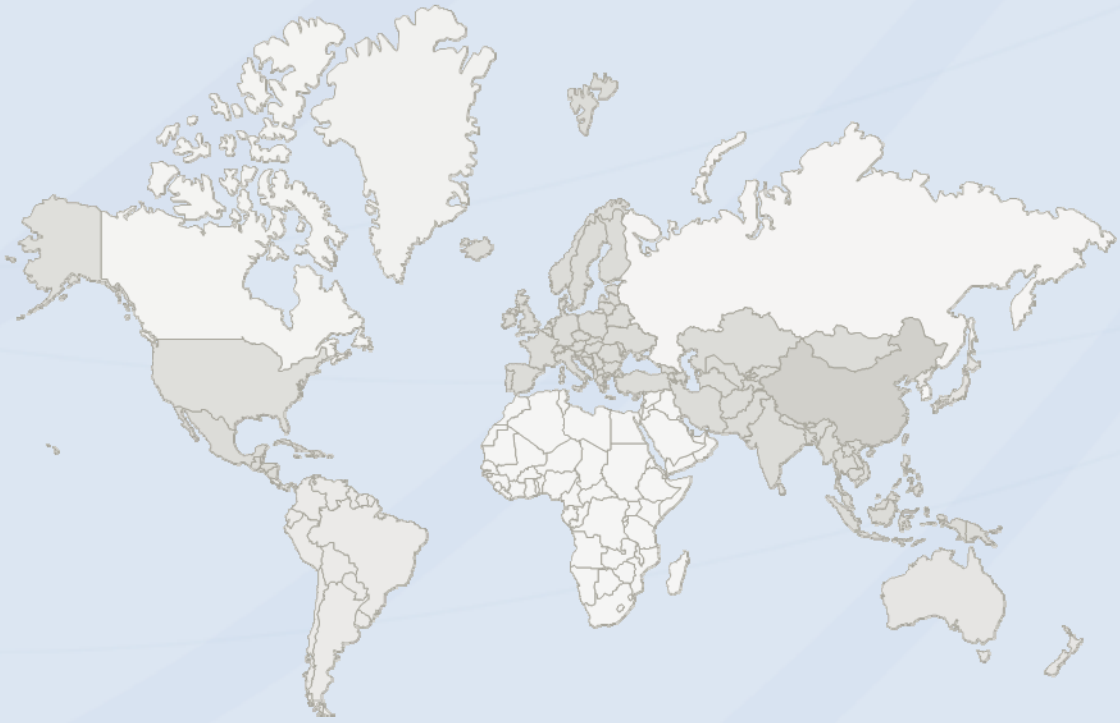
FCC TEST REPORT

Report No. ..... :	NTC-ER2401061
Applicant's name ..... :	Cosun Technology (Shenzhen) Co., Ltd
Address ..... :	No. A7, Tongfuyu industry park, 6th KangMing Road, Pingdi Sub-district, Longgang District, Shenzhen, China



DONGGUAN NEW TESTING CENTRE CO., LTD
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TABLE OF CONTENTS

Test Report Declare 3
1. Summary of test results 4
2. General test information 4
2.1. Description of EUT 4
2.2. Description of test modes 5
2.3. Block diagram EUT configuration for test 5
2.4. Test environment conditions 5
2.5. Measurement uncertainty 6
3. Radiated emission test 7
3.1. Test equipment 7
3.2. Block diagram of test setup 8
3.3. Limit 10
3.4. Test Procedure 11
3.5. Test result 11
4. -20dB & 99% Bandwidth 19
4.1. Test equipment 19
4.2. Block diagram of test setup 19
4.3. Limit 19
4.4. Test Procedure 19
4.5. Test result 20
5. Antenna Requirements 21
5.1. Limit 21
5.2. Result 21
6. Test setup photograph 22
6.1. Photos of radiated emission test 22
7. Photos of the EUT 23

TEST REPORT DECLARE

FCC ID	:	2AYMG-CSRM012400
Applicant	:	Cosun Technology (Shenzhen) Co., Ltd
Address	:	No. A7, Tongfuyu industry park, 6th KangMing Road, Pingdi Sub-district, Longgang District, Shenzhen, China
Equipment under Test	:	Remote control unit
Model No	:	CSRM012400
Trade Mark	:	N/A
Manufacturer	:	Cosun Technology (Shenzhen) Co., Ltd
Address	:	No. A7, Tongfuyu industry park, 6th KangMing Road, Pingdi Sub-district, Longgang District, Shenzhen, China
Test Laboratory	:	Dongguan New Testing Centre Co., Ltd
Address	:	1F & 3F, No. 1 the 1st North Industry Road Songshan Lake Science & Technology Park Dongguan, People’s Republic of China 523808

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C: 2024, ANSI C63.10:2020.

We Declare:

The equipment described above is tested by Dongguan New Testing Centre Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan New Testing Centre Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above standards.

Report No.:	NTC-ER2401061		
Date of Test:	Feb.01, 2024 to Feb.29, 2024	**Date of Report**:	Feb.29, 2024

Prepared By:

Jack Liu/Engineer

Approved By:

Dave Gao/LAB Manager

pNote: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan New Testing Centre Co., Ltd

** Modified History **

Version	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2024-02-29	NTC-ER2401061	Dave Gao

1. Summary of test results

Description of Test Item	Standard	Results
-20dB Bandwidth and 99% occupied bandwidth	FCC Part 15 Subpart C:2024 ANSI C63.10:2020	PASS
Conducted emission test	FCC Part 15 Subpart C:2024 ANSI C63.10:2020	N/A
Radiated emission test	FCC Part 15 Subpart C:2024 ANSI C63.10:2020	PASS
Antenna requirement	FCC 15.203	PASS
Restricted band and band-edge	FCC 15.249,15.209	PASS

2. General test information

2.1. Description of EUT

EUT* Name	:	Remote control unit
Test model	:	CSRM012400
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 3V From Battery
Trade mark	:	N/A
Operation frequency	:	2402MHz
Modulation Type	:	GFSK
Channel Space	:	1MHz
Channel Number	:	1
Antenna Type	:	Wire antenna
Antenna Gain	:	2.0 dBi
Hardware Version	:	V1.0
Software Version	:	V1.0

Note: 1,EUT is the ab. of equipment under test.

There are 1 channels provided to the EUT and Channel 01 were selected for testing.

Operation Frequency List：

Channel	Frequency (MHz)
01	**2402**

Note: The line display in grey is the channel selected to perform test.

