## Middle Channel


Date: 17.APR.2025 11:08:08

## High Channel
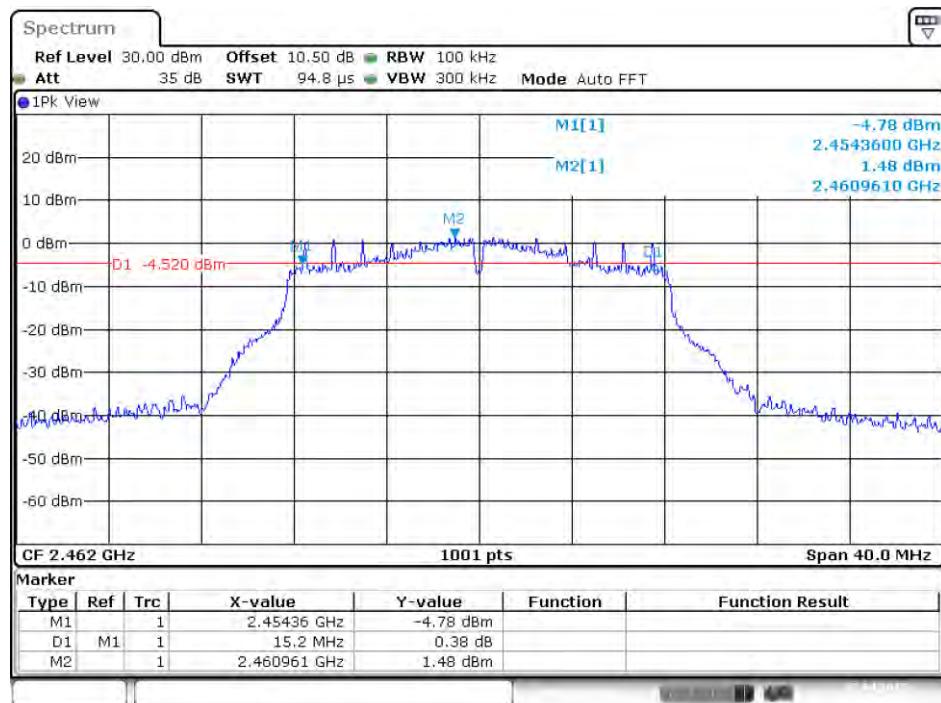
Date: 17.APR.2025 11:10:13

N20 Mode
## Low Channel
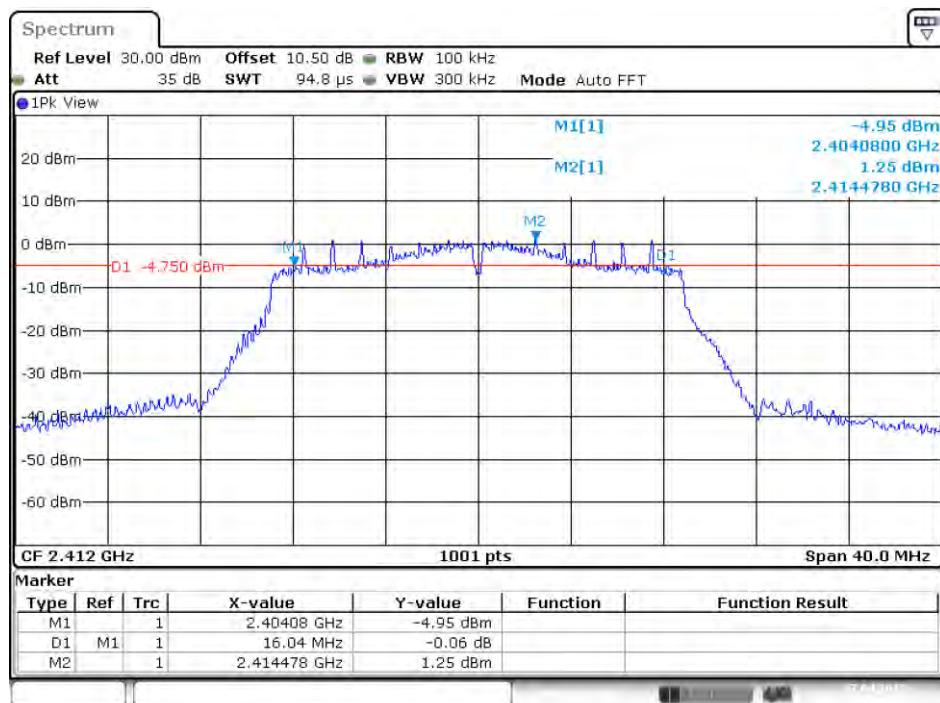
Date: 17.APR.2025 11:24:57

Middle Channel
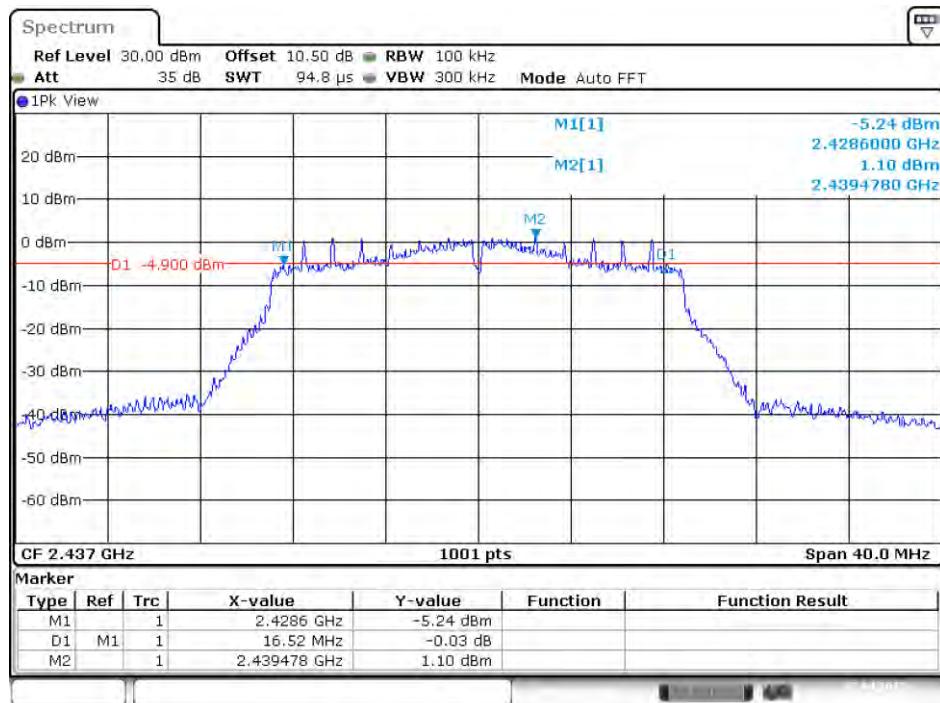

Date: 17.APR.2025 11:28:03

High Channel


Spectrum						
Ref Level 30.00 dBm	Offset 10.50 dB	RBW 100 kHz				
Att 35 dB	SWT 94.8 µs	VBW 300 kHz	Mode Auto FFT			

1Pk View

M1[1]　−5.35 dBm　2.4540800 GHz
M2[1]　1.01 dBm　2.4644780 GHz

D1 −4.990 dBm

CF 2.462 GHz　　　1001 pts　　　Span 40.0 MHz

Marker						
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45408 GHz	−5.35 dBm		
D1	M1	1	15.48 MHz	0.92 dB		
M2		1	2.464478 GHz	1.01 dBm		
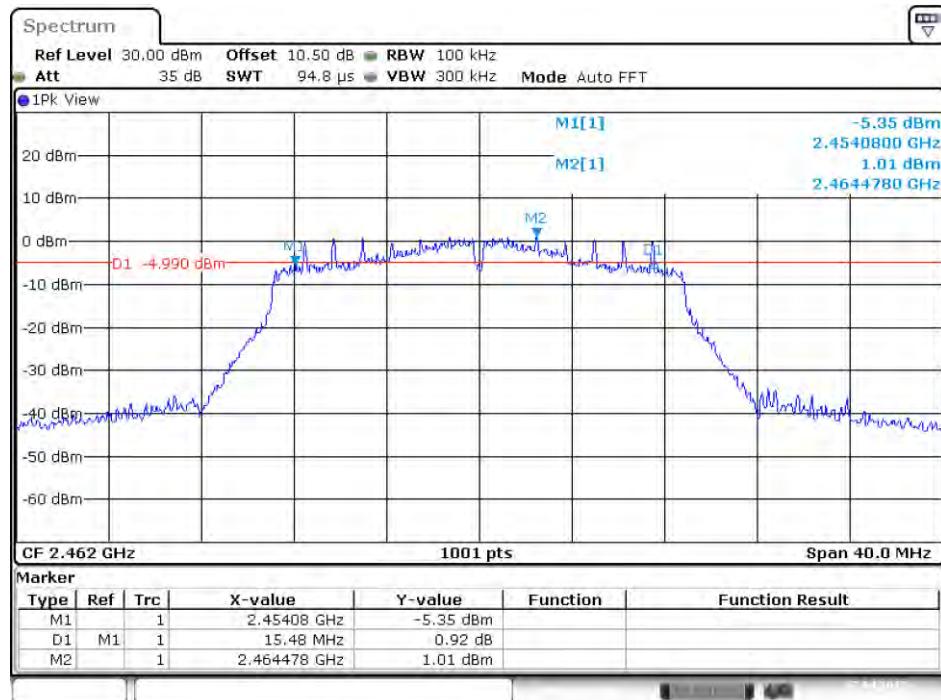
Date: 17.APR.2025 11:31:18

N40 Mode
Low Channel

Spectrum						
Ref Level 20.00 dBm	Offset 10.50 dB	RBW 100 kHz				
Att 35 dB	SWT 1.1 ms	VBW 300 kHz	Mode Auto Sweep			

1Pk View

M1[1]　−4.72 dBm　2.4044000 GHz
M2[1]　−1.81 dBm　2.4257560 GHz

D1 −7.810 dBm

CF 2.422 GHz　　　1001 pts　　　Span 80.0 MHz

| Marker						
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4044 GHz	−4.72 dBm		
D1	M1	1	35.2 MHz	−1.14 dB		
M2		1	2.425756 GHz	−1.81 dBm		
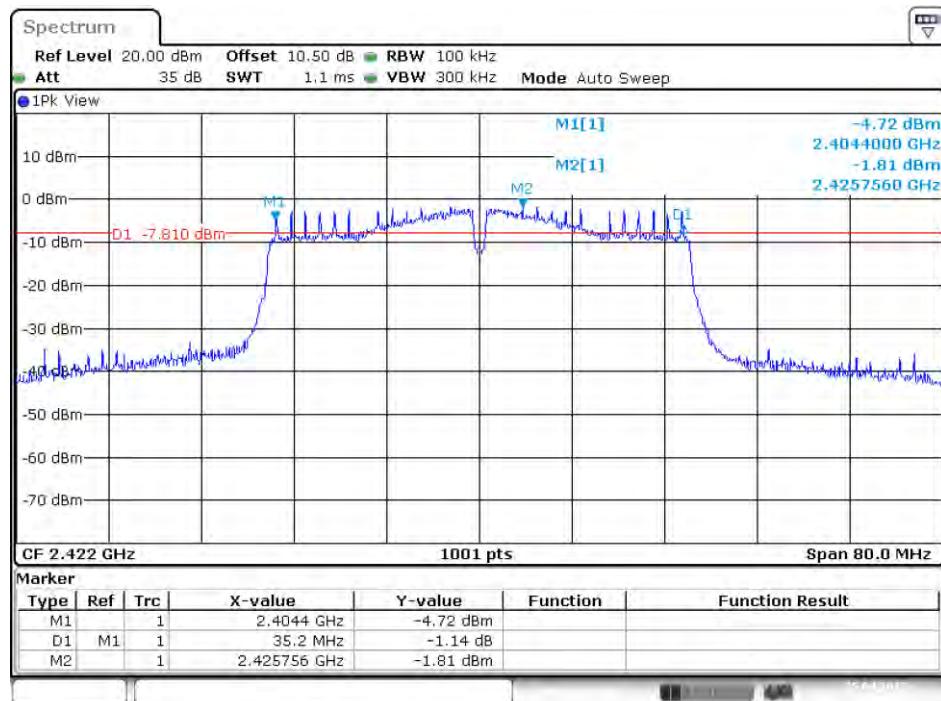
Date: 25.APR.2025 12:20:52

Middle Channel
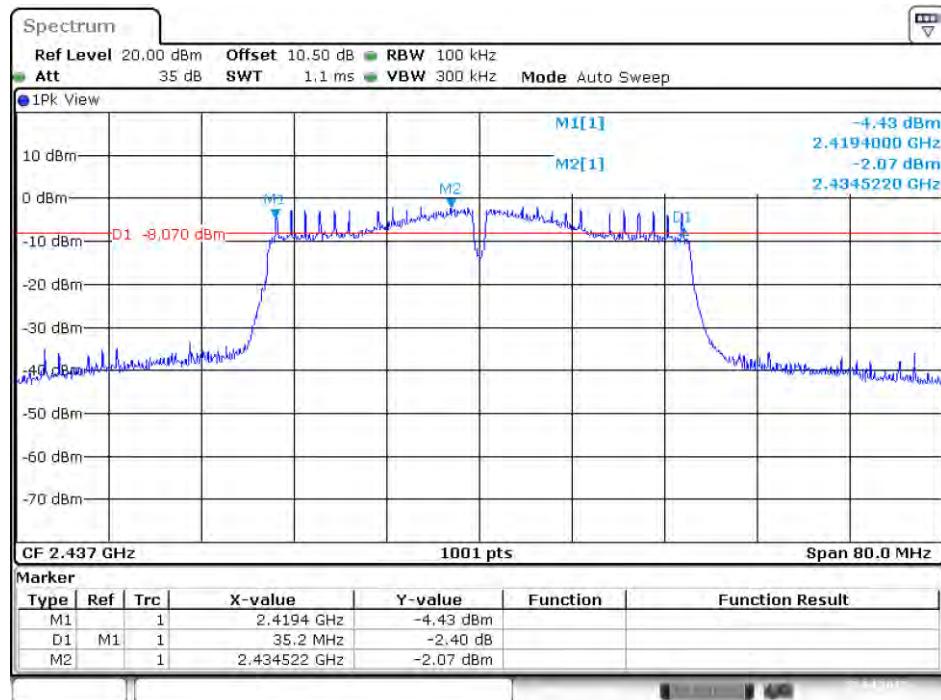
Date: 25.APR.2025 12:23:18

