



Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.2	Ant1	2402	0.704	2401.652	2402.356	---	PASS
		2440	0.700	2439.656	2440.356	---	PASS
		2480	0.700	2479.636	2480.336	---	PASS
BLE_BT5.0	Ant1	2402	1.144	2401.436	2402.580	---	PASS
		2440	1.192	2439.404	2440.596	---	PASS
		2480	1.216	2479.364	2480.580	---	PASS



Test Graphs

BLE_BT4.2_Ant1_2402



BLE_BT4.2_Ant1_2440



BLE_BT4.2_Ant1_2480



BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





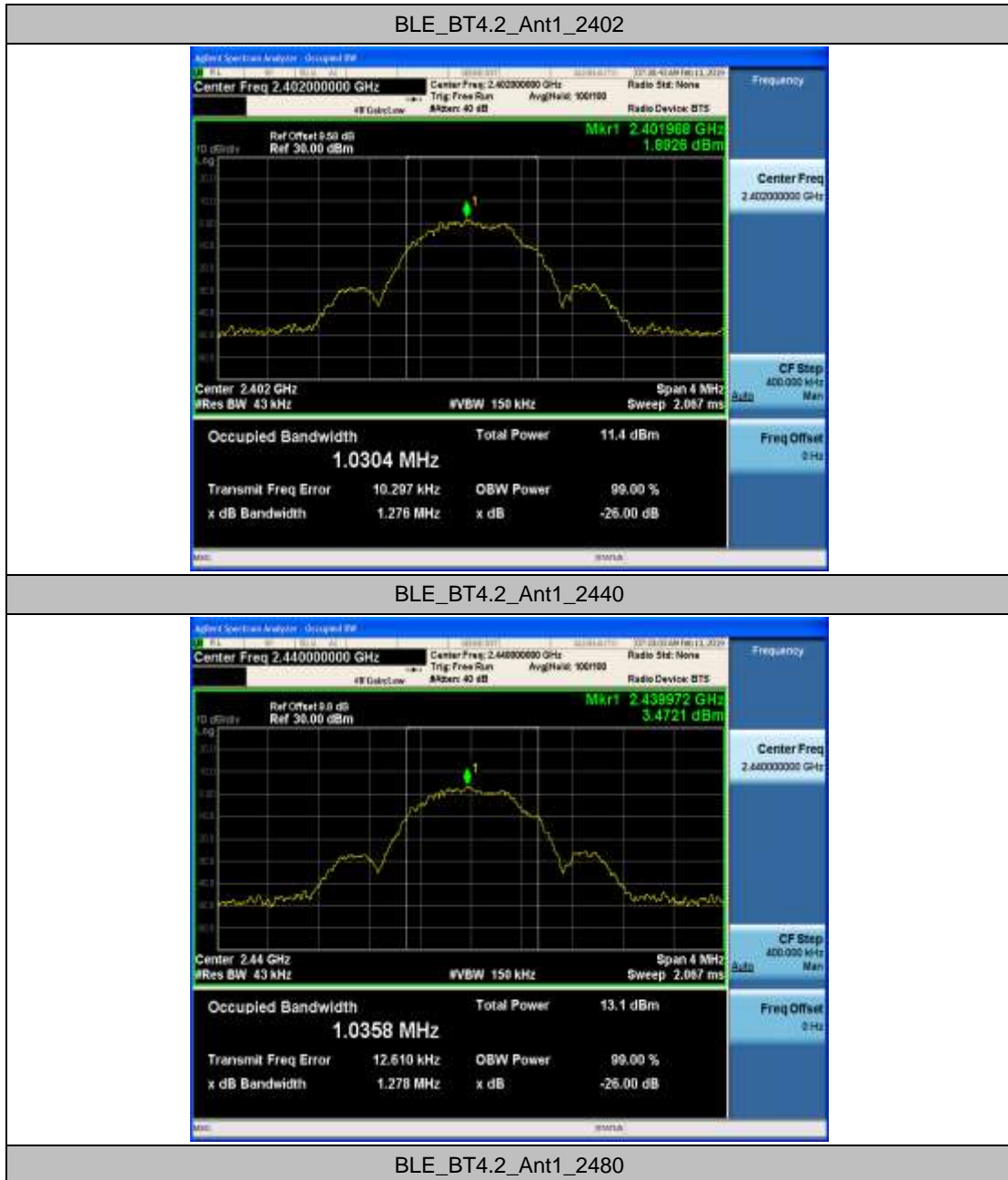
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.2	Ant1	2402	1.0304	2401.495	2402.526	---	PASS
		2440	1.0358	2439.495	2440.531	---	PASS
		2480	1.0315	2479.493	2480.525	---	PASS
BLE_BT5.0	Ant1	2402	2.0671	2400.992	2403.059	---	PASS
		2440	2.0582	2438.993	2441.051	---	PASS
		2480	2.0592	2478.985	2481.044	---	PASS



Test Graphs





BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





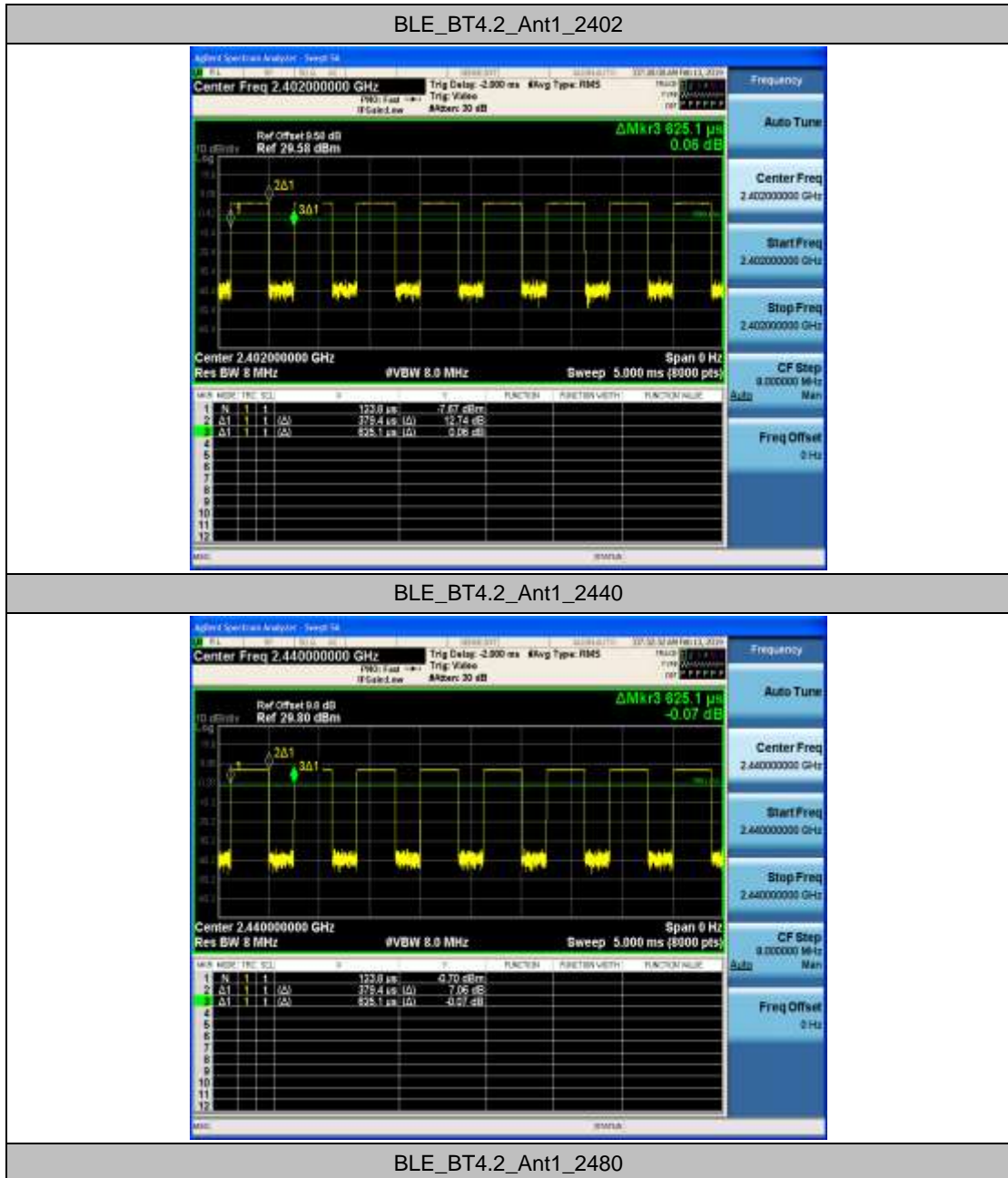
Appendix C: Duty Cycle

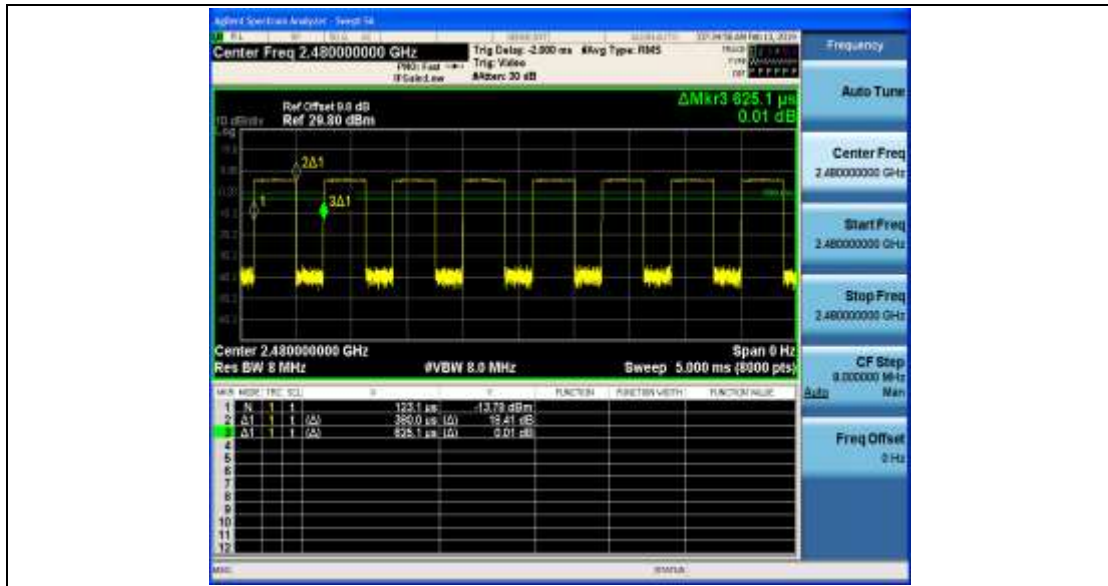
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
BLE_BT4.2	Ant1	2402	0.38	0.63	60.70
		2440	0.38	0.63	60.70
		2480	0.38	0.63	60.80
BLE_BT5.0	Ant1	2402	1.07	1.88	56.90
		2440	1.07	1.88	56.90
		2480	1.07	1.88	56.90

