

Case No. : <u>CTA24051100204</u>	
Ambient Condition: <u>23</u> °C, <u>49</u> %RH	
According Standard: ■Part15E	
Test Date: <u>2024.5.8</u>	Test Engineer: <u>Evan ouyang</u>

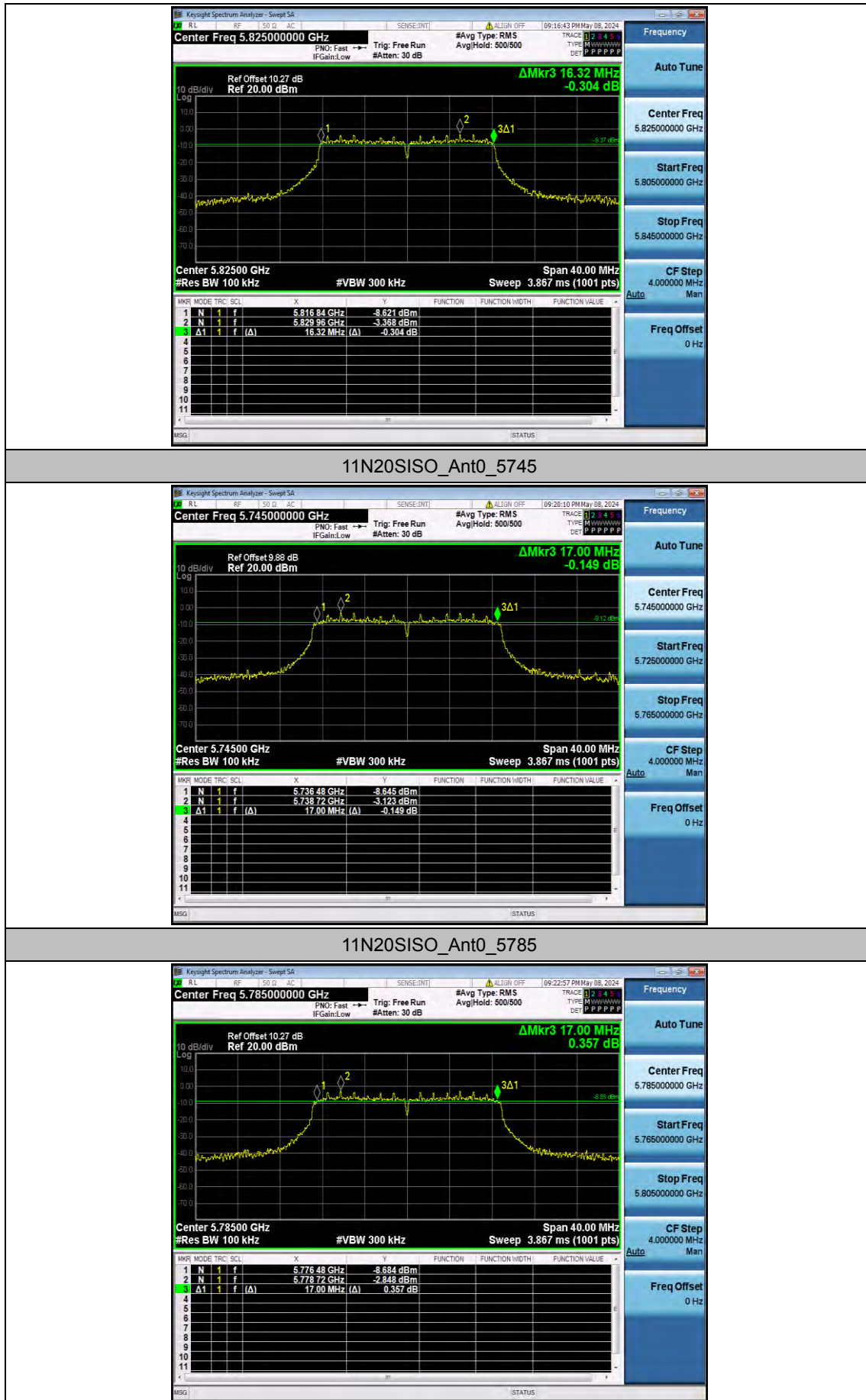
Appendix E.1: Emission Bandwidth

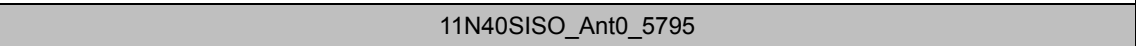
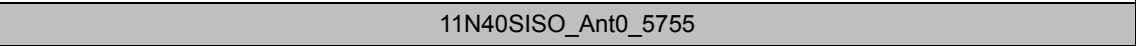
Test Result

TestMode	Antenna	Freq(MHz)	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant0	5745	16.320	5736.840	5753.160	0.5	PASS
		5785	16.360	5776.800	5793.160	0.5	PASS
		5825	16.320	5816.840	5833.160	0.5	PASS
11N20SISO	Ant0	5745	17.000	5736.480	5753.480	0.5	PASS
		5785	17.000	5776.480	5793.480	0.5	PASS
		5825	17.320	5816.440	5833.760	0.5	PASS
11N40SISO	Ant0	5755	35.520	5737.240	5772.760	0.5	PASS
		5795	35.520	5777.080	5812.600	0.5	PASS
11AC20SISO	Ant0	5745	17.040	5736.480	5753.520	0.5	PASS
		5785	16.960	5776.440	5793.400	0.5	PASS
		5825	17.000	5816.440	5833.440	0.5	PASS
11AC40SISO	Ant0	5755	35.360	5737.240	5772.600	0.5	PASS
		5795	35.440	5777.080	5812.520	0.5	PASS
11AC80SISO	Ant0	5775	75.200	5737.400	5812.600	0.5	PASS

