



Report No.: TWN2504787E

Applicant: CR PHOTOELECTRIC TECHNOLOGY CO., LTD

Product: Wireless Module

Model No.: MRF24G32

Trademark: CR

Test Standards: FCC Part 15.249

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility

Approved By

Terry Tang

Terry Tang

Manager

Dated: May 26, 2025

**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:**

### **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

### **CAB identifier: CN0033**

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## Test Report Conclusion

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## 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 States  
Registration Number: 744189  
For 3m Anechoic Chamber

### 1.2 Applicant Details

Applicant: CR PHOTOELECTRIC TECHNOLOGY CO., LTD  
Address: F9, No.205, Hongchuan Road, Zhongkai High-Tech Zone, Huizhou, guangdong, China

### 1.3 Description of EUT

Product: Wireless Module  
Manufacturer: CR PHOTOELECTRIC TECHNOLOGY CO., LTD  
Address: F9, No.205, Hongchuan Road, Zhongkai High-Tech Zone, Huizhou, guangdong, China  
Trademark: CR  
Additional Trademark: N/A  
Model Number: MRF24G32  
Additional Model Name: N/A  
Hardware Version: V1.0  
Software Version: V1.0  
Serial No.: N/A  
Rating: DC5V  
Modulation Type: GFSK  
Operation Frequency: 2403-2480MHz  
Channel Separate: 1MHz  
Antenna Designation: Integral antenna with gain -0.16dBi Max (Get from the antenna specification)

### 1.4 Submitted Sample: 2 Samples

### 1.5 Test Duration

2025-04-23 to 2025-05-26

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#### 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

A handwritten signature in black ink that reads "Andy Xing".

The sample tested by \_\_\_\_\_

Print Name: Terry Tang

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2025-07-17
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic	--	--	N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2024-07-12	2025-07-11
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	--	2024-07-12	2025-07-11
RF Cable	Zhengdi	7m	--	2024-07-12	2025-07-11
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11

## 2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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### 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 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	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	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

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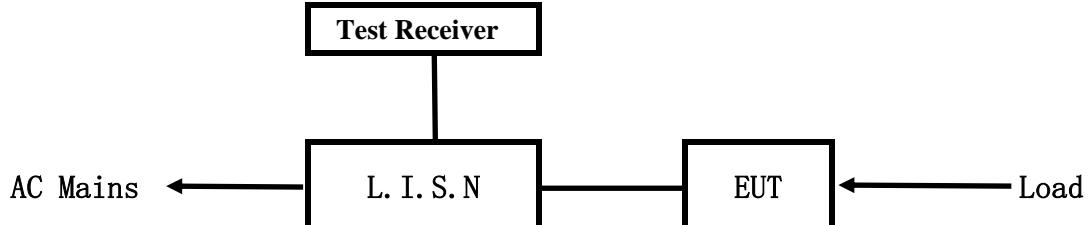
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## 5. Power Line Conducted Emission Test

### 5.1 Schematics of the test



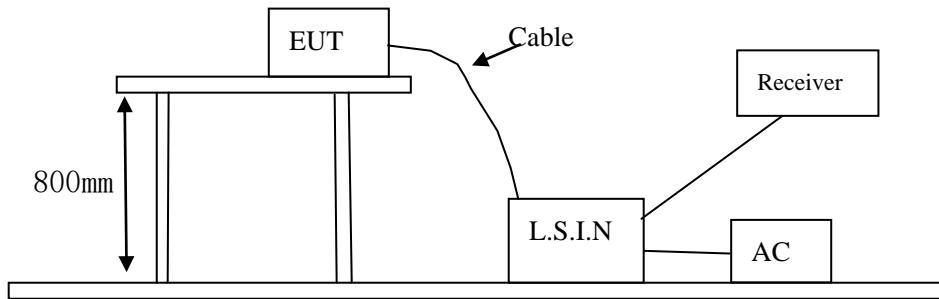
EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



### 5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

#### A. EUT

Device	Manufacturer	Model	FCC ID
Wireless Module	CR PHOTOELECTRIC TECHNOLOGY CO., LTD	MRF24G32	2AL9S-MRF24G32

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B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	Xiaomi	CDQ02ZM	Input: 100-240V~, 50/60Hz, 1.2A; Output: DC5V, 3A; DC9V, 3A; DC12V, 3A; DC15V, 3A; DC20V, 2.25A;

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

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 15.207

Frequency (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.0	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:

Pass

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**A: Conducted Emission on Live Terminal (150kHz to 30MHz)**

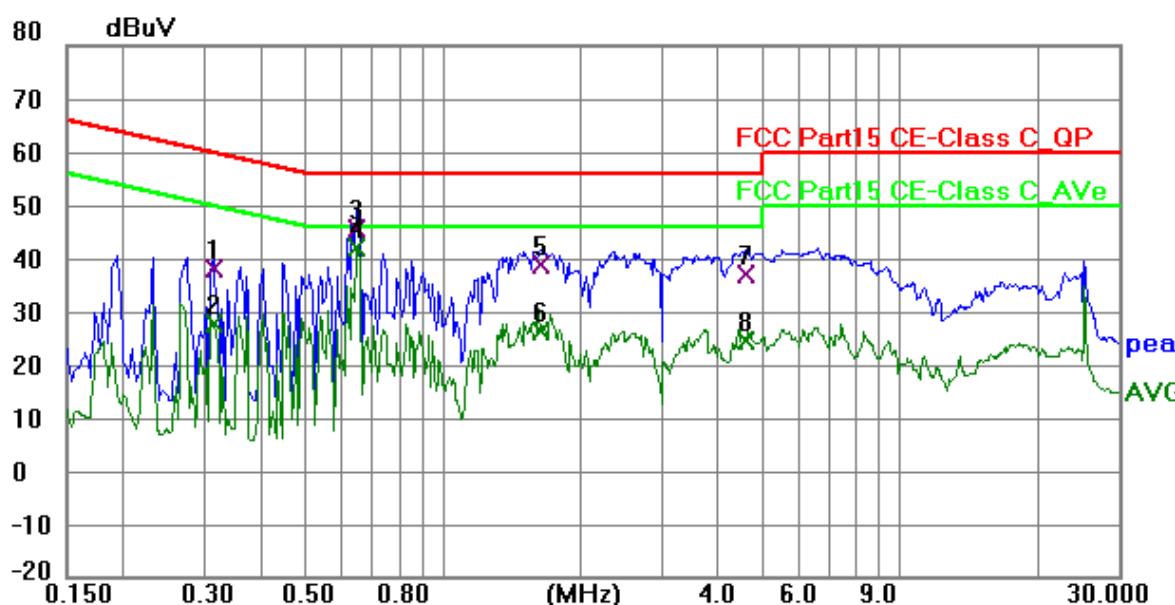
**EUT Operating Environment**

Temperature: 25°C      Humidity: 65%RH      Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3138	27.78	10.35	38.13	59.87	-21.74	QP	P
2	0.3138	17.47	10.35	27.82	49.87	-22.05	AVG	P
3	0.6492	34.97	10.44	45.41	56.00	-10.59	QP	P
4	0.6492	31.45	10.44	41.89	46.00	-4.11	AVG	P
5	1.6359	27.74	11.02	38.76	56.00	-17.24	QP	P
6	1.6359	15.09	11.02	26.11	46.00	-19.89	AVG	P
7	4.5834	24.86	12.19	37.05	56.00	-18.95	QP	P
8	4.5834	12.34	12.19	24.53	46.00	-21.47	AVG	P

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## B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

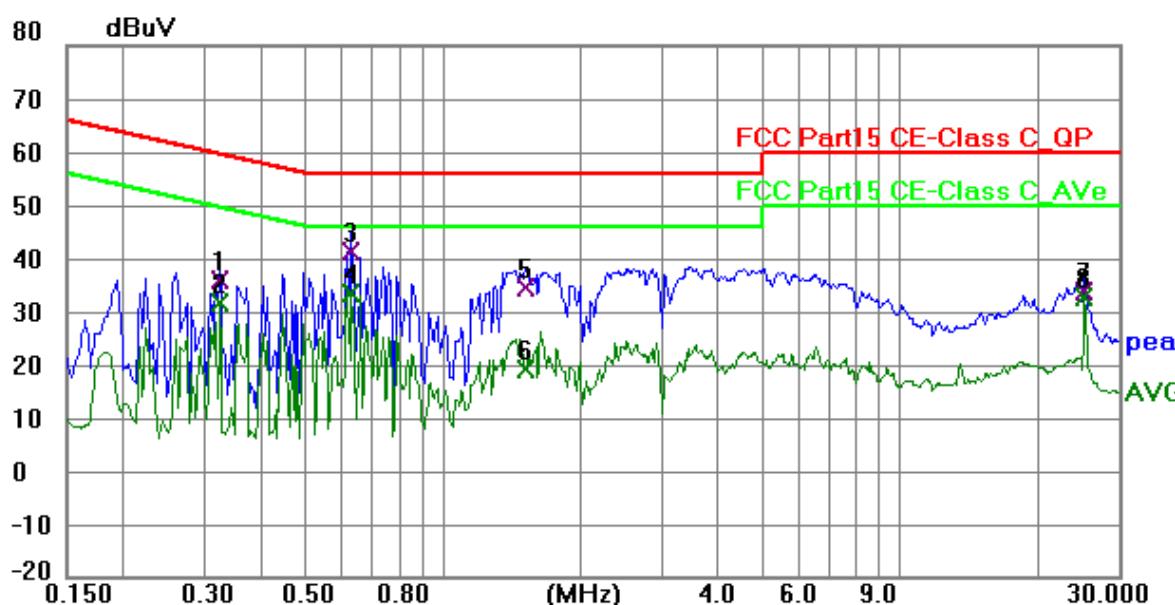
### EUT Operating Environment

Temperature: 25°C      Humidity: 65%RH      Atmospheric Pressure: 101 kPa

### EUT set Condition: Keep Transmitting

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3255	25.70	10.35	36.05	59.57	-23.52	QP	P
2	0.3255	21.25	10.35	31.60	49.57	-17.97	AVG	P
3	0.6297	30.79	10.44	41.23	56.00	-14.77	QP	P
4	0.6297	23.01	10.44	33.45	46.00	-12.55	AVG	P
5	1.5150	23.57	10.92	34.49	56.00	-21.51	QP	P
6	1.5150	8.13	10.92	19.05	46.00	-26.95	AVG	P
7	25.2261	18.59	15.30	33.89	60.00	-26.11	QP	P
8	25.2261	17.48	15.30	32.78	50.00	-17.22	AVG	P

