

RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
Product Name:	WiFi & BT combo module
Test Model:	EWN-8852BER3BB-HF
Sample ID:	202205-0049-01-02#
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	DC 3.3V
Test Engineer:	Huangjianping
Note: For a more detailed features description, please refer to the report TBR-C-202205-0049-11	

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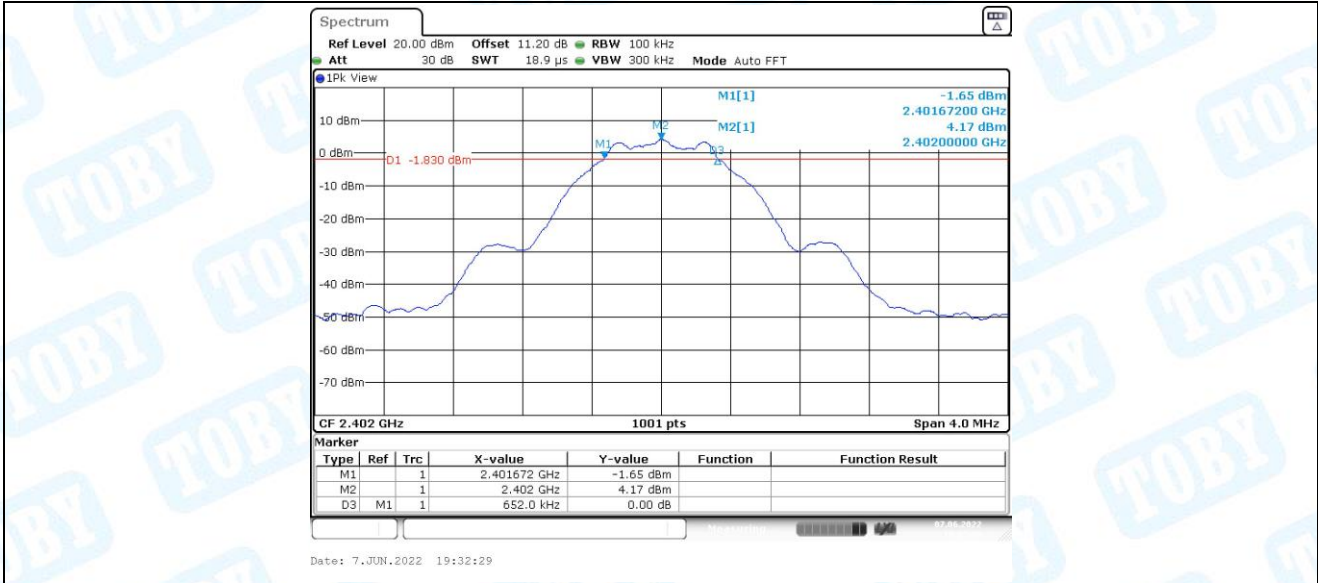
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1. DTS Bandwidth

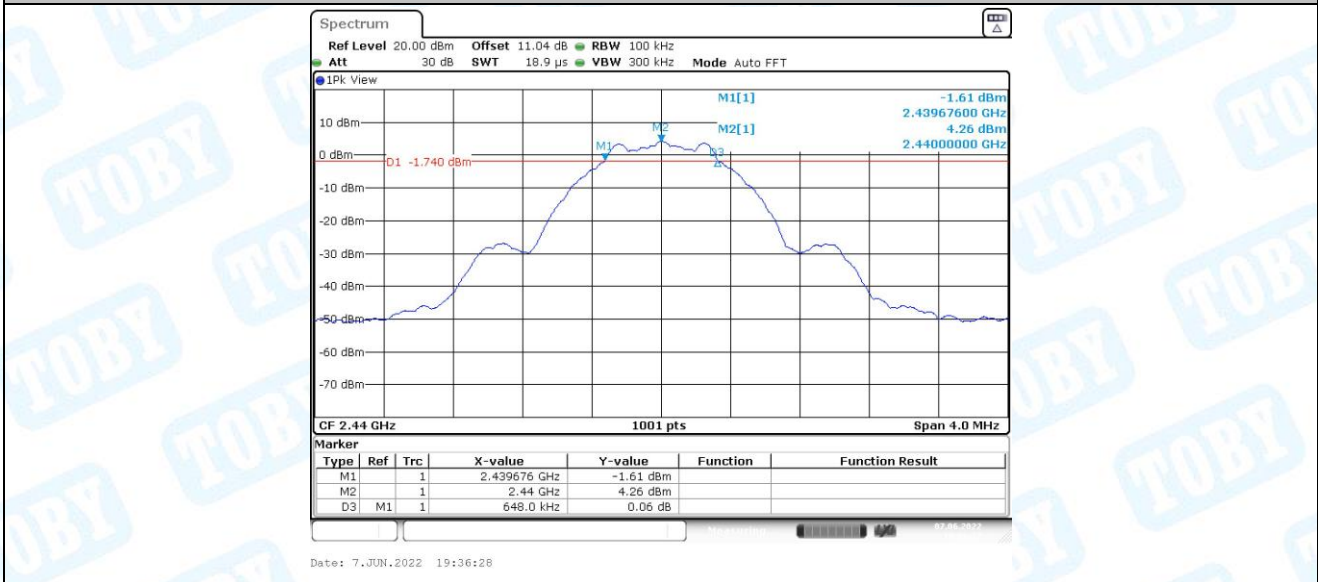
1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.65	2401.67	2402.32	0.5	PASS
		2440	0.65	2439.68	2440.32	0.5	PASS
		2480	0.65	2479.67	2480.32	0.5	PASS
BLE_2M	Ant1	2402	1.12	2401.46	2402.57	0.5	PASS
		2440	1.10	2439.46	2440.55	0.5	PASS
		2480	1.10	2479.47	2480.57	0.5	PASS

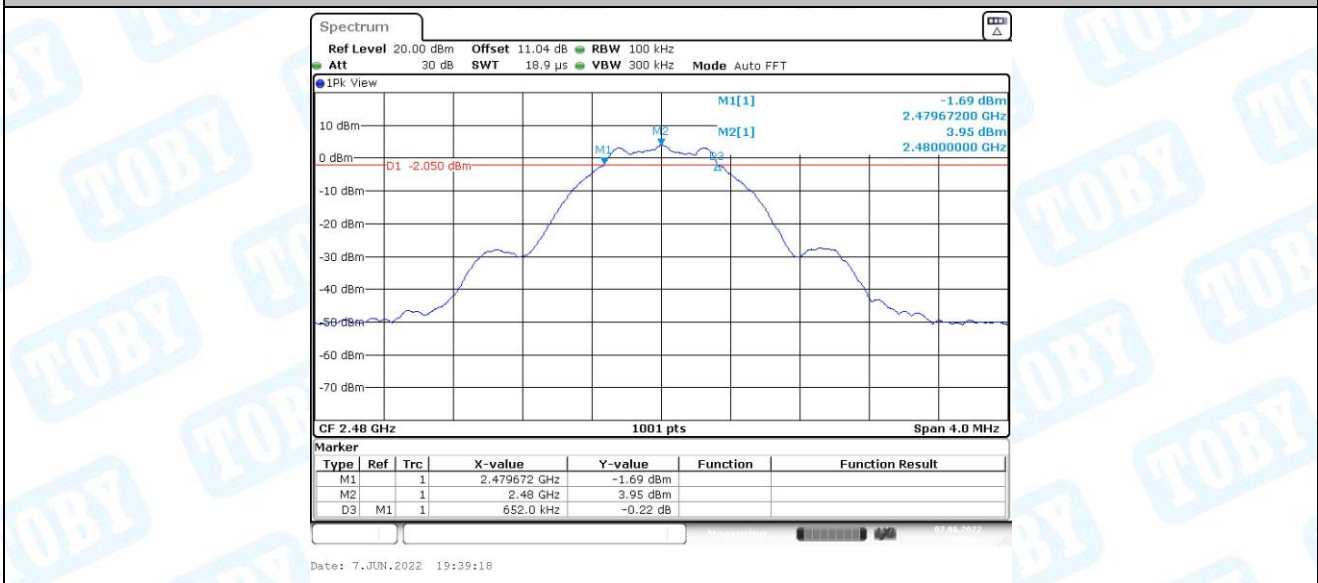
1.2. Test Graphs



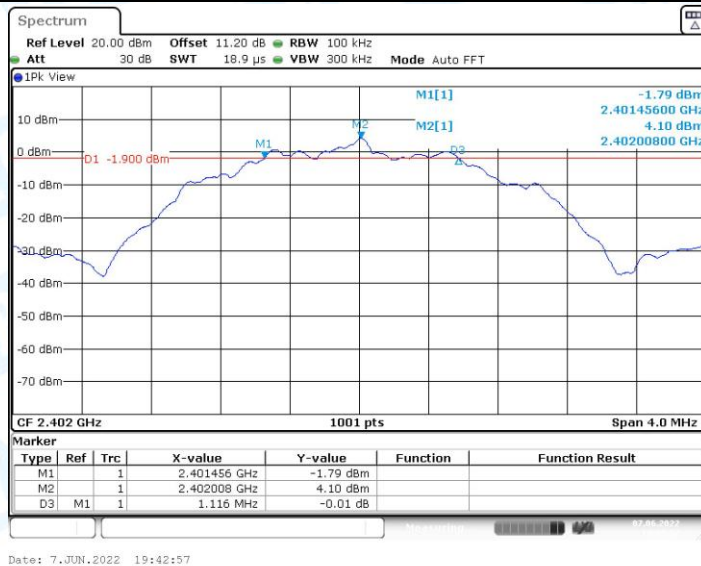
BLE_1M_Ant1_2402



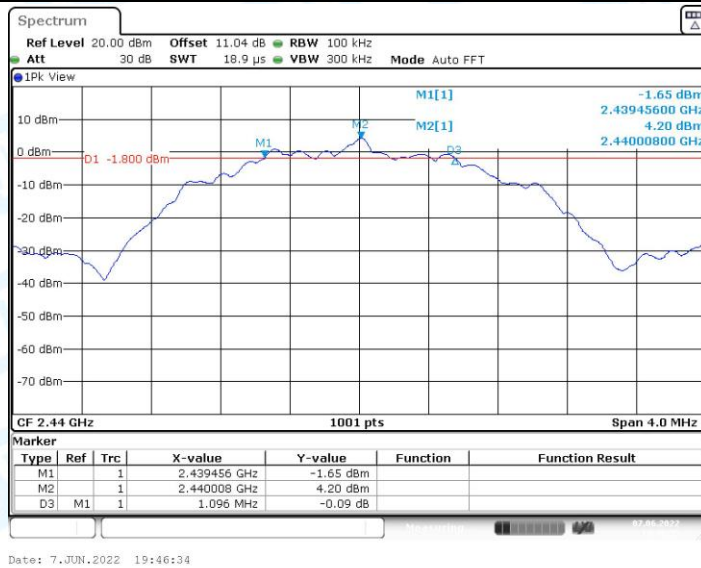
BLE_1M_Ant1_2440



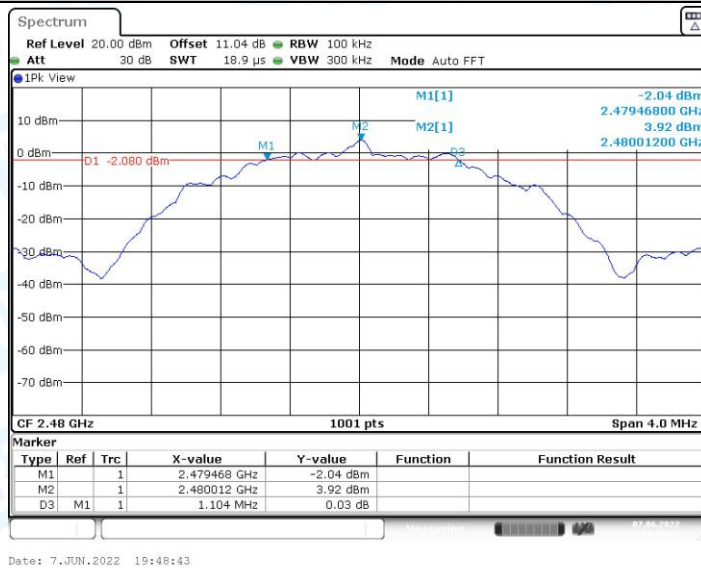
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



