

RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
Product Name:	Flight Controller
Test Model:	F405-V3
Sample ID:	202308-0226-4-2#
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	DC 5V
Test Engineer:	Yan zhen ming
Note: For a more detailed features description, please refer to the report TBR-C-202308-0226-6 The report only show the worst case data.	

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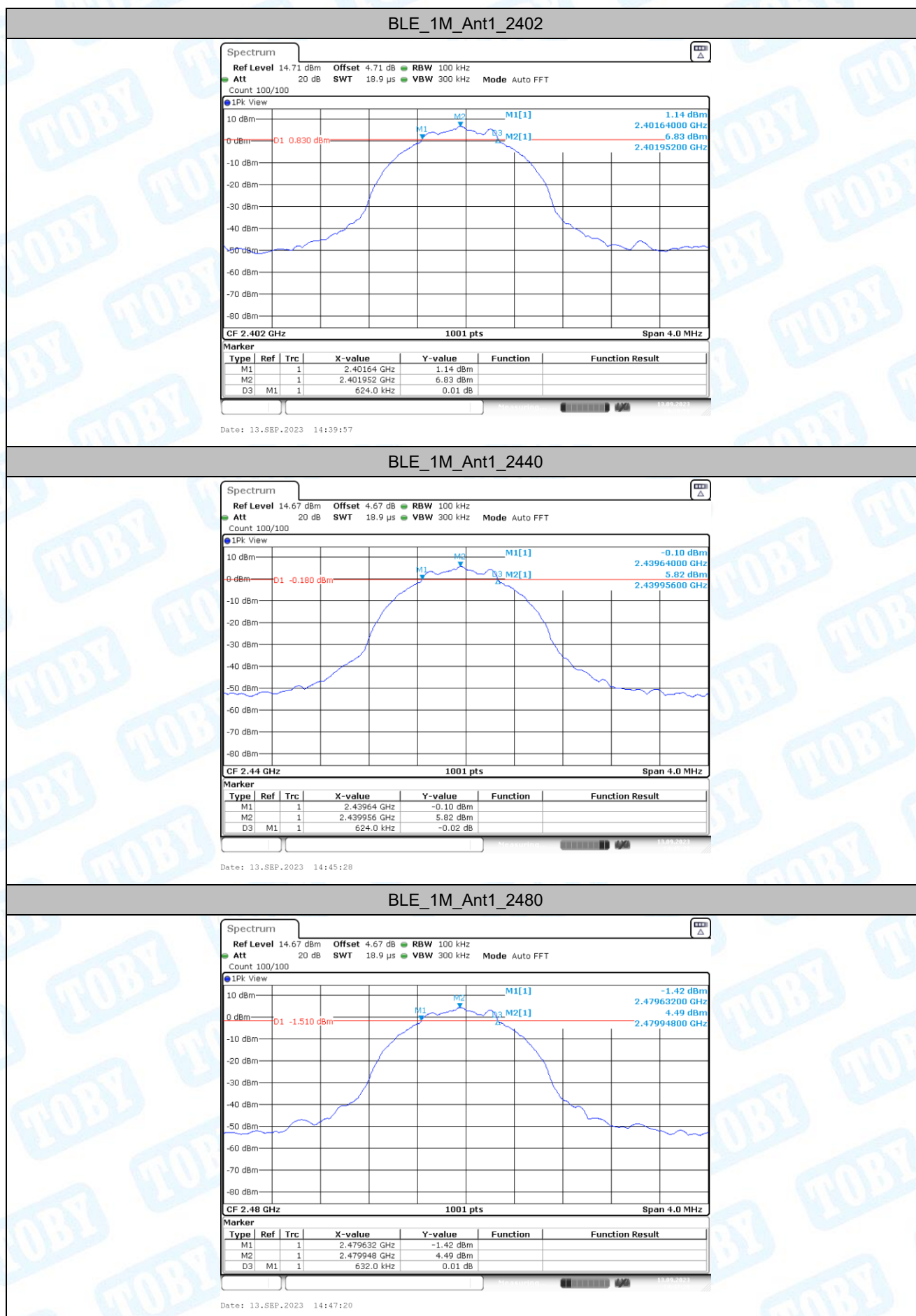
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1. DTS Bandwidth

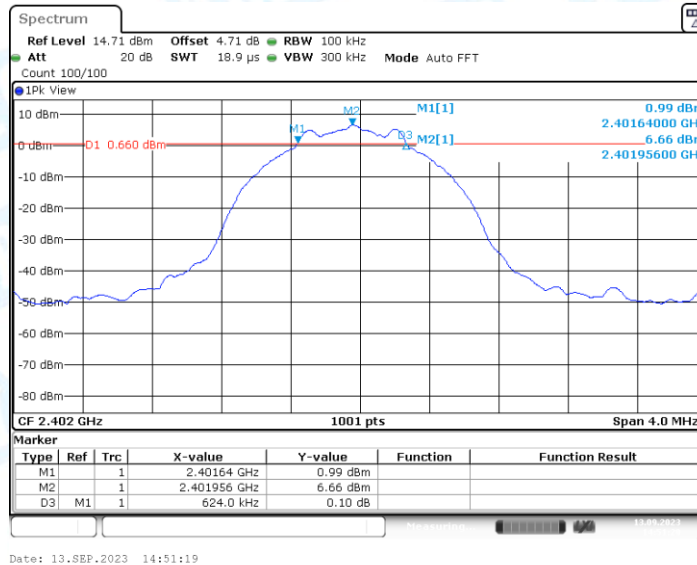
1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.62	2401.64	2402.26	0.5	PASS
		2440	0.62	2439.64	2440.26	0.5	PASS
		2480	0.63	2479.63	2480.26	0.5	PASS
BLE_2M	Ant1	2402	0.62	2401.64	2402.26	0.5	PASS
		2440	0.63	2439.64	2440.26	0.5	PASS
		2480	0.62	2479.64	2480.26	0.5	PASS

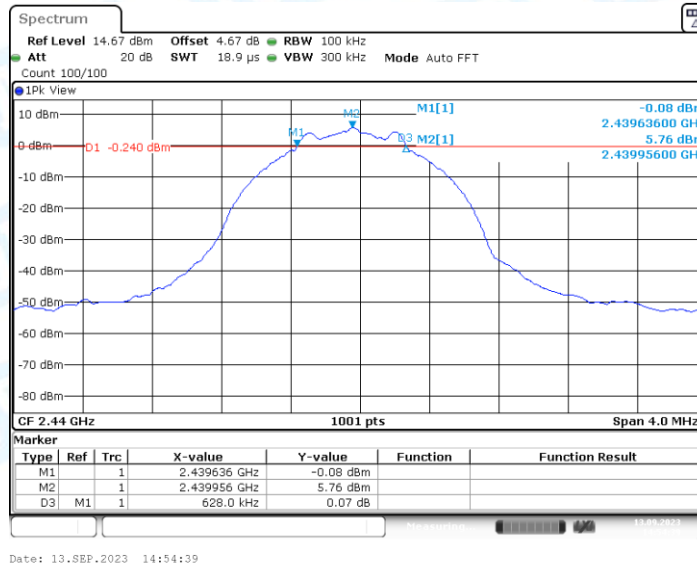
1.2. Test Graphs



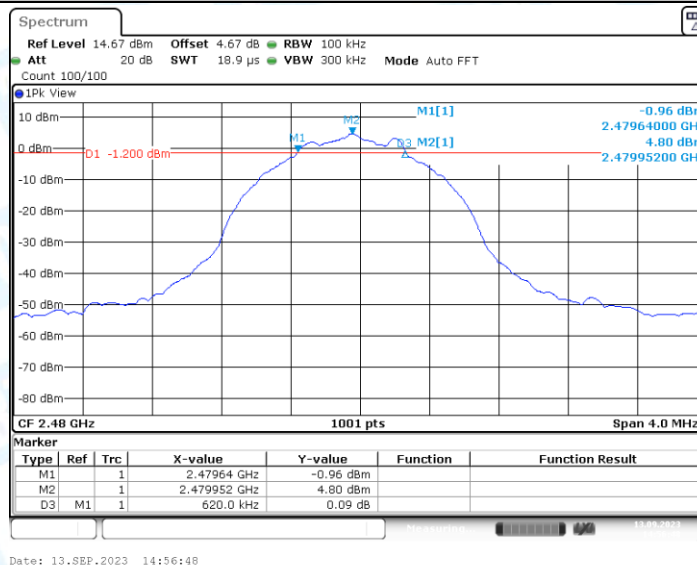
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

