

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 1 of 48

Applicant : Keeson Technology Corporation Limited
Address of Applicant : No. 195, Yuanfeng East Road, Wangjiangjing, Xiuzhou District, Jiaxing City, 314000, China

Product Name : REMOTE CONTROL
Brand Name : N/A
Model Name : RF408B
Sample Acquisition Method : Sent by Client
Sample No. : E23020076-01#01
E23020076-01#02
FCC ID : 2AK23-RF408B
ISED Number : 22406-RF408B

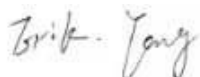
Standards : FCC CFR47 Part 15, Subpart C Section 15.249
RSS-Gen (Issue 5, Amd.2-Feb 2021)
RSS-210 (Issue 10, Amendment-Apr 2020)

Date of Receipt : 2023-02-23
Date of Test : 2023-02-24 ~ 2023-03-09
Date of Issue : 2023-03-10

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by:



(Erik Yang)

Reviewed by:



(Jennifer Zhou)

Approved by:



(Authorized signatory: Guoyou Chi)

TEST REPORT

Report No.: SHE23020076-02AE Date: 2023-03-10 Page 2 of 48

Contents

- 1 GENERAL INFORMATION 3**
 - 1.1 TESTING LABORATORY 3
 - 1.2 DETAILS OF APPLICATION 3
 - 1.3 DETAILS OF EUT 3
 - 1.4 TEST METHODOLOGY 5
 - 1.5 TEST SUMMARY 5
- 2 TEST CONDITION 6**
 - 2.1 ENVIRONMENTAL CONDITIONS 6
 - 2.2 EQUIPMENT LIST 6
 - 2.3 MEASUREMENT UNCERTAINTY 6
- 3 TEST SET-UP AND OPERATION MODES 7**
 - 3.1 DETAILS OF TEST MODE 7
 - 3.2 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT 7
 - 3.3 SUPPORT SOFTWARE 7
 - 3.4 TEST SETUP DIAGRAM 8
- 4 TEST RESULTS 9**
 - 4.1 TRANSMITTER REQUIREMENT & TEST SUITES 9
 - 4.1.1 *Antenna Requirement* 9
 - 4.1.2 *Radiated Emission* 10
 - 4.1.3 *Band Edge* 35
 - 4.1.4 *20dB Bandwidth and 99% Bandwidth* 39
- 5 APPENDIXES 42**
 - 5.1 PHOTOGRAPHS OF THE SAMPLE 42
 - 5.2 SET-UP FOR SPURIOUS EMISSIONS BELOW 1GHZ 48
 - 5.3 SET-UP FOR SPURIOUS EMISSIONS ABOVE 1GHZ 48

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 3 of 48

1 General Information

1.1 Testing Laboratory

ISED CAB identifier #	CN0081
Company Name	ICAS Testing Technology Service (Shanghai) Co., Ltd.
Address	No.1298 Pingan Rd, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Details of Application

Applicant Company Name	Keeson Technology Corporation Limited
Address	No. 195, Yuanfeng East Road,Wangjiangjing, Xiuzhou District, Jiaxing City,314000,China
Contact Person	Sam xu
Telephone	18279170755
Email	xuwb@keeson.com
Manufacturer Company Name	DewertOkin Technology Group Co., Ltd.
Address	No.465, Xinnanyang Road, Wangjiangjing Development Zone, Xiuzhou District, Jiaxing City, Zhejiang Province, China.
Factory Company Name	DewertOkin Technology Group Co., Ltd.
Address	No.465, Xinnanyang Road, Wangjiangjing Development Zone, Xiuzhou District, Jiaxing City, Zhejiang Province, China.

1.3 Details of EUT

Product Name	REMOTE CONTROL
Brand Name	N/A
Test Model Name	RF408B
FCC ID	2AK23-RF408B
ISED Number	22406-RF408B
Operation Frequency	2403MHz ~ 2480MHz
Maximum Field Strength	75.78dBuV/m(peak)@3m
Number of Channels	78
Modulation Type	GFSK
Antenna Type	PCB Antenna
Antenna Gain	1.225dBi
Extreme Temperature Range	-10℃~ +40℃
Test Voltage	DC 3.7V supply by battery
Hardware Version	R5.109.00.834D

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 4 of 48

Software version	V1.2
Test SW Version	BL410_R; BL410_E
RF power setting in TEST SW	Enter the fixed frequency mode by pressing the key_Default power

Note:

1. The above information was declared by the manufacture.
2. For more details, please refer to the User's manual of the EUT.

Channel List

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2.403GHz	28	2.430GHz	55	2.457GHz
2	2.404GHz	29	2.431GHz	56	2.458GHz
3	2.405GHz	30	2.432GHz	57	2.459GHz
4	2.406GHz	31	2.433GHz	58	2.460GHz
5	2.407GHz	32	2.434GHz	59	2.461GHz
6	2.408GHz	33	2.435GHz	60	2.462GHz
7	2.409GHz	34	2.436GHz	61	2.463GHz
8	2.410GHz	35	2.437GHz	62	2.464GHz
9	2.411GHz	36	2.438GHz	63	2.465GHz
10	2.412GHz	37	2.439GHz	64	2.466GHz
11	2.413GHz	38	2.440GHz	65	2.467GHz
12	2.414GHz	39	2.441GHz	66	2.468GHz
13	2.415GHz	40	2.442GHz	67	2.469GHz
14	2.416GHz	41	2.443GHz	68	2.470GHz
15	2.417GHz	42	2.444GHz	69	2.471GHz
16	2.418GHz	43	2.445GHz	70	2.472GHz
17	2.419GHz	44	2.446GHz	71	2.473GHz
18	2.420GHz	45	2.447GHz	72	2.474GHz
19	2.421GHz	46	2.448GHz	73	2.475GHz
20	2.422GHz	47	2.449GHz	74	2.476GHz
21	2.423GHz	48	2.450GHz	75	2.477GHz
22	2.424GHz	49	2.451GHz	76	2.478GHz
23	2.425GHz	50	2.452GHz	77	2.479GHz
24	2.426GHz	51	2.453GHz	78	2.480GHz
25	2.427GHz	52	2.454GHz		
26	2.428GHz	53	2.455GHz		
27	2.429GHz	54	2.456GHz		

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 5 of 48

1.4 Test Methodology

47 CFR Part 15, Subpart C	Telecommunication-Radio Frequency Devices-Intentional Radiators
RSS-Gen (Issue 5, Amd.2-Feb 2021)	General Requirements for Compliance of Radio Apparatus
RSS-210 (Issue 10, Amendment-Apr 2020)	Licence-Exempt Radio Apparatus: Category I Equipment
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Note(s):

All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

1.5 Test Summary

Test Item	FCC Rules	ISED Rules	Result
Antenna Requirement	Part 15.203	RSS-GEN 6.8	PASS
Radiated Emission	FCC Part 15.249(a), 15.209	RSS-210 B.10(a) RSS-GEN 8.9	PASS
Band Edge	FCC Part 15.249(d), 15.209	RSS-210 B.10(b) RSS-GEN 8.10	PASS
20dB Bandwidth and 99% Bandwidth	FCC Part 15.215(c)	RSS-GEN 6.7	PASS
Conducted Emission on AC Mains	FCC Part 15.207(a)	RSS-Gen 8.8	N/A ^{note}

Note(s): The EUT is powered by battery (DC 3.7V supply by battery)

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 6 of 48

2 Test Condition

2.1 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060

2.2 Equipment List

Name of Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	Keysight	N9020B	MY59260184	2022-08-02	2023-08-01
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2022-06-10	2023-06-09
Signal Generator	Rohde & Schwarz	SMR27	100184	2022-08-02	2023-08-01
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2022-06-10	2023-06-09
DC Power Supply	ITECH	IT6512A	N/A	2022-06-07	2024-06-06
Broadband Antenna	SCHWARZBECK	VULB9163	9163-1037	2021-06-08	2023-06-07
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1775	2021-06-08	2023-06-07
Loop Antenna	SCHWARZBECK	FMZB 1513	/	2022-06-10	2023-06-09
Broadband Preamplifier	SCHWARZBECK	BBV 9718	346	2022-06-10	2023-06-09
EMC chamber 9*6*6 (L*W*H)	CHANGNING	966	N/A	2022-06-10	2023-06-09
Test Software	BL	BL410_E	Version:1.0.0.117	N/A	N/A
Test Software	BL	BL410_R	Version:2.1.1.409	N/A	N/A

2.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI. The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95.45%.

Parameter		Uncertainty
Antenna Port Conducted Emission	< 1GHz	± 1.5 dB
	> 1GHz	± 1.5 dB
Radiated Emission	9KHz – 30MHz	± 3.42 dB
	30 MHz – 1GHz	± 5.00 dB
	> 1GHz	± 4.88 dB
Occupied Channel Bandwidth		± 5 %

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 7 of 48

3 Test Set-up and Operation Modes

3.1 Details of Test Mode

Enter the fixed frequency mode by pressing the key was control EUT work in continuous transmitter and receiver mode.
Select test channel as below:

Channel	Frequency
The lowest channel(CH1)	2403MHz
The middle channel(CH40)	2442MHz
The highest channel(CH78)	2480MHz

- The basic operation modes are:
- A. Transmitting
 - i. Low Channel
 - ii. Middle Channel
 - iii. High Channel

3.2 Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model No.	Serial No.
N/A	N/A	N/A	N/A

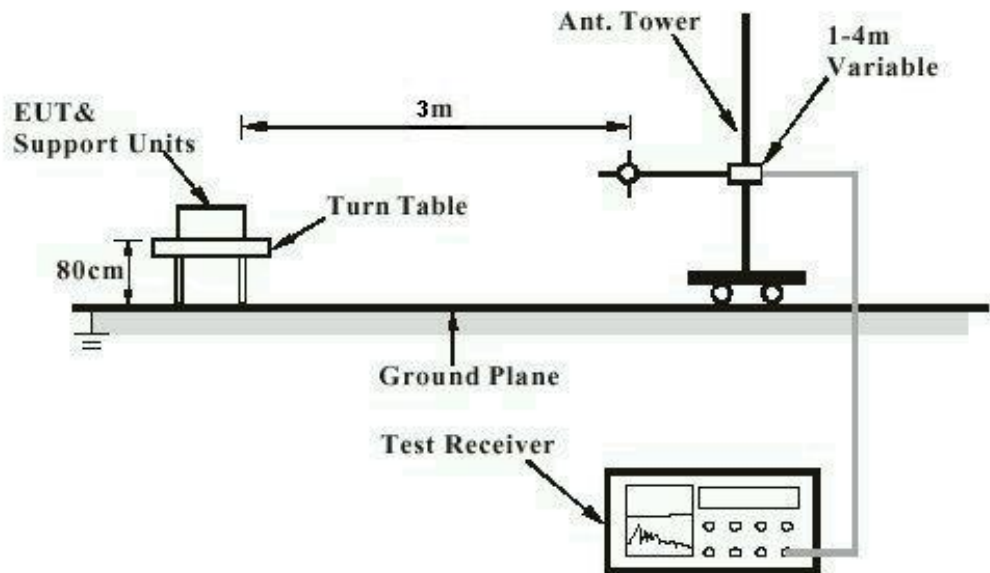
3.3 Support Software

Description	Manufacturer	Software Name
N/A	N/A	N/A

TEST REPORT

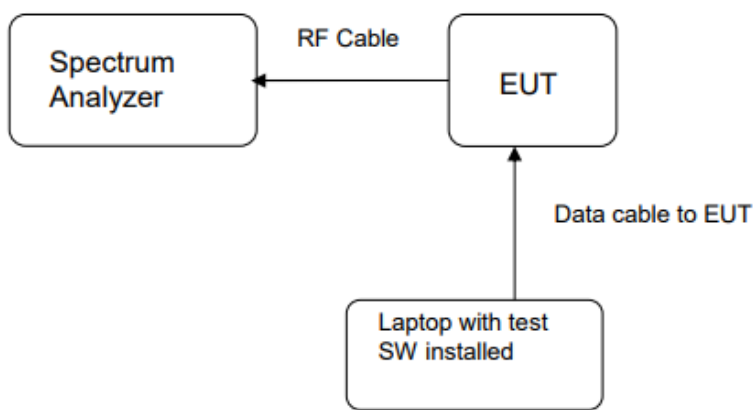
3.4 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.

Diagram of Measurement Configuration for Transmitter Test



TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 9 of 48

4 Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

RESULT:

PASS

Test standard	: Part 15.203, RSS-GEN 6.8
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 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 1.225dBi. The antenna is pcb antenna with no possibility of replacement with a non-approved antenna by the end-user.

Therefore, the EUT is considered to comply with this provision.

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 10 of 48

4.1.2 Radiated Emission

RESULT:

PASS

Test standard	: FCC Part 15.249(a), 15.209 RSS-210 B.10(a), RSS-GEN 8.9
Requirement	: ANSI C63.10-2013
Kind of test site	: 3m Semi-Anechoic Chamber

Test setup

Test Channel	: Low/Middle/High
Operation Mode	: A.i/ii/iii
Ambient temperature	: 23.4°C
Relative humidity	: 50%

Notes

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
2. The spurious above 18GHz is noise only and 20dB below the limit. The value has no need to be reported.
3. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

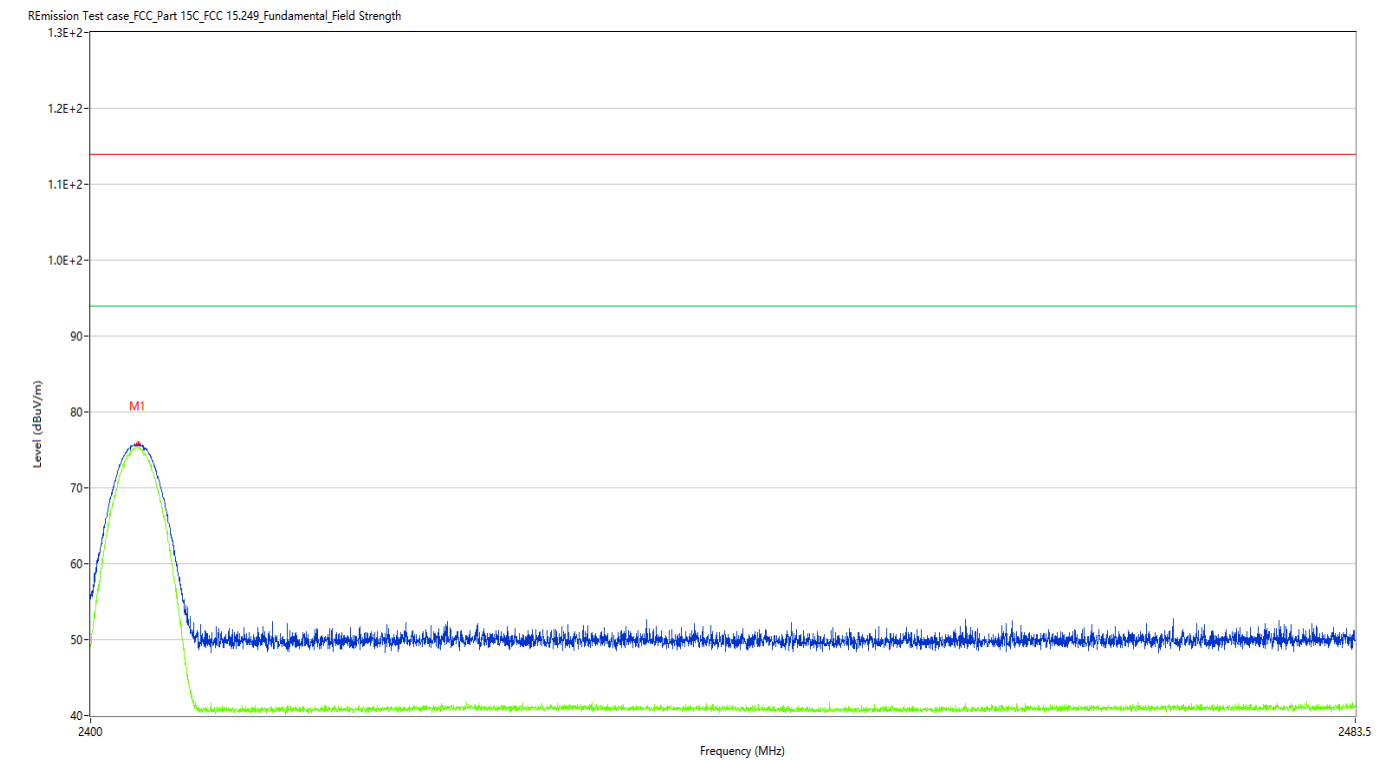
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 11 of 48

Figure 1: Test plots of Field strength of fundamental, 2403MHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2403.110	75.78	-9.82	114.0	38.22	Peak	137.20	100	Horizontal	Pass
1**	2403.110	75.24	-9.82	94.0	18.76	AV	137.20	100	Horizontal	Pass

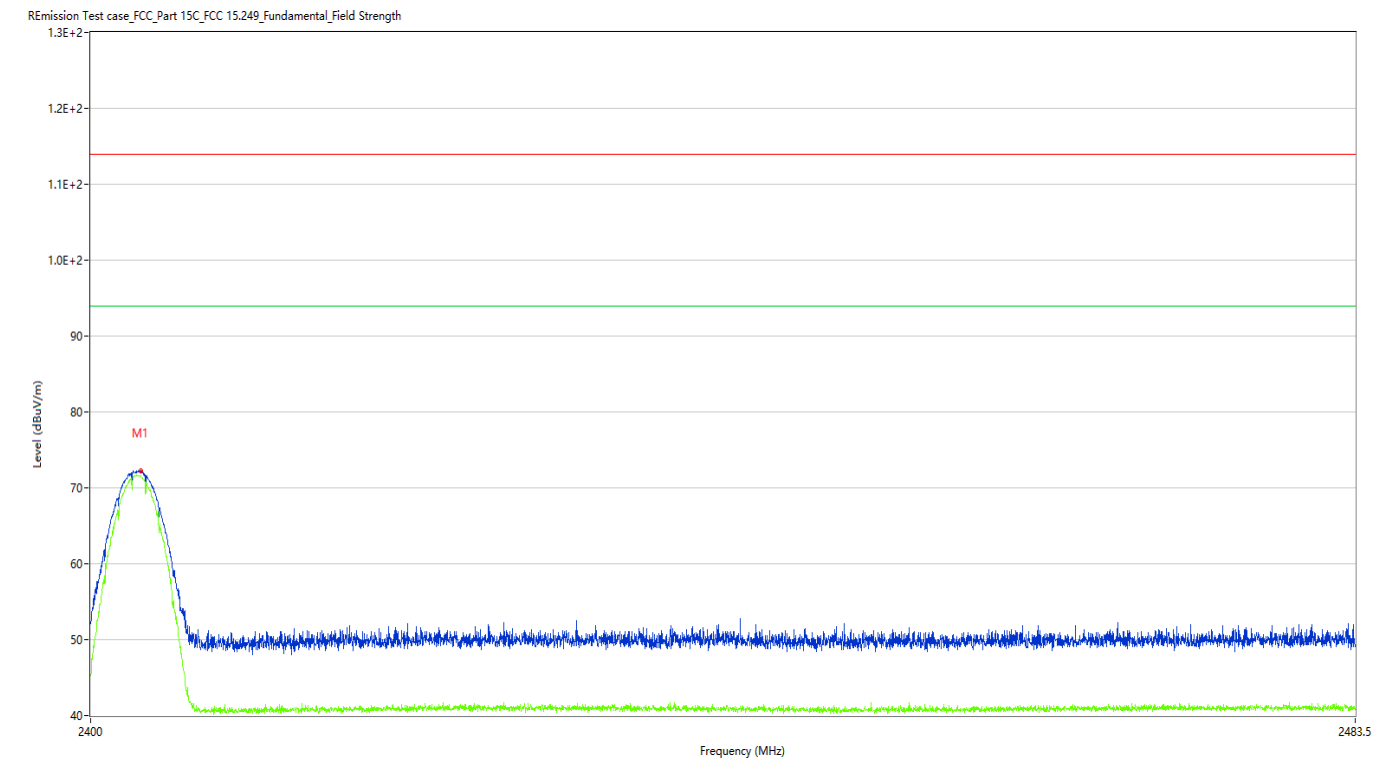
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 12 of 48

