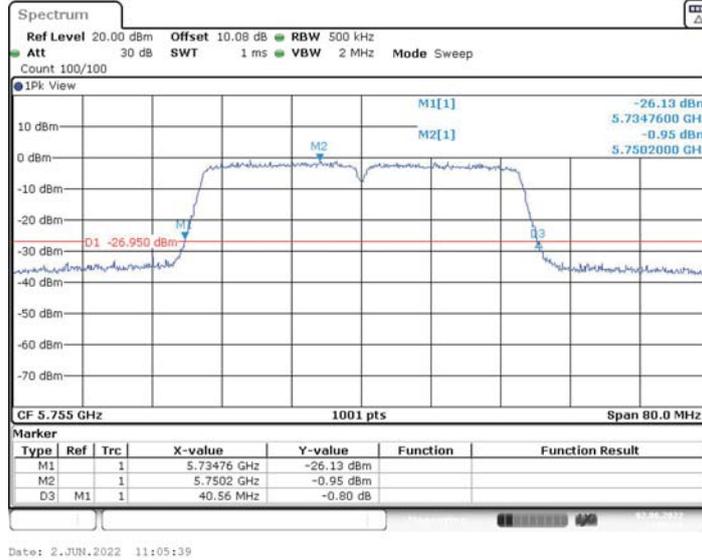
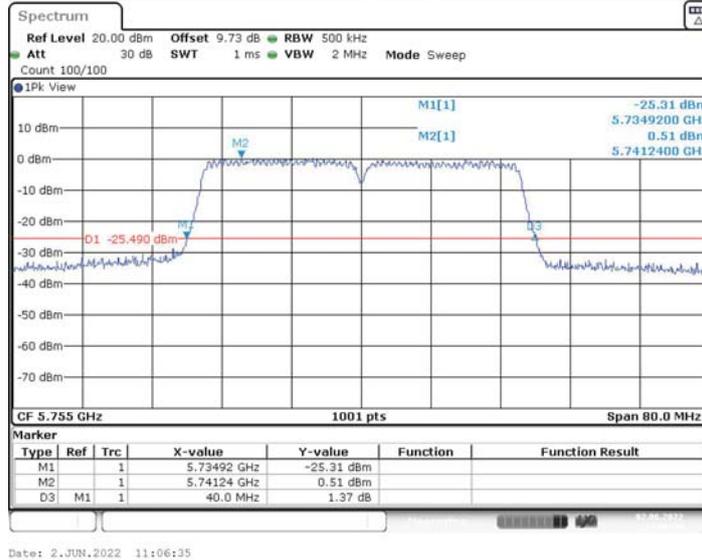