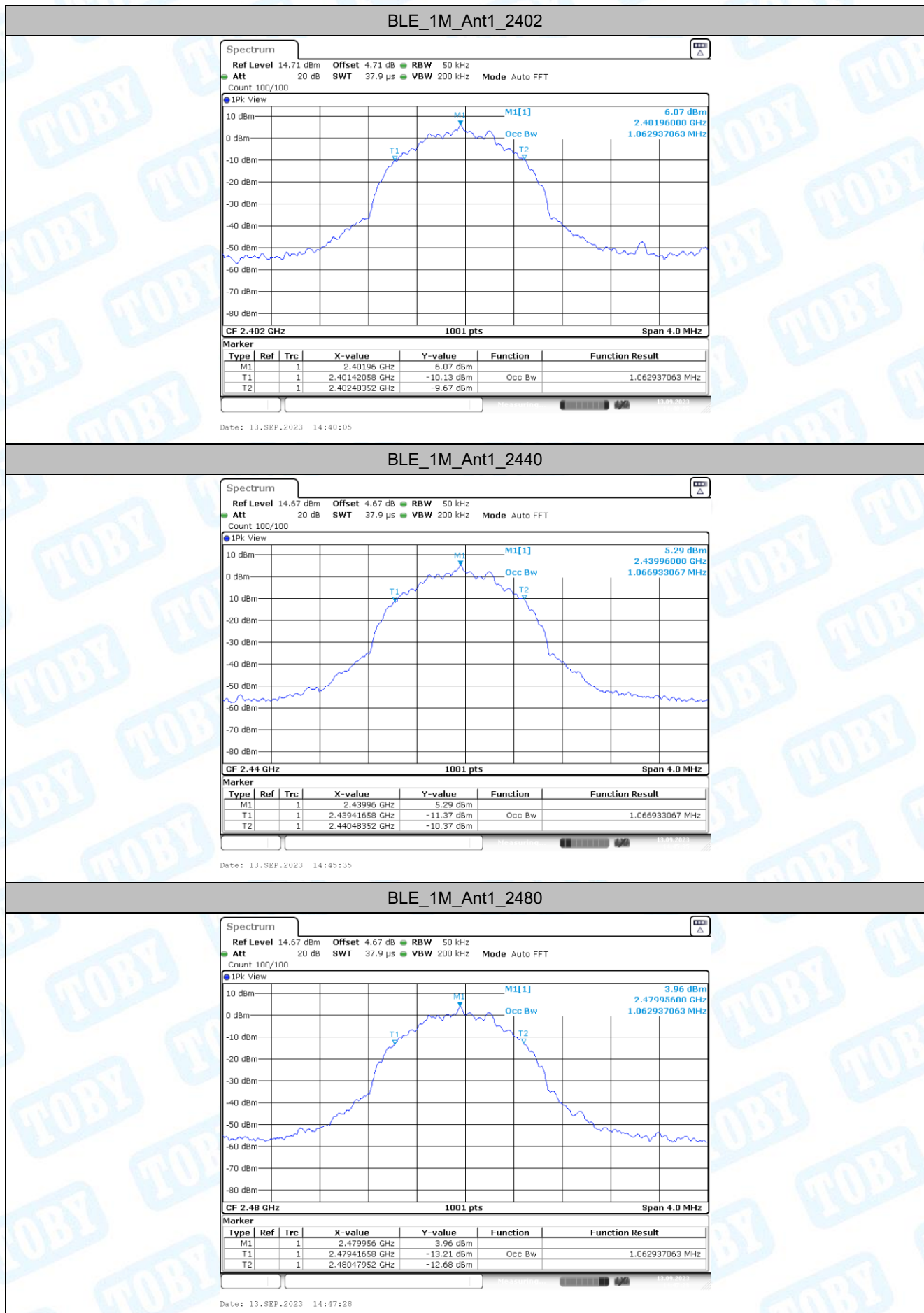


2. Occupied Channel Bandwidth

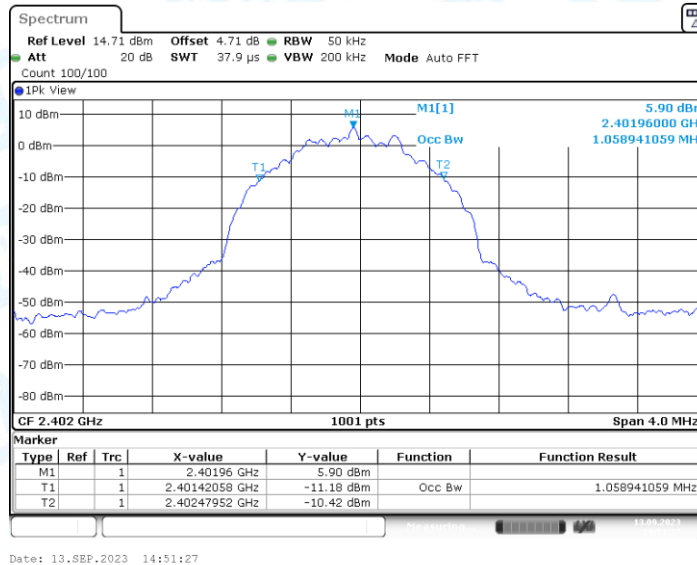
2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.063	2401.4206	2402.4835	---	---
		2440	1.067	2439.4166	2440.4835	---	---
		2480	1.063	2479.4166	2480.4795	---	---
BLE_2M	Ant1	2402	1.059	2401.4206	2402.4795	---	---
		2440	1.067	2439.4166	2440.4835	---	---
		2480	1.071	2479.4126	2480.4835	---	---

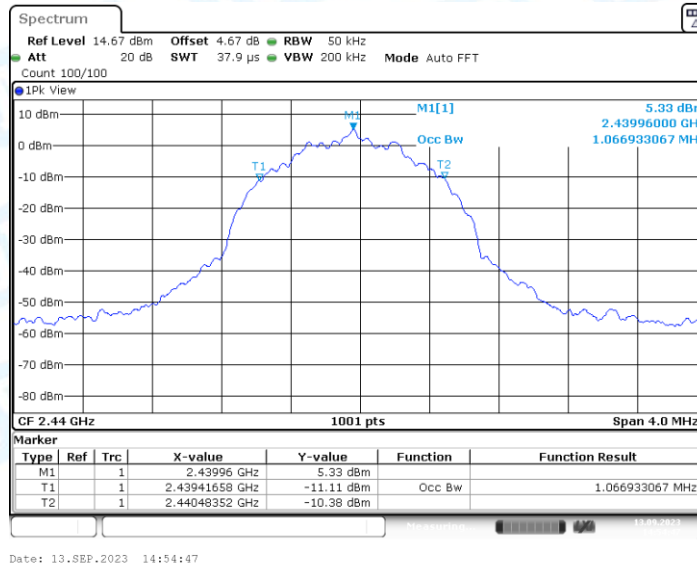
2.2. Test Graphs



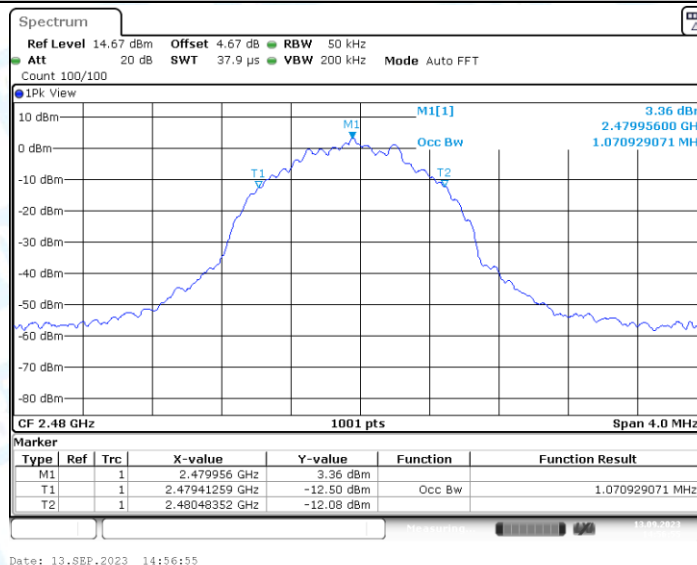
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

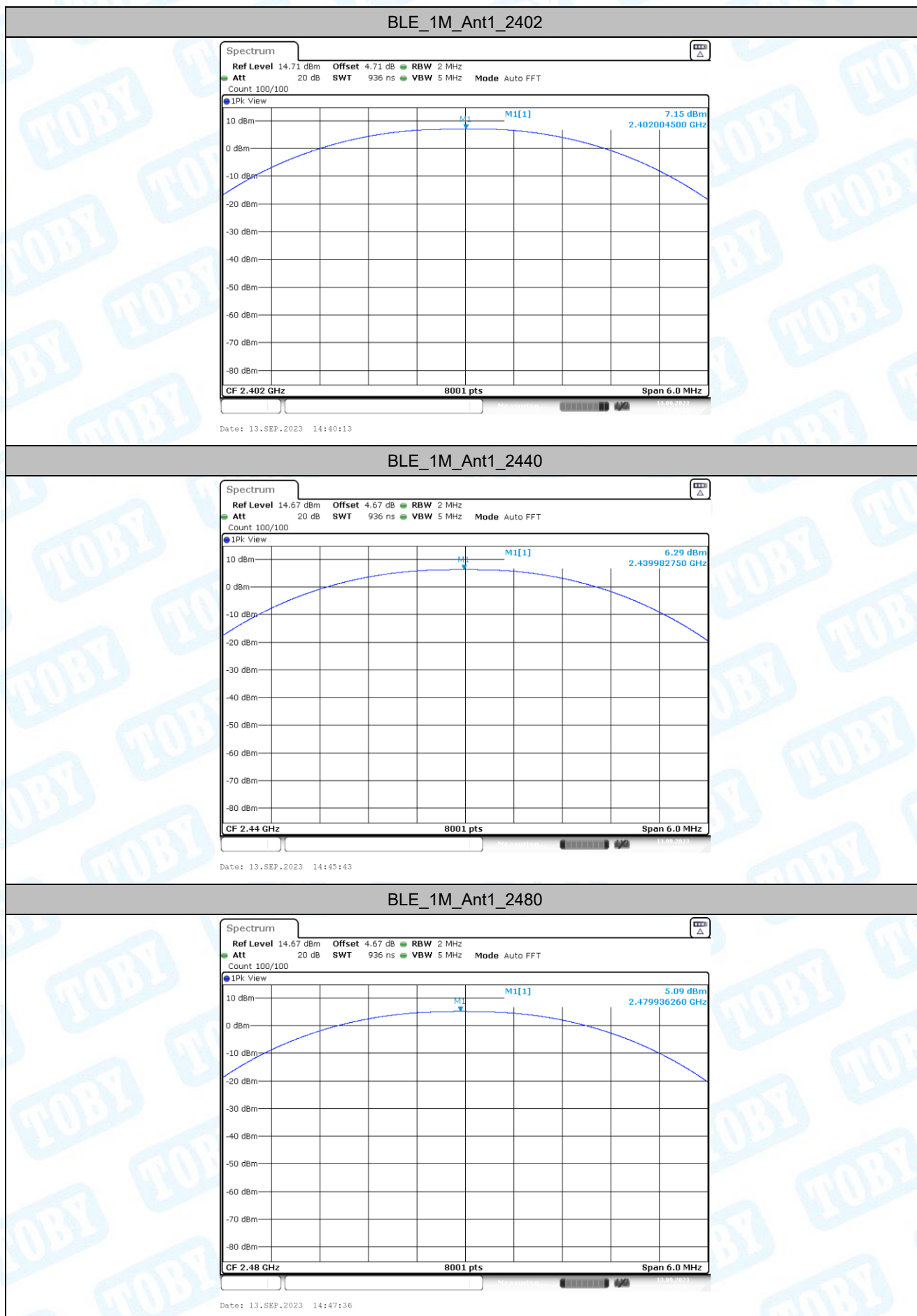


3. Maximum conducted output power

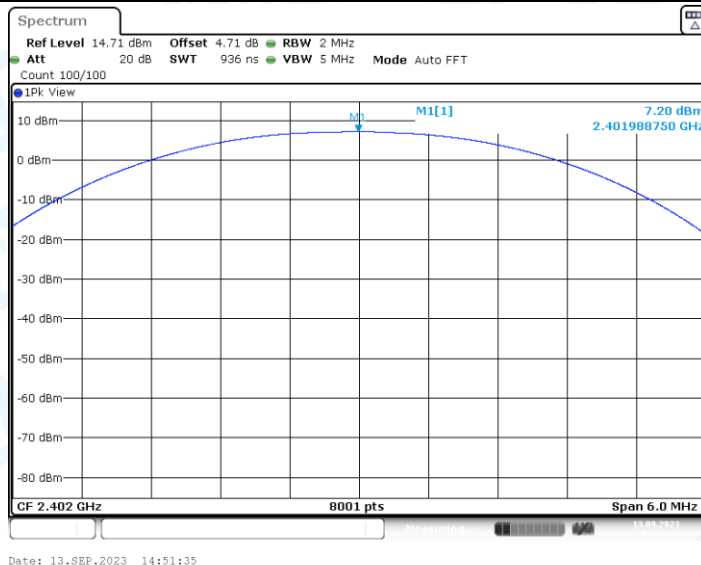
3.1. Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	7.15	≤30	PASS
		2440	6.29	≤30	PASS
		2480	5.09	≤30	PASS
BLE_2M	Ant1	2402	7.20	≤30	PASS
		2440	6.19	≤30	PASS
		2480	5.23	≤30	PASS