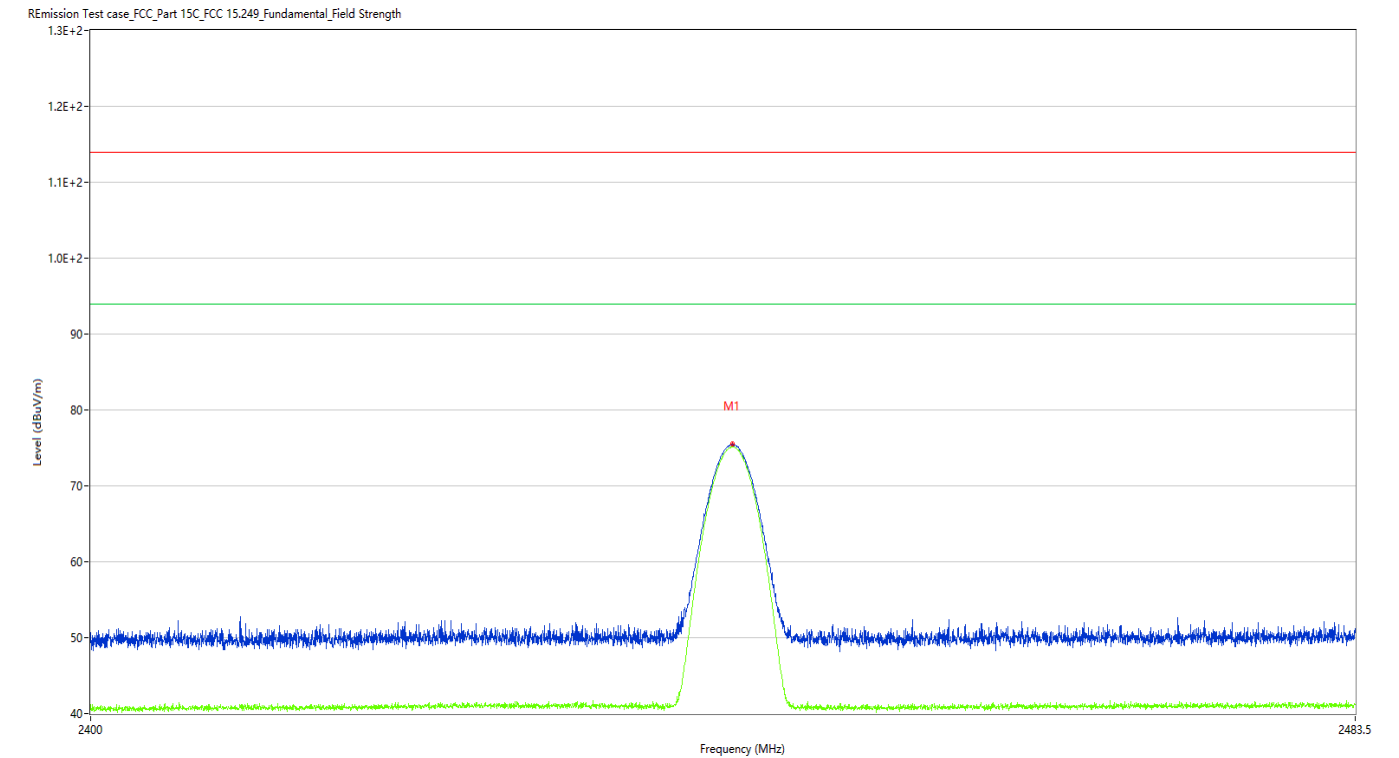
Figure 2: Test plots of Field strength of fundamental, 2403MHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2403.257	72.20	-9.81	114.0	41.80	Peak	91.70	100	Vertical	Pass
1**	2403.257	71.53	-9.81	94.0	22.47	AV	91.70	100	Vertical	Pass

TEST REPORT

Figure 3: Test plots of Field strength of fundamental, 2442MHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2442.021	75.47	-9.61	114.0	38.53	Peak	125.40	100	Horizontal	Pass
1**	2442.021	75.14	-9.61	94.0	18.86	AV	125.40	100	Horizontal	Pass

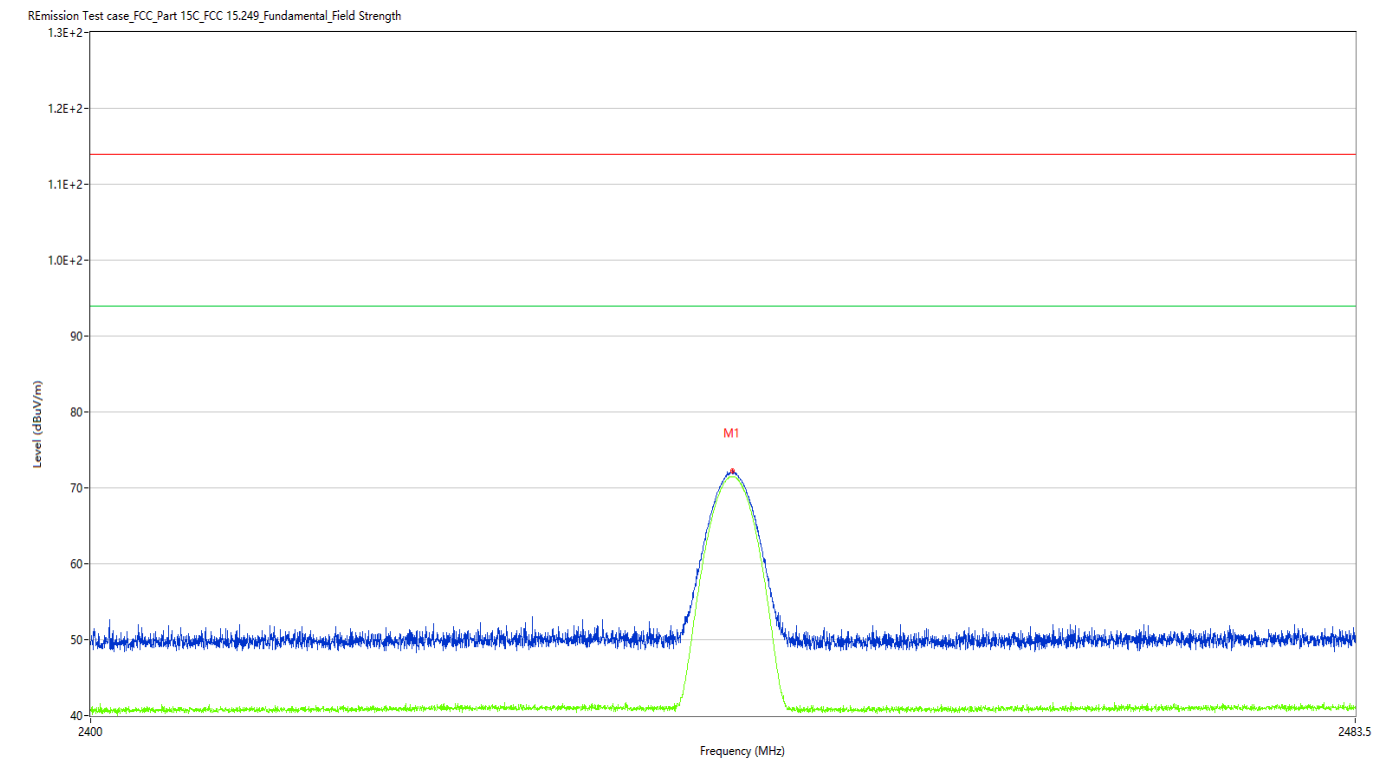
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 14 of 48

Figure 4: Test plots of Field strength of fundamental, 2442MHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2442.042	72.23	-9.62	114.0	41.77	Peak	101.60	100	Vertical	Pass
1**	2442.042	71.51	-9.62	94.0	22.49	AV	101.60	100	Vertical	Pass

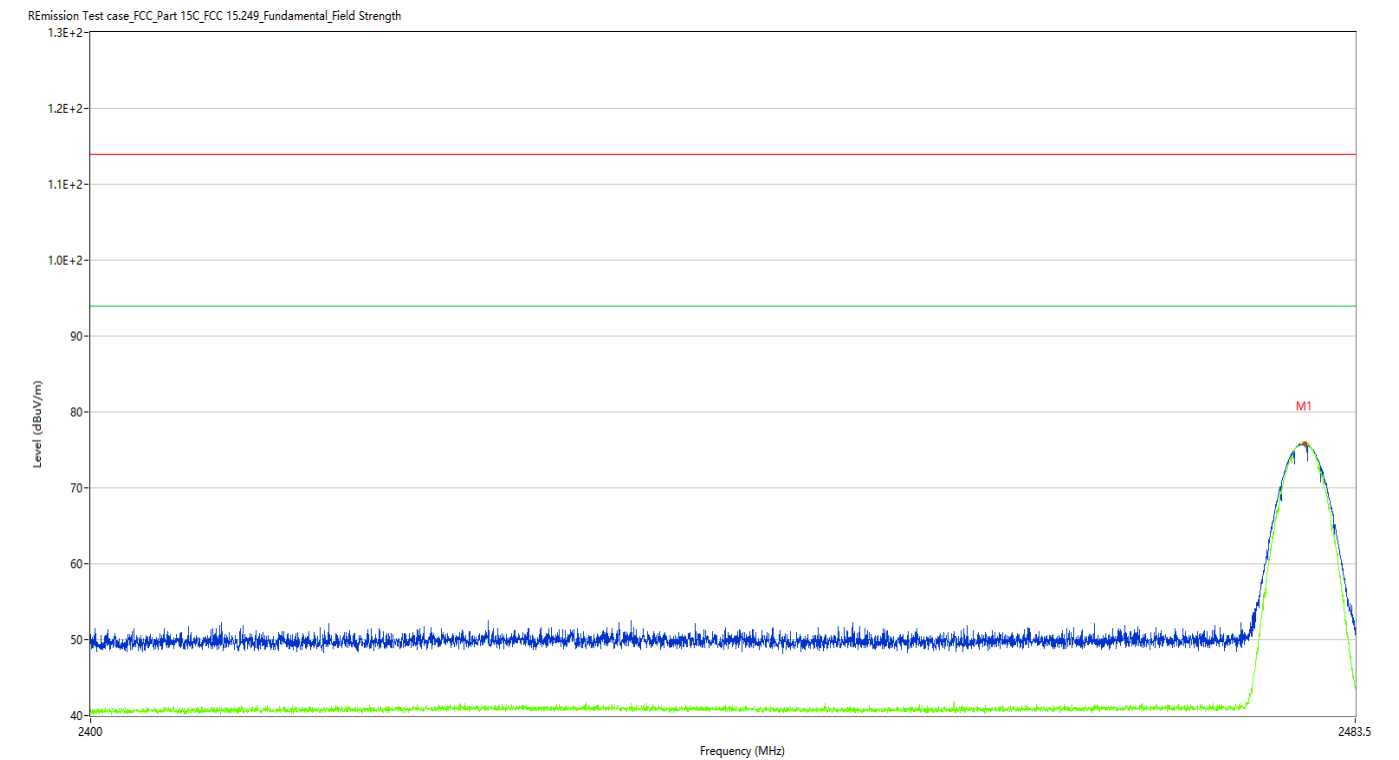
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 15 of 48

Figure 5: Test plots of Field strength of fundamental, 2480MHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2480.139	75.77	-9.48	114.0	38.23	Peak	0.00	100	Horizontal	Pass
1**	2480.139	75.29	-9.48	94.0	18.71	AV	0.00	100	Horizontal	Pass

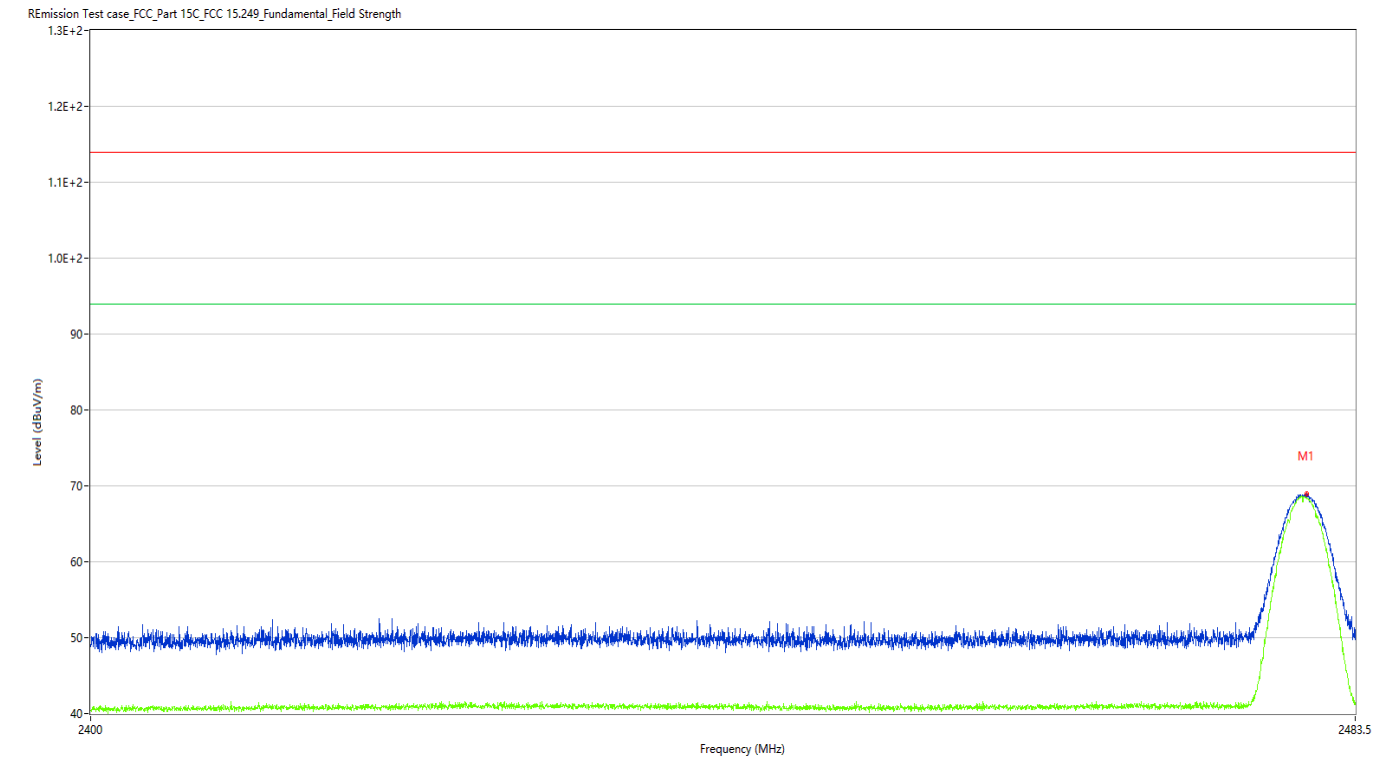
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 16 of 48

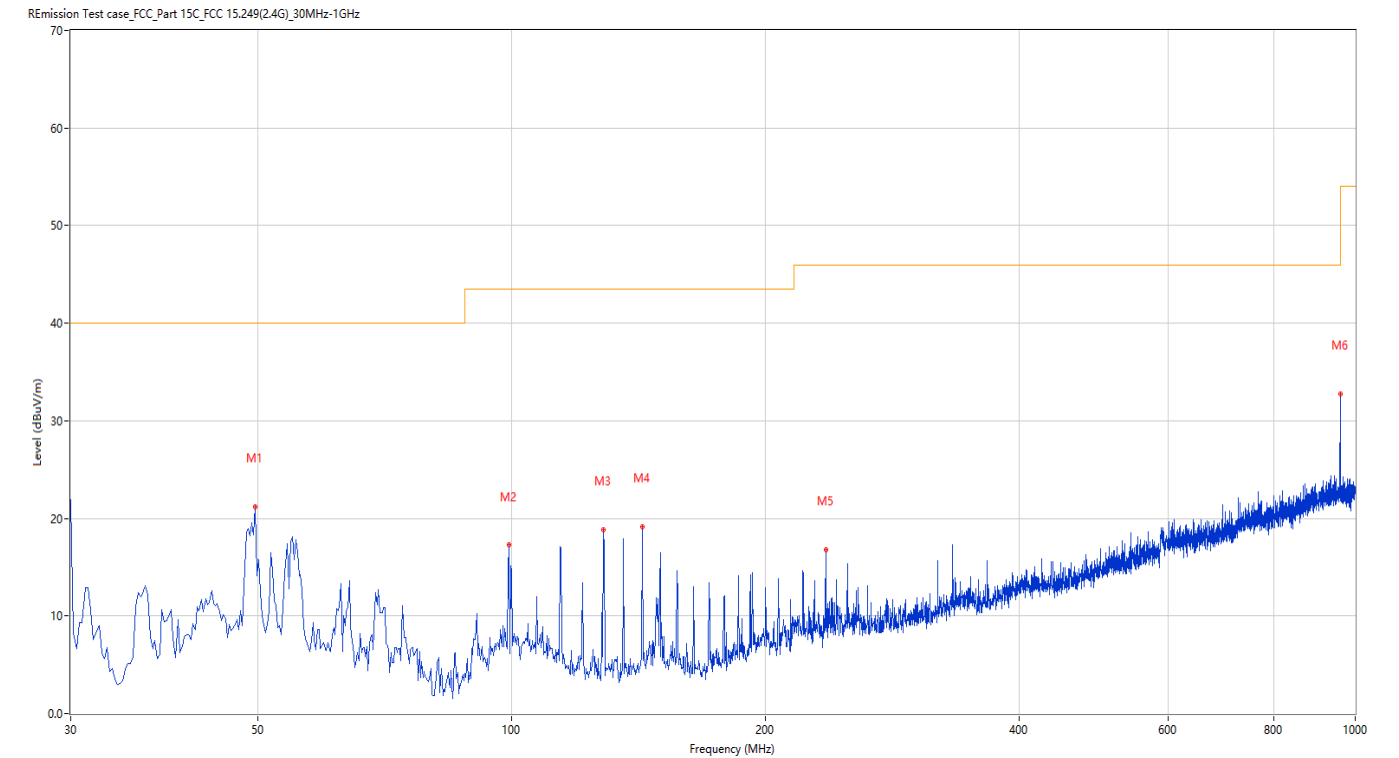
Figure 6: Test plots of Field strength of fundamental, 2480MHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2480.264	68.99	-9.48	114.0	45.01	Peak	342.60	100	Vertical	Pass
1**	2480.264	68.45	-9.48	94.0	25.55	AV	342.60	100	Vertical	Pass

