

Appendix A: Test Results of Bluetooth Low Energy

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Appendix A.1: Test Results of Conducted Power Spectral Density

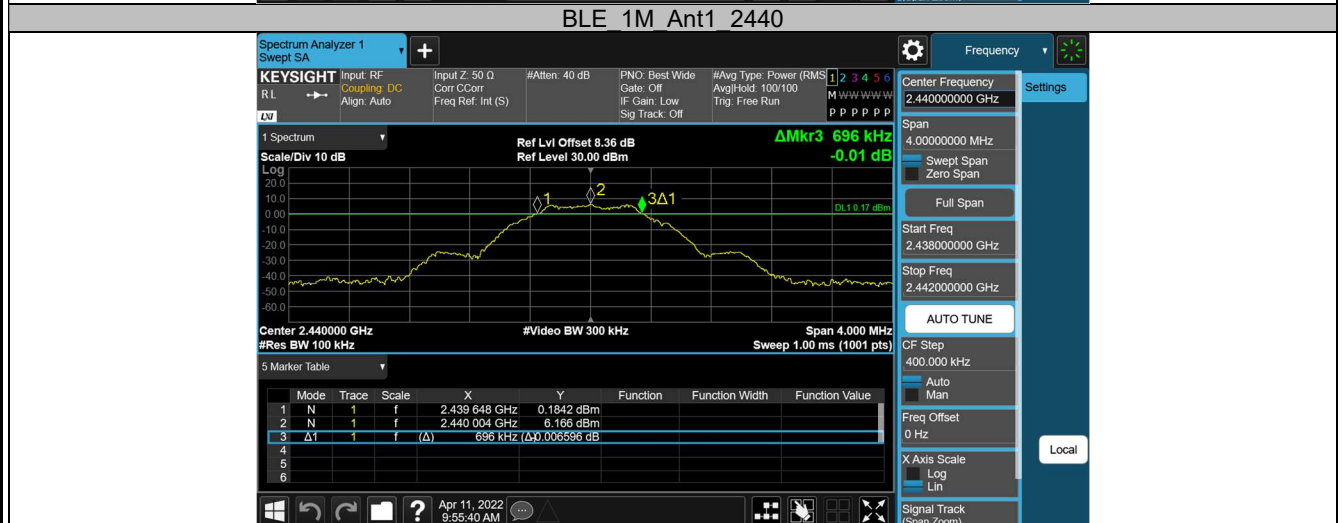
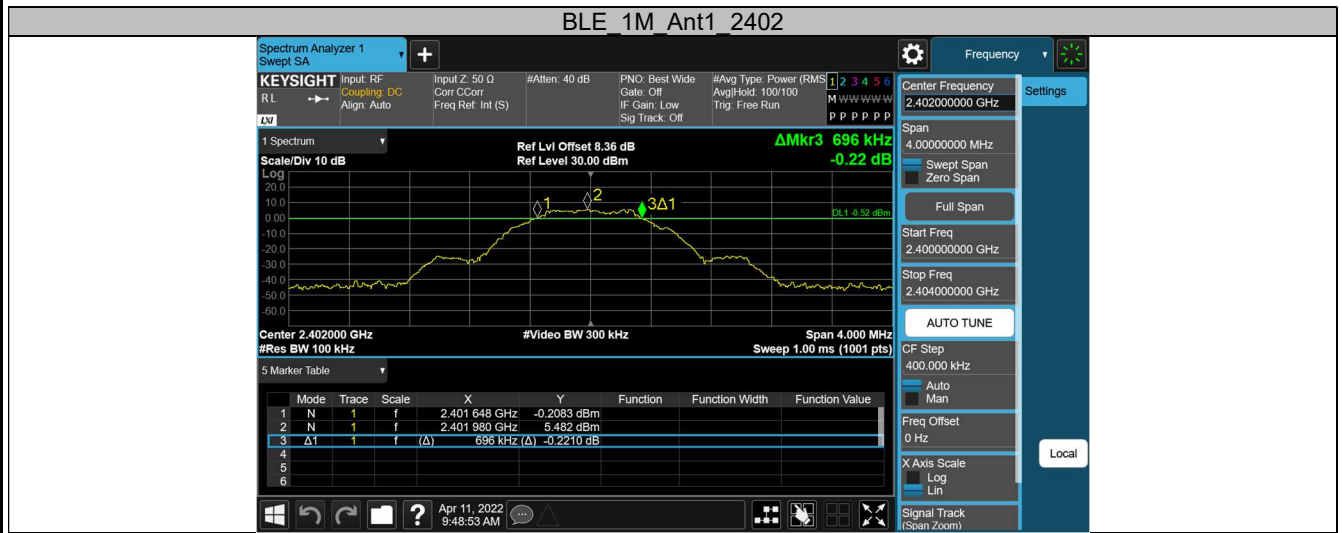
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-3.4	≤8	PASS
		2440	-2.97	≤8	PASS
		2480	-2.29	≤8	PASS