Test Graphs

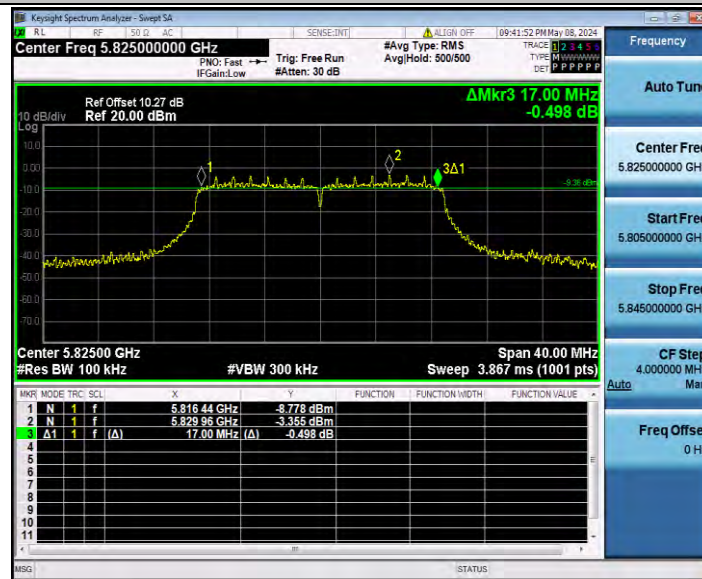




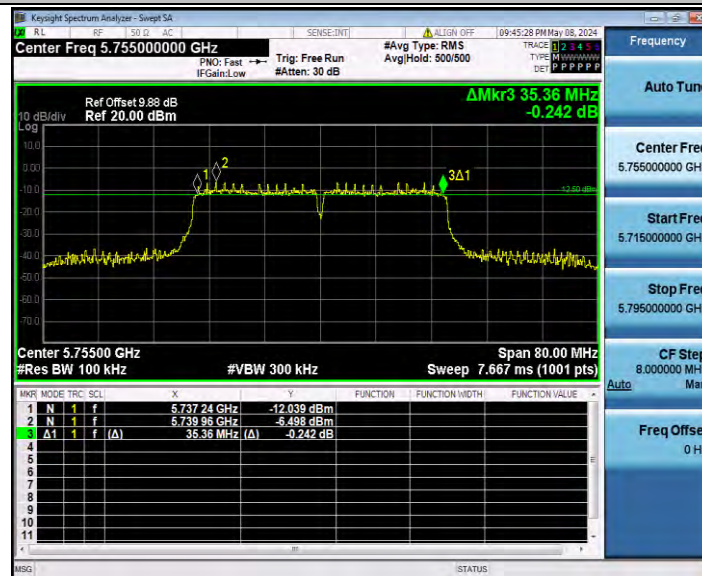




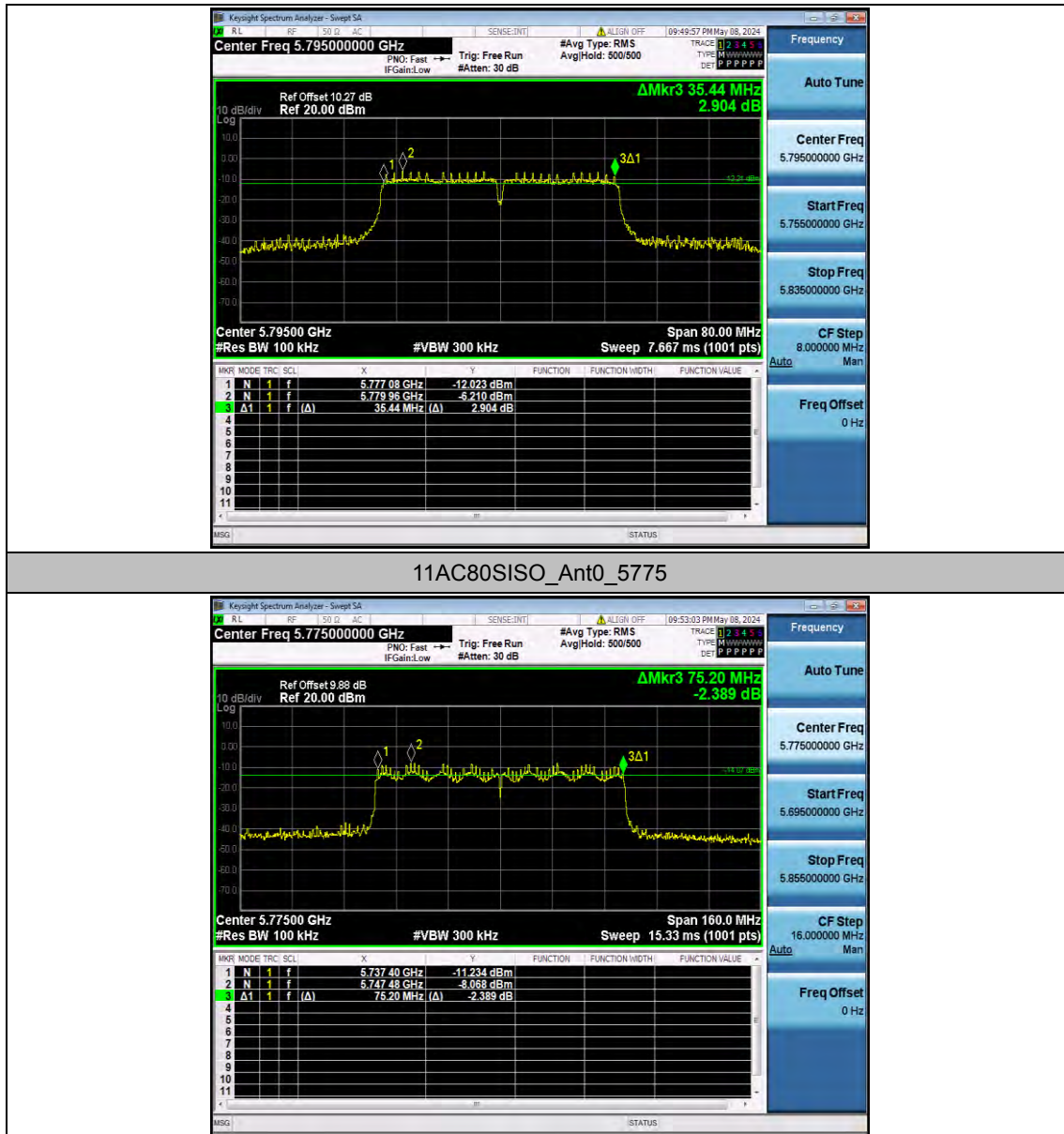
11AC20SISO_Ant0_5825



