

FCC Appendix RF Test Data for 5.2GWIFI

FCC ID : 2BXD2-HHKCSS240YB

Company : Honghui Kuaicang Technology (Shenzhen) Co., Ltd

EUT : Mobile intelligent shelf

Model Number : HHKCSS240YB

Report No. : CTA26072801802

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	23.200	5168.680	5191.880	---	---
		5220	23.240	5208.600	5231.840	---	---
		5240	22.920	5228.440	5251.360	---	---
11N20SISO	Ant1	5180	23.040	5168.680	5191.720	---	---
		5220	23.800	5207.960	5231.760	---	---
		5240	24.600	5228.040	5252.640	---	---

11A_Ant1_5180

Agilent Spectrum Analyzer - Sweep SA

Center Freq 5.18000000 GHz

Ref Offset 0.4 dB
Ref 20.00 dBm

ΔMkr3 23.20 MHz
-3.139 dB

10 dB/div
Log

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	5.169 68 GHz	-16.553 dBm			
2	N	1	f	5.177 44 GHz	9.747 dBm			
3	Δ1	1	f (Δ)	23.20 MHz (Δ)	-3.139 dB			

Frequency

Auto Tune

Center Freq 5.18000000 GHz

Start Freq 5.160000000 GHz

Stop Freq 5.200000000 GHz

CF Step 4.000000 MHz Man

Freq Offset 0 Hz

11A_Ant1_5220

Agilent Spectrum Analyzer - Sweep SA

Center Freq 5.220000000 GHz

Ref Offset 0.4 dB
Ref 20.00 dBm

ΔMkr3 23.24 MHz
-1.050 dB

10 dB/div
Log

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 60 GHz	-16.326 dBm			
2	N	1	f	5.216 96 GHz	9.868 dBm			
3	Δ1	1	f (Δ)	23.24 MHz (Δ)	-1.050 dB			

Frequency

Auto Tune

Center Freq 5.220000000 GHz

Start Freq 5.200000000 GHz

Stop Freq 5.240000000 GHz

CF Step 4.000000 MHz Man

Freq Offset 0 Hz

11A_Ant1_5240



11N20SISO_Ant1_5180



11N20SISO_Ant1_5220



11N20SISO_Ant1_5240

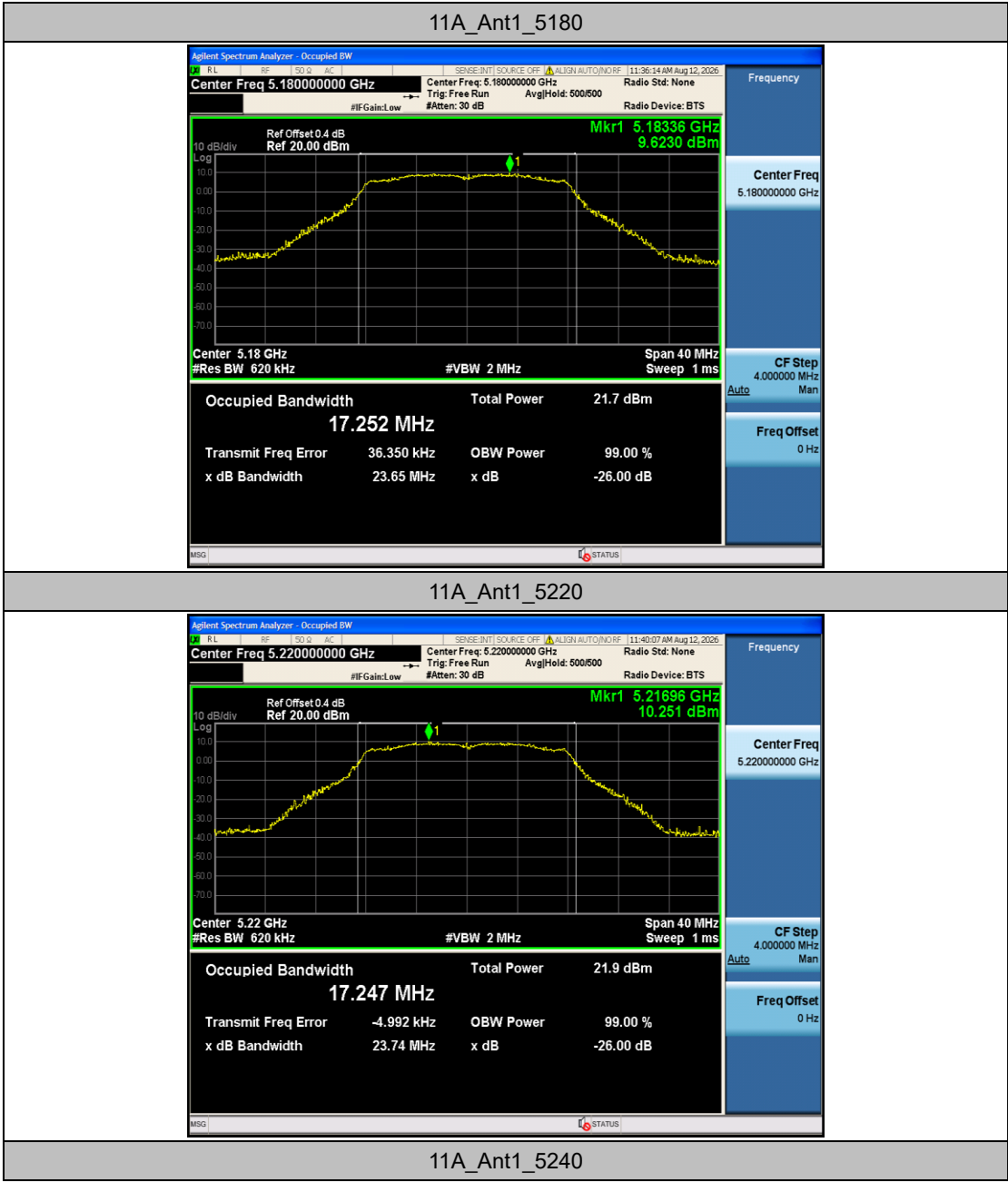


Appendix A2: Occupied channel bandwidth

Test Result

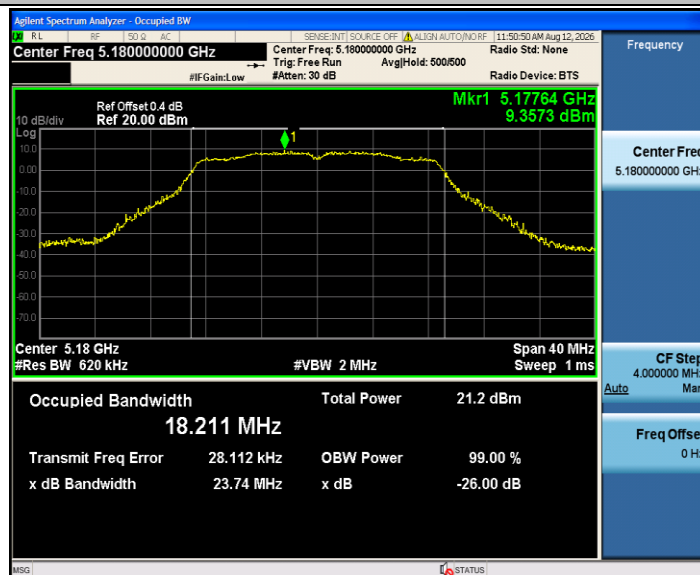
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.252	5171.4104	5188.6624	---	---
		5220	17.247	5211.3715	5228.6185	---	---
		5240	17.258	5231.3838	5248.6418	---	---
11N20SISO	Ant1	5180	18.211	5170.9226	5189.1336	---	---
		5220	18.278	5210.8319	5229.1099	---	---
		5240	18.222	5230.8466	5249.0686	---	---

