



Appendix for Test report



1. Appendix A: DTS Bandwidth

1.1 Test Result

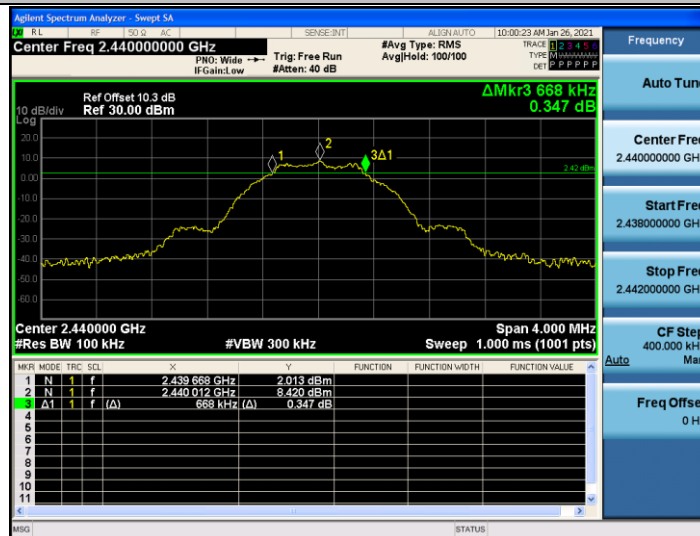
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_TM1	Ant1	2402	0.672	2401.660	2402.332	≥ 0.5	PASS
		2440	0.668	2439.668	2440.336	≥ 0.5	PASS
		2480	0.652	2479.676	2480.328	≥ 0.5	PASS

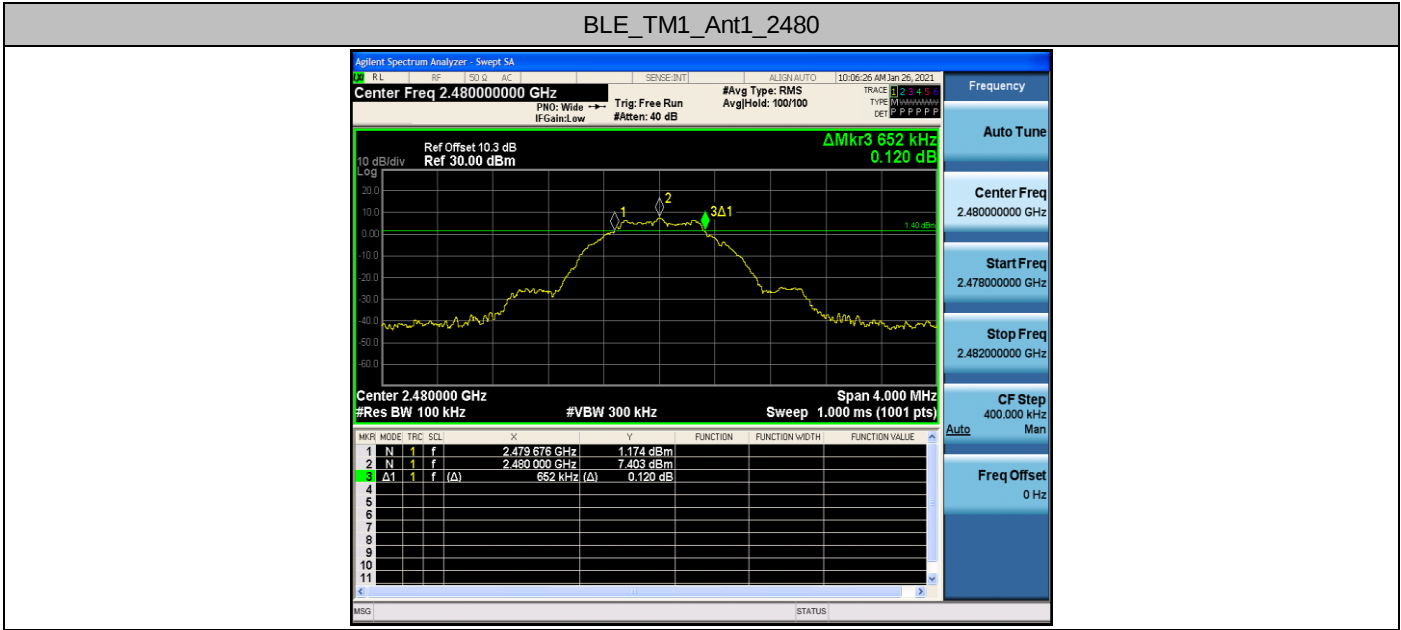
1.2 Test Graphs

BLE_TM1_Ant1_2402



BLE_TM1_Ant1_2440





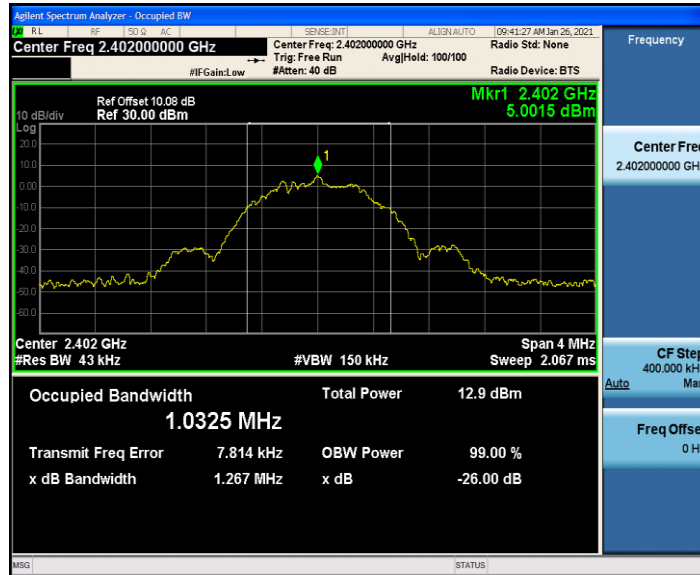
2. Appendix B: Occupied Channel Bandwidth

2.1 Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_TM1	Ant1	2402	1.0325	2401.492	2402.524	---	PASS
		2440	1.0394	2439.491	2440.530	---	PASS
		2480	1.0380	2479.489	2480.527	---	PASS

2.2 Test Graphs

BLE_TM1_Ant1_2402



BLE_TM1_Ant1_2440





3. Appendix C: Duty Cycle

3.1 Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit[MHz]	Verdict
BLE_TM1	Ant1	2402	0.39	0.63	62.60	---	PASS
		2440	0.39	0.63	62.50	---	PASS
		2480	0.39	0.63	62.60	---	PASS

