RF Test Data for 2.4G Wi-Fi (Conducted Measurements)

General Description of EUT	
Product Name:	Deeper Connect Wi-Fi Adapter
Test Model:	DCWA02
Sample ID:	HC-C-202312-0266-01-01-2#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 5V
Test Engineer:	Zhou zhen
Note: For a more detailed features description, please refer to the report TBR-C-202312-0266-4 The report only show the worst case data.	

Contents

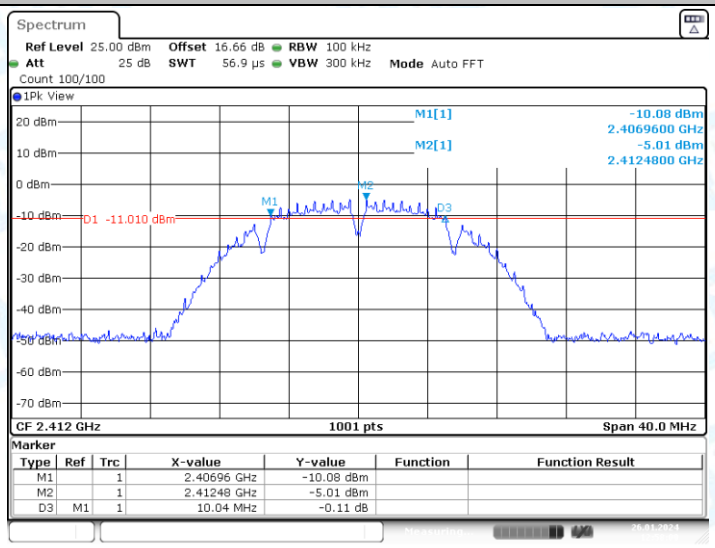
1. DTS Bandwidth

1.1.Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B-CDD	Ant1	2412	10.04	2406.96	2417.00	0.5	PASS
	Ant2	2412	10.12	2406.92	2417.04	0.5	PASS
	Ant1	2437	10.12	2431.92	2442.04	0.5	PASS
	Ant2	2437	10.12	2431.92	2442.04	0.5	PASS
	Ant1	2462	10.12	2456.92	2467.04	0.5	PASS
	Ant2	2462	10.08	2456.92	2467.00	0.5	PASS
11G-CDD	Ant1	2412	16.44	2403.80	2420.24	0.5	PASS
	Ant2	2412	16.36	2403.80	2420.16	0.5	PASS
	Ant1	2437	16.40	2428.80	2445.20	0.5	PASS
	Ant2	2437	16.28	2428.84	2445.12	0.5	PASS
	Ant1	2462	15.68	2454.08	2469.76	0.5	PASS
	Ant2	2462	16.36	2453.80	2470.16	0.5	PASS
11N20MIMO	Ant1	2412	17.60	2403.20	2420.80	0.5	PASS
	Ant2	2412	17.56	2403.20	2420.76	0.5	PASS
	Ant1	2437	17.56	2428.20	2445.76	0.5	PASS
	Ant2	2437	17.56	2428.20	2445.76	0.5	PASS
	Ant1	2462	15.92	2453.84	2469.76	0.5	PASS
	Ant2	2462	17.56	2453.20	2470.76	0.5	PASS
11N40MIMO	Ant1	2422	35.12	2404.40	2439.52	0.5	PASS
	Ant2	2422	34.08	2405.44	2439.52	0.5	PASS
	Ant1	2437	33.84	2420.68	2454.52	0.5	PASS
	Ant2	2437	36.40	2418.76	2455.16	0.5	PASS
	Ant1	2452	34.64	2434.88	2469.52	0.5	PASS
	Ant2	2452	32.56	2436.96	2469.52	0.5	PASS

1.2.Test Graphs

11B-CDD_Ant1_2412



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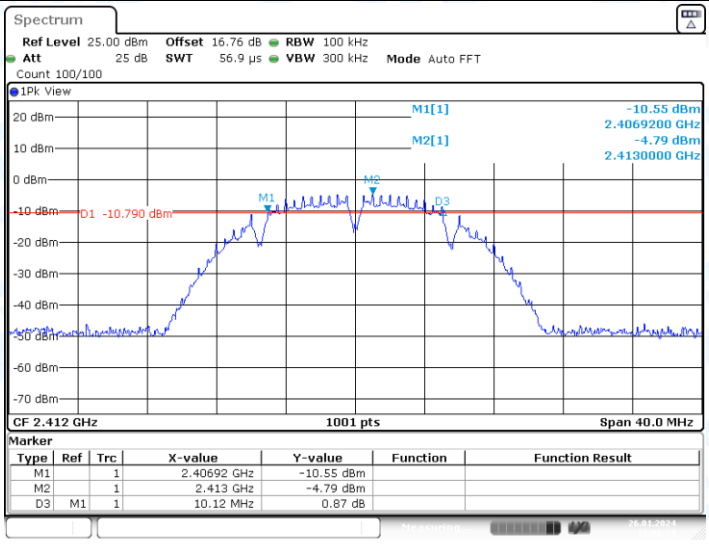

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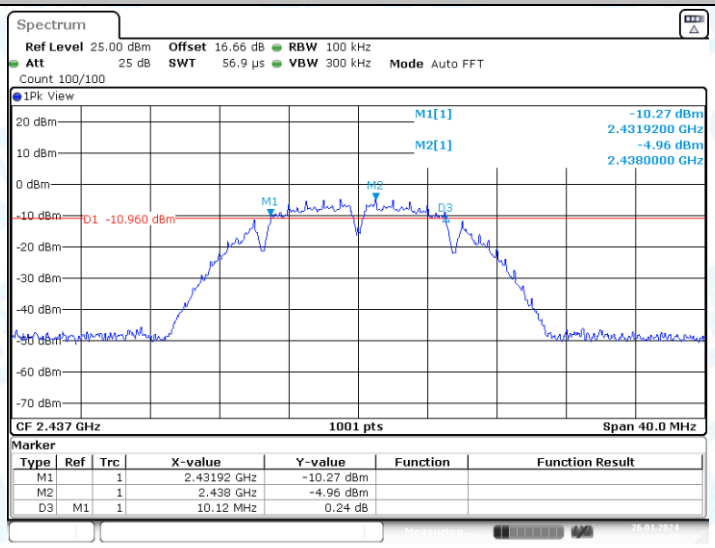

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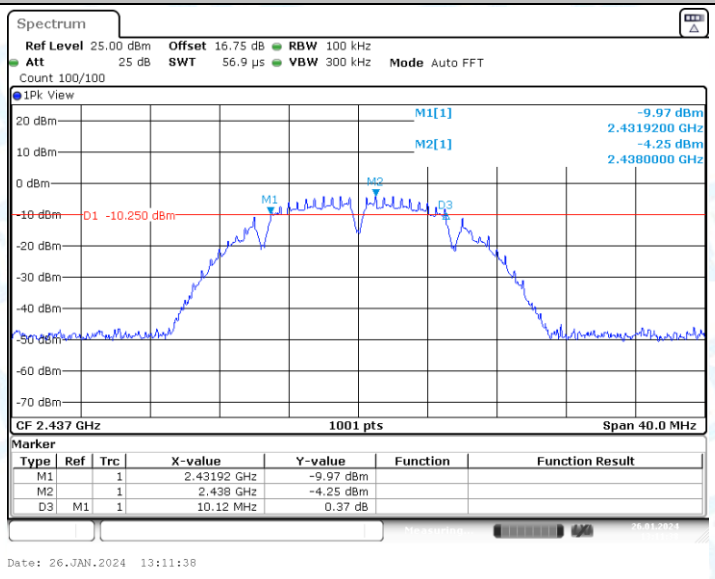

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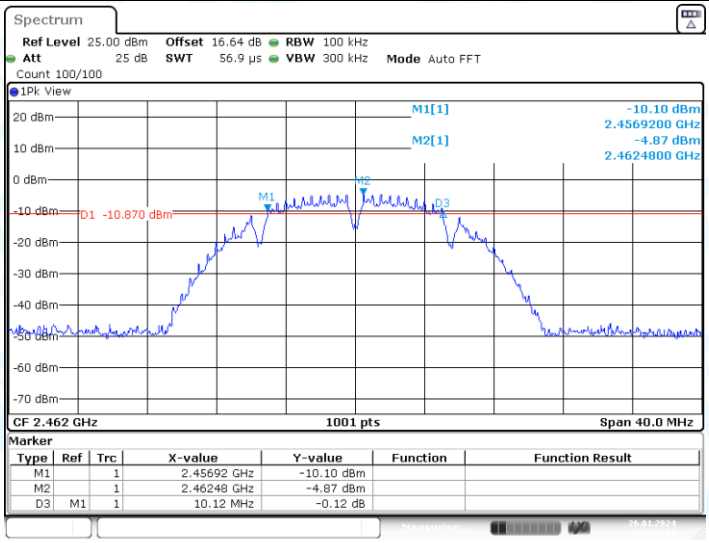

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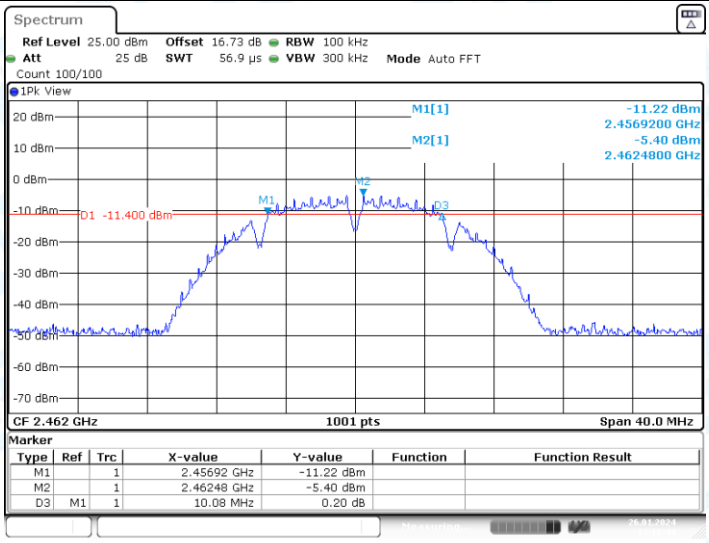

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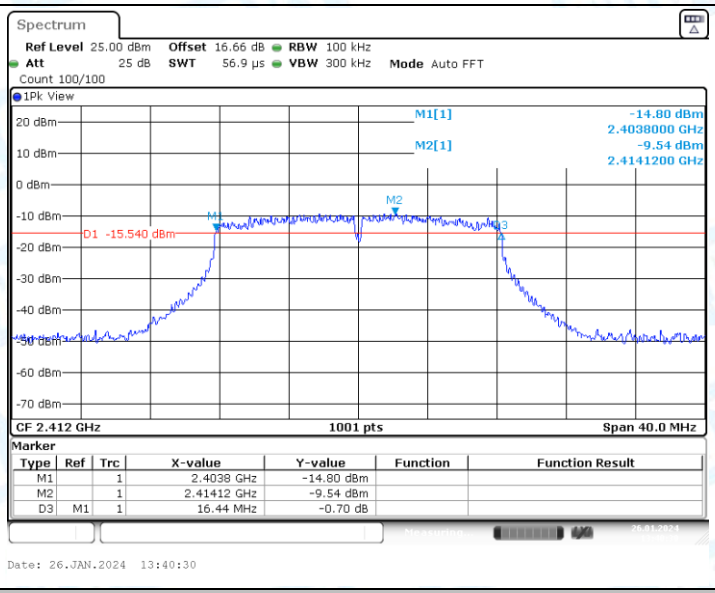

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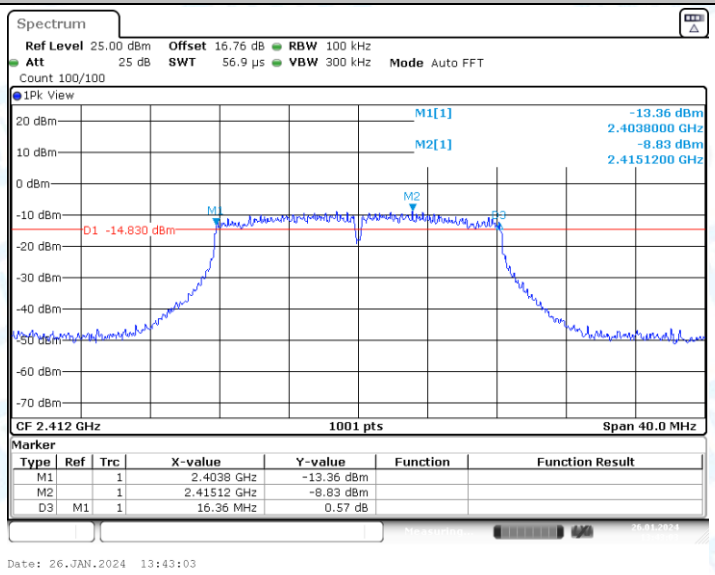

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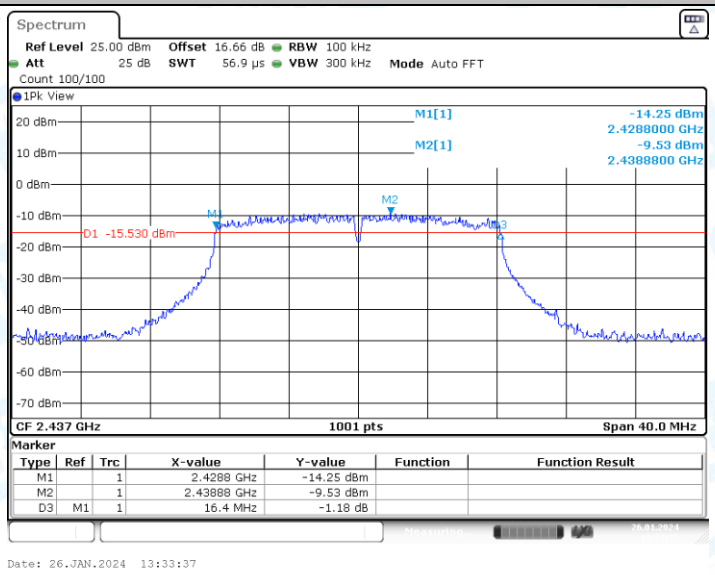

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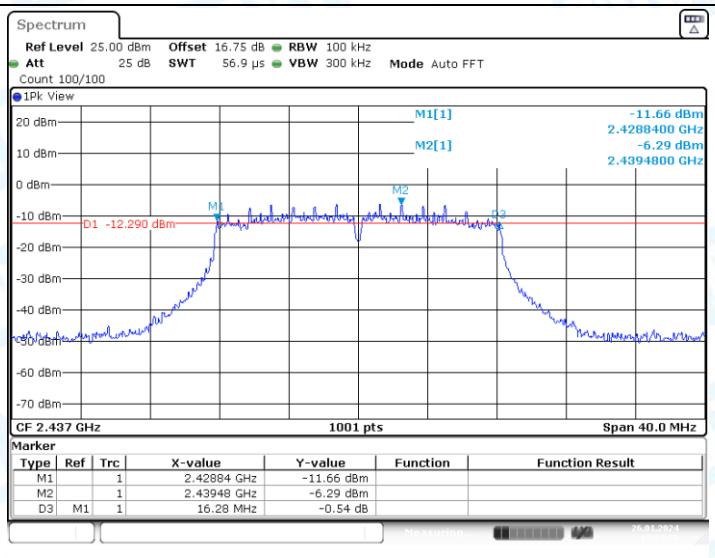

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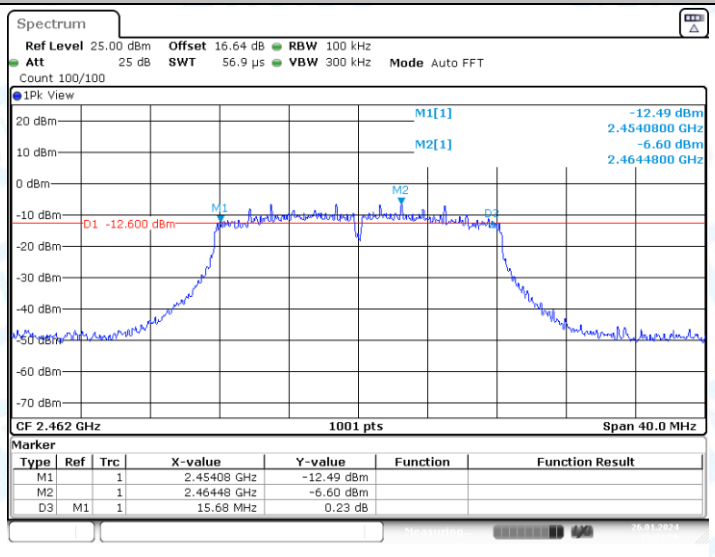

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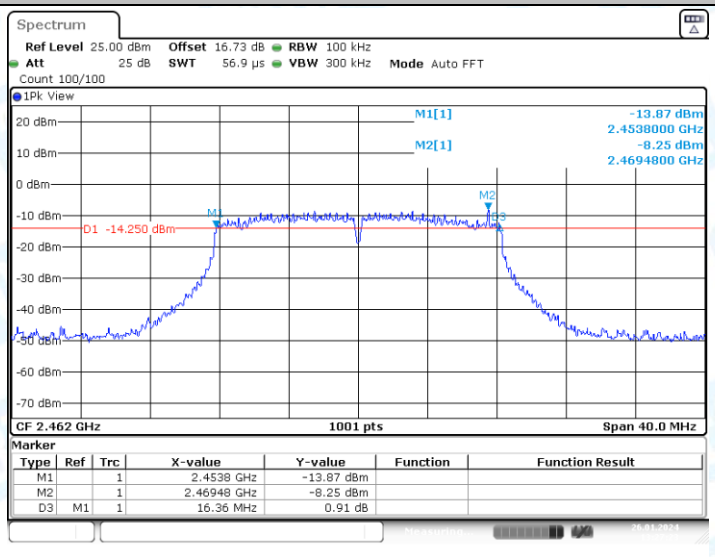

