9. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

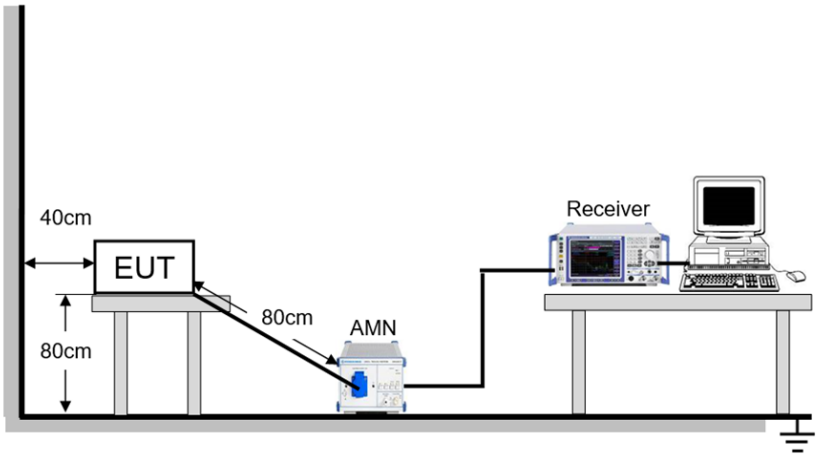
TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST SETUP



TEST ENVIRONMENT

Temperature	25.4℃	Relative Humidity	58.9%

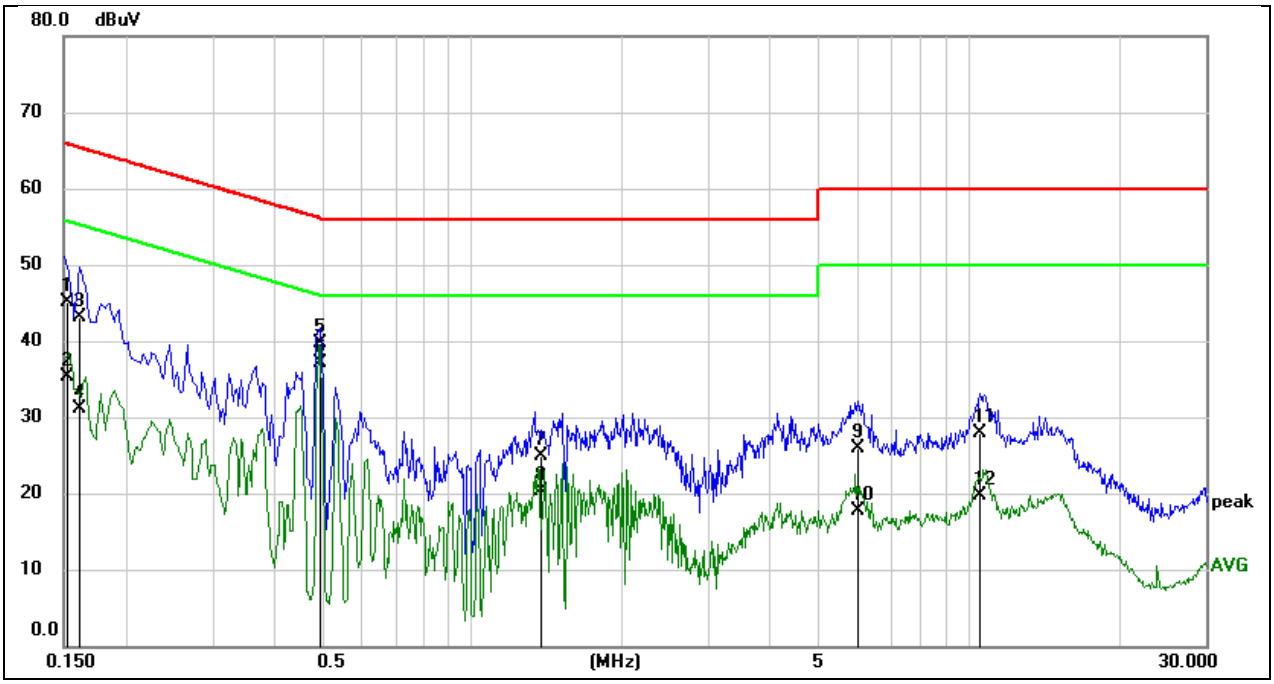
Atmosphere Pressure	101kPa	Test Voltage	AC 120 V, 60 Hz

TEST DATE / ENGINEER

Test Date	July 4, 2024	Test By	Fanny Huang

TEST RESULTS

Test Mode:	802.11a 20	Frequency(MHz):	5180
Line:	Line		



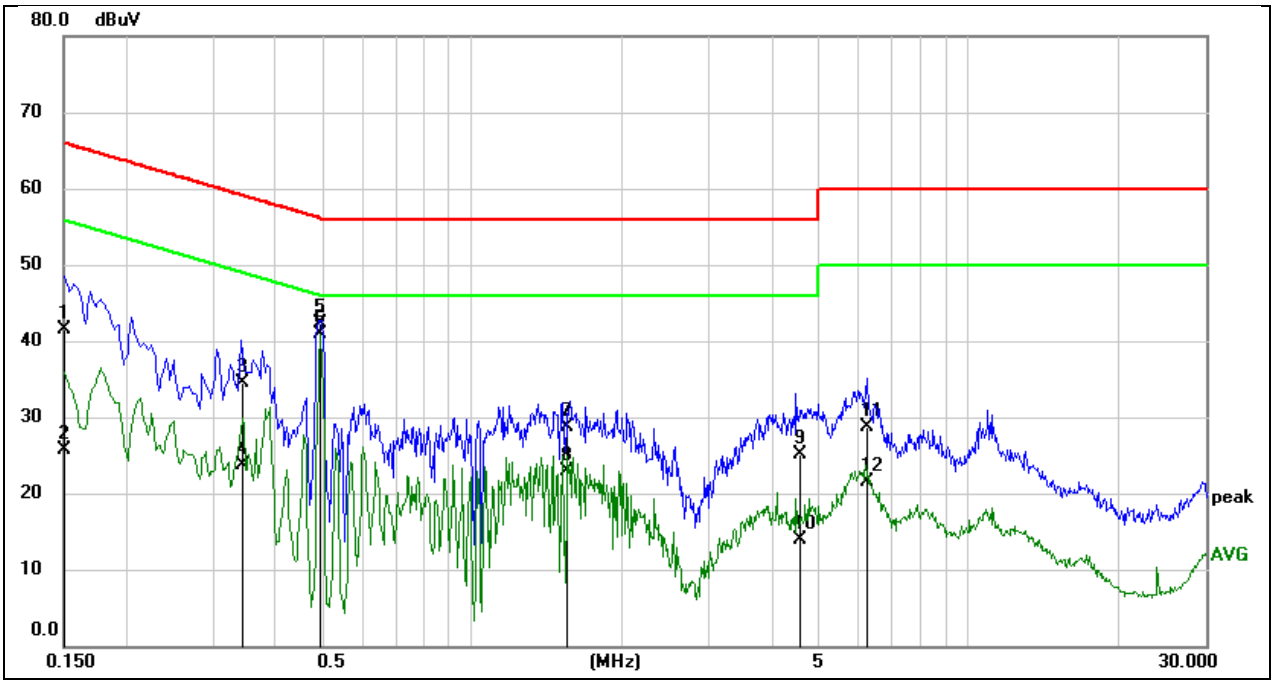
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1524	34.75	10.34	45.09	65.87	-20.78	QP
2	0.1524	24.99	10.34	35.33	55.87	-20.54	AVG
3	0.1611	32.72	10.32	43.04	65.41	-22.37	QP
4	0.1611	20.82	10.32	31.14	55.41	-24.27	AVG
5	0.4958	29.51	10.24	39.75	56.07	-16.32	QP
6	0.4958	26.80	10.24	37.04	46.07	-9.03	AVG
7	1.3701	14.87	9.99	24.86	56.00	-31.14	QP
8	1.3701	10.24	9.99	20.23	46.00	-25.77	AVG
9	5.9638	15.69	10.30	25.99	60.00	-34.01	QP
10	5.9638	7.48	10.30	17.78	50.00	-32.22	AVG
11	10.5842	17.56	10.35	27.91	60.00	-32.09	QP
12	10.5842	9.31	10.35	19.66	50.00	-30.34	AVG

Note:
1. Result = Reading + Correct Factor.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

Test Mode:	802.11a 20	Frequency(MHz):	5180
Line:	Neutral		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1511	31.32	10.24	41.56	65.94	-24.38	QP
2	0.1511	15.54	10.24	25.78	55.94	-30.16	AVG
3	0.3428	24.42	10.09	34.51	59.14	-24.63	QP
4	0.3428	13.65	10.09	23.74	49.14	-25.40	AVG
5	0.4950	32.26	10.04	42.30	56.08	-13.78	QP
6	0.4950	30.86	10.04	40.90	46.08	-5.18	AVG
7	1.5588	18.79	9.95	28.74	56.00	-27.26	QP
8	1.5588	13.03	9.95	22.98	46.00	-23.02	AVG
9	4.5477	14.69	10.35	25.04	56.00	-30.96	QP
10	4.5477	3.61	10.35	13.96	46.00	-32.04	AVG
11	6.2318	18.27	10.40	28.67	60.00	-31.33	QP
12	6.2318	11.01	10.40	21.41	50.00	-28.59	AVG

Note:
1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

10. ANTENNA REQUIREMENT

REQUIREMENT

Please refer to FCC part 15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC part 15.407(a)
For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DESCRIPTION

Pass

11. TEST DATA

11.1. APPENDIX A: EMISSION BANDWIDTH

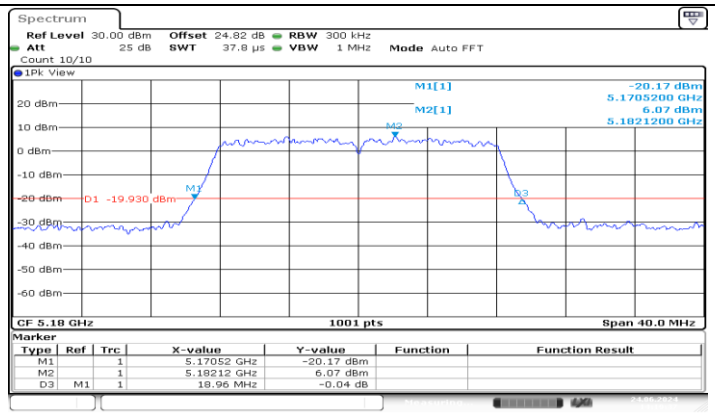
11.1.1. Test Result

Test Mode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]
11A	Ant1	5180	18.96	5170.52	5189.48
	Ant2	5180	18.64	5170.80	5189.44
	Ant1	5200	18.68	5190.64	5209.32
	Ant2	5200	18.72	5190.64	5209.36
	Ant1	5240	18.72	5230.56	5249.28
	Ant2	5240	18.88	5230.64	5249.52
	Ant1	5260	18.92	5250.48	5269.40
	Ant2	5260	18.40	5250.80	5269.20
	Ant1	5280	18.64	5270.68	5289.32
	Ant2	5280	19.04	5270.48	5289.52
	Ant1	5320	18.80	5310.68	5329.48
	Ant2	5320	18.68	5310.72	5329.40
	Ant1	5500	18.92	5490.56	5509.48
	Ant2	5500	18.76	5490.56	5509.32
	Ant1	5580	18.76	5570.64	5589.40
	Ant2	5580	18.84	5570.60	5589.44
	Ant1	5700	18.92	5690.56	5709.48
	Ant2	5700	18.92	5690.52	5709.44
	Ant1	5720	18.76	5710.56	5729.32
	Ant2	5720	18.48	5710.76	5729.24
	Ant1	5720_UNII-2C	14.44	5710.56	5725
	Ant2	5720_UNII-2C	14.24	5710.76	5725
	Ant1	5720_UNII-3	4.32	5725	5729.32
	Ant2	5720_UNII-3	4.24	5725	5729.24
	Ant1	5745	18.60	5735.76	5754.36
	Ant2	5745	18.64	5735.72	5754.36
	Ant1	5785	18.76	5775.64	5794.40
	Ant2	5785	18.68	5775.68	5794.36
	Ant1	5825	19.08	5815.52	5834.60
	Ant2	5825	18.60	5815.72	5834.32
11N20MIMO	Ant1	5180	19.72	5170.12	5189.84
	Ant2	5180	19.64	5170.12	5189.76
	Ant1	5200	19.68	5190.12	5209.80
	Ant2	5200	19.80	5190.00	5209.80
	Ant1	5240	19.80	5230.12	5249.92
	Ant2	5240	19.84	5229.96	5249.80
	Ant1	5260	21.12	5250.08	5271.20
	Ant2	5260	19.76	5250.08	5269.84
	Ant1	5280	21.20	5268.84	5290.04
	Ant2	5280	19.84	5270.00	5289.84
	Ant1	5320	20.04	5309.92	5329.96
	Ant2	5320	19.84	5310.08	5329.92
	Ant1	5500	20.04	5490.08	5510.12
	Ant2	5500	19.84	5490.04	5509.88
	Ant1	5580	19.80	5570.08	5589.88
	Ant2	5580	19.84	5570.04	5589.88
	Ant1	5700	19.88	5690.04	5709.92
	Ant2	5700	19.68	5690.08	5709.76
	Ant1	5720	19.92	5710.04	5729.96
	Ant2	5720	19.72	5710.12	5729.84
	Ant1	5720_UNII-2C	14.96	5710.04	5725
	Ant2	5720_UNII-2C	14.88	5710.12	5725

