

# TEST REPORT

**Product Name** : Cordless Mouse  
**Brand Mark** : TECKNET/TeckNet/TechRise  
**Model No.** : M002  
**Extension model** : EWM01002  
**FCC ID** : 2AK8Q-M002  
**Report Number** : BLA-EMC-202202-A2002  
**Date of Sample Receipt** : 2022/2/22  
**Date of Test** : 2022/2/22 to 2022/3/23  
**Date of Issue** : 2022/3/23  
**Test Standard** : 47 CFR Part 15, Subpart C 15.249  
**Test Result** : Pass

Prepared for:

**Shenzhen Unichain Technology Co., Ltd**  
**201, 111-3, Huangjinshan District, Bantian Community, Bantian Street,**  
**Longgang District, Shenzhen, China**

Prepared by:

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Date:

2022/3/23



**REPORT REVISE RECORD**

<b>Version No.</b>	<b>Date</b>	<b>Description</b>
00	2022/3/23	Original

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## 1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Radiated Emissions	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass
Restricted Band Around Fundamental Frequency	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Field Strength of the Fundamental Signal (15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	N/A
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	47 CFR Part 15, Subpart C 15.203	Pass

## 2 GENERAL INFORMATION

<b>Applicant</b>	Shenzhen Unichain Technology Co., Ltd
<b>Address</b>	201, 111-3, Huangjinshan District, Bantian Community, Bantian Street, Longgang District, Shenzhen, China
<b>Manufacturer</b>	Shenzhen Unichain Technology Co., Ltd
<b>Address</b>	201, 111-3, Huangjinshan District, Bantian Community, Bantian Street, Longgang District, Shenzhen, China
<b>Factory</b>	Shenzhen Unichain Technology Co., Ltd
<b>Address</b>	201, 111-3, Huangjinshan District, Bantian Community, Bantian Street, Longgang District, Shenzhen, China
<b>Product Name</b>	Cordless Mouse
<b>Test Model No.</b>	M002
<b>Extension model</b>	EWM01002
<b>Note</b>	All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are model name for commercial purpose.

## 3 GENERAL DESCRIPTION OF E.U.T.

<b>Hardware Version</b>	N/A
<b>Software Version</b>	N/A
Channel Spacing:	≥2MHz
Frequency Range:	2408MHz~2474MHz
Modulation Type:	GFSK
Number of Channels:	34 (declared by the client)
Antenna Type:	PCB ANT
Antenna Gain:	0dBi(Provided by the applicant)
Power Supply:	DC3V

#### 4 TEST ENVIRONMENT

Environment	Temperature	Voltage
Normal	25°C	DC3V

#### 5 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Transmitting mode	Keep the EUT in continuously transmitting mode with modulation. New battery is used during all test.

#### 6 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB

## 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.  
Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District, Shenzhen, Guangdong Province,  
China  
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673  
No tests were sub-contracted.



## 9 TEST INSTRUMENTS LIST

Test Equipment Of Radiated Emissions					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	10/11/2020	9/11/2023
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Receiver	R&S	ESR7	101199	24/9/2021	23/9/2022
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	26/9/2020	25/9/2022
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	26/9/2020	25/9/2022
Amplifier	SKET	LNPA-0118-45	N/A	24/9/2021	23/9/2022
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	26/9/2020	25/9/2022

Test Equipment Of Restricted Band Around Fundamental Frequency					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	10/11/2020	9/11/2023
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Receiver	R&S	ESR7	101199	24/9/2021	23/9/2022
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	26/9/2020	25/9/2022
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	26/9/2020	25/9/2022
Amplifier	SKET	LNPA-0118-45	N/A	24/9/2021	23/9/2022
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	26/9/2020	25/9/2022

<b>Test Equipment Of Field Strength of the Fundamental Signal (15.249(a))</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>S/N</b>	<b>Cal.Date</b>	<b>Cal.Due</b>
Chamber	SKET	966	N/A	10/11/2020	9/11/2023
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Receiver	R&S	ESR7	101199	24/9/2021	23/9/2022
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	26/9/2020	25/9/2022
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	26/9/2020	25/9/2022
Amplifier	SKET	LNPA-0118-45	N/A	24/9/2021	23/9/2022
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	26/9/2020	25/9/2022

<b>Test Equipment Of 20dB Bandwidth</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>S/N</b>	<b>Cal.Date</b>	<b>Cal.Due</b>
Shield room	SKET	833	N/A	25/11/2020	24/11/2023
Receiver	R&S	ESPI3	101082	24/9/2021	23/9/2022
LISN	R&S	ENV216	3560.6550.15	24/9/2021	23/9/2022
LISN	AT	AT166-2	AKK1806000003	26/9/2021	25/9/2022
EMI software	EZ	EZ-EMC	N/A	N/A	N/A

<b>Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>S/N</b>	<b>Cal.Date</b>	<b>Cal.Due</b>
Shield room	SKET	833	N/A	25/11/2020	24/11/2023
Receiver	R&S	ESPI3	101082	24/9/2021	23/9/2022

LISN	R&S	ENV216	3560.6550.15	24/9/2021	23/9/2022
LISN	AT	AT166-2	AKK1806000003	26/9/2021	25/9/2022
EMI software	EZ	EZ-EMC	N/A	N/A	N/A

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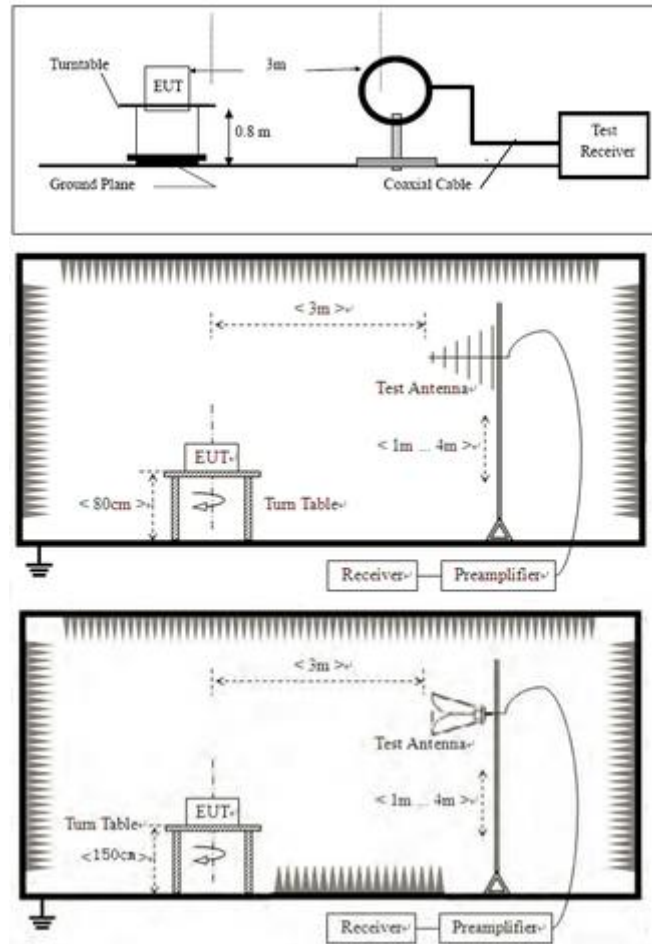
## 10 RADIATED EMISSIONS

