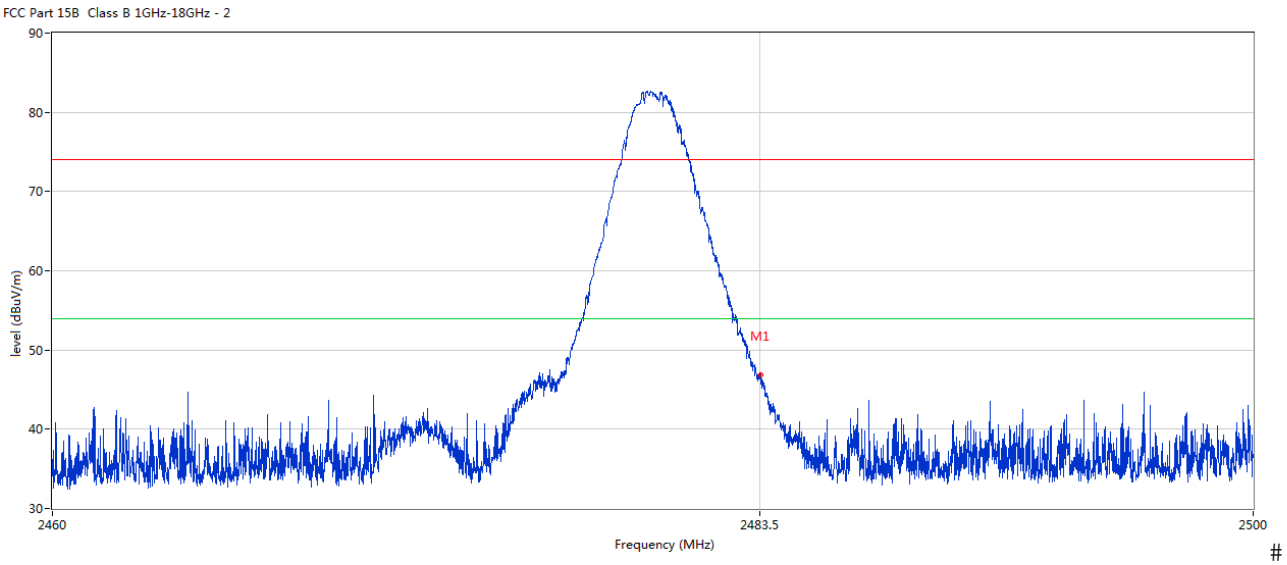


#

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	2483.5	33.74	-3.57	54.0	-20.26	AV	277.00	100	H	Pass
1	2483.5	56.60	-3.57	74.0	-17.40	Peak	277.00	100	H	Pass

#

Product:	Wireless Bluetooth Mouse		Detector	Vertical
Mode	Keeping Transmitting		Test Voltage	DC3.0V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		--	--
2483.5MHz	PK (dBμV/m)	--	Limit	74 dBμV/m
2483.5MHz	AV (dBμV/m)	--	Limit	54 dBμV/m



#

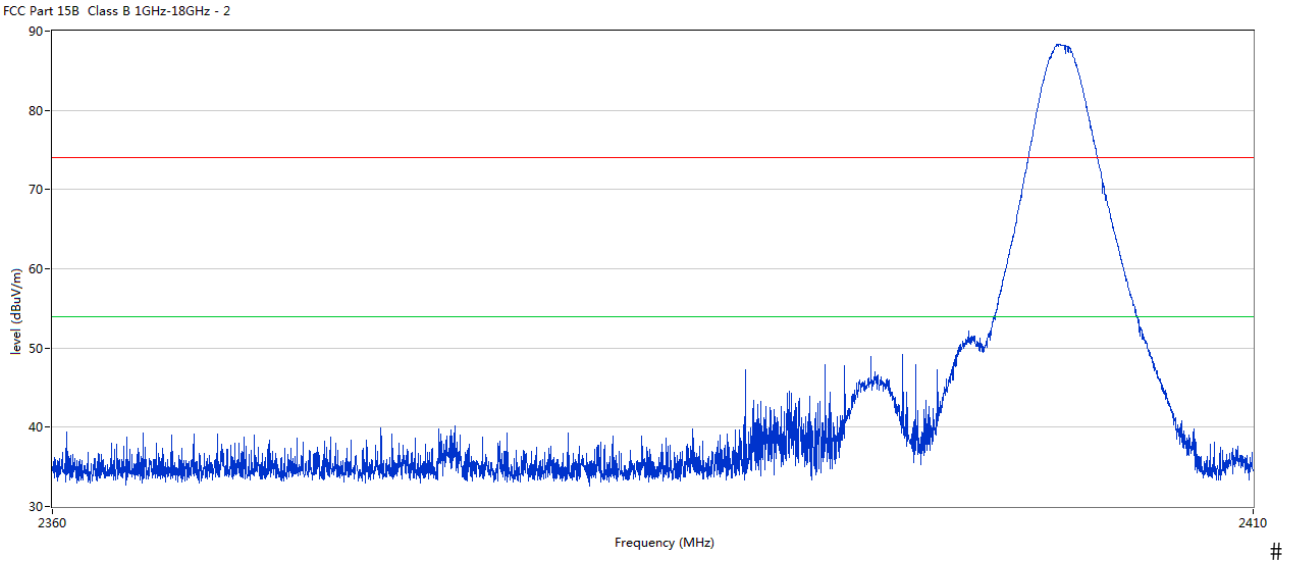
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.5	46.83	-3.57	54.0	-7.17	Peak	57.00	100	V	Pass

#

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

Bluetooth BDR/EDR Mode (GFSK Modulation was the worst case): Only worst data reported

Product:	Wireless Bluetooth Mouse	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--

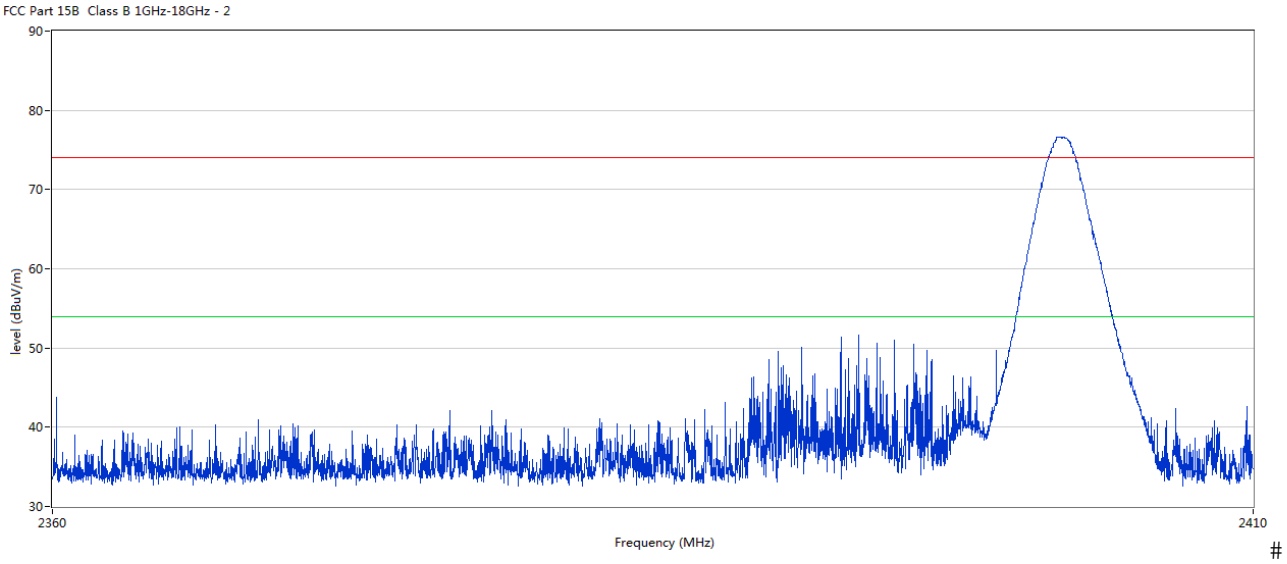


#

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390	44.58	-3.53	54.0	-9.42	Peak	159.00	100	H	Pass
2**	2400	43.83	-3.57	54.0	-10.17	AV	182.00	100	H	Pass
2	2400	60.53	-3.57	74.0	-13.47	Peak	182.00	100	H	Pass

#

Product:	Wireless Bluetooth Mouse	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



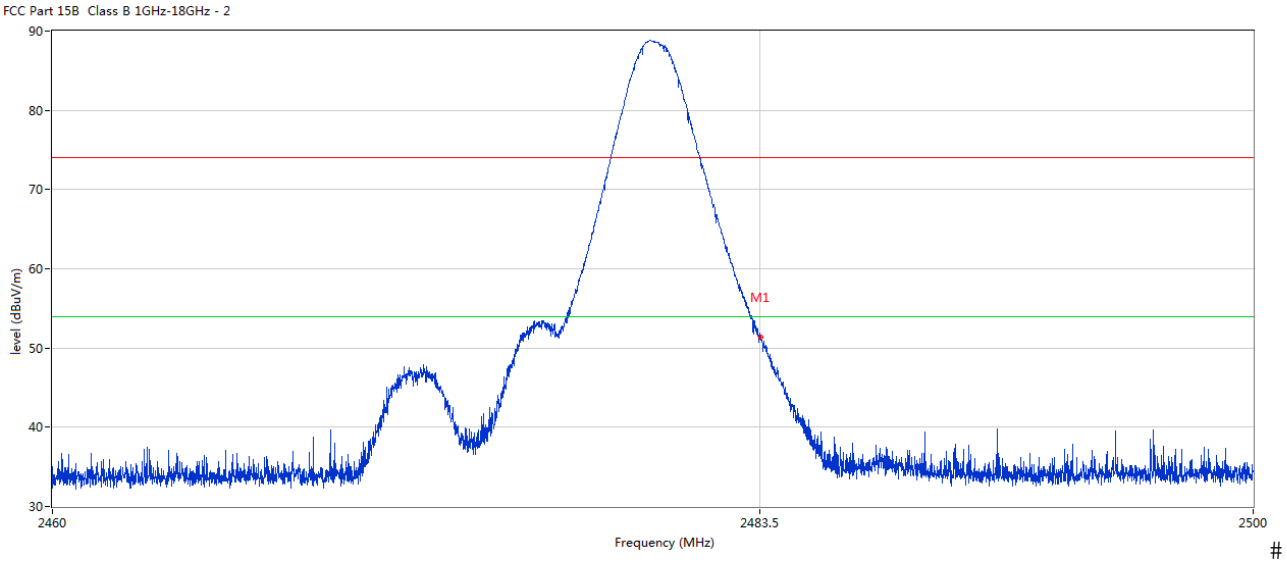
#

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390	49.59	-3.53	54.0	-4.41	Peak	77.00	100	V	Pass
2	2400	48.09	-3.57	54.0	-5.91	Peak	105.00	100	V	Pass