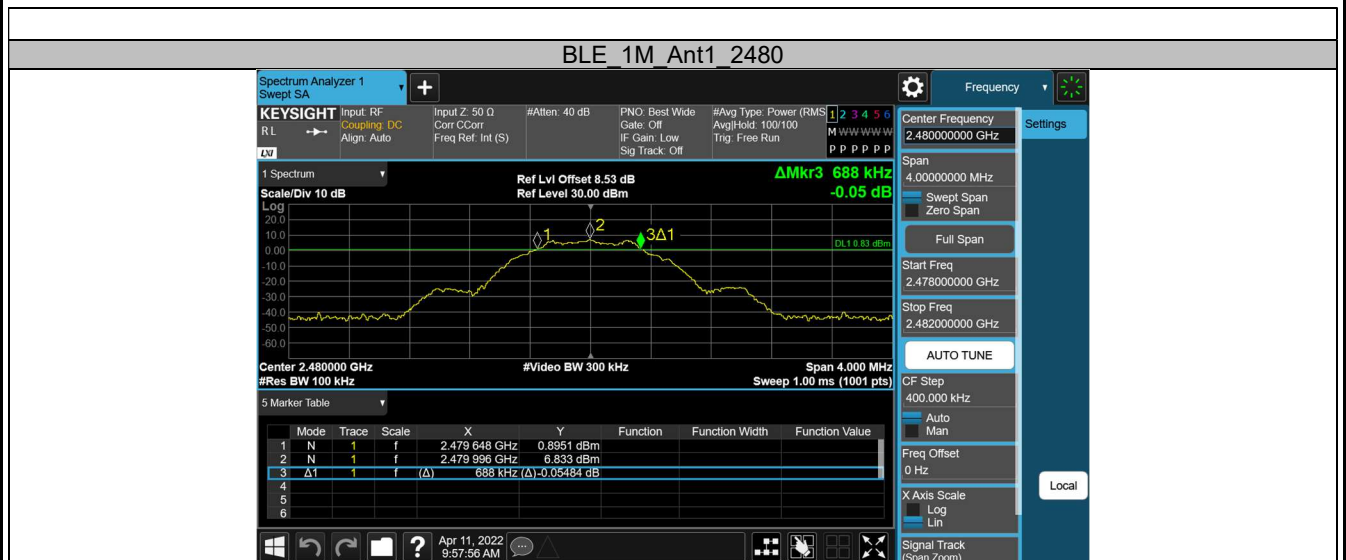




Appendix A.2: Test Results of 6dB Bandwidth

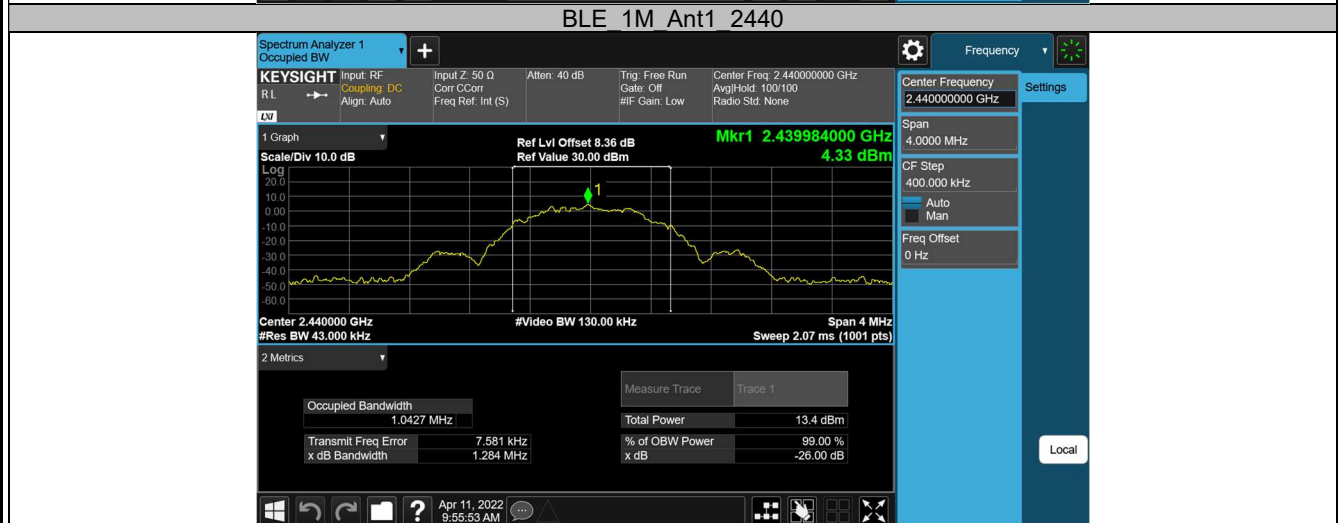
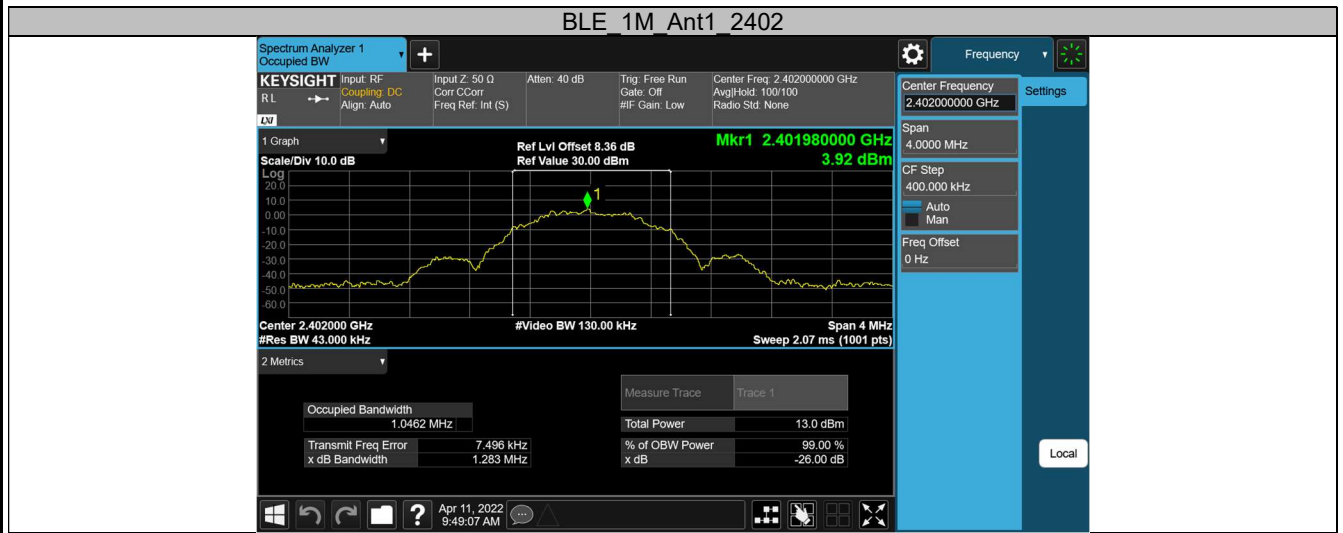
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.696	2401.648	2402.344	0.5	PASS
		2440	0.696	2439.648	2440.344	0.5	PASS
		2480	0.688	2479.648	2480.336	0.5	PASS

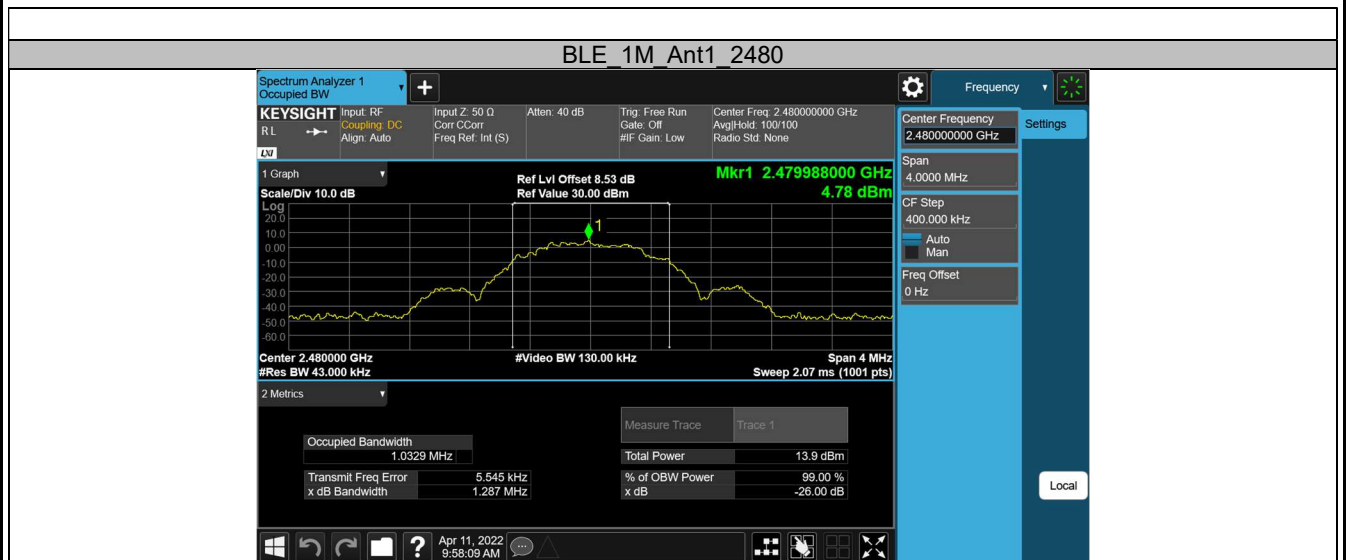




Appendix A.3: Test Results of 99% Bandwidth

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0462	2401.484	2402.531	---	PASS
		2440	1.0427	2439.486	2440.529	---	PASS
		2480	1.0329	2479.489	2480.522	---	PASS





Appendix A.4: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

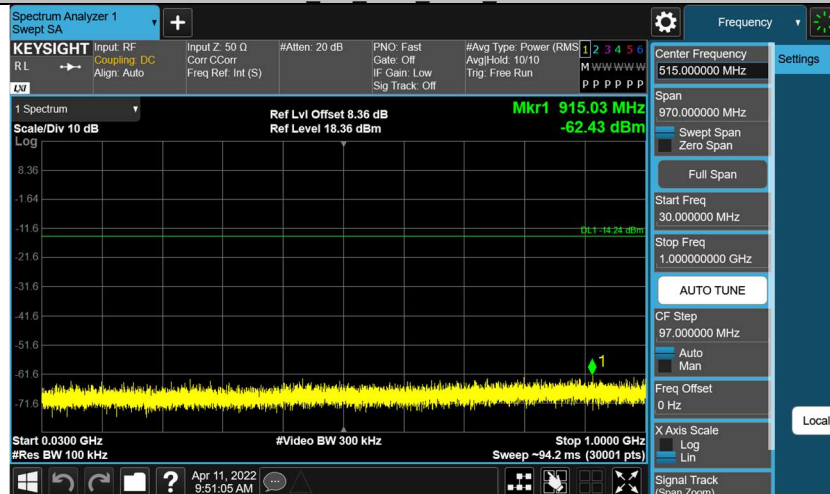
Conducted Spurious Emission

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.76	5.76	---	PASS
			30~1000	5.76	-62.43	≤-14.24	PASS
			1000~26500	5.76	-53.16	≤-14.24	PASS
		2440	Reference	5.29	5.29	---	PASS
			30~1000	5.29	-62.84	≤-14.71	PASS
			1000~26500	5.29	-52.89	≤-14.71	PASS
		2480	Reference	6.18	6.18	---	PASS
			30~1000	6.18	-63.05	≤-13.82	PASS
			1000~26500	6.18	-53.15	≤-13.82	PASS

