

## RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
Product Name:	ETOE TV
Test Model:	D1221
Sample ID:	202302-0086_01-02
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	DC 5V
Test Engineer:	Huang jian ping
Note: For a more detailed features description, please refer to the report TBR-C-202302-0086-51 The report only show the worst case data.	

## Contents

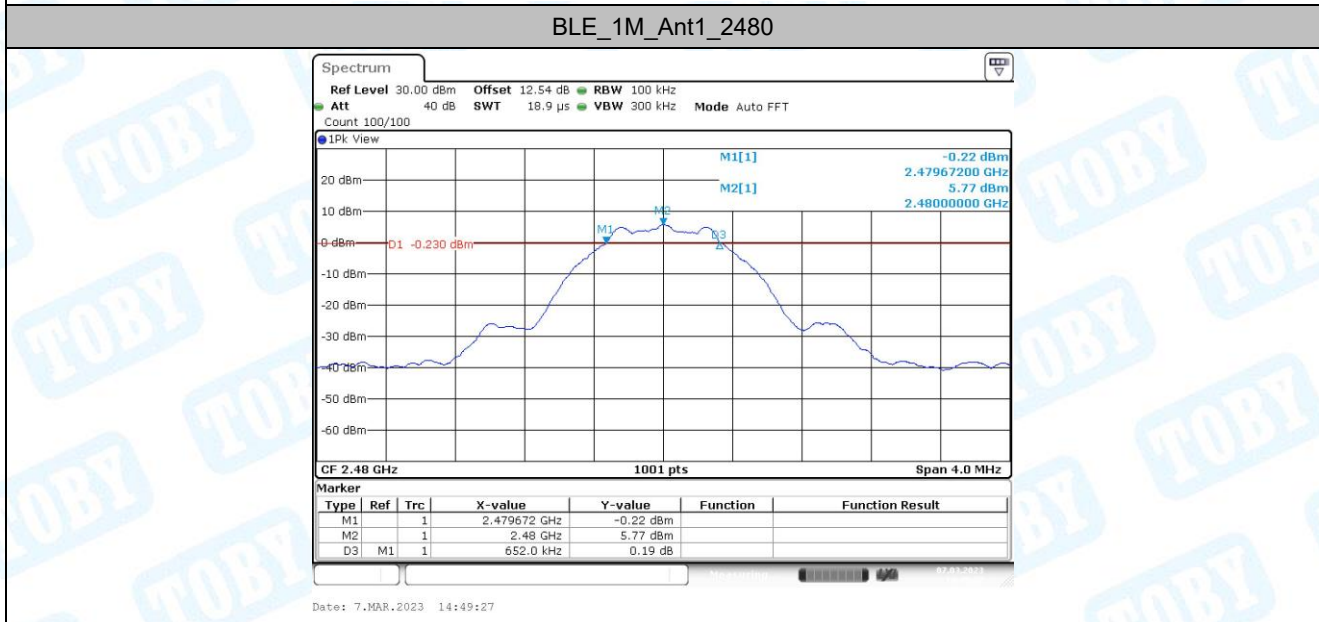
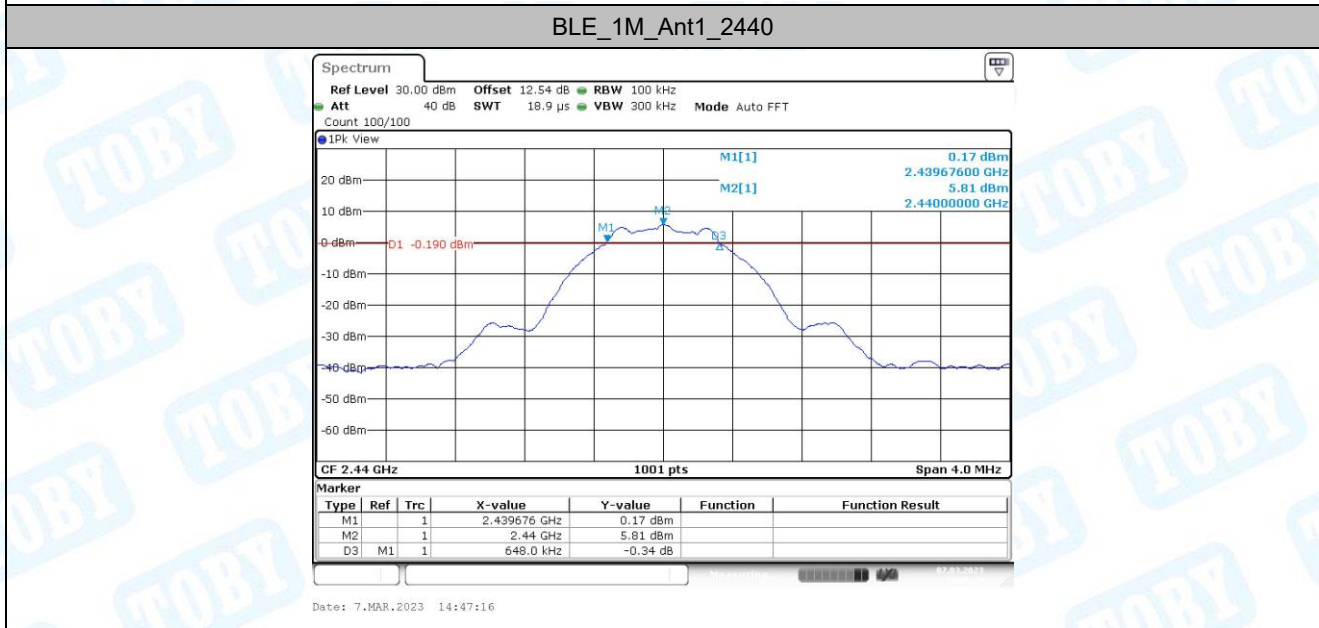
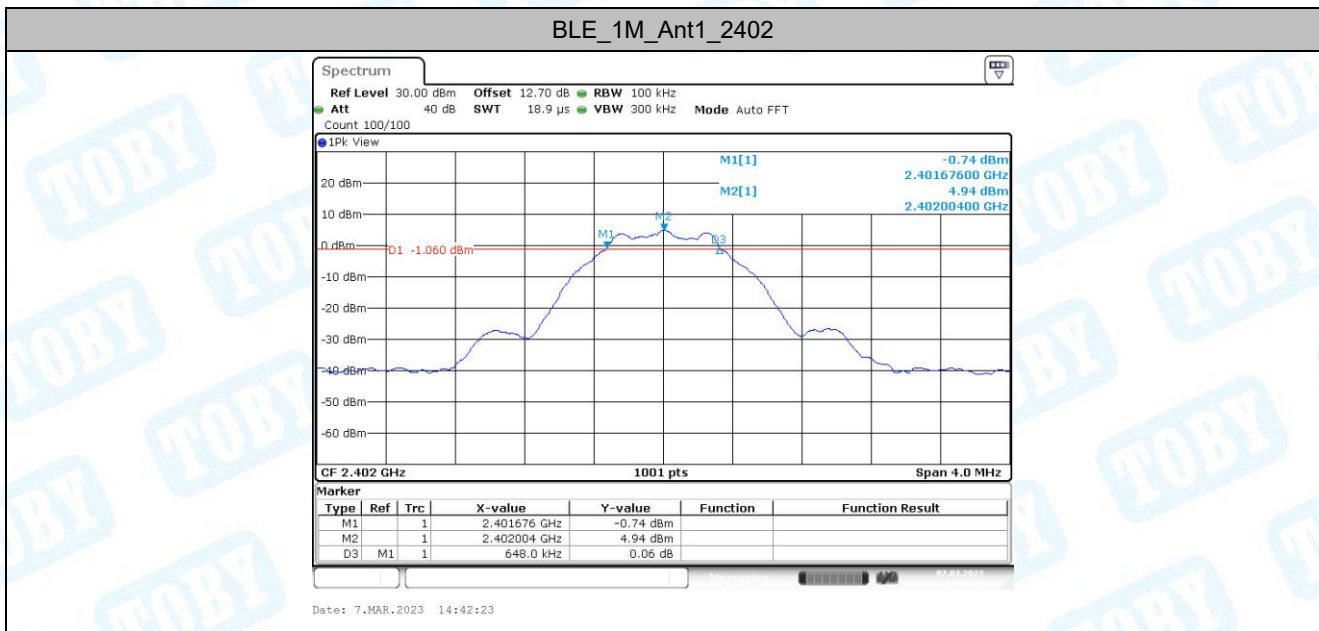
1. DTS Bandwidth.....	3
1.1. Test Result.....	3
1.2. Test Graphs.....	4
2. Occupied Channel Bandwidth.....	6
2.1. Test Result.....	6
2.2. Test Graphs.....	7
3. Maximum conducted output power.....	9
3.1. Test Result.....	9
3.2. Test Graphs.....	10
4. Maximum power spectral density.....	12
4.1. Test Result.....	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

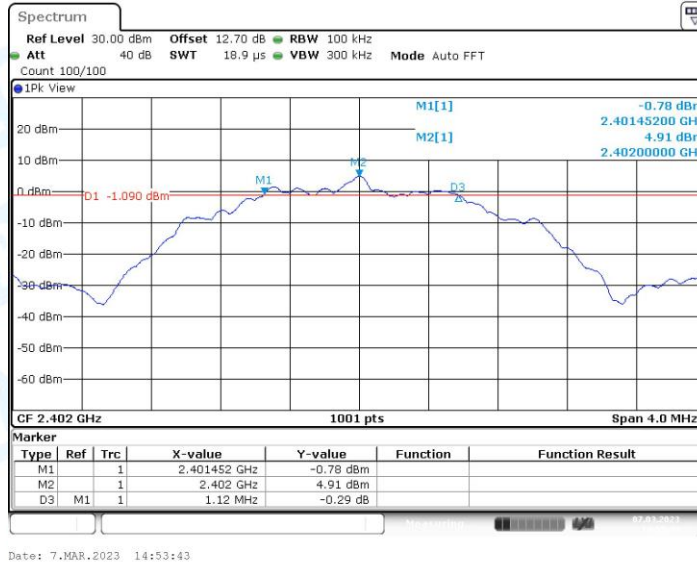
### 1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.65	2401.68	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	2401.45	2402.57	0.5	PASS
		2440	1.09	2439.47	2440.56	0.5	PASS
		2480	0.99	2479.45	2480.44	0.5	PASS

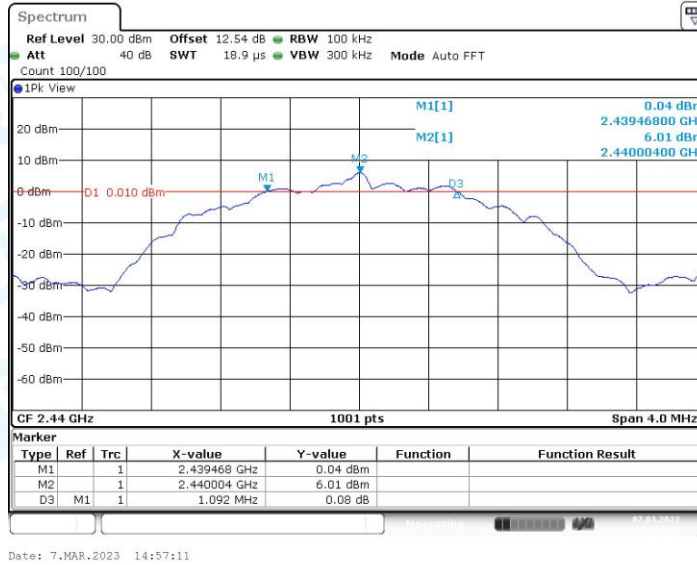
## 1.2. Test Graphs



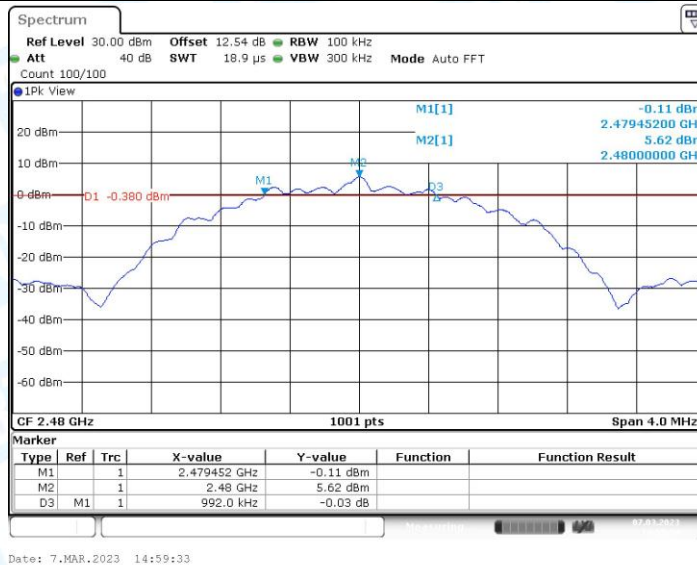
BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480

