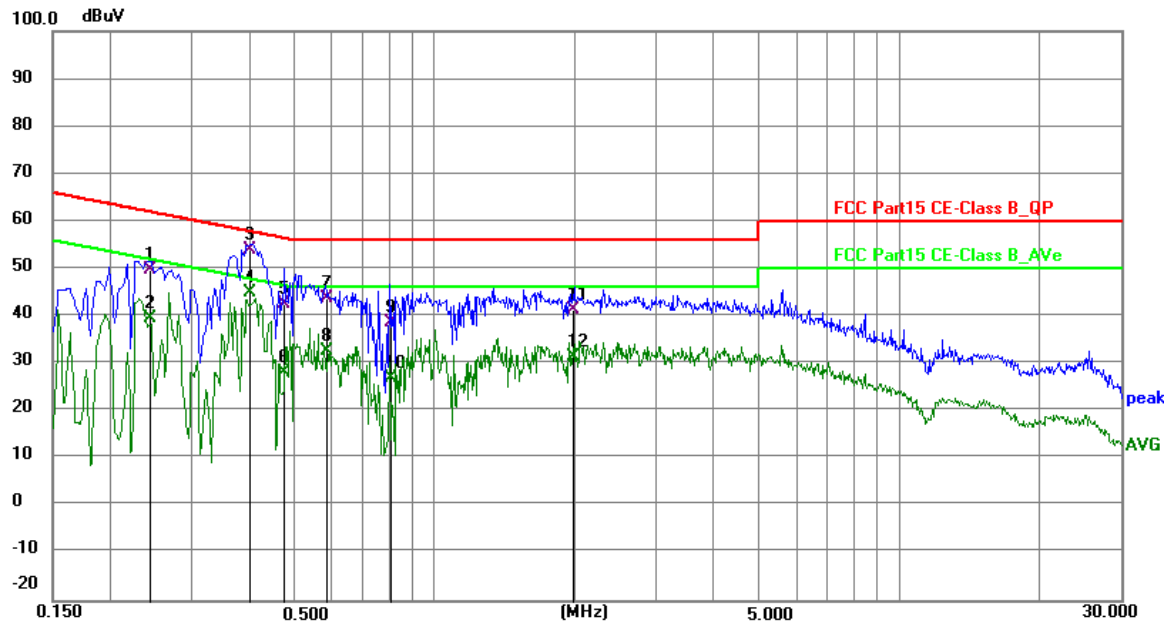




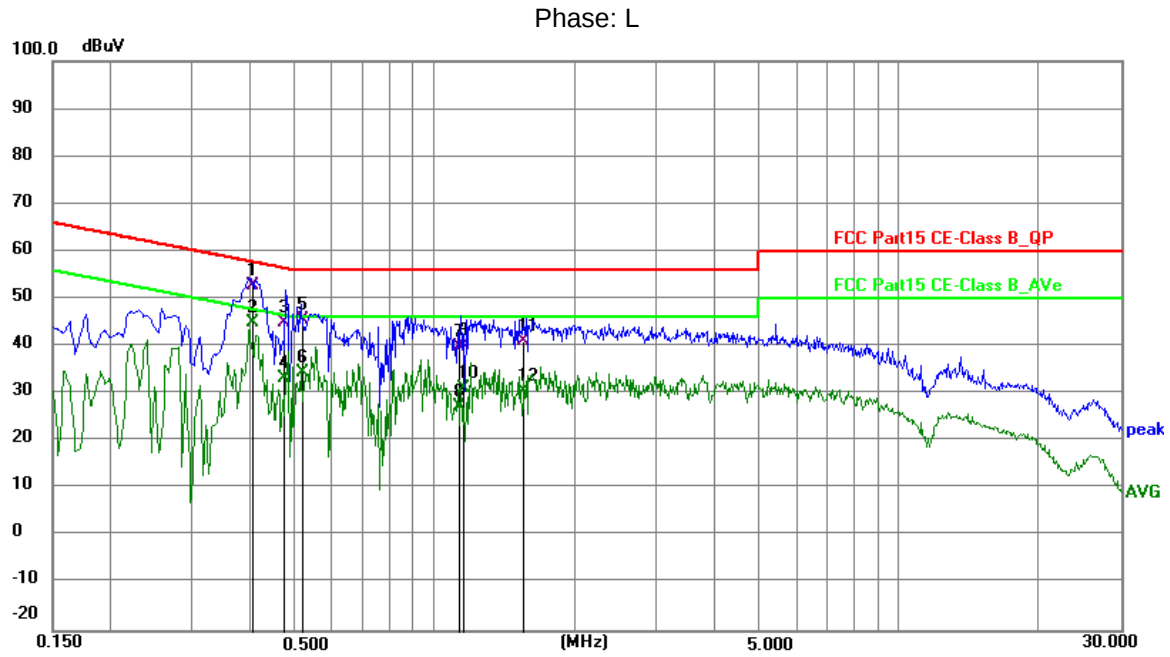


APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Phase: N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2441	40.13	9.63	49.76	61.96	-12.20	QP	P	
2	0.2441	29.92	9.63	39.55	51.96	-12.41	AVG	P	
3	0.4004	44.31	9.62	53.93	57.85	-3.92	QP	P	
4 *	0.4004	35.45	9.62	45.07	47.85	-2.78	AVG	P	
5	0.4713	33.06	9.62	42.68	56.49	-13.81	QP	P	
6	0.4713	18.42	9.62	28.04	46.49	-18.45	AVG	P	
7	0.5828	34.07	9.62	43.69	56.00	-12.31	QP	P	
8	0.5828	23.07	9.62	32.69	46.00	-13.31	AVG	P	
9	0.8034	29.00	9.62	38.62	56.00	-17.38	QP	P	
10	0.8034	17.21	9.62	26.83	46.00	-19.17	AVG	P	
11	1.9939	31.84	9.65	41.49	56.00	-14.51	QP	P	
12	1.9939	21.75	9.65	31.40	46.00	-14.60	AVG	P	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.4040	43.26	9.63	52.89	57.77	-4.88	QP	P	
2 *	0.4040	35.22	9.63	44.85	47.77	-2.92	AVG	P	
3	0.4721	35.32	9.62	44.94	56.48	-11.54	QP	P	
4	0.4721	23.66	9.62	33.28	46.48	-13.20	AVG	P	
5	0.5206	36.06	9.62	45.68	56.00	-10.32	QP	P	
6	0.5206	24.81	9.62	34.43	46.00	-11.57	AVG	P	
7	1.1393	30.16	9.64	39.80	56.00	-16.20	QP	P	
8	1.1393	17.67	9.64	27.31	46.00	-18.69	AVG	P	
9	1.1526	30.58	9.64	40.22	56.00	-15.78	QP	P	
10	1.1526	21.50	9.64	31.14	46.00	-14.86	AVG	P	
11	1.5613	31.41	9.65	41.06	56.00	-14.94	QP	P	
12	1.5613	20.80	9.65	30.45	46.00	-15.55	AVG	P	

APPENDIX B - RADIATED EMISSION -9 KHZ TO 30 MHZ

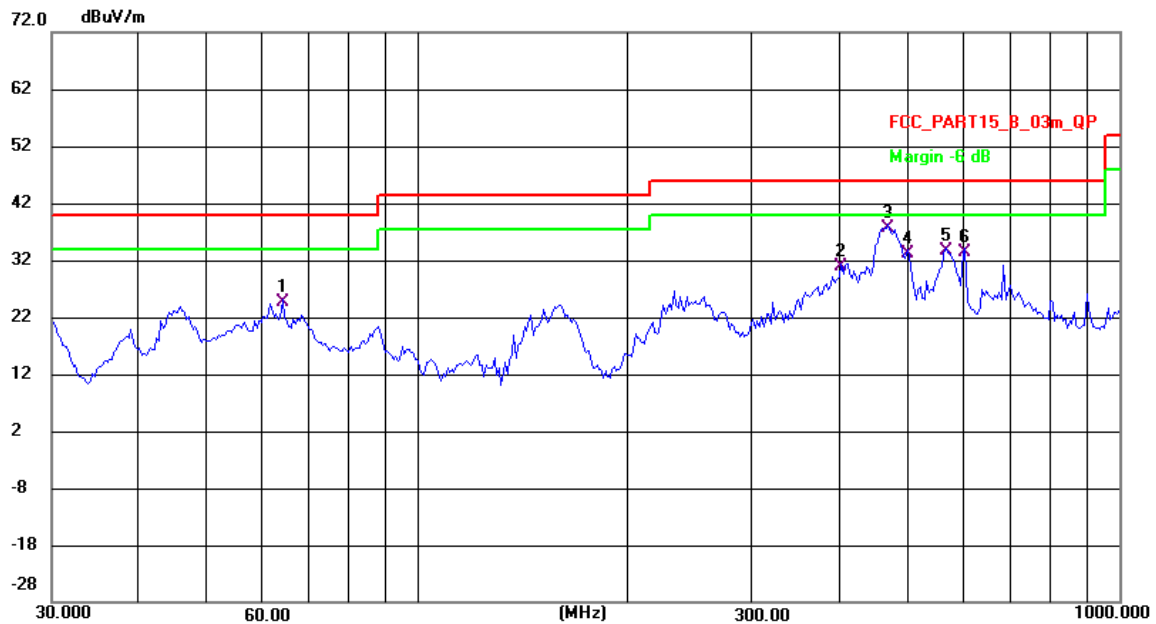
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

APPENDIX C - RADIATED EMISSION-30 MHZ TO 1000 MHZ

Only show the worst mode:

Test Mode	TX Mode_1Mbps Channel 00	Polarization	Vertical
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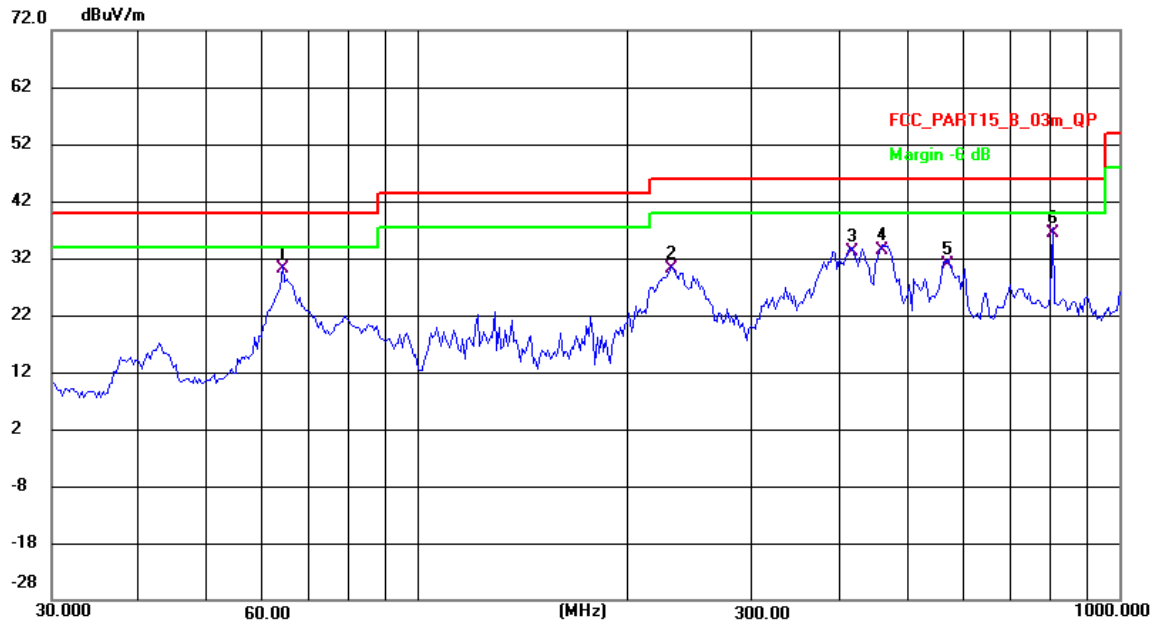


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	64.0800	47.90	-23.15	24.75	40.00	-15.25	QP	100	111	P	
2	401.1050	50.04	-19.19	30.85	46.00	-15.15	QP	199	211	P	
3 *	468.1650	54.94	-17.41	37.53	46.00	-8.47	QP	213	176	P	
4	498.7302	50.03	-16.81	33.22	46.00	-12.78	QP	109	161	P	
5	565.9775	48.50	-14.89	33.61	46.00	-12.39	QP	200	211	P	
6	602.9287	47.09	-13.71	33.38	46.00	-12.62	QP	100	190	P	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_1Mbps Channel 00	Polarization	Horizontal
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	64.0800	53.28	-23.15	30.13	40.00	-9.87	QP	200	349	P	
2	230.2295	55.04	-25.00	30.04	46.00	-15.96	QP	100	97	P	
3	415.4486	51.76	-18.65	33.11	46.00	-12.89	QP	153	176	P	
4	458.3987	51.11	-17.61	33.50	46.00	-12.50	QP	100	255	P	
5	569.9688	45.69	-14.75	30.94	46.00	-15.06	QP	210	313	P	
6 *	804.2523	46.28	-9.82	36.46	46.00	-9.54	QP	139	119	P	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

