RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
Product Name:	Smart call watch
Test Model:	K13
Sample ID:	HC-C-202306-0253-01-2-2#
Environmental Conditions	
Temperature:	24℃
Relative Humidity:	50%
Test Voltage:	DC 5V
Test Engineer:	Zhangchenxi
Note: For a more detailed features description, please refer to the report TBR-C-202306-0253-1	

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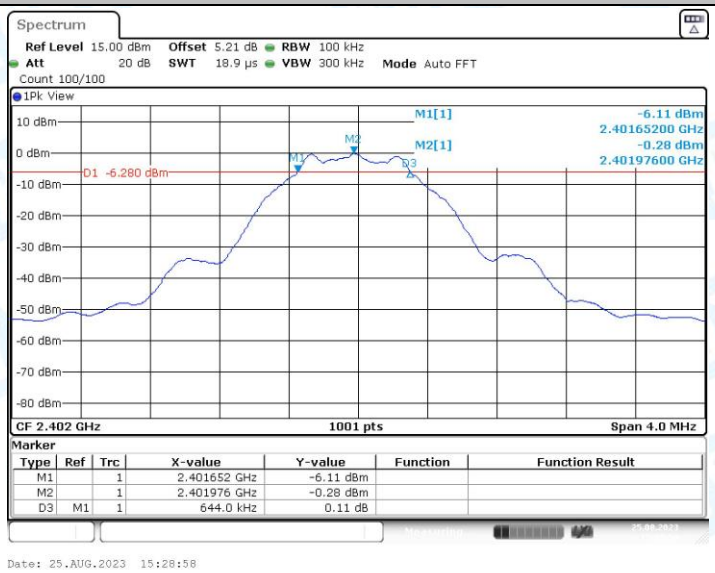
1. DTS Bandwidth

1.1.Test Result

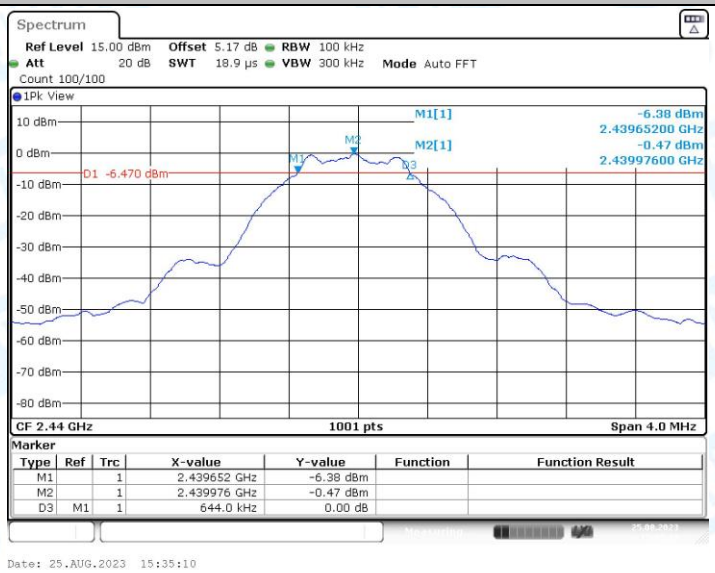
Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.64	2401.65	2402.30	0.5	PASS
		2440	0.64	2439.65	2440.30	0.5	PASS
		2480	0.64	2479.65	2480.30	0.5	PASS
BLE_2M	Ant1	2402	1.12	2401.41	2402.53	0.5	PASS
		2440	1.12	2439.41	2440.53	0.5	PASS
		2480	1.11	2479.41	2480.52	0.5	PASS

1.2.Test Graphs

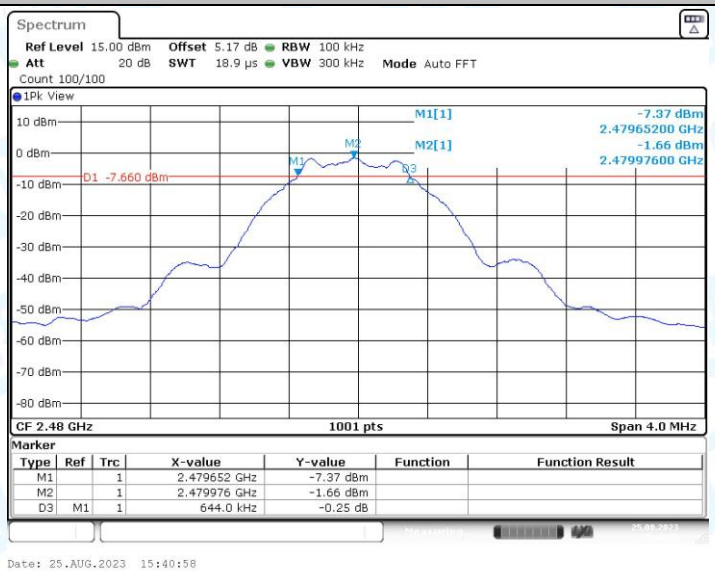
BLE_1M_Ant1_2402



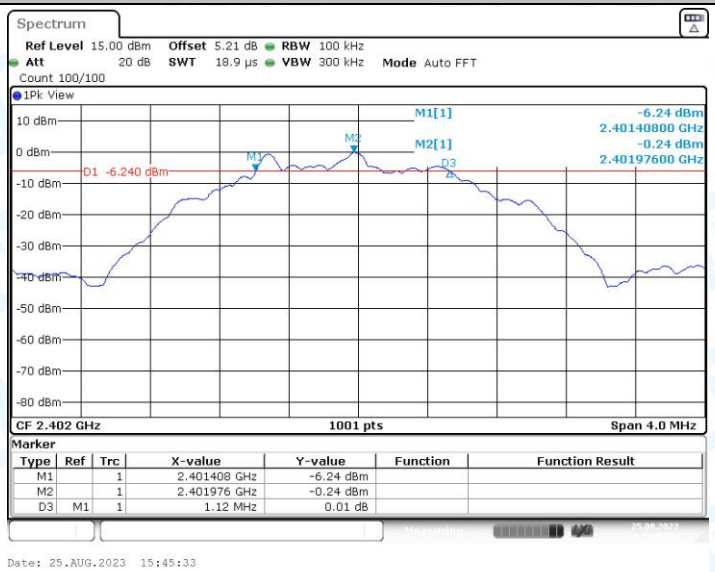
BLE_1M_Ant1_2440



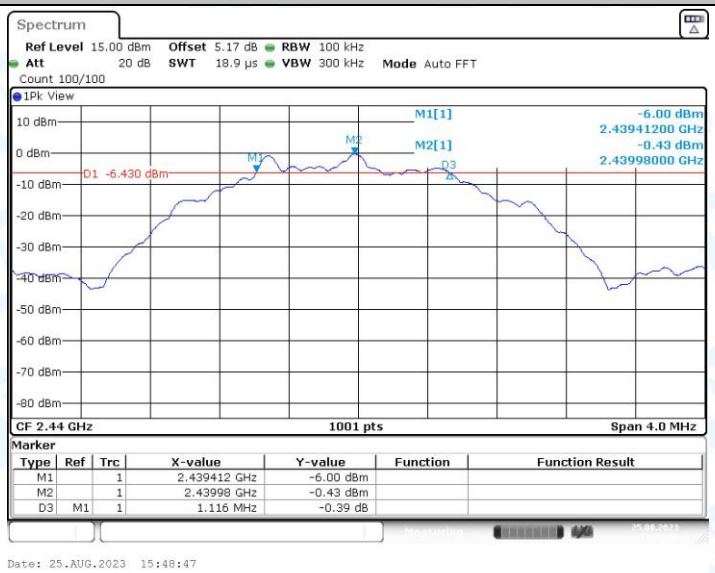
BLE_1M_Ant1_2480



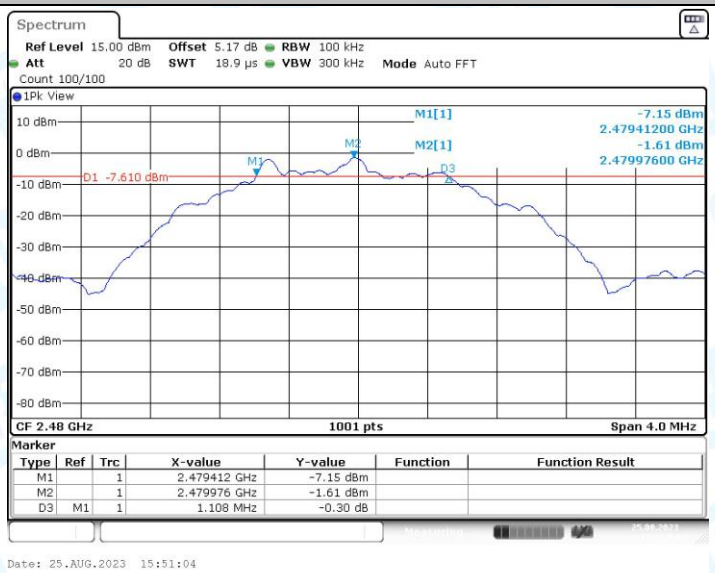
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



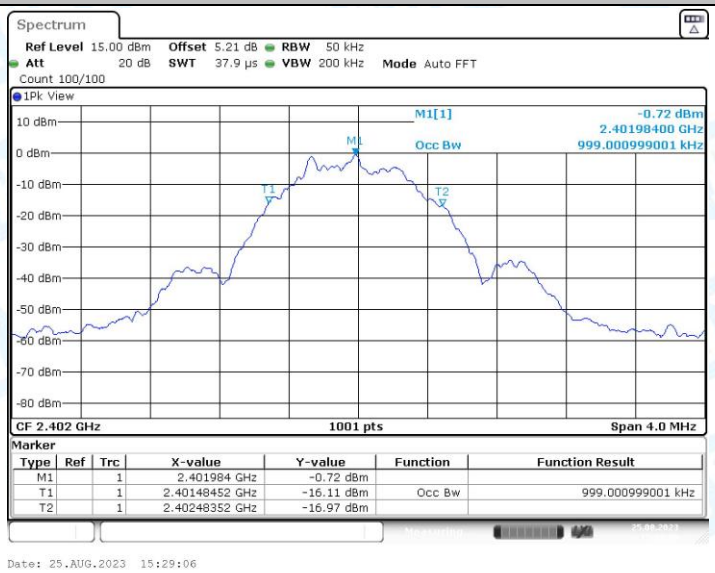
2. Occupied Channel Bandwidth

2.1.Test Result

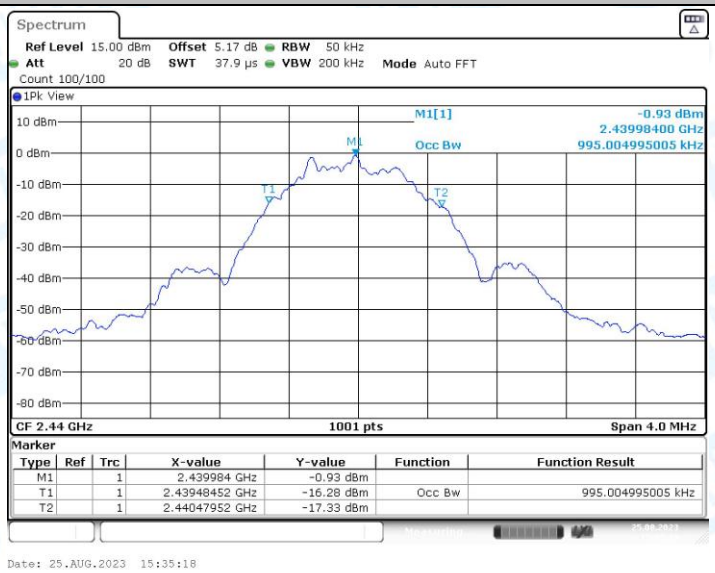
Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.999	2401.4845	2402.4835	---	---
		2440	0.995	2439.4845	2440.4795	---	---
		2480	0.995	2479.4845	2480.4795	---	---
BLE_2M	Ant1	2402	1.962	2401.0130	2402.9750	---	---
		2440	1.966	2439.0090	2440.9750	---	---
		2480	1.962	2479.0090	2480.9710	---	---