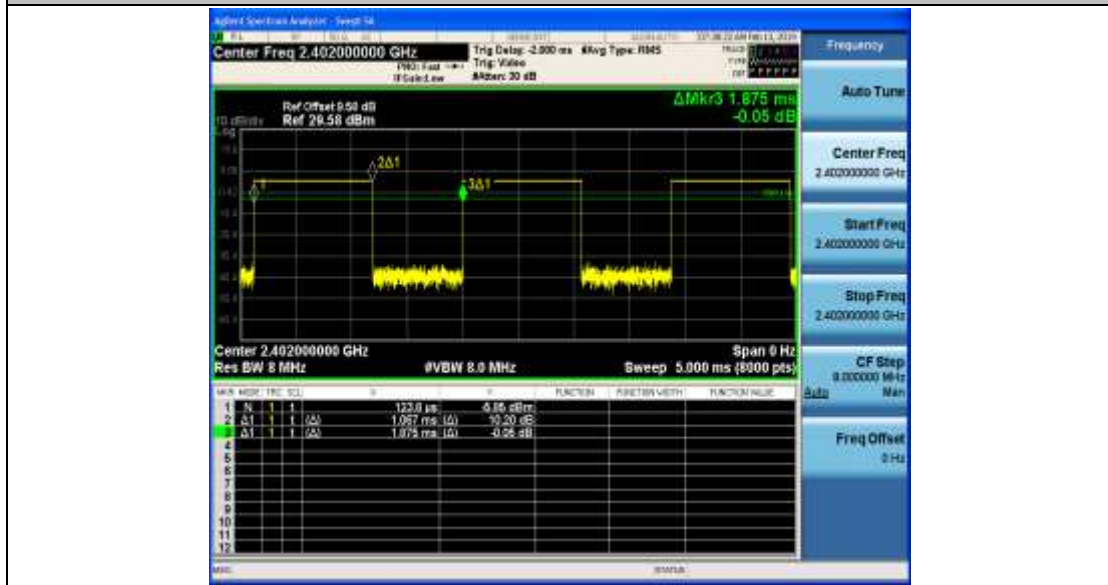


Test Graphs

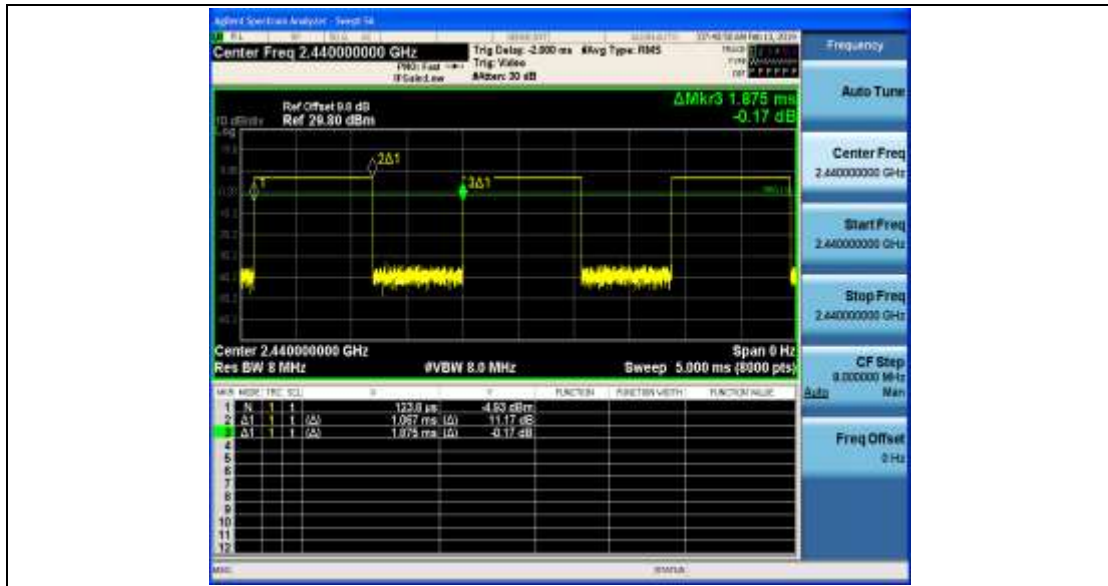




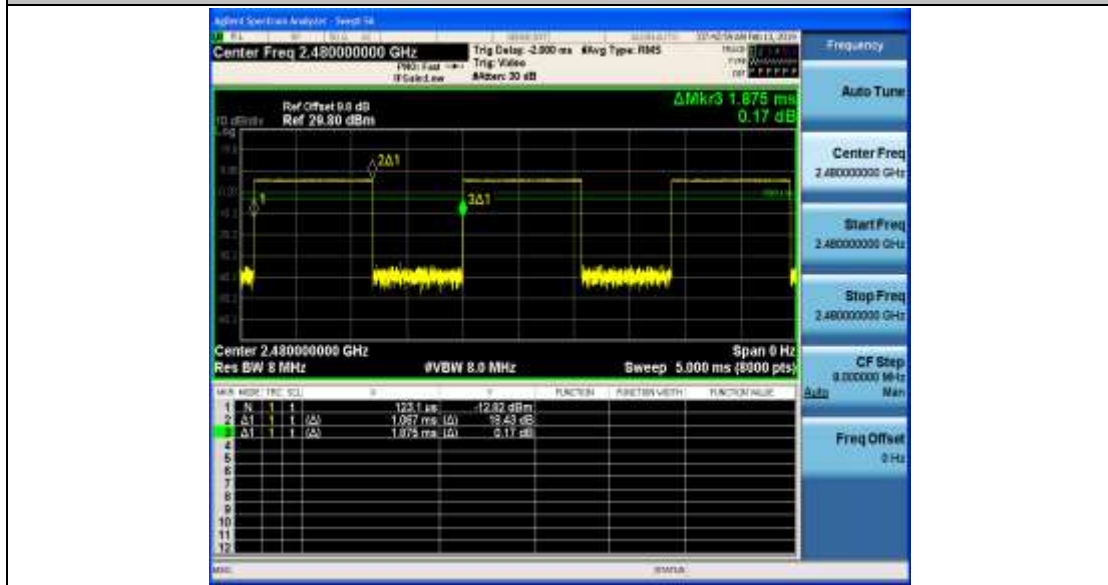
BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





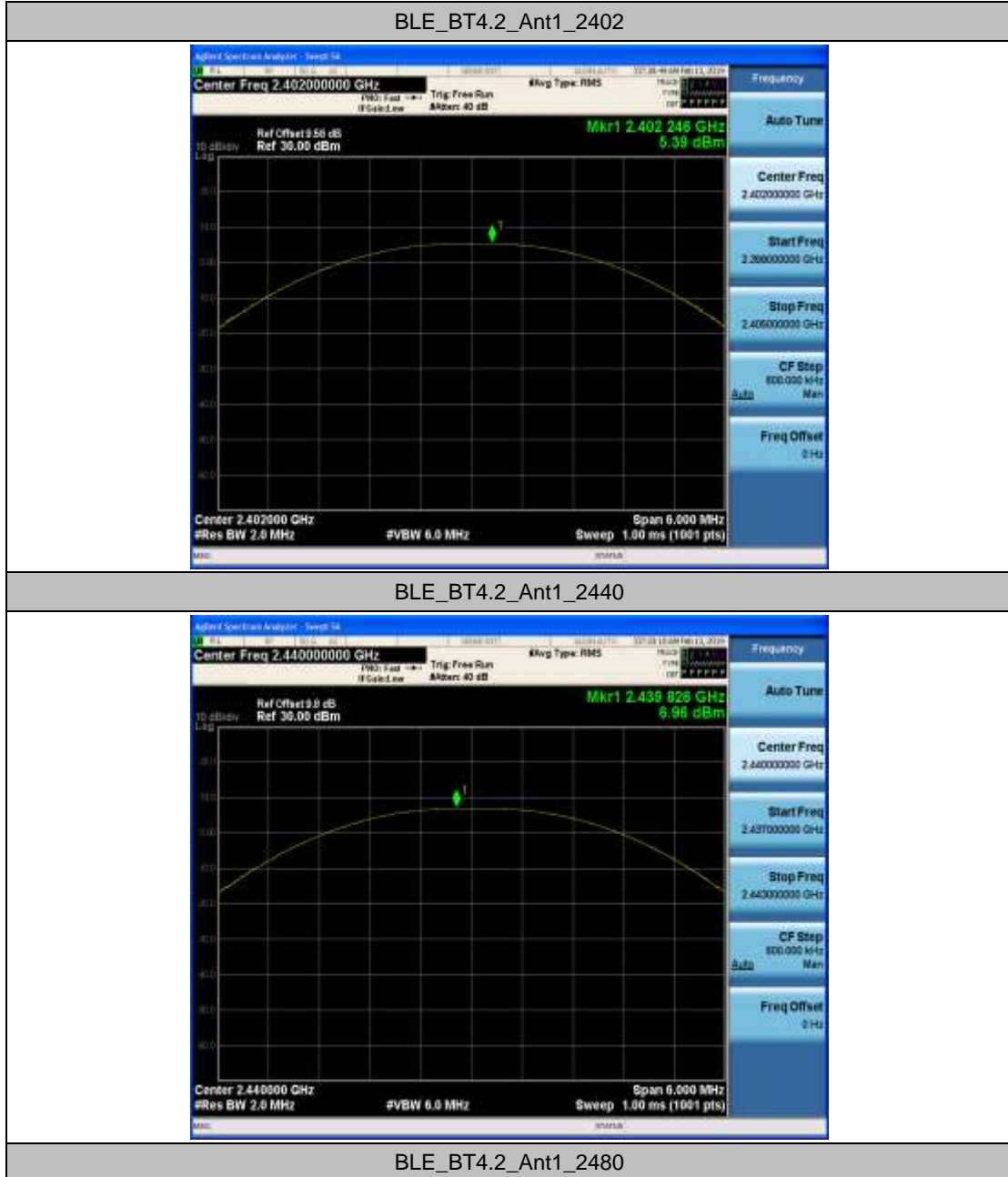
Appendix D: Peak Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.2	Ant1	2402	5.39	30	PASS
		2440	6.96	30	PASS
		2480	5.72	30	PASS
BLE_BT5.0	Ant1	2402	5.3	30	PASS
		2440	6.97	30	PASS
		2480	5.62	30	PASS



Test Graphs

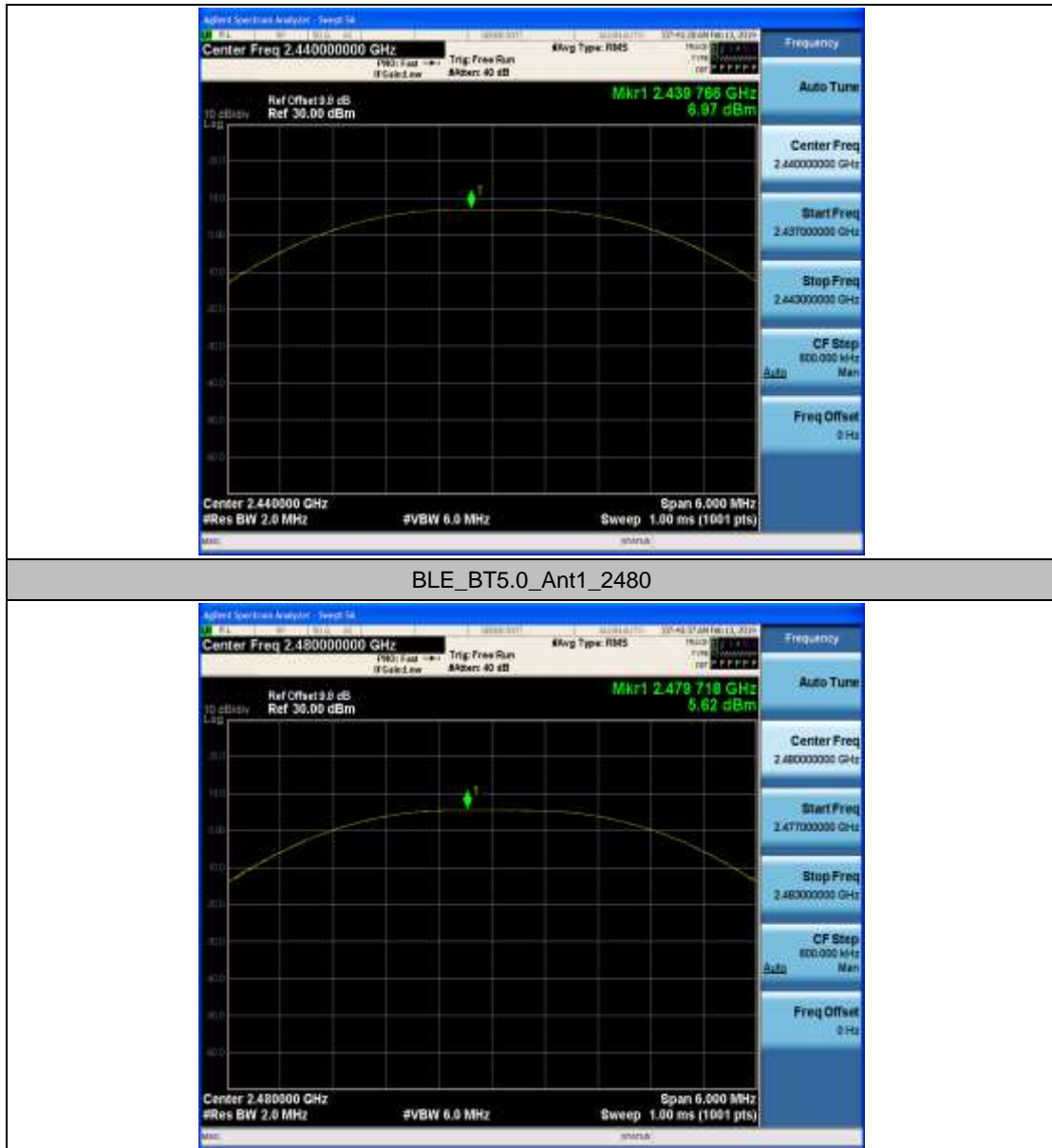




BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440





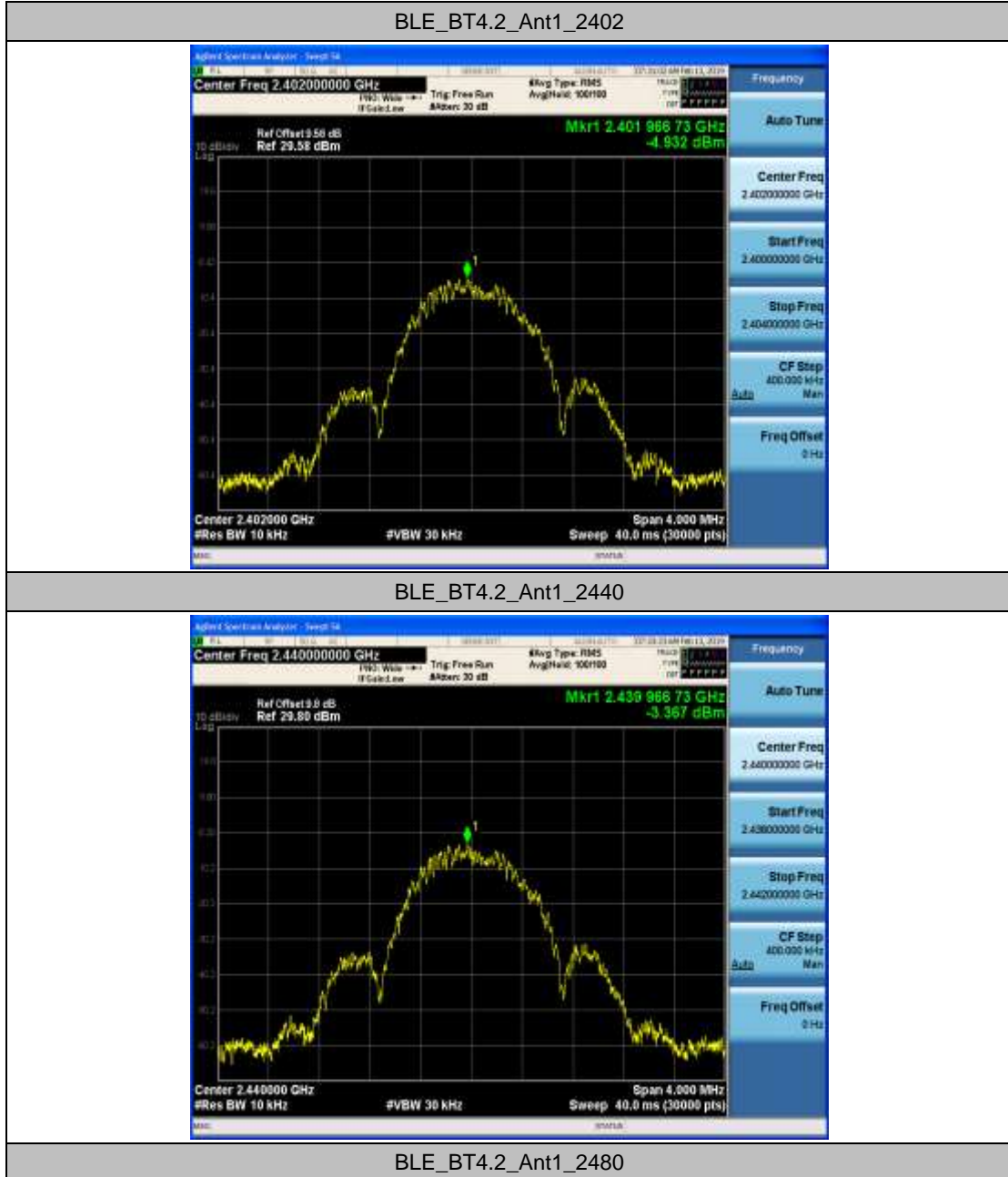
Appendix E: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/10kHz]	Limit[dBm/3kHz]	Verdict
BLE_BT4.2	Ant1	2402	-4.93	8	PASS
		2440	-3.37	8	PASS
		2480	-4.64	8	PASS
BLE_BT5.0	Ant1	2402	-7.64	8	PASS
		2440	-5.93	8	PASS
		2480	-7.39	8	PASS



