BLE

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
BLE 1M Mode				
Low	2402	0.67	> 500	PASS
Middle	2440	0.67	> 500	PASS
High	2480	0.66	> 500	PASS
BLE 2M Mode				
Low	2402	1.17	> 500	PASS
Middle	2440	1.17	> 500	PASS
High	2480	1.17	> 500	PASS

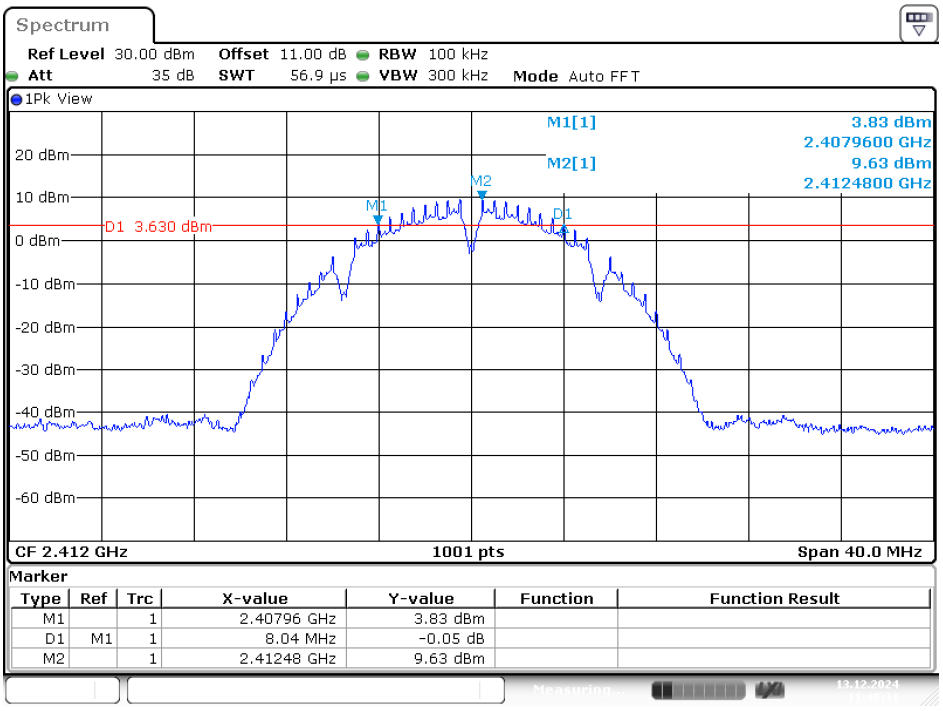
Please refer to the following plots

6 dB Emission Bandwidth

Chain 0

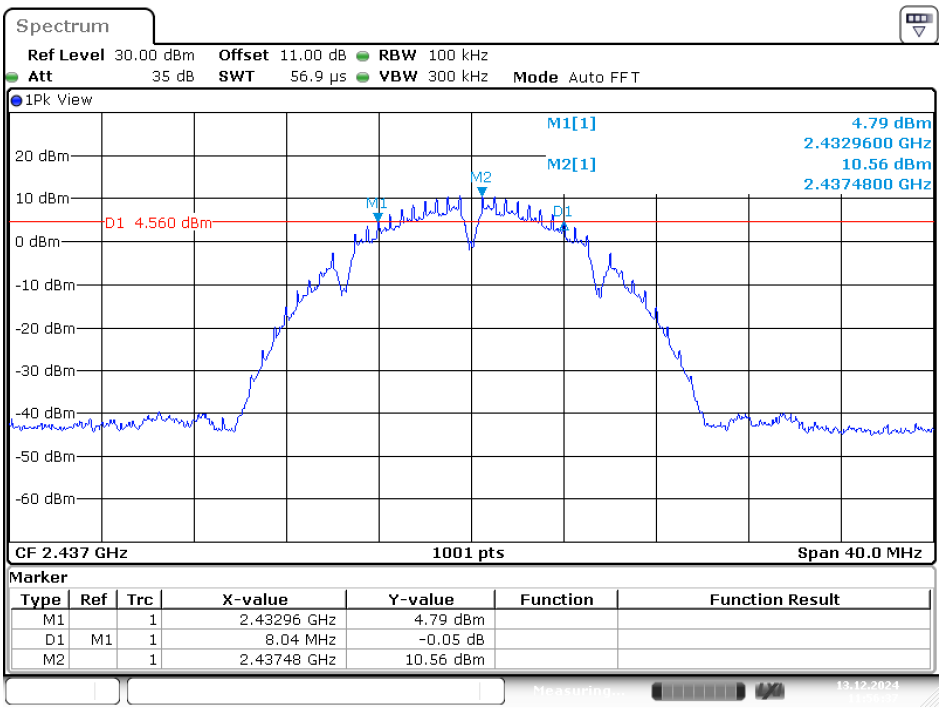
B Mode

Low Channel



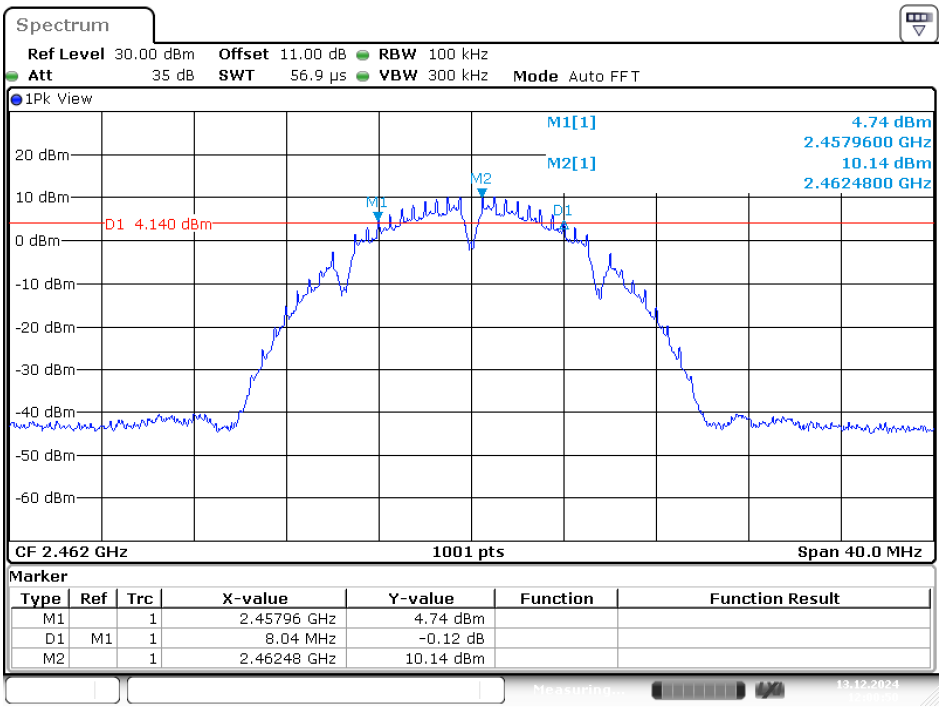
Date: 13.DEC.2024 11:48:31

Middle Channel



Date: 13.DEC.2024 11:56:37

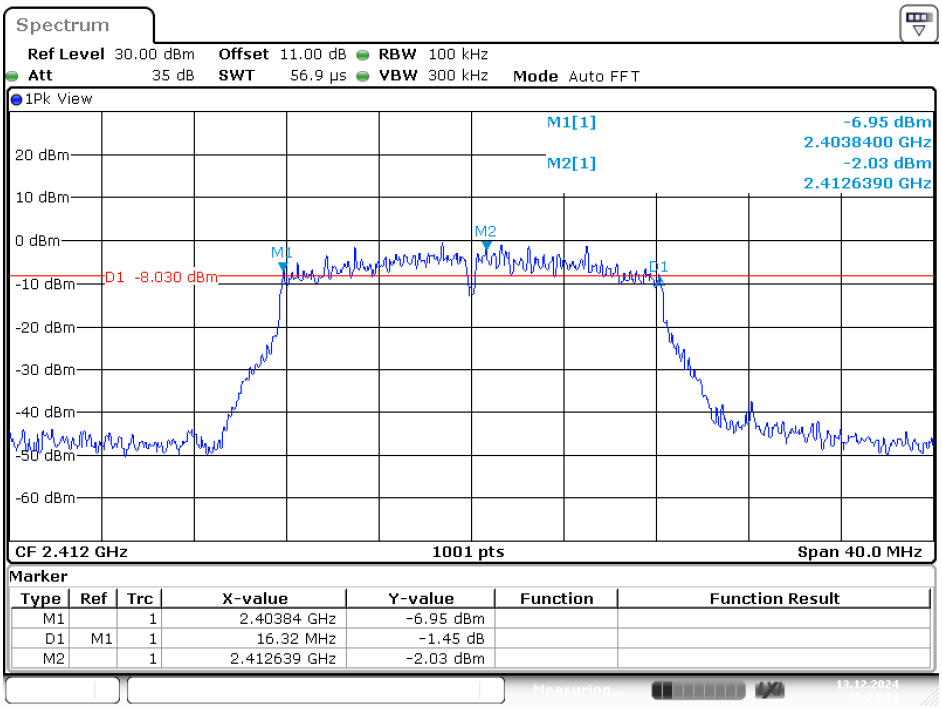
High Channel



Date: 13.DEC.2024 12:00:50

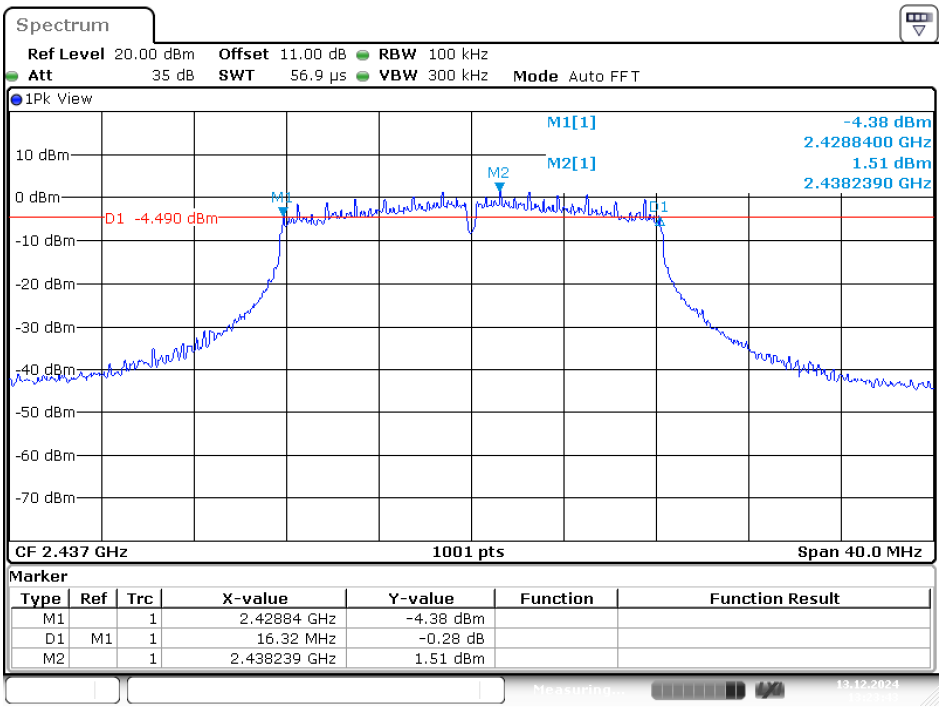
G Mode

Low Channel



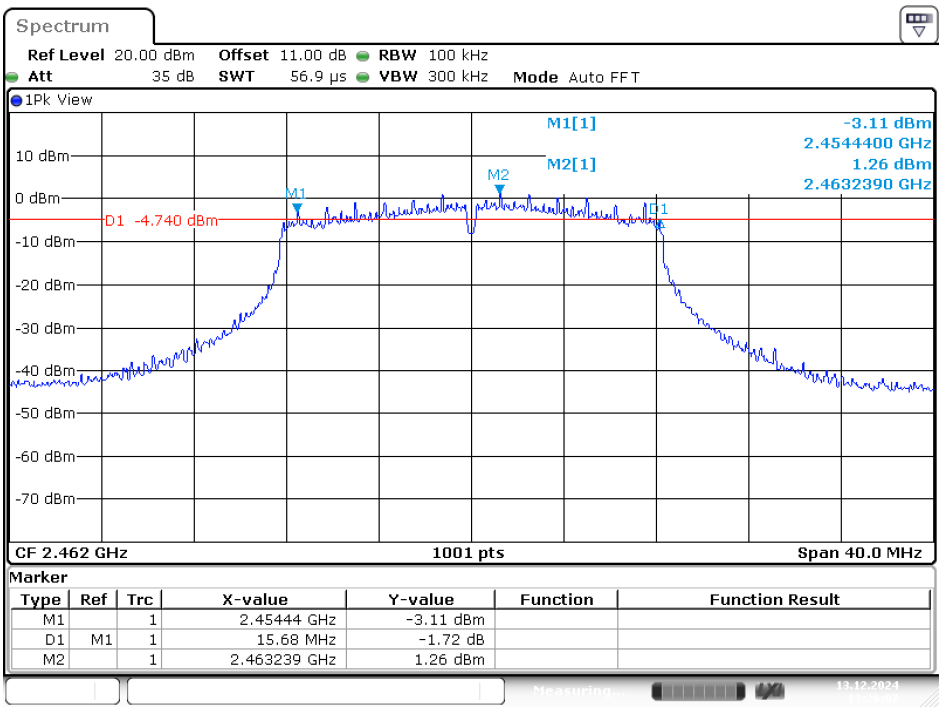
Date: 13.DEC.2024 13:21:21

Middle Channel



Date: 13.DEC.2024 13:23:43

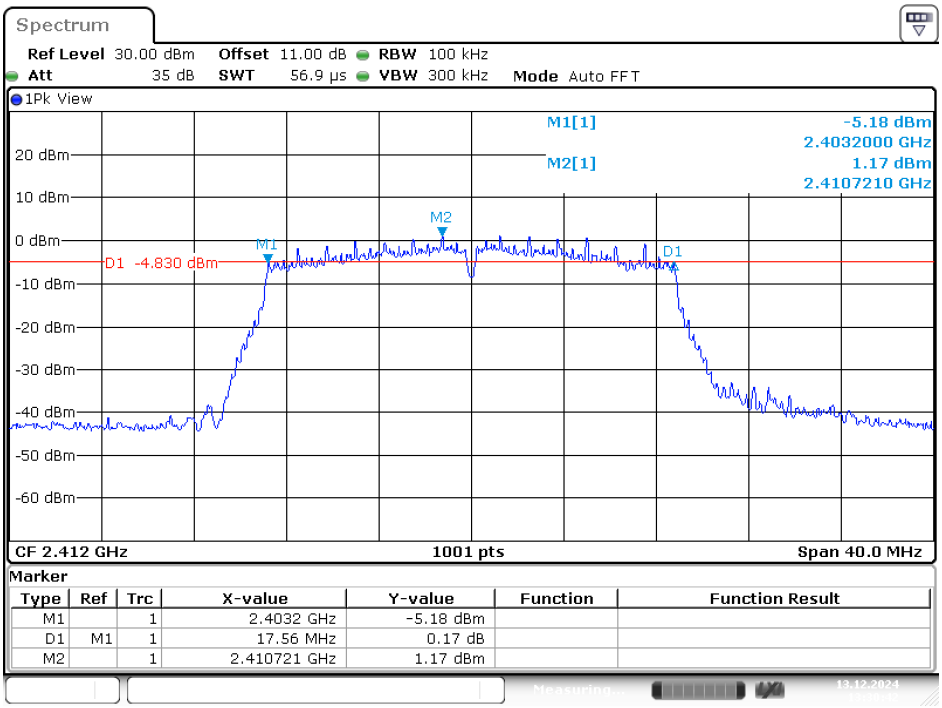
High Channel



Date: 13.DEC.2024 13:26:07

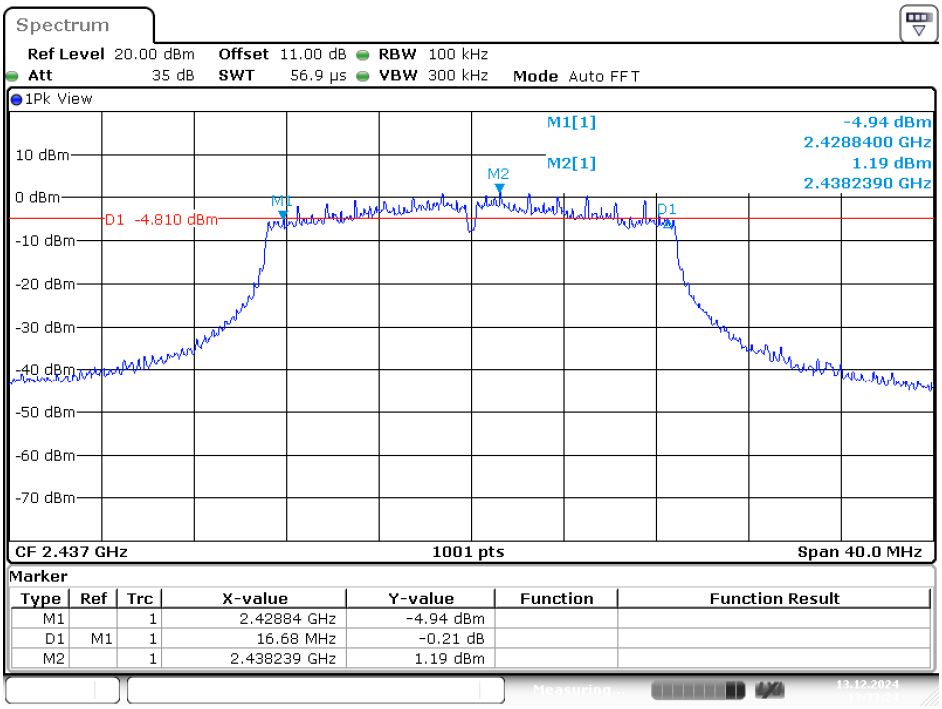
N20 Mode

Low Channel



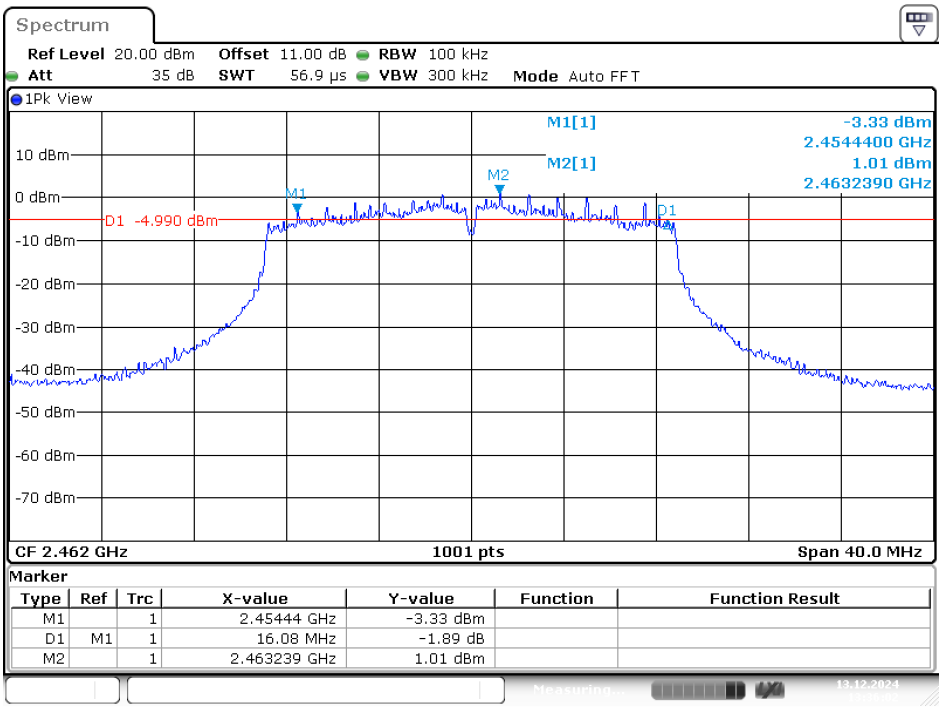
Date: 13.DEC.2024 13:30:42

Middle Channel



Date: 13.DEC.2024 13:33:24

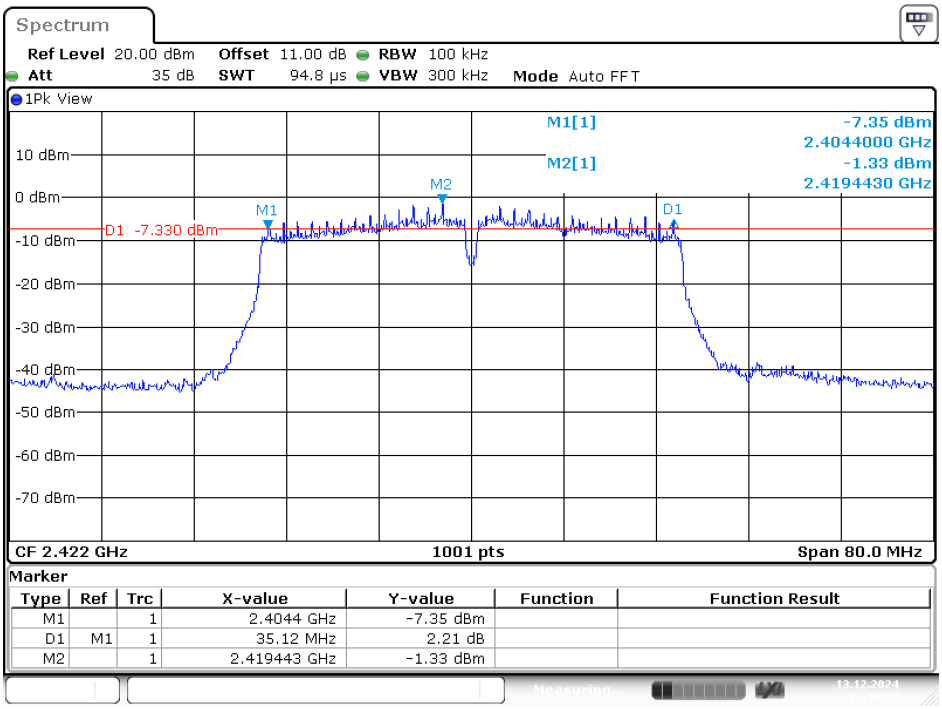
High Channel



Date: 13.DEC.2024 13:36:02

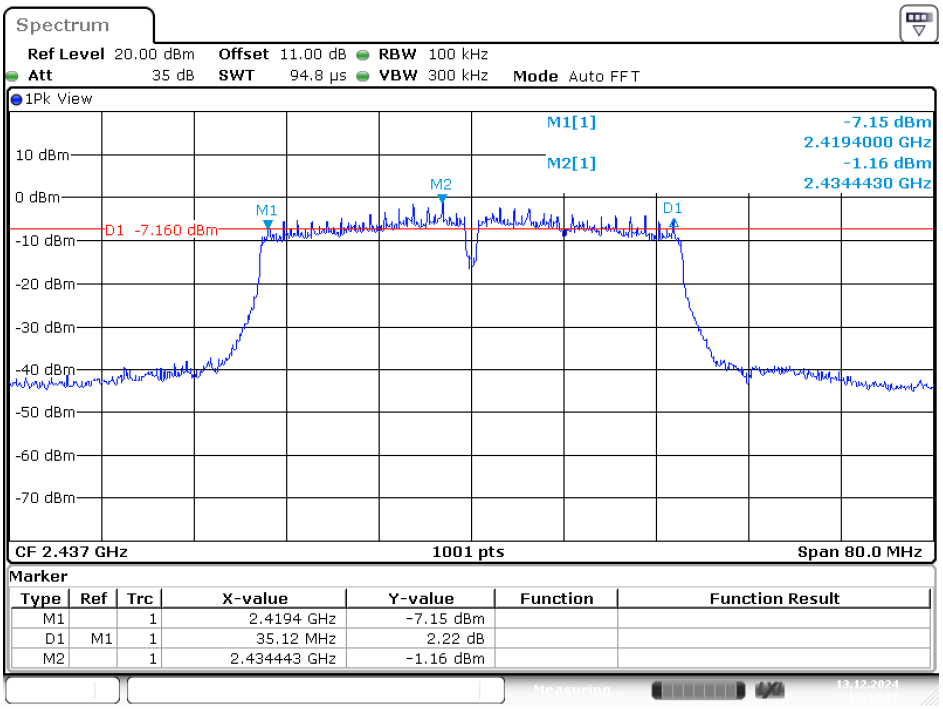
N40 Mode

Low Channel



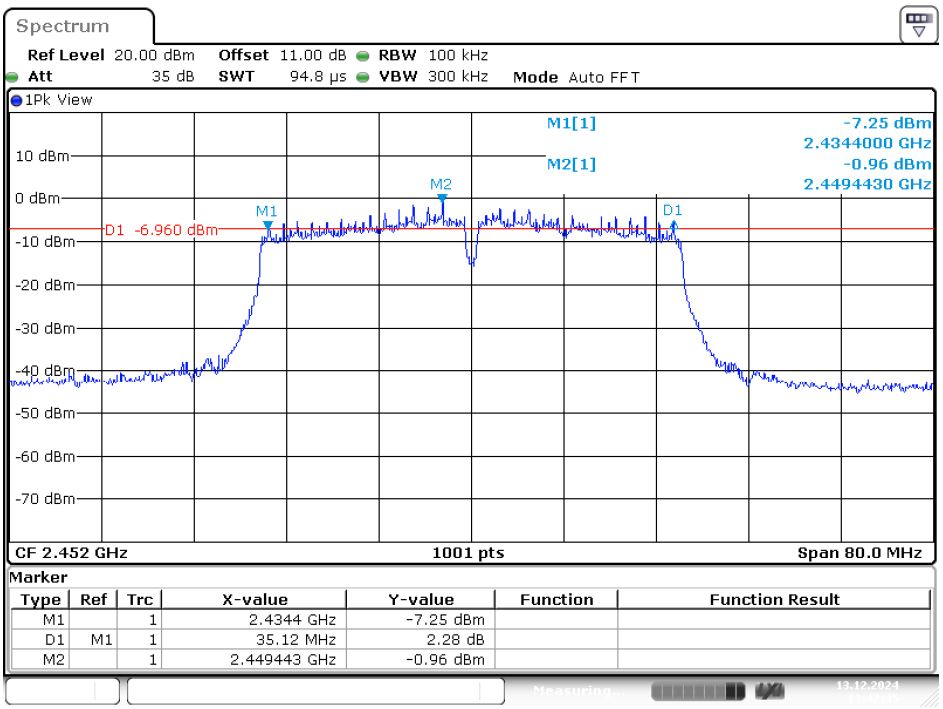
Date: 13.DEC.2024 13:40:08

Middle Channel



Date: 13.DEC.2024 13:44:11

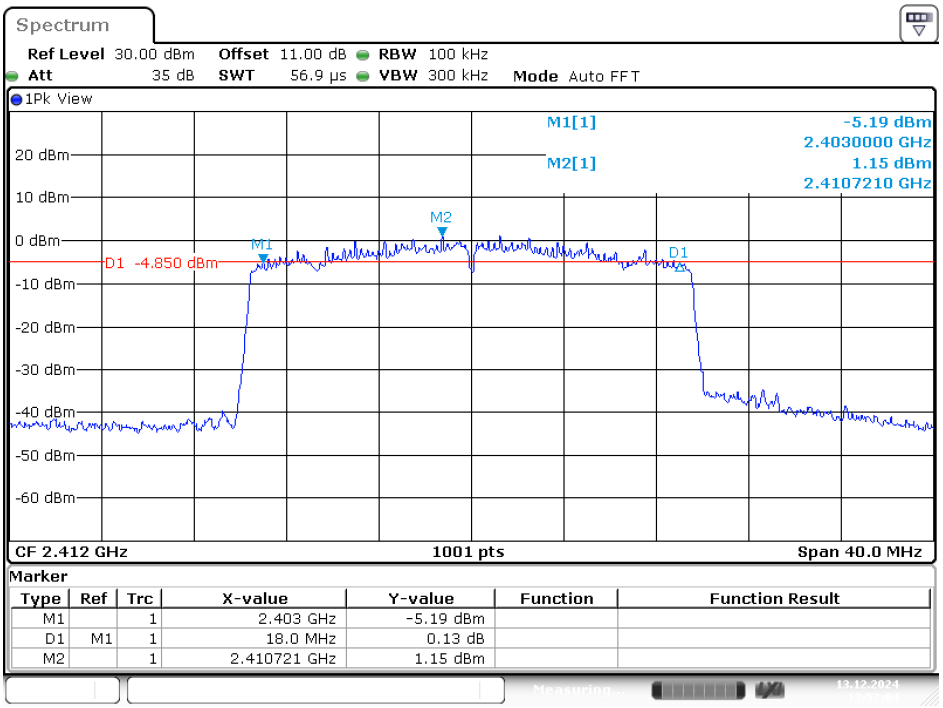
High Channel



Date: 13.DEC.2024 13:47:45

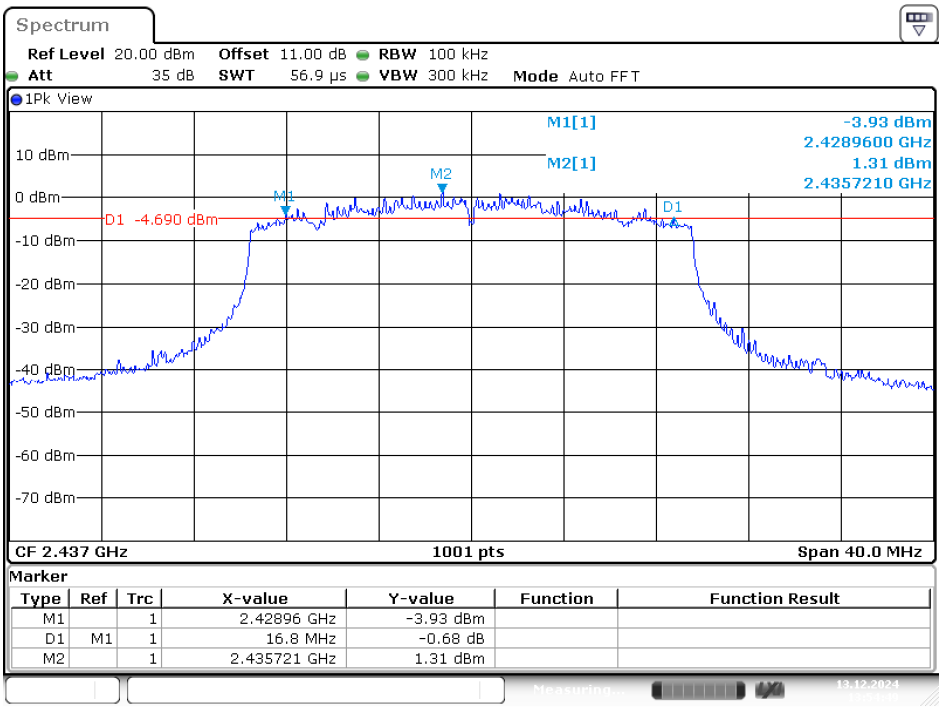
AX20 Mode

Low Channel



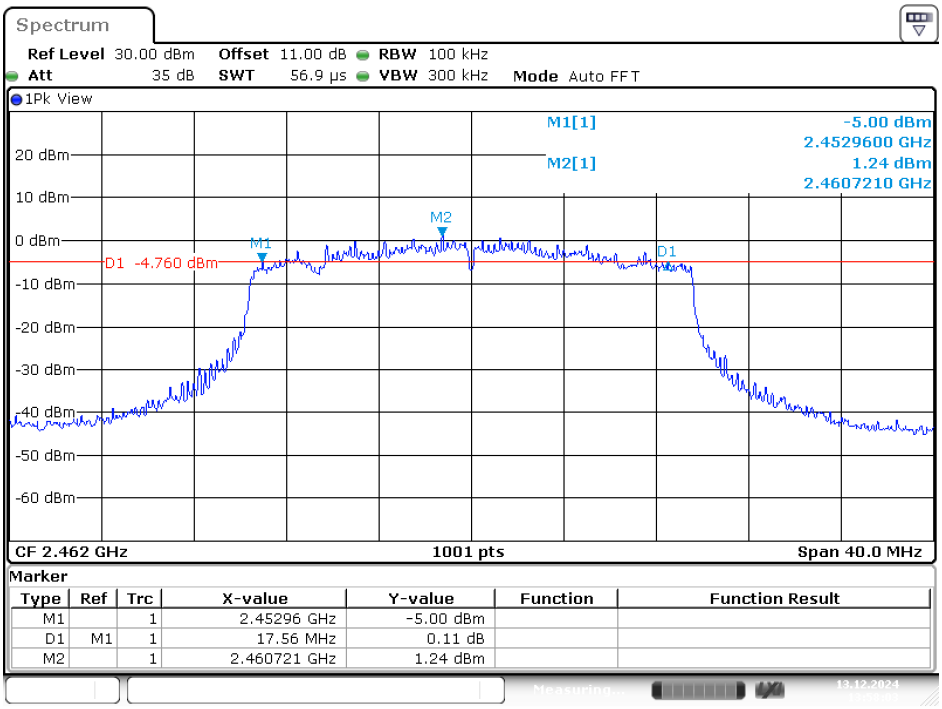
Date: 13.DEC.2024 13:52:04

Middle Channel



Date: 13.DEC.2024 13:54:50

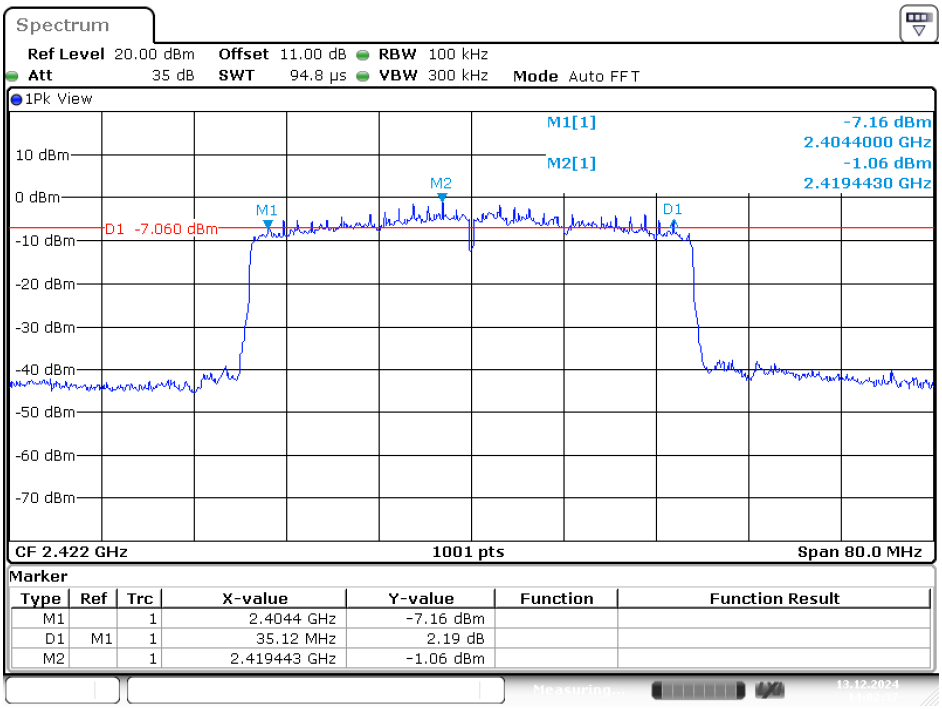
High Channel



Date: 13.DEC.2024 13:58:03

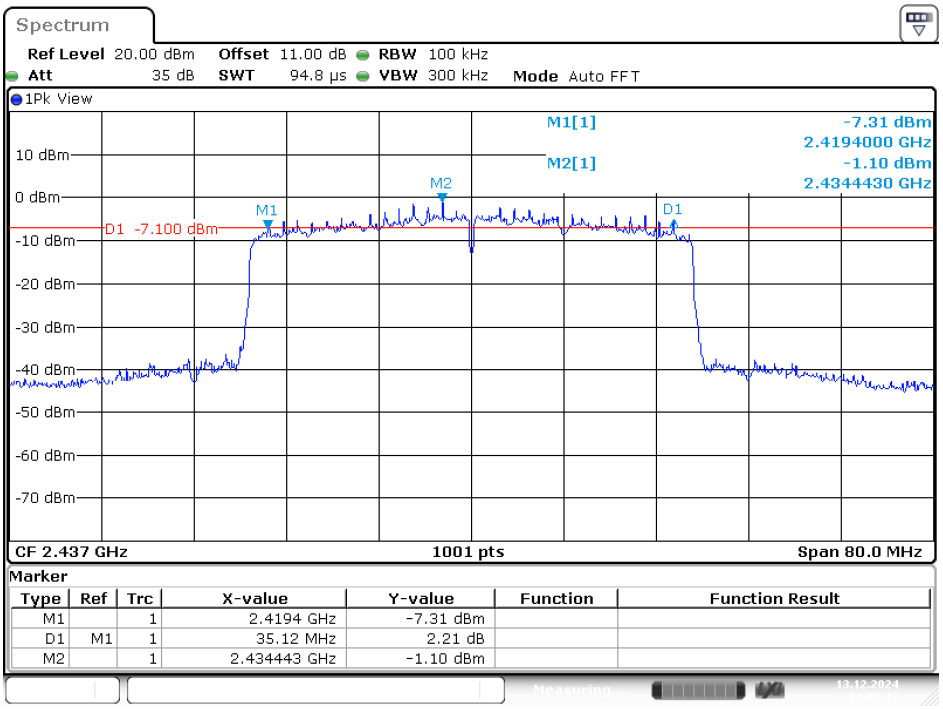
AX40 Mode

Low Channel



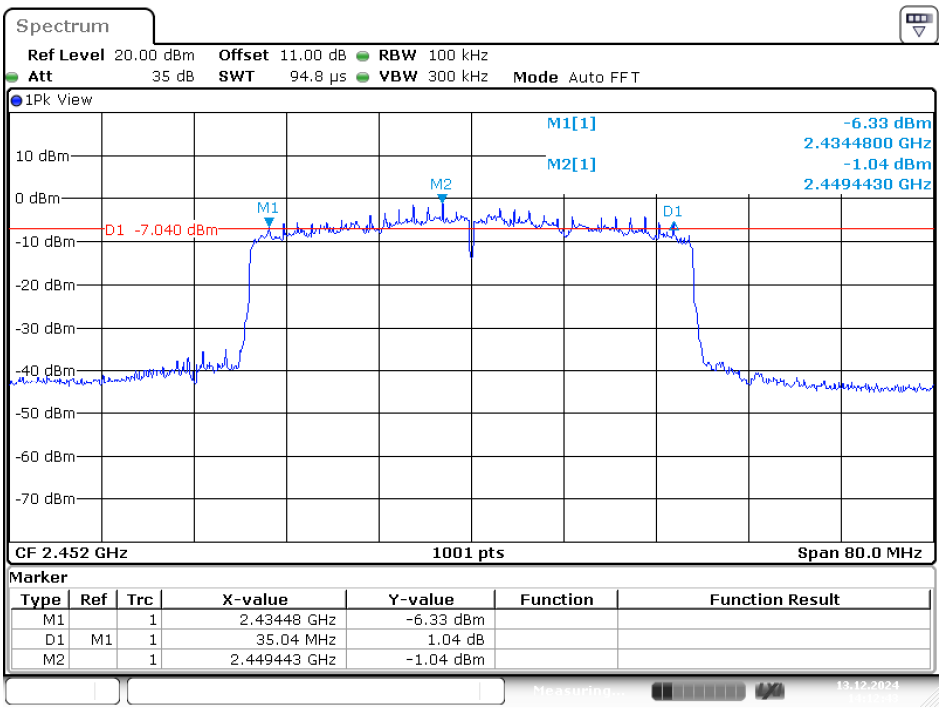
Date: 13.DEC.2024 14:02:37

Middle Channel



Date: 13.DEC.2024 14:09:42

High Channel

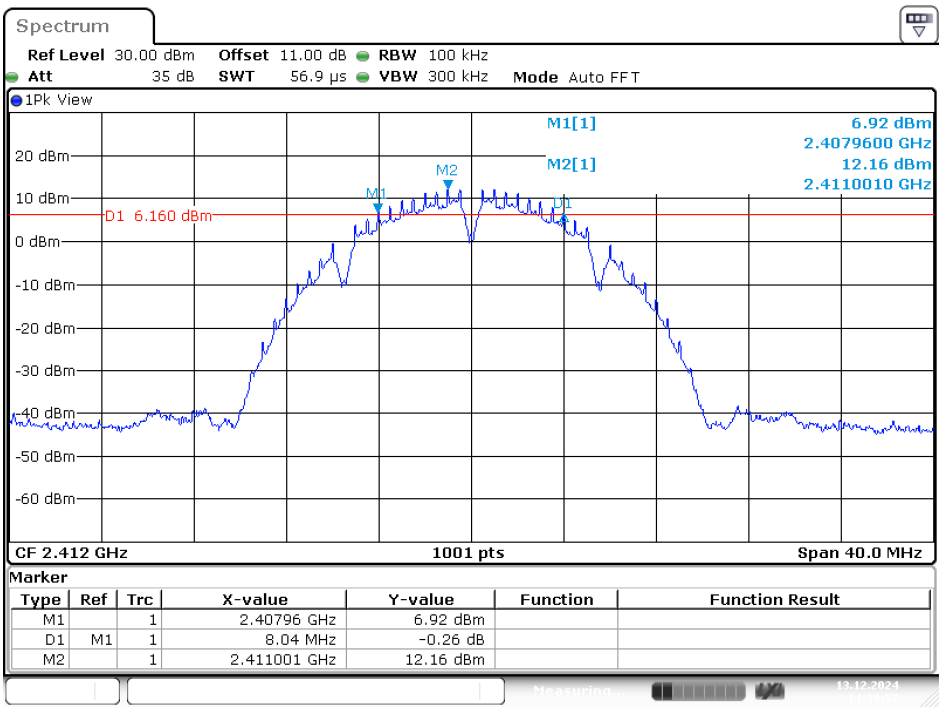


Date: 13.DEC.2024 14:12:43

Chain 1

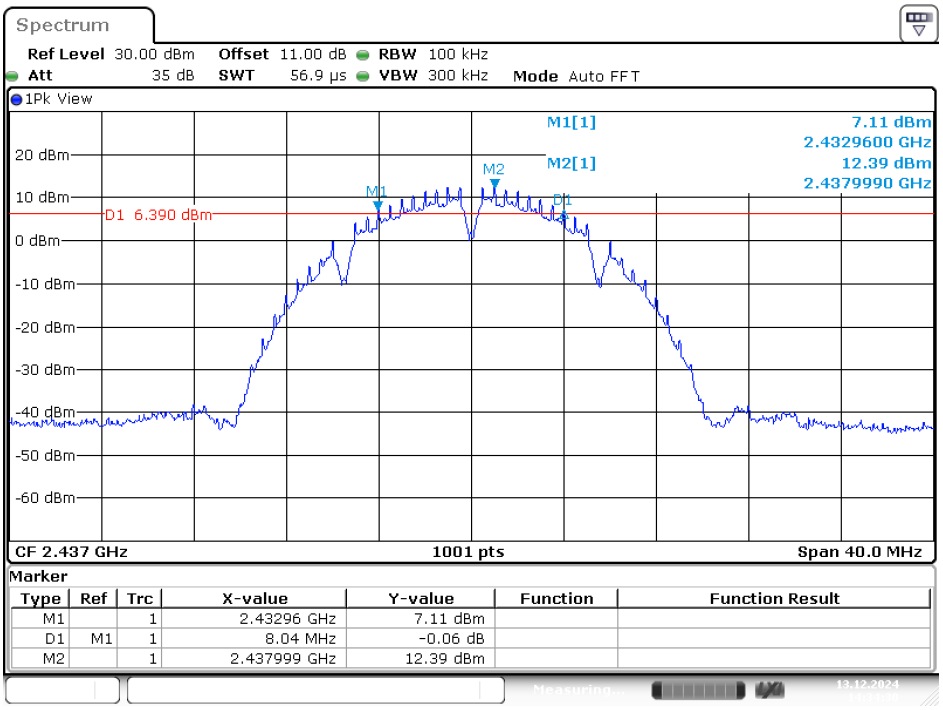
B Mode

Low Channel



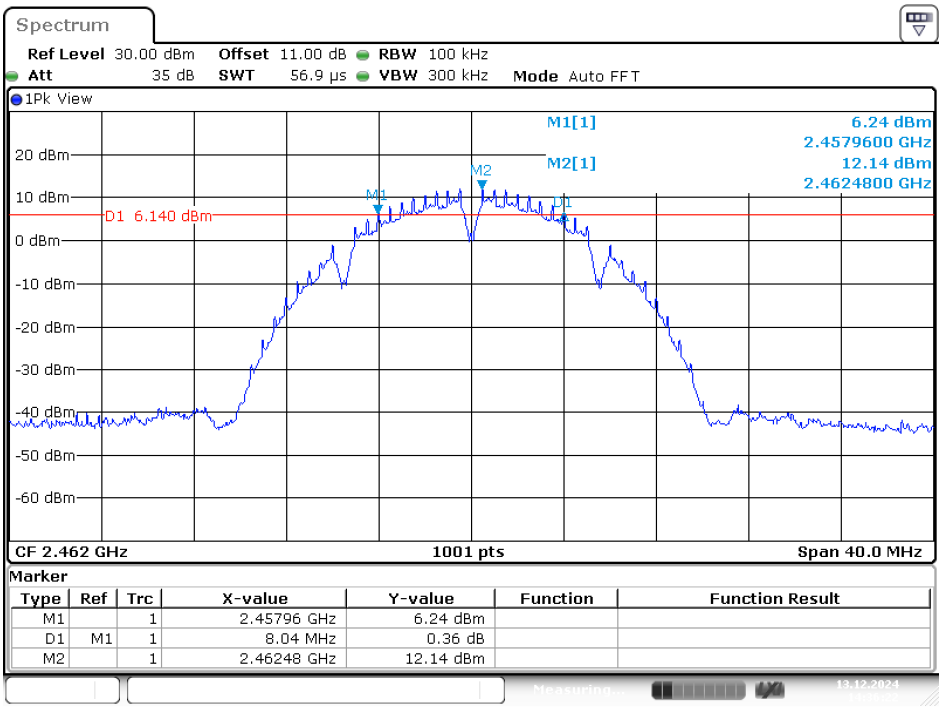
Date: 13.DEC.2024 14:39:58

Middle Channel



Date: 13.DEC.2024 14:34:30

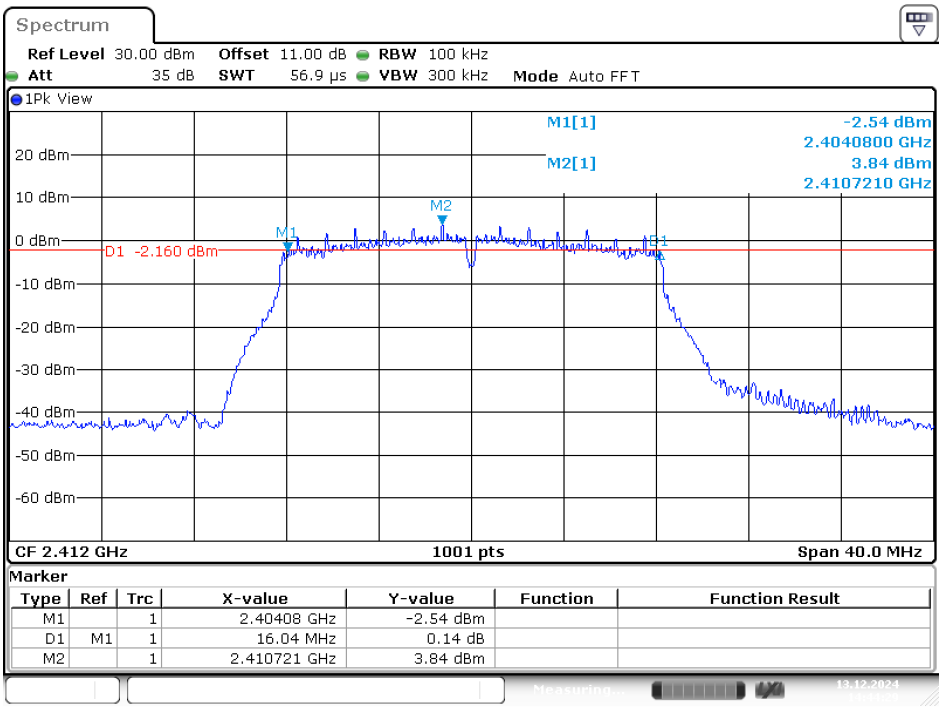
High Channel



Date: 13.DEC.2024 14:36:23

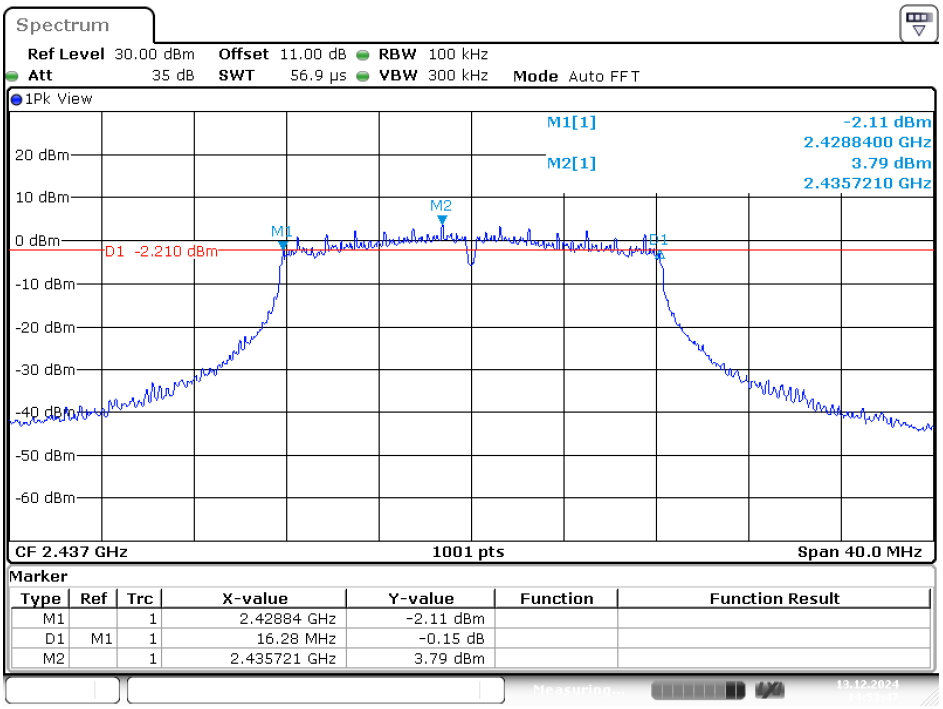
G Mode

Low Channel



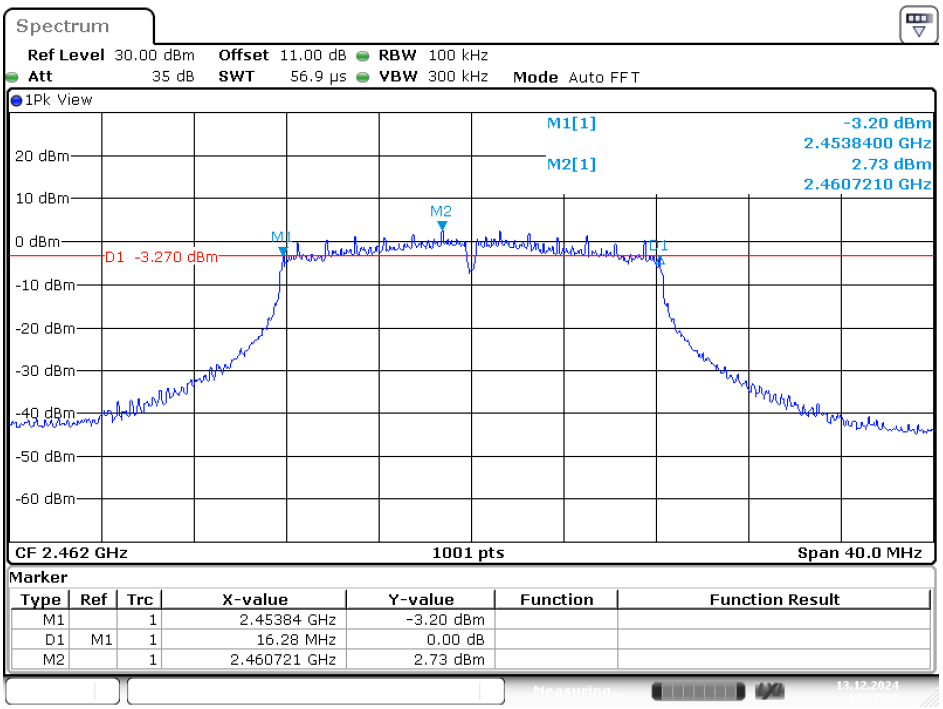
Date: 13.DEC.2024 14:44:29

Middle Channel



Date: 13.DEC.2024 14:53:47

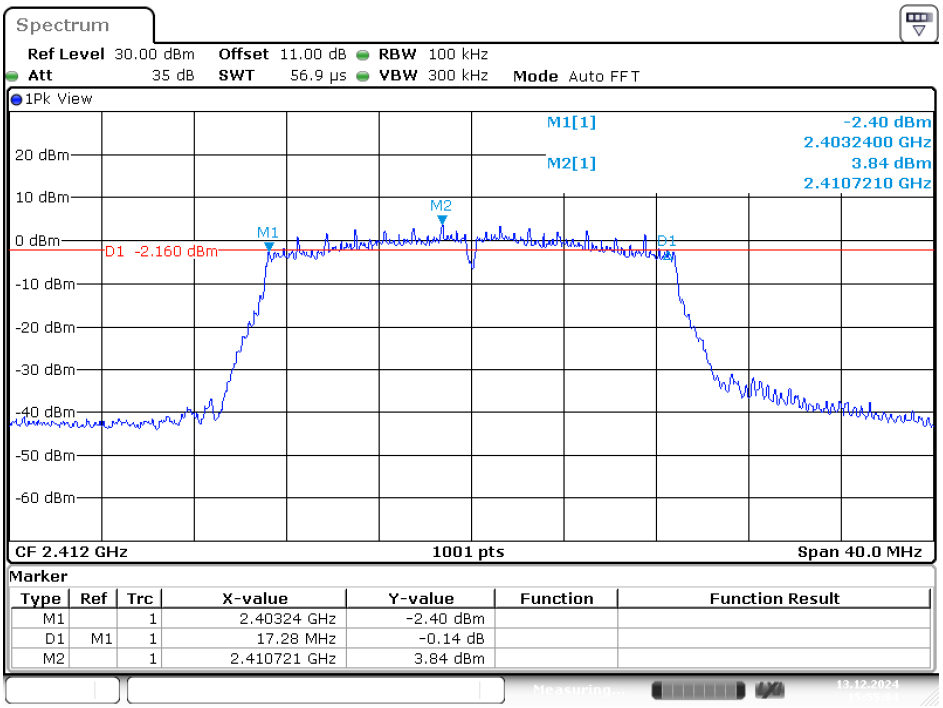
High Channel



Date: 13.DEC.2024 14:57:52

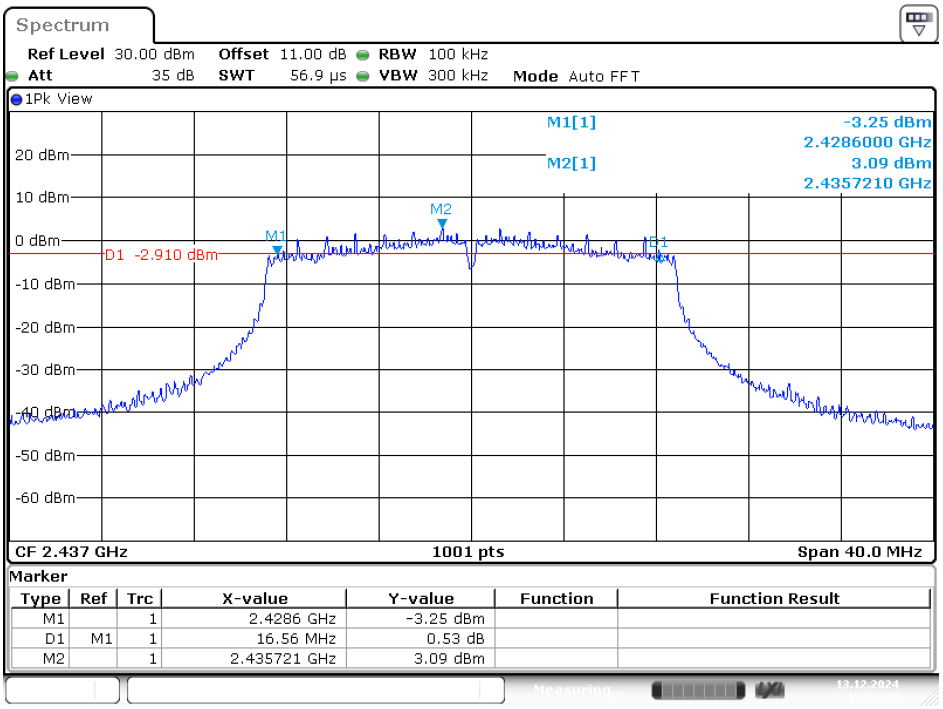
N20 Mode

Low Channel



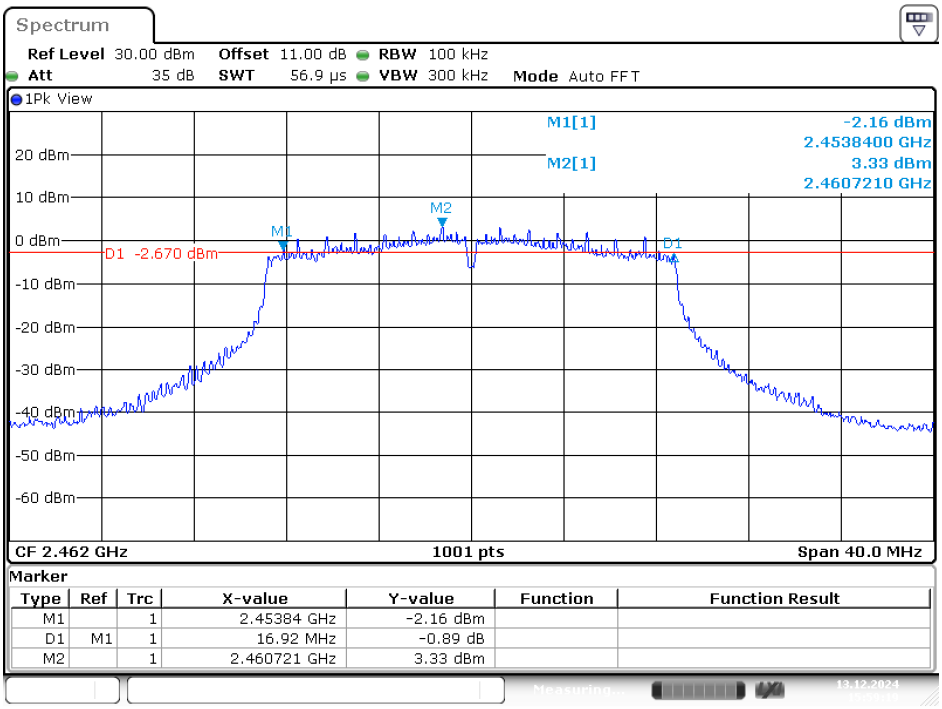
Date: 13.DEC.2024 15:55:04

Middle Channel



Date: 13.DEC.2024 15:52:50

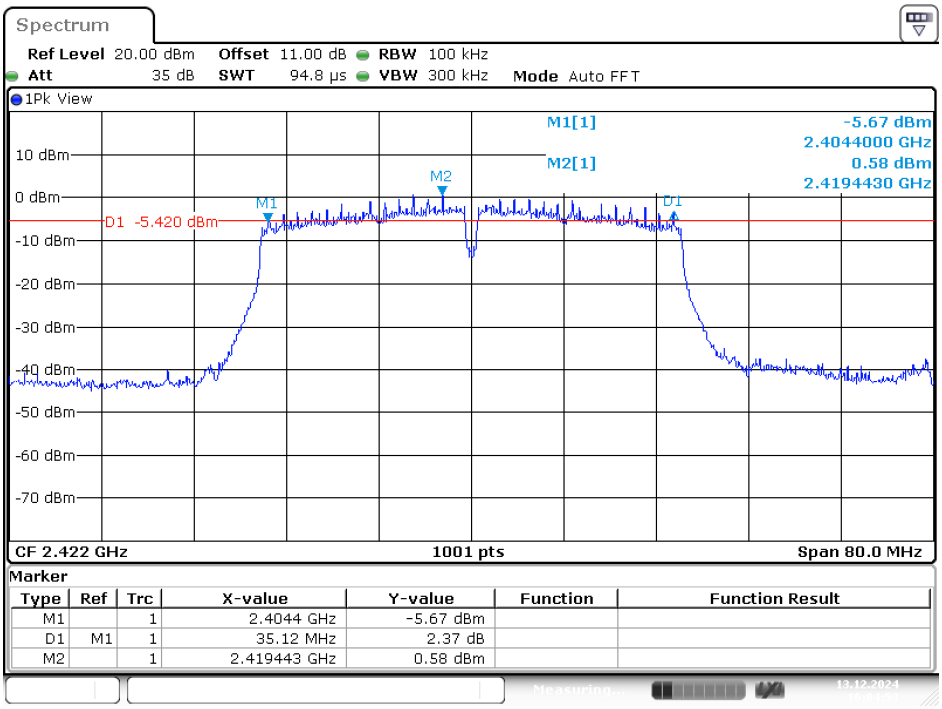
High Channel



Date: 13.DEC.2024 15:59:19

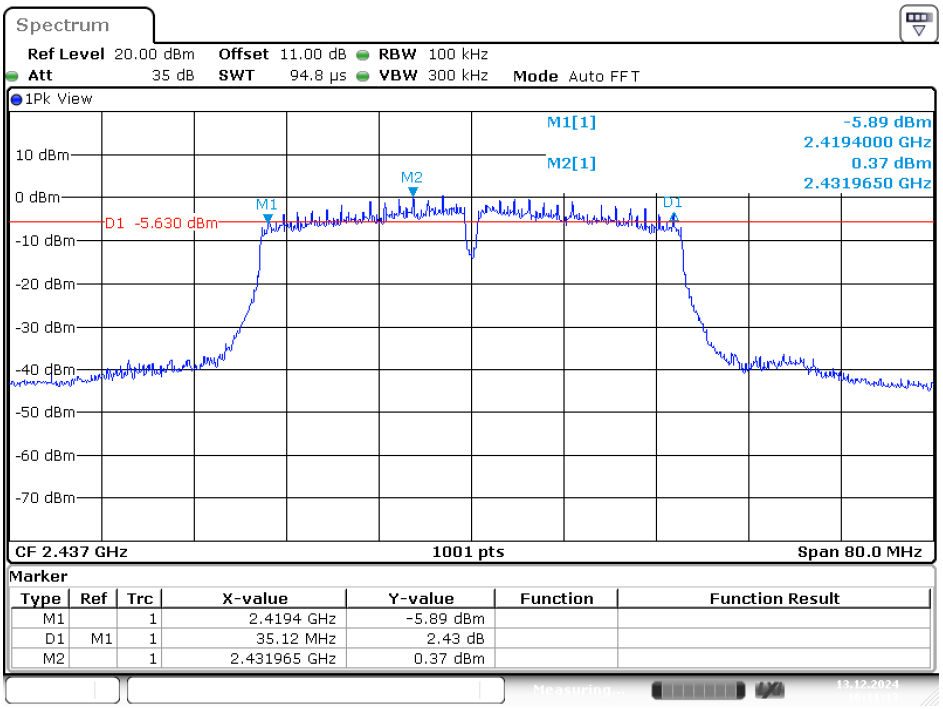
N40 Mode

Low Channel



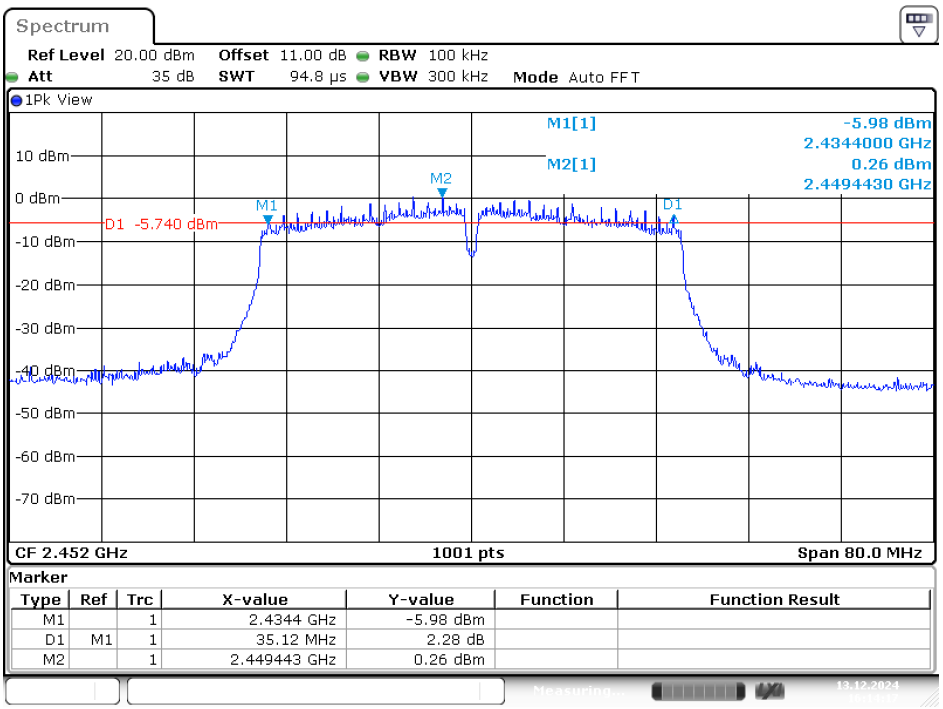
Date: 13.DEC.2024 16:04:53

Middle Channel



Date: 13.DEC.2024 16:11:13

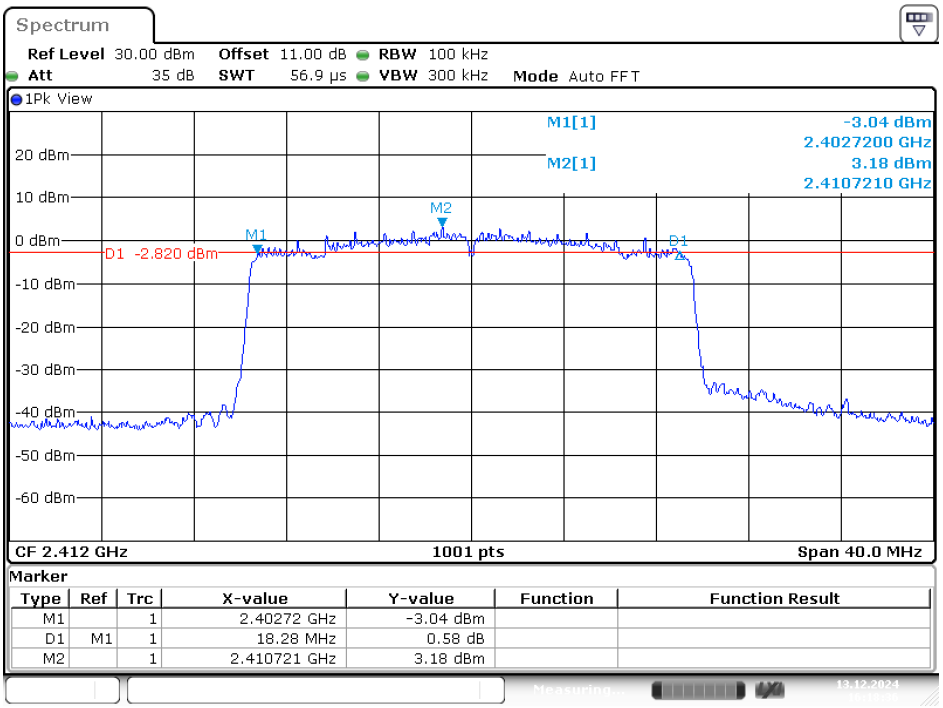
High Channel



Date: 13.DEC.2024 16:14:17

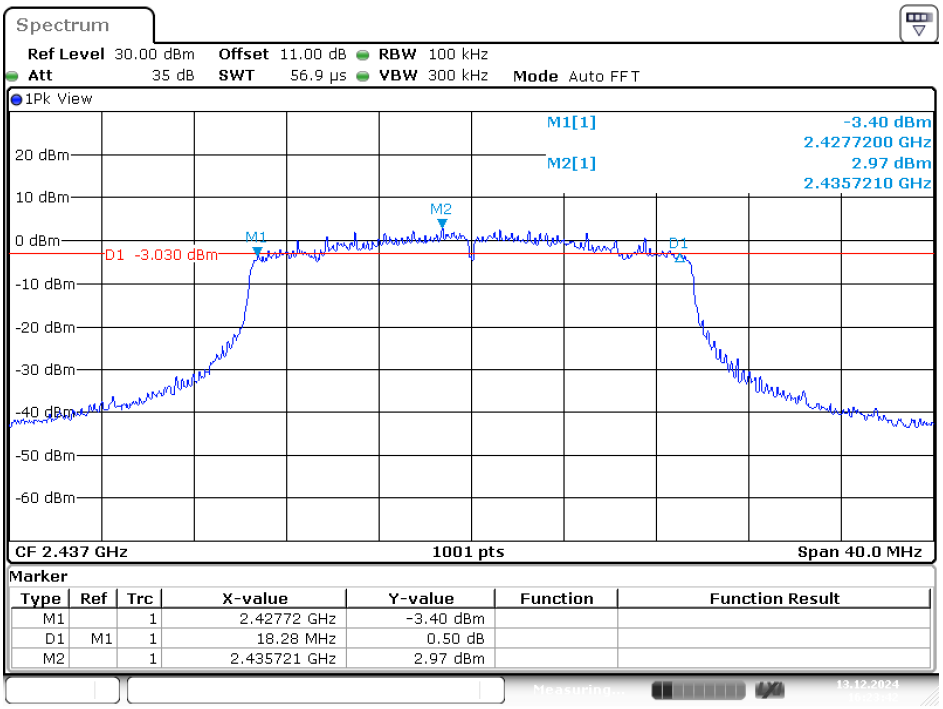
AX20 Mode

Low Channel



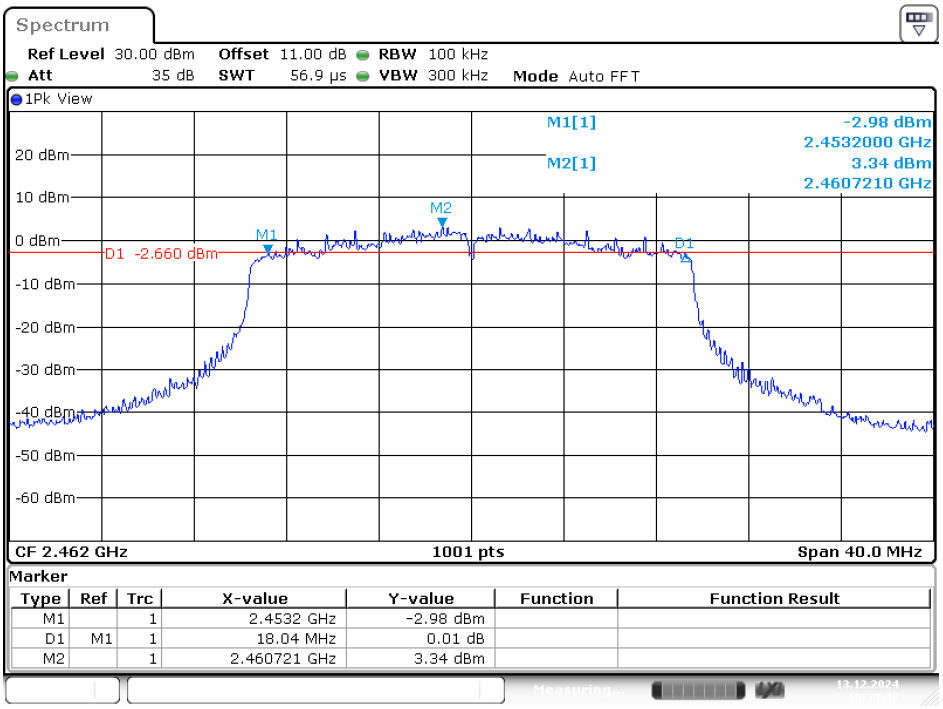
Date: 13.DEC.2024 16:18:36

Middle Channel



Date: 13.DEC.2024 16:23:43

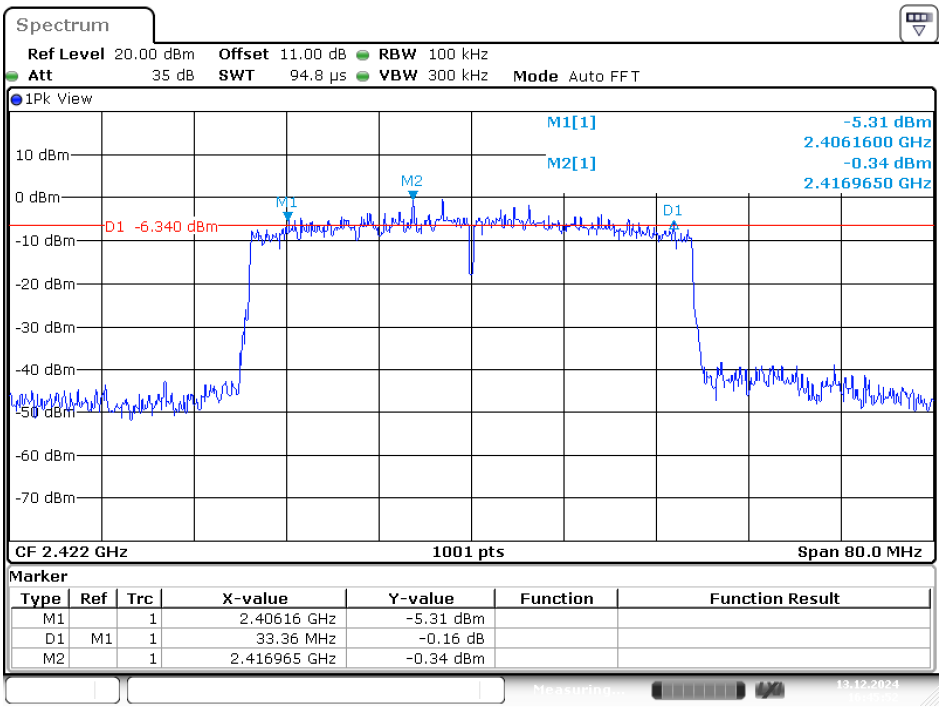
High Channel



Date: 13.DEC.2024 16:34:46

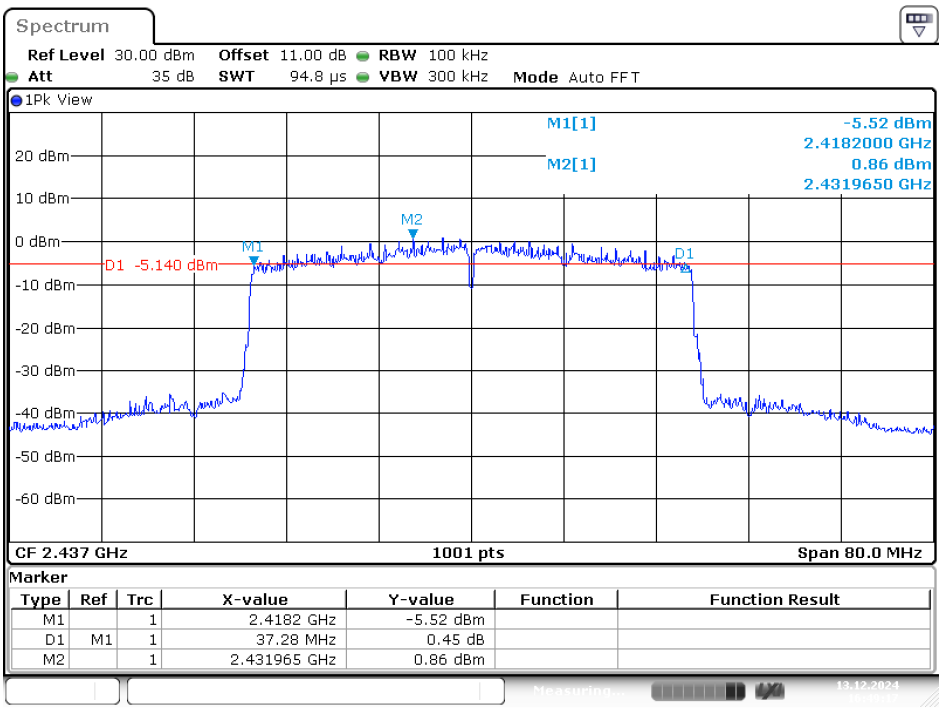
AX40 Mode

Low Channel



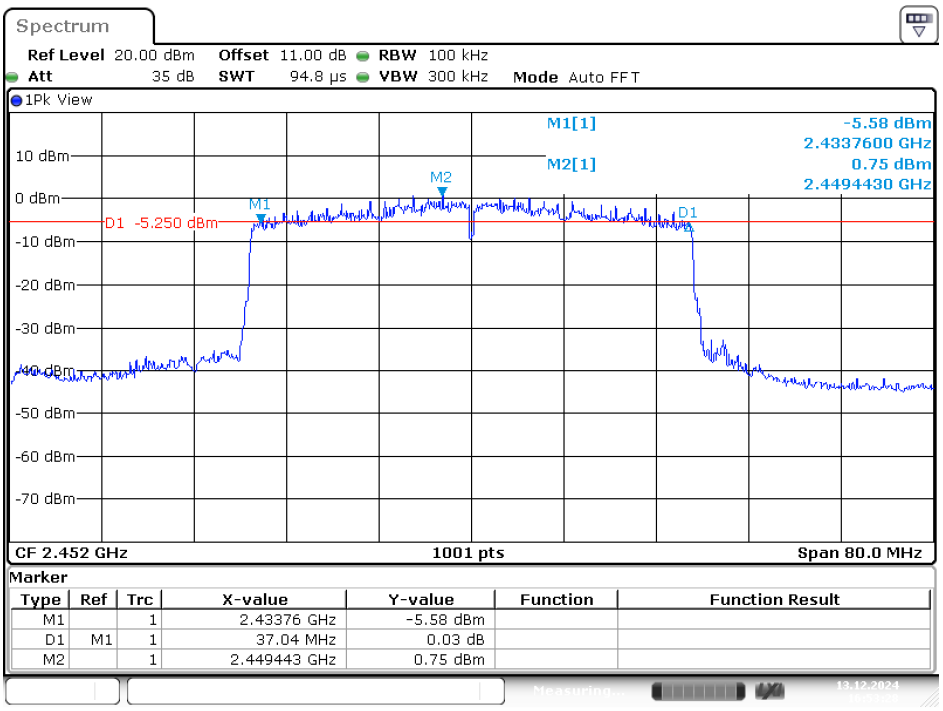
Date: 13.DEC.2024 16:45:52

Middle Channel



Date: 13.DEC.2024 16:49:17

High Channel

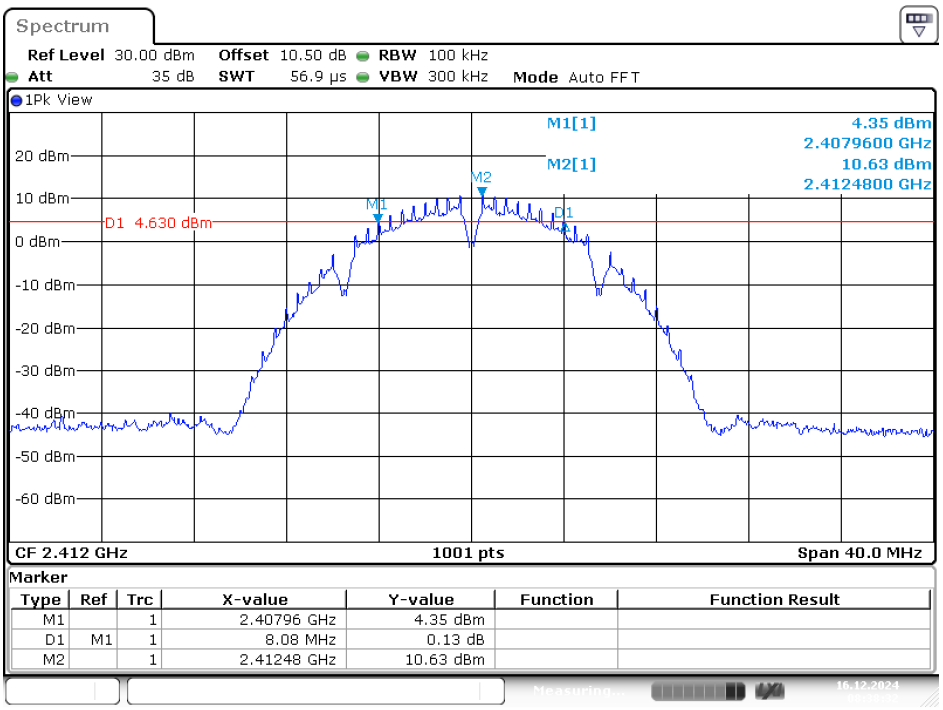


Date: 13.DEC.2024 16:53:28

Chain 2

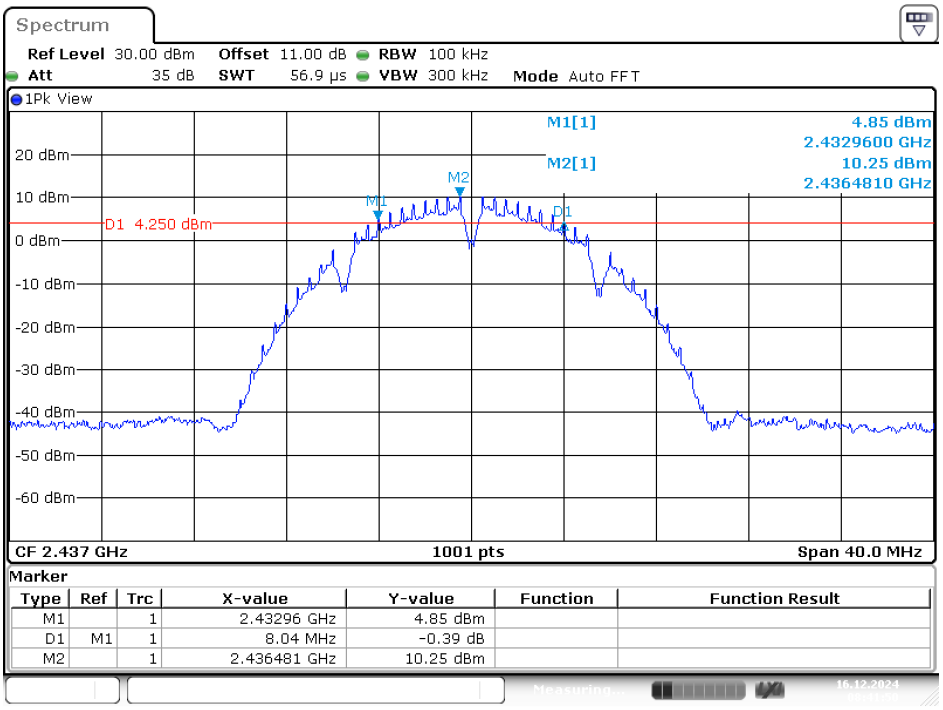
B Mode

Low Channel



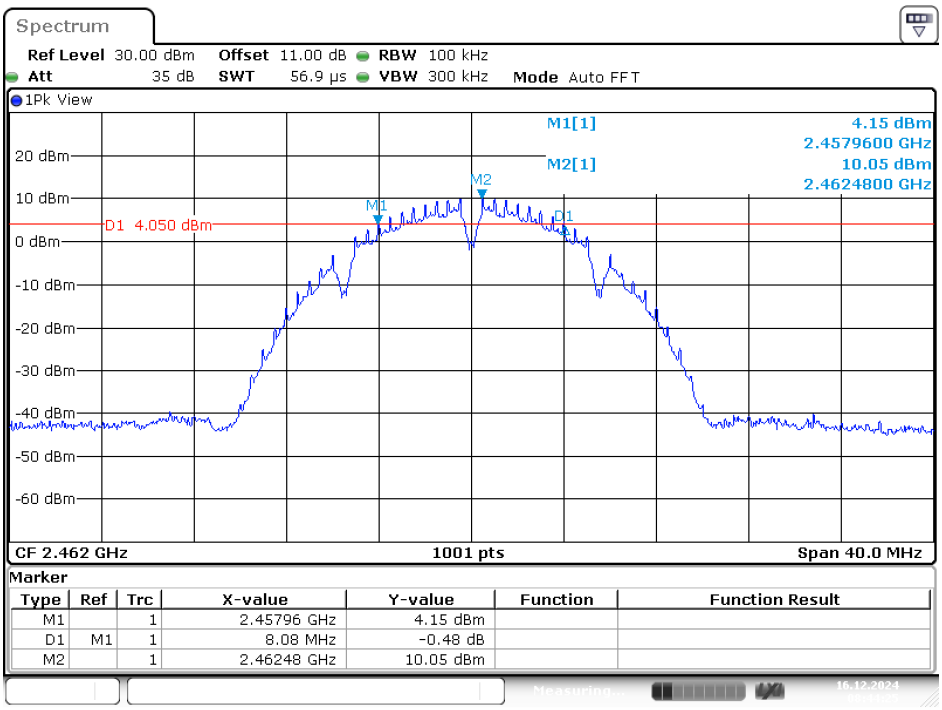
Date: 16.DEC.2024 08:38:32

Middle Channel



Date: 16.DEC.2024 08:41:51

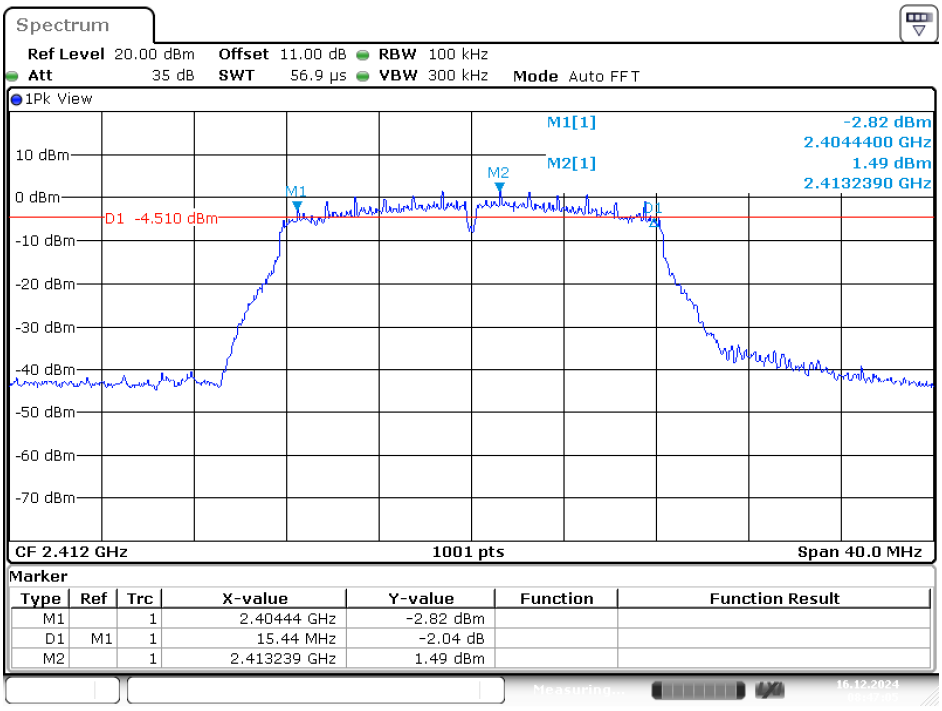
High Channel



Date: 16.DEC.2024 08:44:25

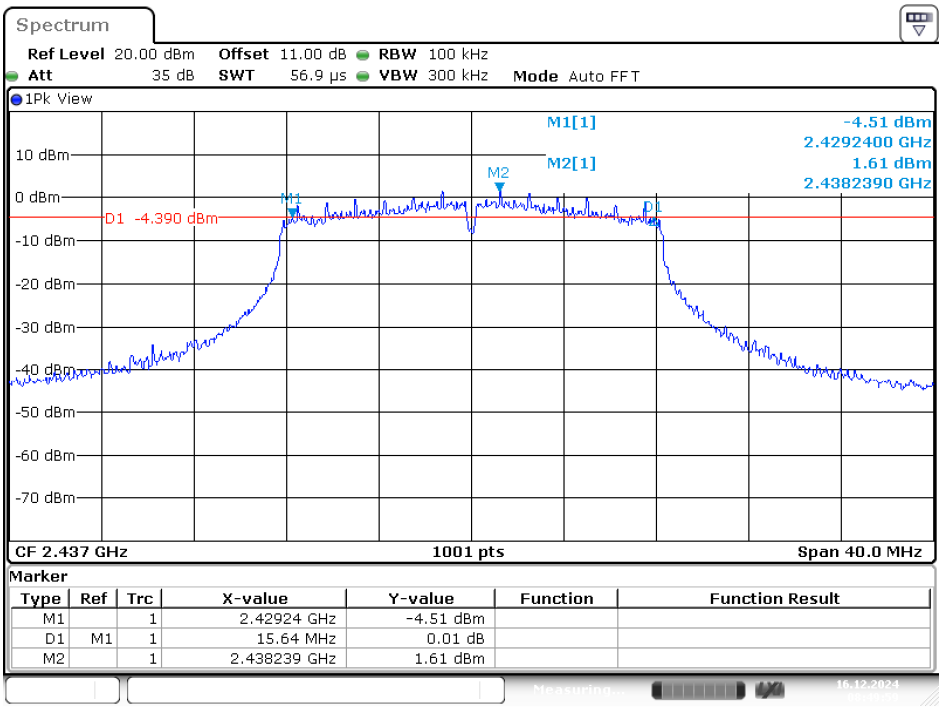
G Mode

Low Channel



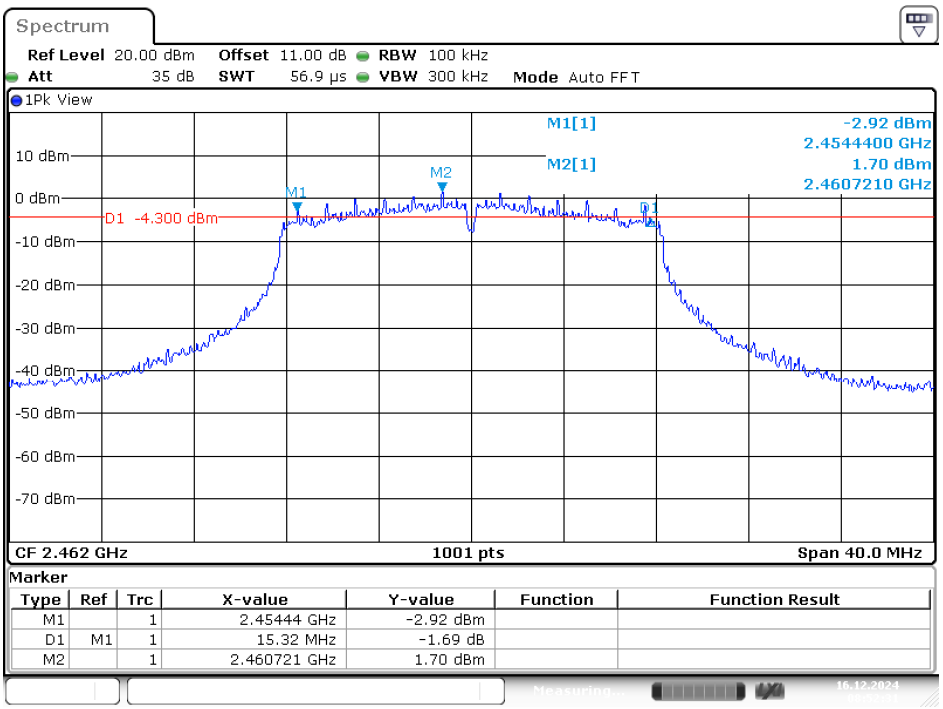
Date: 16.DEC.2024 08:47:06

Middle Channel



Date: 16.DEC.2024 08:50:00

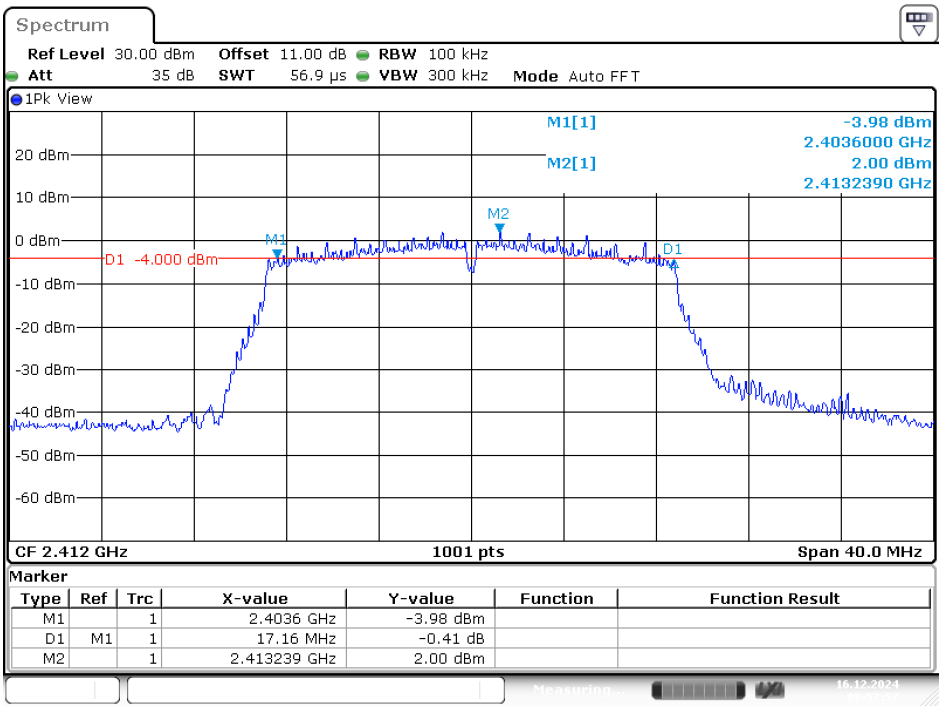
High Channel



Date: 16.DEC.2024 08:52:32

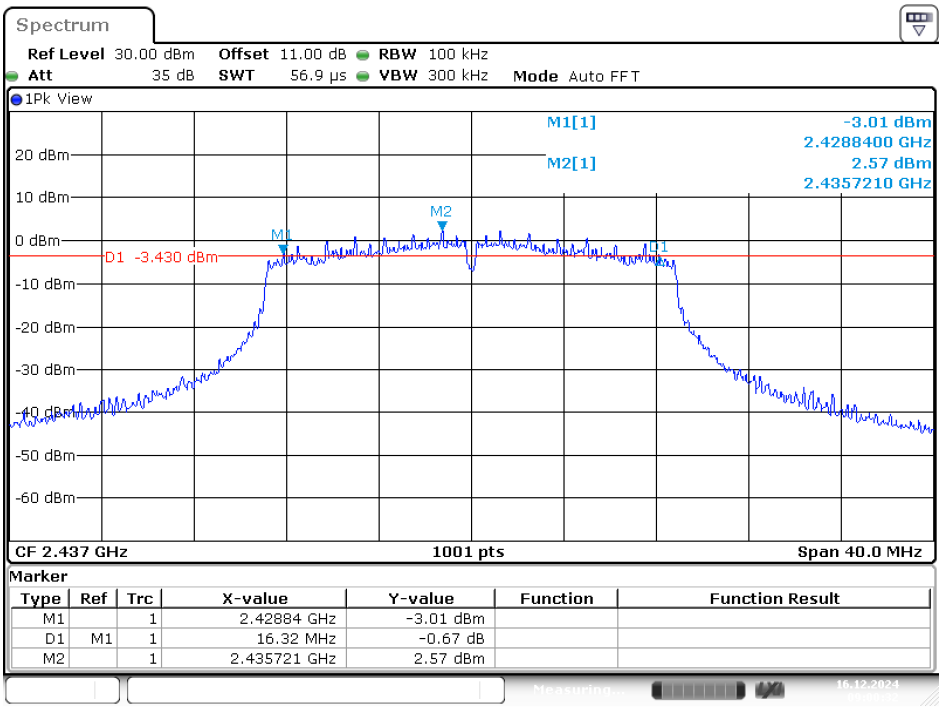
N20 Mode

Low Channel



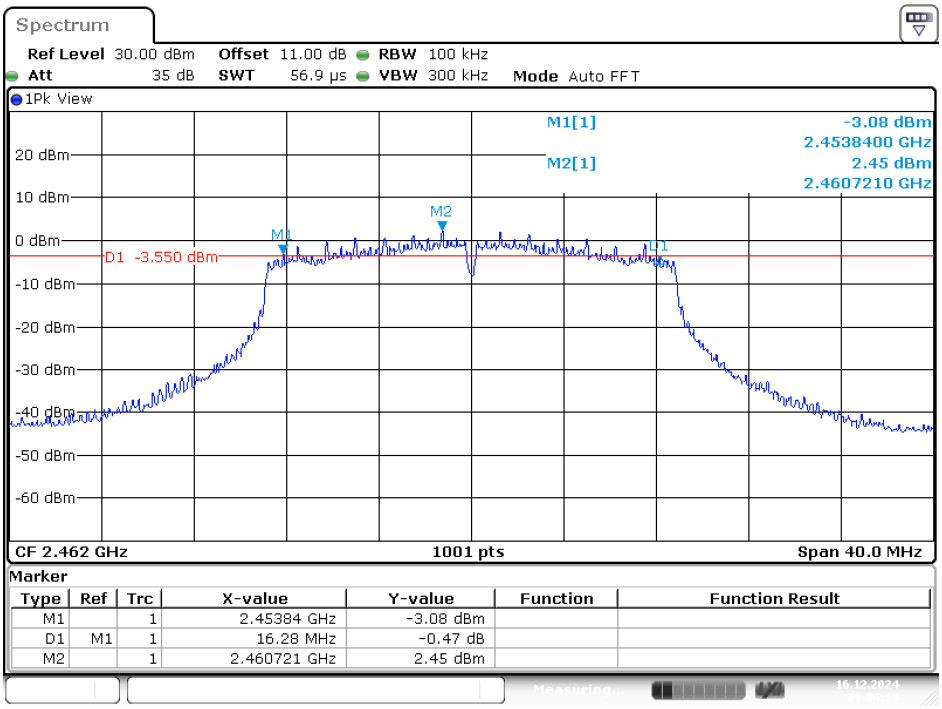
Date: 16.DEC.2024 08:57:57

Middle Channel



Date: 16.DEC.2024 09:00:33

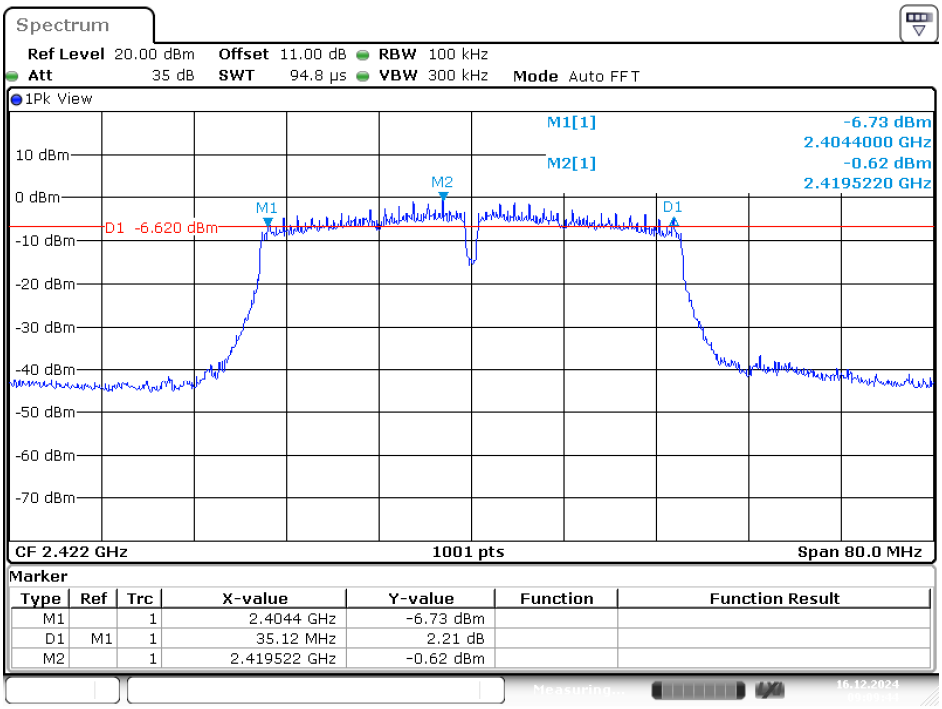
High Channel



Date: 16.DEC.2024 09:04:10

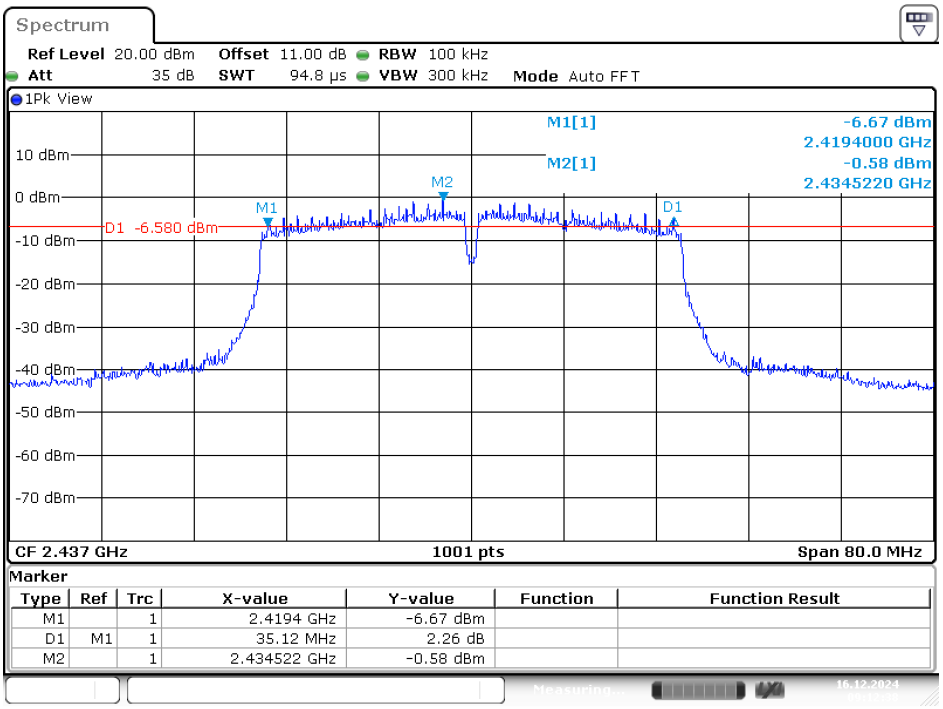
N40 Mode

Low Channel



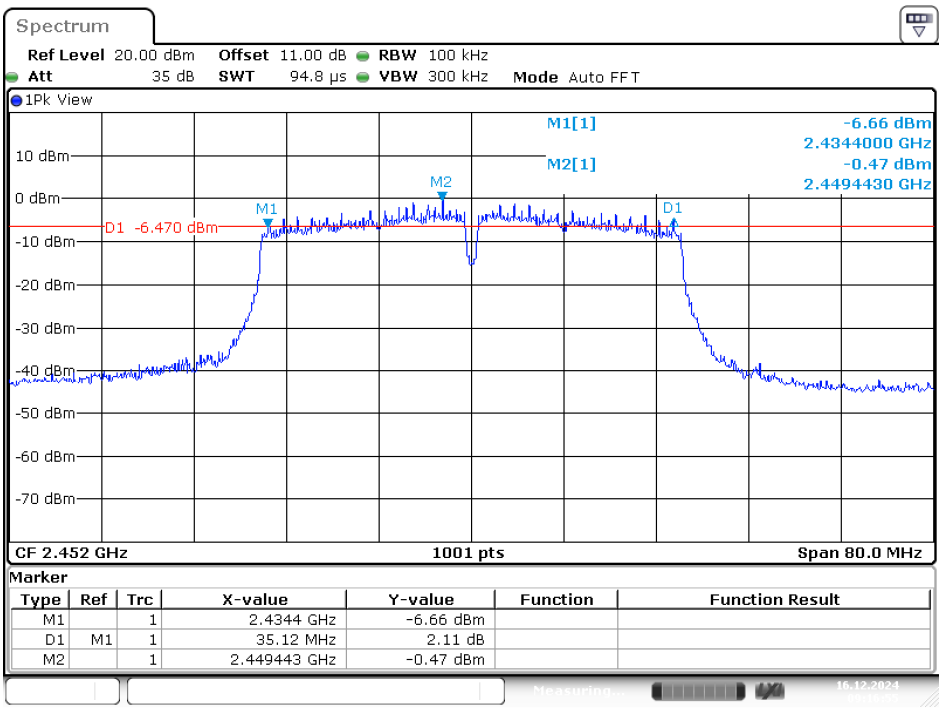
Date: 16.DEC.2024 09:09:45

Middle Channel



