



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	0.7193	2401.632	2402.352	≥0.5	PASS
		2440	0.7313	2439.624	2440.356	≥0.5	PASS
		2480	0.7313	2479.624	2480.356	≥0.5	PASS
BLE_TM2	Ant1	2402	1.1588	2401.421	2402.579	≥0.5	PASS
		2440	1.1548	2439.421	2440.575	≥0.5	PASS
		2480	1.1548	2479.421	2480.575	≥0.5	PASS

1.2 Test Graphs



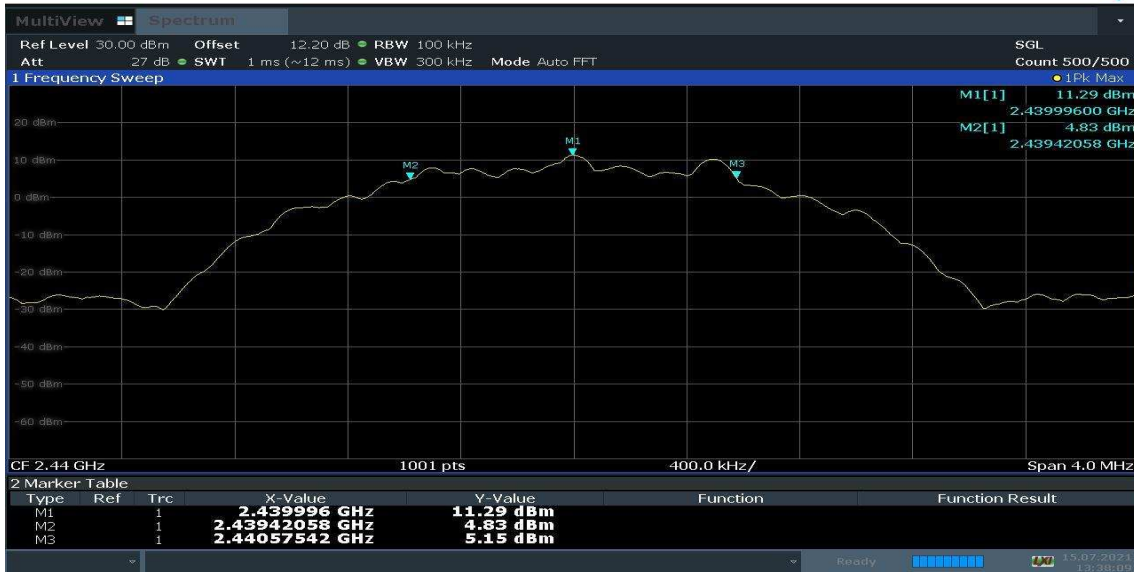
BLE_TM1_Ant1_2480



BLE_TM2_Ant1_2402



BLE_TM2_Ant1_2440



BLE_TM2_Ant1_2480

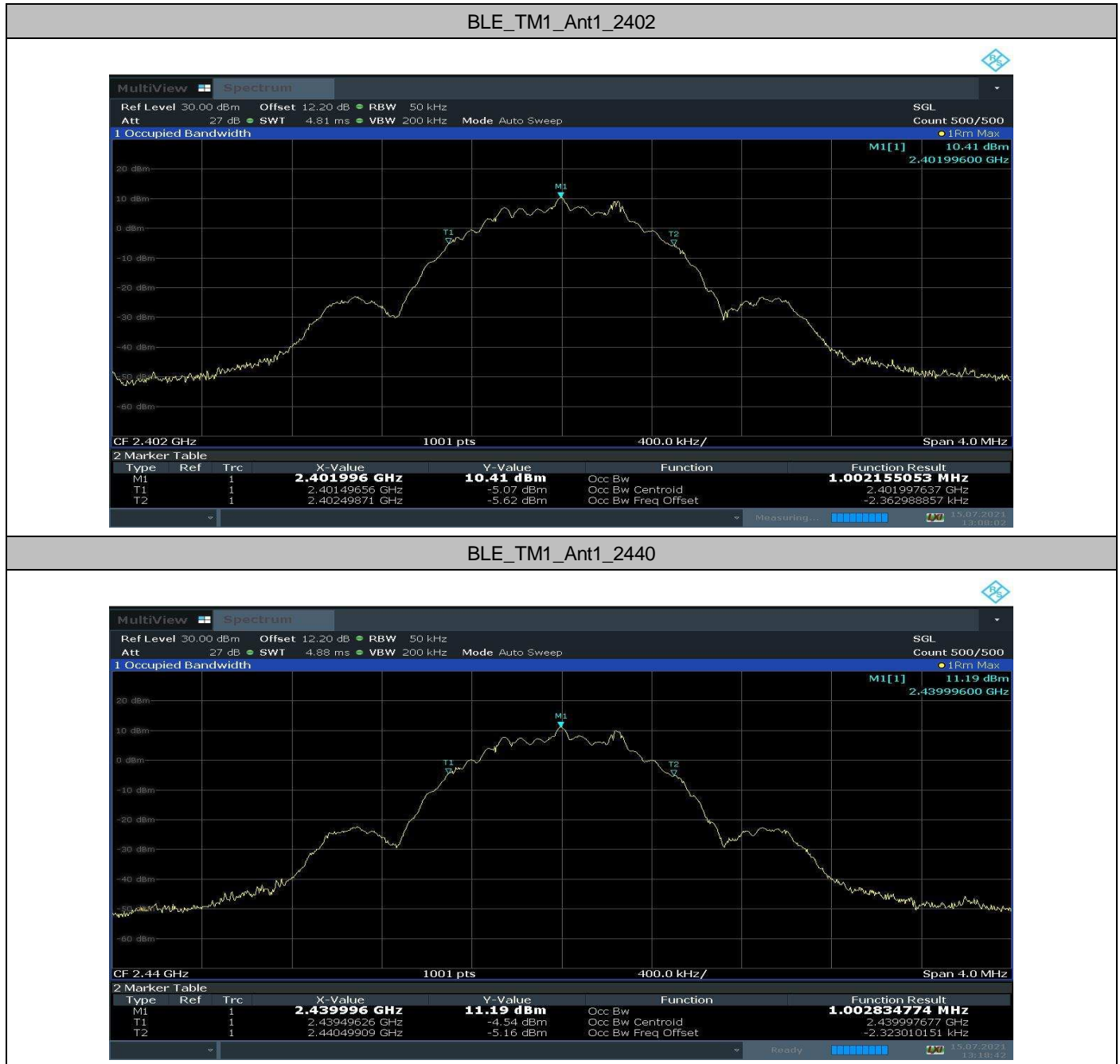


2. Appendix B: Occupied Channel Bandwidth

2.1 Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_TM1	Ant1	2402	1.0022	2401.5	2402.5	---	PASS
		2440	1.0028	2439.5	2440.5	---	PASS
		2480	1.0011	2479.5	2480.5	---	PASS
BLE_TM2	Ant1	2402	1.9916	2401.02	2403.01	---	PASS
		2440	1.9909	2439.02	2441.01	---	PASS
		2480	1.9933	2479.01	2481.01	---	PASS

2.2 Test Graphs



BLE_TM1_Ant1_2480



BLE_TM2_Ant1_2402



BLE_TM2_Ant1_2440



BLE_TM2_Ant1_2480

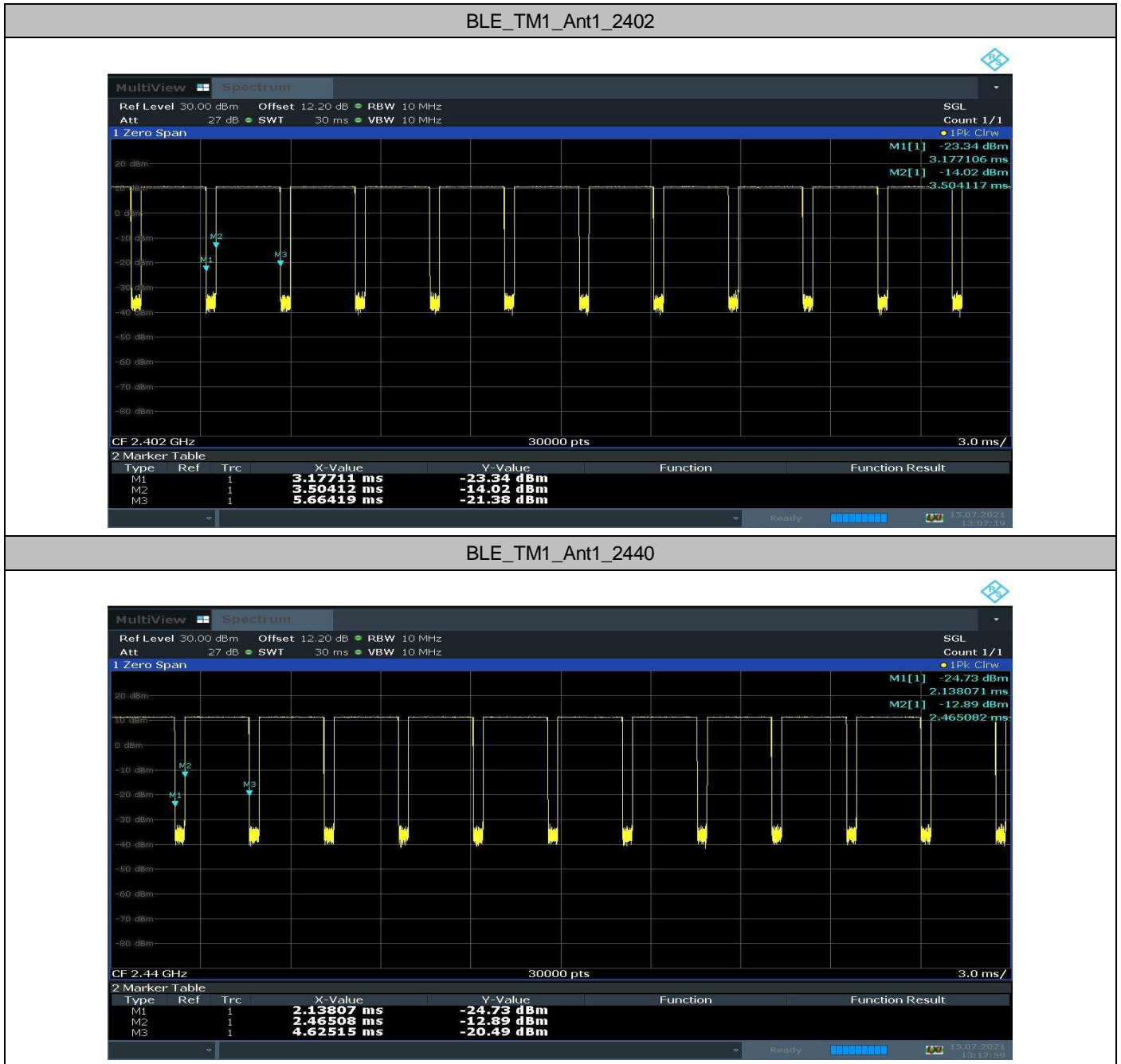


3. Appendix C: Duty Cycle

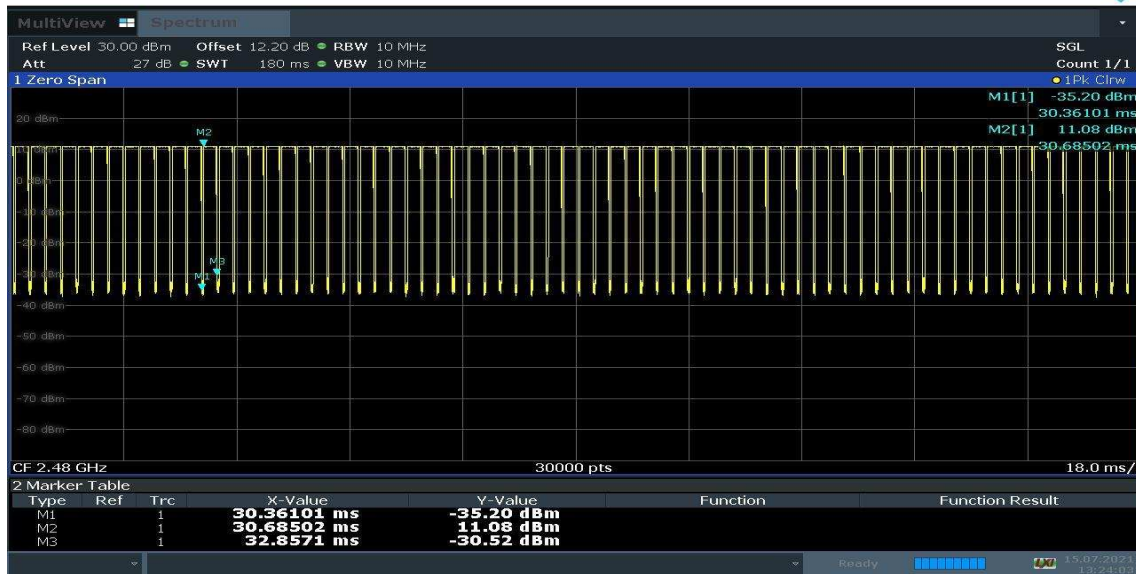
3.1 Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit[MHz]	Verdict
BLE_TM1	Ant1	2402	2.16	2.49	86.747	---	PASS
		2440	2.16	2.49	86.747	---	PASS
		2480	2.17	2.5	86.8	---	PASS
BLE_TM2	Ant1	2402	1.12	1.88	59.574	---	PASS
		2440	1.11	1.87	59.358	---	PASS
		2480	1.11	1.87	59.358	---	PASS

