RF Test Data for 5G Wi-Fi (Conducted Measurements)

General Description of EUT	
Product Name:	ORBIT AIR
Test Model:	ORBIT AIR/KR2208
Sample ID:	HC-C-202407-0284-01-01-2#
Environmental Conditions	
Temperature:	23.8℃
Relative Humidity:	48%
Test Voltage:	DC 3.8V
Test Engineer:	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202407-0284-33	

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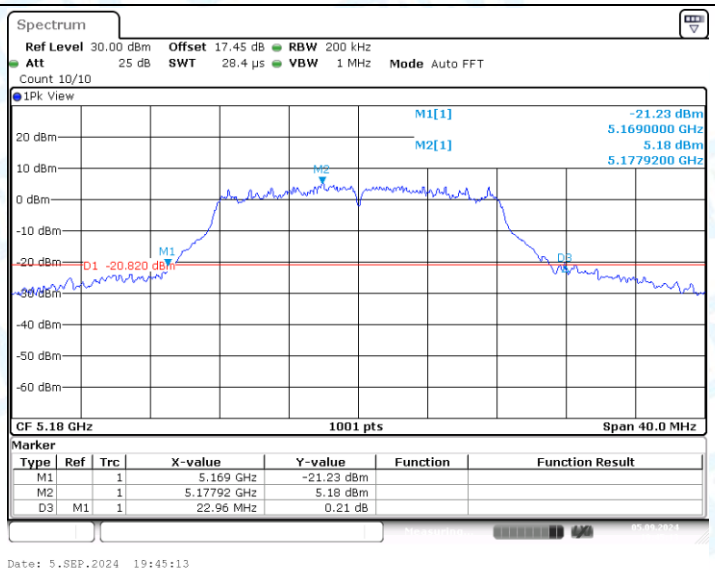
1. Emission Bandwidth

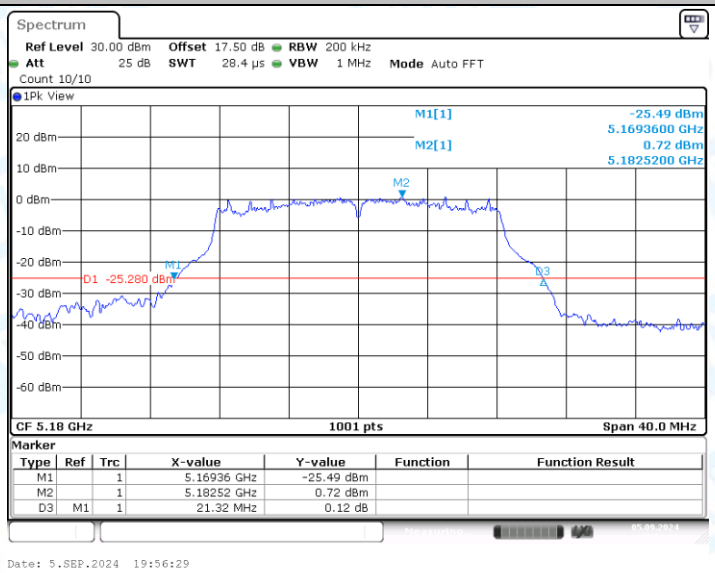
1.1.Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A-CDD	Ant1	5180	22.96	5169.00	5191.96	---	---
	Ant2	5180	21.32	5169.36	5190.68	---	---
	Ant1	5200	21.24	5189.48	5210.72	---	---
	Ant2	5200	20.96	5189.56	5210.52	---	---
	Ant1	5240	20.96	5229.60	5250.56	---	---
	Ant2	5240	21.20	5229.36	5250.56	---	---
11N20MIMO	Ant1	5180	21.28	5169.44	5190.72	---	---
	Ant2	5180	21.28	5169.44	5190.72	---	---
	Ant1	5200	23.92	5189.16	5213.08	---	---
	Ant2	5200	21.56	5189.28	5210.84	---	---
	Ant1	5240	25.80	5229.36	5255.16	---	---
	Ant2	5240	21.68	5229.28	5250.96	---	---
11N40MIMO	Ant1	5190	43.36	5170.00	5213.36	---	---
	Ant2	5190	40.32	5169.84	5210.16	---	---
	Ant1	5230	40.16	5210.08	5250.24	---	---
	Ant2	5230	40.00	5210.16	5250.16	---	---
11AC20MIMO	Ant1	5180	23.88	5167.12	5191.00	---	---
	Ant2	5180	21.32	5169.32	5190.64	---	---
	Ant1	5200	21.48	5189.20	5210.68	---	---
	Ant2	5200	21.40	5189.20	5210.60	---	---
	Ant1	5240	21.60	5229.32	5250.92	---	---
	Ant2	5240	21.48	5229.28	5250.76	---	---
11AC40MIMO	Ant1	5190	40.08	5170.00	5210.08	---	---
	Ant2	5190	39.92	5170.08	5210.00	---	---
	Ant1	5230	40.16	5210.16	5250.32	---	---
	Ant2	5230	40.24	5210.16	5250.40	---	---
11AC80MIMO	Ant1	5210	80.00	5170.00	5250.00	---	---
	Ant2	5210	80.96	5170.00	5250.96	---	---
11AX20MIMO	Ant1	5180	21.36	5169.24	5190.60	---	---
	Ant2	5180	21.08	5169.40	5190.48	---	---
	Ant1	5200	21.24	5189.40	5210.64	---	---
	Ant2	5200	21.08	5189.40	5210.48	---	---
	Ant1	5240	21.32	5229.44	5250.76	---	---
	Ant2	5240	20.88	5229.60	5250.48	---	---
11AX40MIMO	Ant1	5190	40.08	5170.08	5210.16	---	---
	Ant2	5190	40.16	5169.92	5210.08	---	---
	Ant1	5230	40.24	5210.00	5250.24	---	---
	Ant2	5230	40.24	5209.92	5250.16	---	---
11AX80MIMO	Ant1	5210	82.24	5168.88	5251.12	---	---
	Ant2	5210	81.44	5169.36	5250.80	---	---

2.1.Test Graphs



11A-CDD_Ant1_5180



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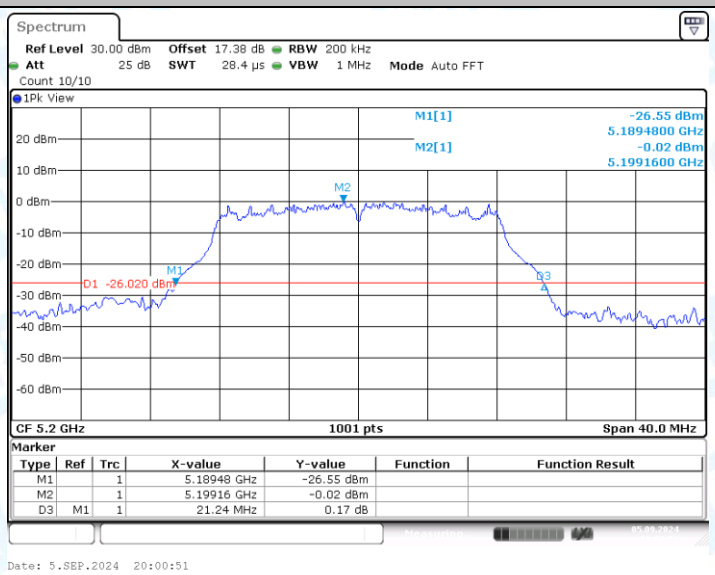

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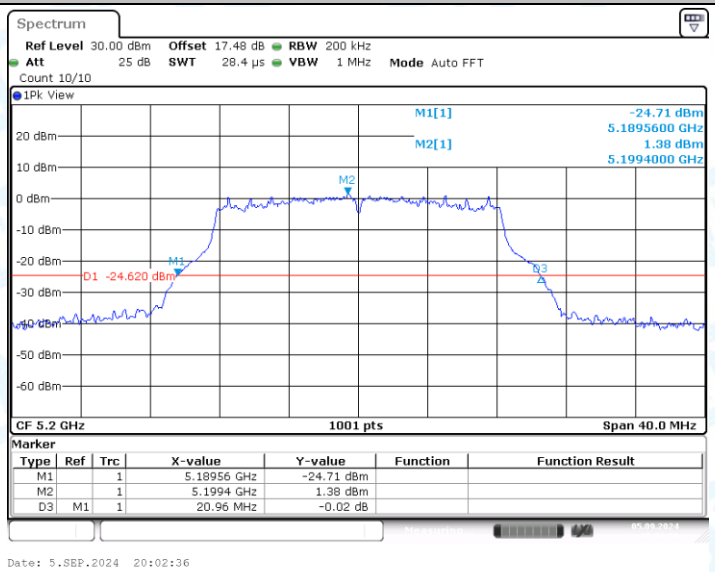

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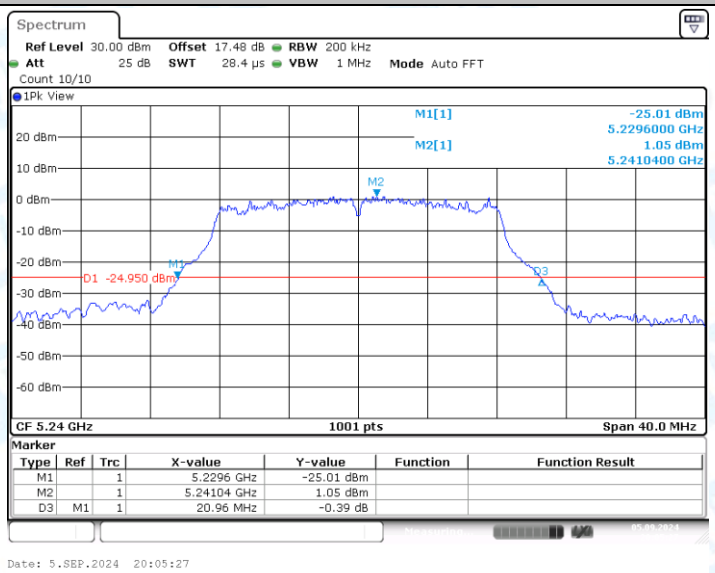

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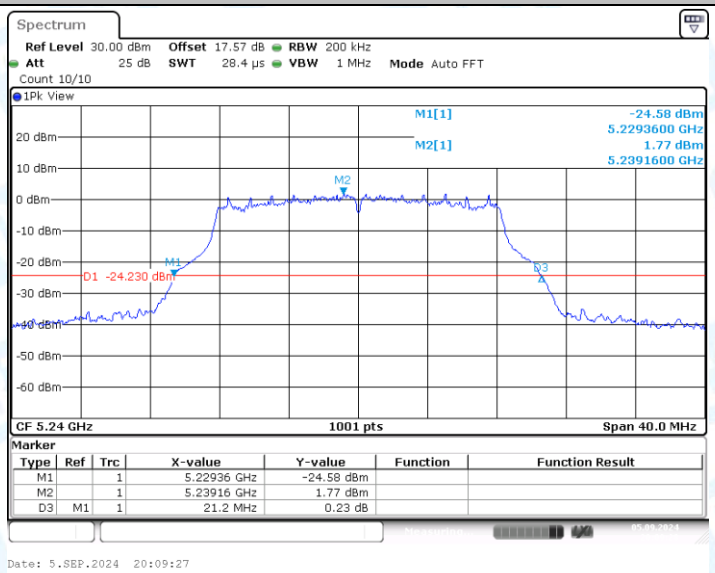

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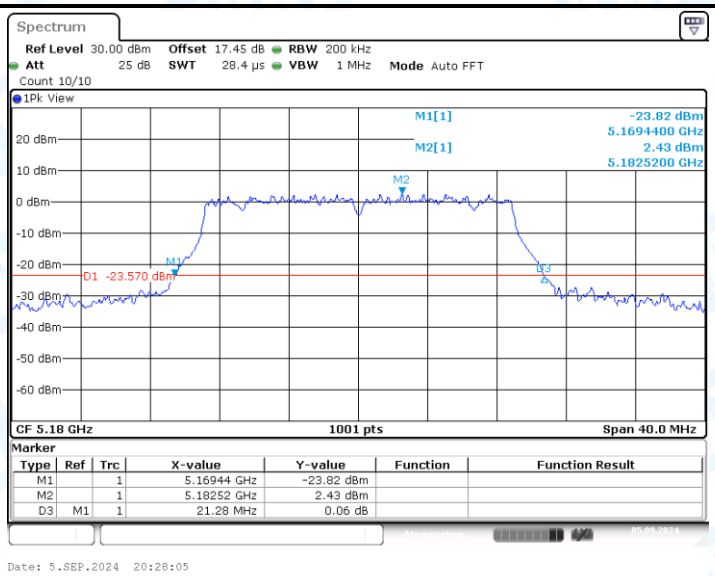

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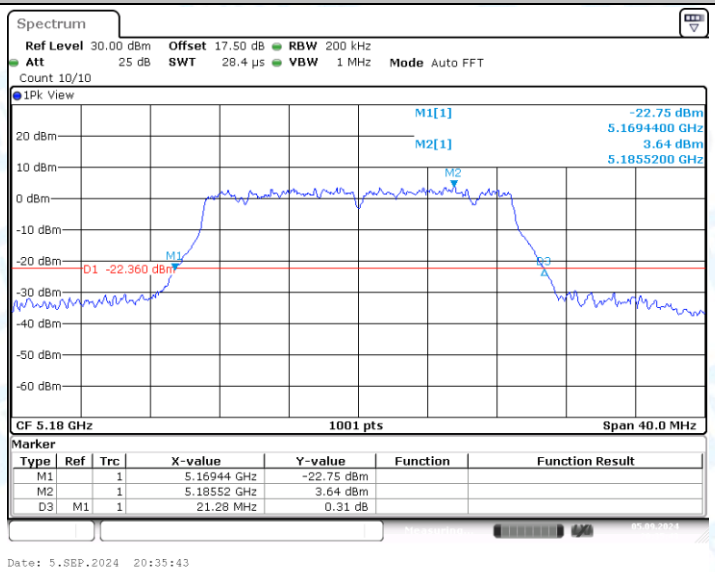

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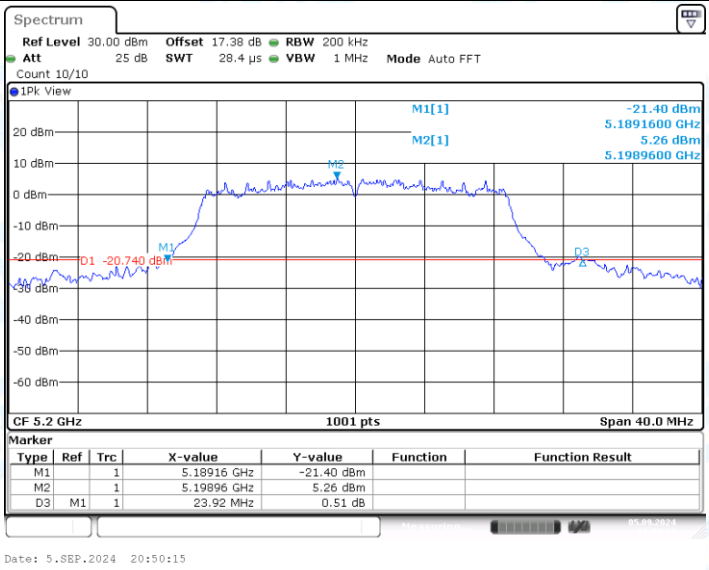

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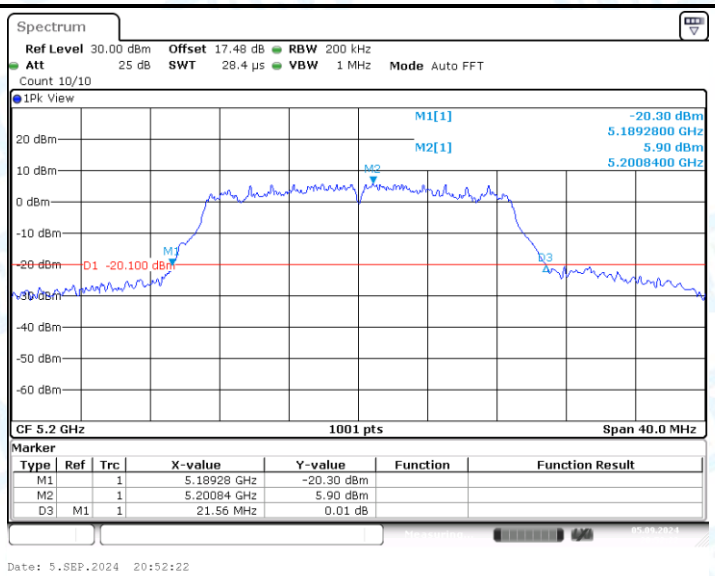

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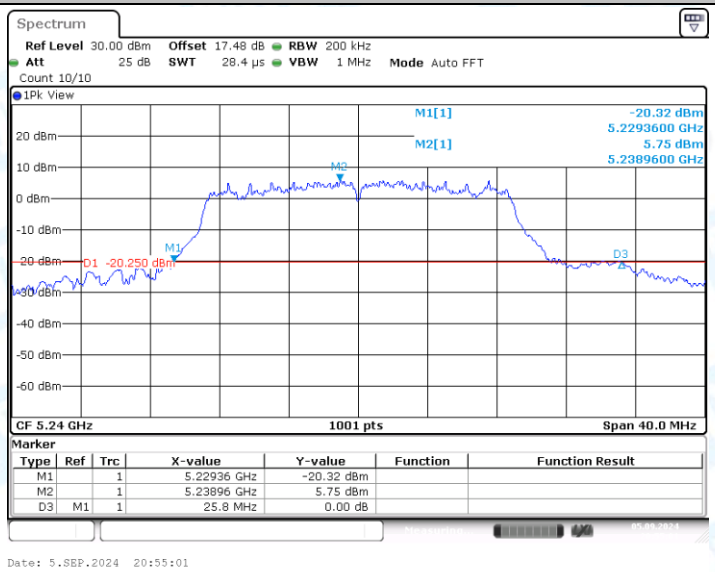