<b>Test Standard</b>	47 CFR Part 15, Subpart C 15.249
<b>Test Method</b>	ANSI C63.10 (2013) Section 6.4&6.5&6.6
<b>Test Mode (Pre-Scan)</b>	TX
<b>Test Mode (Final Test)</b>	TX
<b>Tester</b>	Jozu
<b>Temperature</b>	25°C
<b>Humidity</b>	60%

### 10.1 LIMITS

Frequency	Field strength (microvolt/meter)	Limit (dB $\mu$ V/m )	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F (kHz)	-	-	300
0.490MHz-1.705MHz	24000/F (kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

## 10.2 BLOCK DIAGRAM OF TEST SETUP



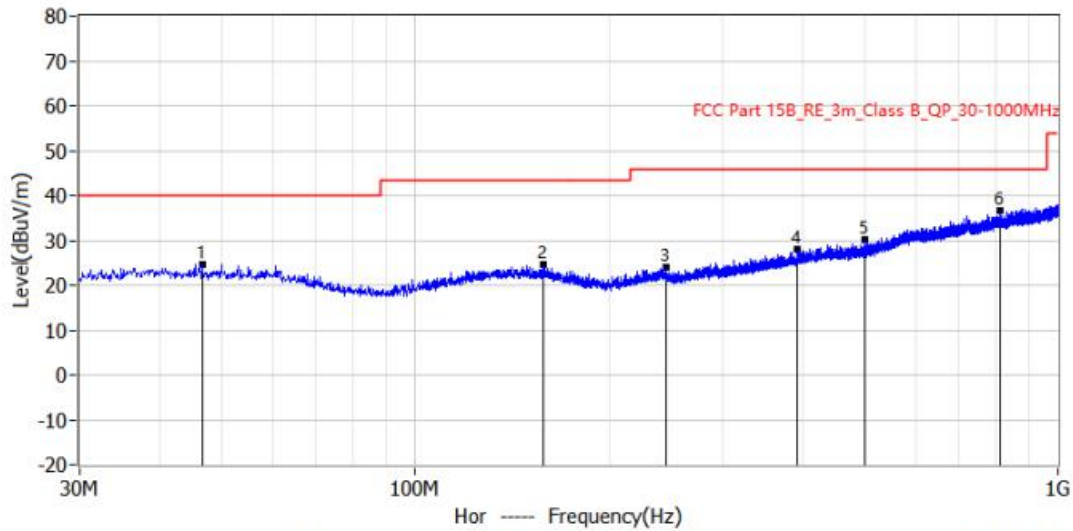
## 10.3 PROCEDURE

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

### 10.4 TEST DATA

[TestMode: TX]; [Polarity: Horizontal]

Test Lab: BlueAsia EMC Lab ( RE #1 )	Project: BLA-EMC-202202-A20
EUT: Cordless Mouse	Test Engineer: York
M/N: M002	Temperature:
S/N:	Humidity:
Test Mode: TX mode	Test Voltage:
Note:	Test Data: 2022-03-03 21:22:16

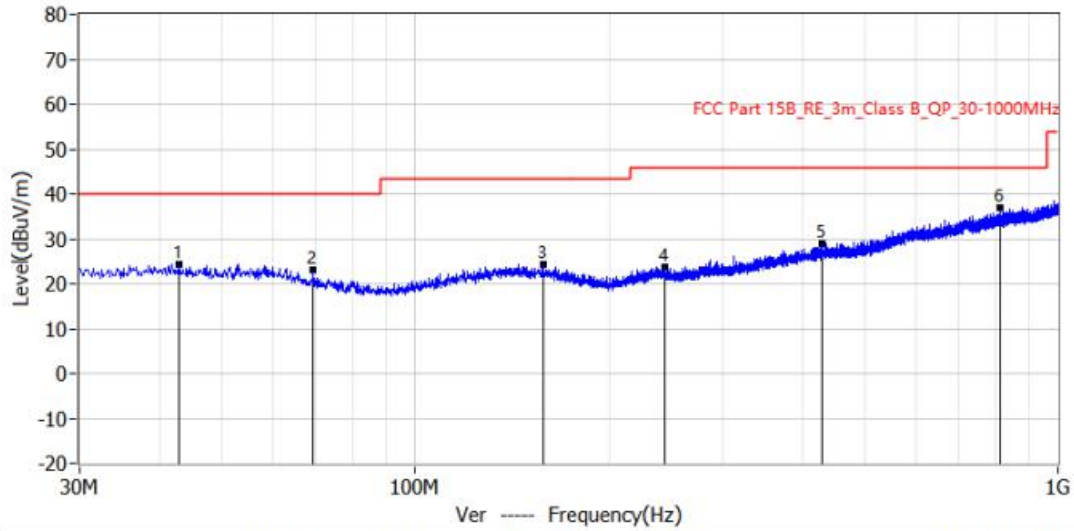


No.	Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar	Height cm	Angle deg
1*	46.490MHz	40.0	24.7	-15.3	0.8	23.9	QP	Hor	100.0	0.0
2*	158.161MHz	43.5	24.7	-18.8	1.4	23.3	QP	Hor	100.0	0.0
3*	245.219MHz	46.0	23.9	-22.1	1.1	22.8	QP	Hor	100.0	352.0
4*	393.144MHz	46.0	28.0	-18.0	0.9	27.1	QP	Hor	100.0	191.0
5*	500.329MHz	46.0	30.2	-15.8	1.8	28.4	QP	Hor	100.0	0.0
6*	813.760MHz	46.0	36.7	-9.3	2.4	34.3	QP	Hor	100.0	0.0