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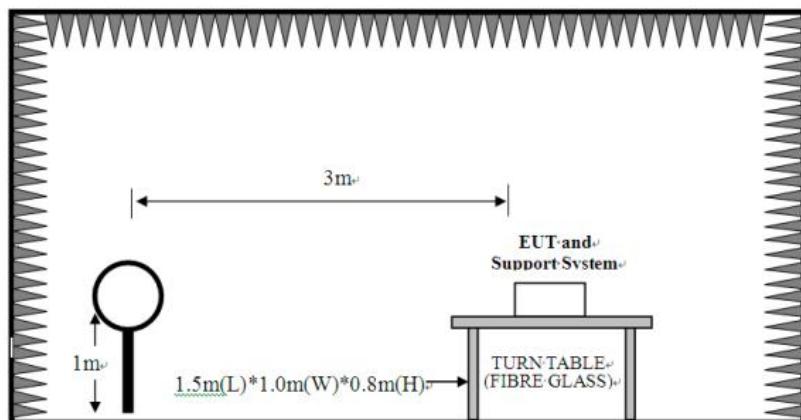
## 6 Radiated Emission Test

### 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

For radiated emissions from 9kHz to 30MHz



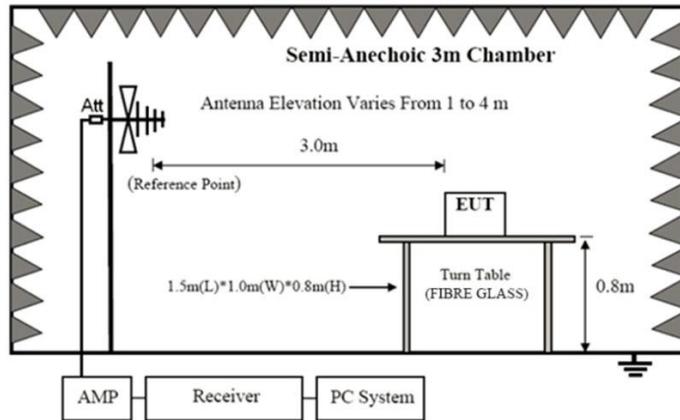
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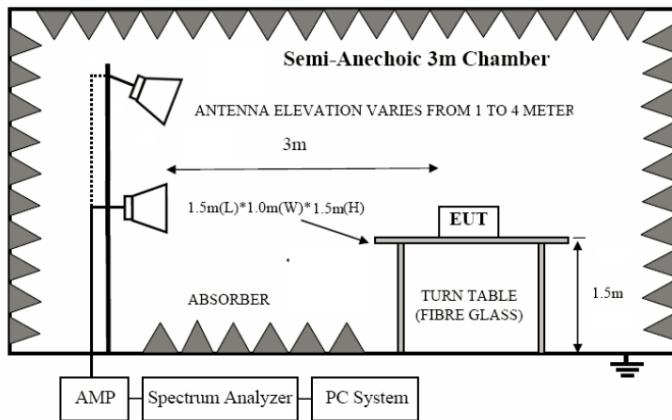
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



## 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.

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#### 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:

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 § 15.209, whichever is the lesser attenuation.

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

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

Note:

1. RF Field Strength (dBuV) =  $20 \log_{10} \text{RF Voltage (uV)}$
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 $\mu$ V/m)
0.009-0.490	3	$20\log_{10}(2400/F(\text{kHz})) + 40\log_{10}(300/3)$
0.490-1.705	3	$20\log_{10}(24000/F(\text{kHz})) + 40\log_{10}(30/3)$
1.705-30	3	69.5
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) =  $20 \log_{10} \text{RF Voltage (uV)}$
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. For radiated emissions from 9kHz to 30MHz, the emission level is much less than the limit for more than 20dB. No necessary to take down the record.

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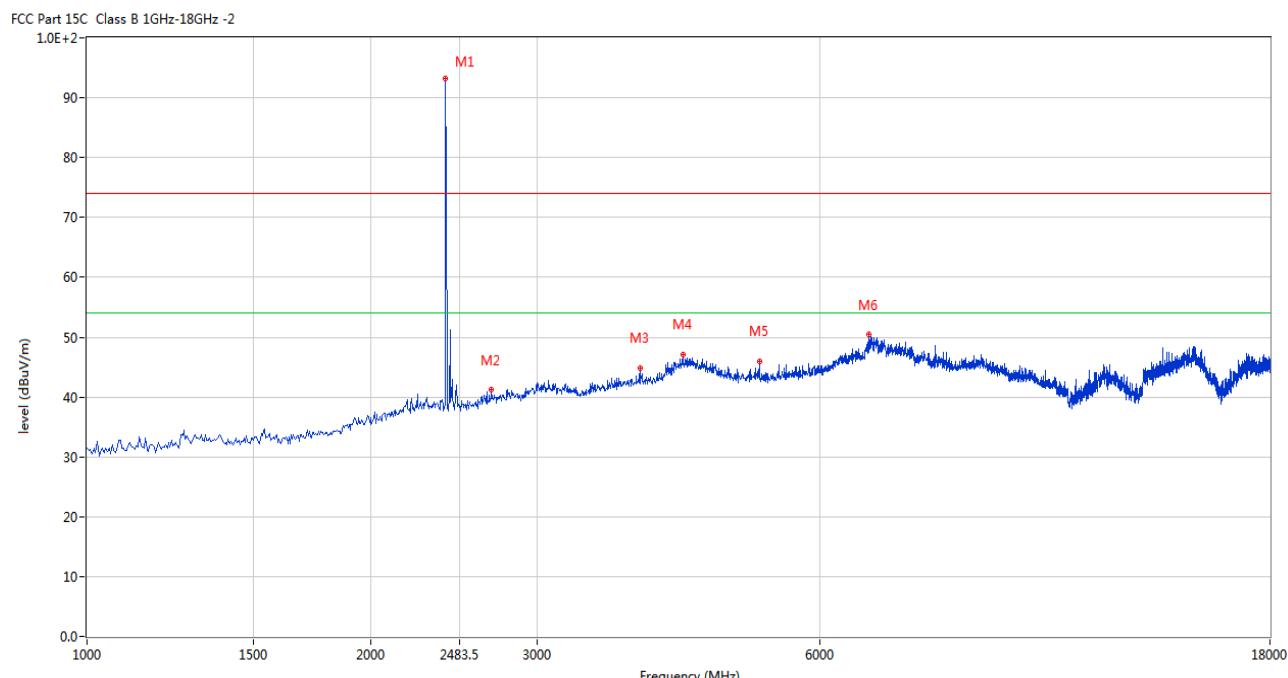


## 6.5 Test result

### A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2403MHz

#### Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2403	93.14	-3.57	114.0	-20.86	Peak	327.00	100	Horizontal	Pass
2	2686.828	41.16	-3.01	74.0	-32.84	Peak	0.00	100	Horizontal	Pass
3	3859.535	44.79	0.61	74.0	-29.21	Peak	162.00	100	Horizontal	Pass
4	4288.678	47.14	1.81	74.0	-26.86	Peak	21.00	100	Horizontal	Pass
5	5168.208	46.04	3.70	74.0	-27.96	Peak	358.00	100	Horizontal	Pass
6	6761.560	50.45	6.94	74.0	-23.55	Peak	154.00	100	Horizontal	Pass

