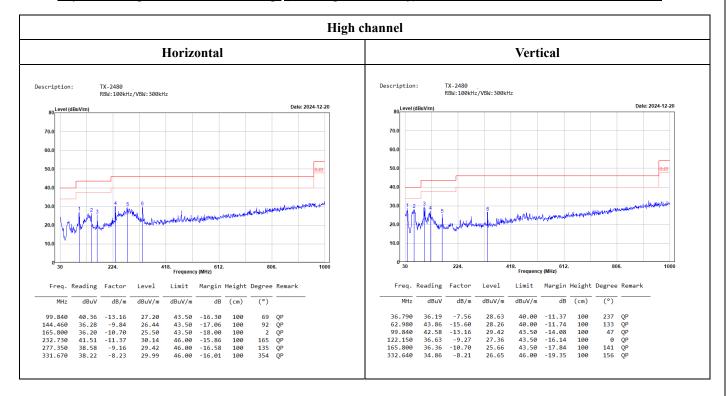
No.: RXZ241120047RF01

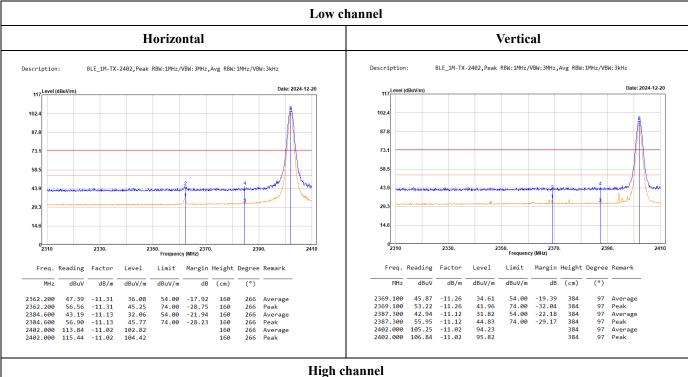


Level = Reading + Factor.

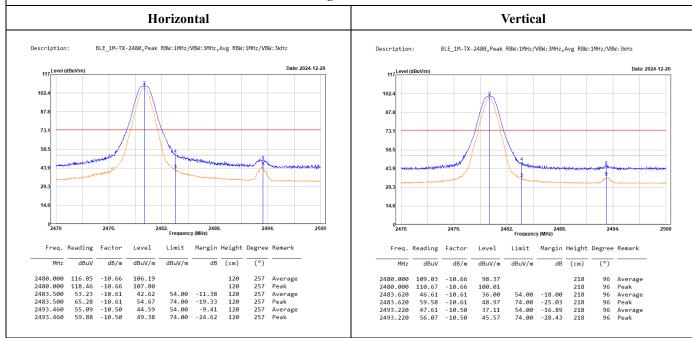
Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

Band-Edge:



No.: RXZ241120047RF01



Level = Reading + Factor.

Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

1GHz-18GHz:

2122.000 2122.000 4880.000 4880.000 7320.000 7320.000 14651.000

14651.000 16657.000

16657.000

53.46 53.46 36.33 51.33 35.33 47.45 31.31

42.31

31.69

43.69

-12.36 -12.36 -3.54 -3.54 0.53 0.53 11.40

11.40 11.99 11.99 12.85

20.10 41.10 32.79 47.79 35.86 47.98 42.71 53.71 43.68

55.68 44.24 58.24

74.00 54.00 74.00 54.00 54.00 74.00

74.00 54.00

74.00 54.00 74.00

-33.90 -32.90 -21.21 -26.21 -18.14 -26.02 -11.29

-20.29

-10.32

-18.32 -9.76 -15.76

150 150 180 Peak

150 150 150

Low channel Horizontal Vertical BLE 1M-TX-2402, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:3kHz Description: BLE_1M-TX-2402, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:3kHz Description: Date: 2024-12-16 100 Level (dBuV/m) 87. 37. 37. 25.0 25.0 12.5 12.5 11200 Frequency (MHz) Freq. Reading Limit Margin Height Degree Remark Level Limit Margin Height Degree Remark Factor Freq. Reading Factor dB dBuV/m dB dB/m MHz dBuV dB/m dBuV/m (cm) (°) MHz dBuV dBuV/m dBuV/m (cm) 2122.000 -12.36 19.81 1986,000 -11.84 21.06 54.00 -32.94 2122.000 2122.000 4804.000 4804.000 7206.000 7206.000 14481.000 59.17 59.17 36.81 50.46 36.91 46.63 31.11 -12.36 -12.36 -4.09 -4.09 0.43 0.43 11.41 19.81 46.81 32.72 46.37 37.34 47.06 42.52 53.52 74.00 74.00 74.00 54.00 74.00 54.00 74.00 -34.19 -27.19 -21.28 -27.63 -16.66 -26.94 -11.48 Average Peak Average Peak Average Peak 41.06 32.17 44.43 38.85 49.45 42.65 -11.84 -1.84 -4.09 -4.09 150 385 385 376 376 150 150 309 339 339 200 200 261 1986.000 4804.000 52.90 36.26 74.00 54.00 -32.94 -21.83 150 Peak 147 Average Peak Average Peak Average Peak 36.26 48.52 38.42 49.02 31.29 42.29 54.00 74.00 54.00 74.00 54.00 74.00 -21.83 -29.57 -15.15 -24.55 -11.35 -20.35 -10.79 -17.79 4804.000 147 137 137 150 150 150 -4.09 0.43 0.43 11.36 11.76 7206.000 7206.000 14464.000 14464.000 Average Peak 53.65 43.21 14481.000 42.11 11.41 -20.48 261 -10.90 -16.90 -9.39 -16.39 267 267 16623.000 31.03 12.07 43.10 54.00 74.00 150 150 77 77 Average Peak 16742.000 31.45 44.45 54.00 74.00 Average Peak 16623.000 45.03 12.07 57.10 16742.000 56.21 31.78 44.78 12.83 12.83 150 150 17779.000 17779.000 31.15 44.15 12.85 12.85 44.00 57.00 54.00 74.00 -10.00 -17.00 150 181 Middle channel Horizontal Vertical Description: BLE 1M-TX-2440, Peak RBW: 1MHz/VBW: 3MHz, Avg RBW: 1MHz/VBW: 3kHz Description: BLE_1M-TX-2440, Peak RBW:1MHz/VBW:3MHz, Avg RBW:1MHz/VBW:3kHz Fundamental Test With Band Rejection Filter Fundamental Test With Band Rejection Filter 37. 25. 25.0 12. 12.5 Factor Limit Margin Height Degree Remark Factor Limit Freq. Reading Freq. Reading Margin Height Degree Remark dB dB (°) MHz dBuV dB/m dBuV/m dBuV/m (cm) MHz dBuV dB/m dBuV/m dBuV/m (cm) 2122.000 2122.000 4880.000 4880.000 7320.000 7320.000 33.00 57.00 36.68 48.41 35.23 45.77 20.64 44.64 33.14 44.87 35.76 46.30 Average Peak Average Peak Average Peak