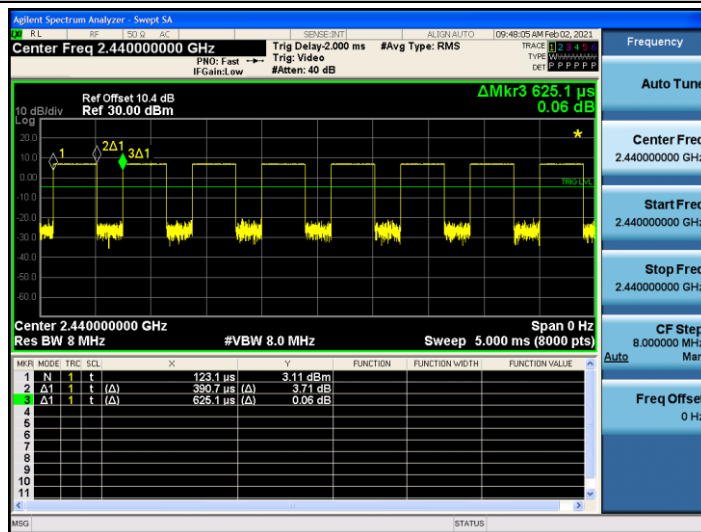


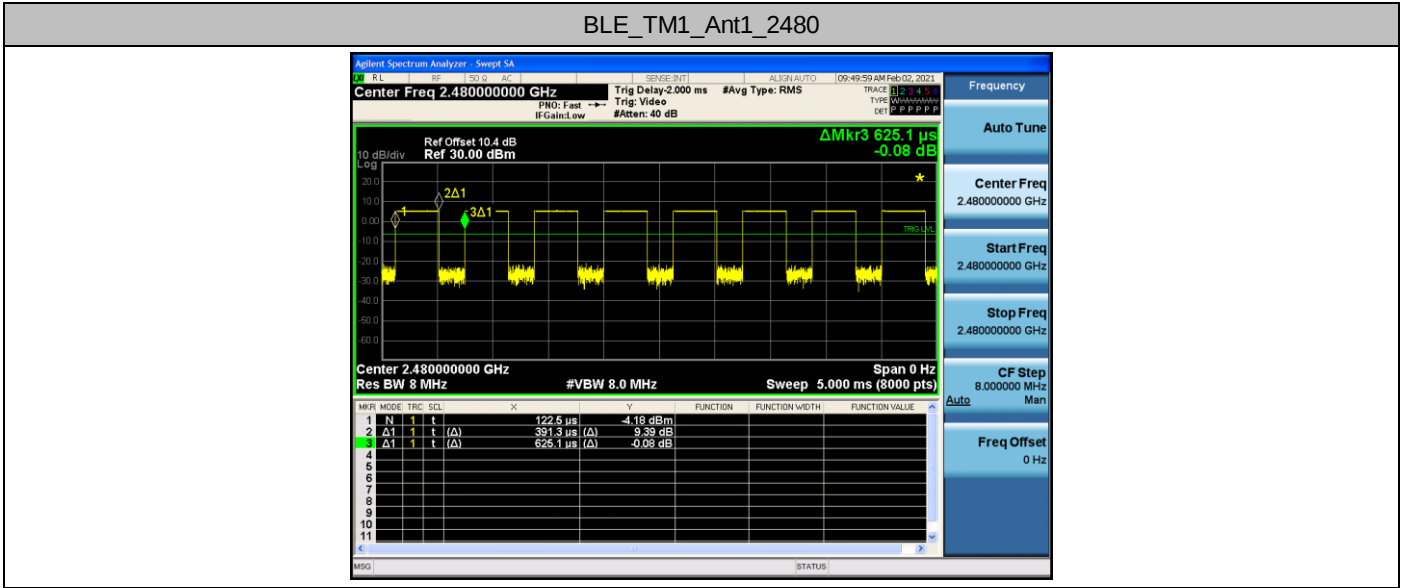
3.2 Test Graphs

BLE_TM1_Ant1_2402



BLE_TM1_Ant1_2440





4. Appendix D: Maximum Peak output power

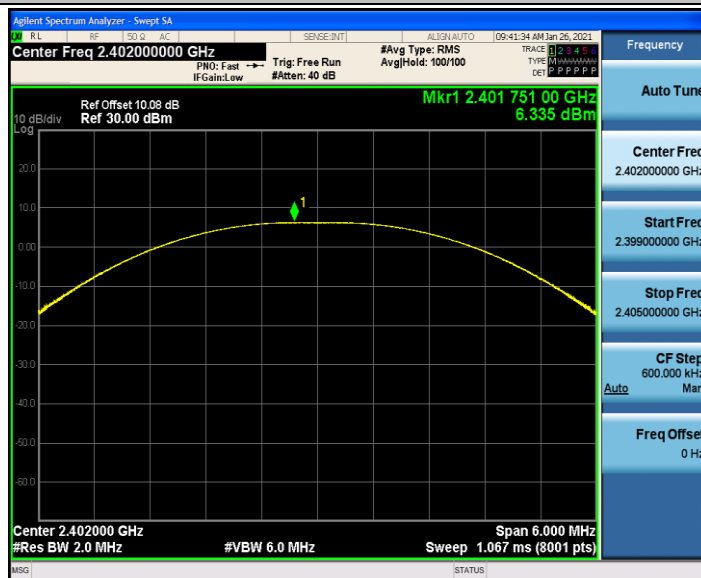
4.1 Test Result

TestMode	Antenna	Channel	Conducted Result[dBm]	Conducted Limit[dBm]	EIRP Result[dBm]	EIRP Result[dBm]	Verdict
BLE_TM1	Ant1	2402	6.34	30	4.14	36	PASS
		2440	8.66	30	6.46	36	PASS
		2480	7.66	30	5.46	36	PASS