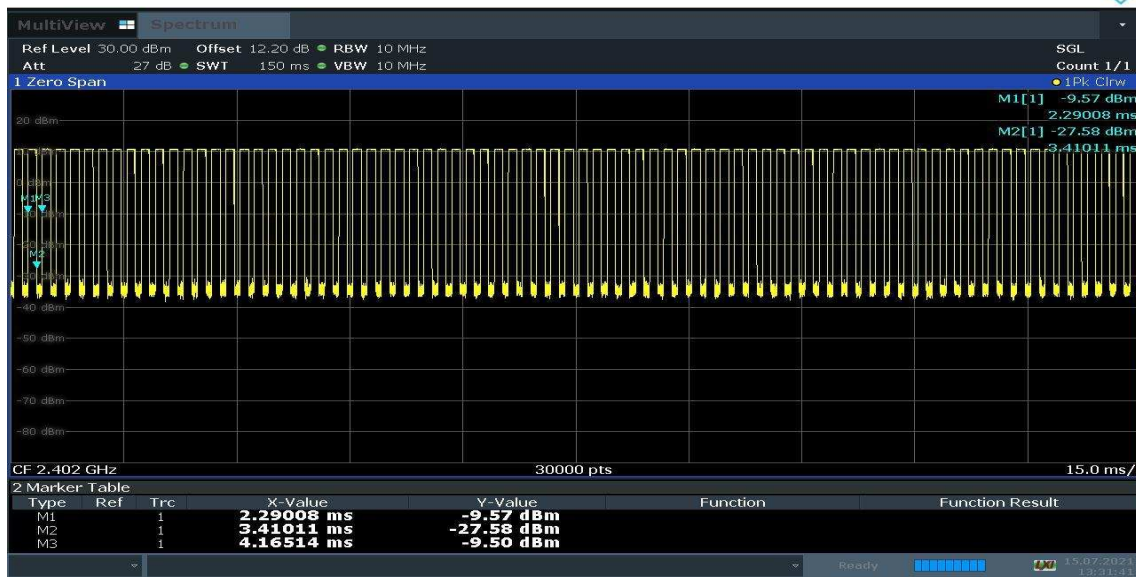
3.2 Test Graphs



BLE_TM1_Ant1_2480



BLE_TM2_Ant1_2402



BLE_TM2_Ant1_2440



BLE_TM2_Ant1_2480



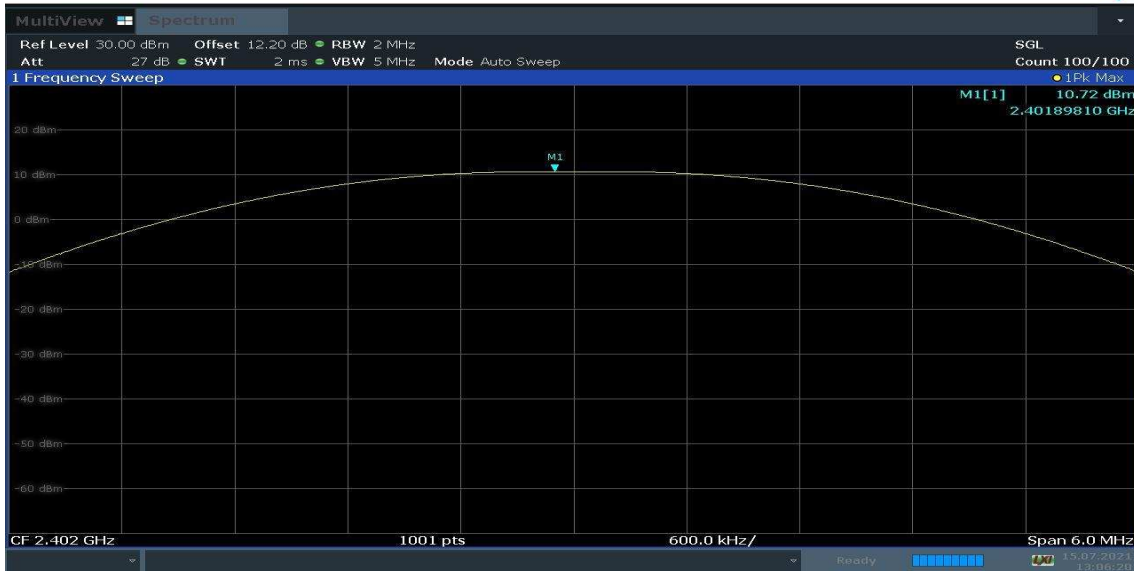
4. Appendix D: Maximum Peak output power

4.1 Test Result

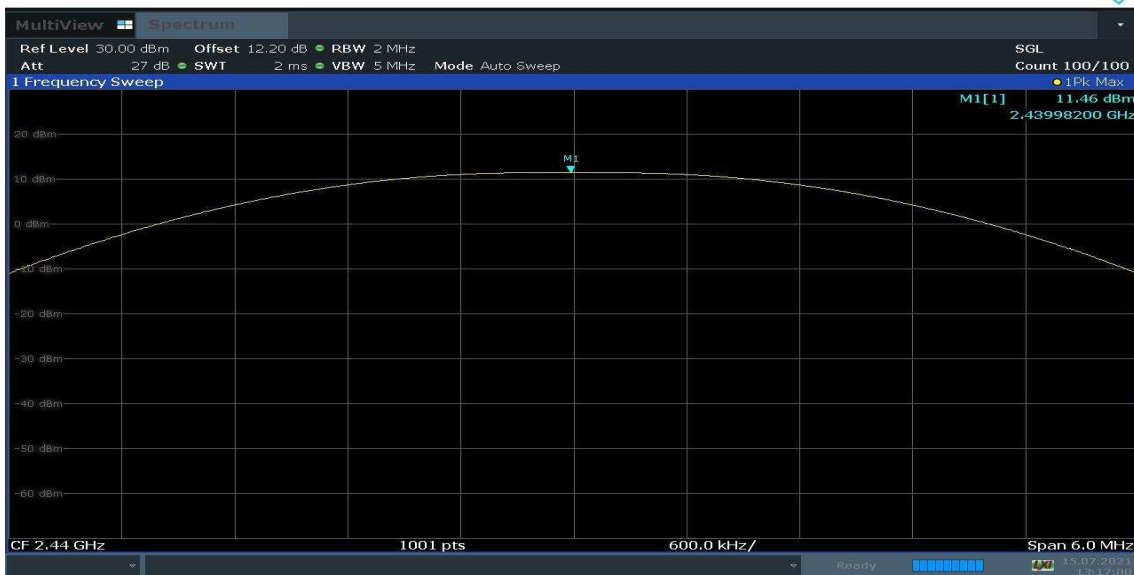
TestMode	Antenna	Channel	Conducted Result[dBm]	Conducted Limit[dBm]	EIRP Result[dBm]	EIRP Result[dBm]	Verdict
BLE_TM1	Ant1	2402	10.72	30	7.72	36	PASS
		2440	11.46	30	8.46	36	PASS
		2480	11.1	30	8.1	36	PASS
BLE_TM2	Ant1	2402	10.76	30	7.76	36	PASS
		2440	11.45	30	8.45	36	PASS
		2480	11.15	30	8.15	36	PASS

