

Mode: TX/ BLE_1M

Highest Frequency (2480MHz)

Environment: 15.4°C/32%RH/102.6kPa

Voltage: DC 3V

Tested By: Stone Zhang

Date: 2025-03-18

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1884.8000	48.84	44.34	-4.50	74.00	29.66	100	210	Horizontal
2	3996.0000	56.80	46.06	-10.74	74.00	27.94	100	310	Horizontal
3	4959.0000	53.89	47.13	-6.76	74.00	26.87	100	206	Horizontal
4	7651.0000	51.59	53.16	1.57	74.00	20.84	100	115	Horizontal
5	11831.0000	53.25	64.35	11.10	74.00	9.65	100	296	Horizontal
6	16079.0000	58.58	66.84	8.26	74.00	7.16	100	325	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	7632.5630	1.46	32.41	33.98	54.00	20.02	100	0	Horizontal
2	11801.4720	11.15	26.17	37.27	54.00	16.73	100	56	Horizontal
3	16028.3650	8.78	25.49	33.75	54.00	20.25	100	26	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	2662.8000	51.51	49.15	-2.36	74.00	24.85	100	213	Vertical
2	3985.0000	53.76	43.60	-10.16	74.00	30.40	200	1	Vertical
3	4959.0000	55.59	48.61	-6.98	74.00	25.39	100	341	Vertical
4	5331.0000	55.39	49.85	-5.54	74.00	24.15	100	341	Vertical
5	13266.0000	52.60	65.96	13.36	74.00	8.04	100	146	Vertical
6	15252.0000	54.24	67.94	13.70	74.00	6.06	200	266	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	2661.3290	-2.36	36.21	33.85	54.00	20.15	200	77	Vertical
2	4959.8610	-6.98	49.80	42.82	54.00	11.18	100	348.7	Vertical
3	5312.4750	-5.78	49.52	43.98	54.00	10.02	100	310	Vertical
4	13231.7520	13.23	24.87	38.23	54.00	15.77	200	296	Vertical
5	15216.8650	13.31	25.03	38.73	54.00	15.27	100	160	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_2440MHz) in the worst power supply is recorded in this report.

Environment: 16.4°C/35%RH/102.6kPa

Voltage: DC 3V

Tested By: Stone Zhang

Date: 2025-03-07

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	20946.9	44.97	48.36	38.82	3.39	74	35.14	100	224	Horizontal
2	24360.2	42.87	48.34	38.8	5.47	74	35.16	150	49	Horizontal
3	28696.4	43.88	49.85	40.31	5.97	74	33.65	150	360	Horizontal
4	31412.3	44.28	51.35	41.81	7.07	74	32.15	100	224	Horizontal
5	34110.6	43.53	51.14	41.6	7.61	74	32.36	100	341	Horizontal
6	39322.4	42.53	57.76	48.22	15.23	74	25.74	100	254	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	21954.5	47.46	51.21	41.67	3.75	74	32.29	100	20	Vertical
2	24824.4	42.4	48.85	39.31	6.45	74	34.65	150	20	Vertical
3	26791.2	41.95	49.1	39.56	7.15	74	34.40	100	219	Vertical
4	30166	43.82	49.43	39.89	5.61	74	34.07	100	78	Vertical
5	34238.2	43.22	51.19	41.65	7.97	74	32.31	100	134	Vertical
6	38561.2	41.88	56.28	46.74	14.40	74	27.22	100	306	Vertical

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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.
- 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.
- Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3)

7.7. Radiated Restricted Band Edge Measurement

7.7.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (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	8.25 - 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 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.7.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.7.3. Test Setting

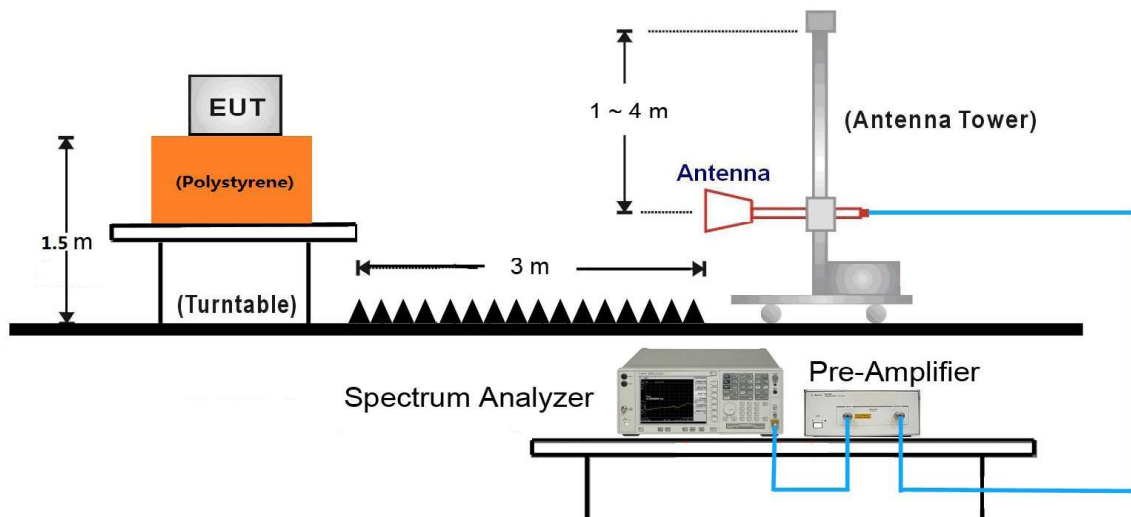
Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