	Ant1	5720_UNII-3	4.96	5725	5729.96
	Ant2	5720_UNII-3	4.84	5725	5729.84
	Ant1	5745	19.88	5735.08	5754.96
	Ant2	5745	19.60	5735.24	5754.84
	Ant1	5785	19.80	5775.12	5794.92
	Ant2	5785	19.84	5775.08	5794.92
	Ant1	5825	19.72	5815.12	5834.84
	Ant2	5825	19.68	5815.12	5834.80
11N40MIMO	Ant1	5190	39.28	5170.48	5209.76
	Ant2	5190	39.36	5170.40	5209.76
	Ant1	5230	38.96	5210.56	5249.52
	Ant2	5230	39.20	5210.48	5249.68
	Ant1	5270	39.20	5250.40	5289.60
	Ant2	5270	39.12	5250.40	5289.52
	Ant1	5310	39.20	5290.40	5329.60
	Ant2	5310	39.36	5290.16	5329.52
	Ant1	5510	39.36	5490.40	5529.76
	Ant2	5510	39.36	5490.40	5529.76
	Ant1	5550	39.28	5530.40	5569.68
	Ant2	5550	39.36	5530.48	5569.84
	Ant1	5670	39.44	5650.40	5689.84
	Ant2	5670	39.28	5650.40	5689.68
	Ant1	5710	39.28	5690.40	5729.68
	Ant2	5710	39.20	5690.40	5729.60
	Ant1	5710_UNII-2C	34.6	5690.40	5725
	Ant2	5710_UNII-2C	34.6	5690.40	5725
	Ant1	5710_UNII-3	4.68	5725	5729.68
	Ant2	5710_UNII-3	4.6	5725	5729.60
	Ant1	5755	39.44	5735.24	5774.68
	Ant2	5755	39.20	5735.40	5774.60
	Ant1	5795	39.52	5775.24	5814.76
	Ant2	5795	39.36	5775.40	5814.76
11AC80MIMO	Ant1	5210	86.88	5166.80	5253.68
	Ant2	5210	86.72	5167.28	5254.00
	Ant1	5290	86.88	5246.80	5333.68
	Ant2	5290	86.88	5246.80	5333.68
	Ant1	5530	87.20	5486.64	5573.84
	Ant2	5530	87.20	5486.48	5573.68
	Ant1	5610	87.04	5566.80	5653.84
	Ant2	5610	87.36	5566.32	5653.68
	Ant1	5690	86.88	5647.12	5734.00
	Ant2	5690	87.36	5646.64	5734.00
	Ant1	5690_UNII-2C	77.88	5647.12	5725
	Ant2	5690_UNII-2C	78.36	5646.64	5725
	Ant1	5690_UNII-3	9	5725	5734.00
	Ant2	5690_UNII-3	9	5725	5734.00
	Ant1	5775	86.88	5731.96	5818.84
	Ant2	5775	87.36	5731.80	5819.16
11AX20MIMO	Ant1	5180	20.40	5169.80	5190.20
	Ant2	5180	20.52	5169.64	5190.16
	Ant1	5200	20.40	5189.80	5210.20
	Ant2	5200	20.48	5189.72	5210.20
	Ant1	5240	20.28	5229.88	5250.16
	Ant2	5240	20.64	5229.60	5250.24
	Ant1	5260	20.64	5249.68	5270.32
	Ant2	5260	20.56	5249.68	5270.24
	Ant1	5280	20.44	5269.72	5290.16
	Ant2	5280	20.44	5269.84	5290.28
	Ant1	5320	20.56	5309.68	5330.24
	Ant2	5320	20.40	5309.76	5330.16

	Ant1	5500	20.44	5489.80	5510.24
	Ant2	5500	20.40	5489.72	5510.12
	Ant1	5580	20.48	5569.64	5590.12
	Ant2	5580	20.64	5569.68	5590.32
	Ant1	5700	20.20	5689.96	5710.16
	Ant2	5700	20.40	5689.84	5710.24
	Ant1	5720	20.52	5709.68	5730.20
	Ant2	5720	20.40	5709.80	5730.20
	Ant1	5720_UNII-2C	15.32	5709.68	5725
	Ant2	5720_UNII-2C	15.2	5709.80	5725
	Ant1	5720_UNII-3	5.2	5725	5730.20
	Ant2	5720_UNII-3	5.2	5725	5730.20
	Ant1	5745	20.64	5734.60	5755.24
	Ant2	5745	20.60	5734.64	5755.24
	Ant1	5785	20.52	5774.76	5795.28
	Ant2	5785	20.68	5774.60	5795.28
	Ant1	5825	20.56	5814.72	5835.28
	Ant2	5825	20.44	5814.80	5835.24
11AX40MIMO	Ant1	5190	39.20	5170.40	5209.60
	Ant2	5190	38.96	5170.56	5209.52
	Ant1	5230	39.04	5210.48	5249.52
	Ant2	5230	39.12	5210.48	5249.60
	Ant1	5270	39.04	5250.56	5289.60
	Ant2	5270	39.12	5250.48	5289.60
	Ant1	5310	38.96	5290.56	5329.52
	Ant2	5310	38.96	5290.56	5329.52
	Ant1	5510	39.20	5490.48	5529.68
	Ant2	5510	39.12	5490.48	5529.60
	Ant1	5550	39.20	5530.48	5569.68
	Ant2	5550	39.12	5530.56	5569.68
	Ant1	5670	39.20	5650.48	5689.68
	Ant2	5670	39.12	5650.48	5689.60
	Ant1	5710	39.04	5690.48	5729.52
	Ant2	5710	39.12	5690.48	5729.60
	Ant1	5710_UNII-2C	34.52	5690.48	5725
	Ant2	5710_UNII-2C	34.52	5690.48	5725
	Ant1	5710_UNII-3	4.52	5725	5729.52
	Ant2	5710_UNII-3	4.6	5725	5729.60
	Ant1	5755	40.16	5735.00	5775.16
	Ant2	5755	40.16	5735.00	5775.16
	Ant1	5795	40.08	5775.00	5815.08
	Ant2	5795	40.16	5774.92	5815.08
11AX80MIMO	Ant1	5210	81.44	5169.20	5250.64
	Ant2	5210	81.76	5169.20	5250.96
	Ant1	5290	81.76	5249.20	5330.96
	Ant2	5290	81.60	5249.20	5330.80
	Ant1	5530	81.60	5489.20	5570.80
	Ant2	5530	81.76	5489.20	5570.96
	Ant1	5610	81.60	5569.20	5650.80
	Ant2	5610	81.76	5569.04	5650.80
	Ant1	5690	81.76	5649.20	5730.96
	Ant2	5690	81.92	5649.20	5731.12
	Ant1	5690_UNII-2C	75.8	5649.20	5725
	Ant2	5690_UNII-2C	75.8	5649.20	5725
	Ant1	5690_UNII-3	5.96	5725	5730.96
	Ant2	5690_UNII-3	6.12	5725	5731.12
	Ant1	5775	81.76	5734.20	5815.96
	Ant2	5775	81.76	5734.20	5815.96

11.1.2. Test Graphs



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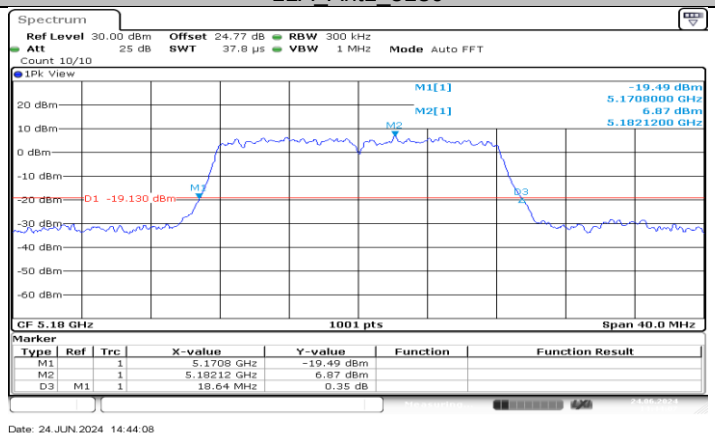

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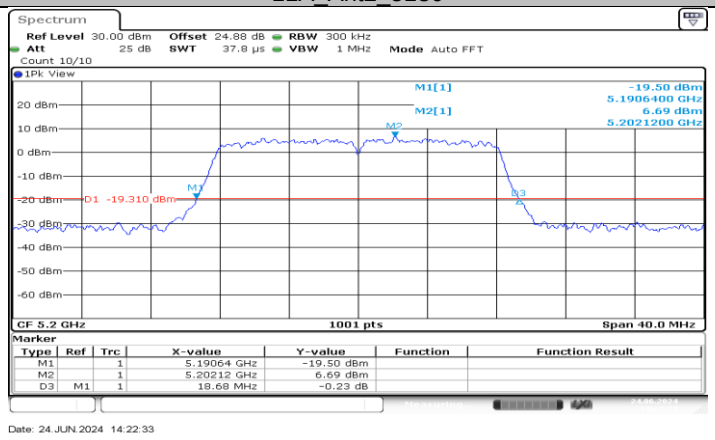

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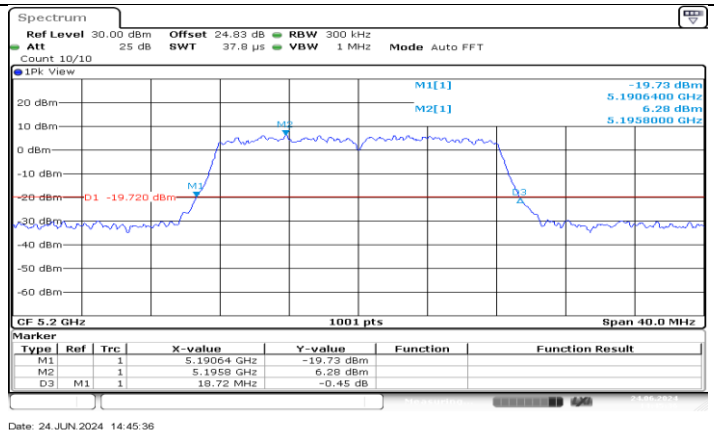

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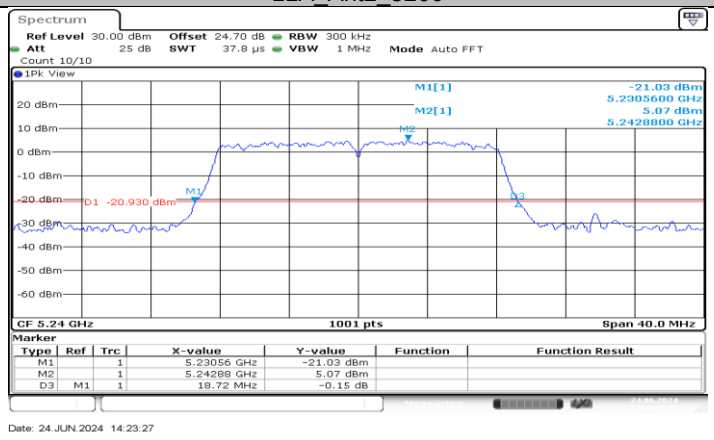

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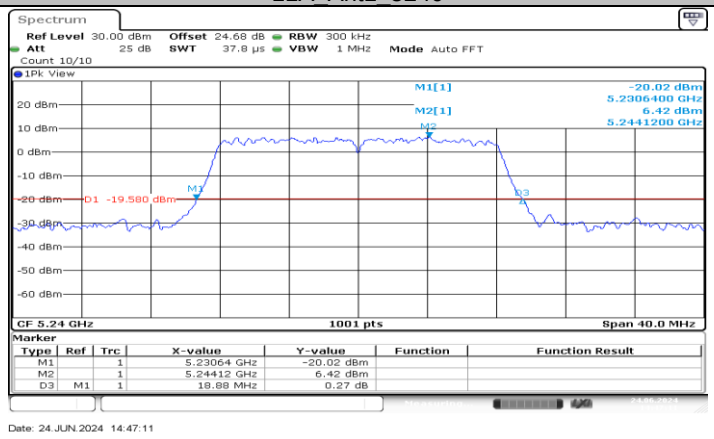

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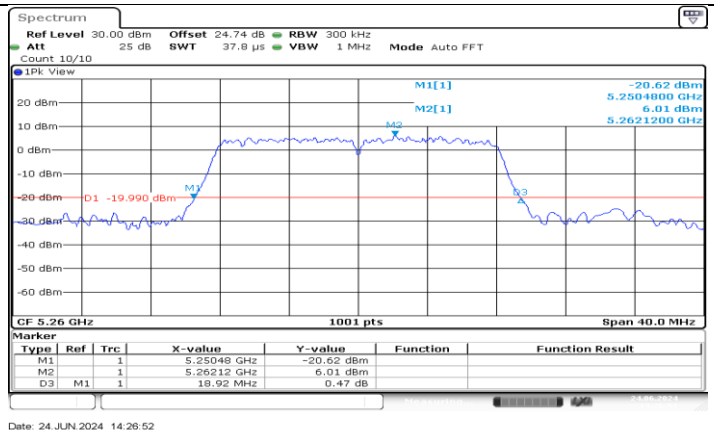

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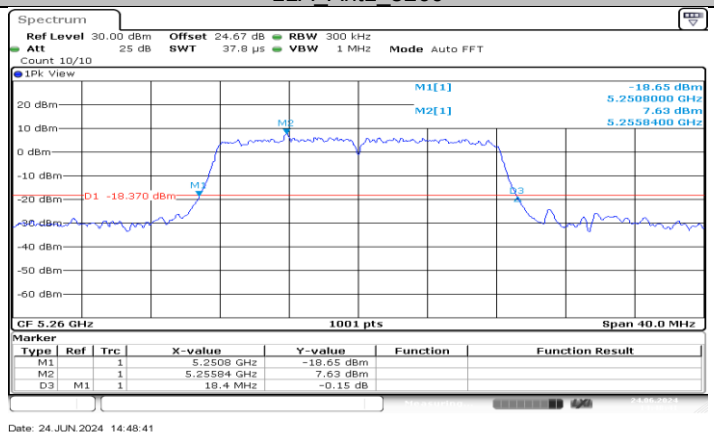

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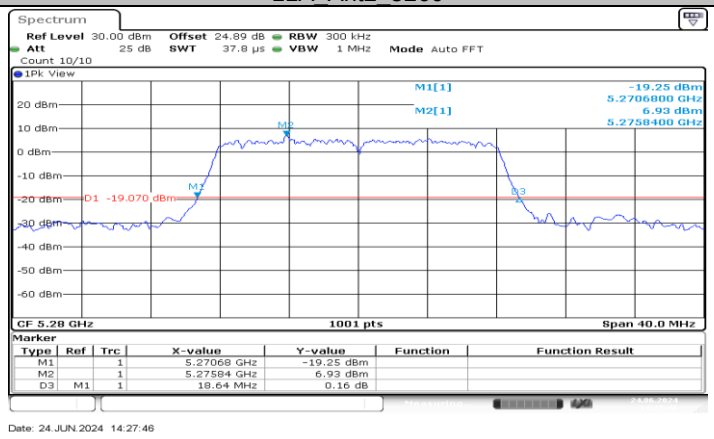

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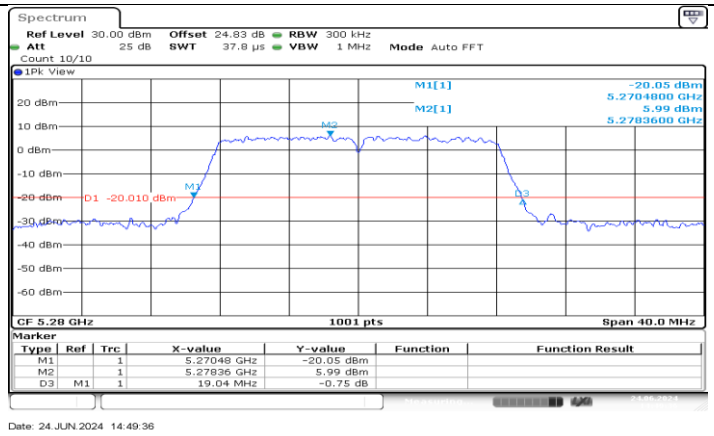