No.: RXZ241120047RF01

Average Peak Average Peak Average Peak

Average

Average Peak

-12.36 -12.36 -3.54 -3.54 0.53 0.53

11.11

11.11

11.90

42.65

53,65

43.70 55.70 44.05 57.05

31.54

42.54

31.80

43.80 31.22 44.22

14379.000

14379,000

16691.000

16691.000 17762.000 17762.000

74.00 54.00 74.00 54.00 74.00

54.00

74.00 54.00

74.00 54.00 74.00

-29.36 -20.86 -29.13 -18.24

-11.35

-20.35

-10.30

-18.30 -9.95 -16.95

197

197

Average Peak

293 Average 293 Peak 6 Average 6 Peak

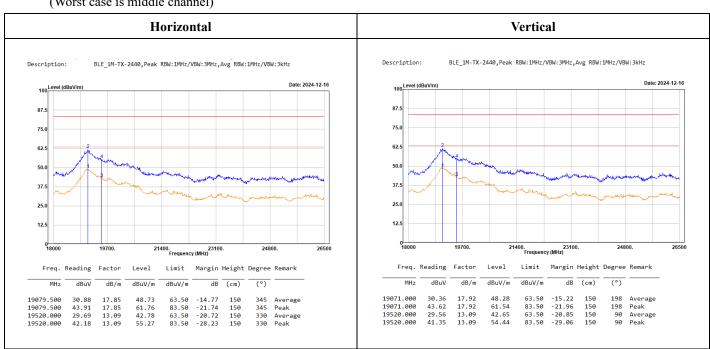
High channel Horizontal Vertical BLE_1M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz Description: BLE_1M-TX-2480,Peak RBW:1MHz/VBW:3MHz,Avg RBW:1MHz/VBW:3kHz Date: 2024-12-16 Date: 2024-12-16 100 Level (dBuV/m) 100 Level (dBuV/m) 87.5 75.0 75.0 62.5 62.5 50.0 50.0 37.5 25. 7800. 11200. Frequency (MHz) 7800. 11200. Frequency (MHz) Freq. Reading Factor Limit Margin Height Degree Remark Freq. Reading Factor Limit Margin Height Degree Remark dB MHz dBuV dB/m dBuV/m dBuV/m (cm) MHz dBuV dB/m dBuV/m dBuV/m dB (cm) -12.36 -12.36 -3.67 -3.67 0.28 33.32 60.32 37.29 51.35 34.91 -33.04 -26.04 -20.38 -26.32 2122.000 2122.000 4960.000 4960.000 54.00 74.00 54.00 74.00 -34.02 -30.02 -21.49 -28.93 Average Peak Average Peak Average Peak 36.18 48.74 32.51 45.07 Average Peak 150 4960.000 7440.000 7440.000 14379.000 14379.000 16657.000 17745.000 17745.000 7440.000 35.19 -18.81 Average Peak 35.09 0.28 0.28 35.37 54.00 -18.63 140 52 52 Average Peak 50.92 42.96 54.96 7440,000 48,20 0.28 48,48 74,00 -25.52 157 50.64 74.00 -23.08 140 11.11 11.11 11.99 11.99 12.78 12.78 Average Peak Average Peak 14753.000 31.17 11.29 42.46 54.46 54.00 74.00 -11.54 150 Average Peak 31.85 43.85 54.00 -11.04 -19.04 150 150 150 150 150 150 150 150 150 150 150 150 74.00 54.00 74.00 74.00 54.00 74.00 14753.000 43.17 11.29 -19.54 -19.04 -10.12 -18.12 -9.79 -16.79 32.34 44.34 31.23 44.23 11.85 11.85 12.85 12.85 44.19 56.19 44.08 57.08 74.00 54.00 74.00 54.00 74.00 43.85 31.89 43.89 31.43 44.43 16708.000

No.: RXZ241120047RF01

Average Peak

18GHz-26.5GHz:

(Worst case is middle channel)



Level = Reading + Factor.

Margin = Level - Limit.

Factor = Antenna Factor + Cable Loss - Amplifier Gain.