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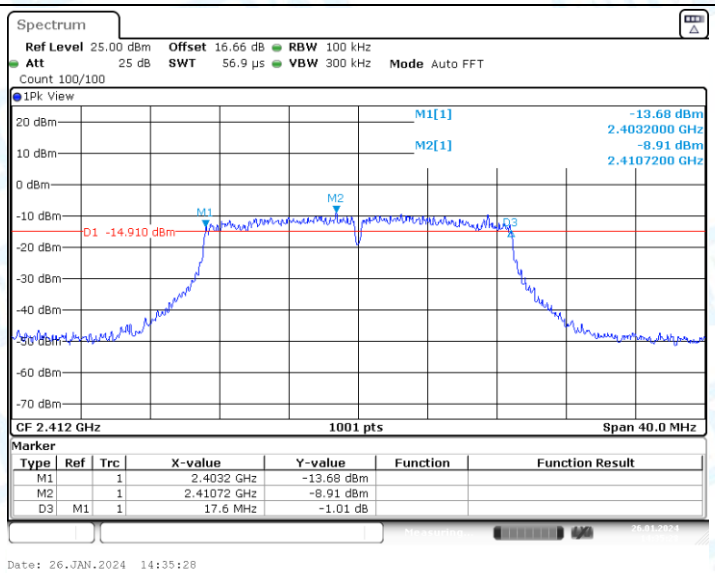

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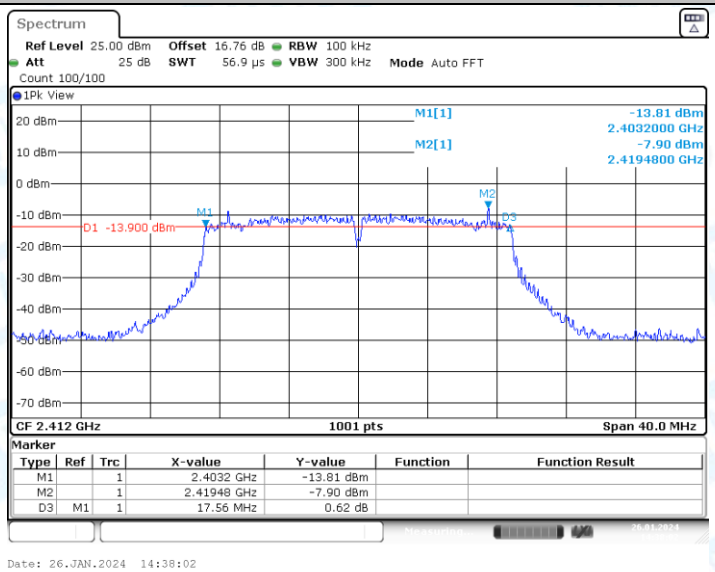

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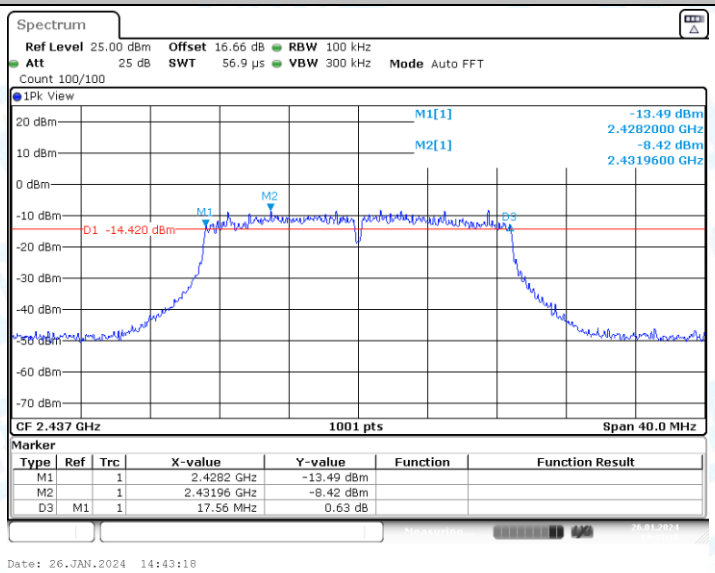

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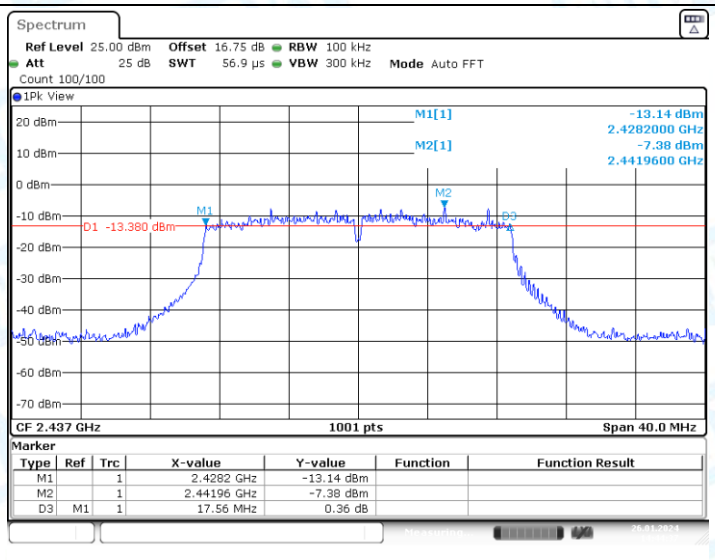

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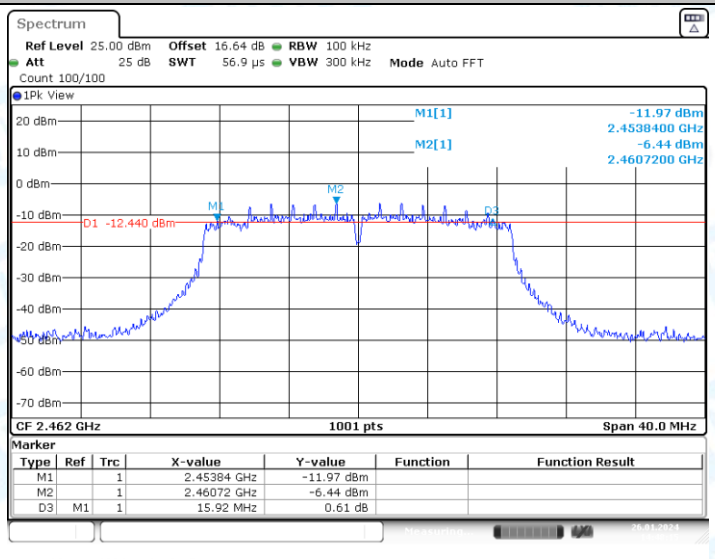

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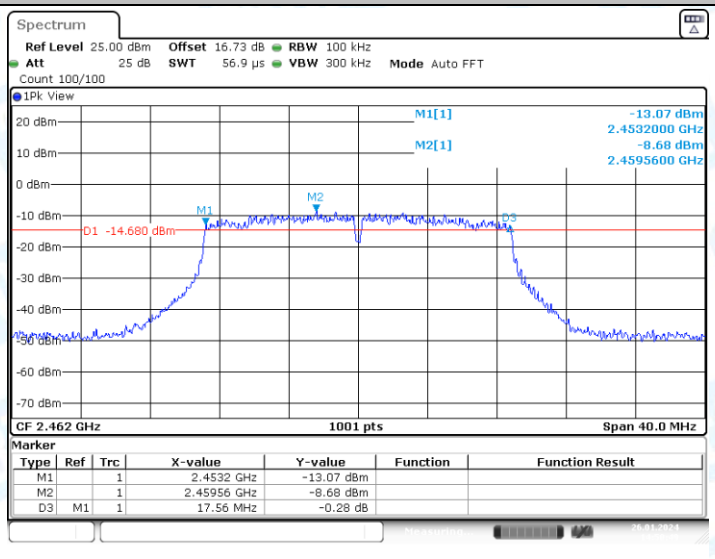

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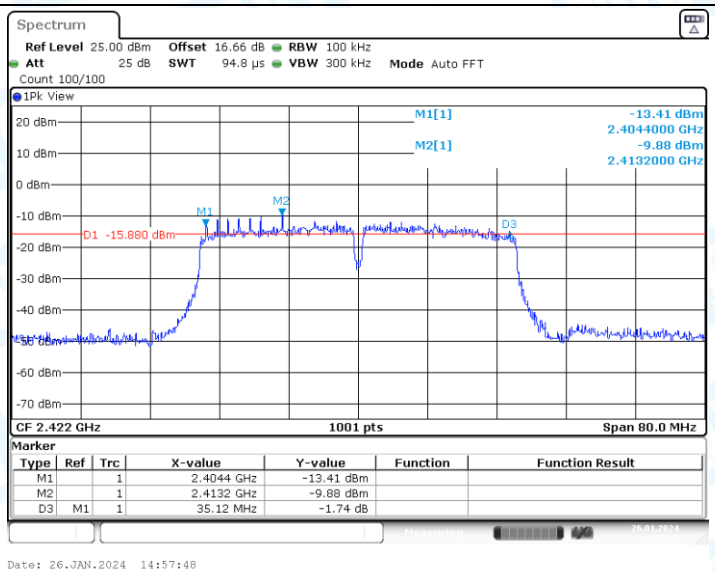

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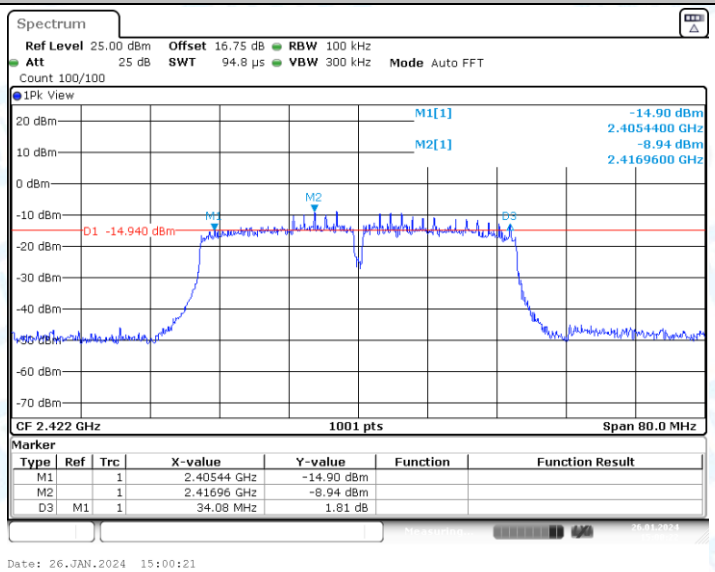

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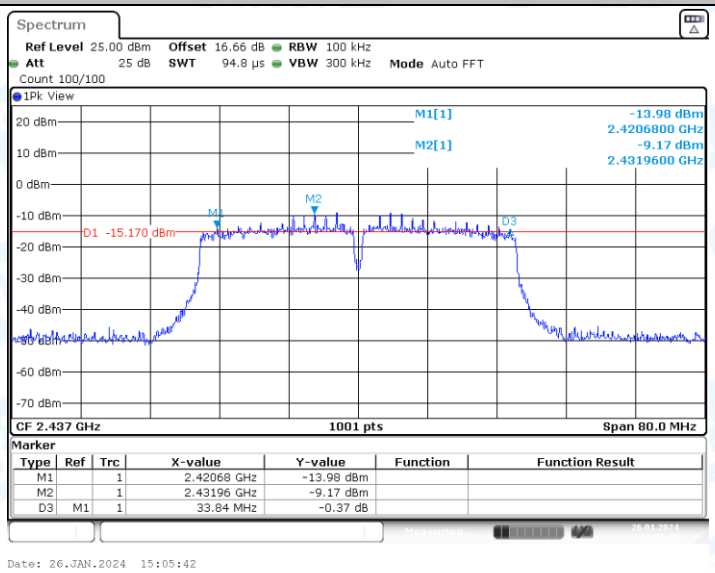

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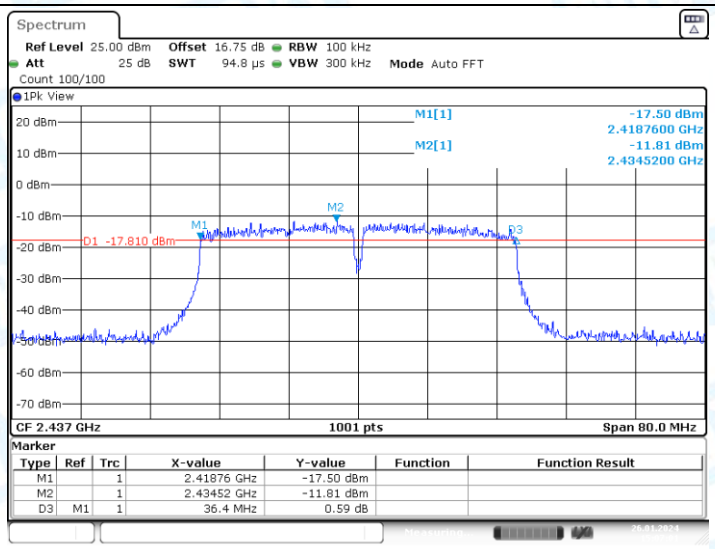

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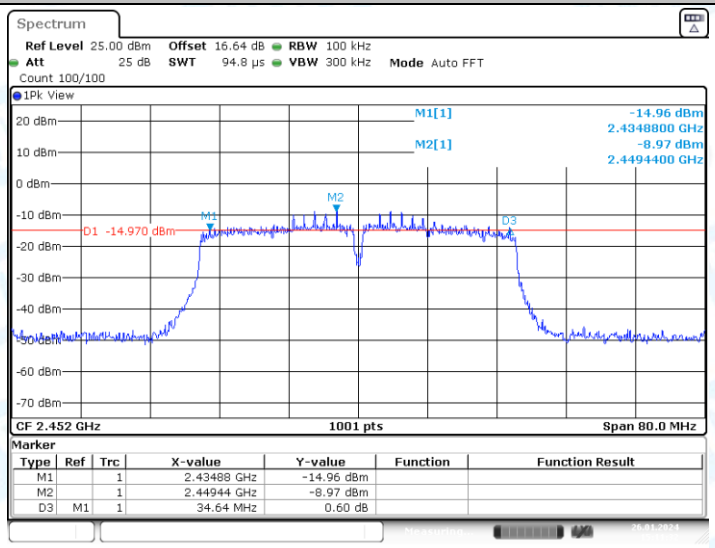

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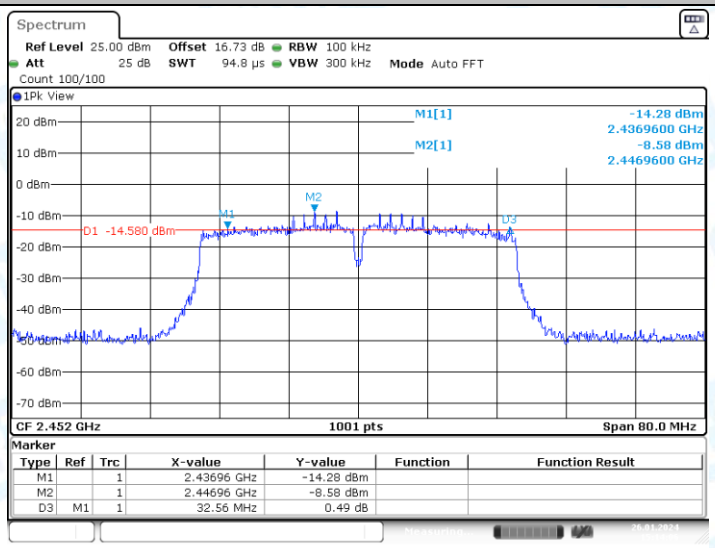


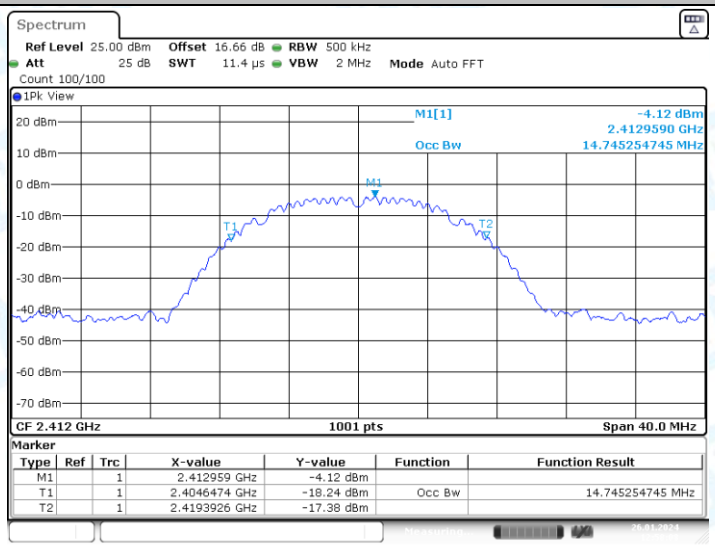
2. Occupied Channel Bandwidth

2.1.Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B-CDD	Ant1	2412	14.745	2404.6474	2419.3926	---	---
	Ant2	2412	14.745	2404.6474	2419.3926	---	---
	Ant1	2437	14.785	2429.6074	2444.3926	---	---
	Ant2	2437	14.745	2429.6474	2444.3926	---	---
	Ant1	2462	14.745	2454.6074	2469.3526	---	---
	Ant2	2462	14.825	2454.5674	2469.3926	---	---
11G-CDD	Ant1	2412	16.823	2403.7283	2420.5514	---	---
	Ant2	2412	16.663	2403.6084	2420.2717	---	---
	Ant1	2437	17.023	2428.4885	2445.5115	---	---
	Ant2	2437	16.543	2428.7283	2445.2717	---	---
	Ant1	2462	16.703	2453.6484	2470.3516	---	---
	Ant2	2462	16.663	2453.6084	2470.2717	---	---
11N20MIMO	Ant1	2412	17.822	2403.1289	2420.9510	---	---
	Ant2	2412	18.062	2403.0090	2421.0709	---	---
	Ant1	2437	17.822	2428.0889	2445.9111	---	---
	Ant2	2437	18.022	2427.9291	2445.9510	---	---
	Ant1	2462	17.942	2453.0490	2470.9910	---	---
	Ant2	2462	18.262	2452.8492	2471.1109	---	---
11N40MIMO	Ant1	2422	36.124	2403.9381	2440.0619	---	---
	Ant2	2422	36.204	2403.8581	2440.0619	---	---
	Ant1	2437	36.204	2418.8581	2455.0619	---	---
	Ant2	2437	36.124	2418.9381	2455.0619	---	---
	Ant1	2452	36.284	2433.8581	2470.1419	---	---
	Ant2	2452	36.444	2433.6184	2470.0619	---	---

