

RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
Product Name:	Retro Mini PC
Test Model:	AYANEO Retro Mini PC AM02
Sample ID:	HC-C-202311-0249-01-02-2#
Environmental Conditions	
Temperature:	23.8°C
Relative Humidity:	48%
Test Voltage:	DC 20V
Test Engineer:	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202311-0249-61	

Contents

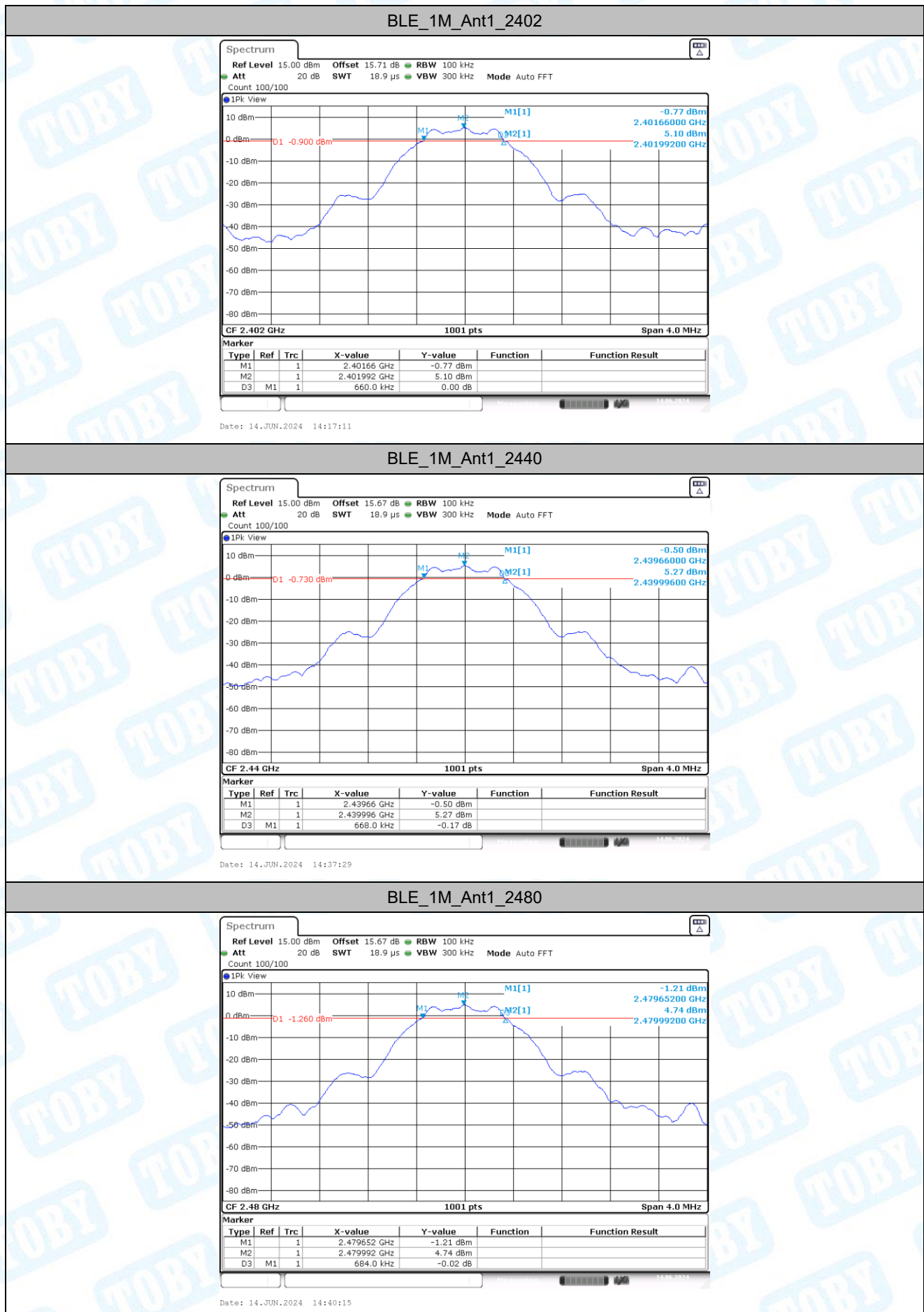
1. DTS Bandwidth.....	3
1.1. Test Result.....	3
1.2. Test Graphs.....	4
2. Occupied Channel Bandwidth.....	6
2.1. Test Result.....	6
2.2. Test Graphs.....	7
3. Maximum conducted output power.....	9
3.1. Test Result.....	9
3.2. Test Graphs.....	10
4. Maximum power spectral density.....	12
4.1. Test Result.....	12
4.2. Test Graphs.....	13
5. Band edge measurements.....	15
5.1. Test Result.....	15
5.2. Test Graphs.....	16
6. Conducted Spurious Emission.....	18
6.1. Test Result.....	18
6.2. Test Graphs.....	19
7. Duty Cycle.....	25
7.1. Test Result.....	25
7.2. Test Graphs.....	26
8. Emissions in Restricted Bands.....	28
8.1. Test Result.....	28
8.2. Test Graphs.....	29

1. DTS Bandwidth

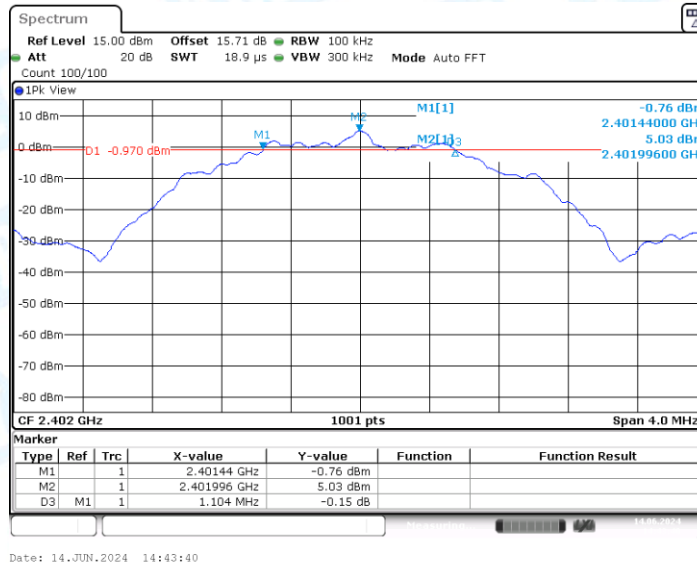
1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.66	2401.66	2402.32	0.5	PASS
		2440	0.67	2439.66	2440.33	0.5	PASS
		2480	0.68	2479.65	2480.34	0.5	PASS
BLE_2M	Ant1	2402	1.10	2401.44	2402.54	0.5	PASS
		2440	1.12	2439.44	2440.56	0.5	PASS
		2480	1.12	2479.44	2480.56	0.5	PASS

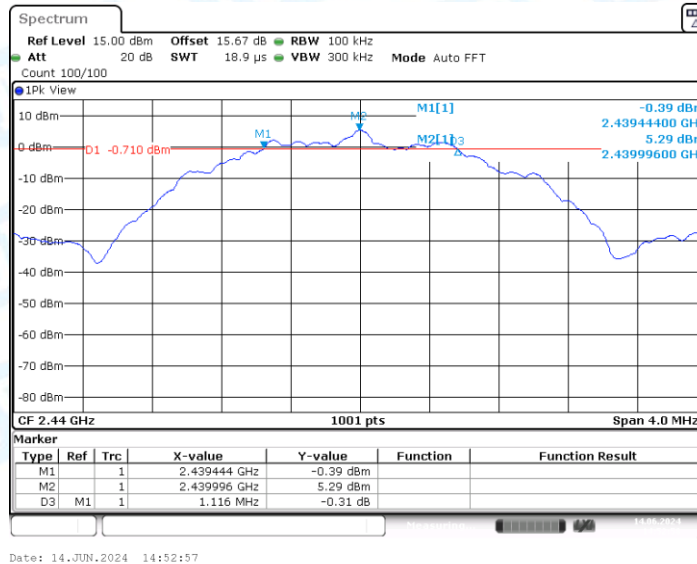
1.2. Test Graphs



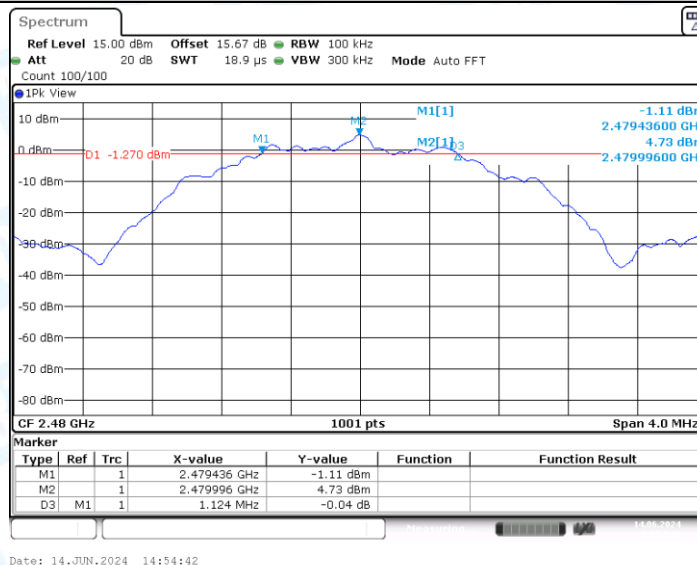
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