Test Graphs

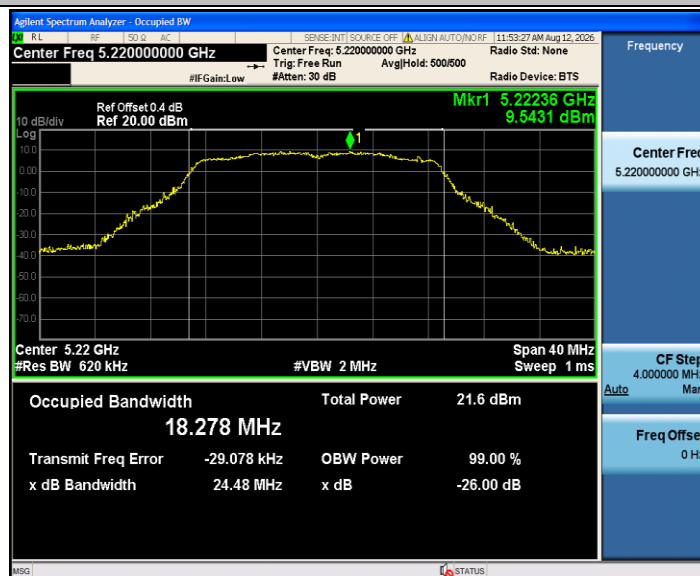




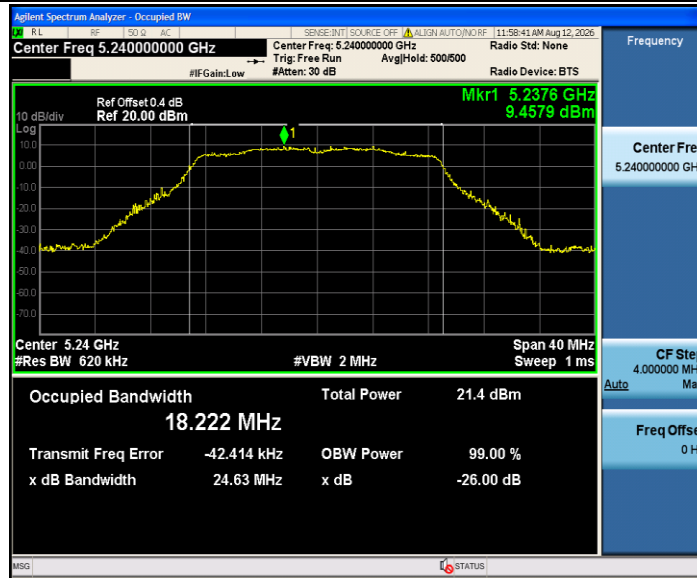
11N20SISO_Ant1_5180



11N20SISO_Ant1_5220



11N20SISO_Ant1_5240

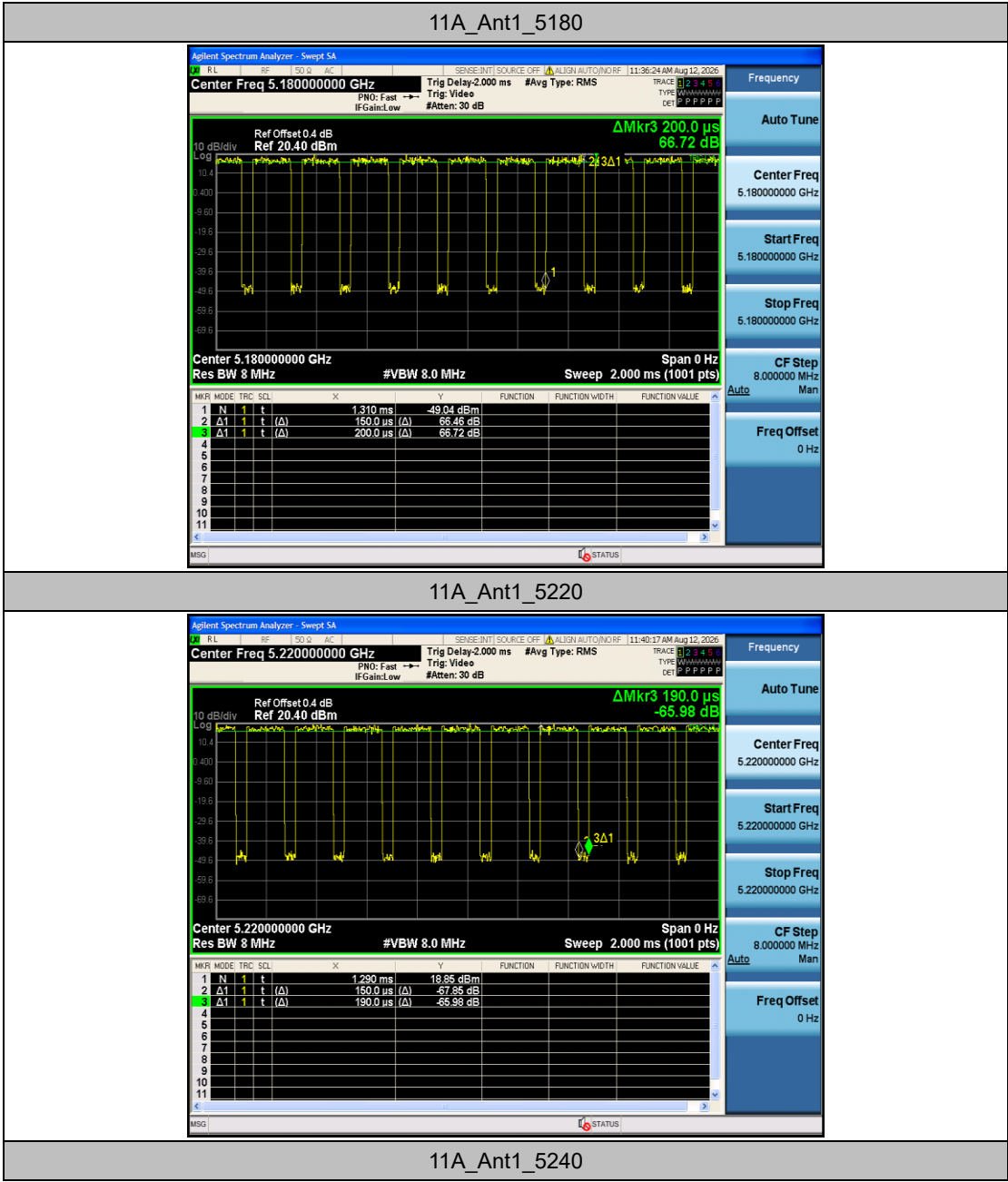


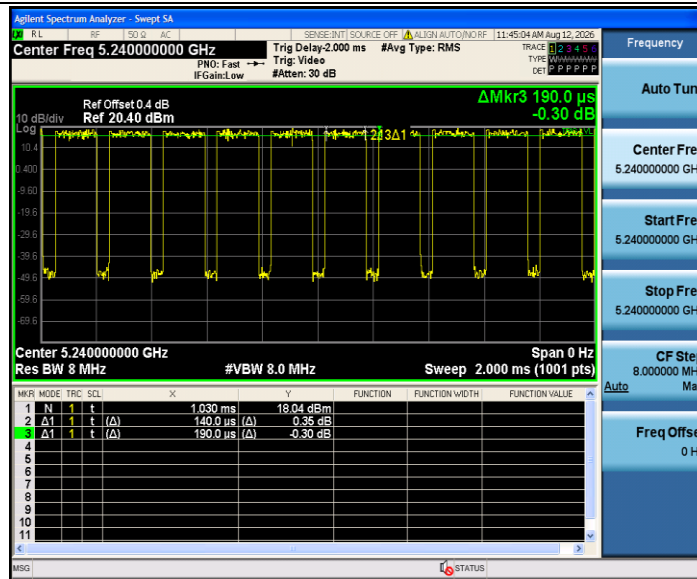
Appendix B: Duty Cycle

Test Result

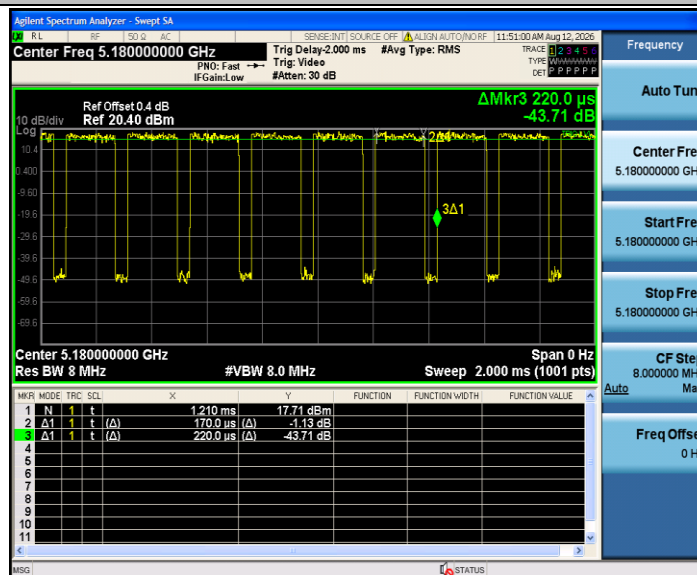
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	DC Factor [dB]	Limit	Verdict
11A	Ant1	5180	0.15	0.20	75.00	1.25	---	---
		5220	0.15	0.19	78.95	1.03	---	---
		5240	0.14	0.19	73.68	1.33	---	---
11N20SISO	Ant1	5180	0.17	0.22	77.27	1.12	---	---
		5220	0.17	0.22	77.27	1.12	---	---
		5240	0.17	0.22	77.27	1.12	---	---