2.2.Test Graphs

11B-CDD_Ant1_2412



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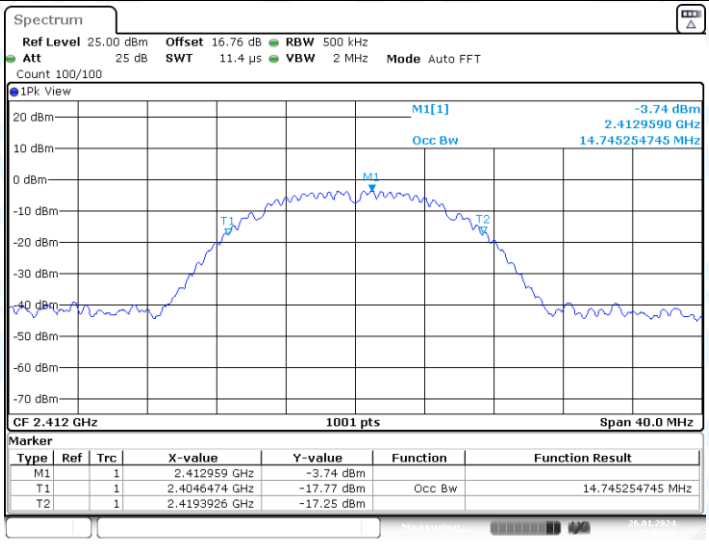

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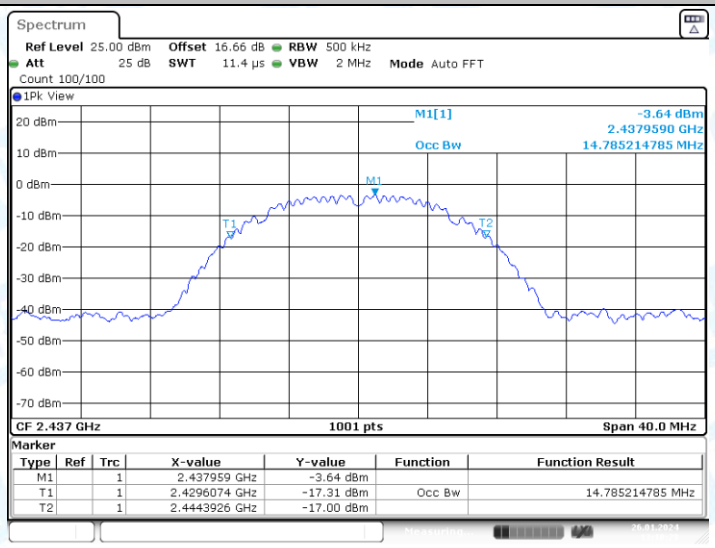

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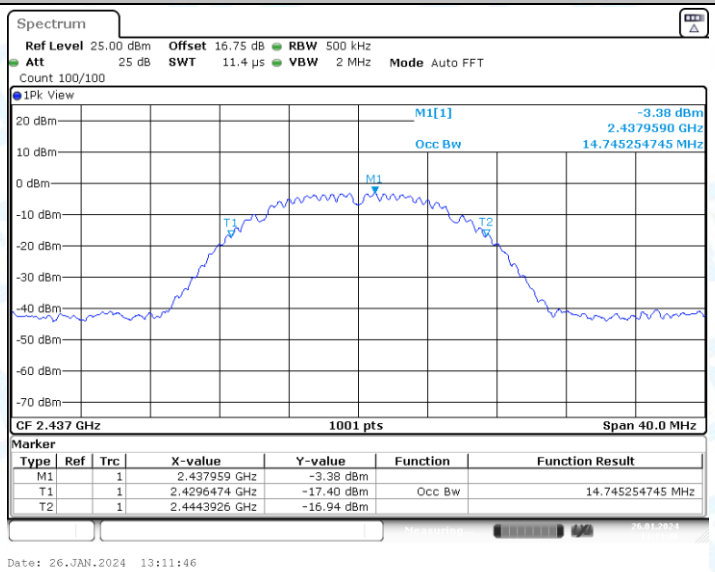

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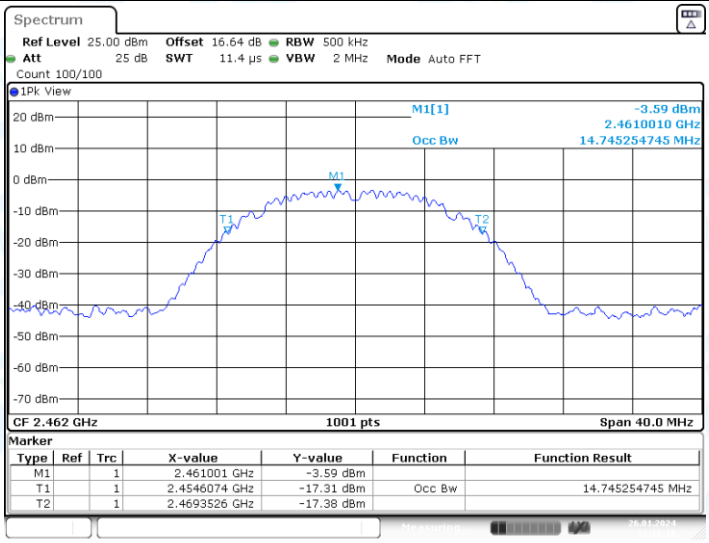

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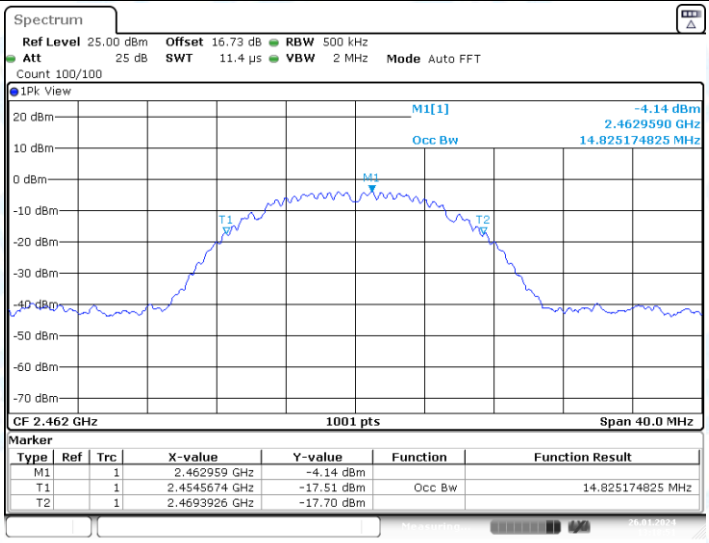

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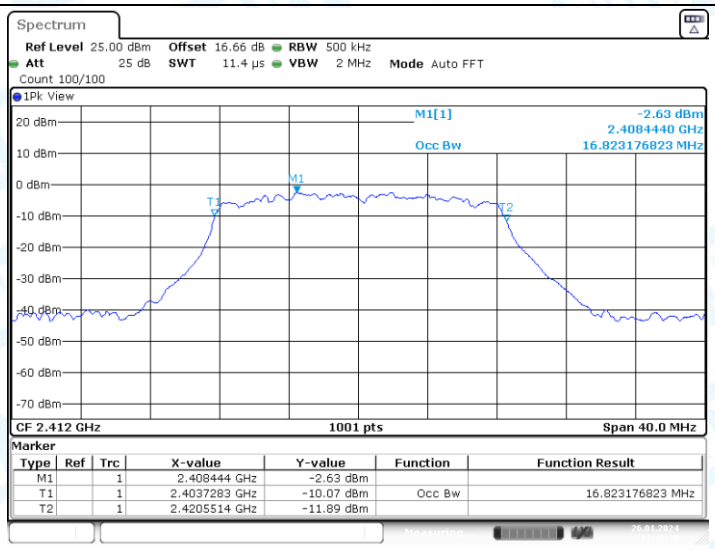

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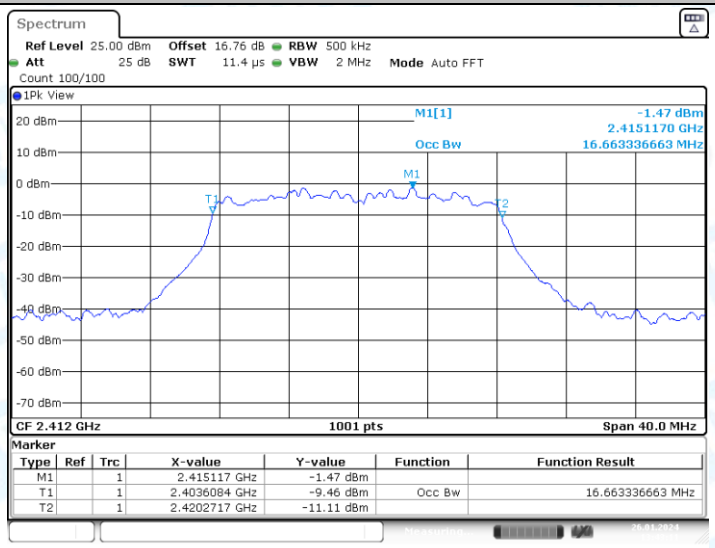

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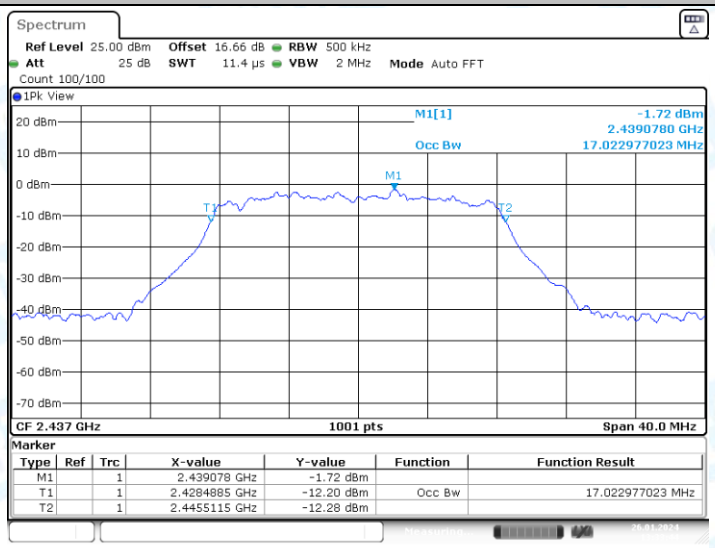

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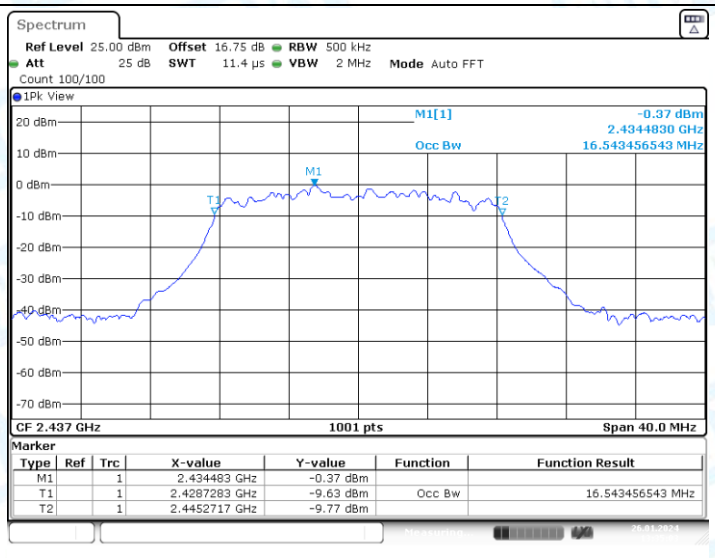

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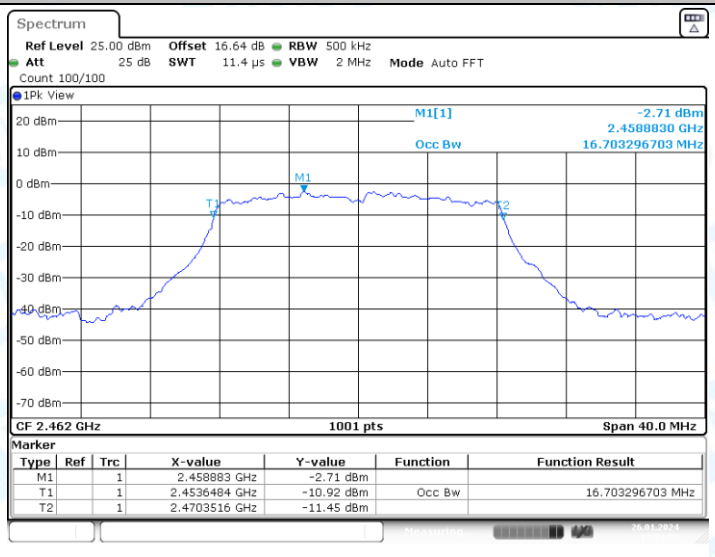

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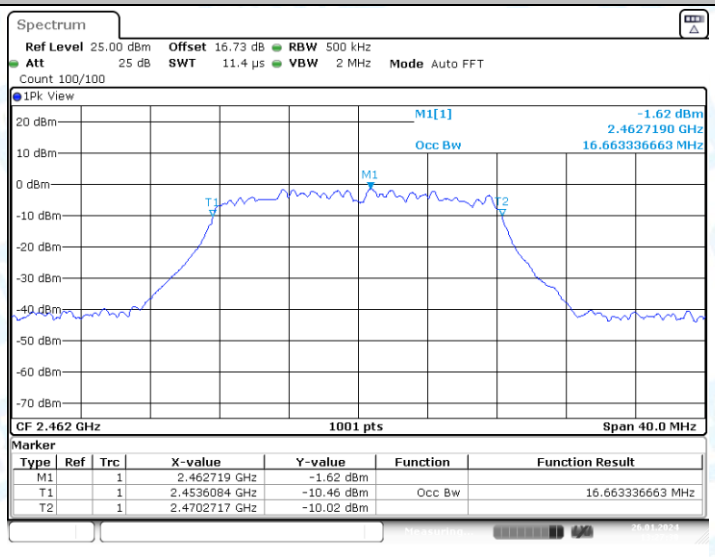

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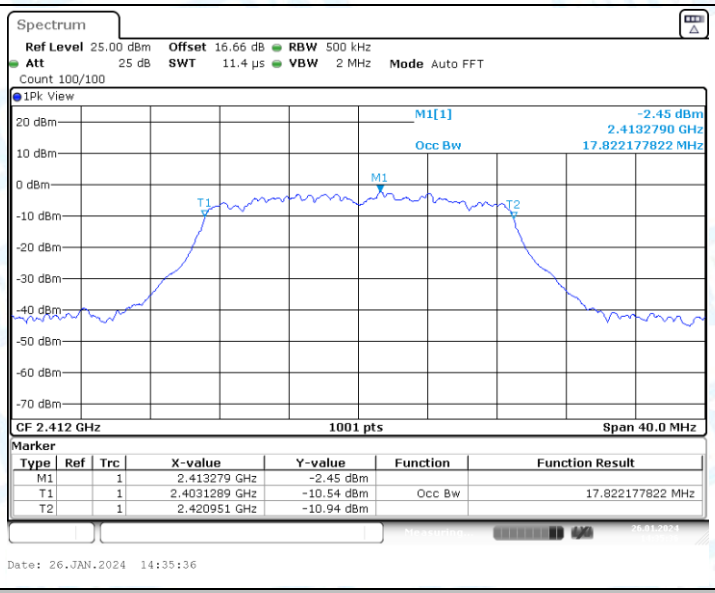

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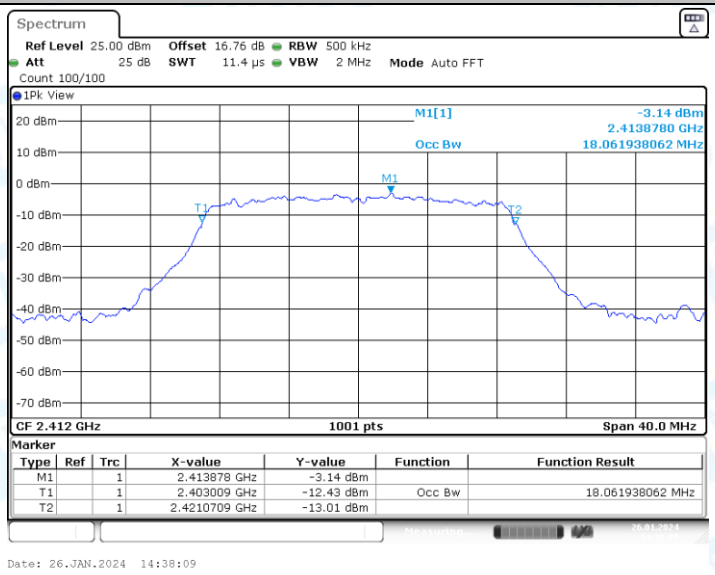

