

RF Test Data for RLAN(5.2G) (Conducted Measurement)

Product Name: SKYBOXE 4G

Trade Mark: SKYBOXE

Test Model: SB4GTVLM940

FCC ID: 2AWJS-SB4GTVLM940

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	55.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: Emission Bandwidth

Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant0	5180	19.160	5170.240	5189.400	---	PASS
	Ant1	5180	19.080	5170.320	5189.400	---	PASS
	Ant0	5200	19.120	5190.360	5209.480	---	PASS
	Ant1	5200	19.280	5190.240	5209.520	---	PASS
	Ant0	5240	19.320	5230.240	5249.560	---	PASS
	Ant1	5240	19.280	5230.200	5249.480	---	PASS
11N20MIMO	Ant0	5180	19.960	5169.920	5189.880	---	PASS
	Ant1	5180	19.920	5170.040	5189.960	---	PASS
	Ant0	5200	20.040	5189.960	5210.000	---	PASS
	Ant1	5200	20.120	5189.960	5210.080	---	PASS
	Ant0	5240	19.880	5229.960	5249.840	---	PASS
	Ant1	5240	20.160	5229.880	5250.040	---	PASS
11N40MIMO	Ant0	5190	39.120	5170.560	5209.680	---	PASS
	Ant1	5190	39.680	5170.320	5210.000	---	PASS
	Ant0	5230	39.040	5210.720	5249.760	---	PASS
	Ant1	5230	39.600	5210.320	5249.920	---	PASS
11AC20MIMO	Ant0	5180	20.000	5169.920	5189.920	---	PASS
	Ant1	5180	20.080	5169.920	5190.000	---	PASS
	Ant0	5200	19.920	5190.040	5209.960	---	PASS
	Ant1	5200	20.120	5189.880	5210.000	---	PASS
	Ant0	5240	20.040	5229.960	5250.000	---	PASS
	Ant1	5240	20.160	5229.880	5250.040	---	PASS
11AC40MIMO	Ant0	5190	39.280	5170.480	5209.760	---	PASS

	Ant1	5190	39.600	5170.240	5209.840	---	PASS
	Ant0	5230	38.960	5210.720	5249.680	---	PASS
	Ant1	5230	39.280	5210.480	5249.760	---	PASS
11AC80MIMO	Ant0	5210	80.080	5167.920	5248.000	---	PASS
	Ant1	5210	80.600	5168.080	5248.680	---	PASS

