

FCC Appendix RF Test Data for 5GWIFI

FCC ID : 2BVBX-WS4-A1RS

Company : Ubibot Dalian Smart Limited

EUT : UbiBot Smart Multi-sensor WS4

Model Number : WS4-A1RS

Report No. : CTA26030300602

Reviewed By : Eric Wang

Appendix A1: Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	24.880	5167.240	5192.120	---	---
		5220	23.400	5208.680	5232.080	---	---
		5240	24.280	5228.160	5252.440	---	---
		5745	24.800	5732.560	5757.360	---	---
		5785	25.040	5772.520	5797.560	---	---
		5825	24.120	5812.920	5837.040	---	---
11N20SISO	Ant1	5180	24.520	5168.080	5192.600	---	---
		5220	23.640	5208.240	5231.880	---	---
		5240	24.200	5227.680	5251.880	---	---
		5745	25.160	5732.360	5757.520	---	---
		5785	24.240	5773.040	5797.280	---	---
		5825	24.000	5812.720	5836.720	---	---
11N40SISO	Ant1	5190	44.000	5168.240	5212.240	---	---
		5230	43.840	5208.320	5252.160	---	---
		5755	44.800	5733.480	5778.280	---	---
		5795	45.520	5772.520	5818.040	---	---
11AC20SISO	Ant1	5180	23.520	5168.480	5192.000	---	---
		5220	23.880	5208.120	5232.000	---	---
		5240	23.120	5228.400	5251.520	---	---
		5745	24.520	5732.800	5757.320	---	---
		5785	24.280	5772.120	5796.400	---	---
		5825	23.760	5813.040	5836.800	---	---
11AC40SISO	Ant1	5190	41.920	5169.120	5211.040	---	---
		5230	42.480	5208.800	5251.280	---	---
		5755	44.240	5733.400	5777.640	---	---
		5795	44.560	5773.240	5817.800	---	---

11A_Ant1_5180

Agilent Spectrum Analyzer - Swept SA

Center Freq 5.18000000 GHz

Ref Offset 0.4 dB
Ref 20.00 dBm

ΔMkr3 24.88 MHz
2.602 dB

Center 5.18000 GHz
#Res BW 620 kHz
#VBW 2.0 MHz
Sweep 1.000 ms (1001 pts)

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.167 24 GHz	-31.302 dBm			
2	N	1	f	5.177 48 GHz	-2.699 dBm			
3	Δ1	1	f (Δ)	24.88 MHz (Δ)	2.602 dB			

11A_Ant1_5220

Agilent Spectrum Analyzer - Swept SA

Center Freq 5.22000000 GHz

Ref Offset 0.4 dB
Ref 20.00 dBm

ΔMkr3 23.40 MHz
-1.905 dB

Center 5.22000 GHz
#Res BW 620 kHz
#VBW 2.0 MHz
Sweep 1.000 ms (1001 pts)

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.208 88 GHz	-25.242 dBm			
2	N	1	f	5.223 72 GHz	1.026 dBm			
3	Δ1	1	f (Δ)	23.40 MHz (Δ)	-1.905 dB			