Test Graphs

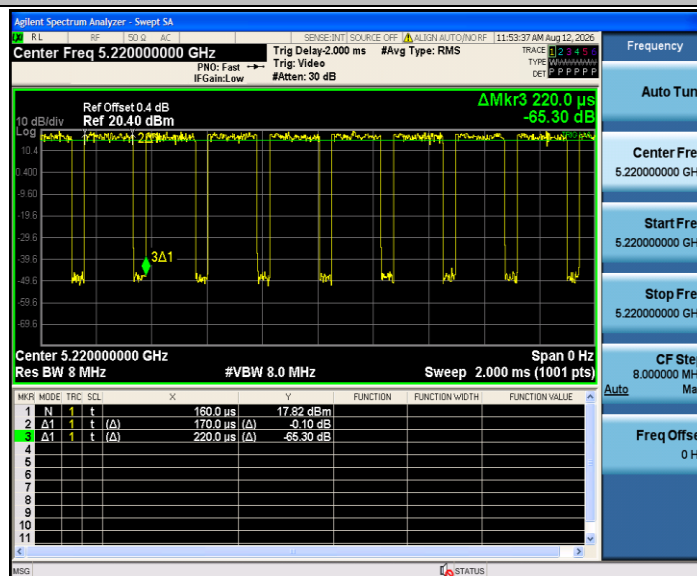




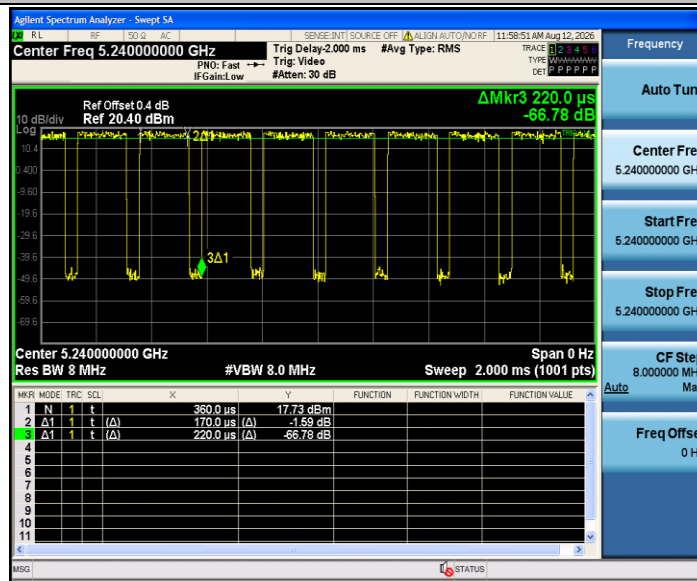
11N20SISO_Ant1_5180



11N20SISO_Ant1_5220



11N20SISO_Ant1_5240



Appendix C: Maximum conducted output power

Test Result

Test Mode	Antenna	Freq(MHz)	Channel Power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	13.65	75.00	1.25	14.90	≤23.98	PASS
		5220	13.94	78.95	1.03	14.97	≤23.98	PASS
		5240	13.76	73.68	1.33	15.09	≤23.98	PASS
11N20SI SO	Ant1	5180	13.43	77.27	1.12	14.55	≤23.98	PASS
		5220	13.84	77.27	1.12	14.96	≤23.98	PASS
		5240	13.65	77.27	1.12	14.77	≤23.98	PASS

Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	RawData [dBm/MHz]	DC Factor [dBm]	RBW Factor [dBm]	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	3.75	1.25	0.00	5.00	≤11.00	PASS
		5220	4.08	1.03	0.00	5.11	≤11.00	PASS
		5240	3.74	1.33	0.00	5.07	≤11.00	PASS
11N20SISO	Ant1	5180	3.04	1.12	0.00	4.16	≤11.00	PASS
		5220	3.62	1.12	0.00	4.74	≤11.00	PASS
		5240	3.3	1.12	0.00	4.42	≤11.00	PASS

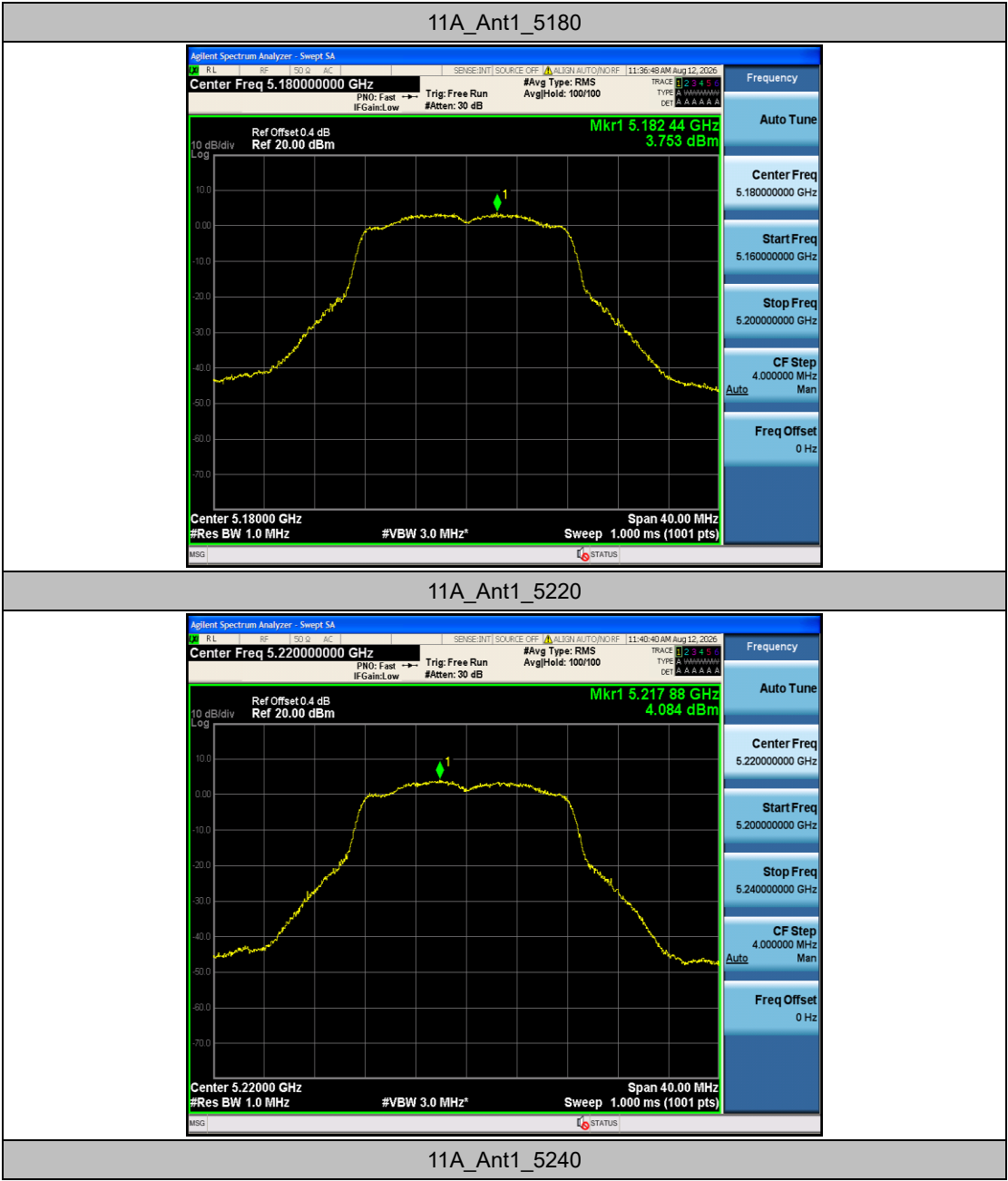
Note:1. $P.S.D(dBm/500KHz) = P.S.D(dBm/300KHz) + 10 \log(500 \text{ kHz}/300KHz) + \text{Duty factor}$.