Test Graphs





BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





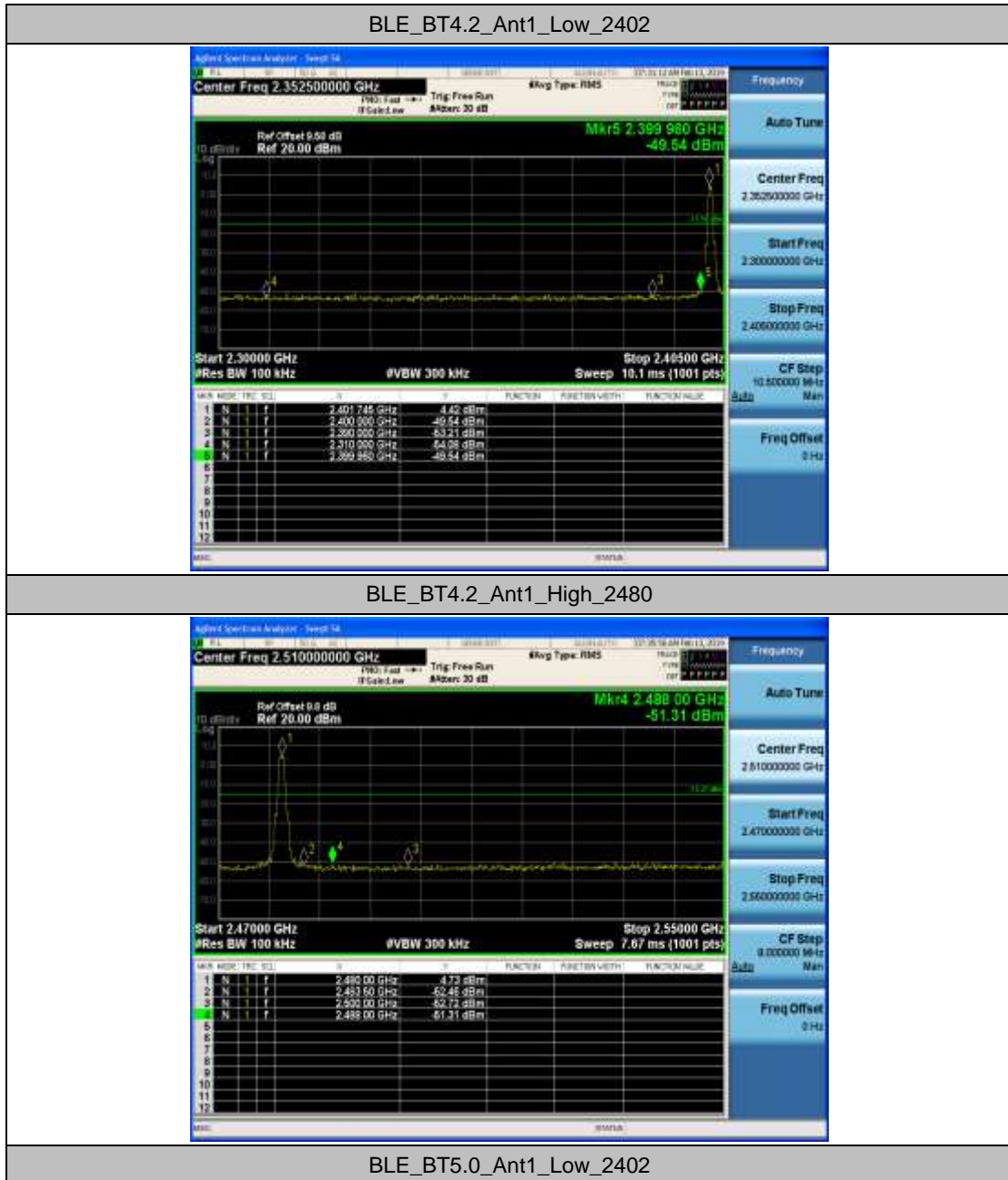
Appendix F: Band edge measurements

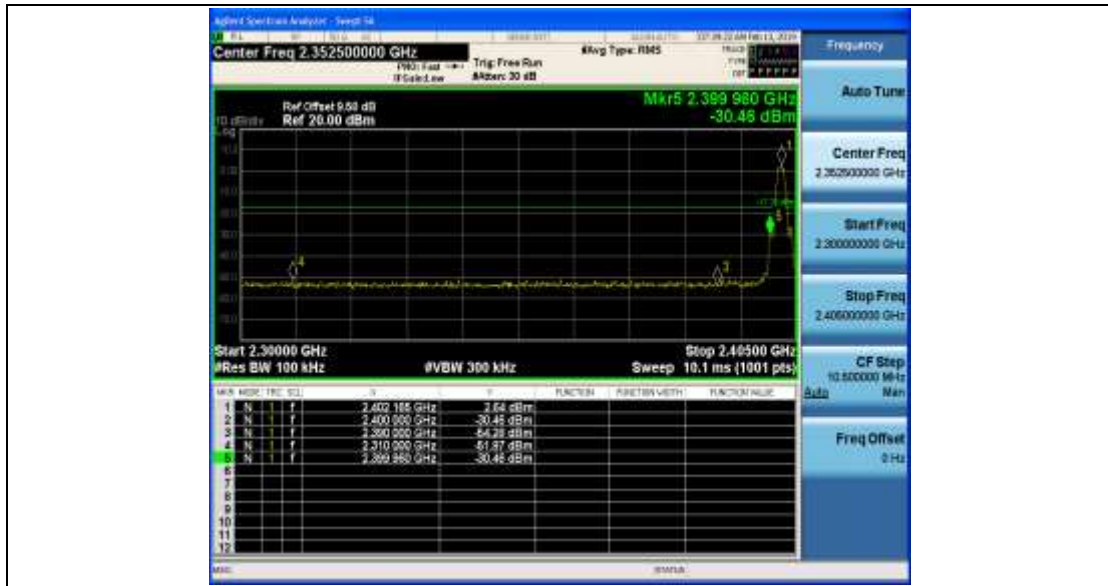
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.2	Ant1	Low	2402	4.42	-49.54	-15.58	PASS
		High	2480	4.73	-51.32	-15.27	PASS
BLE_BT5.0	Ant1	Low	2402	2.64	-30.46	-17.36	PASS
		High	2480	4.24	-49.36	-15.76	PASS