#

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

Product:	Wireless Bluetooth Mouse	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--

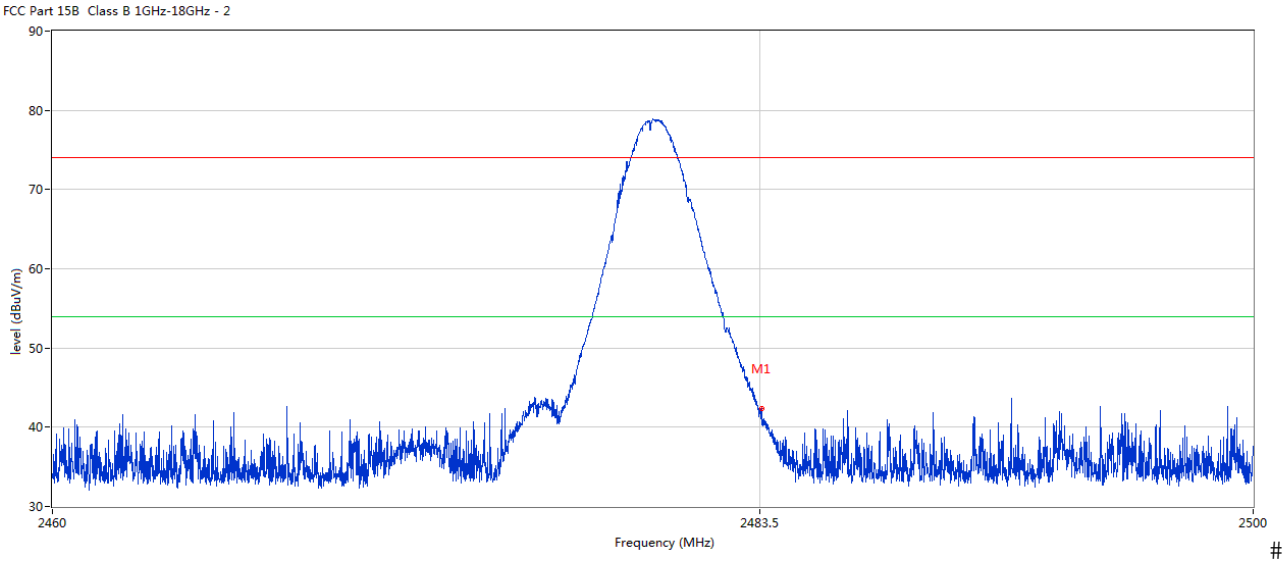


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.5	51.38	-3.57	54.0	-2.62	Peak	278.00	100	H	Pass

#

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

Product:	Wireless Bluetooth Mouse		Detector	Vertical
Mode	Keeping Transmitting		Test Voltage	DC3.0V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		--	--
2483.5MHz	PK (dBμV/m)	--	Limit	74 dBμV/m
2483.5MHz	AV (dBμV/m)	--	Limit	54 dBμV/m



#

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.5	42.36	-3.57	54.0	-11.64	Peak	10.00	100	V	Pass

#

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

8.0 Antenna Requirement

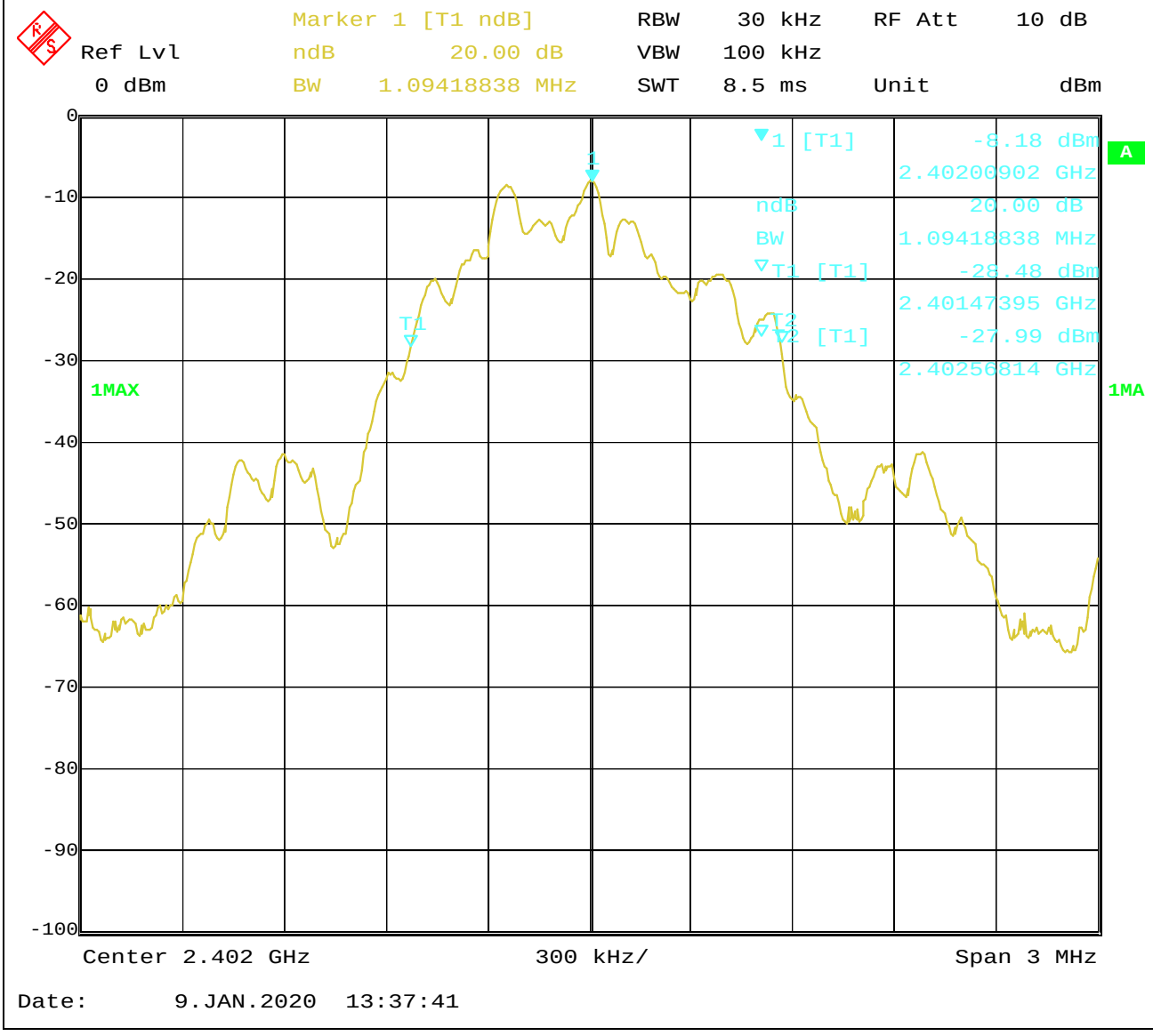
Applicable Standard

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 shall be considered sufficient to comply with the provisions of this section.