2.2.Test Graphs

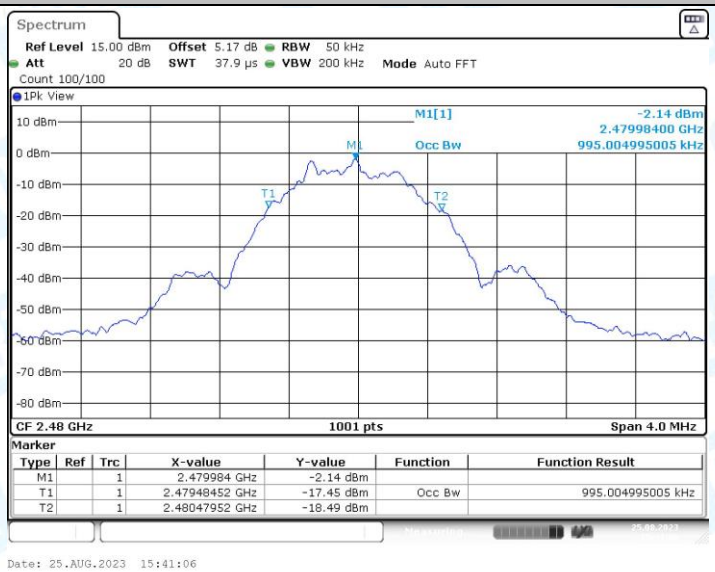
BLE_1M_Ant1_2402



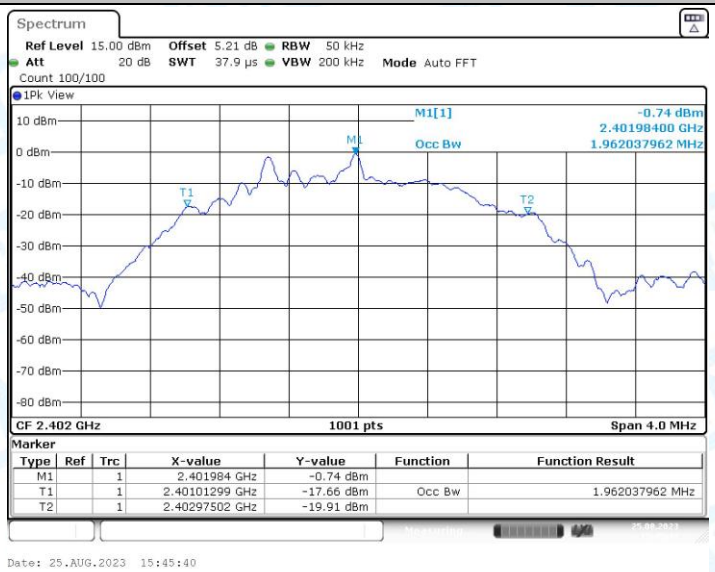
BLE_1M_Ant1_2440



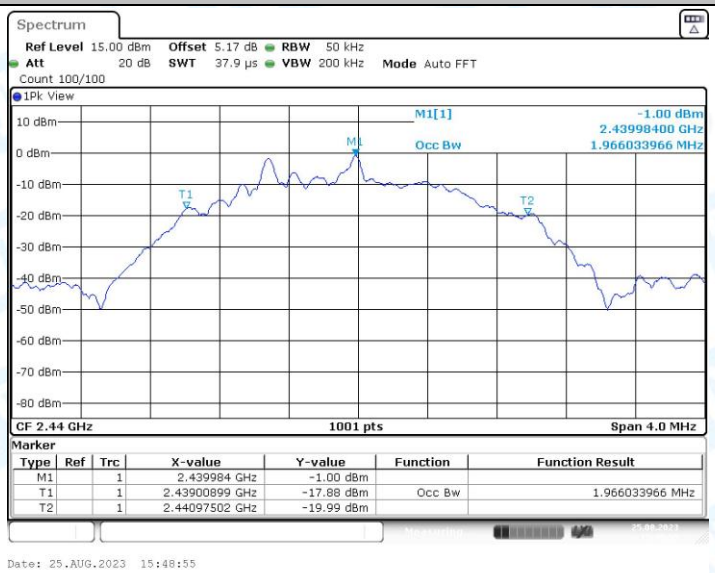
BLE_1M_Ant1_2480



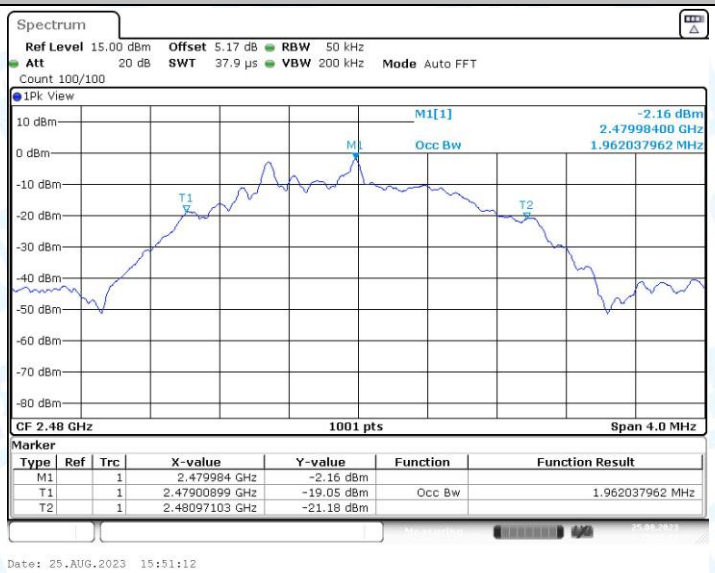
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



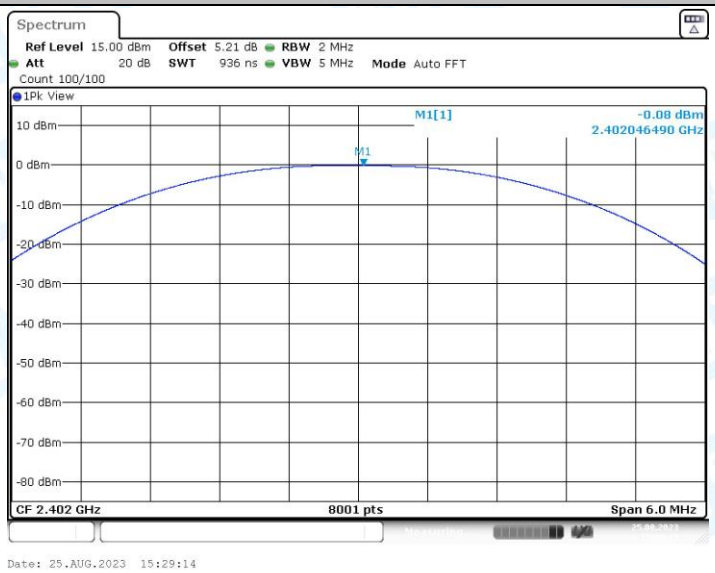
3. Maximum conducted output power

3.1.Test Result

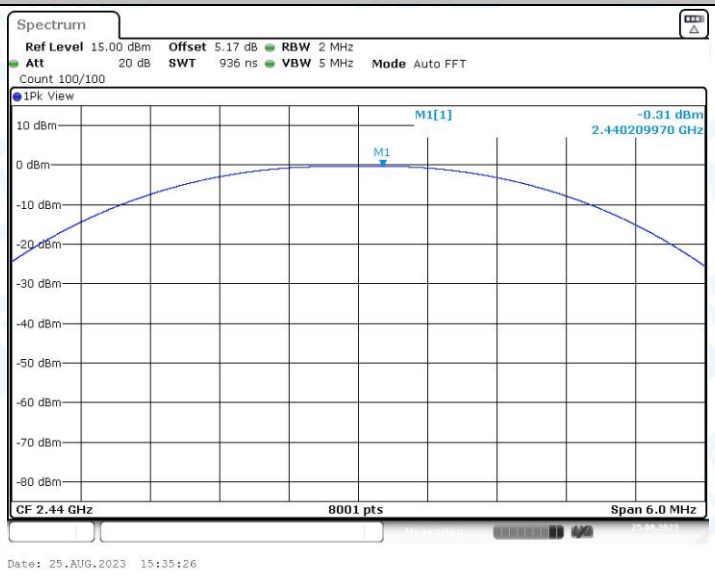
Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.08	≤30	PASS
		2440	-0.31	≤30	PASS
		2480	-1.45	≤30	PASS
BLE_2M	Ant1	2402	-0.11	≤30	PASS
		2440	-0.34	≤30	PASS
		2480	-1.55	≤30	PASS