11N40MIMO_Ant1_5755

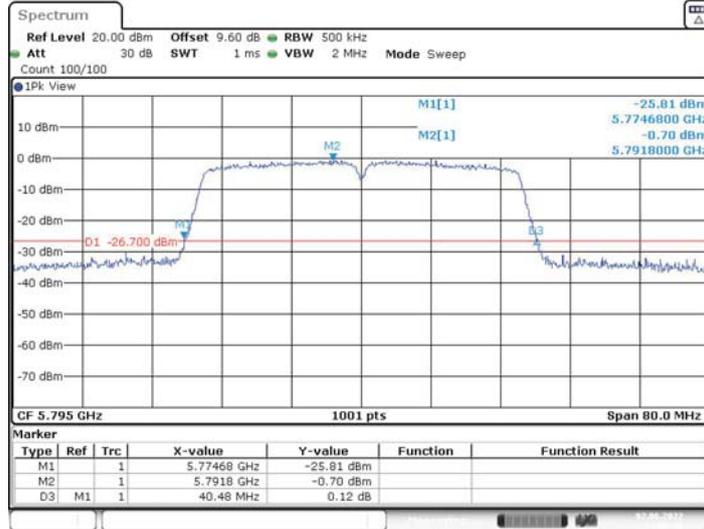


11N40MIMO_Ant2_5755



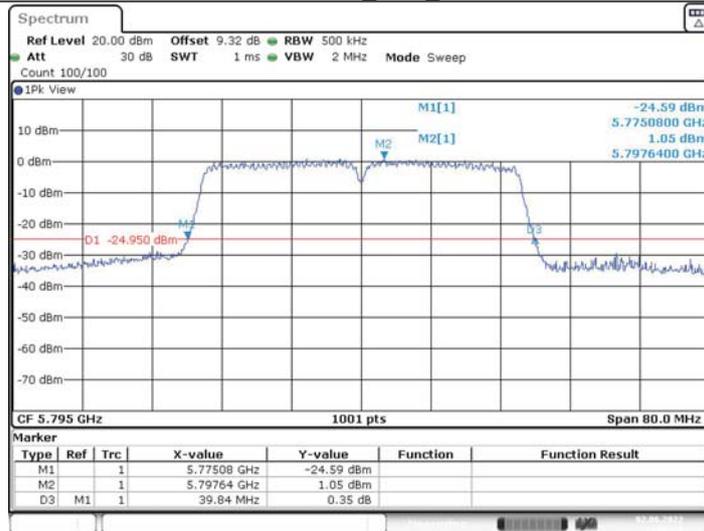


11N40MIMO_Ant1_5795



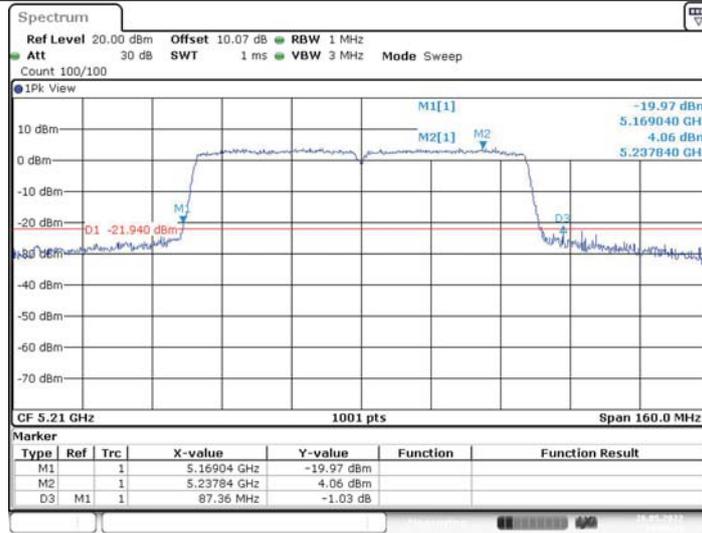
Date: 2.JUN.2022 11:07:42

11N40MIMO_Ant2_5795

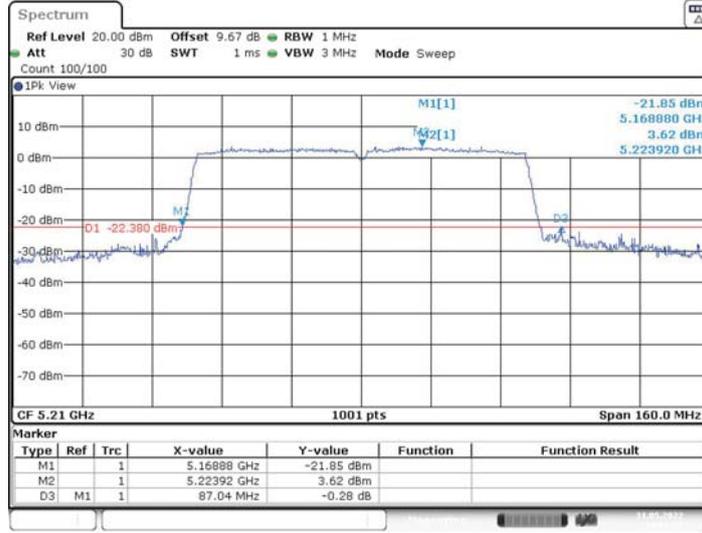


Date: 2.JUN.2022 11:08:38

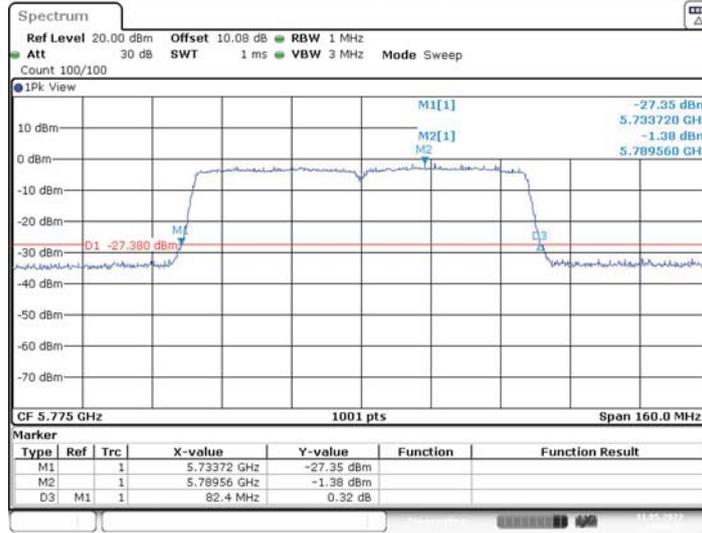
11AC80MIMO_Ant1_5210

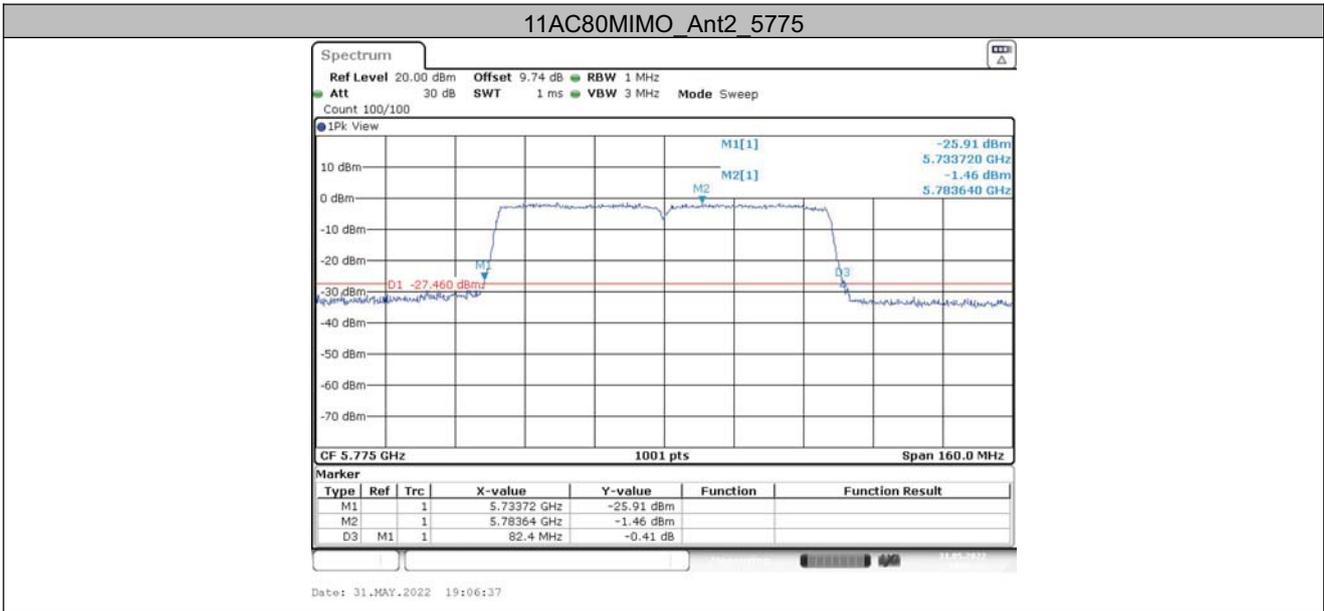


11AC80MIMO_Ant2_5210



11AC80MIMO_Ant1_5775







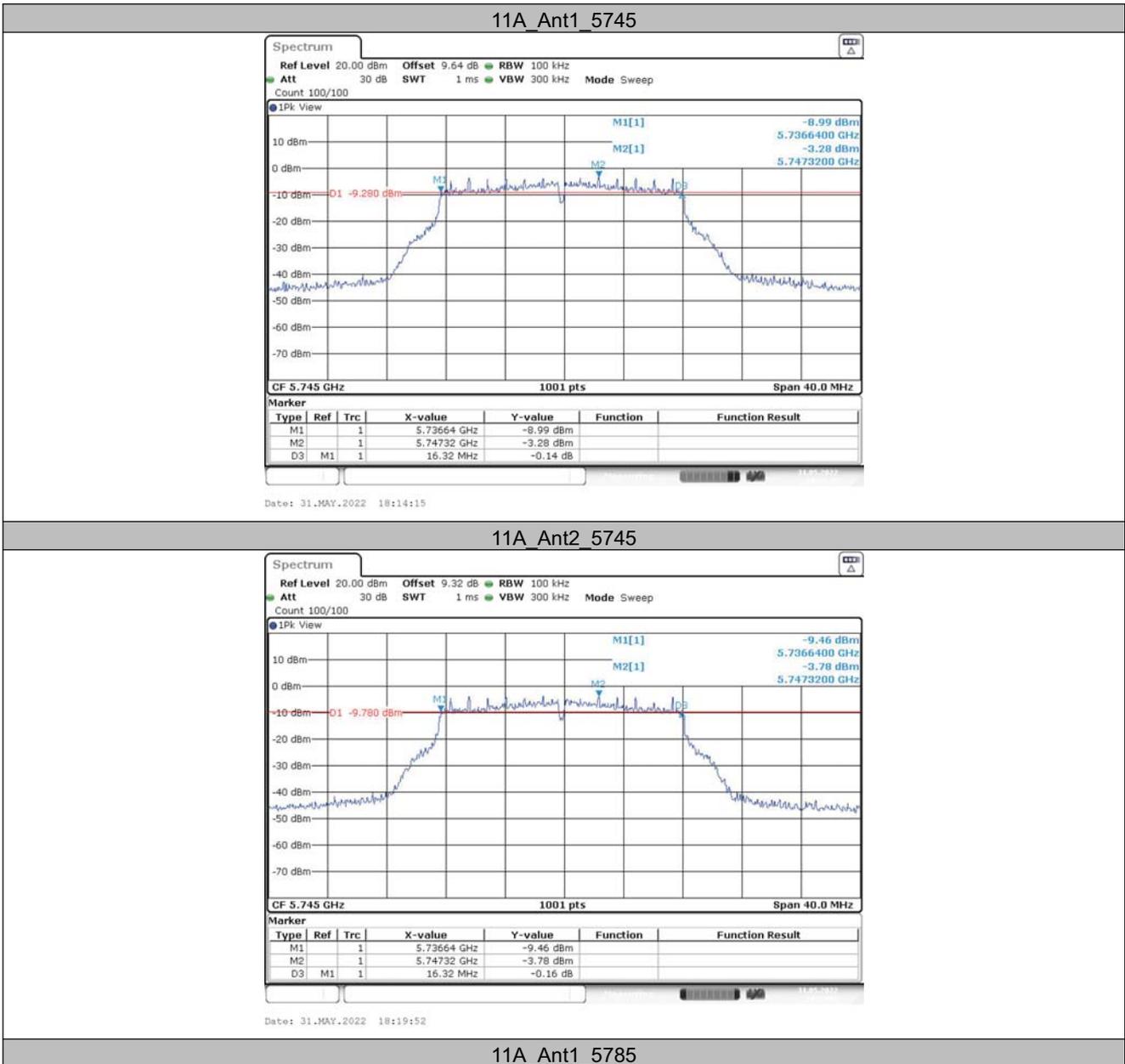
5.2 Appendix B: 6DB EMISSION BANDWIDTH

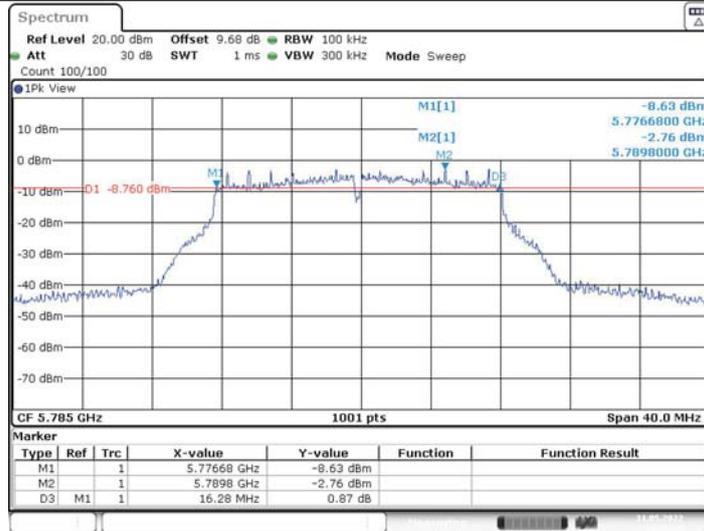
5.2.1 Test Result

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.32	5736.64	5752.96	0.5	PASS
	Ant2	5745	16.32	5736.64	5752.96	0.5	PASS
	Ant1	5785	16.28	5776.68	5792.96	0.5	PASS
	Ant2	5785	16.32	5776.64	5792.96	0.5	PASS
	Ant1	5825	16.32	5816.64	5832.96	0.5	PASS
	Ant2	5825	16.32	5816.64	5832.96	0.5	PASS
11N20MIMO	Ant1	5745	17.56	5736.04	5753.60	0.5	PASS
	Ant2	5745	17.56	5736.04	5753.60	0.5	PASS
	Ant1	5785	17.32	5776.28	5793.60	0.5	PASS
	Ant2	5785	17.56	5776.04	5793.60	0.5	PASS
	Ant1	5825	17.28	5816.28	5833.56	0.5	PASS
	Ant2	5825	17.56	5816.04	5833.60	0.5	PASS
11N40MIMO	Ant1	5755	36.32	5736.68	5773.00	0.5	PASS
	Ant2	5755	36.32	5736.68	5773.00	0.5	PASS
	Ant1	5795	35.76	5776.92	5812.68	0.5	PASS
	Ant2	5795	36.32	5776.68	5813.00	0.5	PASS
11AC80MIMO	Ant1	5775	76.32	5736.60	5812.92	0.5	PASS
	Ant2	5775	76.32	5736.60	5812.92	0.5	PASS

