RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
Product Name:	PCM-UR02
Test Model:	PCM-UR02
Sample ID:	202208-0126-1-02
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 12V
Test Engineer:	Huang jian ping
Note: For a more detailed features description, please refer to the report TBR-C-202208-0126-10	

Contents

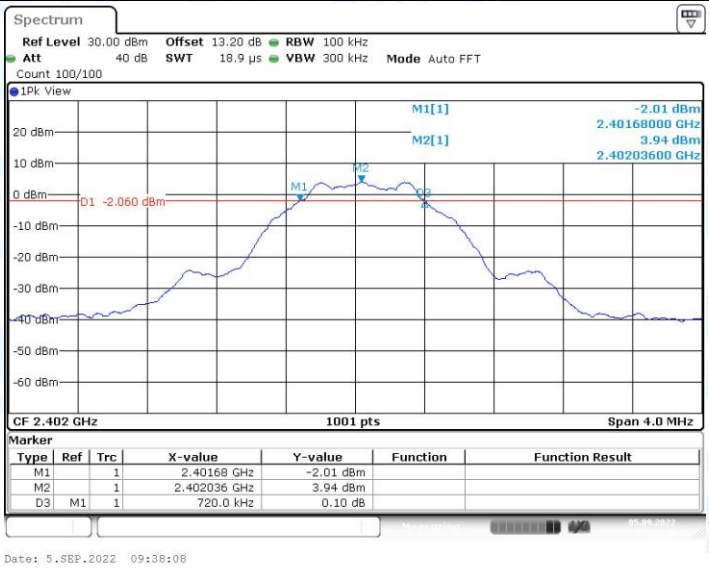
1. DTS Bandwidth

1.1.Test Result

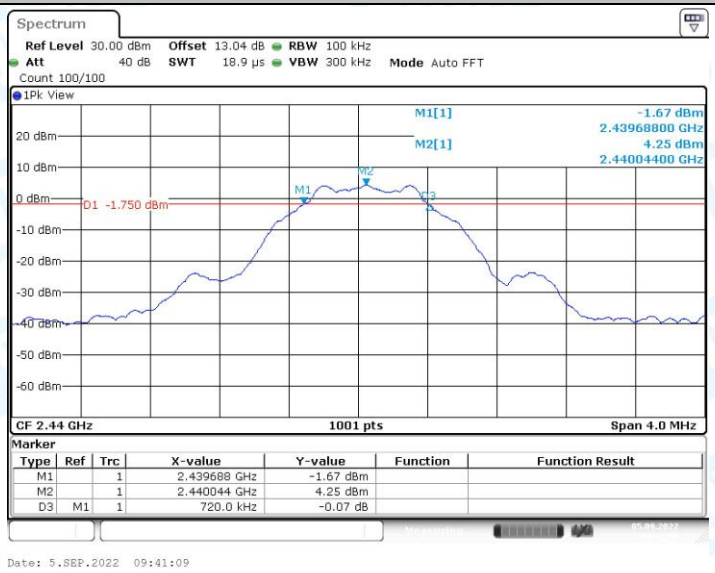
Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.72	2401.68	2402.40	0.5	PASS
		2440	0.72	2439.69	2440.41	0.5	PASS
		2480	0.72	2479.69	2480.41	0.5	PASS
BLE_2M	Ant1	2402	1.10	2401.50	2402.60	0.5	PASS
		2440	1.10	2439.50	2440.60	0.5	PASS
		2480	1.10	2479.51	2480.60	0.5	PASS

1.2.Test Graphs

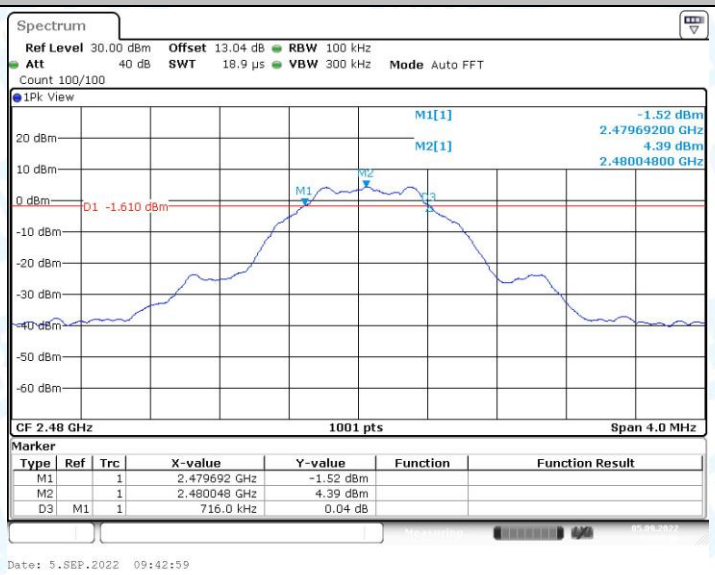
BLE_1M_Ant1_2402



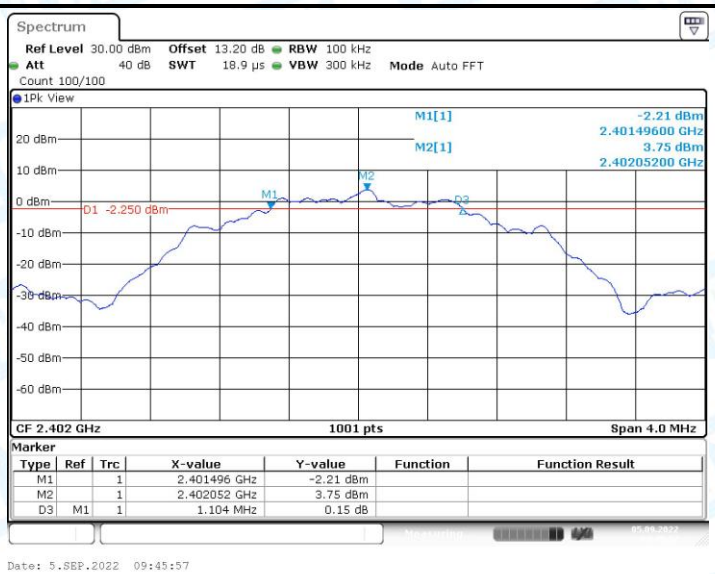
BLE_1M_Ant1_2440



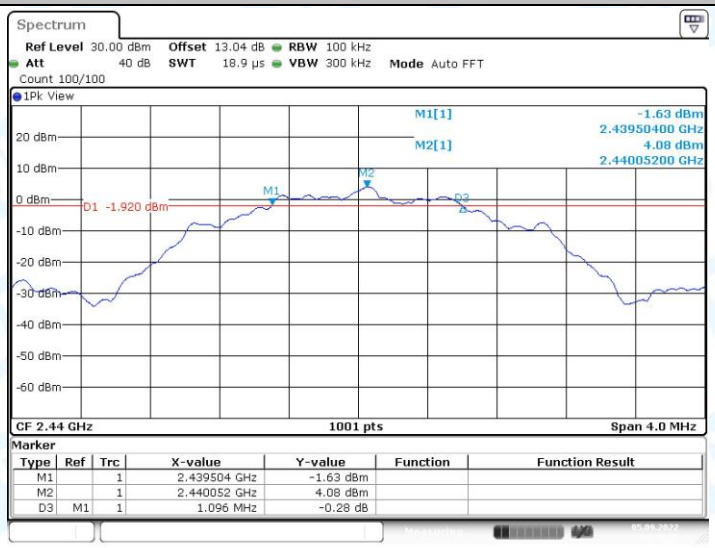
BLE_1M_Ant1_2480



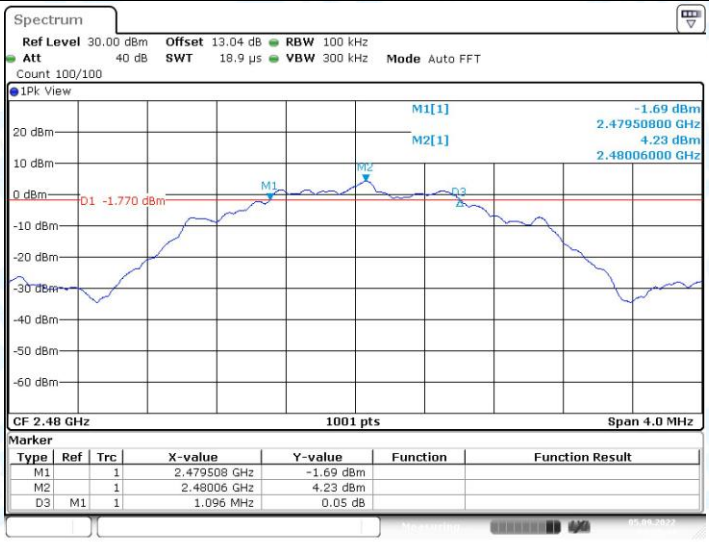
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



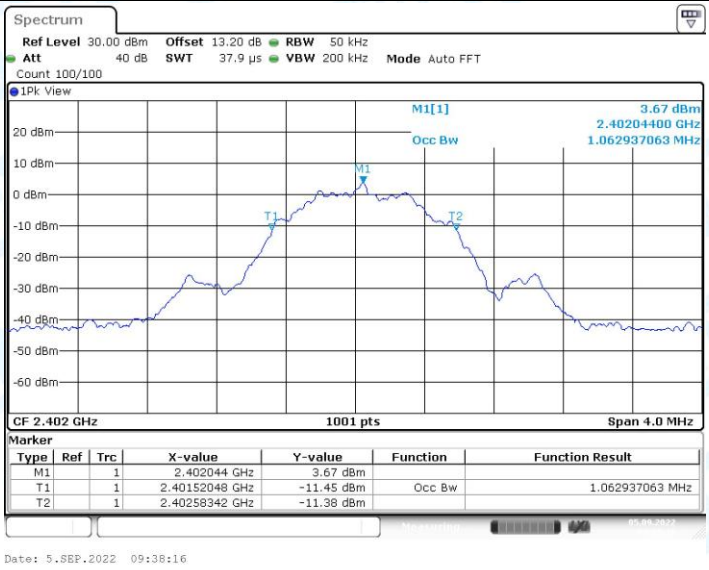
2. Occupied Channel Bandwidth

2.1.Test Result

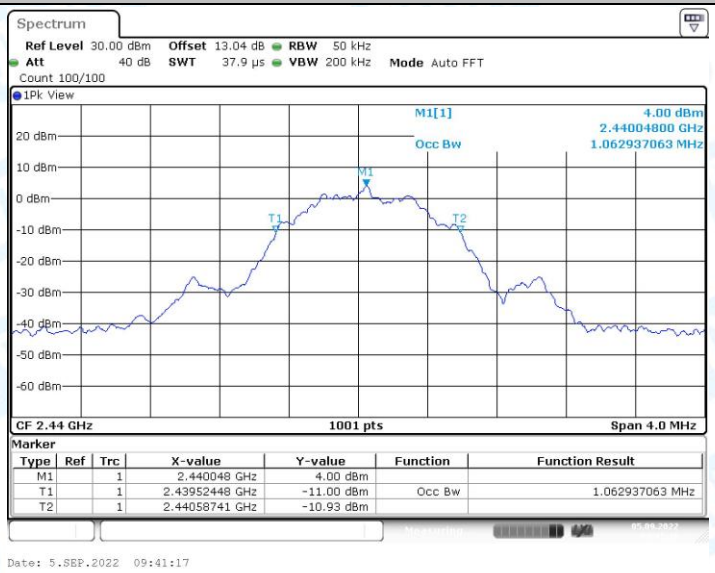
Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.063	2401.5205	2402.5834	---	---
		2440	1.063	2439.5245	2440.5874	---	---
		2480	1.063	2479.5285	2480.5914	---	---
BLE_2M	Ant1	2402	2.074	2401.0210	2403.0949	---	---
		2440	2.074	2439.0250	2441.0989	---	---
		2480	2.07	2479.0330	2481.1029	---	---