BLE 1M Ant1 2402 0~Reference



BLE 1M Ant1 2402 30~1000



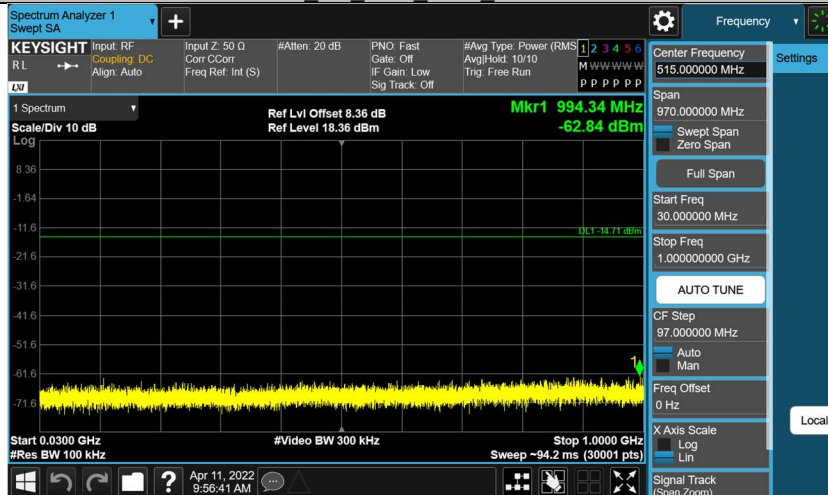
BLE 1M Ant1 2402 1000~26500



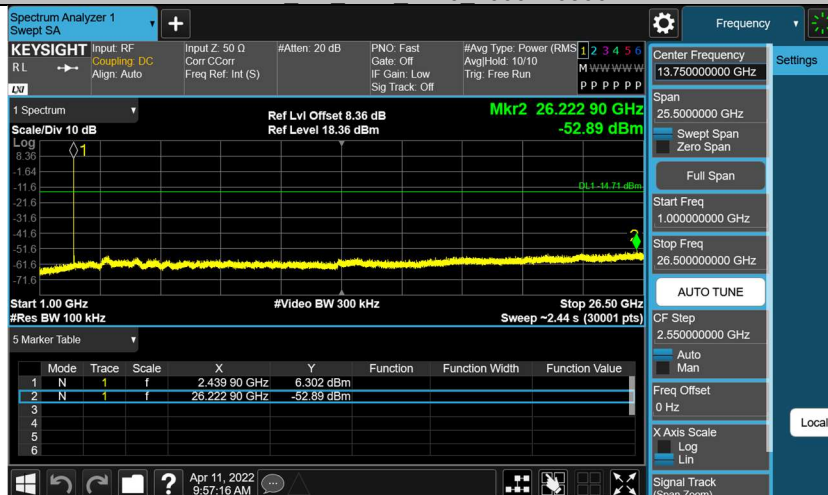
BLE 1M Ant1 2440 0~Reference



BLE 1M Ant1 2440 30~1000



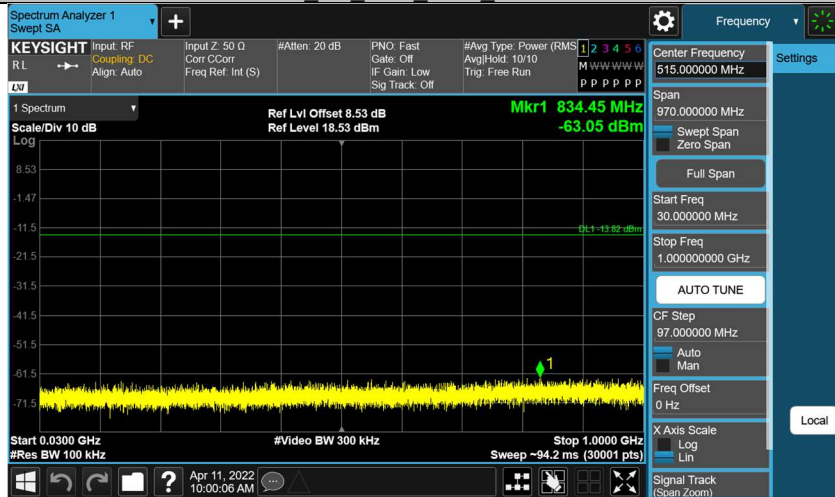
BLE 1M Ant1 2440 1000~26500



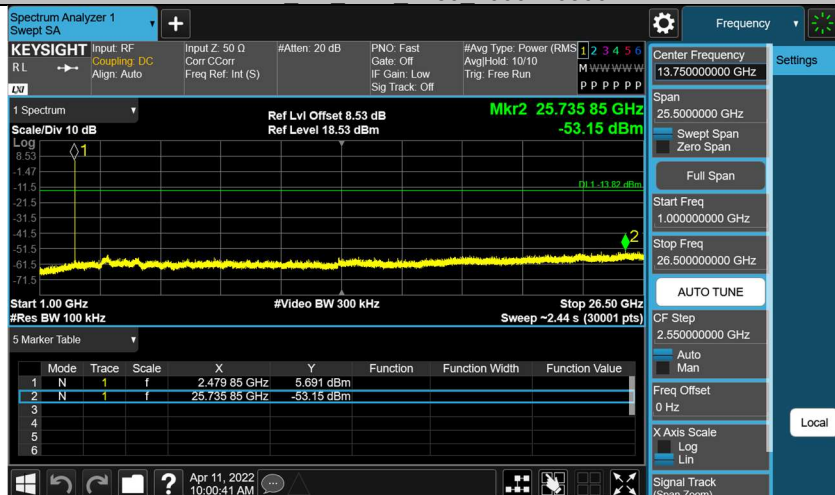
BLE 1M Ant1 2480 0~Reference



BLE_1M_Ant1_2480_30~1000

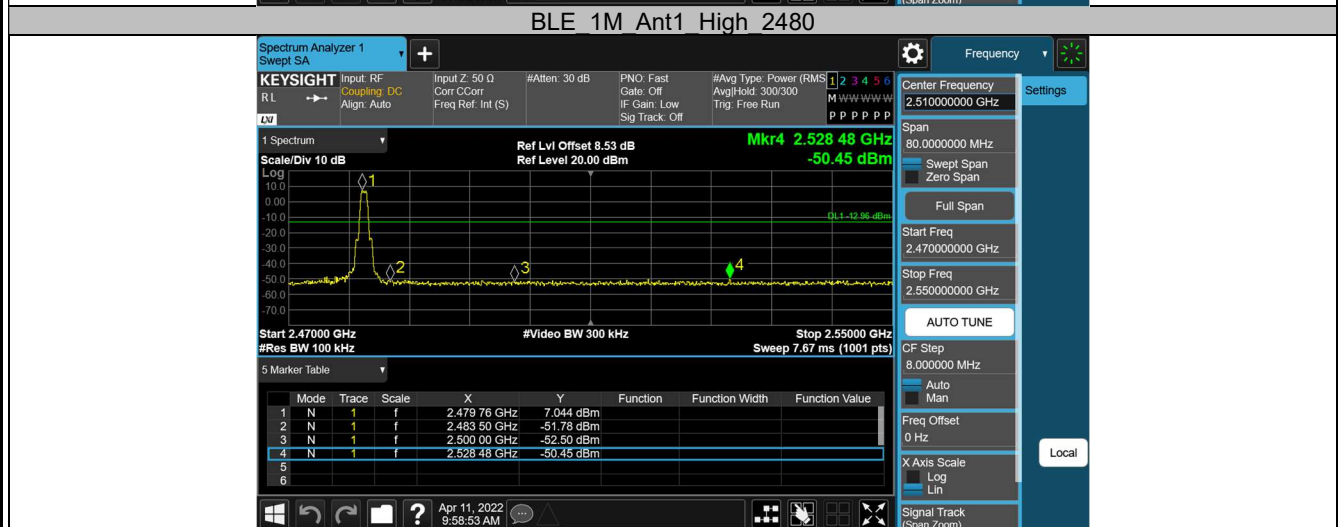
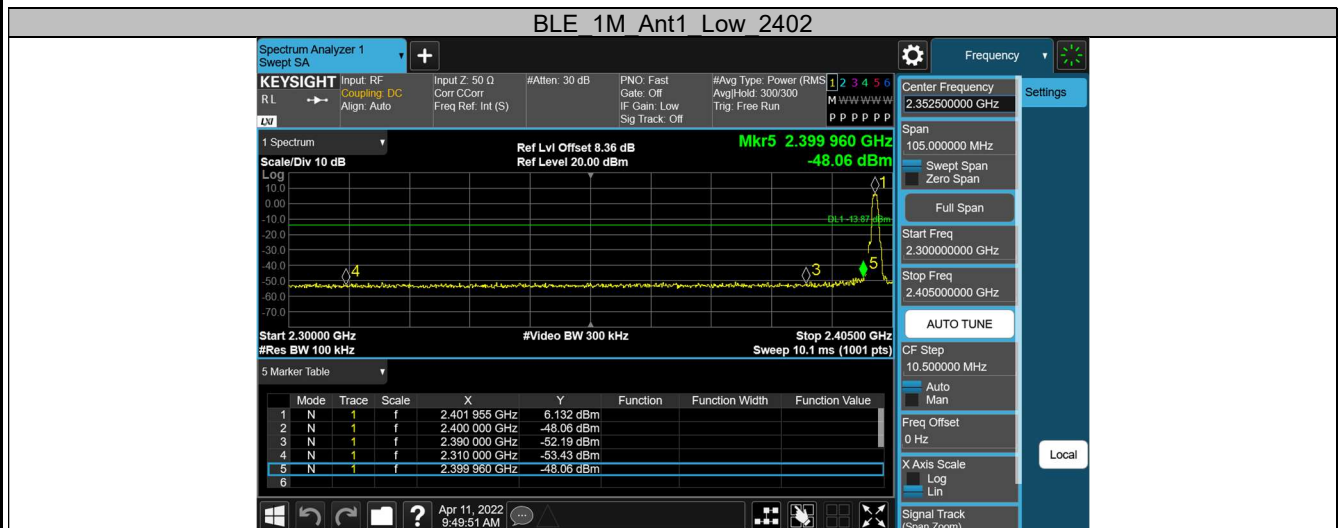


BLE_1M_Ant1_2480_1000~26500



Band Edge

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	6.13	-48.06	≤-13.87	PASS
		High	2480	7.04	-50.45	≤-12.96	PASS



Appendix A.5: Test Results of Radiated Spurious Emissions

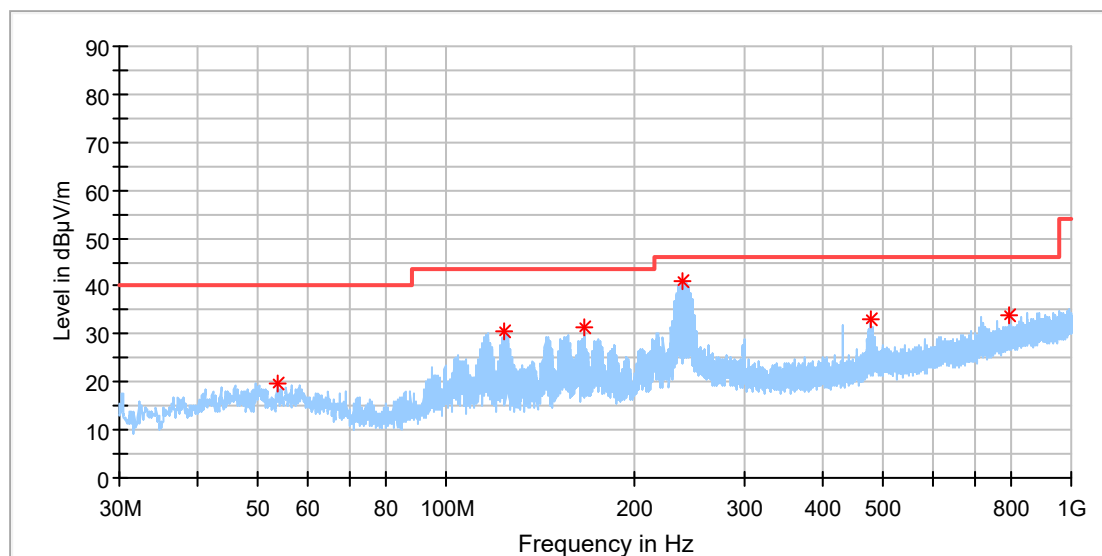
Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30 MHz to 1GHz