2.2. Description of test modes

Mode	Channel	Frequency (MHz)
GFSK	**CH1**	**2402**
Note: 1. The test was used to control EUT work in Continuous TX mode, and select test channel, wireless mode 2. The EUT has been tested as an independent unit. And Continual Transmitting in maximum power. 3. New battery is used during all tests. 4. For the relevant Conducted Measurement, the temporary antenna connector is used during the measurement. Antenna Connector Impedance: 50Ω, Cable Loss: 1.0 dB		

2.3. Block diagram EUT configuration for test

EUT

2.4. Test environment conditions

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

Temperature range:	21-24℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.5. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.44dB
Uncertainty for Radiation Emission test (30MHz – 1GHz)	3.14 dB (Polarize: V)
	3.16 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz – 26GHz)	4.27 dB (Polarize: V)
	4.51 dB (Polarize: H)
Uncertainty for Radiation Emission test (26GHz – 40GHz)	4.60 dB (Polarize: V)
	4.60 dB (Polarize: H)
Bandwidth	±1.2%
Stop Transmitting Time Test	±0.5%
Frequency error	5.8×10^{-8}

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

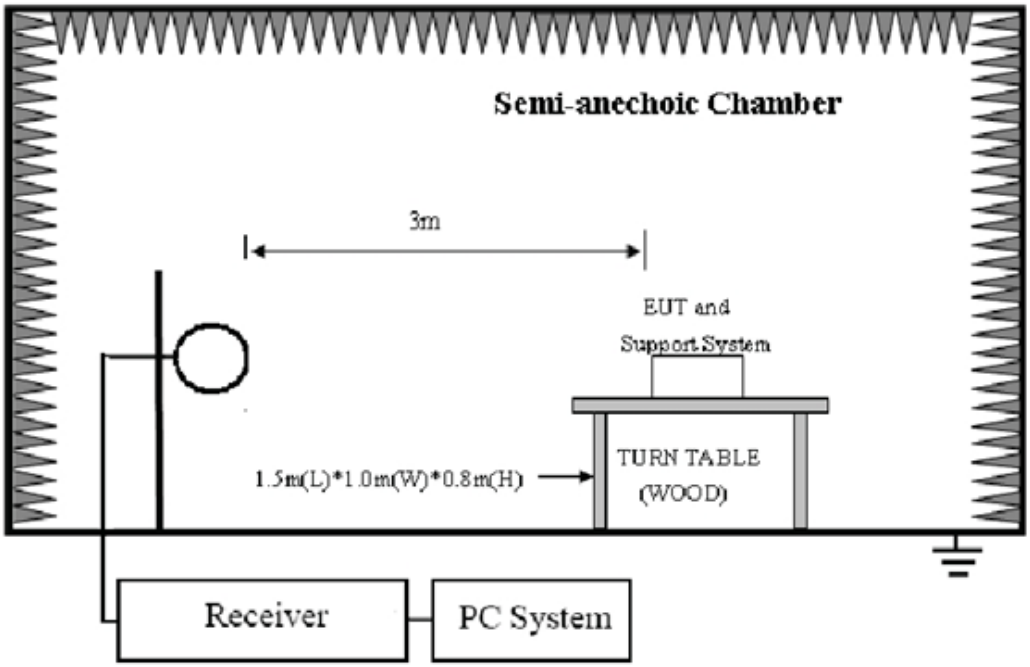
3. Radiated emission test

3.1. Test equipment

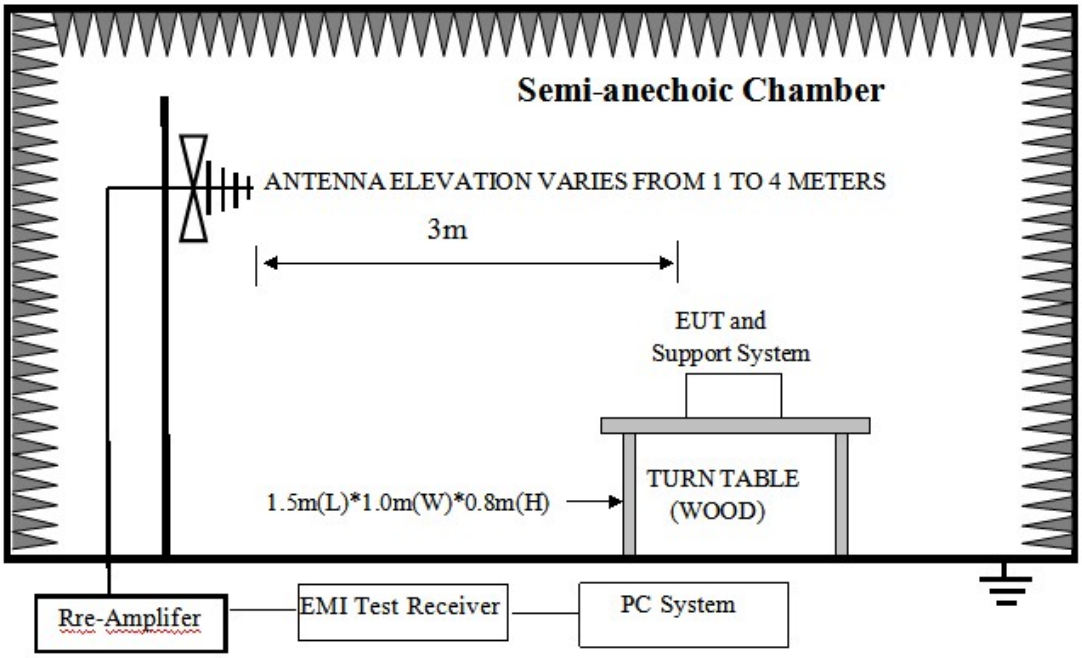
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	EMI Test Receiver	R&S	ESR	7250-304067528	2023-07-27	1Year
2	Trilog Broadband Antenna	Schwarzbeck	VULB9168	00969	2023-05-19	2 Year
3	Horn antenna	Schwarzbeck	BBHA9120D	453	2023-05-19	2Year
4	Pre-amplifier	Agilent	8449B	3008A04721	2023-05-19	1Year
5	Double Ridged Horn Antenna	A.H. System	SAS-574	584	2023-05-19	1Year
6	Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	2023-05-19	1Year
7	Pre-amplifier	R&S	8447F	3113A04553	2023-05-19	1Year
8	RF Cable	GORE	OSQ01Q01078.7	SN15458473	2023-05-19	2Year
9	RF Cable	ESCO	ETS-LINGREN	RFC-SMS-100-SMS-340-IN	2023-05-19	2Year
10	Measurement software	Farad	EZ-EMC(VER:1.1.4.2)	N/A	N/A	N/A

