

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	

Contents

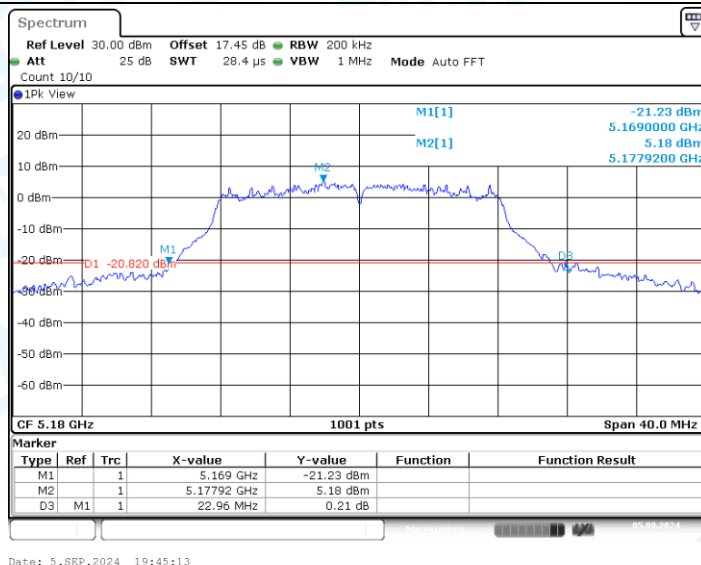
1. Emission Bandwidth.....	3
1.1. Test Result.....	3
2.1. Test Graphs	4
2. Occupied channel bandwidth	18
2.1. Test Result.....	18
2.2. Test Graphs	19
3. Maximum conducted output power.....	33
3.1. Test Result.....	33
4. Maximum power spectral density	35
4.1. Test Result.....	35
4.2. Test Graphs	37
5. Band edge measurements	51
5.1. Test Result.....	51
5.2. Test Graphs	52
6. Emissions in Restricted Bands.....	64
6.1. Test Result.....	64
6.2. Test Graphs	72
7. Conducted Spurious Emission.....	96
7.1. Test Result.....	96
7.2. Test Graphs	98
8. Frequency Stability	125
8.1. Test Result.....	125
9. Duty Cycle	128
9.1. Test Result.....	128
9.2. Test Graphs	129

1. Emission Bandwidth

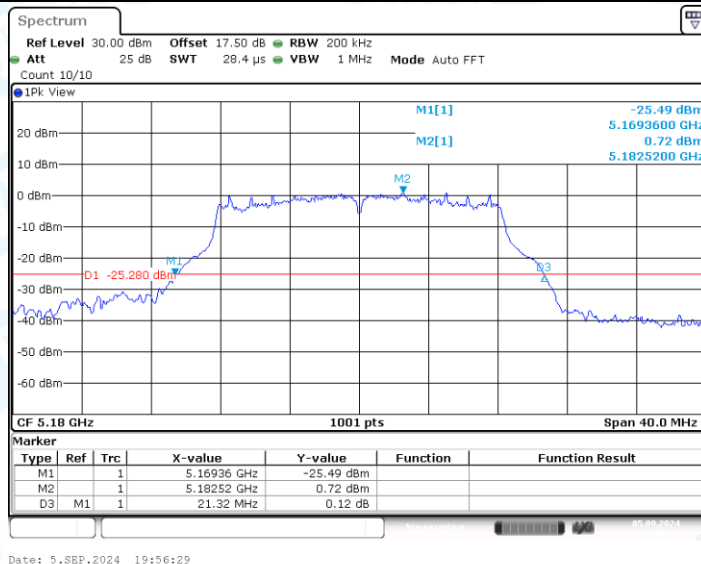
1.1. Test Result

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	---	---

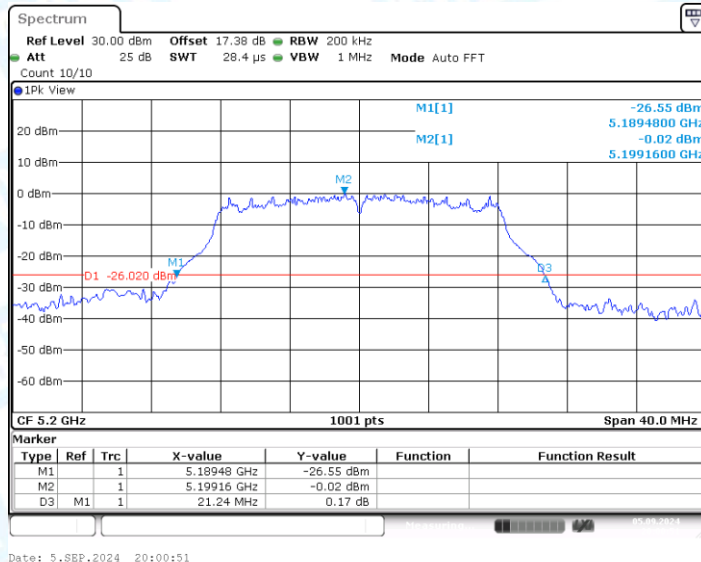
2.1. Test Graphs



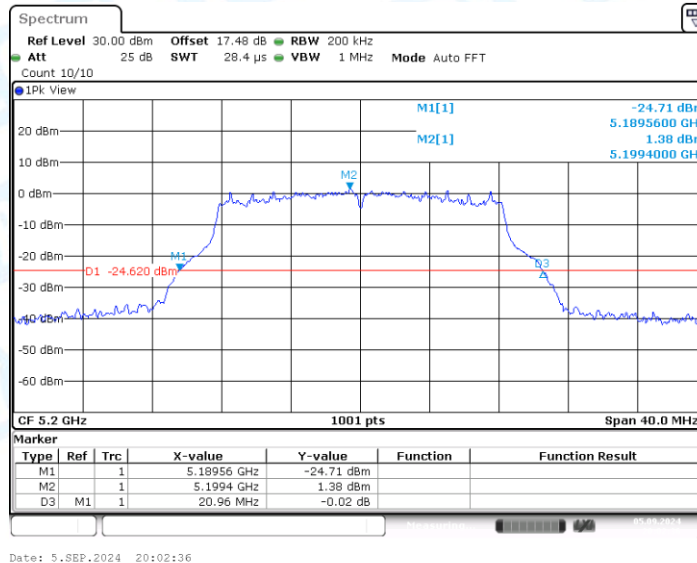
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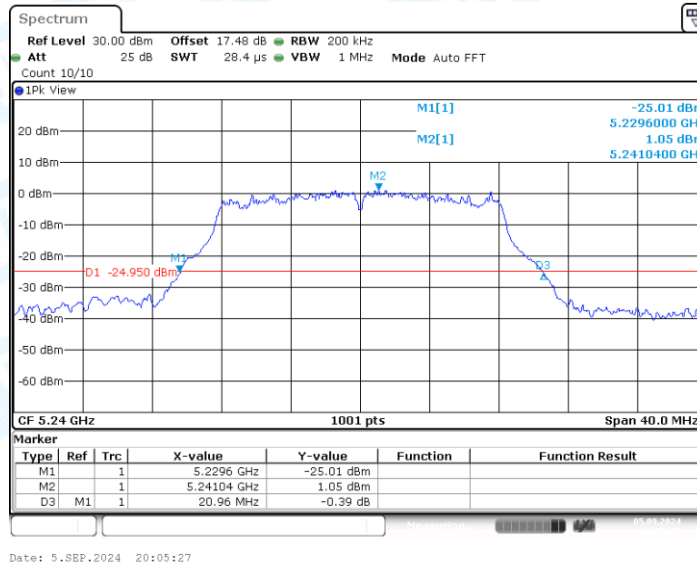
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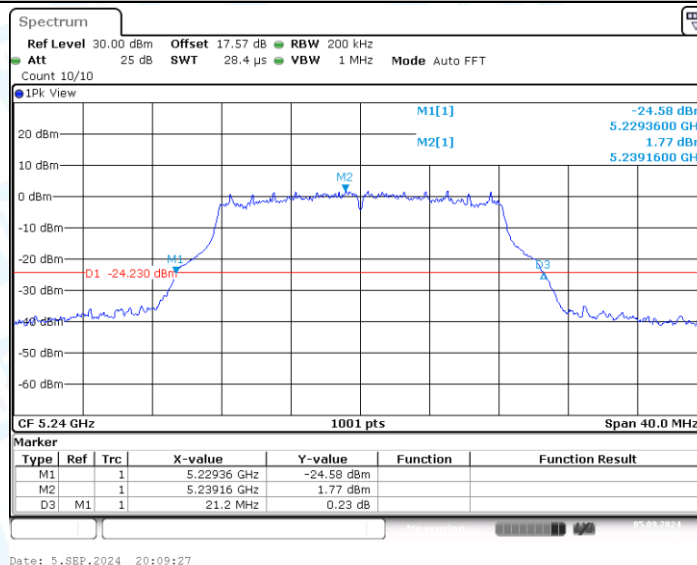
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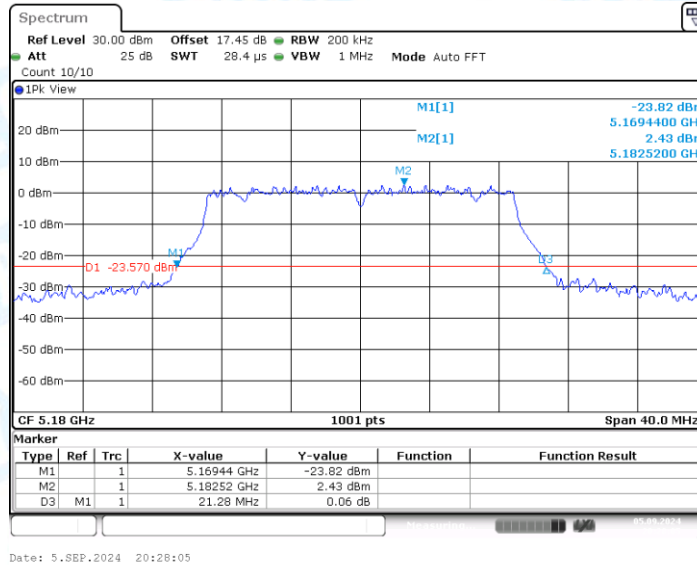
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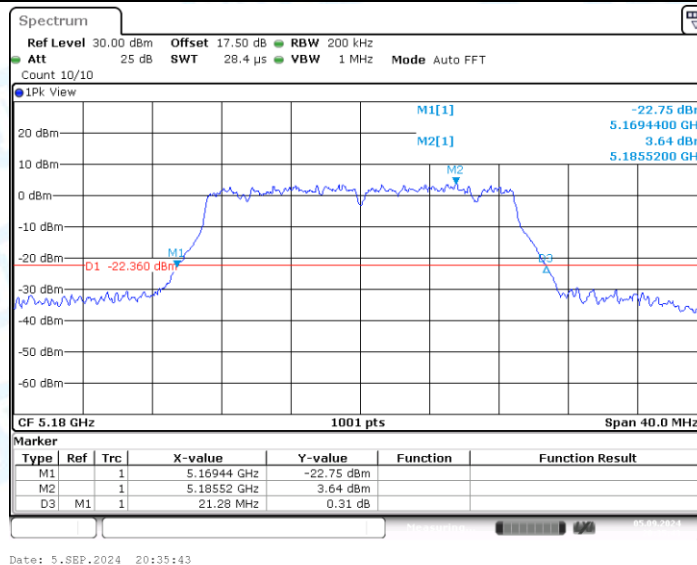
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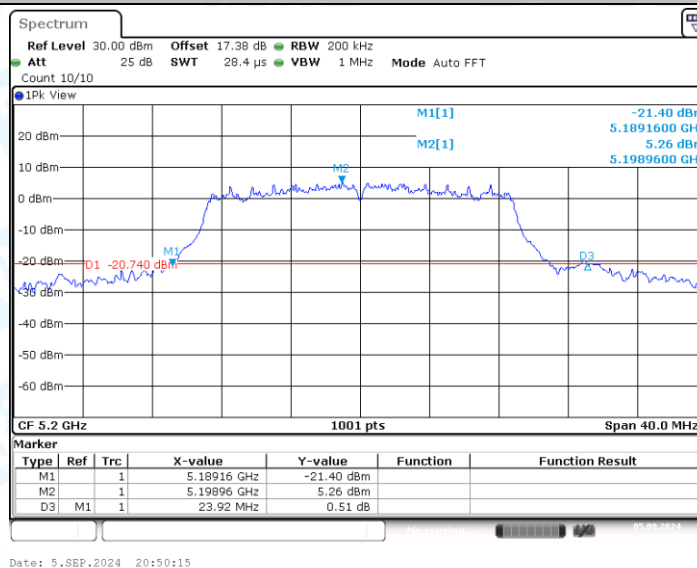
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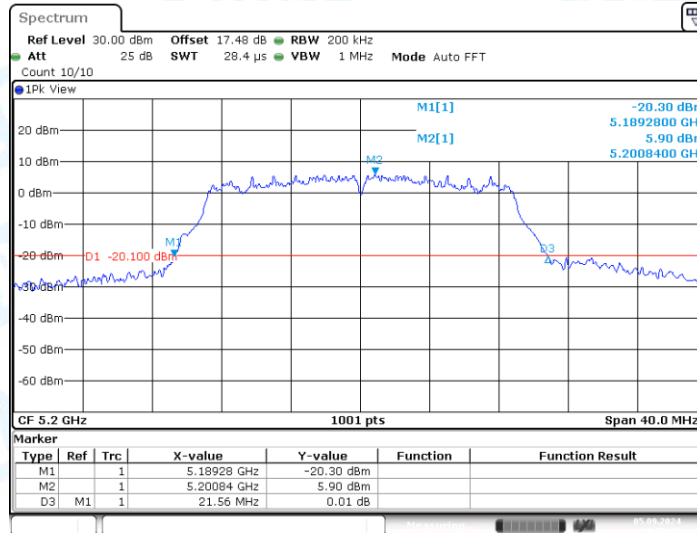
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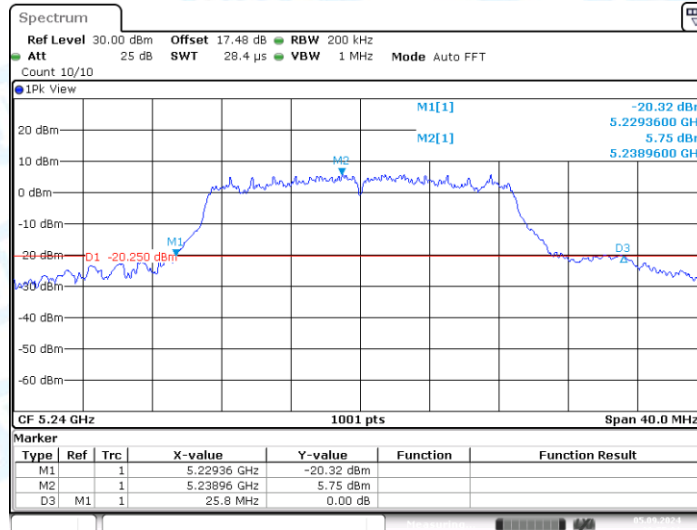