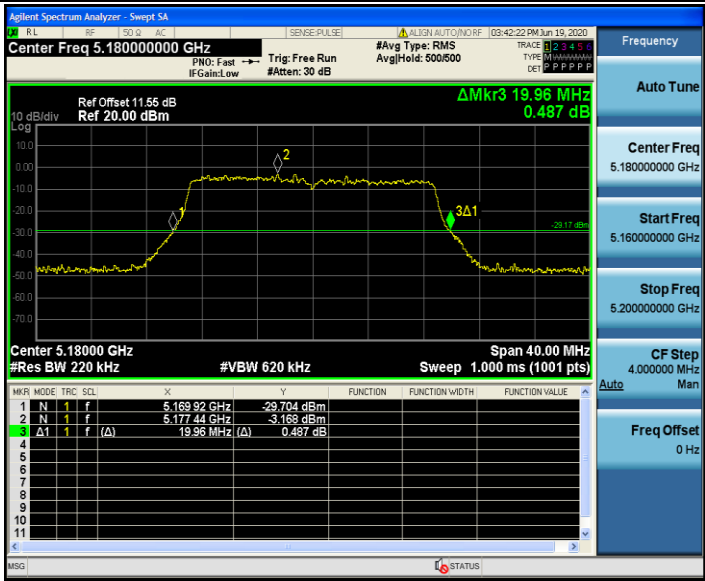
Test Graphs



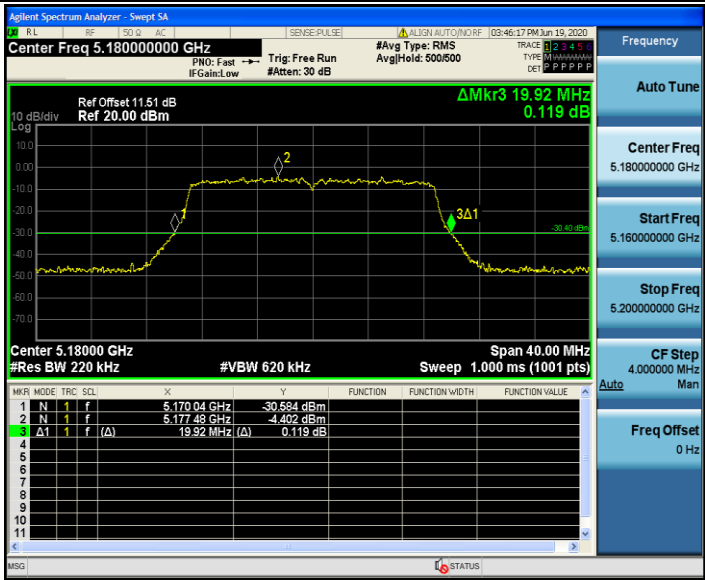




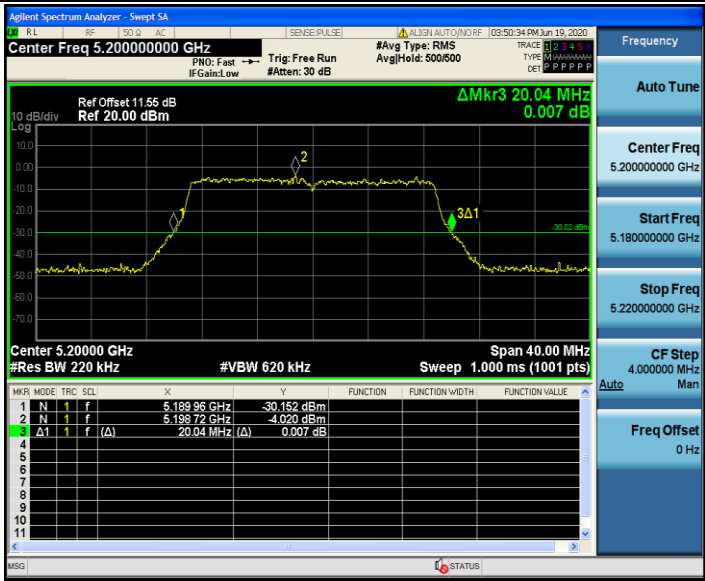
11N20MIMO_Ant0_5180



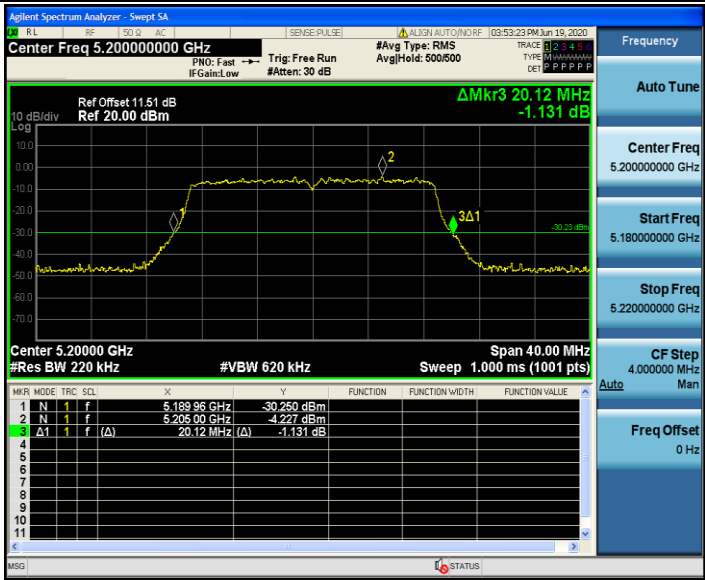
11N20MIMO_Ant1_5180



11N20MIMO_Ant0_5200



11N20MIMO_Ant1_5200









Agilent Spectrum Analyzer - Sweep PSA

RL [SENSE] UPL [ALLEN AUTO] FREQ [05:44:49 PM] Jun 19, 2020

Center Freq 5.180000000 GHz

Trig: Free Run

#Avg Type: RMS

Avg/Hold: 500/500

TYPE [B] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [O] [P] [Q] [R] [S] [T] [U] [V] [W] [X] [Y] [Z] [AA] [AB] [AC] [AD] [AE] [AF] [AG] [AH] [AI] [AJ] [AK] [AL] [AM] [AN] [AO] [AP] [AQ] [AR] [AS] [AT] [AU] [AV] [AW] [AX] [AY] [AZ] [BA] [BB] [BC] [BD] [BE] [BF] [BG] [BH] [BI] [BJ] [BK] [BL] [BM] [BN] [BO] [BP] [BQ] [BR] [BS] [BT] [BU] [BV] [BW] [BX] [BY] [BZ] [CA] [CB] [CC] [CD] [CE] [CF] [CG] [CH] [CI] [CJ] [CK] [CL] [CM] [CN] [CO] [CP] [CQ] [CR] [CS] [CT] [CU] [CV] [CW] [CX] [CY] [CZ] [DA] [DB] [DC] [DD] [DE] [DF] [DG] [DH] [DI] [DJ] [DK] [DL] [DM] [DN] [DO] [DP] [DQ] [DR] [DS] [DT] [DU] [DV] [DW] [DX] [DY] [DZ] [EA] [EB] [EC] [ED] [EE] [EF] [EG] [EH] [EI] [EJ] [EK] [EL] [EM] [EN] [EO] [EP] [EQ] [ER] [ES] [ET] [EU] [EV] [EW] [EX] [EY] [EZ] [FA] [FB] [FC] [FD] [FE] [FF] [FG] [FH] [FI] [FJ] [FK] [FL] [FM] [FN] [FO] [FP] [FQ] [FR] [FS] [FT] [FU] [FV] [FW] [FX] [FY] [FZ] [GA] [GB] [GC] [GD] [GE] [GF] [GG] [GH] [GI] [GJ] [GK] [GL] [GM] [GN] [GO] [GP] [GQ] [GR] [GS] [GT] [GU] [GV] [GW] [GX] [GY] [GZ] [HA] [HB] [HC] [HD] [HE] [HF] [HG] [HH] [HI] [HJ] [HK] [HL] [HM] [HN] [HO] [HP] [HQ] [HR] [HS] [HT] [HU] [HV] [HW] [HX] [HY] [HZ] [IA] [IB] [IC] [ID] [IE] [IF] [IG] [IH] [II] [IJ] [IK] [IL] [IM] [IN] [IO] [IP] [IQ] [IR] [IS] [IT] [IU] [IV] [IW] [IX] [IY] [IZ] [JA] [JB] [JC] [JD] [JE] [JF] [JG] [JH] [JI] [JJ] [JK] [JL] [JM] [JN] [JO] [JP] [JQ] [JR] [JS] [JT] [JU] [JV] [JW] [JX] [JY] [JZ] [KA] [KB] [KC] [KD] [KE] [KF] [KG] [KH] [KI] [KJ] [KK] [KL] [KM] [KN] [KO] [KP] [KQ] [KR] [KS] [KT] [KU] [KV] [KW] [KX] [KY] [KZ] [LA] [LB] [LC] [LD] [LE] [LF] [LG] [LH] [LI] [LJ] [LK] [LL] [LM] [LN] [LO] [LP] [LQ] [LR] [LS] [LT] [LU] [LV] [LW] [LX] [LY] [LZ] [MA] [MB] [MC] [MD] [ME] [MF] [MG] [MH] [MI] [MJ] [MK] [ML] [MM] [MN] [MO] [MP] [MQ] [MR] [MS] [MT] [MU] [MV] [MW] [MX] [MY] [MZ] [NA] [NB] [NC] [ND] [NE] [NF] [NG] [NH] [NI] [NJ] [NK] [NL] [NM] [NN] [NO] [NP] [NQ] [NR] [NS] [NT] [NU] [NV] [NW] [NX] [NY] [NZ] [OA] [OB] [OC] [OD] [OE] [OF] [OG] [OH] [OI] [OJ] [OK] [OL] [OM] [ON] [OO] [OP] [OQ] [OR] [OS] [OT] [OU] [OV] [OW] [OX] [OY] [OZ] [PA] [PB] [PC] [PD] [PE] [PF] [PG] [PH] [PI] [PJ] [PK] [PL] [PM] [PN] [PO] [PP] [PQ] [PR] [PS] [PT] [PU] [PV] [PW] [PX] [PY] [PZ] [QA] [QB] [QC] [QD] [QE] [QF] [QG] [QH] [QI] [QJ] [QK] [QL] [QM] [QN] [QO] [QP] [QQ] [QR] [QS] [QT] [QU] [QV] [QW] [QX] [QY] [QZ] [RA] [RB] [RC] [RD] [RE] [RF] [RG] [RH] [RI] [RJ] [RK] [RL] [RM] [RN] [RO] [RP] [RQ] [RR] [RS] [RT] [RU] [RV] [RW] [RX] [RY] [RZ] [SA] [SB] [SC] [SD] [SE] [SF] [SG] [SH] [SI] [SJ] [SK] [SL] [SM] [SN] [SO] [SP] [SQ] [SR] [SS] [ST] [SU] [SV] [SW] [SX] [SY] [SZ] [TA] [TB] [TC] [TD] [TE] [TF] [TG] [TH] [TI] [TJ] [TK] [TL] [TM] [TN] [TO] [TP] [TQ] [TR] [TS] [TT] [TU] [TV] [TW] [TX] [TY] [TZ] [UA] [UB] [UC] [UD] [UE] [UF] [UG] [UH] [UI] [UJ] [UK] [UL] [UM] [UN] [UO] [UP] [UQ] [UR] [US] [UT] [UU] [UV] [UW] [UX] [UY] [UZ] [VA] [VB] [VC] [VD] [VE] [VF] [VG] [VH] [VI] [VJ] [VK] [VL] [VM] [VN] [VO] [VP] [VQ] [VR] [VS] [VT] [VU] [VV] [VW] [VX] [VY] [VZ] [WA] [WB] [WC] [WD] [WE] [WF] [WG] [WH] [WI] [WJ] [WK] [WL] [WM] [WN] [WO] [WP] [WQ] [WR] [WS] [WT] [WU] [WV] [WW] [WX] [WY] [WZ] [XA] [XB] [XC] [XD] [XE] [XF] [XG] [XH] [XI] [XJ] [XK] [XL] [XM] [XN] [XO] [XP] [XQ] [XR] [XS] [XT] [XU] [XV] [XW] [XX] [XY] [XZ] [YA] [YB] [YC] [YD] [YE] [YF] [YG] [YH] [YI] [YJ] [YK] [YL] [YM] [YN] [YO] [YP] [YQ] [YR] [YS] [YT] [YU] [YV] [YW] [YX] [YY] [YZ] [ZA] [ZB] [ZC] [ZD] [ZE] [ZF] [ZG] [ZH] [ZI] [ZJ] [ZK] [ZL] [ZM] [ZN] [ZO] [ZP] [ZQ] [ZR] [ZS] [ZT] [ZU] [ZV] [ZW] [ZX] [ZY] [ZZ]

Ref Offset 11.55 dB

Ref 20.00 dBm

DMkr3 20.00 MHz

0.182 dB

29.91 dBm

Center 5.18000000 GHz

Start Freq 5.180000000 GHz

Stop Freq 5.200000000 GHz

CF Step 4.0000000 MHz

Auto

VBW 620 kHz

Sweep 1.000 ms (1001 pts)

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.169 92 GHz	-29.767 dBm			
2	N	1	f	5.172 48 GHz	-3.305 dBm			
3	Δ1	1	f (Δ)	20.00 MHz (Δ)	0.182 dB			
4								
5								
6								
7								
8								
9								
10								
11								

MSG

STATUS

[illegible]

Agilent Spectrum Analyzer - Sweep SA

RL RF ISO Q AC SENSE/USE AL331N AUTO/NOIRF 05:53:18 PM Jun 19, 2020

Center Freq 5.200000000 GHz #Avg Type: RMS Trace 1 2 3 4 5
 PNO: Fast IF Gain: Low Trig: Free Run Avg/hold: 500/500 Type: BW Max Hold
 #Atten: 30 dB Det: P P P P P

Ref Offset 11.55 dB Δ Mkr3 19.92 MHz
 Ref 20.00 dBm -0.020 dB

Center 5.20000 GHz Span 40.00 MHz
 #Res BW 220 kHz #VBW 620 kHz Sweep 1.000 ms (1001 pts)

MKR	MODE	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.190 04 GHz	-29.914 dBm			
2	N	1	f	5.203 72 GHz	-3.539 dBm			
3	A1	1	f	(Δ) 19.92 MHz	(Δ) -0.020 dB			
4								
5								
6								
7								
8								
9								
10								
11								

Auto Ma

Freq Offset 0 Hz

STATUS

Agilent Spectrum Analyzer - Sweep SA

IF IL RF SQ Q AC [SENSE] PLUSE ALIGN AUTO/MNORF 05:56:16 PM Jun 19, 2020

Center Freq 5.20000000 GHz Trig: Free Run #Avg Type: RMS AvgHold: 500/500
PNO: Fast IF Gain: Low #Atten: 30 dB