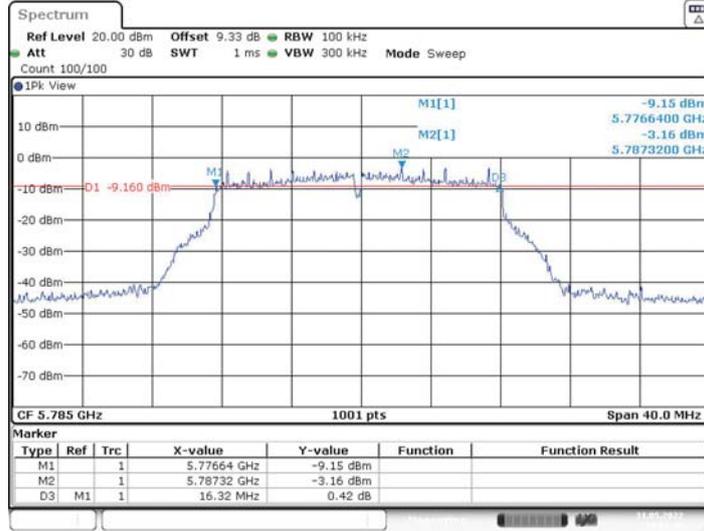


5.2.2 Test Graphs

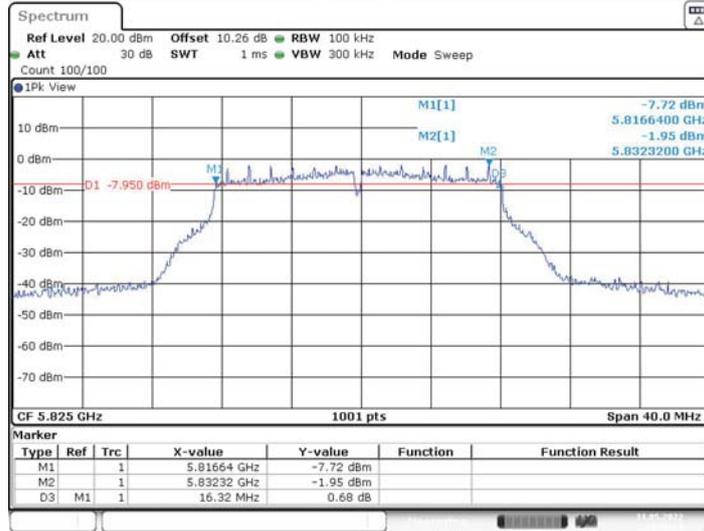




11A Ant2 5785

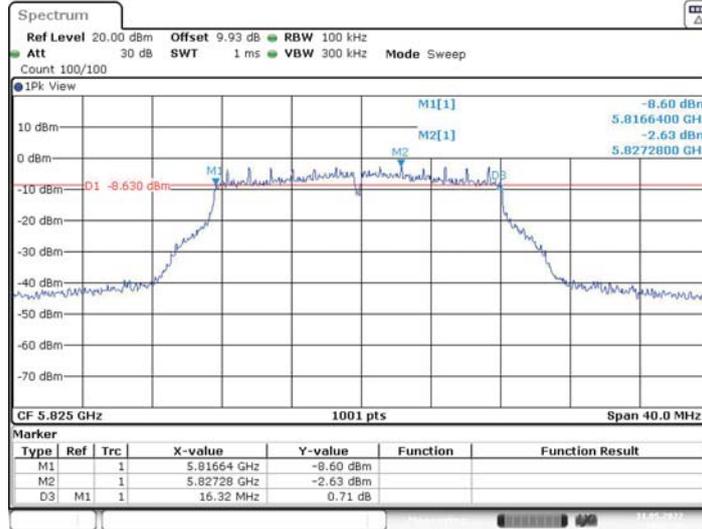


11A Ant1 5825



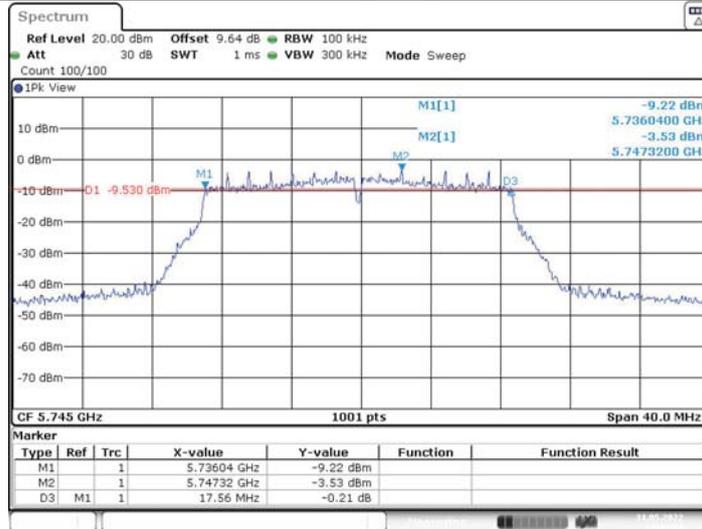


11A_Ant2_5825



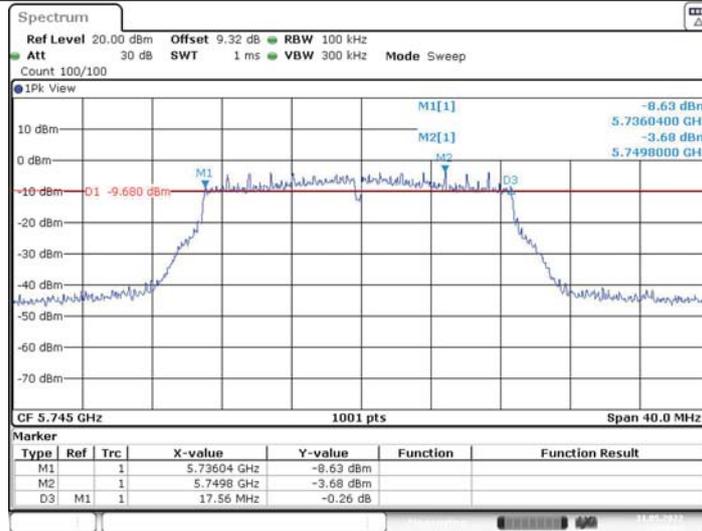
Date: 31.MAY.2022 18:22:59

11N20MIMO_Ant1_5745



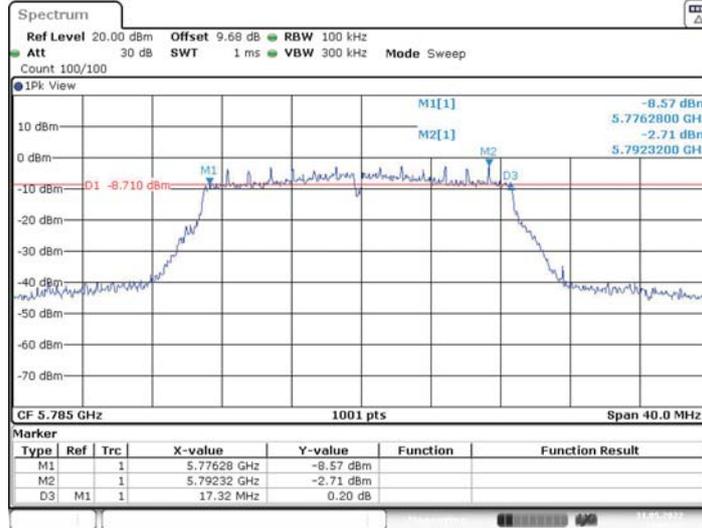
Date: 31.MAY.2022 18:43:03

11N20MIMO_Ant2_5745



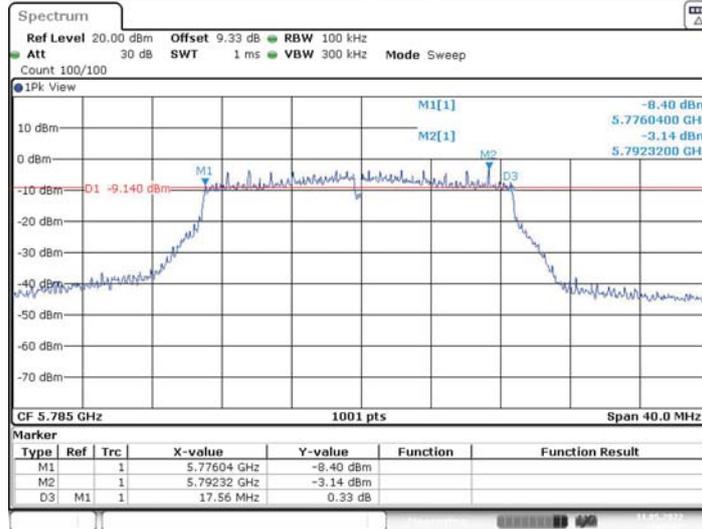
Date: 31.MAY.2022 18:44:04

11N20MIMO_Ant1_5785



Date: 31.MAY.2022 18:45:17

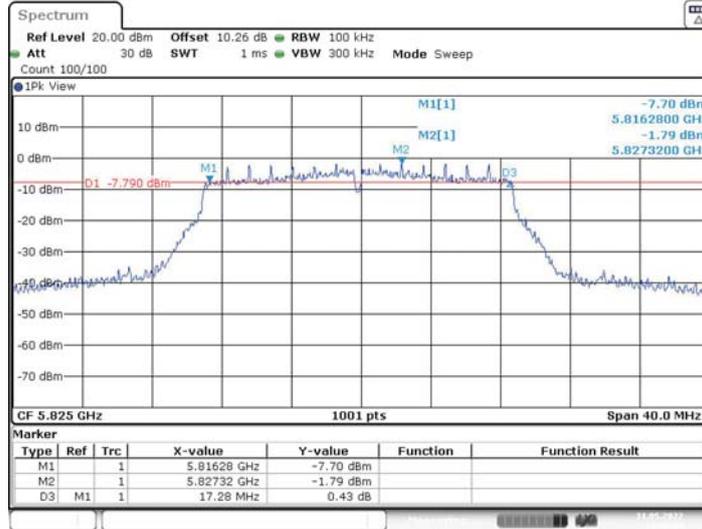
11N20MIMO_Ant2_5785



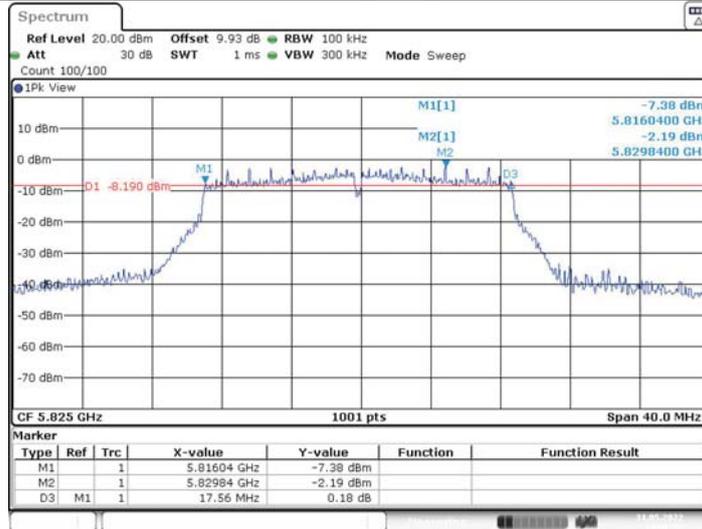
Date: 31.MAY.2022 18:45:52



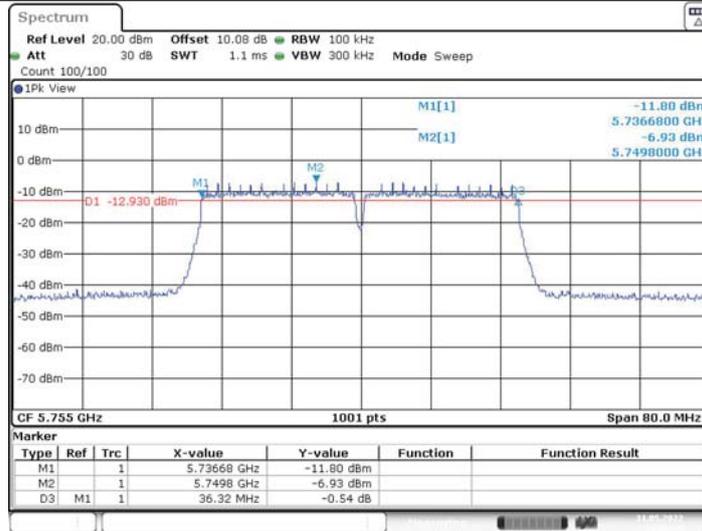
11N20MIMO_Ant1_5825



11N20MIMO_Ant2_5825

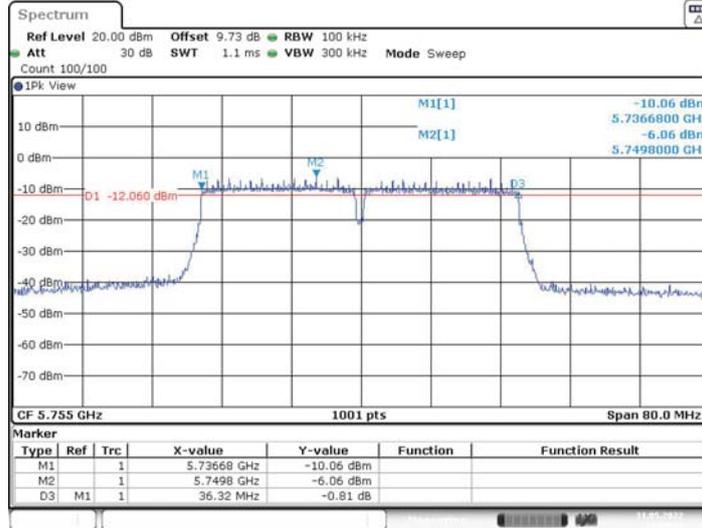


11N40MIMO_Ant1_5755



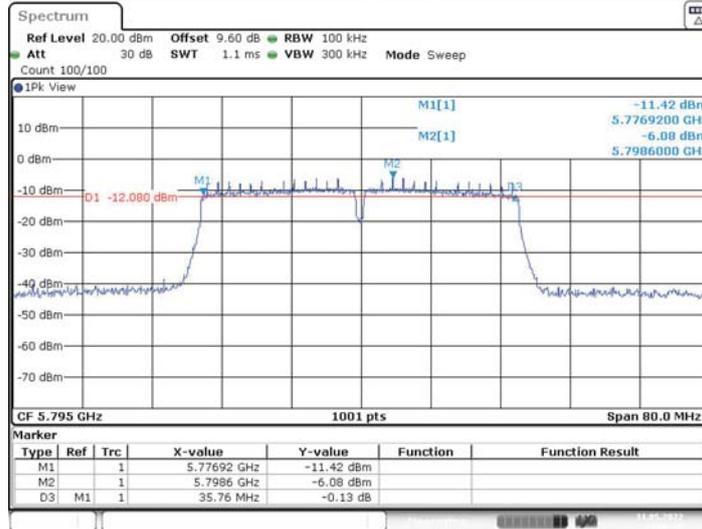
Date: 31.MAY.2022 18:53:24

11N40MIMO_Ant2_5755



Date: 31.MAY.2022 18:54:54

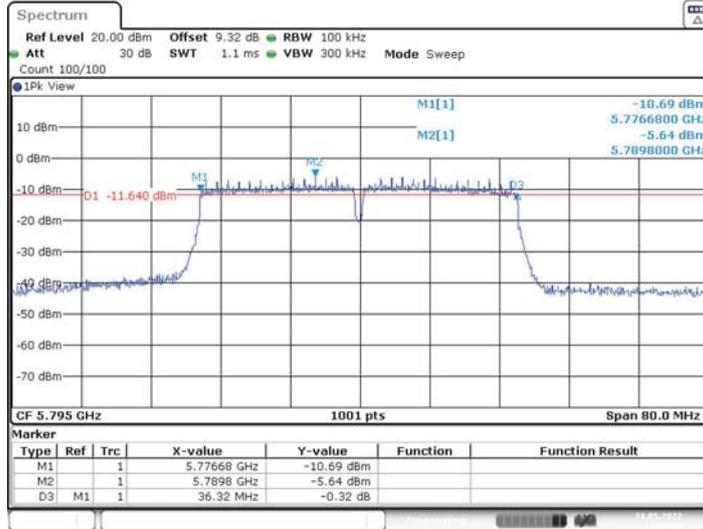
11N40MIMO_Ant1_5795



Date: 31.MAY.2022 18:56:35

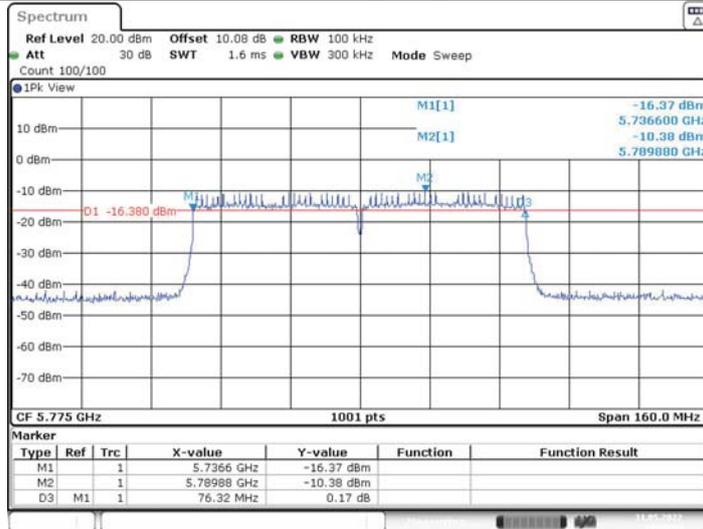


11N40MIMO_Ant2_5795



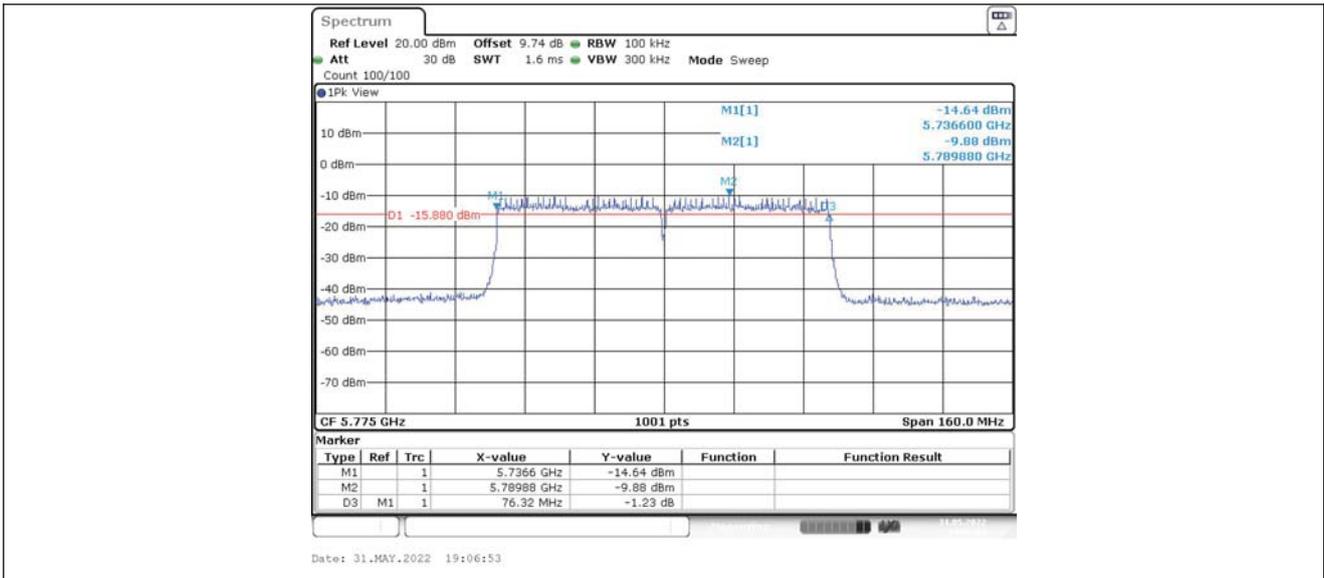
Date: 31.MAY.2022 18:58:05

11AC80MIMO_Ant1_5775



Date: 31.MAY.2022 19:04:54

11AC80MIMO_Ant2_5775





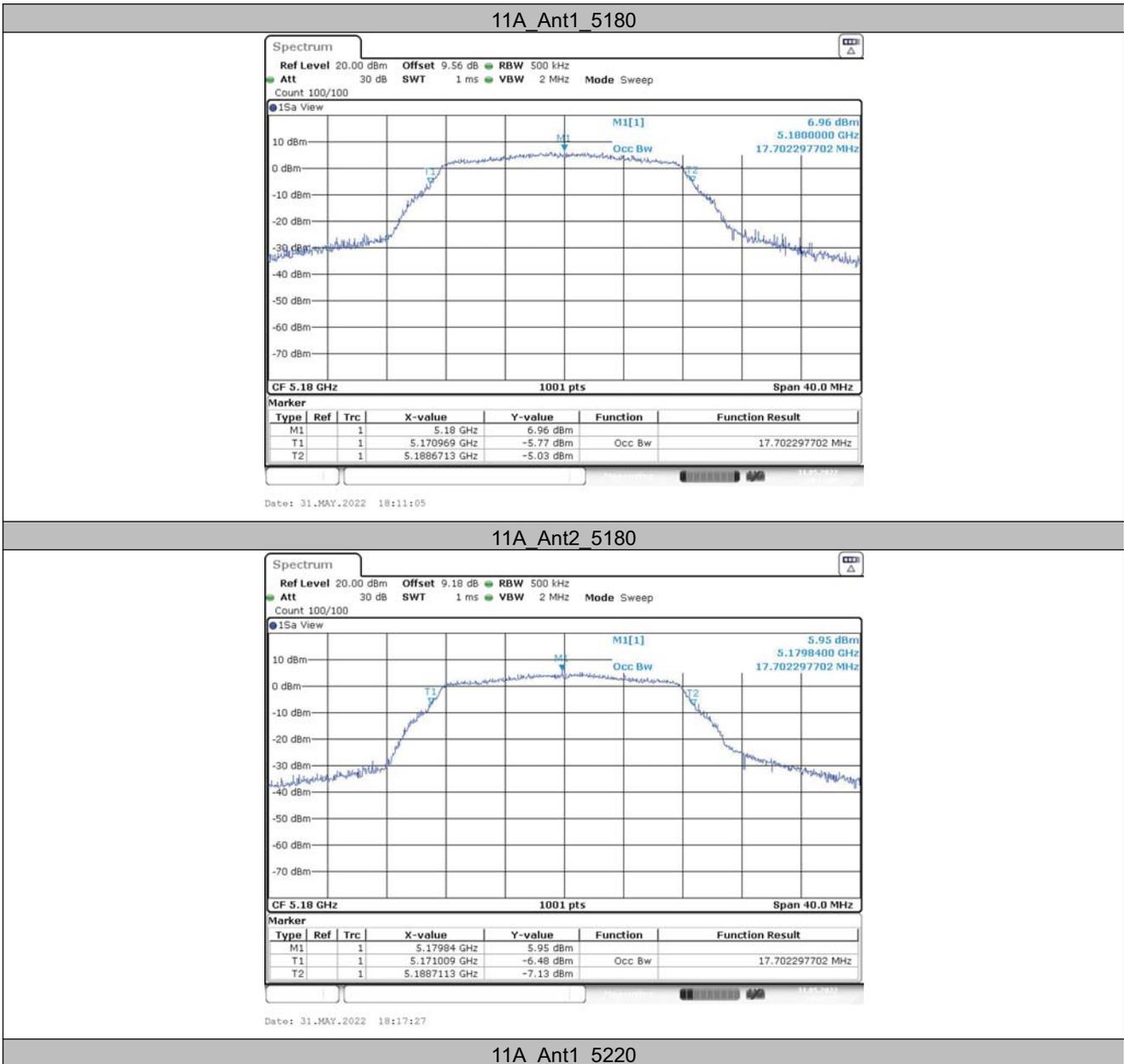
5.3 Appendix C: Occupied channel bandwidth

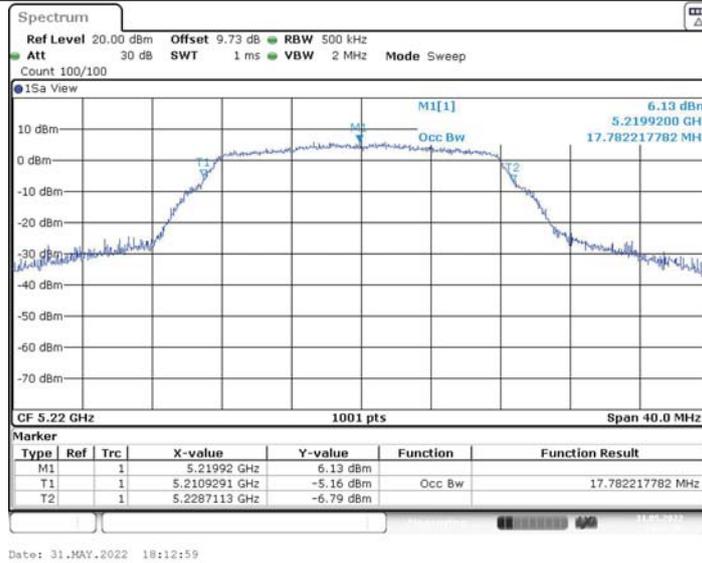
5.3.1 Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.702	5170.969	5188.671	---	---
	Ant2	5180	17.702	5171.009	5188.711	---	---
	Ant1	5220	17.782	5210.929	5228.711	---	---
	Ant2	5220	17.662	5211.009	5228.671	---	---
	Ant1	5240	17.742	5230.889	5248.631	---	---
	Ant2	5240	17.822	5230.849	5248.671	---	---
	Ant1	5745	17.782	5735.929	5753.711	---	---
	Ant2	5745	17.662	5735.969	5753.631	---	---
	Ant1	5785	17.702	5776.009	5793.711	---	---
	Ant2	5785	17.702	5775.969	5793.671	---	---
	Ant1	5825	17.662	5816.009	5833.671	---	---
	Ant2	5825	17.742	5815.969	5833.711	---	---
11N20MIMO	Ant1	5180	18.621	5170.490	5189.111	---	---
	Ant2	5180	18.062	5170.809	5188.871	---	---
	Ant1	5220	18.661	5210.529	5229.191	---	---
	Ant2	5220	18.102	5210.769	5228.871	---	---
	Ant1	5240	18.661	5230.450	5249.111	---	---
	Ant2	5240	18.102	5230.729	5248.831	---	---
	Ant1	5745	18.661	5735.490	5754.151	---	---
	Ant2	5745	18.062	5735.769	5753.831	---	---
	Ant1	5785	18.661	5775.490	5794.151	---	---
	Ant2	5785	18.102	5775.769	5793.871	---	---
	Ant1	5825	18.621	5815.529	5834.151	---	---
	Ant2	5825	18.142	5815.769	5833.911	---	---
11N40MIMO	Ant1	5190	36.763	5171.459	5208.222	---	---
	Ant2	5190	36.603	5171.538	5208.142	---	---
	Ant1	5230	36.763	5211.459	5248.222	---	---
	Ant2	5230	36.683	5211.538	5248.222	---	---
	Ant1	5755	36.763	5736.379	5773.142	---	---
	Ant2	5755	36.683	5736.459	5773.142	---	---
	Ant1	5795	36.603	5776.459	5813.062	---	---
	Ant2	5795	36.523	5776.538	5813.062	---	---
11AC80MIMO	Ant1	5210	76.244	5171.638	5247.882	---	---
	Ant2	5210	76.084	5171.798	5247.882	---	---
	Ant1	5775	76.404	5736.638	5813.042	---	---
	Ant2	5775	77.363	5736.159	5813.521	---	---