4.2 Test Graphs

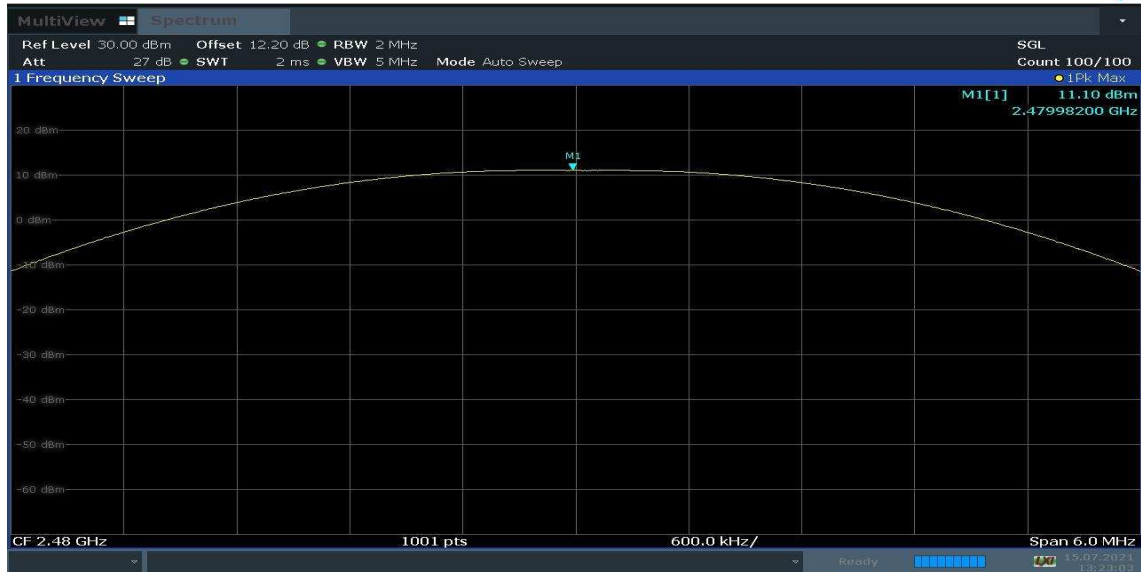
BLE_TM1_Ant1_2402



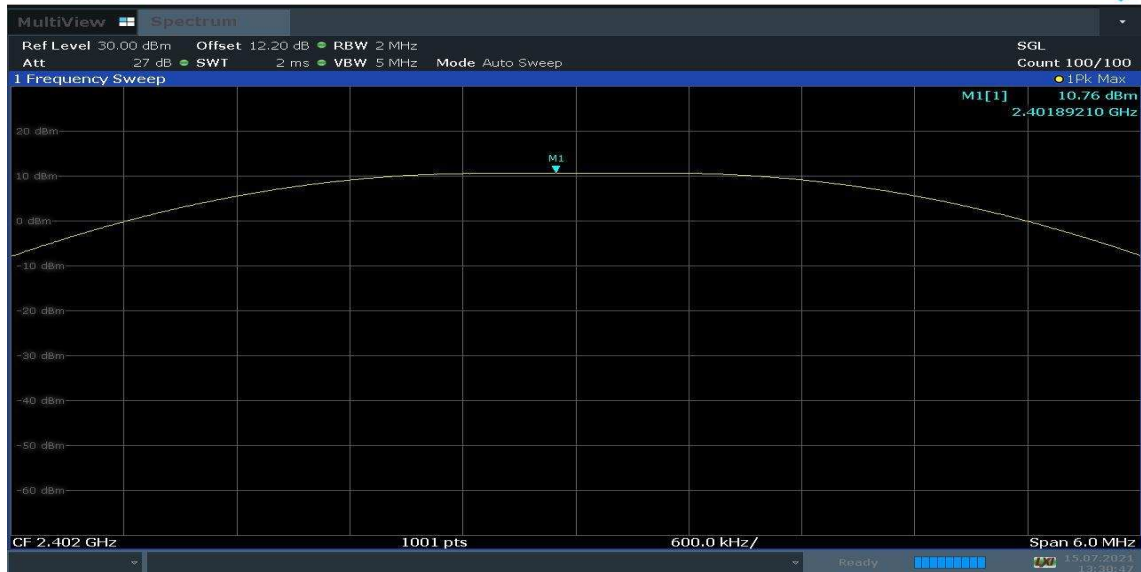
BLE_TM1_Ant1_2440



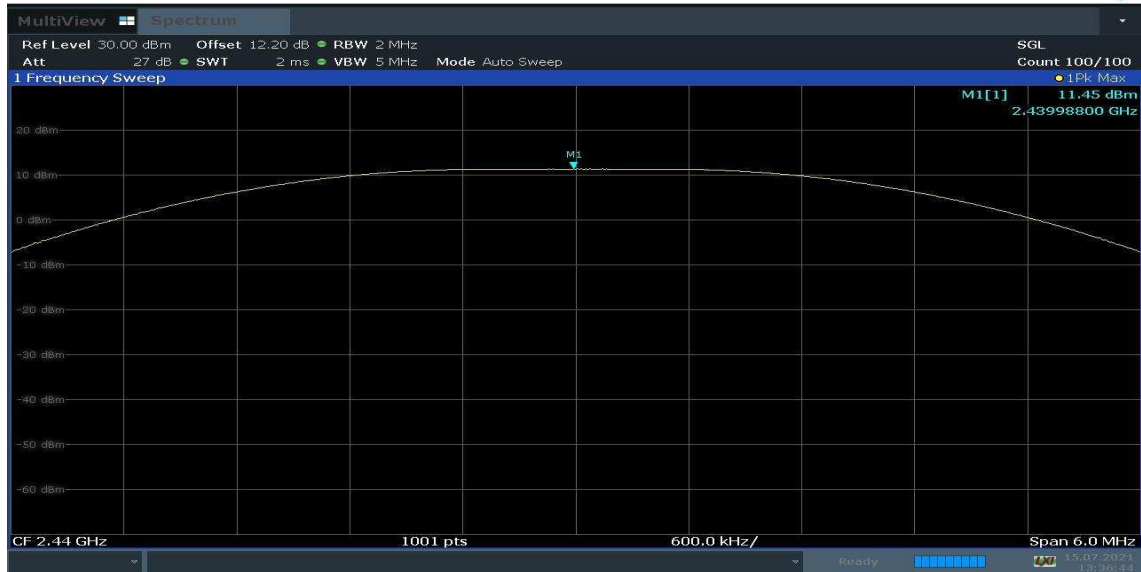
BLE_TM1_Ant1_2480



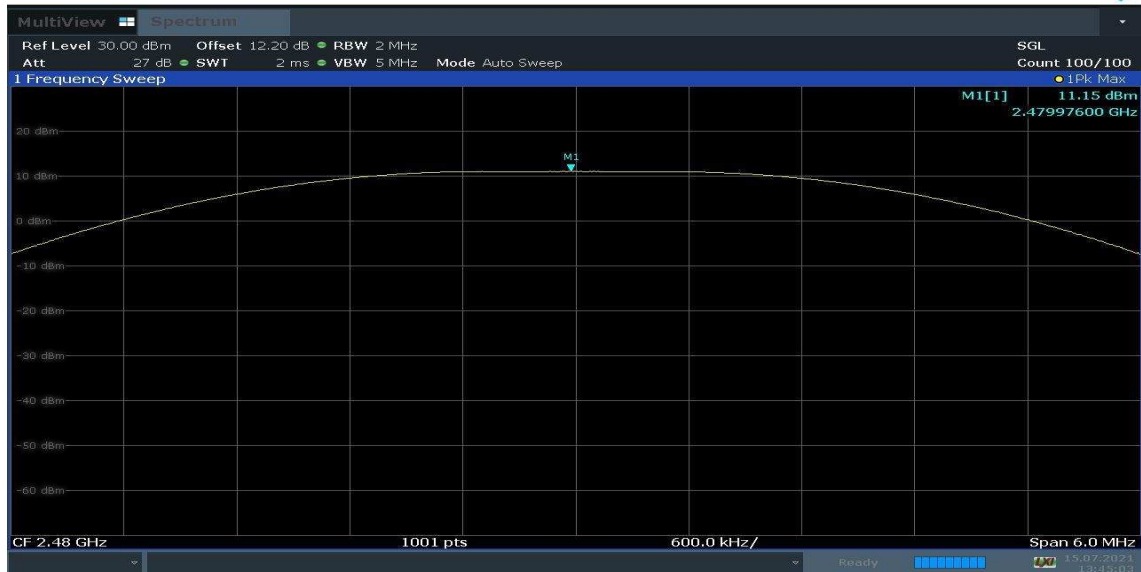
BLE_TM2_Ant1_2402



BLE_TM2_Ant1_2440



BLE_TM2_Ant1_2480



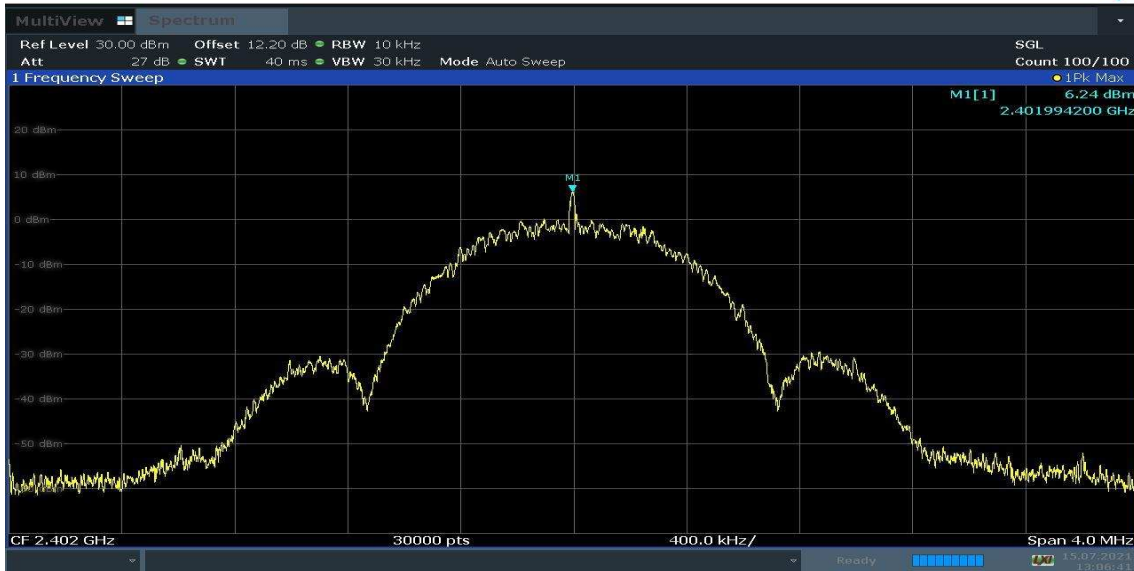
5. Appendix E: Maximum power spectral density

5.1 Test Result

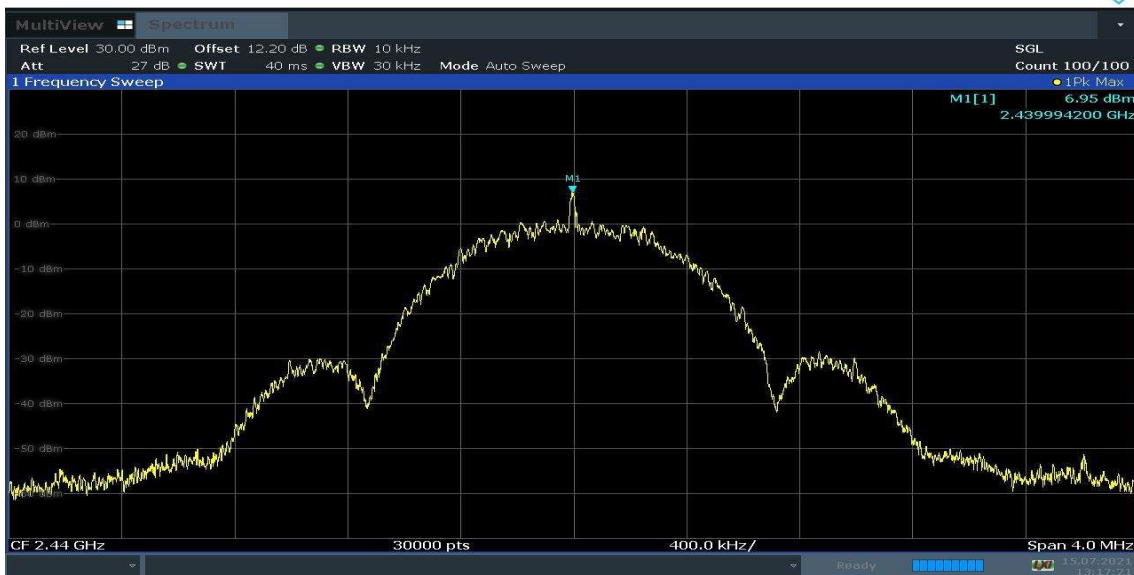
TestMode	Antenna	Channel	Result[dBm/10kHz]	Limit[dBm/3kHz]	Verdict
BLE_TM1	Ant1	2402	6.24	<=8	PASS
		2440	6.95	<=8	PASS
		2480	6.69	<=8	PASS
BLE_TM2	Ant1	2402	6.19	<=8	PASS
		2440	6.93	<=8	PASS
		2480	6.66	<=8	PASS