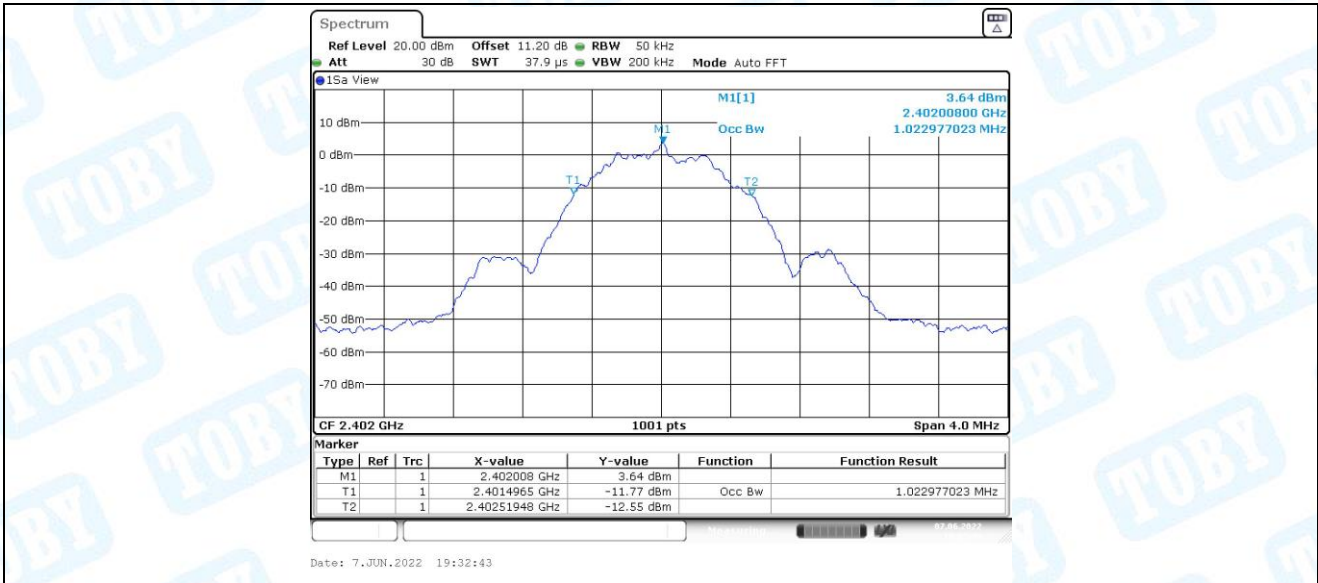
BLE_2M_Ant1_2480

2. Occupied Channel Bandwidth

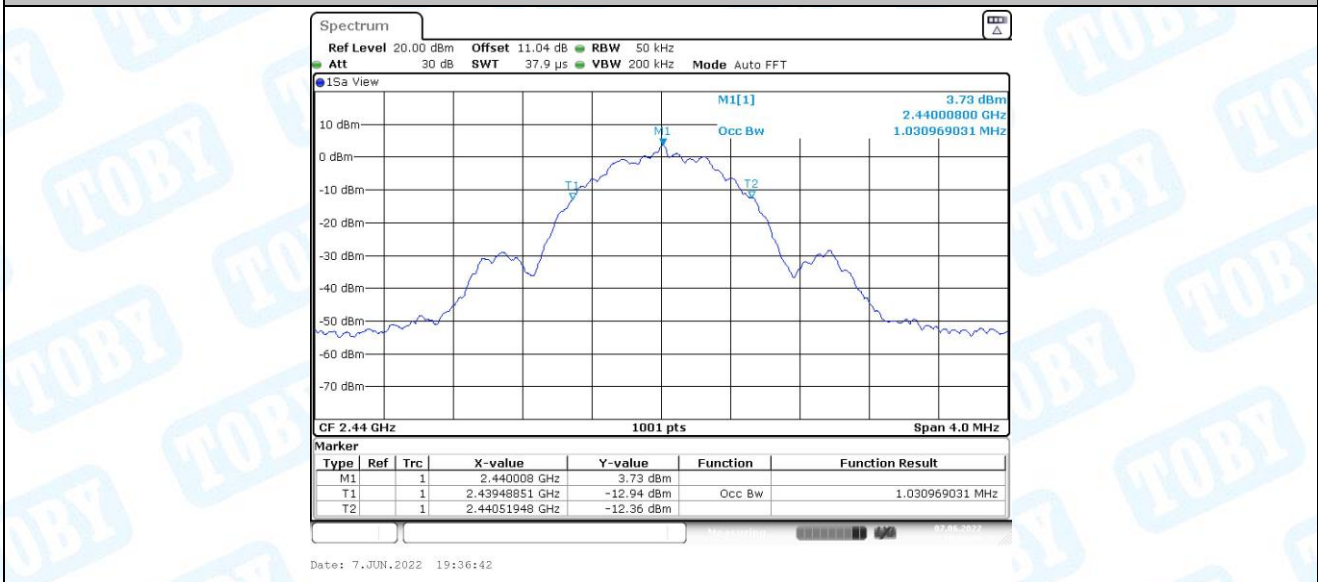
2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.023	2401.497	2402.519	---	---
		2440	1.031	2439.489	2440.519	---	---
		2480	1.027	2479.493	2480.519	---	---
BLE_2M	Ant1	2402	2.042	2401.009	2403.051	---	---
		2440	2.05	2439.001	2441.051	---	---
		2480	2.046	2479.009	2481.055	---	---

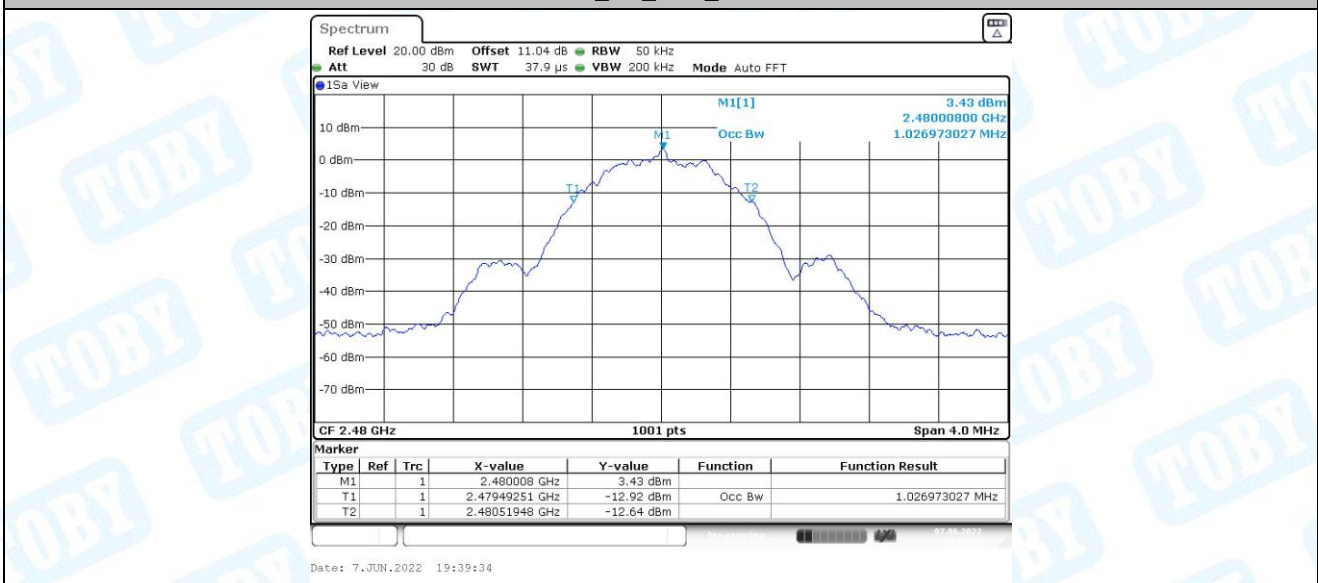
2.2. Test Graphs



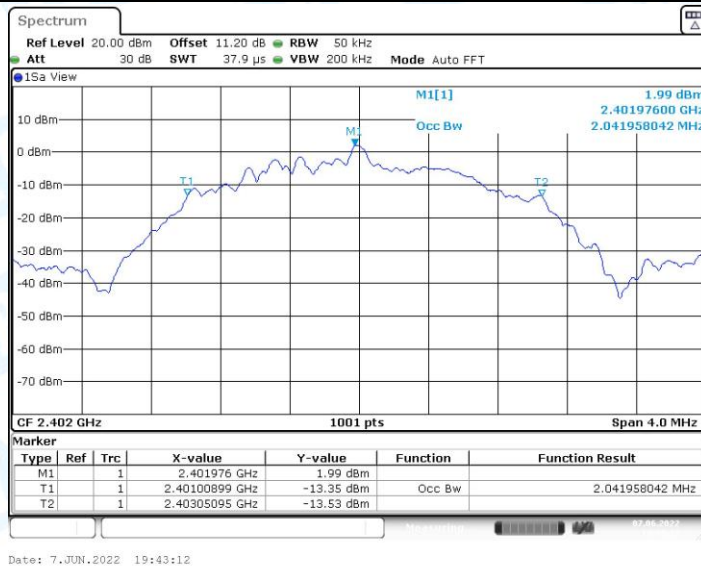
BLE_1M_Ant1_2402



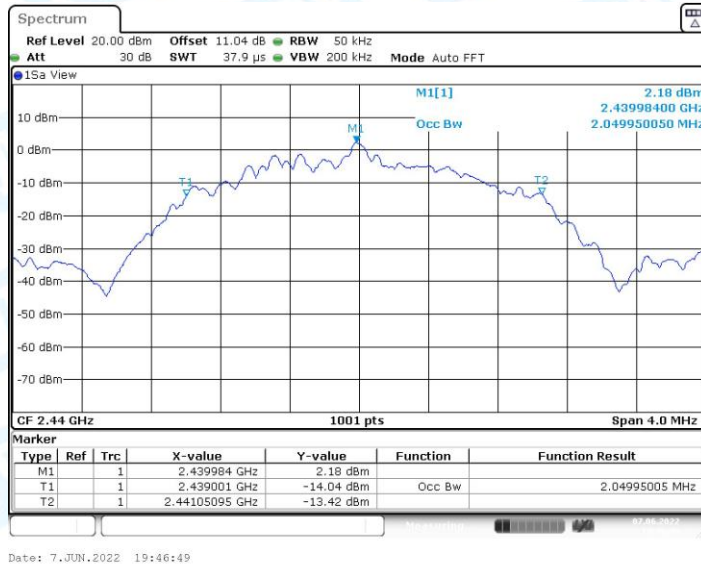
BLE_1M_Ant1_2440



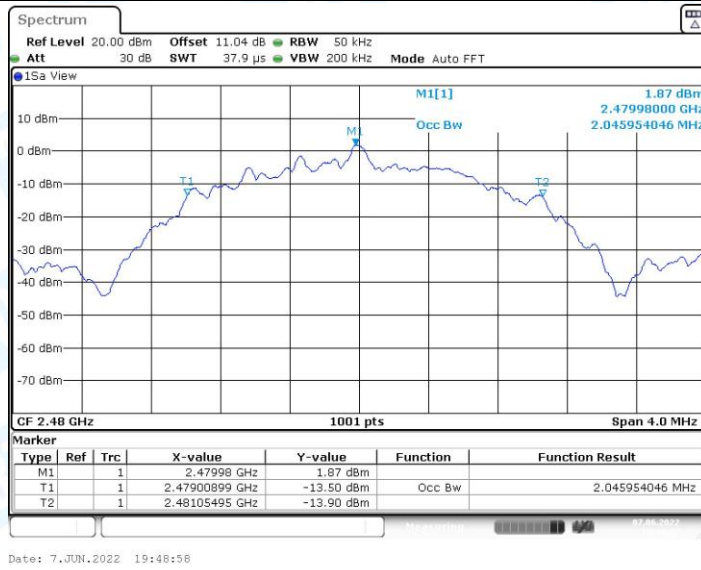
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



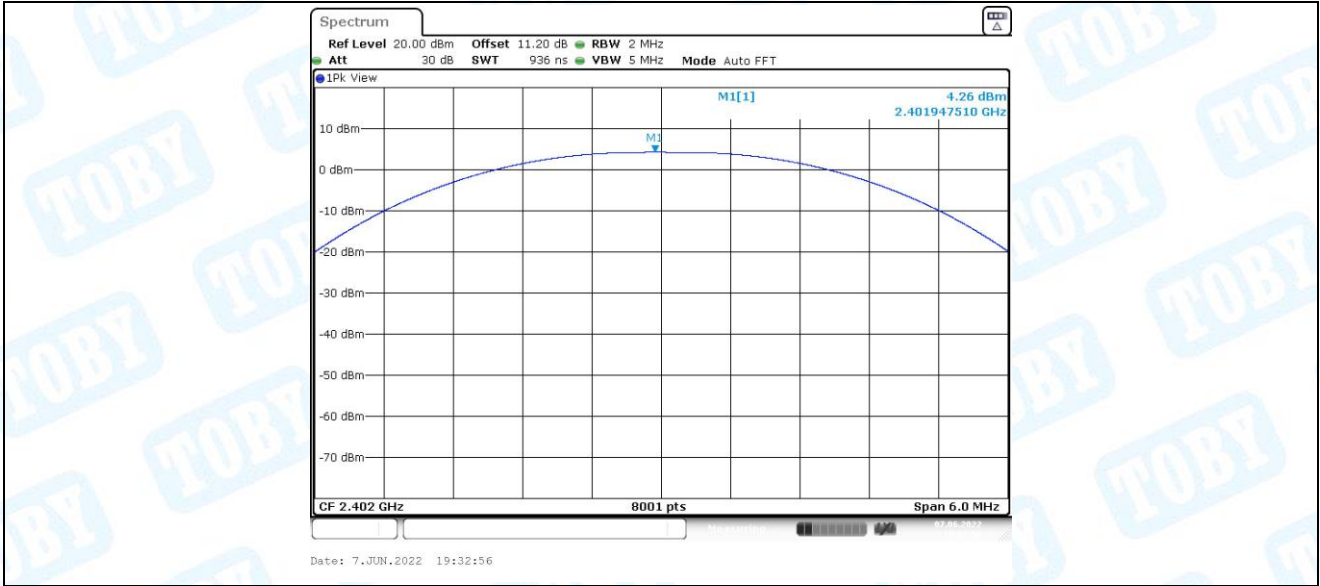
BLE_2M_Ant1_2480

3. Maximum conducted output power

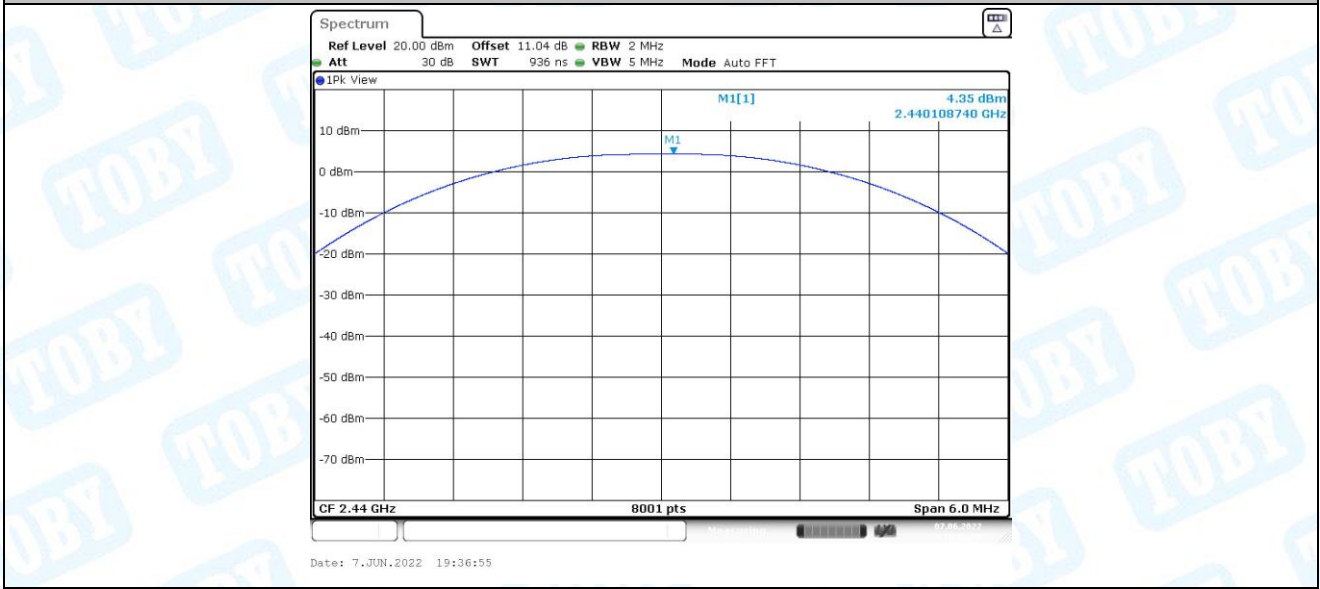
3.1. Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	4.26	≤30	PASS
		2440	4.35	≤30	PASS
		2480	4.03	≤30	PASS
BLE_2M	Ant1	2402	4.31	≤30	PASS
		2440	4.35	≤30	PASS
		2480	4.06	≤30	PASS