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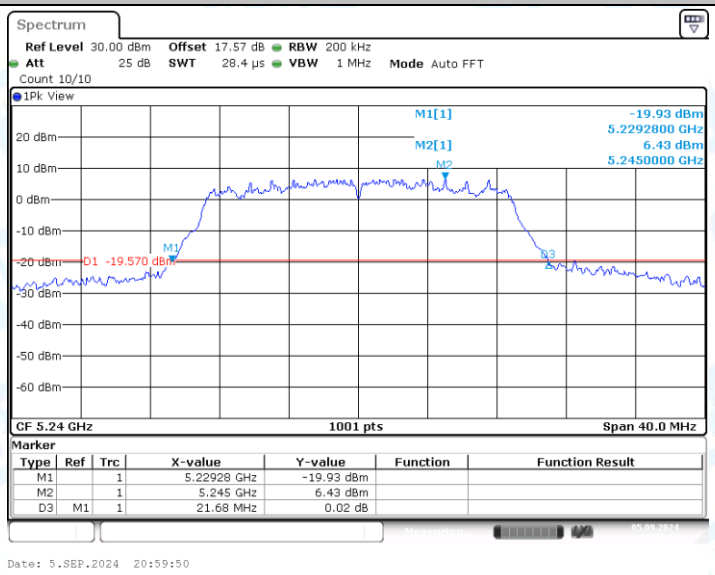

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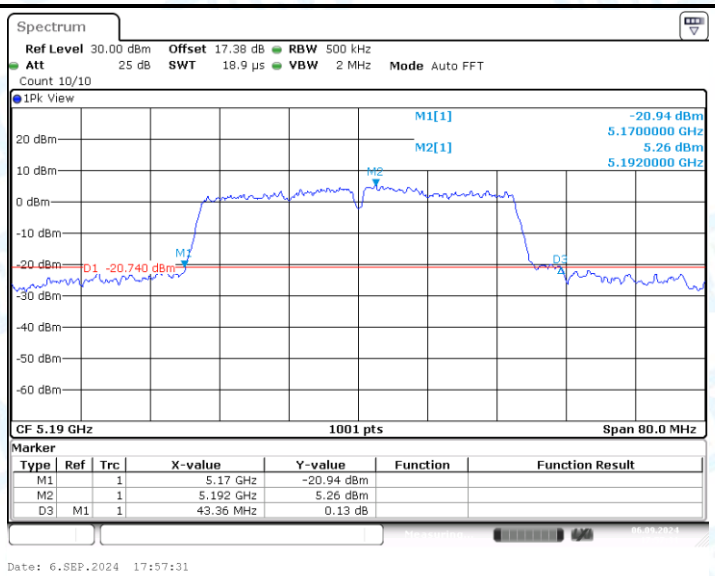

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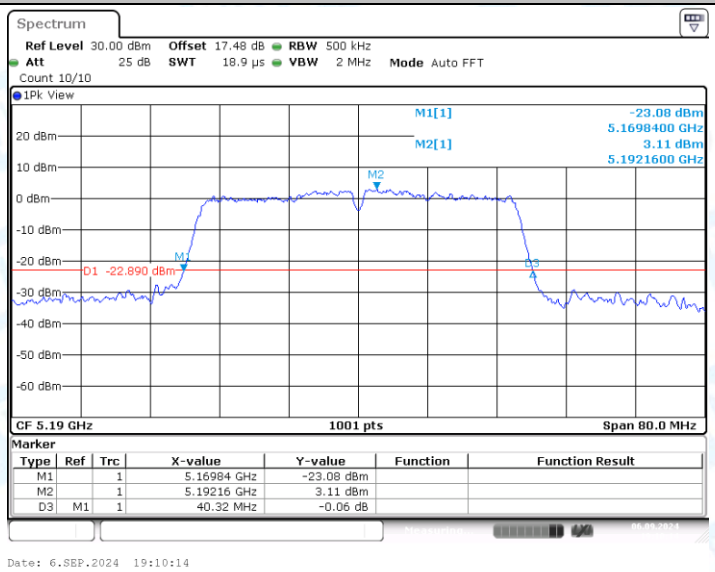

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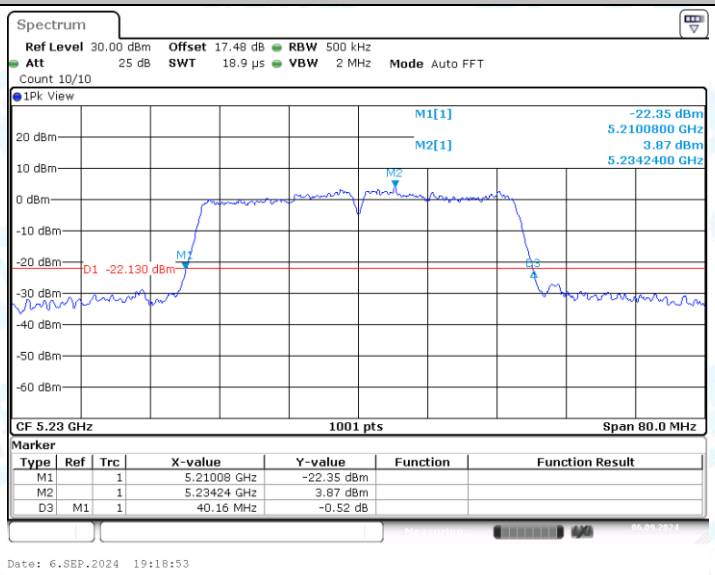

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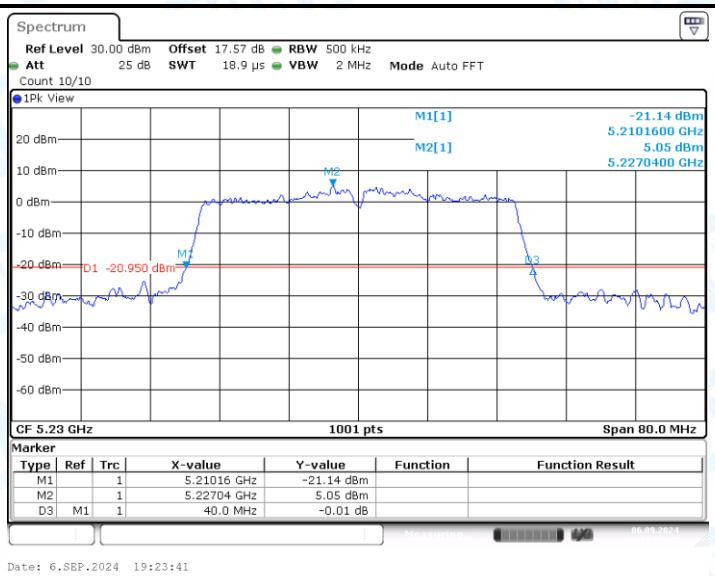

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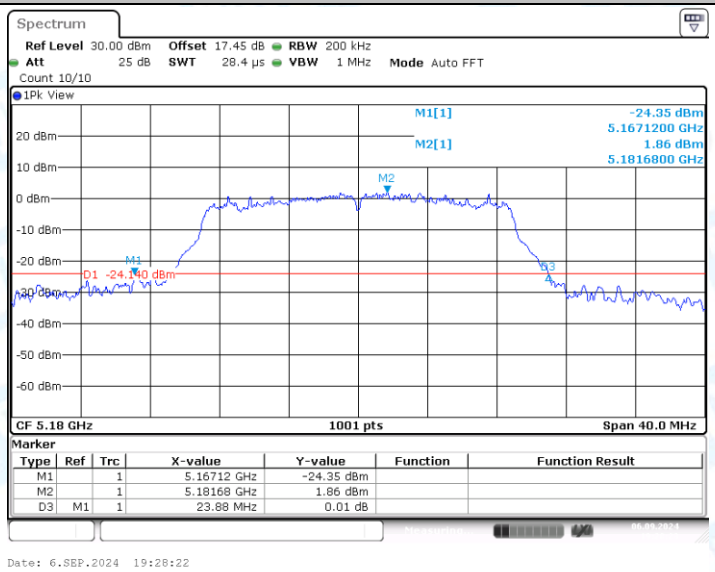

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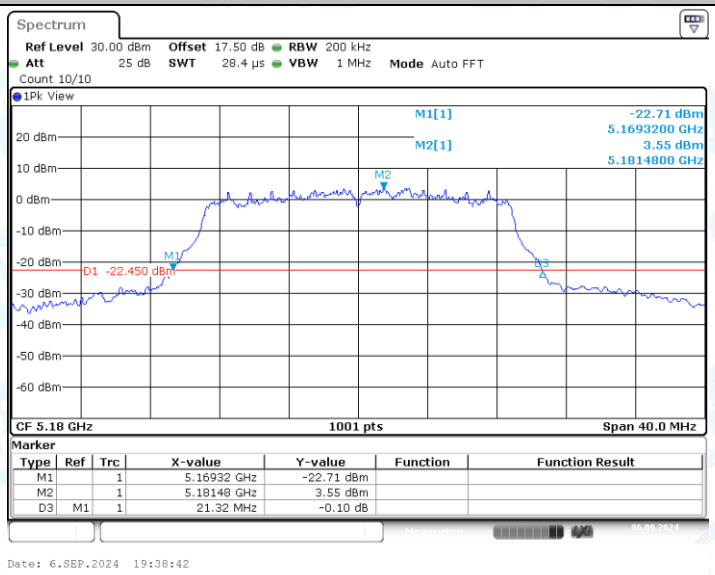

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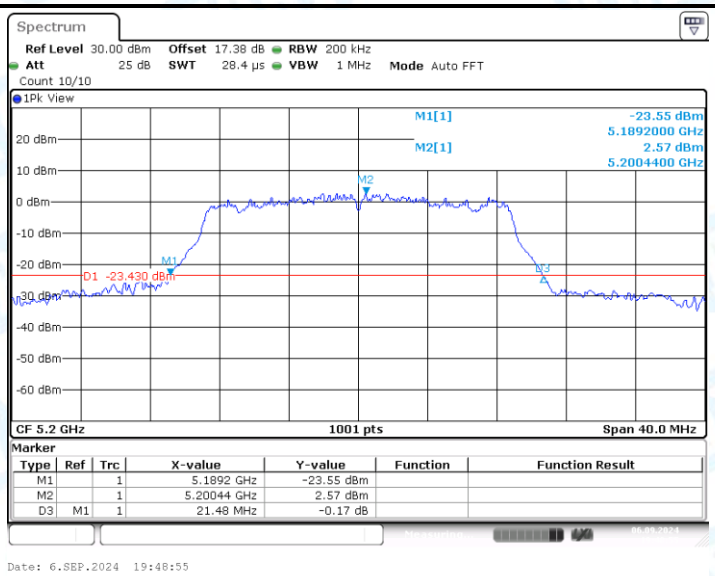

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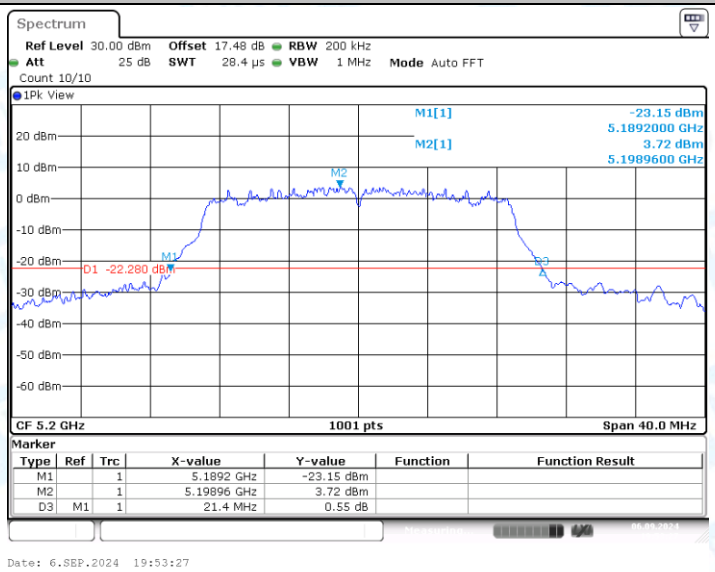

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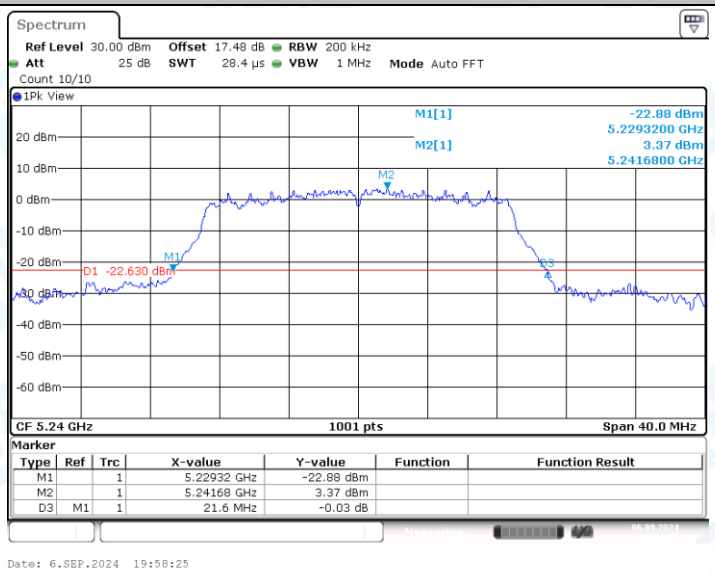

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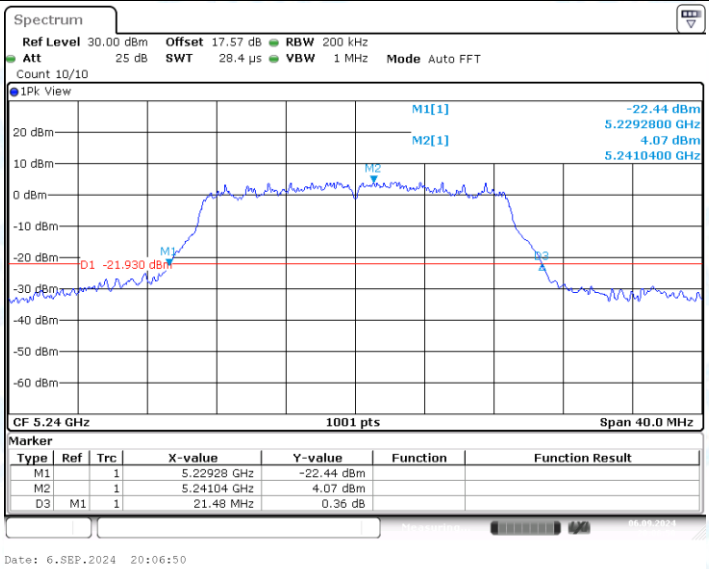

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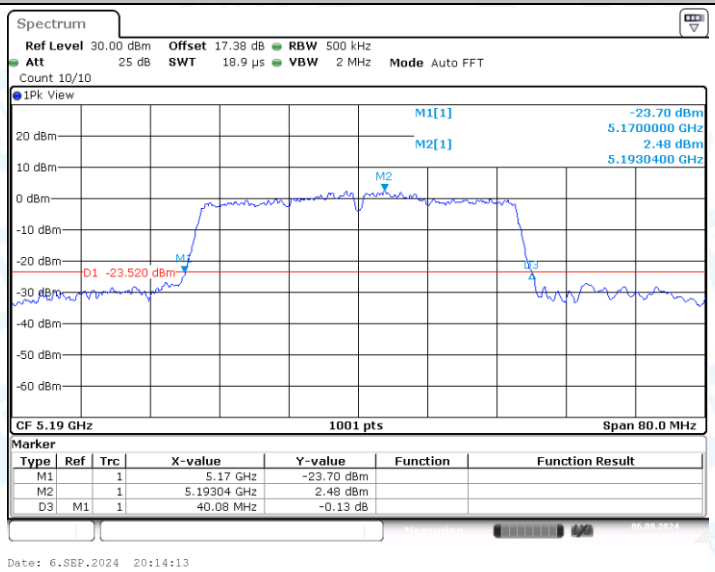

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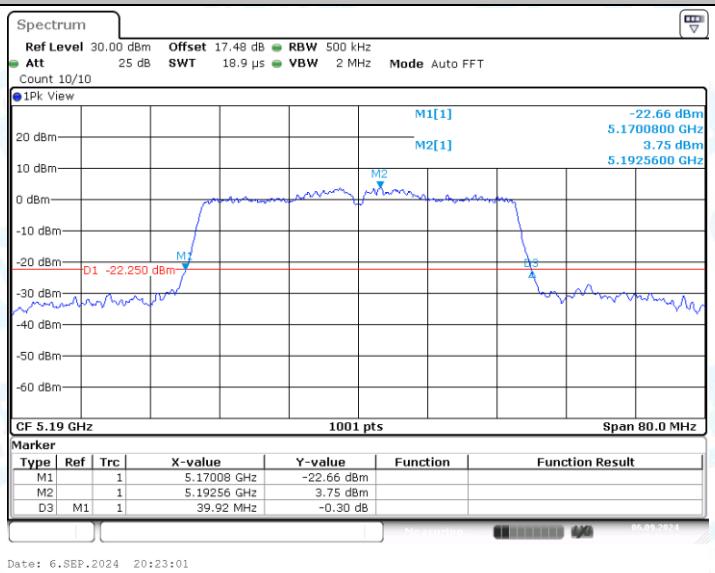

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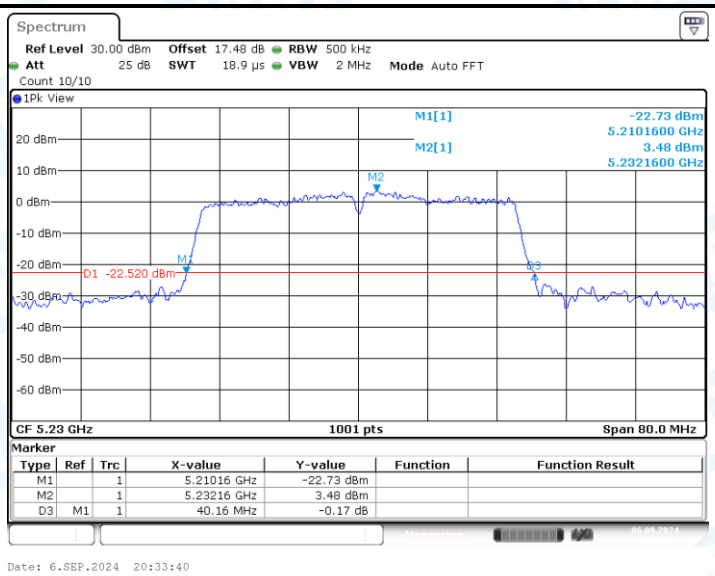