5.2 Test Graphs

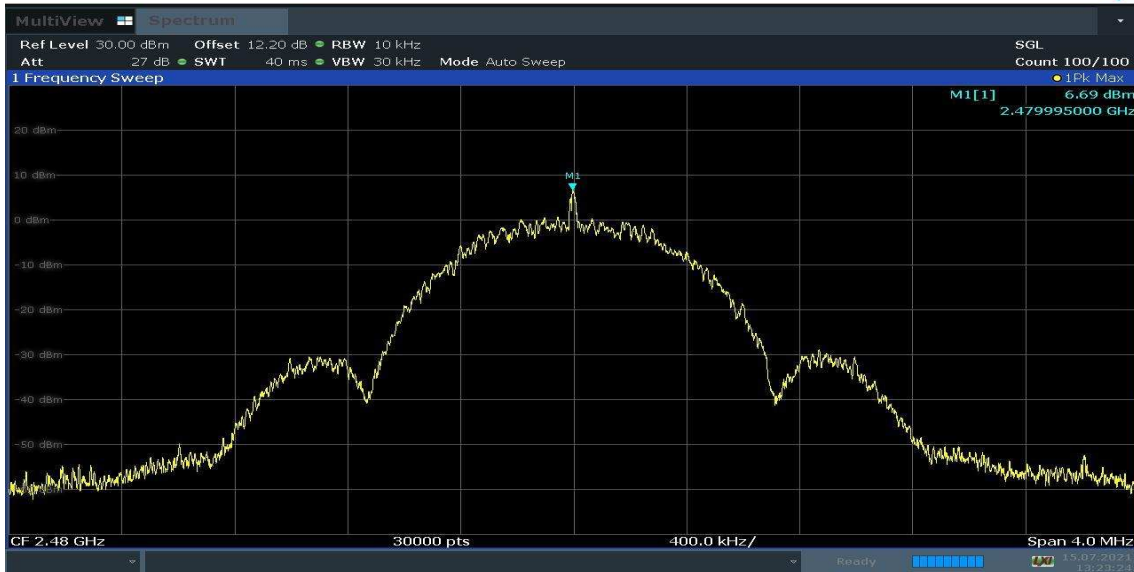
BLE_TM1_Ant1_2402



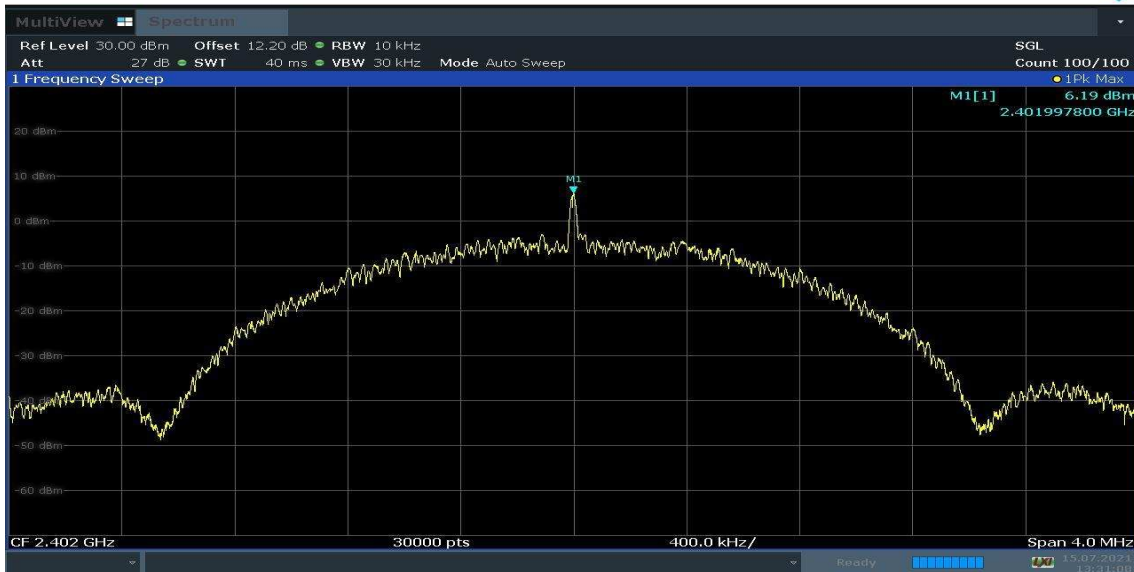
BLE_TM1_Ant1_2440



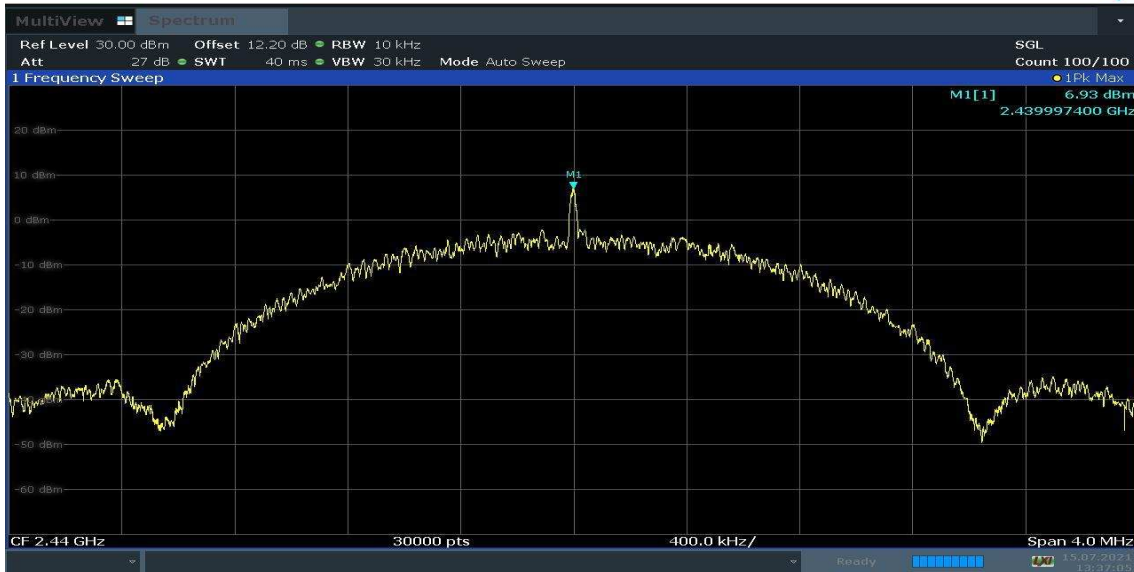
BLE_TM1_Ant1_2480



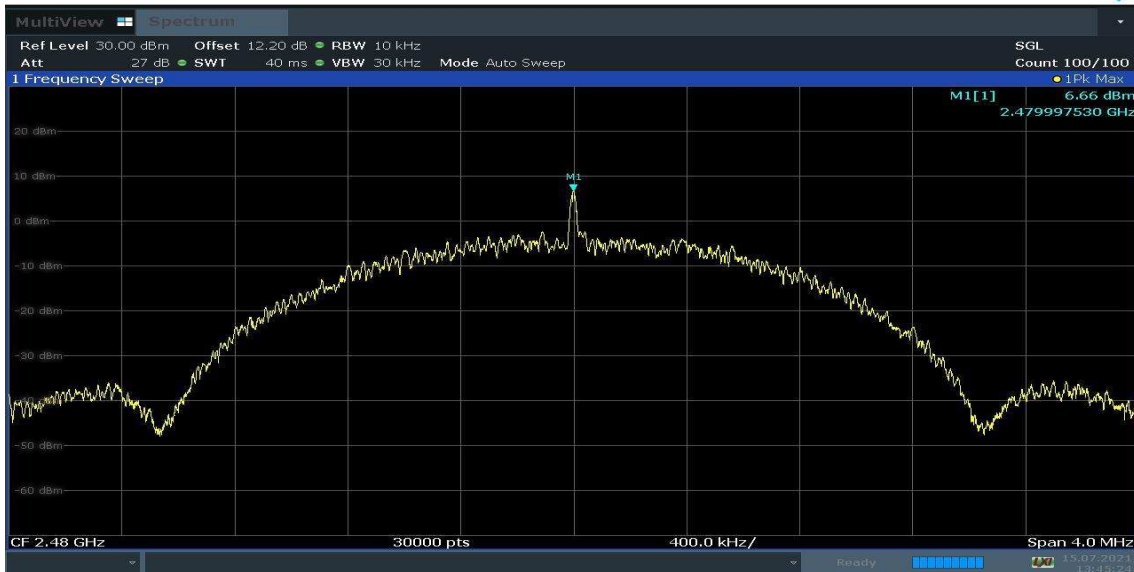
BLE_TM2_Ant1_2402



BLE_TM2_Ant1_2440



BLE_TM2_Ant1_2480

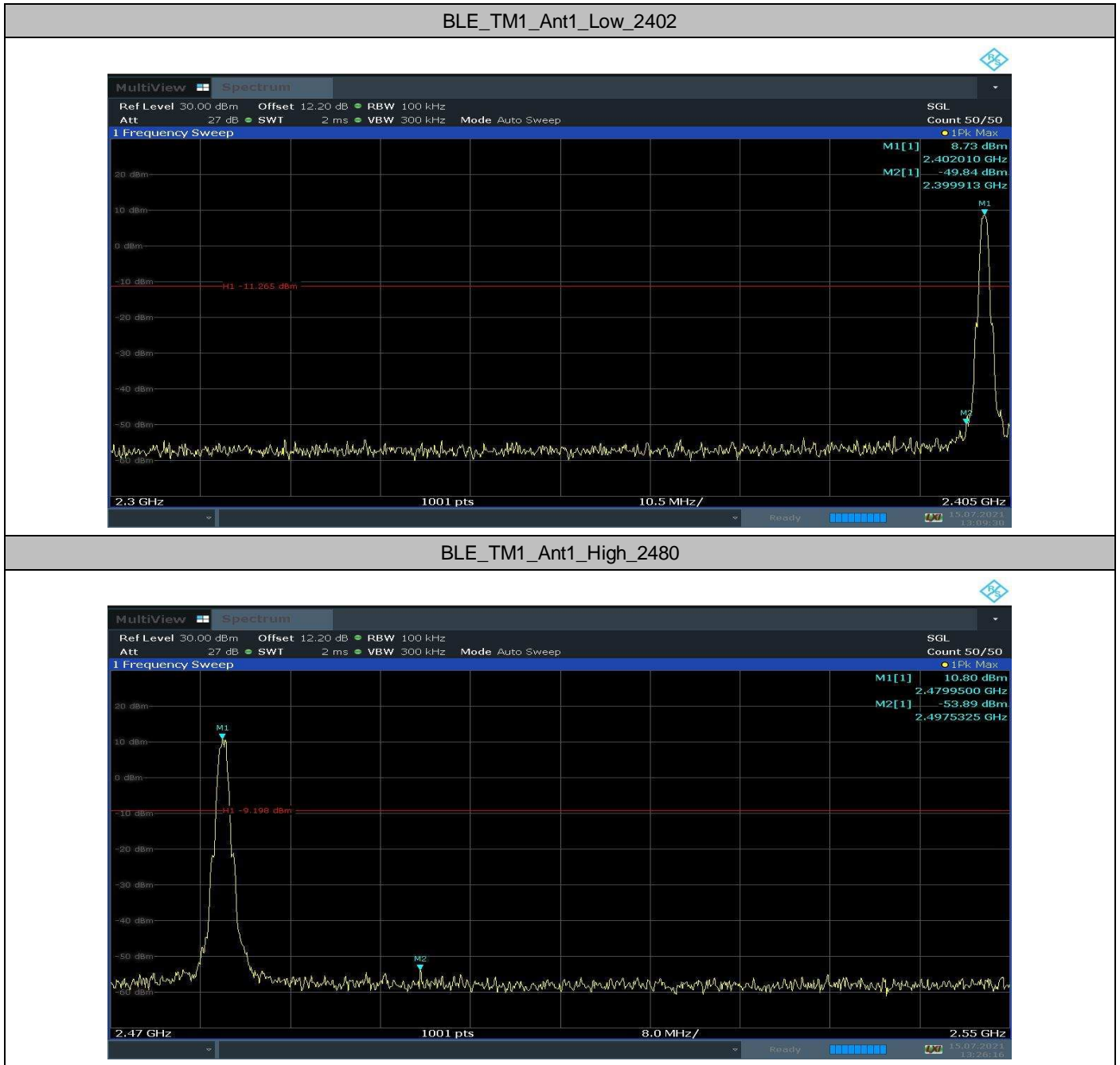


6. Appendix F: Band edge measurements

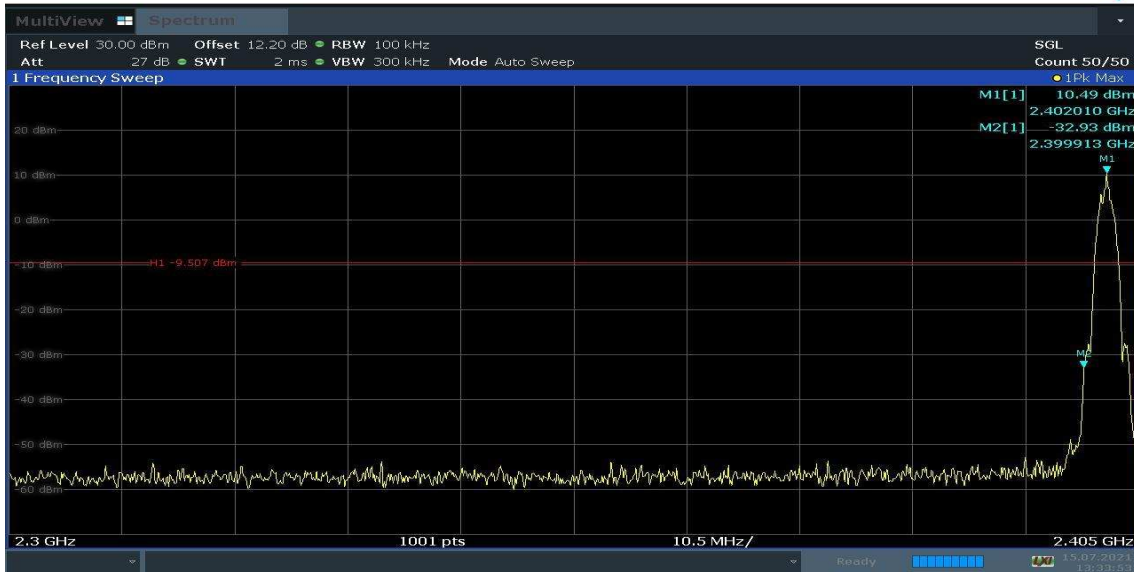
6.1 Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_TM1	Ant1	Low	2402	8.735	-49.844	-11.265	PASS
		High	2480	10.802	-53.885	-9.198	PASS
BLE_TM2	Ant1	Low	2402	10.493	-32.934	-9.507	PASS
		High	2480	9.923	-53.206	-10.077	PASS

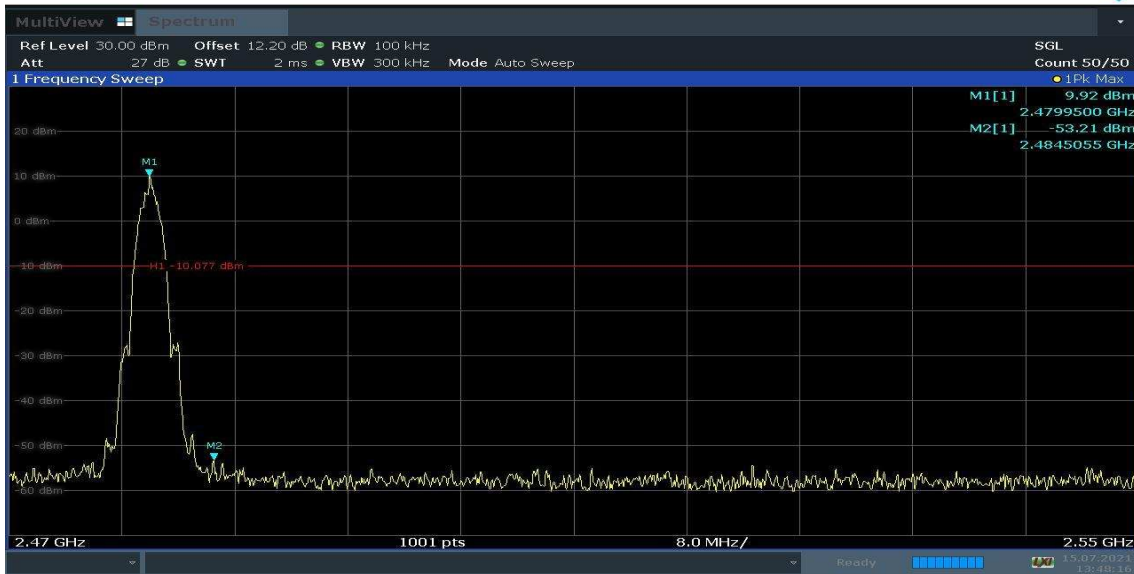
6.2 Test Graphs



BLE_TM2_Ant1_Low_2402



BLE_TM2_Ant1_High_2480



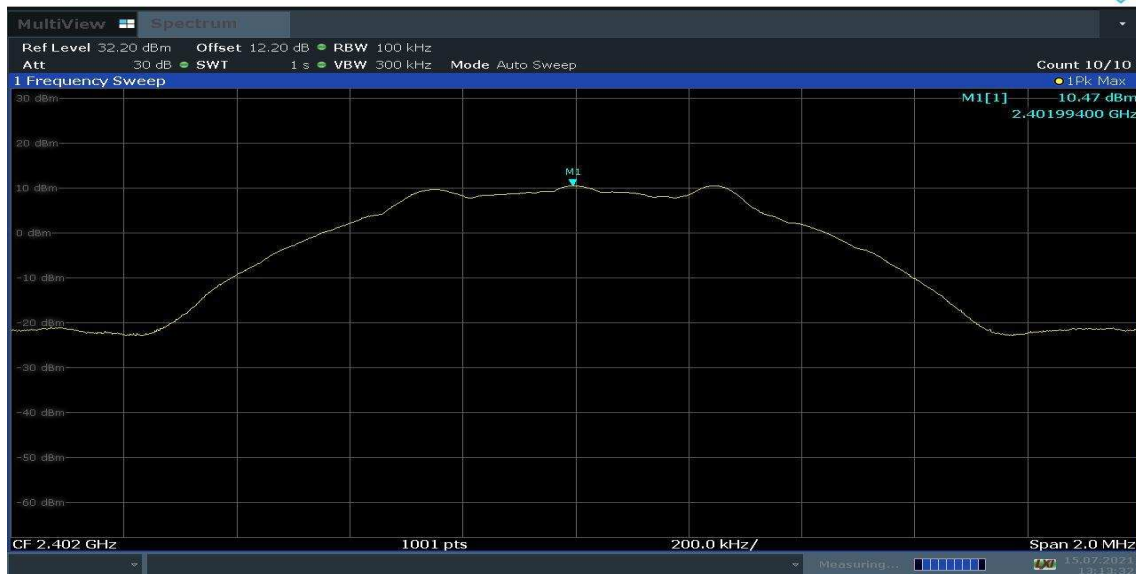
7. Appendix G: Conducted Spurious Emission

7.1 Test Result

TestMode	Antenna	Channel	RefLevel[dB m /100kHz]	Result[dBm]	Limit[dBm /100kHz]	Verdict
BLE_TM1	Ant1	2402	10.47	<Limit	-19.53	PASS
		2440	11.24	<Limit	-18.76	PASS
		2480	10.86	<Limit	-19.14	PASS
BLE_TM2	Ant1	2402	10.54	<Limit	-19.46	PASS
		2440	11.31	<Limit	-18.69	PASS
		2480	10.94	<Limit	-19.06	PASS