For 18-26.5GHz Convert the test distance limit of 3 meters to a limit of 1.5 meter:

Conversion factor = $20 \log (1.5 \text{m/3m}) = 6.02 \text{ dB}$,

 $Average\ Limit = 54 + 6.02 = 60.02\ dBuV/m@1m\ ,\ Peak\ Limit = 60.02 + 20 = 80.02\ dBuV/m@1m\ .$

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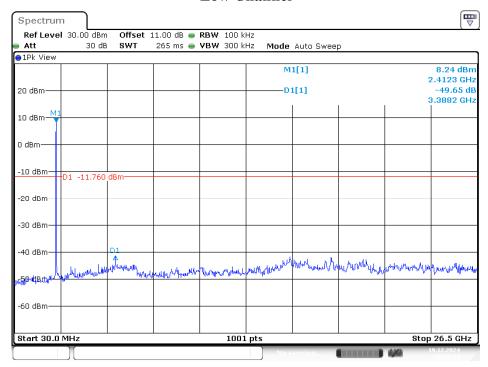
Conducted Spurious Emissions:

- addition spars						
Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result		
	B Mode					
Low	2412	49.65	≥ 20	PASS		
Mid	2437	50.38	≥ 20	PASS		
High	2462	48.94	≥ 20	PASS		
		G Mode				
Low	2412	45.10	≥ 20	PASS		
Mid	2437	43.41	≥ 20	PASS		
High	2462	43.12	≥ 20	PASS		
N20 Mode						
Low	2412	45.16	≥ 20	PASS		
Mid	2437	39.94	≥ 20	PASS		
High	2462	43.02	≥ 20	PASS		
BLE(1M) Mode						
Low	2402	43.70	≥ 20	PASS		
Mid	2440	45.52	≥ 20	PASS		
High	2480	45.42	≥ 20	PASS		

No.: RXZ241120047RF01

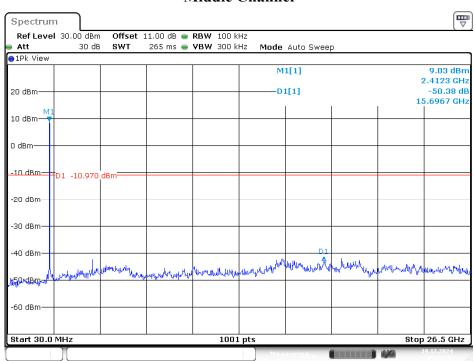
B Mode Low Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:52:54

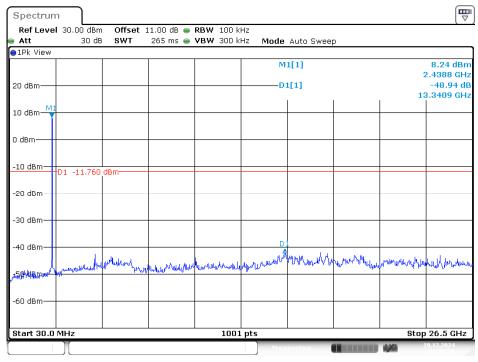
Middle Channel



Date: 19.DEC.2024 09:54:36

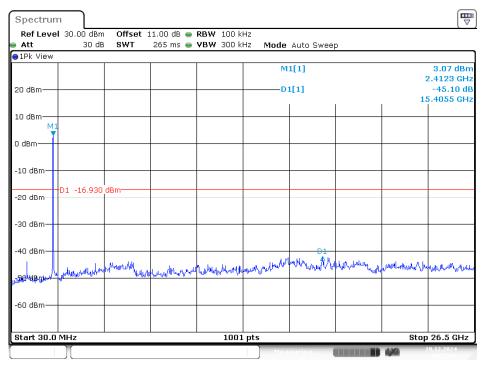
High Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:56:36

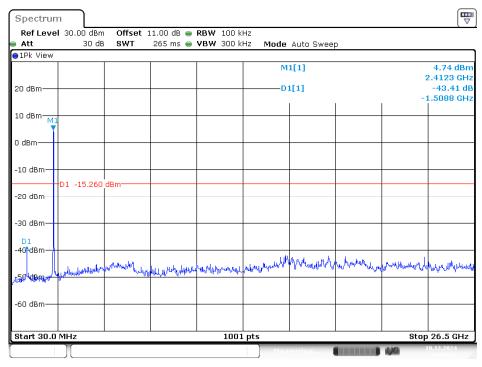
G Mode Low Channel



Date: 19.DEC.2024 09:58:44

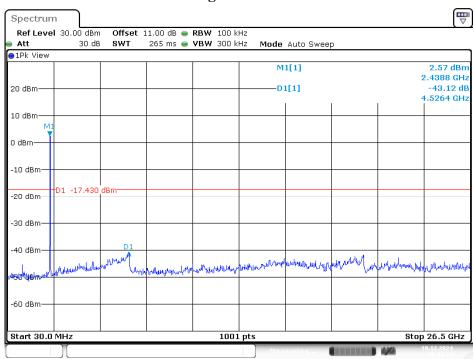
Middle Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 10:00:21

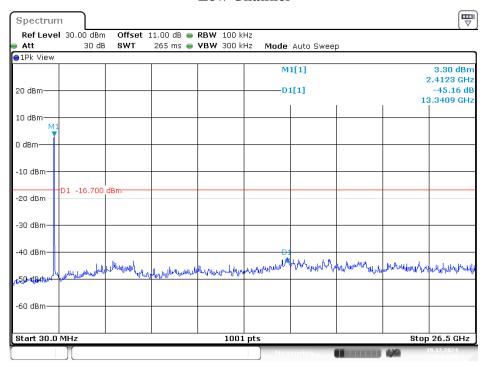
High Channel



Date: 19.DEC.2024 10:41:14

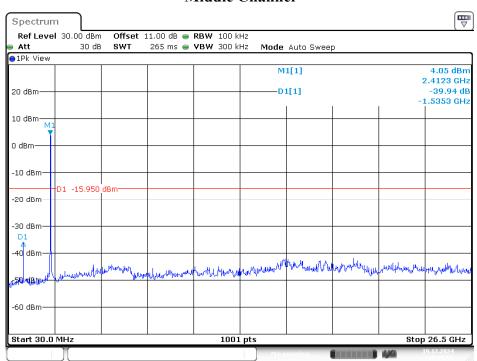
N20 Mode Low Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 10:04:28