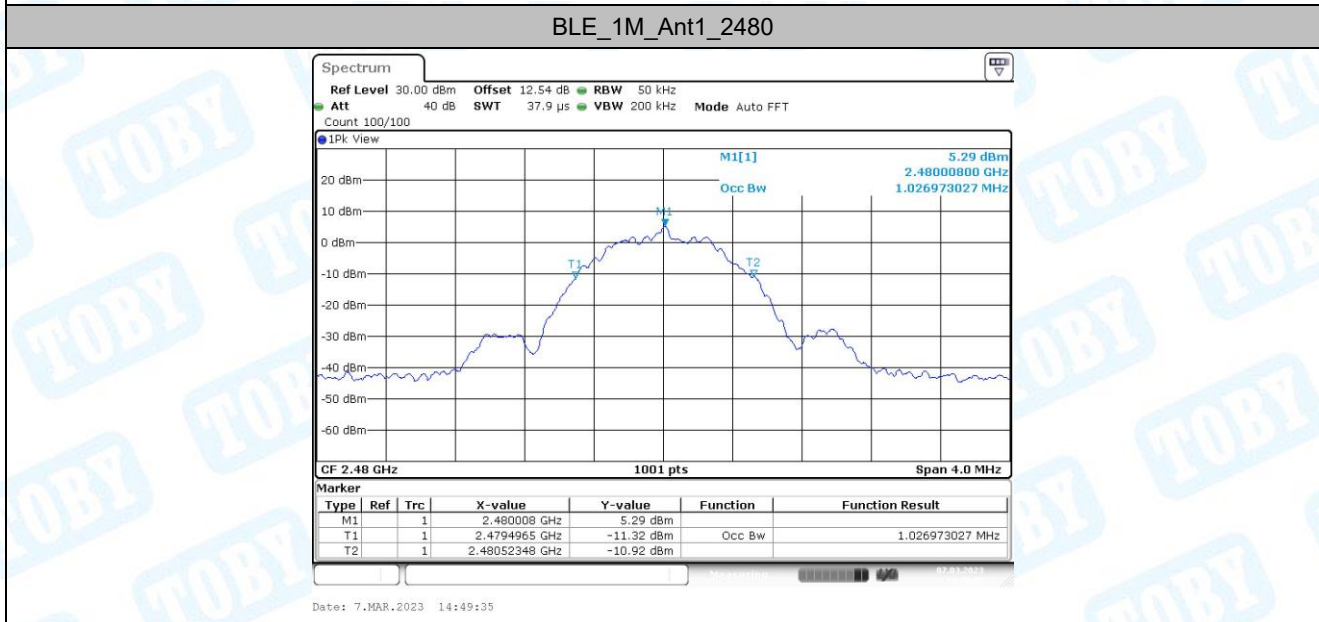
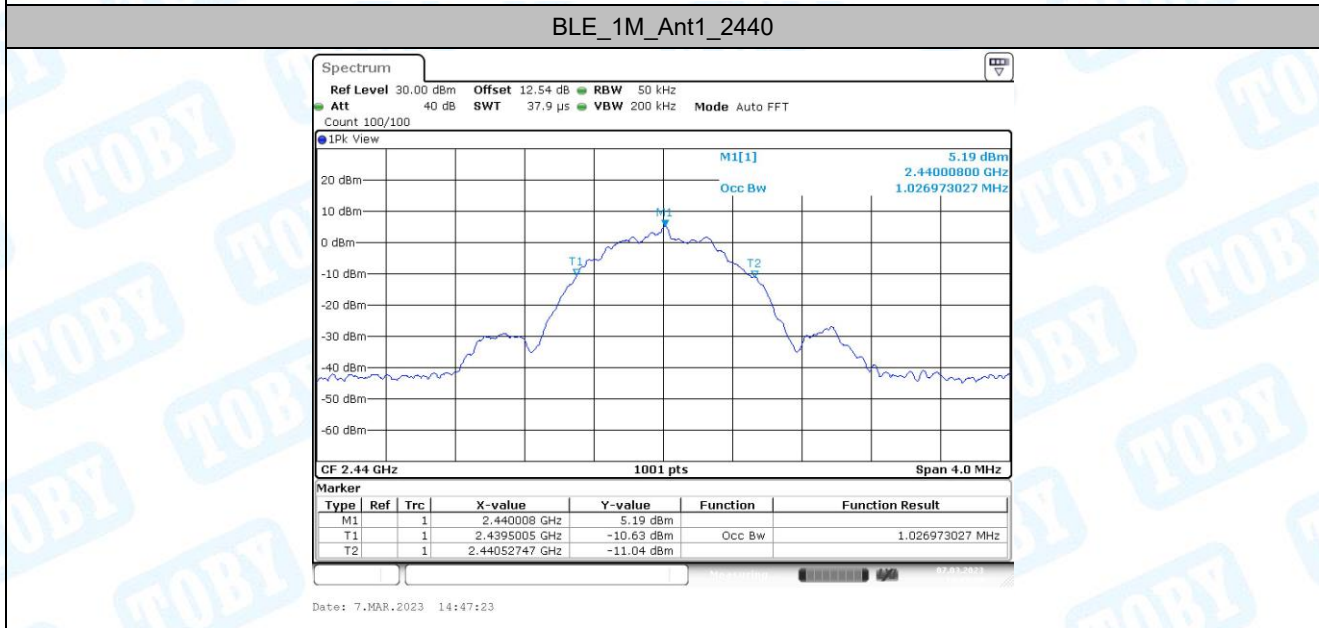
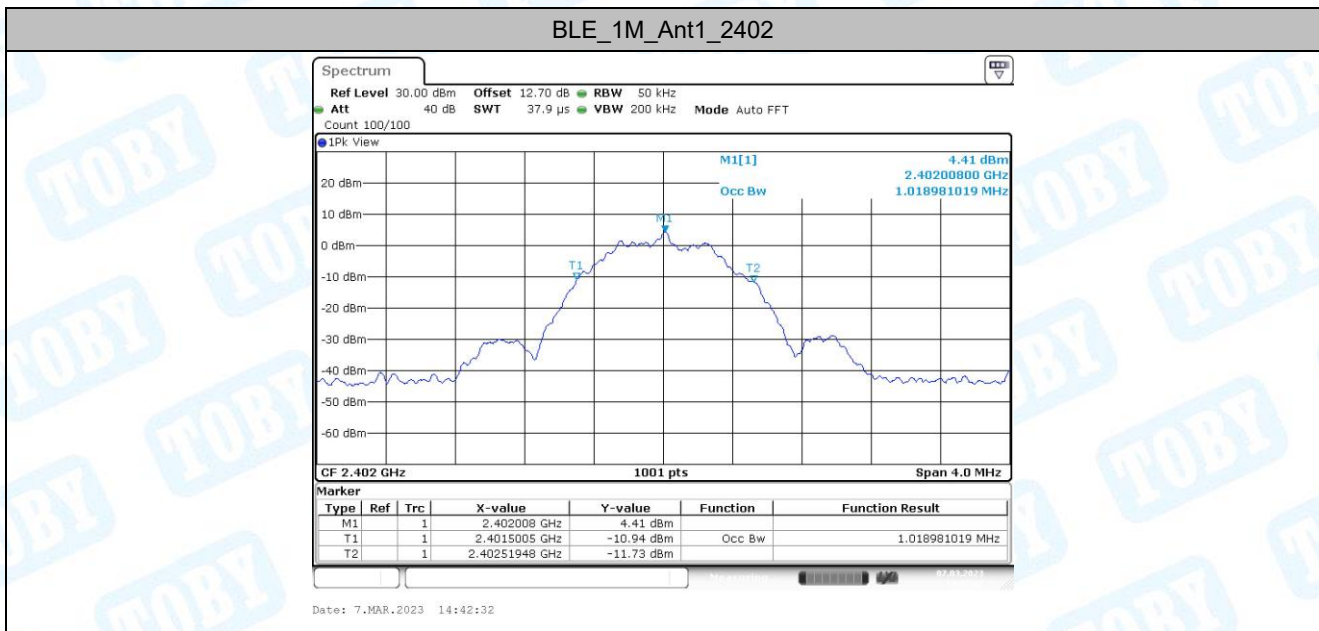


## 2. Occupied Channel Bandwidth

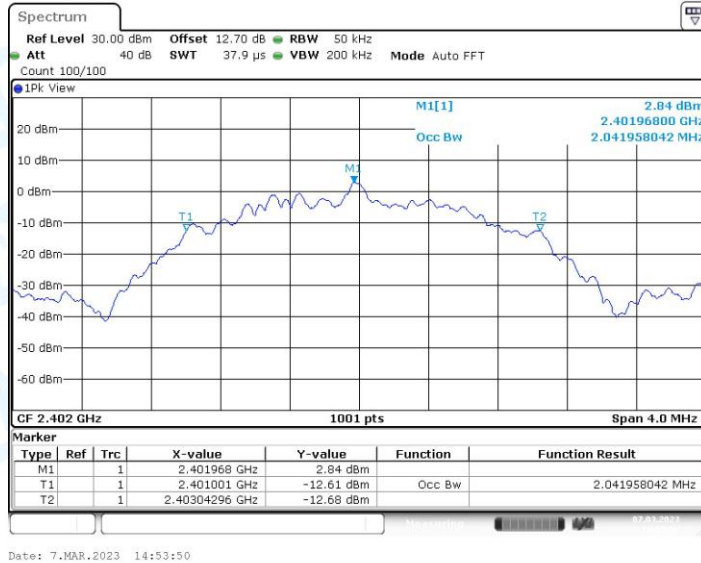
### 2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.019	2401.5005	2402.5195	---	---
		2440	1.027	2439.5005	2440.5275	---	---
		2480	1.027	2479.4965	2480.5235	---	---
BLE_2M	Ant1	2402	2.042	2401.0010	2403.0430	---	---
		2440	2.058	2438.9930	2441.0509	---	---
		2480	2.046	2478.9970	2481.0430	---	---

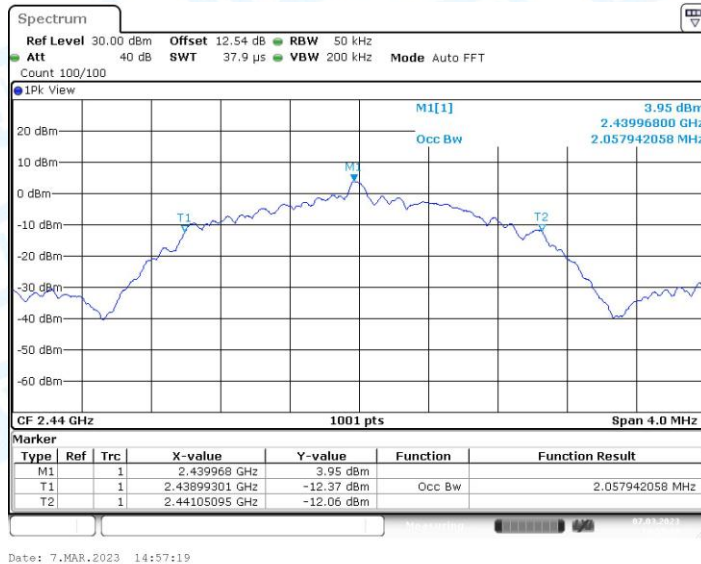
## 2.2. Test Graphs



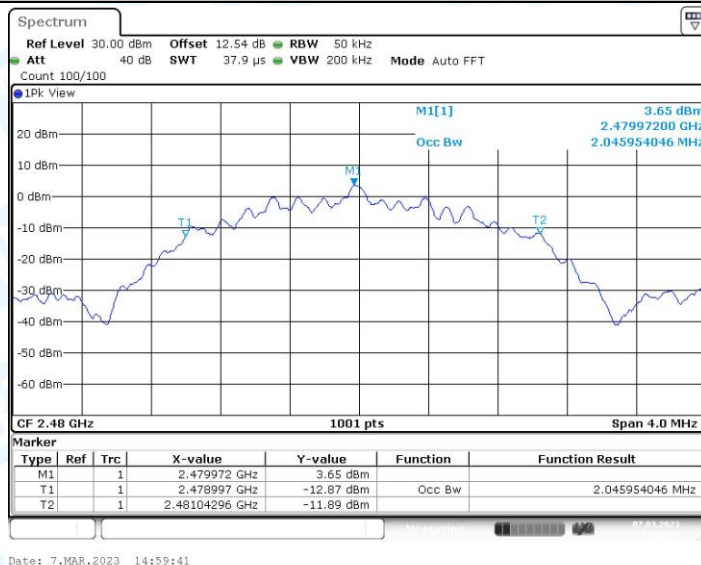
BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



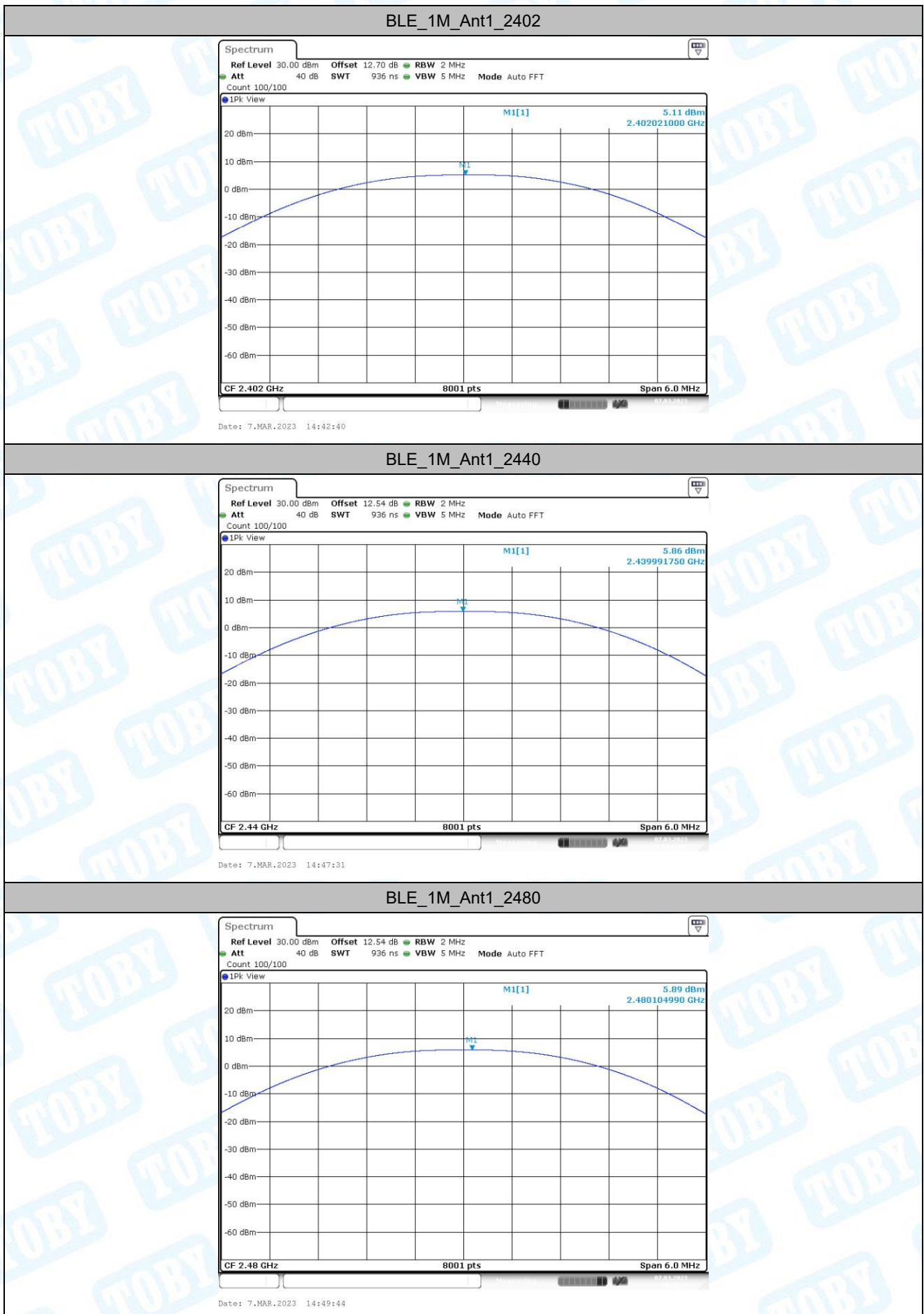


### 3. Maximum conducted output power

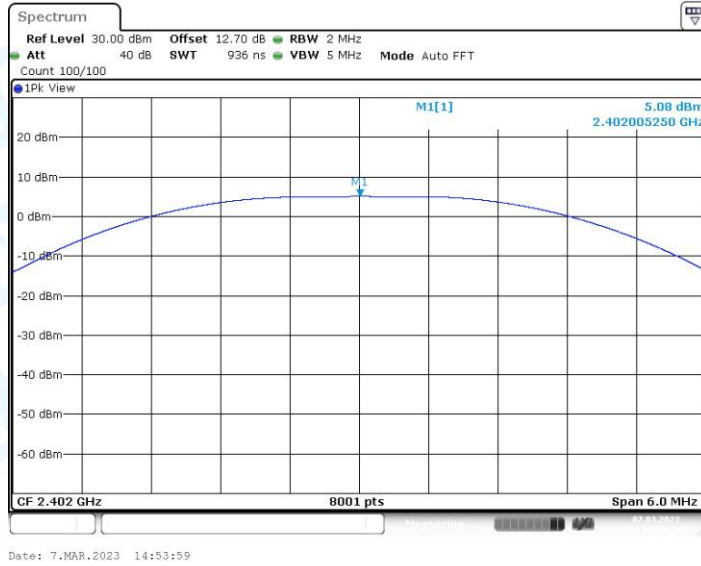
#### 3.1. Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.11	≤30	PASS
		2440	5.86	≤30	PASS
		2480	5.89	≤30	PASS
BLE_2M	Ant1	2402	5.08	≤30	PASS
		2440	6.15	≤30	PASS
		2480	5.8	≤30	PASS