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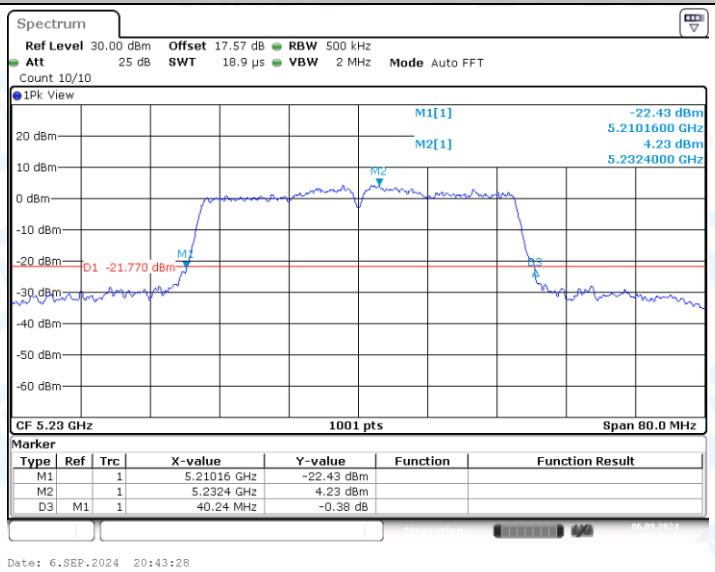

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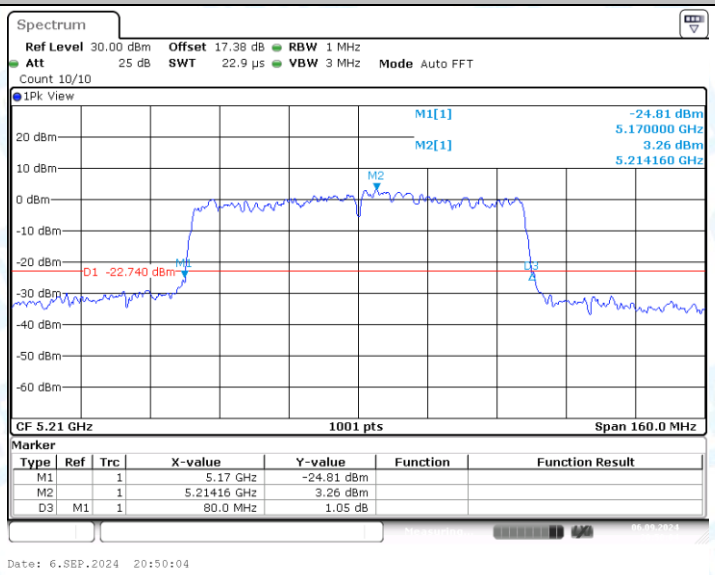

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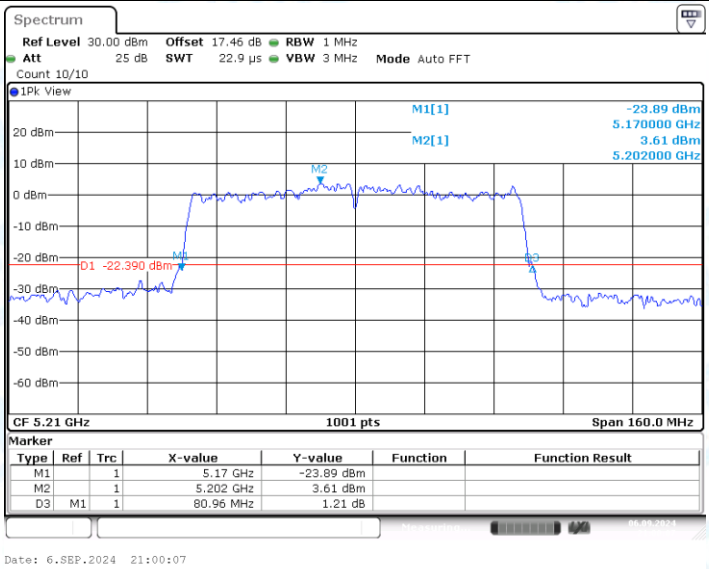

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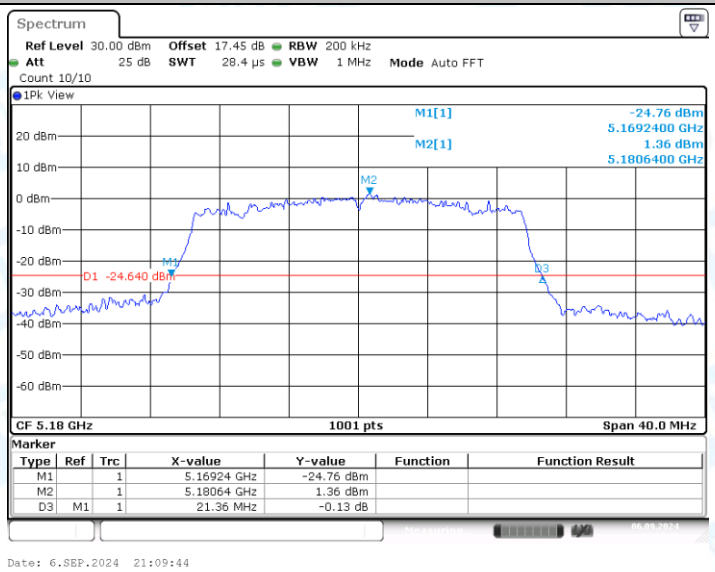

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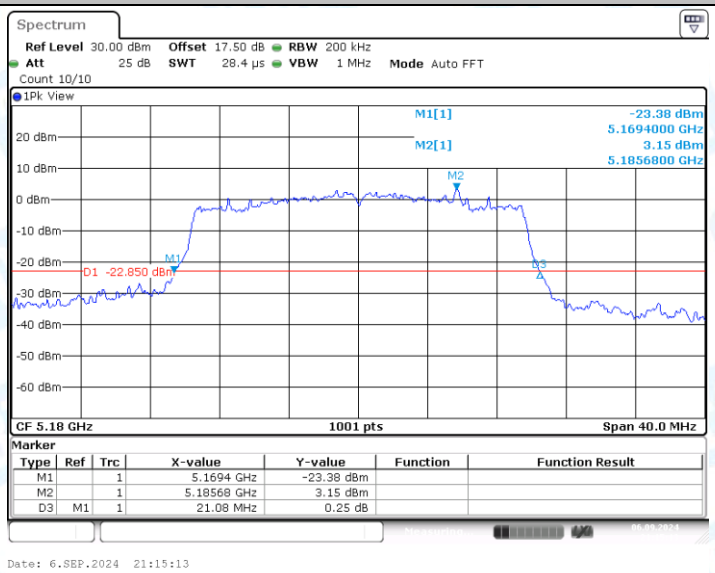

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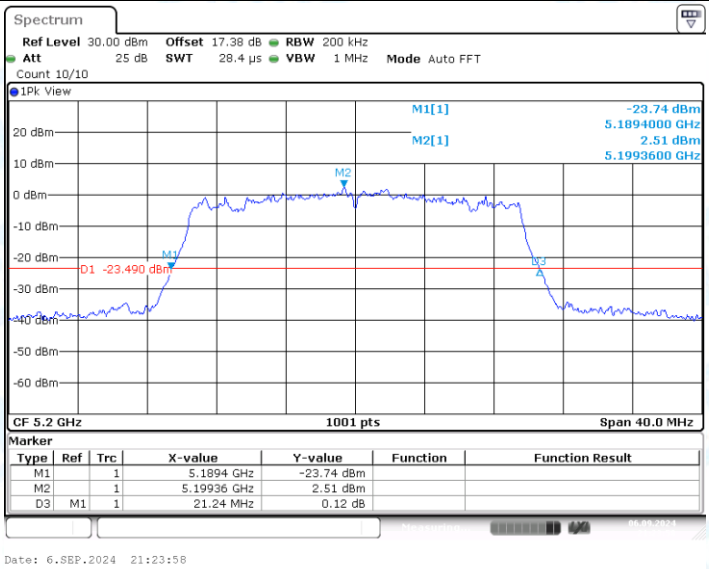

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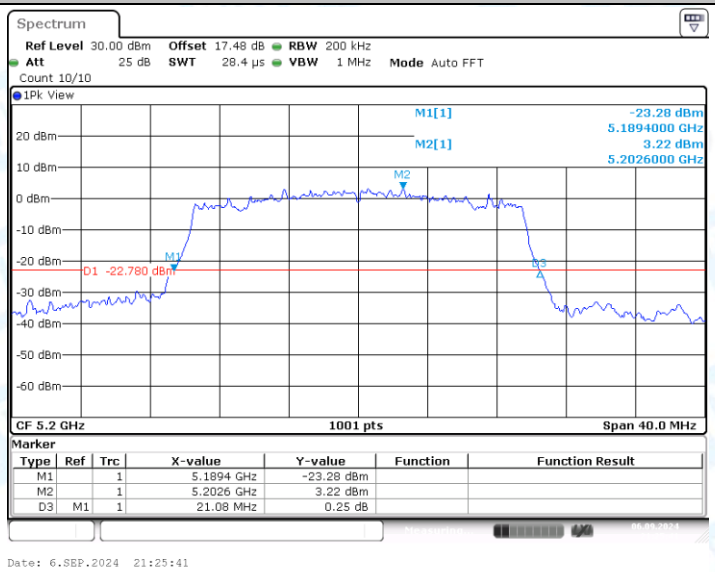

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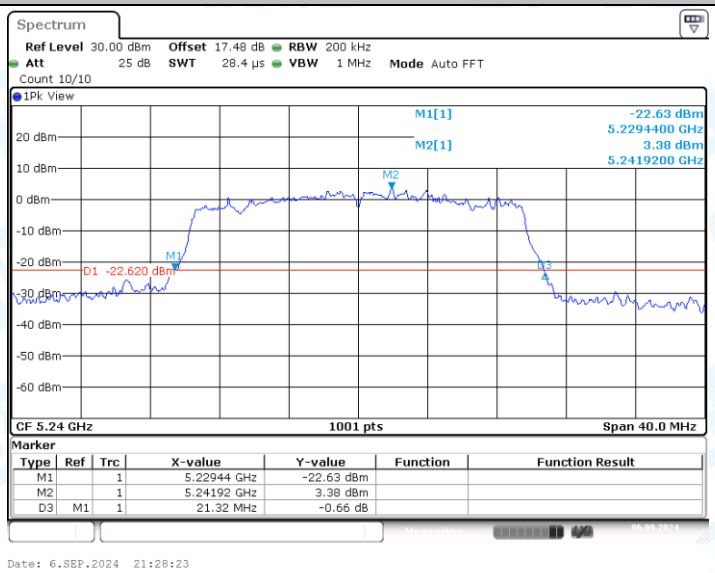

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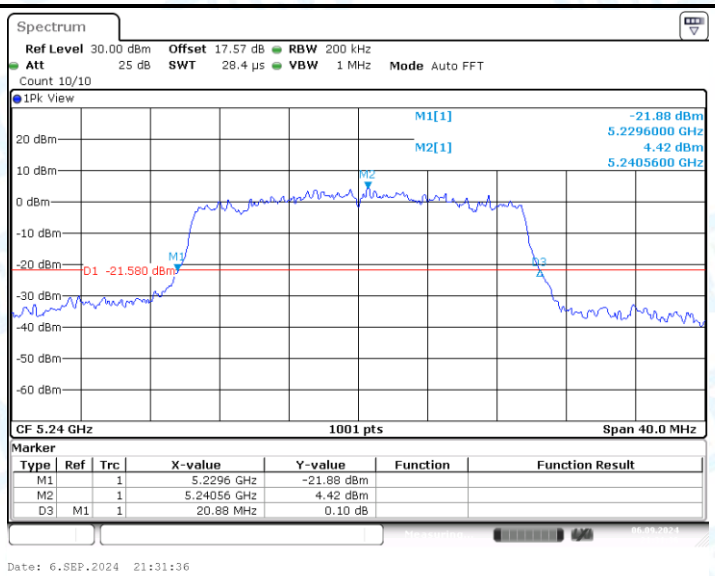

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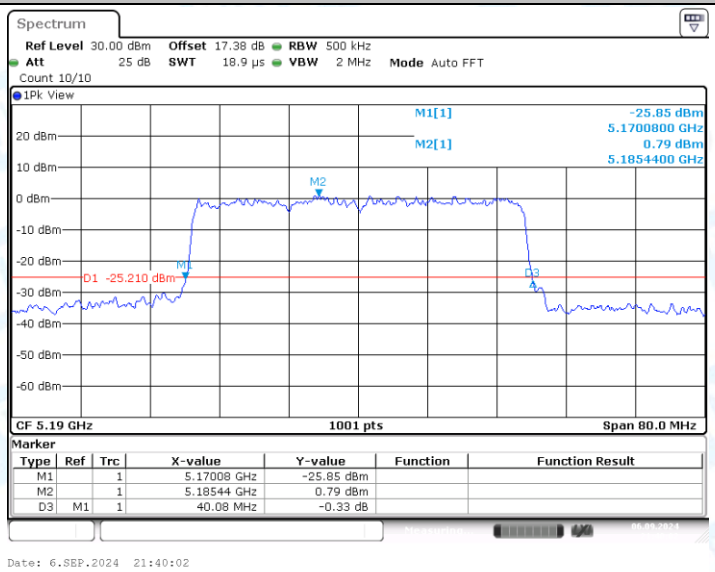

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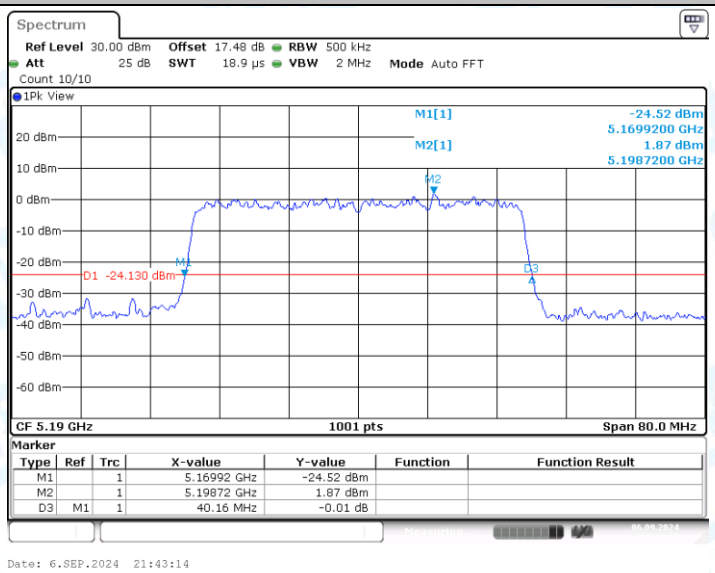

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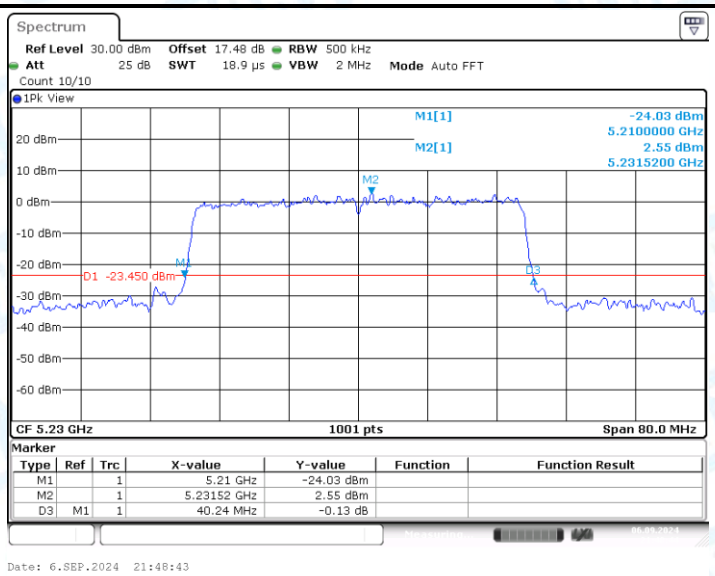

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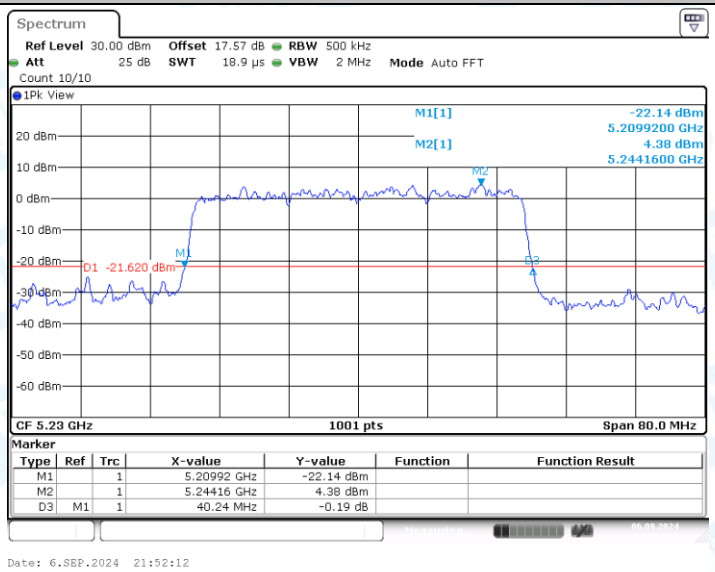

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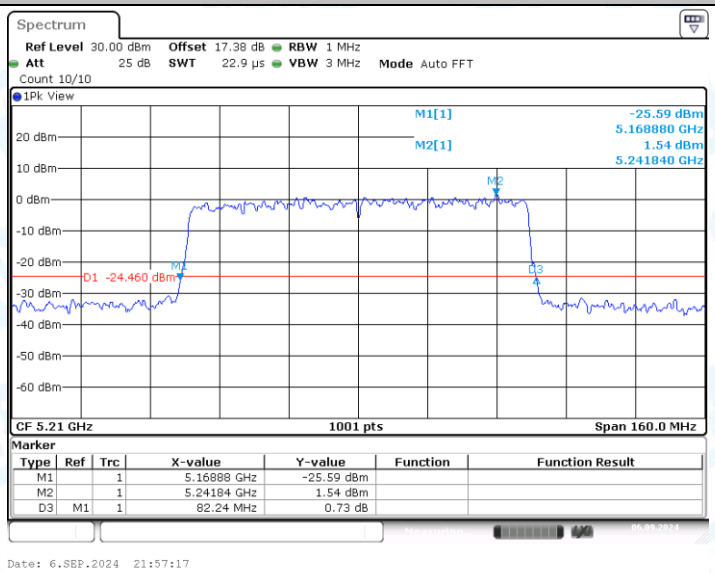