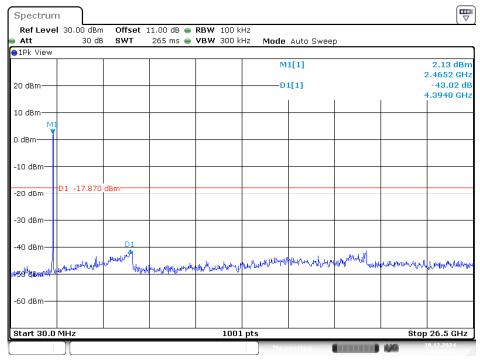
Middle Channel



Date: 19.DEC.2024 10:06:06

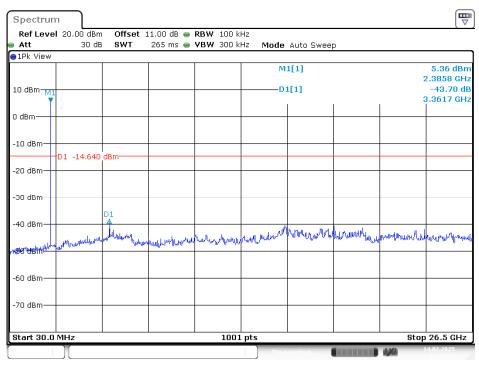
High Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 11:12:14

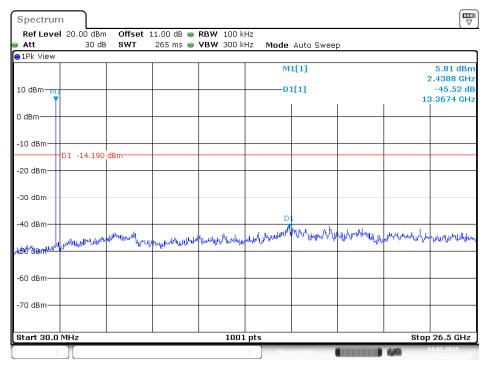
BLE(1M) Mode Low Channel



Date: 14.FEB.2025 11:24:34

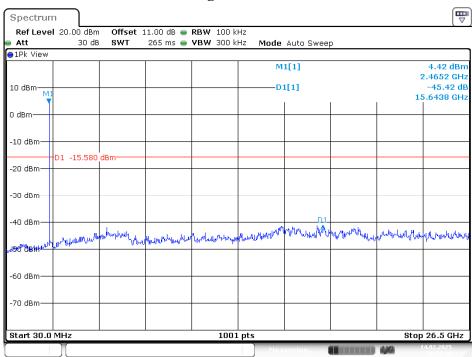
Middle Channel

No.: RXZ241120047RF01



Date: 14.FEB.2025 11:25:49

High Channel



Date: 14.FEB.2025 11:27:20

9 FCC §15.247(a)(2) – 6 dB Emission Bandwidth

9.1 Applicable Standard

According to FCC §15.247(a)(2).

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

No.: RXZ241120047RF01

9.2 Test Procedure

According to ANSI C63.10-2013, section 11.8

The steps for the first option are as follows:

- a) Set RBW = 100 kHz.
- b) Set the VBW \geq [3 × RBW].
- c) Detector = peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

9.3 Test Results

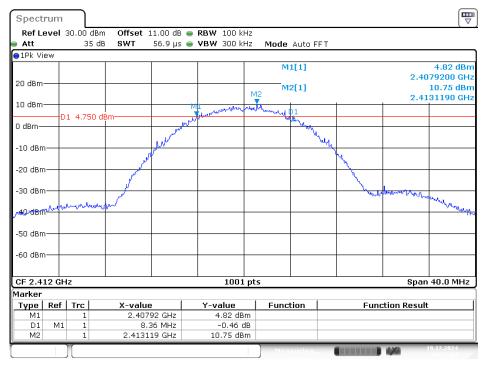
7.5 Test Results						
Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result		
		B Mode				
Low	2412	8.36	> 500	PASS		
Middle	2437	8.32	> 500	PASS		
High	2462	8.32	> 500	PASS		
	G Mode					
Low	2412	16.52	> 500	PASS		
Middle	2437	16.56	> 500	PASS		
High	2462	16.56	> 500	PASS		
N20 Mode						
Low	2412	17.84	> 500	PASS		
Middle	2437	17.80	> 500	PASS		
High	2462	17.76	> 500	PASS		
BLE(1M) Mode						
Low	2402	0.86	> 500	PASS		
Middle	2440	0.82	> 500	PASS		
High	2480	0.82	> 500	PASS		

No.: RXZ241120047RF01

Please refer to the following plots

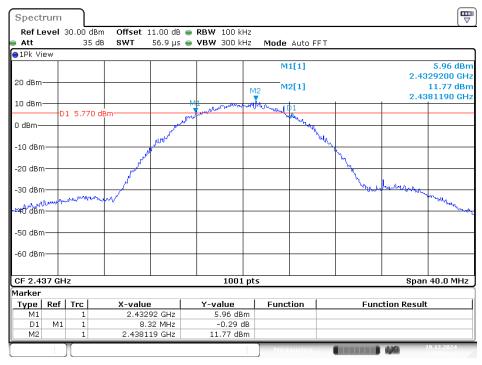
B Mode Low Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:52:14