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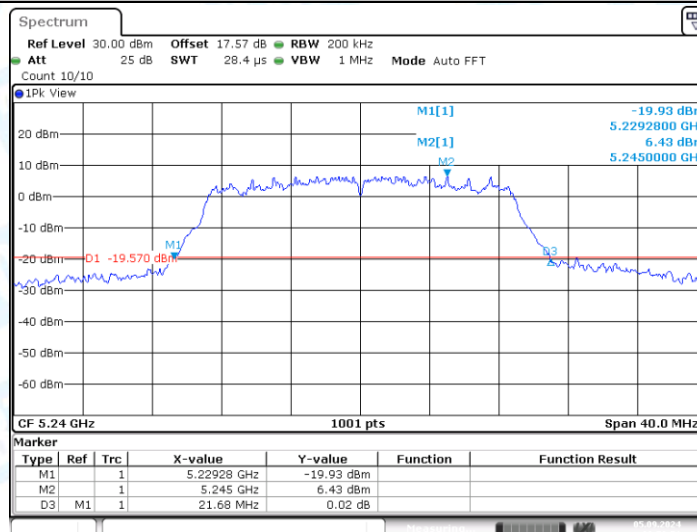
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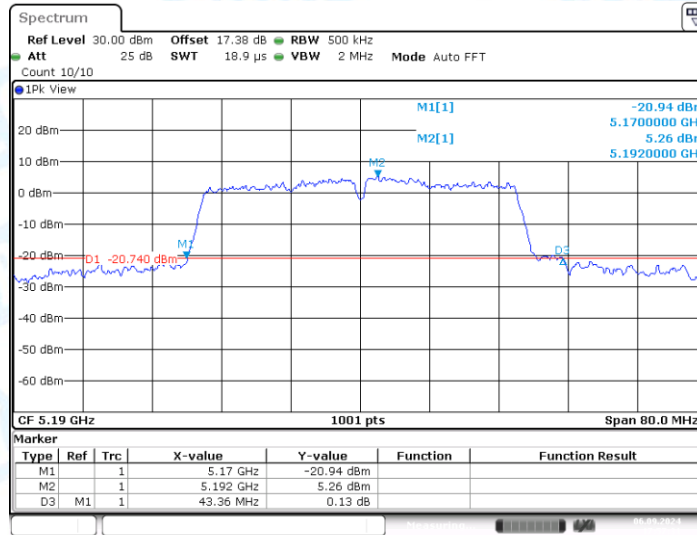
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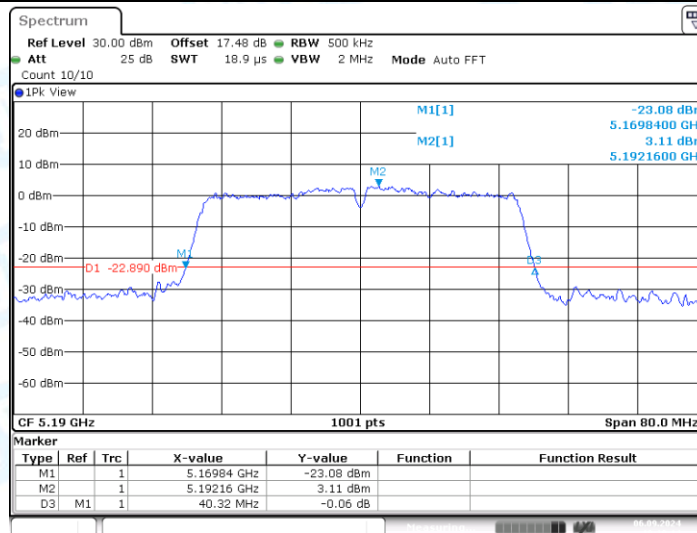
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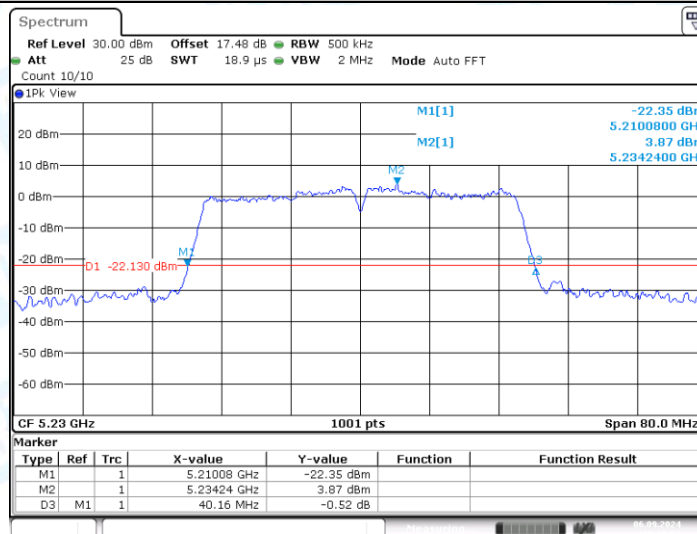
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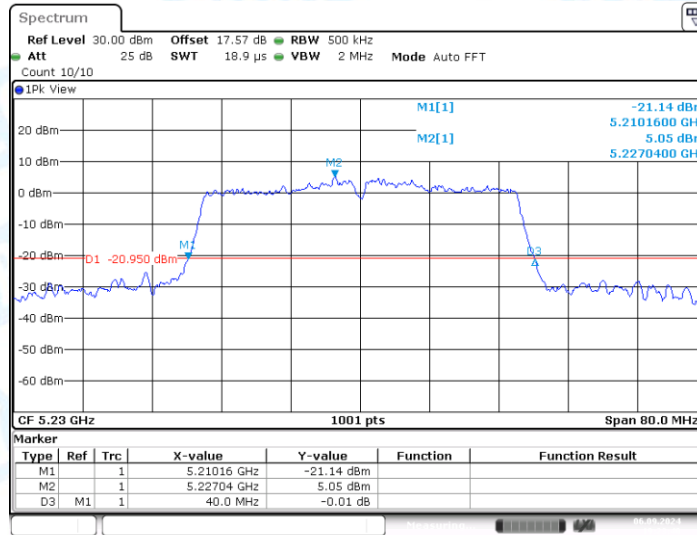
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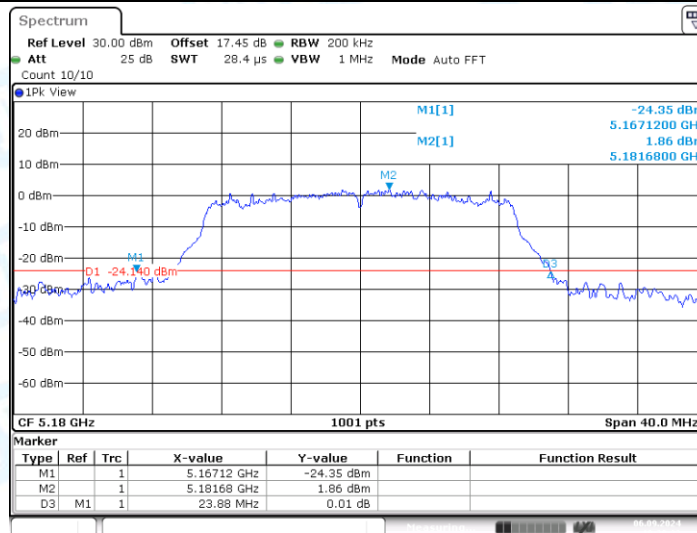
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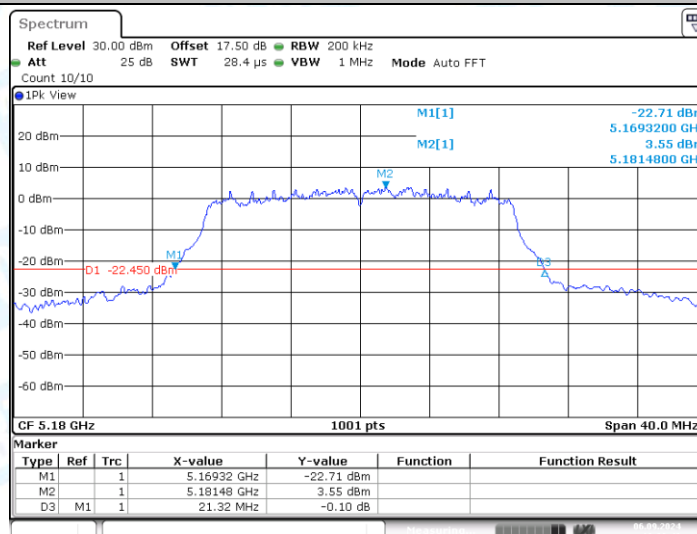
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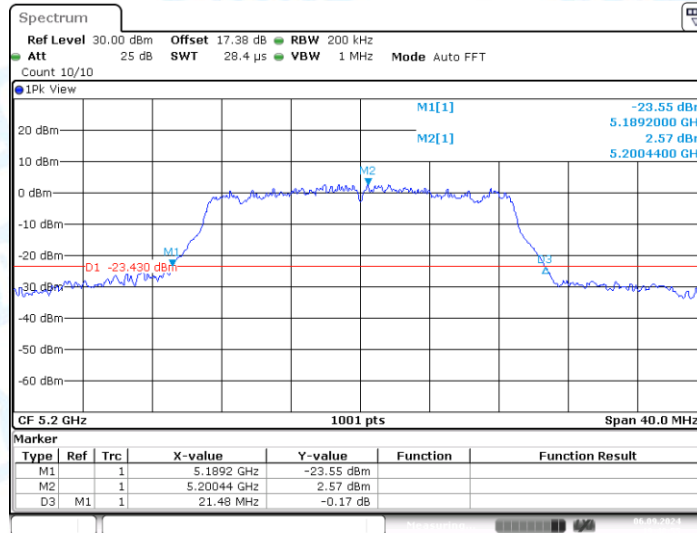
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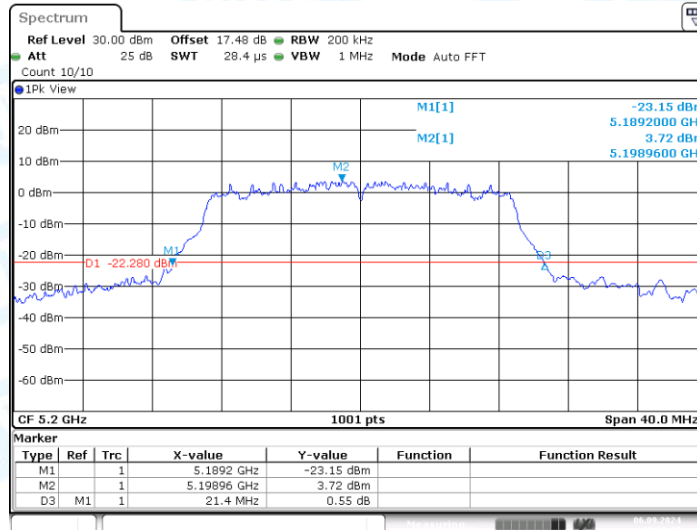
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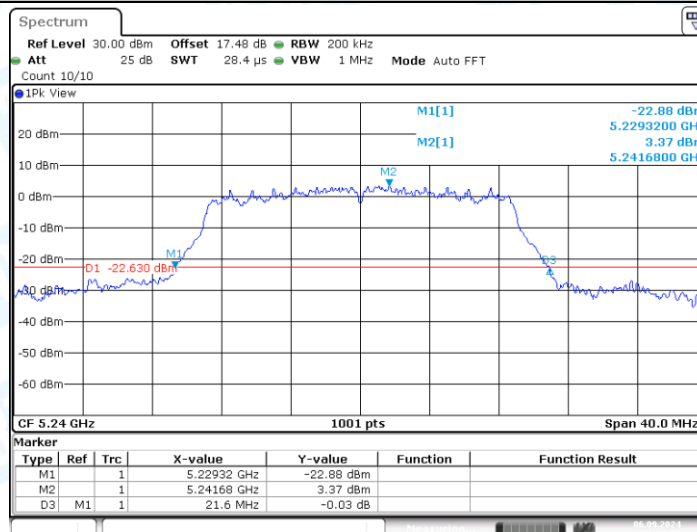
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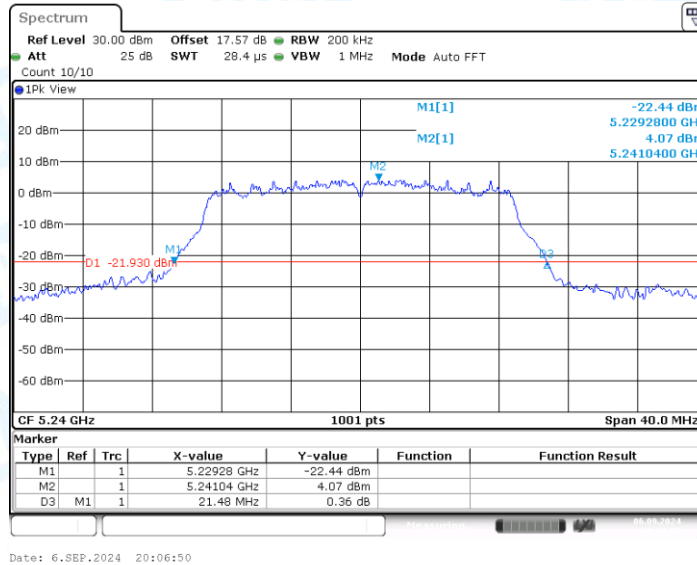
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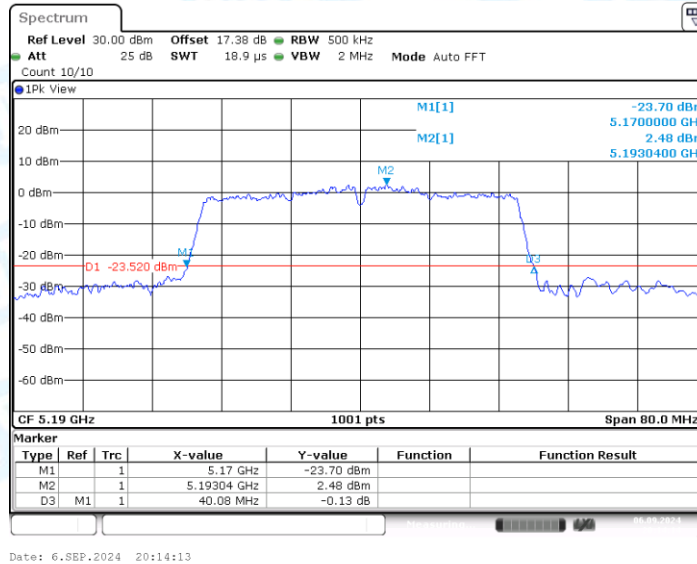


