

Test Report

Verified code: 908880

Report No.: E202411154120-1EN

Customer: Shanghai Huace Navigation Technology Ltd.

Address: 577 Songying Road, Qingpu District, 201706 Shanghai, China

Sample Name: X500 Rotor UAV

Sample Model: X500

Receive Sample Date: Dec.05,2024

Test Date: Dec.16,2024 ~ Dec.23,2024

Reference Document: 47 CFR, FCC Part 15 Subpart C
RADIO FREQUENCY DEVICES:Subpart C—Intentional Radiators

Test Result: Pass

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GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2025-01-16

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202411154120-1EN	Original Issue	2024-12-25

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1. TEST RESULT SUMMARY

Technical Requirements		
47 CFR, FCC Part 15 Subpart C 15.247 ANSI C63.10-2020 KDB 558074 D01 15.247 measurement guidance v05r02		
Limit / Severity	Item	Result
§15.203	Antenna Requirement	Pass ¹⁾
§15.207(a)	Conducted Emission	Not applicable ²⁾
§15.247(d)&15.205& 15.209	Radiated Spurious Emission	Pass
§15.247(b)(3)	Maximum Peak Output Power	Pass
§15.247(e)	Power Spectral Density	Pass
§15.247(a)(2)	6dB bandwidth	Pass
§15.247(d)	Conducted band edges and Spurious Emission	Pass
§15.247(d)&15.205& 15.209	Restricted bands of operation	Pass

Note:

- 1) The antenna is Internal antenna. The max gain of antenna is 2.63dBi. which accordance 15.203.is considered sufficient to comply with the provisions of this section.
- 2) The EUT is powered by DC, the Conducted Emission is not applicable.

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2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Shanghai Huace Navigation Technology Ltd.
Address: 577 Songying Road, Qingpu District, 201706 Shanghai, China

2.2 MANUFACTURER

Name: Shanghai Huace Navigation Technology Ltd.
Address: 577 Songying Road, Qingpu District, 201706 Shanghai, China

2.3 FACTORY

Name: Shanghai Huace Navigation Technology Ltd.
Address: 577 Songying Road, Qingpu District, 201706 Shanghai, China

2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Product Name: X500 Rotor UAV
Product Model: X500
Trade Name: /
Additional Model: /
Power Supply: DC 47.04V by batteries
Battery: Model: B10
Max charge voltage: 53.4V, rated capacity: 10000mAh, 470.4Wh, nominal voltage: 47.04V
FCC ID: SY4-A02061
Frequency Band: 2402MHz-2480MHz
Transmit Power: GFSK for 1Mbps: 3.39dBm
GFSK for 2Mbps: 3.38dBm
Modulation type: GFSK for 1Mbps
GFSK for 2Mbps
Channel space: 2MHz
Antenna Type: Internal antenna with 2.63dBi (Max.)
Temperature Range: -20 ℃ ~ +50 ℃
Hardware Version: v2.1.0
Software Version: v2.9.6
Sample No: E202411154120-0001, E202411154120-0003

Note: The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

2.5 CHANNELLIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
*00	2402	10	2422	20	2442	30	2462
01	2404	11	2424	21	2444	31	2464
02	2406	12	2426	22	2446	32	2466
03	2408	13	2428	23	2448	33	2468
04	2410	14	2430	24	2450	34	2470
05	2412	15	2432	25	2452	35	2472
06	2414	16	2434	26	2454	36	2474
07	2416	17	2436	27	2456	37	2476
08	2418	18	2438	28	2458	38	2478
09	2420	*19	2440	29	2460	*39	2480

* is the test frequency

2.6 TEST OPERATION MODE

Mode No.	Description of the modes
1	Bluetooth (BLE) fixed frequency transmitting

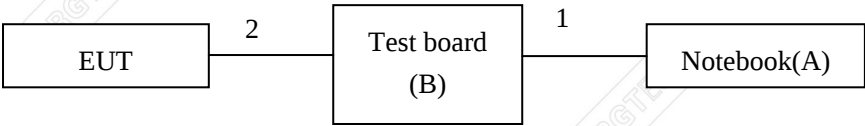
2.7 LOCAL SUPPORTIVE

No.	Name of Equipment	Manufacturer	Model	Serial Number
A	Notebook	DELL	Latitude3300	2C6CFW2
B	Test board	/	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	USB extension cable	1	No	0	1.0m
2	Serial cable	1	No	0	0.1m

Note: The notebook is just used to produce fixed frequency transmitting.

2.8 CONFIGURATION OF SYSTEM UNDER TEST



Test software:

Software version	Test level
nrfconnect	2402MHz: 4 2440MHz: 4 2480MHz: 4

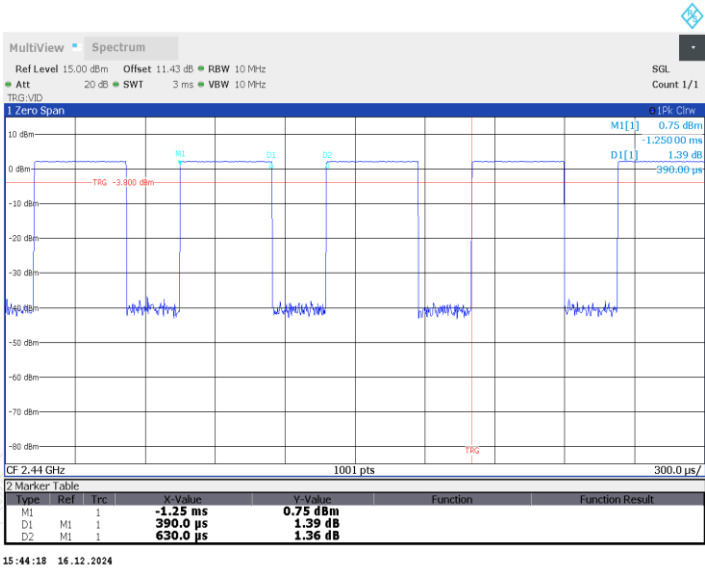
2.9 DUTY CYCLE

Environment: 23.5°C/50%RH/101.0kPa
Tested By: Qin tingting

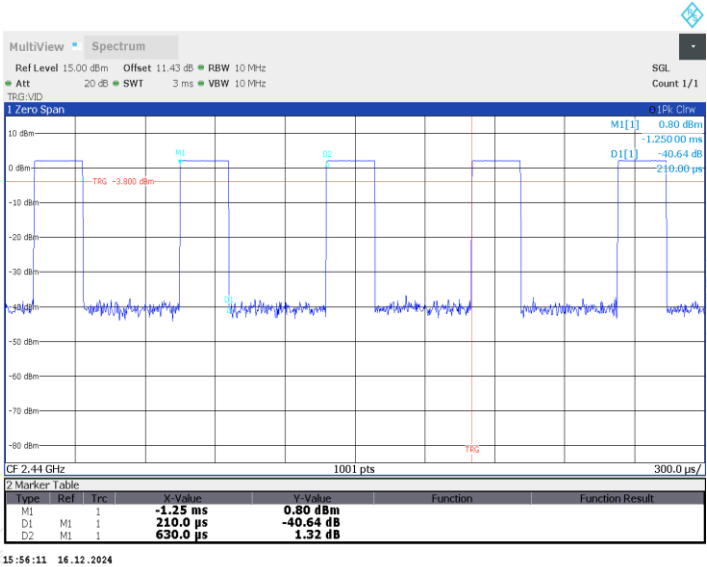
Voltage:DC 47.04V
Date: 2024-12-16

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	DC [%]	T [s]
BLE_1M	Ant1	2440	0.39	0.63	61.90	0.00039
BLE_2M	Ant1	2440	0.21	0.63	33.33	0.00021

BLE_1M_2440MHz



BLE_2M_2440MHz



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3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

Add.: No.1301 Guangang Road Xinlan Community, Guanlan Street, Longhua District
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P.C.: 518110

Tel : 0755-61180008

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3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA A2LA(Certificate #2861.01)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada ISED (Company Number: 24897, CAB identifier:CN0069)

USA FCC (Registration Number: 759402, Designation Number:CN1198)

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4. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	X	9kHz~30MHz	4.4dB ¹⁾
	Y	9kHz~30MHz	4.4dB ¹⁾
	Z	9kHz~30MHz	4.4dB ¹⁾
	Horizontal	30MHz~200MHz	4.6dB ¹⁾
		200MHz~1000MHz	4.8dB ¹⁾
		1GHz~18GHz	5.0dB ¹⁾
		18GHz~26.5GHz	5.2dB ¹⁾
	Vertical	30MHz~200MHz	4.7dB ¹⁾
		200MHz~1000MHz	4.7dB ¹⁾
		1GHz~18GHz	5.1dB ¹⁾
		18GHz~26.5GHz	5.4dB ¹⁾

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.80dB
Power spectral density conducted	0.80dB
Occupied channel bandwidth	0.40dB
Unwanted emission, conducted	0.70dB
Humidity	6.0%
Temperature	2.0°C

Note:

¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95%.
This uncertainty represents an expanded uncertainty factor of $k=2$.

5. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Radiated Spurious Emission & Restricted bands of operation				
Loop Antenna	Schwarzbeck	FMZB 1513-60	1513-60-56	2025-05-07
Bi-log Antenna	Schwarzbeck	VULB9160	VULB9160-3402	2025-09-11
Horn Antenna	Schwarzbeck	BBHA 9120D	02143	2025-06-15
Test Receiver	R&S	ESR26	101758	2025-09-10
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2025-08-24
Amplifier	EMEC	EM330	060662	2025-06-14
Amplifier	Tonscend	TAP01018048	AP20E8060075	2025-03-01
Amplifier	Tonscend	TAP184050	AP20E806071	2025-03-01
Amplifier	SHIRONG ELECTRONIC	DLNA-1G18G-G40	20200928005	2025-07-19
Test S/W	Tonscend	JS32-RE/5.0.0		
Test S/W	FARAD	EZ_EMC		
6dB Bandwidth &Conducted band edges and Spurious Emission &Power Spectral Density				
Spectrum Analyzer	R&S	FSW43	102072	2025-03-30
Automatic control unit	TONSCEND	JS0806-2	21B8060365	2025-06-14
BT/WIFI System	Tonscend	JS1120-3		
Maximum peak output power				
Pulse power sensor	Anristu	MA2411B	1126150	2025-01-11
Power meter	Anristu	ML2495A	1204003	2025-01-11

Note: The calibration cycle of the above instruments is 12 months.

6. RADIATED SPURIOUS EMISSIONS

6.1 LIMITS

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

Frequency (MHz)	Quasi-peak($\mu\text{V/m}$)	Measurement distance(m)	Quasi-peak(dB $\mu\text{V/m}$)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE:

- (1) The emission limits for the ranges 9-90kHz and 110-490kHz are based on measurements employing a linear average detector.
- (2) The lower limit shall apply at the transition frequencies.
- (3) Above 18GHz test distance is 1m, so the Peak Limit=74+20*log(3/1)=83.54 (dB $\mu\text{V/m}$).
The Avg Limit=54+20*log(3/1)=63.54 (dB $\mu\text{V/m}$).

6.2 TEST PROCEDURES

a) Sequence of testing 9kHz to 30MHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate fixed frequency transmitting conditions.
- The EUT is power by battery.
- The measurement distance is 3meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 °to 360 °.
- The antenna height is 1.0 meter.
- The antenna is polarized X, Y and Z.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

- Identified emissions during the pre measurement the software maximizes by rotating the turntable

position (0 ° to 360 °) and by rotating the elevation axes (0 ° to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

b) Sequence of testing 30MHz to 1GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate fixed frequency transmitting conditions.

--- The EUT is power by battery.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 ° to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of pre measurement the software maximize the peaks by changing turntable rotates from 0 ° to 360 ° and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

c) Sequence of testing 1GHz to 18GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate fixed frequency transmitting conditions.

--- The EUT is power by battery.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 °to 360 °.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of pre measurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

d) Sequence of testing above 18GHz**Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate fixed frequency transmitting conditions.
- The EUT is power by battery.
- The measurement distance is 1 meter.
- The EUT was set into operation.

Pre measurement:

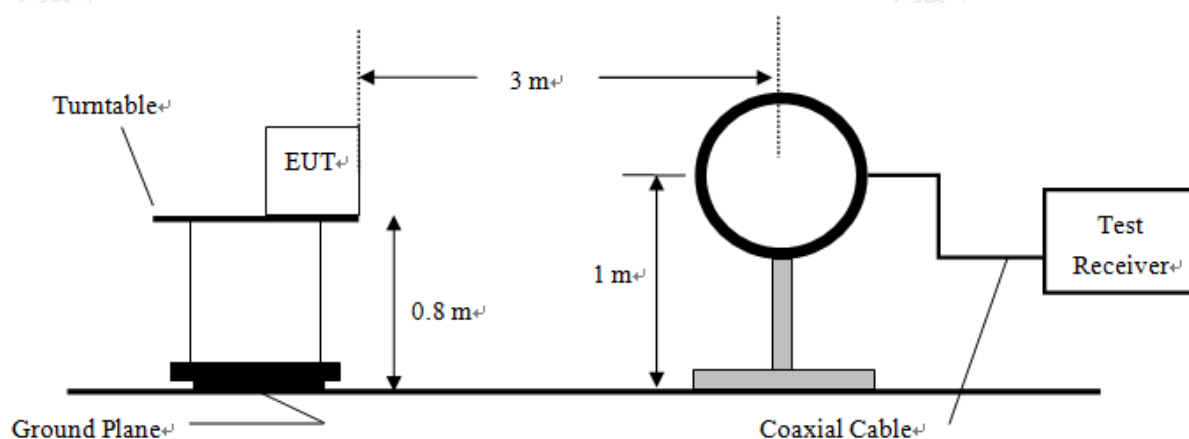
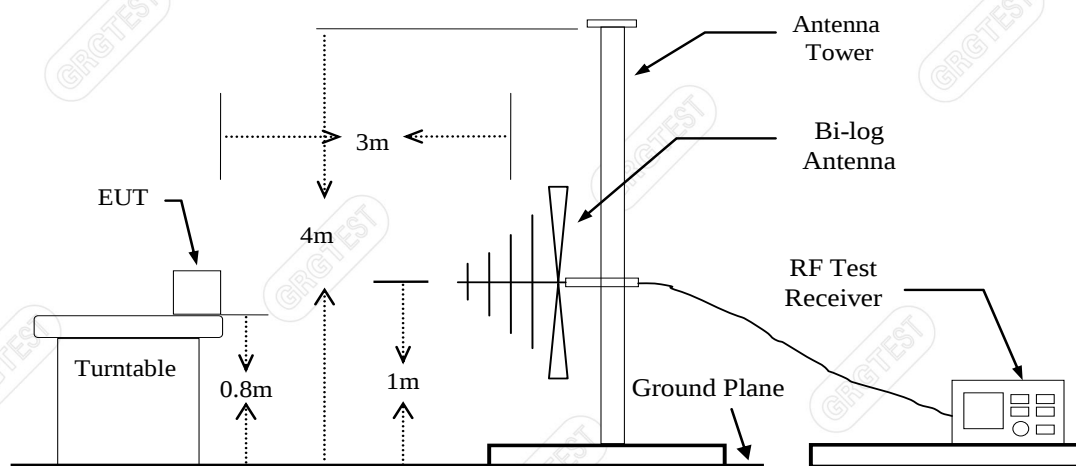
- The turntable rotates from 0 °to 360 °.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of pre measurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

NOTE:

- (1).The frequency from 9kHz to 150kHz, Set RBW=300Hz(for Peak&AVG), VBW=300Hz(for Peak&AVG). The frequency from 150kHz to 30MHz, Set RBW=9kHz, VBW=9kHz, (for QP Detector).
- (2).The frequency from 30MHz to 1GHz, Set RBW=120kHz, VBW=300kHz, (for QP Detector).
- (3).The frequency above 1GHz, for Peak detector: Set RBW=1MHz,VBW=3MHz.
- (4). The frequency above 1GHz, for Avg detector: Set RBW=1MHz,if the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e.,10kHz) but not less than 10 Hz. If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$, Where T is defined in section 2.9.