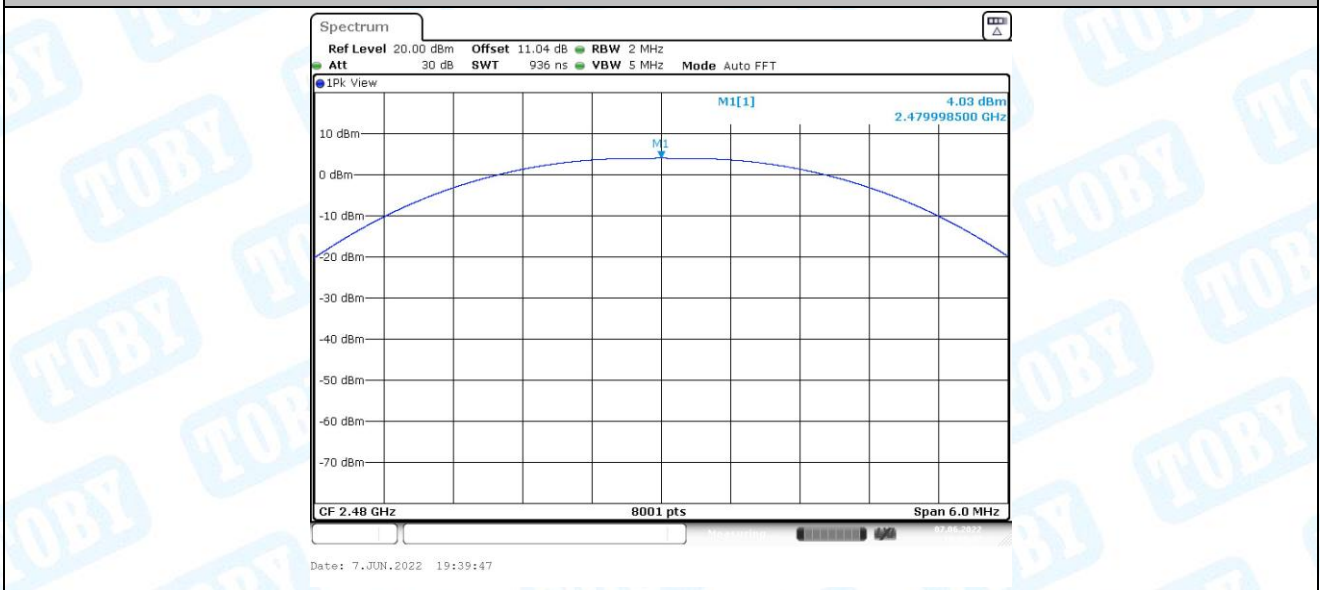
3.2. Test Graphs



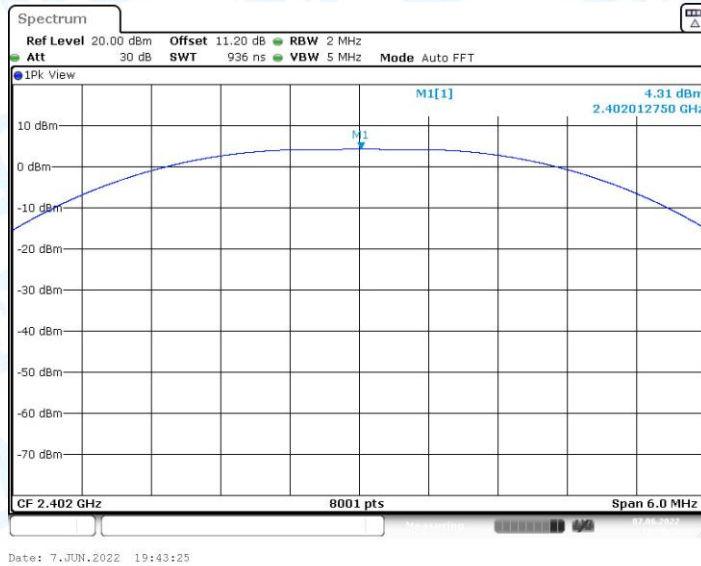
BLE_1M_Ant1_2402



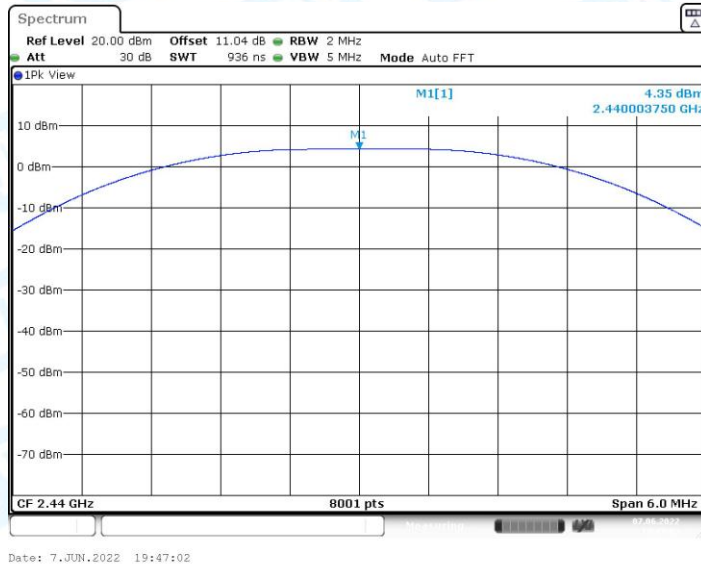
BLE_1M_Ant1_2440



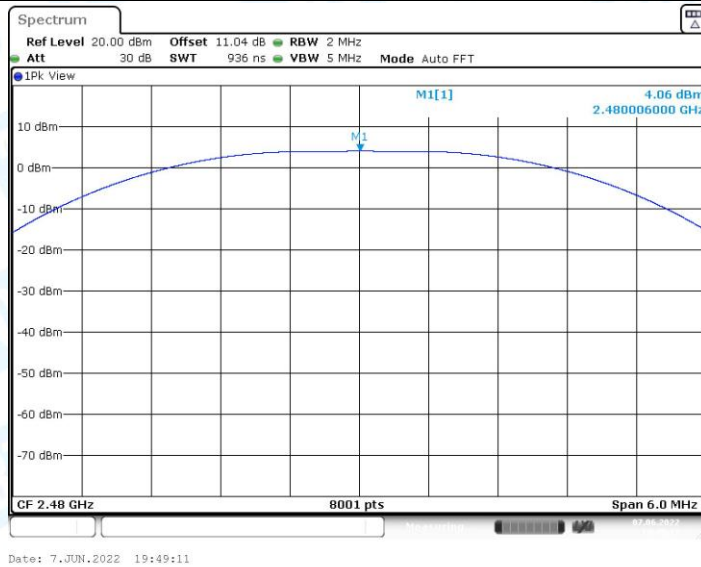
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



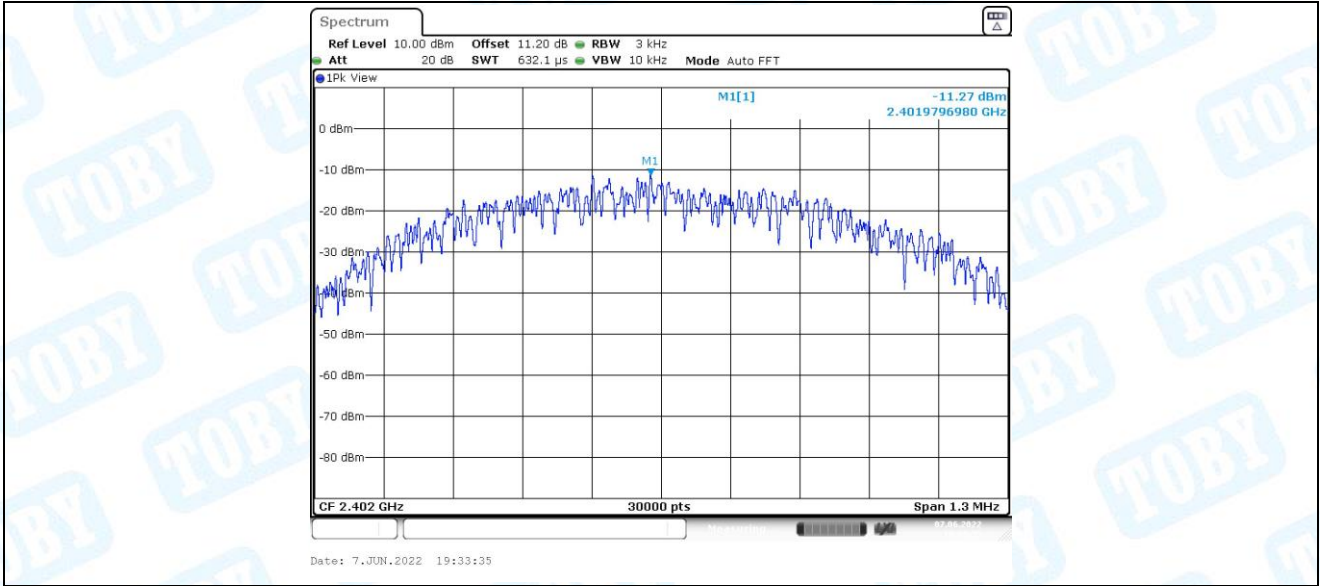
BLE_2M_Ant1_2480

4. Maximum power spectral density

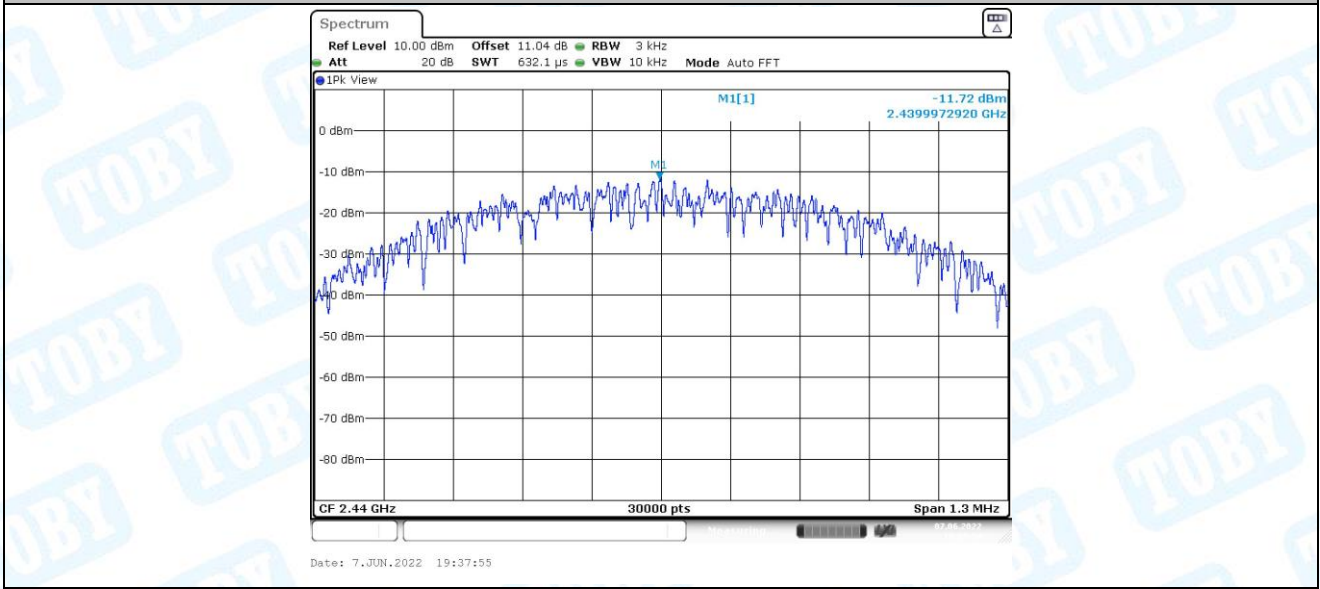
4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-11.27	≤8.00	PASS
		2440	-11.72	≤8.00	PASS
		2480	-12.57	≤8.00	PASS
BLE_2M	Ant1	2402	-12.75	≤8.00	PASS
		2440	-14.01	≤8.00	PASS
		2480	-14.29	≤8.00	PASS