7.2 Test Graphs

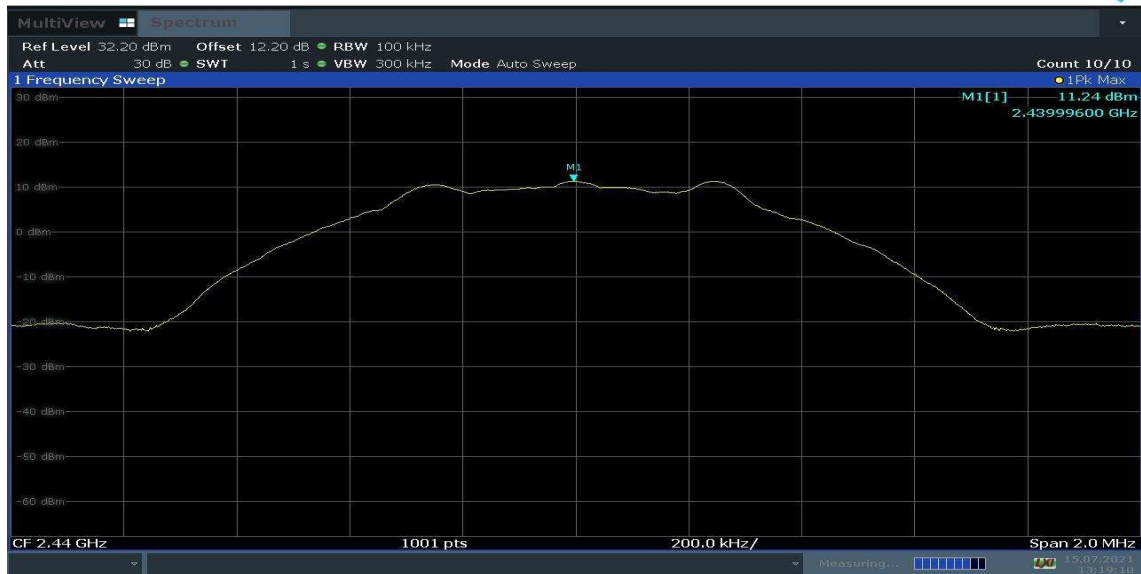
BLE_TM1_Ant1_2402-Reference



BLE_TM1_Ant1_2402_0.009~26500



BLE_TM1_Ant1_2440-Reference

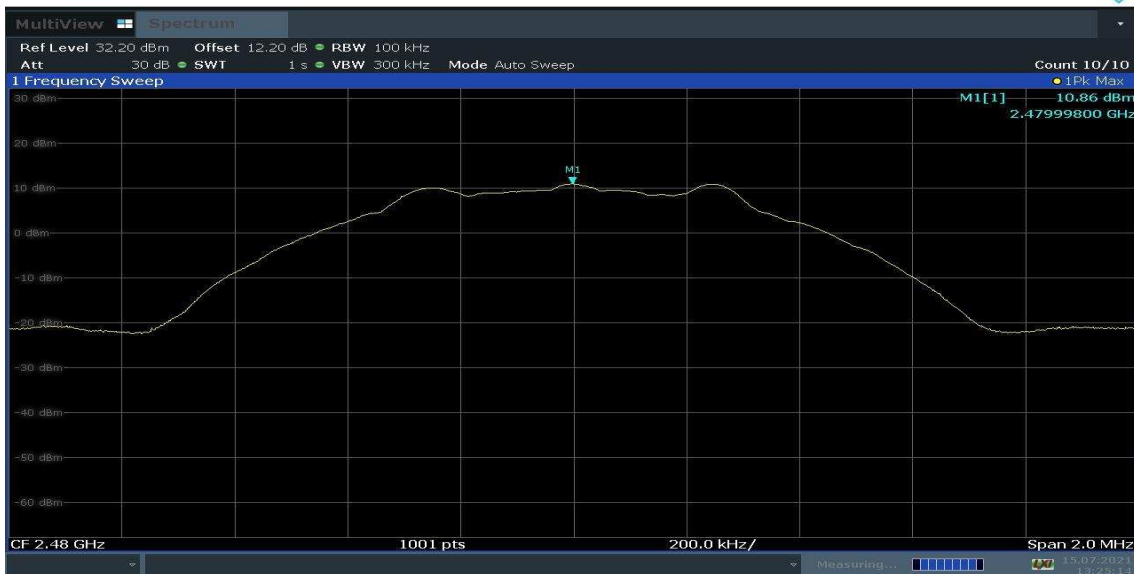


BLE_TM1_Ant1_2440_0.009~26500

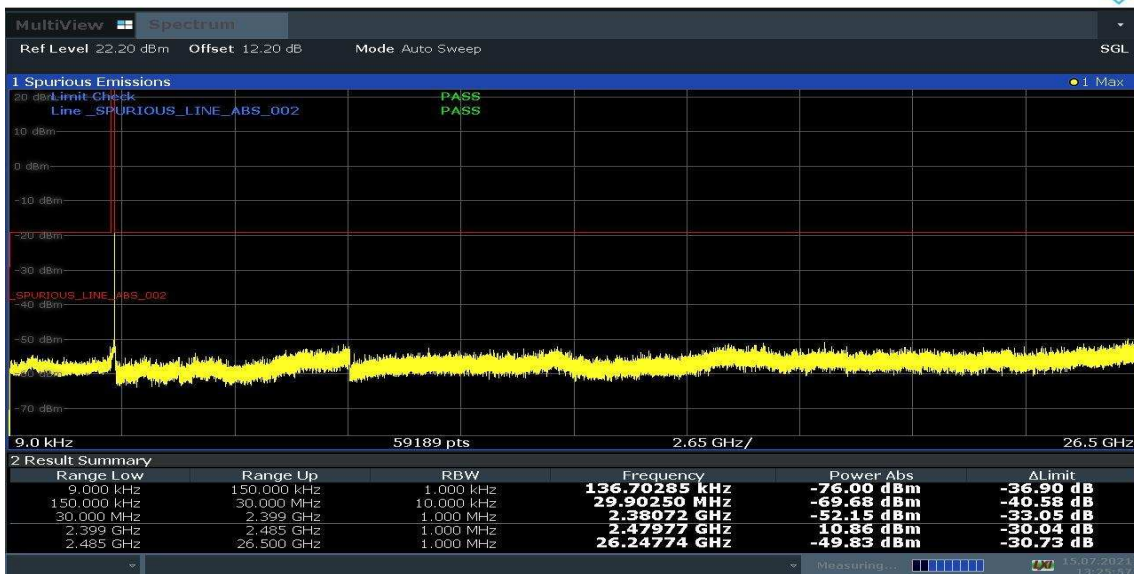




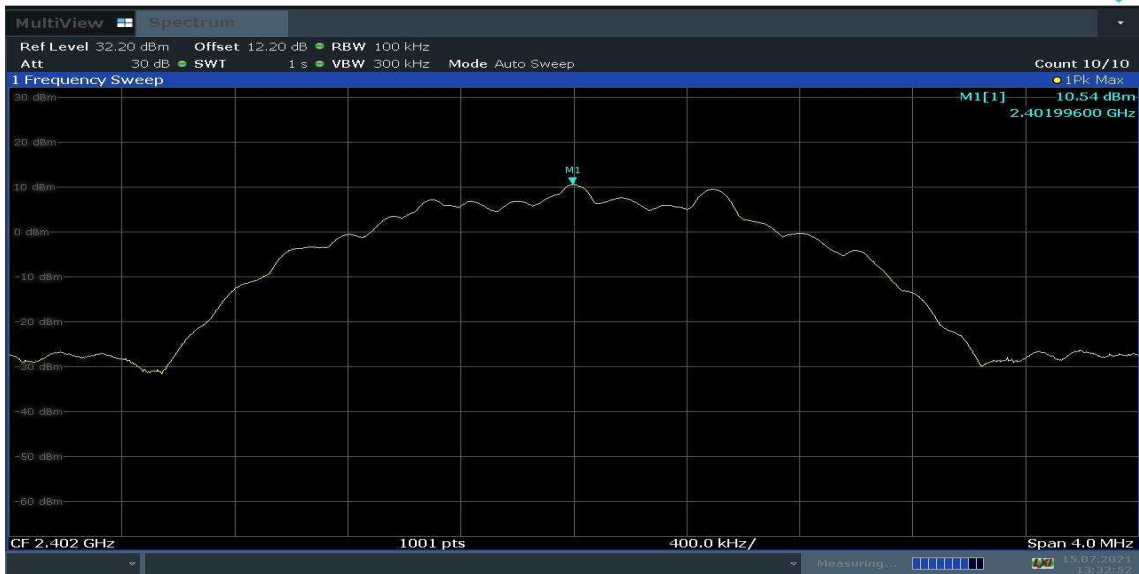
BLE_TM1_Ant1_2480-Reference



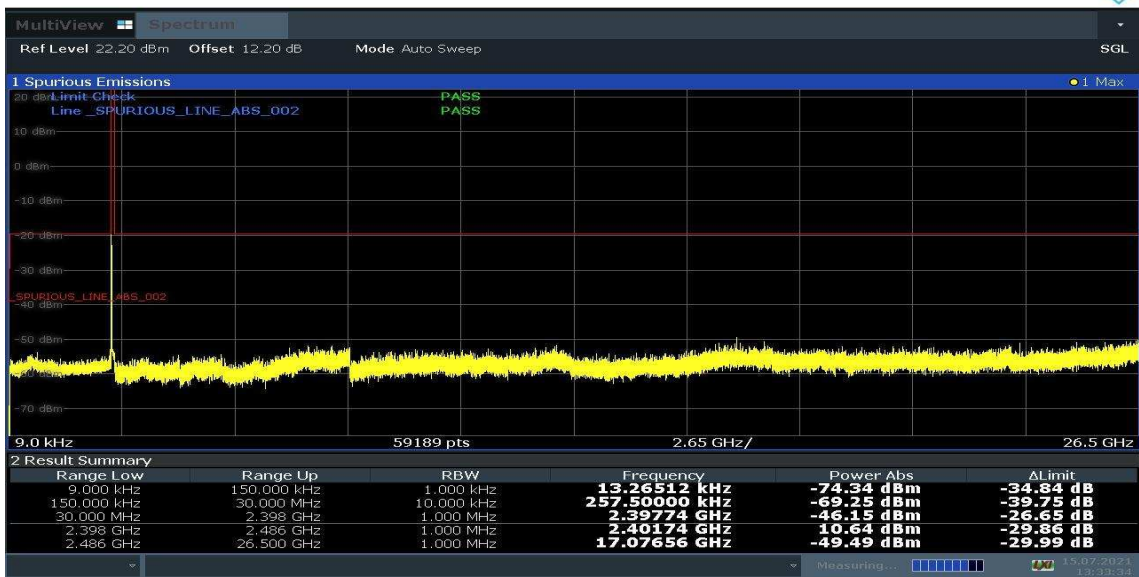
BLE_TM1_Ant1_2480_0.009~26500



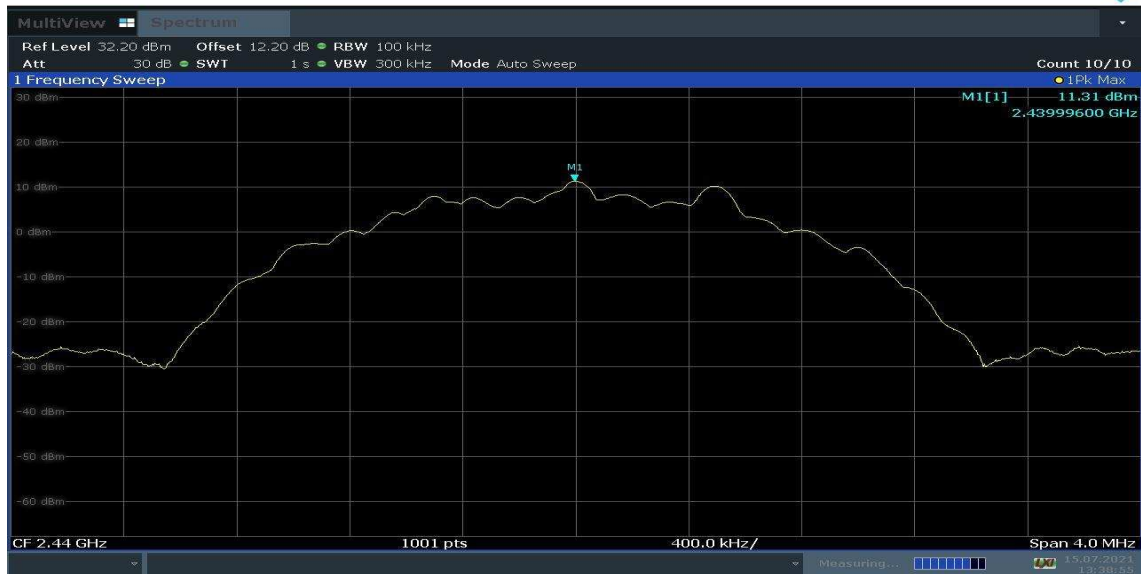
BLE_TM2_Ant1_2402-Reference



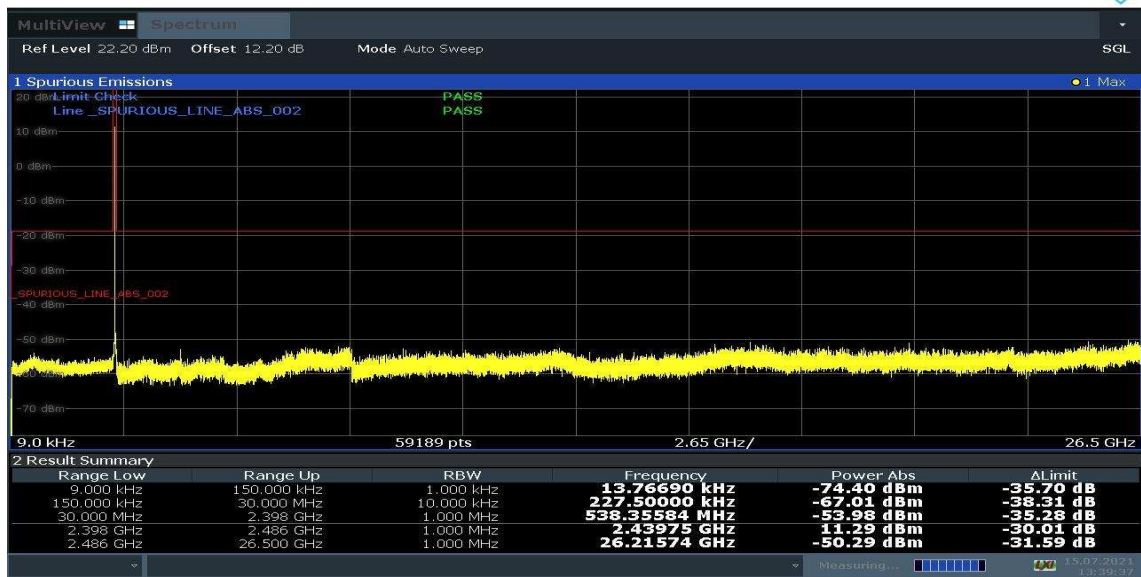
BLE_TM2_Ant1_2402_0.009~26500



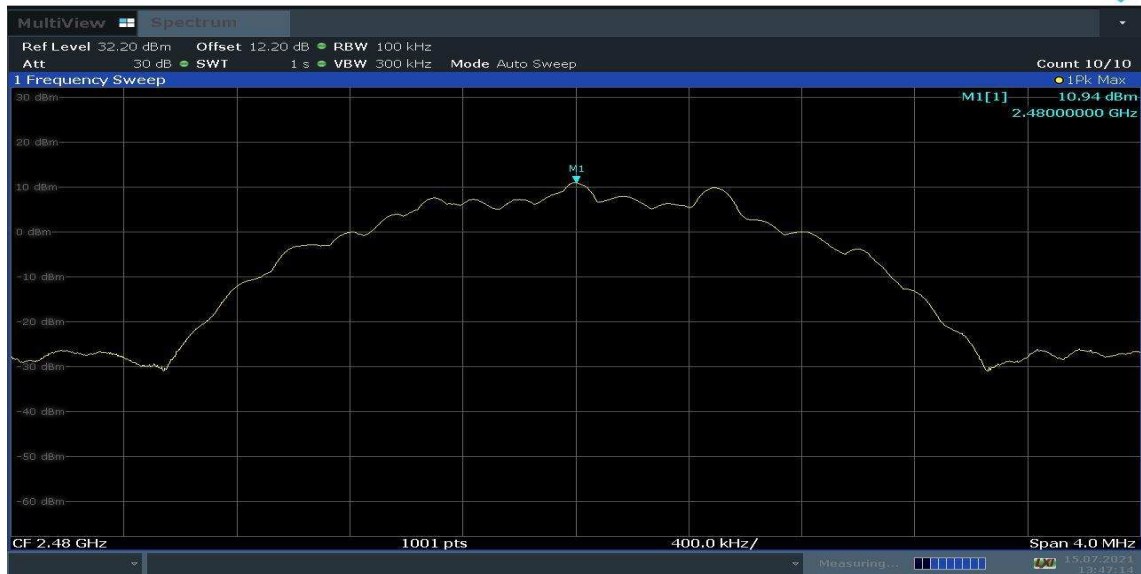
BLE_TM2_Ant1_2440-Reference



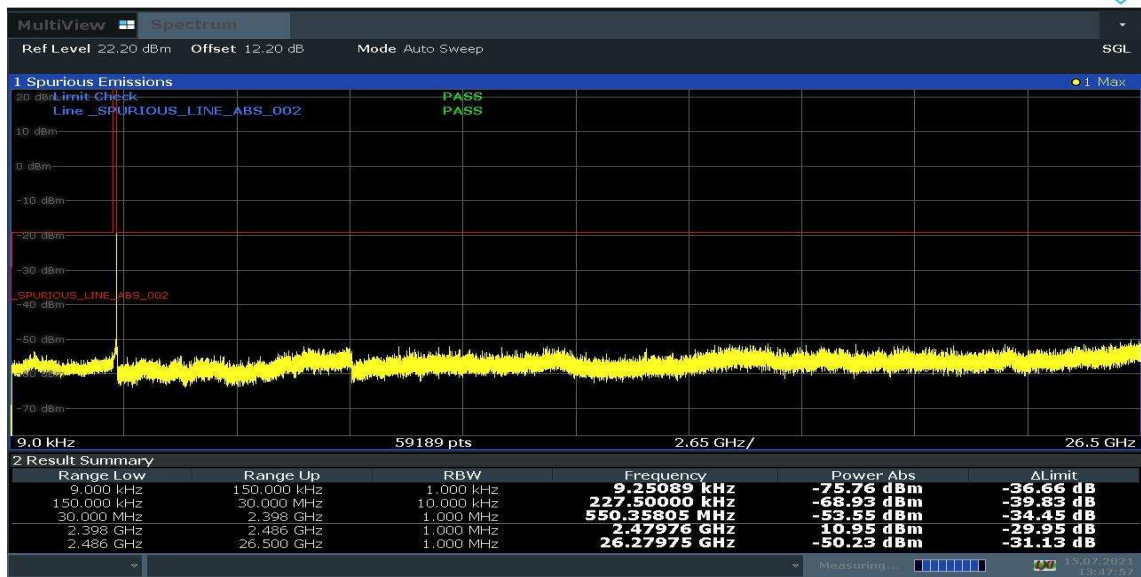
BLE_TM2_Ant1_2440_0.009~26500



BLE_TM2_Ant1_2480-Reference



BLE_TM2_Ant1_2480_0.009~26500



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.

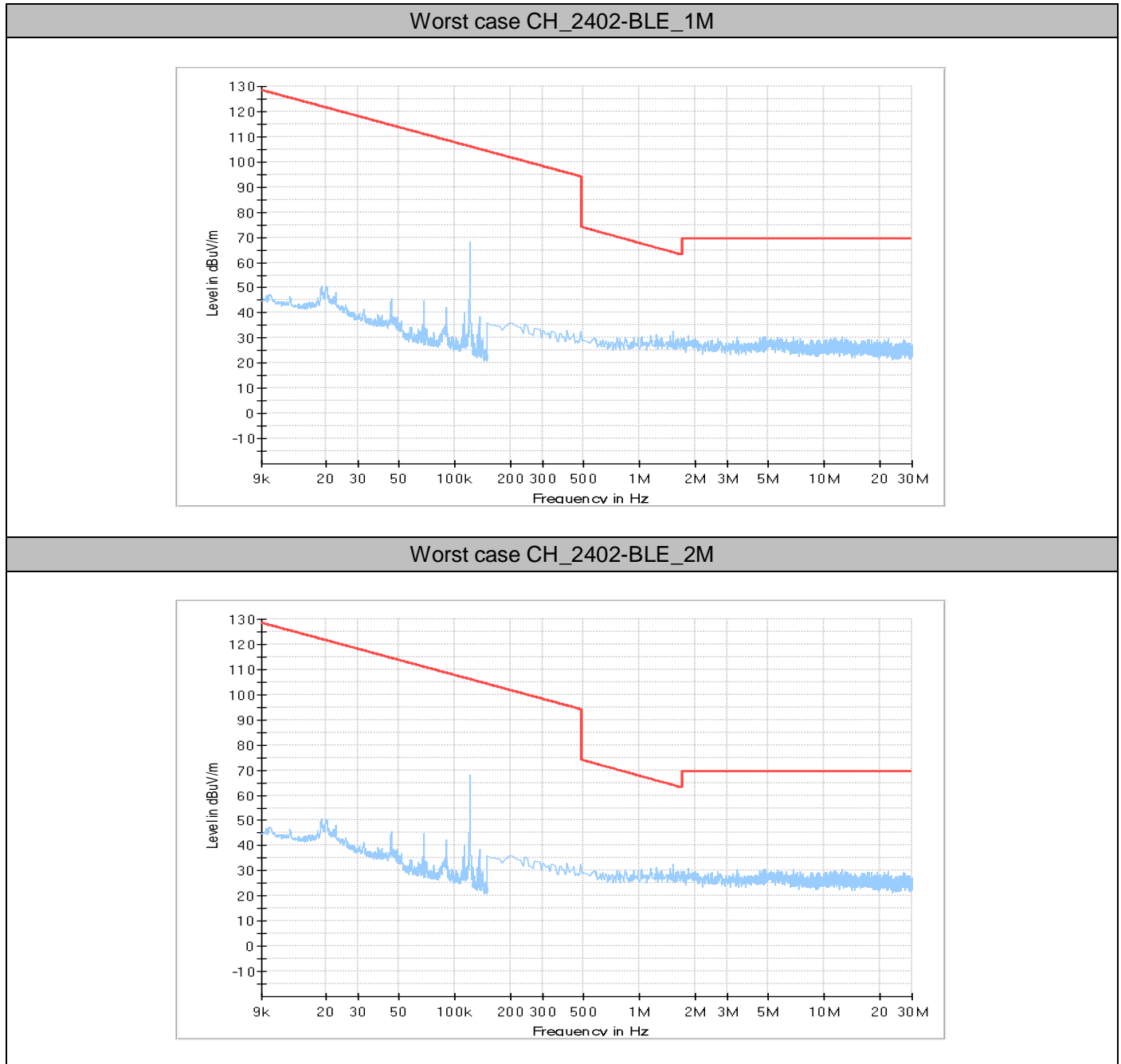