Date: 16.DEC.2024 09:12:38

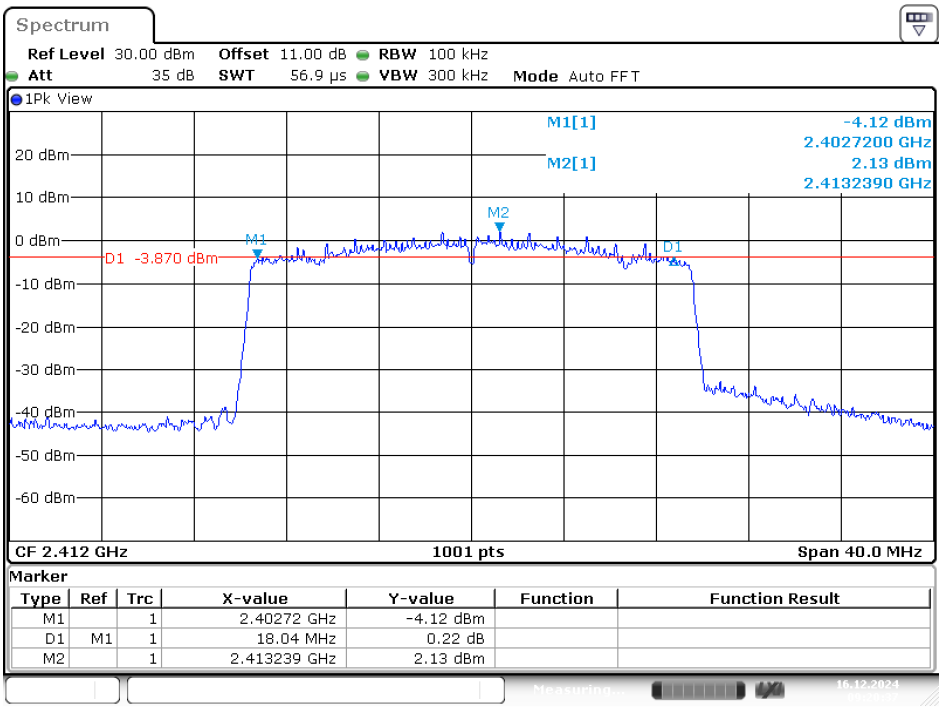
High Channel



Date: 16.DEC.2024 09:16:56

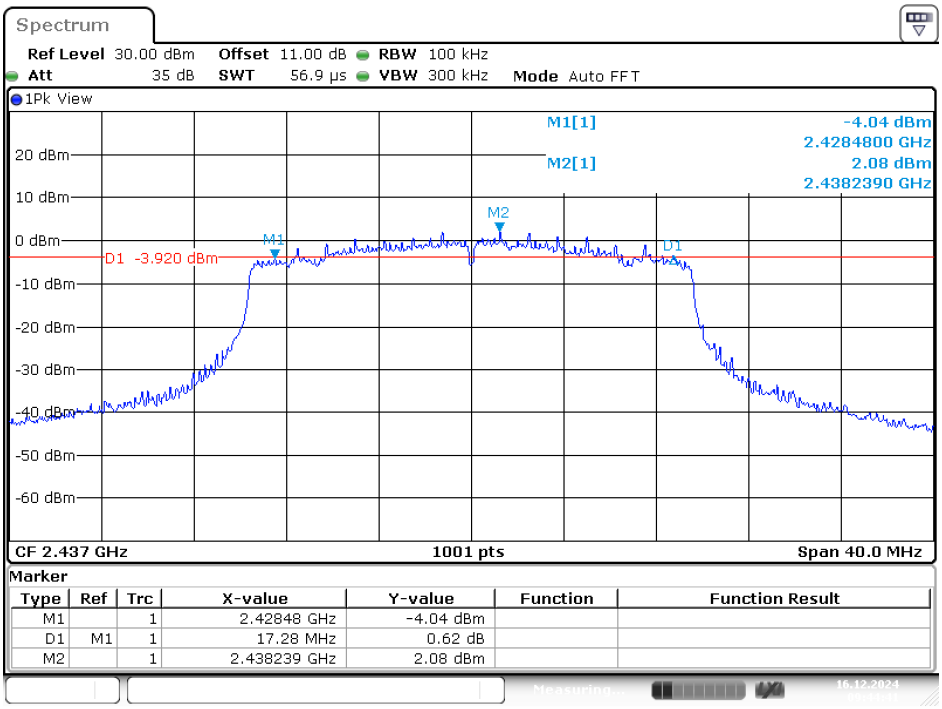
AX20 Mode

Low Channel



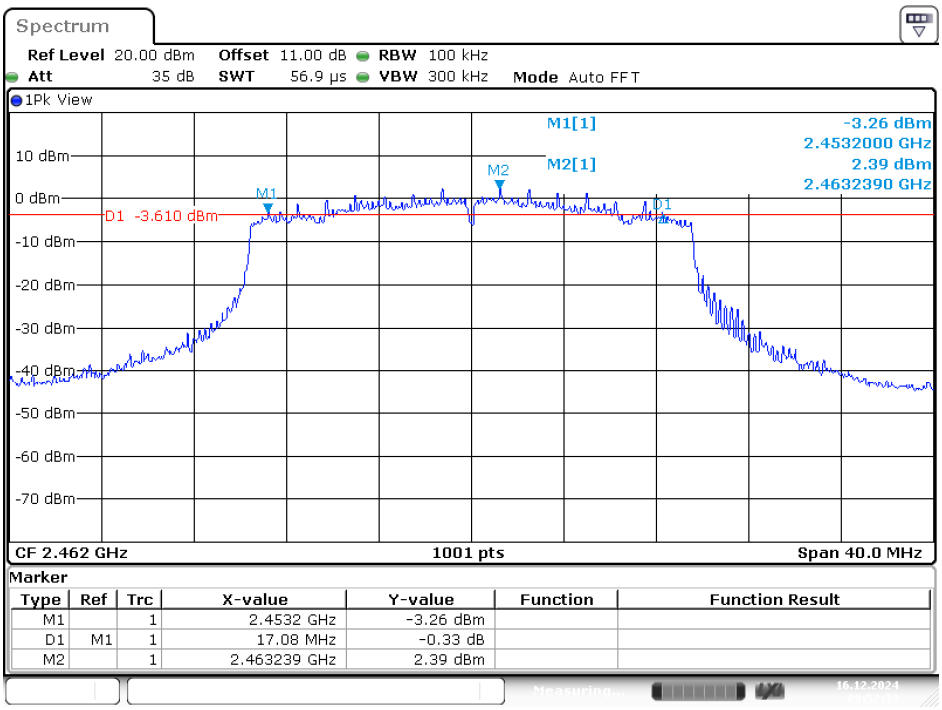
Date: 16.DEC.2024 09:20:37

Middle Channel



Date: 16.DEC.2024 09:44:42

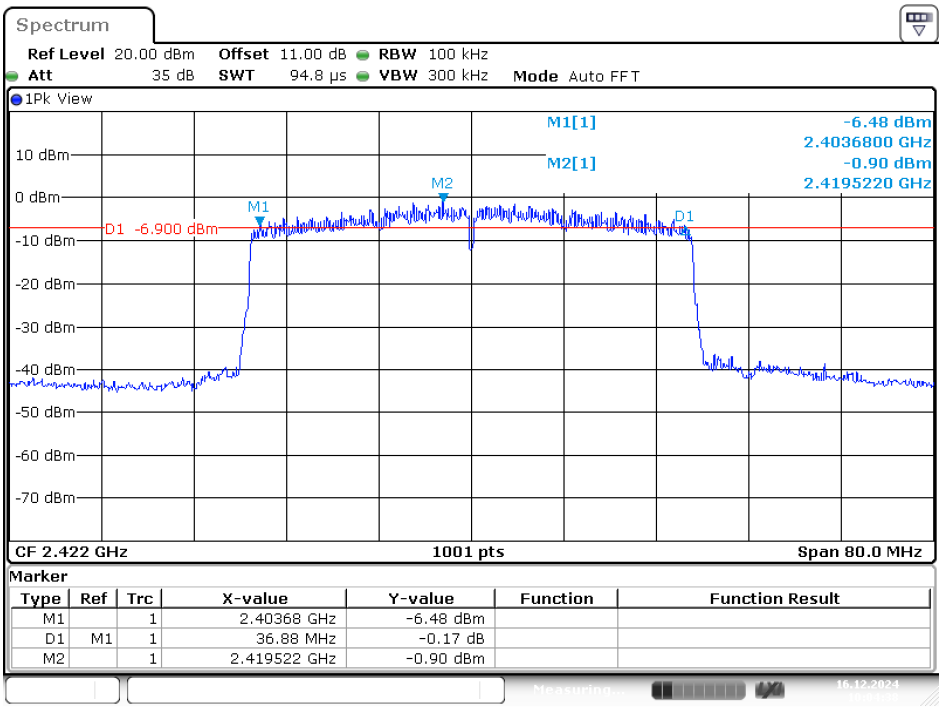
High Channel



Date: 16.DEC.2024 09:52:34

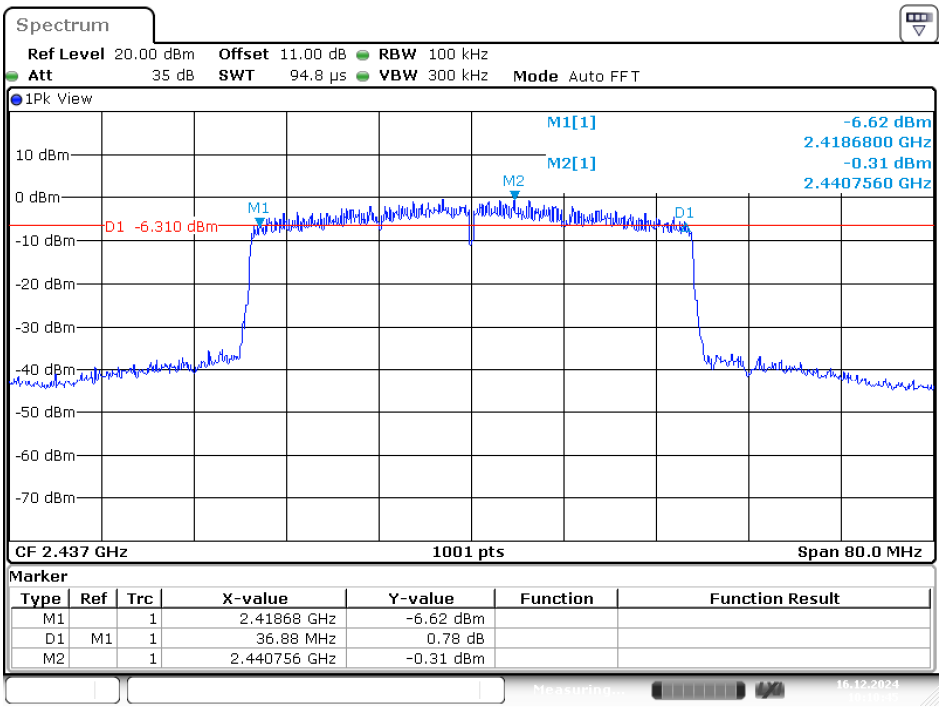
AX40 Mode

Low Channel



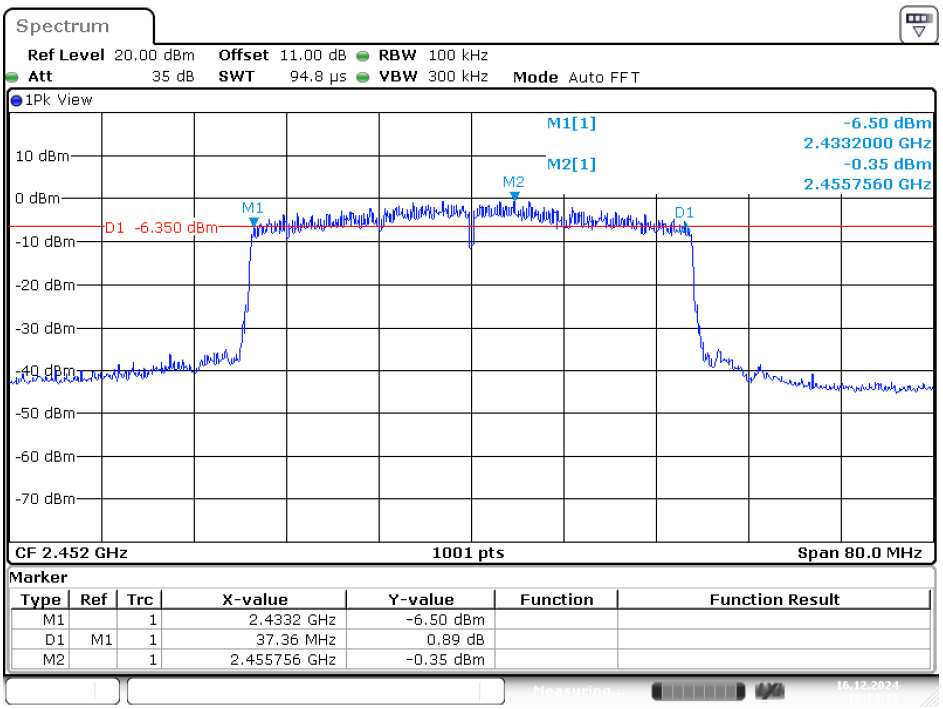
Date: 16.DEC.2024 10:04:38

Middle Channel



Date: 16.DEC.2024 10:10:46

High Channel

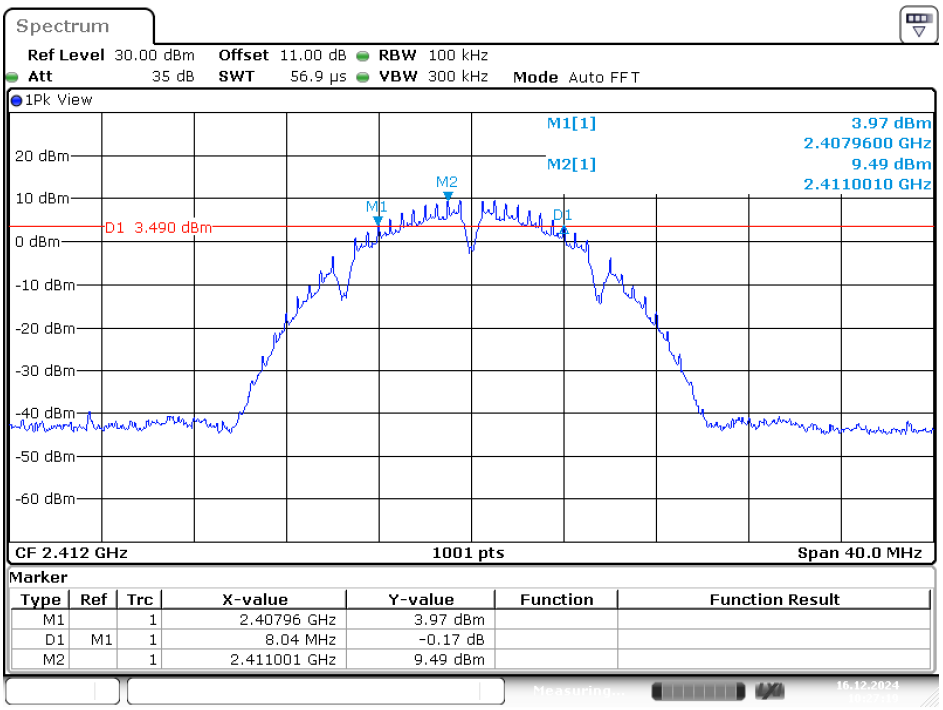


Date: 16.DEC.2024 10:14:11

Chain 3

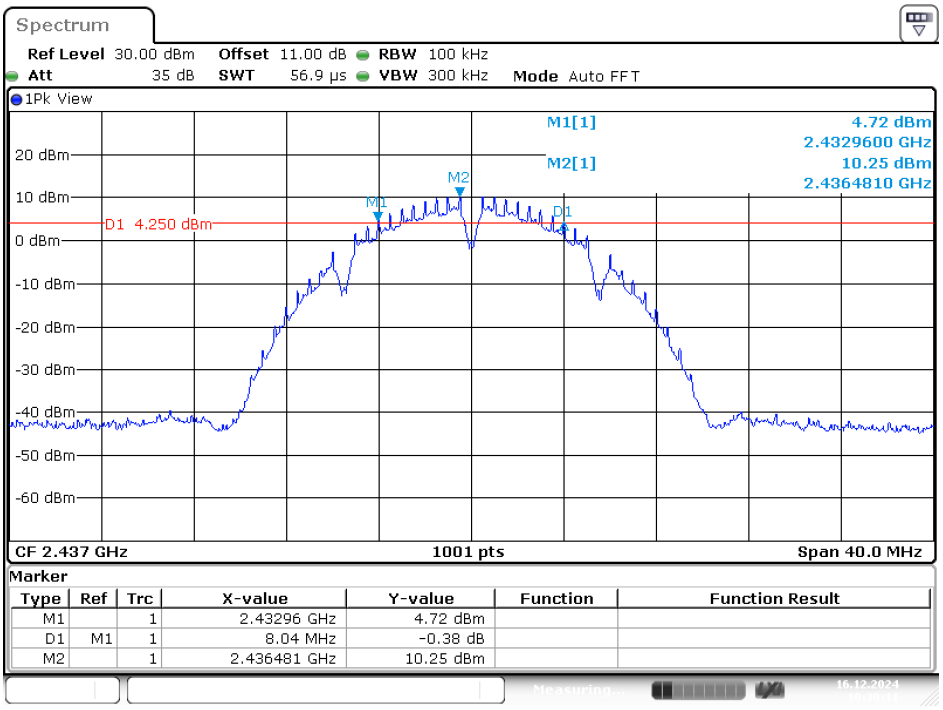
B Mode

Low Channel



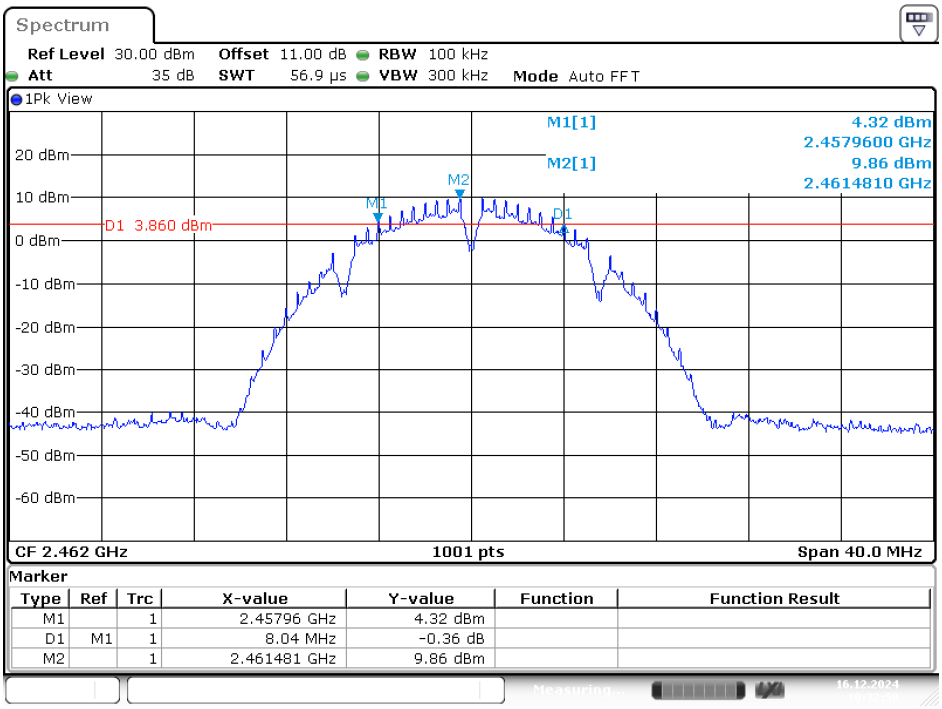
Date: 16.DEC.2024 10:27:19

Middle Channel



Date: 16.DEC.2024 10:30:11

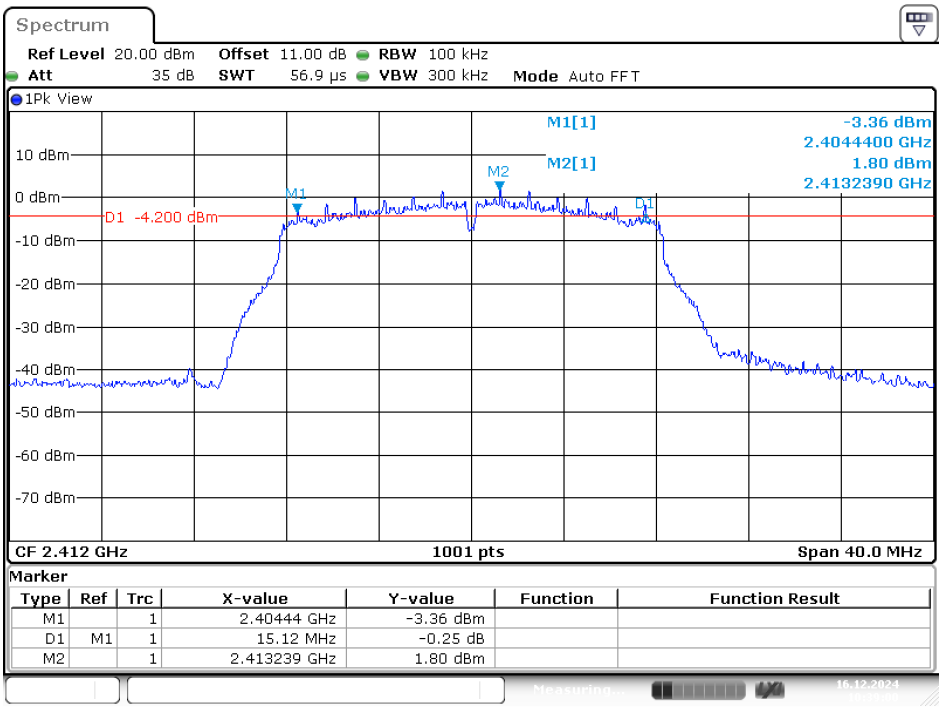
High Channel



Date: 16.DEC.2024 10:32:51

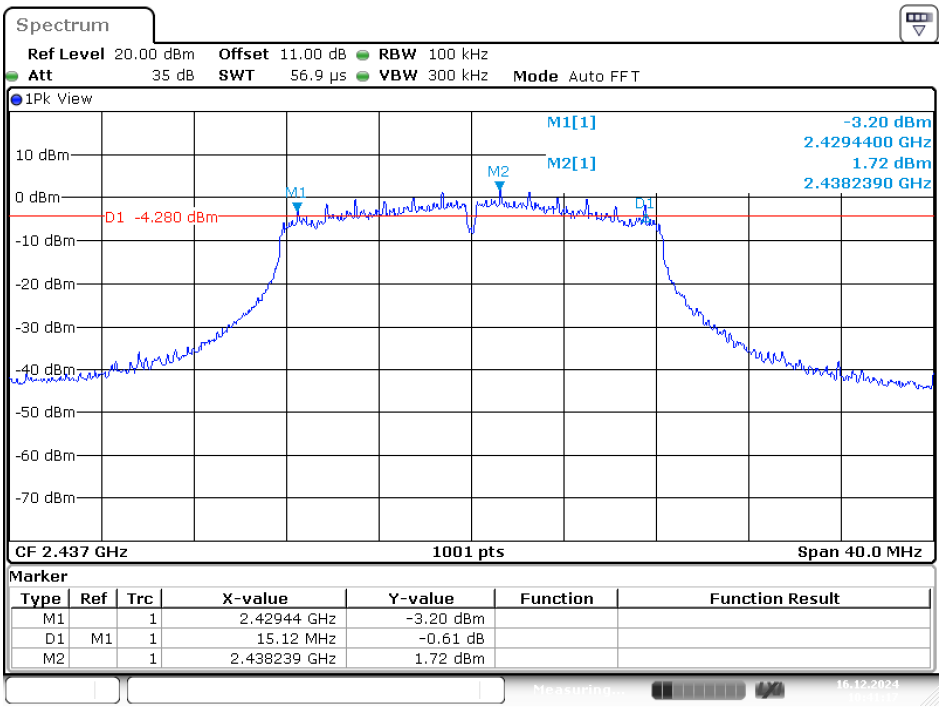
G Mode

Low Channel



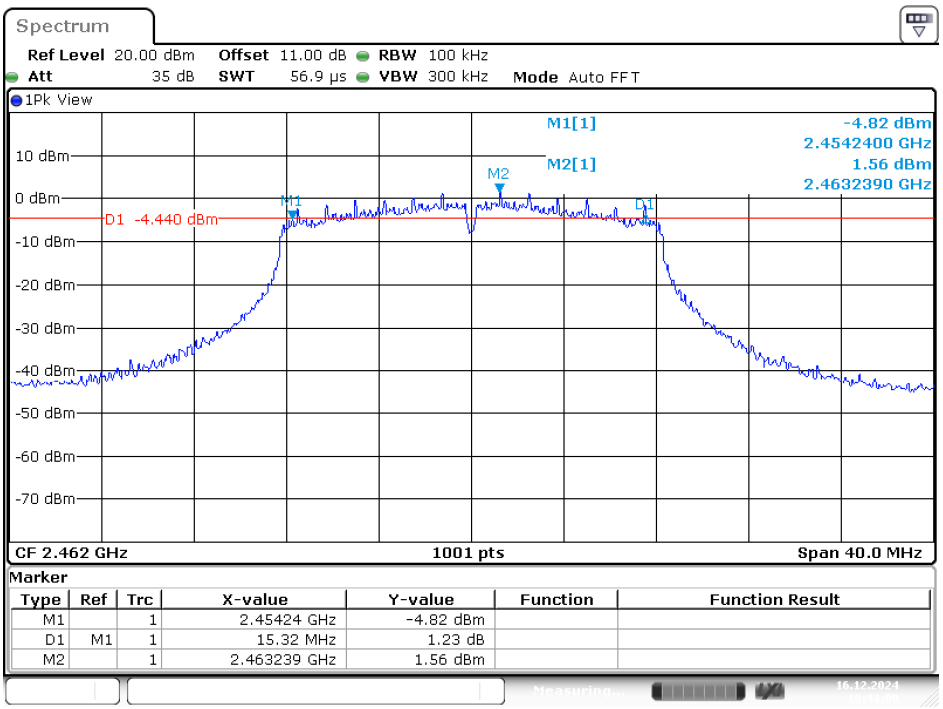
Date: 16.DEC.2024 10:39:00

Middle Channel



Date: 16.DEC.2024 10:41:18

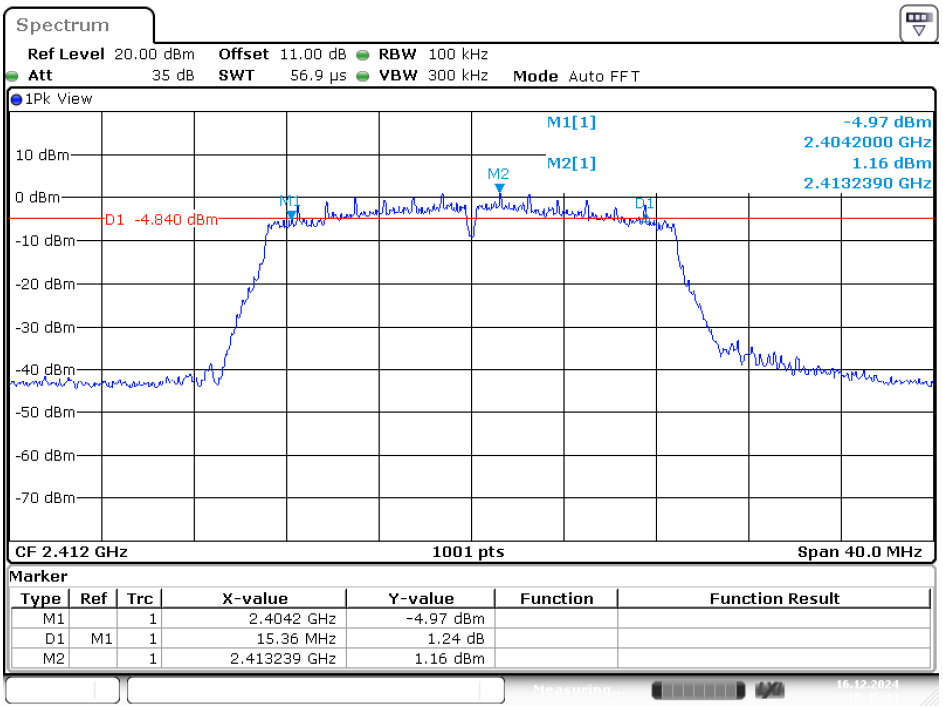
High Channel



Date: 16.DEC.2024 10:43:09

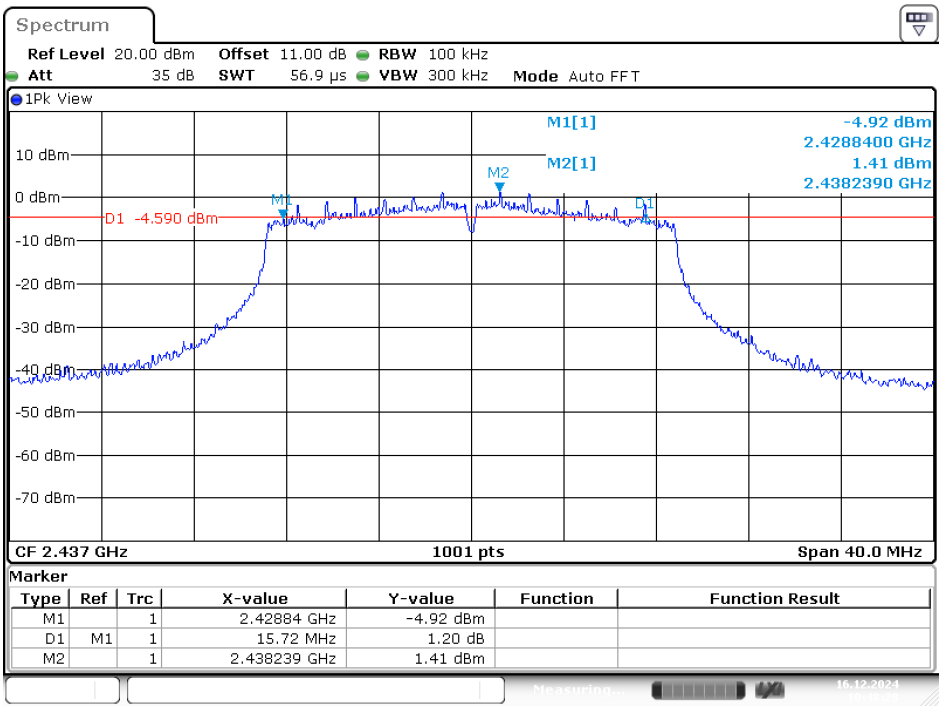
N20 Mode

Low Channel



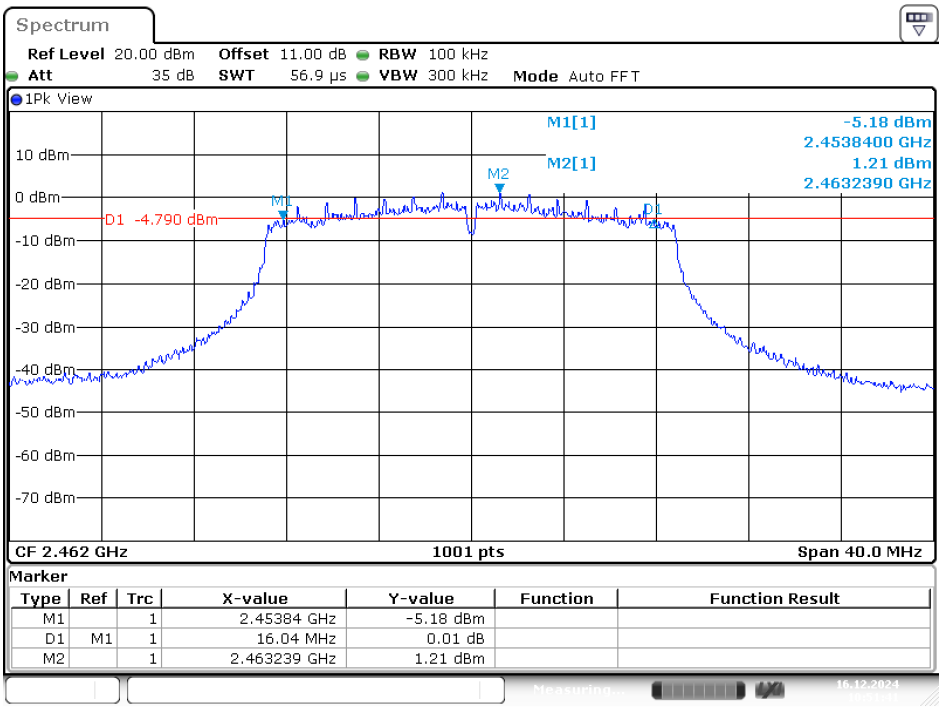
Date: 16.DEC.2024 10:45:45

Middle Channel



Date: 16.DEC.2024 10:48:28

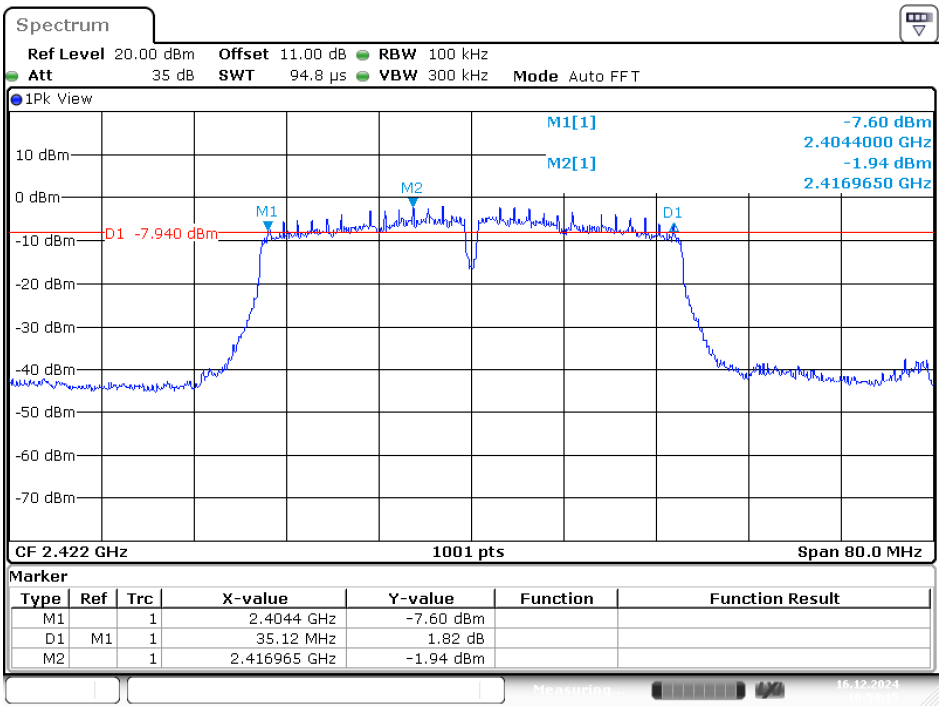
High Channel



Date: 16.DEC.2024 10:51:42

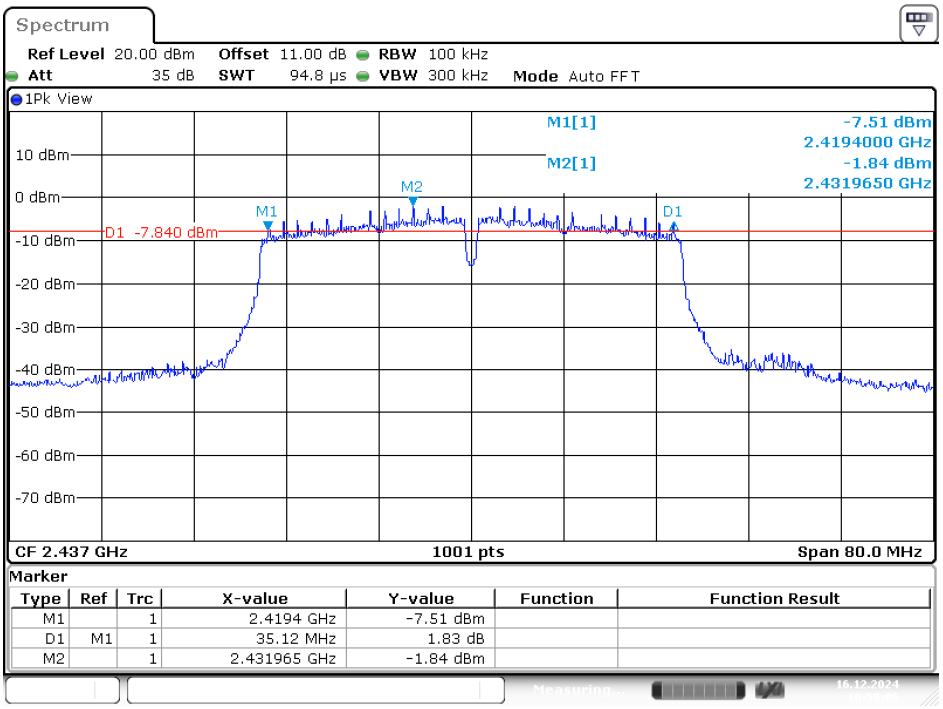
N40 Mode

Low Channel



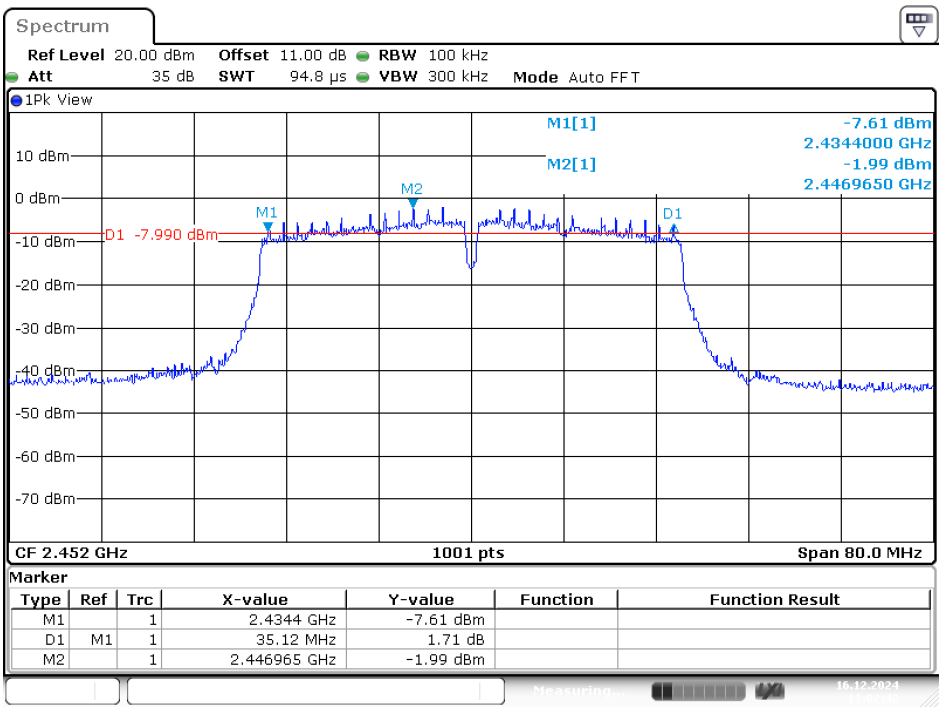
Date: 16.DEC.2024 10:54:15

Middle Channel



Date: 16.DEC.2024 10:59:06

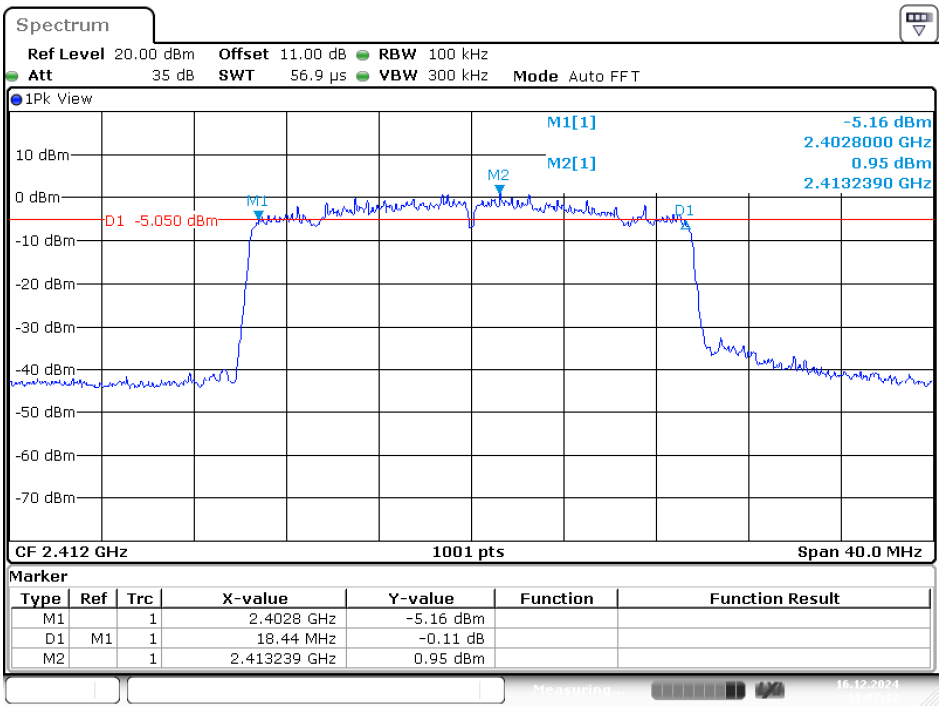
High Channel



Date: 16.DEC.2024 11:02:43

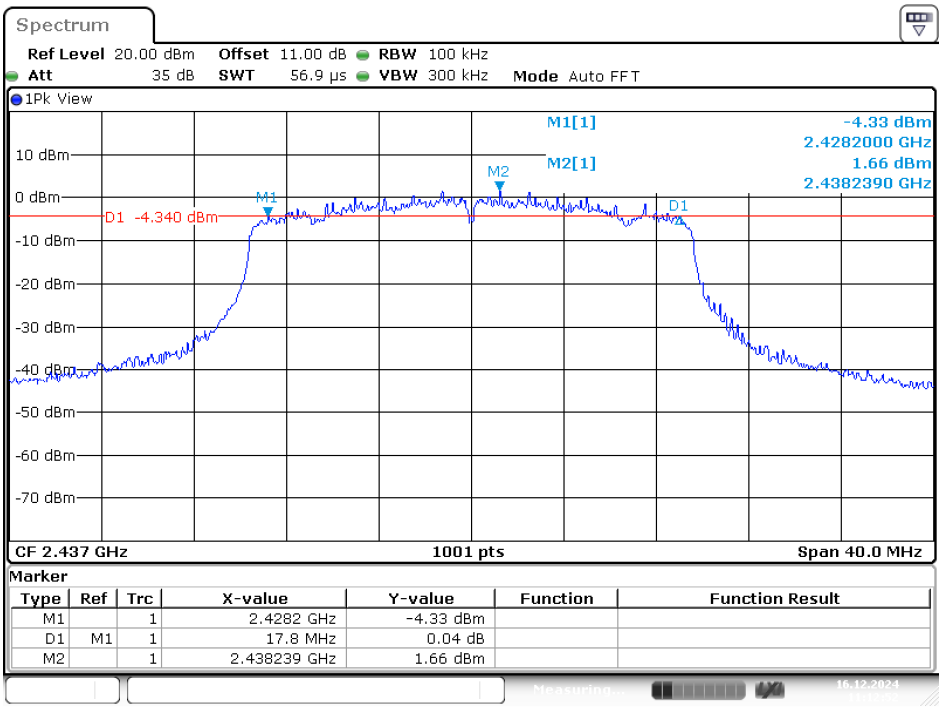
AX20 Mode

Low Channel



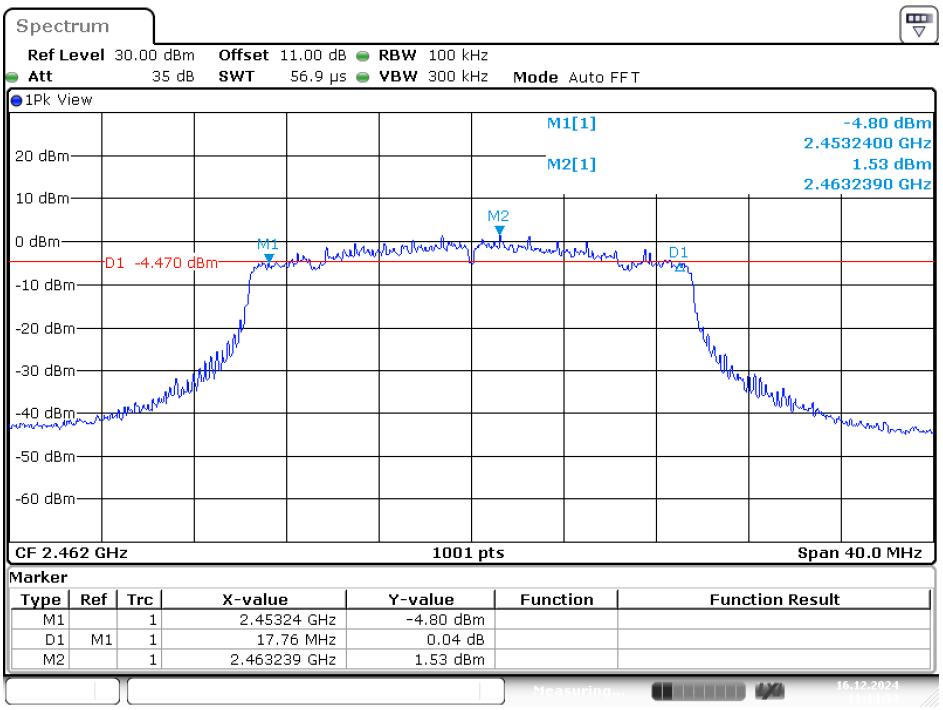
Date: 16.DEC.2024 11:07:12

Middle Channel



Date: 16.DEC.2024 11:12:53

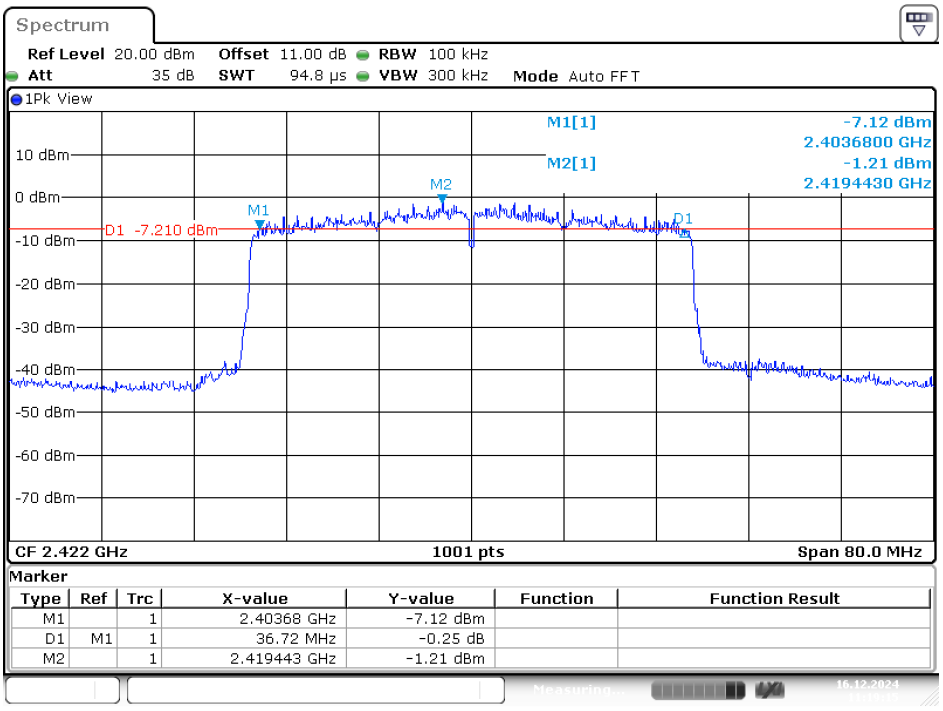
High Channel



Date: 16.DEC.2024 11:14:54

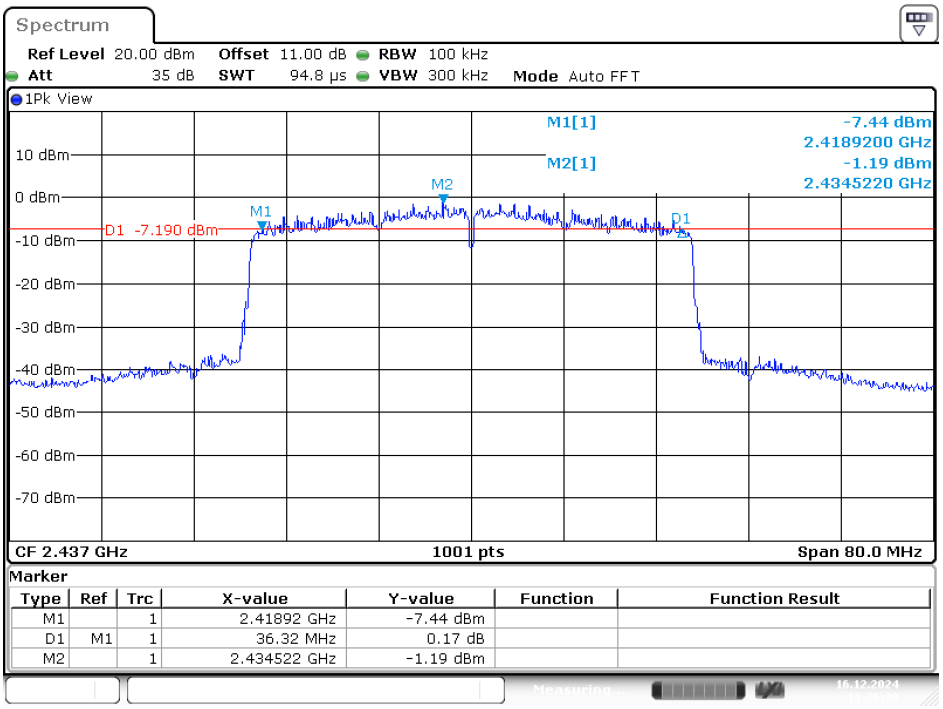
AX40 Mode

Low Channel



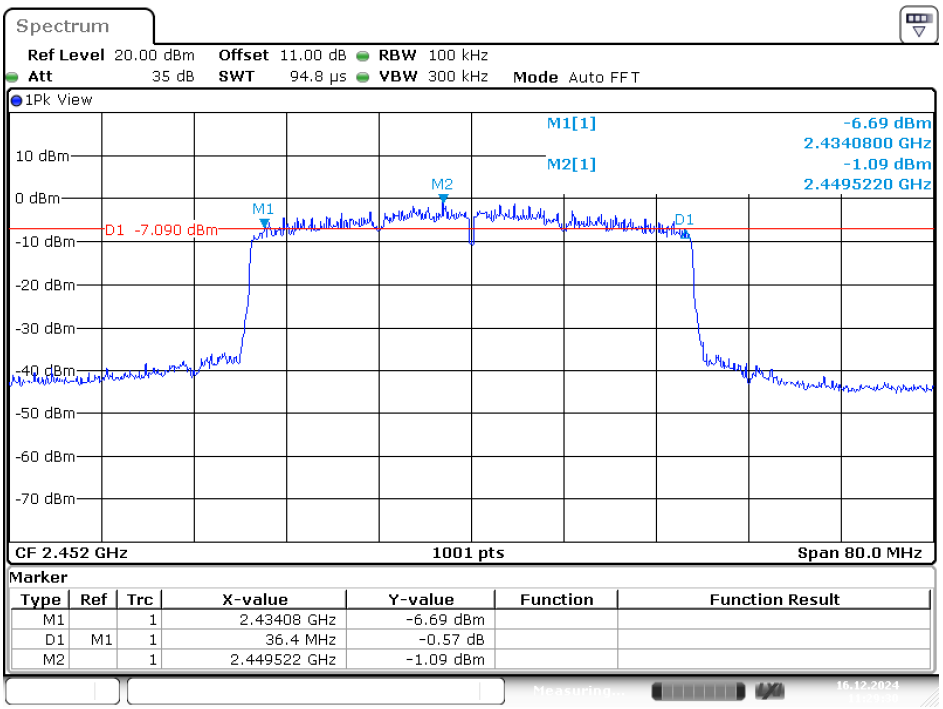
Date: 16.DEC.2024 11:19:16

Middle Channel



Date: 16.DEC.2024 11:26:30

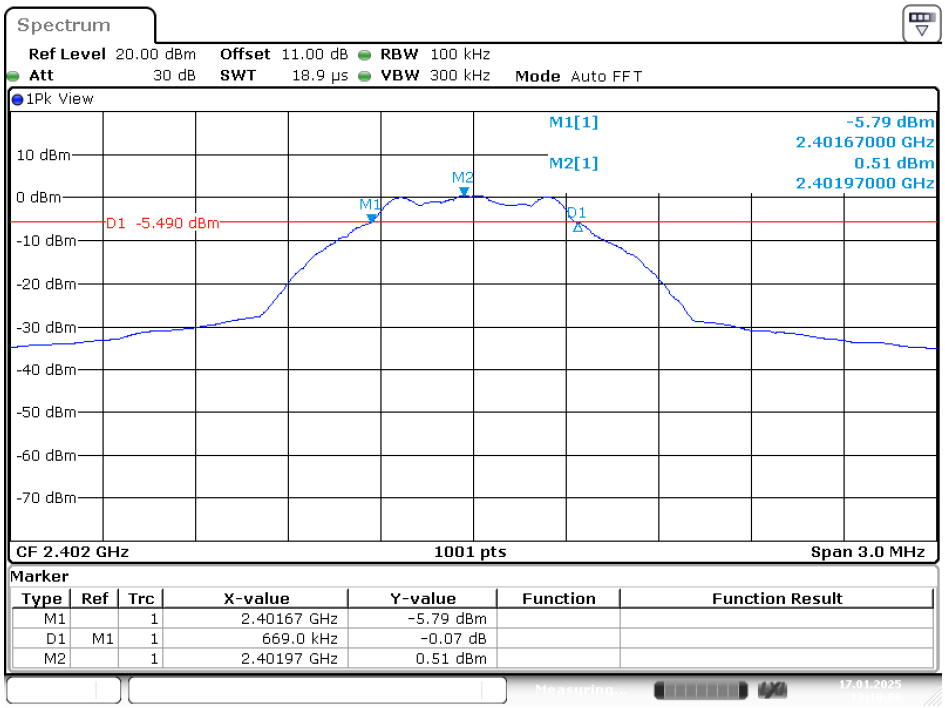
High Channel



Date: 16.DEC.2024 11:29:30

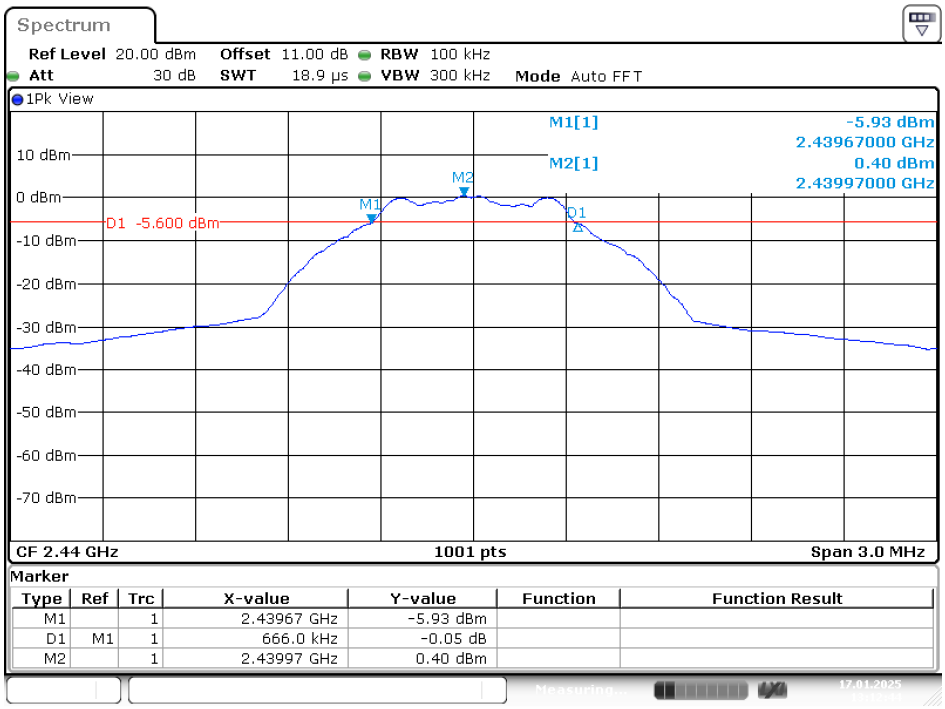
BLE 1M Mode

Low Channel



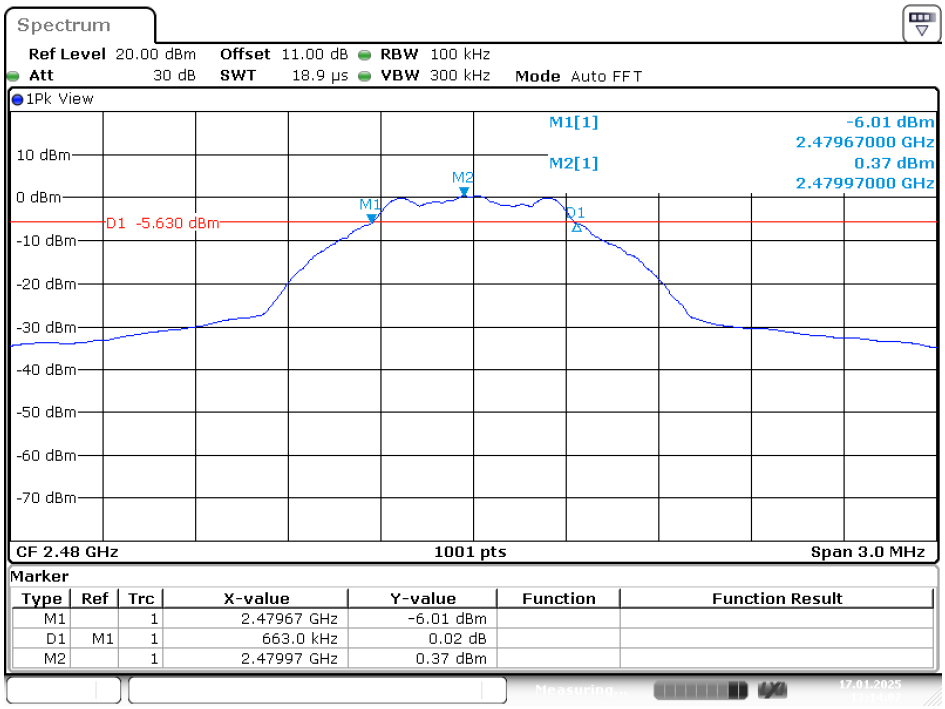
Date: 17.JAN.2025 13:10:09

Middle Channel



Date: 17.JAN.2025 13:12:45

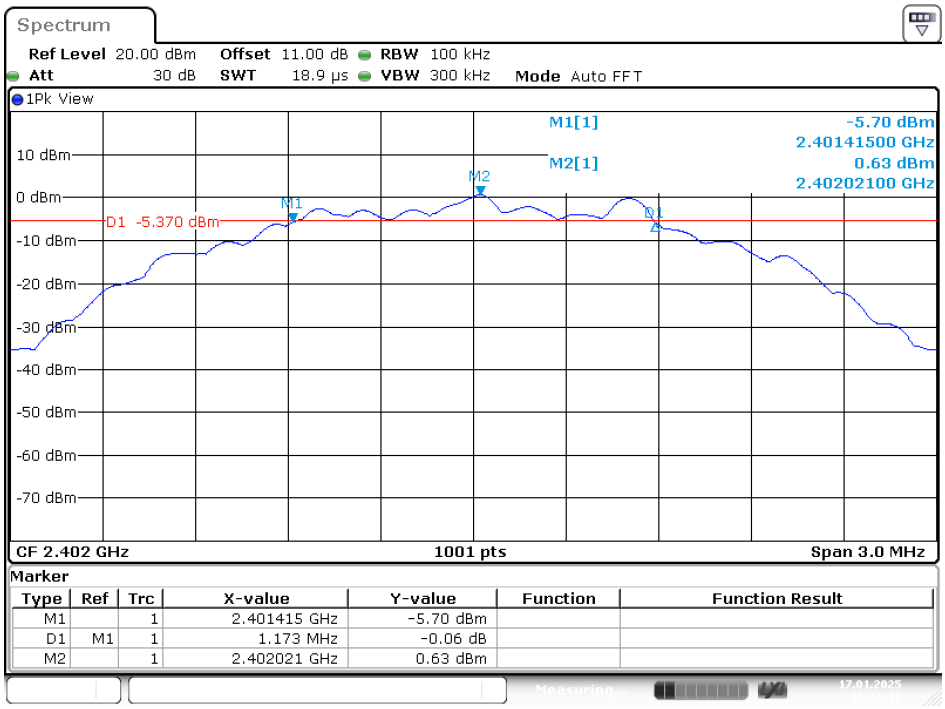
High Channel



Date: 17.JAN.2025 13:14:08

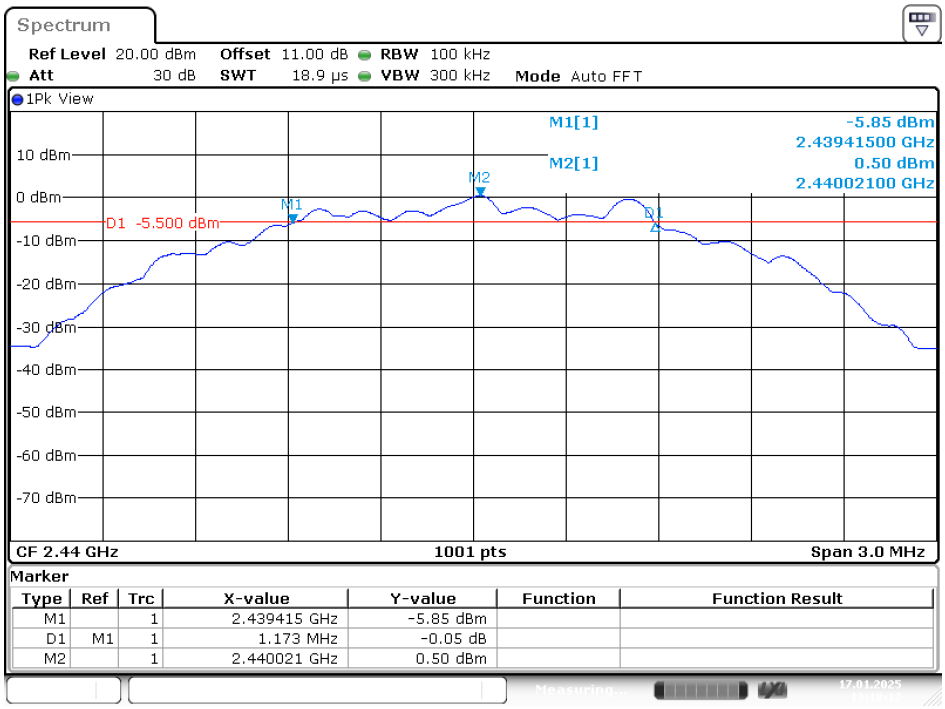
BLE 2M Mode

Low Channel



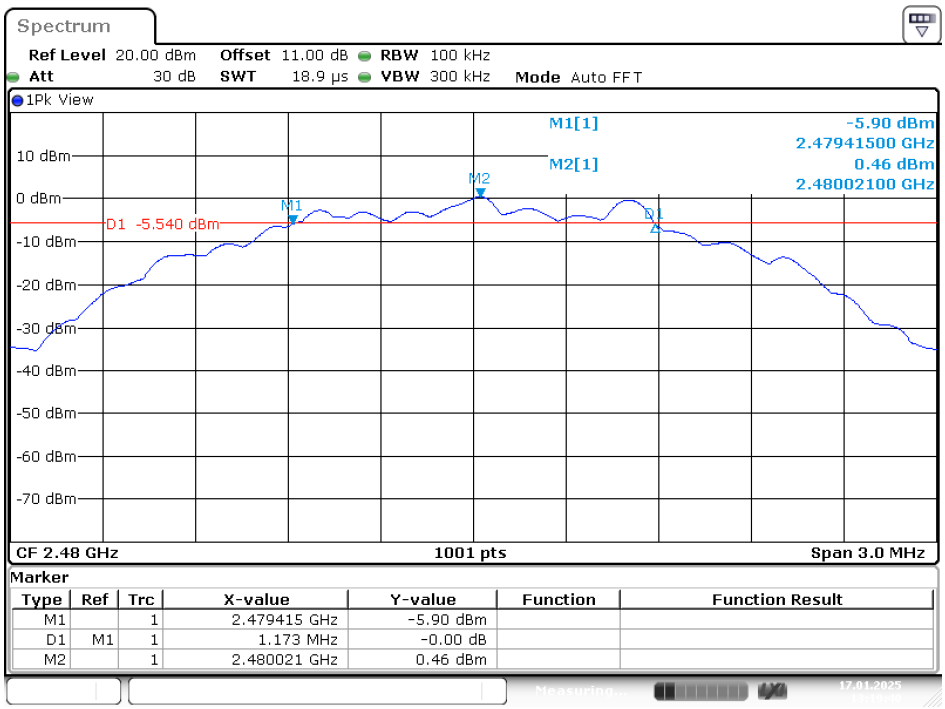
Date: 17.JAN.2025 13:16:38

Middle Channel



Date: 17.JAN.2025 13:18:12

High Channel



Date: 17.JAN.2025 13:19:41

10 FCC §15.247(b)(3) – Maximum Output Power

10.1 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.

10.2 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.

10.3 Test Results

Conducted Output Power

WIFI

Channel	Frequency (MHz)	Conducted Peak Output Power (dBm)					Limit (dBm)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11b Mode							
Low	2412	20.94	22.97	21.61	20.76	27.68	30
Mid	2437	20.87	23.07	21.81	21.18	27.84	30
High	2462	21.06	22.61	21.54	20.90	27.60	30
802.11g Mode							
Low	2412	23.46	24.25	22.98	22.77	29.42	30
Mid	2437	22.55	23.99	22.92	22.51	29.06	30
High	2462	22.11	23.82	22.87	22.16	28.82	30
802.11n HT20 Mode							
Low	2412	22.26	23.68	22.74	22.53	28.86	30
Mid	2437	22.48	24.01	22.39	21.68	28.75	30
High	2462	21.79	23.75	22.40	21.93	28.56	30
802.11n HT40 Mode							
Low	2422	21.93	23.36	21.83	21.80	28.30	30
Mid	2437	21.58	23.98	21.62	21.43	28.31	30
High	2452	21.31	23.63	21.76	20.85	28.04	30
802.11ax HE20 Mode							
Low	2412	21.92	24.34	23.37	22.27	29.10	30
Mid	2437	22.63	24.50	22.49	22.44	29.13	30
High	2462	21.38	23.58	22.84	21.49	28.44	30
802.11ax HE40 Mode							
Low	2422	22.23	24.83	22.64	22.41	29.19	30
Mid	2437	22.32	23.64	22.27	21.42	28.51	30
High	2452	22.37	24.17	22.74	21.92	28.91	30

Channel	Frequency (MHz)	Conducted Average Output Power (dBm)					Duty Factor (dB)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
802.11b Mode									
Low	2412	18.17	19.74	18.91	18.26	24.84	0.04	24.88	30
Mid	2437	18.19	19.92	19.09	18.73	25.05	0.04	25.09	30
High	2462	18.41	19.47	18.78	18.33	24.79	0.04	24.83	30
802.11g Mode									
Low	2412	13.30	15.12	13.41	12.53	19.72	0.27	19.99	30
Mid	2437	12.52	14.48	13.06	12.37	19.21	0.27	19.48	30
High	2462	12.35	14.06	12.89	12.16	18.95	0.27	19.22	30
802.11n HT20 Mode									