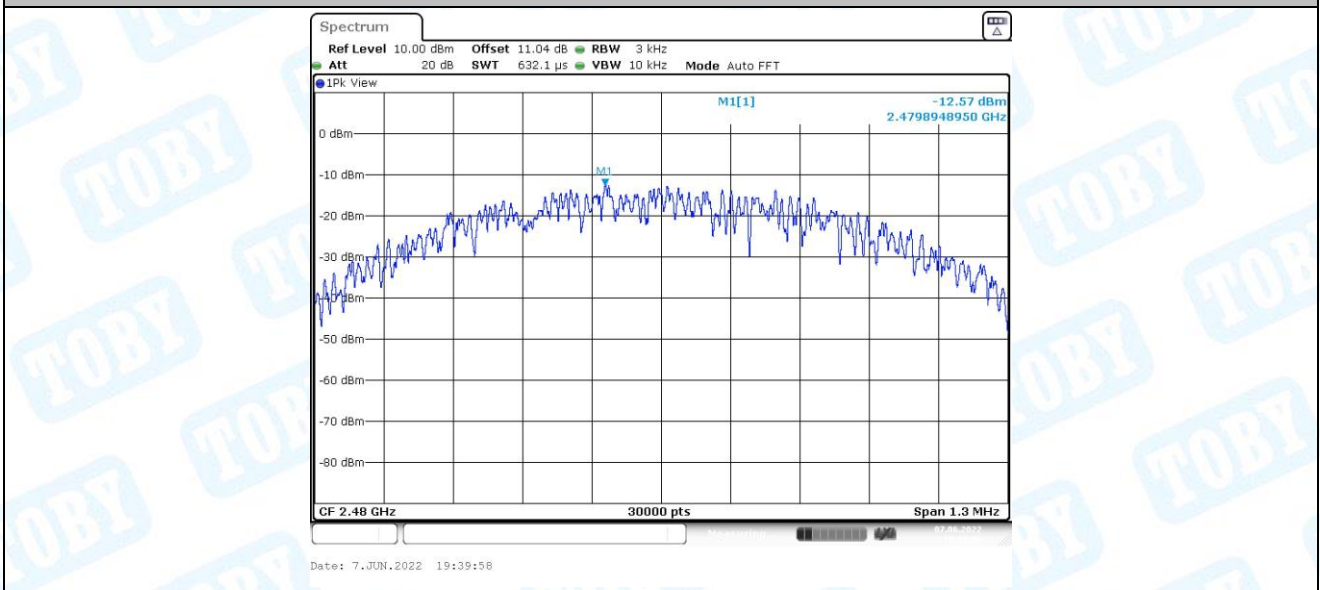
4.2. Test Graphs



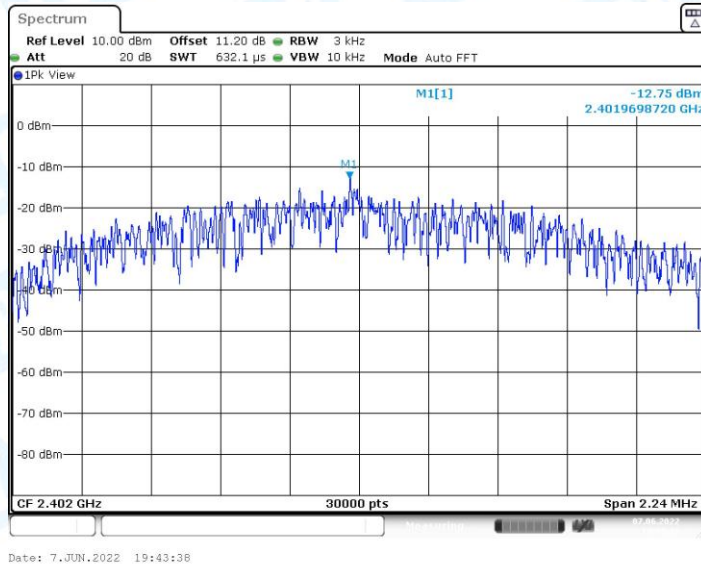
BLE_1M_Ant1_2402



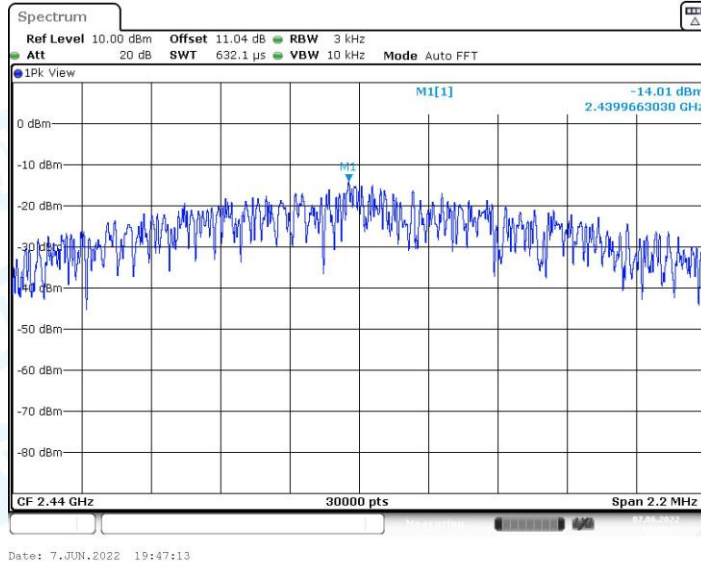
BLE_1M_Ant1_2440



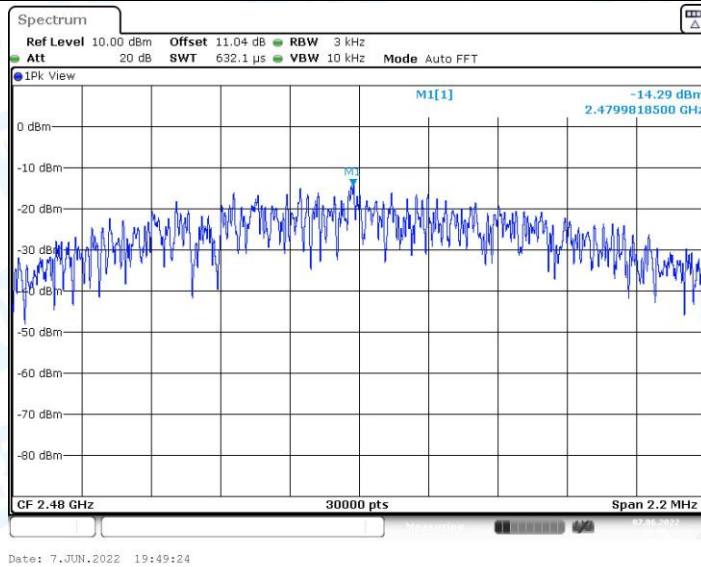
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



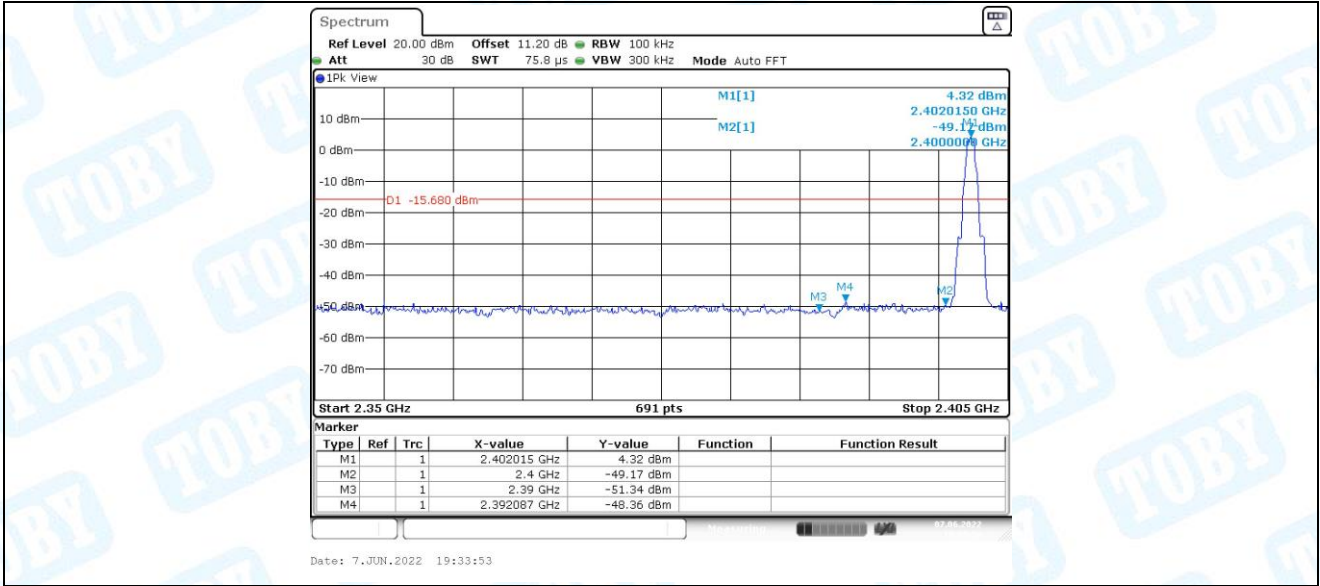
BLE_2M_Ant1_2480

5. Band edge measurements

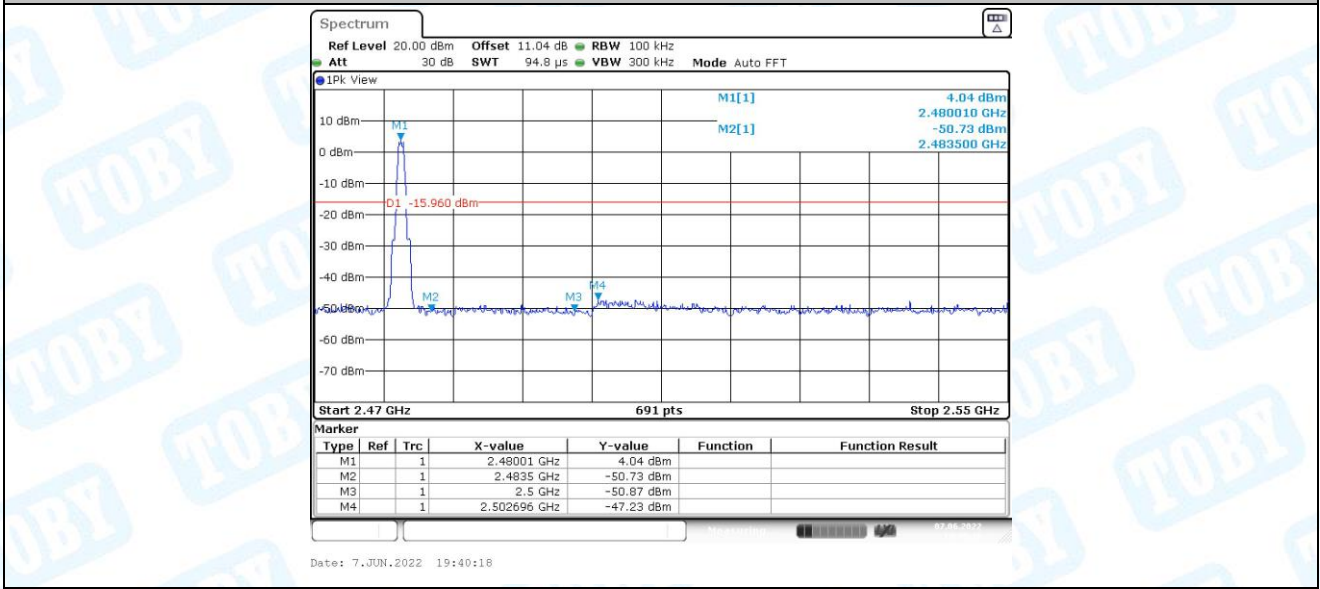
5.1. Test Result

Test Mode	Antenna	ChName	Channel	Ref.Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	4.32	-48.36	≤-15.68	PASS
		High	2480	4.04	-47.23	≤-15.96	PASS
BLE_2M	Ant1	Low	2402	4.27	-29.3	≤-15.73	PASS
		High	2480	3.99	-46.82	≤-16.01	PASS