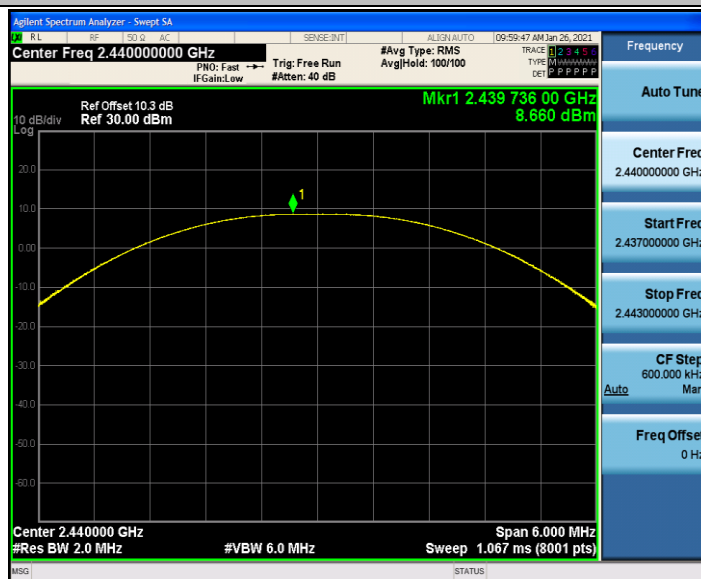


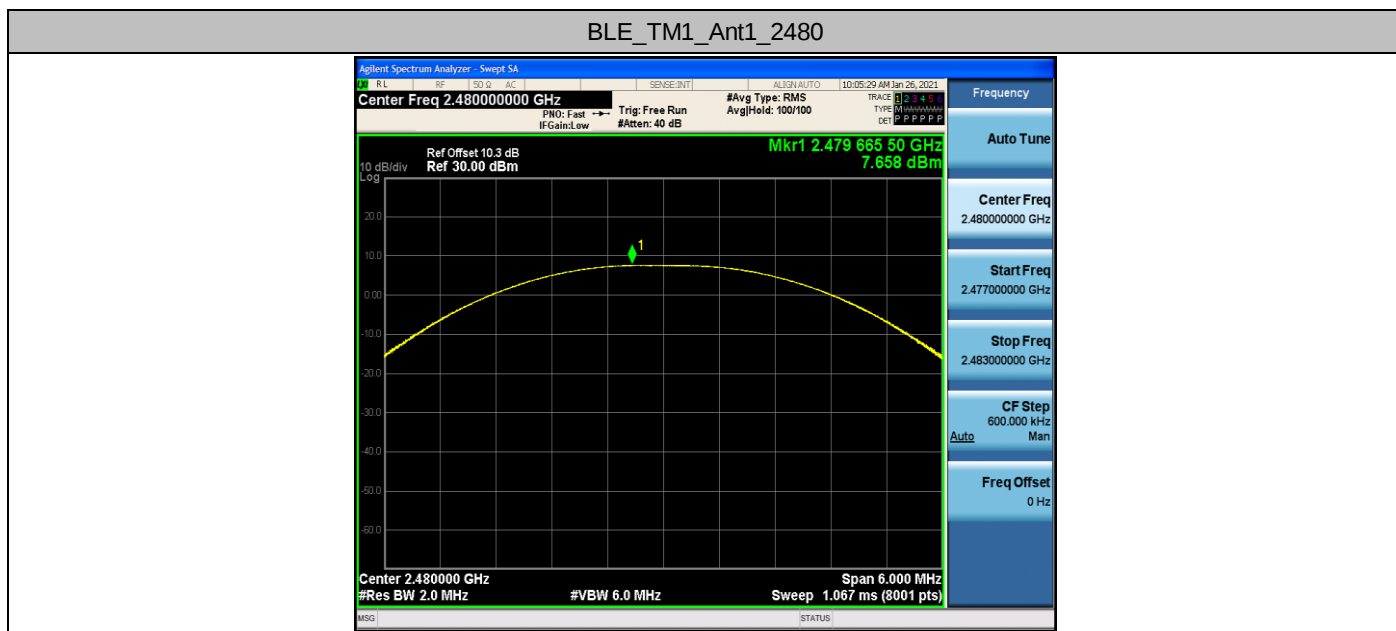
4.2 Test Graphs

BLE_TM1_Ant1_2402



BLE_TM1_Ant1_2440





5. Appendix E: Maximum power spectral density

5.1 Test Result

TestMode	Antenna	Channel	Result[dBm/10kHz]	Limit[dBm/3kHz]	Verdict
BLE_TM1	Ant1	2402	-4.17	<=8	PASS
		2440	-1.76	<=8	PASS
		2480	-2.81	<=8	PASS



5.2 Test Graphs

BLE_TM1_Ant1_2402



BLE_TM1_Ant1_2440





6. Appendix F: Band edge measurements

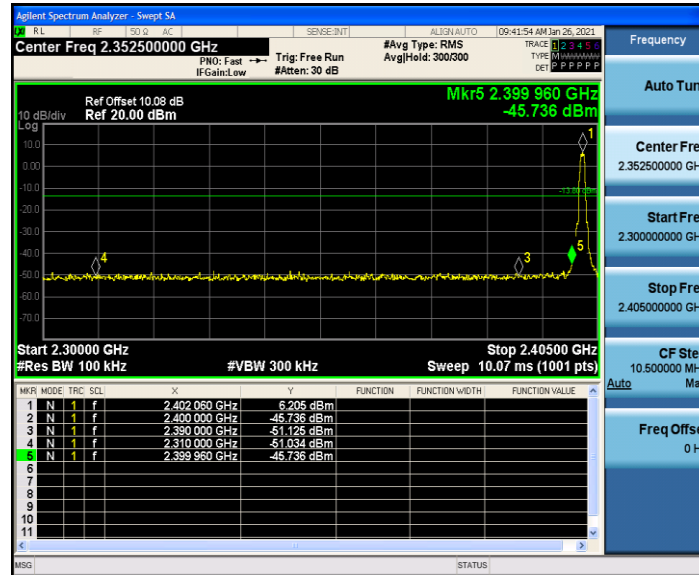
6.1 Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm/100kHz]	Result[dBm/100kHz]	Limit[dBm/100kHz]	Verdict
BLE_TM1	Ant1	Low	2402	6.21	-45.74	<=-13.80	PASS
		High	2480	7.51	-47.09	<=-12.49	PASS

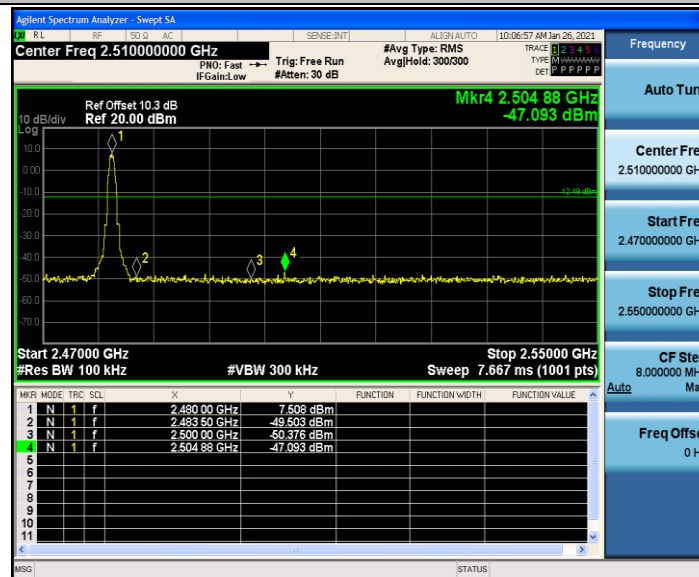


6.2 Test Graphs

BLE_TM1_Ant1_Low_2402



BLE_TM1_Ant1_High_2480



7 Appendix G: Conducted Spurious Emission

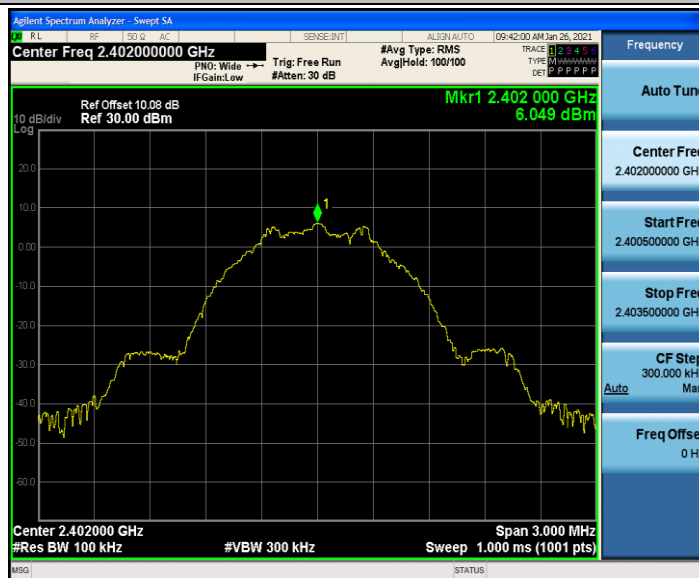
7.1 Test Result

TestMode	Antenna	Channel	FreqRange	RefLevel	Result[dBm]	Limit[dBm]	Verdict
BLE_TM1	Ant1	2402	Reference	6.05	6.05	---	PASS
			0.009~30	0.009~30	-38.112	<=-33.951	PASS
			30~1000	30~1000	-50.323	<=-23.951	PASS
			1000~26500	1000~26500	-37.337	<=-23.951	PASS
		2440	Reference	8.46	8.46	---	PASS
			0.009~30	0.009~30	-38.069	<=-31.543	PASS
			30~1000	30~1000	-50.686	<=-21.543	PASS
			1000~26500	1000~26500	-37.771	<=-21.543	PASS
		2480	Reference	7.46	7.46	---	PASS
			0.009~30	0.009~30	-37.436	<=-32.537	PASS
			30~1000	30~1000	-48.553	<=-22.537	PASS
			1000~26500	1000~26500	-37.775	<=-22.537	PASS