Test Result of RADIATED EMISSION-1000MHz TO 25GHz

Test Mode : GFSK TX Low

No.	Freq MHz	Polarity	Reading (dBuV/m)	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin	Remark
1	4804	V	89.62	-27.15	62.47	74	-11.53	Peak
2	4804	V	69.21	-27.15	42.06	54	-11.94	Avg
3	7206	--	--	--		--		--
4	9608	--	--	--		--		--
5	4804	H	90.39	-27.15	63.24	74	-10.76	Peak
6	4804	H	68.27	-27.15	41.12	54	-12.88	Avg
7	7206	--	--	--	--	--	--	--
8	9608	--	--	--	--	--	--	--

Test Mode : GFSK TX Mid

1	4880	V	91.35	-27.83	63.52	74	-10.48	Peak
2	4880	V	72.01	-27.83	44.18	54	-9.82	Avg
3	7320	--	--	--		--		--
4	9760	--	--	--		--		--
5	4880	H	89.62	-27.83	61.79	74	-12.21	Peak
6	4880	H	66.05	-27.83	38.22	54	-15.78	Avg
7	7320	--	--	--	--	--	--	--
8	9760	--	--	--	--	--	--	--

Test Mode : GFSK TX High

1	4960	V	96.36	-28.45	66.86	74	-7.14	Peak
2	4960	V	75.14	-28.45	44.83	54	-9.17	Avg
3	7440	--	--	--		--		--
4	9920	--	--	--		--		--
5	4960	H	90.59	-28.45	61.79	74	-12.21	Peak
6	4960	H	69.01	-28.45	39.86	54	-14.14	Avg
7	7440	--	--	--	--	--	--	--
8	9920	--	--	--	--	--	--	--

Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.
2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.
Result=Reading + Correct Factor. Margin= Result-Limit.

Test Result of Radiated Spurious at Band edges

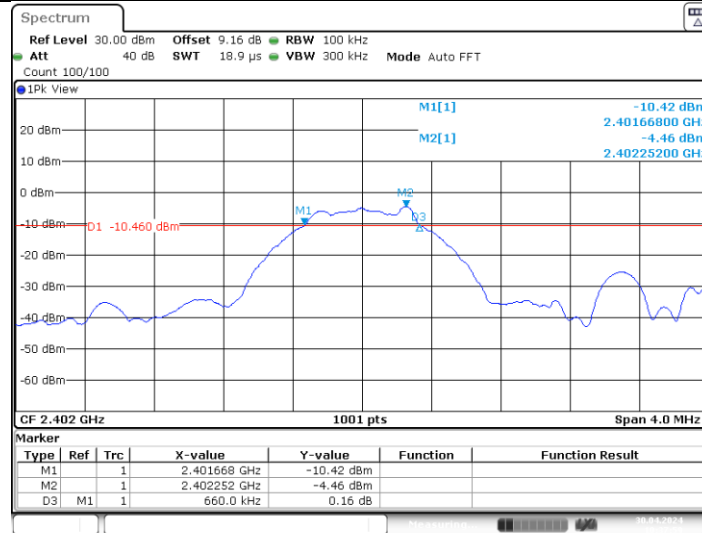
Test Results					PASS			
Frequency Range					2310MHz~2410MHz			
Test Mode					1Mbps: GFSK TX 2402MHz			
N o.	Freq MHz	Polarity	Reading (dBuV/m)	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin	Remark
1	2390	H	72.69	-21.47	51.22	74.00	-22.78	Peak
2	2390	H	--	-21.47		54.00	-54	Avg
3	2400	H	76.71	-26.12	50.59	74.00	-23.41	Peak
4	2400	H	--	-26.12	--	54.00	--	Avg
1	2390	V	68.64	-21.47	48.37	74.00	-25.63	Peak
2	2390	V	--	-21.47		54.00	-54	Avg
3	2400	V	75.02	-26.12	47.13	74.00	-26.87	Peak
4	2400	V	--	-26.12	--	54.00	--	Avg
Test Results					PASS			
Frequency Range					2450MHz~2550MHz			
Test Mode					1Mbps: GFSK TX 2480MHz			
1	2483.5	H	74.31	-25.29	49.02	74	-24.98	Peak
2	2483.5	H	--	-25.29	--	54.00	--	Avg
1	2483.5	V	74.31	-25.29	49.02	74	-24.98	Peak
2	2483.5	V	--	-25.29	--	54.00	--	Avg
Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin. 2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain. Result=Reading + Correct Factor. Margin= Result-Limit. 3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.								

APPENDIX E - BANDWIDTH

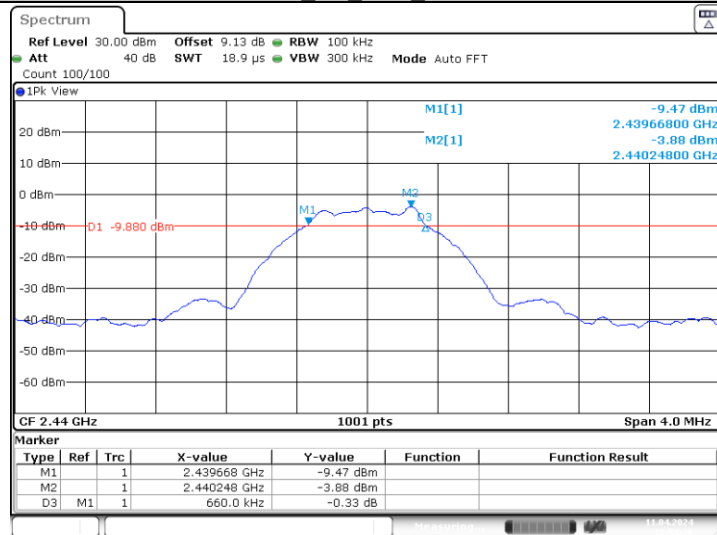
-6dB Bandwidth

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.66	2401.67	2402.33	0.5	PASS
		2440	0.66	2439.67	2440.32	0.5	PASS
		2480	0.67	2479.66	2480.34	0.5	PASS
BLE_2M	Ant1	2402	1.16	2401.42	2402.59	0.5	PASS
		2440	1.14	2439.44	2440.57	0.5	PASS
		2480	1.14	2479.44	2480.58	0.5	PASS