3.2. Block diagram of test setup

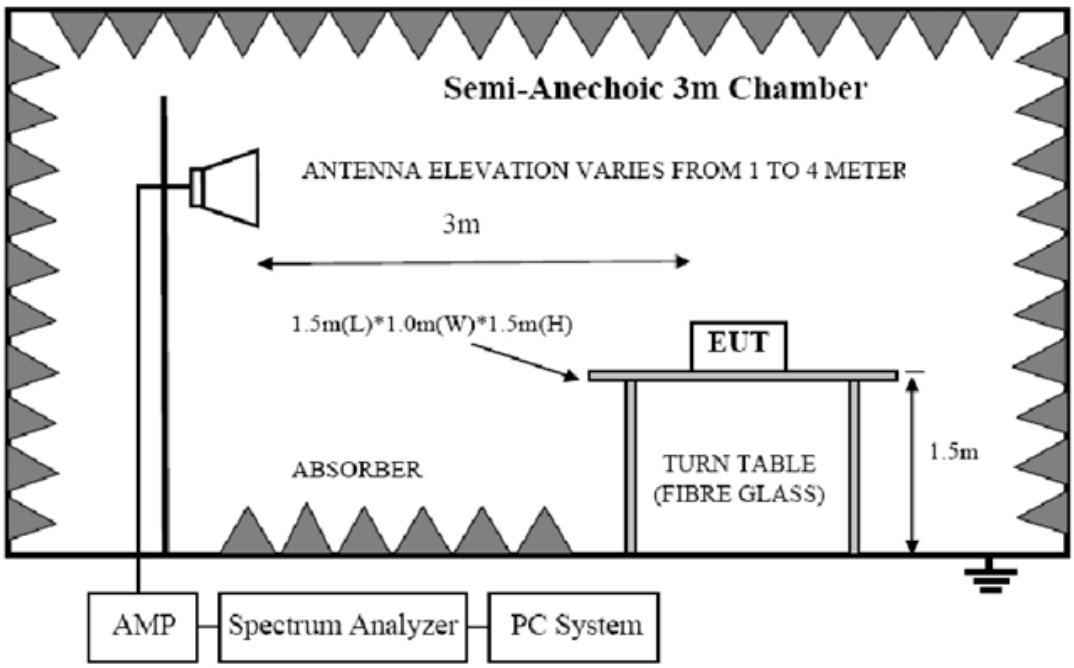
In 3m Anechoic Chamber Test Setup Diagram for 9KHz to 30MHz:



In 3m Anechoic Chamber Test Setup Diagram for 30MHz to 1GHz:



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz:



3.3. Limit

FCC 15.205 Restricted frequency band:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

FCC 15.209 and rss-gen table 4 Limit

Frequency (MHz)	Distance (Meters)	Field Strengths Limits dB(μV)/m
30--88	3	40.0
88--216	3	43.5
216--960	3	46.0
960--1000	3	54.0
Above 1GHz	3	Peak: 74.0
	3	Average:54.0

Note: (1) The smaller limit shall apply at the cross point between two frequency bands.

(2)Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

(3)The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector.

(4) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:

Limit3m(dBuV/m)= Limit30m(dBuV/m) + 40Log(30m/3m)

(5)All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

3.4. Test Procedure

Procedure of Preliminary Test

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 4.2 of this report.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.

EUT height should be 0.8m for below 1GHz and 1.5m for above 1GHz at ground with absorbers.

The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.10. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 25GHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The X, Y, Z three axial are tested and the report only the worst case.

The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW:

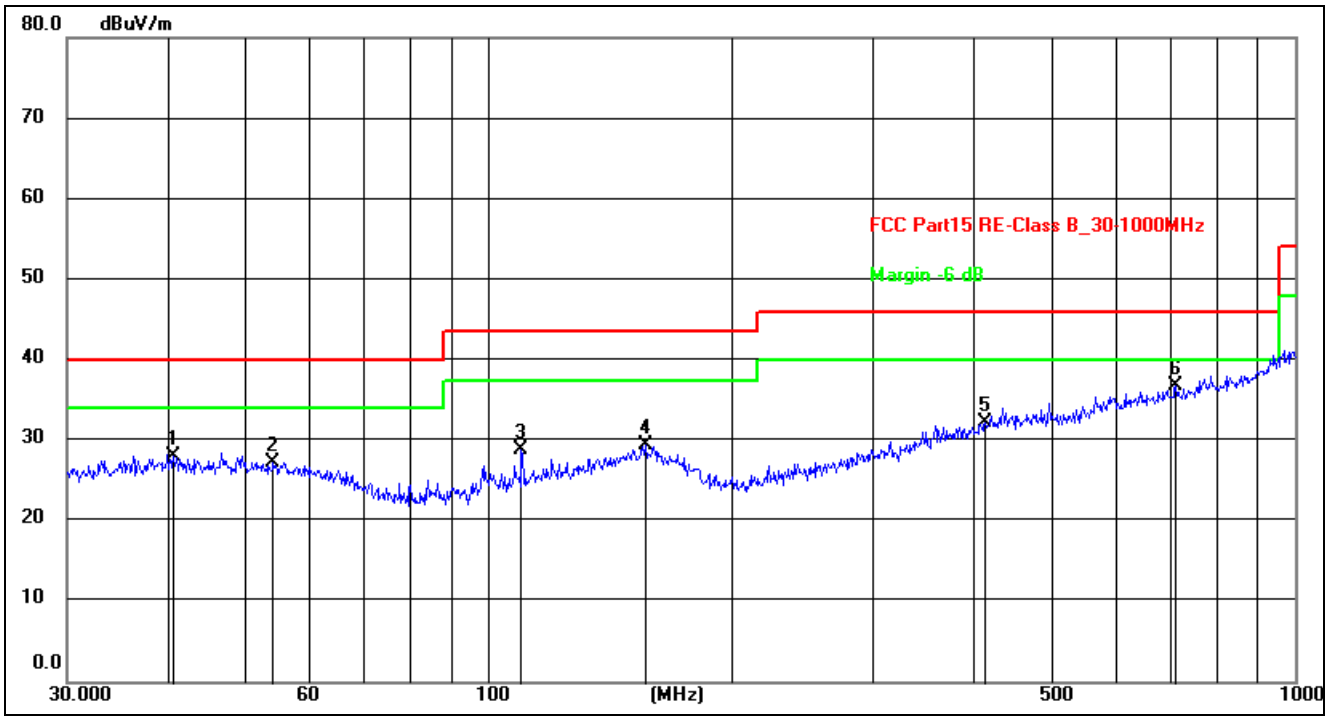
Frequency band	RBW
9KHz-150KHz	200Hz
150KHz-30MHz	9KHz
30MHz-1GHz	120KHz

For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RMS detector RBW 1MHz VBW 3MHz for Average measure.