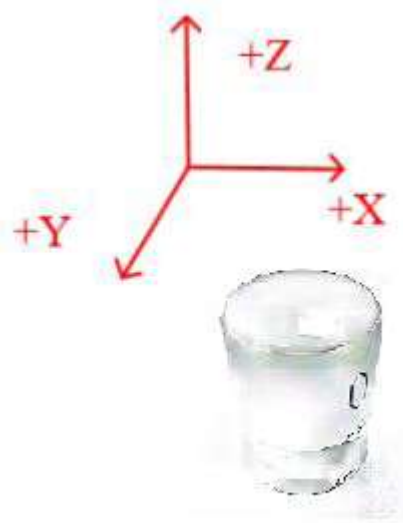
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Power Average (RMS)
5. Number of sweep point = 2001 (Number of sweep points must be $\geq 2 \times \text{span} / \text{RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

7.7.4. Test Setup



7.7.5. Test Result

The test are under 3-axes(X, Y, Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand). After pre-test, it was found that the worse radiation emission was get at the Z position. So the data was shown the Z position only.



Test Voltage:	DC 3V	Test Engineer:	Stone Zhang
Test Date	2025-03-18	Environmental Conditions	15.4°C/32%RH/102.6kPa

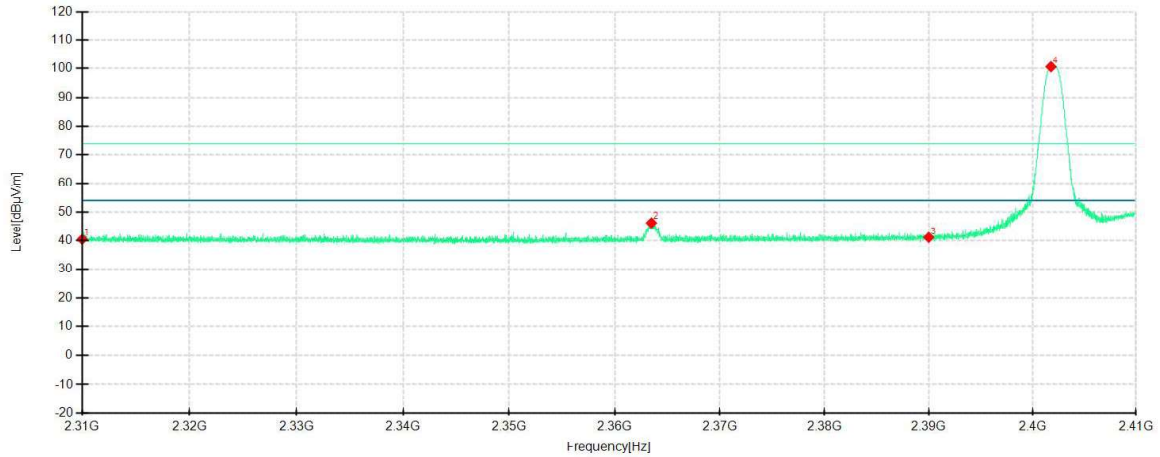
BLE 1M

Lowest Frequency

Frequency 2402MHz

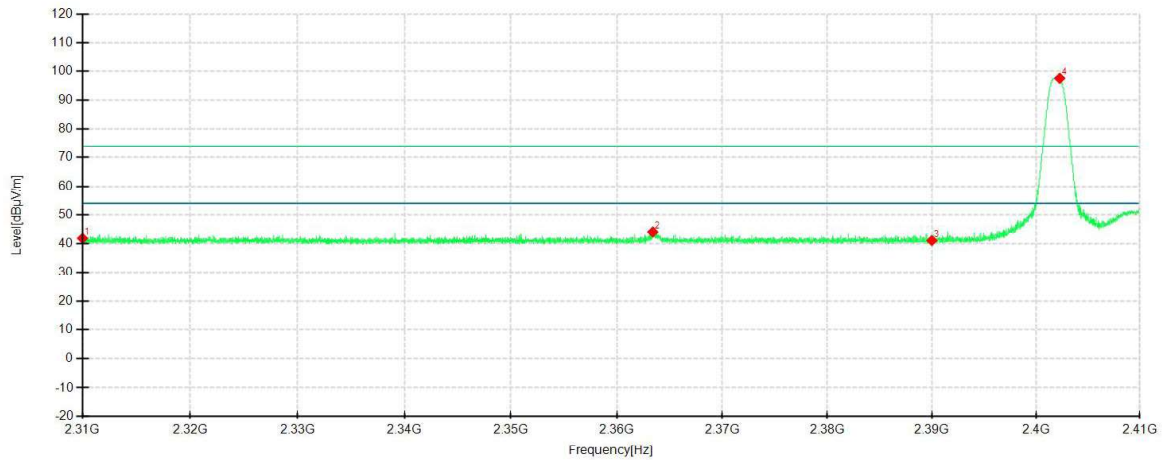