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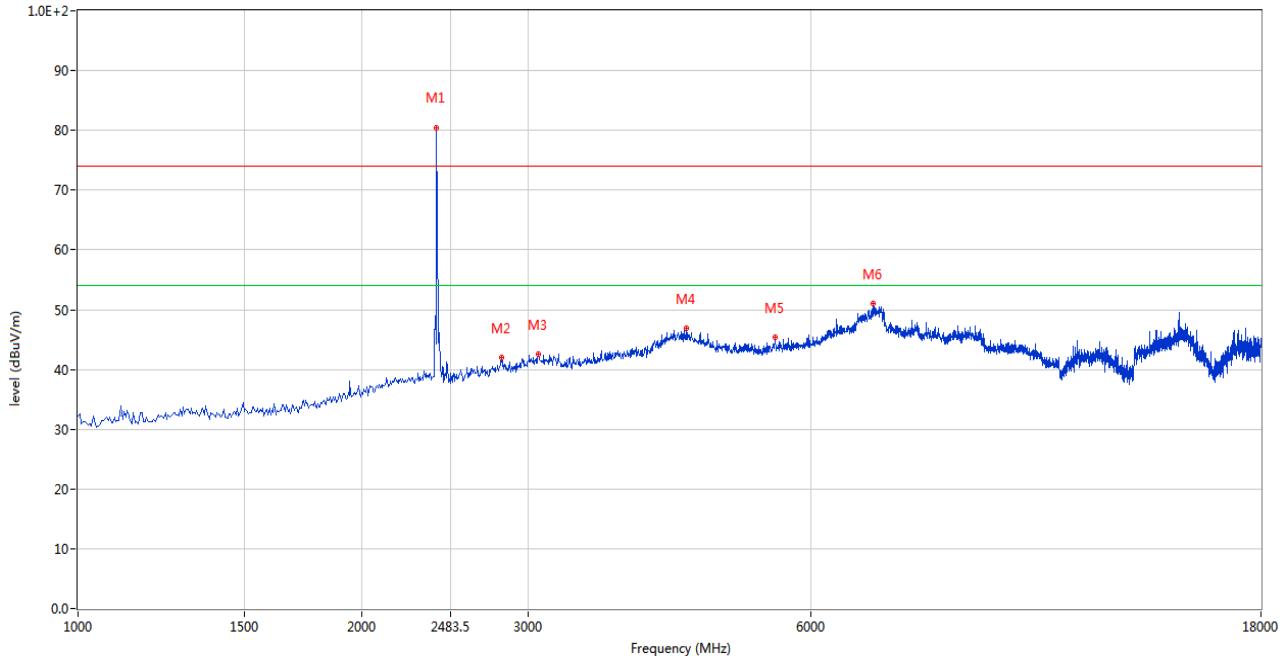
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## Vertical

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2403	80.44	-3.57	114.0	-33.56	Peak	261.00	100	Vertical	Pass
2	2814.296	42.03	-2.69	74.0	-31.97	Peak	156.00	100	Vertical	Pass
3	3077.731	42.47	-2.29	74.0	-31.53	Peak	41.00	100	Vertical	Pass
4	4420.395	46.80	2.04	74.0	-27.20	Peak	178.00	100	Vertical	Pass
5	5495.376	45.31	3.91	74.0	-28.69	Peak	69.00	100	Vertical	Pass
6	6969.758	51.03	7.87	74.0	-22.97	Peak	100.00	100	Vertical	Pass

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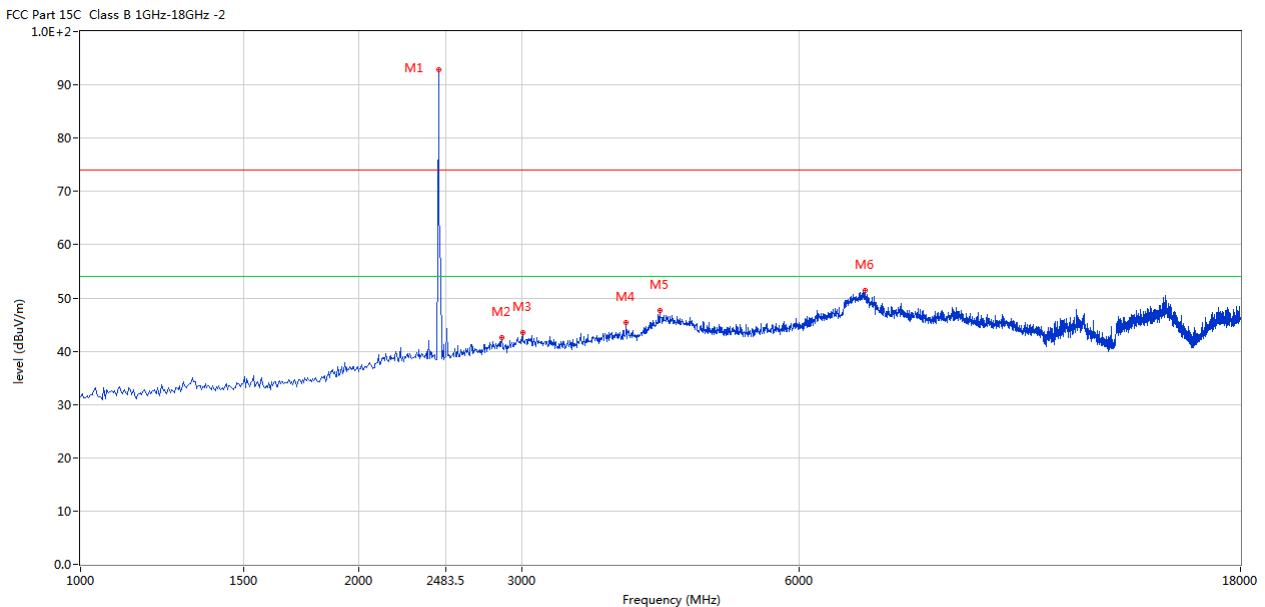
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Please refer to the following test plots for details: Middle Channel-2441MHz

### Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2441	92.78	-3.57	114.0	-21.22	Peak	172.00	100	Horizontal	Pass
2	2856.786	42.59	-2.68	74.0	-31.41	Peak	354.00	100	Horizontal	Pass
3	3009.748	43.46	-2.60	74.0	-30.54	Peak	162.00	100	Horizontal	Pass
4	3893.527	45.32	0.78	74.0	-28.68	Peak	31.00	100	Horizontal	Pass
5	4233.442	47.59	1.68	74.0	-26.41	Peak	249.00	100	Horizontal	Pass
6	7224.694	52.34	8.09	74.0	-21.66	Peak	84.00	100	Horizontal	Pass

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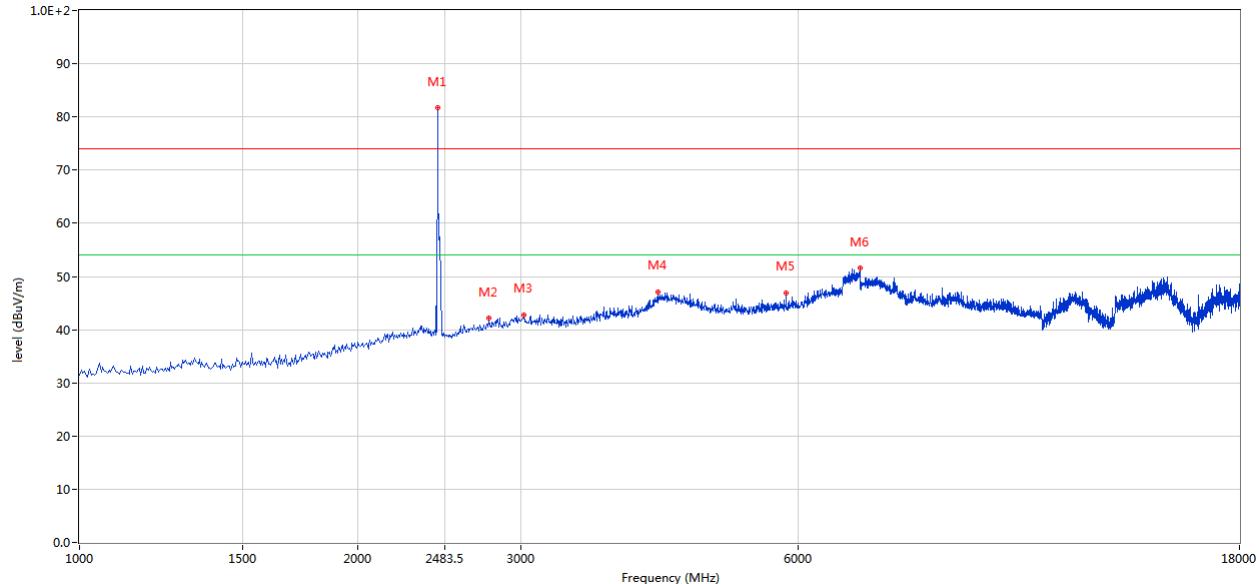
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## Vertical

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2441	81.72	-3.57	114.0	-32.28	Peak	13.00	100	Vertical	Pass
2	2776.056	42.11	-2.76	74.0	-31.89	Peak	130.00	100	Vertical	Pass
3	3022.494	42.82	-2.54	74.0	-31.18	Peak	5.00	100	Vertical	Pass
4	4224.944	47.10	1.66	74.0	-26.90	Peak	84.00	100	Vertical	Pass
5	5818.295	46.91	3.83	74.0	-27.09	Peak	353.00	100	Vertical	Pass
6	7080.230	51.76	8.04	74.0	-22.24	Peak	137.00	100	Vertical	Pass