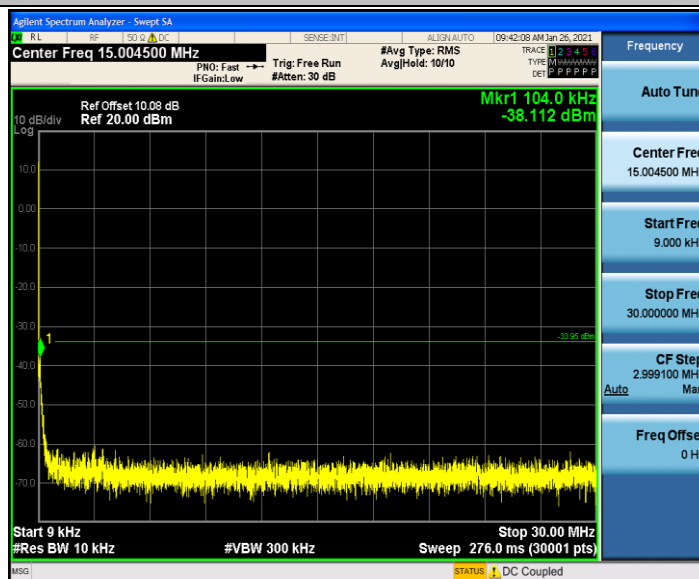


7.2 Test Graphs

BLE_TM1_Ant1_2402_0~Reference

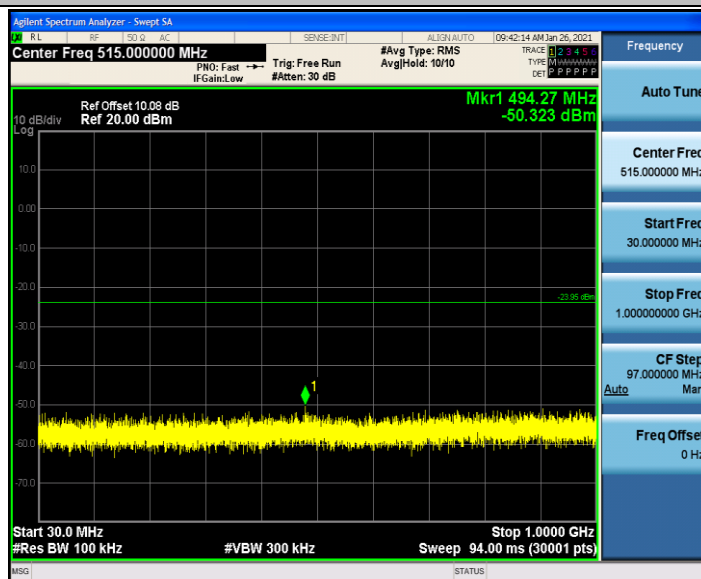


BLE_TM1_Ant1_2402_0.009~30





BLE_TM1_Ant1_2402_30~1000



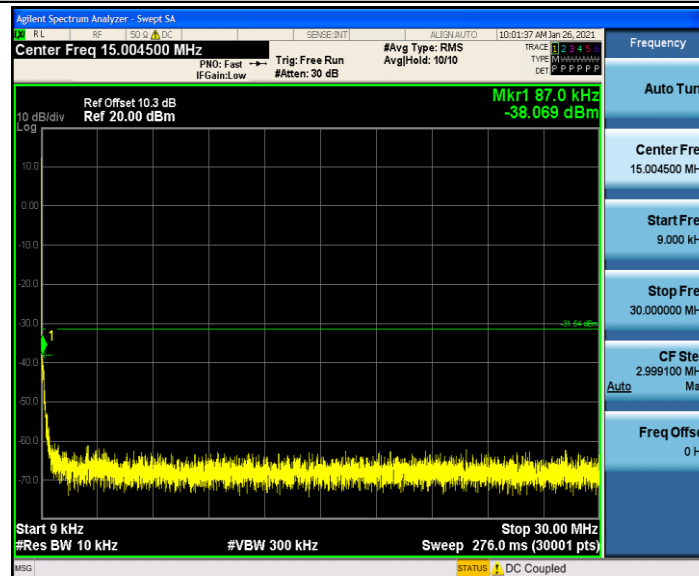
BLE_TM1_Ant1_2402_1000~26500



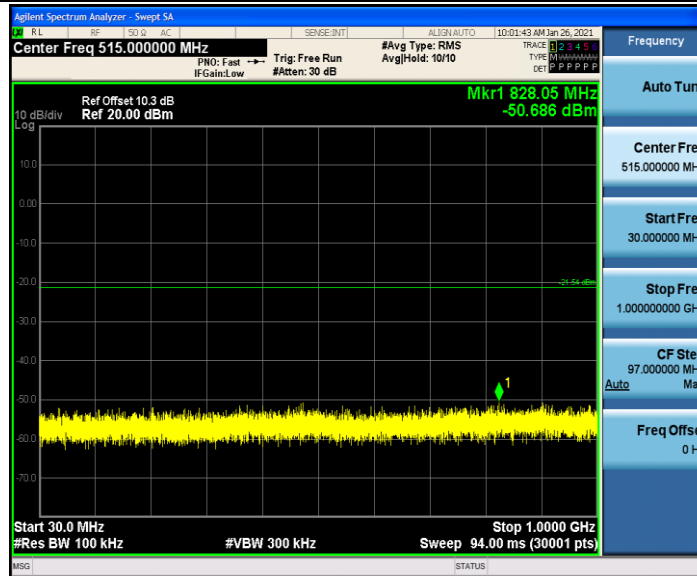
BLE_TM1_Ant1_2440_0~Reference



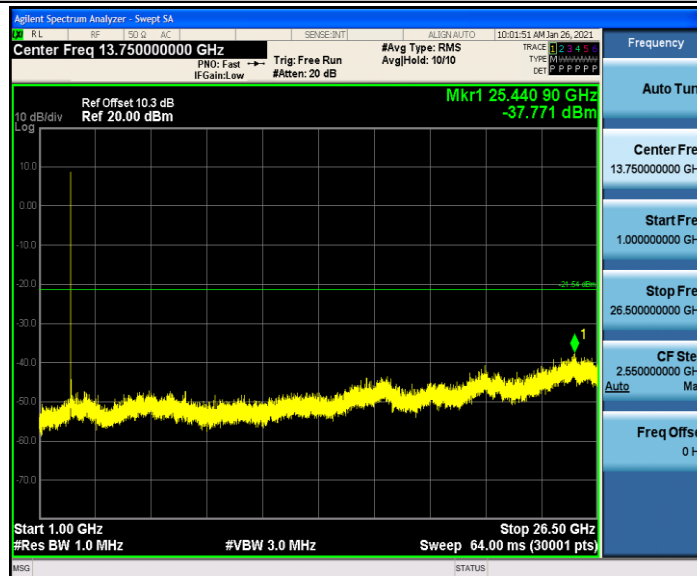
BLE_TM1_Ant1_2440_0.009~30



BLE_TM1_Ant1_2440_30~1000



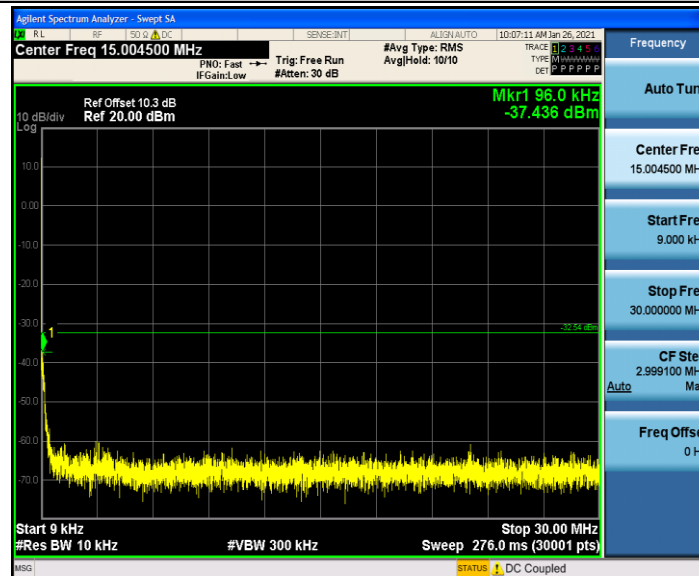
BLE_TM1_Ant1_2440_1000~26500



BLE_TM1_Ant1_2480_0~Reference

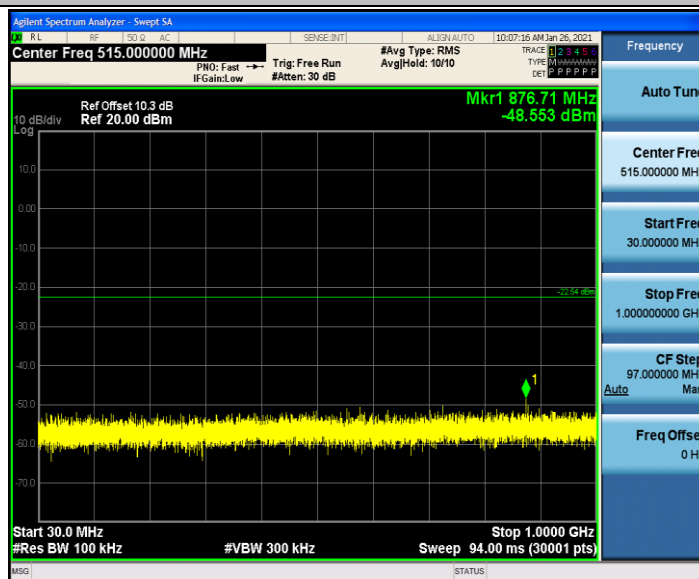


BLE_TM1_Ant1_2480_0.009~30

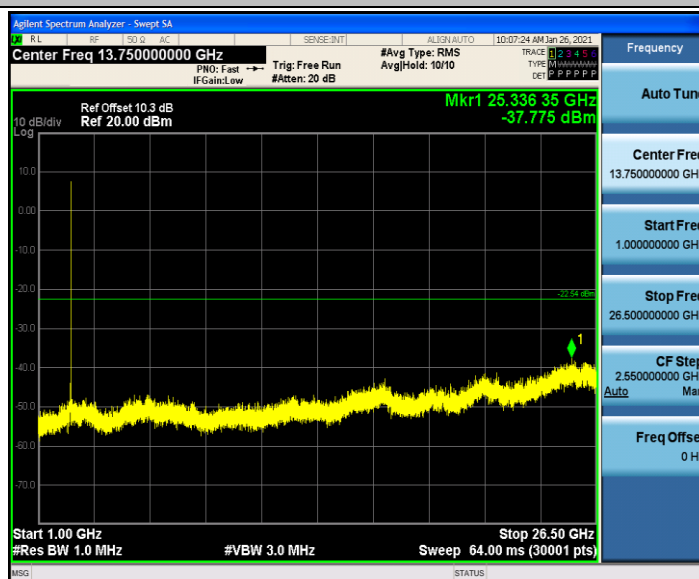




BLE_TM1_Ant1_2480_30~1000



BLE_TM1_Ant1_2480_1000~26500



8. Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note:

1. We tested all modes & antennas, the data presented below is the worst case.
2. The simultaneous transmission has been considered
3. The whole testing range is from “9 KHz to 26.5 GHz (10th harmonics)” is divided into 5 parts according to the test site settings, which are:
 - (Part 1): Test range of “9 KHz to 30 MHz”, RBW = 9 kHz, VBW = 30 kHz
 - (Part 2): Test range of “30 GHz to 1 GHz”, RBW = 100 kHz, VBW = 300 kHz.
 - (Part 3): Test range of “1 GHz to 3 GHz”. RBW = 1 MHz, VBW = 3 MHz.
 - (Part 4): Test range of “3 GHz to 18 GHz”, RBW = 1 MHz, VBW = 3 MHz.
 - (Part 5): Test range of “18 GHz to 26.5 GHz”. RBW = 1 MHz, VBW = 3 MHz.