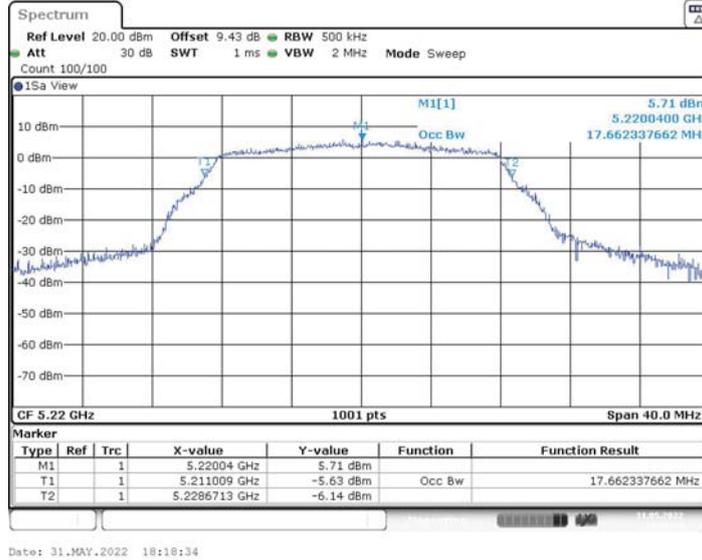


5.3.2 Test Graphs

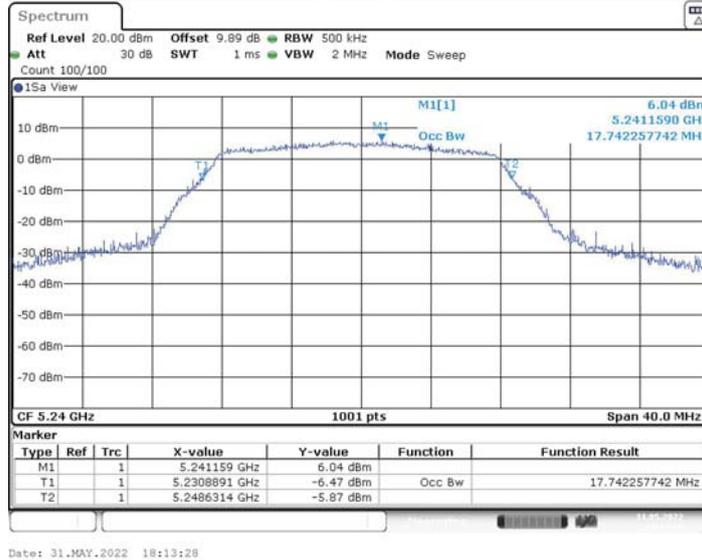




11A Ant2 5220

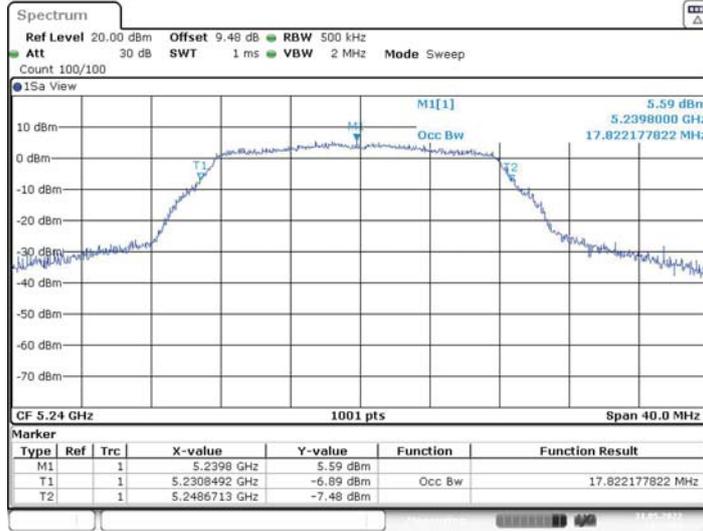


11A Ant1 5240





11A_Ant2_5240



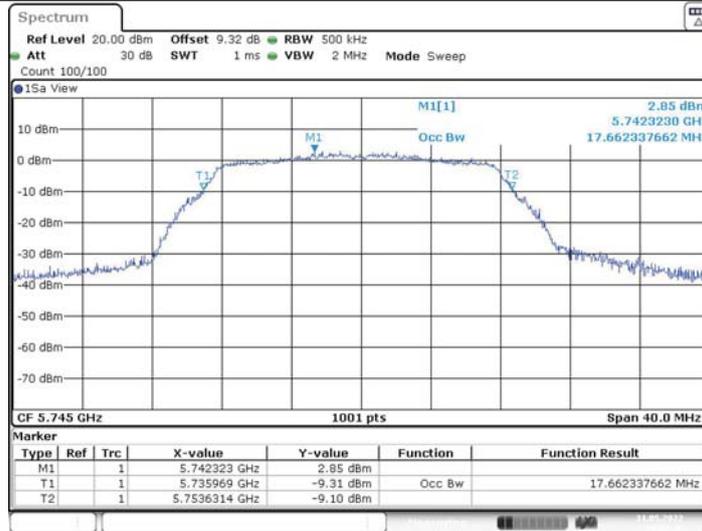
Date: 31.MAY.2022 18:19:04

11A_Ant1_5745

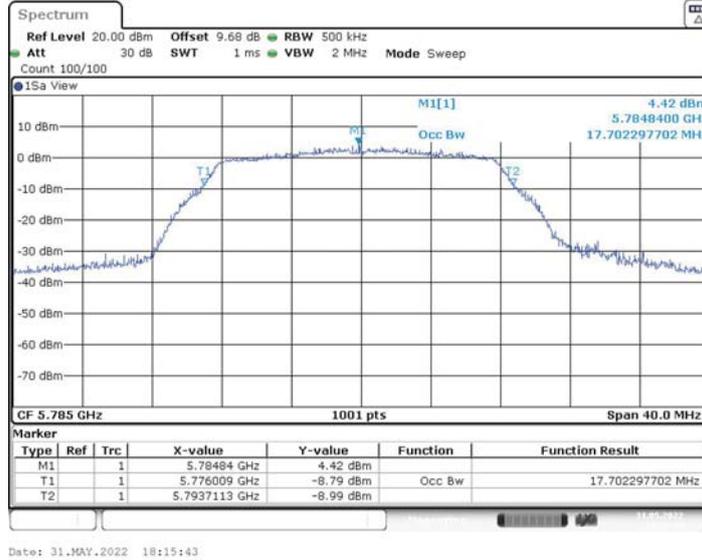


Date: 31.MAY.2022 18:14:33

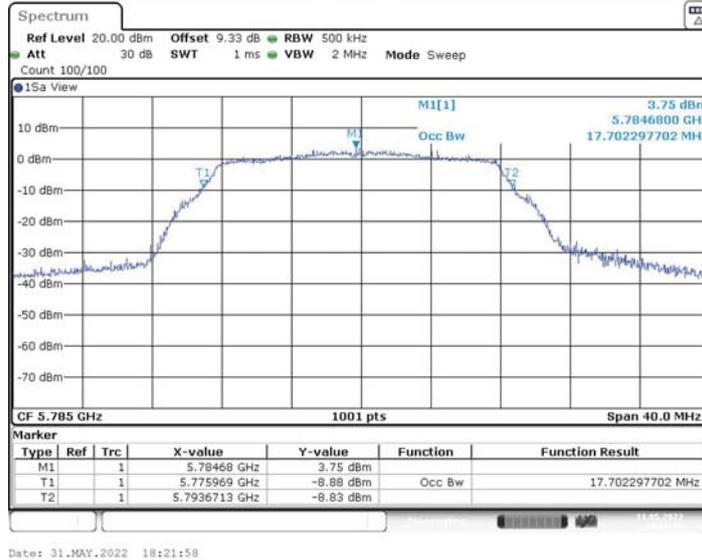
11A_Ant2_5745



11A Ant1 5785

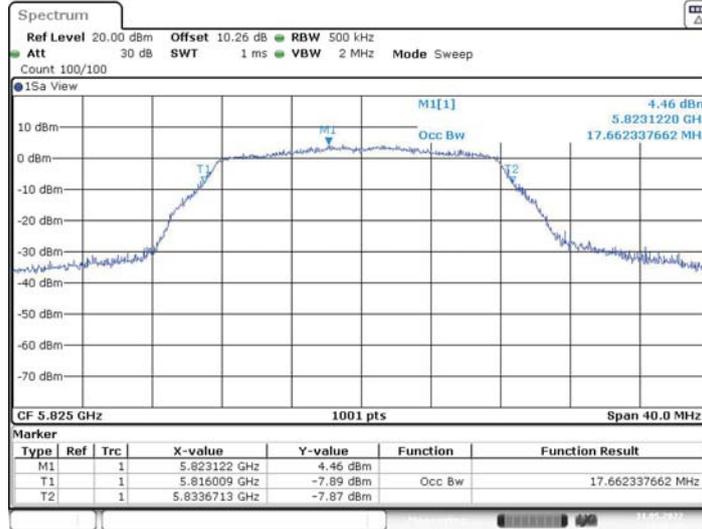


11A Ant2 5785



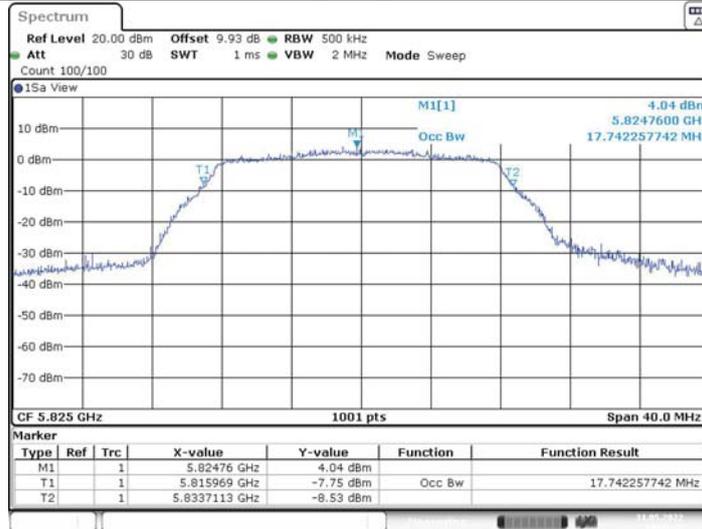


11A_Ant1_5825



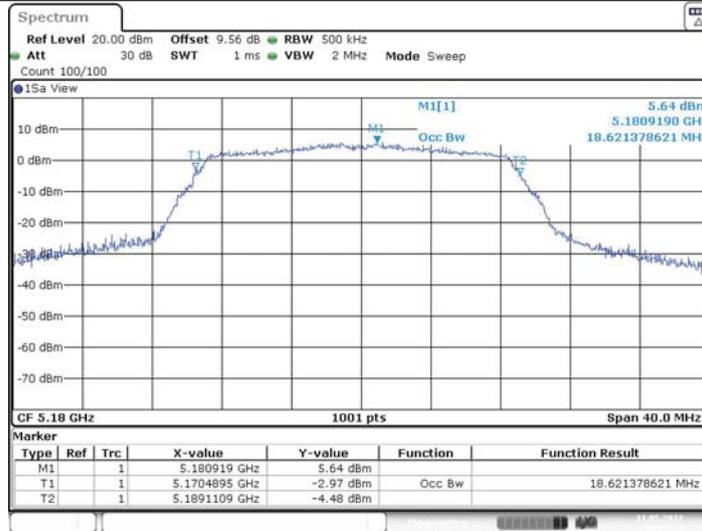
Date: 31.MAY.2022 18:16:30

11A_Ant2_5825

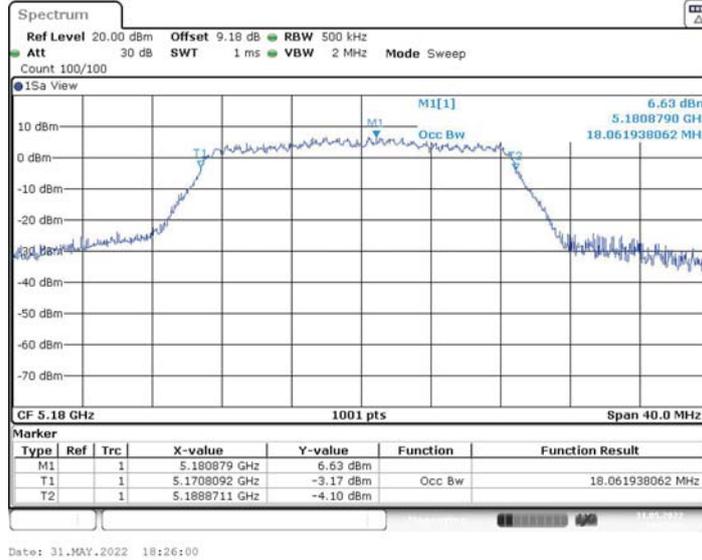


Date: 31.MAY.2022 18:23:18

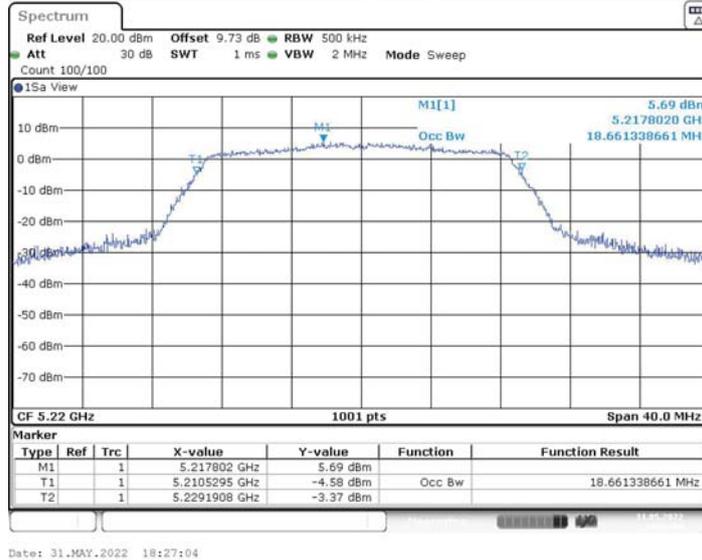
11N20MIMO_Ant1_5180



11N20MIMO_Ant2_5180

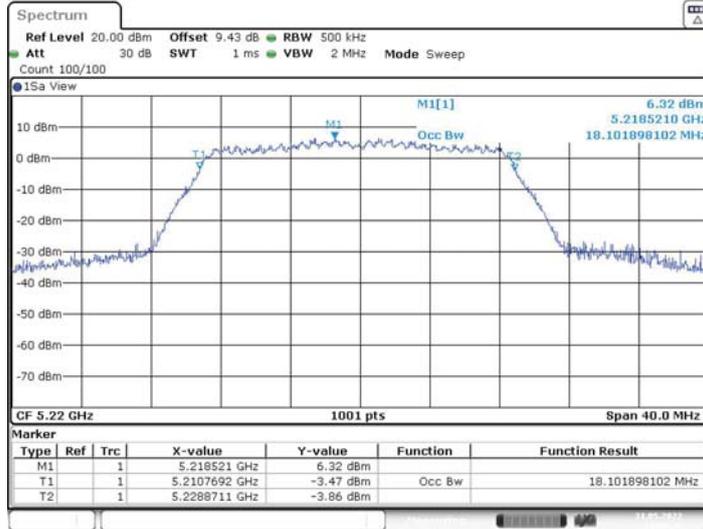


11N20MIMO_Ant1_5220

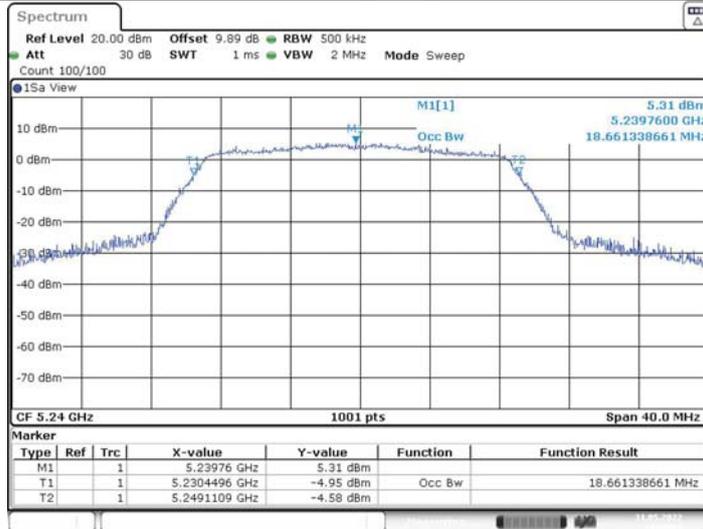




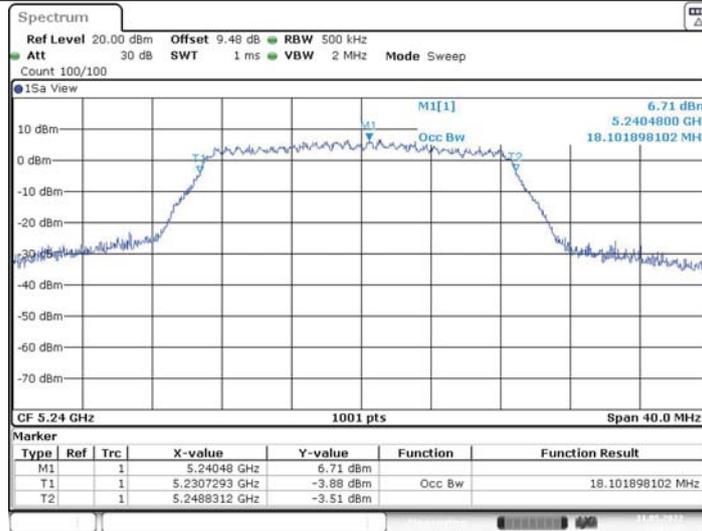
11N20MIMO_Ant2_5220



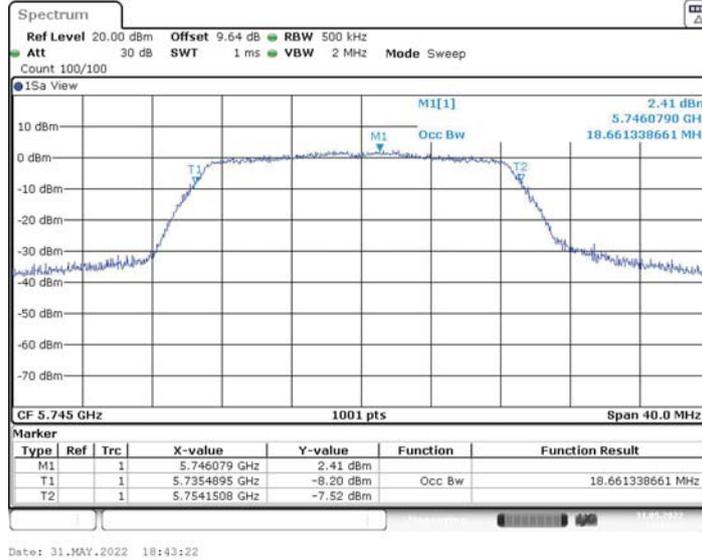
11N20MIMO_Ant1_5240



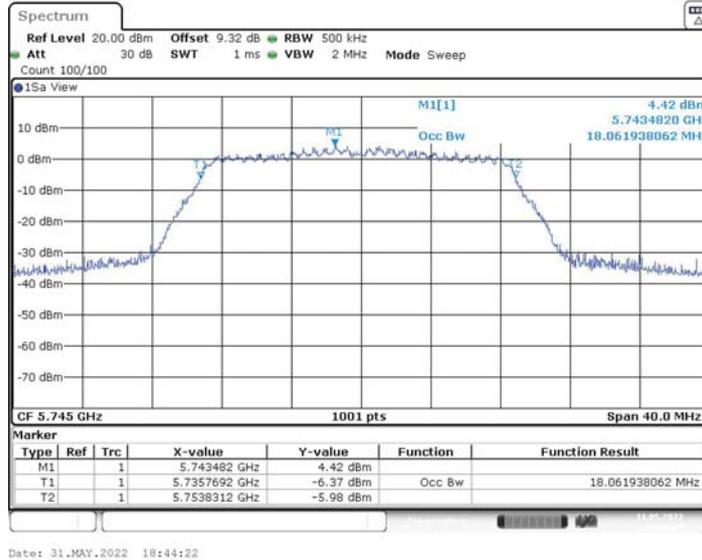
11N20MIMO_Ant2_5240



11N20MIMO_Ant1_5745

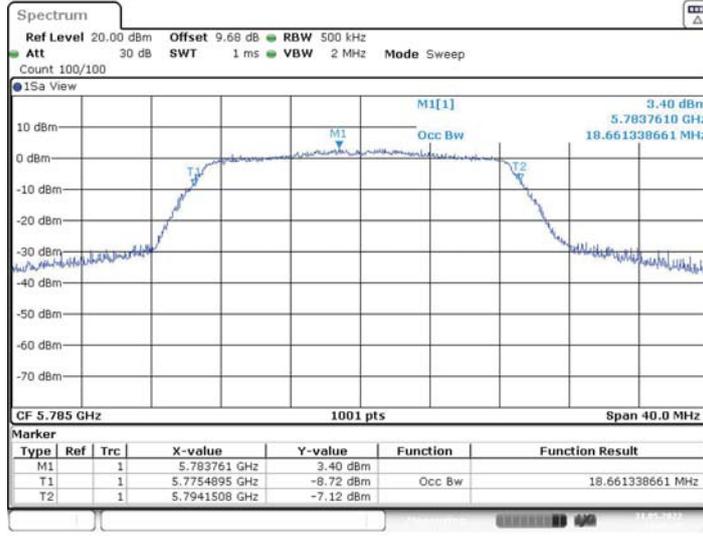


11N20MIMO_Ant2_5745

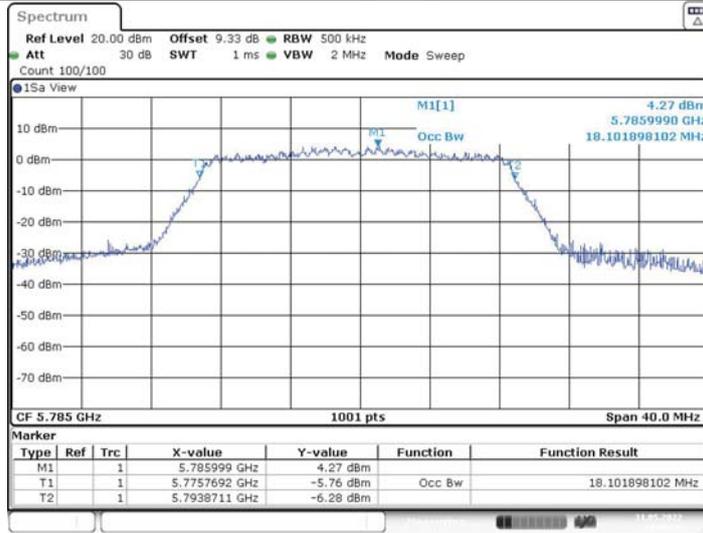




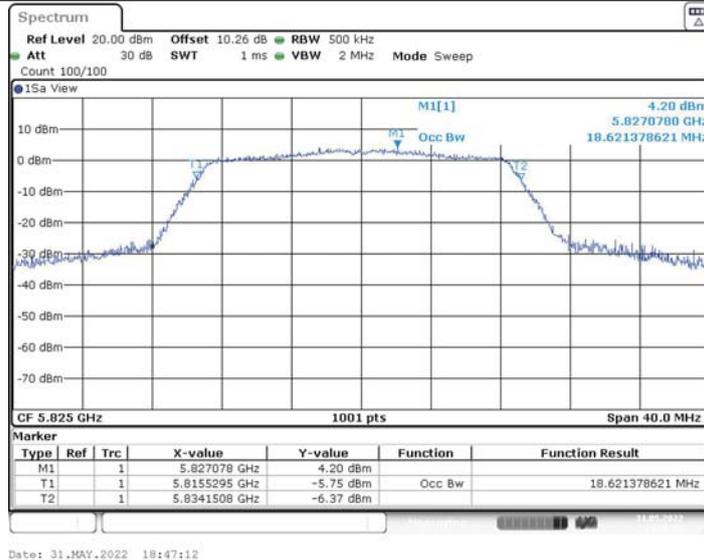
11N20MIMO_Ant1_5785



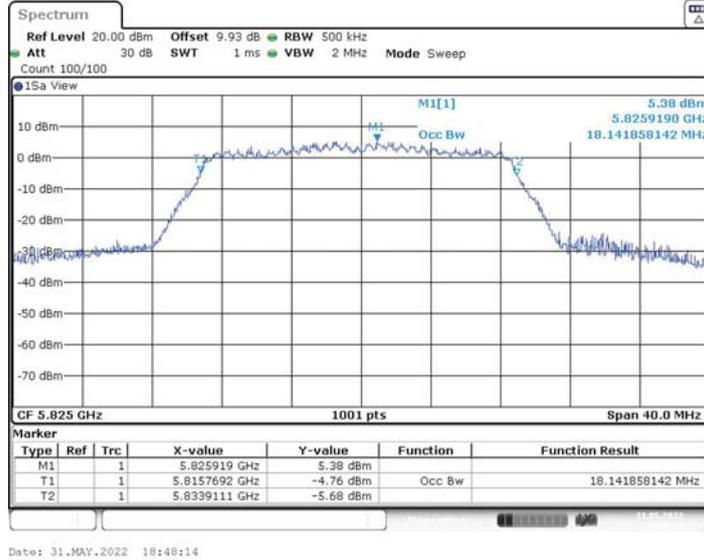
11N20MIMO_Ant2_5785



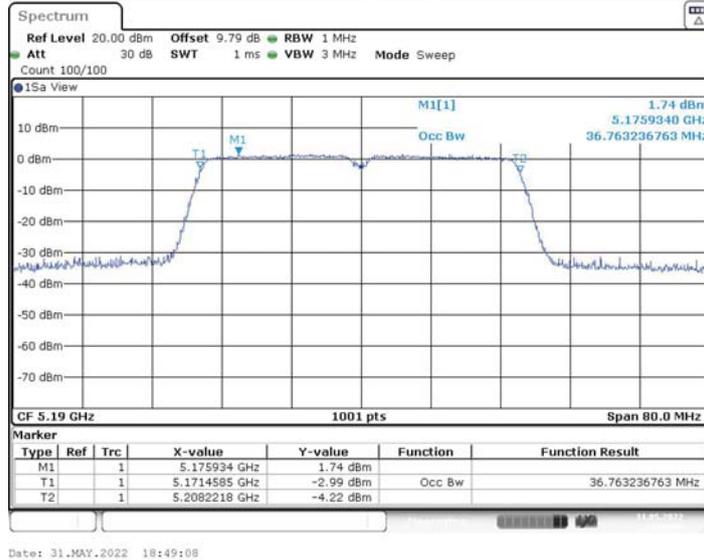
11N20MIMO_Ant1_5825



11N20MIMO_Ant2_5825



11N40MIMO_Ant1_5190



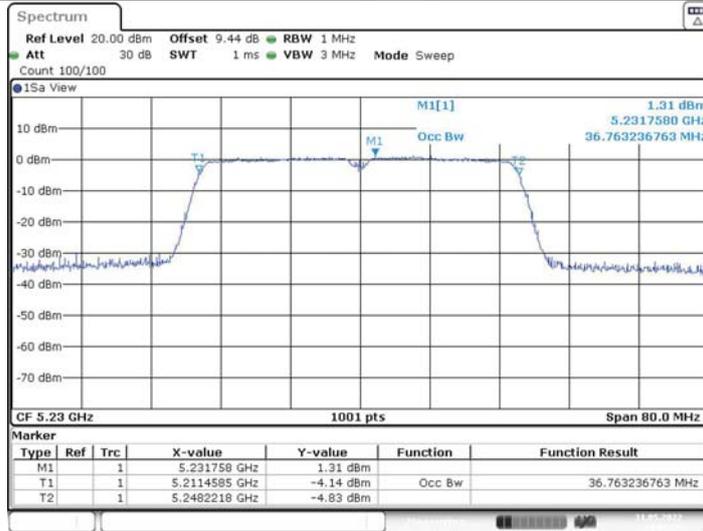


11N40MIMO_Ant2_5190



Date: 31.MAY.2022 18:49:51

11N40MIMO_Ant1_5230

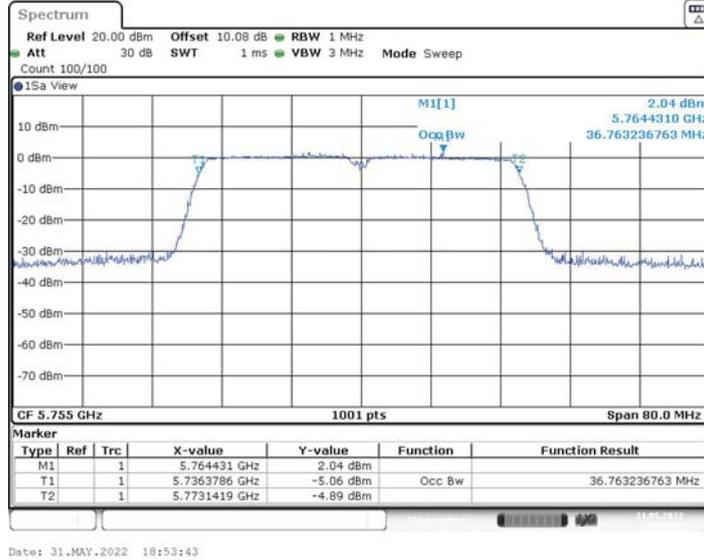


Date: 31.MAY.2022 18:51:26

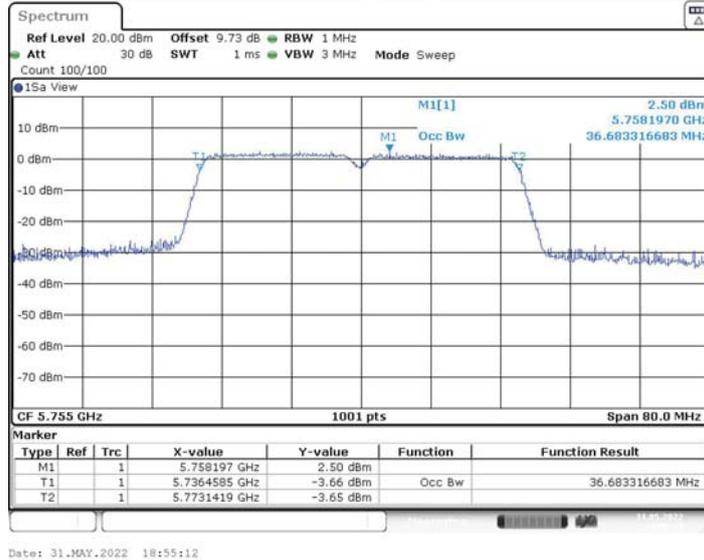
11N40MIMO_Ant2_5230



11N40MIMO_Ant1_5755

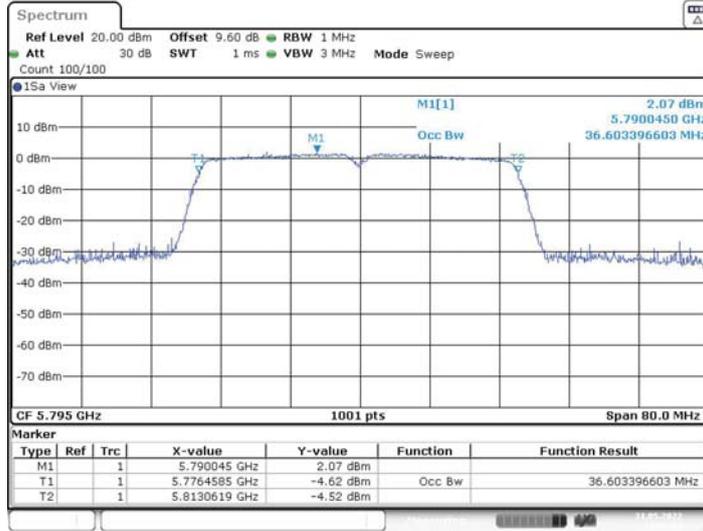


11N40MIMO_Ant2_5755



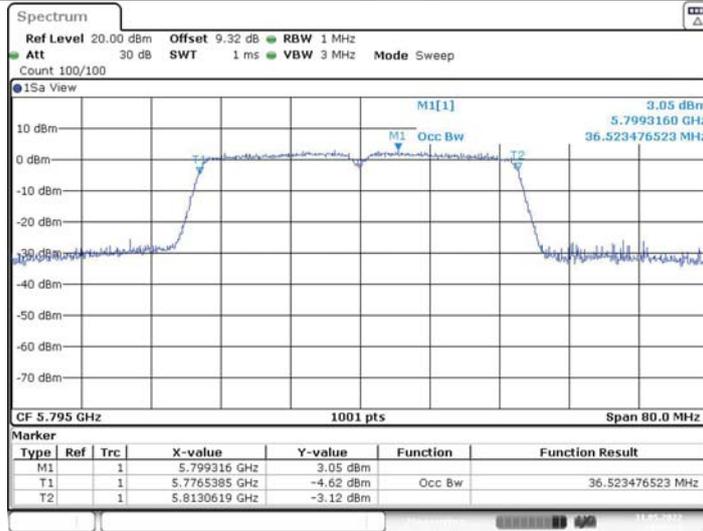


11N40MIMO_Ant1_5795



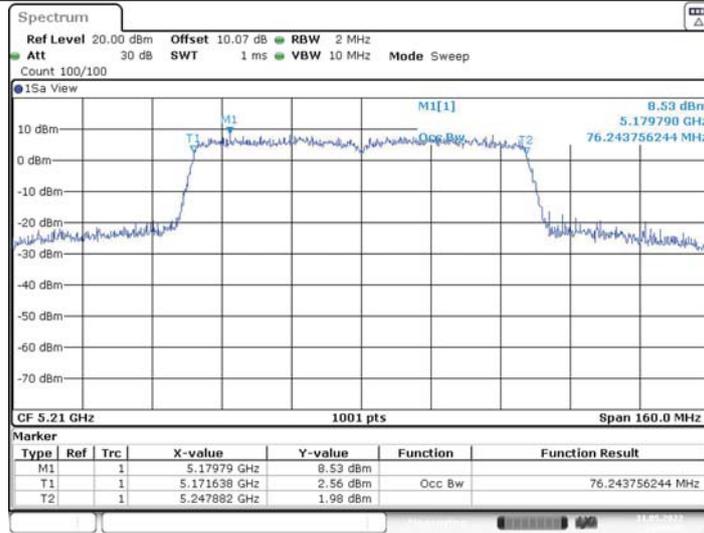
Date: 31.MAY.2022 18:56:53

11N40MIMO_Ant2_5795



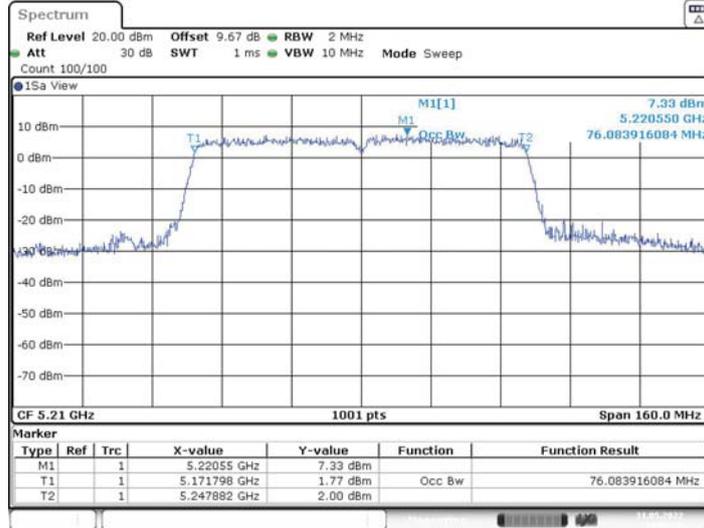
Date: 31.MAY.2022 18:58:24

11AC80MIMO_Ant1_5210



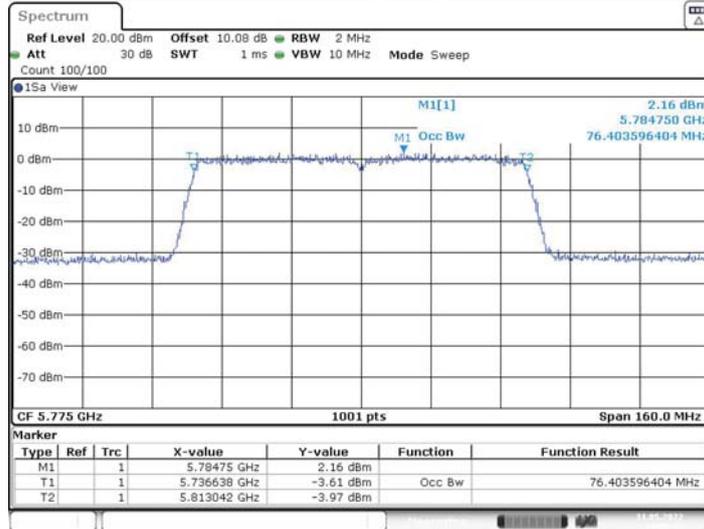
Date: 31.MAY.2022 18:59:46

11AC80MIMO_Ant2_5210



Date: 31.MAY.2022 19:02:16

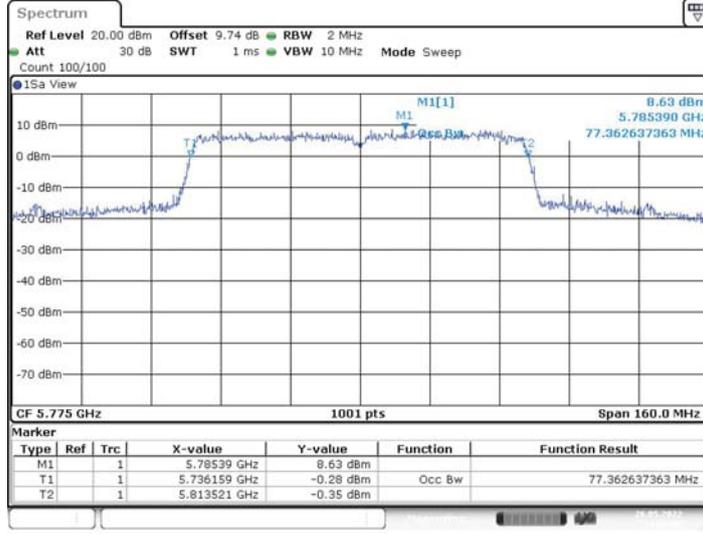
11AC80MIMO_Ant1_5775



Date: 31.MAY.2022 19:05:12



11AC80MIMO_Ant2_5775



Date: 26.MAY.2022 11:37:06



5.4 Appendix D: TRANSMIT POWER MEASUREMENT

5.4.1 Test Result

Test Mode	Antenna	Frequency[MHz]	Conducted Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11A	Ant1	5180	12.76	24.00	4.19	16.95	23.00	PASS
	Ant2	5180	11.88	24.00	5.38	17.26	23.00	PASS
	Ant1	5220	12.67	24.00	4.19	16.86	23.00	PASS