3.2.Test Graphs

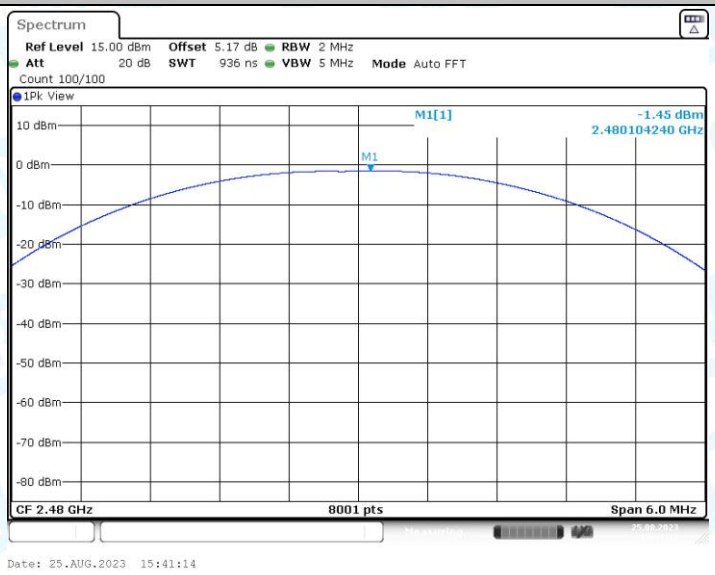
BLE_1M_Ant1_2402



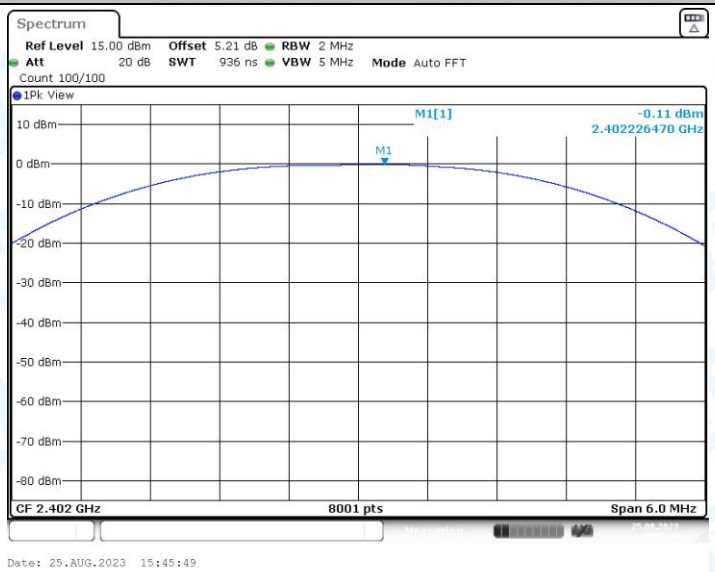
BLE_1M_Ant1_2440



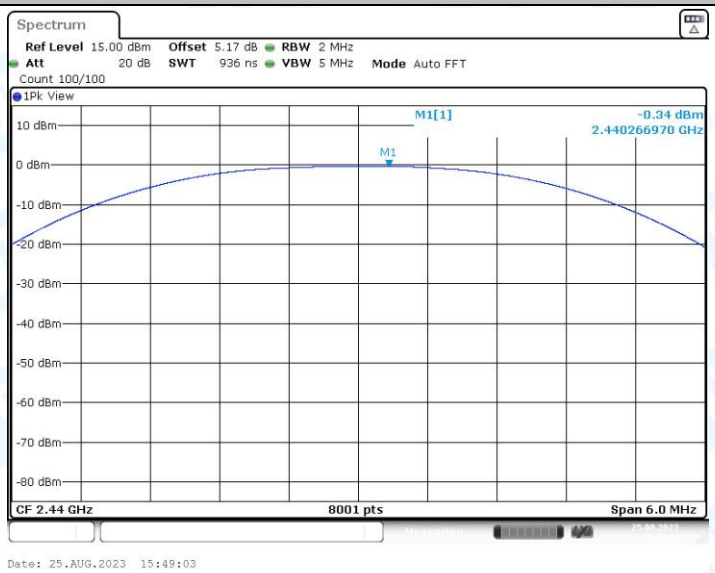
BLE_1M_Ant1_2480



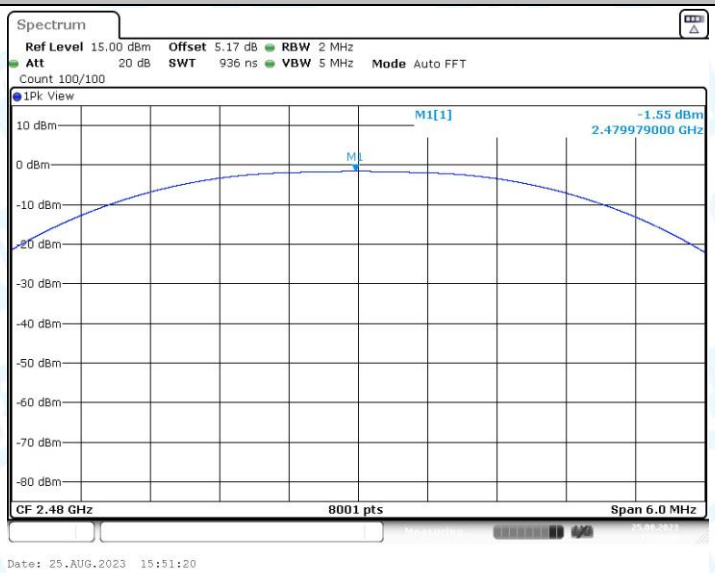
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



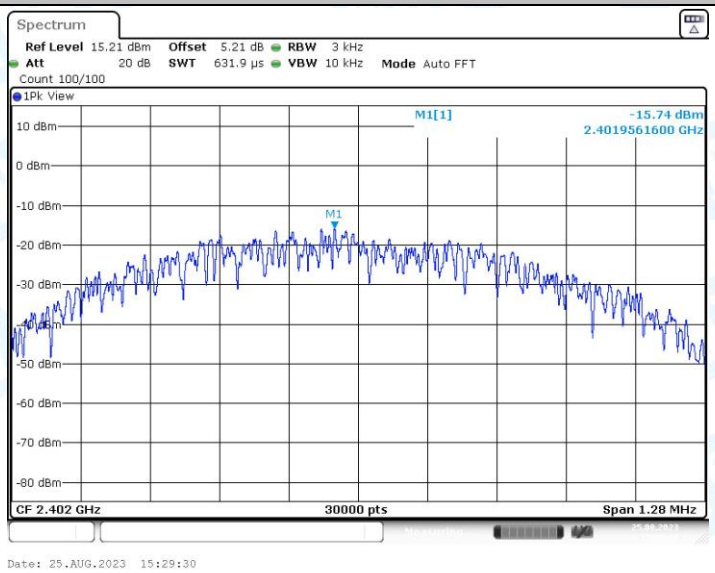
4. Maximum power spectral density

4.1.Test Result

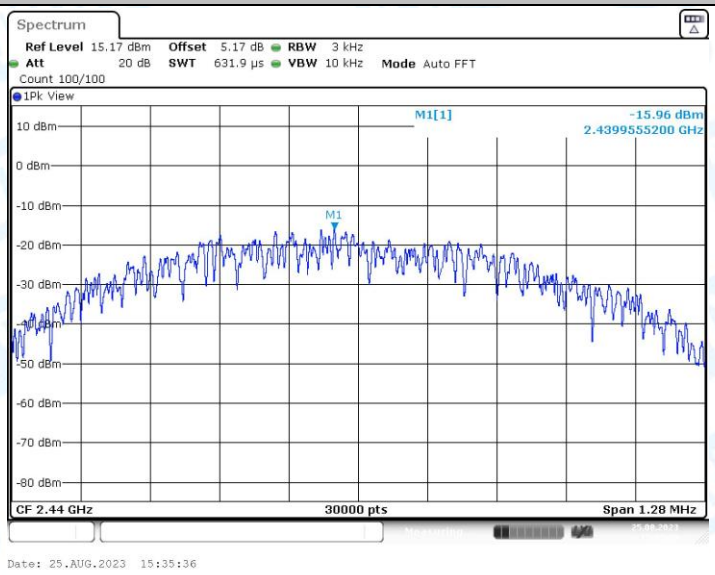
Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.74	≤8.00	PASS
		2440	-15.96	≤8.00	PASS
		2480	-17.27	≤8.00	PASS
BLE_2M	Ant1	2402	-17.07	≤8.00	PASS
		2440	-17.25	≤8.00	PASS
		2480	-18.68	≤8.00	PASS