3.5. Test result

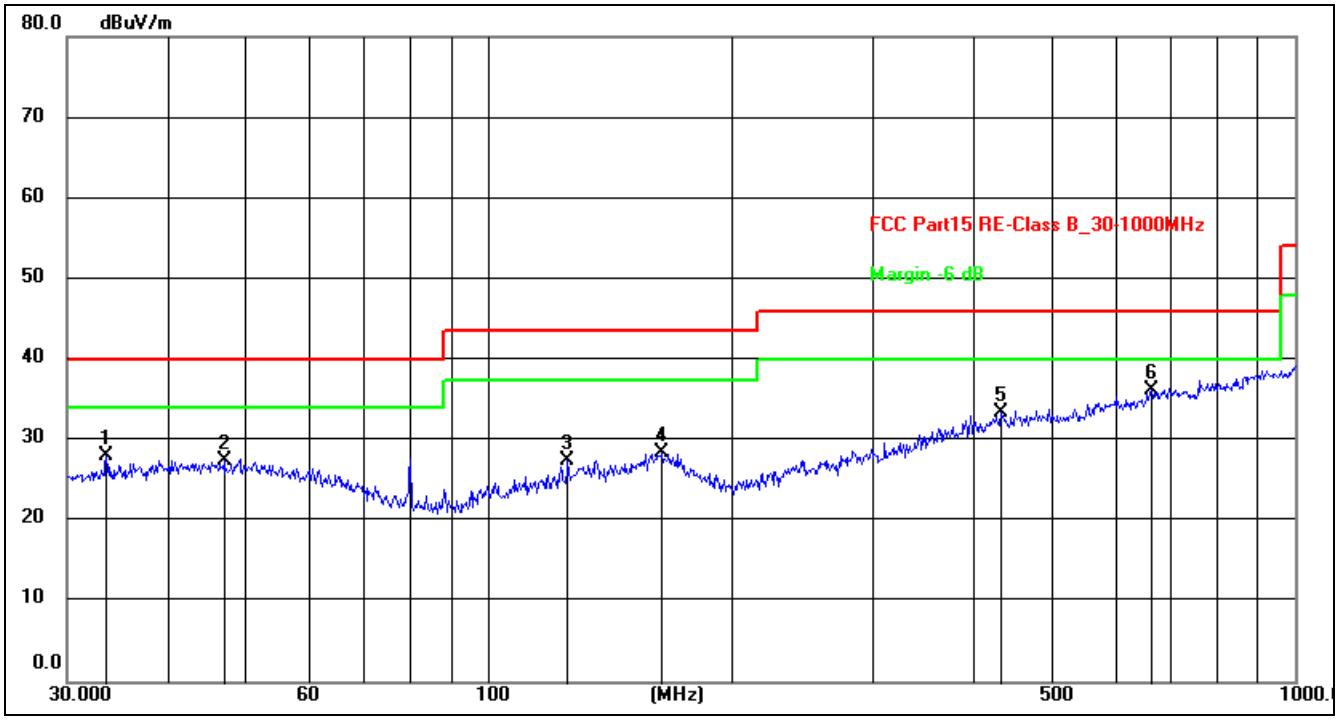
PASS. (See below detailed test result)

9K-30MHz: Emission detected are more than 20dB below the limit line.



Site:	**966 LAB**	**Antenna::Vertical**	**Temperature(C):24(C)**
Limit:	**FCC Part15 RE-Class B_3m**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/22 9:40:05**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode**	**Test Engineer:**	**Taylor_Chen**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	40.7016	13.43	14.65	28.08	40.00	-11.92	peak	100	357	N/A
2	54.0710	13.33	13.99	27.32	40.00	-12.68	peak	100	0	N/A
3	109.7959	16.60	12.26	28.86	43.50	-14.64	peak	200	146	N/A
4	156.4577	13.93	15.46	29.39	43.50	-14.11	peak	200	203	N/A
5	413.2706	15.13	17.12	32.25	46.00	-13.75	peak	100	357	N/A
6 *	711.6734	14.12	22.66	36.78	46.00	-9.22	peak	200	77	N/A



Site:	**966 LAB**	**Antenna::Horizontal**	**Temperature(C):24(C)**
Limit:	**FCC Part15 RE-Class B_3m**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/22 9:37:29**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode**	**Test Engineer:**	**Taylor_Chen**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	33.5623	14.76	13.38	28.14	40.00	-11.86	peak	100	42	N/A
2	46.9947	13.14	14.27	27.41	40.00	-12.59	peak	100	181	N/A
3	125.4457	14.13	13.31	27.44	43.50	-16.06	peak	200	301	N/A
4	164.3301	13.70	14.69	28.39	43.50	-15.11	peak	100	240	N/A
5	432.5455	15.82	17.63	33.45	46.00	-12.55	peak	200	298	N/A
6 *	663.4728	14.17	22.08	36.25	46.00	-9.75	peak	200	125	N/A

For 1GHz to 25GHz:
GFSK Mode (above 1GHz)

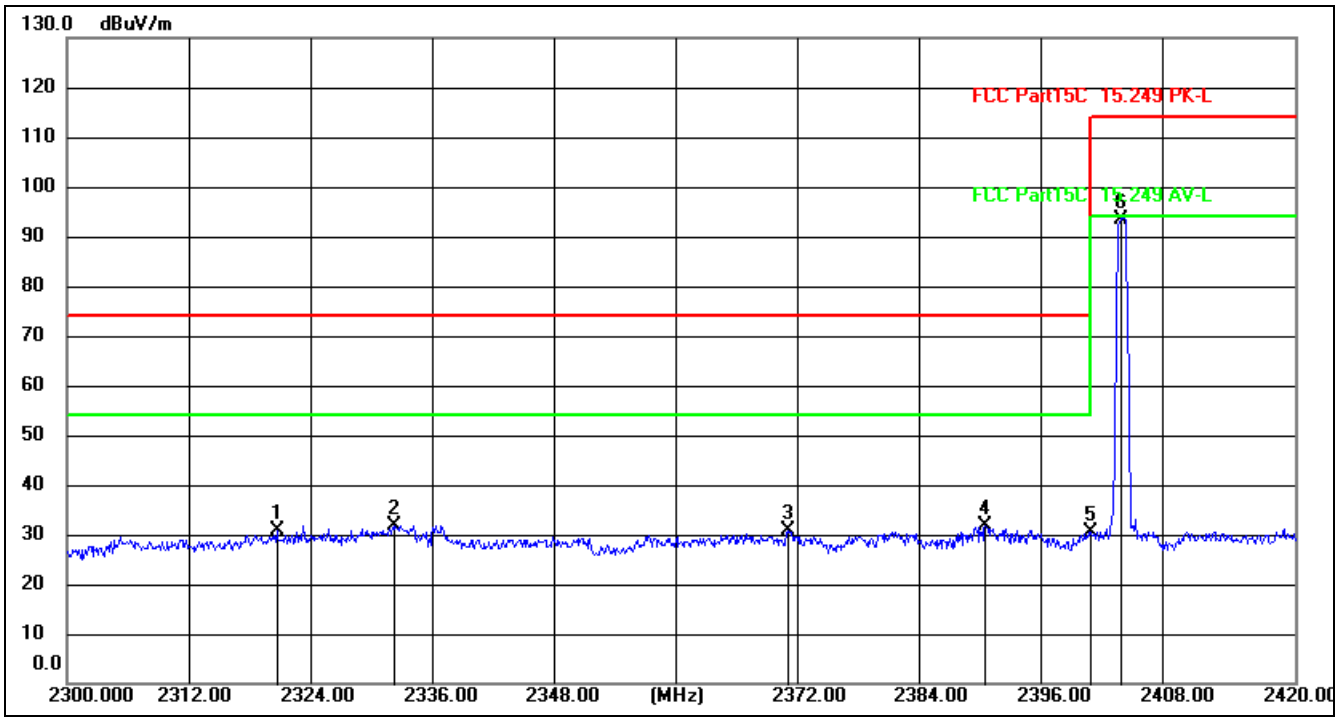
Site:	**966 LAB**	**Antenna::H / V**	**Temperature(C):24(C)**
Limit:	**FCC Part 15.249**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/22 10:05:15**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode (2402MHz)**	**Test Engineer:**	
Note:			