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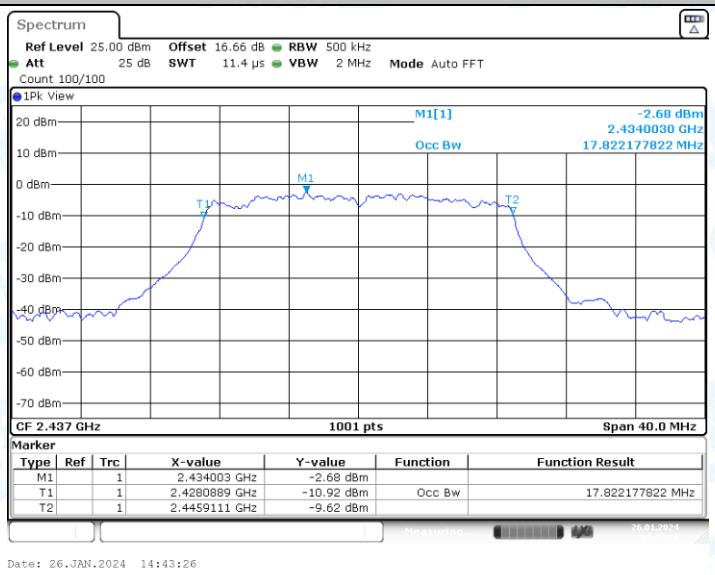

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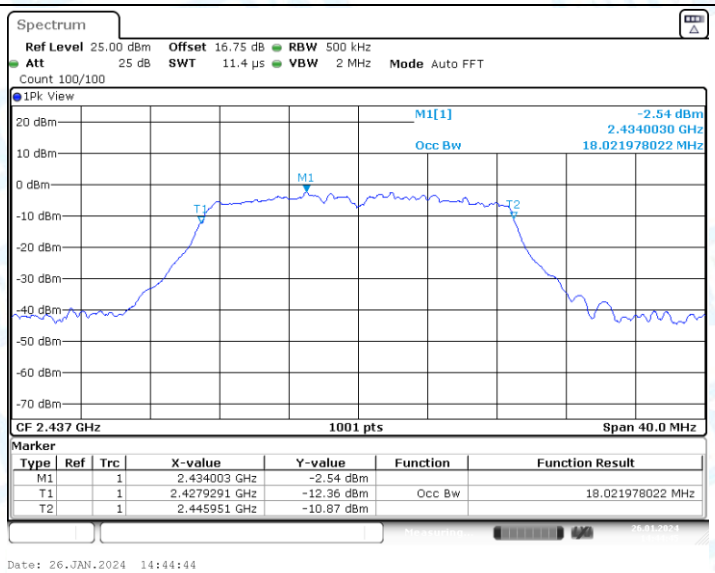

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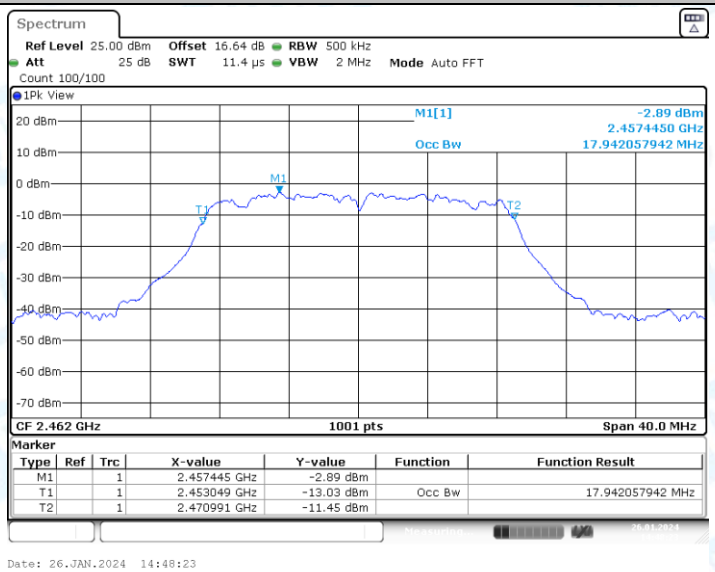

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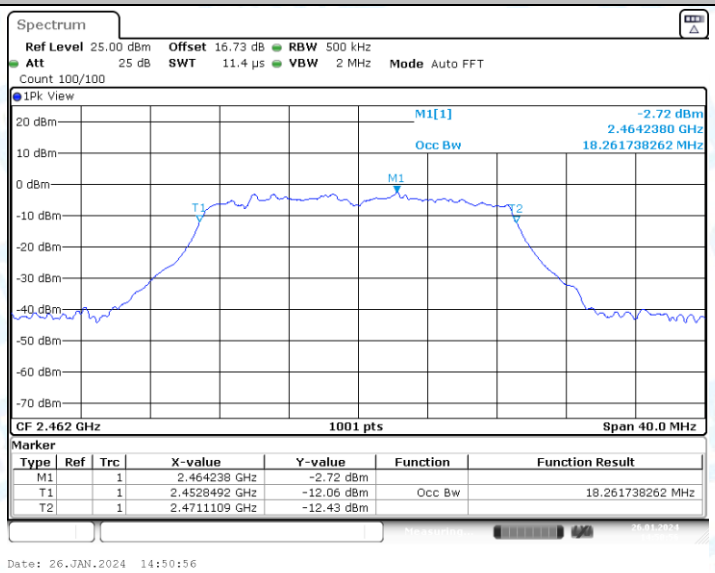

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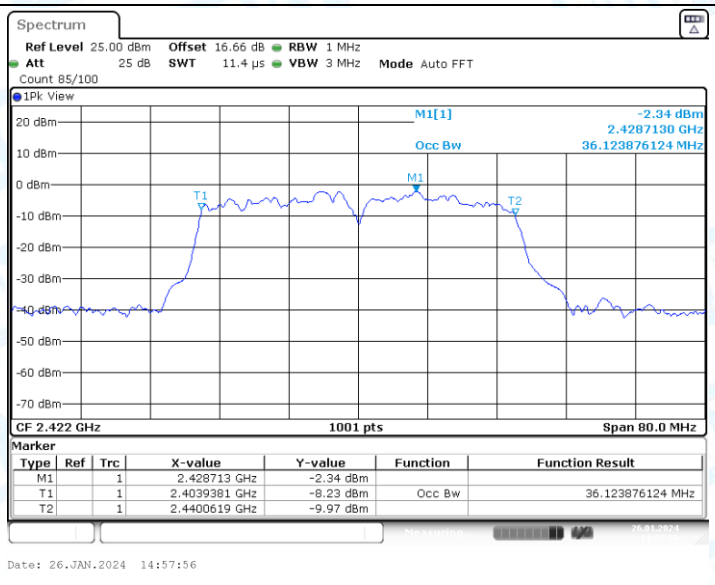

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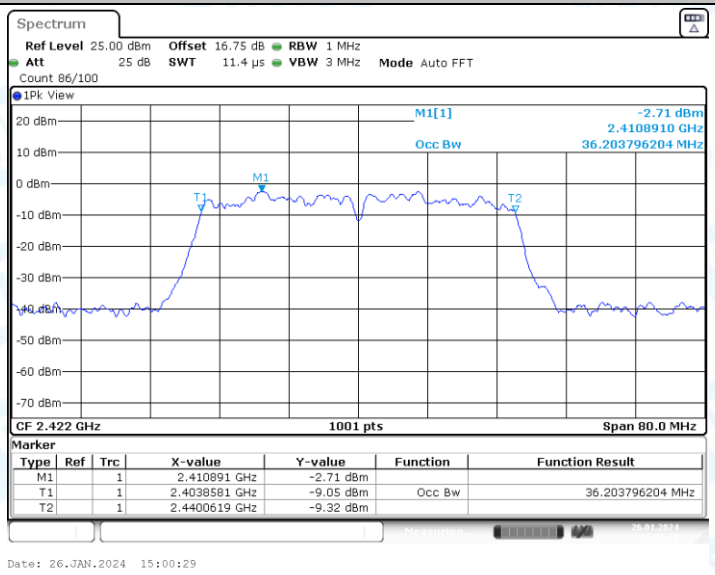

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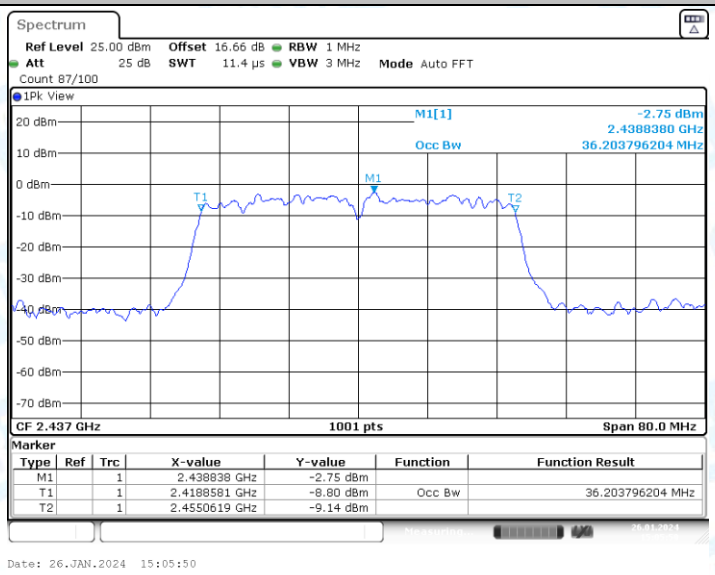
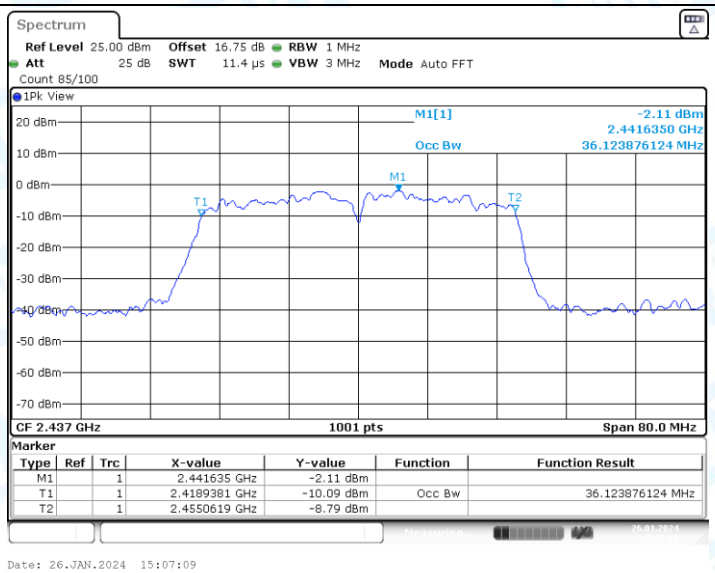
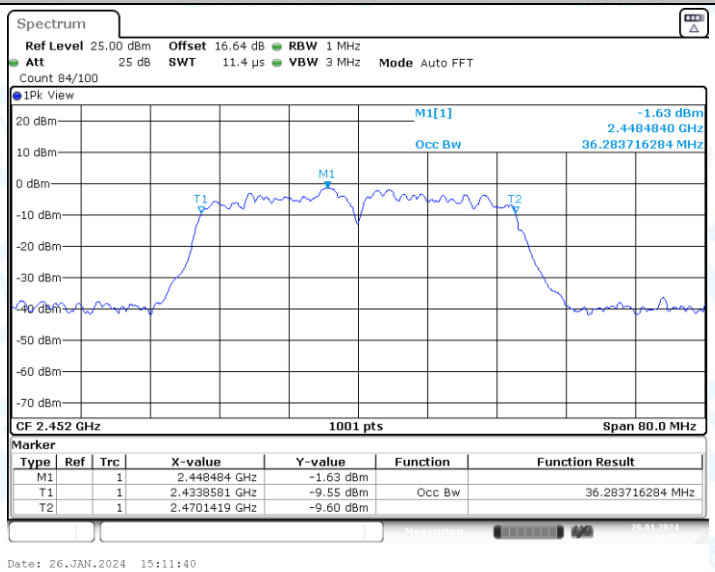


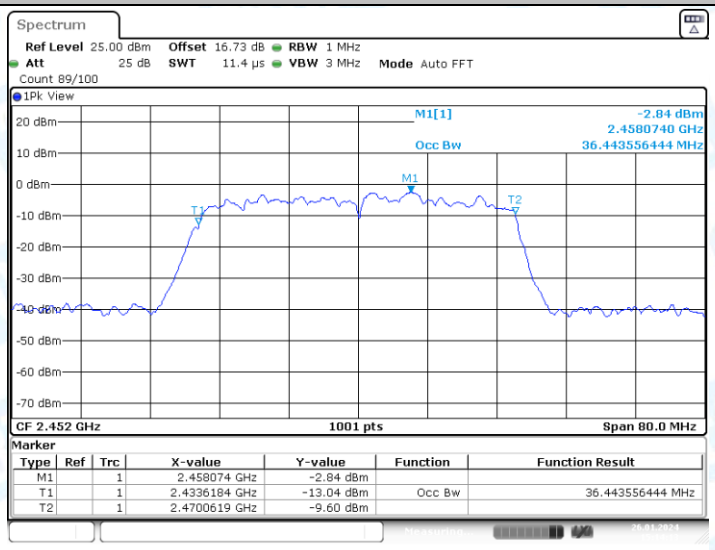
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



3. Maximum conducted output power

3.1.Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B-CDD	Ant1	2412	4.63	≤30.00	PASS
	Ant2	2412	3.97	≤30.00	PASS
	total	**2412**	**7.32**	**≤28.8**	**PASS**
	Ant1	2437	4.74	≤30.00	PASS
	Ant2	2437	5.01	≤30.00	PASS
	total	**2437**	**7.89**	**≤28.8**	**PASS**
	Ant1	2462	4.78	≤30.00	PASS
	Ant2	2462	4.23	≤30.00	PASS
	total	**2462**	**7.52**	**≤28.8**	**PASS**
11G-CDD	Ant1	2412	4.62	≤30.00	PASS
	Ant2	2412	4.52	≤30.00	PASS
	total	**2412**	**7.58**	**≤28.8**	**PASS**
	Ant1	2437	4.54	≤30.00	PASS
	Ant2	2437	4.51	≤30.00	PASS
	total	**2437**	**7.54**	**≤28.8**	**PASS**
	Ant1	2462	4.65	≤30.00	PASS
	Ant2	2462	4.64	≤30.00	PASS
	total	**2462**	**7.66**	**≤28.8**	**PASS**
11N20MIMO	Ant1	2412	4.38	≤30.00	PASS
	Ant2	2412	4.27	≤30.00	PASS
	total	**2412**	**7.34**	**≤28.8**	**PASS**
	Ant1	2437	4.53	≤30.00	PASS
	Ant2	2437	4.63	≤30.00	PASS
	total	**2437**	**7.59**	**≤28.8**	**PASS**
	Ant1	2462	4.62	≤30.00	PASS
	Ant2	2462	4.48	≤30.00	PASS
	total	**2462**	**7.56**	**≤28.8**	**PASS**
11N40MIMO	Ant1	2422	4.61	≤30.00	PASS
	Ant2	2422	4.38	≤30.00	PASS
	total	**2422**	**7.51**	**≤28.8**	**PASS**
	Ant1	2437	4.49	≤30.00	PASS
	Ant2	2437	4.60	≤30.00	PASS
	total	**2437**	**7.56**	**≤28.8**	**PASS**
	Ant1	2452	4.50	≤30.00	PASS
	Ant2	2452	4.66	≤30.00	PASS
	total	**2452**	**7.59**	**≤28.8**	**PASS**

Note： The EUT incorporates a MIMO function. Physically, the EUT provides two antennas for transmitting and receiving.
When ANT.1(4.19dBi) and ANT. 2(4.19dBi) transmitting simultaneously, so the Directional Gain= 7.2dBi＞6dBi.
So Pout = Plimit-(GTX-6)]=(30-1.2)dBm =28.8dBm

Directional Gain=ANT. Gain+10*LOG(NANT)
The Duty Cycle Factor is compensated in the graph.