4.2.Test Graphs

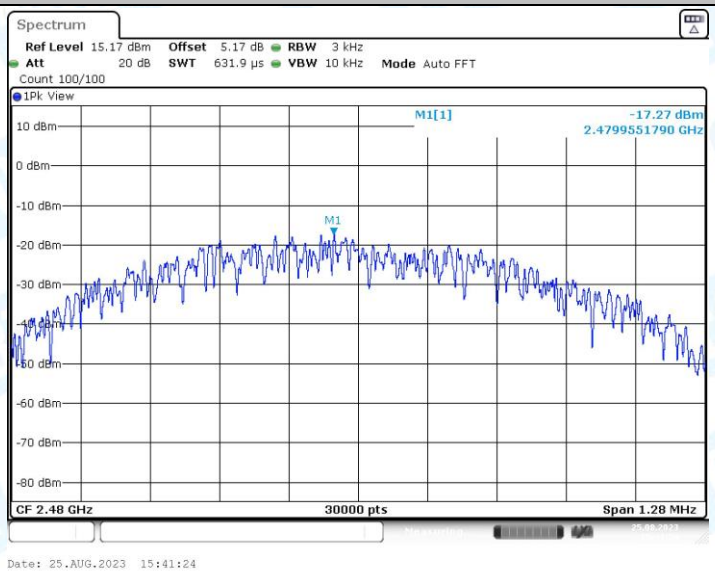
BLE_1M_Ant1_2402



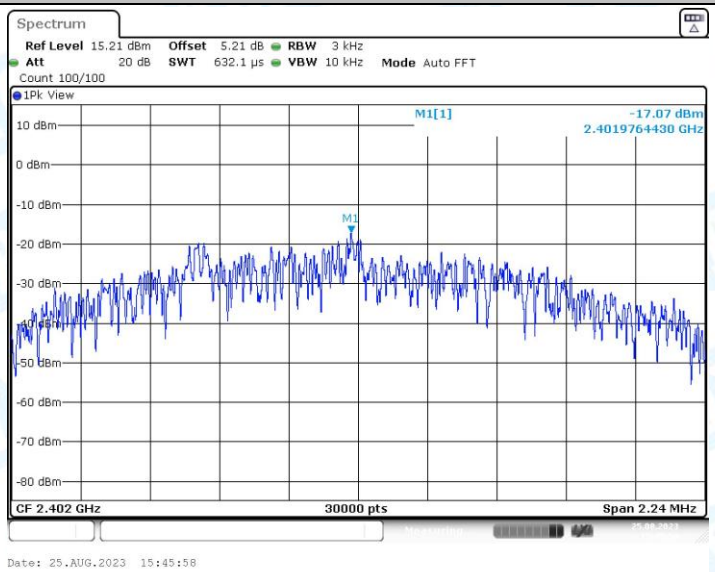
BLE_1M_Ant1_2440



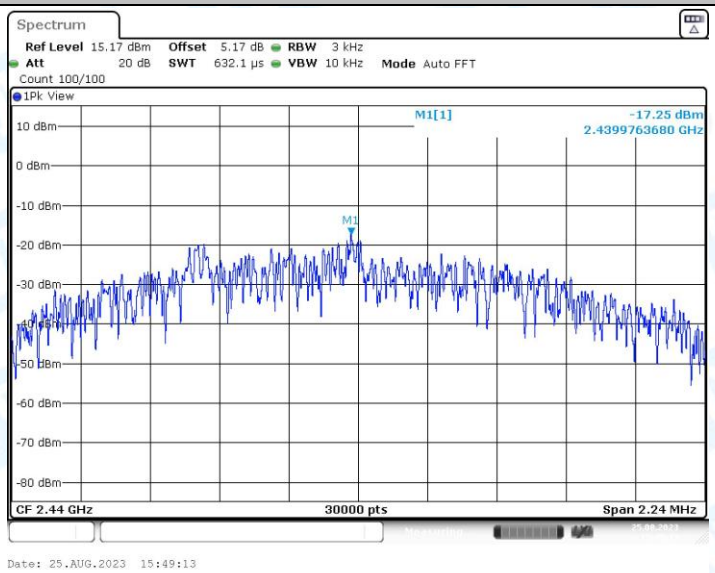
BLE_1M_Ant1_2480



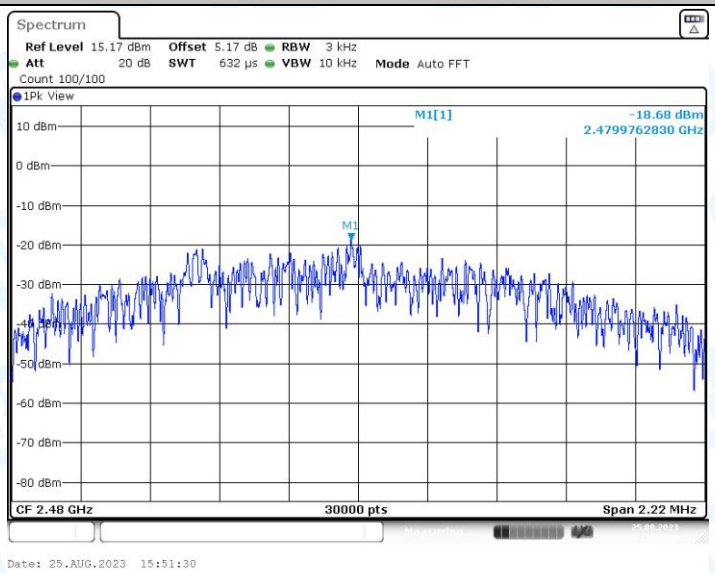
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



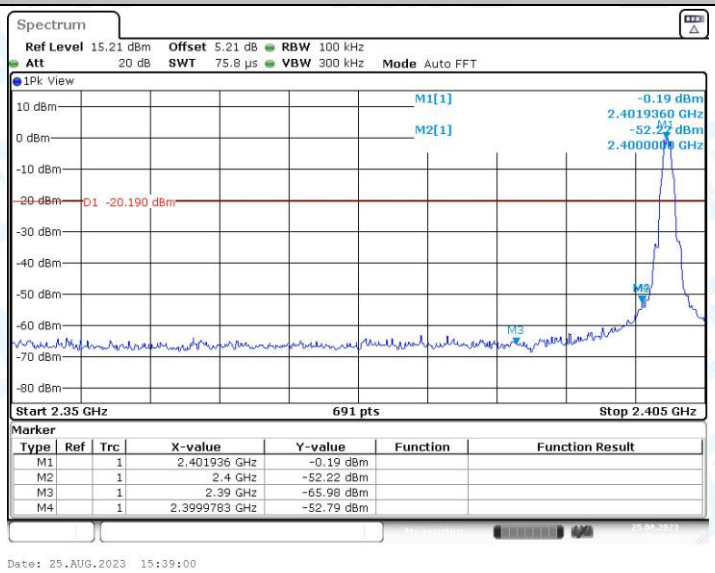
5. Band edge measurements

5.1.Test Result

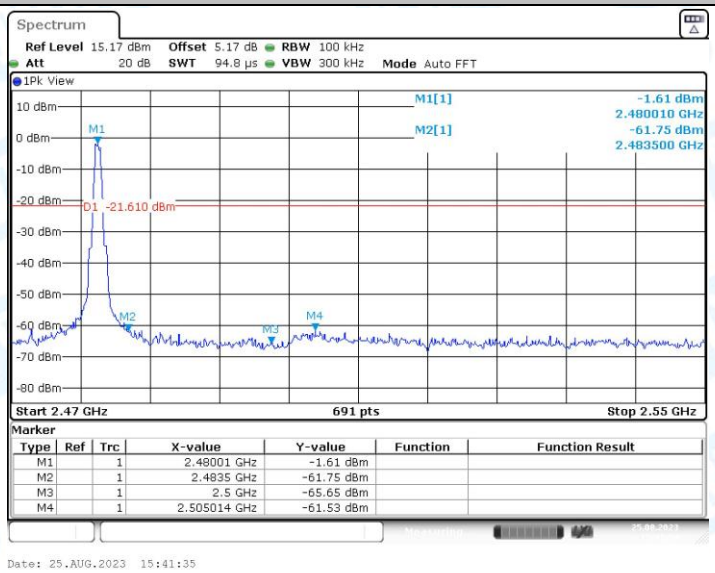
Test Mode	Antenna	ChName	Channel	Ref.Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.19	-52.79	≤-20.19	PASS
		High	2480	-1.61	-61.53	≤-21.61	PASS
BLE_2M	Ant1	Low	2402	-0.32	-37.41	≤-20.32	PASS
		High	2480	-1.82	-60.97	≤-21.82	PASS

5.2.Test Graphs

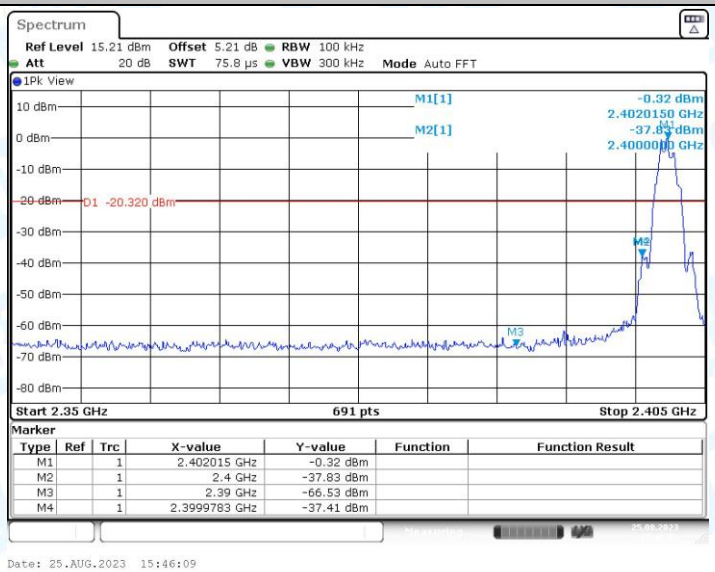
BLE_1M_Ant1_Low_2402



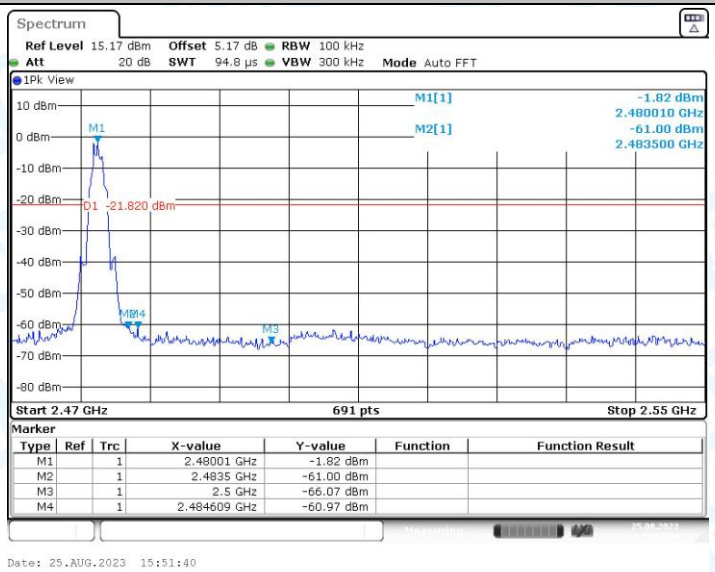
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