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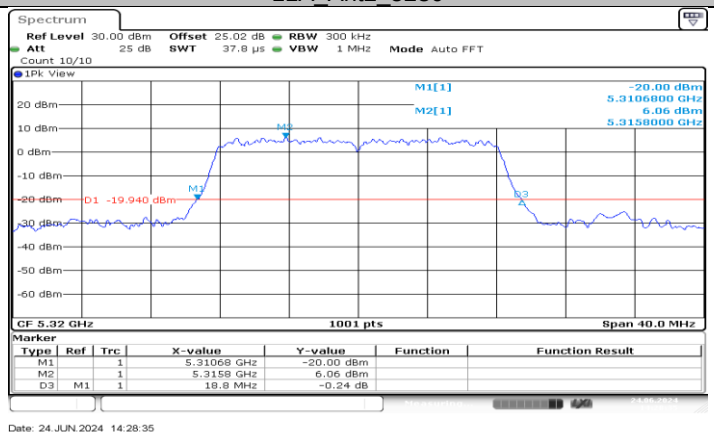

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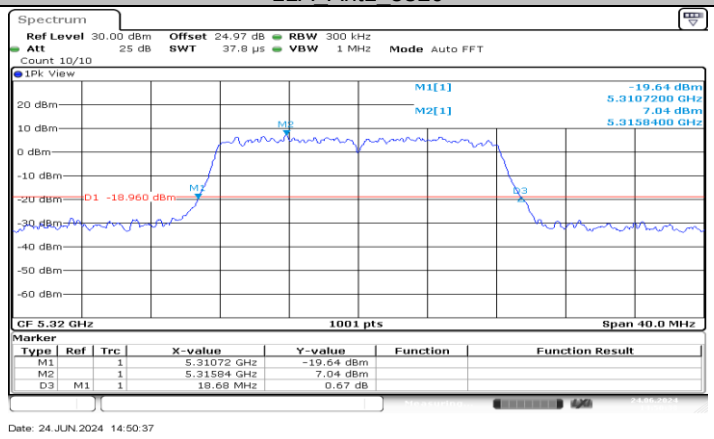

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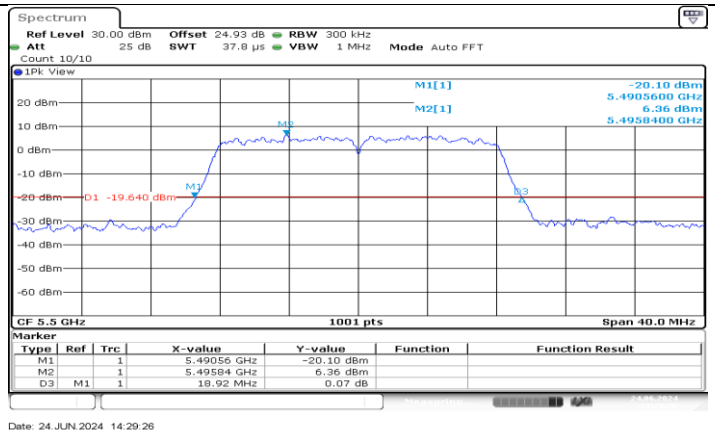
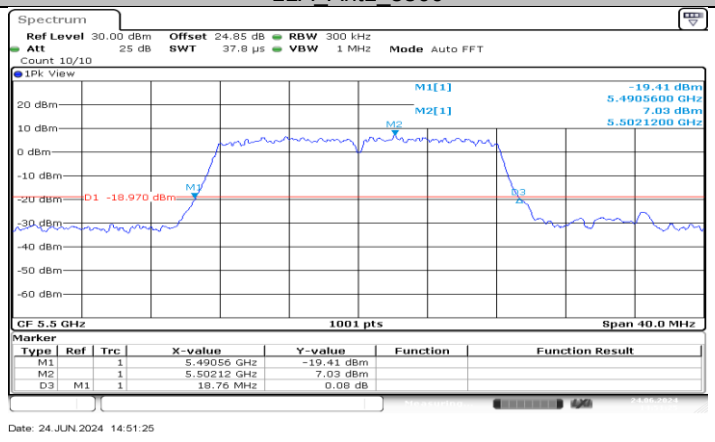
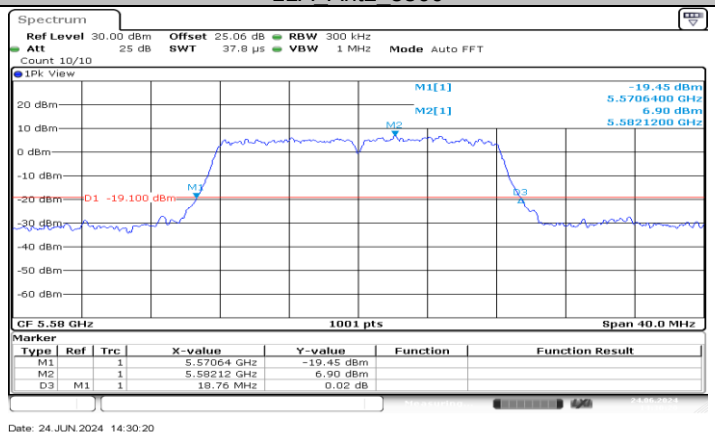


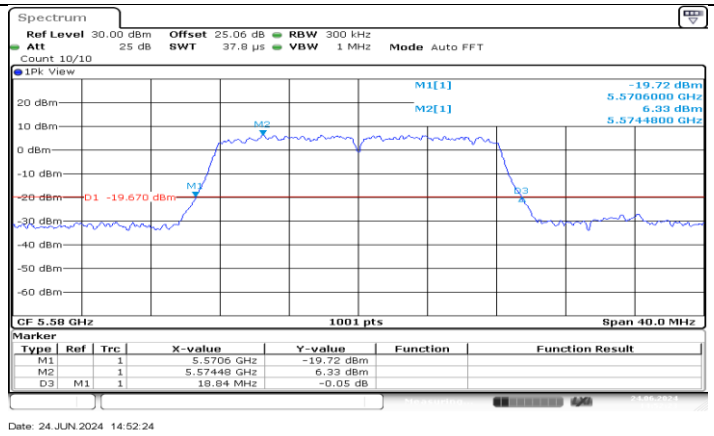
11A_Ant1_5500



11A_Ant2_5500



11A_Ant1_5580



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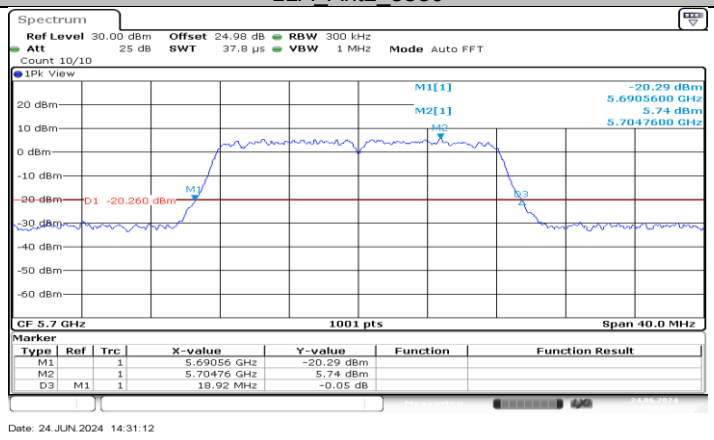
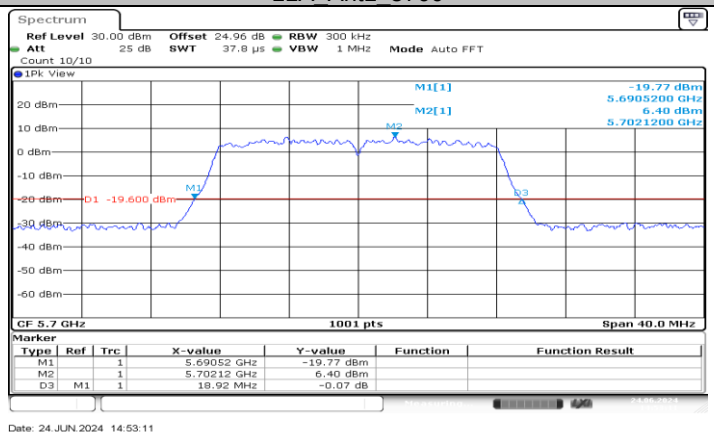


11A_Ant1_5700



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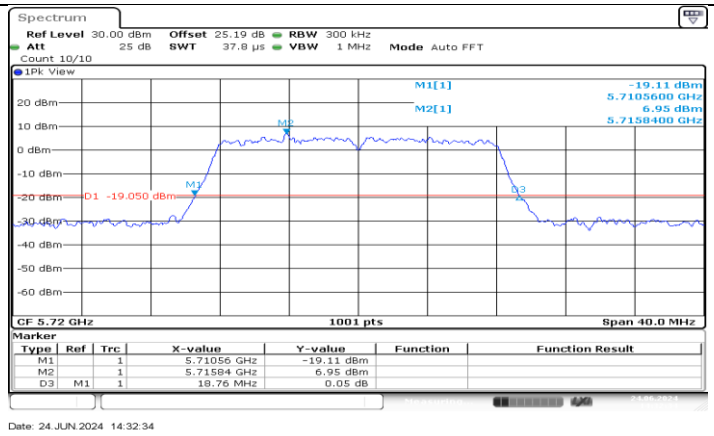

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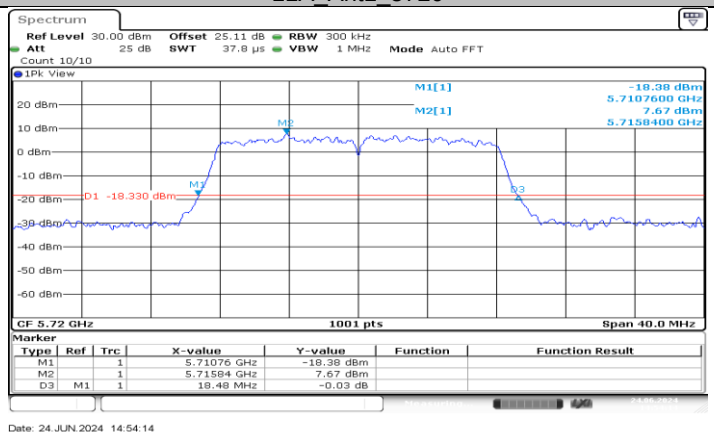

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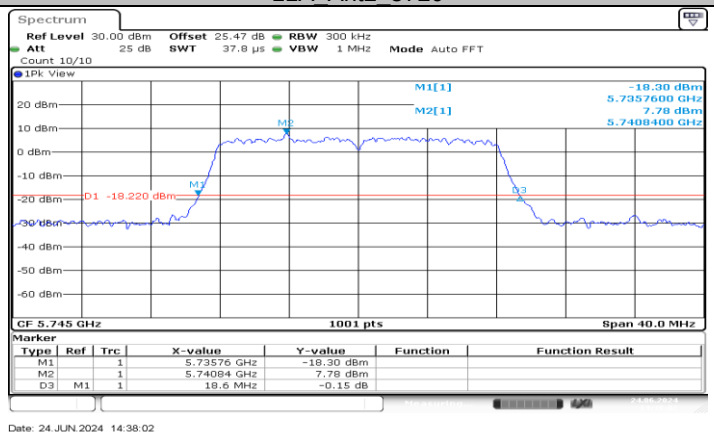
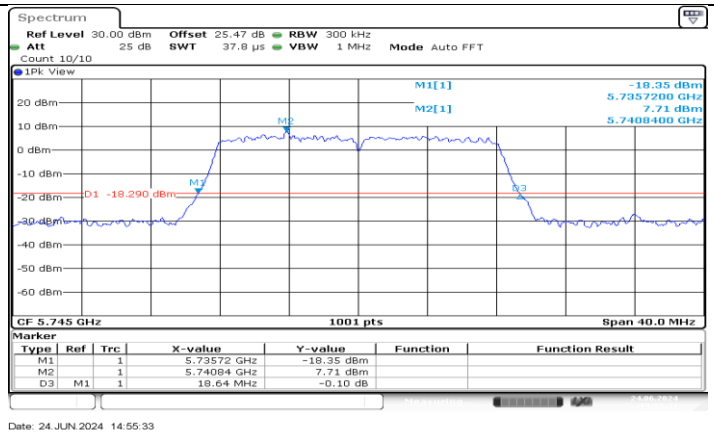


11A_Ant1_5745



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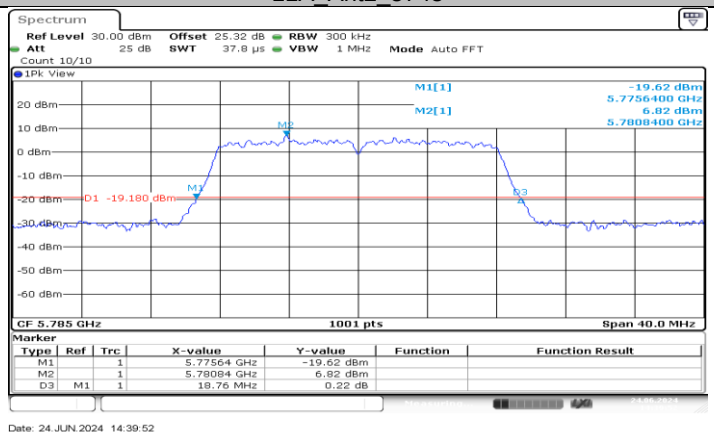
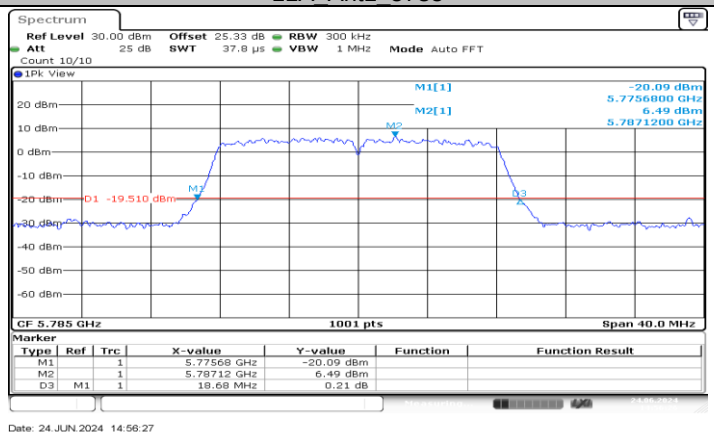