4. Maximum power spectral density

4.1.Test Result

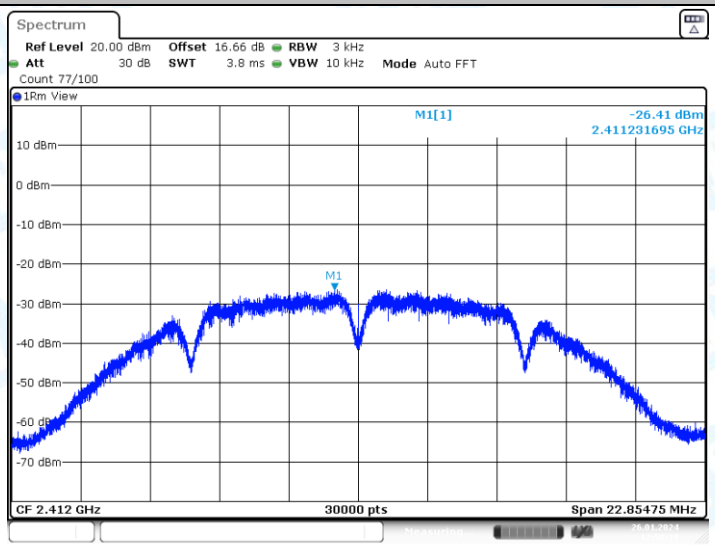
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B-CDD	Ant1	2412	-26.15	≤8.00	PASS
	Ant2	2412	-25.26	≤8.00	PASS
	total	**2412**	**-22.67**	**≤6.8**	**PASS**
	Ant1	2437	-25.17	≤8.00	PASS
	Ant2	2437	-24.95	≤8.00	PASS
	total	**2437**	**-22.05**	**≤6.8**	**PASS**
	Ant1	2462	-24.80	≤8.00	PASS
	Ant2	2462	-26.03	≤8.00	PASS
	total	**2462**	**-22.36**	**≤6.8**	**PASS**
11G-CDD	Ant1	2412	-25.01	≤8.00	PASS
	Ant2	2412	-25.77	≤8.00	PASS
	total	**2412**	**-22.36**	**≤6.8**	**PASS**
	Ant1	2437	-25.59	≤8.00	PASS
	Ant2	2437	-25.61	≤8.00	PASS
	total	**2437**	**-22.59**	**≤6.8**	**PASS**
	Ant1	2462	-26.09	≤8.00	PASS
	Ant2	2462	-25.72	≤8.00	PASS
	total	**2462**	**-22.89**	**≤6.8**	**PASS**
11N20MIMO	Ant1	2412	-25.52	≤8.00	PASS
	Ant2	2412	-25.48	≤8.00	PASS
	total	**2412**	**-22.49**	**≤6.8**	**PASS**
	Ant1	2437	-25.55	≤8.00	PASS
	Ant2	2437	-25.84	≤8.00	PASS
	total	**2437**	**-22.68**	**≤6.8**	**PASS**
	Ant1	2462	-25.37	≤8.00	PASS
	Ant2	2462	-26.03	≤8.00	PASS
	total	**2462**	**-22.68**	**≤6.8**	**PASS**
11N40MIMO	Ant1	2422	-26.29	≤8.00	PASS
	Ant2	2422	-26.73	≤8.00	PASS
	total	**2422**	**-23.49**	**≤6.8**	**PASS**
	Ant1	2437	-27.19	≤8.00	PASS
	Ant2	2437	-28.39	≤8.00	PASS
	total	**2437**	**-24.74**	**≤6.8**	**PASS**
	Ant1	2452	-26.59	≤8.00	PASS
	Ant2	2452	-27.67	≤8.00	PASS
	total	**2452**	**-24.09**	**≤6.8**	**PASS**

Note： The EUT incorporates a MIMO function. Physically, the EUT provides two antennas for transmitting and receiving.
When ANT.1(4.19dBi) and ANT. 2(4.19dBi) transmitting simultaneously, so the Directional Gain= 7.2dBi＞6dBi.
So $PSD_{out} = PSD_{limit}-(G_{TX}-6)]=(8-1.2)dBm = 6.8dBm$

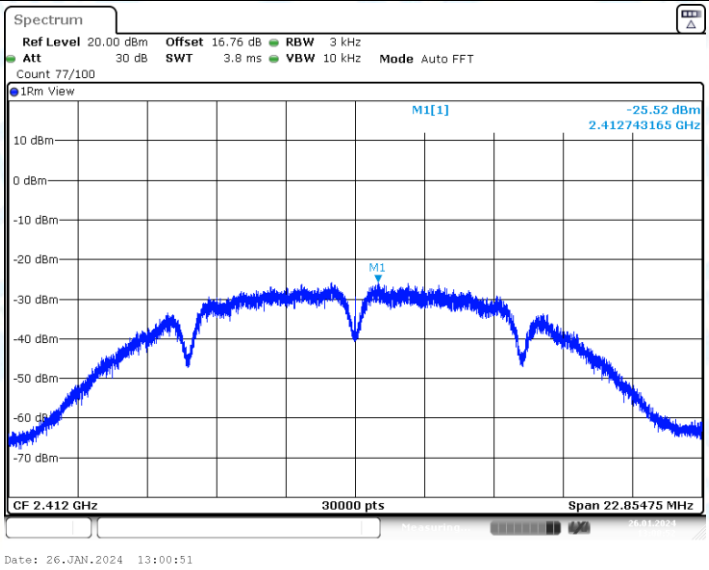
Directional Gain=ANT. Gain+10*LOG(NANT)
The Duty Cycle Factor is compensated in the graph.