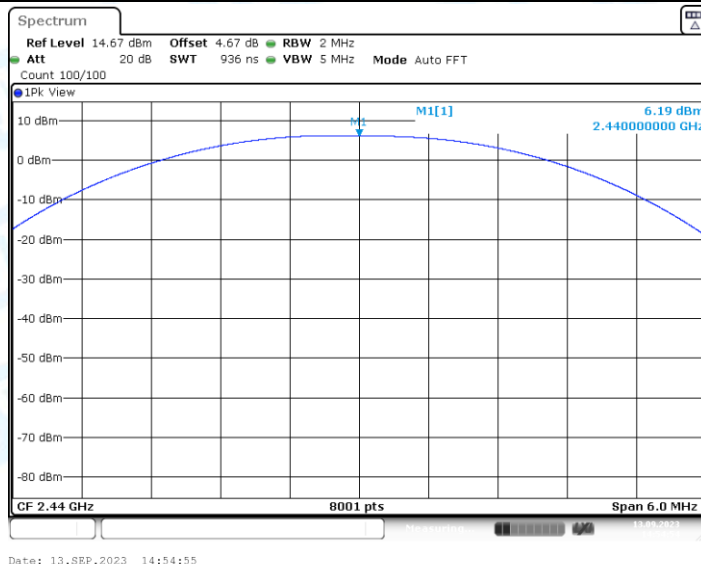
3.2. Test Graphs



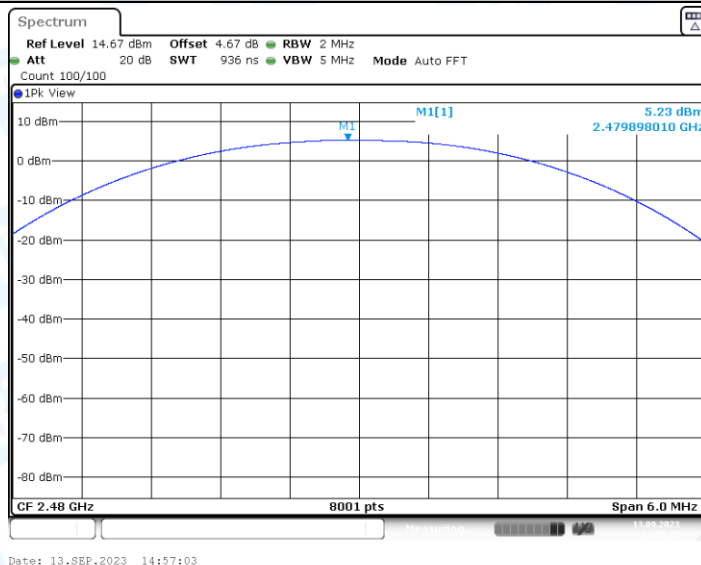
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

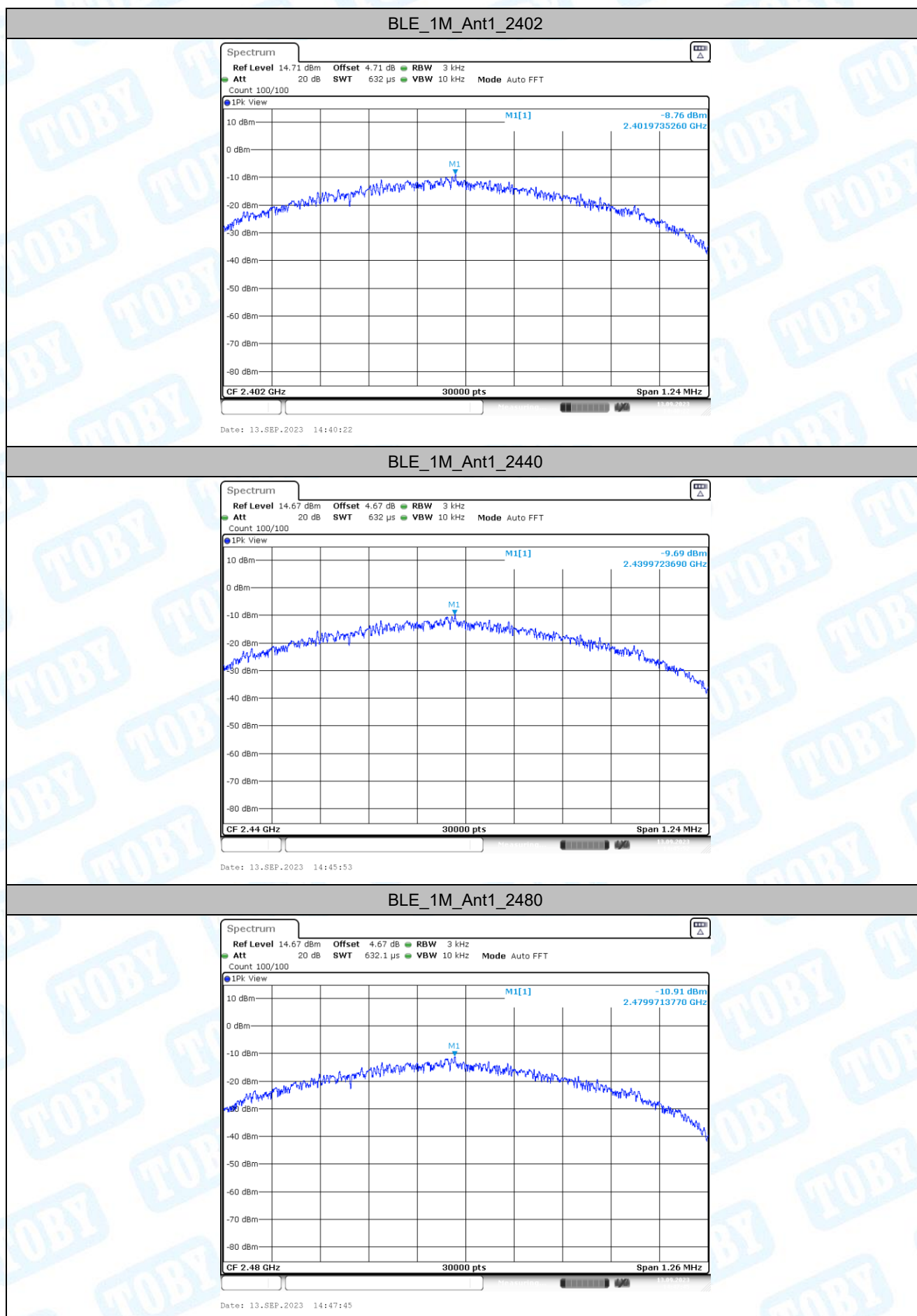


4. Maximum power spectral density

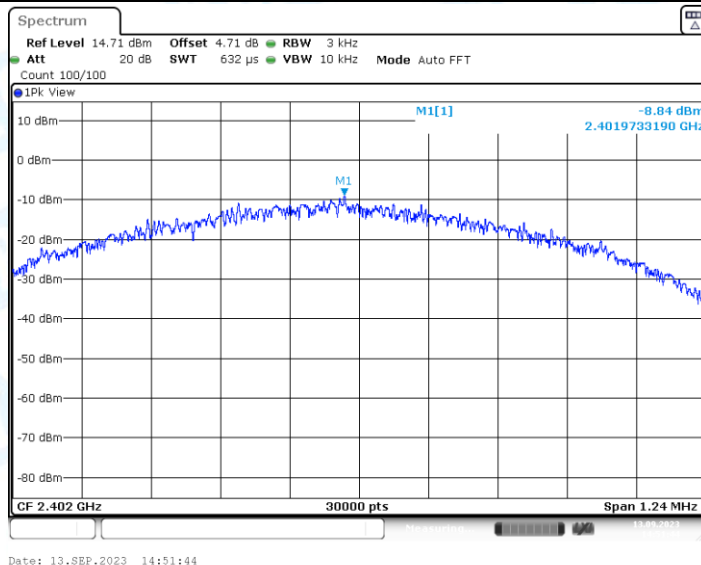
4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-8.76	≤8.00	PASS
		2440	-9.69	≤8.00	PASS
		2480	-10.91	≤8.00	PASS
BLE_2M	Ant1	2402	-8.84	≤8.00	PASS
		2440	-9.92	≤8.00	PASS
		2480	-11.20	≤8.00	PASS

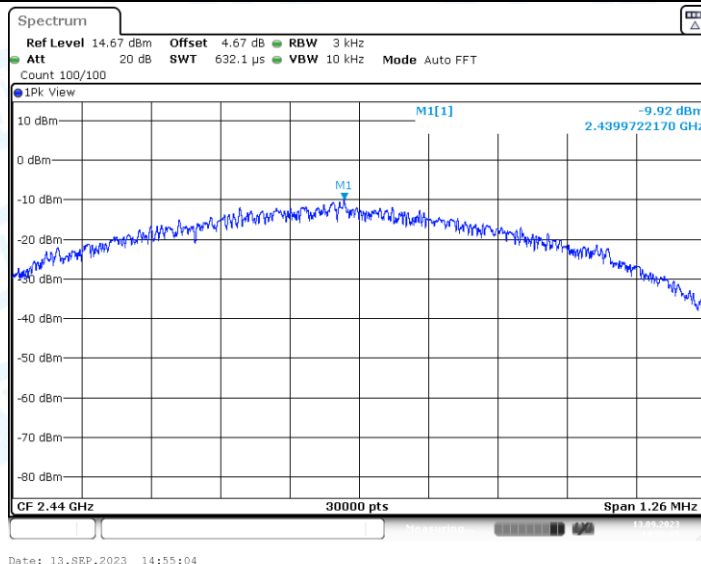
4.2. Test Graphs



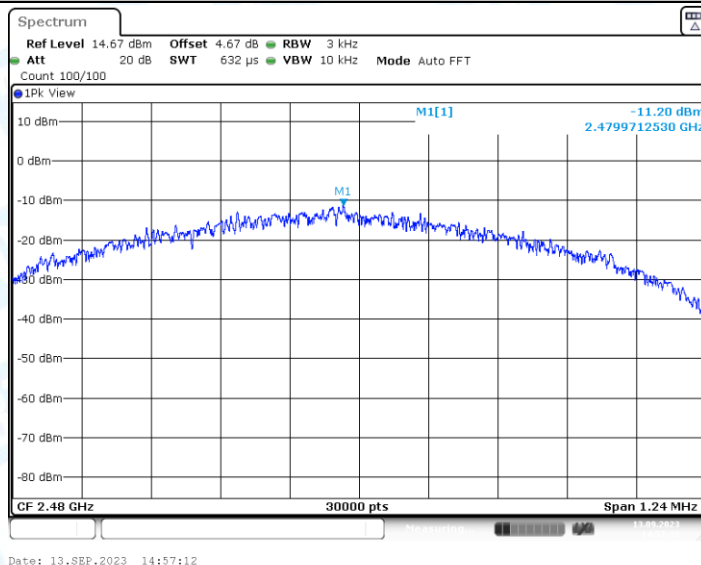
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