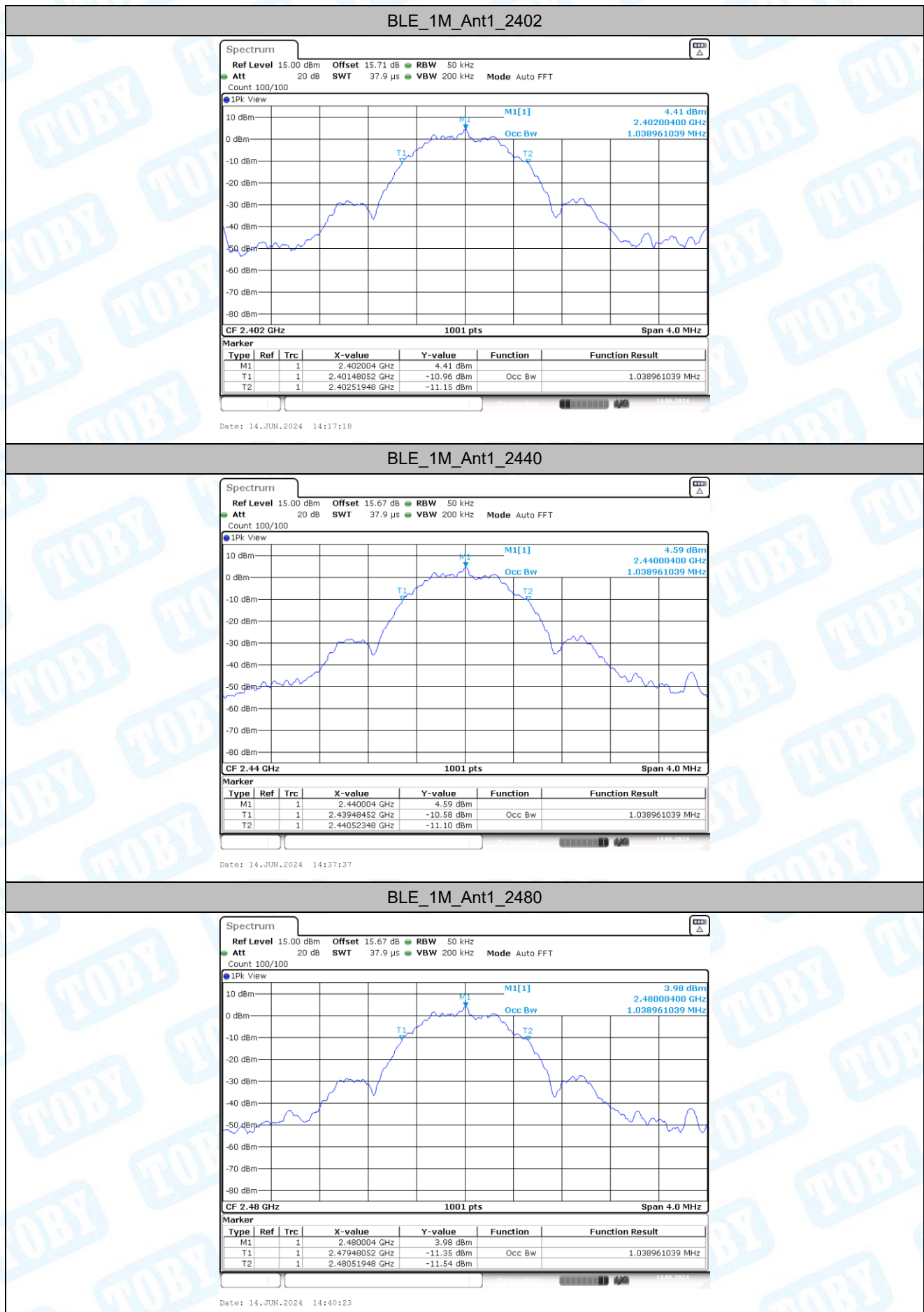


2. Occupied Channel Bandwidth

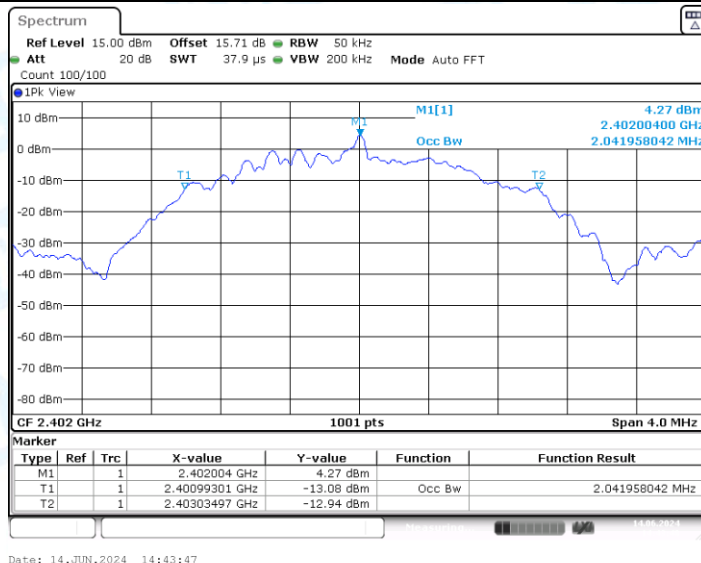
2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.039	2401.4805	2402.5195	---	---
		2440	1.039	2439.4845	2440.5235	---	---
		2480	1.039	2479.4805	2480.5195	---	---
BLE_2M	Ant1	2402	2.042	2400.9930	2403.0350	---	---
		2440	2.038	2438.9970	2441.0350	---	---
		2480	2.038	2478.9970	2481.0350	---	---

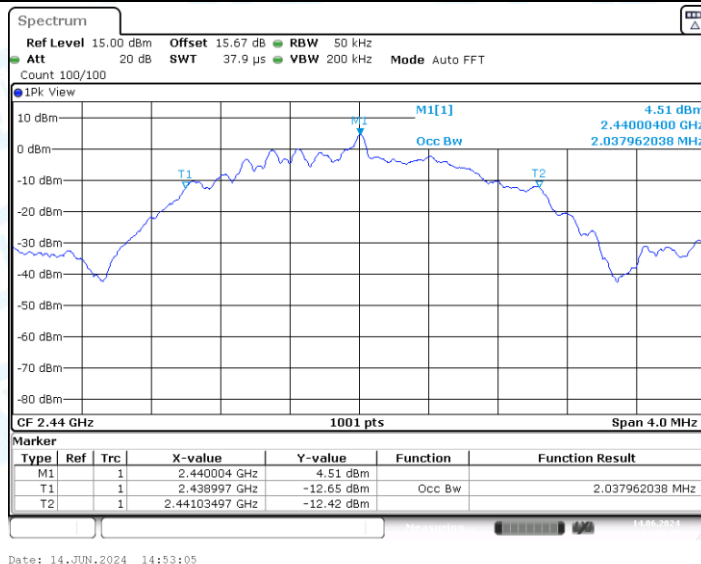
2.2. Test Graphs



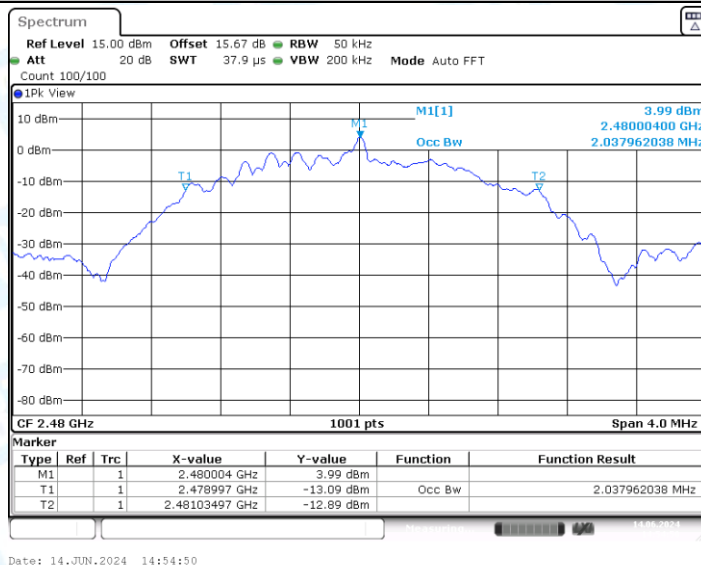
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