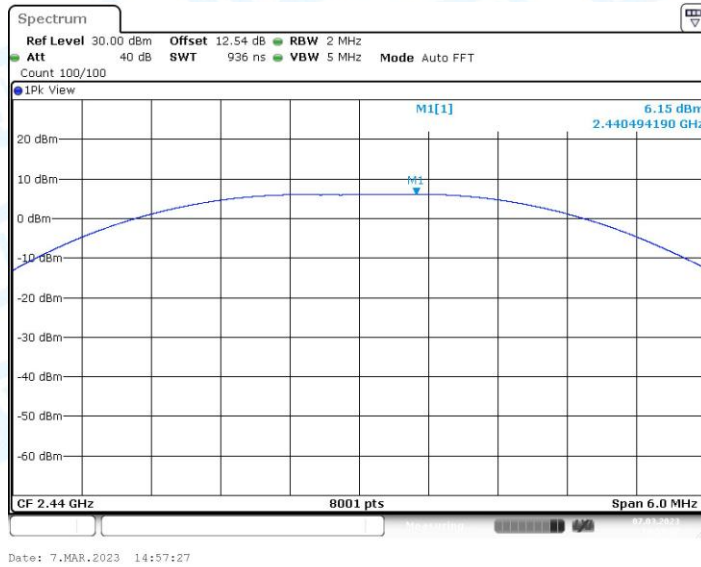
### 3.2. Test Graphs



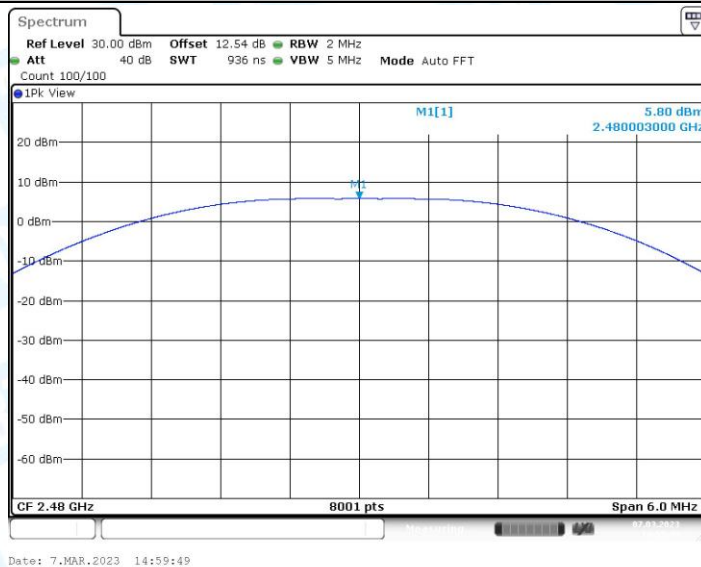
BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480

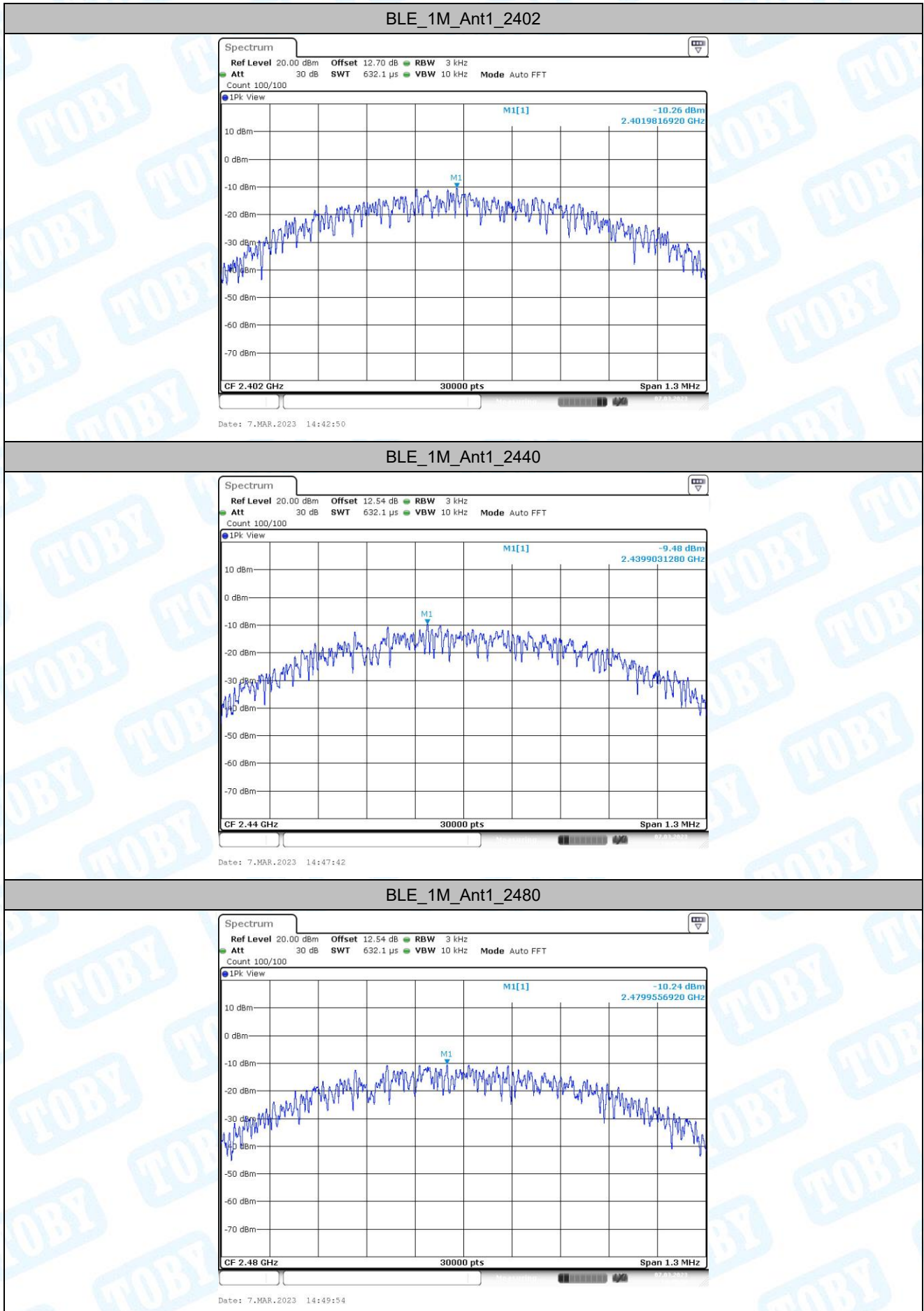


## 4. Maximum power spectral density

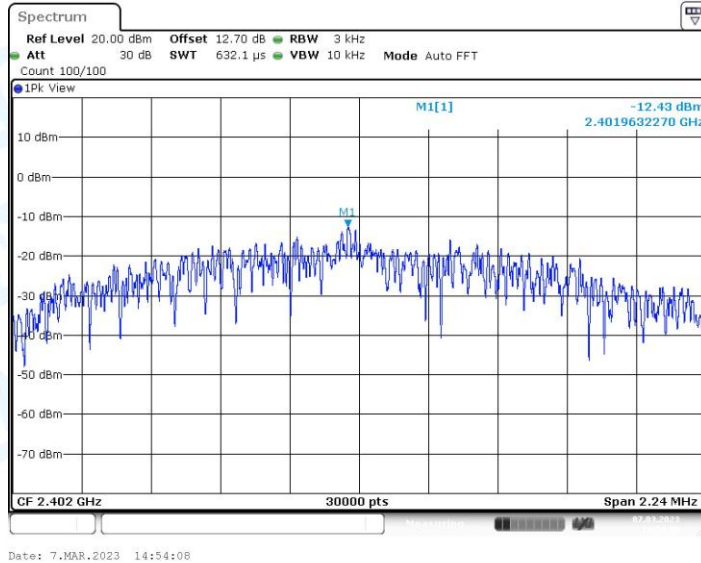
### 4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-10.26	≤8.00	PASS
		2440	-9.48	≤8.00	PASS
		2480	-10.24	≤8.00	PASS
BLE_2M	Ant1	2402	-12.43	≤8.00	PASS
		2440	-11.49	≤8.00	PASS
		2480	-10.8	≤8.00	PASS

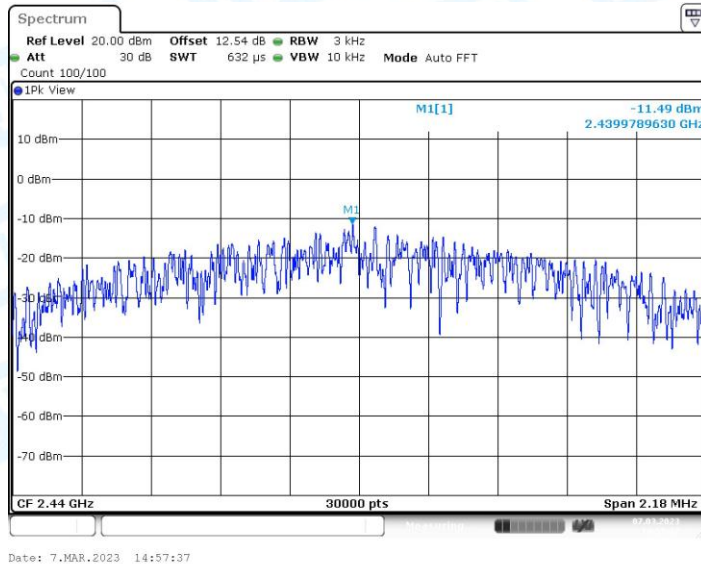
## 4.2. Test Graphs



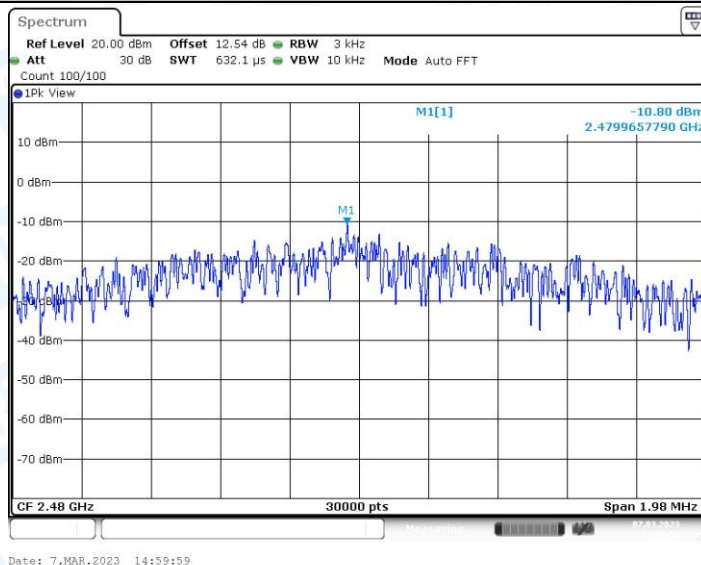
BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480

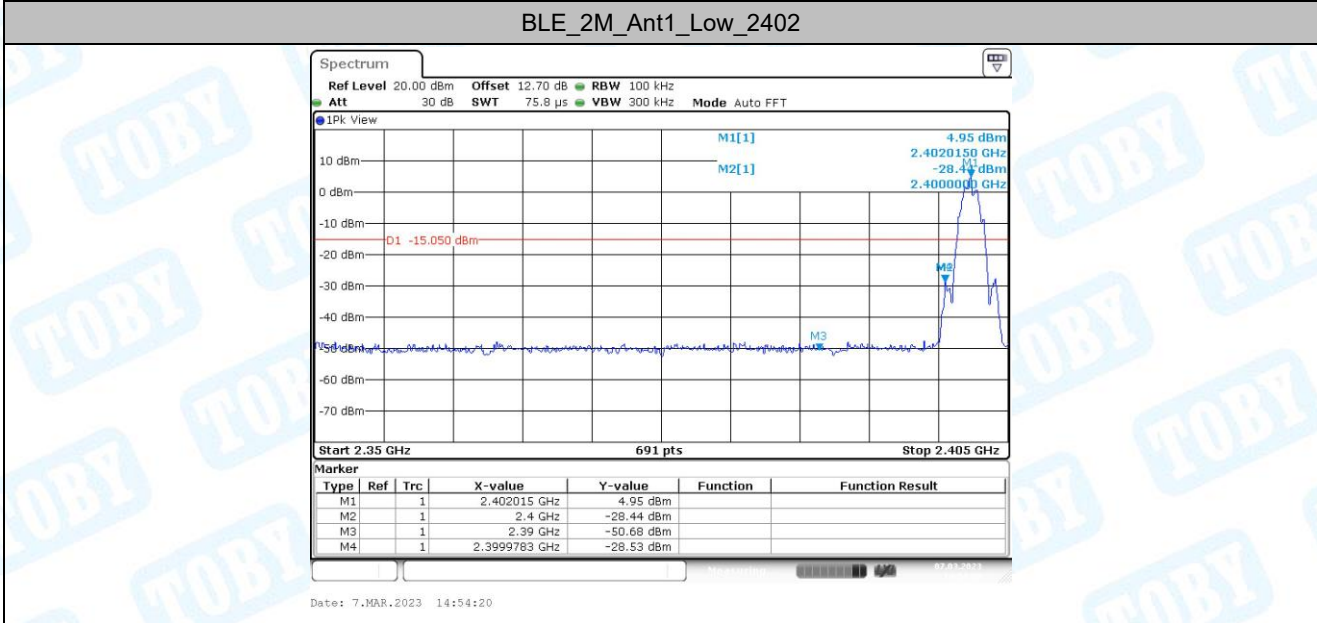
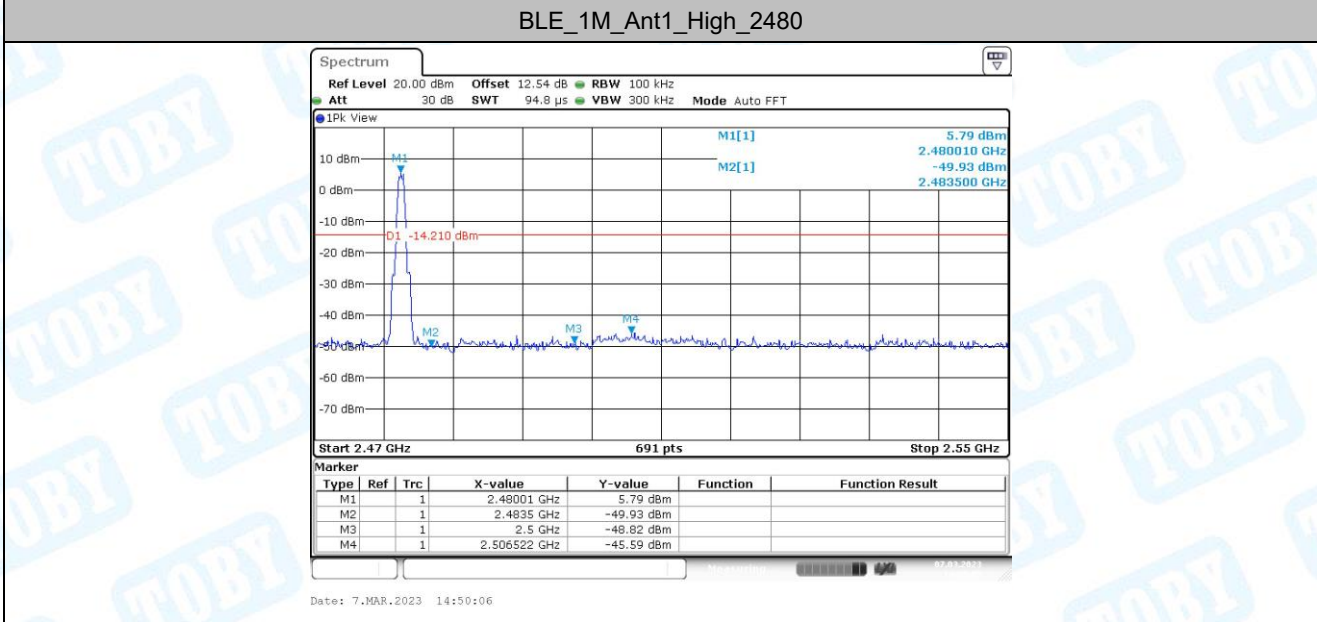
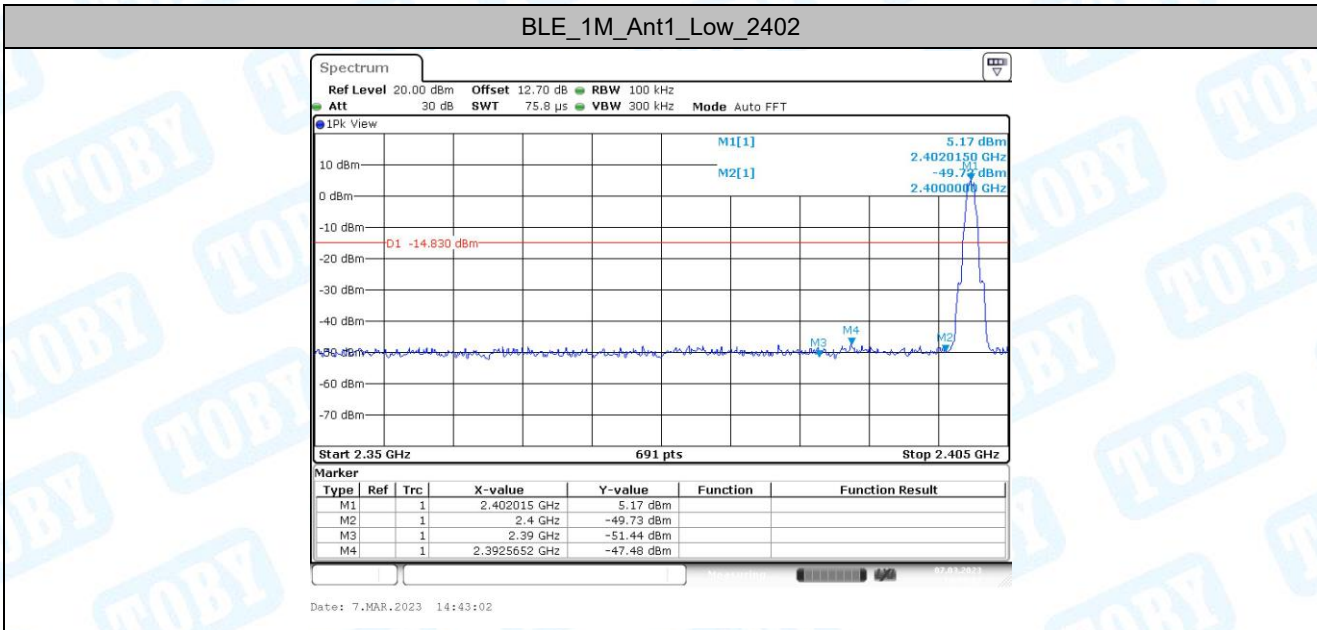


