

Test Report

Verified code: 789587

Report No.: E20240129370001-8

Customer: Lumi United Technology Co., Ltd

Address: B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District,
Nanshan District, Shenzhen, China

Sample Name: Aqara Smart Lock U200

Sample Model: EL-D02D

Receive Sample Date: Feb.01,2024

Test Date: Feb.02,2024 ~ Feb.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: 2024-04-01

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20240129370001-8	Original Issue	2024-03-12

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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
§15.247(b)(3)	Maximum peak output power	Pass
§15.247(e)	Power spectral density	Pass
§15.247(a)(2)	6dB bandwidth	Pass
§15.247(d)& §15.205& §15.209	Restricted bands of operation	Pass
§15.247(d)	Conducted band edges and spurious emissions	Pass
§15.207(a)	Conducted Emission	N/A
§15.247(d) & §15.209 & §15.205	Radiated spurious emissions	Pass
§15.203	Antenna requirement	Pass

Note:

- 1)The EUT has one antenna. The antenna is PIFA antenna, the max gain of antenna is 0.82dBi, which accordance 15.203 is considered sufficient to comply with the provisions of this section.
- 2) N/A is not applied. The prototype is DC battery powered.

----- The following blanks -----

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Lumi United Technology Co., Ltd
 Address: B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd
 Address: B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Aqara Smart Lock U200

Model No.: EL-D02D

Adding Model: EL-D02E

Models Difference: The model NO. EL-D02D & EL-D02E have the same technical construction including circuit diagram, PCB LAYOUT, hardware version and software version identical, except the model name and powered are different due to the sales area .

Product Name	Model No.	Powered	Sales Area
Aqara Smart Lock U200	EL-D02D	Dry Battery+ Lithium battery	Sales entities
	EL-D02E	Lithium battery	Sales on line

Trade Name: Aqara

FCC ID: 2AKIT-ELD02

Power Supply: 4 LR6 AA 1.5V Batteries(Dry Battery, DC 6V) or 7.4V battery(Lithium battery)

Frequency Range: 2405MHz-2480MHz

Transmit Power: 7.23dBm

Modulation type: O-QPSK

Antenna Specification: PIFA antenna 0.82dBi gain (Max.)

Temperature Range: -15 °C ~ 66 °C

Hardware Version: V2.1

Software Version: V0019

Sample No: E20240129370001-0007 , E20240129370001-0009

Note 1: 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.

Note 2: All tests were performed on the EL-D02D model

2.4 CHANNEL LIST

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
*11	2405	12	2410	13	2415	14	2420
15	2425	16	2430	17	2435	*18	2440
19	2445	20	2450	21	2455	22	2460
23	2465	24	2470	25	2475	*26	2480

* is the test frequency

2.5 TEST OPERATION MODE

Mode No.	Description of the modes
1	Thread fixed frequency transmitting

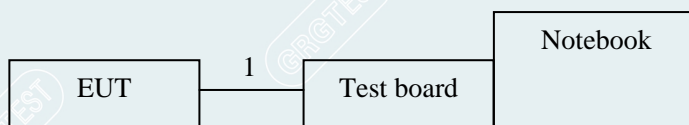
2.6 LOCAL SUPPORTIVE

Name of Equipment	Manufacturer	Model	Serial Number	Note
Notebook	DELL	Latitude3300	2C6CFW2	/
Test board	/	/	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	Serial cable	1	No	0	0.3m

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

2.7 CONFIGURATION OF SYSTEM UNDER TEST



Test software:

Software version	Test level
QCOM_V1.0	2405MHz: 80 2440MHz: 80 2480MHz: 80

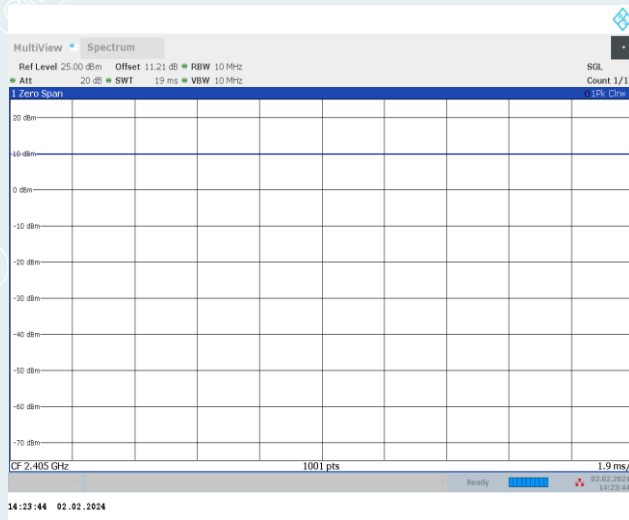
2.8 DUTY CYCLE

Environment: 23.1°C/68%RH/101.0kPa
 Tested By: Huang Tianmei

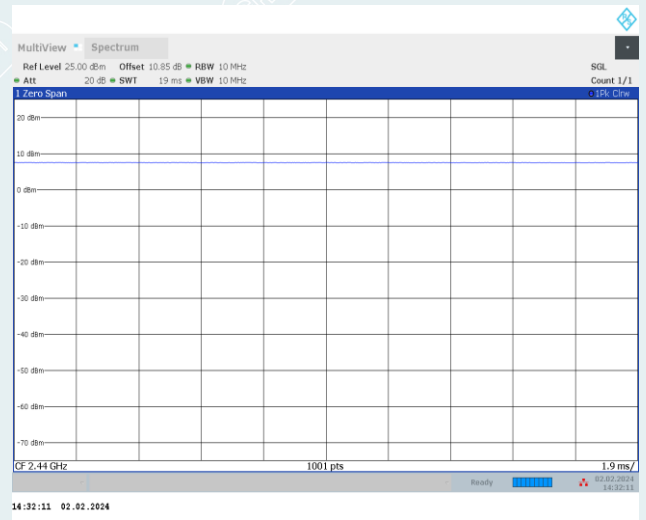
Voltage: DC 6V
 Date: 2024-02-02

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	T [s]
Thread	Ant1	2405	19.00	19.00	100	/
		2440	19.00	19.00	100	/
		2480	19.00	19.00	100	/

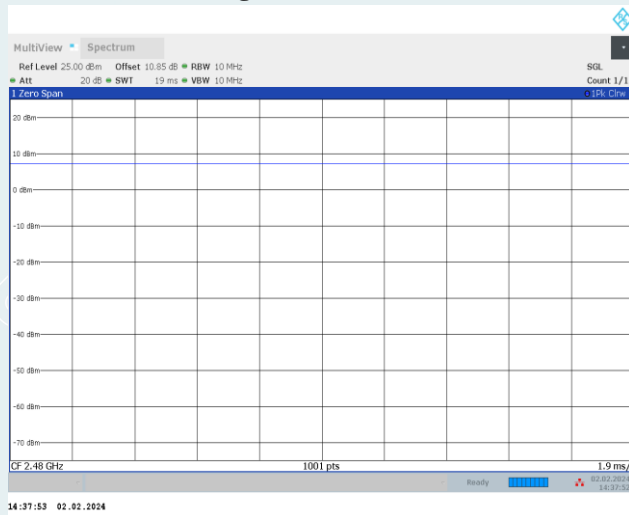
Lowest_2405MHz



Middle_2440MHz



Highest_2480MHz



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.

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3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:2017.

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				
Test S/W	EZ	CCS-03A1		
Loop Antenna	Schwarzbeck	FMZB 1513-60	1513-60-56	2024-07-15
Bi-log Antenna	Schwarzbeck	VULB9160	VULB9160-3402	2024-10-06
Horn Antenna	Schwarzbeck	BBHA 9120D	02143	2024-09-23
Test Receiver	R&S	ESR26	101758	2024-09-22
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2024-09-18
Amplifier	SHIRONG ELECTRONIC	DLNA-30M1G-G 40	20200928001	2025-01-30
Amplifier	Tonscend	TAP01018048	AP20E8060075	2024-04-11
Amplifier	Tonscend	TAP184050	AP20E806071	2024-04-16
Amplifier	SHIRONG ELECTRONIC	DLNA-1G18G-G 40	20200928005	2024-08-17
Test S/W	Tonscend	JS32-RE/5.0.0		
6dB Bandwidth&Conducted band edges and Spurious Emission&Power Spectral Density				
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
Automatic power test unit	TONSCEND	JS0806-2	21B8060365	2024-11-07
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 100 kHz 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 20 dB below that in the 100 kHz 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 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak($\mu\text{V}/\text{m}$)	Measurement distance(m)	Quasi-peak($\text{dB}\mu\text{V}/\text{m}$)@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 lower limit shall apply at the transition frequencies.

(2) Above 18GHz test distance is 1m, so the Peak Limit= $74+20*\log(3/1)=83.54$ ($\text{dB}\mu\text{V}/\text{m}$).

The Avg Limit= $54+20*\log(3/1)=63.54$ ($\text{dB}\mu\text{V}/\text{m}$).

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 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- 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 0.8 m 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.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- 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 1.5 m height is used.

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

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- 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.
- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.
- The EUT is placed on a desktop position in the center of the turntable.
- 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), RBW=300Hz(for Peak&AVG).
the frequency from 150kHz to 30MHz, Set RBW=9kHz, RBW=9kHz, (for QP Detector).
- (2).The frequency from 30MHz to 1GHz, Set RBW=120kHz, RBW=300kHz, (for QP Detector).
- (3).The frequency above 1GHz, for Peak detector: Set RBW=1MHz, RBW=3MHz.
- (4).The frequency above 1GHz, for Avg detector: Set RBW=1MHz, 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 2.8.