Low	2412	12.39	14.70	13.10	12.25	19.25	0.27	19.52	30
Mid	2437	12.42	14.58	13.00	12.29	19.19	0.27	19.46	30
High	2462	11.93	14.18	12.81	12.22	18.90	0.27	19.17	30
802.11n HT40 Mode									
Low	2422	12.24	14.45	12.48	11.70	18.87	0.41	19.28	30
Mid	2437	12.04	14.25	12.35	11.63	18.71	0.41	19.12	30
High	2452	12.11	14.06	12.33	11.57	18.64	0.41	19.05	30
802.11ax HE20 Mode									
Low	2412	11.96	14.13	12.51	11.75	18.71	0.36	19.07	30
Mid	2437	11.85	14.26	12.54	11.92	18.78	0.36	19.14	30
High	2462	11.58	13.85	12.38	11.64	18.48	0.36	18.84	30
802.11ax HE40 Mode									
Low	2422	12.45	14.29	12.65	12.62	19.09	0.46	19.55	30
Mid	2437	12.42	14.23	12.61	12.53	19.04	0.46	19.50	30
High	2452	12.21	14.12	12.58	12.46	18.93	0.46	19.39	30

BLE

Channel	Frequency (MHz)	Conducted Peak Output Power (dBm)	Limit (dBm)	Result
BLE 1M Mode				
Low	2402	1.11	29.92	PASS
Middle	2440	1.01	29.92	PASS
High	2480	0.92	29.92	PASS
BLE 2M Mode				
Low	2402	1.09	29.92	PASS
Middle	2440	1.04	29.92	PASS
High	2480	0.91	29.92	PASS

802.11ax partial RU

Mode	Frequency (MHz)	Tones	RU Index	Conducted Peak Output Power (dBm)					Limit (dBm)
				Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11ax 20	2412	26	0	18.29	19.62	18.90	18.53	24.89	30
		26	8	18.25	19.31	18.92	19.49	25.04	30
		52	37	21.22	21.38	20.18	20.90	26.96	30
		52	40	19.58	20.40	19.50	19.95	25.89	30
		106	53	20.10	21.47	21.40	21.38	27.14	30
		106	54	21.09	22.46	20.44	20.80	27.29	30
		242	61	21.92	24.34	23.37	22.27	29.10	30
	2437	26	0	19.24	18.31	18.74	18.00	24.62	30
		26	8	19.23	17.92	18.40	18.30	24.51	30
		52	37	20.60	18.86	19.03	19.28	25.52	30
		52	40	21.25	19.81	20.87	20.55	26.67	30
		106	53	22.38	20.22	21.30	21.43	27.42	30
		106	54	21.84	21.64	20.72	22.38	27.71	30
		242	61	22.63	24.50	22.49	22.44	29.13	30
	2462	26	0	18.34	18.23	16.69	17.79	23.83	30
		26	8	17.81	17.74	16.44	17.60	23.45	30
		52	37	20.63	19.72	18.30	19.97	25.76	30
		52	40	19.29	19.18	17.72	19.78	25.08	30
		106	53	21.31	21.50	19.80	20.93	26.95	30
		106	54	21.21	21.30	20.31	21.34	27.08	30
		242	61	21.38	23.58	22.84	21.49	28.44	30

Mode	Frequency (MHz)	Tones	RU Index	Conducted Peak Output Power (dBm)					Limit (dBm)
				Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11ax 40	2422	26	0	18.09	19.51	19.83	19.10	25.20	30
		26	17	17.81	20.11	19.51	20.02	25.47	30
		52	37	19.79	20.70	20.49	19.30	26.13	30
		52	44	18.21	19.96	19.92	19.46	25.46	30
		106	53	20.06	21.90	22.10	21.27	27.42	30
		106	56	20.71	21.23	21.78	20.97	27.21	30
		242	61	21.47	22.63	21.92	22.00	28.05	30
		242	62	21.03	22.20	22.31	21.48	27.81	30
		484	65	22.23	24.83	22.64	22.41	29.19	30
	2437	26	0	17.33	17.74	16.72	17.25	23.30	30
		26	17	17.58	18.33	17.83	17.22	23.78	30
		52	37	19.15	19.17	19.97	19.76	25.55	30
		52	44	18.88	19.68	19.39	19.06	25.28	30
		106	53	20.77	20.20	20.22	19.61	26.24	30
		106	56	20.15	20.12	19.65	19.59	25.91	30
		242	61	21.46	21.68	21.20	20.61	27.28	30
		242	62	20.90	21.38	21.01	20.84	27.06	30
		484	65	22.32	23.64	22.27	21.42	28.51	30
	2452	26	0	18.86	17.81	17.17	17.76	23.96	30
		26	17	18.72	18.03	18.21	19.04	24.54	30
		52	37	19.67	19.65	17.81	18.87	25.08	30
		52	44	18.65	18.91	18.44	18.95	24.76	30
		106	53	19.62	19.98	19.96	20.66	26.09	30
		106	56	20.87	20.29	20.07	20.70	26.51	30
		242	61	21.91	22.72	21.70	21.65	28.04	30
		242	62	21.44	22.15	20.89	21.61	27.57	30
		484	65	22.37	24.17	22.74	21.92	28.91	30

11 FCC §15.247(d) – 100 kHz Bandwidth of Frequency Band Edge

11.1 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)).

11.2 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.

11.3 Test Results

WIFI

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)				Limit (dBc)	Result
		Chain 0	Chain 1	Chain 2	Chain 3		
B mode							
Low	2412	50.97	51.44	51.46	51.65	≥ 20	PASS
High	2462	51.48	51.93	51.34	51.25	≥ 20	PASS
G mode							
Low	2412	43.38	43.20	41.16	43.84	≥ 20	PASS
High	2462	43.04	44.27	43.42	42.63	≥ 20	PASS
N20 mode							
Low	2412	42.95	44.37	43.04	43.41	≥ 20	PASS
High	2462	42.66	44.28	44.03	42.63	≥ 20	PASS
N40 mode							
Low	2422	40.07	41.04	40.63	39.20	≥ 20	PASS
High	2452	40.56	41.88	40.59	39.90	≥ 20	PASS
AX20 mode							
Low	2412	42.76	44.82	43.92	42.11	≥ 20	PASS
High	2462	42.92	44.52	44.30	42.37	≥ 20	PASS
AX40 mode							
Low	2422	40.13	42.66	41.52	41.38	≥ 20	PASS
High	2452	40.97	42.12	41.79	39.71	≥ 20	PASS

BLE

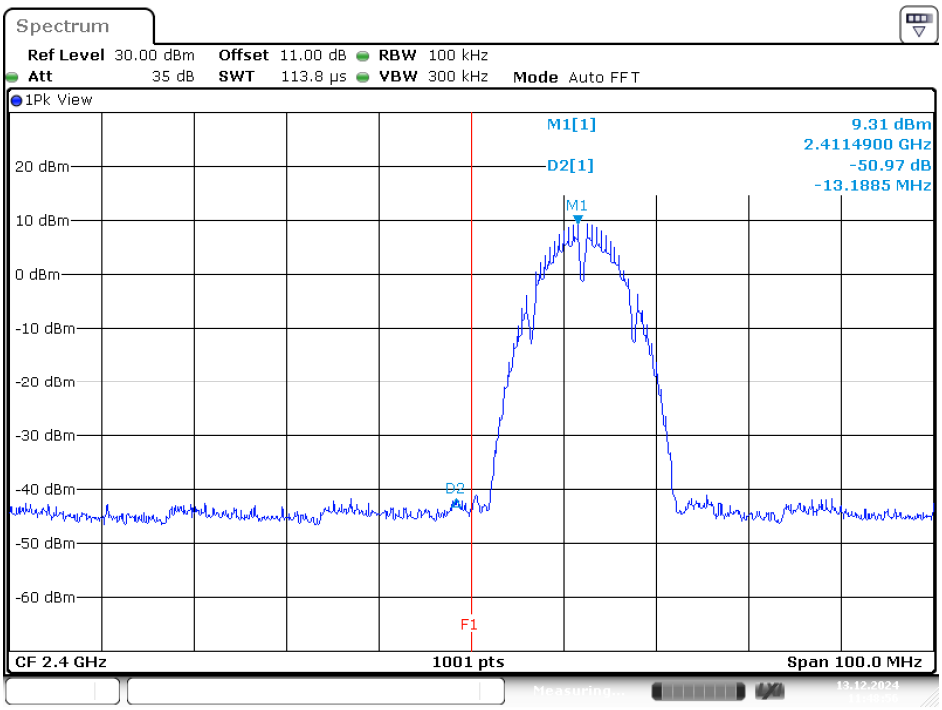
Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
BLE 1M Mode				
Low	2402	38.21	≥ 20	PASS
High	2480	44.52	≥ 20	PASS
BLE 2M Mode				
Low	2402	32.91	≥ 20	PASS
High	2480	44.82	≥ 20	PASS