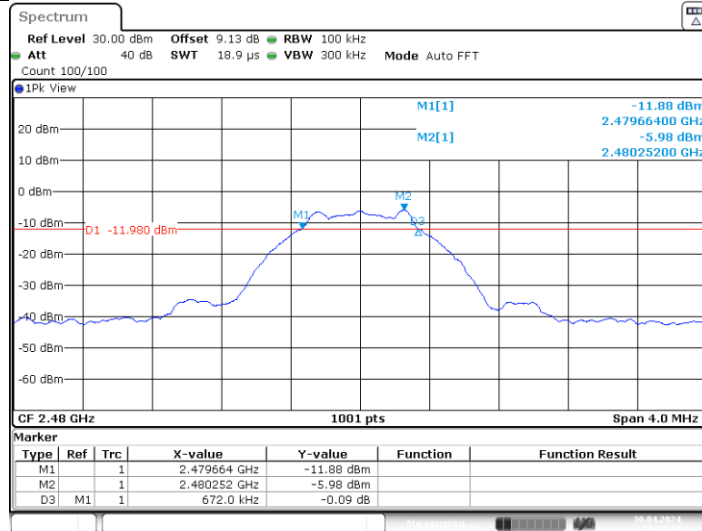
BLE_1M Ant1 2402



BLE_1M Ant1 2440

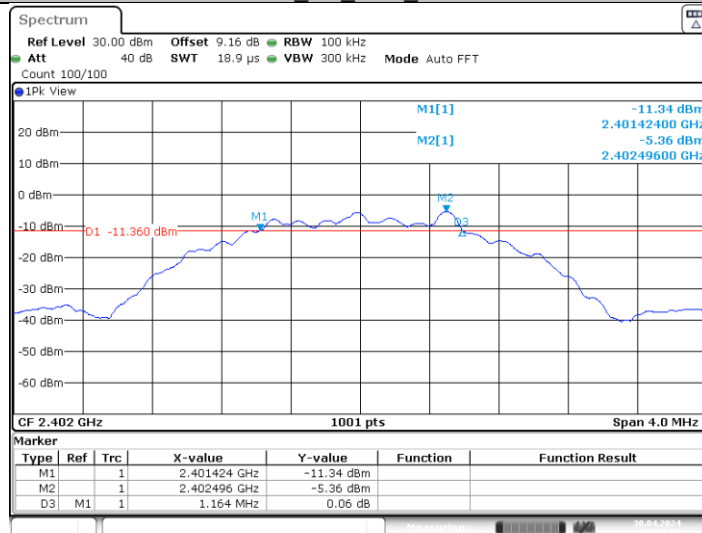


BLE 1M Ant1 2480



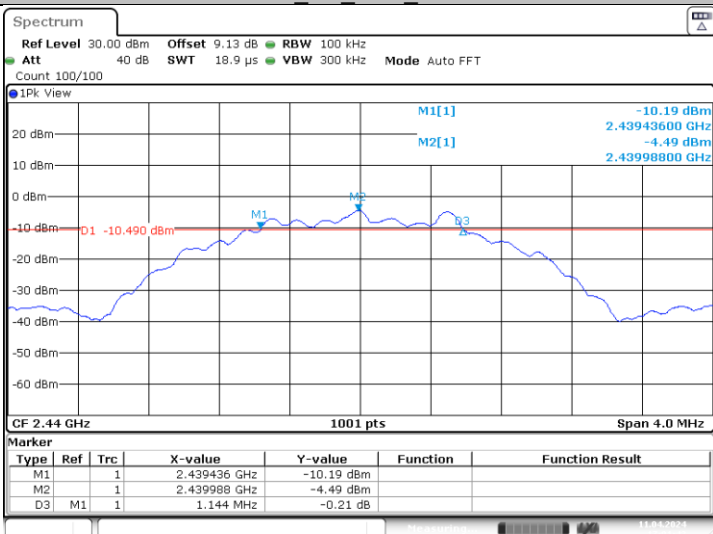
Date: 30.APR.2024 10:44:10

BLE 2M Ant1 2402

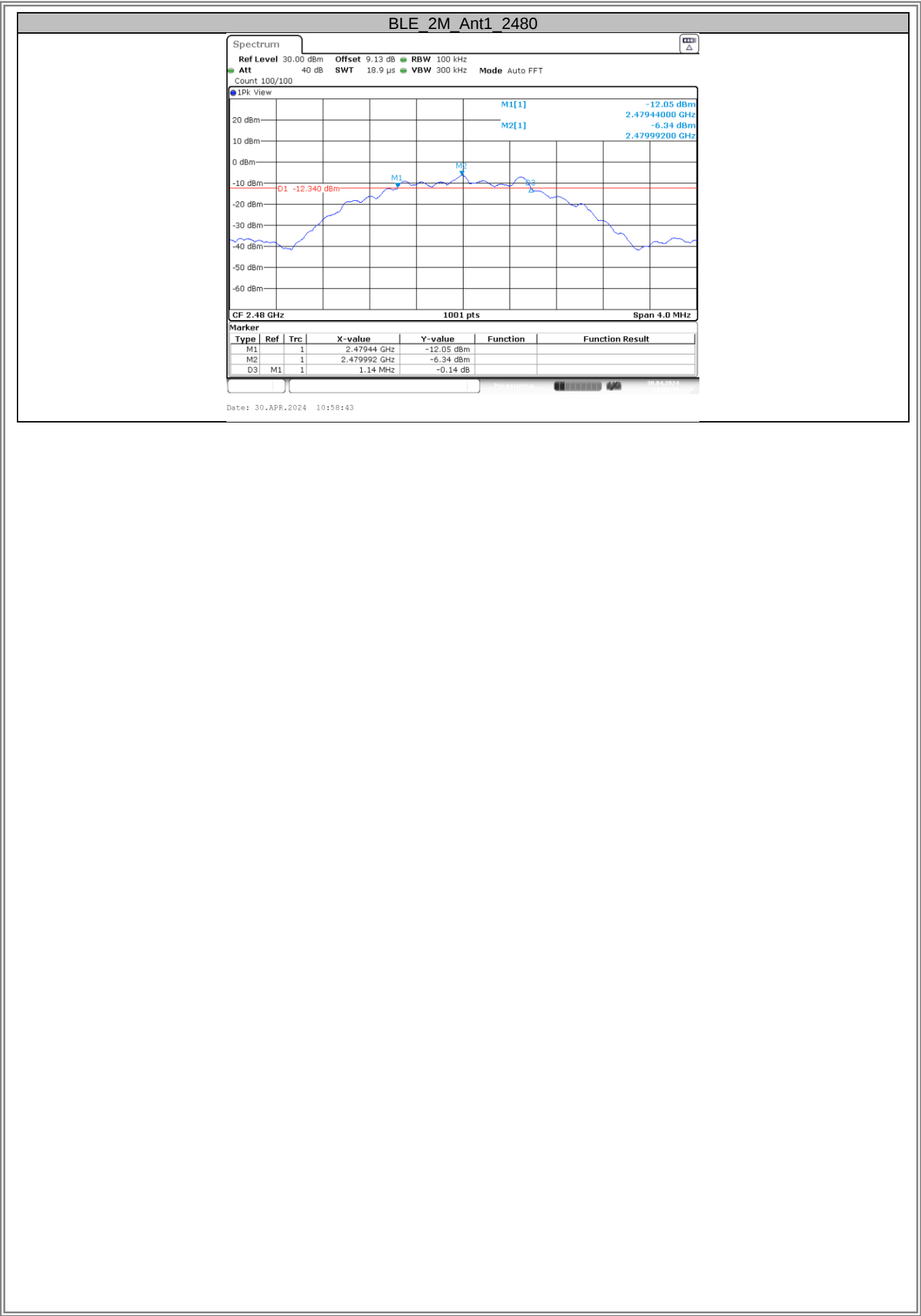


Date: 30.APR.2024 10:47:03

BLE 2M Ant1 2440



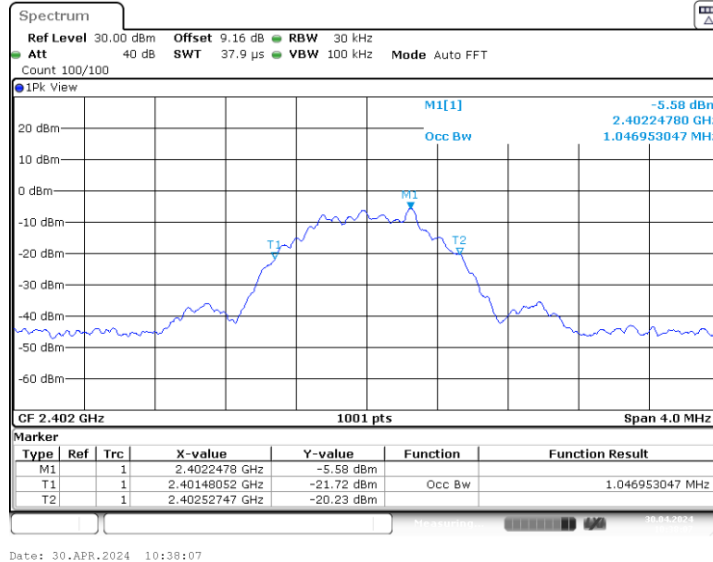
Date: 30.APR.2024 10:55:39



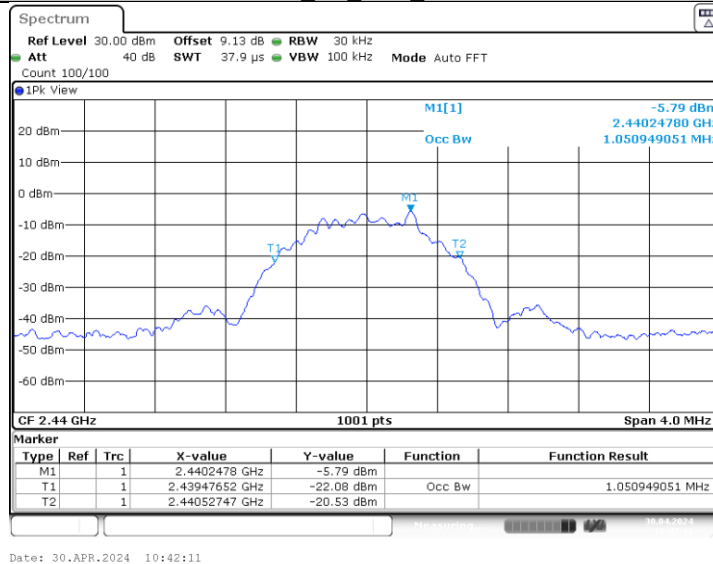
99% Occupied Bandwidth

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]
BLE_1M	Ant1	2402	1.047	2401.4805	2402.5275
		2440	1.051	2439.4765	2440.5275
		2480	1.059	2479.4725	2480.5315
BLE_2M	Ant1	2402	2.094	2400.9690	2403.0629
		2440	2.082	2438.9690	2441.0509
		2480	2.09	2478.9650	2481.0549