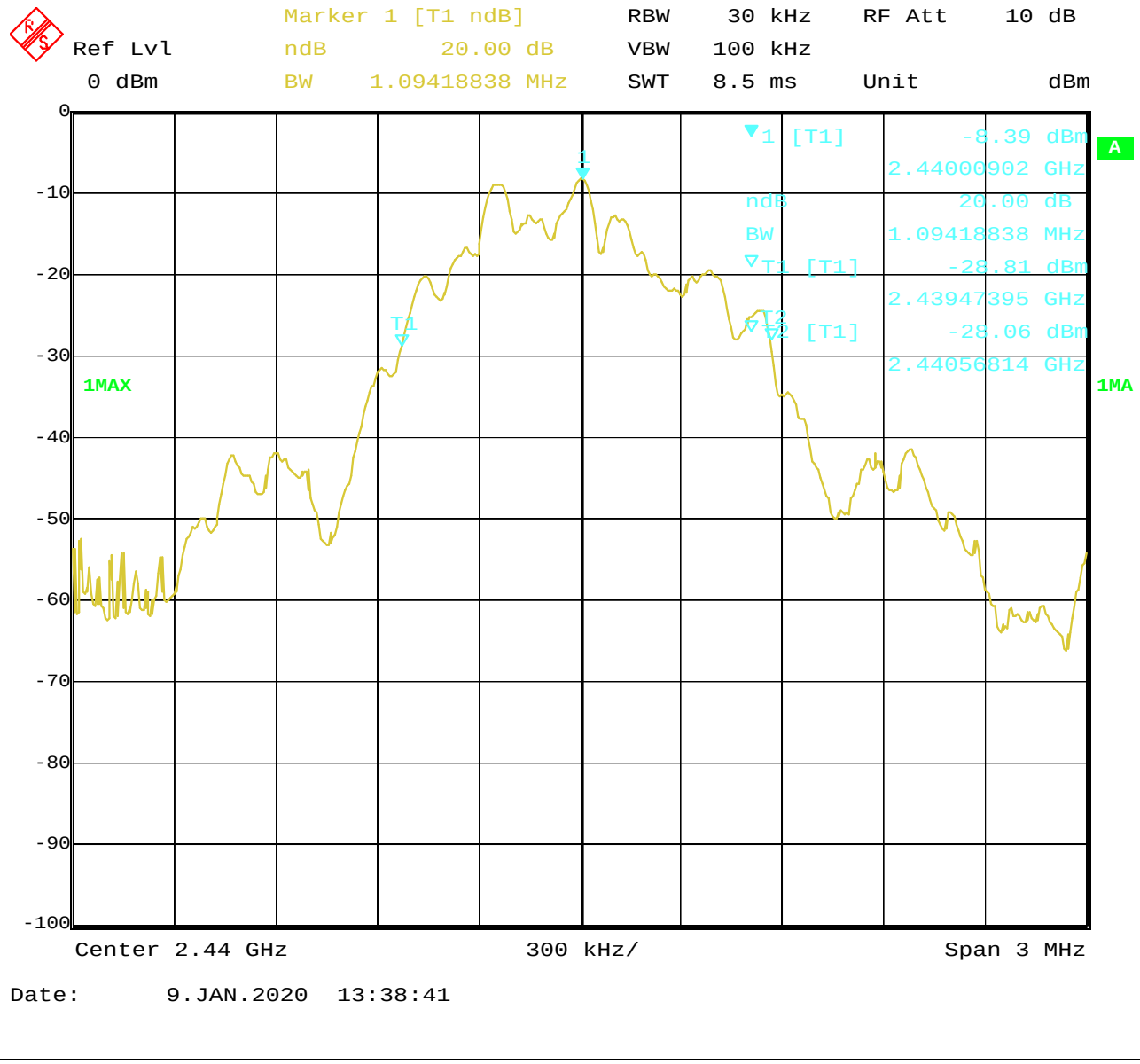
This product has a PCB antenna. The antenna gain is 0dBi Max. It fulfills the requirement of this section.

Test Result: Pass

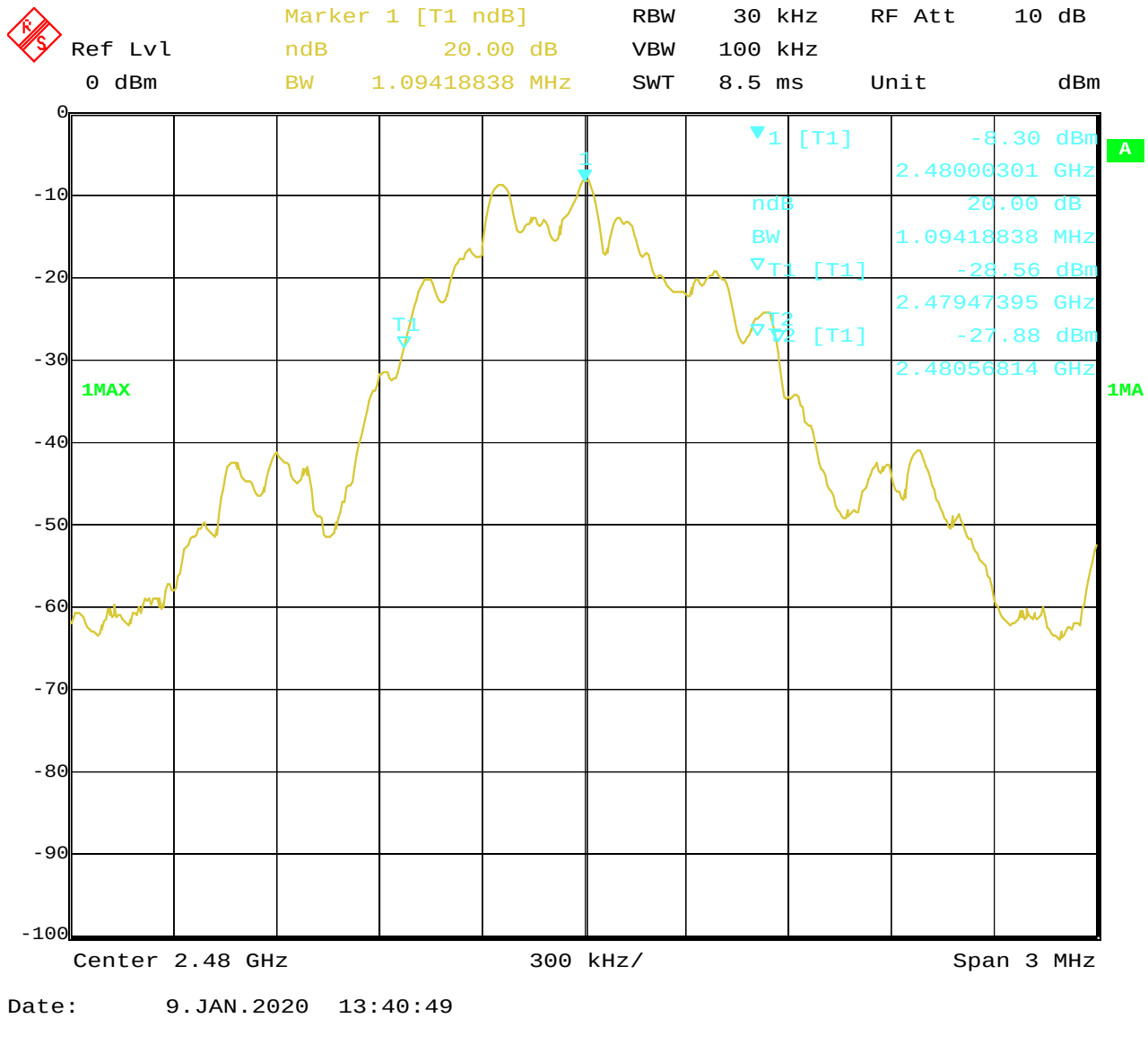
9.0 **BLE** 20dB Bandwidth Measurement			
Product:	Wireless Bluetooth Mouse	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.094MHz	--	--



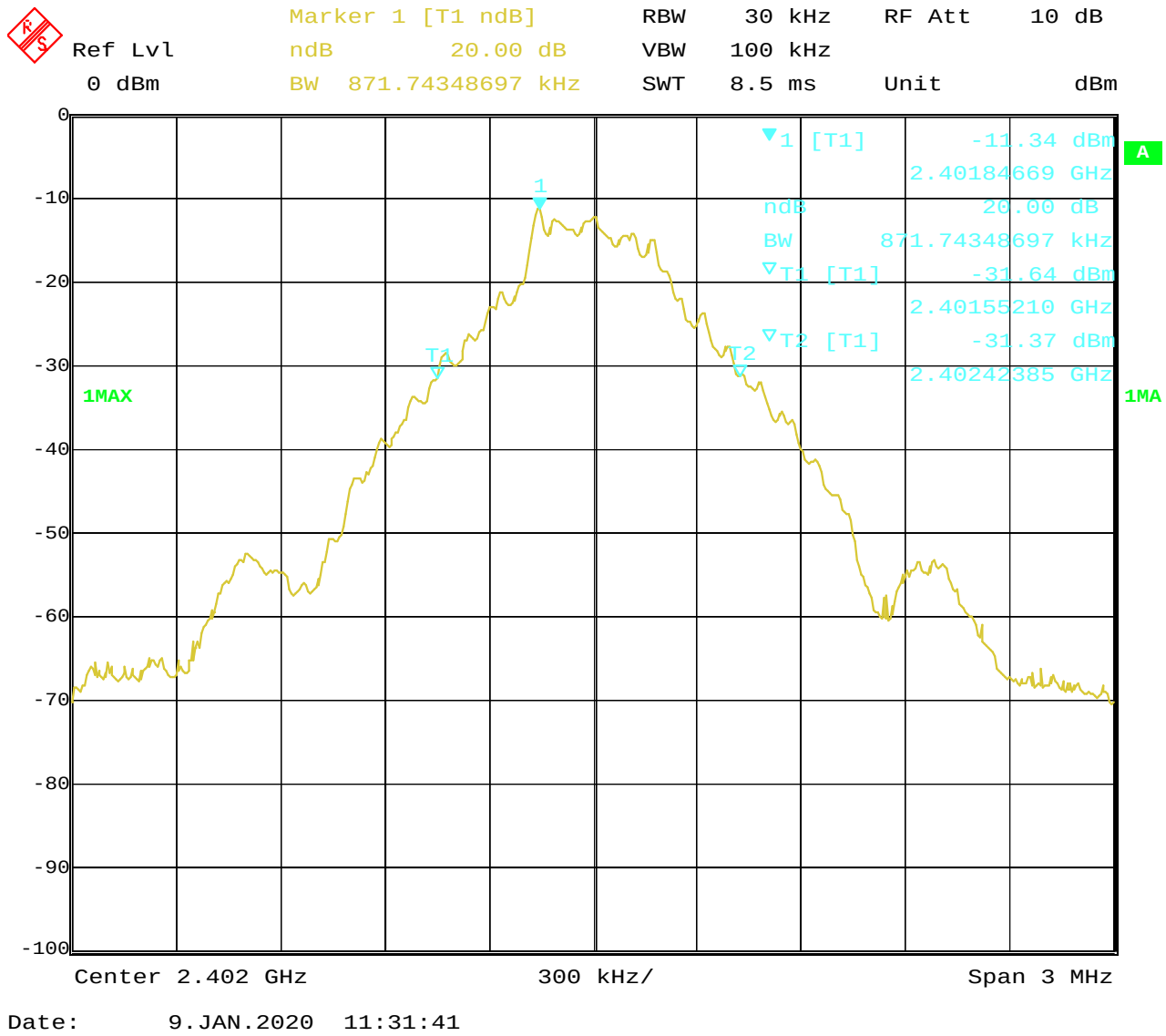
Product:	Wireless Bluetooth Mouse	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.094MHz	--	--