## 5. Band edge measurements

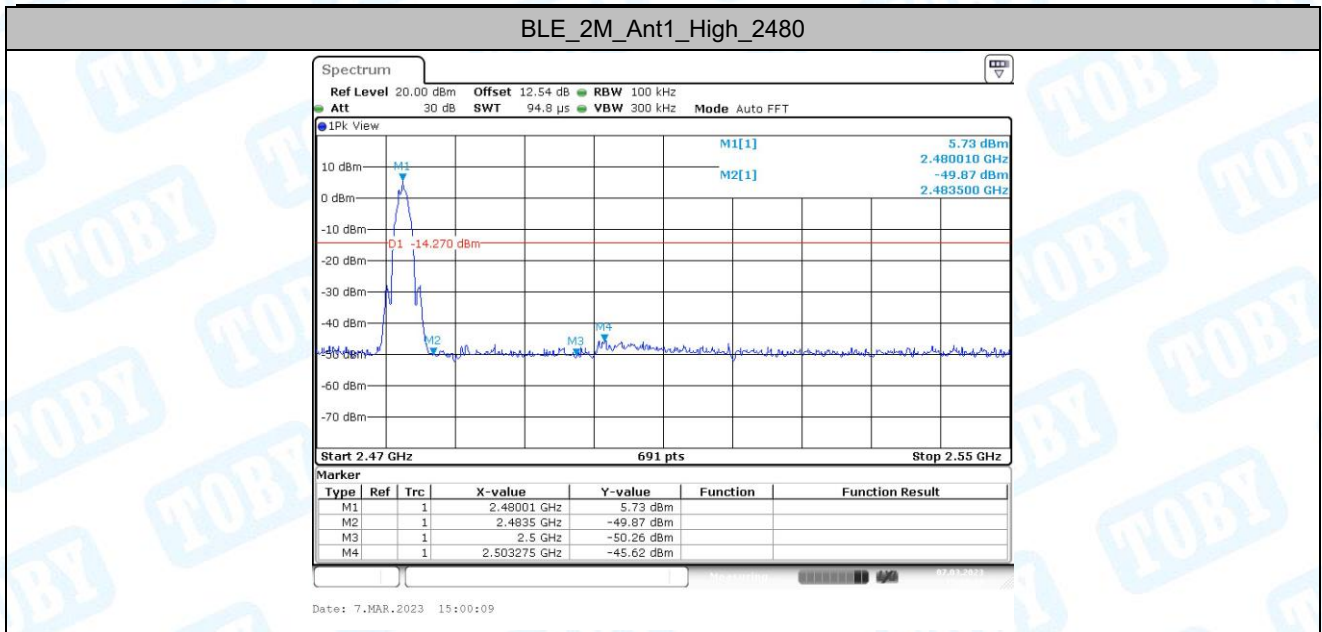
### 5.1. Test Result

Test Mode	Antenna	ChName	Channel	Ref.Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.17	-47.48	≤-14.83	PASS
		High	2480	5.79	-45.59	≤-14.21	PASS
BLE_2M	Ant1	Low	2402	4.95	-28.53	≤-15.05	PASS
		High	2480	5.73	-45.62	≤-14.27	PASS

## 5.2. Test Graphs





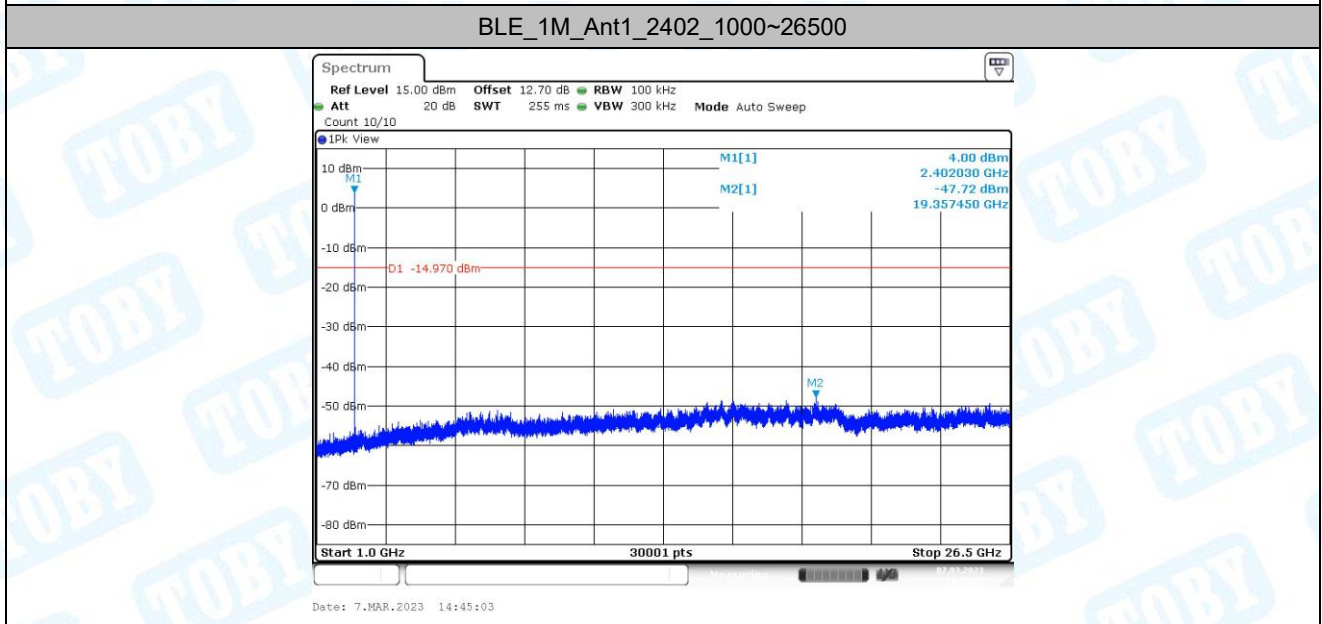
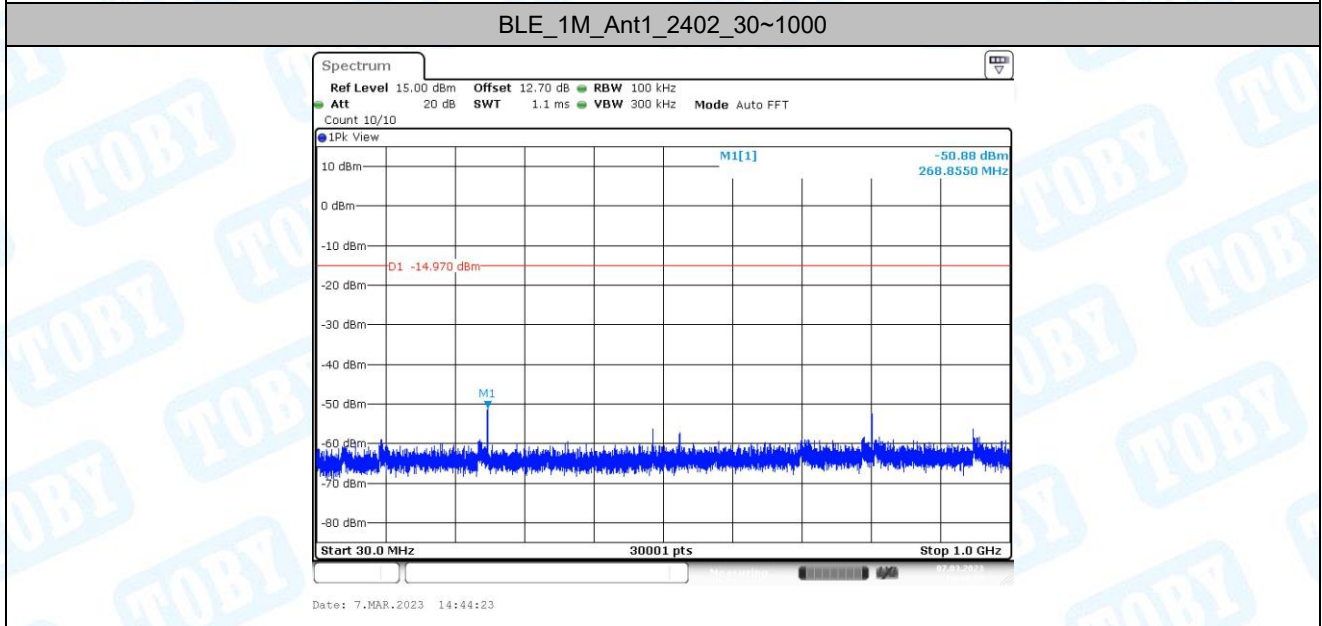
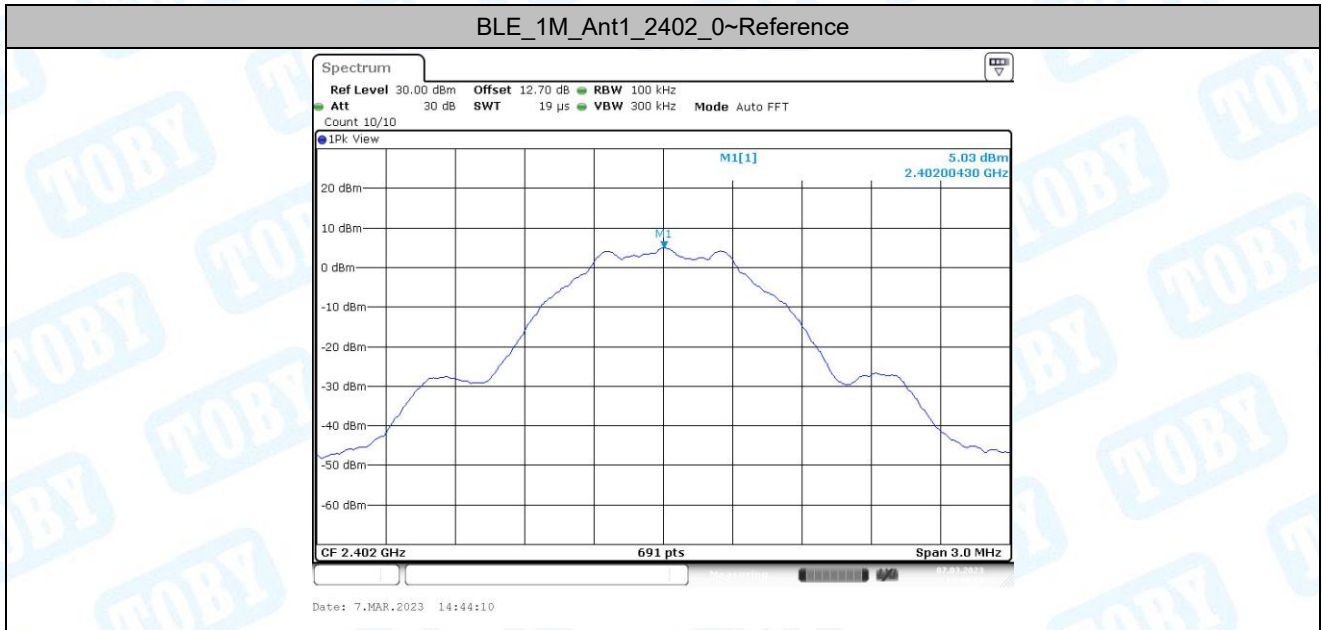


## 6. Conducted Spurious Emission

### 6.1. Test Result

Test Mode	Antenna	Channel	Freq. Range [MHz]	Ref. Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.03	5.03	---	PASS
			30~1000	5.03	-50.88	≤-14.97	PASS
			1000~26500	5.03	-47.72	≤-14.97	PASS
		2440	Reference	6.28	6.28	---	PASS
			30~1000	6.28	-52.16	≤-13.72	PASS
			1000~26500	6.28	-48.75	≤-13.72	PASS
		2480	Reference	5.77	5.77	---	PASS
			30~1000	5.77	-51.49	≤-14.23	PASS
			1000~26500	5.77	-48.76	≤-14.23	PASS
BLE_2M	Ant1	2402	Reference	5.15	5.15	---	PASS
			30~1000	5.15	-53.85	≤-14.85	PASS
			1000~26500	5.15	-47.55	≤-14.85	PASS
		2440	Reference	6.01	6.01	---	PASS
			30~1000	6.01	-52.95	≤-13.99	PASS
			1000~26500	6.01	-47.59	≤-13.99	PASS
		2480	Reference	5.72	5.72	---	PASS
			30~1000	5.72	-53.72	≤-14.28	PASS
			1000~26500	5.72	-48.22	≤-14.28	PASS

