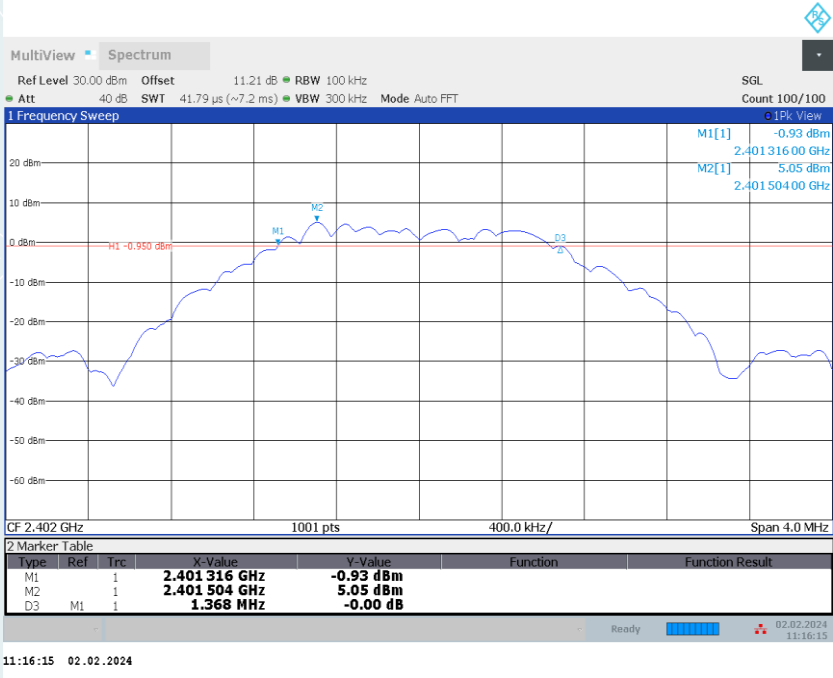
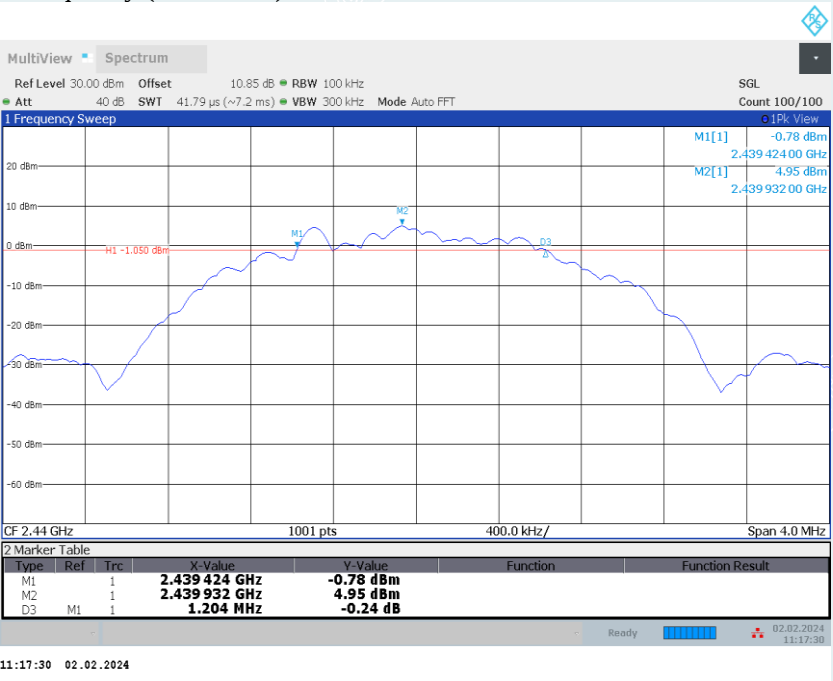


BLE_2M

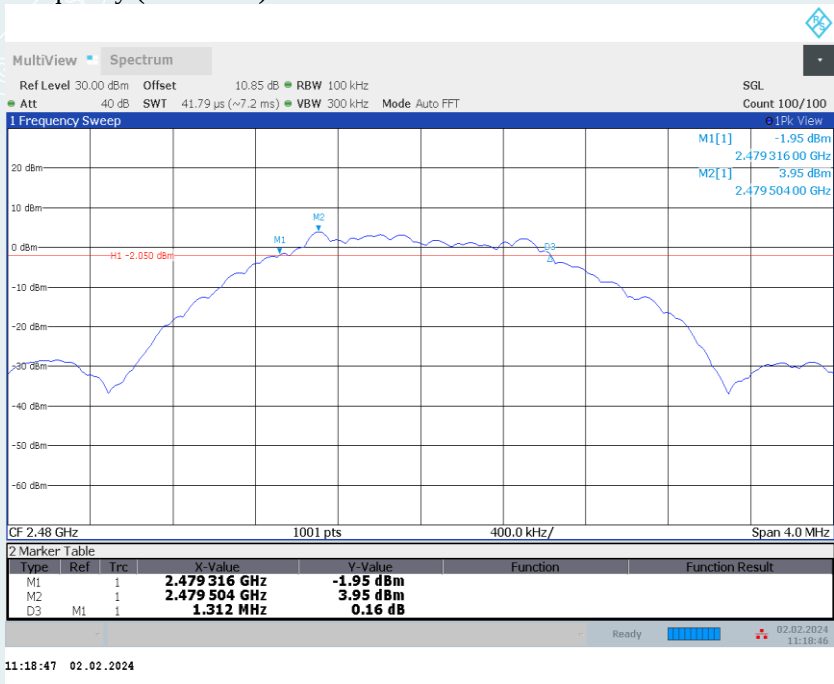
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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

9. MAXIMUM PEAK OUTPUT POWER

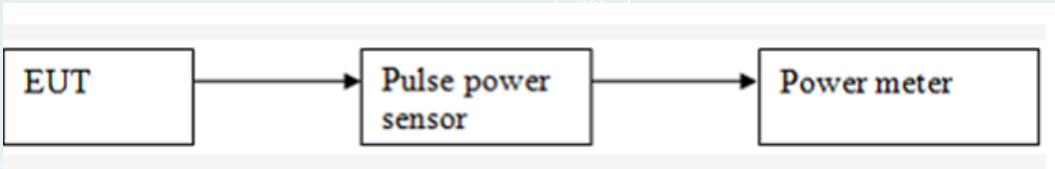
9.1 LIMITS

The maximum Peak output power measurement is 1W

9.2 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.

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

BLE_1M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/ Average	Result
Lowest	2402	8.12	1W (30dBm)	Peak	Pass
Middle	2440	8.52			Pass
Highest	2480	8.17			Pass

BLE_2M

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/ Average	Result
Lowest	2402	8.14	1W (30dBm)	Peak	Pass
Middle	2440	8.56			Pass
Highest	2480	8.20			Pass

10. POWER SPECTRAL DENSITY

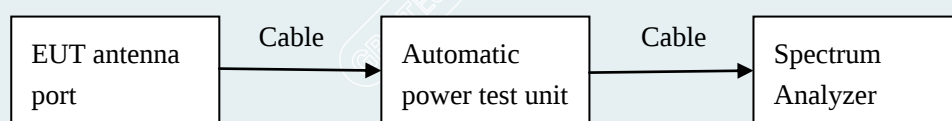
10.1 LIMITS

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.

10.2 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.

10.3 TEST SETUP



10.4 TEST RESULTS

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

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

BLE_1M

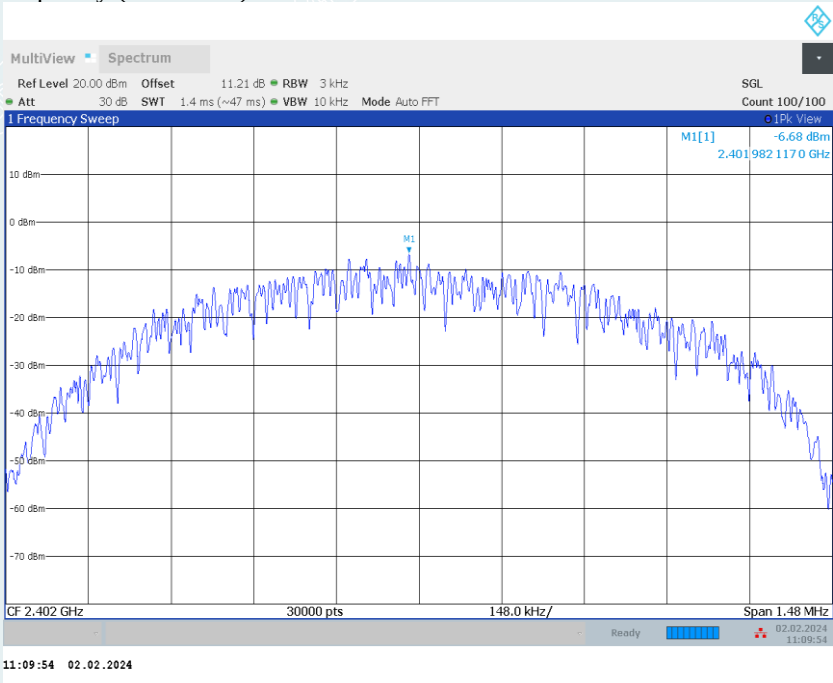
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-6.68	8.00	PASS
Middle	2440	-7.02		PASS
Highest	2480	-7.73		PASS

BLE_2M

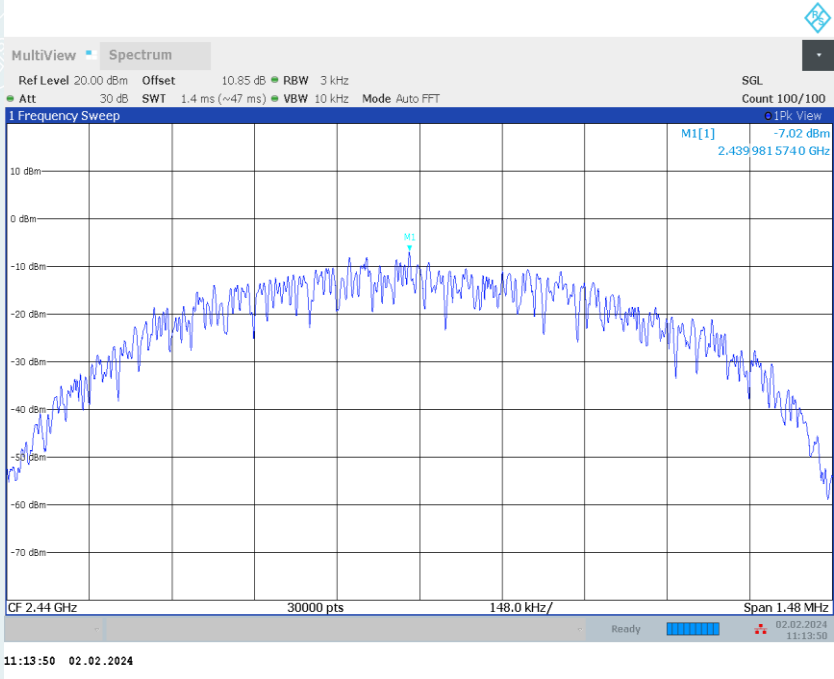
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-9.13	8.00	PASS
Middle	2440	-9.54		PASS
Highest	2480	-10.23		PASS

BLE_1M

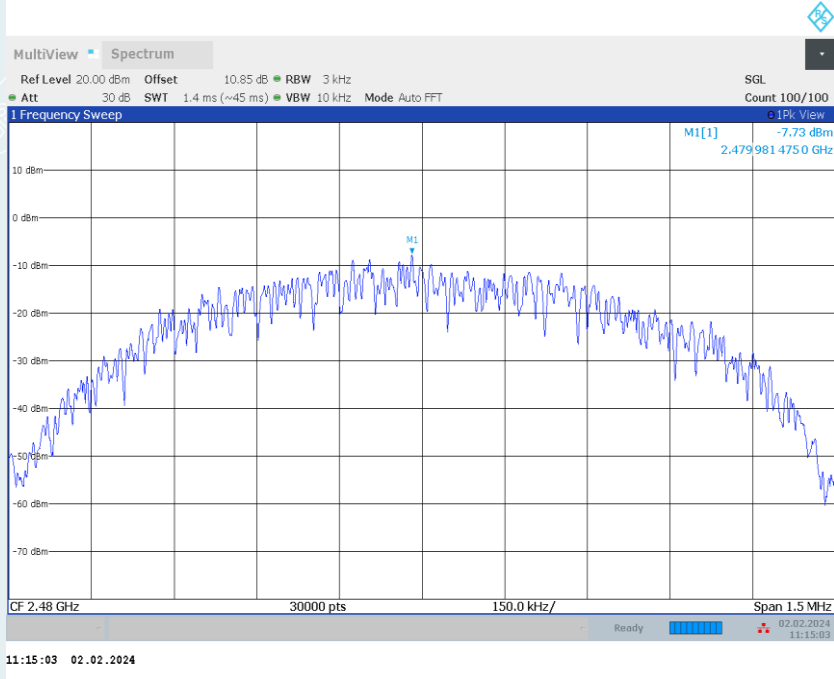
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)