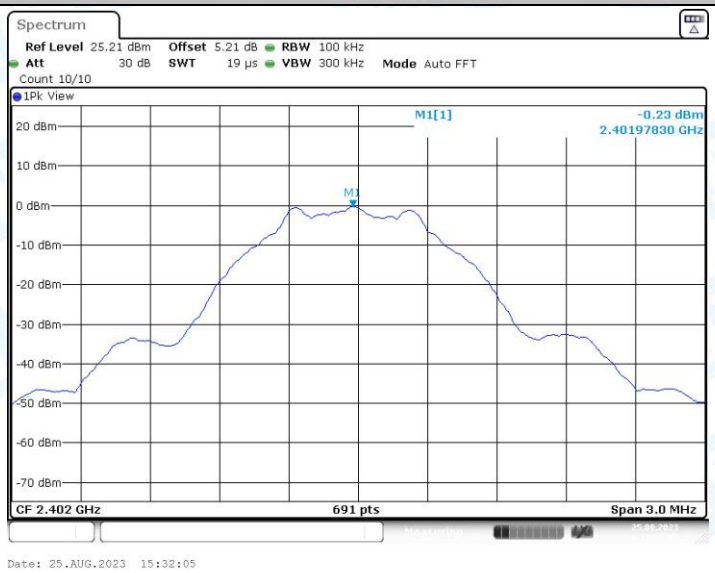
6. Conducted Spurious Emission

6.1.Test Result

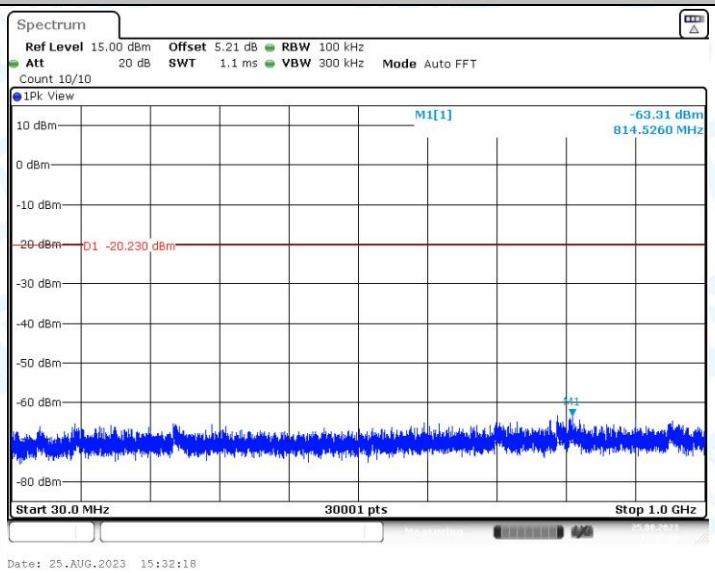
Test Mode	Antenna	Channel	Freq. Range [MHz]	Ref. Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.23	-0.23	---	PASS
			30~1000	-0.23	-63.31	≤-20.23	PASS
			1000~26500	-0.23	-41.86	≤-20.23	PASS
		2440	Reference	-0.48	-0.48	---	PASS
			30~1000	-0.48	-63.11	≤-20.48	PASS
			1000~26500	-0.48	-37.48	≤-20.48	PASS
		2480	Reference	-1.65	-1.65	---	PASS
			30~1000	-1.65	-63.18	≤-21.65	PASS
			1000~26500	-1.65	-37.68	≤-21.65	PASS
BLE_2M	Ant1	2402	Reference	-0.20	-0.20	---	PASS
			30~1000	-0.20	-63.68	≤-20.2	PASS
			1000~26500	-0.20	-39.81	≤-20.2	PASS
		2440	Reference	-0.43	-0.43	---	PASS
			30~1000	-0.43	-63.63	≤-20.43	PASS
			1000~26500	-0.43	-40.63	≤-20.43	PASS
		2480	Reference	-1.60	-1.60	---	PASS
			30~1000	-1.60	-64.27	≤-21.6	PASS
			1000~26500	-1.60	-40.37	≤-21.6	PASS

6.2.Test Graphs

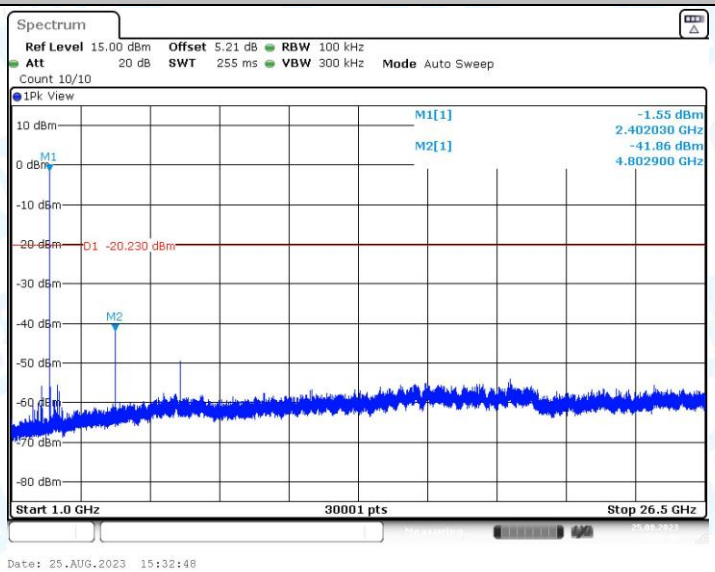
BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000