11A_Ant1_5785



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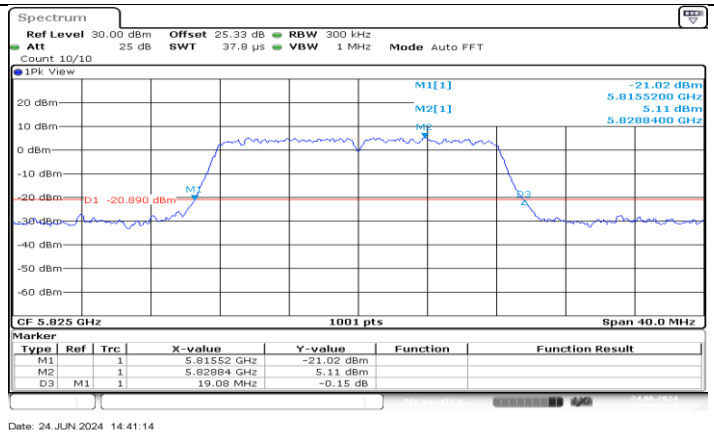
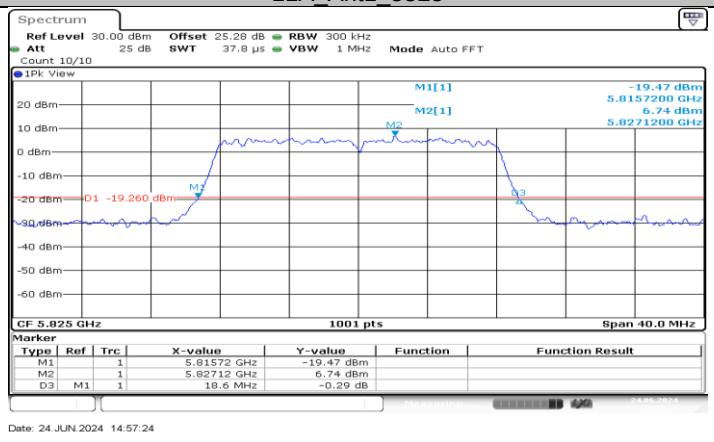
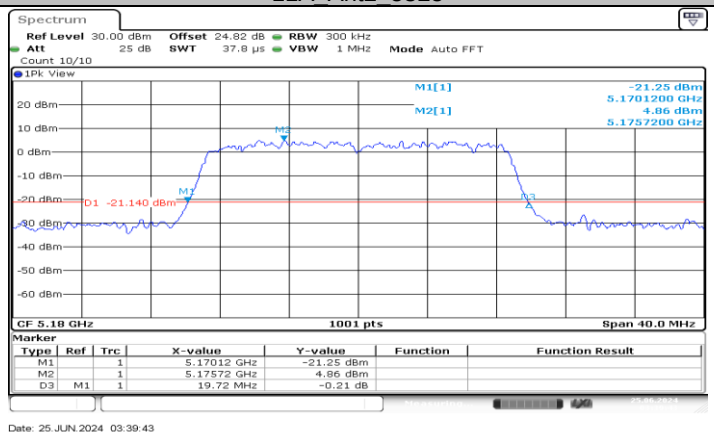


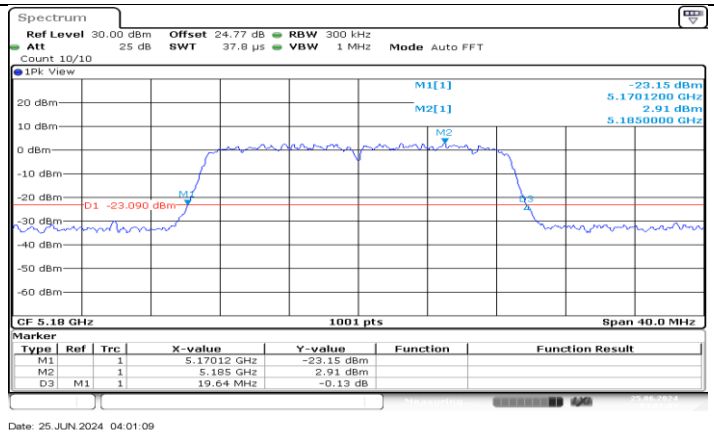
11A_Ant1_5825



11A_Ant2_5825



11N20MIMO_Ant1_5180



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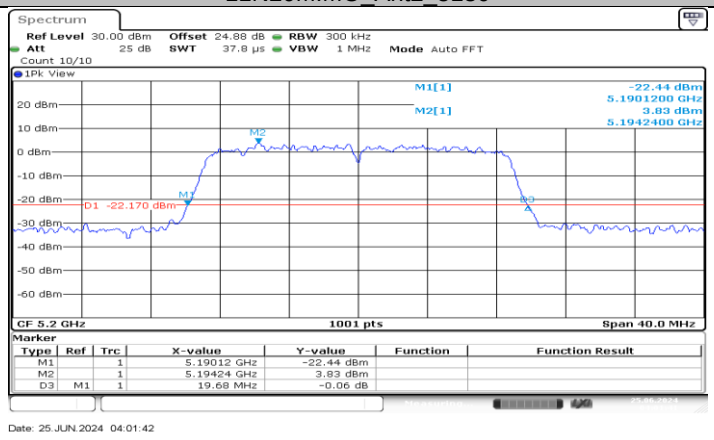

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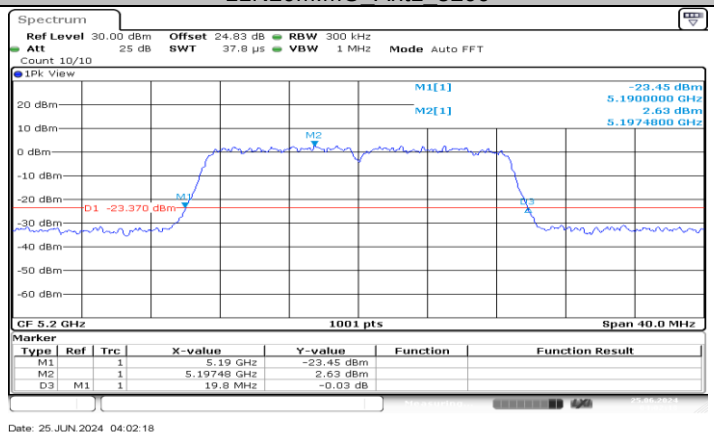

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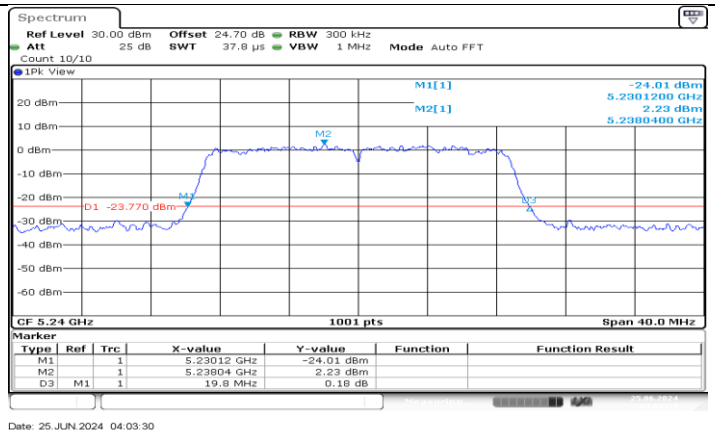

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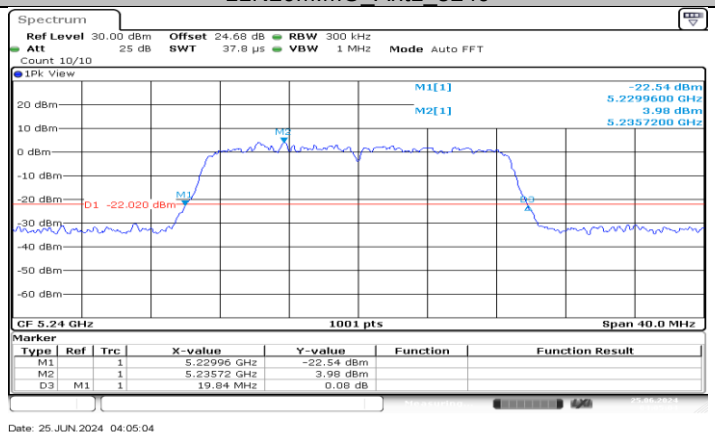

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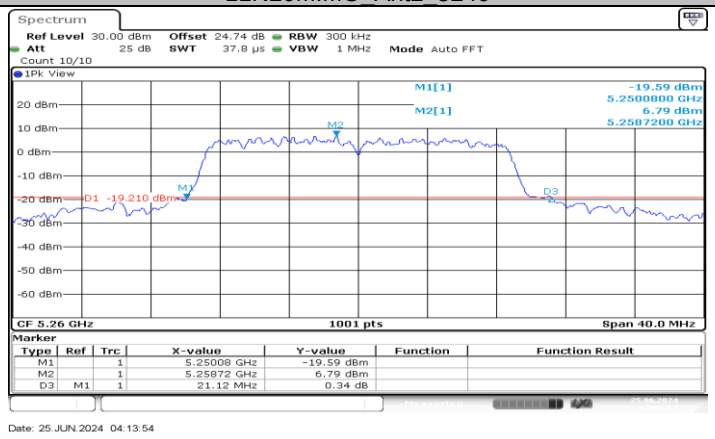

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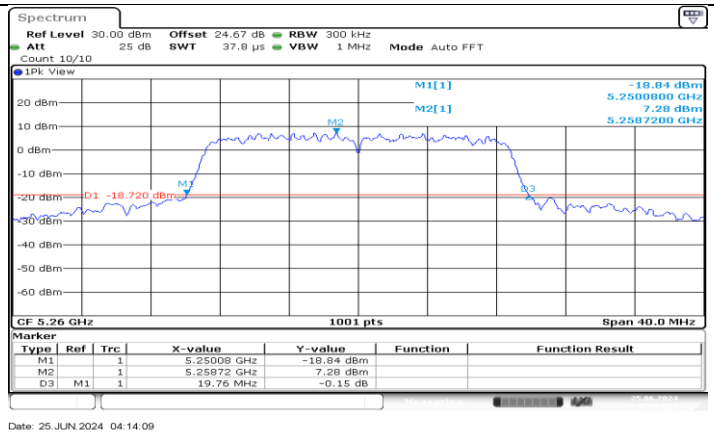

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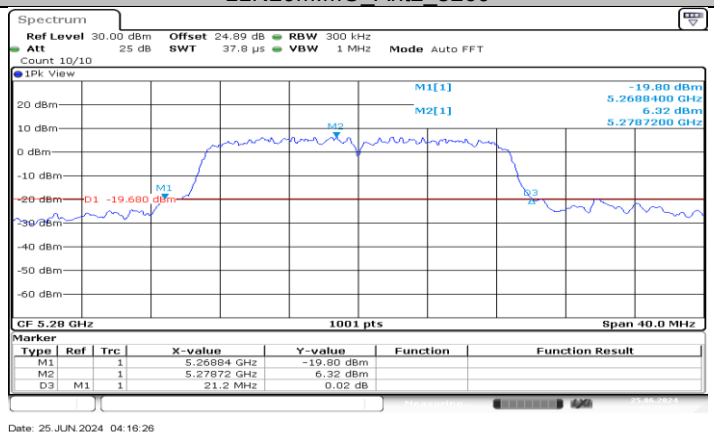

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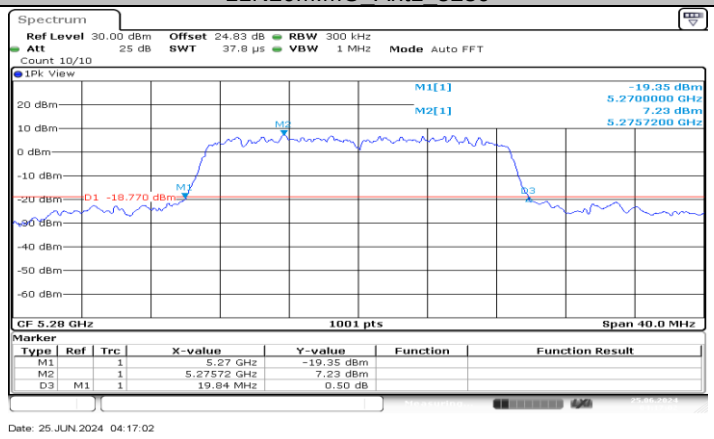

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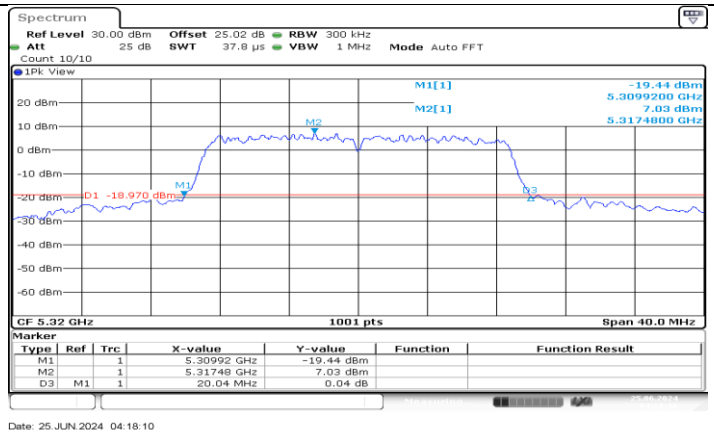

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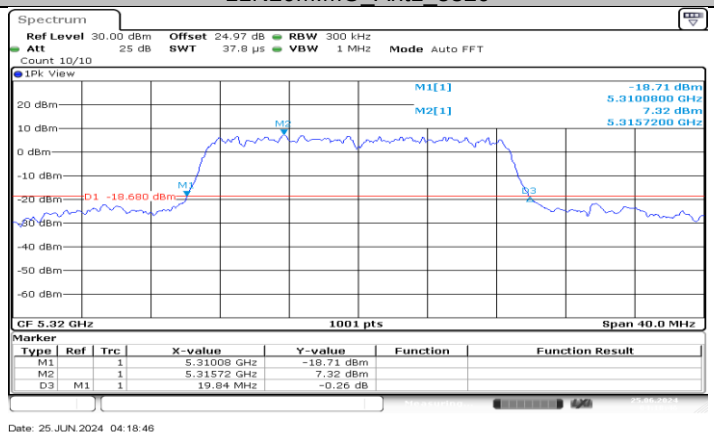

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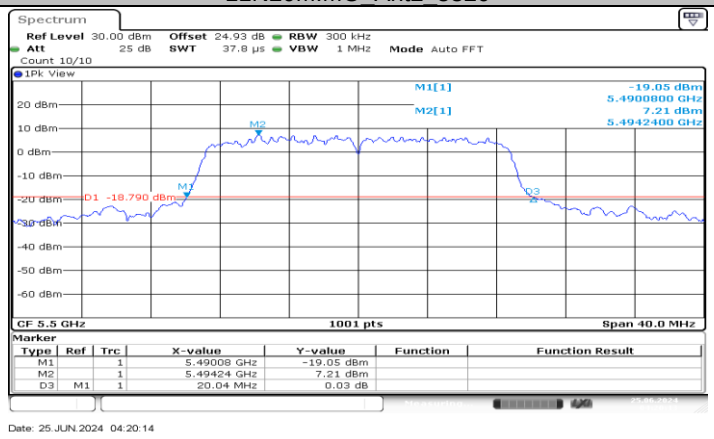