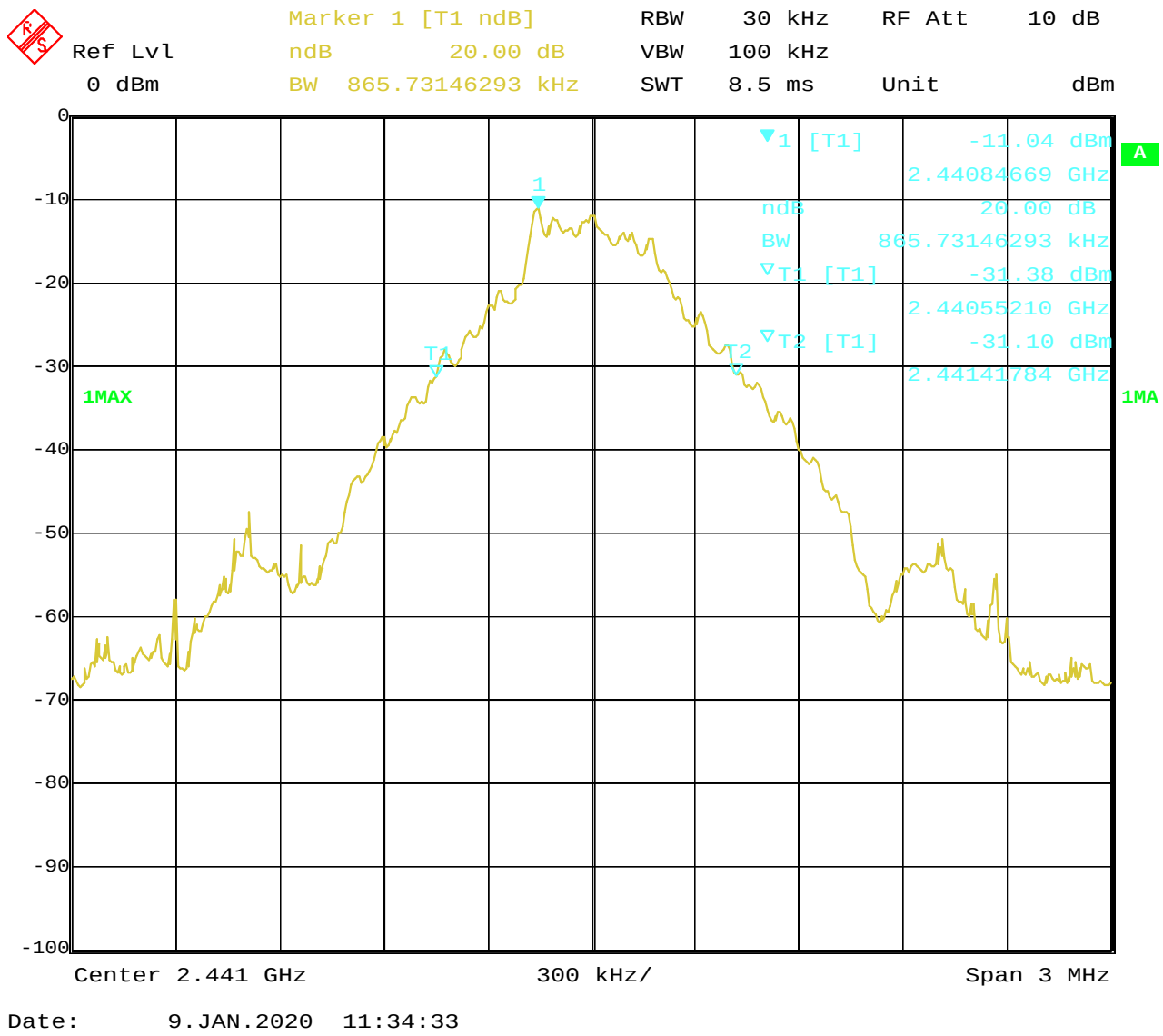
Product:	Wireless Bluetooth Mouse	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.094MHz	--	--



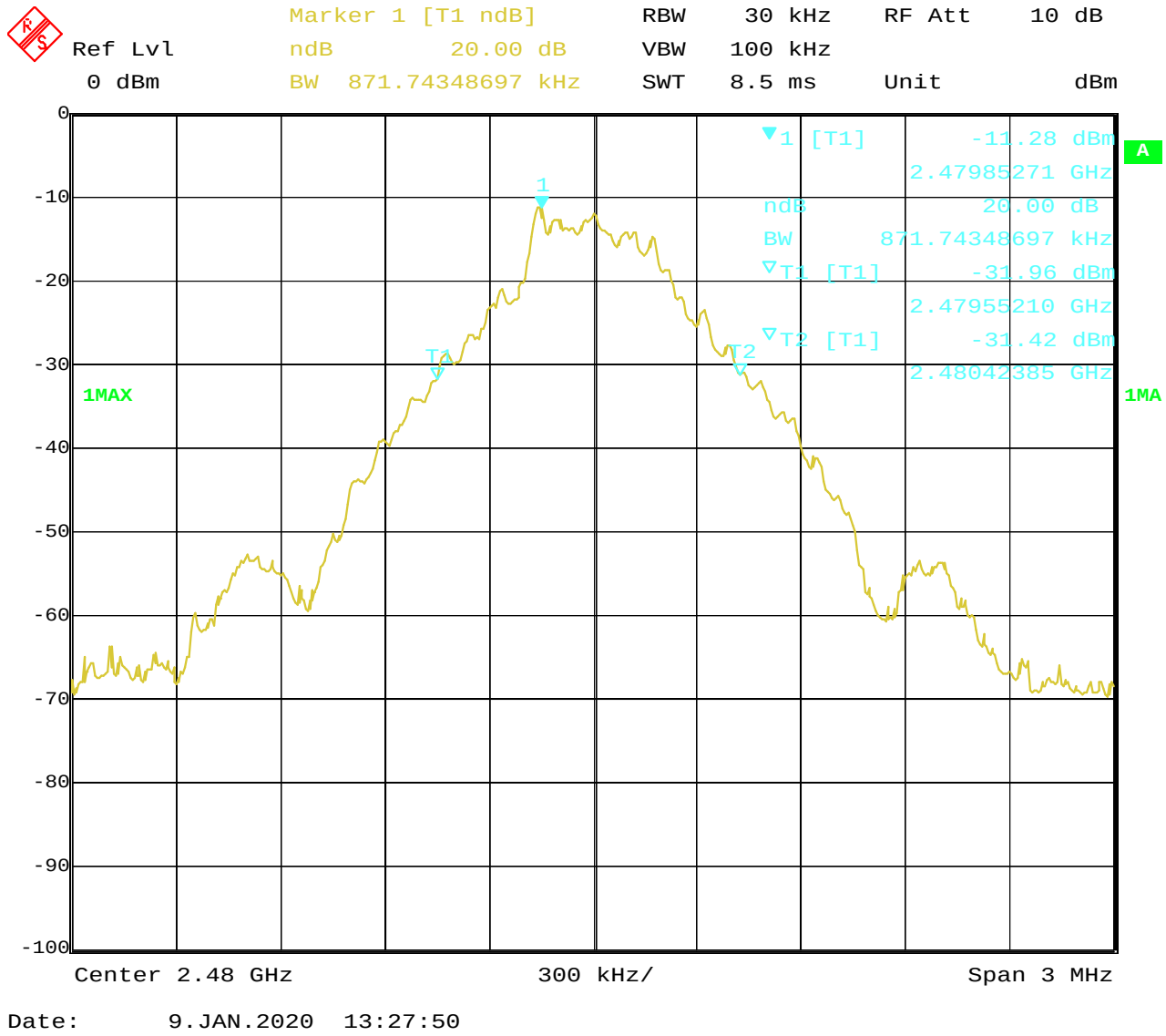
Bluetooth BRD/EDR 20dB Bandwidth Measurement			
Product:	Wireless Bluetooth Mouse	Test Mode:	GFSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	0.872MHz	--	--



