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Appendix for 5G WIFI

Applicant: Sonnoc (Beijing) Technology Co., Ltd.

Address: 806, 7th Floor, No 5, No 26, Huangsi Street, Xicheng District, 100120 Beijing, P.R. China

Model: SNP-LW3600W

FCC ID: 2AXBCSNP-LW3600W

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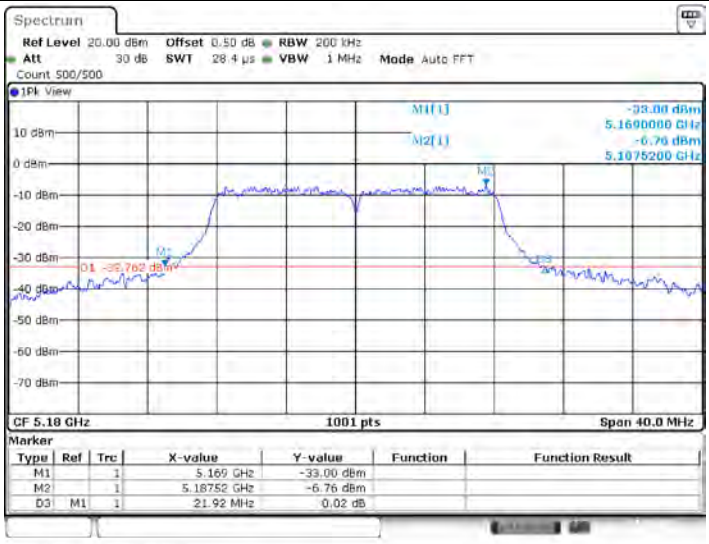
Appendix A1: Emission Bandwidth

Test Result

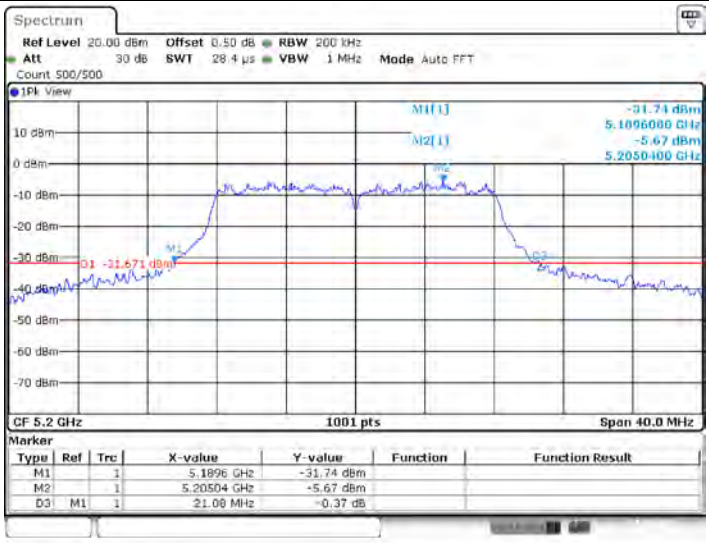
Test Mode	Channel	26db EBW [MHz]	F_L [MHz]	F_H [MHz]	Verdict
11A	5180	21.920	5169.000	5190.920	PASS
	5200	21.080	5189.600	5210.680	PASS
	5240	22.880	5228.440	5251.320	PASS
	5745	20.680	5734.560	5755.240	PASS
	5785	20.720	5774.400	5795.120	PASS
	5825	20.520	5814.720	5835.240	PASS
11N(HT20)	5180	22.360	5169.320	5191.680	PASS
	5200	21.840	5189.240	5211.080	PASS
	5240	21.480	5229.520	5251.000	PASS
	5745	21.280	5734.400	5755.680	PASS
	5785	21.320	5774.320	5795.640	PASS
	5825	21.760	5813.880	5835.640	PASS
11N(HT40)	5190	42.640	5168.880	5211.520	PASS
	5230	47.200	5209.360	5256.560	PASS
	5755	42.560	5733.720	5776.280	PASS
	5795	42.560	5774.120	5816.680	PASS
11AC(VHT20)	5180	22.160	5169.280	5191.440	PASS
	5200	23.640	5188.040	5211.680	PASS
	5240	21.760	5229.360	5251.120	PASS
	5745	21.480	5734.240	5755.720	PASS
	5785	21.120	5774.360	5795.480	PASS
	5825	21.240	5814.360	5835.600	PASS
11AC(VHT40)	5190	47.680	5168.000	5215.680	PASS
	5230	44.320	5209.040	5253.360	PASS
	5755	41.840	5734.040	5775.880	PASS
	5795	42.480	5773.560	5816.040	PASS
11AC(VHT80)	5210	81.280	5169.840	5251.120	PASS
	5775	80.160	5735.000	5815.160	PASS

Test Graphs

11A_Ant1_5180



11A_Ant1_5200



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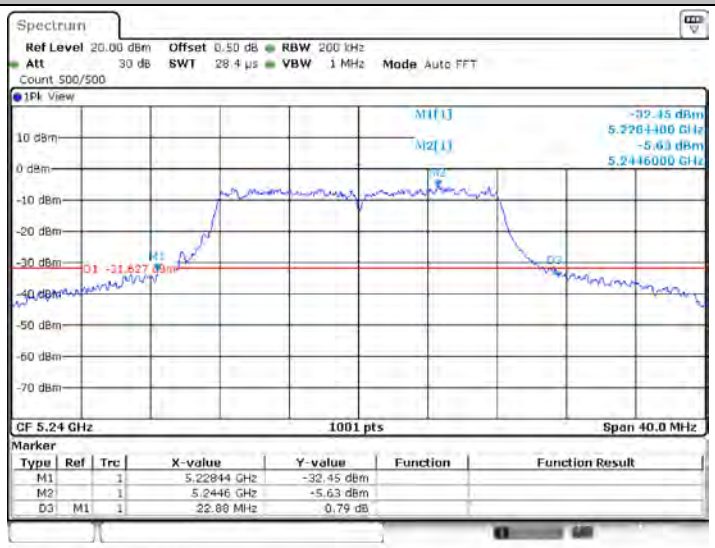
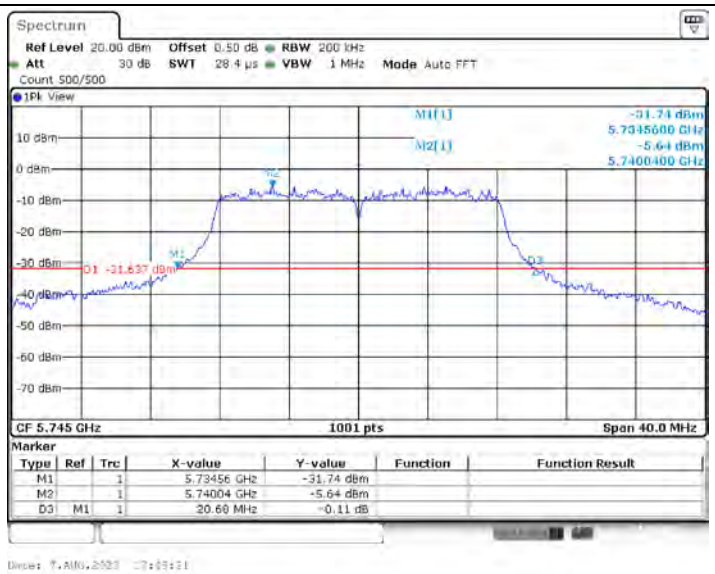


11A_Ant1_5745



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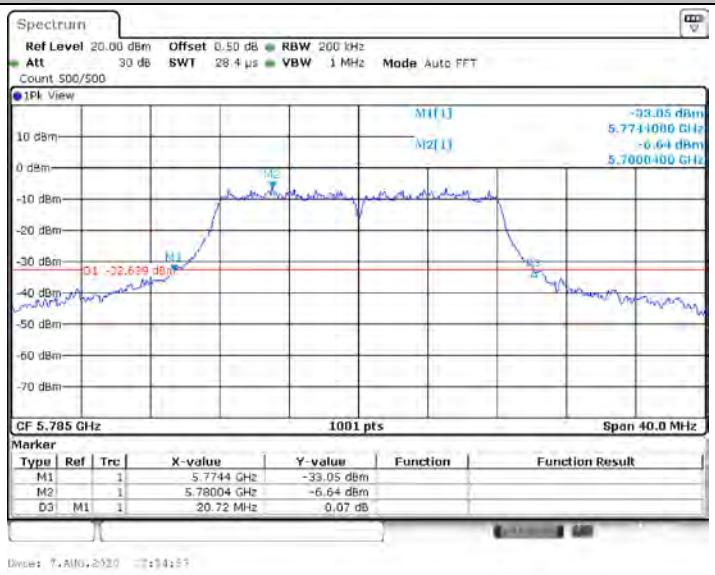

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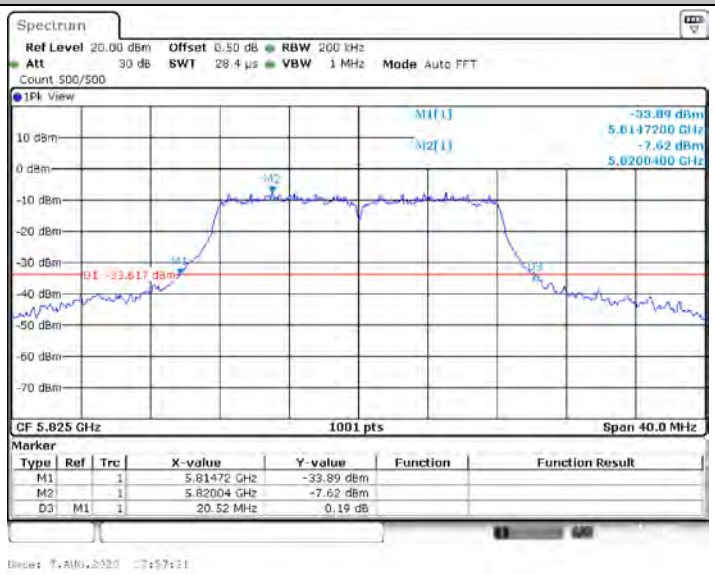

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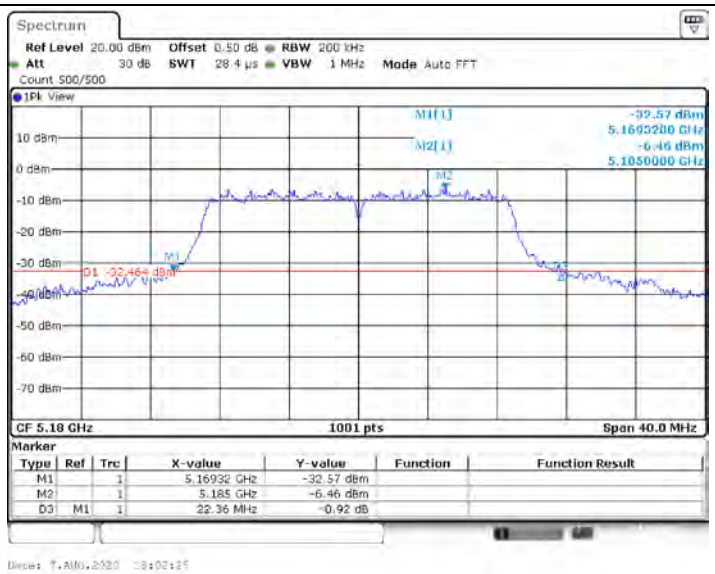

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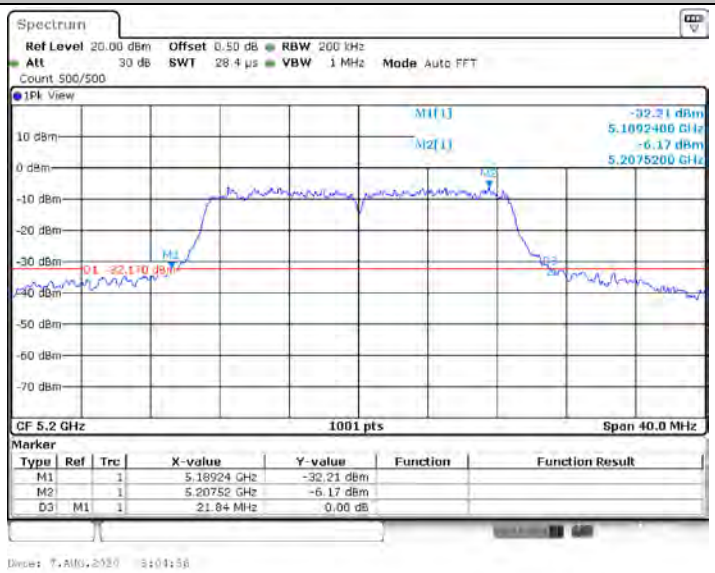

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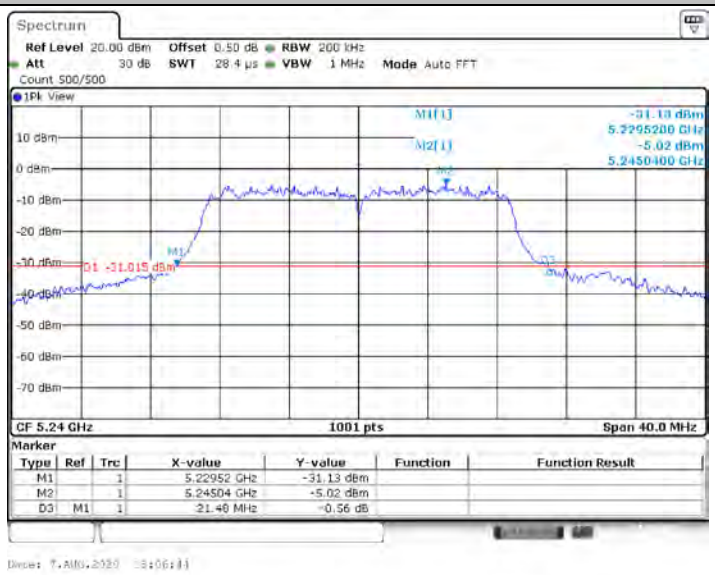

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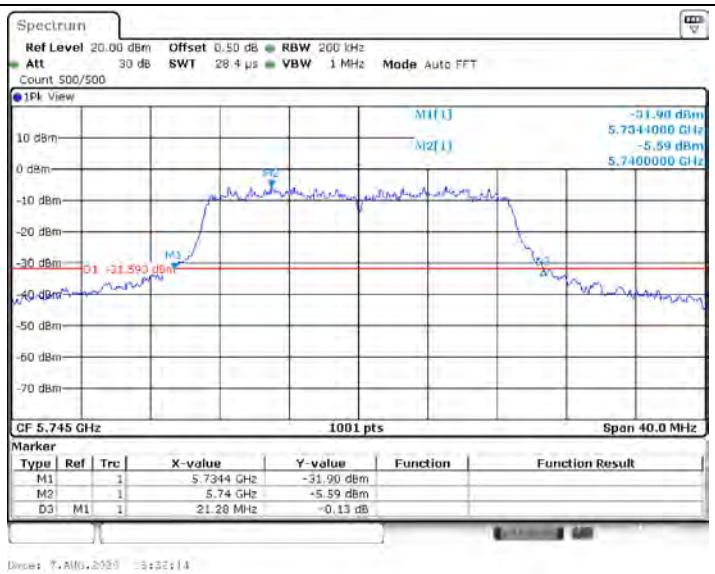

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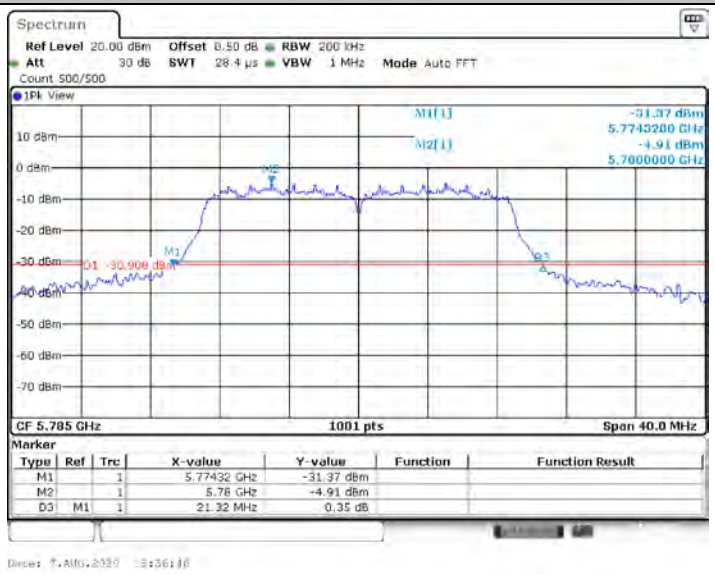

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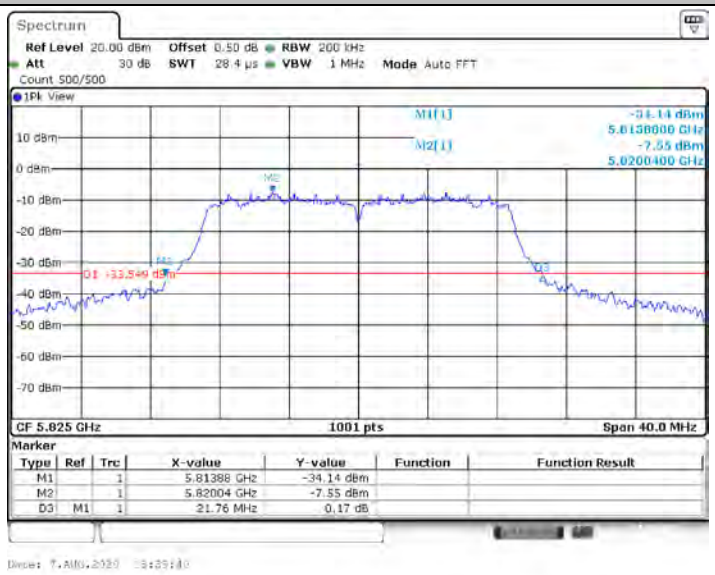