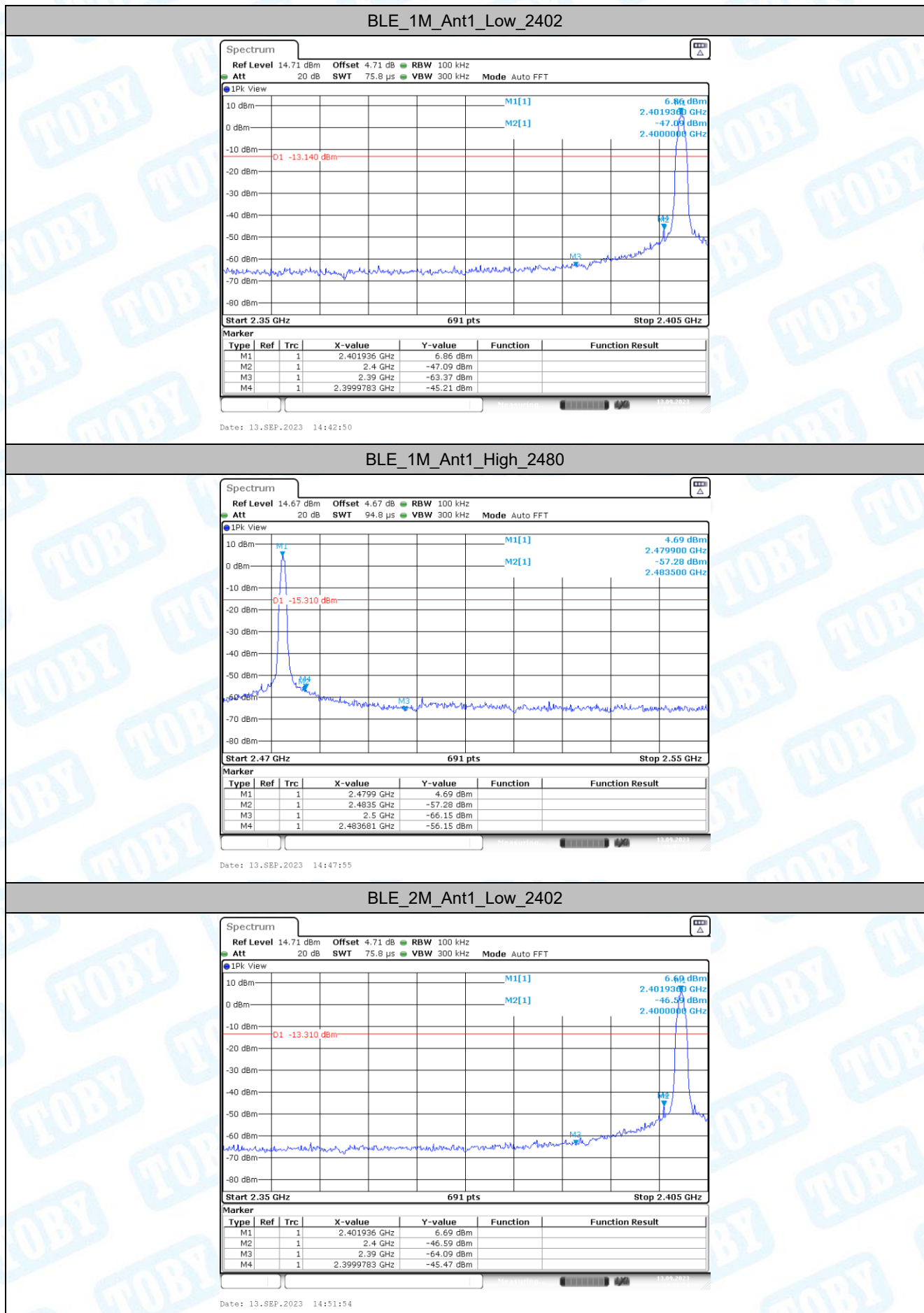


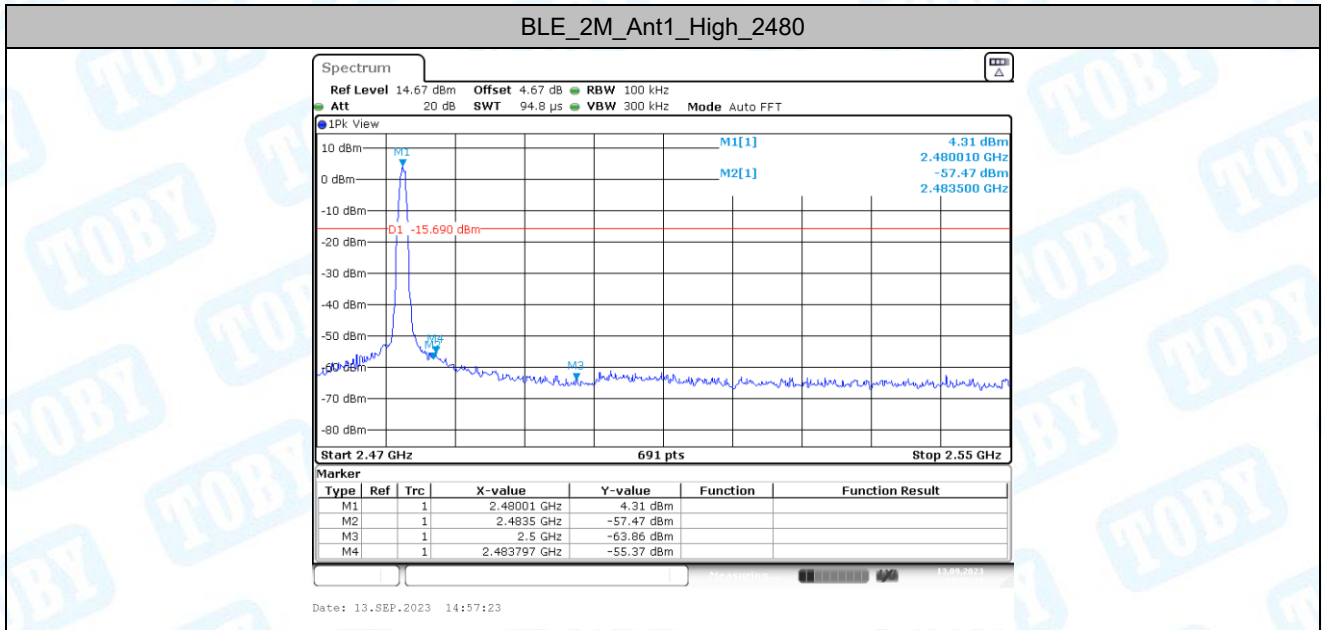
5. Band edge measurements

5.1. Test Result

Test Mode	Antenna	ChName	Channel	Ref.Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	6.86	-45.21	≤ -13.14	PASS
		High	2480	4.69	-56.15	≤ -15.31	PASS
BLE_2M	Ant1	Low	2402	6.69	-45.47	≤ -13.31	PASS
		High	2480	4.31	-55.37	≤ -15.69	PASS