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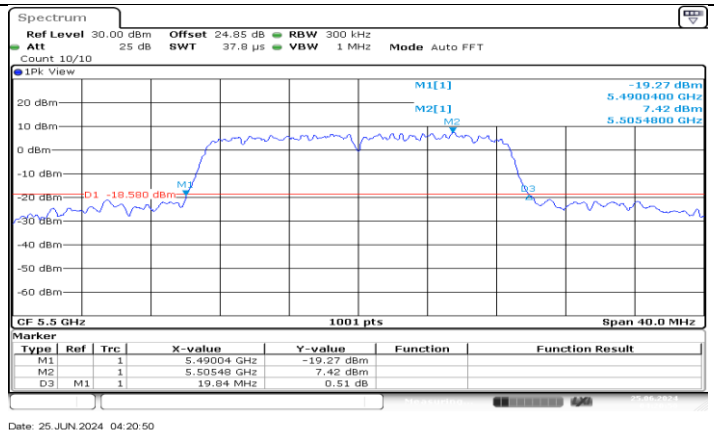

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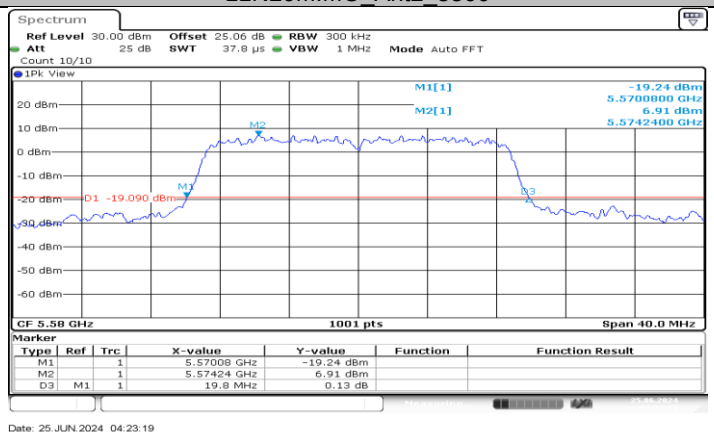

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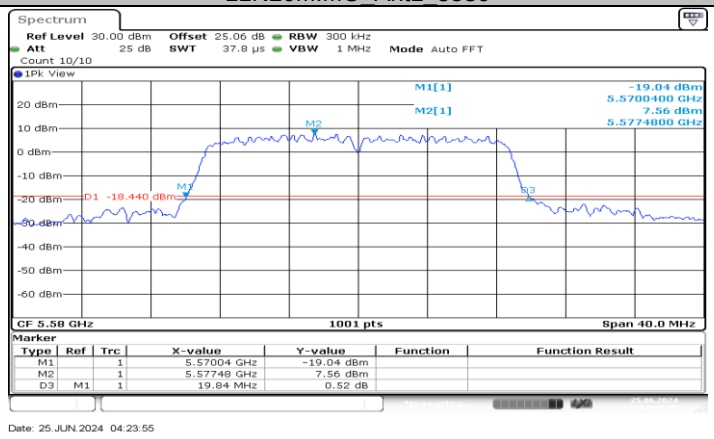

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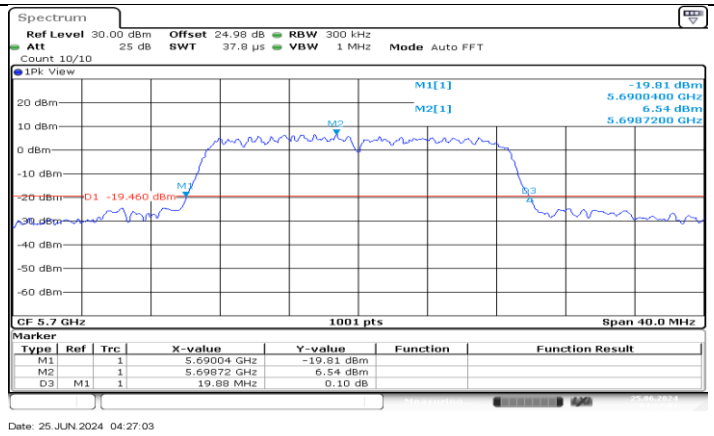

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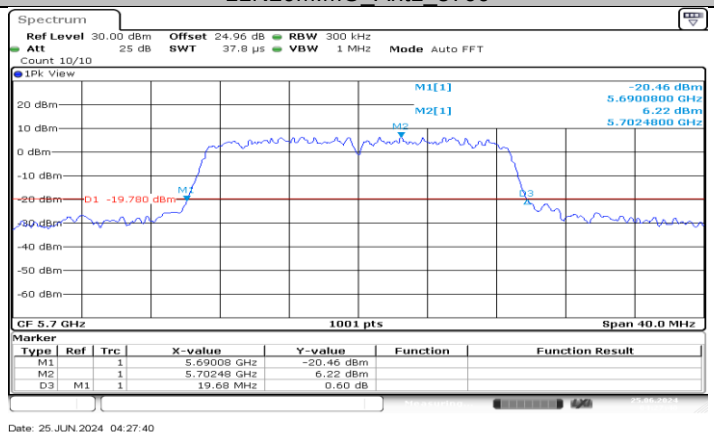

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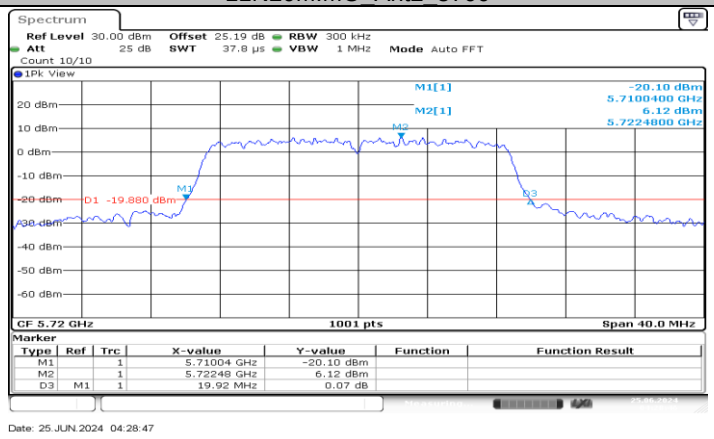

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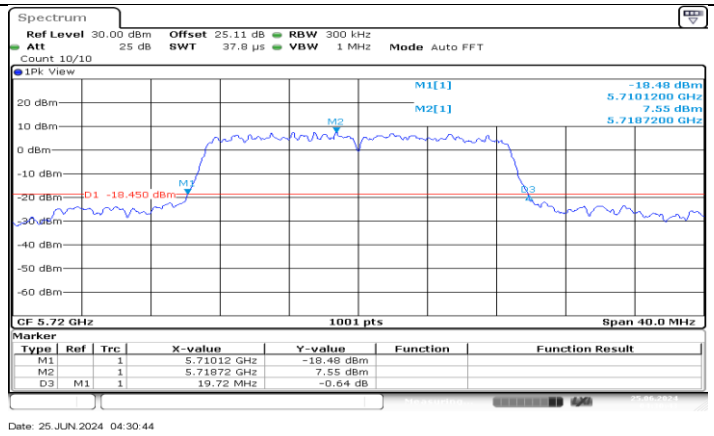

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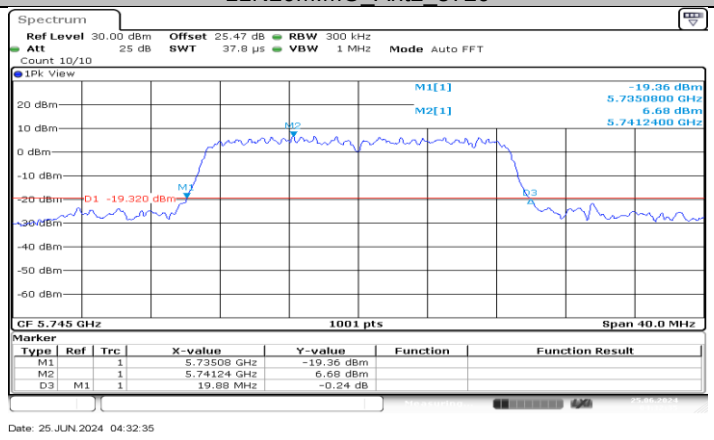

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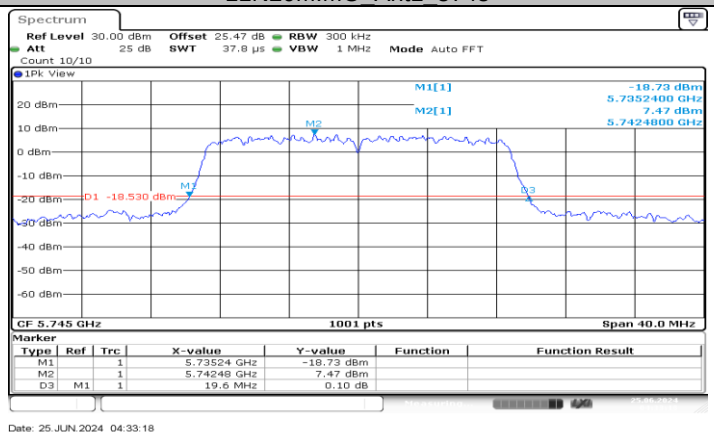

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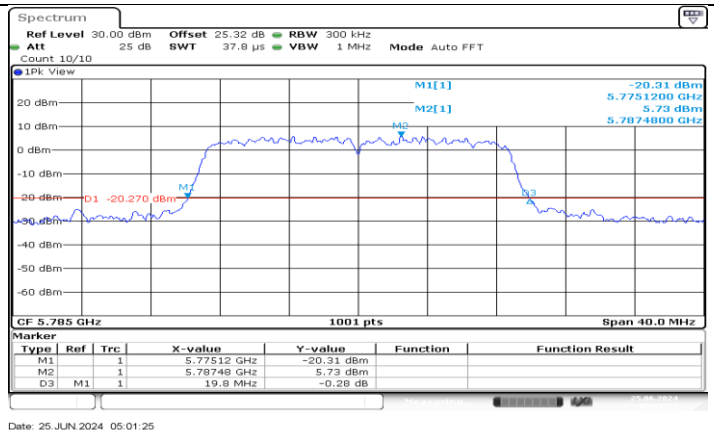
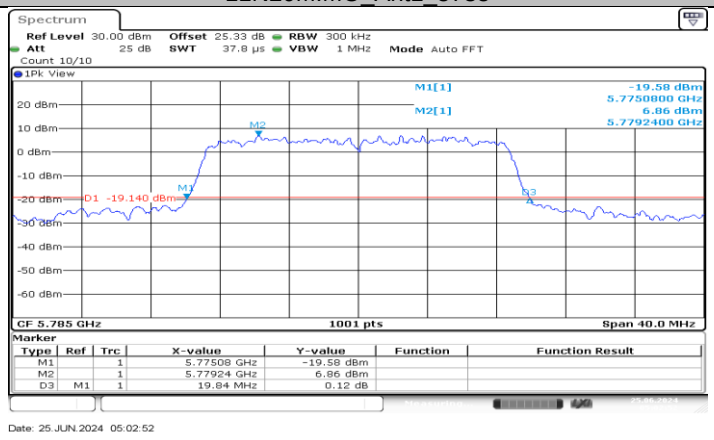


11N20MIMO_Ant1_5785



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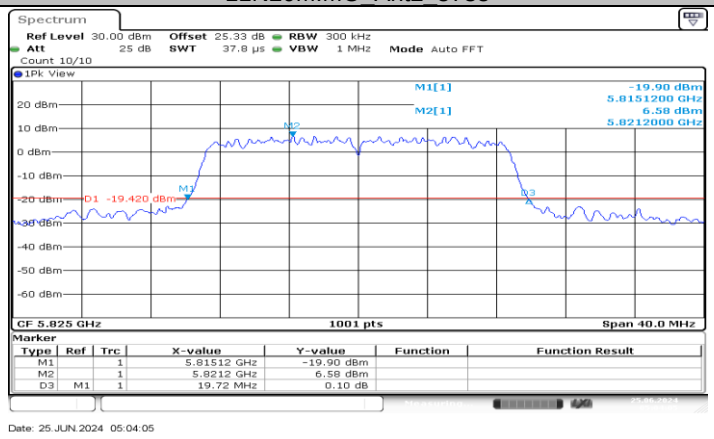

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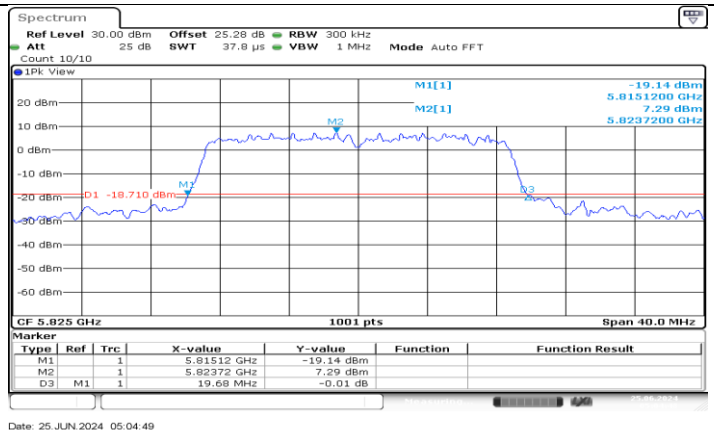

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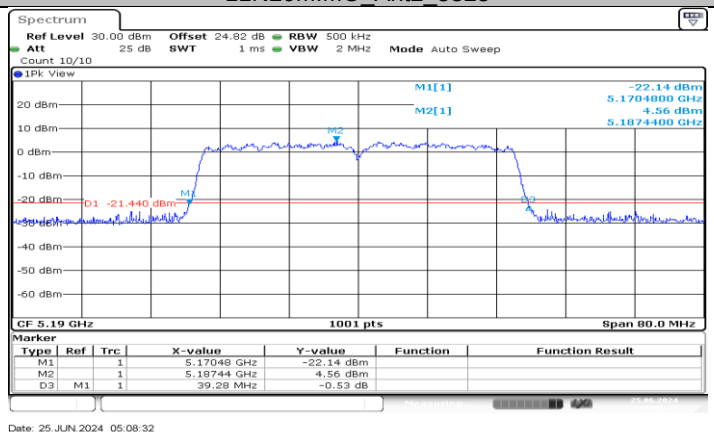
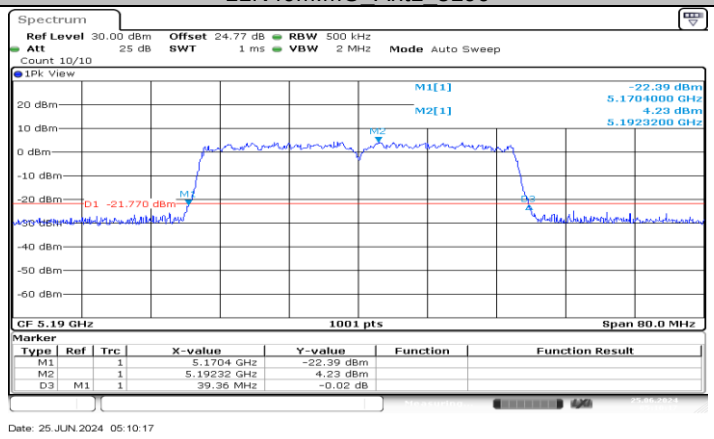