High Channel
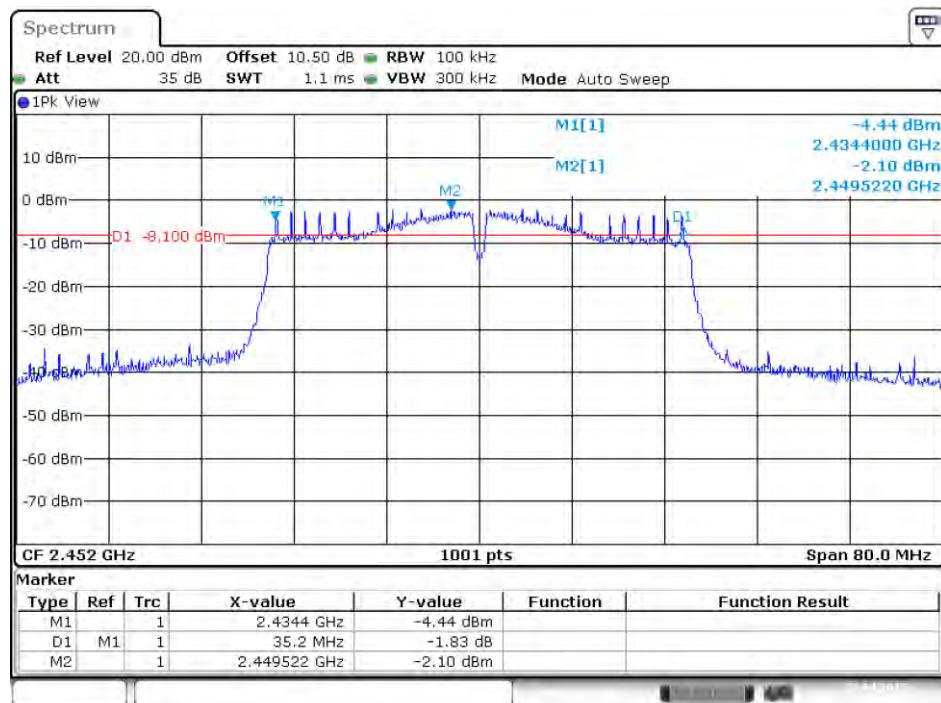


Date: 25.APR.2025 12:25:38

BLE(1M) Mode
Low Channel
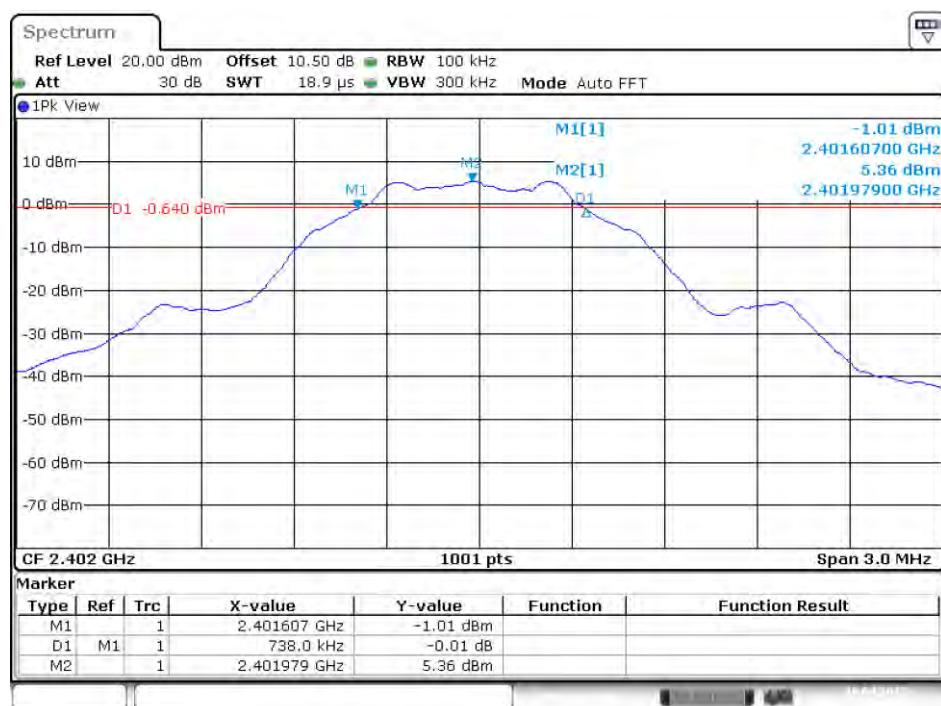
Date: 16.APR.2025 16:44:18

Middle Channel
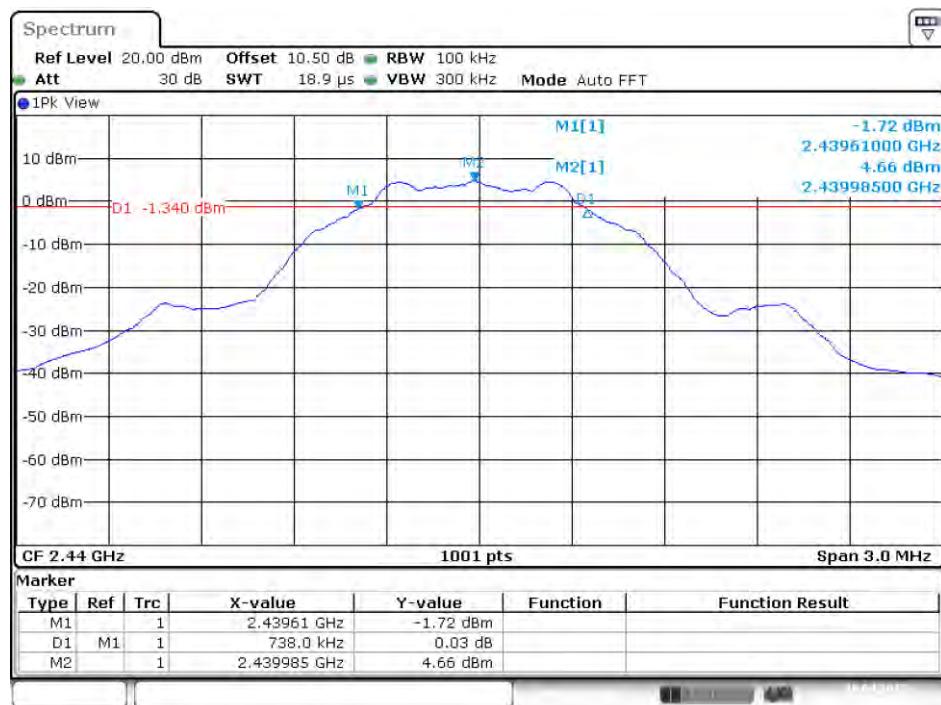
Date: 16.APR.2025 16:46:05

High Channel

Spectrum

Ref Level 20.00 dBm　Offset 10.50 dB　RBW 100 kHz
Att　30 dB　SWT　18.9 μs　VBW 300 kHz　Mode Auto FFT

1Pk View

		M1[1]	-3.12 dBm
			2.47961600 GHz
10 dBm		M2[1]	3.21 dBm
		M2	2.47998800 GHz
0 dBm	M1		
D1 -2.790 dBm			

CF 2.48 GHz　　　1001 pts　　　Span 3.0 MHz

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479616 GHz	-3.12 dBm		
D1	M1	1	735.0 kHz	-0.01 dB		
M2		1	2.479988 GHz	3.21 dBm		
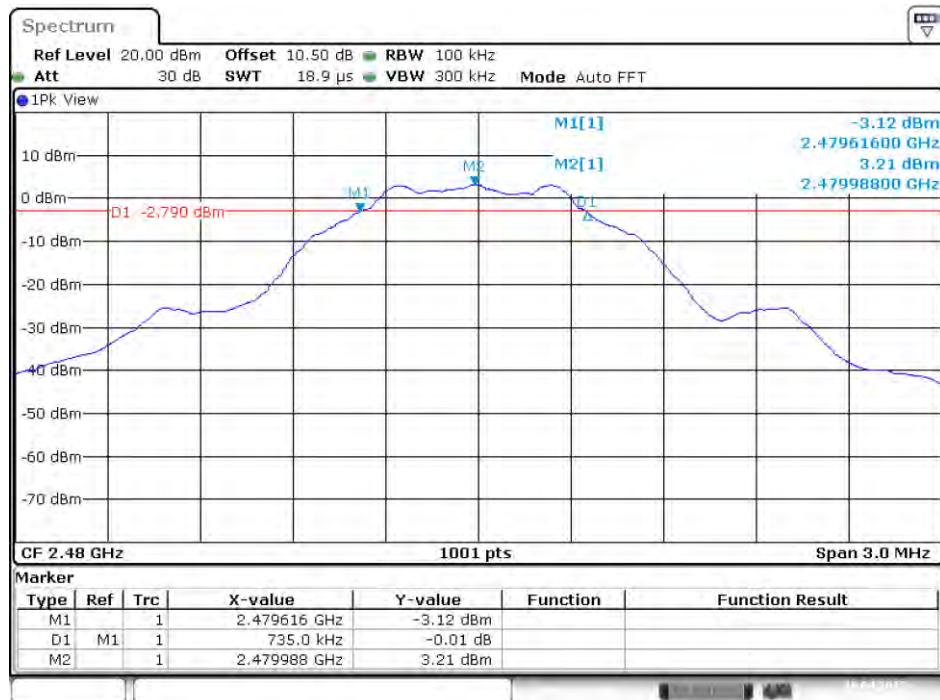
Date: 16.APR.2025 16:47:52

BLE(2M) Mode
Low Channel

Spectrum

Ref Level 20.00 dBm　Offset 10.50 dB　RBW 100 kHz
Att　30 dB　SWT　18.9 μs　VBW 300 kHz　Mode Auto FFT

1Pk View

		M1[1]	-0.33 dBm
			2.40142100 GHz
10 dBm		M2[1]	6.04 dBm
		M2	2.40198800 GHz
0 dBm	M1		
D1 0.040 dBm			

CF 2.402 GHz　　　1001 pts　　　Span 3.0 MHz

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401421 GHz	-0.33 dBm		
D1	M1	1	1.116 MHz	0.14 dB		
M2		1	2.401988 GHz	6.04 dBm		
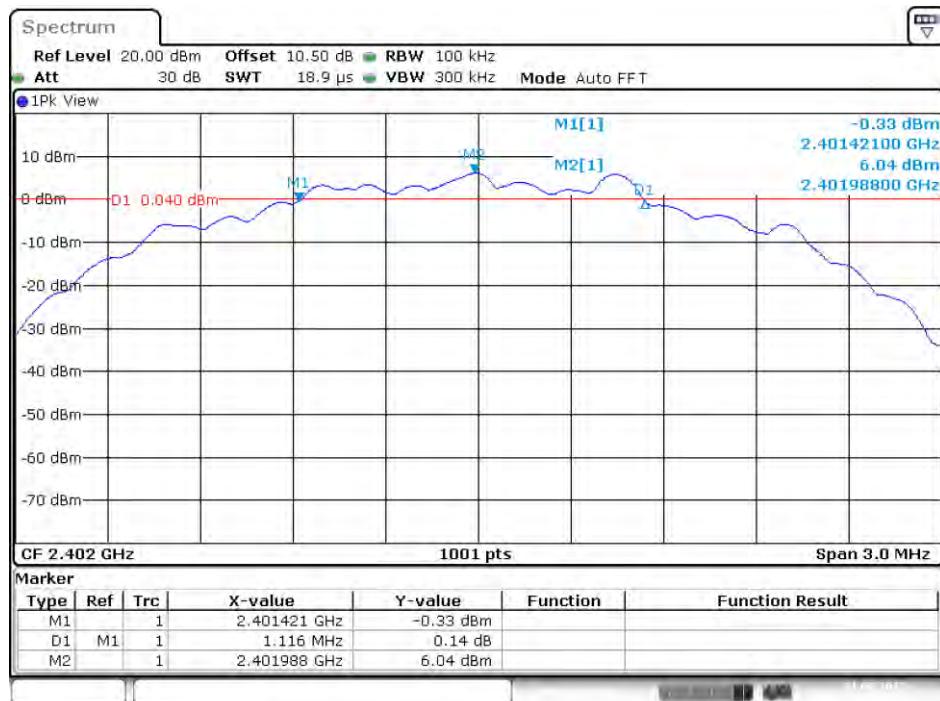
Date: 21.MAY.2025 10:12:48
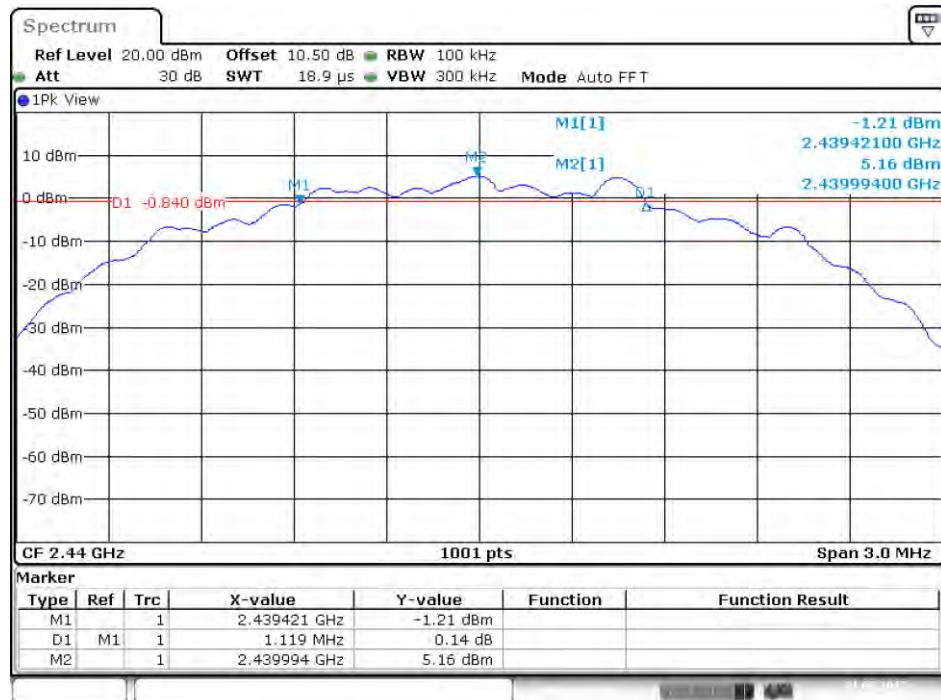
Middle Channel

Date: 21.MAY.2025 10:18:48

High Channel
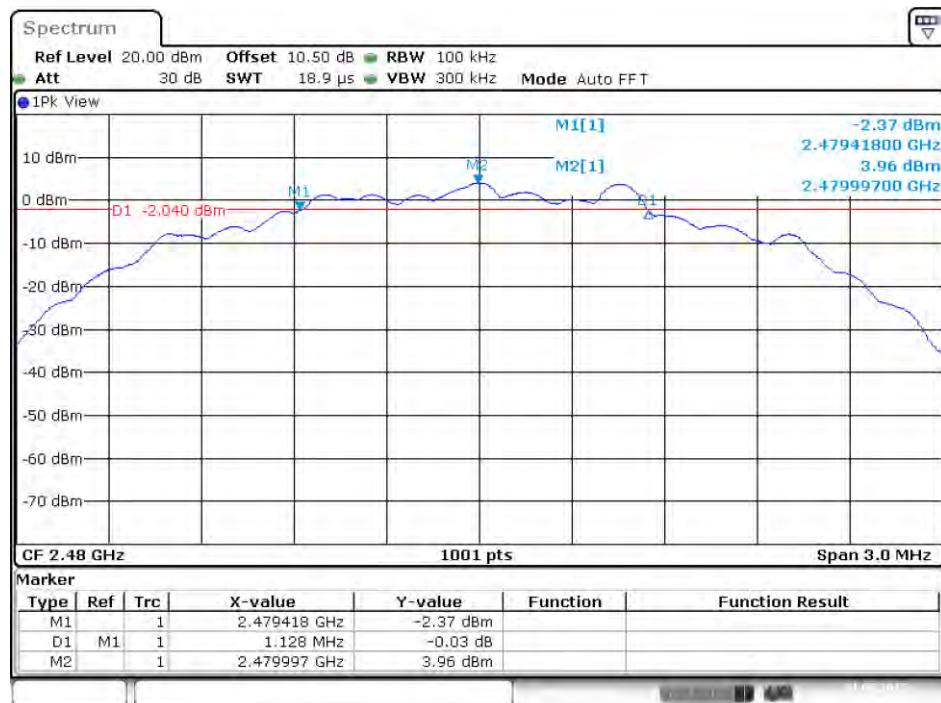
Date: 21.MAY.2025 10:24:01

99% Bandwidth

B Mode
Low Channel
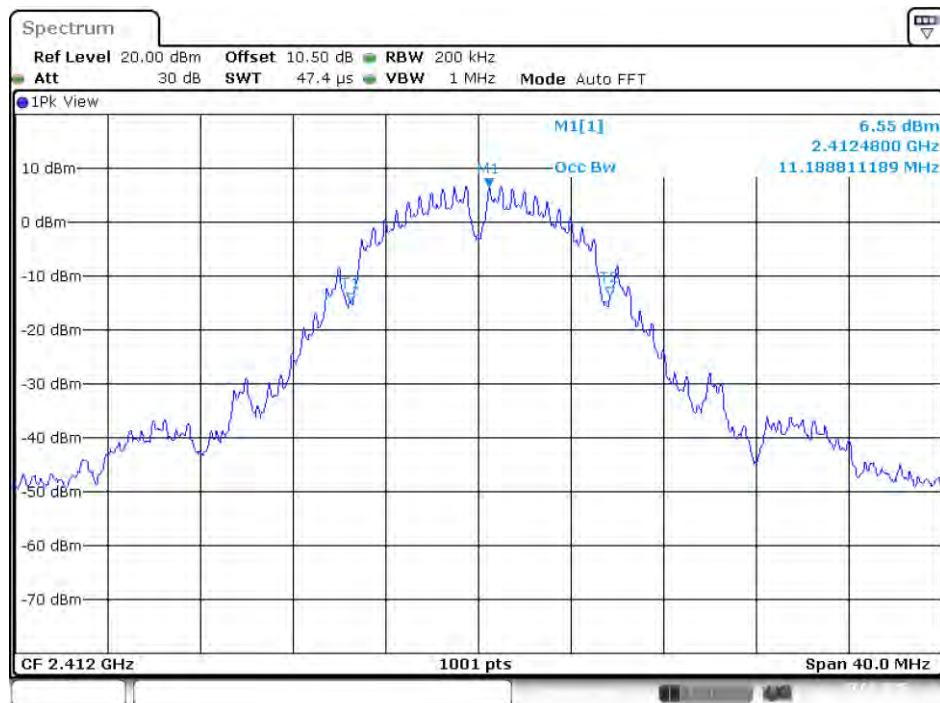
Date: 17.APR.2025 10:48:22