2.2.Test Graphs

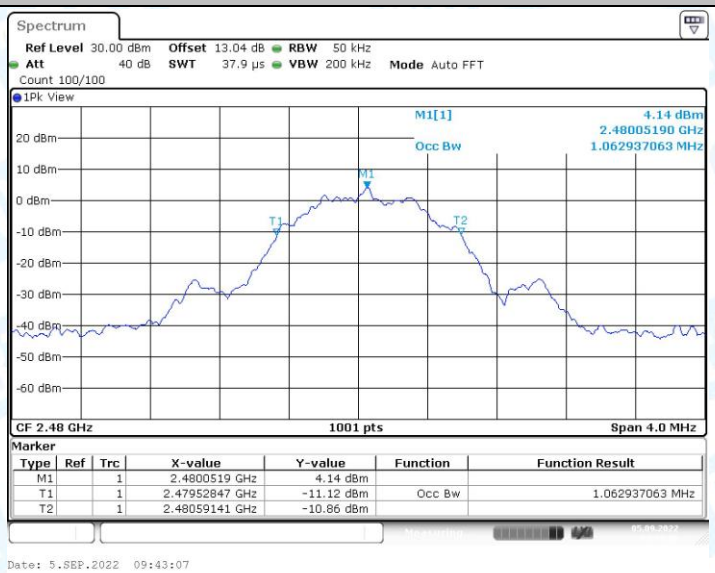
BLE_1M_Ant1_2402



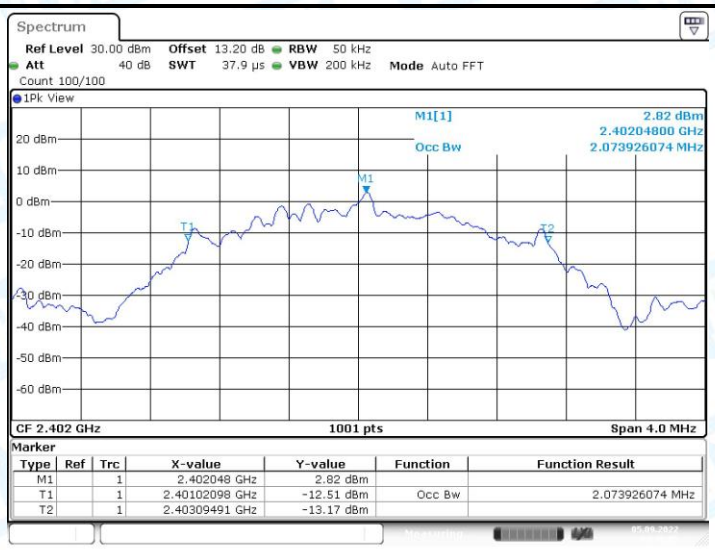
BLE_1M_Ant1_2440



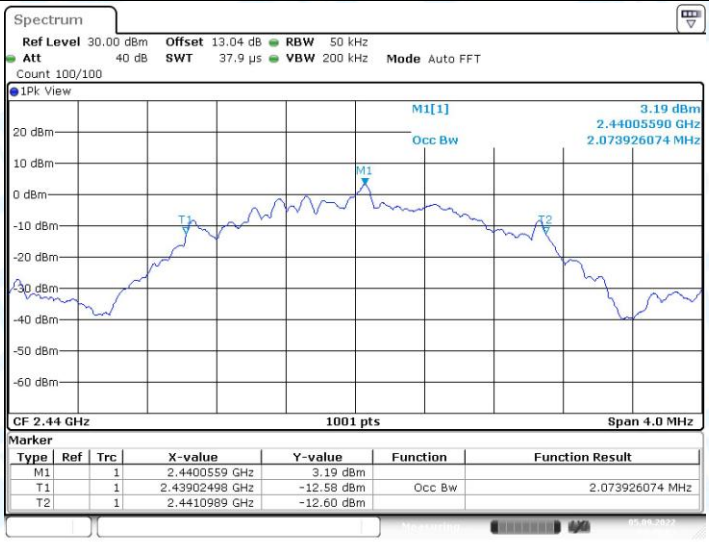
BLE_1M_Ant1_2480



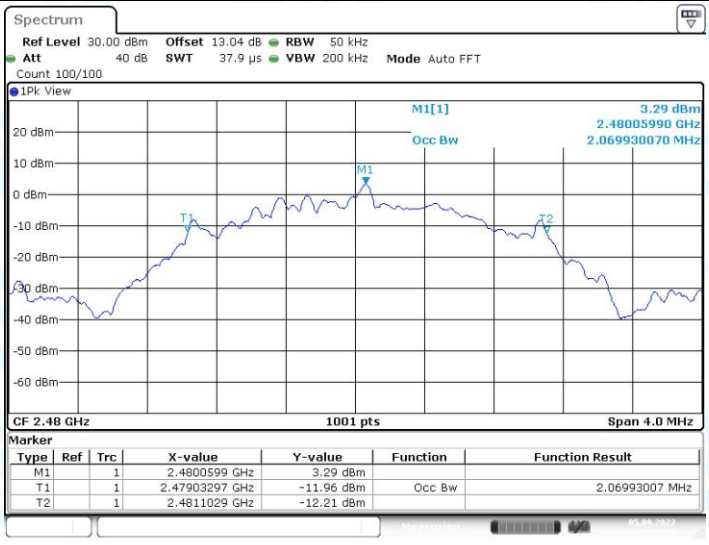
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



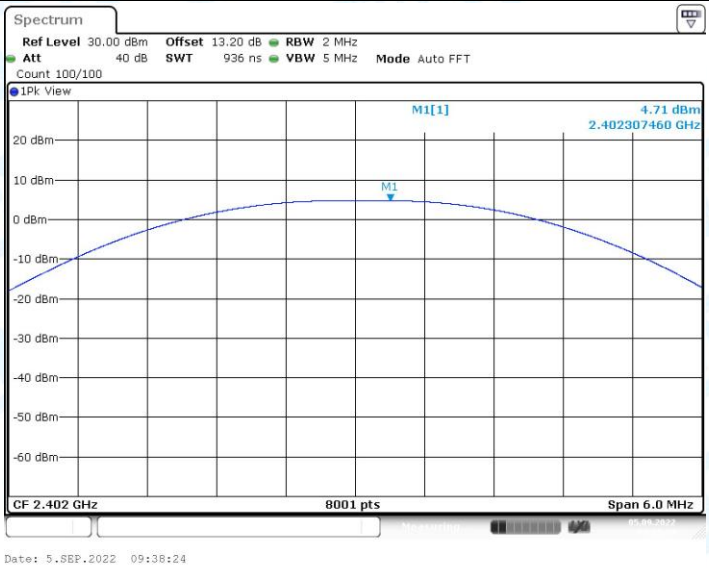
3. Maximum conducted output power

3.1.Test Result

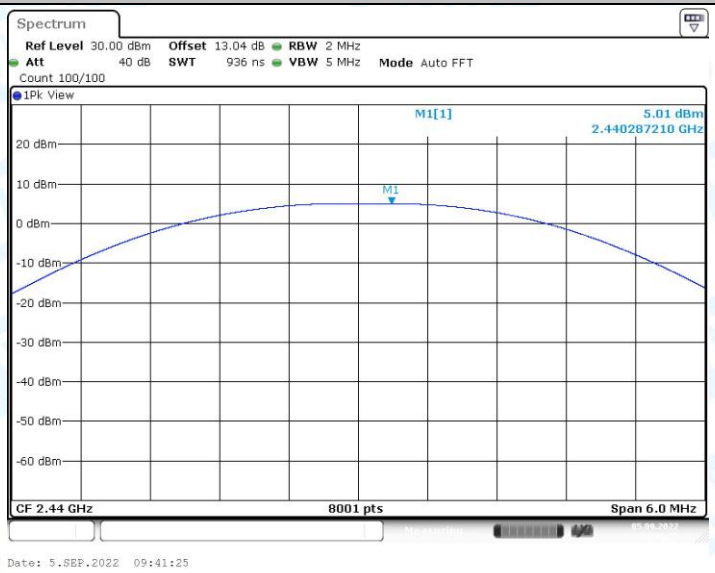
Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	4.71	≤30	PASS
		2440	5.01	≤30	PASS
		2480	5.14	≤30	PASS
BLE_2M	Ant1	2402	4.8	≤30	PASS
		2440	5.01	≤30	PASS
		2480	5.16	≤30	PASS