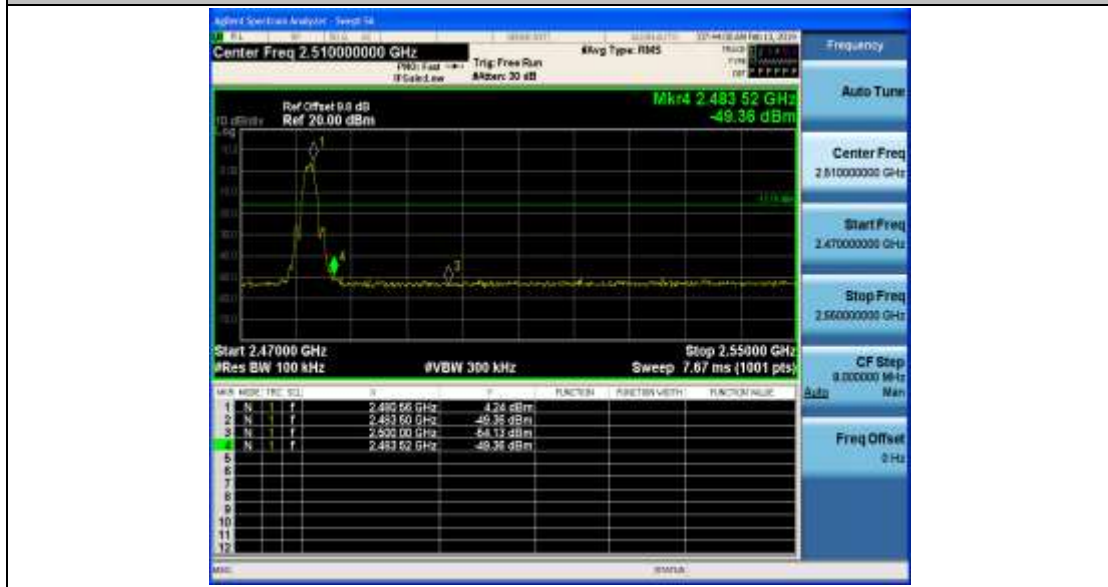


Test Graphs





BLE_BT5.0_Ant1_High_2480



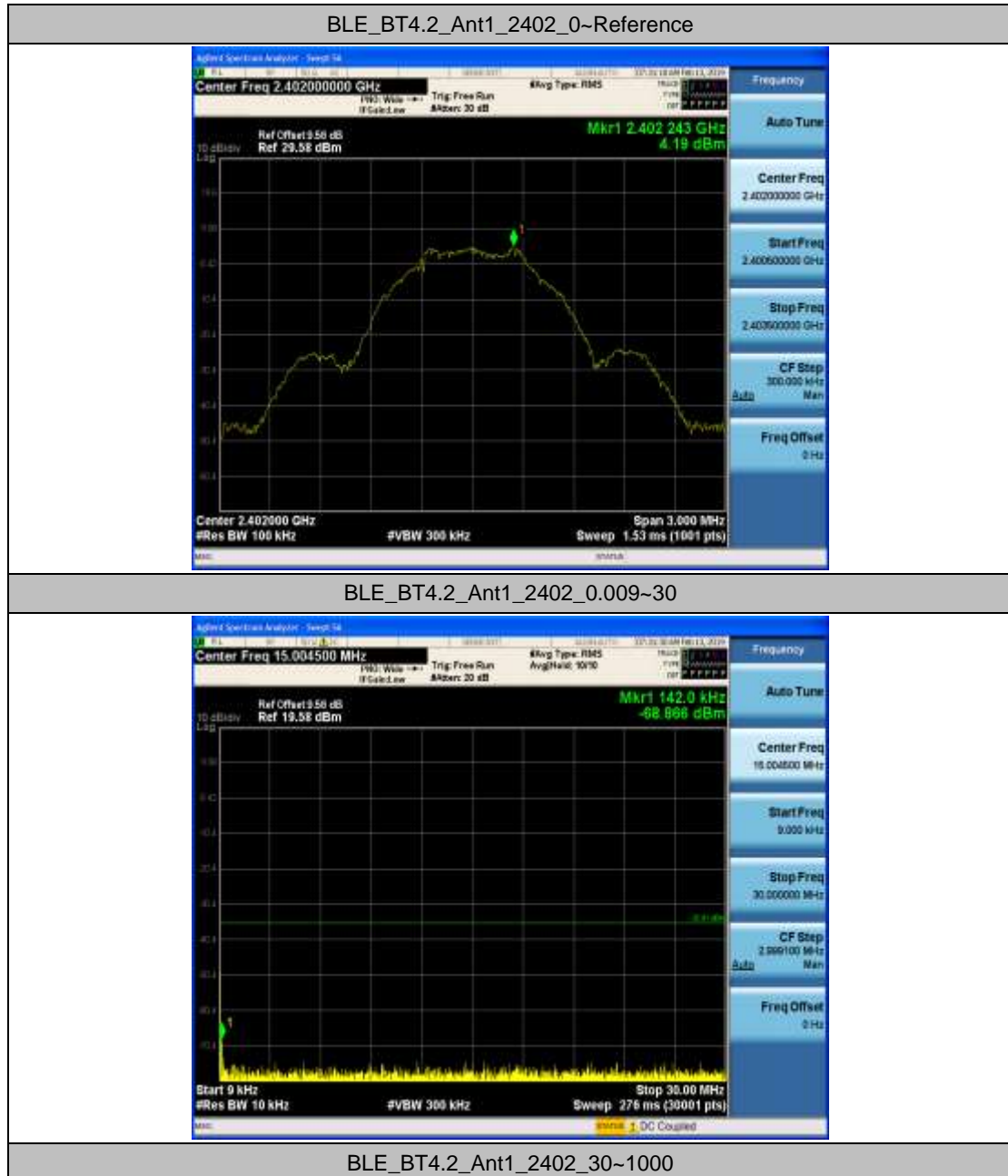


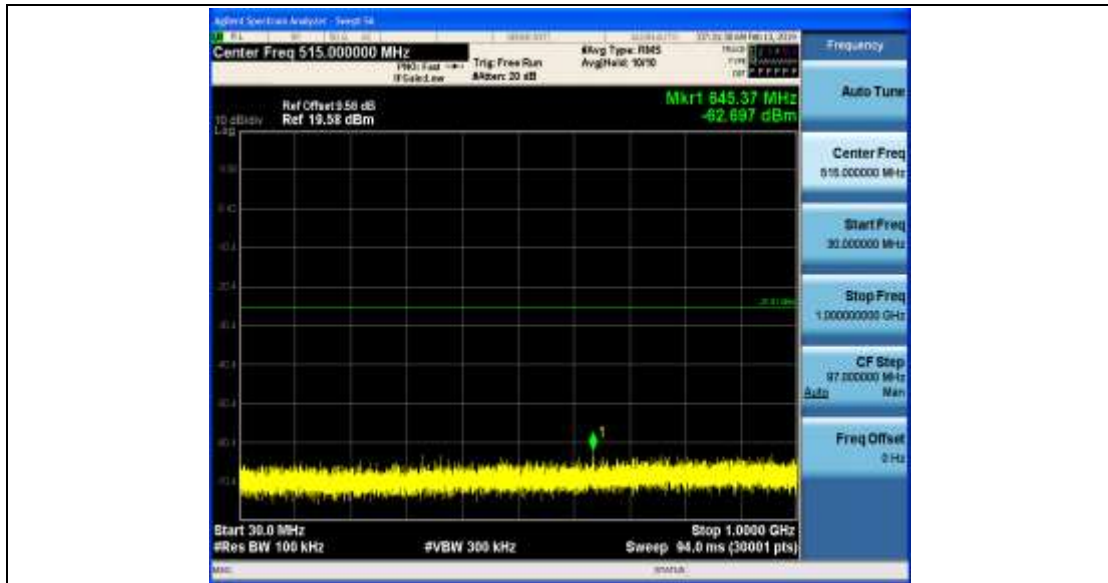
Appendix G: Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.2	Ant1	2402	Reference	4.19	4.19	---	PASS
			0.009~30	0.009~30	-68.87	-35.81	PASS
			30~1000	30~1000	-62.7	-25.81	PASS
			1000~26500	1000~26500	-37.03	-25.81	PASS
		2440	Reference	5.62	5.62	---	PASS
			0.009~30	0.009~30	-67.89	-34.38	PASS
			30~1000	30~1000	-62.49	-24.38	PASS
			1000~26500	1000~26500	-37.01	-24.38	PASS
		2480	Reference	4.54	4.54	---	PASS
			0.009~30	0.009~30	-68.66	-35.46	PASS
			30~1000	30~1000	-62.32	-25.46	PASS
			1000~26500	1000~26500	-37.15	-25.46	PASS
BLE_BT5.0	Ant1	2402	Reference	3.82	3.82	---	PASS
			0.009~30	0.009~30	-69.66	-36.18	PASS
			30~1000	30~1000	-62.74	-26.18	PASS
			1000~26500	1000~26500	-36.96	-26.18	PASS
		2440	Reference	5.39	5.39	---	PASS
			0.009~30	0.009~30	-68.86	-34.61	PASS
			30~1000	30~1000	-63.01	-24.61	PASS
			1000~26500	1000~26500	-36.64	-24.61	PASS
		2480	Reference	4.19	4.19	---	PASS
			0.009~30	0.009~30	-69.58	-35.81	PASS
			30~1000	30~1000	-63.07	-25.81	PASS
			1000~26500	1000~26500	-35.91	-25.81	PASS

