

RF Test Data for BLE
(Conducted Measurements)

General Description of EUT	
EUT Name:	Smart Watch
Model:	KC91
Sample ID:	HC-C-202503-0187-01-01
Test Standard:	FCC Part 15.247
Environmental Conditions	
Ambient Temperature:	24℃
Ambient Humidity:	51%RH
Test Power Supply:	DC 3.8V
Test Engineer:	Lily
Note: For a more detailed features description, please refer to the report TBR-C-202503-0187-6	

Contents

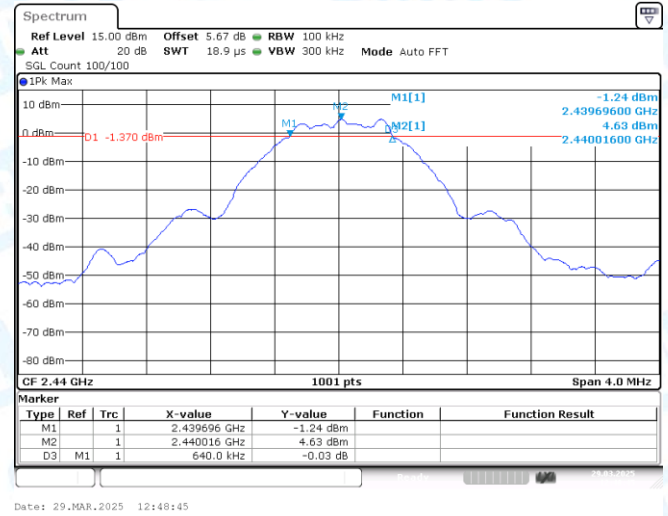
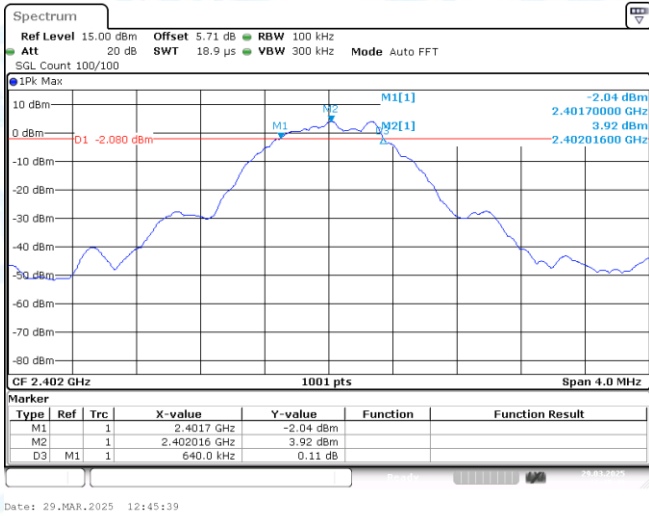
1: DTS Bandwidth.....	3
1.1 Test Result.....	3
1.2 Test Graphs	4
2: Occupied Channel Bandwidth	5
2.1 Test Result.....	5
2.2 Test Graphs	6
3: Maximum conducted output power.....	7
3.1 Test Result Peak.....	7
3.2 Test Graphs Peak.....	8
4: Maximum power spectral density	9
4.1 Test Result.....	9
4.2 Test Graphs	10
5: Band edge measurements	11
5.1 Test Result.....	11
5.2 Test Graphs	12
6: Conducted Spurious Emission.....	13
6.1 Test Result.....	13
6.2 Test Graphs	14
7: Duty Cycle	17
7.1 Test Result.....	17
7.2 Test Graphs	18
8: Emissions in Restricted Bands.....	19
8.1 Test Result.....	19
8.2 Test Graphs	20

1: DTS Bandwidth

1.1 Test Result

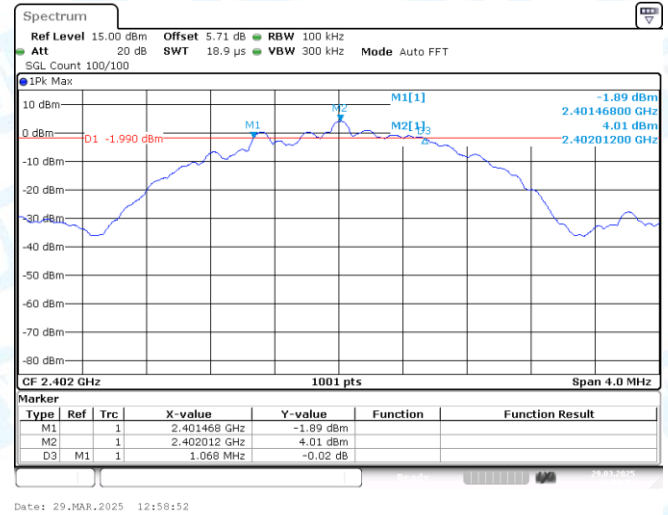
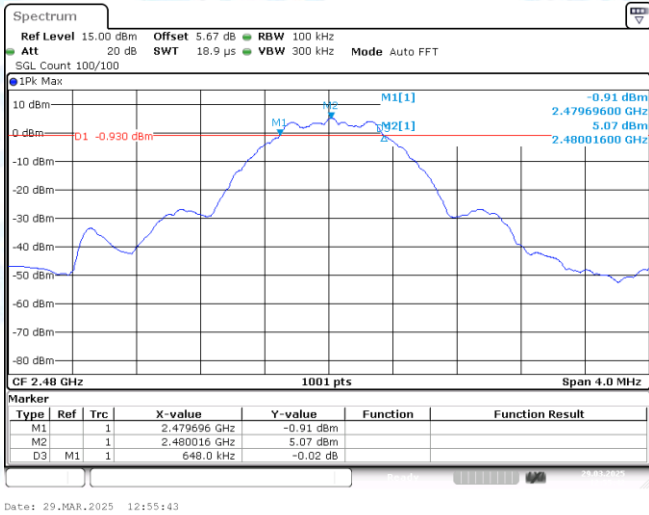
Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.64	2401.70	2402.34	0.5	PASS
BLE_1M	Ant1	2440	0.64	2439.70	2440.34	0.5	PASS
BLE_1M	Ant1	2480	0.65	2479.70	2480.34	0.5	PASS
BLE_2M	Ant1	2402	1.07	2401.47	2402.54	0.5	PASS
BLE_2M	Ant1	2440	1.08	2439.47	2440.55	0.5	PASS
BLE_2M	Ant1	2480	0.68	2479.60	2480.28	0.5	PASS

1.2 Test Graphs



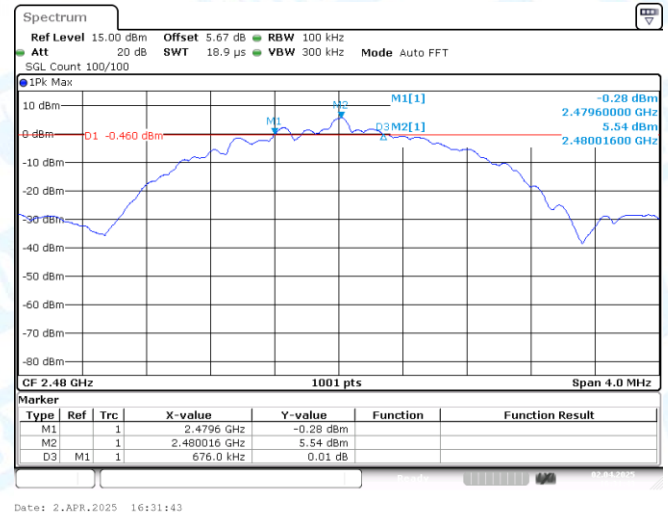
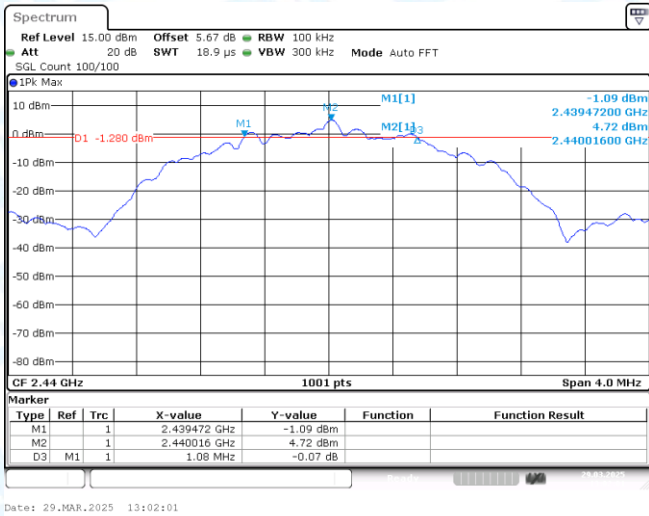
BLE_1M-Ant1-2402-PASS