3.2.Test Graphs

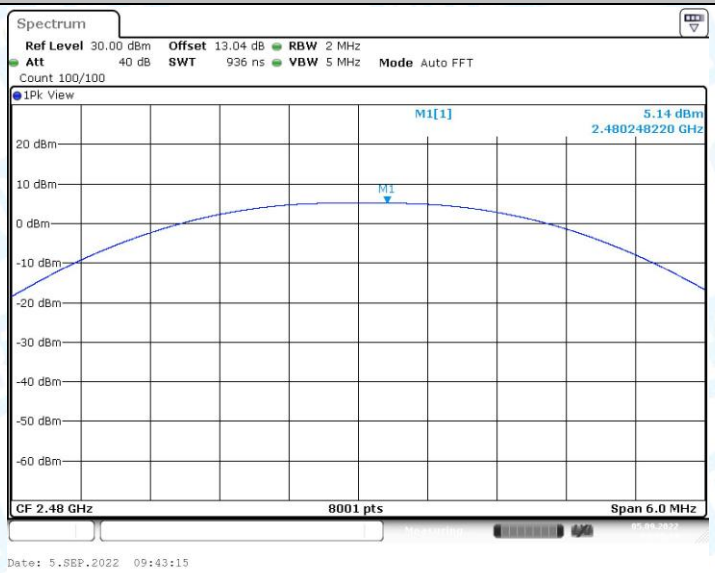
BLE_1M_Ant1_2402



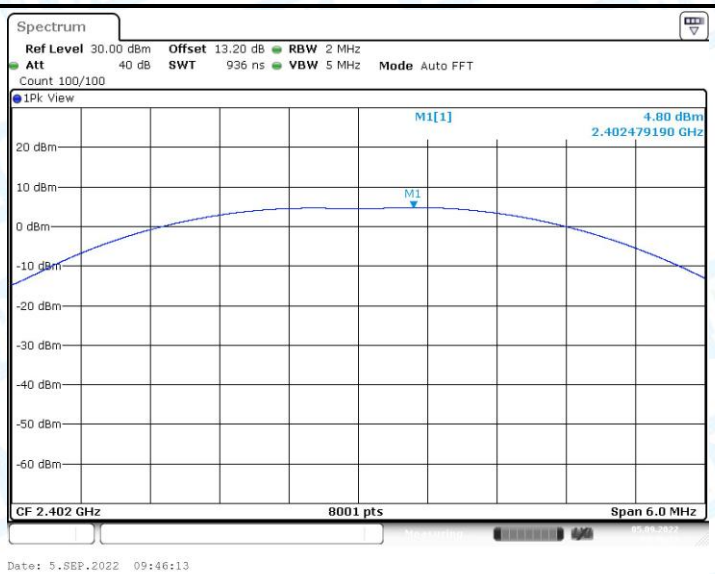
BLE_1M_Ant1_2440



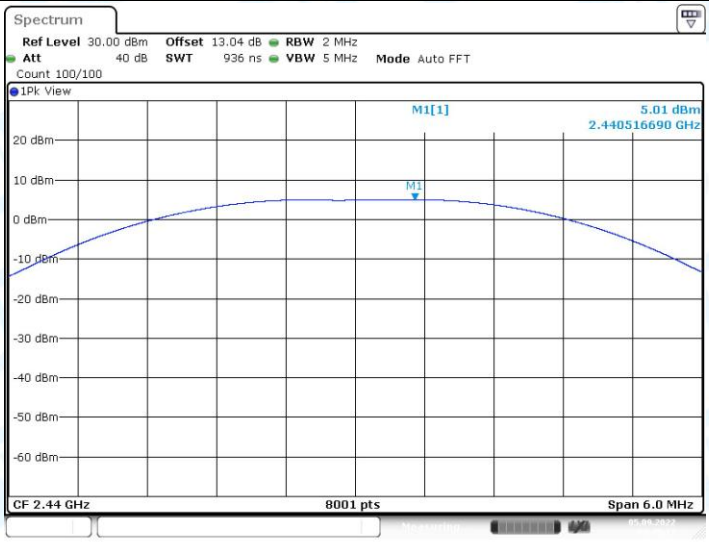
BLE_1M_Ant1_2480



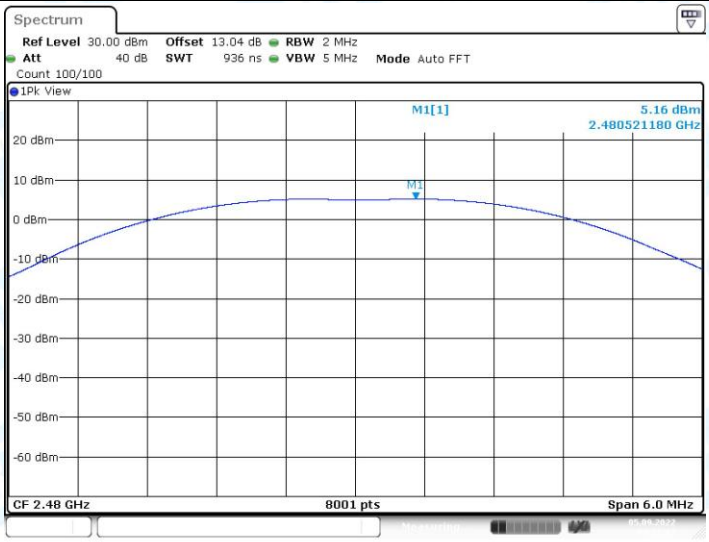
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



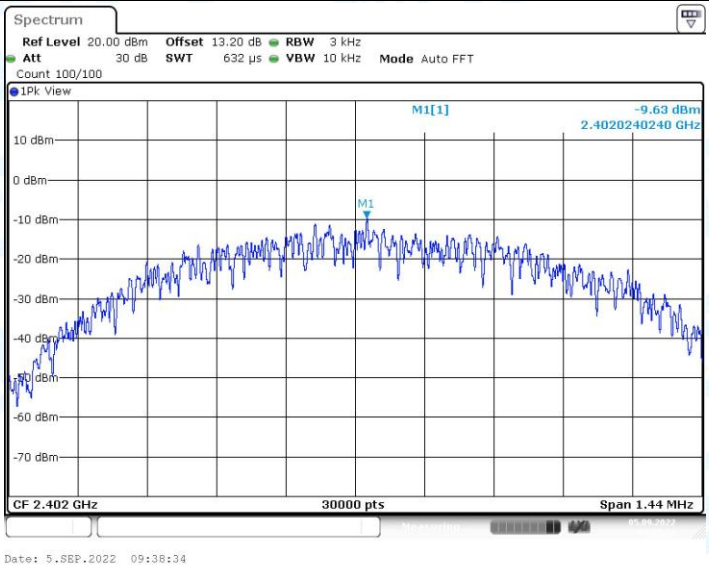
4. Maximum power spectral density

4.1.Test Result

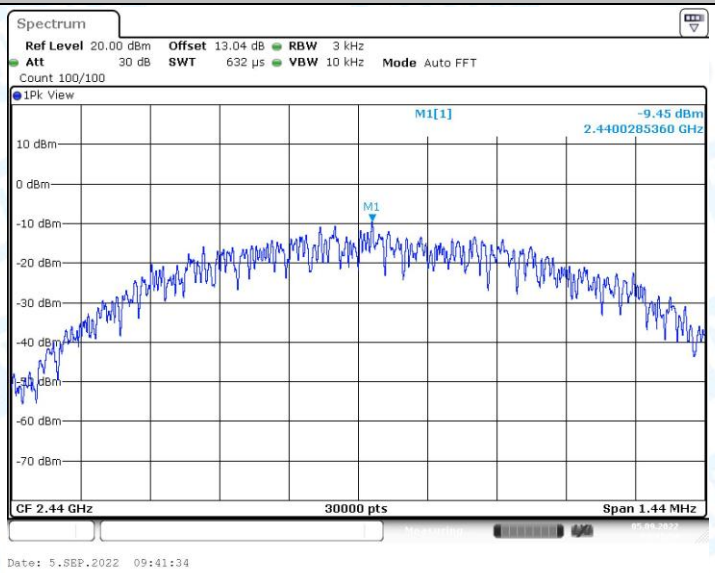
Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-9.63	≤8.00	PASS
		2440	-9.45	≤8.00	PASS
		2480	-9.3	≤8.00	PASS
BLE_2M	Ant1	2402	-12.98	≤8.00	PASS
		2440	-12.56	≤8.00	PASS
		2480	-12.26	≤8.00	PASS