TEST REPORT

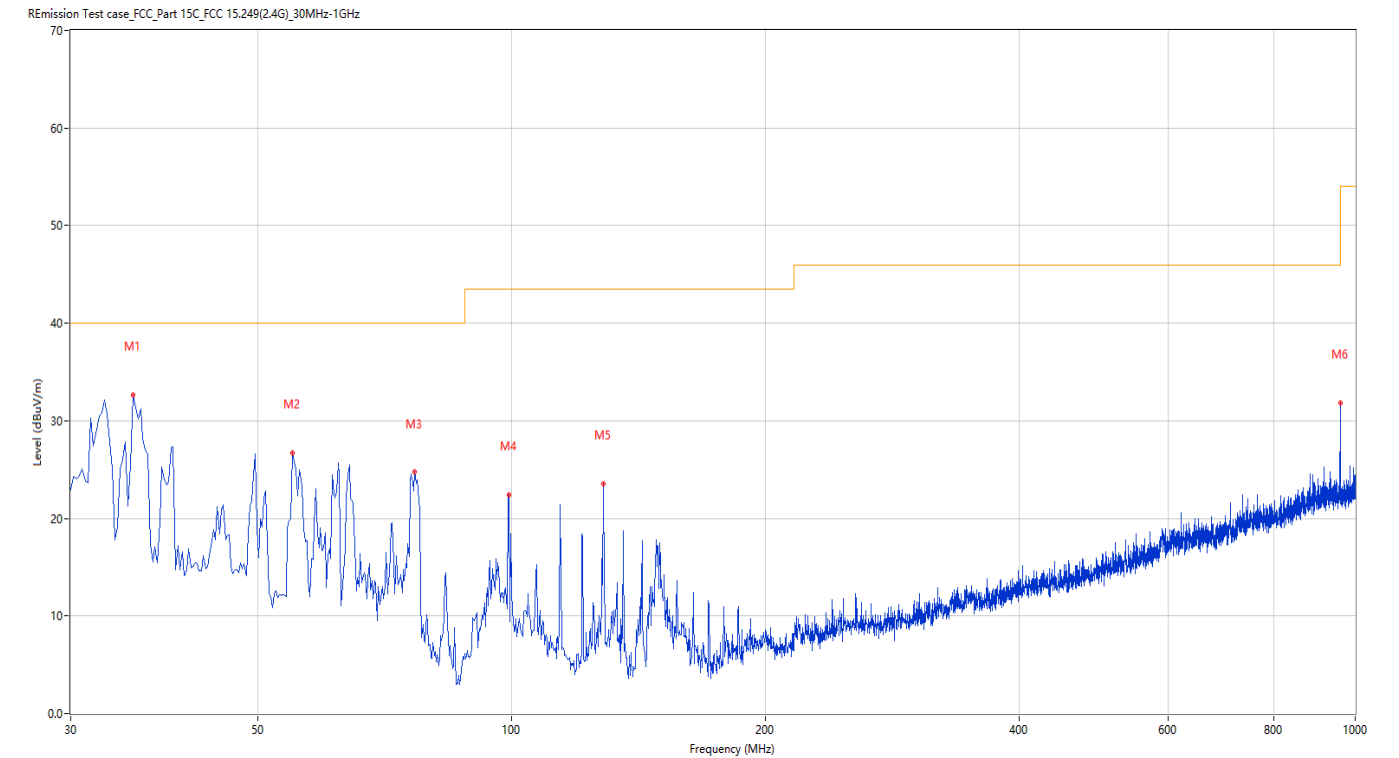
Figure 7: Test plots of Field strength of harmonics, 2403MHz, 30MHz-1GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.638	21.17	-25.03	40.0	18.83	Peak	356.00	100	Horizontal	Pass
2	99.338	17.25	-26.69	43.5	26.25	Peak	295.40	100	Horizontal	Pass
3	128.430	18.87	-29.37	43.5	24.63	Peak	279.00	100	Horizontal	Pass
4	142.734	19.15	-29.97	43.5	24.35	Peak	279.00	100	Horizontal	Pass
5	235.589	16.77	-25.41	46.0	29.23	Peak	119.60	100	Horizontal	Pass
6	959.513	32.75	-9.31	46.0	13.25	Peak	72.40	100	Horizontal	Pass

TEST REPORT

Figure 8: Test plots of Field strength of harmonics, 2403MHz, 30MHz-1GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	35.576	32.69	-27.86	40.0	7.31	Peak	147.80	100	Vertical	Pass
2	54.971	26.71	-25.40	40.0	13.29	Peak	22.20	100	Vertical	Pass
3	76.791	24.73	-31.40	40.0	15.27	Peak	131.10	100	Vertical	Pass
4	99.338	22.41	-26.69	43.5	21.09	Peak	103.00	100	Vertical	Pass
5	128.430	23.59	-29.37	43.5	19.91	Peak	132.30	100	Vertical	Pass
6	959.513	31.80	-9.31	46.0	14.20	Peak	298.00	100	Vertical	Pass

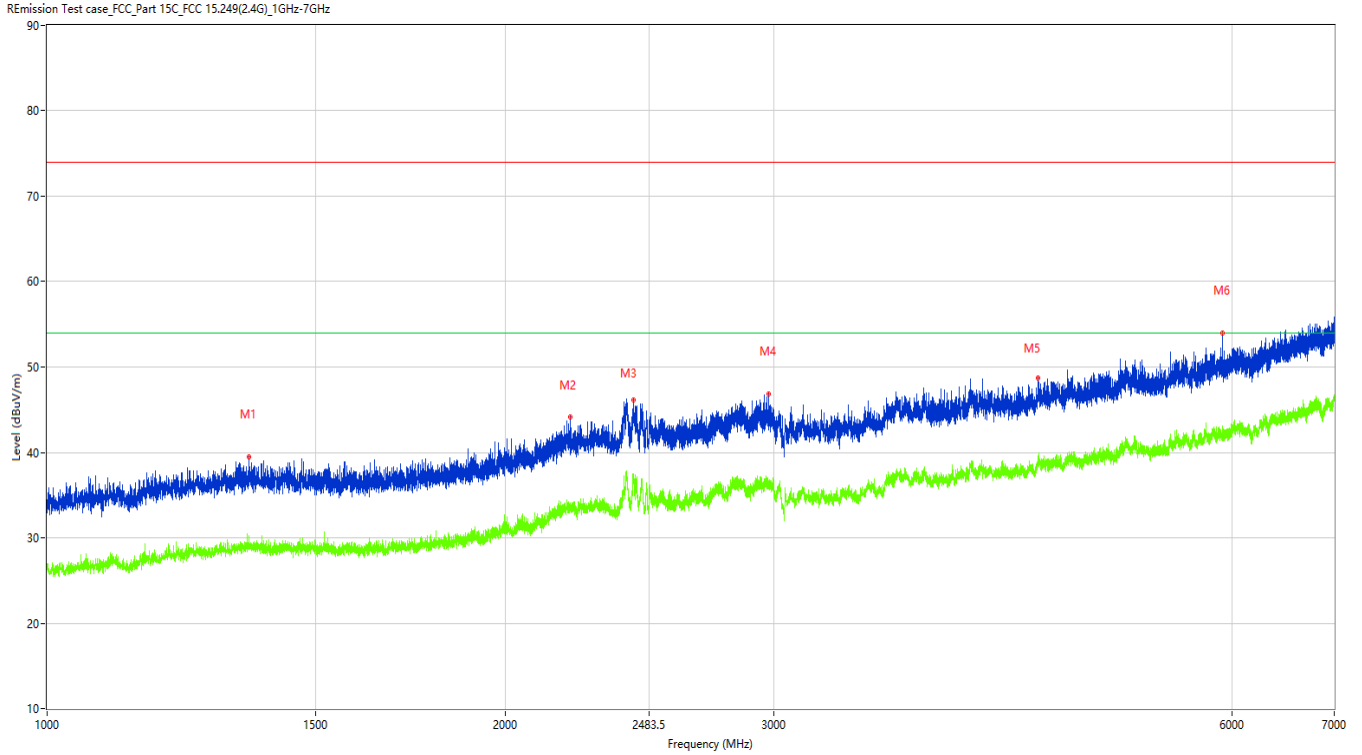
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 19 of 48

Figure 9: Test plots of Field strength of harmonics, 2403MHz, 1GHz-7GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1357.500	39.46	-12.65	74.0	34.54	Peak	55.40	100	Horizontal	Pass
1**	1357.500	28.62	-12.65	54.0	25.38	AV	55.40	100	Horizontal	Pass
2	2206.500	44.11	-8.05	74.0	29.89	Peak	138.50	100	Horizontal	Pass
2**	2206.500	33.32	-8.05	54.0	20.68	AV	138.50	100	Horizontal	Pass
3	2426.250	46.13	-4.89	74.0	27.87	Peak	203.90	100	Horizontal	Pass
3**	2426.250	37.15	-4.89	54.0	16.85	AV	203.90	100	Horizontal	Pass
4	2977.500	46.83	-3.23	74.0	27.17	Peak	280.20	100	Horizontal	Pass
4**	2977.500	36.61	-3.23	54.0	17.39	AV	280.20	100	Horizontal	Pass
5	4471.500	48.66	-0.82	74.0	25.34	Peak	302.30	100	Horizontal	Pass
5**	4471.500	38.75	-0.82	54.0	15.25	AV	302.30	100	Horizontal	Pass
6	5913.500	53.96	1.97	74.0	20.04	Peak	289.60	100	Horizontal	Pass
6**	5913.500	41.40	1.97	54.0	12.60	AV	289.60	100	Horizontal	Pass

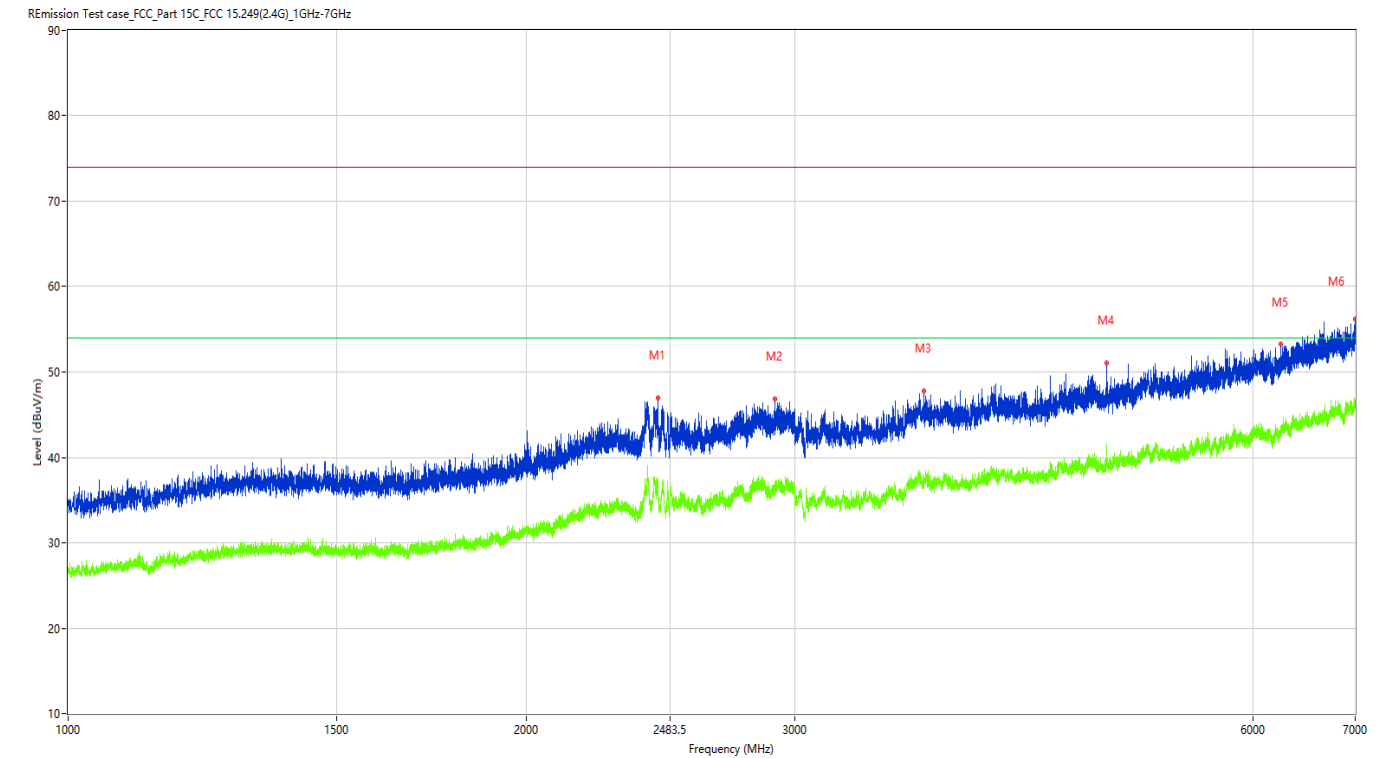
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 20 of 48

Figure 10: Test plots of Field strength of harmonics, 2403MHz, 1GHz-7GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2438.250	46.96	-5.12	74.0	27.04	Peak	139.10	100	Vertical	Pass
1**	2438.250	36.86	-5.12	54.0	17.14	AV	139.10	100	Vertical	Pass
2	2913.000	46.82	-4.08	74.0	27.18	Peak	165.60	100	Vertical	Pass
2**	2913.000	36.69	-4.08	54.0	17.31	AV	165.60	100	Vertical	Pass
3	3648.500	47.77	-1.55	74.0	26.23	Peak	113.90	100	Vertical	Pass
3**	3648.500	37.13	-1.55	54.0	16.87	AV	113.90	100	Vertical	Pass
4	4806.000	51.09	-0.54	74.0	22.91	Peak	87.40	100	Vertical	Pass
4**	4806.000	41.53	-0.54	54.0	12.47	AV	87.40	100	Vertical	Pass
5	6258.000	53.22	2.95	74.0	20.78	Peak	311.90	100	Vertical	Pass
5**	6258.000	43.42	2.95	54.0	10.58	AV	311.90	100	Vertical	Pass
6	6999.000	56.24	5.74	74.0	17.76	Peak	323.90	100	Vertical	Pass
6**	6999.000	45.75	5.74	54.0	8.25	AV	323.90	100	Vertical	Pass

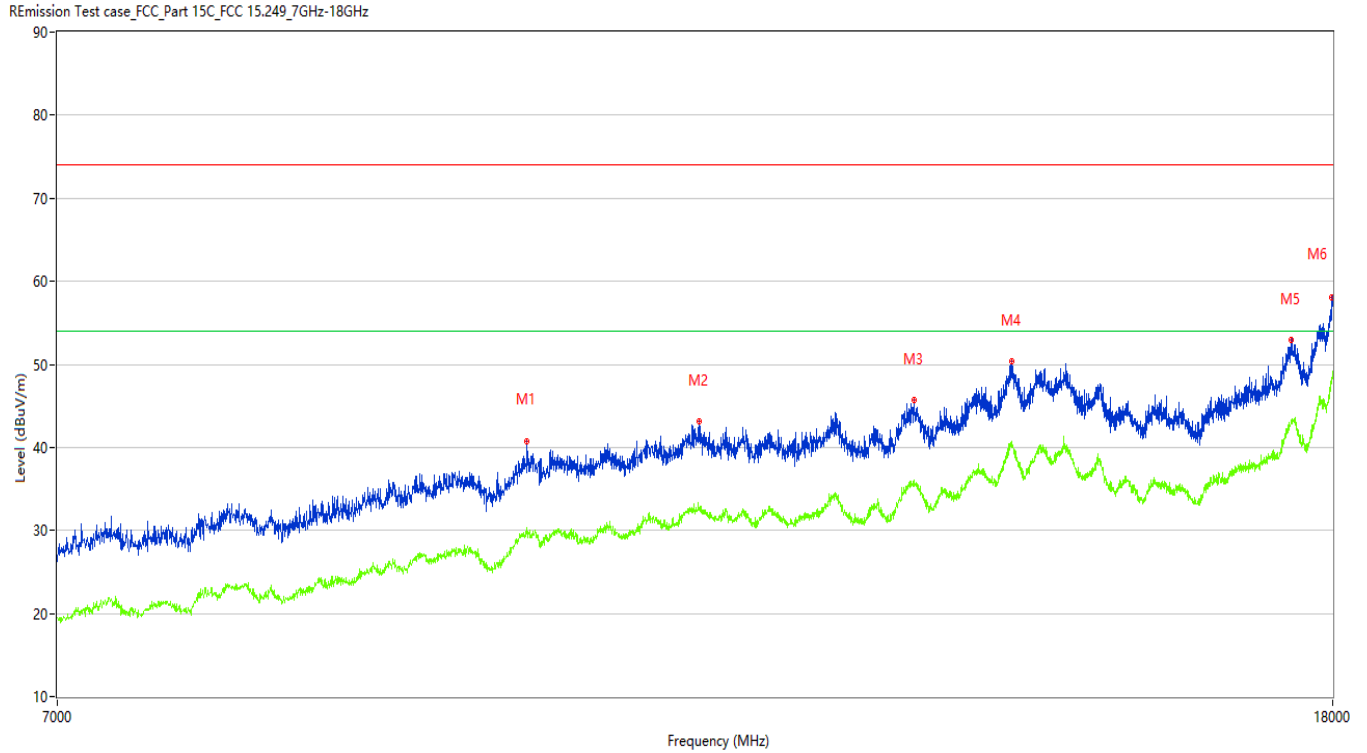
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 21 of 48