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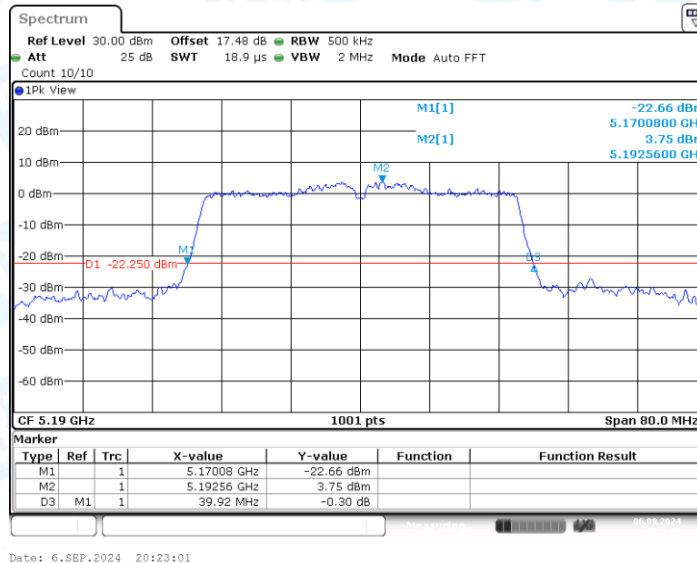
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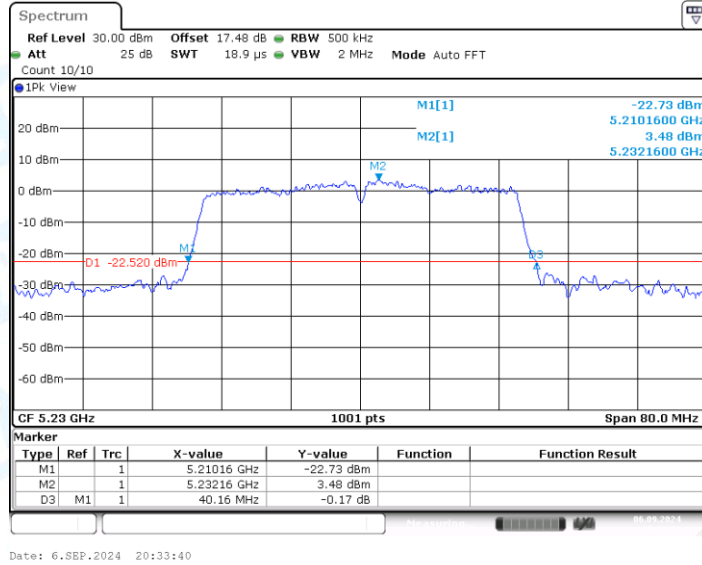
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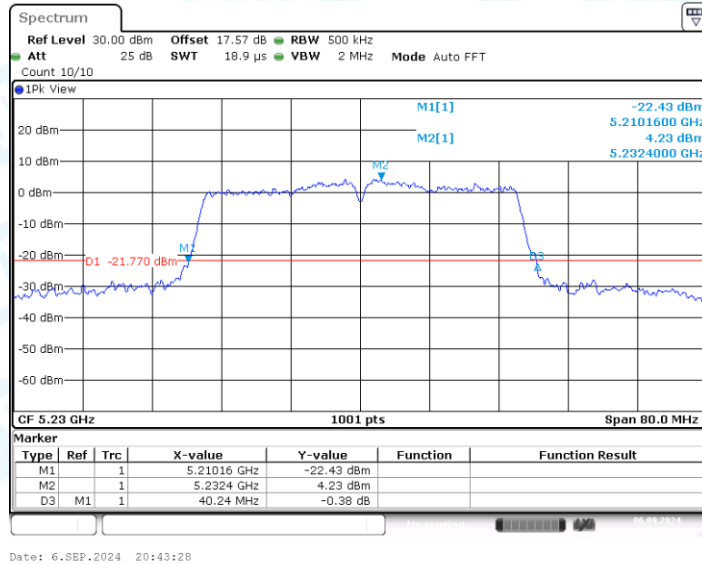
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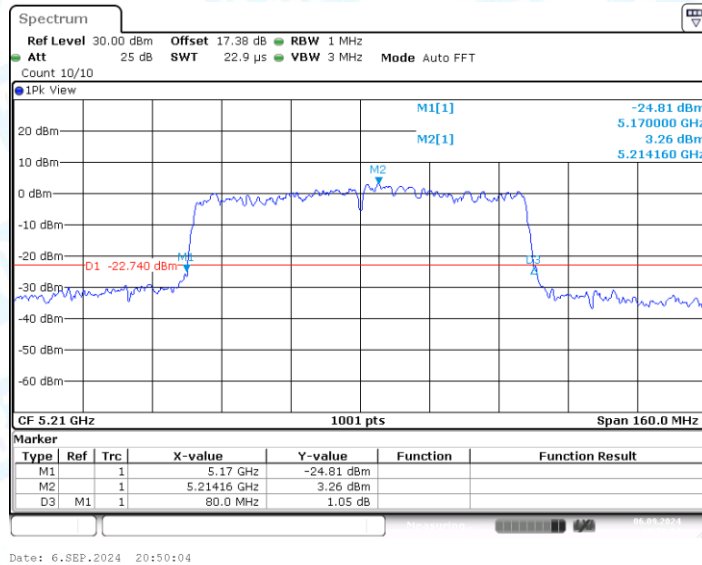
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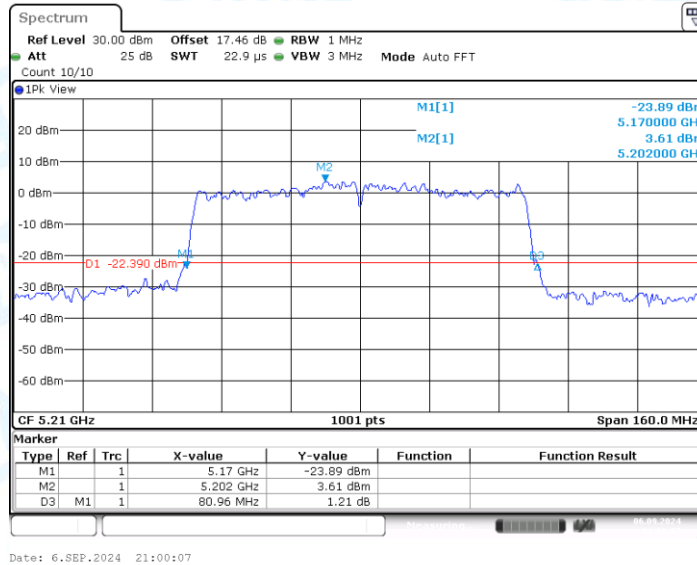
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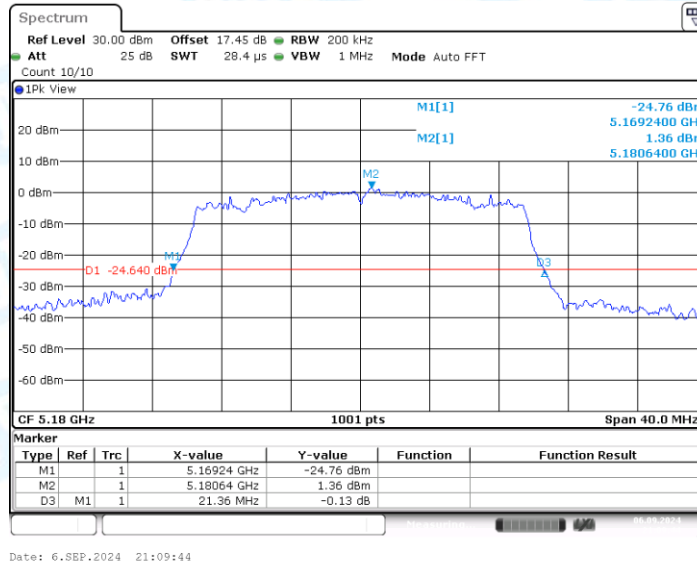
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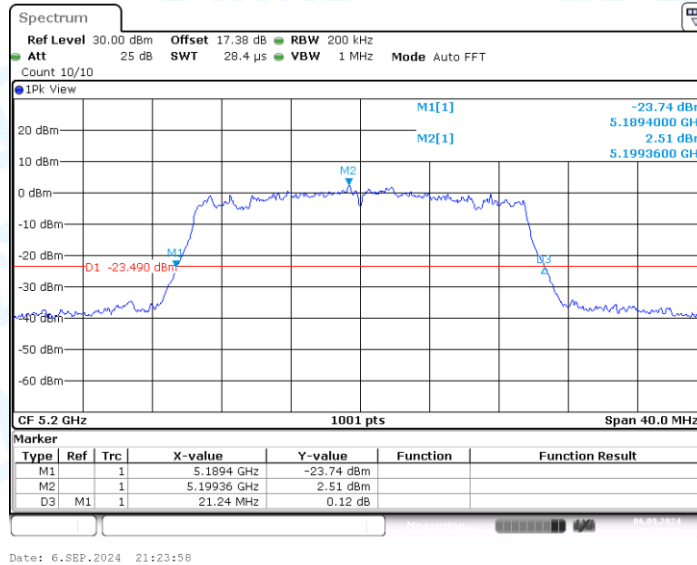
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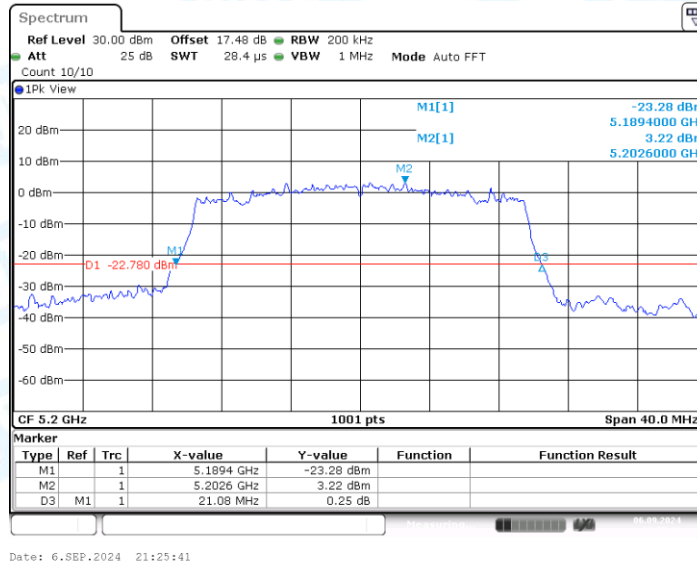
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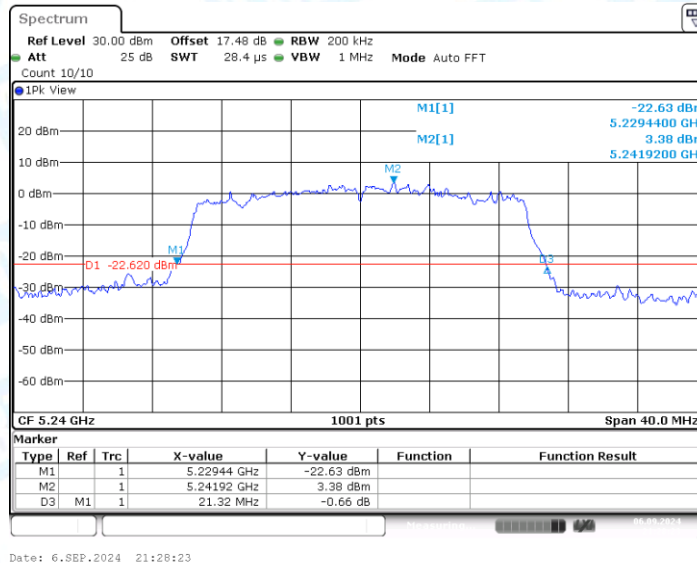
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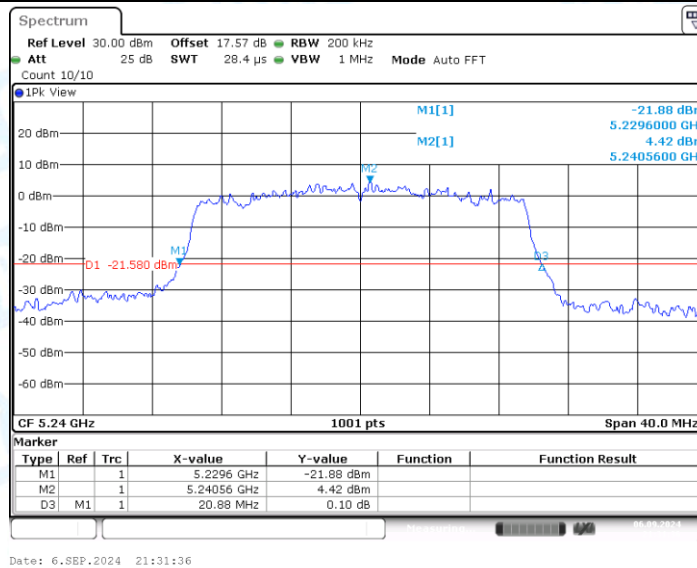
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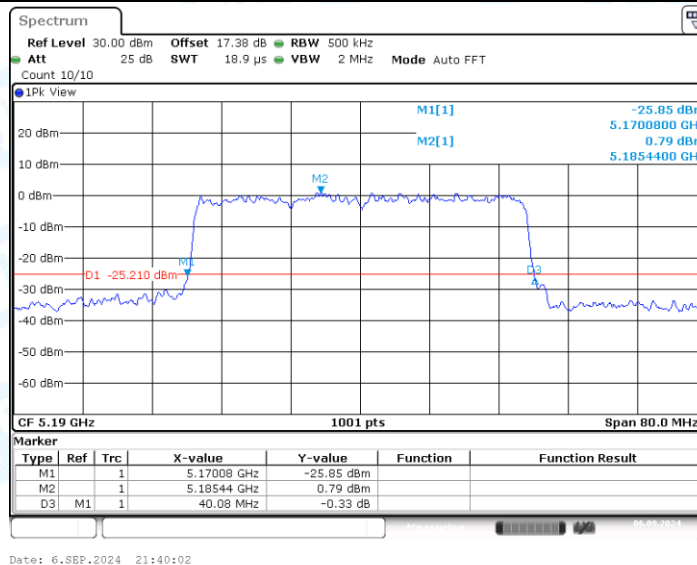
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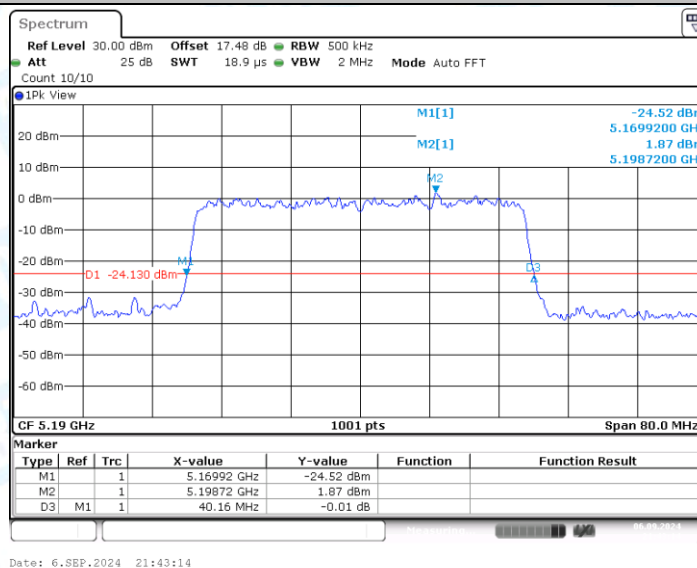
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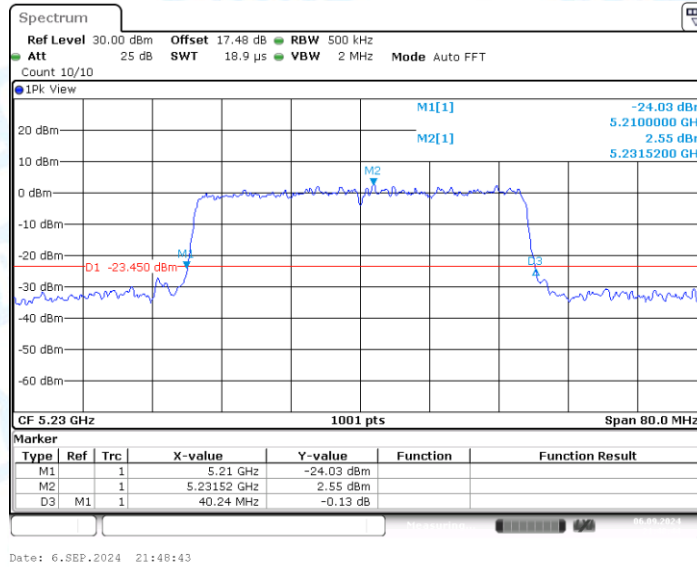
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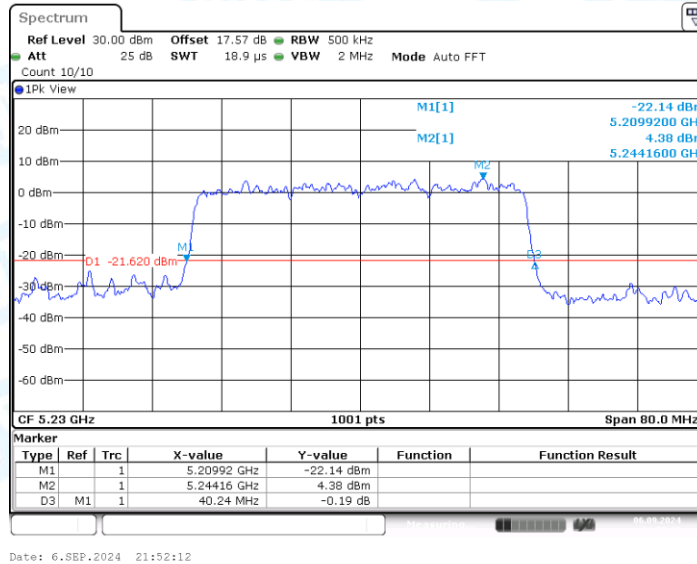
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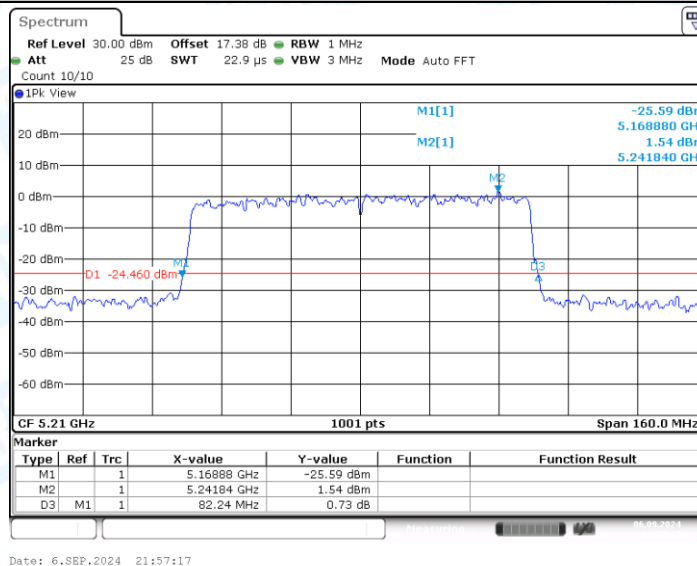
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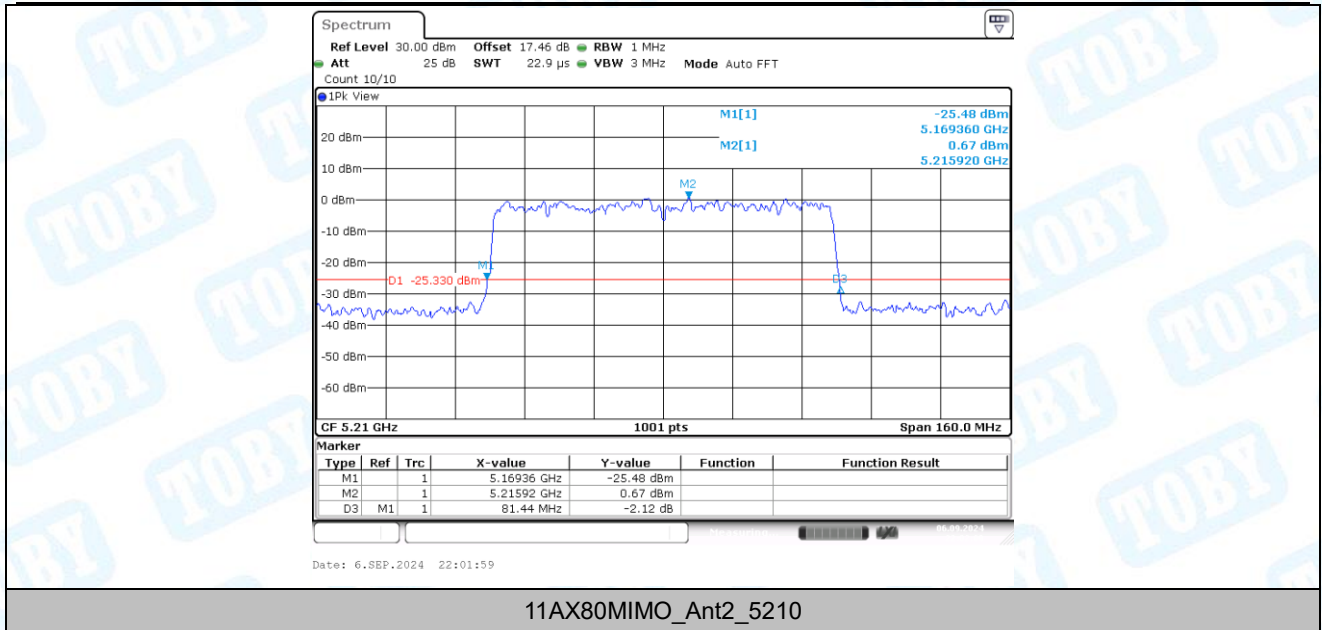
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11AX40MIMO_Ant2_5230