11N40MIMO_Ant1_5190



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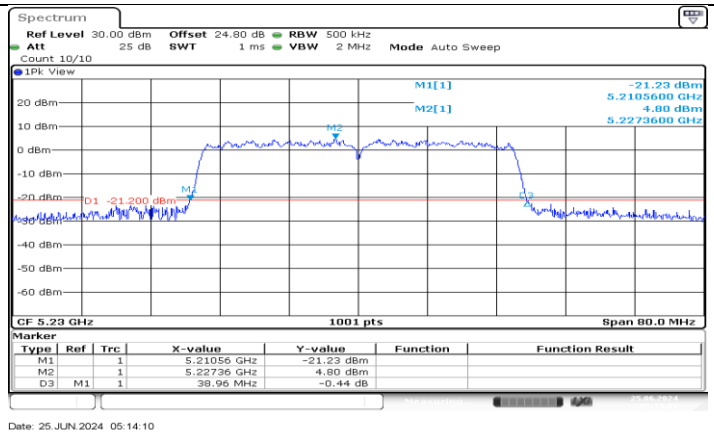

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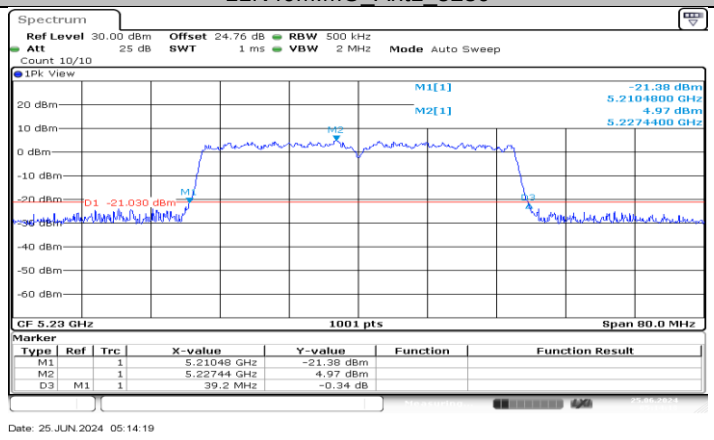

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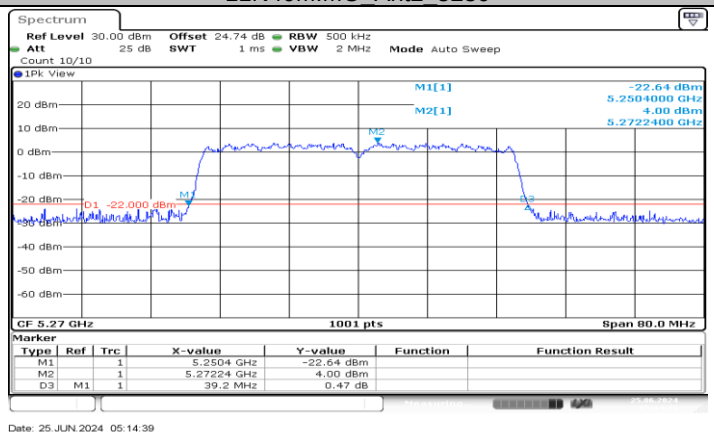

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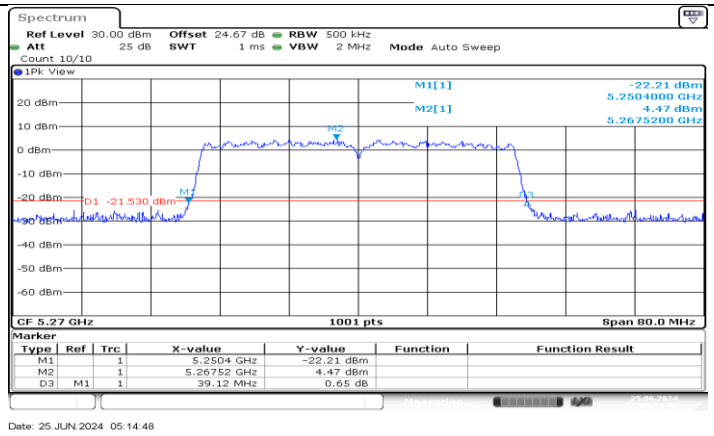

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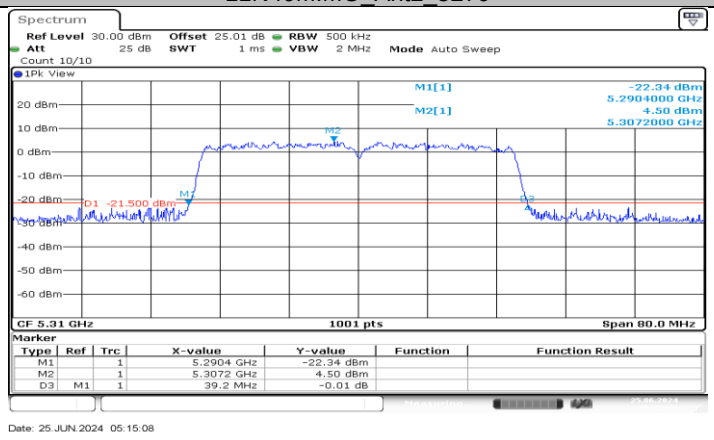

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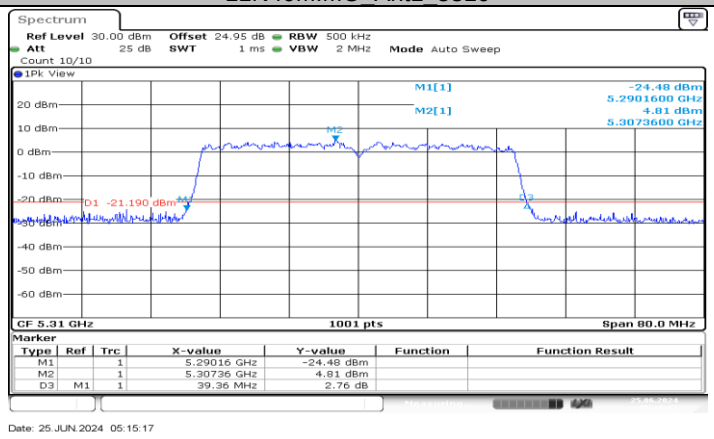

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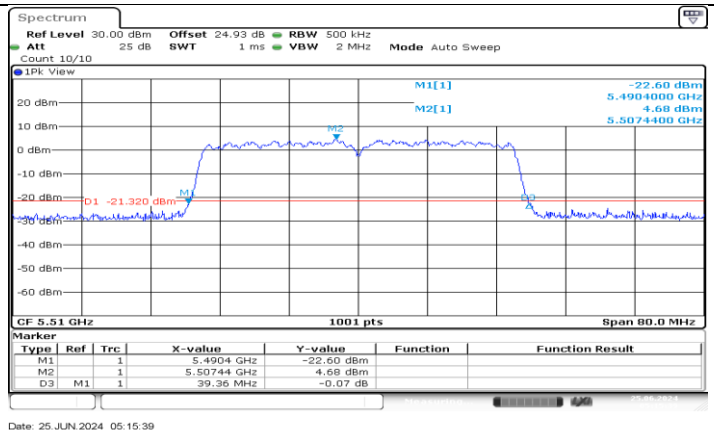

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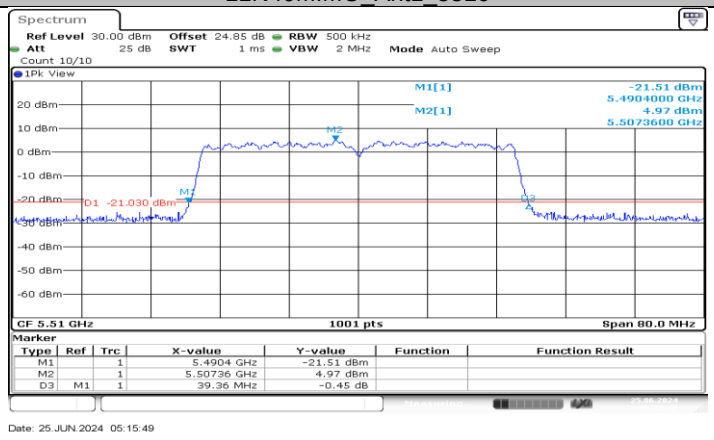

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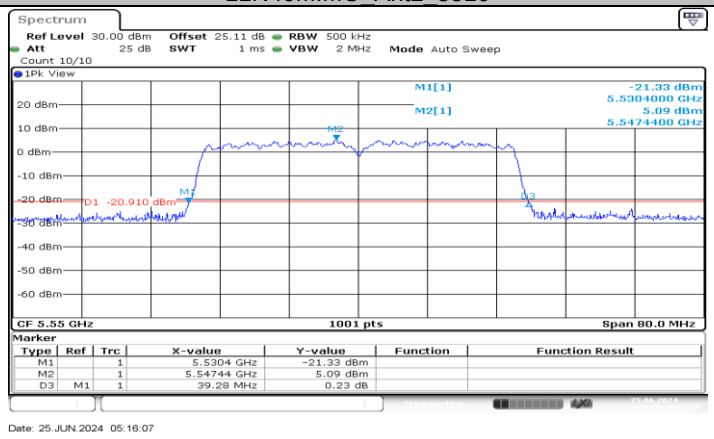

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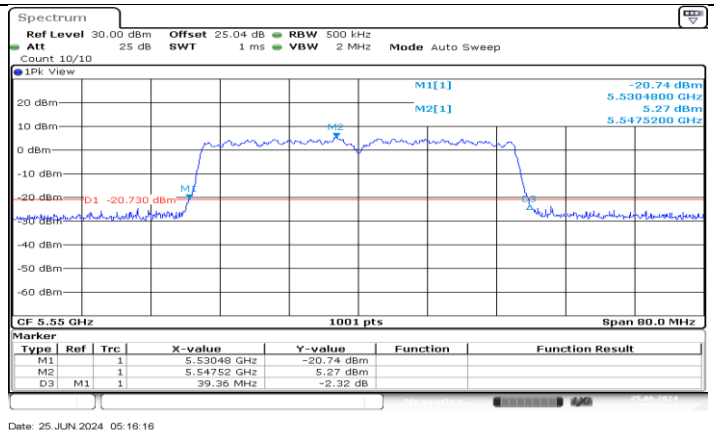

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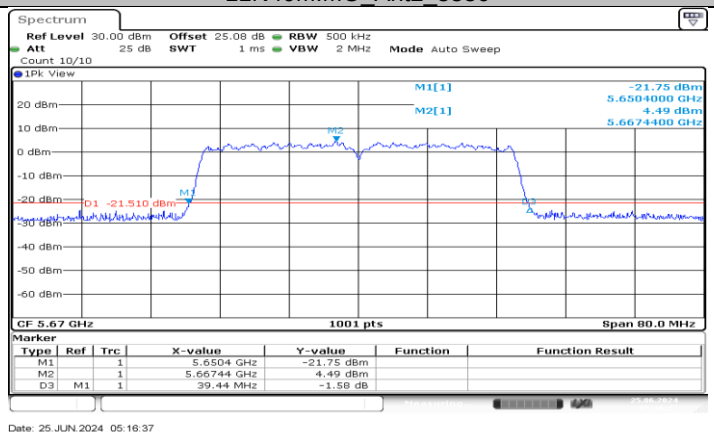

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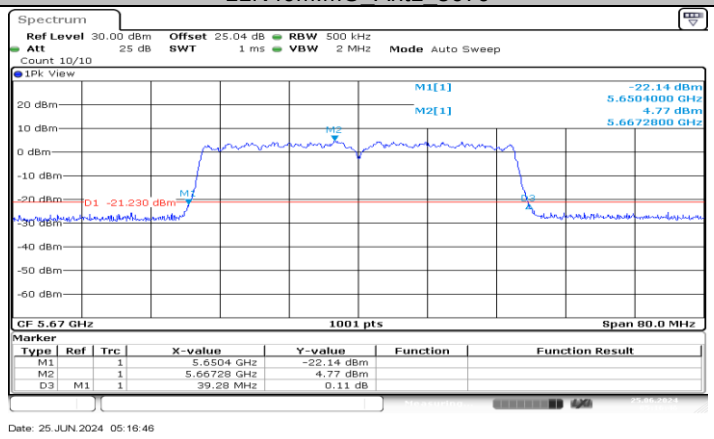

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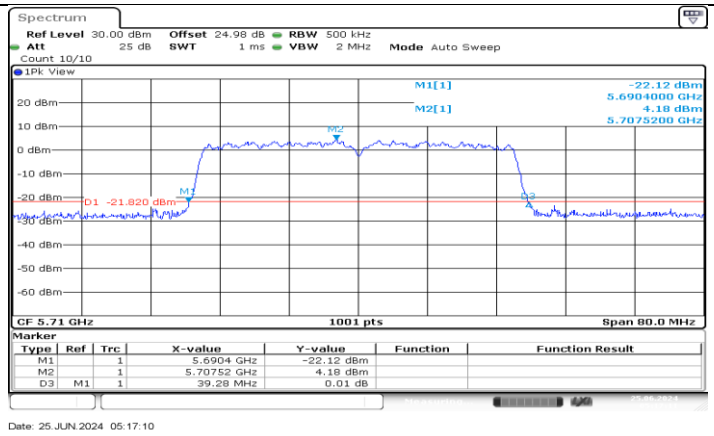