Middle Channel
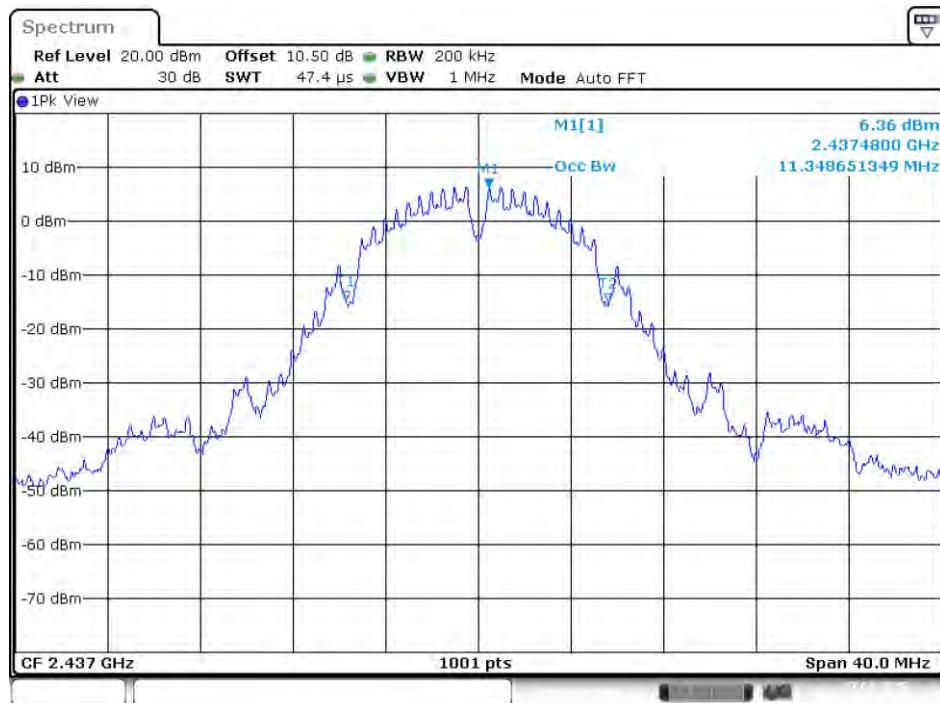
Date: 17.APR.2025 10:55:05

High Channel
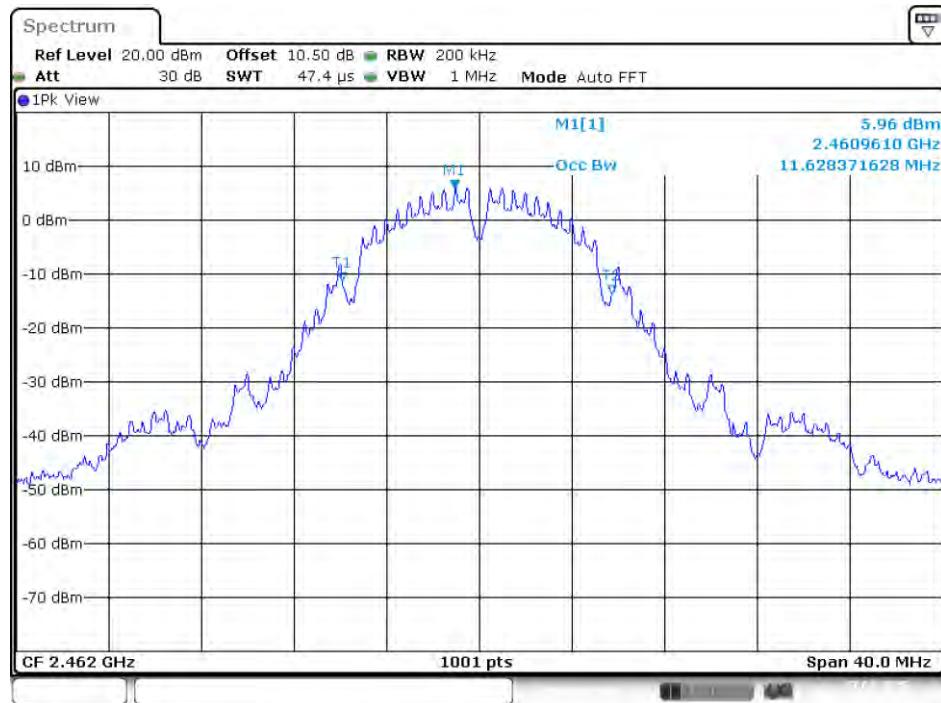
Date: 17.APR.2025 10:58:02

G Mode
Low Channel

Date: 17.APR.2025 11:01:55

Middle Channel
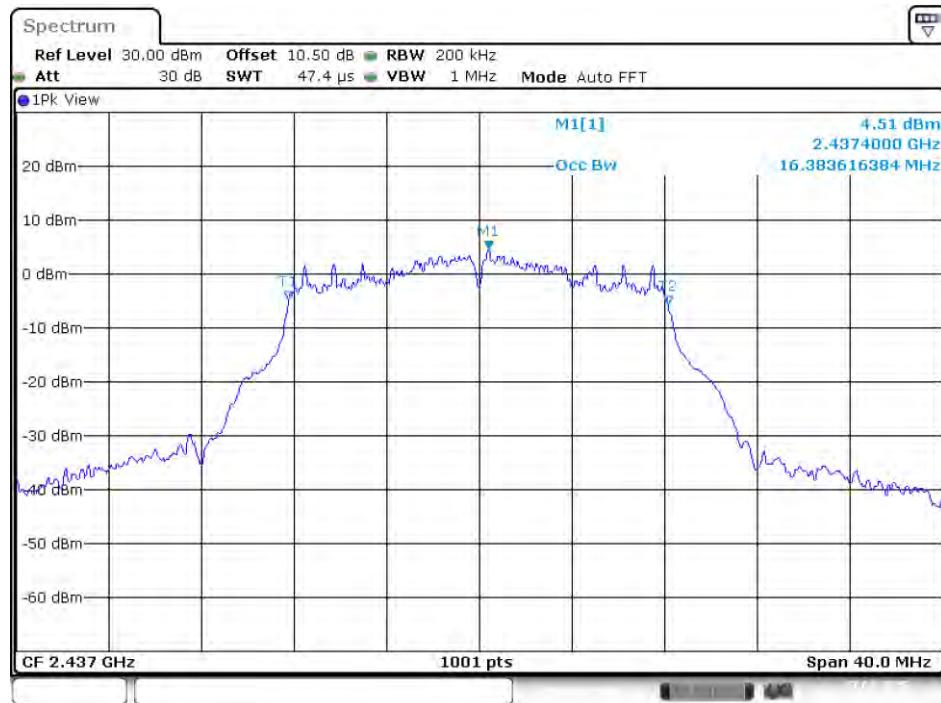
Date: 17.APR.2025 11:08:47

High Channel
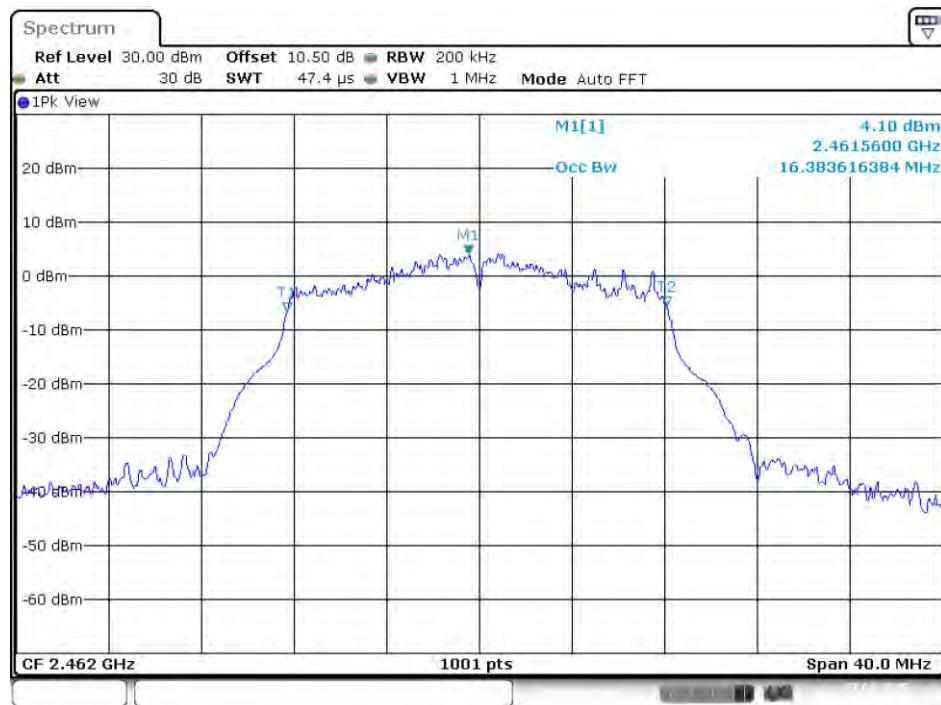
Date: 17.APR.2025 11:11:08

N20 Mode
Low Channel
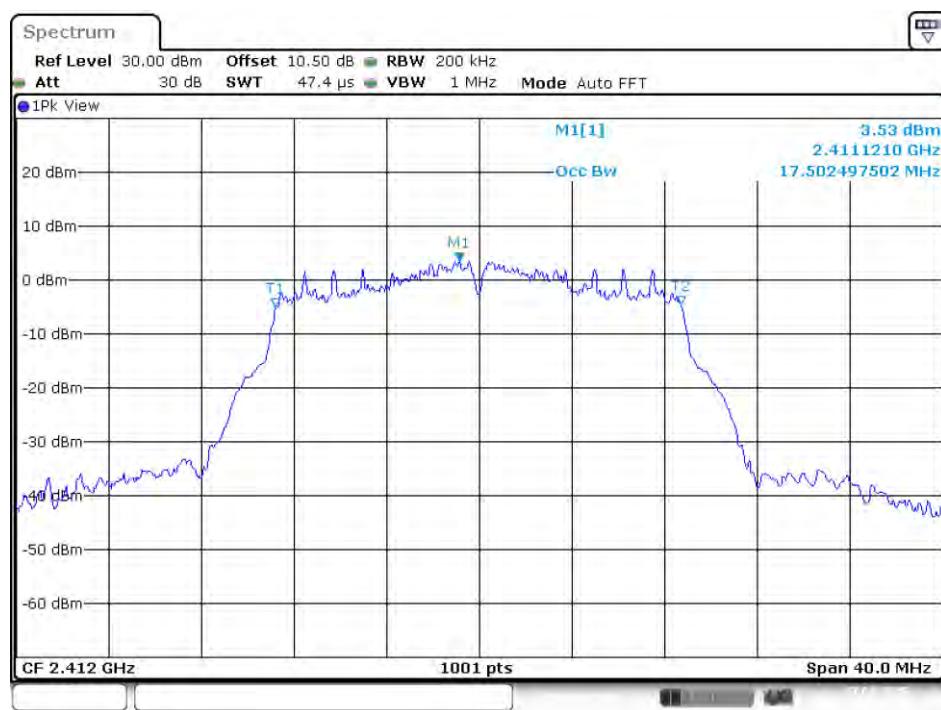
Date: 17.APR.2025 11:25:53

Middle Channel
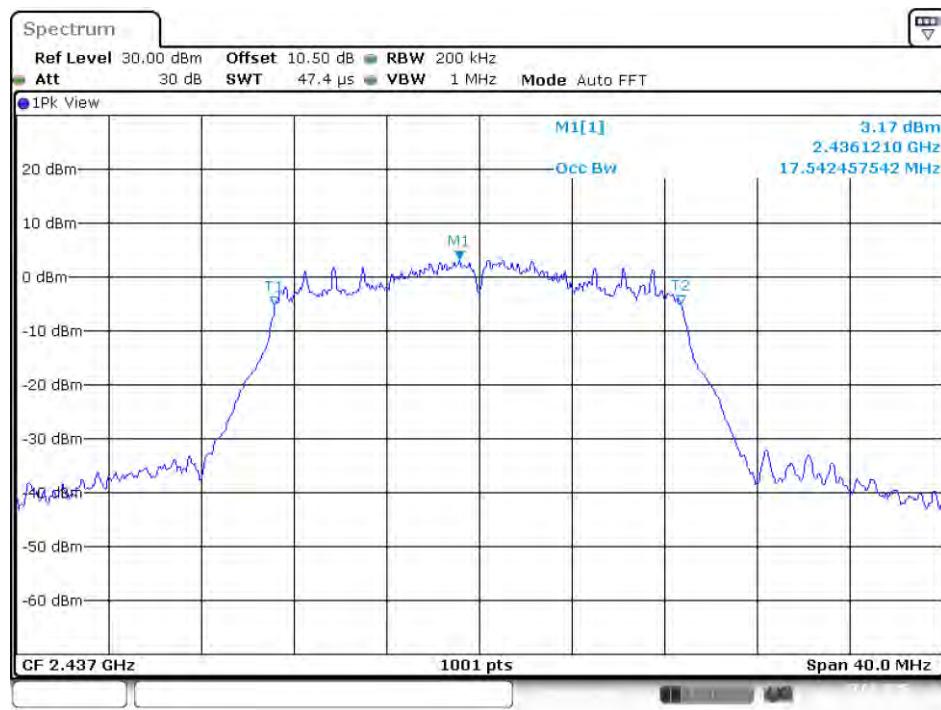
Date: 17.APR.2025 11:28:43