11AX80MIMO_Ant1_5210

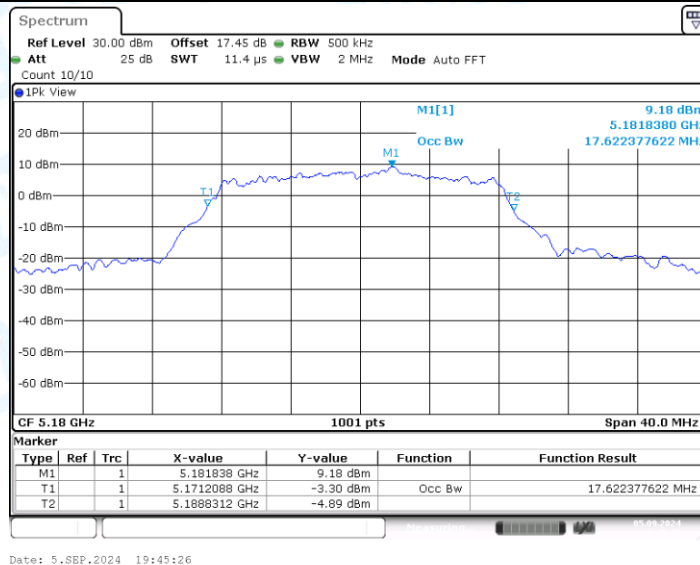


2. Occupied channel bandwidth

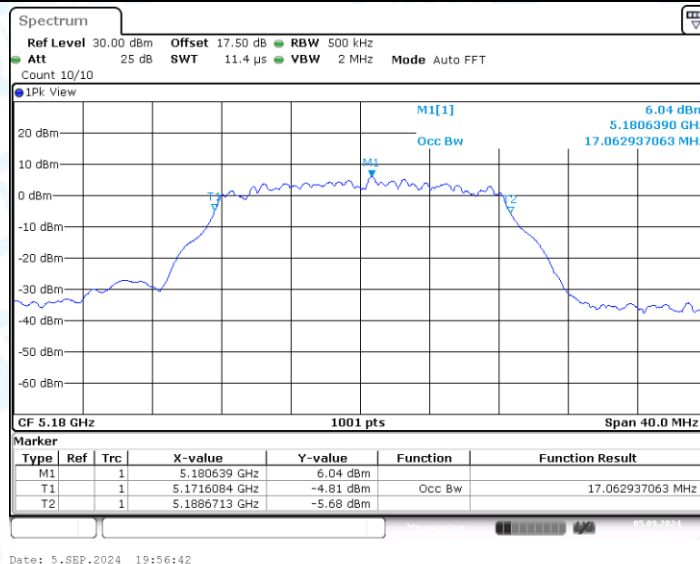
2.1. Test Result

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	---	---

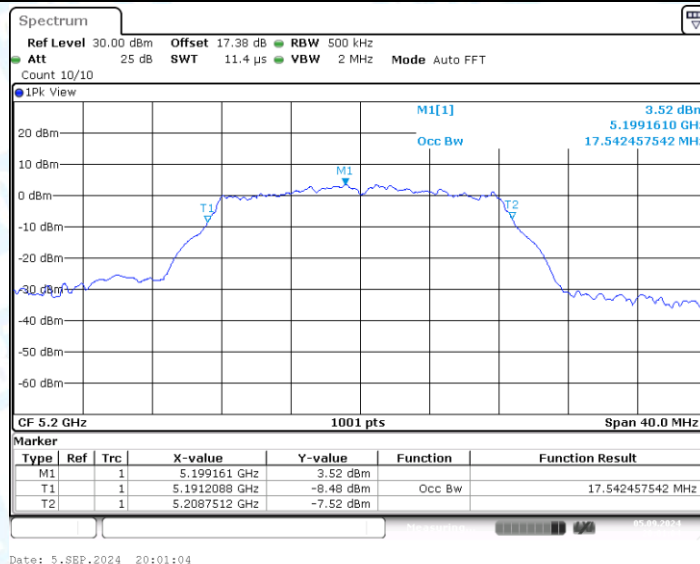
2.2. Test Graphs



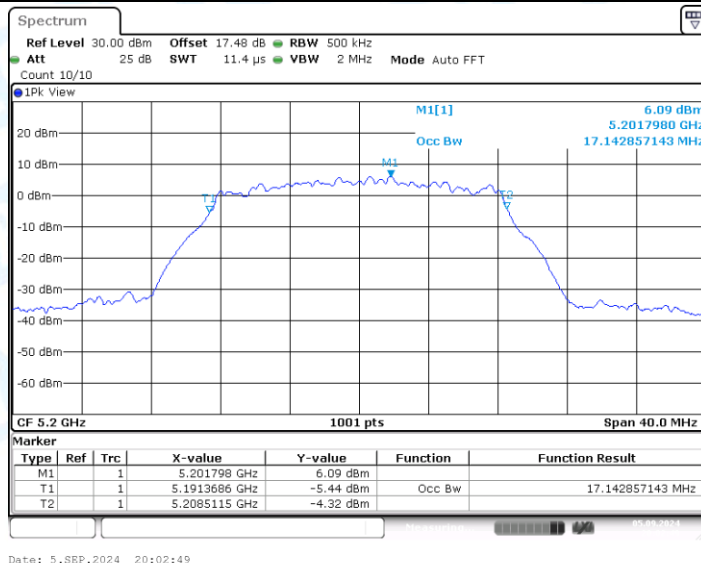
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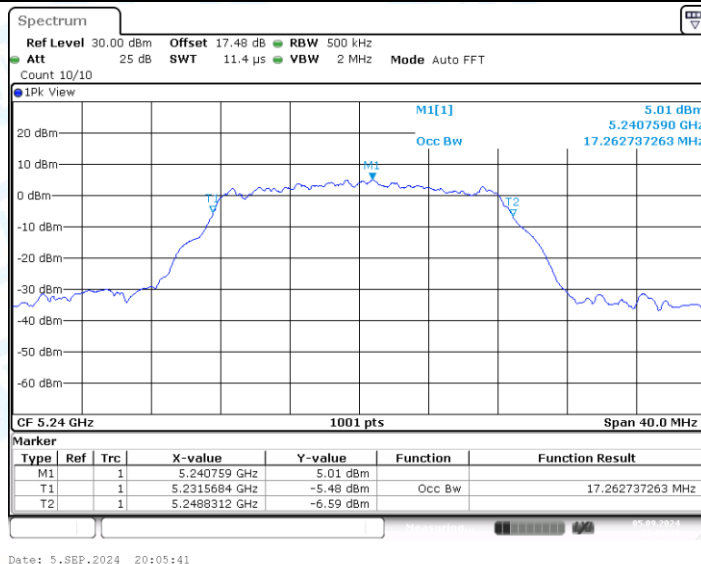
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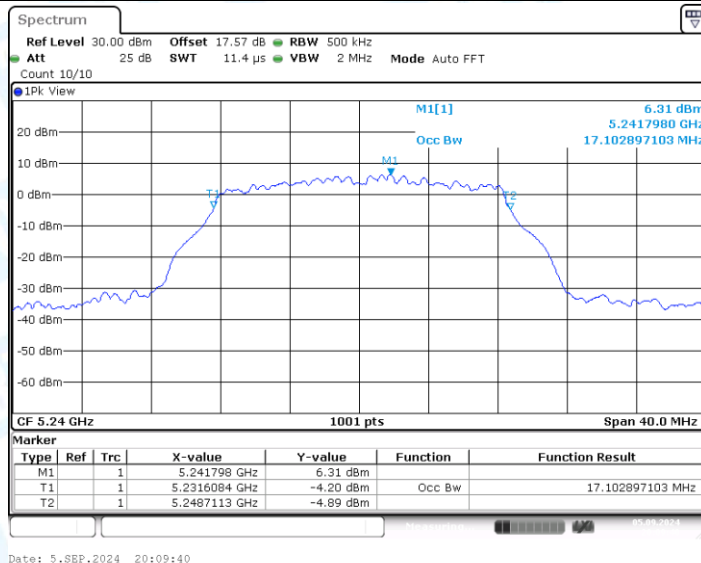
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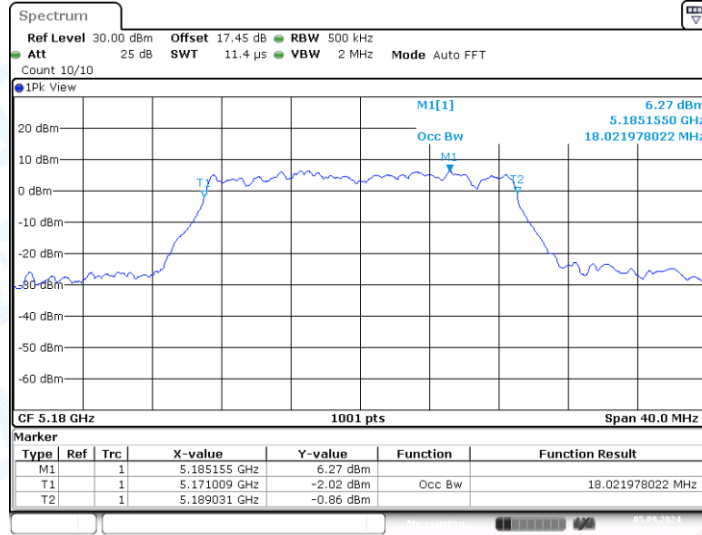
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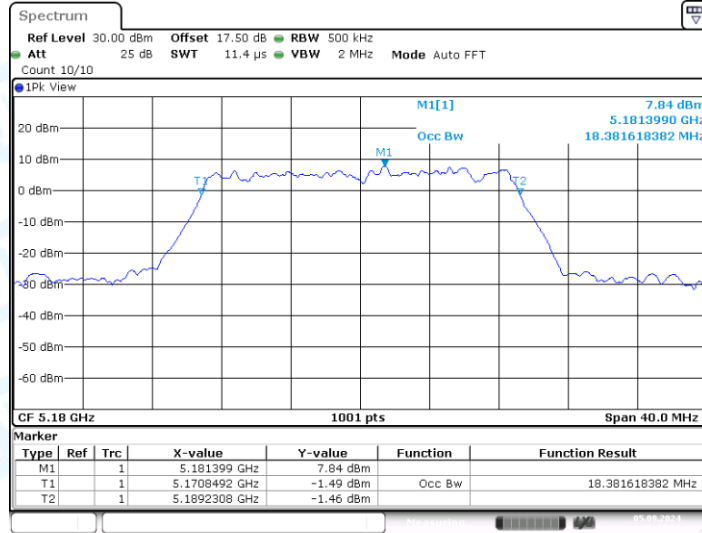