Test Graphs





BLE_BT4.2_Ant1_2402_1000~26500



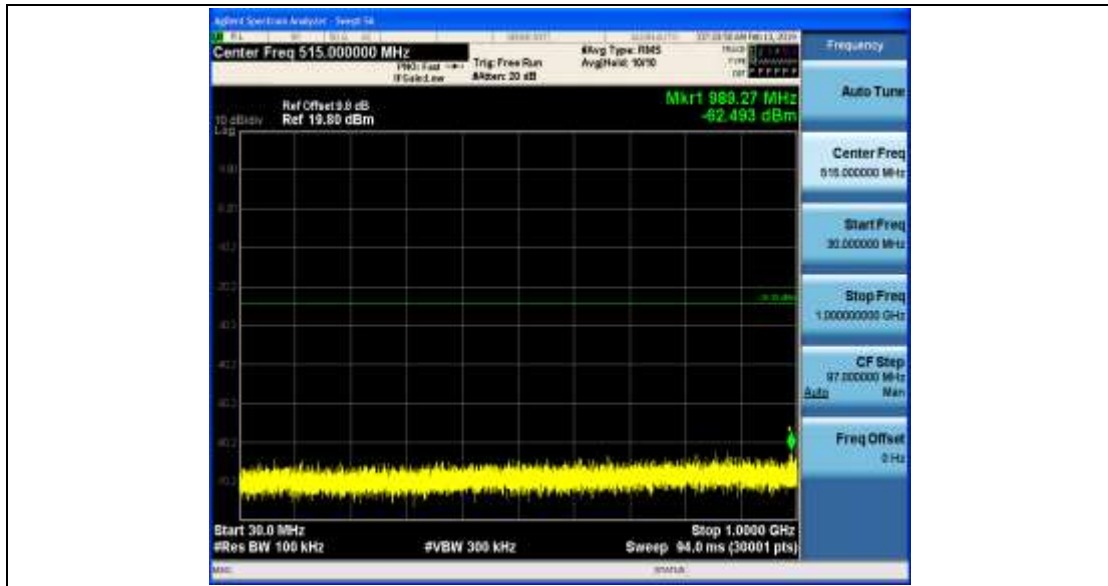
BLE_BT4.2_Ant1_2440_0~Reference



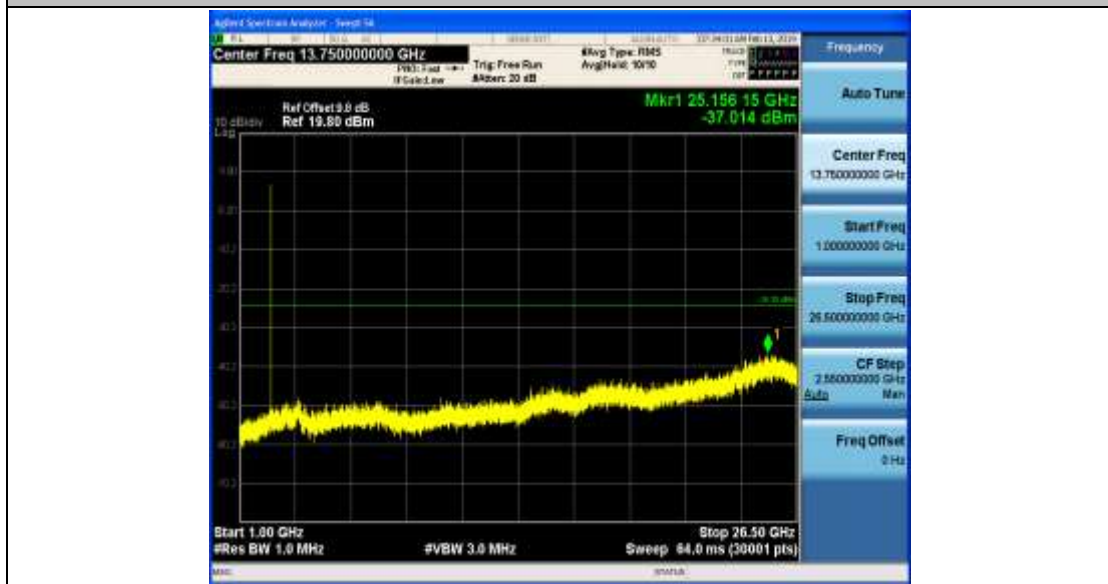
BLE_BT4.2_Ant1_2440_0.009~30



BLE_BT4.2_Ant1_2440_30~1000



BLE_BT4.2_Ant1_2440_1000~26500



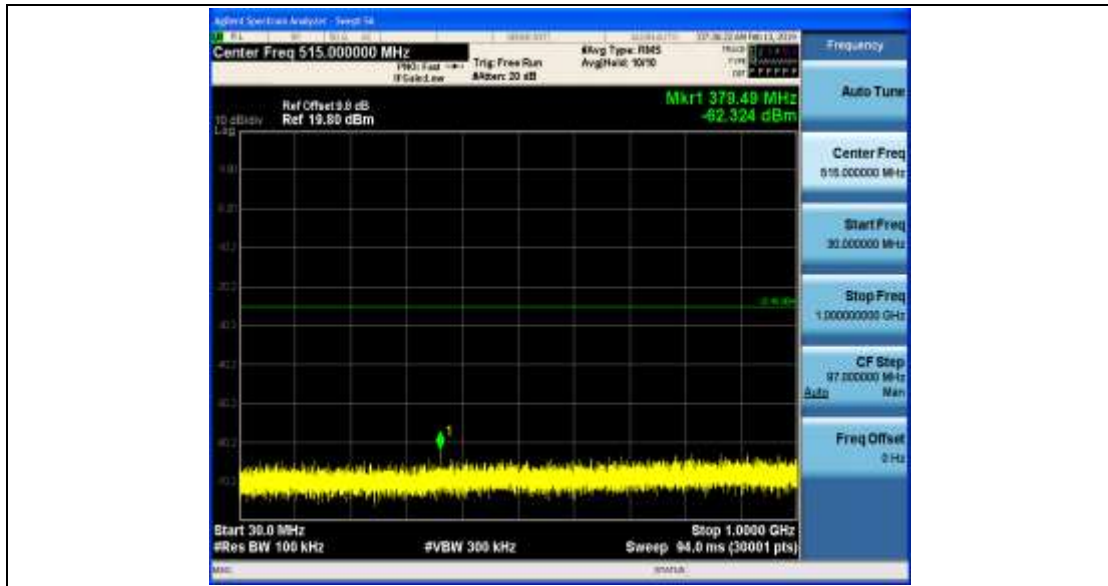
BLE_BT4.2_Ant1_2480_0~Reference



BLE_BT4.2_Ant1_2480_0.009~30



BLE_BT4.2_Ant1_2480_30~1000



BLE_BT4.2_Ant1_2480_1000-26500



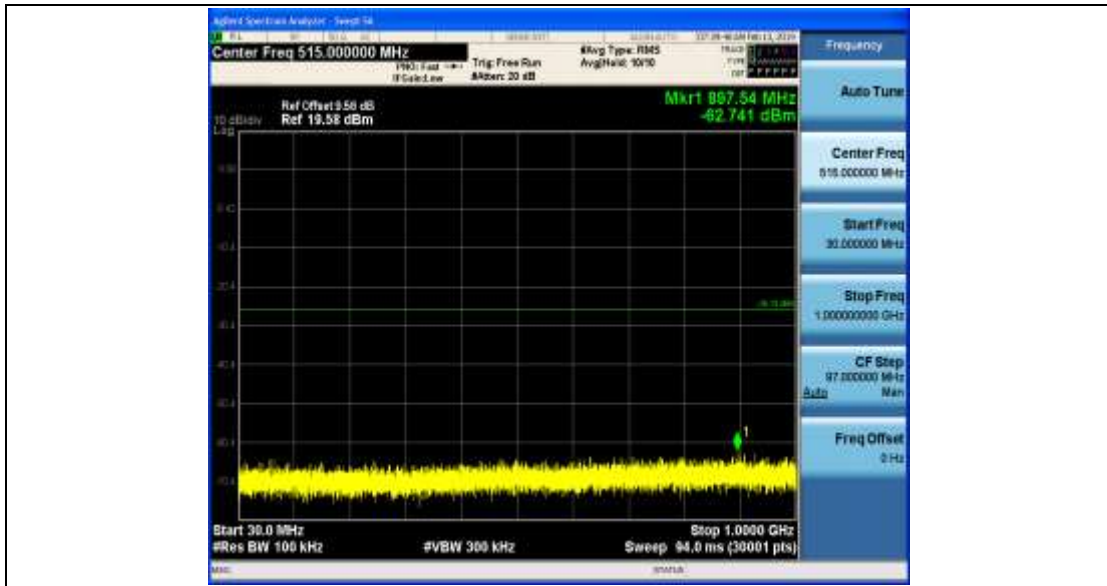
BLE_BT5.0_Ant1_2402_0-Reference



BLE_BT5.0_Ant1_2402_0.009~30



BLE_BT5.0_Ant1_2402_30~1000



BLE_BT5.0_Ant1_2402_1000~26500



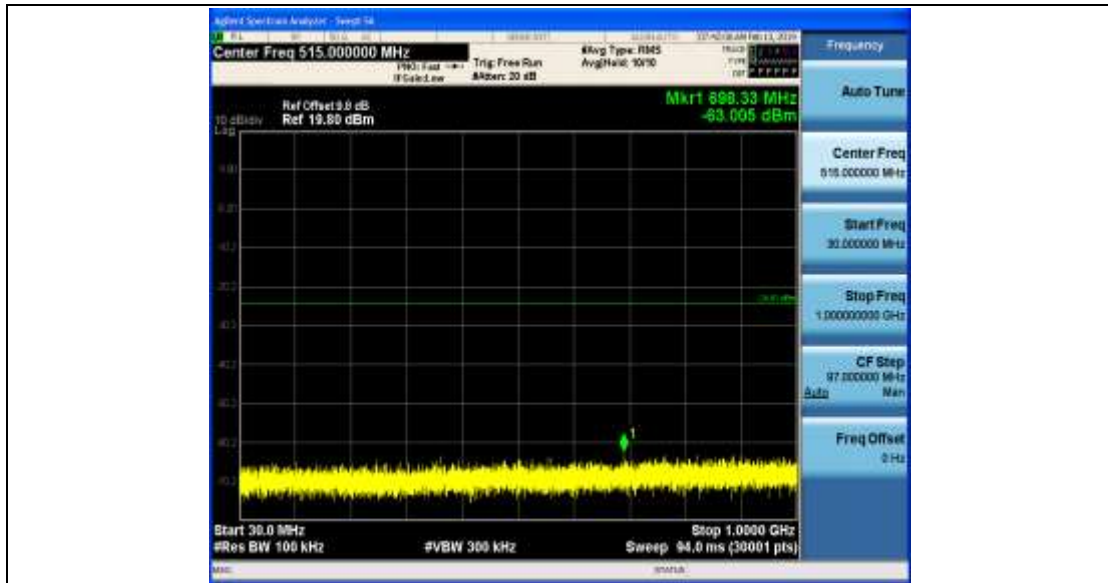
BLE_BT5.0_Ant1_2440_0~Reference



BLE_BT5.0_Ant1_2440_0.009~30



BLE_BT5.0_Ant1_2440_30~1000



BLE_BT5.0_Ant1_2440_1000~26500



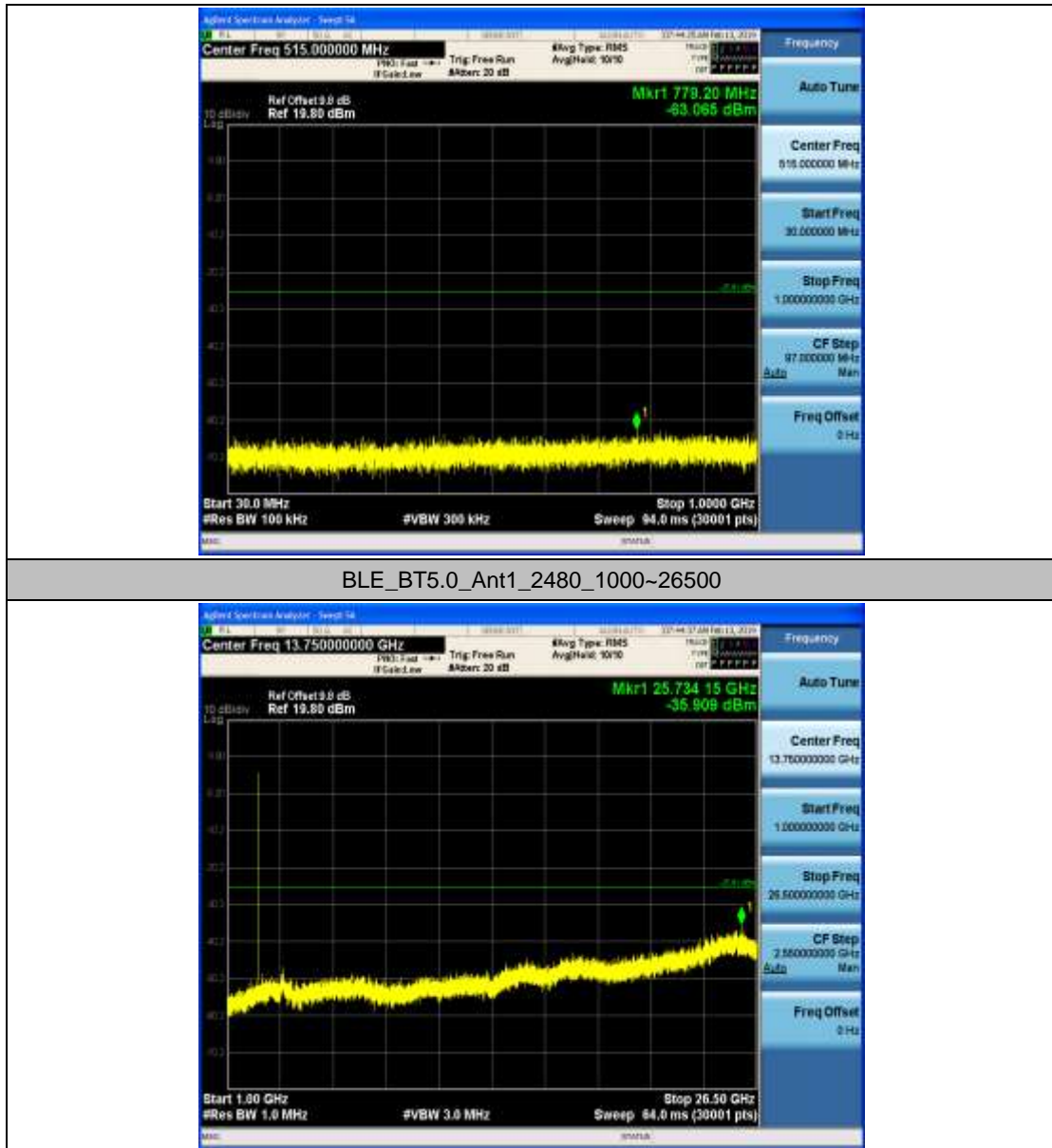
BLE_BT5.0_Ant1_2480_0~Reference



BLE_BT5.0_Ant1_2480_0.009~30



BLE_BT5.0_Ant1_2480_30~1000





Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note: We tested all modes, but the data presented below is the worst case.

Below 1GHz, RBW = 100 kHz, VBW = 300 kHz.

Above 1GHz, RBW = 1 MHz, VBW = 3 MHz.

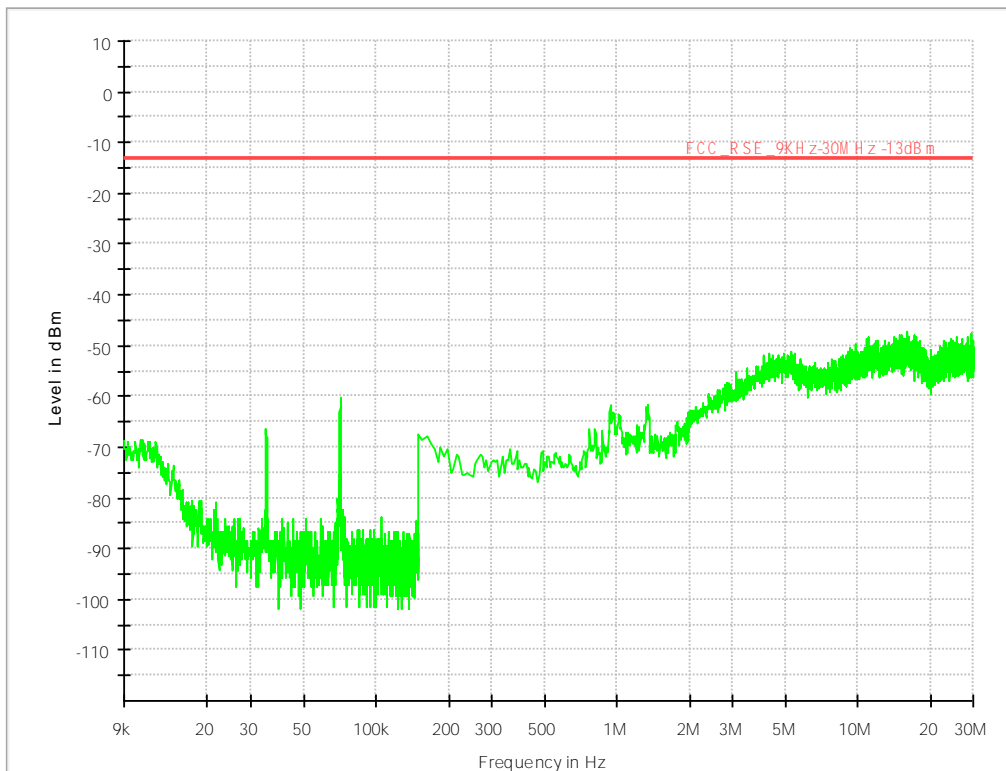
The simultaneous transmission has been considered



1 BLE_BT4.2

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

Note 1: The test results and plot for testing range of “9 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.

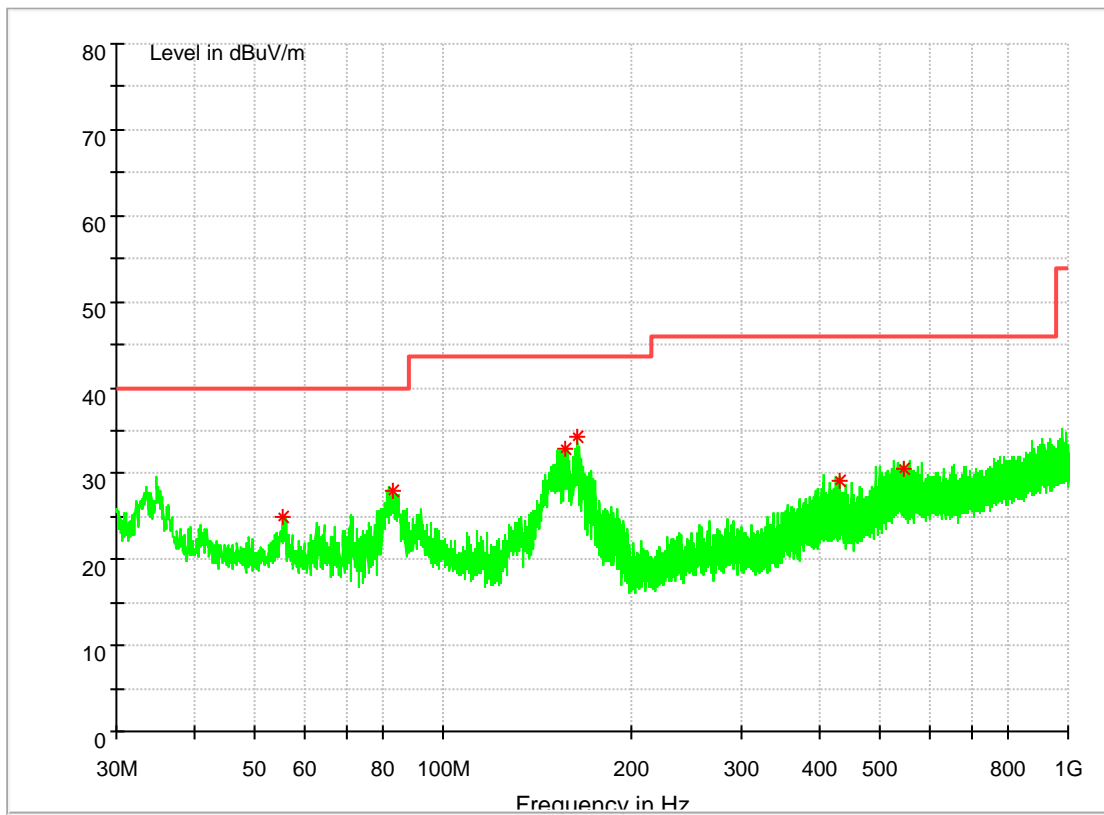


1.2 Part 2: Testing Range of “30 MHz to 1 GHz”

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).

Full Spectrum

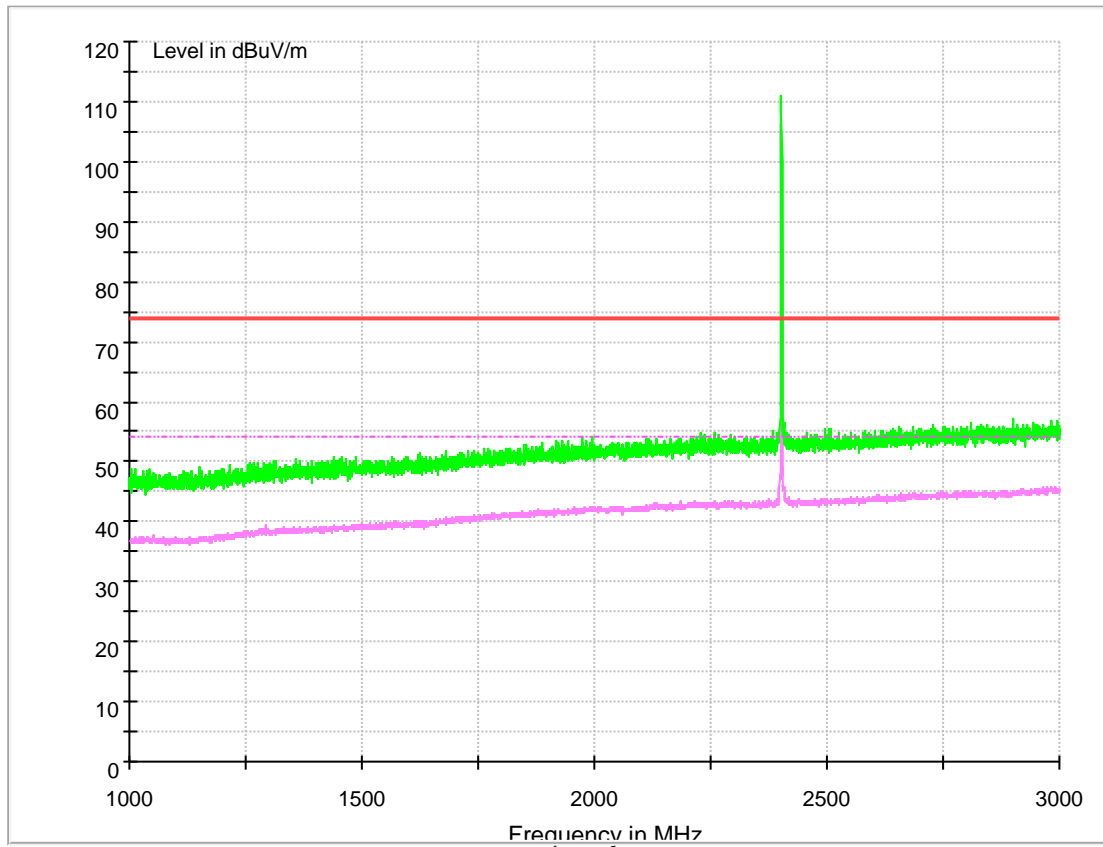


Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
55.559500	24.85	40.00	15.15	100.0	V	336.0	13.1
83.301500	28.07	40.00	11.94	100.0	V	164.0	14.2
156.779000	32.91	40.00	10.59	100.0	V	225.0	9.4
163.86000	34.23	40.00	9.27	100.0	V	123.0	12.0
429.979500	29.23	46.00	16.77	100.0	V	233.0	12.1
545.264000	30.45	46.00	15.55	100.0	H	129.0	14.1