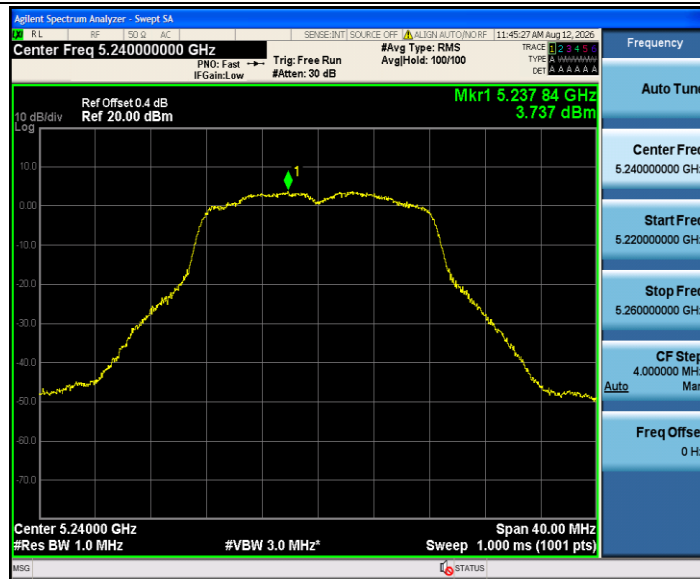
2. $RBW \text{ factor} = 10 \log(500 \text{ KHz} / 300 \text{ KHz}) = 2.22 \text{ dB}$

3. $EIRP \text{ P.S.D}(dBm/MHz) = \text{Result P.S.D}(dBm/MHz) + \text{Duty factor} + \text{Antenna Gain}$