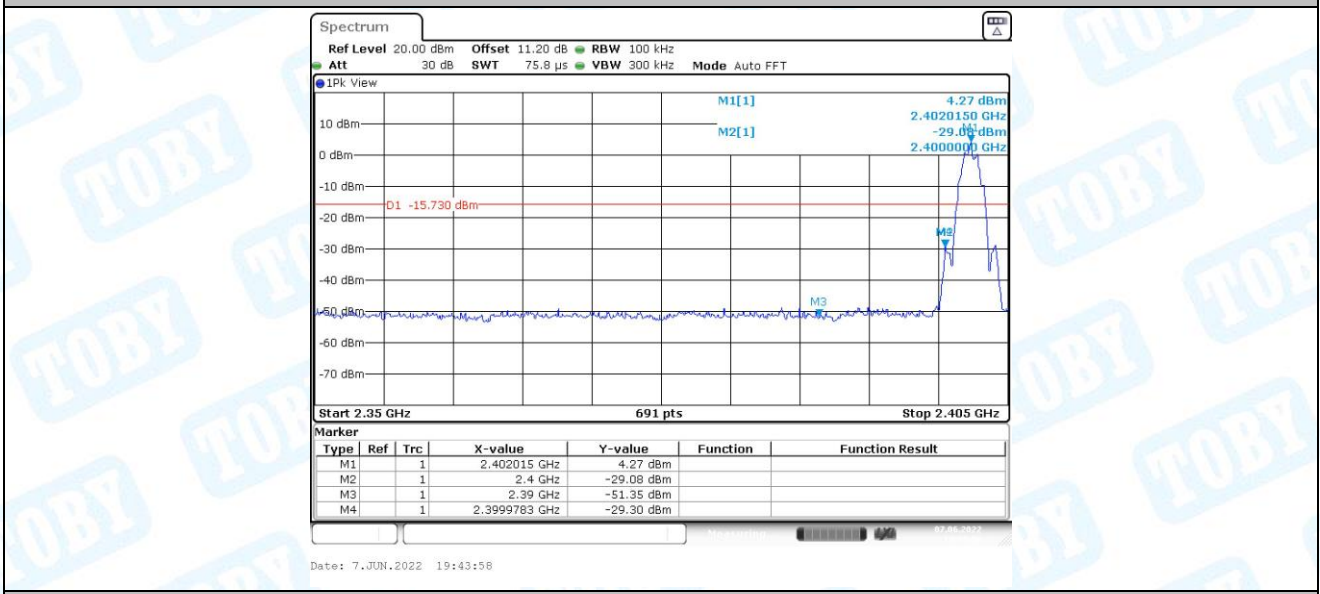
5.2. Test Graphs



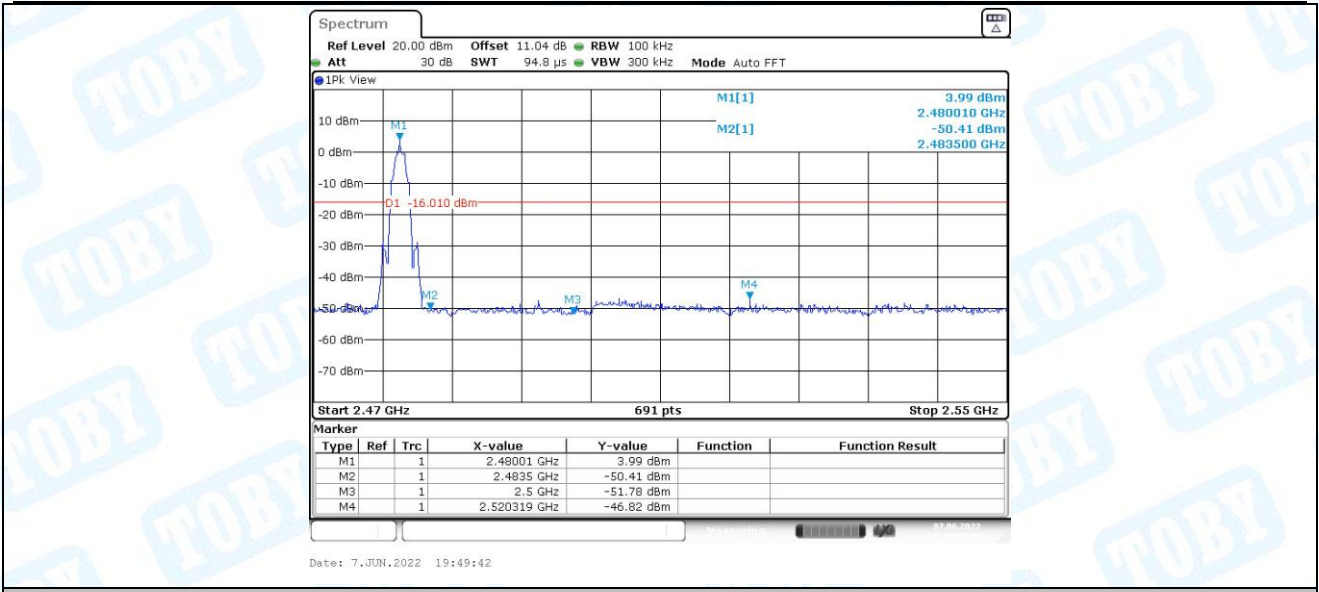
BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480

6. Conducted Spurious Emission

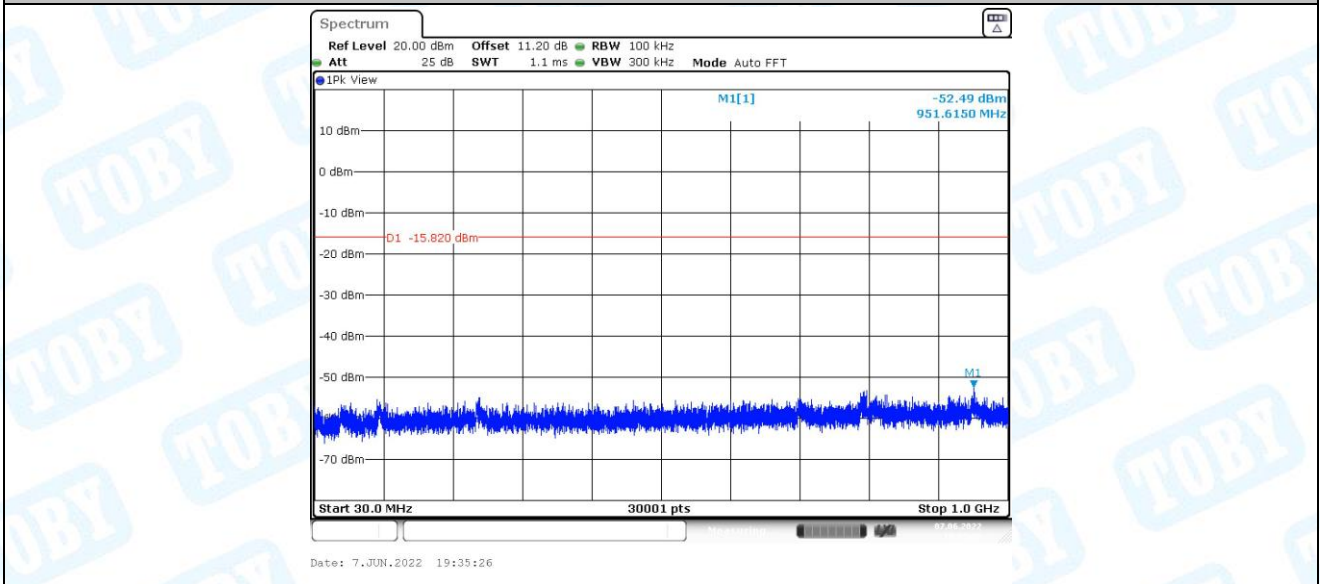
6.1. Test Result

Test Mode	Antenna	Channel	Freq. Range [MHz]	Ref. Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	4.18	4.18	---	PASS
			30~1000	4.18	-52.49	≤-15.82	PASS
			1000~26500	4.18	-47.04	≤-15.82	PASS
		2440	Reference	4.25	4.25	---	PASS
			30~1000	4.25	-53.45	≤-15.75	PASS
			1000~26500	4.25	-47.18	≤-15.75	PASS
		2480	Reference	3.95	3.95	---	PASS
			30~1000	3.95	-53.85	≤-16.05	PASS
			1000~26500	3.95	-47.82	≤-16.05	PASS
BLE_2M	Ant1	2402	Reference	4.12	4.12	---	PASS
			30~1000	4.12	-53.28	≤-15.88	PASS
			1000~26500	4.12	-47.44	≤-15.88	PASS
		2440	Reference	4.21	4.21	---	PASS
			30~1000	4.21	-53.41	≤-15.79	PASS
			1000~26500	4.21	-47.37	≤-15.79	PASS
		2480	Reference	3.92	3.92	---	PASS
			30~1000	3.92	-53.21	≤-16.08	PASS
			1000~26500	3.92	-47.31	≤-16.08	PASS

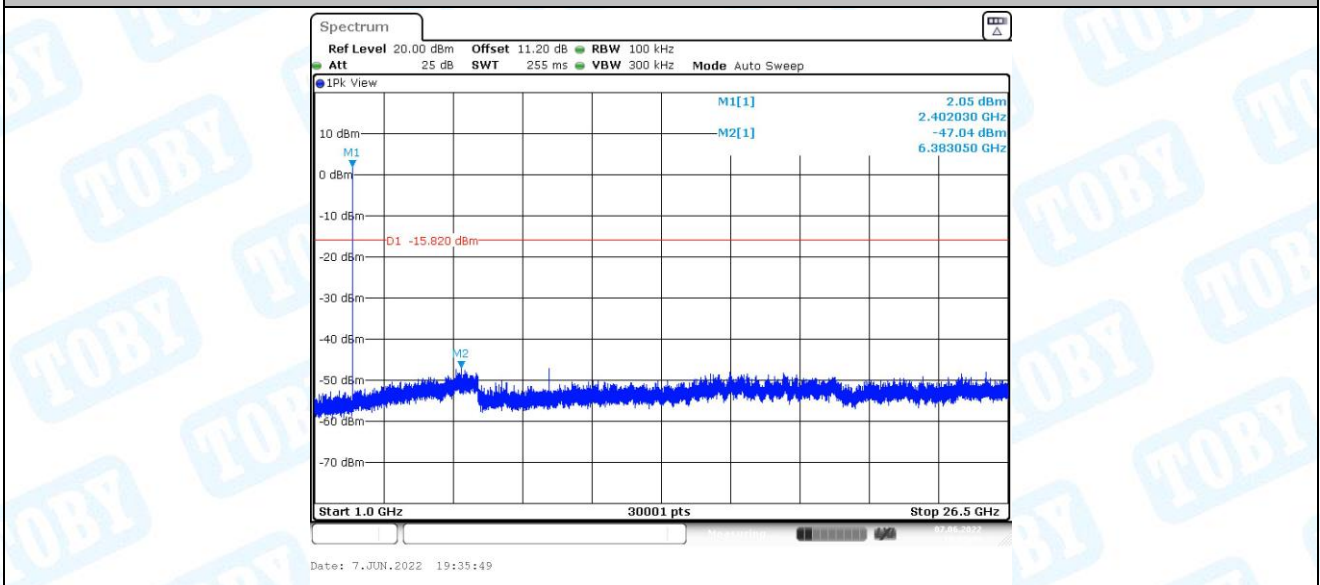
6.2. Test Graphs



BLE_1M_Ant1_2402_0~Reference



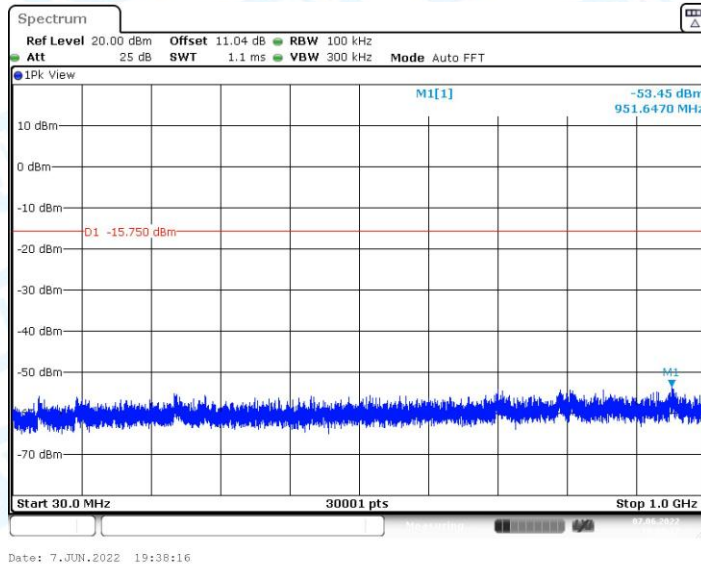
BLE_1M_Ant1_2402_30~1000



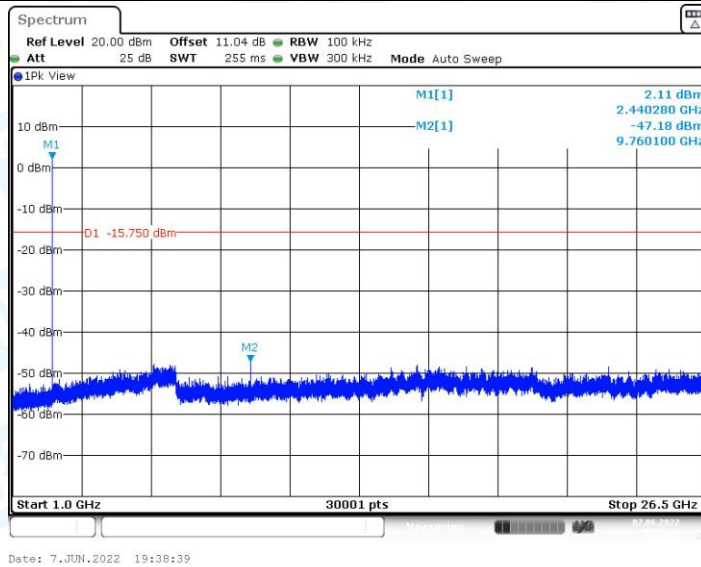
BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_0~Reference