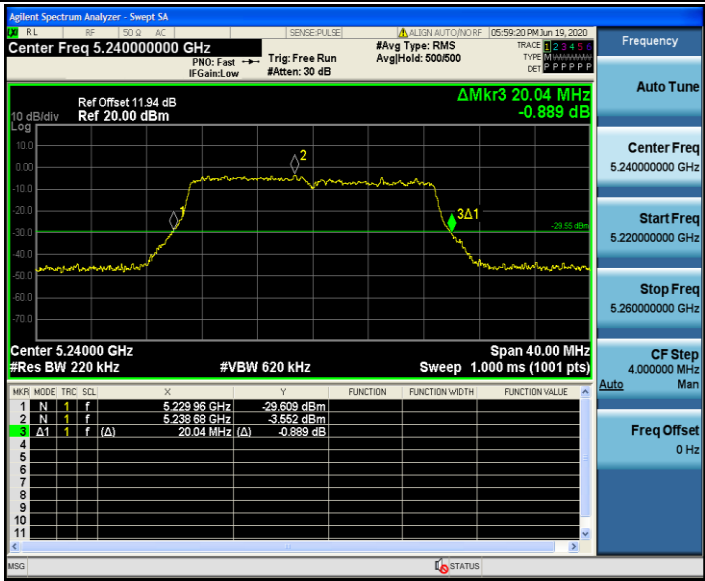
Ref Offset 11.51 dB Ref 20.00 dBm

DMkr3 20.12 MHz 0.787 dB

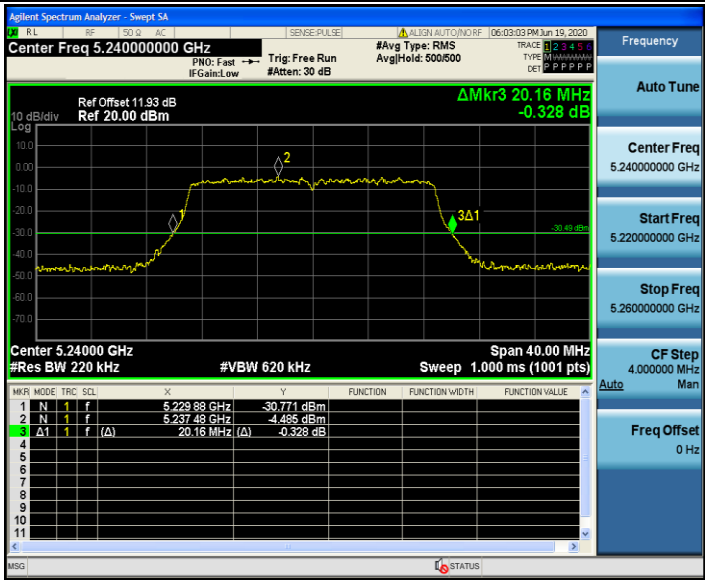
Center 5.20000 GHz **#Res BW 220 kHz** **#VBW 620 kHz** **Sweep 1.000 ms (1001 pts)** **Span 40.00 MHz**

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.188 88 GHz	-31.273 dBm			
2	N	1	f	5.206 00 GHz	-4.195 dBm			
3	A1	1	f	(Δ) 20.12 MHz (Δ)	0.787 dB			

11AC20MIMO_Ant0_5240



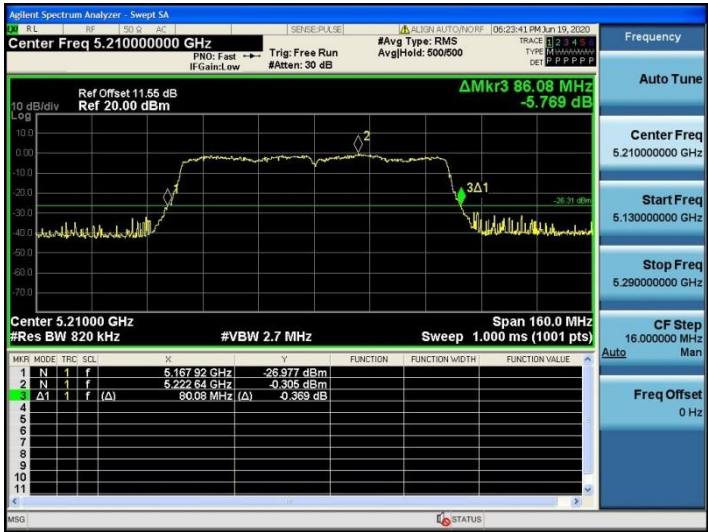
11AC20MIMO_Ant1_5240







11AC80MIMO_Ant0_5210



11AC80MIMO_Ant1_5210



Appendix B: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant0	5180	9.44	<=30	PASS
	Ant1	5180	8.68	<=30	PASS
	Ant0	5200	8.35	<=30	PASS
	Ant1	5200	8.72	<=30	PASS
	Ant0	5240	8.51	<=30	PASS
	Ant1	5240	8.80	<=30	PASS
11N20MIMO	Ant0	5180	6.18	<=30	PASS
	Ant1	5180	5.83	<=30	PASS
	total	5180	9.0	<=27.94	PASS
	Ant0	5200	5.88	<=30	PASS
	Ant1	5200	5.94	<=30	PASS
	total	5200	8.9	<=27.94	PASS
	Ant0	5240	6.14	<=30	PASS
	Ant1	5240	5.96	<=30	PASS
	total	5240	9.1	<=27.94	PASS
11N40MIMO	Ant0	5190	5.84	<=30	PASS
	Ant1	5190	5.35	<=30	PASS
	total	5190	8.6	<=27.94	PASS
	Ant0	5230	6.58	<=30	PASS
	Ant1	5230	6.95	<=30	PASS
	total	5230	9.8	<=27.94	PASS
11AC20MIMO	Ant0	5180	6.27	<=30	PASS
	Ant1	5180	5.79	<=30	PASS
	total	5180	9.0	<=27.94	PASS
	Ant0	5200	5.98	<=30	PASS
	Ant1	5200	5.99	<=30	PASS
	total	5200	9.0	<=27.94	PASS
	Ant0	5240	6.16	<=30	PASS
	Ant1	5240	5.96	<=30	PASS
	total	5240	9.1	<=27.94	PASS
11AC40MIMO	Ant0	5190	5.82	<=30	PASS
	Ant1	5190	5.39	<=30	PASS
	total	5190	8.6	<=27.94	PASS
	Ant0	5230	6.60	<=30	PASS
	Ant1	5230	6.93	<=30	PASS
	total	5230	9.8	<=27.94	PASS
11AC80MIMO	Ant0	5210	9.08	<=30	PASS
	Ant1	5210	9.13	<=30	PASS
	total	5210	12.1	<=27.94	PASS

Note: The Duty Cycle Factor is compensated in the graph.