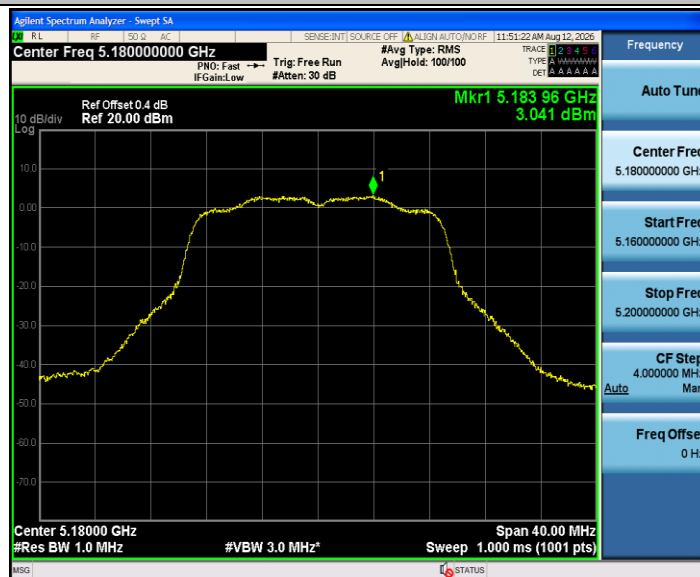
4. Note:Offset=cable loss

Test Graphs

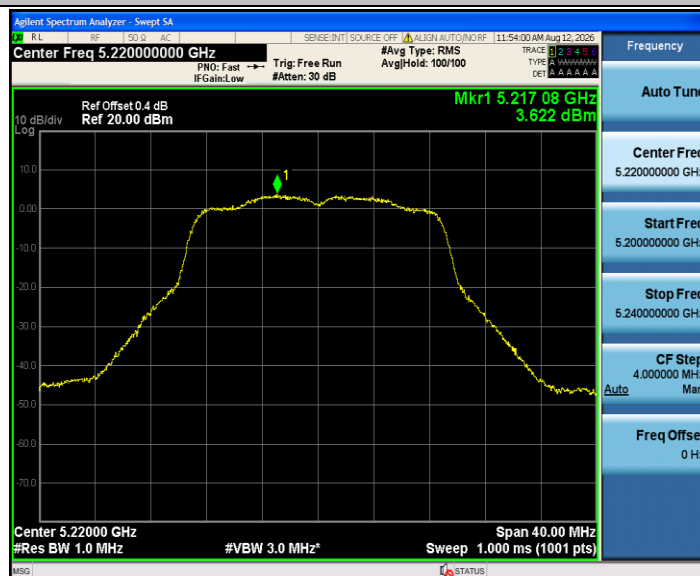




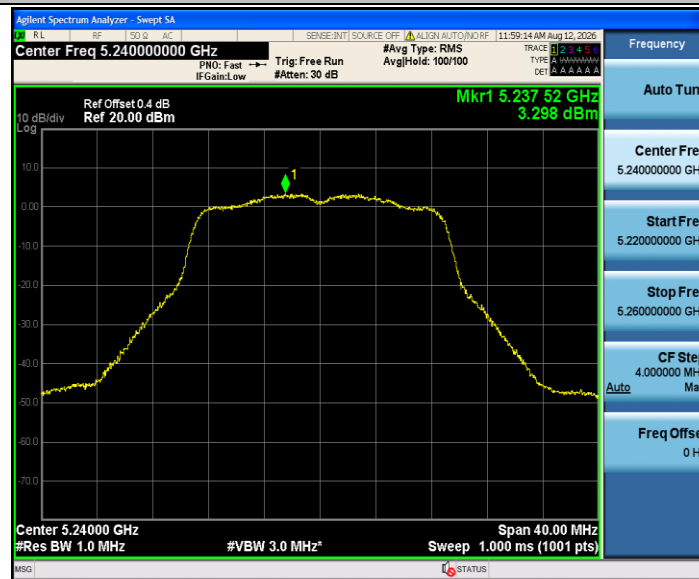
11N20SISO_Ant1_5180



11N20SISO_Ant1_5220



11N20SISO_Ant1_5240

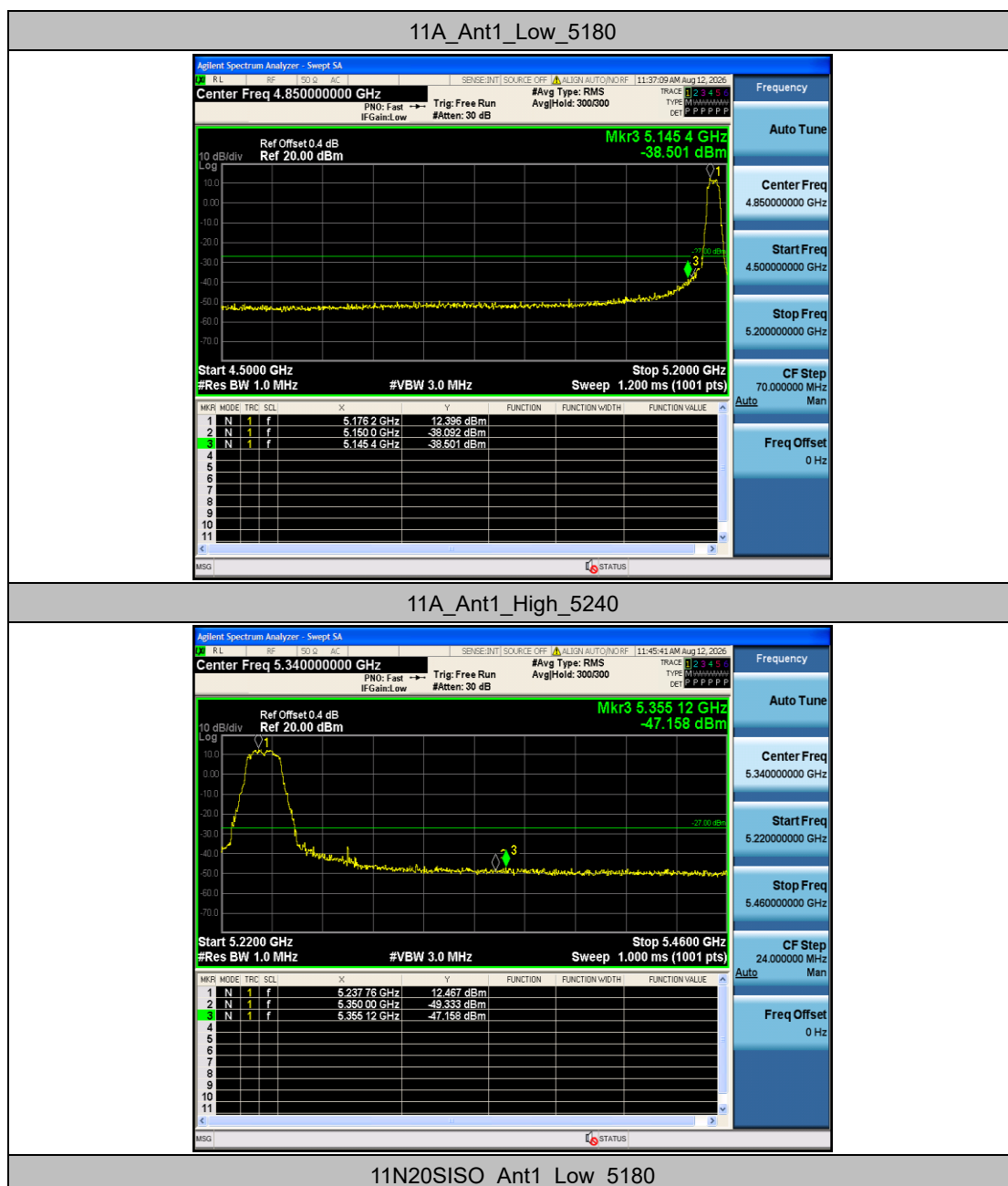


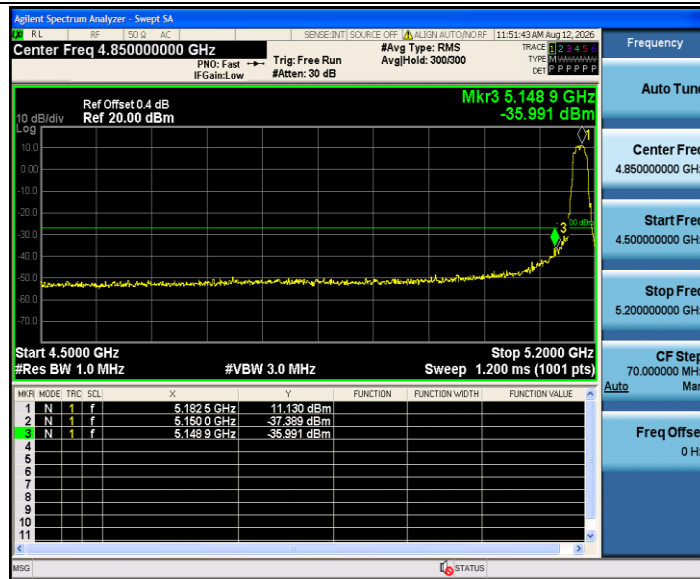
Appendix E: Band edge measurements

Test Result B1

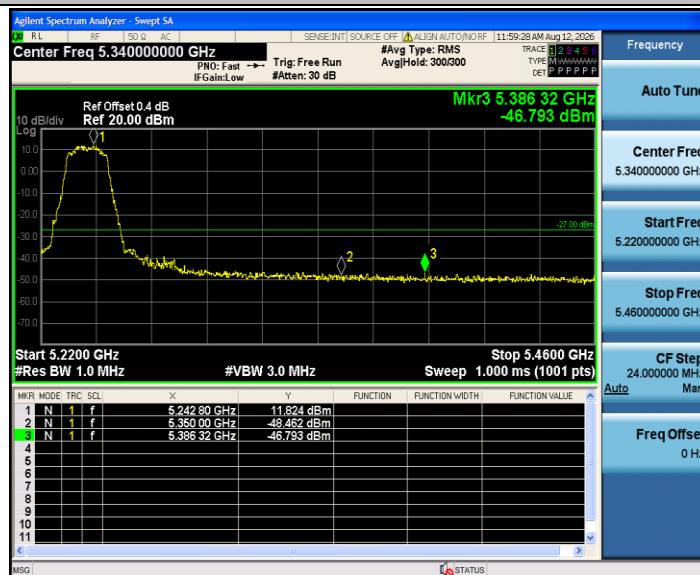
TestMode	Antenna	ChName	Freq(MHz)	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-38.5	≤ -27	PASS
		High	5240	-47.16	≤ -27	PASS
11N20SISO	Ant1	Low	5180	-35.99	≤ -27	PASS
		High	5240	-46.79	≤ -27	PASS

Test Graphs B1





11N20SISO_Ant1_High_5240



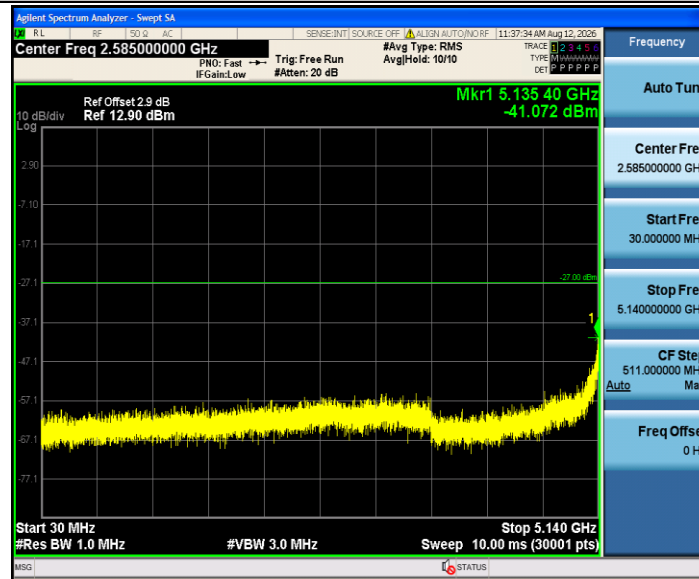
Appendix F: Conducted Spurious Emission

Test Result

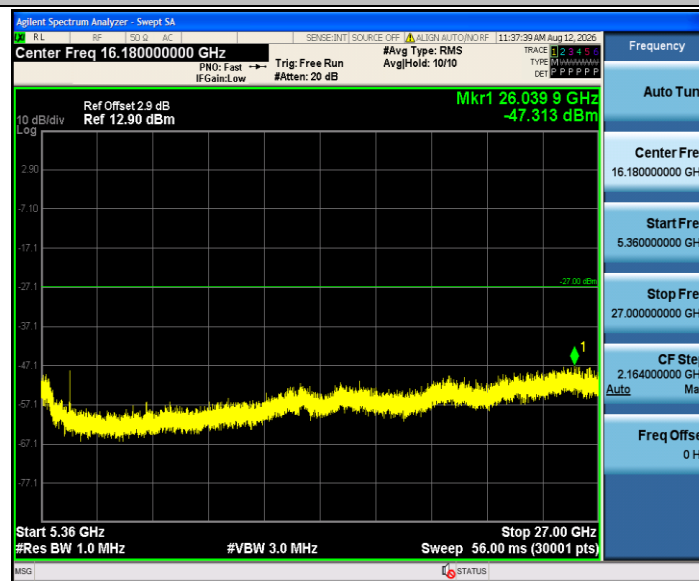
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	Max. Fre [MHz]	Max. Level [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	30~5140	5135.4	-41.07	≤-27	PASS
			5360~40000	26039.91	-47.31	≤-27	PASS
		5220	30~5140	5138.98	-45.94	≤-27	PASS
			5360~40000	25673.47	-46.7	≤-27	PASS
		5240	30~5140	5121.43	-45.74	≤-27	PASS
			5360~40000	5543.94	-47.17	≤-27	PASS
11N20SISO	Ant1	5180	30~5140	5133.53	-40.95	≤-27	PASS
			5360~40000	25762.91	-46.42	≤-27	PASS
		5220	30~5140	5123.14	-46.13	≤-27	PASS
			5360~40000	23763.38	-47.76	≤-27	PASS
		5240	30~5140	5134.89	-46.43	≤-27	PASS
			5360~40000	5375.87	-47.13	≤-27	PASS