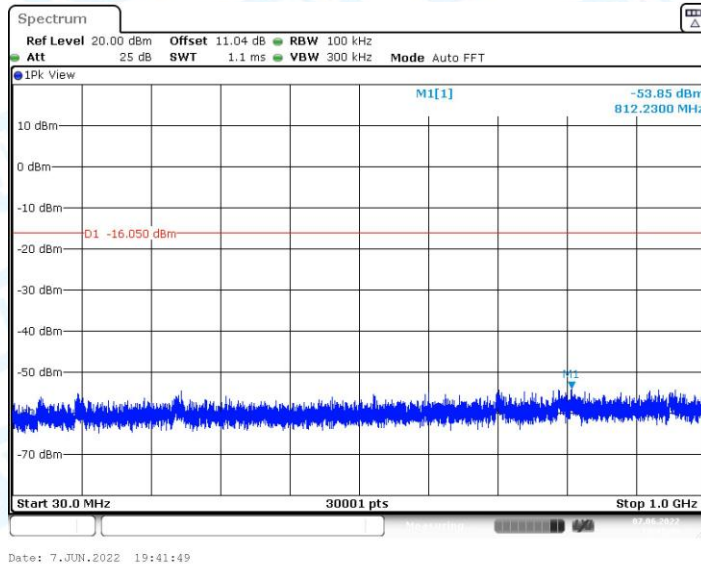
BLE_1M_Ant1_2440_30~1000



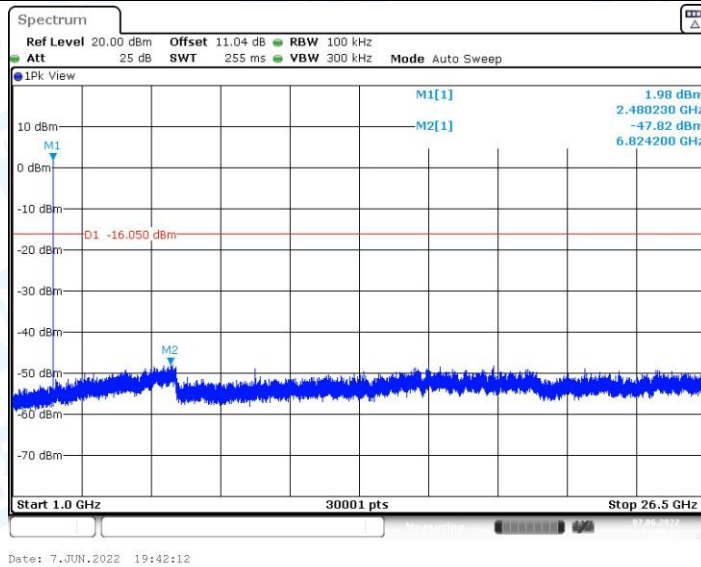
BLE_1M_Ant1_2440_1000~26500



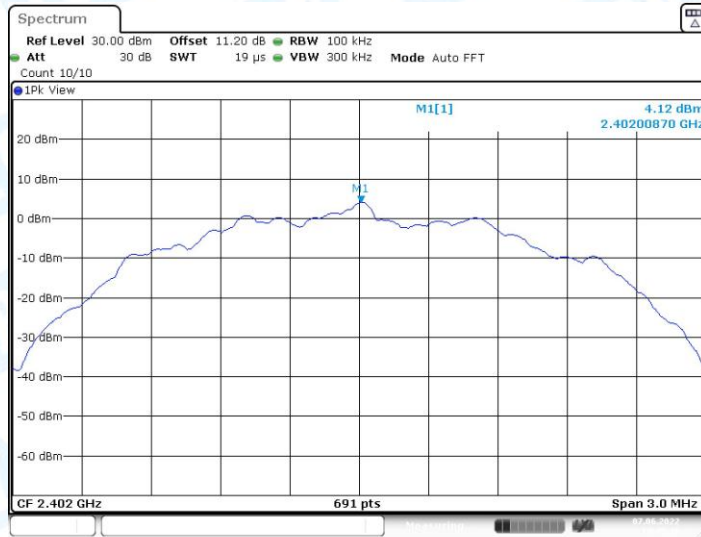
BLE_1M_Ant1_2480_0~Reference



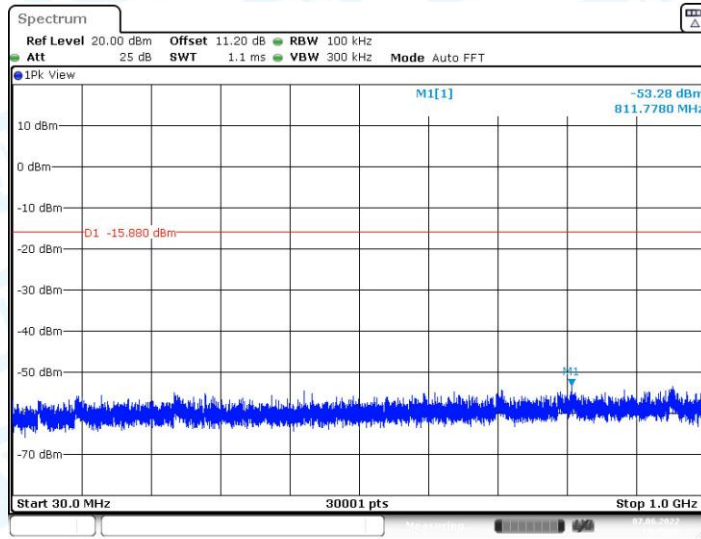
BLE_1M_Ant1_2480_30~1000



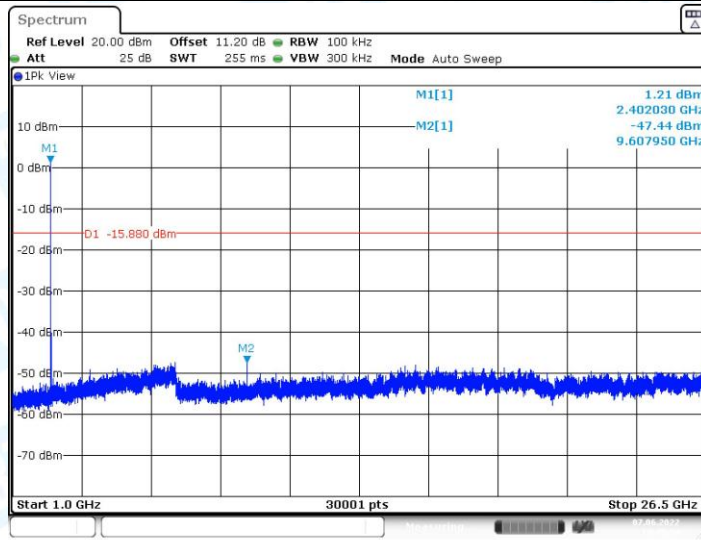
BLE_1M_Ant1_2480_1000~26500



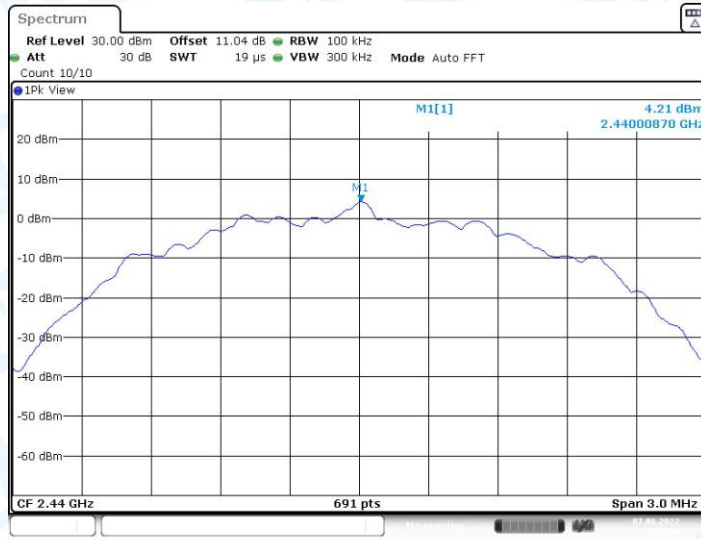
BLE_2M_Ant1_2402_0~Reference



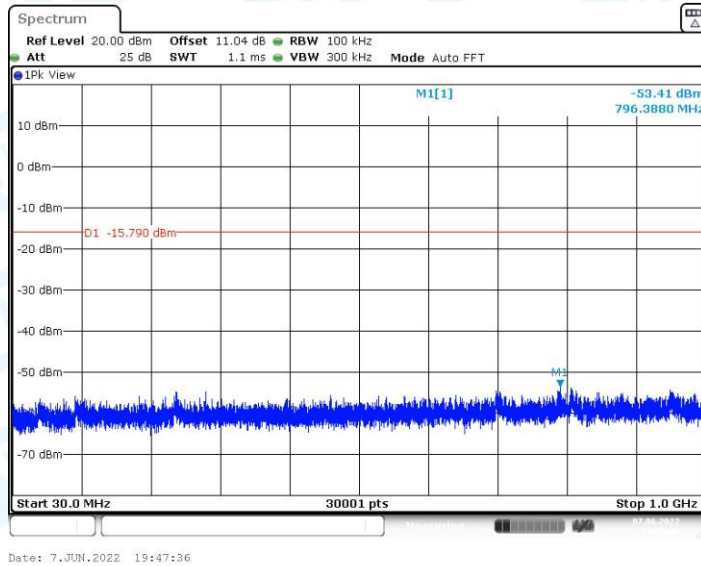
BLE_2M_Ant1_2402_30~1000



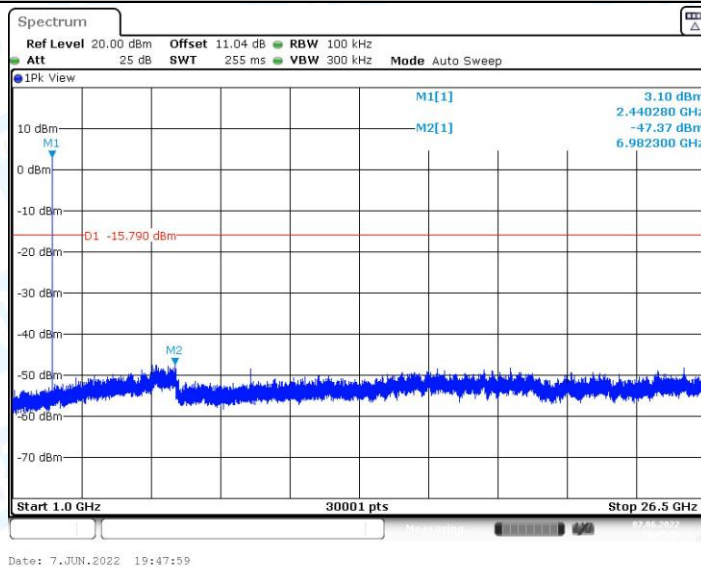
BLE_2M_Ant1_2402_1000~26500



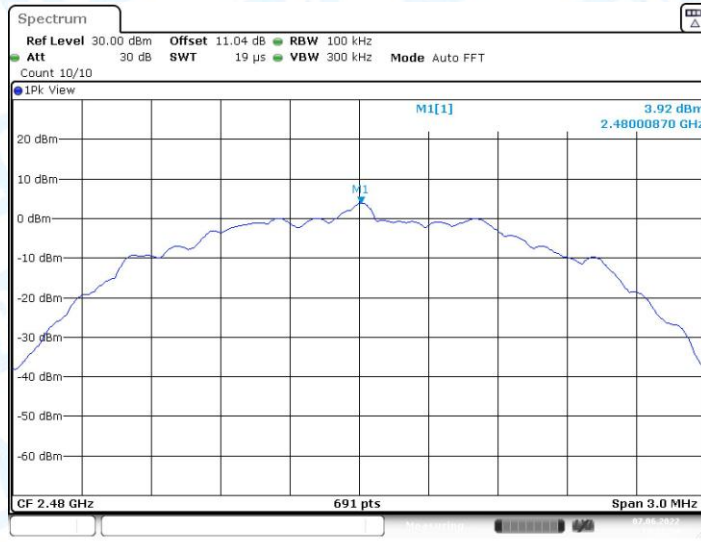
BLE_2M_Ant1_2440_0~Reference



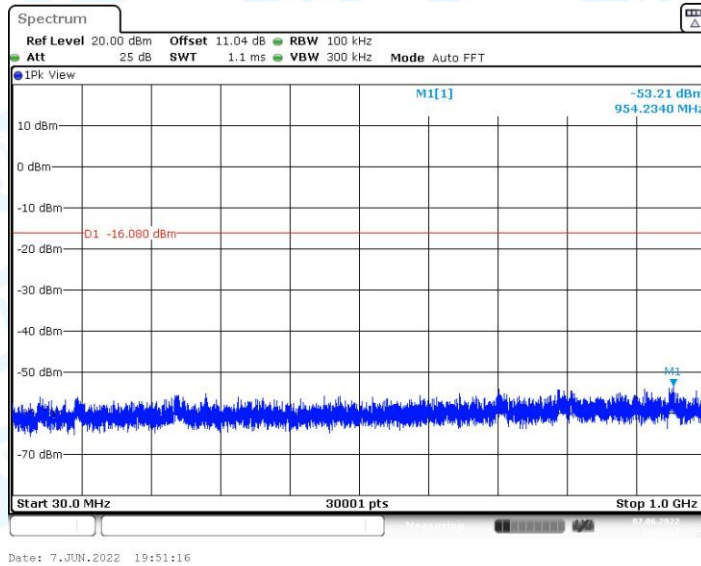
BLE_2M_Ant1_2440_30~1000



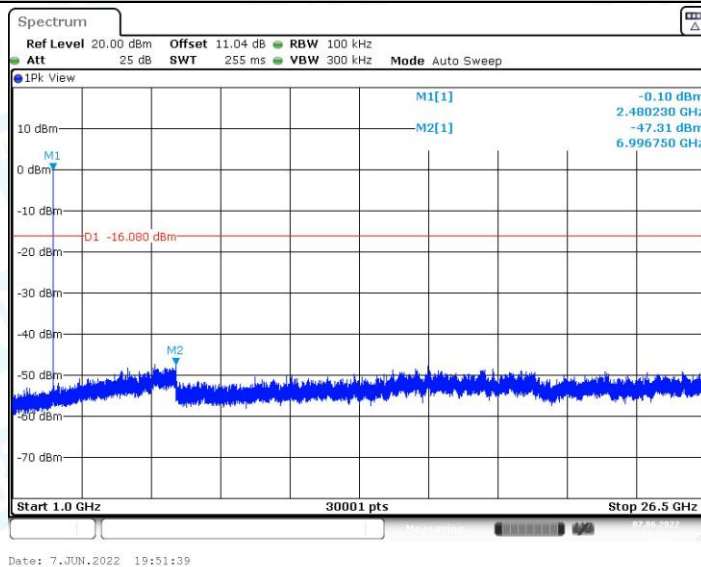
BLE_2M_Ant1_2440_1000~26500



BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500

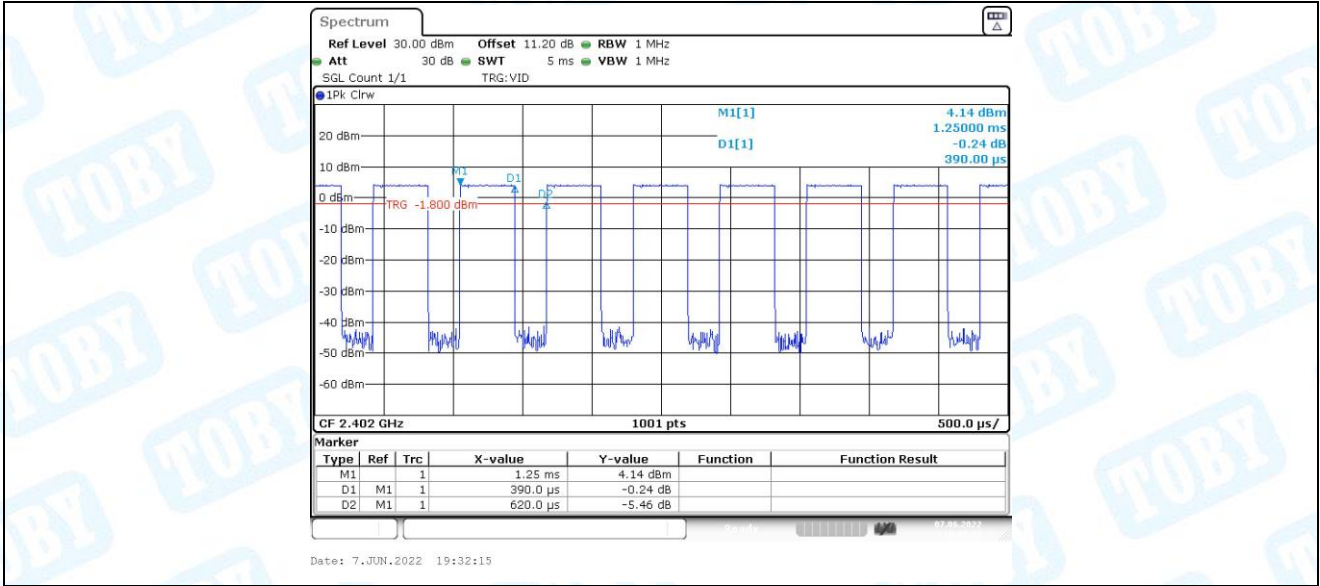
7. Duty Cycle

7.1. Test Result

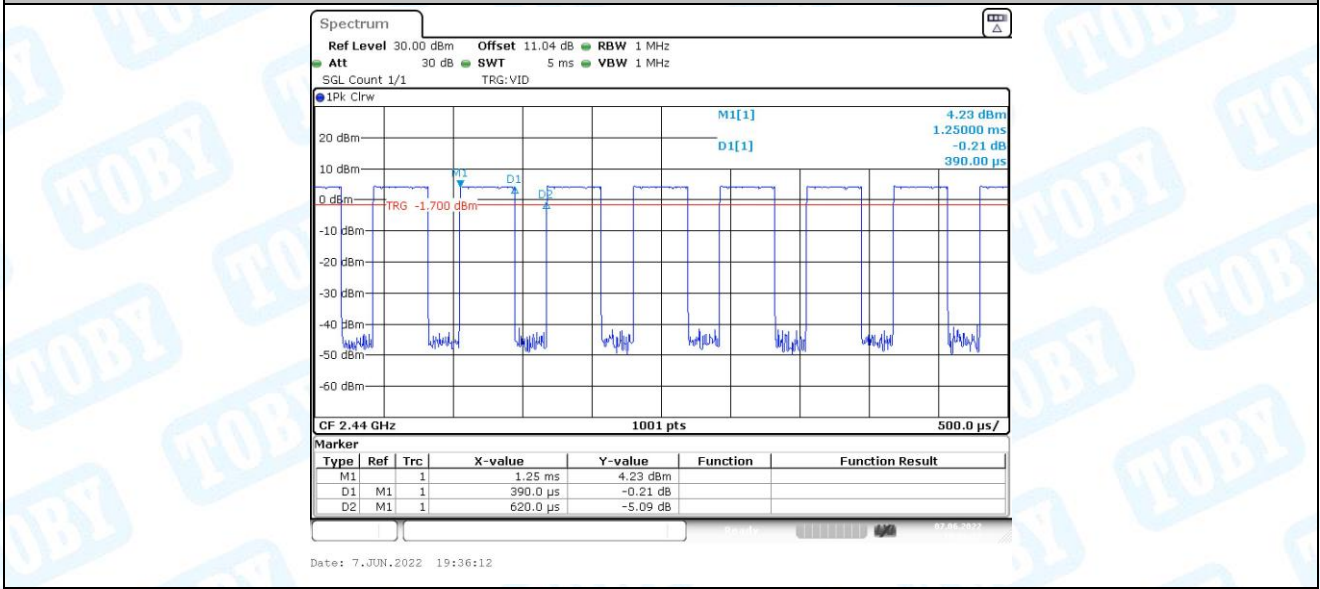
Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T [KHz]	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.62	62.90	2.56	---	---
		2440	0.39	0.62	62.90	2.56	---	---
		2480	0.39	0.62	62.90	2.56	---	---
BLE_2M	Ant1	2402	0.21	0.62	33.87	4.76	---	---
		2440	0.21	0.62	33.87	4.76	---	---
		2480	0.21	0.62	33.87	4.76	---	---

Note: 1/T=1/ Transmission Duration

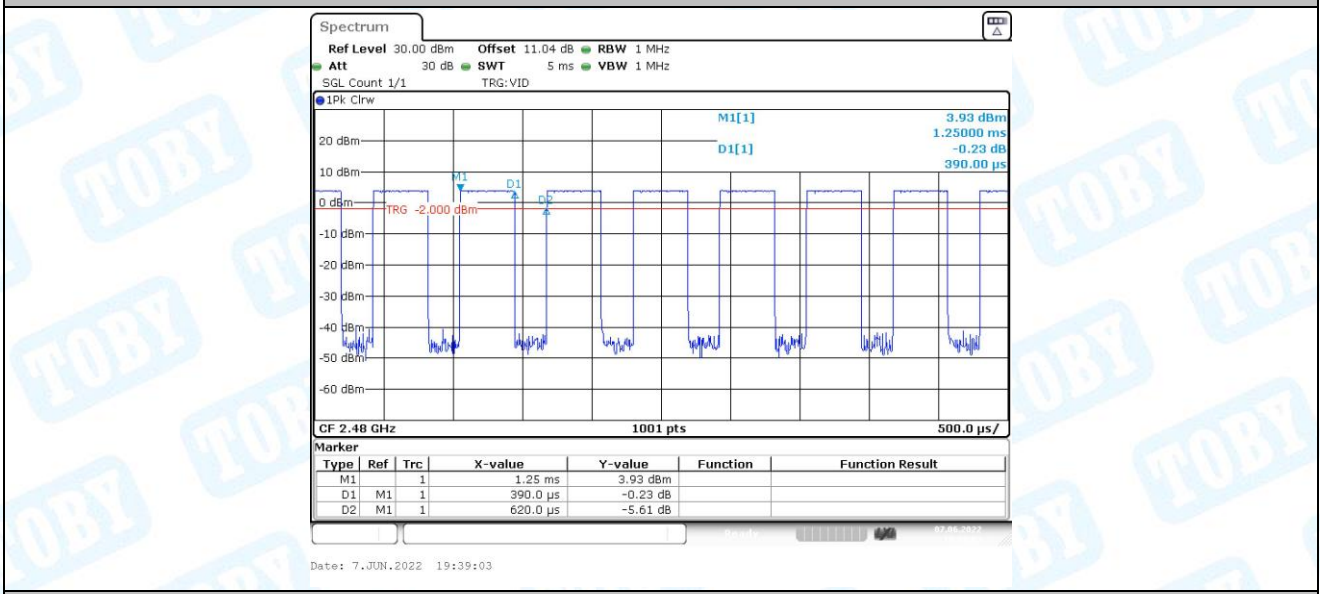
7.2. Test Graphs



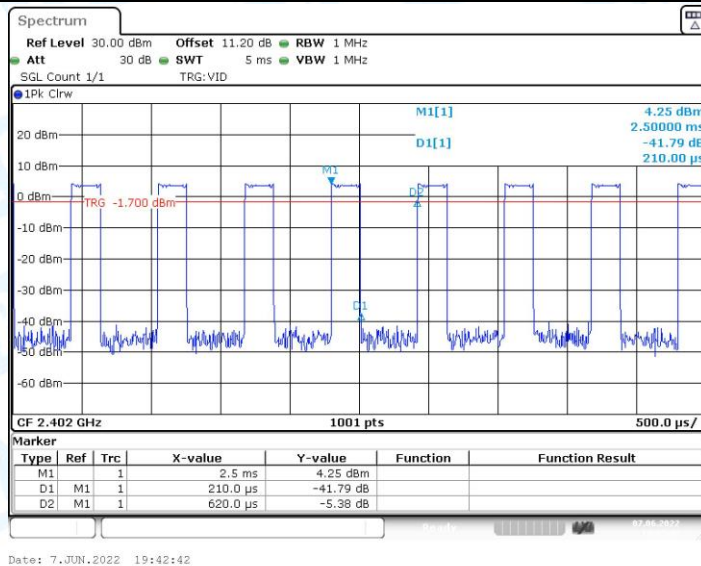
BLE_1M_Ant1_2402



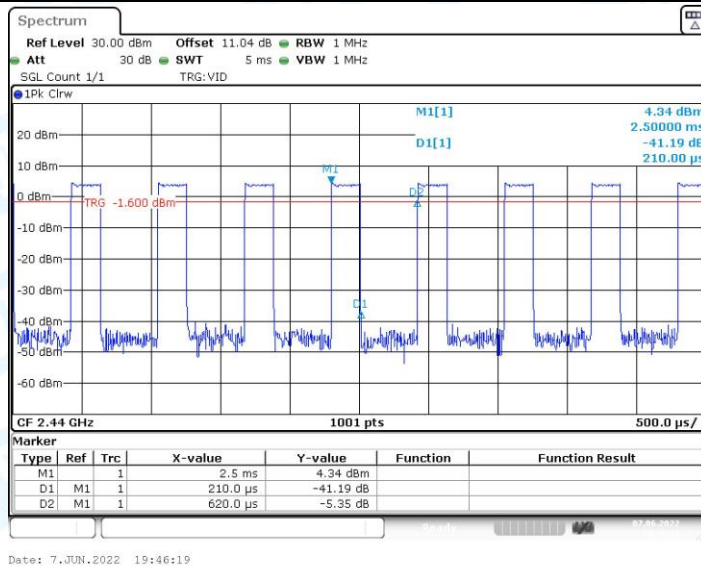
BLE_1M_Ant1_2440



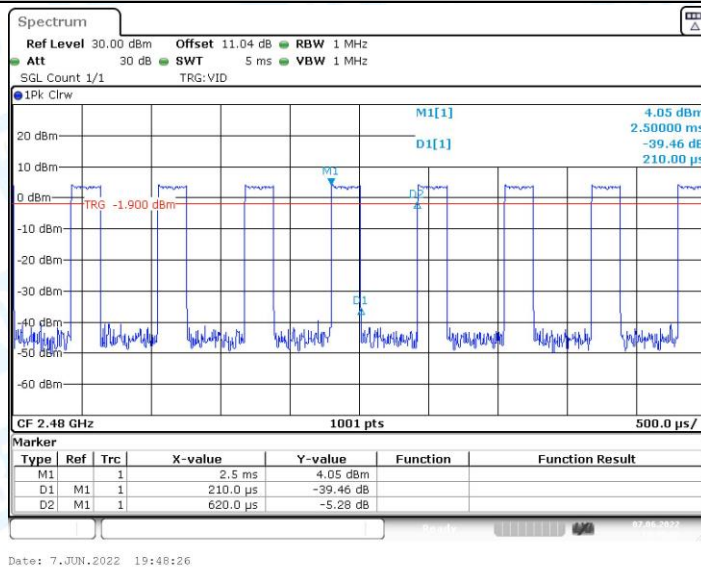
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