BLE_1M-Ant1-2440-PASS



BLE_1M-Ant1-2480-PASS

BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS

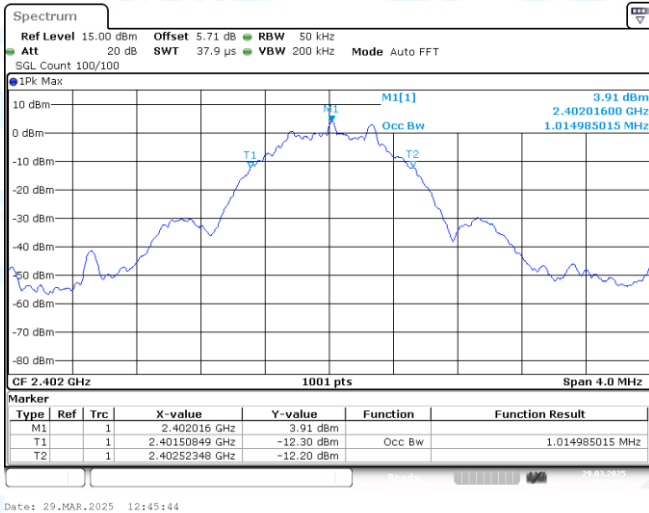
BLE_2M-Ant1-2480-PASS

2: Occupied Channel Bandwidth

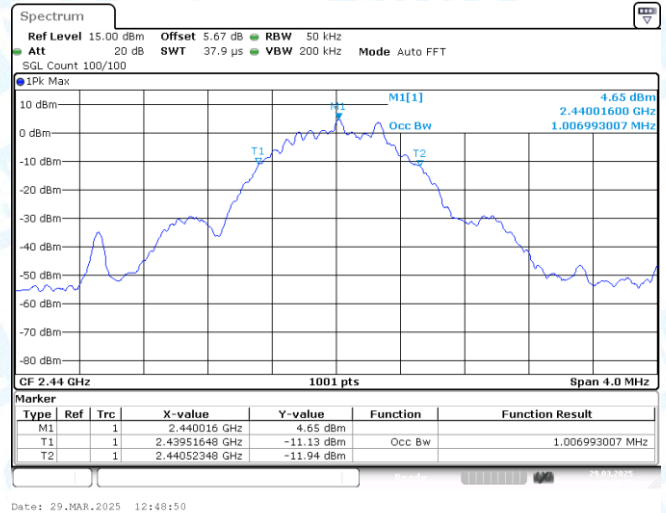
2.1 Test Result

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.015	2401.5085	2402.5235	---	---
BLE_1M	Ant1	2440	1.007	2439.5165	2440.5235	---	---
BLE_1M	Ant1	2480	1.027	2479.5045	2480.5315	---	---
BLE_2M	Ant1	2402	2.018	2401.0130	2403.0310	---	---
BLE_2M	Ant1	2440	2.038	2439.0090	2441.0470	---	---
BLE_2M	Ant1	2480	2.018	2479.0130	2481.0310	---	---

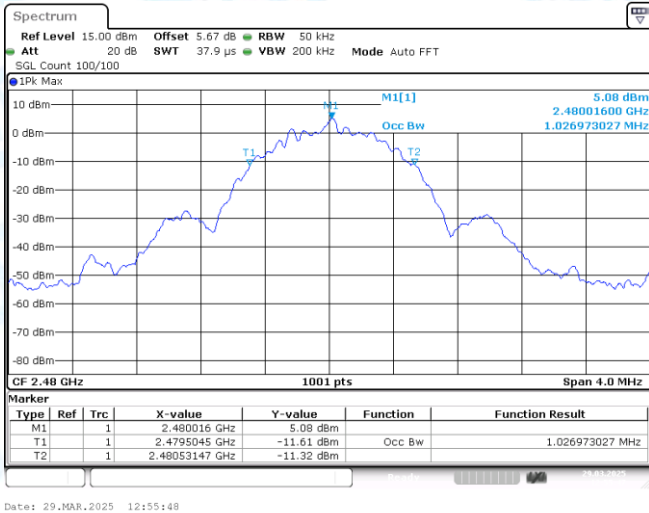
2.2 Test Graphs



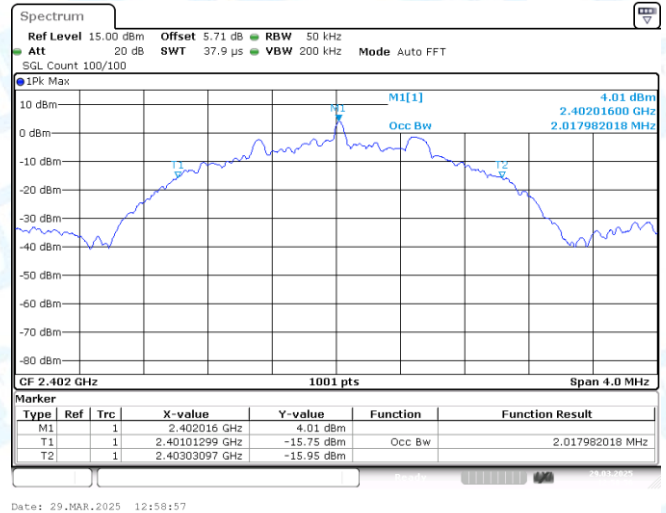
BLE_1M-Ant1-2402



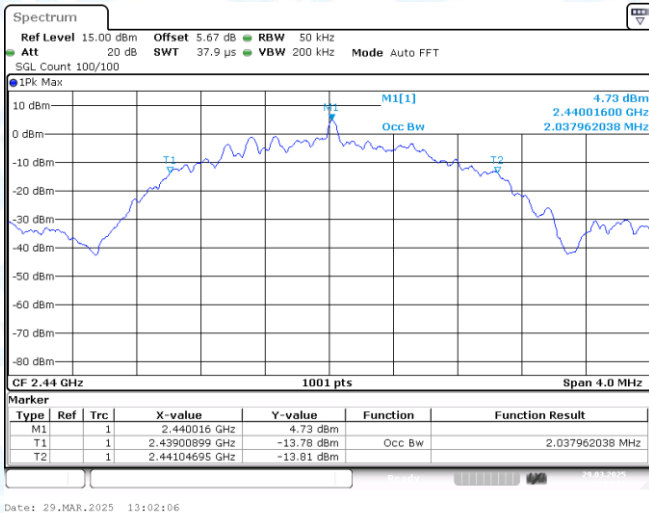
BLE_1M-Ant1-2440



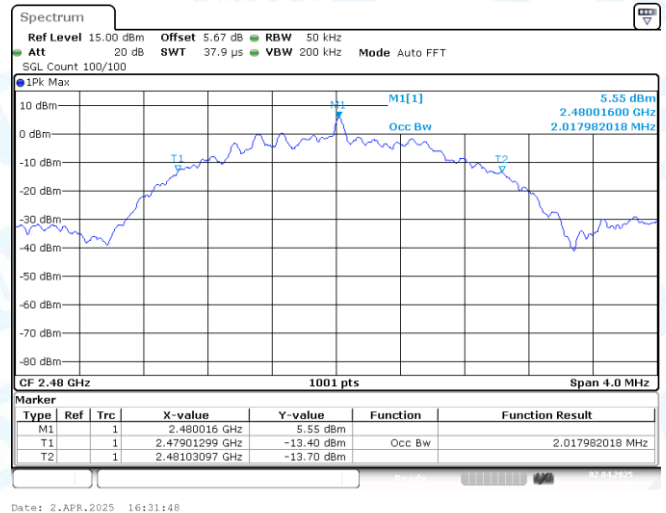
BLE_1M-Ant1-2480



BLE_2M-Ant1-2402



BLE_2M-Ant1-2440



BLE_2M-Ant1-2480

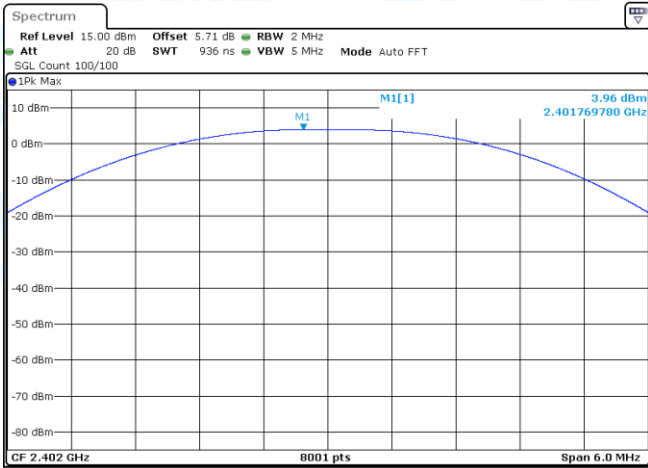
3: Maximum conducted output power

3.1 Test Result Peak

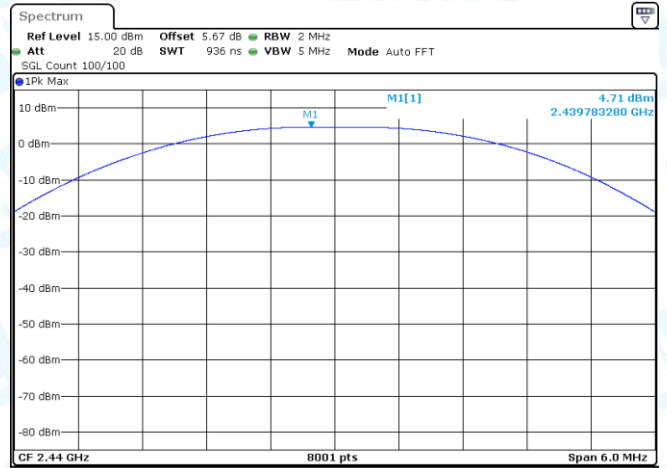
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1	2402	3.96	≤30	4.13	≤36	PASS
BLE_1M	Ant1	2440	4.71	≤30	4.88	≤36	PASS
BLE_1M	Ant1	2480	5.11	≤30	5.28	≤36	PASS
BLE_2M	Ant1	2402	4.08	≤30	4.25	≤36	PASS
BLE_2M	Ant1	2440	5.31	≤30	5.48	≤36	PASS
BLE_2M	Ant1	2480	5.61	≤30	5.78	≤36	PASS