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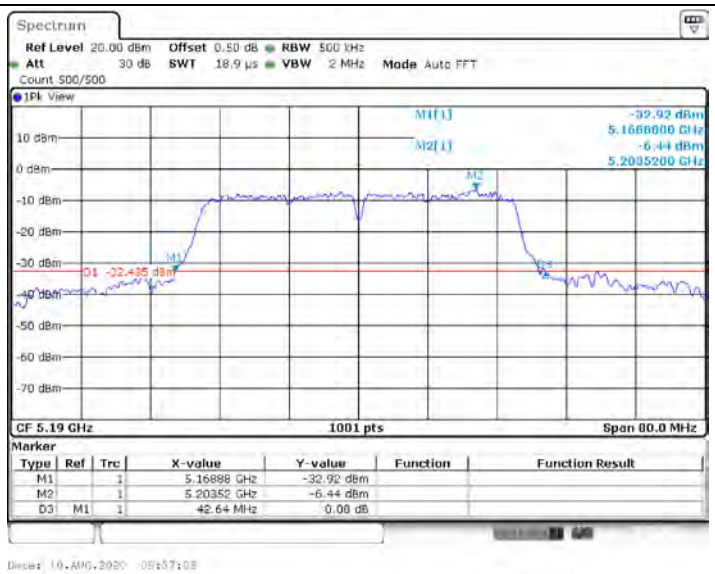

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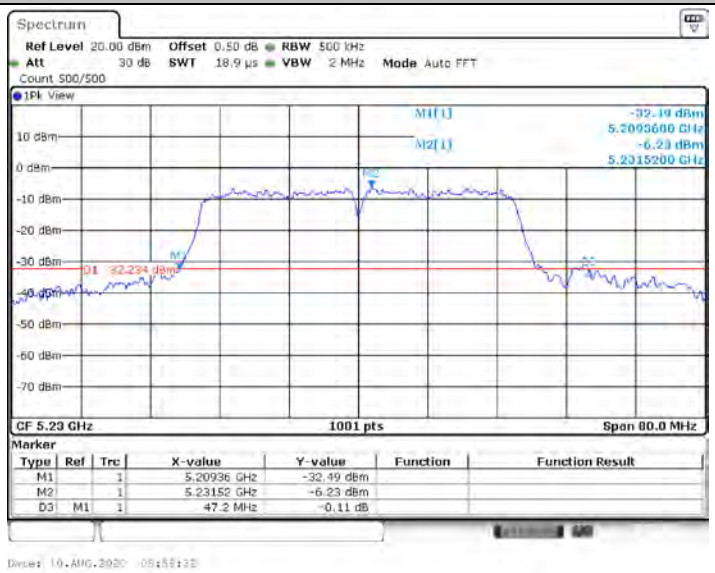

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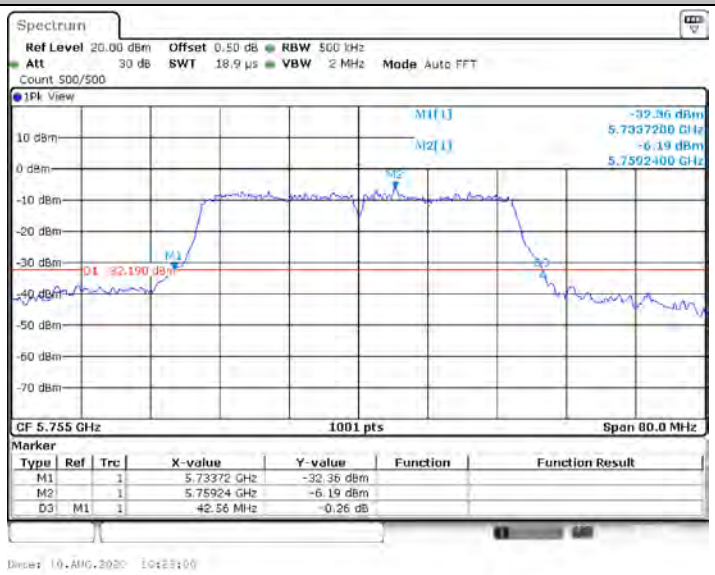

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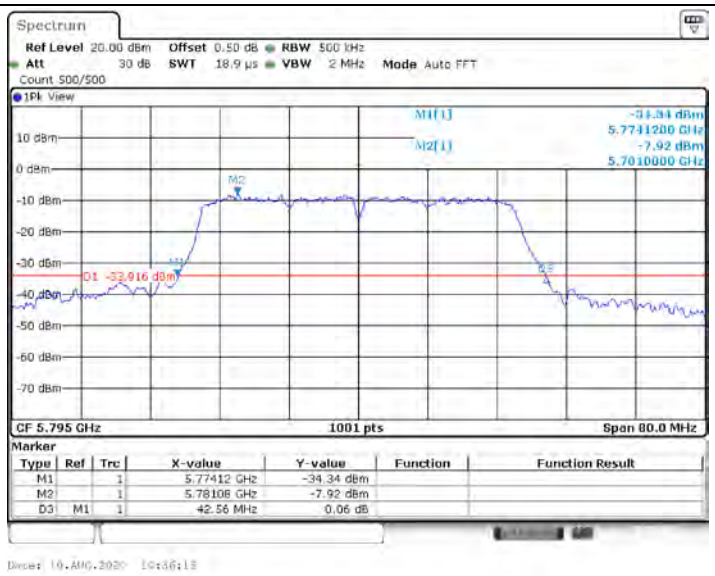

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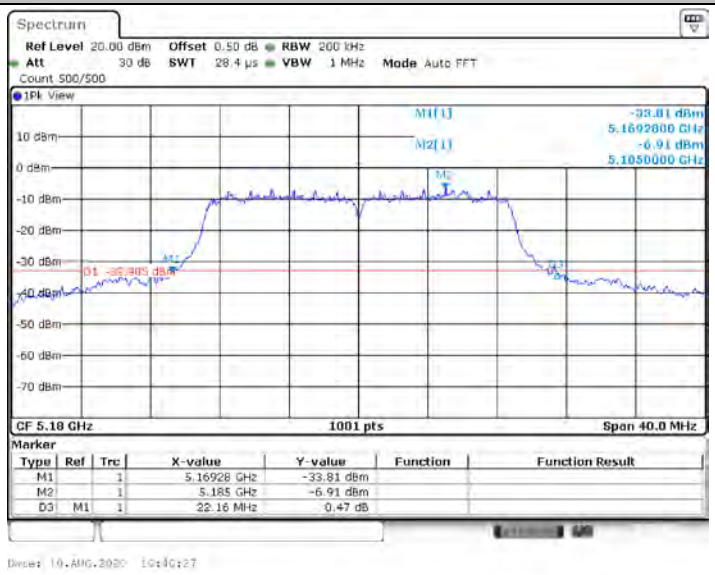

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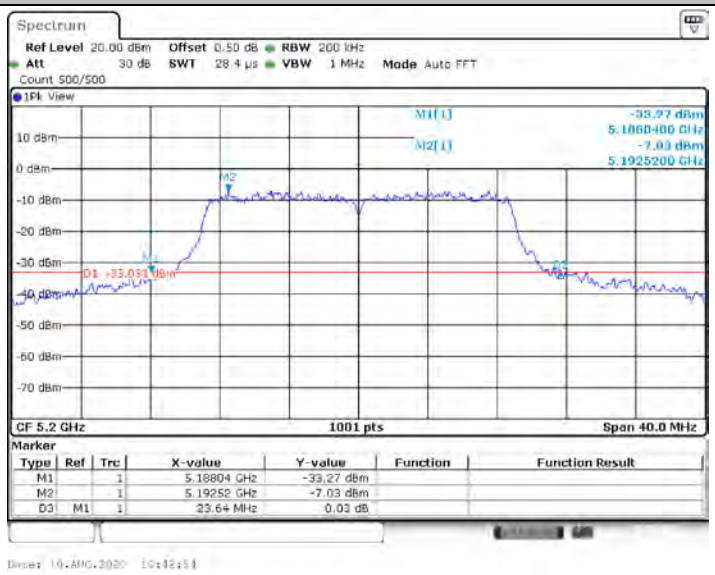

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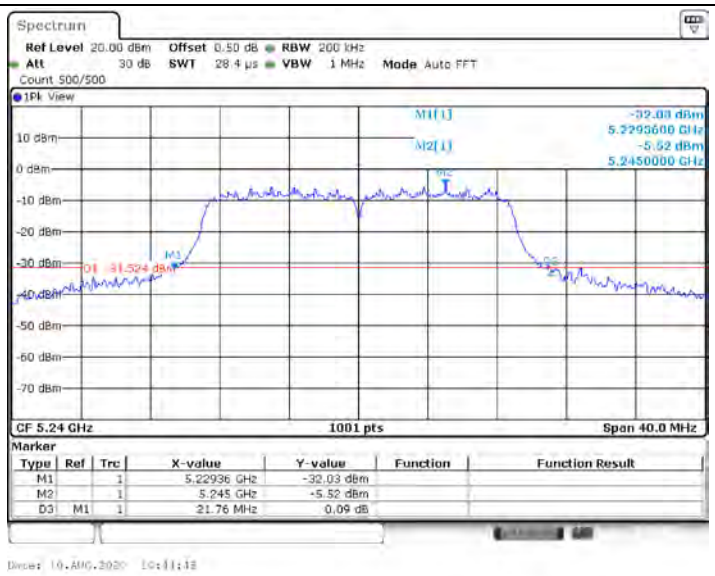

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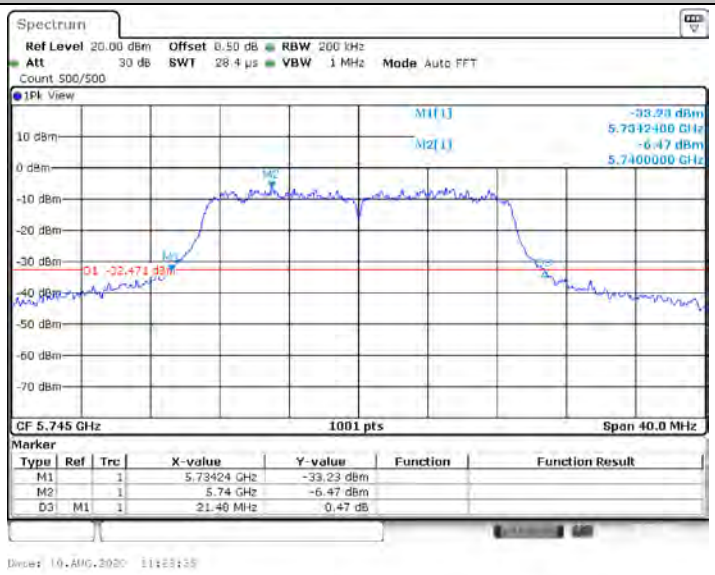

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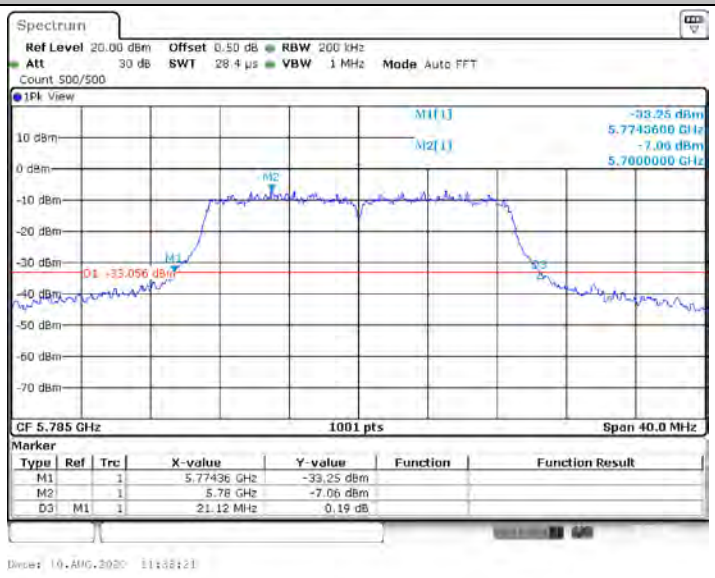
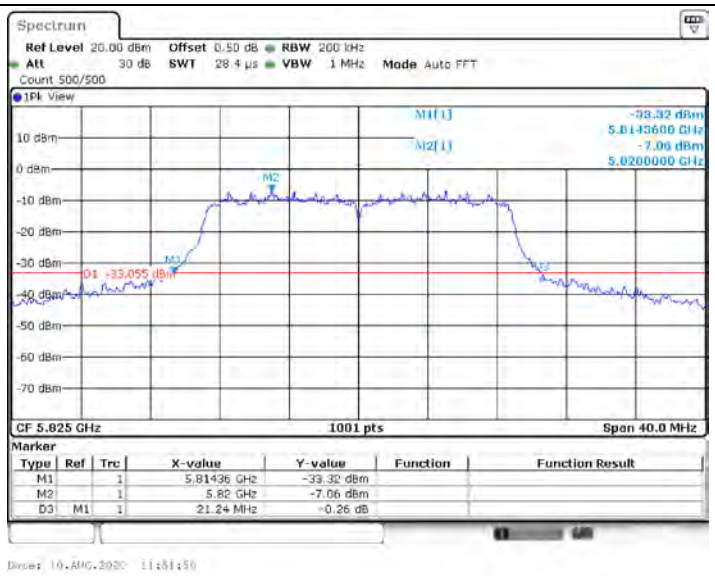
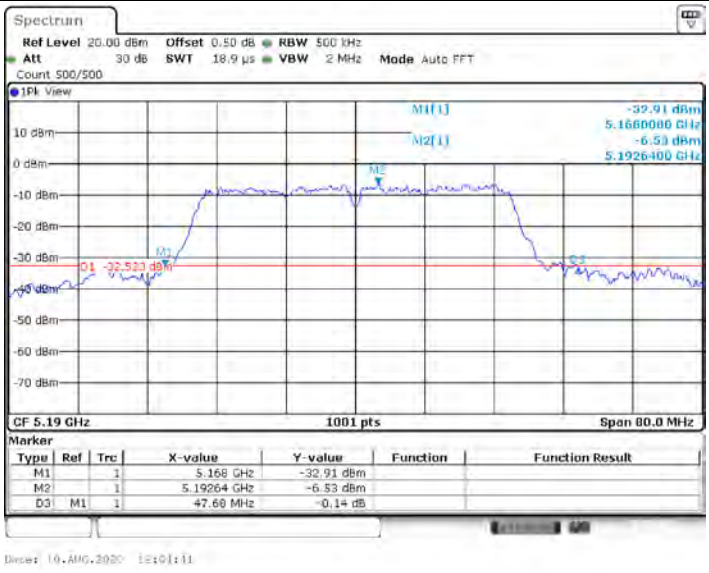


11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5190



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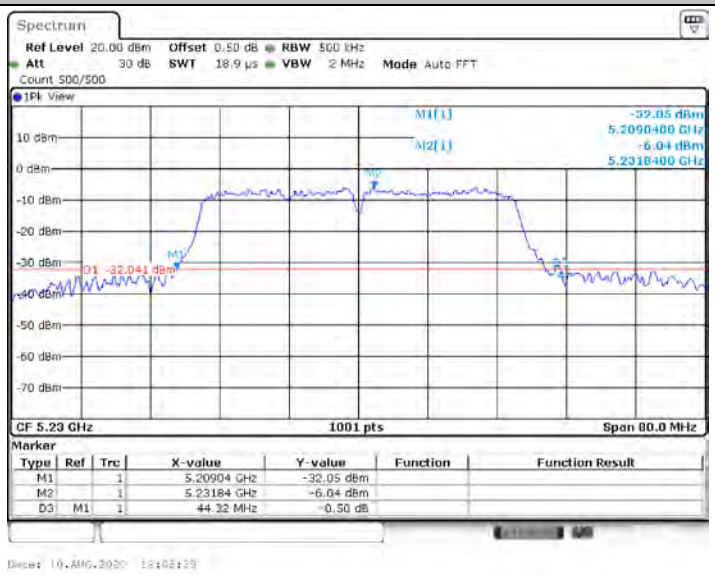
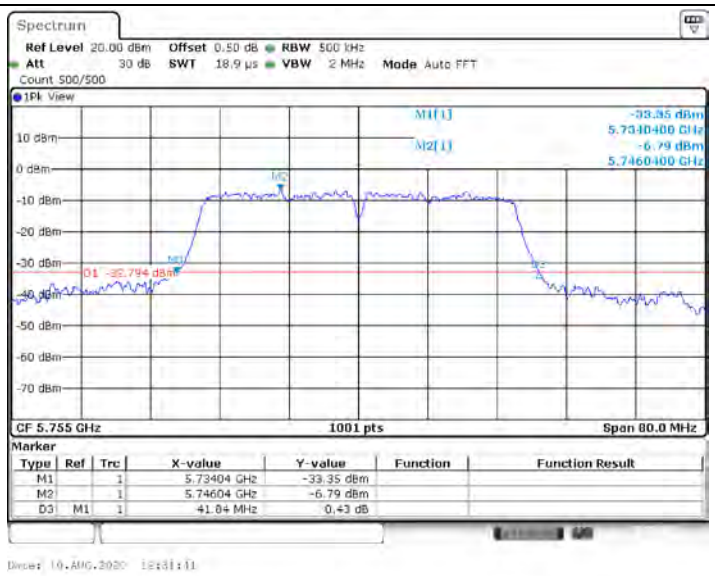
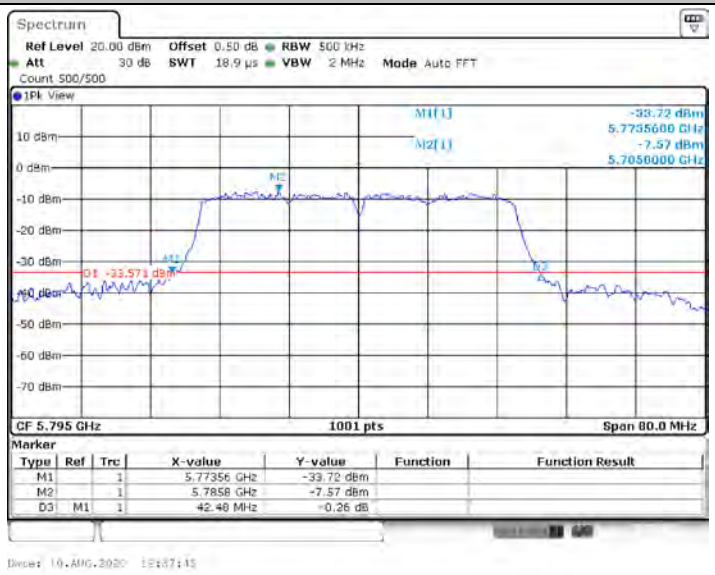