6.3 TEST SETUP**Figure 1. 9kHz to 30MHz radiated emissions test configuration****Figure 2. 30MHz to 1GHz radiated emissions test configuration**

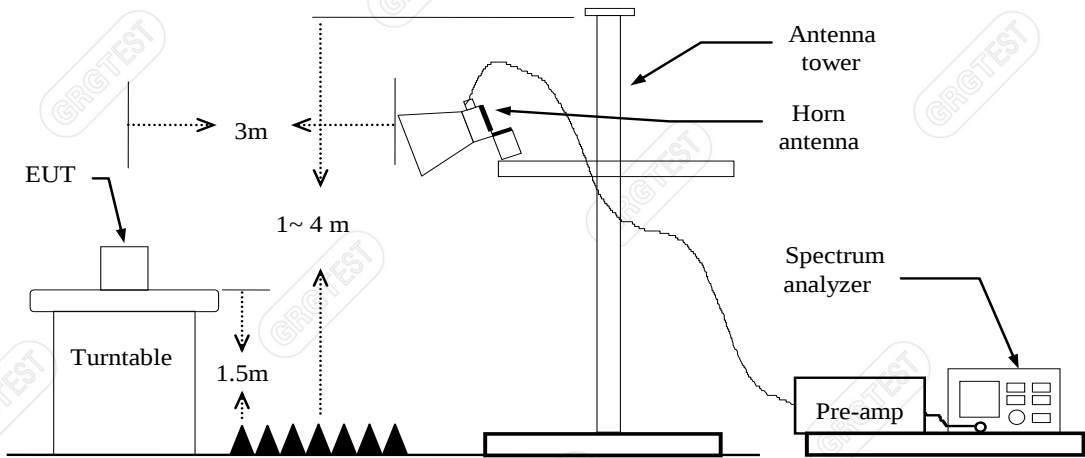


Figure 3. 1GHz to 18GHz radiated emissions test configuration

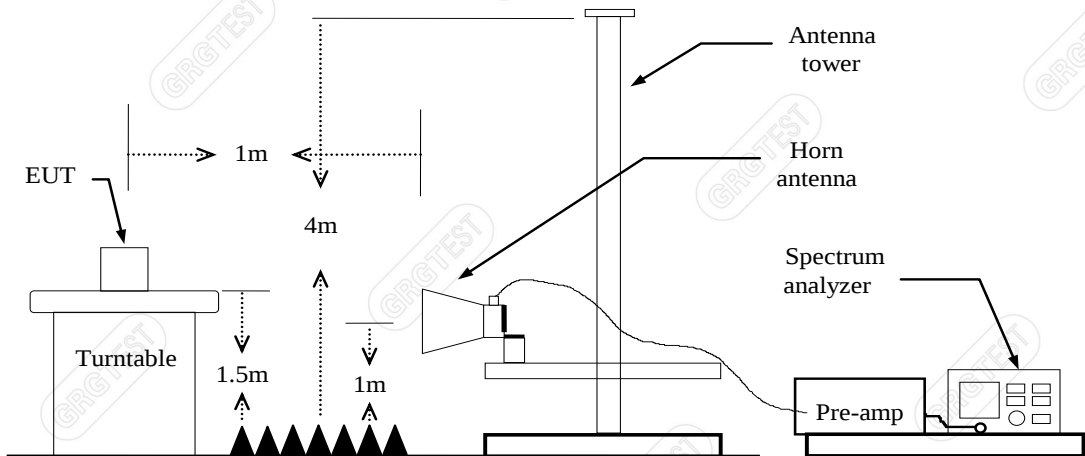


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

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6.4 DATA SAMPLE**30MHz to 1GHz**

NO.	Freq. [MHz]	Reading [dBμV]	Correction Factor [dB/m]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector type
xxx	86.5096	67.55	-33.72	33.83	40.00	-6.17	200	118	QP

Frequency (MHz) = Emission frequency in MHz

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Result (dBuV/m) - Limit (dBuV/m)

QP = Quasi-peak Reading

1GHz-18GHz

No.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
xxx	xxxx	78.01	55.30	-22.71	74.00	18.70	100	50	Horizontal
xxx	xxxx	66.37	43.66	-22.71	54.00	10.34	100	50	Horizontal

Above 18GHz

NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
xxx	xxx	62.46	45.31	35.77	-17.15	74	38.23	100	19	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBuV/m) = Uncorrected Analyzer / Receiver reading

Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Level for 1m (dBuV/m) = Reading (dBuV/m) + Factor (dB)

Level for 3m (dBuV/m) = Level for 1m (dBuV/m) + 20*log(1/3)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Limit (dBuV/m) – Level (dBuV/m)

Polarity = Antenna polarization

Peak = Peak Reading

AVG = Average Reading

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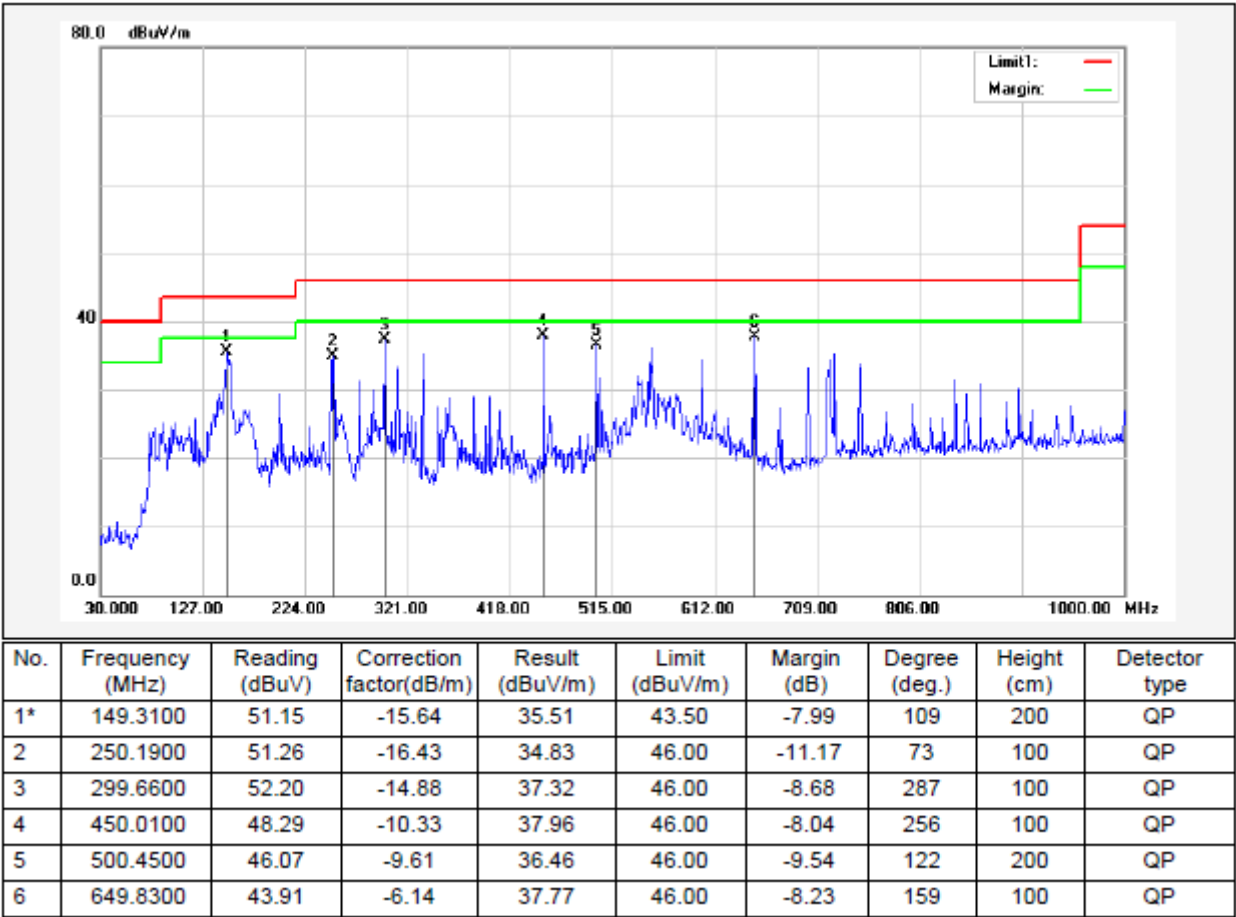
6.5 TEST RESULTS

Below 1GHz

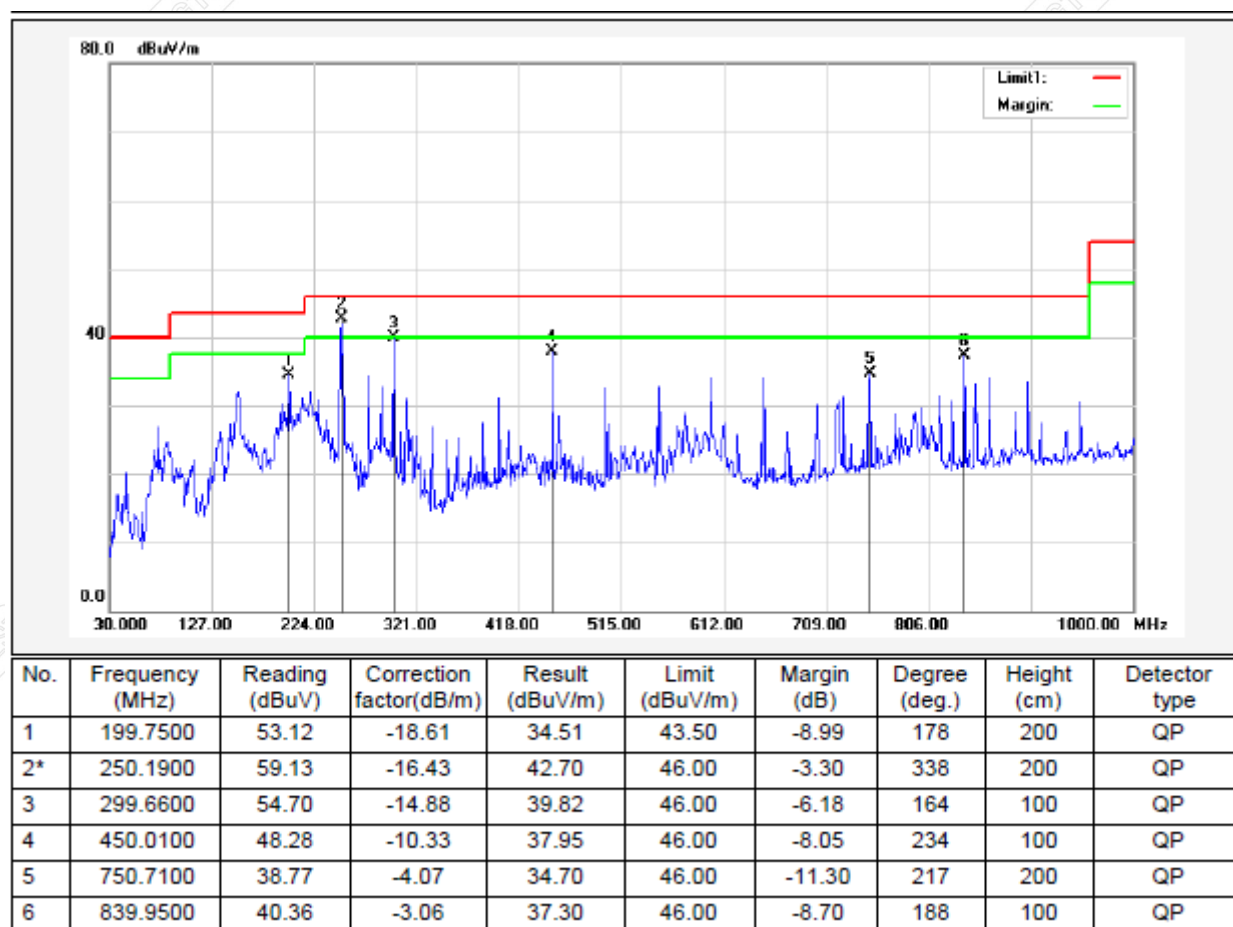
Note: Pre-scan all modes , only the worst case(TX_BLE_1M_2480MHz) was recorded in this report.

Product	X500 Rotor UAV	Model No.	X500
Power supply:	DC 47.04V	Environmental Conditions:	23.5℃/46%RH/101.0kPa
Test Engineer:	Zhao yaru	Test Date:	2024-12-16
Sample No:	E202411154120-0001	/	/

Horizontal:



Vertical:

**Remark:**

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- 3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.
- 4 If the margin of the pre-test results is greater than 6dB, it meets the requirements of quasi peak or average values, and final testing is no longer required.

1GHz-18GHz:

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Product	X500 Rotor UAV	Model No.	X500
Sample No:	E202411154120-0001	/	/

Mode: TX/ BLE_1M
Lowest Frequency (2402MHz)
Environment: 24.6°C/48%RH/101.0kPa
Tested By: Zhao yaru

Voltage:DC 47.04V
Date: 2024-12-23

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1949.2000	49.39	44.80	-4.59	74.00	29.20	200	20	Horizontal
2	2370.6000	53.41	49.64	-3.77	74.00	24.36	200	284	Horizontal
3	3591.0000	54.75	42.28	-12.47	74.00	31.72	200	340	Horizontal
4	4803.0000	54.28	46.74	-7.54	74.00	27.26	200	208	Horizontal
5	7204.5000	56.51	57.42	0.91	74.00	16.58	200	63	Horizontal
6	13102.5000	35.64	51.80	16.16	74.00	22.20	100	341	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2370.1540	-6.04	41.04	35.00	54.00	19.00	200	280.1	Horizontal
2	7206.0675	0.91	45.75	46.66	54.00	7.34	200	64.4	Horizontal
3	13102.4752	16.16	23.63	39.79	54.00	14.21	100	341	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1933.4000	48.12	43.26	-4.86	74.00	30.74	200	270	Vertical
2	2450.6000	48.37	46.84	-1.53	74.00	27.16	200	21	Vertical
3	3595.5000	54.46	41.63	-12.83	74.00	32.37	200	340	Vertical
4	4803.0000	53.95	46.91	-7.04	74.00	27.09	200	154	Vertical
5	7204.5000	56.74	57.30	0.56	74.00	16.70	200	128	Vertical
6	14683.5000	37.45	54.42	16.97	74.00	19.58	100	287	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7206.1675	0.56	47.25	47.81	54.00	6.19	200	126.7	Vertical
2	14683.4175	16.97	24.69	41.66	54.00	12.34	100	287	Vertical

Mode: TX/ BLE_1M
Middle Frequency (2440MHz)
Environment: 24.6°C/48%RH/101.0kPa
Tested By: Zhao yaru

Voltage:DC 47.04V
Date: 2024-12-23

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1861.4000	49.46	44.30	-5.16	74.00	29.70	100	296	Horizontal
2	2632.4000	51.18	48.51	-2.67	74.00	25.49	100	283	Horizontal
3	3594.0000	55.95	43.44	-12.51	74.00	30.56	200	341	Horizontal
4	4879.5000	54.55	47.32	-7.23	74.00	26.68	200	210	Horizontal
5	7320.0000	57.96	59.11	1.15	74.00	14.89	200	210	Horizontal
6	13122.0000	35.70	51.26	15.56	74.00	22.74	200	107	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2644.8190	-4.60	40.23	35.63	54.00	18.37	184	300	Horizontal
2	7320.1100	1.15	46.42	47.57	54.00	6.43	200	207.7	Horizontal
3	13121.7961	15.56	24.07	39.63	54.00	14.37	200	107	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1894.6000	48.25	43.54	-4.71	74.00	30.46	100	317	Vertical
2	2504.0000	48.26	47.63	-0.63	74.00	26.37	200	190	Vertical
3	3592.5000	52.37	39.57	-12.80	74.00	34.43	200	3	Vertical
4	4879.5000	54.14	47.07	-7.07	74.00	26.93	200	262	Vertical
5	7320.0000	56.76	58.35	1.59	74.00	15.65	200	197	Vertical
6	14703.0000	36.42	54.64	18.22	74.00	19.36	200	301	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7320.0000	1.59	47.05	48.64	54.00	5.36	200	198	Vertical
2	14702.8598	18.22	23.53	41.75	54.00	12.25	200	301	Vertical

Mode: TX/ BLE_1M
Highest Frequency (2480MHz)
Environment: 24.6°C/48%RH/101.0kPa
Tested By: Zhao yaru