4.2.Test Graphs

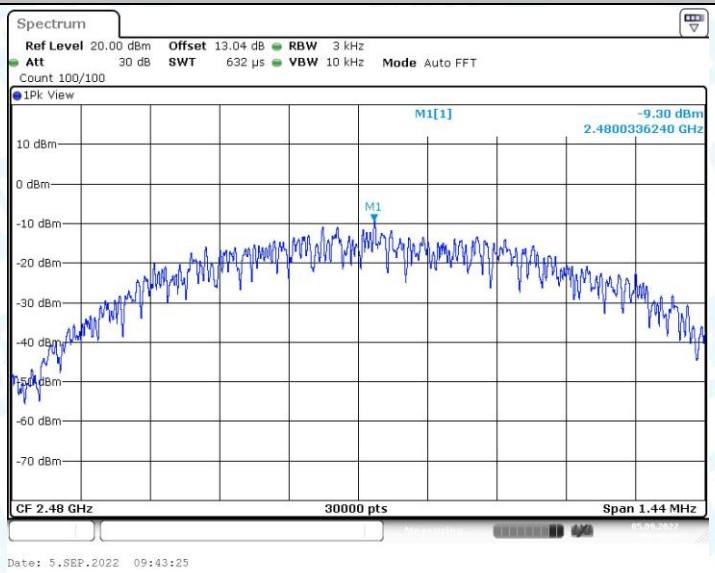
BLE_1M_Ant1_2402



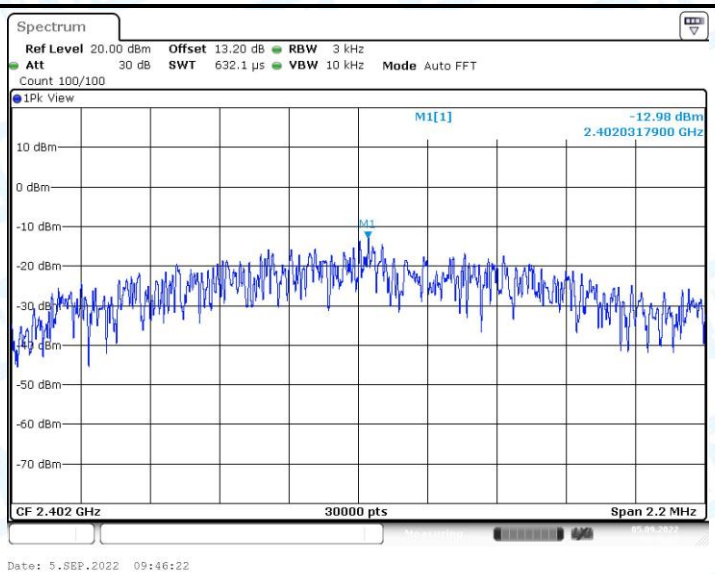
BLE_1M_Ant1_2440



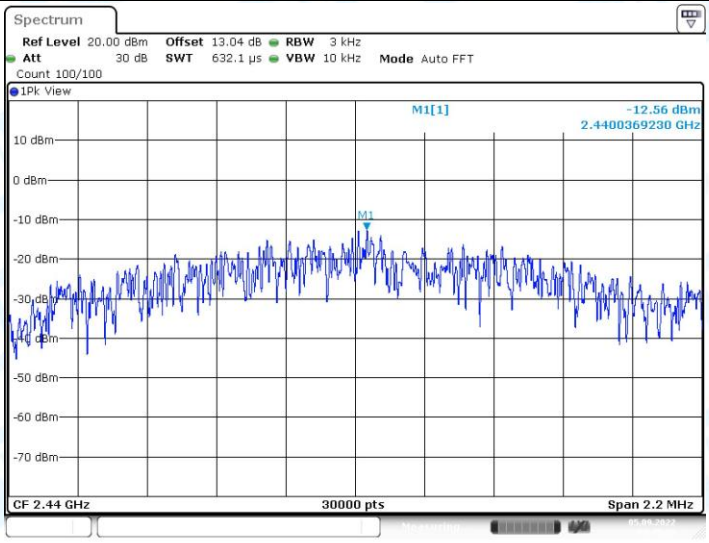
BLE_1M_Ant1_2480



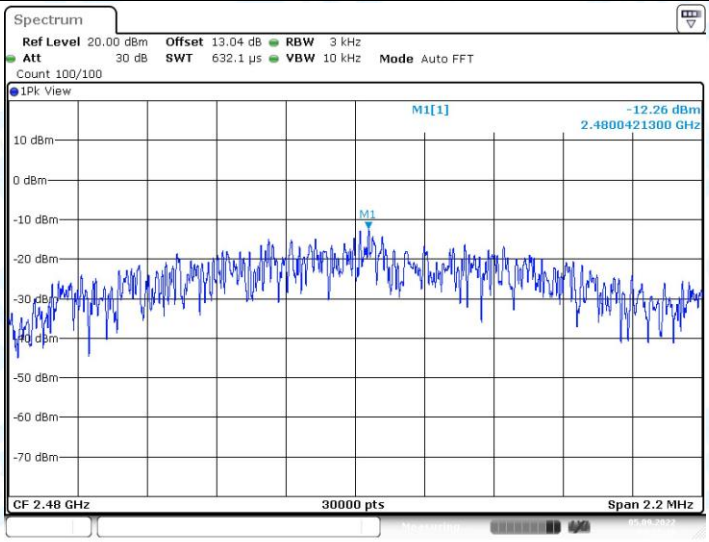
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



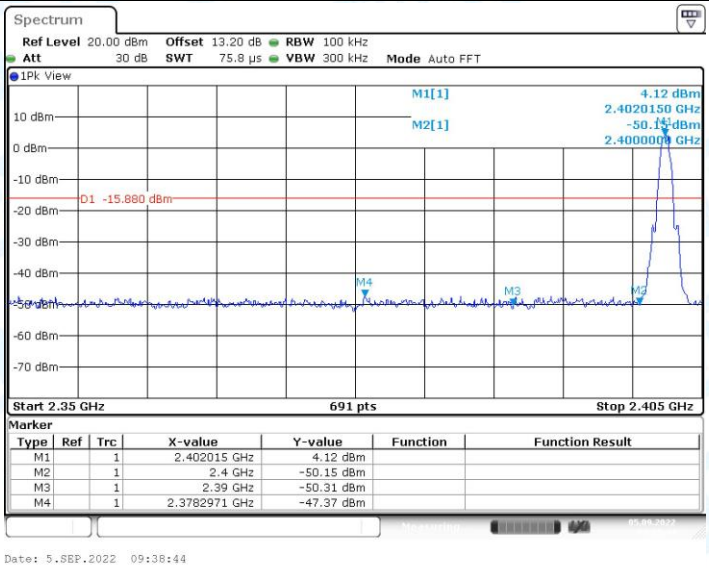
5. Band edge measurements

5.1.Test Result

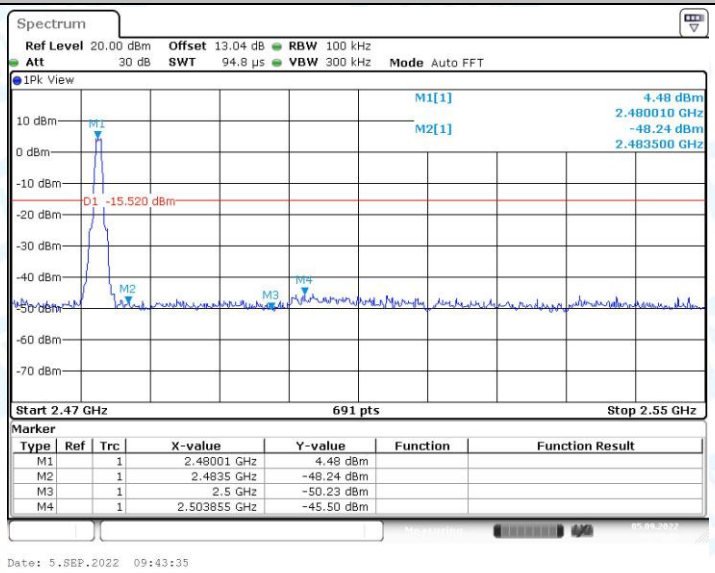
Test Mode	Antenna	ChName	Channel	Ref.Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	4.12	-47.37	≤-15.88	PASS
		High	2480	4.48	-45.5	≤-15.52	PASS
BLE_2M	Ant1	Low	2402	3.98	-29.5	≤-16.02	PASS
		High	2480	4.32	-44.55	≤-15.68	PASS

5.2.Test Graphs

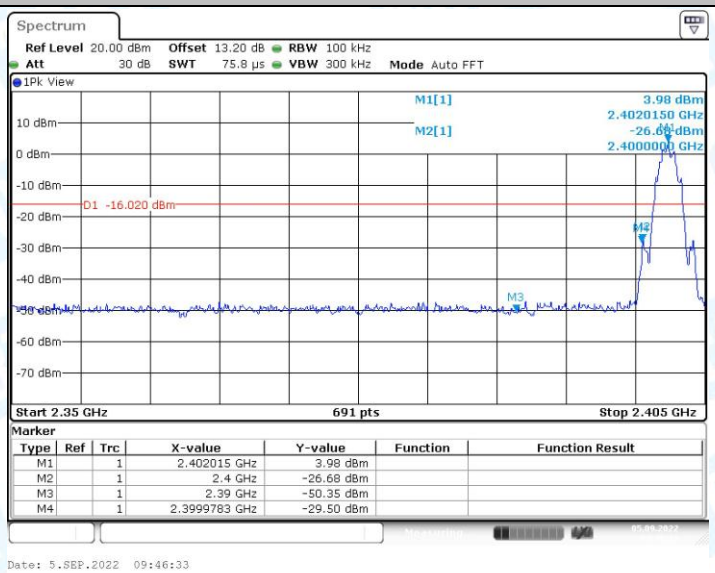
BLE_1M_Ant1_Low_2402



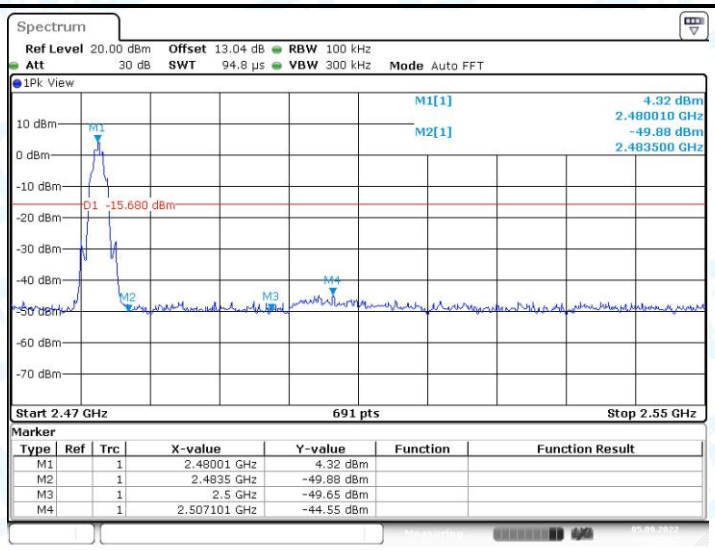
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480


Spectrum
Ref Level 20.00 dBm Offset 13.04 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
1Pk View
M1[1] 4.32 dBm
2.480010 GHz
M2[1] -49.88 dBm
2.483500 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
D1 -15.680 dBm
M1
M2
M3
M4
Start 2.47 GHz
691 pts
Stop 2.55 GHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.48001 GHz 4.32 dBm
M2 1 2.4835 GHz -49.88 dBm
M3 1 2.5 GHz -49.65 dBm
M4 1 2.507101 GHz -44.55 dBm
Date: 5.SEP.2022 09:51:20