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



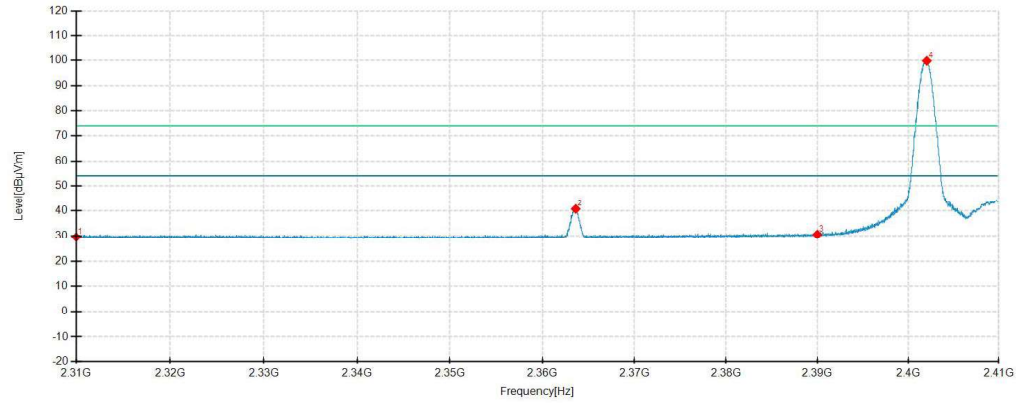
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	46.39	40.49	-5.90	74.00	33.51	100	259	Horizontal	/
2	2363.4875	52.51	46.36	-6.15	74.00	27.64	100	157	Horizontal	/
3	2390.0000	46.90	41.17	-5.73	74.00	32.83	100	104	Horizontal	/
4	2401.7750	106.01	100.48	-5.53	74.00	-26.48	100	143	Horizontal	No limit
1	2310.0000	47.20	41.90	-5.30	74.00	32.10	200	50	Vertical	/
2	2363.4125	49.51	44.11	-5.40	74.00	29.89	100	191	Vertical	/
3	2390.0000	46.60	41.15	-5.45	74.00	32.85	100	8	Vertical	/
4	2402.2750	102.97	97.51	-5.46	74.00	-23.51	100	191	Vertical	No limit

Lowest Frequency

Frequency 2402MHz

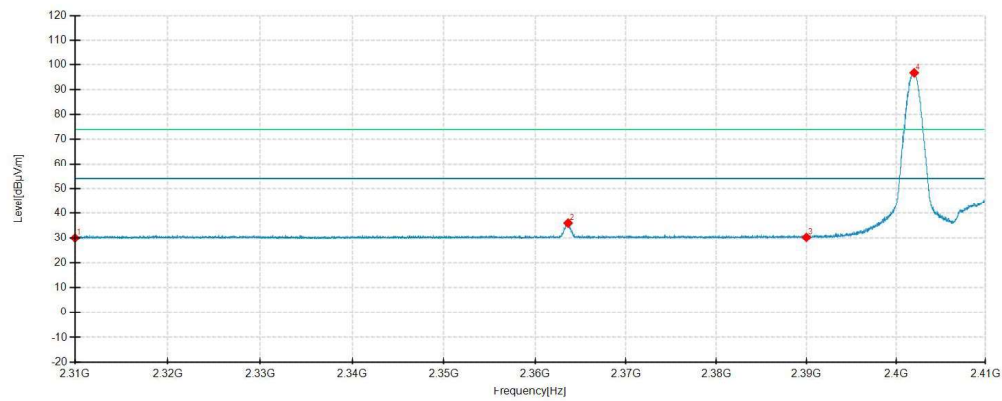
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