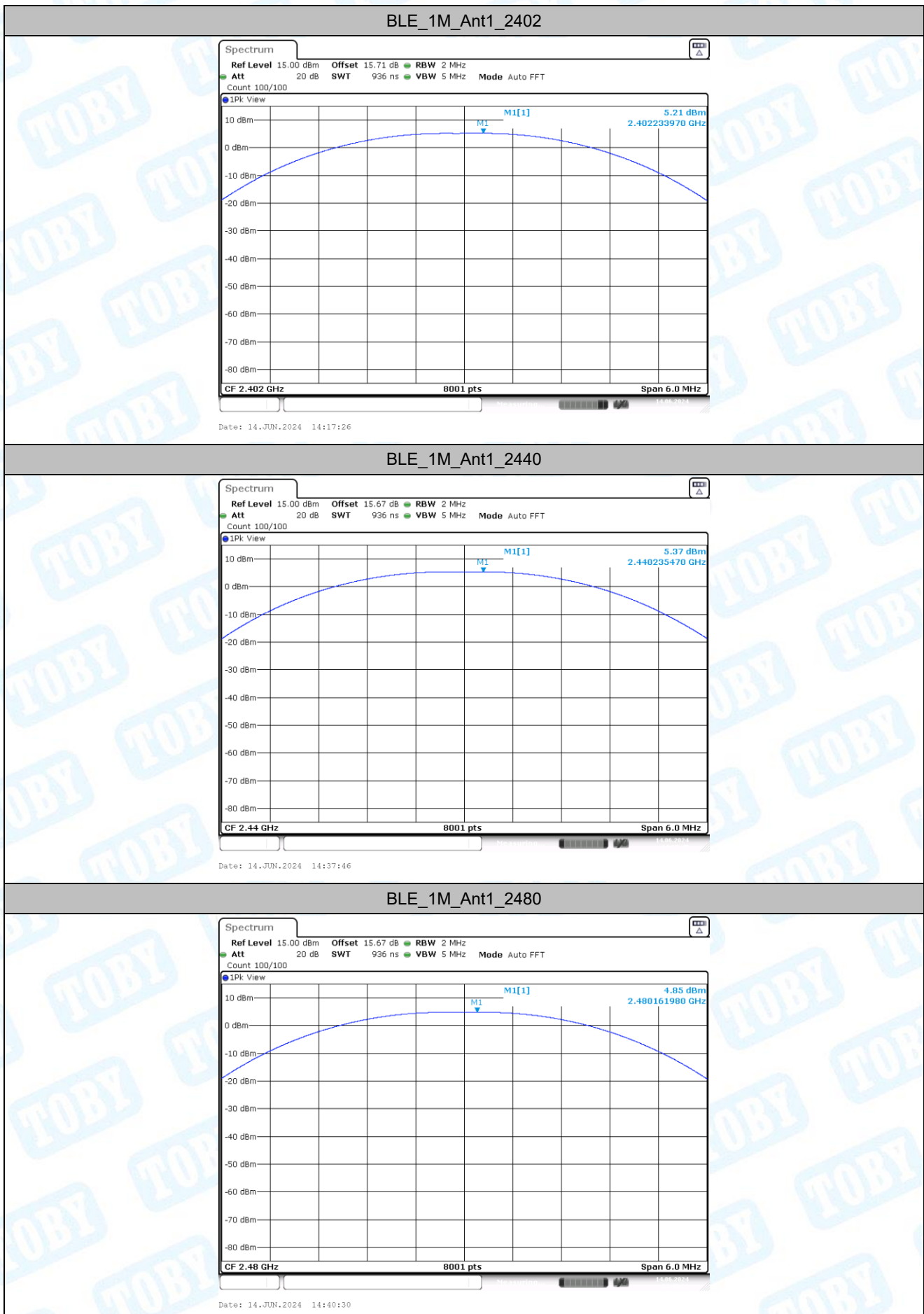


3. Maximum conducted output power

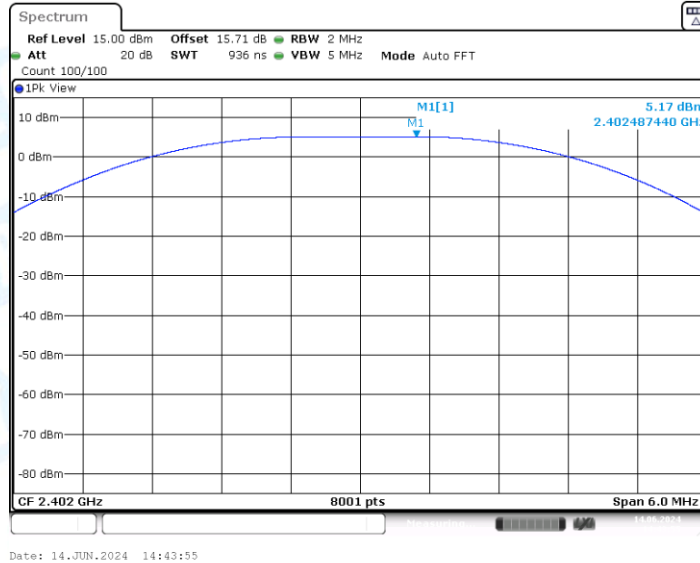
3.1. Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.21	≤30	PASS
		2440	5.37	≤30	PASS
		2480	4.85	≤30	PASS
BLE_2M	Ant1	2402	5.17	≤30	PASS
		2440	5.39	≤30	PASS
		2480	4.84	≤30	PASS

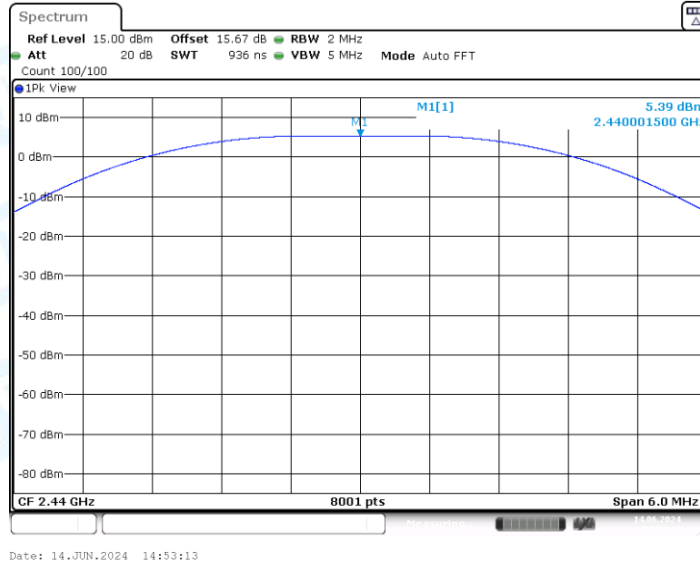
3.2. Test Graphs



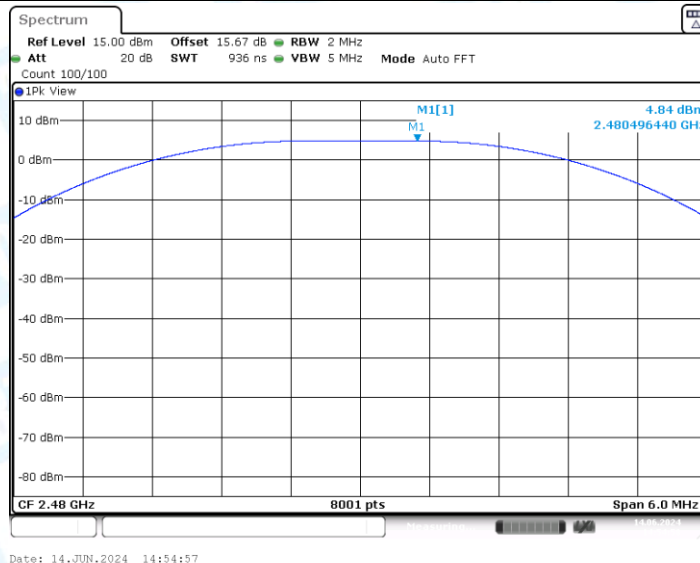
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

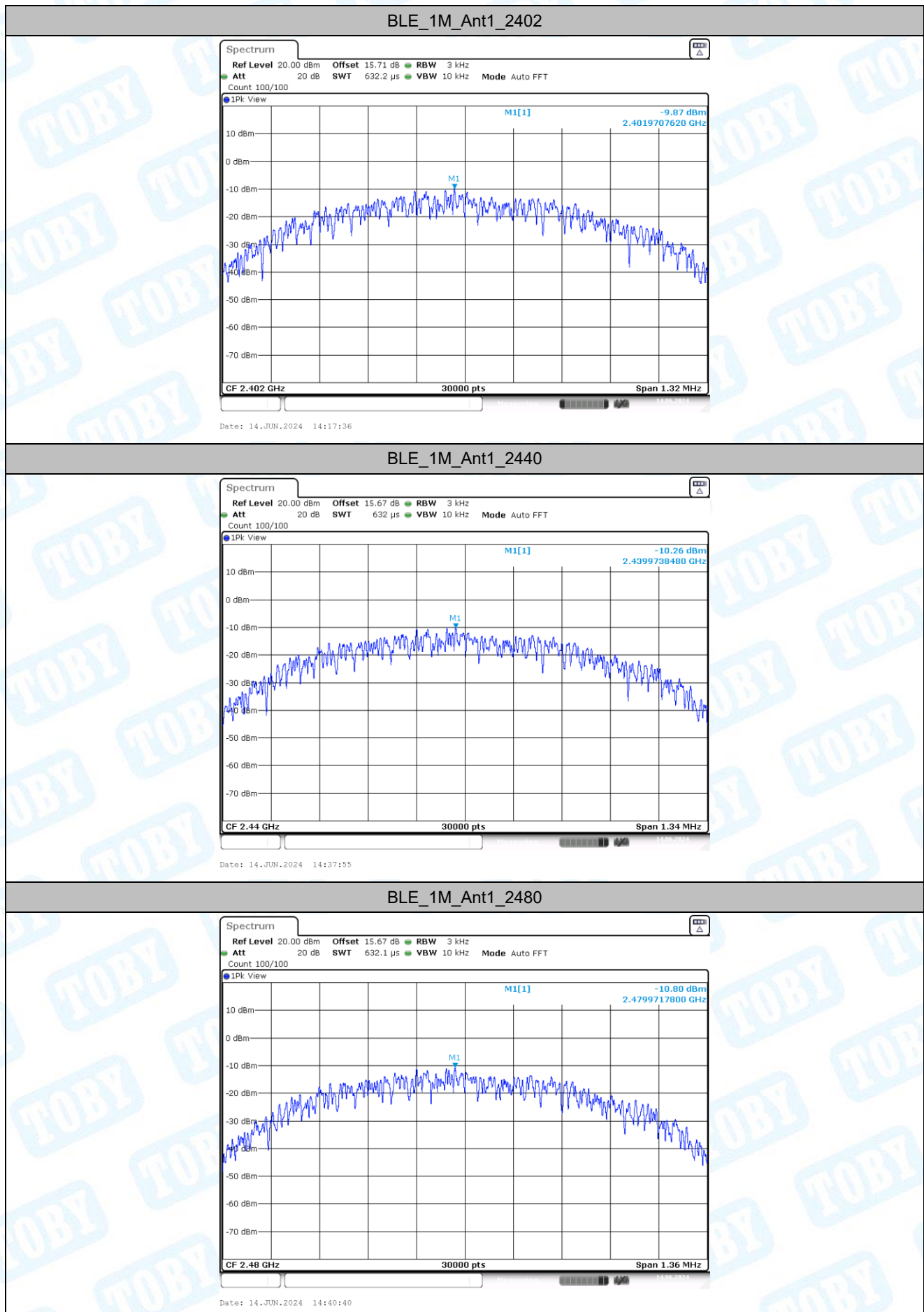


4. Maximum power spectral density

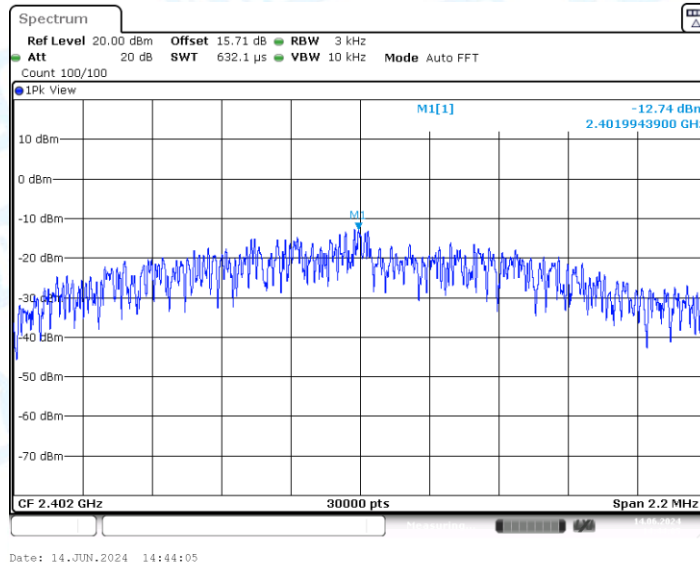
4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-9.87	≤8.00	PASS
		2440	-10.26	≤8.00	PASS
		2480	-10.80	≤8.00	PASS
BLE_2M	Ant1	2402	-12.74	≤8.00	PASS
		2440	-12.50	≤8.00	PASS
		2480	-12.94	≤8.00	PASS