**Test Result: Pass**

[TestMode: TX]; [Polarity: Vertical]

Test Lab: BlueAsia EMC Lab ( RE #1 )	Project: BLA-EMC-202202-A20
EUT: Cordless Mouse	Test Engineer: York
M/N: M002	Temperature:
S/N:	Humidity:
Test Mode: TX mode	Test Voltage:
Note:	Test Data: 2022-03-03 21:26:27



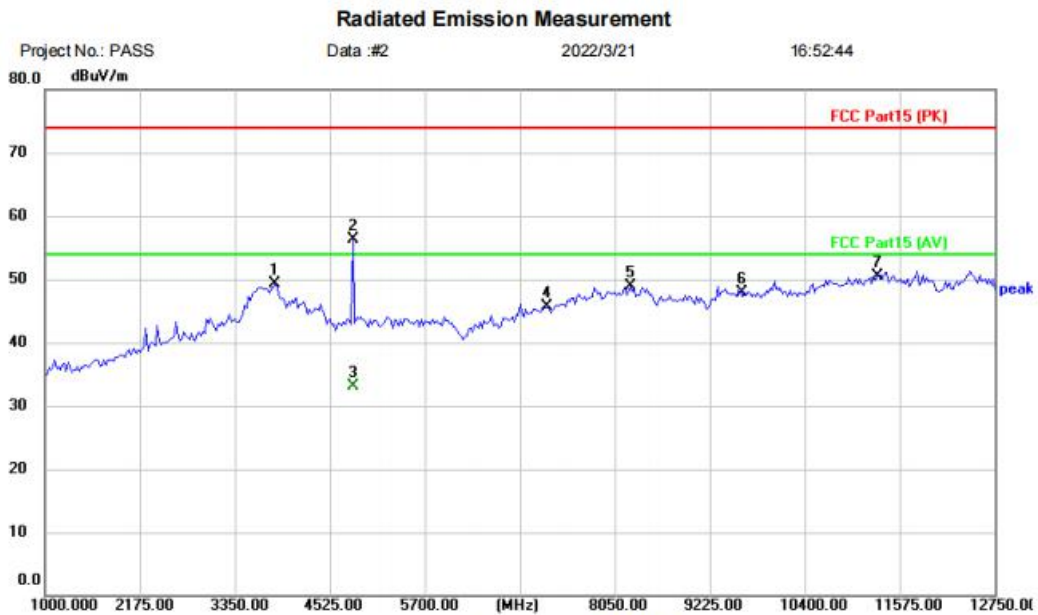
No.	Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar	Height cm	Angle deg
1*	42.731MHz	40.0	24.3	-15.7	0.3	24.0	QP	Ver	100.0	0.0
2*	69.164MHz	40.0	23.2	-16.8	1.6	21.6	QP	Ver	100.0	0.0
3*	157.919MHz	43.5	24.2	-19.3	0.9	23.3	QP	Ver	100.0	0.0
4*	243.885MHz	46.0	23.8	-22.2	1.0	22.8	QP	Ver	100.0	0.0
5*	429.155MHz	46.0	28.8	-17.2	1.2	27.6	QP	Ver	100.0	178.0
6*	812.184MHz	46.0	36.8	-9.2	2.5	34.3	QP	Ver	100.0	0.0

**Test Result: Pass**





[TestMode: TX lowest channel]; [Polarity: Vertical]



Site:      Polarization: **Vertical**      Temperature: (C)  
 Limit: FCC Part15 (PK)      Power:      Humidity: %RH  
 EUT: Cordless Mouse  
 M/N: M002  
 Mode: TX-L  
 Note:

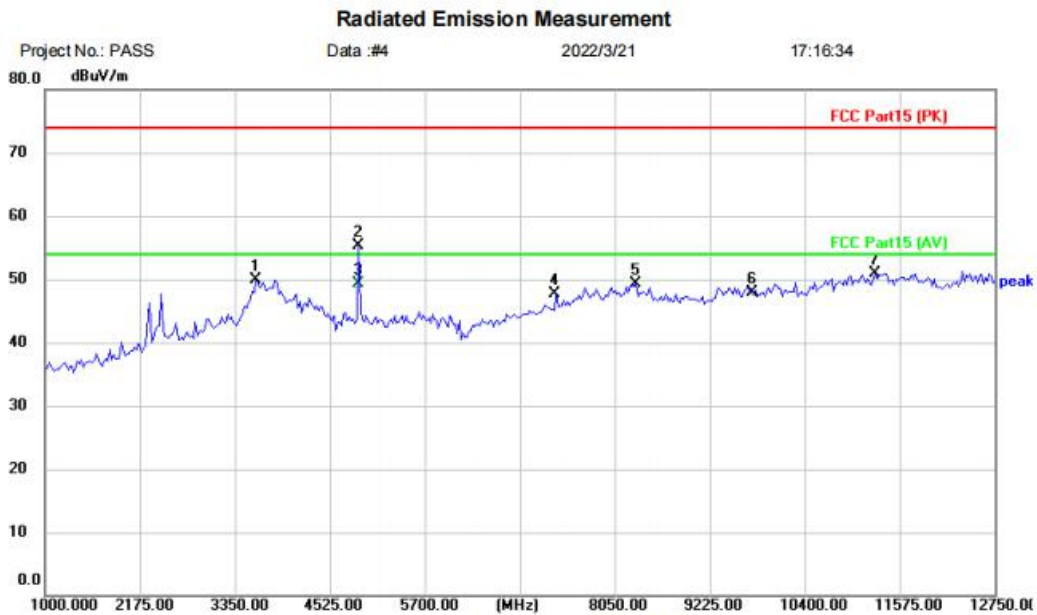
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		3843.500	42.15	7.12	49.27	74.00	-24.73	peak	
2	*	4807.000	52.64	3.71	56.35	74.00	-17.65	peak	
3		4807.000	29.31	3.71	33.02	54.00	-20.98	AVG	
4		7224.000	39.62	6.03	45.65	74.00	-28.35	peak	
5		8238.000	40.68	8.22	48.90	74.00	-25.10	peak	
6		9632.000	38.57	9.34	47.91	74.00	-26.09	peak	
7		11293.000	38.54	11.91	50.45	74.00	-23.55	peak	