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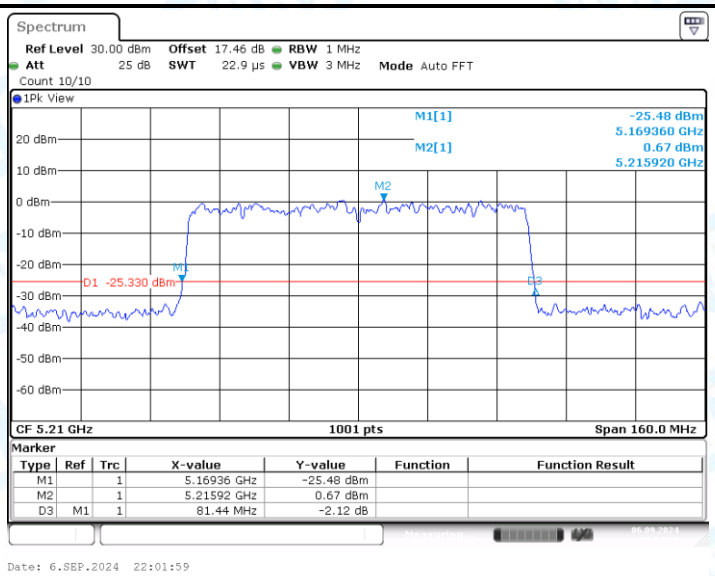


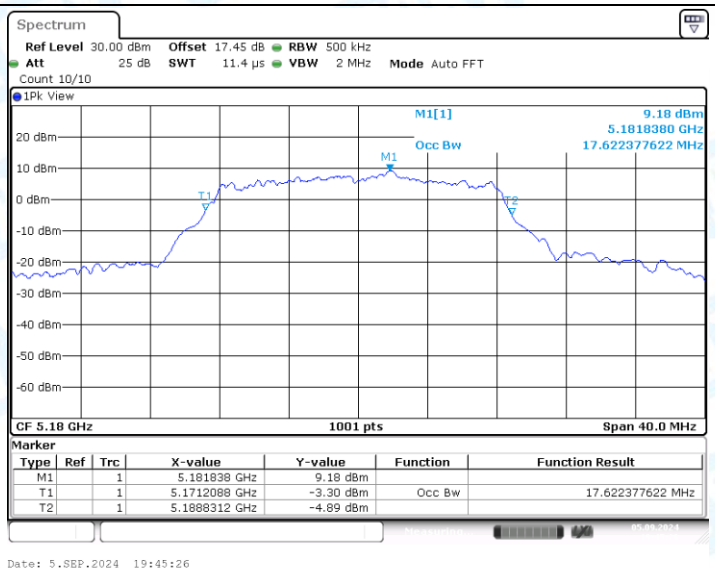
11AX80MIMO_Ant2_5210

2. Occupied channel bandwidth

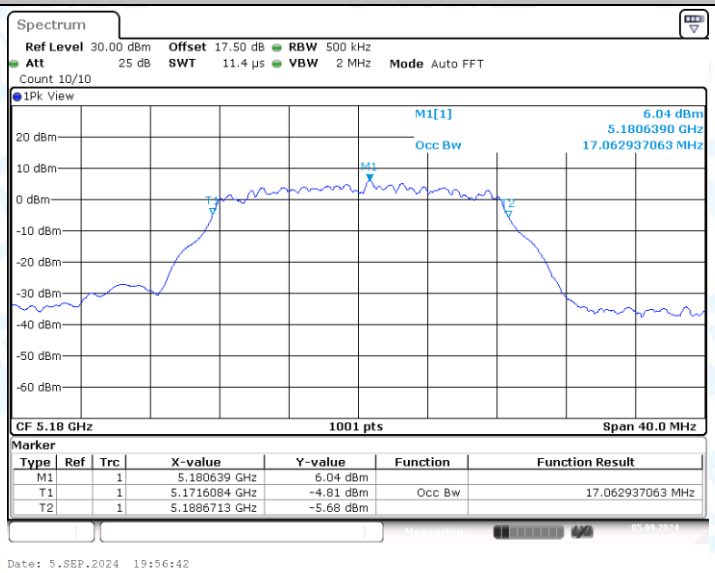
2.1.Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A-CDD	Ant1	5180	17.622	5171.2088	5188.8312	---	---
	Ant2	5180	17.063	5171.6084	5188.6713	---	---
	Ant1	5200	17.542	5191.2088	5208.7512	---	---
	Ant2	5200	17.143	5191.3686	5208.5115	---	---
	Ant1	5240	17.263	5231.5684	5248.8312	---	---
	Ant2	5240	17.103	5231.6084	5248.7113	---	---
11N20MIMO	Ant1	5180	18.022	5171.0090	5189.0310	---	---
	Ant2	5180	18.382	5170.8492	5189.2308	---	---
	Ant1	5200	18.821	5190.6893	5209.5105	---	---
	Ant2	5200	18.422	5190.8492	5209.2707	---	---
	Ant1	5240	18.821	5230.7293	5249.5504	---	---
	Ant2	5240	18.741	5230.8092	5249.5504	---	---
11N40MIMO	Ant1	5190	36.523	5171.7782	5208.3017	---	---
	Ant2	5190	36.364	5171.8581	5208.2218	---	---
	Ant1	5230	36.523	5211.7782	5248.3017	---	---
	Ant2	5230	36.523	5211.8581	5248.3816	---	---
11AC20MIMO	Ant1	5180	18.462	5170.6494	5189.1109	---	---
	Ant2	5180	18.701	5170.5694	5189.2707	---	---
	Ant1	5200	18.182	5190.9690	5209.1508	---	---
	Ant2	5200	18.541	5190.7293	5209.2707	---	---
	Ant1	5240	18.462	5230.7692	5249.2308	---	---
	Ant2	5240	18.462	5230.8092	5249.2707	---	---
11AC40MIMO	Ant1	5190	36.444	5171.8581	5208.3017	---	---
	Ant2	5190	36.284	5171.9381	5208.2218	---	---
	Ant1	5230	36.364	5211.8581	5248.2218	---	---
	Ant2	5230	36.523	5211.7782	5248.3017	---	---
11AC80MIMO	Ant1	5210	76.084	5172.1179	5248.2018	---	---
	Ant2	5210	76.404	5171.7982	5248.2018	---	---
11AX20MIMO	Ant1	5180	19.141	5170.5295	5189.6703	---	---
	Ant2	5180	19.061	5170.4895	5189.5504	---	---
	Ant1	5200	19.141	5190.4895	5209.6304	---	---
	Ant2	5200	19.021	5190.5694	5209.5904	---	---
	Ant1	5240	19.221	5230.3297	5249.5504	---	---
	Ant2	5240	18.941	5230.5295	5249.4705	---	---
11AX40MIMO	Ant1	5190	37.802	5171.1389	5208.9411	---	---
	Ant2	5190	37.642	5171.2188	5208.8611	---	---
	Ant1	5230	37.802	5211.2188	5249.0210	---	---
	Ant2	5230	37.722	5211.1389	5248.8611	---	---
11AX80MIMO	Ant1	5210	77.842	5171.1588	5249.0010	---	---
	Ant2	5210	77.522	5171.4785	5249.0010	---	---

2.2.Test Graphs



11A-CDD_Ant1_5180



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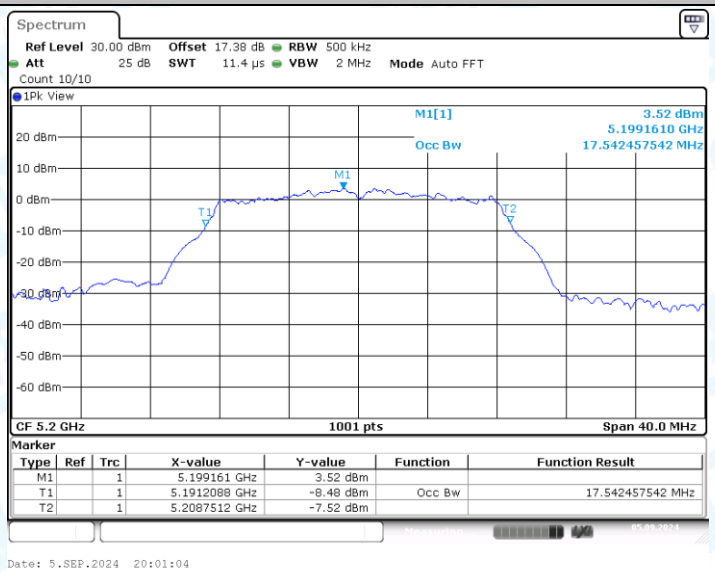

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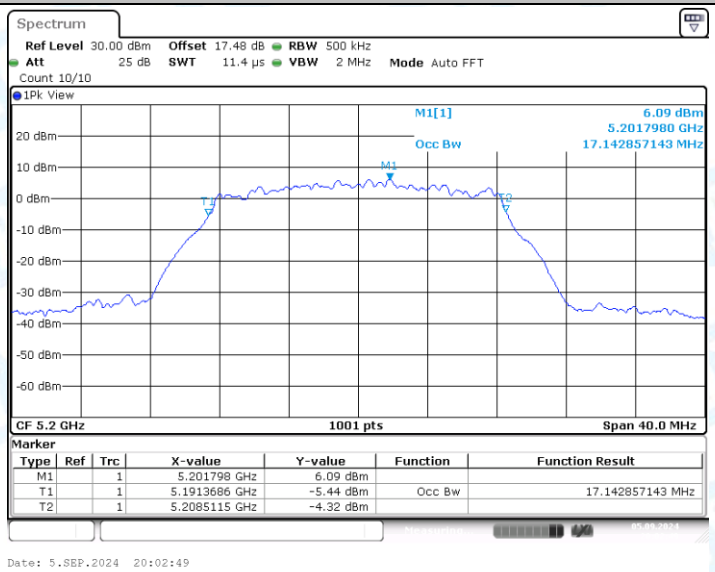

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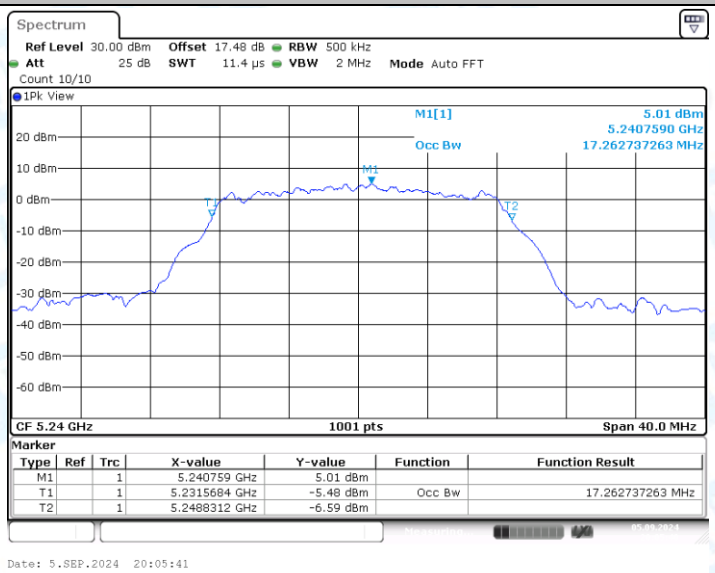

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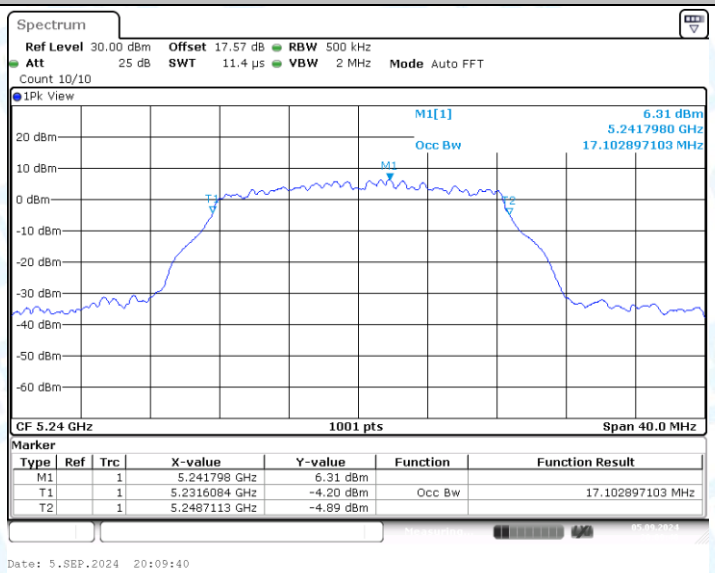

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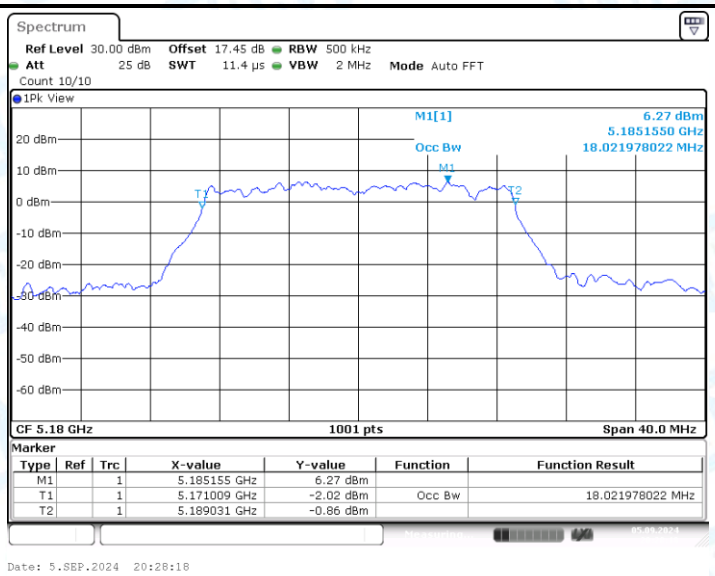
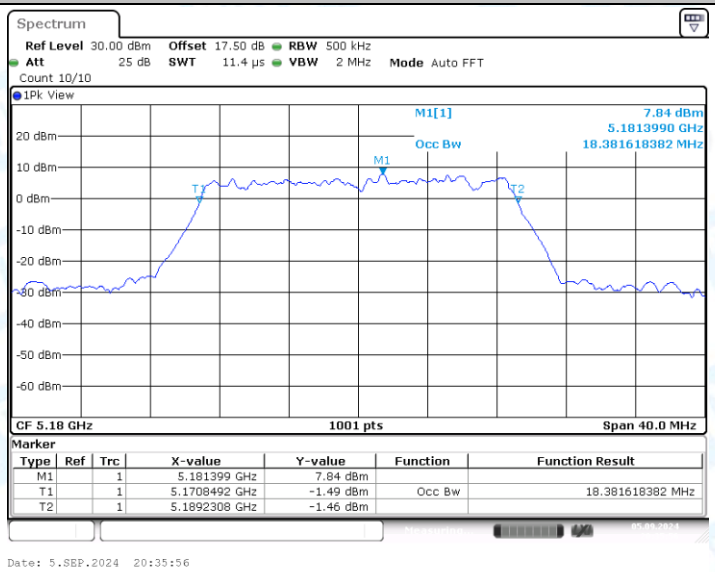


11N20MIMO_Ant1_5180



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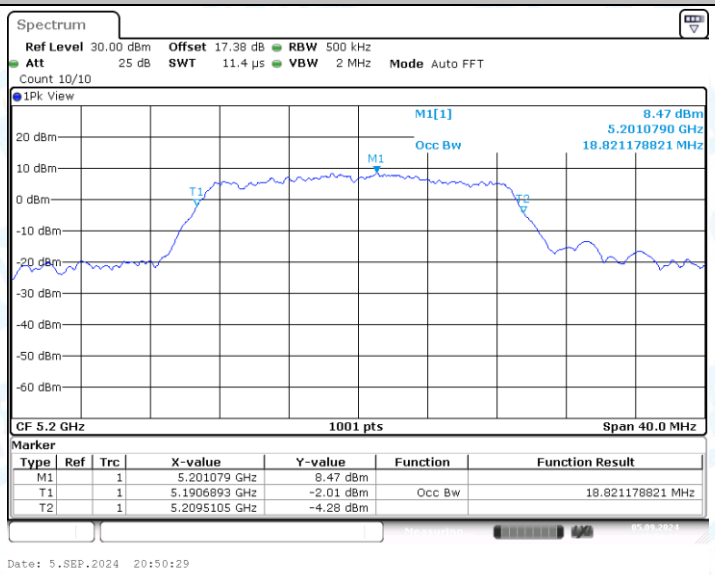

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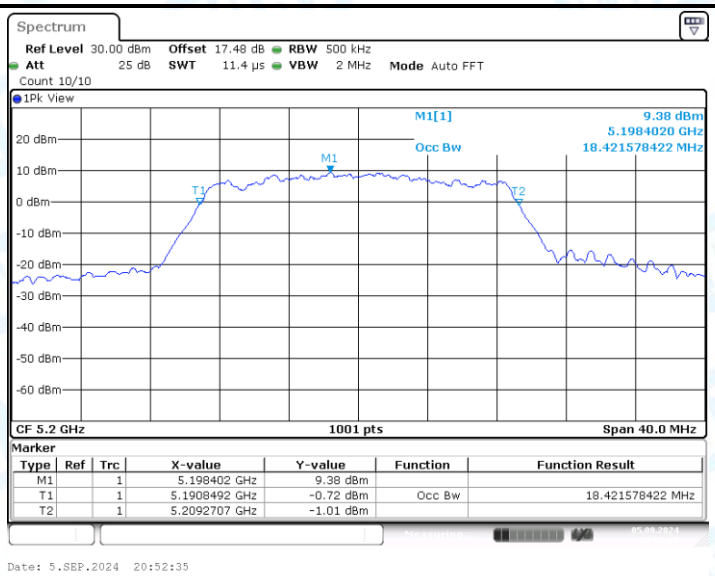