11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5220



11N20SISO_Ant1_5240

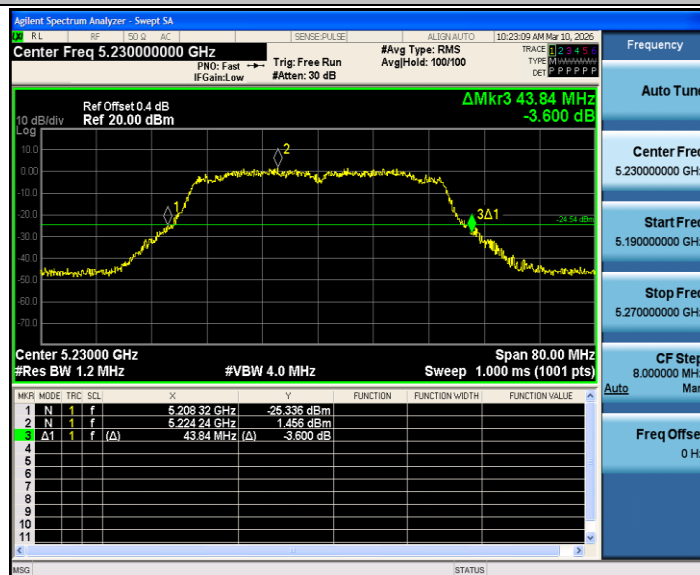


11N20SISO_Ant1_5745

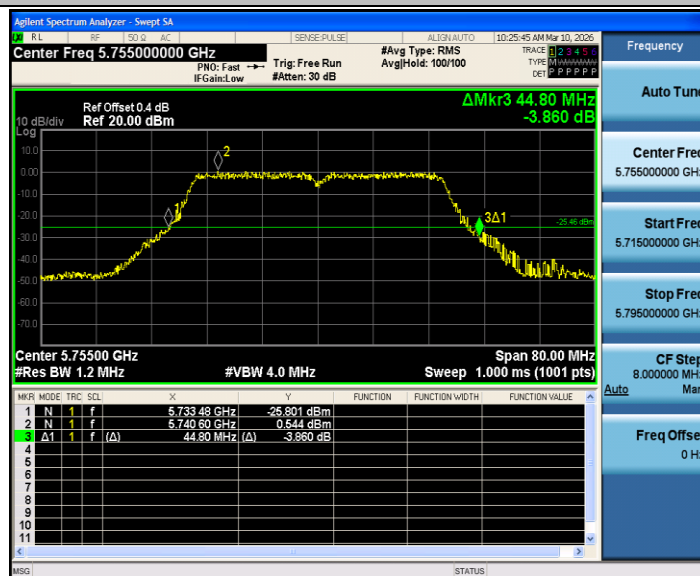




11N40SISO_Ant1_5230

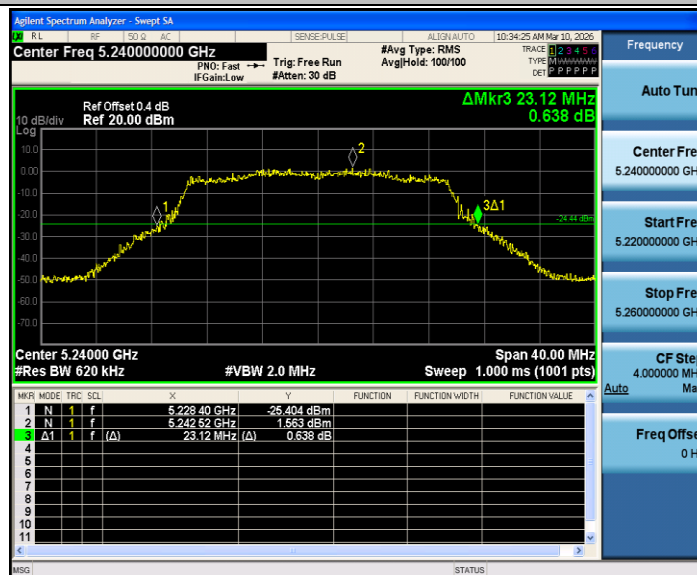


11N40SISO_Ant1_5755

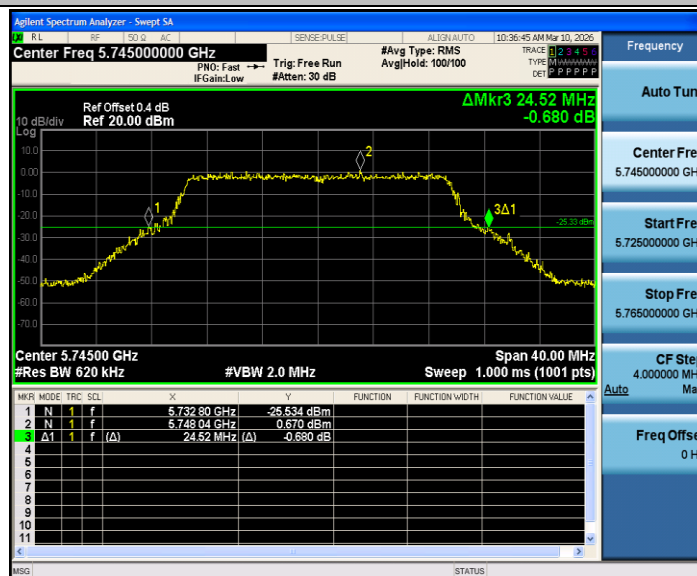




11AC20SISO_Ant1_5240



11AC20SISO_Ant1_5745



11AC20SISO_Ant1_5785



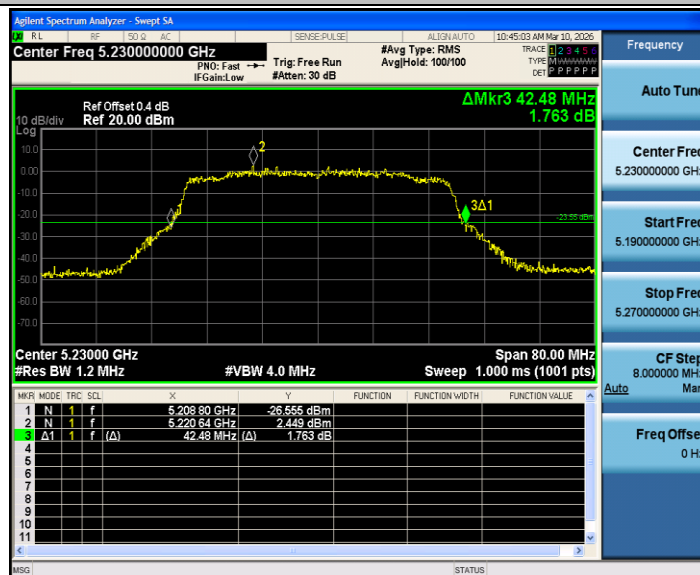
11AC20SISO_Ant1_5825



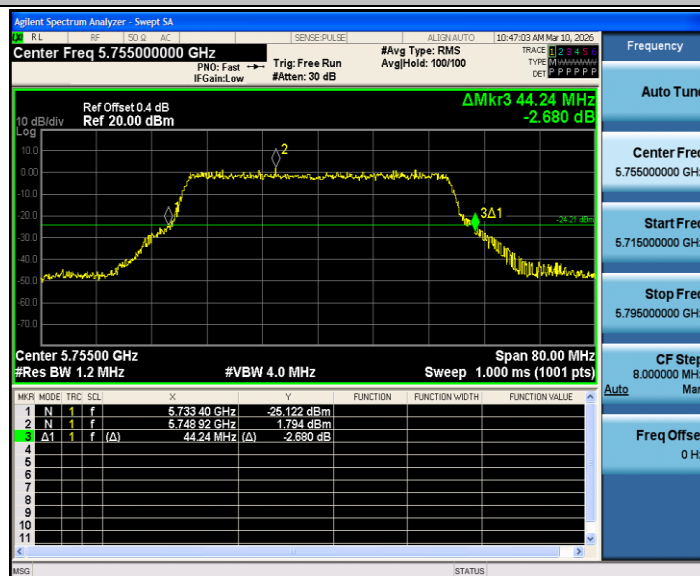
11AC40SISO_Ant1_5190



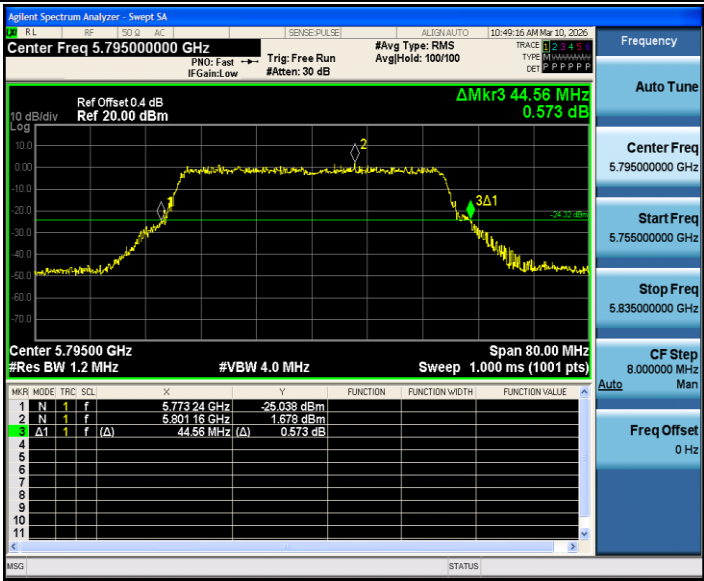
11AC40SISO_Ant1_5230



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795

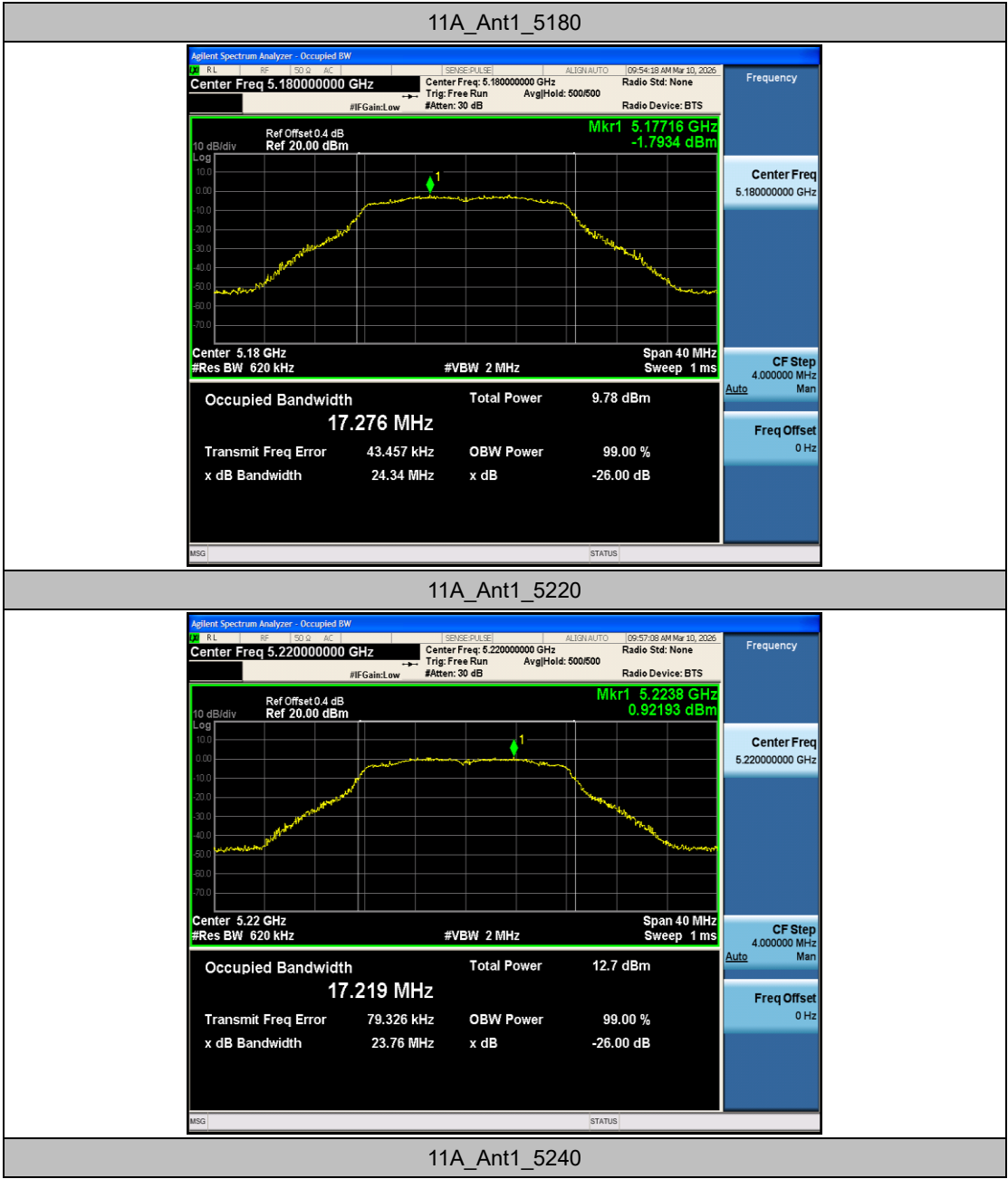


Appendix A2: Occupied channel bandwidth

Test Result

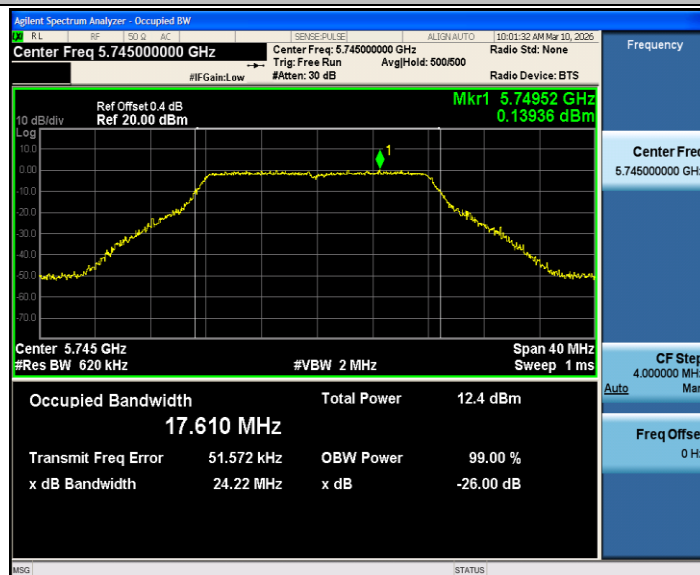
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.276	5171.4055	5188.6815	---	---
		5220	17.219	5211.4698	5228.6888	---	---
		5240	17.217	5231.4375	5248.6545	---	---
		5745	17.610	5736.2466	5753.8566	---	---