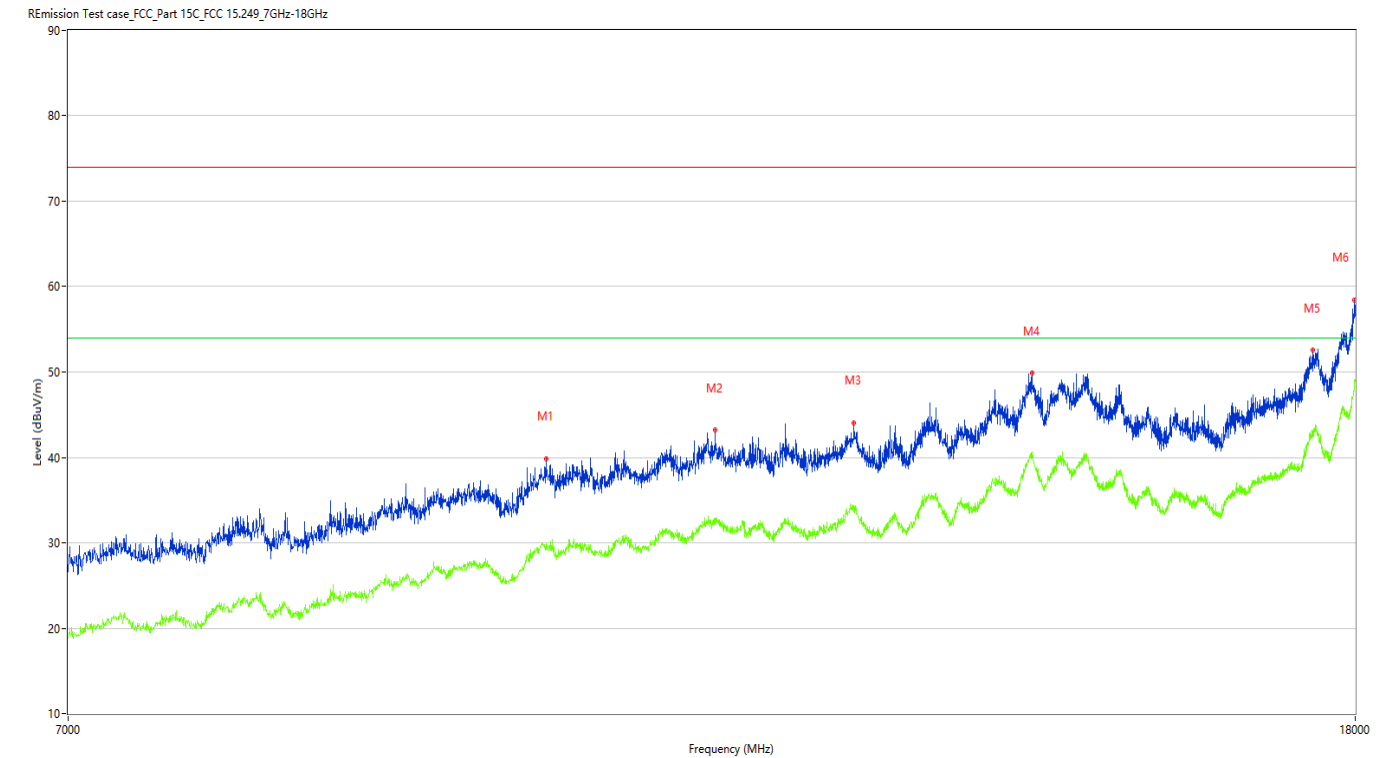
Figure 11: Test plots of Field strength of harmonics, 2403MHz, 7GHz-18GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	9912.250	40.72	9.88	74.0	33.28	Peak	233.00	100	Horizontal	Pass
1**	9912.250	30.40	9.88	54.0	23.60	AV	233.00	100	Horizontal	Pass
2	11257.000	43.17	11.99	74.0	30.83	Peak	116.50	100	Horizontal	Pass
2**	11257.000	32.50	11.99	54.0	21.50	AV	116.50	100	Horizontal	Pass
3	13201.250	45.69	14.09	74.0	28.31	Peak	53.40	100	Horizontal	Pass
3**	13201.250	35.27	14.09	54.0	18.73	AV	53.40	100	Horizontal	Pass
4	14191.250	50.32	19.69	74.0	23.68	Peak	0.00	100	Horizontal	Pass
4**	14191.250	39.93	19.69	54.0	14.07	AV	0.00	100	Horizontal	Pass
5	17458.250	52.94	21.03	74.0	21.06	Peak	321.30	100	Horizontal	Pass
5**	17458.250	43.03	21.03	54.0	10.97	AV	321.30	100	Horizontal	Pass
6	17980.750	58.09	26.73	74.0	15.91	Peak	321.30	100	Horizontal	Pass
6**	17980.750	48.08	26.73	54.0	5.92	AV	321.30	100	Horizontal	Pass

TEST REPORT

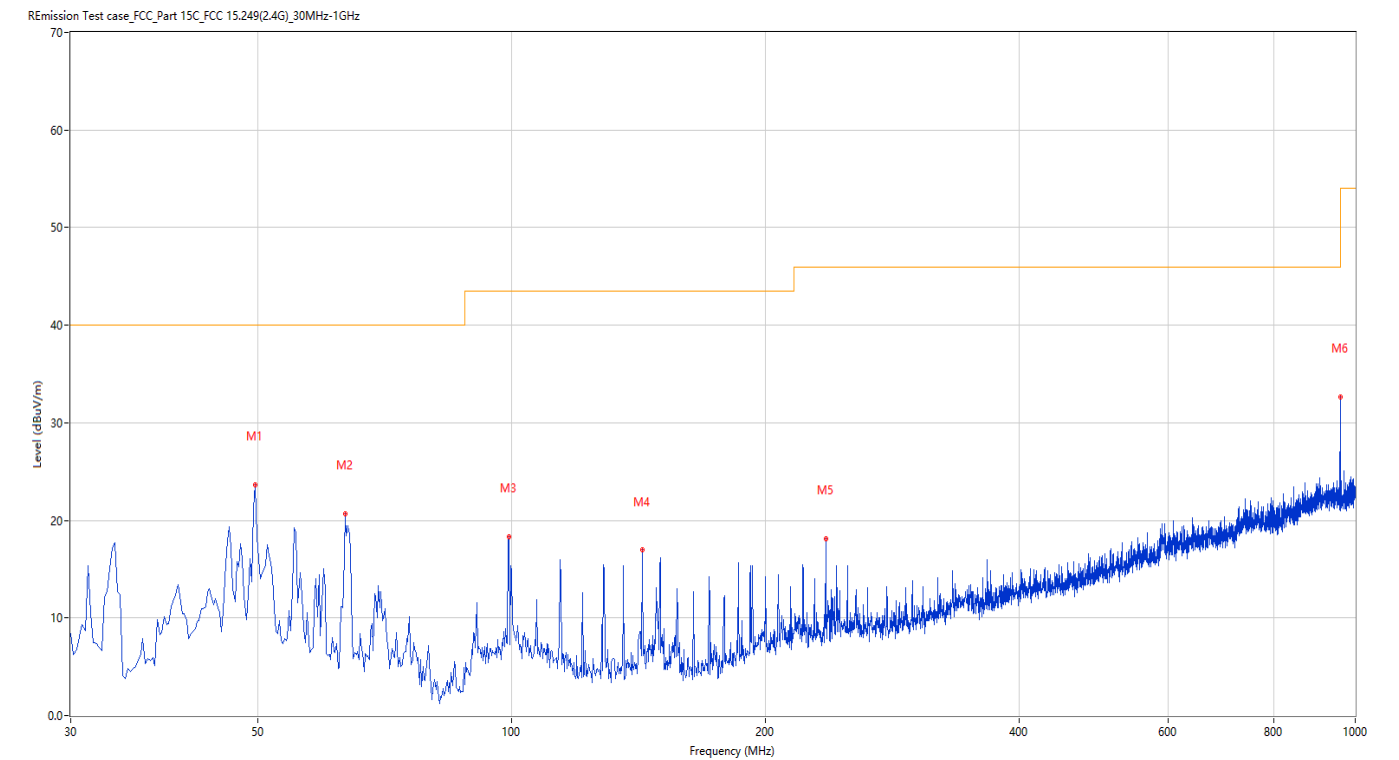
Figure 12: Test plots of Field strength of harmonics, 2403MHz, 7GHz-18GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	9939.750	39.84	9.77	74.0	34.16	Peak	277.10	100	Vertical	Pass
1**	9939.750	29.21	9.77	54.0	24.79	AV	277.10	100	Vertical	Pass
2	11254.250	43.16	11.95	74.0	30.84	Peak	144.00	100	Vertical	Pass
2**	11254.250	32.95	11.95	54.0	21.05	AV	144.00	100	Vertical	Pass
3	12461.500	44.01	12.55	74.0	29.99	Peak	0.00	100	Vertical	Pass
3**	12461.500	34.13	12.55	54.0	19.87	AV	0.00	100	Vertical	Pass
4	14196.750	49.83	19.57	74.0	24.17	Peak	315.00	100	Vertical	Pass
4**	14196.750	40.70	19.57	54.0	13.30	AV	315.00	100	Vertical	Pass
5	17452.751	52.52	20.93	74.0	21.48	Peak	277.10	100	Vertical	Pass
5**	17452.751	42.98	20.93	54.0	11.02	AV	277.10	100	Vertical	Pass
6	17991.750	58.41	27.41	74.0	15.59	Peak	55.00	100	Vertical	Pass
6**	17991.750	48.91	27.41	54.0	5.09	AV	55.00	100	Vertical	Pass

TEST REPORT

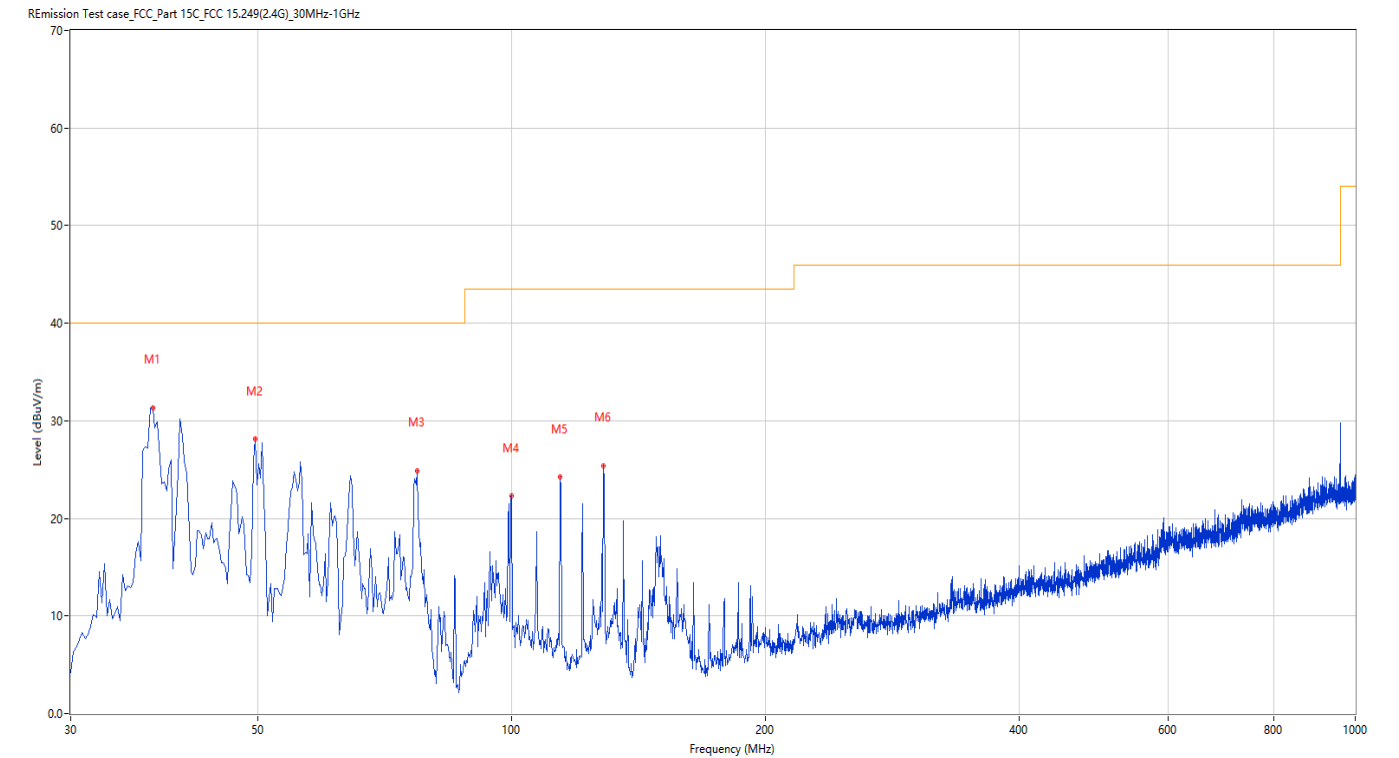
Figure 13: Test plots of Field strength of harmonics, 2442MHz, 30MHz-1GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.638	23.61	-25.03	40.0	16.39	Peak	139.10	100	Horizontal	Pass
2	63.457	20.70	-27.19	40.0	19.30	Peak	273.10	100	Horizontal	Pass
3	99.338	18.29	-26.69	43.5	25.21	Peak	65.90	100	Horizontal	Pass
4	142.734	16.95	-29.97	43.5	26.55	Peak	302.40	100	Horizontal	Pass
5	235.589	18.11	-25.41	46.0	27.89	Peak	254.90	100	Horizontal	Pass
6	959.513	32.68	-9.31	46.0	13.32	Peak	53.20	100	Horizontal	Pass

TEST REPORT

Figure 14: Test plots of Field strength of harmonics, 2442MHz, 30MHz-1GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	37.516	31.31	-27.18	40.0	8.69	Peak	174.00	100	Vertical	Pass
2	49.638	28.10	-25.03	40.0	11.90	Peak	202.40	100	Vertical	Pass
3	77.276	24.87	-31.47	40.0	15.13	Peak	148.70	100	Vertical	Pass
4	100.065	22.29	-26.65	43.5	21.21	Peak	214.50	100	Vertical	Pass
5	114.126	24.22	-27.44	43.5	19.28	Peak	177.70	100	Vertical	Pass
6	128.430	25.43	-29.37	43.5	18.07	Peak	209.80	100	Vertical	Pass

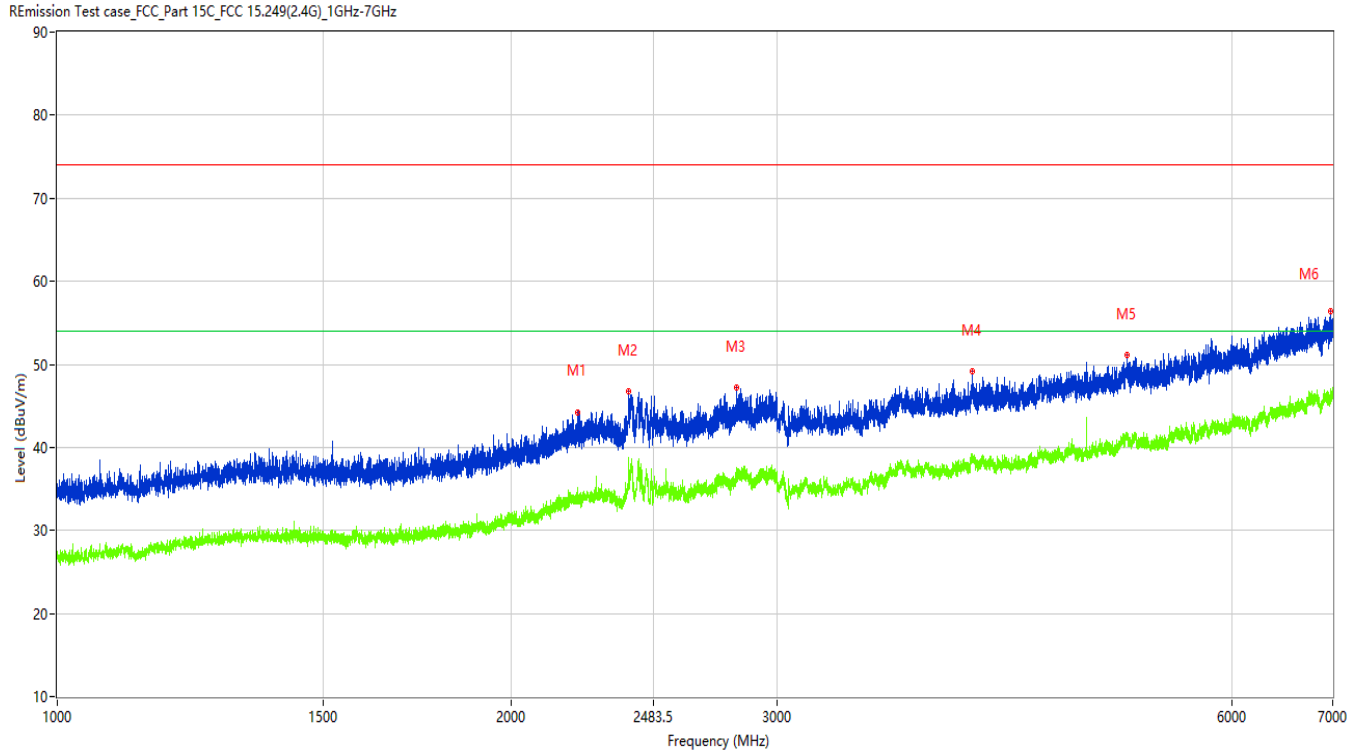
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 25 of 48

Figure 15: Test plots of Field strength of harmonics, 2442MHz, 1GHz-7GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2211.250	44.27	-8.12	74.0	29.73	Peak	0.00	100	Horizontal	Pass
1**	2211.250	35.12	-8.12	54.0	18.88	AV	0.00	100	Horizontal	Pass
2	2392.000	46.69	-4.15	74.0	27.31	Peak	302.20	100	Horizontal	Pass
2**	2392.000	36.94	-4.15	54.0	17.06	AV	302.20	100	Horizontal	Pass
3	2820.750	47.24	-4.30	74.0	26.76	Peak	238.60	100	Horizontal	Pass
3**	2820.750	37.01	-4.30	54.0	16.99	AV	238.60	100	Horizontal	Pass
4	4039.500	49.21	-0.90	74.0	24.79	Peak	327.50	100	Horizontal	Pass
4**	4039.500	39.18	-0.90	54.0	14.82	AV	327.50	100	Horizontal	Pass
5	5112.500	51.13	1.31	74.0	22.87	Peak	207.10	100	Horizontal	Pass
5**	5112.500	41.48	1.31	54.0	12.52	AV	207.10	100	Horizontal	Pass
6	6979.500	56.36	5.42	74.0	17.64	Peak	0.00	100	Horizontal	Pass
6**	6979.500	46.17	5.42	54.0	7.83	AV	0.00	100	Horizontal	Pass