5.2. Test Graphs



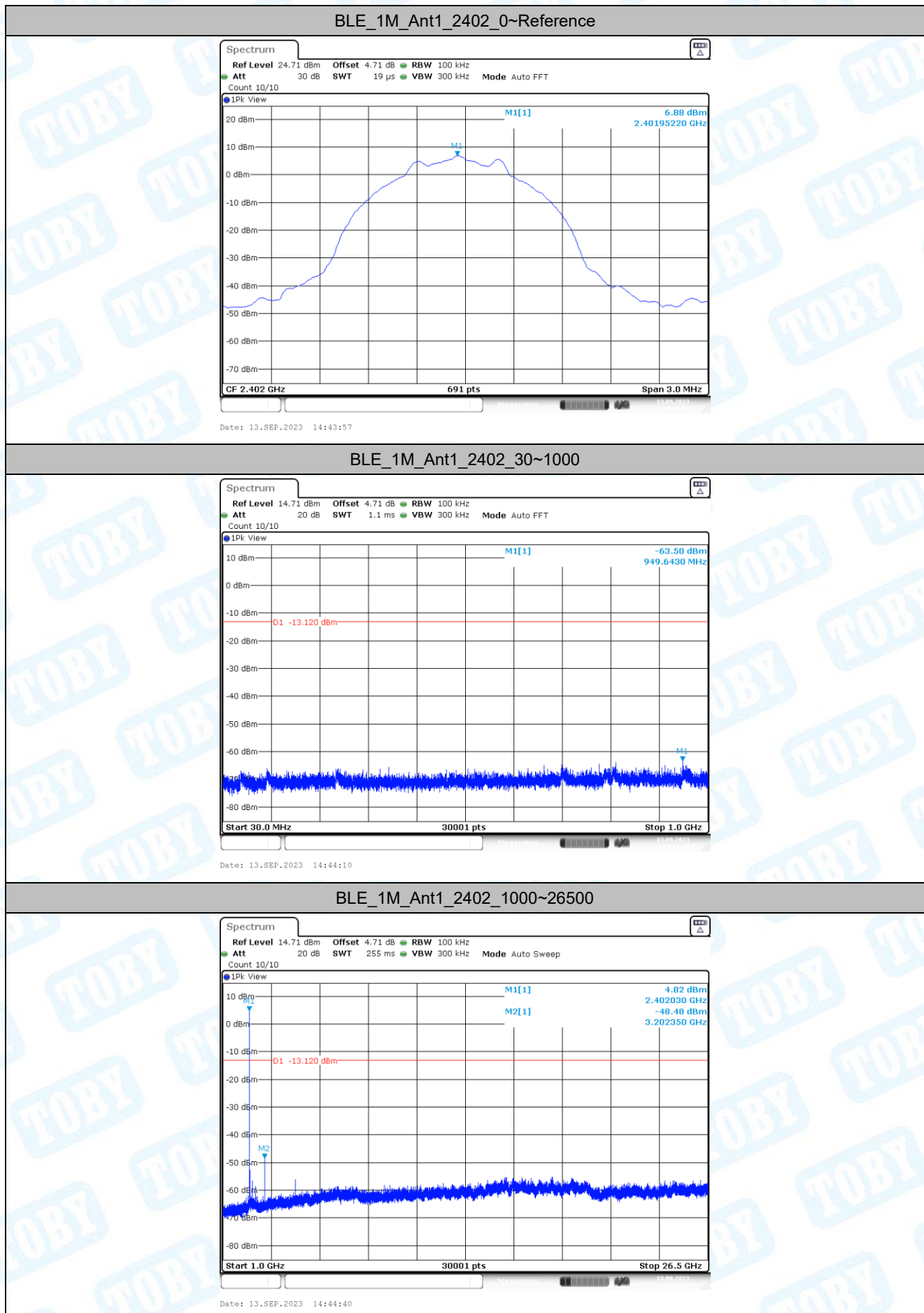


6. Conducted Spurious Emission

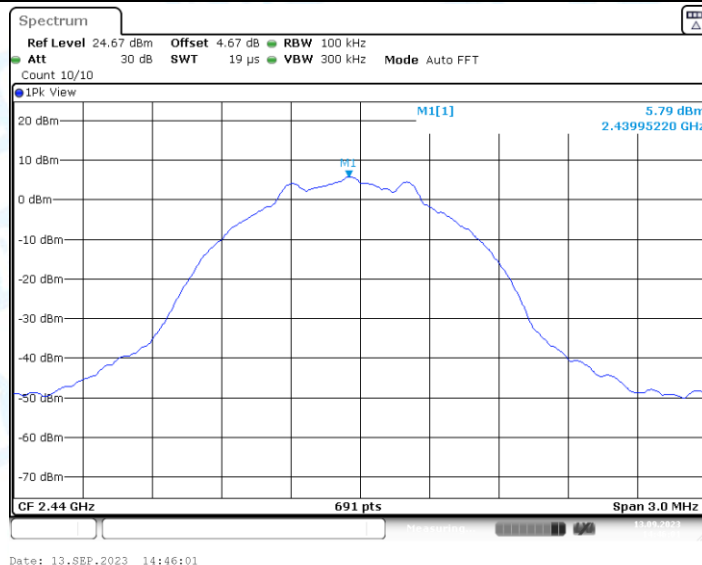
6.1. Test Result

Test Mode	Antenna	Channel	Freq. Range [MHz]	Ref. Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	6.88	6.88	---	PASS
			30~1000	6.88	-63.5	≤-13.12	PASS
			1000~26500	6.88	-48.48	≤-13.12	PASS
		2440	Reference	5.79	5.79	---	PASS
			30~1000	5.79	-63.98	≤-14.21	PASS
			1000~26500	5.79	-50.37	≤-14.21	PASS
		2480	Reference	4.60	4.60	---	PASS
			30~1000	4.60	-63.91	≤-15.4	PASS
			1000~26500	4.60	-53.77	≤-15.4	PASS
BLE_2M	Ant1	2402	Reference	6.79	6.79	---	PASS
			30~1000	6.79	-62.97	≤-13.21	PASS
			1000~26500	6.79	-48.49	≤-13.21	PASS
		2440	Reference	5.94	5.94	---	PASS
			30~1000	5.94	-64.2	≤-14.06	PASS
			1000~26500	5.94	-50.68	≤-14.06	PASS
		2480	Reference	4.67	4.67	---	PASS
			30~1000	4.67	-64.17	≤-15.33	PASS
			1000~26500	4.67	-52.05	≤-15.33	PASS

