

TEST REPORT

Product Name : Bluetooth Mouse
Brand Mark : N/A
Model No. : BM-130
Extension Model : BM-786,BM-106,BM-786C,BM-782,
BM-660,BM-700,BM-698,BM-693,
BM-697,BM-105,BM-127,BM-783, BM-695S
FCC ID : 2AB75-BM-130
Report Number : BLA-EMC-202006-A8002
Date of Sample Receipt : 2020/6/30
Date of Test : 2020/6/30 to 2020/7/15
Date of Issue : 2020/7/15
Test Standard : 47 CFR Part 15, Subpart C 15.247
Test Result : Pass

Prepared for:

ShenZhen Wintop Electronics Co., Ltd
No 46 XinHe RoadShangMuGu Community,PingHu Street,LongGang
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Prepared by:

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REPORT REVISE RECORD

Version No.	Date	Description
00	2020/7/15	Original

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1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass

2 GENERAL INFORMATION

Applicant	ShenZhen Wintop Electronics Co.,Ltd
Address	No 46 XinHe RoadShangMuGu Community,PingHu Street,LongGang District,ShenZhen City,GuangDong Province,China
Manufacturer	ShenZhen Wintop Electronics Co.,Ltd
Address	Room 402 Building 1 No.34 XinHe Road, No 46 XinHe Road, Floor 4 No.50 XinHe Road ShangMuGu Community,PingHu Street,LongGang District,ShenZhen City,GuangDong Province,China
Factory	N/A
Address	N/A
Product Name	Bluetooth Mouse
Test Model No.	BM-130

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	BM-130 V1.0
Software Version	V1.0
Operation Frequency:	2402MHz~2480Mhz
Modulation Type:	GFSK
Channel Spacing:	2MHz
Number of Channels:	40
Antenna Type:	PCB Antenna
Antenna Gain:	0 dBi

4 TEST ENVIRONMENT

Environment	Temperature	Voltage
1010mpa	26 °C	DC3.7V

5 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Low Channel	2402MHz
Middle Channel	2442MHz
High Channel	2480MHz
TX	Keep the EUT in transmitting mode
Remark: Only the data of the worst mode would be recorded in this report.	

6 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission	±4.34dB
Radiated Emission	±4.24dB
Radiated Emission	±4.68dB
AC Power Line Conducted Emission	±3.45dB

Parameter	Expanded Uncertainty (Confidence of 95%)
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3.0 dB
Unwanted Emissions, conducted	±3.0 dB
Temperature	±3 °C
Supply voltages	±3 %
Time	±5 %
Radiated Emission (30MHz ~ 1000MHz)	±4.35 dB
Radiated Emission (1GHz ~ 18GHz)	±4.44 dB

7 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	HASEE	K610D	N/A	N/A

8 LABORATORY LOCATION

All tests were performed at:
BlueAsia of Technical Services(Shenzhen) Co., Ltd.
IOT Test Centre of BlueAsia
No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673
No tests were sub-contracted.

9 TEST INSTRUMENTS LIST

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Shield room	SKET	833	N/A	6/10/2018	6/9/2021
Receiver	R&S	ESPI3	101082	4/20/2020	4/19/2021
LISN	R&S	ENV216	3560.6550.15	7/4/2019 7/4/2020	7/3/2020 7/3/2021
LISN	安泰信	AT166-2	AKK1806000003	12/17/2019	12/16/2020
EMI software	EZ	EZ-EMC	N/A	N/A	N/A

Test Equipment Of Conducted Band Edges Measurement					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021
Spectrum	Agilent	N9020A	MY49100060	12/17/2019	12/16/2020
Signal Generator	Agilent	N5182A	MY49060650	12/17/2019	12/16/2020
Signal Generator	Agilent	E8257D	MY44320250	4/20/2020	4/19/2021

Test Equipment Of Radiated Spurious Emissions					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	5/8/2018	5/7/2021
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021
Receiver	R&S	ESR7	101199	4/20/2020	4/19/2021
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	7/14/2018	7/13/2020
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	7/14/2018	7/13/2020

Amplifier	SKET	LNPA-0118-45	N/A	7/4/2019 7/4/2020	7/3/2020 7/3/2021
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2/14/2019	2/13/2022
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Test Equipment Of Radiated Emissions which fall in the restricted bands

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	5/8/2018	5/7/2021
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021
Receiver	R&S	ESR7	101199	4/20/2020	4/19/2021
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	7/14/2018	7/13/2020
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	7/14/2018	7/13/2020
Amplifier	SKET	LNPA-0118-45	N/A	7/4/2019 7/4/2020	7/3/2020 7/3/2021
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2/14/2019	2/13/2022
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Test Equipment Of Conducted Spurious Emissions

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021

Spectrum	Agilent	N9020A	MY49100060	12/17/2019	12/16/2020
Signal Generator	Agilent	N5182A	MY49060650	12/17/2019	12/16/2020
Signal Generator	Agilent	E8257D	MY44320250	4/20/2020	4/19/2021

Test Equipment Of Power Spectrum Density

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021
Spectrum	Agilent	N9020A	MY49100060	12/17/2019	12/16/2020
Signal Generator	Agilent	N5182A	MY49060650	12/17/2019	12/16/2020
Signal Generator	Agilent	E8257D	MY44320250	4/20/2020	4/19/2021

Test Equipment Of Conducted Peak Output Power

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021
Spectrum	Agilent	N9020A	MY49100060	12/17/2019	12/16/2020
Signal Generator	Agilent	N5182A	MY49060650	12/17/2019	12/16/2020
Signal Generator	Agilent	E8257D	MY44320250	4/20/2020	4/19/2021

Test Equipment Of Minimum 6dB Bandwidth

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	7/4/2019 7/4/2020	7/3/2020 7/3/2021
Spectrum	Agilent	N9020A	MY49100060	12/17/2019	12/16/2020
Signal Generator	Agilent	N5182A	MY49060650	12/17/2019	12/16/2020
Signal Generator	Agilent	E8257D	MY44320250	4/20/2020	4/19/2021