Appendix C: Maximum power spectral density

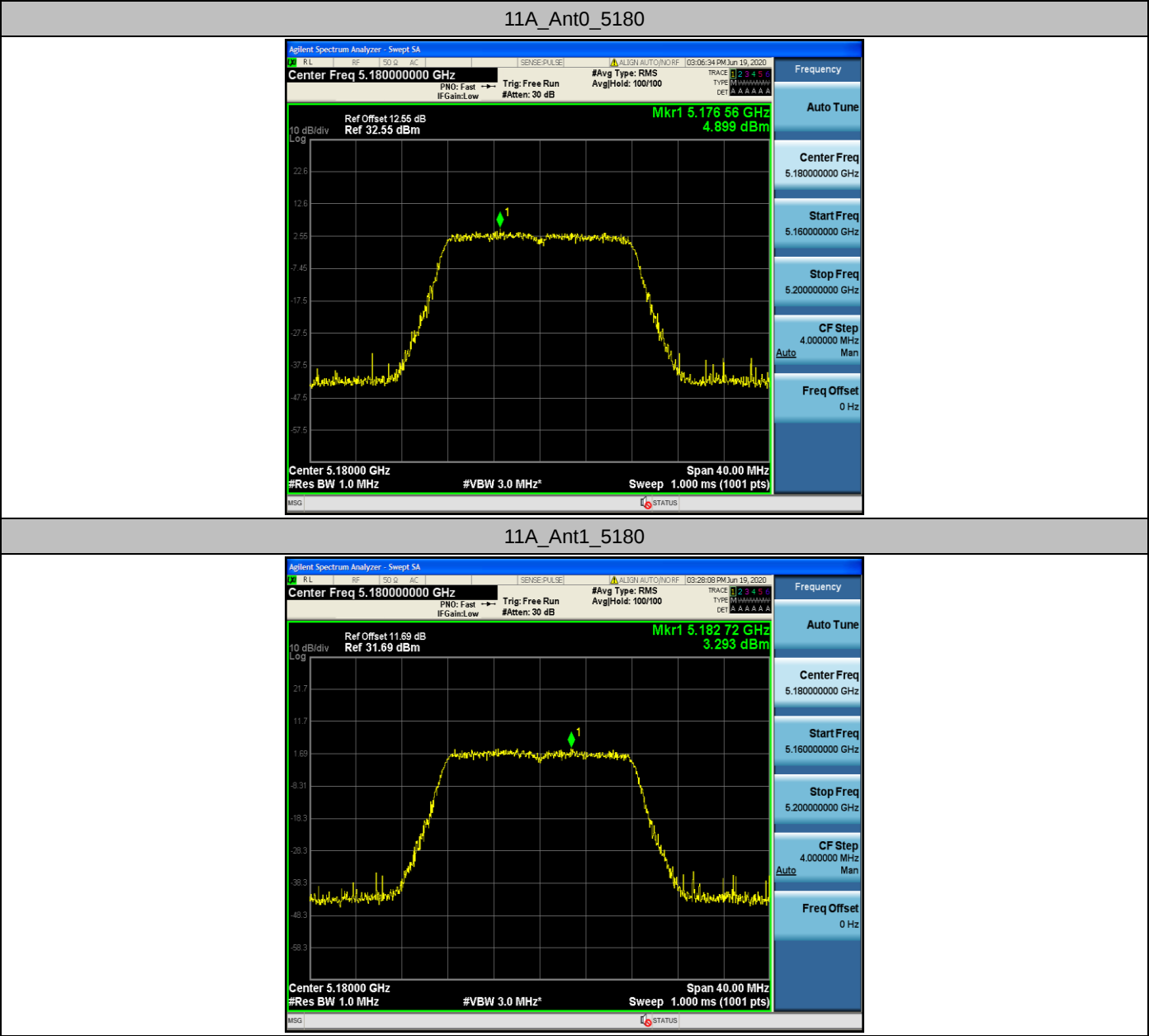
Test Result

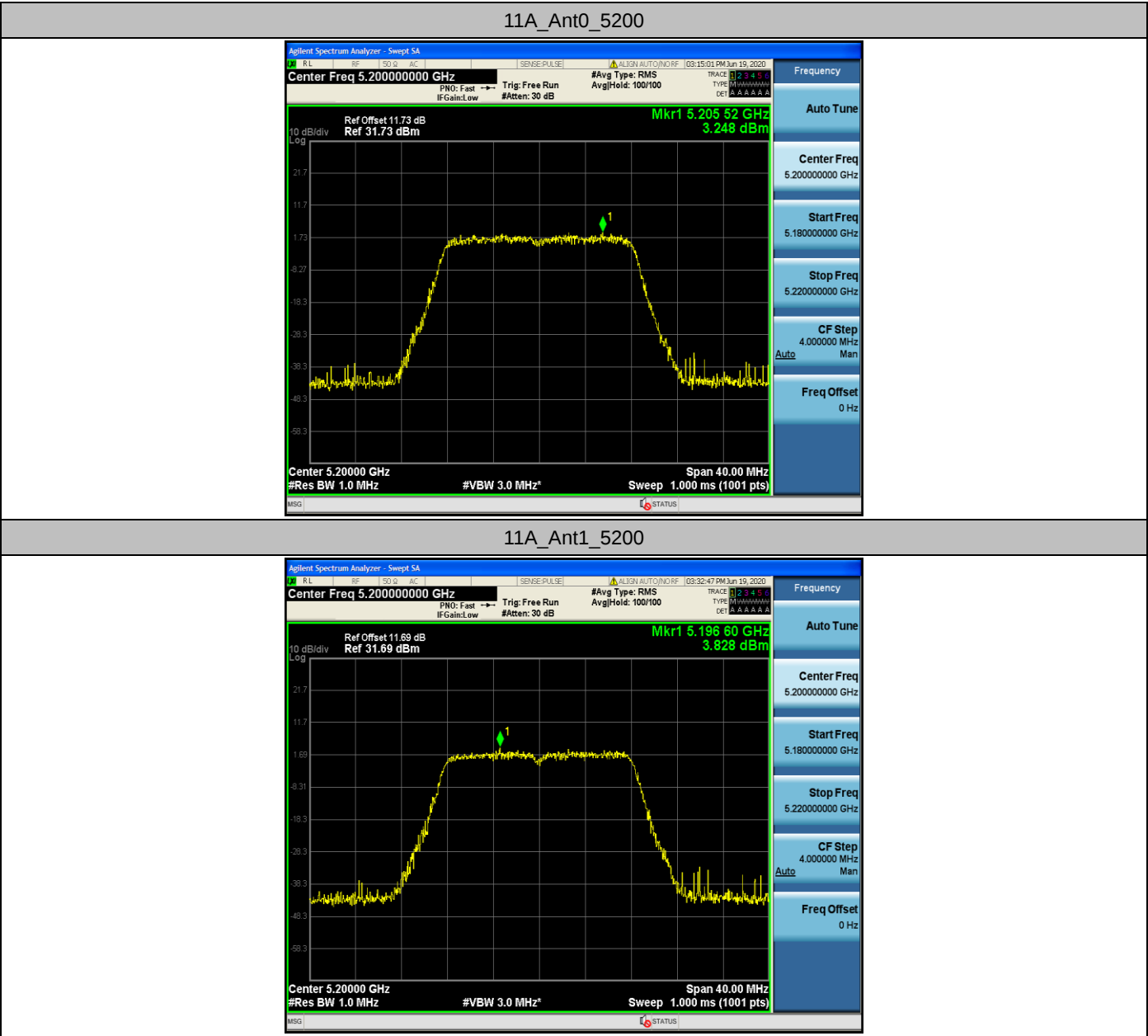
TestMode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant0	5180	4.9	<=17	PASS
	Ant1	5180	3.29	<=17	PASS
	Ant0	5200	3.25	<=17	PASS
	Ant1	5200	3.83	<=17	PASS
	Ant0	5240	3.13	<=17	PASS
	Ant1	5240	3.4	<=17	PASS
11N20MIMO	Ant0	5180	1.31	<=17	PASS
	Ant1	5180	0.87	<=17	PASS
	total	5180	4.11	<=14.94	PASS
	Ant0	5200	0.88	<=17	PASS
	Ant1	5200	1	<=17	PASS
	total	5200	3.95	<=14.94	PASS
	Ant0	5240	1.23	<=17	PASS
	Ant1	5240	1.55	<=17	PASS
	total	5240	4.40	<=14.94	PASS
11N40MIMO	Ant0	5190	-2.1	<=17	PASS
	Ant1	5190	-3.41	<=17	PASS
	total	5190	0.30	<=14.94	PASS
	Ant0	5230	-1.45	<=17	PASS
	Ant1	5230	-1.65	<=17	PASS
	total	5230	1.46	<=14.94	PASS
11AC20MIMO	Ant0	5180	1.36	<=17	PASS
	Ant1	5180	0.88	<=17	PASS
	total	5180	4.14	<=14.94	PASS
	Ant0	5200	0.77	<=17	PASS
	Ant1	5200	1.56	<=17	PASS
	total	5200	4.19	<=14.94	PASS
	Ant0	5240	1.07	<=17	PASS
	Ant1	5240	0.97	<=17	PASS
	total	5240	4.03	<=14.94	PASS
11AC40MIMO	Ant0	5190	-2.42	<=17	PASS
	Ant1	5190	-3.59	<=17	PASS
	total	5190	0.04	<=14.94	PASS
	Ant0	5230	-1.31	<=17	PASS
	Ant1	5230	-1.54	<=17	PASS
	total	5230	1.59	<=14.94	PASS
11AC80MIMO	Ant0	5210	-1.74	<=17	PASS
	Ant1	5210	-1.77	<=17	PASS
	total	5210	1.26	<=14.94	PASS

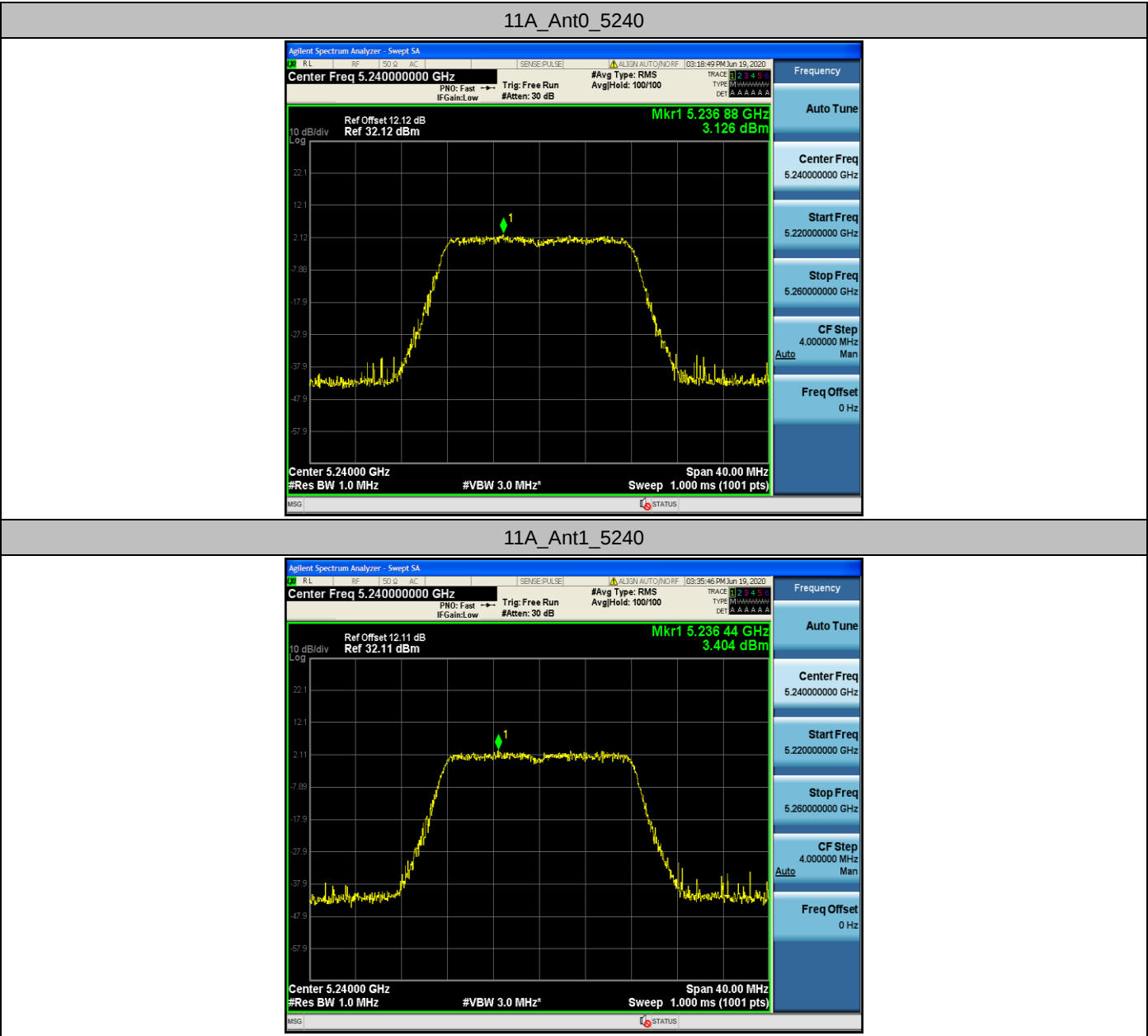
Note:

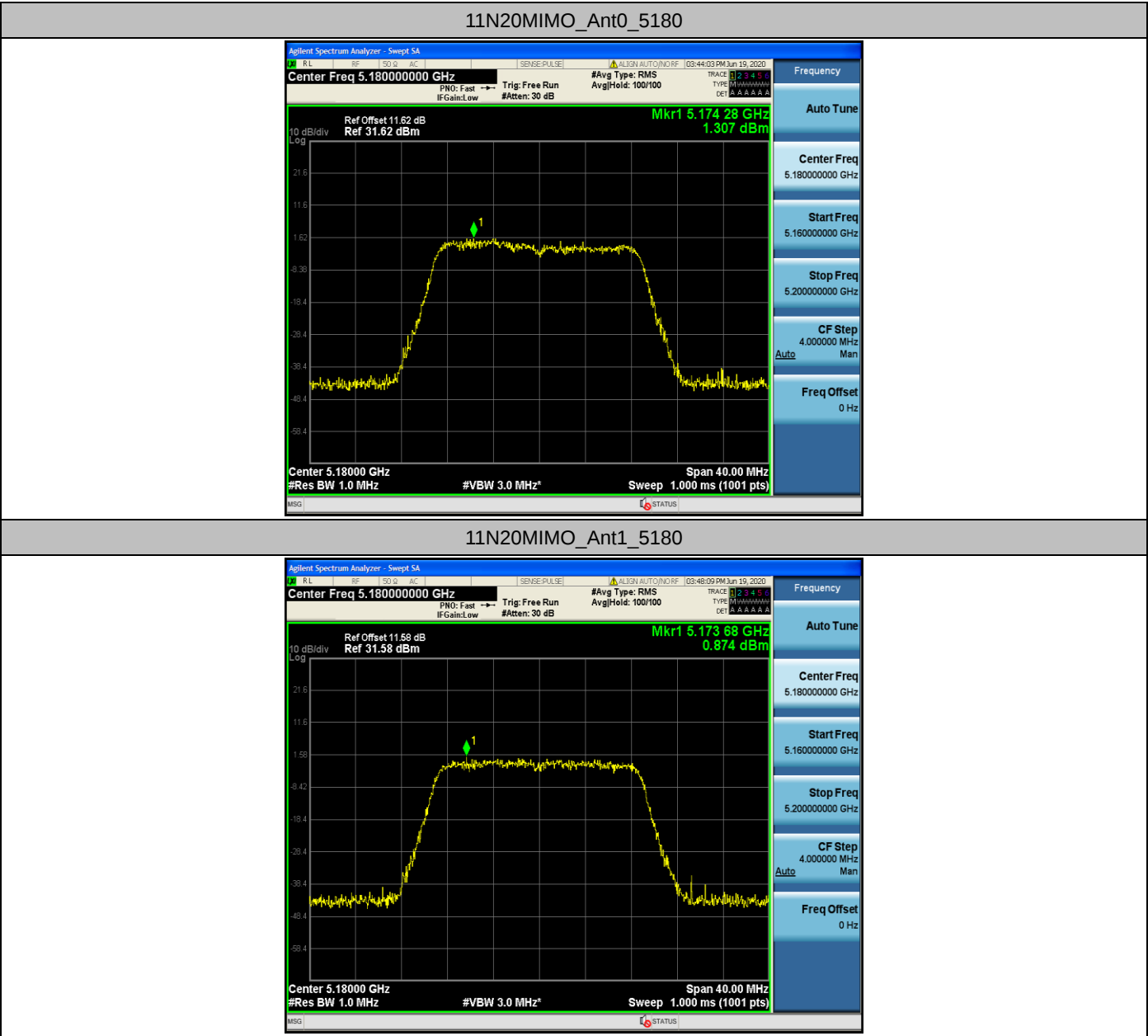
The Duty Cycle Factor and RBW Factor is compensated in the graph.