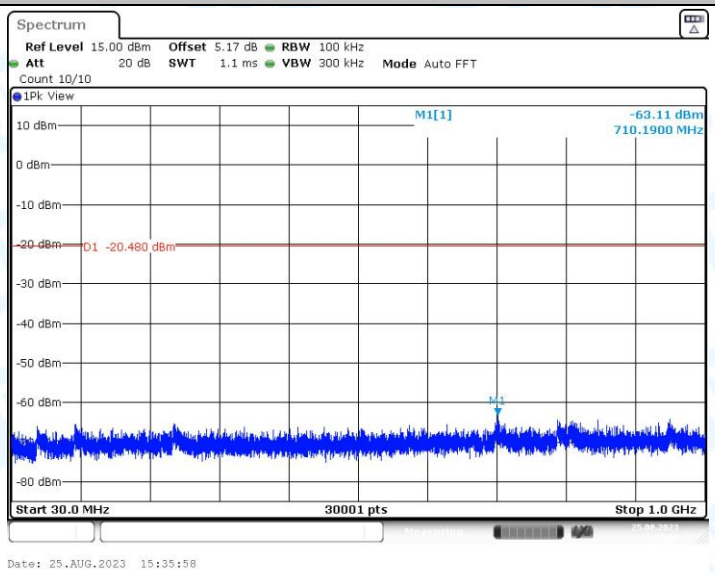


BLE_1M_Ant1_2402_1000~26500

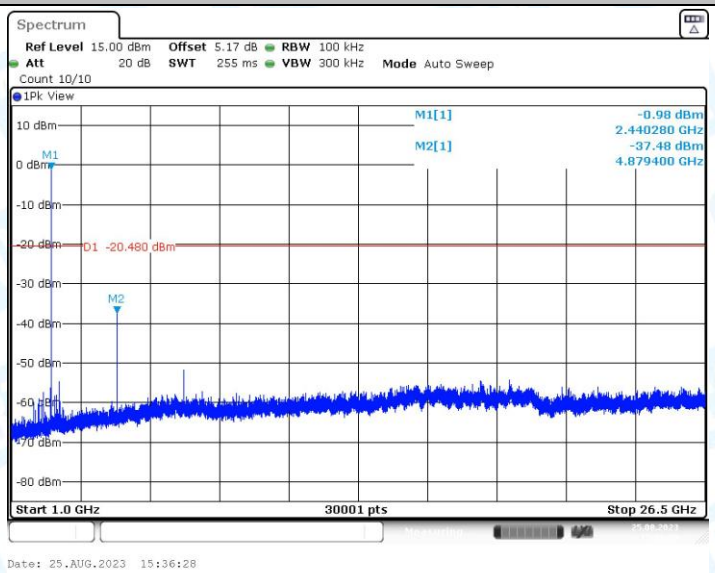


BLE_1M_Ant1_2440_0~Reference

BLE_1M_Ant1_2440_30~1000

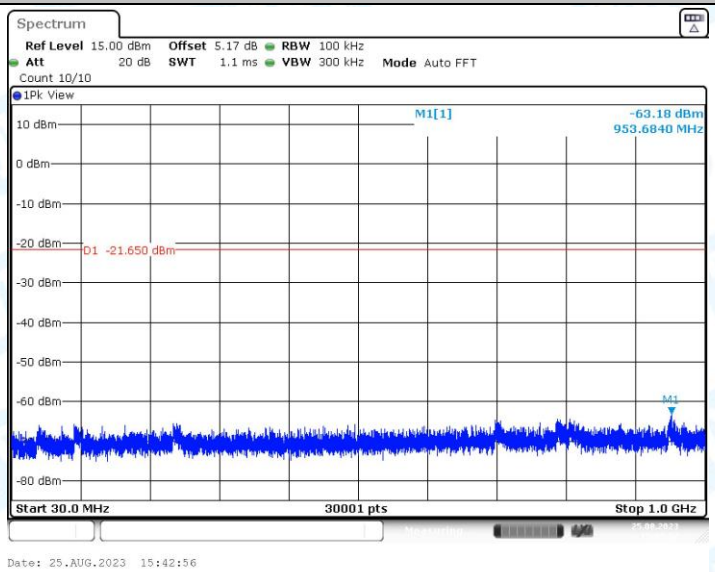


BLE_1M_Ant1_2440_1000~26500

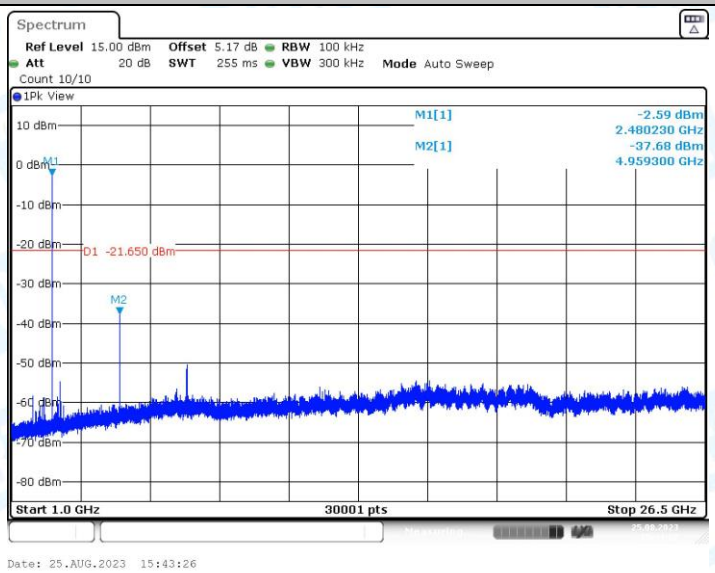


BLE_1M_Ant1_2480_0~Reference

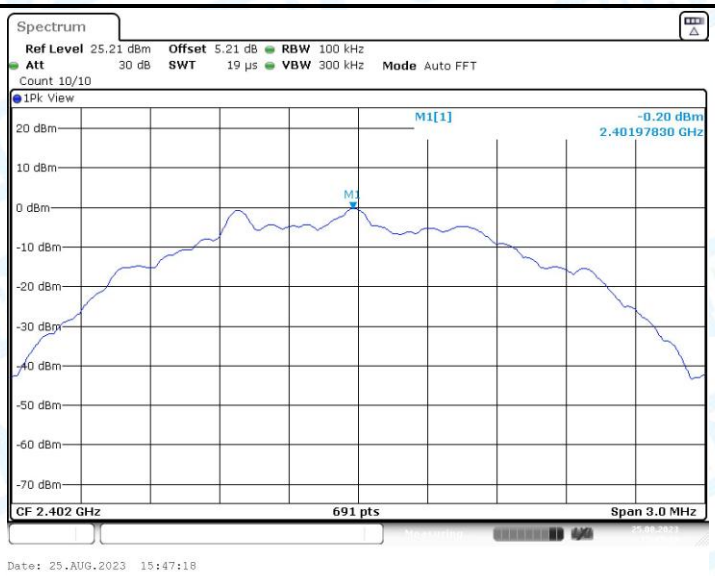
BLE_1M_Ant1_2480_30~1000



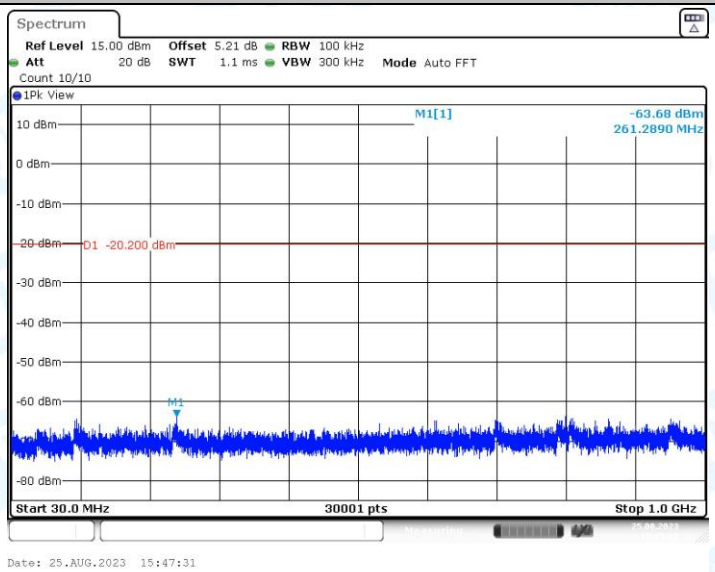
BLE_1M_Ant1_2480_1000~26500



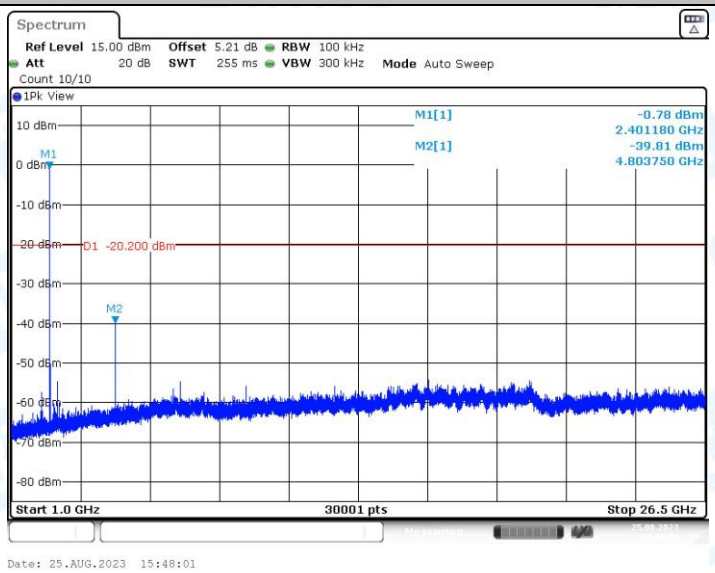
BLE_2M_Ant1_2402_0~Reference



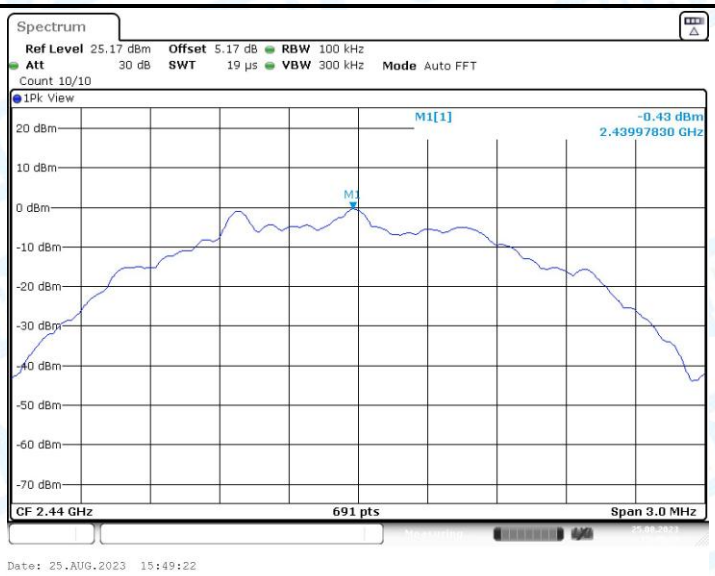
BLE_2M_Ant1_2402_30~1000



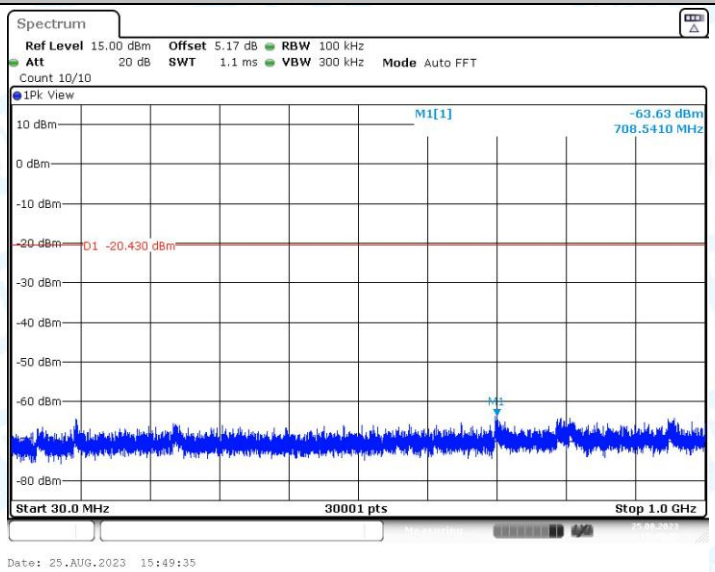
BLE_2M_Ant1_2402_1000~26500



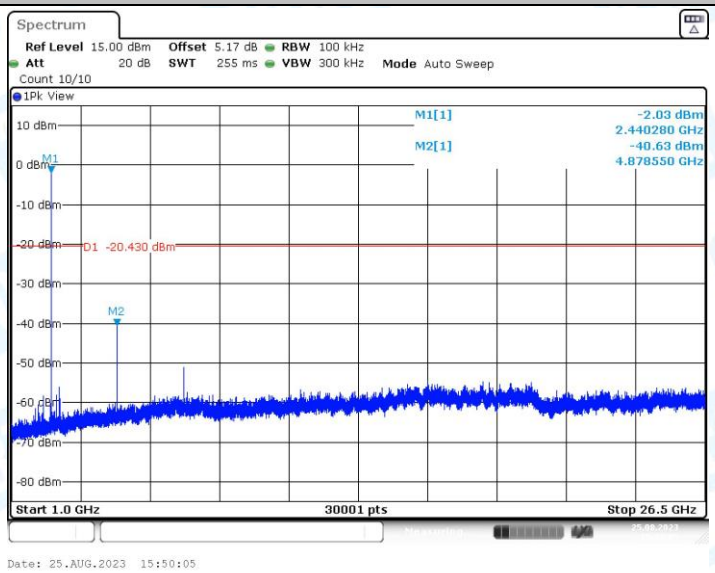
BLE_2M_Ant1_2440_0~Reference



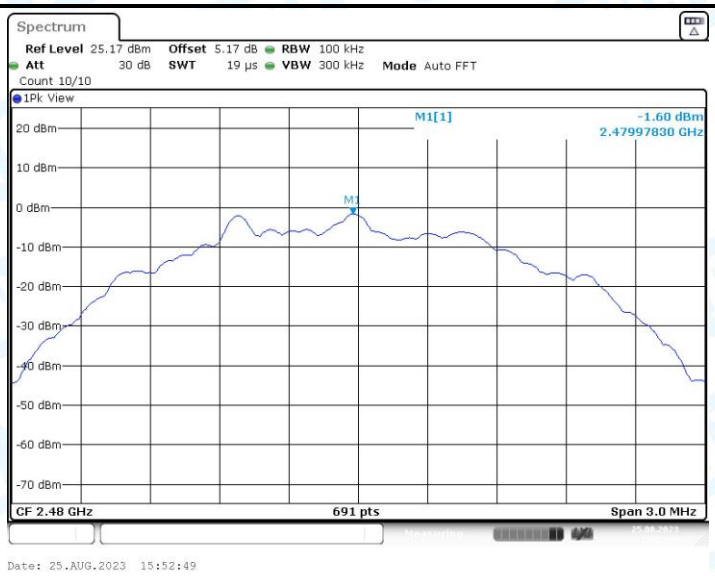
BLE_2M_Ant1_2440_30~1000



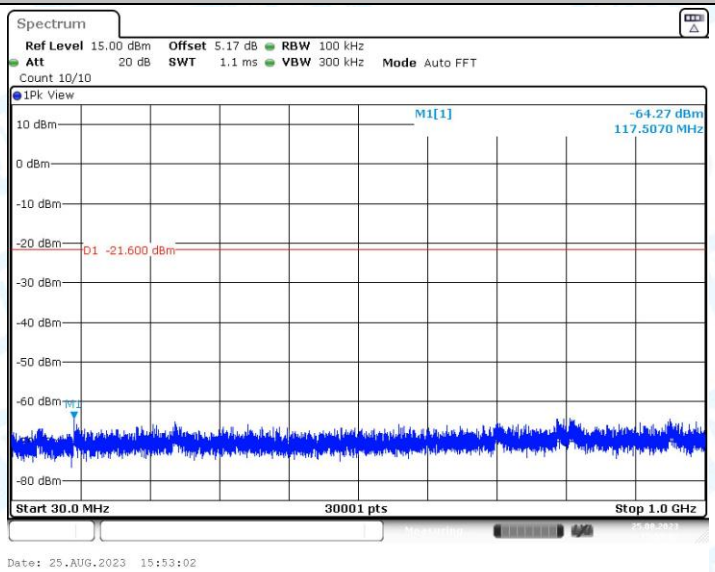
BLE_2M_Ant1_2440_1000~26500



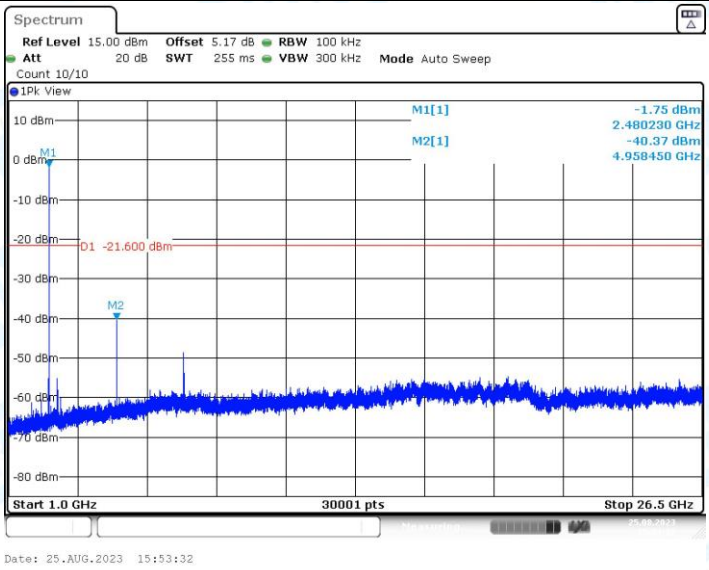
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