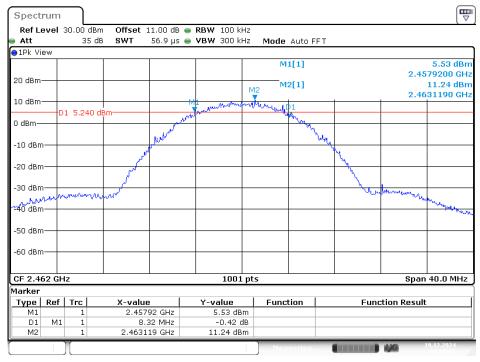
Middle Channel



Date: 19.DEC.2024 09:54:12

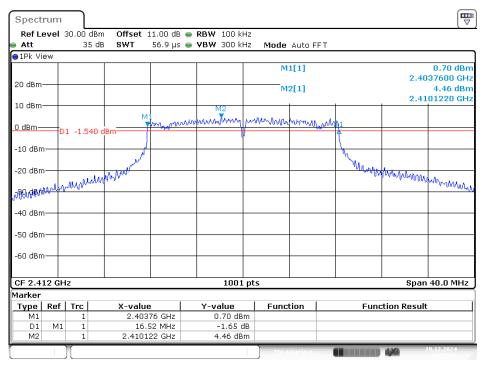
High Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:55:55

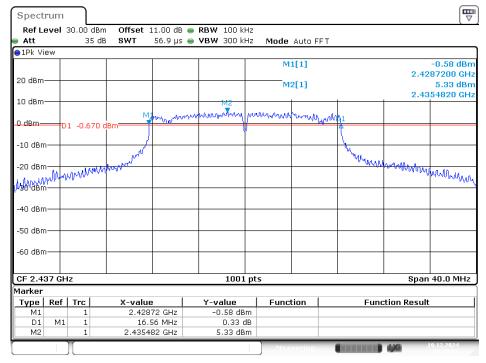
G Mode Low Channel



Date: 19.DEC.2024 09:58:03

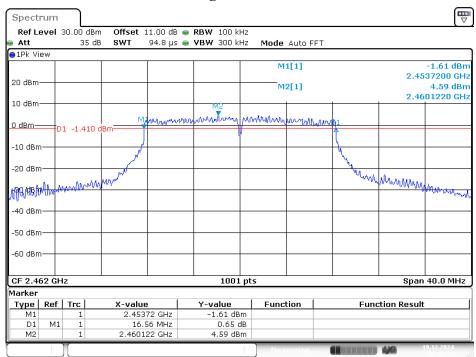
Middle Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:59:56

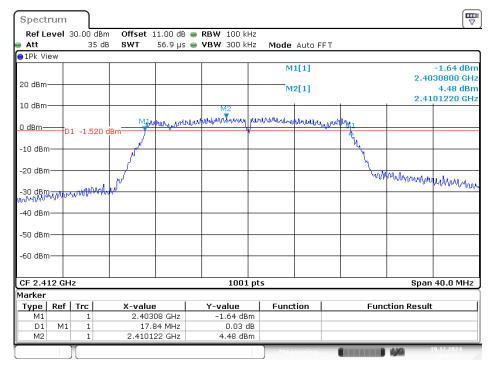
High Channel



Date: 19.DEC.2024 10:40:34

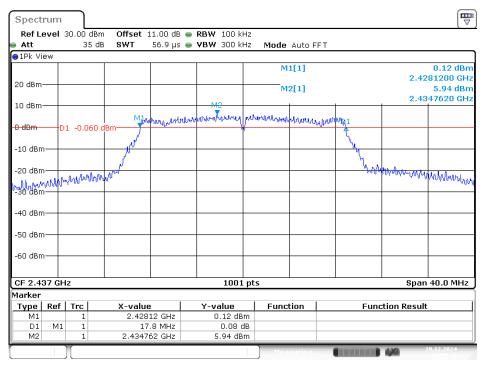
N20 Mode Low Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 10:03:47

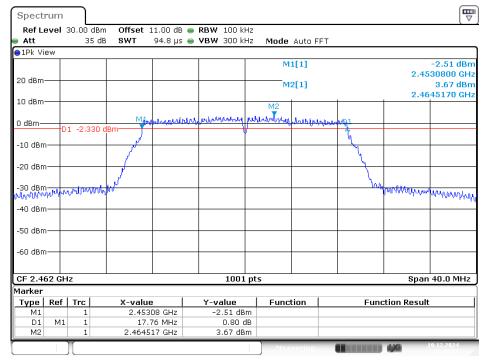
Middle Channel



Date: 19.DEC.2024 10:05:42

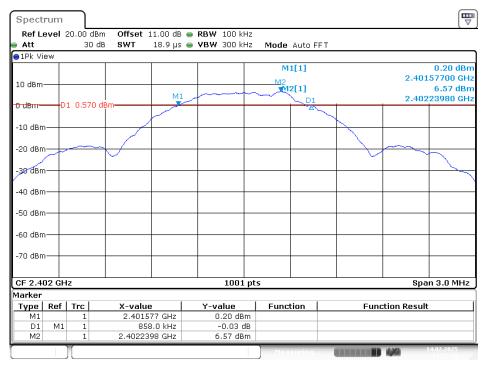
High Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 11:11:33

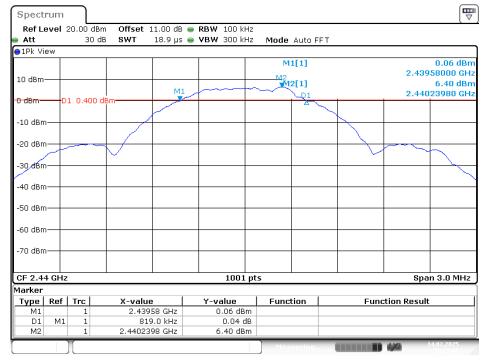
BLE(1M) Mode Low Channel



Date: 14.FEB.2025 11:23:38

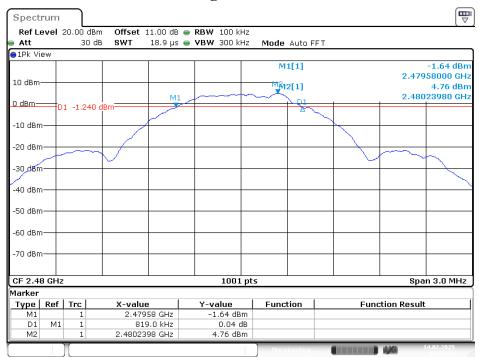
Middle Channel

No.: RXZ241120047RF01



Date: 14.FEB.2025 11:25:09

High Channel



Date: 14.FEB.2025 11:26:23

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.