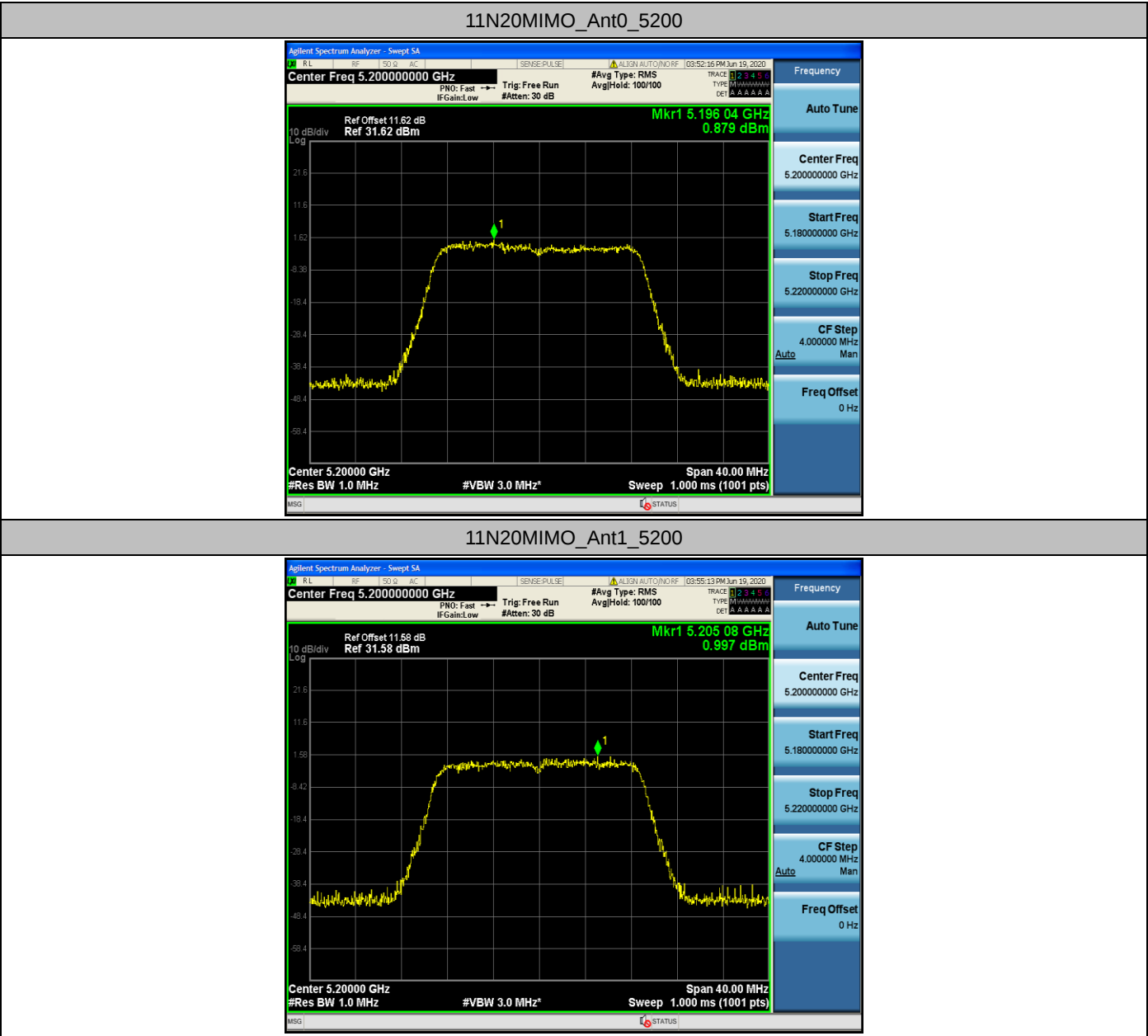
Test Graphs





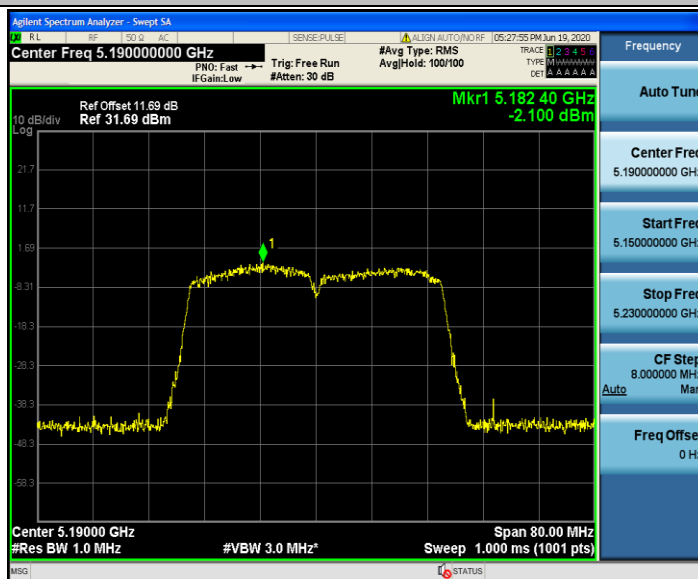




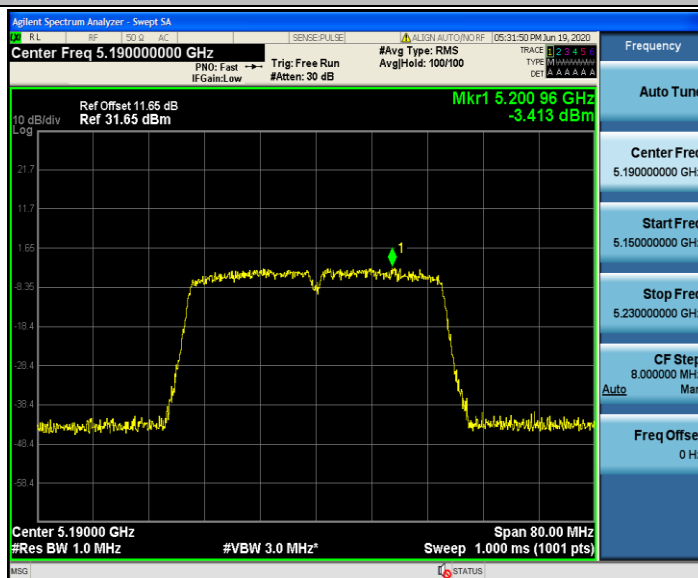


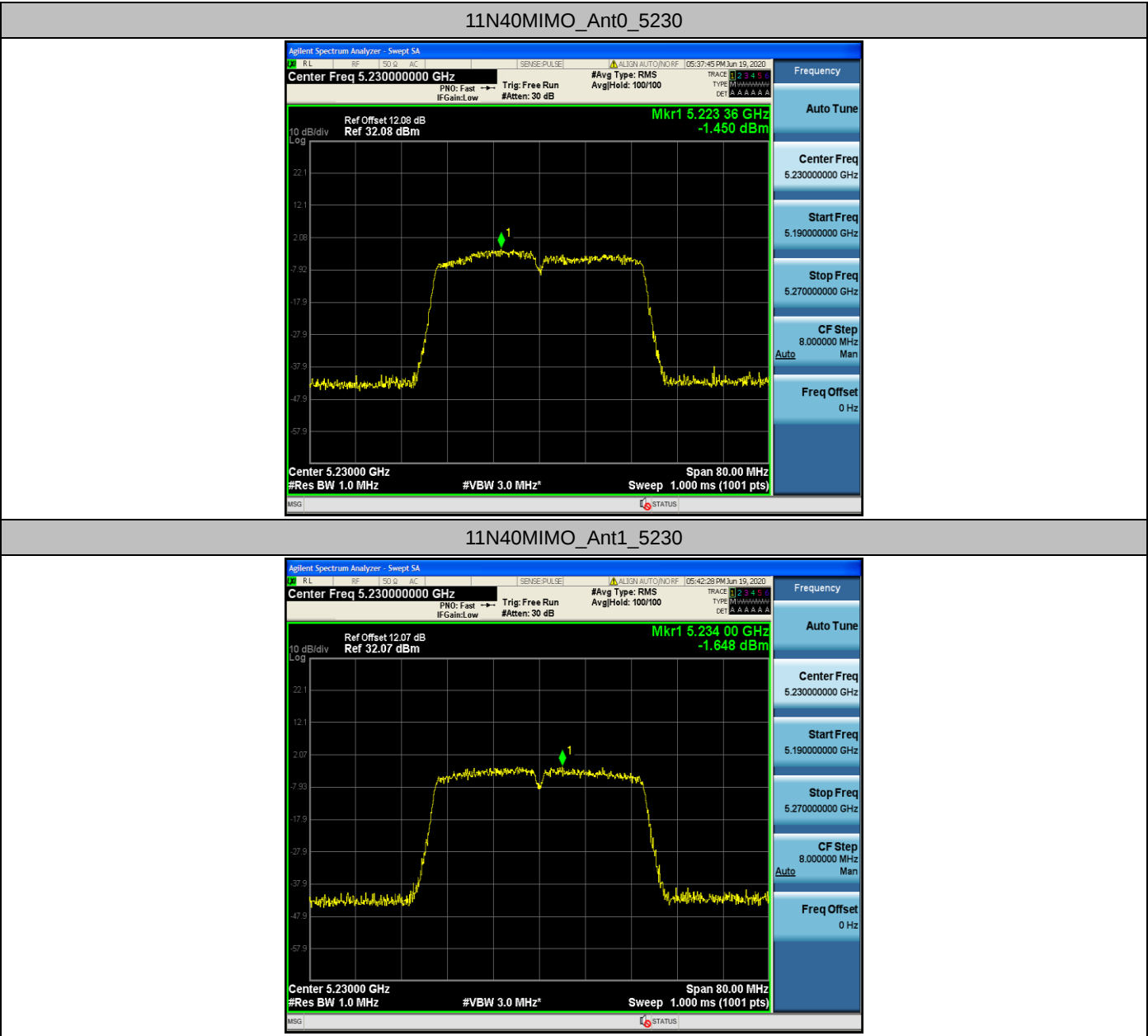


11N40MIMO_Ant0_5190

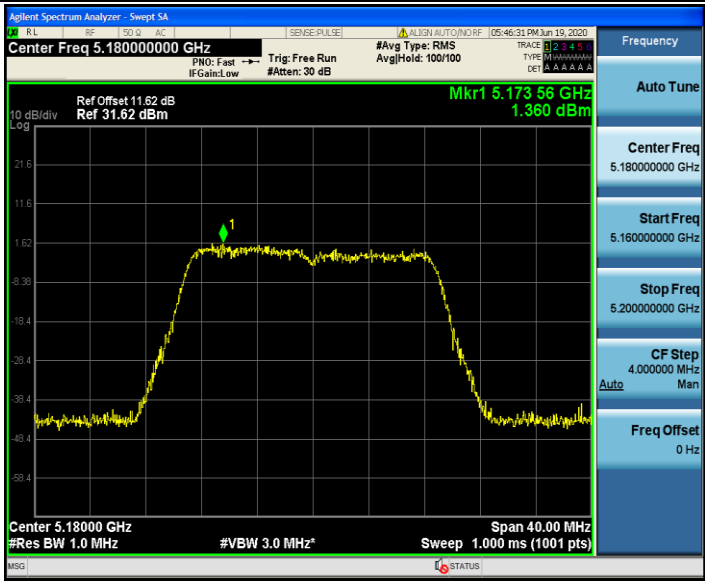


11N40MIMO_Ant1_5190

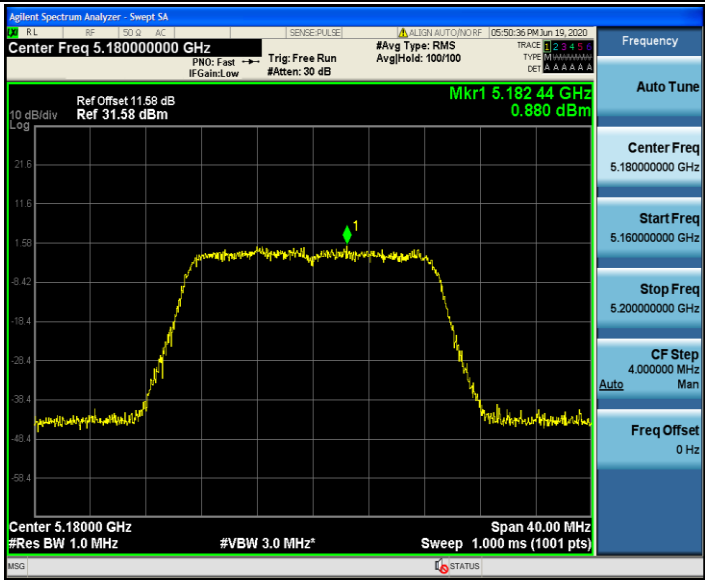


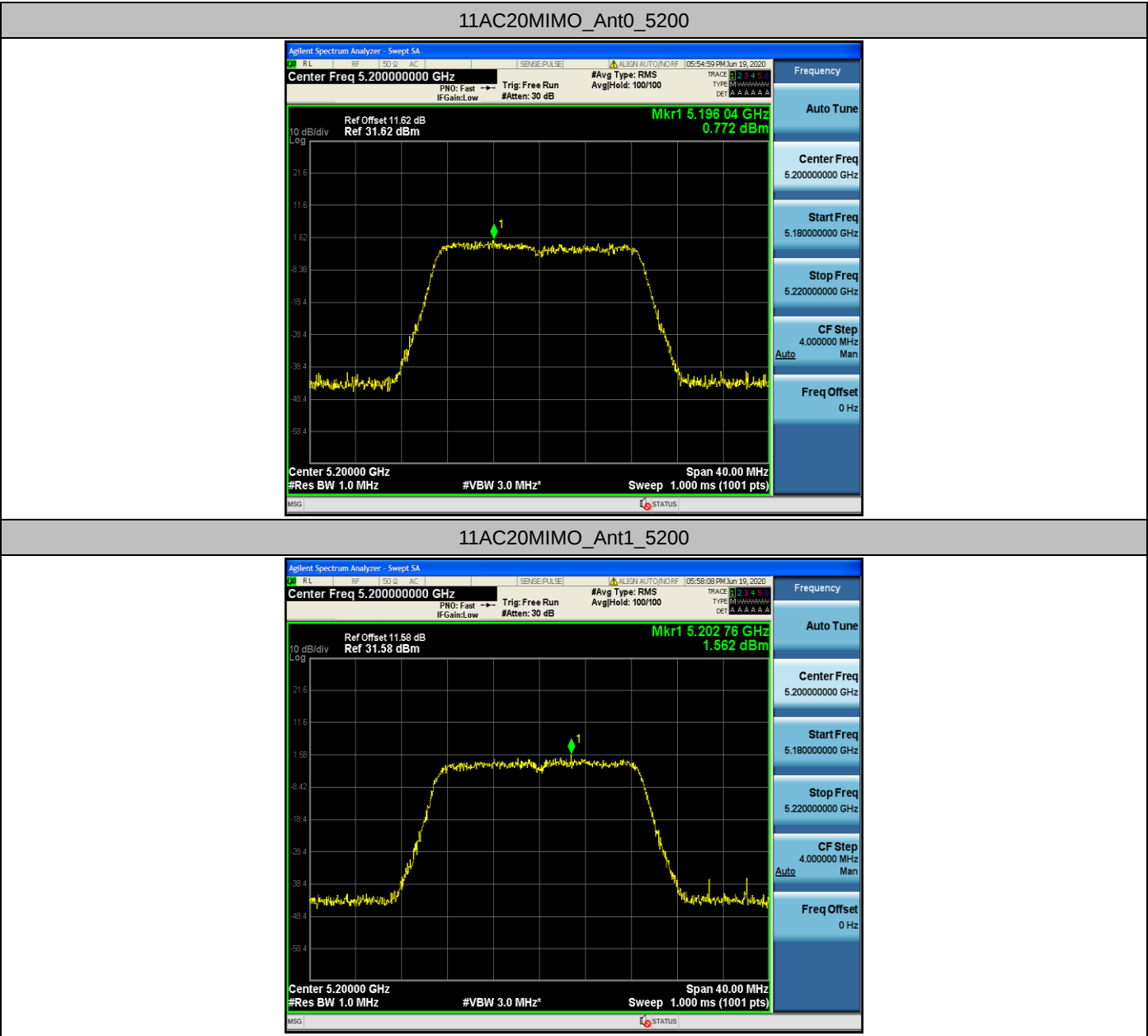


11AC20MIMO_Ant0_5180

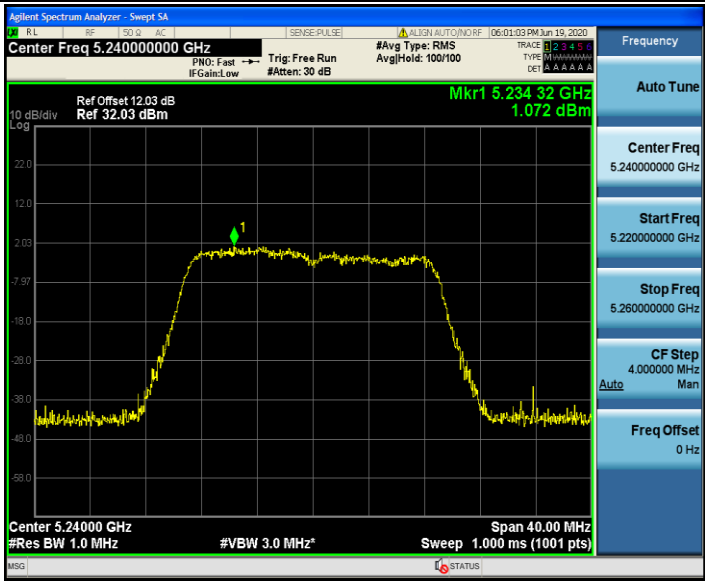


11AC20MIMO_Ant1_5180

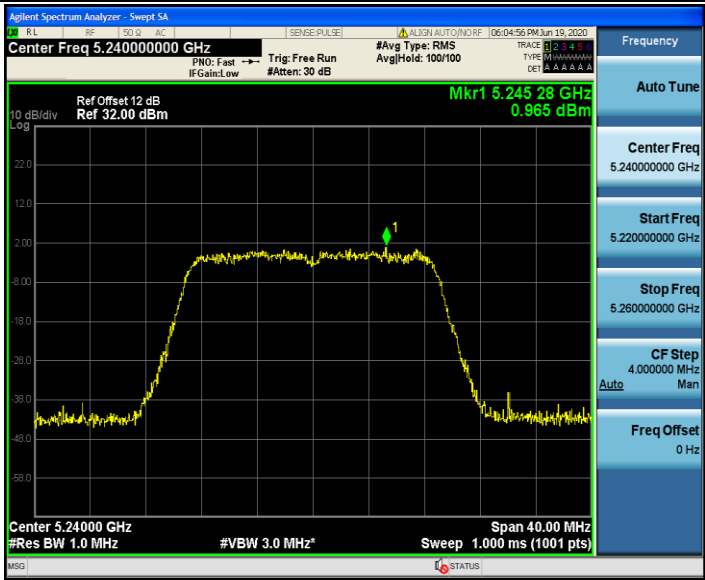


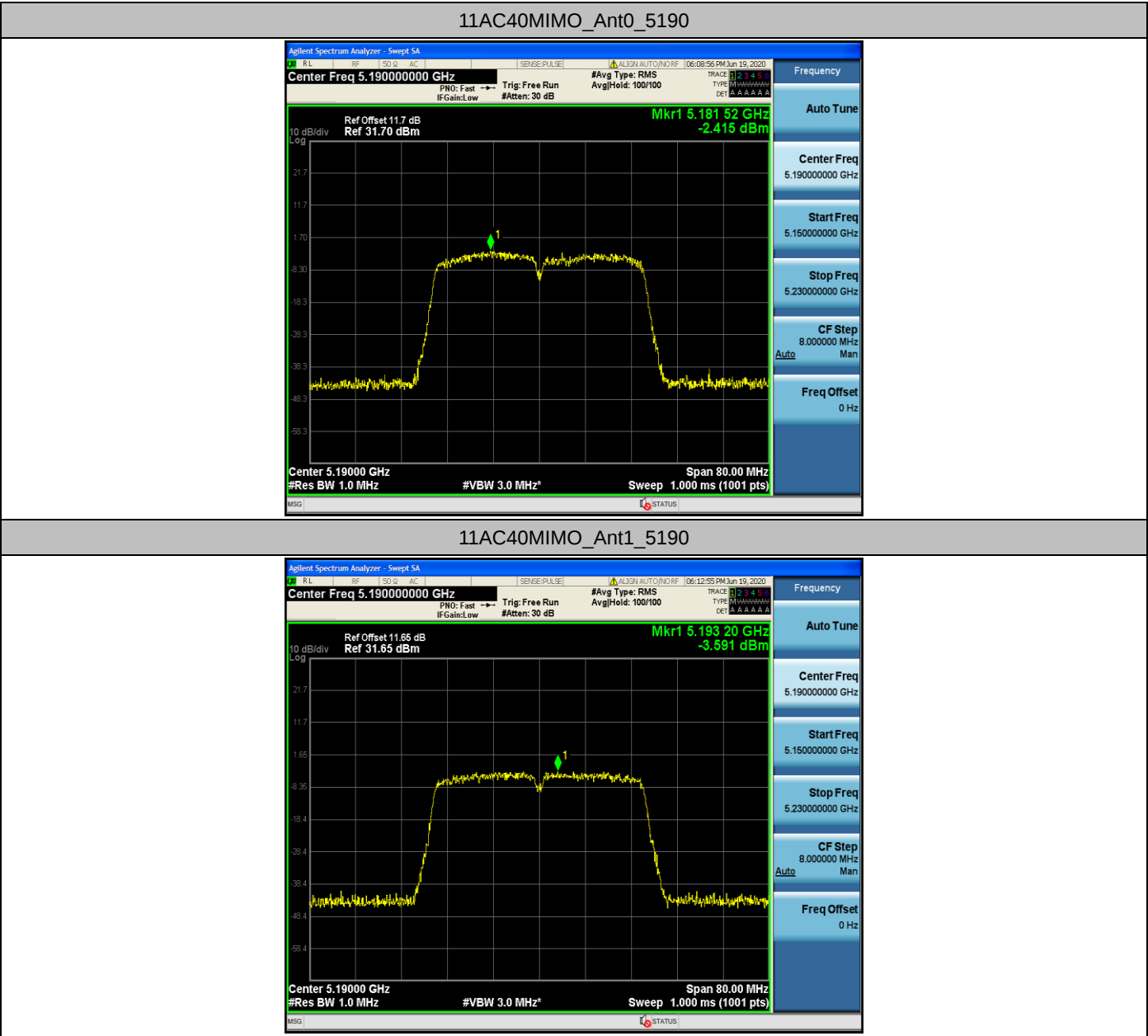


11AC20MIMO_Ant0_5240