Please refer to the following plots

Chain 0

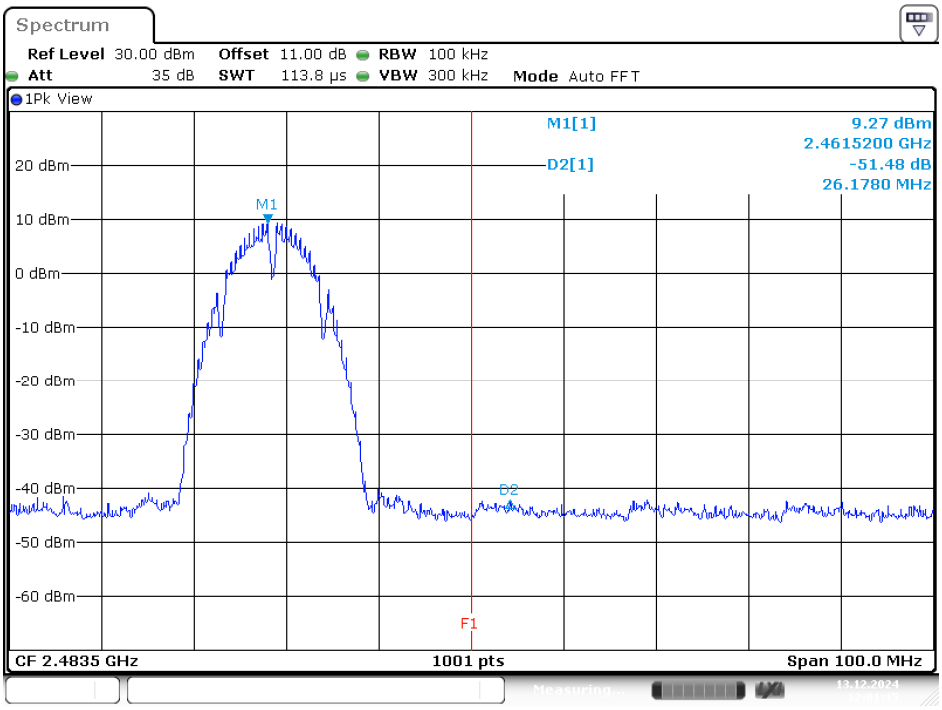
B Mode

Band Edge, Left Side



Date: 13.DEC.2024 11:48:56

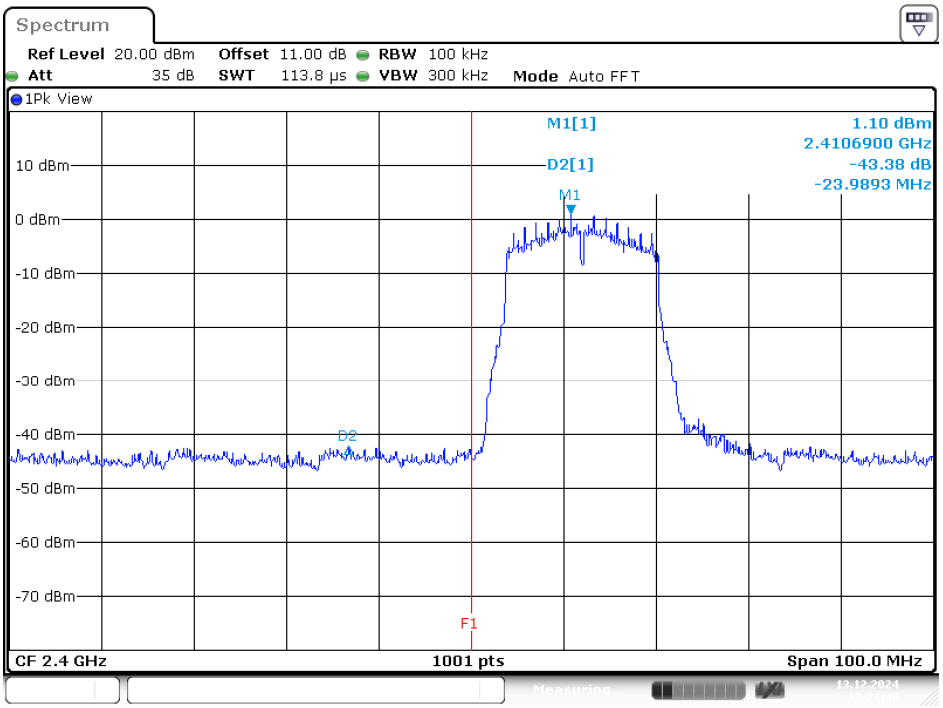
Band Edge, Right Side



Date: 13.DEC.2024 12:01:15

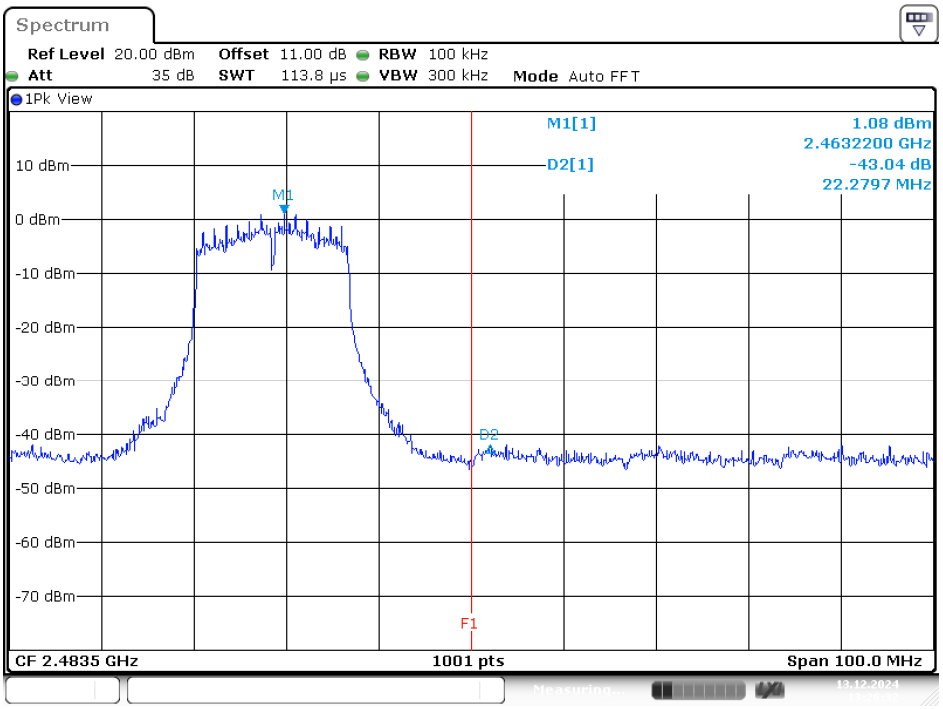
G Mode

Band Edge, Left Side



Date: 13.DEC.2024 13:21:46

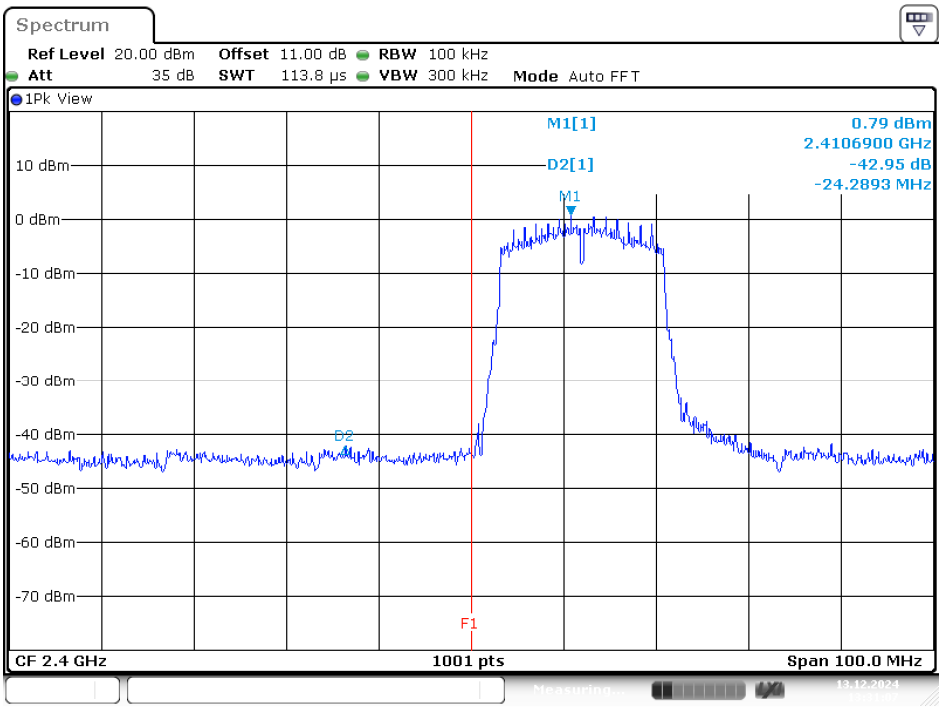
Band Edge, Right Side



Date: 13.DEC.2024 13:26:32

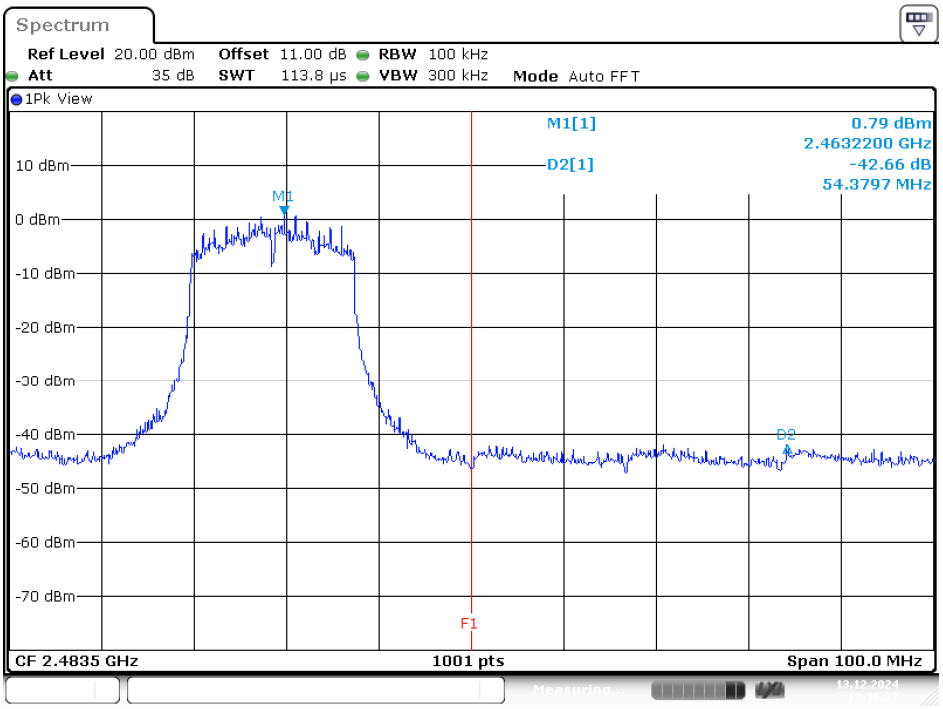
N20 Mode

Band Edge, Left Side



Date: 13.DEC.2024 13:31:08

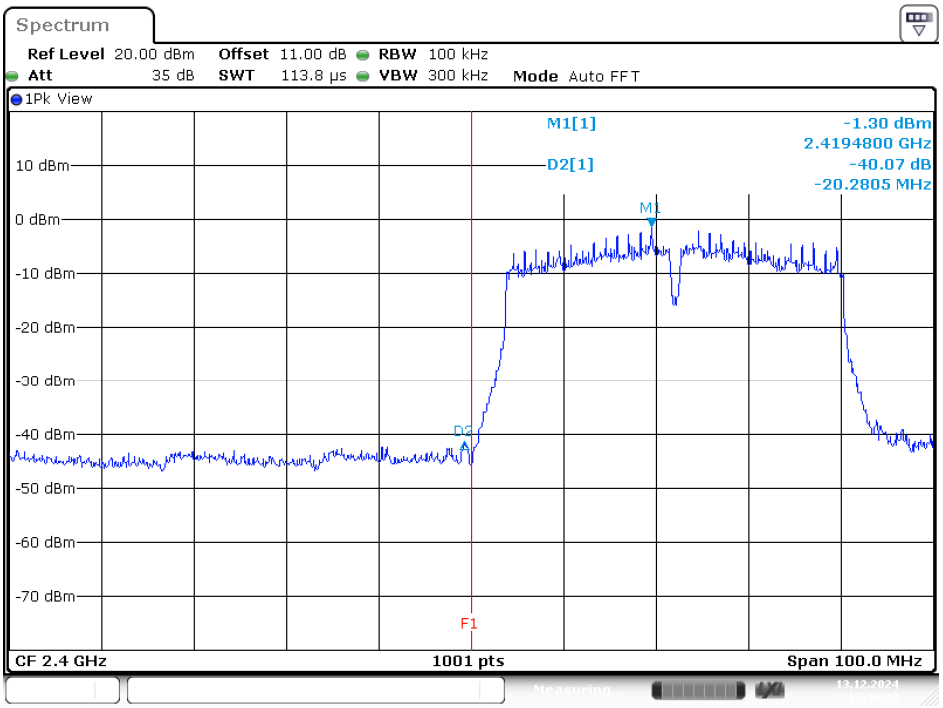
Band Edge, Right Side



Date: 13.DEC.2024 13:36:27

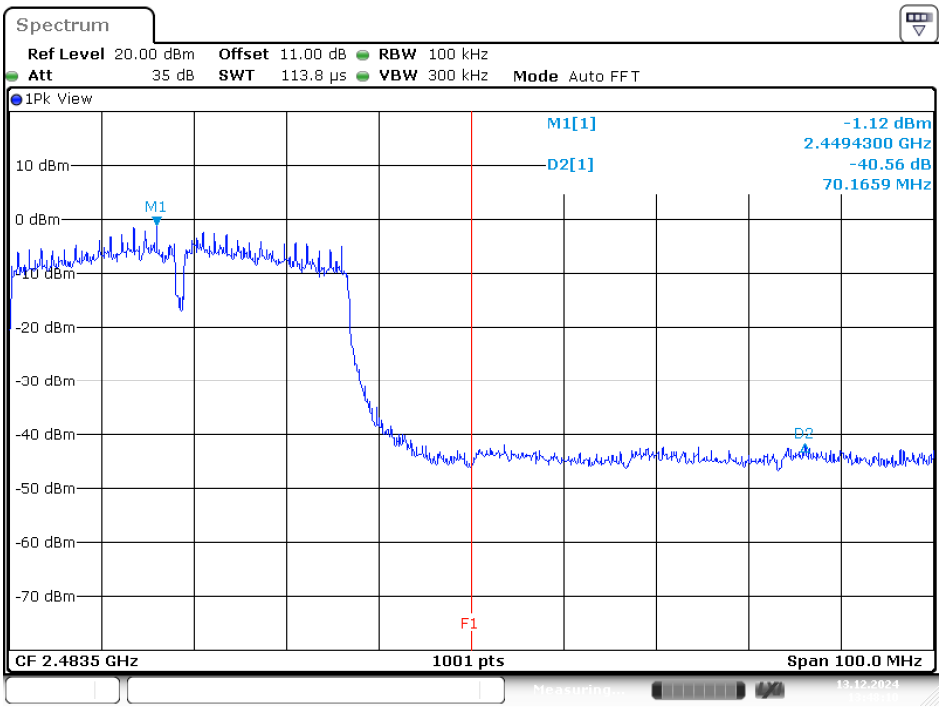
N40 Mode

Band Edge, Left Side



Date: 13.DEC.2024 13:40:33

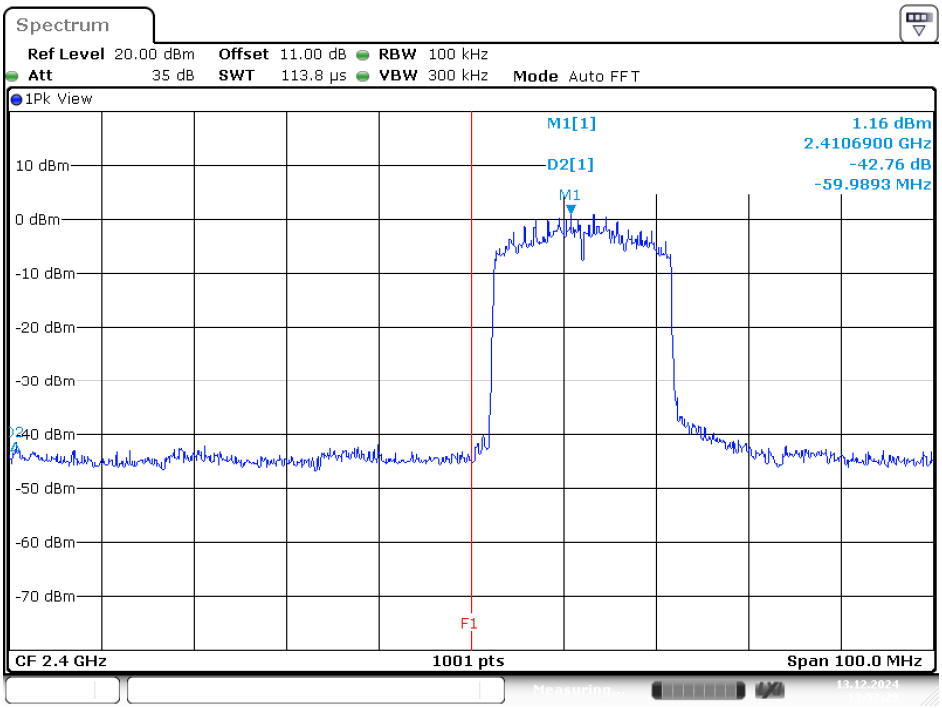
Band Edge, Right Side



Date: 13.DEC.2024 13:48:10

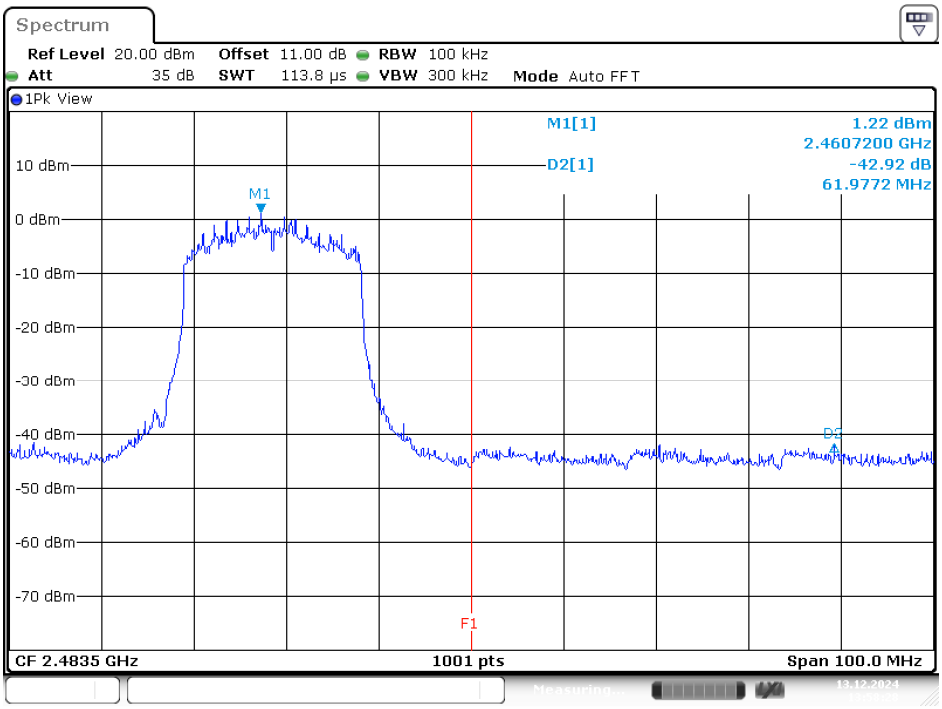
AX20 Mode

Band Edge, Left Side



Date: 13.DEC.2024 13:52:29

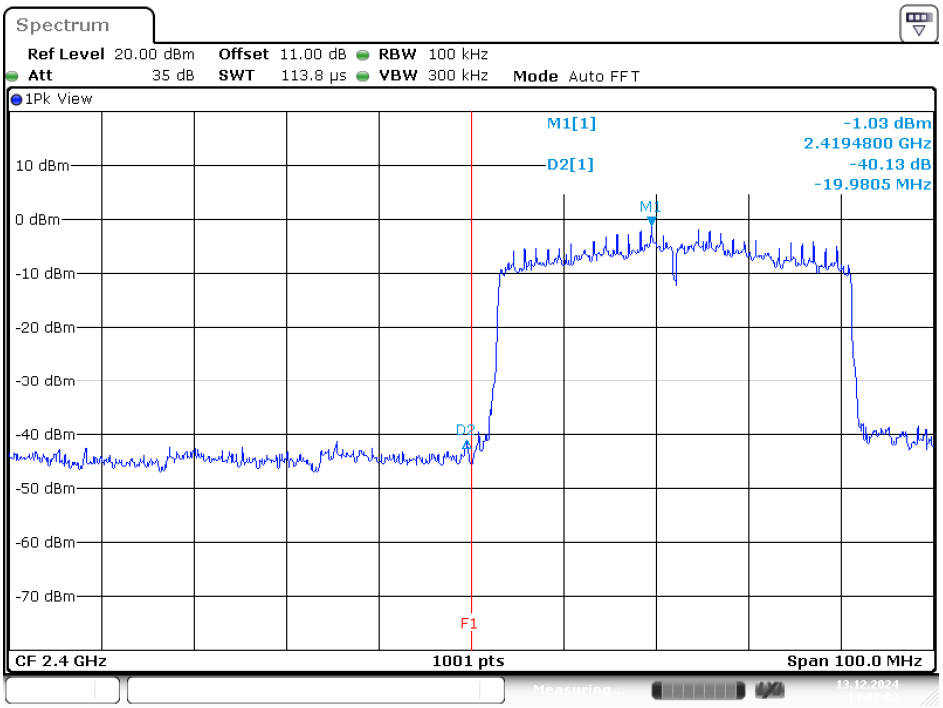
Band Edge, Right Side



Date: 13.DEC.2024 13:58:28

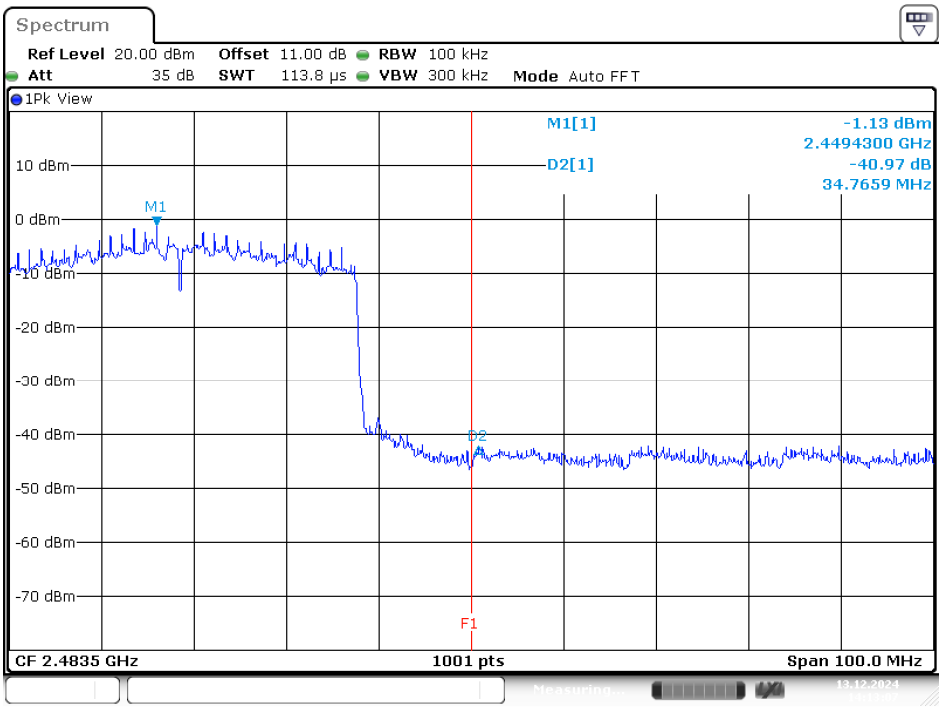
AX40 Mode

Band Edge, Left Side



Date: 13.DEC.2024 14:03:02

Band Edge, Right Side

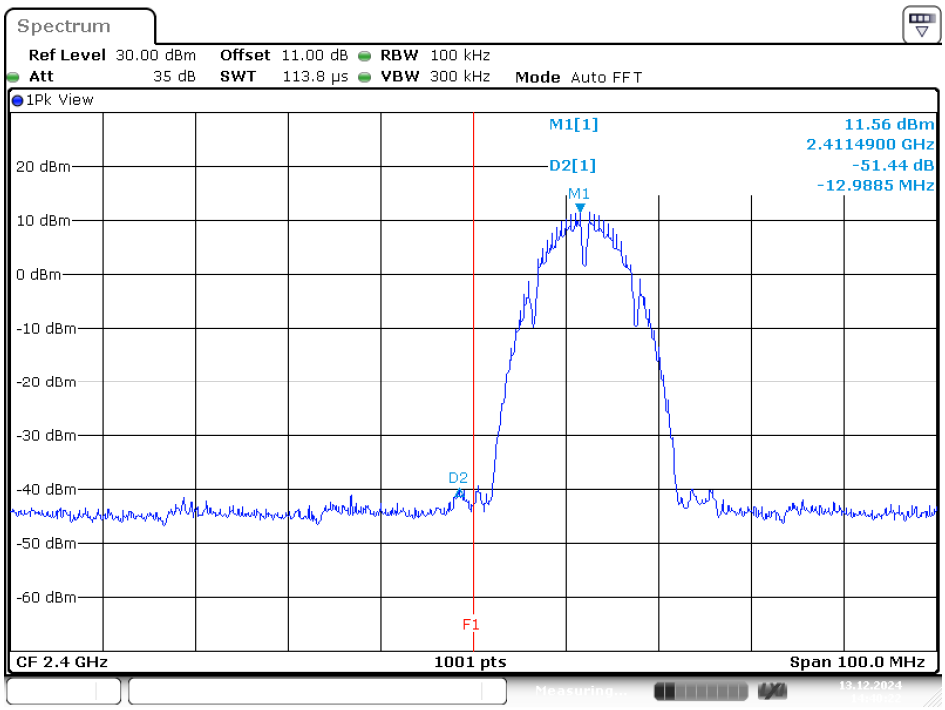


Date: 13.DEC.2024 14:13:08

Chain 1

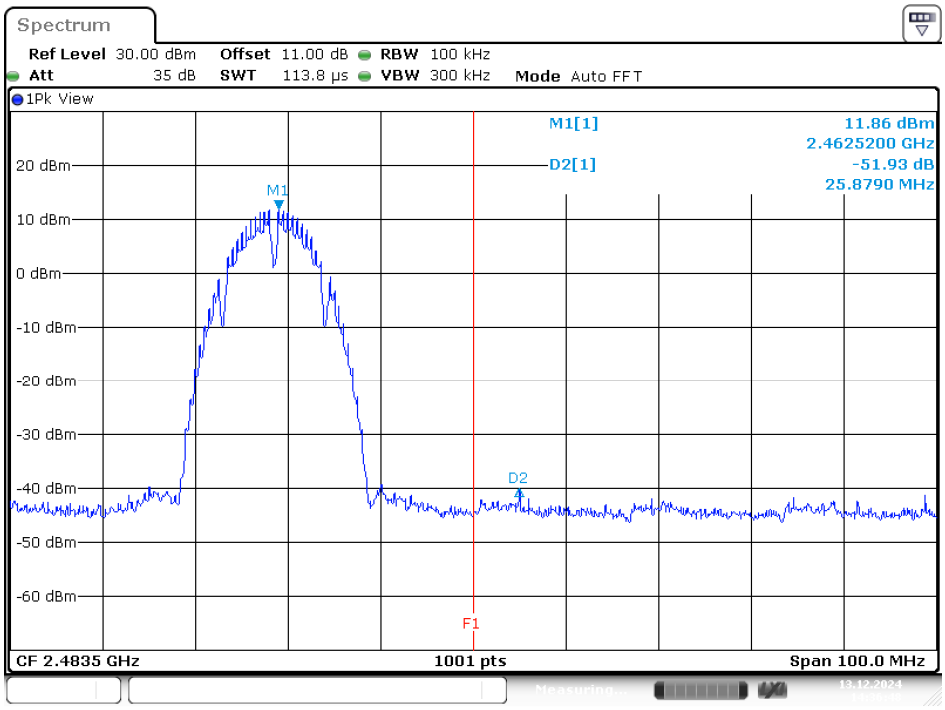
B Mode

Band Edge, Left Side



Date: 13.DEC.2024 14:40:22

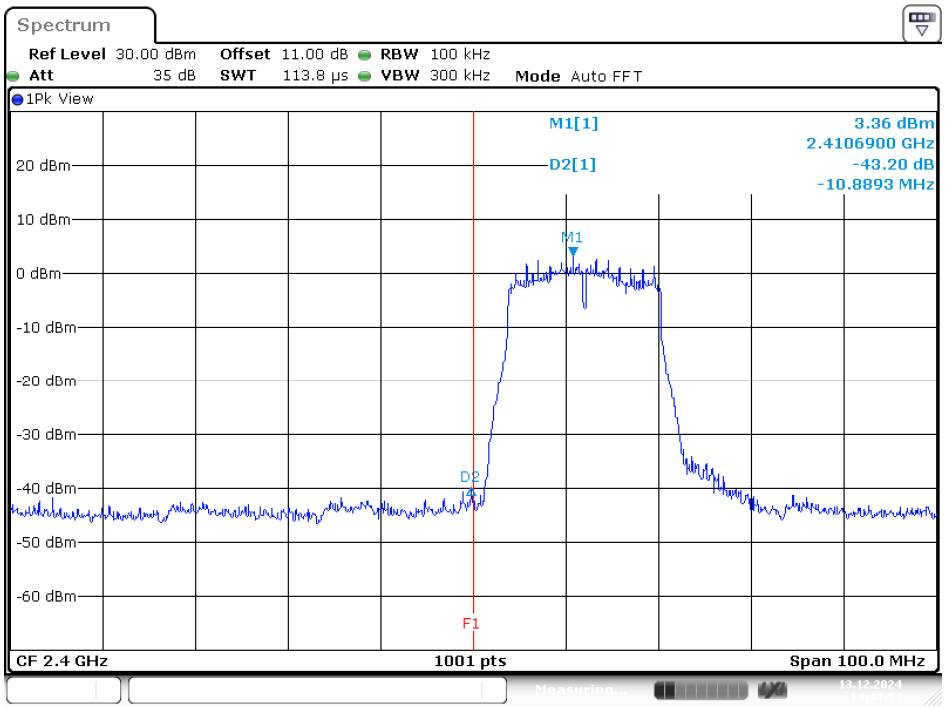
Band Edge, Right Side



Date: 13.DEC.2024 14:36:48

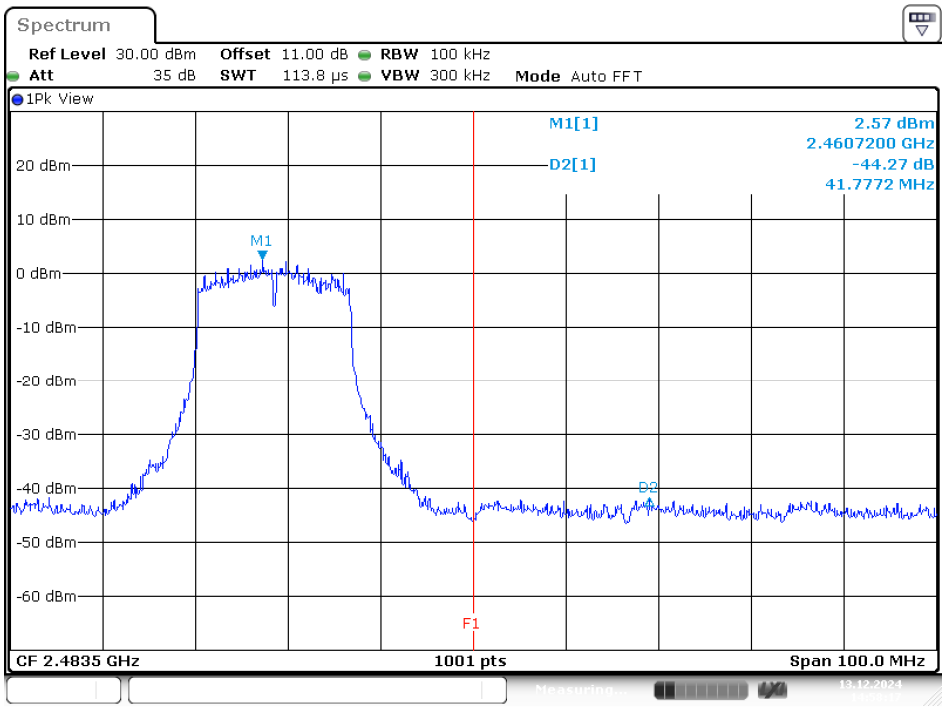
G Mode

Band Edge, Left Side



Date: 13.DEC.2024 14:44:54

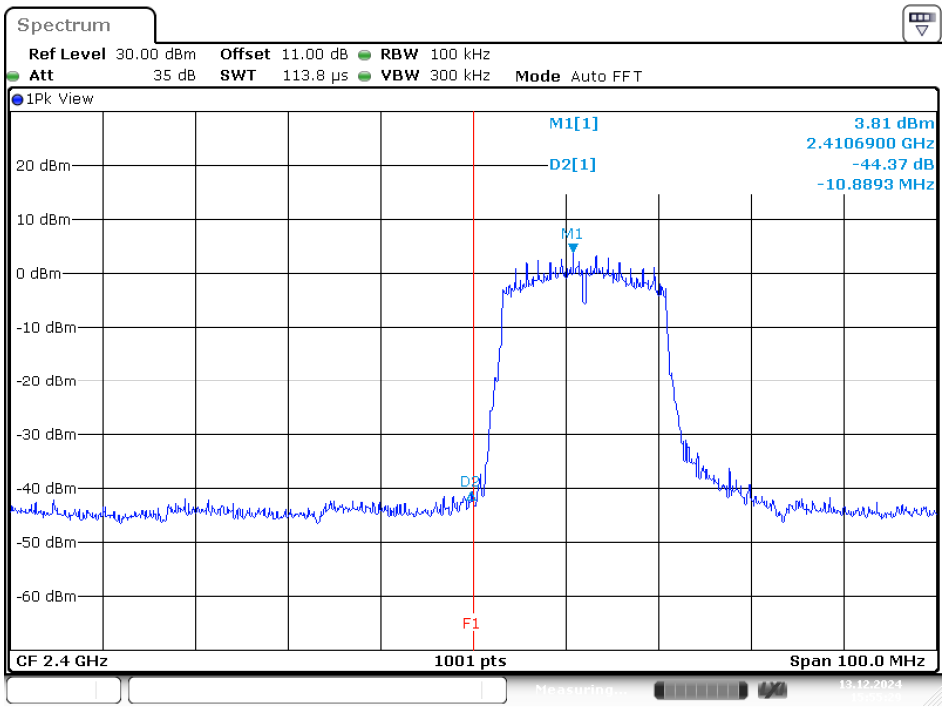
Band Edge, Right Side



Date: 13.DEC.2024 14:58:17

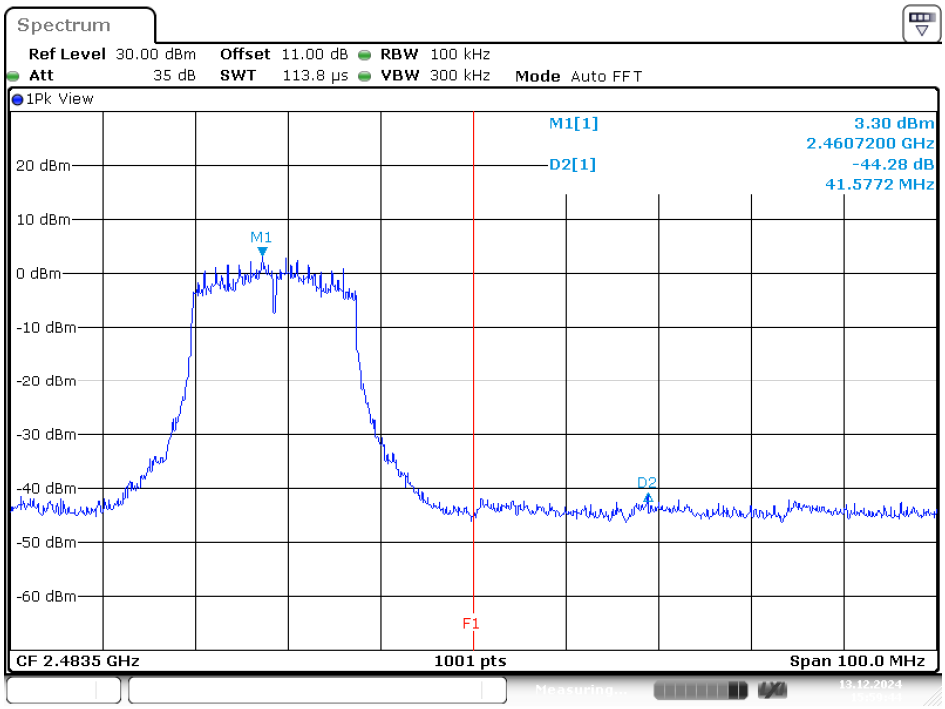
N20 Mode

Band Edge, Left Side



Date: 13.DEC.2024 15:55:29

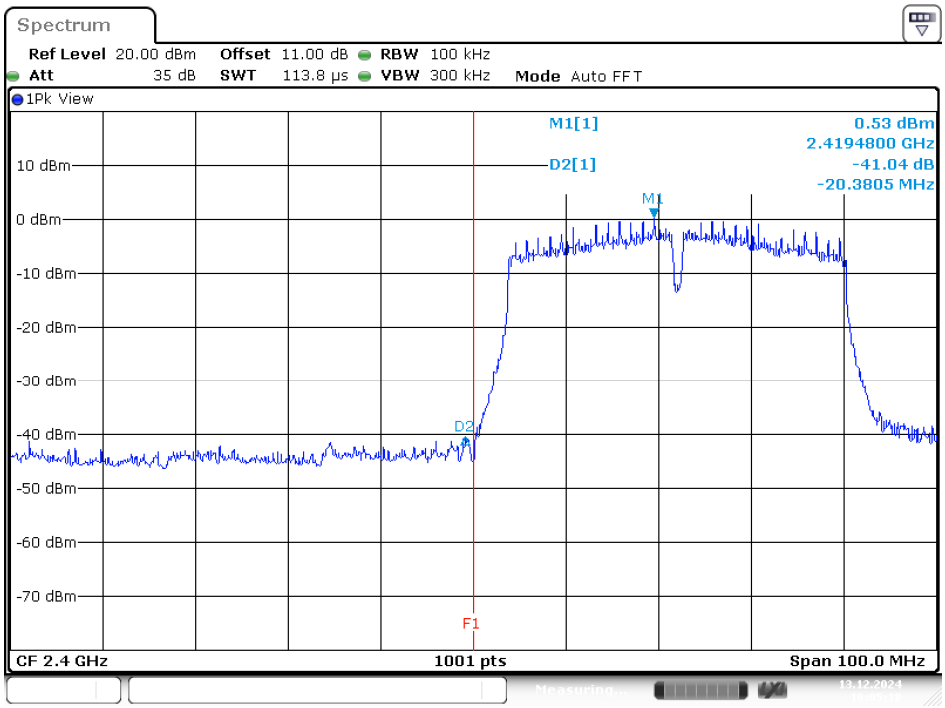
Band Edge, Right Side



Date: 13.DEC.2024 15:59:44

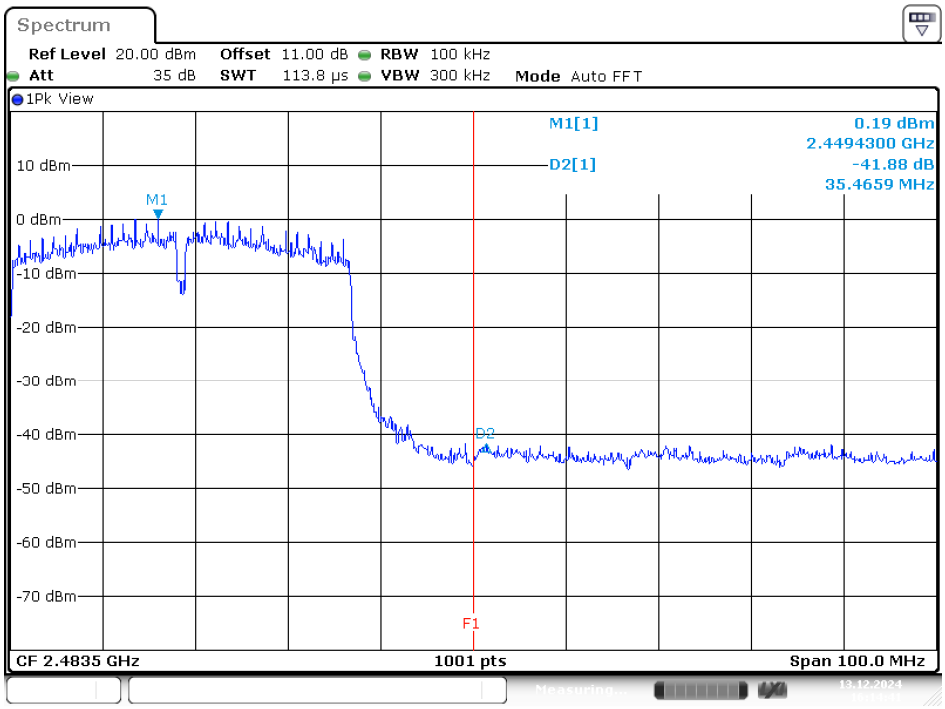
N40 Mode

Band Edge, Left Side



Date: 13.DEC.2024 16:05:18

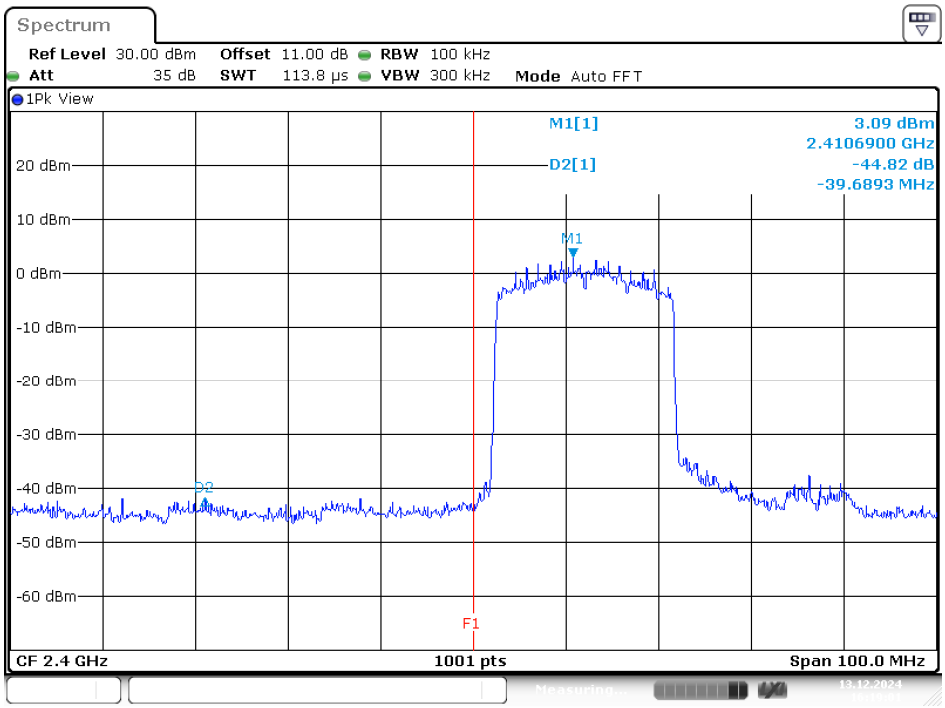
Band Edge, Right Side



Date: 13.DEC.2024 16:14:41

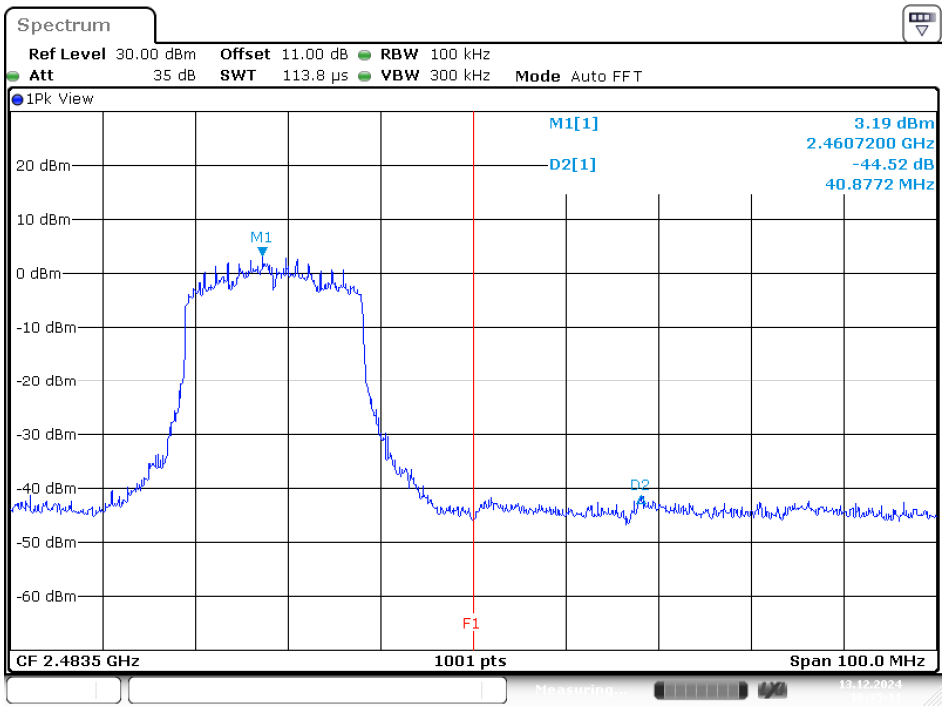
AX20 Mode

Band Edge, Left Side



Date: 13.DEC.2024 16:19:01

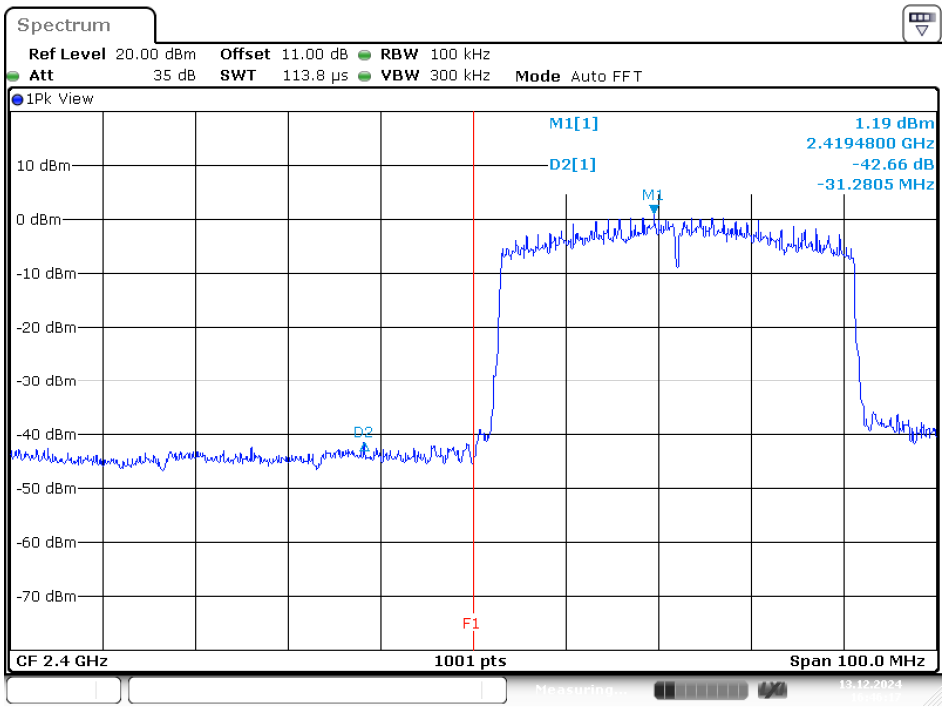
Band Edge, Right Side



Date: 13.DEC.2024 16:35:11

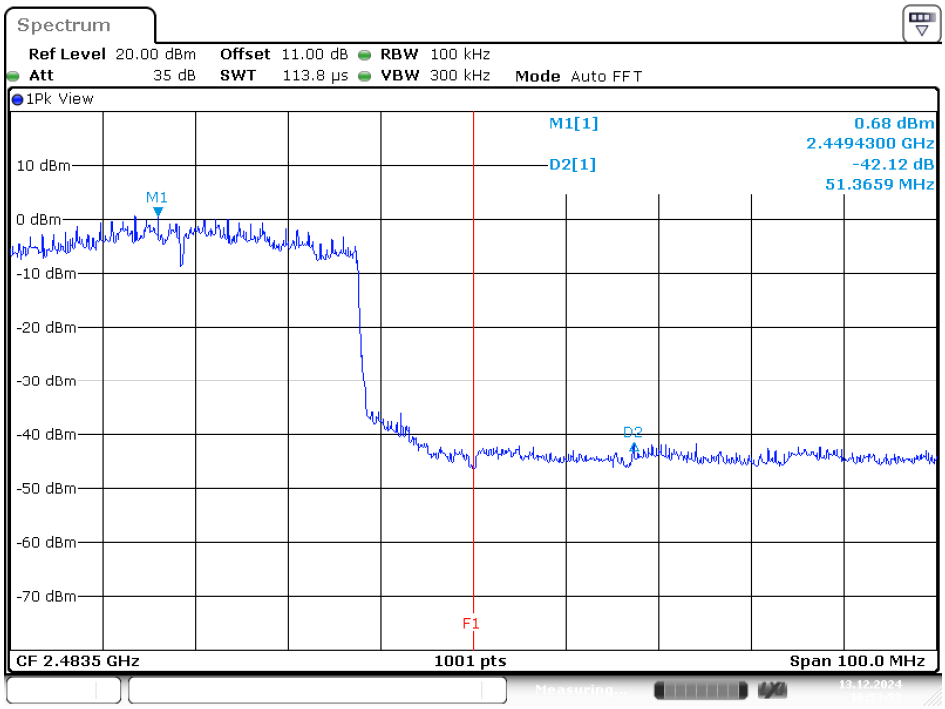
AX40 Mode

Band Edge, Left Side



Date: 13.DEC.2024 16:46:17

Band Edge, Right Side

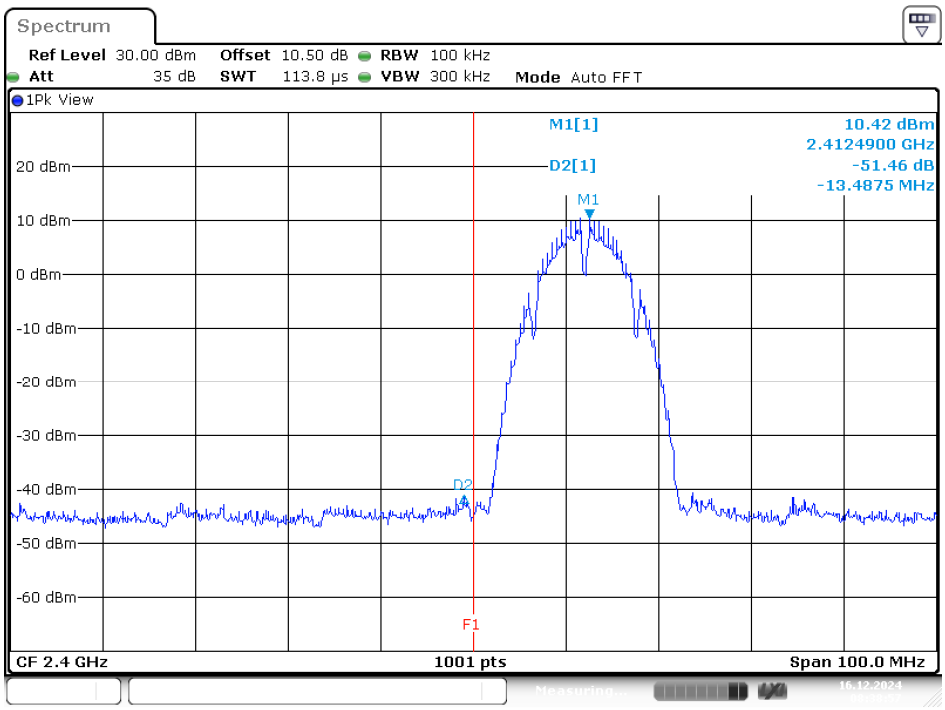


Date: 13.DEC.2024 16:53:53

Chain 2

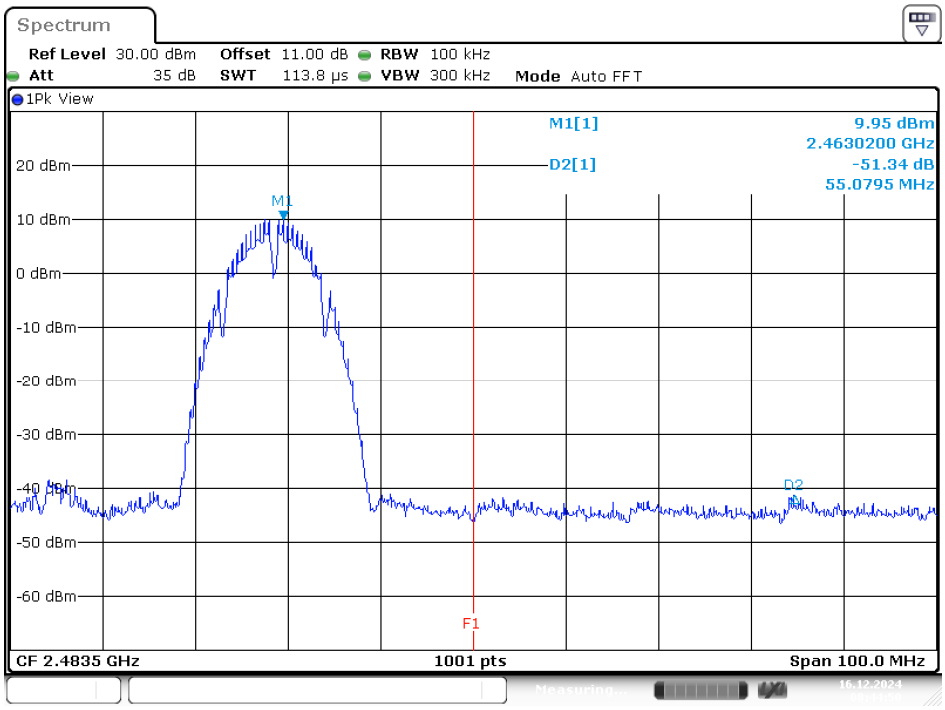
B Mode

Band Edge, Left Side



Date: 16.DEC.2024 08:38:57

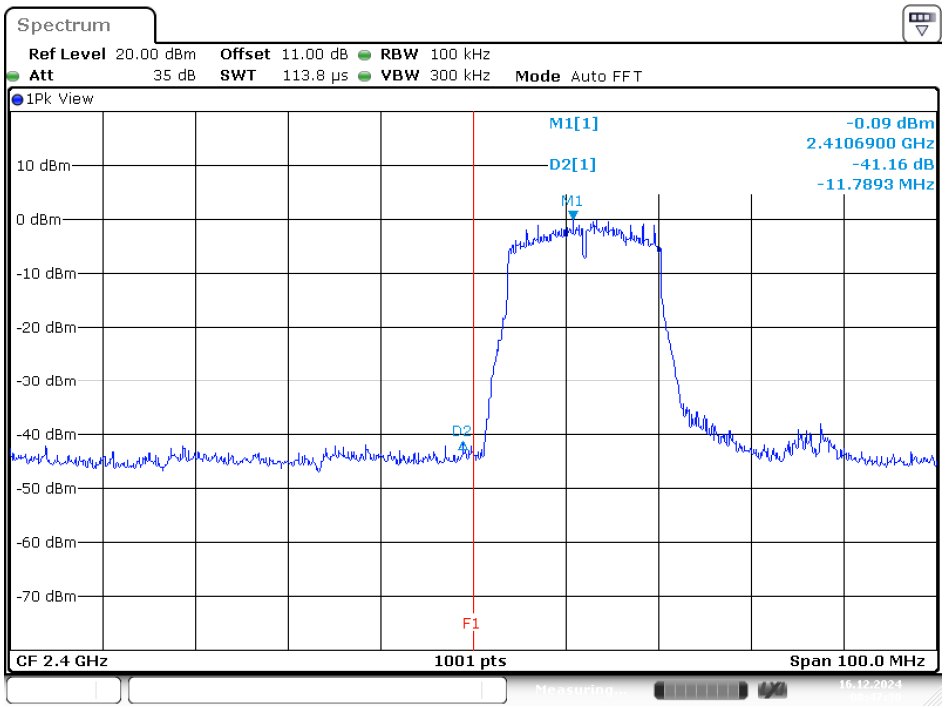
Band Edge, Right Side



Date: 16.DEC.2024 08:44:50