1 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

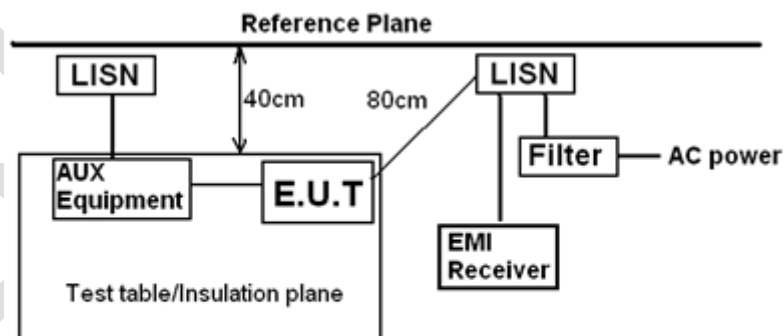
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	26°C
Humidity	54%

1.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

1.2 BLOCK DIAGRAM OF TEST SETUP



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedance Stabilization Network
Test table height=0.8m

1.3 PROCEDURE

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50?H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as

the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

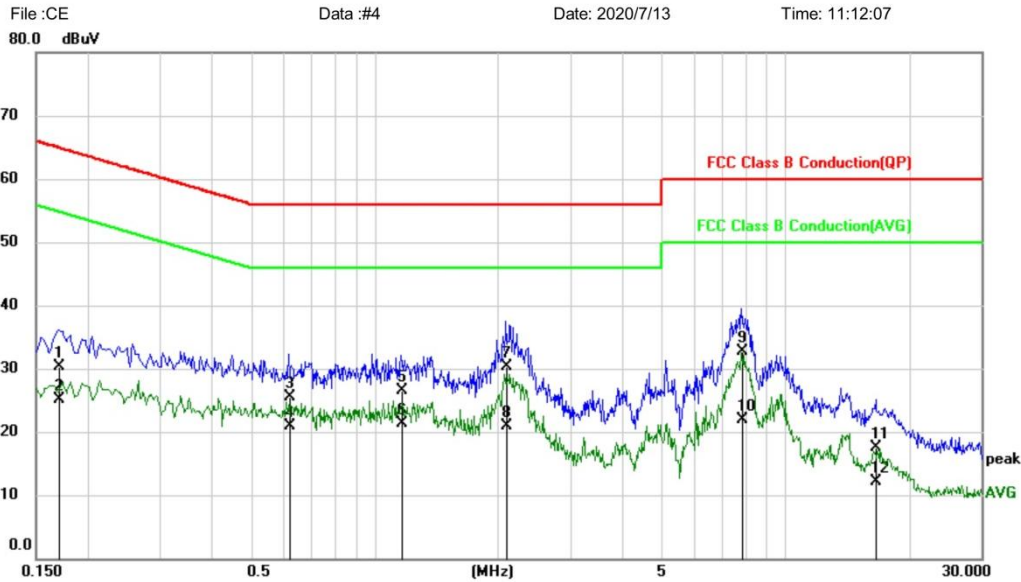
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: $LISN = Read\ Level + Cable\ Loss + LISN\ Factor$

1.4 TEST DATA

[TestMode: TX]; [Line: Nutral]
AC120V60Hz

Conducted Emission Measurement



Site: Phase: **N** Temperature: 26
Limit: FCC Class B Conduction(QP) Power: DC3.3V Humidity: 60 %
EUT: Bluetooth Mouse
M/N: BM-130
Mode: BT mode
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1700	20.53	9.87	30.40	64.96	-34.56	QP	
2	0.1700	15.26	9.87	25.13	54.96	-29.83	AVG	
3	0.6180	15.82	9.74	25.56	56.00	-30.44	QP	
4	0.6180	11.24	9.74	20.98	46.00	-25.02	AVG	
5	1.1620	16.64	9.82	26.46	56.00	-29.54	QP	
6 *	1.1620	11.40	9.82	21.22	46.00	-24.78	AVG	
7	2.0940	20.35	9.86	30.21	56.00	-25.79	QP	
8	2.0940	11.10	9.86	20.96	46.00	-25.04	AVG	
9	7.8340	22.83	9.86	32.69	60.00	-27.31	QP	
10	7.8340	12.14	9.86	22.00	50.00	-28.00	AVG	
11	16.6060	7.43	10.02	17.45	60.00	-42.55	QP	
12	16.6060	2.18	10.02	12.20	50.00	-37.80	AVG	

*:Maximum data x:Over limit !:over margin

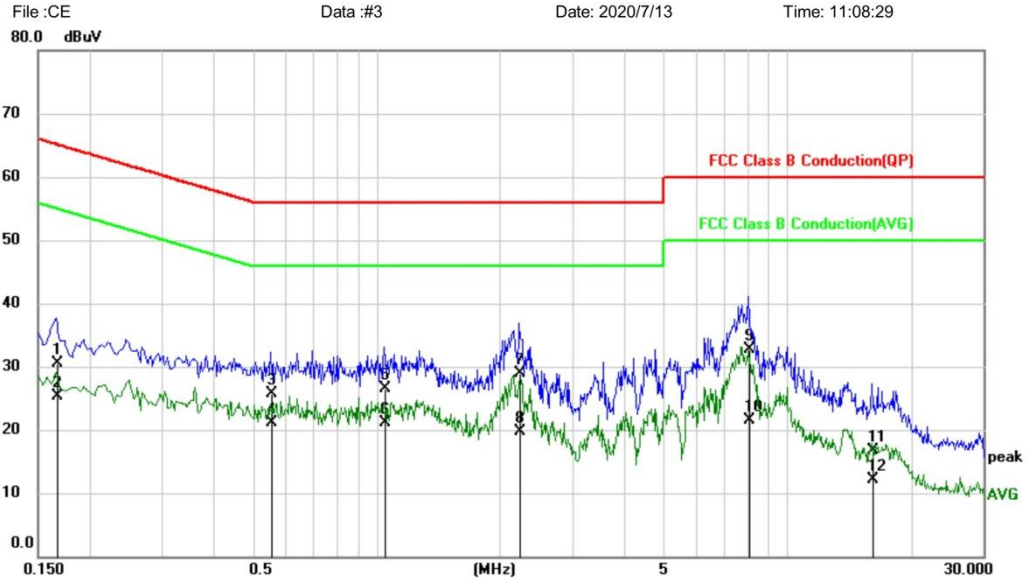
(Reference Only)