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Pre-amp (dB)	Cable lost (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detect	Antenna polarization
2402.00	98.77	26.37	40.19	8.51	93.46	114.00	-20.54	Peak	H
2402.00	88.18	26.37	40.19	8.51	82.87	94.00	-11.13	AVG	H
4804.00	57.74	31.00	40.19	9.53	58.08	74.00	-15.92	Peak	H
4804.00	46.50	31.00	40.19	9.53	46.84	54.00	-7.16	AVG	H
2402.00	89.72	26.37	40.19	8.51	84.41	114.00	-29.59	Peak	V
2402.00	81.41	26.37	40.21	8.51	76.10	94.00	-17.90	AVG	V
4804.00	51.99	31.00	40.19	9.53	52.33	74.00	-21.67	Peak	V
4804.00	45.86	31.00	40.19	9.53	46.20	54.00	-7.80	AVG	V

Note: 1. Result Level = Reading Level + Antenna Factor + Cable loss – Pre-amp Factor.

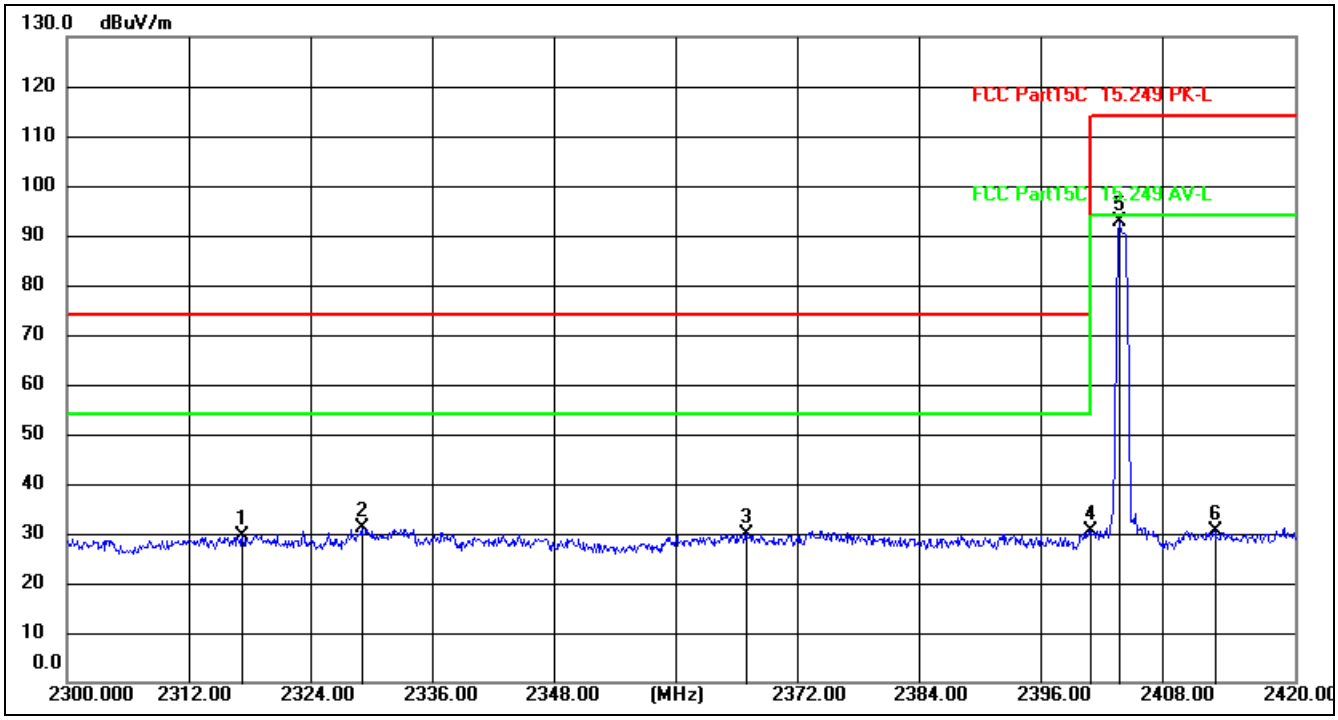
2. Antenna polarization: “H” means Horizontal, “V” means Vertical.