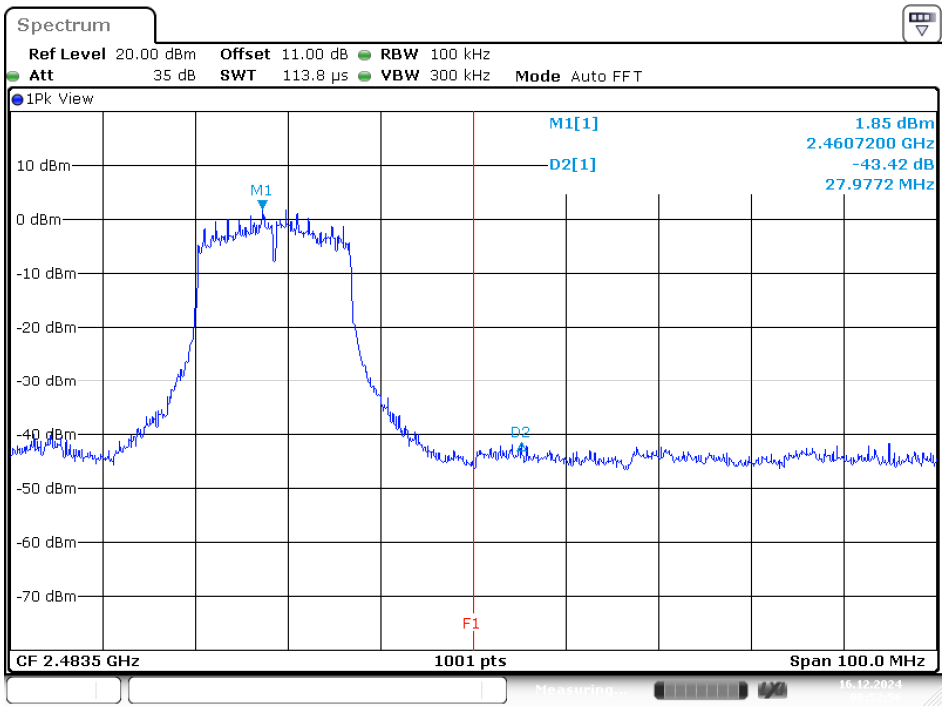
G Mode

Band Edge, Left Side



Date: 16.DEC.2024 08:47:30

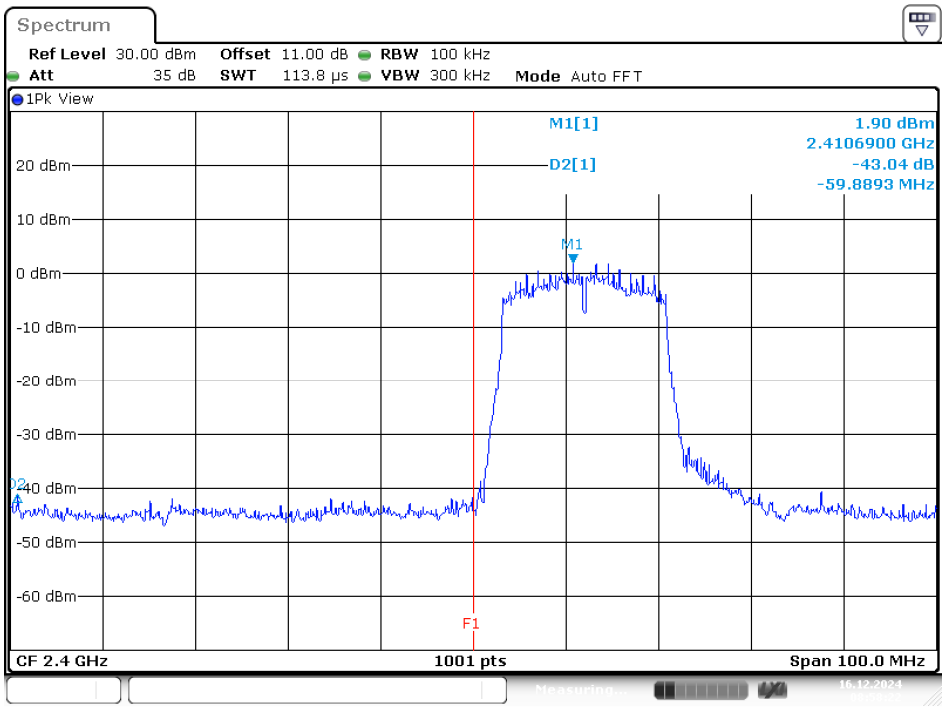
Band Edge, Right Side



Date: 16.DEC.2024 08:52:56

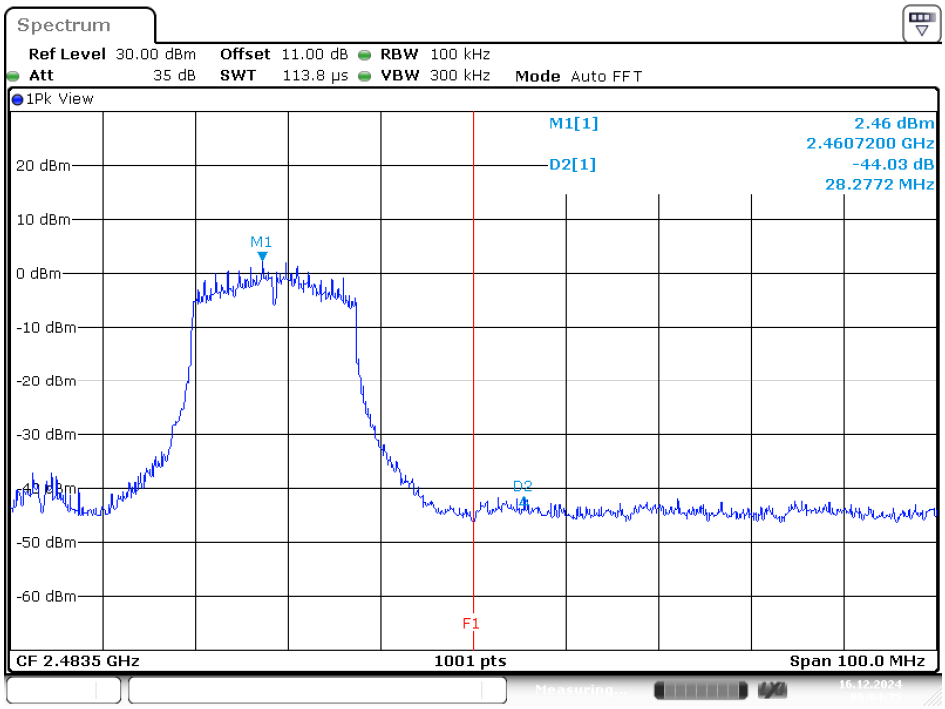
N20 Mode

Band Edge, Left Side



Date: 16.DEC.2024 08:58:22

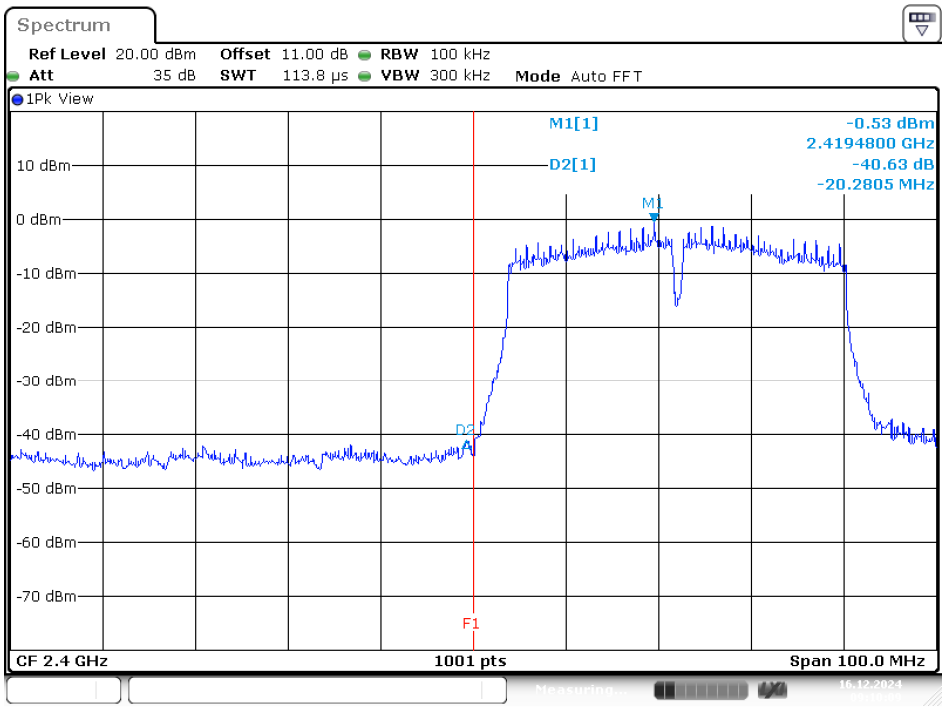
Band Edge, Right Side



Date: 16.DEC.2024 09:04:35

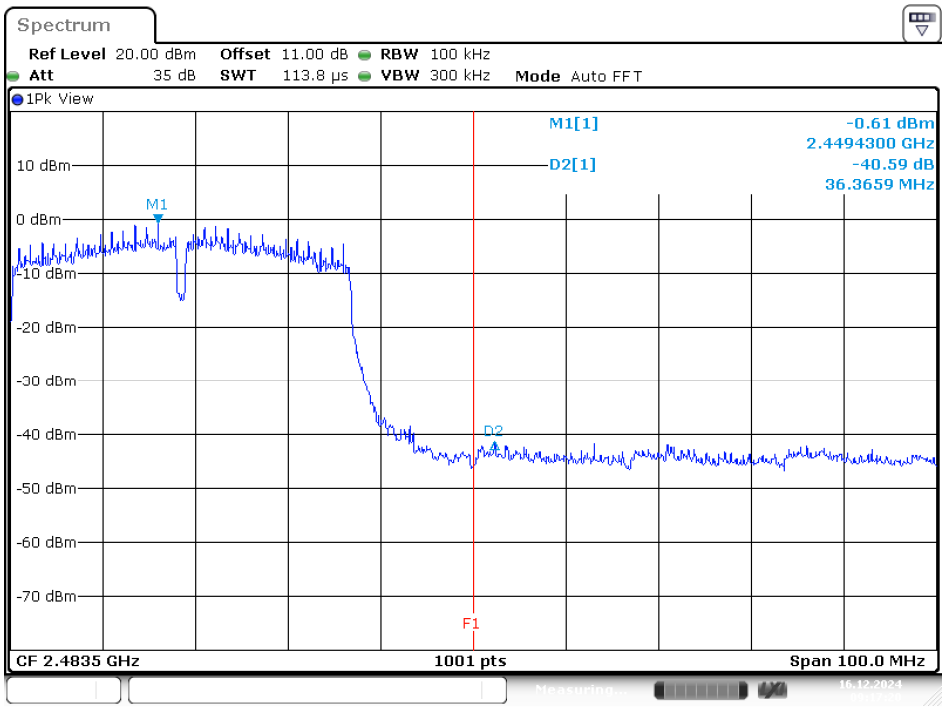
N40 Mode

Band Edge, Left Side



Date: 16.DEC.2024 09:10:10

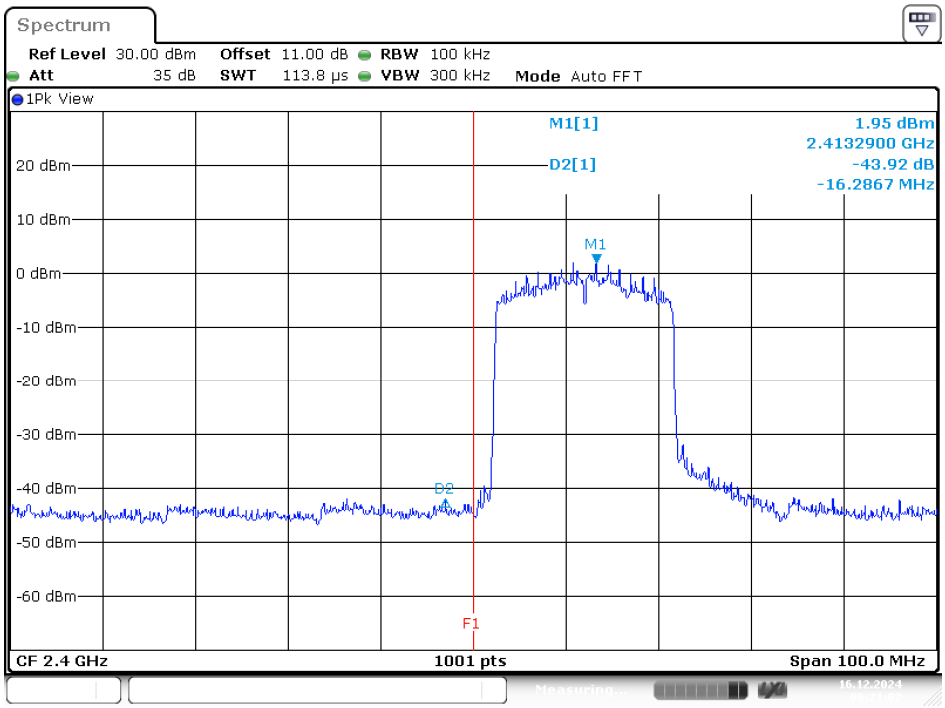
Band Edge, Right Side



Date: 16.DEC.2024 09:17:21

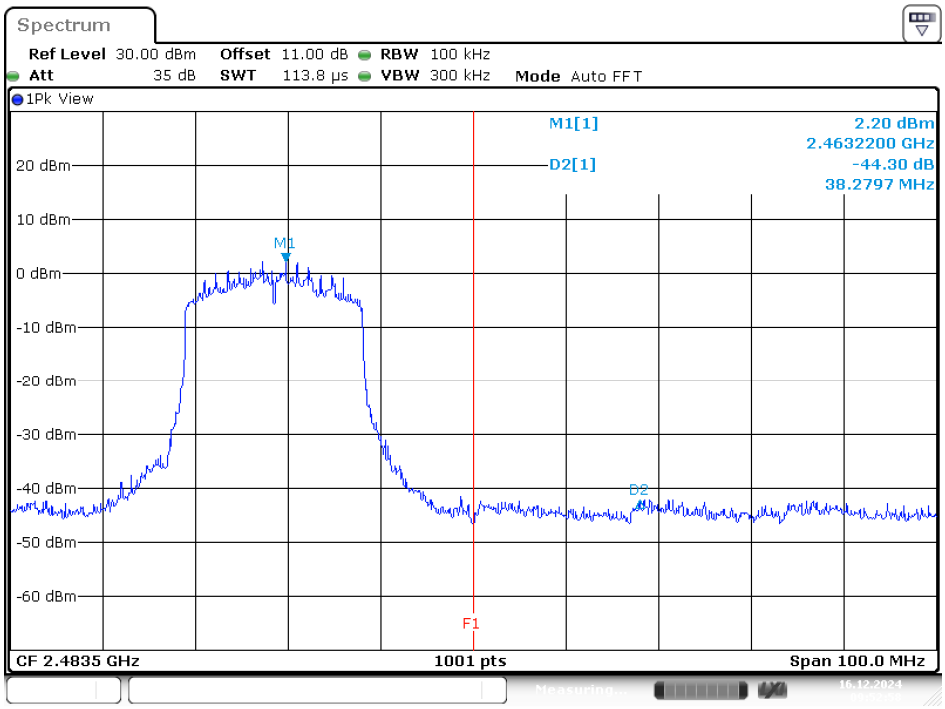
AX20 Mode

Band Edge, Left Side



Date: 16.DEC.2024 09:21:02

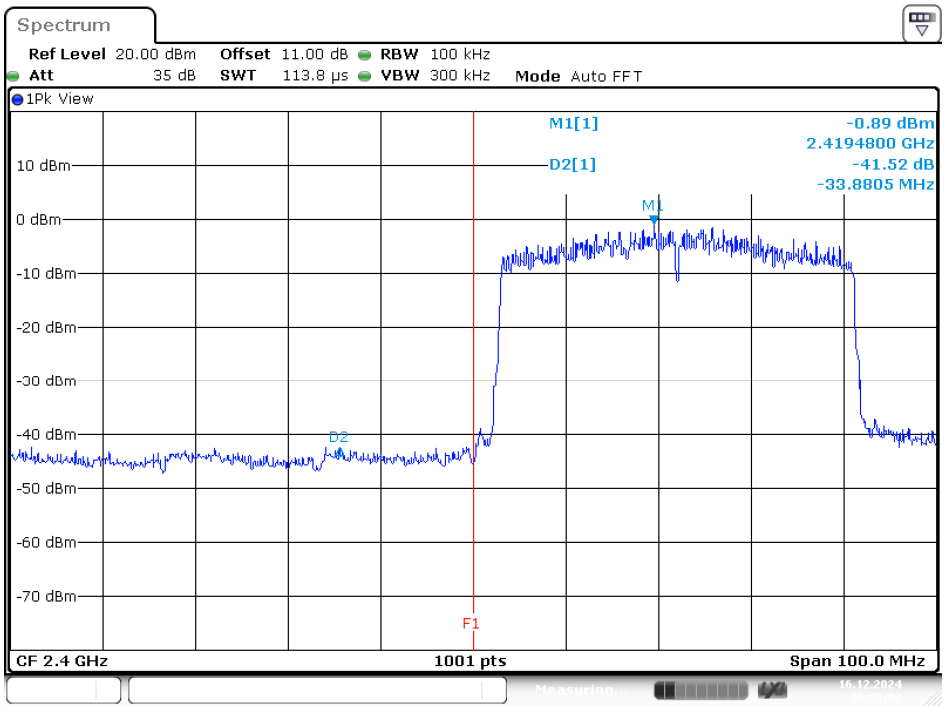
Band Edge, Right Side



Date: 16.DEC.2024 09:52:59

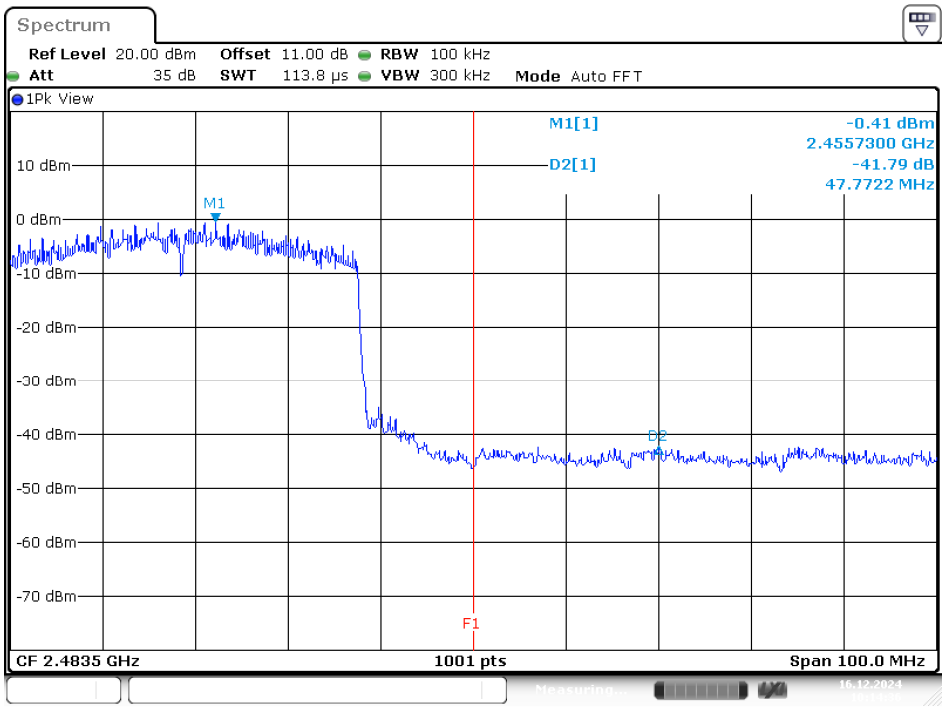
AX40 Mode

Band Edge, Left Side



Date: 16.DEC.2024 10:05:03

Band Edge, Right Side

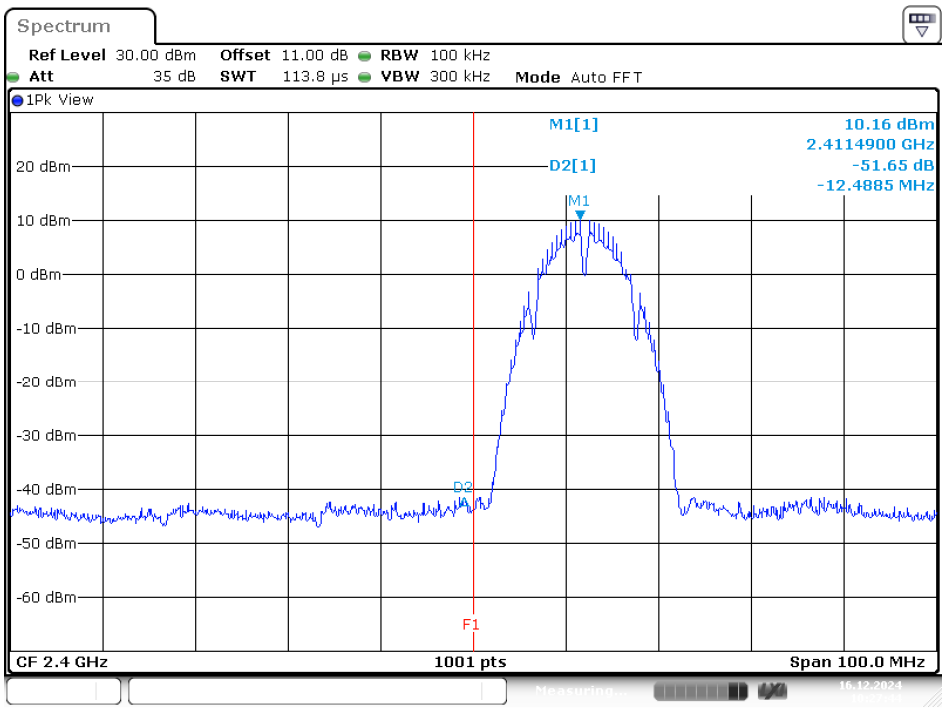


Date: 16.DEC.2024 10:14:36

Chain 3

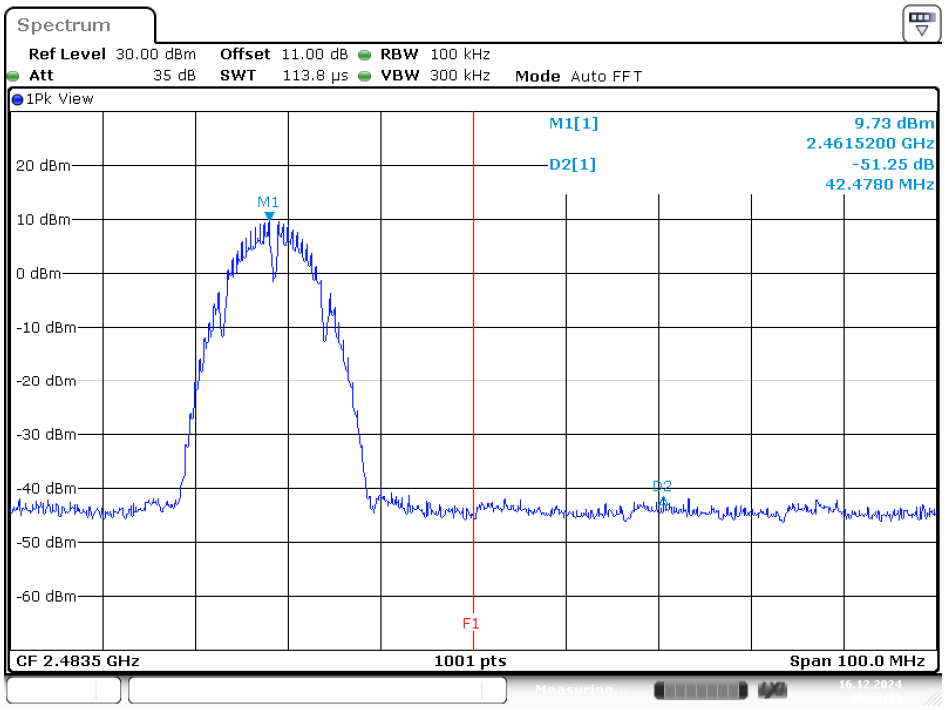
B Mode

Band Edge, Left Side



Date: 16.DEC.2024 10:27:45

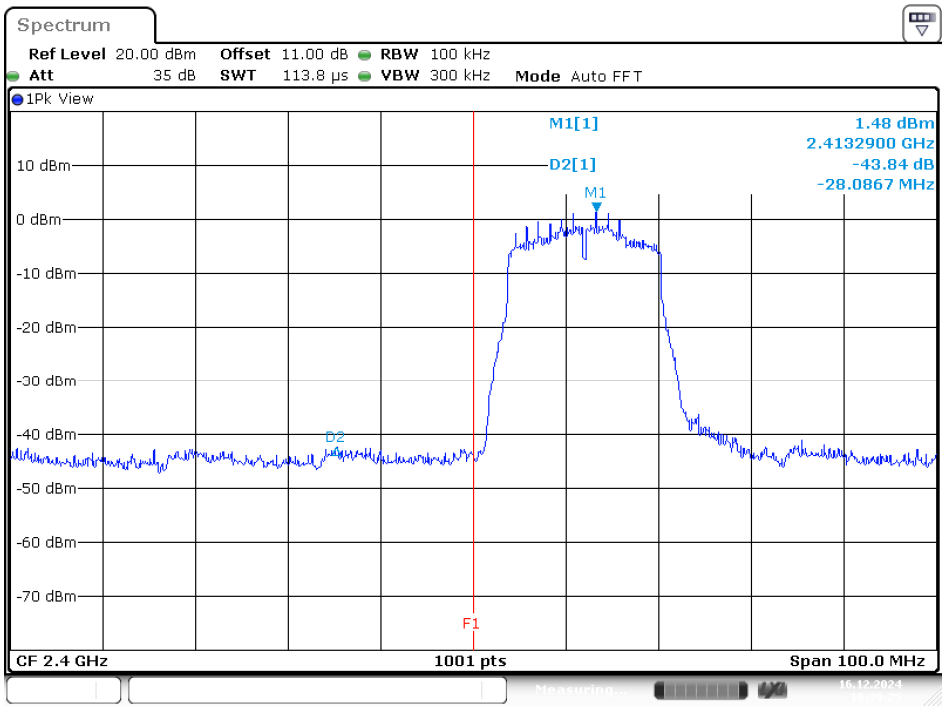
Band Edge, Right Side



Date: 16.DEC.2024 10:33:15

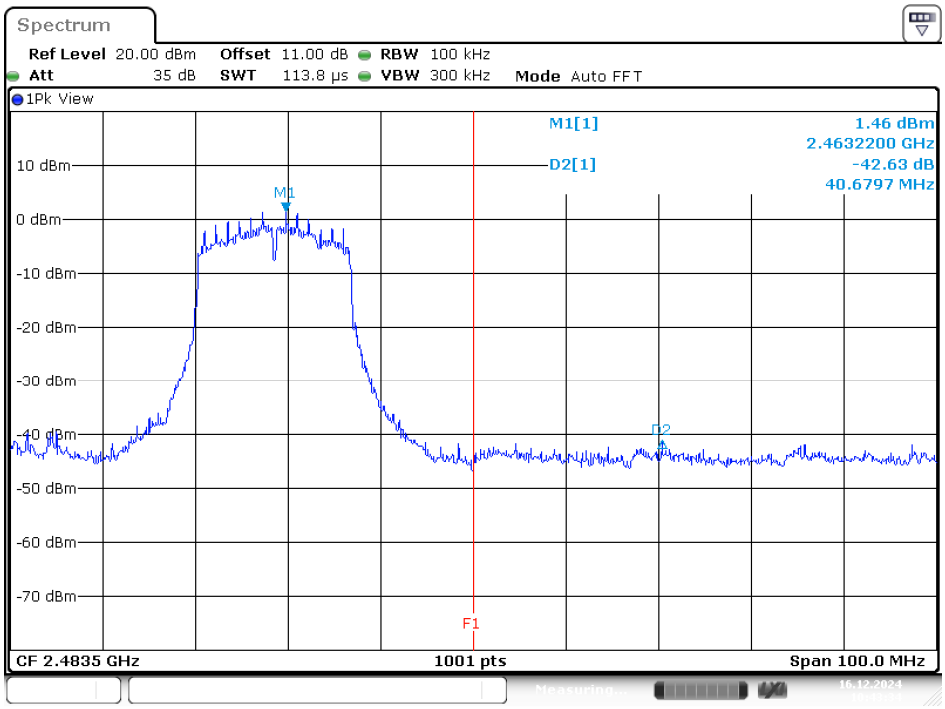
G Mode

Band Edge, Left Side



Date: 16.DEC.2024 10:39:25

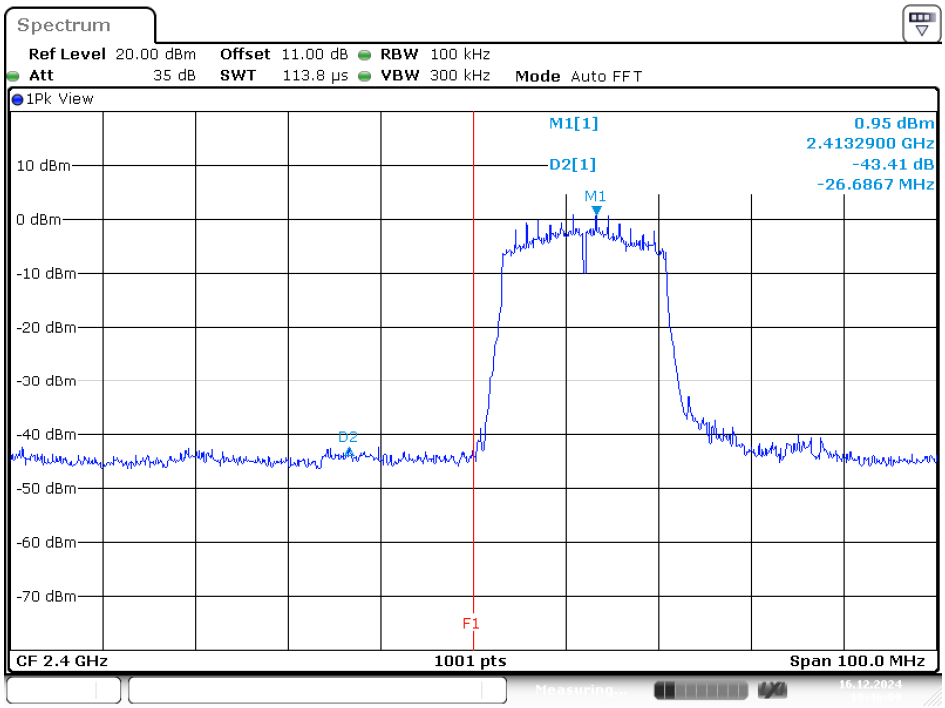
Band Edge, Right Side



Date: 16.DEC.2024 10:43:34

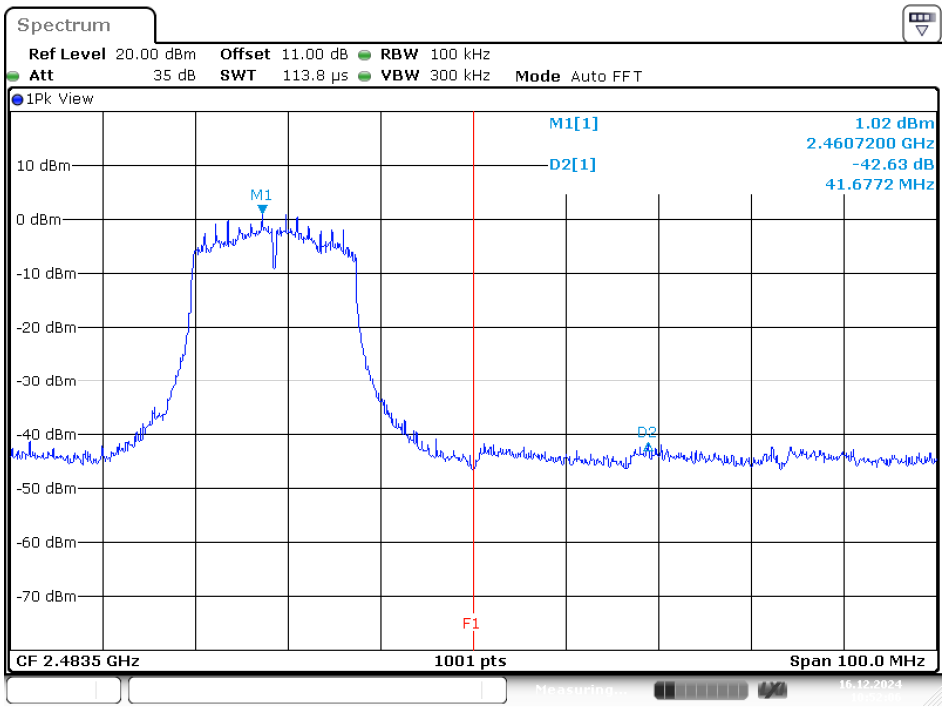
N20 Mode

Band Edge, Left Side



Date: 16.DEC.2024 10:46:10

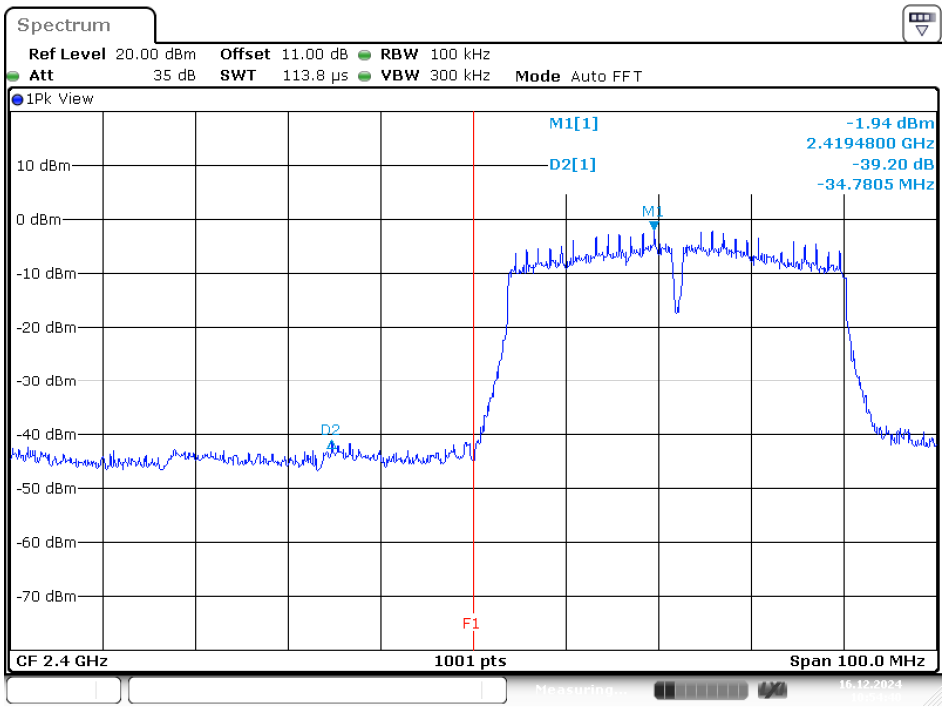
Band Edge, Right Side



Date: 16.DEC.2024 10:52:07

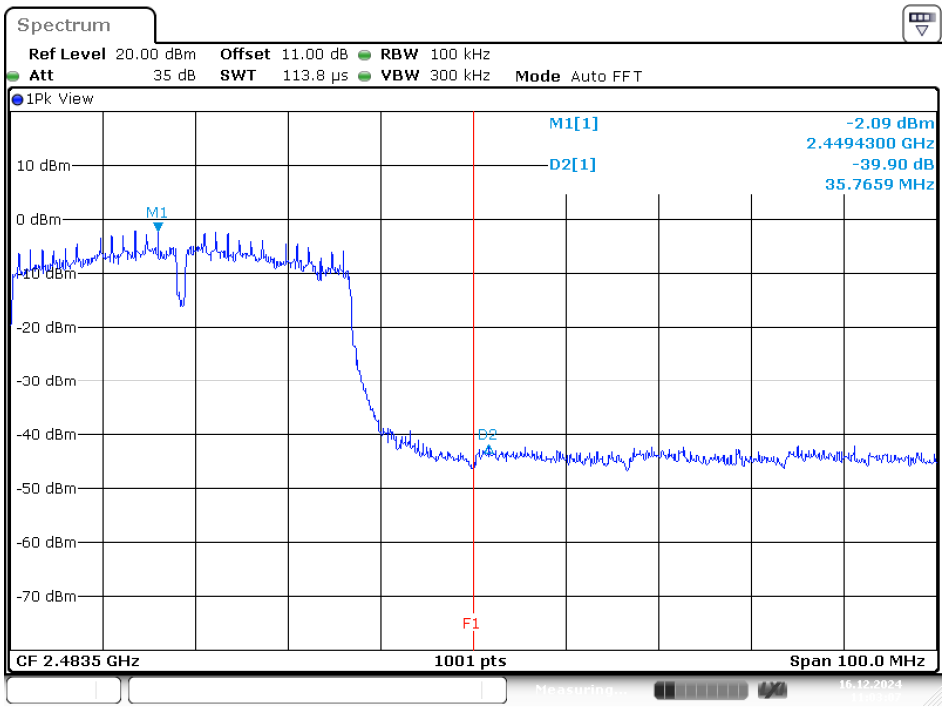
N40 Mode

Band Edge, Left Side



Date: 16.DEC.2024 10:54:40

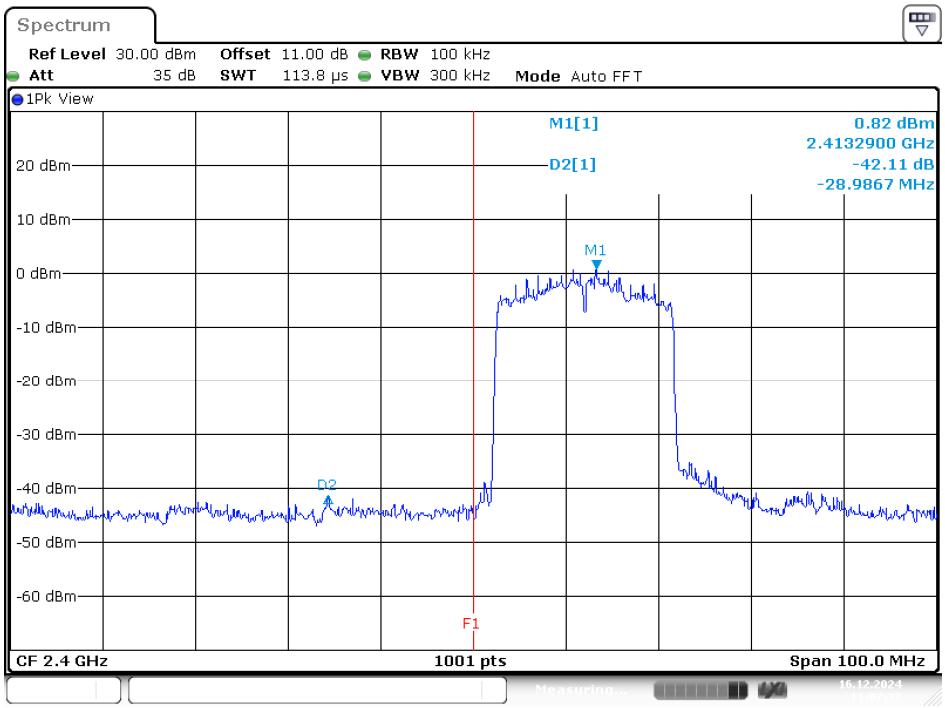
Band Edge, Right Side



Date: 16.DEC.2024 11:03:08

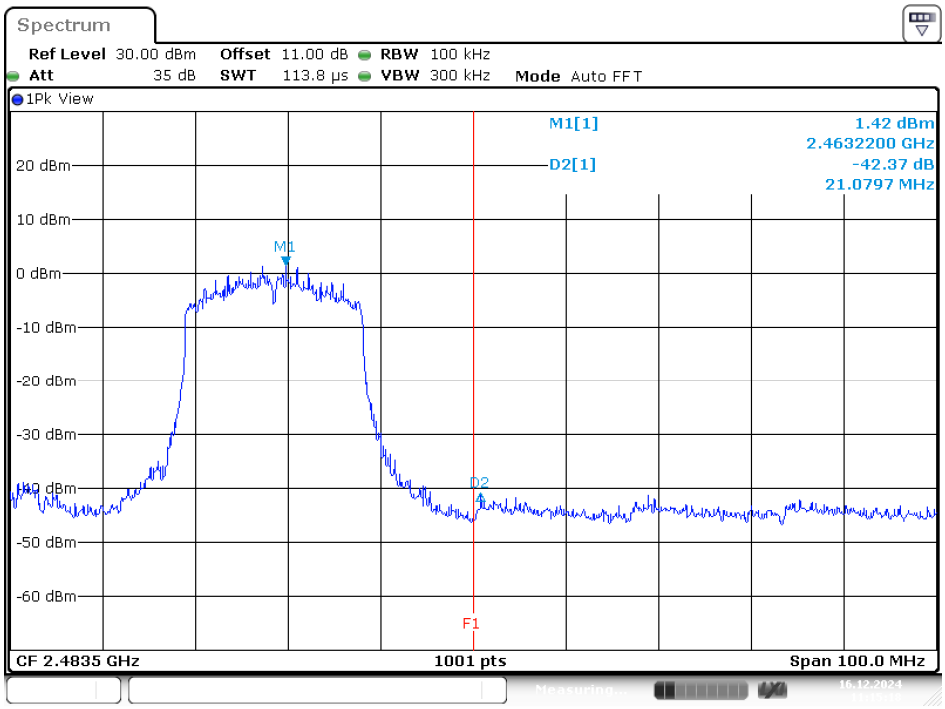
AX20 Mode

Band Edge, Left Side



Date: 16.DEC.2024 11:07:37

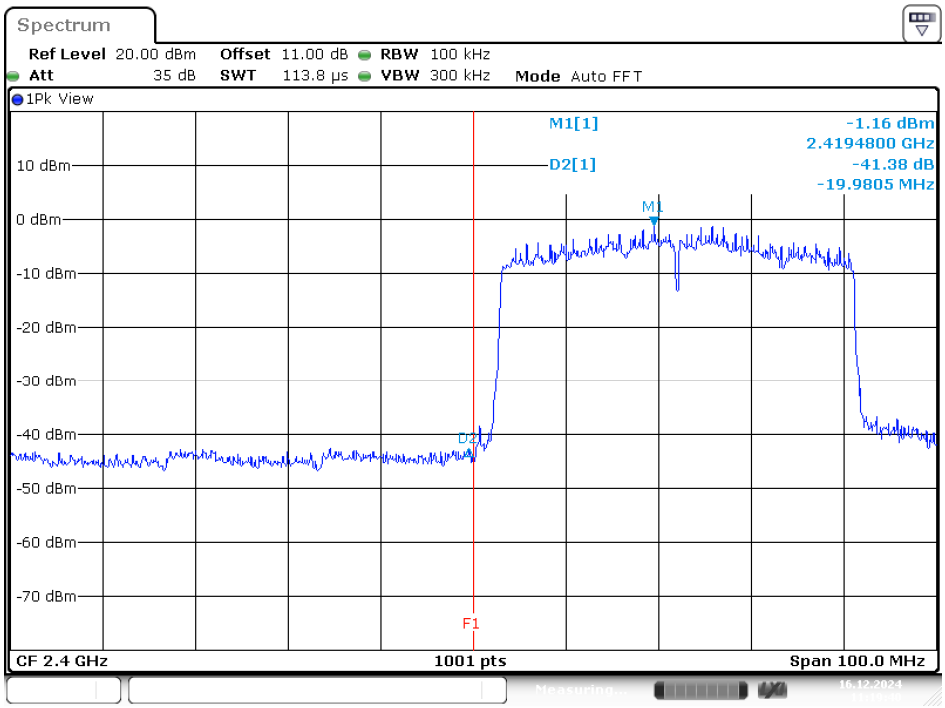
Band Edge, Right Side



Date: 16.DEC.2024 11:15:19

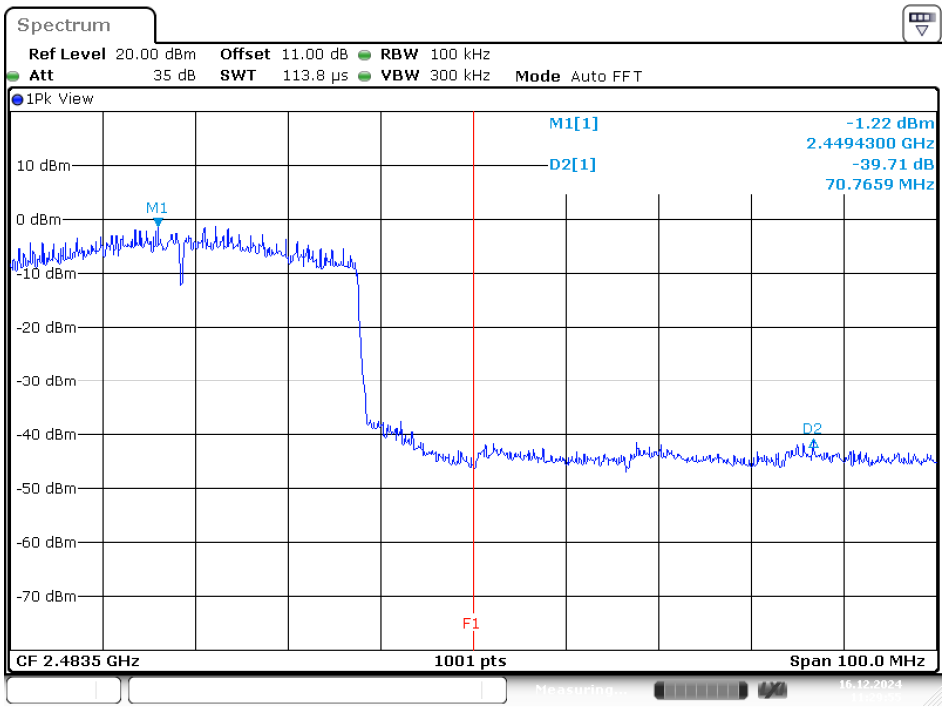
AX40 Mode

Band Edge, Left Side



Date: 16.DEC.2024 11:19:41

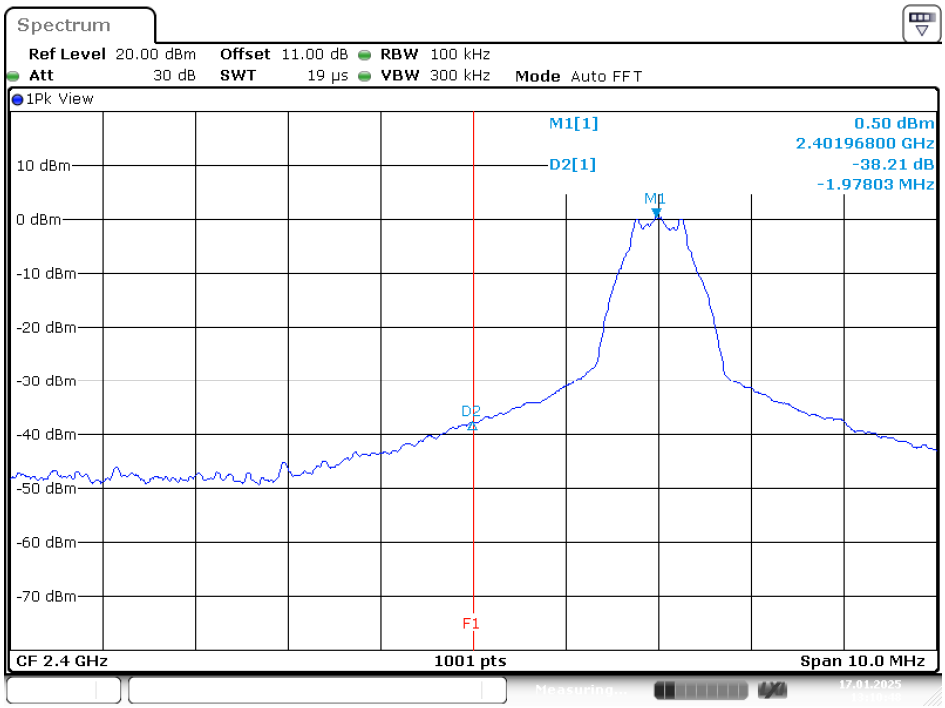
Band Edge, Right Side



Date: 16.DEC.2024 11:29:55

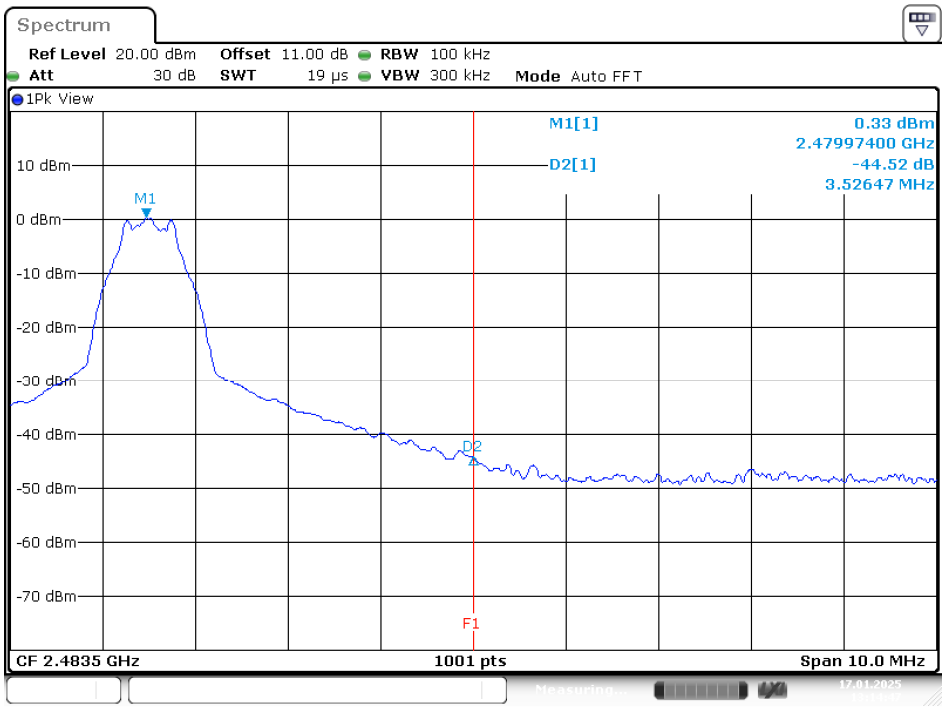
BLE 1M Mode

Band Edge, Left Side



Date: 17.JAN.2025 13:10:49

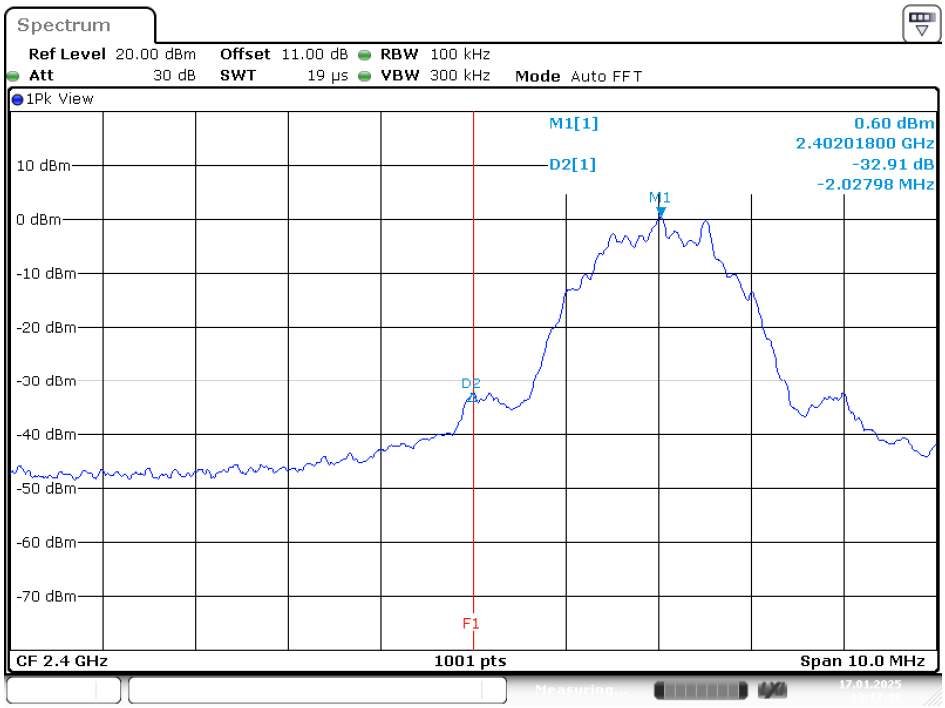
Band Edge, Right Side



Date: 17.JAN.2025 13:14:48

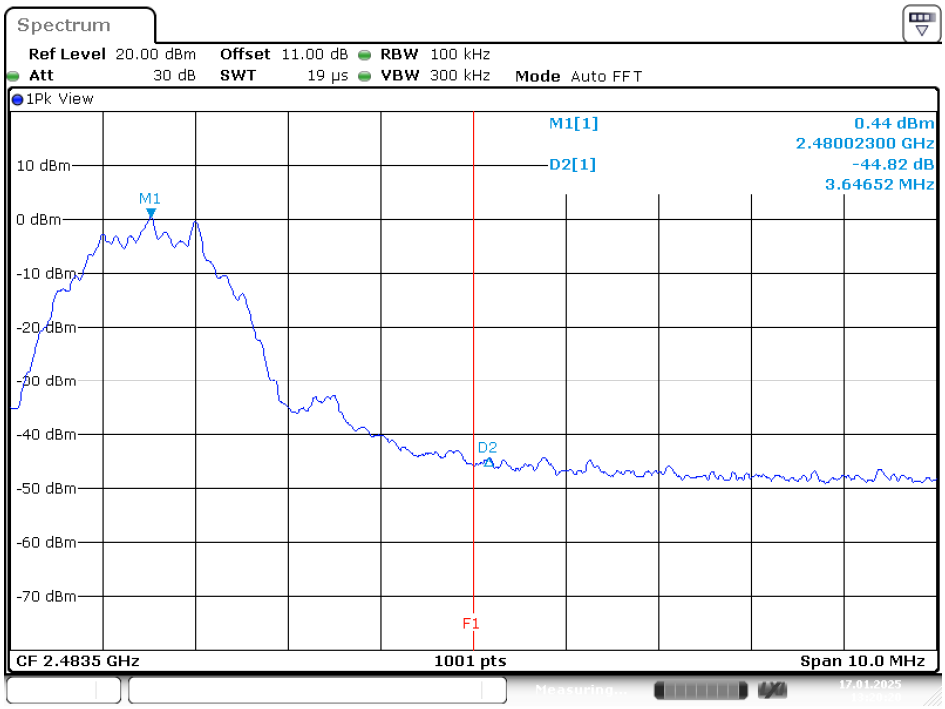
BLE 2M Mode

Band Edge, Left Side



Date: 17.JAN.2025 13:17:18

Band Edge, Right Side



Date: 17.JAN.2025 13:20:21

12 FCC §15.247(e) – Power Spectral Density

12.1 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.