Test Result: Pass

[TestMode: TX]; [Line: Line]

AC120V60Hz

Conducted Emission Measurement



Site Phase: **L1** Temperature: 26
Limit: FCC Class B Conduction(QP) Power: DC3.3V Humidity: 60 %
EUT: Bluetooth Mouse
M/N: BM-130
Mode: BT mode
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1660	20.65	9.90	30.55	65.16	-34.61	QP	
2		0.1660	15.39	9.90	25.29	55.16	-29.87	AVG	
3		0.5540	15.96	9.74	25.70	56.00	-30.30	QP	
4		0.5540	11.34	9.74	21.08	46.00	-24.92	AVG	
5		1.0460	16.58	9.86	26.44	56.00	-29.56	QP	
6	*	1.0460	11.23	9.86	21.09	46.00	-24.91	AVG	
7		2.2340	19.15	9.82	28.97	56.00	-27.03	QP	
8		2.2340	9.81	9.82	19.63	46.00	-26.37	AVG	
9		8.0380	22.79	9.87	32.66	60.00	-27.34	QP	
10		8.0380	11.73	9.87	21.60	50.00	-28.40	AVG	
11		16.0580	6.79	9.95	16.74	60.00	-43.26	QP	
12		16.0580	2.06	9.95	12.01	50.00	-37.99	AVG	

H *:Maximum data x:Over limit !:over margin <Reference Only

Test Result: Pass

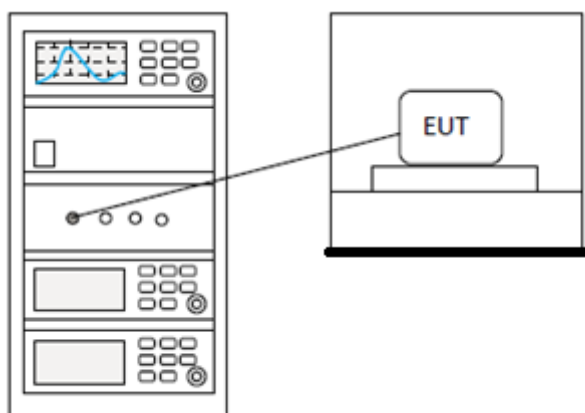
2 CONDUCTED BAND EDGES MEASUREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	26°C
Humidity	54%

2.1 LIMITS

Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
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2.2 BLOCK DIAGRAM OF TEST SETUP



2.3 TEST DATA

Pass: Please Refer To Appendix: For Details

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3 RADIATED SPURIOUS EMISSIONS

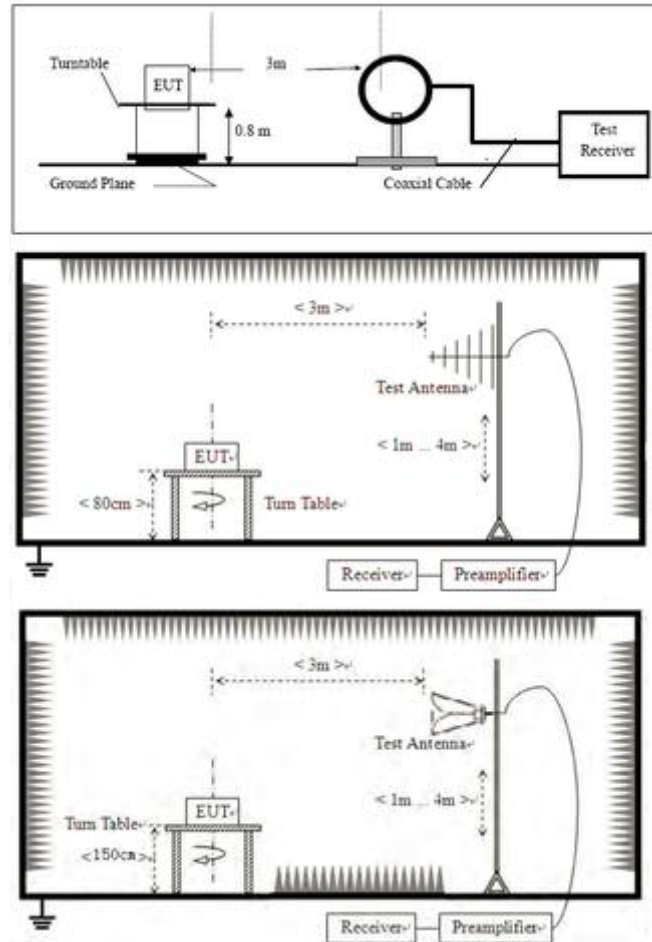
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Test Mode (Pre-Scan)	Low Channel;Middle Channel;High Channel;TX
Test Mode (Final Test)	Low Channel;High Channel;TX
Tester	Eason
Temperature	26℃
Humidity	54%