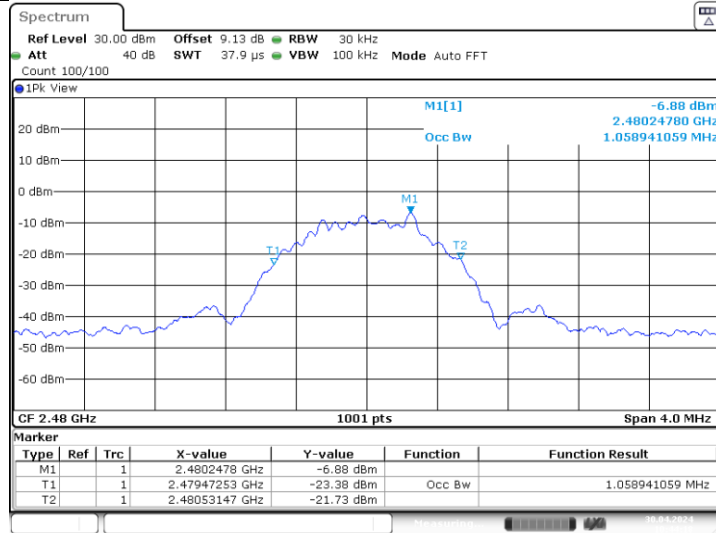
BLE 1M Ant1 2402



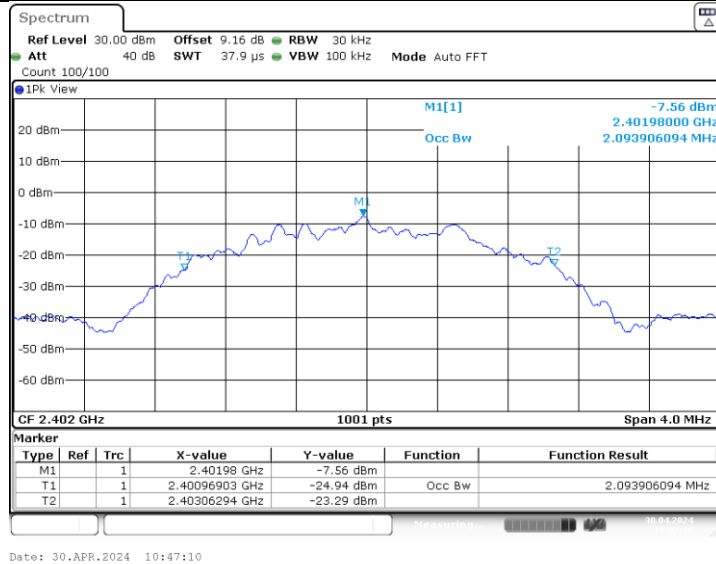
BLE 1M Ant1 2440



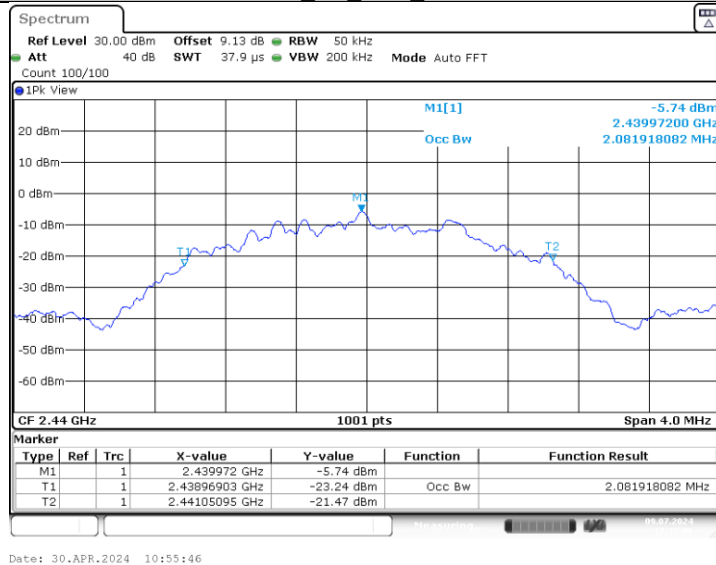
BLE_1M_Ant1_2480

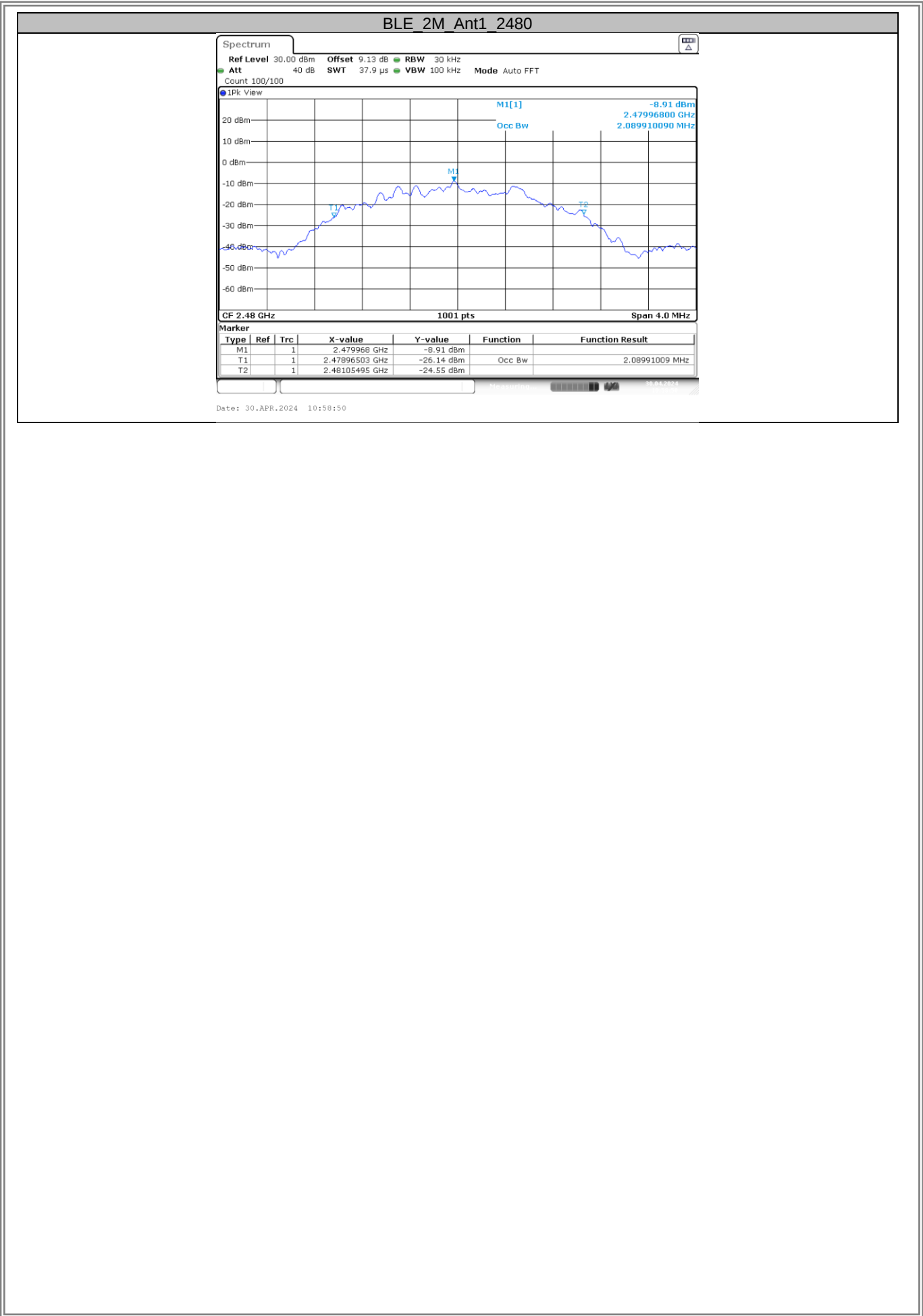


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

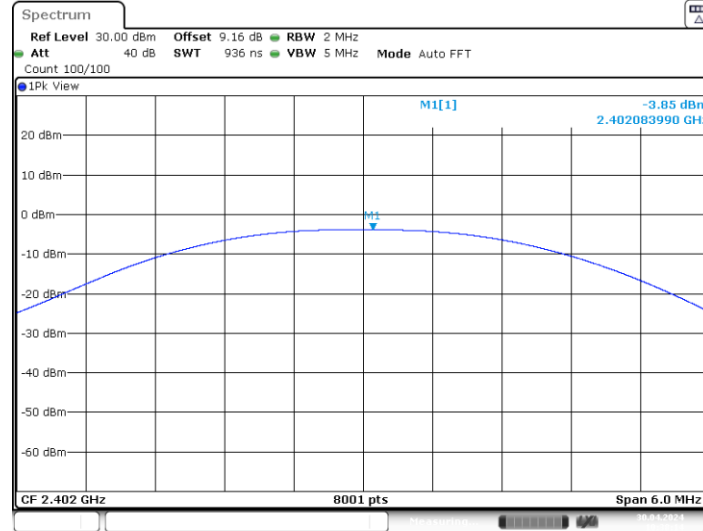




APPENDIX F - MAXIMUM OUTPUT POWER

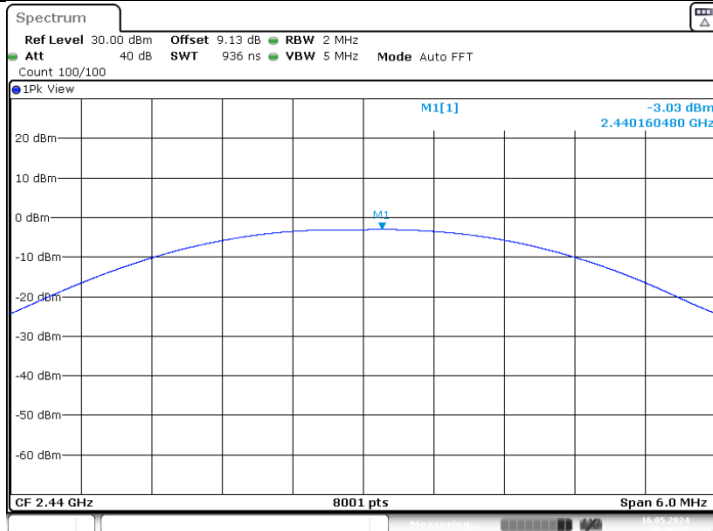
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.85	≤30	PASS
		2440	-3.03	≤30	PASS
		2480	-5.17	≤30	PASS
BLE_2M	Ant1	2402	-3.84	≤30	PASS
		2440	-3.06	≤30	PASS
		2480	-5.06	≤30	PASS