12.2 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

12.3 Test Results

WIFI

Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)					Limit (dBm/3 kHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
B mode							
Low	2412	-3.36	-0.87	-2.28	-4.40	3.49	≤ 4.48
Mid	2437	-2.13	-1.07	-2.65	-2.91	3.89	≤ 4.48
High	2462	-2.74	-0.91	-3.14	-2.73	3.73	≤ 4.48
G mode							
Low	2412	-11.18	-8.61	-10.95	-11.47	-4.37	≤ 4.48
Mid	2437	-11.14	-8.65	-9.55	-11.21	-3.98	≤ 4.48
High	2462	-11.22	-8.94	-9.40	-11.58	-4.12	≤ 4.48
N20 mode							
Low	2412	-11.27	-8.41	-10.49	-11.40	-4.19	≤ 4.48
Mid	2437	-11.68	-8.17	-7.68	-11.84	-3.41	≤ 4.48
High	2462	-11.12	-7.35	-9.55	-11.38	-3.52	≤ 4.48
N40 mode							
Low	2422	-14.91	-13.06	-13.97	-15.22	-8.19	≤ 4.48
Mid	2437	-15.25	-11.84	-13.68	-13.92	-7.48	≤ 4.48
High	2452	-14.74	-13.37	-14.02	-13.93	-7.97	≤ 4.48
AX20 mode							
Low	2412	-12.47	-10.86	-11.13	-12.50	-5.65	≤ 4.48
Mid	2437	-12.59	-9.44	-11.91	-11.90	-5.26	≤ 4.48
High	2462	-12.76	-10.39	-9.99	-12.85	-5.28	≤ 4.48
AX40 mode							
Low	2422	-15.06	-13.52	-16.06	-15.50	-8.91	≤ 4.48
Mid	2437	-15.35	-13.93	-14.78	-15.55	-8.84	≤ 4.48
High	2452	-15.60	-13.63	-14.62	-16.07	-8.86	≤ 4.48

According to FCC KDB 662911 D01 Multiple Transmitter Output v02r01, For Power spectral density (PSD) measurements on the devices:

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/N_{ANT}$] dBi.

Directional gain = 9.52 dBi

The Power density Limits was reduce 3.52 dB.

BLE

Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit (dBm/3 kHz)	Result
BLE 1M Mode				
Low	2402	-13.99	7.92	PASS
Middle	2440	-14.01	7.92	PASS
High	2480	-14.10	7.92	PASS
BLE 2M Mode				
Low	2402	-18.38	7.92	PASS
Middle	2440	-18.20	7.92	PASS
High	2480	-18.13	7.92	PASS

802.11ax partial RU

Mode	Frequency (MHz)	Tones	RU Index	Power Spectral Density (dBm/3 kHz)					Limit (dBm/3 kHz)
				Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11ax 20	2412	26	0	-16.11	-15.57	-15.61	-16.22	-9.85	≤ 4.48
		26	8	-16.13	-15.90	-15.59	-15.26	-9.69	≤ 4.48
		52	37	-13.15	-13.81	-14.31	-13.85	-7.74	≤ 4.48
		52	40	-14.80	-14.80	-15.00	-14.80	-8.83	≤ 4.48
		106	53	-14.27	-13.73	-13.10	-13.38	-7.58	≤ 4.48
		106	54	-13.31	-12.73	-14.06	-13.97	-7.46	≤ 4.48
		242	61	-12.47	-10.86	-11.13	-12.50	-5.65	≤ 4.48
	2437	26	0	-15.96	-15.61	-15.66	-16.32	-9.86	≤ 4.48
		26	8	-15.97	-16.02	-16.00	-16.05	-9.99	≤ 4.48
		52	37	-14.62	-15.06	-15.38	-15.04	-9.00	≤ 4.48
		52	40	-13.95	-14.12	-13.54	-13.79	-7.82	≤ 4.48
		106	53	-12.83	-13.72	-13.09	-12.90	-7.10	≤ 4.48
		106	54	-13.38	-12.29	-13.69	-11.96	-6.75	≤ 4.48
		242	61	-12.59	-9.44	-11.91	-11.90	-5.26	≤ 4.48
	2462	26	0	-15.81	-15.75	-16.15	-16.56	-10.04	≤ 4.48
		26	8	-16.34	-16.21	-16.39	-16.75	-10.40	≤ 4.48
		52	37	-13.52	-14.23	-14.54	-14.35	-8.12	≤ 4.48
		52	40	-14.85	-14.77	-15.11	-14.55	-8.79	≤ 4.48
		106	53	-12.83	-12.45	-13.02	-13.39	-6.89	≤ 4.48
		106	54	-12.91	-12.66	-12.50	-13.00	-6.74	≤ 4.48
		242	61	-12.76	-10.39	-9.99	-12.85	-5.28	≤ 4.48

Channel	Frequency (MHz)	Tones	RU Index	Power Spectral Density (dBm/3 kHz)					Limit (dBm/3 kHz)
				Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11ax 40	2422	26	0	-19.19	-18.85	-18.86	-18.80	-12.90	≤ 4.48
		26	17	-19.46	-18.25	-19.20	-17.90	-12.63	≤ 4.48
		52	37	-17.49	-17.64	-18.21	-18.61	-11.94	≤ 4.48
		52	44	-19.06	-18.38	-18.77	-18.43	-12.63	≤ 4.48
		106	53	-17.22	-16.46	-16.59	-16.63	-10.69	≤ 4.48
		106	56	-16.57	-17.11	-16.92	-16.92	-10.85	≤ 4.48
		242	61	-15.83	-15.71	-16.76	-15.91	-10.01	≤ 4.48
		242	62	-16.25	-16.16	-16.39	-16.42	-10.28	≤ 4.48
		484	65	-15.06	-13.52	-16.06	-15.50	-8.91	≤ 4.48
	2437	26	0	-20.34	-19.84	-20.33	-19.73	-14.03	≤ 4.48
		26	17	-20.10	-19.22	-19.22	-19.76	-13.54	≤ 4.48
		52	37	-18.52	-18.40	-17.07	-17.20	-11.73	≤ 4.48
		52	44	-18.77	-17.89	-17.67	-17.89	-12.01	≤ 4.48
		106	53	-16.89	-17.37	-16.84	-17.34	-11.08	≤ 4.48
		106	56	-17.52	-17.43	-17.39	-17.37	-11.41	≤ 4.48
		242	61	-16.20	-15.90	-15.84	-16.36	-10.05	≤ 4.48
		242	62	-16.75	-16.18	-16.05	-16.12	-10.25	≤ 4.48
		484	65	-15.35	-13.93	-14.78	-15.55	-8.84	≤ 4.48
	2462	26	0	-19.09	-19.98	-20.17	-20.23	-13.82	≤ 4.48
		26	17	-19.26	-19.76	-19.13	-18.94	-13.24	≤ 4.48
		52	37	-18.31	-18.13	-19.53	-19.12	-12.71	≤ 4.48
		52	44	-19.31	-18.89	-18.92	-19.04	-13.02	≤ 4.48
		106	53	-18.34	-17.83	-17.41	-17.34	-11.69	≤ 4.48
		106	56	-17.10	-17.51	-17.27	-17.27	-11.26	≤ 4.48
		242	61	-16.05	-15.07	-15.64	-16.34	-9.73	≤ 4.48
		242	62	-16.53	-15.65	-16.48	-16.37	-10.22	≤ 4.48
		484	65	-15.60	-13.63	-14.62	-16.07	-8.86	≤ 4.48

According to FCC KDB 662911 D01 Multiple Transmitter Output v02r01, For Power spectral density (PSD) measurements on the devices:

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/N_{ANT}$] dBi.

Directional gain = 9.52 dBi, The Power density Limits was reduce 3.52 dB.