## 6.2. Test Graphs

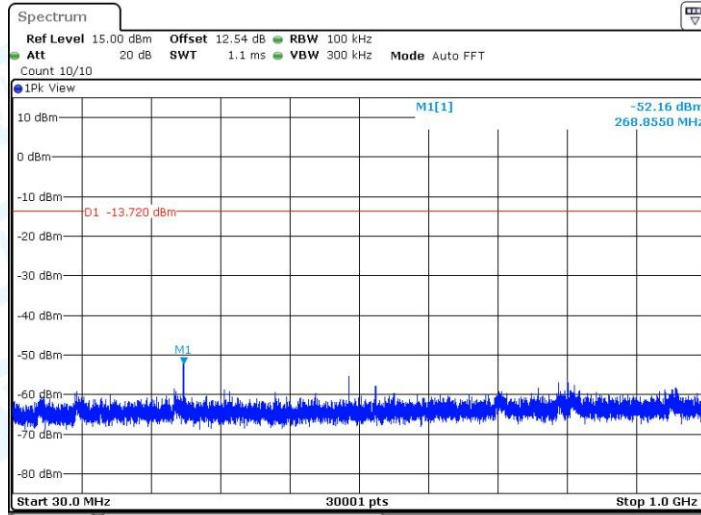


BLE\_1M\_Ant1\_2440\_0~Reference



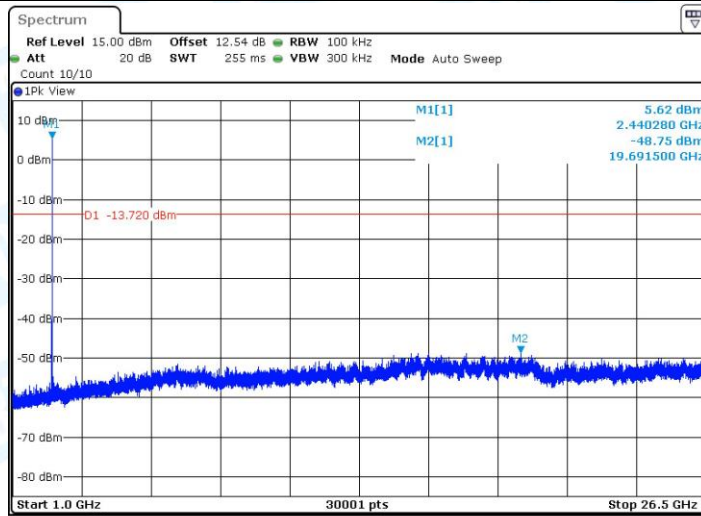
Date: 7.MAR.2023 14:47:51

BLE\_1M\_Ant1\_2440\_30~1000



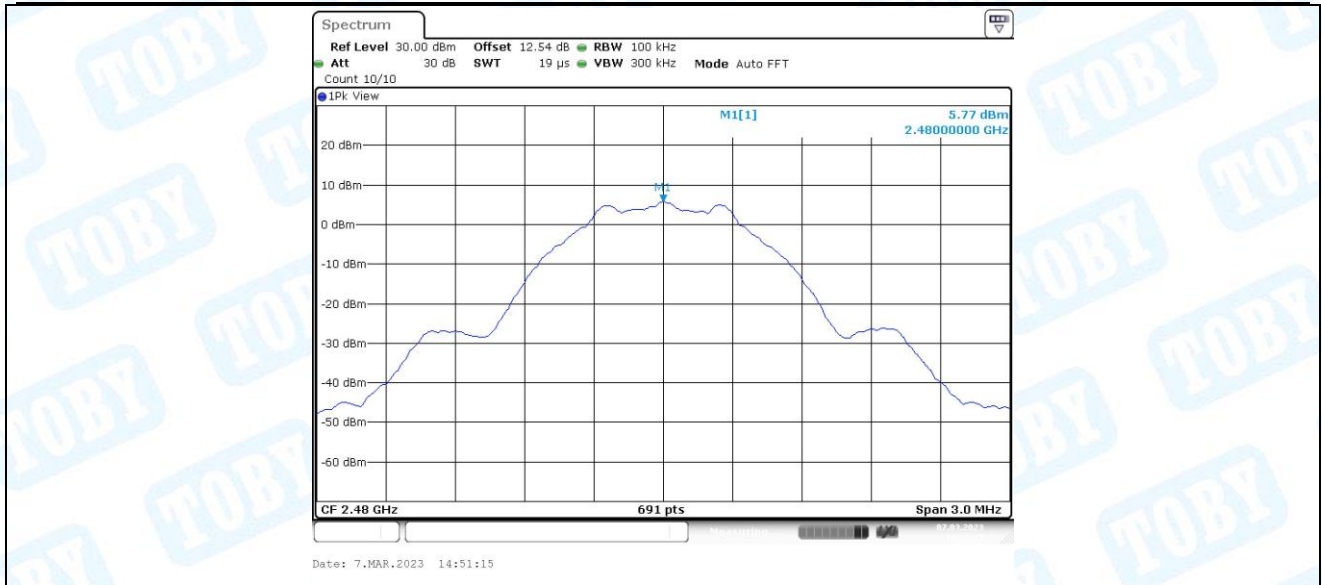
Date: 7.MAR.2023 14:48:04

BLE\_1M\_Ant1\_2440\_1000~26500

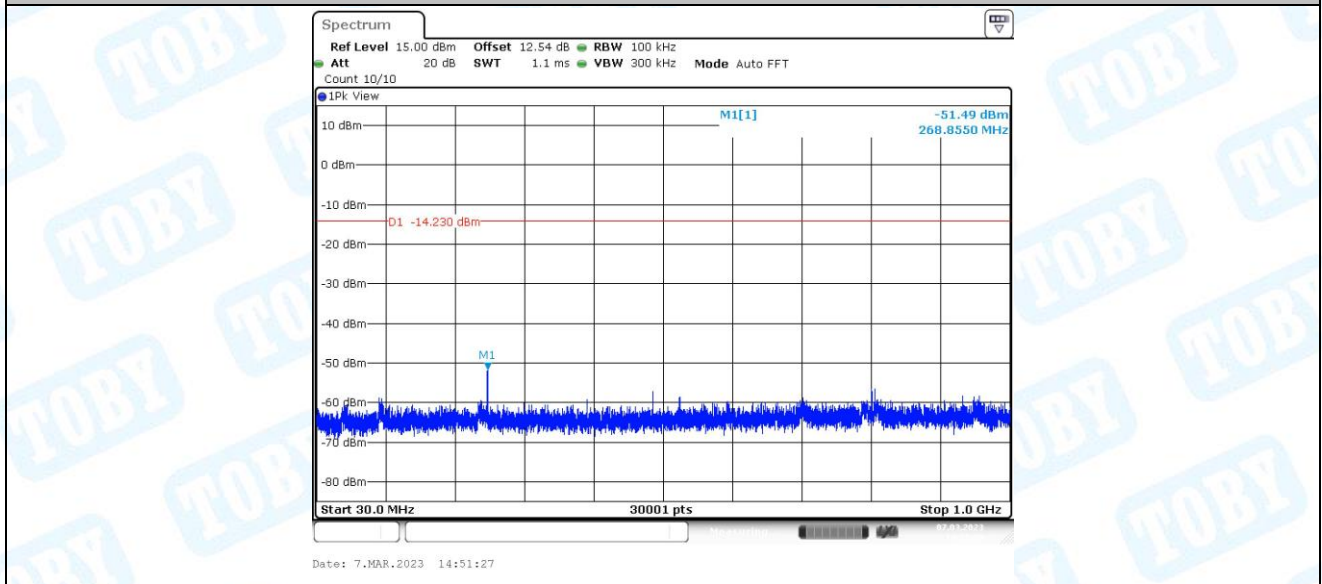


Date: 7.MAR.2023 14:48:44

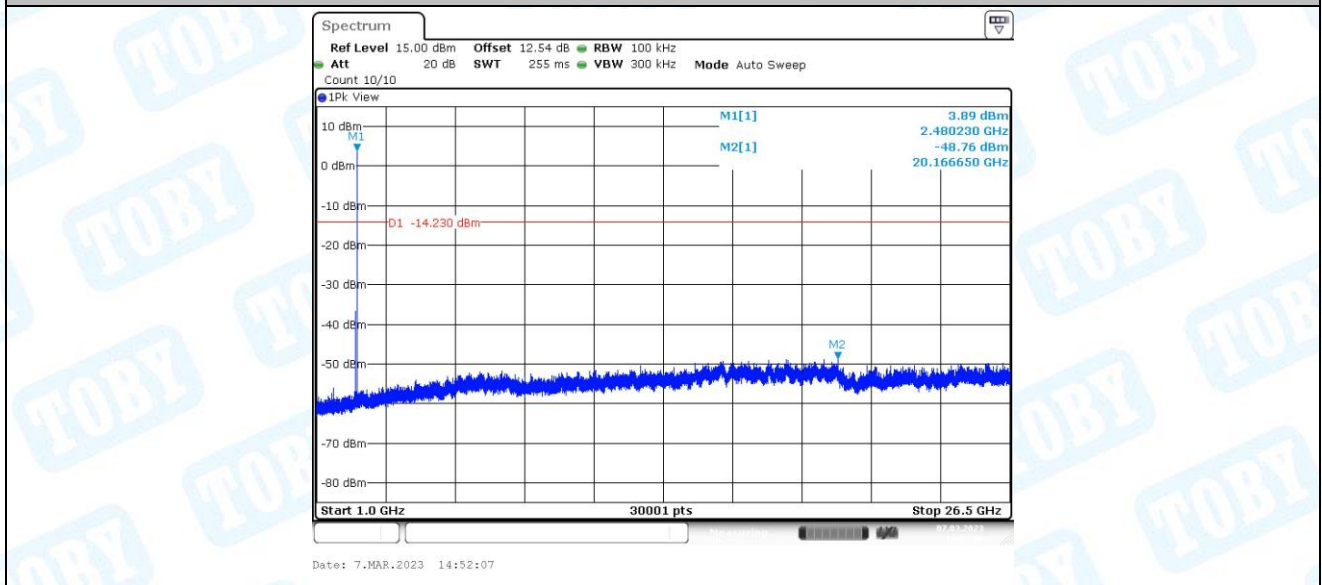
BLE\_1M\_Ant1\_2480\_0~Reference



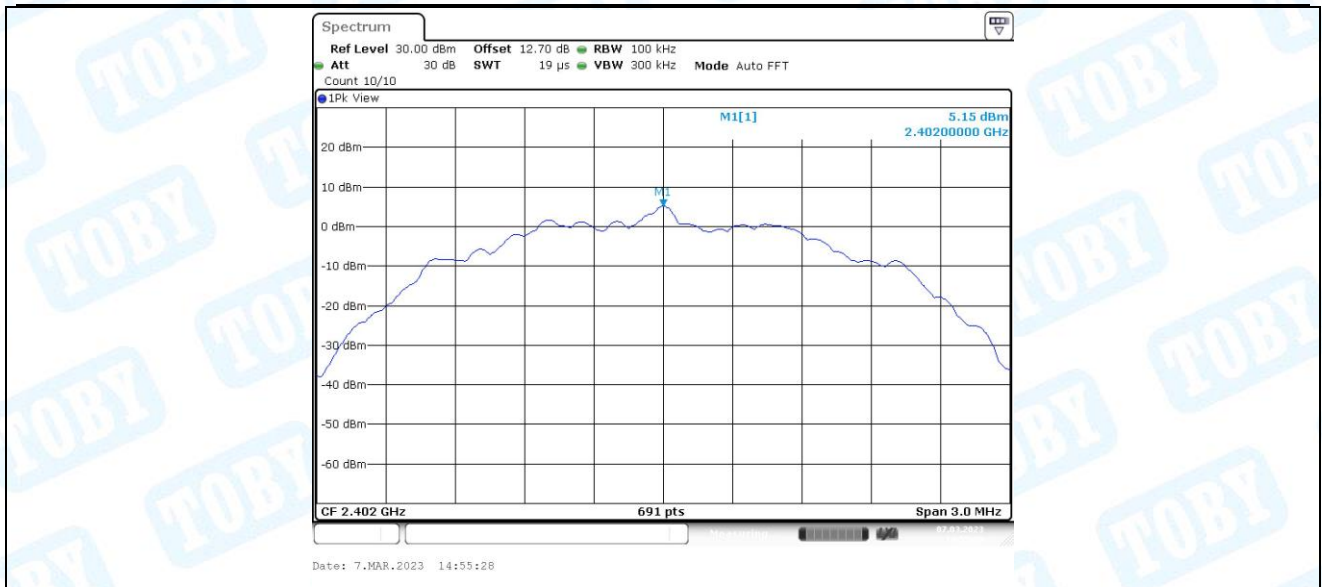
BLE\_1M\_Ant1\_2480\_30~1000



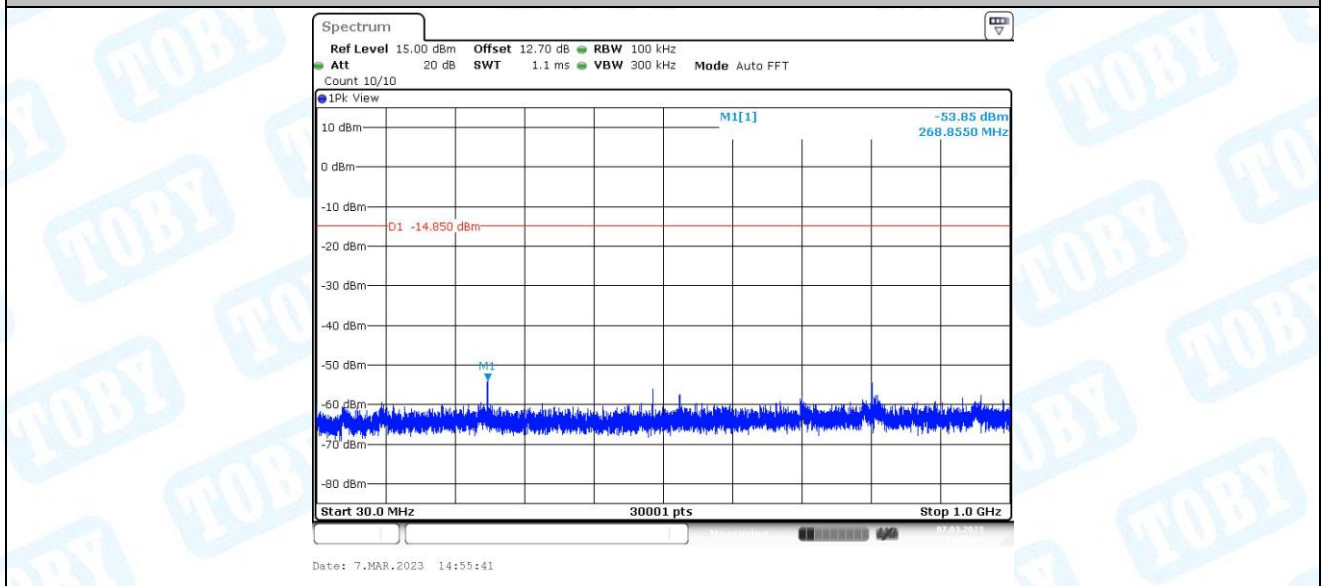