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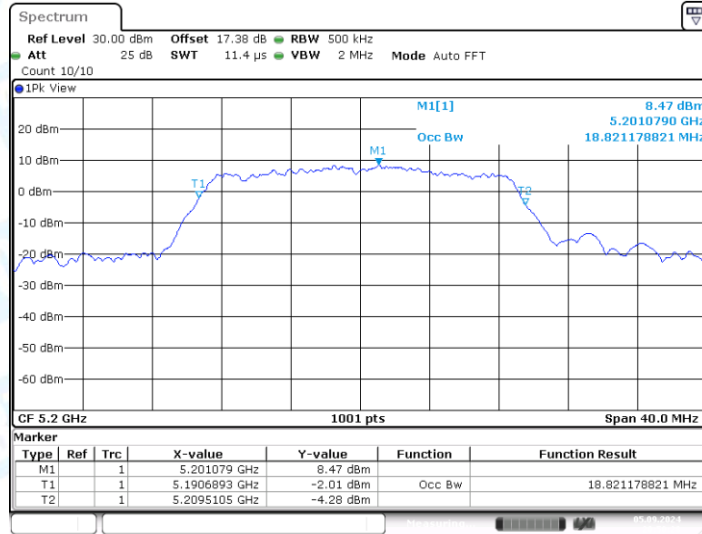
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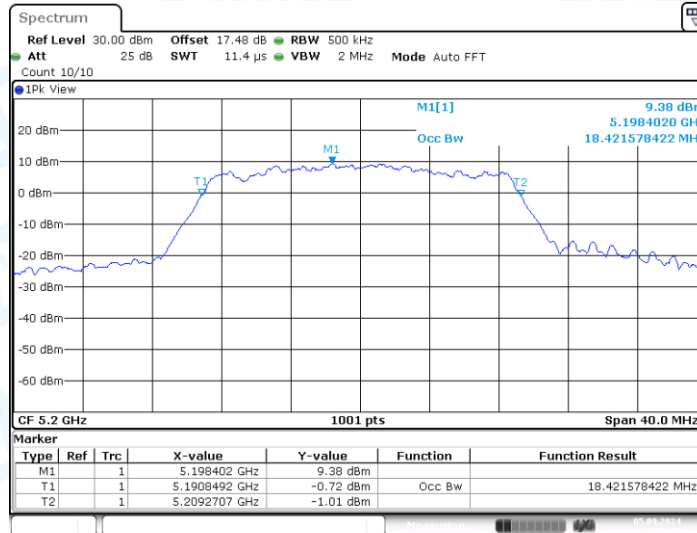
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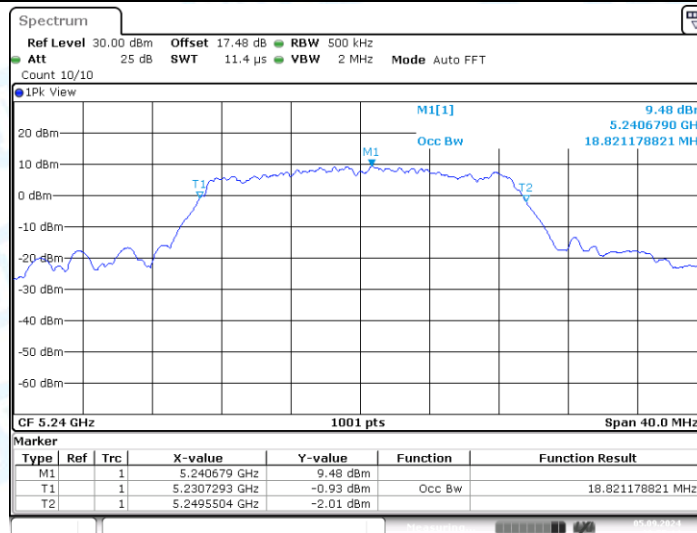
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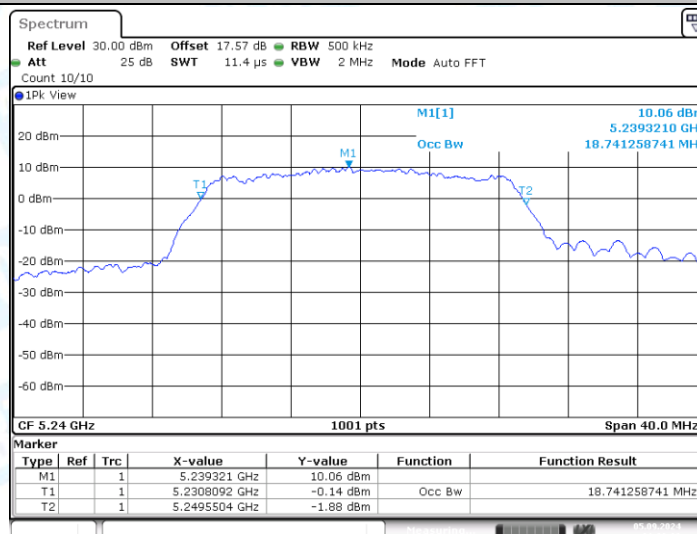
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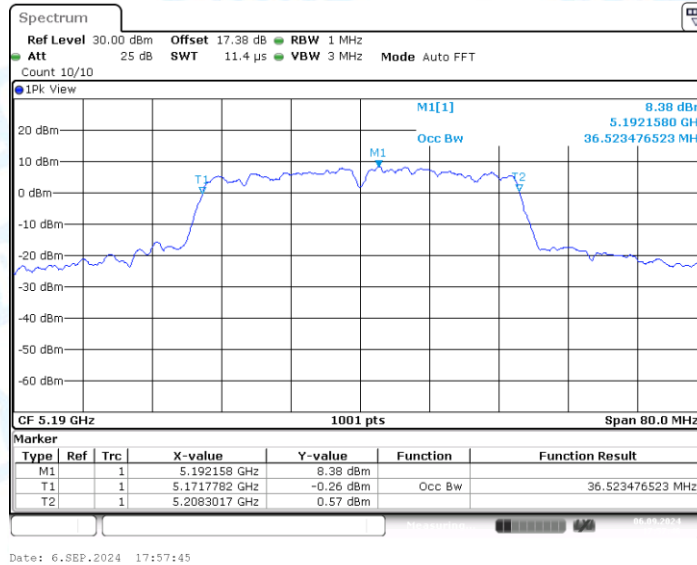
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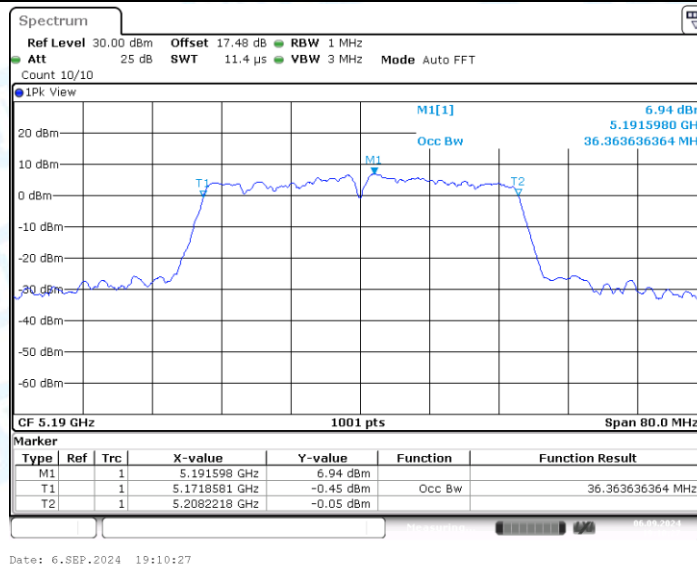


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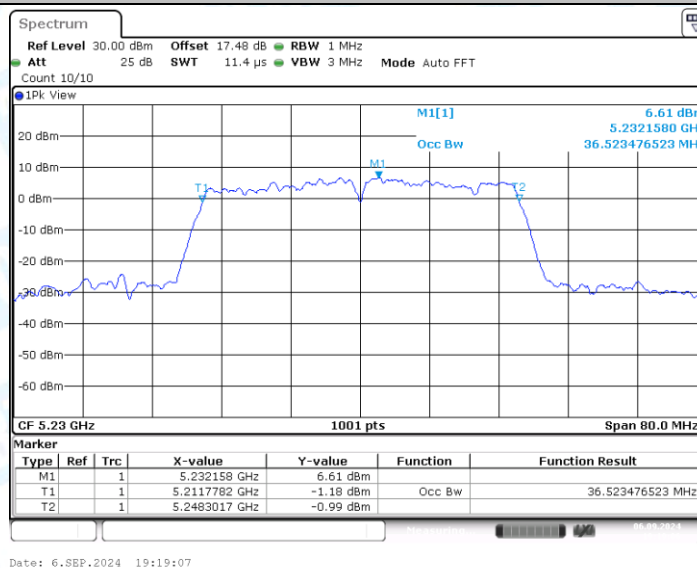
11N20MIMO_Ant2_5240



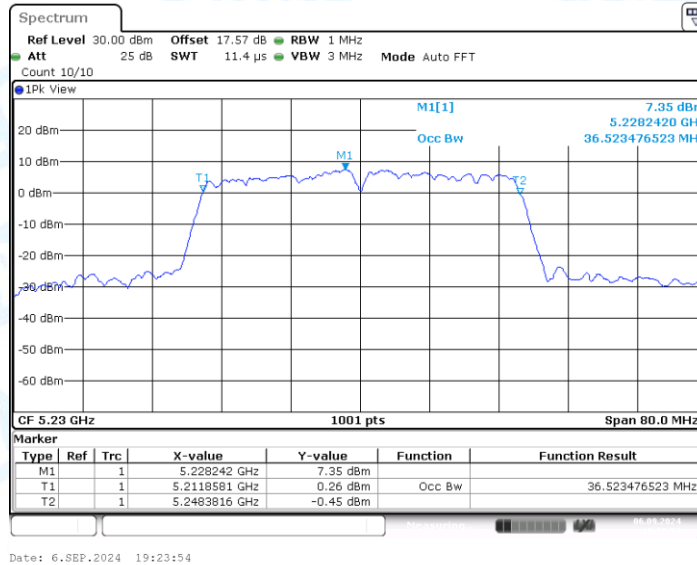
11N40MIMO_Ant1_5190



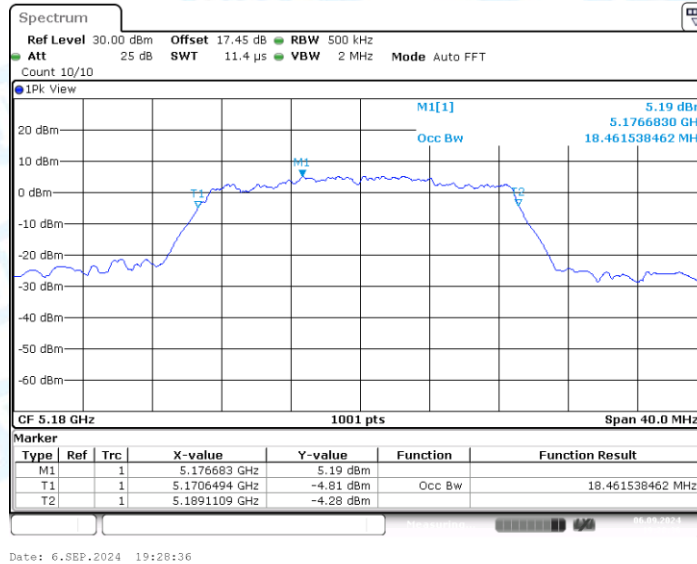
11N40MIMO_Ant2_5190



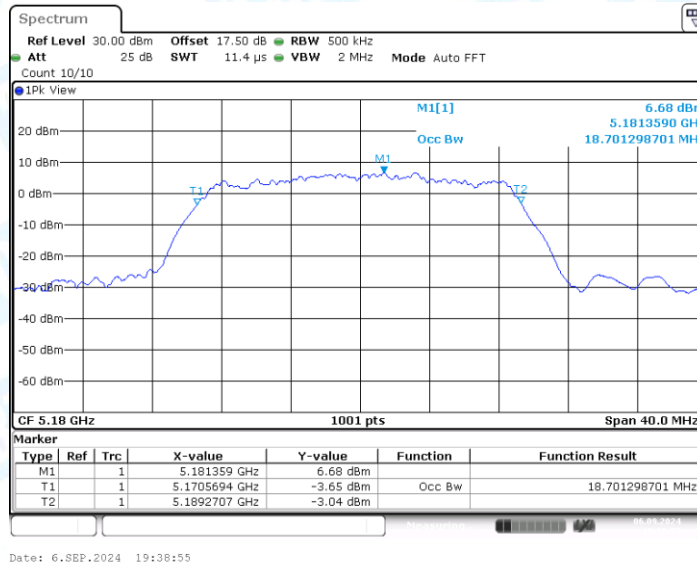
11N40MIMO_Ant1_5230



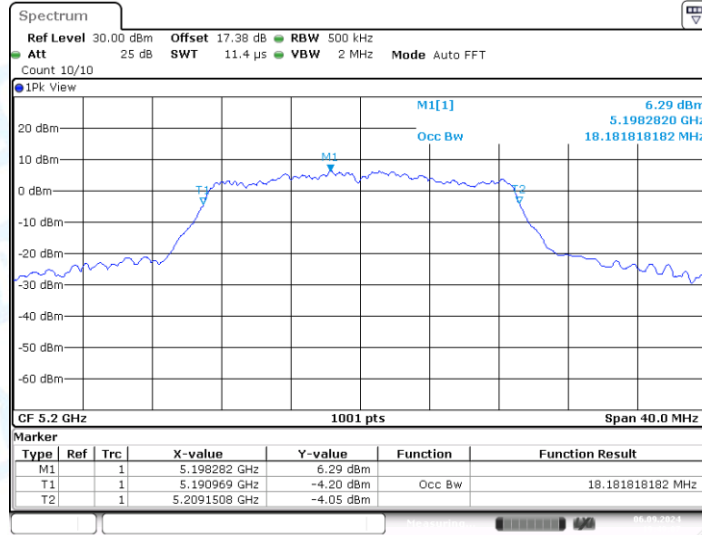
11N40MIMO_Ant2_5230



11AC20MIMO_Ant1_5180

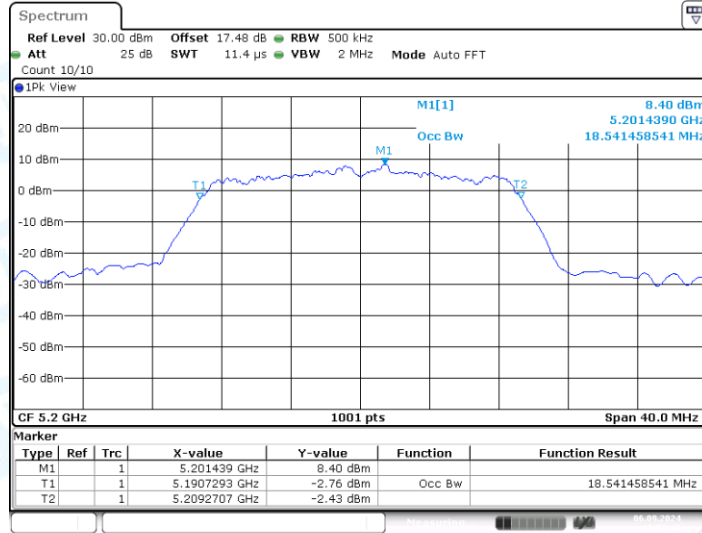


11AC20MIMO_Ant2_5180



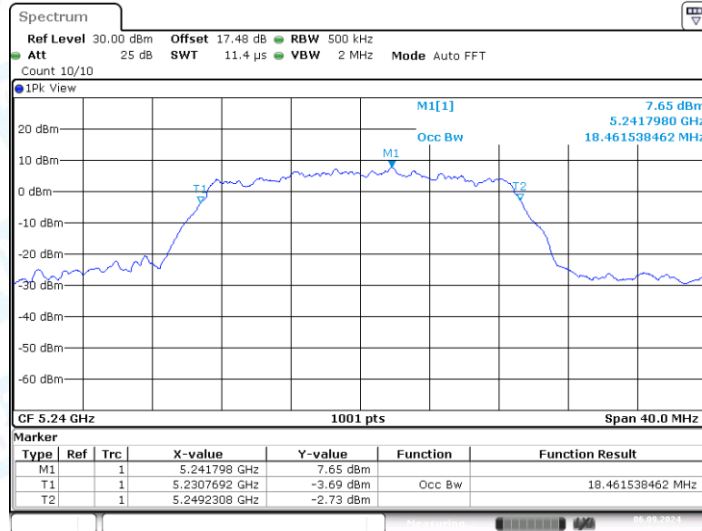
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11AC20MIMO_Ant1_5200