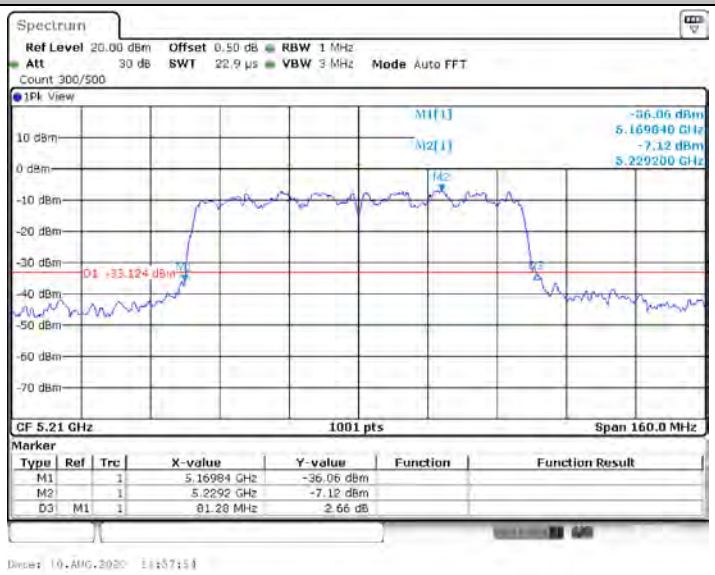
11AC40SISO_Ant1_5755



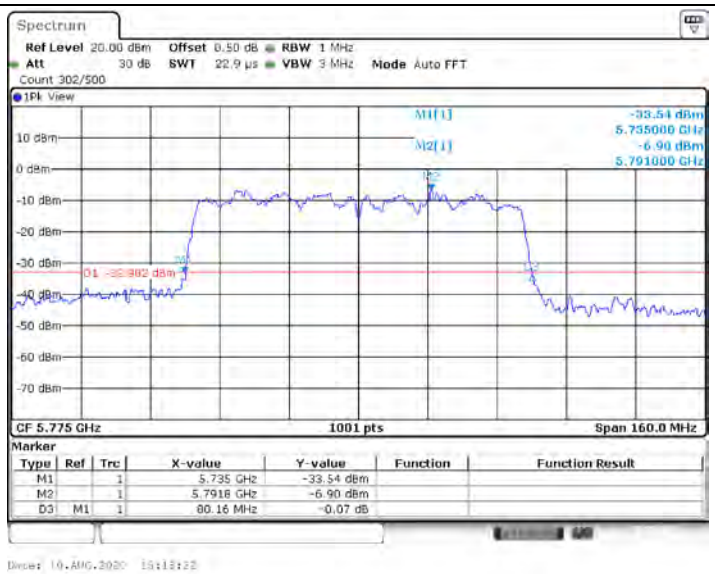
11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



11AC80SISO_Ant1_5775

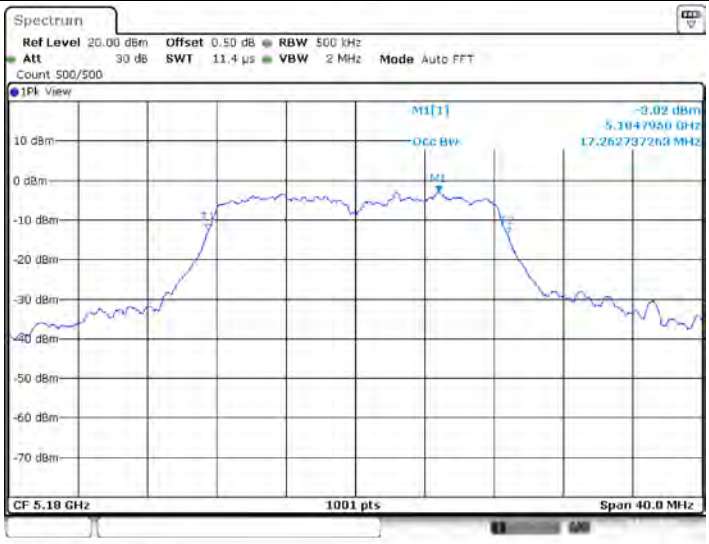
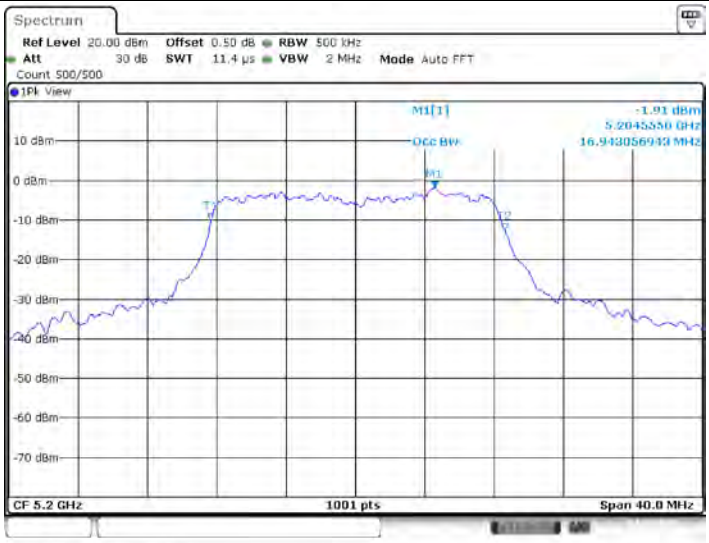

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 22.9 µs VBW 3 MHz Mode Auto FFT
Count 302/500
1Pk View
M1[1] -33.54 dBm 5.735000 GHz
M2[1] -6.90 dBm 5.791000 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
D1 -32.902 dBm
CF 5.775 GHz
1001 pts
Span 160.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.735 GHz -33.54 dBm
M2 1 5.7918 GHz -6.90 dBm
D3 M1 1 80.16 MHz -0.07 dB

Appendix A2: Occupied channel bandwidth

Test Result

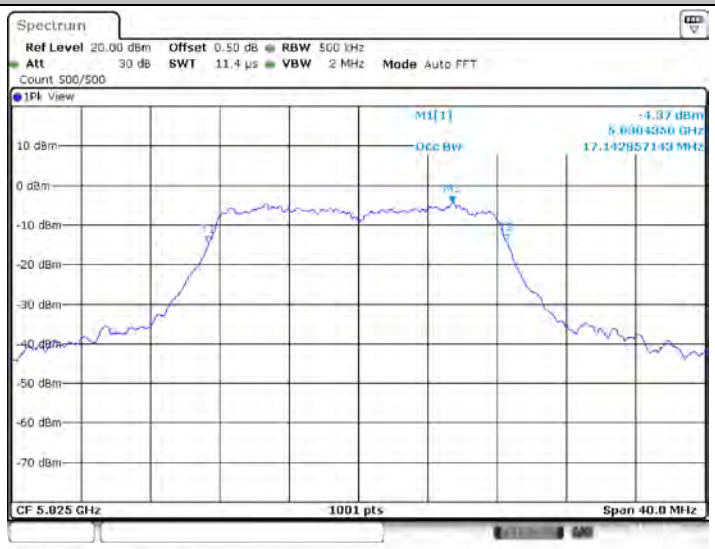
TestMode	Channel	OCB [MHz]	F_L [MHz]	F_H [MHz]	Verdict
11A	5180	17.263	5171.489	5188.751	PASS
	5200	16.943	5191.648	5208.591	PASS
	5240	17.303	5231.289	5248.591	PASS
	5745	17.263	5736.289	5753.551	PASS
	5785	17.183	5776.449	5793.631	PASS
	5825	17.143	5816.369	5833.511	PASS
11N(HT20)	5180	18.342	5170.849	5189.191	PASS
	5200	18.182	5190.969	5209.151	PASS
	5240	18.062	5230.969	5249.031	PASS
	5745	18.422	5735.849	5754.271	PASS
	5785	18.422	5775.729	5794.151	PASS
	5825	18.222	5815.809	5834.031	PASS
11N(HT40)	5190	36.683	5171.858	5208.541	PASS
	5230	36.444	5211.858	5248.302	PASS
	5755	36.284	5736.778	5773.062	PASS
	5795	36.444	5776.698	5813.142	PASS
11AC(VHT20)	5180	18.342	5170.889	5189.231	PASS
	5200	18.342	5190.889	5209.231	PASS
	5240	18.182	5230.969	5249.151	PASS
	5745	18.382	5735.729	5754.111	PASS
	5785	17.982	5775.929	5793.911	PASS
	5825	18.302	5815.809	5834.111	PASS
11AC(VHT40)	5190	36.364	5171.858	5208.222	PASS
	5230	36.763	5211.698	5248.462	PASS
	5755	36.444	5736.698	5773.142	PASS
	5795	37.083	5776.139	5813.222	PASS
11AC(VHT80)	5210	75.285	5172.438	5247.722	PASS
	5775	75.125	5737.278	5812.403	PASS

Test Graphs

11A_Ant1_5180

11A_Ant1_5200

11A_Ant1_5240
11A_Ant1_5745

11A_Ant1_5785

11A_Ant1_5825



11N20SISO_Ant1_5180

11N20SISO_Ant1_5200

11N20SISO_Ant1_5240

11N20SISO_Ant1_5745

11N20SISO_Ant1_5785

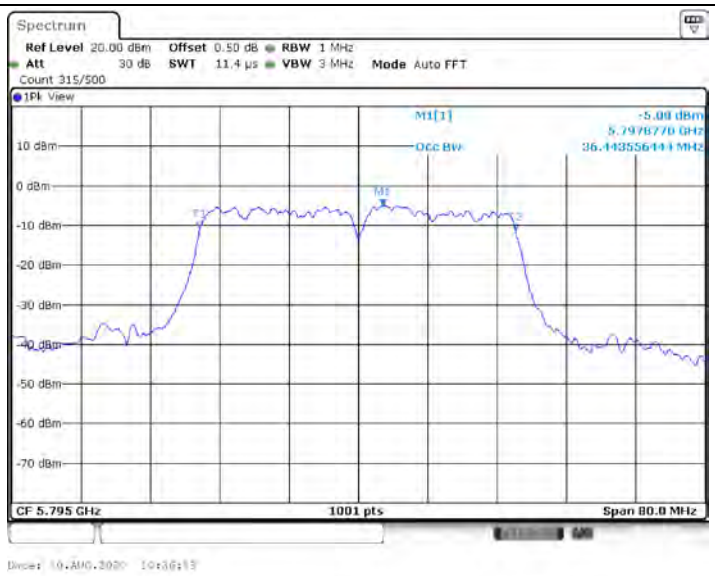
11N20SISO_Ant1_5825

11N40SISO_Ant1_5190

11N40SISO_Ant1_5230

11N40SISO_Ant1_5755

11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5200

11AC20SISO_Ant1_5240

11AC20SISO_Ant1_5745

11AC20SISO_Ant1_5785

11AC20SISO_Ant1_5825

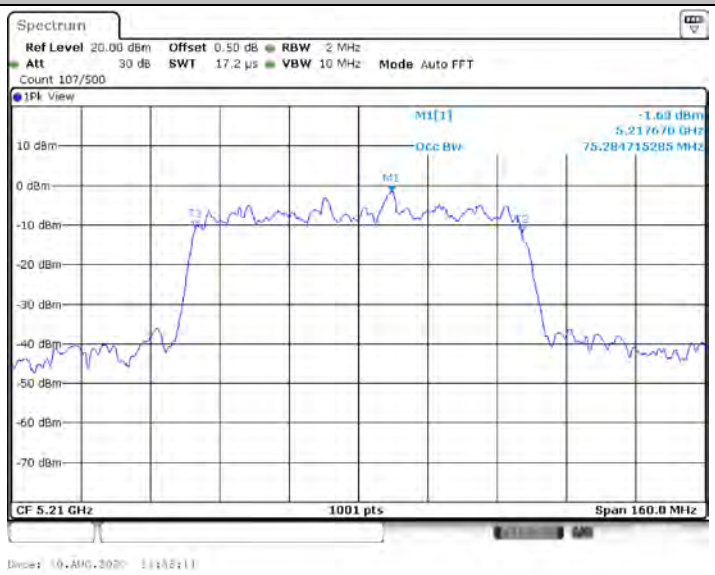
11AC40SISO_Ant1_5190

11AC40SISO_Ant1_5230

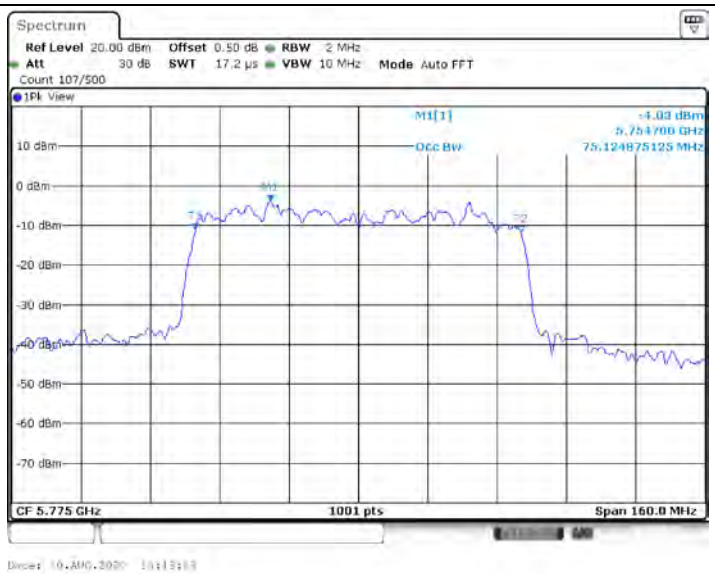
11AC40SISO_Ant1_5755

11AC40SISO_Ant1_5795

11AC80SISO_Ant1_5210



11AC80SISO_Ant1_5775


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 2 MHz
Att 30 dB SWT 17.2 µs VBW 10 MHz Mode Auto FFT
Count 107/500
1Pk View
M1[1] -4.03 dBm
5.754700 GHz
Occ BW 75.124875125 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.775 GHz
1001 pts
Span 160.0 MHz

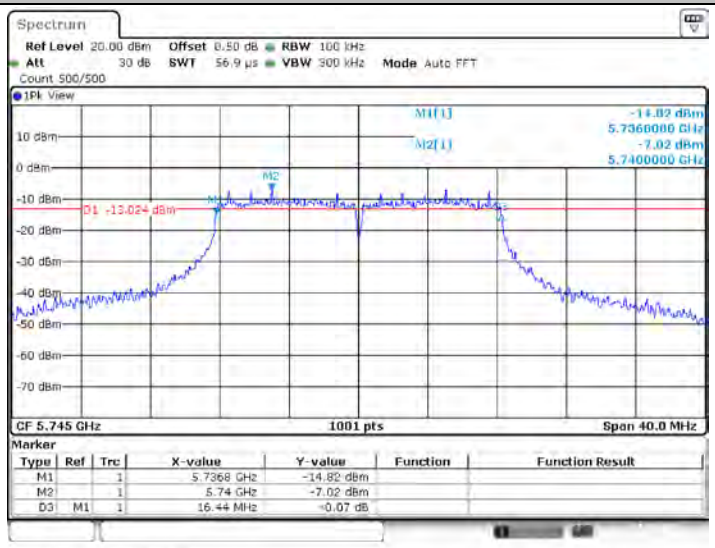
Appendix A3: Min emission bandwidth

Test Result

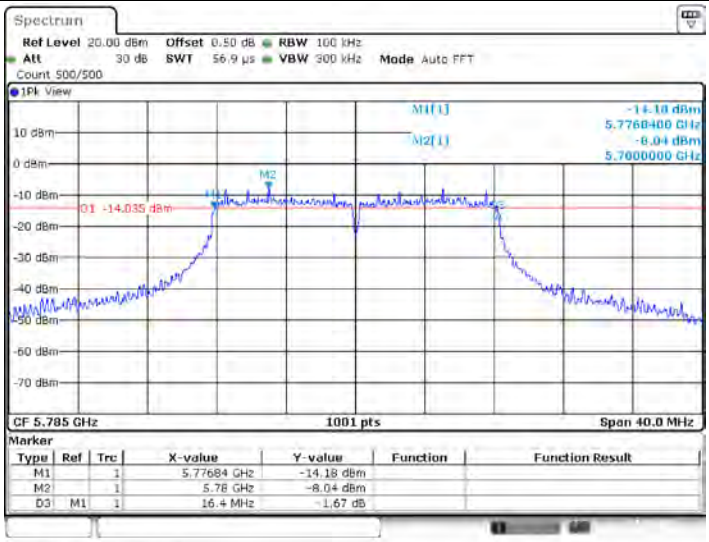
Test Mode	Channel	6db EBW [MHz]	F_L [MHz]	F_H [MHz]	Limit [MHz]	Verdict
11A	5745	16.440	5736.800	5753.240	0.5	PASS
	5785	16.400	5776.840	5793.240	0.5	PASS
	5825	16.360	5816.840	5833.200	0.5	PASS
11N20SISO	5745	17.160	5736.440	5753.600	0.5	PASS
	5785	17.400	5776.200	5793.600	0.5	PASS
	5825	17.240	5816.240	5833.480	0.5	PASS
11N40SISO	5755	35.360	5737.320	5772.680	0.5	PASS
	5795	35.520	5777.160	5812.680	0.5	PASS
11AC20SISO	5745	17.640	5736.200	5753.840	0.5	PASS
	5785	17.040	5776.440	5793.480	0.5	PASS
	5825	17.640	5816.200	5833.840	0.5	PASS
11AC40SISO	5755	35.520	5737.160	5772.680	0.5	PASS
	5795	35.360	5777.320	5812.680	0.5	PASS
11AC80SISO	5775	75.520	5737.240	5812.760	0.5	PASS