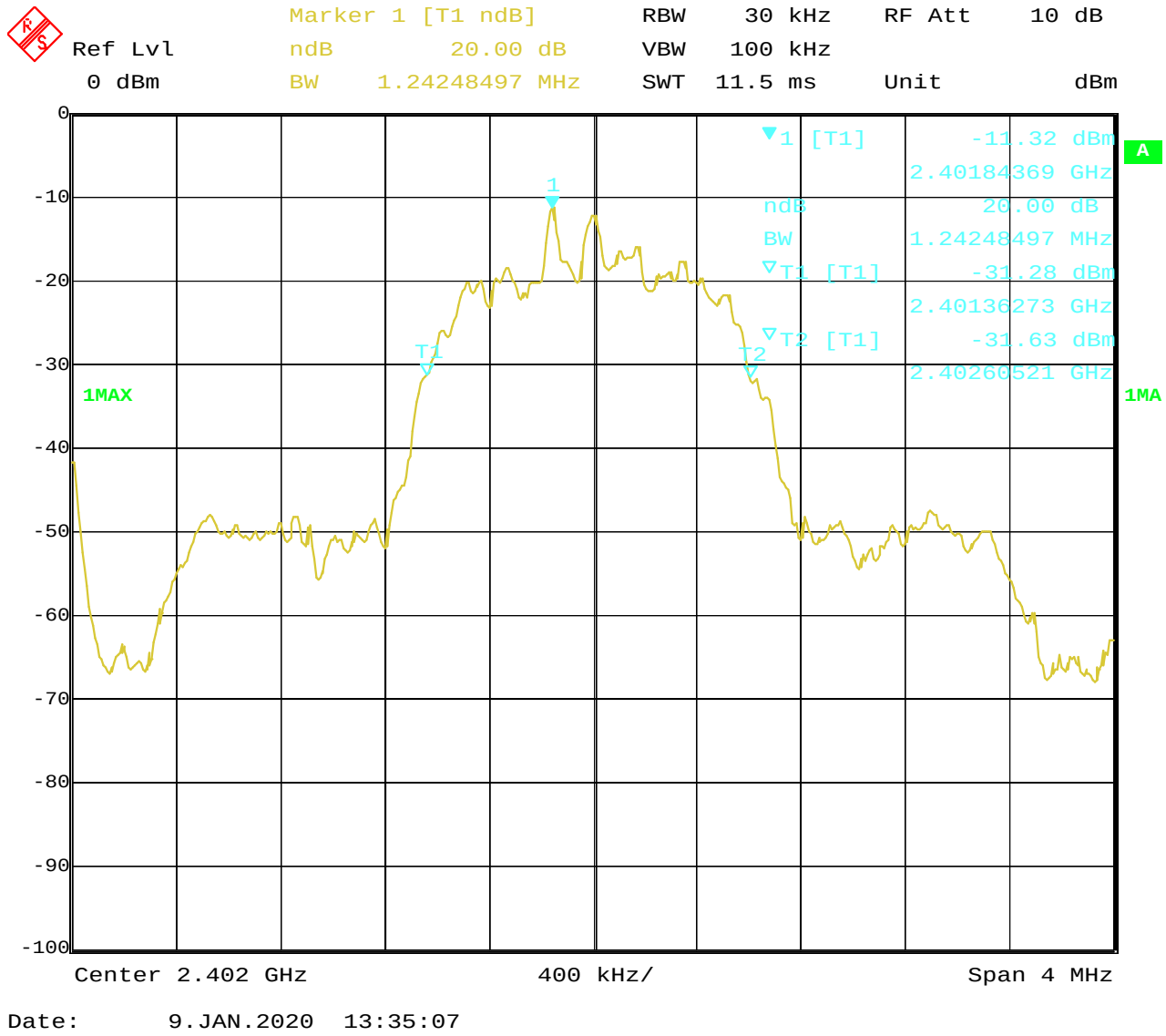
Product:	Wireless Bluetooth Mouse	Test Mode:	GFSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	0.866MHz	--	--



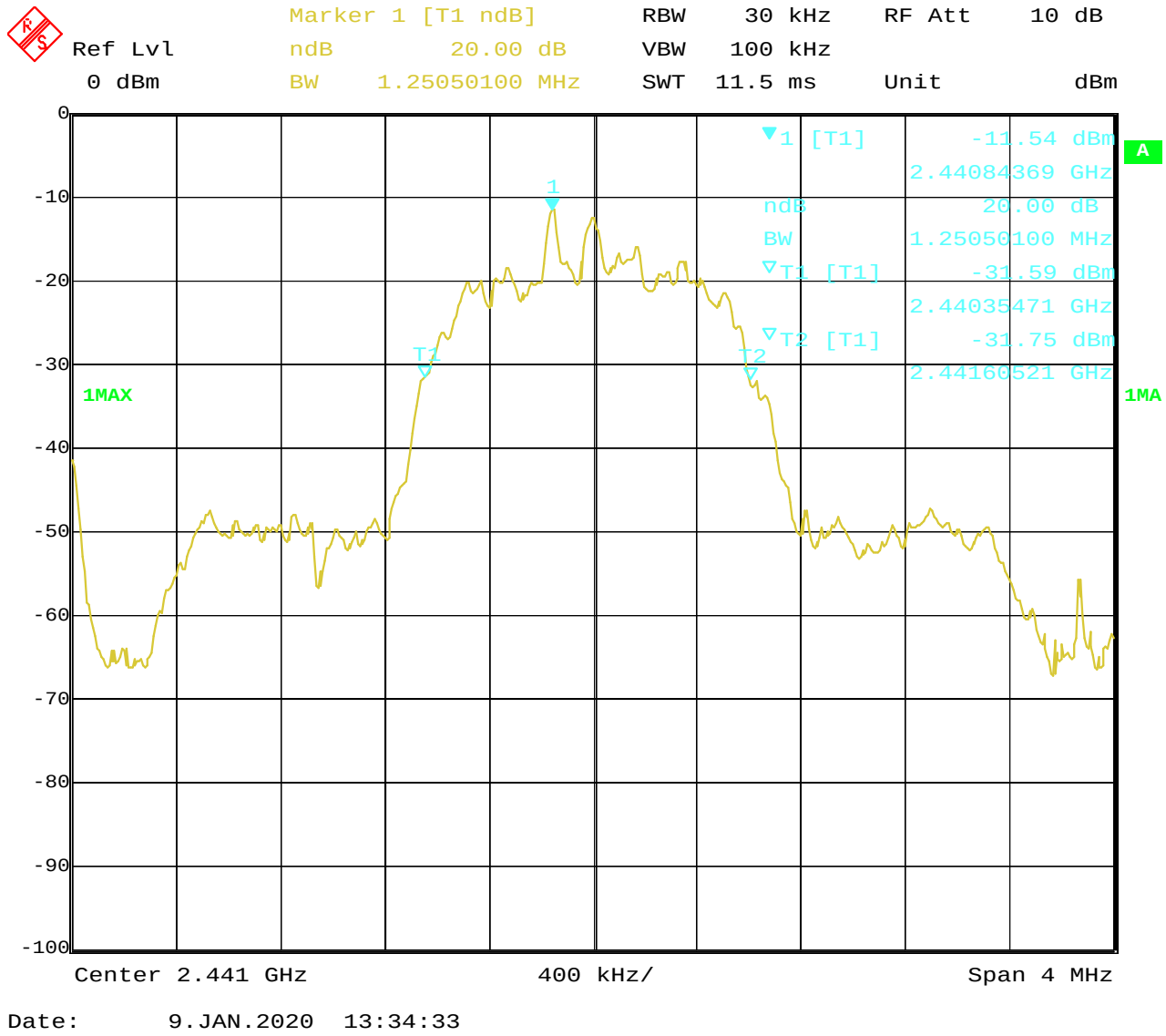
Product:	Wireless Bluetooth Mouse	Test Mode:	GFSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	0.872MHz	--	--



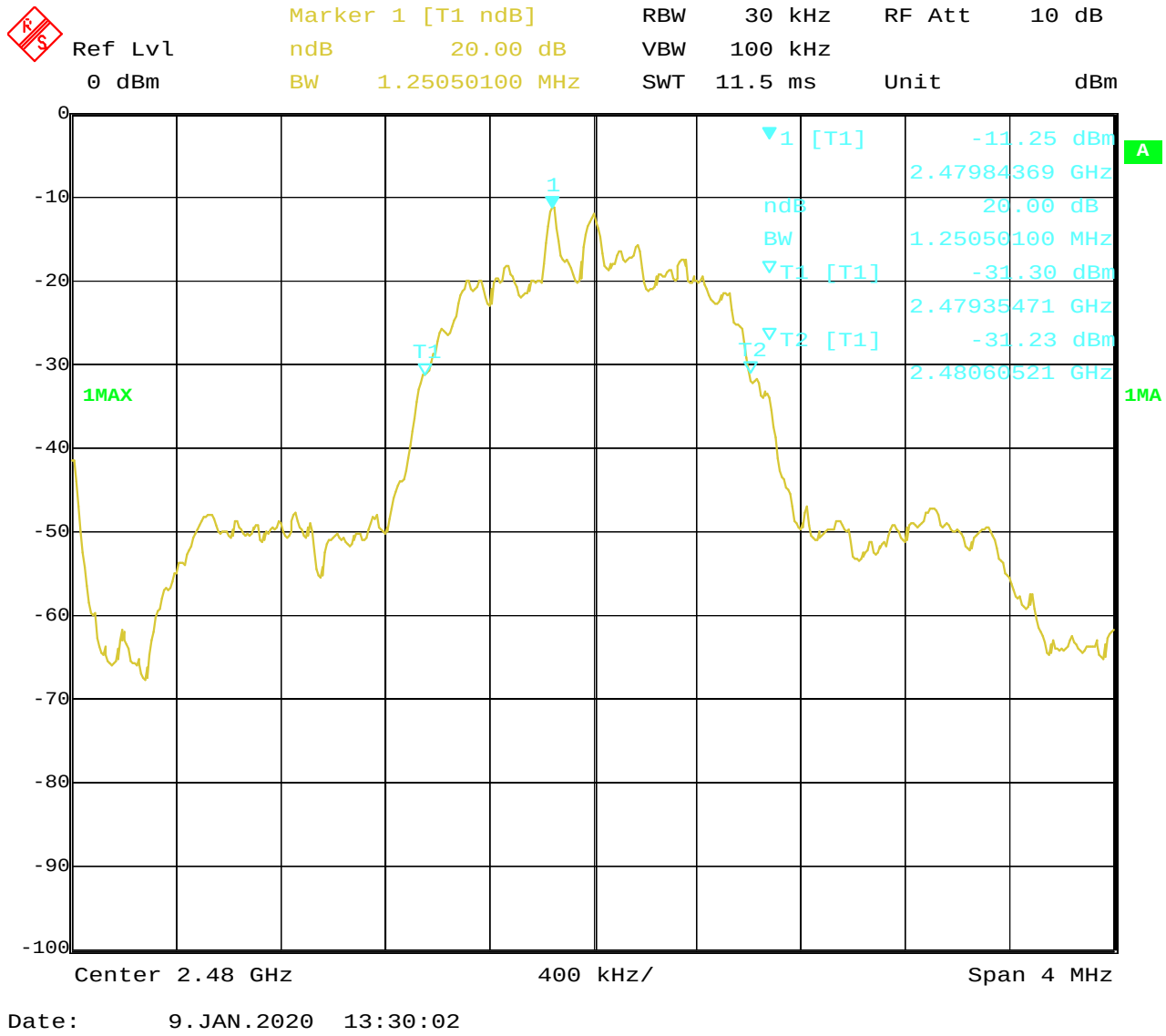
Product:	Wireless Bluetooth Mouse	Test Mode:	Л/4D-QPSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.242MHz	--	--