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	3.96	≤30	PASS
BLE_1M	Ant1	2440	4.71	≤30	PASS
BLE_1M	Ant1	2480	5.11	≤30	PASS
BLE_2M	Ant1	2402	4.08	≤30	PASS
BLE_2M	Ant1	2440	5.31	≤30	PASS
BLE_2M	Ant1	2480	5.61	≤30	PASS

3.2 Test Graphs Peak



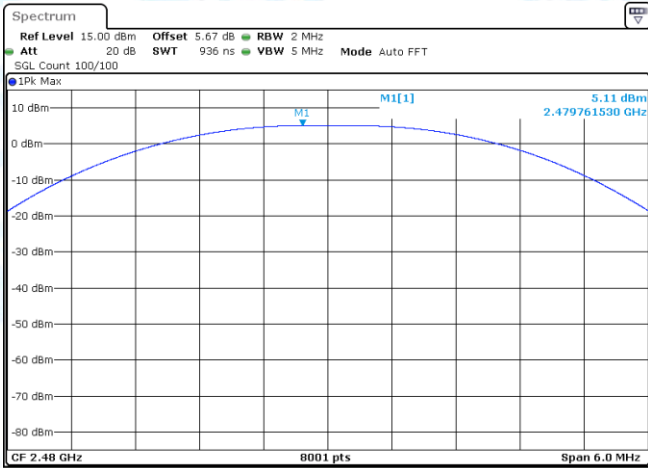
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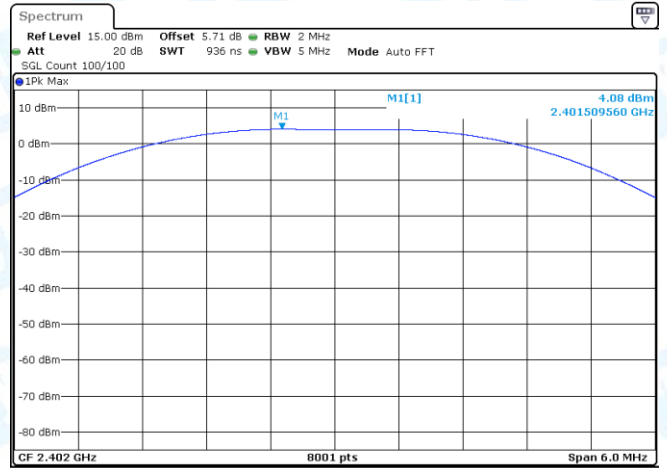
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BLE_1M-Ant1-2402-PASS

BLE_1M-Ant1-2440-PASS



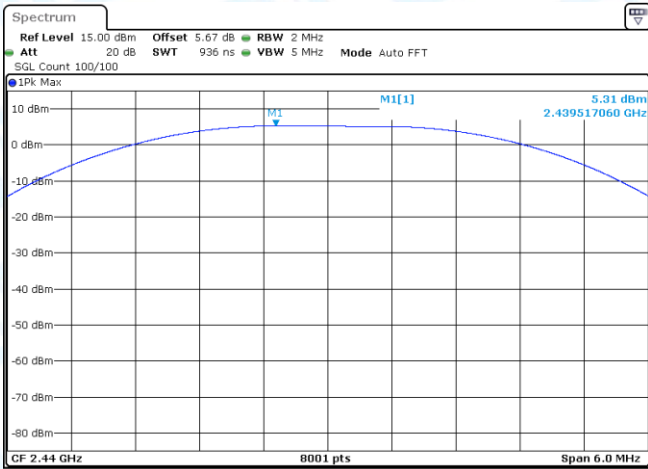
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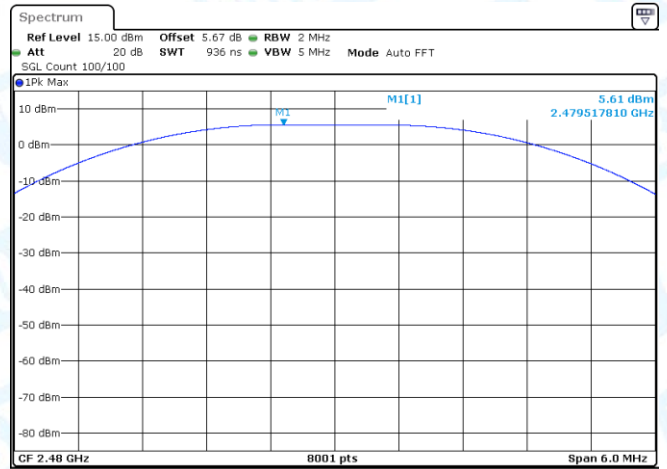
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BLE_1M-Ant1-2480-PASS

BLE_2M-Ant1-2402-PASS



Date: 2.APR.2025 16:39:03



Date: 2.APR.2025 16:31:53

BLE_2M-Ant1-2440-PASS

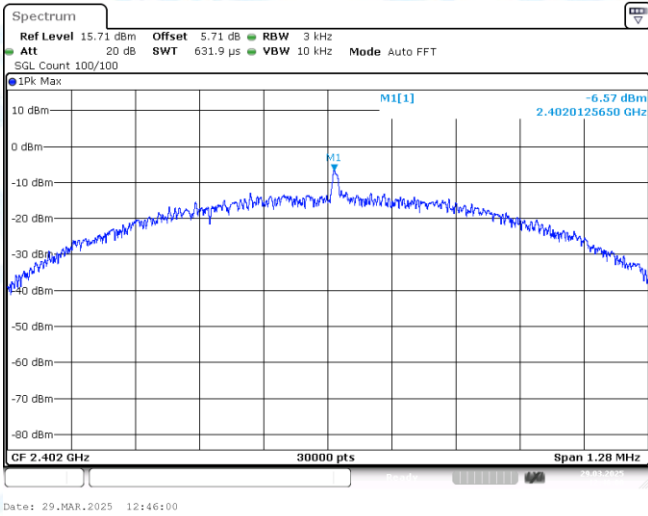
BLE_2M-Ant1-2480-PASS

4: Maximum power spectral density

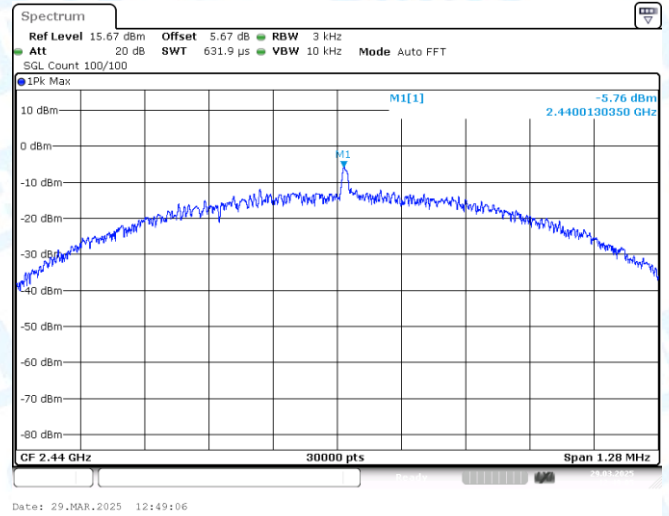
4.1 Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-6.57	≤8.00	PASS
BLE_1M	Ant1	2440	-5.76	≤8.00	PASS
BLE_1M	Ant1	2480	-5.31	≤8.00	PASS
BLE_2M	Ant1	2402	-6.74	≤8.00	PASS
BLE_2M	Ant1	2440	-6.21	≤8.00	PASS
BLE_2M	Ant1	2480	-6.04	≤8.00	PASS