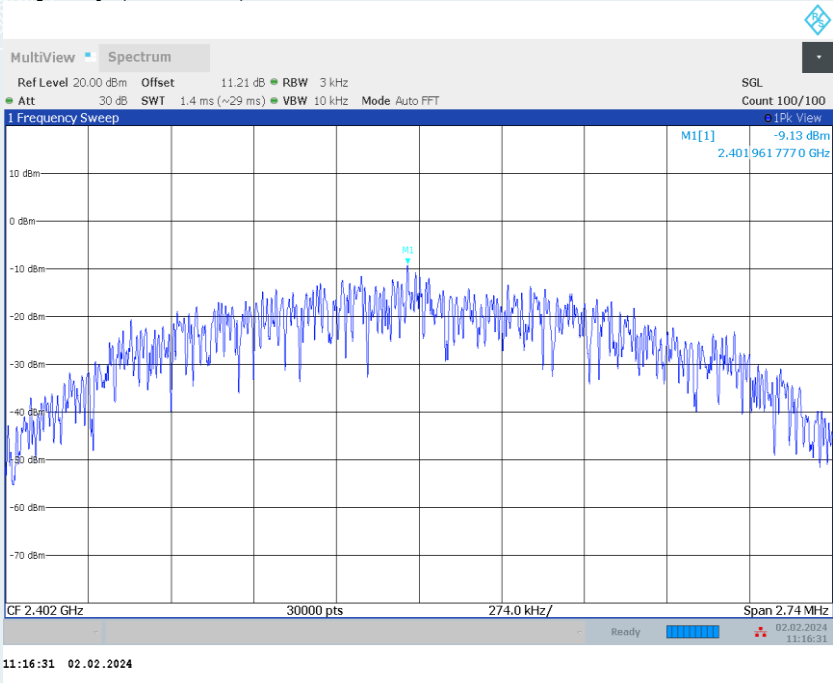


Highest Frequency (2480MHz)

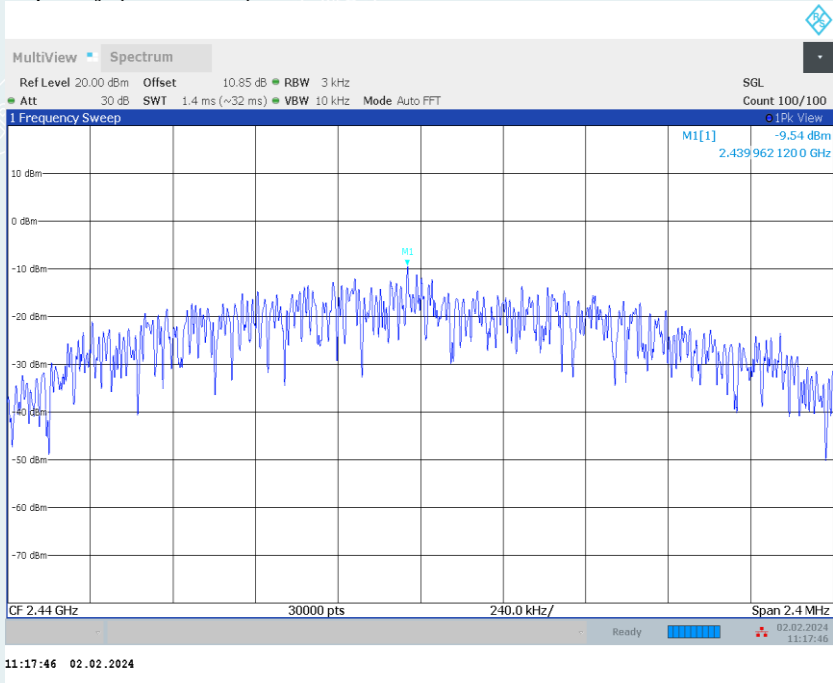


BLE_2M

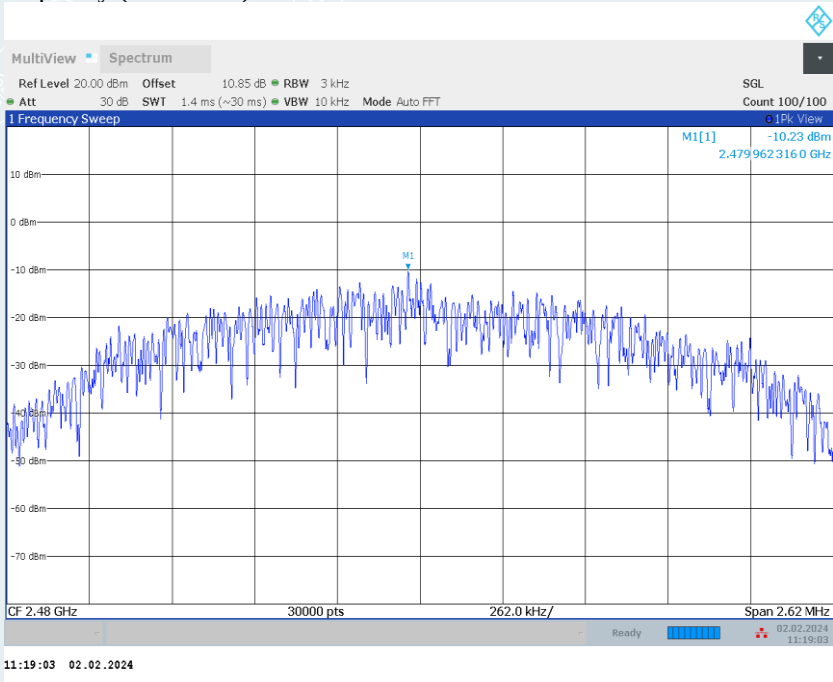
Lowest Frequency (2402MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



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11. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

11.1 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.

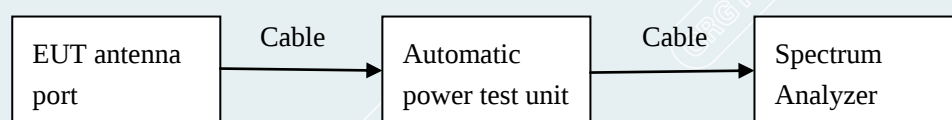
11.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 15.247 Measurement Guidance v05r02.

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.

11.3 TEST SETUP



11.4 TEST RESULTS

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

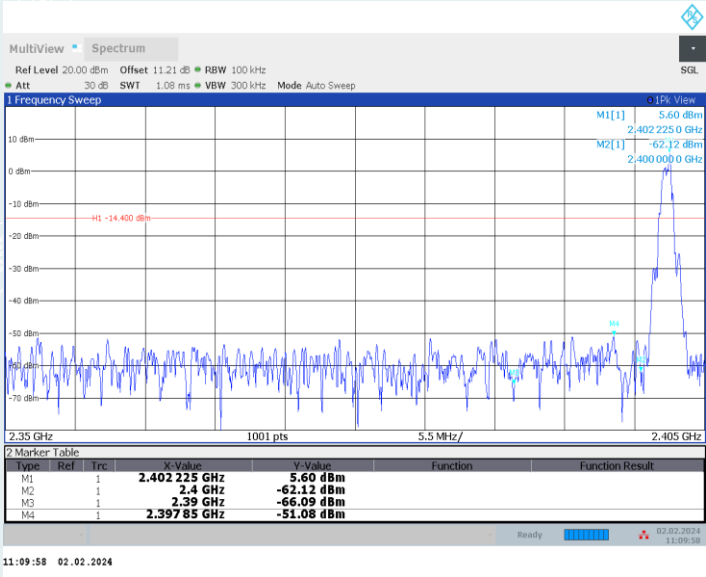
Voltage: DC 6V
Date: 2024-02-02

Band edge measurements

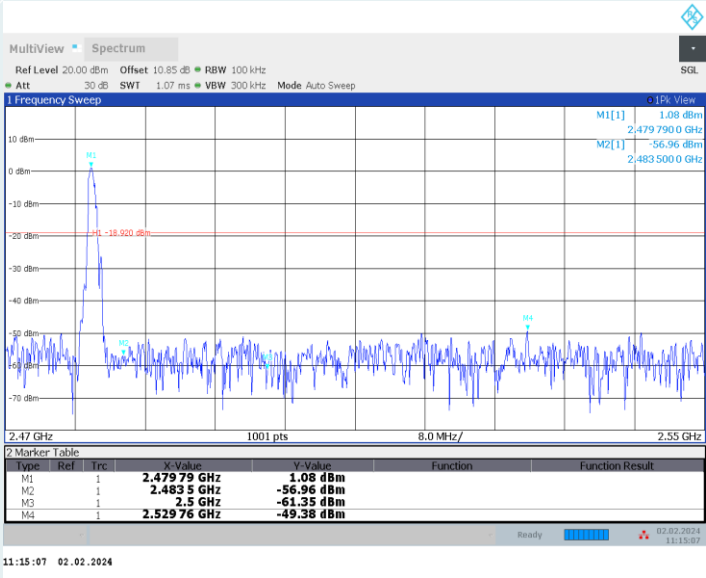
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.60	-51.08	≤-14.4	PASS
		High	2480	1.08	-49.38	≤-18.92	PASS
BLE_2M	Ant1	Low	2402	2.58	-35.94	≤-17.42	PASS
		High	2480	1.36	-49.53	≤-18.64	PASS