Test Graphs

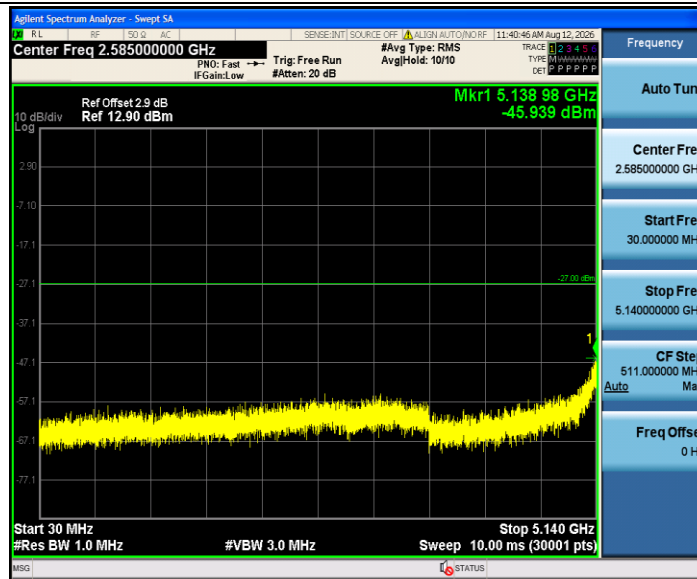
11A_Ant1_5180_30~5140



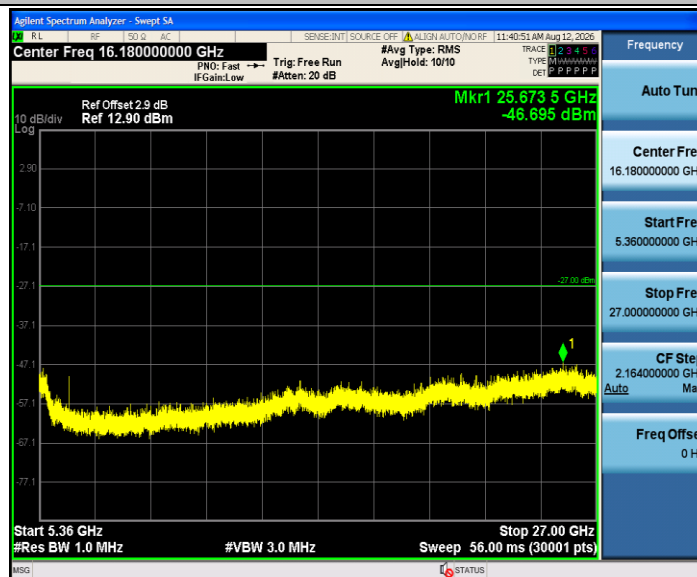
11A_Ant1_5180_5360~40000



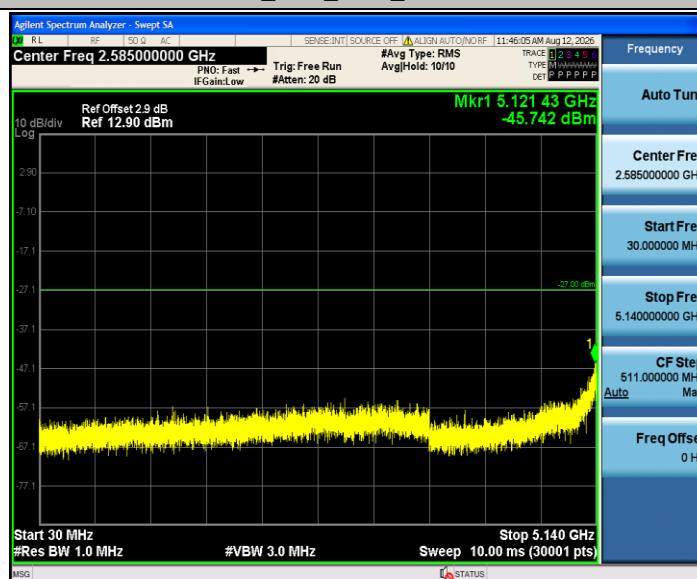
11A_Ant1_5220_30~5140



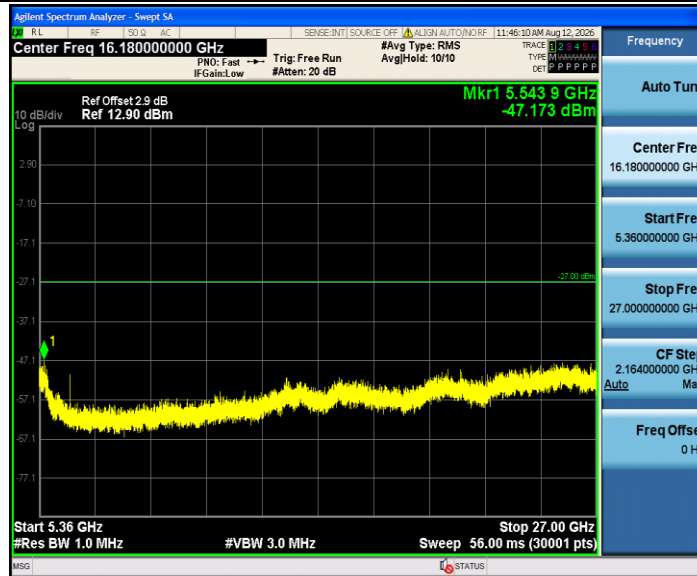
11A_Ant1_5220_5360~40000



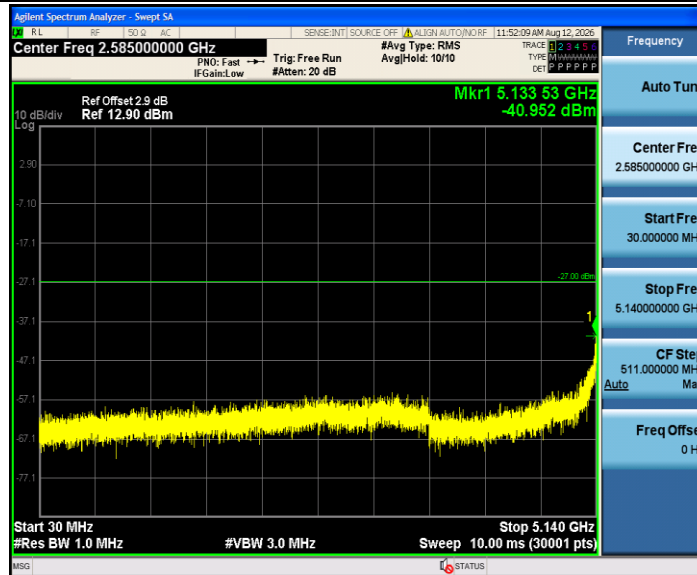
11A_Ant1_5240_30~5140



11A_Ant1_5240_5360~40000



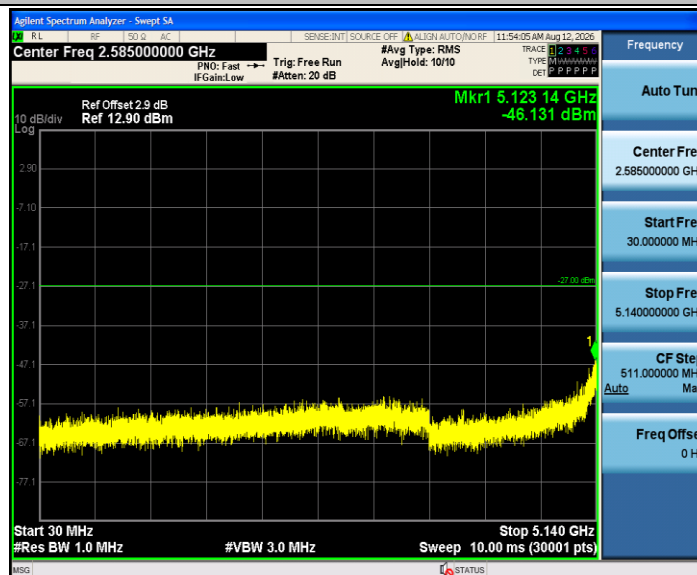
11N20SISO_Ant1_5180_30~5140



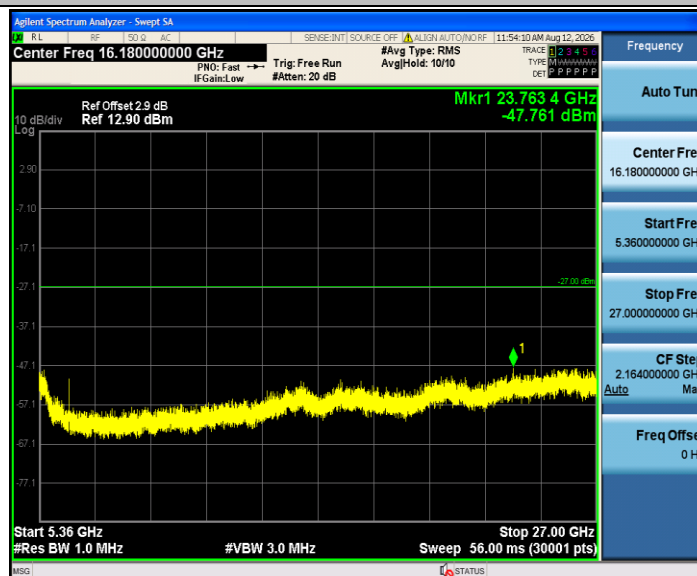
11N20SISO_Ant1_5180_5360~40000



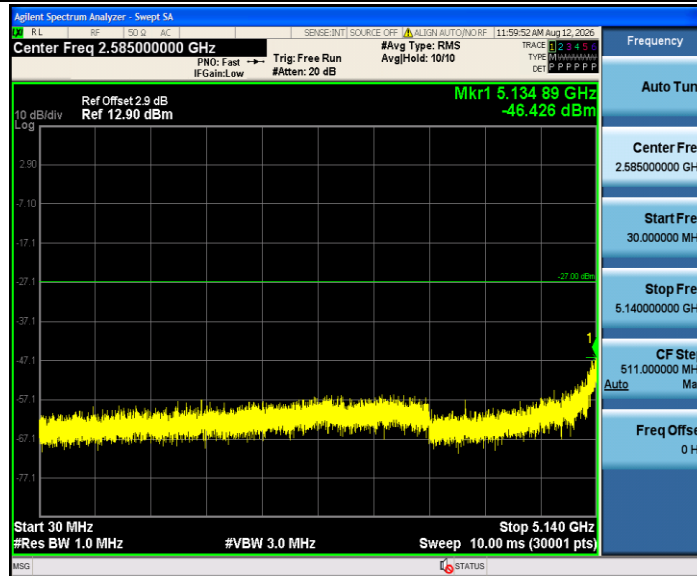
11N20SISO_Ant1_5220_30~5140



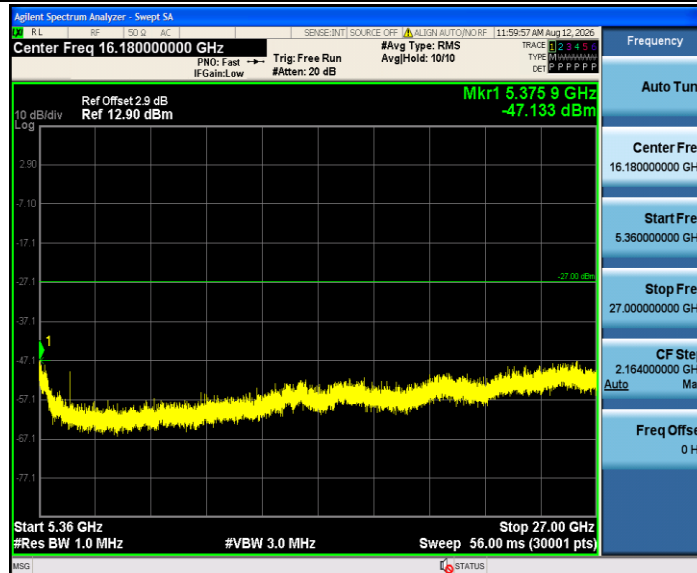
11N20SISO_Ant1_5220_5360~40000



11N20SISO_Ant1_5240_30~5140



11N20SISO_Ant1_5240_5360~40000



Appendix G: Emissions in Restricted Bands

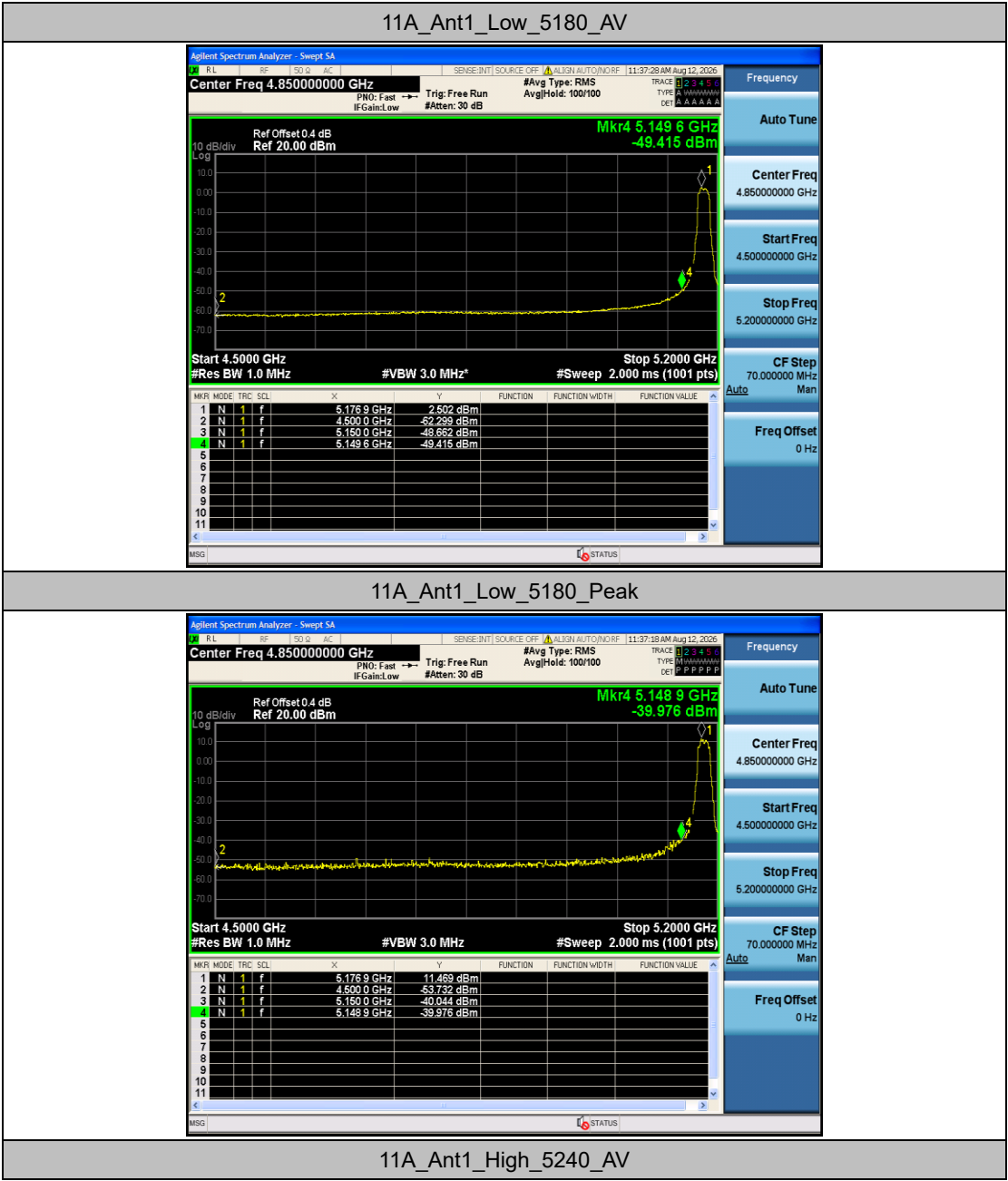
Test Result

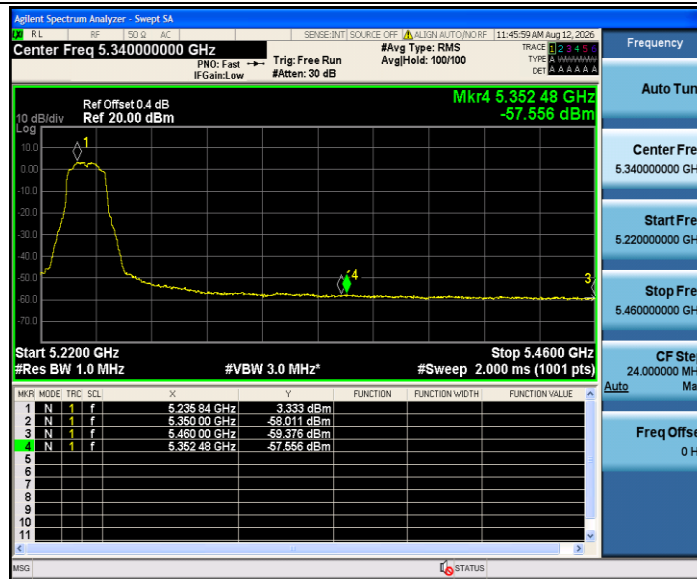