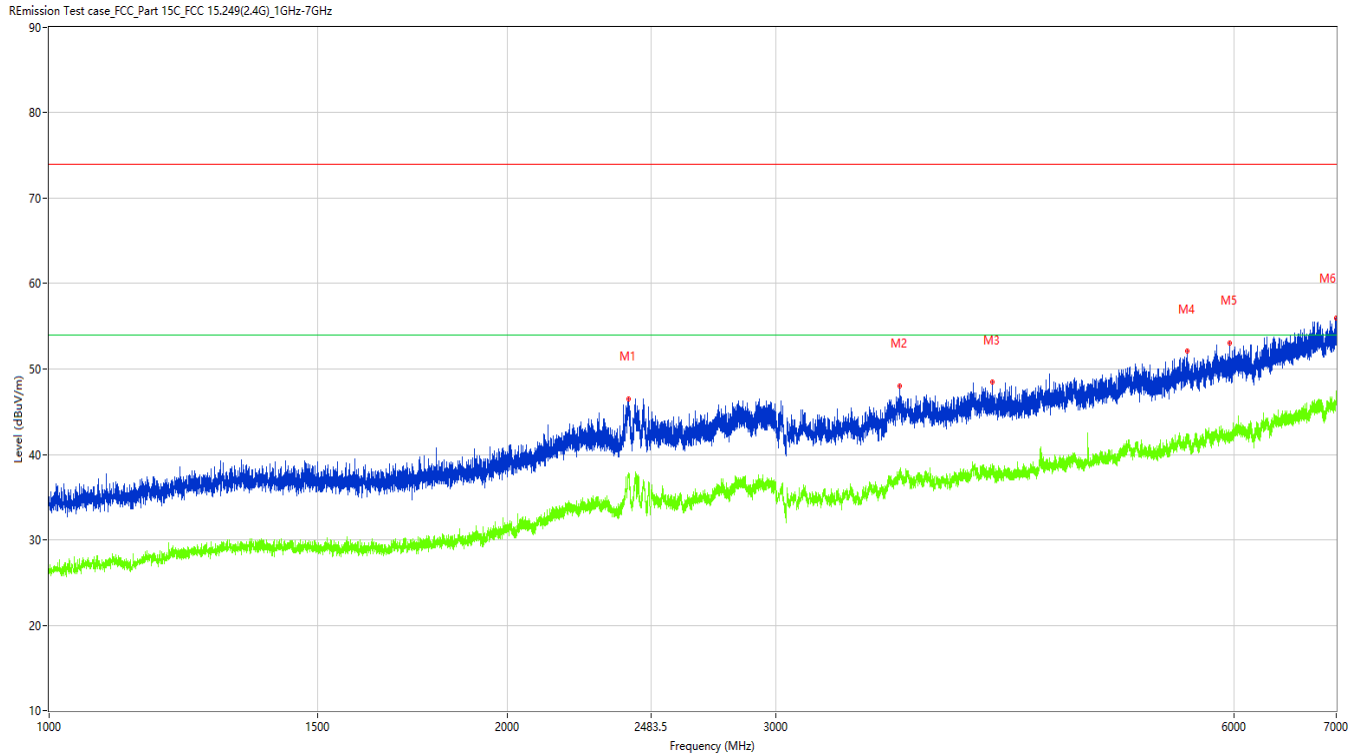
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 26 of 48

Figure 16: Test plots of Field strength of harmonics, 2442MHz, 1GHz-7GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2400.250	46.46	-4.41	74.0	27.54	Peak	118.70	100	Vertical	Pass
1**	2400.250	37.57	-4.41	54.0	16.43	AV	118.70	100	Vertical	Pass
2	3616.500	48.01	-1.80	74.0	25.99	Peak	311.60	100	Vertical	Pass
2**	3616.500	37.00	-1.80	54.0	17.00	AV	311.60	100	Vertical	Pass
3	4162.000	48.43	-1.37	74.0	25.57	Peak	201.90	100	Vertical	Pass
3**	4162.000	38.85	-1.37	54.0	15.15	AV	201.90	100	Vertical	Pass
4	5588.500	52.09	1.48	74.0	21.91	Peak	189.90	100	Vertical	Pass
4**	5588.500	42.01	1.48	54.0	11.99	AV	189.90	100	Vertical	Pass
5	5957.500	52.99	2.00	74.0	21.01	Peak	244.60	100	Vertical	Pass
5**	5957.500	42.01	2.00	54.0	11.99	AV	244.60	100	Vertical	Pass
6	6998.500	56.01	5.73	74.0	17.99	Peak	298.60	100	Vertical	Pass
6**	6998.500	47.39	5.73	54.0	6.61	AV	298.60	100	Vertical	Pass

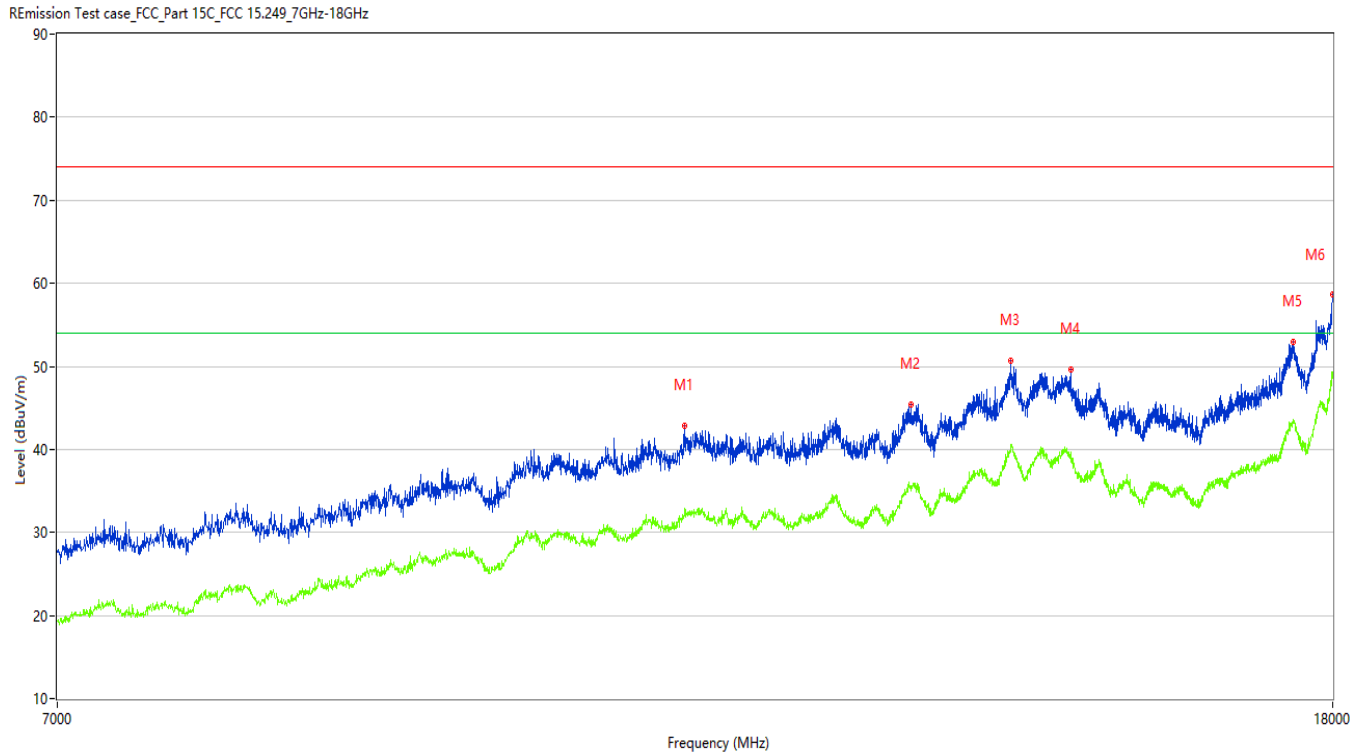
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 27 of 48

Figure 17: Test plots of Field strength of harmonics, 2442MHz, 7GHz-18GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	11136.000	42.87	10.72	74.0	31.13	Peak	359.00	100	Horizontal	Pass
1**	11136.000	31.98	10.72	54.0	22.02	AV	359.00	100	Horizontal	Pass
2	13176.500	45.44	14.03	74.0	28.56	Peak	248.70	100	Horizontal	Pass
2**	13176.500	35.68	14.03	54.0	18.32	AV	248.70	100	Horizontal	Pass
3	14177.500	50.63	19.43	74.0	23.37	Peak	26.60	100	Horizontal	Pass
3**	14177.500	39.72	19.43	54.0	14.28	AV	26.60	100	Horizontal	Pass
4	14826.500	49.68	17.91	74.0	24.32	Peak	156.10	100	Horizontal	Pass
4**	14826.500	39.70	17.91	54.0	14.30	AV	156.10	100	Horizontal	Pass
5	17477.501	52.98	21.39	74.0	21.02	Peak	0.00	100	Horizontal	Pass
5**	17477.501	43.51	21.39	54.0	10.49	AV	0.00	100	Horizontal	Pass
6	17997.251	58.62	27.75	74.0	15.38	Peak	107.20	100	Horizontal	Pass
6**	17997.251	48.54	27.75	54.0	5.46	AV	107.20	100	Horizontal	Pass

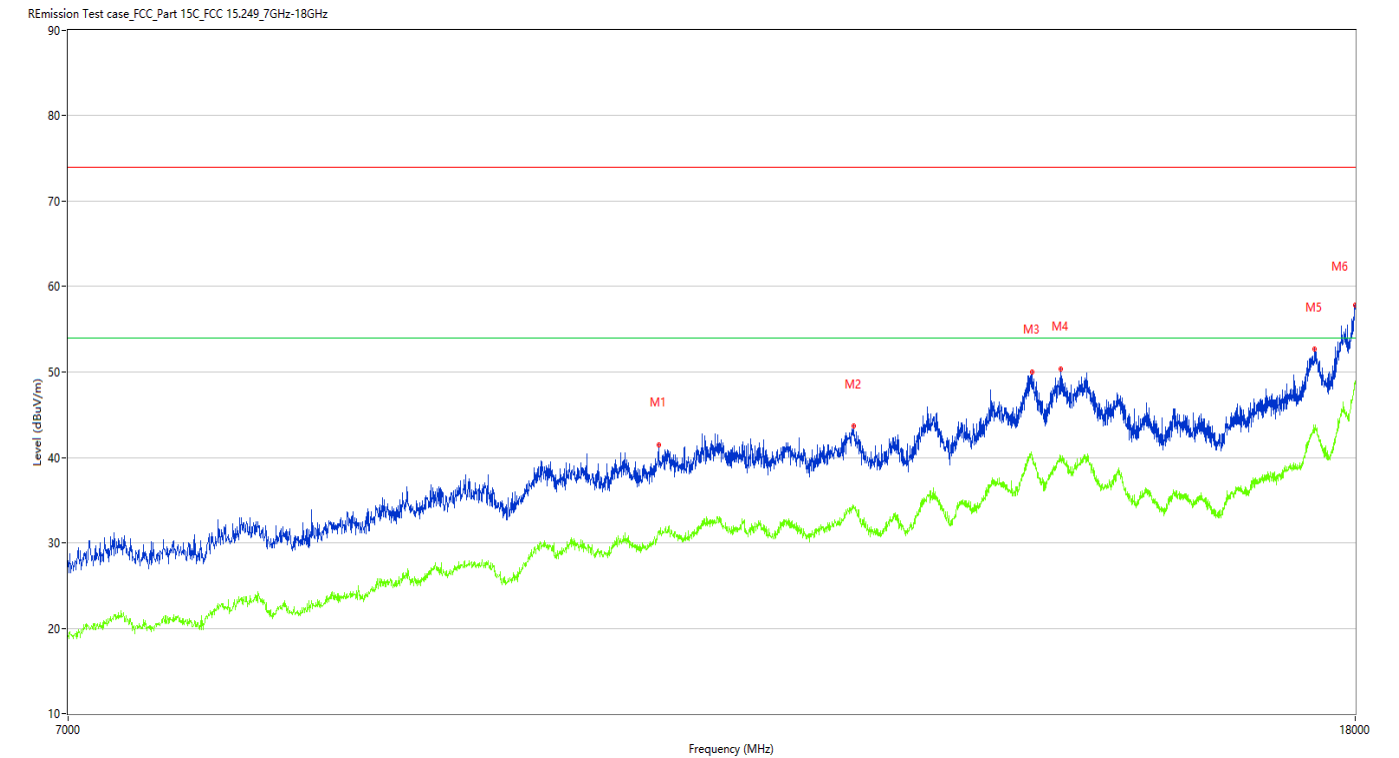
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 28 of 48

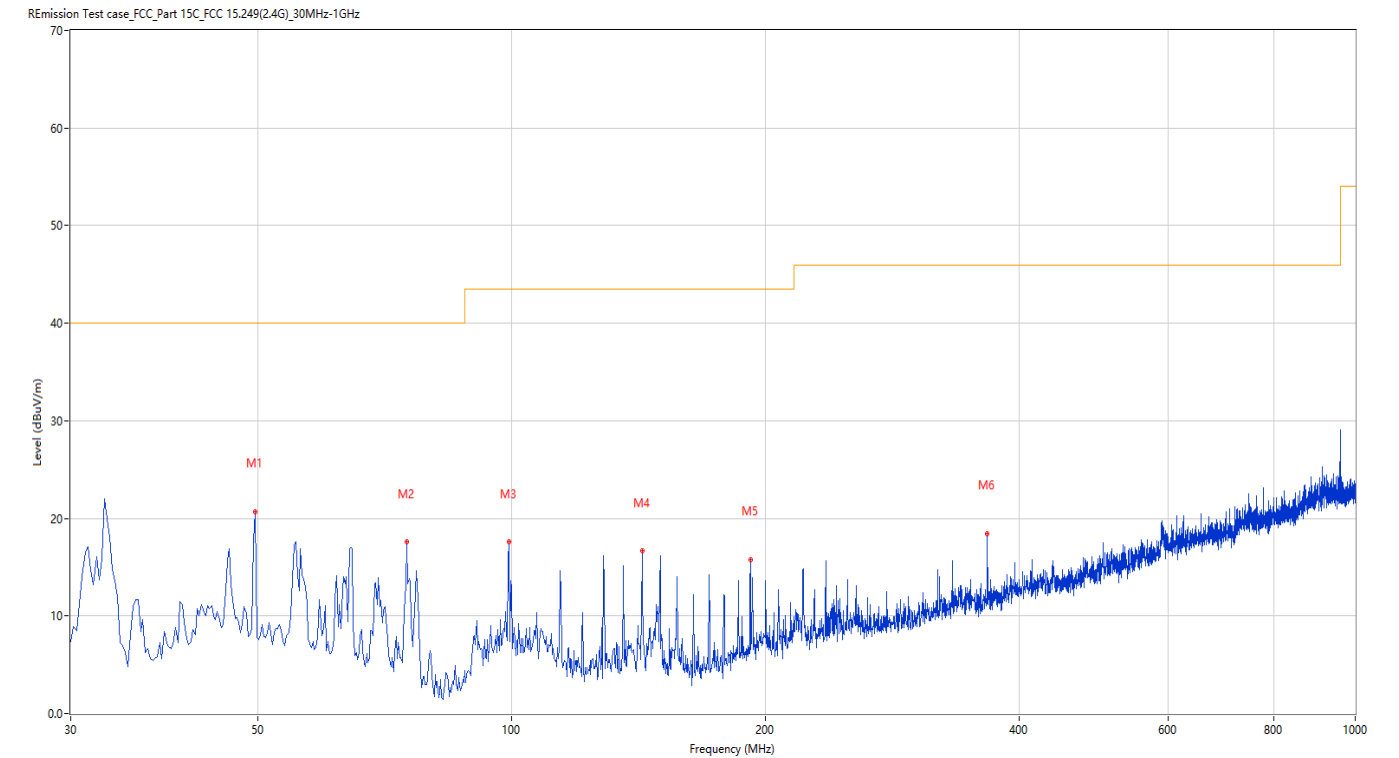
Figure 18: Test plots of Field strength of harmonics, 2442MHz, 7GHz-18GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	10795.000	41.45	10.41	74.0	32.55	Peak	82.90	100	Vertical	Pass
1**	10795.000	31.29	10.41	54.0	22.71	AV	82.90	100	Vertical	Pass
2	12455.999	43.73	12.53	74.0	30.27	Peak	82.90	100	Vertical	Pass
2**	12455.999	34.11	12.53	54.0	19.89	AV	82.90	100	Vertical	Pass
3	14196.750	50.04	19.57	74.0	23.96	Peak	188.40	100	Vertical	Pass
3**	14196.750	40.16	19.57	54.0	13.84	AV	188.40	100	Vertical	Pass
4	14499.250	50.37	17.71	74.0	23.63	Peak	0.00	100	Vertical	Pass
4**	14499.250	40.22	17.71	54.0	13.78	AV	0.00	100	Vertical	Pass
5	17474.750	52.66	21.34	74.0	21.34	Peak	238.10	100	Vertical	Pass
5**	17474.750	42.85	21.34	54.0	11.15	AV	238.10	100	Vertical	Pass
6	17994.500	57.78	27.58	74.0	16.22	Peak	0.00	100	Vertical	Pass
6**	17994.500	48.80	27.58	54.0	5.20	AV	0.00	100	Vertical	Pass

TEST REPORT

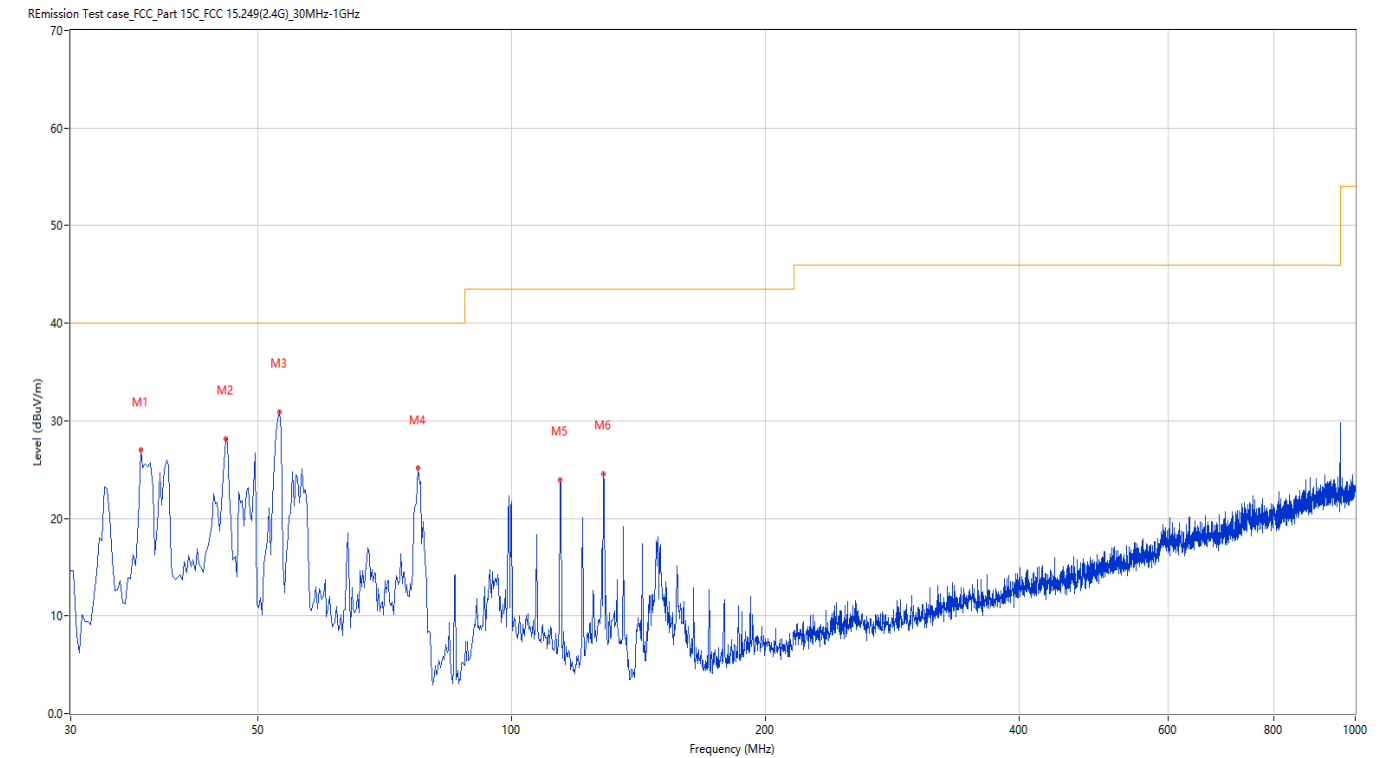
Figure 19: Test plots of Field strength of harmonics, 2480MHz, 30MHz-1GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.638	20.69	-25.03	40.0	19.31	Peak	113.10	100	Horizontal	Pass
2	75.094	17.55	-31.01	40.0	22.45	Peak	51.70	100	Horizontal	Pass
3	99.338	17.56	-26.69	43.5	25.94	Peak	316.80	100	Horizontal	Pass
4	142.734	16.64	-29.97	43.5	26.86	Peak	316.80	100	Horizontal	Pass
5	191.950	15.76	-26.70	43.5	27.74	Peak	297.40	100	Horizontal	Pass
6	366.506	18.43	-21.94	46.0	27.57	Peak	172.60	100	Horizontal	Pass