No.: RXZ241120047RF01

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.
- 3. Set the power meter to test output power, record the result.

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10.3 Test Results

Conducted Peak Output Power

conducted I can output I ower						
Channel	Frequency (MHz)	Conducted Peak Output Power (dBm)	Limit (dBm)	Result		
		802.11b Mode				
Low	2412	19.09	30	PASS		
Middle	2437	19.46	30	PASS		
High	2462	19.20	30	PASS		
	802.11g Mode					
Low	2412	22.84	30	PASS		
Middle	2437	23.22	30	PASS		
High	2462	22.35	30	PASS		
	802.11n HT20 Mode					
Low	2412	19.41	30	PASS		
Middle	2437	21.07	30	PASS		
High	2462	19.28	30	PASS		
BLE(1M) Mode						
Low	2402	9.47	30	PASS		
Middle	2440	9.41	30	PASS		
High	2480	7.62	30	PASS		

No.: RXZ241120047RF01

Conducted Average Output Power

Channel	Frequency (MHz)	Conducted Average Output Power	Maximum Conducted Average Output Power With Duty Factor	Limit (dBm)	Result	
	,	(dBm)	(dBm)			
		802.11b	Mode			
Low	2412	17.11	17.11	30	PASS	
Middle	2437	17.40	17.40	30	PASS	
High	2462	16.82	16.82	30	PASS	
802.11g Mode						
Low	2412	16.34	16.34	30	PASS	
Middle	2437	17.11	17.11	30	PASS	
High	2462	15.95	15.95	30	PASS	
802.11n HT20 Mode						
Low	2412	16.47	16.47	30	PASS	
Middle	2437	17.16	17.16	30	PASS	
High	2462	16.23	16.23	30	PASS	
BLE(1M) Mode						
Low	2402	8.68	8.68	30	PASS	
Middle	2440	8.65	8.65	30	PASS	
High	2480	6.88	6.88	30	PASS	

No.: RXZ241120047RF01

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

No.: RXZ241120047RF01

11.1 Applicable Standard

According to FCC §15.247(d).

In any 100kHz 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 20dB below that in the 100kHz 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 30dB instead of 20dB. 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. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- 5. Repeat above procedures until all measured frequencies were complete.

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11.3 Test Results

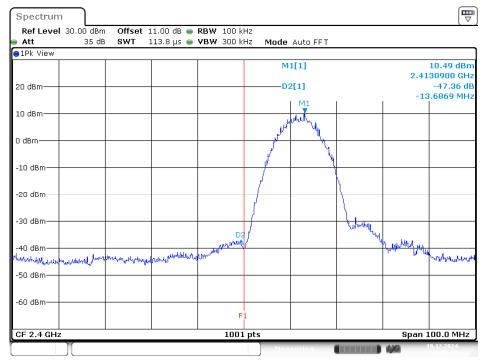
Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result		
		B Mode				
Low	2412	47.36	≥ 20	PASS		
High	2462	51.42	≥ 20	PASS		
	G Mode					
Low	2412	27.71	≥ 20	PASS		
High	2462	41.16	≥ 20	PASS		
N20 Mode						
Low	2412	32.08	≥ 20	PASS		
High	2462	38.90	≥ 20	PASS		
BLE(1M) Mode						
Low	2402	47.60	≥ 20	PASS		
High	2480	50.83	≥ 20	PASS		

No.: RXZ241120047RF01

Please refer to the following plots.