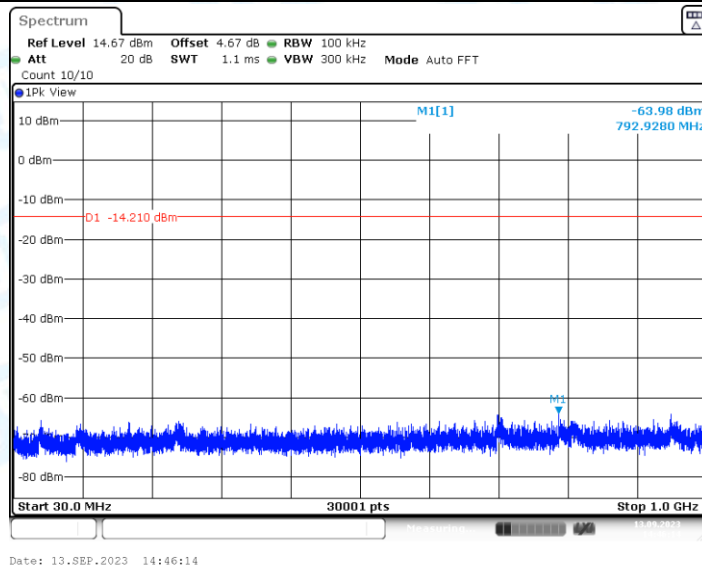
6.2. Test Graphs



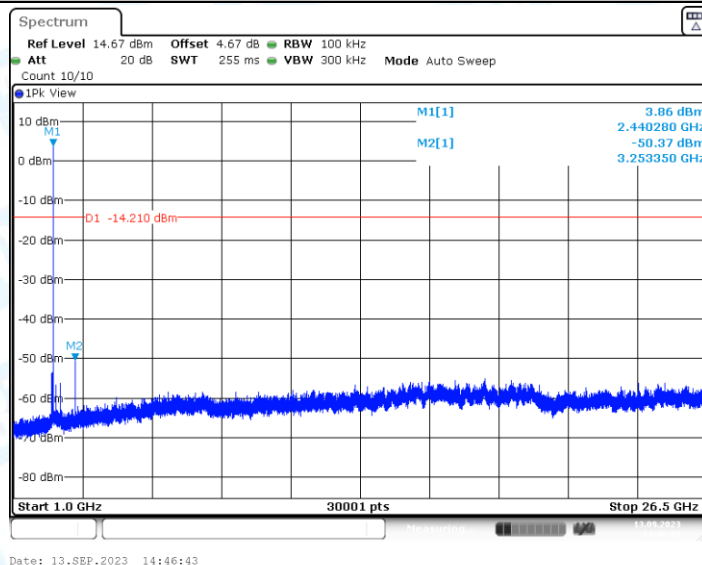
BLE_1M_Ant1_2440_0~Reference



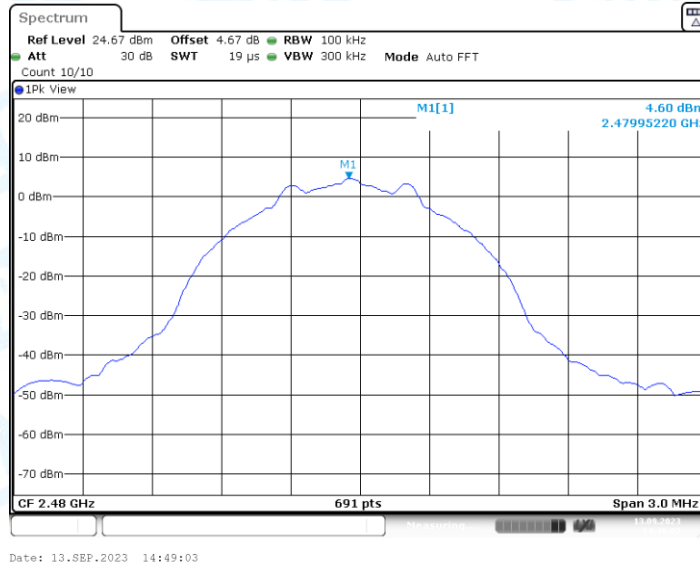
BLE_1M_Ant1_2440_30~1000



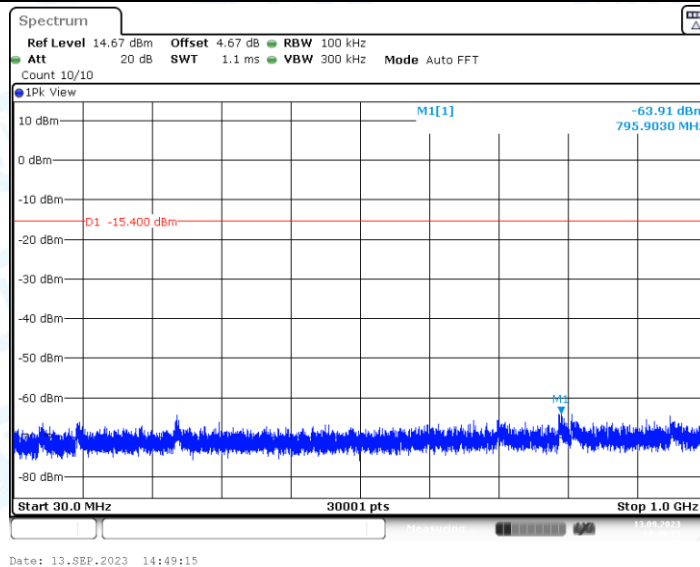
BLE_1M_Ant1_2440_1000~26500



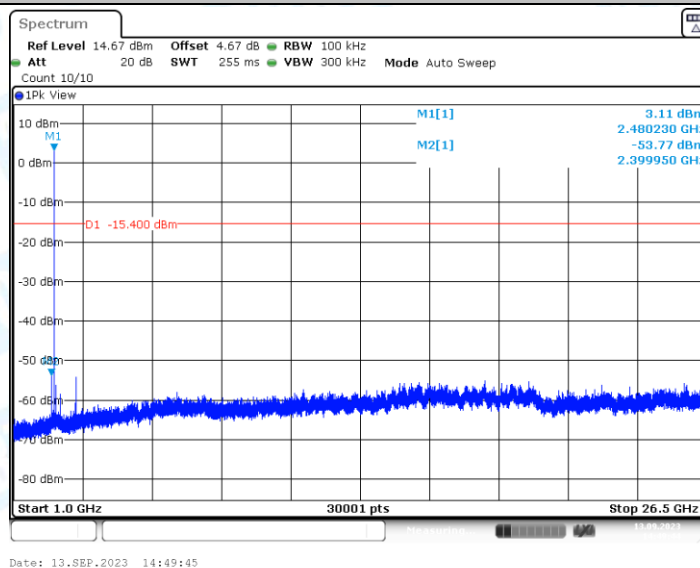
BLE_1M_Ant1_2480_0~Reference



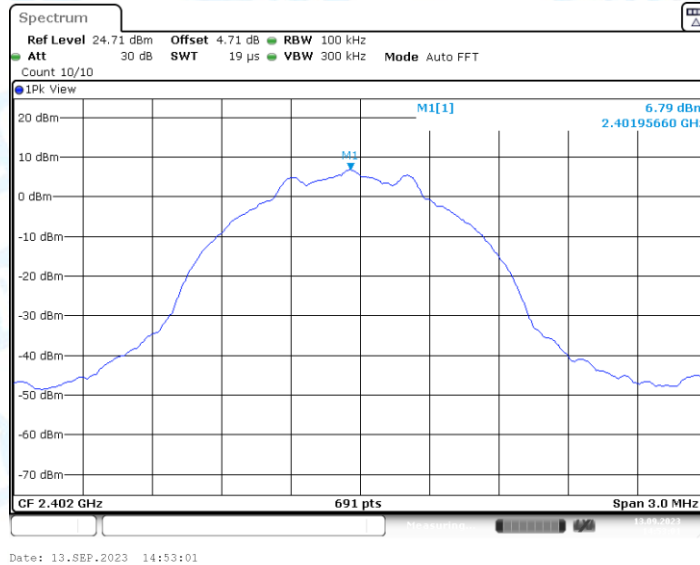
BLE_1M_Ant1_2480_30~1000



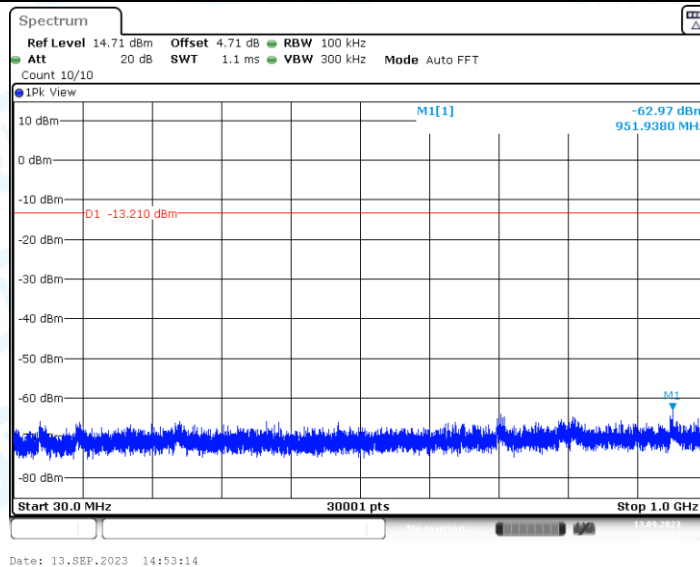
BLE_1M_Ant1_2480_1000~26500



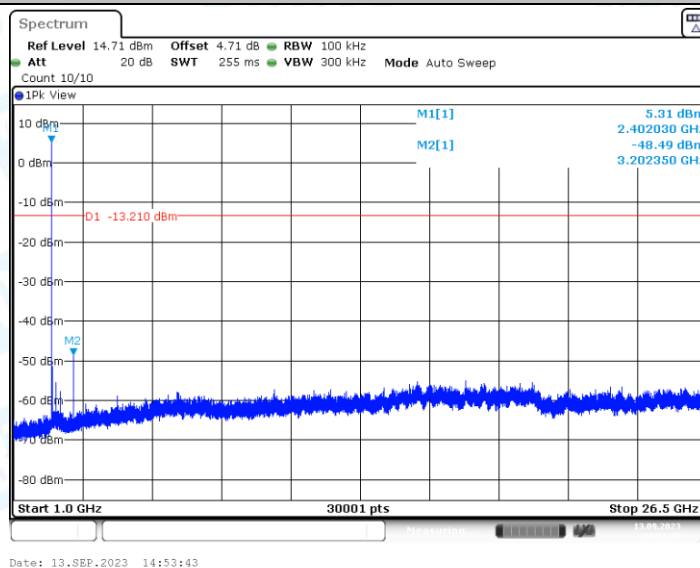
BLE_2M_Ant1_2402_0~Reference



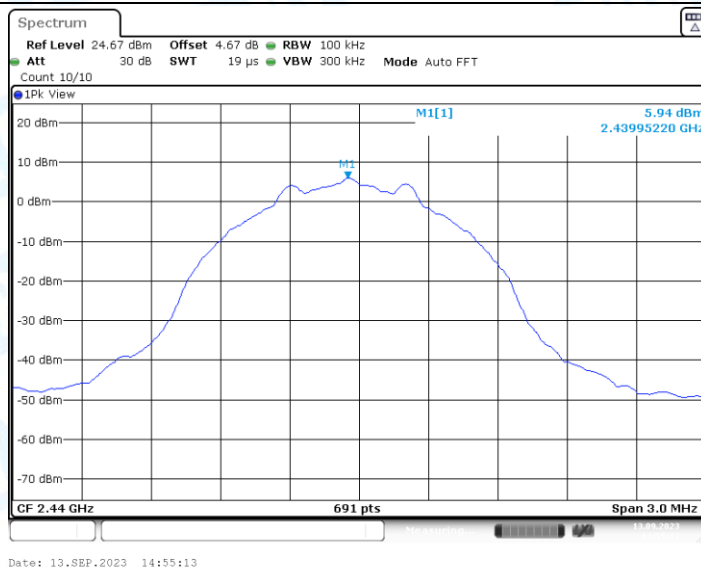
BLE_2M_Ant1_2402_30~1000



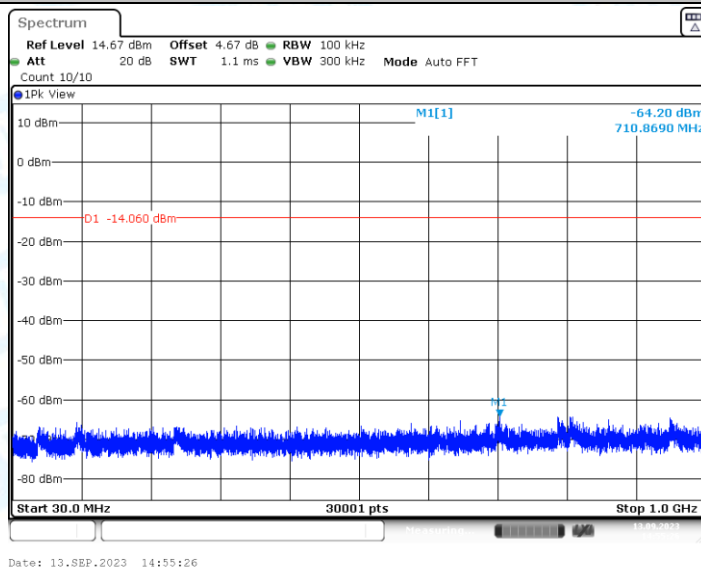
BLE_2M_Ant1_2402_1000~26500



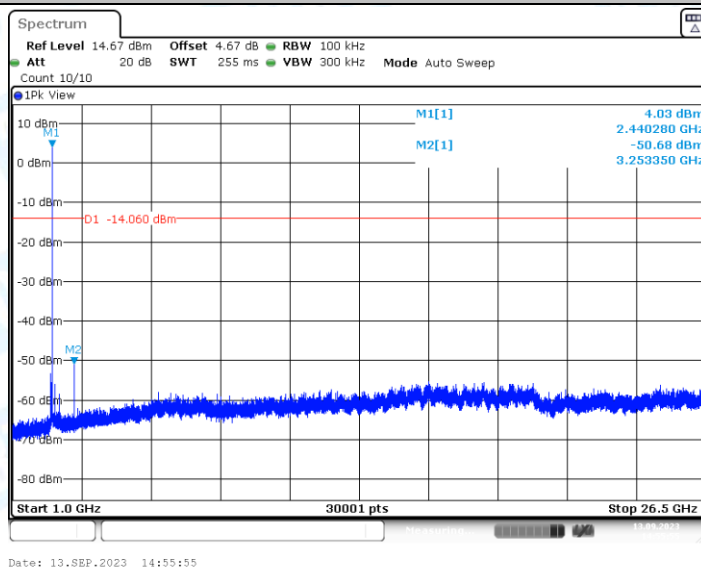
BLE_2M_Ant1_2440_0~Reference



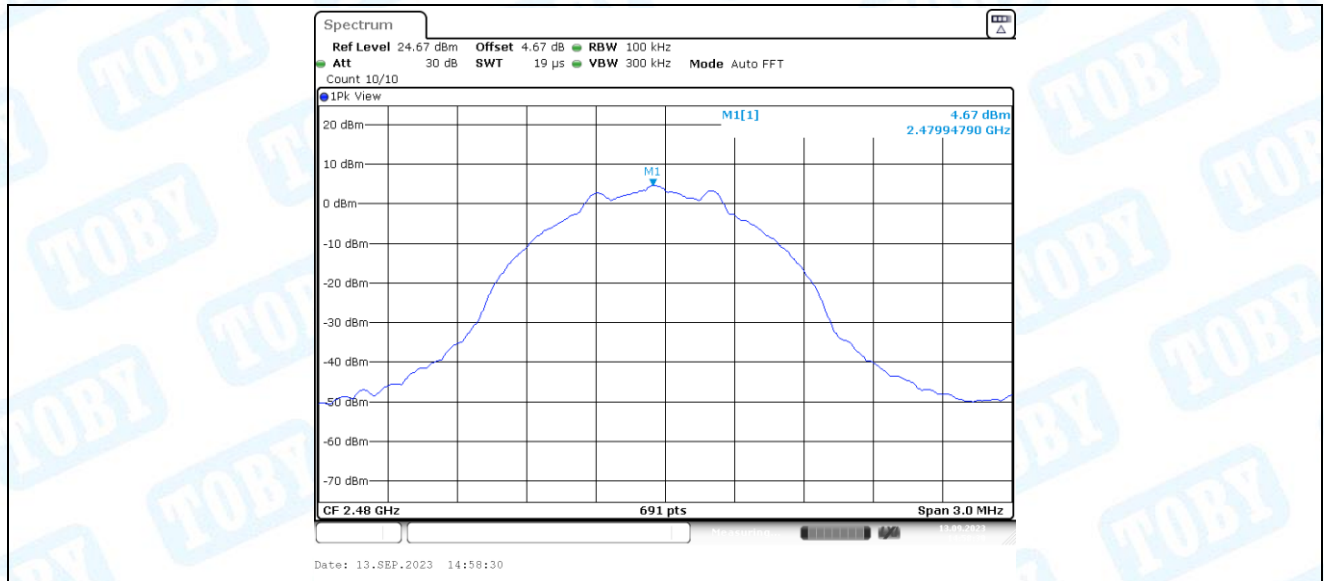