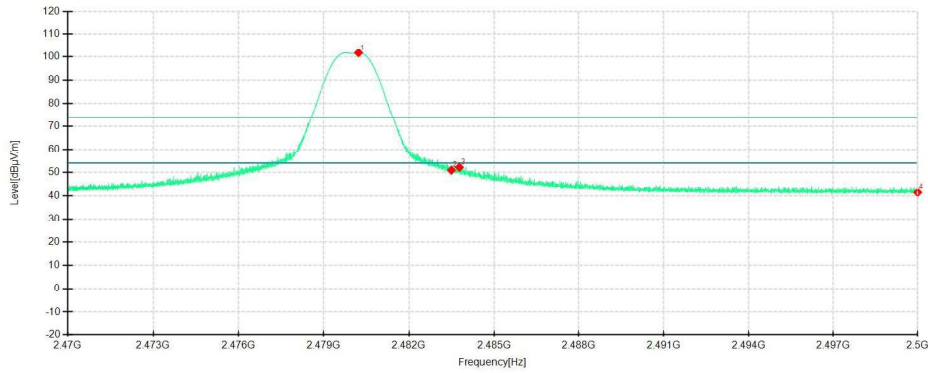
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	35.39	29.49	-5.90	54.00	24.51	100	89	Horizontal	/
2	2363.6250	46.88	40.73	-6.15	54.00	13.27	100	142	Horizontal	/
3	2390.0000	36.35	30.62	-5.73	54.00	23.38	200	111	Horizontal	/
4	2402.0500	105.25	99.73	-5.52	54.00	-45.73	100	155	Horizontal	No limit
1	2310.0000	35.31	30.01	-5.30	54.00	23.99	100	48	Vertical	/
2	2363.6375	41.40	36.00	-5.40	54.00	18.00	100	192	Vertical	/
3	2390.0000	35.71	30.26	-5.45	54.00	23.74	200	232	Vertical	/
4	2402.0250	102.15	96.69	-5.46	54.00	-42.69	100	192	Vertical	No limit

Highest Frequency

Frequency 2480MHz

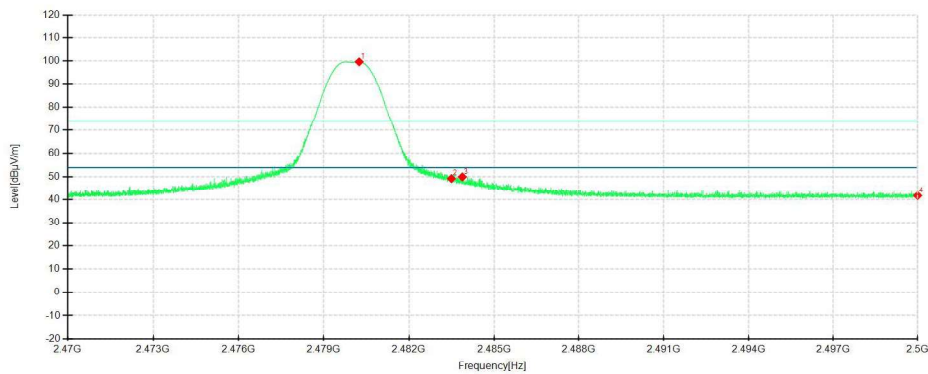
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



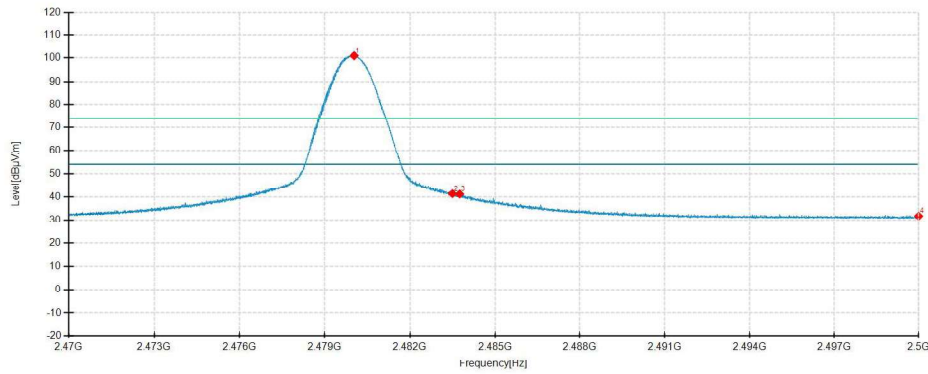
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.2263	106.27	101.62	-4.65	74.00	-27.62	200	117	Horizontal	No limit
2	2483.5000	55.62	50.95	-4.67	74.00	23.05	200	117	Horizontal	/
3	2483.7813	56.83	52.16	-4.67	74.00	21.84	200	130	Horizontal	/
4	2500.0000	46.31	41.52	-4.79	74.00	32.48	200	103	Horizontal	/
1	2480.2488	104.71	99.56	-5.15	74.00	-25.56	100	181	Vertical	No limit
2	2483.5000	54.44	49.31	-5.13	74.00	24.69	100	181	Vertical	/
3	2483.8863	55.17	50.04	-5.13	74.00	23.96	100	181	Vertical	/
4	2500.0000	46.85	41.76	-5.09	74.00	32.24	100	36	Vertical	/