High Channel
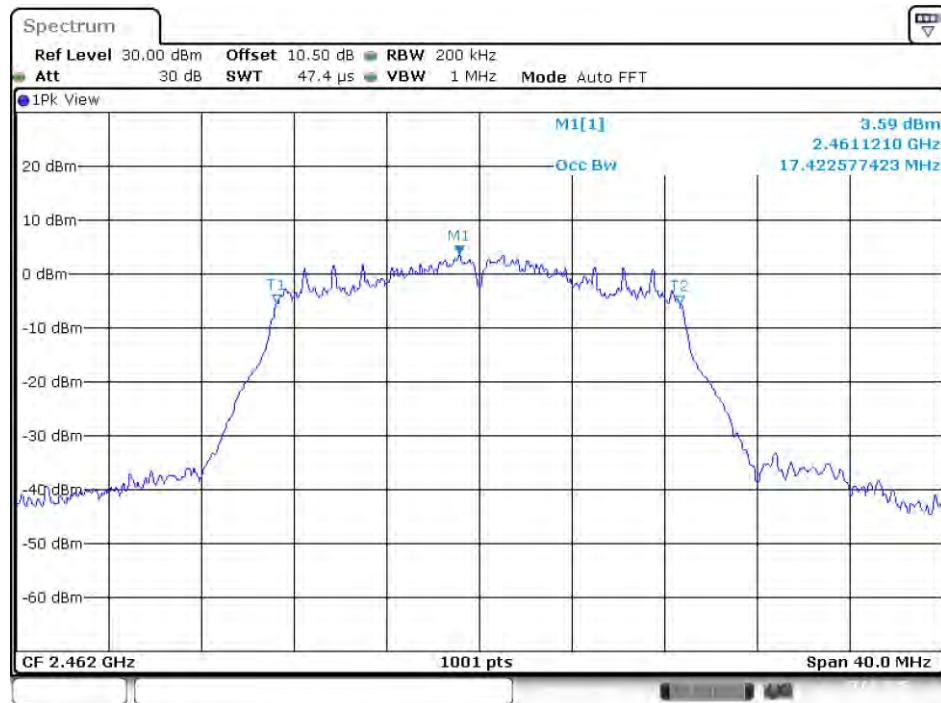
Date: 17.APR.2025 11:32:14

N40 Mode
Low Channel
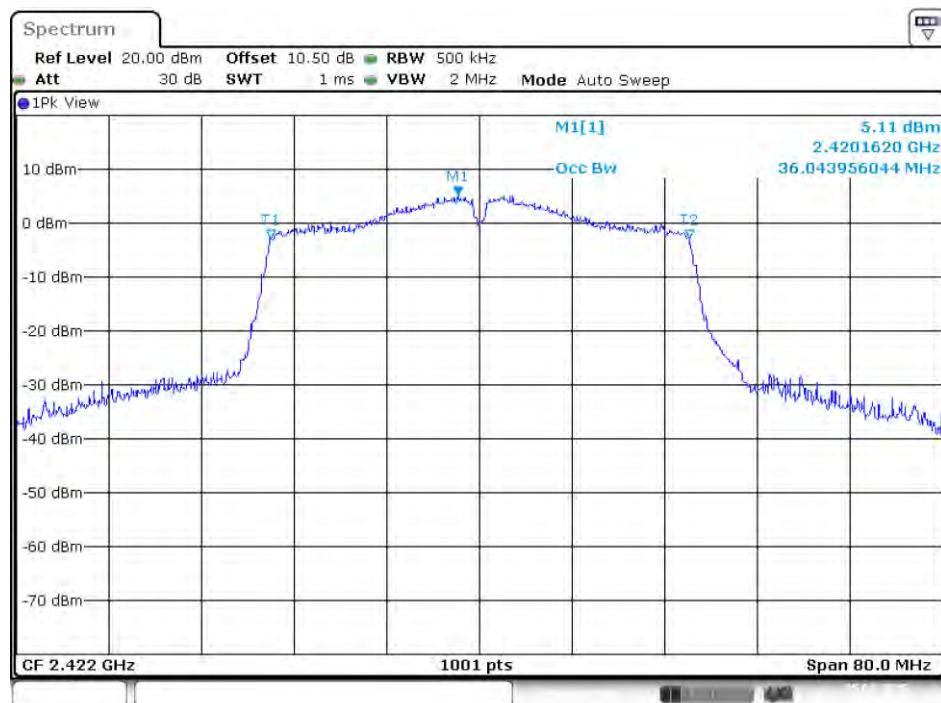
Date: 25.APR.2025 12:21:47

Middle Channel

Date: 25.APR.2025 12:23:57

High Channel
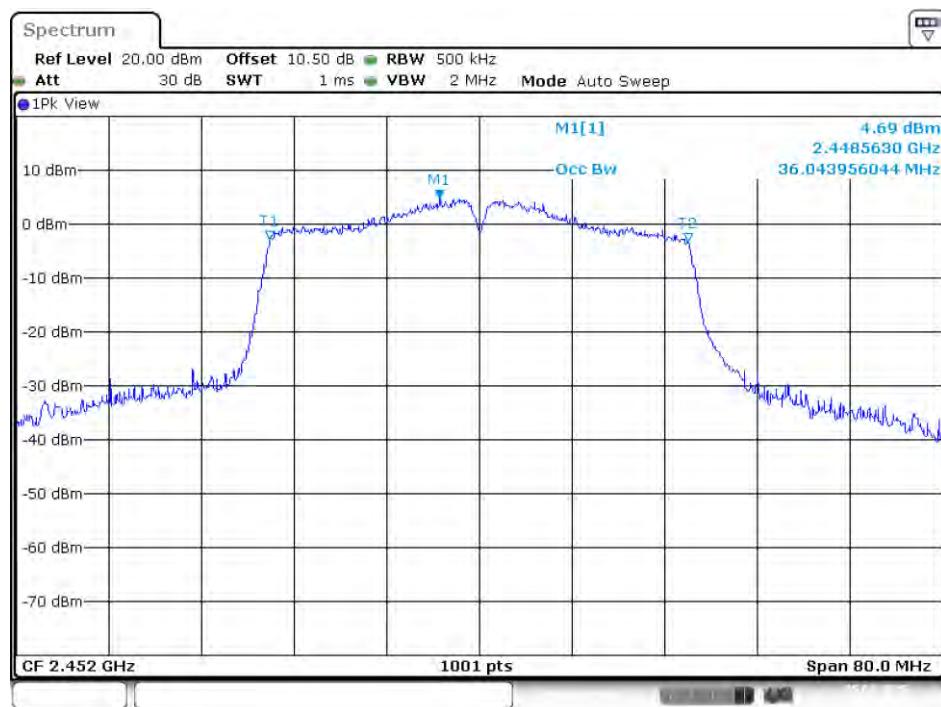
Date: 25.APR.2025 12:26:33

BLE(1M) Mode
Low Channel

Date: 16.APR.2025 16:44:42

Middle Channel

Date: 16.APR.2025 16:46:29

High Channel

Date: 16.APR.2025 16:48:16

BLE(2M) Mode
Low Channel
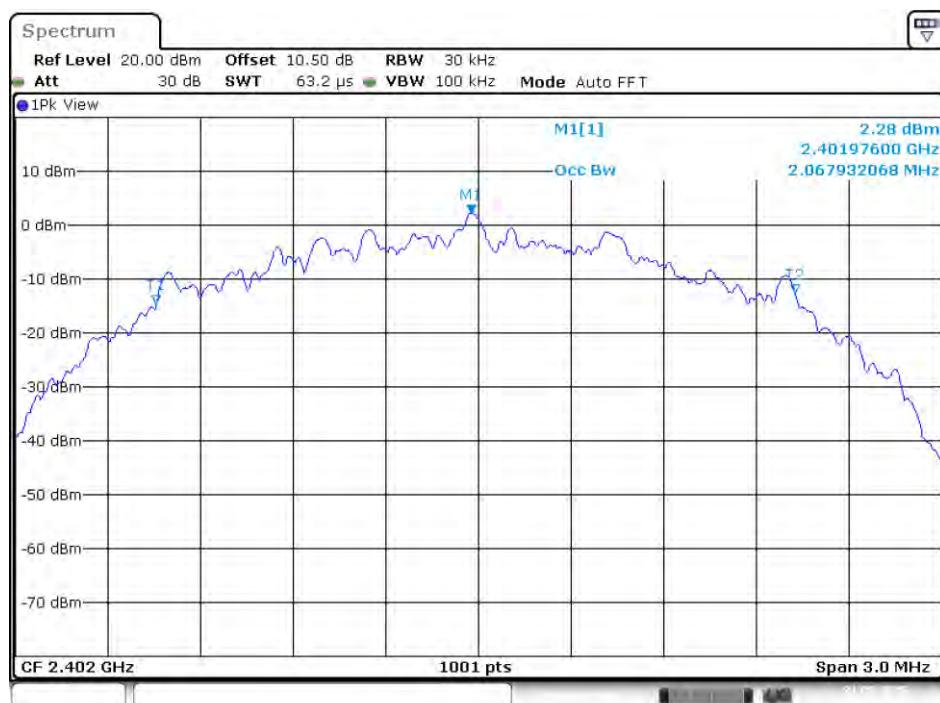
Date: 21.MAY.2025 10:13:13

Middle Channel

Date: 21.MAY.2025 10:19:12

High Channel

Date: 21.MAY.2025 10:24:25
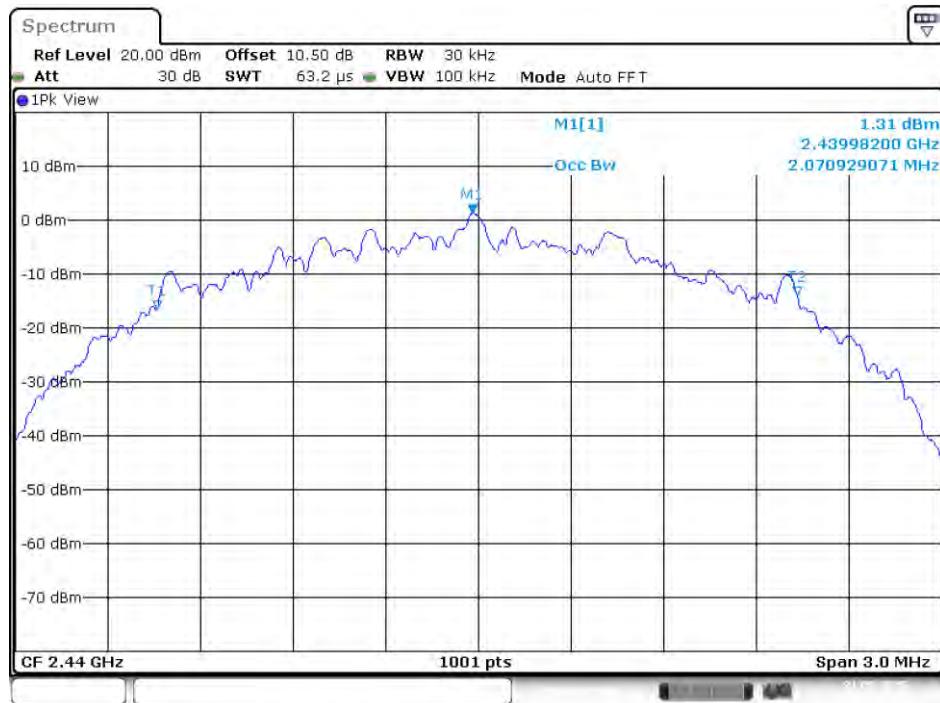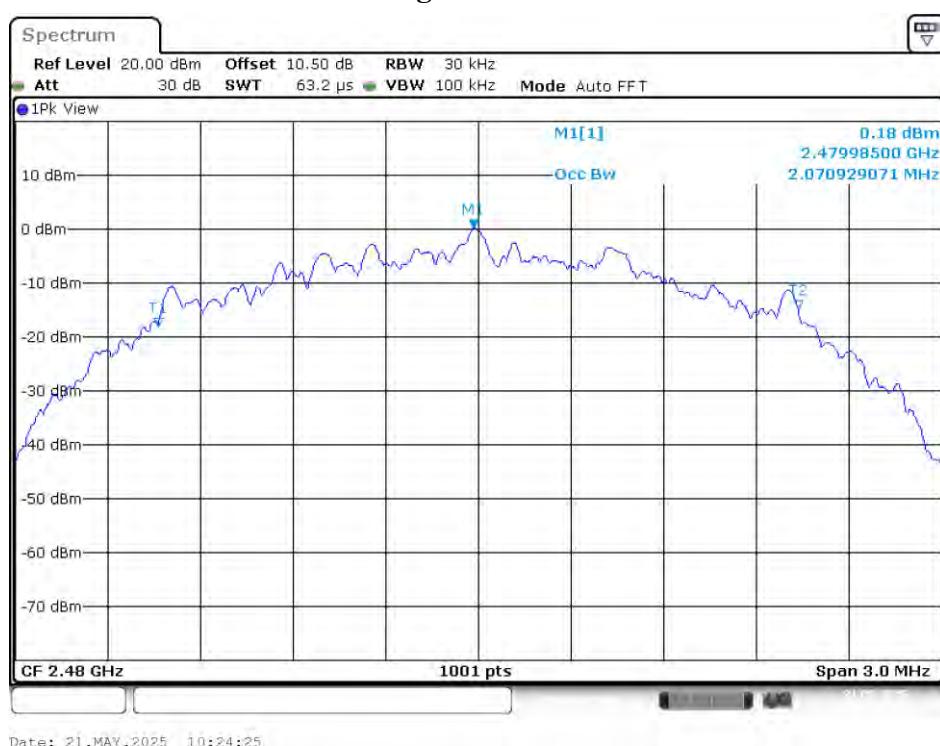
9   FCC §15.247(b)(3) & RSS-247 §5.4(d) – Maximum Output Power

9.1   Applicable Standard

According to FCC §15.247(b) (3).

Systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to RSS-247 §5.4(d).

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

9.2   Test Procedure

According to ANSI C63.10-2013, section 11.9.1.3

According to ANSI C63.10-2013, section 11.9.2.3.1

1. Place the EUT on a bench and set it in transmitting mode.

2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to measuring equipment.

9.3   Test Results

Conducted Peak Output Power

Channel	Frequency (MHz)	Conducted Peak Output Power (dBm)	Limit (dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)
802.11b Mode						
Low	2412	18.08	30	4.1	22.18	36
Middle	2437	17.97	30	4.1	22.07	36
High	2462	17.55	30	4.1	21.65	36
802.11g Mode						
Low	2412	23.14	30	4.1	27.24	36
Middle	2437	23.10	30	4.1	27.20	36
High	2462	22.52	30	4.1	26.62	36
802.11n HT20 Mode						
Low	2412	23.35	30	4.1	27.45	36
Middle	2437	23.19	30	4.1	27.29	36
High	2462	22.60	30	4.1	26.70	36
802.11n HT40 Mode						
Low	2422	23.04	30	4.1	27.14	36
Middle	2437	22.94	30	4.1	27.04	36
High	2452	22.44	30	4.1	26.54	36
BLE(1M) Mode						
Low	2402	6.57	30	4.1	10.67	36
Middle	2440	5.77	30	4.1	9.87	36
High	2480	4.29	30	4.1	8.39	36
BLE(2M) Mode						
Low	2402	6.71	30	4.1	10.81	36
Middle	2440	6.02	30	4.1	10.12	36
High	2480	4.85	30	4.1	8.95	36

Conducted Average Output Power

Channel	Frequency (MHz)	Conducted Average Output Power (dBm)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)
802.11b Mode							
Low	2412	14.66	14.70	30	4.1	18.80	36
Middle	2437	14.63	14.67	30	4.1	18.77	36
High	2462	14.37	14.41	30	4.1	18.51	36
802.11g Mode							
Low	2412	13.28	13.69	30	4.1	17.79	36
Middle	2437	13.22	13.63	30	4.1	17.73	36
High	2462	13.16	13.57	30	4.1	17.67	36
802.11n HT20 Mode							
Low	2412	12.79	13.20	30	4.1	17.30	36
Middle	2437	12.66	13.07	30	4.1	17.17	36
High	2462	12.48	12.89	30	4.1	16.99	36
802.11n HT40 Mode							
Low	2422	12.25	12.71	30	4.1	16.81	36
Middle	2437	12.37	12.83	30	4.1	16.93	36
High	2452	12.13	12.59	30	4.1	16.69	36
BLE(1M) Mode							
Low	2402	4.40	6.48	30	4.1	10.58	36
Middle	2440	3.63	5.71	30	4.1	9.81	36
High	2480	2.12	4.20	30	4.1	8.30	36
BLE(2M) Mode							
Low	2402	4.14	6.58	30	4.1	10.68	36
Middle	2440	3.46	5.90	30	4.1	10.00	36
High	2480	2.26	4.70	30	4.1	8.80	36

10 FCC §15.247(d) & RSS-247 §5.5 – 100 kHz Bandwidth of Frequency Band Edge

10.1 Applicable Standard

According to FCC §15.247(d).