	Ant2	5220	12.07	24.00	5.38	17.45	23.00	PASS
	Ant1	5240	12.77	24.00	4.19	16.96	23.00	PASS
	Ant2	5240	12.16	24.00	5.38	17.54	23.00	PASS
	Ant1	5745	7.85	30.00	3.10	10.95	---	PASS
	Ant2	5745	7.46	30.00	3.89	11.35	---	PASS
	Ant1	5785	8.62	30.00	3.10	11.72	---	PASS
	Ant2	5785	8.19	30.00	3.89	12.08	---	PASS
	Ant1	5825	9.50	30.00	3.10	12.60	---	PASS
Ant2	5825	8.86	30.00	3.89	12.75	---	PASS	
11N20MIMO	Ant1	5180	10.69	22.19	4.19	14.88	21.19	PASS
	Ant2	5180	10.72	22.19	5.38	16.10	21.19	PASS
	total	5180	13.72	22.19	---	18.54	21.19	PASS
	Ant1	5220	10.65	22.19	4.19	14.84	21.19	PASS
	Ant2	5220	10.76	22.19	5.38	16.14	21.19	PASS
	total	5220	13.72	22.19	---	18.55	21.19	PASS
	Ant1	5240	11.02	22.19	4.19	15.21	21.19	PASS
	Ant2	5240	10.70	22.19	5.38	16.08	21.19	PASS
	total	5240	13.87	22.19	---	18.68	21.19	PASS
	Ant1	5745	8.73	29.49	3.10	11.83	---	PASS
	Ant2	5745	8.09	29.49	3.89	11.98	---	PASS
	total	5745	11.43	29.49	---	14.92	---	PASS
	Ant1	5785	9.05	29.49	3.10	12.15	---	PASS
	Ant2	5785	8.38	29.49	3.89	12.27	---	PASS
	total	5785	11.74	29.49	---	15.22	---	PASS
	Ant1	5825	9.56	29.49	3.10	12.66	---	PASS
	Ant2	5825	8.68	29.49	3.89	12.57	---	PASS
	total	5825	12.15	29.49	---	15.63	---	PASS
11N40MIMO	Ant1	5190	7.32	22.19	4.19	11.51	21.19	PASS
	Ant2	5190	7.28	22.19	5.38	12.66	21.19	PASS
	total	5190	10.31	22.19	---	15.13	21.19	PASS
	Ant1	5230	7.05	22.19	4.19	11.24	21.19	PASS
	Ant2	5230	7.04	22.19	5.38	12.42	21.19	PASS
	total	5230	10.06	22.19	---	14.88	21.19	PASS
	Ant1	5755	7.58	29.49	3.10	10.68	---	PASS
	Ant2	5755	7.60	29.49	3.89	11.49	---	PASS
	total	5755	10.60	29.49	---	14.11	---	PASS
	Ant1	5795	7.98	29.49	3.10	11.08	---	PASS
	Ant2	5795	7.94	29.49	3.89	11.83	---	PASS
	total	5795	10.97	29.49	---	14.48	---	PASS
11AC80MIMO	Ant1	5210	12.43	22.19	4.19	16.62	21.19	PASS
	Ant2	5210	11.71	22.19	5.38	17.09	21.19	PASS
	total	5210	15.10	22.19	---	19.87	21.19	PASS
	Ant1	5775	6.57	29.49	3.10	9.67	---	PASS
	Ant2	5775	6.86	29.49	3.89	10.75	---	PASS
	total	5775	9.73	29.49	---	13.25	---	PASS



NOTE:

Operation Band	Chain 0 Antenna Gain(dBi)	Chain 1 Antenna Gain(dBi)	DG For Power (dBi)	Power Limit Reduction
U-NII-1	4.19	5.38	7.81	1.81
U-NII-3	3.10	3.89	6.51	0.51

Refer to KDB662911 D01 Multiple Transmitter Output v02r01.

d) *Unequal antenna gains, with equal transmit powers.* For antenna gains given by G_1, G_2, \dots, G_N dBi

(i) If transmit signals are *correlated*, then

Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

(ii) If all transmit signals are *completely uncorrelated*, then

Directional gain = $10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10}) / N_{ANT}]$ dBi