6. Conducted Spurious Emission

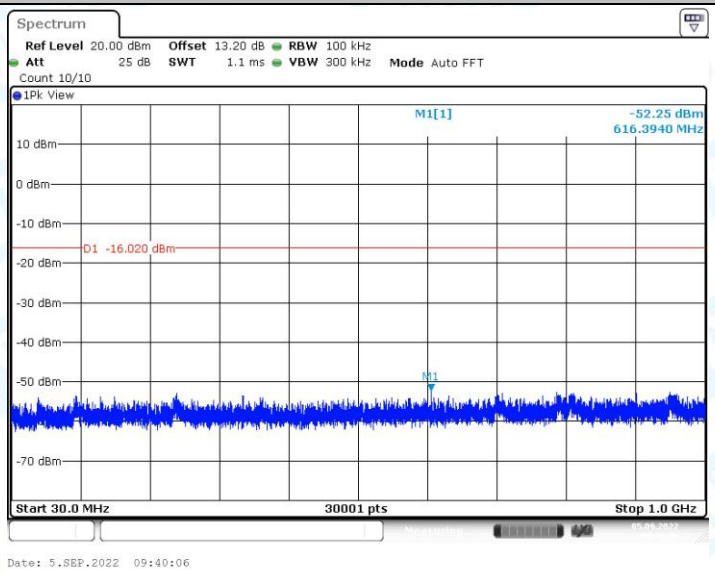
6.1.Test Result

Test Mode	Antenna	Channel	Freq. Range [MHz]	Ref. Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	3.98	3.98	---	PASS
			30~1000	3.98	-52.25	≤-16.02	PASS
			1000~26500	3.98	-45.3	≤-16.02	PASS
		2440	Reference	4.30	4.30	---	PASS
			30~1000	4.30	-51.99	≤-15.7	PASS
			1000~26500	4.30	-45.66	≤-15.7	PASS
		2480	Reference	4.42	4.42	---	PASS
			30~1000	4.42	-50.59	≤-15.58	PASS
			1000~26500	4.42	-45.63	≤-15.58	PASS
BLE_2M	Ant1	2402	Reference	3.82	3.82	---	PASS
			30~1000	3.82	-50.81	≤-16.18	PASS
			1000~26500	3.82	-45.4	≤-16.18	PASS
		2440	Reference	4.15	4.15	---	PASS
			30~1000	4.15	-51.52	≤-15.85	PASS
			1000~26500	4.15	-45.78	≤-15.85	PASS
		2480	Reference	4.26	4.26	---	PASS
			30~1000	4.26	-51.24	≤-15.74	PASS
			1000~26500	4.26	-45.15	≤-15.74	PASS