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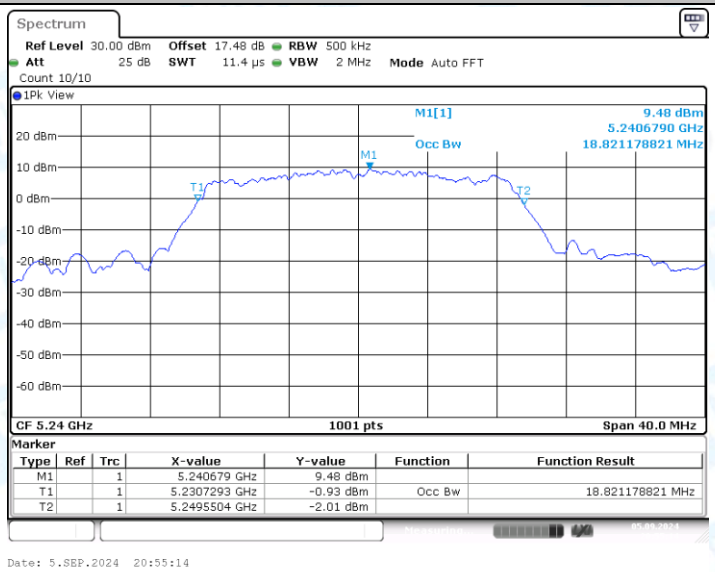
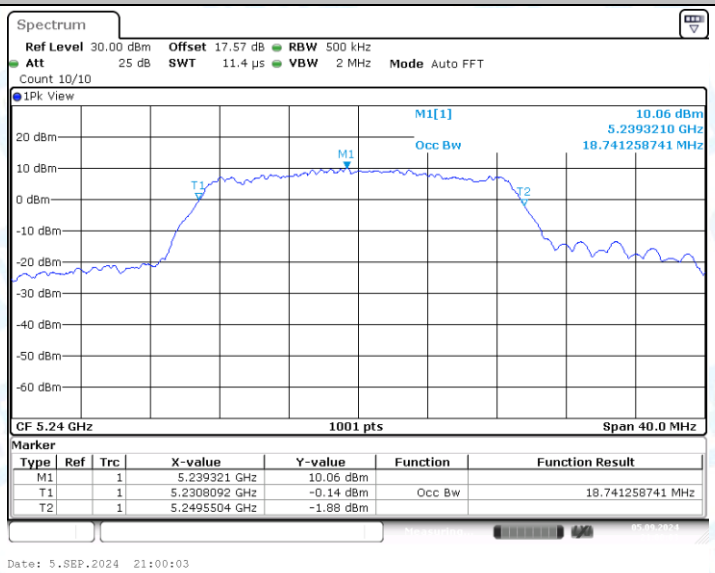


11N20MIMO_Ant1_5240



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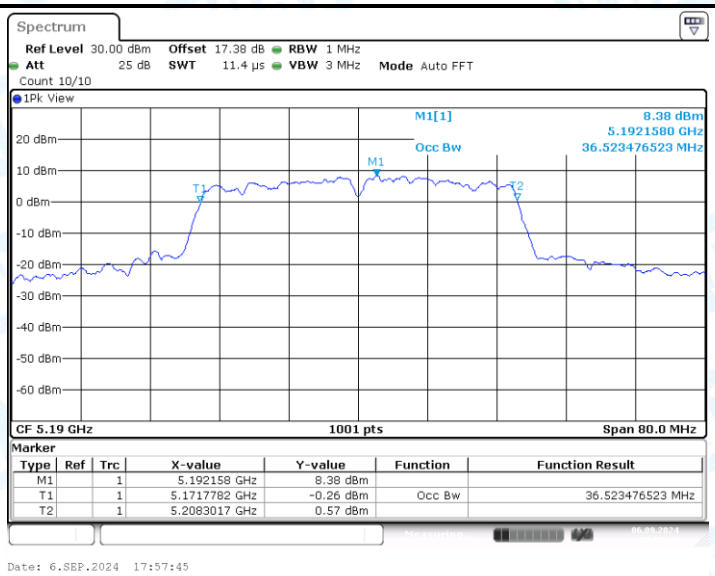
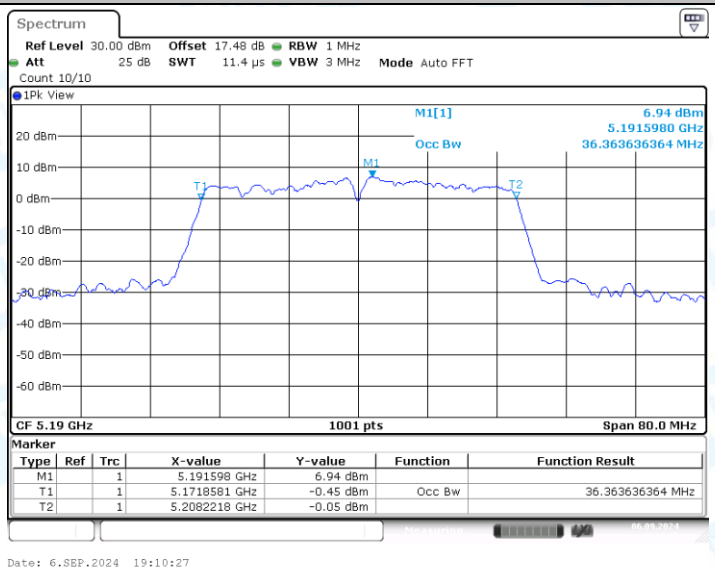


11N40MIMO_Ant1_5190



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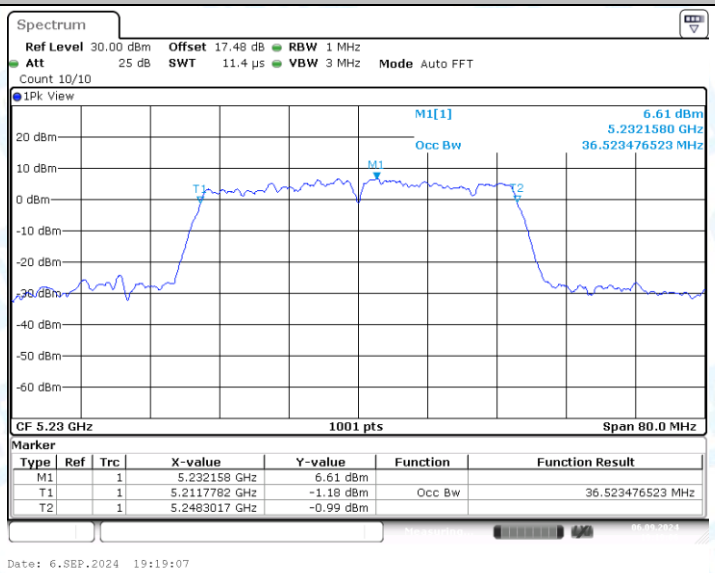
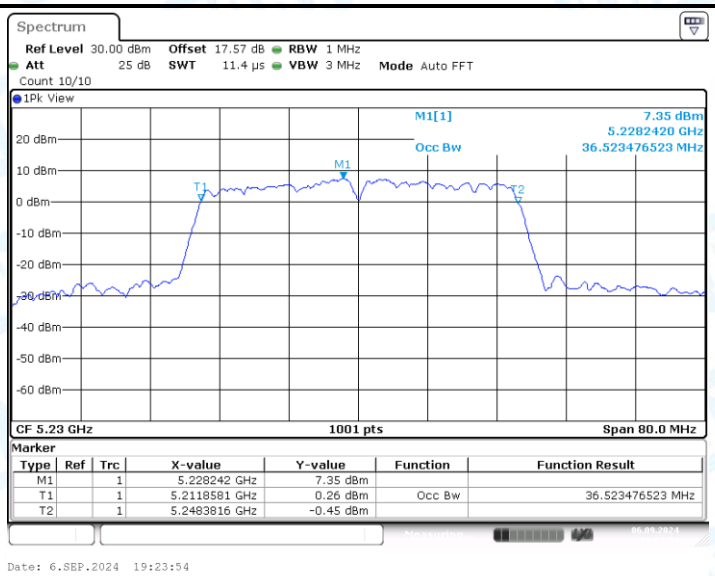


11N40MIMO_Ant1_5230



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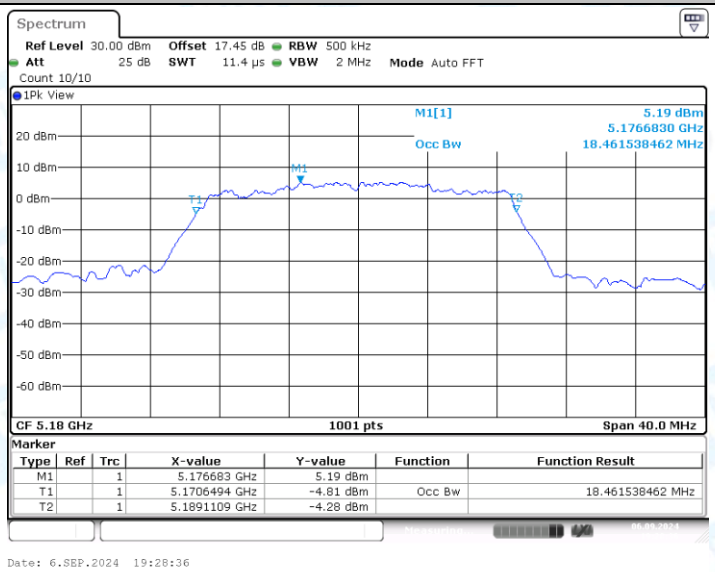
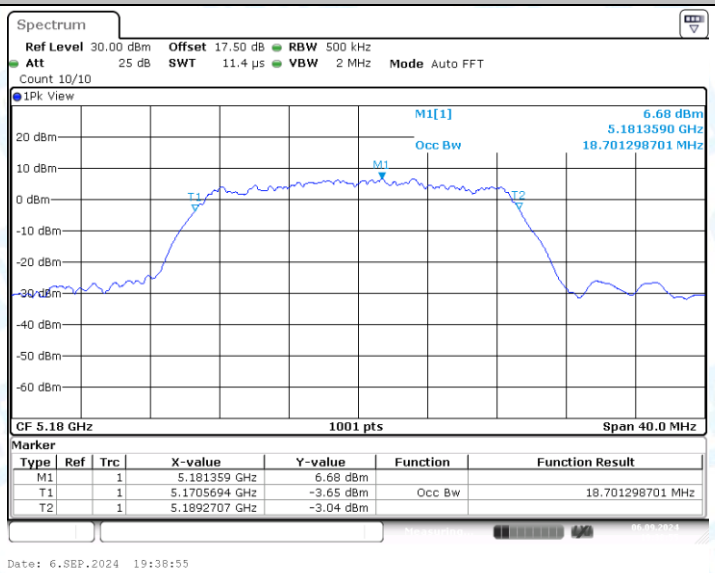


11AC20MIMO_Ant1_5180



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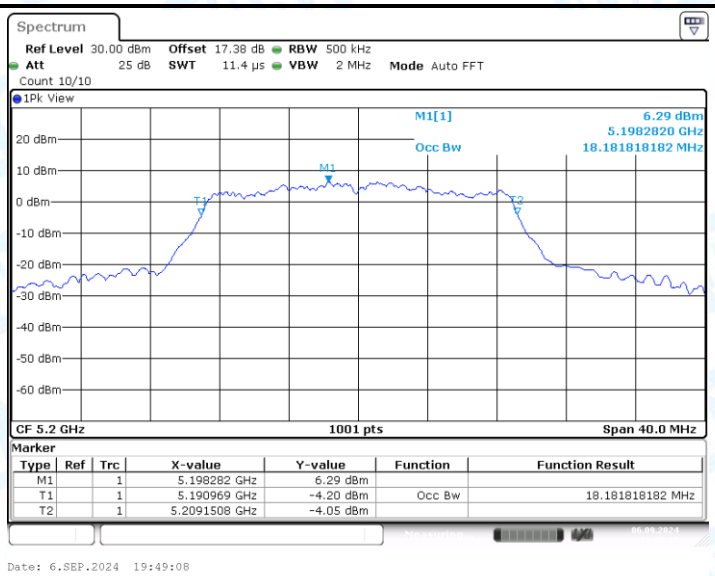
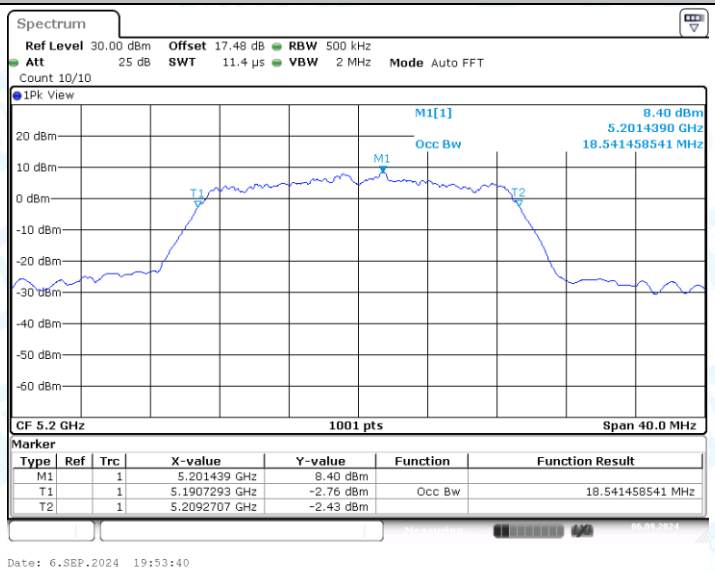


11AC20MIMO_Ant1_5200



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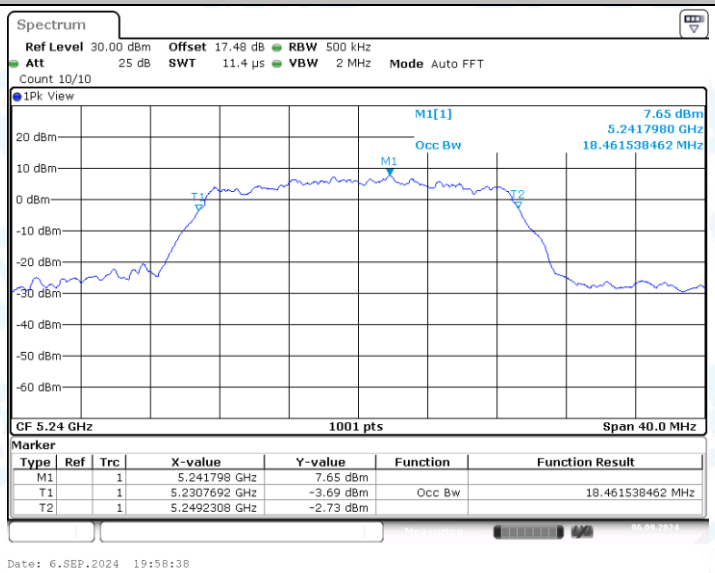

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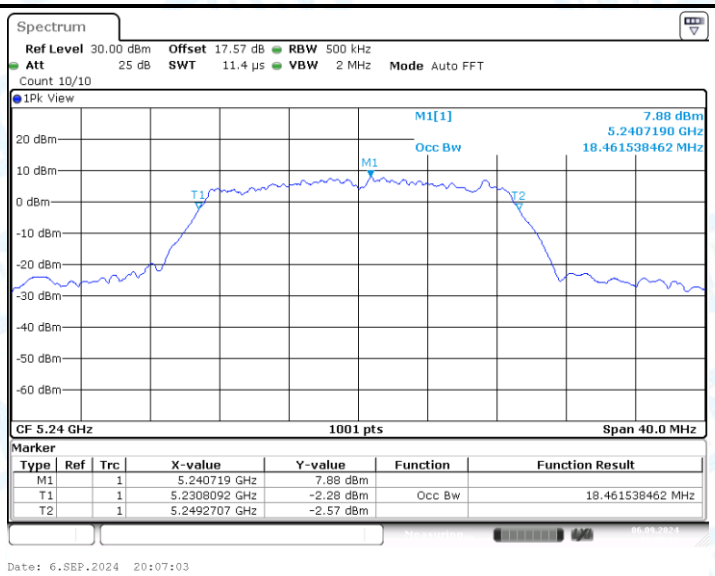

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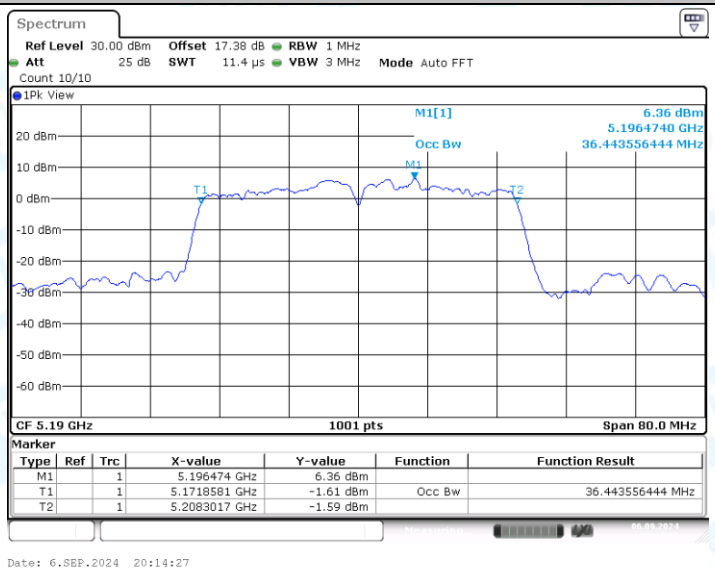
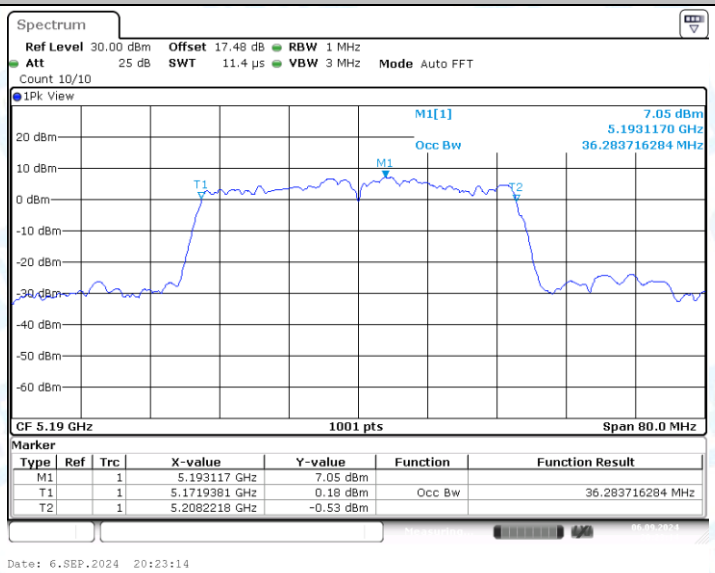