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

According to RSS-247 §5.5.

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

10.2 Test Procedure

According to ANSI C63.10-2013 Section 11.11

1. Set the center frequency and span to encompass frequency range to be measured.

2. Set the RBW = 100 kHz.

3. Set the VBW ≥ [3 × RBW].

4. Detector = peak.

5. Sweep time = auto couple.

6. Trace mode = max hold.

7. Allow trace to fully stabilize.

8. Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

10.3 Test Results

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B Mode				
Low	2412	43.79	≥ 20	PASS
High	2462	46.94	≥ 20	PASS
G Mode				
Low	2412	33.01	≥ 20	PASS
High	2462	42.65	≥ 20	PASS
N20 Mode				
Low	2412	37.02	≥ 20	PASS
High	2462	42.46	≥ 20	PASS
N40 Mode				
Low	2422	33.08	≥ 20	PASS
High	2452	35.57	≥ 20	PASS
BLE(1M) Mode				
Low	2402	52.71	≥ 20	PASS
High	2480	52.26	≥ 20	PASS
BLE(2M) Mode				
Low	2402	30.61	≥ 20	PASS
High	2480	50.70	≥ 20	PASS

Please refer to the following plots

B Mode
Band Edge, Left Side
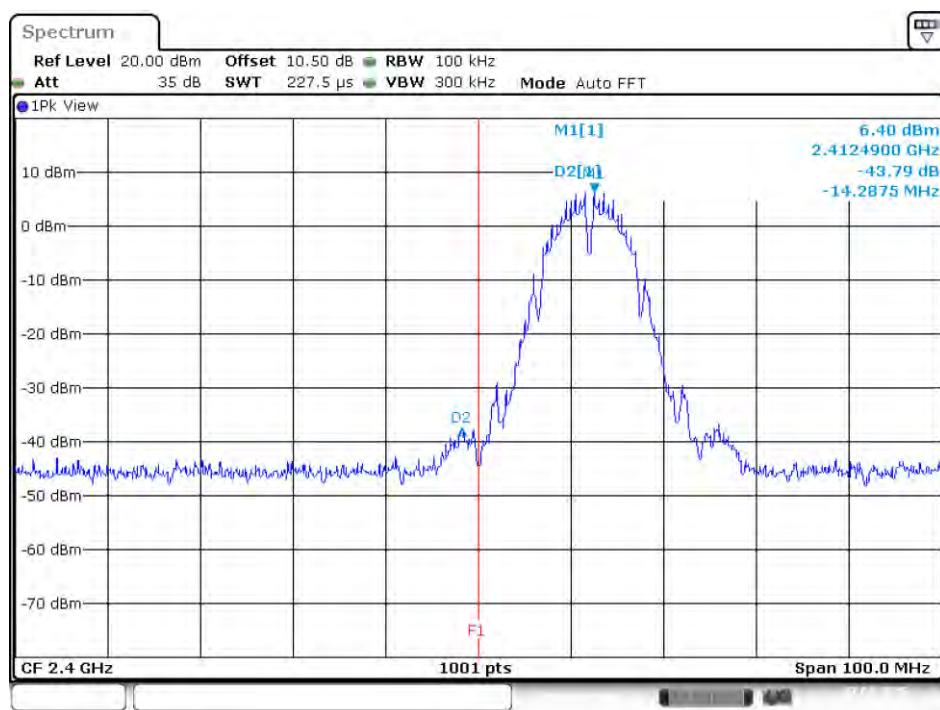
Date: 17.APR.2025 10:47:51

Band Edge, Right Side
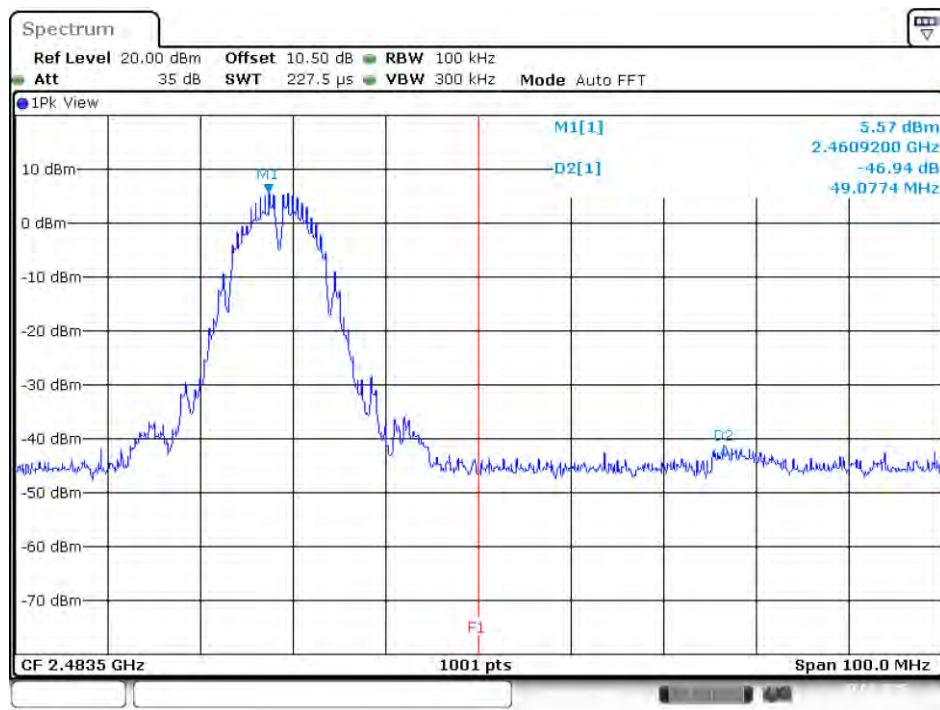
Date: 17.APR.2025 10:57:32

G Mode
Band Edge, Left Side
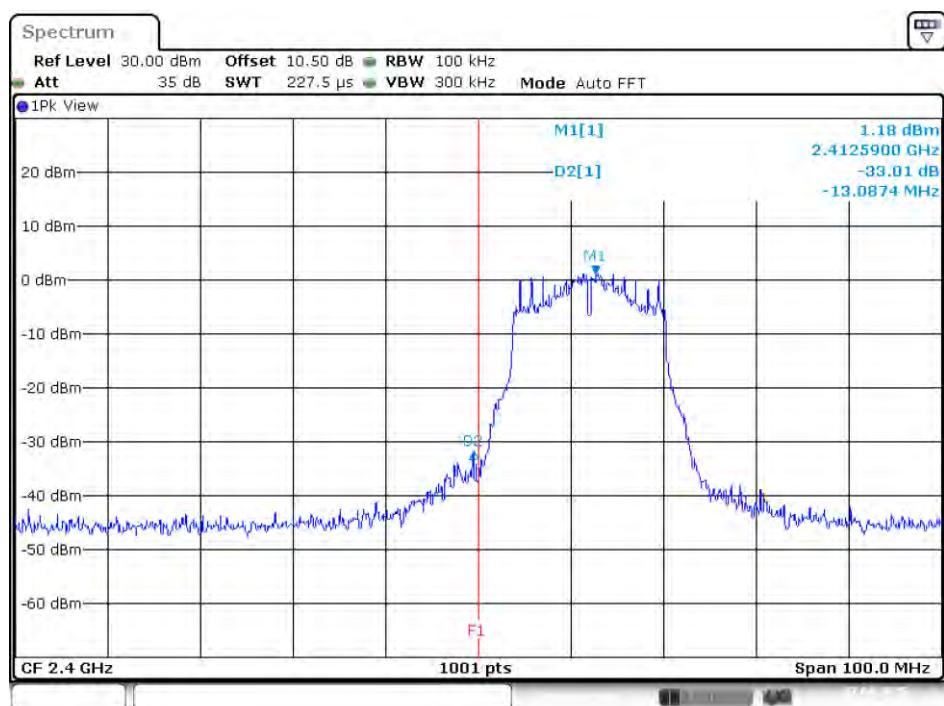
Date: 17.APR.2025 11:01:24

Band Edge, Right Side
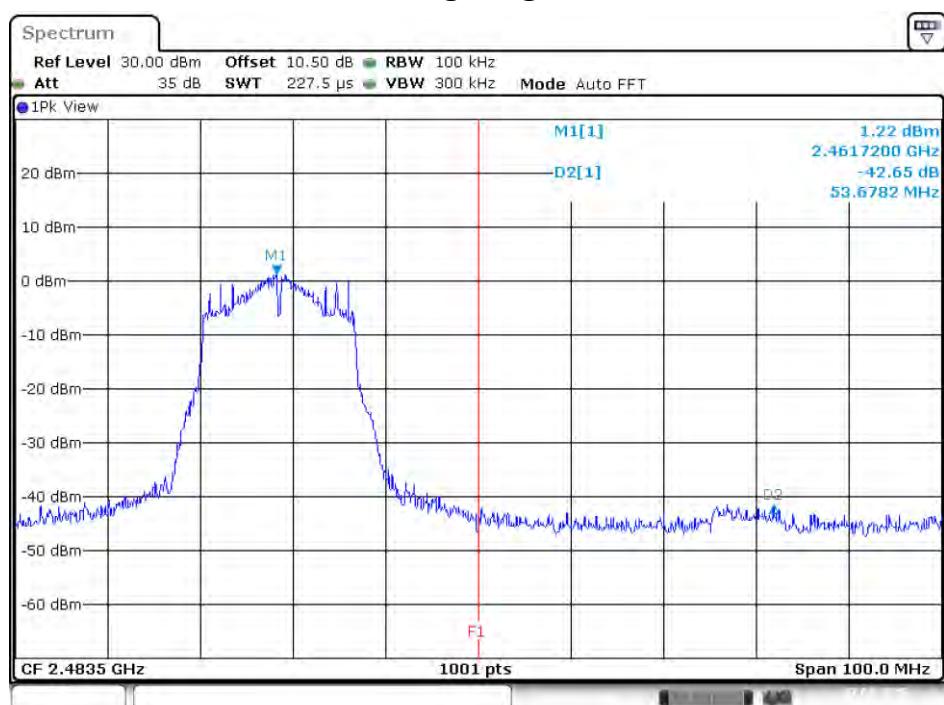
Date: 17.APR.2025 11:10:38

N20 Mode
Band Edge, Left Side
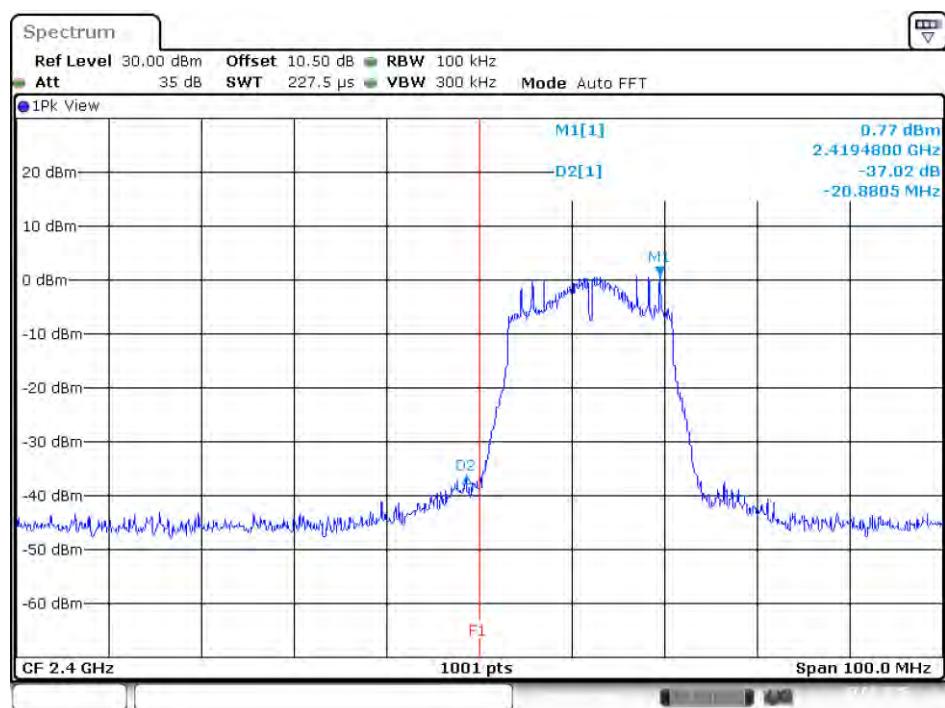
Date: 17.APR.2025 11:25:22

Band Edge, Right Side
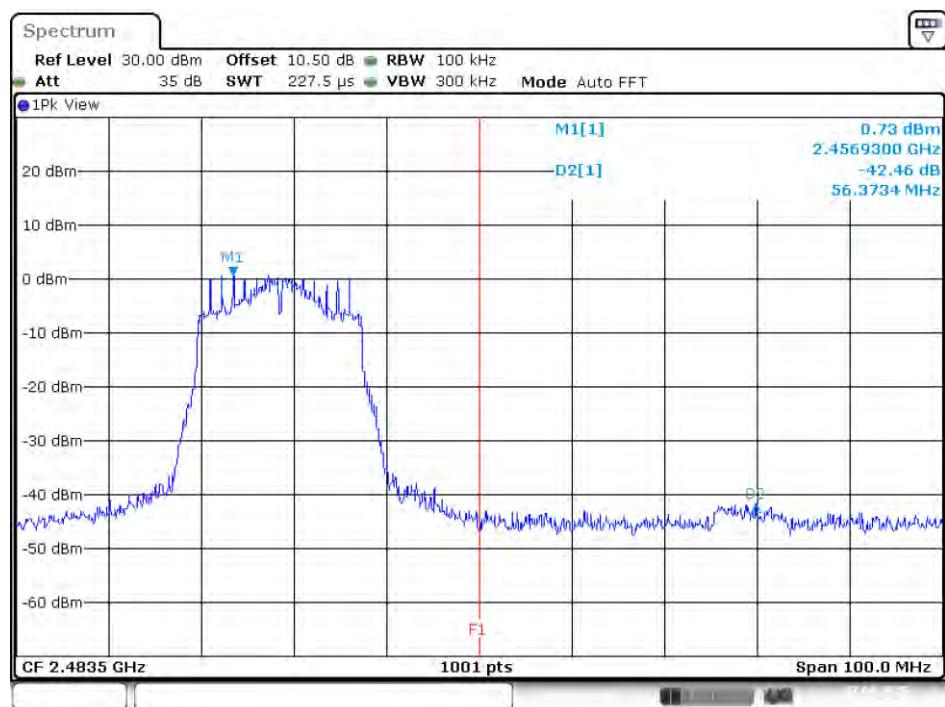
Date: 17.APR.2025 11:31:43