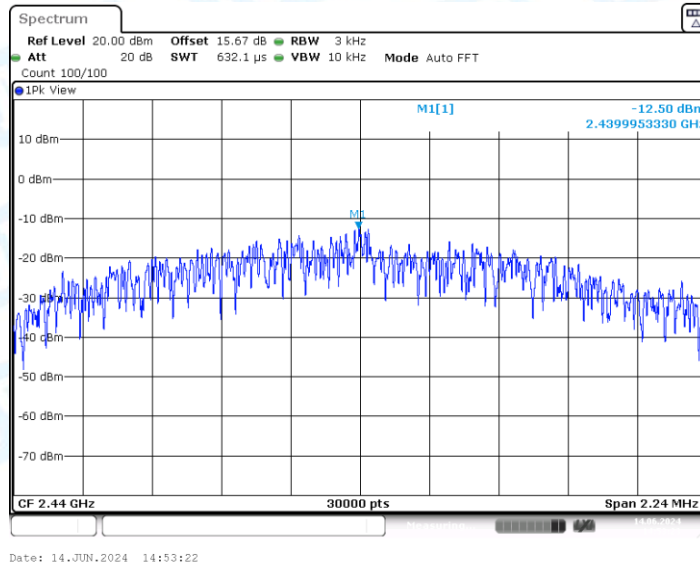
4.2. Test Graphs



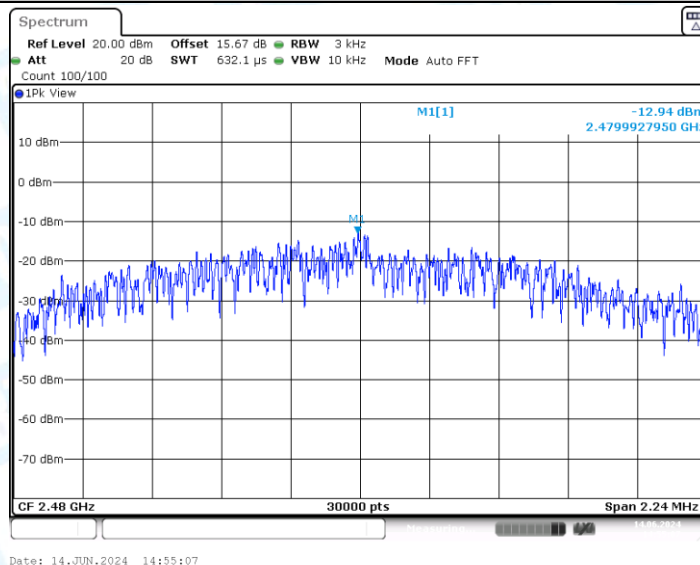
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

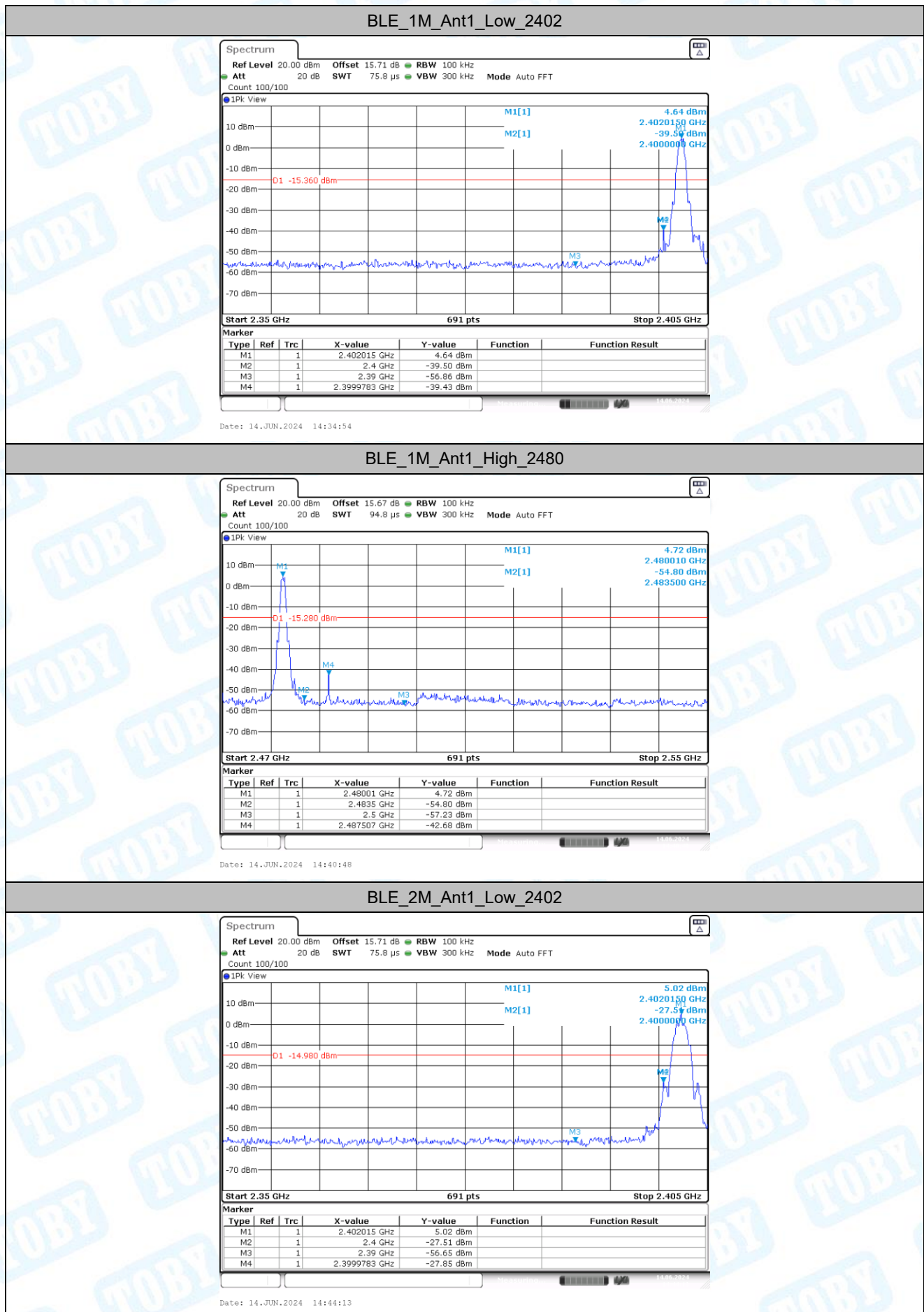


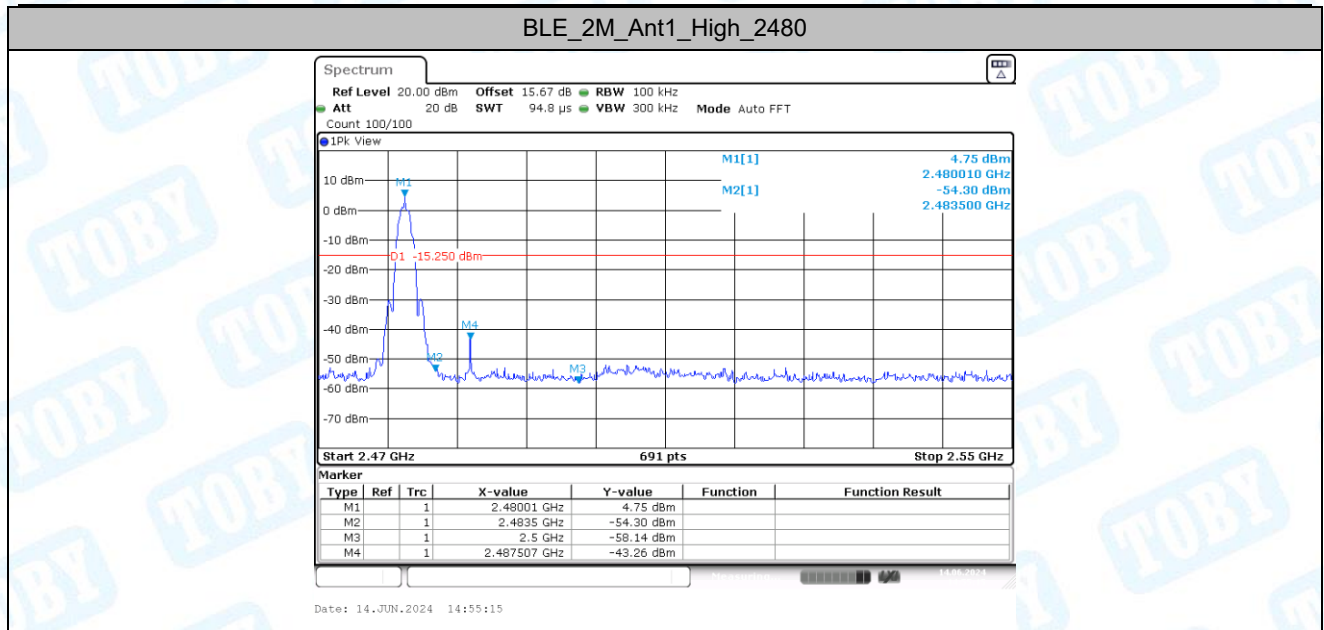
5. Band edge measurements

5.1. Test Result

Test Mode	Antenna	ChName	Channel	Ref.Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	4.64	-39.43	≤-15.36	PASS
		High	2480	4.72	-42.68	≤-15.28	PASS
BLE_2M	Ant1	Low	2402	5.02	-27.85	≤-14.98	PASS
		High	2480	4.75	-43.26	≤-15.25	PASS