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

(Reference Only)

**Test Result: Pass**

[TestMode: TX middle channel]; [Polarity: Horizontal]



Site:      Polarization: **Horizontal**      Temperature: (C)  
 Limit: FCC Part15 (PK)      Power:      Humidity: %RH  
 EUT: Cordless Mouse  
 M/N: M002  
 Mode: TX-M  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		3608.500	42.08	7.80	49.88	74.00	-24.12	peak	
2		4877.500	52.00	3.37	55.37	74.00	-18.63	peak	
3	*	4877.500	46.01	3.37	49.38	54.00	-4.62	AVG	
4		7320.000	41.30	6.41	47.71	74.00	-26.29	peak	
5		8308.500	41.12	8.25	49.37	74.00	-24.63	peak	
6		9760.000	38.28	9.62	47.90	74.00	-26.10	peak	
7		11269.500	38.97	11.94	50.91	74.00	-23.09	peak	

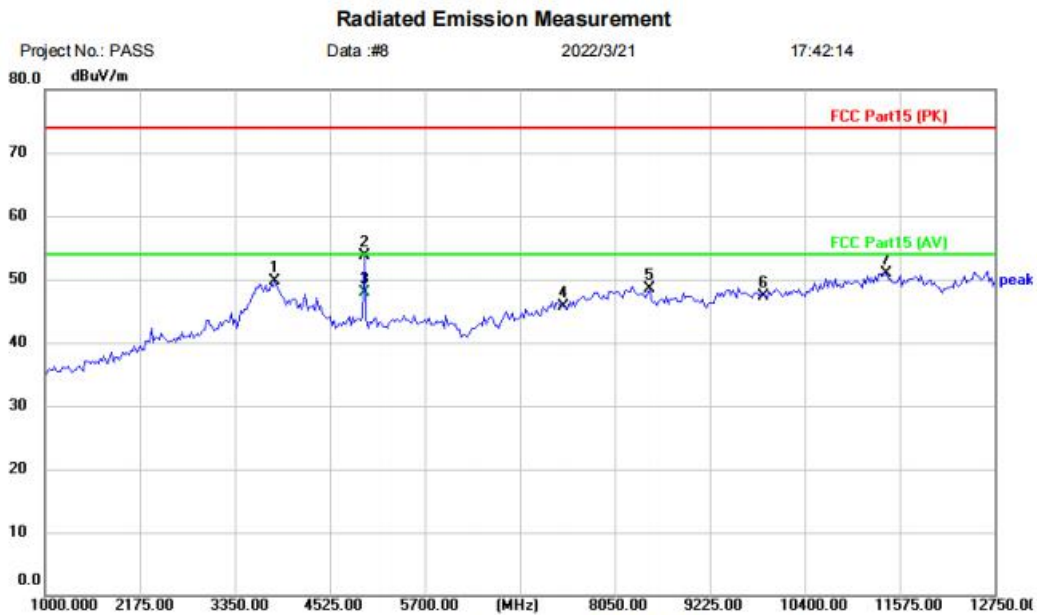
\*:Maximum data    x:Over limit    !:over margin

(Reference Only)

**Test Result: Pass**



[TestMode: TX highest channel]; [Polarity: Horizontal]



Site:      Polarization: **Horizontal**      Temperature: (C)  
 Limit: FCC Part15 (PK)      Power:      Humidity: %RH  
 EUT: Cordless Mouse  
 M/N: M002  
 Mode: TX-H  
 Note:

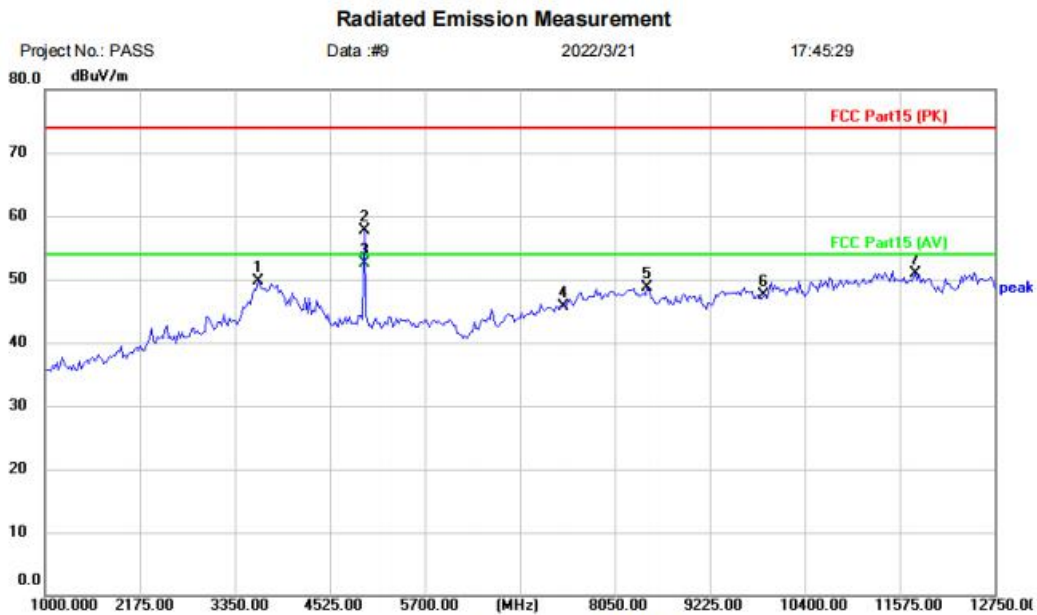
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		3843.500	42.60	7.12	49.72	74.00	-24.28	peak	
2		4948.000	50.09	3.65	53.74	74.00	-20.26	peak	
3	*	4948.000	44.30	3.65	47.95	54.00	-6.05	AVG	
4		7422.000	38.98	6.81	45.79	74.00	-28.21	peak	
5		8473.000	40.28	8.17	48.45	74.00	-25.55	peak	
6		9896.000	37.34	10.06	47.40	74.00	-26.60	peak	
7		11410.500	39.20	11.78	50.98	74.00	-23.02	peak	

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

(Reference Only)

**Test Result: Pass**

[TestMode: TX highest channel]; [Polarity: Vertical]