EUT Information

EUT Name:	WIFI+BT module
Model:	DCT2VM2511
Test Mode:	BLE_Mid channel
Order No/Sample No:	168365112/A003224451-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

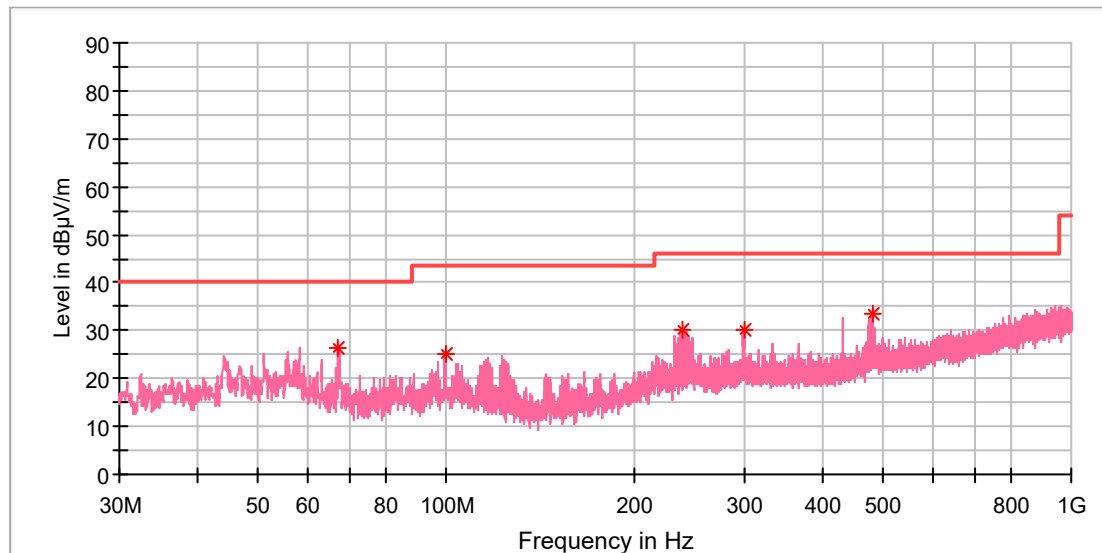


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
53.619500	19.57	40.00	20.43	100.0	H	122.0	-18.4
124.041500	30.45	43.50	13.05	100.0	H	164.0	-21.2
166.285000	31.41	43.50	12.09	100.0	H	150.0	-21.4
238.889500	41.18	46.00	4.82	100.0	H	28.0	-17.8
478.916000	33.09	46.00	12.91	100.0	H	13.0	-12.2
796.591000	34.01	46.00	11.99	100.0	H	108.0	-6.4

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Mid channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

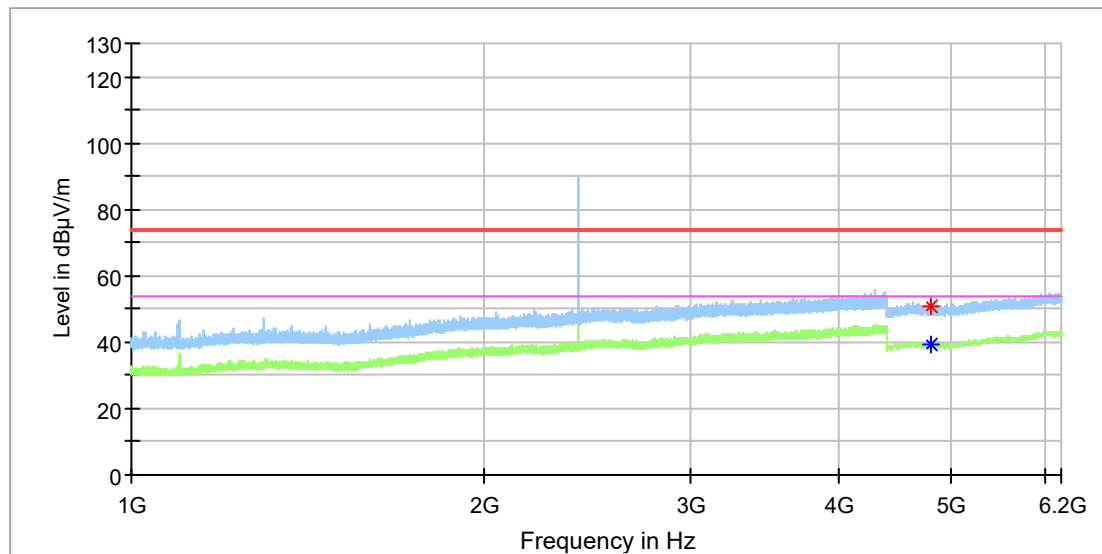
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
67.005500	26.41	40.00	13.59	100.0	V	129.0	-20.8
99.597500	25.06	43.50	18.44	100.0	V	48.0	-19.1
239.277500	29.95	46.00	16.05	100.0	V	94.0	-17.7
299.320500	30.32	46.00	15.68	100.0	V	191.0	-16.3
480.031500	33.47	46.00	12.53	100.0	V	143.0	-12.2

1GHz-18GHz

Note: The highest waveform in the figure is Bluetooth Fundamental.

EUT Information

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Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

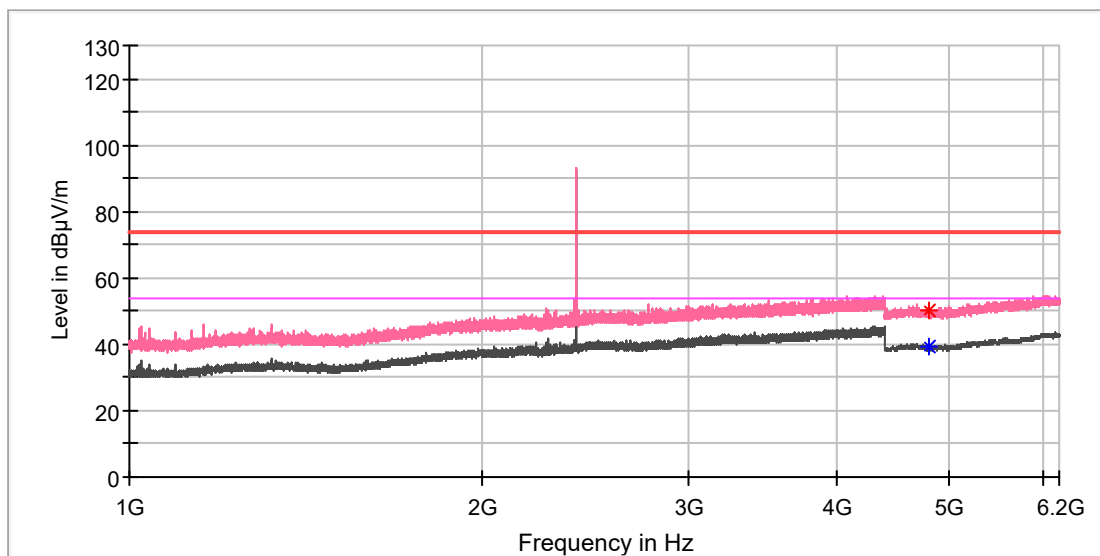


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4799.500000	---	39.22	54.00	14.78	100.0	H	318.0	11.8
4804.000000	50.62	---	74.00	23.38	100.0	H	358.0	11.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Low channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

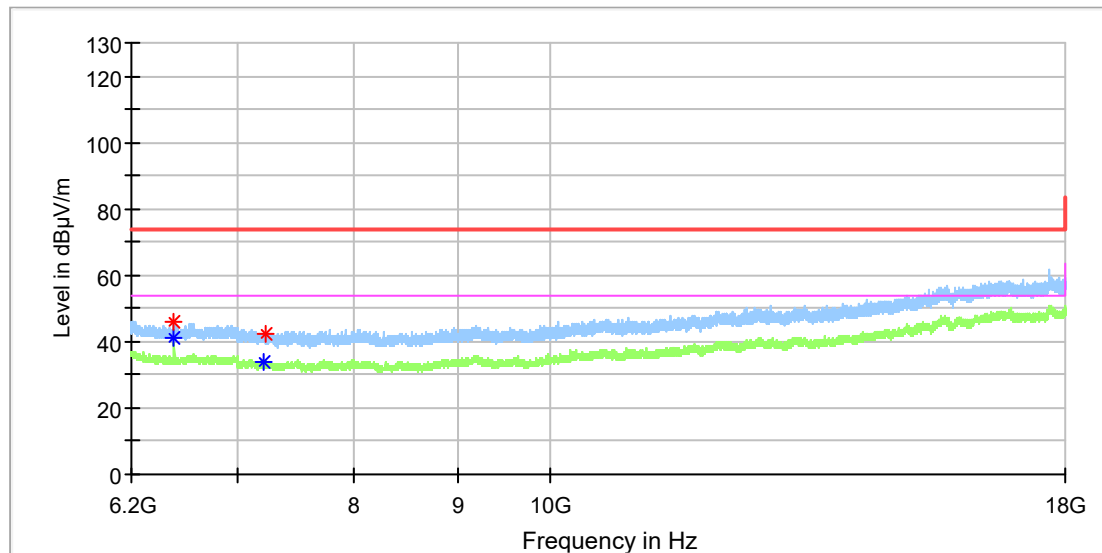


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4806.000000	50.41	---	74.00	23.59	100.0	V	324.0	11.8
4810.000000	---	39.21	54.00	14.79	100.0	V	341.0	11.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Low channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