		5785	17.644	5776.2138	5793.8578	---	---
		5825	17.649	5816.1806	5833.8296	---	---
11N20SISO	Ant1	5180	18.288	5170.8826	5189.1706	---	---
		5220	18.261	5210.8892	5229.1502	---	---
		5240	18.248	5230.8739	5249.1219	---	---
		5745	18.667	5735.7022	5754.3692	---	---
		5785	18.604	5775.7128	5794.3168	---	---
		5825	18.665	5815.6560	5834.3210	---	---
11N40SISO	Ant1	5190	36.280	5171.9604	5208.2404	---	---
		5230	36.226	5211.9609	5248.1869	---	---
		5755	36.955	5736.6200	5773.5750	---	---
		5795	36.936	5776.6231	5813.5591	---	---
11AC20SISO	Ant1	5180	19.082	5170.5214	5189.6034	---	---
		5220	19.154	5210.4617	5229.6157	---	---
		5240	19.138	5230.4846	5249.6226	---	---
		5745	19.373	5735.3386	5754.7116	---	---
		5785	19.460	5775.2783	5794.7383	---	---
		5825	19.421	5815.3104	5834.7314	---	---
11AC40SISO	Ant1	5190	37.674	5171.2324	5208.9064	---	---
		5230	37.804	5211.1813	5248.9853	---	---
		5755	38.327	5735.9370	5774.2640	---	---
		5795	38.307	5775.9717	5814.2787	---	---