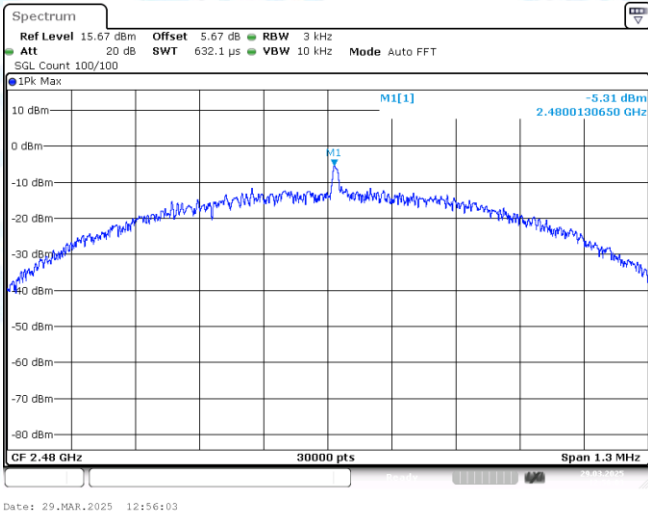
4.2 Test Graphs



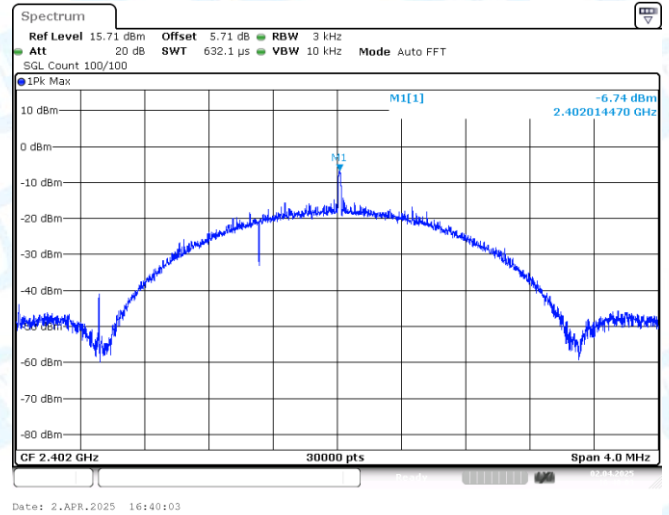
BLE_1M-Ant1-2402-PASS



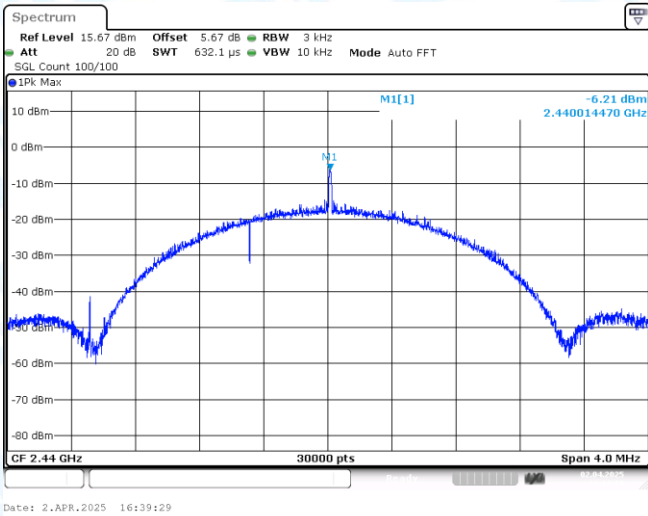
BLE_1M-Ant1-2440-PASS



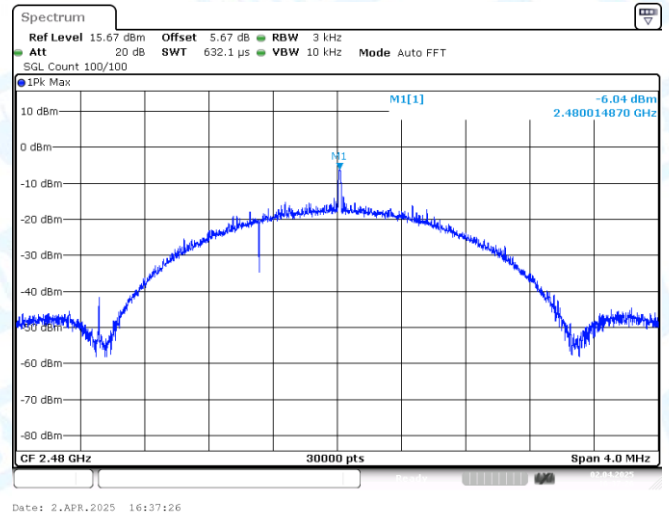
BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



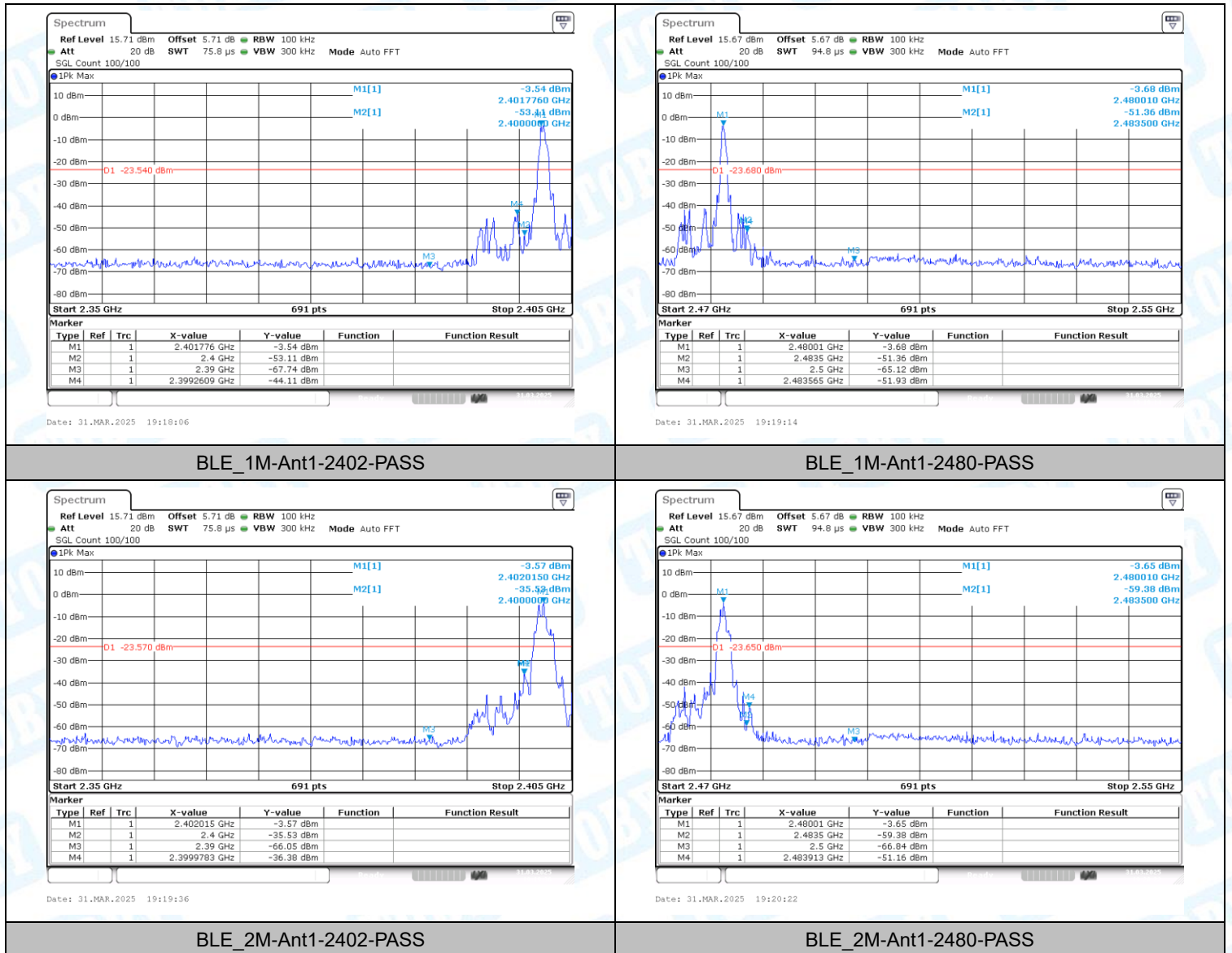
BLE_2M-Ant1-2480-PASS

5: Band edge measurements

5.1 Test Result

Test Mode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.54	-44.11	≤-23.54	PASS
BLE_1M	Ant1	High	2480	-3.68	-51.93	≤-23.68	PASS
BLE_2M	Ant1	Low	2402	-3.57	-36.38	≤-23.57	PASS
BLE_2M	Ant1	High	2480	-3.65	-51.16	≤-23.65	PASS