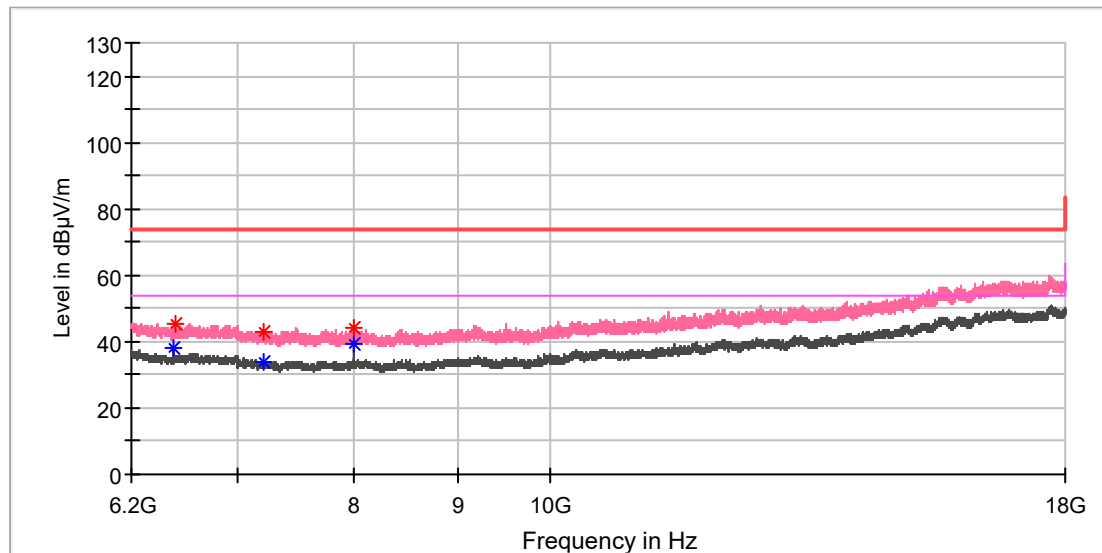


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
6511.716667	46.00	---	74.00	28.00	100.0	H	99.0	8.8
6511.716667	---	41.26	54.00	12.74	100.0	H	99.0	8.8
7210.375000	---	33.80	54.00	20.20	100.0	H	331.0	8.7
7226.108333	42.33	---	74.00	31.67	100.0	H	319.0	8.7

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Low channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

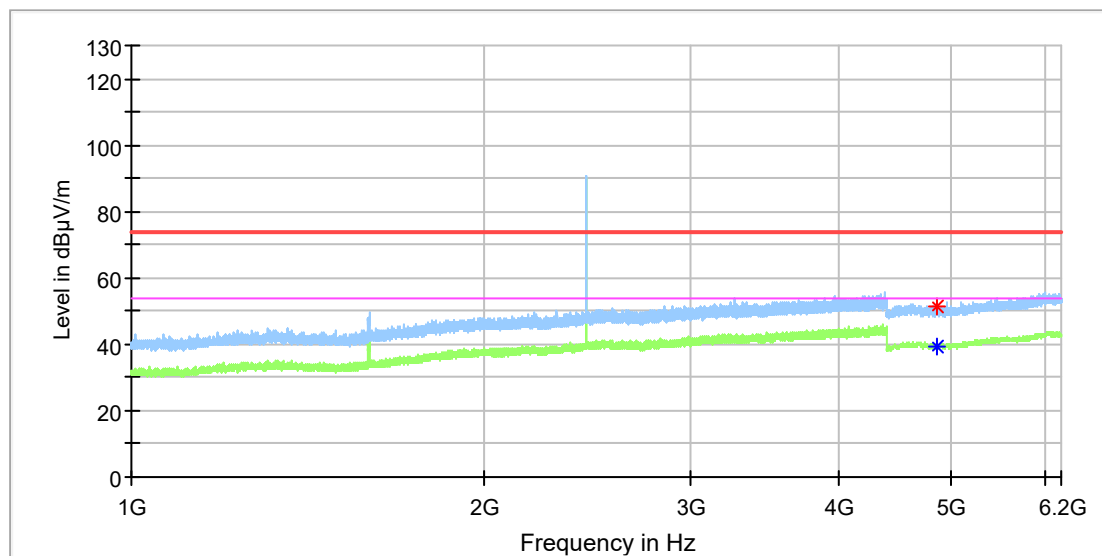


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
6511.716667	---	38.18	54.00	15.82	100.0	V	123.0	8.8
6525.975000	45.10	---	74.00	28.90	100.0	V	88.0	8.8
7206.441667	42.76	---	74.00	31.24	100.0	V	27.0	8.8
7208.900000	---	33.84	54.00	20.16	100.0	V	51.0	8.8
7992.125000	---	39.59	54.00	14.41	100.0	V	277.0	8.8
7992.616667	44.35	---	74.00	29.65	100.0	V	277.0	8.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Mid channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

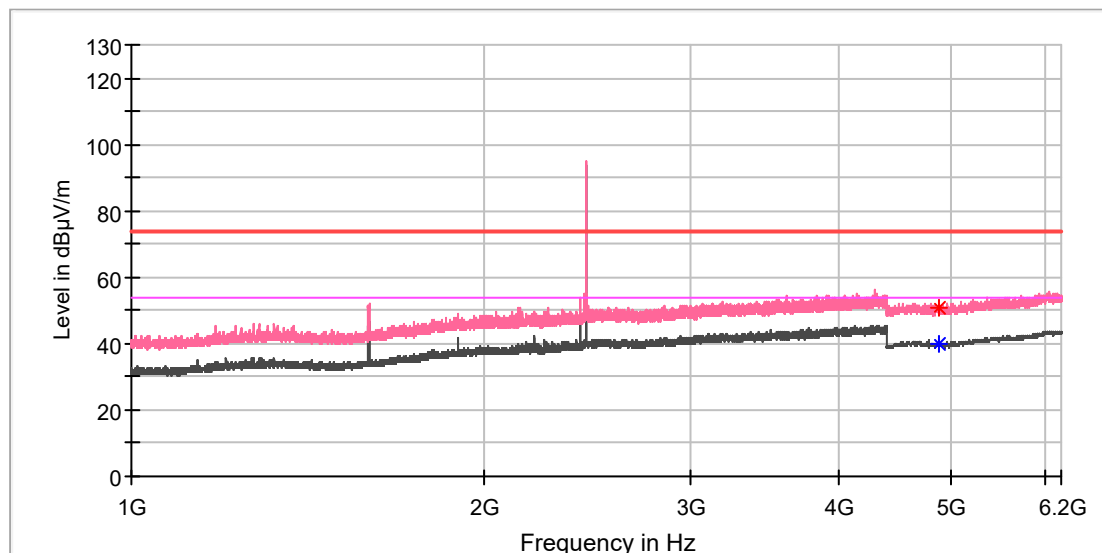


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4860.000000	51.25	---	74.00	22.75	100.0	H	144.0	11.8
4867.000000	---	39.55	54.00	14.45	100.0	H	267.0	11.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Mid channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

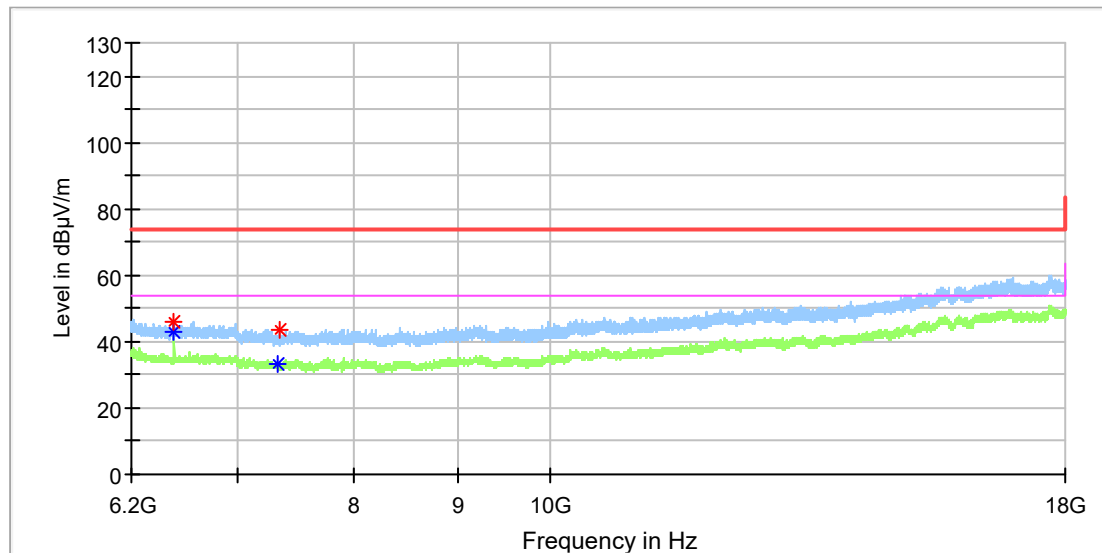


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4877.000000	---	40.06	54.00	13.94	100.0	V	353.0	11.8
4882.500000	50.73	---	74.00	23.27	100.0	V	345.0	11.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Mid channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