BLE_1M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz

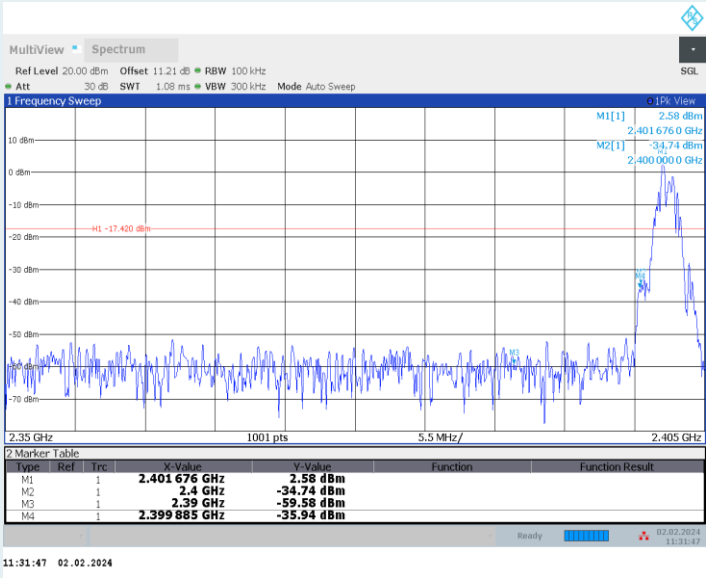


Highest Frequency (2480MHz)
2.47GHz-2.55GHz

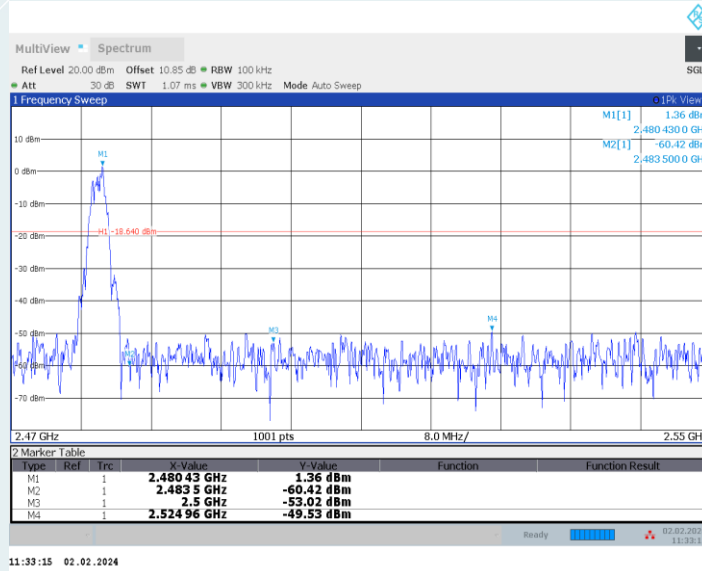


BLE_2M

Lowest Frequency (2402MHz)
2.35GHz-2.405GHz



Highest Frequency (2480MHz)
2.47GHz-2.55GHz

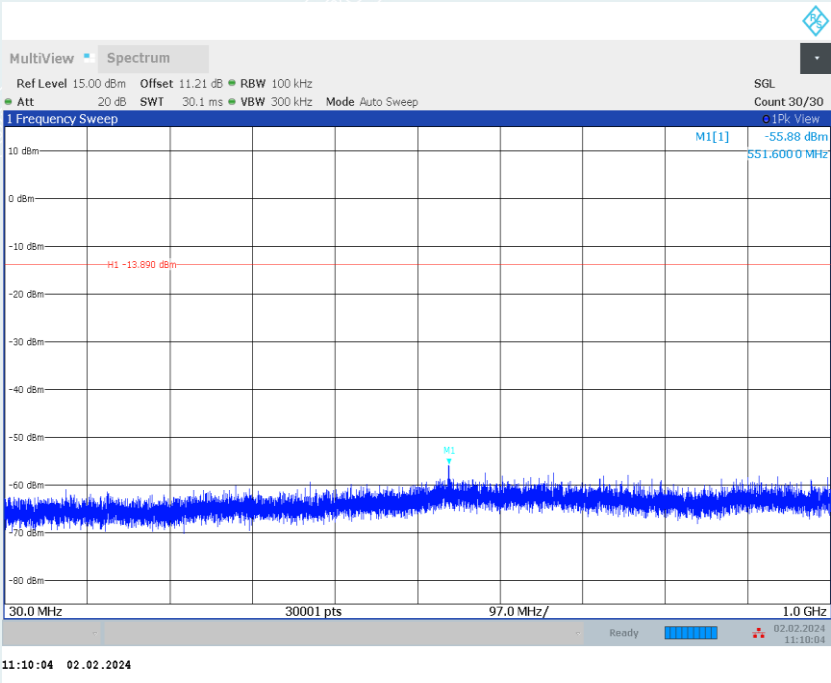
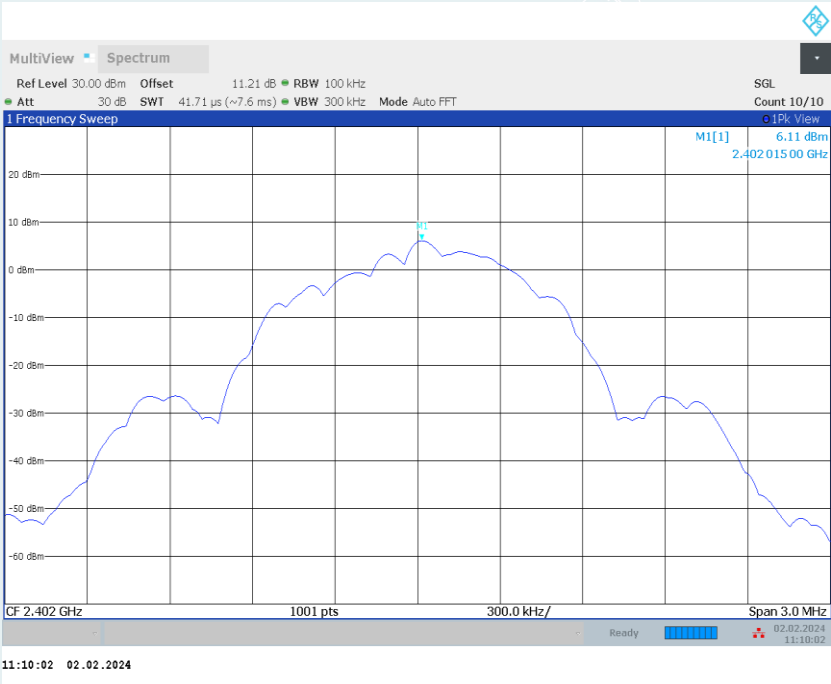


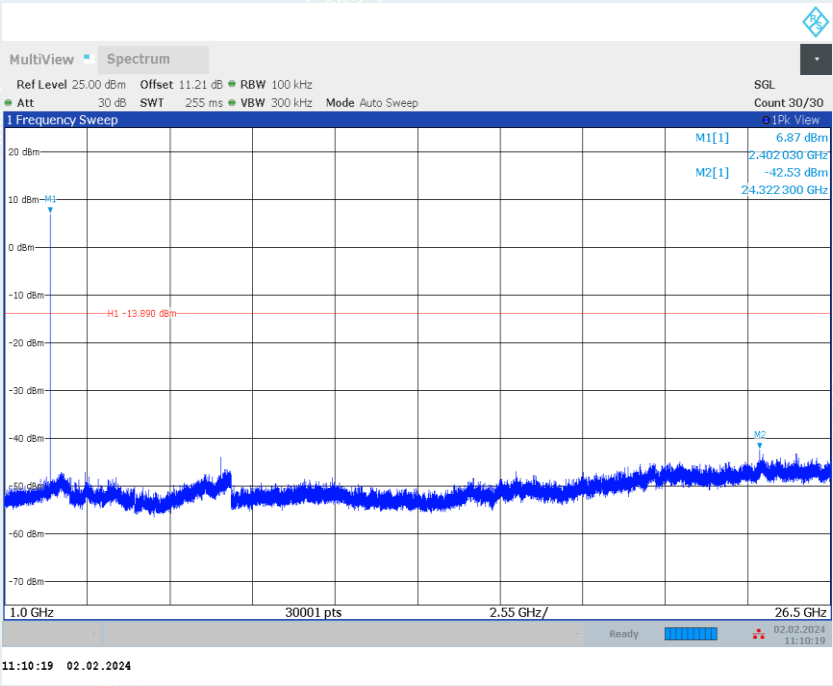
Conducted Spurious Emission

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	6.11	6.11	---	PASS
			30~1000	6.11	-55.88	≤-13.89	PASS
			1000~26500	6.11	-42.53	≤-13.89	PASS
		2440	Reference	5.02	5.02	---	PASS
			30~1000	5.02	-57.35	≤-14.98	PASS
			1000~26500	5.02	-43.74	≤-14.98	PASS
		2480	Reference	3.52	3.52	---	PASS
			30~1000	3.52	-57.5	≤-16.48	PASS
			1000~26500	3.52	-43.55	≤-16.48	PASS
BLE_2M	Ant1	2402	Reference	2.39	2.39	---	PASS
			30~1000	2.39	-57.63	≤-17.61	PASS
			1000~26500	2.39	-42.7	≤-17.61	PASS
		2440	Reference	2.16	2.16	---	PASS
			30~1000	2.16	-58.26	≤-17.84	PASS
			1000~26500	2.16	-44.27	≤-17.84	PASS
		2480	Reference	4.00	4.00	---	PASS
			30~1000	4.00	-58.27	≤-16	PASS
			1000~26500	4.00	-44.15	≤-16	PASS

BLE_1M

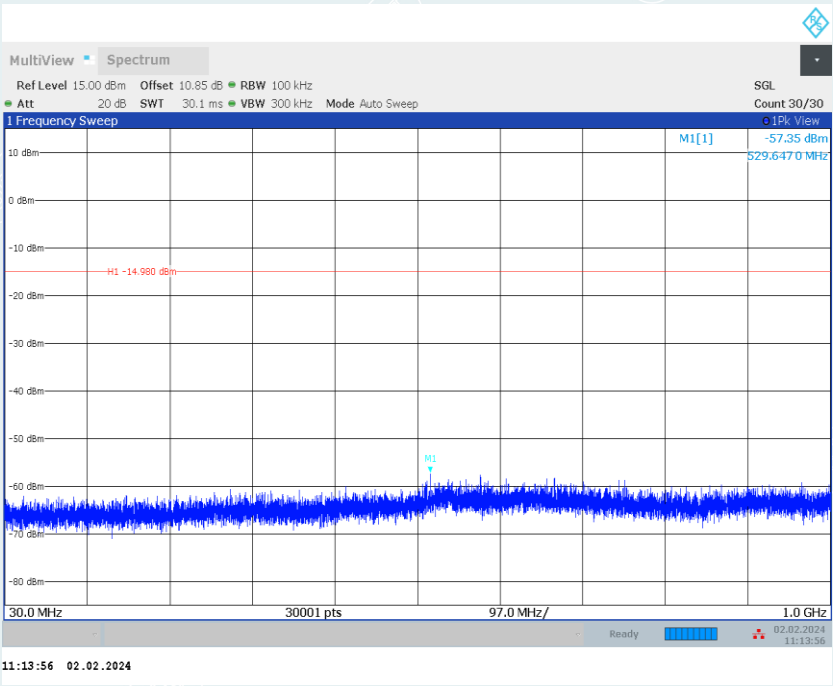
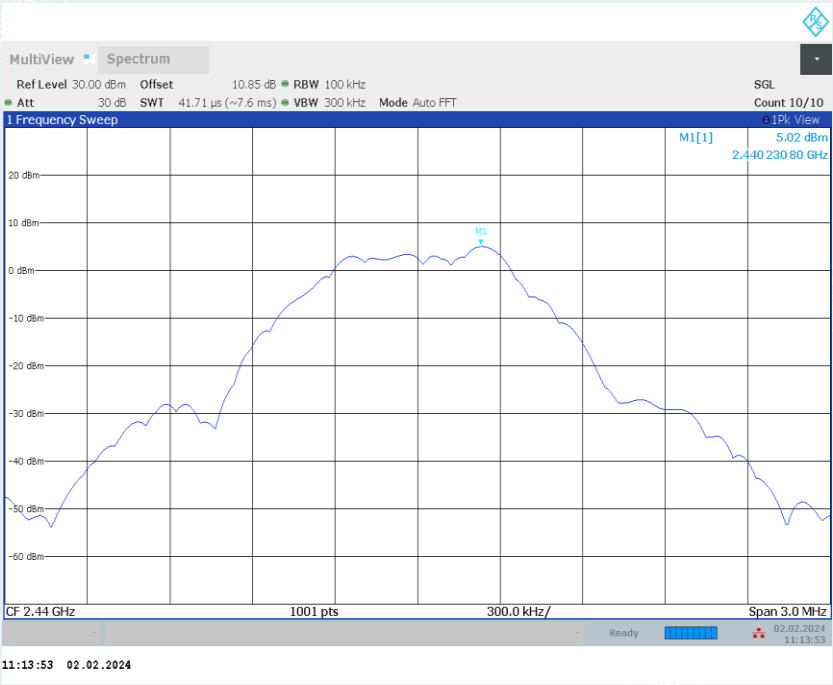
Lowest Frequency (2402MHz)