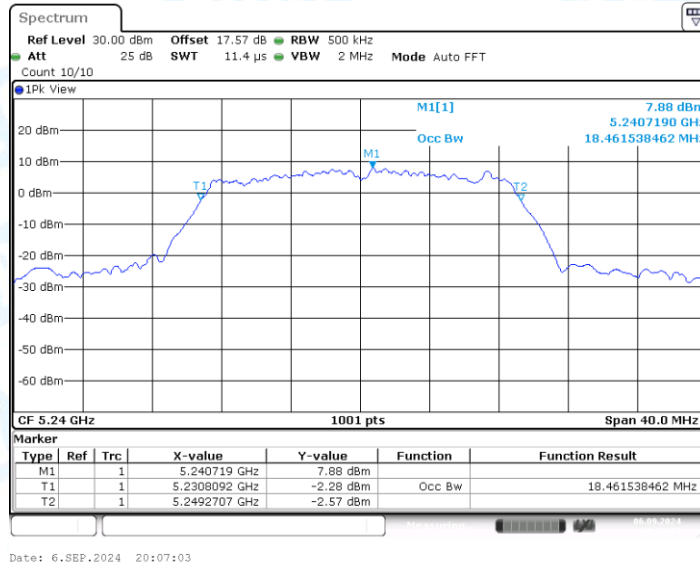
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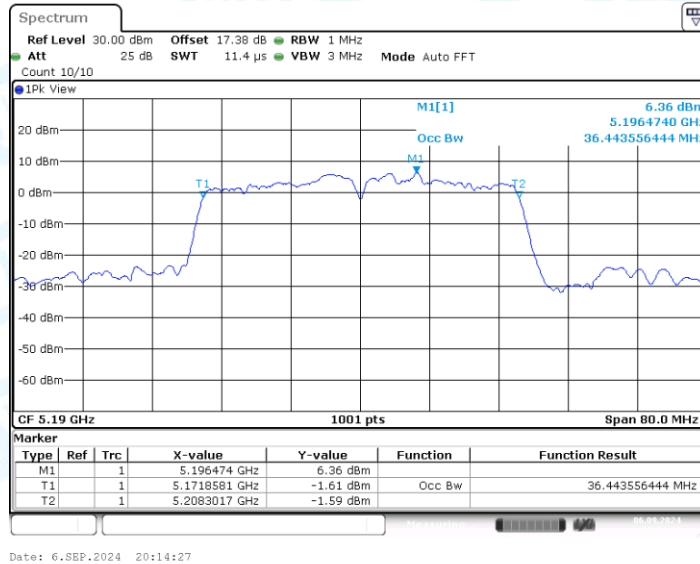


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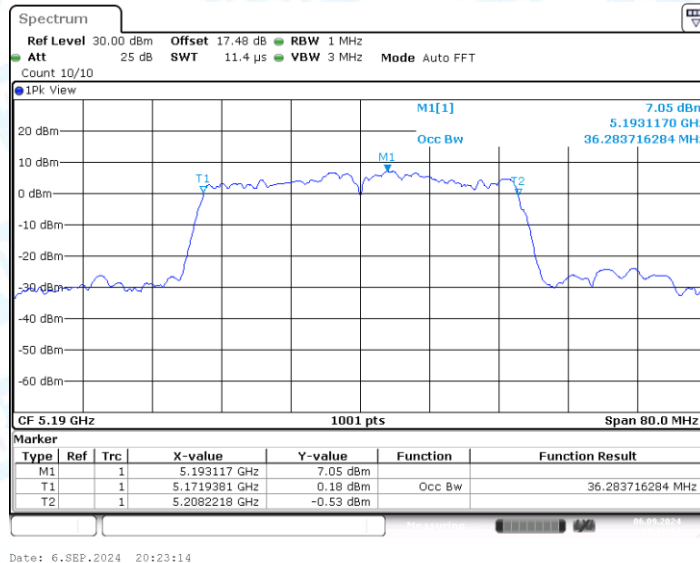
11AC20MIMO_Ant1_5240



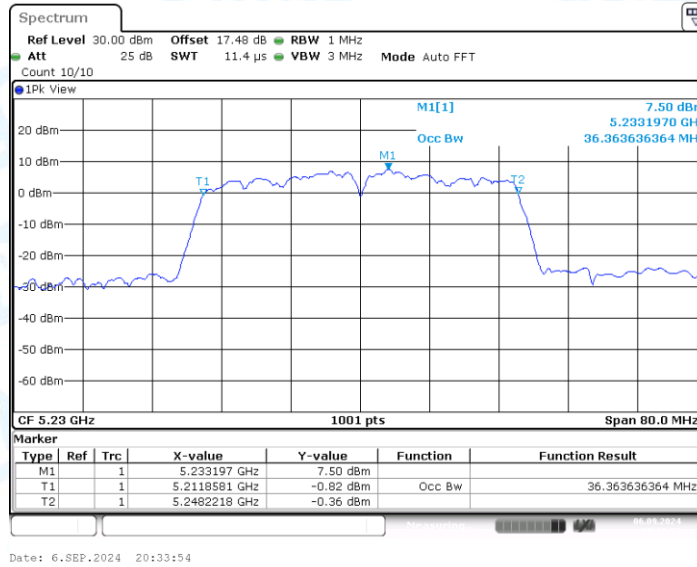
11AC20MIMO_Ant2_5240



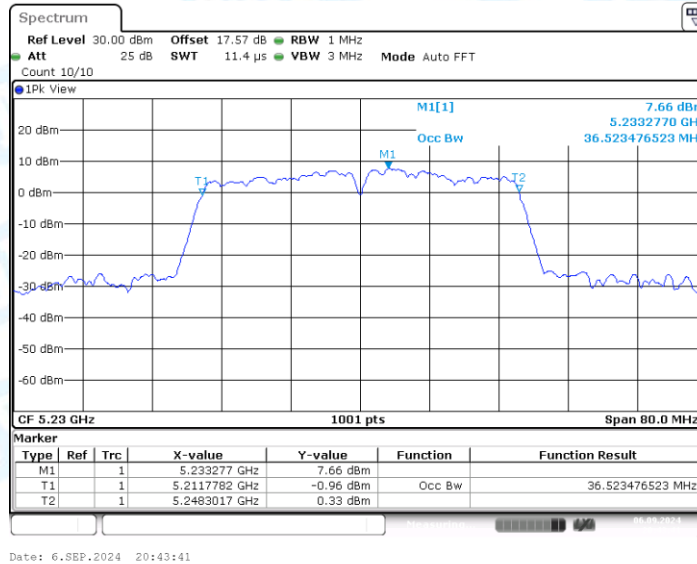
11AC40MIMO_Ant1_5190



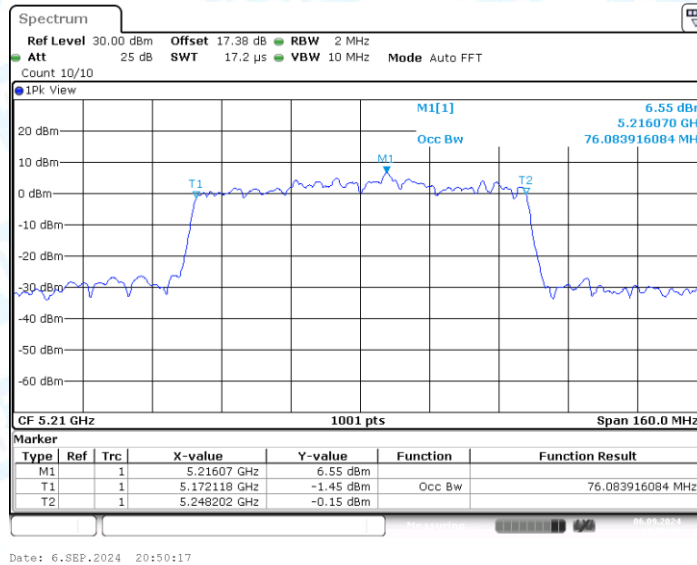
11AC40MIMO_Ant2_5190



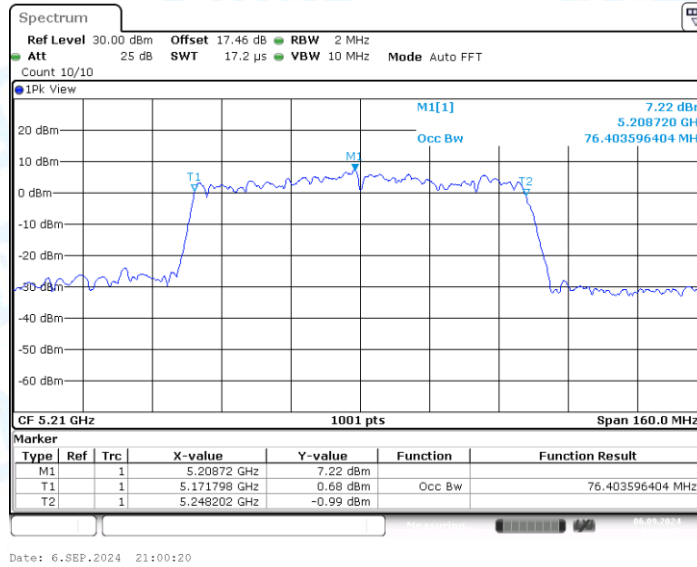
11AC40MIMO_Ant1_5230



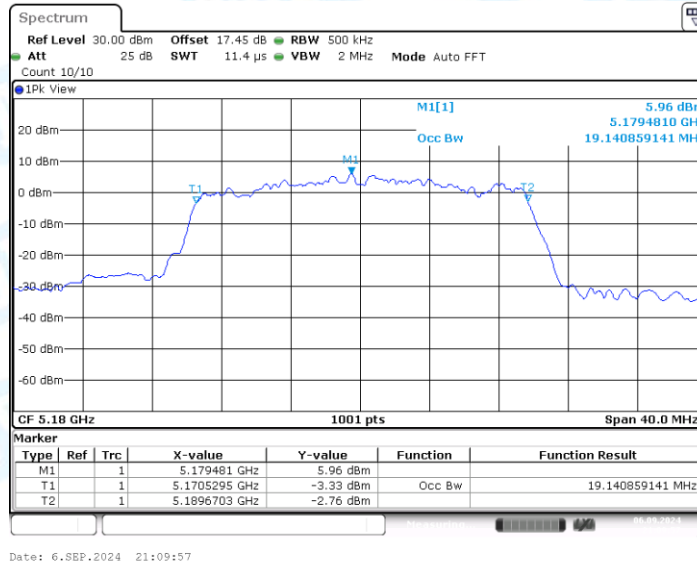
11AC40MIMO_Ant2_5230



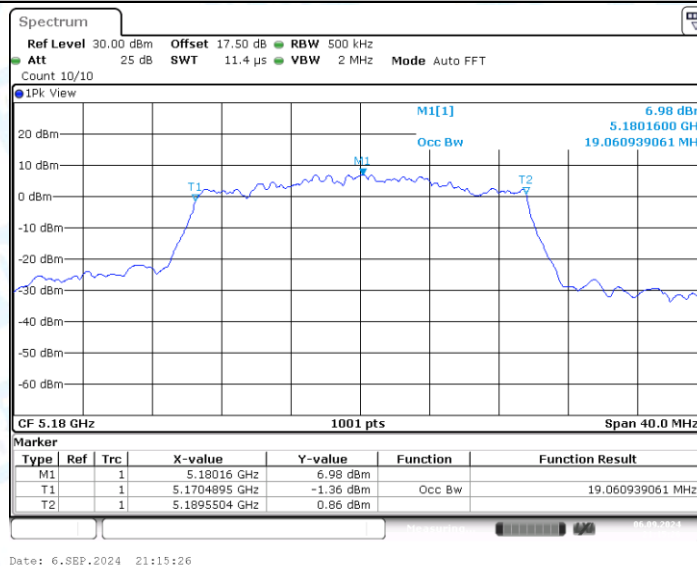
11AC80MIMO_Ant1_5210



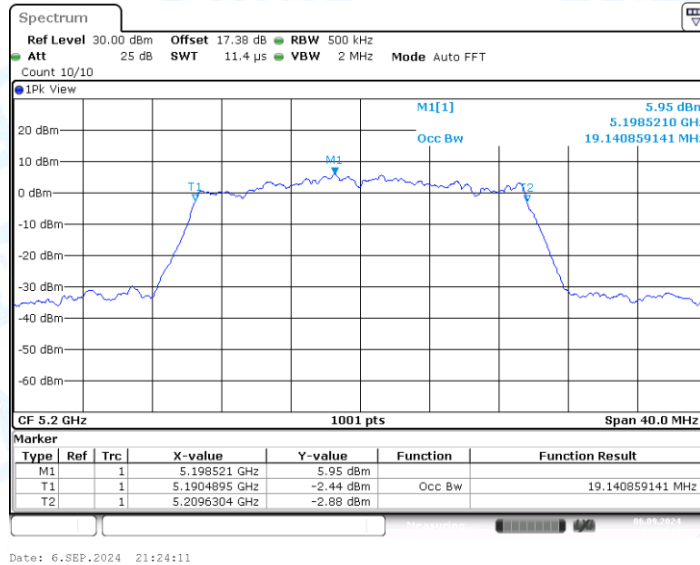
11AC80MIMO_Ant2_5210



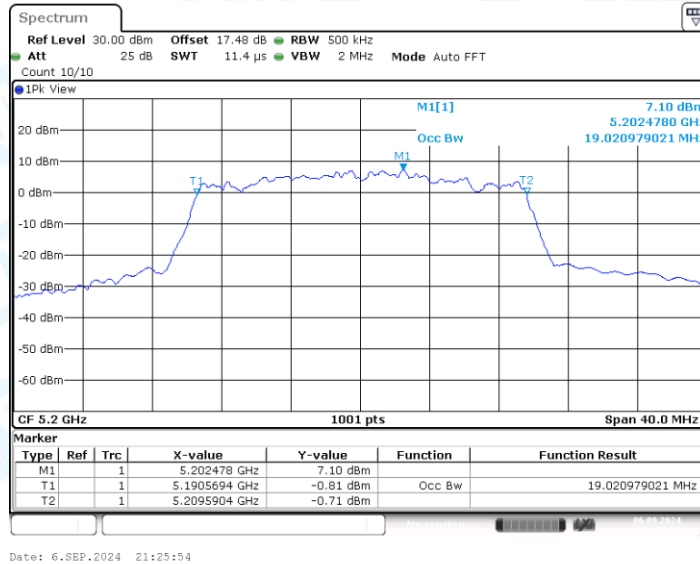
11AX20MIMO_Ant1_5180



11AX20MIMO_Ant2_5180



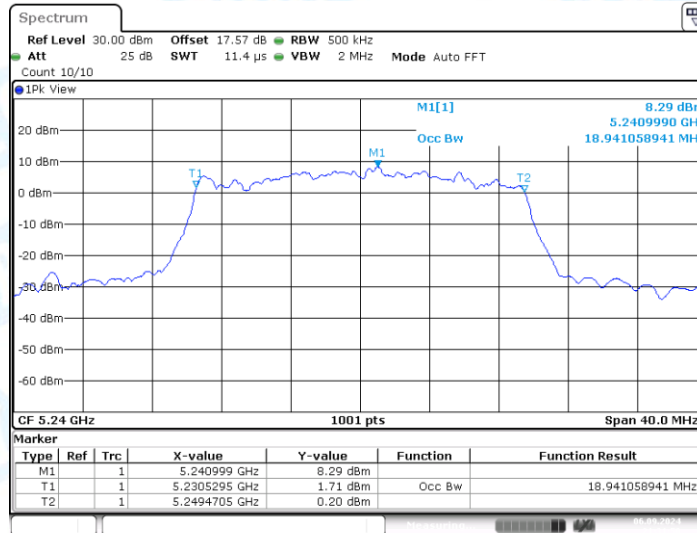
11AX20MIMO_Ant1_5200



11AX20MIMO_Ant2_5200

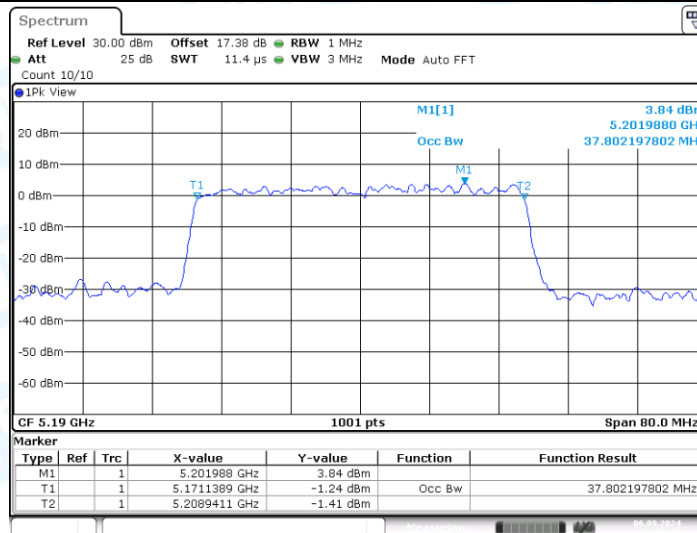


11AX20MIMO_Ant1_5240



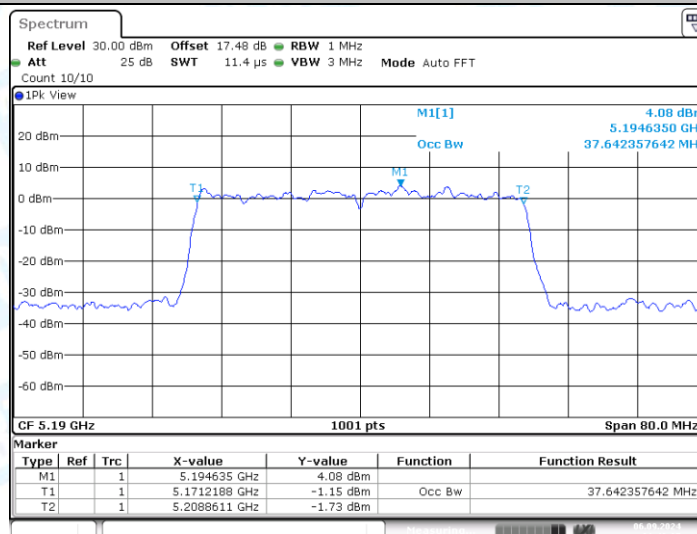
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11AX20MIMO_Ant2_5240