8.1 Test Results

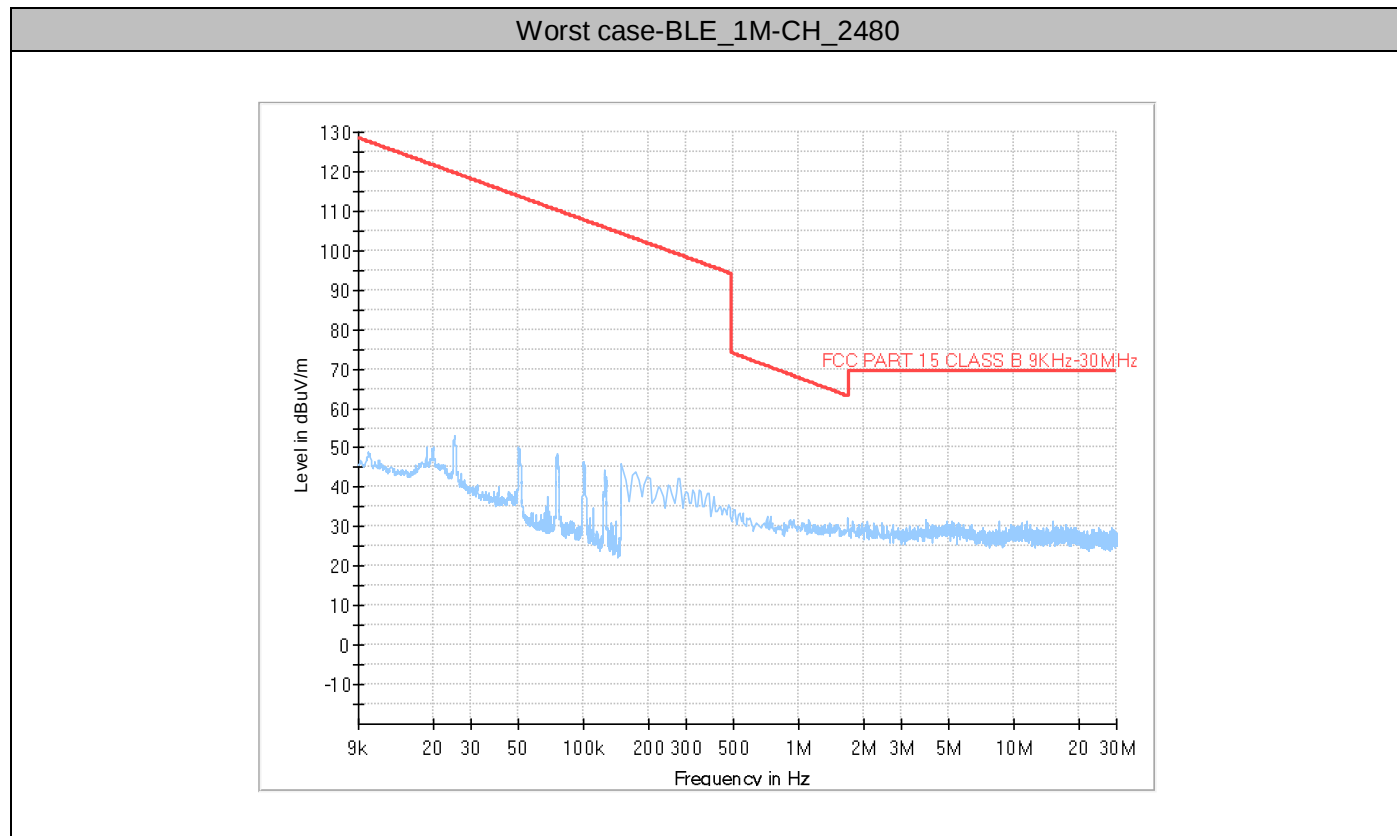
8.1.1 BLE

Test Mode	Antenna	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
TM1_BLE_1M	Ant1	2402	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	2480	(see Test Graphs)	(see Test Graphs)	PASS

8.2 Test Graphs

8.2.1 Part 1: Testing Range of “9 kHz to 30MHz”

Note 1: The test results and plot for testing range of “9 kHz to 30MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

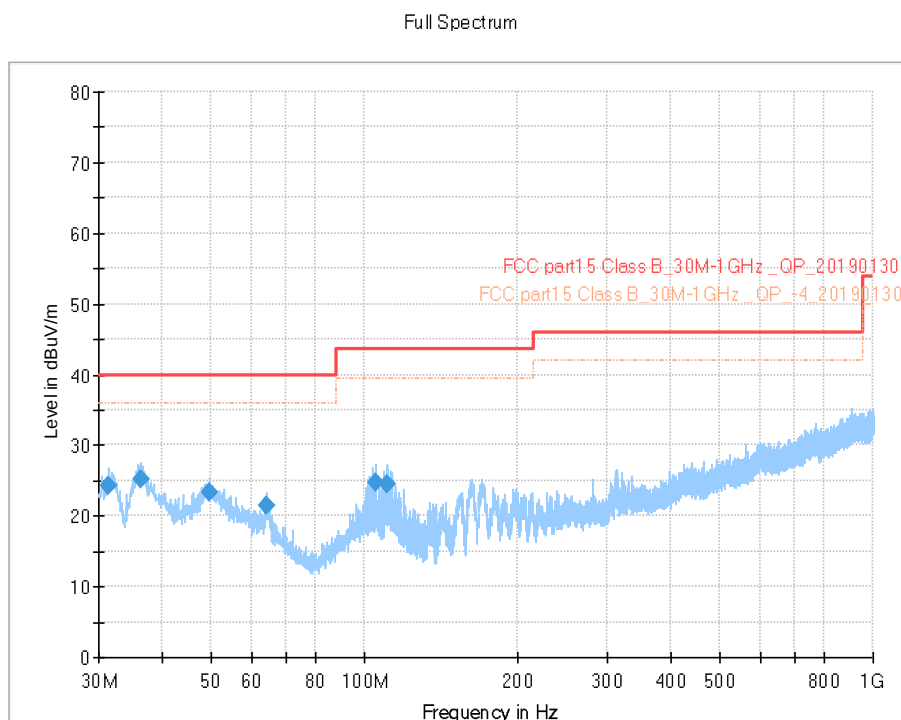


8.2.2 Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).

Worst case-BLE_1M-CH_2480



Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Polarisation	Azimuth (deg)	Transd (dB)
31.455000	24.35	40.00	15.65	100.0	V	4.0	16.4
36.305000	25.29	40.00	14.71	100.0	V	0.0	17.9
49.594000	23.42	40.00	16.58	100.0	V	294.0	20.5
64.386500	21.52	40.00	18.48	100.0	V	0.0	18.1
105.272000	24.67	43.50	18.83	100.0	V	160.0	18.5
110.801000	24.39	43.50	19.11	100.0	V	177.0	17.9

8.2.3 Part 3: Testing Range of “1 GHz to 3 GHz”

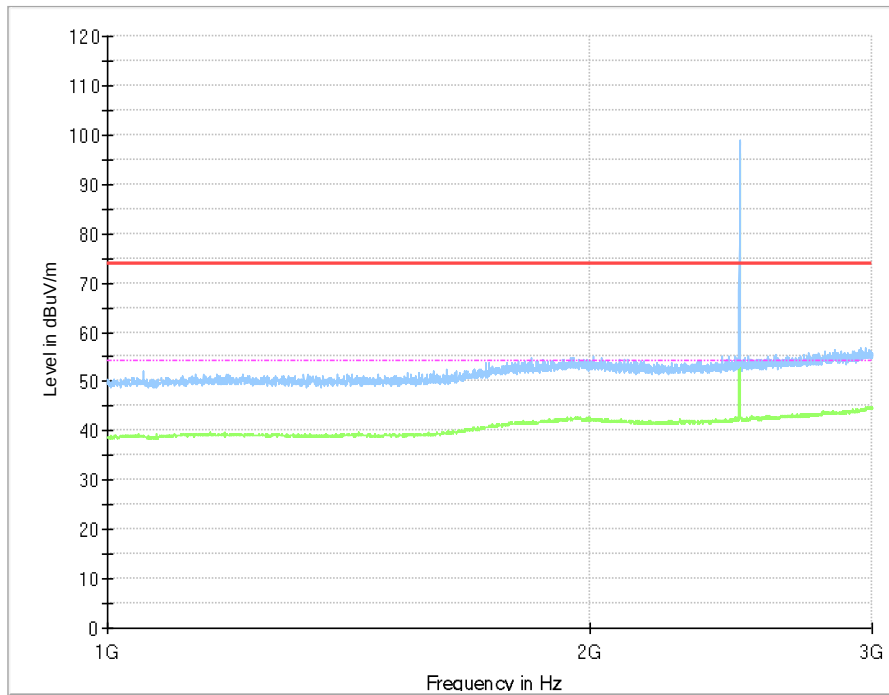
Note 1: The testing range of “1 GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands. The test results and plot for testing range of “1 GHz to 3 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