N40 Mode
Band Edge, Left Side
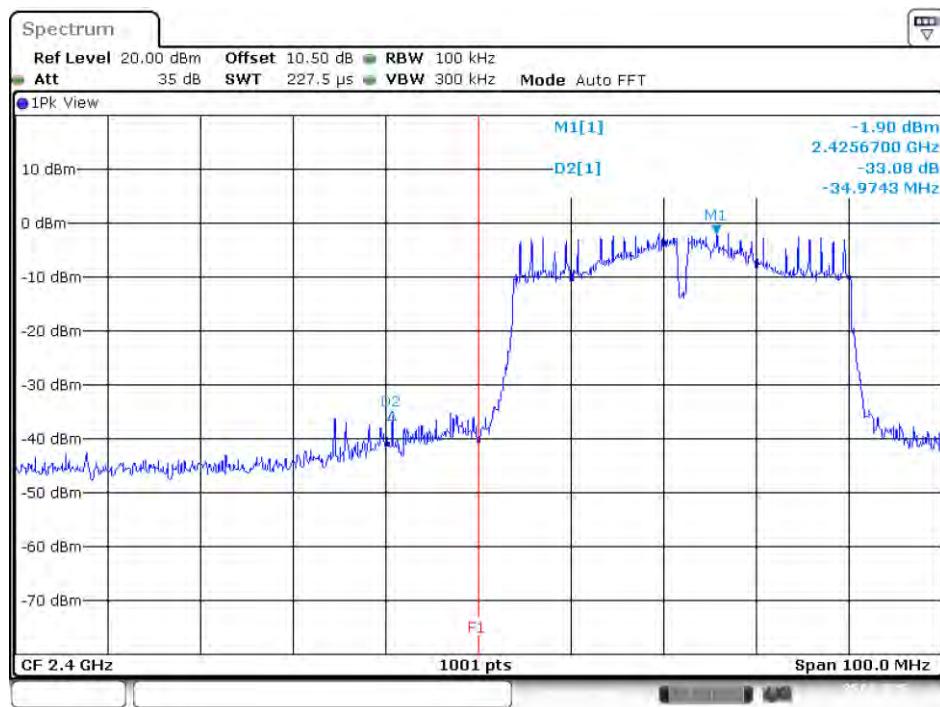
Date: 25.APR.2025 12:21:17

Band Edge, Right Side
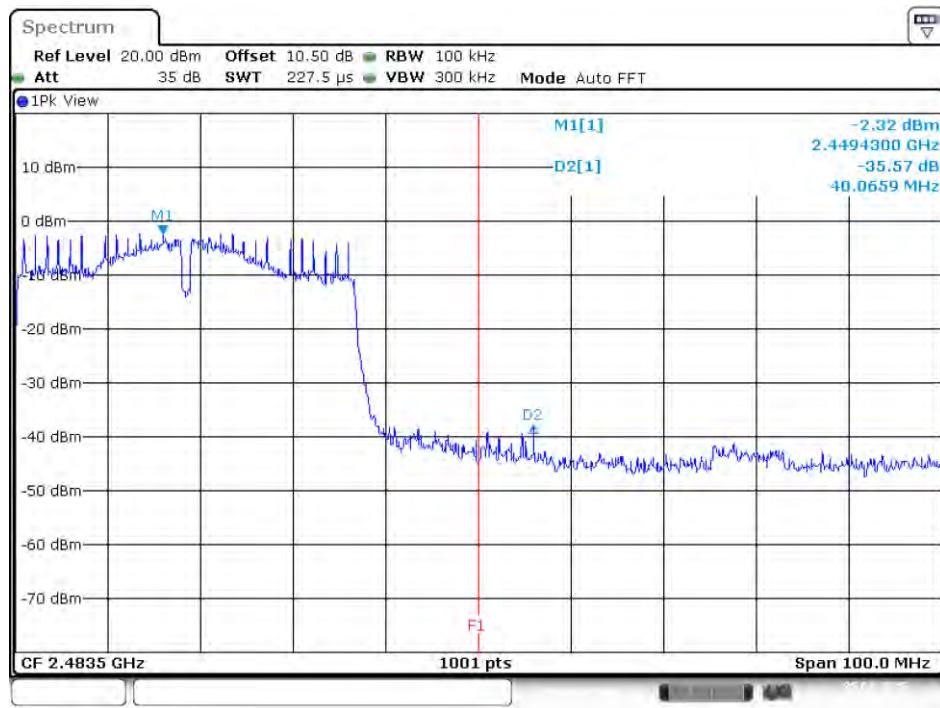
Date: 25.APR.2025 12:26:03

BLE(1M) Mode
Band Edge, Low Channel
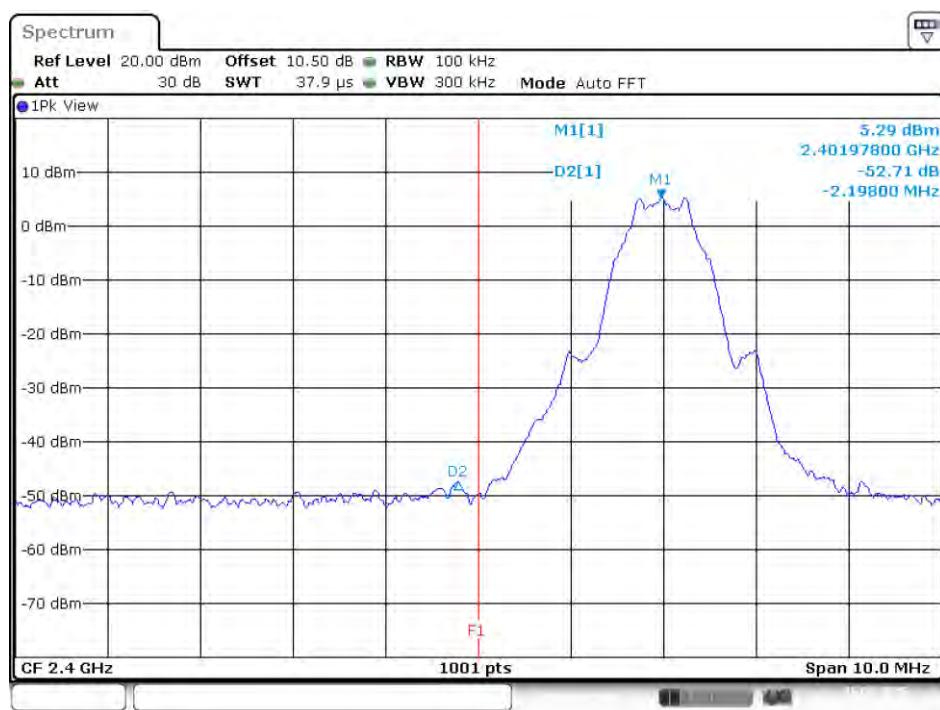
Date: 16.APR.2025 16:44:58

Band Edge, High Channel

Date: 16.APR.2025 16:48:32

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.
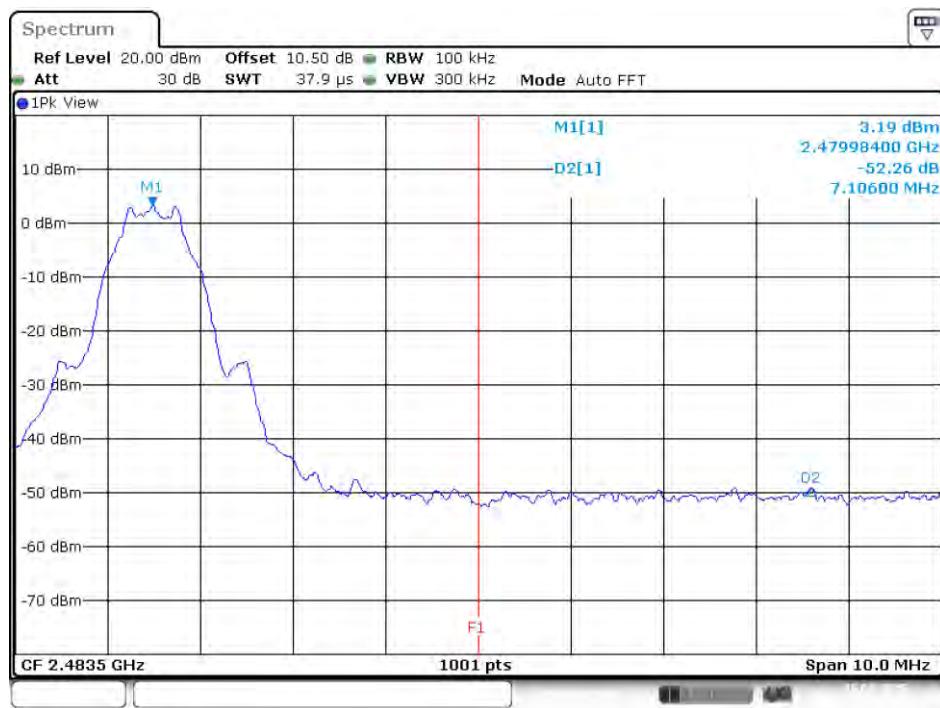
BLE(2M) Mode
Band Edge, Low Channel
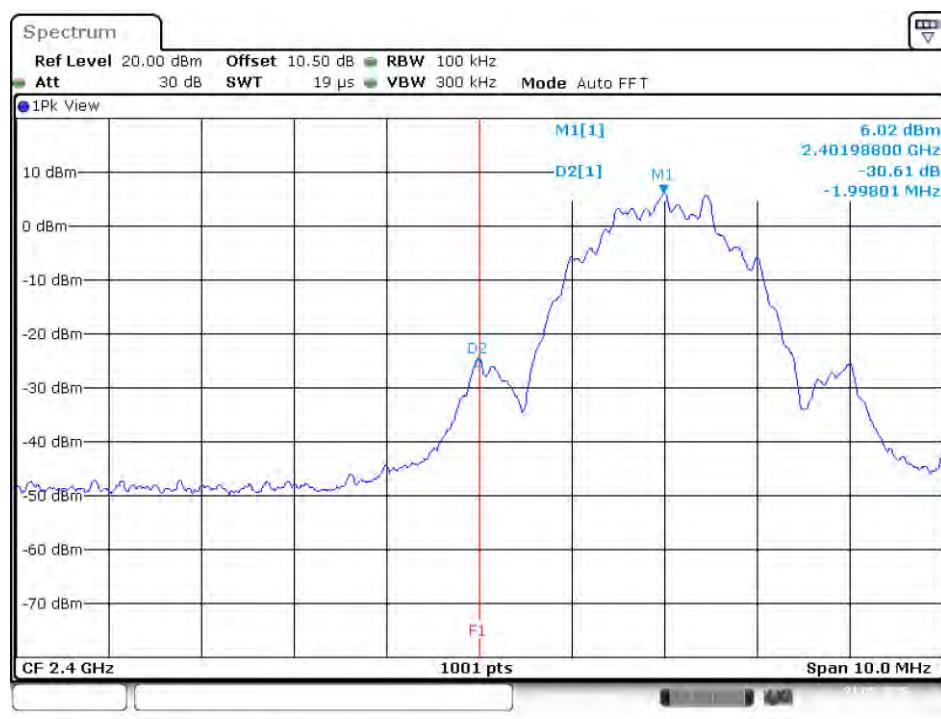
Band Edge, High Channel
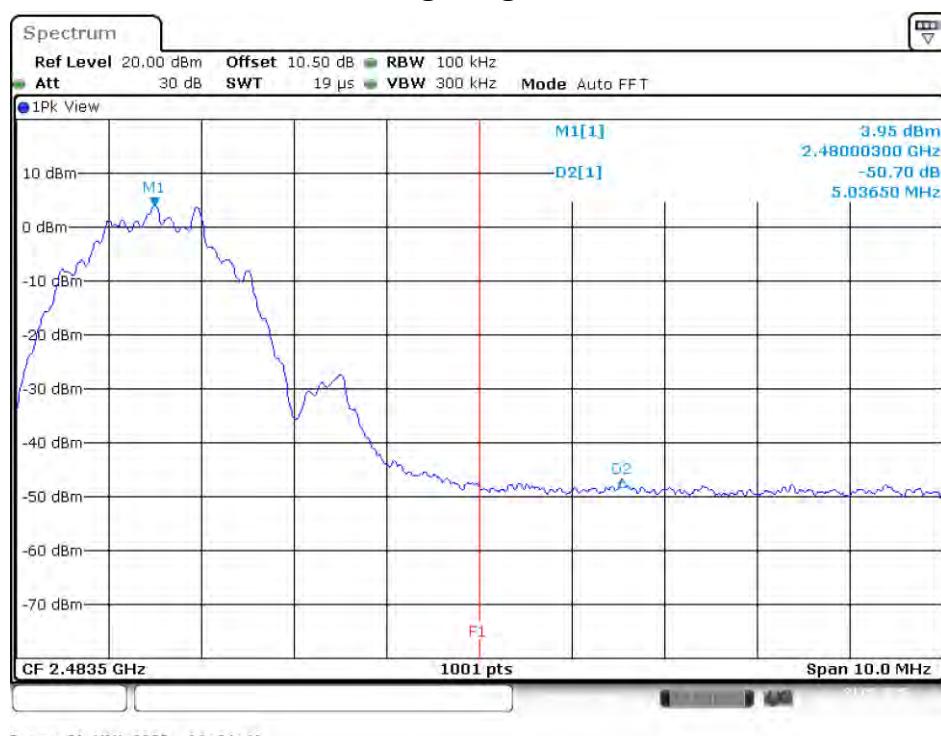
11 FCC §15.247(e) & RSS-247 §5.2(b) – Power Spectral Density

11.1 Applicable Standard

According to FCC §15.247(e).

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

According to RSS-247 §5.2(b).

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

11.2 Test Procedure

According to ANSI C63.10-2013, section 11.10.2

1. Set analyzer center frequency to DTS channel center frequency.

2. Set the span to 1.5 times the DTS bandwidth.

3. Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.