Test Graphs

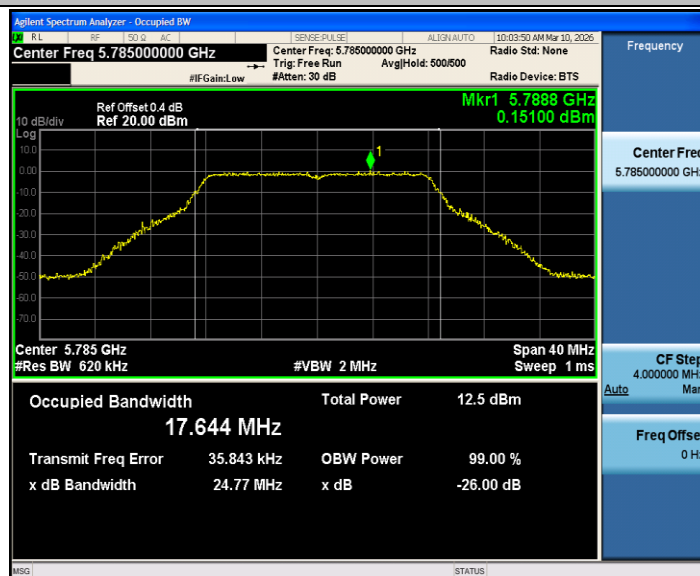




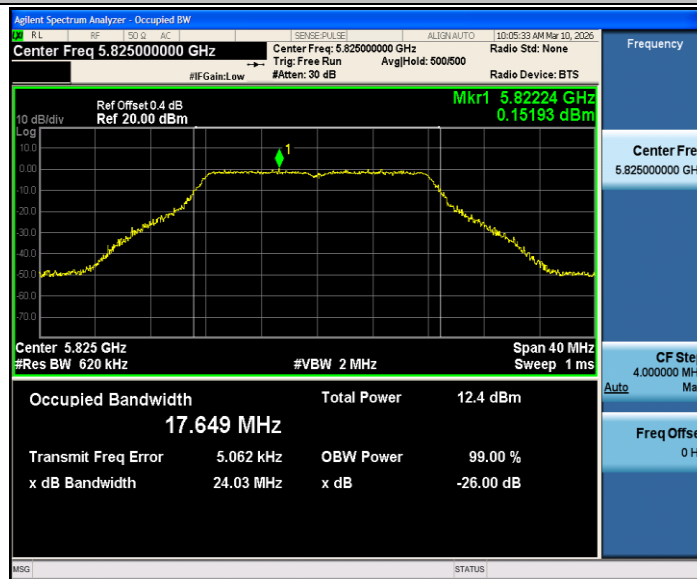
11A_Ant1_5745



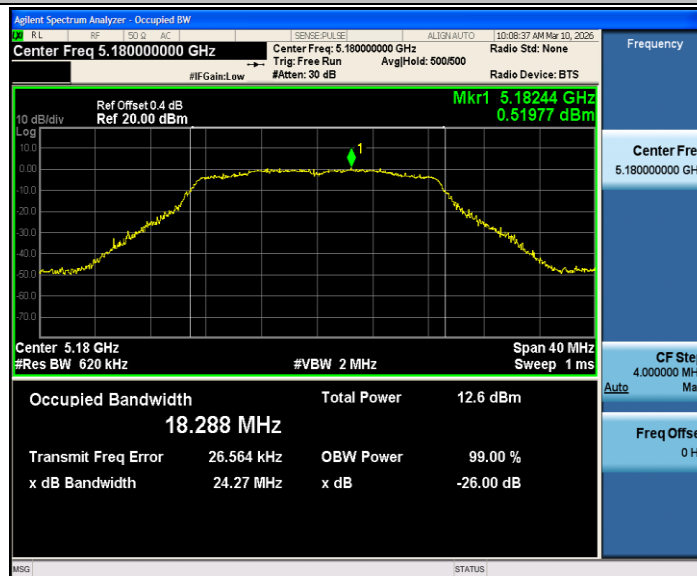
11A_Ant1_5785



11A_Ant1_5825



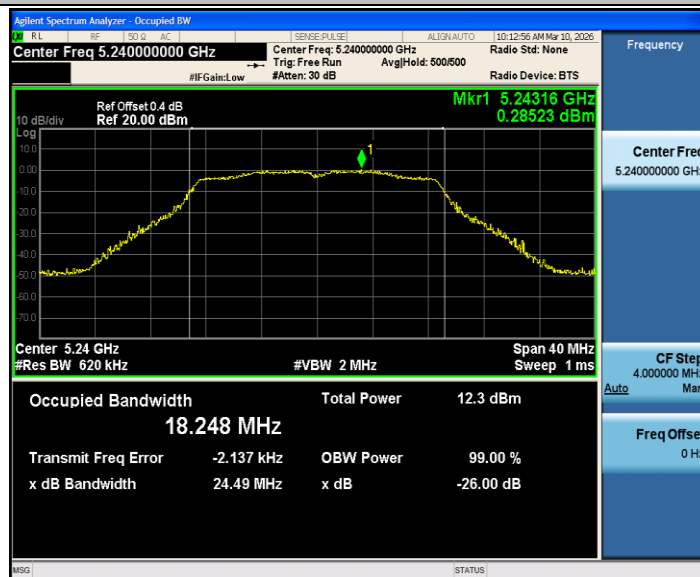
11N20SISO_Ant1_5180



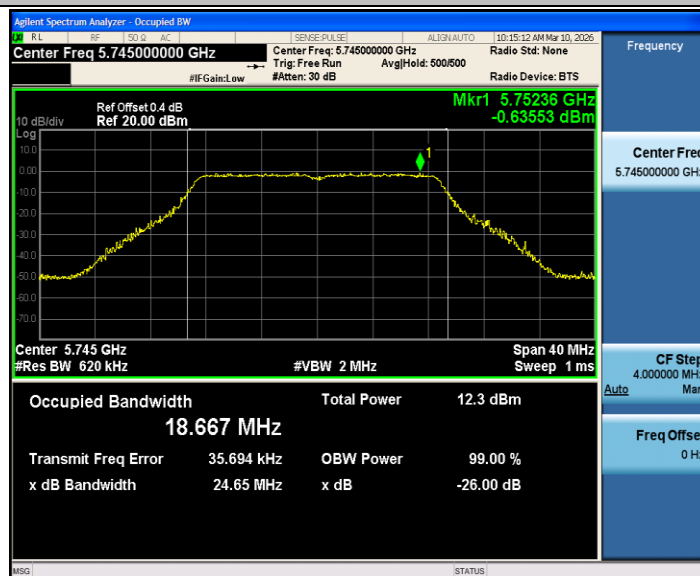
11N20SISO_Ant1_5220



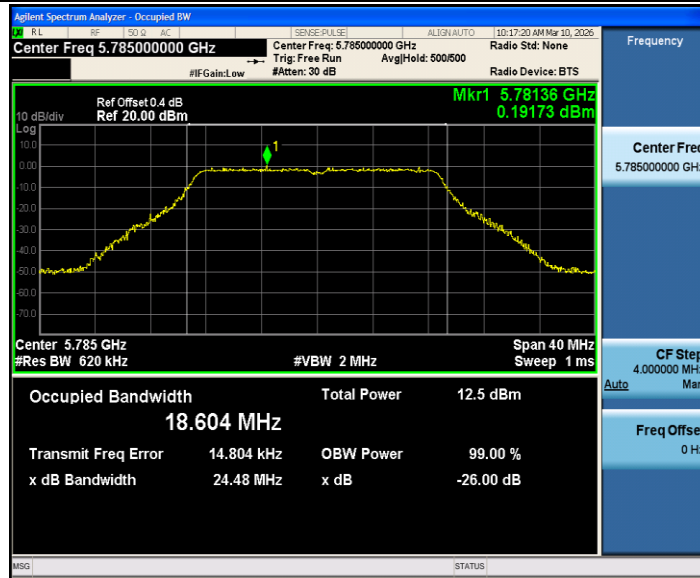
11N20SISO_Ant1_5240