TEST REPORT

Figure 20: Test plots of Field strength of harmonics, 2480MHz, 30MHz-1GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	36.303	26.98	-27.61	40.0	13.02	Peak	320.20	100	Vertical	Pass
2	45.759	28.11	-25.23	40.0	11.89	Peak	178.40	100	Vertical	Pass
3	53.032	30.95	-25.15	40.0	9.05	Peak	222.60	100	Vertical	Pass
4	77.518	25.13	-31.50	40.0	14.87	Peak	161.80	100	Vertical	Pass
5	114.126	23.95	-27.44	43.5	19.55	Peak	211.20	100	Vertical	Pass
6	128.430	24.56	-29.37	43.5	18.94	Peak	251.30	100	Vertical	Pass

TEST REPORT

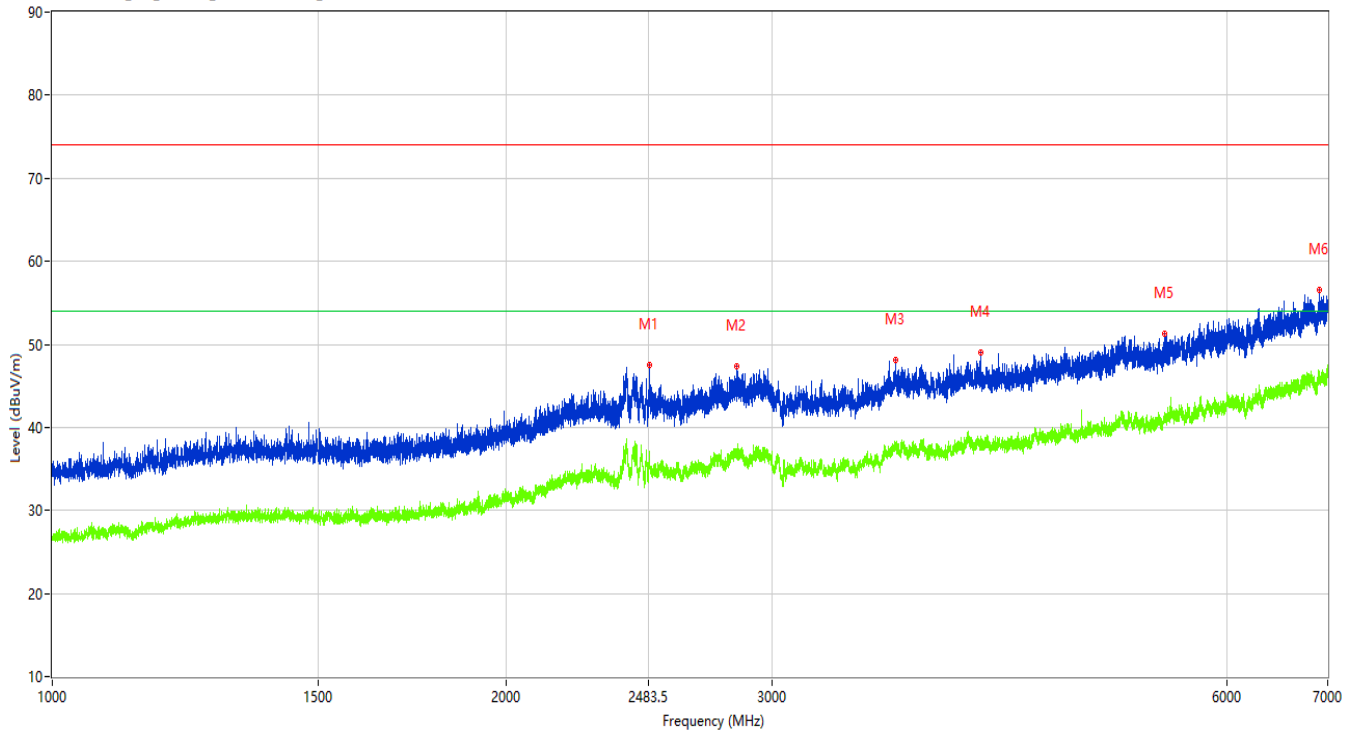
Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 31 of 48

Figure 21: Test plots of Field strength of harmonics, 2480MHz, 1GHz-7GHz, Horizontal polarization

REmission Test case_FCC_Part 15C_FCC 15.249(2.4G)_1GHz-7GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2487.500	47.50	-6.07	74.0	26.50	Peak	0.00	100	Horizontal	Pass
1**	2487.500	36.16	-6.07	54.0	17.84	AV	0.00	100	Horizontal	Pass
2	2842.250	47.35	-3.86	74.0	26.65	Peak	0.00	100	Horizontal	Pass
2**	2842.250	36.65	-3.86	54.0	17.35	AV	0.00	100	Horizontal	Pass
3	3622.000	48.12	-1.65	74.0	25.88	Peak	348.60	100	Horizontal	Pass
3**	3622.000	37.47	-1.65	54.0	16.53	AV	348.60	100	Horizontal	Pass
4	4120.500	49.02	-1.22	74.0	24.98	Peak	127.50	100	Horizontal	Pass
4**	4120.500	38.18	-1.22	54.0	15.82	AV	127.50	100	Horizontal	Pass
5	5460.500	51.27	0.98	74.0	22.73	Peak	100.00	100	Horizontal	Pass
5**	5460.500	40.93	0.98	54.0	13.07	AV	100.00	100	Horizontal	Pass
6	6907.500	56.52	5.08	74.0	17.48	Peak	348.60	100	Horizontal	Pass
6**	6907.500	46.22	5.08	54.0	7.78	AV	348.60	100	Horizontal	Pass

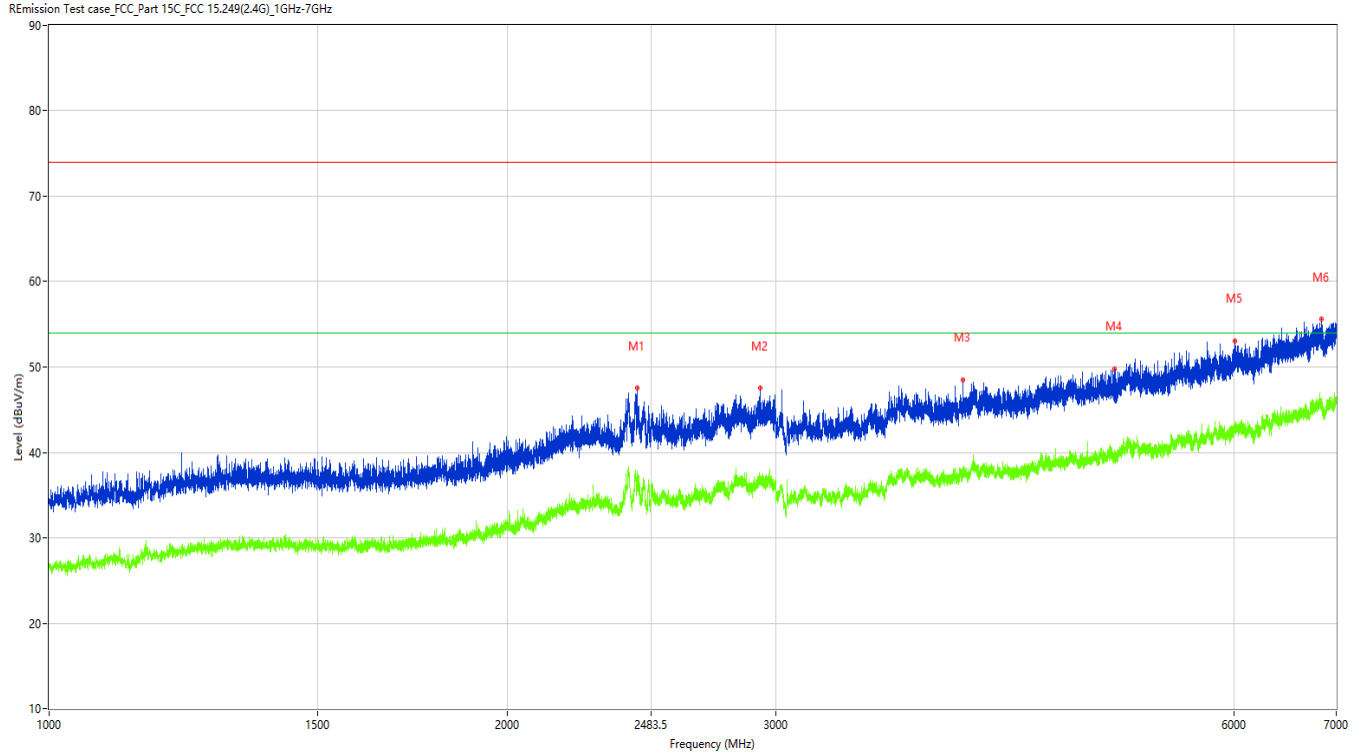
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 32 of 48

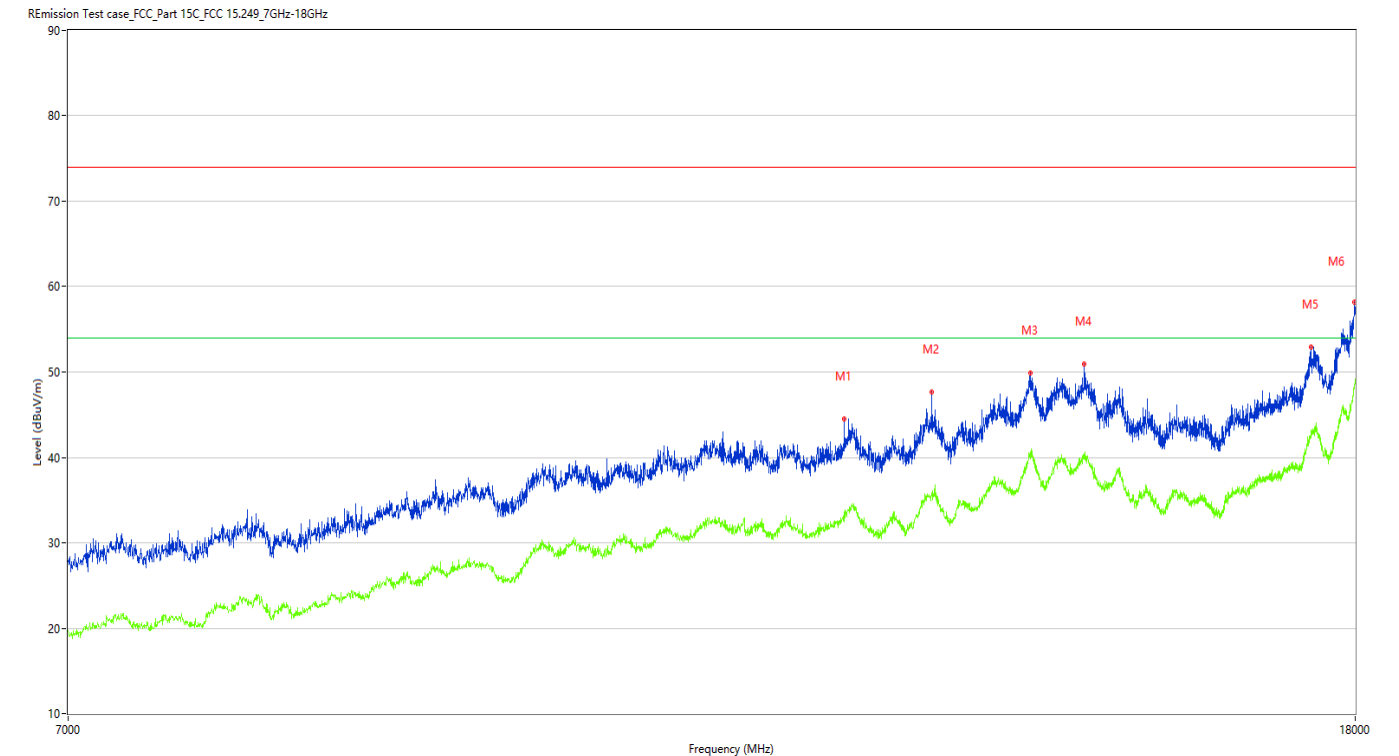
Figure 22: Test plots of Field strength of harmonics, 2480MHz, 1GHz-7GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2433.750	47.49	-5.02	74.0	26.51	Peak	334.40	100	Vertical	Pass
1**	2433.750	37.09	-5.02	54.0	16.91	AV	334.40	100	Vertical	Pass
2	2932.000	47.49	-4.25	74.0	26.51	Peak	83.80	100	Vertical	Pass
2**	2932.000	36.97	-4.25	54.0	17.03	AV	83.80	100	Vertical	Pass
3	3981.000	48.50	-1.30	74.0	25.50	Peak	0.00	100	Vertical	Pass
3**	3981.000	38.25	-1.30	54.0	15.75	AV	0.00	100	Vertical	Pass
4	5006.000	49.80	-0.06	74.0	24.20	Peak	8.90	100	Vertical	Pass
4**	5006.000	40.29	-0.06	54.0	13.71	AV	8.90	100	Vertical	Pass
5	6004.500	53.03	2.66	74.0	20.97	Peak	99.10	100	Vertical	Pass
5**	6004.500	42.45	2.66	54.0	11.55	AV	99.10	100	Vertical	Pass
6	6844.000	55.56	5.05	74.0	18.44	Peak	8.90	100	Vertical	Pass
6**	6844.000	45.55	5.05	54.0	8.45	AV	8.90	100	Vertical	Pass

TEST REPORT

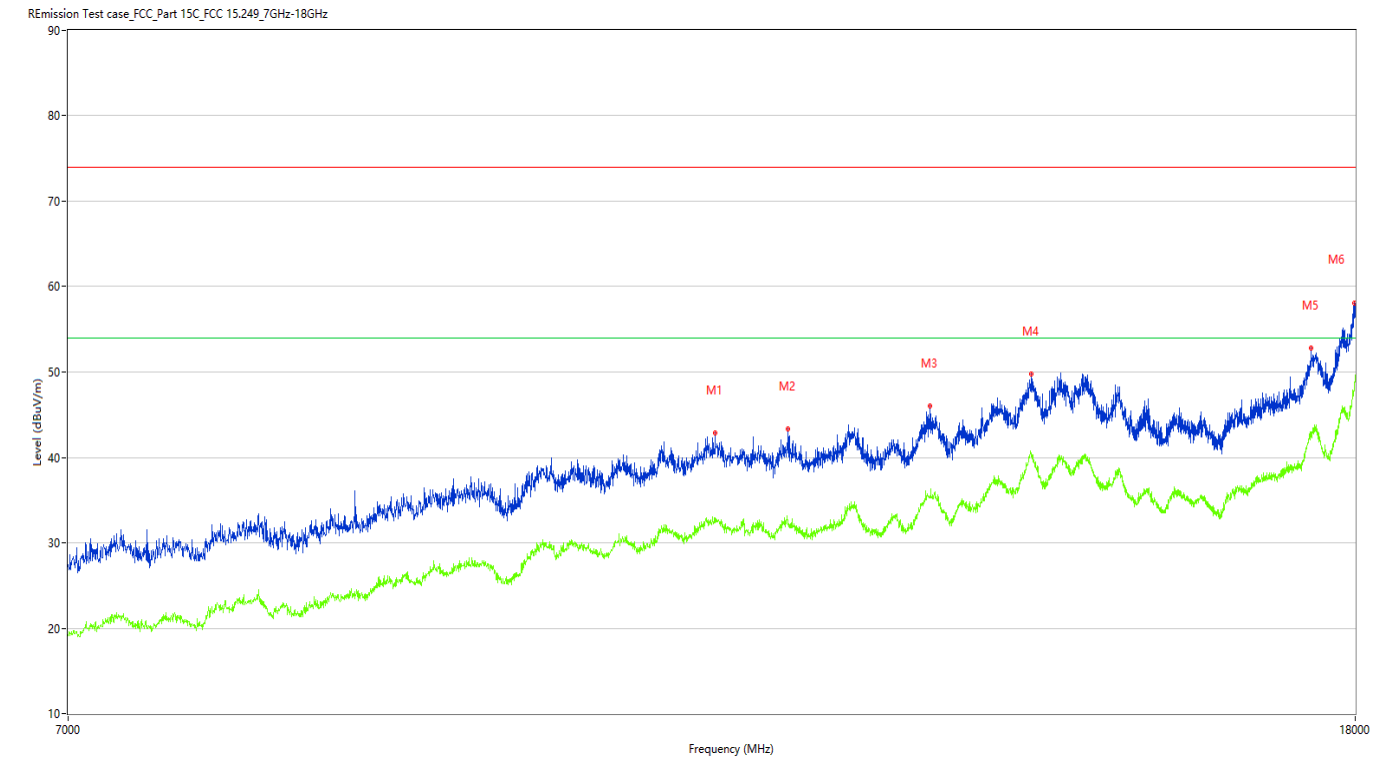
Figure 23: Test plots of Field strength of harmonics, 2480MHz, 7GHz-18GHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	12370.750	44.45	12.06	74.0	29.55	Peak	214.60	100	Vertical	Pass
1**	12370.750	33.06	12.06	54.0	20.94	AV	214.60	100	Vertical	Pass
2	13190.250	47.69	14.06	74.0	26.31	Peak	6.30	100	Vertical	Pass
2**	13190.250	35.57	14.06	54.0	18.43	AV	6.30	100	Vertical	Pass
3	14180.250	49.86	19.52	74.0	24.14	Peak	162.10	100	Vertical	Pass
3**	14180.250	39.80	19.52	54.0	14.20	AV	162.10	100	Vertical	Pass
4	14752.250	50.97	18.74	74.0	23.03	Peak	6.30	100	Vertical	Pass
4**	14752.250	40.37	18.74	54.0	13.63	AV	6.30	100	Vertical	Pass
5	17422.500	52.96	20.35	74.0	21.04	Peak	6.30	100	Vertical	Pass
5**	17422.500	42.74	20.35	54.0	11.26	AV	6.30	100	Vertical	Pass
6	17986.251	58.16	27.07	74.0	15.84	Peak	108.80	100	Vertical	Pass
6**	17986.251	48.12	27.07	54.0	5.88	AV	108.80	100	Vertical	Pass