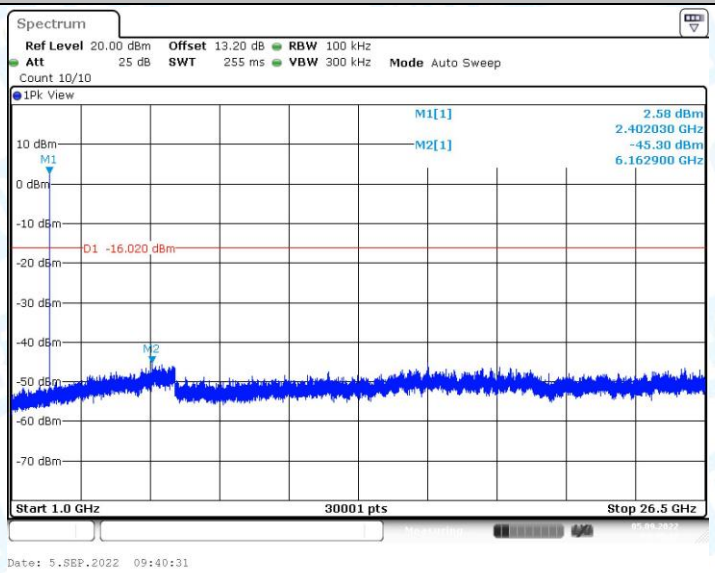
6.2.Test Graphs

BLE_1M_Ant1_2402_0~Reference

BLE_1M_Ant1_2402_30~1000

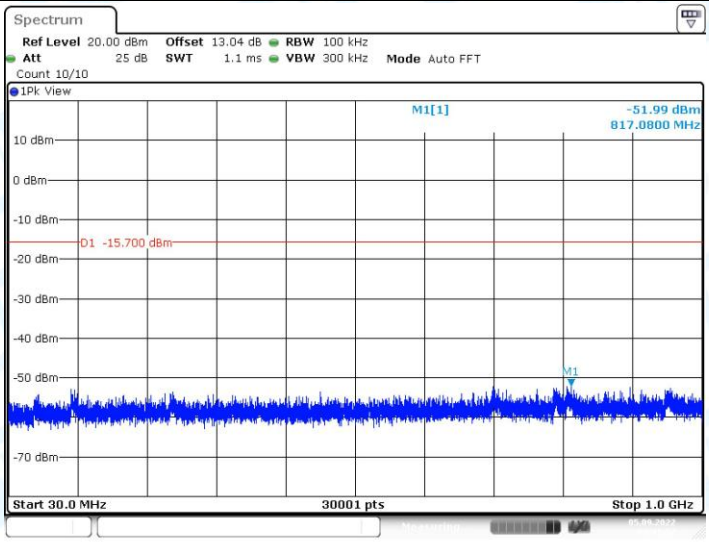


BLE_1M_Ant1_2402_1000~26500

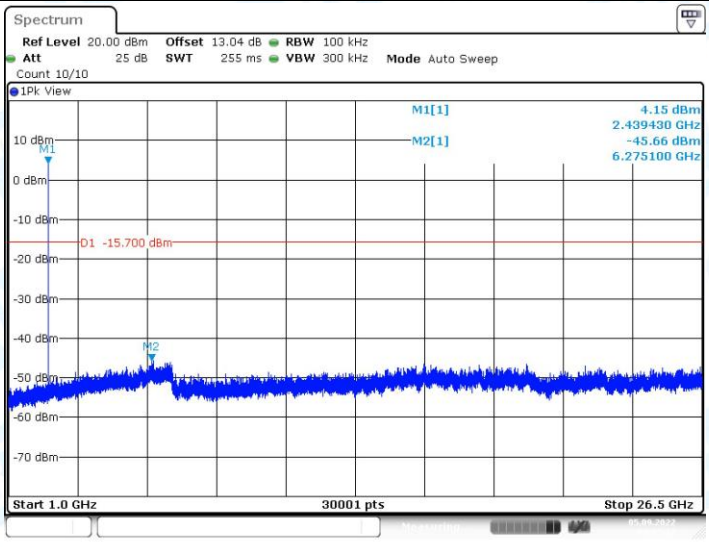


BLE_1M_Ant1_2440_0~Reference

BLE_1M_Ant1_2440_30~1000

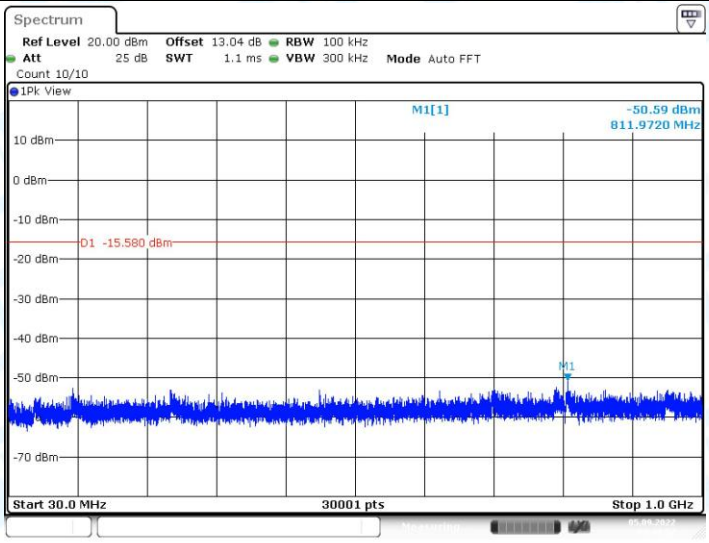


BLE_1M_Ant1_2440_1000~26500

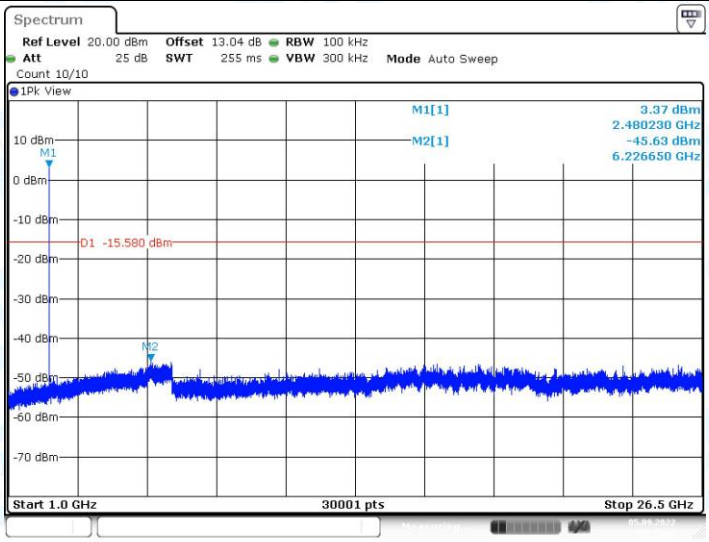


BLE_1M_Ant1_2480_0~Reference

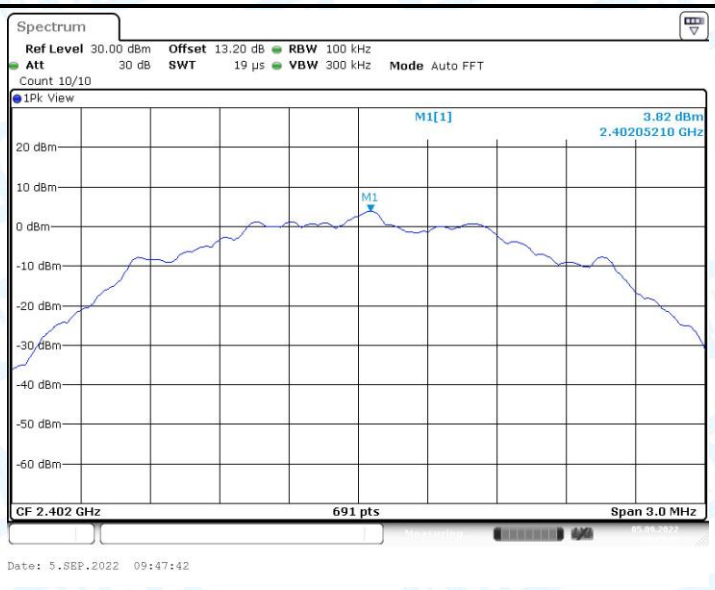
BLE_1M_Ant1_2480_30~1000



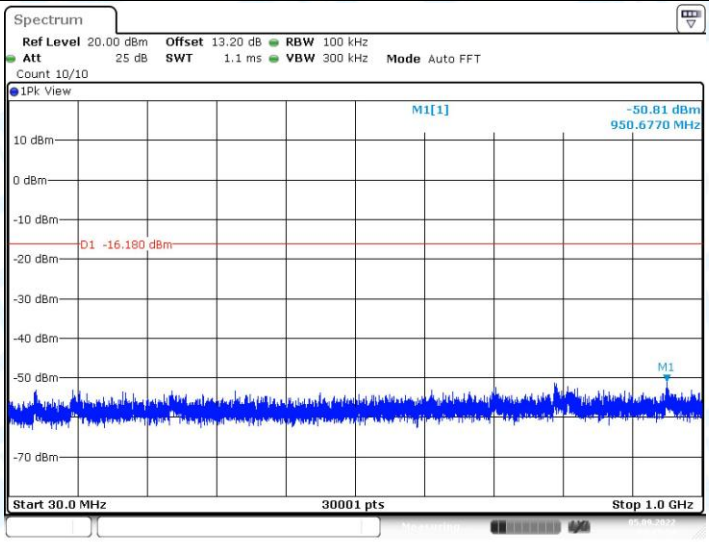
BLE_1M_Ant1_2480_1000~26500



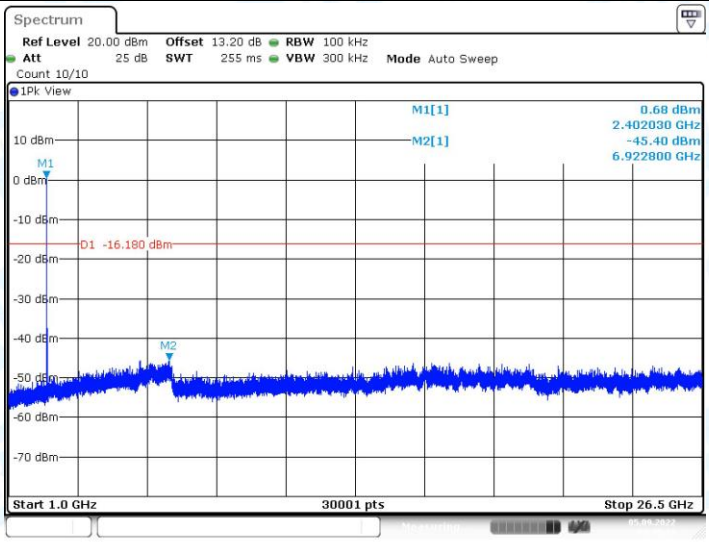
BLE_2M_Ant1_2402_0~Reference



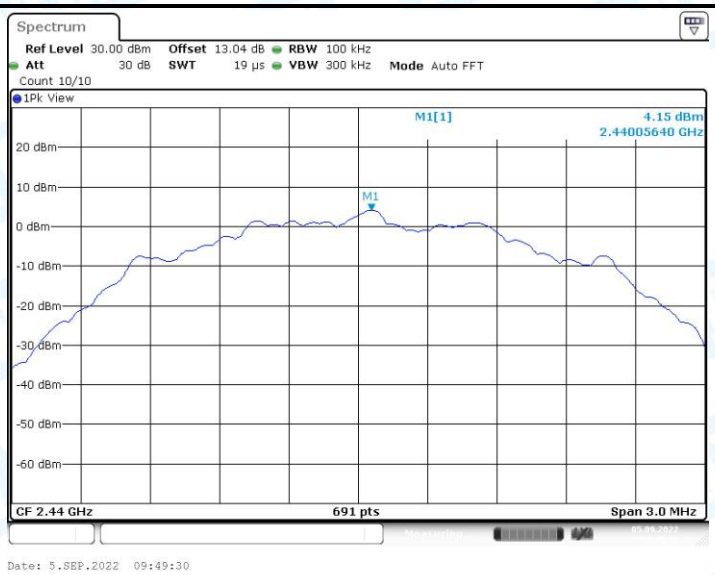
BLE_2M_Ant1_2402_30~1000



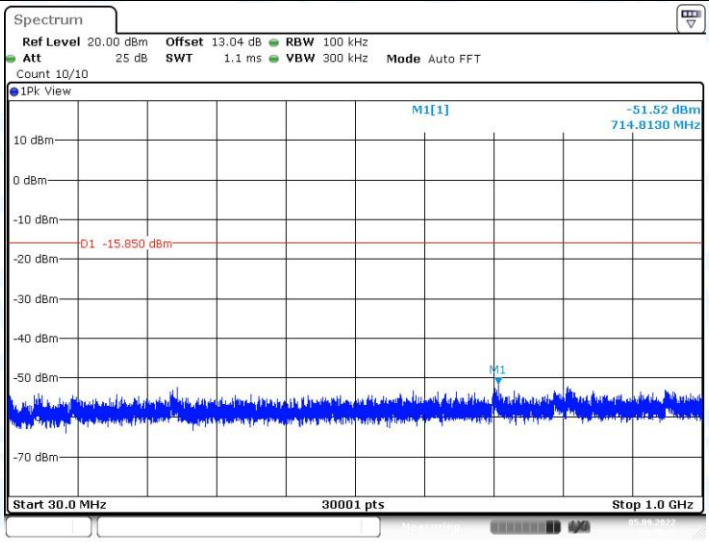
BLE_2M_Ant1_2402_1000~26500



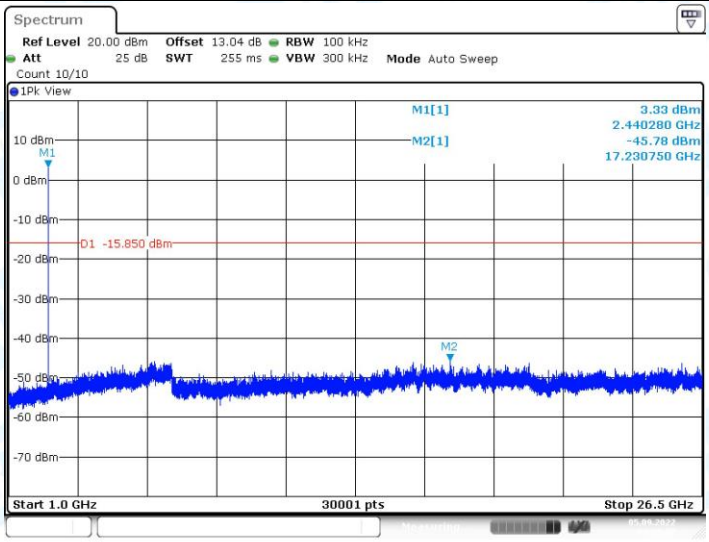
BLE_2M_Ant1_2440_0~Reference



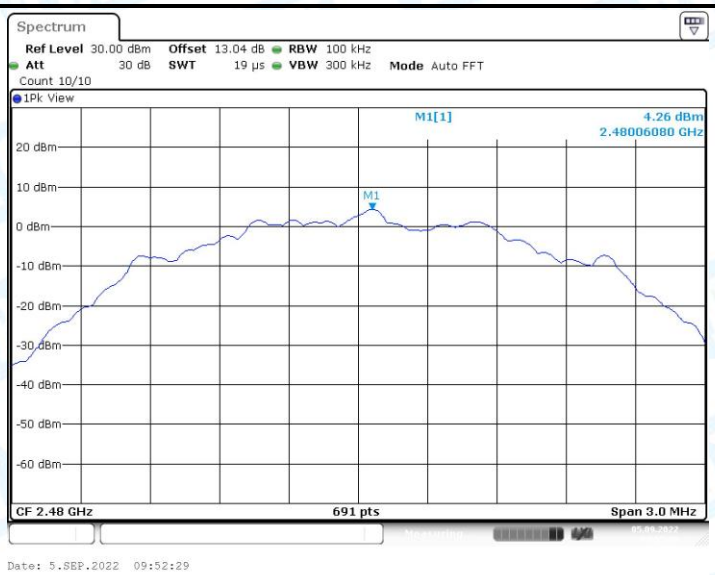
BLE_2M_Ant1_2440_30~1000



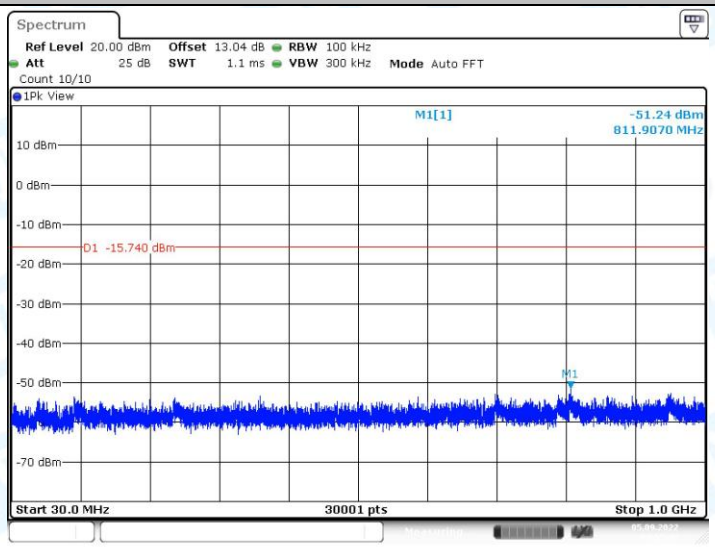
BLE_2M_Ant1_2440_1000~26500



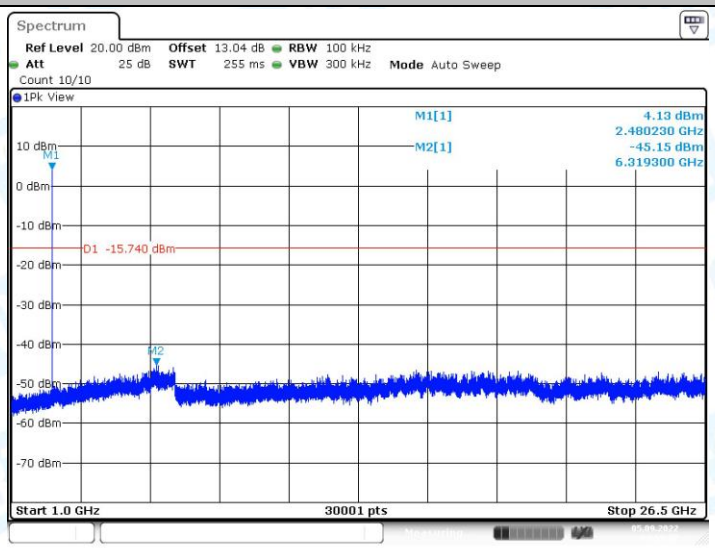
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