6.3 TEST SETUP

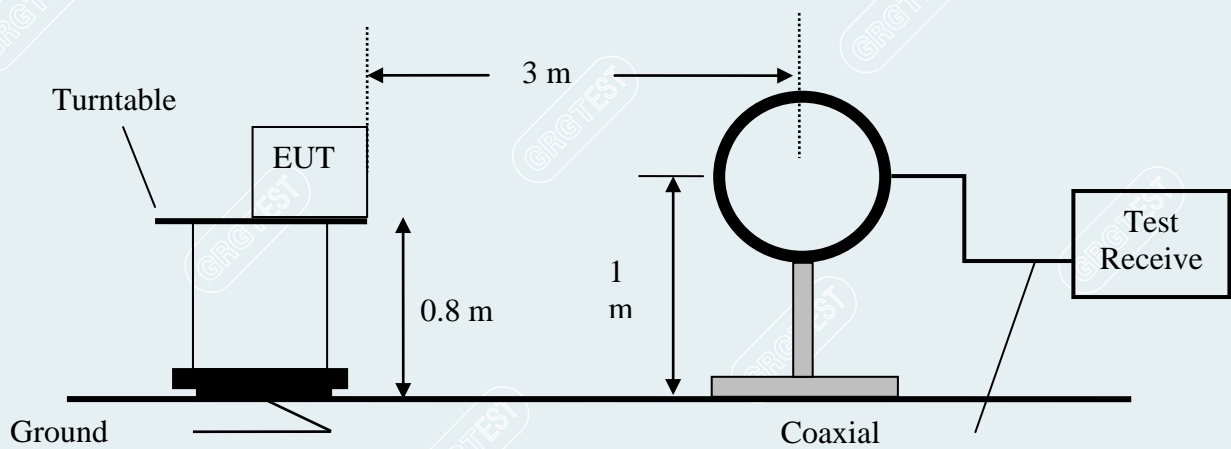


Figure 1. 9kHz to 30MHz radiated emissions test configuration

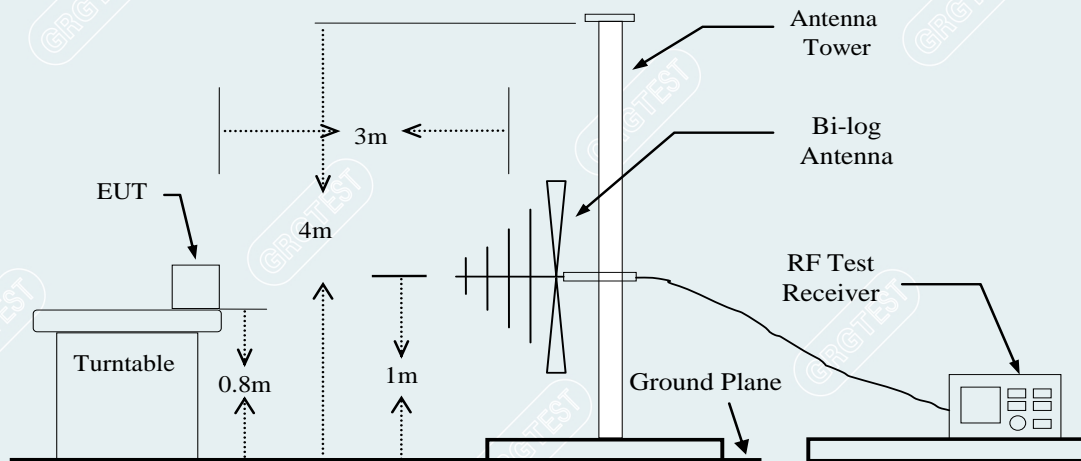


Figure 2. 30MHz to 1GHz radiated emissions test configuration

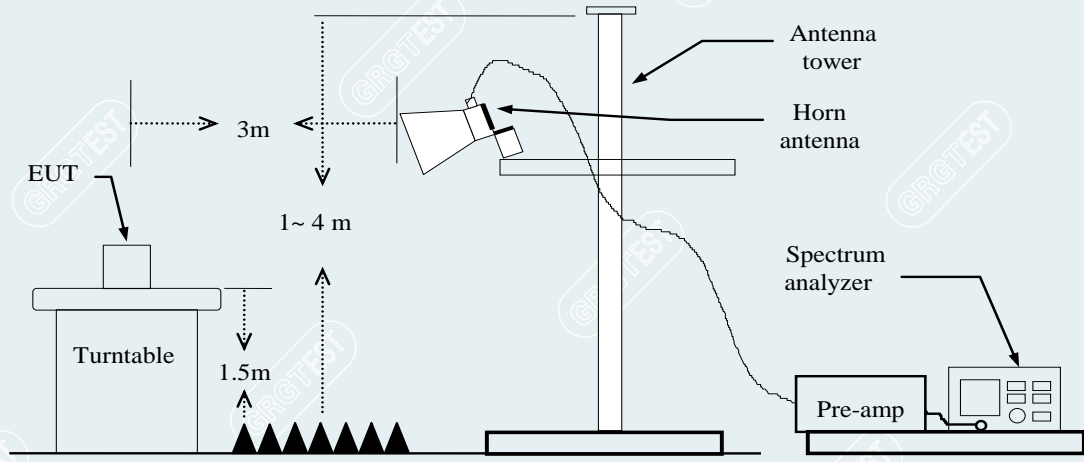


Figure 3. 1GHz-18GHz radiated emissions test configuration

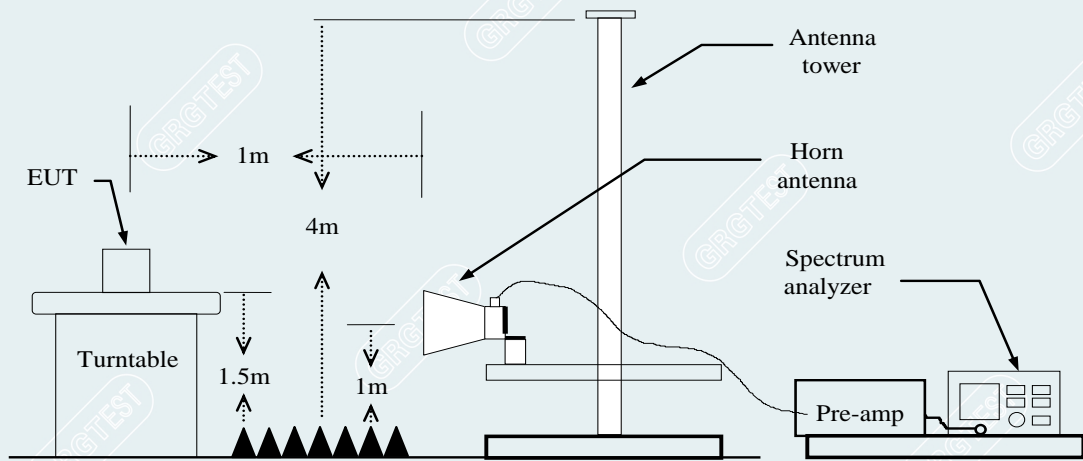


Figure 4. 18GHz-26.5GHz radiated emissions test configuration

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6.4 DATA SAMPLE

30MHz to 1GHz

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Heigh (cm)	Detectorty pe
XXX.XXXX	48.49	-9.91	38.58	47.00	-8.42	100	108	QP

- Frequency (MHz) = Emission frequency in MHz
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correct Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Correct Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) = Result (dBuV/m)-Limit (dBuV/m)
- Peak = Peak Reading
- 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	Remark
xxx	xxxx	78.01	55.30	-22.71	74.00	18.70	100	50	Horizontal	Peak
xxx	xxxx	66.37	43.66	-22.71	54.00	10.34	100	50	Horizontal	AVG

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	Remark
xxx	xxxx	54.49	42.38	32.84	-12.11	74	41.16	100	211	Horizontal	Peak
xxx	xxxx	43.99	31.88	22.34	-12.11	54	31.66	100	211	Horizontal	AVG

- 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

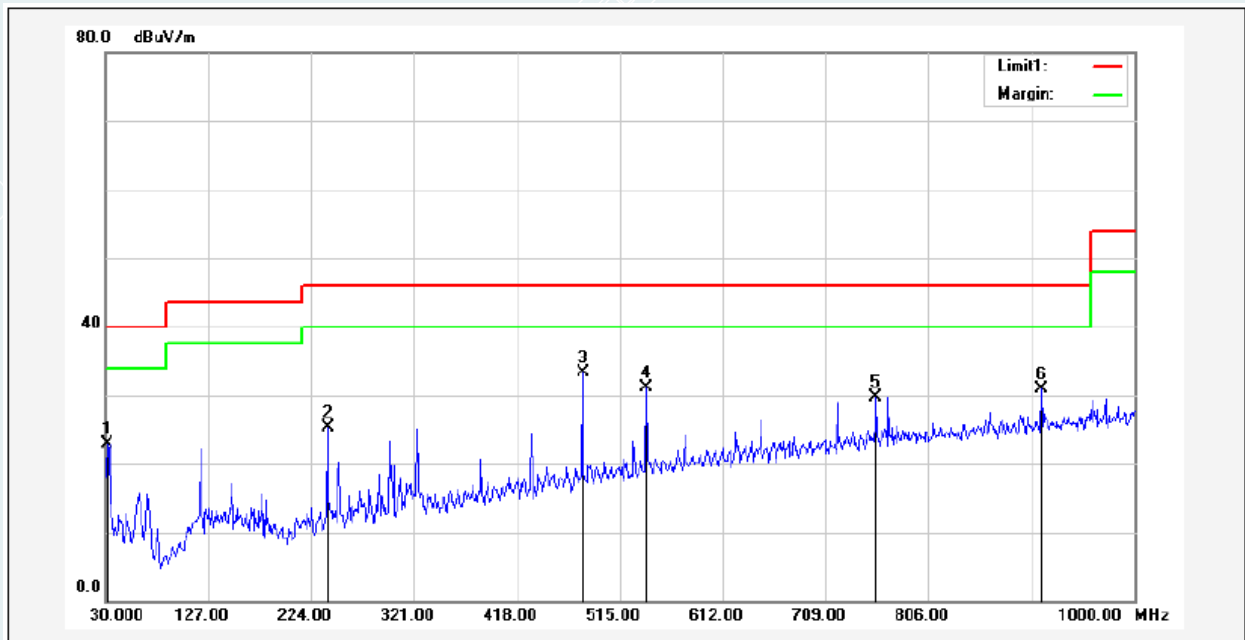
6.5 TEST RESULTS

Below 1GHz

Power supply: 7.4V battery

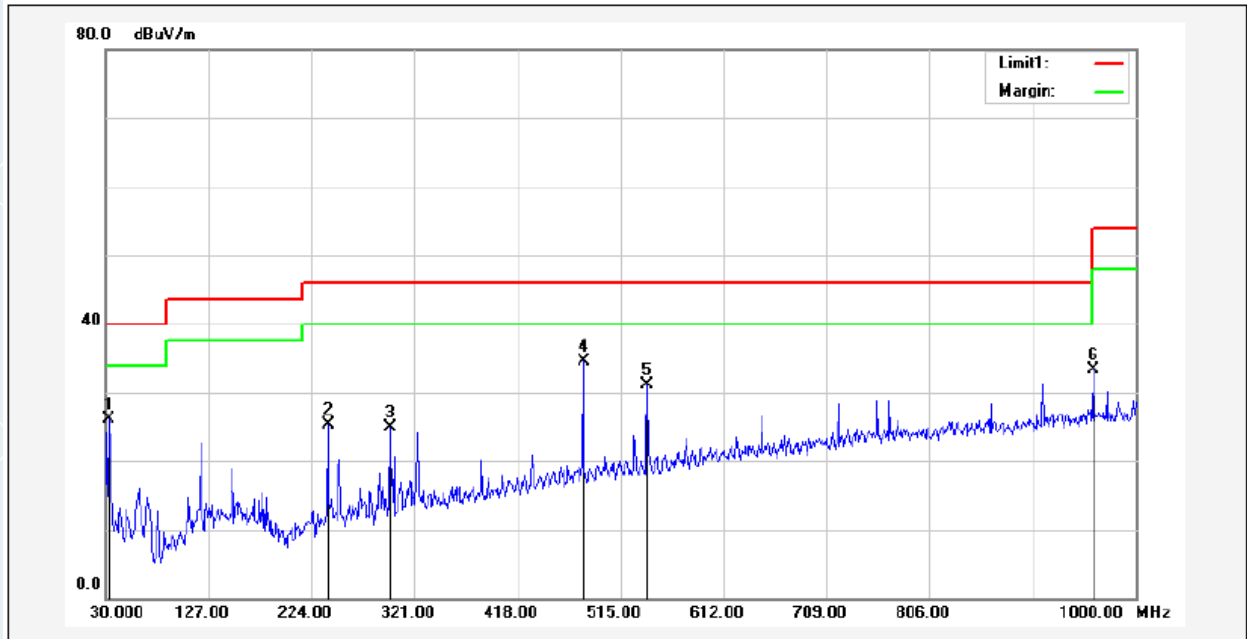
Note: Pre-scan all modes , only the worst case(Highest Frequency_2480MHz) is recorded, in this report.

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 7.4V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Highest Frequency(2480MHz)	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Detector type
1	31.9400	51.43	-28.51	22.92	40.00	-17.08	297	200	QP
2	239.5200	54.34	-29.00	25.34	46.00	-20.66	110	100	QP
3*	480.0800	54.83	-21.50	33.33	46.00	-12.67	153	200	QP
4	540.2200	51.42	-20.37	31.05	46.00	-14.95	229	100	QP
5	756.5300	46.65	-16.86	29.79	46.00	-16.21	17	200	QP
6	912.7000	46.11	-15.22	30.89	46.00	-15.11	149	100	QP

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 7.4V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Highest Frequency(2480MHz)	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Detector type
1	32.9100	54.55	-28.50	26.05	40.00	-13.95	270	100	QP
2	239.5200	54.31	-29.00	25.31	46.00	-20.69	0	110	QP
3	297.7200	52.03	-27.07	24.96	46.00	-21.04	0	128	QP
4*	480.0800	56.04	-21.50	34.54	46.00	-11.46	23	100	QP
5	540.2200	51.53	-20.37	31.16	46.00	-14.84	262	100	QP
6	960.2300	47.87	-14.63	33.24	54.00	-20.76	25	200	QP

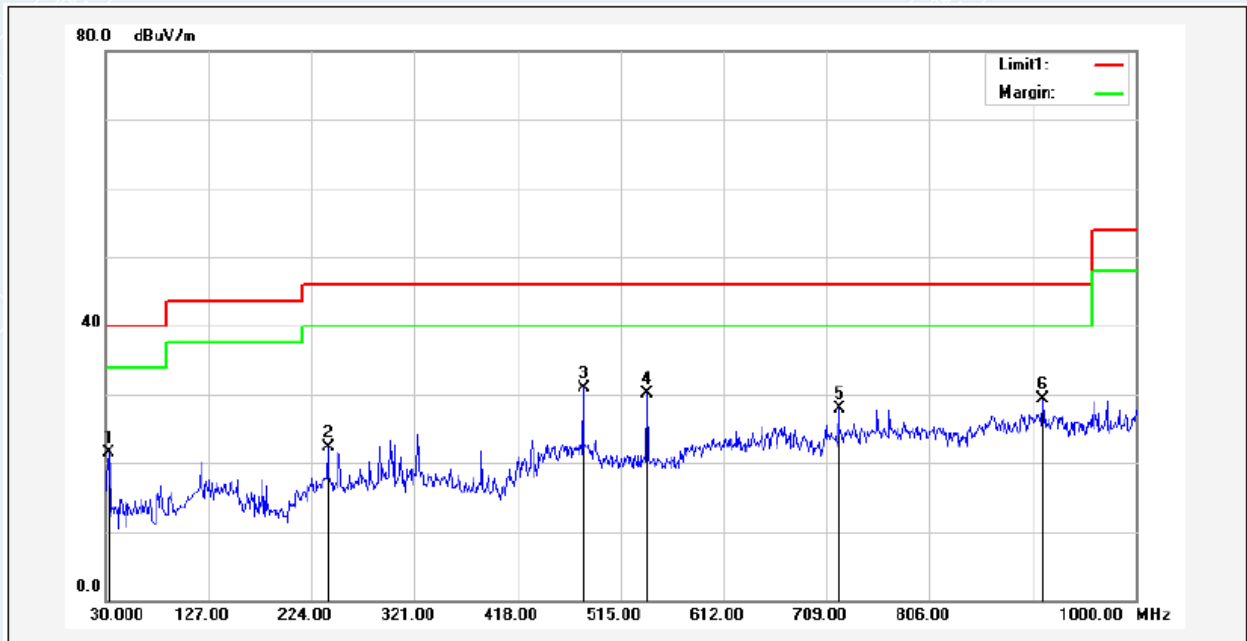
Remark:

- 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 Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.