8.1 Test Results

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
TM2_BLE_2M	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”

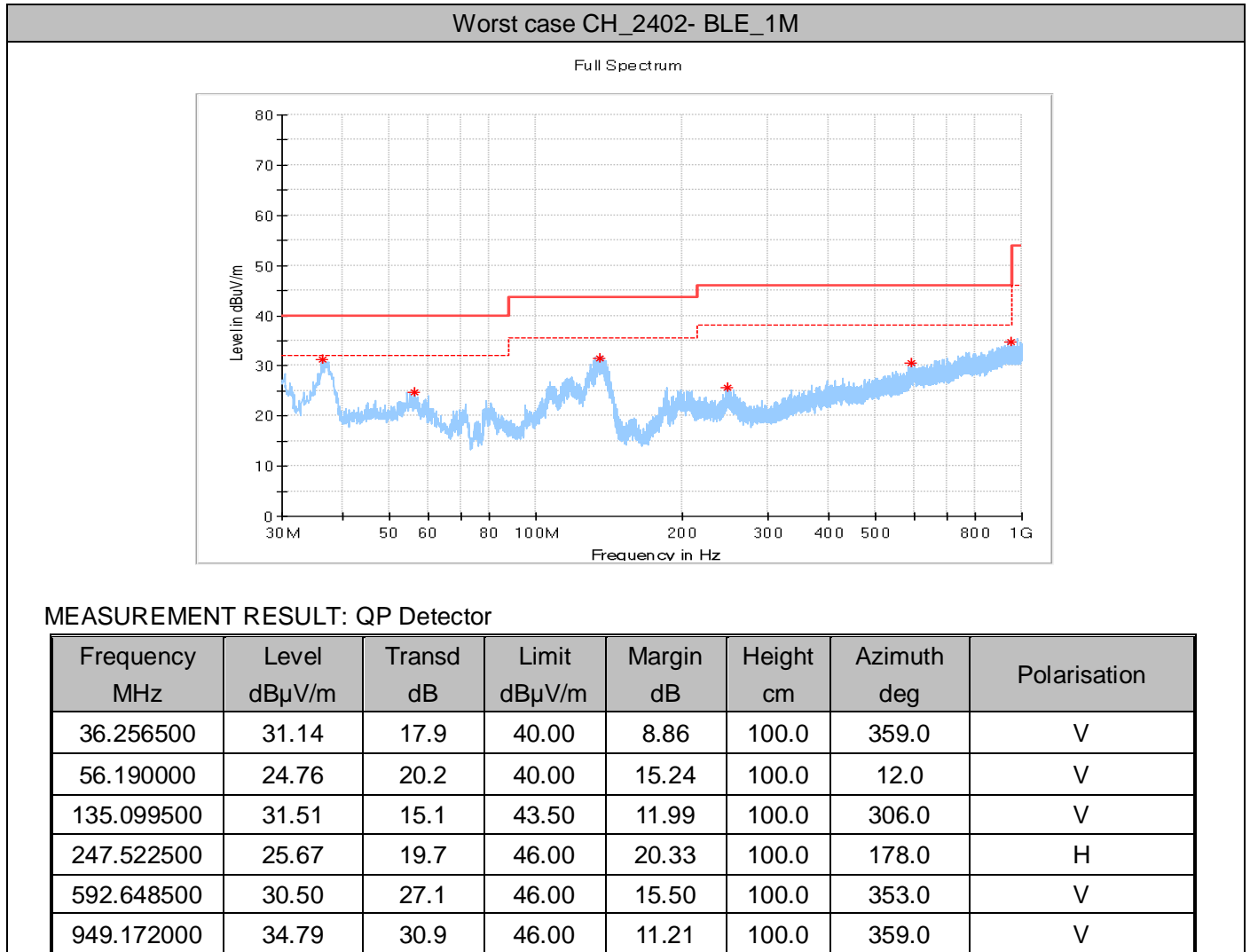
Note 1: The test results and plot for testing range of “9 kHz to 30MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.



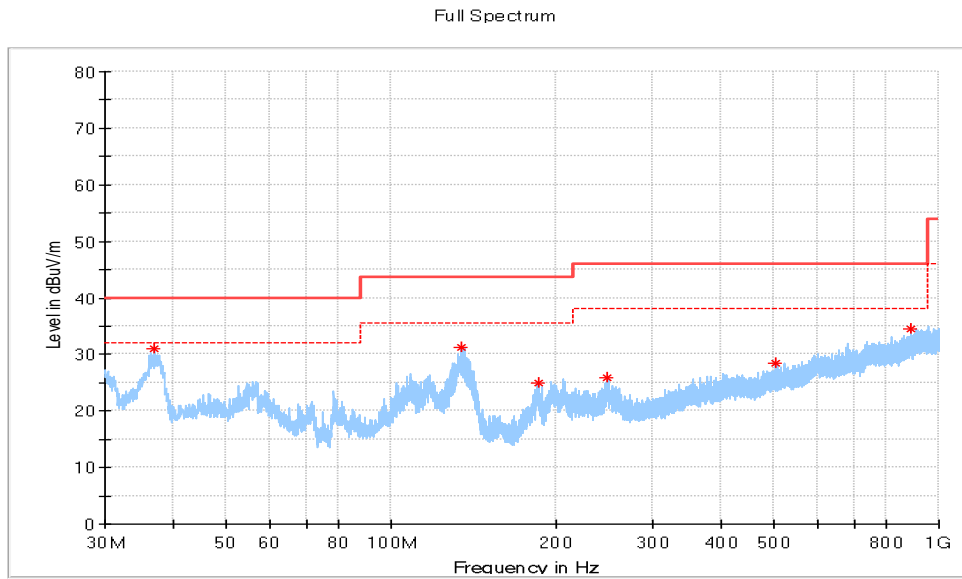
8.2.2 Part 2: Testing Range of “30 MHz to 1 GHz”

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 CH_2402- BLE_2M



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Height cm	Azimuth deg	Polarisation
36.984000	31.08	18.2	40.00	8.93	100.0	31.0	V
134.711500	31.20	15.1	43.50	12.30	100.0	307.0	V
185.297000	25.02	16.9	43.50	18.48	100.0	278.0	V
247.571000	25.84	19.7	46.00	20.16	100.0	202.0	H
502.050500	28.50	25.0	46.00	17.50	100.0	116.0	V
887.625500	34.46	30.3	46.00	11.54	100.0	249.0	H