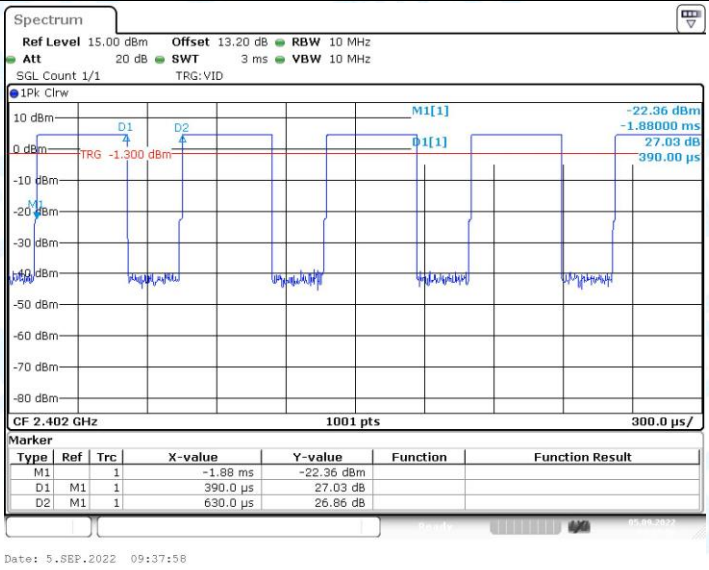
7. Duty Cycle

7.1.Test Result

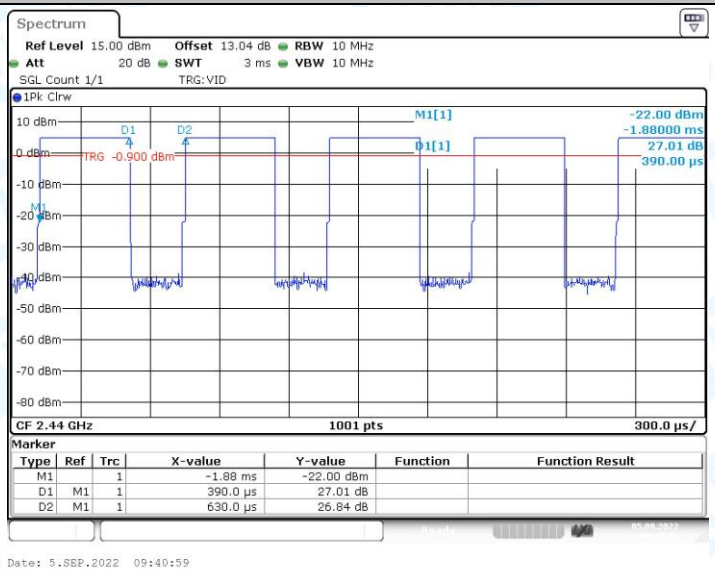
Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	61.90	---	---
		2440	0.39	0.63	61.90	---	---
		2480	0.39	0.63	61.90	---	---
BLE_2M	Ant1	2402	0.00	0.01	100	---	---
		2440	0.00	0.01	100	---	---
		2480	0.00	0.01	100	---	---

7.2.Test Graphs

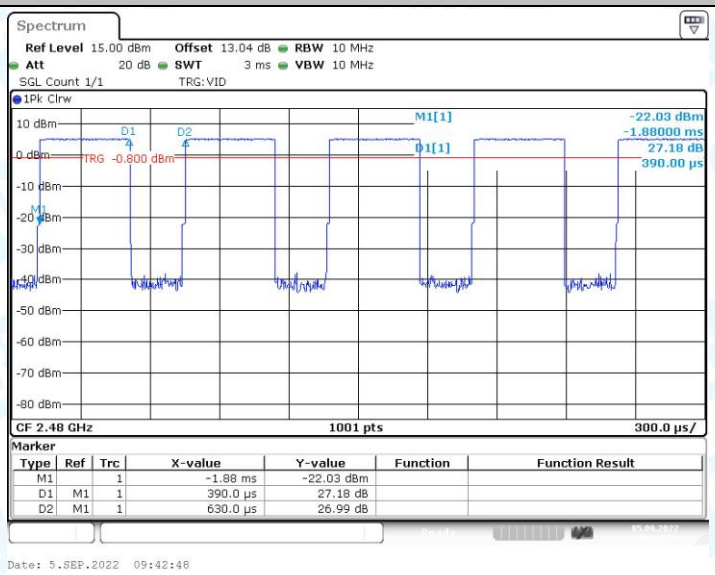
BLE_1M_Ant1_2402



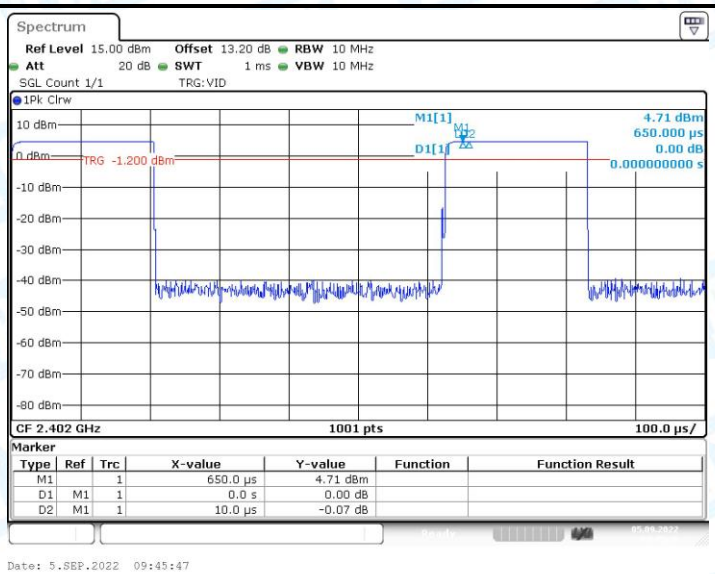
BLE_1M_Ant1_2440



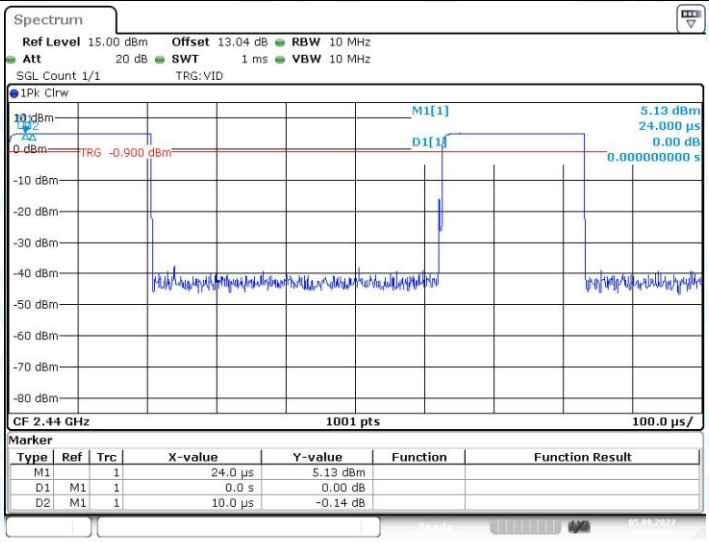
BLE_1M_Ant1_2480



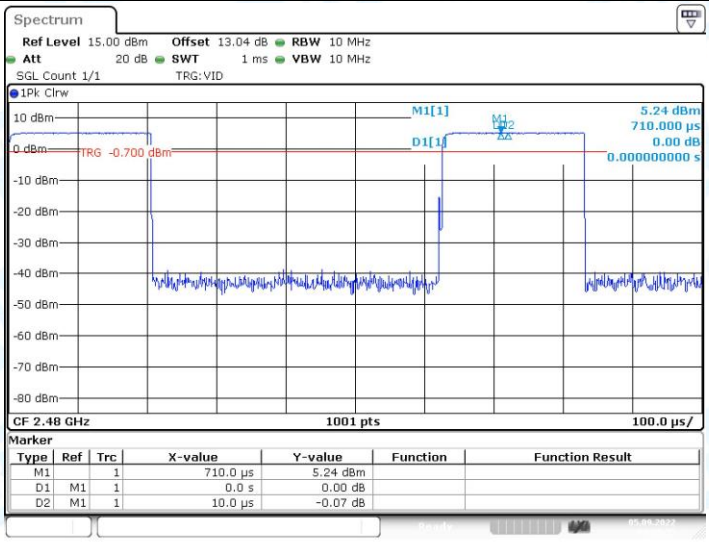
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



8. Emissions in Restricted Bands

8.1.Test Result

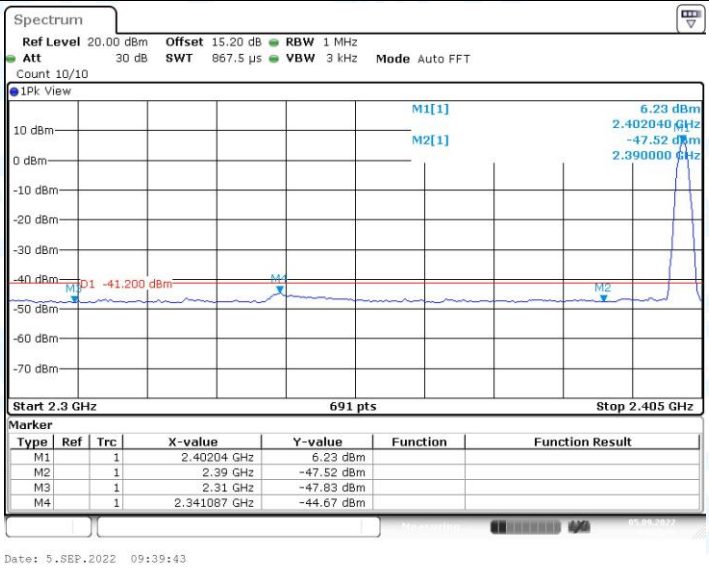
Test Mode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-47.83	≤-41.20	PASS
				AV	2341.087	-44.67	≤-41.20	PASS
				AV	2390.000	-47.52	≤-41.20	PASS
				Peak	2310.000	-37.14	≤-21.20	PASS
				Peak	2339.870	-34.59	≤-21.20	PASS
				Peak	2390.000	-37.63	≤-21.20	PASS
		High	2480	AV	2483.500	-46.88	≤-41.20	PASS
				AV	2483.913	-46.35	≤-41.20	PASS
				AV	2500.000	-46.97	≤-41.20	PASS
				Peak	2483.500	-38.37	≤-21.20	PASS
				Peak	2485.420	-34.61	≤-21.20	PASS
				Peak	2500.000	-36.94	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-48.91	≤-41.20	PASS
				AV	2340.783	-46.59	≤-41.20	PASS
				AV	2390.000	-48.89	≤-41.20	PASS
				Peak	2310.000	-38.55	≤-21.20	PASS
				Peak	2342.152	-34.13	≤-21.20	PASS
				Peak	2390.000	-37.53	≤-21.20	PASS
		High	2480	AV	2483.500	-47.63	≤-41.20	PASS
				AV	2483.565	-47.67	≤-41.20	PASS
				AV	2500.000	-48.09	≤-41.20	PASS
				Peak	2483.500	-37.19	≤-21.20	PASS
				Peak	2497.710	-35.49	≤-21.20	PASS
				Peak	2500.000	-36.52	≤-21.20	PASS