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

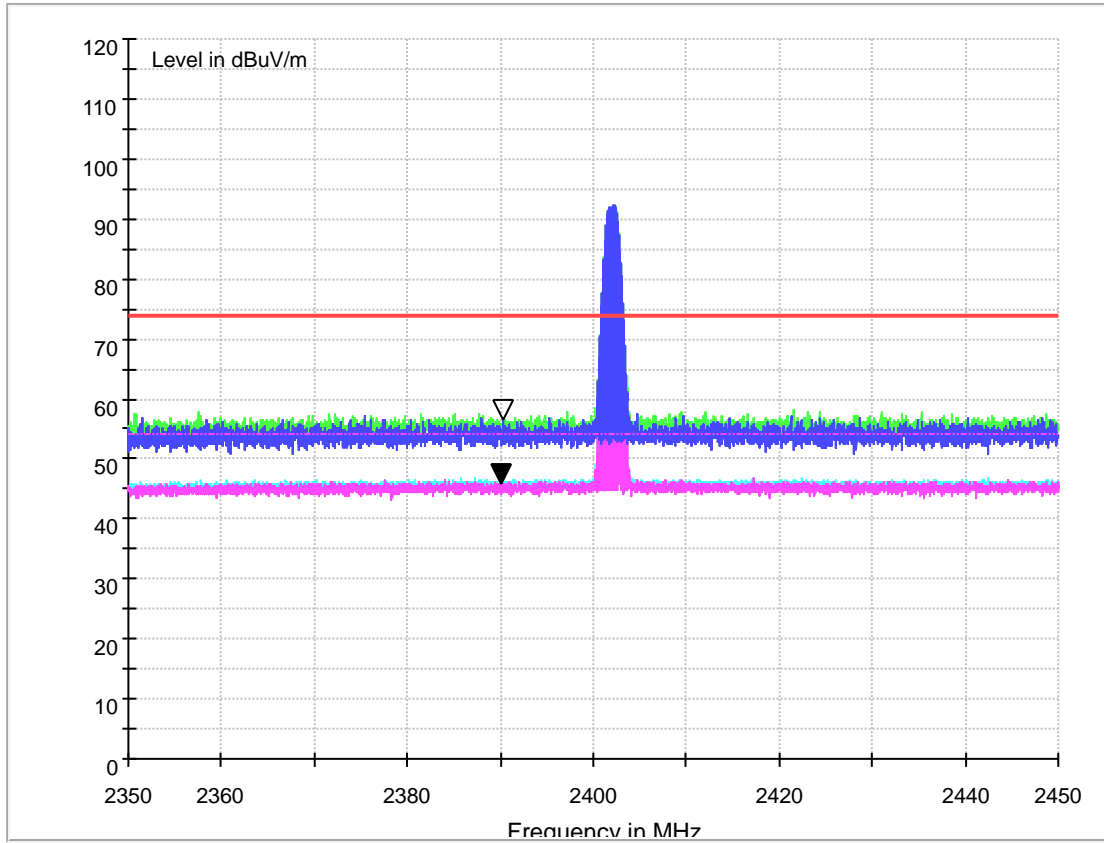
- Note 1: The testing range of “1GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.
- Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).
- Note 3: The peak spike exceeds the limit line is EUT’s operating frequency.

1.3.1 Test Mode: BT4.2





1.3.1.1 Channel 0



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimut h	Transd. (dB)
2390	46.181	54.00	7.819	150.0	H	57.0	-10.2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimut h (deg)	Transd. (dB)
2390	56.934	74.00	17.066	150.0	H	-8.0	-10.2

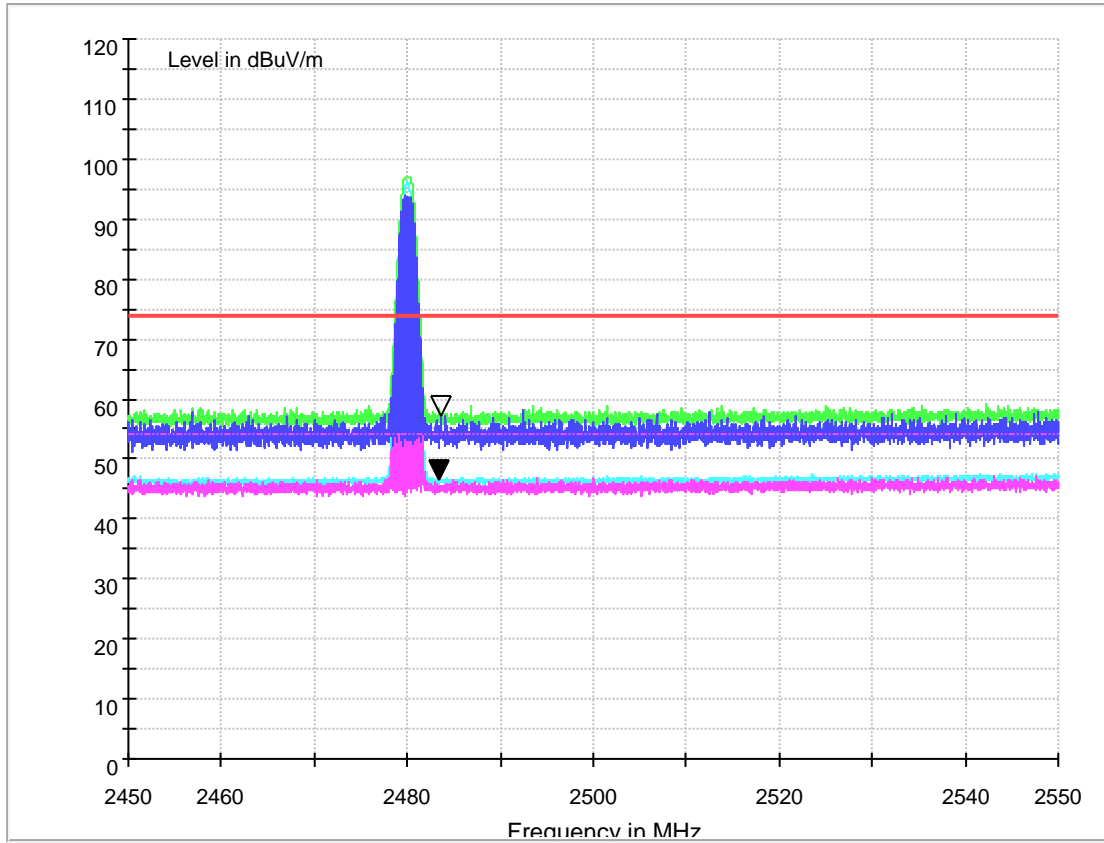
Note:

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

1.3.1.2 Channel 39



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2483.5	46.734	54.00	7.266	150.0	H	57.0	-10.2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	57.386	74.00	16.614	150.0	H	-8.0	-10.2

Note:

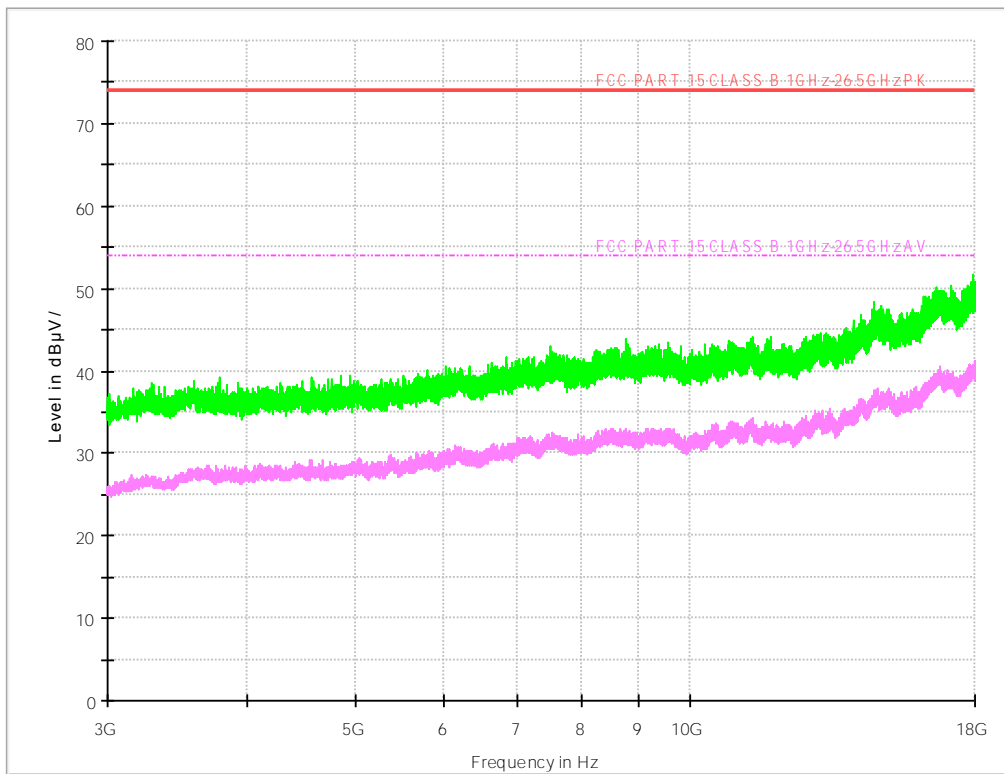
1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

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

2, Margin=Limit – Leve

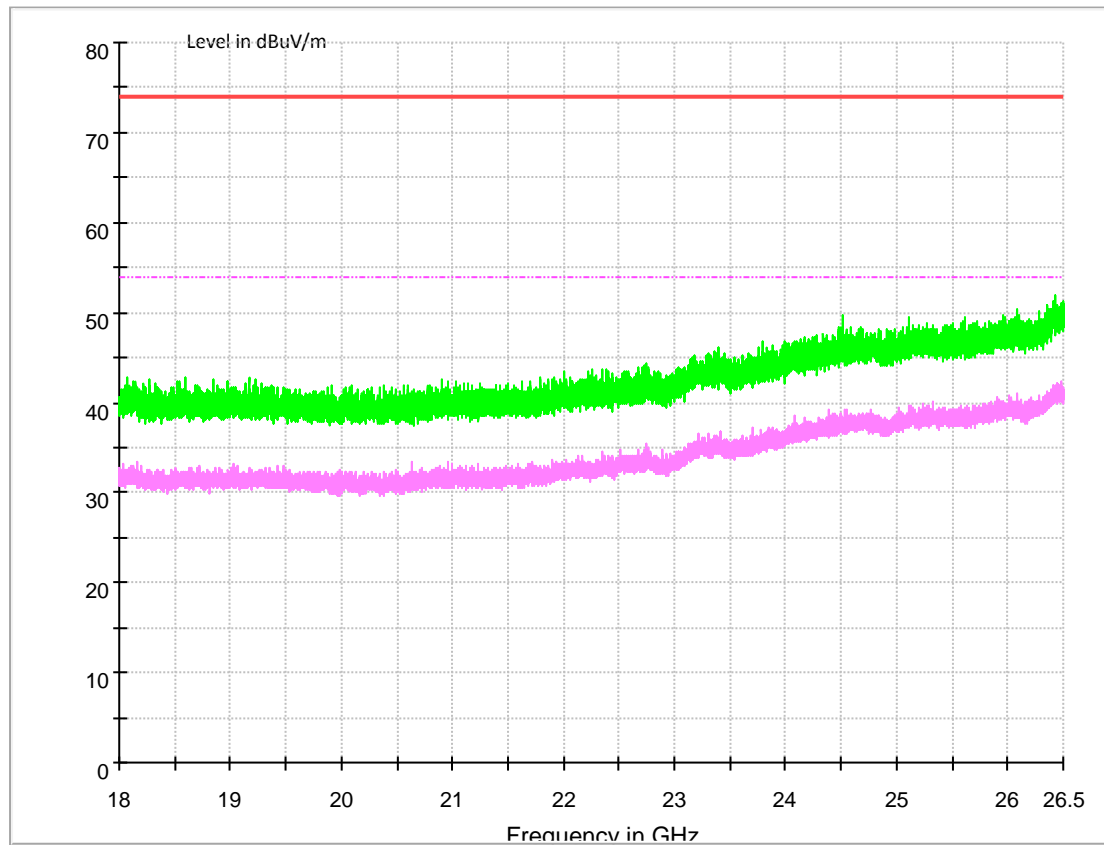
1.4 Part 4: Testing Range of “3 GHz to 18 GHz”

- 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).



1.5 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).

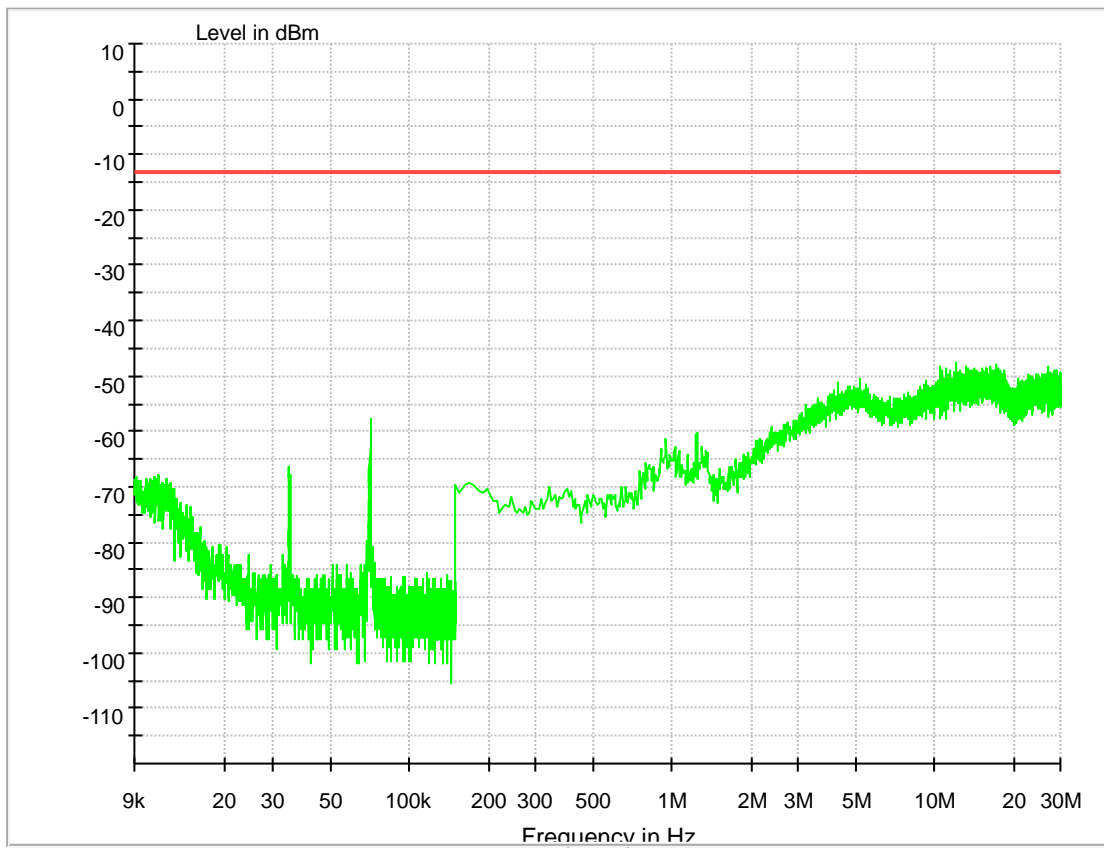




2 BLE_BT5.0

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 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.