4.2.Test Graphs

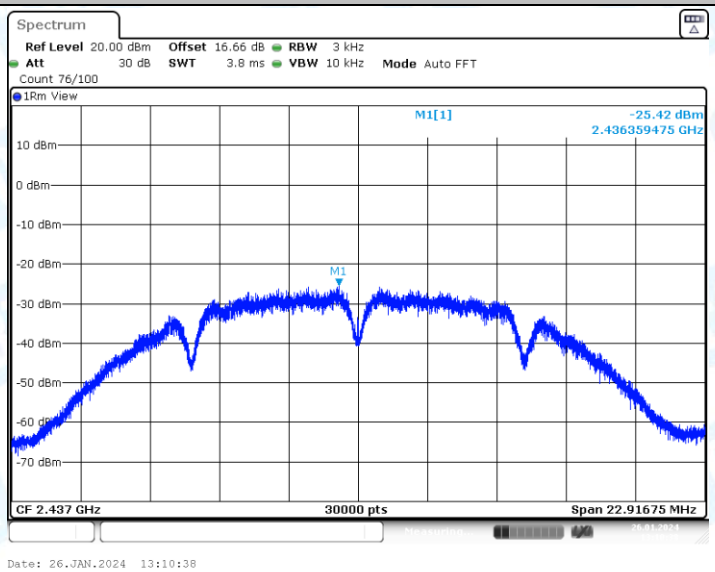
11B-CDD_Ant1_2412



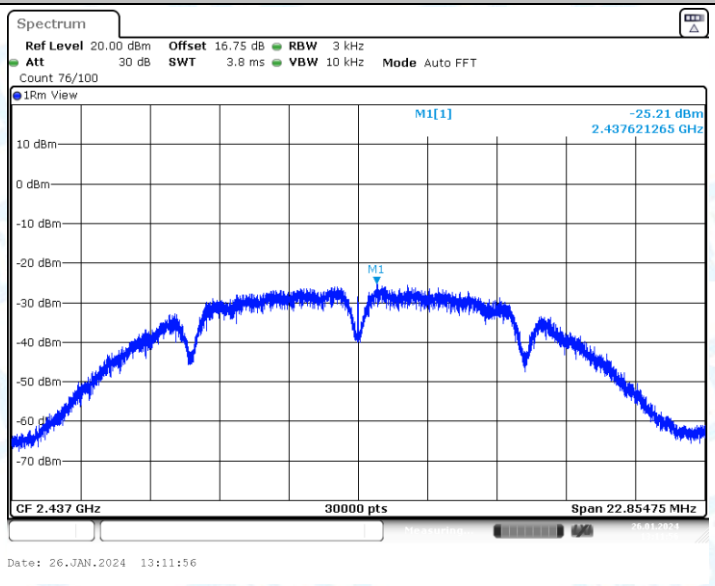
11B-CDD_Ant2_2412



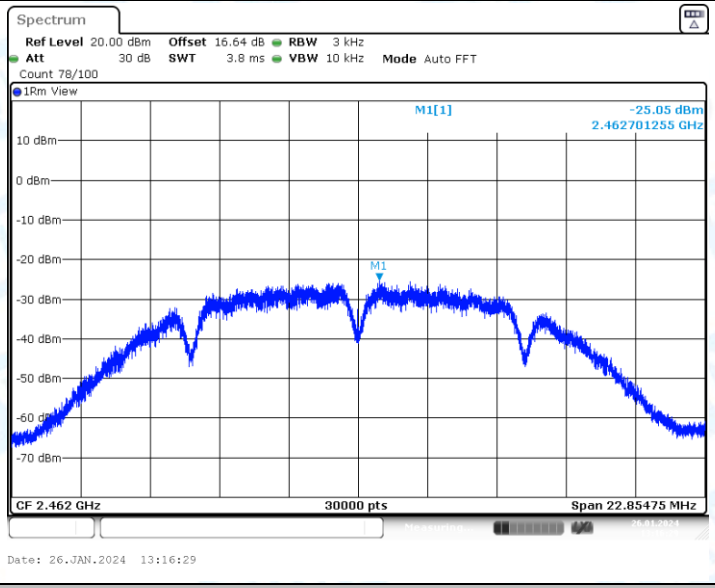
11B-CDD_Ant1_2437



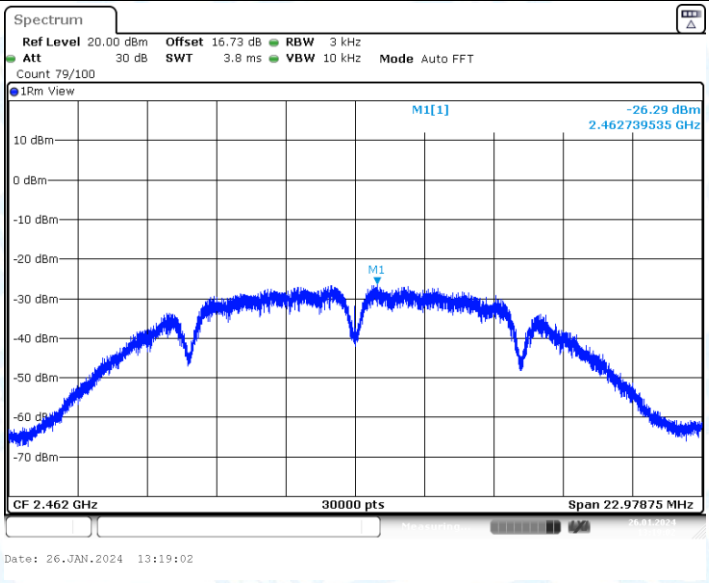
11B-CDD_Ant2_2437



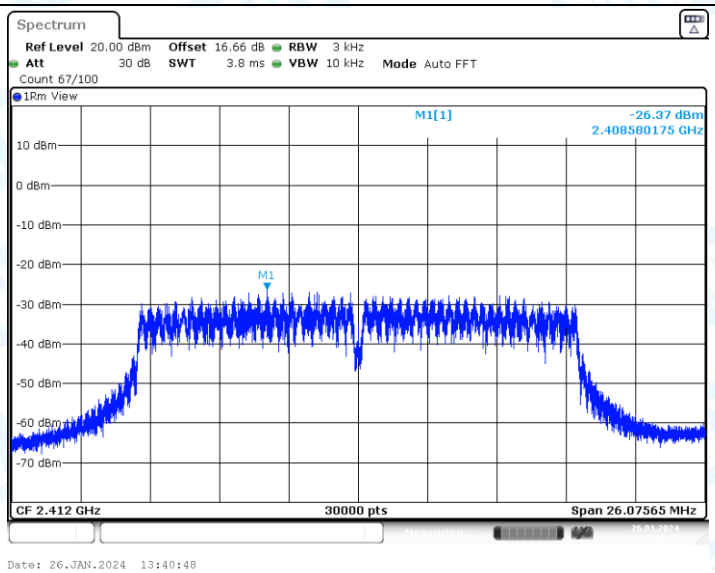
11B-CDD_Ant1_2462



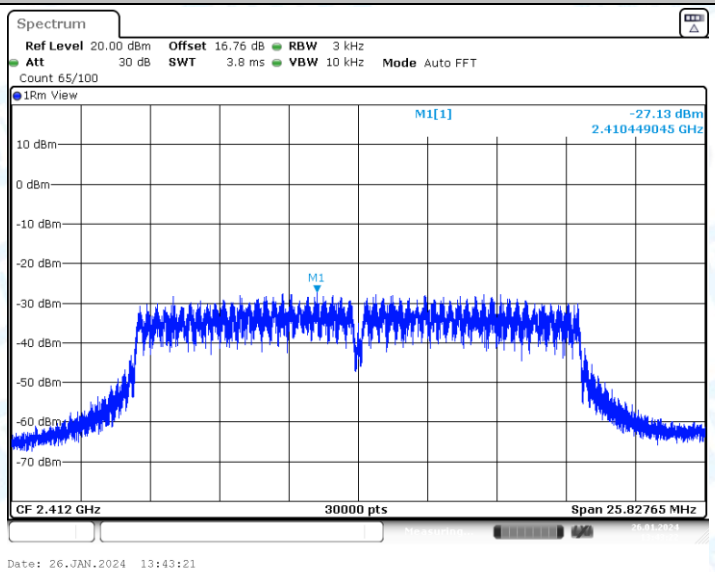
11B-CDD_Ant2_2462



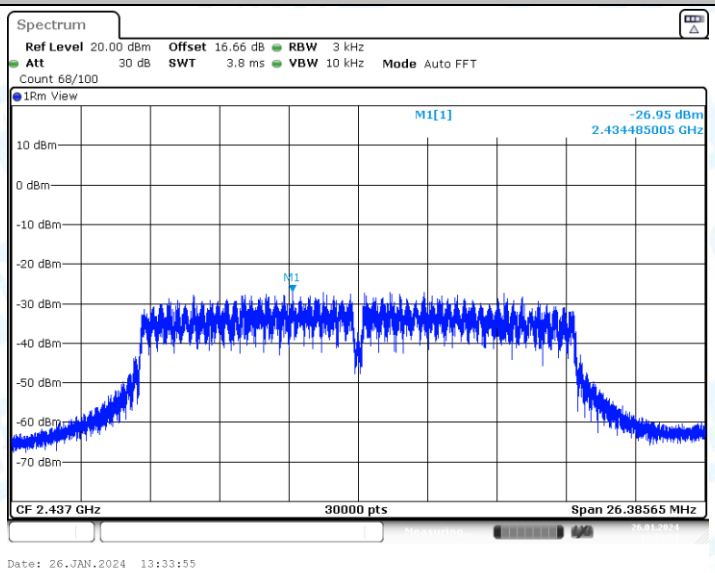
11G-CDD_Ant1_2412



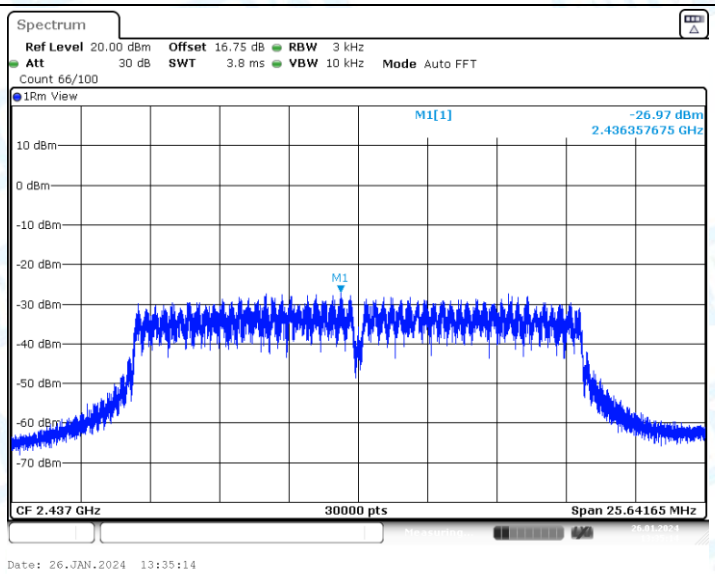
11G-CDD_Ant2_2412



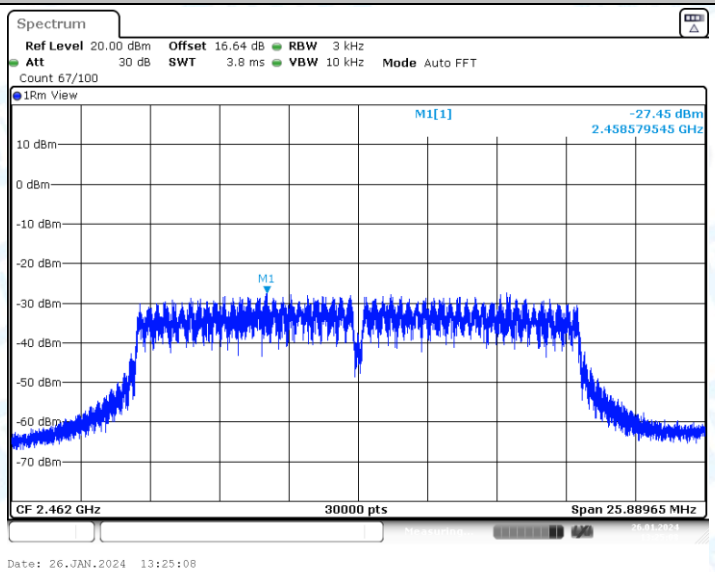
11G-CDD_Ant1_2437



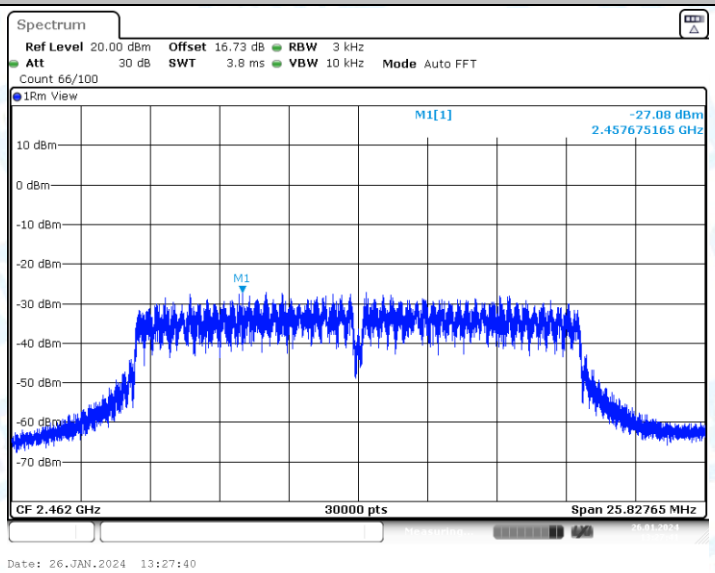
11G-CDD_Ant2_2437



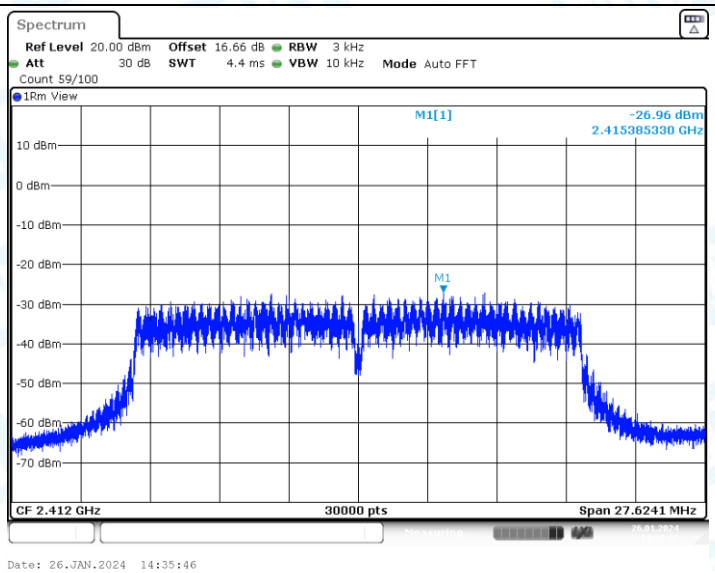
11G-CDD_Ant1_2462



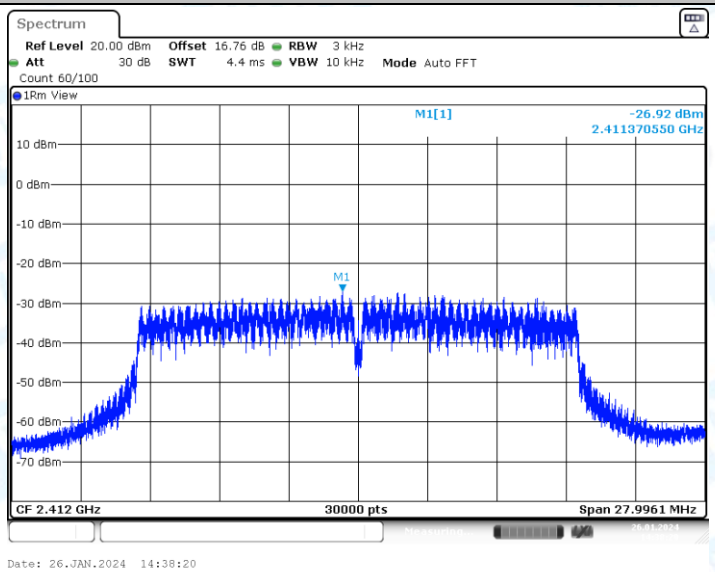
11G-CDD_Ant2_2462



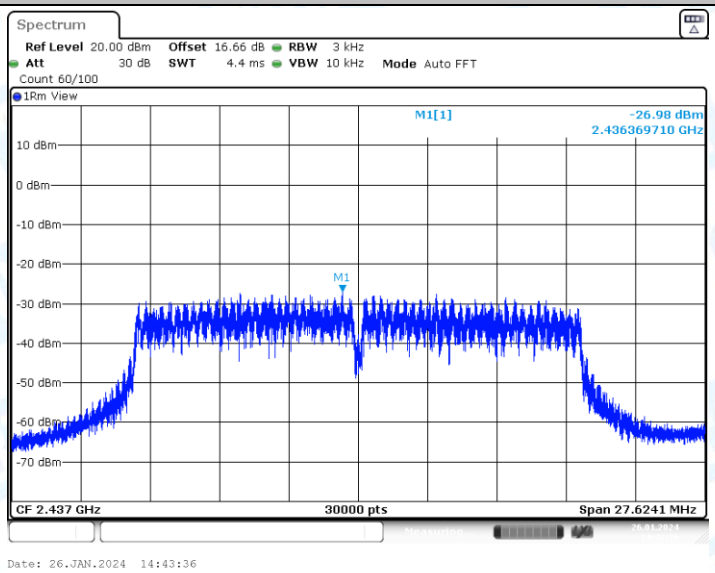
11N20MIMO_Ant1_2412



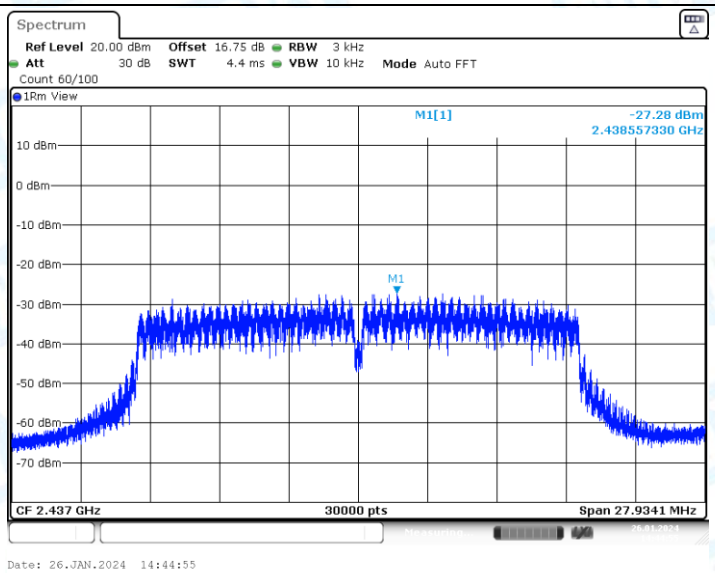
11N20MIMO_Ant2_2412



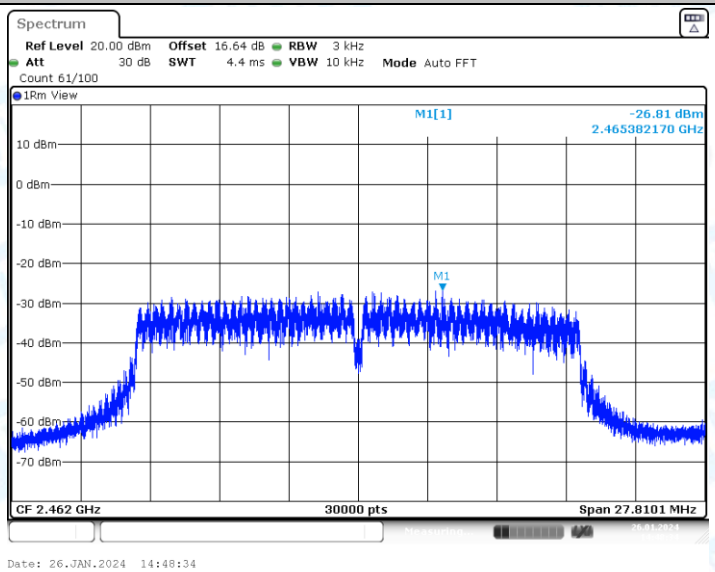
11N20MIMO_Ant1_2437



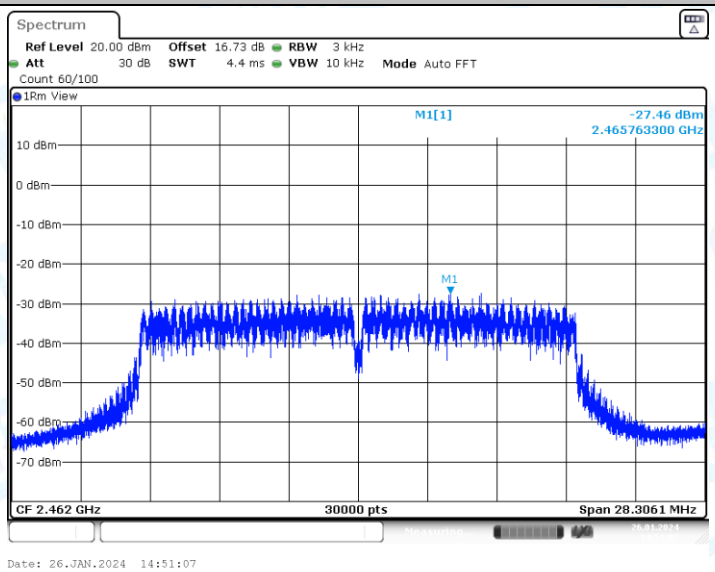
11N20MIMO_Ant2_2437



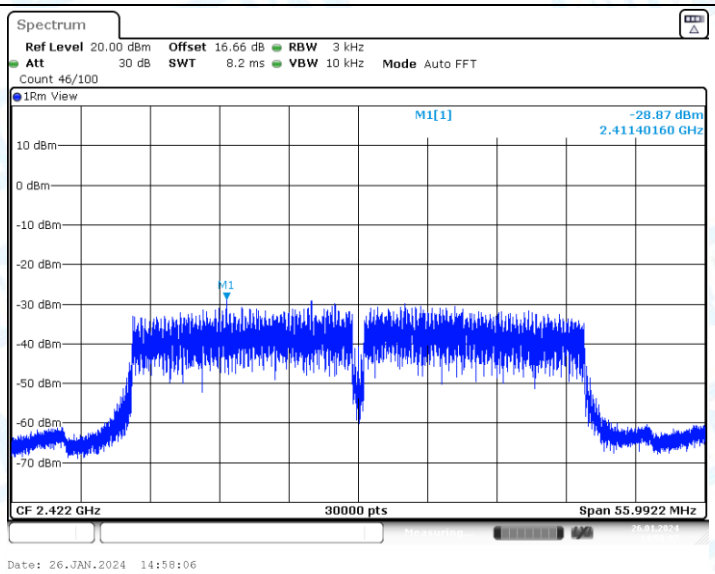
11N20MIMO_Ant1_2462



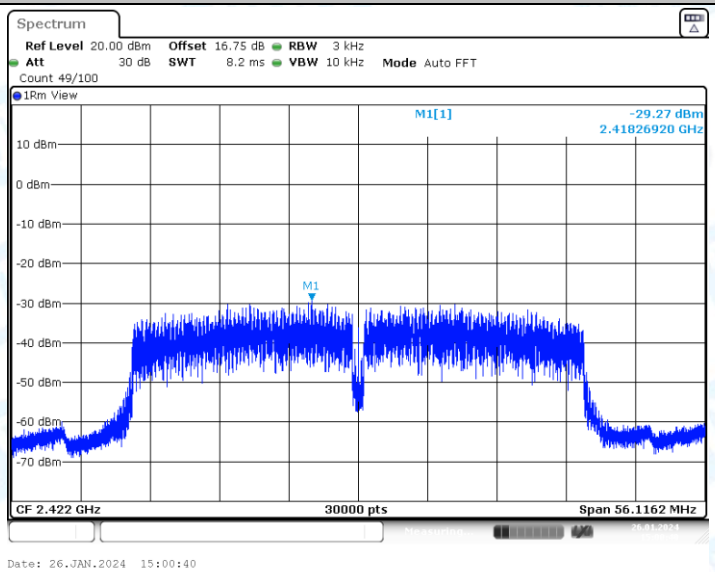
11N20MIMO_Ant2_2462



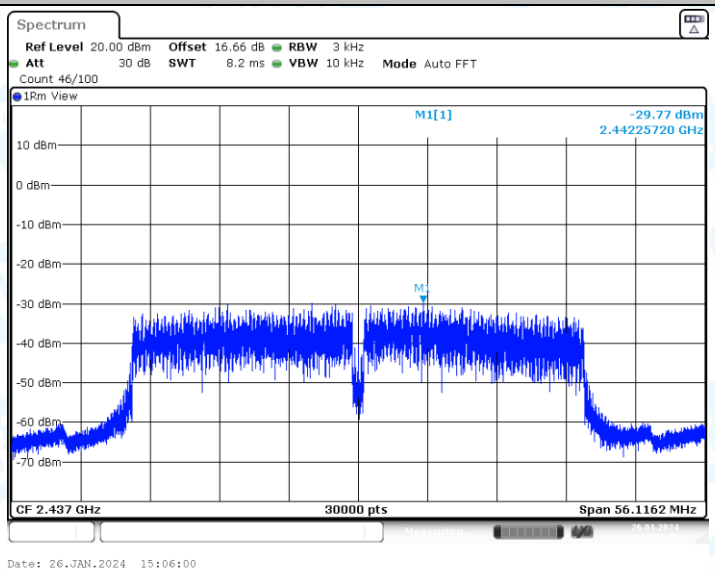
11N40MIMO_Ant1_2422



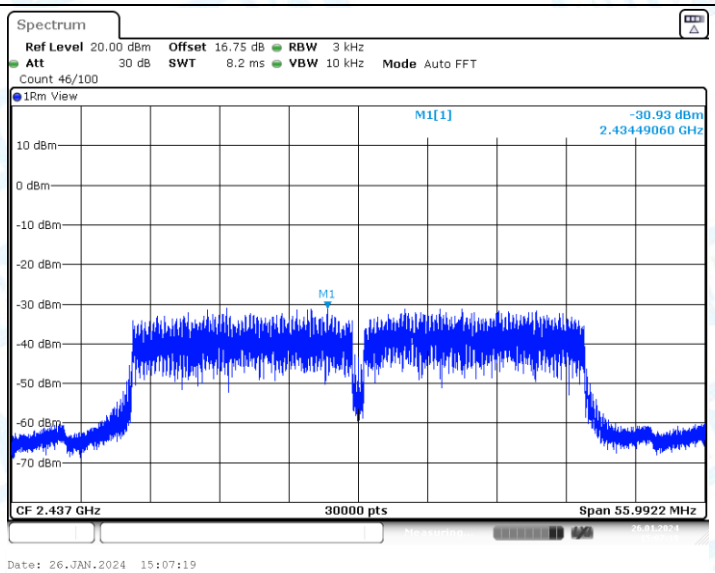
11N40MIMO_Ant2_2422



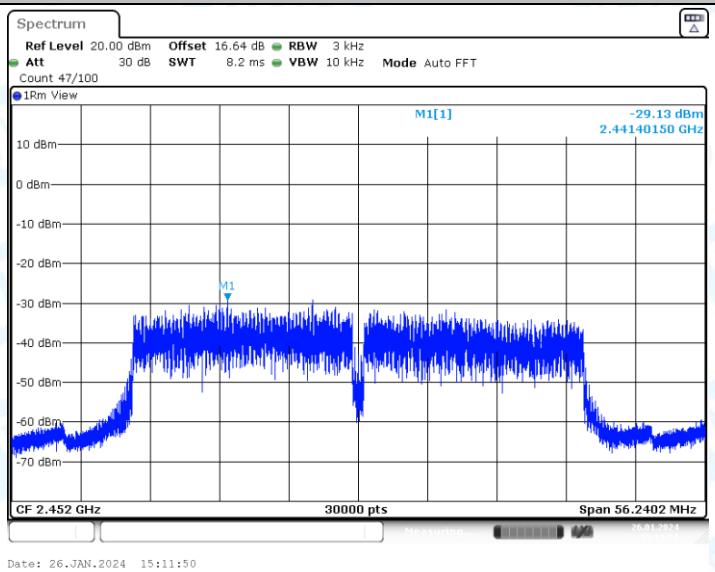
11N40MIMO_Ant1_2437



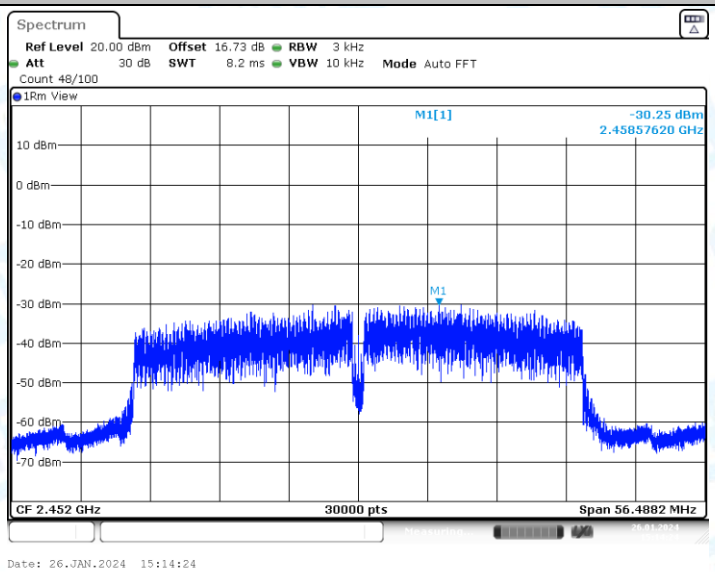
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