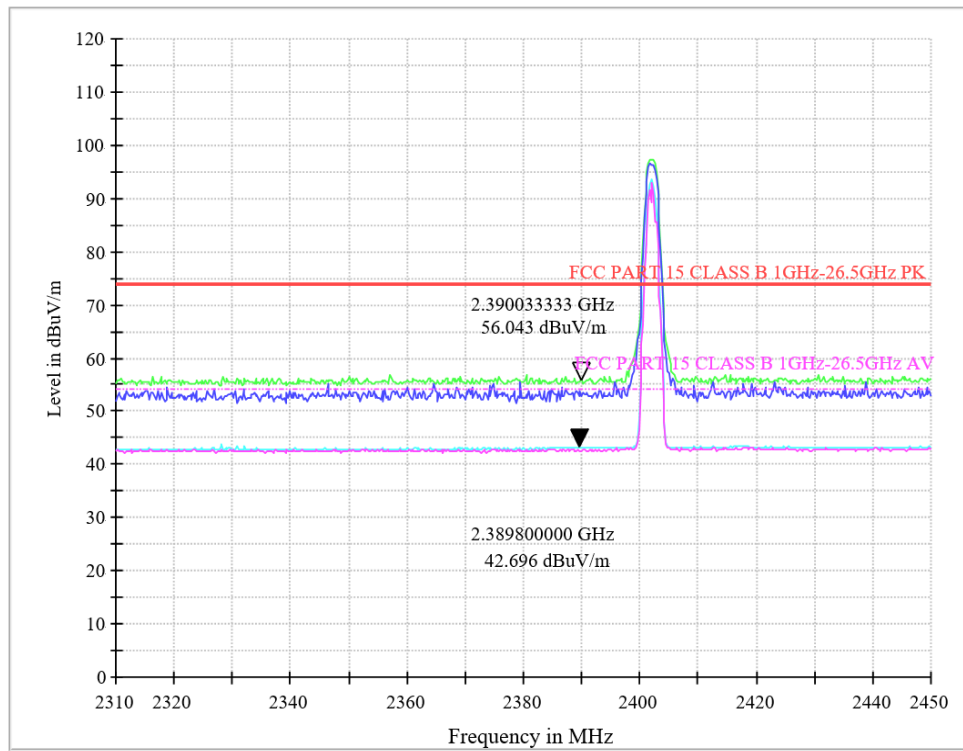
Note 3: The peak spike exceeds the limit line is EUT's operating frequency.

8.2.3.1 TM1_BLE_1M

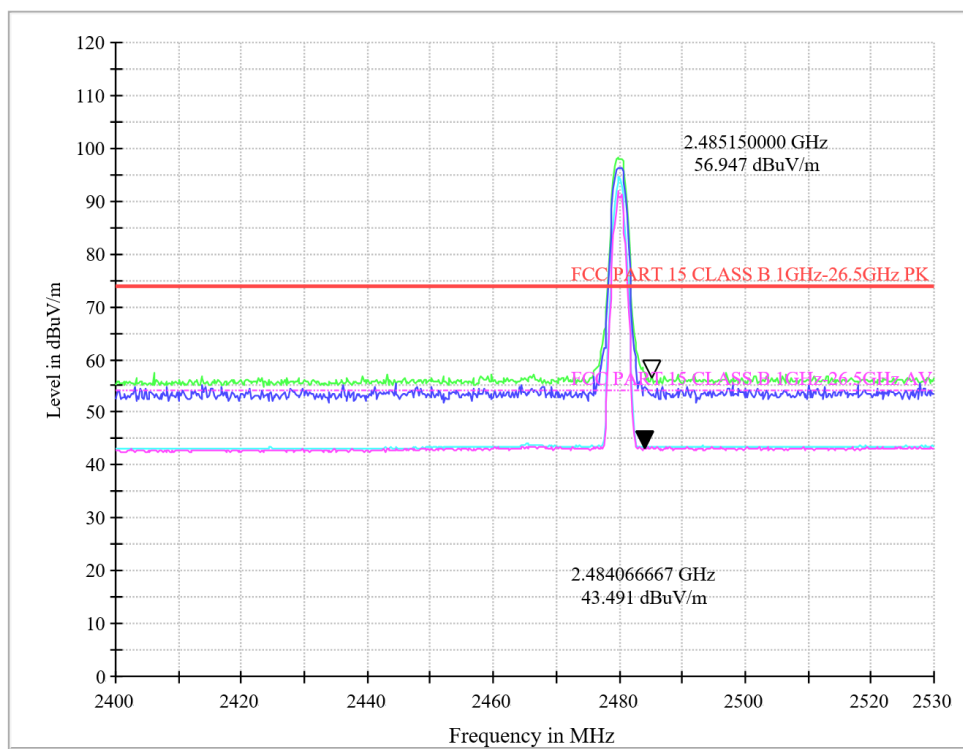
Worst case CH_2480(1 GHz to 3 GHz)



CH_2402(Band Edge)



CH_2480(Band Edge)



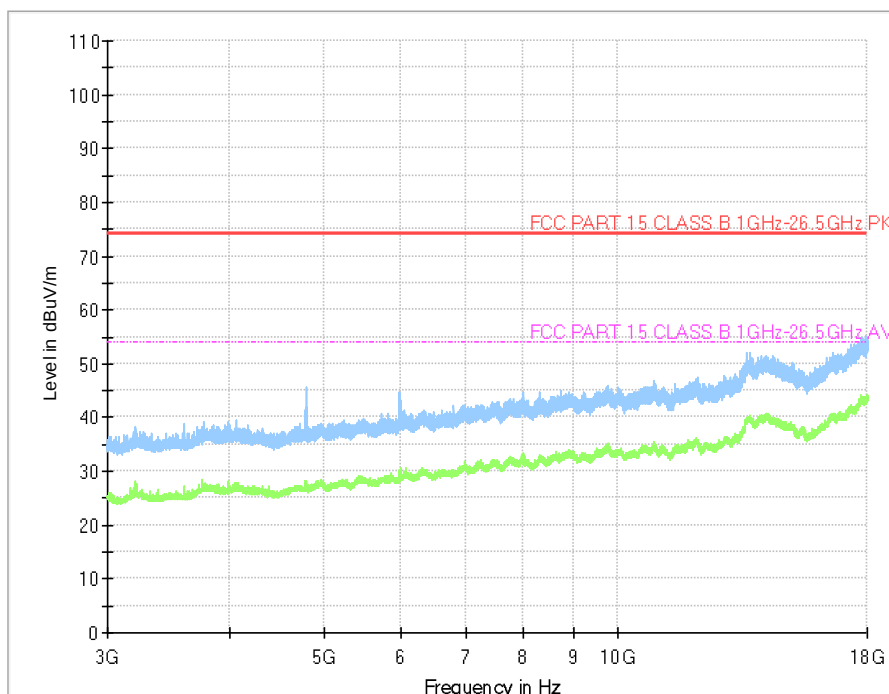
8.2.4 Part 4: Testing Range of “3 GHz to 18 GHz”

Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is the worst case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The testing range of “3 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