Power supply: 4 LR6 AA 1.5V Batteries(Dry Battery, DC 6V)

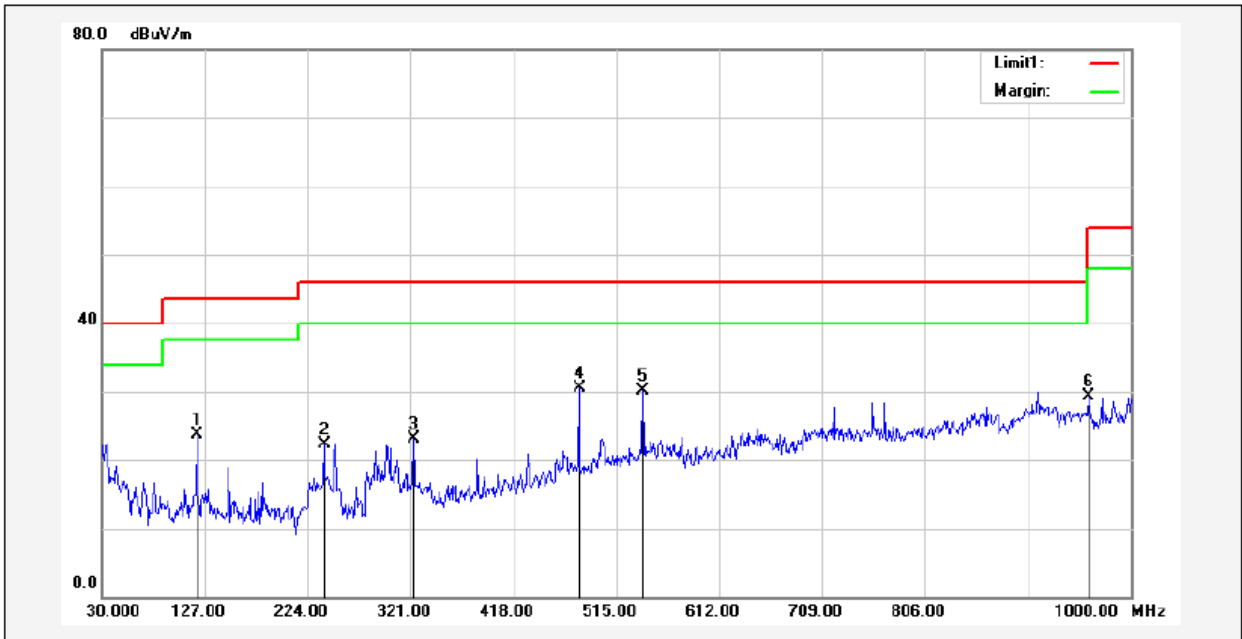
Note: Pre-scan all modes , only the worst case(Highest Frequency_2480MHz) is recorded, in this report.

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 6V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Highest Frequency(2480MHz)	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Detector type
1	32.9100	50.06	-28.50	21.56	40.00	-18.44	300	200	QP
2	239.5200	51.34	-29.00	22.34	46.00	-23.66	120	100	QP
3*	480.0800	52.33	-21.50	30.83	46.00	-15.17	150	200	QP
4	540.2200	50.42	-20.37	30.05	46.00	-15.95	230	100	QP
5	720.6400	45.27	-17.46	27.81	46.00	-18.19	19	200	QP
6	912.7000	44.61	-15.22	29.39	46.00	-16.61	150	100	QP

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 6V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Highest Frequency(2480MHz)	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Detector type
1	119.2400	52.55	-28.82	23.73	43.50	-19.77	0	110	QP
2	239.5200	51.31	-29.00	22.31	46.00	-23.69	0	128	QP
3	323.9100	49.45	-26.26	23.19	46.00	-22.81	23	100	QP
4*	480.0800	52.04	-21.50	30.54	46.00	-15.46	265	100	QP
5	540.2200	50.53	-20.37	30.16	46.00	-15.84	20	200	QP
6	960.2300	43.87	-14.63	29.24	54.00	-24.76	245	100	QP

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 Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.

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.

Pre-scan all modes, the worst power supply is 7.4V battery. In the two power supply modes(4 LR6 AA 1.5V Batteries and 7.4V battery), only the worst power supply mode is recorded in this report.

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 7.4V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Lowest Frequency (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1160.0000	56.66	37.53	-19.13	74.00	36.47	200	53	Horizontal
2	1993.0000	60.88	45.33	-15.55	74.00	28.67	100	123	Horizontal
3	2366.2000	62.61	48.41	-14.20	74.00	25.59	100	90	Horizontal
4	2830.2000	57.11	45.78	-11.33	74.00	28.22	100	267	Horizontal
5	4810.5000	56.24	53.92	-2.32	74.00	20.08	200	290	Horizontal
6	7213.5000	49.06	52.24	3.18	74.00	21.76	200	308	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB μ V/m]	AV Value [dB μ V/m]	AV Limit [dB μ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2366.6110	-14.20	57.90	43.70	54.00	10.30	129	45	Horizontal
2	4809.0385	-2.32	47.61	45.29	54.00	8.71	200	301.5	Horizontal
3	7216.3225	3.18	35.36	38.54	54.00	15.46	195	289.7	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1498.4000	59.05	41.68	-17.37	74.00	32.32	100	105	Vertical
2	1999.2000	61.38	44.67	-16.71	74.00	29.33	100	206	Vertical
3	2160.2000	59.44	45.54	-13.90	74.00	28.46	100	20	Vertical
4	4810.5000	57.14	54.76	-2.38	74.00	19.24	100	35	Vertical
5	7213.5000	48.10	51.20	3.10	74.00	22.80	100	52	Vertical
6	17997.0000	39.09	52.56	13.47	74.00	21.44	200	220	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB μ V/m]	AV Value [dB μ V/m]	AV Limit [dB μ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4811.0565	-2.38	47.55	45.17	54.00	8.83	103	42	Vertical
2	7216.4225	3.10	37.10	40.20	54.00	13.80	168	63.2	Vertical
3	17997.5300	13.47	27.37	40.84	54.00	13.16	200	228.8	Vertical

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 7.4V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Middle Frequency (2440MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1599.8000	61.63	43.30	-18.33	74.00	30.70	100	218	Horizontal
2	1993.2000	60.45	44.90	-15.55	74.00	29.10	100	133	Horizontal
3	2827.6000	57.70	46.37	-11.33	74.00	27.63	100	235	Horizontal
4	4881.0000	54.61	52.49	-2.12	74.00	21.51	200	223	Horizontal
5	7318.5000	48.38	51.43	3.05	74.00	22.57	200	309	Horizontal
6	12117.0000	39.86	53.55	13.69	74.00	20.45	200	71	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB μ V/m]	AV Value [dB μ V/m]	AV Limit [dB μ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4881.0710	-2.12	45.69	43.57	54.00	10.43	178	231	Horizontal
2	7318.6075	3.05	35.78	38.83	54.00	15.17	179	336.5	Horizontal
	12119.2750	13.69	27.06	40.75	54.00	13.25	200	26.8	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1499.6000	59.38	42.04	-17.34	74.00	31.96	200	221	Vertical
2	1999.2000	60.83	44.12	-16.71	74.00	29.88	100	186	Vertical
3	2163.2000	58.86	44.97	-13.89	74.00	29.03	100	323	Vertical
4	4881.0000	56.18	53.64	-2.54	74.00	20.36	100	138	Vertical
5	7318.5000	49.34	52.45	3.11	74.00	21.55	100	53	Vertical
6	12141.0000	39.63	53.54	13.91	74.00	20.46	200	103	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB μ V/m]	AV Value [dB μ V/m]	AV Limit [dB μ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4880.9290	-2.54	43.75	41.21	54.00	12.79	100	126.3	Vertical
2	7318.6075	3.11	39.76	42.87	54.00	11.13	104	41.2	Vertical
3	12120.2650	13.91	26.83	40.74	54.00	13.26	112	117.3	Vertical

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 7.4V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Highest Frequency(2480MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1721.0000	60.51	42.95	-17.56	74.00	31.05	100	237	Horizontal
2	2163.0000	57.90	43.26	-14.64	74.00	30.74	100	74	Horizontal
3	2513.2000	58.94	46.31	-12.63	74.00	27.69	100	115	Horizontal
4	2907.2000	54.08	43.25	-10.83	74.00	30.75	200	359	Horizontal
5	4950.0000	55.02	53.67	-1.35	74.00	20.33	100	0	Horizontal
6	11379.0000	42.00	53.57	11.57	74.00	20.43	100	200	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	4951.0750	-1.35	45.07	43.72	54.00	10.28	161	360	Horizontal
2	11374.3850	11.57	28.21	39.78	54.00	14.22	123	157.6	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	1197.2000	60.99	41.92	-19.07	74.00	32.08	200	158	Vertical
2	1494.4000	60.21	42.76	-17.45	74.00	31.24	100	312	Vertical
3	2514.2000	58.26	45.29	-12.97	74.00	28.71	100	211	Vertical
4	4950.0000	57.24	55.49	-1.75	74.00	18.51	100	290	Vertical
5	7426.5000	48.69	52.26	3.57	74.00	21.74	100	34	Vertical
6	11731.5000	40.83	52.99	12.16	74.00	21.01	200	15	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	4950.8600	-1.75	48.52	46.77	54.00	7.23	136	286.8	Vertical
2	7423.5975	3.57	36.85	40.42	54.00	13.58	103	23.3	Vertical
3	11734.5525	12.16	27.60	39.76	54.00	14.24	200	348.5	Vertical

18GHz-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, the worst power supply is 7.4V battery. In the two power supply modes(4 LR6 AA 1.5V Batteries and 7.4V battery), only the worst case(Lowest Frequency :2405MHz) in the worst power supply is recorded, in this report.

EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Power supply:	DC 7.4V	Environmental Conditions:	23.2°C/47%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2024-02-23
Frequency	Lowest Frequency (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level for 1m [dB μ V/m]	Level for 3m [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18218.8750	47.70	29.59	20.05	-18.11	74	53.95	200	15	Horizontal
2	18999.1750	46.95	30.00	20.46	-16.95	74	53.54	200	138	Horizontal
3	19887.8500	47.49	30.91	21.37	-16.58	74	52.63	100	102	Horizontal
4	21255.9250	44.72	28.87	19.33	-15.85	74	54.67	100	113	Horizontal
5	24120.4250	46.10	31.85	22.31	-14.25	74	51.69	300	15	Horizontal
6	24999.3250	46.21	32.38	22.84	-13.83	74	51.16	300	356	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level for 1m [dB μ V/m]	Level for 3m [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18359.1250	48.02	30.17	20.63	-17.85	74	53.37	100	308	Vertical
2	19904.0000	46.89	30.06	20.52	-16.83	74	53.48	100	282	Vertical
3	20827.5250	45.52	29.29	19.75	-16.23	74	54.25	100	184	Vertical
4	22909.1750	44.93	30.03	20.49	-14.90	74	53.51	200	62	Vertical
5	24095.7750	45.25	30.75	21.21	-14.50	74	52.79	200	37	Vertical
6	25470.2250	45.76	31.71	22.17	-14.05	74	51.83	300	172	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)

7. 6dB BANDWIDTH

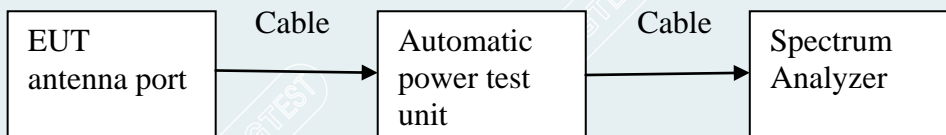
7.1 LIMITS

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

7.2 TEST PROCEDURES

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

7.3 TEST SETUP



7.4 TEST RESULTS

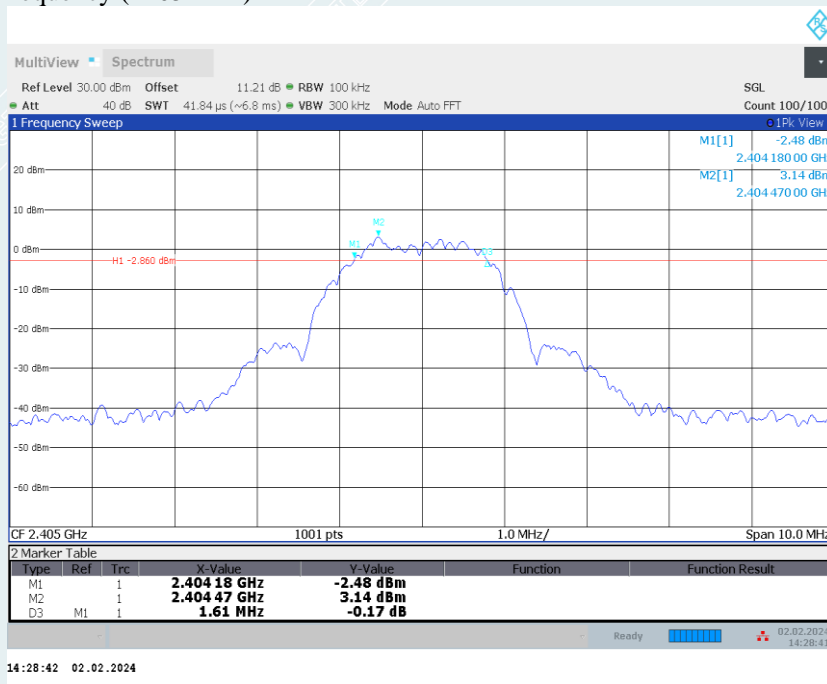
Environment: 23.1 °C/68%RH/101.0kPa
 Tested By: Huang Tianmei

Voltage: DC 6V
 Date: 2024-02-02

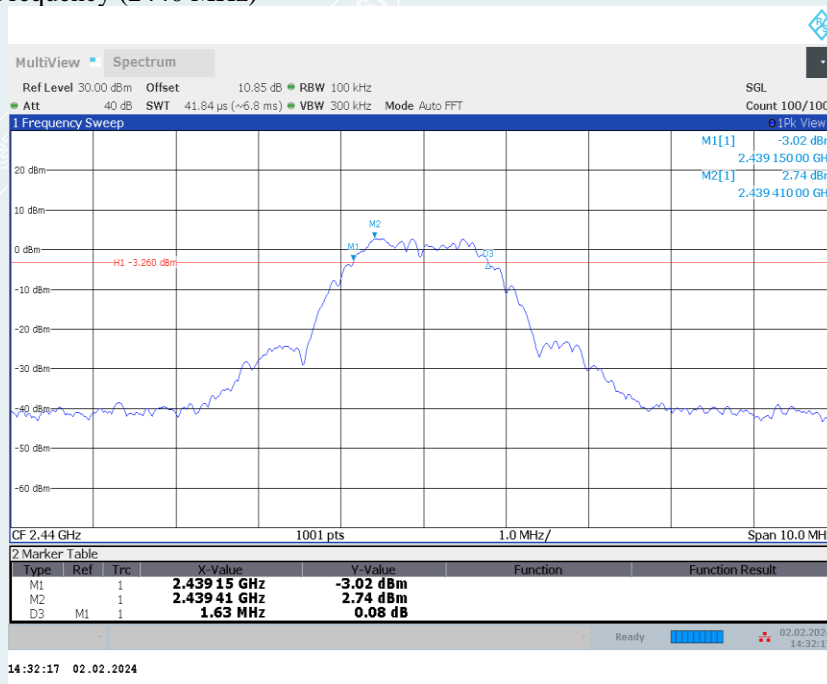
Ch Name	Frequency (MHz)	Bandwidth [kHz]	Limit[kHz]	Verdict
Lowest	2405	1610	≥500	PASS
Middle	2440	1630		PASS
Highest	2480	1610		PASS

----- The following blanks -----

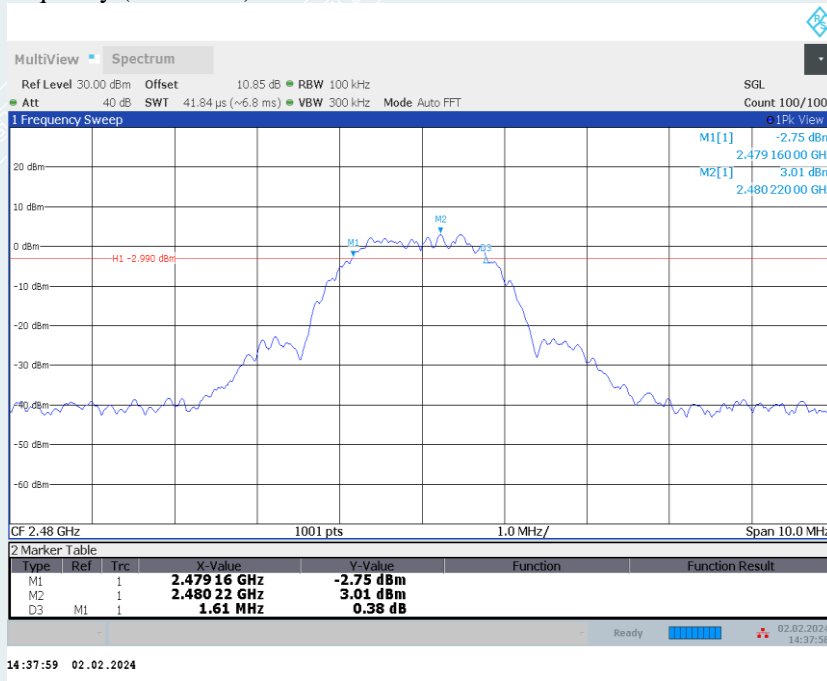
Lowest Frequency (2405MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



----- The following blanks -----

8. MAXIMUM PEAK OUTPUT POWER

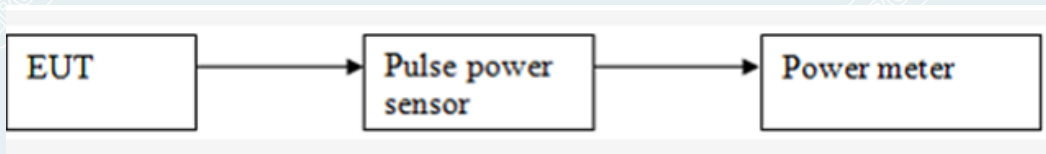
8.1 LIMITS

The maximum Peak output power measurement is 1W

8.2 TEST PROCEDURES

- a) According to the test mode, the channel requirements set EUT to continuous transmission mode.
- b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

8.3 TEST SETUP



8.4 TEST RESULTS

Environment: 23.1°C/68%RH/101.0kPa
 Tested By: Huang Tianmei

Voltage: DC 6V
 Date: 2024-02-02

ChName	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2405	7.15	1W (30dBm)	Peak	Pass
Middle	2440	7.16			Pass
Highest	2480	7.23			Pass

----- The following blanks -----

9. POWER SPECTRAL DENSITY

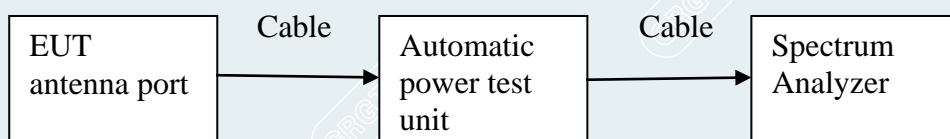
9.1 LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz 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:
 - 1) Set analyzer center frequency to DTS channel center frequency.
 - 2) Set the span to at least 1.5 times the DTS bandwidth.
 - 3) Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - 4) Set the VBW $\geq [3 \times \text{RBW}]$.
 - 5) Detector = peak
 - 6) Sweep time = auto couple.
 - 7) Trace mode = max hold.
 - 8) Allow trace to fully stabilize.
 - 9) Use the peak marker function to determine the maximum amplitude level within the RBW.
 - 10) 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



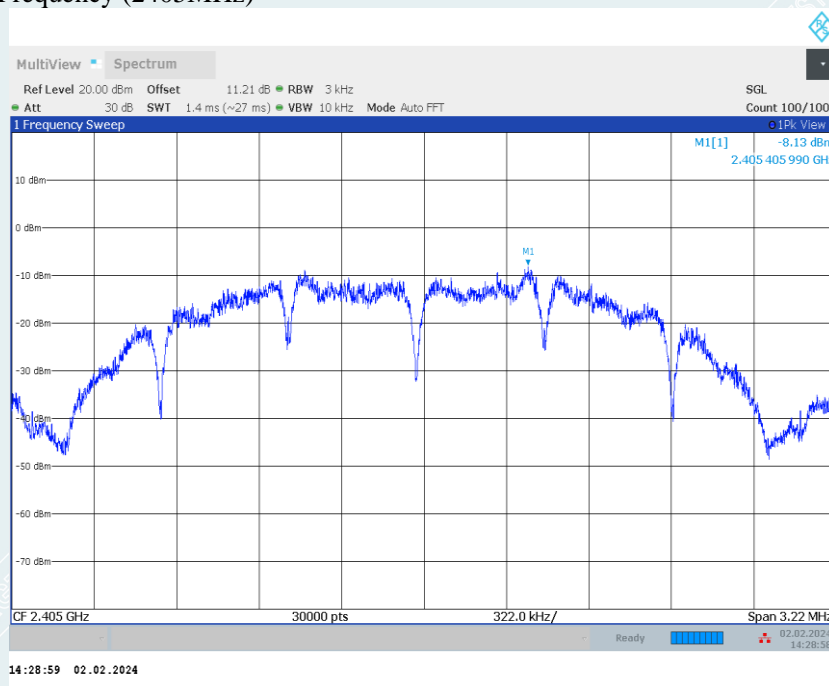
9.4 TEST RESULTS

Environment: 23.1°C/68%RH/101.0kPa
 Tested By: Huang Tianmei

Voltage: DC 6V
 Date: 2024-02-02

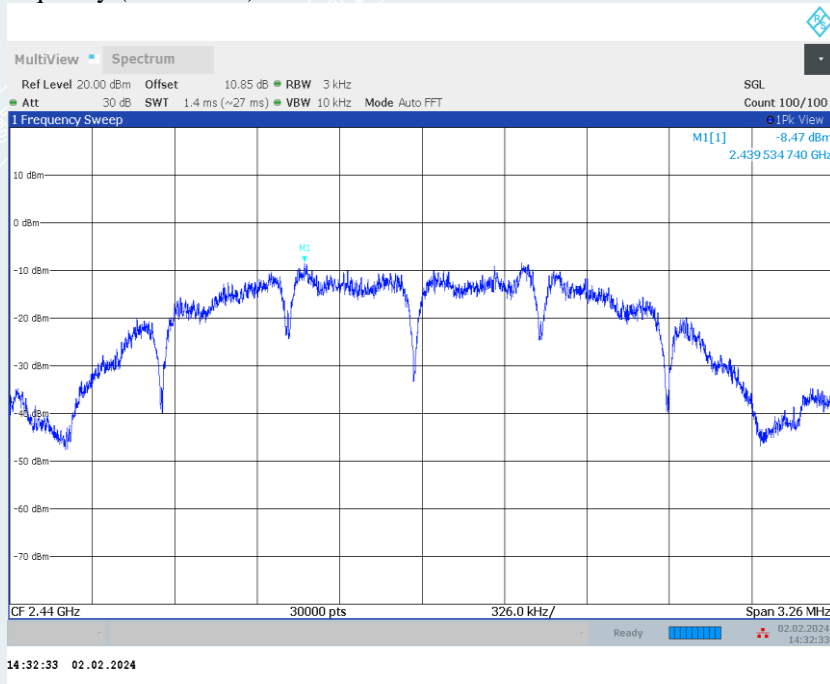
Ch Name	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-8.13	8.00	Pass
Middle	2440	-8.47	8.00	Pass
Highest	2480	-8.61	8.00	Pass