5.5 Appendix E: POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 Test Result

TestMode	Antenna	Frequency[MHz]	PSD [dBm/MHz]	PSD Limit[dBm/MHz]	Gain [dBi]	EIRP.PSD [dBm/MHz]	EIRP.PSD Limit [dBm/MHz]	Verdict
11A	Ant1	5180	2.59	9.19	4.19	6.78	10	PASS
	Ant2	5180	1.7	9.19	5.38	7.08	10	PASS
	Ant1	5220	2.32	9.19	4.19	6.51	10	PASS
	Ant2	5220	1.74	9.19	5.38	7.12	10	PASS
	Ant1	5240	2.54	9.19	4.19	6.73	10	PASS
	Ant2	5240	1.82	9.19	5.38	7.2	10	PASS
	Ant1	5745	-5.14	29.49	---	---	---	PASS
	Ant2	5745	-5.29	29.49	---	---	---	PASS
	Ant1	5785	-4.43	29.49	---	---	---	PASS
	Ant2	5785	-4.87	29.49	---	---	---	PASS
	Ant1	5825	-3.56	29.49	---	---	---	PASS
Ant2	5825	-4.32	29.49	---	---	---	PASS	
11N20MIMO	Ant1	5180	0.12	9.19	4.19	4.31	8.19	PASS
	Ant2	5180	0.31	9.19	5.38	5.69	8.19	PASS
	total	5180	3.23	9.19	---	8.06	8.19	PASS
	Ant1	5220	-0.08	9.19	4.19	4.11	8.19	PASS
	Ant2	5220	0.1	9.19	5.38	5.48	8.19	PASS
	total	5220	3.02	9.19	---	7.86	8.19	PASS
	Ant1	5240	0.41	9.19	4.19	4.6	8.19	PASS
	Ant2	5240	0.2	9.19	5.38	5.58	8.19	PASS
	total	5240	3.32	9.19	---	8.13	8.19	PASS
	Ant1	5745	-4.64	29.49	---	---	---	PASS
	Ant2	5745	-5.16	29.49	---	---	---	PASS
	total	5745	-1.88	29.49	---	---	---	PASS
	Ant1	5785	-4.13	29.49	---	---	---	PASS
	Ant2	5785	-4.85	29.49	---	---	---	PASS
	total	5785	-1.46	29.49	---	---	---	PASS
	Ant1	5825	-3.64	29.49	---	---	---	PASS
	Ant2	5825	-4.57	29.49	---	---	---	PASS
	total	5825	-1.07	29.49	---	---	---	PASS
11N40MIMO	Ant1	5190	-7.28	9.19	4.19	-3.09	8.19	PASS
	Ant2	5190	-7.22	9.19	5.38	-1.84	8.19	PASS
	total	5190	-4.24	9.19	---	0.59	8.19	PASS
	Ant1	5230	-7.27	9.19	4.19	-3.08	8.19	PASS
	Ant2	5230	-7.79	9.19	5.38	-2.41	8.19	PASS
	total	5230	-4.51	9.19	---	0.28	8.19	PASS
	Ant1	5755	-10.26	29.49	---	---	---	PASS
	Ant2	5755	-9.99	29.49	---	---	---	PASS
	total	5755	-7.11	29.49	---	---	---	PASS
	Ant1	5795	-9.84	29.49	---	---	---	PASS
	Ant2	5795	-9.57	29.49	---	---	---	PASS
	total	5795	-6.69	29.49	---	---	---	PASS
11AC80MIMO	Ant1	5210	-5.36	9.19	4.19	-1.17	8.19	PASS
	Ant2	5210	-5.91	9.19	5.38	-0.53	8.19	PASS
	total	5210	-2.62	9.19	---	2.17	8.19	PASS
	Ant1	5775	-13.87	29.49	---	---	---	PASS
	Ant2	5775	-13.75	29.49	---	---	---	PASS
	total	5775	-10.8	29.49	---	---	---	PASS



Note : 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

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

Operation Band	Chain 0 Antenna Gain(dBi)	Chain 1 Antenna Gain(dBi)	DG For Power (dBi)	Power Limit Reduction
U-NII-1	4.19	5.38	7.81	1.81
U-NII-3	3.10	3.89	6.51	0.51

Refer to KDB662911 D01 Multiple Transmitter Output v02r01.

d) *Unequal antenna gains, with equal transmit powers.* For antenna gains given by G_1, G_2, \dots, G_N dBi