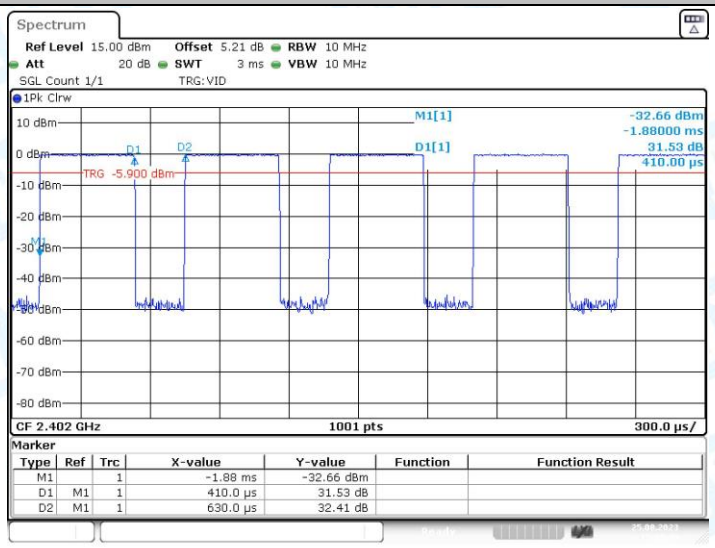
7. Duty Cycle

7.1.Test Result

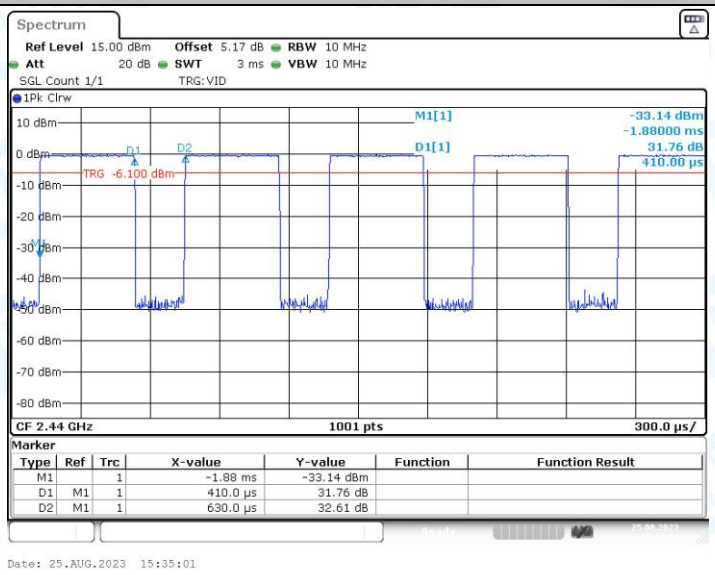
Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/TKHz	Verdict
BLE_1M	Ant1	2402	0.41	0.63	65.08	2.43	---
		2440	0.41	0.63	65.08	2.43	---
		2480	0.41	0.63	65.08	2.43	---
BLE_2M	Ant1	2402	0.23	0.62	37.10	4.34	---
		2440	0.23	0.62	37.10	4.34	---
		2480	0.23	0.62	37.10	4.34	---

7.2.Test Graphs

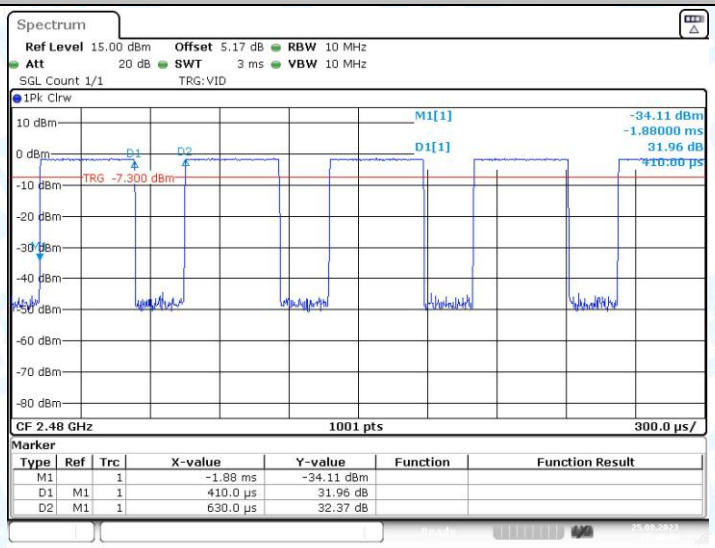
BLE_1M_Ant1_2402



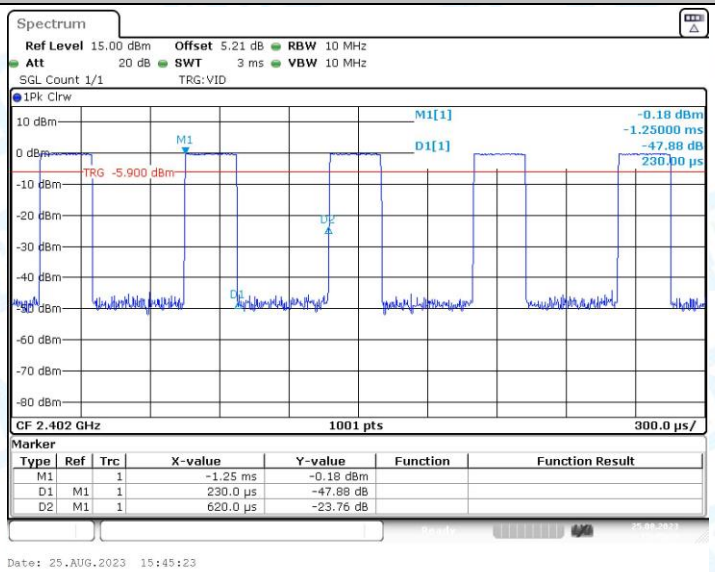
BLE_1M_Ant1_2440



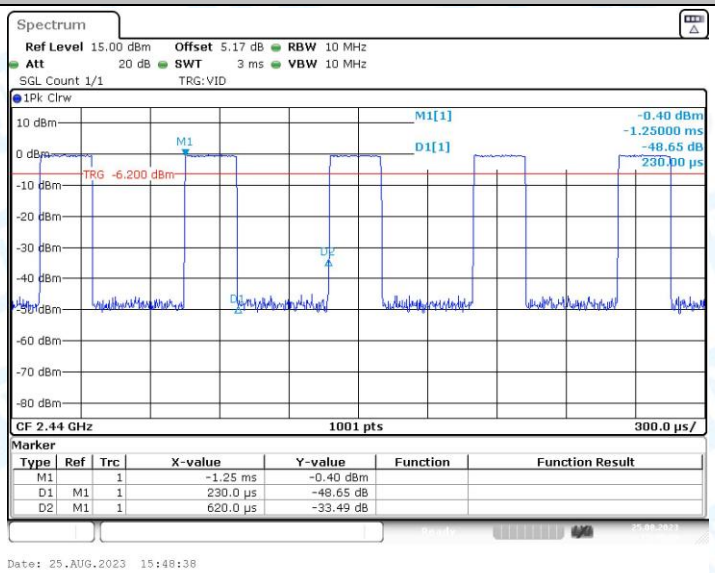
BLE_1M_Ant1_2480



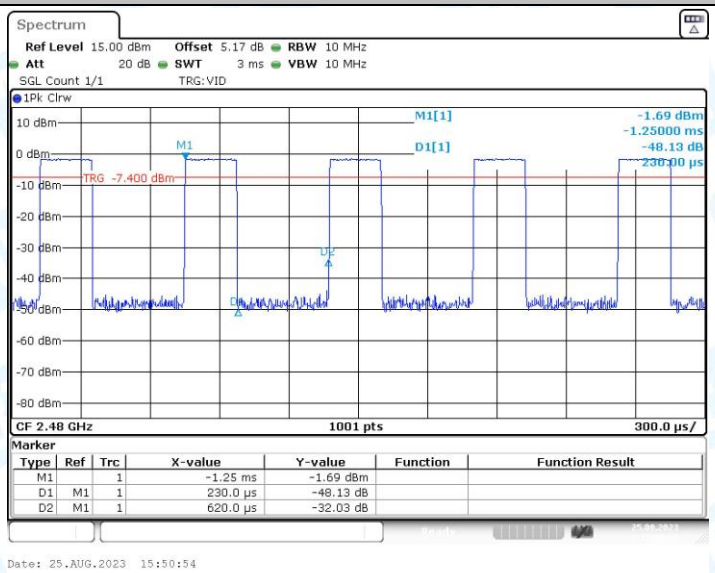
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



8. Emissions in Restricted Bands

8.1.Test Result

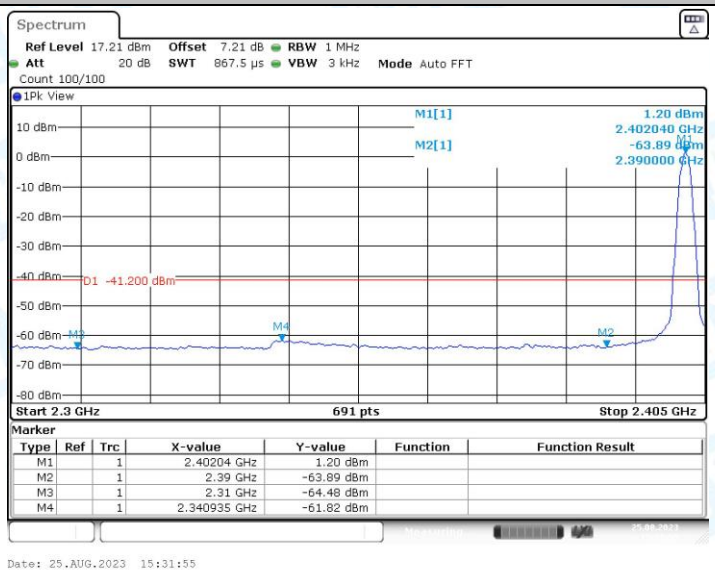
Test Mode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-64.48	≤-41.20	PASS
				AV	2340.935	-61.82	≤-41.20	PASS
				AV	2390.000	-63.89	≤-41.20	PASS
				Peak	2310.000	-54.1	≤-21.20	PASS
				Peak	2343.065	-50.49	≤-21.20	PASS
				Peak	2390.000	-54.64	≤-21.20	PASS
		High	2480	AV	2483.500	-59.77	≤-41.20	PASS
				AV	2484.029	-60.08	≤-41.20	PASS
				AV	2500.000	-63.22	≤-41.20	PASS
				Peak	2483.500	-44.8	≤-21.20	PASS
				Peak	2483.797	-43.64	≤-21.20	PASS
				Peak	2500.000	-52.29	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-63.77	≤-41.20	PASS
				AV	2339.717	-61.1	≤-41.20	PASS
				AV	2390.000	-63.73	≤-41.20	PASS
				Peak	2310.000	-54.66	≤-21.20	PASS
				Peak	2340.630	-50.18	≤-21.20	PASS
				Peak	2390.000	-54.35	≤-21.20	PASS
		High	2480	AV	2483.500	-59.21	≤-41.20	PASS
				AV	2483.797	-59.81	≤-41.20	PASS
				AV	2500.000	-62.91	≤-41.20	PASS
				Peak	2483.500	-45.59	≤-21.20	PASS
				Peak	2483.913	-42.4	≤-21.20	PASS
				Peak	2500.000	-52.84	≤-21.20	PASS