Voltage:DC 47.04V
Date: 2024-12-23

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1925.8000	48.07	43.73	-4.34	74.00	30.27	200	51	Horizontal
2	2517.4000	54.39	53.33	-1.06	74.00	20.67	200	273	Horizontal
3	3597.0000	55.21	42.68	-12.53	74.00	31.32	200	357	Horizontal
4	4960.5000	53.82	47.06	-6.76	74.00	26.94	200	212	Horizontal
5	7441.5000	55.58	57.01	1.43	74.00	16.99	200	100	Horizontal
6	13117.5000	35.88	51.58	15.70	74.00	22.42	100	330	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2512.0810	-4.75	42.23	37.48	54.00	16.52	169	274.7	Horizontal
2	7439.9925	1.43	47.03	48.46	54.00	5.54	200	101.9	Horizontal
3	13117.4752	15.70	23.65	39.35	54.00	14.65	100	330	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1913.8000	48.39	43.70	-4.69	74.00	30.30	200	27	Vertical
2	2497.8000	48.32	47.81	-0.51	74.00	26.19	200	184	Vertical
3	3936.0000	50.90	40.25	-10.65	74.00	33.75	200	20	Vertical
4	4959.0000	54.99	48.01	-6.98	74.00	25.99	200	240	Vertical
5	7440.0000	53.90	55.15	1.25	74.00	18.85	100	206	Vertical
6	14707.5000	36.24	54.26	18.02	74.00	19.74	200	188	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0050	-6.98	46.47	39.49	54.00	14.51	200	238.5	Vertical
2	7440.0000	1.25	46.47	47.72	54.00	6.28	111	203.1	Vertical
3	14707.4452	18.02	23.83	41.85	54.00	12.15	200	188	Vertical

Mode: TX/ BLE_2M
Lowest Frequency (2402MHz)
Environment: 24.6°C/48%RH/101.0kPa
Tested By: Zhao yaru

Voltage:DC 47.04V
Date: 2024-12-23

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1969.4000	48.64	43.90	-4.74	74.00	30.10	200	303	Horizontal
2	2369.0000	53.95	50.12	-3.83	74.00	23.88	200	276	Horizontal
3	3594.0000	55.08	42.57	-12.51	74.00	31.43	200	336	Horizontal
4	4803.0000	52.41	44.87	-7.54	74.00	29.13	200	270	Horizontal
5	7207.5000	54.81	55.73	0.92	74.00	18.27	200	98	Horizontal
6	13102.5000	35.26	51.42	16.16	74.00	22.58	200	152	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2370.2000	-6.07	38.53	32.46	54.00	21.54	189	272.6	Horizontal
2	7204.9925	0.92	42.08	43.00	54.00	11.00	158	98.8	Horizontal
3	13102.4975	16.16	23.42	39.58	54.00	14.42	200	152	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1930.8000	48.27	43.44	-4.83	74.00	30.56	100	328	Vertical
2	2495.6000	48.60	48.03	-0.57	74.00	25.97	200	340	Vertical
3	3594.0000	53.19	40.37	-12.82	74.00	33.63	200	19	Vertical
4	4804.5000	52.49	45.45	-7.04	74.00	28.55	200	226	Vertical
5	7204.5000	55.16	55.72	0.56	74.00	18.28	200	123	Vertical
6	14703.0000	36.33	54.55	18.22	74.00	19.45	200	337	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2499.6450	-5.10	35.48	30.38	54.00	23.62	199	185.6	Vertical
2	7204.9175	0.56	39.67	40.23	54.00	13.77	126	148.5	Vertical
3	14702.7541	18.22	23.70	41.92	54.00	12.08	200	337	Vertical

Mode: TX/ BLE_2M
Middle Frequency (2440MHz)
Environment: 24.6°C/48%RH/101.0kPa
Tested By: Zhao yaru

Voltage:DC 47.04V
Date: 2024-12-23

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1899.4000	47.95	43.85	-4.10	74.00	30.15	100	132	Horizontal
2	2503.4000	49.81	49.46	-0.35	74.00	24.54	200	271	Horizontal
3	3594.0000	53.35	40.84	-12.51	74.00	33.16	200	292	Horizontal
4	4878.0000	54.75	47.50	-7.25	74.00	26.50	200	215	Horizontal
5	7318.5000	57.30	58.42	1.12	74.00	15.58	200	215	Horizontal
6	13098.0000	35.89	52.03	16.14	74.00	21.97	100	85	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2503.9070	-4.78	40.03	35.25	54.00	18.75	200	267.7	Horizontal
2	7319.0275	1.12	41.73	42.85	54.00	11.15	200	217	Horizontal
3	13096.7895	16.14	23.11	39.25	54.00	14.75	100	85	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1960.6000	48.49	43.55	-4.94	74.00	30.45	100	56	Vertical
2	2496.8000	48.07	47.53	-0.54	74.00	26.47	100	316	Vertical
3	3594.0000	53.45	40.63	-12.82	74.00	33.37	200	19	Vertical
4	4879.5000	53.43	46.36	-7.07	74.00	27.64	200	269	Vertical
5	7318.5000	55.24	56.80	1.56	74.00	17.20	200	19	Vertical
6	14704.5000	35.88	54.03	18.15	74.00	19.97	100	176	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7318.9275	1.56	40.46	42.02	54.00	11.98	200	207.2	Vertical
2	14704.3550	18.15	23.48	41.63	54.00	12.37	100	176	Vertical

Mode: TX/ BLE_2M

Highest Frequency (2480MHz)

Environment: 24.6°C/48%RH/101.0kPa

Tested By: Zhao yaru

Voltage:DC 47.04V

Date: 2024-12-23

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1907.6000	48.08	43.92	-4.16	74.00	30.08	200	301	Horizontal
2	2516.4000	54.58	53.56	-1.02	74.00	20.44	200	286	Horizontal
3	3594.0000	53.47	40.96	-12.51	74.00	33.04	200	339	Horizontal
4	4959.0000	53.36	46.60	-6.76	74.00	27.40	200	261	Horizontal
5	7440.0000	55.37	56.80	1.43	74.00	17.20	200	103	Horizontal
6	13110.0000	35.89	51.82	15.93	74.00	22.18	200	224	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2511.9570	-4.76	38.70	33.94	54.00	20.06	200	281.9	Horizontal
2	7438.9200	1.43	38.29	39.72	54.00	14.28	127	107	Horizontal
3	13109.8572	15.93	23.63	39.56	54.00	14.44	200	224	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1896.6000	48.30	43.64	-4.66	74.00	30.36	200	19	Vertical
2	2505.6000	49.38	48.67	-0.71	74.00	25.33	200	200	Vertical
3	3606.0000	52.56	39.83	-12.73	74.00	34.17	200	340	Vertical
4	4959.0000	54.16	47.18	-6.98	74.00	26.82	200	244	Vertical
5	7441.5000	53.84	55.07	1.23	74.00	18.93	100	207	Vertical
6	14698.5000	35.75	53.98	18.23	74.00	20.02	200	297	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2511.8370	-5.03	35.97	30.94	54.00	23.06	200	207.6	Vertical
2	7439.0225	1.23	38.56	39.79	54.00	14.21	175	209.5	Vertical
3	14698.3751	18.23	23.80	42.03	54.00	11.97	200	297	Vertical

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3 Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4 Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

18GHz to 26.5GHz

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Note: Pre-scan all modes, only the worst case(TX/BLE_1M_2480MHz) was recorded in this report.

Environment: 23.5℃/47%RH/101.0kPa
Tested By: Jiang tao

Voltage:DC 47.04V
Date: 2024-12-17

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19224.85	59.12	62.22	52.68	3.10	74	21.32	180	23	Horizontal
2	19453.925	55.03	58.25	48.71	3.22	74	25.29	100	195	Horizontal
3	19581	48.96	52.28	42.74	3.32	74	31.26	100	214	Horizontal
4	21620.575	63.38	67.34	57.8	3.96	74	16.20	190	87	Horizontal
5	21674.55	52.39	56.33	46.79	3.94	74	27.21	100	278	Horizontal
6	21836.475	50.52	54.25	44.71	3.73	74	29.29	100	195	Horizontal

AV Final Data List											
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value in 1m [dBμV/m]	AV Value in 3m [dBμV/m]	AV Limit in 1m [dBμV/m]	AV Limit in 3m [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19217.8958	3.1	48.98	52.08	42.54	63.54	54	11.46	180	62.9	Horizontal
2	19367.4954	3.22	36.41	39.63	30.09	63.54	54	23.91	100	267.5	Horizontal
3	21620.5721	3.96	46.14	50.1	40.56	63.54	54	13.44	190	285.1	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19187.025	58.1	61.63	52.09	3.53	74	21.91	150	18	Vertical
2	19405.9	53.7	57.4	47.86	3.70	74	26.14	100	206	Vertical
3	19530	49.65	53.41	43.87	3.76	74	30.13	100	18	Vertical
4	21615.475	52.14	56.36	46.82	4.22	74	27.18	160	267	Vertical
5	24023.1	49.28	54.62	45.08	5.34	74	28.92	100	123	Vertical
6	24803.4	43.82	49.87	40.33	6.05	74	33.67	100	18	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value in 1m [dBμV/m]	AV Value in 3m [dBμV/m]	AV Limit in 1m [dBμV/m]	AV Limit in 3m [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19258.9399	3.53	36.43	39.96	30.42	63.54	54	23.58	150	336.3	Vertical

Remark:

- 1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2 Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3)

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7. 6dB BANDWIDTH

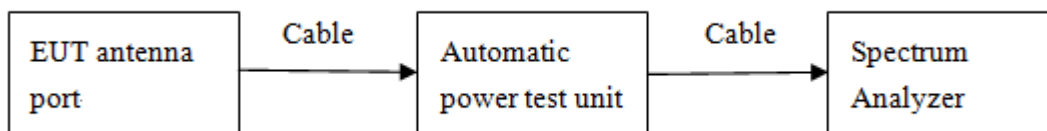
7.1 LIMITS

Systems using digital modulation techniques may operate in the 902–928MHz, 2400–2483.5MHz, and 5725–5850MHz bands. The minimum 6dB bandwidth shall be at least 500kHz.

7.2 TEST PROCEDURES

- Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the Automatic power measuring unit.
- Set resolution bandwidth (RBW) = 100kHz. Set the video bandwidth (VBW) $\geq 3 \times$ RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
- Repeat above procedures until all frequencies measured were complete.

7.3 TEST SETUP



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7.4 TEST RESULTS

Environment: 23.5°C/50%RH/101.0kPa
Tested By: Qin tingting

Voltage:DC 47.04V
Date: 2024-12-16

BLE_1M

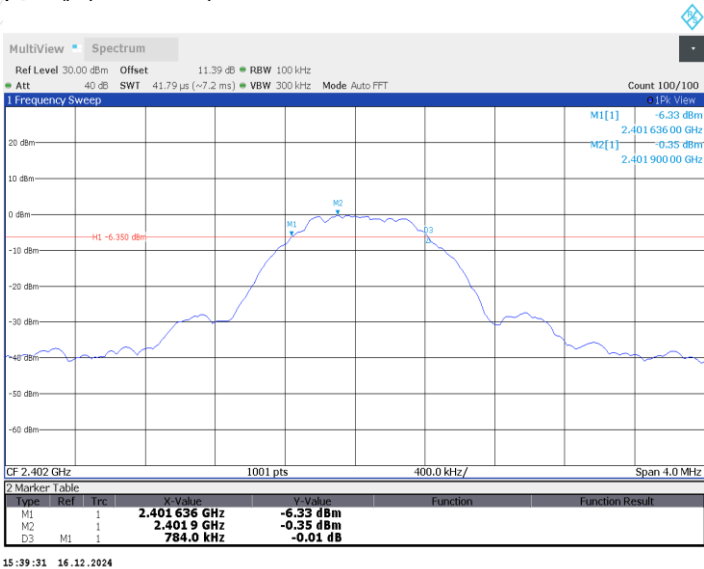
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	784	≥500	PASS
Middle	2440	776		PASS
Highest	2480	772		PASS

BLE_2M

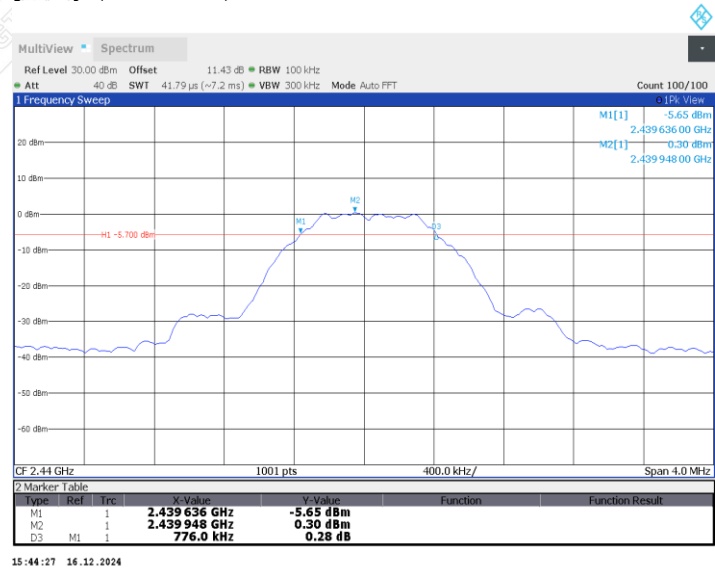
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	1376	≥500	PASS
Middle	2440	1380		PASS
Highest	2480	1336		PASS

BLE_1M

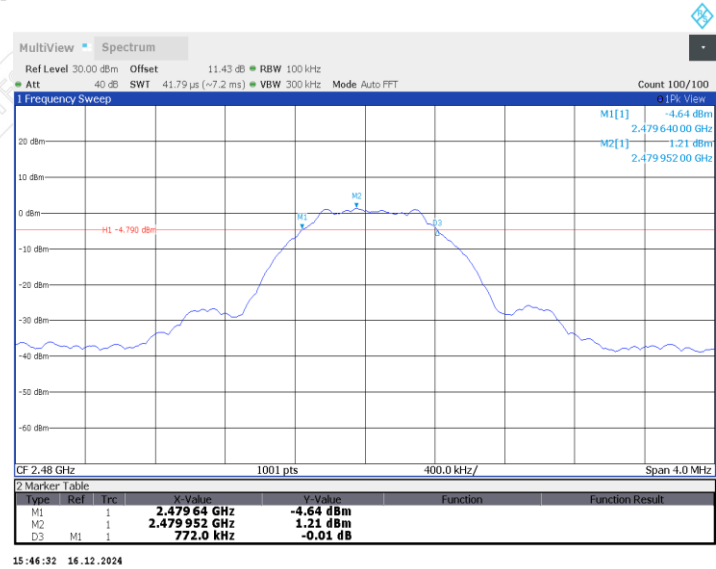
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)

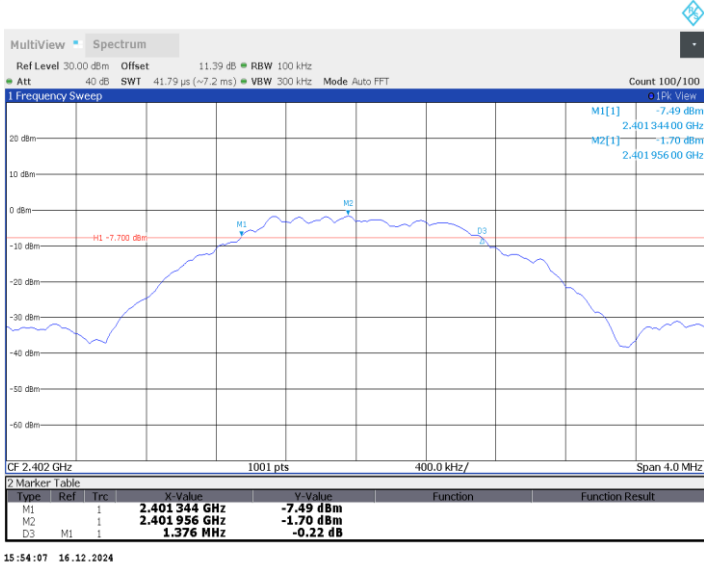


Highest Frequency (2480MHz)

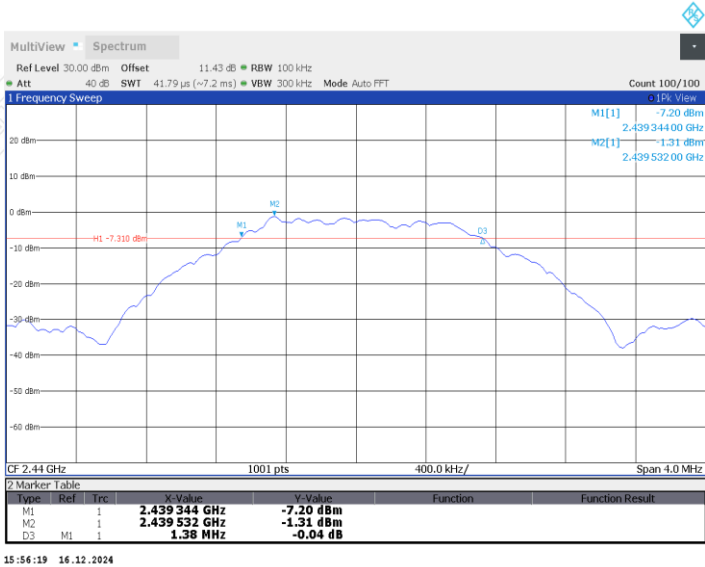


BLE_2M

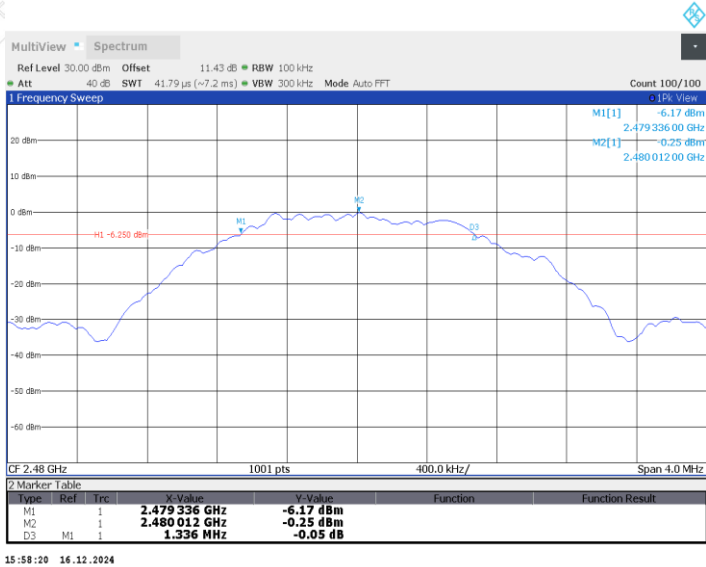
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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8. MAXIMUM PEAK OUTPUT POWER

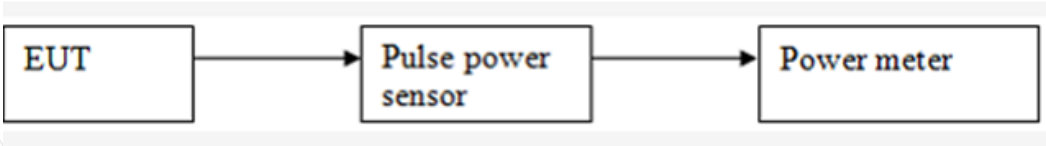
8.1 LIMITS

The maximum Peak output power measurement is 1W

8.2 TEST PROCEDURES

- a) RF output of EUT was connected to the broadband peak RF power meter by RF cable. The path loss was compensated to the results for each measurement.
- b) Set to the maximum power setting and enable the EUT transmit continuously.
- c) Measure the conducted output power and record the results in the test report.