Lowest Frequency (2405MHz)

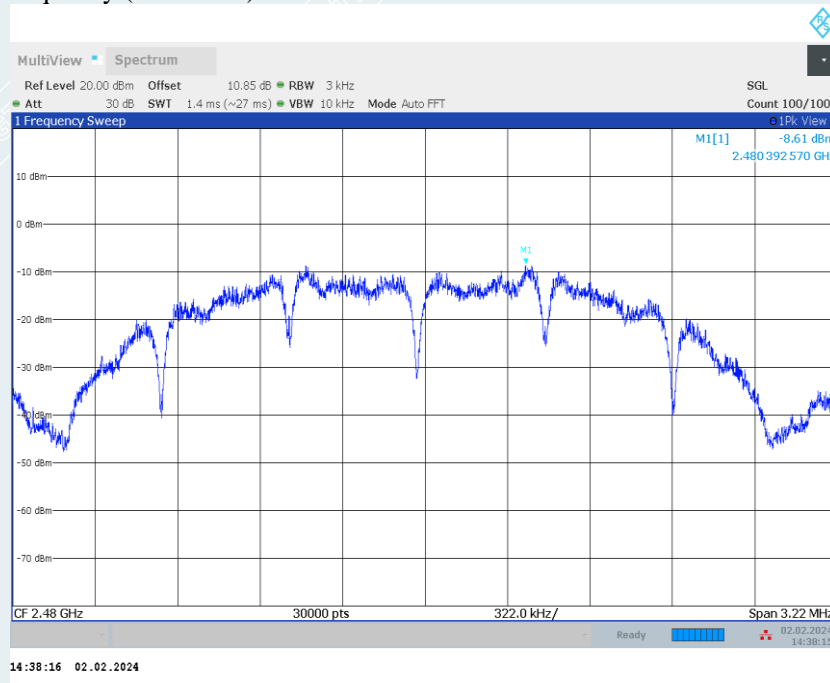


----- The following blanks -----

Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



10. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

10.1 LIMITS

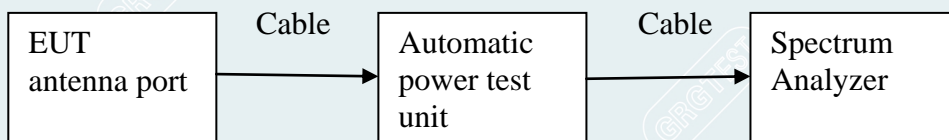
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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 30 dB instead of 20 dB.

10.2 TEST PROCEDURES

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

- a) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- b) Set the spectrum analyzer: RBW=100kHz; VBW=300kHz, Span=10MHz to 26.5GHz;Sweep=auto; Detector Function=Peak. Trace=Max, hold.
- c) Measure and record the results in the test report.
- d) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- e) Measurements are made from 30MHz to 26.5GHz with the transmitter set to the lowest, middle, and highest channels.

10.3 TEST SETUP



10.4 TEST RESULTS

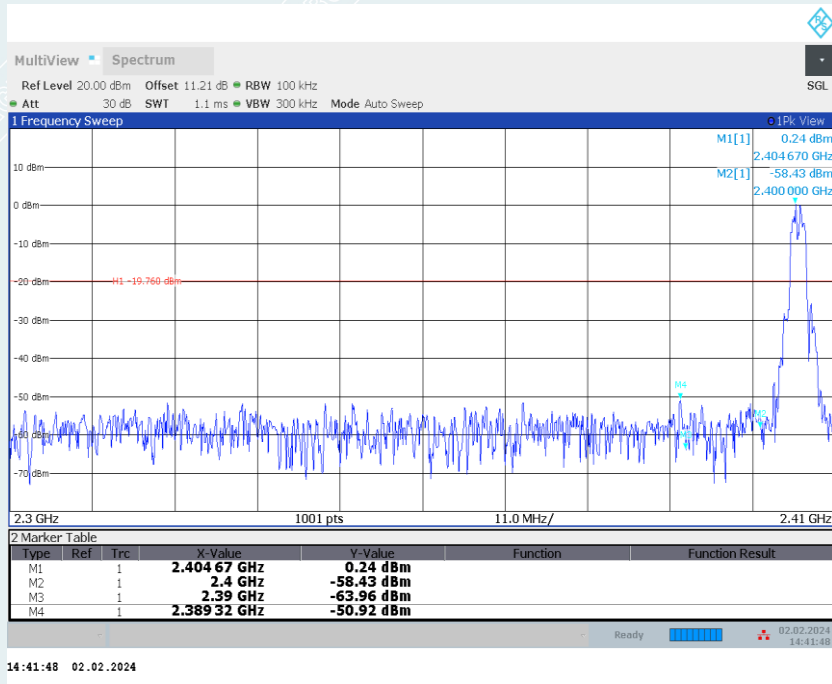
Environment: 23.1 °C/68%RH/101.0kPa
 Tested By: Huang Tianmei

Voltage: DC 6V
 Date: 2024-02-02

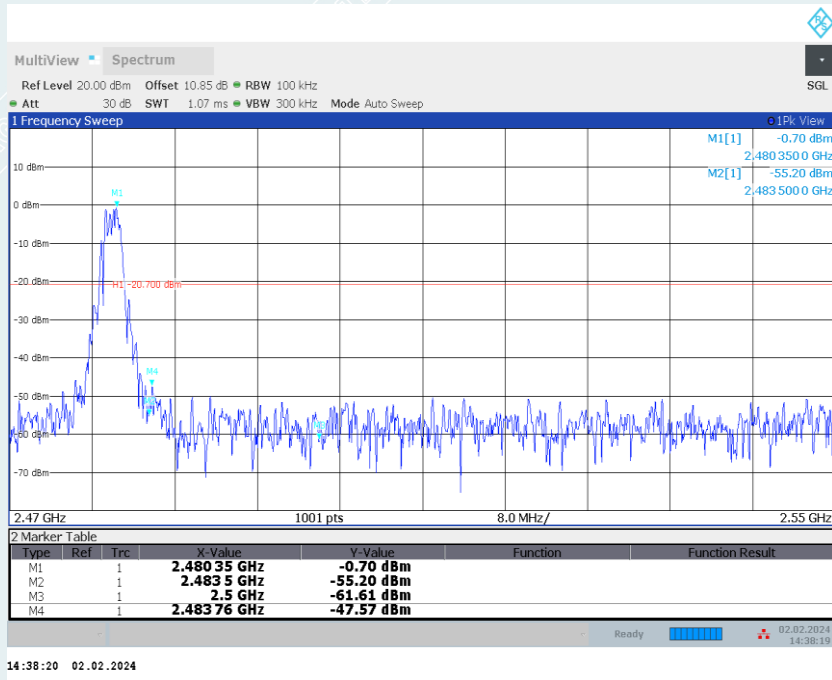
Band edge

Test Mode	Antenna	Ch Name	Frequency [MHz]	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
Thread	Ant1	Lowest	2405	0.24	-50.92	≤-19.76	PASS
		Highest	2480	-0.70	-47.57	≤-20.7	PASS

Lowest Frequency (2405MHz)
2.35GHz-2.41GHz



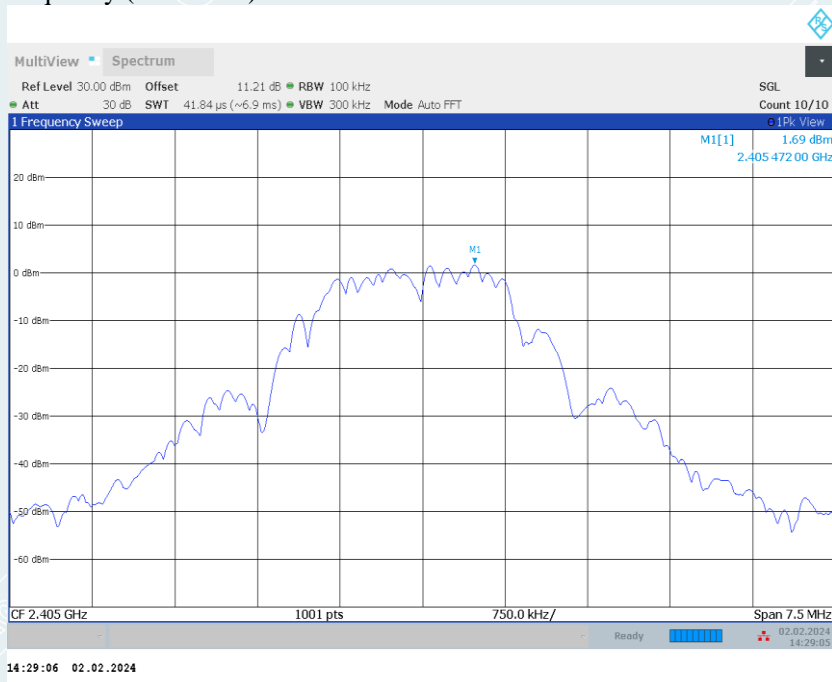
Highest Frequency (2480MHz)
2.47GHz-2.55GHz



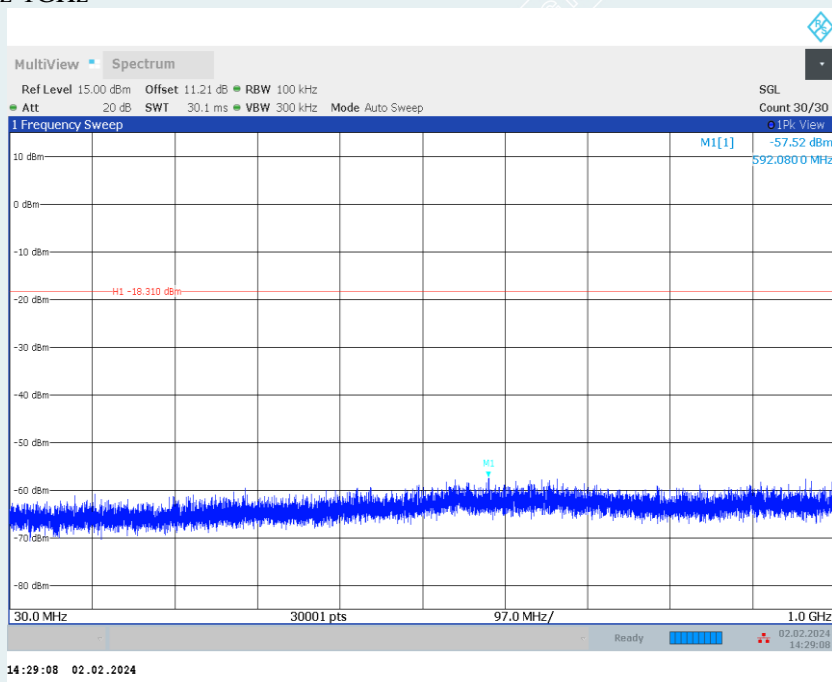
Conducted Spurious Emission

Test Mode	Antenna	Frequency [MHz]	Freq Range [MHz]	Ref Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
Thread	Ant1	2405	Reference	1.69	1.69	---	PASS
			30~1000	1.69	-57.52	≤-18.31	PASS
			1000~26500	1.69	-43.37	≤-18.31	PASS
		2440	Reference	3.17	3.17	---	PASS
			30~1000	3.17	-57.59	≤-16.83	PASS
			1000~26500	3.17	-43.91	≤-16.83	PASS
		2480	Reference	1.32	1.32	---	PASS
			30~1000	1.32	-57.49	≤-18.68	PASS
			1000~26500	1.32	-44.14	≤-18.68	PASS