3.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

3.2 BLOCK DIAGRAM OF TEST SETUP



3.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

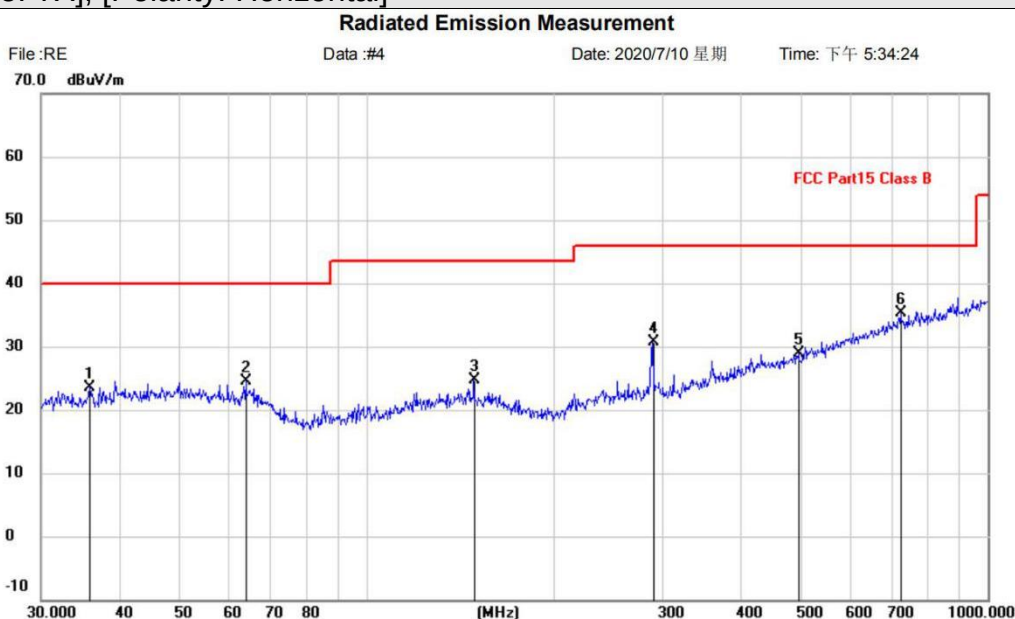
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor + Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

3.4 TEST DATA

[TestMode: TX]; [Polarity: Horizontal]



Site

Limit: FCC Part15 Class B

EUT: Bluetooth Mouse

M/N: BM-130

Mode: BT mode

Note:

Polarization: **Horizontal**

Temperature:

Power: DC3.3V

Humidity: %

Distance: 3m

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		35.8746	0.58	23.02	23.60	40.00	-16.40	QP		
2		63.9828	2.18	22.28	24.46	40.00	-15.54	QP		
3		148.9625	1.66	23.07	24.73	43.50	-18.77	QP		
4		289.0021	7.40	23.36	30.76	46.00	-15.24	QP		
5		495.9344	-0.13	28.96	28.83	46.00	-17.17	QP		
6	*	724.2611	2.00	33.21	35.21	46.00	-10.79	QP		

*:Maximum data x:Over limit !:over margin

◀Reference Only

Test Result: Pass

[TestMode: TX]; [Polarity: Vertical]

Radiated Emission Measurement

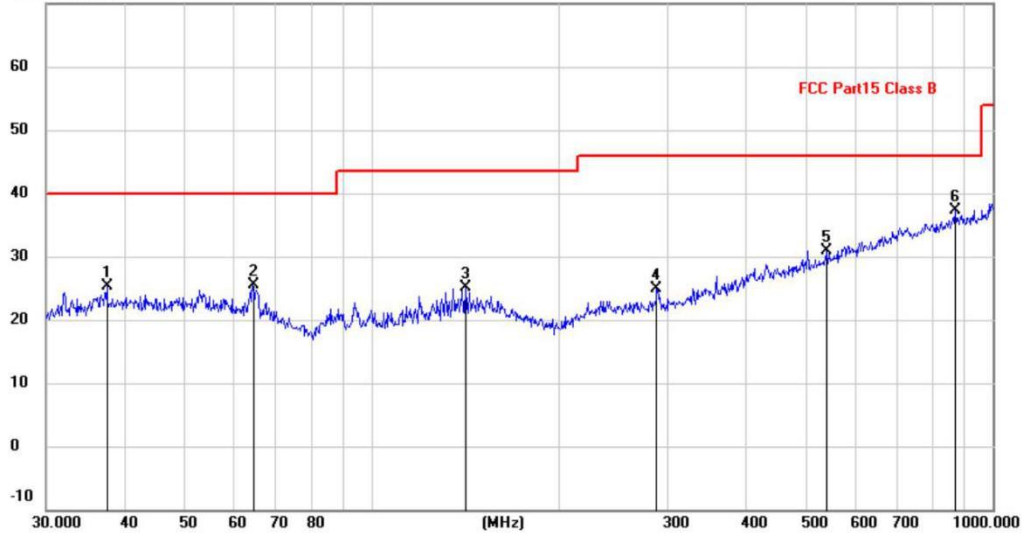
File: RE

Data: #3

Date: 2020/7/10 星期

Time: 下午 5:32:27

70.0 dBuV/m



Site

Polarization: **Vertical**

Temperature:

Limit: FCC Part15 Class B

Power: DC3.3V

Humidity: %

EUT: Bluetooth Mouse

Distance: 3m

M/N: BM-130

Mode: BT mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		37.5479	1.87	23.44	25.31	40.00	-14.69	QP		
2		64.4331	3.28	22.18	25.46	40.00	-14.54	QP		
3		141.8262	1.97	23.09	25.06	43.50	-18.44	QP		
4		287.9904	1.49	23.34	24.83	46.00	-21.17	QP		
5		541.3725	1.04	29.88	30.92	46.00	-15.08	QP		
6	*	869.1302	2.07	35.14	37.21	46.00	-8.79	QP		

*:Maximum data x:Over limit !:over margin

<Reference Only

Test Result: Pass

[TestMode: Low Channel]; [Polarity: Horizontal]



*:Maximum data x:Over limit !:over margin

⟨Reference Only⟩

Test Result: Pass

[TestMode: Low Channel]; [Polarity: Vertical]