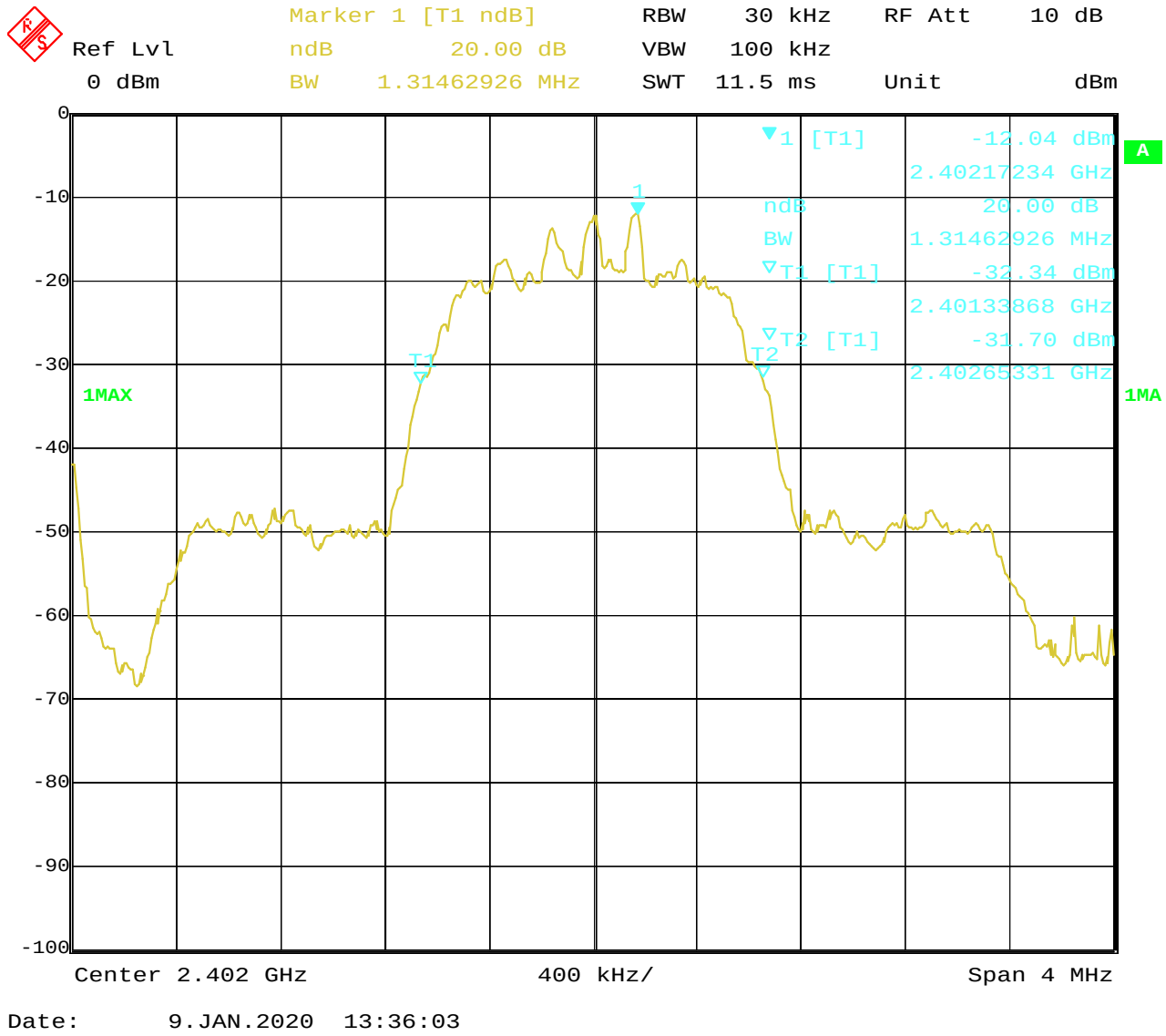
Product:	Wireless Bluetooth Mouse	Test Mode:	Л/4D-QPSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.251MHz	--	--



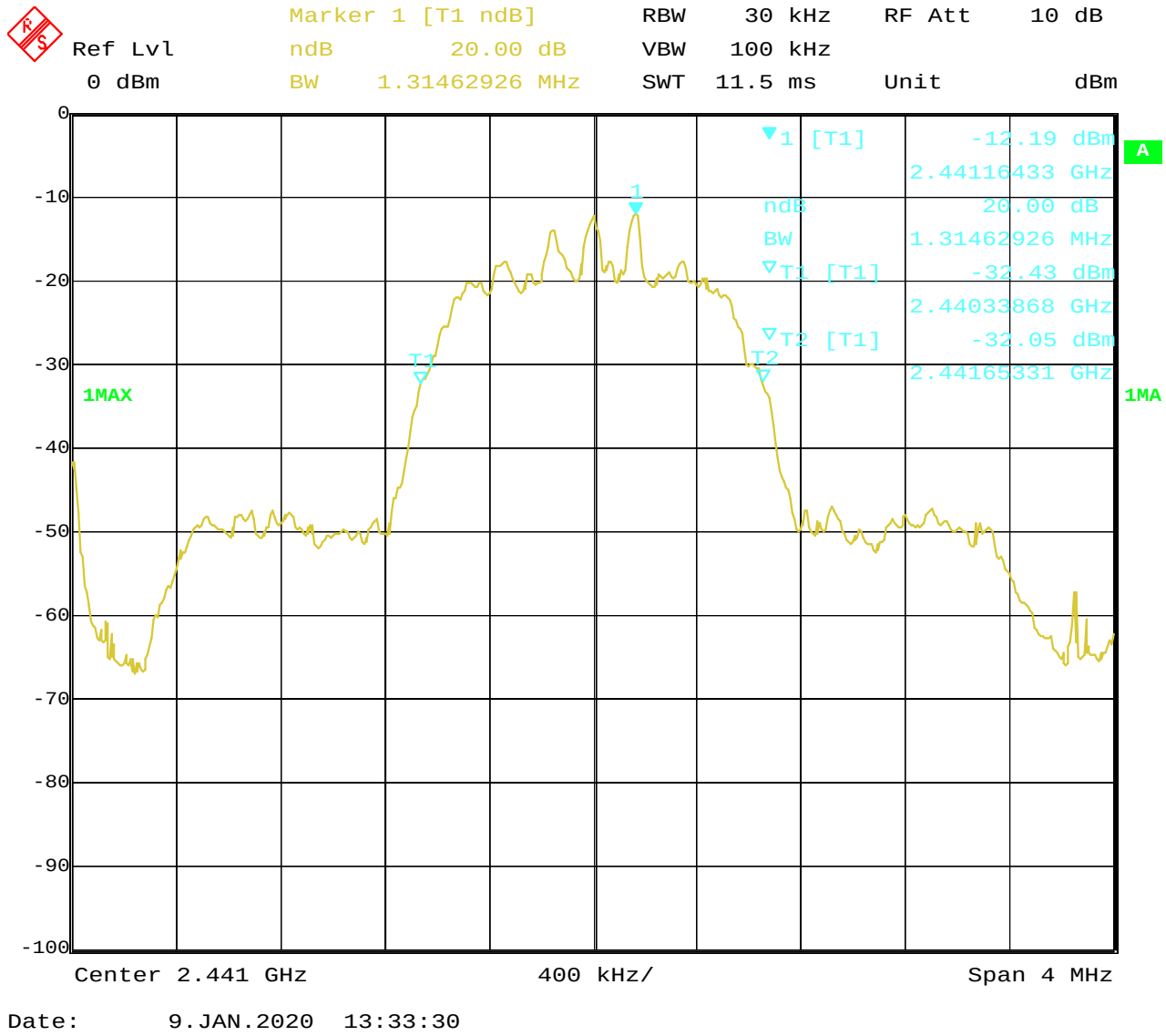
Product:	Wireless Bluetooth Mouse	Test Mode:	/4D-QPSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.251MHz	--	--