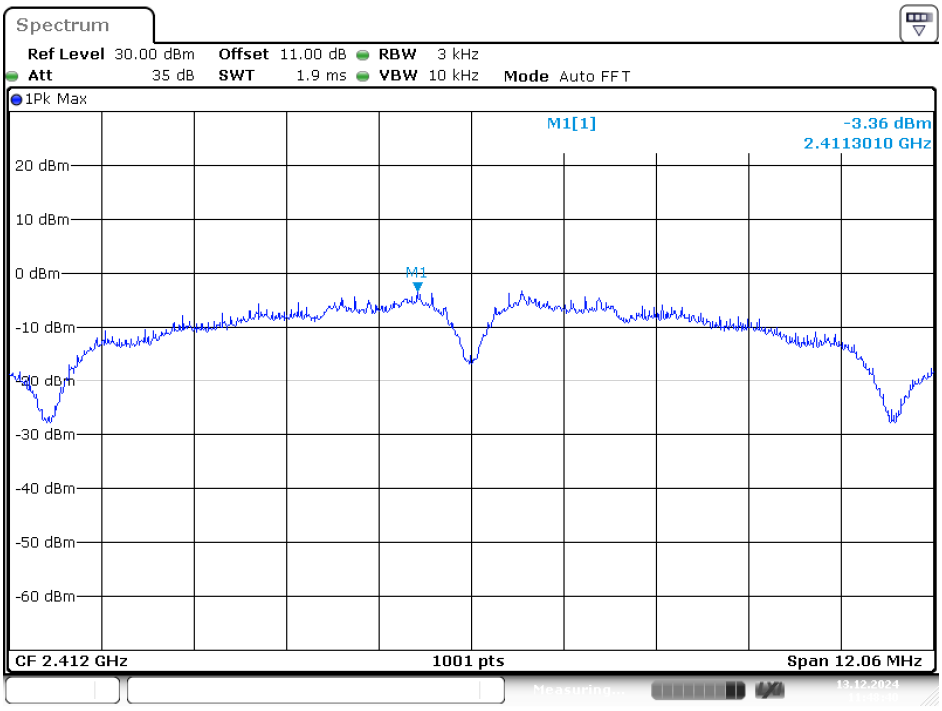
Please refer to the following plots

WIFI

Chain 0

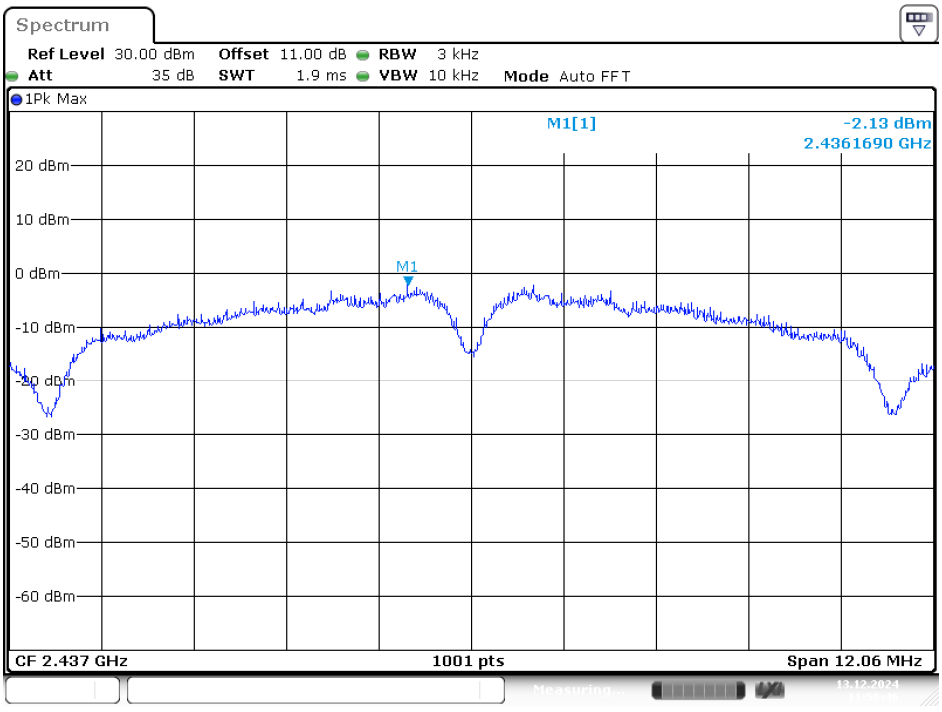
B Mode

Low Channel



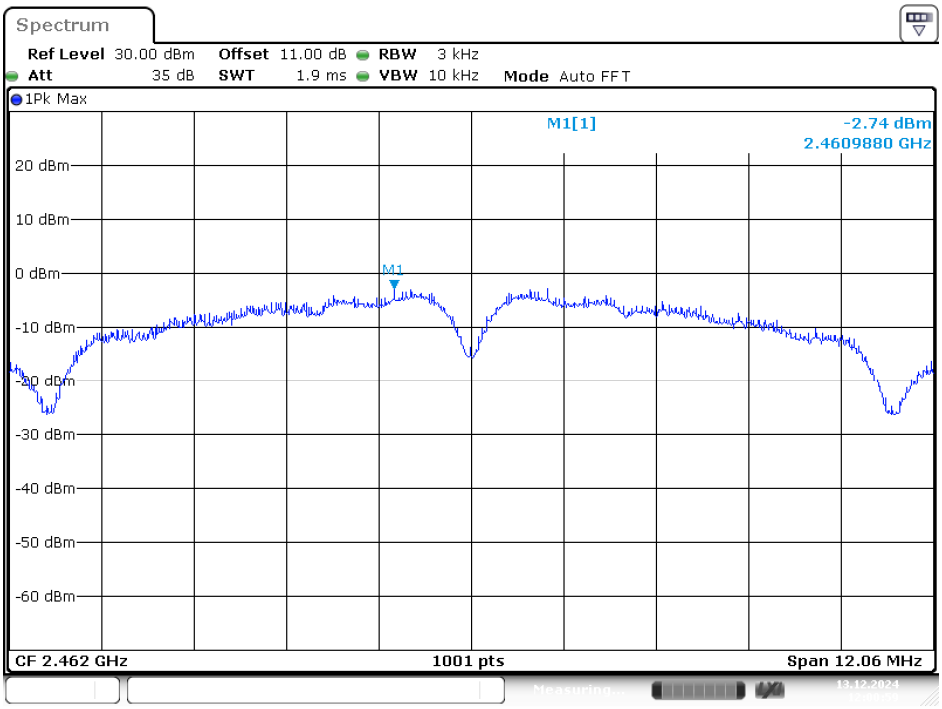
Date: 13.DEC.2024 11:48:40

Middle Channel



Date: 13.DEC.2024 11:56:46

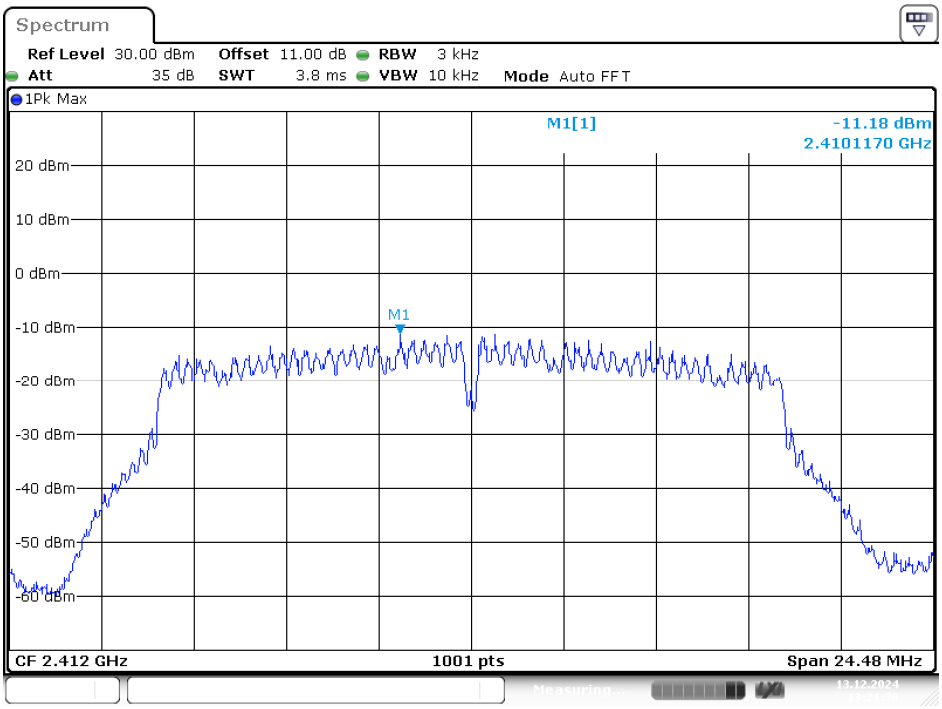
High Channel



Date: 13.DEC.2024 12:00:59

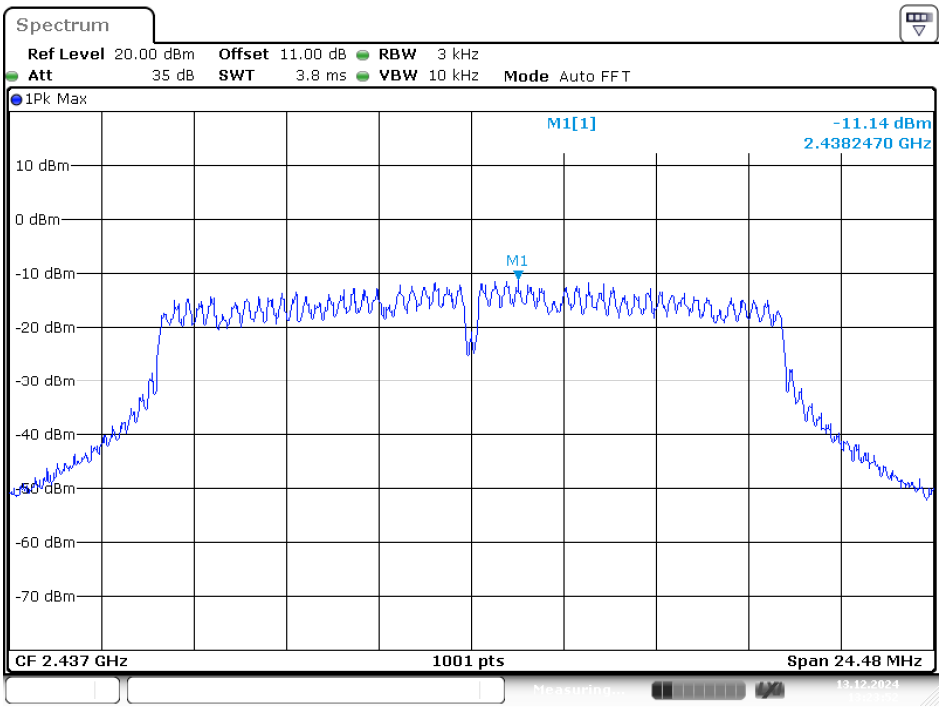
G Mode

Low Channel



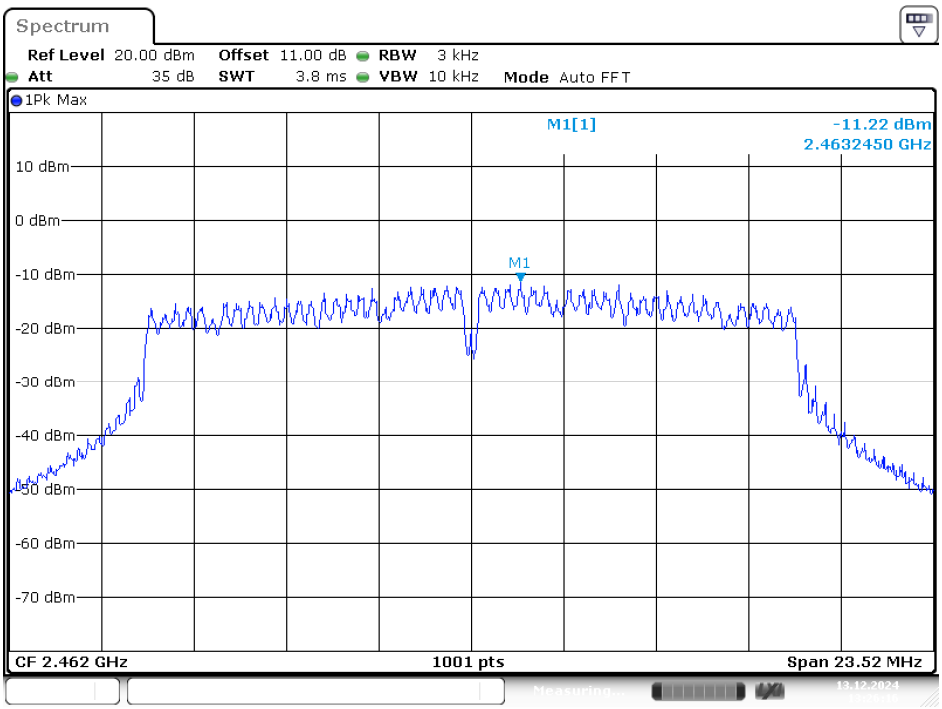
Date: 13.DEC.2024 13:21:30

Middle Channel



Date: 13.DEC.2024 13:23:52

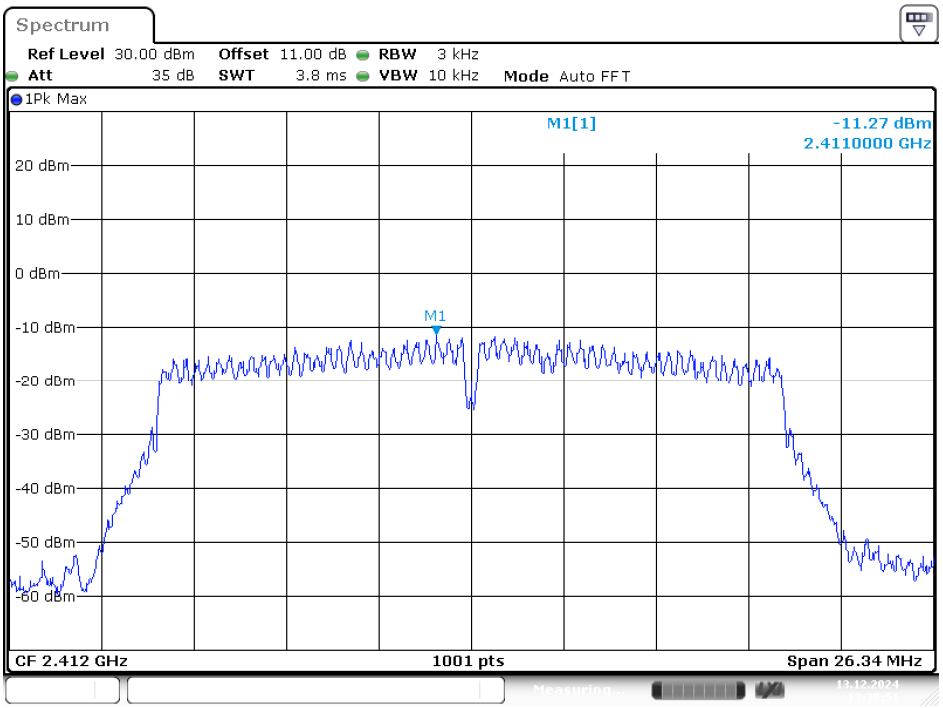
High Channel



Date: 13.DEC.2024 13:26:16

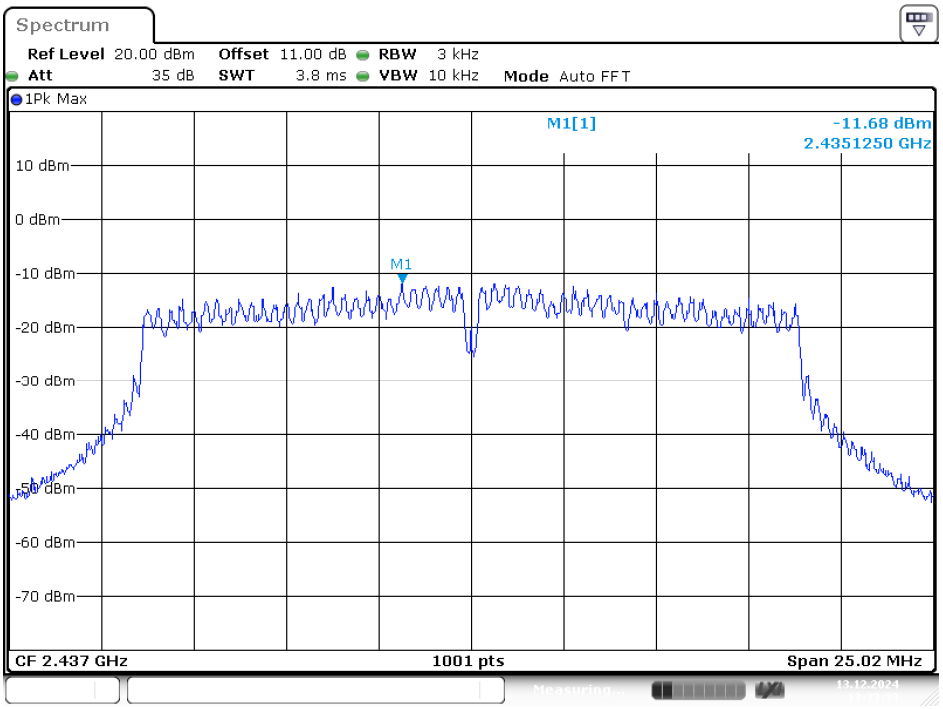
N20 Mode

Low Channel



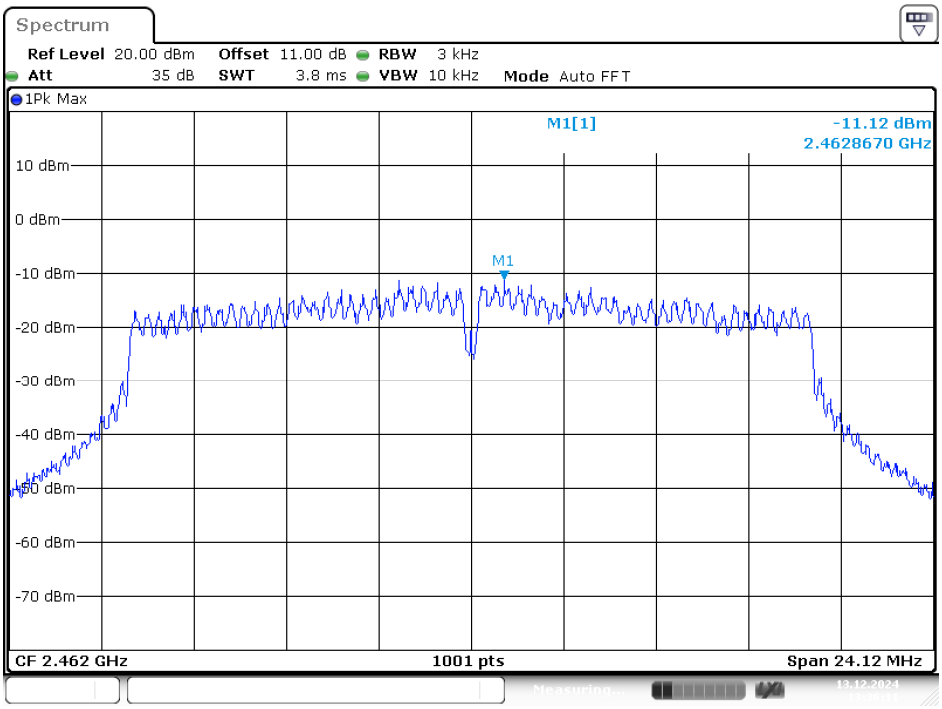
Date: 13.DEC.2024 13:30:51

Middle Channel



Date: 13.DEC.2024 13:33:33

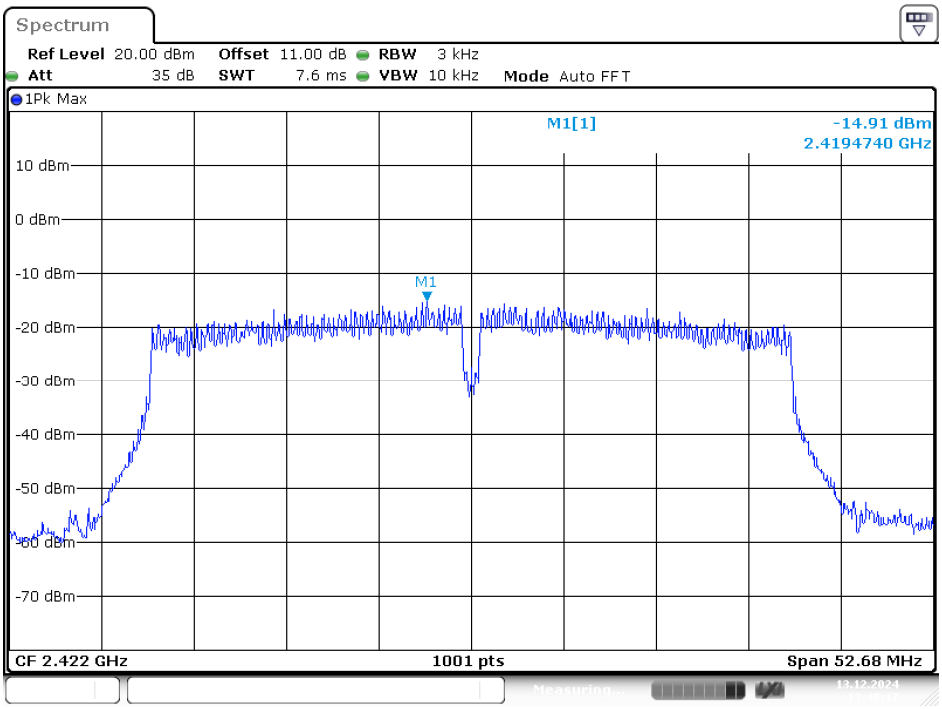
High Channel



Date: 13.DEC.2024 13:36:11

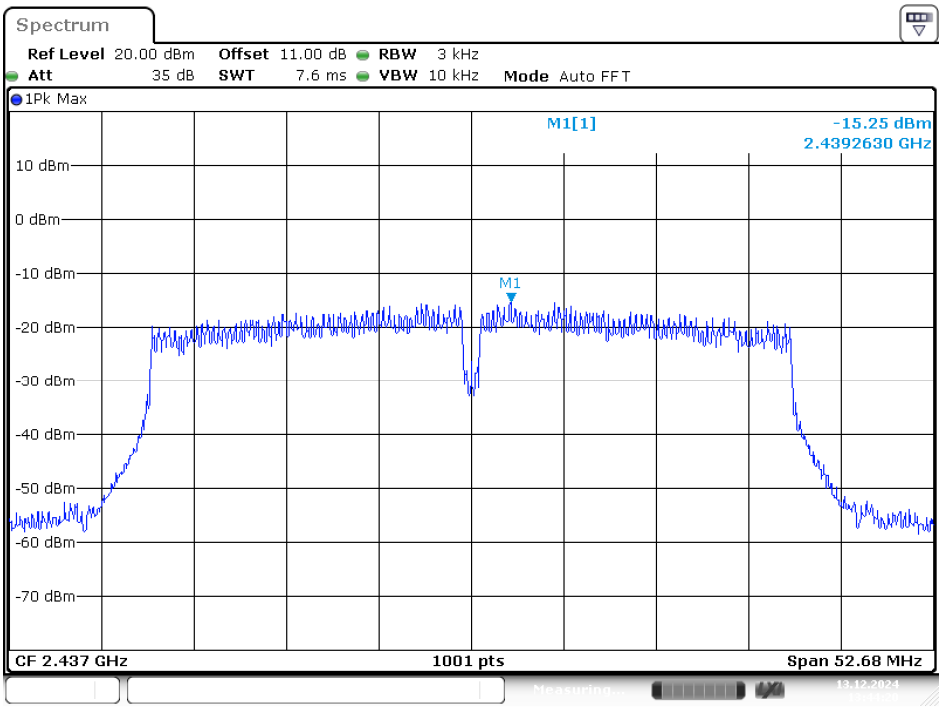
N40 Mode

Low Channel



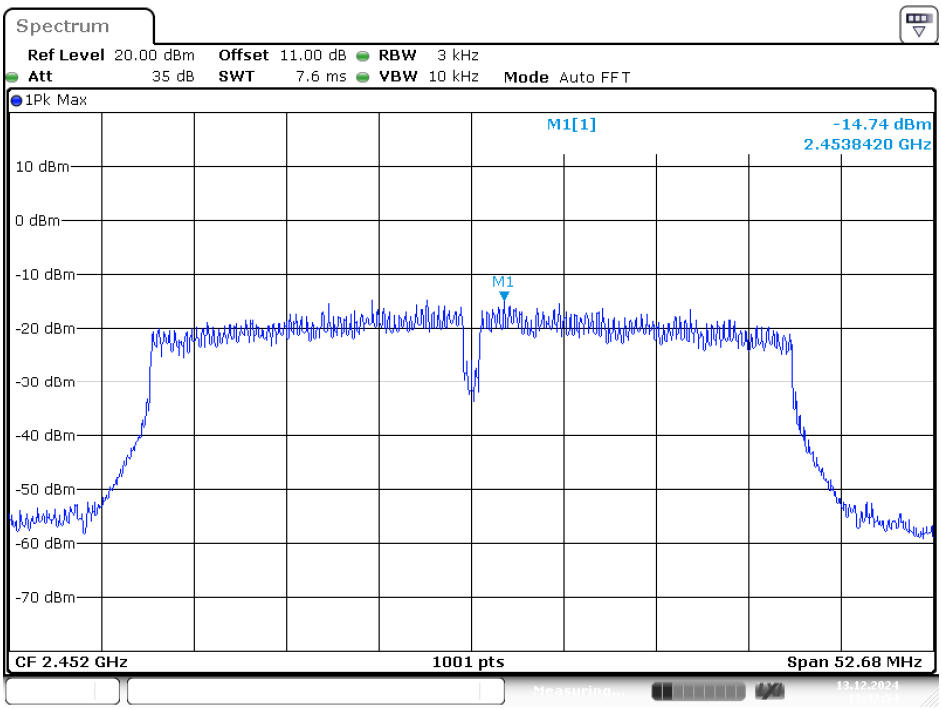
Date: 13.DEC.2024 13:40:17

Middle Channel



Date: 13.DEC.2024 13:44:20

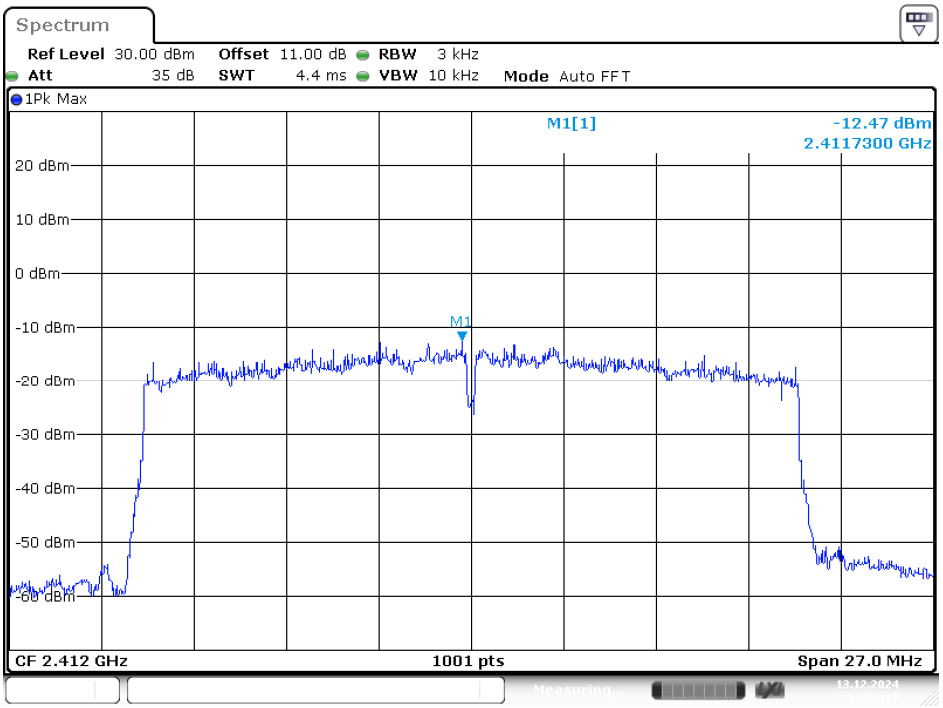
High Channel



Date: 13.DEC.2024 13:47:54

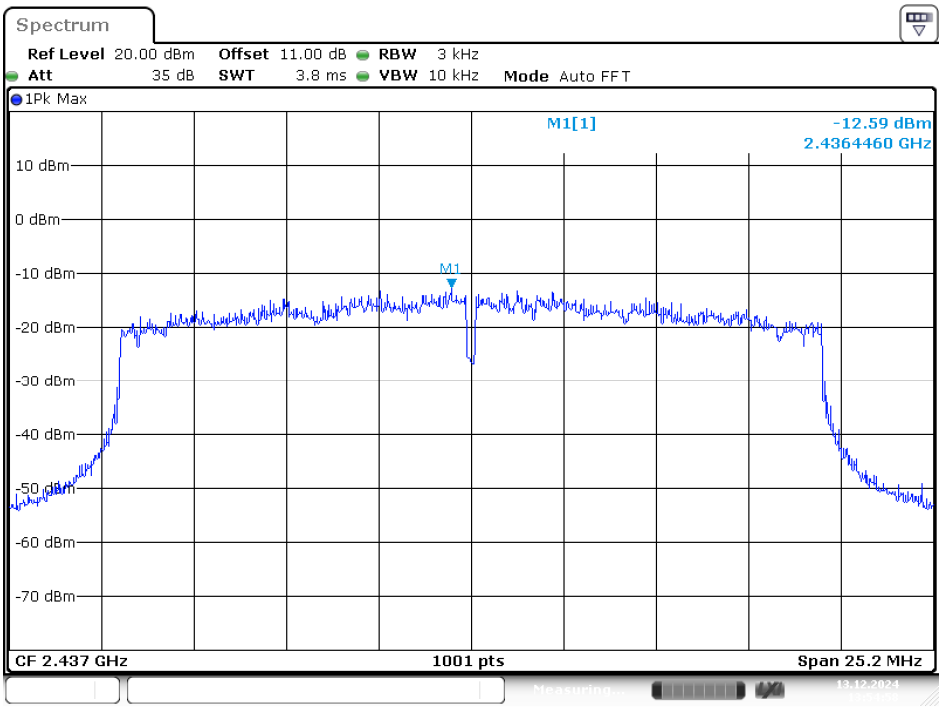
AX20 Mode

Low Channel



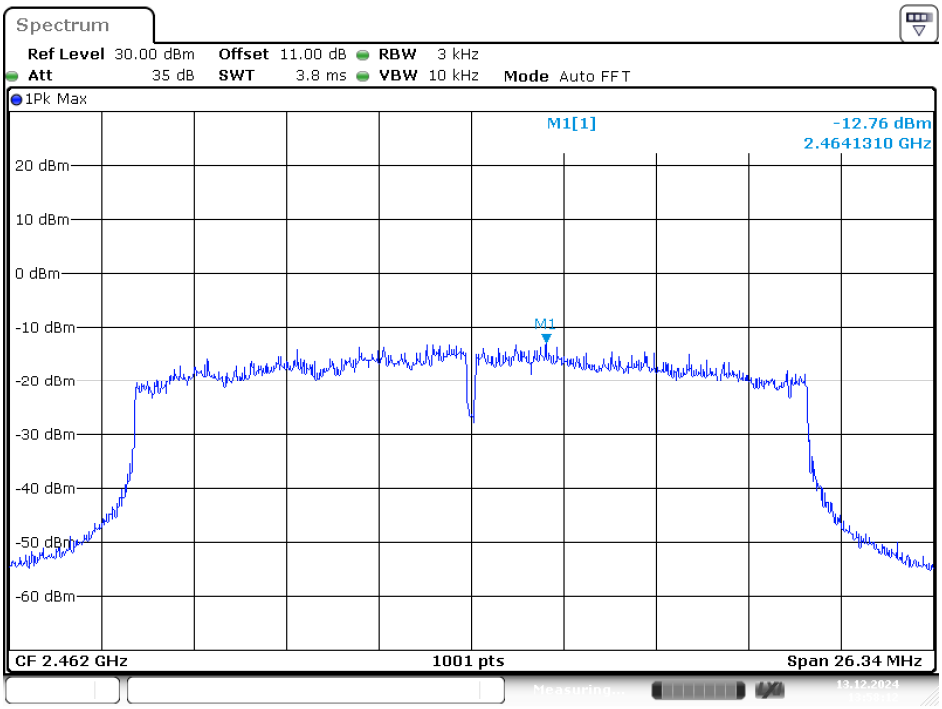
Date: 13.DEC.2024 13:52:13

Middle Channel



Date: 13.DEC.2024 13:54:59

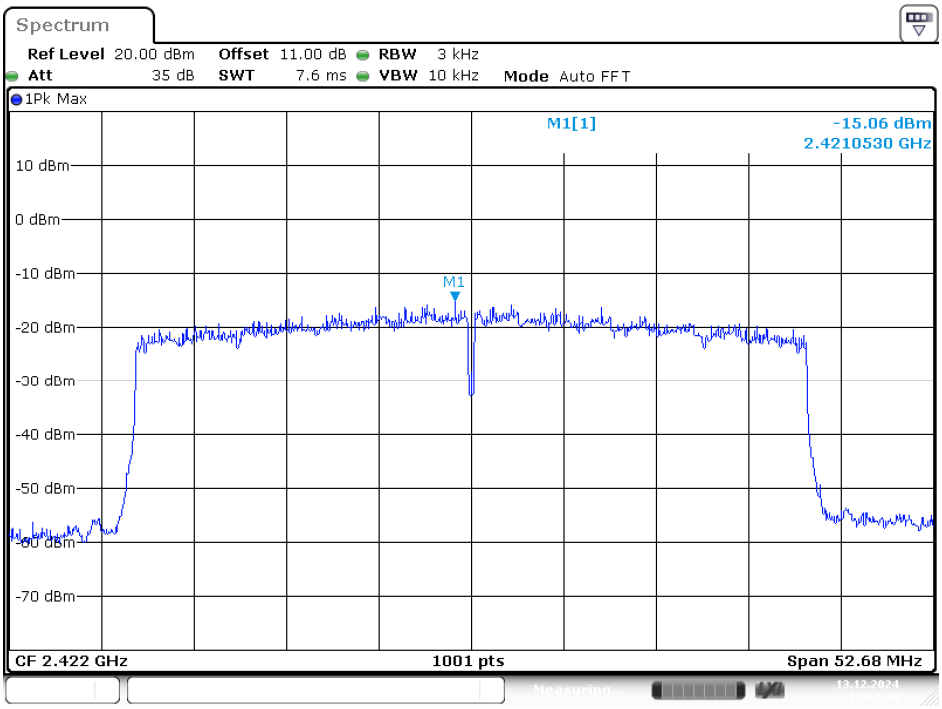
High Channel



Date: 13.DEC.2024 13:58:12

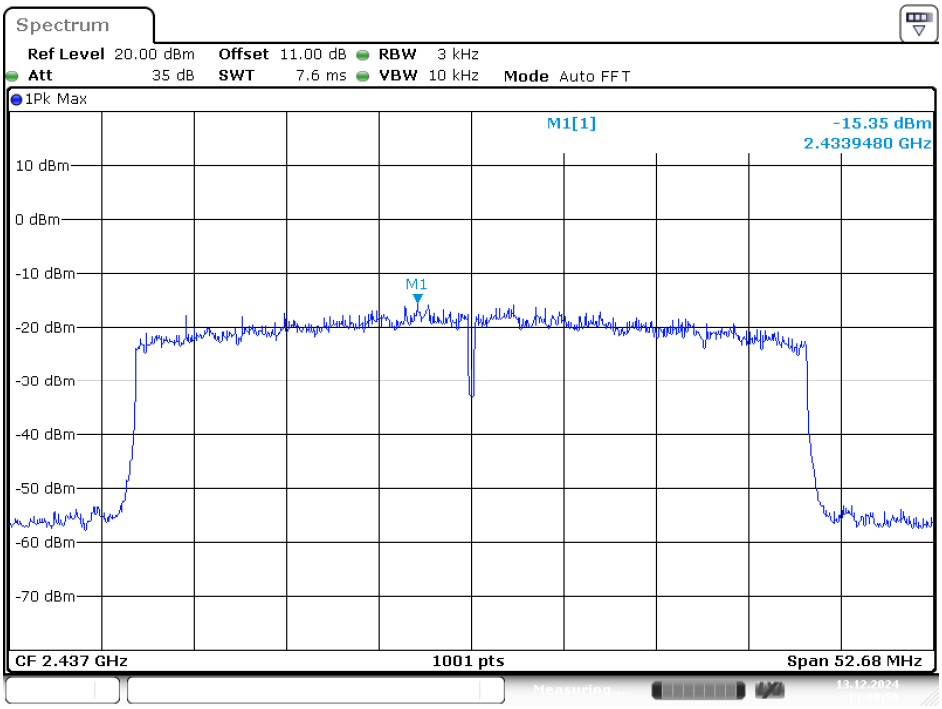
AX40 Mode

Low Channel



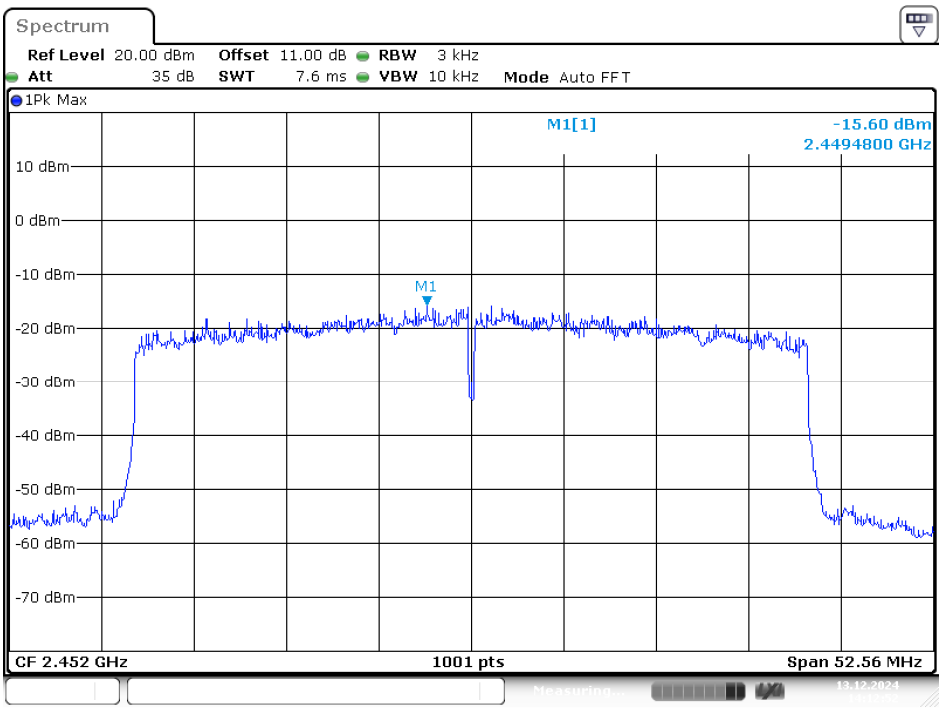
Date: 13.DEC.2024 14:02:46

Middle Channel



Date: 13.DEC.2024 14:09:51

High Channel

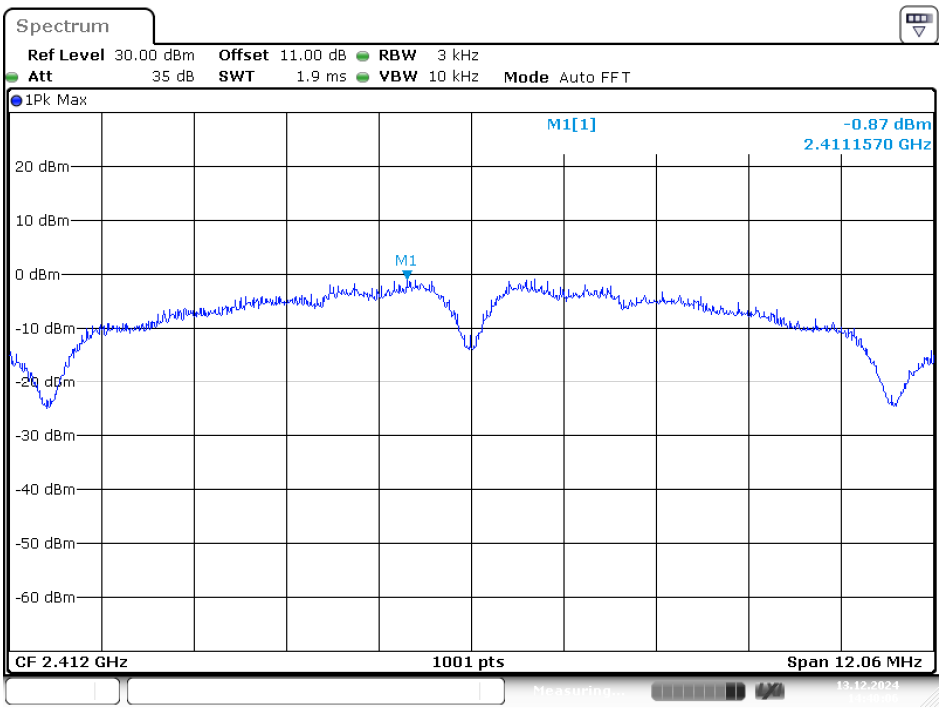


Date: 13.DEC.2024 14:12:52

Chain 1

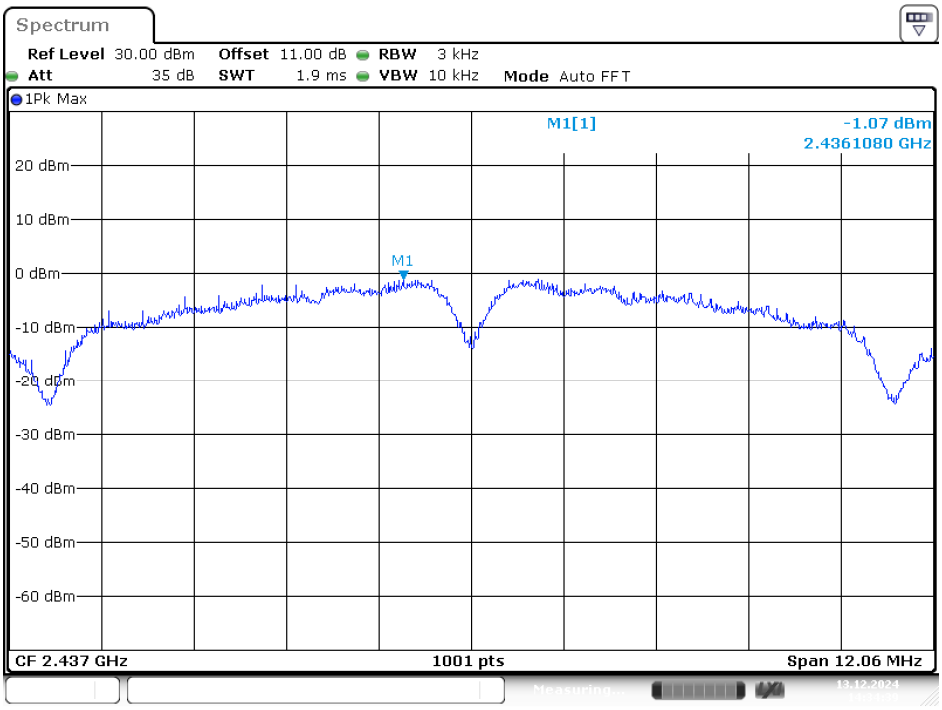
B Mode

Low Channel



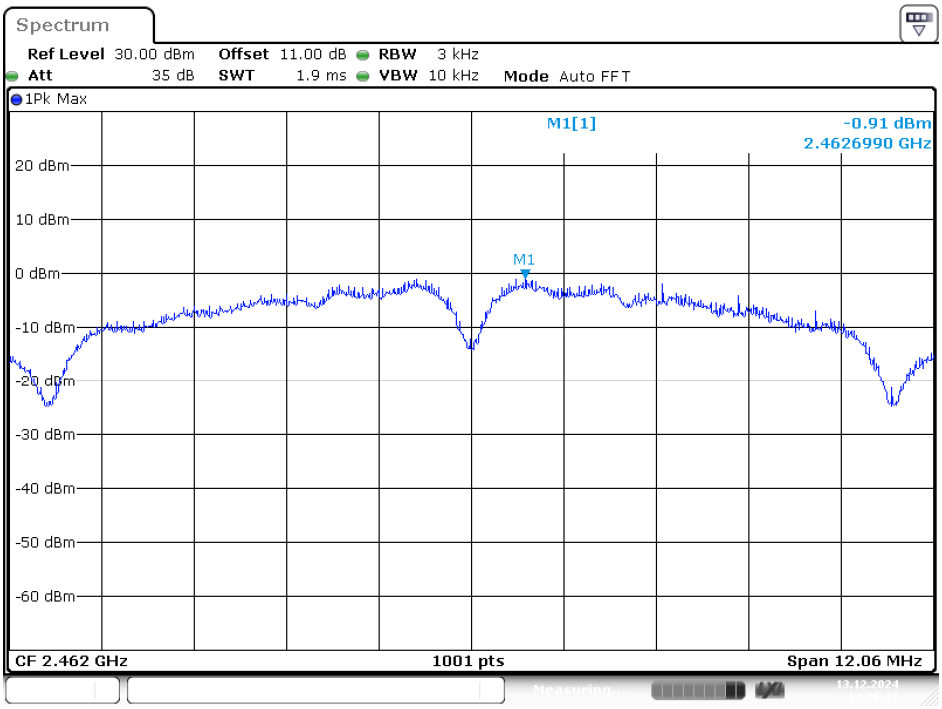
Date: 13.DEC.2024 14:40:07

Middle Channel



Date: 13.DEC.2024 14:34:39