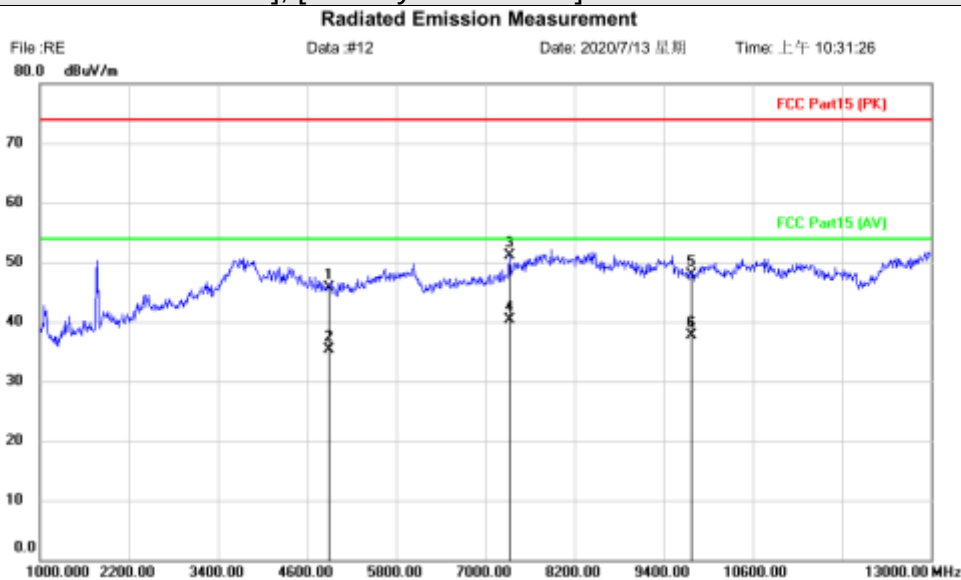


*:Maximum data x:Over limit !:over margin

⟨Reference Only⟩

Test Result: Pass

[TestMode: Middle Channel]; [Polarity: Horizontal]



Site Polarization: **Horizontal** Temperature:

Limit: FCC Part15 (PK) Power: DC3.3V Humidity: %

EUT: Bluetooth Mouse Distance: 3m

M/N: BM-130

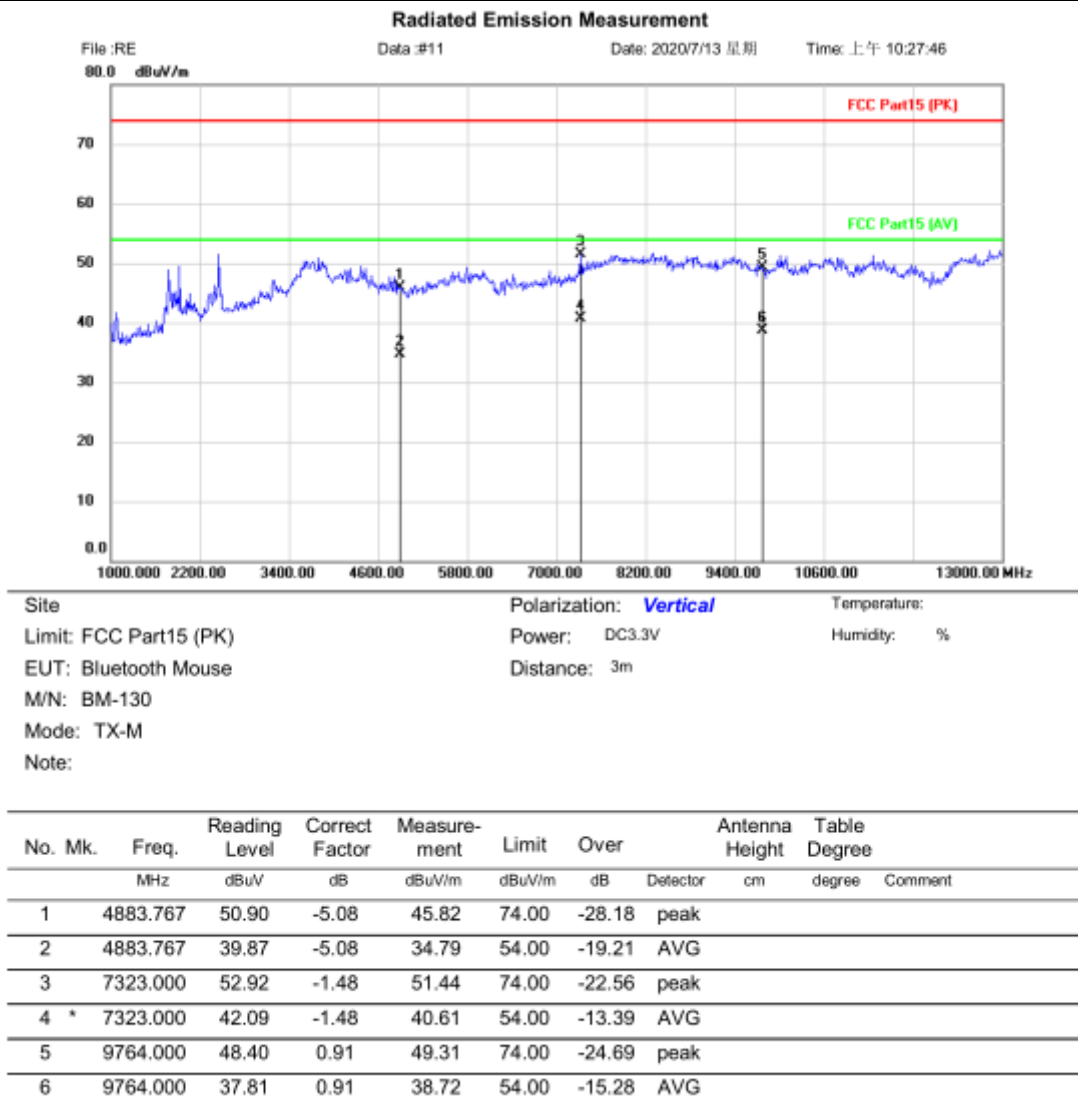
Mode: TX-M

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	Comment
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	
1		4883.767	50.76	-5.08	45.68	74.00	-28.32	peak		
2		4883.767	40.36	-5.08	35.28	54.00	-18.72	AVG		
3		7323.000	52.54	-1.34	51.20	74.00	-22.80	peak		
4	*	7323.000	41.58	-1.34	40.24	54.00	-13.76	AVG		
5		9764.000	46.91	0.94	47.85	74.00	-26.15	peak		
6		9764.000	36.69	0.94	37.63	54.00	-16.37	AVG		

Test Result: Pass

[TestMode: Middle Channel]; [Polarity: Vertical]