BLE_2M_Ant1_2440_30~1000



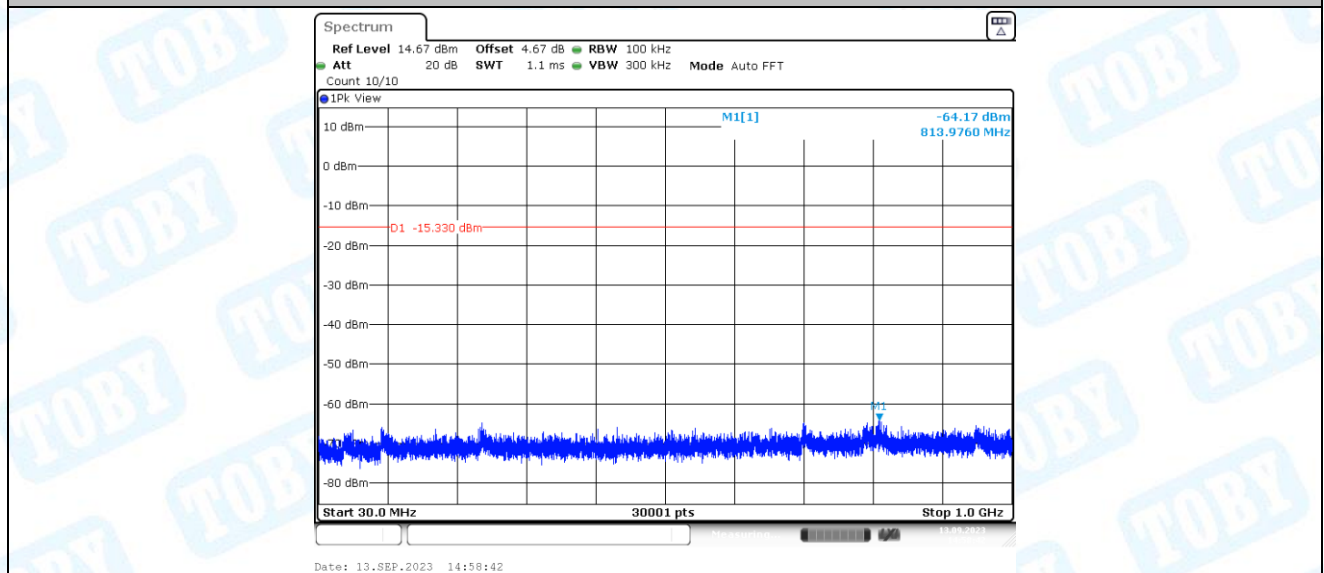
BLE_2M_Ant1_2440_1000~26500



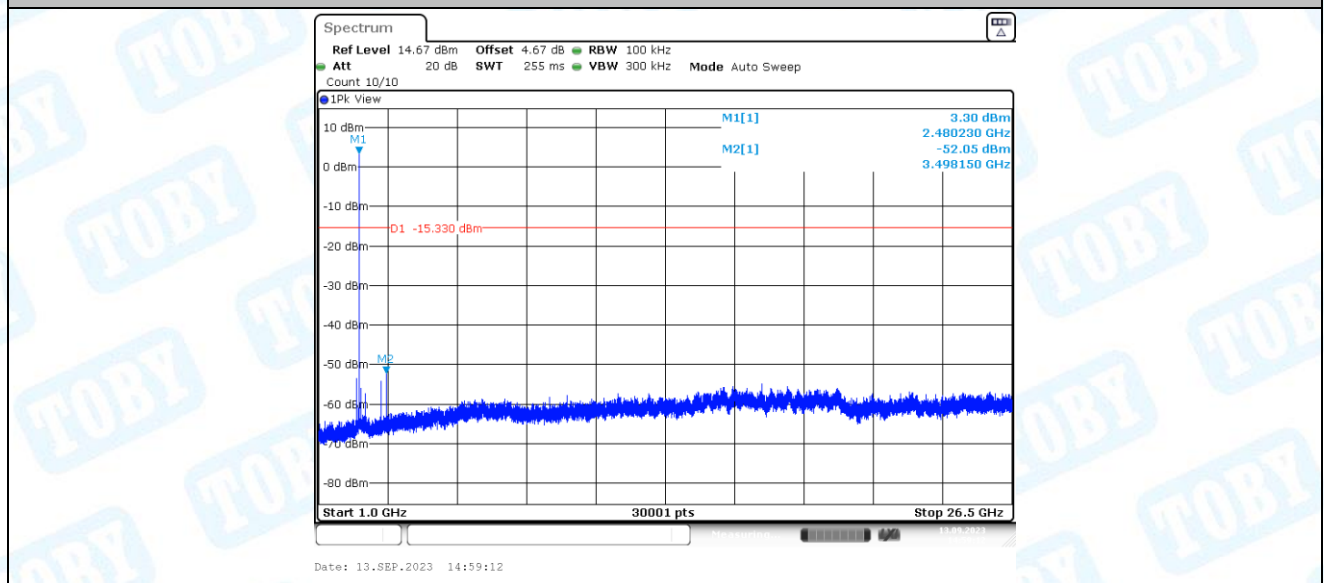
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



7. Duty Cycle

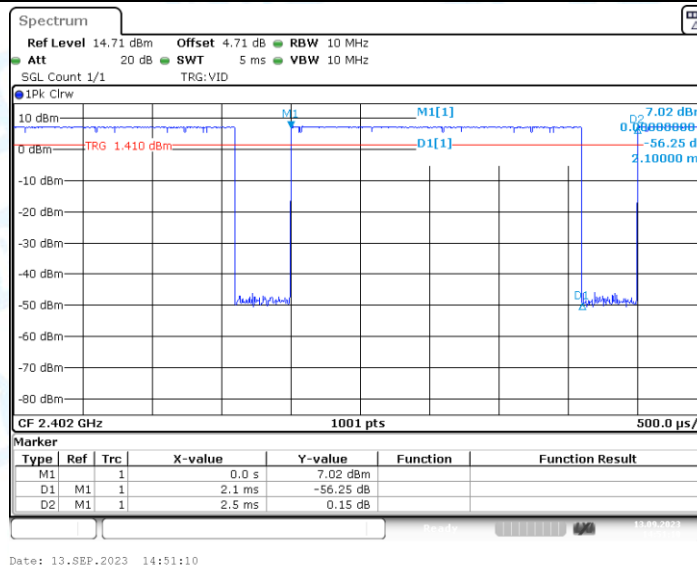
7.1. Test Result

Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T [KHz]	Limit	Verdict
BLE_1M	Ant1	2402	2.10	2.50	84.00	0.48	---	---
		2440	2.10	2.50	84.00	0.48	---	---
		2480	2.10	2.50	84.00	0.48	---	---
BLE_2M	Ant1	2402	2.10	2.50	84.00	0.48	---	---
		2440	2.10	2.50	84.00	0.48	---	---
		2480	2.10	2.50	84.00	0.48	---	---
Note:1/T=1/ Transmission Duration								

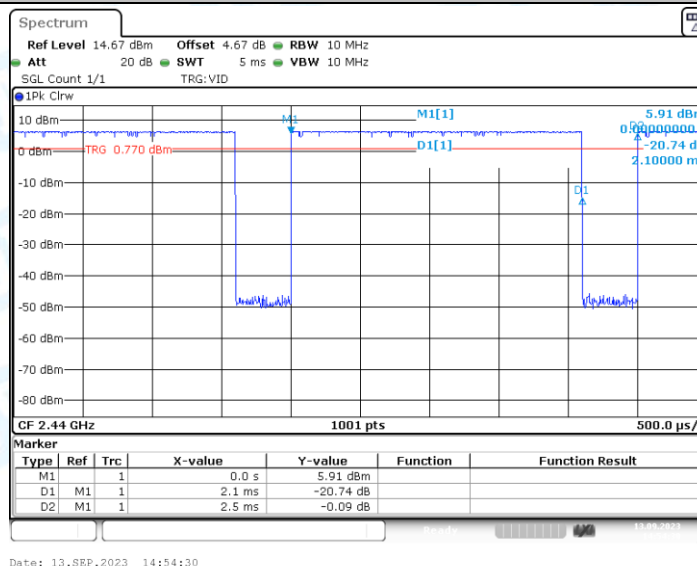
7.2. Test Graphs



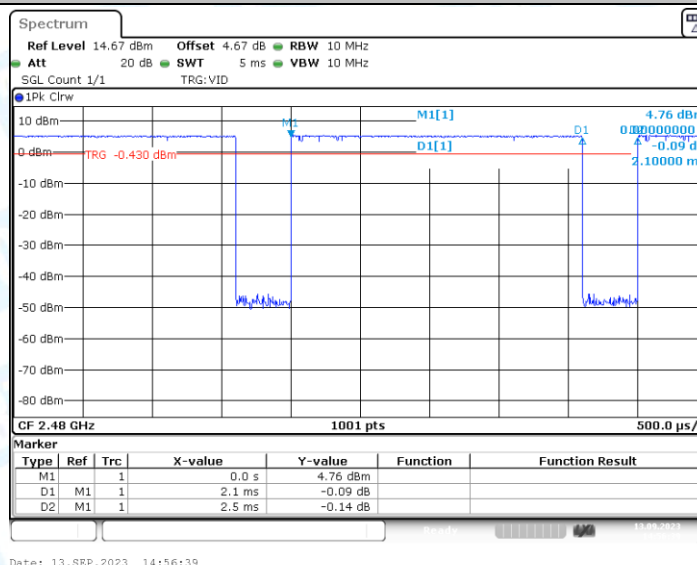
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