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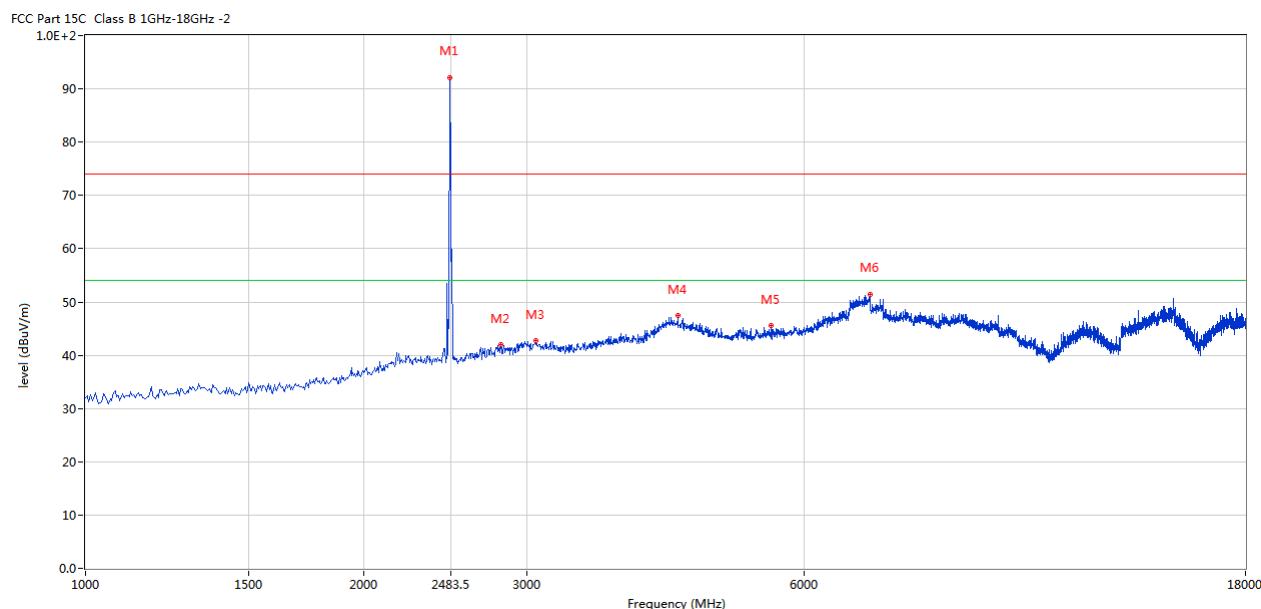
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Please refer to the following test plots for details: High Channel-2480MHz

### Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2480	92.03	-3.57	114.0	-21.97	Peak	124.00	100	Horizontal	Pass
2	2814.296	41.92	-2.69	74.0	-32.08	Peak	79.00	100	Horizontal	Pass
3	3073.482	42.66	-2.31	74.0	-31.34	Peak	324.00	100	Horizontal	Pass
4	4377.906	47.39	1.96	74.0	-26.61	Peak	188.00	100	Horizontal	Pass
5	5520.870	45.62	3.92	74.0	-28.38	Peak	47.00	100	Horizontal	Pass
6	7063.234	51.38	8.03	74.0	-22.62	Peak	272.00	100	Horizontal	Pass

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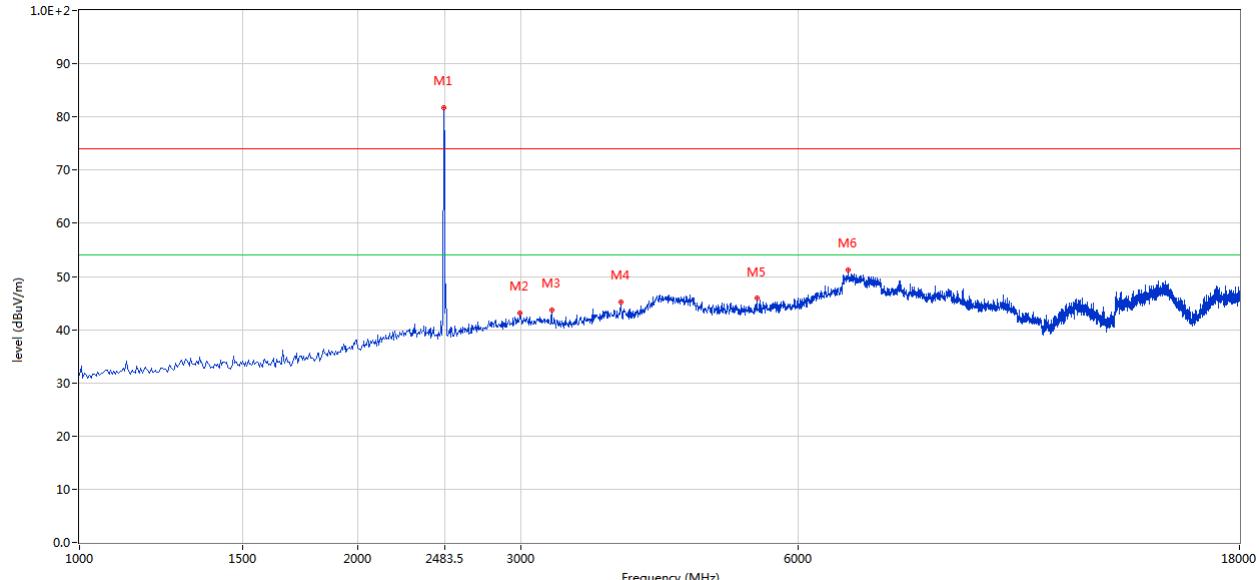
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## Vertical

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No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2480	81.66	-3.57	114.0	-32.34	Peak	209.00	100	Vertical	Pass
2	2997.001	43.05	-2.64	74.0	-30.95	Peak	45.00	100	Vertical	Pass
3	3243.439	43.70	-2.03	74.0	-30.30	Peak	291.00	100	Vertical	Pass
4	3851.037	45.17	0.57	74.0	-28.83	Peak	268.00	100	Vertical	Pass
5	5406.148	45.88	3.72	74.0	-28.12	Peak	213.00	100	Vertical	Pass
6	6787.053	51.32	7.05	74.0	-22.68	Peak	165.00	100	Vertical	Pass

Note:

- (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-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
- (5) For emission above 18GHz and Below 30MHz, It is only the floor noise. No necessary to take down.
- (6) the measured PK value less than the AV limit.

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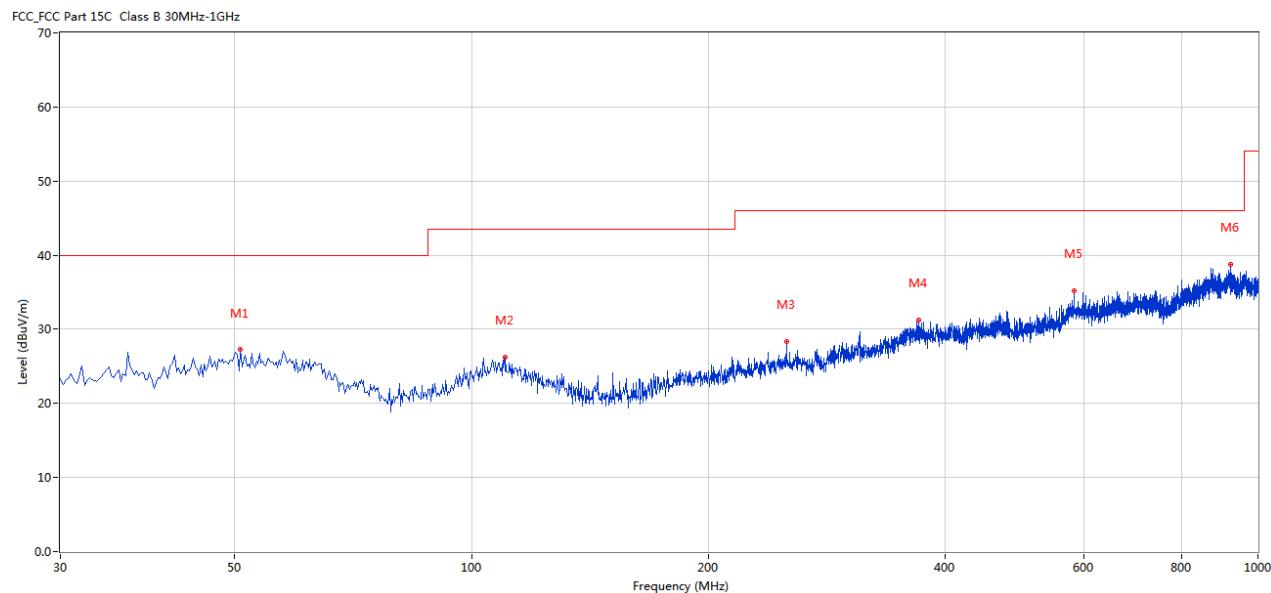
## B. General Radiated Emission Data

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

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	50.850	27.23	-5.04	40.0	12.77	Peak	97.00	100	Horizontal	Pass
2	110.490	26.20	-5.95	43.5	17.30	Peak	205.00	100	Horizontal	Pass
3	251.347	28.30	-5.15	46.0	17.70	Peak	125.00	100	Horizontal	Pass
4	369.900	31.31	-1.73	46.0	14.69	Peak	68.00	100	Horizontal	Pass
5	584.216	35.14	1.69	46.0	10.86	Peak	18.00	100	Horizontal	Pass
6	921.692	38.81	5.54	46.0	7.19	Peak	235.00	100	Horizontal	Pass