4. Set the VBW ≥ [3 × RBW].

5. Detector = peak.

6. Sweep time = auto couple.

7. Trace mode = max hold.

8. Allow trace to fully stabilize.

9. Use the peak marker function to determine the maximum amplitude level within the RBW.

10. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat

11.3 Test Results

| Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit (dBm/3 kHz)	Result
B Mode				
Low	2412	-7.52	8	PASS
Middle	2437	-6.06	8	PASS
High	2462	-7.18	8	PASS
G Mode				
Low	2412	-9.61	8	PASS
Middle	2437	-9.83	8	PASS
High	2462	-9.67	8	PASS
N20 Mode				
Low	2412	-9.74	8	PASS
Middle	2437	-9.95	8	PASS
High	2462	-9.70	8	PASS
N40 Mode				
Low	2422	-13.13	8	PASS
Middle	2437	-13.37	8	PASS
High	2452	-12.90	8	PASS
BLE(1M) Mode				
Low	2402	-8.45	8	PASS
Middle	2440	-9.24	8	PASS
High	2480	-10.71	8	PASS
BLE(2M) Mode				
Low	2402	-10.04	8	PASS
Middle	2440	-10.95	8	PASS
High	2480	-12.21	8	PASS

Please refer to the following plots

B Mode
Low Channel
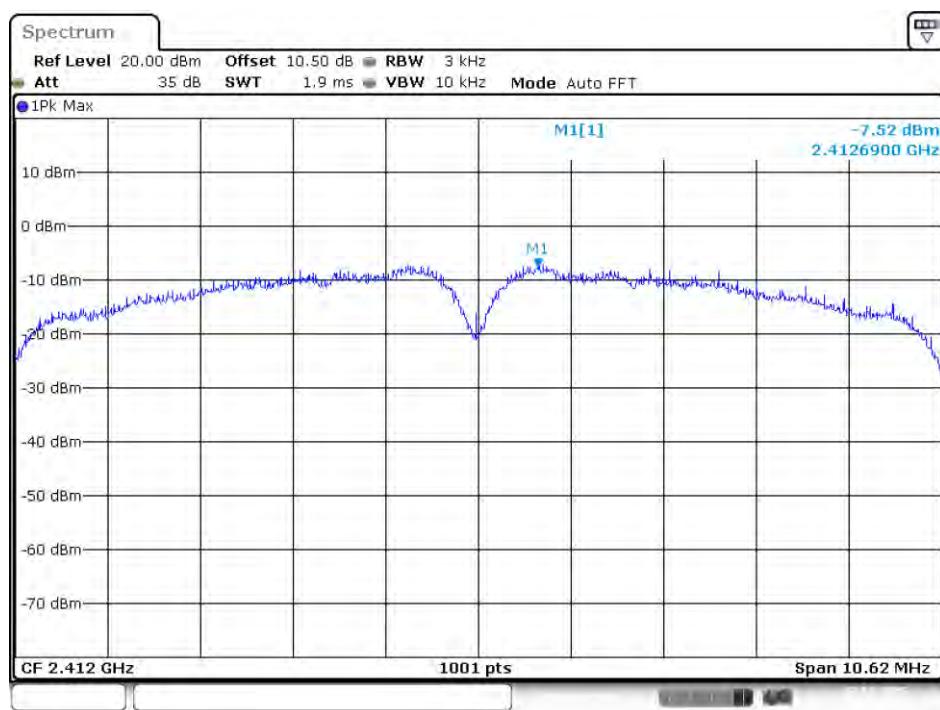
Date: 17.APR.2025 10:47:35

Middle Channel
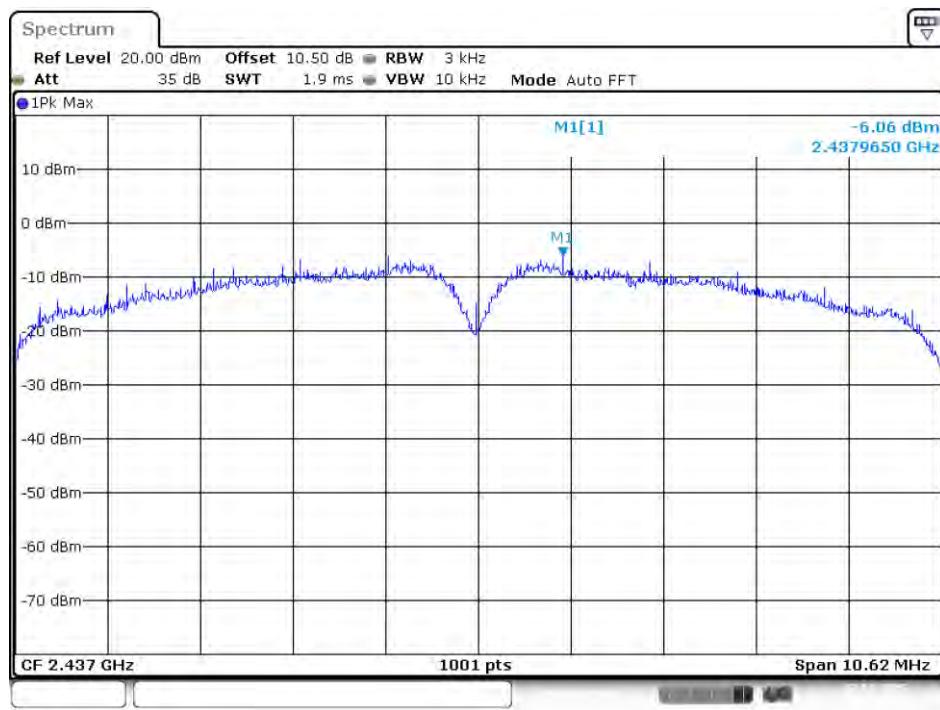
Date: 17.APR.2025 10:54:35

High Channel
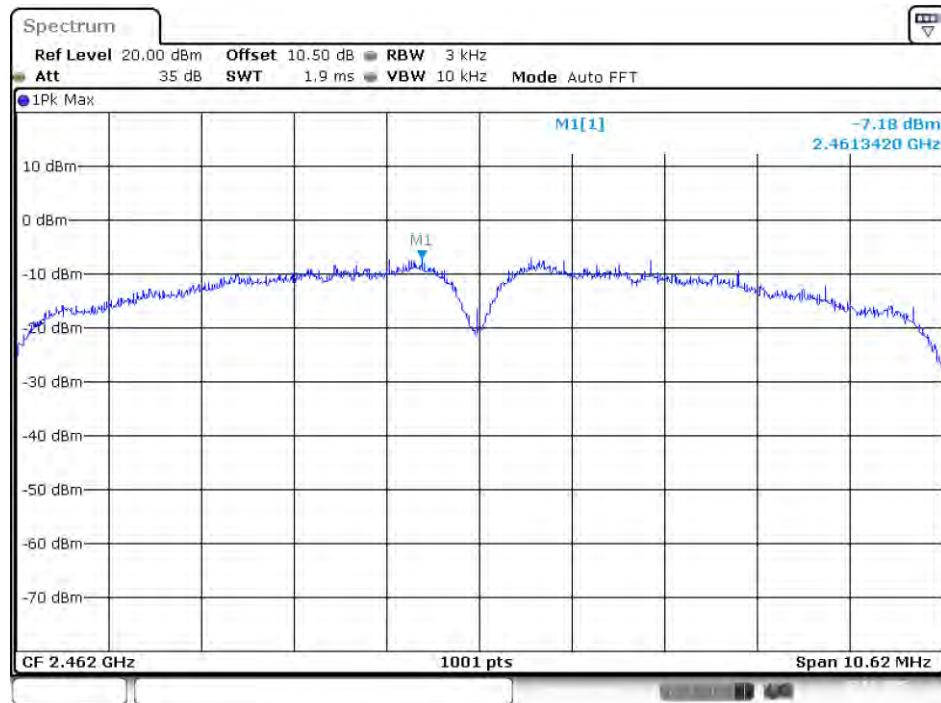
Date: 17.APR.2025 10:57:16

G Mode

Low Channel
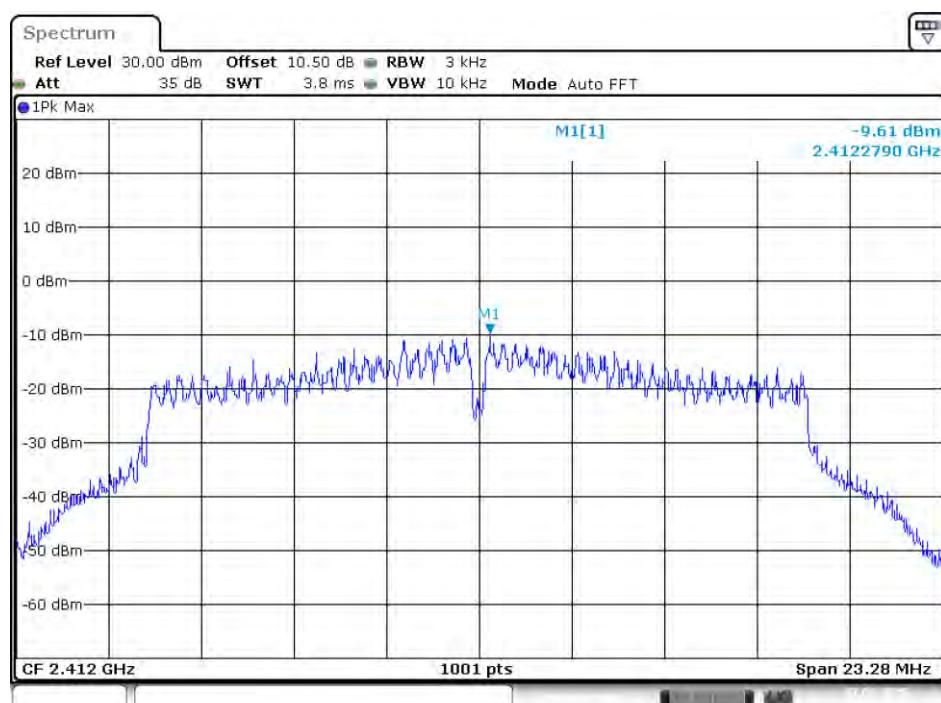
Date: 17.APR.2025 11:01:08

Middle Channel
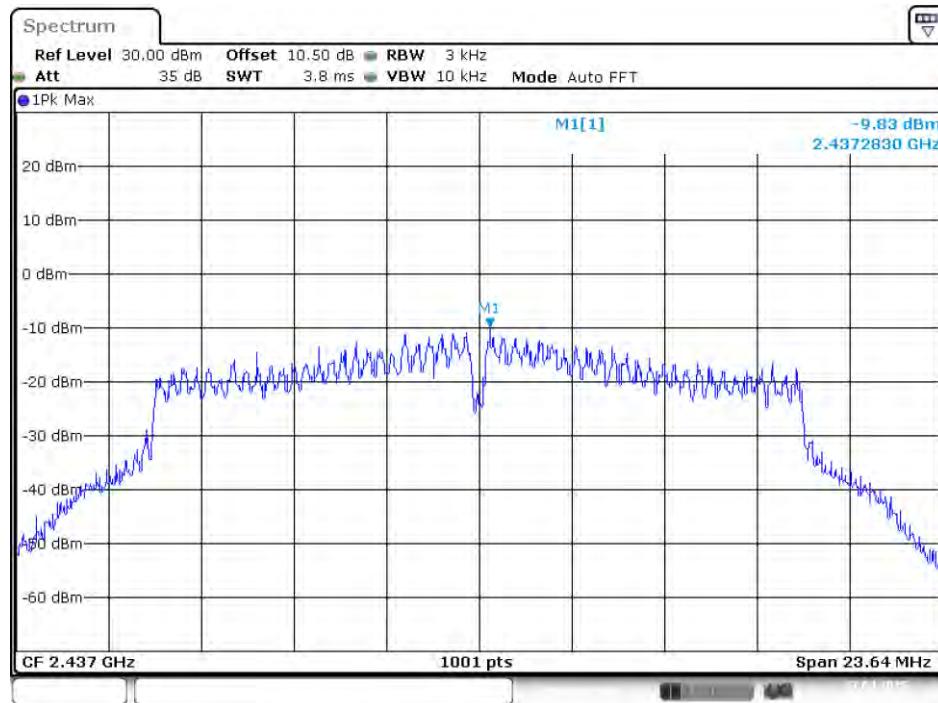

Date: 17.APR.2025 11:08:17

High Channel
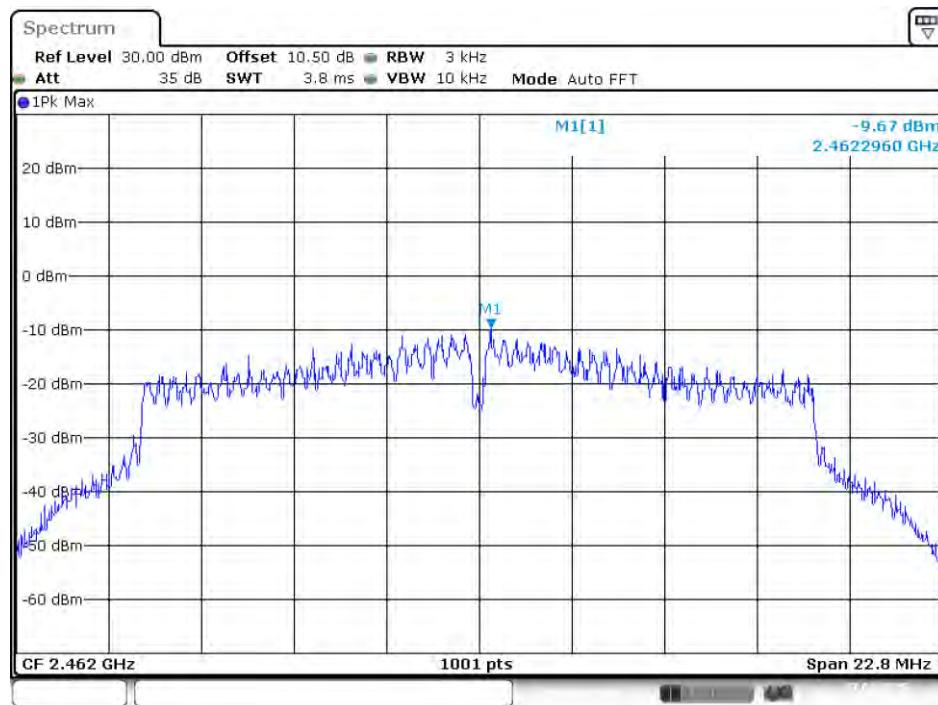
Date: 17.APR.2025 11:10:22

N20 Mode
## Low Channel
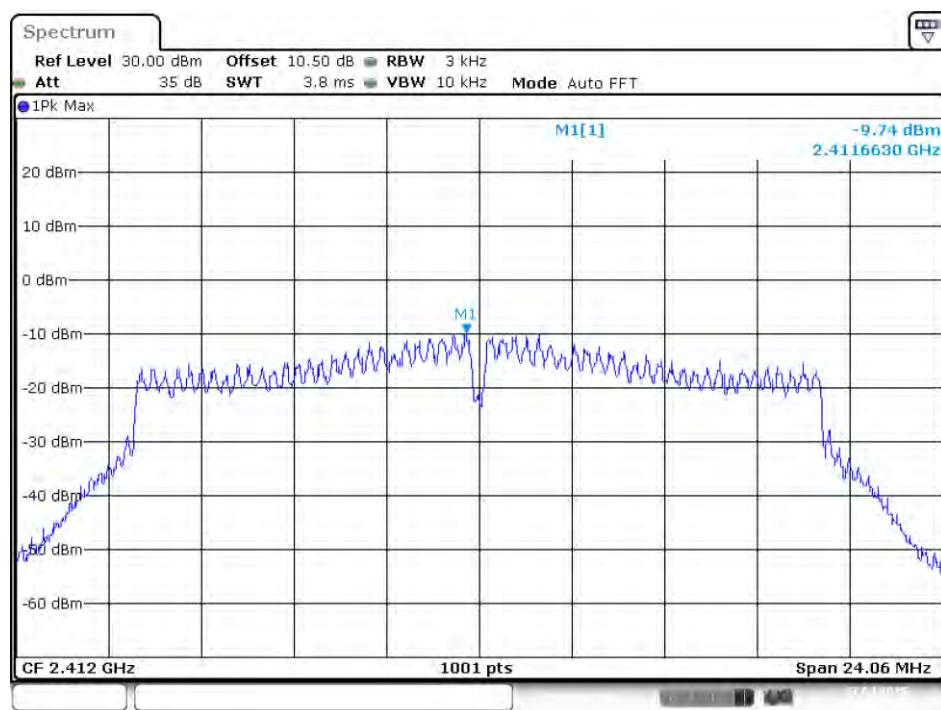
Date: 17.APR.2025 11:25:06