BLE\_1M\_Ant1\_2480\_1000~26500



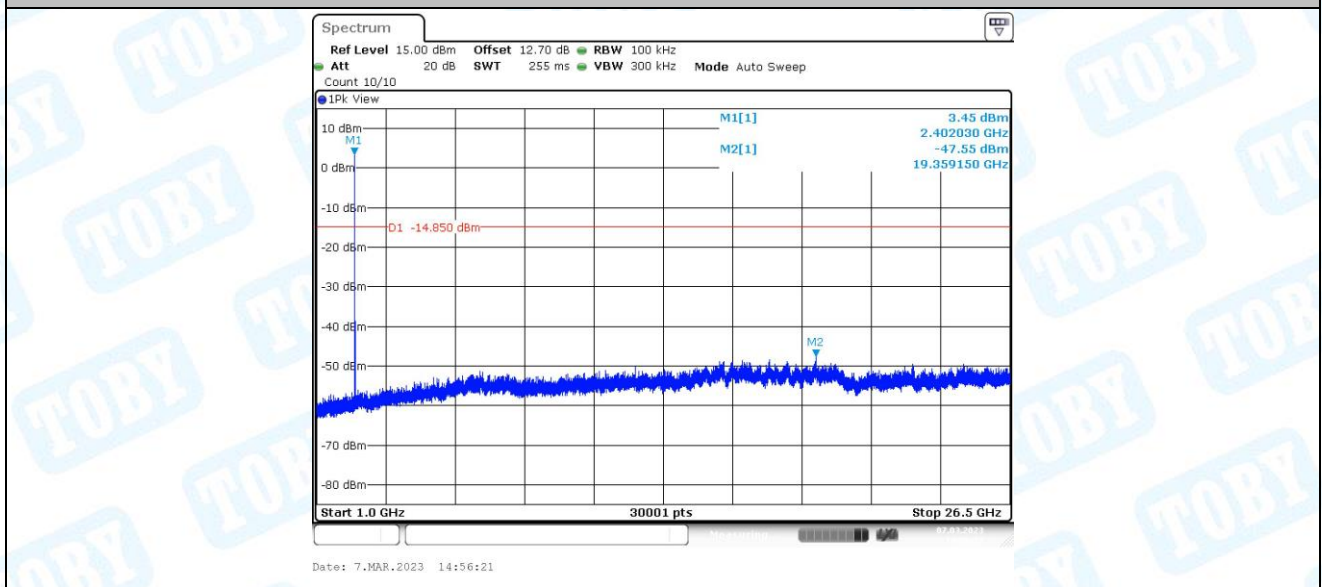
BLE\_2M\_Ant1\_2402\_0~Reference



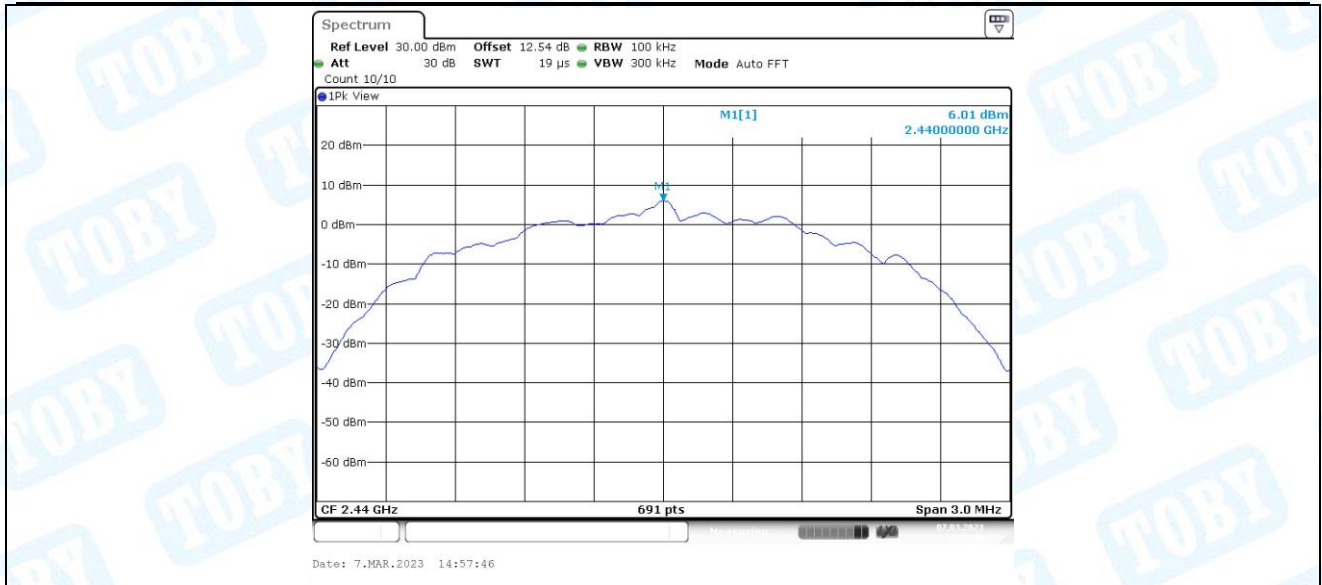
BLE\_2M\_Ant1\_2402\_30~1000



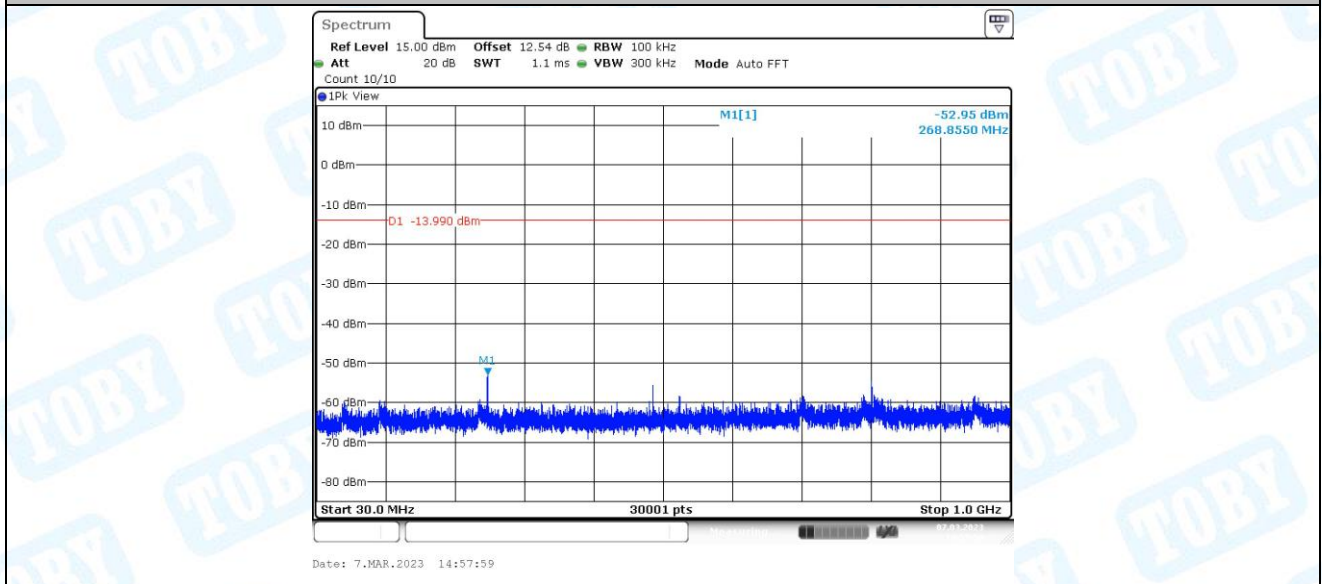
BLE\_2M\_Ant1\_2402\_1000~26500



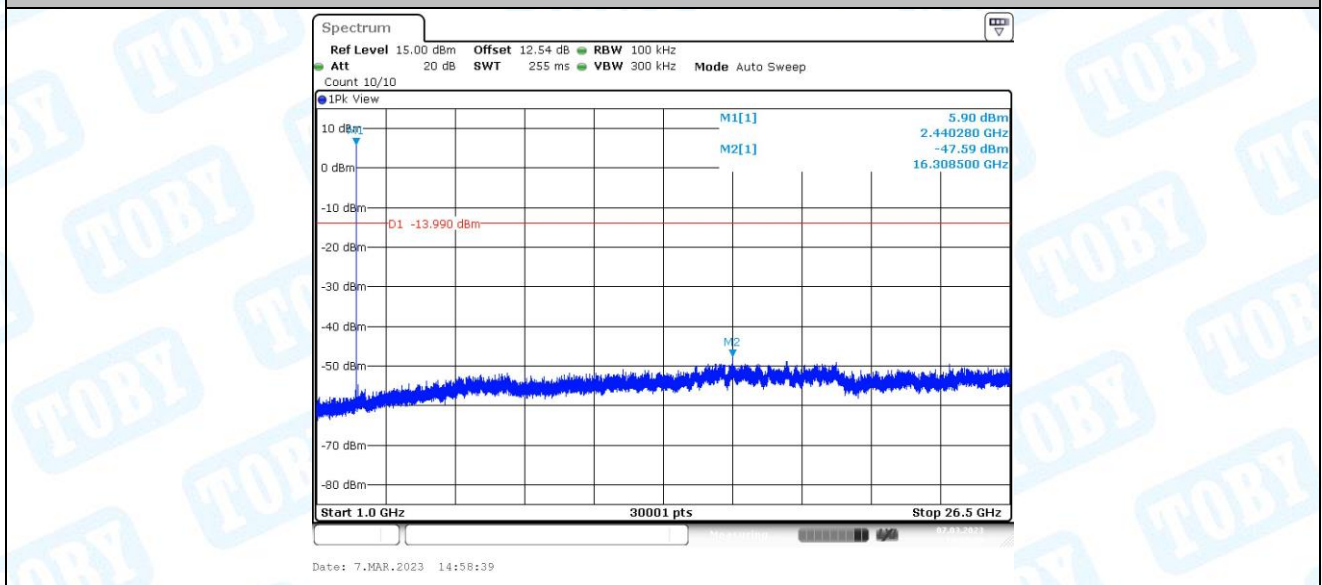
BLE\_2M\_Ant1\_2440\_0~Reference



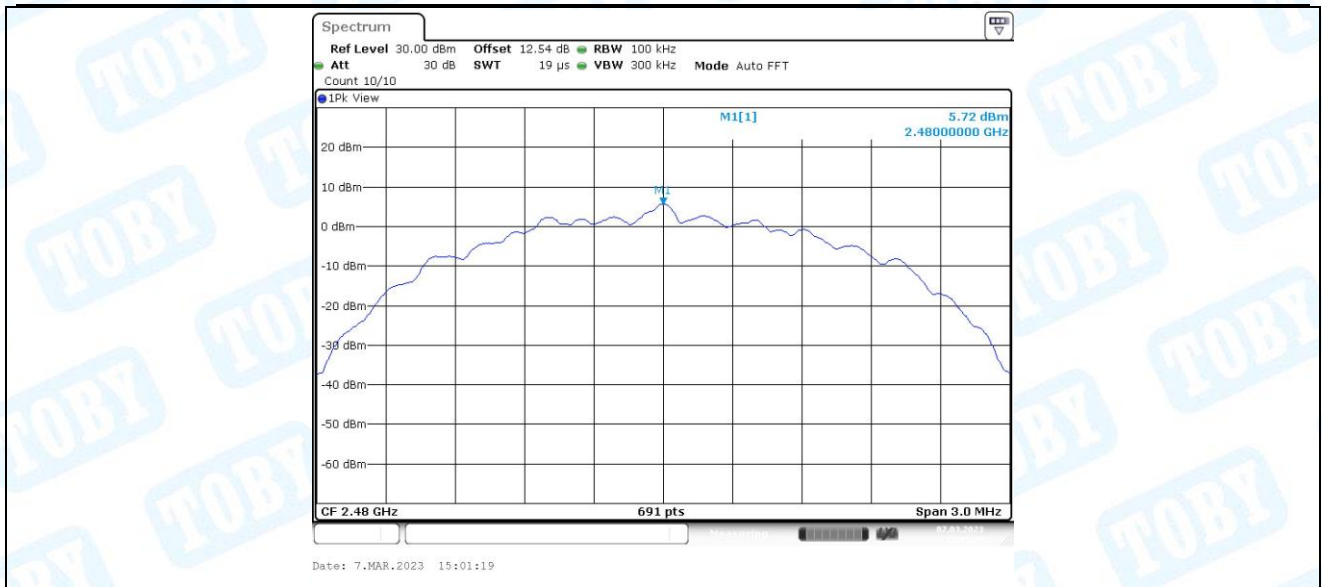
BLE\_2M\_Ant1\_2440\_30~1000



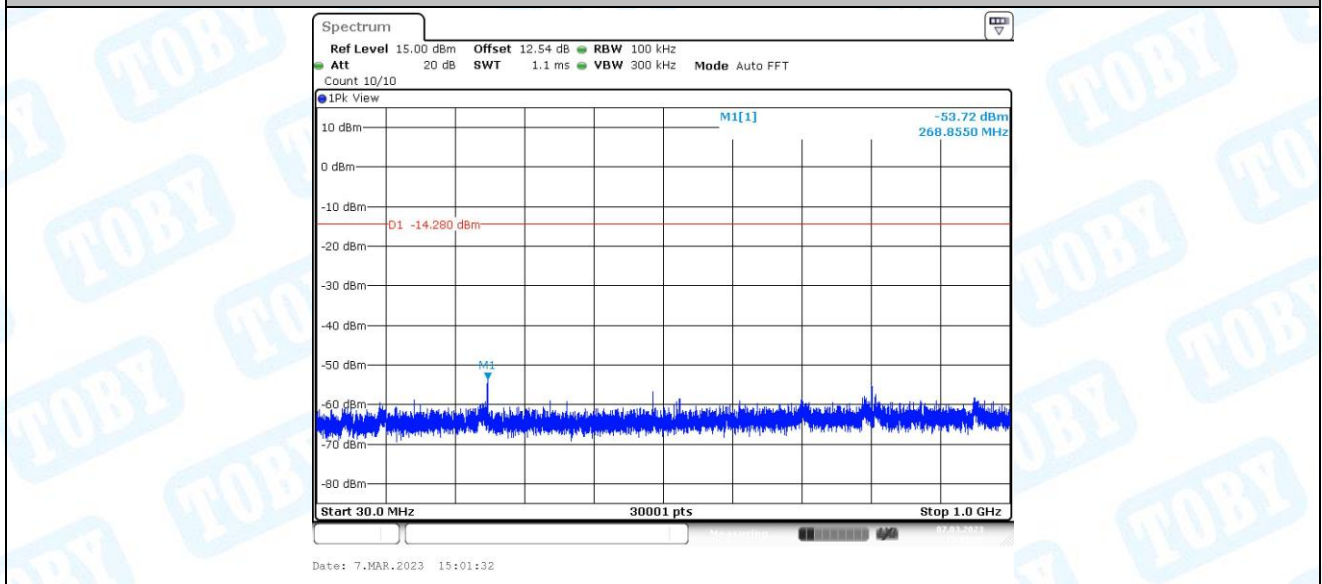
BLE\_2M\_Ant1\_2440\_1000~26500



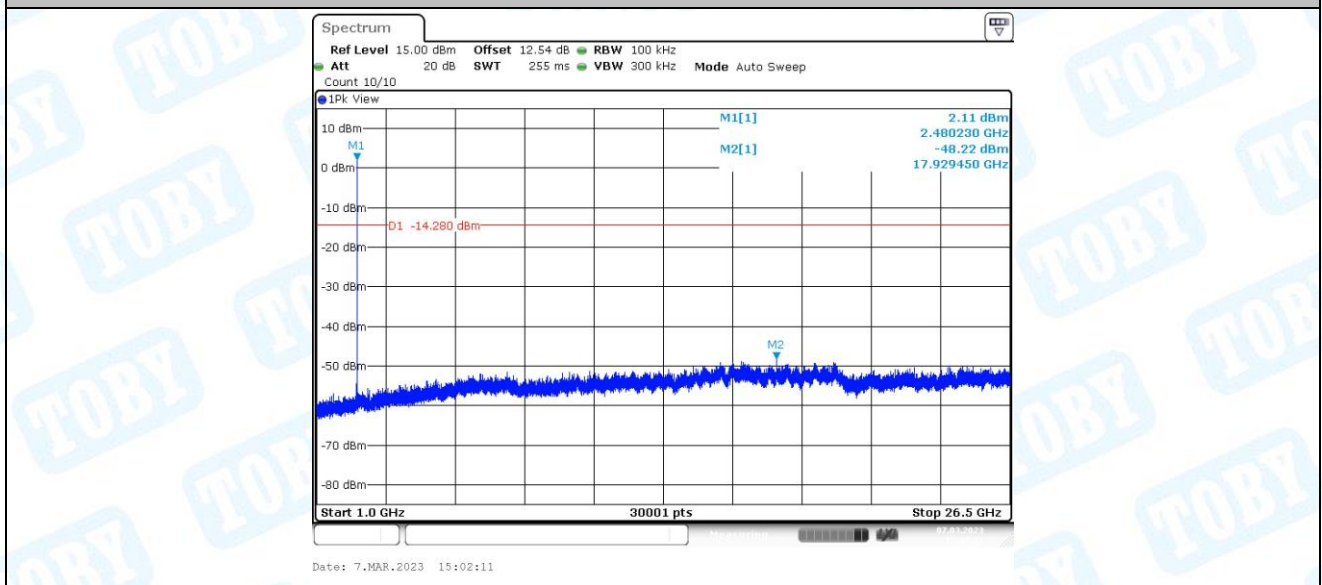
BLE\_2M\_Ant1\_2480\_0~Reference



BLE\_2M\_Ant1\_2480\_30~1000