BLE_1M_Ant1_2402



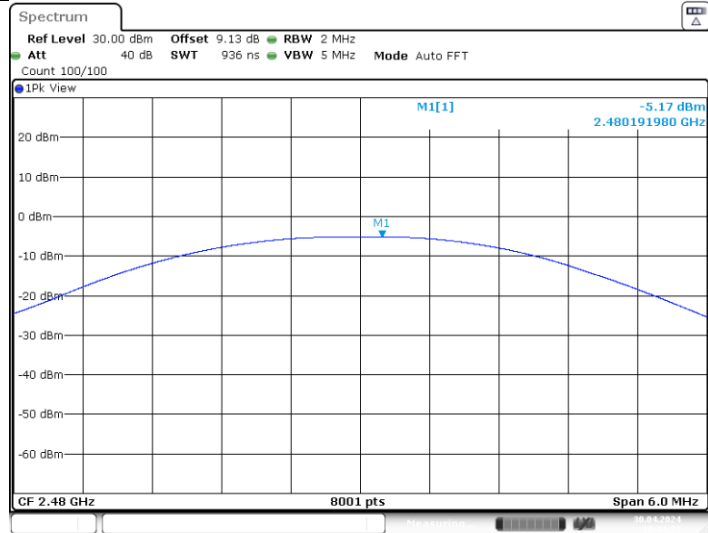
Date: 30.APR.2024 10:38:14

BLE_1M_Ant1_2440



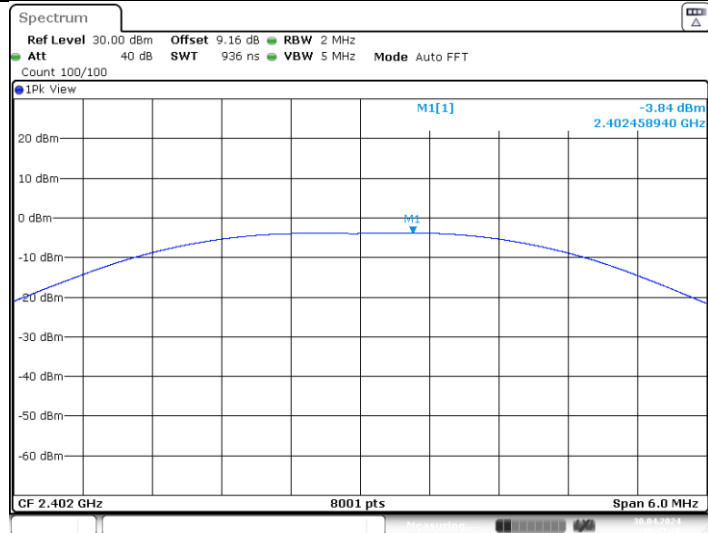
Date: 16.MAY.2024 10:46:55

BLE_1M_Ant1_2480



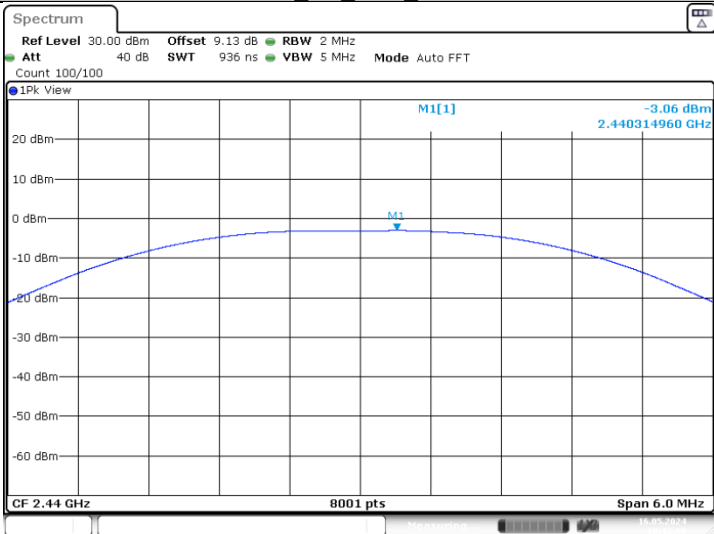
Date: 30.APR.2024 10:44:25

BLE_2M_Ant1_2402

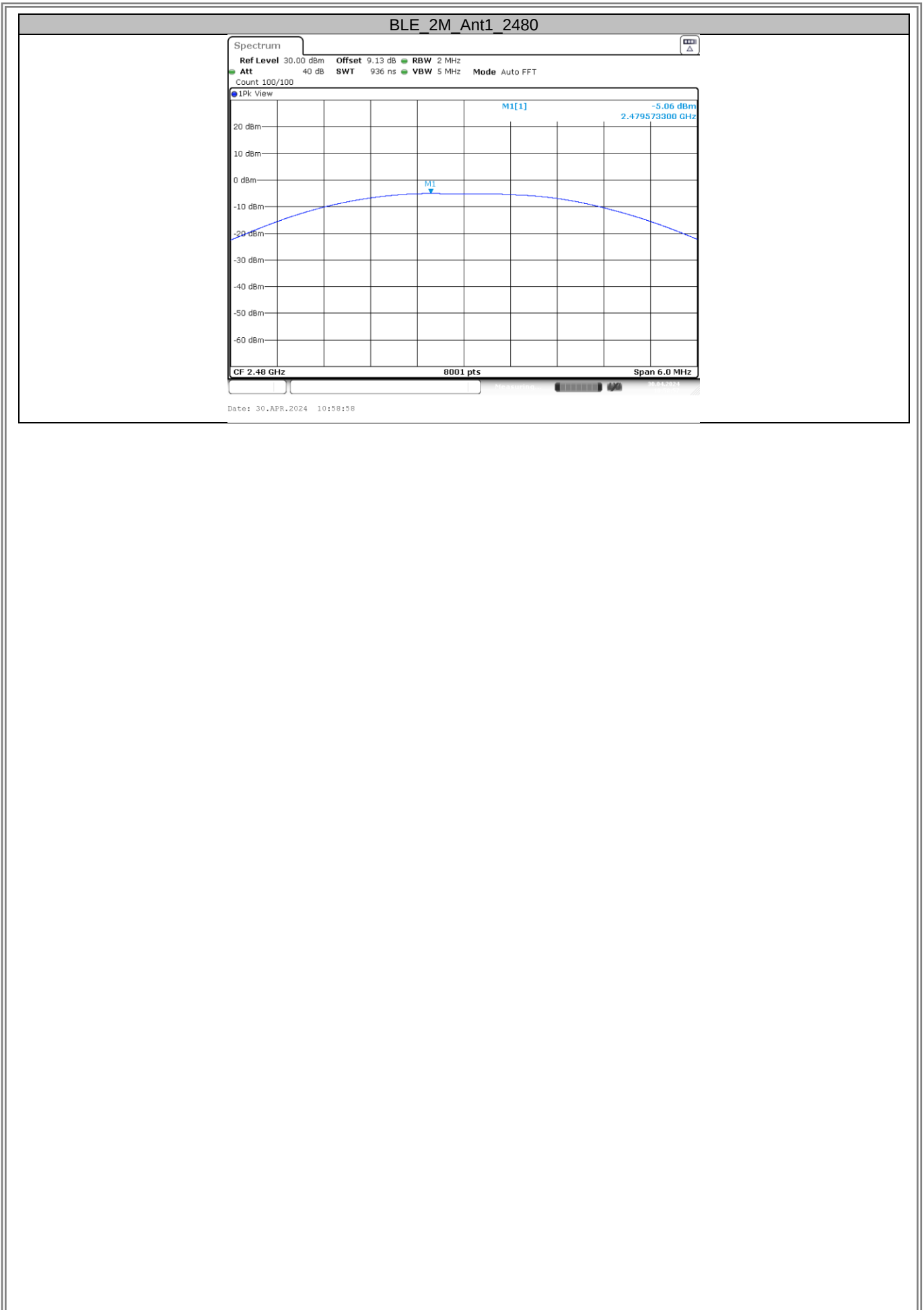


Date: 30.APR.2024 10:47:18

BLE_2M_Ant1_2440



Date: 16.MAY.2024 10:44:00

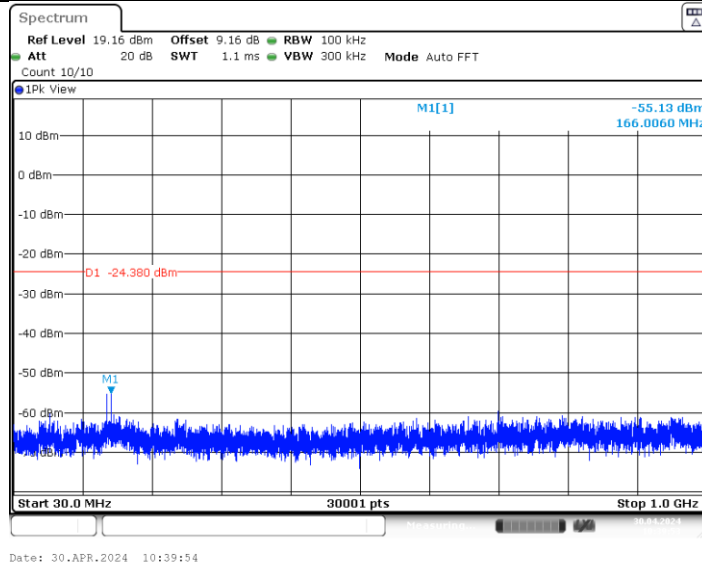


APPENDIX G - CONDUCTED SPURIOUS EMISSION

Spurious Emission

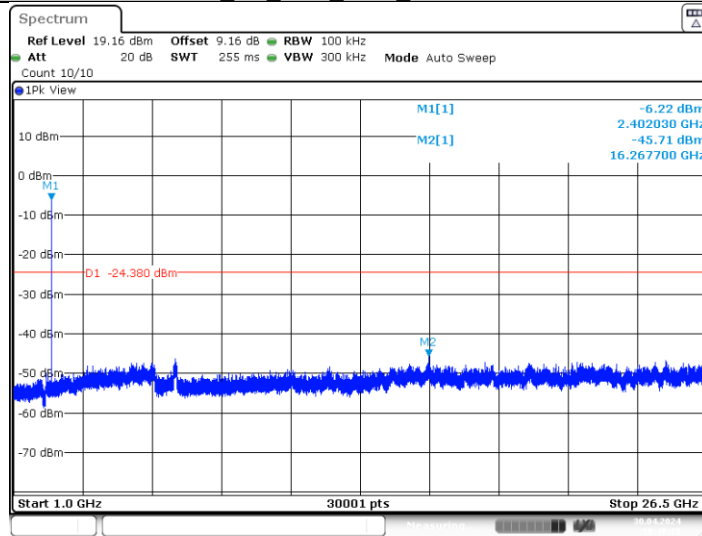
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~1000	-4.38	-55.13	≤-24.38	PASS
			1000~26500	-4.38	-45.71	≤-24.38	PASS
		2440	30~1000	-6.03	-60.40	≤-26.03	PASS
			1000~26500	-6.03	-33.77	≤-26.03	PASS
		2480	30~1000	-5.98	-53.15	≤-25.98	PASS
			1000~26500	-5.98	-46.36	≤-25.98	PASS
BLE_2M	Ant1	2402	30~1000	-4.94	-54.85	≤-24.94	PASS
			1000~26500	-4.94	-45.05	≤-24.94	PASS
		2440	30~1000	-6.44	-59.6	≤-26.44	PASS
			1000~26500	-6.44	-45.79	≤-26.44	PASS
		2480	30~1000	-6.30	-53.81	≤-26.30	PASS
			1000~26500	-6.30	-46.2	≤-26.30	PASS

BLE_1M_Ant1_2402_30~1000



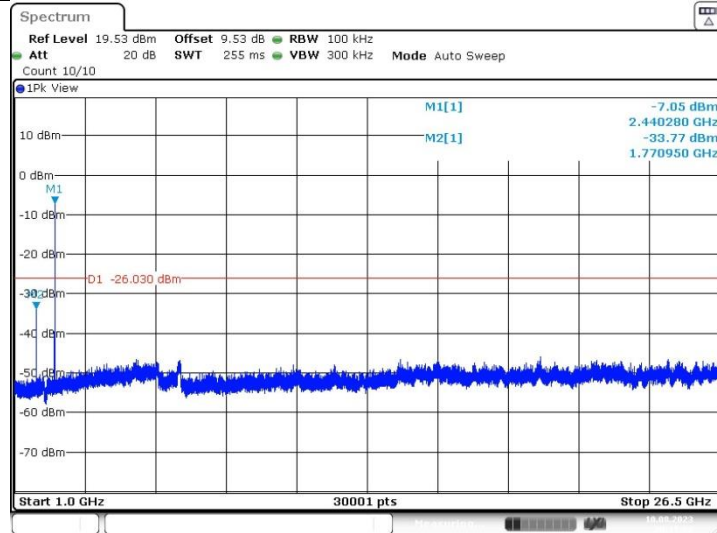
Date: 30.APR.2024 10:39:54

BLE_1M_Ant1_2402_1000~26500

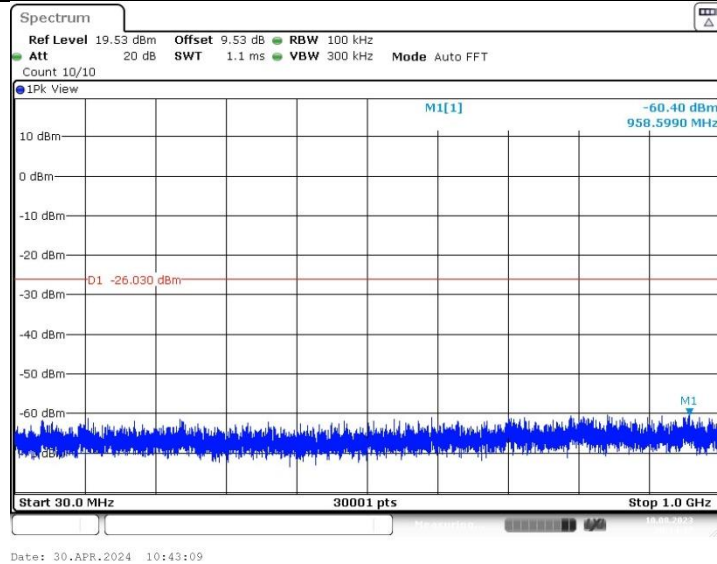


Date: 30.APR.2024 10:40:18

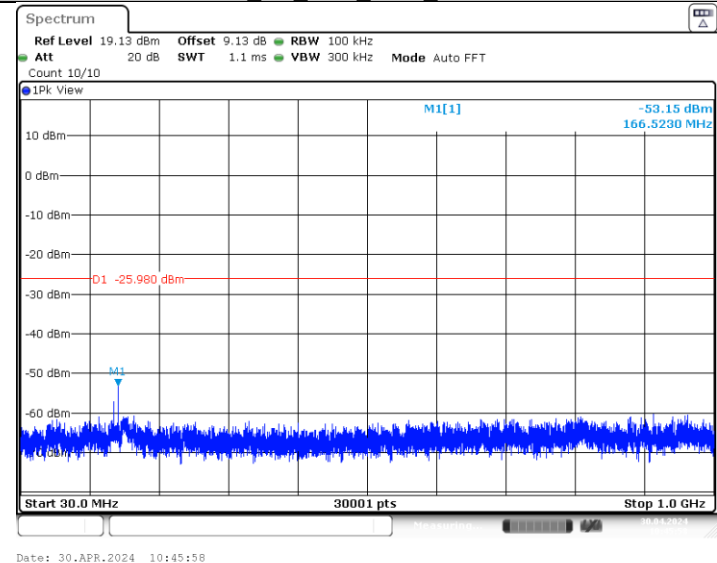
BLE_1M_Ant1_2440_30~1000



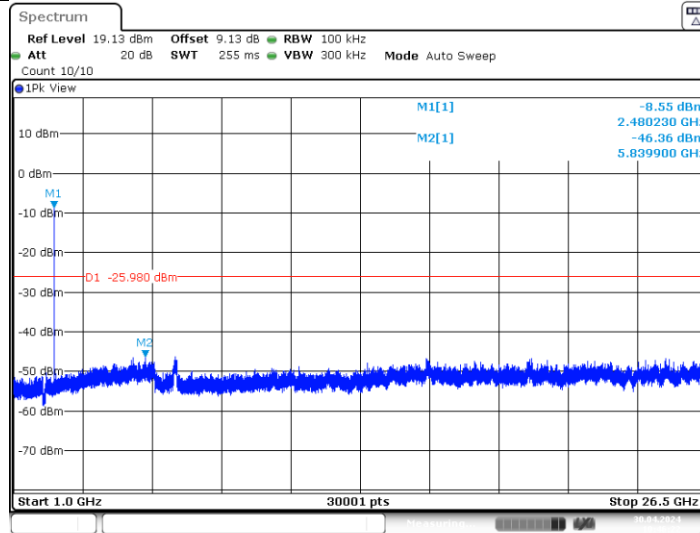
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_30~1000