TEST REPORT

Figure 24: Test plots of Field strength of harmonics, 2480MHz, 7GHz-18GHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	11254.250	42.92	11.95	74.0	31.08	Peak	67.40	100	Vertical	Pass
1**	11254.250	32.57	11.95	54.0	21.43	AV	67.40	100	Vertical	Pass
2	11870.250	43.31	12.02	74.0	30.69	Peak	263.90	100	Vertical	Pass
2**	11870.250	32.07	12.02	54.0	21.93	AV	263.90	100	Vertical	Pass
3	13176.500	46.06	14.03	74.0	27.94	Peak	15.20	100	Vertical	Pass
3**	13176.500	35.31	14.03	54.0	18.69	AV	15.20	100	Vertical	Pass
4	14194.000	49.82	19.63	74.0	24.18	Peak	133.60	100	Vertical	Pass
4**	14194.000	40.54	19.63	54.0	13.46	AV	133.60	100	Vertical	Pass
5	17428.001	52.78	20.45	74.0	21.22	Peak	360.00	100	Vertical	Pass
5**	17428.001	42.50	20.45	54.0	11.50	AV	360.00	100	Vertical	Pass
6	17991.750	58.07	27.41	74.0	15.93	Peak	315.20	100	Vertical	Pass
6**	17991.750	48.78	27.41	54.0	5.22	AV	315.20	100	Vertical	Pass

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 35 of 48

4.1.3 Band Edge

RESULT:

PASS

Test standard : FCC Part 15.249(d), 15.209
RSS-210 B.10(b), RSS-GEN 8.10

Requirement : ANSI C63.10-2013

Kind of test site : 3m Semi-Anechoic Chamber

Test setup

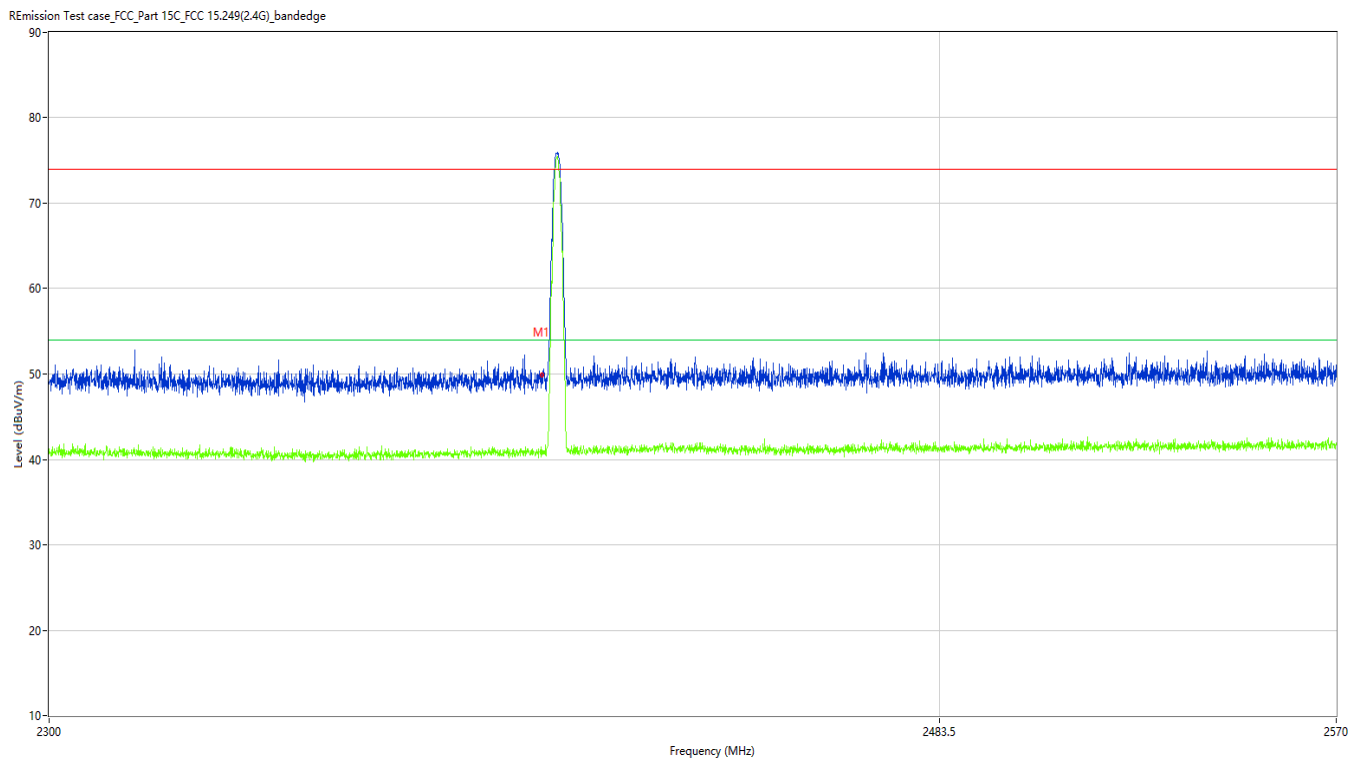
Test Channel : Low/High

Operation Mode : A.i/iii

Ambient temperature : 23.4°C

Relative humidity : 50%

Figure 25: Test plots of Band Edge, 2403MHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2400.000	50.03	-9.87	74.0	23.97	Peak	160.85	100	Horizontal	Pass
1**	2400.000	40.81	-9.87	54.0	13.19	AV	160.85	100	Horizontal	Pass

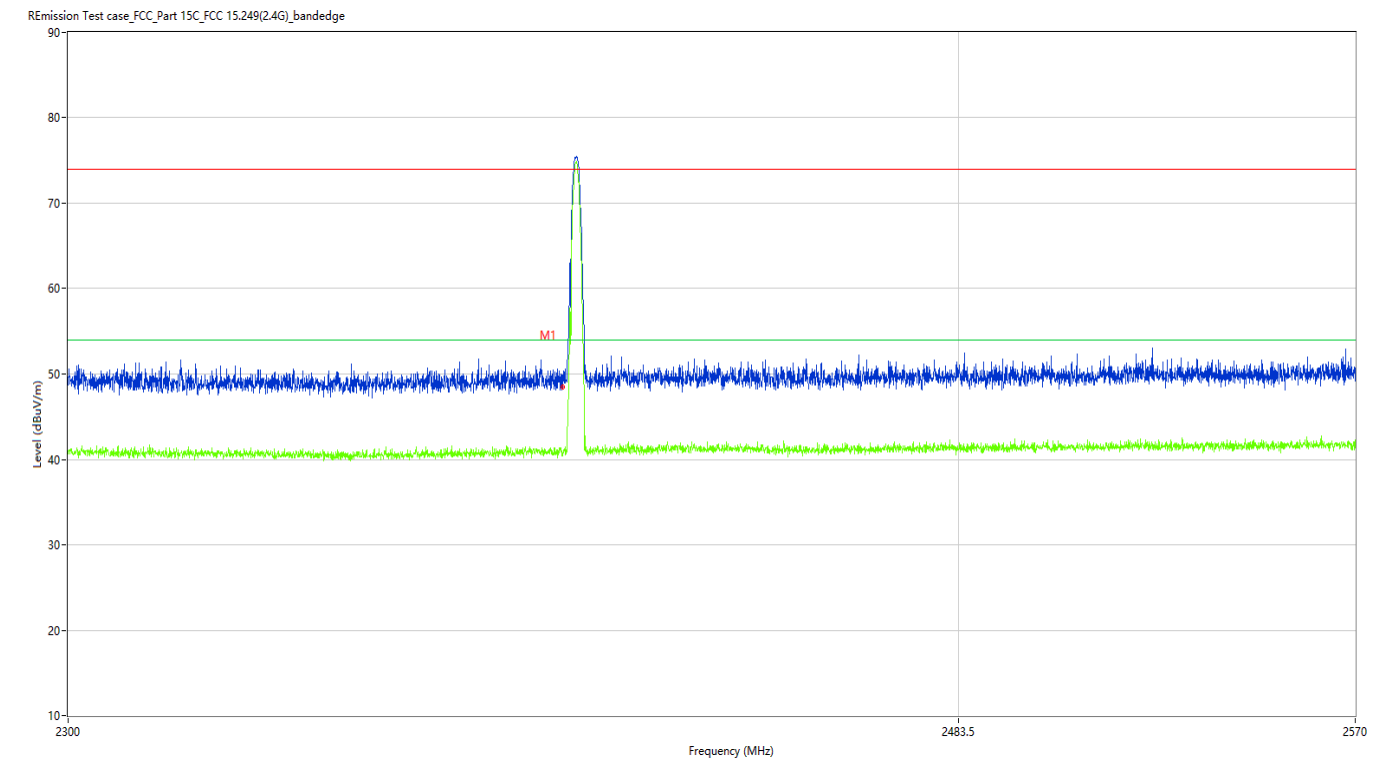
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 36 of 48

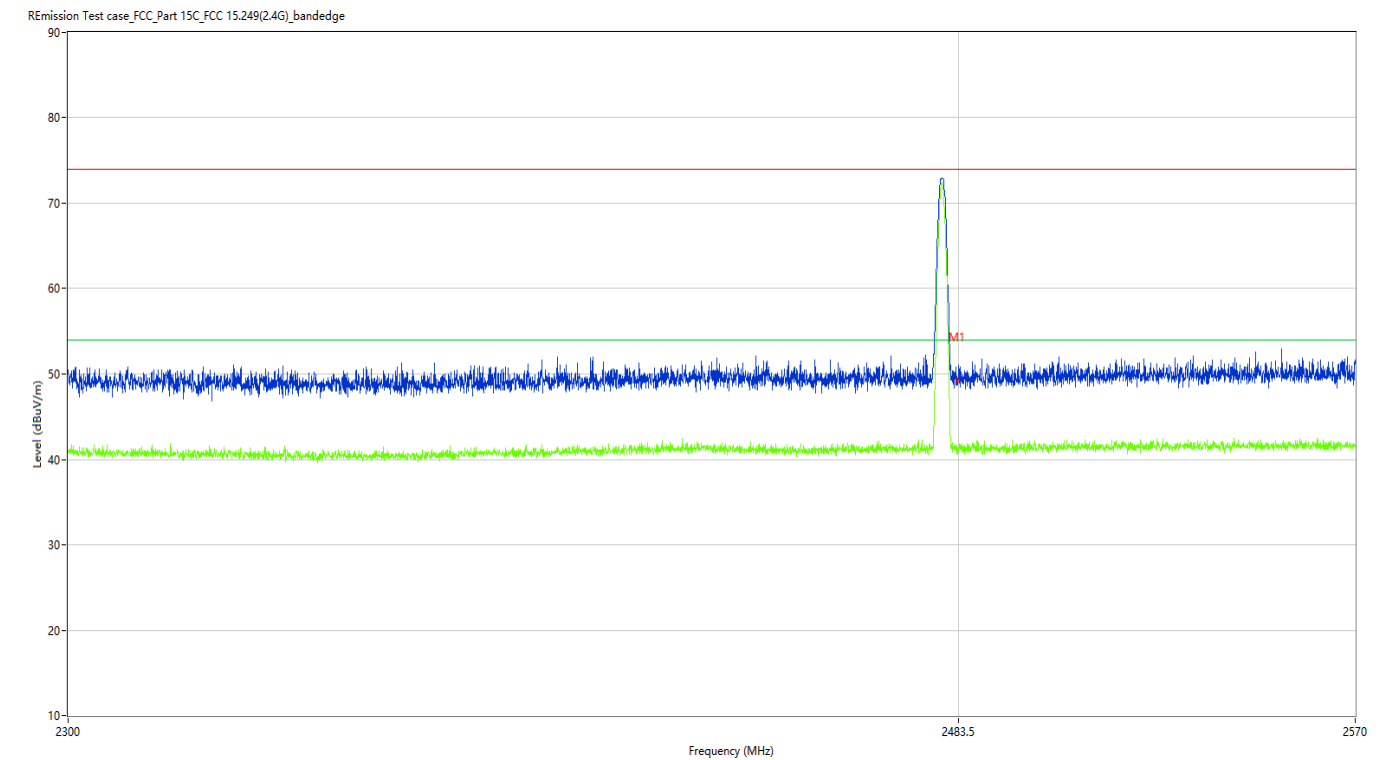
Figure 26: Test plots of Band Edge, 2403MHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2400.000	48.37	-9.87	74.0	25.63	Peak	240.25	100	Vertical	Pass
1**	2400.000	40.69	-9.87	54.0	13.31	AV	240.25	100	Vertical	Pass

TEST REPORT

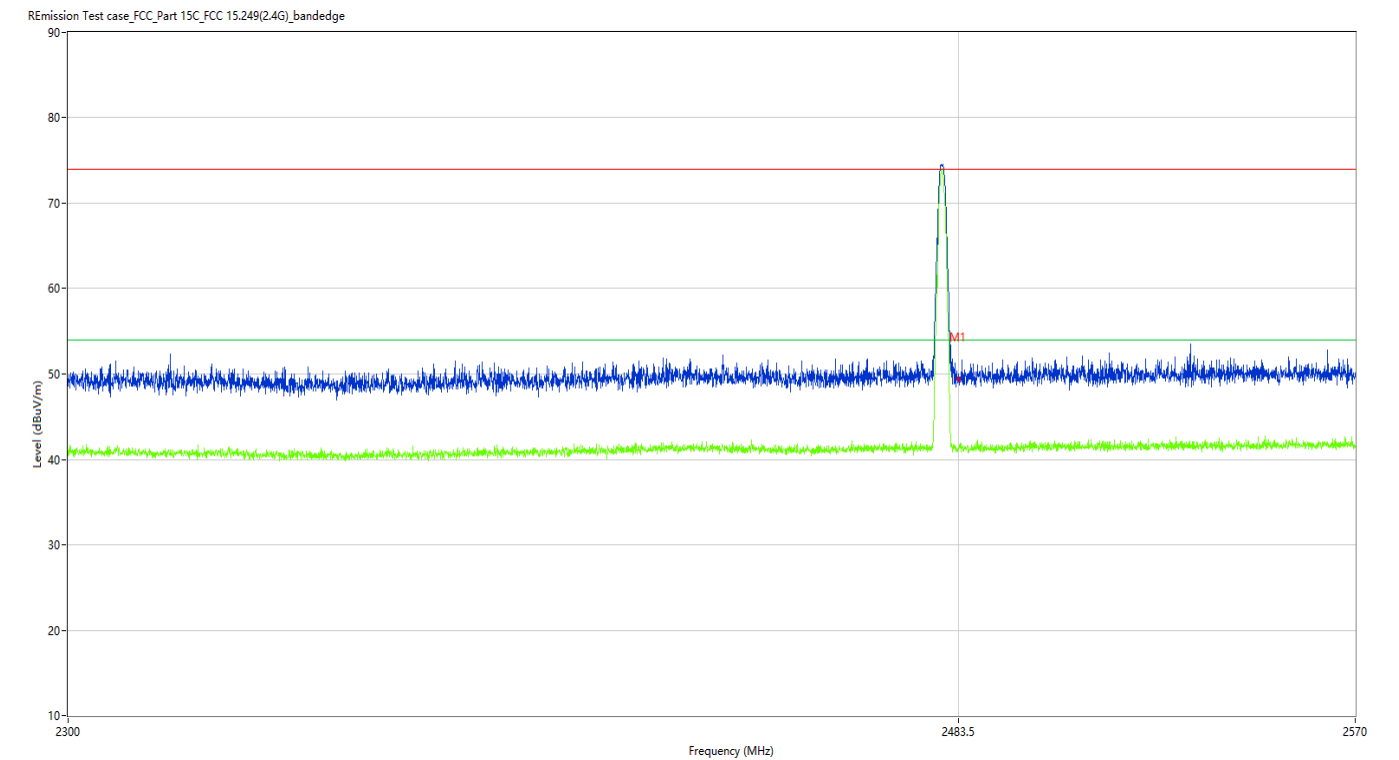
Figure 27: Test plots of Band Edge, 2480MHz, Horizontal polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	49.22	-9.51	74.0	24.78	Peak	148.93	100	Horizontal	Pass
1**	2483.500	40.83	-9.51	54.0	13.17	AV	148.93	100	Horizontal	Pass

TEST REPORT

Figure 28: Test plots of Band Edge, 2480MHz, Vertical polarization



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	49.50	-9.51	74.0	24.50	Peak	238.47	100	Vertical	Pass
1**	2483.500	41.30	-9.51	54.0	12.70	AV	238.47	100	Vertical	Pass

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 39 of 48

4.1.4 20dB Bandwidth and 99% Bandwidth

RESULT:

PASS

Test standard : FCC Part 15.215(c), RSS-GEN 6.7

Requirement : ANSI C63.10-2013

Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High

Operation Mode : A.i/ii/iii

Ambient temperature : 22.8°C

Relative humidity : 50%

Table 1: 20dB Bandwidth and 99% Bandwidth

Test Mode	Test Channel (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
GFSK	2403	0.9651	0.9148
	2442	0.9987	0.9320
	2480	0.9602	0.8924