11AC40SISO_Ant0_5755



11AC40SISO_Ant0_5795

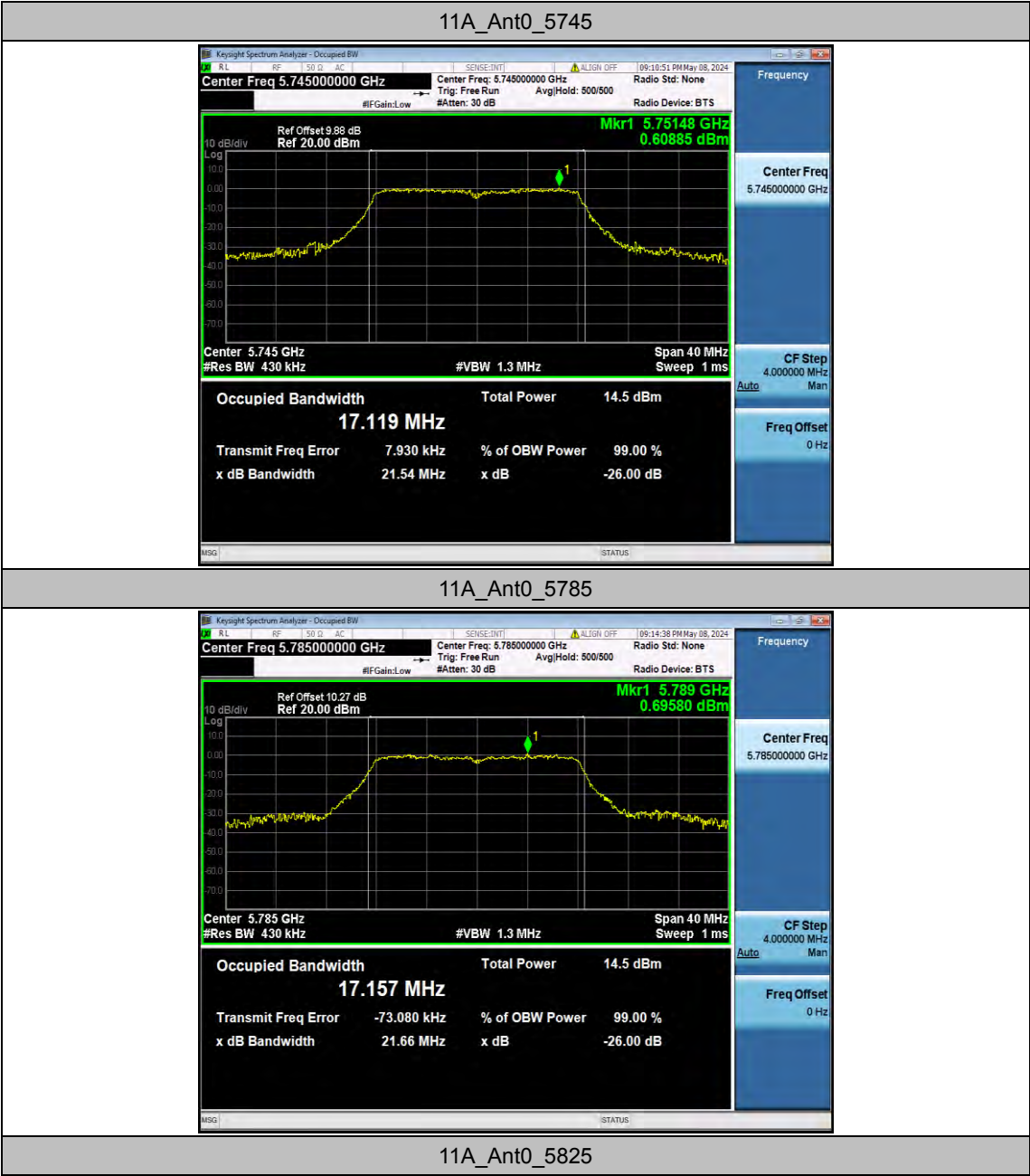


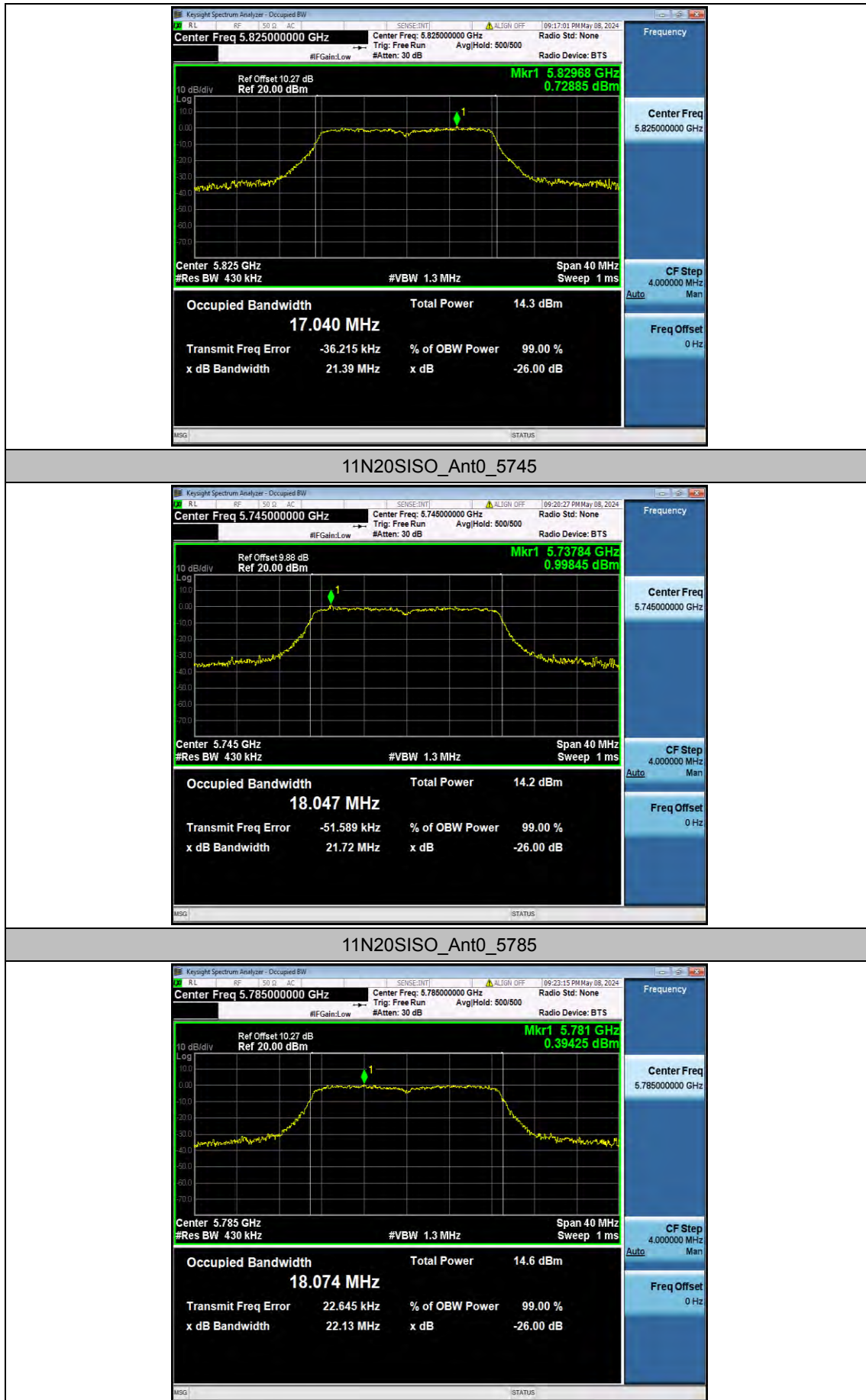
Appendix E.2: Occupied channel bandwidth