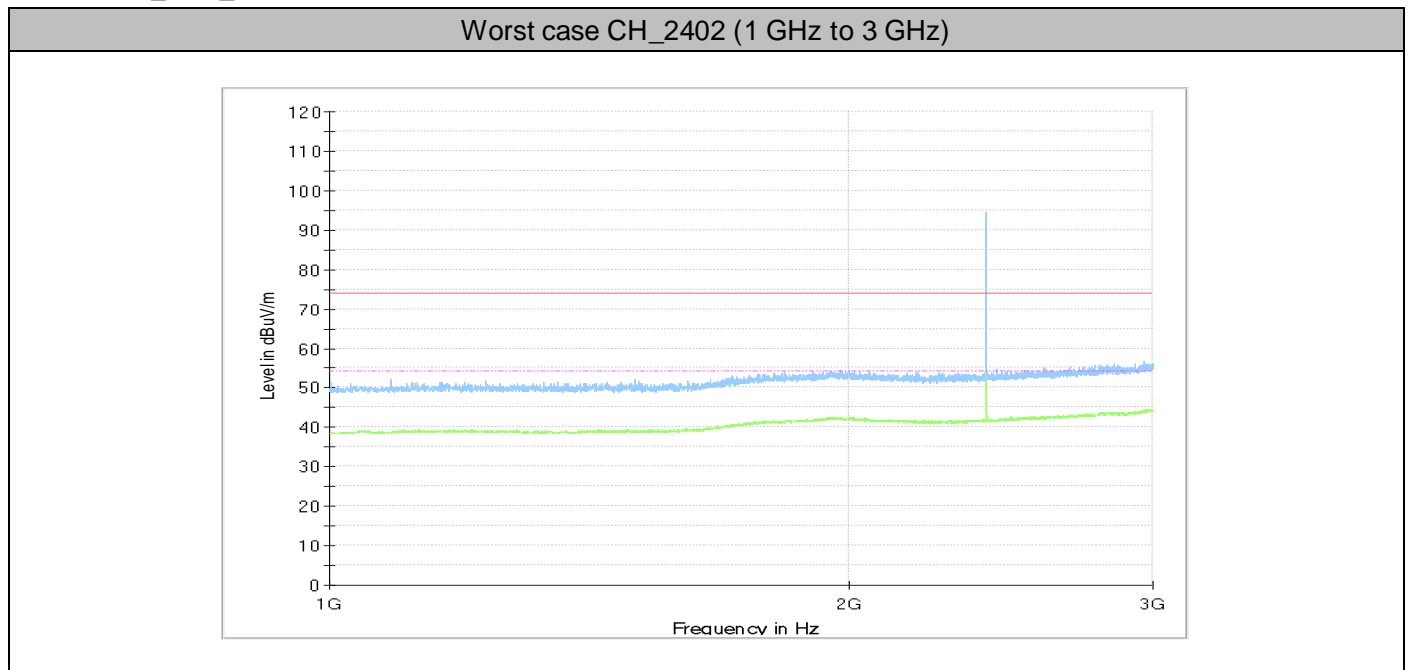
8.2.3 Part 3: Testing Range of “1 GHz to 3 GHz”

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.

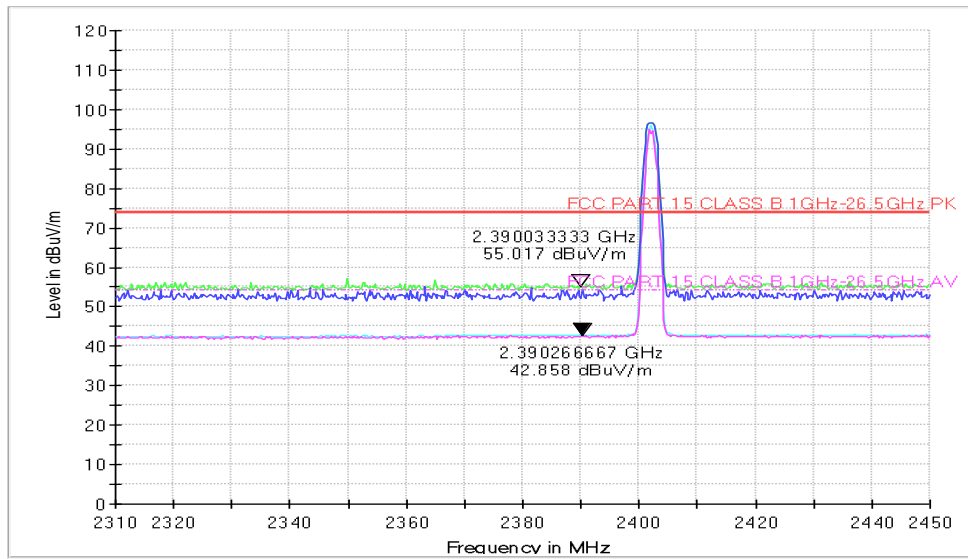
Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

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

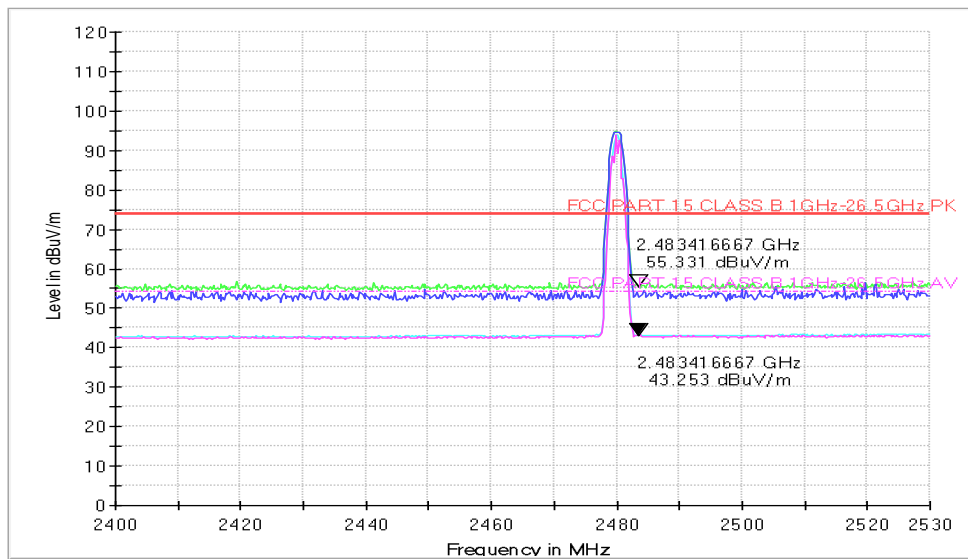
8.2.3.1 TM1_BLE_1M



CH_2402(Band Edge)

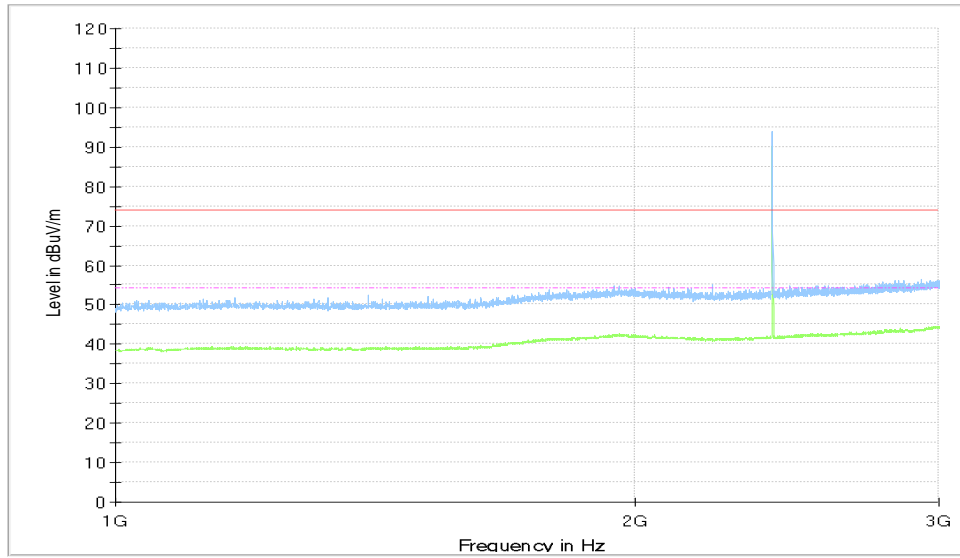


CH_2480(Band Edge)

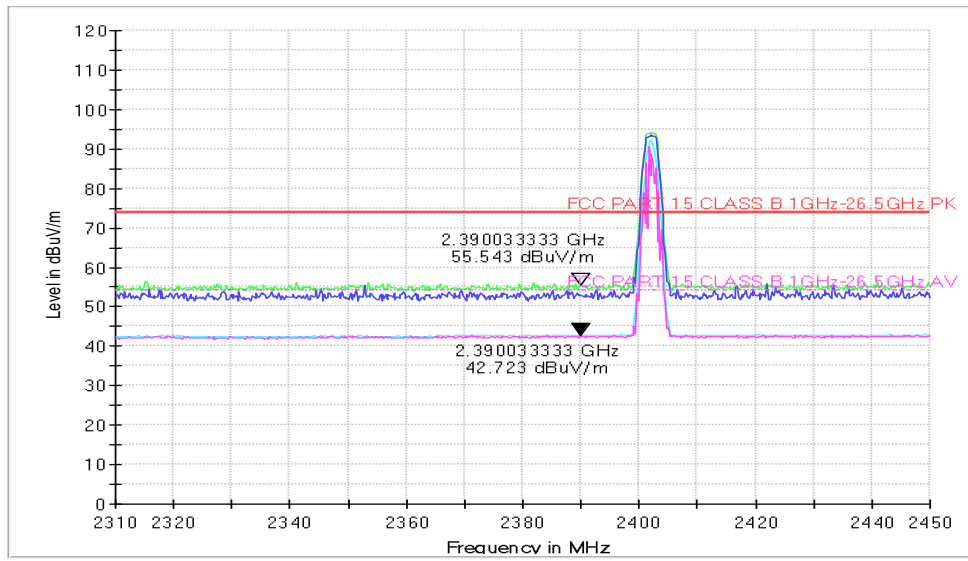


8.2.3.2 TM2_BLE_2M

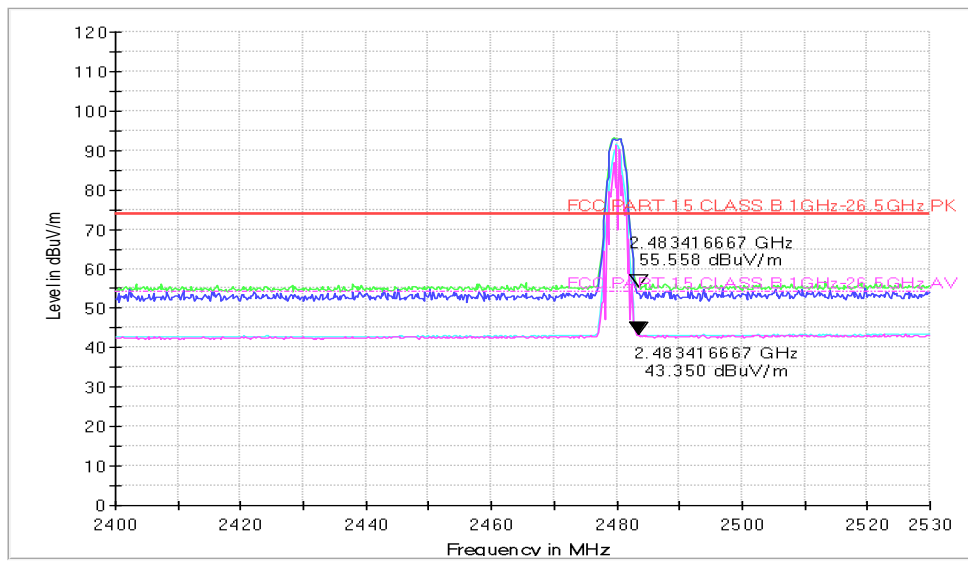
Worst case CH_2402 (1Ghz to 3GHz)



CH_2402(Band Edge)



CH_2480(Band Edge)

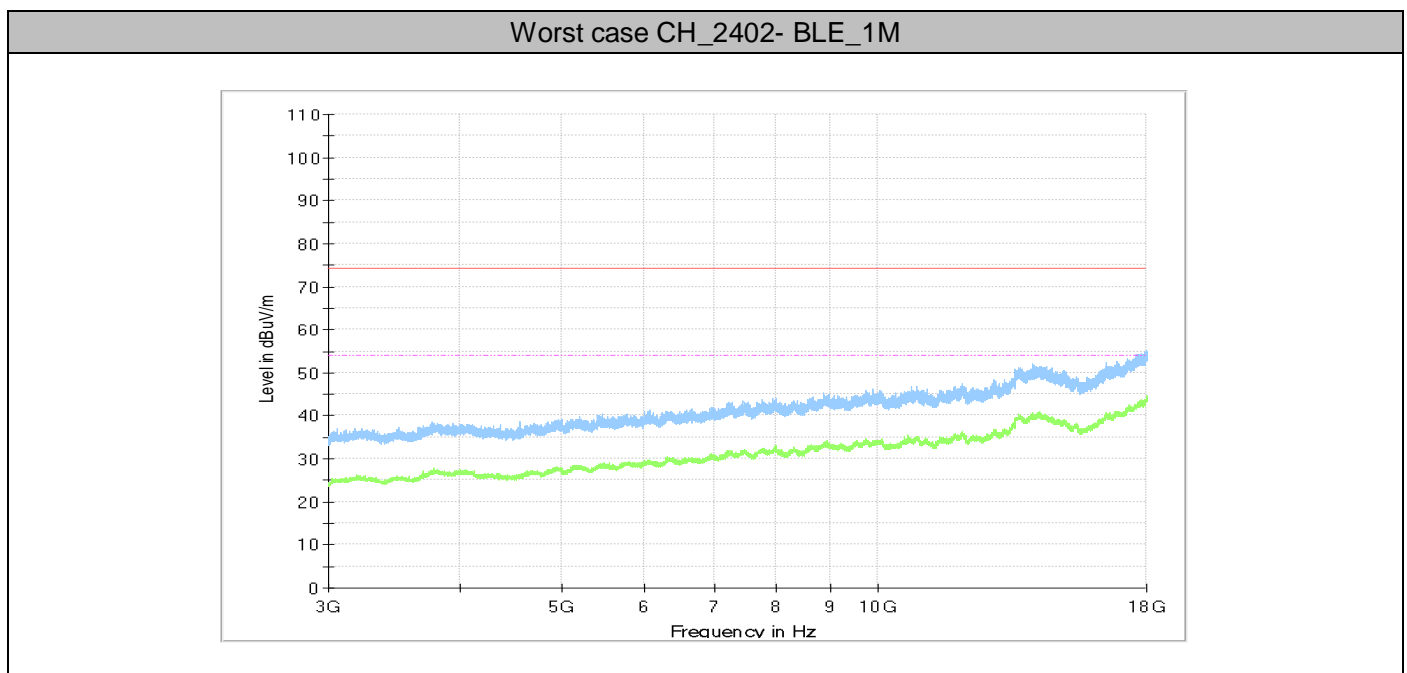


8.2.4 Part 4: Testing Range of “3 GHz to 18 GHz”

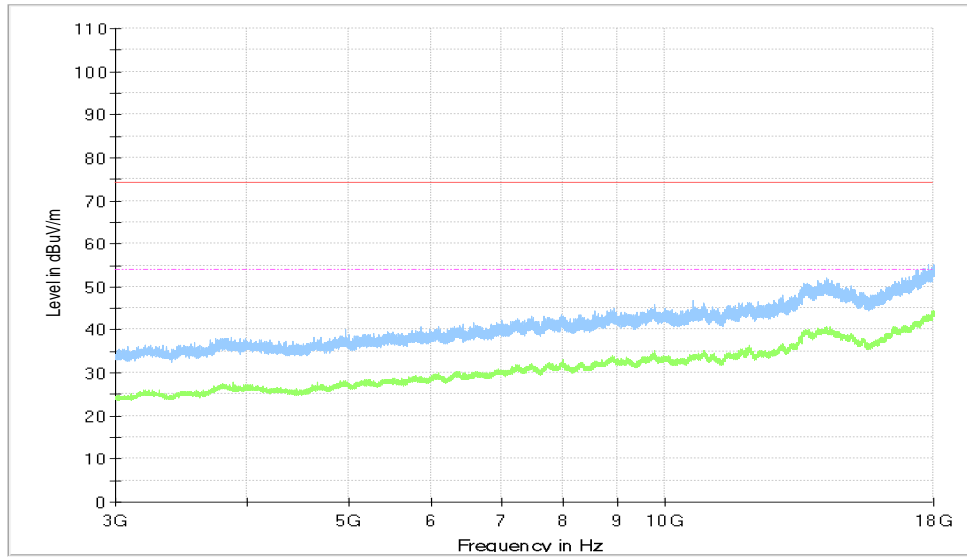
Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is the worst case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