Site:      Polarization: **Vertical**      Temperature: (C)  
 Limit: FCC Part15 (PK)      Power:      Humidity: %RH  
 EUT: Cordless Mouse  
 M/N: M002  
 Mode: TX-H  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		3632.000	41.96	7.77	49.73	74.00	-24.27	peak	
2		4948.000	54.14	3.65	57.79	74.00	-16.21	peak	
3	*	4948.000	48.83	3.65	52.48	54.00	-1.52	AVG	
4		7422.000	38.81	6.81	45.62	74.00	-28.38	peak	
5		8449.500	40.54	8.20	48.74	74.00	-25.26	peak	
6		9896.000	37.52	10.06	47.58	74.00	-26.42	peak	
7		11763.000	39.24	11.63	50.87	74.00	-23.13	peak	

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

(Reference Only)

**Test Result: Pass**

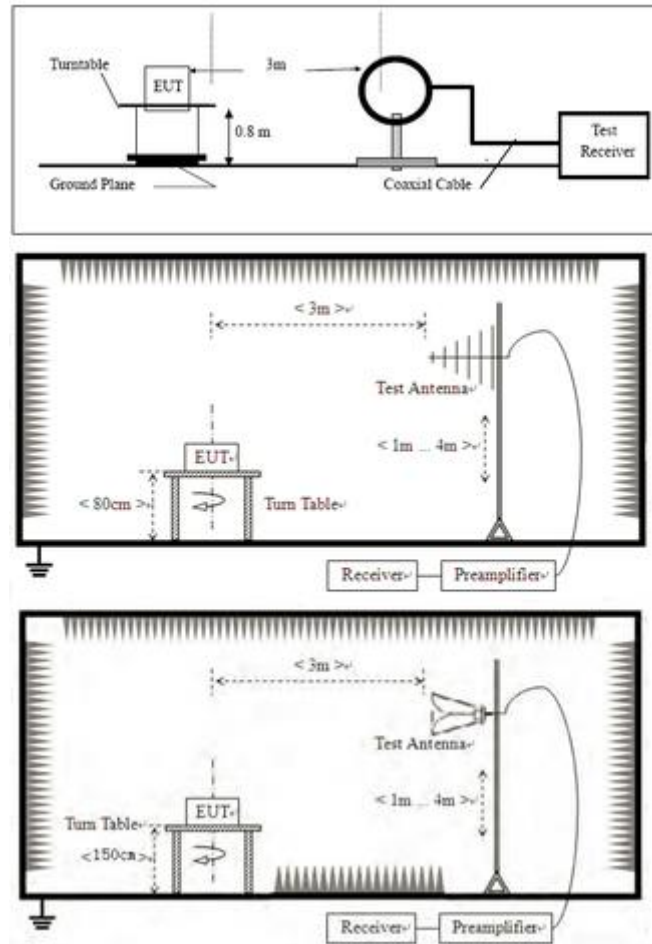
## 11 RESTRICTED BAND AROUND FUNDAMENTAL FREQUENCY

<b>Test Standard</b>	47 CFR Part 15, Subpart C 15.249
<b>Test Method</b>	ANSI C63.10 (2013) Section 6.4&6.5&6.6
<b>Test Mode (Pre-Scan)</b>	TX
<b>Test Mode (Final Test)</b>	TX
<b>Tester</b>	Jozu
<b>Temperature</b>	25°C
<b>Humidity</b>	60%

### 11.1 LIMITS

Frequency	Limit (dB $\mu$ V/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

## 11.2 BLOCK DIAGRAM OF TEST SETUP



## 11.3 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: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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### 11.4 TEST DATA

[TestMode: TX low channel]; [Polarity: Horizontal]  
Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1		2310.000	42.58	-3.93	38.65	74.00	-35.35	peak	
2		2382.660	61.76	-3.61	58.15	74.00	-15.85	peak	
3	*	2382.660	53.81	-3.61	50.20	54.00	-3.80	AVG	
4		2385.600	60.08	-3.60	56.48	74.00	-17.52	peak	
5		2385.600	53.60	-3.60	50.00	54.00	-4.00	AVG	
6		2390.000	53.03	-3.58	49.45	74.00	-24.55	peak	
7		2396.100	65.38	-3.57	61.81	74.00	-12.19	peak	
8		2396.100	53.69	-3.57	50.12	54.00	-3.88	AVG	
9		2400.000	56.97	-3.54	53.43	74.00	-20.57	peak	
10		2415.000	67.00	-3.48	63.52	74.00	-10.48	peak	

**Test Result: Pass**

[TestMode: TX low channel]; [Polarity: Vertical]