BLE\_2M\_Ant1\_2480\_1000~26500





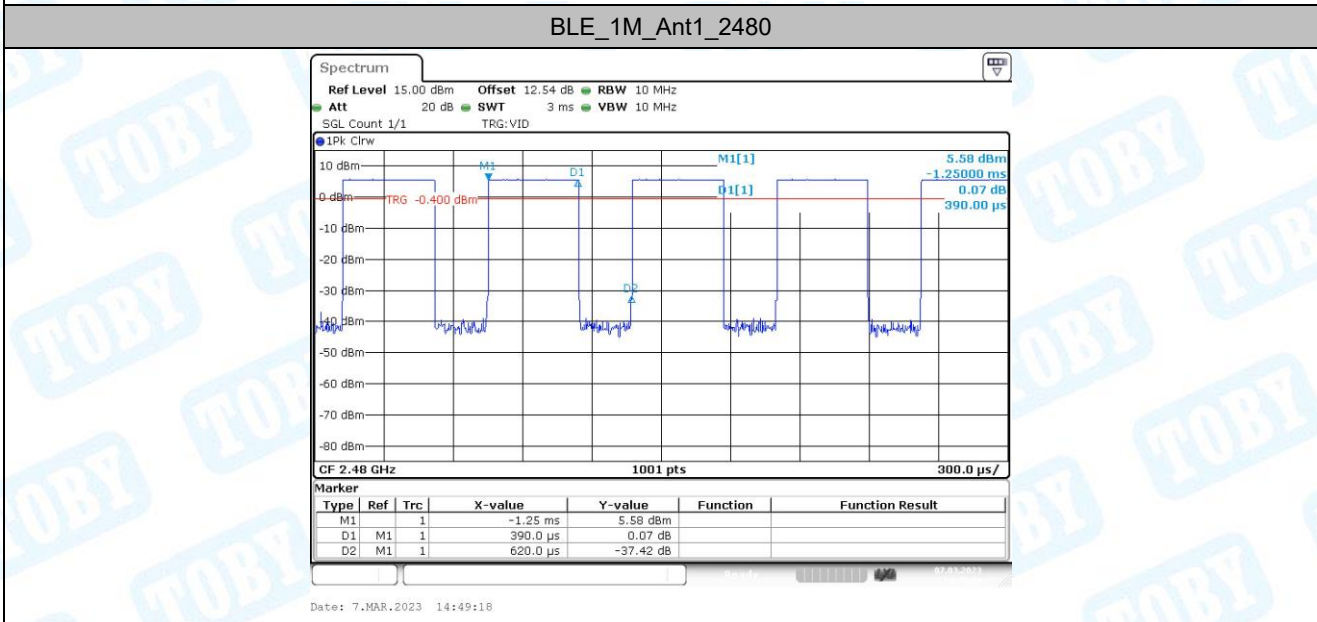
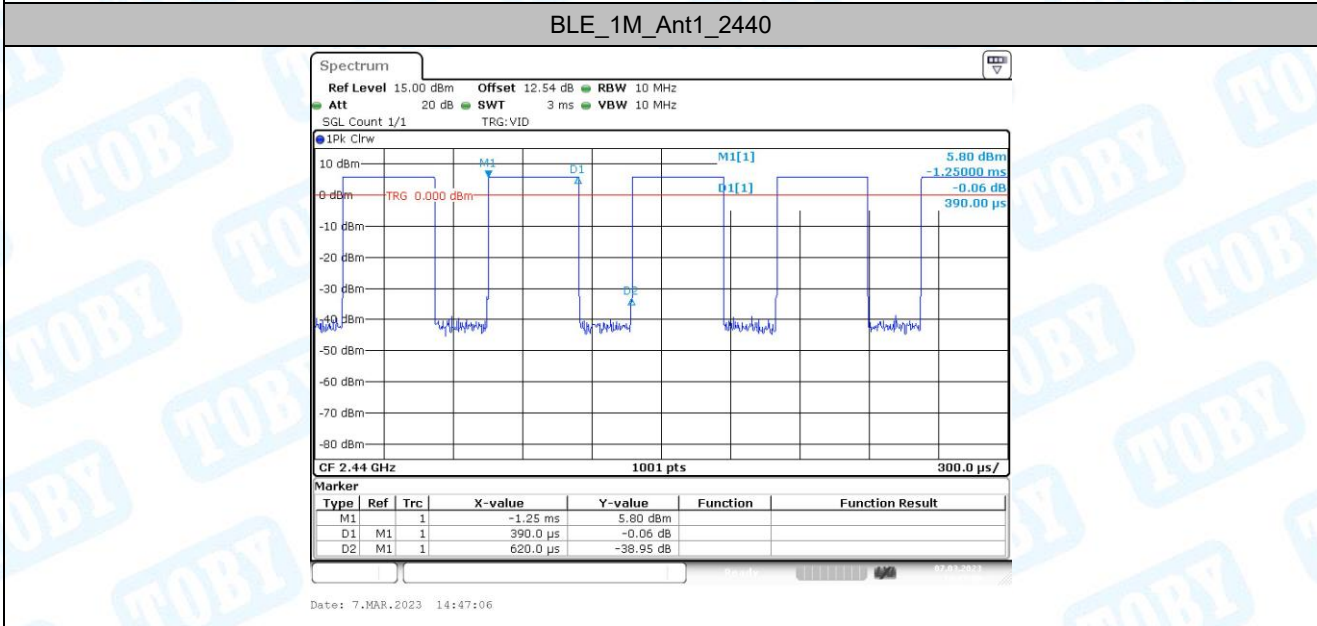
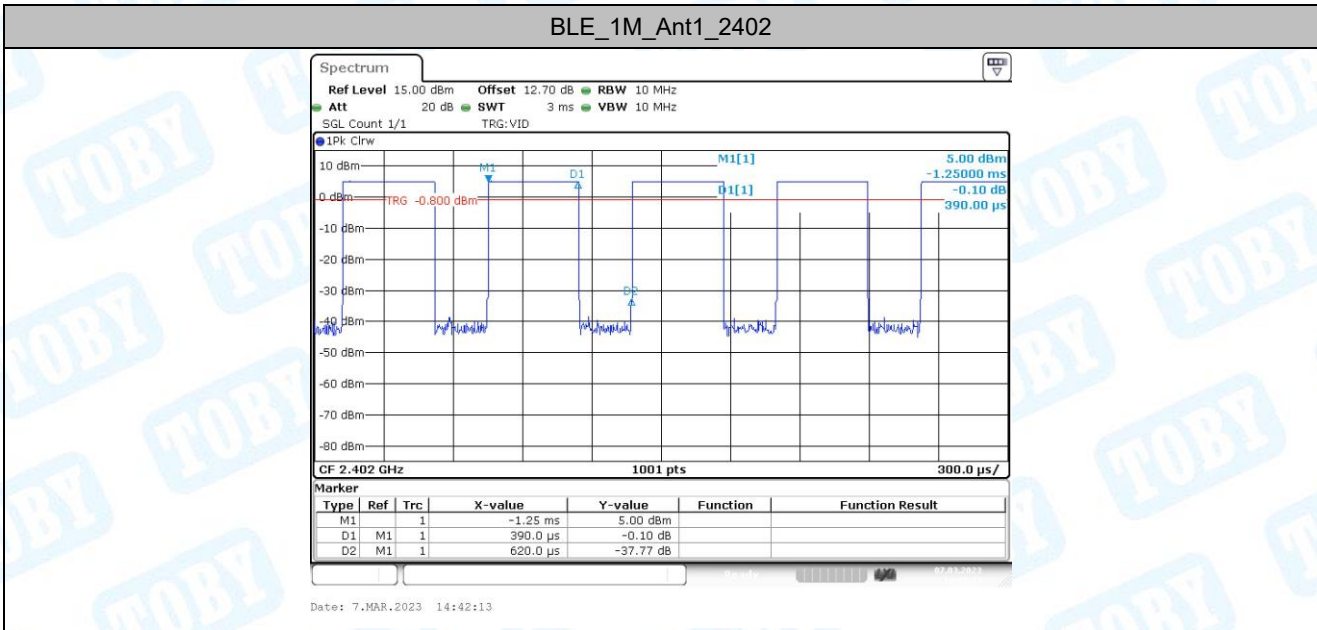
## 7. Duty Cycle

### 7.1. Test Result

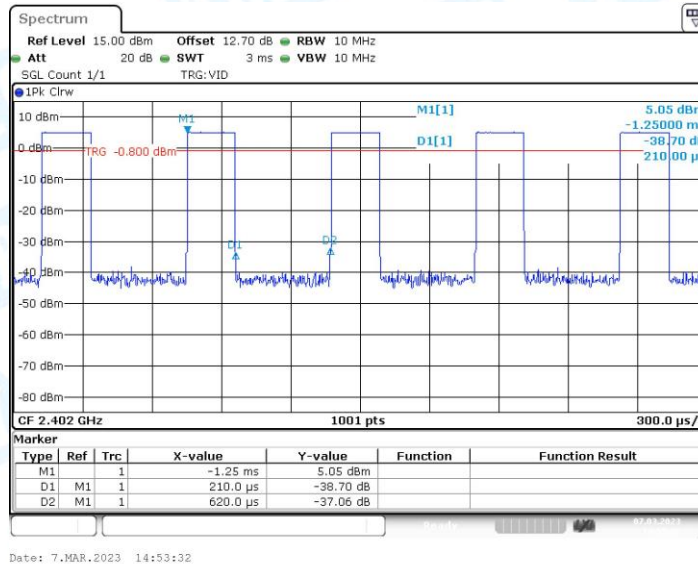
Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T [KHz]	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.62	62.90	2.56	---	---
		2440	0.39	0.62	62.90	2.56	---	---
		2480	0.39	0.62	62.90	2.56	---	---
BLE_2M	Ant1	2402	0.21	0.62	33.87	4.76	---	---
		2440	0.21	0.62	33.87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