11AC40MIMO_Ant1_5190



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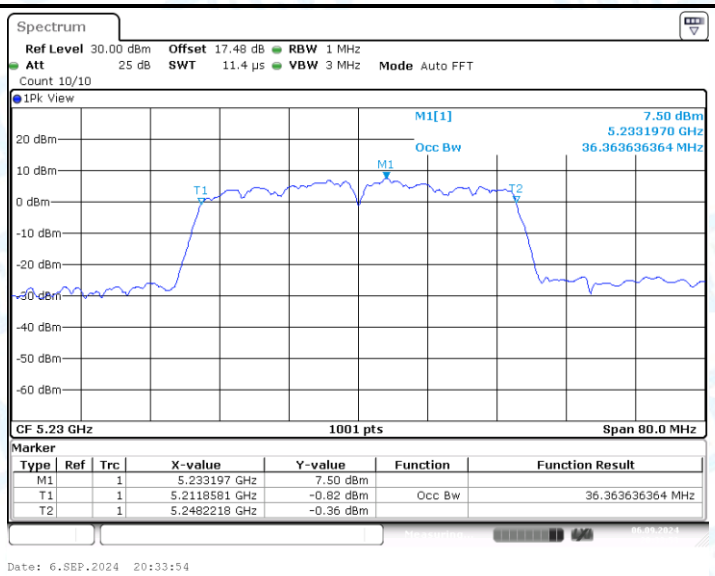
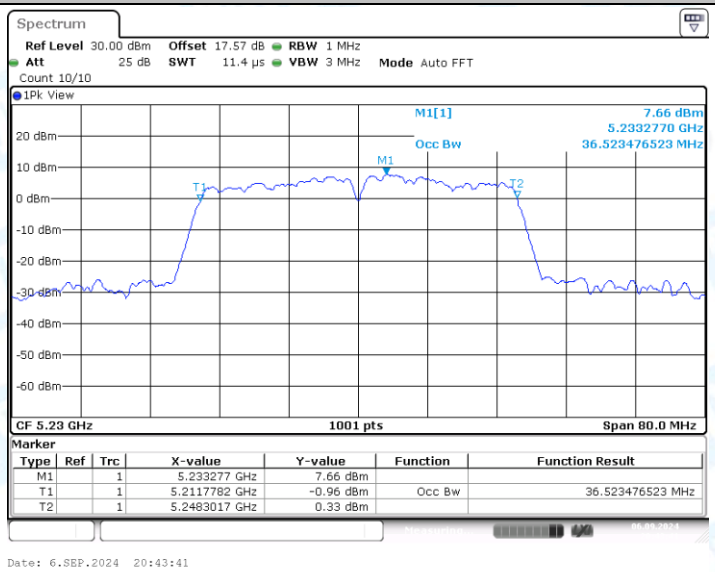
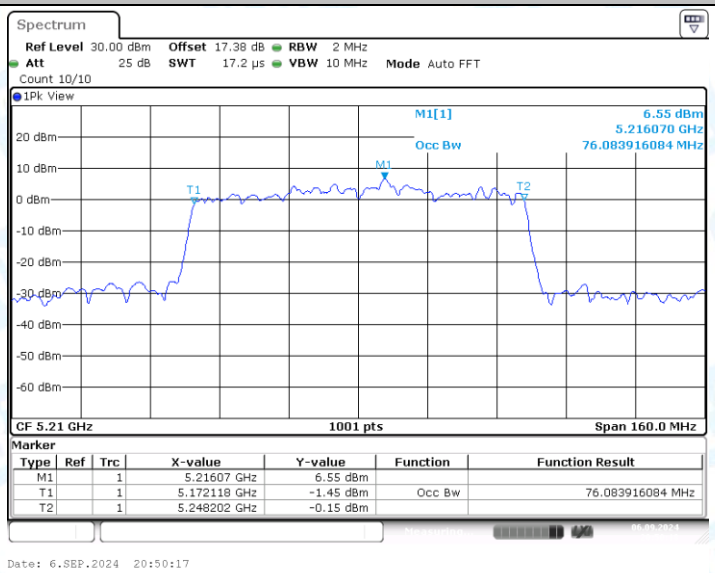


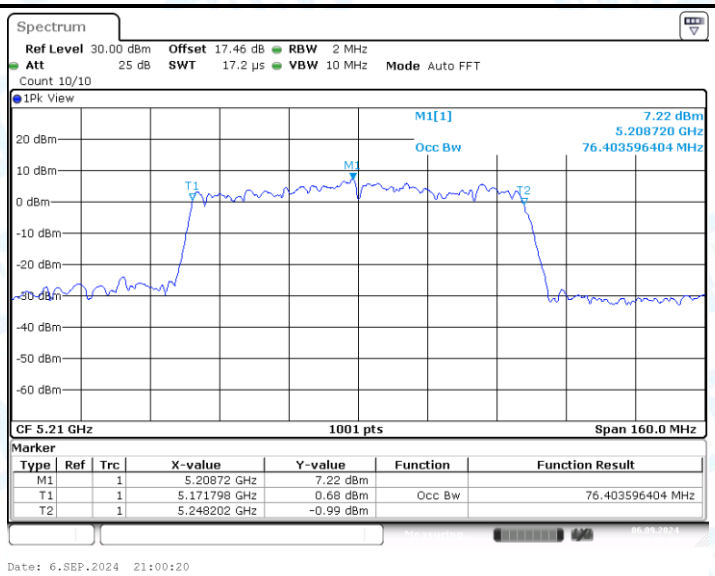
11AC40MIMO_Ant1_5230



11AC40MIMO_Ant2_5230



11AC80MIMO_Ant1_5210



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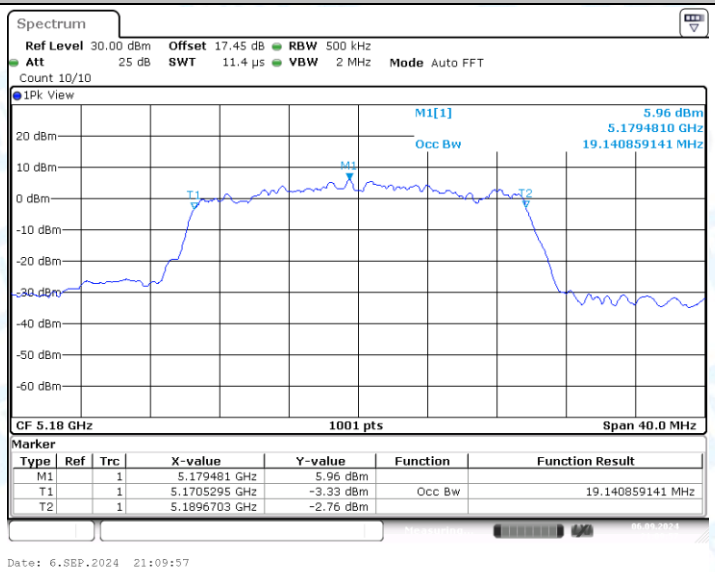
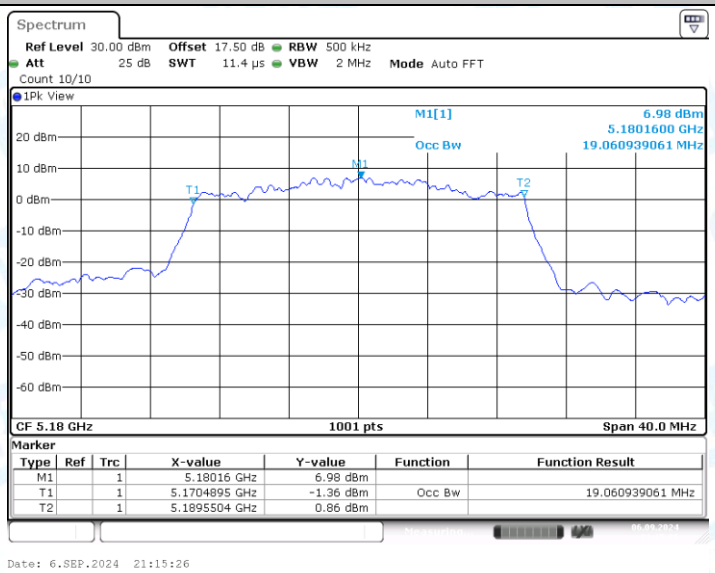


11AX20MIMO_Ant1_5180



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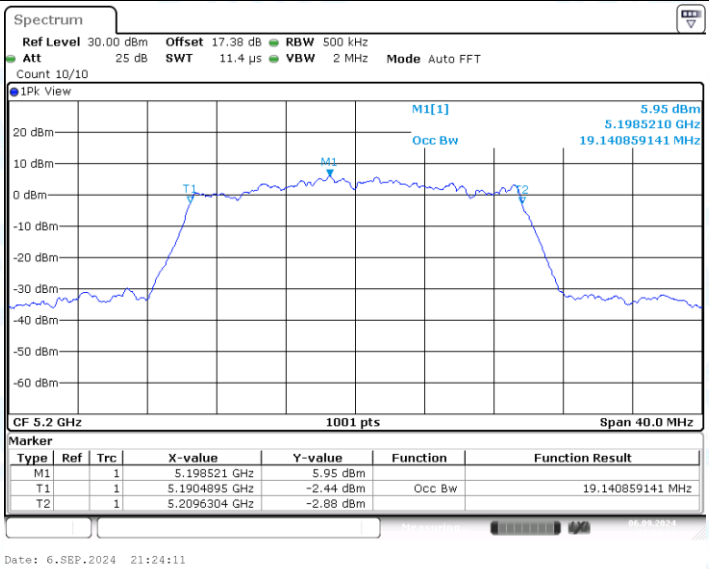

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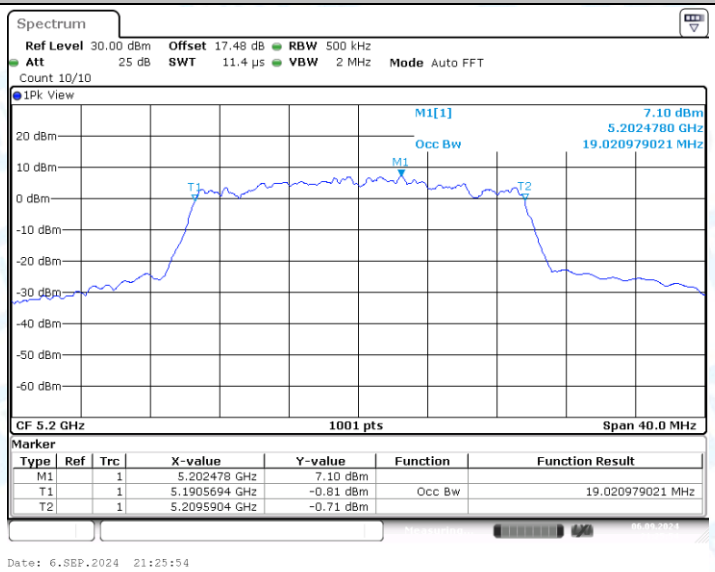

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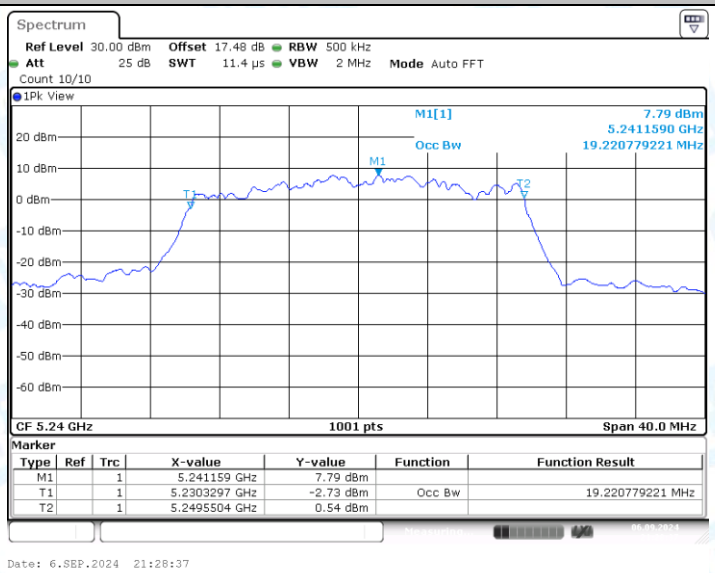

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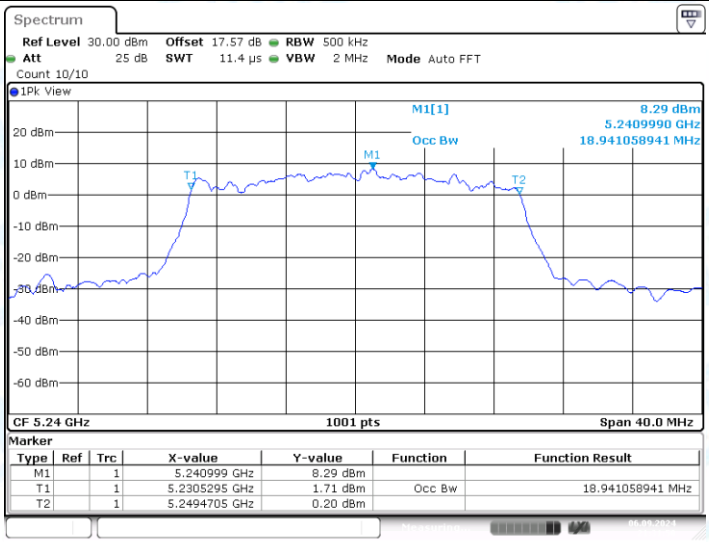
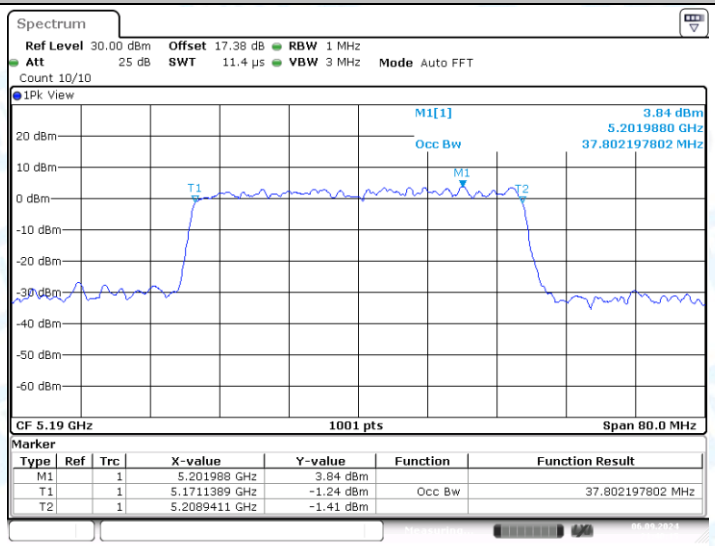
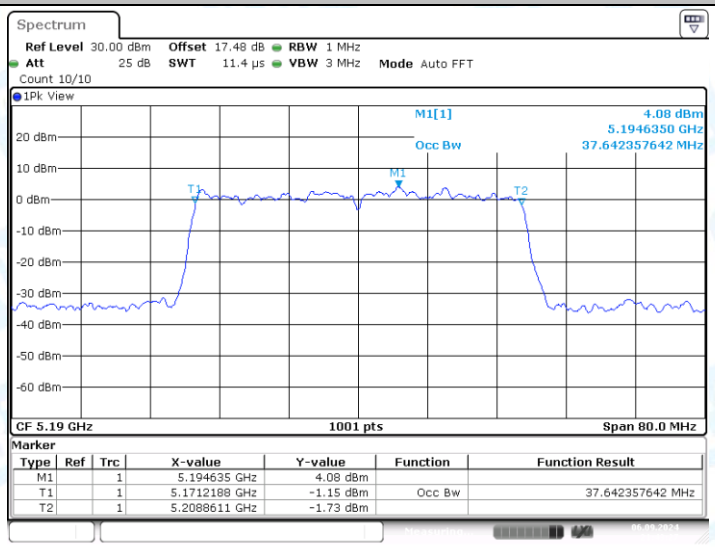


11AX20MIMO_Ant2_5240



11AX40MIMO_Ant1_5190



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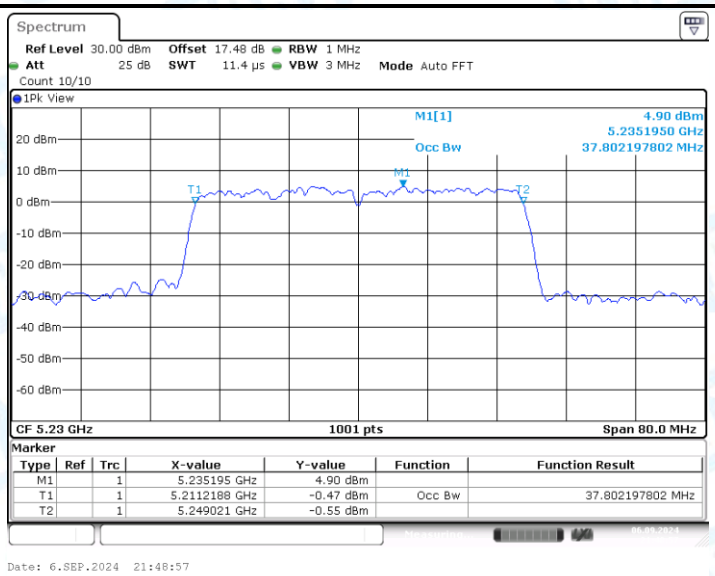