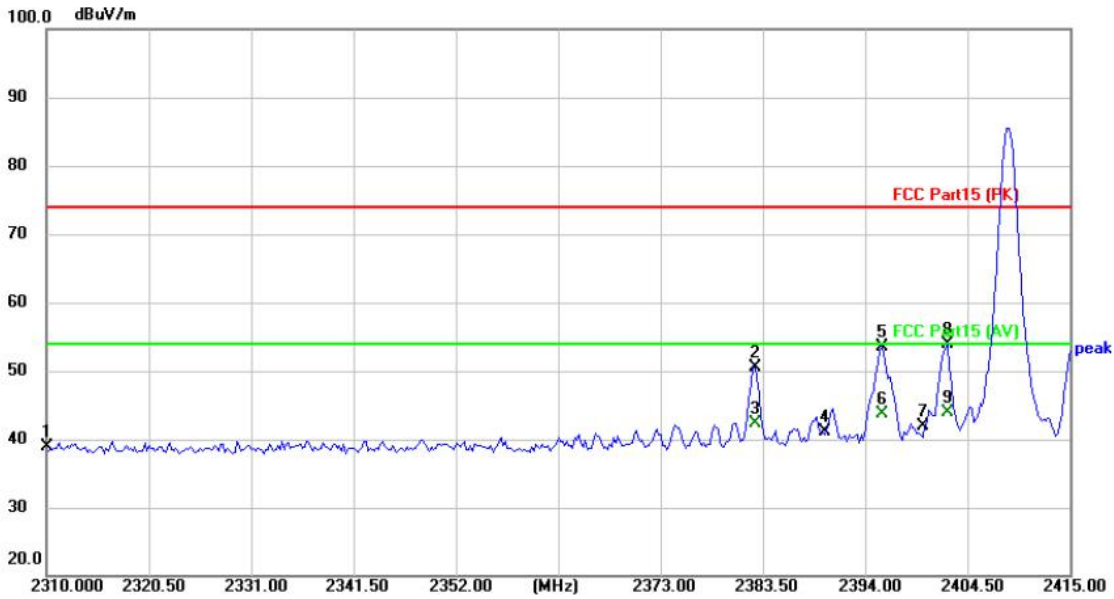
**Radiated Emission Measurement**

Project No.: PASS

Data #12

2022/3/22

17:14:49

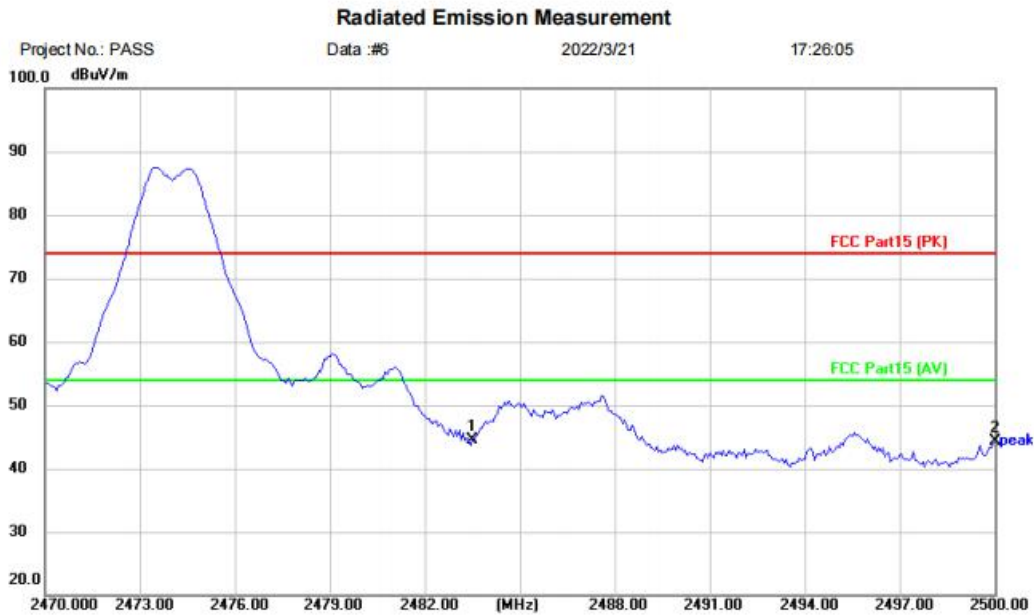


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	42.77	-3.93	38.84	74.00	-35.16	peak	
2		2382.660	54.20	-3.61	50.59	74.00	-23.41	peak	
3		2382.660	45.97	-3.61	42.36	54.00	-11.64	AVG	
4		2390.000	44.77	-3.58	41.19	74.00	-32.81	peak	
5		2395.680	57.05	-3.57	53.48	74.00	-20.52	peak	
6		2395.680	47.36	-3.57	43.79	54.00	-10.21	AVG	
7		2400.000	45.49	-3.54	41.95	74.00	-32.05	peak	
8		2402.400	57.45	-3.54	53.91	74.00	-20.09	peak	
9	*	2402.400	47.36	-3.54	43.82	54.00	-10.18	AVG	

**Test Result: Pass**



[TestMode: TX high channel]; [Polarity: Vertical]



Site:      Polarization: **Vertical**      Temperature: (C)  
 Limit: FCC Part15 (PK)      Power:      Humidity: %RH  
 EUT: Cordless Mouse  
 M/N: M002  
 Mode: TX-H  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	47.71	-3.14	44.57	74.00	-29.43	peak	
2		2500.000	47.33	-3.08	44.25	74.00	-29.75	peak	

\*:Maximum data    x:Over limit    l:over margin

(Reference Only)

**Test Result: Pass**

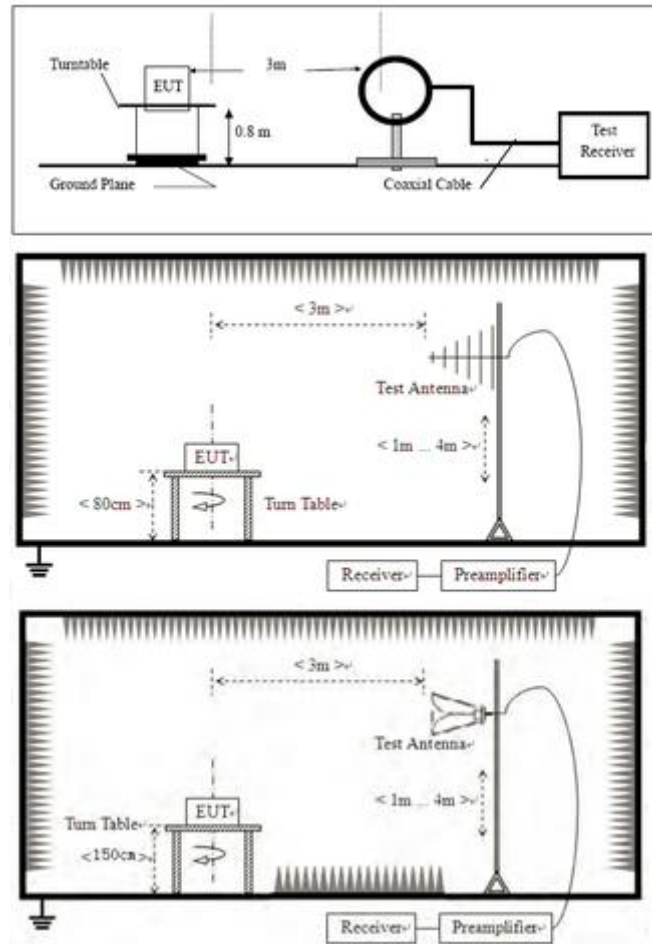
## 12 FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL (15.249(A))

<b>Test Standard</b>	47 CFR Part 15, Subpart C 15.249
<b>Test Method</b>	ANSI C63.10 (2013) Section 6.5&6.6
<b>Test Mode (Pre-Scan)</b>	Operation(wireless)
<b>Test Mode (Final Test)</b>	Operation(wireless)
<b>Tester</b>	Jozu
<b>Temperature</b>	25℃
<b>Humidity</b>	60%