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	EIRP [dBm]	Limit [dBm]	Verdict
11A	Ant1	Low	5180	AV	4500.000	-62.3	2.00	1.25	-59.05	≤-41.20	PASS
				AV	5149.600	-49.41	2.00	1.25	-46.16	≤-41.20	PASS
				AV	5150.000	-48.66	2.00	1.25	-45.41	≤-41.20	PASS
				Peak	4500.000	-53.73	2.00	0.00	-51.73	≤-27.00	PASS
				Peak	5148.900	-39.98	2.00	0.00	-37.98	≤-27.00	PASS
				Peak	5150.000	-40.04	2.00	0.00	-38.04	≤-27.00	PASS
		High	5240	AV	5350.000	-58.01	2.00	1.33	-54.68	≤-41.20	PASS
				AV	5352.480	-57.56	2.00	1.33	-54.23	≤-41.20	PASS
				AV	5460.000	-59.38	2.00	1.33	-56.05	≤-41.20	PASS
				Peak	5350.000	-50.95	2.00	0.00	-48.95	≤-27.00	PASS
				Peak	5361.360	-46.44	2.00	0.00	-44.44	≤-27.00	PASS
				Peak	5460.000	-51.17	2.00	0.00	-49.17	≤-27.00	PASS
11N20SI SO	Ant1	Low	5180	AV	4500.000	-61.92	2.00	1.12	-58.8	≤-41.20	PASS
				AV	5148.900	-49.93	2.00	1.12	-46.81	≤-41.20	PASS
				AV	5150.000	-49.38	2.00	1.12	-46.26	≤-41.20	PASS