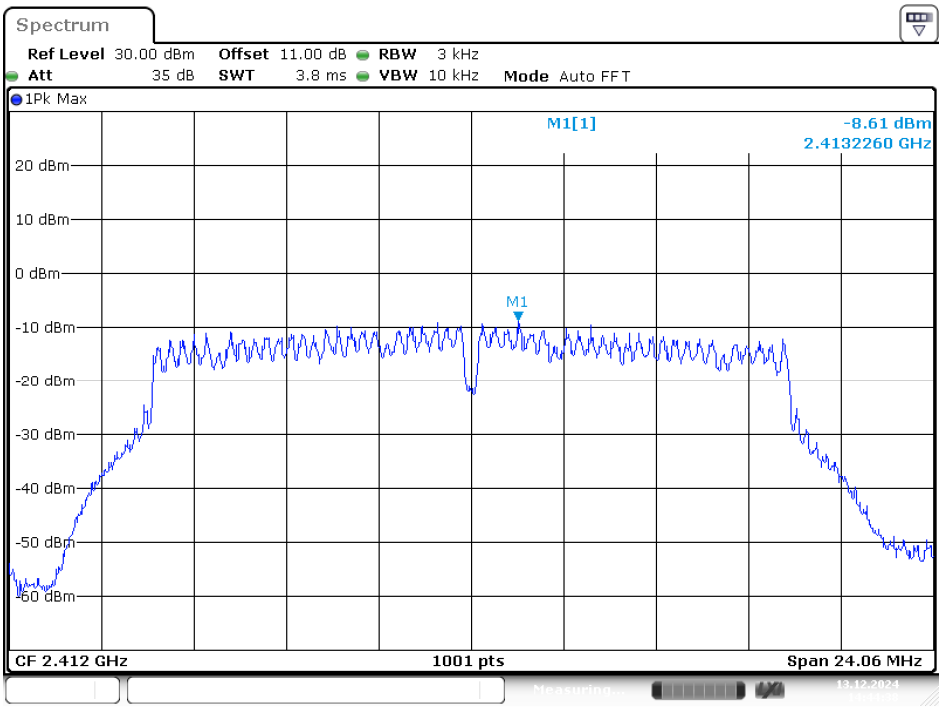
High Channel



Date: 13.DEC.2024 14:36:32

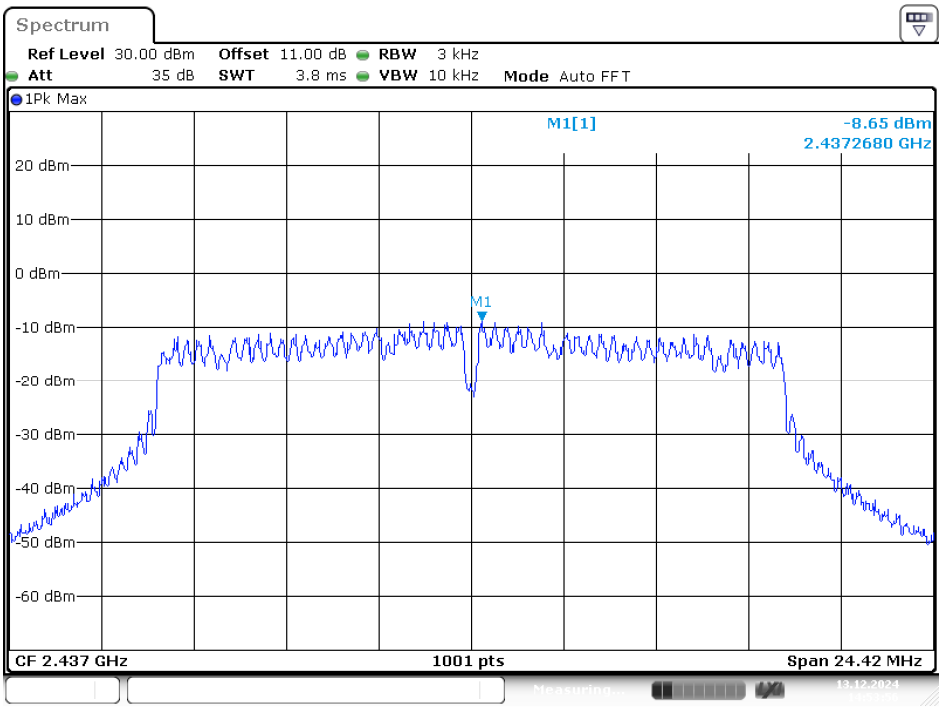
G Mode

Low Channel



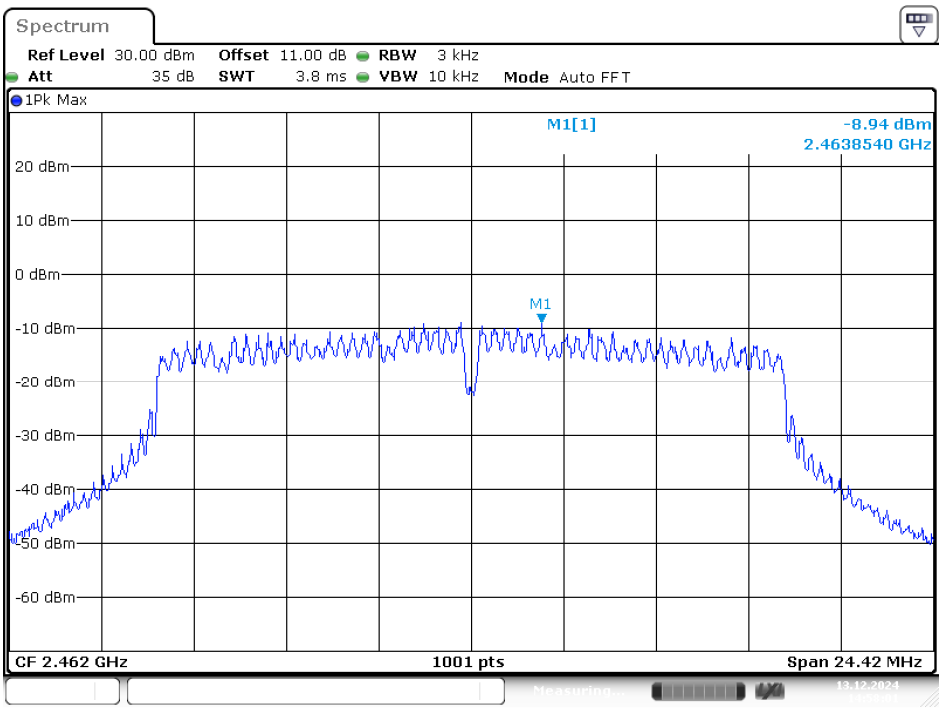
Date: 13.DEC.2024 14:44:38

Middle Channel



Date: 13.DEC.2024 14:53:56

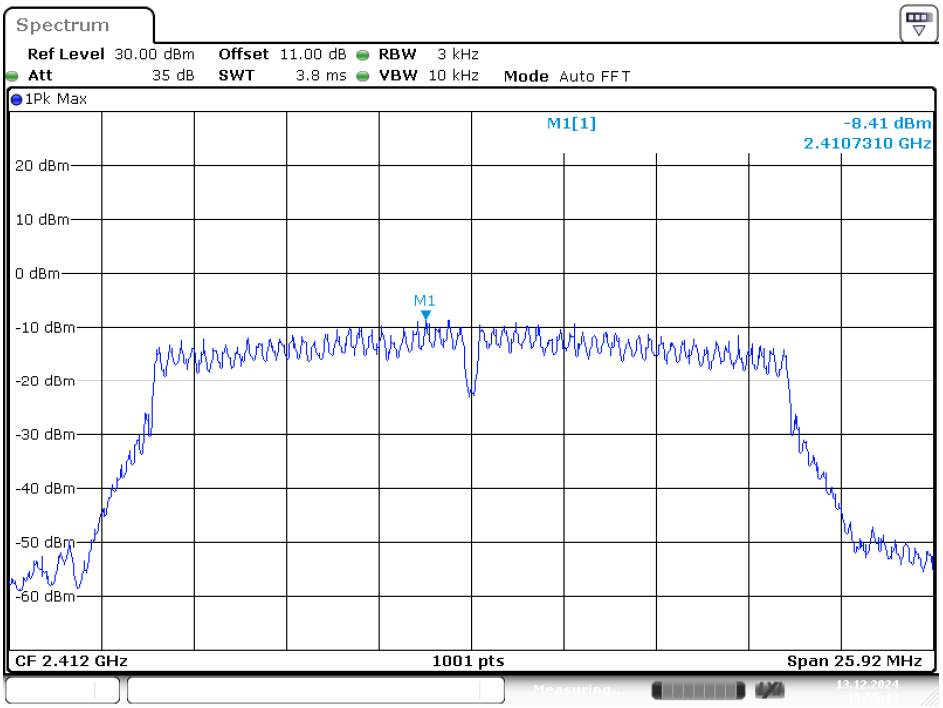
High Channel



Date: 13.DEC.2024 14:58:01

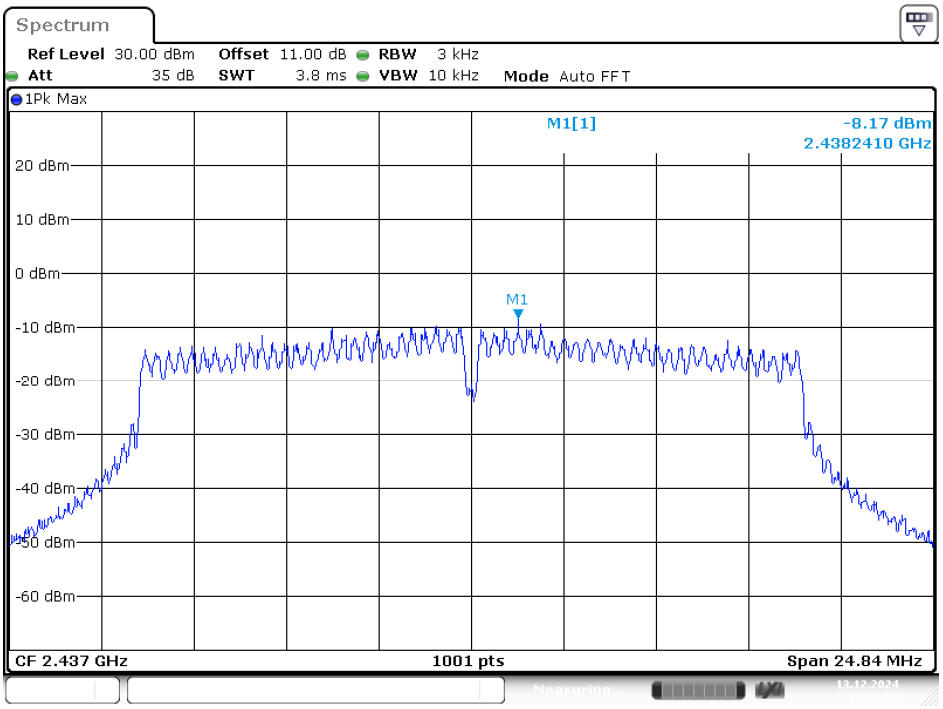
N20 Mode

Low Channel



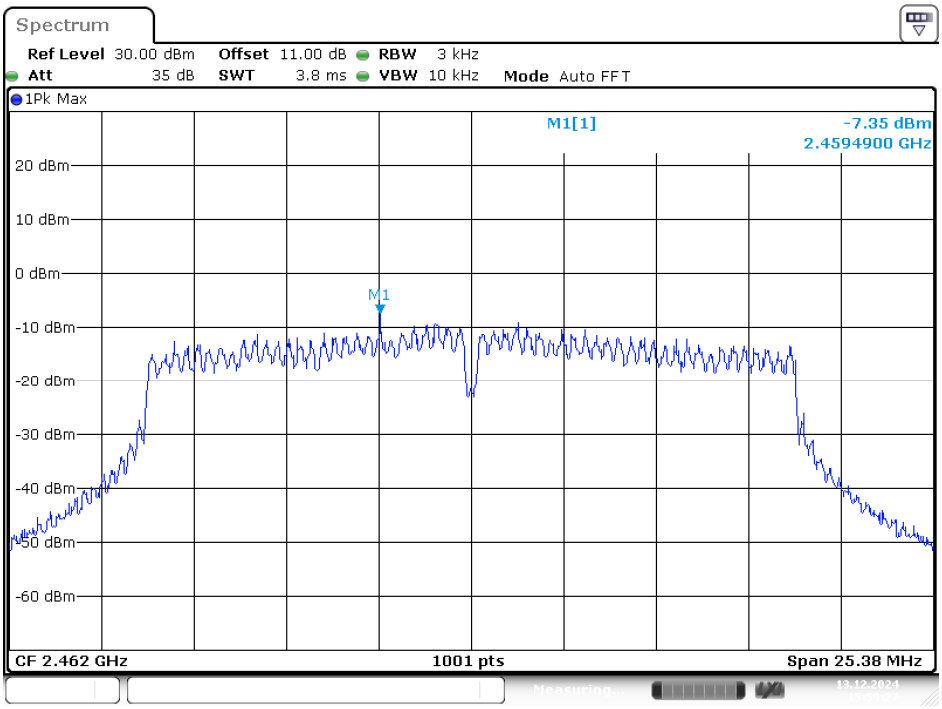
Date: 13.DEC.2024 15:55:13

Middle Channel



Date: 13.DEC.2024 15:52:59

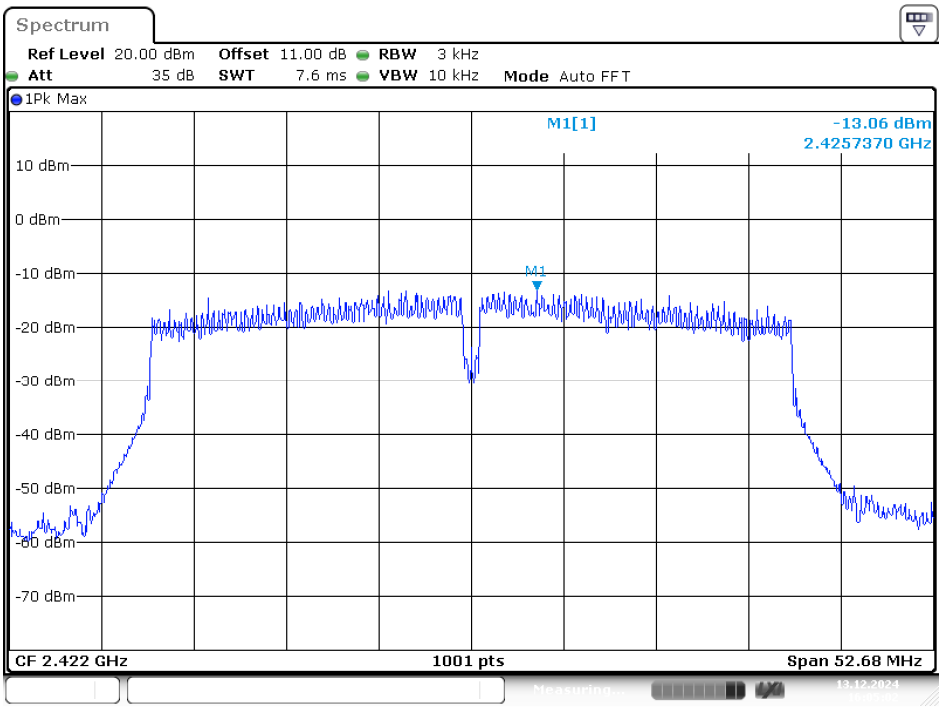
High Channel



Date: 13.DEC.2024 15:59:28

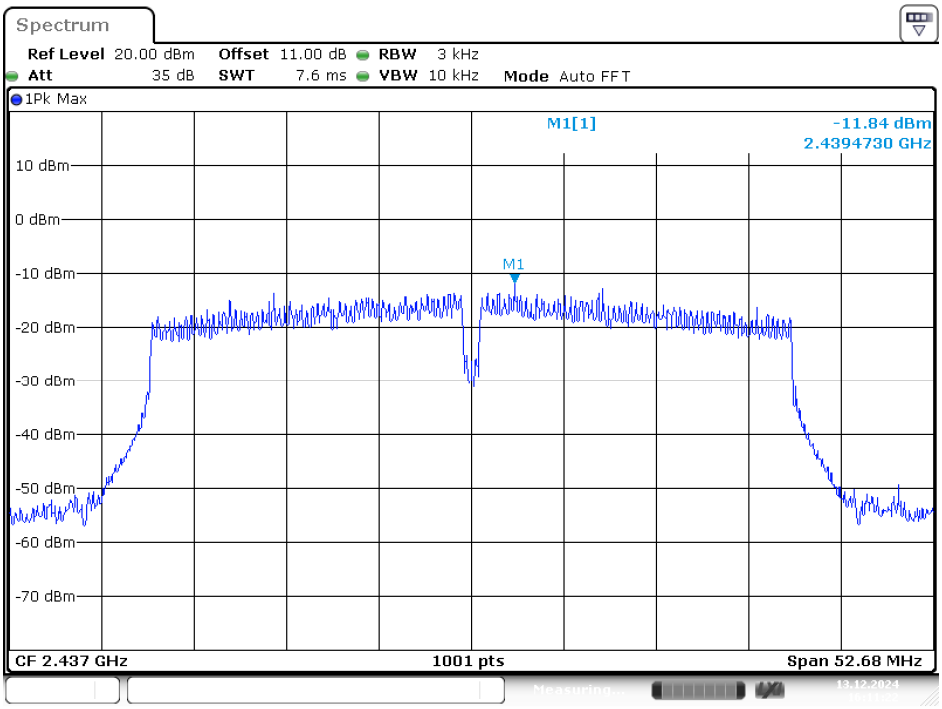
N40 Mode

Low Channel



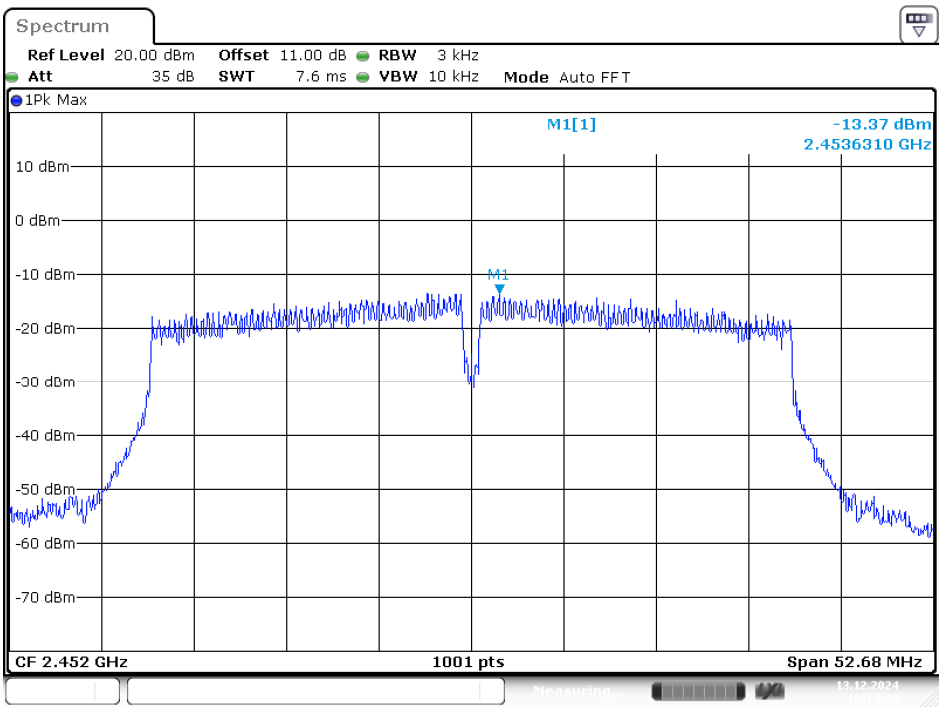
Date: 13.DEC.2024 16:05:02

Middle Channel



Date: 13.DEC.2024 16:11:22

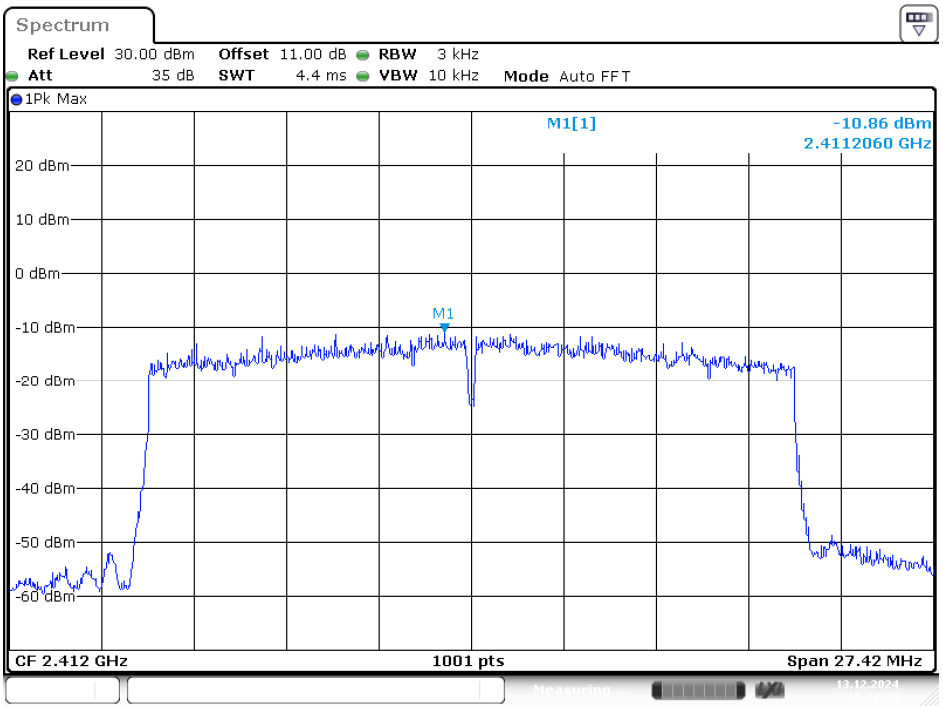
High Channel



Date: 13.DEC.2024 16:14:26

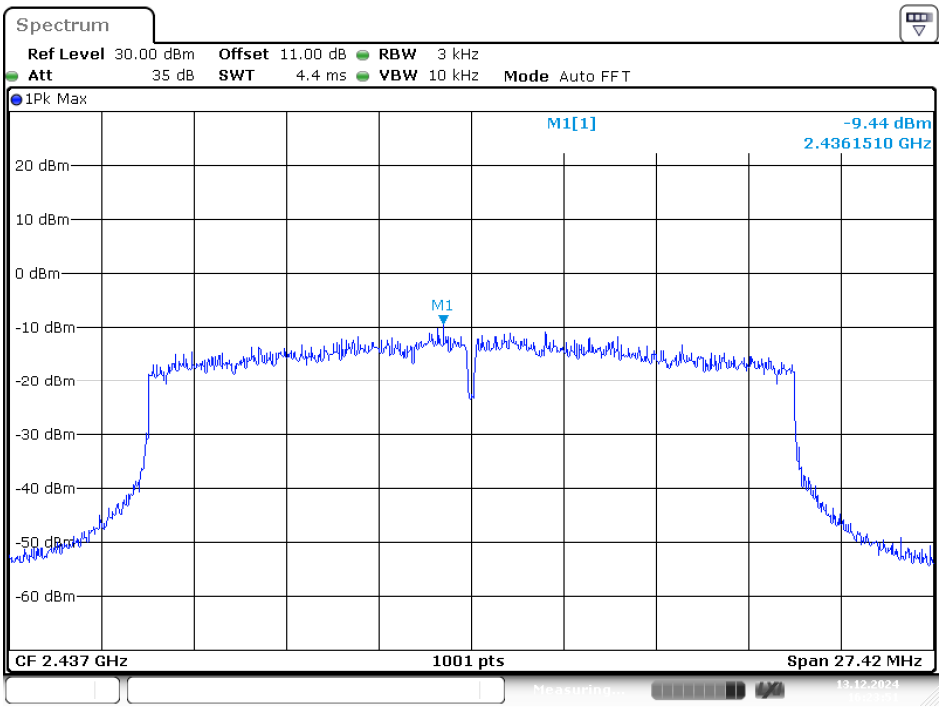
AX20 Mode

Low Channel



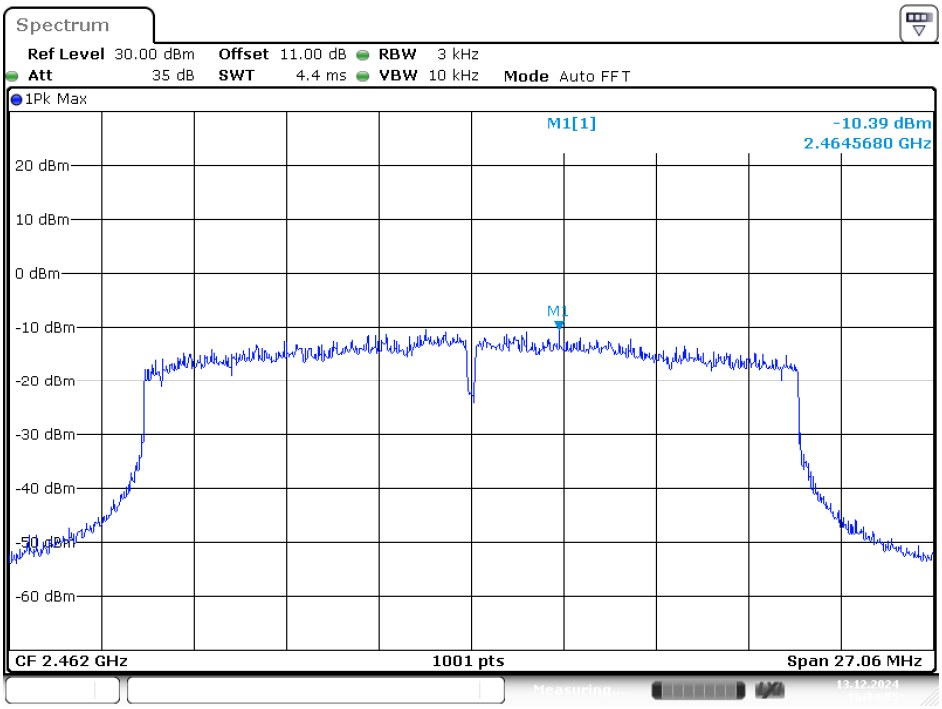
Date: 13.DEC.2024 16:18:45

Middle Channel



Date: 13.DEC.2024 16:23:52

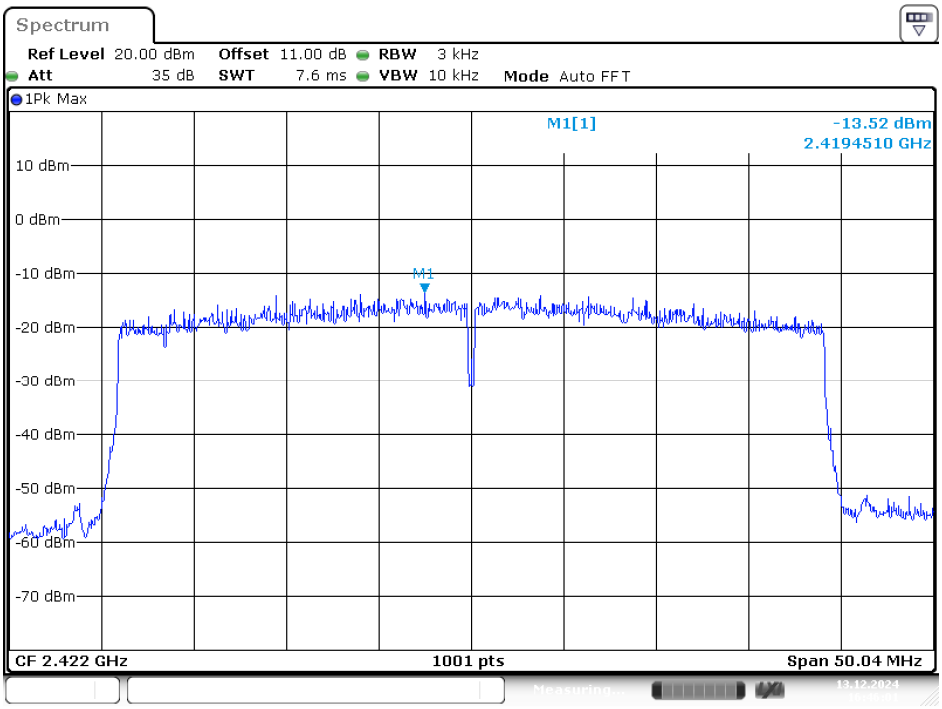
High Channel



Date: 13.DEC.2024 16:34:55

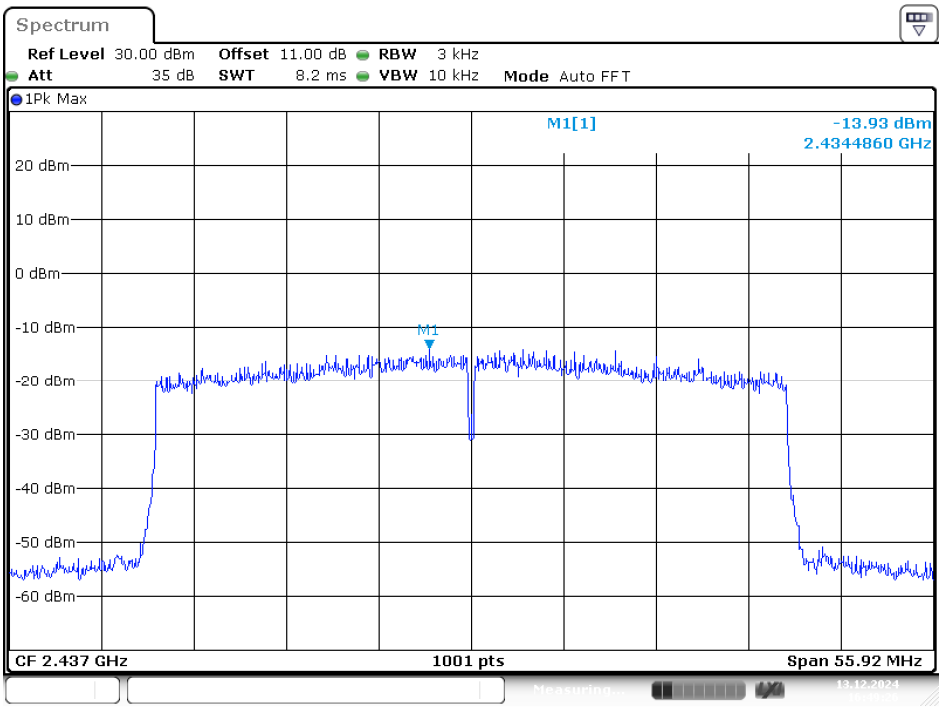
AX40 Mode

Low Channel



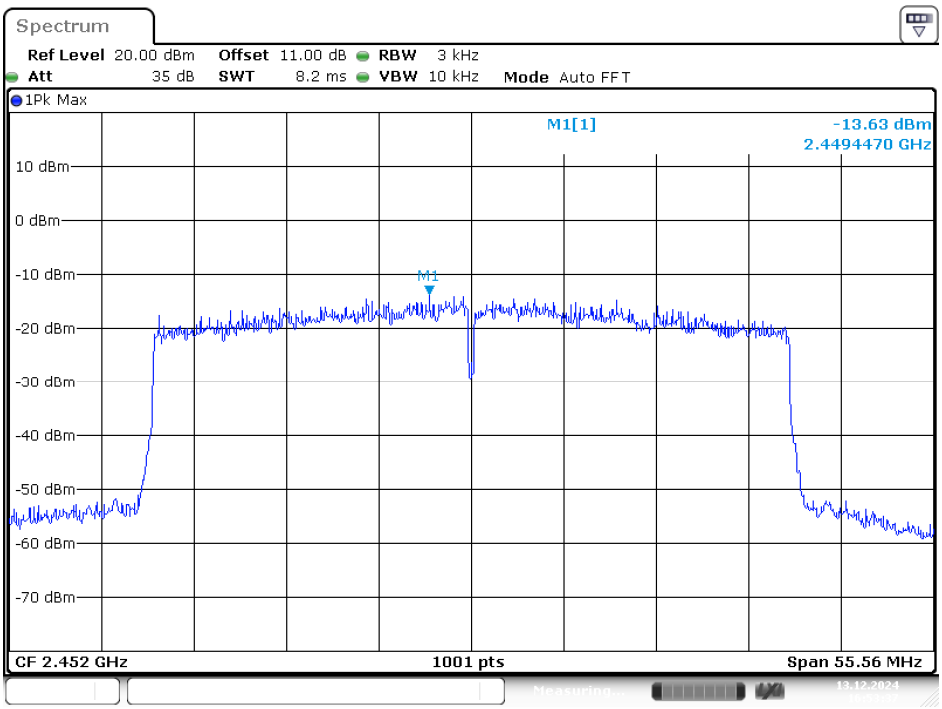
Date: 13.DEC.2024 16:46:01

Middle Channel



Date: 13.DEC.2024 16:49:26

High Channel

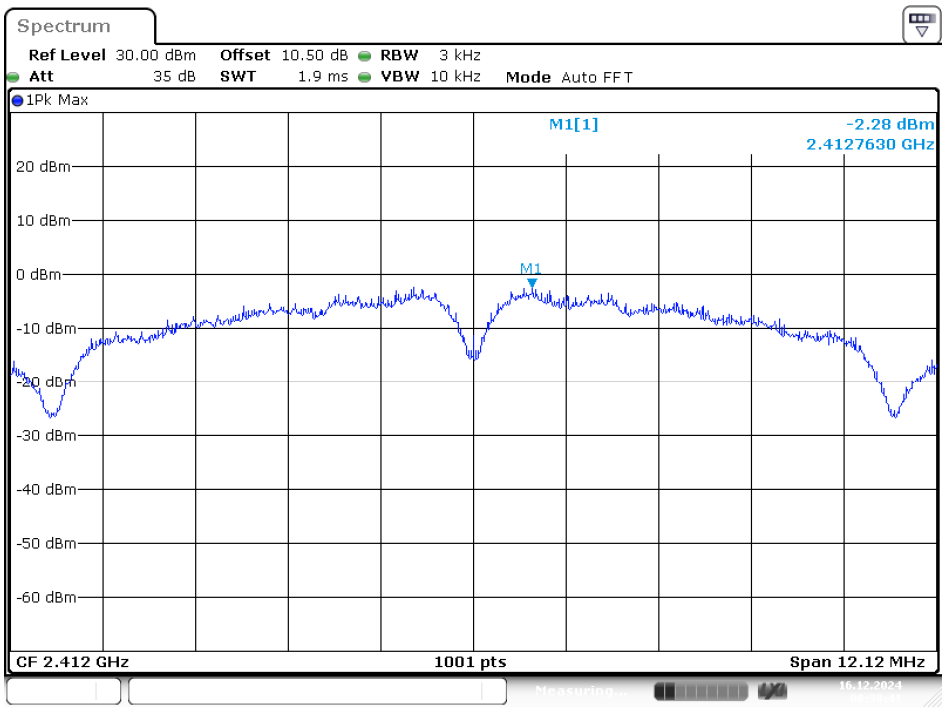


Date: 13.DEC.2024 16:53:37

Chain 2

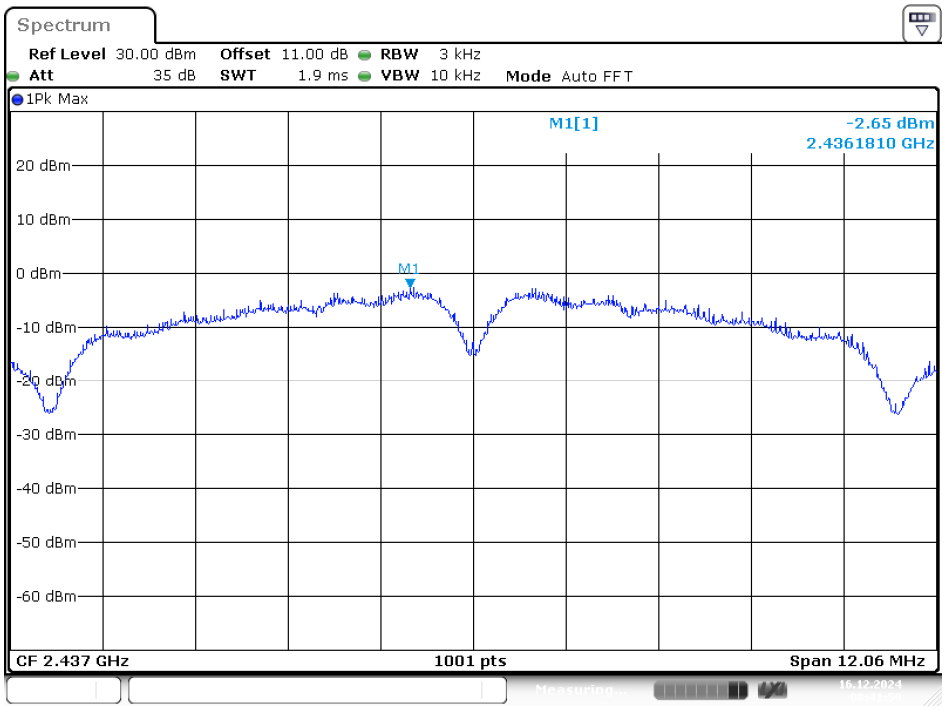
B Mode

Low Channel



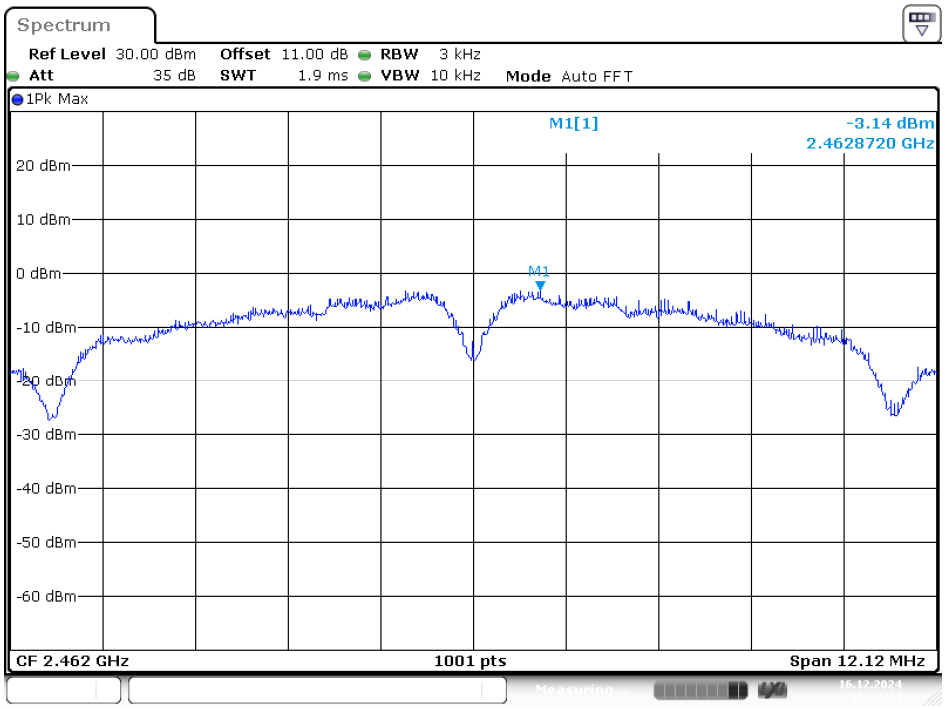
Date: 16.DEC.2024 08:38:41

Middle Channel



Date: 16.DEC.2024 08:42:00

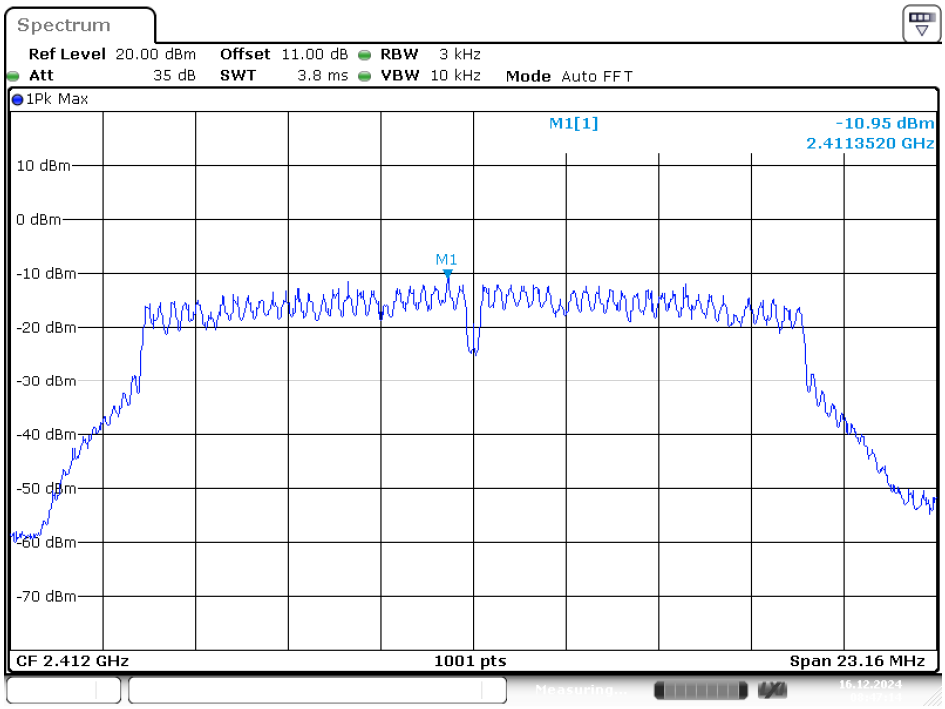
High Channel



Date: 16.DEC.2024 08:44:34

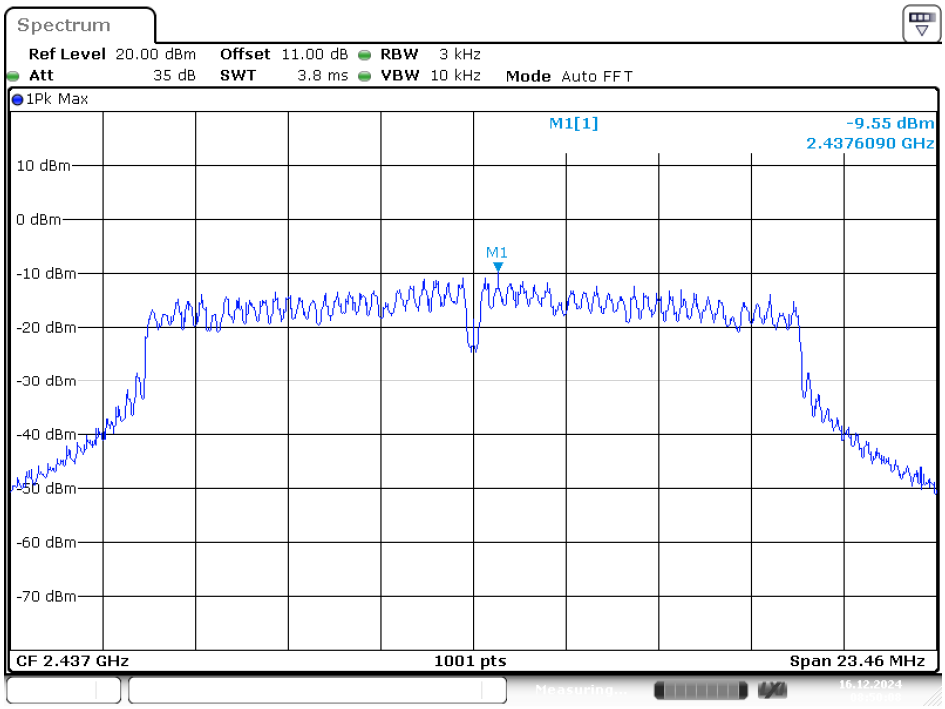
G Mode

Low Channel



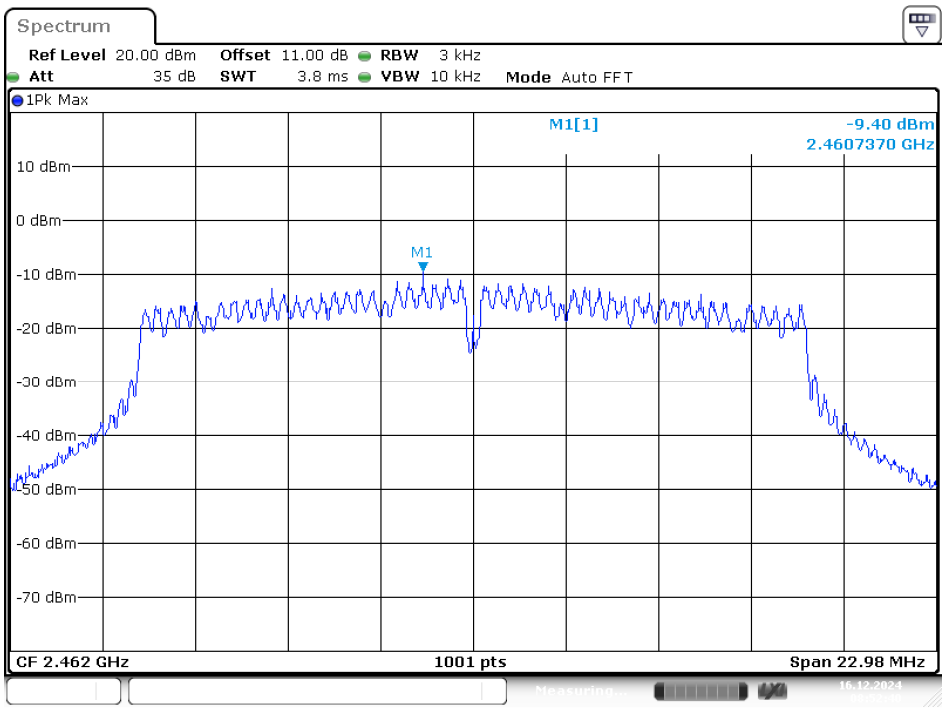
Date: 16.DEC.2024 08:47:15

Middle Channel



Date: 16.DEC.2024 08:50:09

High Channel



Date: 16.DEC.2024 08:52:41