Note:

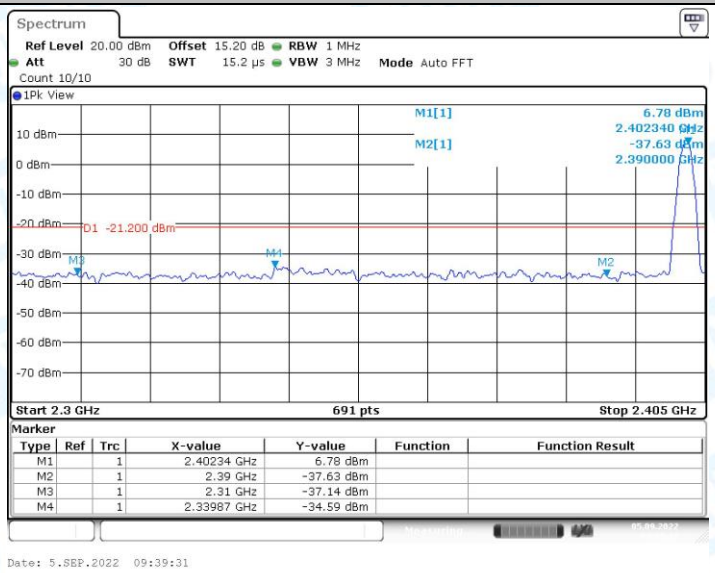
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

8.2.Test Graphs

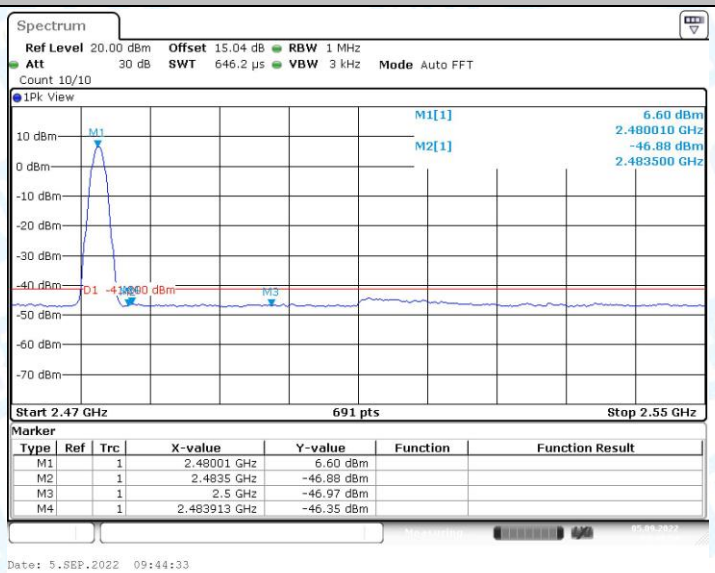
BLE_1M_Ant1_Low_2402_AV



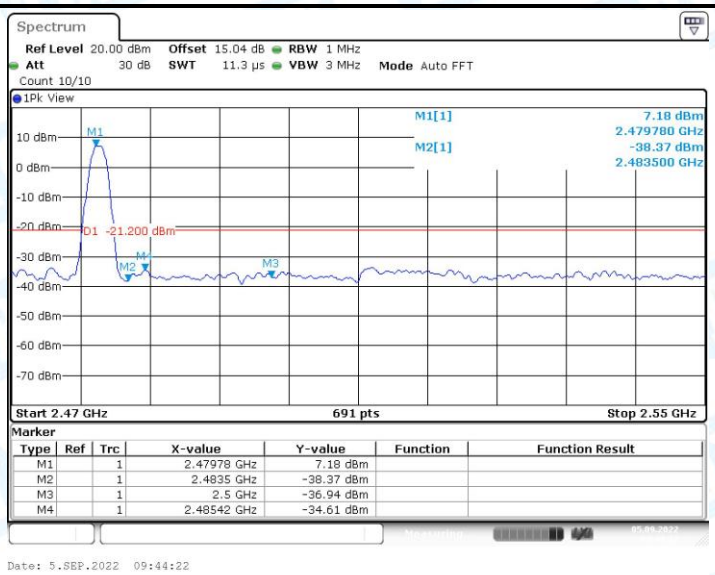
BLE_1M_Ant1_Low_2402_Peak



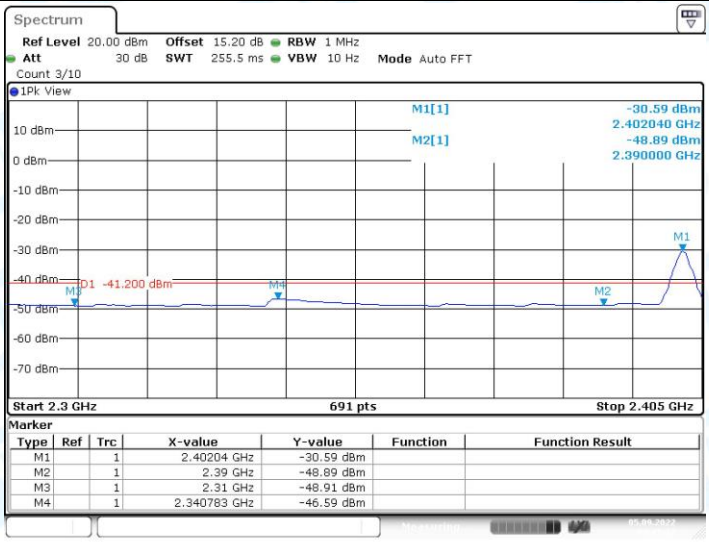
BLE_1M_Ant1_High_2480_AV



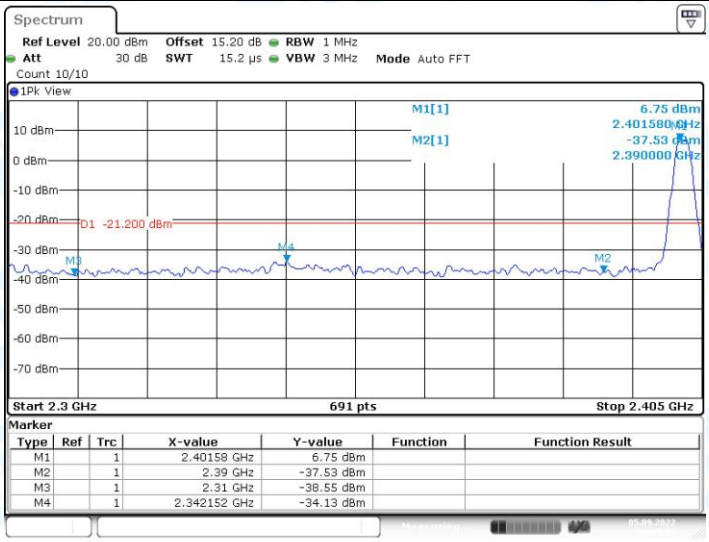
BLE_1M_Ant1_High_2480_Peak



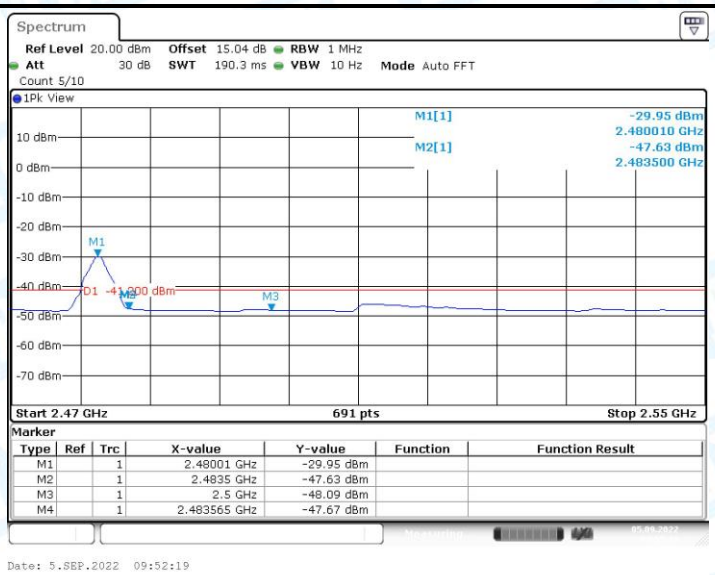
BLE_2M_Ant1_Low_2402_AV



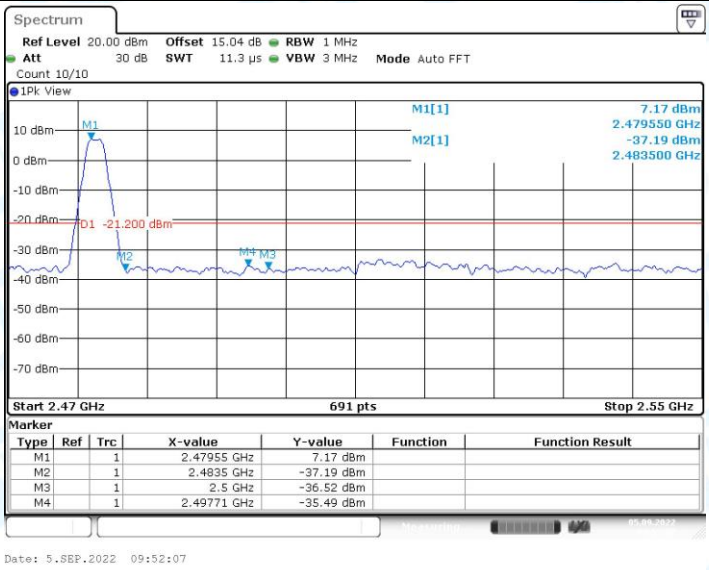
BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak



-----End of the report-----