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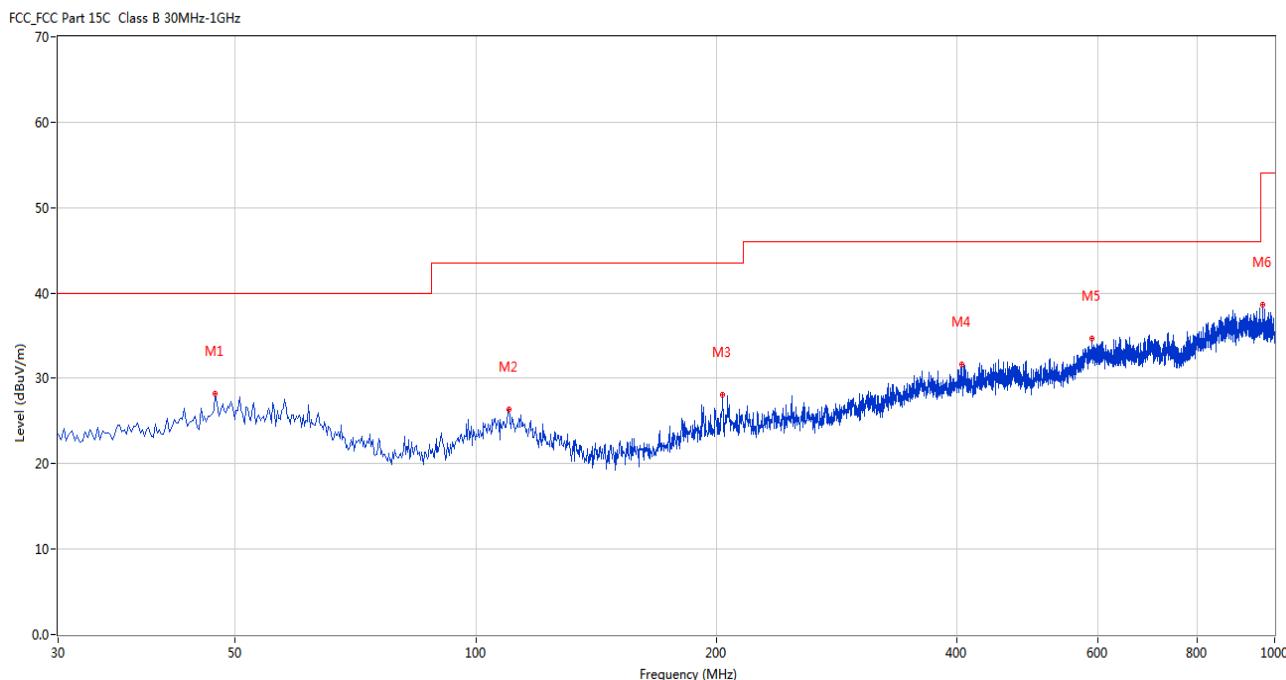


### Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

#### Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	47.213	28.19	-5.63	40.0	11.81	Peak	213.00	100	Vertical	Pass
2	110.005	26.41	-5.92	43.5	17.09	Peak	350.00	100	Vertical	Pass
3	203.829	28.11	-7.18	43.5	15.39	Peak	3.00	100	Vertical	Pass
4	405.539	31.68	-1.55	46.0	14.32	Peak	199.00	100	Vertical	Pass
5	591.247	34.66	1.76	46.0	11.34	Peak	232.00	100	Vertical	Pass
6	966.301	38.66	5.08	54.0	15.34	Peak	294.00	100	Vertical	Pass

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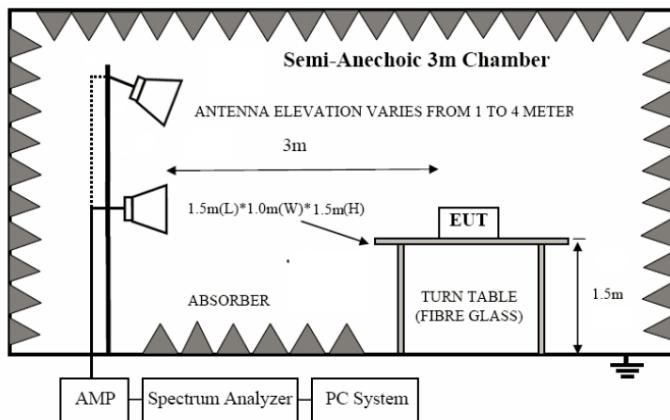


## 7. Band Edge

### 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 for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (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.

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## 7.6 Test Result

Product:	Wireless Module		Polarity	Horizontal						
Mode	Keeping Transmitting		Test Voltage	DC5V						
Temperature	24 deg. C,		Humidity	56% RH						
Test Result:	Pass		--	--						
FCC Part 15C Class B 1GHz-18GHz -2										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2403.042	92.21	-3.57	74.0	18.21	Peak	351.00	100	Horizontal	N/A
2	2400.000	62.83	-3.57	74.0	-11.17	Peak	360.00	100	Horizontal	Pass
2**	2400.000	47.80	-3.57	54.0	-6.20	AV	360.00	100	Horizontal	Pass
3	2390.000	36.14	-3.53	74.0	-37.86	Peak	323.00	100	Horizontal	Pass

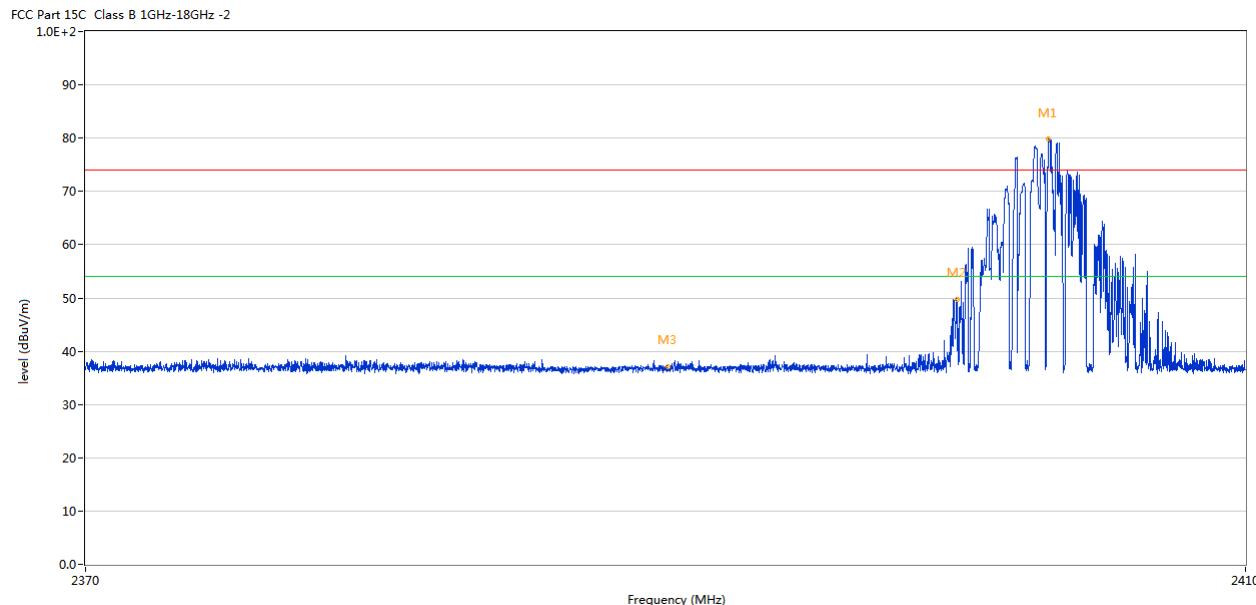
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Product:	Wireless Module	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2403.162	79.89	-3.57	74.0	5.89	Peak	42.00	100	Vertical	N/A
2	2400.000	49.67	-3.57	74.0	-24.33	Peak	222.33	100	Vertical	Pass
3	2390.000	37.09	-3.53	74.0	-36.91	Peak	243.00	100	Vertical	Pass

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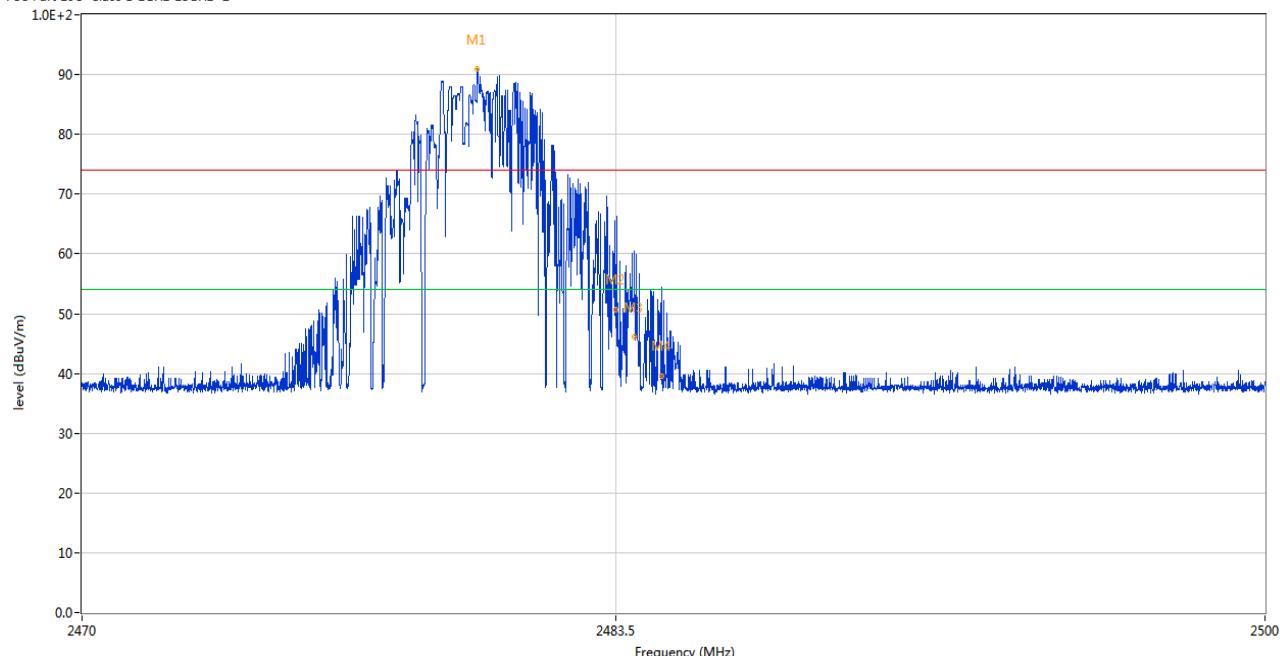
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Product:	Wireless Module	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--