5.2 Test Graphs

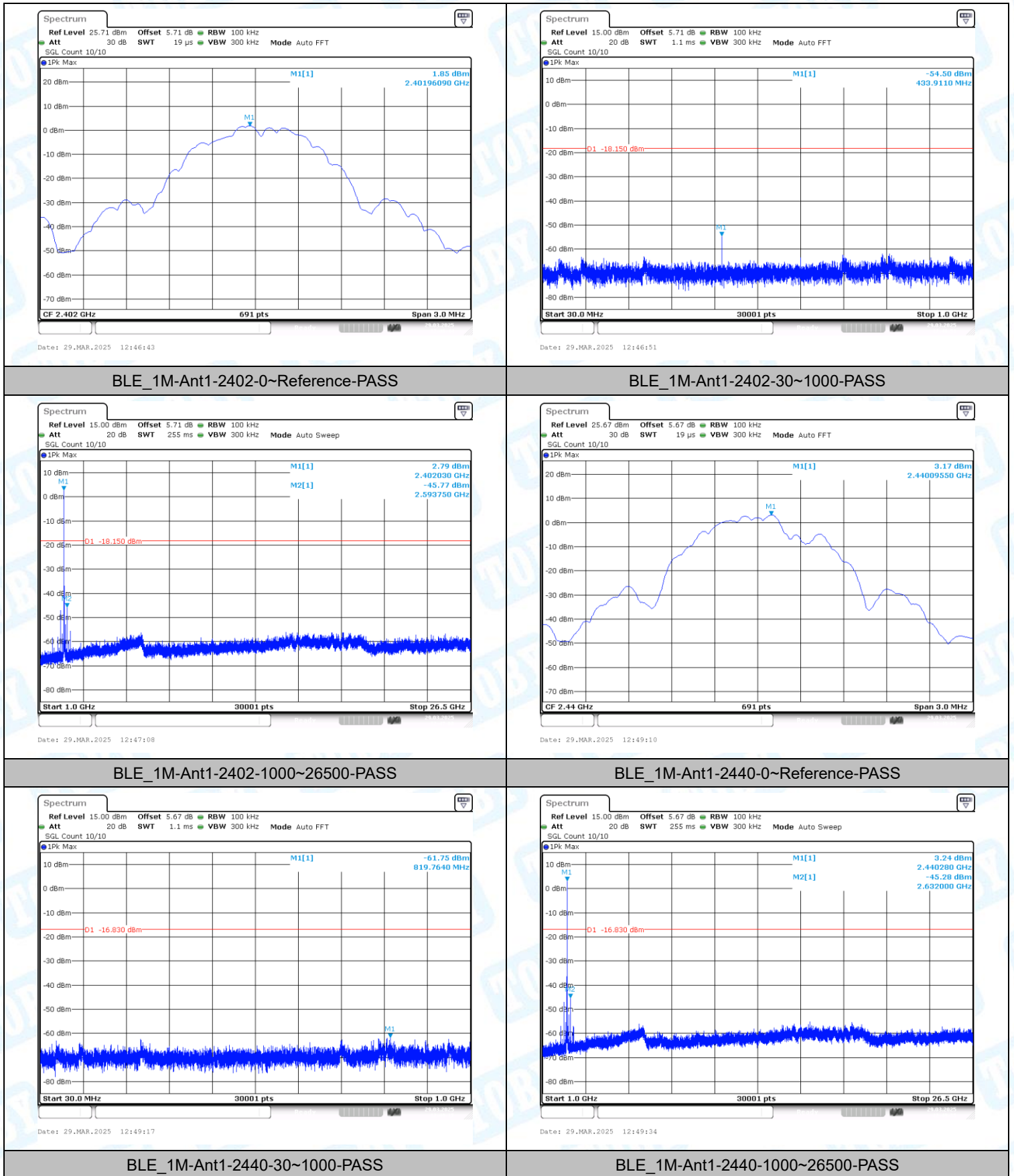


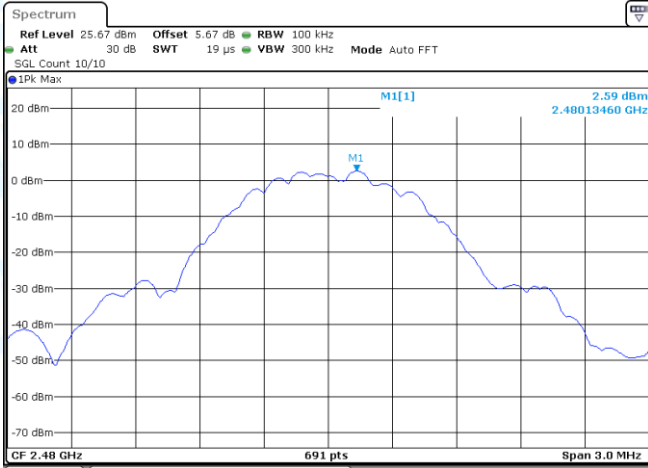
6: Conducted Spurious Emission

6.1 Test Result

Test Mode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	1.85	1.85	---	PASS
BLE_1M	Ant1	2402	30~1000	1.85	-54.5	≤-18.15	PASS
BLE_1M	Ant1	2402	1000~26500	1.85	-45.77	≤-18.15	PASS
BLE_1M	Ant1	2440	0~Reference	3.17	3.17	---	PASS
BLE_1M	Ant1	2440	30~1000	3.17	-61.75	≤-16.83	PASS
BLE_1M	Ant1	2440	1000~26500	3.17	-45.28	≤-16.83	PASS
BLE_1M	Ant1	2480	0~Reference	2.59	2.59	---	PASS
BLE_1M	Ant1	2480	30~1000	2.59	-60.44	≤-17.41	PASS
BLE_1M	Ant1	2480	1000~26500	2.59	-45.97	≤-17.41	PASS
BLE_2M	Ant1	2402	0~Reference	4.05	4.05	---	PASS
BLE_2M	Ant1	2402	30~1000	4.05	-62.45	≤-15.95	PASS
BLE_2M	Ant1	2402	1000~26500	4.05	-47.89	≤-15.95	PASS
BLE_2M	Ant1	2440	0~Reference	3.62	3.62	---	PASS
BLE_2M	Ant1	2440	30~1000	3.62	-60.42	≤-16.38	PASS
BLE_2M	Ant1	2440	1000~26500	3.62	-48.36	≤-16.38	PASS
BLE_2M	Ant1	2480	0~Reference	2.83	2.83	---	PASS
BLE_2M	Ant1	2480	30~1000	2.83	-62.31	≤-17.17	PASS
BLE_2M	Ant1	2480	1000~26500	2.83	-44.92	≤-17.17	PASS

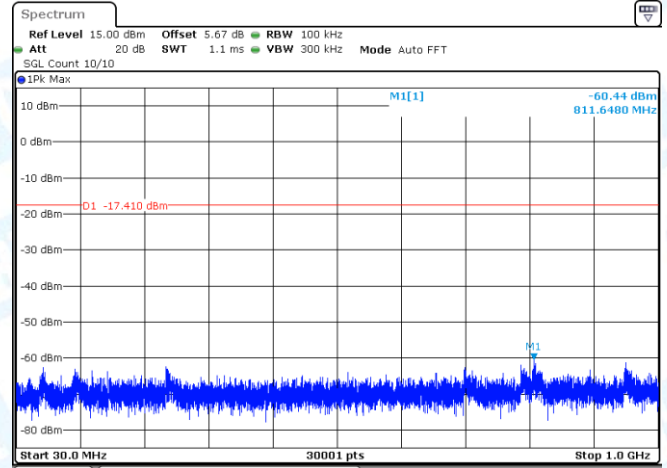
6.2 Test Graphs





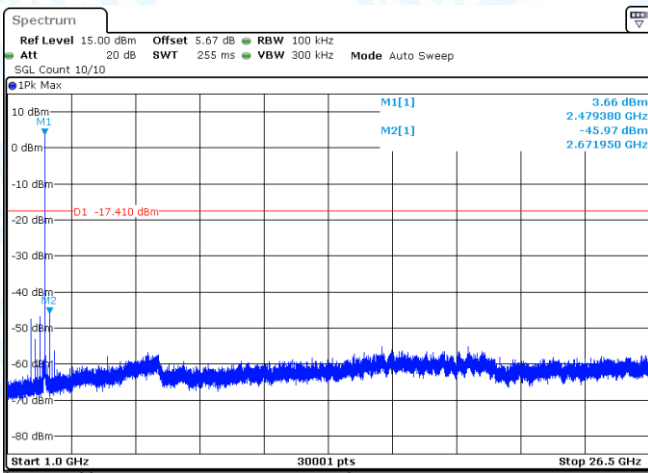
Date: 29.MAR.2025 12:56:42

BLE_1M-Ant1-2480-0~Reference-PASS



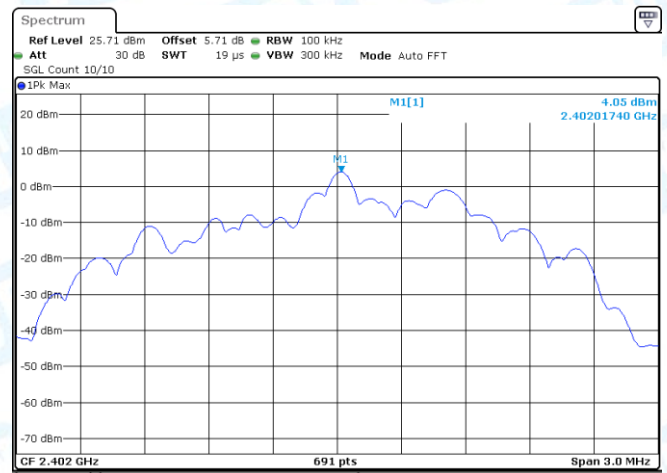
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BLE_1M-Ant1-2480-30~1000-PASS