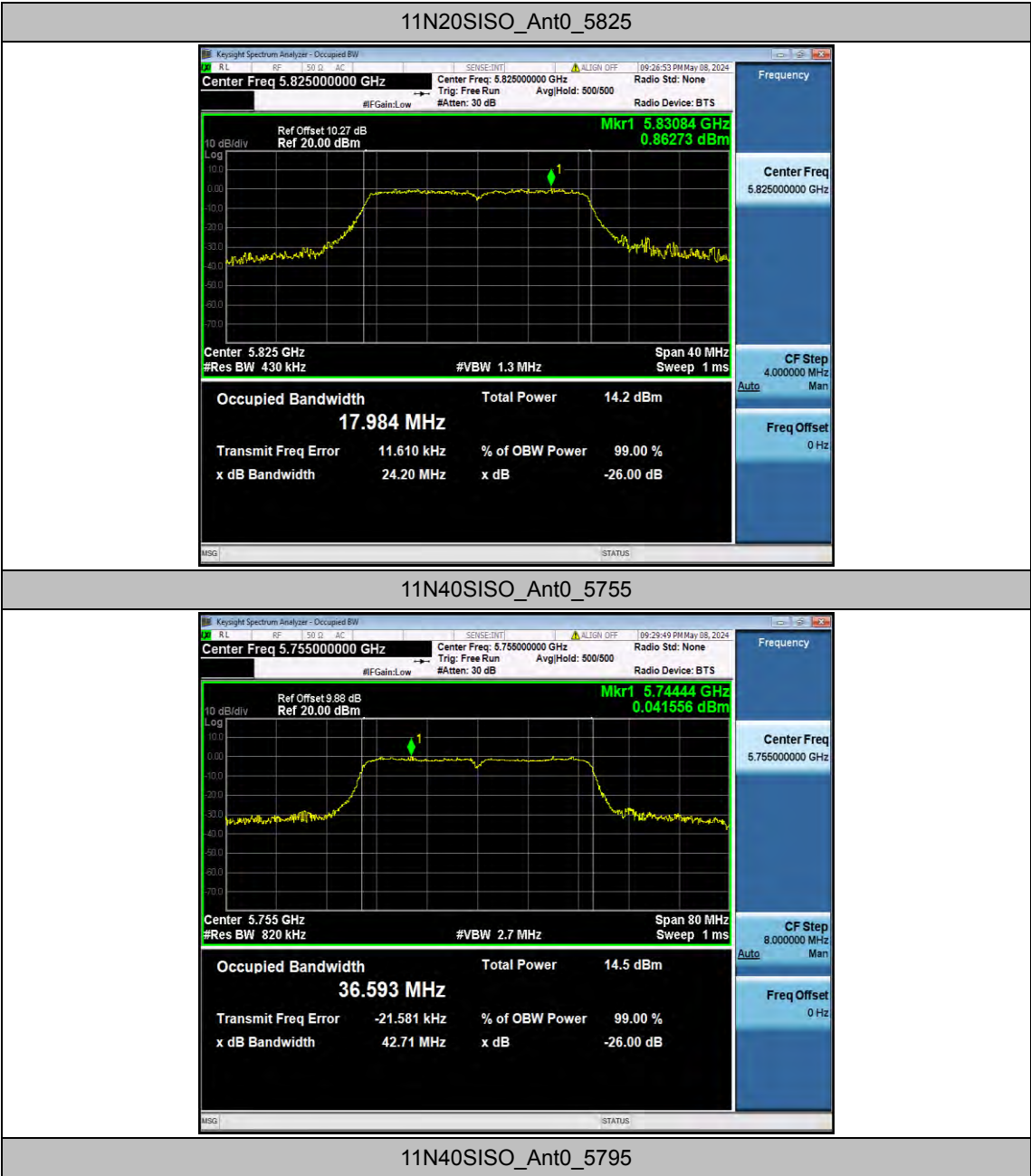
Test Result

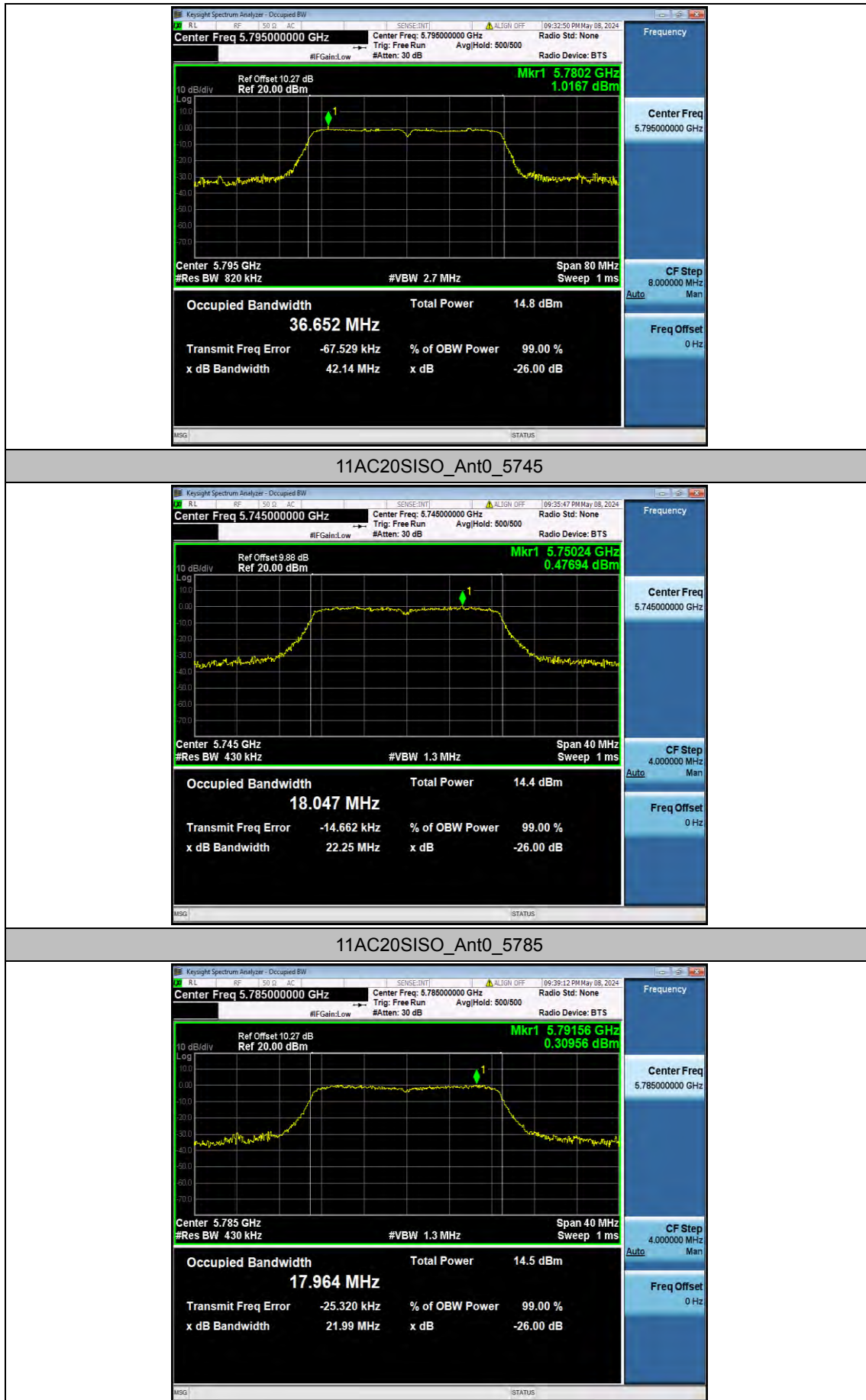
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant0	5745	17.119	5736.4484	5753.5674	---	---
		5785	17.157	5776.3484	5793.5054	---	---
		5825	17.040	5816.4438	5833.4838	---	---
11N20SISO	Ant0	5745	18.047	5735.9249	5753.9719	---	---
		5785	18.074	5775.9857	5794.0597	---	---
		5825	17.984	5816.0196	5834.0036	---	---
11N40SISO	Ant0	5755	36.593	5736.6819	5773.2749	---	---
		5795	36.652	5776.6065	5813.2585	---	---
11AC20SISO	Ant0	5745	18.047	5735.9618	5754.0088	---	---
		5785	17.964	5775.9927	5793.9567	---	---
		5825	18.065	5816.0164	5834.0814	---	---
11AC40SISO	Ant0	5755	36.686	5736.6072	5773.2932	---	---
		5795	36.576	5776.6919	5813.2679	---	---
11AC80SISO	Ant0	5775	75.776	5737.0275	5812.8035	---	---