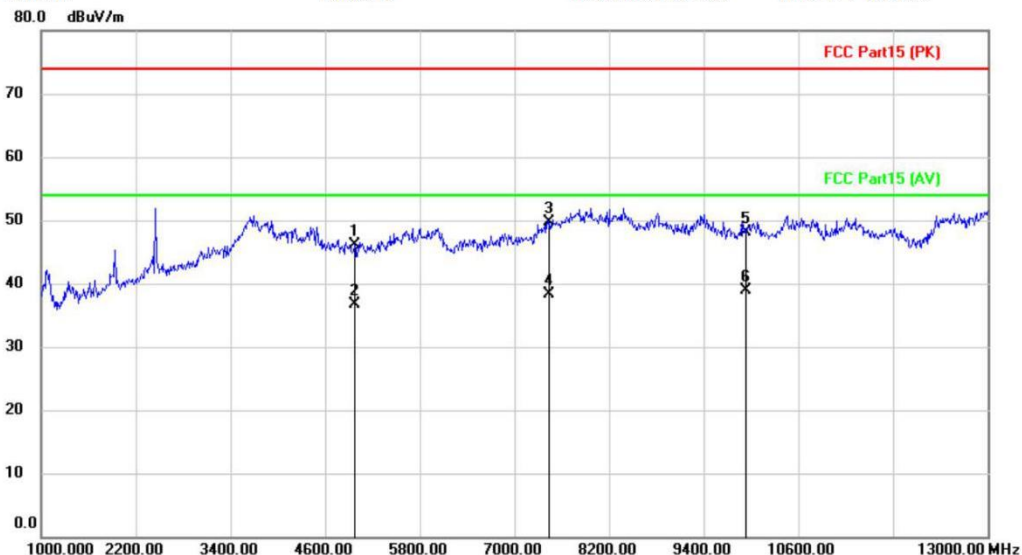


Test Result: Pass

[TestMode: High Channel]; [Polarity: Horizontal]

Radiated Emission Measurement

File: RE Data: #13 Date: 2020/7/13 星期 Time: 上午 10:34:50



Site: Polarization: **Horizontal** Temperature:
Limit: FCC Part15 (PK) Power: DC3.3V Humidity: %
EUT: Bluetooth Mouse Distance: 3m
M/N: BM-130
Mode: TX-H
Note:

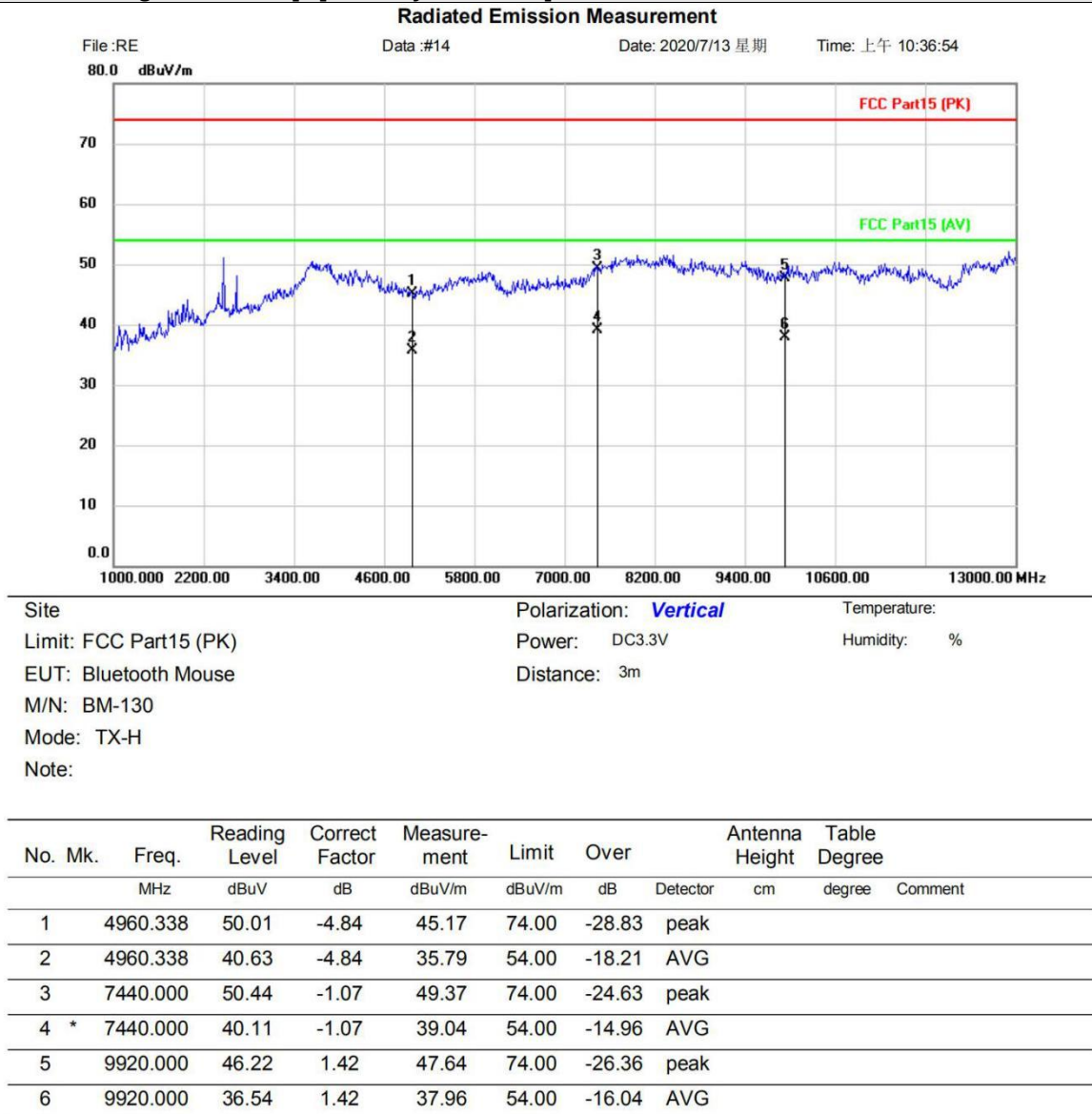
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		4960.338	50.90	-4.84	46.06	74.00	-27.94	peak		
2		4960.338	41.48	-4.84	36.64	54.00	-17.36	AVG		
3		7440.000	50.25	-0.56	49.69	74.00	-24.31	peak		
4		7440.000	38.84	-0.56	38.28	54.00	-15.72	AVG		
5		9920.000	46.72	1.30	48.02	74.00	-25.98	peak		
6	*	9920.000	37.63	1.30	38.93	54.00	-15.07	AVG		