5.2. Test Graphs





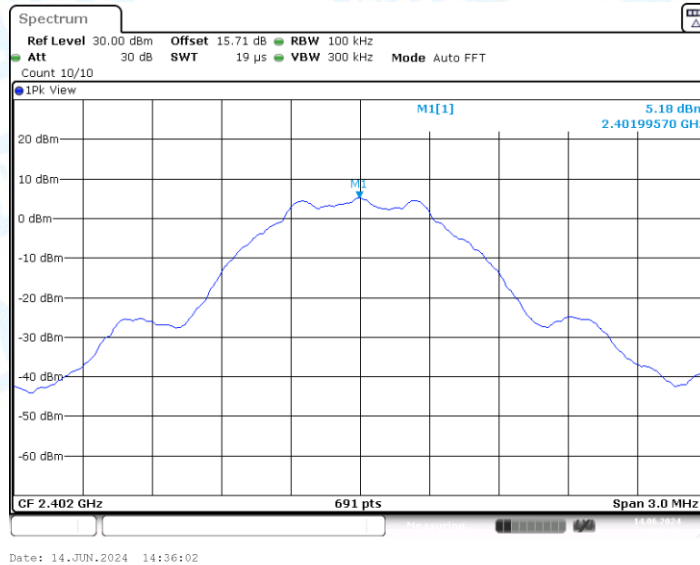
6. Conducted Spurious Emission

6.1. Test Result

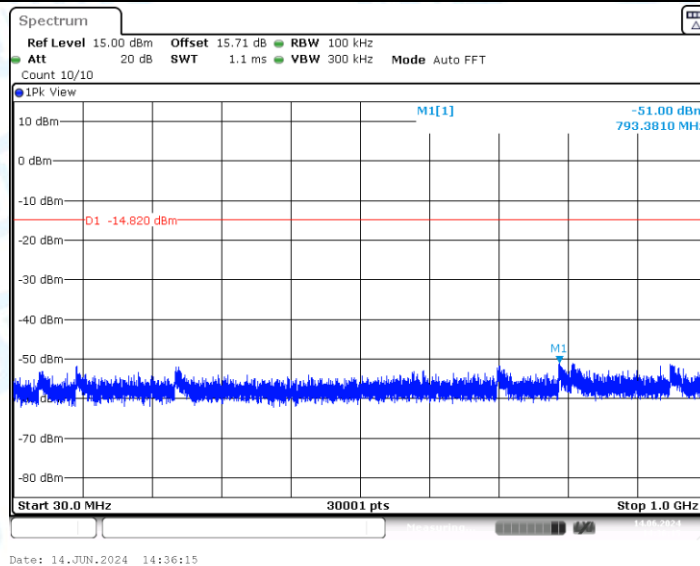
Test Mode	Antenna	Channel	Freq. Range [MHz]	Ref. Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.18	5.18	---	PASS
			30~1000	5.18	-51	≤-14.82	PASS
			1000~26500	5.18	-45.45	≤-14.82	PASS
		2440	Reference	5.24	5.24	---	PASS
			30~1000	5.24	-50.72	≤-14.76	PASS
			1000~26500	5.24	-44.66	≤-14.76	PASS
		2480	Reference	4.72	4.72	---	PASS
			30~1000	4.72	-50.04	≤-15.28	PASS
			1000~26500	4.72	-45.08	≤-15.28	PASS
BLE_2M	Ant1	2402	Reference	5.09	5.09	---	PASS
			30~1000	5.09	-49.71	≤-14.91	PASS
			1000~26500	5.09	-45.06	≤-14.91	PASS
		2440	Reference	5.28	5.28	---	PASS
			30~1000	5.28	-50.41	≤-14.72	PASS
			1000~26500	5.28	-45.08	≤-14.72	PASS
		2480	Reference	4.72	4.72	---	PASS
			30~1000	4.72	-49.74	≤-15.28	PASS
			1000~26500	4.72	-43.96	≤-15.28	PASS

6.2. Test Graphs

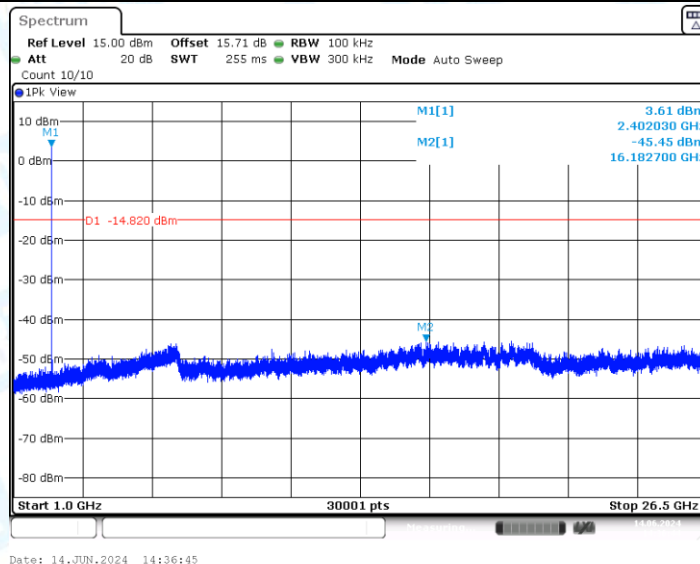
BLE_1M_Ant1_2402_0~Reference



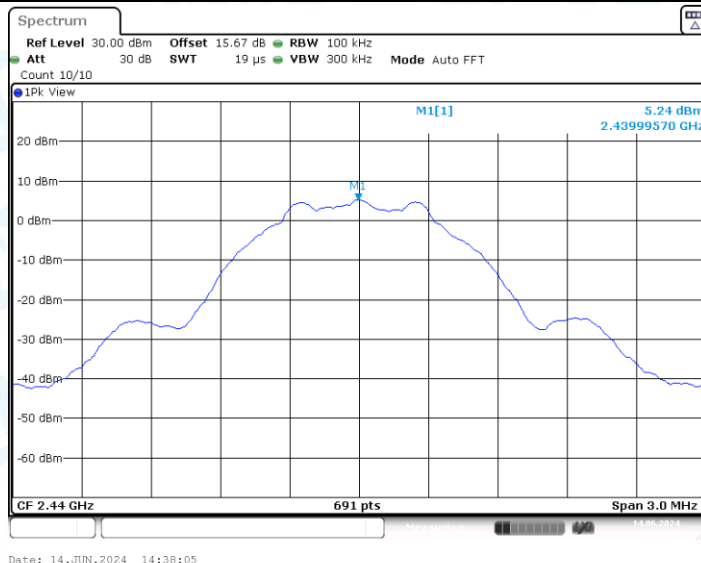
BLE_1M_Ant1_2402_30~1000



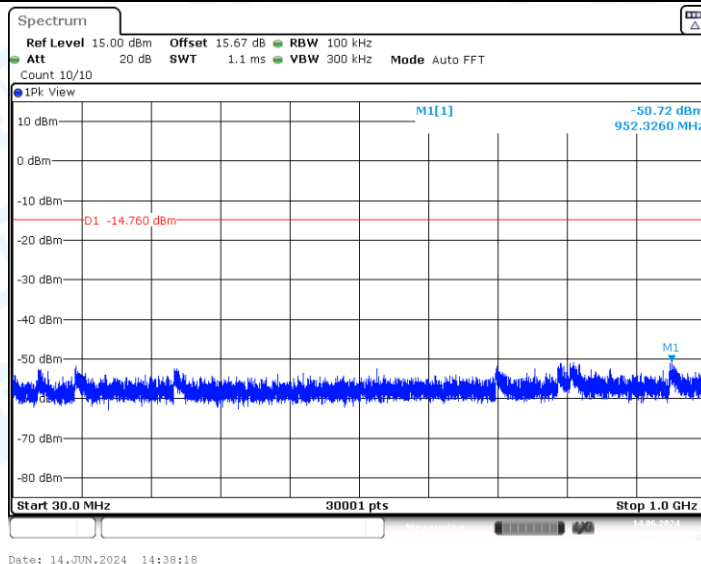
BLE_1M_Ant1_2402_1000~26500



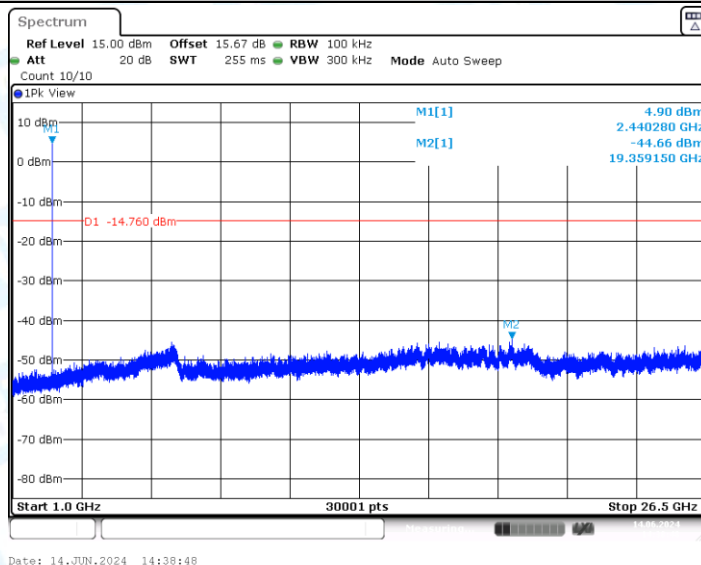
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