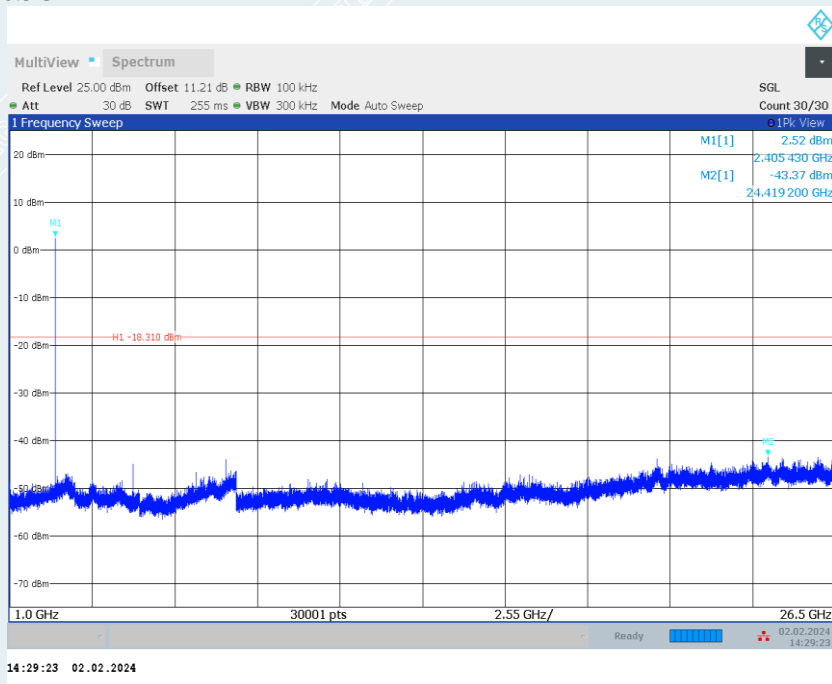
Lowest Frequency (2405MHz)



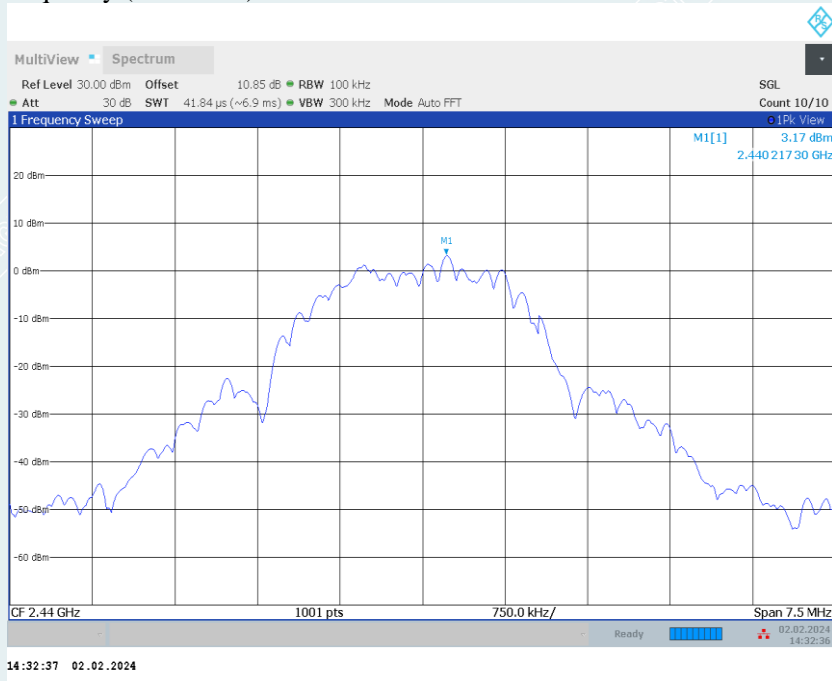
0.03GHz-1GHz



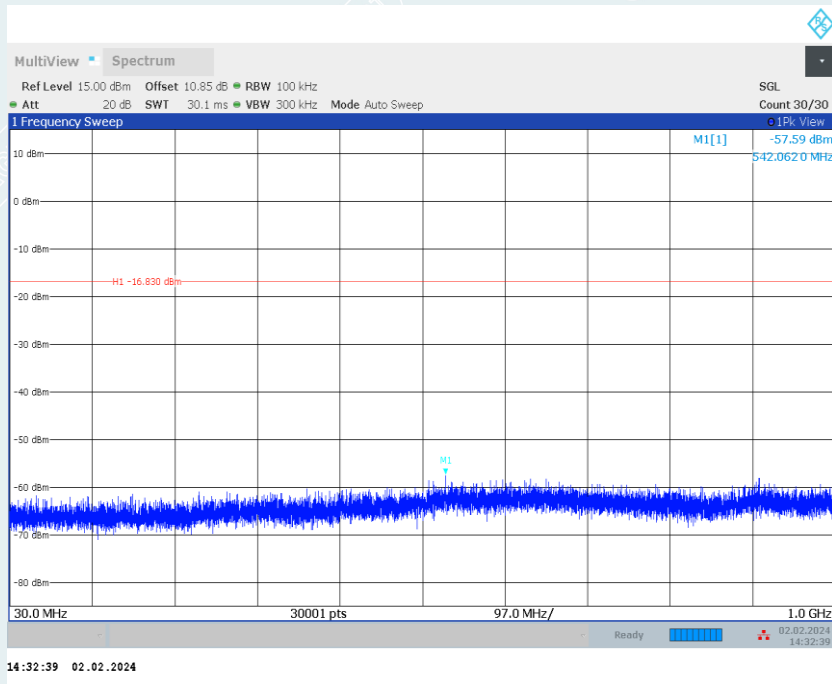
1GHz-26.5GHz



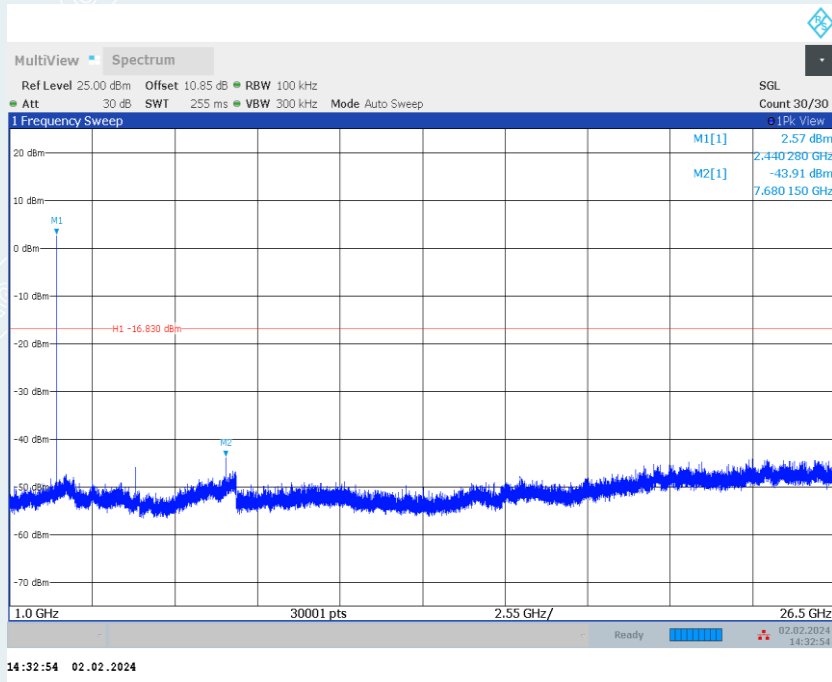
Middle Frequency (2440MHz)



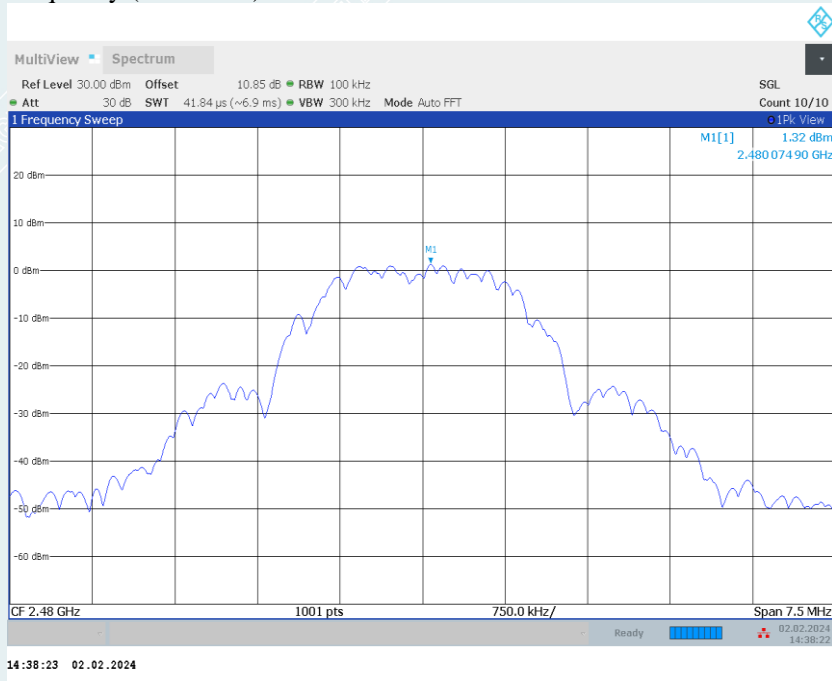
0.03GHz-1GHz



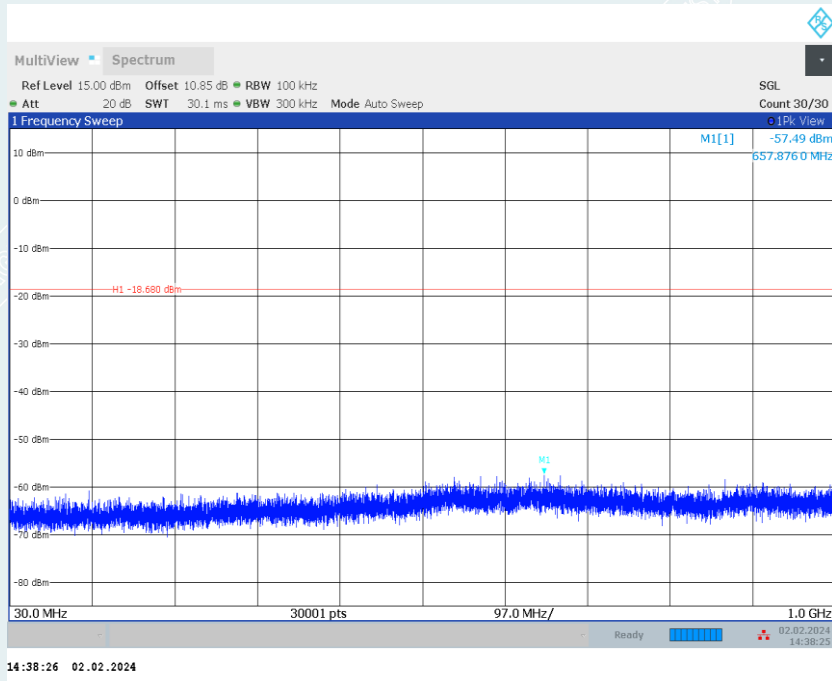
1GHz-26.5GHz



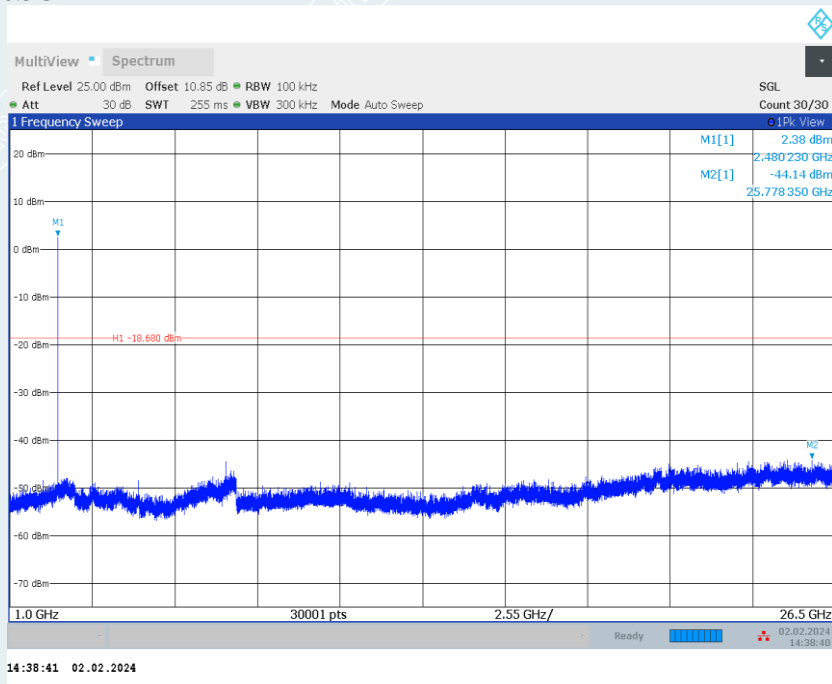
Highest Frequency (2480MHz)



0.03GHz-1GHz



1GHz-26.5GHz



----- The following blanks -----

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)).