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No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.988	90.92	-3.57	74.0	16.92	Peak	189.00	100	Horizontal	N/A
2	2483.500	65.84	-3.57	74.0	-8.16	Peak	62.29	100	Horizontal	Pass
2**	2483.500	50.63	-3.57	54.0	-3.37	AV	62.29	100	Horizontal	Pass
3	2483.969	60.43	-3.57	74.0	-13.57	Peak	174.00	100	Horizontal	Pass
3**	2483.969	46.11	-3.57	54.0	-7.89	AV	174.00	100	Horizontal	Pass
4	2484.651	54.40	-3.57	74.0	-19.60	Peak	195.00	100	Horizontal	Pass
4**	2484.651	39.49	-3.57	54.0	-14.51	AV	195.00	100	Horizontal	Pass

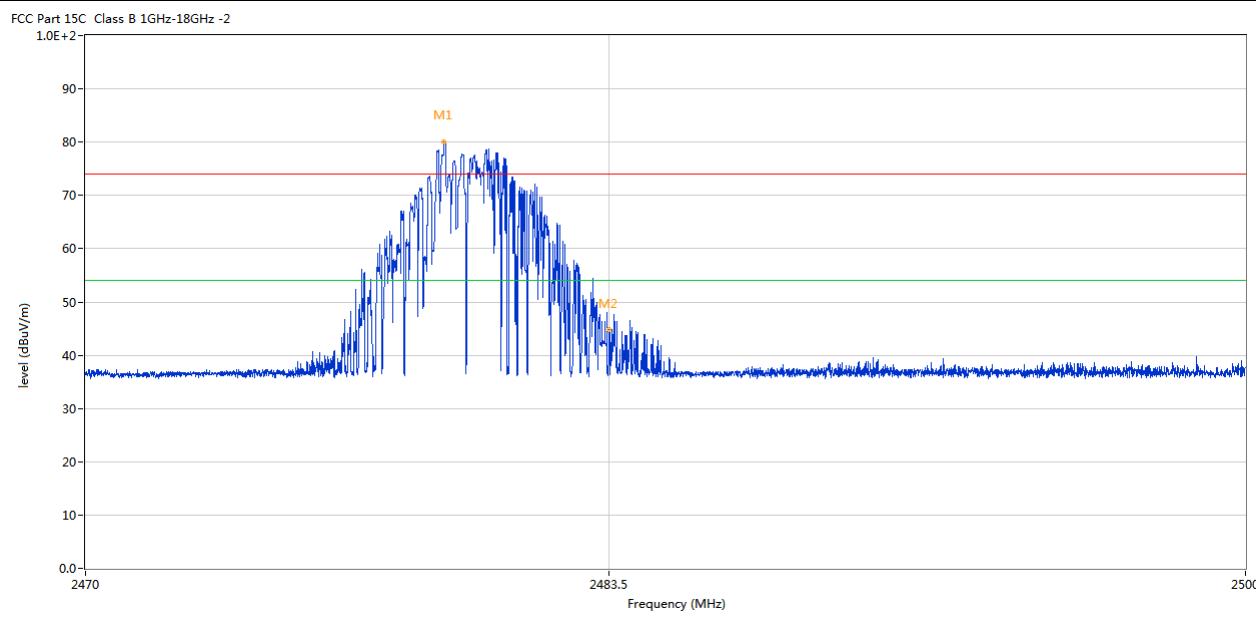
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Product:	Wireless Module	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.238	80.09	-3.57	74.0	6.09	Peak	219.00	100	Vertical	N/A
2	2483.500	44.77	-3.57	74.0	-29.23	Peak	40.00	100	Vertical	Pass

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

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## 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 Integral antenna with gain -0.16dBi maximum. It fulfills the requirement of this section.

Test Result: Pass

The report refers only to the sample tested and does not apply to the bulk.

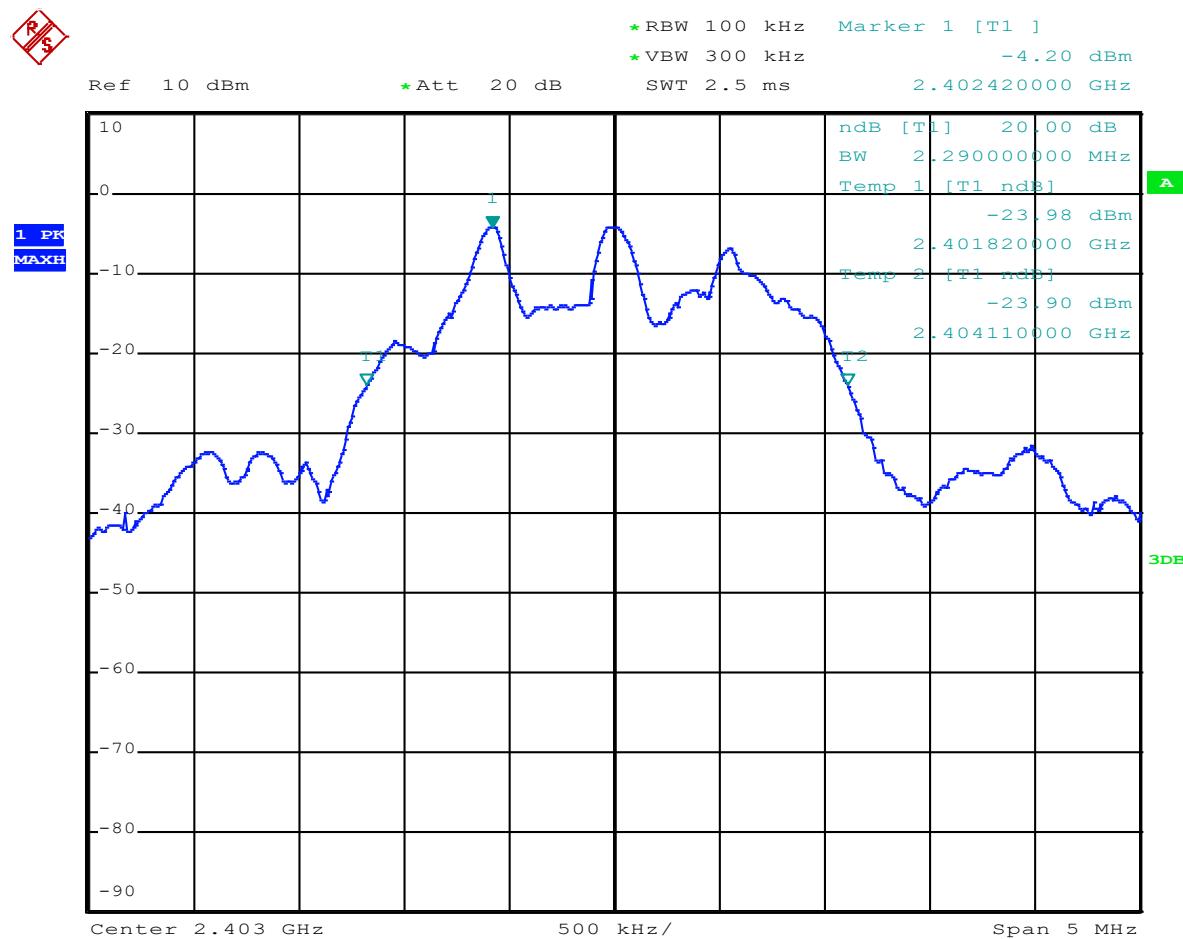
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## 9.0 20dB Bandwidth Measurement

Product:	Wireless Module	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	2.290MHz	--	--