## Middle Channel
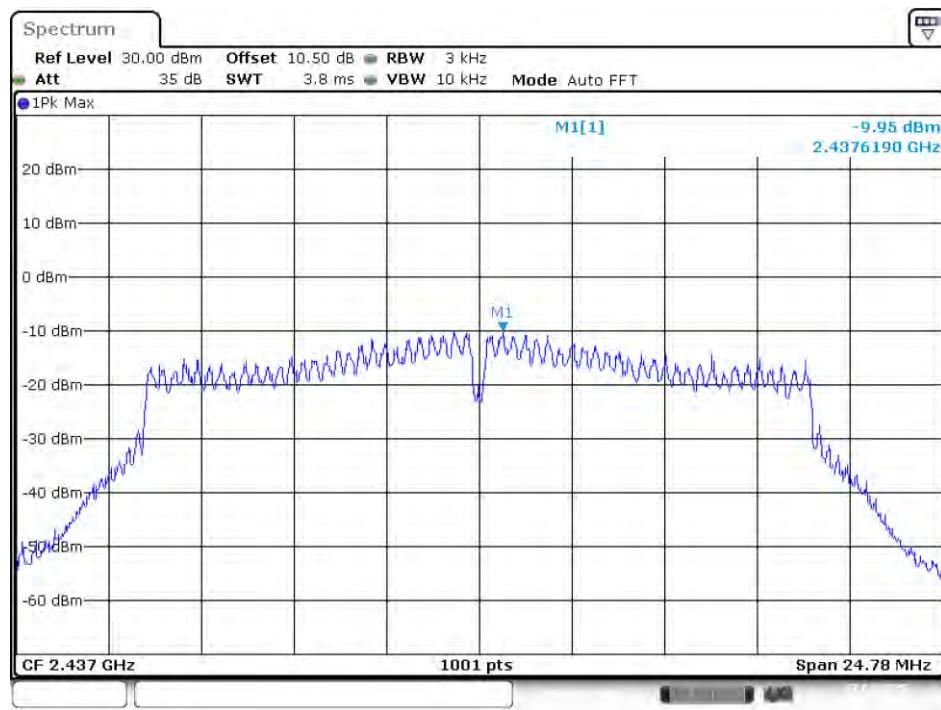
Date: 17.APR.2025 11:28:12

High Channel
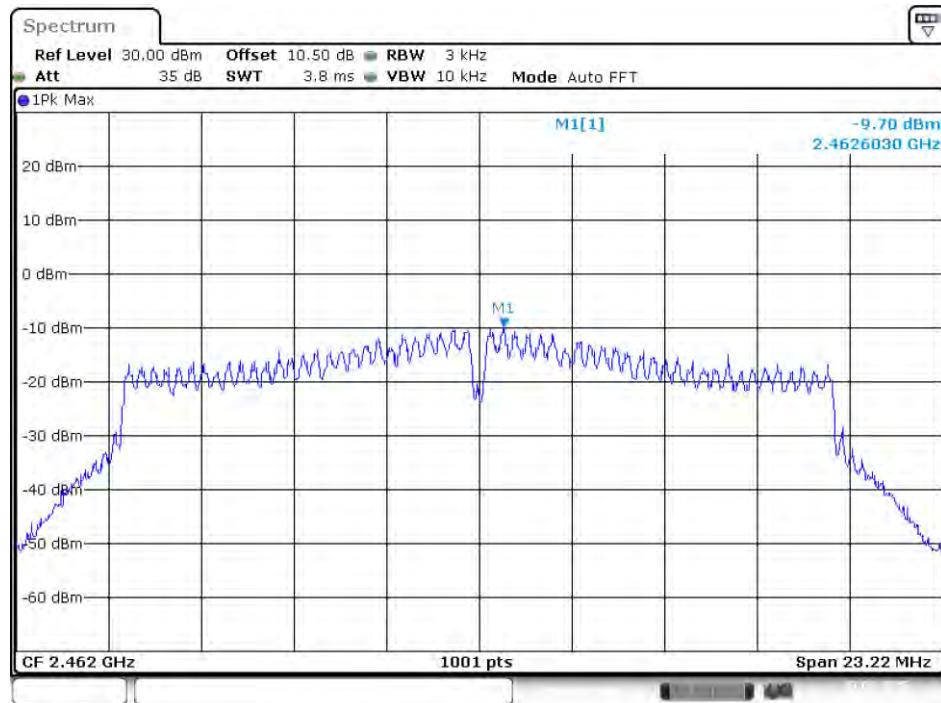
Date: 17.APR.2025 11:31:27

N40 Mode

Low Channel
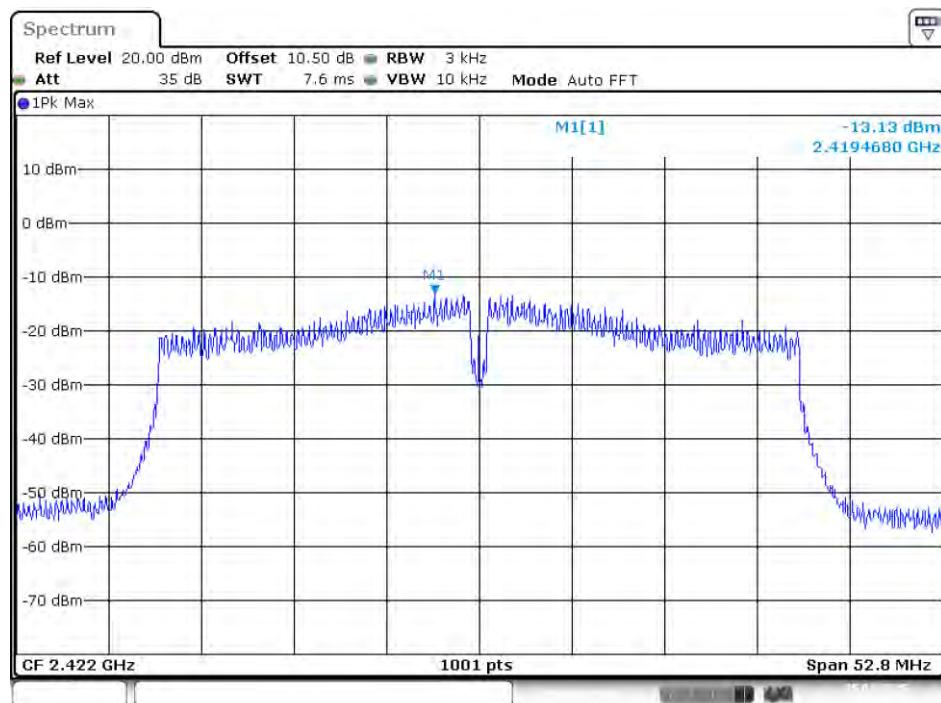
Date: 25.APR.2025 12:21:01

## Middle Channel

Date: 25.APR.2025 12:23:27

High Channel


Date: 25.APR.2025 12:25:47
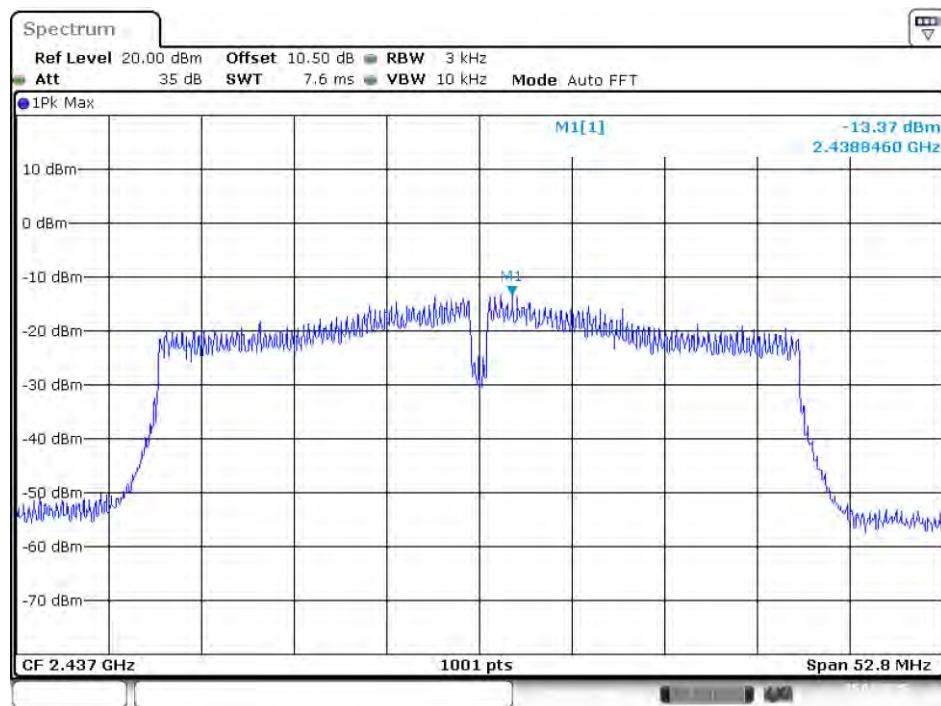
BLE(1M) Mode
Low Channel

Date: 16.APR.2025 16:44:27

Middle Channel
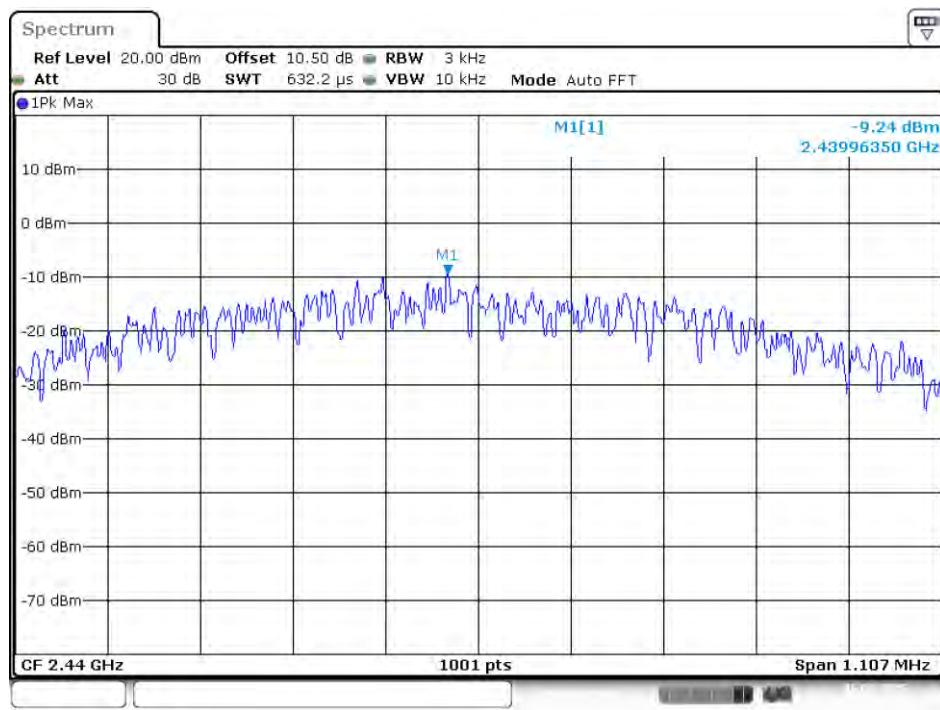
Date: 16.APR.2025 16:46:14

High Channel
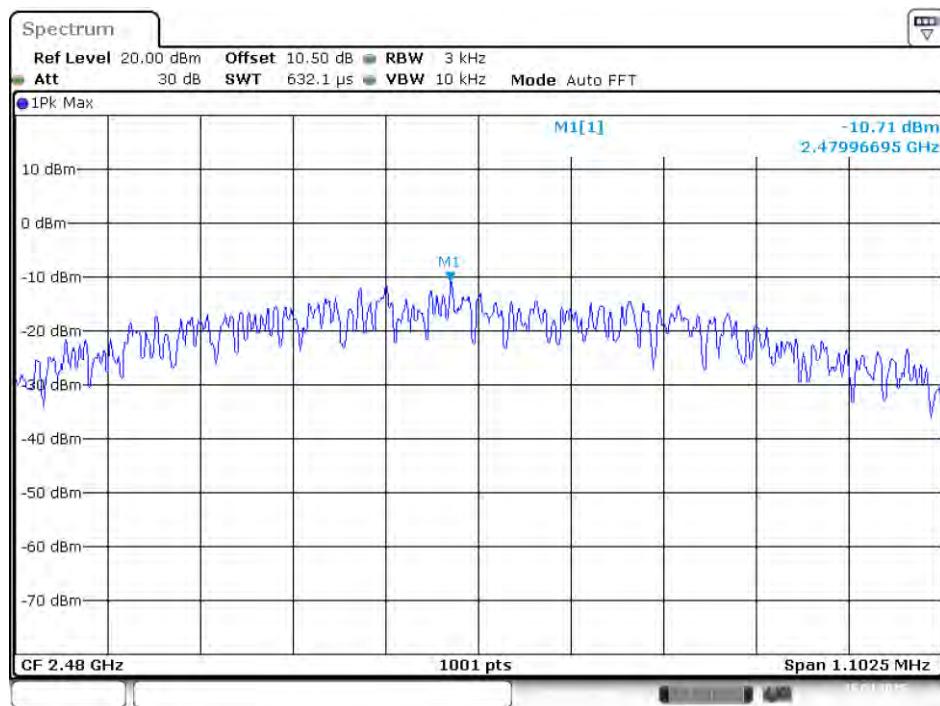
Date: 16.APR.2025 16:48:01

BLE(2M) Mode
Low Channel
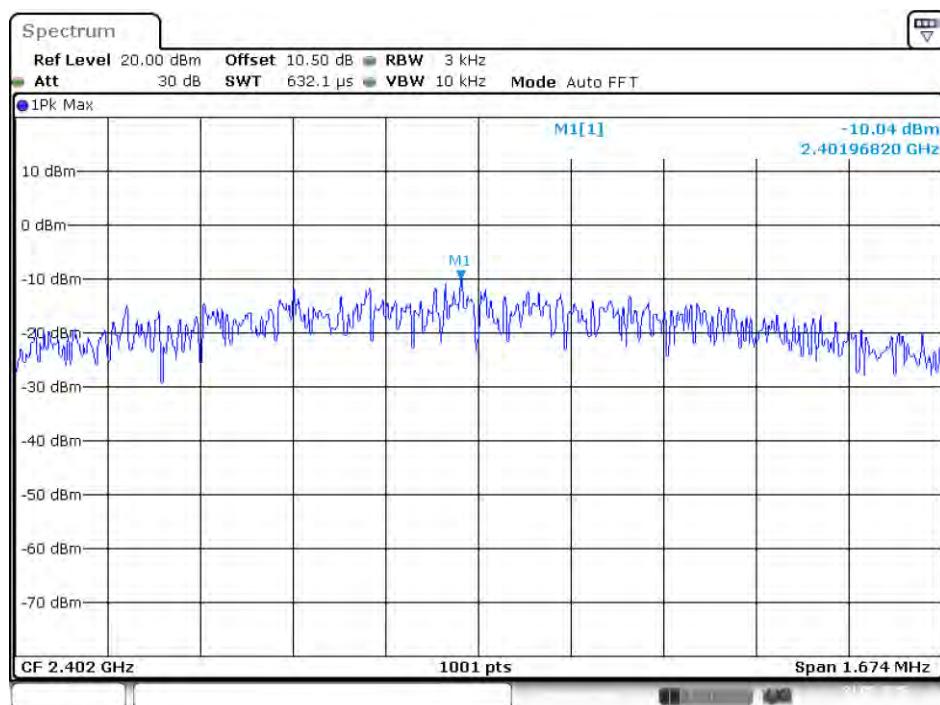
Date: 21.MAY.2025 10:12:57

Middle Channel

High Channel

***** END OF REPORT *****