Test Graphs

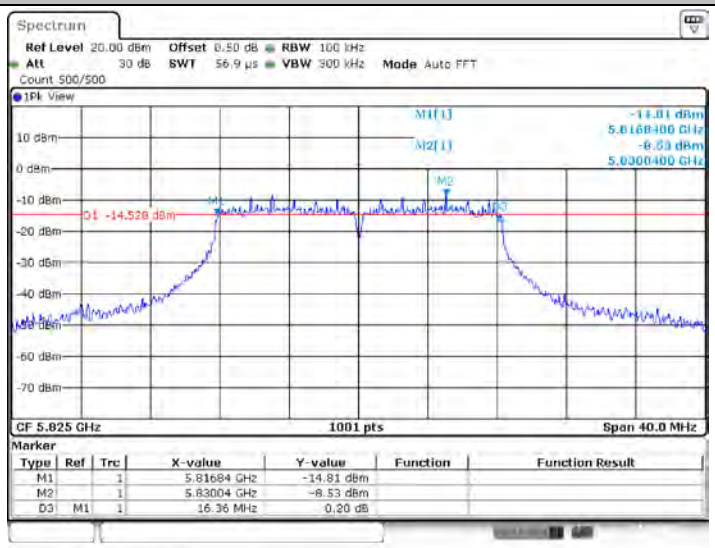
11A_Ant1_5745



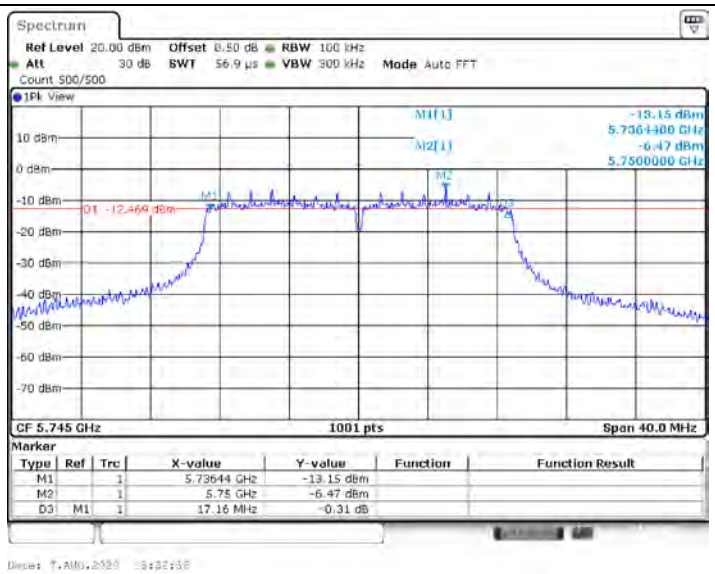
11A_Ant1_5785



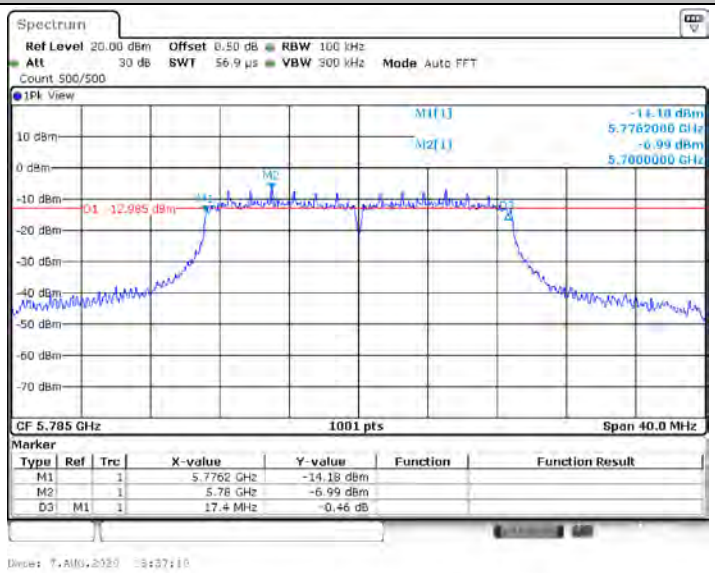
11A_Ant1_5825



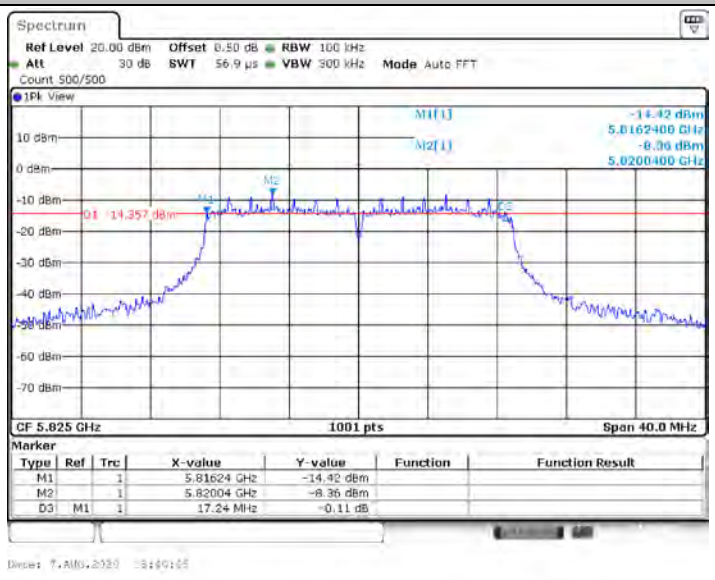
11N20SISO_Ant1_5745



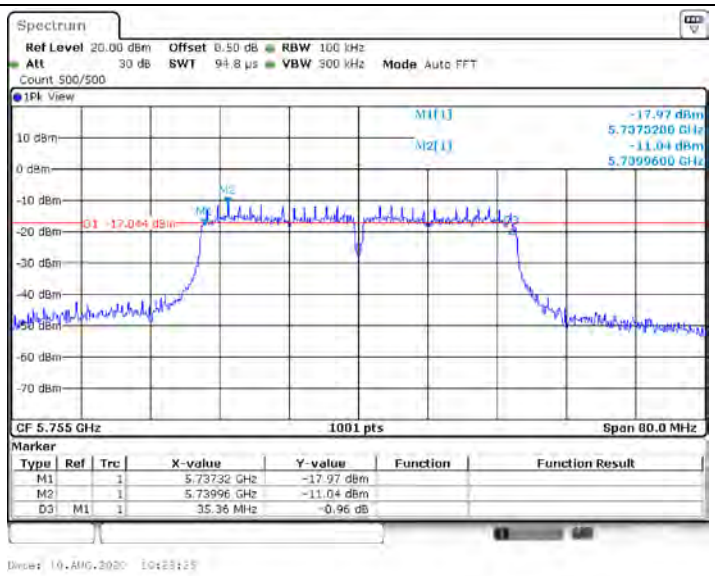
11N20SISO_Ant1_5785



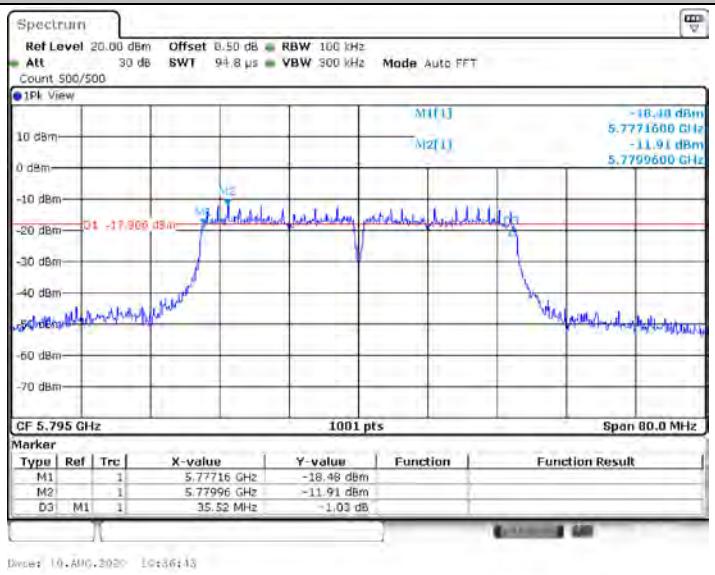
11N20SISO_Ant1_5825



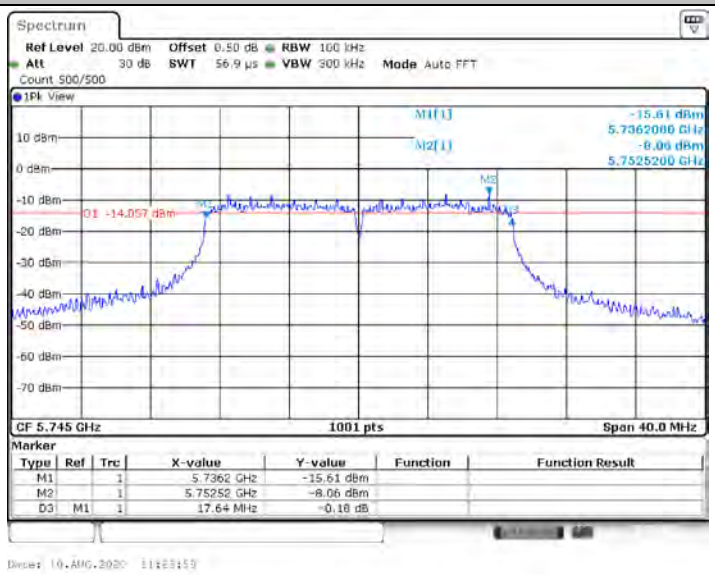
11N40SISO_Ant1_5755



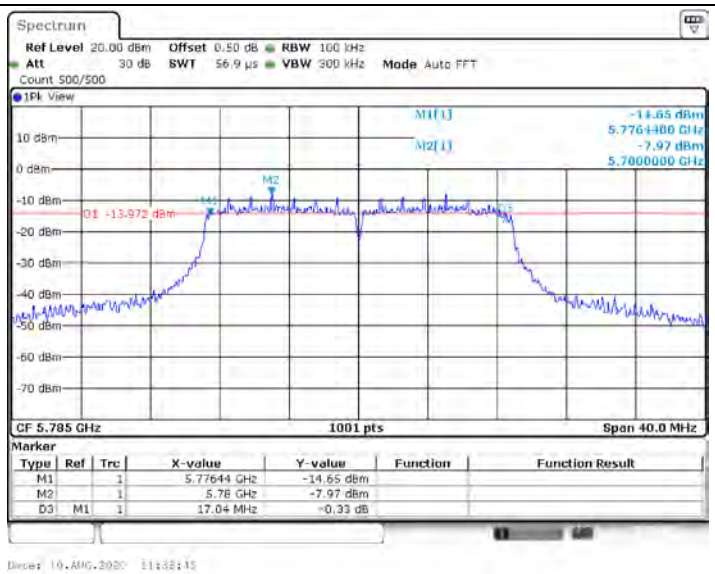
11N40SISO_Ant1_5795



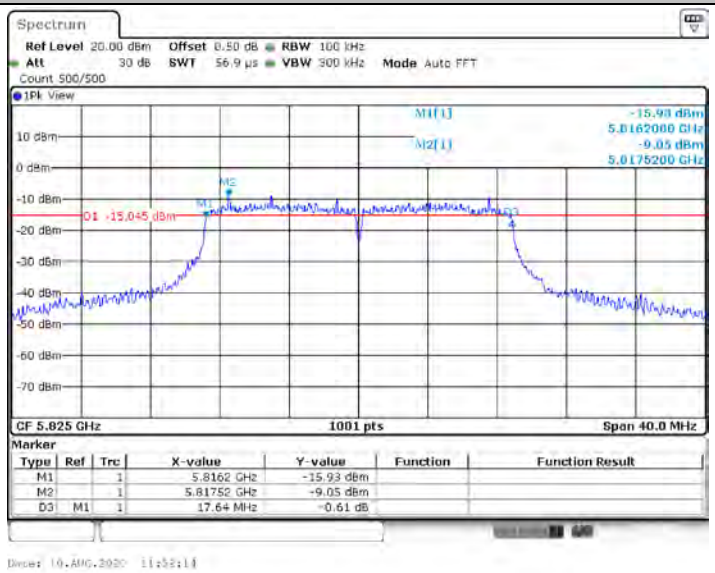
11AC20SISO_Ant1_5745



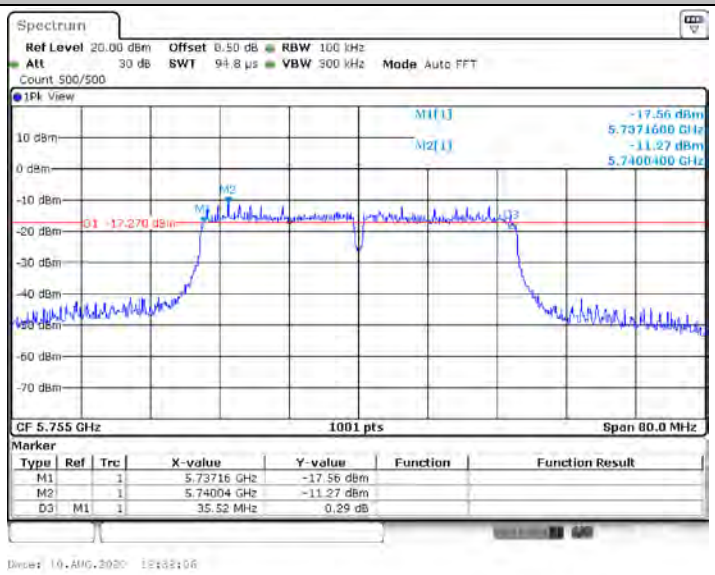
11AC20SISO_Ant1_5785



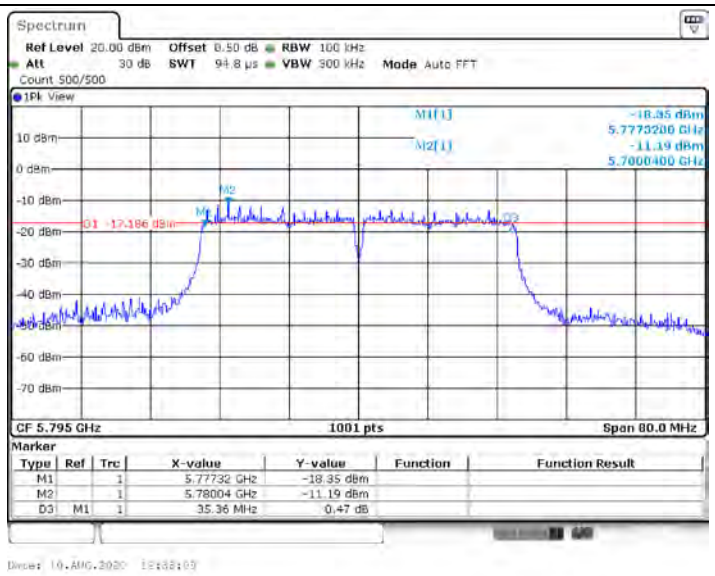
11AC20SISO_Ant1_5825



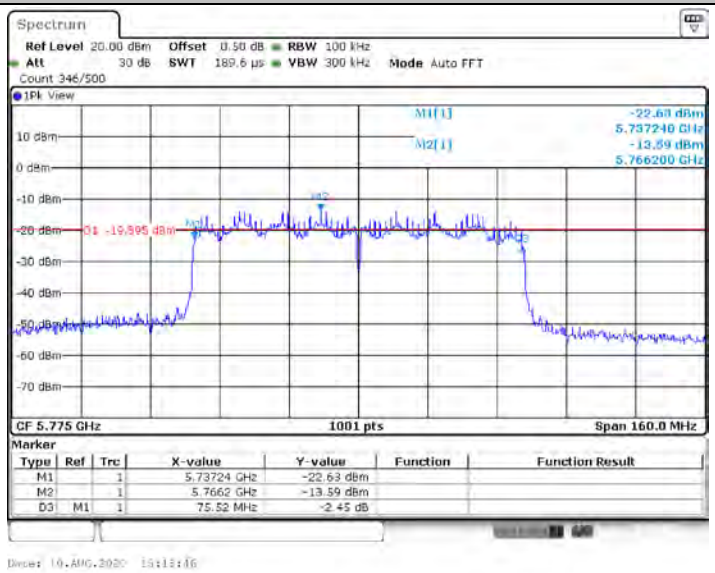
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



Appendix B: Maximum conducted output power

Test Result

Test Mode	Channel	Result [AVG dBm]	Limit [dBm]	Verdict
11A	5180	8.47	<=30	PASS
	5200	9.11	<=30	PASS
	5240	9.35	<=30	PASS
	5745	8.89	<=30	PASS
	5785	8.19	<=30	PASS
	5825	7.06	<=30	PASS
11N(HT20)	5180	8.75	<=30	PASS
	5200	8.94	<=30	PASS
	5240	9.75	<=30	PASS
	5745	8.98	<=30	PASS
	5785	8.34	<=30	PASS
	5825	7.20	<=30	PASS
11N(HT40)	5190	8.25	<=30	PASS
	5230	8.55	<=30	PASS
	5755	7.44	<=30	PASS
	5795	7.07	<=30	PASS
11AC(VHT20)	5180	8.08	<=30	PASS
	5200	8.21	<=30	PASS
	5240	8.92	<=30	PASS
	5745	8.21	<=30	PASS
	5785	7.56	<=30	PASS
	5825	7.28	<=30	PASS
11AC(VHT40)	5190	8.19	<=30	PASS
	5230	9.04	<=30	PASS
	5755	7.82	<=30	PASS
	5795	7.62	<=30	PASS
11AC(VHT80)	5210	7.44	<=30	PASS
	5775	7.78	<=30	PASS

Note：Test results increased RF cable loss by 0.5dB.