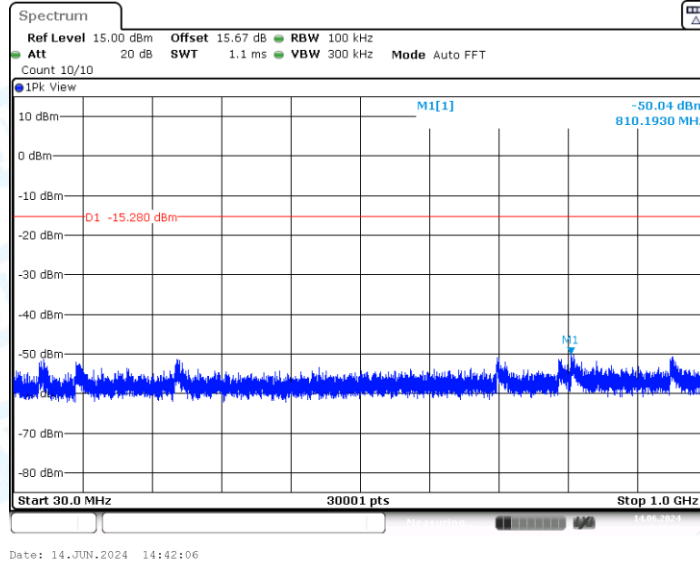
BLE_1M_Ant1_2440_1000~26500



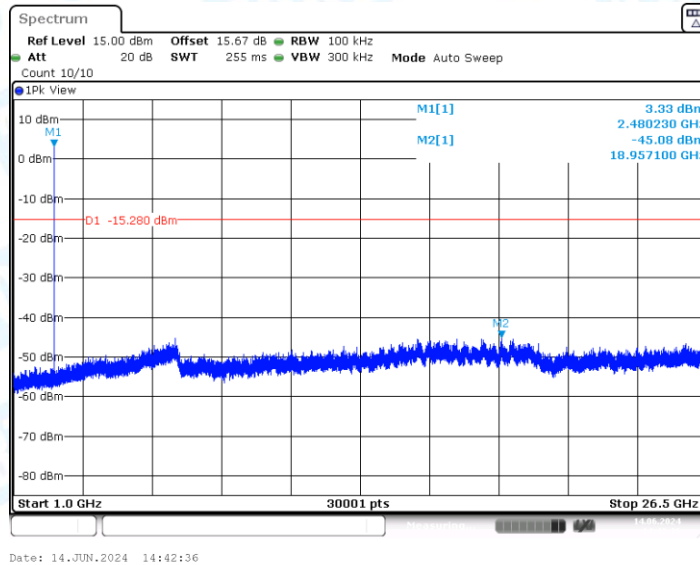
BLE_1M_Ant1_2480_0~Reference



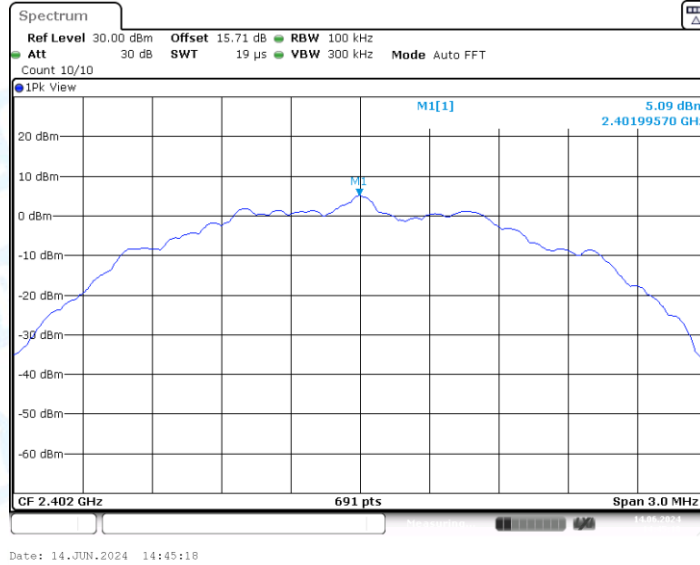
BLE_1M_Ant1_2480_30~1000



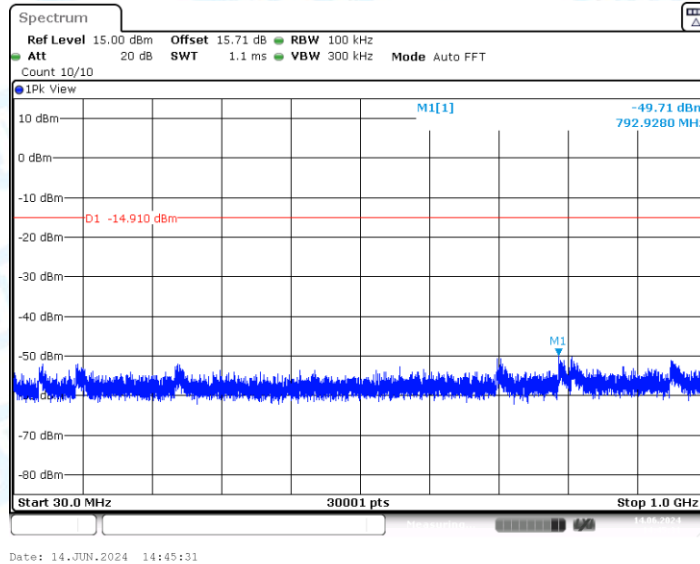
BLE_1M_Ant1_2480_1000~26500



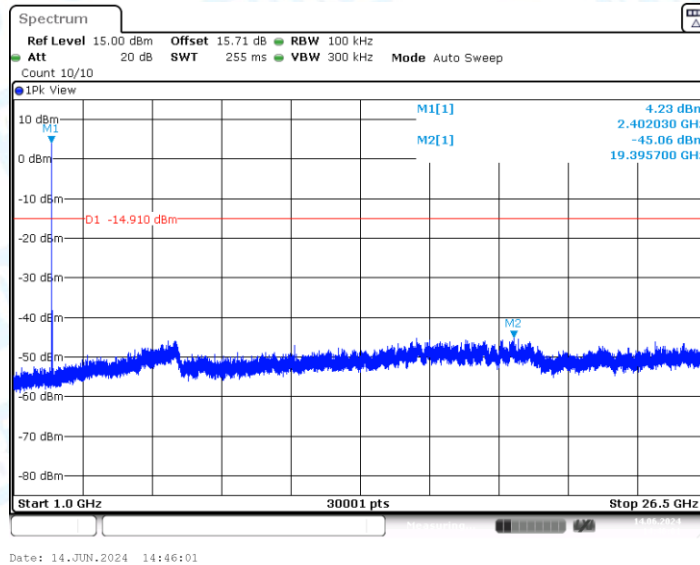
BLE_2M_Ant1_2402_0~Reference



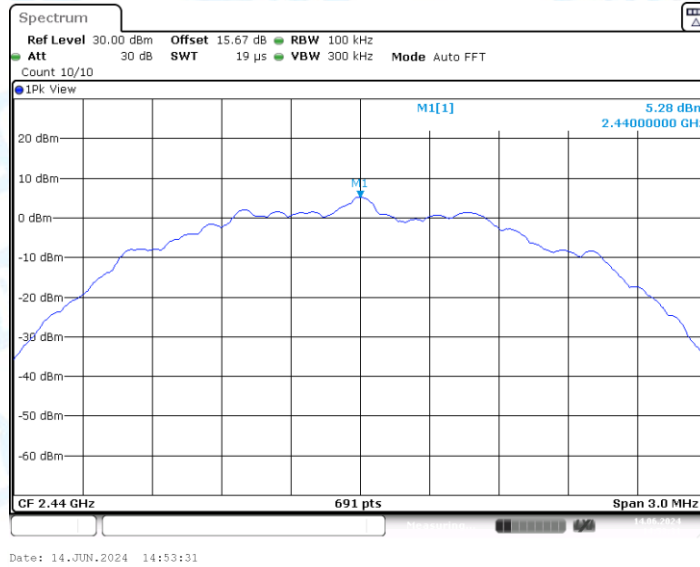
BLE_2M_Ant1_2402_30~1000



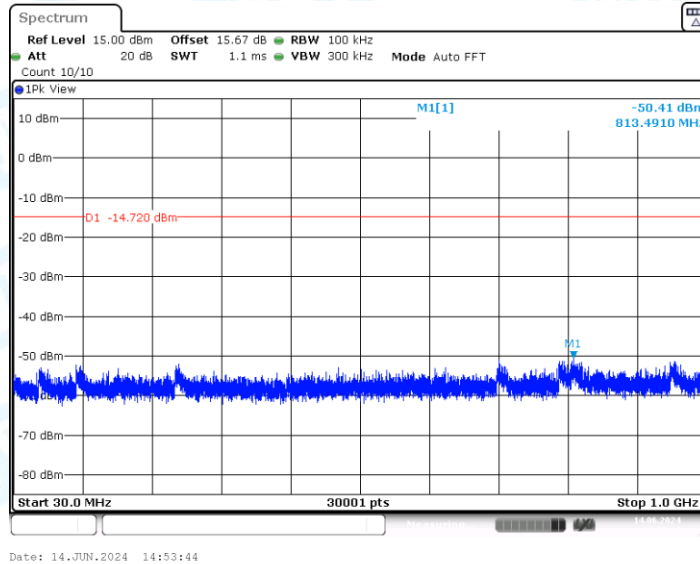
BLE_2M_Ant1_2402_1000~26500



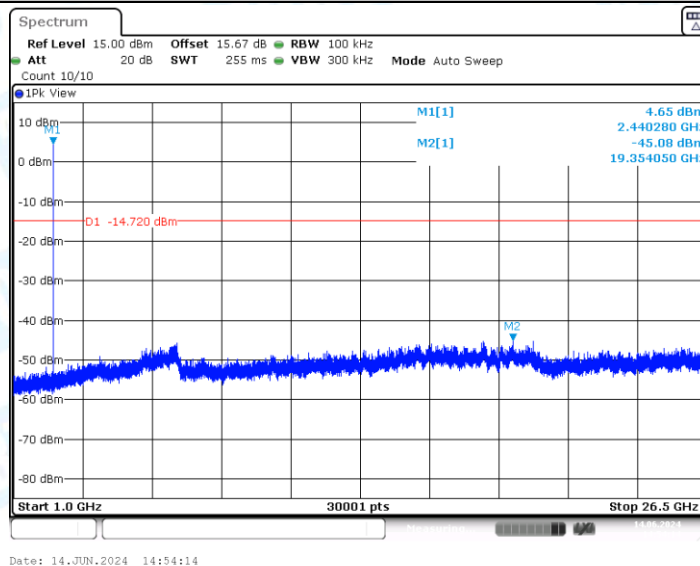
BLE_2M_Ant1_2440_0~Reference



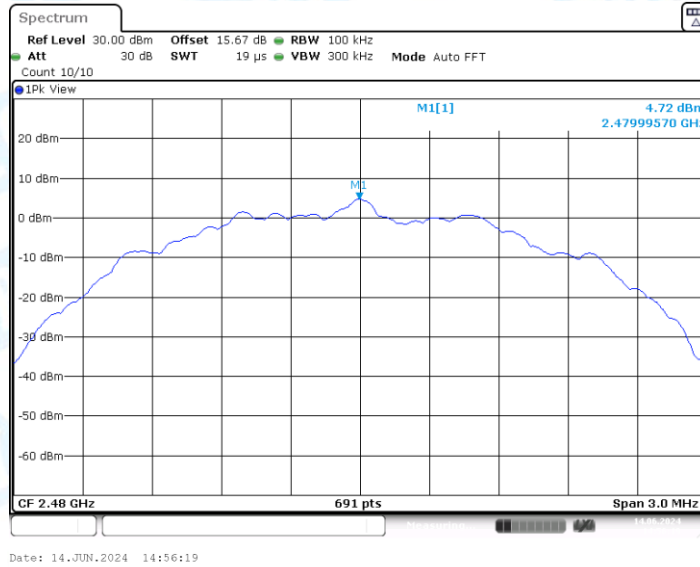
BLE_2M_Ant1_2440_30~1000



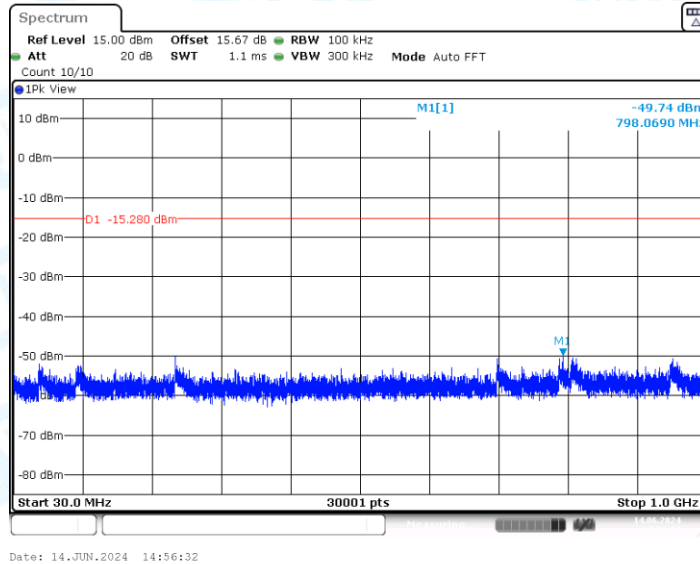
BLE_2M_Ant1_2440_1000~26500



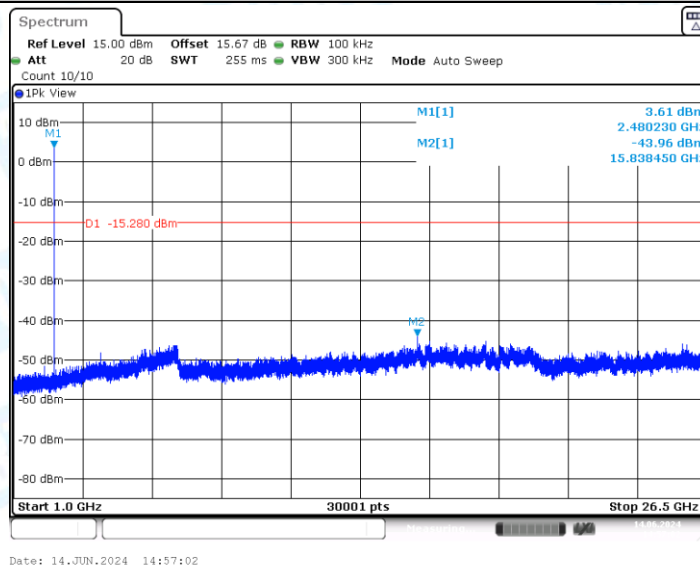
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



7. Duty Cycle

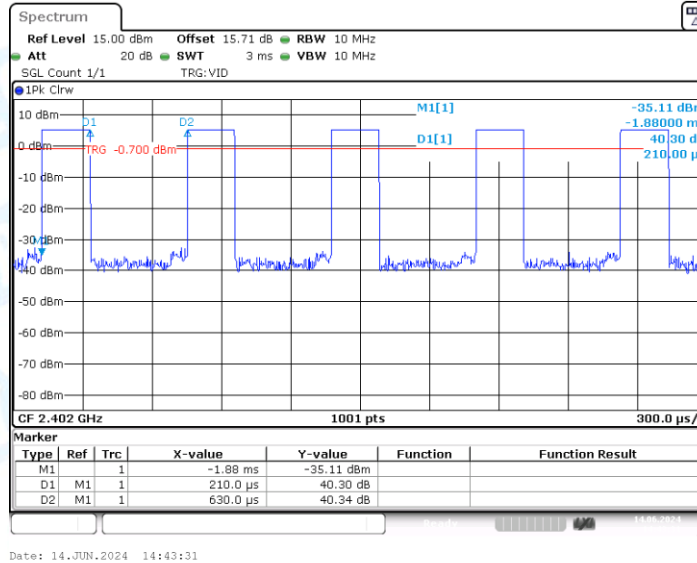
7.1. Test Result

Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.62	62.90	---	---
		2440	0.39	0.62	62.90	---	---
		2480	0.39	0.62	62.90	---	---
BLE_2M	Ant1	2402	0.21	0.63	33.33	---	---
		2440	0.21	0.63	33.33	---	---