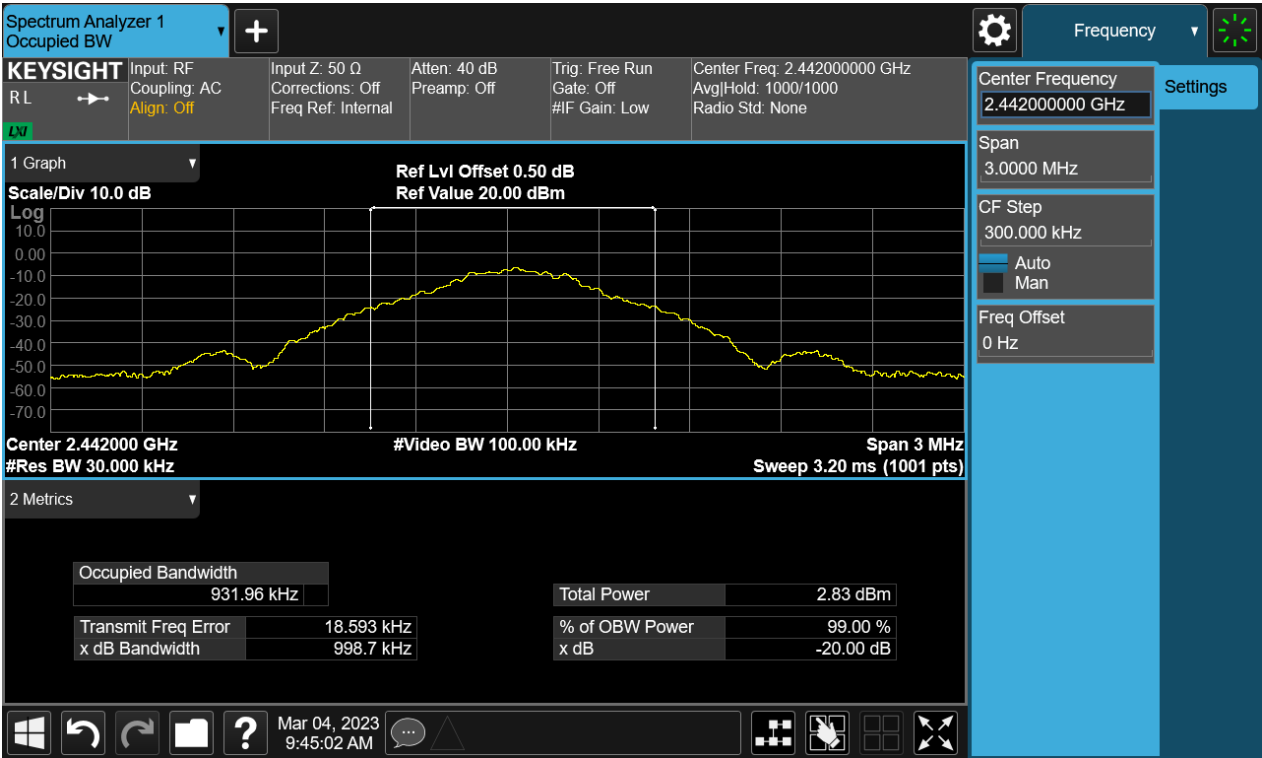
TEST REPORT

Report No.: SHE23020076-02AE Date: 2023-03-10 Page 40 of 48

Figure 29: The plots of 20dB Bandwidth and 99% Bandwidth, 2403MHz



Figure 30: The plots of 20dB Bandwidth and 99% Bandwidth, 2442MHz



TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 41 of 48

Figure 31: The plots of 20dB Bandwidth and 99% Bandwidth, 2480MHz



TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 42 of 48

5 Appendixes

5.1 Photographs of the Sample



ALL of the sample



Front of the sample

TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 43 of 48



Back of the sample



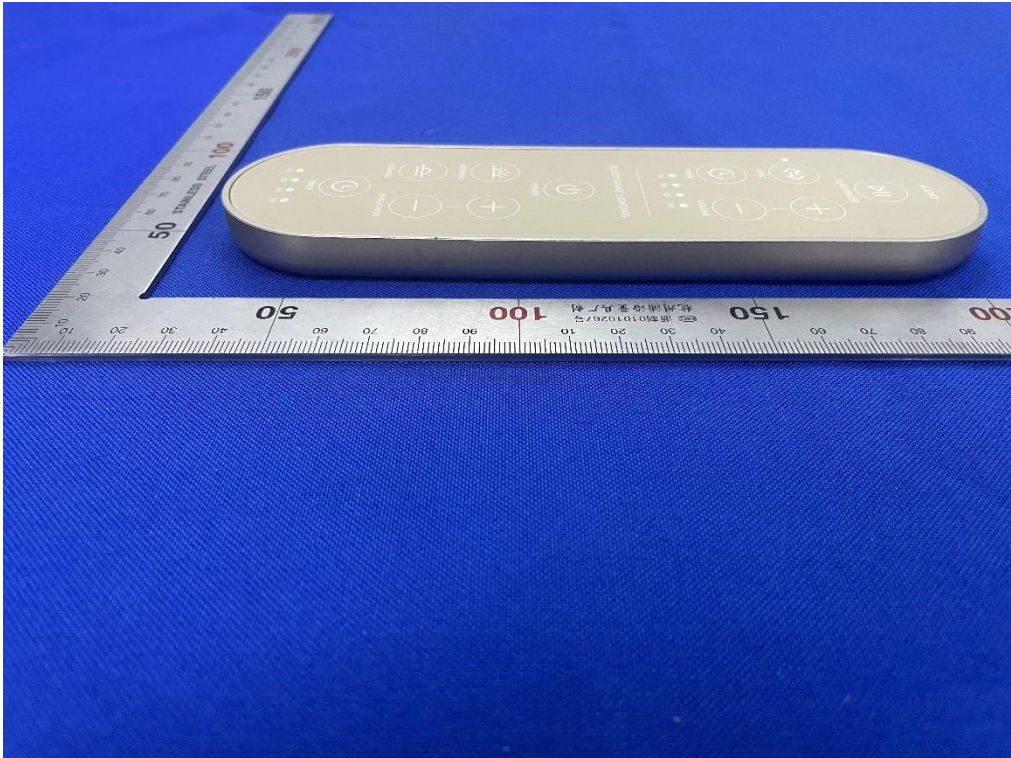
Left of the sample

TEST REPORT

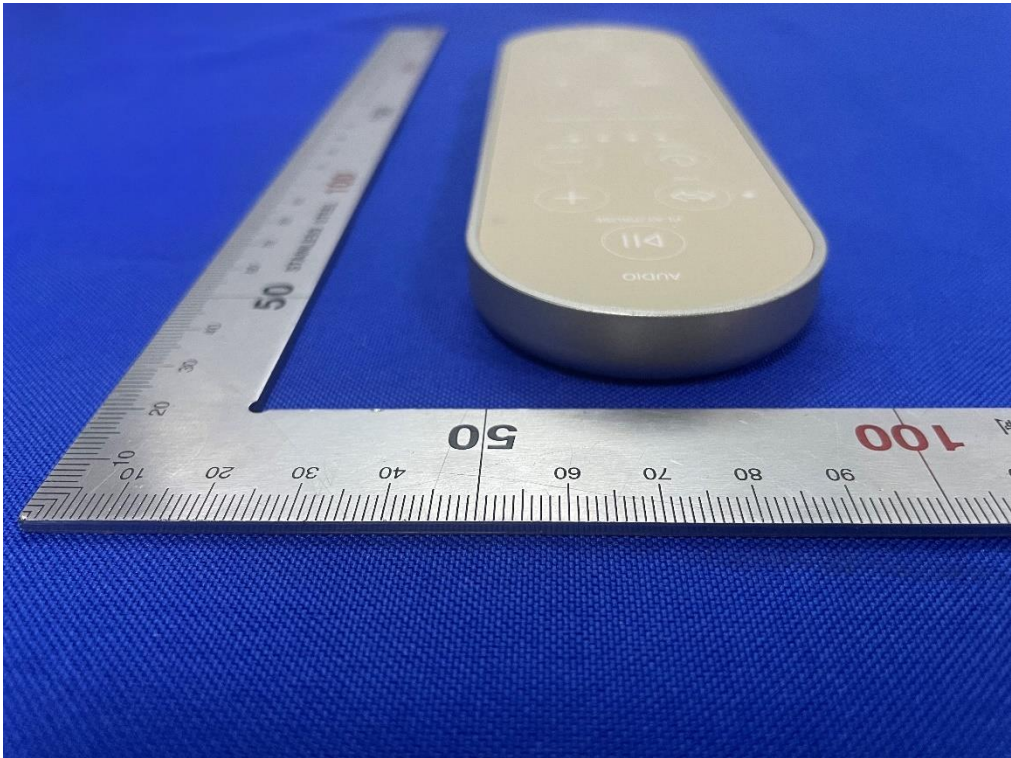
Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 44 of 48



Right of the sample



Top of the sample

TEST REPORT

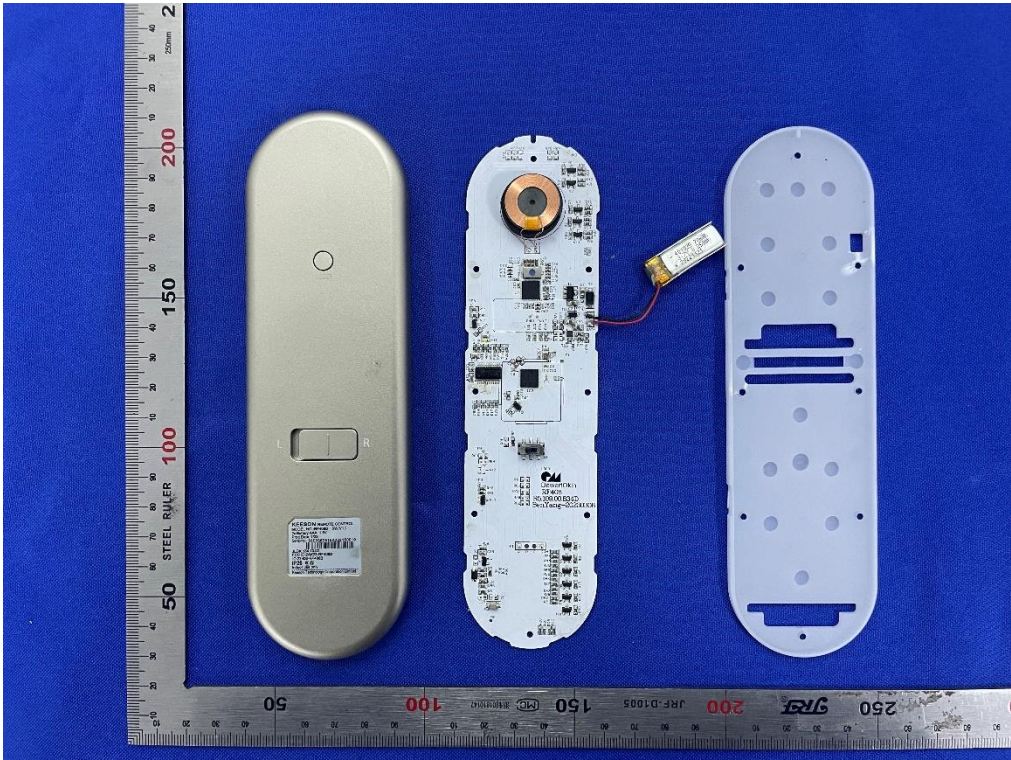
Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 45 of 48



Bottom of the sample



Open of the sample

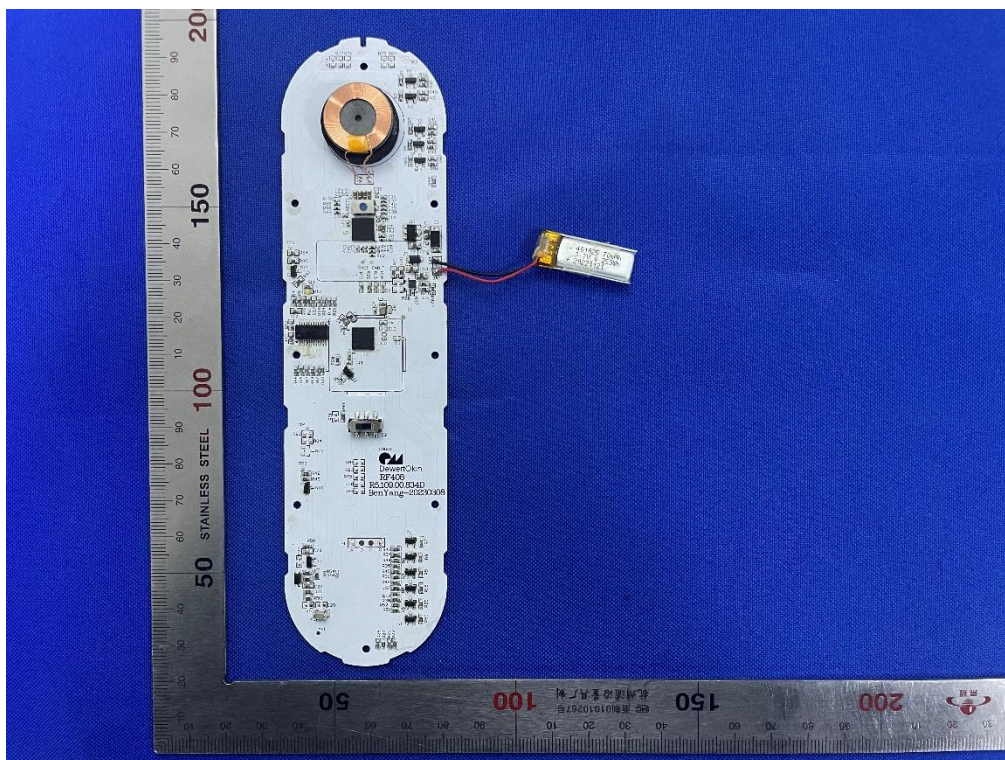
TEST REPORT

Report No.:

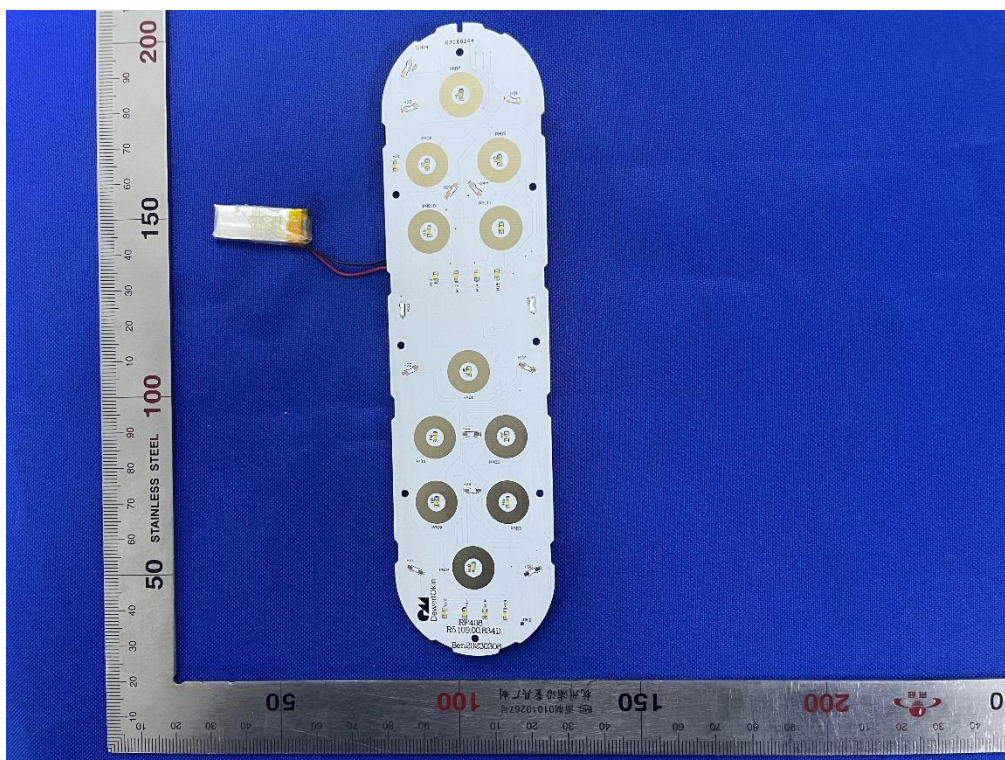
SHE23020076-02AE

Date: 2023-03-10

Page 46 of 48

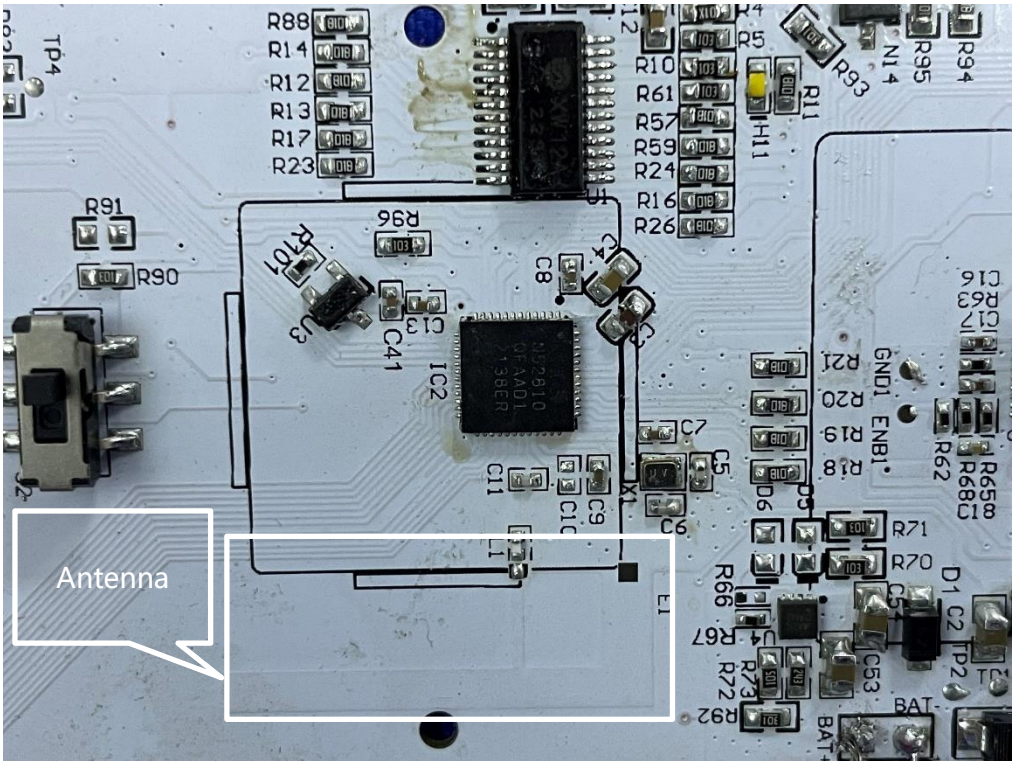


Internal-1 of the sample



Internal-2 of the sample

TEST REPORT



Antenna position of the sample

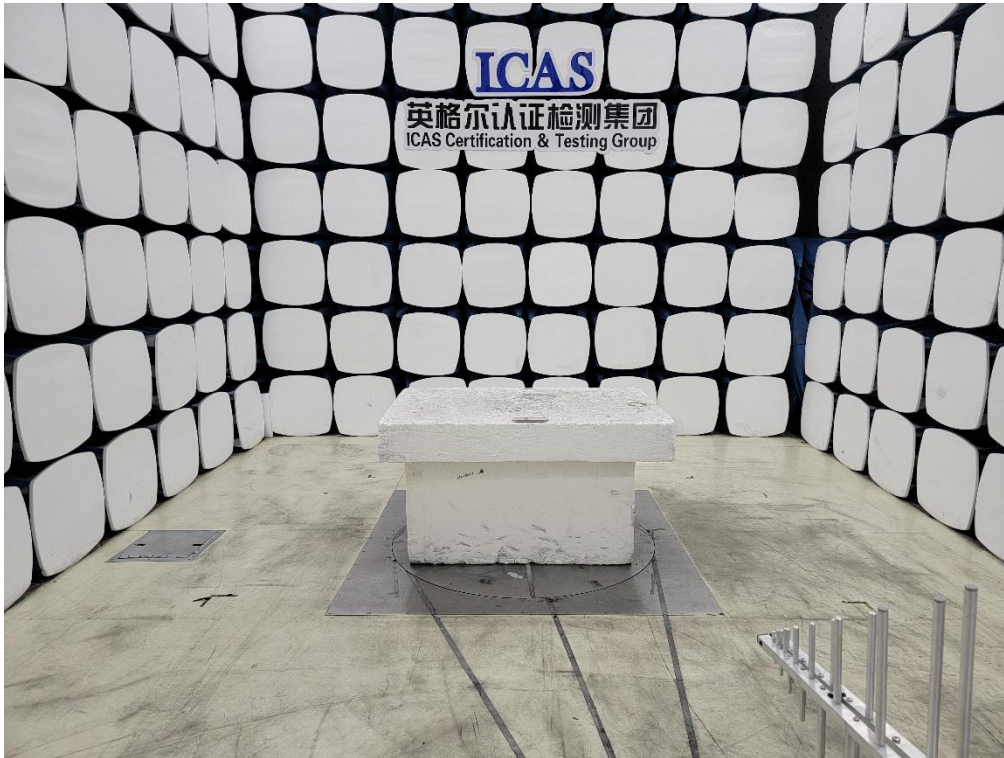
TEST REPORT

Report No.: SHE23020076-02AE

Date: 2023-03-10

Page 48 of 48

5.2 Set-up for Spurious Emissions below 1GHz



5.3 Set-up for Spurious Emissions above 1GHz



End of the report