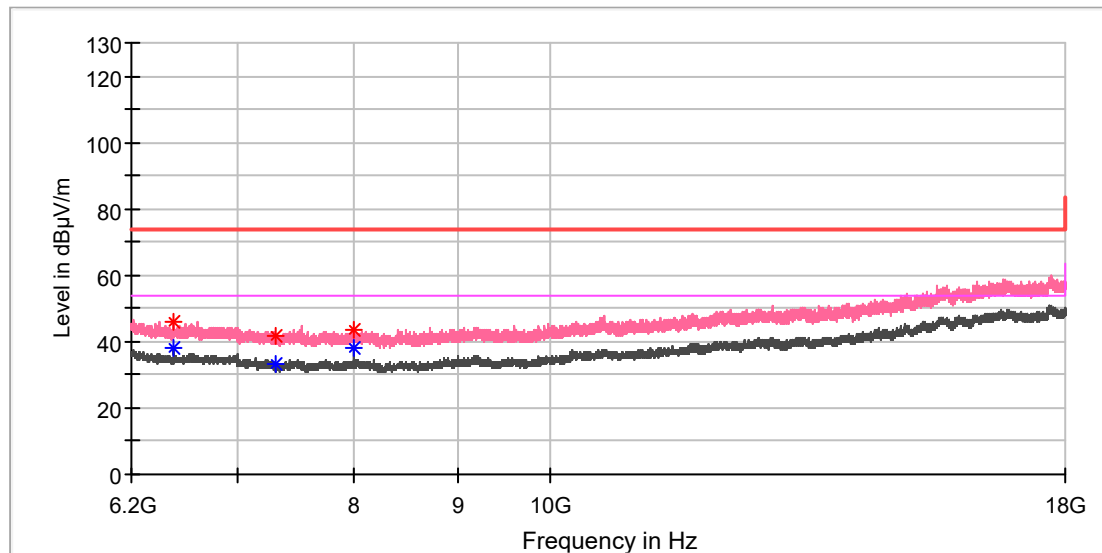


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
6511.716667	45.93	---	74.00	28.07	100.0	H	129.0	8.8
6511.716667	---	42.75	54.00	11.25	100.0	H	129.0	8.8
7319.525000	---	33.52	54.00	20.48	100.0	H	142.0	8.2
7337.225000	43.75	---	74.00	30.25	100.0	H	81.0	8.1

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_Mid channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

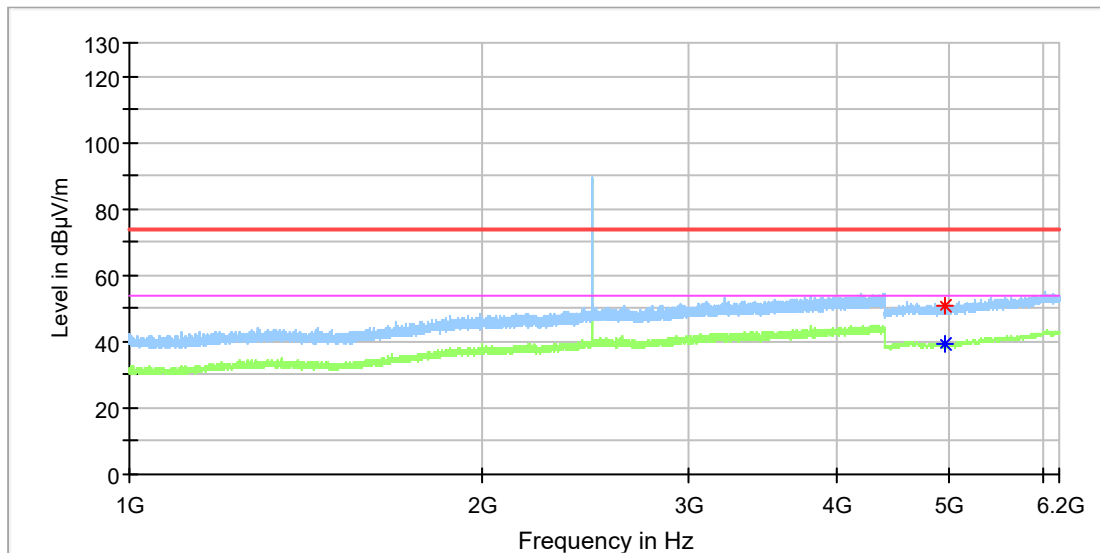


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
6511.225000	45.86	---	74.00	28.14	100.0	V	123.0	8.8
6511.716667	---	38.24	54.00	15.76	100.0	V	123.0	8.8
7303.791667	---	33.36	54.00	20.64	100.0	V	150.0	8.3
7306.250000	42.02	---	74.00	31.98	100.0	V	213.0	8.3
7992.616667	---	38.14	54.00	15.86	100.0	V	274.0	8.8
7993.108333	43.57	---	74.00	30.43	100.0	V	274.0	8.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_High channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

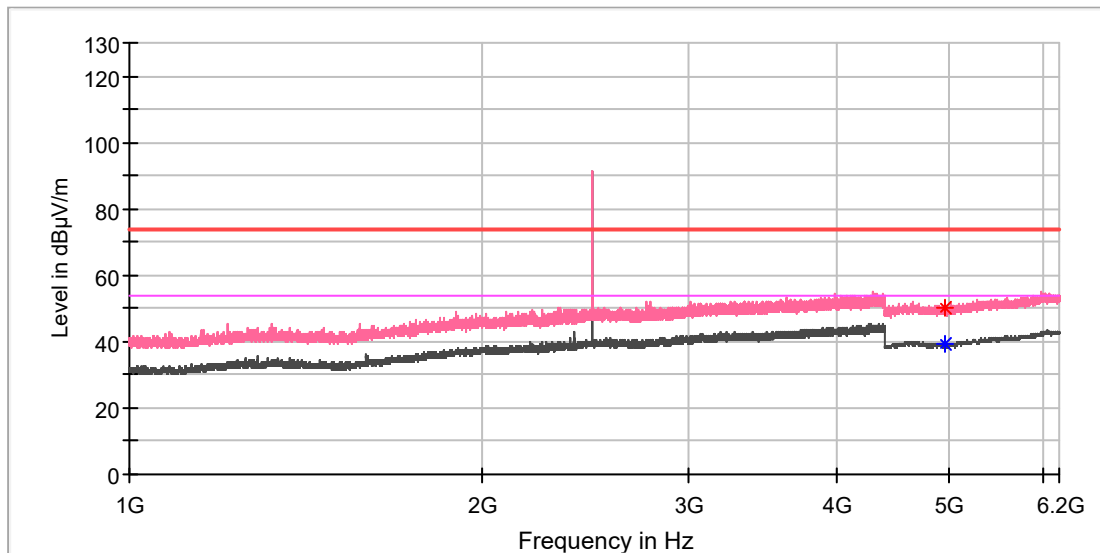


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4947.000000	---	39.36	54.00	14.64	100.0	H	316.0	11.8
4958.500000	50.67	---	74.00	23.33	100.0	H	252.0	11.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_High channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

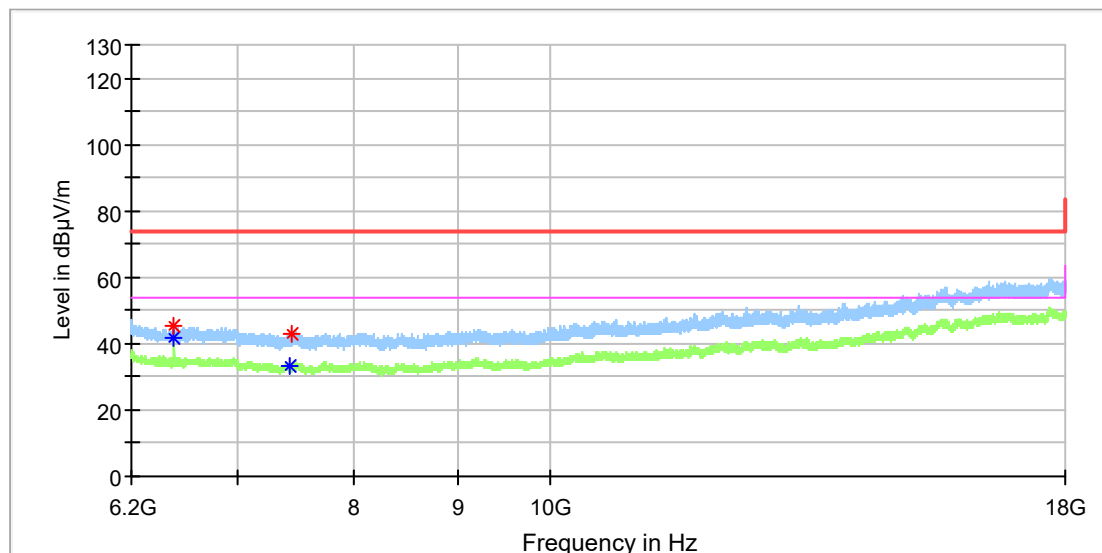


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4946.500000	50.36	---	74.00	23.64	100.0	V	190.0	11.8
4955.500000	---	39.51	54.00	14.49	100.0	V	311.0	11.8