### 12.1 LIMITS

Frequency	Limit (dB $\mu$ V/m @3m)	Remark
2400MHz-2483.5MHz	94.0	Average Value
	114.0	Peak Value

## 12.2 BLOCK DIAGRAM OF TEST SETUP



## 12.3 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: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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### 12.4 TEST DATA

Peak value:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Antenna Polaxis
2408	98.13	-3.51	94.62	114.00	-19.38	H
2408	92.84	-3.51	89.33	114.00	-24.67	V
2440	97.62	-3.34	94.28	114.00	-19.72	H
2440	92.36	-3.35	89.01	114.00	-24.99	V
2474	96.33	-3.2	93.13	114.00	-20.87	H
2474	90.87	-3.2	87.67	114.00	-26.33	V

Average value:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Antenna Polaxis
2408	80.26	-3.51	76.75	94.00	-17.25	H
2408	75.94	-3.51	72.43	94.00	-21.57	V
2440	74.39	-3.34	71.05	94.00	-22.95	H
2440	71.24	-3.35	67.89	94.00	-26.11	V
2474	75.99	-3.2	72.79	94.00	-21.21	H
2474	69.08	-3.2	57.8	94.00	-36.2	V

NOTE: RBW 3MHz VBW 10MHz · PK detector is for PK value ,RMS detector is for AV value.



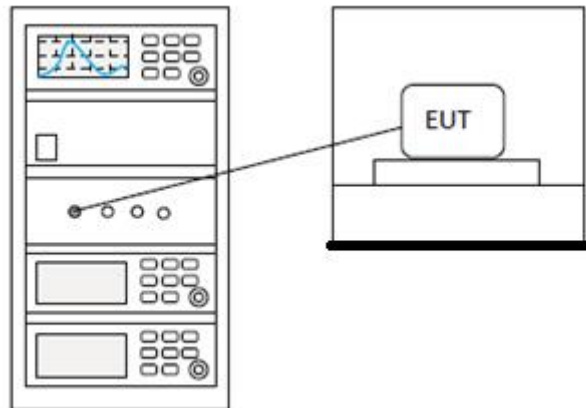
### 13 20DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.249
Test Method	ANSI C63.10 (2013) Section 6.9
Test Mode (Pre-Scan)	Operation(wireless)
Test Mode (Final Test)	Operation(wireless)
Tester	Jozu
Temperature	25℃
Humidity	60%

#### 13.1 LIMITS

Limit:	N/A
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#### 13.2 BLOCK DIAGRAM OF TEST SETUP