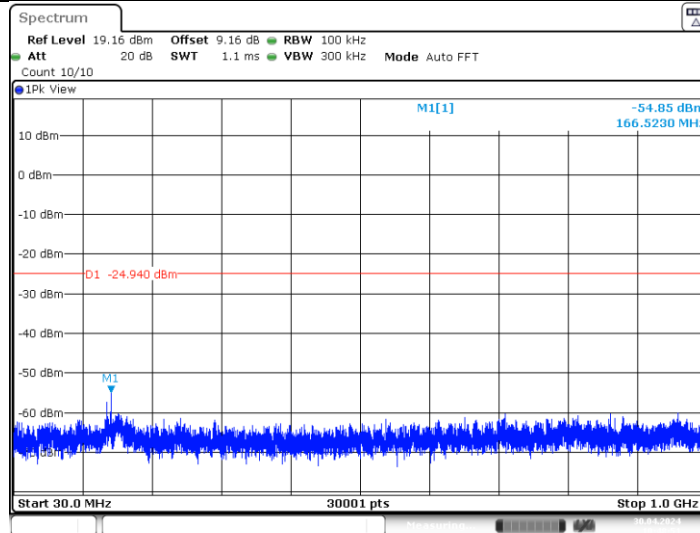


BLE 1M Ant1 2480 1000-26500



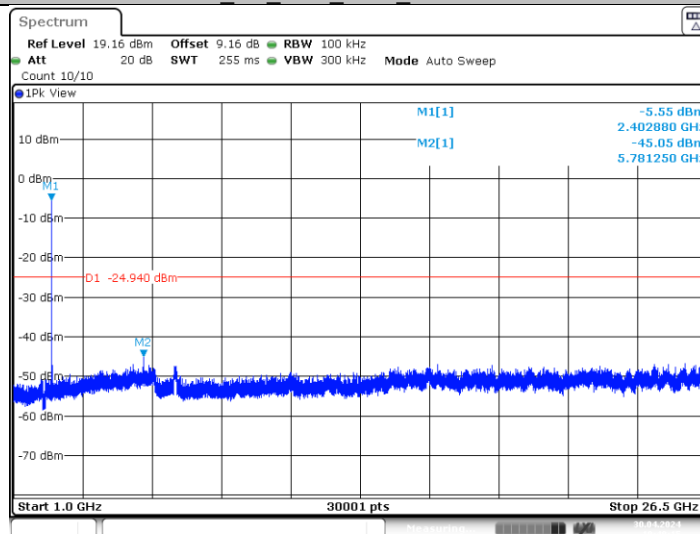
Date: 30.APR.2024 10:46:22

BLE 2M Ant1 2402 30-1000



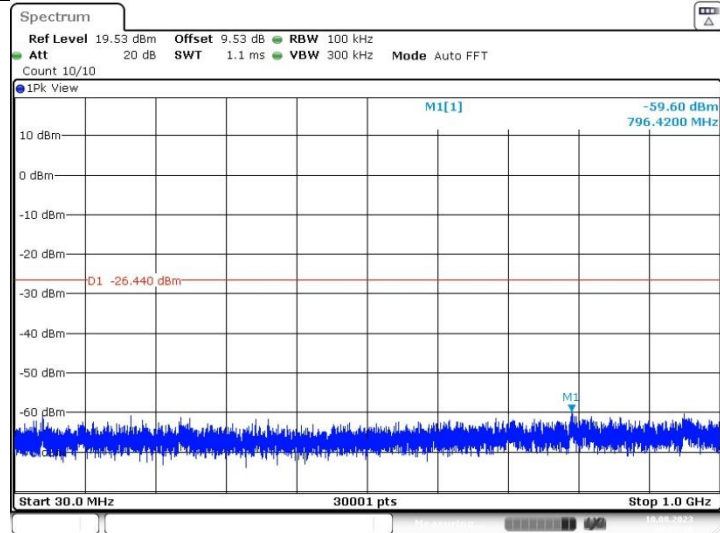
Date: 30.APR.2024 10:48:51

BLE 2M Ant1 2402 1000-26500



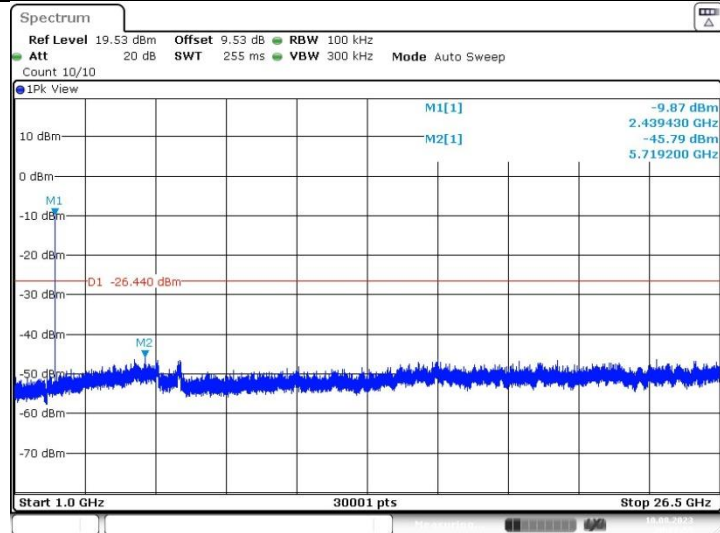
Date: 30.APR.2024 10:49:15

BLE_2M_Ant1_2440_30~1000



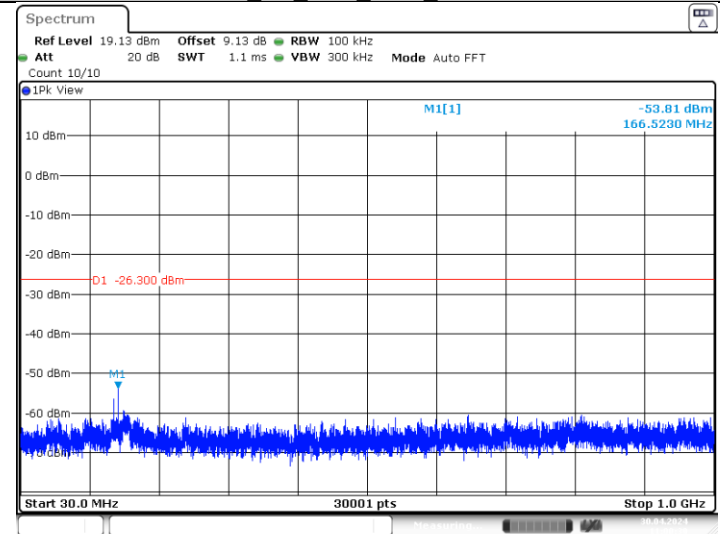
Date: 30.APR.2024 10:56:19

BLE_2M_Ant1_2440_1000~26500

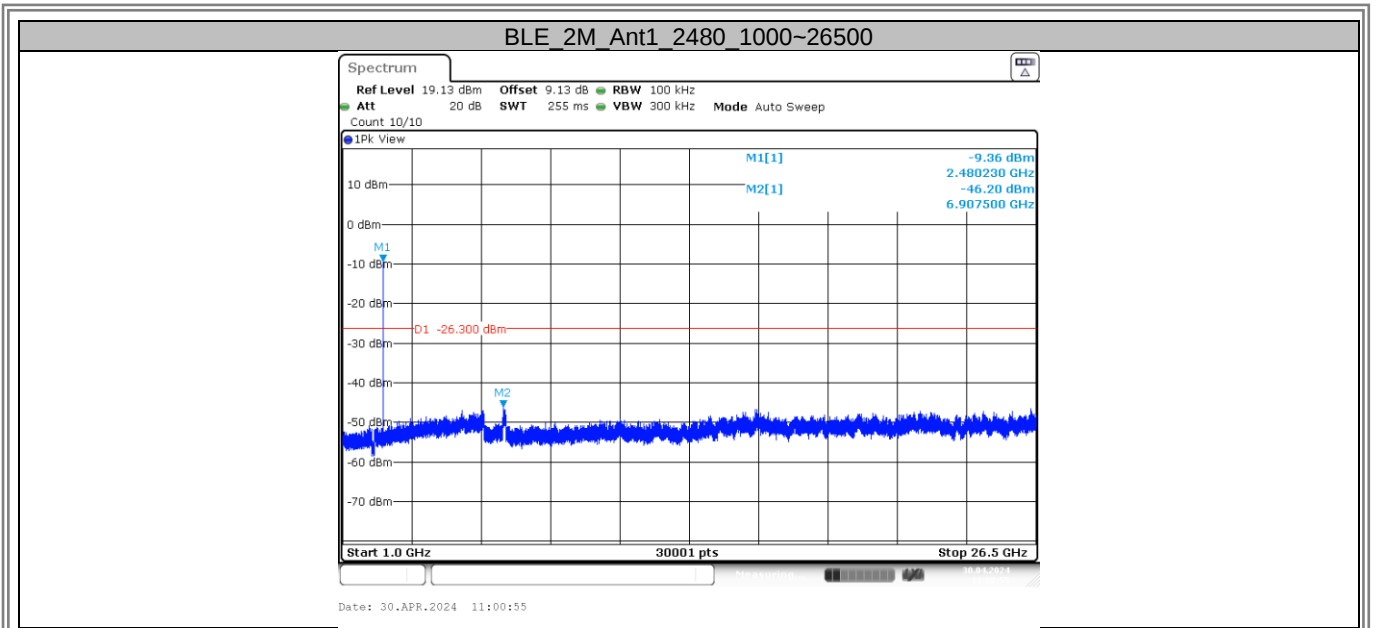


Date: 30.APR.2024 10:56:43

BLE_2M_Ant1_2480_30~1000



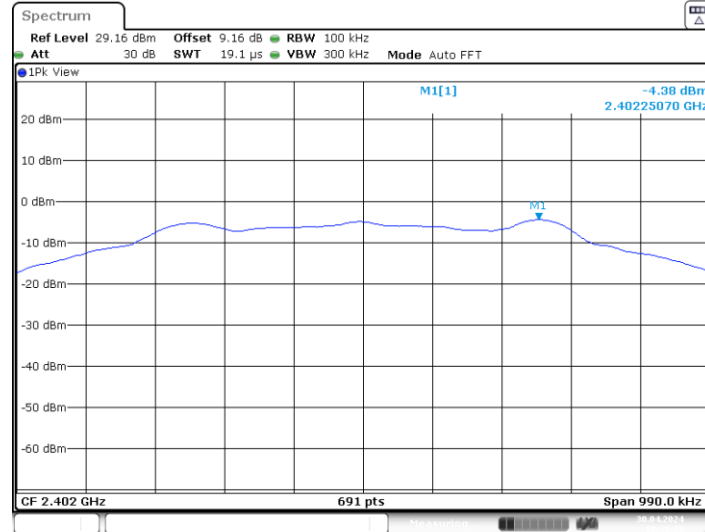
Date: 30.APR.2024 11:00:31



Reference level measurement

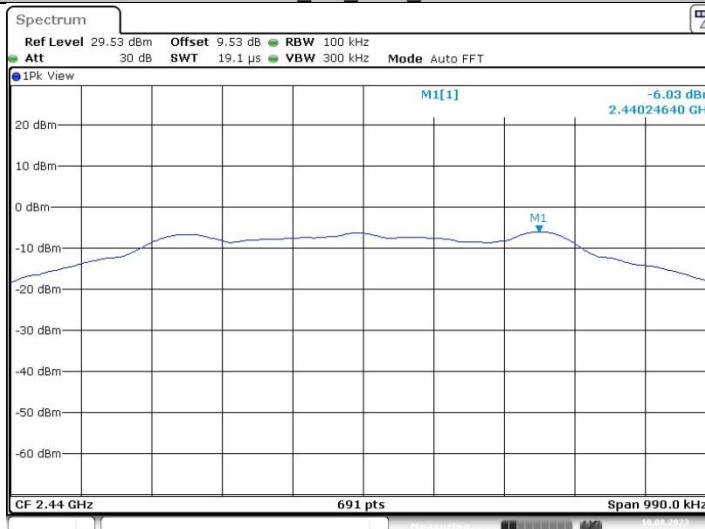
TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
BLE_1M	Ant1	2402	2402.25	-4.38
		2440	2440.25	-6.03
		2480	2480.25	-5.98
BLE_2M	Ant1	2402	2401.99	-4.94
		2440	2439.99	-6.44
		2480	2479.99	-6.30