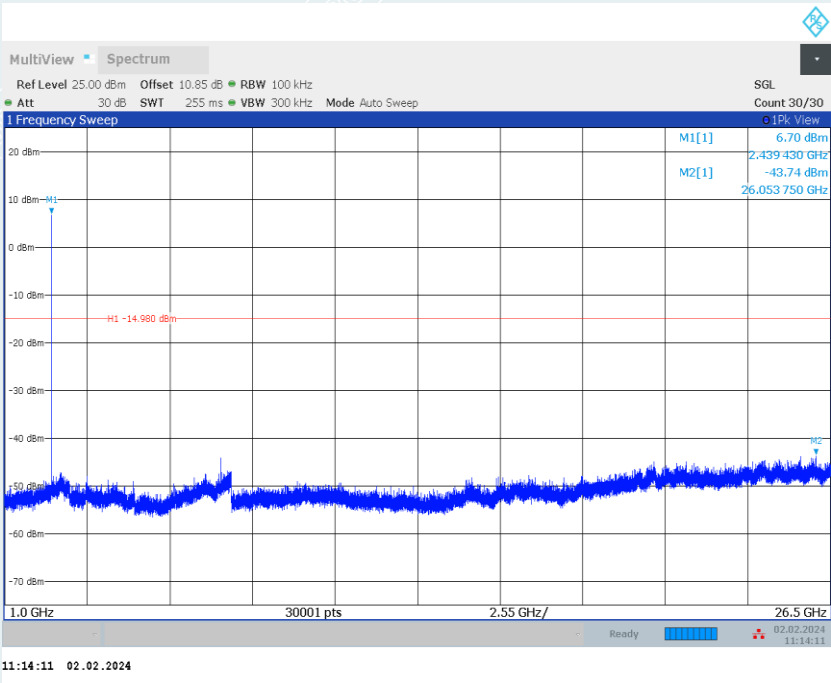




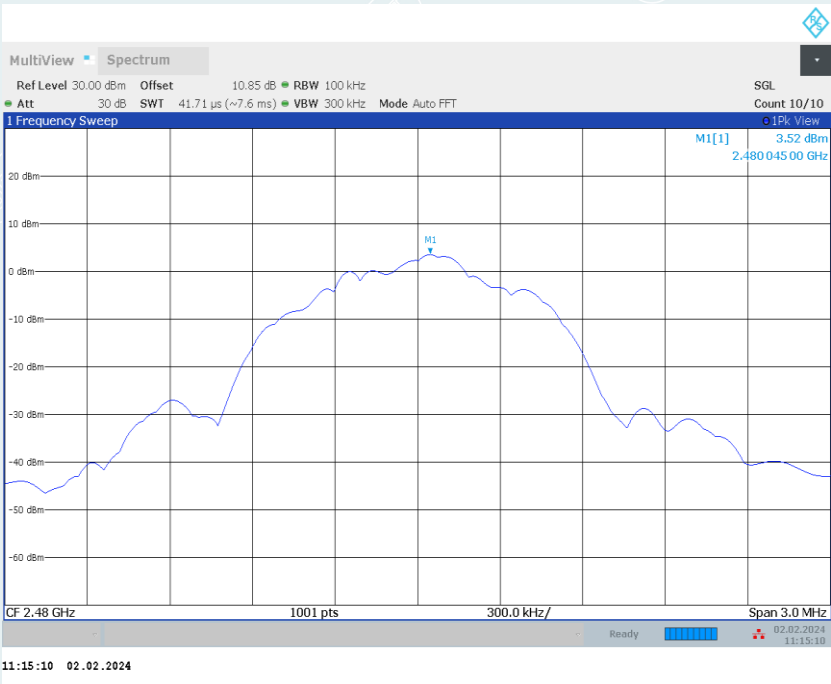
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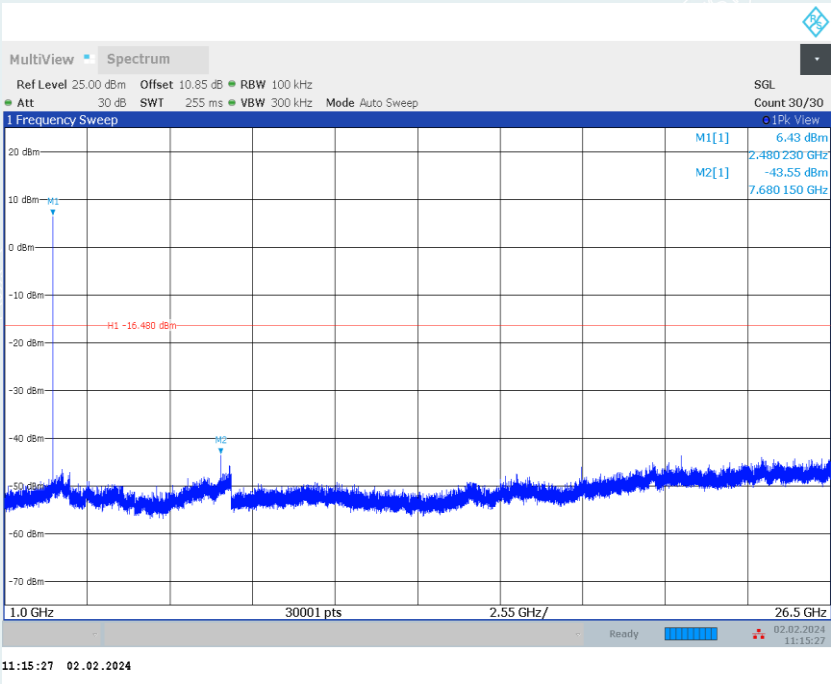
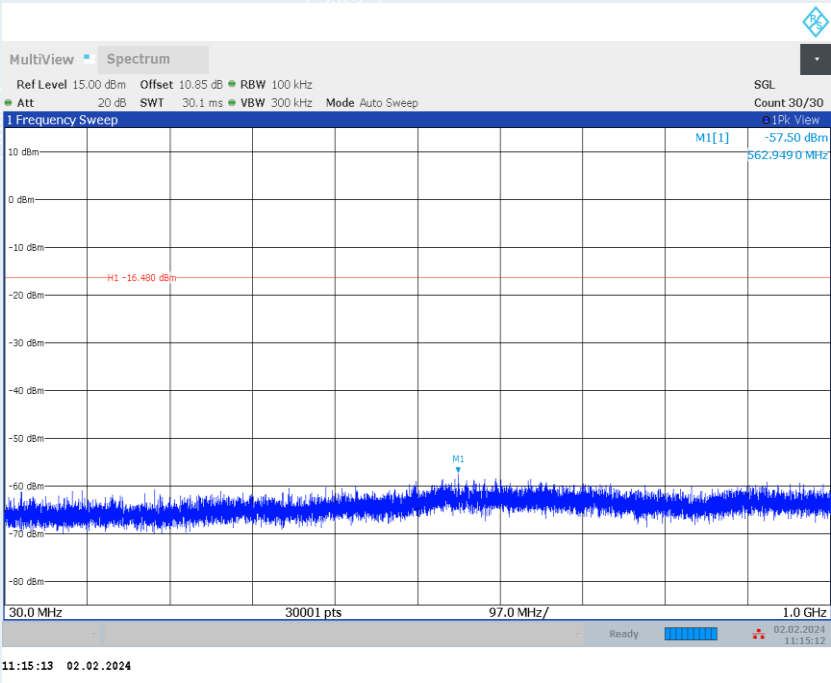
Middle Frequency (2440MHz)





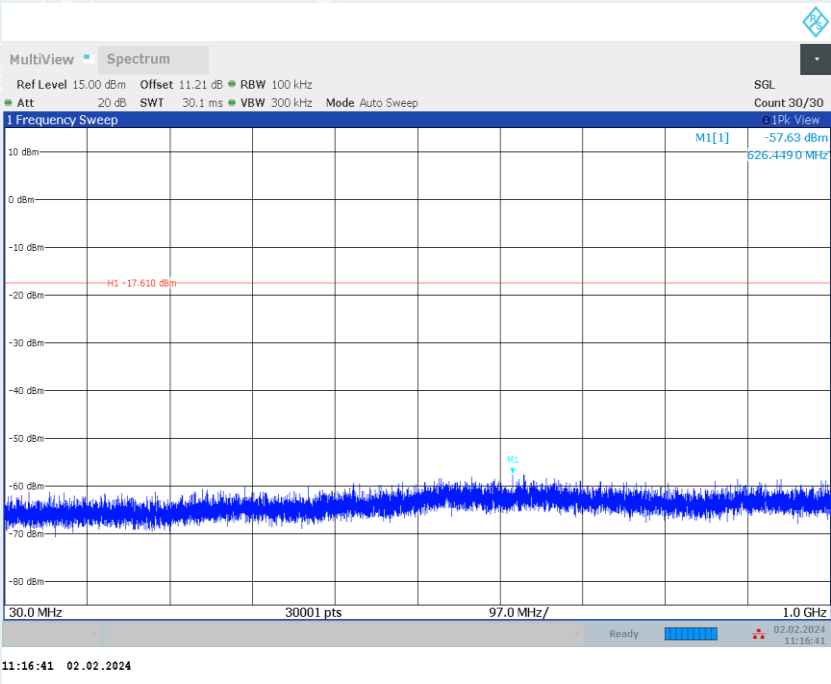
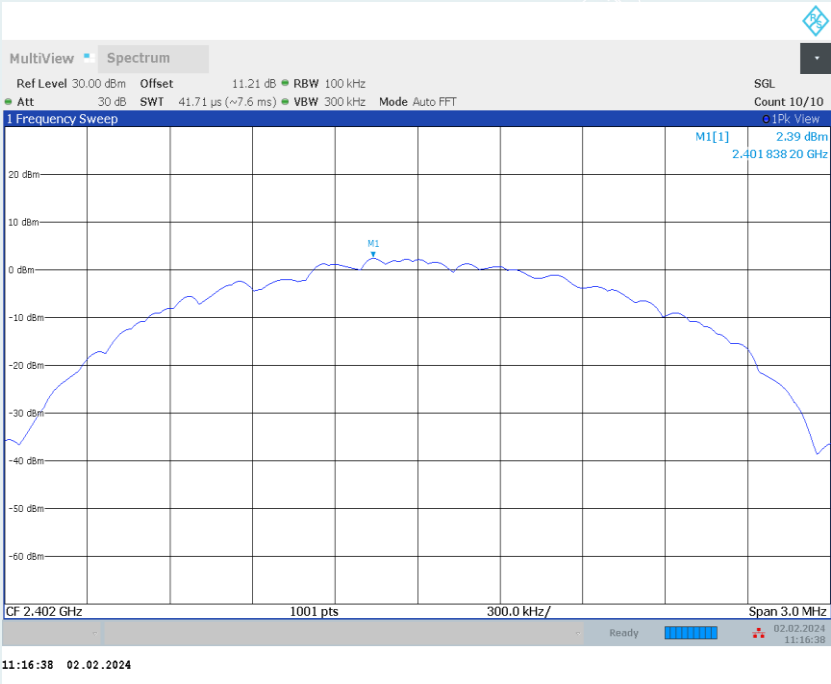
Highest Frequency (2480MHz)

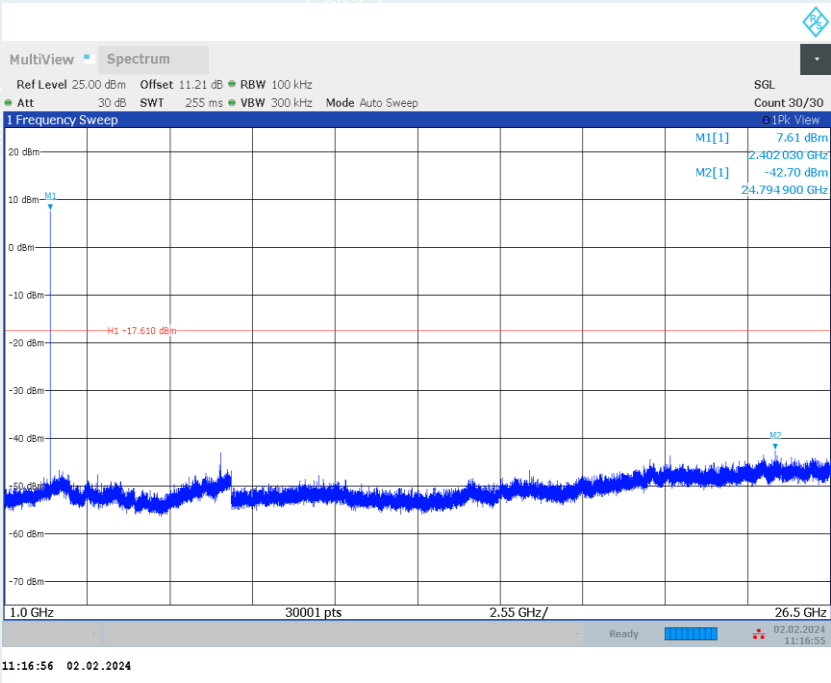




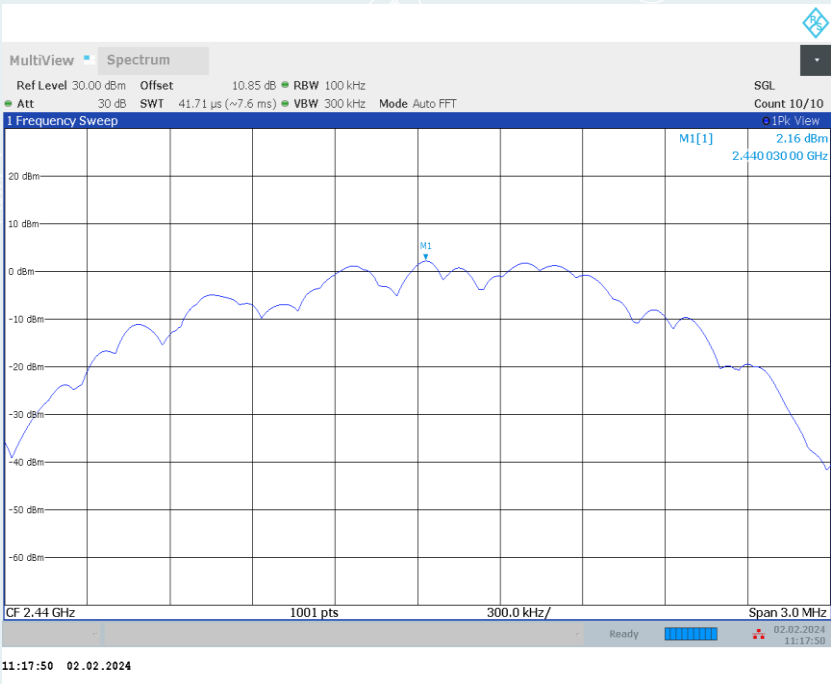
BLE_2M

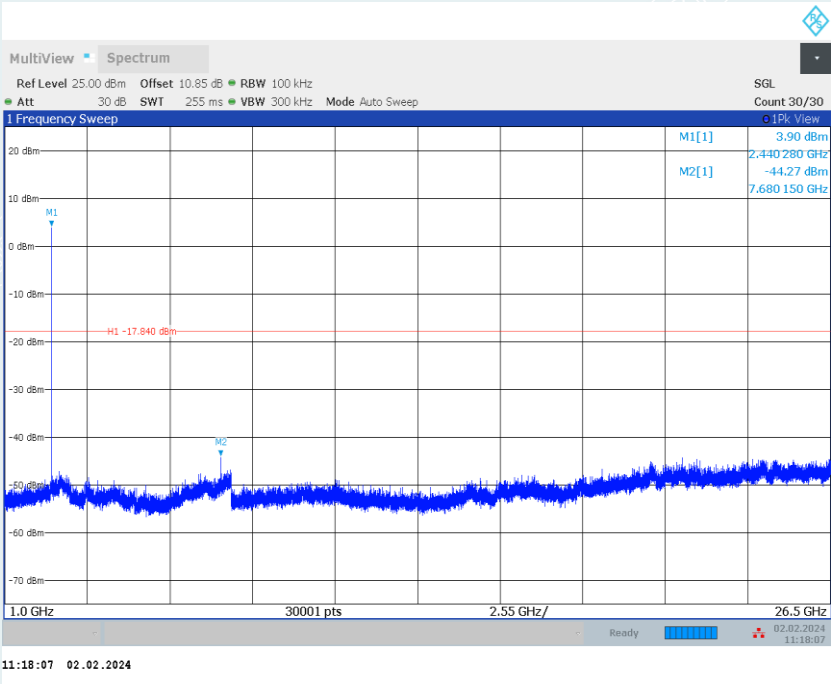
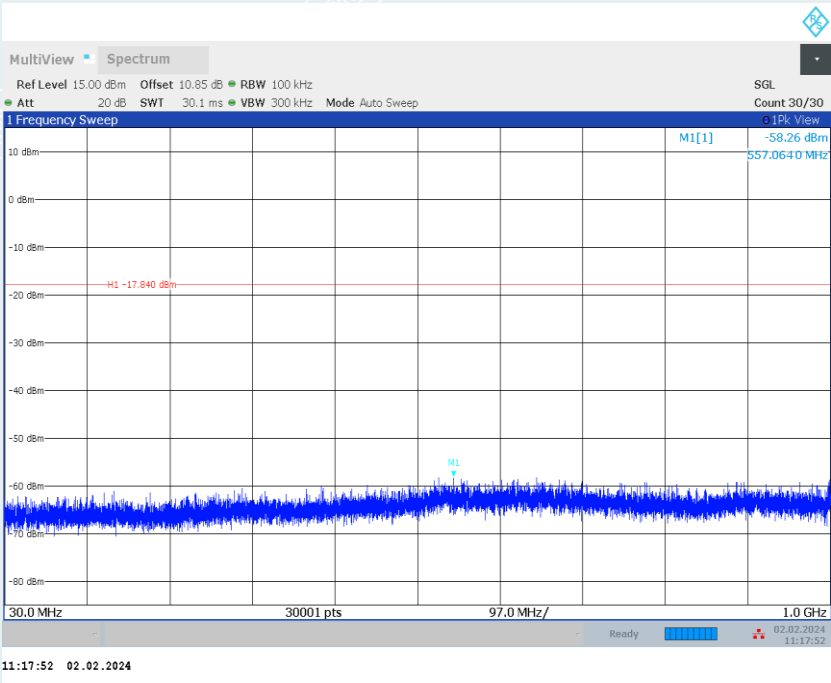
Lowest Frequency (2402MHz)