Appendix C: Maximum power spectral density

Test Result

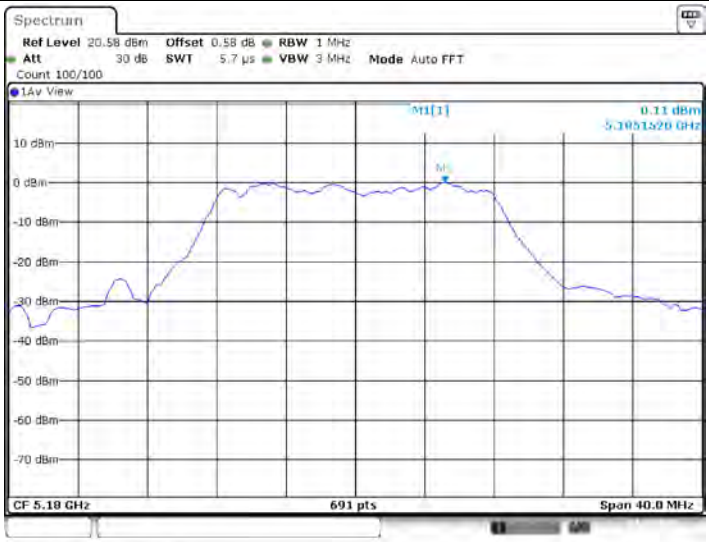
Test Mode	Channel	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	5180	0.11	<=11	PASS
	5200	1.24	<=11	PASS
	5240	1.59	<=11	PASS
	5745	-2.53	<=30	PASS
	5785	-3.50	<=30	PASS
	5825	-3.80	<=30	PASS
11N20SISO	5180	0.46	<=11	PASS
	5200	0.48	<=11	PASS
	5240	1.41	<=11	PASS
	5745	-3.07	<=30	PASS
	5785	-3.23	<=30	PASS
	5825	-4.78	<=30	PASS
11N40SISO	5190	-3.28	<=11	PASS
	5230	-3.18	<=11	PASS
	5755	-6.51	<=30	PASS
	5795	-8.13	<=30	PASS
11AC20SISO	5180	-0.10	<=11	PASS
	5200	0.04	<=11	PASS
	5240	0.28	<=11	PASS
	5745	-3.59	<=30	PASS
	5785	-4.79	<=30	PASS
	5825	-4.99	<=30	PASS
11AC40SISO	5190	-3.23	<=11	PASS
	5230	-2.70	<=11	PASS
	5755	-6.66	<=30	PASS
	5795	-7.56	<=30	PASS
11AC80SISO	5210	-5.97	<=11	PASS
	5775	-8.74	<=30	PASS

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

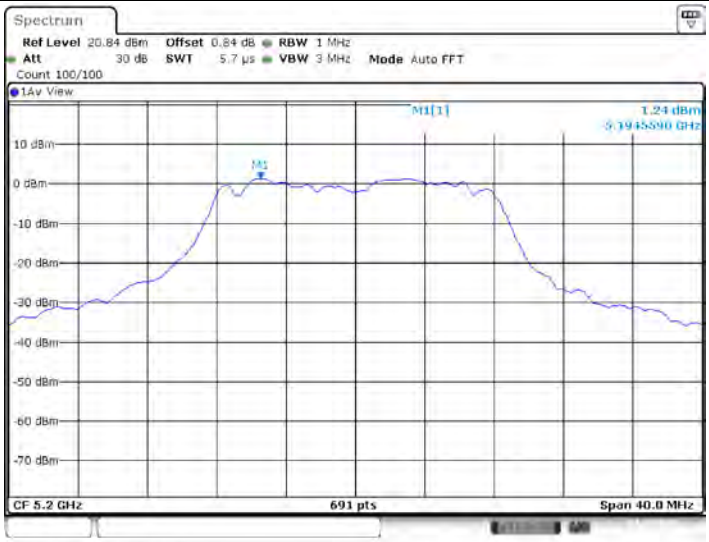
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.