Test plots for band-edge



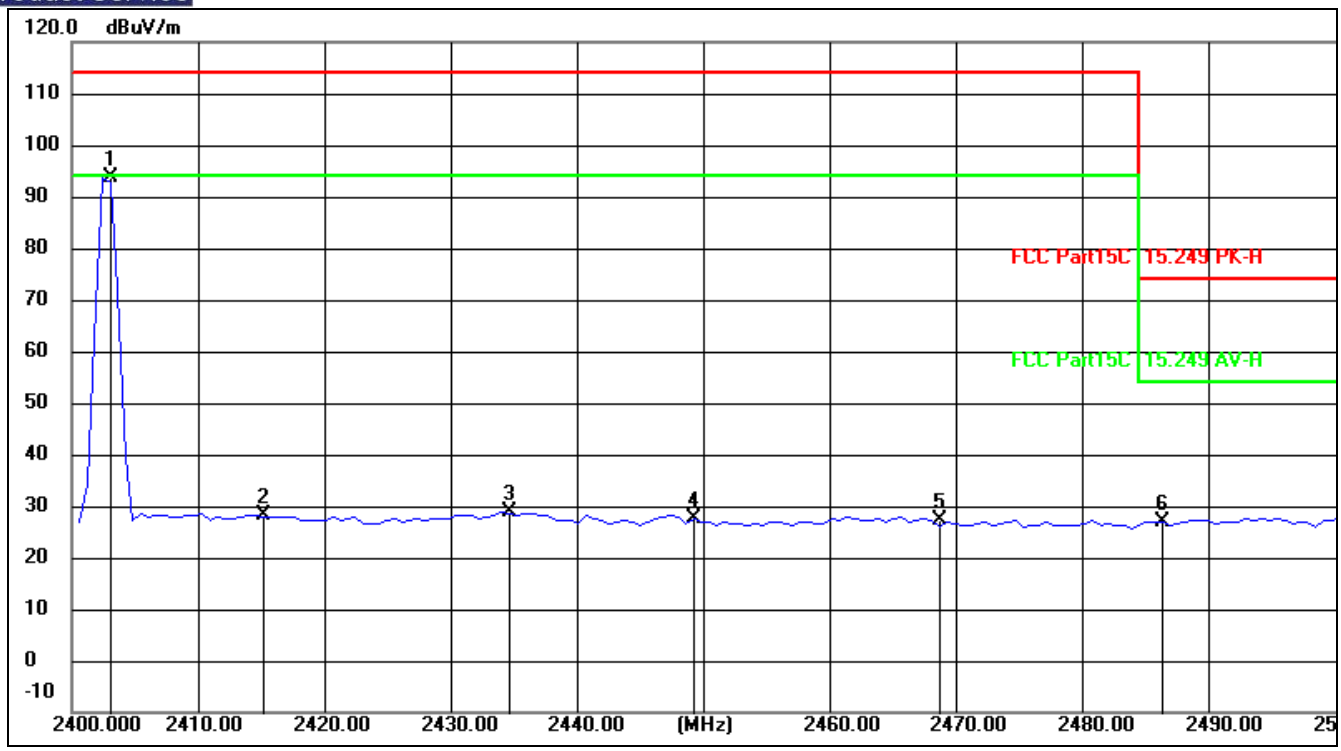
Site:	**966 LAB**	**Antenna:Horizontal**	**Temperature(C):24(C)**
Limit:	**FCC Part 15.249**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/29 10:49:29**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode (2402MHz)**	**Test Engineer:**	
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	2320.520	25.20	5.51	30.71	74.00	-43.29	peak	100	157	N/A
2	2331.920	26.40	5.52	31.92	74.00	-42.08	peak	100	135	N/A
3	2370.440	25.12	5.55	30.67	74.00	-43.33	peak	100	126	N/A
4	2389.760	26.21	5.57	31.78	74.00	-42.22	peak	100	125	N/A
5	2400.080	24.82	5.58	30.40	114.00	-83.60	peak	200	164	N/A
6 *	2402.880	87.90	5.58	93.48	114.00	-20.52	peak	100	231	N/A



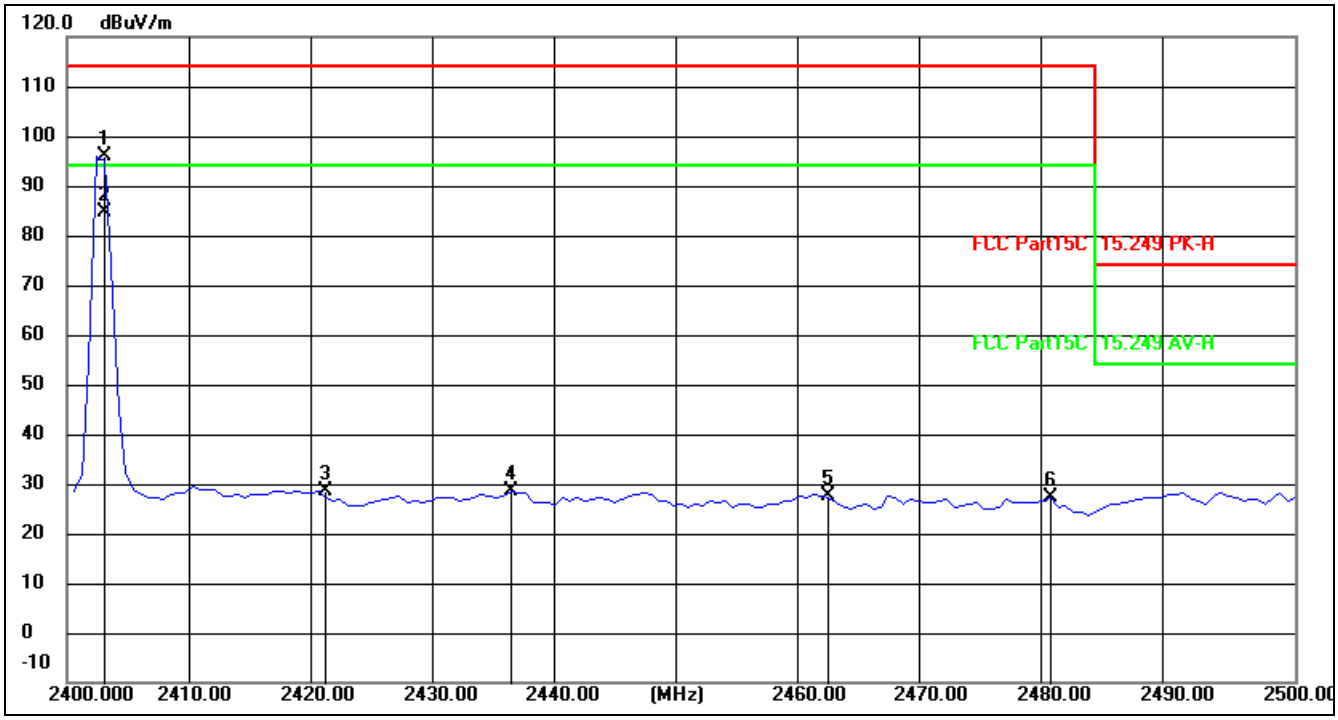
Site:	**966 LAB**	**Antenna:Vertical**	**Temperature(C):24(C)**
Limit:	**FCC Part 15.249**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/29 10:51:10**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode (2402MHz)**	**Test Engineer:**	
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	2317.160	23.87	5.51	29.38	74.00	-44.62	peak	100	235	N/A
2	2328.800	25.50	5.52	31.02	74.00	-42.98	peak	100	139	N/A
3	2366.360	24.45	5.55	30.00	74.00	-44.00	peak	100	135	N/A
4	2400.080	24.82	5.58	30.40	114.00	-83.60	peak	200	135	N/A
5 *	2402.840	87.03	5.58	92.61	114.00	-21.39	peak	100	125	N/A
6	2412.200	25.05	5.59	30.64	114.00	-83.36	peak	100	128	N/A