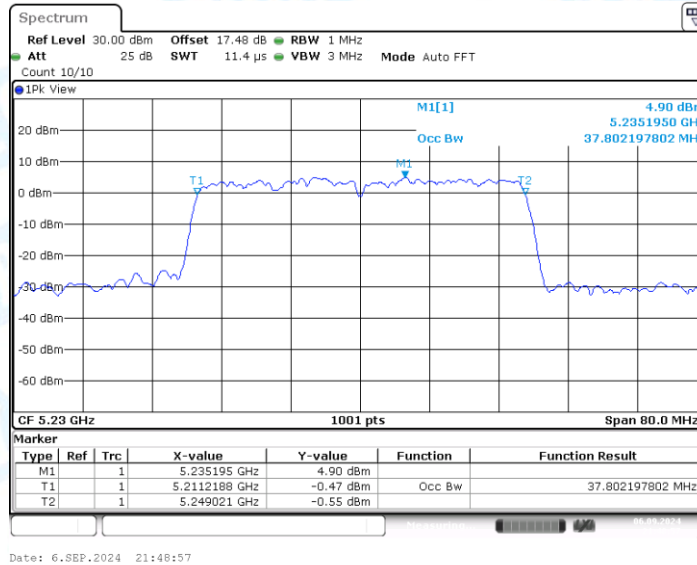
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11AX40MIMO_Ant1_5190

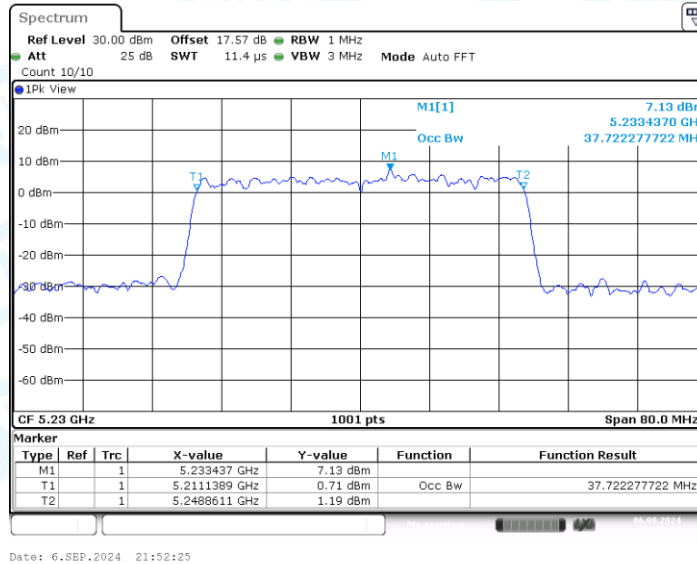


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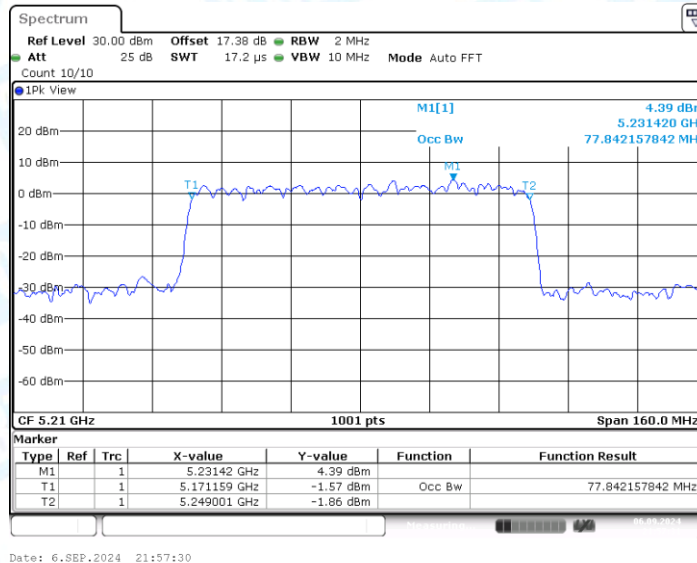
11AX40MIMO_Ant2_5190



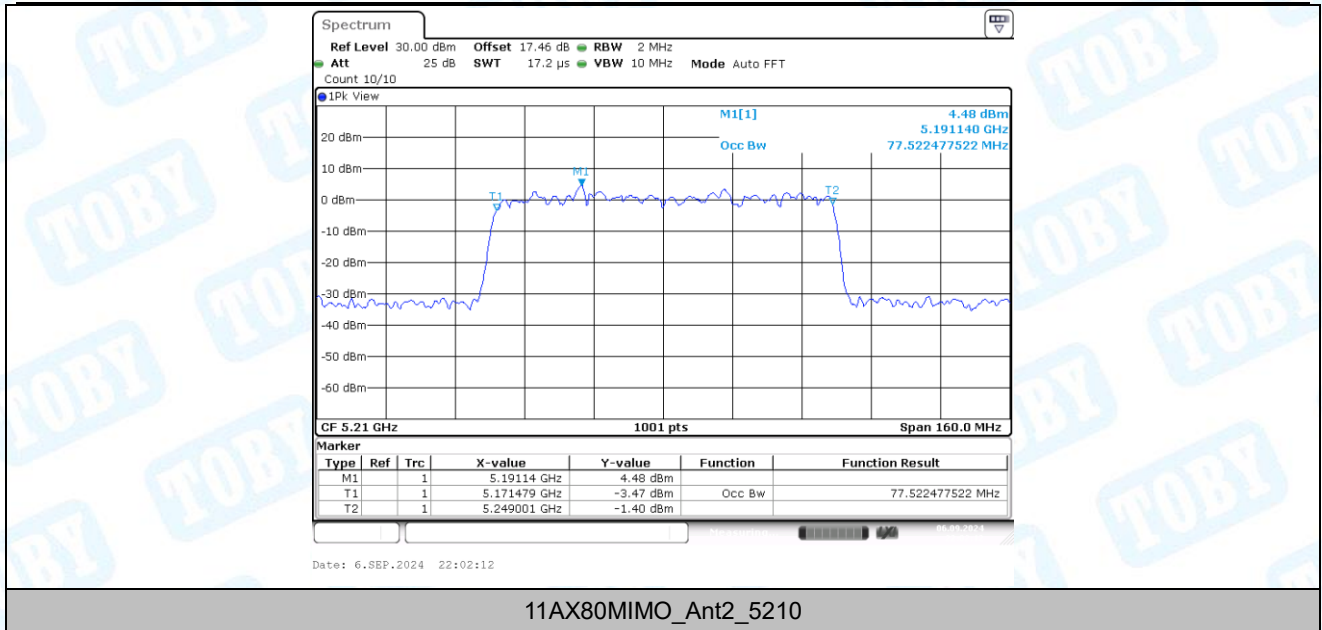
11AX40MIMO_Ant1_5230



11AX40MIMO_Ant2_5230



11AX80MIMO_Ant1_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 $P_{out} = P_{limit} - (G_{TX} - 6) = (23.98 - 0.16) \text{dBm} = 23.82 \text{dBm}$ 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

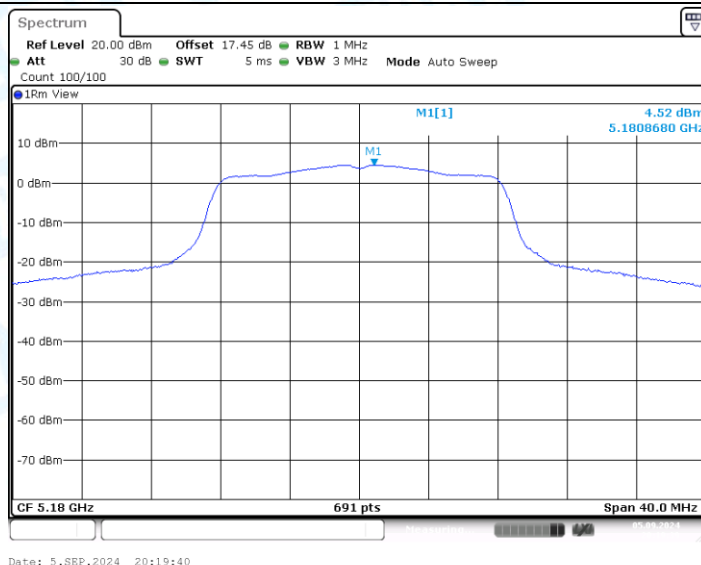
	Ant2	5210	-3.92	≤11.00	PASS
	total	5210	-1.45	≤10.84	PASS
11AX20MIMO	Ant1	5180	-0.48	≤11.00	PASS
	Ant2	5180	1.01	≤11.00	PASS
	total	5180	3.34	≤10.84	PASS
	Ant1	5200	-0.11	≤11.00	PASS
	Ant2	5200	1.48	≤11.00	PASS
	total	5200	3.77	≤10.84	PASS
	Ant1	5240	1.06	≤11.00	PASS
	Ant2	5240	1.99	≤11.00	PASS
	total	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 $PSD_{out} = PSD_{limit} - (G_{TX} - 6) = (11 - 0.16) \text{ dBm/MHz} = 10.84 \text{ dBm/MHz}$ For U-NII-1: 5180MHz-5240MHz

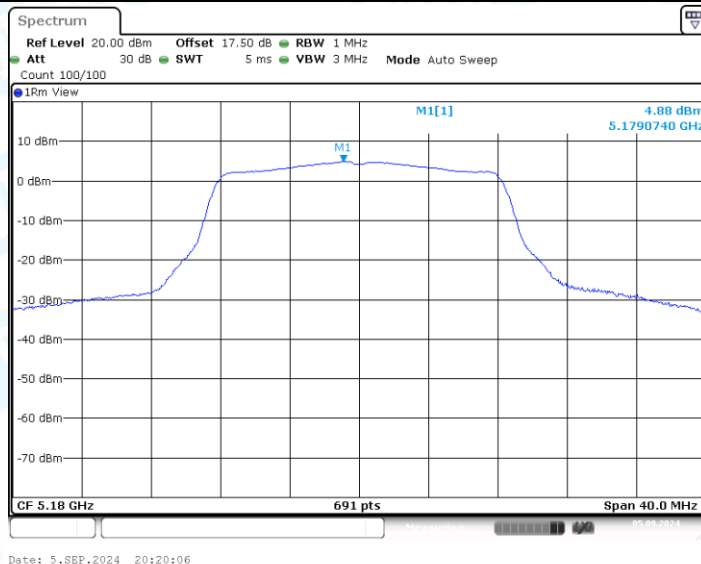
Directional Gain=ANT. Gain+10*LOG(NANT)