8.3 TEST SETUP



8.4 TEST RESULTS

Environment: 23.5°C/50%RH/101.0kPa
Tested By: Qin tingting

Voltage:DC 47.04V
Date: 2024-12-16

BLE_1M

Channel	Frequency (MHz)	Maximum Power (dBm)	Limit	Peak/ Average	Result
Lowest	2402	1.90	1W (30dBm)	Peak	Pass
Middle	2440	2.61			Pass
Highest	2480	3.39			Pass

BLE_2M

Channel	Frequency (MHz)	Maximum Power (dBm)	Limit	Peak/ Average	Result
Lowest	2402	1.89	1W (30dBm)	Peak	Pass
Middle	2440	2.61			Pass
Highest	2480	3.38			Pass

9. POWER SPECTRAL DENSITY

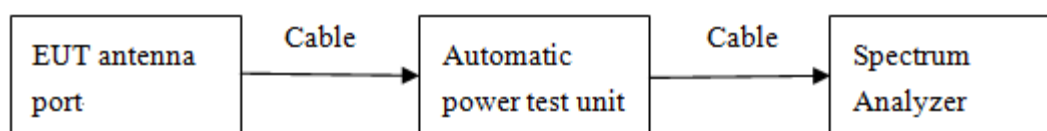
9.1 LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

9.2 TEST PROCEDURES

- a) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- b) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:
 - a) Set analyzer center frequency to DTS channel center frequency.
 - b) Set the span to at least 1.5 times the DTS bandwidth.
 - c) Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - d) Set the VBW $\geq [3 \times \text{RBW}]$.
 - e) Detector = peak
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum amplitude level within the RBW.
 - j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- d) Repeat above procedures until all frequencies measured were complete.

9.3 TEST SETUP



9.4 TEST RESULTS

Environment: 23.5°C/50%RH/101.0kPa
Tested By: Qin tingting

Voltage:DC 47.04V
Date: 2024-12-16

BLE_1M

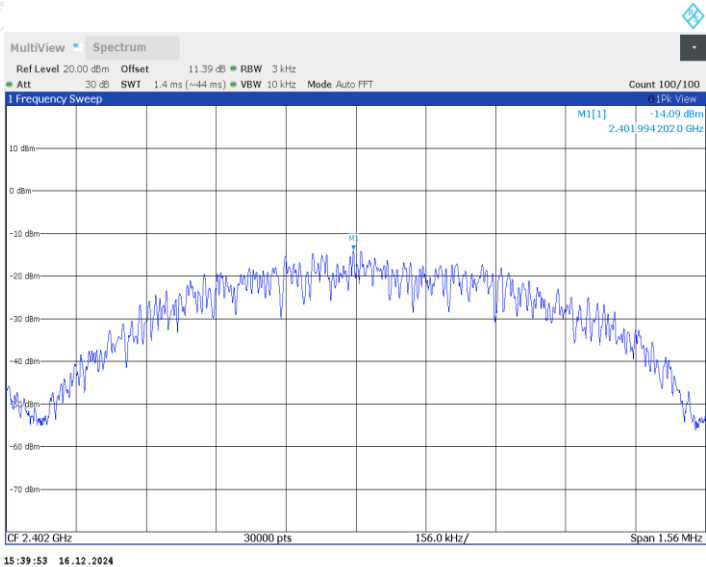
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-14.09	8.00	PASS
Middle	2440	-13.60		PASS
Highest	2480	-12.79		PASS

BLE_2M

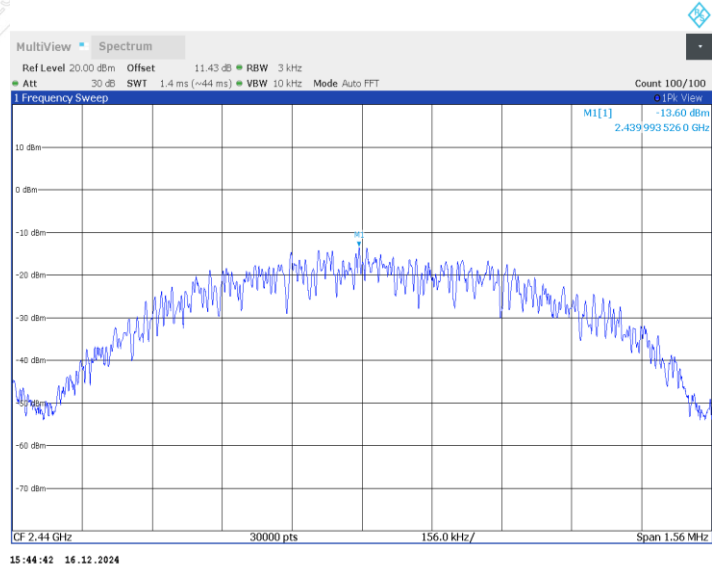
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-16.31	8.00	PASS
Middle	2440	-15.99		PASS
Highest	2480	-15.14		PASS

BLE_1M

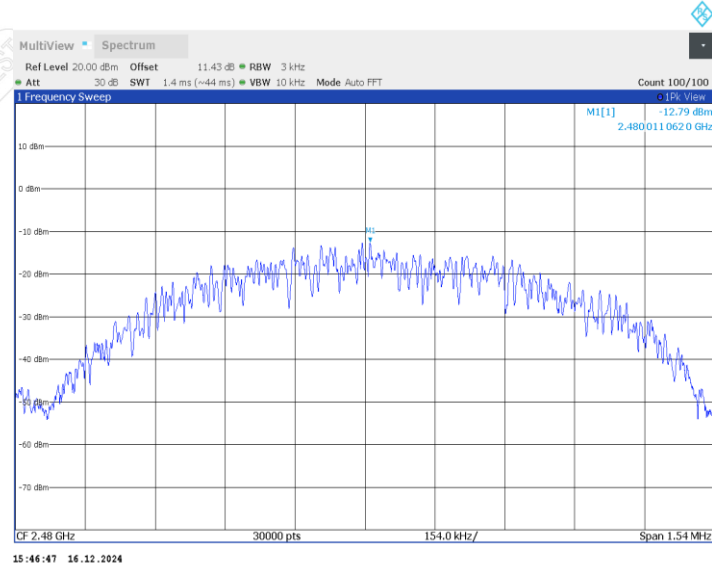
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)

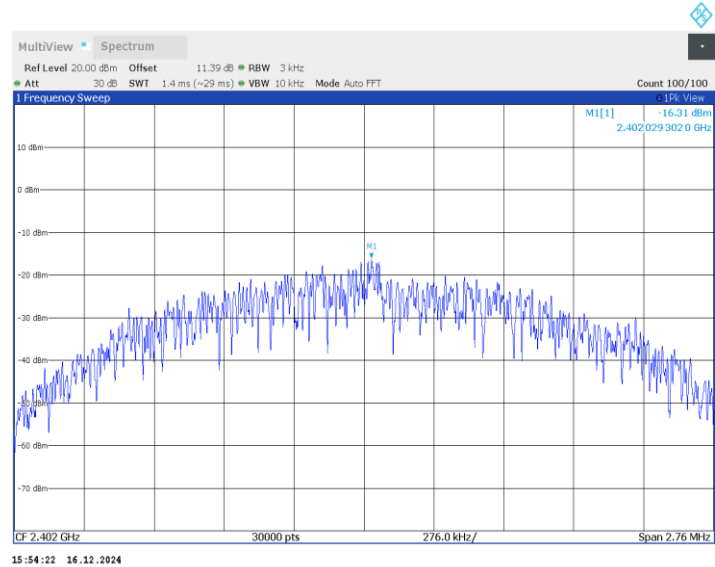


Highest Frequency (2480MHz)

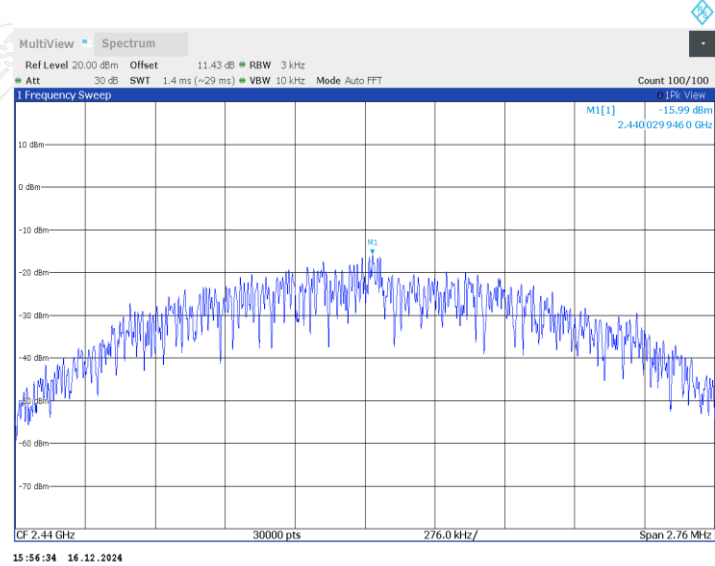


BLE_2M

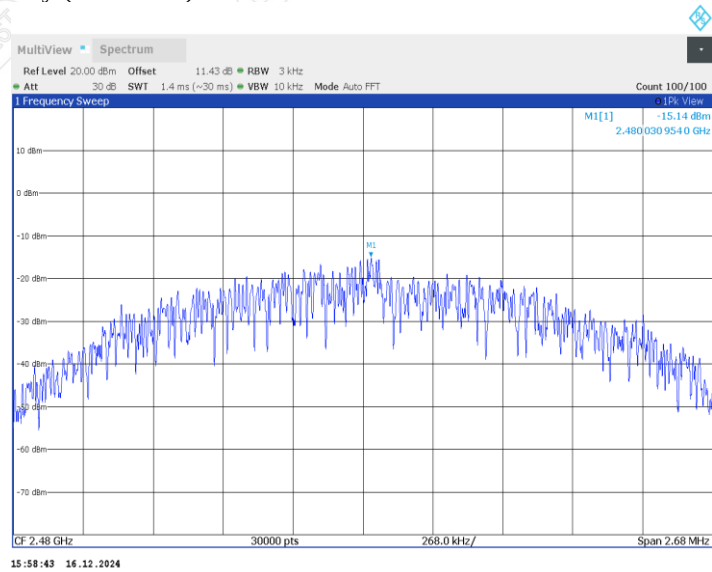
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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10. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

10.1 LIMITS

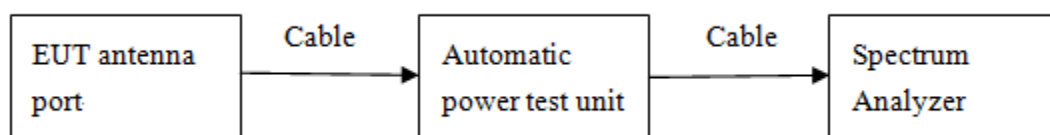
In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30dB instead of 20dB.

10.2 TEST PROCEDURES

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

- Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- Set the spectrum analyzer: RBW =100kHz; VBW =300kHz, Frequency range = 30MHz to 26.5GHz; Sweep = auto; Detector Function = Peak. Trace = Max, hold.
- Measure and record the results in the test report.
- The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

10.3 TEST SETUP



10.4 TEST RESULTS

Environment: 23.5°C/50%RH/101.0kPa
Tested By: Qin tingting

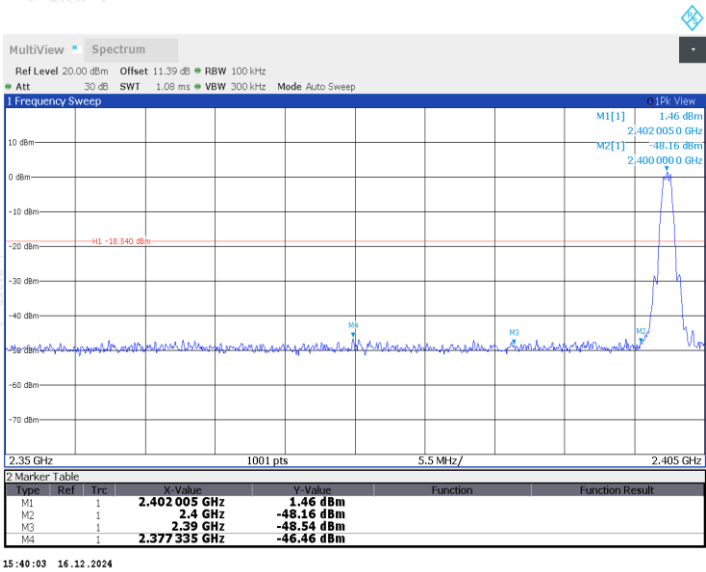
Voltage:DC 47.04V
Date: 2024-12-16

Band edge measurements

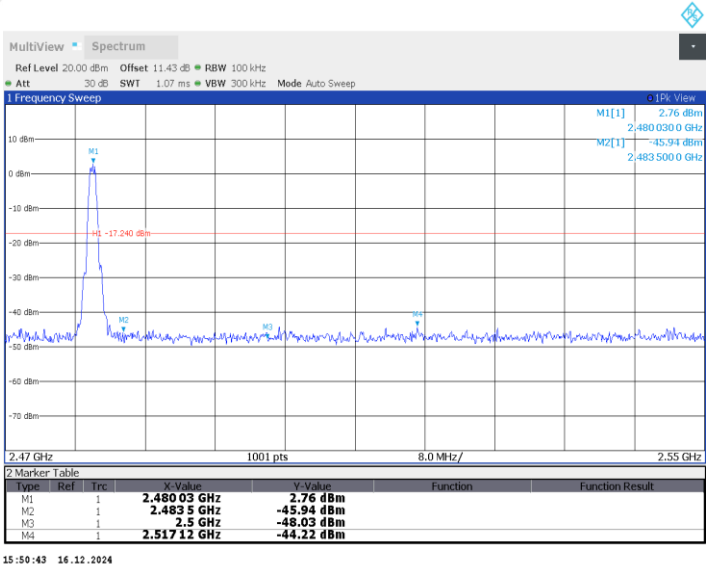
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	1.46	-46.46	≤-18.54	PASS
		High	2480	2.76	-44.22	≤-17.24	PASS
BLE_2M	Ant1	Low	2402	1.48	-31.54	≤-18.52	PASS
		High	2480	2.81	-44.77	≤-17.19	PASS