8. Emissions in Restricted Bands

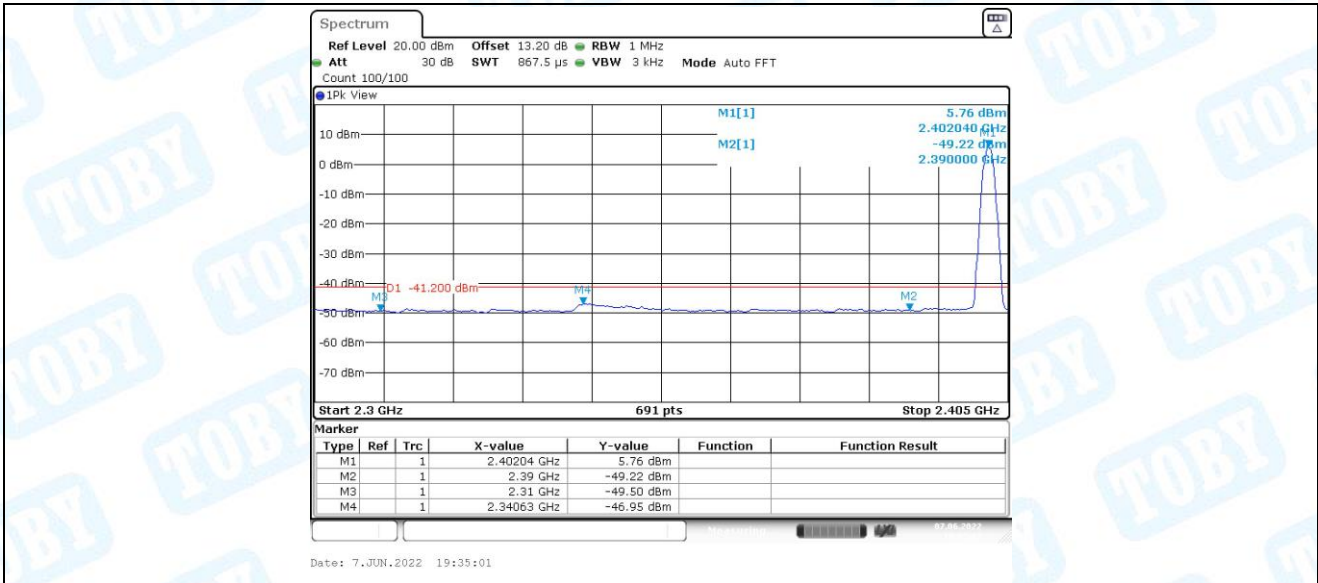
8.1. Test Result

Test Mode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-49.5	≤-41.20	PASS
				AV	2340.630	-46.95	≤-41.20	PASS
				AV	2390.000	-49.22	≤-41.20	PASS
				Peak	2310.000	-39.26	≤-21.20	PASS
				Peak	2346.261	-36.21	≤-21.20	PASS
				Peak	2390.000	-40.13	≤-21.20	PASS
		High	2480	AV	2483.500	-48.91	≤-41.20	PASS
				AV	2484.145	-47.93	≤-41.20	PASS
				AV	2500.000	-48.58	≤-41.20	PASS
				Peak	2483.500	-40.16	≤-21.20	PASS
				Peak	2483.913	-36.66	≤-21.20	PASS
				Peak	2500.000	-38.04	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-48.86	≤-41.20	PASS
				AV	2340.935	-46.1	≤-41.20	PASS
				AV	2390.000	-48.99	≤-41.20	PASS
				Peak	2310.000	-39.04	≤-21.20	PASS
				Peak	2341.087	-35.64	≤-21.20	PASS
				Peak	2390.000	-39.26	≤-21.20	PASS
		High	2480	AV	2483.500	-48.02	≤-41.20	PASS
				AV	2499.681	-47.49	≤-41.20	PASS
				AV	2500.000	-47.96	≤-41.20	PASS
				Peak	2483.500	-39.76	≤-21.20	PASS
				Peak	2499.913	-37.04	≤-21.20	PASS
				Peak	2500.000	-37.07	≤-21.20	PASS

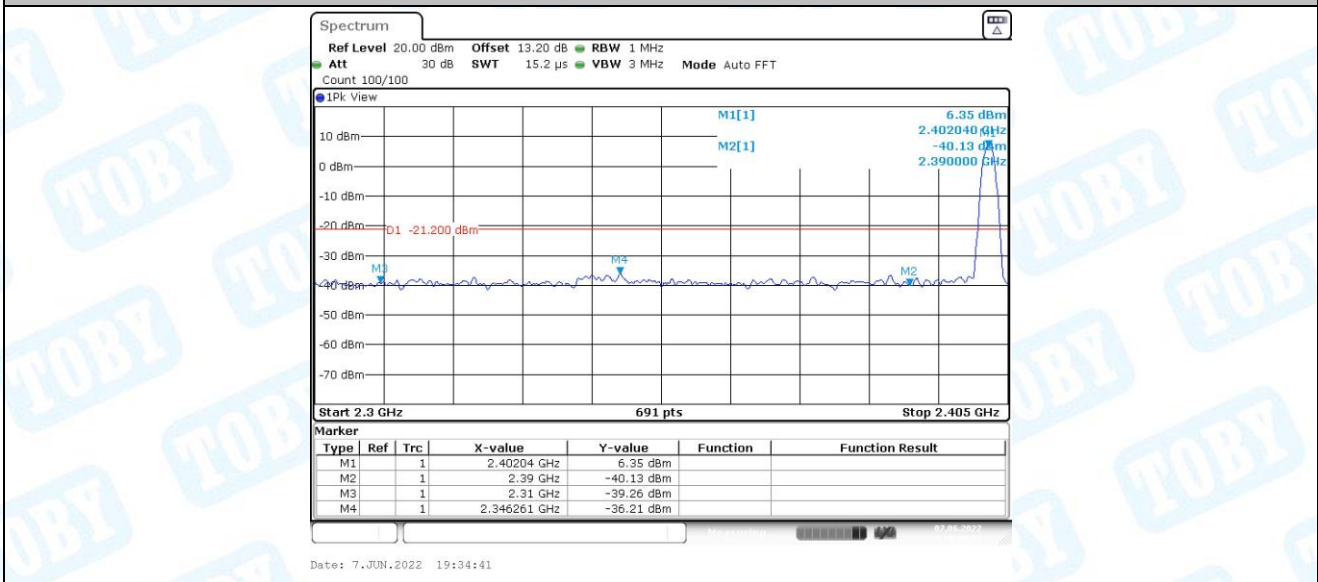
Note:

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.

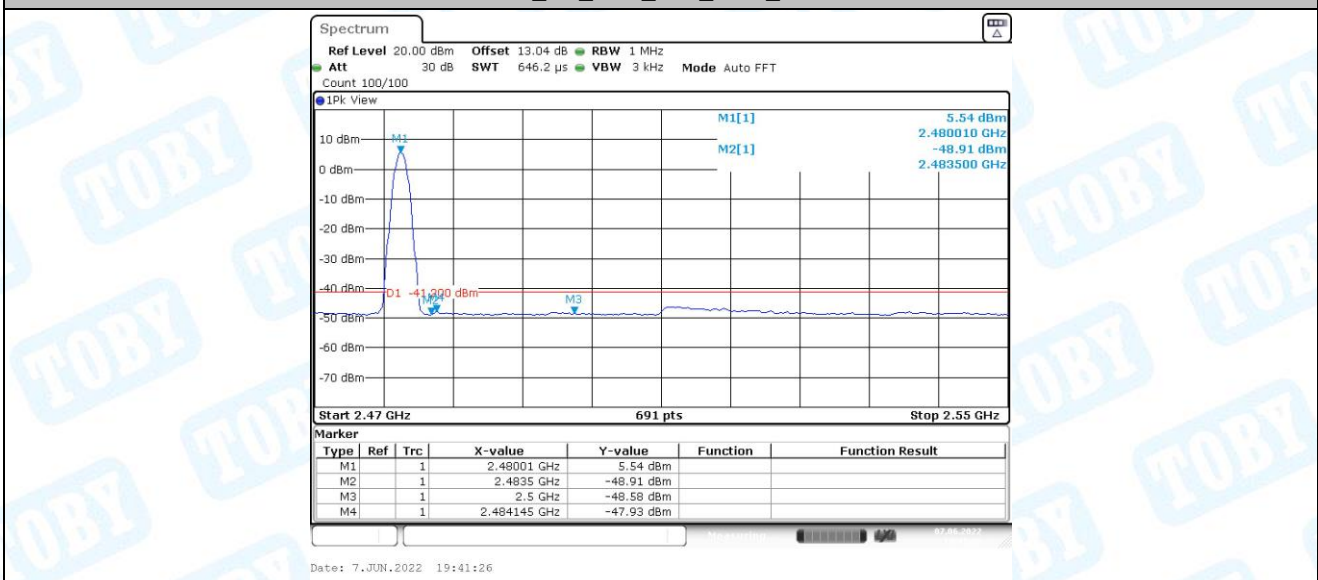
8.2. Test Graphs



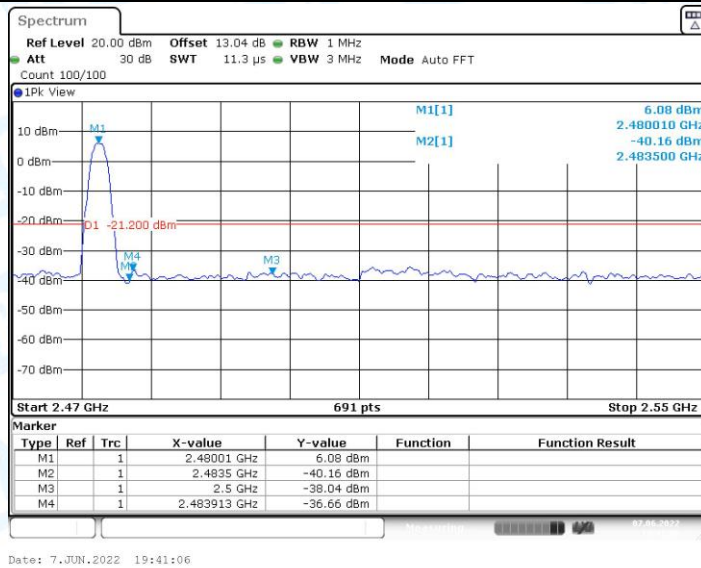
BLE_1M_Ant1_Low_2402_AV



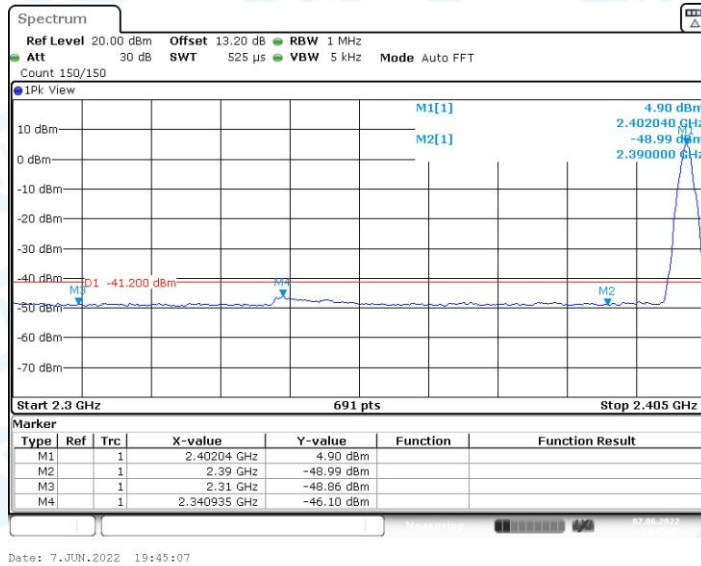
BLE_1M_Ant1_Low_2402_Peak



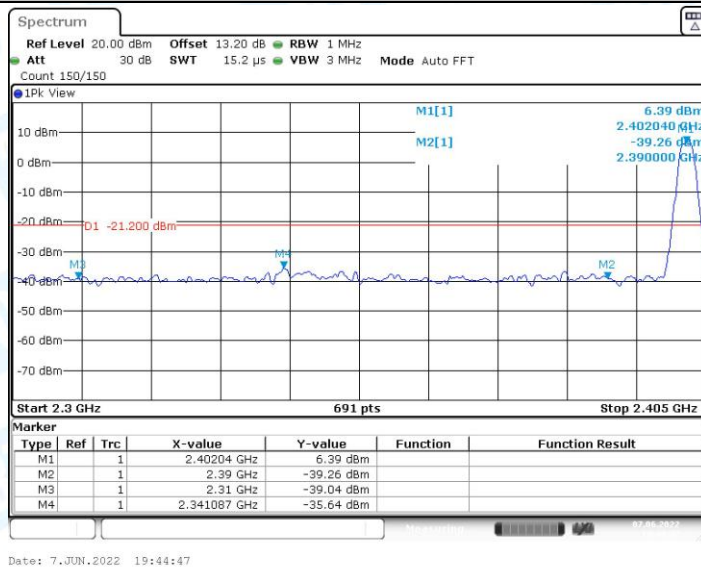
BLE_1M_Ant1_High_2480_AV



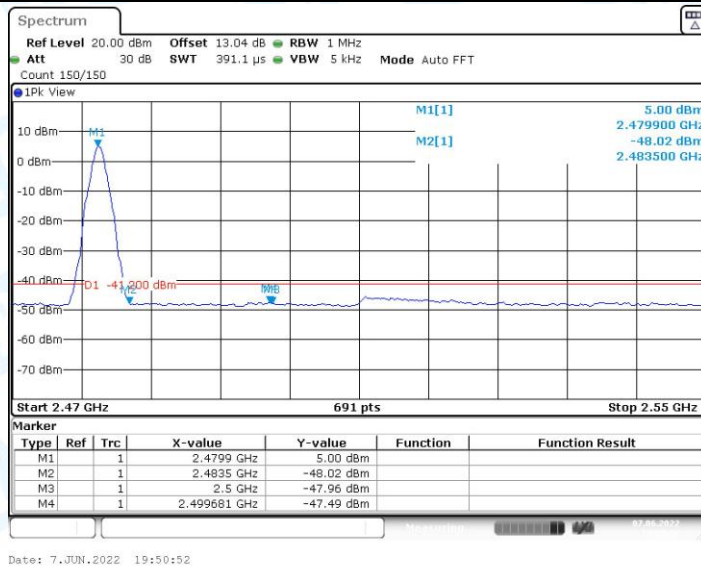
BLE_1M_Ant1_High_2480_Peak



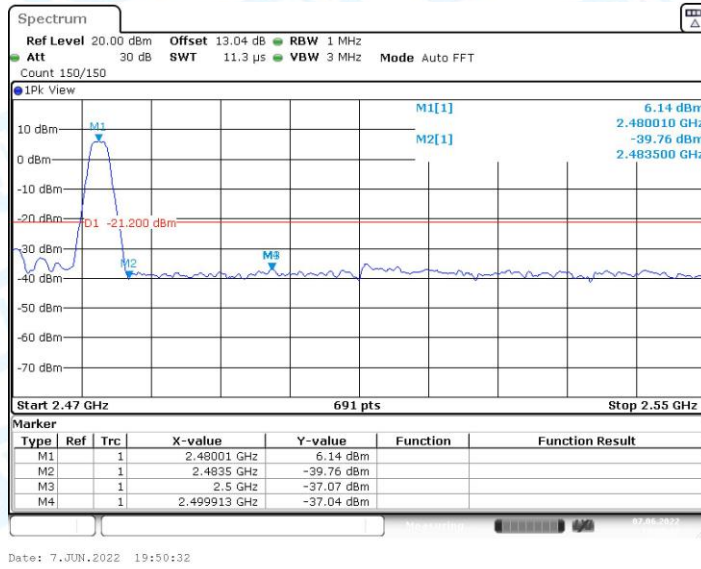
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

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