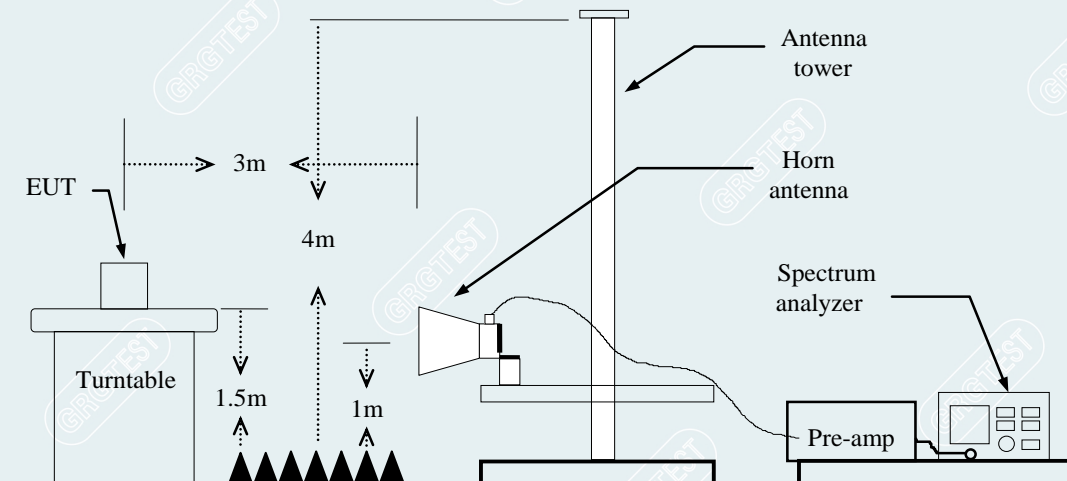
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	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	156.52480 - 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

- a) The EUT is placed on a turntable, which is 1.5m above the ground plane.
- b) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- c) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- d) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - a) For Peak detector: Set RBW=1MHz, RBW=3MHz, Sweep=AUTO.
 - b) For Avg detector: Set RBW=1MHz, Sweep=AUTO, 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 2.8.
- e) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

11.3 TEST SETUP



----- The following blanks -----

11.4 TEST RESULTS

Pre-scan all modes, the worst power supply is 7.4V battery, in the two power supply modes, only the worst power supply mode is recorded in this report.

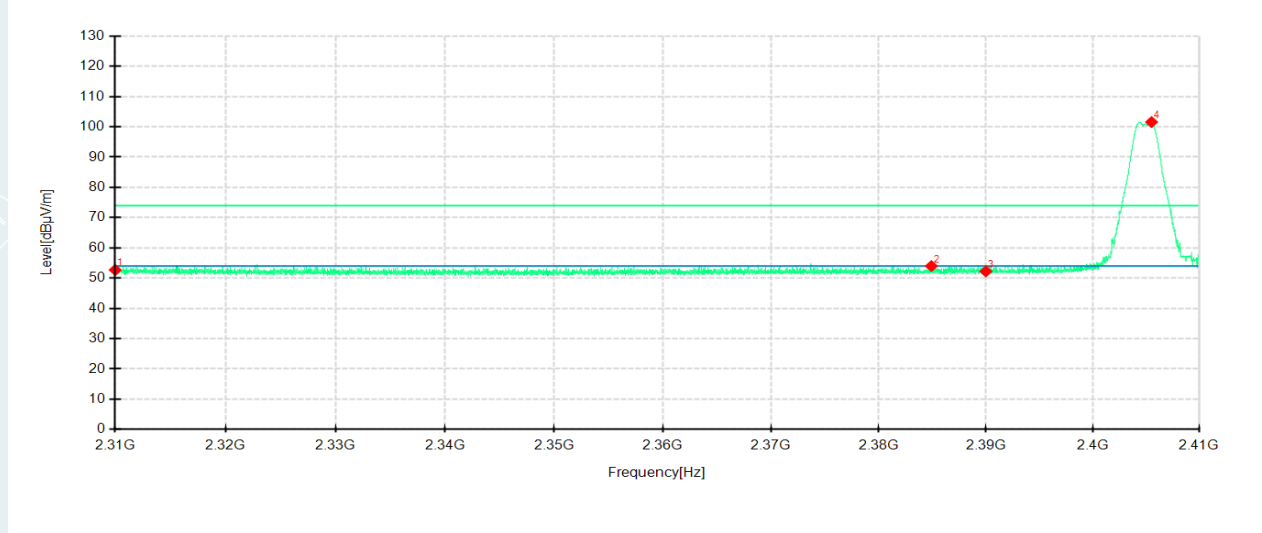
EUT Name:	Aqara Smart Lock U200	Test Mode:	Mode 1
Model:	EL-D02D	Sample No:	E20240129370001-0009
Test Engineer:	Zhang Zishan	Test Voltage:	DC 7.4V
Environmental Conditions:	23.2°C/47%RH/101.0kPa	Test Date:	2024-02-23

Lowest Channel

Frequency: 2405MHz

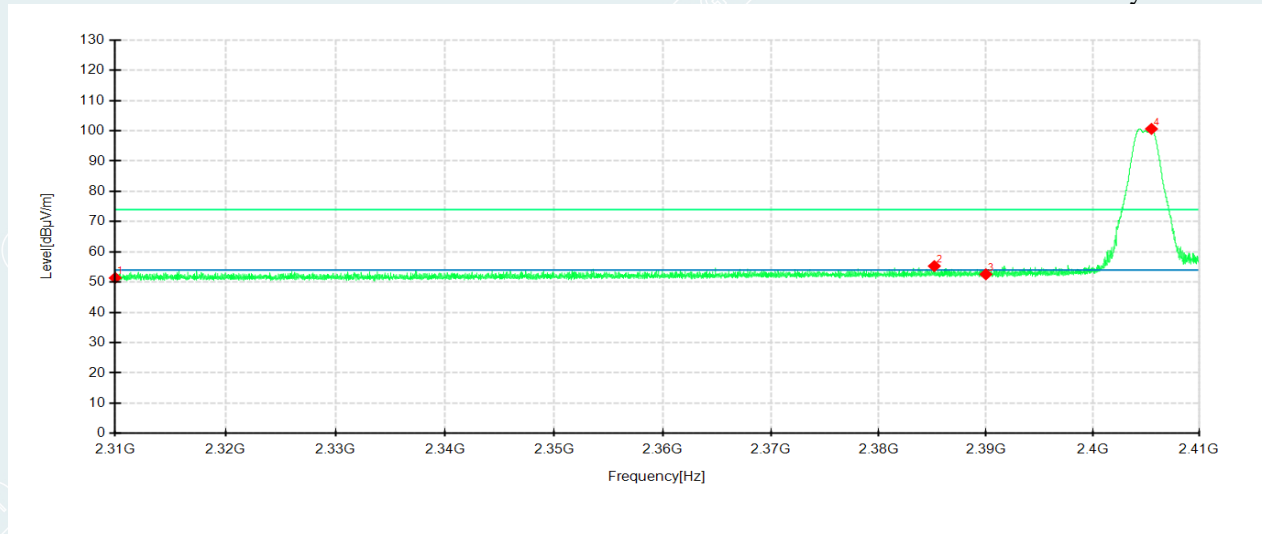
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	57.68	52.72	-4.96	74.00	21.28	200	164	Horizontal	/
2	2384.9125	59.80	53.99	-5.81	74.00	20.01	100	56	Horizontal	/
3	2390.0000	58.07	52.24	-5.83	74.00	21.76	200	177	Horizontal	
4	2405.5375	107.44	101.59	-5.85	74.00	-27.59	100	146	Horizontal	No limit
1	2310.0000	57.05	51.39	-5.66	74.00	22.61	100	72	Vertical	/
2	2385.1875	60.74	55.31	-5.43	74.00	18.69	200	288	Vertical	/
3	2390.0000	58.02	52.61	-5.41	74.00	21.39	200	340	Vertical	/
4	2405.5250	105.98	100.64	-5.34	74.00	-26.64	200	198	Vertical	No limit

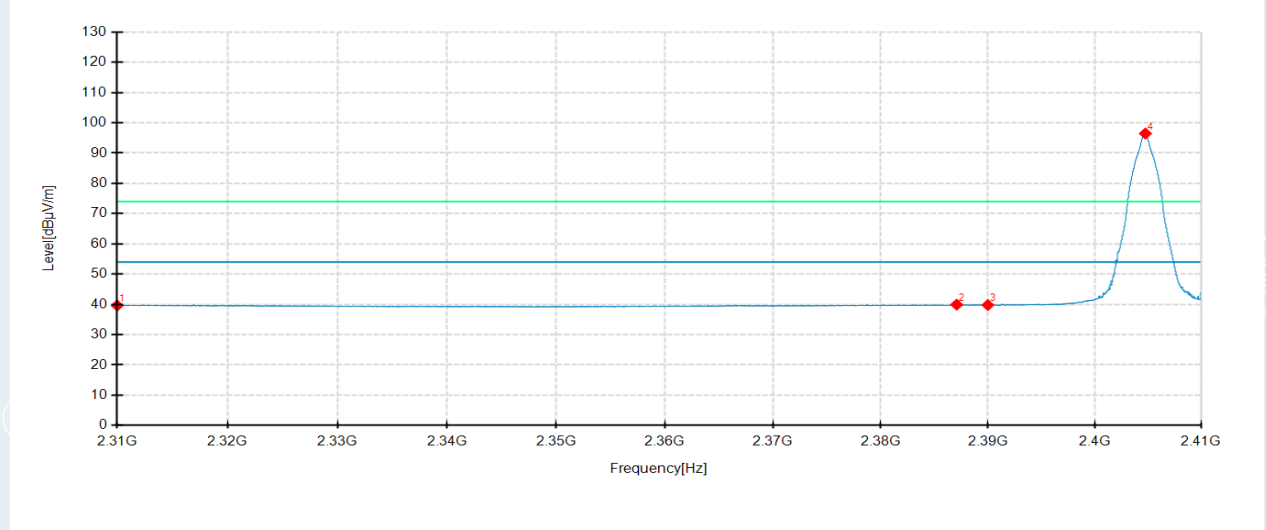
----- The following blanks -----

Lowest Channel

Frequency: 2405MHz

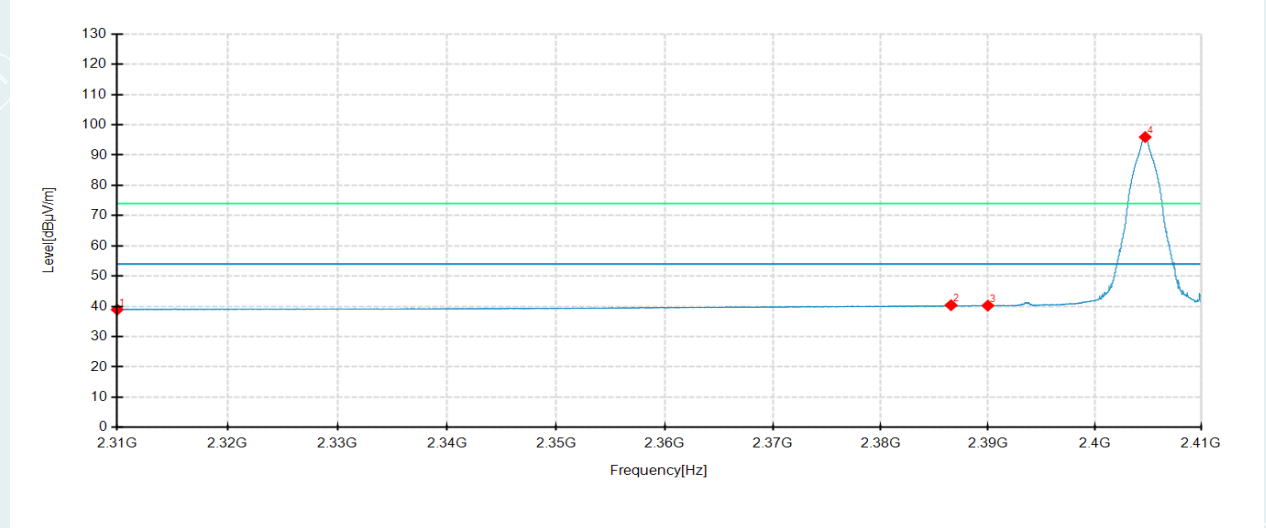
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