Date: 26.MAY.2025 12:47:45

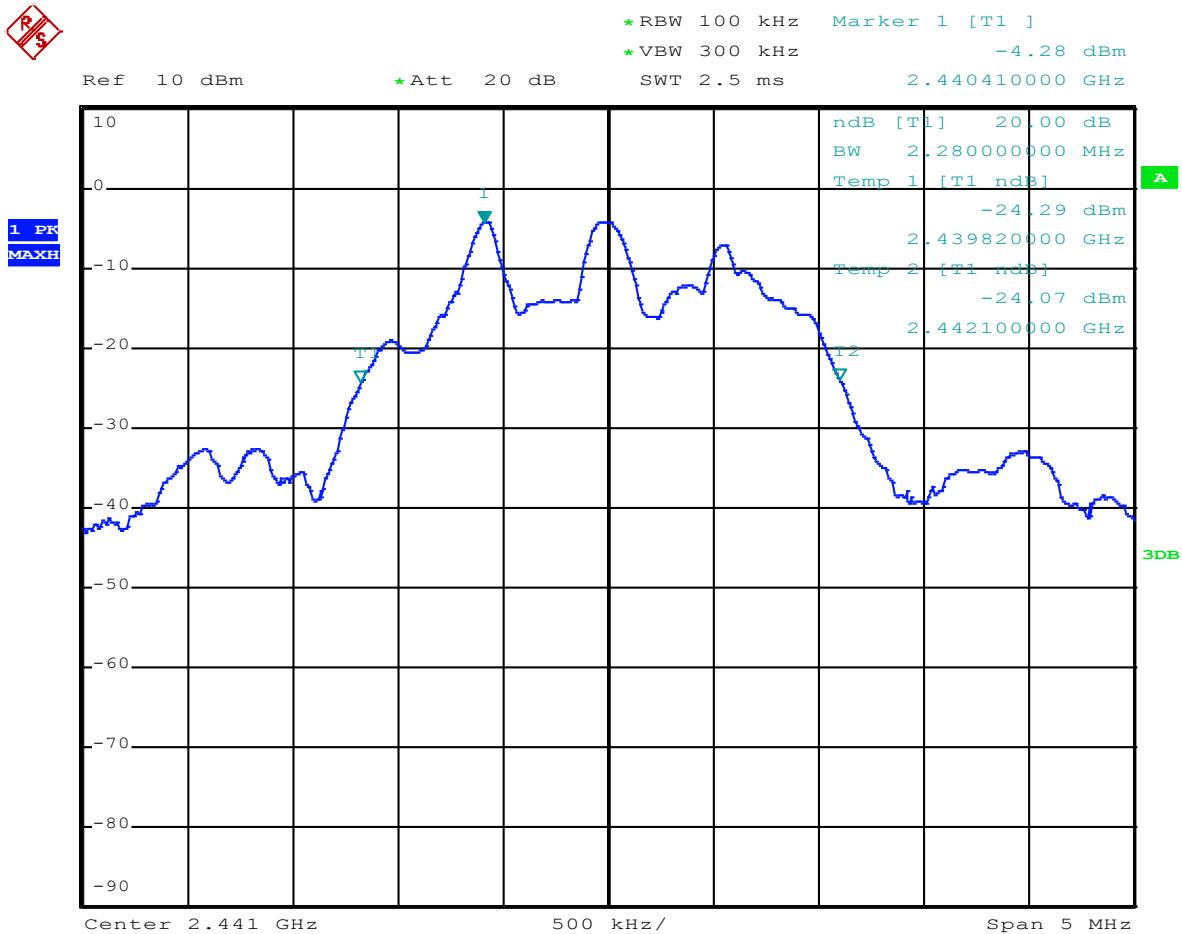
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Product:	Wireless Module	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	2.280MHz	--	--



Date: 26.MAY.2025 12:52:09

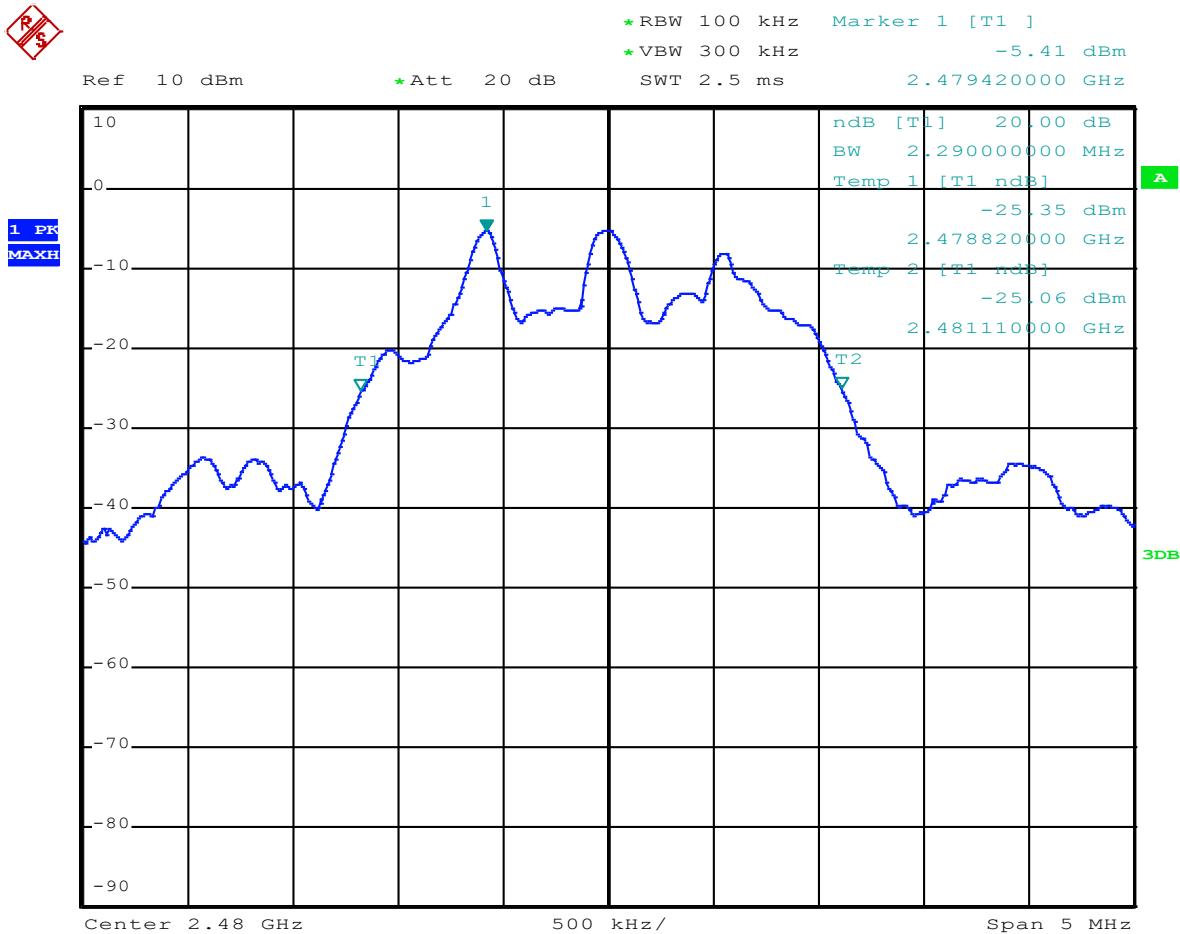
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Product:	Wireless Module	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	2.290MHz	--	--



Date: 26.MAY.2025 12:39:19

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## 10.0 FCC ID Label

**FCC ID: 2AL9S-MRF24G32**

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:**

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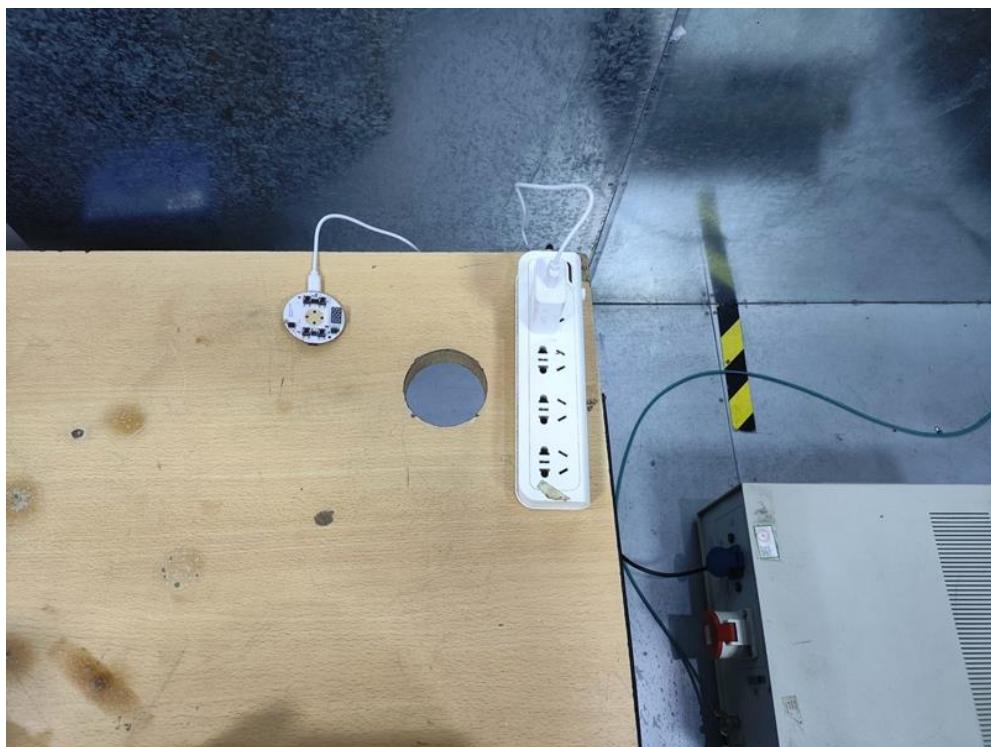
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**11.0** Photo of testing