Highest Frequency

Frequency 2480MHz

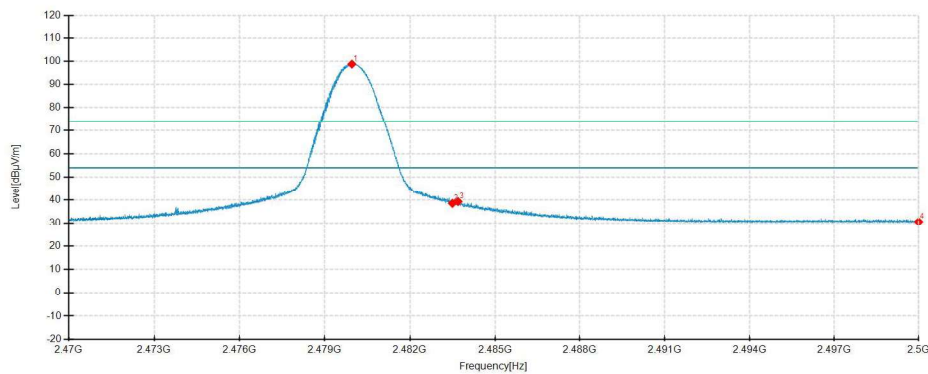
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBuV/m	Level dBuV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.0350	105.48	100.83	-4.65	54.00	-46.83	200	114	Horizontal	No limit
2	2483.5000	46.12	41.45	-4.67	54.00	12.55	200	114	Horizontal	/
3	2483.7550	45.95	41.28	-4.67	54.00	12.72	200	114	Horizontal	/
4	2500.0000	36.61	31.82	-4.79	54.00	22.18	100	272	Horizontal	/
1	2479.9563	103.90	98.75	-5.15	54.00	-44.75	100	190	Vertical	No limit
2	2483.5000	43.69	38.56	-5.13	54.00	15.44	100	178	Vertical	/
3	2483.6988	44.46	39.33	-5.13	54.00	14.67	100	178	Vertical	/
4	2500.0000	35.80	30.71	-5.09	54.00	23.29	200	246	Vertical	/

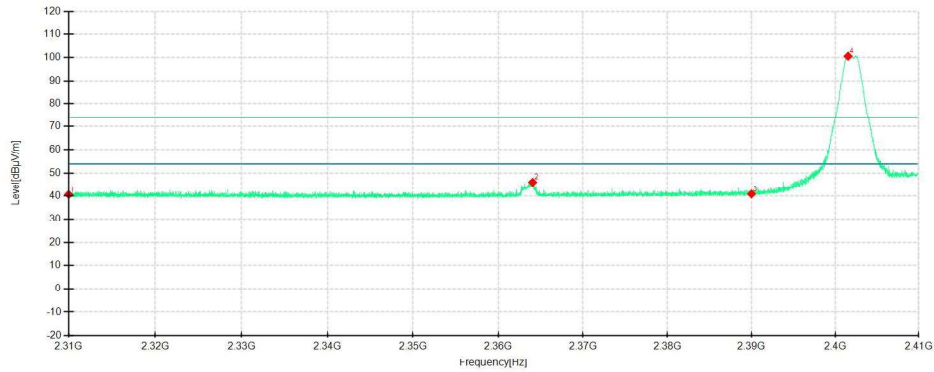
BLE 2M

Lowest Frequency

Frequency 2402MHz

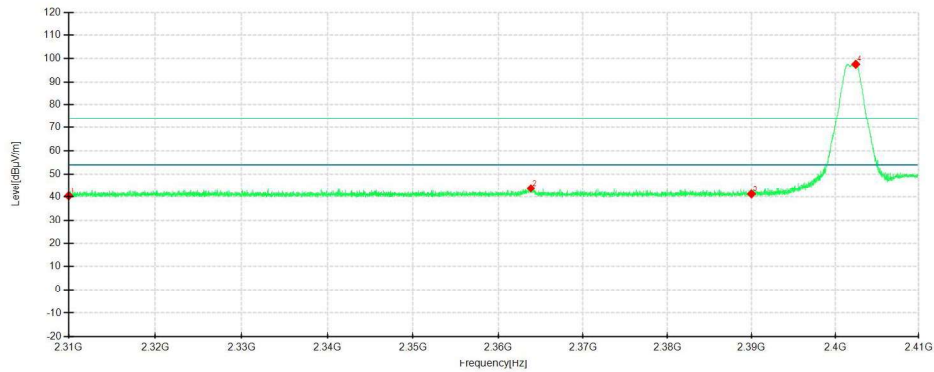
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