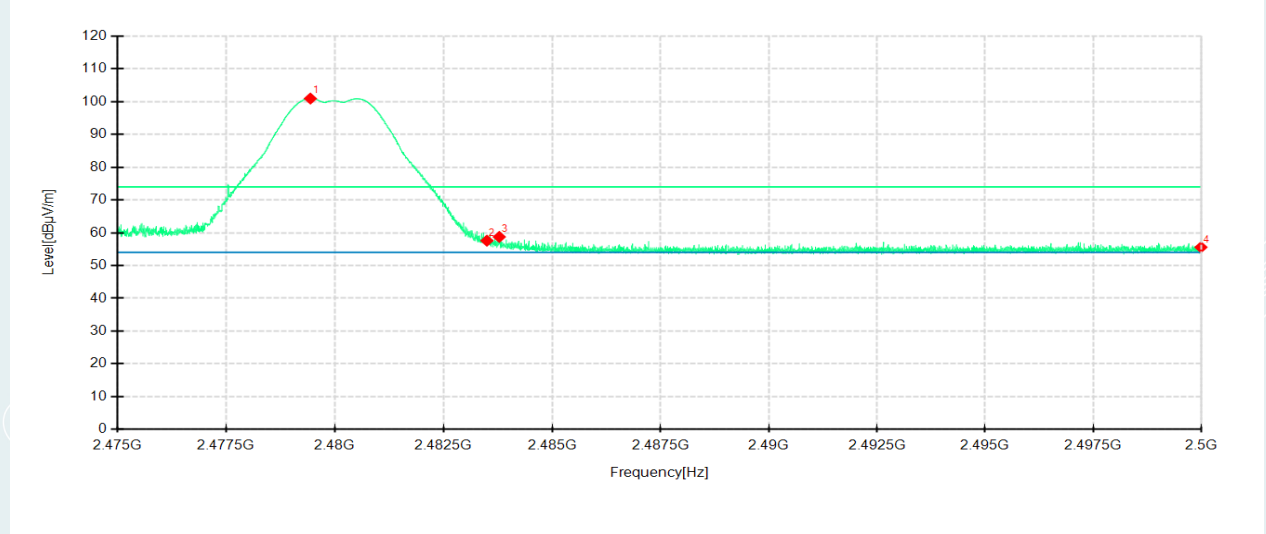
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBµV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	44.60	39.64	-4.96	54.00	14.36	100	146	Horizontal	/
2	2387.0875	45.75	39.93	-5.82	54.00	14.07	100	301	Horizontal	/
3	2390.0000	45.62	39.79	-5.83	54.00	14.21	200	20	Horizontal	/
4	2404.7625	102.33	96.47	-5.86	54.00	-42.47	100	146	Horizontal	No limit
1	2310.0000	44.60	38.94	-5.66	54.00	15.06	200	69	Vertical	/
2	2386.5625	45.83	40.41	-5.42	54.00	13.59	100	202	Vertical	/
3	2390.0000	45.67	40.26	-5.41	54.00	13.74	100	358	Vertical	/
4	2404.7500	101.30	95.95	-5.35	54.00	-41.95	200	185	Vertical	No limit

Highest Channel

Frequency: 2480MHz

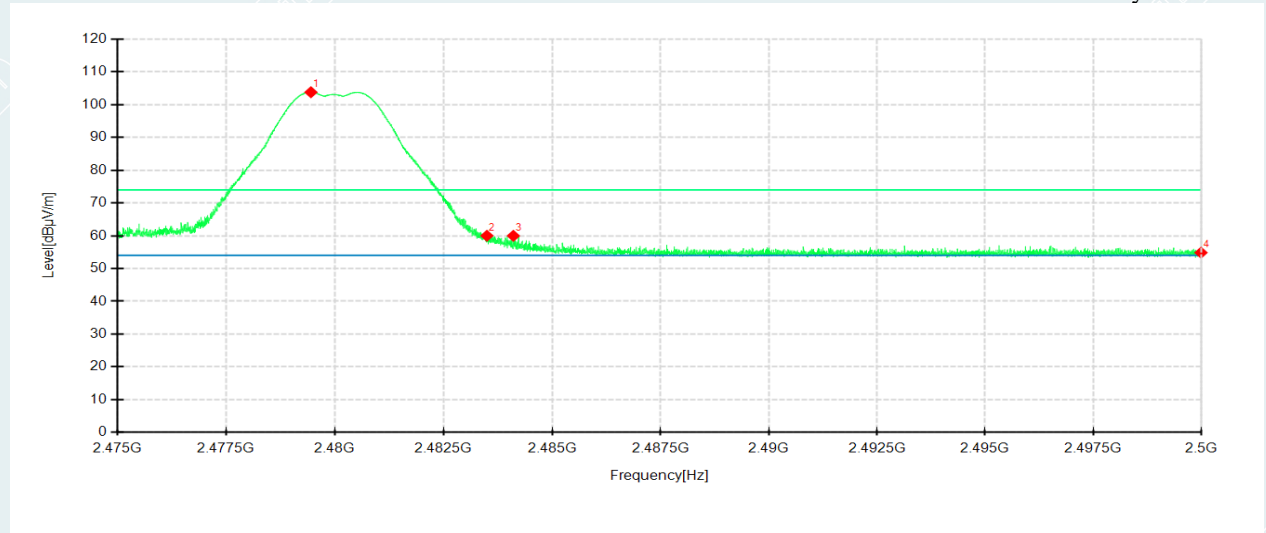
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



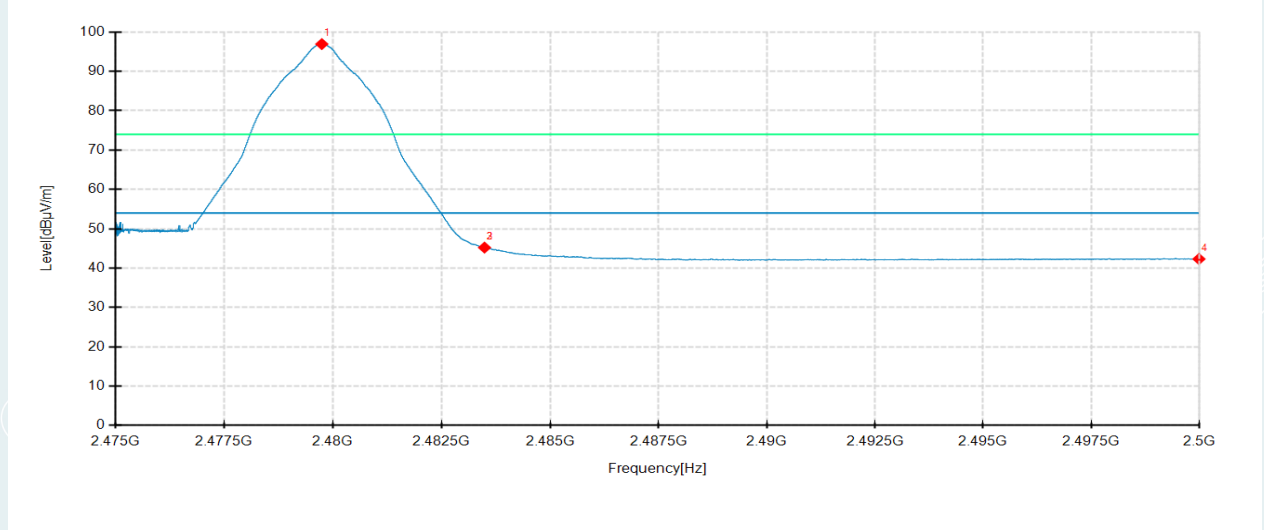
No.	Frequency MHz	Reading dBuV/m	Level dBuV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2479.4375	106.12	100.94	-5.18	74.00	-26.94	100	301	Horizontal	No limit
2	2483.5000	62.69	57.59	-5.10	74.00	16.41	100	55	Horizontal	/
3	2483.7844	63.83	58.74	-5.09	74.00	15.26	100	55	Horizontal	/
4	2500.0000	60.37	55.58	-4.79	74.00	18.42	200	140	Horizontal	/
1	2479.4500	108.82	103.77	-5.05	74.00	-29.77	200	96	Vertical	No limit
2	2483.5000	65.03	60.00	-5.03	74.00	14.00	200	96	Vertical	/
3	2484.1094	65.01	59.98	-5.03	74.00	14.02	200	96	Vertical	/
4	2500.0000	59.84	54.85	-4.99	74.00	19.15	100	312	Vertical	/

Highest Channel

Frequency: 2480MHz

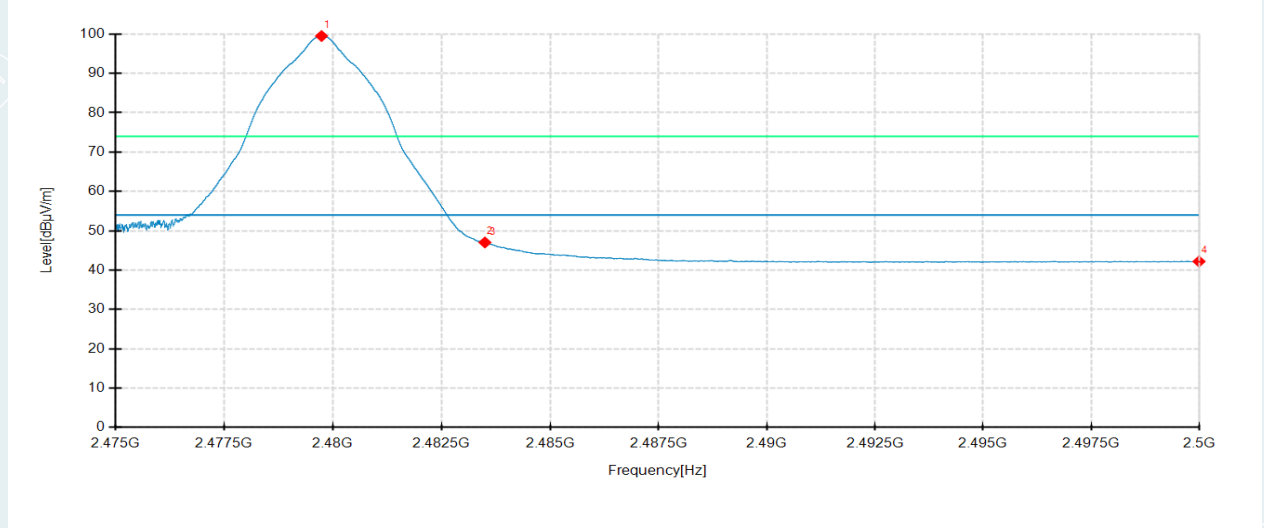
Detector mode: Average

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	Comment
1	2479.7469	102.11	96.94	-5.17	54.00	-42.94	100	287	Horizontal	No limit
2	2483.4906	50.31	45.21	-5.10	54.00	8.79	100	287	Horizontal	/
3	2483.5000	50.24	45.14	-5.10	54.00	8.86	100	287	Horizontal	/
4	2500.0000	47.10	42.31	-4.79	54.00	11.69	100	118	Horizontal	/
1	2479.7406	104.55	99.50	-5.05	54.00	-45.50	200	93	Vertical	No limit
2	2483.5000	52.05	47.02	-5.03	54.00	6.98	200	93	Vertical	/
3	2483.5563	51.89	46.86	-5.03	54.00	7.14	200	93	Vertical	/
4	2500.0000	47.18	42.19	-4.99	54.00	11.81	200	93	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 E20240129370001-26 FCC ISED-Test Photo.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E20240129370001-27 EUT photo.

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