BLE_1M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz

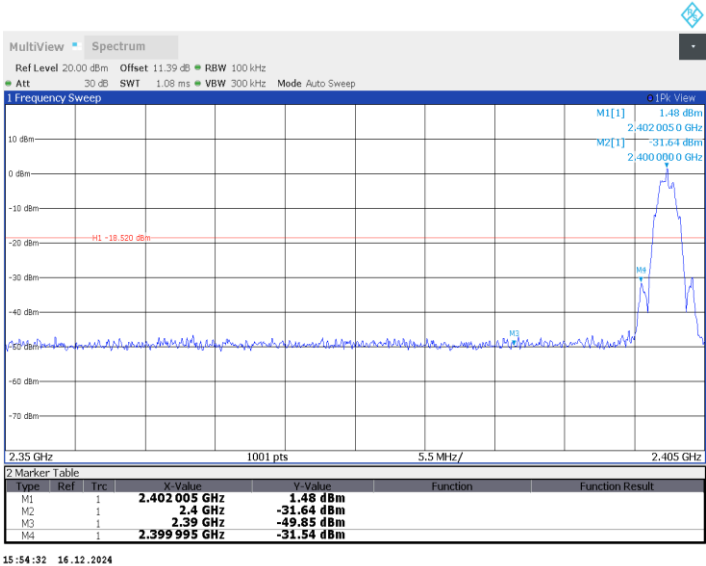


Highest Frequency (2480MHz)
2.47GHz-2.55GHz

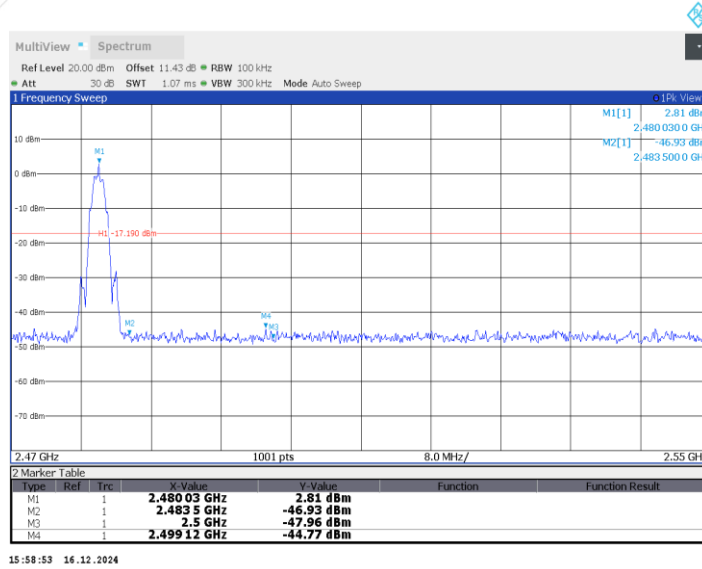


BLE_2M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz



Highest Frequency (2480MHz)
2.47GHz-2.55GHz

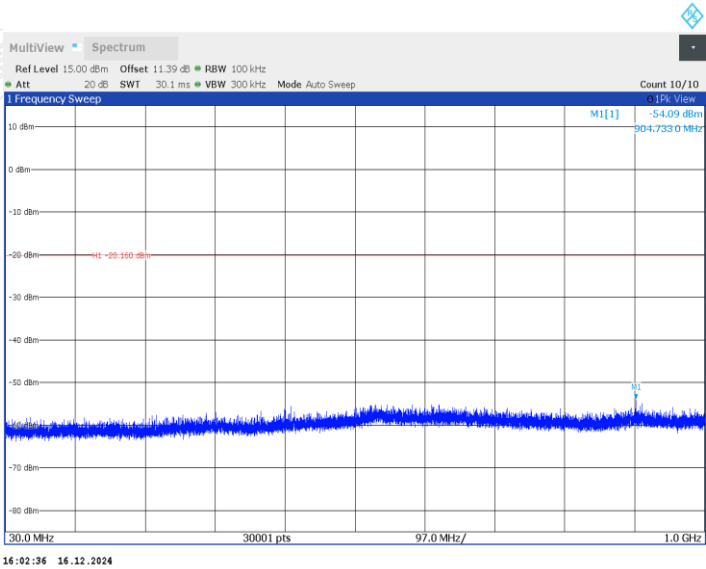
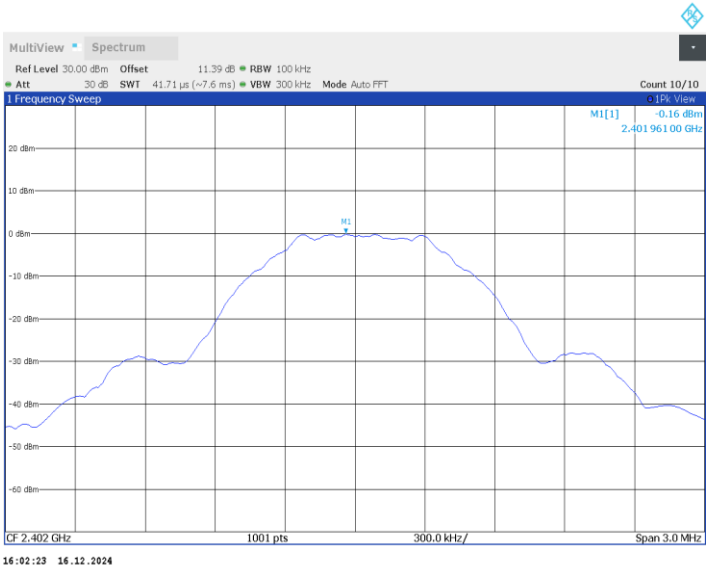


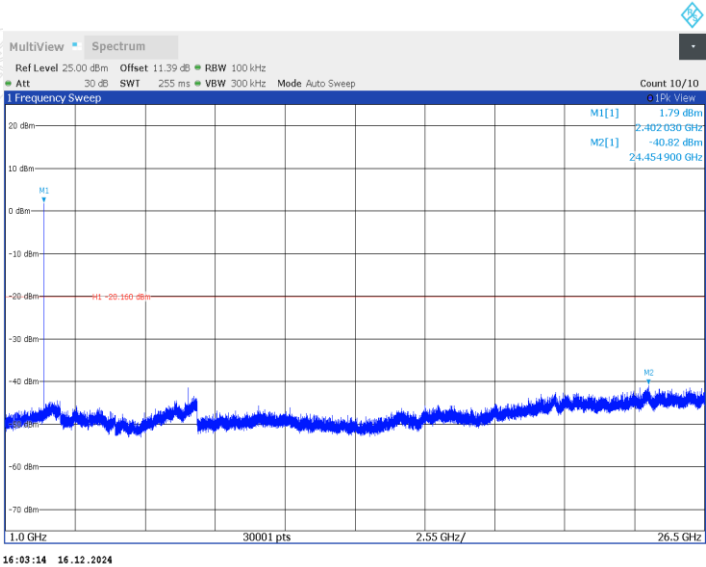
Conducted Spurious Emission

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.16	-0.16	---	PASS
			30~1000	-0.16	-54.09	≤-20.16	PASS
			1000~26500	-0.16	-40.82	≤-20.16	PASS
		2440	Reference	0.54	0.54	---	PASS
			30~1000	0.54	-51.63	≤-19.46	PASS
			1000~26500	0.54	-41.22	≤-19.46	PASS
		2480	Reference	1.01	1.01	---	PASS
			30~1000	1.01	-51.52	≤-18.99	PASS
			1000~26500	1.01	-41.19	≤-18.99	PASS
BLE_2M	Ant1	2402	Reference	-1.43	-1.43	---	PASS
			30~1000	-1.43	-49.45	≤-21.43	PASS
			1000~26500	-1.43	-41.22	≤-21.43	PASS
		2440	Reference	-1.12	-1.12	---	PASS
			30~1000	-1.12	-52.23	≤-21.12	PASS
			1000~26500	-1.12	-40.87	≤-21.12	PASS
		2480	Reference	2.46	2.46	---	PASS
			30~1000	2.46	-49.22	≤-17.54	PASS
			1000~26500	2.46	-39.28	≤-17.54	PASS

BLE_1M

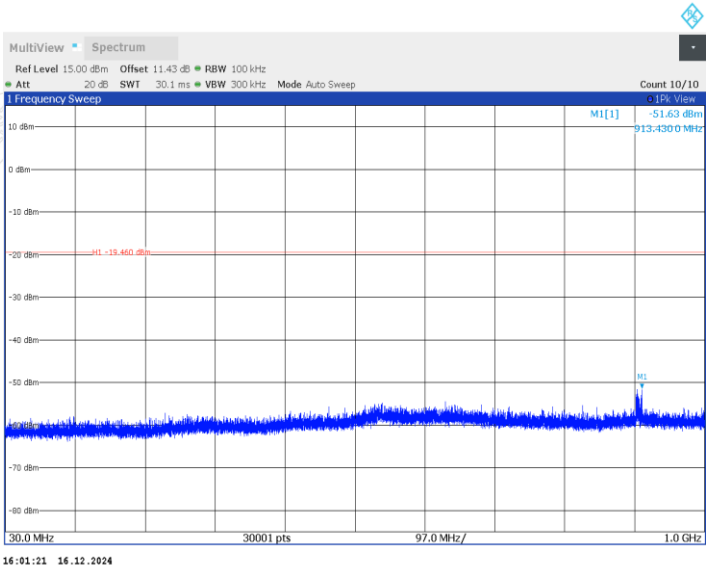
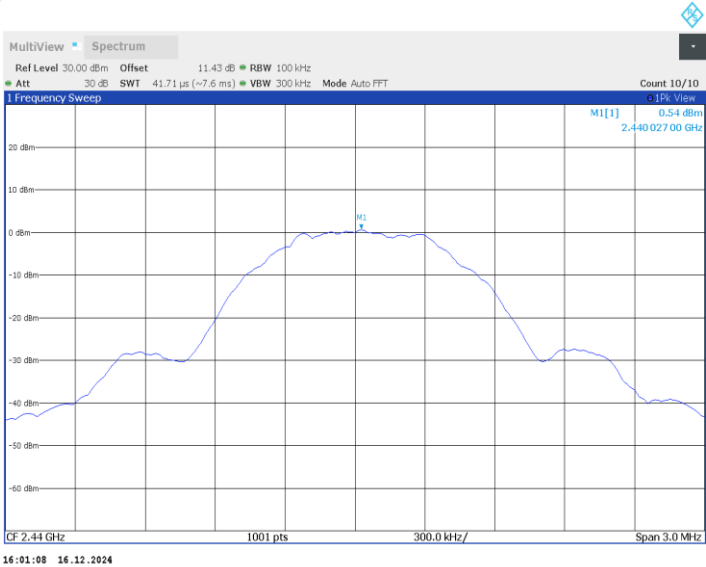
Lowest Frequency (2402MHz)

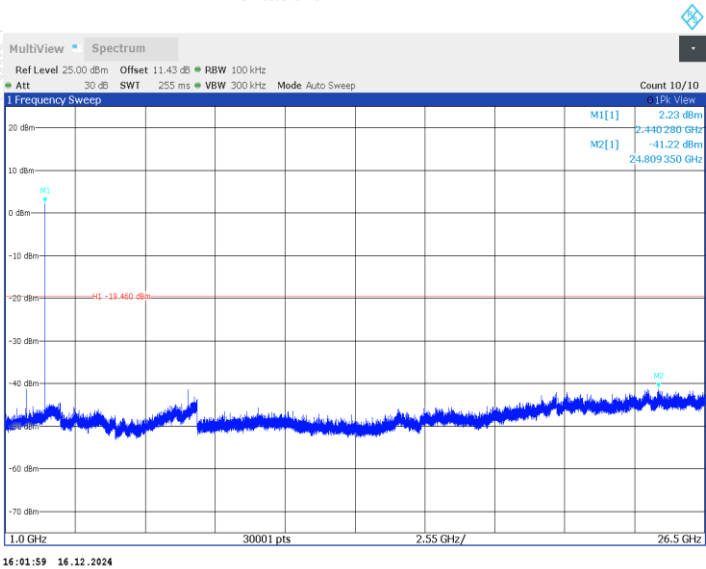




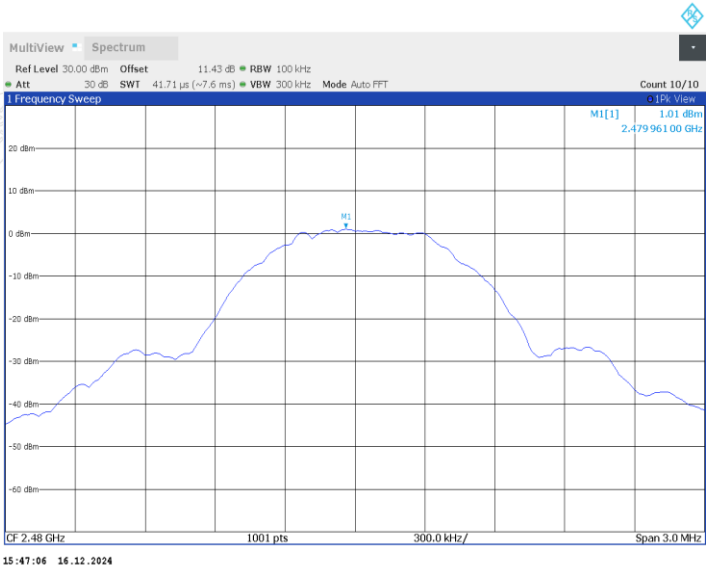
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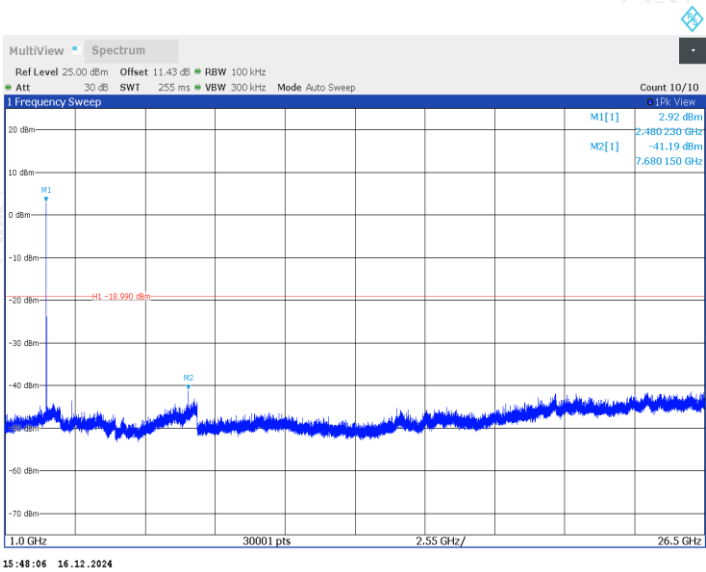
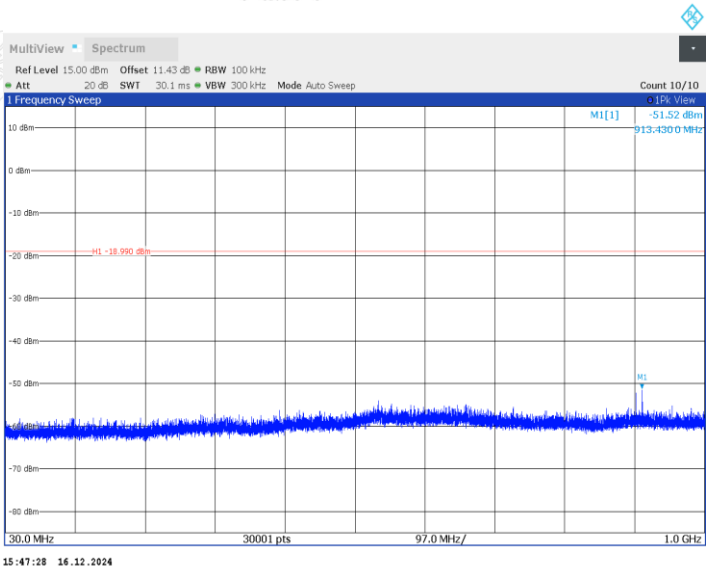
Middle Frequency (2440MHz)