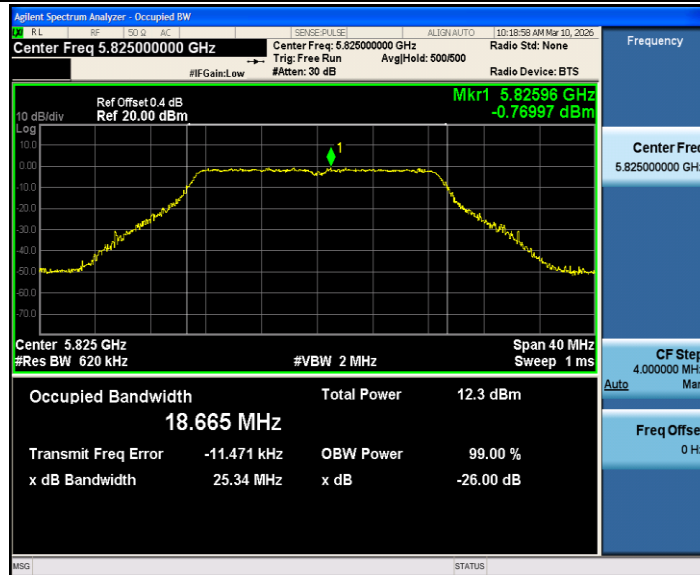
11N20SISO_Ant1_5745



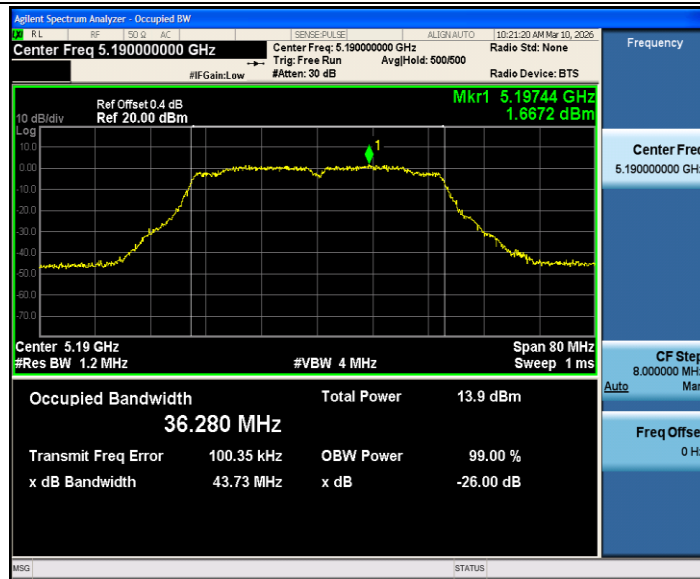
11N20SISO_Ant1_5785



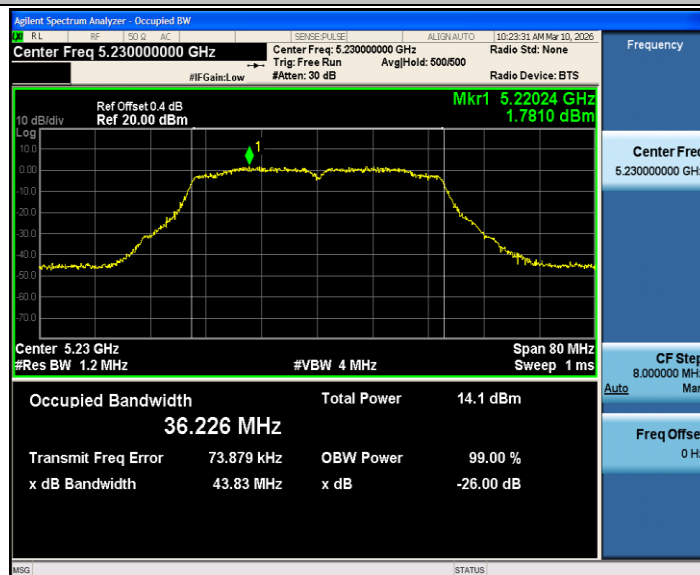
11N20SISO_Ant1_5825



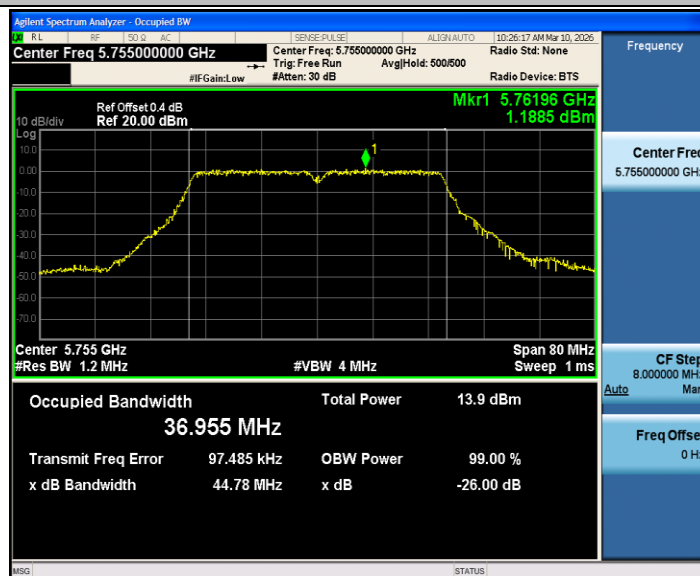
11N40SISO_Ant1_5190



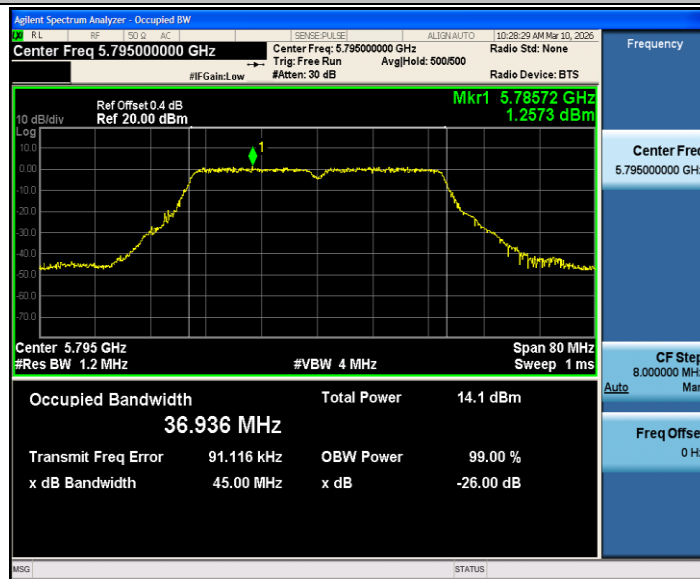
11N40SISO_Ant1_5230



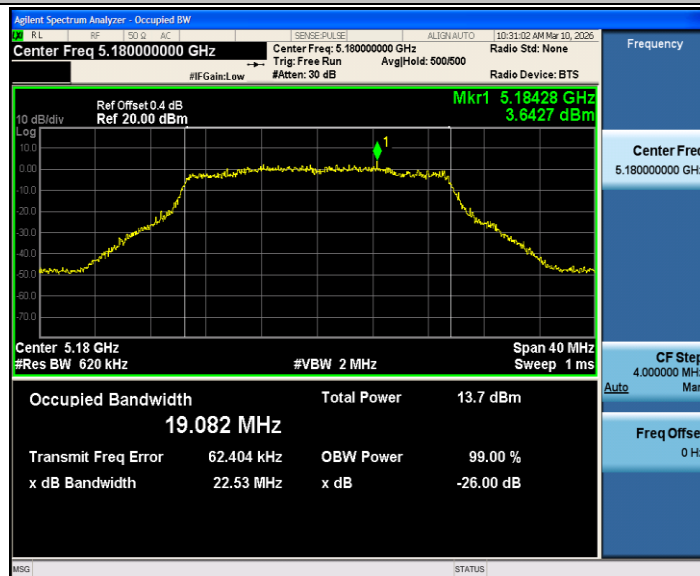
11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