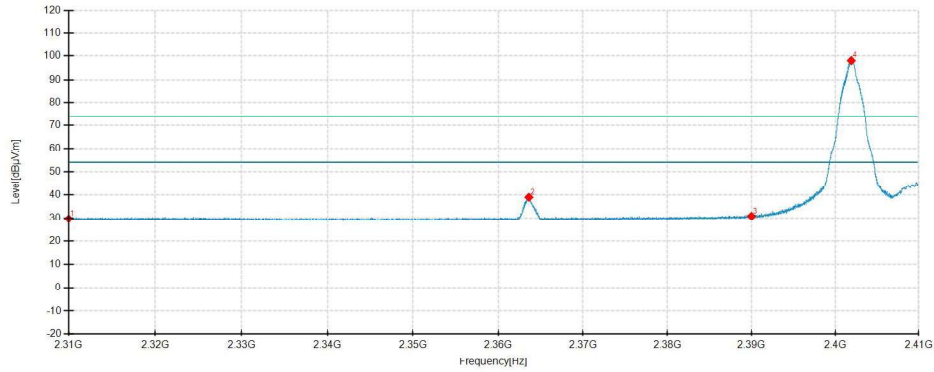
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	46.55	40.65	-5.90	74.00	33.35	200	354	Horizontal	/
2	2364.0625	52.29	46.15	-6.14	74.00	27.85	100	138	Horizontal	/
3	2390.0000	46.61	40.88	-5.73	74.00	33.12	200	326	Horizontal	/
4	2401.5375	106.03	100.49	-5.54	74.00	-26.49	100	152	Horizontal	No limit
1	2310.0000	45.77	40.47	-5.30	74.00	33.53	200	352	Vertical	/
2	2363.8500	49.29	43.89	-5.40	74.00	30.11	100	180	Vertical	/
3	2390.0000	46.72	41.27	-5.45	74.00	32.73	100	11	Vertical	/
4	2402.4625	102.99	97.53	-5.46	74.00	-23.53	100	180	Vertical	No limit

Lowest Frequency

Frequency 2402MHz

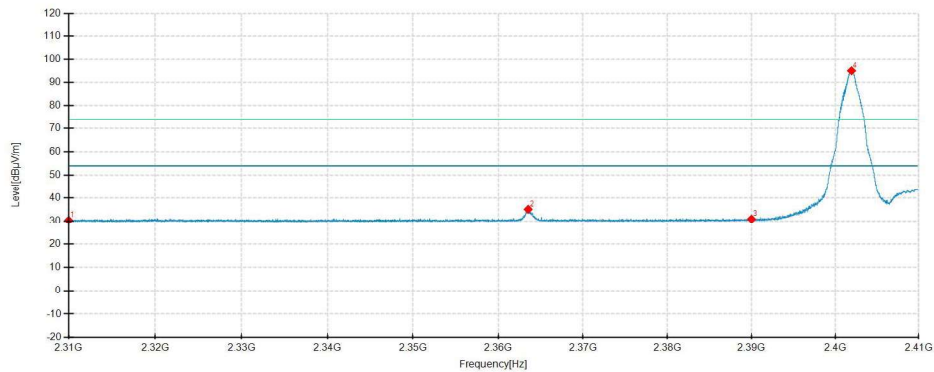
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