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

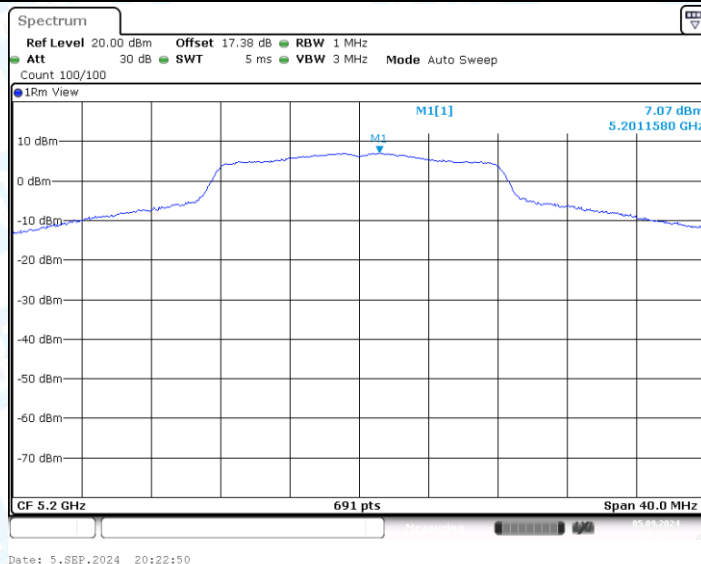
4.2. Test Graphs



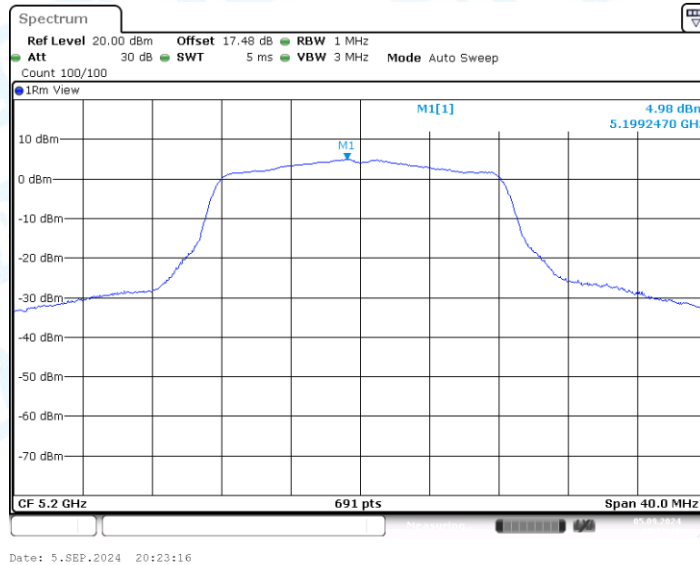
11A-CDD_Ant1_5180



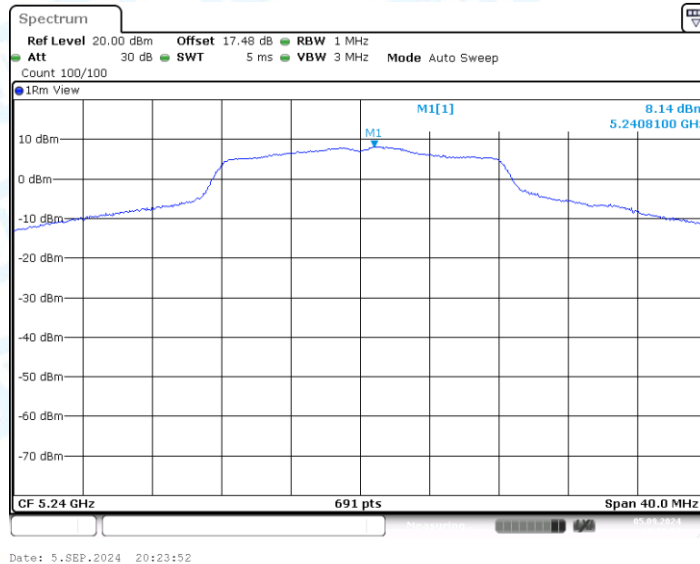
11A-CDD_Ant2_5180



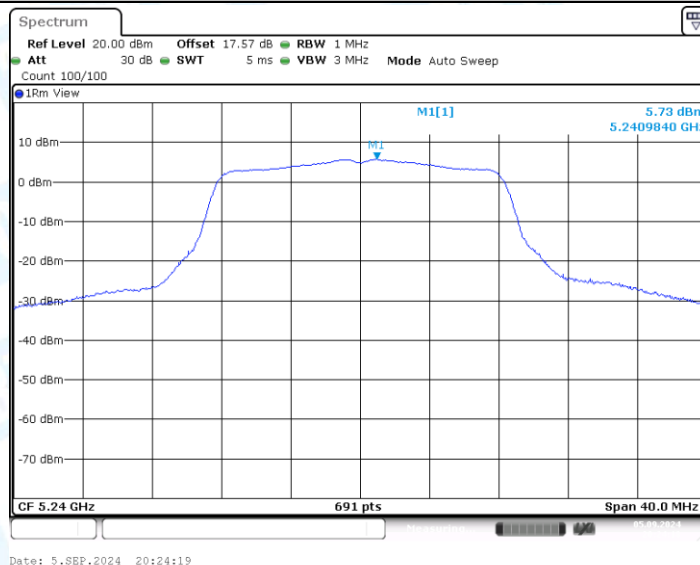
11A-CDD_Ant1_5200



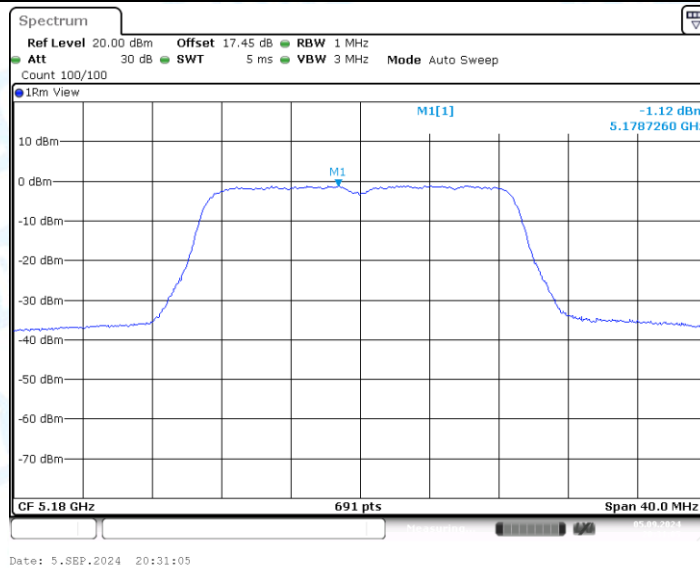
11A-CDD_Ant2_5200



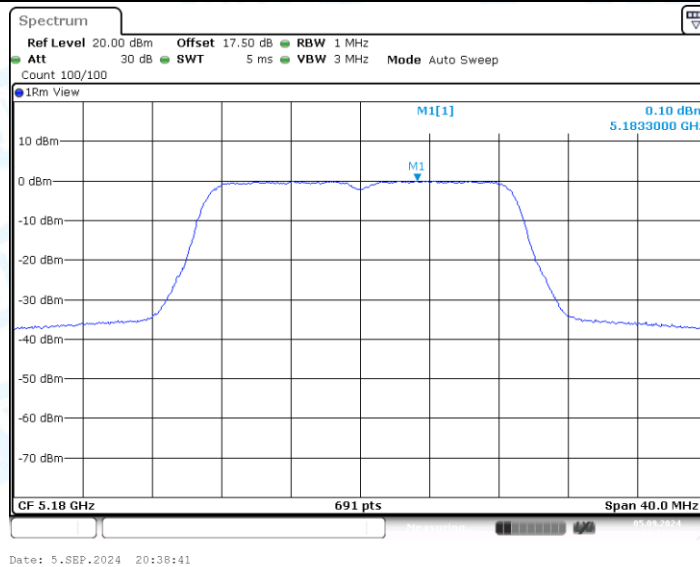
11A-CDD_Ant1_5240



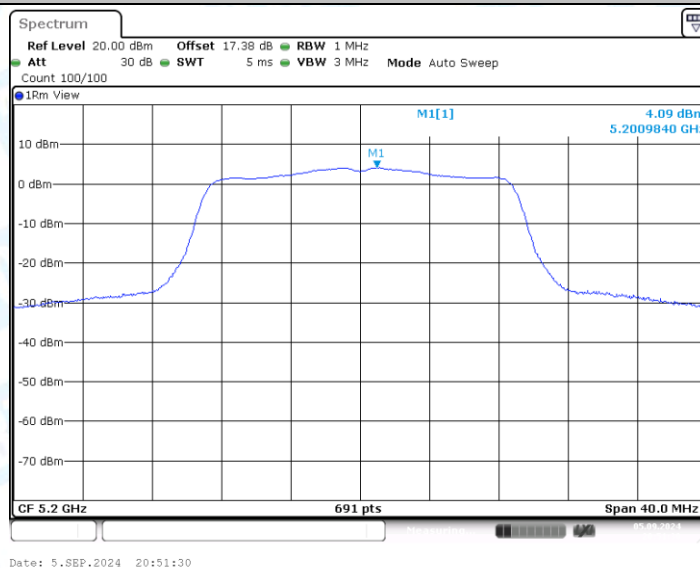
11A-CDD_Ant2_5240



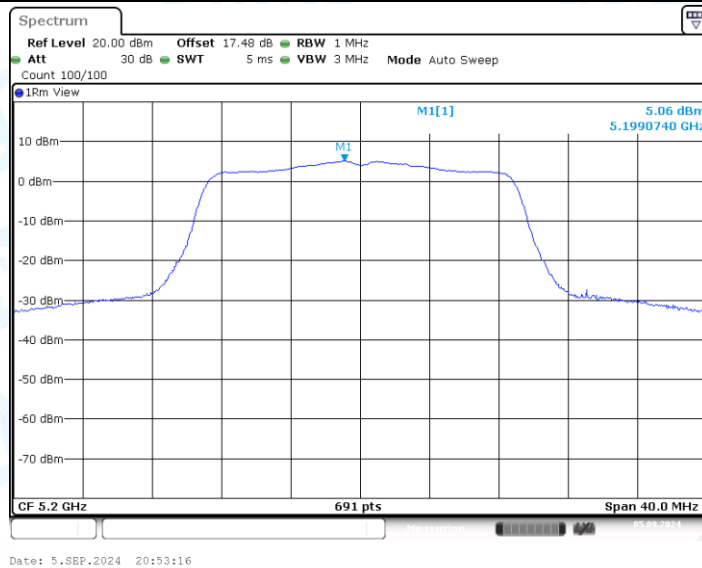
11N20MIMO_Ant1_5180



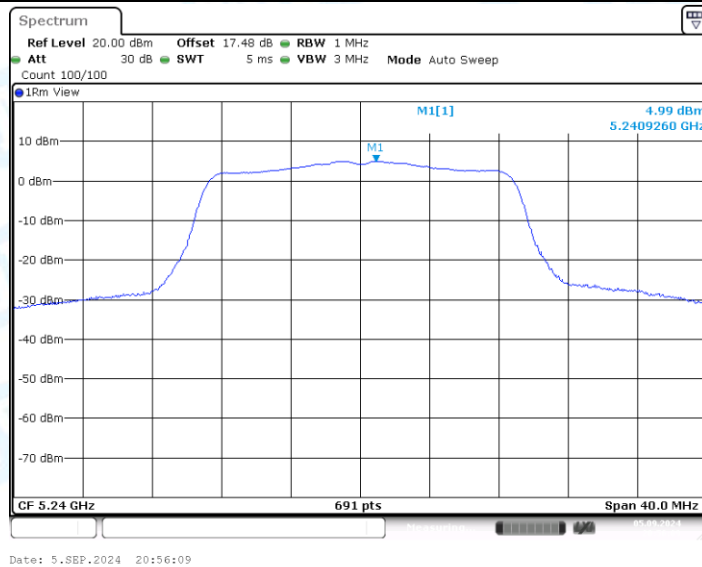
11N20MIMO_Ant2_5180



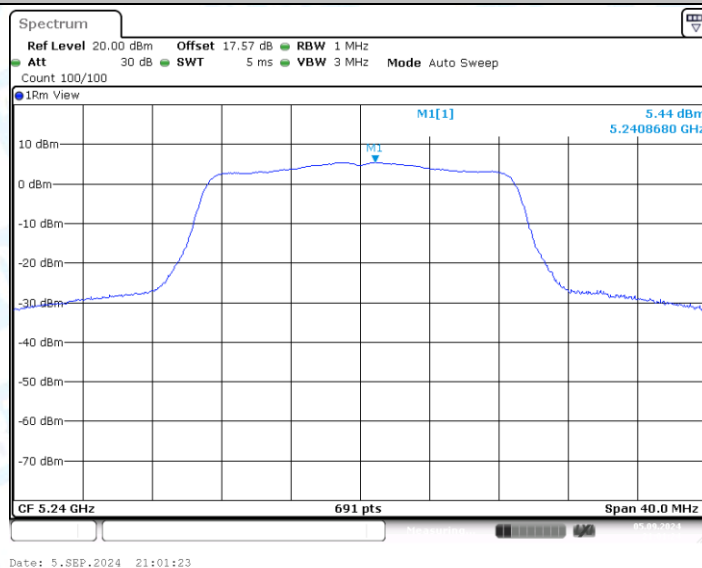
11N20MIMO_Ant1_5200



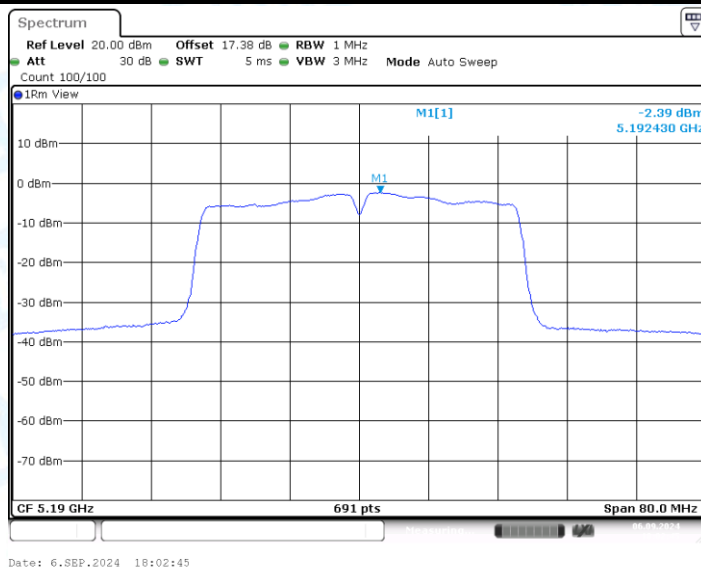
11N20MIMO_Ant2_5200



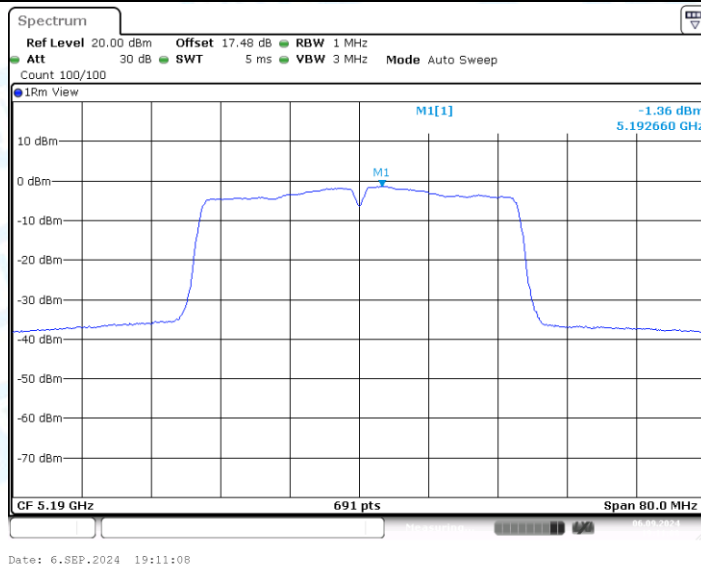
11N20MIMO_Ant1_5240



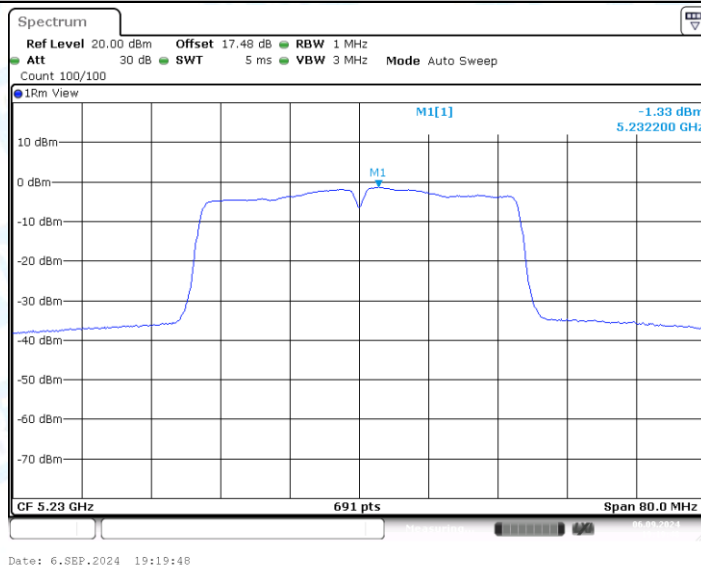
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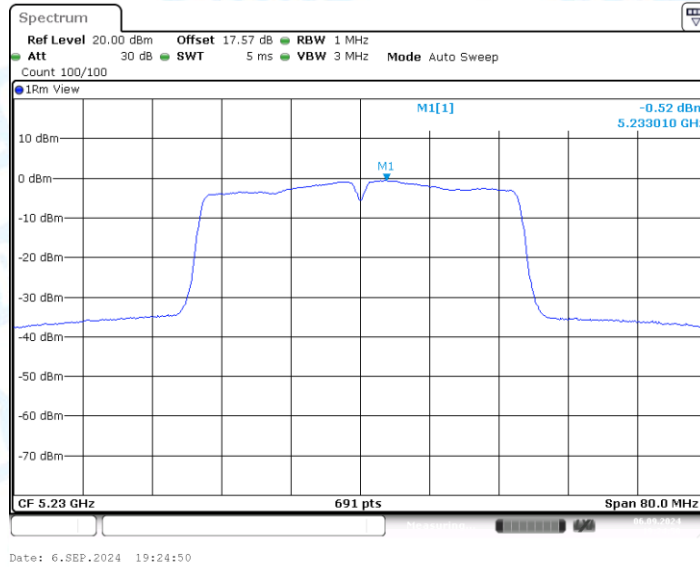
11N40MIMO_Ant1_5190



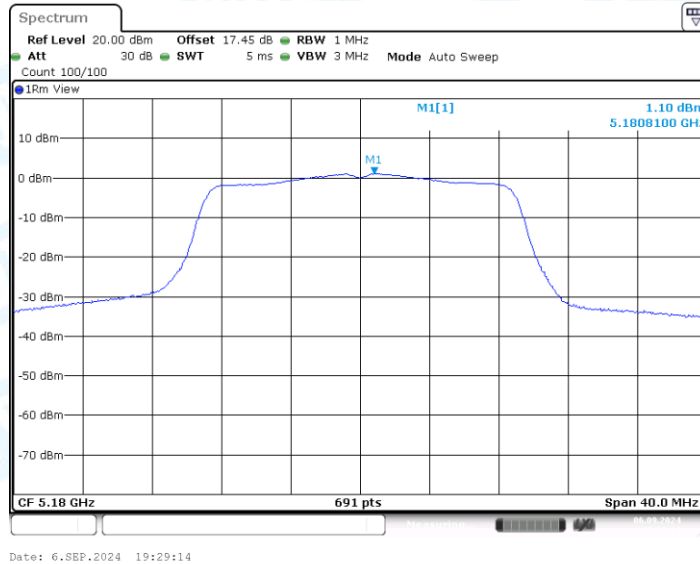
11N40MIMO_Ant2_5190



11N40MIMO_Ant1_5230



11N40MIMO_Ant2_5230



11AC20MIMO_Ant1_5180



11AC20MIMO_Ant2_5180