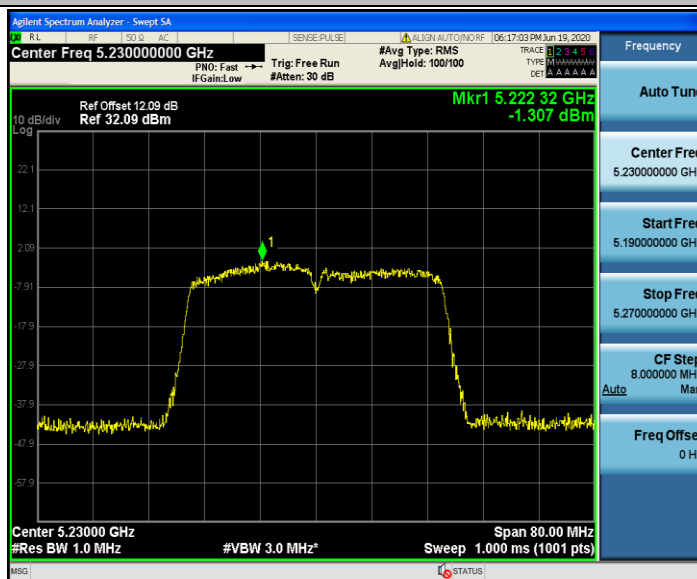


11AC20MIMO_Ant1_5240

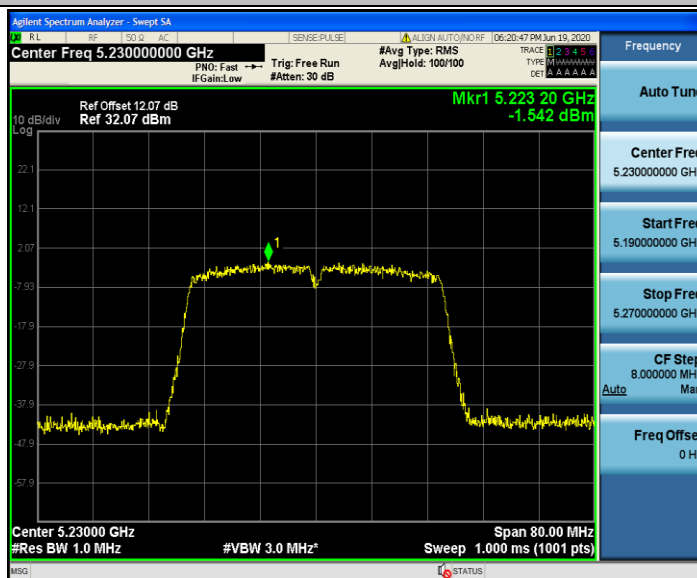


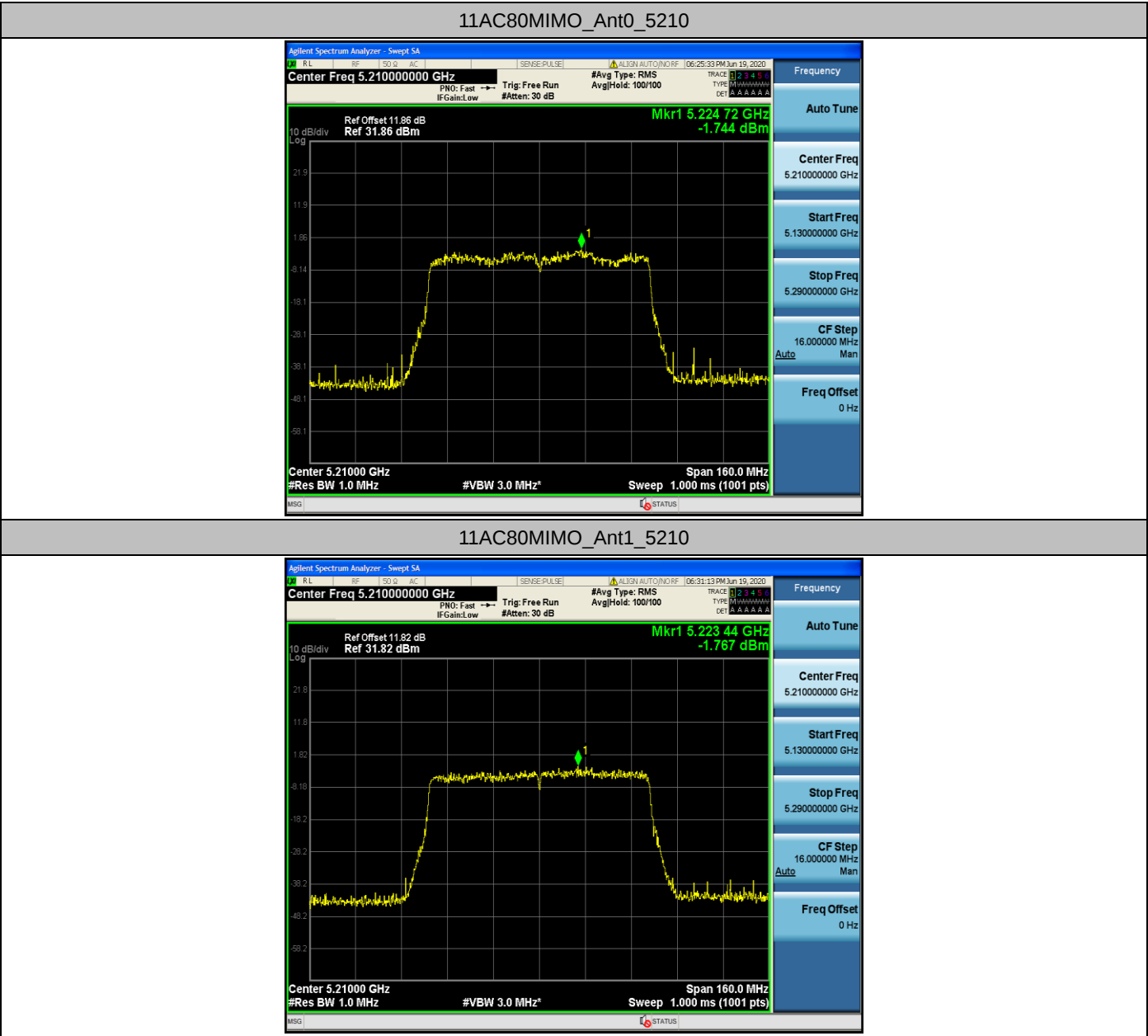


11AC40MIMO_Ant0_5230



11AC40MIMO_Ant1_5230





Appendix D: Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant0	Low	5180	-40.73	<=-27	PASS
	Ant1	Low	5180	-40.92	<=-27	PASS
	Ant0	High	5240	-41.18	<=-27	PASS
	Ant1	High	5240	-41.26	<=-27	PASS
11N20MIMO	Ant0	Low	5180	-41.52	<=-27	PASS
	Ant1	Low	5180	-40.1	<=-27	PASS
	Ant0	High	5240	-40.99	<=-27	PASS
	Ant1	High	5240	-41.24	<=-27	PASS
11N40MIMO	Ant0	Low	5190	-41.47	<=-27	PASS
	Ant1	Low	5190	-41.08	<=-27	PASS
	Ant0	High	5230	-41.03	<=-27	PASS
	Ant1	High	5230	-40.86	<=-27	PASS
11AC20MIMO	Ant0	Low	5180	-41.48	<=-27	PASS
	Ant1	Low	5180	-41.38	<=-27	PASS
	Ant0	High	5240	-40.92	<=-27	PASS
	Ant1	High	5240	-41.39	<=-27	PASS
11AC40MIMO	Ant0	Low	5190	-41.48	<=-27	PASS
	Ant1	Low	5190	-41.22	<=-27	PASS
	Ant0	High	5230	-40.11	<=-27	PASS
	Ant1	High	5230	-41.17	<=-27	PASS
11AC80MIMO	Ant0	Low	5210	-41.22	<=-27	PASS
	Ant1	Low	5210	-41.25	<=-27	PASS
	Ant0	High	5210	-41.47	<=-27	PASS
	Ant1	High	5210	-42.16	<=-27	PASS

Test Graphs