8. Emissions in Restricted Bands

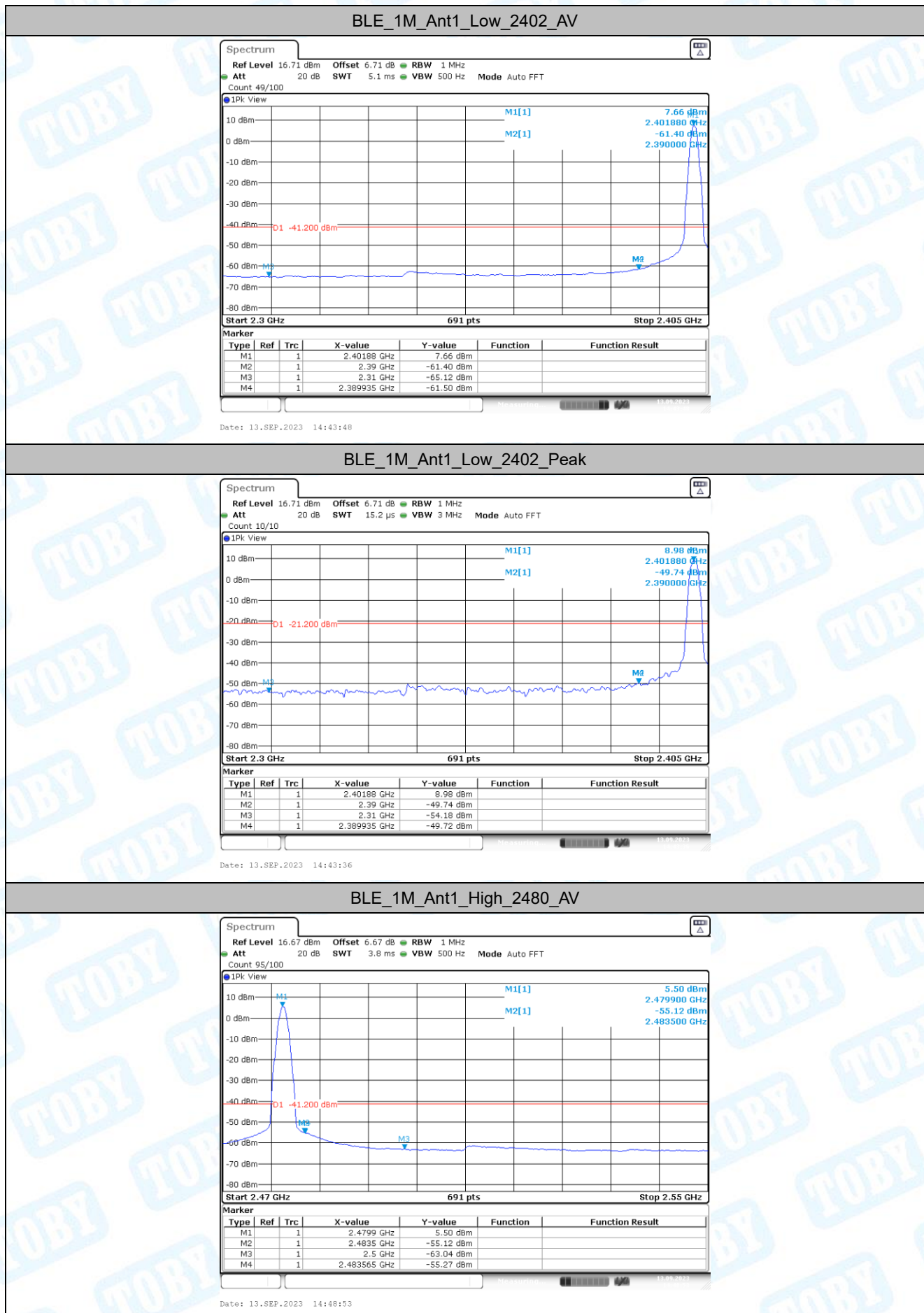
8.1. Test Result

Test Mode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-65.12	≤-41.20	PASS
				AV	2389.935	-61.5	≤-41.20	PASS
				AV	2390.000	-61.4	≤-41.20	PASS
				Peak	2310.000	-54.18	≤-21.20	PASS
				Peak	2389.935	-49.72	≤-21.20	PASS
				Peak	2390.000	-49.74	≤-21.20	PASS
		High	2480	AV	2483.500	-55.12	≤-41.20	PASS
				AV	2483.565	-55.27	≤-41.20	PASS
				AV	2500.000	-63.04	≤-41.20	PASS
				Peak	2483.500	-46.82	≤-21.20	PASS
				Peak	2483.913	-43.9	≤-21.20	PASS
				Peak	2500.000	-52.62	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-65.17	≤-41.20	PASS
				AV	2389.935	-61.79	≤-41.20	PASS
				AV	2390.000	-61.69	≤-41.20	PASS
				Peak	2310.000	-53.81	≤-21.20	PASS
				Peak	2389.326	-49.96	≤-21.20	PASS
				Peak	2390.000	-50.85	≤-21.20	PASS
		High	2480	AV	2483.500	-55	≤-41.20	PASS
				AV	2483.565	-55.04	≤-41.20	PASS
				AV	2500.000	-63.07	≤-41.20	PASS
				Peak	2483.500	-43.41	≤-21.20	PASS
				Peak	2483.913	-41.38	≤-21.20	PASS
				Peak	2500.000	-52.82	≤-21.20	PASS

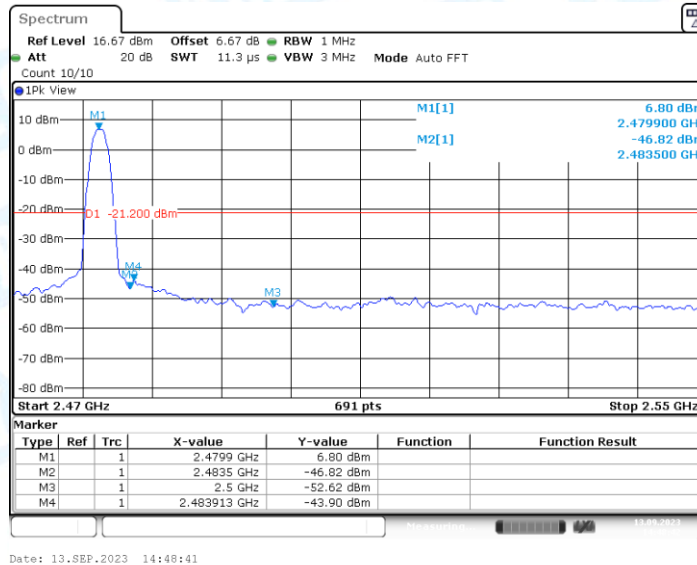
Note:

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.

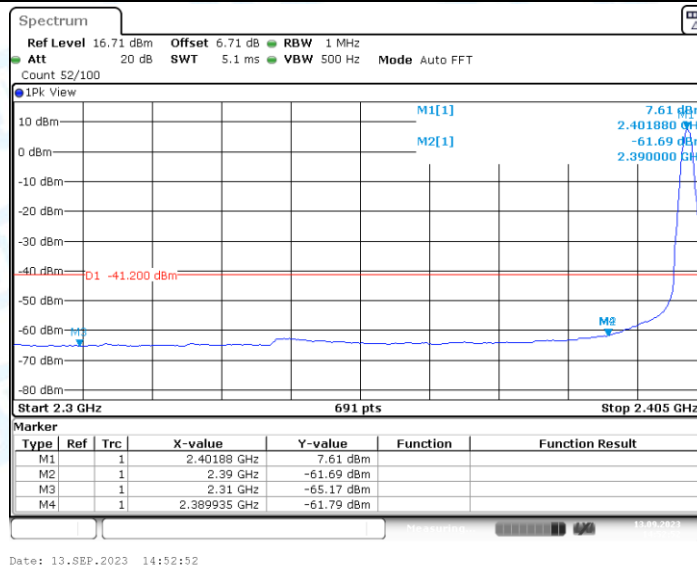
8.2. Test Graphs



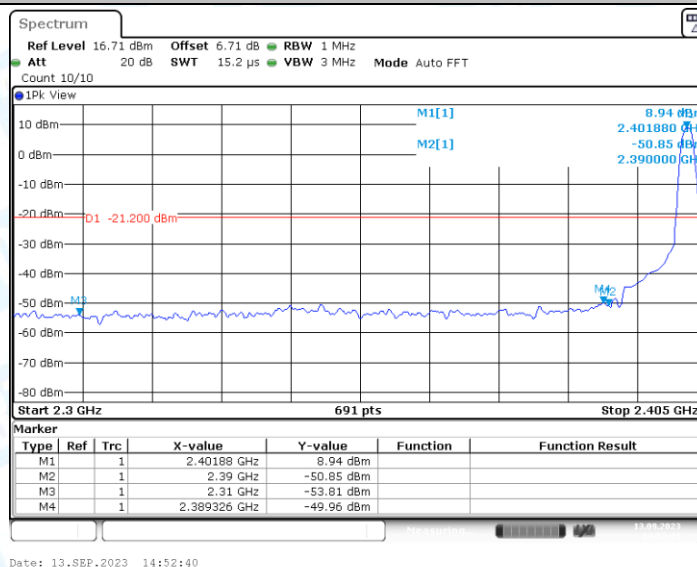
BLE_1M_Ant1_High_2480_Peak



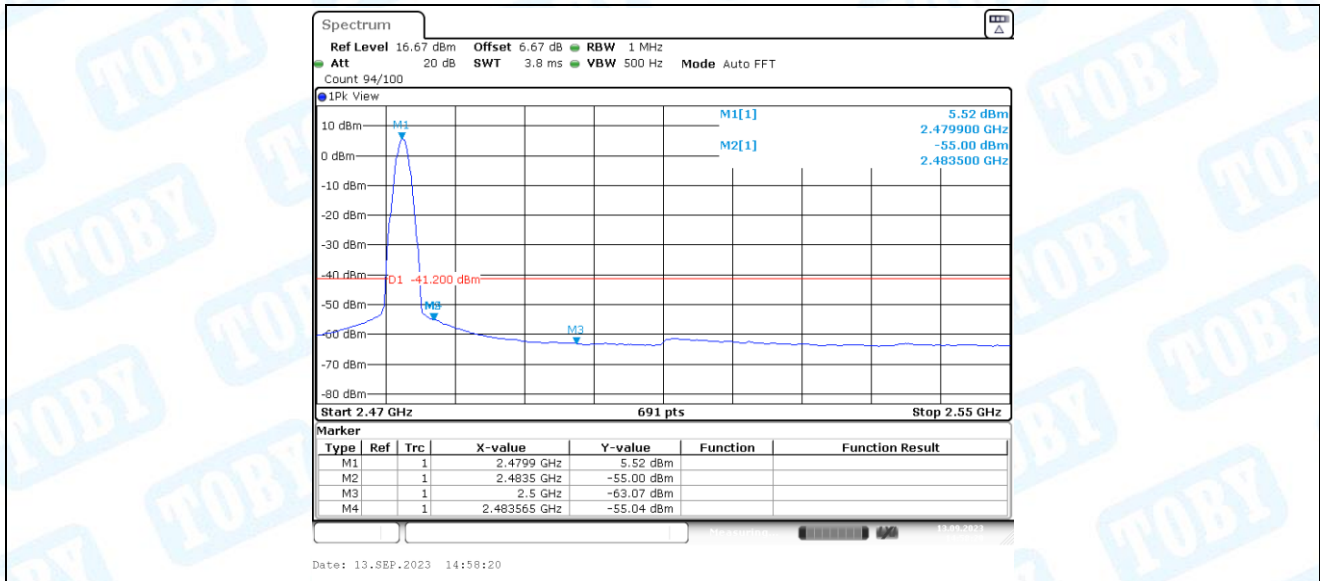
BLE_2M_Ant1_Low_2402_AV



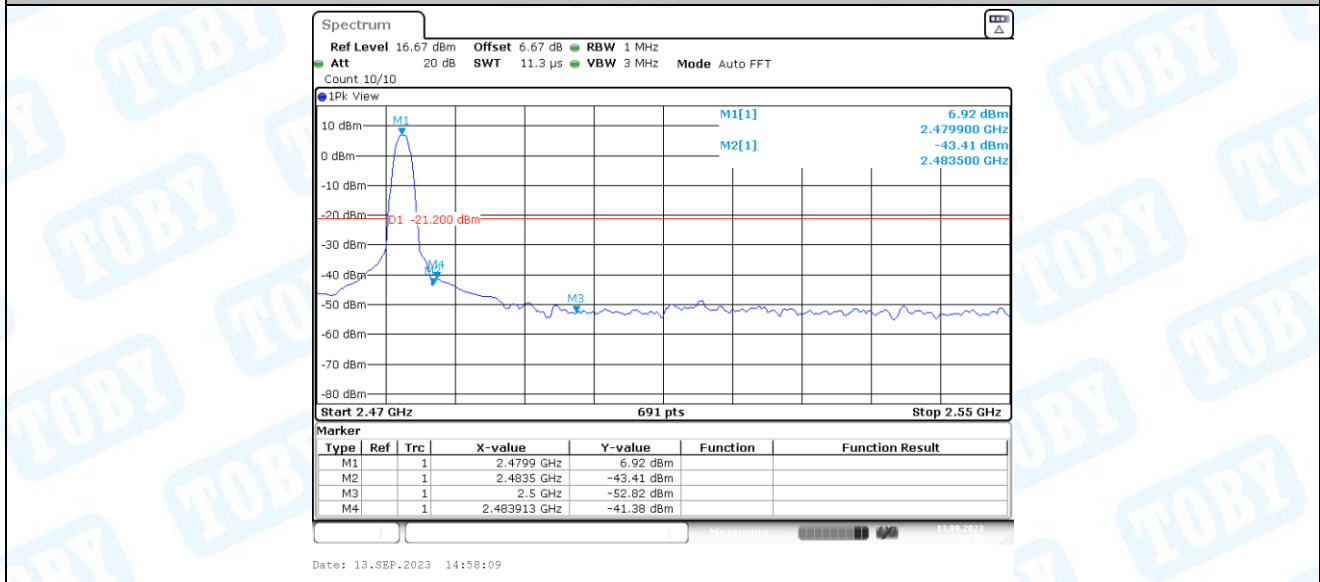
BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak



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