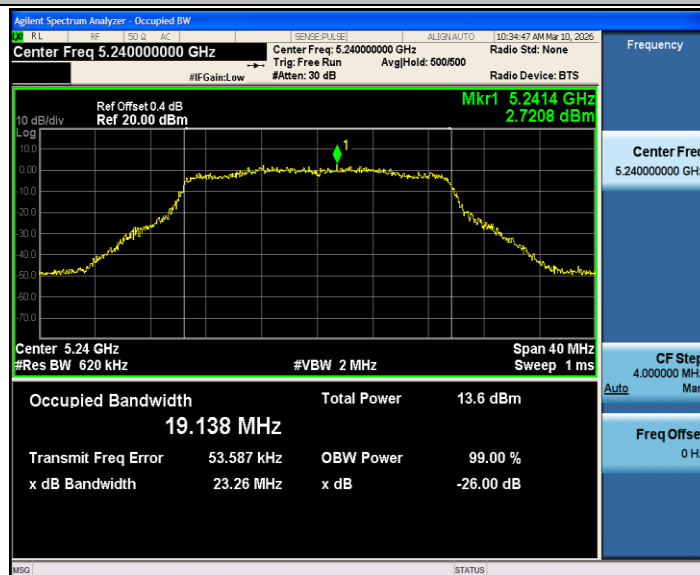
11AC20SISO_Ant1_5180



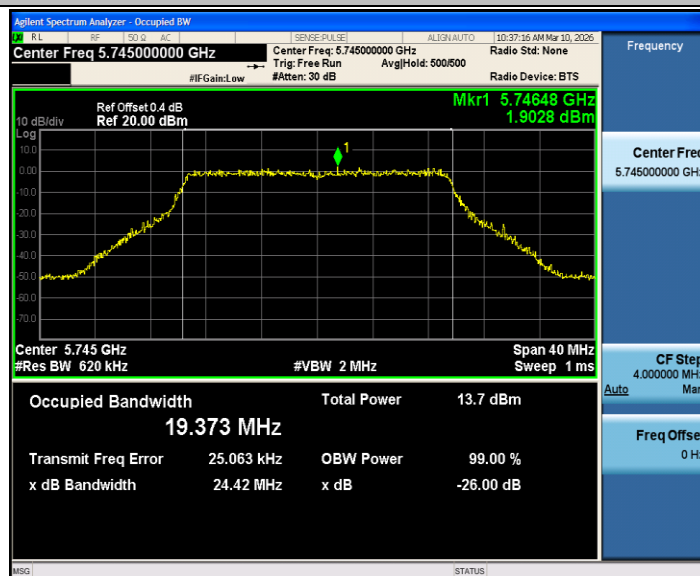
11AC20SISO_Ant1_5220



11AC20SISO_Ant1_5240



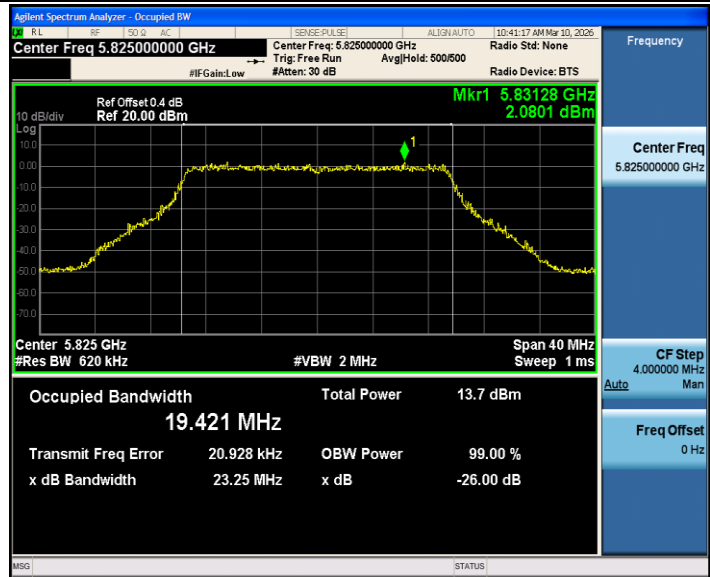
11AC20SISO_Ant1_5745



11AC20SISO_Ant1_5785



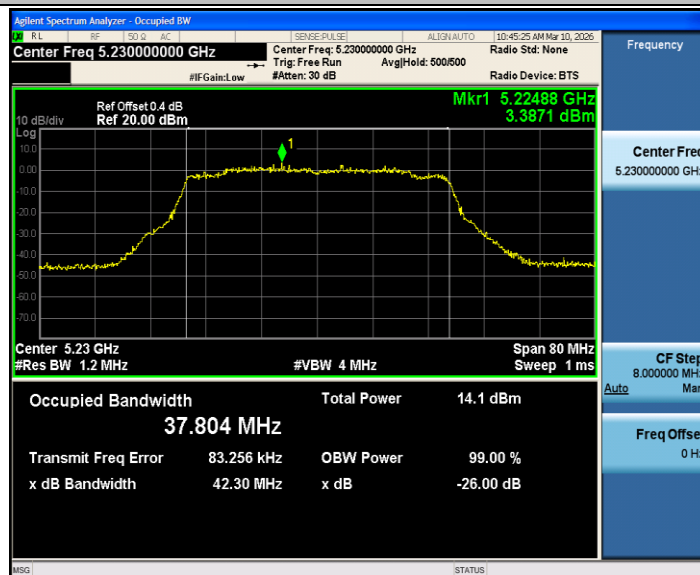
11AC20SISO_Ant1_5825



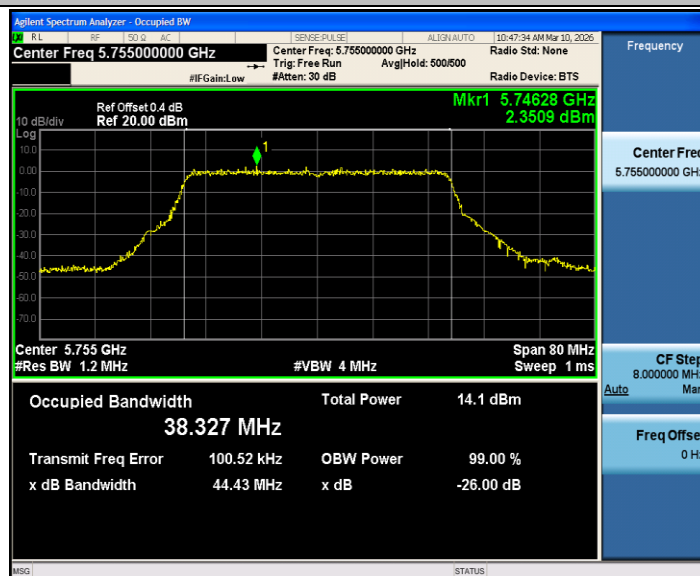
11AC40SISO_Ant1_5190



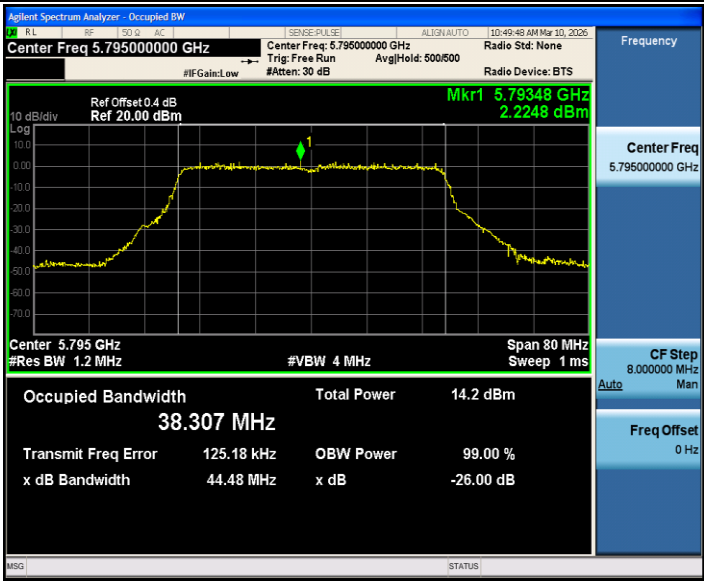
11AC40SISO_Ant1_5230



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



Appendix A3: Min emission bandwidth

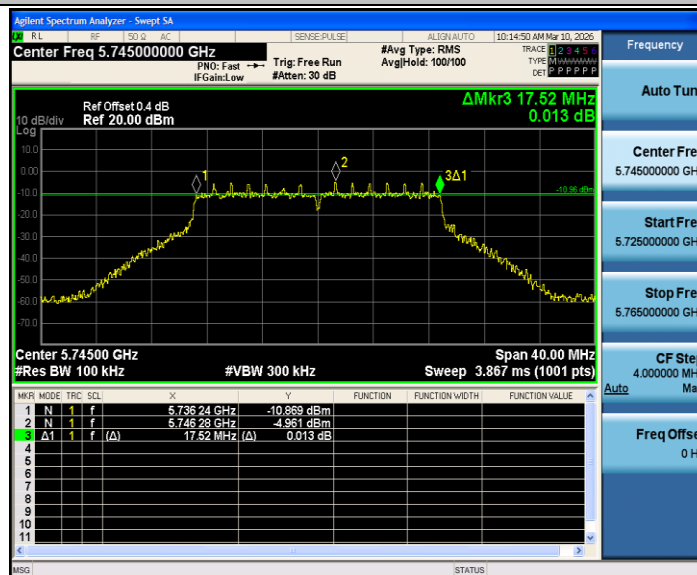
Test Result B4

TestMode	Antenna	Freq(MHz)	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.320	5736.840	5753.160	0.5	PASS