Site:	**966 LAB**	**Antenna::Horizontal**	**Temperature(C):24(C)**
Limit:	**FCC Part15C 15.249 PK-H**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/29 10:54:23**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode (2402MHz)**	**Test Engineer:**	
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1 *	2402.410	131.00	-37.18	93.82	114.00	-20.18	peak	100	125	
2	2414.458	65.34	-37.20	28.14	114.00	-85.86	peak	100	135	
3	2433.735	66.18	-37.21	28.97	114.00	-85.03	peak	100	175	
4	2448.795	64.76	-37.23	27.53	114.00	-86.47	peak	100	215	
5	2467.470	64.65	-37.25	27.40	114.00	-86.60	peak	100	236	
6	2484.940	64.30	-37.26	27.04	74.00	-46.96	peak	100	214	



Site:	**966 LAB**	**Antenna::Vertical**	**Temperature(C):24(C)**
Limit:	**FCC Part15C 15.249 PK-H**		**Humidity(%):60%**
EUT:	**Remote control unit**	**Test Time:**	**2024/2/29 10:59:21**
M/N.:	**CSRM012400**	**Power Rating:**	**DC 3V**
Mode:	**Tx mode (2402MHz)**	**Test Engineer:**	
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1 *	2402.410	133.00	-37.18	95.82	114.00	-18.18	peak	100	125	
2	2402.410	122.00	-37.18	84.82	94.00	-9.18	AVG	100	125	
3	2420.482	65.71	-37.20	28.51	114.00	-85.49	peak	100	135	
4	2436.144	65.75	-37.22	28.53	114.00	-85.47	peak	100	235	
5	2461.446	64.78	-37.24	27.54	114.00	-86.46	peak	100	256	
6	2480.120	64.62	-37.26	27.36	114.00	-86.64	peak	100	312	

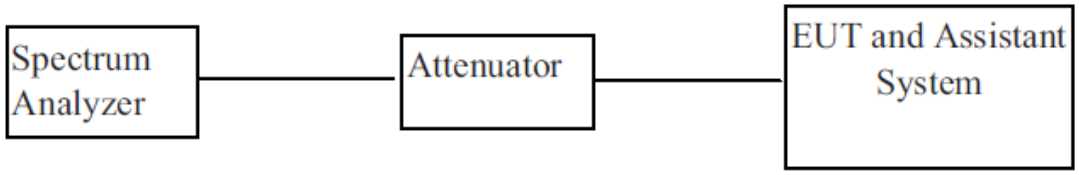
Note:For fundamental frequency, RBW>20dB BW ,VBW>3XRBW, PK detector is for PK value, RMS detector is for AV value

4. -20dB & 99% Bandwidth

4.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Signal Analyzer	Agilent	N9020A	MY54510476	2023-05-19	1 Year

4.2. BLOCK DIAGRAM OF TEST SETUP



4.3. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.4. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 kHz RBW and 100 kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.5. Test result

Frequency (MHz)	99% OBW (MHz)	-20 dB Bandwidth (MHz)	Verdict
2402	1.7642	1.504	Pass

5. Antenna Requirements

5.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.2. Result

The EUT has an internal wire antenna permanently soldering on the printed circuit board, which complied with 15.203, the maximum gain was 2.0 dBi.