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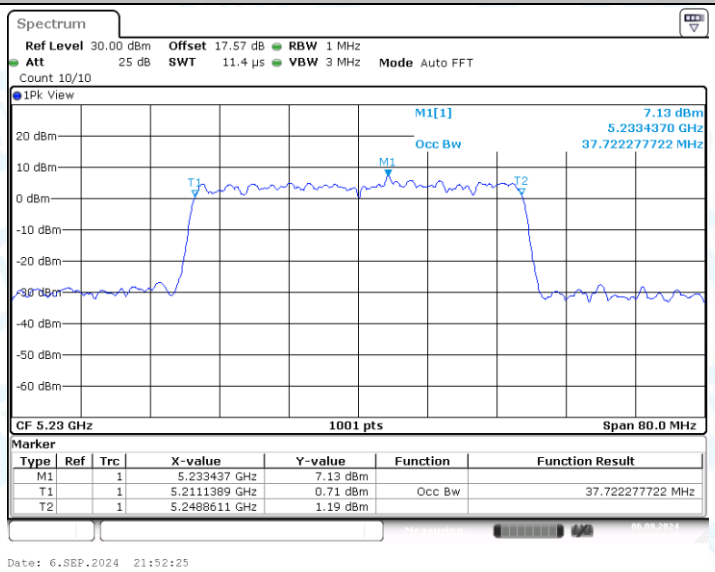

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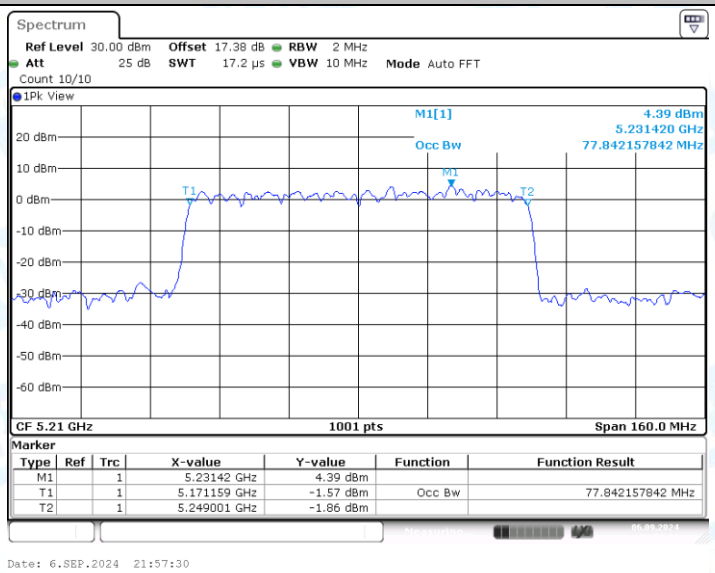

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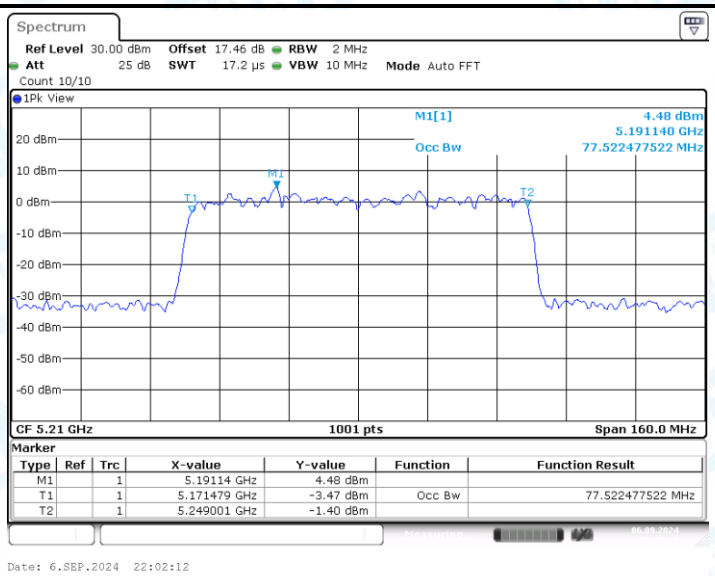


11AX80MIMO_Ant2_5210

3. Maximum conducted output power

3.1.Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A-CDD	Ant1	5180	14.26	≤23.98	PASS
	Ant2	5180	14.92	≤23.98	PASS
	total	**5180**	**17.61**	**≤23.82**	**PASS**
	Ant1	5200	15.66	≤23.98	PASS
	Ant2	5200	12.21	≤23.98	PASS
	total	**5200**	**17.28**	**≤23.82**	**PASS**
	Ant1	5240	16.61	≤23.98	PASS
	Ant2	5240	15.93	≤23.98	PASS
	total	**5240**	**19.29**	**≤23.82**	**PASS**
11N20MIMO	Ant1	5180	11.75	≤23.98	PASS
	Ant2	5180	13.19	≤23.98	PASS
	total	**5180**	**15.54**	**≤23.82**	**PASS**
	Ant1	5200	14.25	≤23.98	PASS
	Ant2	5200	15.34	≤23.98	PASS
	total	**5200**	**17.84**	**≤23.82**	**PASS**
	Ant1	5240	15.18	≤23.98	PASS
	Ant2	5240	15.88	≤23.98	PASS
	total	**5240**	**18.55**	**≤23.82**	**PASS**
11N40MIMO	Ant1	5190	10.65	≤23.98	PASS
	Ant2	5190	12.11	≤23.98	PASS
	total	**5190**	**14.45**	**≤23.82**	**PASS**
	Ant1	5230	11.92	≤23.98	PASS
	Ant2	5230	12.87	≤23.98	PASS
	total	**5230**	**15.43**	**≤23.82**	**PASS**
11AC20MIMO	Ant1	5180	11.22	≤23.98	PASS
	Ant2	5180	12.67	≤23.98	PASS
	total	**5180**	**15.02**	**≤23.82**	**PASS**
	Ant1	5200	11.61	≤23.98	PASS
	Ant2	5200	12.98	≤23.98	PASS
	total	**5200**	**15.36**	**≤23.82**	**PASS**
	Ant1	5240	12.71	≤23.98	PASS
	Ant2	5240	13.72	≤23.98	PASS
	total	**5240**	**16.25**	**≤23.82**	**PASS**
11AC40MIMO	Ant1	5190	10.73	≤23.98	PASS
	Ant2	5190	12.04	≤23.98	PASS
	total	**5190**	**14.44**	**≤23.82**	**PASS**
	Ant1	5230	11.96	≤23.98	PASS
	Ant2	5230	12.87	≤23.98	PASS
	total	**5230**	**15.45**	**≤23.82**	**PASS**
11AC80MIMO	Ant1	5210	11.04	≤23.98	PASS

	Ant2	5210	12.25	≤23.98	PASS
	total	**5210**	**14.70**	**≤23.82**	**PASS**
11AX20MIMO	Ant1	5180	9.39	≤23.98	PASS
	Ant2	5180	11.12	≤23.98	PASS
	total	**5180**	**13.35**	**≤23.82**	**PASS**
	Ant1	5200	10.01	≤23.98	PASS
	Ant2	5200	11.46	≤23.98	PASS
	total	**5200**	**13.81**	**≤23.82**	**PASS**
	Ant1	5240	11.07	≤23.98	PASS
	Ant2	5240	12.03	≤23.98	PASS
	total	**5240**	**14.59**	**≤23.82**	**PASS**
11AX40MIMO	Ant1	5190	9.14	≤23.98	PASS
	Ant2	5190	10.60	≤23.98	PASS
	total	**5190**	**12.94**	**≤23.82**	**PASS**
	Ant1	5230	10.38	≤23.98	PASS
	Ant2	5230	11.35	≤23.98	PASS
	total	**5230**	**13.90**	**≤23.82**	**PASS**
11AX80MIMO	Ant1	5210	9.73	≤23.98	PASS
	Ant2	5210	11.03	≤23.98	PASS
	total	**5210**	**13.44**	**≤23.82**	**PASS**

Note: The EUT incorporates a MIMO function. Physically, the EUT provides two antennas for transmitting and receiving.
When ANT.1 and ANT. 2 transmitting simultaneously, and the Directional Gain=6.16dBi＞6dBi. (Ant.1: 3.15dBi; Ant.2: 3.15dBi) For U-NII-1: 5180MHz-5240MHz
So $P_{out} = P_{limit}-(G_{TX}-6)]=(23.98-0.16)$dBm =23.82dBm For U-NII-1: 5180MHz-5240MHz

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/MHz]	Limit[dBm/MHz]	Verdict
11A-CDD	Ant1	5180	4.82	≤11.00	PASS
	Ant2	5180	5.18	≤11.00	PASS
	total	**5180**	**8.01**	**≤10.84**	**PASS**
	Ant1	5200	7.37	≤11.00	PASS
	Ant2	5200	5.28	≤11.00	PASS
	total	**5200**	**9.46**	**≤10.84**	**PASS**
	Ant1	5240	8.44	≤11.00	PASS
	Ant2	5240	6.03	≤11.00	PASS
	total	**5240**	**10.41**	**≤10.84**	**PASS**
11N20MIMO	Ant1	5180	0.99	≤11.00	PASS
	Ant2	5180	2.21	≤11.00	PASS
	total	**5180**	**4.65**	**≤10.84**	**PASS**
	Ant1	5200	4.41	≤11.00	PASS
	Ant2	5200	5.38	≤11.00	PASS
	total	**5200**	**7.93**	**≤10.84**	**PASS**
	Ant1	5240	5.31	≤11.00	PASS
	Ant2	5240	5.76	≤11.00	PASS
	total	**5240**	**8.55**	**≤10.84**	**PASS**
11N40MIMO	Ant1	5190	-1.77	≤11.00	PASS
	Ant2	5190	-0.74	≤11.00	PASS
	total	**5190**	**1.79**	**≤10.84**	**PASS**
	Ant1	5230	-0.77	≤11.00	PASS
	Ant2	5230	0.10	≤11.00	PASS
	total	**5230**	**2.70**	**≤10.84**	**PASS**
11AC20MIMO	Ant1	5180	1.42	≤11.00	PASS
	Ant2	5180	2.61	≤11.00	PASS
	total	**5180**	**5.07**	**≤10.84**	**PASS**
	Ant1	5200	1.72	≤11.00	PASS
	Ant2	5200	2.97	≤11.00	PASS
	total	**5200**	**5.40**	**≤10.84**	**PASS**
	Ant1	5240	2.69	≤11.00	PASS
	Ant2	5240	3.74	≤11.00	PASS
	total	**5240**	**6.26**	**≤10.84**	**PASS**
11AC40MIMO	Ant1	5190	-1.78	≤11.00	PASS
	Ant2	5190	-0.75	≤11.00	PASS
	total	**5190**	**1.78**	**≤10.84**	**PASS**
	Ant1	5230	-0.73	≤11.00	PASS
	Ant2	5230	-0.22	≤11.00	PASS
	total	**5230**	**2.54**	**≤10.84**	**PASS**
11AC80MIMO	Ant1	5210	-5.08	≤11.00	PASS

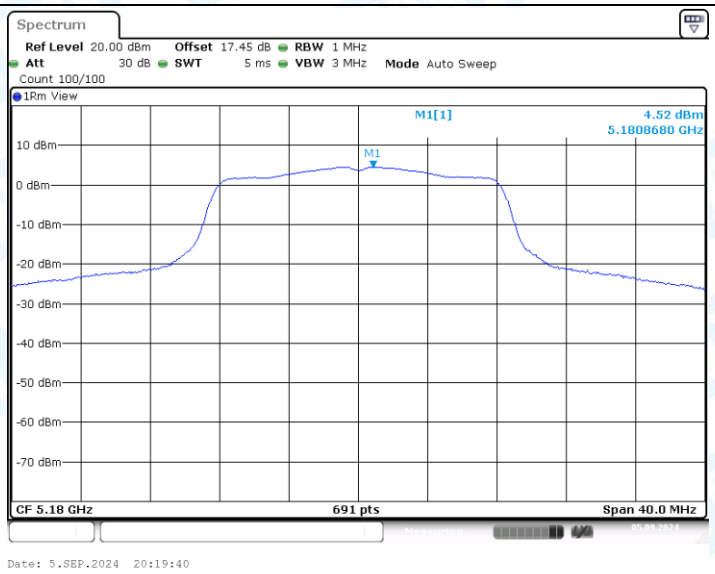
	Ant2	5210	-3.92	≤11.00	PASS
	total	**5210**	**-1.45**	**≤10.84**	**PASS**
11AX20MIMO	Ant1	5180	-0.48	≤11.00	PASS
	Ant2	5180	1.01	≤11.00	PASS
	total	**5180**	**3.34**	**≤10.84**	**PASS**
	Ant1	5200	-0.11	≤11.00	PASS
	Ant2	5200	1.48	≤11.00	PASS
	total	**5200**	**3.77**	**≤10.84**	**PASS**
	Ant1	5240	1.06	≤11.00	PASS
	Ant2	5240	1.99	≤11.00	PASS
	total	**5240**	**4.56**	**≤10.84**	**PASS**
11AX40MIMO	Ant1	5190	-4.91	≤11.00	PASS
	Ant2	5190	-3.79	≤11.00	PASS
	total	**5190**	**-1.30**	**≤10.84**	**PASS**
	Ant1	5230	-3.59	≤11.00	PASS
	Ant2	5230	-2.98	≤11.00	PASS
	total	**5230**	**-0.26**	**≤10.84**	**PASS**
11AX80MIMO	Ant1	5210	-7.15	≤11.00	PASS
	Ant2	5210	-6.19	≤11.00	PASS
	total	**5210**	**-3.63**	**≤10.84**	**PASS**

Note: The EUT incorporates a MIMO function. Physically, the EUT provides two antennas for transmitting and receiving.
When ANT.1 and ANT. 2 transmitting simultaneously, and the
Directional Gain=6.16dBi＞6dBi. (Ant.1: 3.15dBi; Ant.2: 3.15dBi) For U-NII-1: 5180MHz-5240MHz
So $PSD_{out} = PSD_{limit}-(G_{TX}-6)]$=(11-0.16)dBm/MHz =10.84dBm/MHz For U-NII-1: 5180MHz-5240MHz

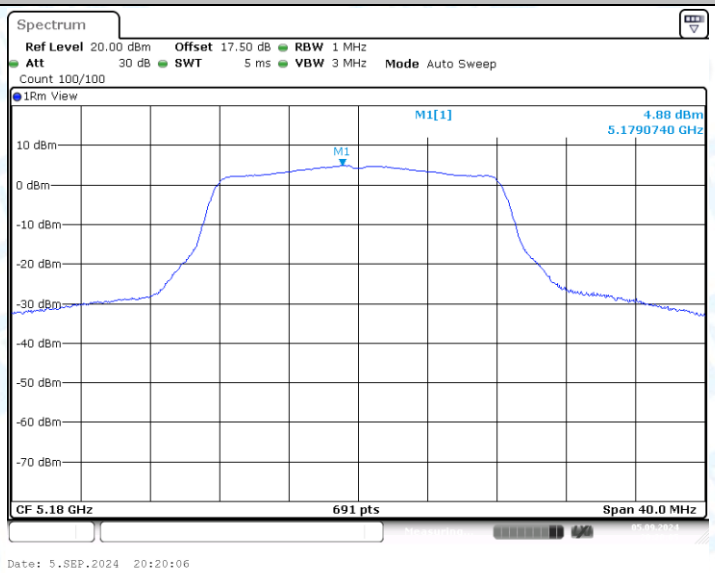
Directional Gain=ANT. Gain+10*LOG(NANT)

The Duty Cycle Factor and RBW Factor is compensated in the graph.