		5785	16.320	5776.840	5793.160	0.5	PASS
		5825	16.320	5816.840	5833.160	0.5	PASS
11N20SISO	Ant1	5745	17.520	5736.240	5753.760	0.5	PASS
		5785	17.520	5776.240	5793.760	0.5	PASS
		5825	17.520	5816.240	5833.760	0.5	PASS
11N40SISO	Ant1	5755	36.320	5736.840	5773.160	0.5	PASS
		5795	36.080	5777.080	5813.160	0.5	PASS
11AC20SISO	Ant1	5745	18.560	5735.840	5754.400	0.5	PASS
		5785	18.520	5775.720	5794.240	0.5	PASS
		5825	18.680	5815.680	5834.360	0.5	PASS
11AC40SISO	Ant1	5755	37.600	5736.280	5773.880	0.5	PASS
		5795	37.600	5776.280	5813.880	0.5	PASS

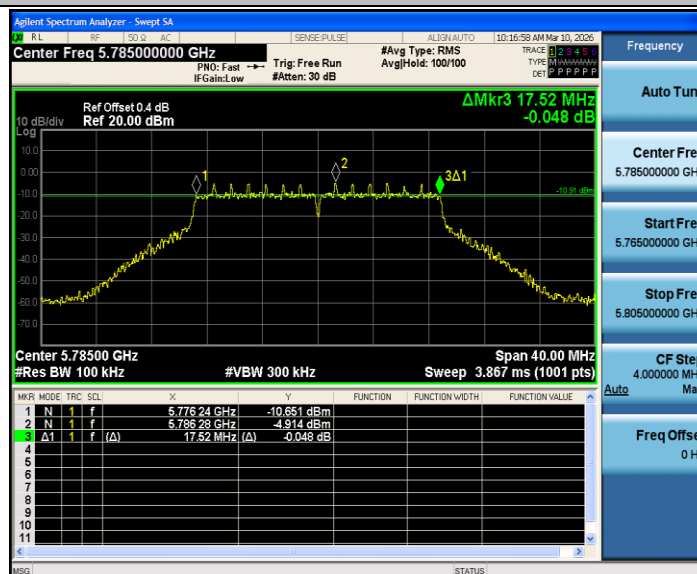
[illegible]