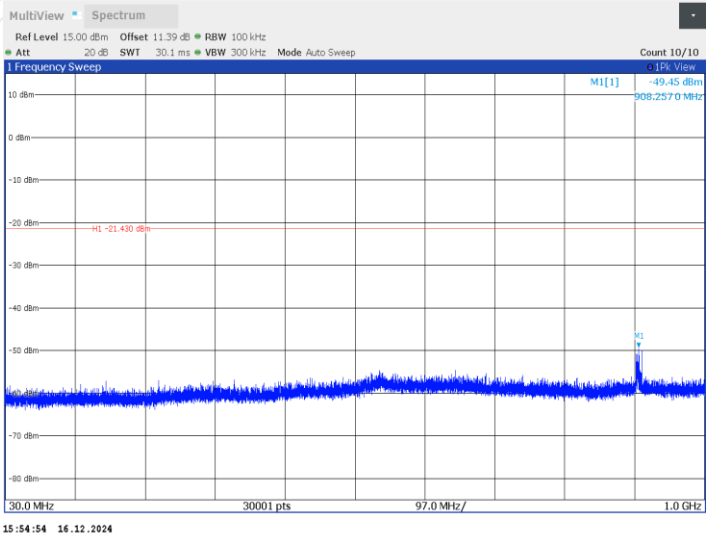
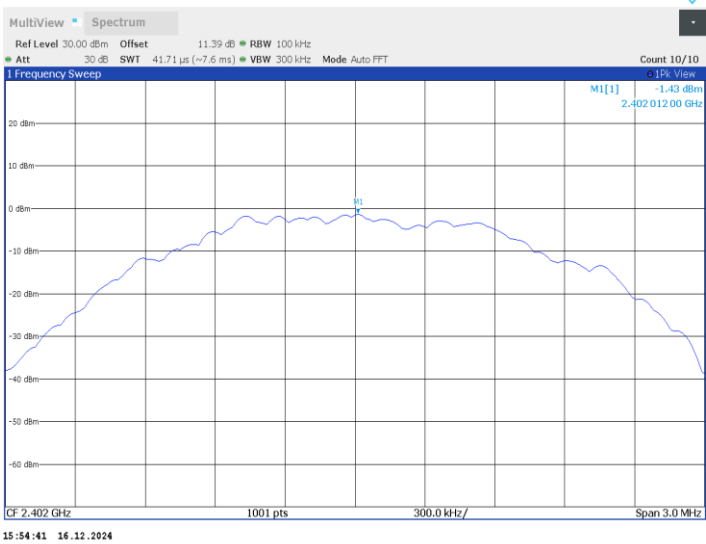
Highest Frequency (2480MHz)

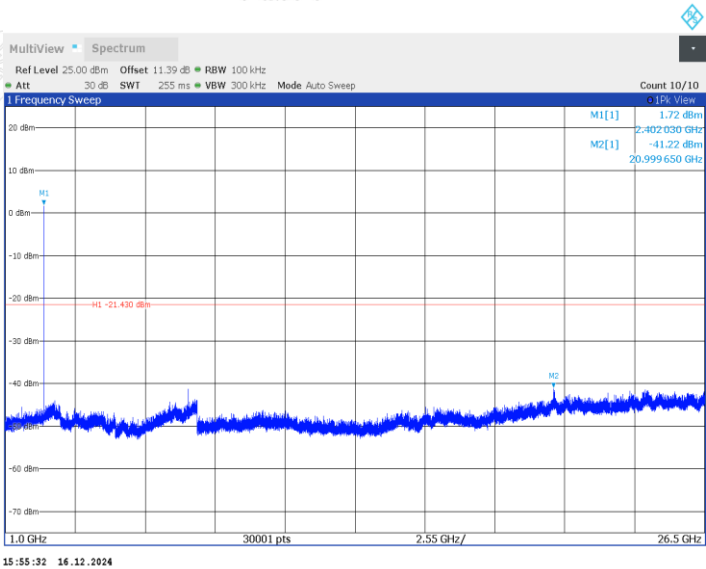




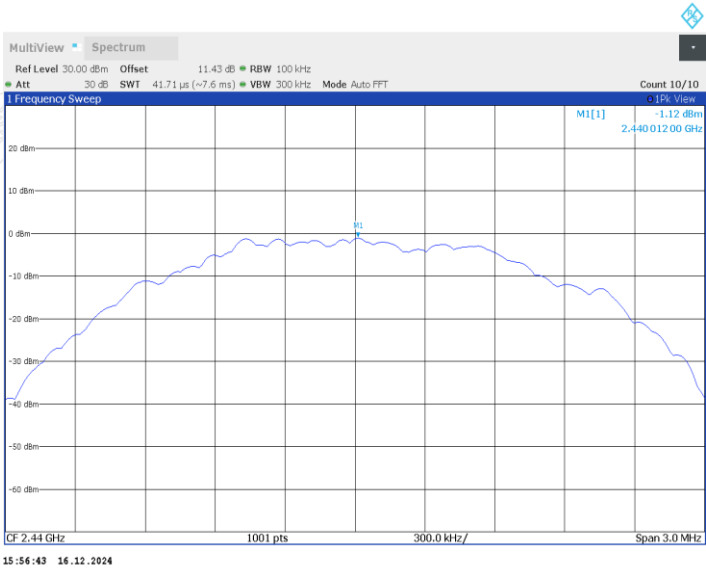
BLE_2M

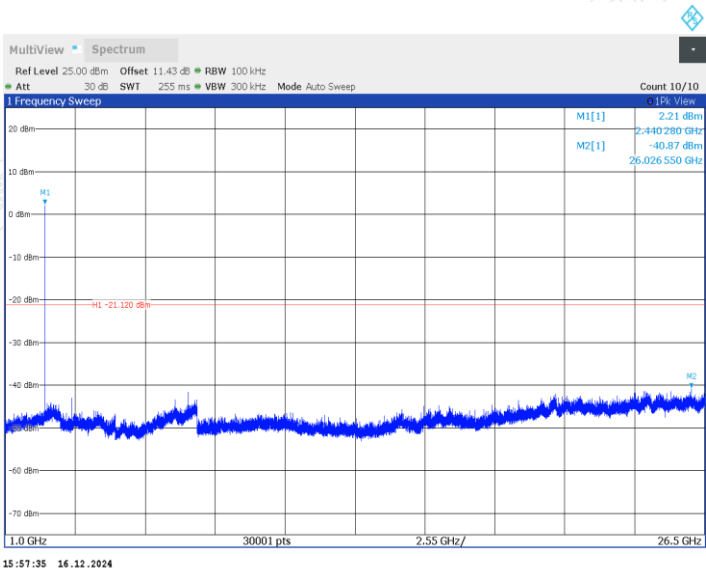
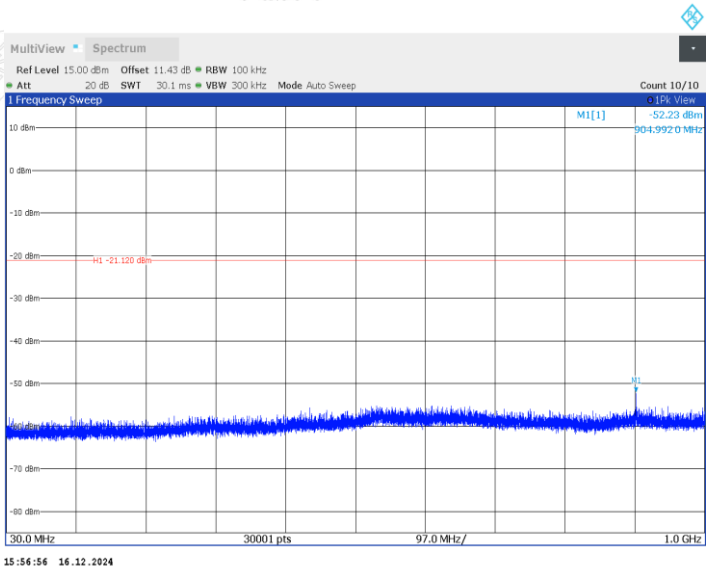
Lowest Frequency (2402MHz)



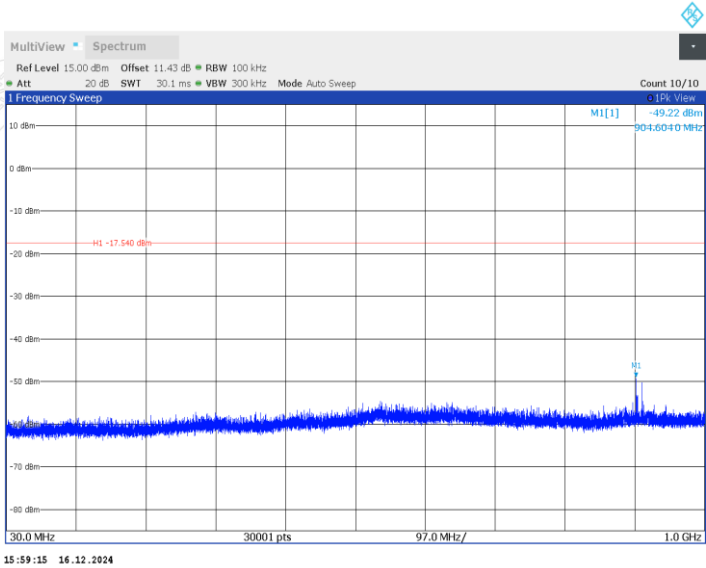
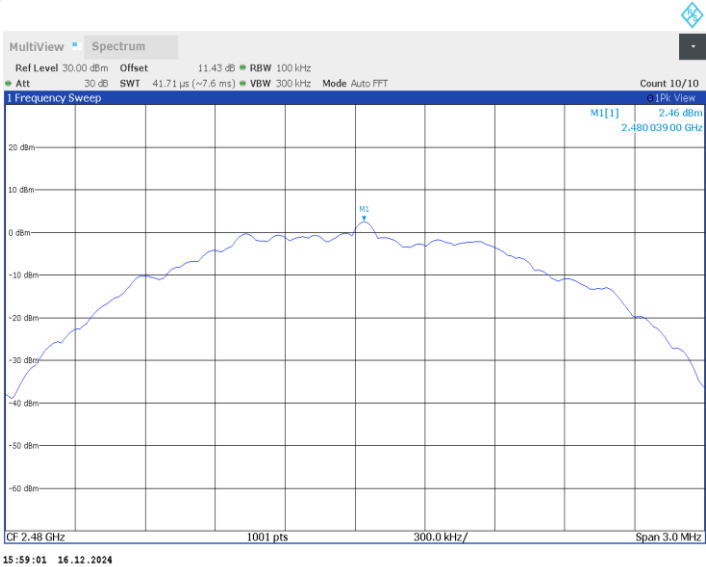


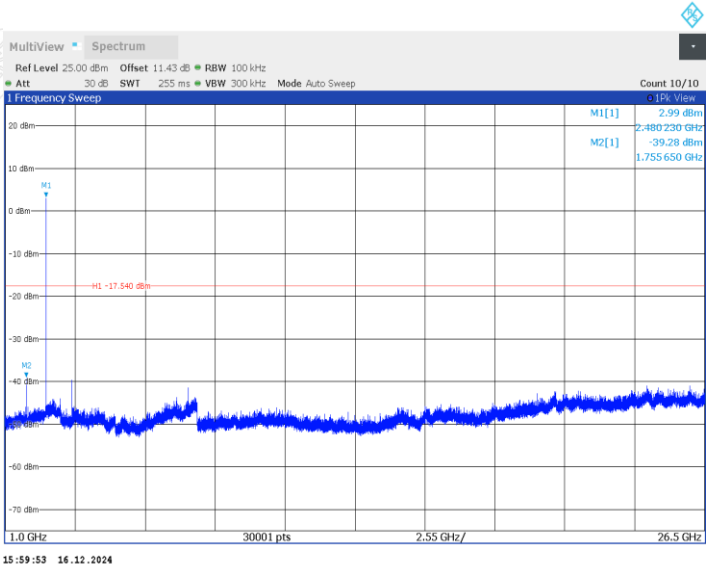
Middle Frequency (2440MHz)





Highest Frequency (2480MHz)





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11. RESTRICTED BANDS OF OPERATION

11.1 LIMITS

Section 15.247(d) In addition, Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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	2655 - 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	
13.36 - 13.41			

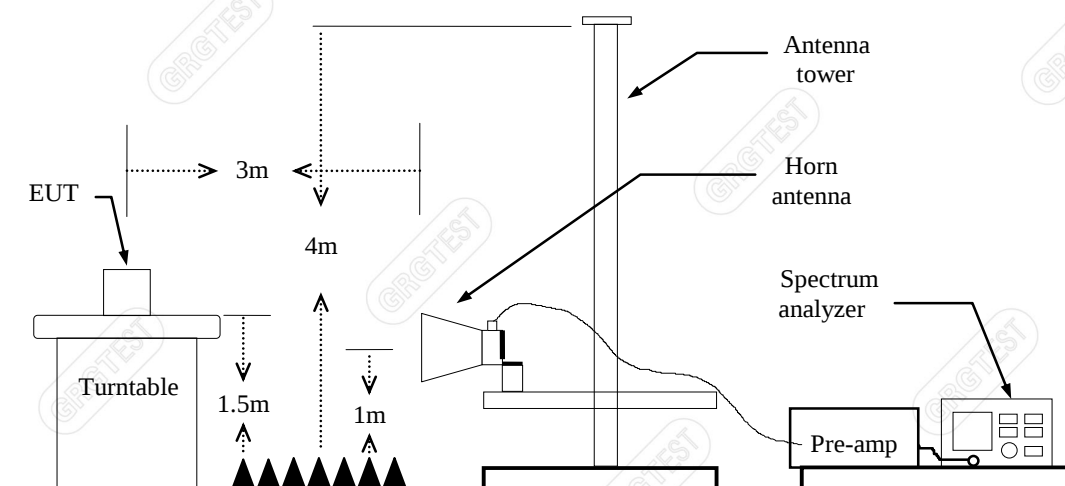
Frequency (MHz)	Quasi-peak(μ V/m)	Measurement distance(m)	Quasi-peak(dB μ V/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

11.2 TEST PROCEDURES

- The EUT is placed on a turntable, which is 1.5m above the ground plane.
- The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO.
 - AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO.

If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e., 10kHz) but not less than 10 Hz. If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$, Where T is defined in section 2.9.
- Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

11.3 TEST SETUP

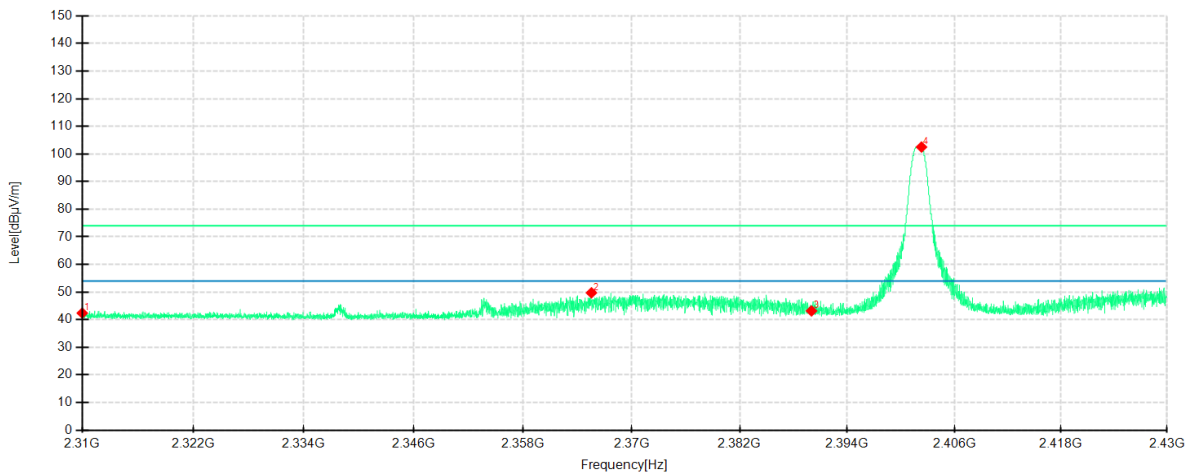


11.4 TEST RESULTS

Product	X500 Rotor UAV	Model No.	X500
Test Voltage:	DC 47.04V	Test Engineer:	Qin tingting
Test Date	2024-12-23	Environmental Conditions	24.6°C/48%RH/101.0kPa
Sample No:	E202411154120-0001	/	/