Test Graphs

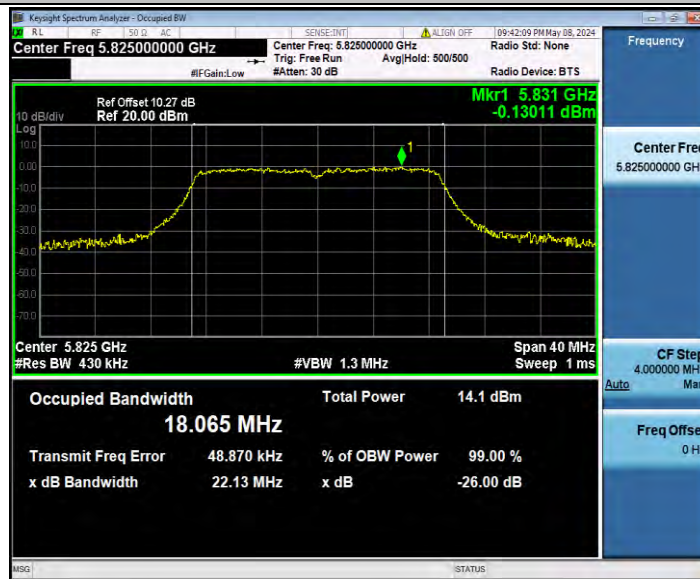




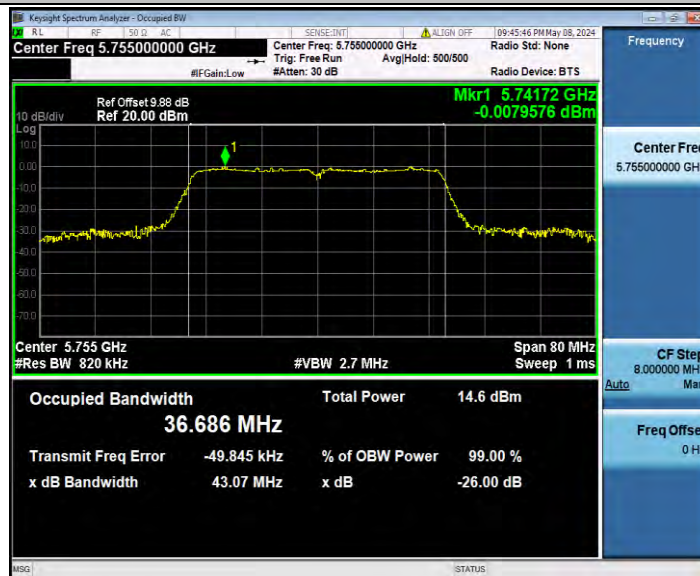




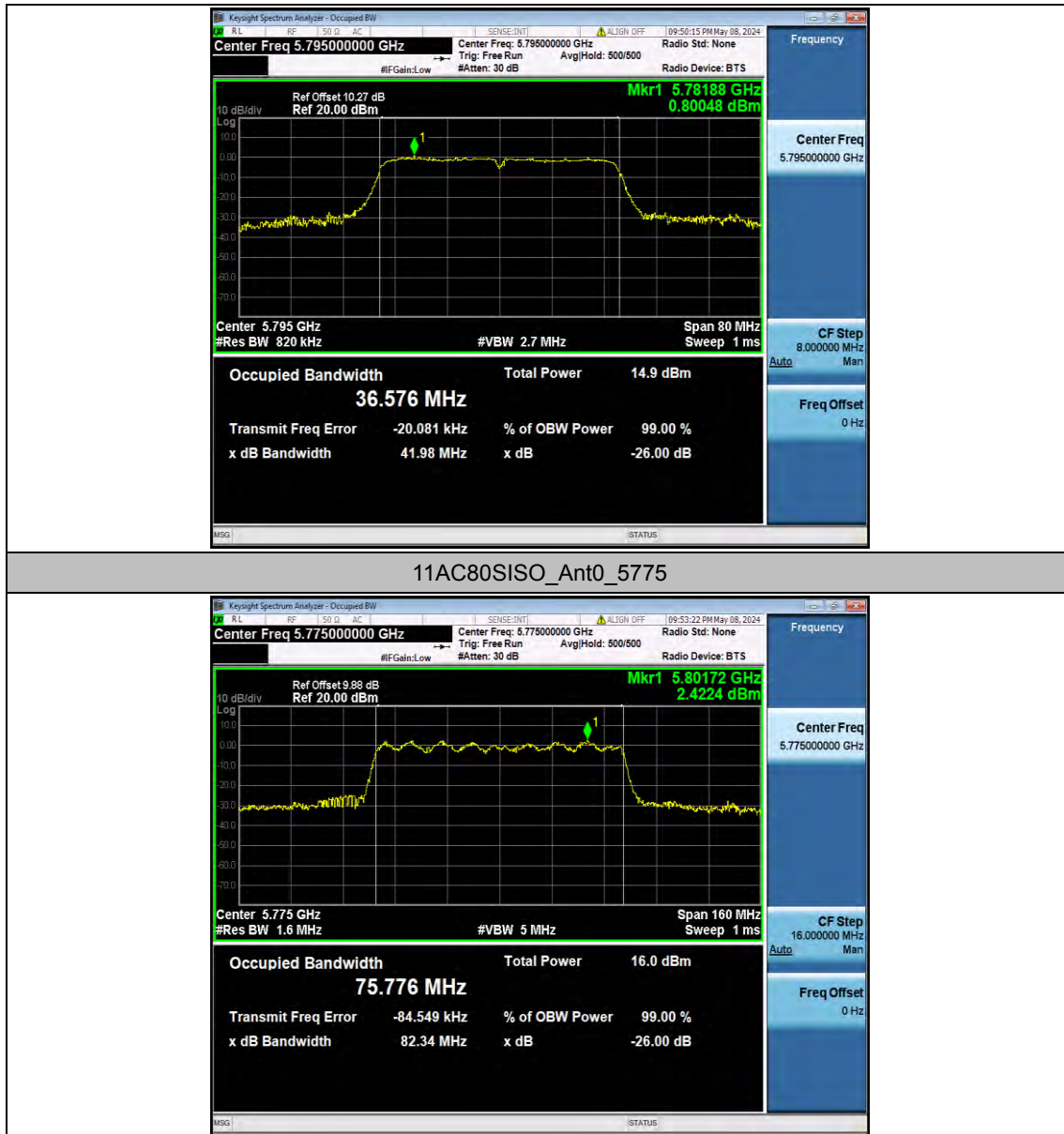
11AC20SISO_Ant0_5825



11AC40SISO_Ant0_5755



11AC40SISO_Ant0_5795

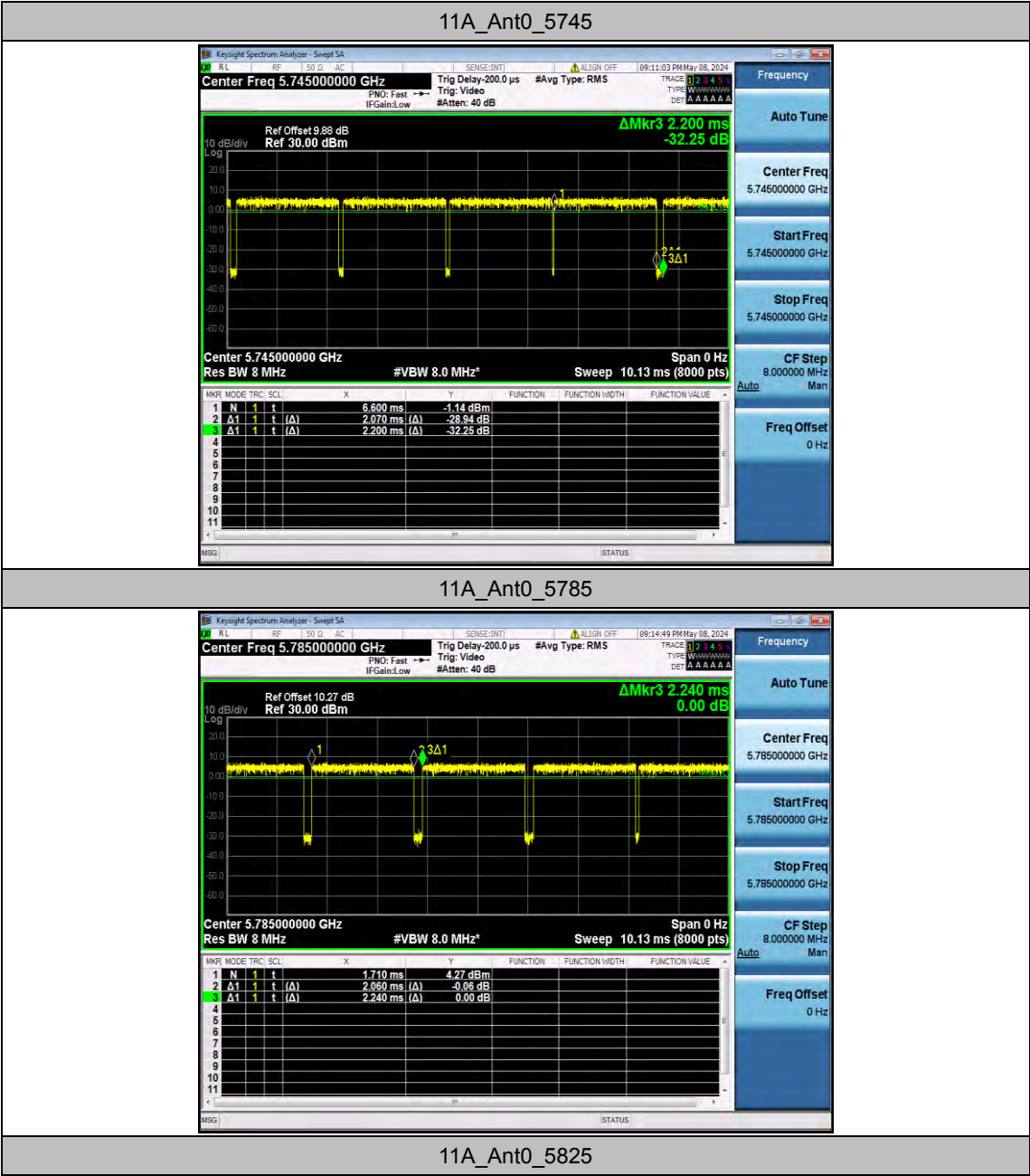


Appendix E.3: Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]	1/T Factor[KHz]
11A	Ant0	5745	2.07	2.20	94.09	0.26	0.48
		5785	2.06	2.24	91.96	0.36	0.49
		5825	2.07	2.23	92.83	0.32	0.48
11N20SISO	Ant0	5745	1.92	2.05	93.66	0.28	0.52
		5785	1.92	2.06	93.20	0.31	0.52
		5825	1.92	2.10	91.43	0.39	0.52
11N40SISO	Ant0	5755	0.94	1.11	84.68	0.72	1.06
		5795	0.95	1.09	87.16	0.60	1.05
11AC20SISO	Ant0	5745	1.93	2.07	93.24	0.30	0.52
		5785	1.93	2.05	94.15	0.26	0.52
		5825	1.93	2.05	94.15	0.26	0.52
11AC40SISO	Ant0	5755	0.95	1.13	84.07	0.75	1.05
		5795	0.95	1.11	85.59	0.68	1.05
11AC80SISO	Ant0	5775	0.46	0.62	74.19	1.30	2.17