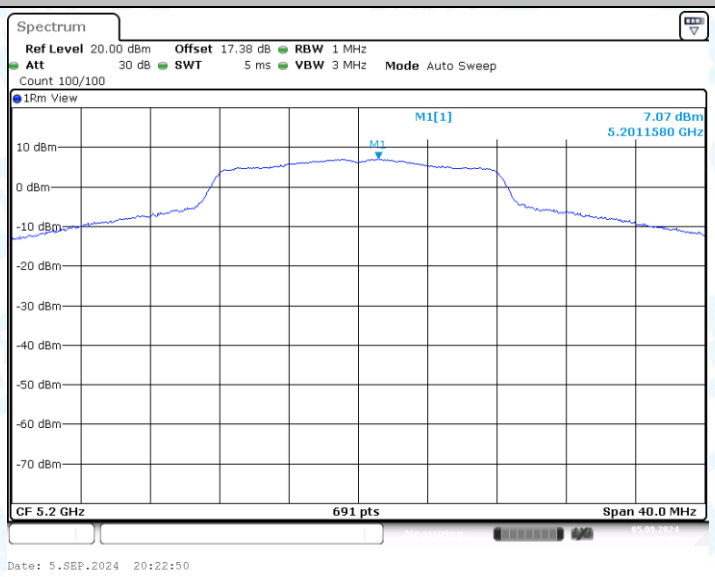
4.2.Test Graphs



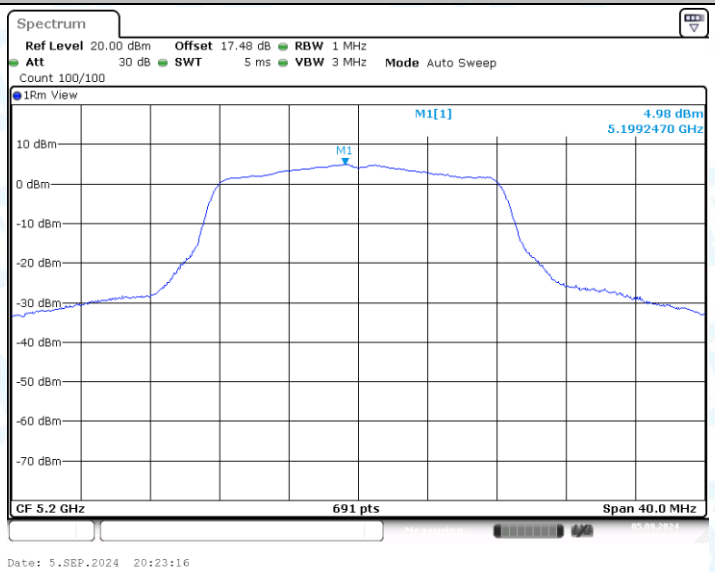
11A-CDD_Ant1_5180



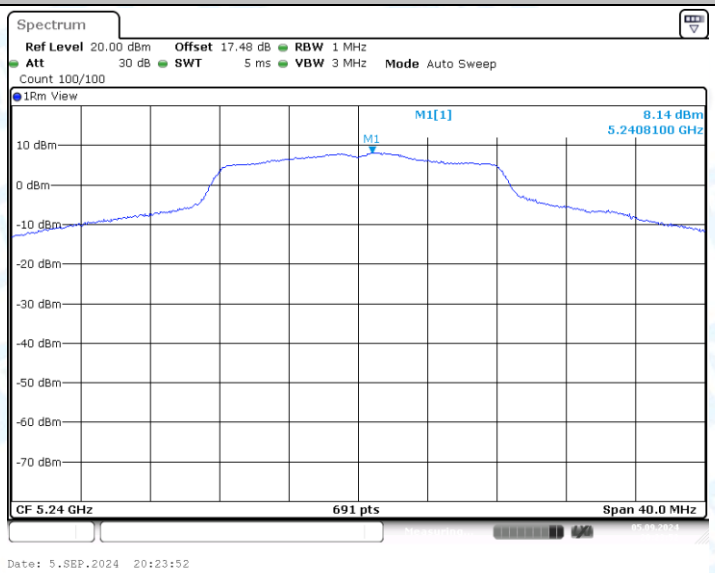
11A-CDD_Ant2_5180



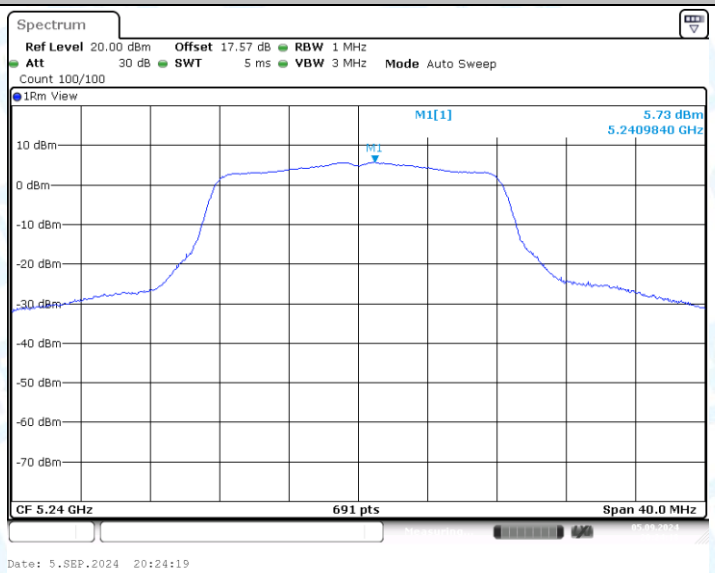
11A-CDD_Ant1_5200



11A-CDD_Ant2_5200



11A-CDD_Ant1_5240



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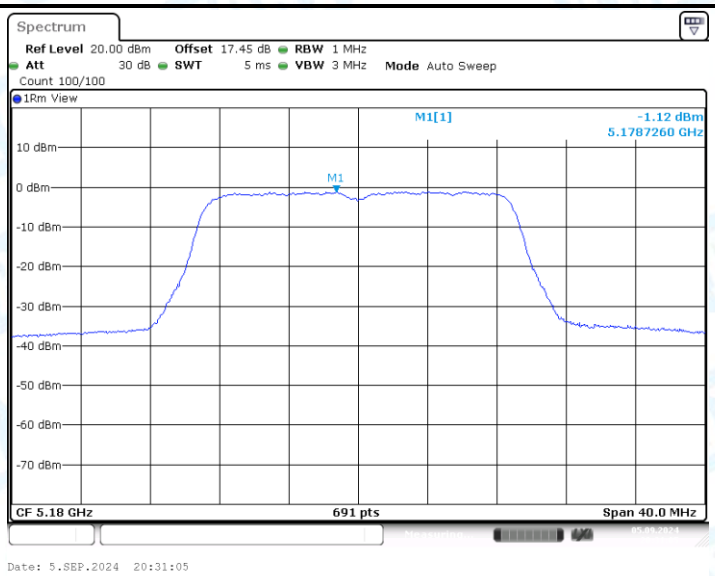
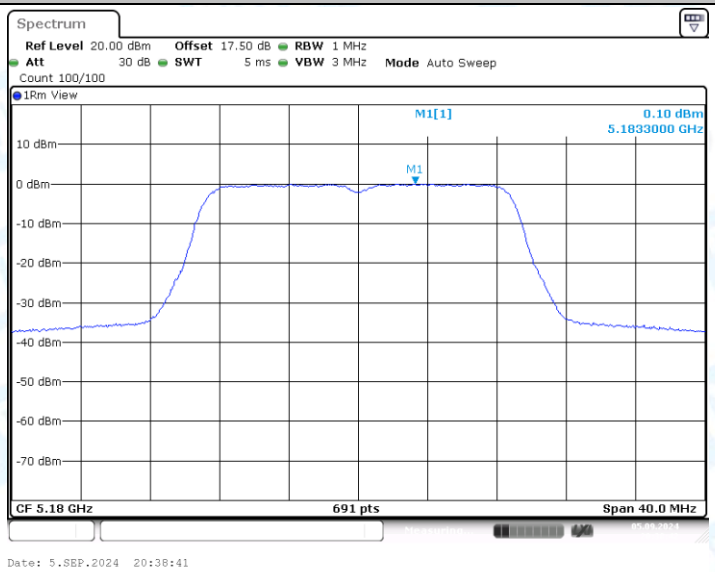


11N20MIMO_Ant1_5180



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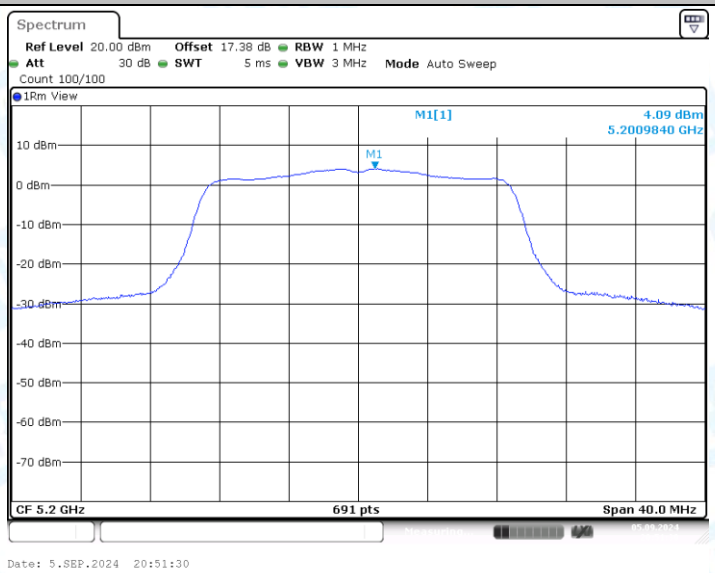

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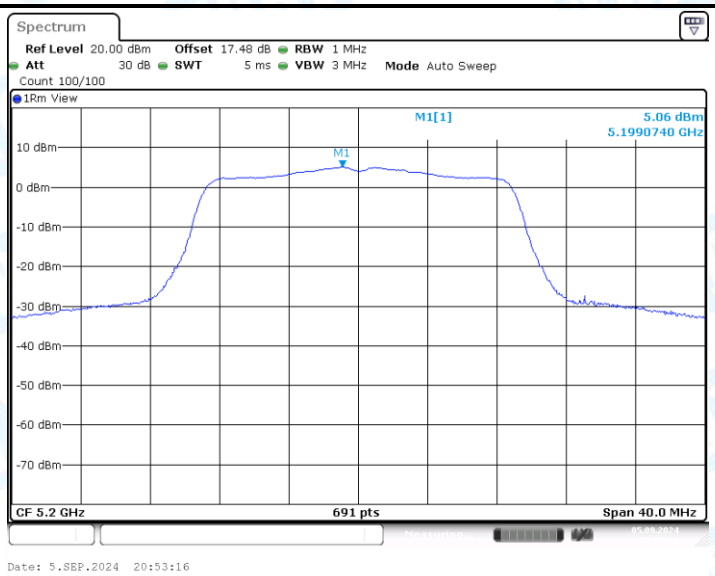

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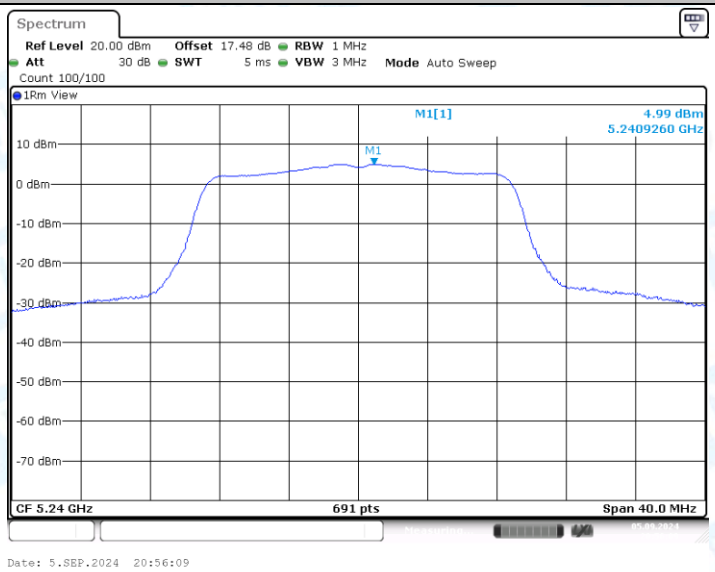

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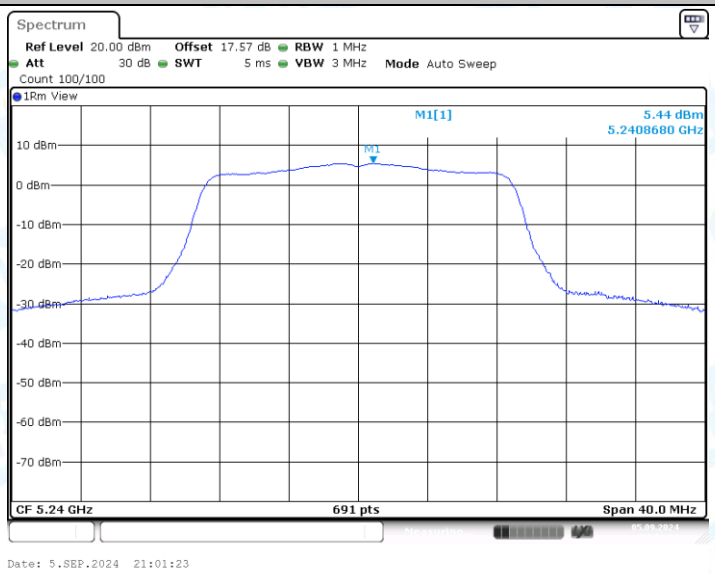

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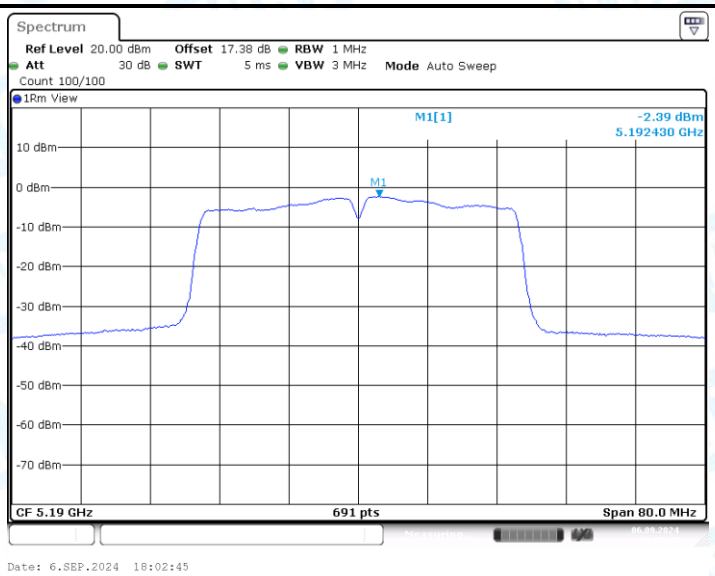
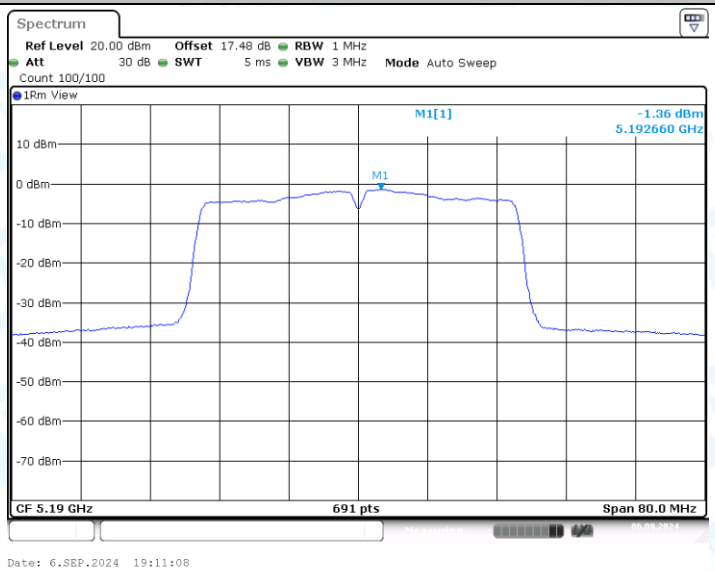
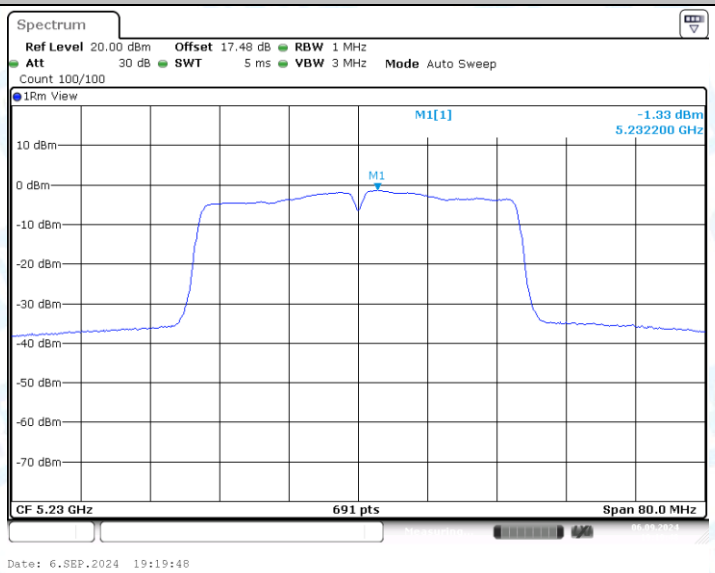


11N40MIMO_Ant1_5190



11N40MIMO_Ant2_5190



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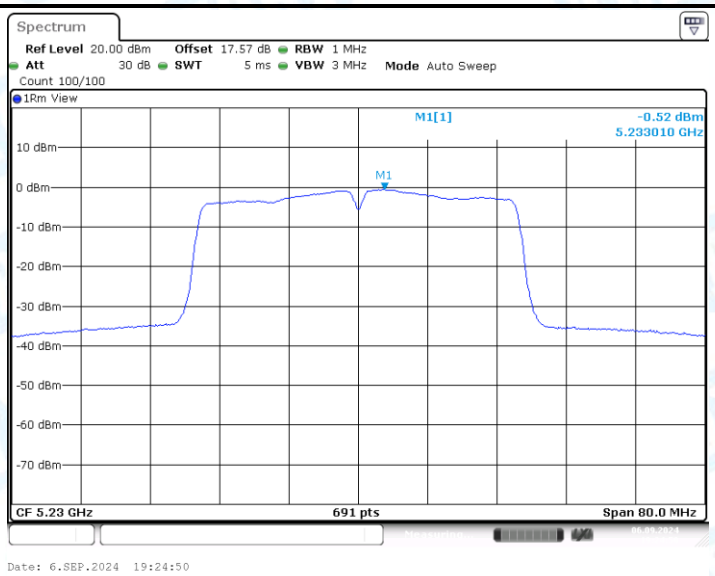
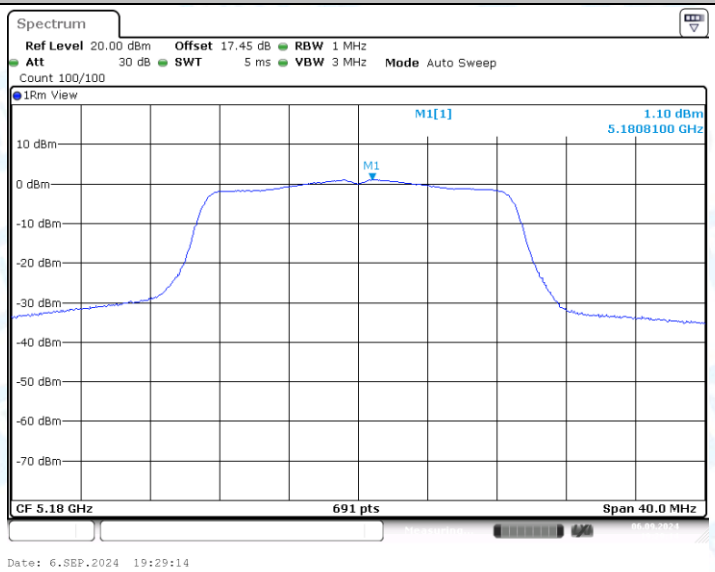
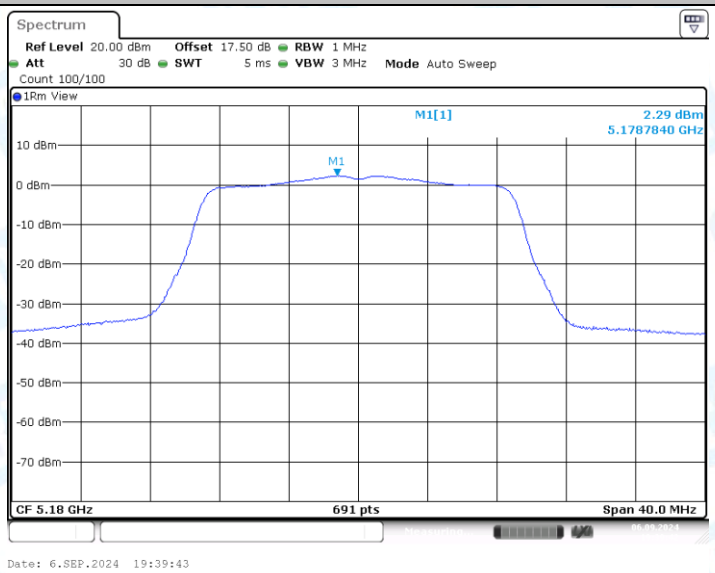


11N40MIMO_Ant2_5230



11AC20MIMO_Ant1_5180



11AC20MIMO_Ant2_5180