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 CH_2402- BLE_2M

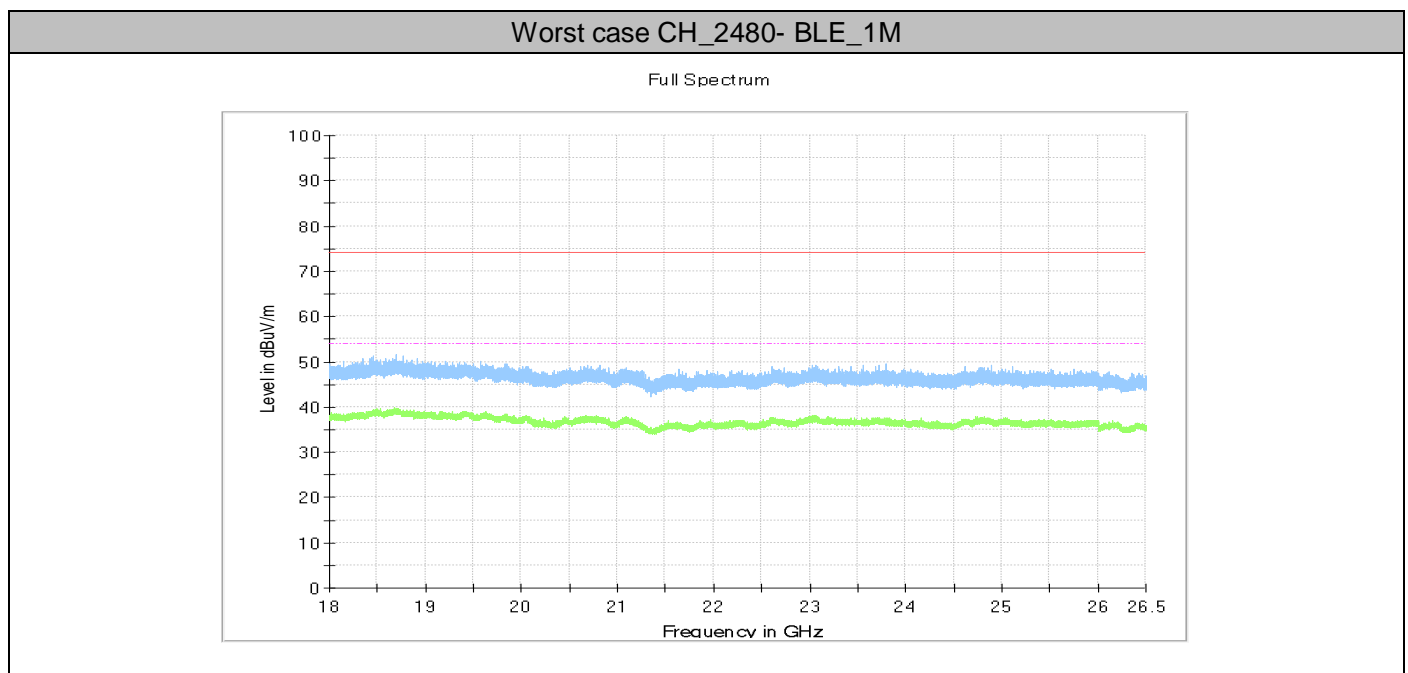


8.2.5 Part 5: Testing Range of “18 GHz to 26.5 GHz”

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.

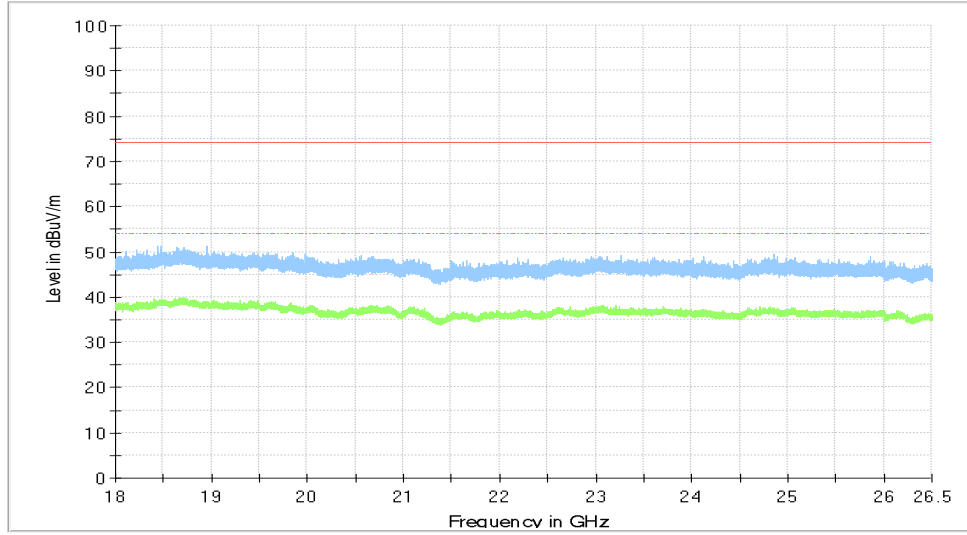
Note 2: The testing range of “18 GHz to 26.5 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

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 CH_2480- BLE_2M

Full Spectrum



9. Appendix I: Conducted Emission at Power Port

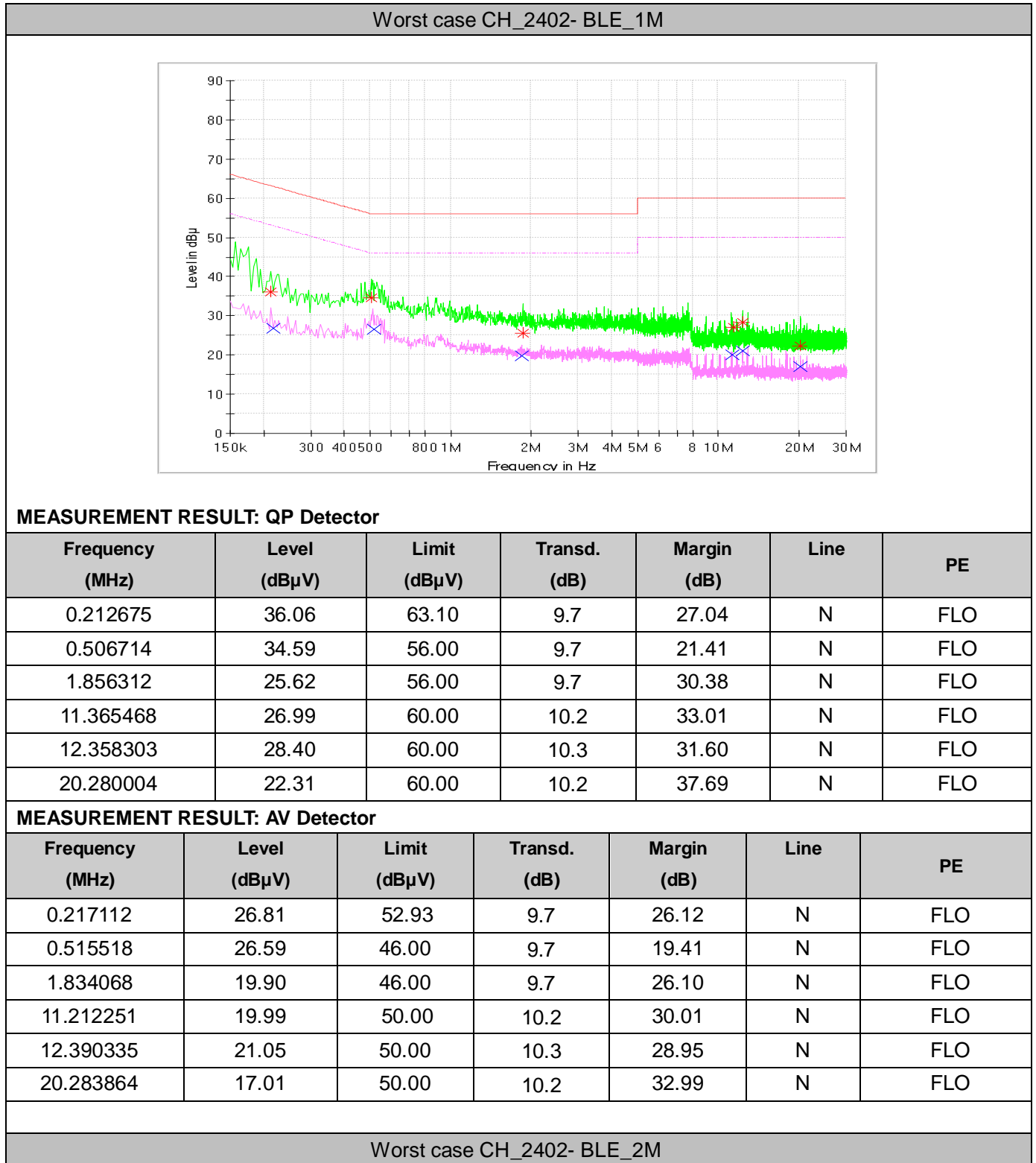
Note 1: The test results and plot for testing range of “150 kHz to 30 MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

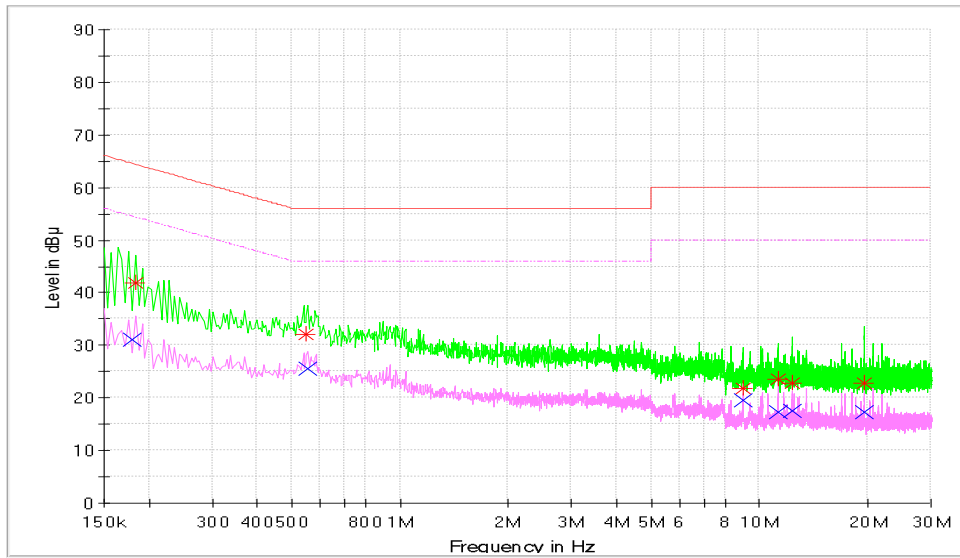
Note 2: RBW =9 kHz; VBW = 30 kHz

9.1 Test Results

Test Mode	Antenna Port	Test Channel	Maximum Emissions	Limit	Verdict
TM1_BLE_1M	Ant1	2402	(see Test Graphs)	(see Test Graphs)	PASS
TM1_BLE_2M	Ant1	2402	(see Test Graphs)	(see Test Graphs)	PASS

9.2 Test Graphs





MEASUREMENT RESULT: QP Detector

Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Transd. (dB)	Margin (dB)	Line	PE
0.184374	41.75	64.29	9.7	22.54	N	FLO
0.549044	32.02	56.00	9.7	23.98	L1	FLO
8.985800	21.94	60.00	10.0	38.06	N	FLO
11.280208	23.60	60.00	10.2	36.40	N	FLO
12.392192	22.84	60.00	10.3	37.16	N	FLO
19.565817	22.78	60.00	10.2	37.22	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Transd. (dB)	Margin (dB)	Line	PE
0.179313	31.06	54.52	9.7	23.46	N	FLO
0.551149	25.51	46.00	9.7	20.49	L1	FLO
9.004586	19.59	50.00	10.0	30.41	N	FLO
11.283058	17.31	50.00	10.2	32.69	N	FLO
12.365320	17.62	50.00	10.3	32.38	N	FLO
19.566841	17.17	50.00	10.2	32.83	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

END