Test Graphs



Keysight Spectrum Analyzer - Swept SA

Center Freq 5.745000000 GHz

Trig Delay: 200.0 μ s

#Avg Type: RMS

Ref Offset 9.88 dB

Ref 30.00 dBm

Δ Mkr3 2.050 ms

-37.20 dB

Center 5.745000000 GHz

Span 0 Hz

Res BW 8 MHz

#VBW 8.0 MHz*

Sweep 10.13 ms (8000 pts)

MR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t	4.240 ms	3.89 dBm			
2	Δ 1	1	t	1.920 ms (Δ)	-34.40 dB			
3	Δ 1	1	t	2.050 ms (Δ)	-37.20 dB			

Frequency

Auto Tune

Center Freq
5.745000000 GHz

Start Freq
5.745000000 GHz

Stop Freq
5.745000000 GHz

CF Step
8.000000 MHz

Freq Offset
0 Hz

Keysight Spectrum Analyzer - Swept SA

ALL BANDS AC

SENSE: INT1

ALIGN: OFF

09:23:27 PM May 08, 2024

Center Freq 5.785000000 GHz

Trig Delay: 200.0 μ s

#Avg Type: RMS

TRACE 1 1 2 3 4 5

PNO: Fast

IF Gain: Low

#Atten: 40 dB

TYPE: WWWWWWWW

DET: AAAAAA

Ref Offset: 10.27 dB

Ref 30.00 dBm

Δ Mkr3 2.060 ms

0.31 dB

10 dB/div

Log

Center 5.785000000 GHz

Span 0 Hz

Res BW 8 MHz

#VBW 8.0 MHz*

Sweep 10.13 ms (8000 pts)

MARK	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t	5.600 ms	4.13 dBm			
2	A1	1	t	1.920 ms (A)	-35.70 dB			
3	A1	1	t	2.060 ms (A)	0.31 dB			
4								
5								
6								
7								
8								
9								
10								
11								