				Peak	4500.000	-54.72	2.00	0.00	-52.72	≤-27.00	PASS
				Peak	5149.600	-37.42	2.00	0.00	-35.42	≤-27.00	PASS
				Peak	5150.000	-38.8	2.00	0.00	-36.8	≤-27.00	PASS
		High	5240	AV	5350.000	-58.21	2.00	1.12	-55.09	≤-41.20	PASS
				AV	5353.200	-57.53	2.00	1.12	-54.41	≤-41.20	PASS
				AV	5460.000	-59.4	2.00	1.12	-56.28	≤-41.20	PASS
				Peak	5350.000	-48.58	2.00	0.00	-46.58	≤-27.00	PASS
				Peak	5399.520	-46.86	2.00	0.00	-44.86	≤-27.00	PASS
				Peak	5460.000	-51.08	2.00	0.00	-49.08	≤-27.00	PASS

Note:

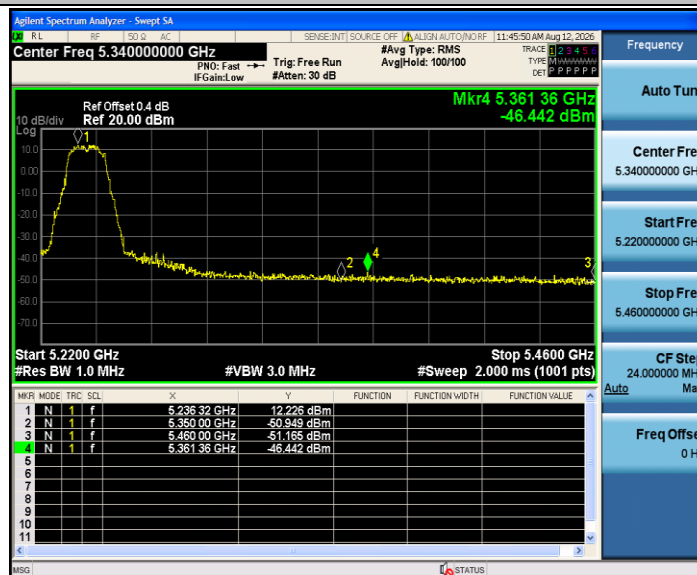
- For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

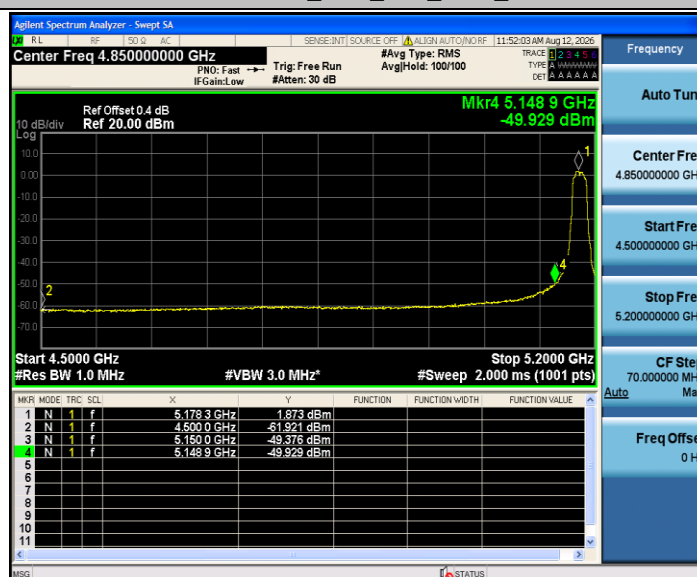




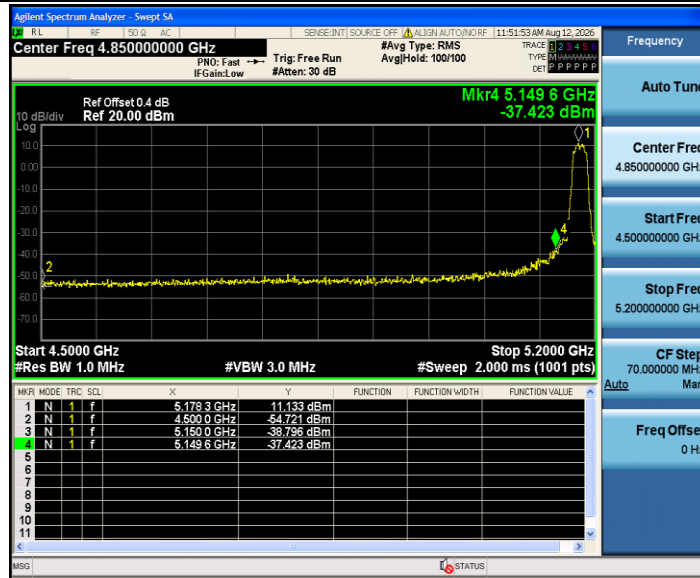
11A_Ant1_High_5240_Peak



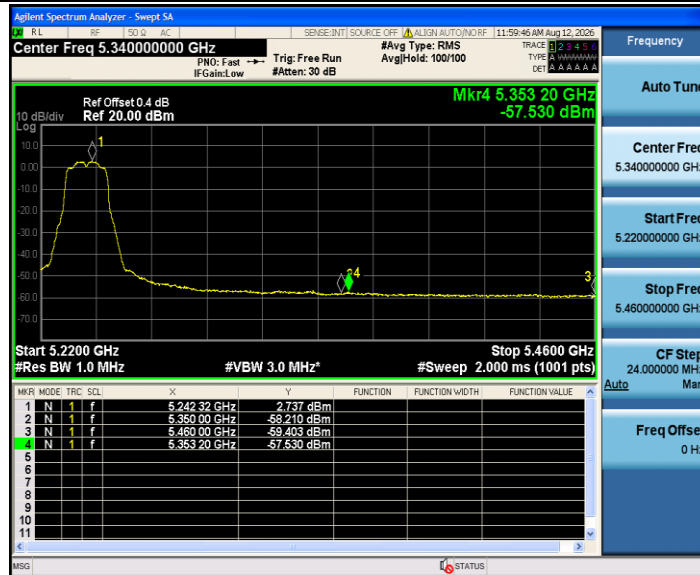
11N20SISO_Ant1_Low_5180_AV



11N20SISO_Ant1_Low_5180_Peak



11N20SISO_Ant1_High_5240_AV



11N20SISO_Ant1_High_5240_Peak