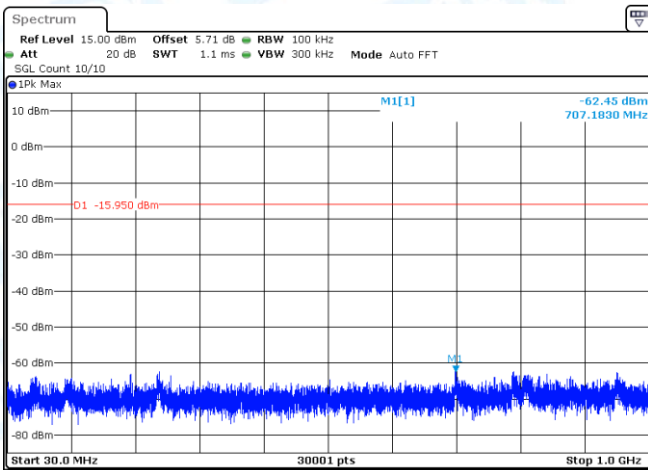
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BLE_1M-Ant1-2480-1000~26500-PASS



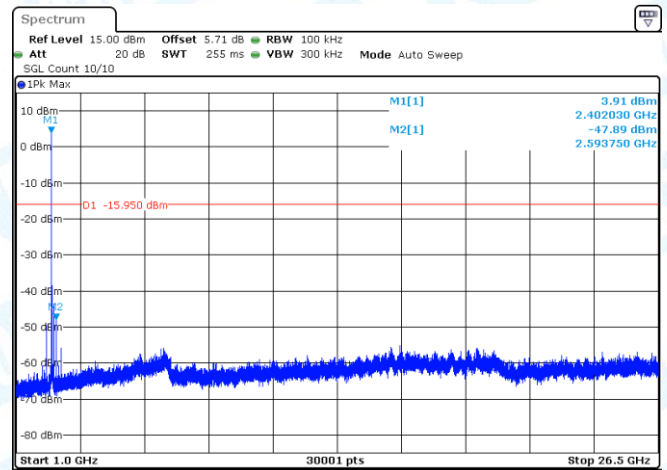
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BLE_2M-Ant1-2402-0~Reference-PASS



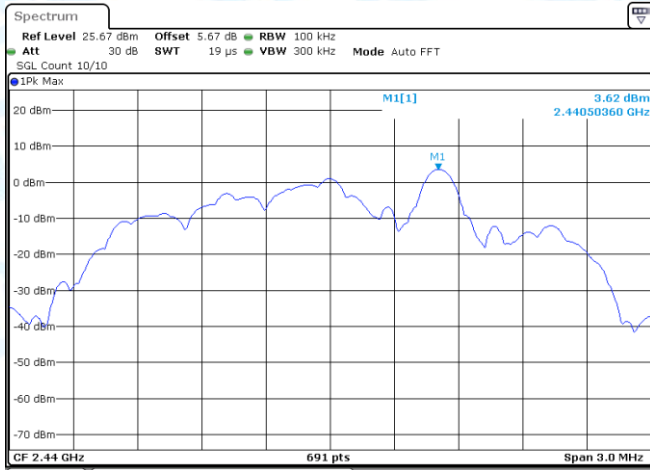
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BLE_2M-Ant1-2402-30~1000-PASS

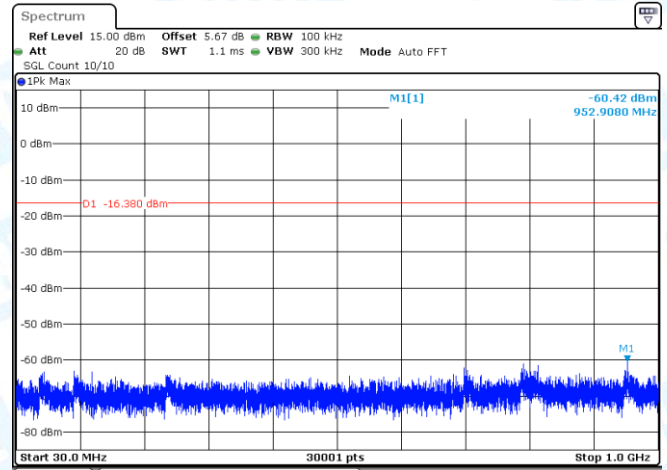


Date: 29.MAR.2025 13:00:12

BLE_2M-Ant1-2402-1000~26500-PASS



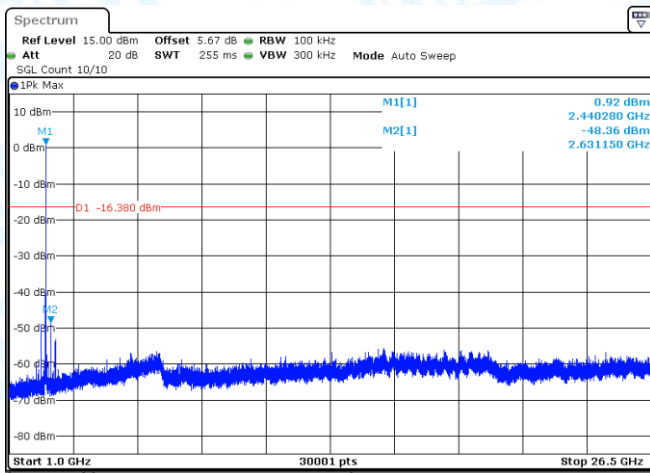
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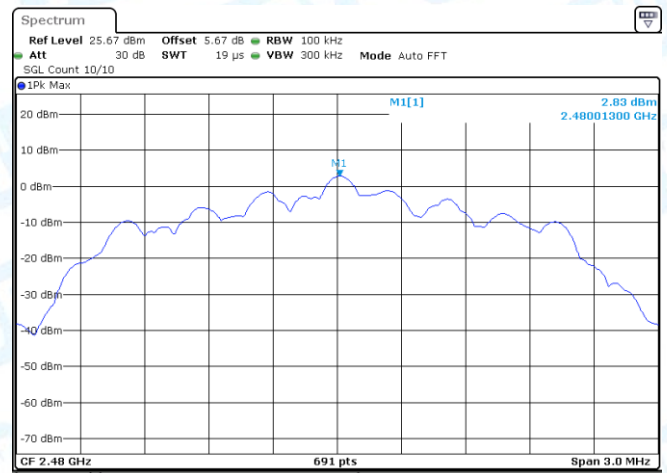
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BLE_2M-Ant1-2440-0~Reference-PASS