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_High channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

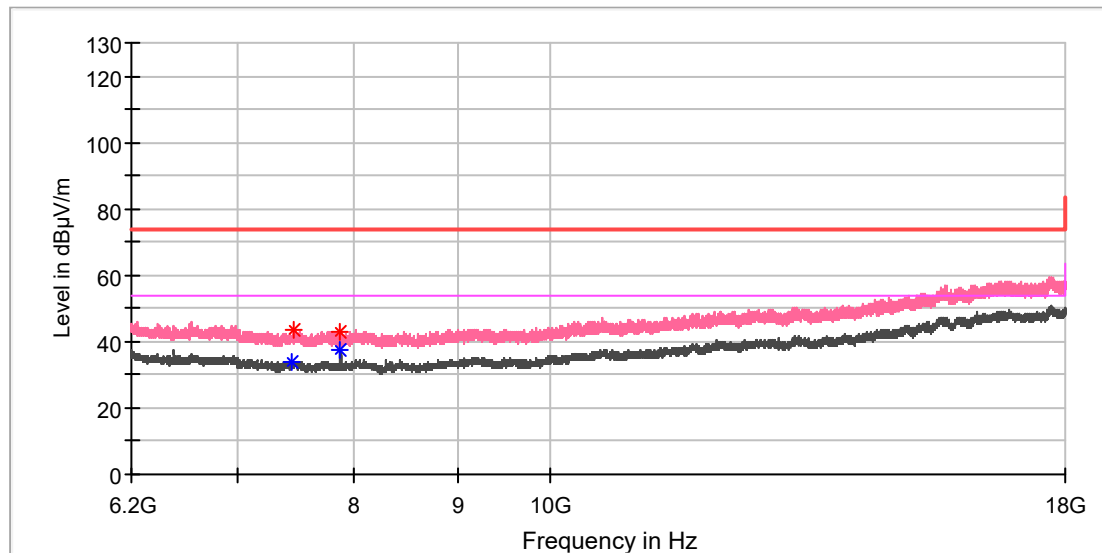


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
6511.716667	45.50	---	74.00	28.50	100.0	H	129.0	8.8
6511.716667	---	42.02	54.00	11.98	100.0	H	129.0	8.8
7431.625000	---	33.47	54.00	20.53	100.0	H	214.0	8.4
7436.541667	42.72	---	74.00	31.28	100.0	H	0.0	8.4

EUT Information

EUT Name: WIFI+BT module
Model: DCT2VM2511
Test Mode: BLE_High channel
Order No/Sample No: 168365112/A003224451-001
Test Voltage:: DC 5V From USB
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



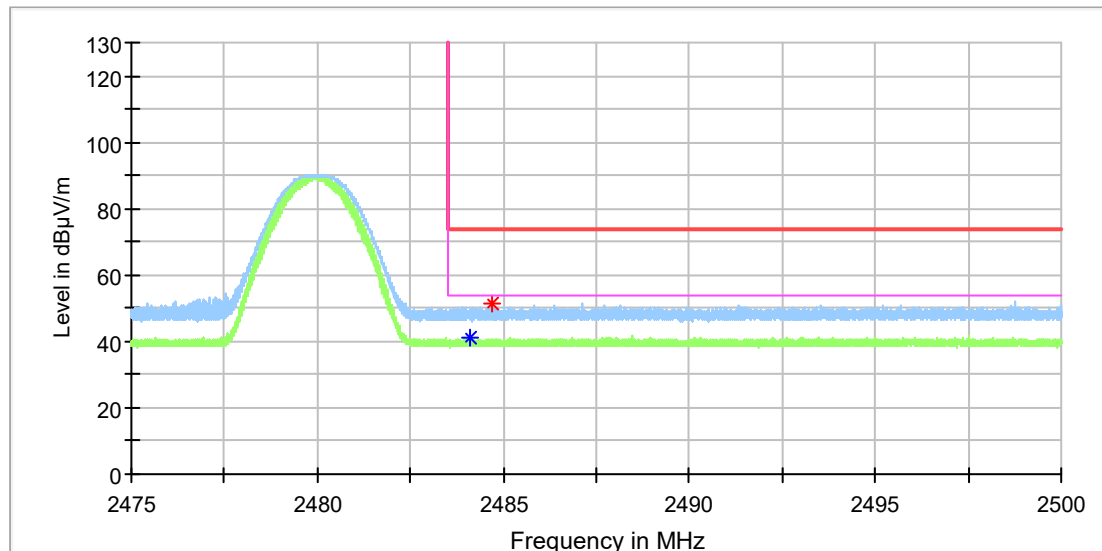
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7438.016667	---	34.14	54.00	19.86	100.0	V	320.0	8.4
7468.500000	43.34	---	74.00	30.66	100.0	V	261.0	8.6
7873.633333	42.98	---	74.00	31.02	100.0	V	261.0	8.6
7873.633333	---	37.55	54.00	16.45	100.0	V	261.0	8.6

Appendix A.6: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	WIFI+BT module
Model:	DCT2VM2511
Test Mode:	BLE_High channel
Order No/Sample No:	168365112/A003224451-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

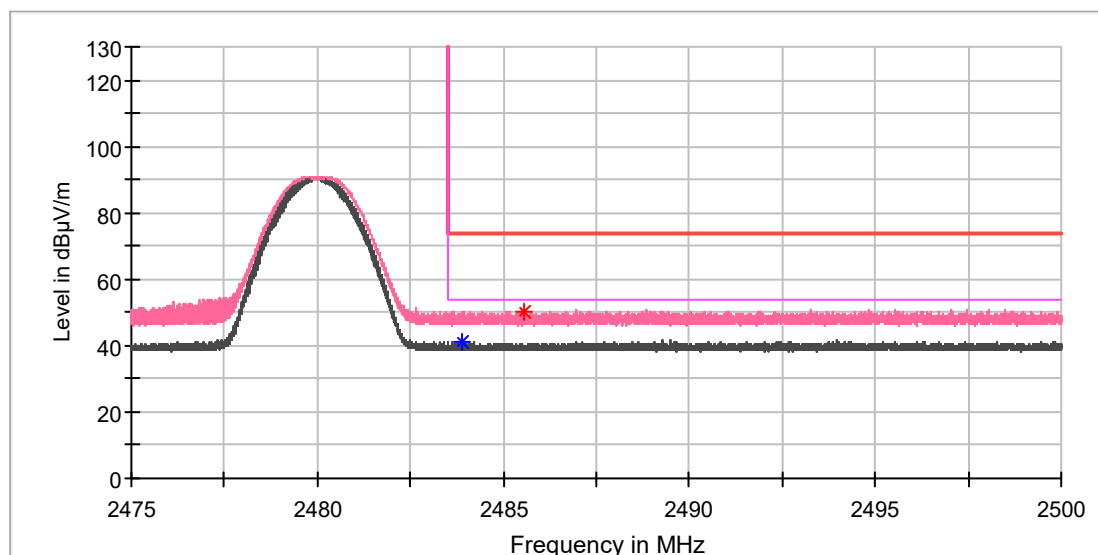


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.130000	---	40.95	54.00	13.05	100.0	H	282.0	7.4
2484.681250	51.23	---	74.00	22.77	100.0	H	273.0	7.4

EUT Information

EUT Name:	WIFI+BT module
Model:	DCT2VM2511
Test Mode:	BLE_High channel
Order No/Sample No:	168365112/A003224451-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

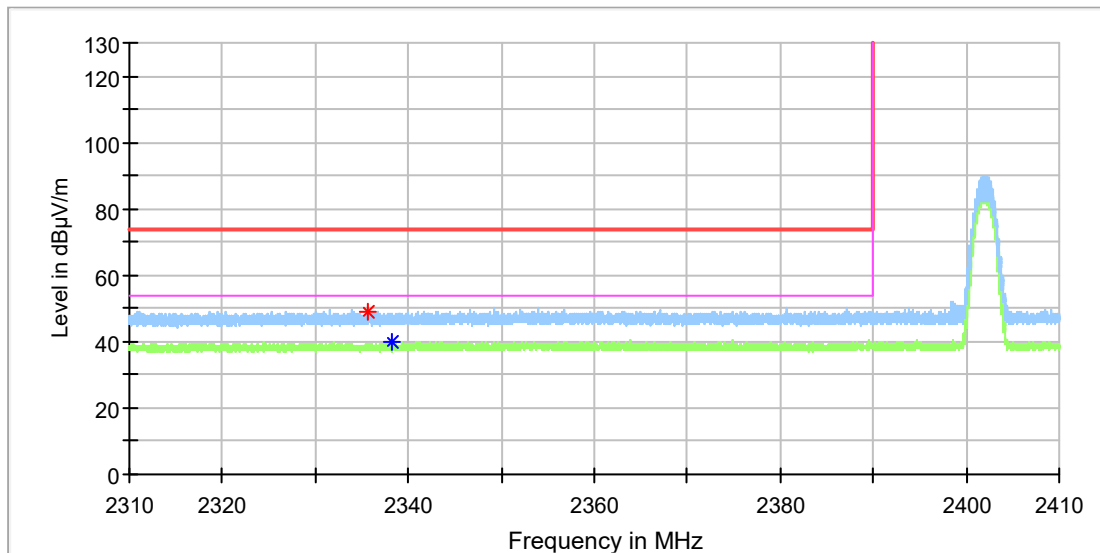


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.897500	---	41.41	54.00	12.59	100.0	V	281.0	7.4
2485.577500	50.32	---	74.00	23.68	100.0	V	281.0	7.4