*:Maximum data x:Over limit !:over margin

〈Reference Only

Test Result: Pass

[TestMode: High Channel]; [Polarity: Vertical]



*:Maximum data x:Over limit !:over margin

⟨Reference Only⟩

Test Result: Pass

4 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

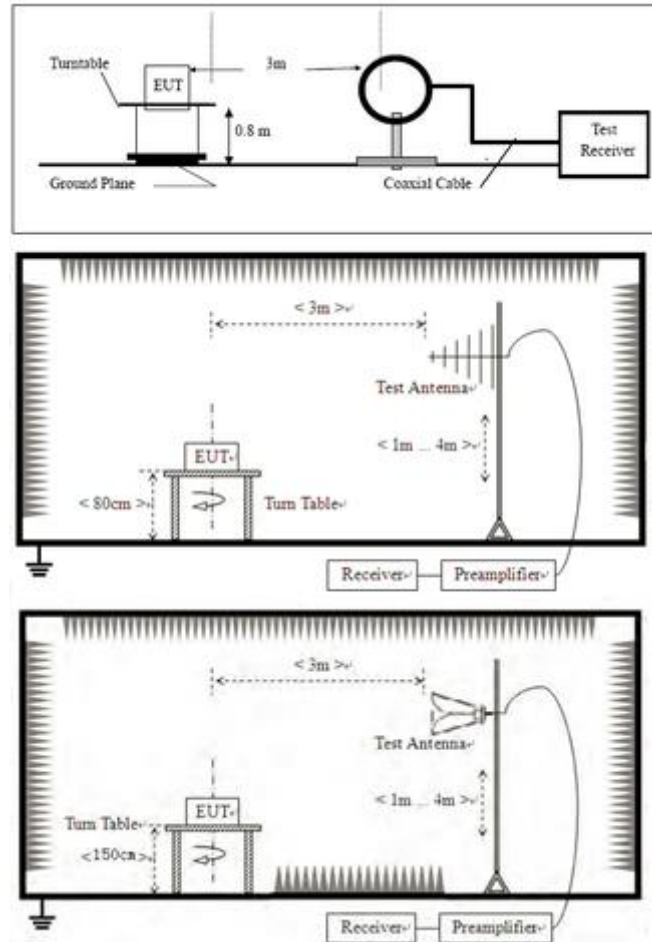
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	Low Channel;High Channel;TX
Test Mode (Final Test)	Low Channel;High Channel
Tester	Eason
Temperature	26℃
Humidity	54%

4.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

4.2 BLOCK DIAGRAM OF TEST SETUP



4.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

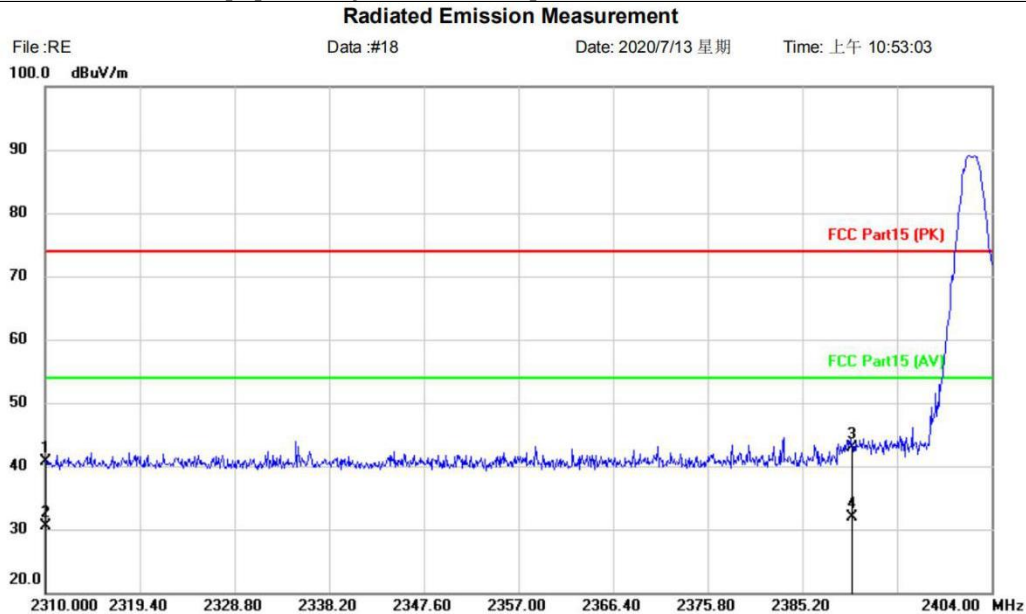
Remark 1: $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

BlueAsia

4.4 TEST DATA

[TestMode: Low Channel]; [Polarity: Horizontal]



Site	Polarization: Horizontal	Temperature:
Limit: FCC Part15 (PK)	Power: DC3.3V	Humidity: %
EUT: Bluetooth Mouse	Distance: 3m	
M/N: BM-130		
Mode: TX-L		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		2310.000	54.62	-14.01	40.61	74.00	-33.39	peak		
2		2310.000	44.44	-14.01	30.43	54.00	-23.57	AVG		
3		2390.000	56.53	-13.62	42.91	74.00	-31.09	peak		
4	*	2390.000	45.53	-13.62	31.91	54.00	-22.09	AVG		