MSG

STATUS

Frequency

Auto Tune

Center Freq
5.785000000 GHz

Start Freq
5.785000000 GHz

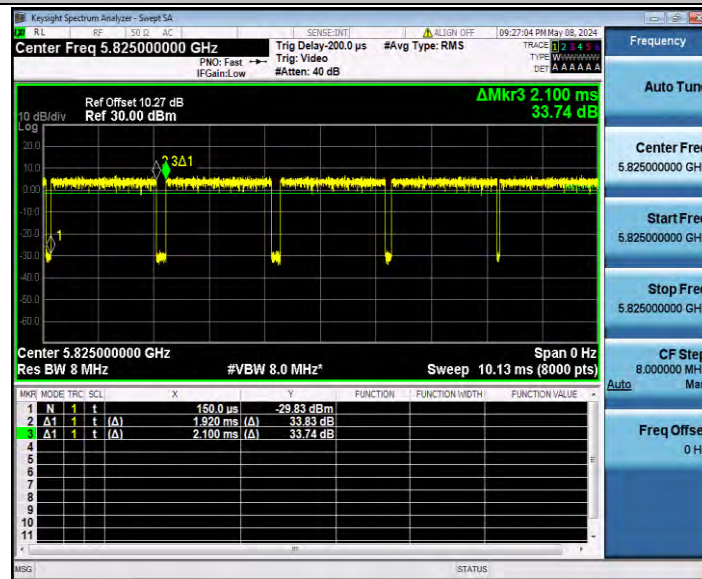
Stop Freq
5.785000000 GHz

CF Step
8.000000 MHz

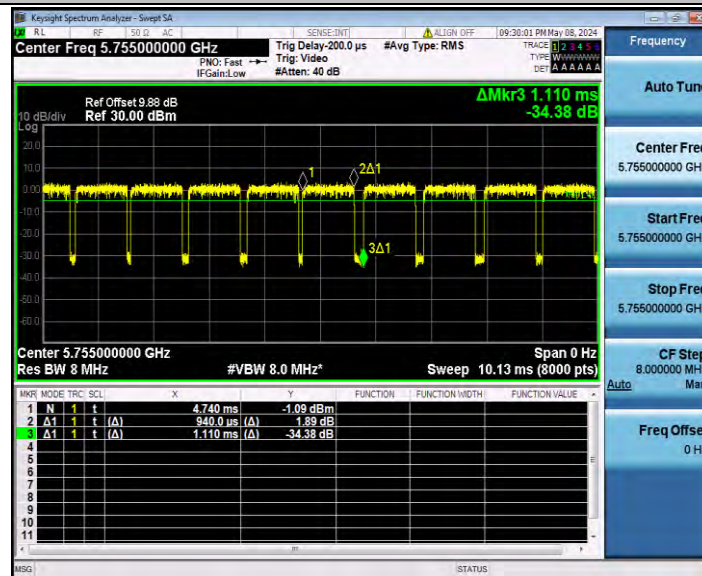
Auto

Freq Offset
0 Hz

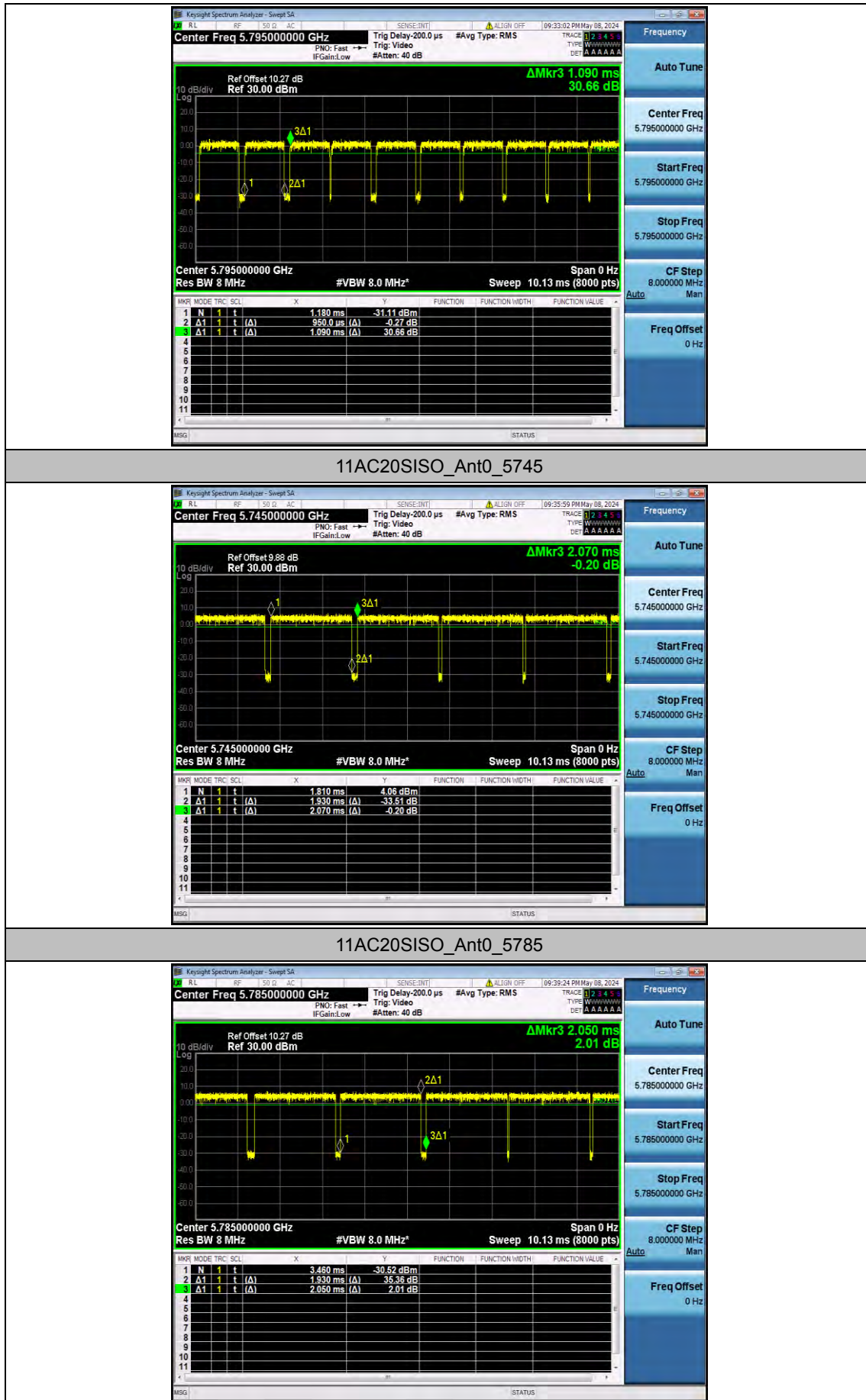
11N20SISO_Ant0_5825

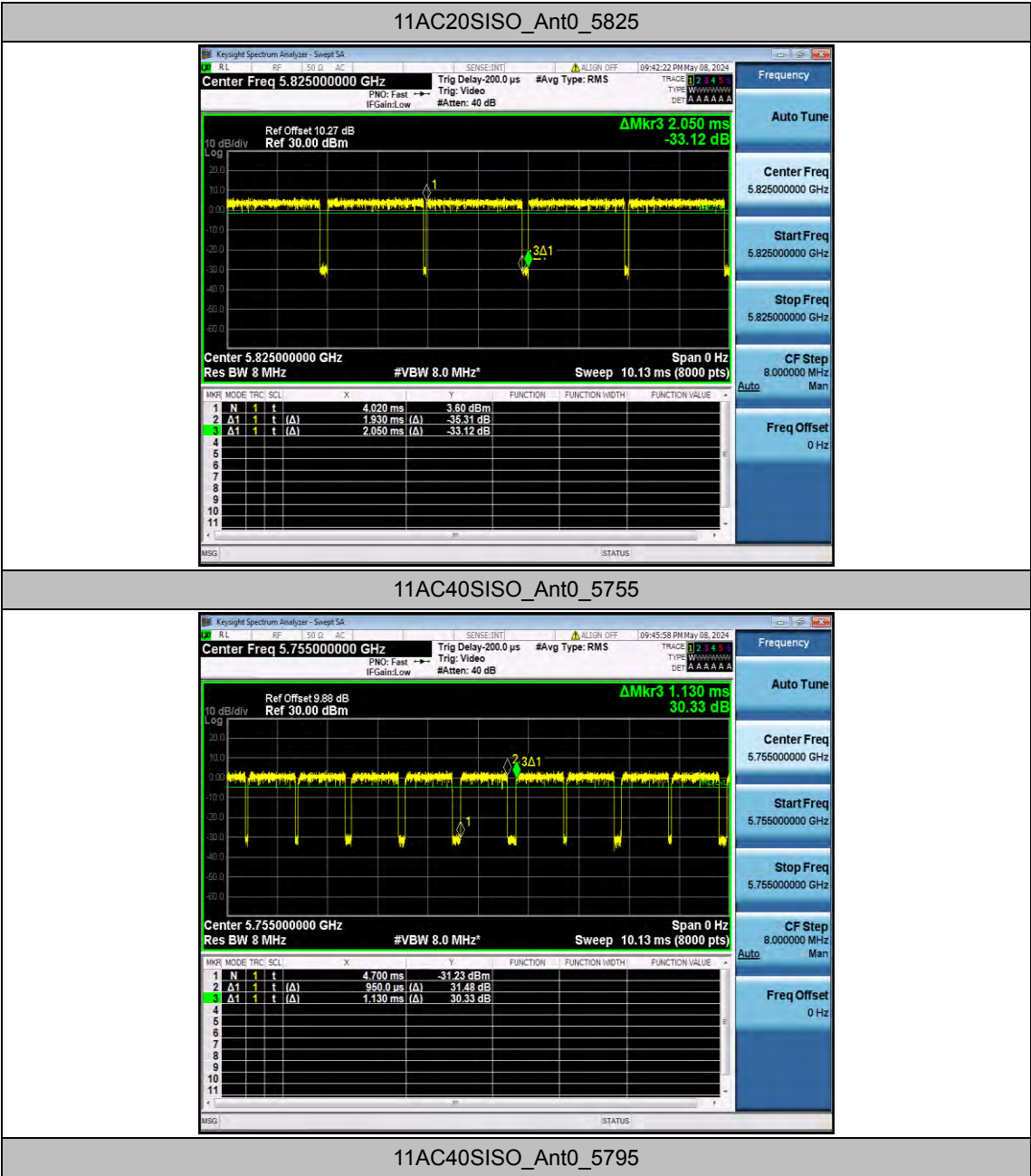


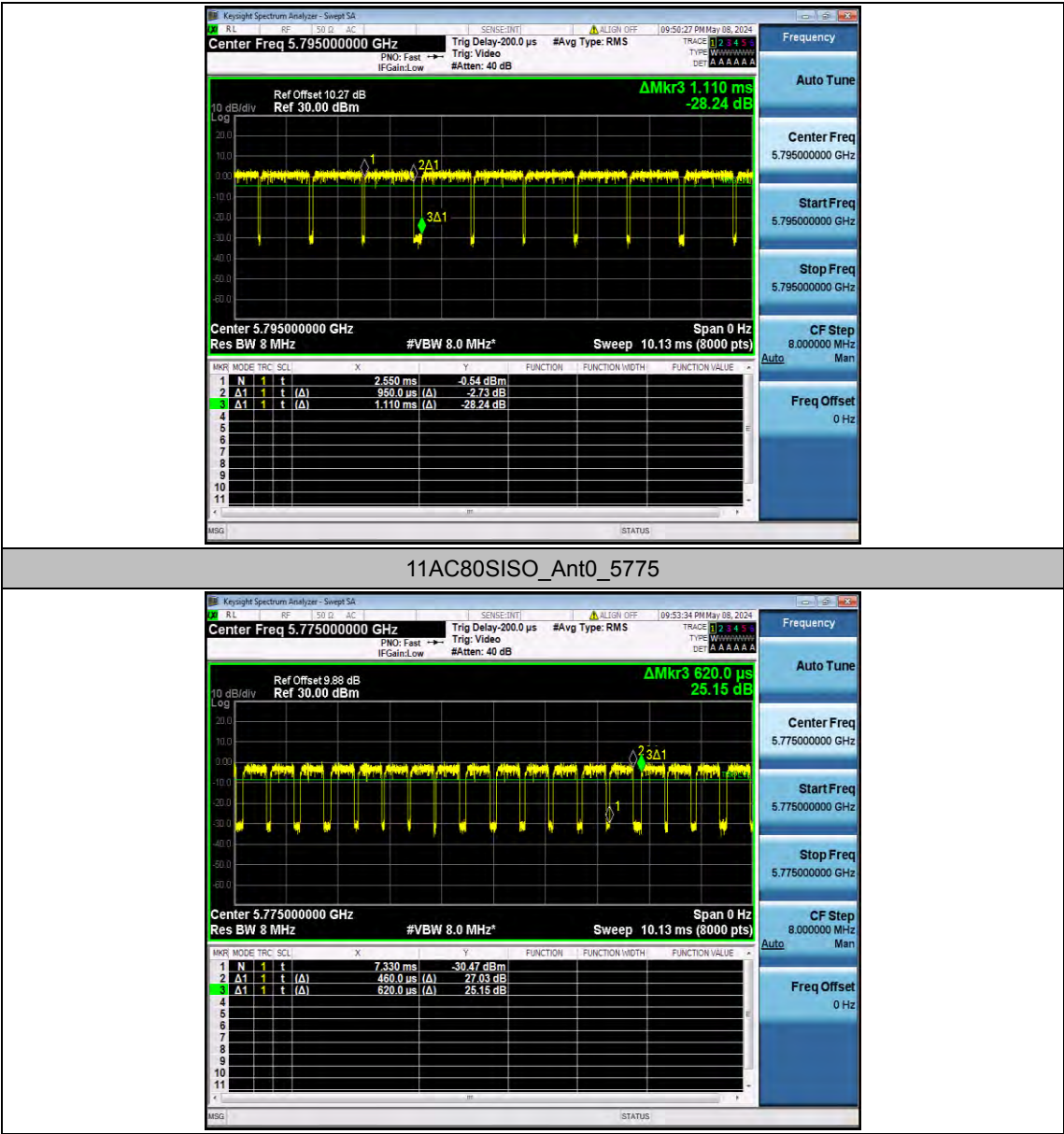
11N40SISO_Ant0_5755



11N40SISO_Ant0_5795







Appendix E.4: Maximum conducted output power

Test Result Channel Power

Test Mode	Antenna	Freq(MHz)	Channel Power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant0	5745	7.49	94.09	0.26	7.75	≤30.00	PASS
		5785	7.67	91.96	0.36	8.03	≤30.00	PASS
		5825	7.33	92.83	0.32	7.65	≤30.00	PASS
11N20SISO	Ant0	5745	7.32	93.66	0.28	7.60	≤30.00	PASS
		5785	7.68	93.20	0.31	7.99	≤30.00	PASS
		5825	7.16	91.43	0.39	7.55	≤30.00	PASS
11N40SISO	Ant0	5755	6.80	84.68	0.72	7.52	≤30.00	PASS
		5795	7.02	87.16	0.60	7.62	≤30.00	PASS