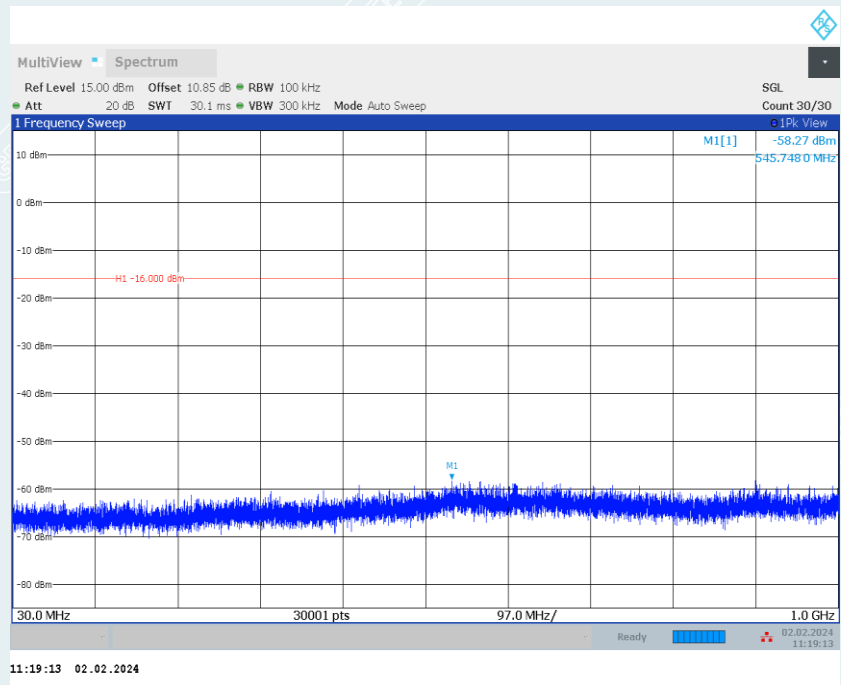
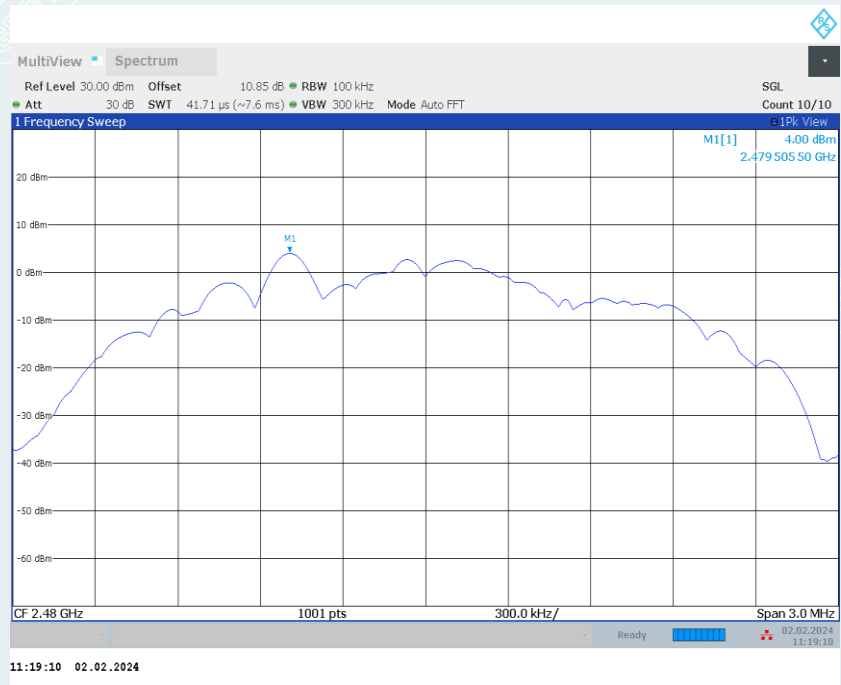


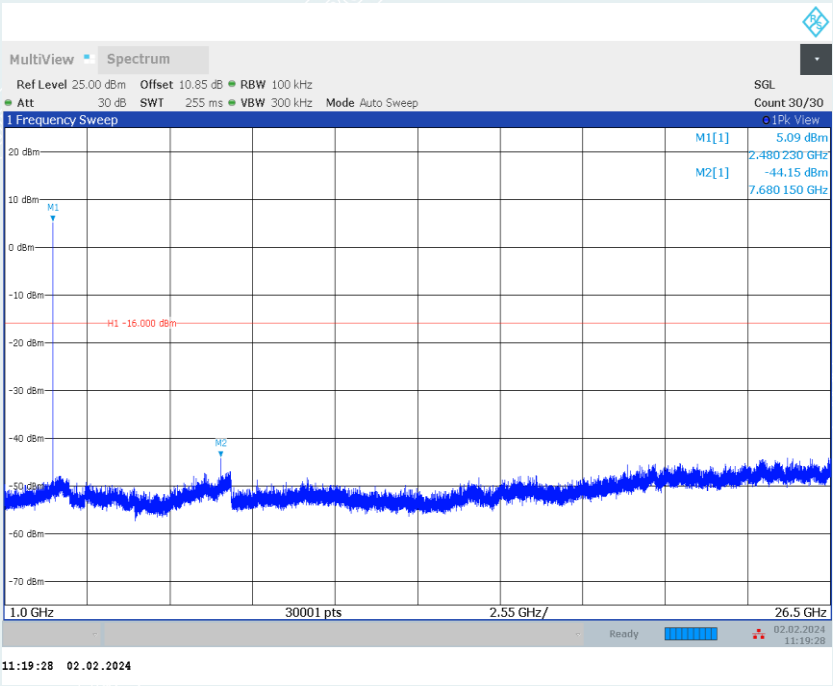
Middle Frequency (2440MHz)





Highest Frequency (2480MHz)





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12. RESTRICTED BANDS OF OPERATION

12.1 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

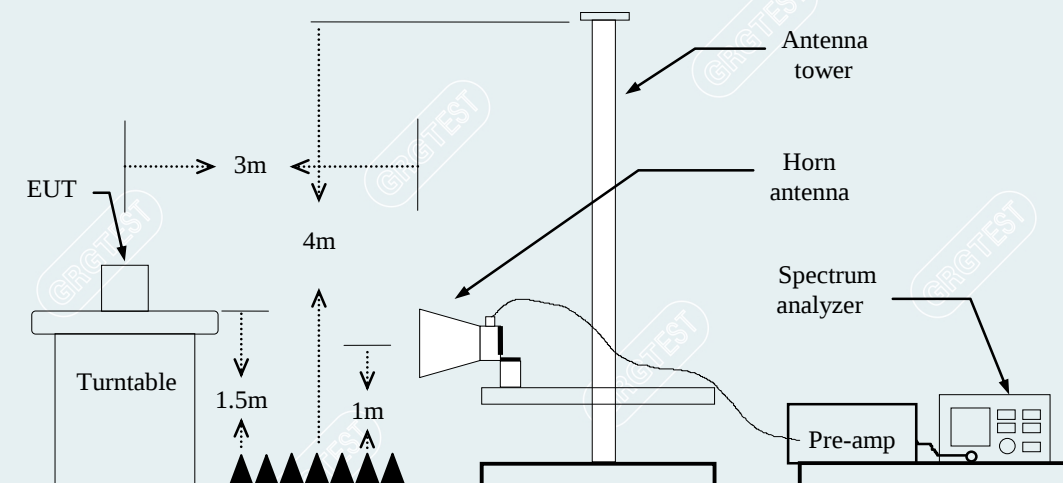
12.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 15.247 Meas Guidance v05r02.

- 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) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO.
 - b) 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 2.8.
- e) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

12.3 TEST SETUP



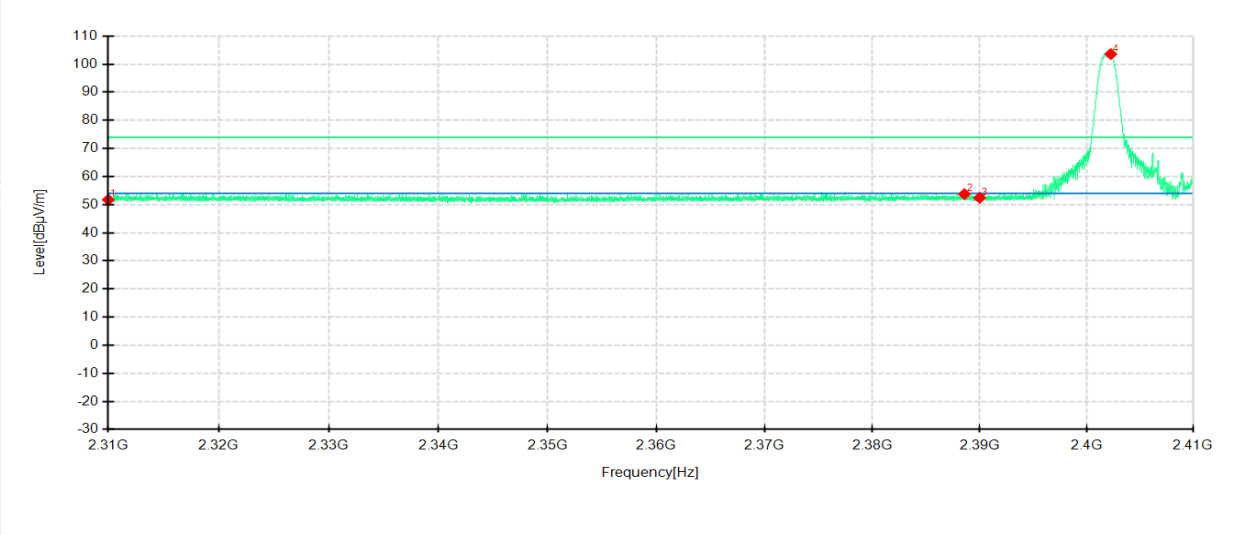
12.4 TEST RESULTS

Pre-scan all modes, the worst power supply is 4 LR3 AAA 1.5V Batteries. In the three power supply modes(4 LR3 AAA 1.5V Batteries, DC 24V power by Adapter and AC 24V power by AC power converter), only the worst power supply mode is recorded in this report.