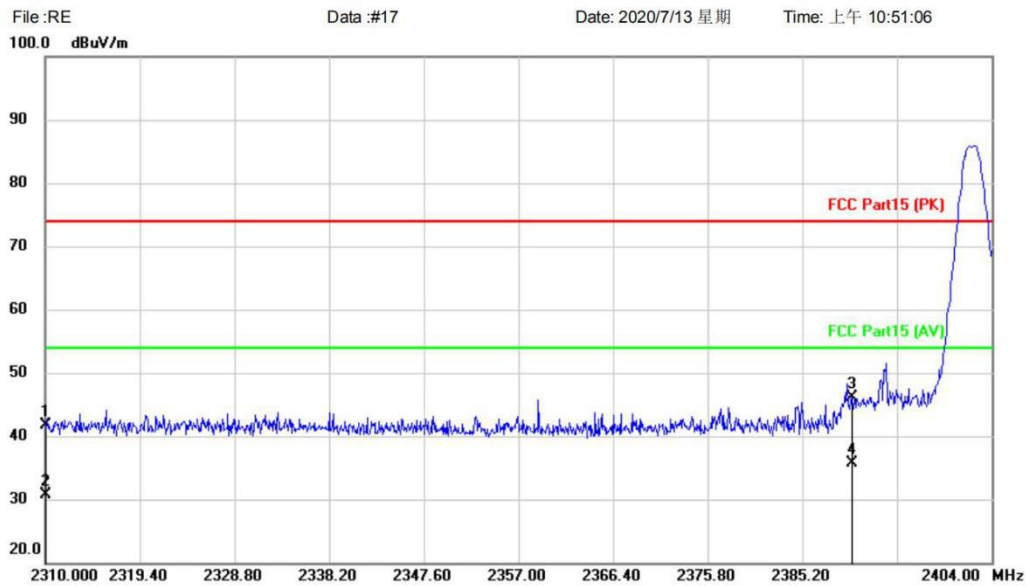
*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[TestMode: Low Channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site Polarization: **Vertical** Temperature:

Limit: FCC Part15 (PK) Power: DC3.3V Humidity: %

EUT: Bluetooth Mouse Distance: 3m

M/N: BM-130

Mode: TX-L

Note:

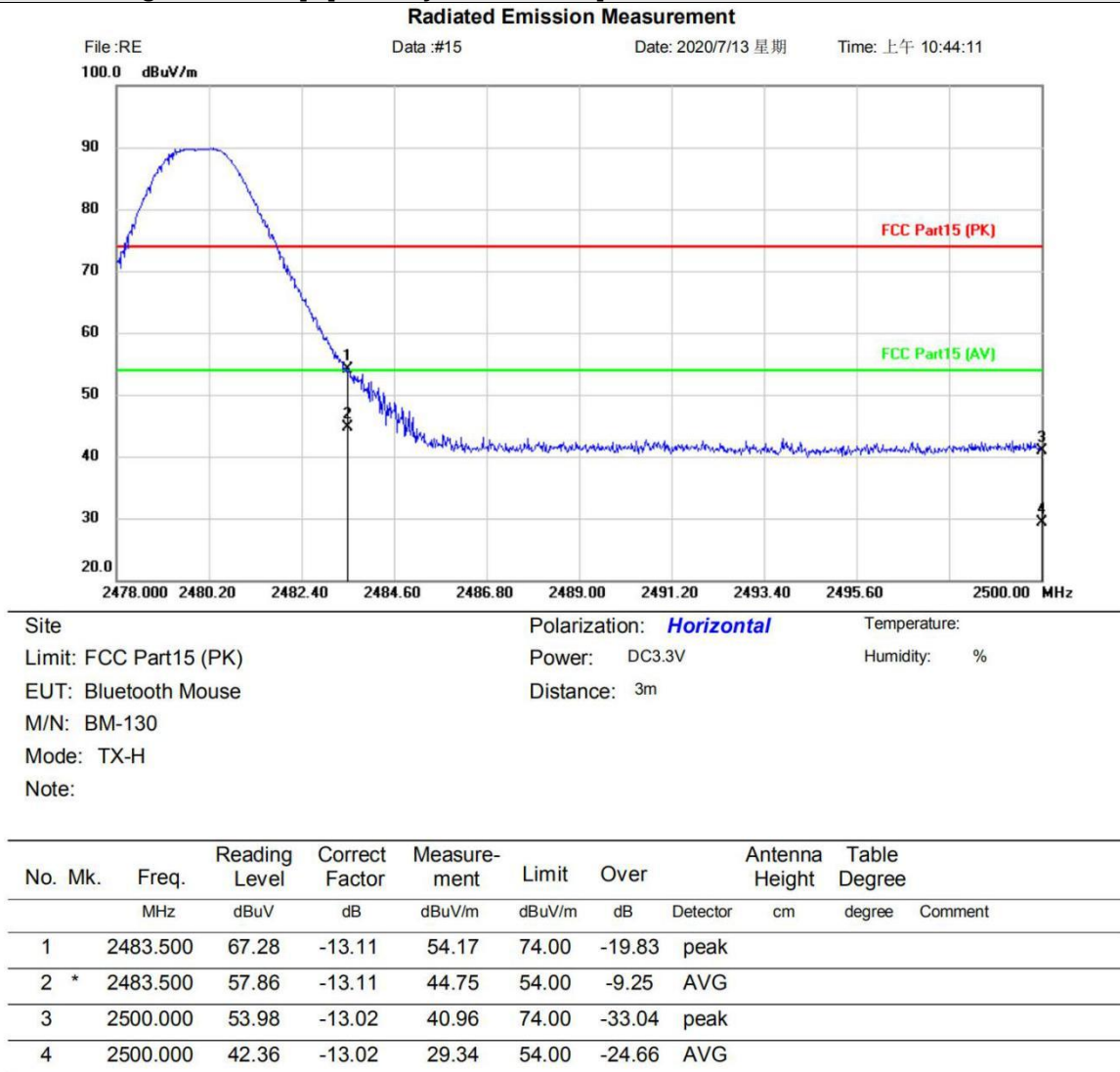
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		2310.000	55.94	-14.30	41.64	74.00	-32.36	peak		
2		2310.000	45.07	-14.30	30.77	54.00	-23.23	AVG		
3		2390.000	60.11	-13.95	46.16	74.00	-27.84	peak		
4	*	2390.000	49.63	-13.95	35.68	54.00	-18.32	AVG		

*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[TestMode: High Channel]; [Polarity: Horizontal]



*:Maximum data x:Over limit !:over margin

〈Reference Only

Test Result: Pass