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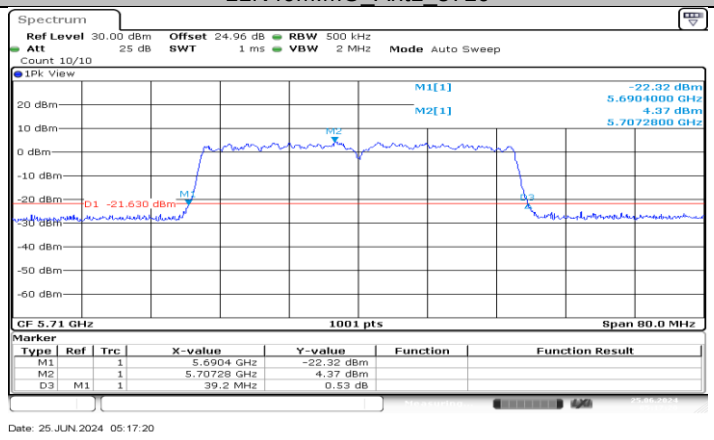

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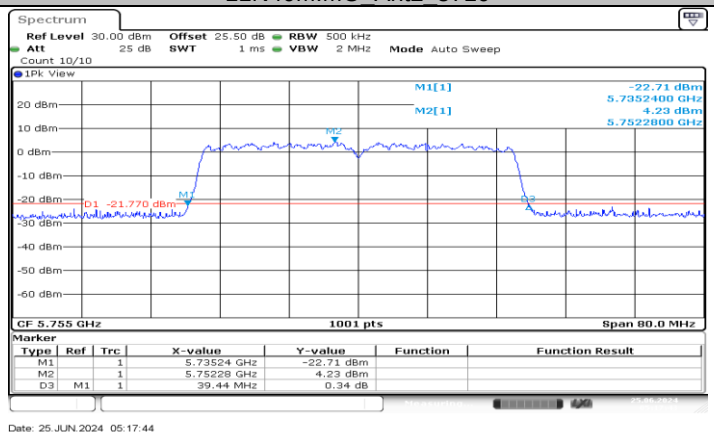
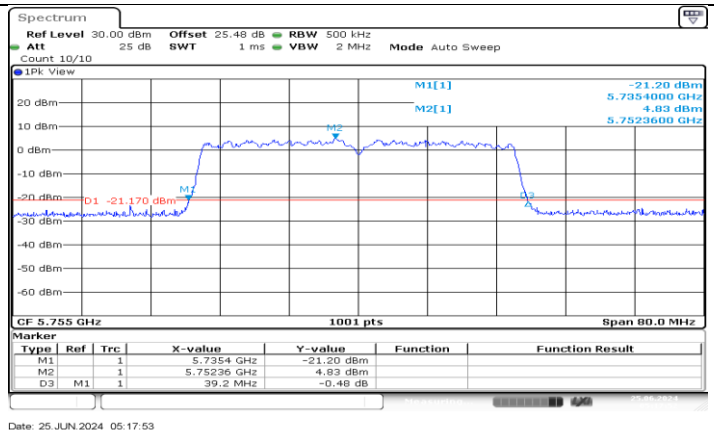
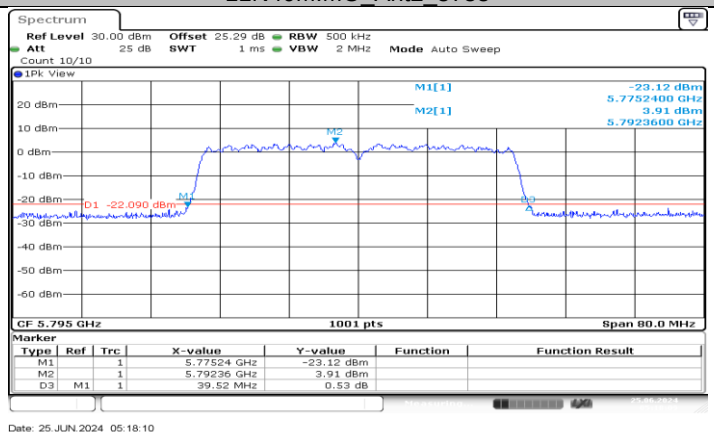


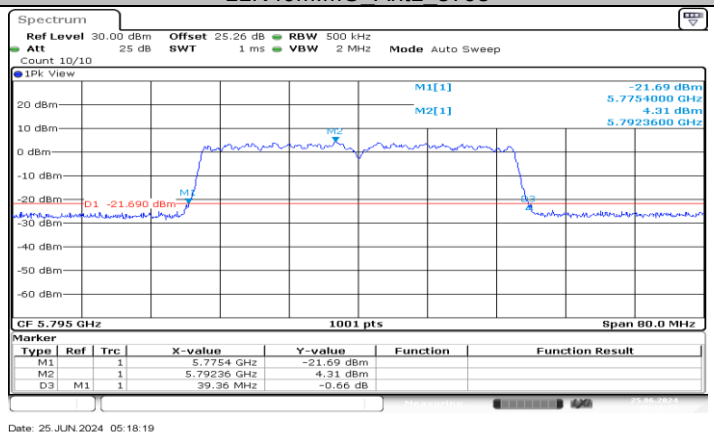
11N40MIMO_Ant1_5755



11N40MIMO_Ant2_5755



11N40MIMO_Ant1_5795



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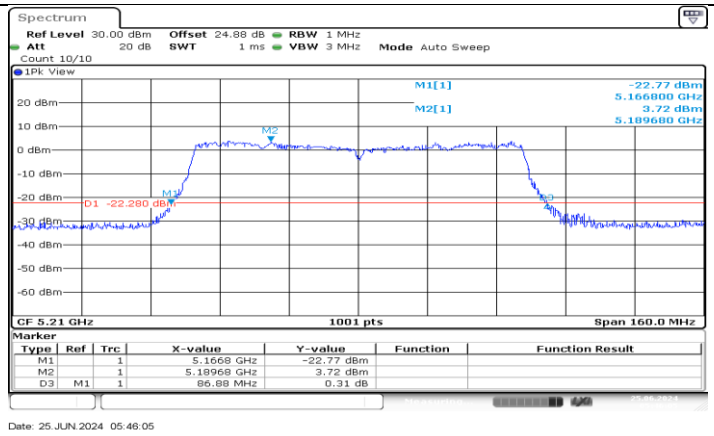
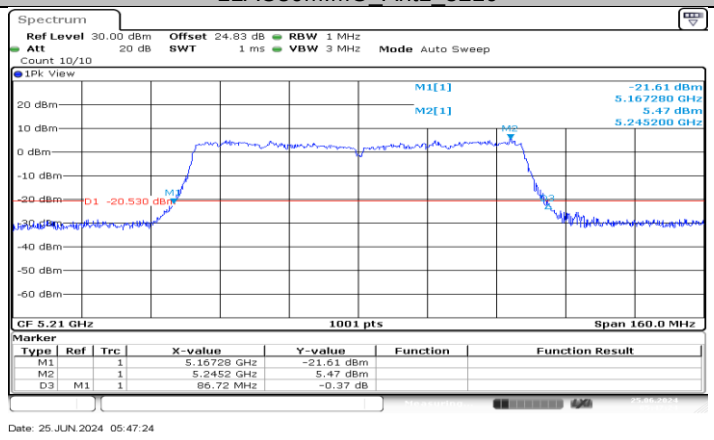


11AC80MIMO_Ant1_5210



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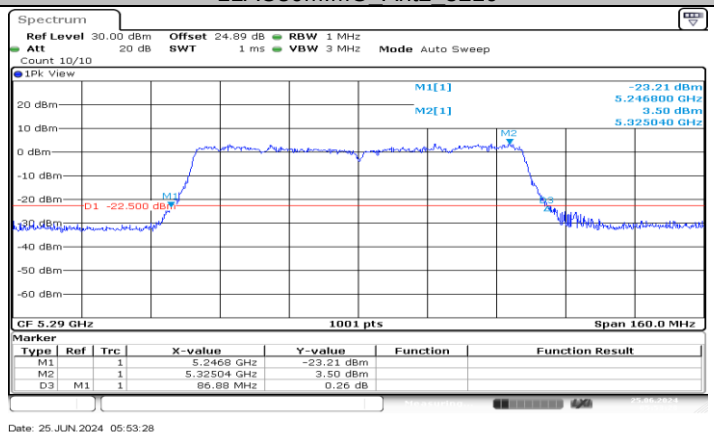
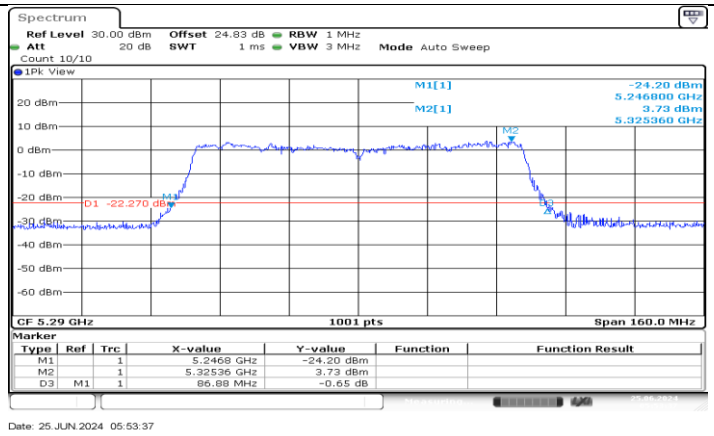


11AC80MIMO_Ant1_5290



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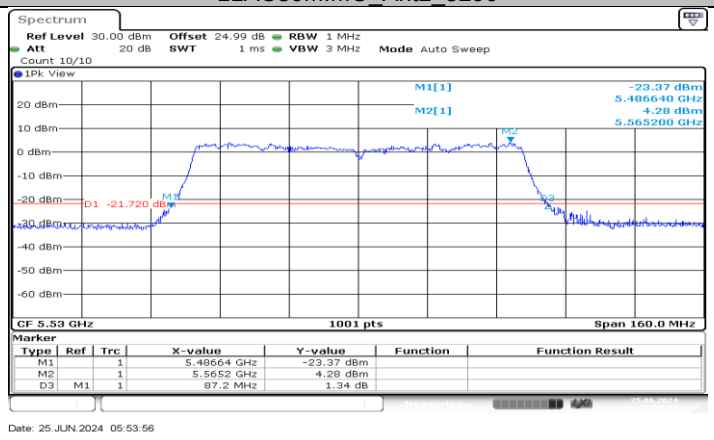
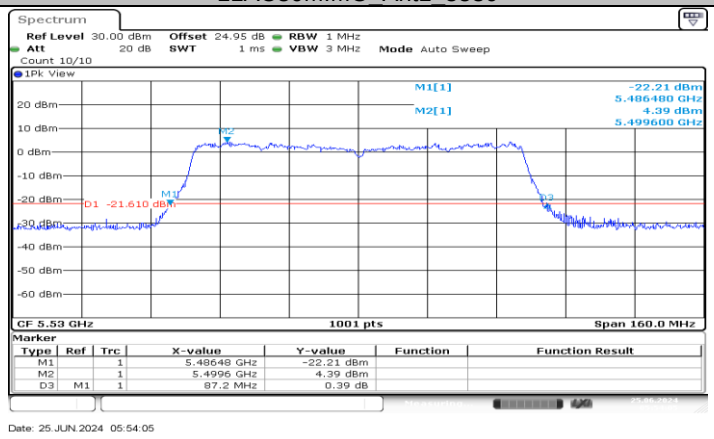


11AC80MIMO_Ant1_5530



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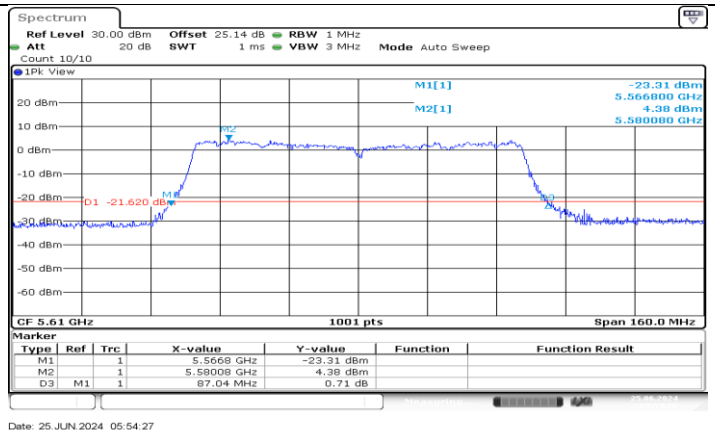

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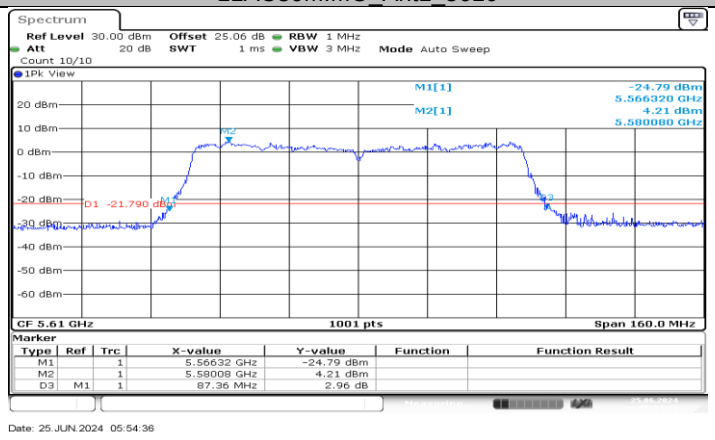

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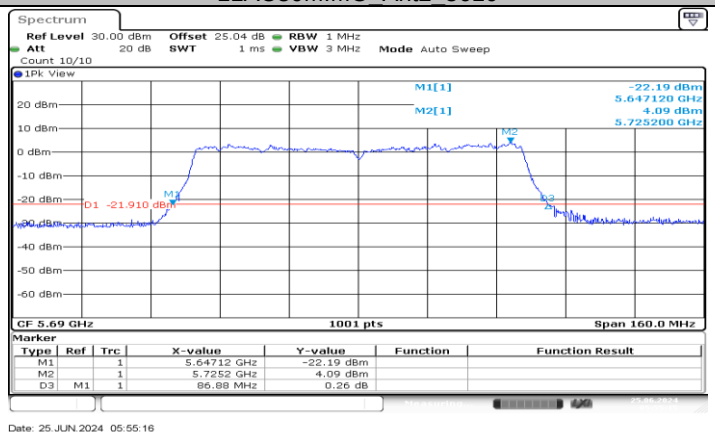
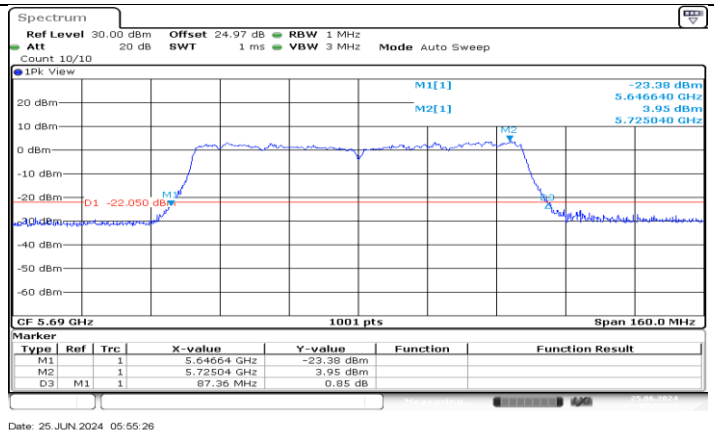