Equipment:	Aqara Keypad	Test Date	2024-02-23
Model No.:	KP-X01D	Test Engineer:	Zhang Zishan
Test Voltage:	DC 6V	Environmental Conditions	23.2℃/47%RH/101.0kPa

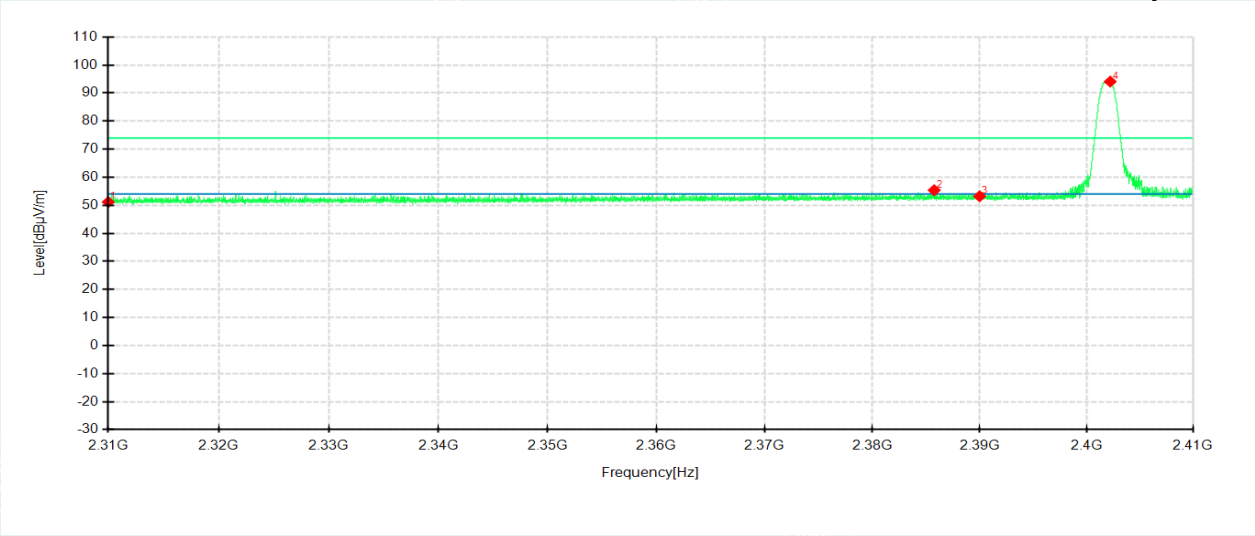
BLE 1M
Lowest Frequency
Frequency 2402MHz
Detector mode: Peak

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	56.71	51.75	-4.96	74.00	22.25	100	64	Horizontal	/
2	2388.5750	59.57	53.75	-5.82	74.00	20.25	100	92	Horizontal	/
3	2390.0000	58.26	52.43	-5.83	74.00	21.57	200	175	Horizontal	/
4	2402.2750	109.45	103.59	-5.86	74.00	-29.59	100	234	Horizontal	No limit
1	2310.0000	56.82	51.16	-5.66	74.00	22.84	100	137	Vertical	/
2	2385.7625	60.81	55.38	-5.43	74.00	18.62	100	174	Vertical	/
3	2390.0000	58.61	53.20	-5.41	74.00	20.80	100	266	Vertical	/
4	2402.2250	99.45	94.09	-5.36	74.00	-20.09	100	174	Vertical	No limit

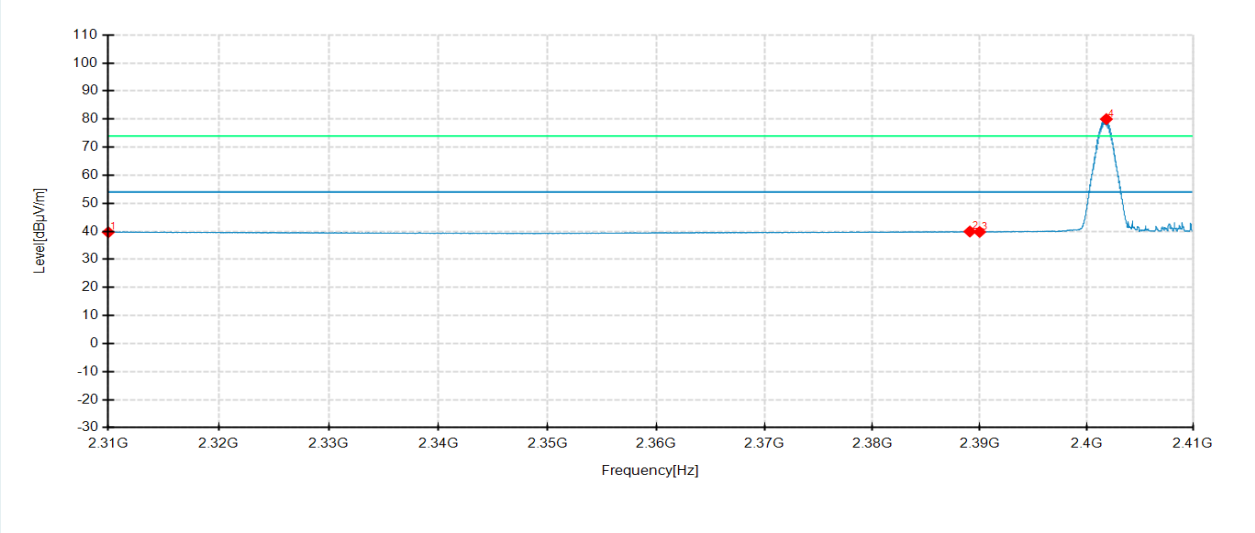
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Lowest Frequency

Frequency 2402MHz

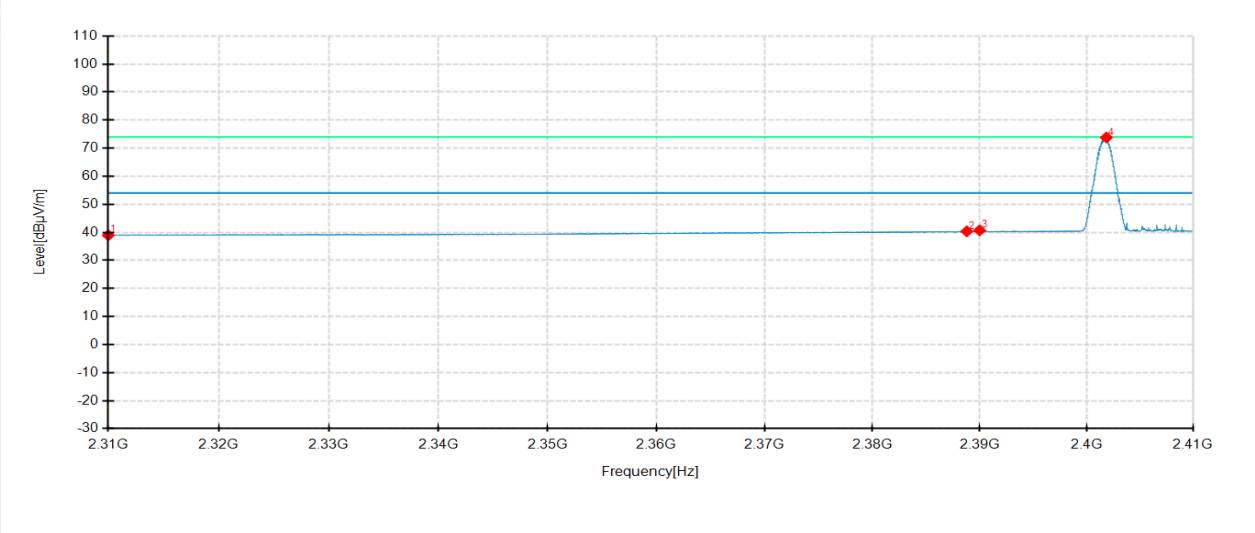
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

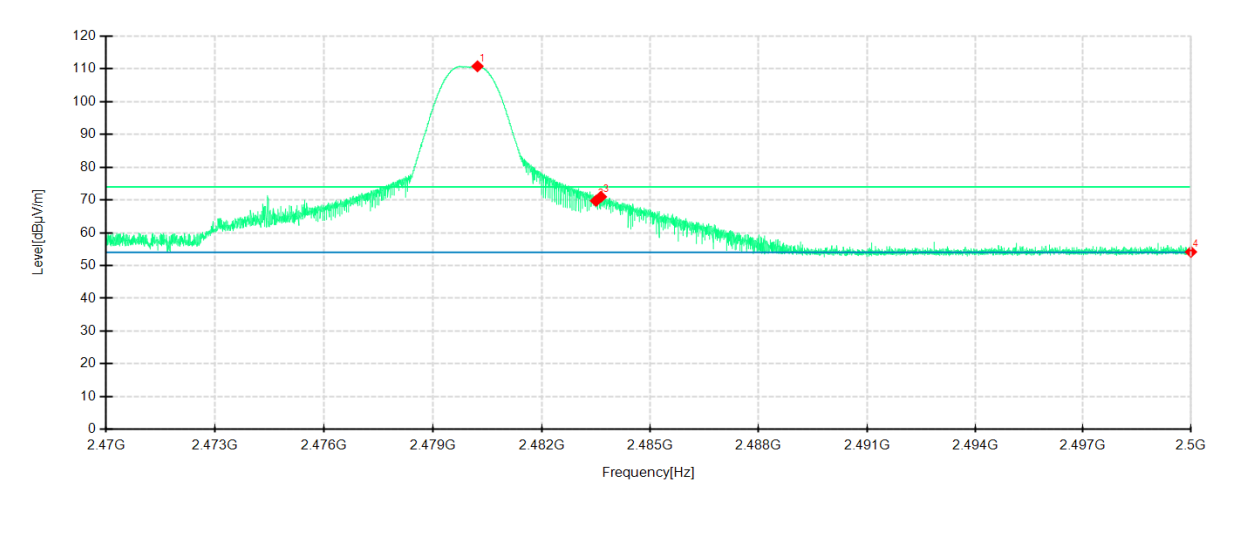
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	44.62	39.66	-4.96	54.00	14.34	100	184	Horizontal	/
2	2389.0875	45.77	39.94	-5.83	54.00	14.06	100	235	Horizontal	/
3	2390.0000	45.62	39.79	-5.83	54.00	14.21	200	241	Horizontal	/
4	2401.8625	85.87	80.01	-5.86	54.00	-26.01	100	222	Horizontal	No limit
1	2310.0000	44.60	38.94	-5.66	54.00	15.06	100	21	Vertical	/
2	2388.8000	45.76	40.35	-5.41	54.00	13.65	100	281	Vertical	/
3	2390.0000	46.12	40.71	-5.41	54.00	13.29	100	202	Vertical	/
4	2401.8625	79.16	73.80	-5.36	54.00	-19.80	100	179	Vertical	No limit

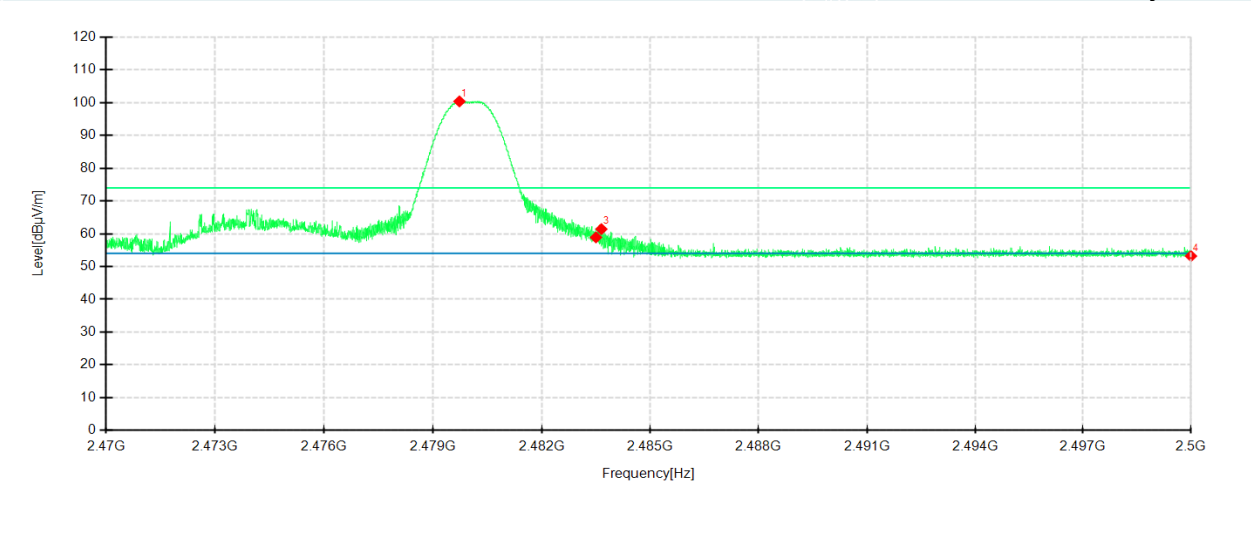
Highest Frequency
Frequency 2480MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