Test Graphs

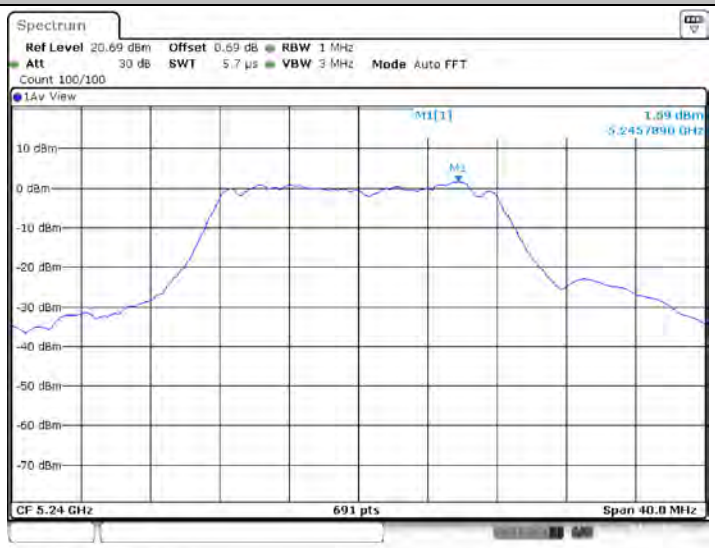
11A_Ant1_5180



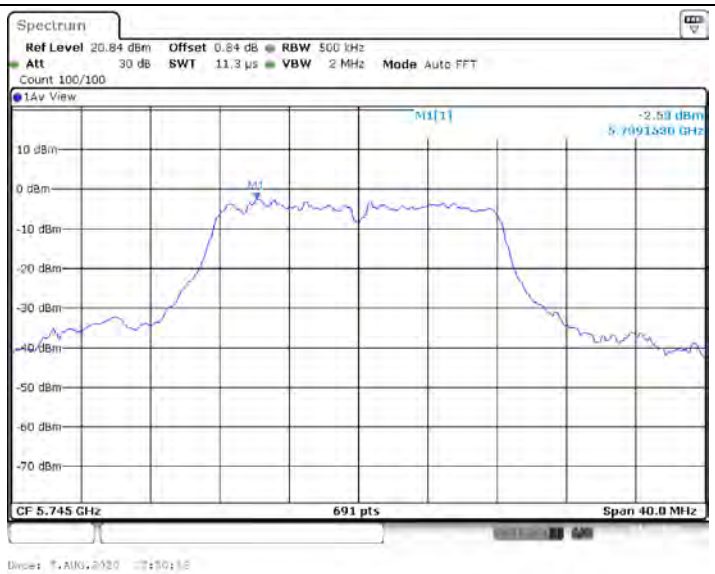
11A_Ant1_5200



11A_Ant1_5240

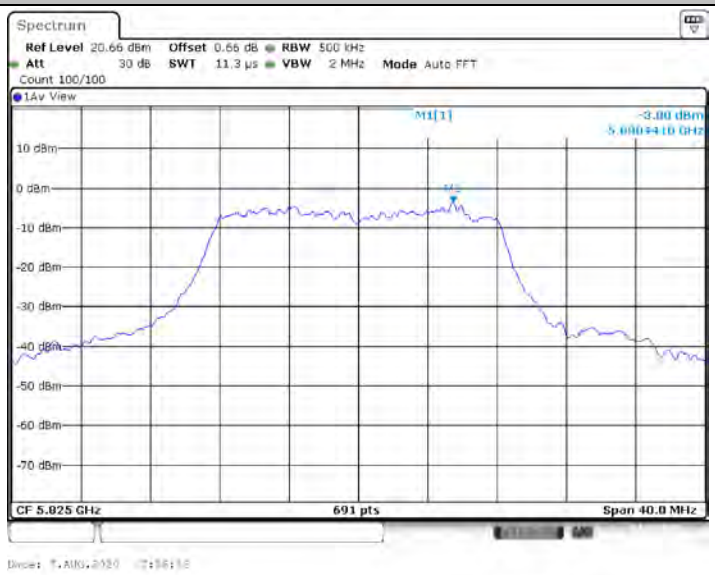


11A_Ant1_5745

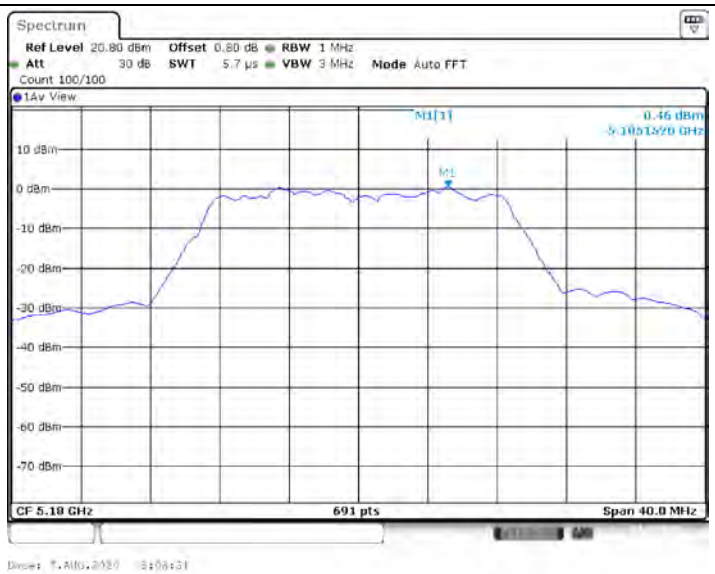


11A_Ant1_5785

11A_Ant1_5825

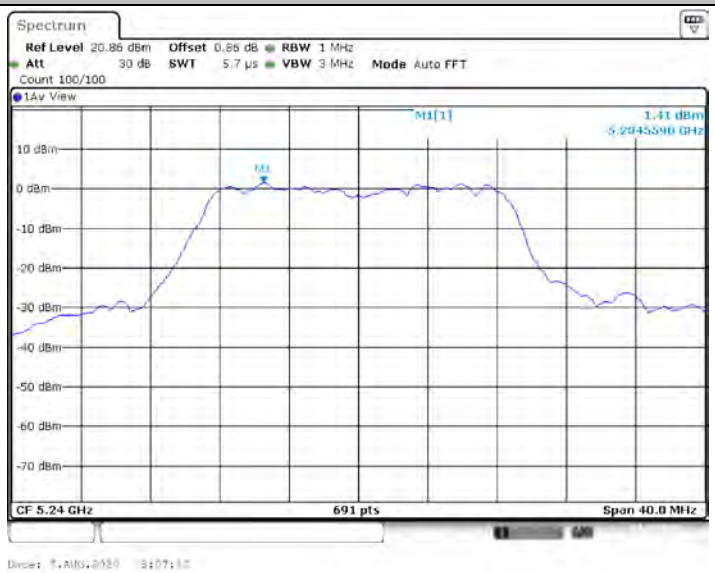


11N20SISO_Ant1_5180

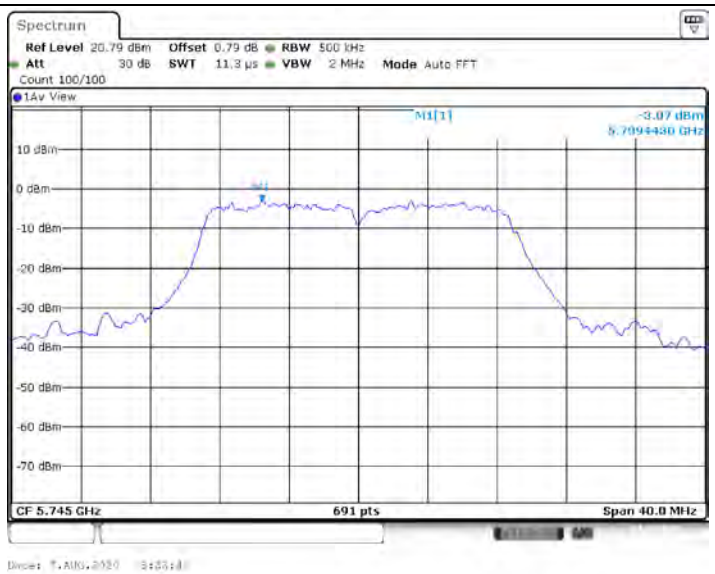


11N20SISO_Ant1_5200

11N20SISO_Ant1_5240

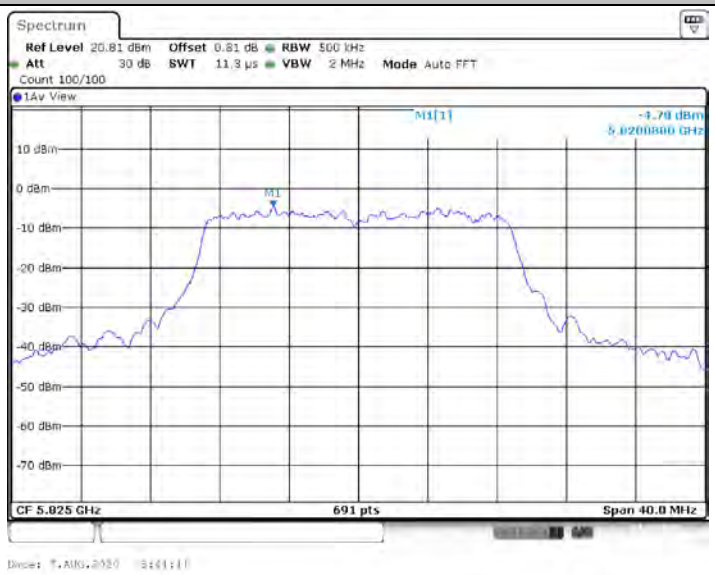


11N20SISO_Ant1_5745

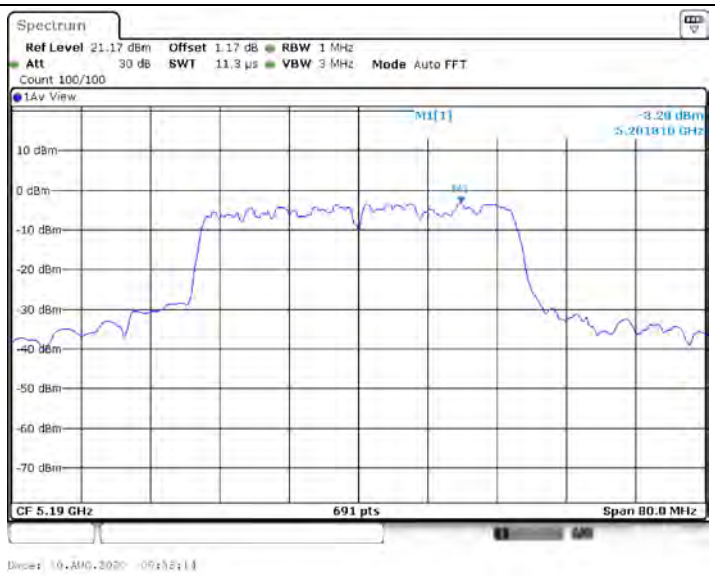


11N20SISO_Ant1_5785

11N20SISO_Ant1_5825

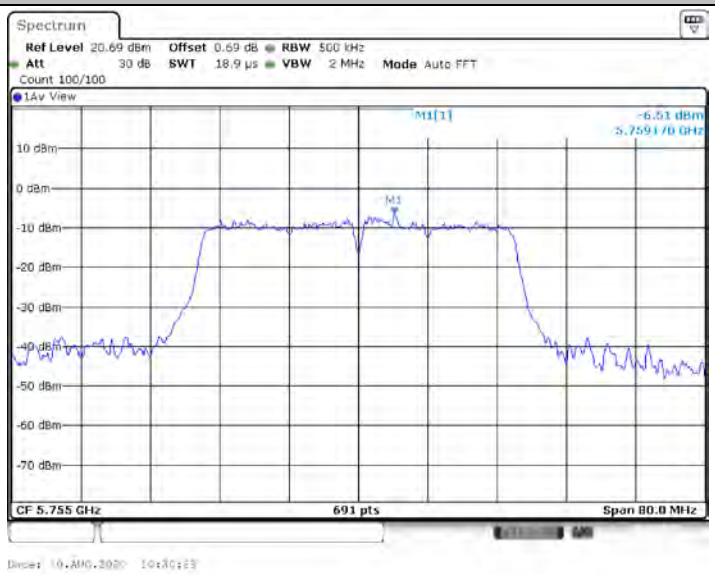


11N40SISO_Ant1_5190

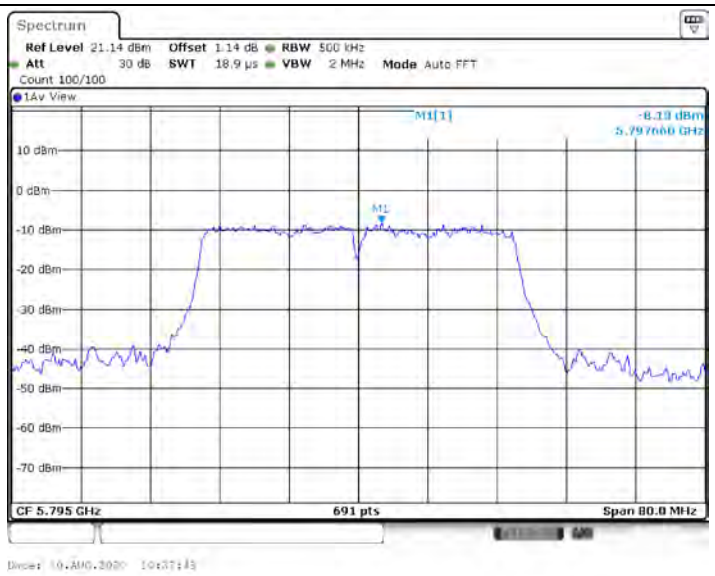


11N40SISO_Ant1_5230

11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5200

11AC20SISO_Ant1_5240

11AC20SISO_Ant1_5745

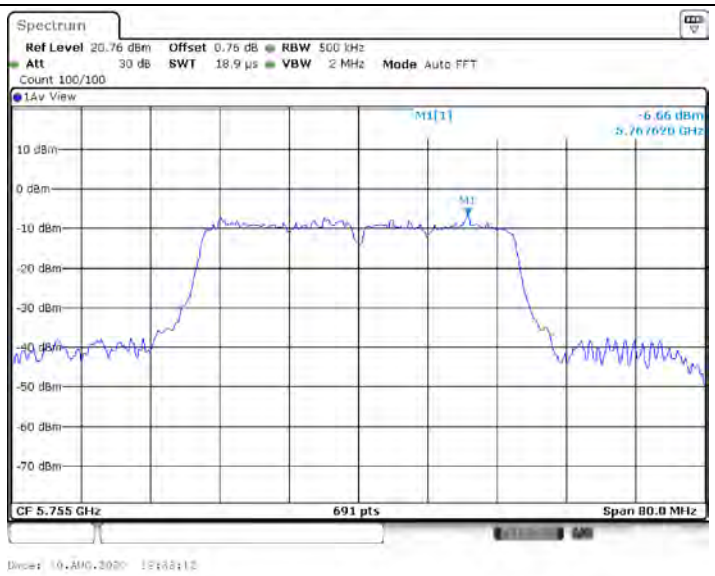
11AC20SISO_Ant1_5785

11AC20SISO_Ant1_5825

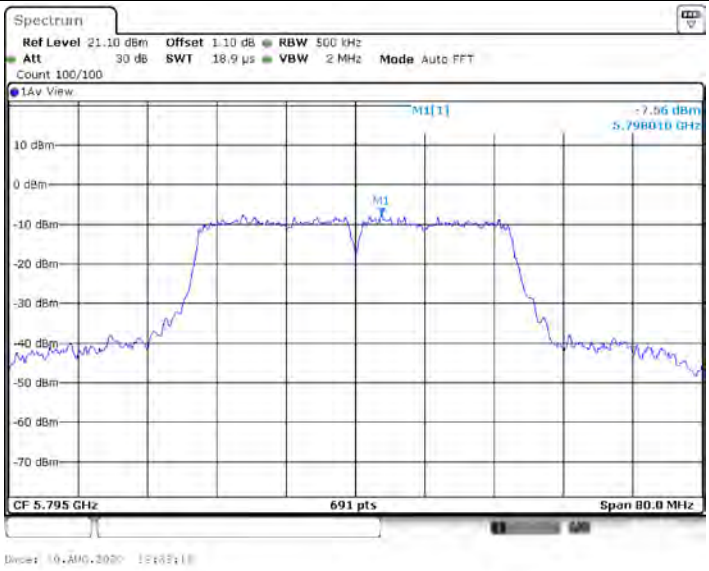
11AC40SISO_Ant1_5190

11AC40SISO_Ant1_5230

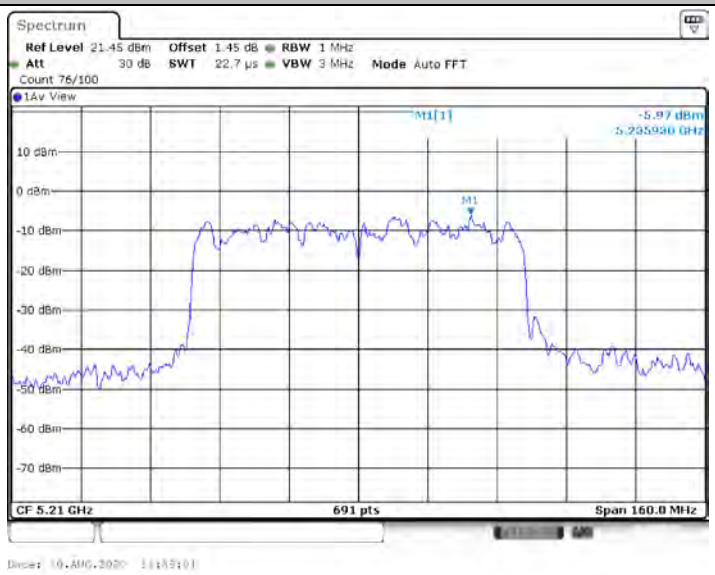
11AC40SISO_Ant1_5755



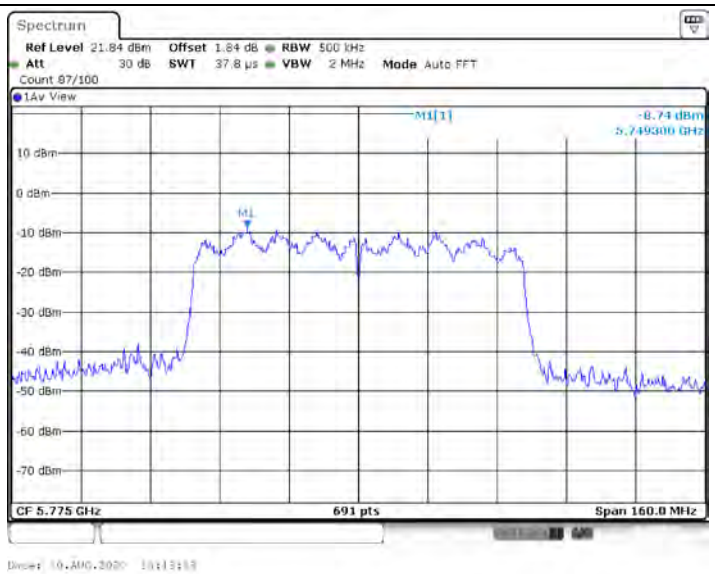
11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



11AC80SISO_Ant1_5775


Spectrum
Ref Level 21.84 dBm Offset 1.84 dB RBW 500 kHz
Att 30 dB SWT 37.8 µs VBW 2 MHz Mode Auto FFT
Count 87/100
1Av View
M1[1] -8.74 dBm
5.749300 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.775 GHz
691 pts
Span 160.0 MHz

Appendix D: Frequency Stability

Test Result

Voltage							
TestMode	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20MHz	5180	NV	NT	13000	2.509653	20	PASS
		LV	NT	18000	3.474903	20	PASS
		HV	NT	22000	4.247104	20	PASS
	5200	NV	NT	35000	6.730769	20	PASS
		LV	NT	40000	7.692308	20	PASS
		HV	NT	40000	7.692308	20	PASS
	5240	NV	NT	29000	5.534351	20	PASS
		LV	NT	32000	6.106870	20	PASS
		HV	NT	32000	6.106870	20	PASS
	5745	NV	NT	18000	3.133159	20	PASS
		LV	NT	18000	3.133159	20	PASS
		HV	NT	18000	3.133159	20	PASS
	5785	NV	NT	18000	3.111495	20	PASS
		LV	NT	18000	3.111495	20	PASS
		HV	NT	18000	3.111495	20	PASS
	5825	NV	NT	19000	3.261803	20	PASS
		LV	NT	19000	3.261803	20	PASS
		HV	NT	19000	3.261803	20	PASS
40MHz	5190	NV	NT	15000	2.890173	20	PASS
		LV	NT	20000	3.853565	20	PASS
		HV	NT	23000	4.431599	20	PASS
	5230	NV	NT	27000	5.162524	20	PASS
		LV	NT	31000	5.927342	20	PASS
		HV	NT	31000	5.927342	20	PASS
	5755	NV	NT	18000	3.127715	20	PASS
		LV	NT	18000	3.127715	20	PASS
		HV	NT	18000	3.127715	20	PASS
	5795	NV	NT	18000	3.106126	20	PASS
		LV	NT	18000	3.106126	20	PASS
		HV	NT	18000	3.106126	20	PASS
80MHz	5210	NV	NT	17000	3.262956	20	PASS
		LV	NT	22000	4.222649	20	PASS
		HV	NT	24000	4.606526	20	PASS
	5775	NV	NT	16000	2.770563	20	PASS
		LV	NT	17000	2.943723	20	PASS
		HV	NT	17000	2.943723	20	PASS

Temperature							
TestMode	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20MHz	5180	NV	0	32000	6.177606	20	PASS
		NV	10	34000	6.563707	20	PASS
		NV	20	35000	6.756757	20	PASS
		NV	30	36000	6.949807	20	PASS
		NV	40	37000	7.142857	20	PASS
	5200	NV	0	35000	6.730769	20	PASS
		NV	10	34000	6.538462	20	PASS
		NV	20	34000	6.538462	20	PASS
		NV	30	33000	6.346154	20	PASS
		NV	40	32000	6.153846	20	PASS
	5240	NV	0	33000	6.297710	20	PASS
		NV	10	33000	6.297710	20	PASS
		NV	20	34000	6.488550	20	PASS
		NV	30	34000	6.488550	20	PASS
		NV	40	34000	6.488550	20	PASS
	5745	NV	0	18000	3.133159	20	PASS
		NV	10	18000	3.133159	20	PASS
		NV	20	18000	3.133159	20	PASS
		NV	30	18000	3.133159	20	PASS
		NV	40	18000	3.133159	20	PASS
	5785	NV	0	18000	3.111495	20	PASS
		NV	10	18000	3.111495	20	PASS
		NV	20	18000	3.111495	20	PASS
		NV	30	18000	3.111495	20	PASS
		NV	40	18000	3.111495	20	PASS
	5825	NV	0	18000	3.090129	20	PASS
		NV	10	18000	3.090129	20	PASS
		NV	20	18000	3.090129	20	PASS
		NV	30	18000	3.090129	20	PASS
		NV	40	18000	3.090129	20	PASS
40MHz	5190	NV	0	28000	5.394990	20	PASS
		NV	10	28000	5.394990	20	PASS
		NV	20	28000	5.394990	20	PASS
		NV	30	29000	5.587669	20	PASS
		NV	40	29000	5.587669	20	PASS
	5230	NV	0	32000	6.118547	20	PASS
		NV	10	33000	6.309751	20	PASS
		NV	20	33000	6.309751	20	PASS
		NV	30	32000	6.118547	20	PASS
		NV	40	33000	6.309751	20	PASS
	5755	NV	0	18000	3.127715	20	PASS
		NV	10	18000	3.127715	20	PASS
		NV	20	18000	3.127715	20	PASS

		NV	30	18000	3.127715	20	PASS
		NV	40	18000	3.127715	20	PASS
	5795	NV	0	18000	3.106126	20	PASS
		NV	10	18000	3.106126	20	PASS
		NV	20	18000	3.106126	20	PASS
		NV	30	18000	3.106126	20	PASS
		NV	40	18000	3.106126	20	PASS
80MHz	5210	NV	0	29000	5.566219	20	PASS
		NV	10	30000	5.758157	20	PASS
		NV	20	30000	5.758157	20	PASS
		NV	30	30000	5.758157	20	PASS
		NV	40	31000	5.950096	20	PASS
	5775	NV	0	18000	3.116883	20	PASS
		NV	10	19000	3.290043	20	PASS
		NV	20	19000	3.290043	20	PASS
		NV	30	19000	3.290043	20	PASS
		NV	40	19000	3.290043	20	PASS

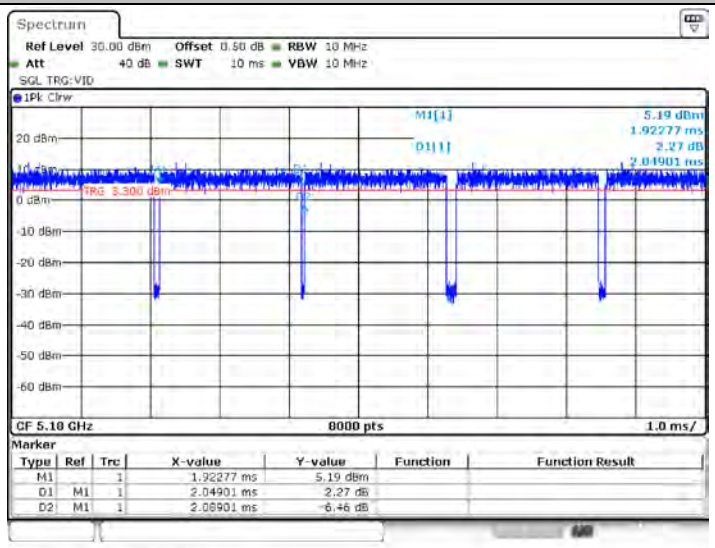
Appendix E: Duty Cycle

Test Result

Test Mode	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11A	5180	2.05	2.09	98.08	0.49	1
	5200	2.05	2.22	92.49	0.49	1
	5240	2.05	2.14	95.62	0.49	1
	5745	2.05	2.21	92.55	0.49	1
	5785	2.05	2.21	92.91	0.49	1
	5825	2.05	2.13	96.41	0.49	1
11N(HT20)	5180	1.91	2.05	93.22	0.52	1
	5200	1.91	1.99	95.73	0.52	1
	5240	1.91	2.07	92.03	0.52	1
	5745	1.91	2.04	93.61	0.52	1
	5785	1.91	2.04	93.21	0.52	1
	5825	1.91	2.04	93.21	0.52	1
11N(HT40)	5190	0.94	1.09	85.68	1.06	3
	5230	0.94	1.06	88.52	1.06	3
	5755	0.94	0.98	95.77	1.06	3
	5795	0.94	1.08	86.37	1.06	3
11AC(VHT20)	5180	1.92	2.06	93.25	0.52	1
	5200	1.92	1.96	97.96	0.52	1
	5240	1.92	1.99	96.24	0.52	1
	5260	1.92	2.00	95.82	0.52	1
	5745	1.92	1.99	96.60	0.52	1
	5785	1.92	2.07	92.47	0.52	1
	5825	1.92	1.96	97.89	0.52	1
11AC(VHT40)	5190	0.94	1.04	90.96	1.06	3
	5230	0.94	1.08	87.18	1.06	3
	5755	0.94	1.00	94.14	1.06	3
	5795	0.94	1.08	87.18	1.06	3
11AC(VHT80)	5210	0.46	0.57	80.35	2.17	3
	5775	0.46	0.62	73.39	2.17	3

Test Graphs

11A_Ant1_5180



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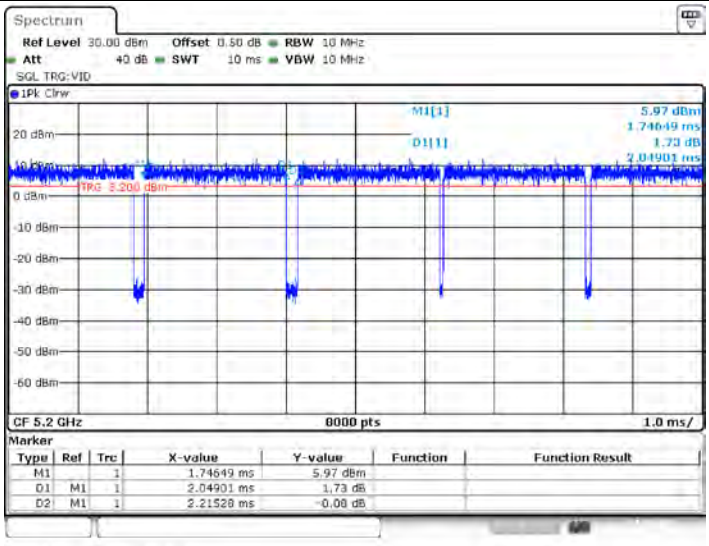