11AC80MIMO_Ant1_5690



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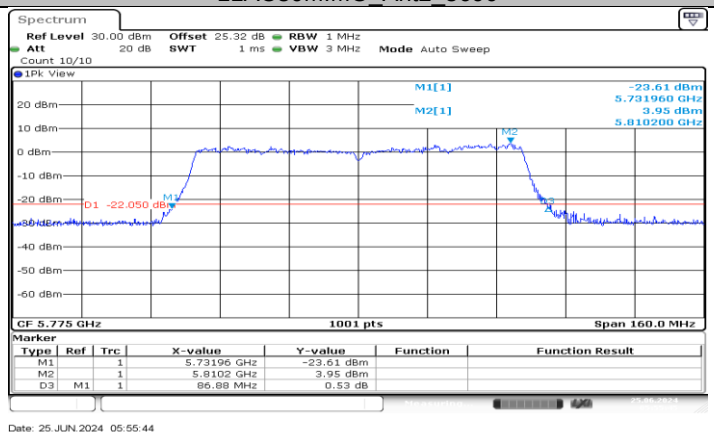

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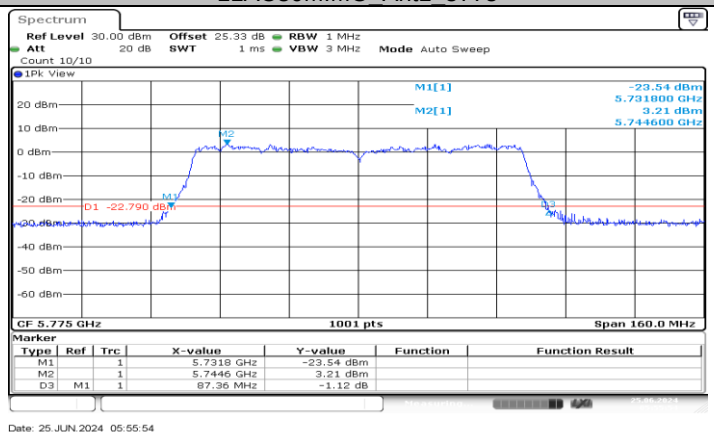

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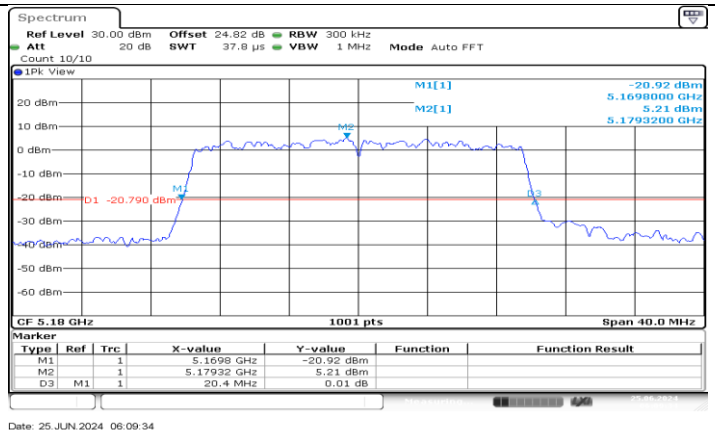
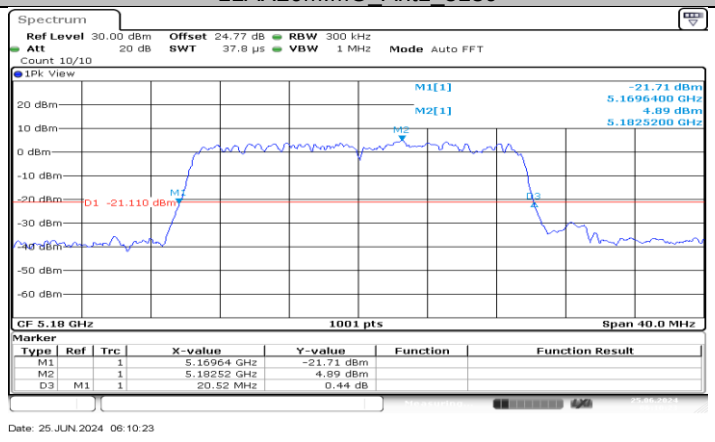


11AX20MIMO_Ant1_5180



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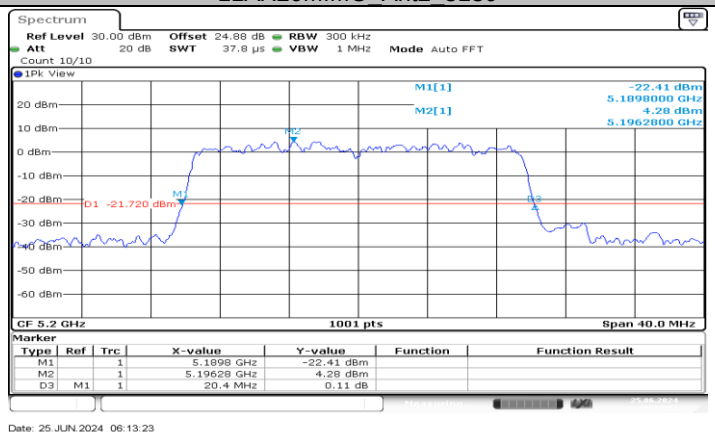

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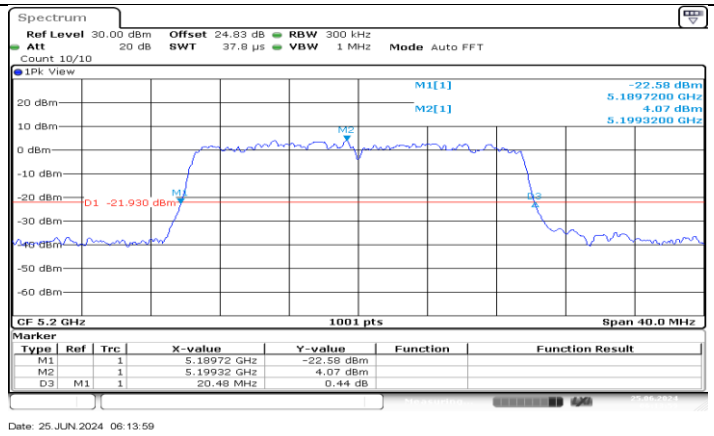

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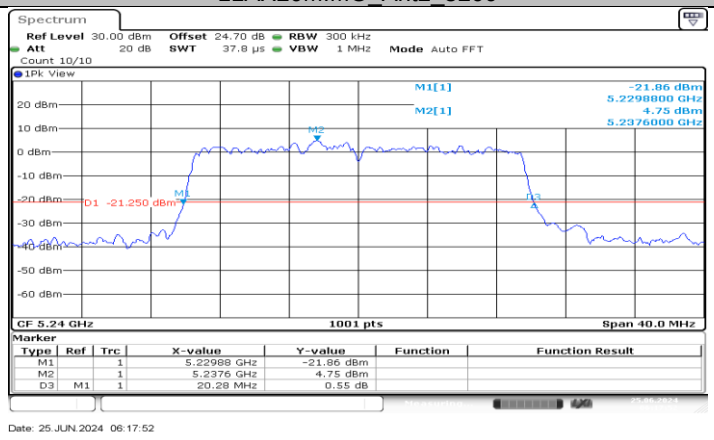

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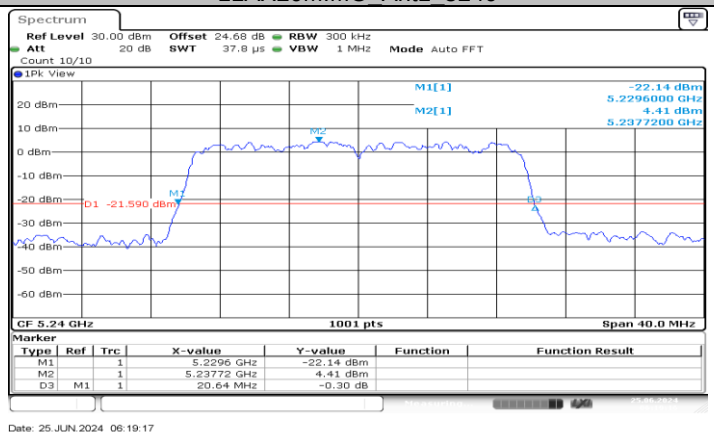

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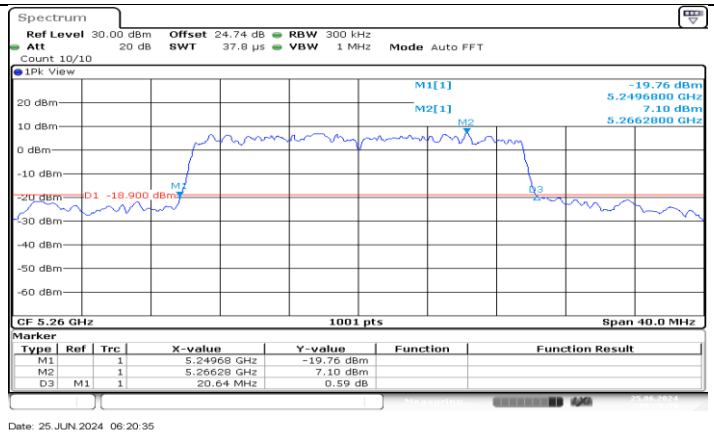

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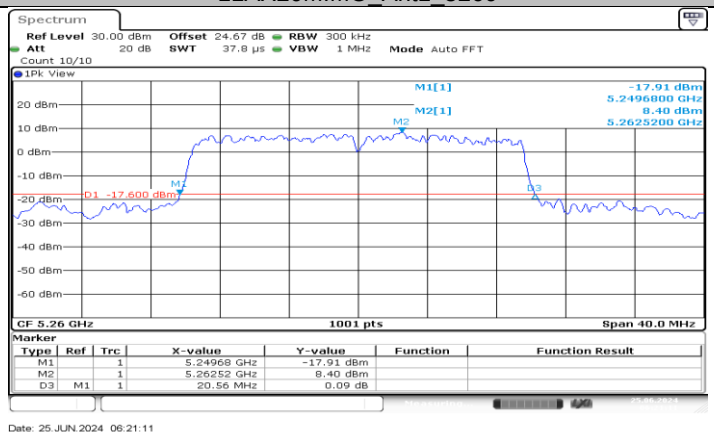

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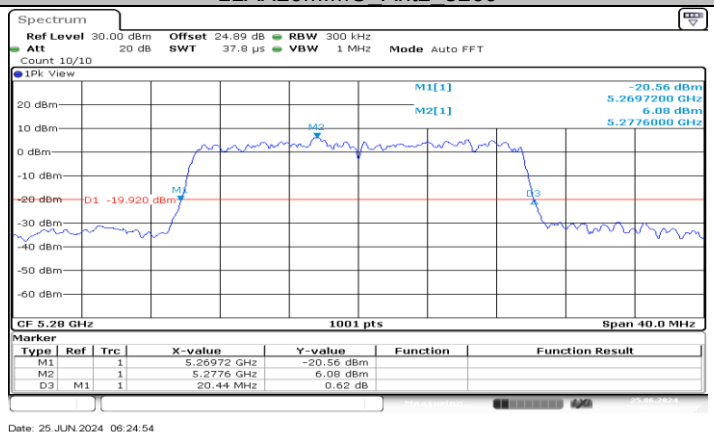

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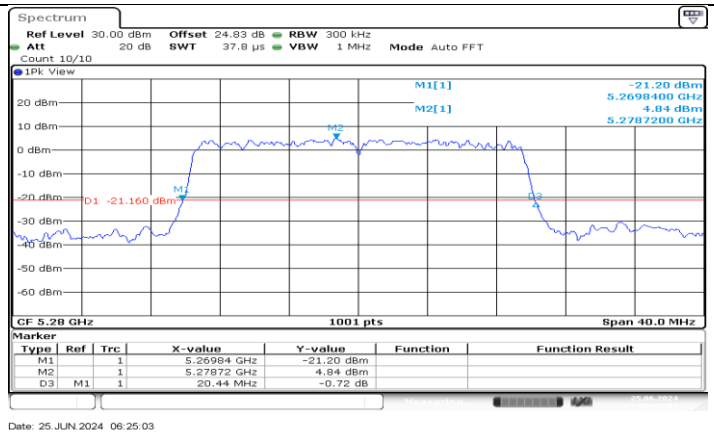

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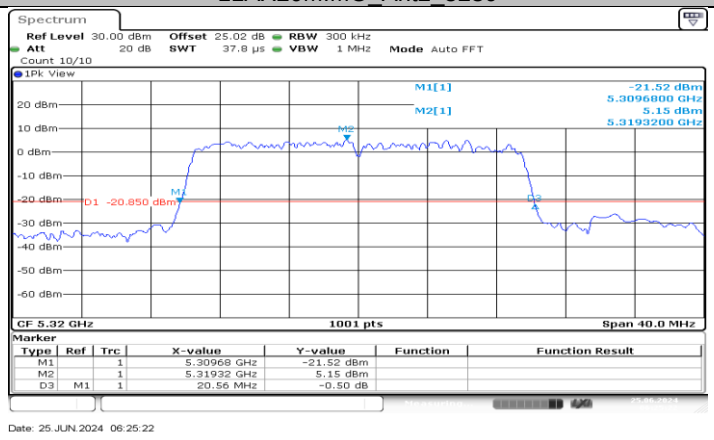

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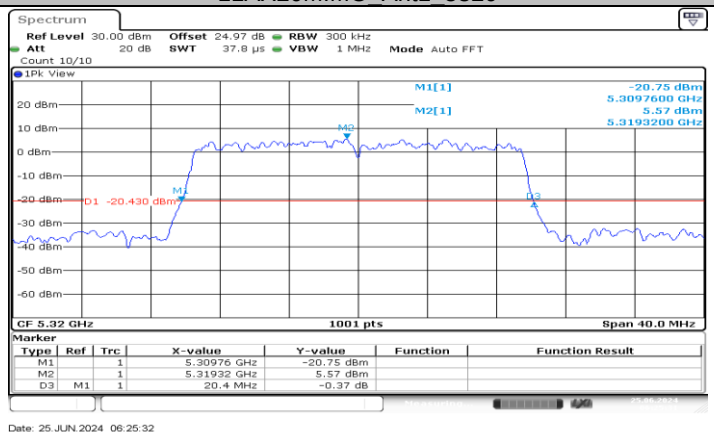

11AX20MIMO_Ant2_5320