BLE_2M-Ant1-2440-30~1000-PASS



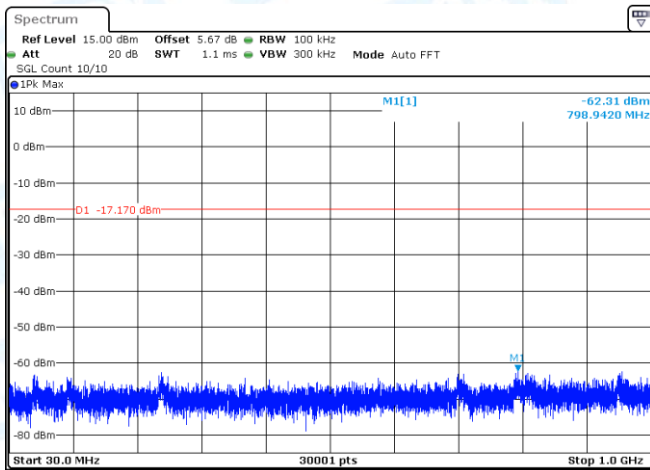
Date: 29.MAR.2025 13:02:50



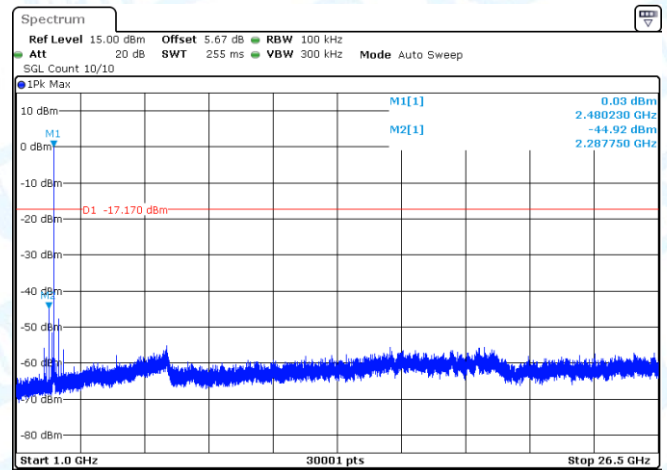
Date: 29.MAR.2025 13:04:40

BLE_2M-Ant1-2440-1000~26500-PASS

BLE_2M-Ant1-2480-0~Reference-PASS



Date: 29.MAR.2025 13:04:48



Date: 29.MAR.2025 13:05:05

BLE_2M-Ant1-2480-30~1000-PASS

BLE_2M-Ant1-2480-1000~26500-PASS

7: Duty Cycle

7.1 Test Result

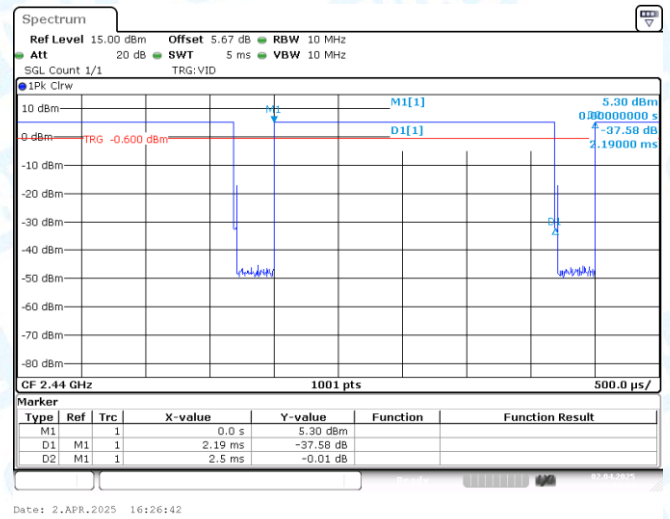
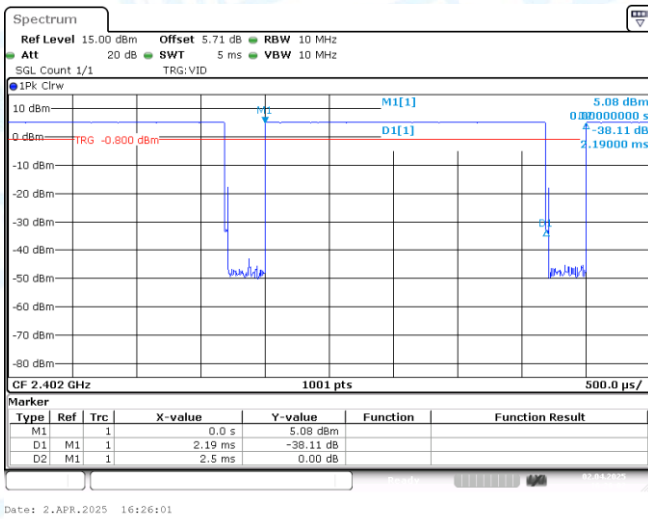
TestMode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	DC Factory	1/T [kHz]
BLE_1M	Ant1	2402	2.19	2.50	87.60	0.57	0.46
BLE_1M	Ant1	2440	2.19	2.50	87.60	0.57	0.46
BLE_1M	Ant1	2480	2.19	2.50	87.60	0.57	0.46
BLE_2M	Ant1	2402	1.13	2.50	45.20	3.45	0.88
BLE_2M	Ant1	2440	1.13	2.50	45.20	3.45	0.88
BLE_2M	Ant1	2480	1.13	2.50	45.20	3.45	0.88

Note: 1, Duty Cycle= Transmission Duration/ Transmission Period

2, DC Factory=10*Log₁₀(1/Duty Cycle)

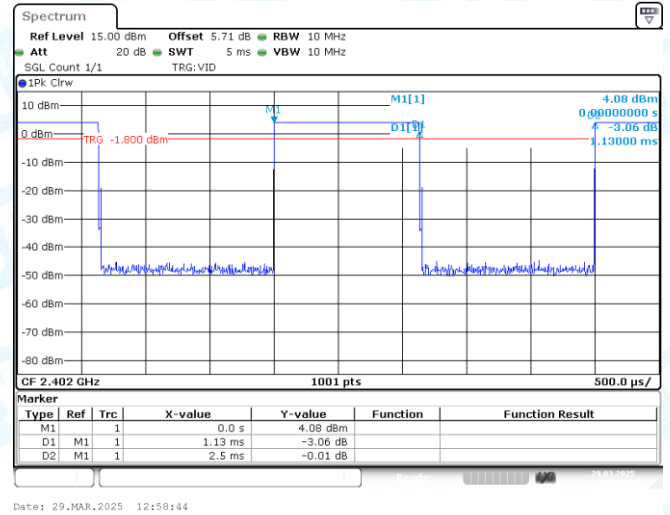
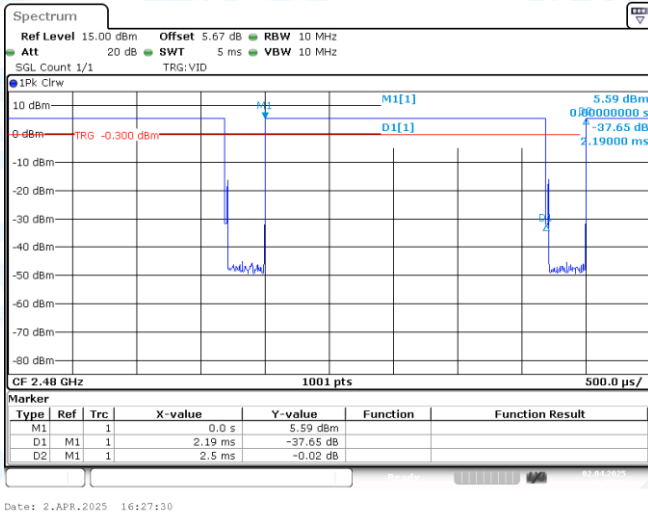
3, 1/T=1/ Transmission Duration

7.2 Test Graphs



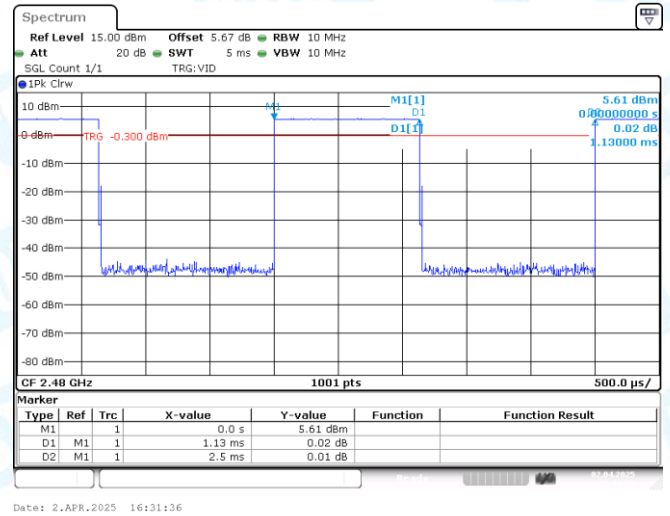
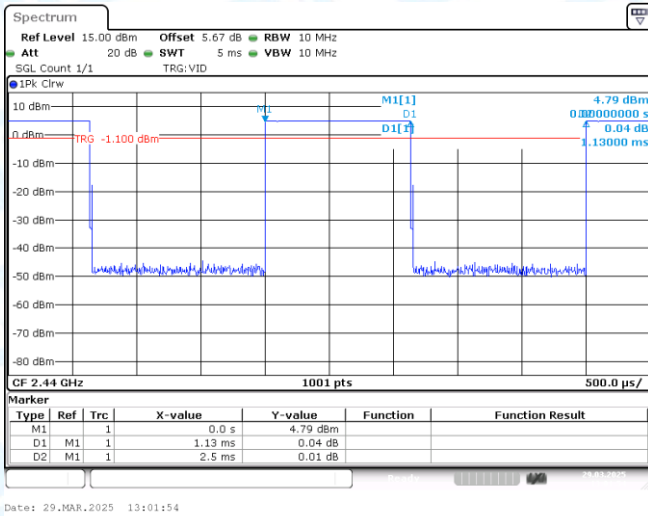
NTNV-BLE_1M-Ant1-2402

NTNV-BLE_1M-Ant1-2440



NTNV-BLE_1M-Ant1-2480

NTNV-BLE_2M-Ant1-2402



NTNV-BLE_2M-Ant1-2440

NTNV-BLE_2M-Ant1-2480

8: Emissions in Restricted Bands

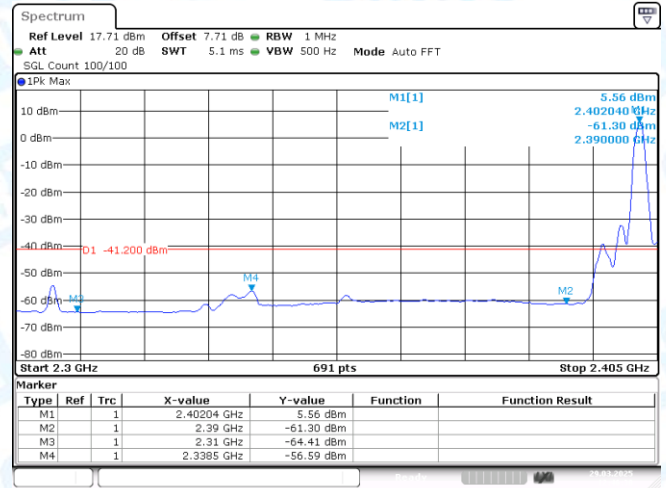
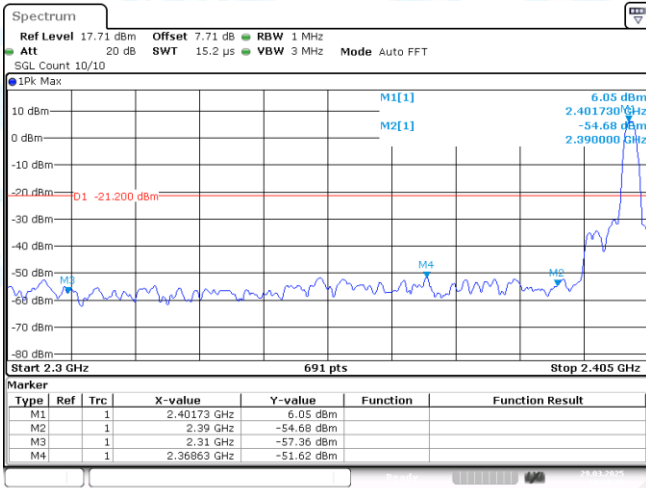
8.1 Test Result