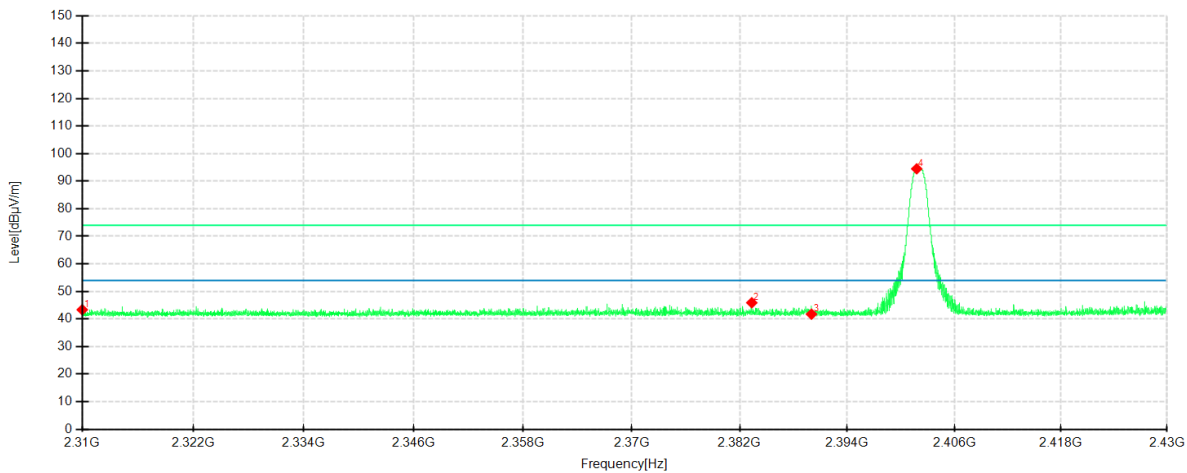
BLE 1M
Lowest Frequency
Frequency 2402MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



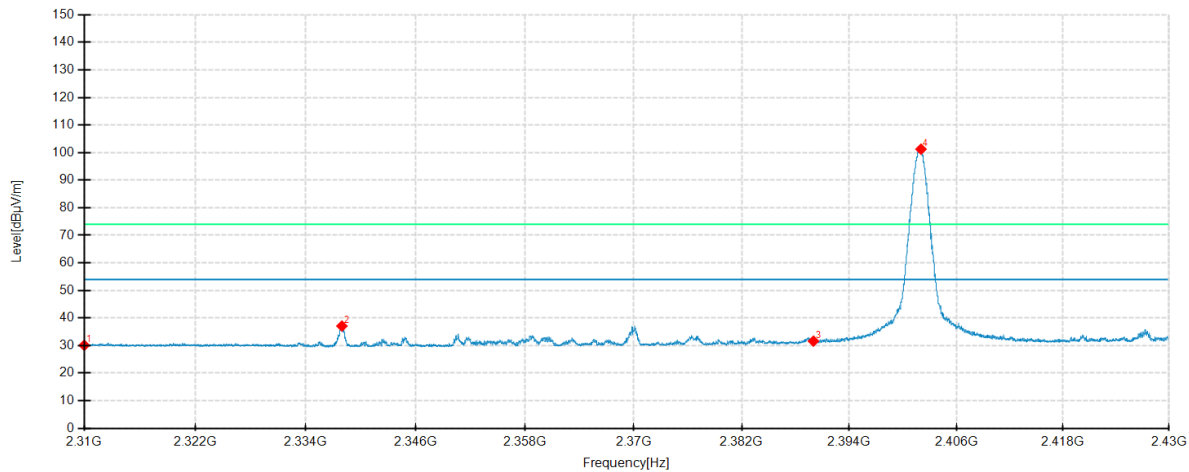
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	48.26	42.36	-5.90	74.00	31.64	100	141	Horizontal	/
2	2365.5750	55.83	49.71	-6.12	74.00	24.29	200	282	Horizontal	/
3	2390.0000	48.88	43.15	-5.73	74.00	30.85	200	269	Horizontal	/
4	2402.3100	108.01	102.50	-5.51	74.00	-28.50	200	282	Horizontal	No limit
1	2310.0000	48.66	43.36	-5.30	74.00	30.64	100	335	Vertical	/
2	2383.3500	51.34	45.90	-5.44	74.00	28.10	200	194	Vertical	/
3	2390.0000	47.19	41.74	-5.45	74.00	32.26	200	24	Vertical	/
4	2401.7700	99.96	94.49	-5.47	74.00	-20.49	200	206	Vertical	No limit

Lowest Frequency

Frequency 2402MHz

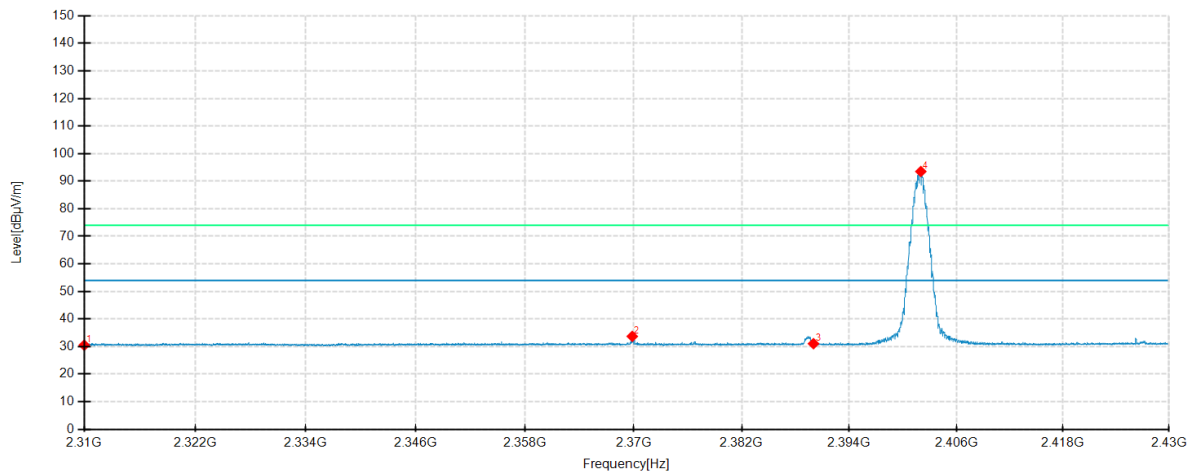
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

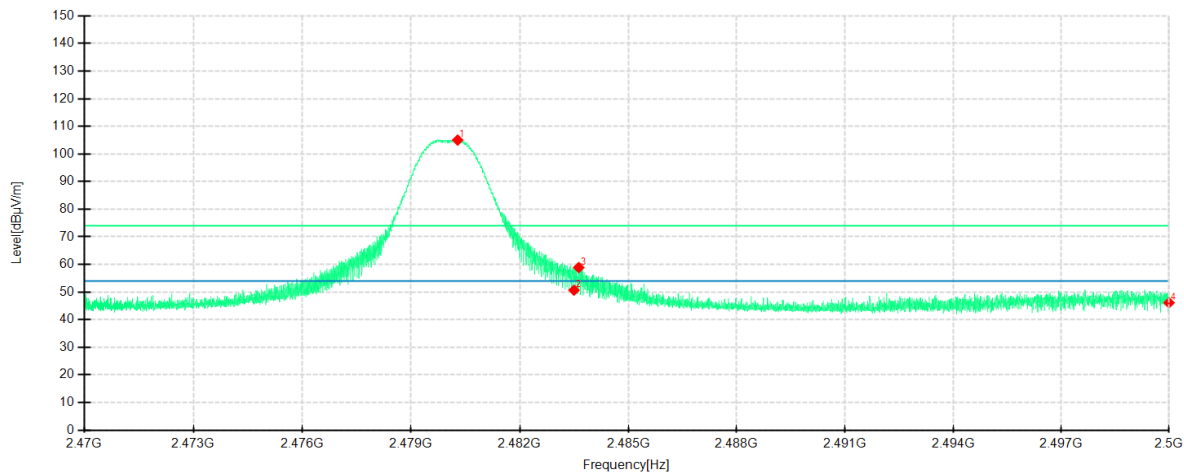
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	35.99	30.09	-5.90	54.00	23.91	200	230	Horizontal	/
2	2337.9600	43.30	37.07	-6.23	54.00	16.93	200	283	Horizontal	/
3	2390.0000	37.33	31.60	-5.73	54.00	22.40	200	283	Horizontal	/
4	2402.0250	106.77	101.25	-5.52	54.00	-47.25	200	283	Horizontal	No limit
1	2310.0000	35.78	30.48	-5.30	54.00	23.52	200	224	Vertical	/
2	2369.8650	39.10	33.69	-5.41	54.00	20.31	200	188	Vertical	/
3	2390.0000	36.49	31.04	-5.45	54.00	22.96	200	188	Vertical	/
4	2402.0100	98.97	93.51	-5.46	54.00	-39.51	200	213	Vertical	No limit

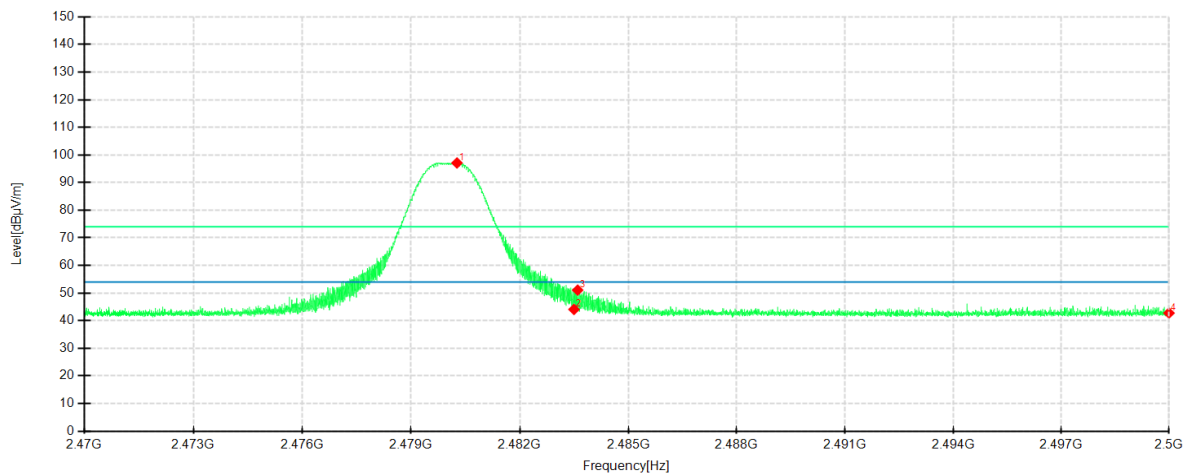
Highest Frequency
Frequency 2480MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

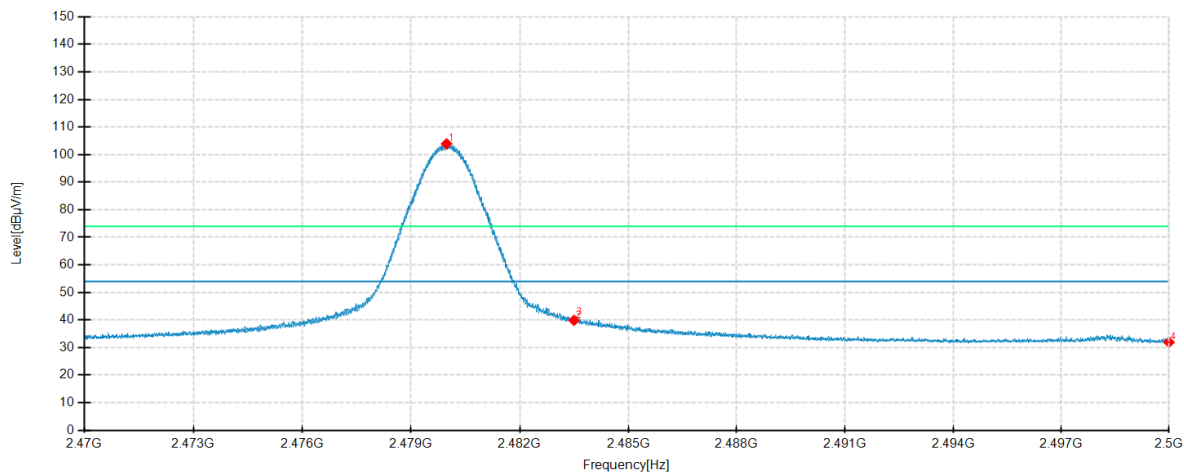
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.2863	109.67	105.02	-4.65	74.00	-31.02	200	269	Horizontal	No limit
2	2483.5000	55.32	50.65	-4.67	74.00	23.35	200	269	Horizontal	/
3	2483.6313	63.54	58.87	-4.67	74.00	15.13	200	269	Horizontal	/
4	2500.0000	50.89	46.10	-4.79	74.00	27.90	200	282	Horizontal	/
1	2480.2675	102.25	97.10	-5.15	74.00	-23.10	200	182	Vertical	No limit
2	2483.5000	49.19	44.06	-5.13	74.00	29.94	200	67	Vertical	/
3	2483.6013	56.19	51.06	-5.13	74.00	22.94	200	182	Vertical	/
4	2500.0000	47.83	42.74	-5.09	74.00	31.26	200	169	Vertical	/

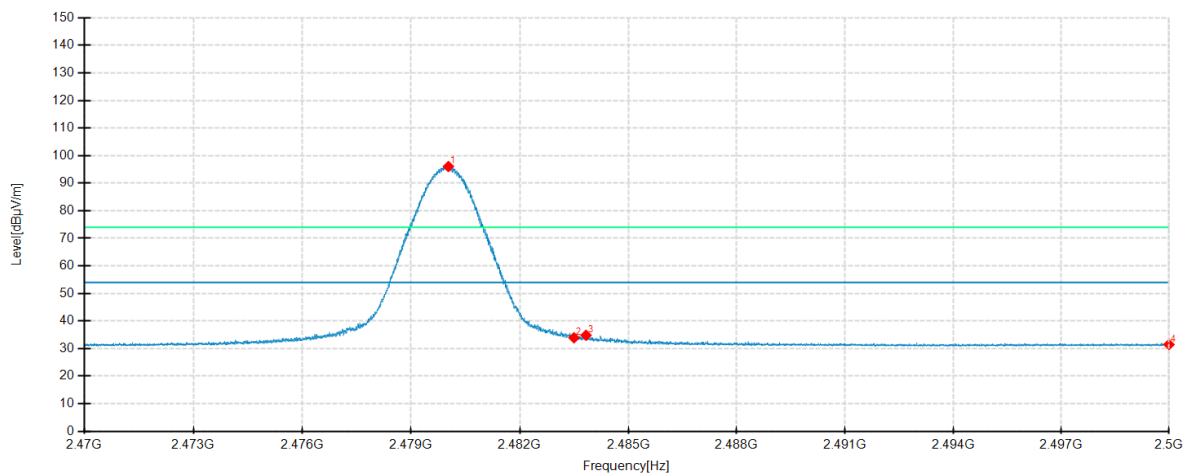
Highest Frequency
Frequency 2480MHz
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

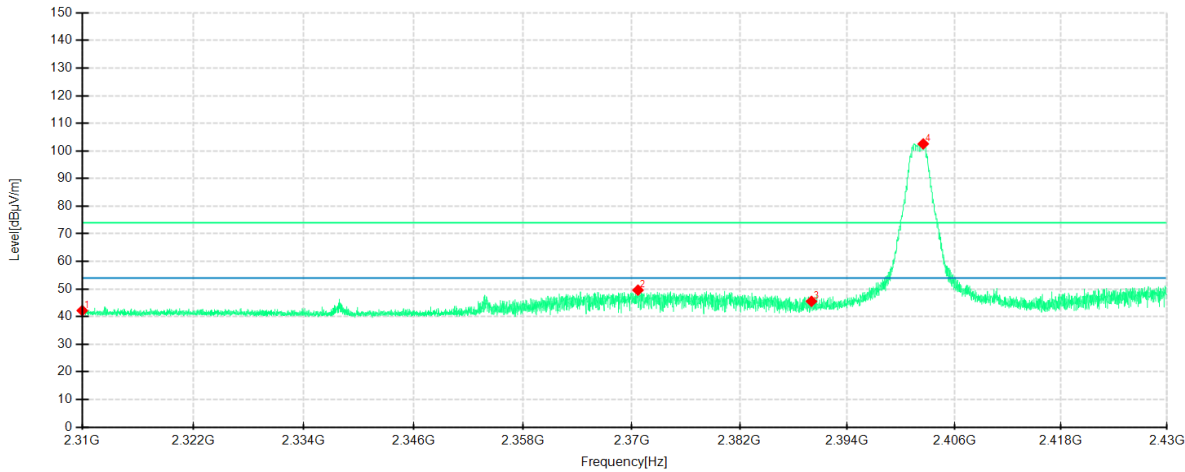
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.9825	108.60	103.95	-4.65	54.00	-49.95	200	278	Horizontal	No limit
2	2483.5000	44.54	39.87	-4.67	54.00	14.13	200	278	Horizontal	/
3	2483.5113	45.45	40.78	-4.67	54.00	13.22	200	265	Horizontal	/
4	2500.0000	36.68	31.89	-4.79	54.00	22.11	200	278	Horizontal	/
1	2480.0313	101.20	96.05	-5.15	54.00	-42.05	200	182	Vertical	No limit
2	2483.5000	39.03	33.90	-5.13	54.00	20.10	200	182	Vertical	/
3	2483.8338	39.94	34.81	-5.13	54.00	19.19	200	182	Vertical	/
4	2500.0000	36.54	31.45	-5.09	54.00	22.55	200	206	Vertical	/