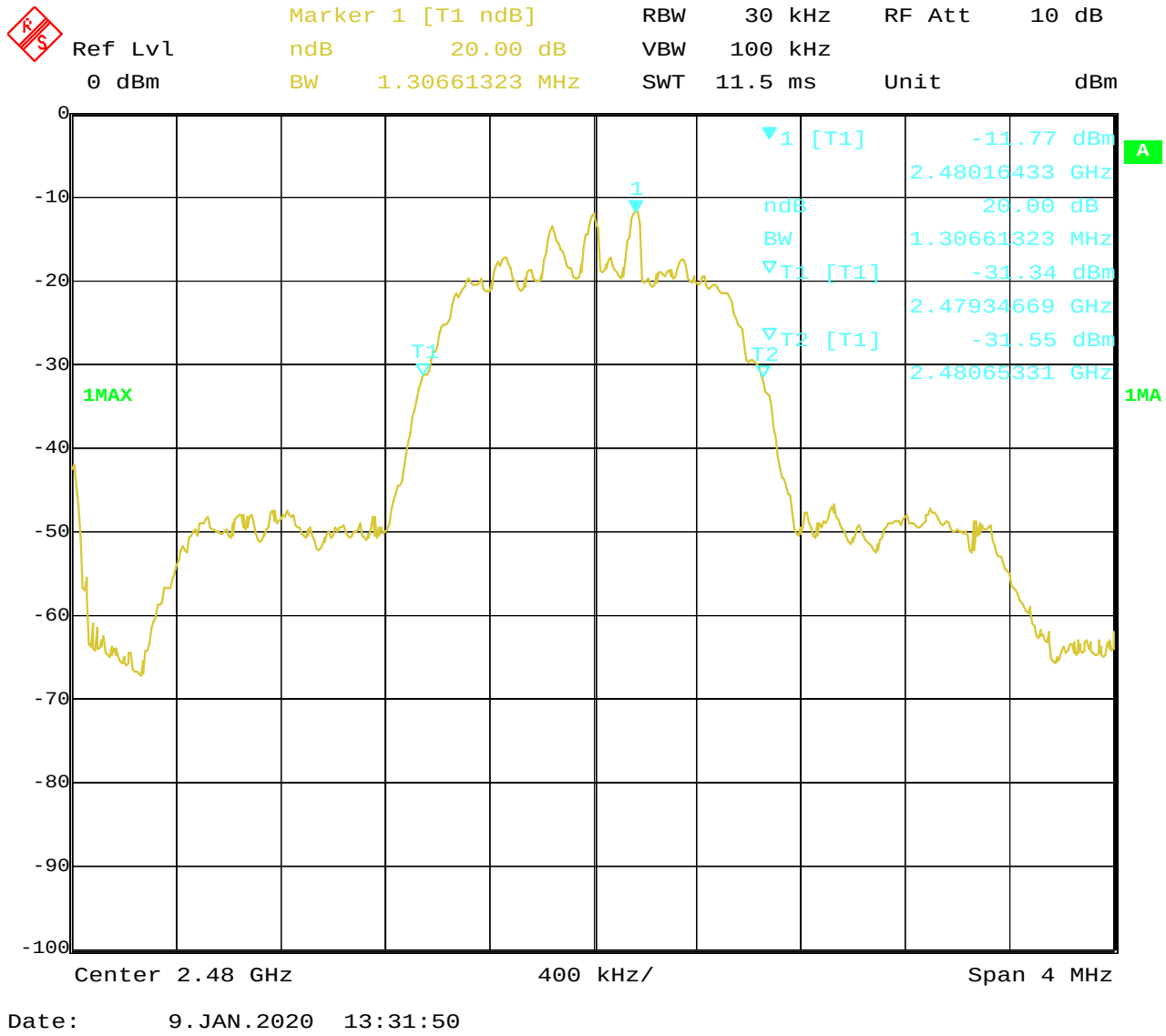
Product:	Wireless Bluetooth Mouse	Test Mode:	8QPSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.315MHz	--	--



Product:	Wireless Bluetooth Mouse	Test Mode:	8QPSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.315MHz	--	--



Product:	Wireless Bluetooth Mouse	Test Mode:	8QPSK
Mode	Keep transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.307MHz	--	--

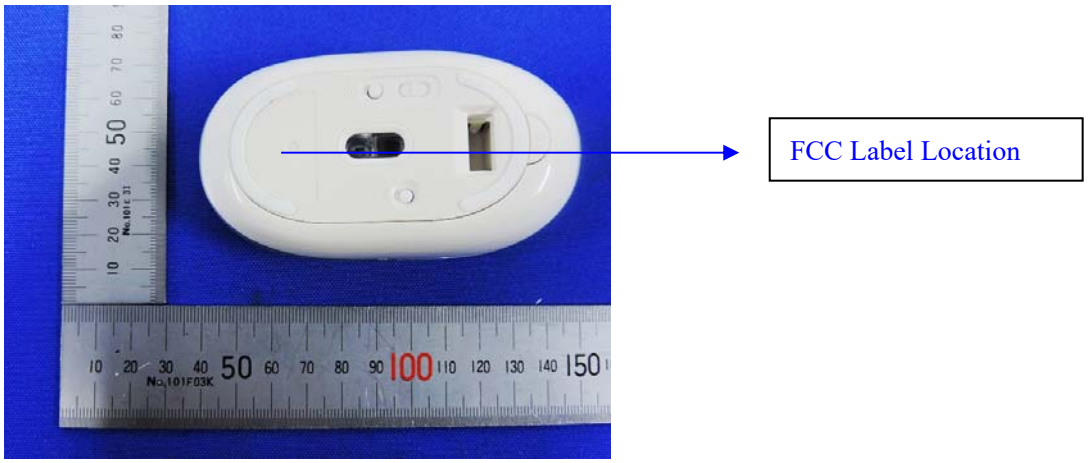


10.0 FCC ID Label

FCC ID: ZJEIMACM212

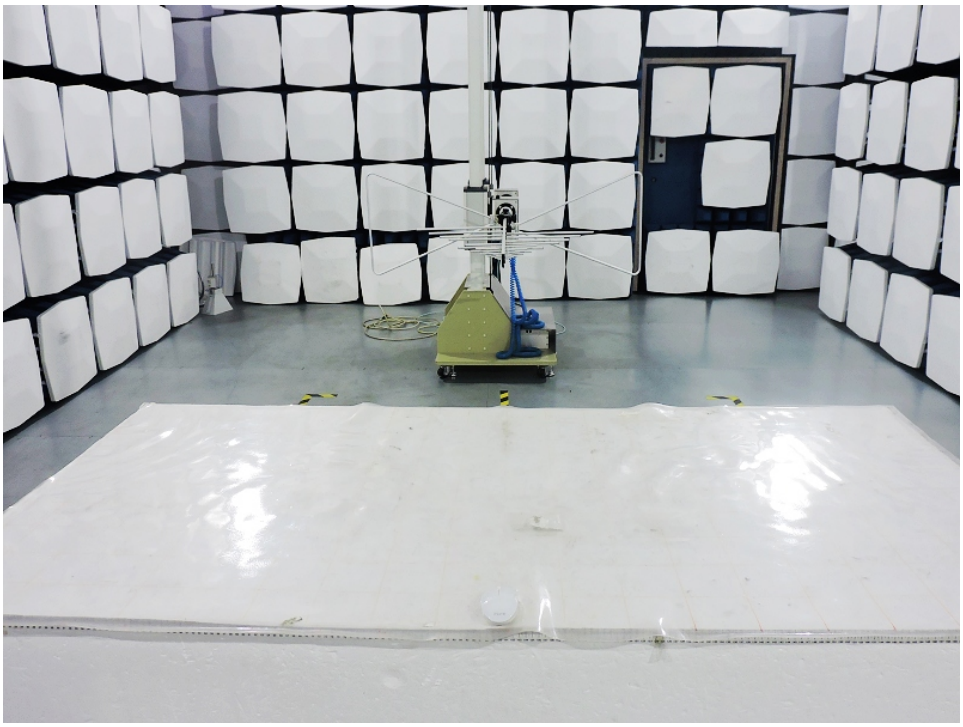
The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

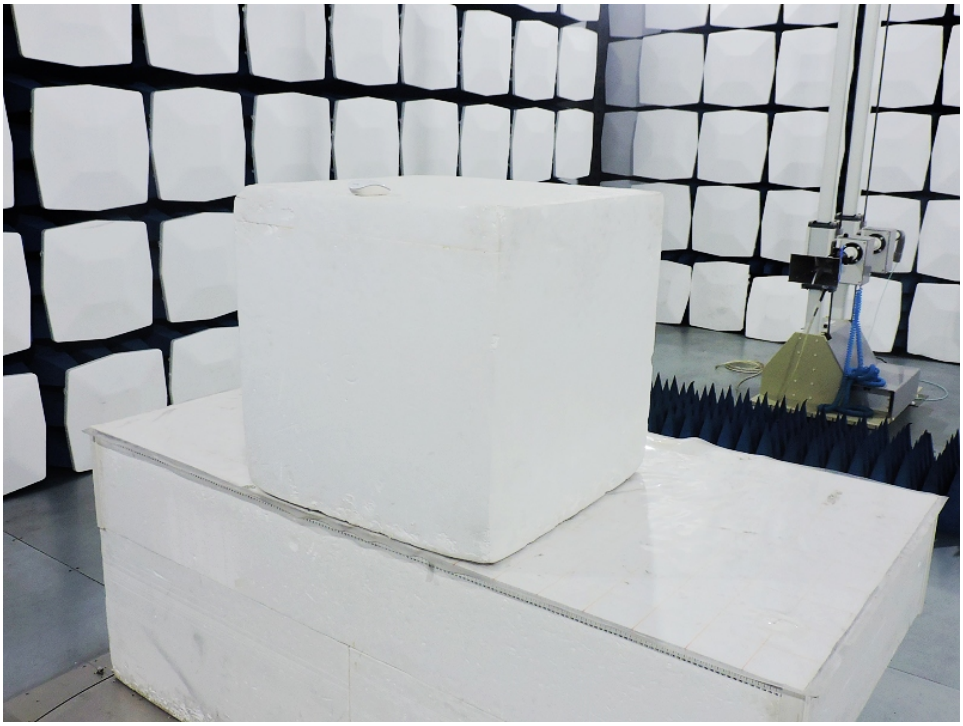
Mark Location:



11.0 Photo of testing

11.1 Radiated emission test view





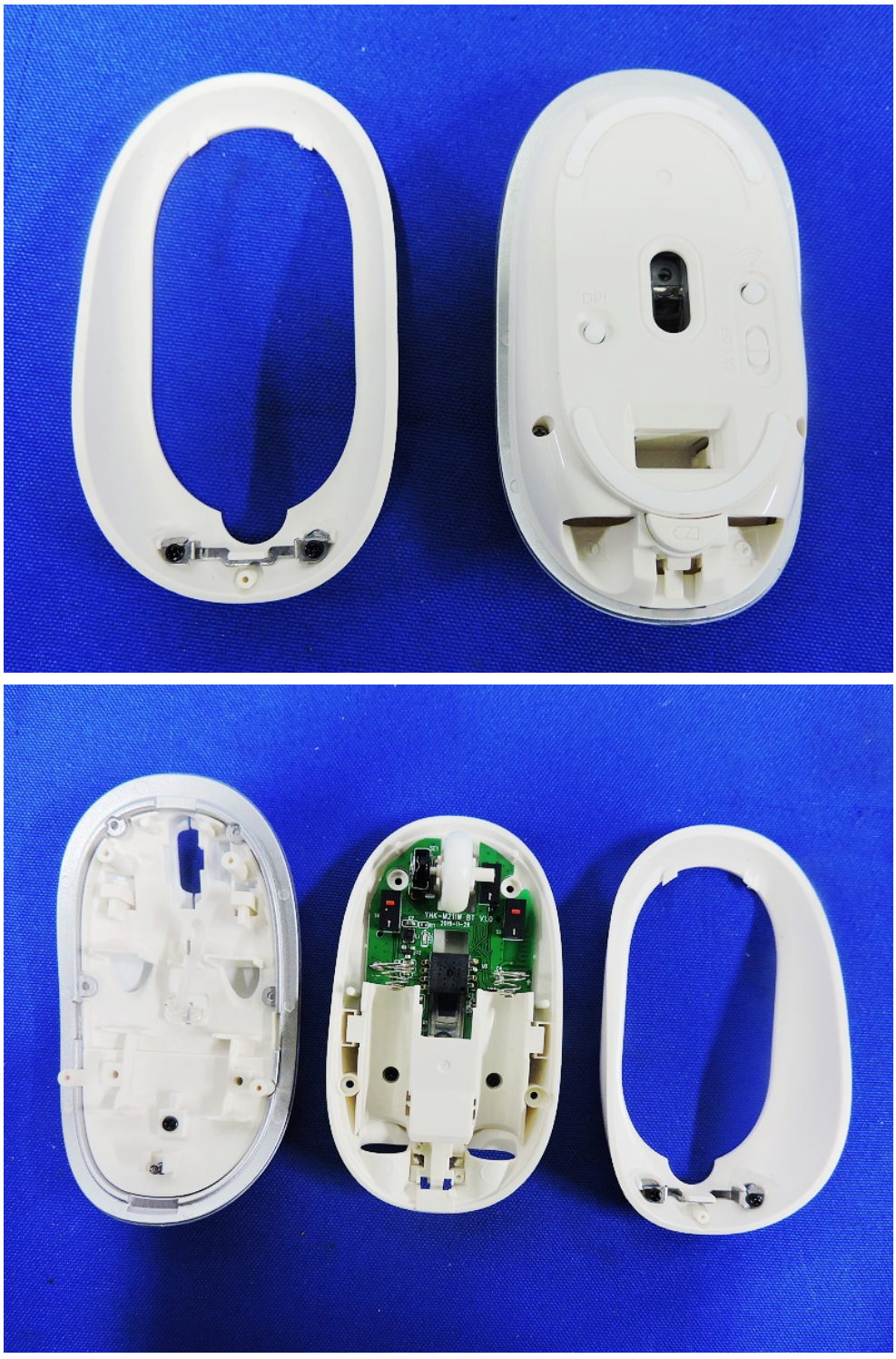
11.2 Photographs – EUT

Outside View

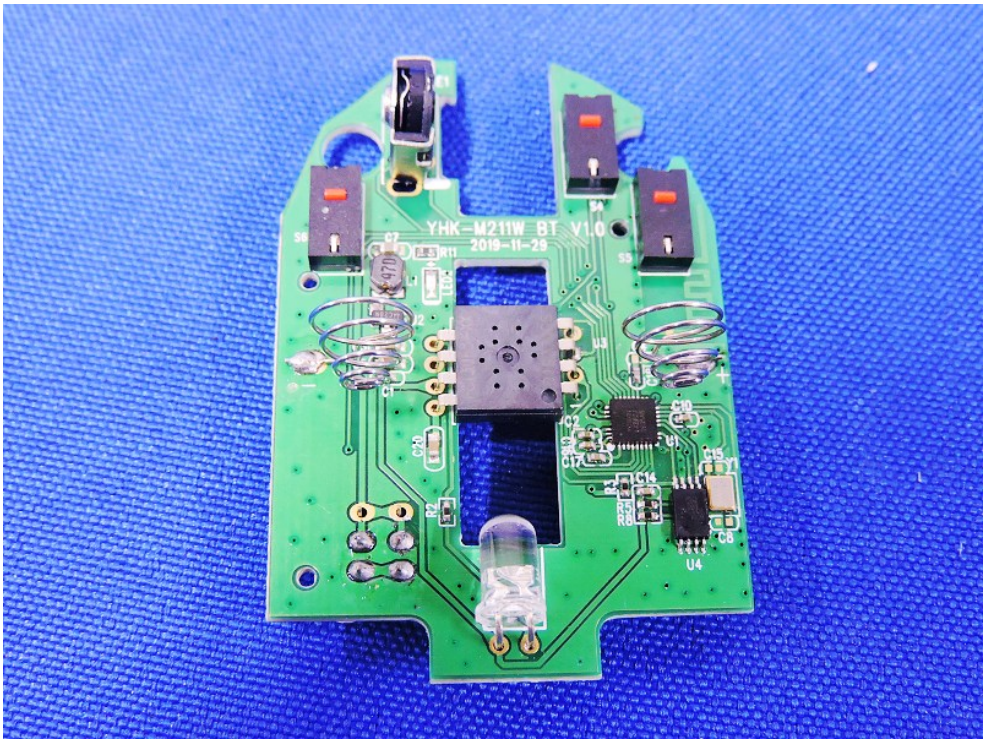
11.3 Photographs – EUT

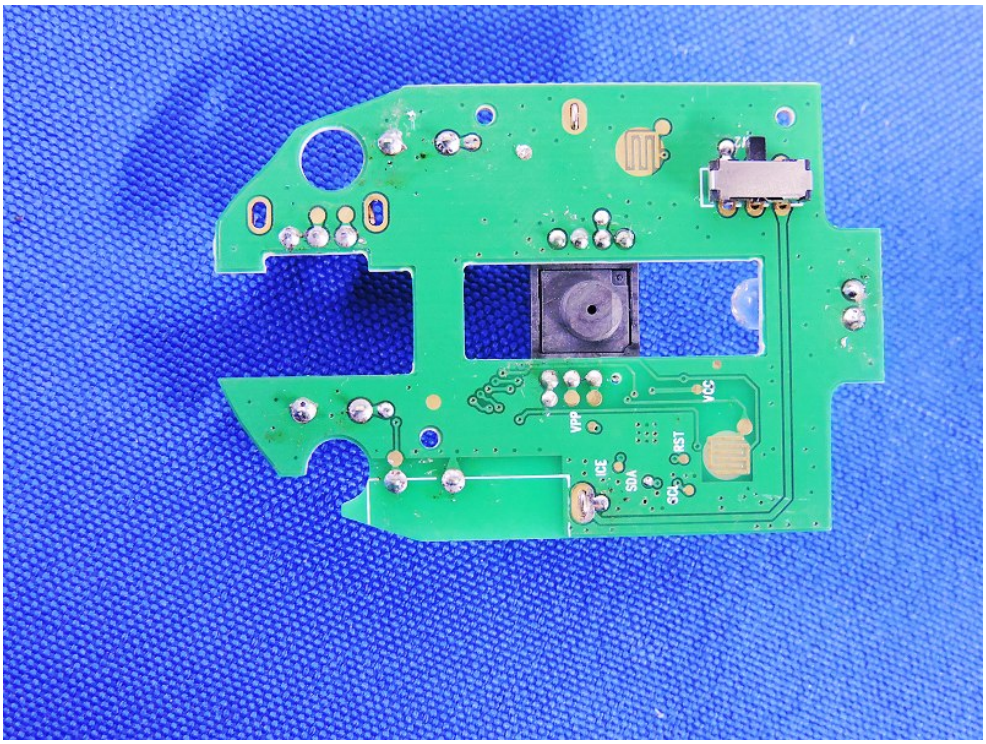
Outside View

Inside view

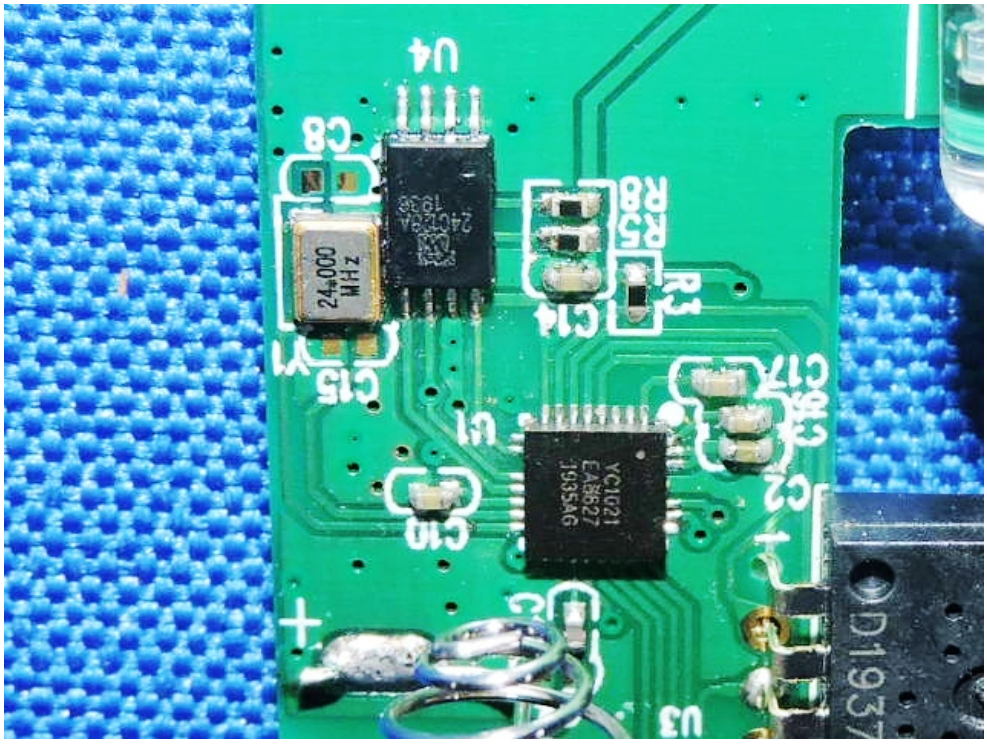


Inside view





Inside view



--End of the report--