11.1 Conducted test View--



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Radiated emission test view



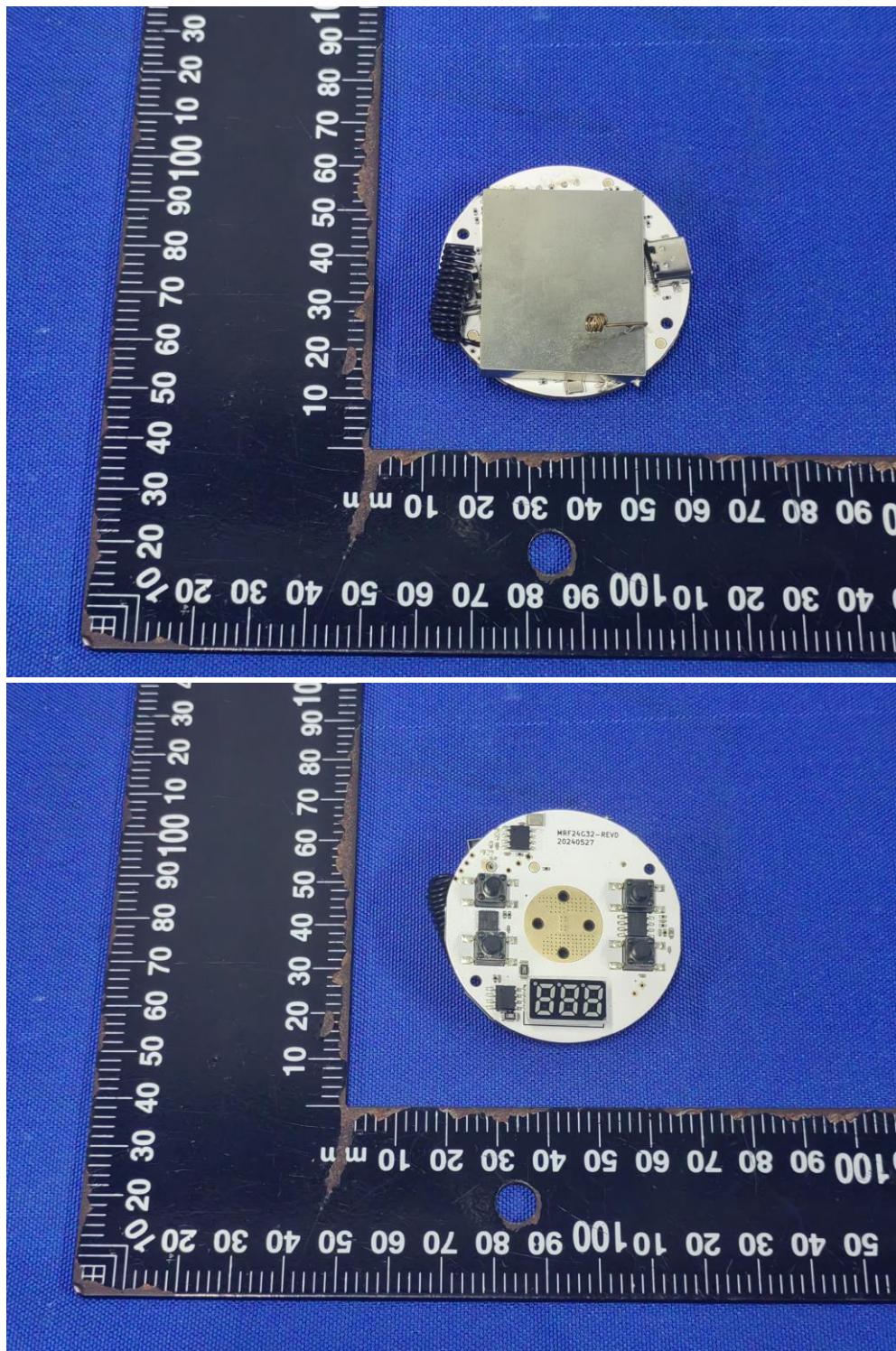
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**Photographs – EUT**



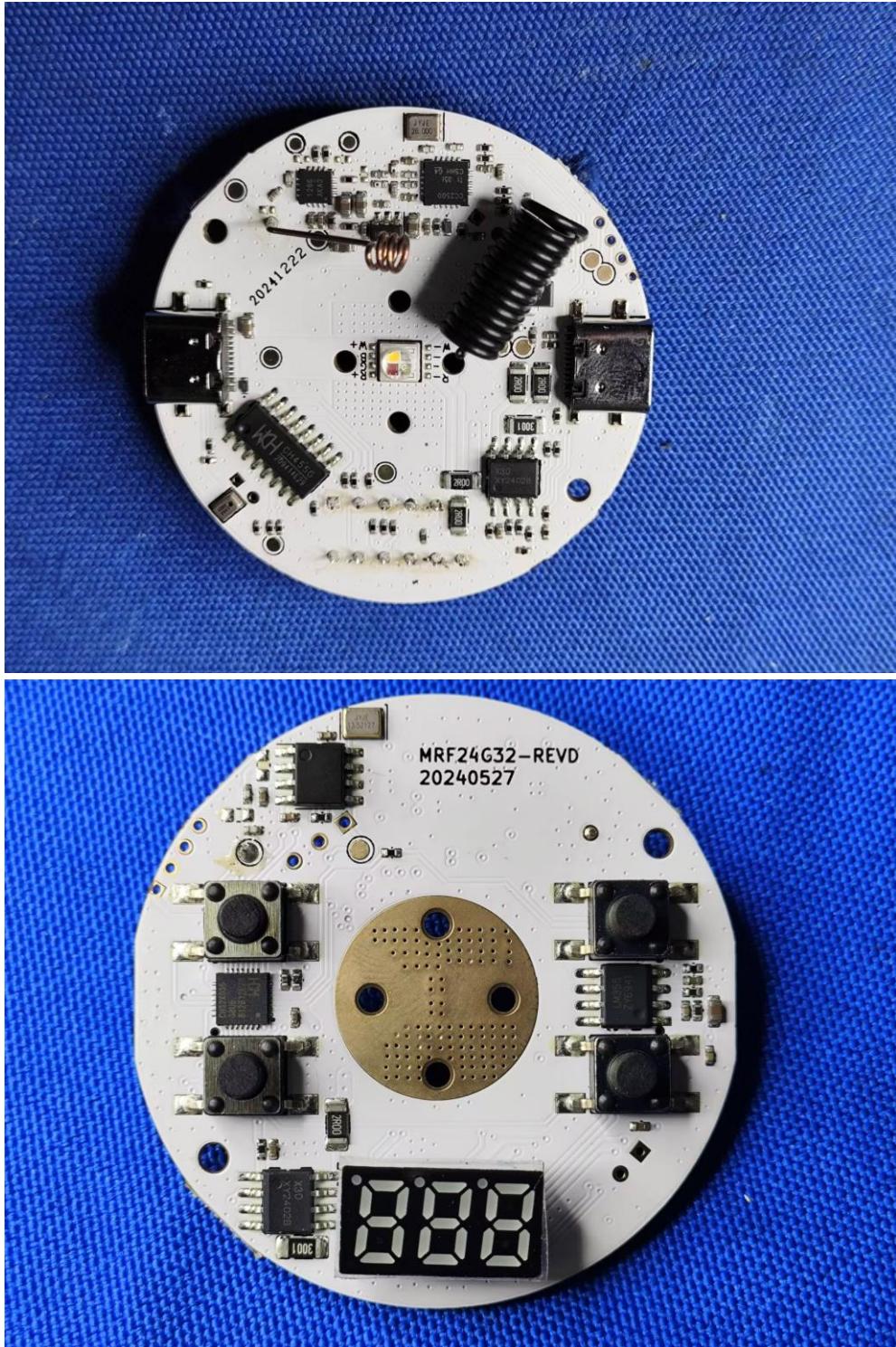
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**Photographs – EUT**



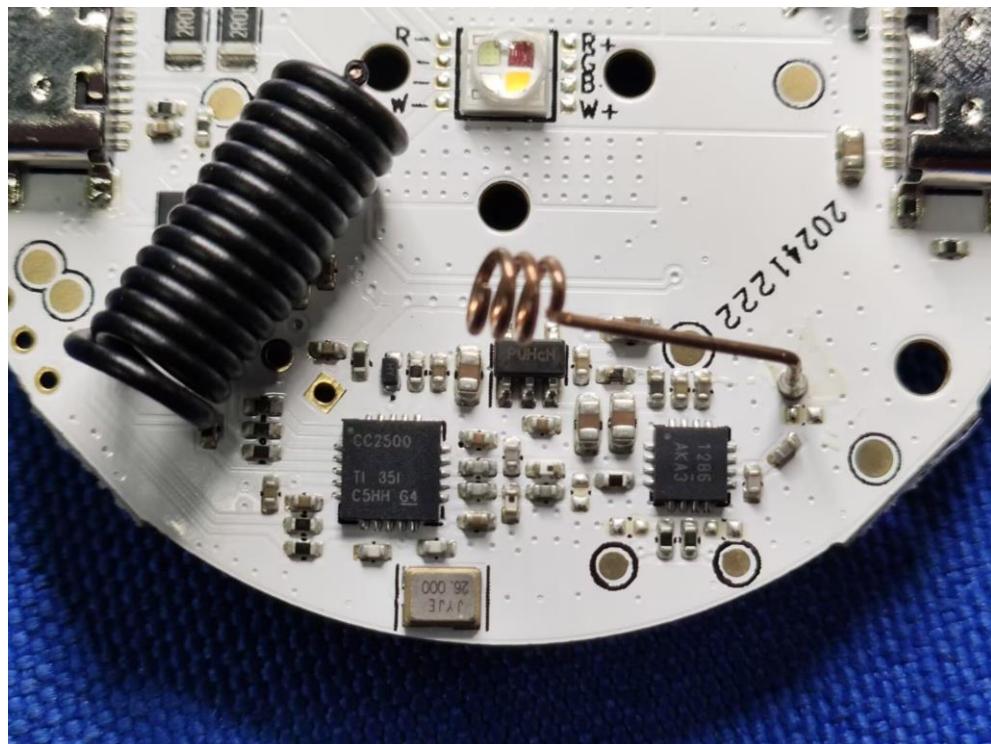
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**Photographs – EUT**



**--End of the report--**

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