Worst case -BLE_1M-CH_2480



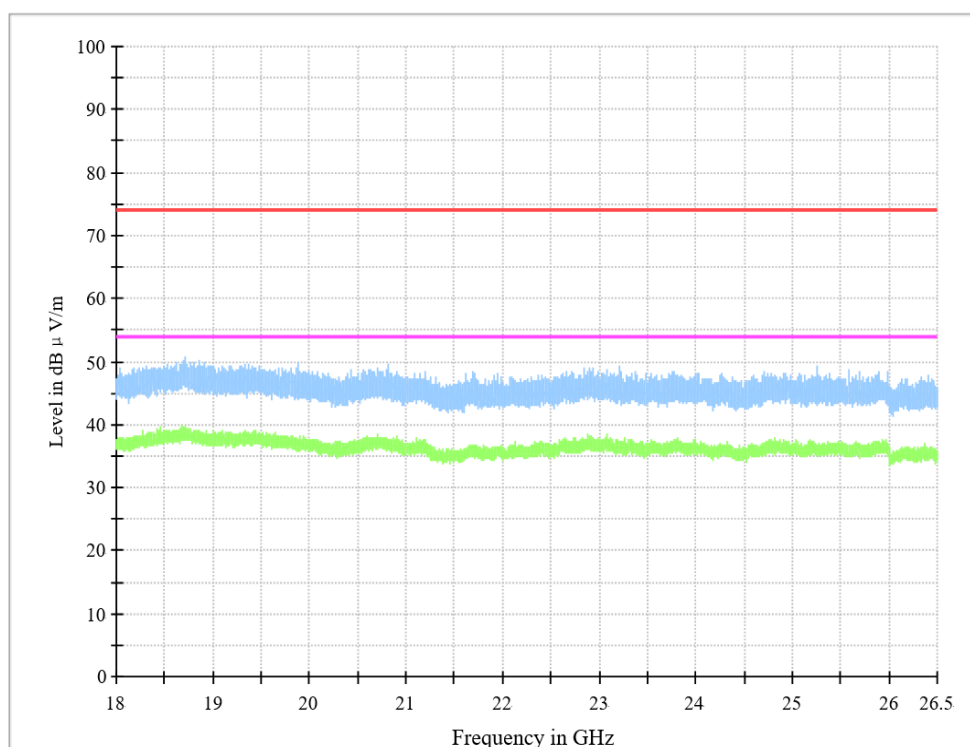
8.2.5 Part 5: Testing Range of “18 GHz to 26.5 GHz”

Note 1: The test results and plot for testing range of “18 GHz to 26.5 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The testing range of “18 GHz to 26.5 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

Worst case-BLE_1M-CH_2480



9 Appendix I: Conducted Emission at Power Port

Note 1: The test results and plot for testing range of “150 kHz to 30 MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

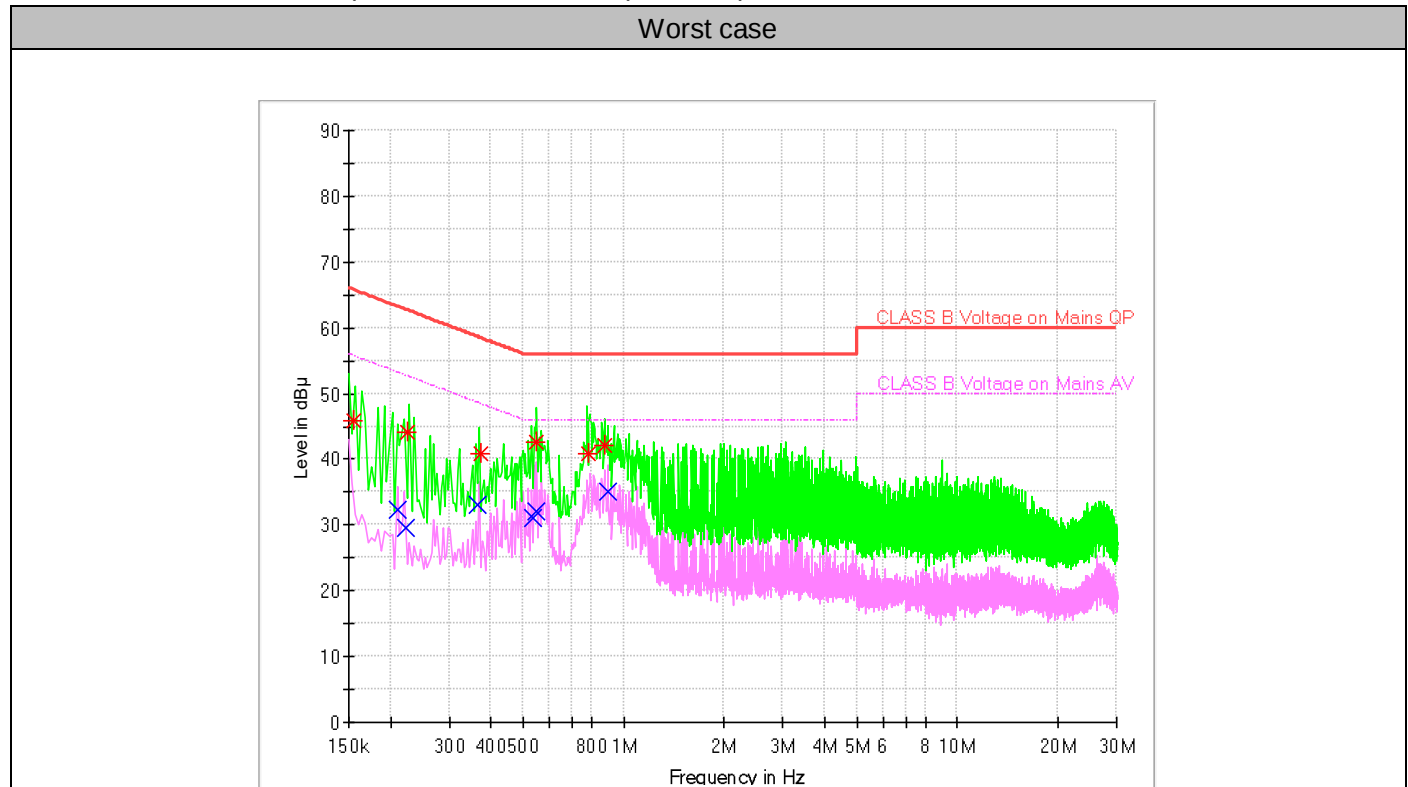
Note 2: RBW =9 kHz; VBW = 30 kHz

9.1 Test Results

Test Mode	Antenna Port	Test Channel	Maximum Emissions	Limit	Verdict
TM1_BLE_1M	Ant1	2480	(see Test Graphs)	(see Test Graphs)	PASS

9.2 Test Graphs

Note: Not found obvious spikes or see marked spikes on plots and listed emissions records.



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Transd. (dB)	Margin (dB)	Line	PE
0.210265	32.25	53.20	9.7	20.95	N	FLO
0.222258	29.55	52.73	9.7	23.18	N	FLO
0.365976	33.07	48.59	9.7	15.52	L1	FLO
0.535017	31.20	46.00	9.7	14.80	L1	FLO
0.549026	32.02	46.00	9.7	13.98	N	FLO
0.894285	35.05	46.00	9.7	10.95	N	FLO

MEASUREMENT RESULT: QP Detector

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Transd. (dB)	Margin (dB)	Line	PE
0.154617	45.97	65.75	9.7	19.78	N	FLO
0.224417	44.07	62.65	9.7	18.58	N	FLO
0.372919	40.98	58.44	9.7	17.46	L1	FLO
0.548362	42.52	56.00	9.7	13.48	L1	FLO



0.780928	40.93	56.00	9.7	15.07	N	FLO
0.875962	41.99	56.00	9.7	14.01	N	FLO

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit - Level

END