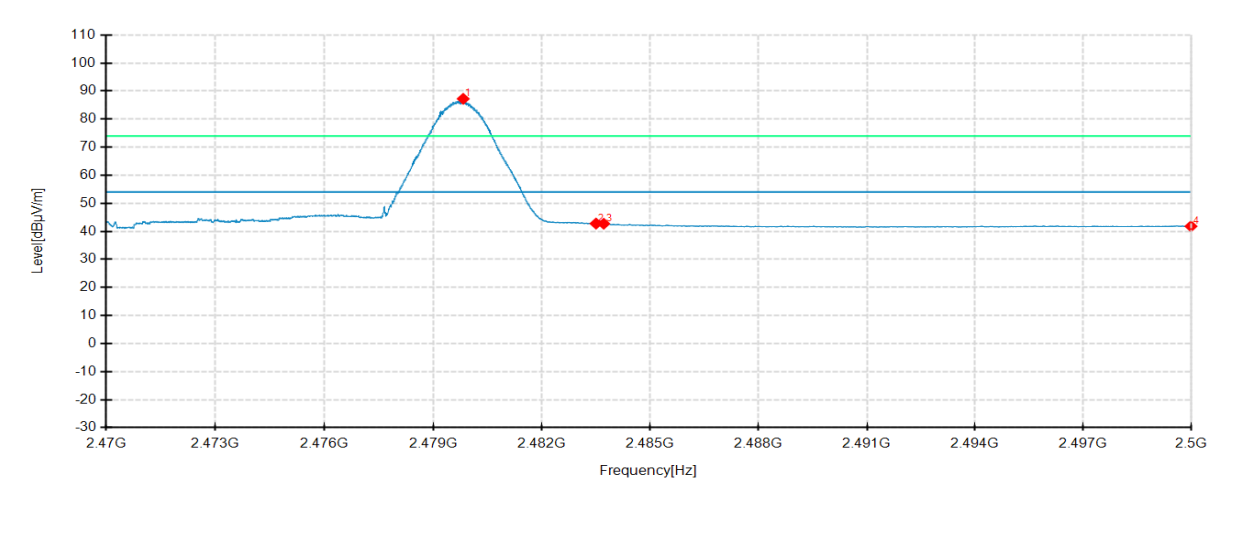
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.2263	115.94	110.77	-5.17	74.00	-36.77	200	249	Horizontal	No limit
2	2483.5000	74.85	69.75	-5.10	74.00	4.25	100	254	Horizontal	/
3	2483.6350	76.06	70.97	-5.09	74.00	3.03	200	249	Horizontal	/
4	2500.0000	58.95	54.16	-4.79	74.00	19.84	200	223	Horizontal	/
1	2479.7275	105.42	100.37	-5.05	74.00	-26.37	200	332	Vertical	No limit
2	2483.5000	63.92	58.89	-5.03	74.00	15.11	100	144	Vertical	/
3	2483.6500	66.45	61.42	-5.03	74.00	12.58	200	345	Vertical	/
4	2500.0000	58.18	53.19	-4.99	74.00	20.81	200	97	Vertical	/

Highest Frequency

Frequency 2480MHz

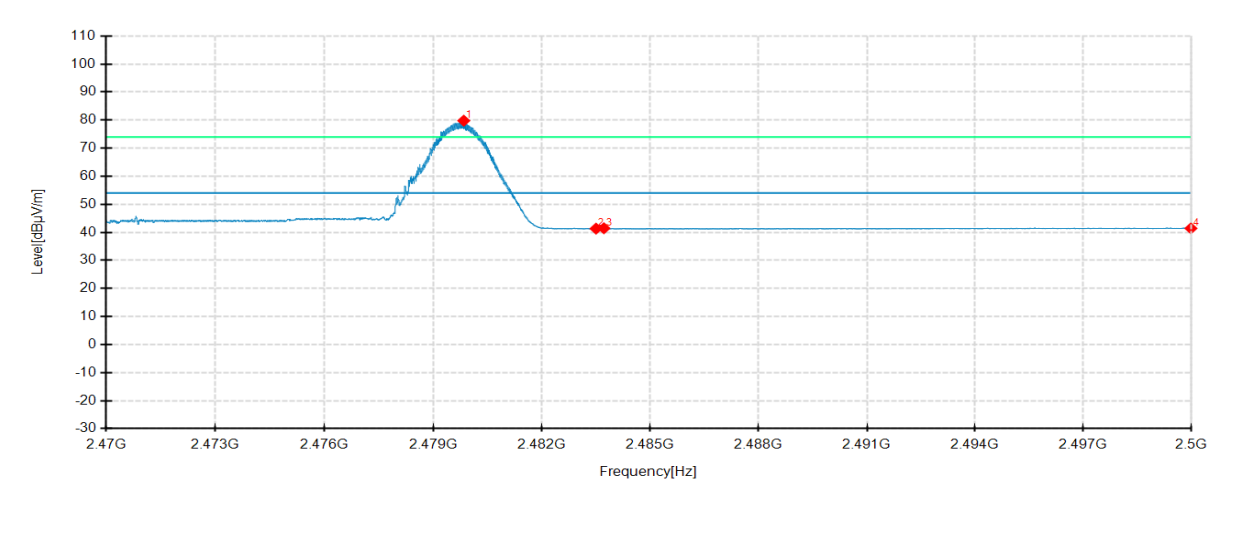
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



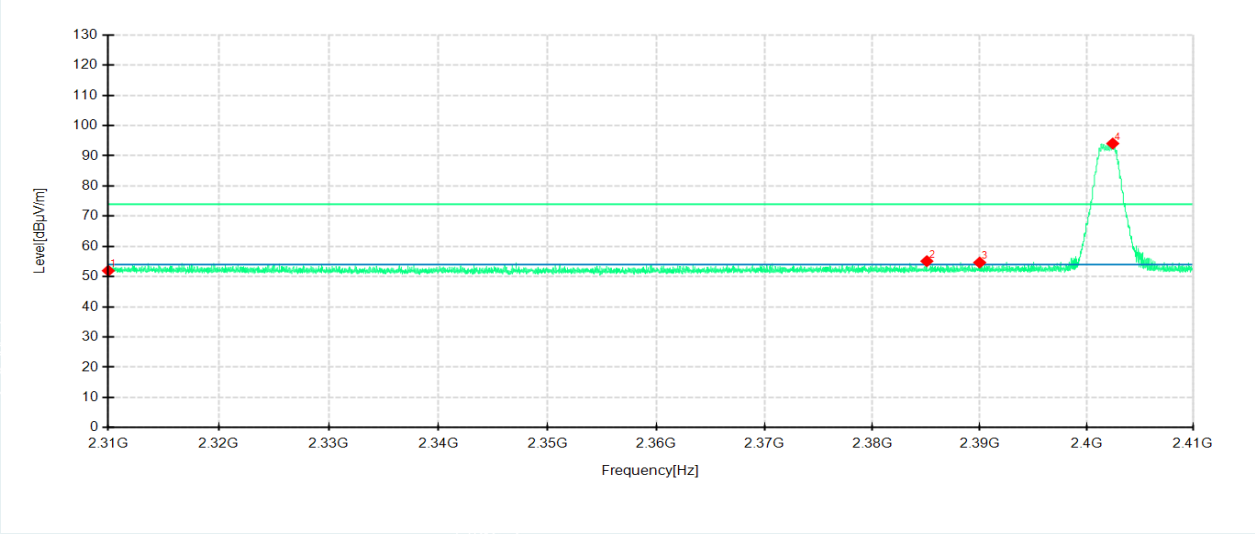
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.8325	92.41	87.24	-5.17	54.00	-33.24	200	262	Horizontal	No limit
2	2483.5000	47.86	42.76	-5.10	54.00	11.24	200	249	Horizontal	/
3	2483.7138	47.79	42.70	-5.09	54.00	11.30	200	249	Horizontal	/
4	2500.0000	46.59	41.80	-4.79	54.00	12.20	100	85	Horizontal	/
1	2479.8475	84.85	79.80	-5.05	54.00	-25.80	200	345	Vertical	No limit
2	2483.5000	46.35	41.32	-5.03	54.00	12.68	100	211	Vertical	/
3	2483.7175	46.48	41.45	-5.03	54.00	12.55	200	345	Vertical	/
4	2500.0000	46.40	41.41	-4.99	54.00	12.59	200	163	Vertical	/

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

Equipment:	Aqara Keypad	Test Date	2024-02-23
Model No.:	KP-X01D	Test Engineer:	Zhang Zishan
Test Voltage:	DC 6V	Environmental Conditions	23.2℃/47%RH/101.0kPa

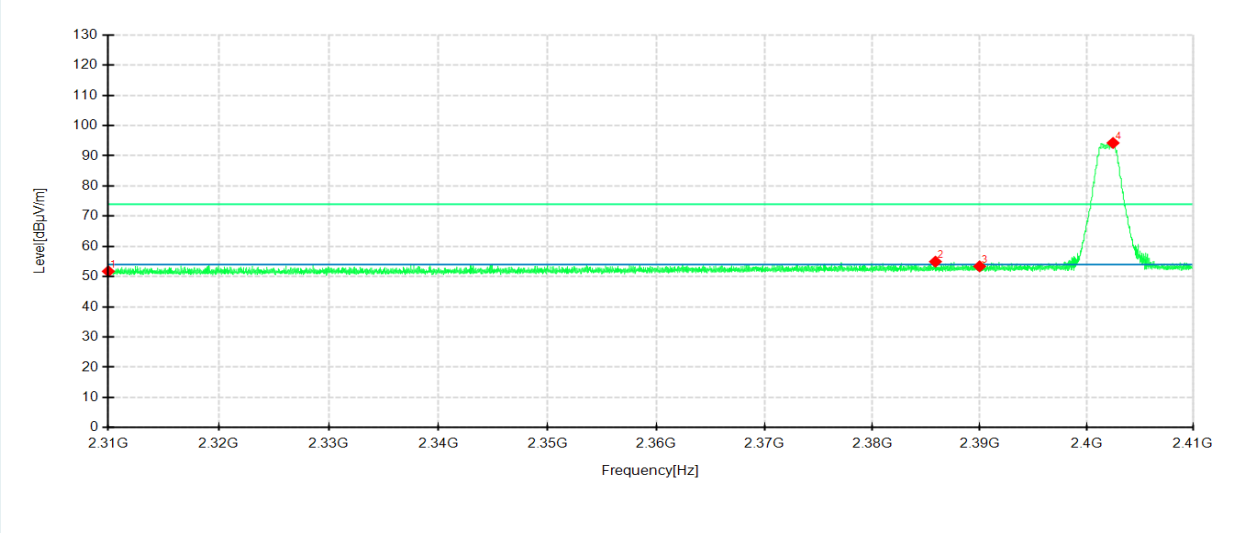
BLE 2M
Lowest Frequency
Frequency 2402MHz
Detector mode: Peak

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	56.92	51.96	-4.96	74.00	22.04	100	201	Horizontal	/
2	2385.0750	60.93	55.12	-5.81	74.00	18.88	200	338	Horizontal	/
3	2390.0000	60.50	54.67	-5.83	74.00	19.33	200	262	Horizontal	/
4	2402.4625	99.93	94.07	-5.86	74.00	-20.07	100	175	Horizontal	No limit
1	2310.0000	57.42	51.76	-5.66	74.00	22.24	100	106	Vertical	/
2	2385.8750	60.39	54.96	-5.43	74.00	19.04	200	58	Vertical	/
3	2390.0000	58.82	53.41	-5.41	74.00	20.59	100	340	Vertical	/
4	2402.4875	99.62	94.26	-5.36	74.00	-20.26	100	171	Vertical	No limit

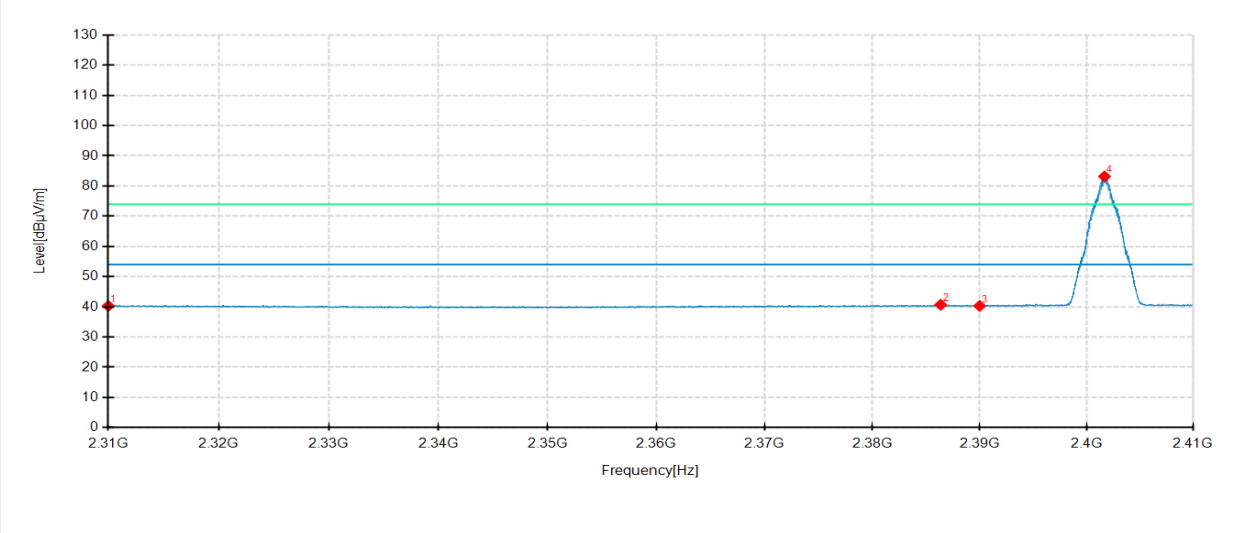
----- The following blanks -----

Lowest Frequency

Frequency 2402MHz

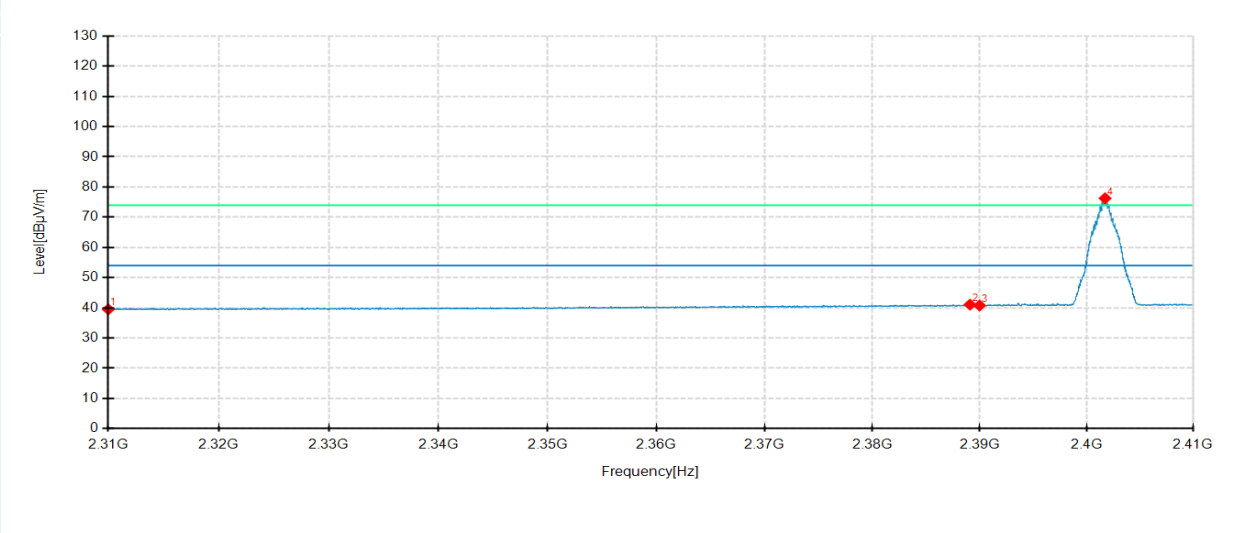
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