11N20SISO_Ant1_5745



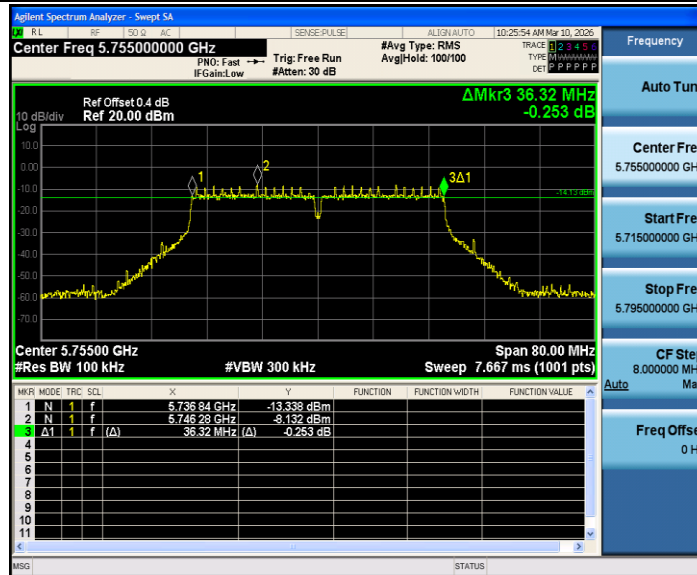
11N20SISO_Ant1_5785



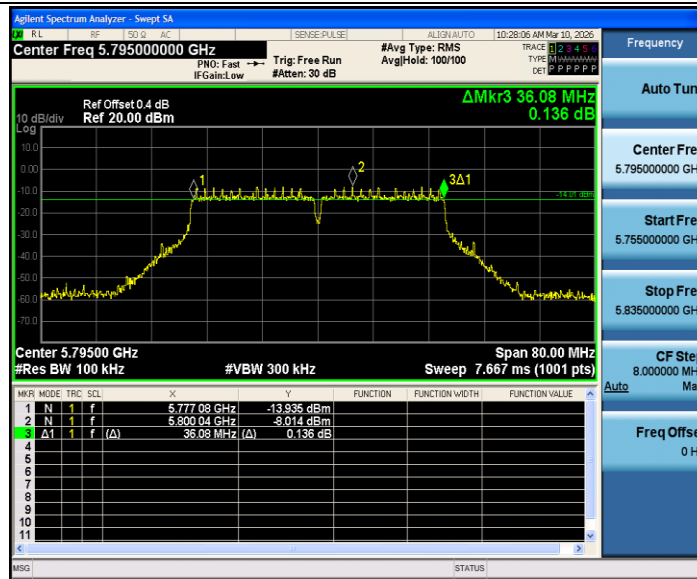
11N20SISO_Ant1_5825



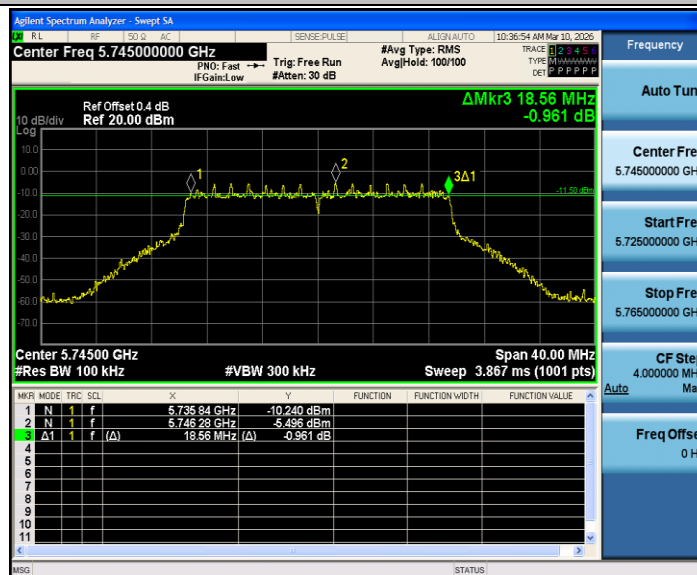
11N40SISO_Ant1_5755



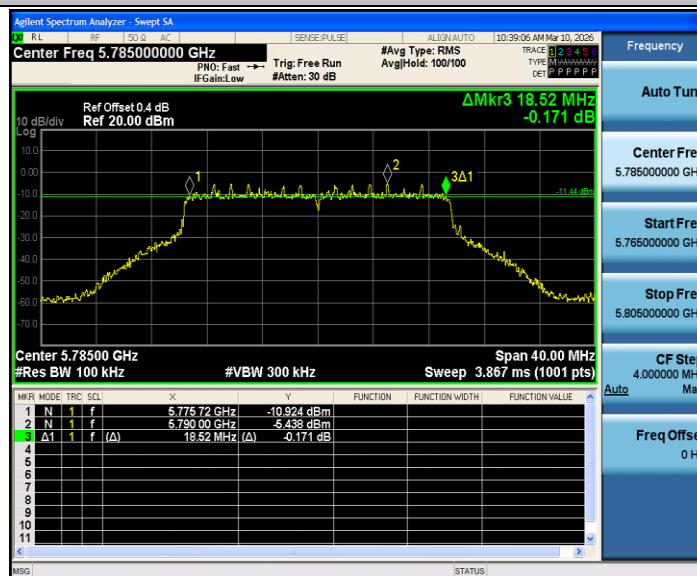
11N40SISO_Ant1_5795

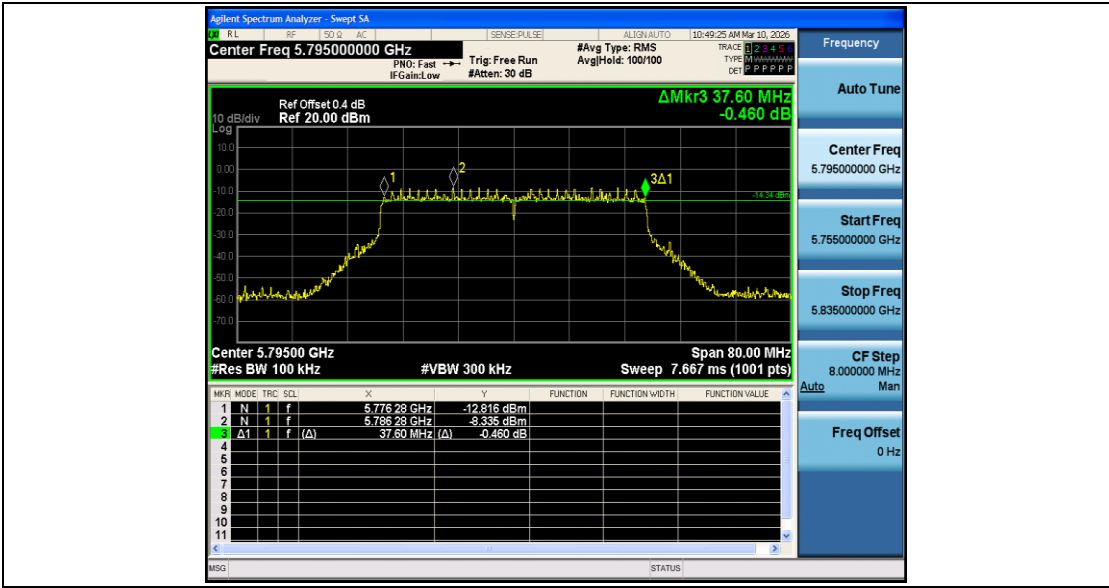


11AC20SISO_Ant1_5745



11AC20SISO_Ant1_5785





Appendix B: Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	DC Factor [dB]	Limit	Verdict
11A	Ant1	5180	0.15	0.19	78.95	1.03	---	---
		5220	0.15	0.20	75.00	1.25	---	---
		5240	0.15	0.19	78.95	1.03	---	---
		5745	0.14	0.19	73.68	1.33	---	---
		5785	0.15	0.19	78.95	1.03	---	---
		5825	0.14	0.19	73.68	1.33	---	---
11N20SISO	Ant1	5180	0.17	0.22	77.27	1.12	---	---
		5220	0.18	0.22	81.82	0.87	---	---
		5240	0.18	0.23	78.26	1.06	---	---
		5745	0.18	0.23	78.26	1.06	---	---
		5785	0.17	0.22	77.27	1.12	---	---
		5825	0.18	0.22	81.82	0.87	---	---
11N40SISO	Ant1	5190	0.18	0.23	78.26	1.06	---	---
		5230	0.18	0.23	78.26	1.06	---	---
		5755	0.18	0.22	81.82	0.87	---	---
		5795	0.18	0.23	78.26	1.06	---	---
11AC20SISO	Ant1	5180	0.26	0.30	86.67	0.62	---	---
		5220	0.26	0.30	86.67	0.62	---	---
		5240	0.26	0.31	83.87	0.76	---	---
		5745	0.26	0.31	83.87	0.76	---	---
		5785	0.26	0.30	86.67	0.62	---	---
		5825	0.26	0.31	83.87	0.76	---	---
11AC40SISO	Ant1	5190	0.18	0.23	78.26	1.06	---	---
		5230	0.17	0.22	77.27	1.12	---	---
		5755	0.18	0.23	78.26	1.06	---	---
		5795	0.17	0.22	77.27	1.12	---	---