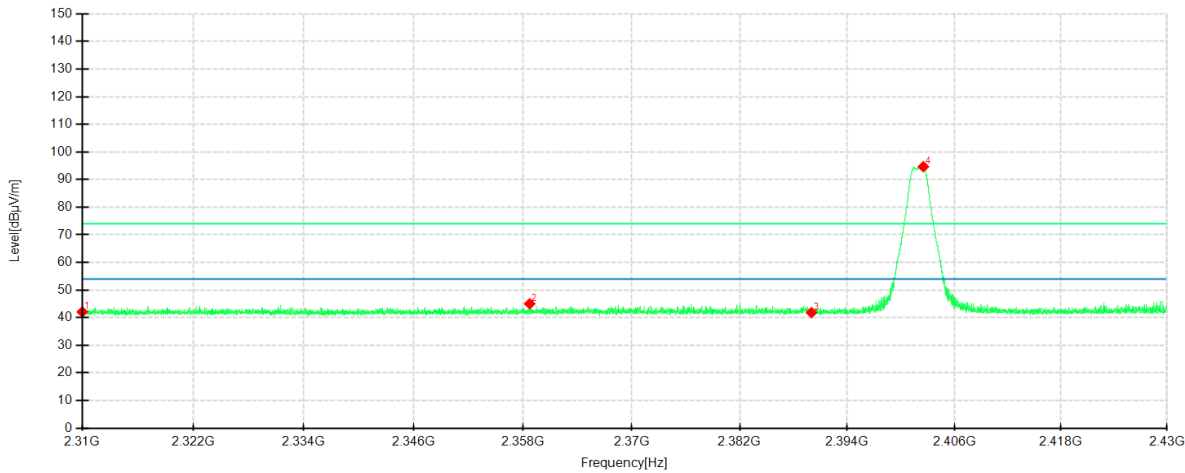
BLE 2M
Lowest Frequency
Frequency 2402MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



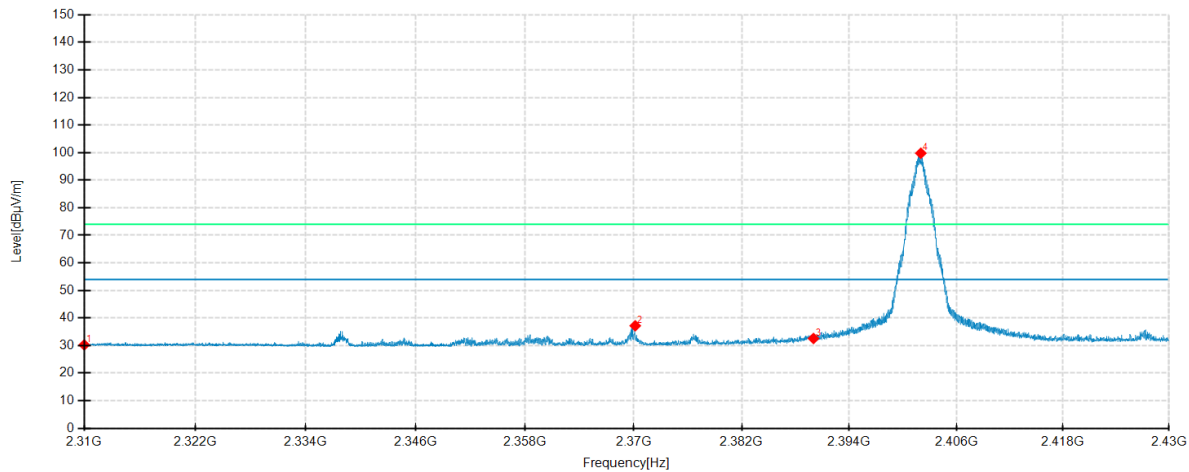
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	48.10	42.20	-5.90	74.00	31.80	100	106	Horizontal	/
2	2370.7200	55.63	49.59	-6.04	74.00	24.41	200	277	Horizontal	/
3	2390.0000	51.27	45.54	-5.73	74.00	28.46	200	277	Horizontal	/
4	2402.5050	108.07	102.56	-5.51	74.00	-28.56	200	277	Horizontal	No limit
1	2310.0000	47.35	42.05	-5.30	74.00	31.95	200	119	Vertical	/
2	2358.7650	50.40	45.01	-5.39	74.00	28.99	200	207	Vertical	/
3	2390.0000	47.26	41.81	-5.45	74.00	32.19	100	360	Vertical	/
4	2402.5200	100.11	94.66	-5.45	74.00	-20.66	200	207	Vertical	No limit

Lowest Frequency

Frequency 2402MHz

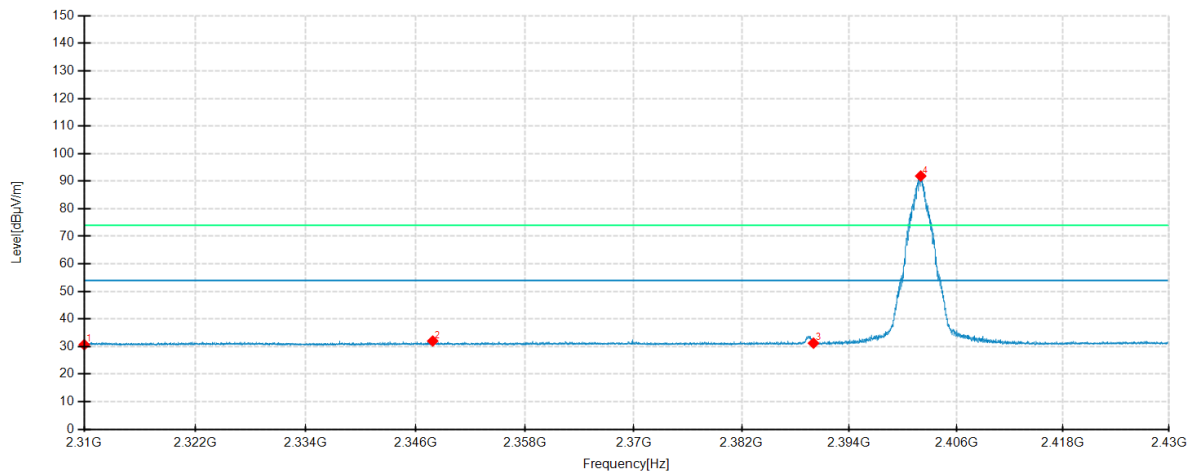
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

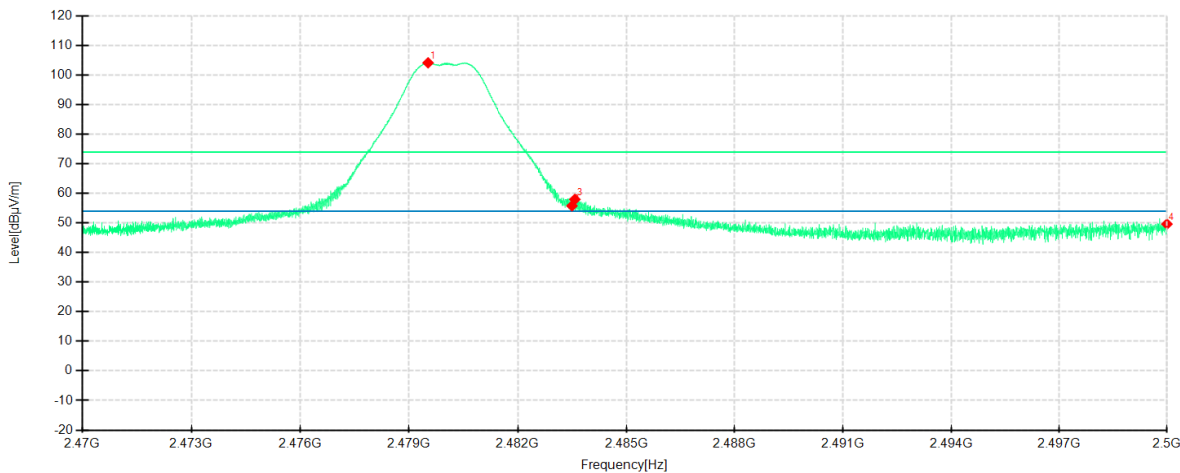
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	36.14	30.24	-5.90	54.00	23.76	200	89	Horizontal	/
2	2370.1950	43.23	37.18	-6.05	54.00	16.82	200	285	Horizontal	/
3	2390.0000	38.30	32.57	-5.73	54.00	21.43	200	271	Horizontal	/
4	2402.0100	105.30	99.78	-5.52	54.00	-45.78	200	285	Horizontal	No limit
1	2310.0000	35.97	30.67	-5.30	54.00	23.33	100	276	Vertical	/
2	2347.8900	37.36	32.00	-5.36	54.00	22.00	100	164	Vertical	/
3	2390.0000	36.68	31.23	-5.45	54.00	22.77	200	334	Vertical	/
4	2401.9950	97.34	91.88	-5.46	54.00	-37.88	200	209	Vertical	No limit

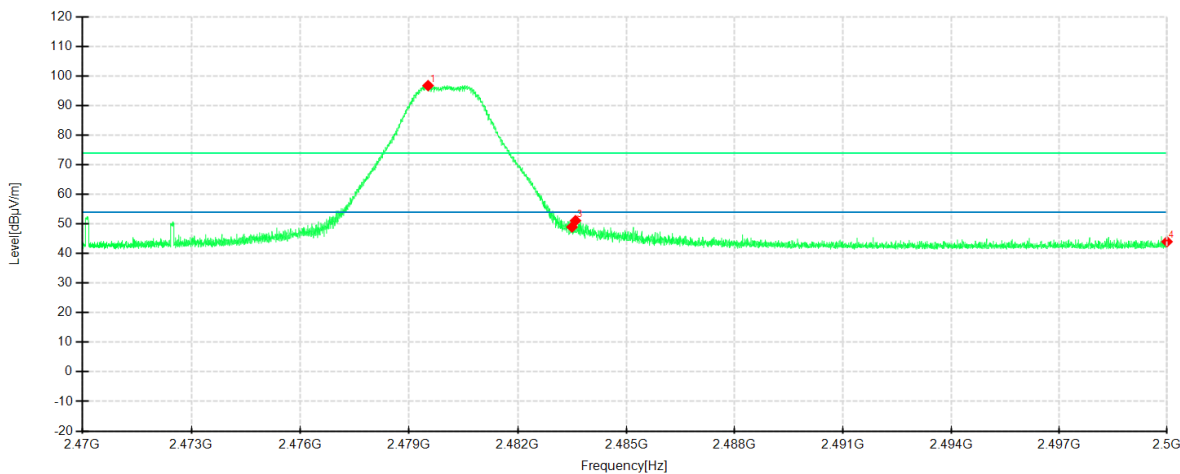
Highest Frequency
Frequency 2480MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

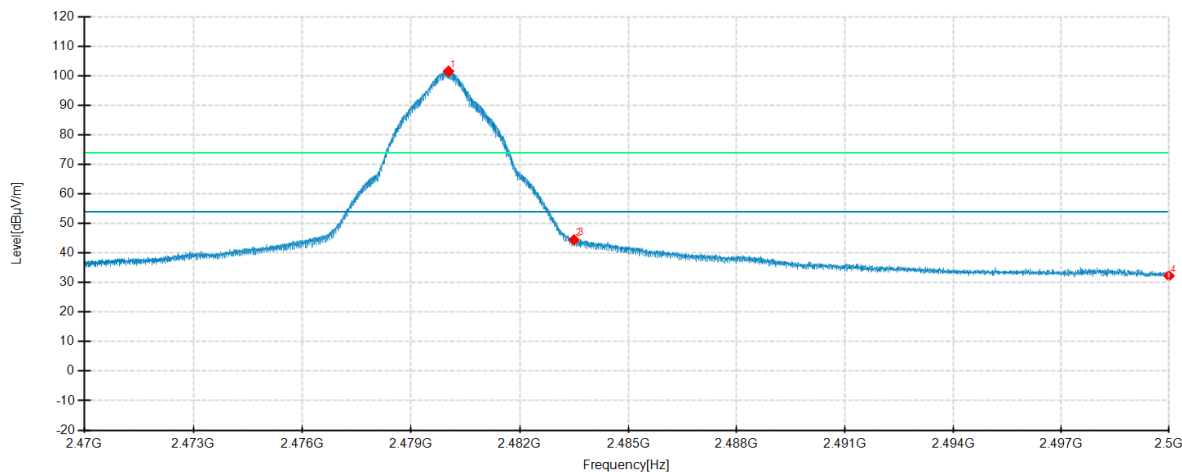
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.5250	108.79	104.14	-4.65	74.00	-30.14	200	334	Horizontal	No limit
2	2483.5000	60.46	55.79	-4.67	74.00	18.21	200	334	Horizontal	/
3	2483.5788	62.64	57.97	-4.67	74.00	16.03	200	334	Horizontal	/
4	2500.0000	54.42	49.63	-4.79	74.00	24.37	200	334	Horizontal	/
1	2479.5250	101.92	96.77	-5.15	74.00	-22.77	200	255	Vertical	No limit
2	2483.5000	54.10	48.97	-5.13	74.00	25.03	200	292	Vertical	/
3	2483.5975	56.25	51.12	-5.13	74.00	22.88	200	113	Vertical	/
4	2500.0000	49.11	44.02	-5.09	74.00	29.98	200	255	Vertical	/

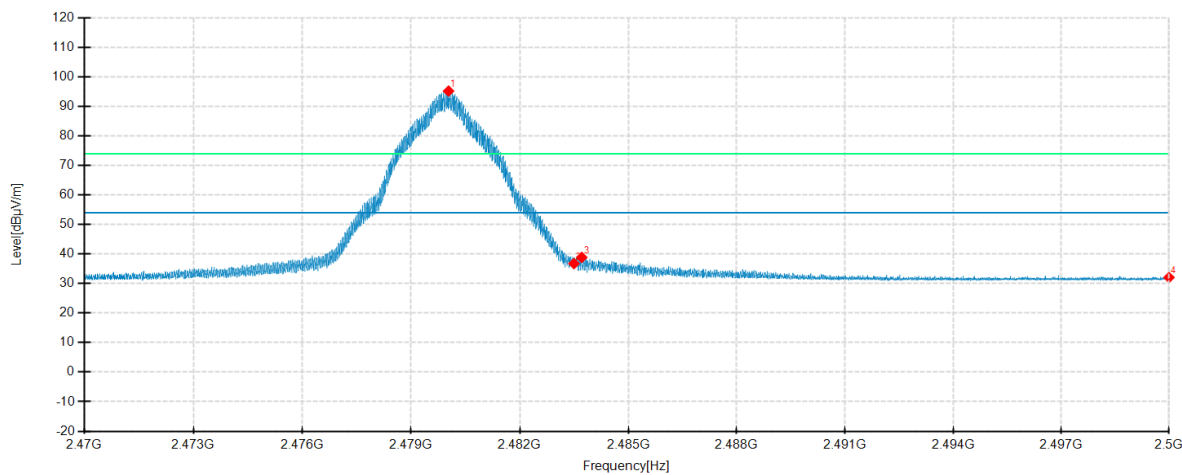
Highest Frequency
Frequency 2480MHz
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.0350	106.22	101.57	-4.65	54.00	-47.57	200	11	Horizontal	No limit
2	2483.5000	49.12	44.45	-4.67	54.00	9.55	200	1	Horizontal	/
3	2483.5638	49.45	44.78	-4.67	54.00	9.22	200	334	Horizontal	/
4	2500.0000	37.07	32.28	-4.79	54.00	21.72	100	25	Horizontal	/
1	2480.0350	100.36	95.21	-5.15	54.00	-41.21	200	248	Vertical	No limit
2	2483.5000	41.91	36.78	-5.13	54.00	17.22	200	236	Vertical	/
3	2483.7138	44.00	38.87	-5.13	54.00	15.13	200	248	Vertical	/
4	2500.0000	37.16	32.07	-5.09	54.00	21.93	200	236	Vertical	/

Remark: Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.

APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM

Please refer to the attached document E202411154120-Test Photo-FCC.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E202411154120-EUT photo.

----- End of Report -----