EUT Information

EUT Name:	WIFI+BT module
Model:	DCT2VM2511
Test Mode:	BLE_Low channel
Order No/Sample No:	168365112/A003224451-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

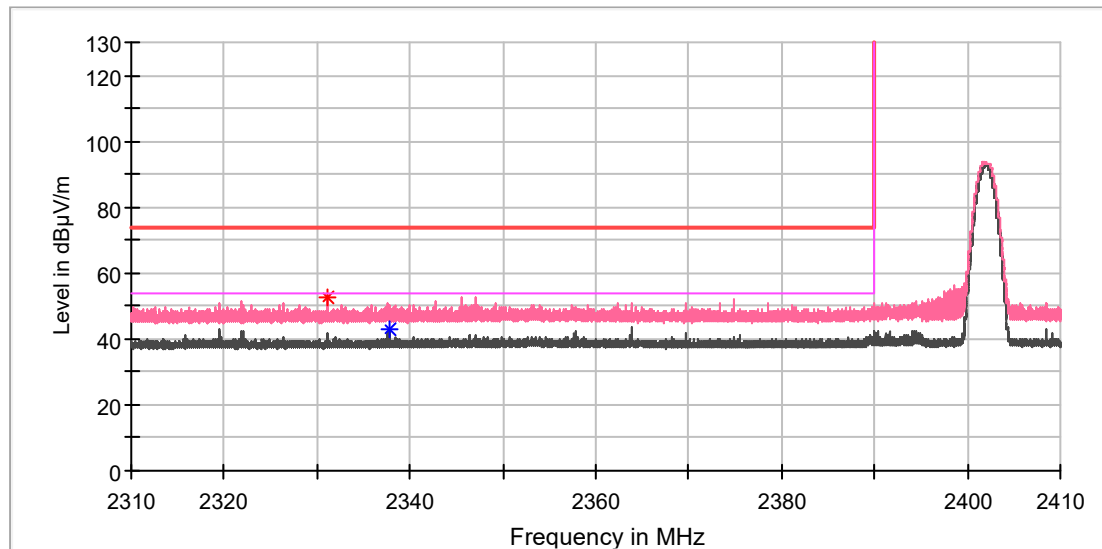


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2335.650000	49.13	---	74.00	24.87	100.0	H	71.0	6.8
2338.235000	---	39.68	54.00	14.32	100.0	H	0.0	6.8

EUT Information

EUT Name:	WIFI+BT module
Model:	DCT2VM2511
Test Mode:	BLE_Low channel
Order No/Sample No:	168365112/A003224451-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



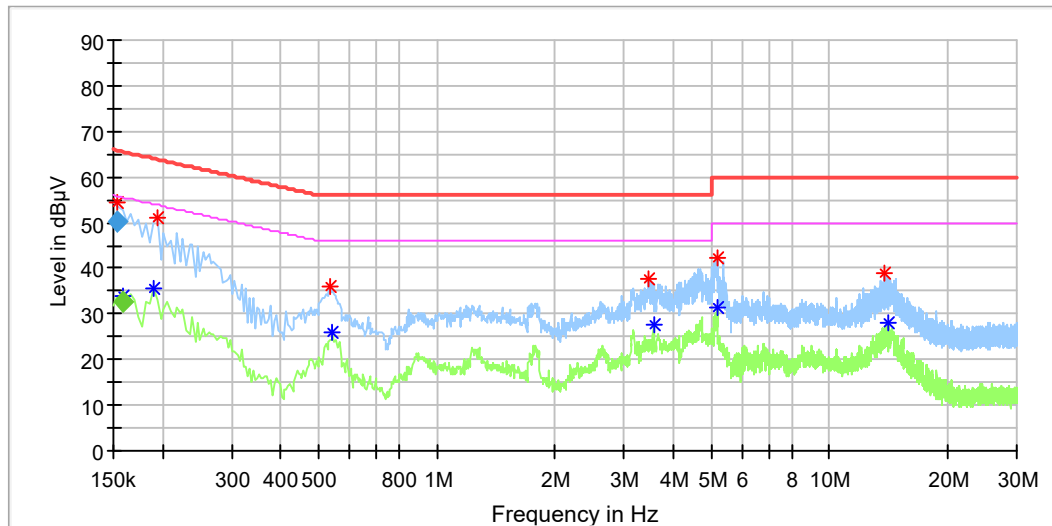
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2331.130000	52.77	---	74.00	21.23	100.0	V	40.0	6.7
2337.730000	---	42.83	54.00	11.17	100.0	V	257.0	6.8

Appendix A.7: Test Results of Conducted Emission

EUT Information

EUT Name: WIFI+BT module
Order No: 168365112
Model: DCT2VM2511
Test mode: BT Operation
Test Voltage: AC 120V/60Hz
Test By: Kevin Zhou
Review By: Gary Chen
Tem./Hum./Pressure: 24.1°C/51%/101kPa



Critical_Freqs

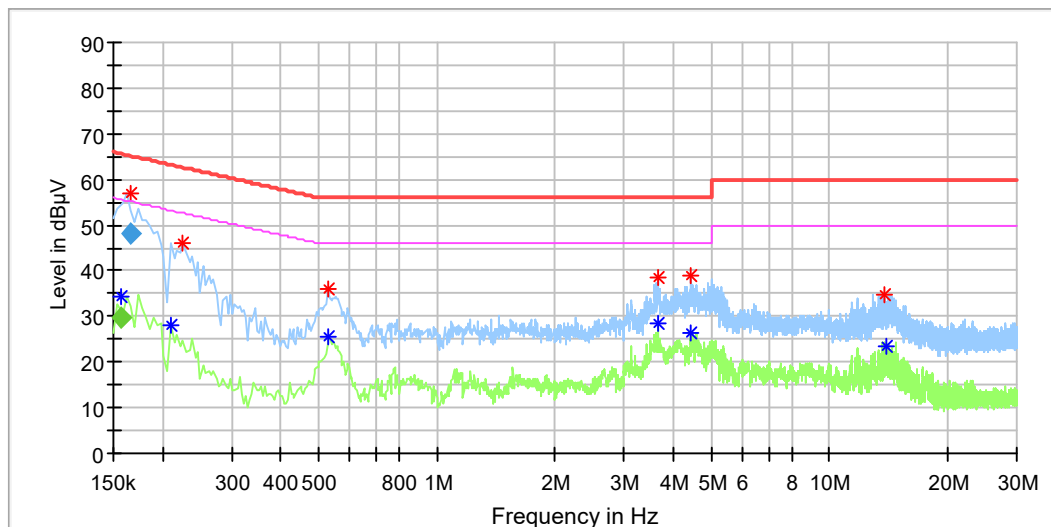
Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.154000	54.37	---	66.00	11.63	L1	9.9
0.158500	---	33.99	55.78	21.79	L1	9.9
0.190000	---	35.38	54.04	18.66	L1	9.9
0.194000	50.91	---	63.86	12.95	L1	9.9
0.534000	36.01	---	56.00	19.99	L1	10.0
0.542000	---	25.76	46.00	20.24	L1	10.0
3.462000	37.79	---	56.00	18.21	L1	10.2
3.562000	---	27.52	46.00	18.48	L1	10.2
5.162000	42.45	---	60.00	17.55	L1	10.3
5.162000	---	31.57	50.00	18.43	L1	10.3
13.794000	38.91	---	60.00	21.09	L1	10.4
14.086000	---	27.91	50.00	22.09	L1	10.4

Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154000	50.39	---	65.78	15.39	1000.0	9.000	L1	9.9
0.158500	---	32.75	55.54	22.79	1000.0	9.000	L1	9.9

EUT Information

EUT Name: WIFI+BT module
Order No: 168365112
Model: DCT2VM2511
Test mode: BT Operation
Test Voltage: AC 120V/60Hz
Test By: Kevin Zhou
Review By: Gary Chen
Tem./Hum./Pressure: 24.1°C/51%/101kPa



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.157500	---	34.34	55.36	21.02	N	9.8
0.166500	56.85	---	65.36	8.52	N	9.8
0.210000	---	27.91	53.21	25.29	N	9.8
0.226000	45.93	---	62.60	16.66	N	9.8
0.526000	36.00	---	56.00	20.00	N	9.8
0.530000	---	25.73	46.00	20.27	N	9.8
3.650000	---	28.54	46.00	17.46	N	9.9
3.658000	38.48	---	56.00	17.52	N	9.9
4.454000	---	26.58	46.00	19.42	N	9.9
4.454000	38.99	---	56.00	17.01	N	9.9
13.862000	34.82	---	60.00	25.18	N	10.1
13.950000	---	23.43	50.00	26.57	N	10.1

Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.157500	---	29.54	55.60	26.06	1000.0	9.000	N	9.8
0.166500	48.16	---	65.13	16.98	1000.0	9.000	N	9.8