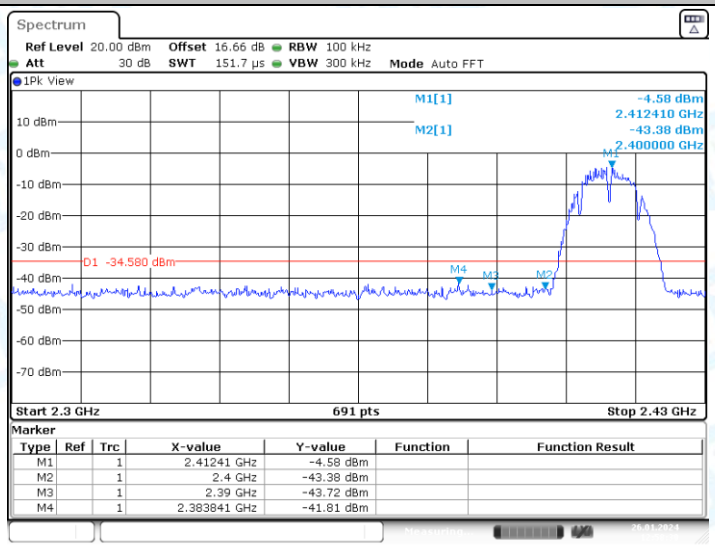
5. Band edge measurements

5.1.Test Result

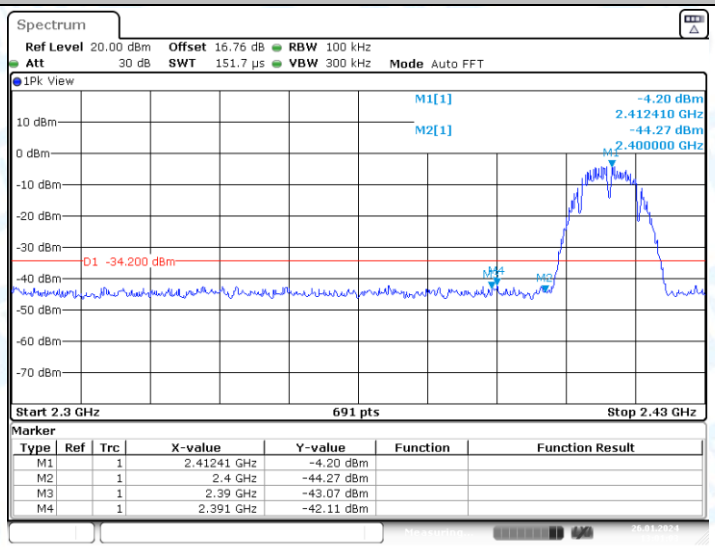
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B-CDD	Ant1	Low	2412	-4.58	-41.81	≤-34.58	PASS
	Ant2	Low	2412	-4.20	-42.11	≤-34.2	PASS
	Ant1	High	2462	-4.75	-40.09	≤-34.75	PASS
	Ant2	High	2462	-4.58	-40.34	≤-34.58	PASS
11G-CDD	Ant1	Low	2412	-9.18	-42.15	≤-39.18	PASS
	Ant2	Low	2412	-8.83	-41.13	≤-38.83	PASS
	Ant1	High	2462	-9.11	-40.64	≤-39.11	PASS
	Ant2	High	2462	-6.75	-40.37	≤-36.75	PASS
11N20MIMO	Ant1	Low	2412	-9.00	-41.25	≤-39	PASS
	Ant2	Low	2412	-7.02	-41.9	≤-37.02	PASS
	Ant1	High	2462	-7.21	-40.18	≤-37.21	PASS
	Ant2	High	2462	-6.64	-38.88	≤-36.64	PASS
11N40MIMO	Ant1	Low	2422	-9.46	-41.76	≤-39.46	PASS
	Ant2	Low	2422	-8.86	-42.01	≤-38.86	PASS
	Ant1	High	2452	-9.21	-40.48	≤-39.21	PASS
	Ant2	High	2452	-8.72	-39.73	≤-38.72	PASS