(i) If transmit signals are *correlated*, then

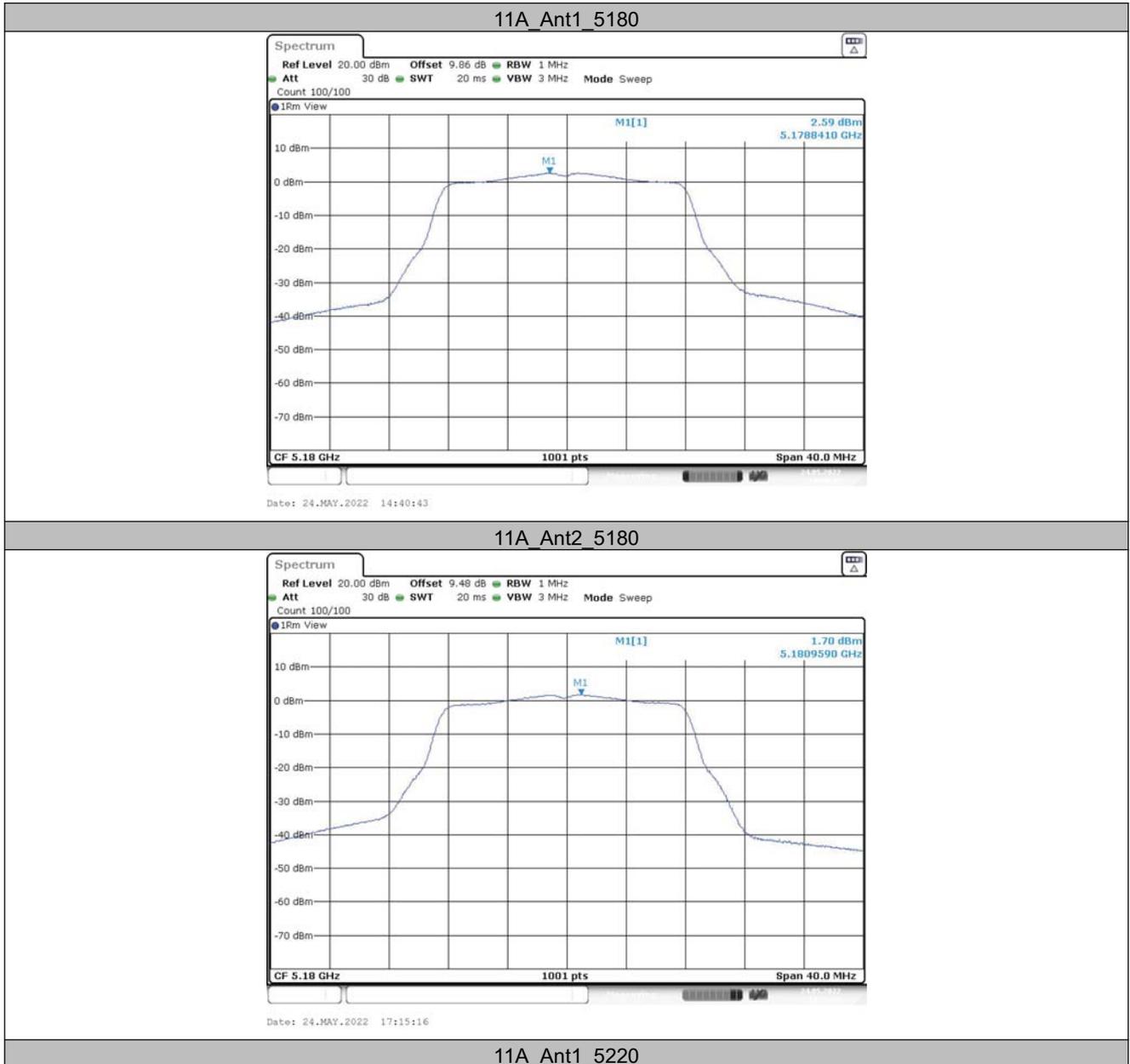
Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

(ii) If all transmit signals are *completely uncorrelated*, then

Directional gain = $10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10}) / N_{ANT}]$ dBi