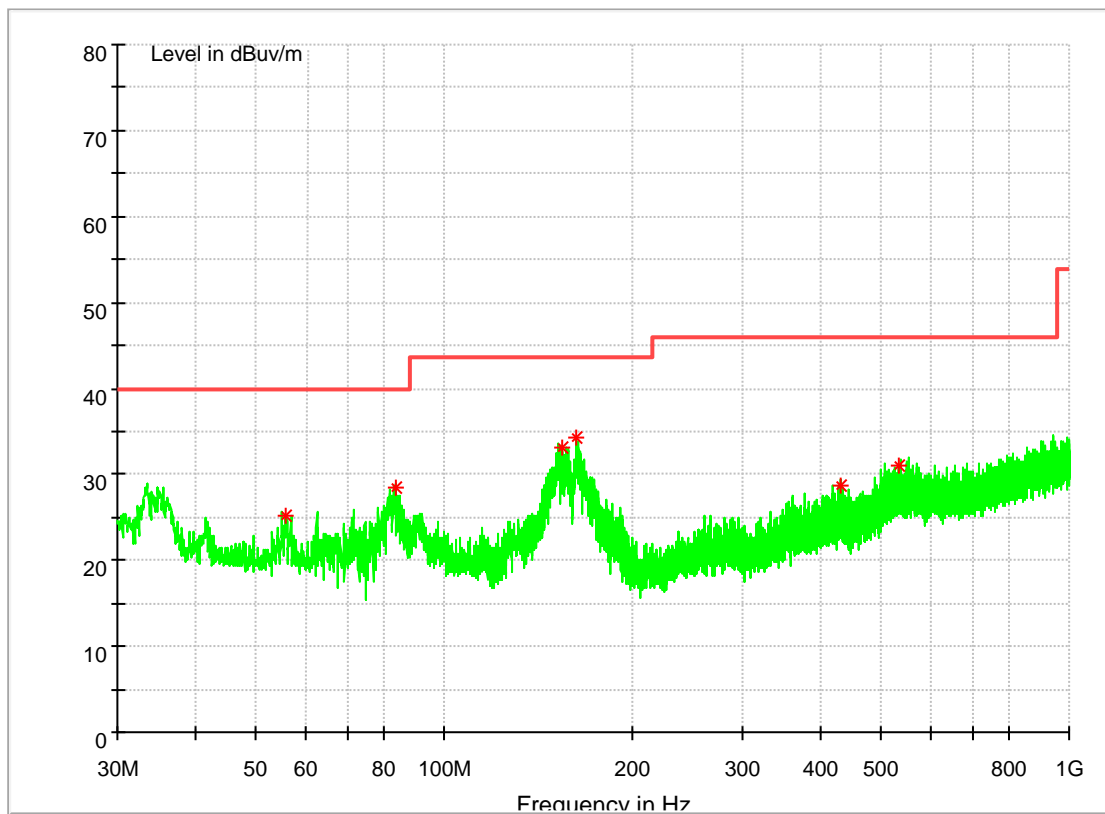


2.2 Part 2: Testing Range of “30 MHz to 1 GHz”

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).

Full Spectrum



Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
35.787667	25.68	40.00	14.32	100.0	V	0.0	13.2
47.783333	24.56	40.00	15.44	100.0	V	220.0	14.2
87.424000	20.82	40.00	19.18	100.0	V	134.0	12.2
203.985667	20.89	43.50	22.61	100.0	V	311.0	12.3
267.876333	24.52	46.00	21.48	100.0	V	97.0	14.1
577.015333	28.52	46.00	17.48	100.0	H	19.0	20.4

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

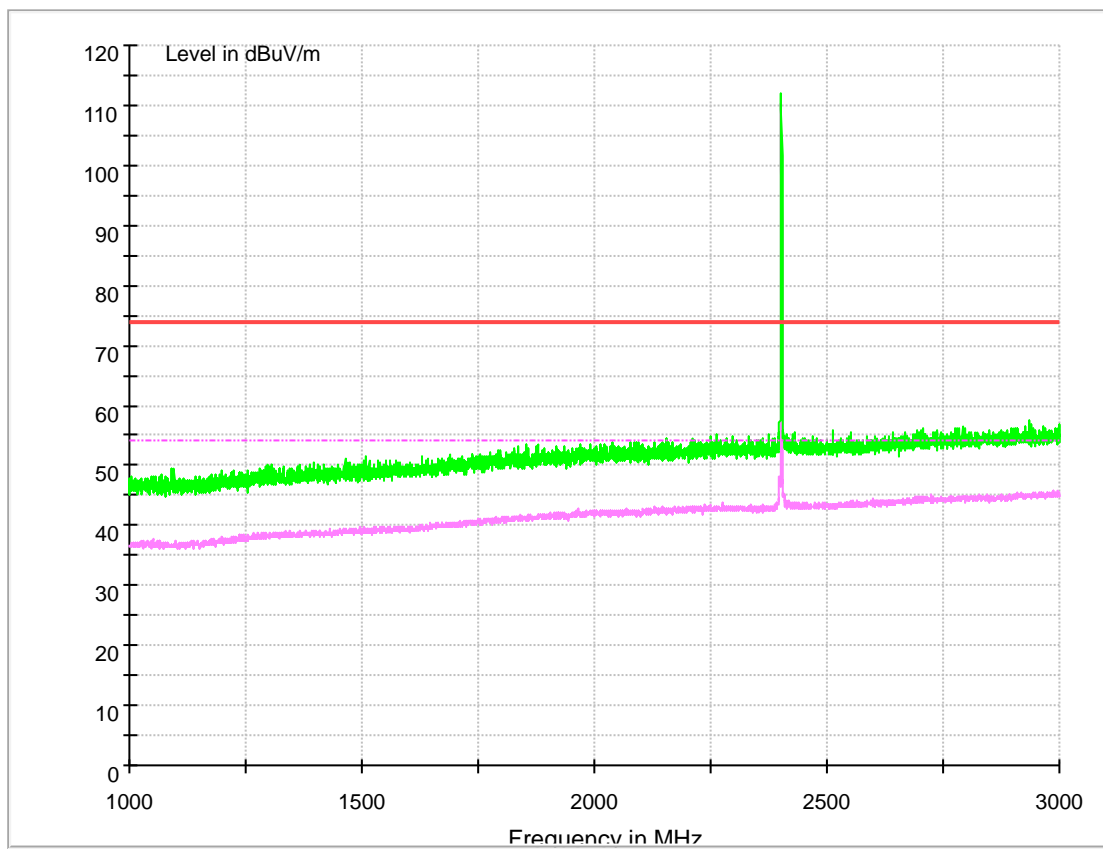
2.3 Part 3: Testing Range of “1GHz to 3GHz”

Note 1: The testing range of “1GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.

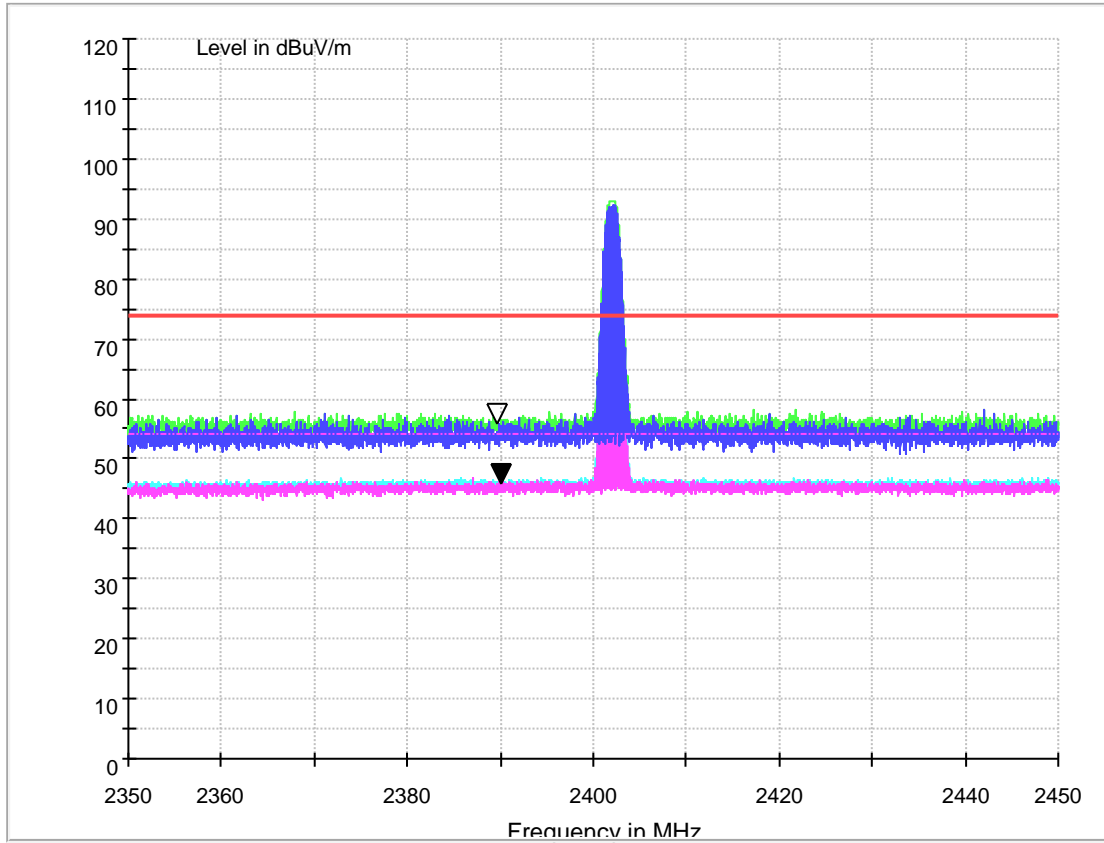
Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

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

2.3.1 Test Mode: BT5.0



2.3.1.1 Channel 0



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2390	46.178	54.00	7.822	150.0	H	57.0	-10.2

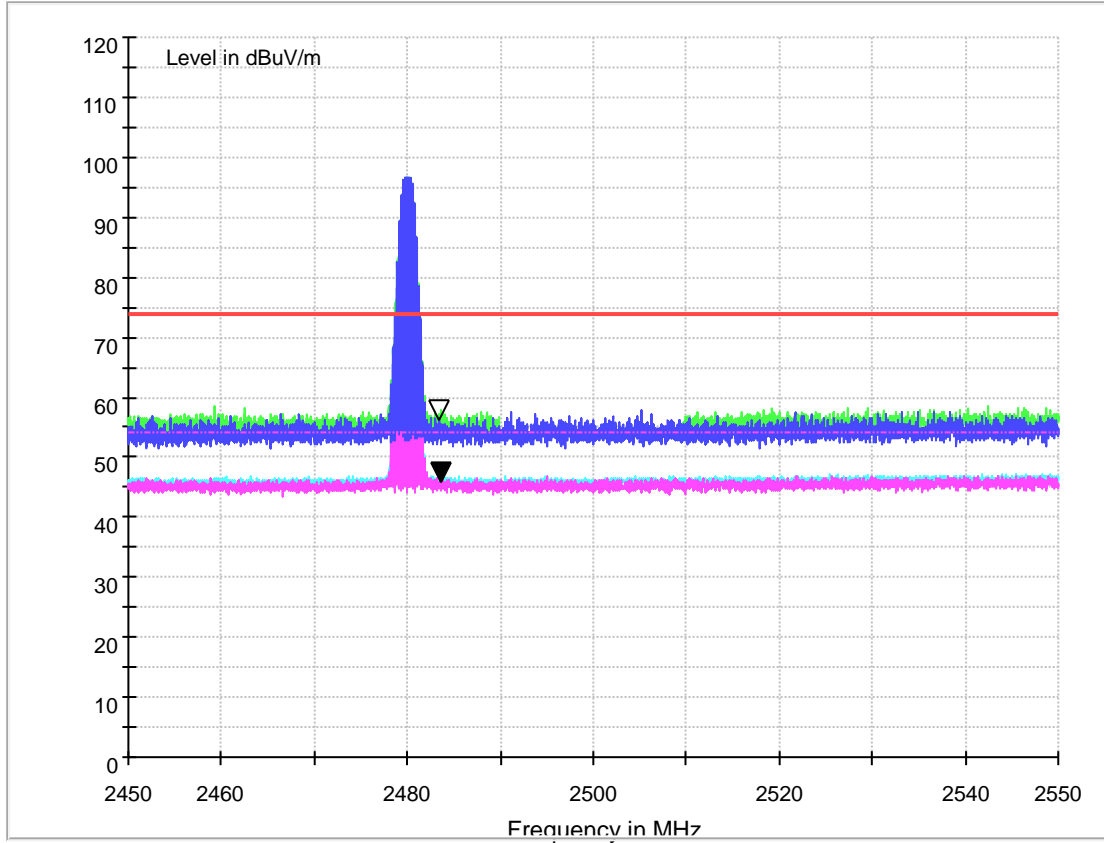
MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	56.249	74.00	17.751	150.0	H	-8.0	-10.2

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

2.3.1.2 Channel 39



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2483.5	46.195	54.00	7.805	150.0	H	57.0	-10.2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	45.454	74.00	17.546	150.0	H	-8.0	-10.2

Note:

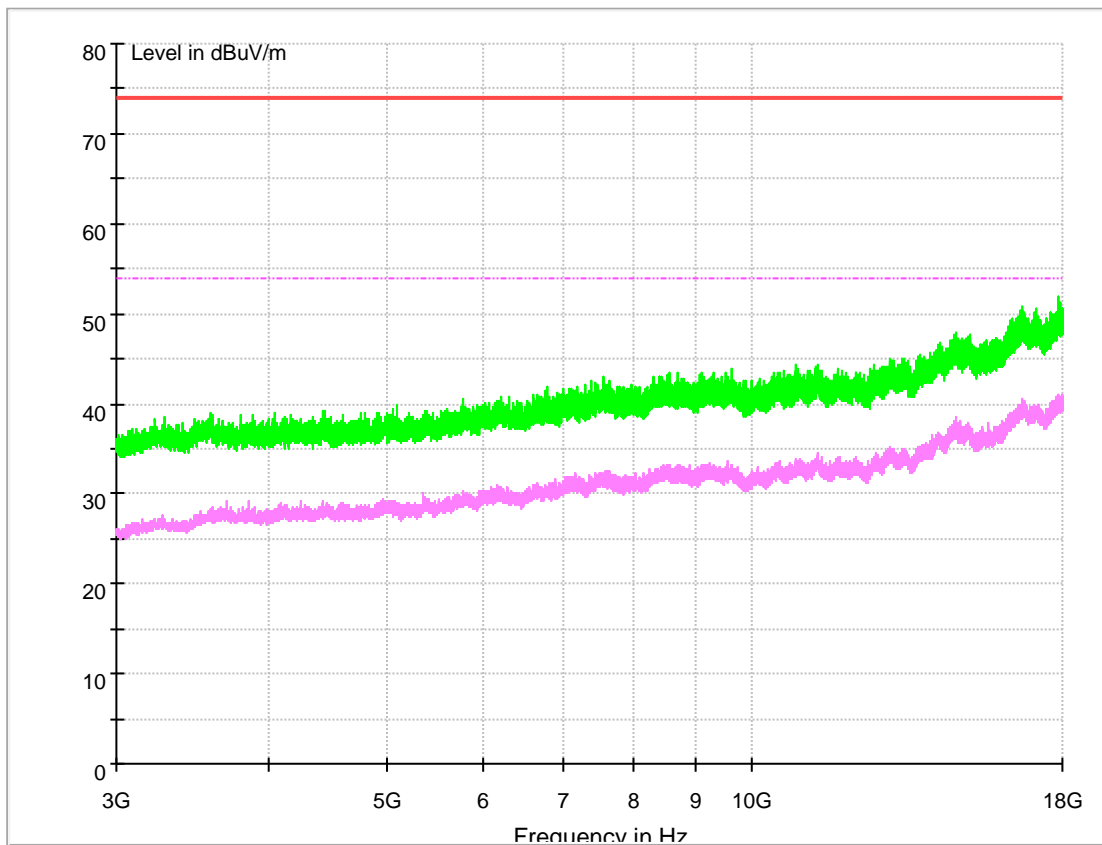
1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

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

2, Margin=Limit – Level

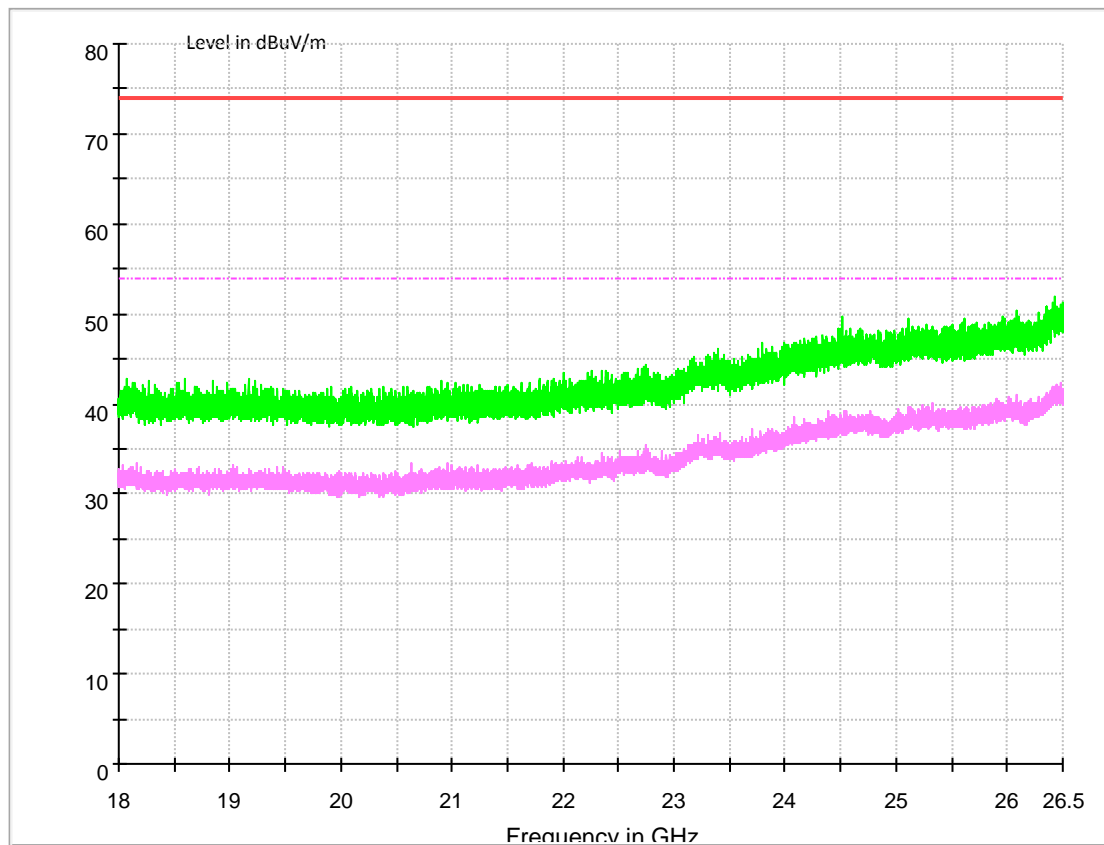
2.4 Part 4: Testing Range of “3 GHz to 18 GHz”

- 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).



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).



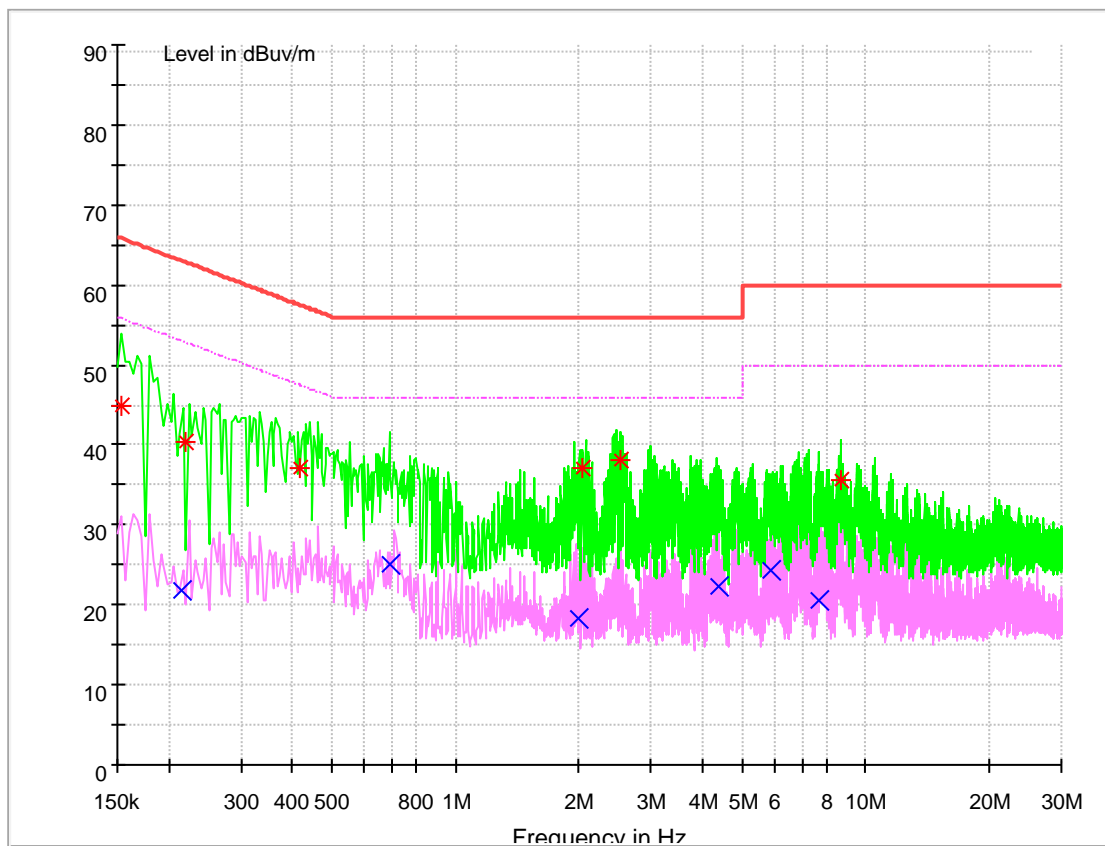


Appendix I: Conducted Emission at Power Port

1 BLE_BT4.2

Note: RBW =9 kHz, VBW = 30 kHz

Channel 39



MEASUREMENT RESULT: QK Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.153369	44.98	65.82	9.7	20.84	L1	FLO
0.220343	40.41	62.81	9.7	22.40	L1	FLO
0.417744	37.11	57.49	9.7	20.38	N	FLO
2.046634	37.23	56.00	9.7	18.77	L1	FLO



2.538868	38.14	56.00	9.7	17.86	L1	FLO
8.679832	35.66	60.00	9.9	24.34	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.215040	21.85	53.01	9.7	31.16	N	FLO
0.690606	25.06	46.00	9.7	20.94	L1	FLO
1.998684	18.29	46.00	9.7	27.71	L1	FLO
4.396132	22.31	46.00	9.8	23.69	N	FLO
5.864331	24.21	50.00	9.9	25.79	L1	FLO
7.730519	20.63	50.00	9.9	29.37	L1	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.

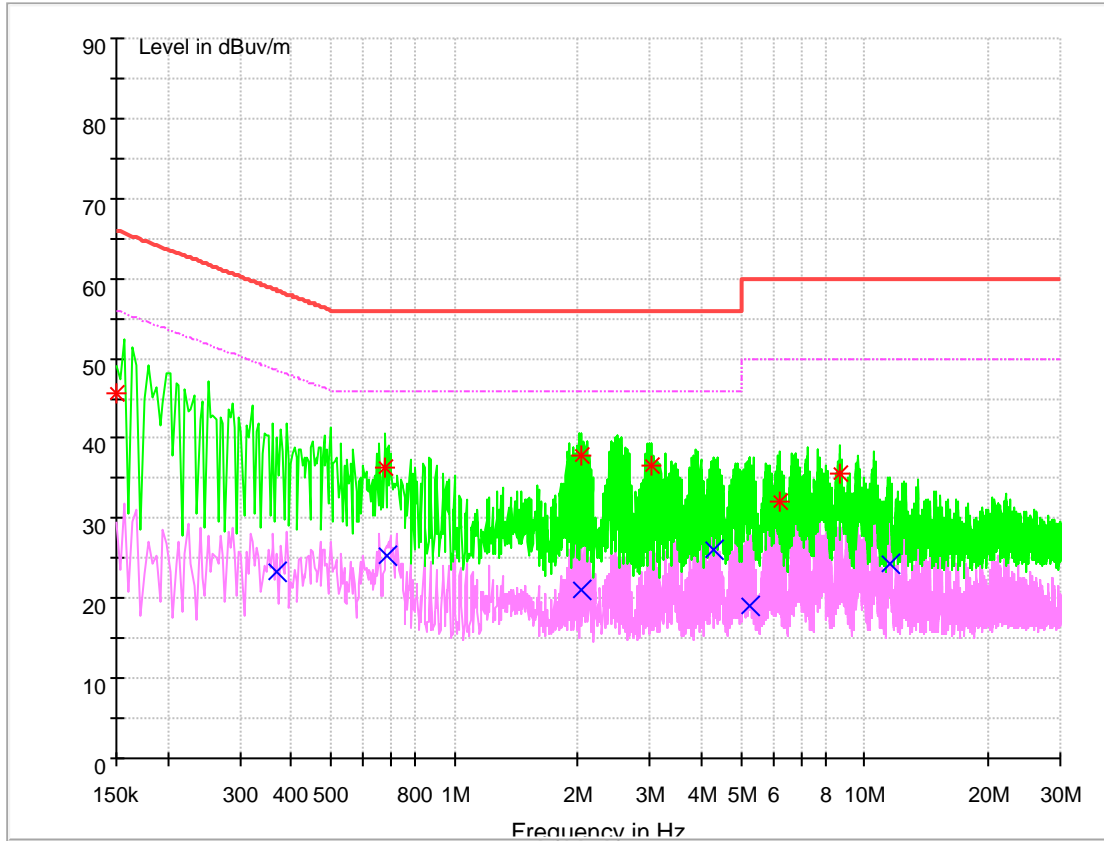
2, Margin=Limit - Level



2 BLE_BT5.0

Note: RBW =9 kHz, VBW = 30 kHz

Channel 39



MEASUREMENT RESULT: QP Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.150233	45.62	65.99	9.7	20.37	N	FLO
0.678076	36.25	56.00	9.7	19.75	N	FLO
2.045532	37.73	56.00	9.7	18.27	N	FLO
3.016979	36.66	56.00	9.8	19.34	L1	FLO
6.182090	32.17	60.00	9.8	27.83	N	FLO
8.693388	35.52	60.00	9.8	24.48	L1	FLO

**MEASUREMENT RESULT: AV Detector**

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.368287	23.30	48.54	9.7	25.24	N	FLO
0.688710	25.30	46.00	9.7	20.70	N	FLO
2.036808	20.98	46.00	9.7	25.02	N	FLO
4.286322	26.07	46.00	9.8	19.93	N	FLO
5.271153	18.94	50.00	9.8	31.06	N	FLO
11.516270	24.27	50.00	10.5	25.73	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