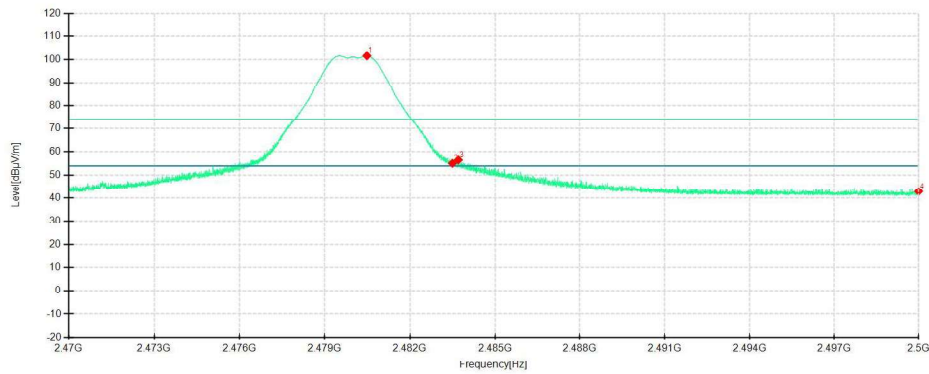
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	35.65	29.75	-5.90	54.00	24.25	200	221	Horizontal	/
2	2363.6250	45.16	39.01	-6.15	54.00	14.99	100	139	Horizontal	/
3	2390.0000	36.63	30.90	-5.73	54.00	23.10	100	113	Horizontal	/
4	2401.9250	103.49	97.97	-5.52	54.00	-43.97	100	139	Horizontal	No limit
1	2310.0000	35.76	30.46	-5.30	54.00	23.54	200	142	Vertical	/
2	2363.5375	40.58	35.18	-5.40	54.00	18.82	100	192	Vertical	/
3	2390.0000	36.43	30.98	-5.45	54.00	23.02	100	192	Vertical	/
4	2401.9500	100.49	95.03	-5.46	54.00	-41.03	100	192	Vertical	No limit

Highest Frequency

Frequency 2480MHz

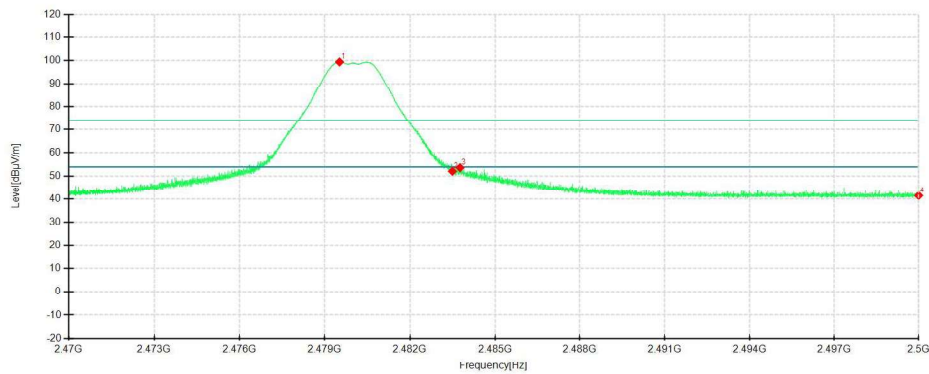
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



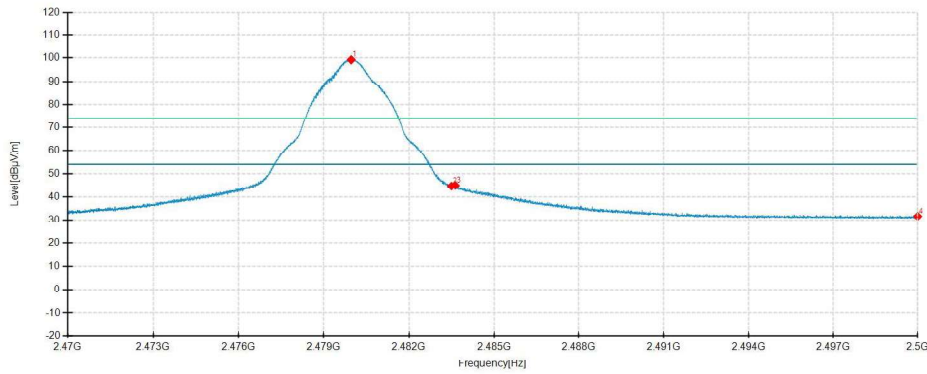
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.4850	106.24	101.59	-4.65	74.00	-27.59	200	114	Horizontal	No limit
2	2483.5000	59.78	55.11	-4.67	74.00	18.89	200	127	Horizontal	/
3	2483.7100	61.24	56.57	-4.67	74.00	17.43	200	127	Horizontal	/
4	2500.0000	47.70	42.91	-4.79	74.00	31.09	100	248	Horizontal	/
1	2479.5213	104.50	99.35	-5.15	74.00	-25.35	100	191	Vertical	No limit
2	2483.5000	57.29	52.16	-5.13	74.00	21.84	100	178	Vertical	/
3	2483.7700	58.80	53.67	-5.13	74.00	20.33	100	178	Vertical	/
4	2500.0000	46.61	41.52	-5.09	74.00	32.48	200	359	Vertical	/