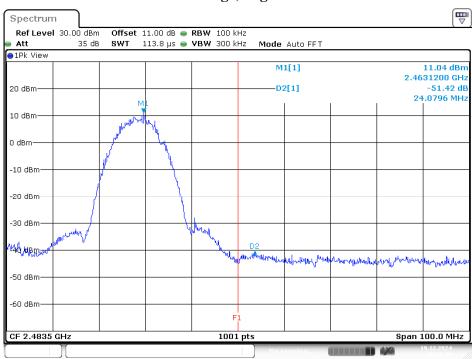
B Mode Band Edge, Left Side

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:52:39

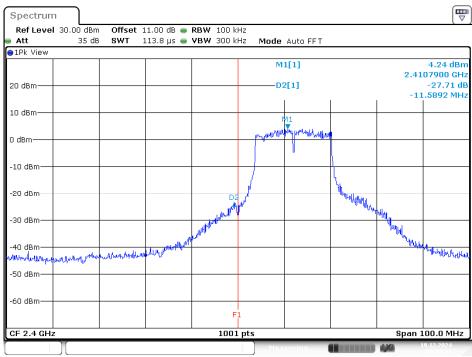
Band Edge, Right Side



Date: 19.DEC.2024 09:56:20

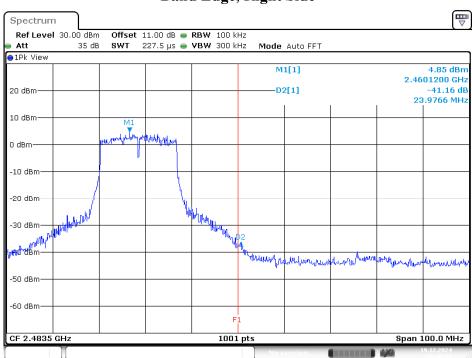
G Mode Band Edge, Left Side

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:58:28

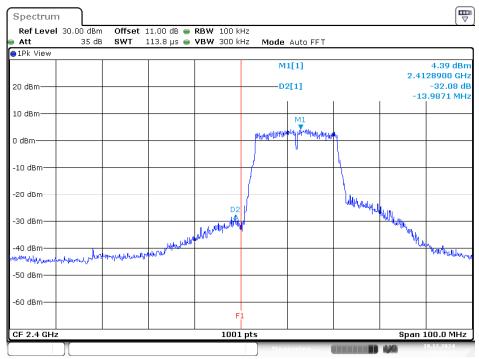
Band Edge, Right Side



Date: 19.DEC.2024 10:40:59

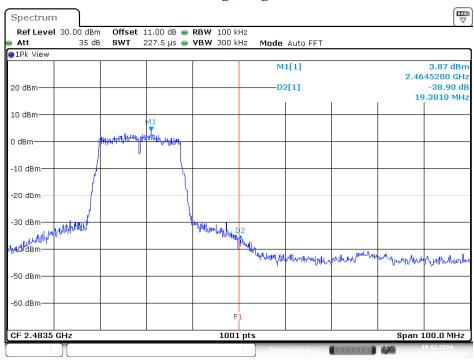
N20 Mode Band Edge, Left Side

No.: RXZ241120047RF01



Date: 19.DEC.2024 10:04:12

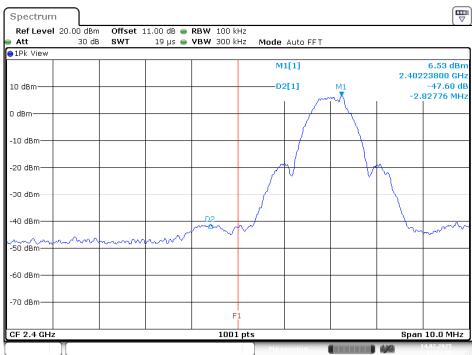
Band Edge, Right Side



Date: 19.DEC.2024 11:11:58

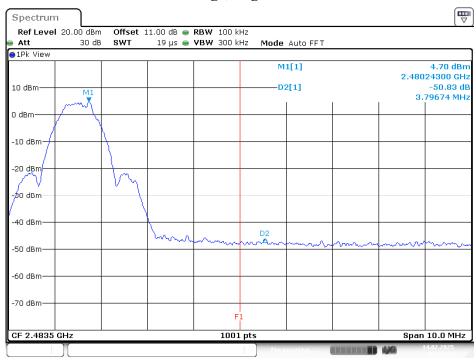
BLE(1M) Mode Band Edge, Low Channel

No.: RXZ241120047RF01



Date: 14.FEB.2025 11:24:18

Band Edge, High Channel



Date: 14.FEB.2025 11:27:04

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.

No.: RXZ241120047RF01

12.2 Test Procedure

According to ANSI C63.10-2013, section 11.10.2

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to $3 \text{ kHz} \le \text{RBW} \le 100 \text{ kHz}$.
- d) Set the VBW \geq [3 \times RBW].
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat

12.3 Test Results

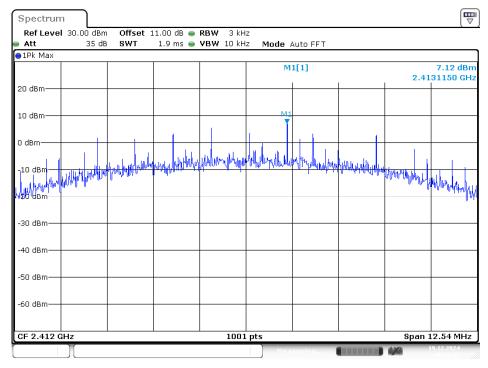
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit (dBm/3 kHz)	Result			
	B Mode						
Low	2412	7.12	8	PASS			
Middle	2437	7.79	8	PASS			
High	2462	7.27	8	PASS			
	G Mode						
Low	2412	-8.10	8	PASS			
Middle	2437	-7.09	8	PASS			
High	2462	-7.90	8	PASS			
	N20 Mode						
Low	2412	-6.87	8	PASS			
Middle	2437	-6.19	8	PASS			
High	2462	-7.56	8	PASS			
BLE(1M) Mode							
Low	2402	-9.46	8	PASS			
Middle	2440	-8.85	8	PASS			
High	2480	-10.47	8	PASS			

No.: RXZ241120047RF01

Please refer to the following plots

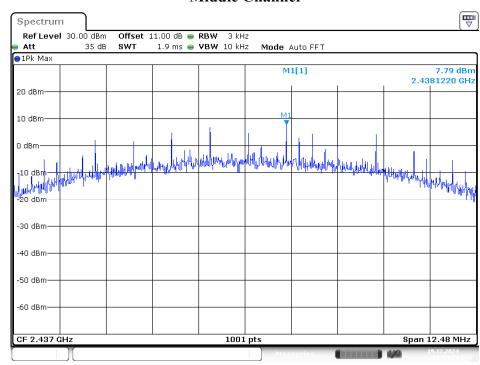
B Mode Low Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:52:23

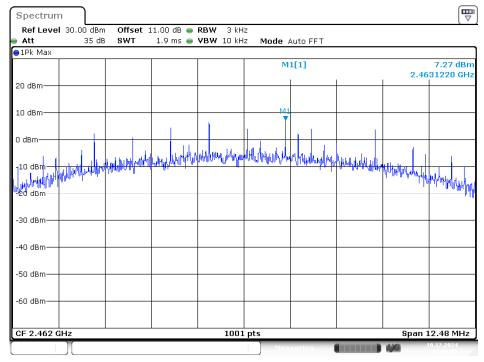
Middle Channel



Date: 19.DEC.2024 09:54:21

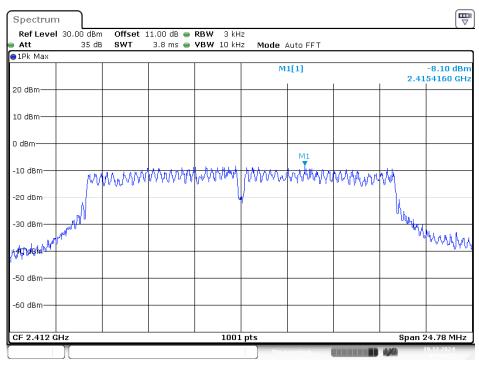
High Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 09:56:04