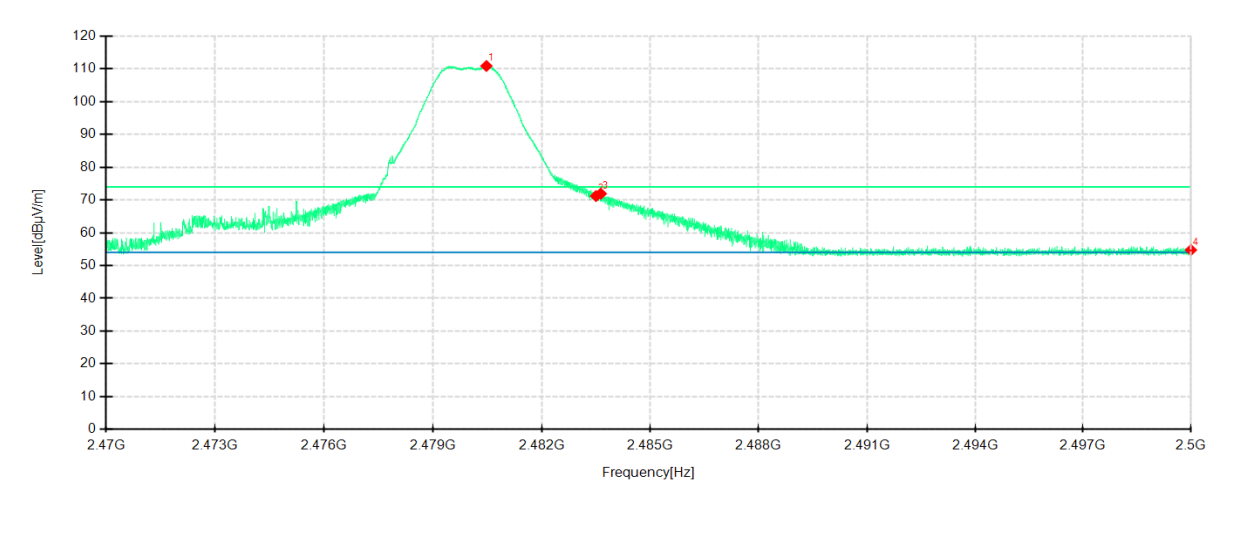
Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	45.26	40.30	-4.96	54.00	13.70	200	288	Horizontal	/
2	2386.3625	46.52	40.70	-5.82	54.00	13.30	200	133	Horizontal	/
3	2390.0000	46.13	40.30	-5.83	54.00	13.70	200	55	Horizontal	/
4	2401.6875	89.04	83.17	-5.87	54.00	-29.17	100	242	Horizontal	No limit
1	2310.0000	45.17	39.51	-5.66	54.00	14.49	100	340	Vertical	/
2	2389.1000	46.47	41.06	-5.41	54.00	12.94	100	2	Vertical	/
3	2390.0000	46.19	40.78	-5.41	54.00	13.22	100	14	Vertical	/
4	2401.7375	81.63	76.26	-5.37	54.00	-22.26	200	319	Vertical	No limit

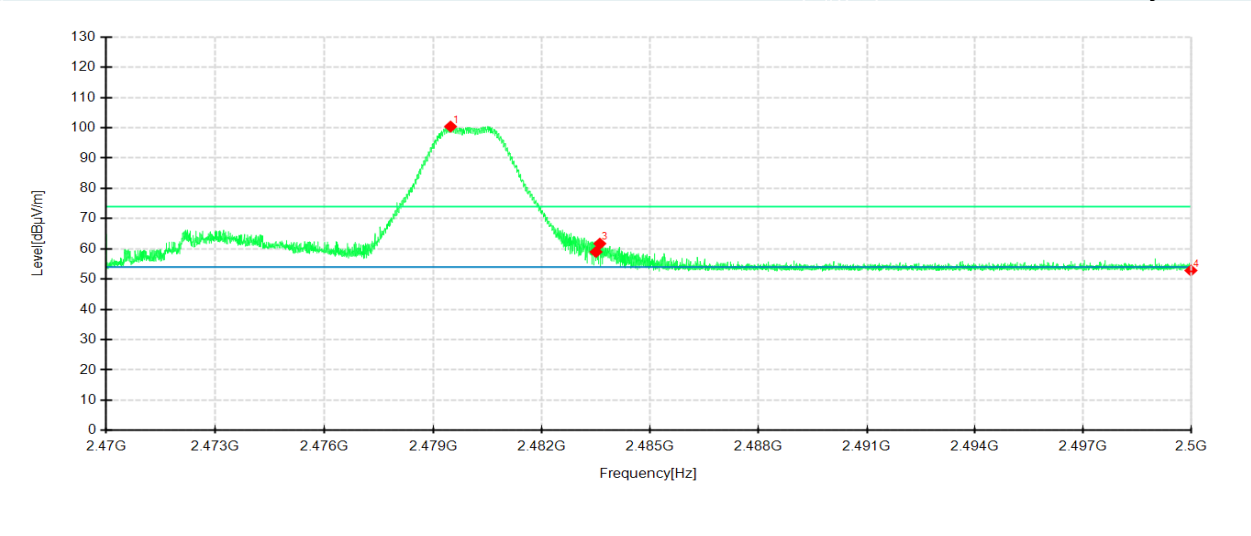
Highest Frequency
Frequency 2480MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



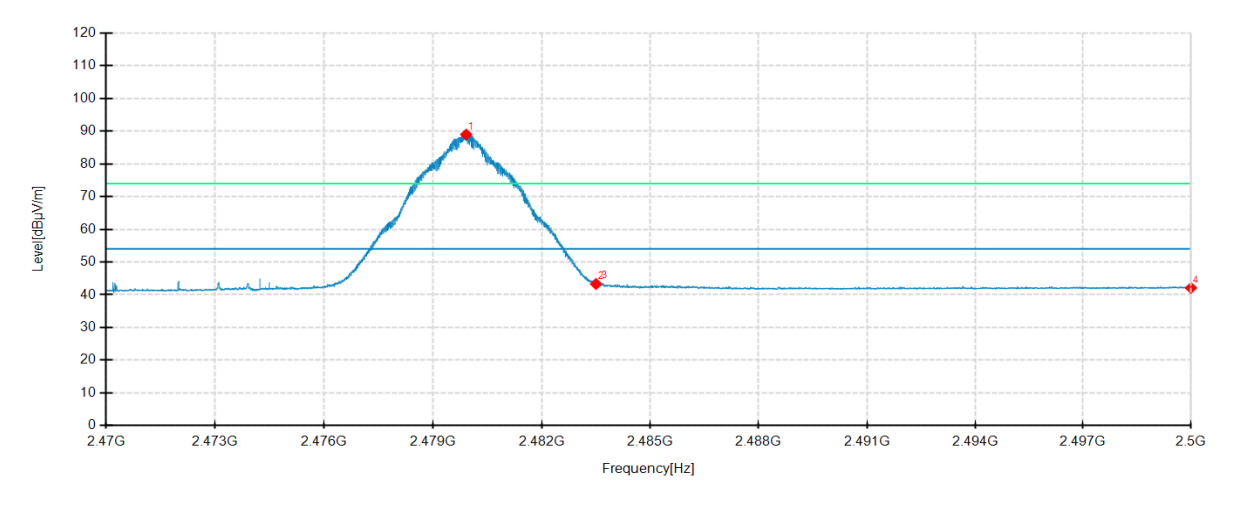
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.4738	116.03	110.87	-5.16	74.00	-36.87	200	248	Horizontal	No limit
2	2483.5000	76.30	71.20	-5.10	74.00	2.80	100	215	Horizontal	/
3	2483.6313	77.01	71.92	-5.09	74.00	2.08	200	248	Horizontal	/
4	2500.0000	59.53	54.74	-4.79	74.00	19.26	100	100	Horizontal	/
1	2479.4838	105.48	100.43	-5.05	74.00	-26.43	200	330	Vertical	No limit
2	2483.5000	64.02	58.99	-5.03	74.00	15.01	100	145	Vertical	/
3	2483.6050	66.77	61.74	-5.03	74.00	12.26	100	170	Vertical	/
4	2500.0000	57.84	52.85	-4.99	74.00	21.15	200	344	Vertical	/

Highest Frequency

Frequency 2480MHz

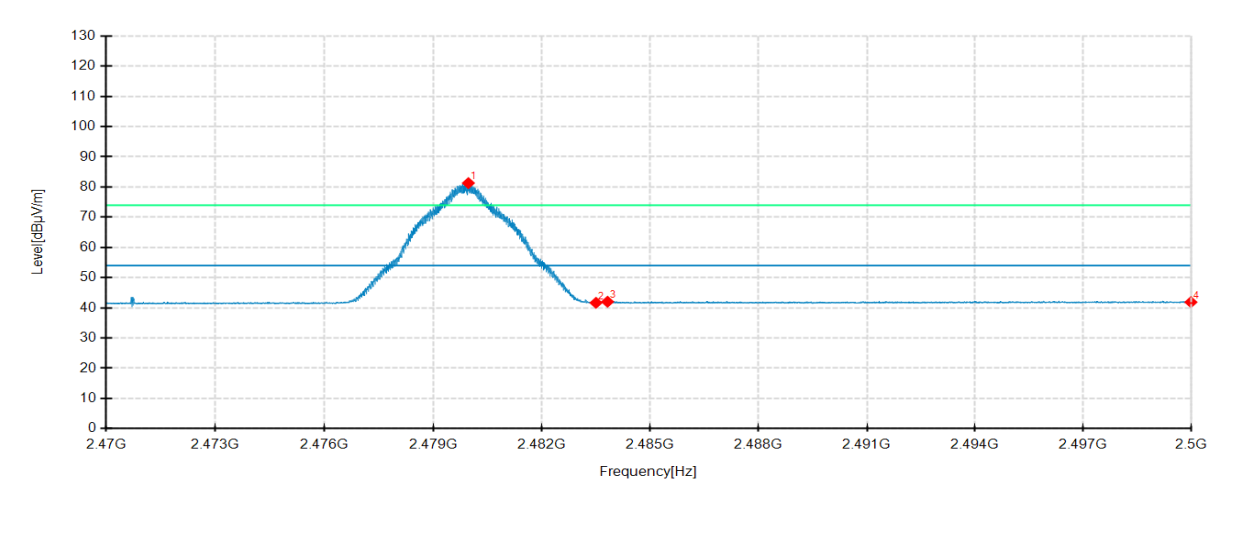
Detector mode: Average

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	2479.9150	94.13	88.96	-5.17	54.00	-34.96	200	250	Horizontal	No limit
2	2483.5000	48.40	43.30	-5.10	54.00	10.70	200	250	Horizontal	/
3	2483.5900	48.57	43.47	-5.10	54.00	10.53	200	250	Horizontal	/
4	2500.0000	46.88	42.09	-4.79	54.00	11.91	200	224	Horizontal	/
1	2479.9750	86.35	81.30	-5.05	54.00	-27.30	200	320	Vertical	No limit
2	2483.5000	46.69	41.66	-5.03	54.00	12.34	100	144	Vertical	/
3	2483.8188	47.06	42.03	-5.03	54.00	11.97	200	320	Vertical	/
4	2500.0000	46.87	41.88	-4.99	54.00	12.12	100	78	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 -----