5.2.Test Graphs

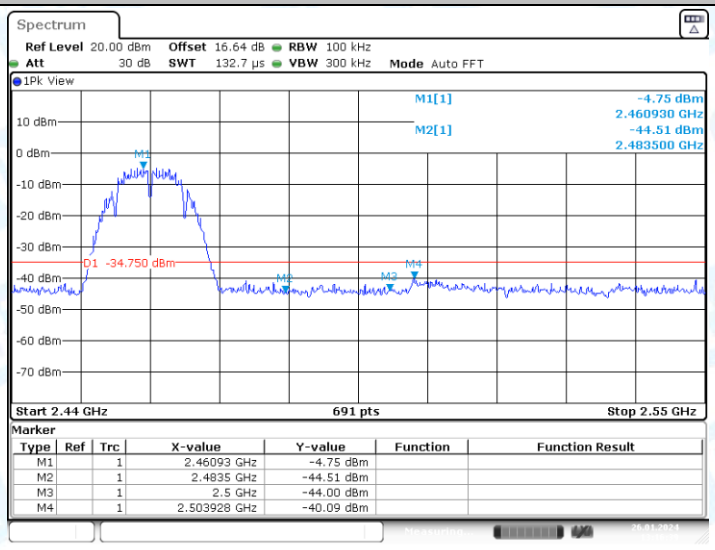
11B-CDD_Ant1_Low_2412



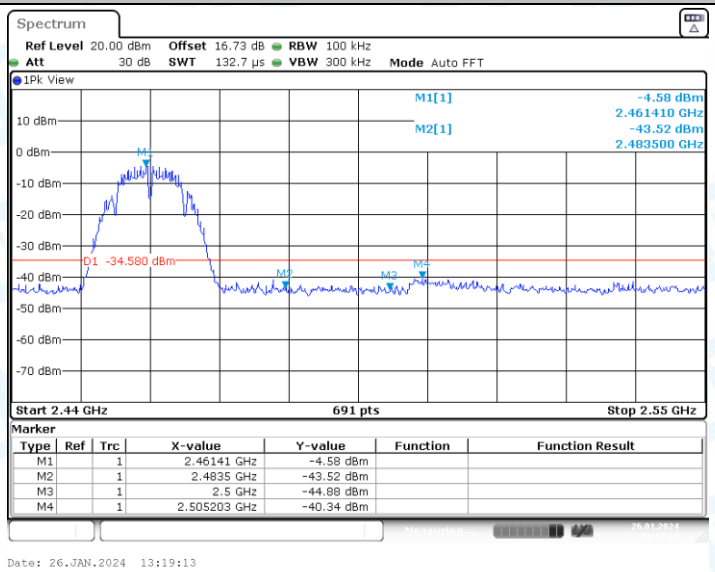
11B-CDD_Ant2_Low_2412



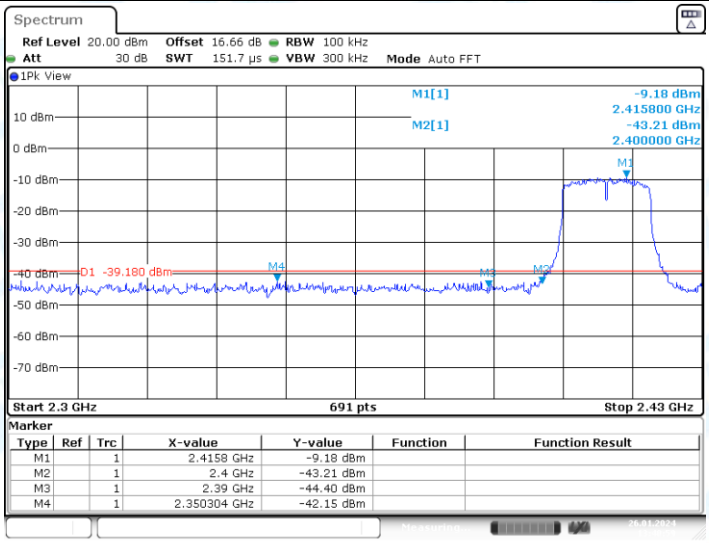
11B-CDD_Ant1_High_2462



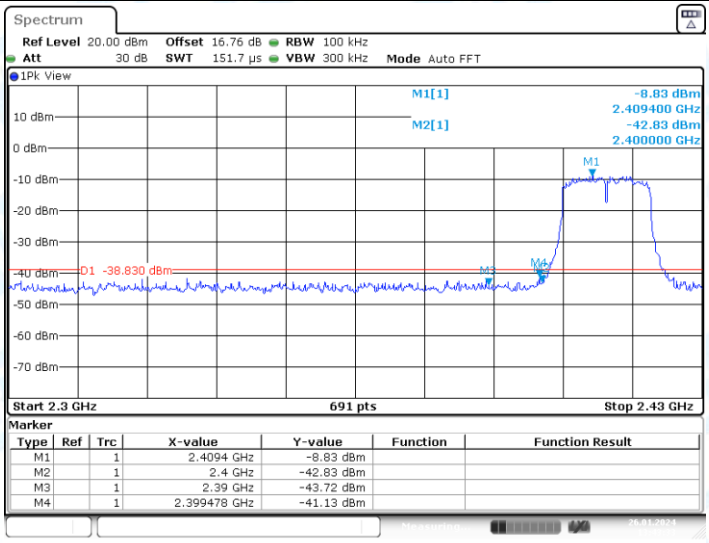
11B-CDD_Ant2_High_2462



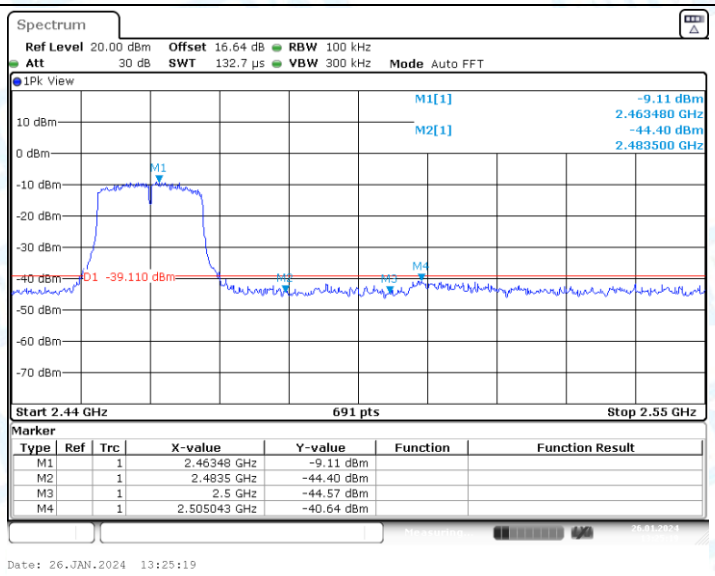
11G-CDD_Ant1_Low_2412



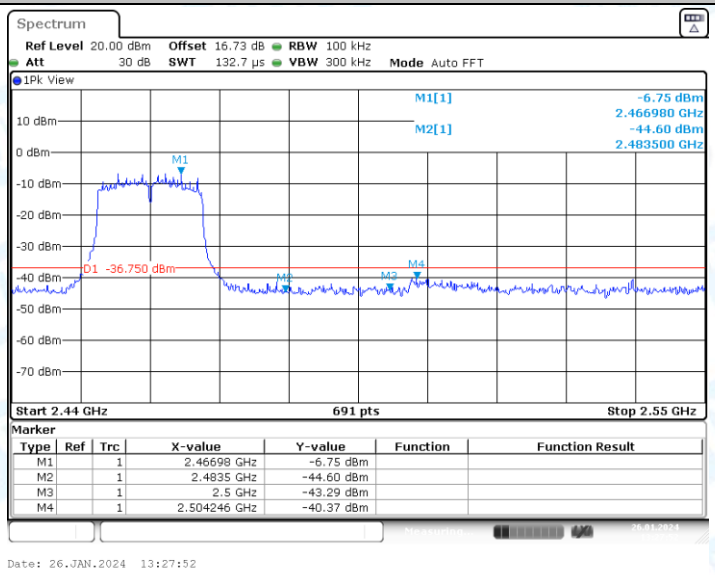
11G-CDD_Ant2_Low_2412



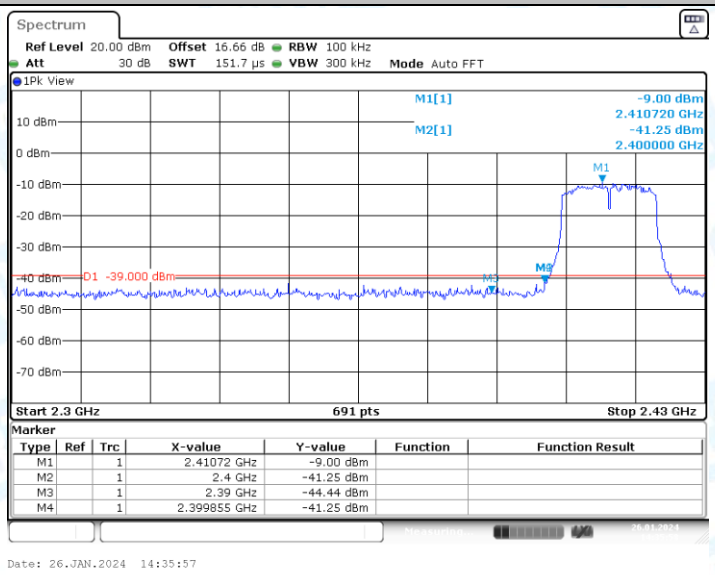
11G-CDD_Ant1_High_2462



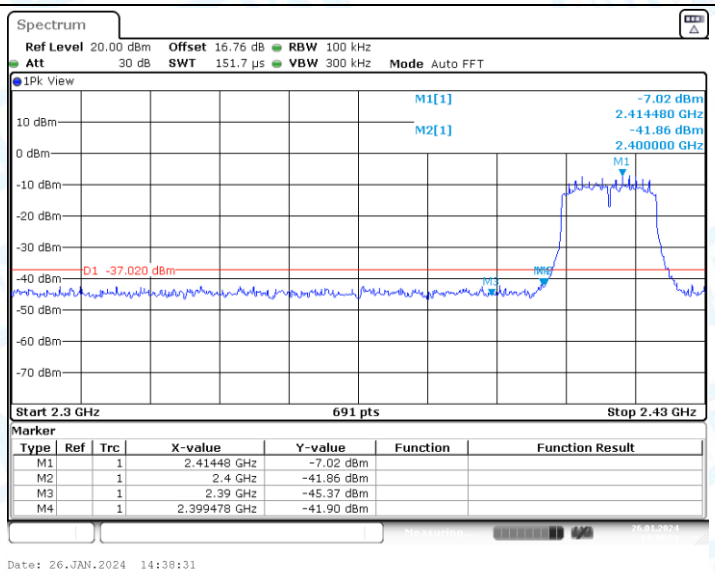
11G-CDD_Ant2_High_2462



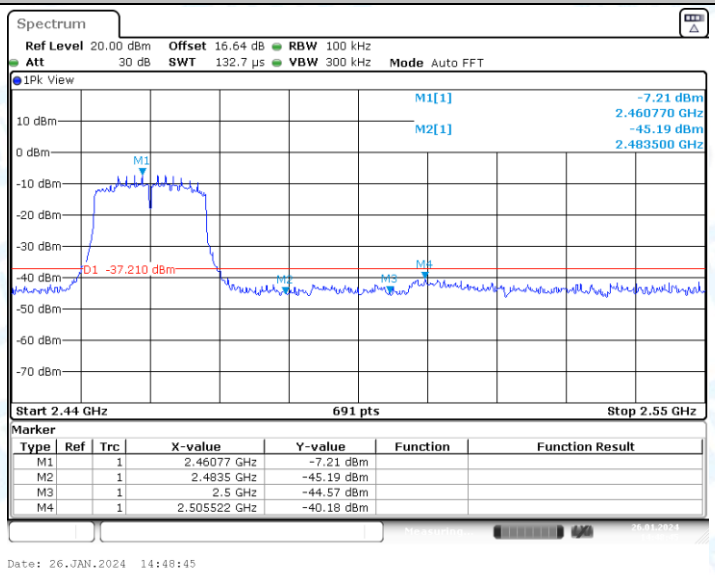
11N20MIMO_Ant1_Low_2412



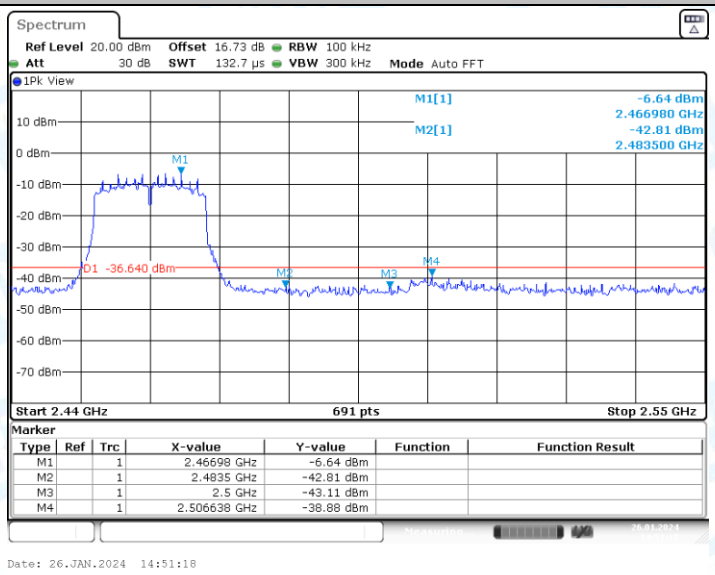
11N20MIMO_Ant2_Low_2412



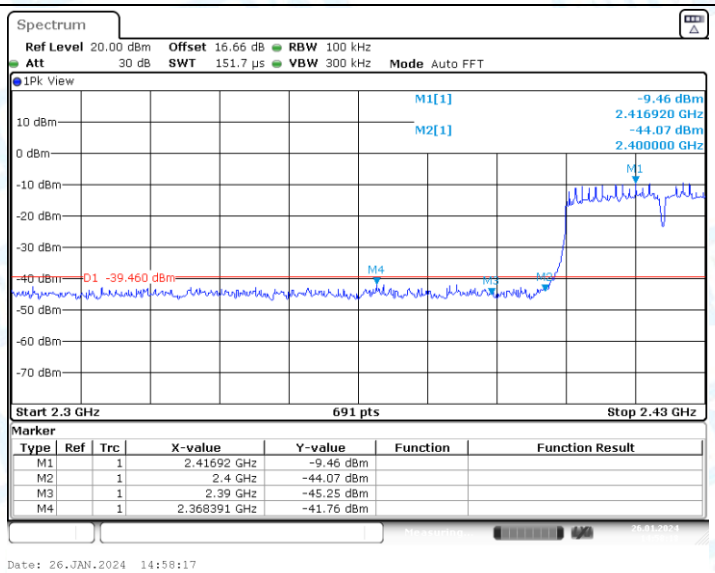
11N20MIMO_Ant1_High_2462



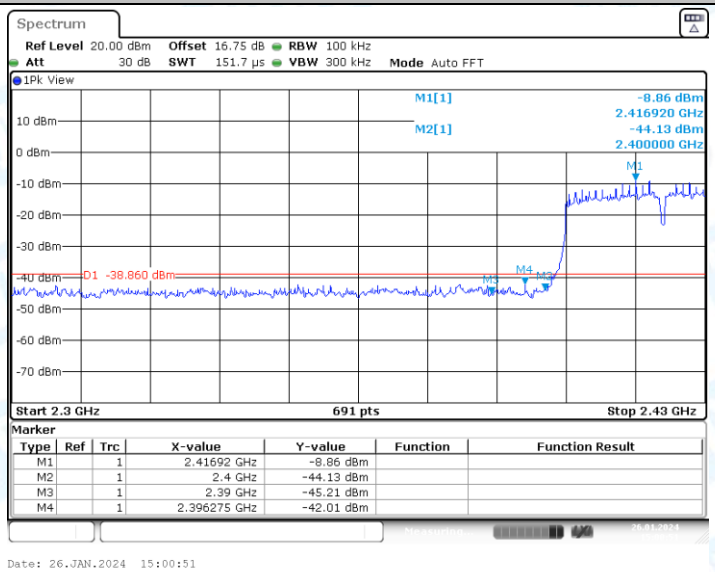
11N20MIMO_Ant2_High_2462



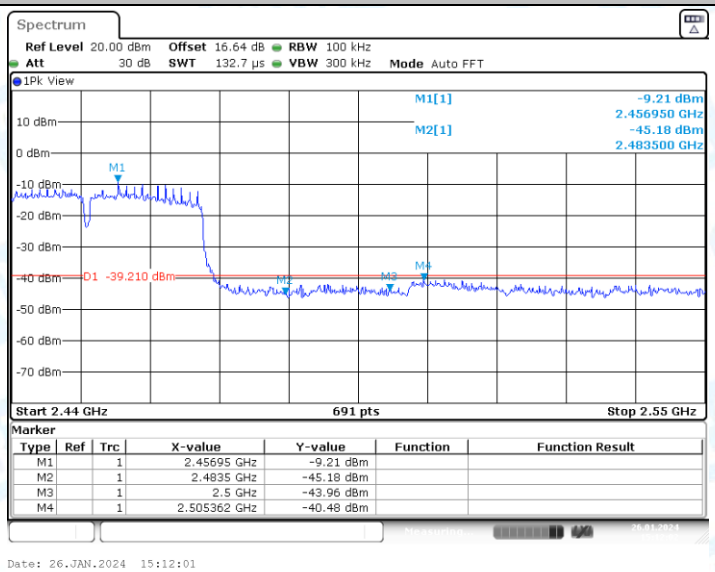
11N40MIMO_Ant1_Low_2422



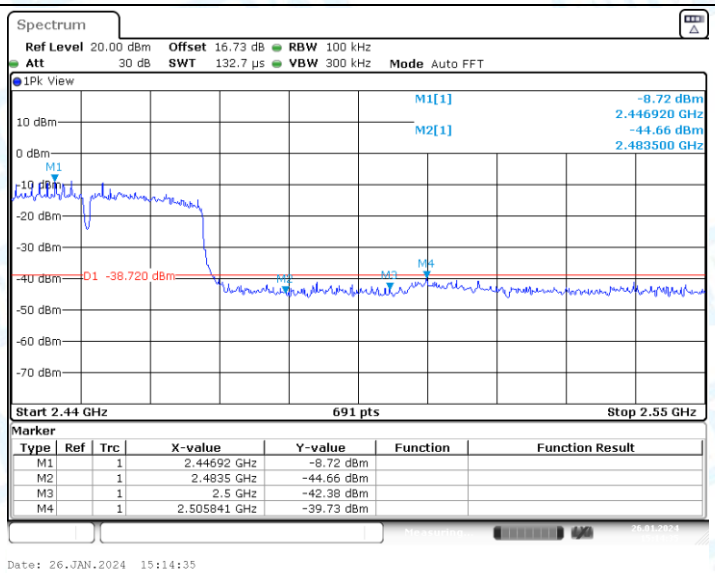
11N40MIMO_Ant2_Low_2422



11N40MIMO_Ant1_High_2452



11N40MIMO_Ant2_High_2452


Spectrum
Ref Level 20.00 dBm Offset 16.73 dB RBW 100 kHz
Att 30 dB SWT 132.7 µs VBW 300 kHz Mode Auto FFT
1Pk View
M1[1] -8.72 dBm
2.446920 GHz
M2[1] -44.66 dBm
2.483500 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
D1 -38.720 dBm
Start 2.44 GHz
691 pts
Stop 2.55 GHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.44692 GHz -8.72 dBm
M2 1 2.4835 GHz -44.66 dBm
M3 1 2.5 GHz -42.38 dBm
M4 1 2.505841 GHz -39.73 dBm
Date: 26.JAN.2024 15:14:35

6. Conducted Spurious Emission

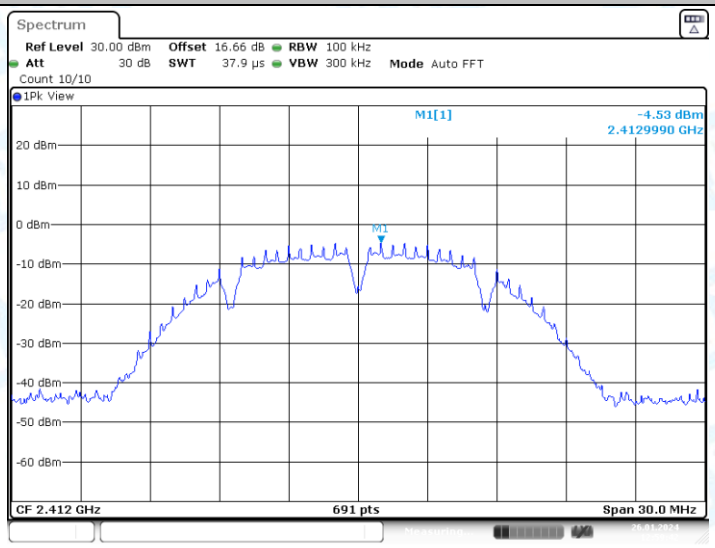
6.1.Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B-CDD	Ant1	2412	Reference	-4.53	-4.53	---	PASS
			30~1000	-4.53	-51.61	≤-34.53	PASS
			1000~26500	-4.53	-42.24	≤-34.53	PASS
	Ant2	2412	Reference	-4.18	-4.18	---	PASS
			30~1000	-4.18	-51.01	≤-34.18	PASS
			1000~26500	-4.18	-42.79	≤-34.18	PASS
	Ant1	2437	Reference	-4.72	-4.72	---	PASS
			30~1000	-4.72	-52.23	≤-34.72	PASS
			1000~26500	-4.72	-42.23	≤-34.72	PASS
	Ant2	2437	Reference	-4.25	-4.25	---	PASS
			30~1000	-4.25	-51.83	≤-34.25	PASS
			1000~26500	-4.25	-42.96	≤-34.25	PASS
	Ant1	2462	Reference	-4.45	-4.45	---	PASS
			30~1000	-4.45	-51.64	≤-34.45	PASS
			1000~26500	-4.45	-42.98	≤-34.45	PASS
	Ant2	2462	Reference	-4.63	-4.63	---	PASS
			30~1000	-4.63	-52.24	≤-34.63	PASS
			1000~26500	-4.63	-42.5	≤-34.63	PASS
11G-CDD	Ant1	2412	Reference	-6.53	-6.53	---	PASS
			30~1000	-6.53	-51.96	≤-36.53	PASS
			1000~26500	-6.53	-43.03	≤-36.53	PASS
	Ant2	2412	Reference	-6.34	-6.34	---	PASS
			30~1000	-6.34	-52.17	≤-36.34	PASS
			1000~26500	-6.34	-42.64	≤-36.34	PASS
	Ant1	2437	Reference	-6.65	-6.65	---	PASS
			30~1000	-6.65	-51.43	≤-36.65	PASS
			1000~26500	-6.65	-43.1	≤-36.65	PASS
	Ant2	2437	Reference	-6.37	-6.37	---	PASS
			30~1000	-6.37	-50.73	≤-36.37	PASS
			1000~26500	-6.37	-42.61	≤-36.37	PASS
	Ant1	2462	Reference	-6.14	-6.14	---	PASS
			30~1000	-6.14	-52.53	≤-36.14	PASS
			1000~26500	-6.14	-42.18	≤-36.14	PASS
	Ant2	2462	Reference	-6.23	-6.23	---	PASS
			30~1000	-6.23	-50.42	≤-36.23	PASS
			1000~26500	-6.23	-42.39	≤-36.23	PASS
11N20MIMO	Ant1	2412	Reference	-6.33	-6.33	---	PASS
			30~1000	-6.33	-52.38	≤-36.33	PASS
			1000~26500	-6.33	-41.96	≤-36.33	PASS
	Ant2	2412	Reference	-6.80	-6.80	---	PASS

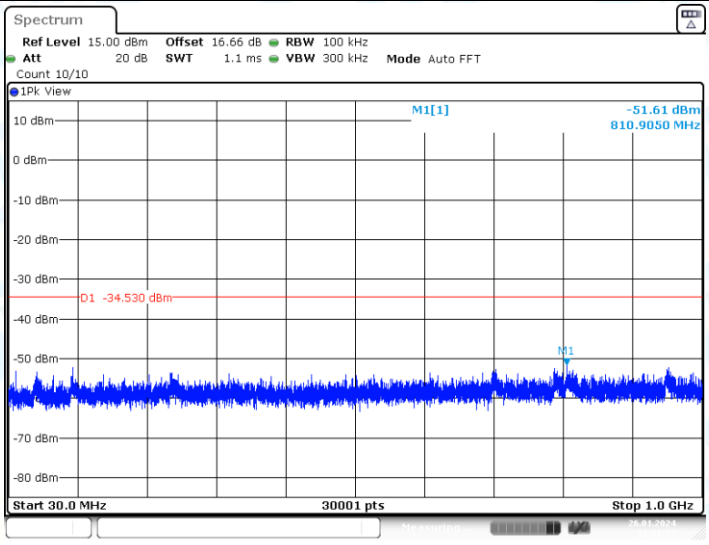
			30~1000	-6.80	-52.15	≤-36.8	PASS
			1000~26500	-6.80	-43.26	≤-36.8	PASS
	Ant1	2437	Reference	-6.04	-6.04	---	PASS
			30~1000	-6.04	-50.53	≤-36.04	PASS
			1000~26500	-6.04	-42.98	≤-36.04	PASS
	Ant2	2437	Reference	-6.20	-6.20	---	PASS
			30~1000	-6.20	-52.63	≤-36.2	PASS
			1000~26500	-6.20	-42.33	≤-36.2	PASS
	Ant1	2462	Reference	-6.10	-6.10	---	PASS
			30~1000	-6.10	-50.64	≤-36.1	PASS
			1000~26500	-6.10	-43.03	≤-36.1	PASS
	Ant2	2462	Reference	-6.13	-6.13	---	PASS
			30~1000	-6.13	-52.03	≤-36.13	PASS
			1000~26500	-6.13	-42.68	≤-36.13	PASS
11N40MIMO	Ant1	2422	Reference	-9.45	-9.45	---	PASS
			30~1000	-9.45	-50.65	≤-39.45	PASS
			1000~26500	-9.45	-42.71	≤-39.45	PASS
	Ant2	2422	Reference	-8.95	-8.95	---	PASS
			30~1000	-8.95	-51.23	≤-38.95	PASS
			1000~26500	-8.95	-42.77	≤-38.95	PASS
	Ant1	2437	Reference	-9.15	-9.15	---	PASS
			30~1000	-9.15	-51.23	≤-39.15	PASS
			1000~26500	-9.15	-43.03	≤-39.15	PASS
	Ant2	2437	Reference	-9.13	-9.13	---	PASS
			30~1000	-9.13	-50.27	≤-39.13	PASS
			1000~26500	-9.13	-43.57	≤-39.13	PASS
	Ant1	2452	Reference	-8.96	-8.96	---	PASS
			30~1000	-8.96	-49.98	≤-38.96	PASS
			1000~26500	-8.96	-42.79	≤-38.96	PASS
	Ant2	2452	Reference	-9.26	-9.26	---	PASS
			30~1000	-9.26	-50.56	≤-39.26	PASS
			1000~26500	-9.26	-43.24	≤-39.26	PASS

6.2.Test Graphs

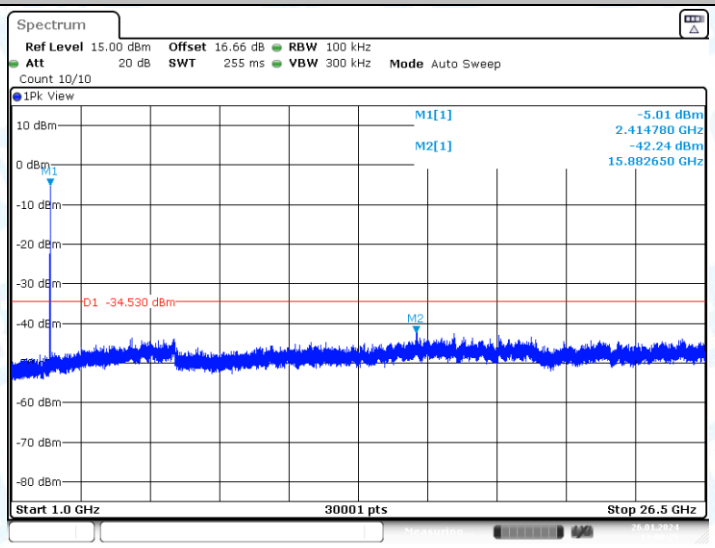
11B-CDD_Ant1_2412_0~Reference



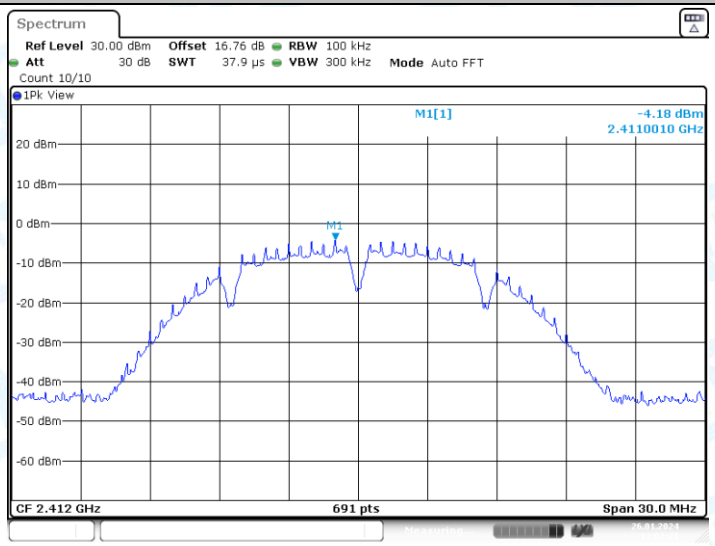
11B-CDD_Ant1_2412_30~1000



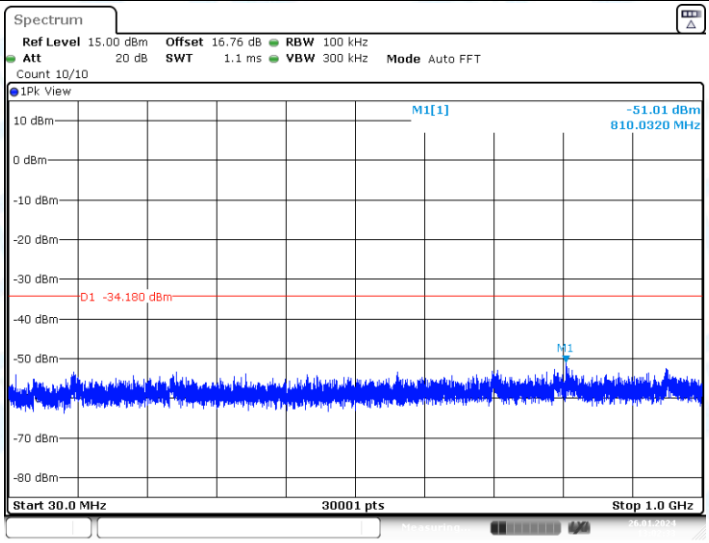
11B-CDD_Ant1_2412_1000~26500



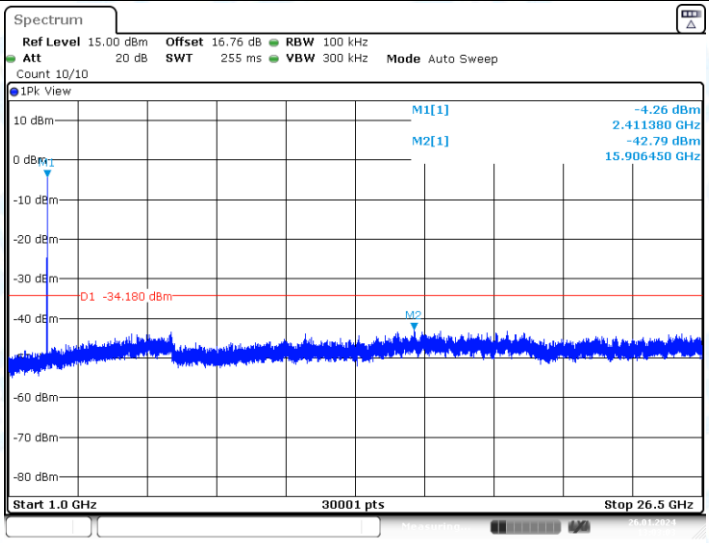
11B-CDD_Ant2_2412_0~Reference



11B-CDD_Ant2_2412_30~1000



11B-CDD_Ant2_2412_1000~26500



11B-CDD_Ant1_2437_0~Reference