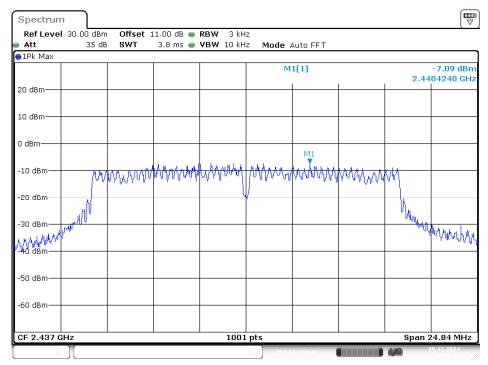
G Mode Low Channel



Date: 19.DEC.2024 09:58:12

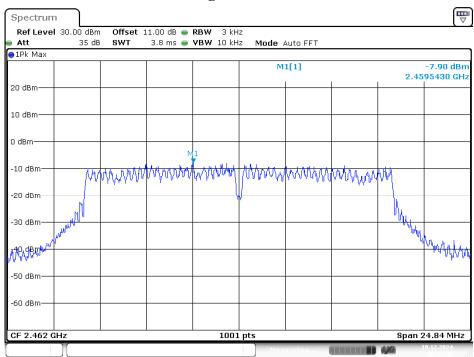
Middle Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 10:00:05

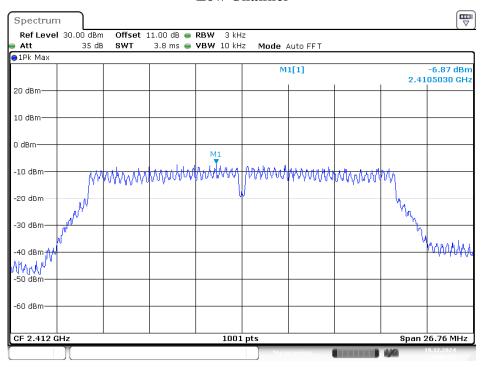
High Channel



Date: 19.DEC.2024 10:40:43

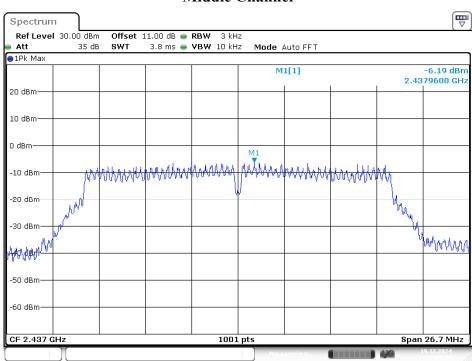
N20 Mode Low Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 10:03:56

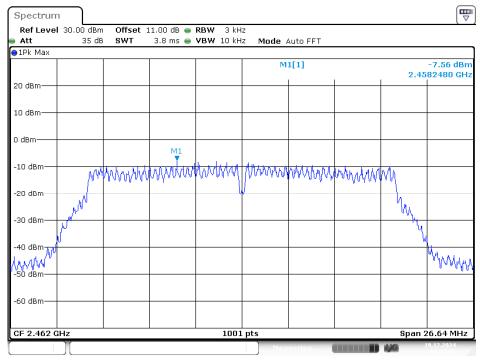
Middle Channel



Date: 19.DEC.2024 10:05:51

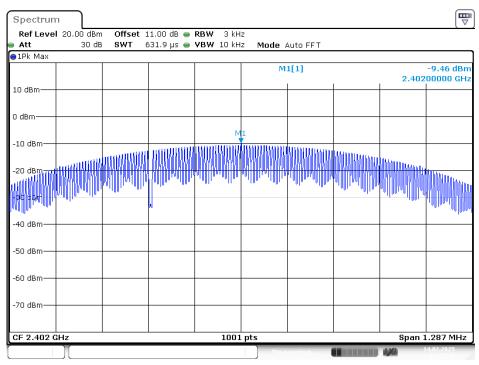
High Channel

No.: RXZ241120047RF01



Date: 19.DEC.2024 11:11:42

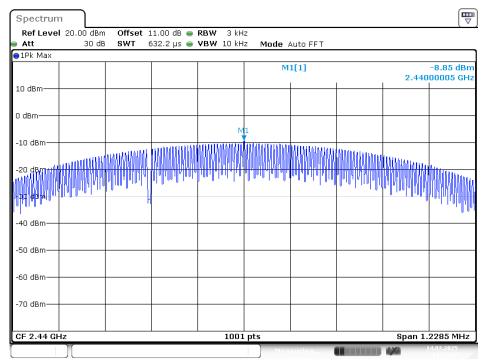
BLE(1M) Mode Low Channel



Date: 14.FEB.2025 11:23:47

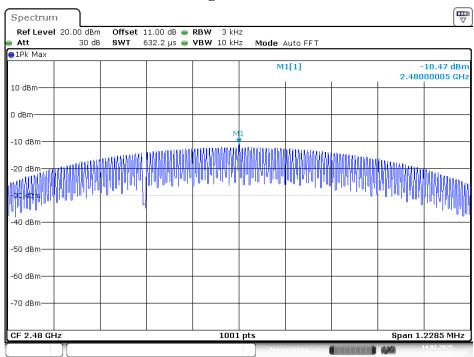
Middle Channel

No.: RXZ241120047RF01



Date: 14.FEB.2025 11:25:18

High Channel



Date: 14.FEB.2025 11:26:33

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