		2480	0.21	0.63	33.33	---	---

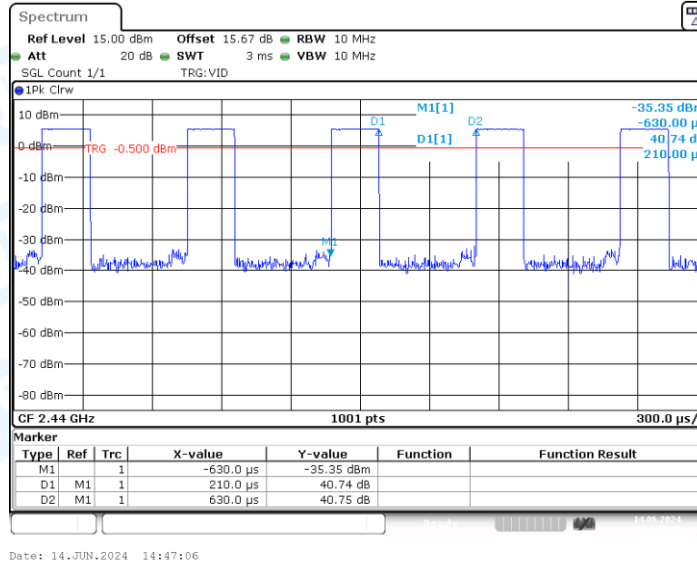
7.2. Test Graphs



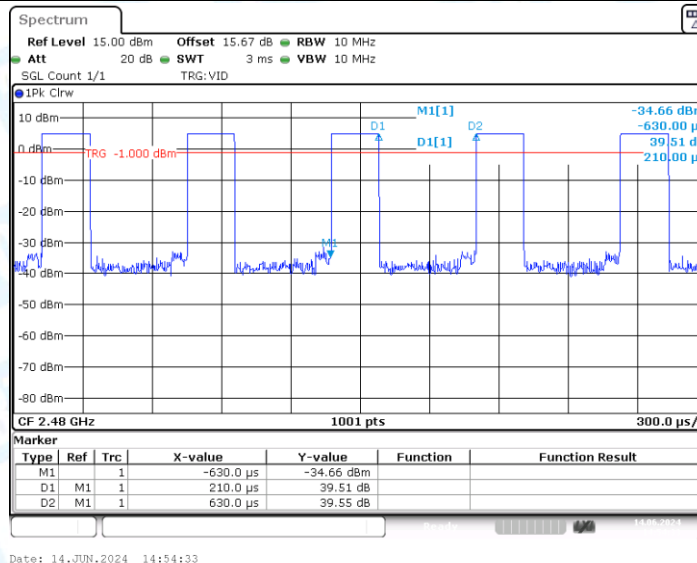
BLE_2M_Ant1_2402



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	-53.55	≤-41.20	PASS
				AV	2342.000	-50.17	≤-41.20	PASS
				AV	2390.000	-53.8	≤-41.20	PASS
				Peak	2310.000	-43.06	≤-21.20	PASS
				Peak	2341.696	-37.06	≤-21.20	PASS
				Peak	2390.000	-43.63	≤-21.20	PASS
		High	2480	AV	2483.500	-52.35	≤-41.20	PASS
				AV	2487.623	-51.01	≤-41.20	PASS
				AV	2500.000	-53.3	≤-41.20	PASS
				Peak	2483.500	-43.22	≤-21.20	PASS
				Peak	2487.507	-36.57	≤-21.20	PASS
				Peak	2500.000	-42.67	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-53.75	≤-41.20	PASS
				AV	2341.848	-49.98	≤-41.20	PASS
				AV	2390.000	-53.66	≤-41.20	PASS
				Peak	2310.000	-43.24	≤-21.20	PASS
				Peak	2342.304	-40.25	≤-21.20	PASS
				Peak	2390.000	-43.64	≤-21.20	PASS
		High	2480	AV	2483.500	-49.03	≤-41.20	PASS
				AV	2483.565	-49.81	≤-41.20	PASS
				AV	2500.000	-52.84	≤-41.20	PASS
				Peak	2483.500	-39.8	≤-21.20	PASS
				Peak	2487.507	-37.02	≤-21.20	PASS
				Peak	2500.000	-44.06	≤-21.20	PASS