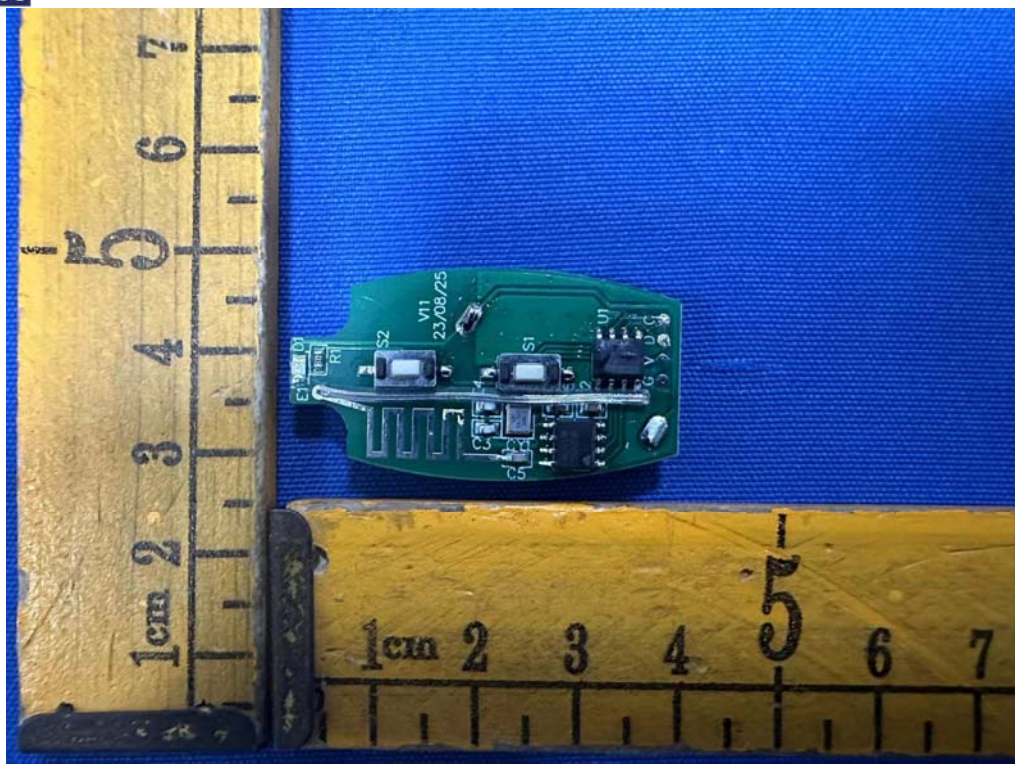
6. Test setup photograph

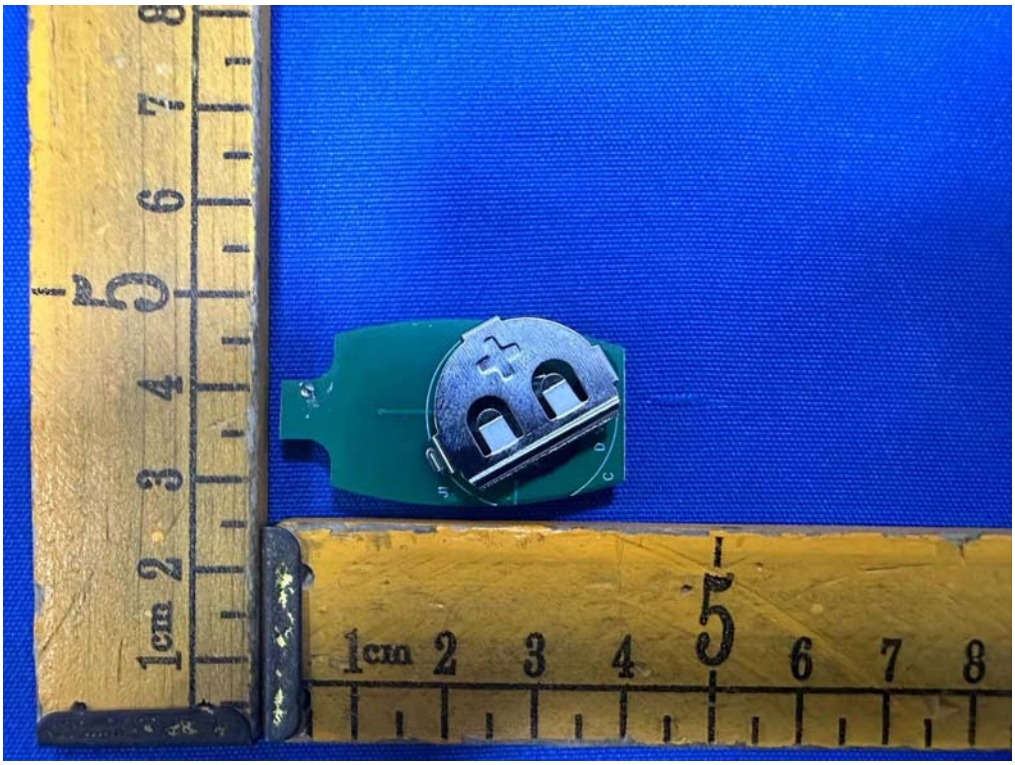
6.1. Photos of radiated emission test

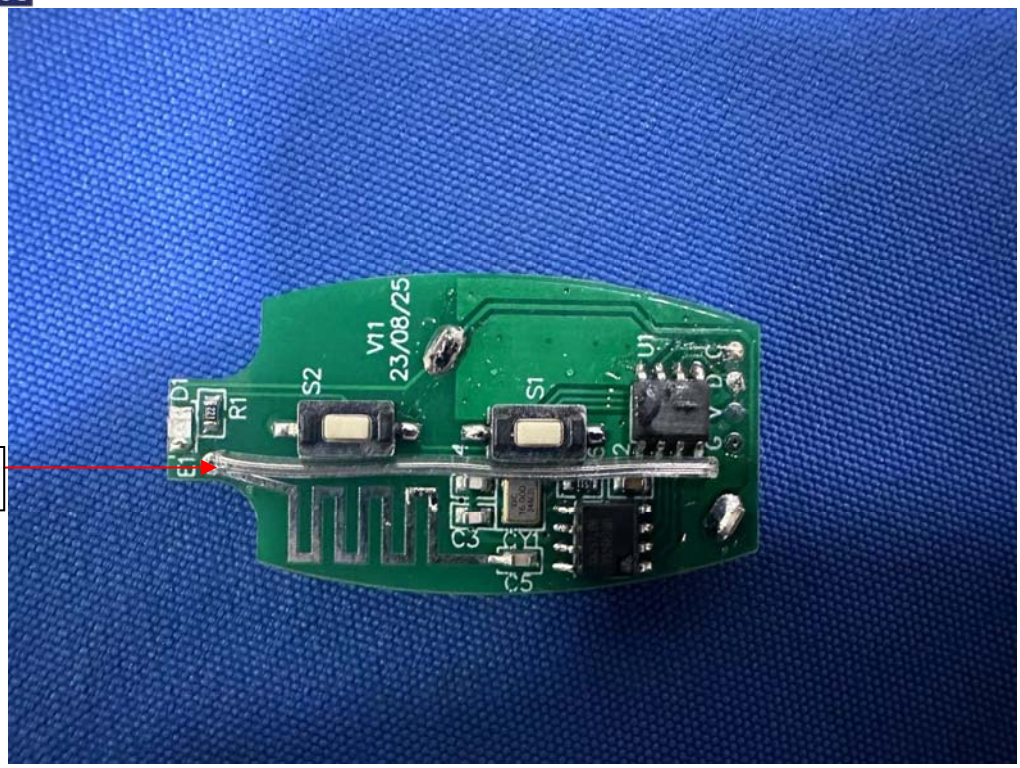
30MHz – 1GHz

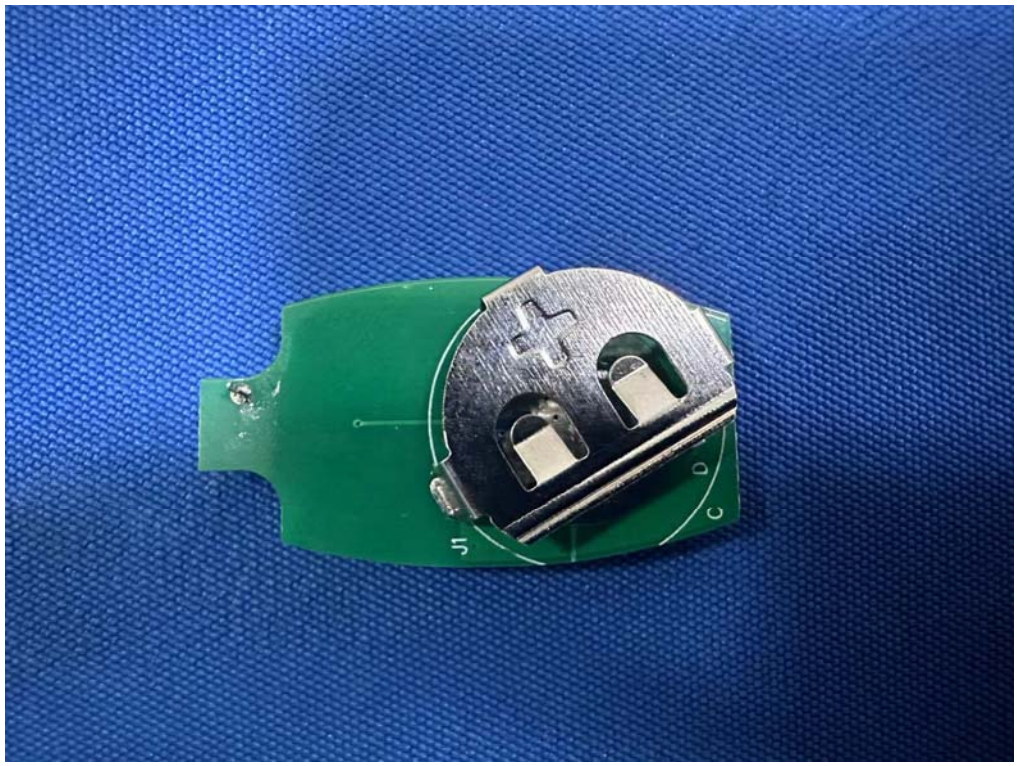
Above 1GHz

7. Photos of the EUT


V11
23/08/25
S2
S1
U1
R1
C3
C5
1cm 2 3 4 5 6 7


1cm 2 3 4 5 6 7 8





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