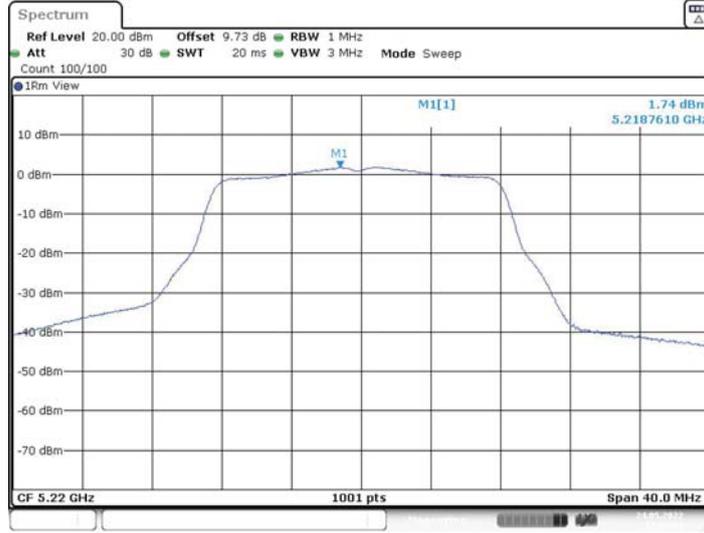


5.5.2 Test Graphs

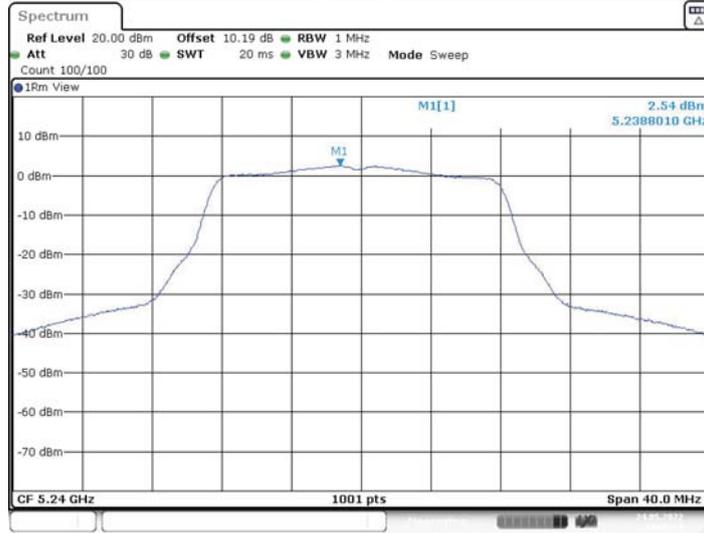




11A Ant2 5220

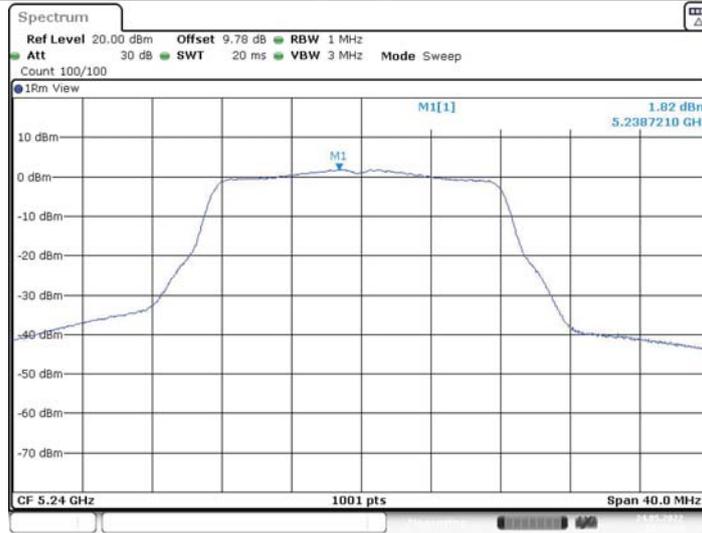


11A Ant1 5240





11A_Ant2_5240



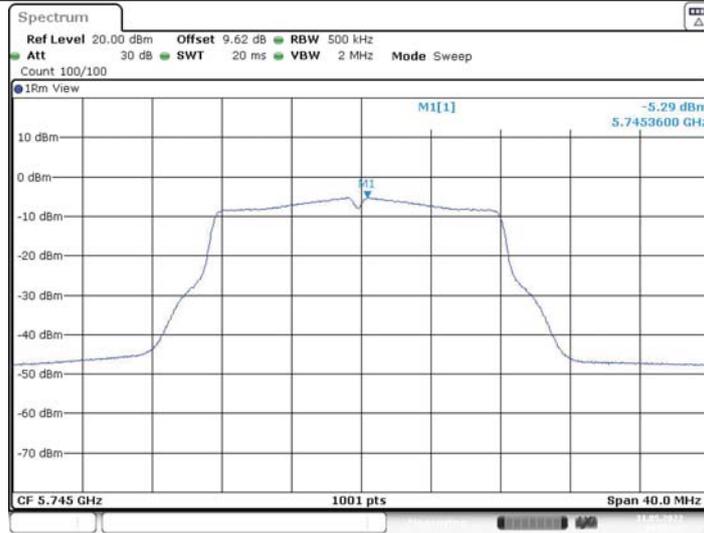
Date: 24.MAY.2022 17:19:14

11A_Ant1_5745



Date: 31.MAY.2022 19:11:01

11A_Ant2_5745



11A Ant1 5785

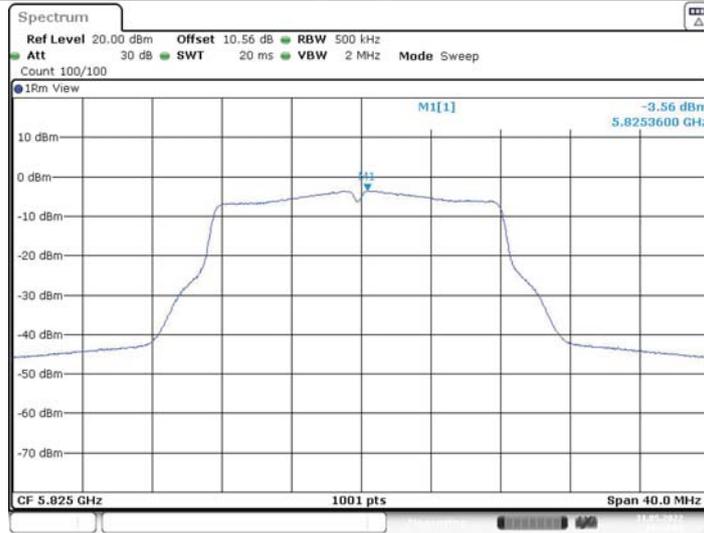


11A Ant2 5785





11A_Ant1_5825



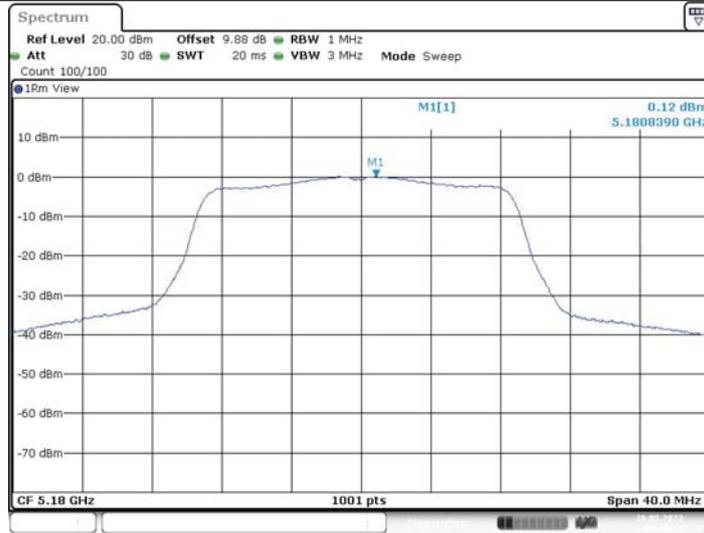
Date: 31.MAY.2022 19:14:02

11A_Ant2_5825

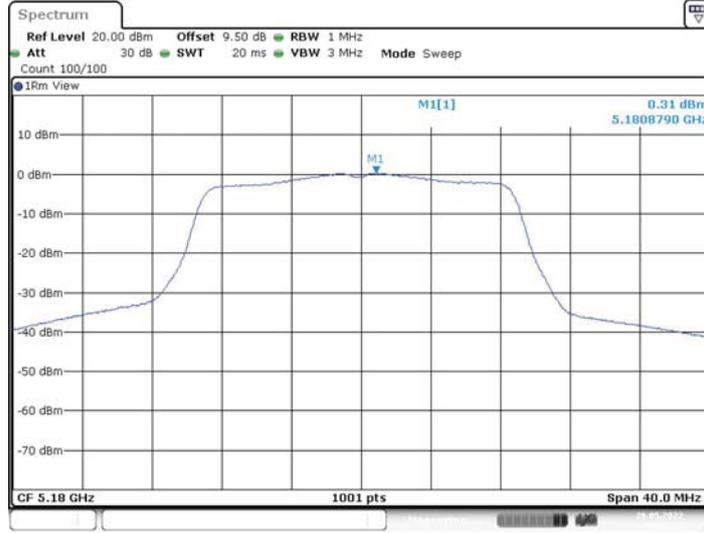


Date: 31.MAY.2022 19:19:32

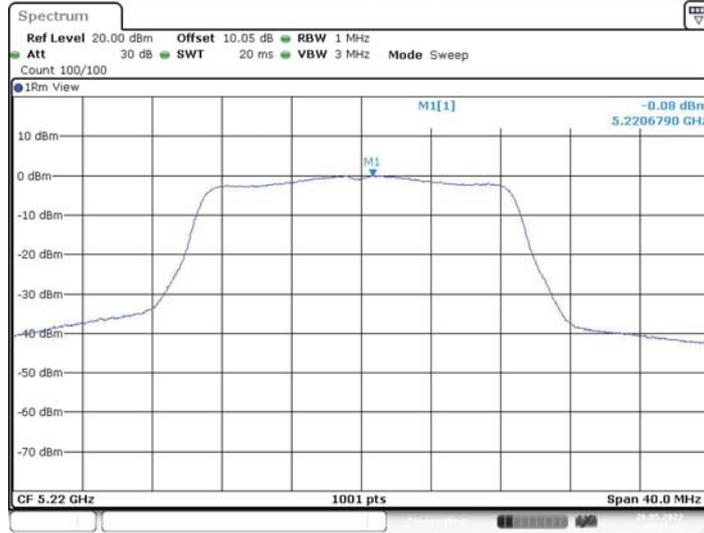
11N20MIMO_Ant1_5180



11N20MIMO_Ant2_5180

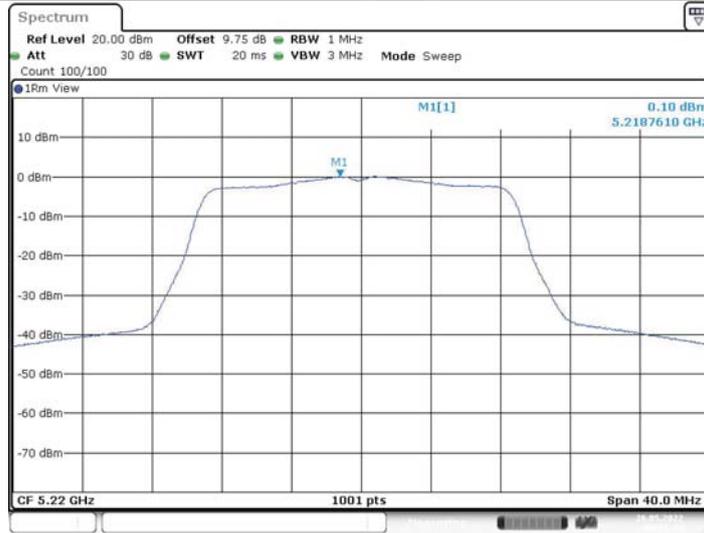


11N20MIMO_Ant1_5220





11N20MIMO_Ant2_5220



11N20MIMO_Ant1_5240



11N20MIMO_Ant2_5240



Date: 26.MAY.2022 09:26:14

11N20MIMO_Ant1_5745



Date: 2.JUN.2022 10:50:02

11N20MIMO_Ant2_5745



Date: 2.JUN.2022 10:51:24



11N20MIMO_Ant1_5785



Date: 2.JUN.2022 11:00:01

11N20MIMO_Ant2_5785



Date: 2.JUN.2022 11:01:27

11N20MIMO_Ant1_5825



Date: 6.JUN.2022 11:30:47

11N20MIMO_Ant2_5825



Date: 6.JUN.2022 11:31:44

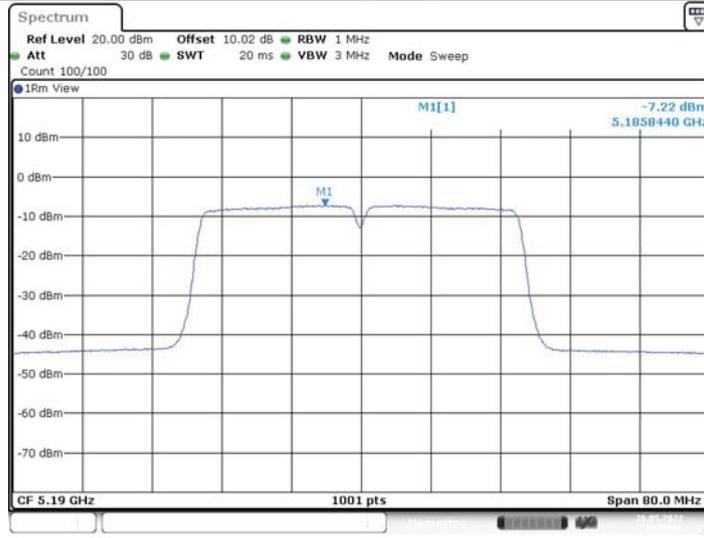
11N40MIMO_Ant1_5190



Date: 26.MAY.2022 10:37:28

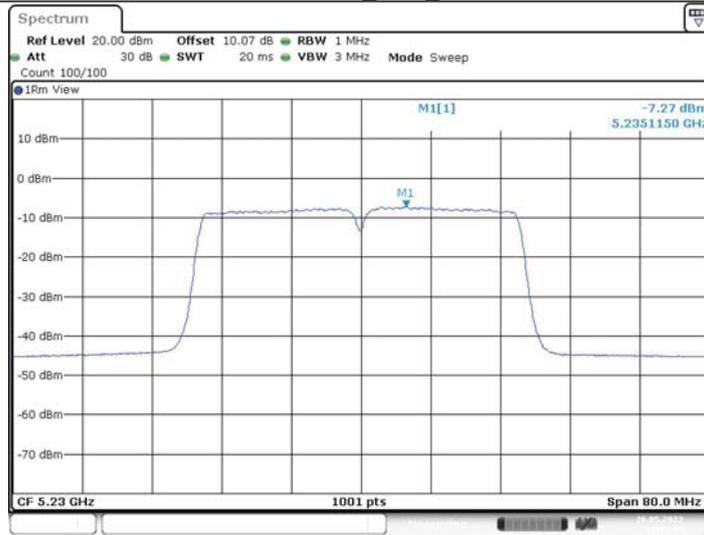


11N40MIMO_Ant2_5190



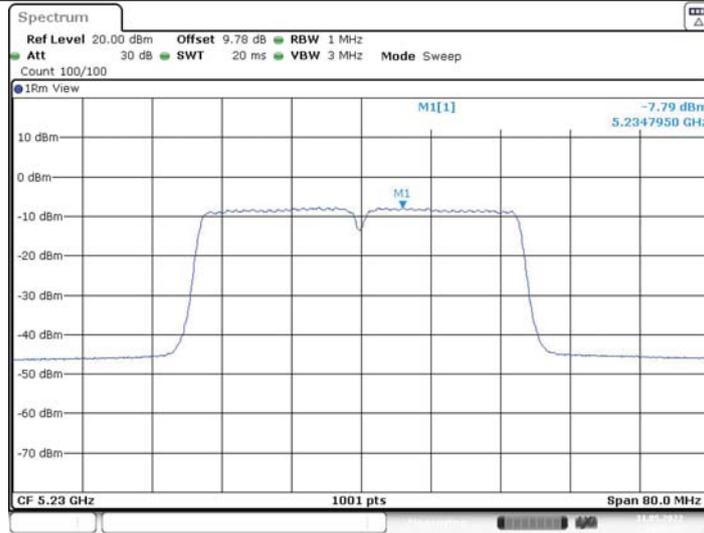
Date: 26.MAY.2022 10:39:00

11N40MIMO_Ant1_5230

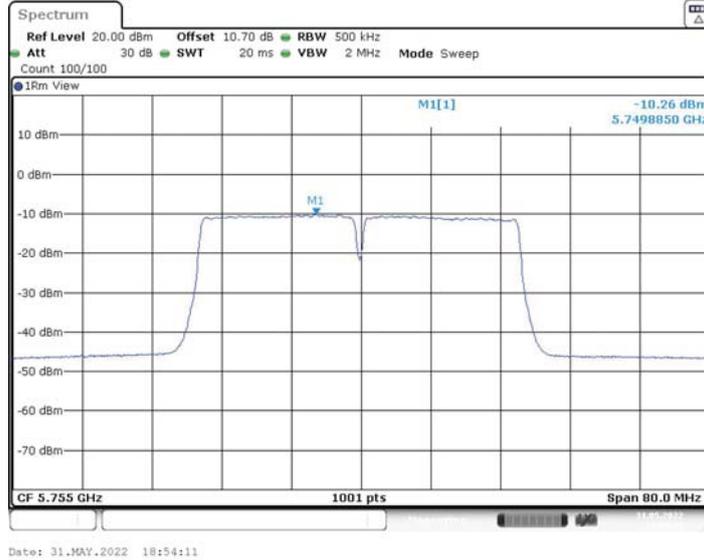


Date: 26.MAY.2022 10:41:44

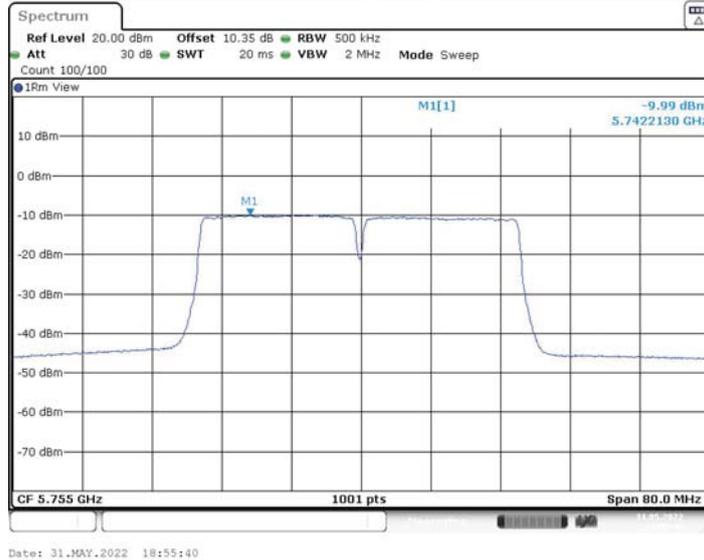
11N40MIMO_Ant2_5230



11N40MIMO_Ant1_5755

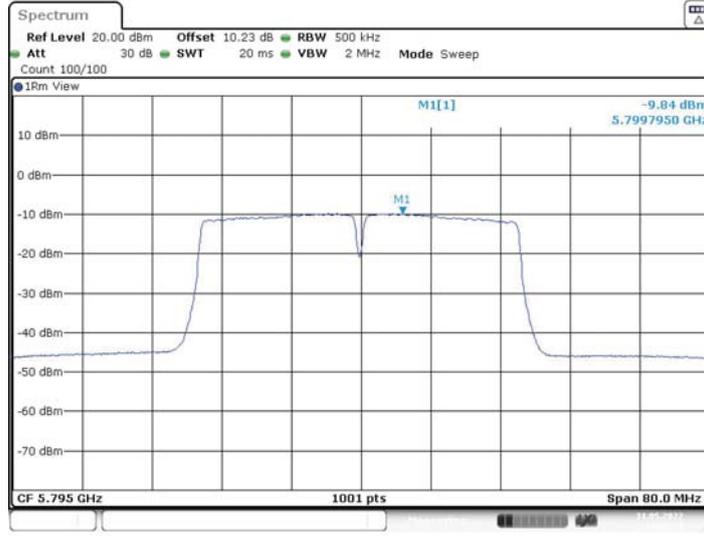


11N40MIMO_Ant2_5755





11N40MIMO_Ant1_5795



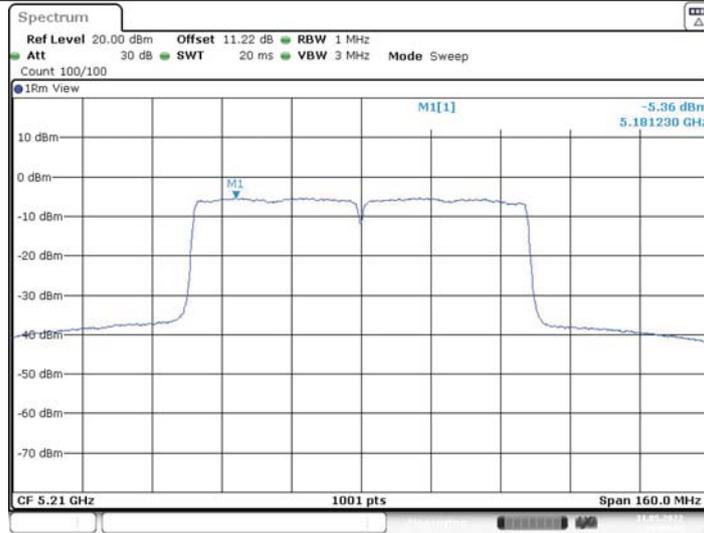
Date: 31.MAY.2022 18:57:22

11N40MIMO_Ant2_5795

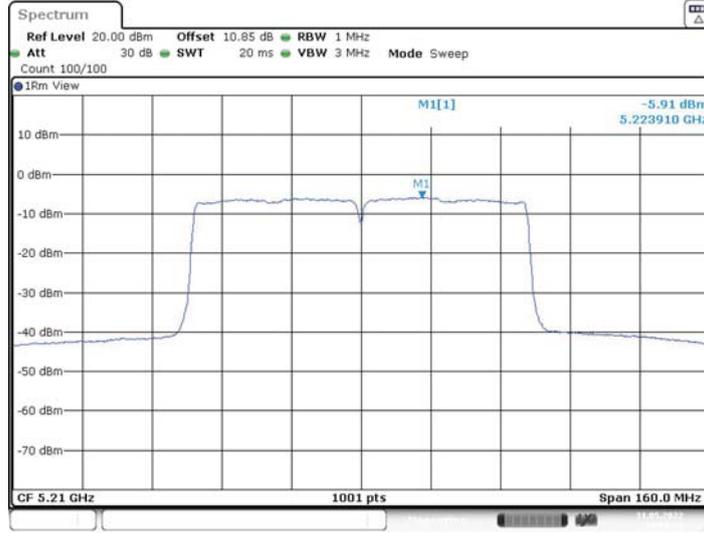


Date: 31.MAY.2022 18:58:52

11AC80MIMO_Ant1_5210

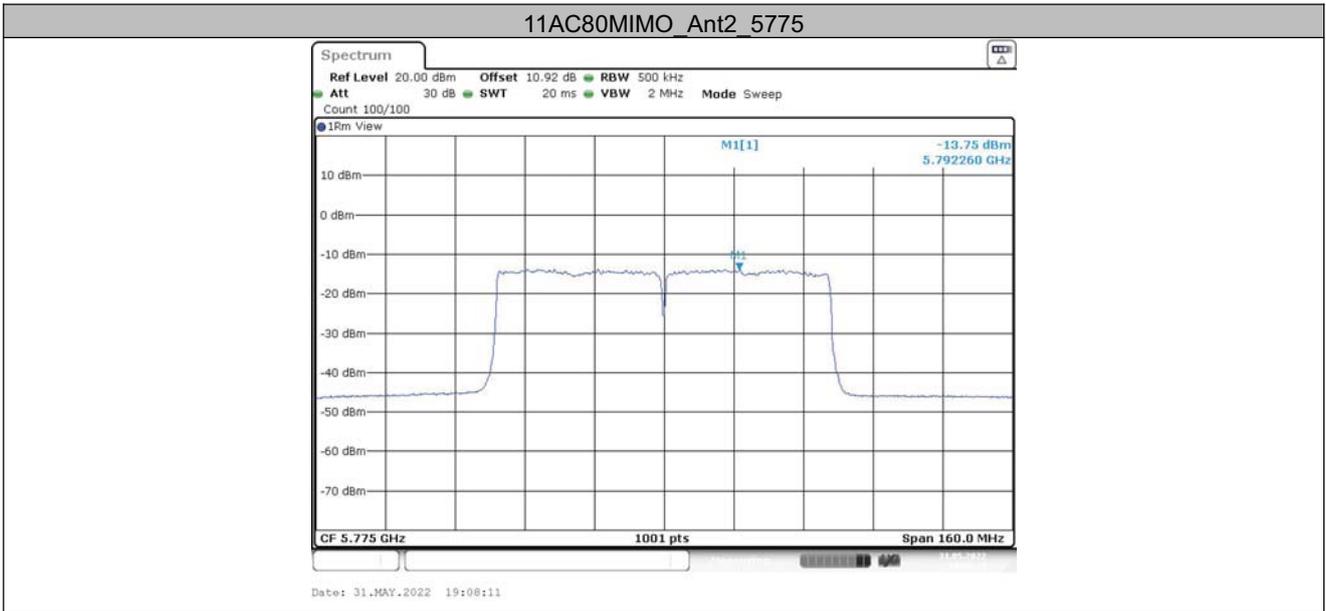


11AC80MIMO_Ant2_5210



11AC80MIMO_Ant1_5775







5.6 Appendix F: FREQUENCY STABILITY

5.6.1 Test Result

Voltage								
TestMode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-26002.60	-5.019807	20	PASS
			LV	NT	-44004.40	-8.495058	20	PASS
			HV	NT	-34003.40	-6.564363	20	PASS
	Ant2	5180	NV	NT	-30003.00	-5.792085	20	PASS
			LV	NT	-20002.00	-3.861390	20	PASS
			HV	NT	-40004.00	-7.722780	20	PASS

Temperature								
TestMode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	-30	-26002.60	-5.019807	20	PASS
			NV	-20	-44004.40	-8.495058	20	PASS
			NV	-10	-24002.40	-4.633668	20	PASS
			NV	0	-36003.60	-6.950502	20	PASS
			NV	10	-46004.60	-8.881197	20	PASS
			NV	20	-36003.60	-6.950502	20	PASS
			NV	30	-42004.20	-8.108919	20	PASS
			NV	40	-30003.00	-5.792085	20	PASS
	Ant2	5180	NV	50	-28002.80	-5.405946	20	PASS
			NV	-30	-46004.60	-8.881197	20	PASS
			NV	-20	-40004.00	-7.722780	20	PASS
			NV	-10	-36003.60	-6.950502	20	PASS
			NV	0	-34003.40	-6.564363	20	PASS
			NV	10	-40004.00	-7.722780	20	PASS
			NV	20	-42004.20	-8.108919	20	PASS
			NV	30	-48004.80	-9.267336	20	PASS
			NV	40	-36003.60	-6.950502	20	PASS
			NV	50	-54005.40	-10.425753	20	PASS
			NV	50	-180018.00	-34.486207	20	FAIL



Important

- (1) The test report is valid with the official seal of the laboratory and the signatures of Test engineer, Author and Reviewer simultaneously.
- (2) The test report is invalid if altered.
- (3) Any photocopies or part photocopies in the test report are forbidden without the written permission from the laboratory.
- (4) Objections to the test report must be submitted to the laboratory within 15 days.
- (5) Generally, commission test is responsible for the tested samples only.

Address of the laboratory:

CVC Testing Technology Co., Ltd.

Address: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China

Post Code: 510663 Tel: 020-32293888

FAX: 020-32293889 E-mail: office@cvc.org.cn