Note: 1/T=1/ Transmission Duration

## 7.2. Test Graphs

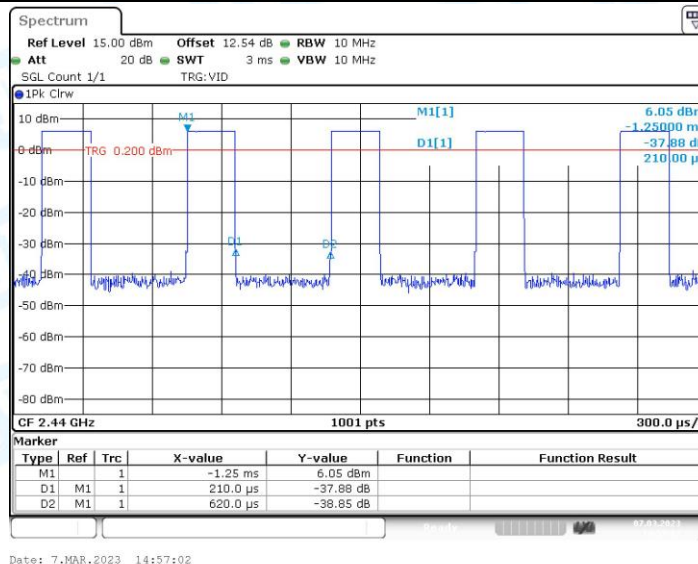


BLE\_2M\_Ant1\_2402



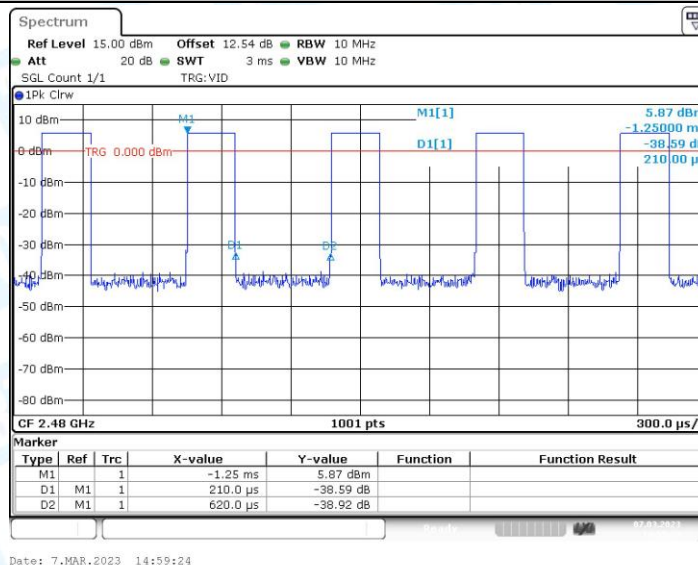
Date: 7.MAR.2023 14:53:32

BLE\_2M\_Ant1\_2440



Date: 7.MAR.2023 14:57:02

BLE\_2M\_Ant1\_2480



Date: 7.MAR.2023 14:59:24

## 8. Emissions in Restricted Bands

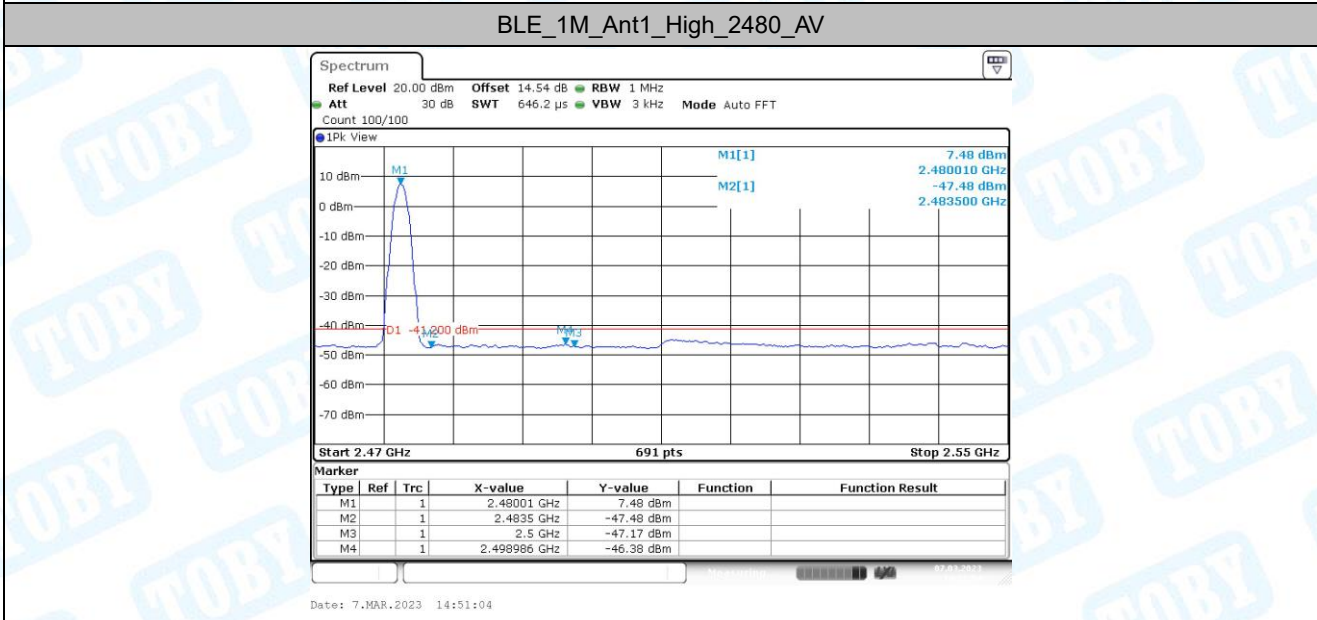
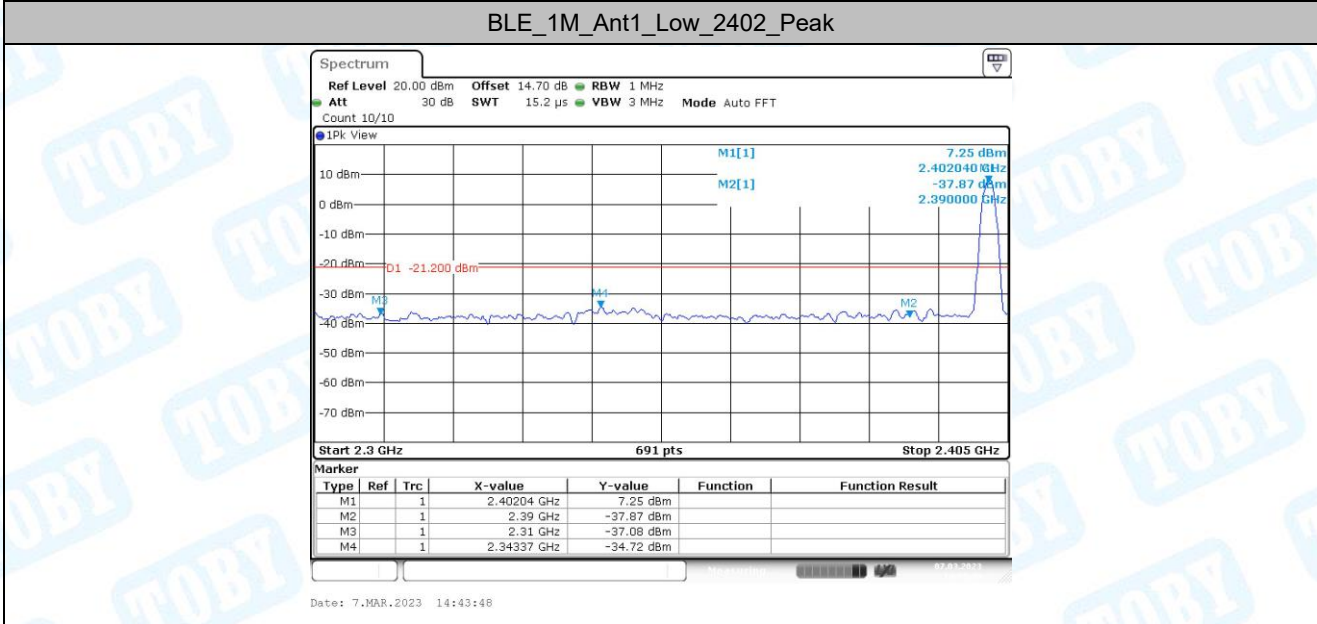
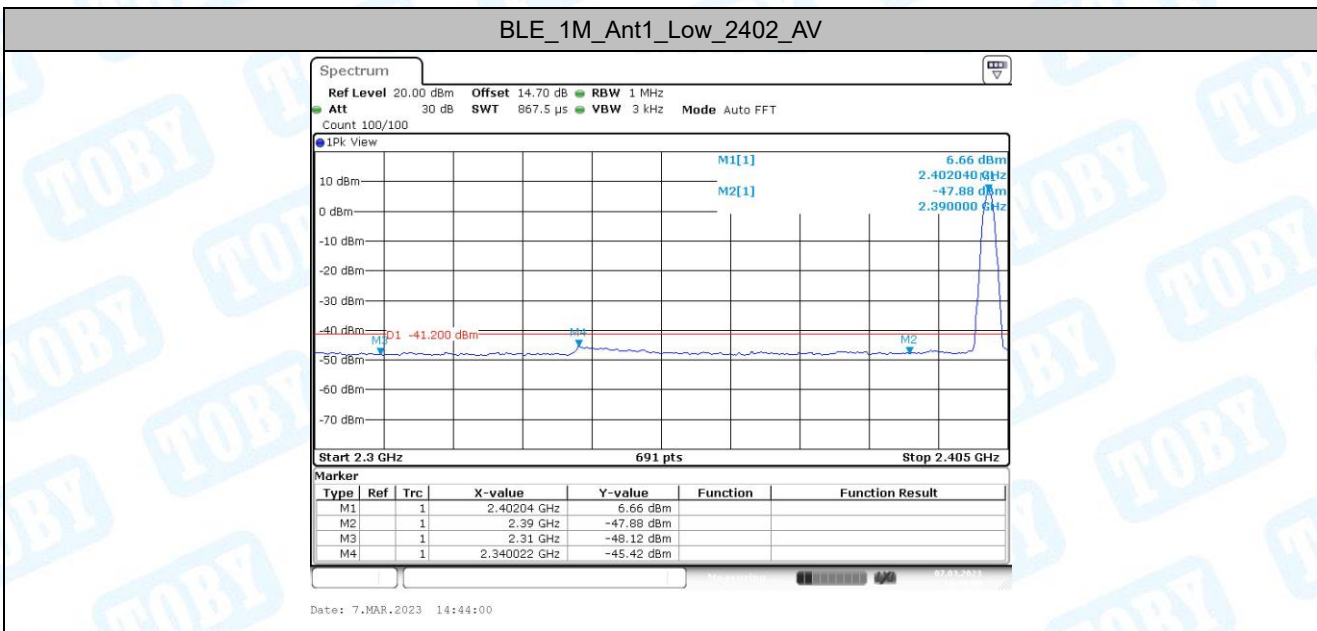
### 8.1. Test Result

Test Mode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.12	≤-41.20	PASS
				AV	2340.022	-45.42	≤-41.20	PASS
				AV	2390.000	-47.88	≤-41.20	PASS
				Peak	2310.000	-37.08	≤-21.20	PASS
				Peak	2343.370	-34.72	≤-21.20	PASS
				Peak	2390.000	-37.87	≤-21.20	PASS
		High	2480	AV	2483.500	-47.48	≤-41.20	PASS
				AV	2498.986	-46.38	≤-41.20	PASS
				AV	2500.000	-47.17	≤-41.20	PASS
				Peak	2483.500	-38.9	≤-21.20	PASS
				Peak	2487.391	-35.74	≤-21.20	PASS
				Peak	2500.000	-36.47	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-47.63	≤-41.20	PASS
				AV	2340.022	-44.92	≤-41.20	PASS
				AV	2390.000	-47.67	≤-41.20	PASS
				Peak	2310.000	-38.61	≤-21.20	PASS
				Peak	2350.978	-34.23	≤-21.20	PASS
				Peak	2390.000	-38.09	≤-21.20	PASS
		High	2480	AV	2483.500	-46.84	≤-41.20	PASS
				AV	2486.580	-45.91	≤-41.20	PASS
				AV	2500.000	-46.81	≤-41.20	PASS
				Peak	2483.500	-36.89	≤-21.20	PASS
				Peak	2483.913	-35.54	≤-21.20	PASS
				Peak	2500.000	-37.23	≤-21.20	PASS

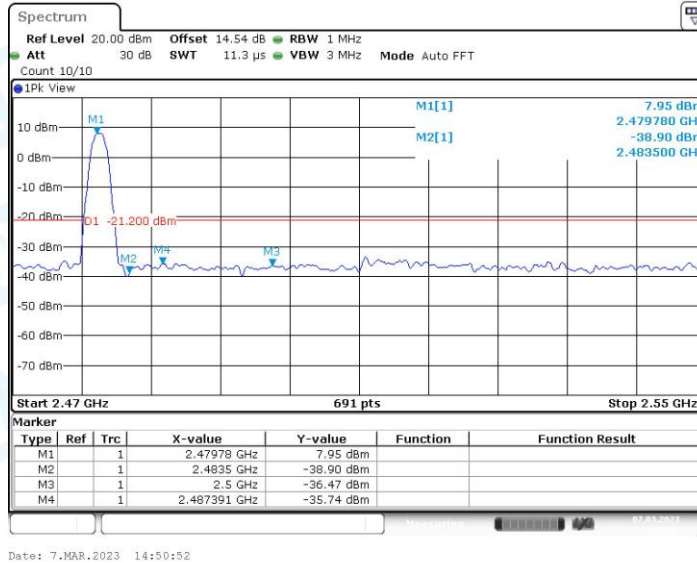
Note:

- The Antenna Gain is compensated in the graph.
- 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.

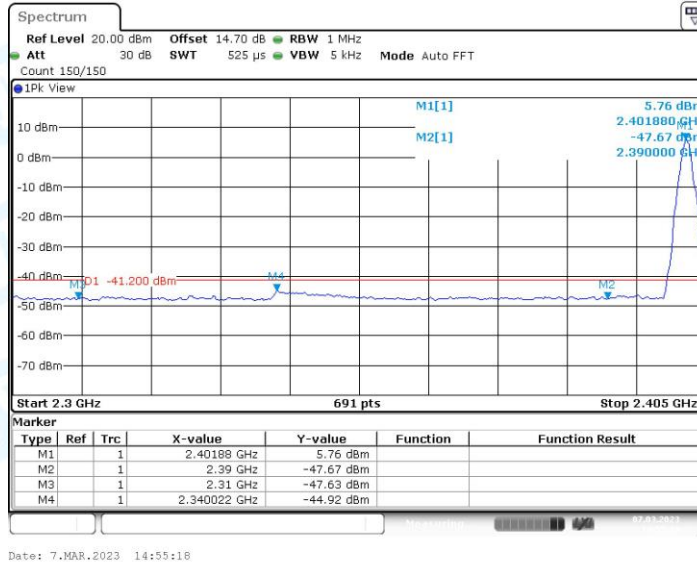
## 8.2. Test Graphs



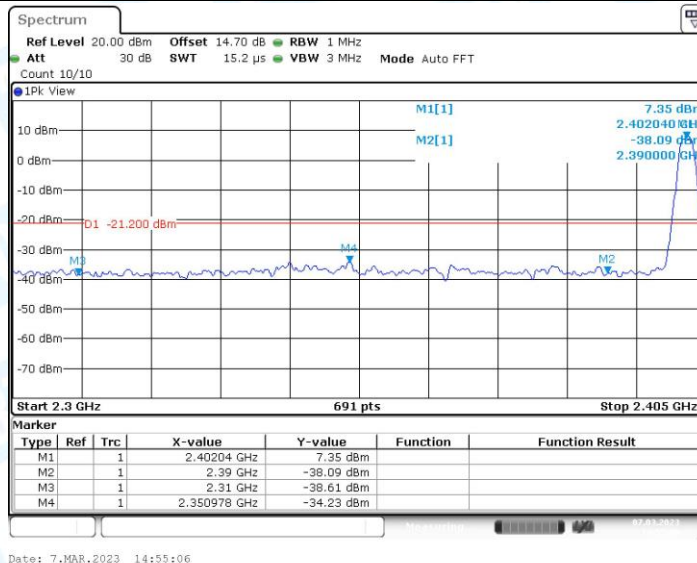
BLE\_1M\_Ant1\_High\_2480\_Peak



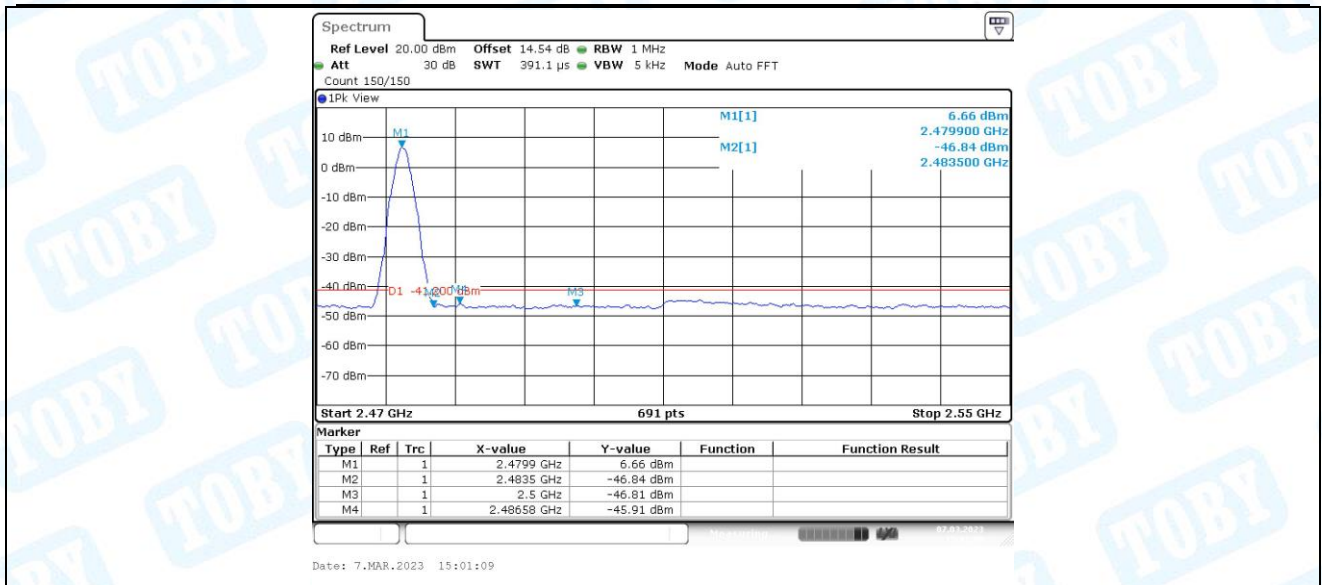
BLE\_2M\_Ant1\_Low\_2402\_AV



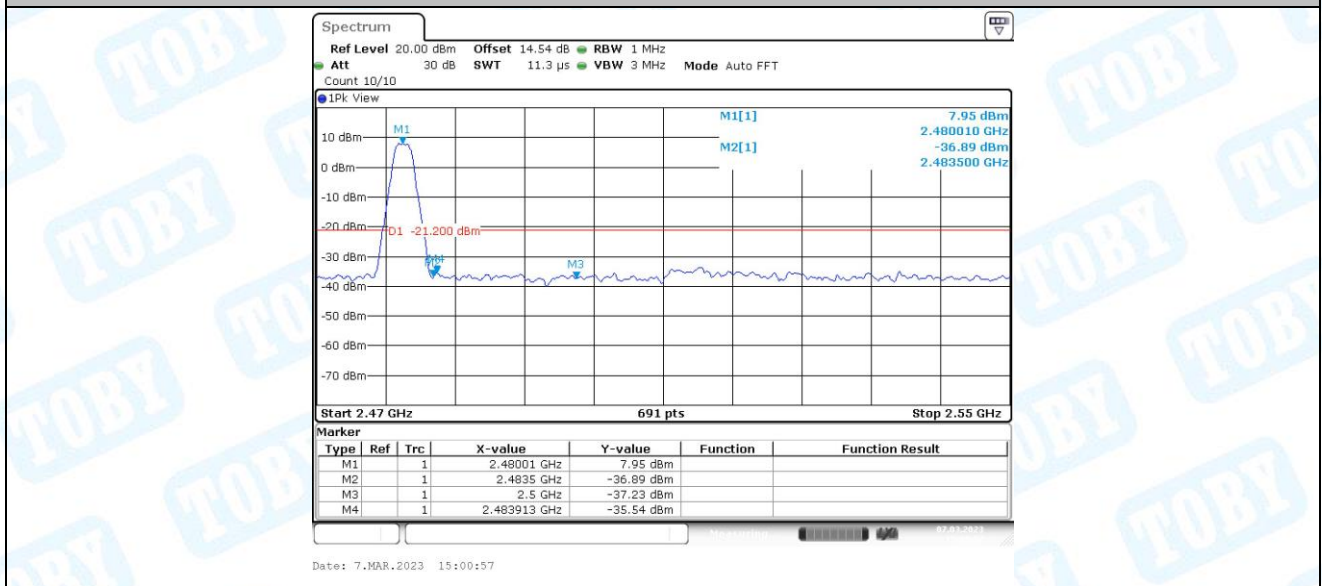
BLE\_2M\_Ant1\_Low\_2402\_Peak



BLE\_2M\_Ant1\_High\_2480\_AV



BLE\_2M\_Ant1\_High\_2480\_Peak



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