BLE_1M_Ant1_2402



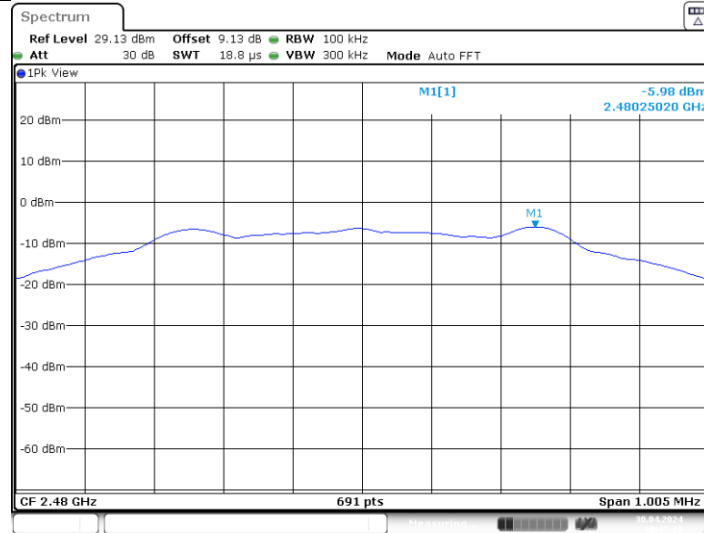
Date: 30.APR.2024 10:39:35

BLE_1M_Ant1_2440



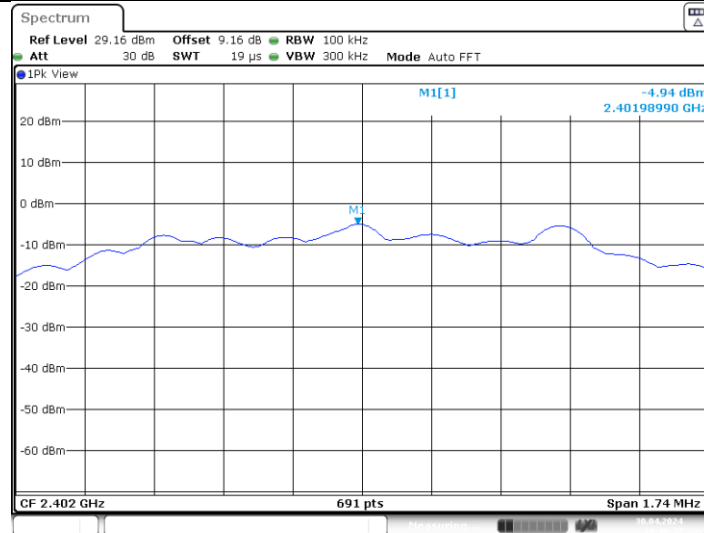
Date: 30.APR.2024 10:42:36

BLE_1M_Ant1_2480



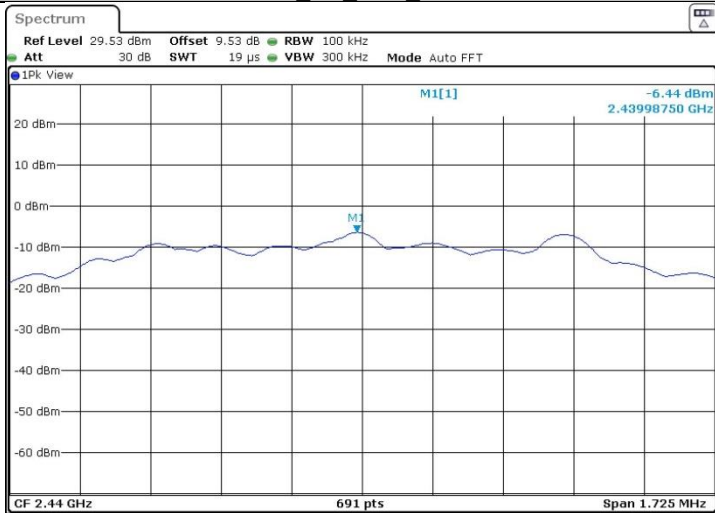
Date: 30.APR.2024 10:45:39

BLE_2M_Ant1_2402

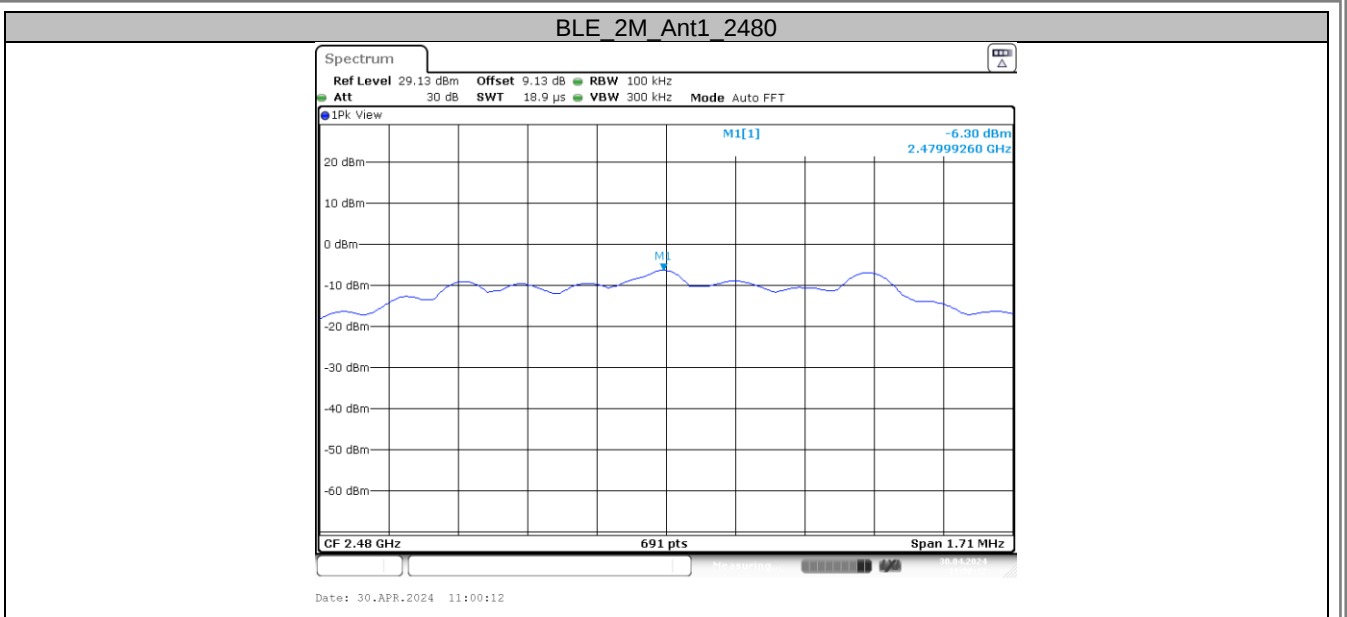


Date: 30.APR.2024 10:48:32

BLE_2M_Ant1_2440

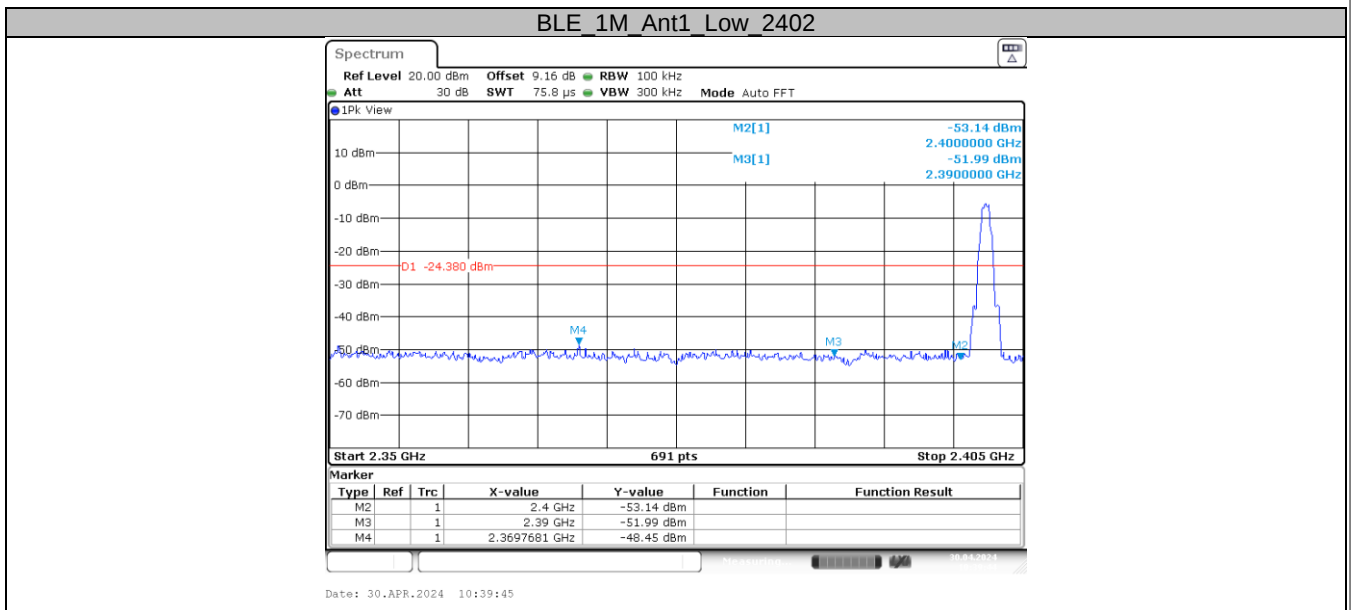


Date: 30.APR.2024 10:56:11

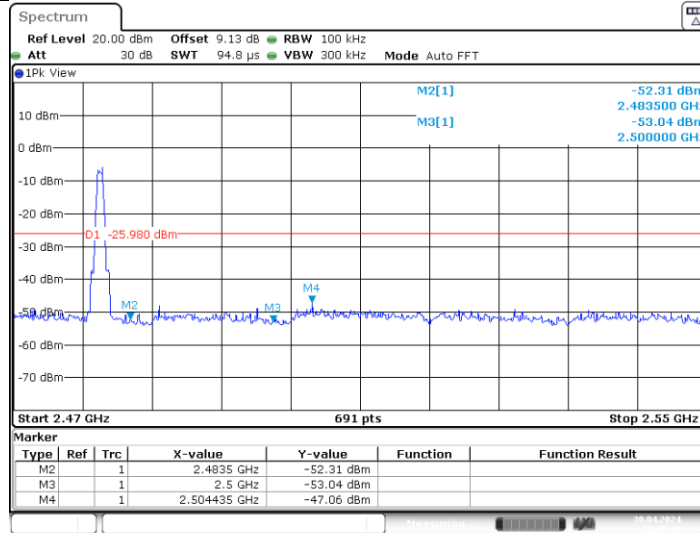


Band edge measurements

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-4.38	-48.45	≤-24.38	PASS
		High	2480	-5.98	-47.06	≤-25.98	PASS
BLE_2M	Ant1	Low	2402	-4.94	-36.99	≤-24.94	PASS
		High	2480	-6.30	-47.87	≤-26.3	PASS

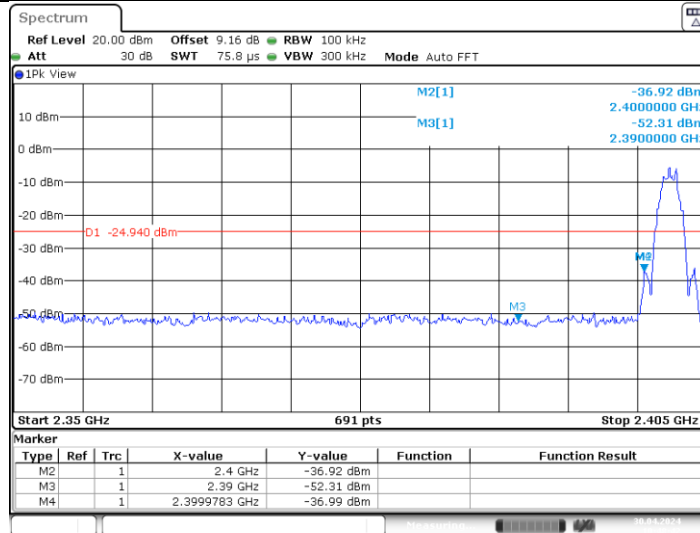


BLE 1M Ant1_High_2480



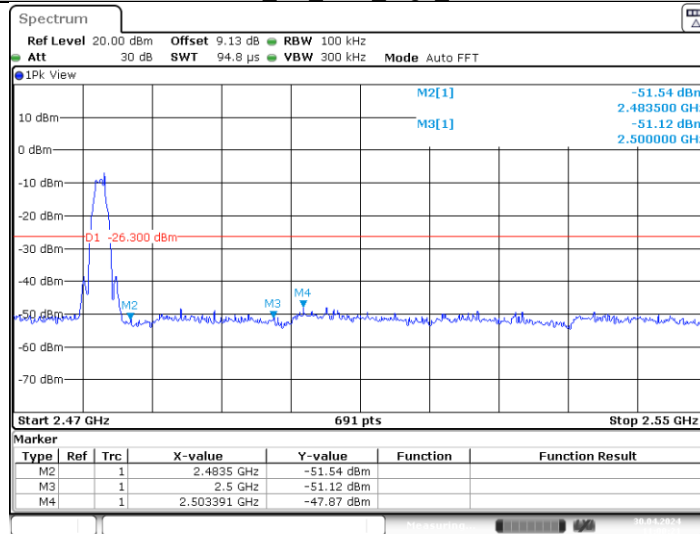
Date: 30.APR.2024 10:45:49

BLE 2M Ant1_Low_2402



Date: 30.APR.2024 10:48:42

BLE 2M Ant1_High_2480



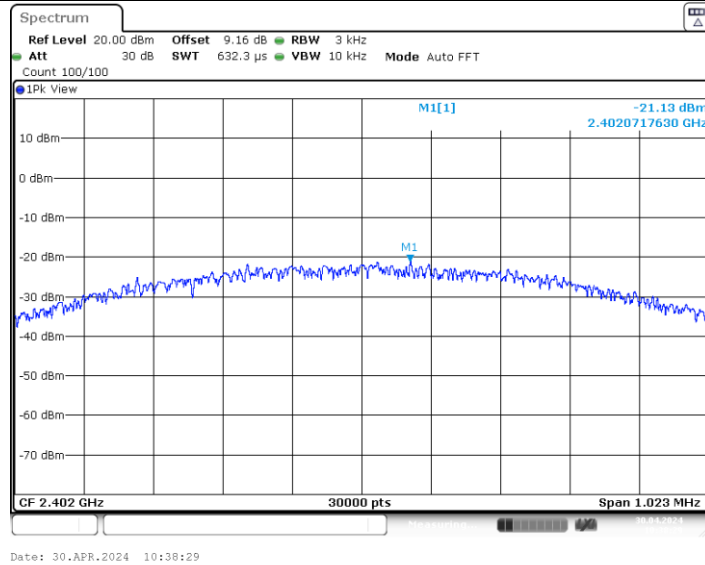
Date: 30.APR.2024 11:00:22

APPENDIX H- POWER SPECTRAL DENSITY

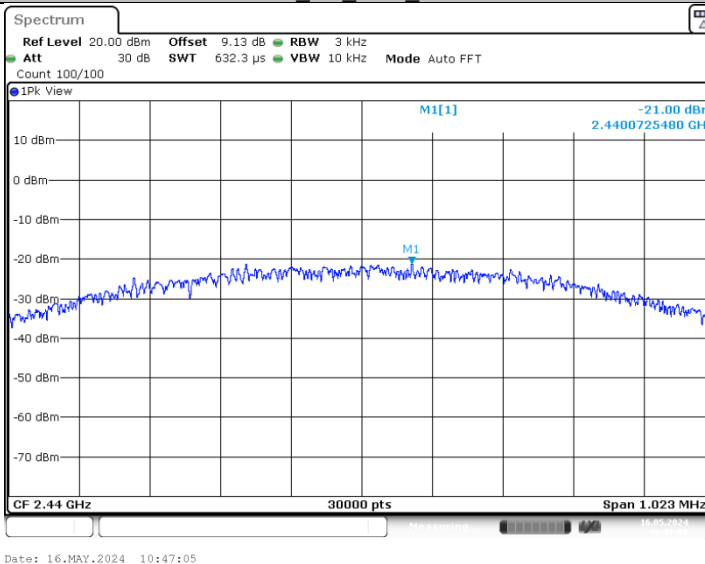
Power Spectral Density

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-21.13	≤8.00	PASS
		2440	-21.00	≤8.00	PASS
		2480	-23.04	≤8.00	PASS
BLE_2M	Ant1	2402	-23.45	≤8.00	PASS
		2440	-23.08	≤8.00	PASS
		2480	-24.83	≤8.00	PASS