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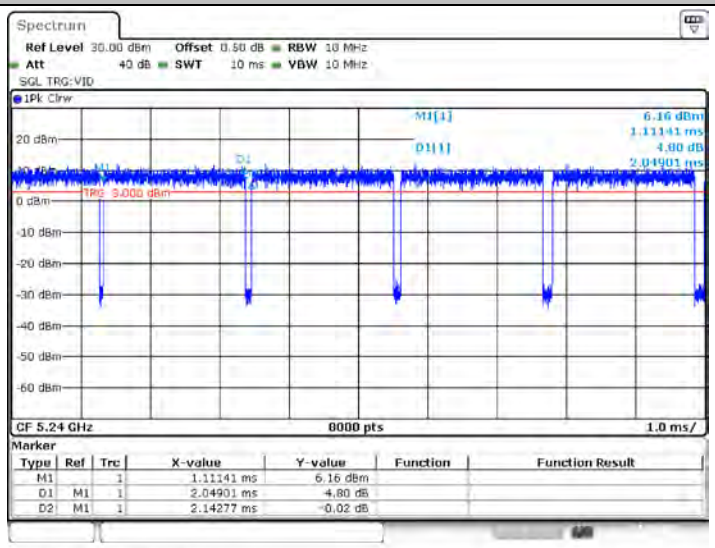

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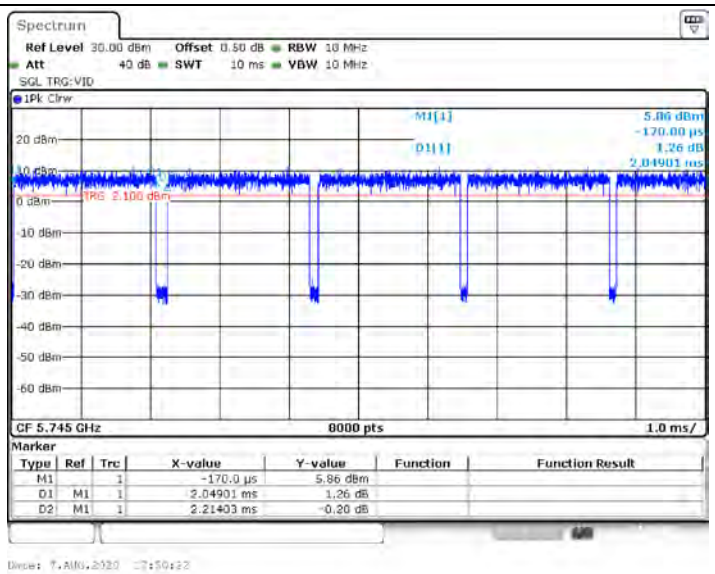

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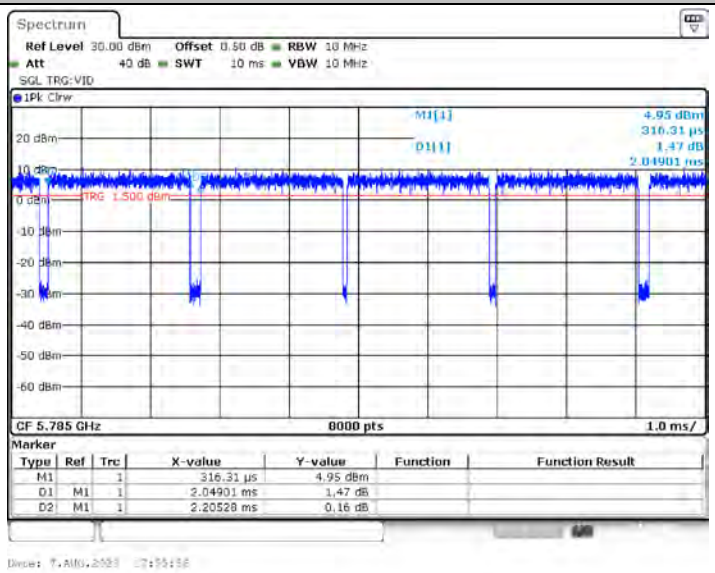

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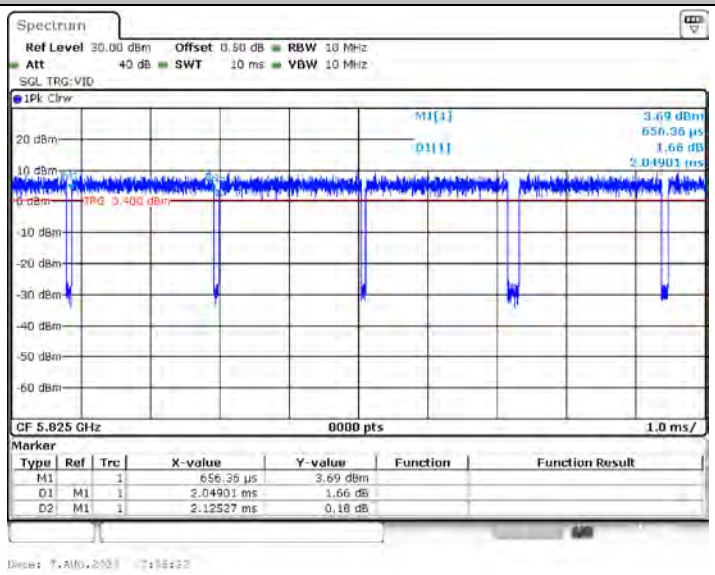

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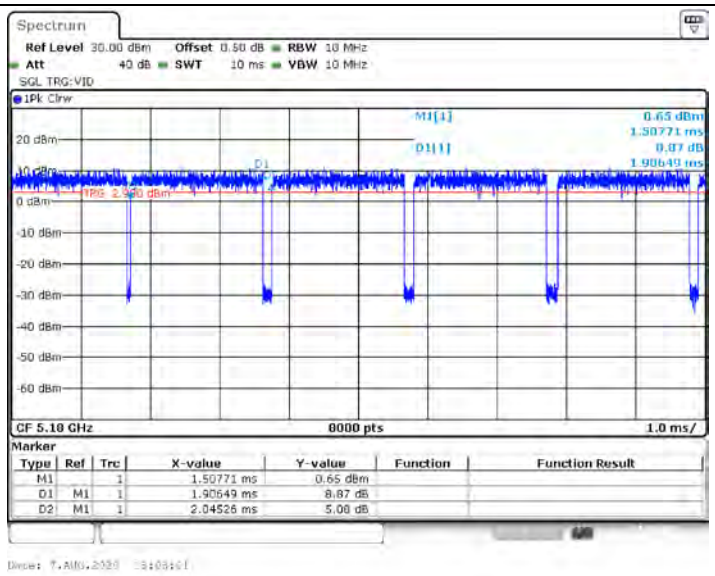

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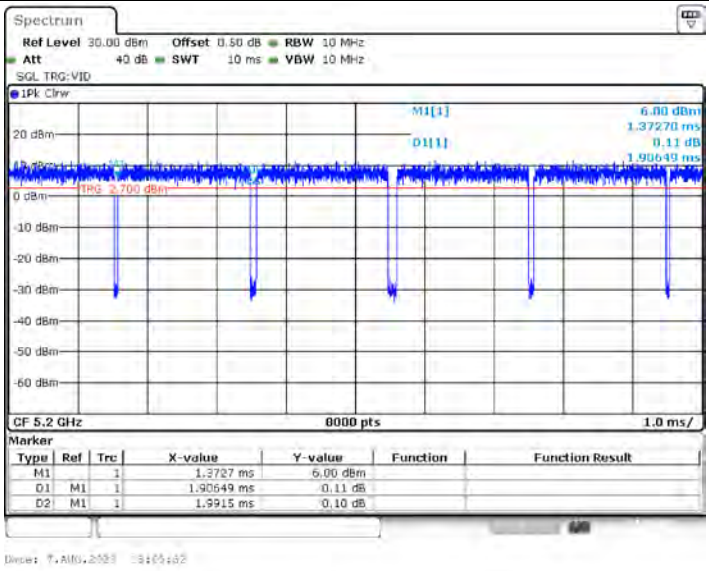

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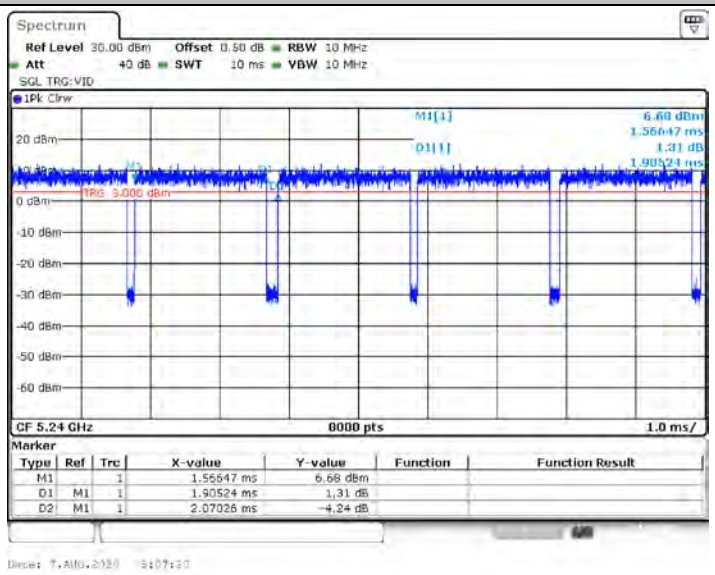

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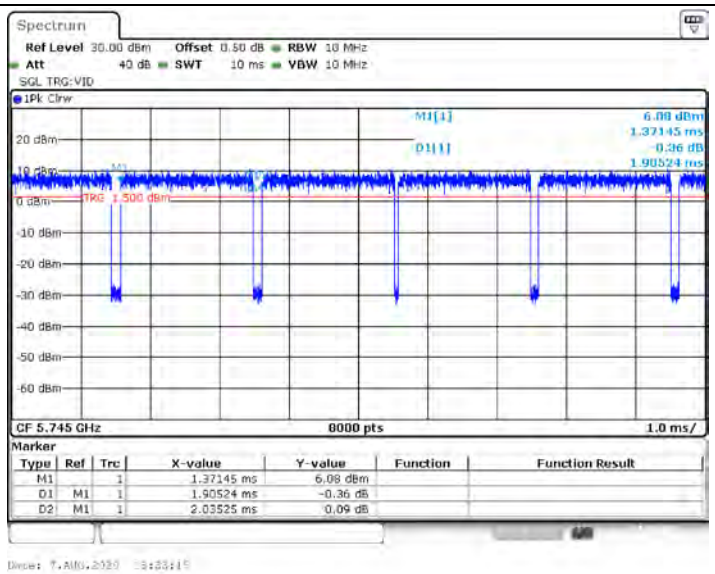

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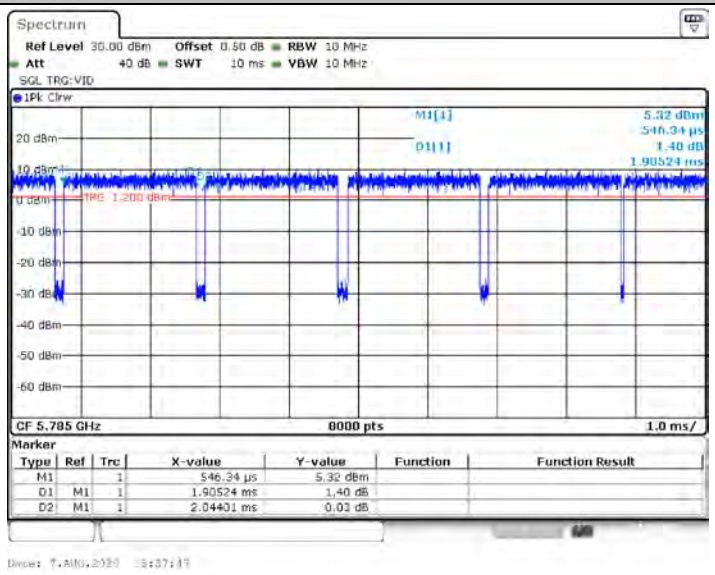

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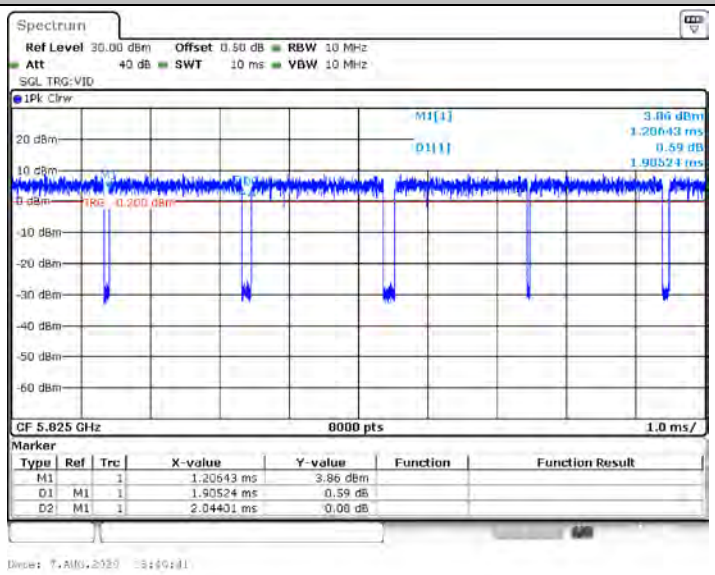

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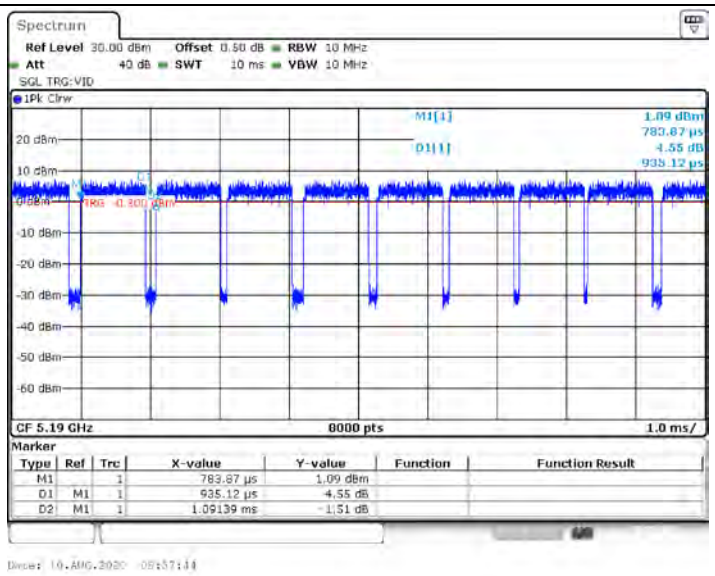

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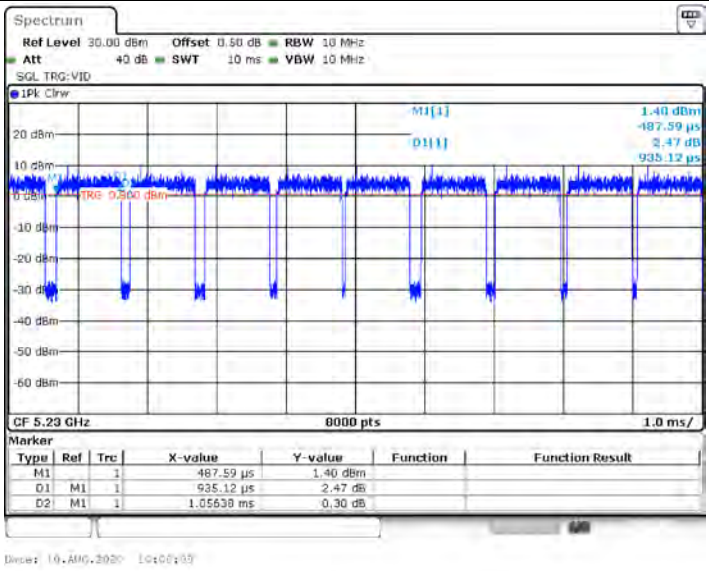

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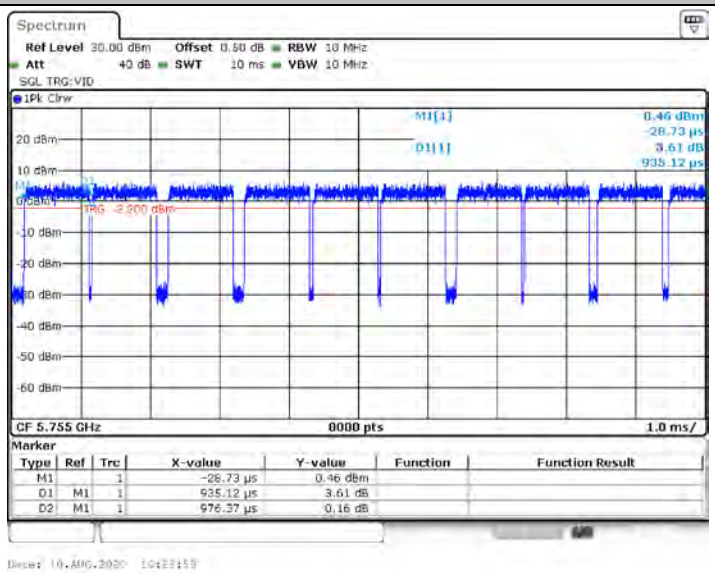