Highest Frequency

Frequency 2480MHz

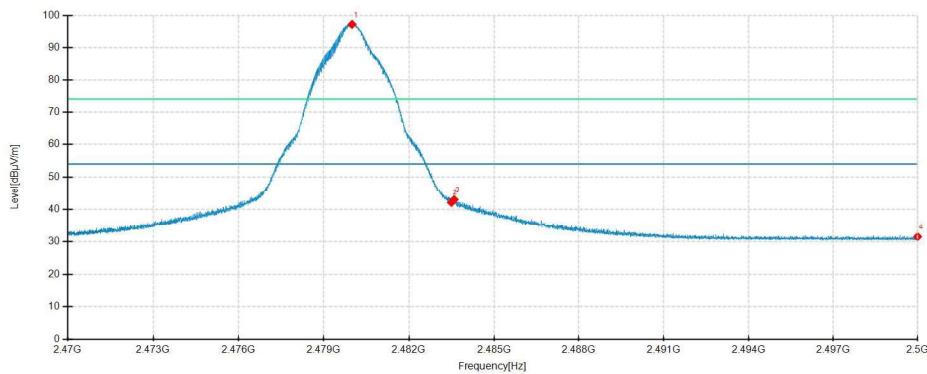
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBuV/m	Level dBuV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.9675	103.78	99.13	-4.65	54.00	-45.13	200	114	Horizontal	No limit
2	2483.5000	49.47	44.80	-4.67	54.00	9.20	200	127	Horizontal	/
3	2483.6388	49.78	45.11	-4.67	54.00	8.89	200	114	Horizontal	/
4	2500.0000	36.53	31.74	-4.79	54.00	22.26	100	169	Horizontal	/
1	2479.9975	102.08	96.93	-5.15	54.00	-42.93	100	177	Vertical	No limit
2	2483.5000	47.25	42.12	-5.13	54.00	11.88	100	177	Vertical	/
3	2483.5975	48.11	42.98	-5.13	54.00	11.02	100	231	Vertical	/
4	2500.0000	36.53	31.44	-5.09	54.00	22.56	100	333	Vertical	/

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

7.8. AC Conducted Emissions Measurement

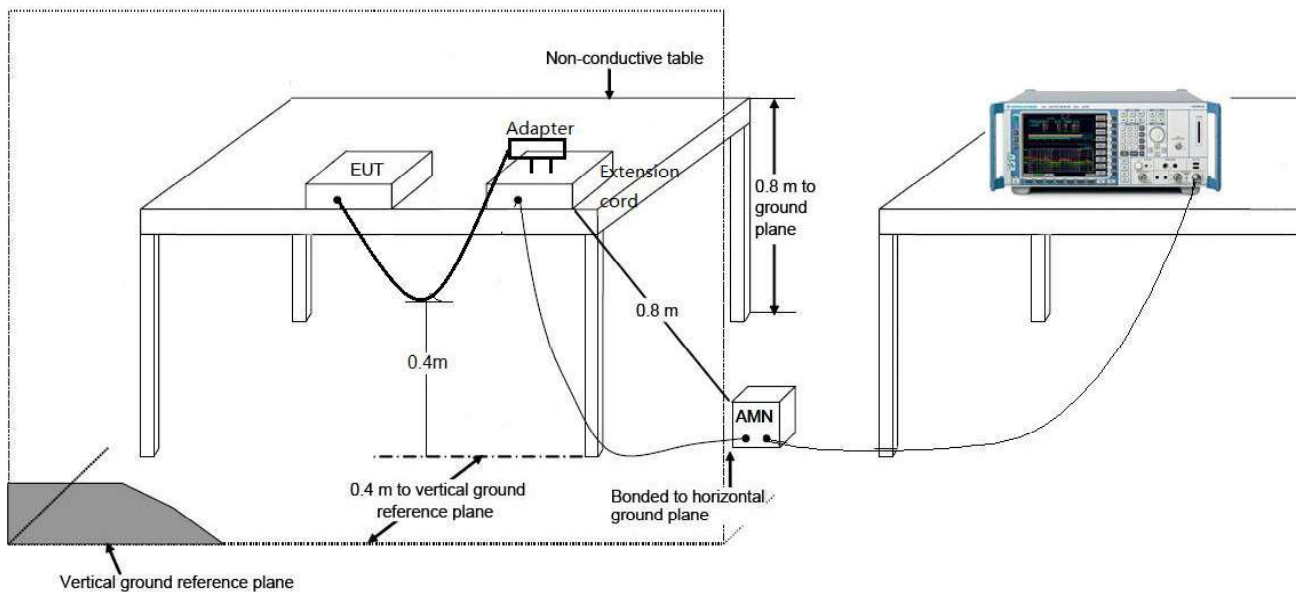
7.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3. Test Result

The EUT is DC battery powered, N/A.

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **EUT** is in compliance with Part 15C of the FCC Rules.