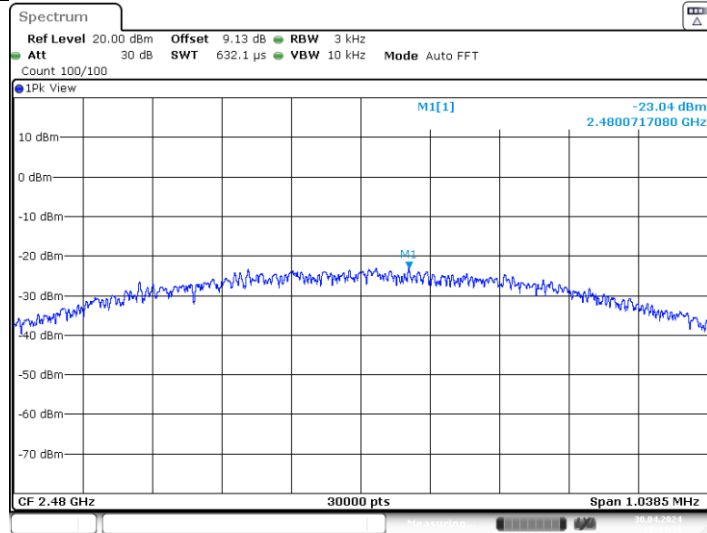
BLE 1M Ant1 2402



BLE 1M Ant1 2440

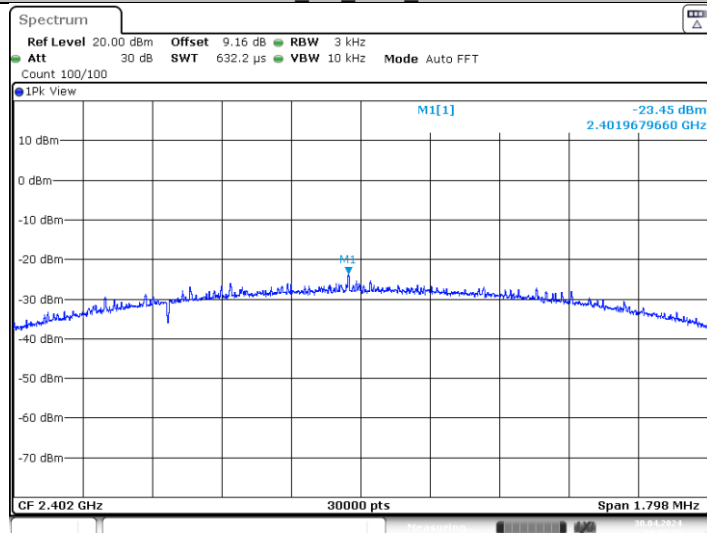


BLE_1M_Ant1_2480



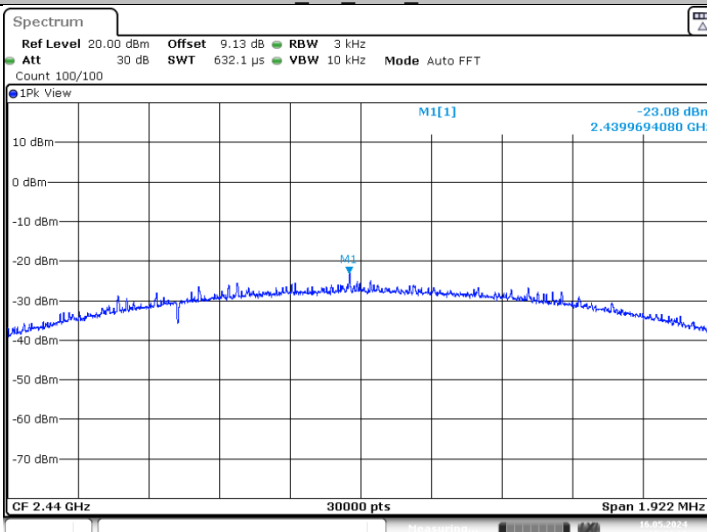
Date: 30.APR.2024 10:44:34

BLE_2M_Ant1_2402

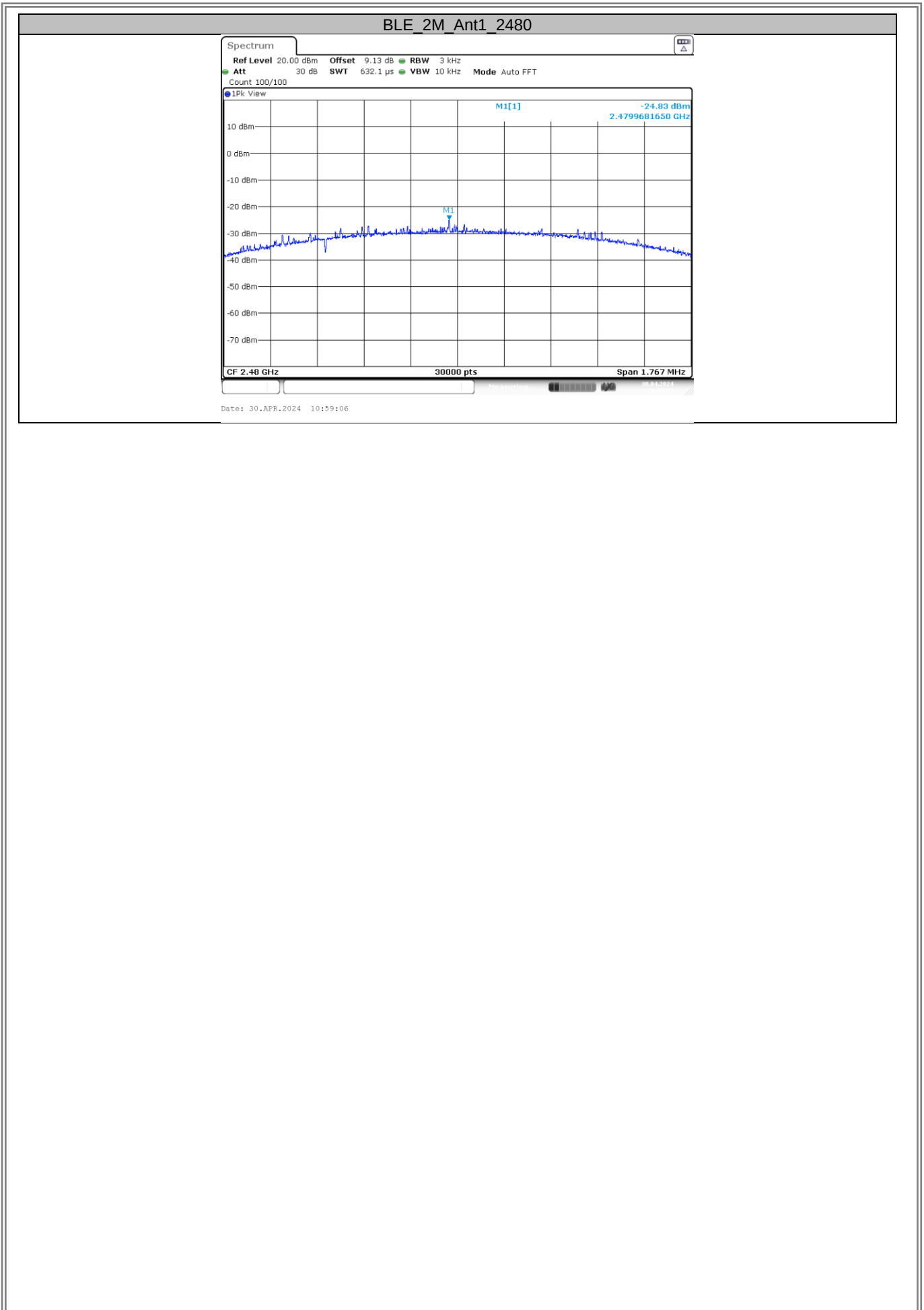


Date: 30.APR.2024 10:47:27

BLE_2M_Ant1_2440



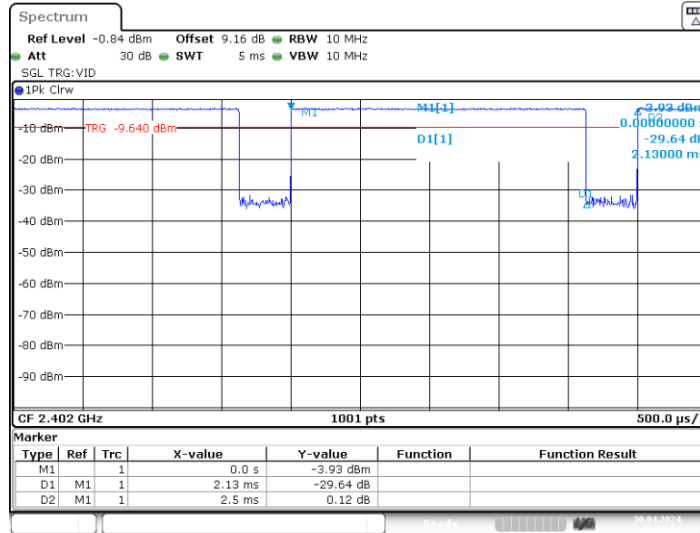
Date: 16.MAY.2024 10:44:09



APPENDIX I DUTY CYCLE

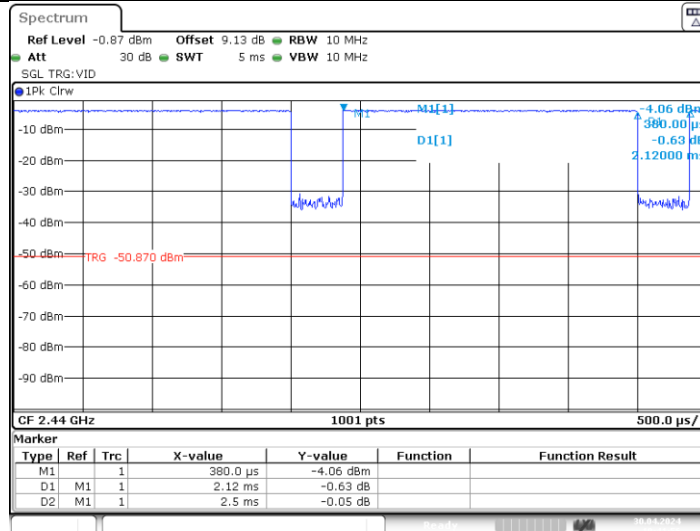
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	2.13	2.50	0.8520	85.20	0.70	---	---
		2440	2.12	2.50	0.8480	84.80	0.72	---	---
		2480	2.13	2.50	0.8520	85.20	0.70	---	---
BLE_2M	Ant1	2402	1.07	1.88	0.5691	56.91	2.45	---	---
		2440	1.07	1.87	0.5722	57.22	2.42	---	---
		2480	1.07	1.88	0.5691	56.91	2.45	---	---

BLE 1M Ant1 2402



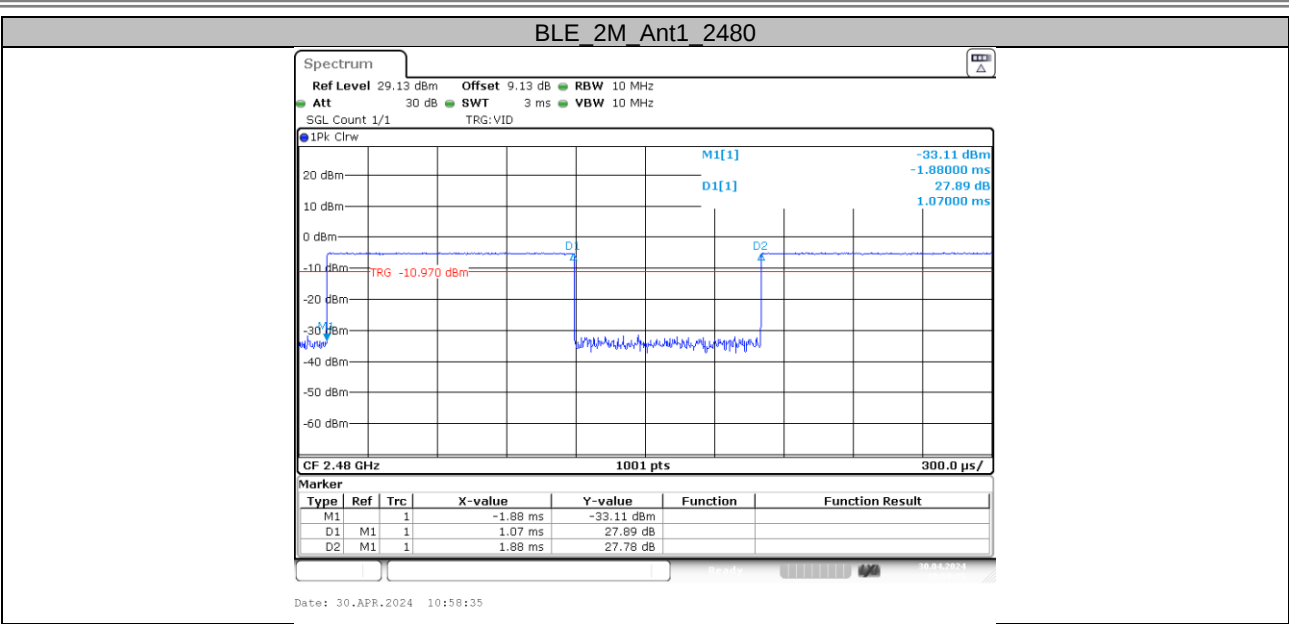
Date: 30.APR.2024 10:37:51

BLE 1M Ant1 2440



Date: 30.APR.2024 10:41:55





End of Test Report