Test Mode	Antenna	ChName	Frequency [MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	Peak	2390.000	-54.68	≤-21.20	40.52	≤74	PASS
BLE_1M	Ant1	Low	2402	Peak	2310.000	-57.36	≤-21.20	37.84	≤74	PASS
BLE_1M	Ant1	Low	2402	Peak	2368.630	-51.62	≤-21.20	43.58	≤74	PASS
BLE_1M	Ant1	Low	2402	AV	2390.000	-61.3	≤-41.20	33.90	≤54	PASS
BLE_1M	Ant1	Low	2402	AV	2310.000	-64.41	≤-41.20	30.79	≤54	PASS
BLE_1M	Ant1	Low	2402	AV	2338.500	-56.59	≤-41.20	38.61	≤54	PASS
BLE_1M	Ant1	High	2480	Peak	2483.500	-37.29	≤-21.20	57.91	≤74	PASS
BLE_1M	Ant1	High	2480	Peak	2500.000	-53.25	≤-21.20	41.95	≤74	PASS
BLE_1M	Ant1	High	2480	Peak	2483.797	-36.25	≤-21.20	58.95	≤74	PASS
BLE_1M	Ant1	High	2480	AV	2483.500	-45.6	≤-41.20	49.60	≤54	PASS
BLE_1M	Ant1	High	2480	AV	2500.000	-60.39	≤-41.20	34.81	≤54	PASS
BLE_1M	Ant1	High	2480	AV	2483.565	-46.01	≤-41.20	49.19	≤54	PASS
BLE_2M	Ant1	Low	2402	Peak	2390.000	-54.74	≤-21.20	40.46	≤74	PASS
BLE_2M	Ant1	Low	2402	Peak	2310.000	-61.9	≤-21.20	33.30	≤74	PASS
BLE_2M	Ant1	Low	2402	Peak	2369.239	-50.56	≤-21.20	44.64	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2390.000	-61.19	≤-41.20	34.01	≤54	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-64.41	≤-41.20	30.79	≤54	PASS
BLE_2M	Ant1	Low	2402	AV	2354.022	-58.84	≤-41.20	36.36	≤54	PASS
BLE_2M	Ant1	High	2480	Peak	2483.500	-43.33	≤-21.20	51.87	≤74	PASS
BLE_2M	Ant1	High	2480	Peak	2500.000	-52.08	≤-21.20	43.12	≤74	PASS
BLE_2M	Ant1	High	2480	Peak	2483.913	-38.71	≤-21.20	56.49	≤74	PASS
BLE_2M	Ant1	High	2480	AV	2483.500	-43.27	≤-41.20	51.93	≤54	PASS
BLE_2M	Ant1	High	2480	AV	2500.000	-58.53	≤-41.20	36.67	≤54	PASS
BLE_2M	Ant1	High	2480	AV	2483.913	-41.53	≤-41.20	53.67	≤54	PASS

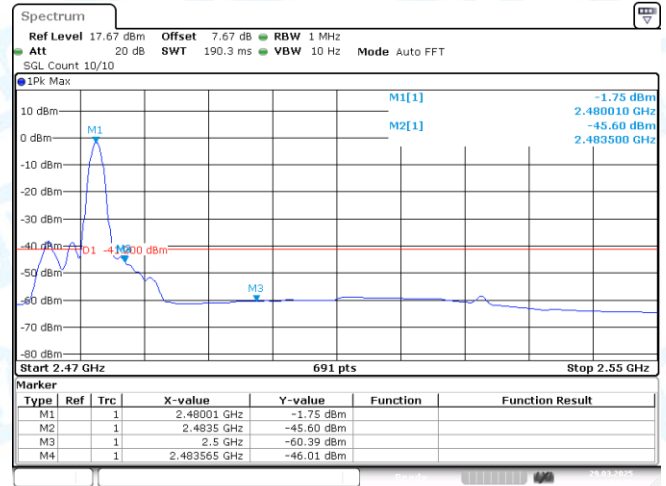
Note:

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.

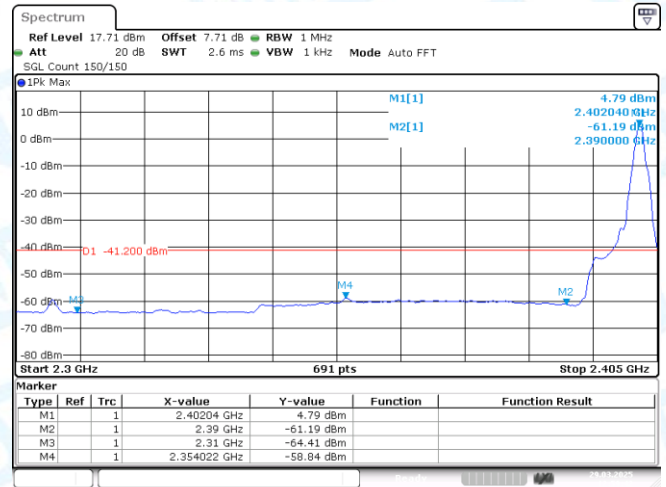
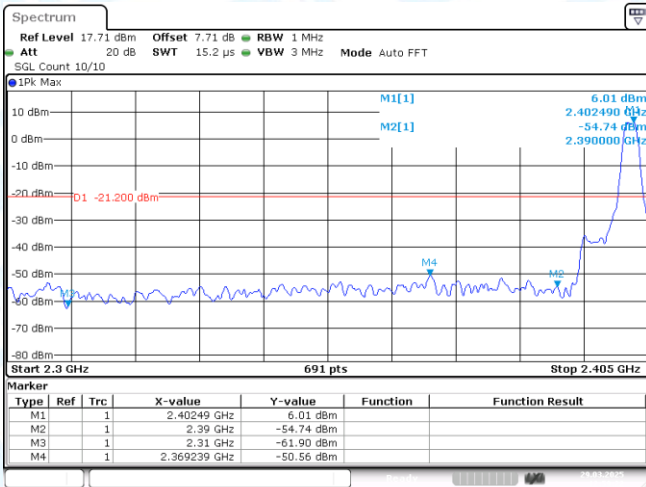
8.2 Test Graphs



BLE_1M-Ant1-2402-PASS

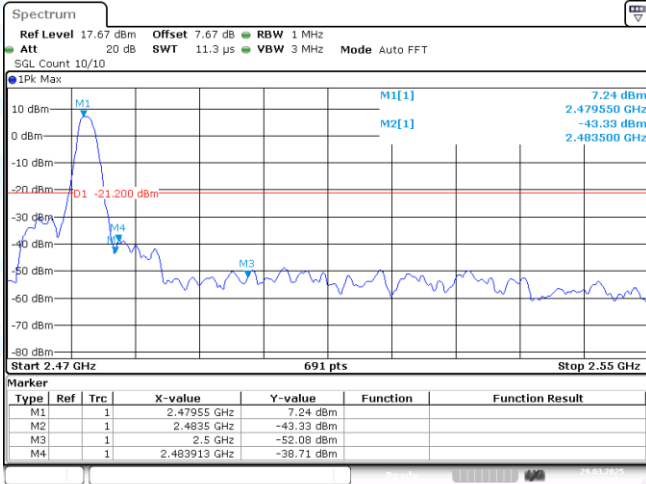


BLE_1M-Ant1-2480-PASS

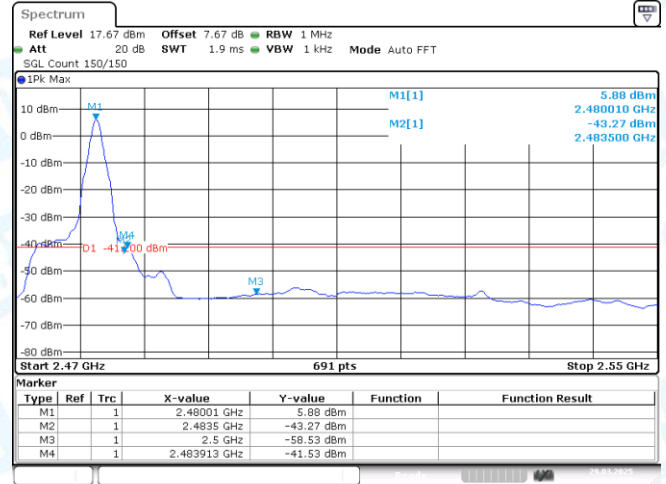


BLE_2M-Ant1-2402-PASS

BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2480-PASS



BLE_2M-Ant1-2480-PASS

-----END OF THE REPORT-----