#### 13.3 TEST DATA

**Pass: Please Refer To Appendix: For Details**

## 14 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart C 15.249
Test Method	N/A

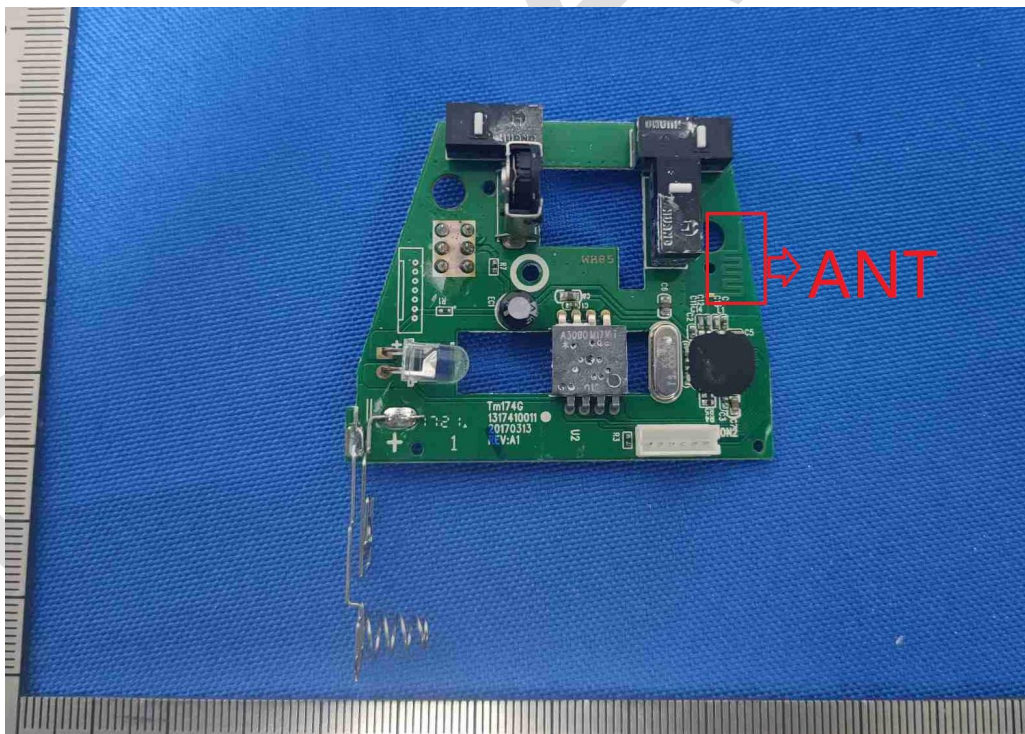
### 14.1 CONCLUSION

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

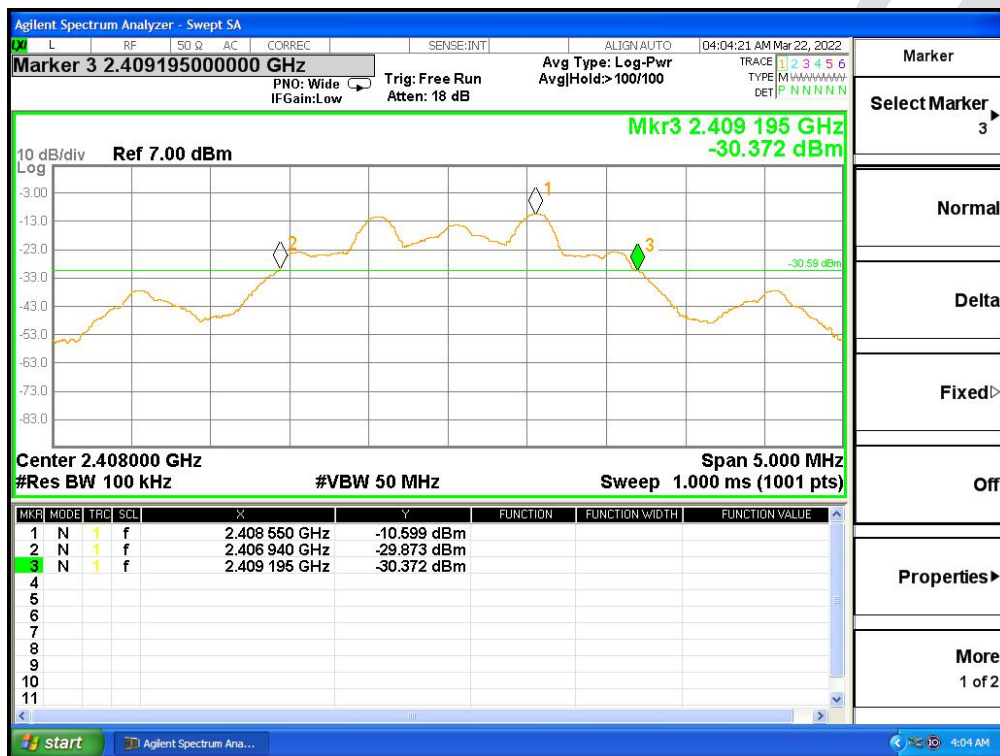


## 15 APPENDIX

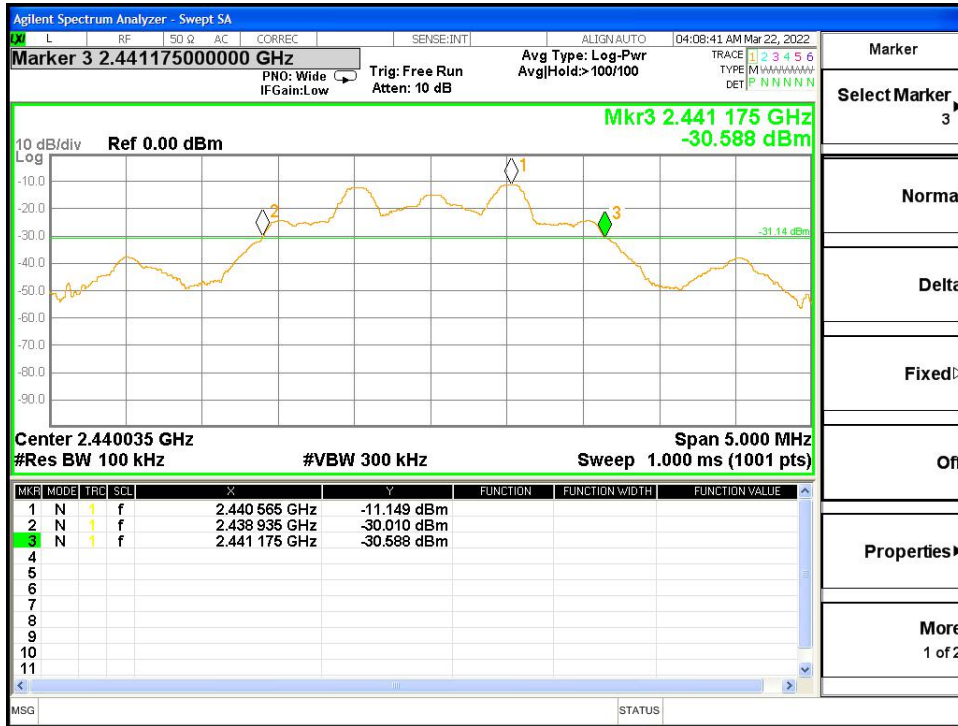
### -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	GFSK	2408	Ant1	2.255	0.5	Pass
NVNT	GFSK	2440	Ant1	2.24	0.5	Pass
NVNT	GFSK	2474	Ant1	2.255	0.5	Pass

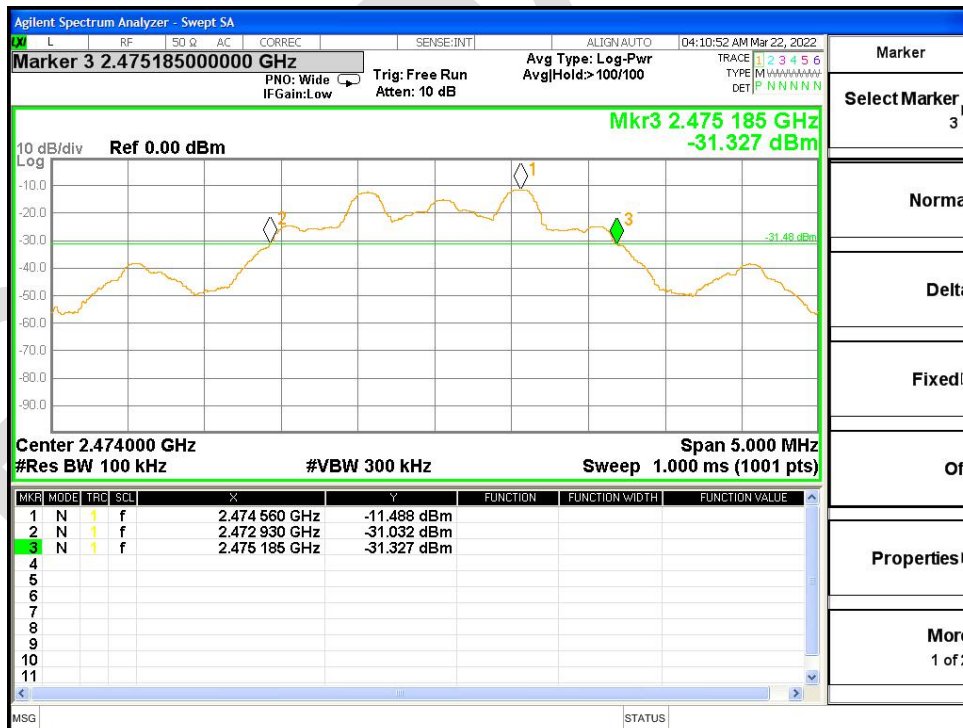
-20dB Bandwidth NVNT GFSK 2408MHz Ant1



-20dB Bandwidth NVNT GFSK 2440MHz Ant1



-20dB Bandwidth NVNT GFSK 2474MHz Ant1



## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Radiated Emissions



**APPENDIX B: PHOTOGRAPHS OF EUT**

Reference to the test report No. BLA-EMC-202202-A2001

**----END OF REPORT----**

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