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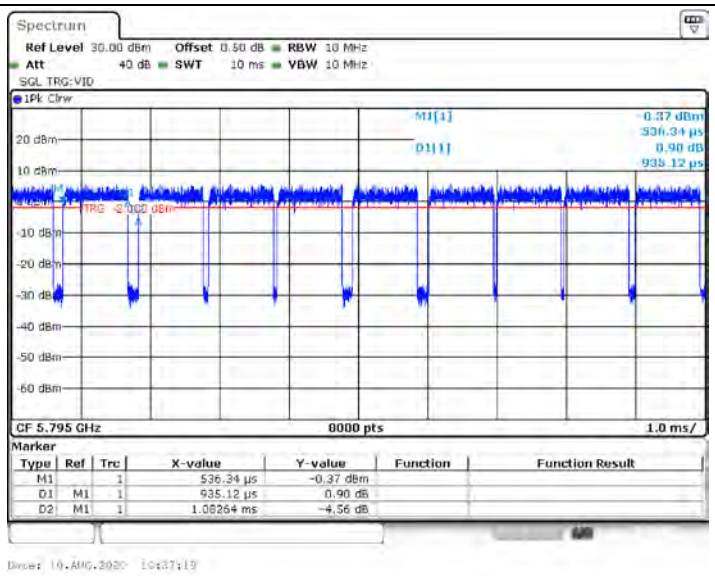

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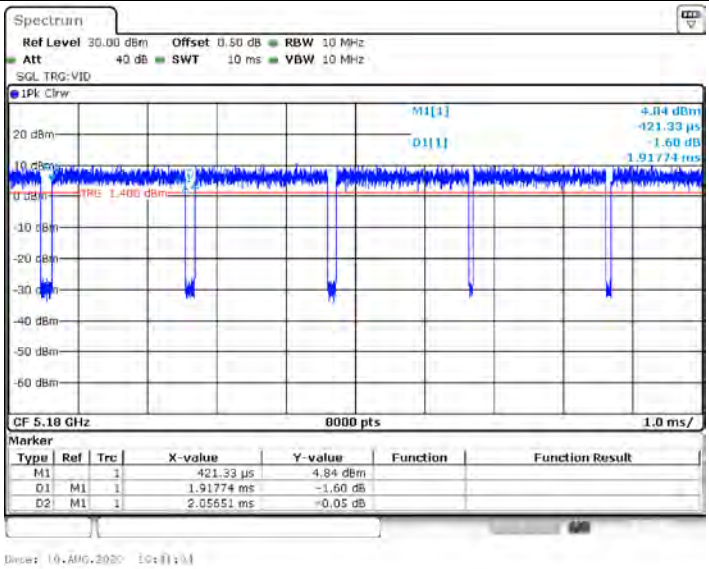

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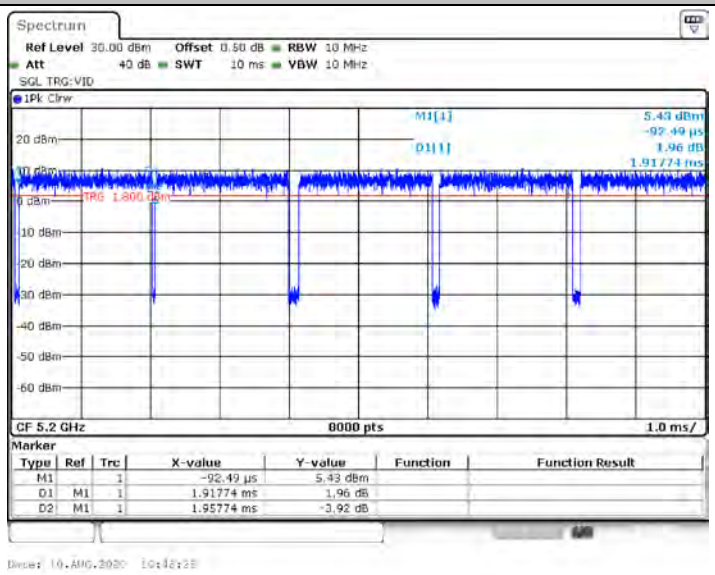

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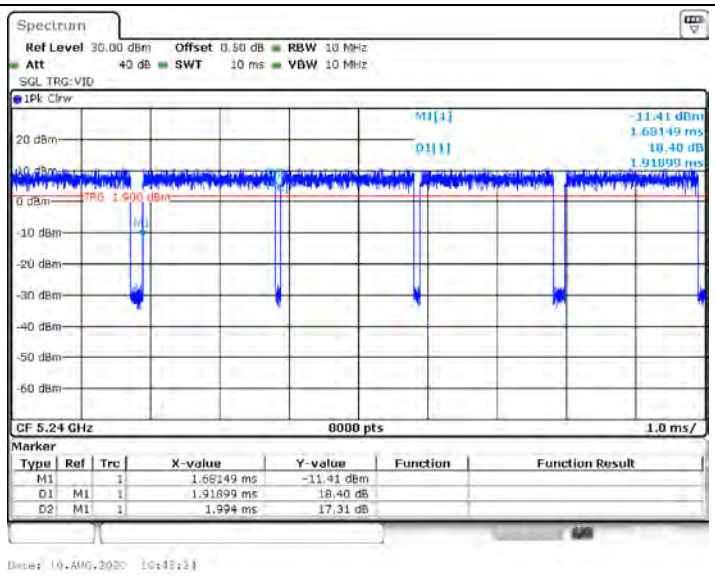

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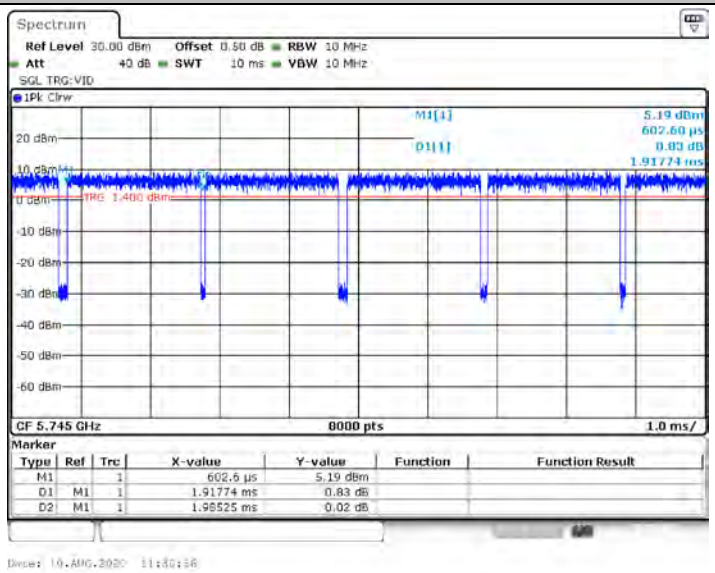

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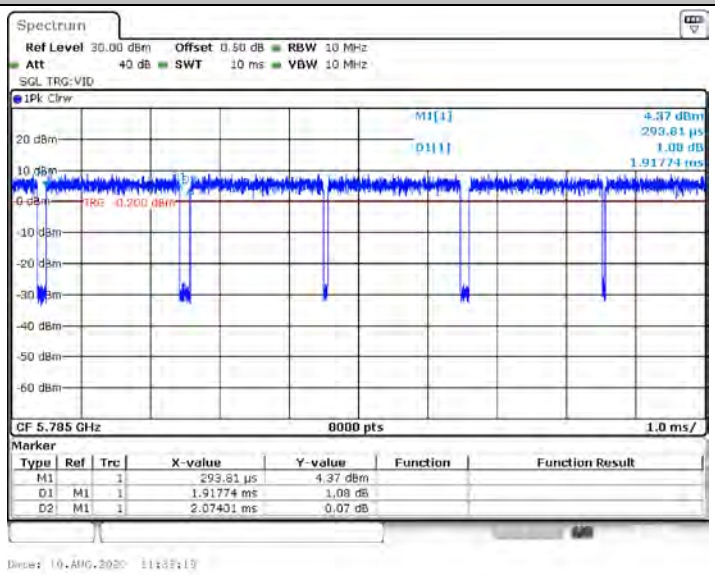

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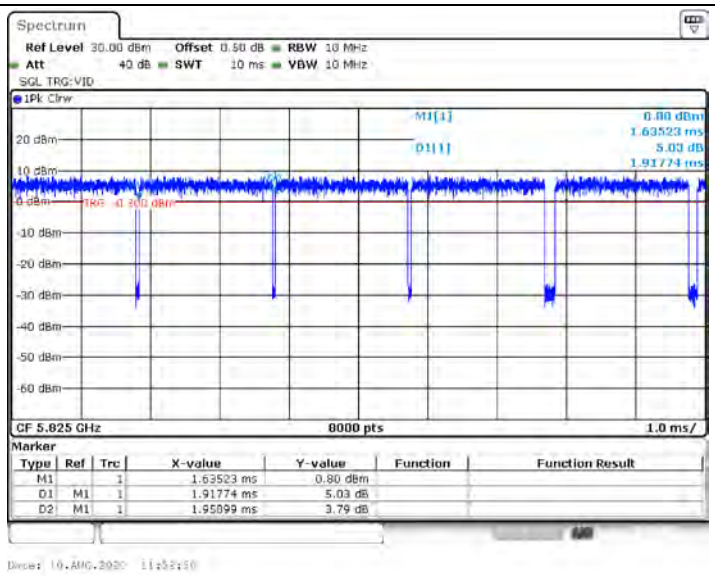

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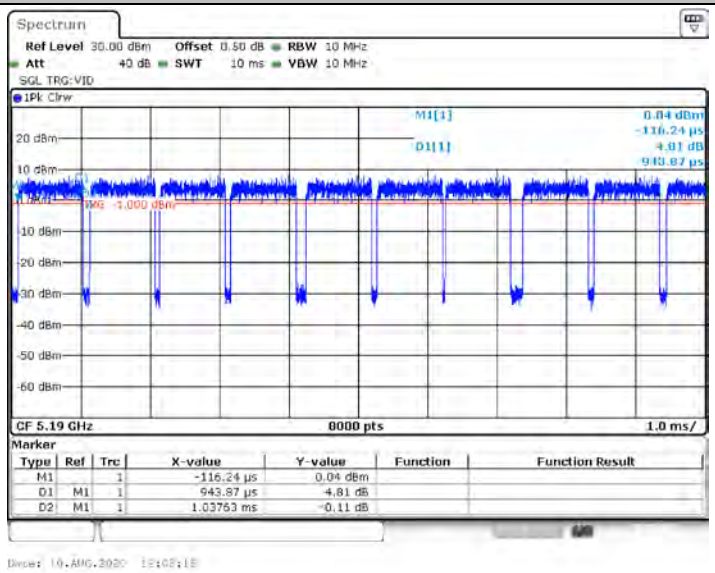

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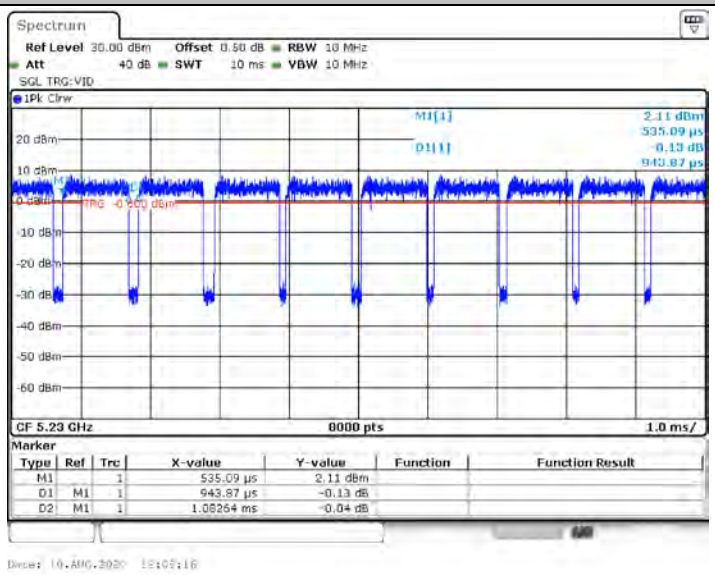

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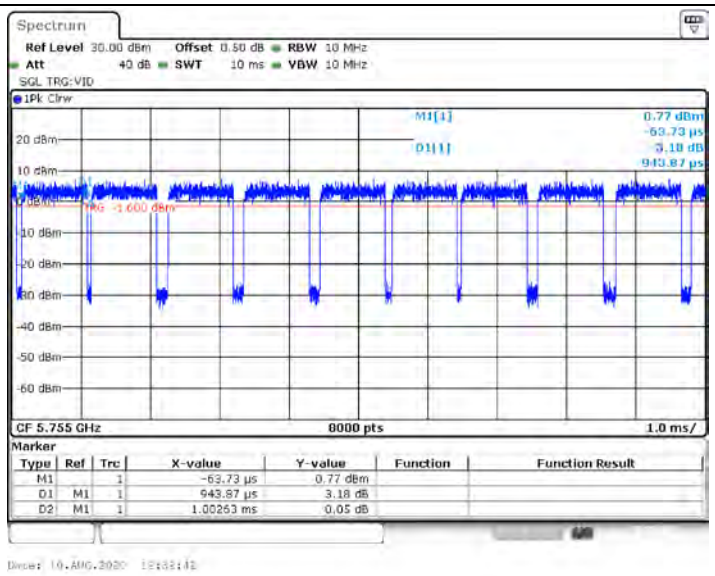

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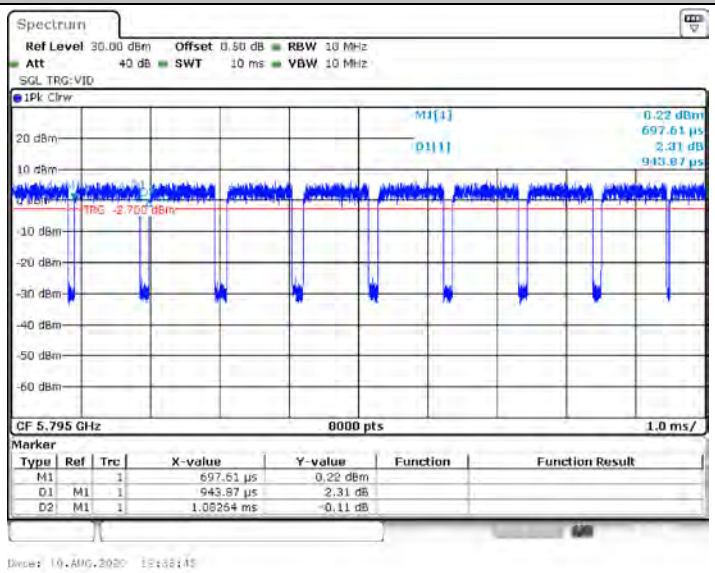

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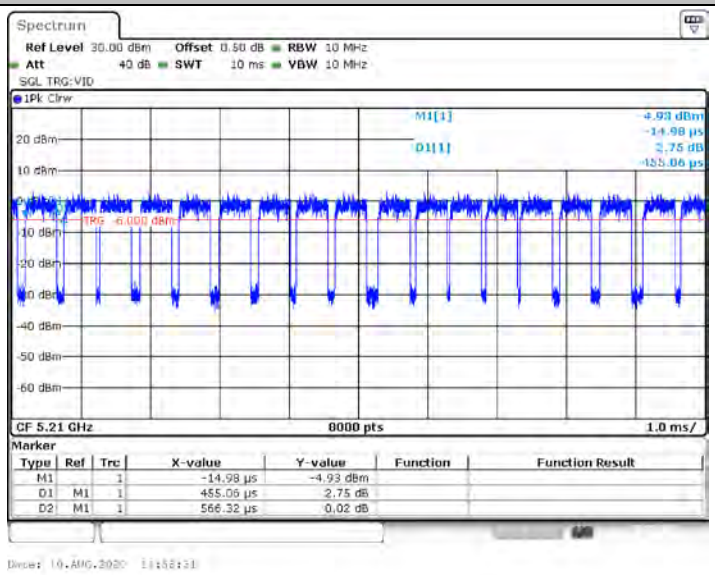

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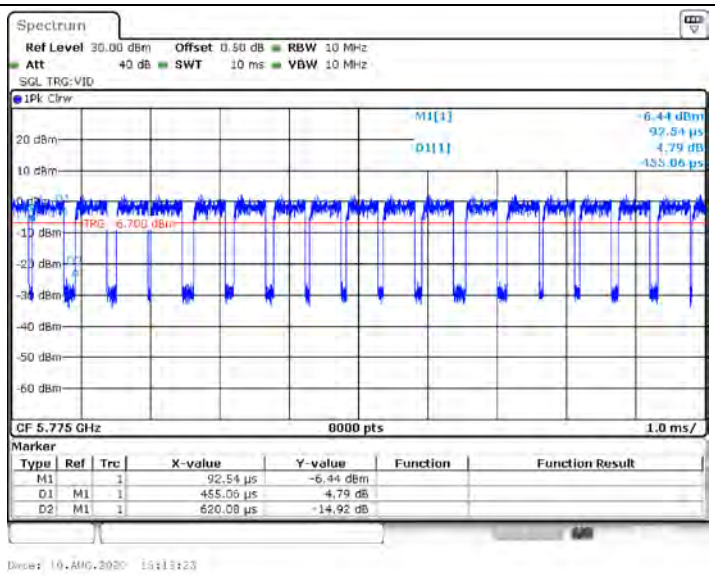
Spectrum
Ref Level 30.00 dBm Offset 0.50 dB RBW 10 MHz
Att 40 dB SWT 10 ms VBW 10 MHz
SGL TRG:VID
1Pk Clrw
M1[1] -6.44 dBm
92.54 µs
D1[1] 4.79 dB
455.06 µs
20 dBm
10 dBm
TRG 6.700 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 5.775 GHz
0000 pts
1.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 92.54 µs -6.44 dBm
D1 M1 1 455.06 µs 4.79 dB
D2 M1 1 620.08 µs -14.92 dB

---------- *The End* ----------