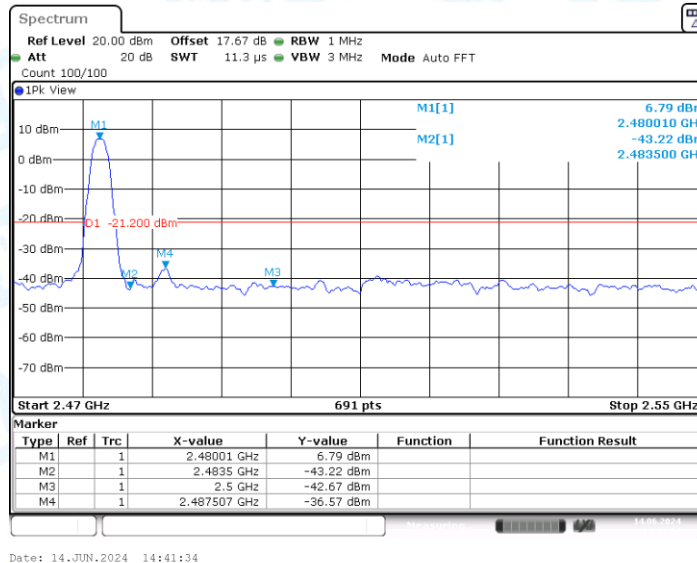
Note:

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.

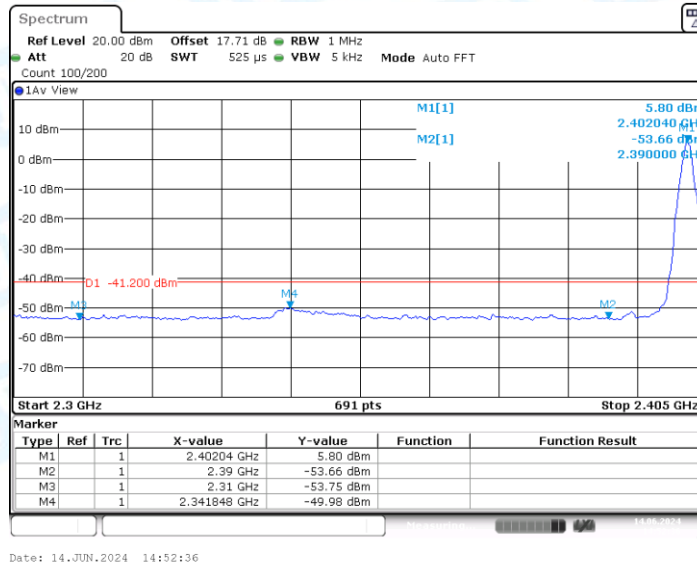
8.2. Test Graphs



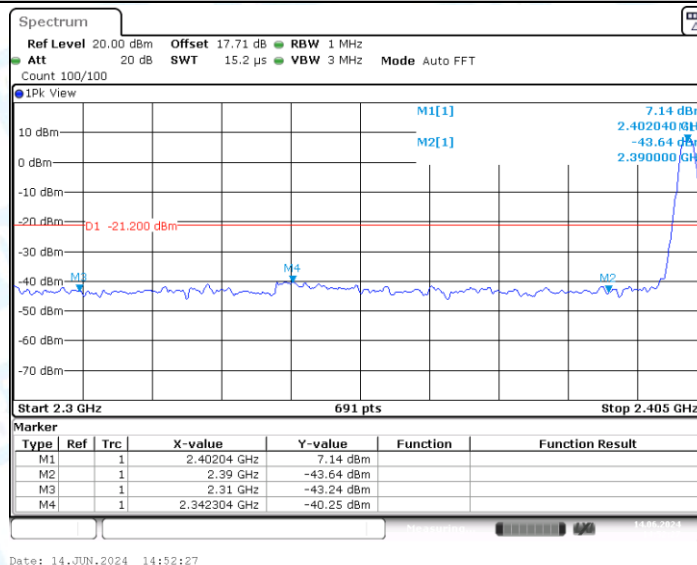
BLE_1M_Ant1_High_2480_Peak



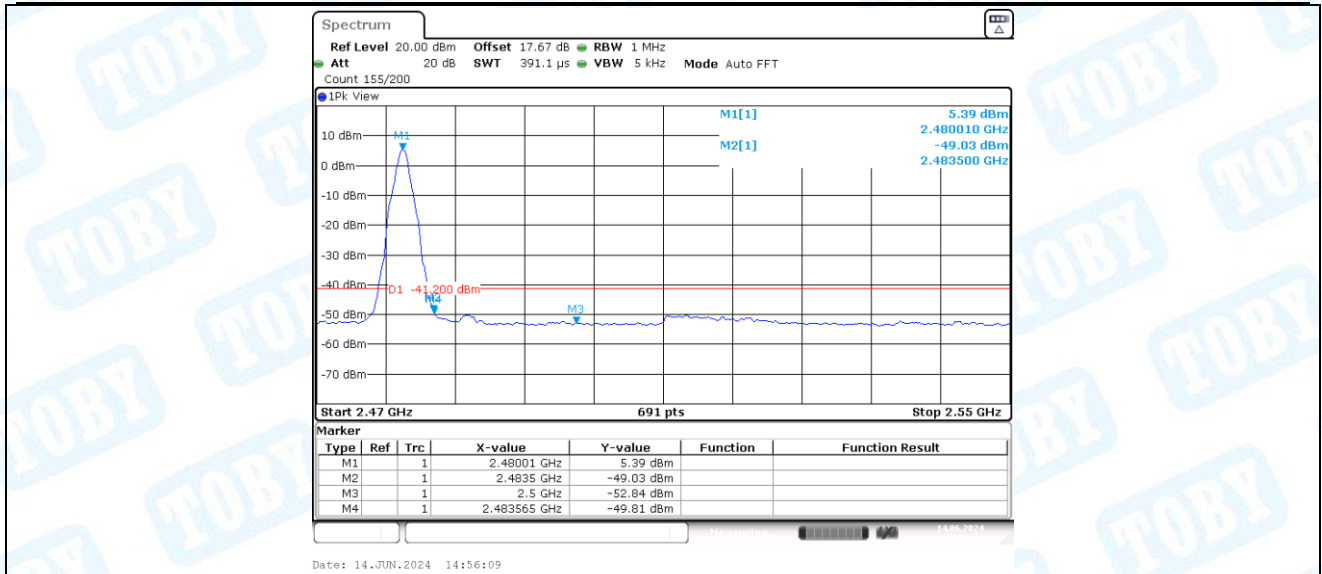
BLE_2M_Ant1_Low_2402_AV



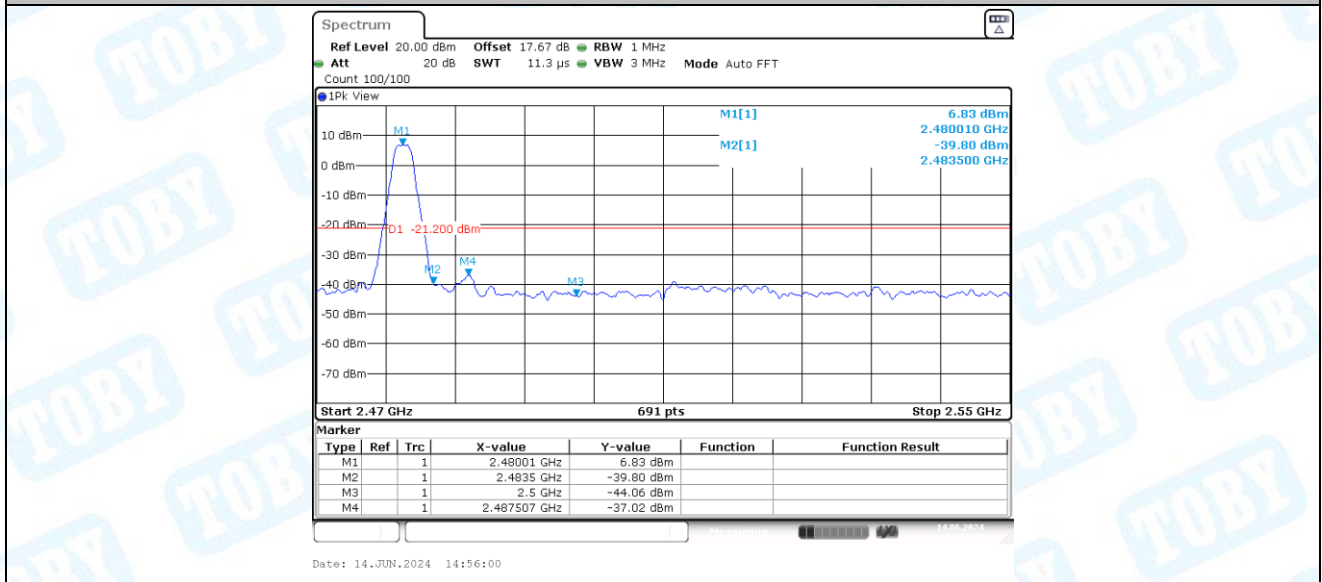
BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak



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