Note:

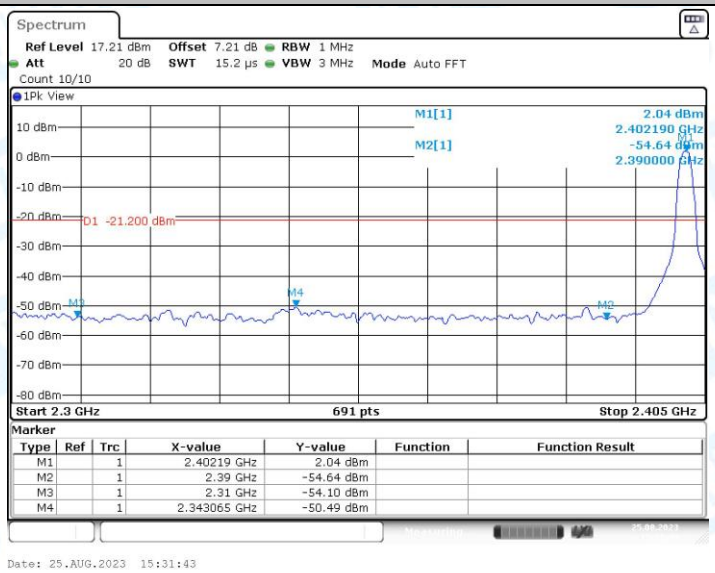
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

8.2.Test Graphs

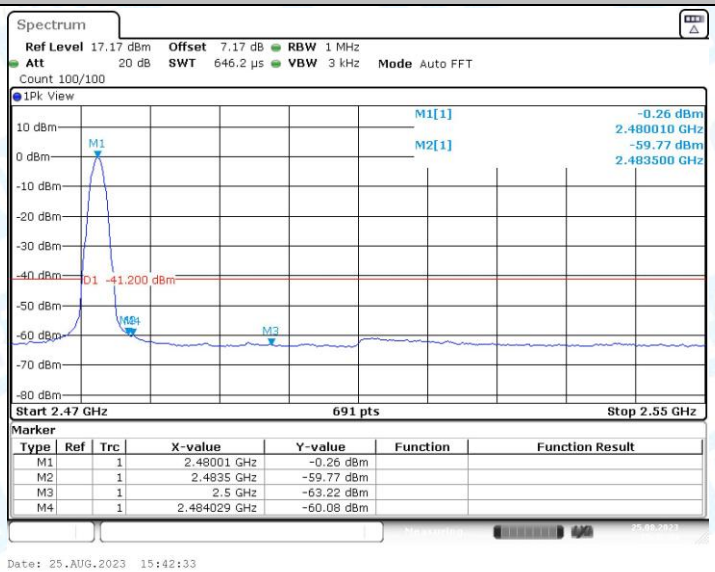
BLE_1M_Ant1_Low_2402_AV



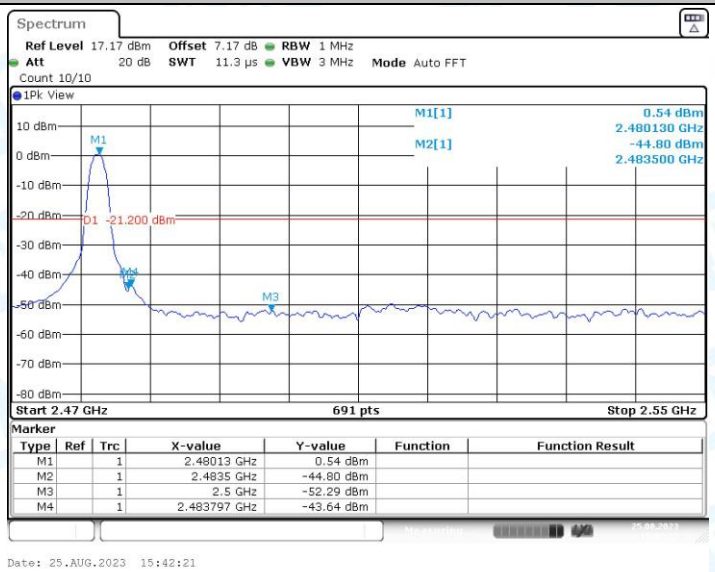
BLE_1M_Ant1_Low_2402_Peak



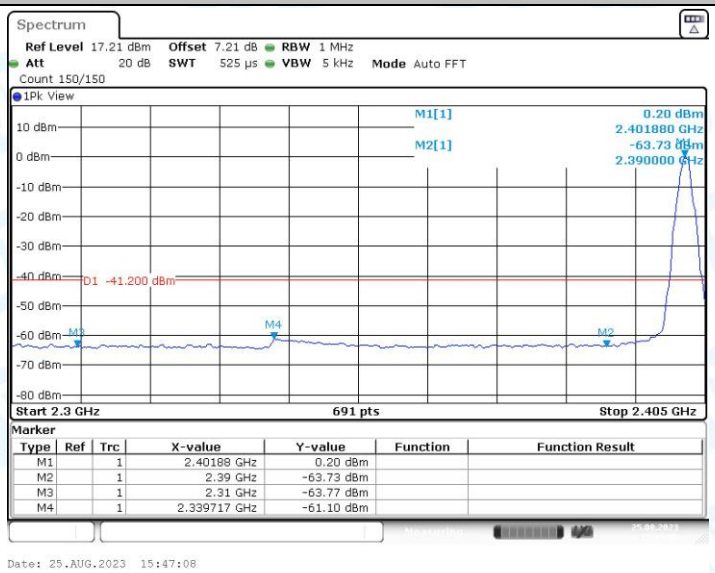
BLE_1M_Ant1_High_2480_AV



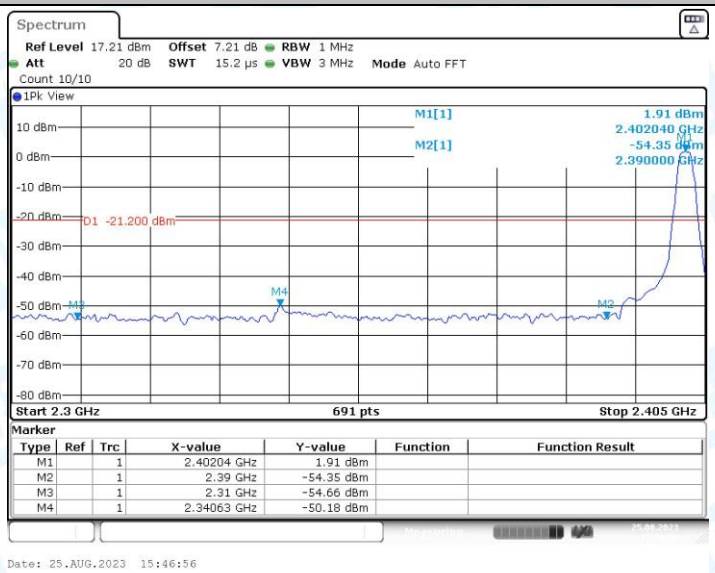
BLE_1M_Ant1_High_2480_Peak



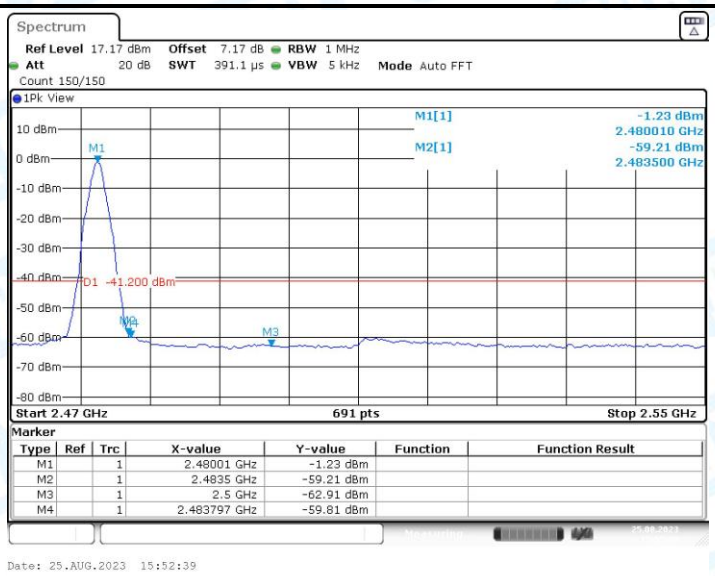
BLE_2M_Ant1_Low_2402_AV



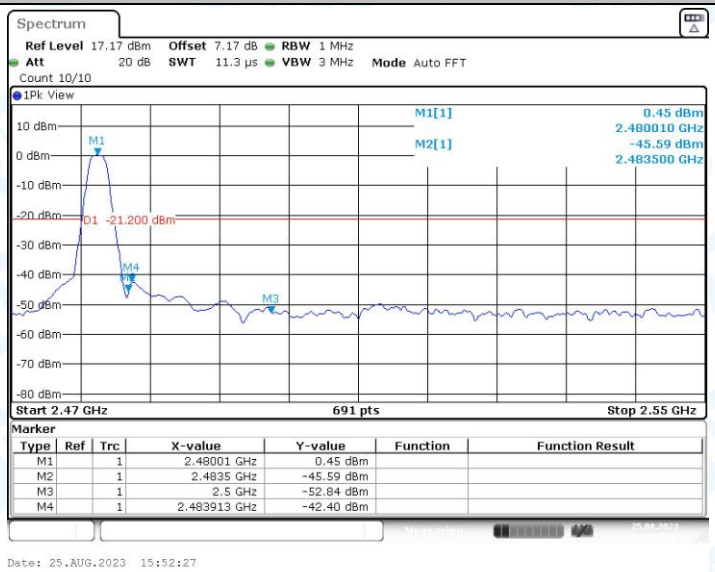
BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak



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