11AC20SISO	Ant0	5745	7.38	93.24	0.30	7.68	≤30.00	PASS
		5785	7.66	94.15	0.26	7.92	≤30.00	PASS
		5825	7.32	94.15	0.26	7.58	≤30.00	PASS
11AC40SISO	Ant0	5755	6.75	84.07	0.75	7.50	≤30.00	PASS
		5795	7.13	85.59	0.68	7.81	≤30.00	PASS
11AC80SISO	Ant0	5775	6.62	74.19	1.30	7.92	≤30.00	PASS

Note:

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

Appendix E.5: Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant0	5745	-6.43	≤30.00	PASS
		5785	-5.99	≤30.00	PASS
		5825	-6.25	≤30.00	PASS
11N20SISO	Ant0	5745	-6.60	≤30.00	PASS
		5785	-6.17	≤30.00	PASS
		5825	-51.06	≤30.00	PASS
11N40SISO	Ant0	5755	-9.83	≤30.00	PASS
		5795	-9.54	≤30.00	PASS
11AC20SISO	Ant0	5745	-6.61	≤30.00	PASS
		5785	-6.43	≤30.00	PASS
		5825	-6.57	≤30.00	PASS
11AC40SISO	Ant0	5755	-9.63	≤30.00	PASS
		5795	-9.32	≤30.00	PASS
11AC80SISO	Ant0	5775	-11.17	≤30.00	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

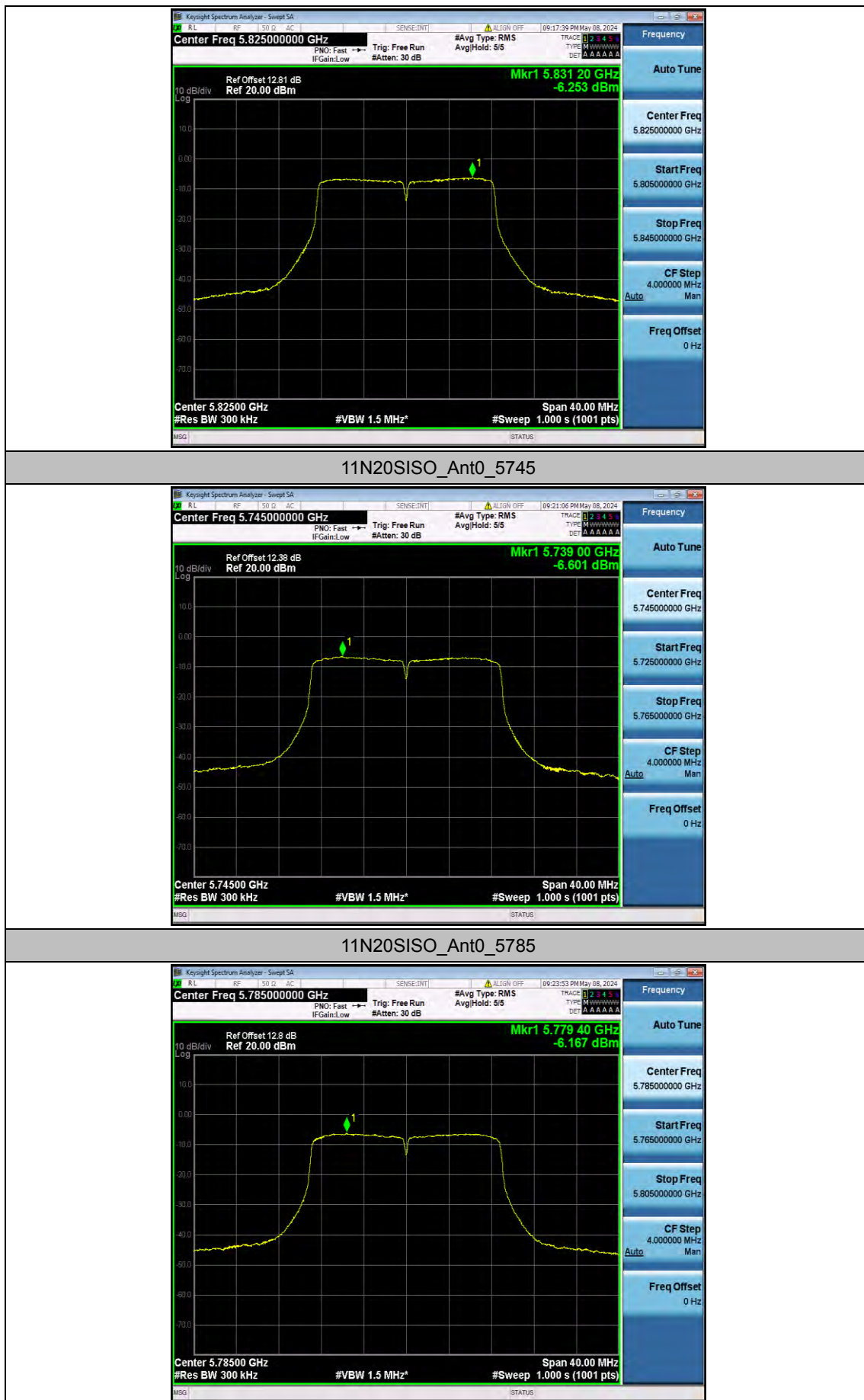
11A_Ant0_5745

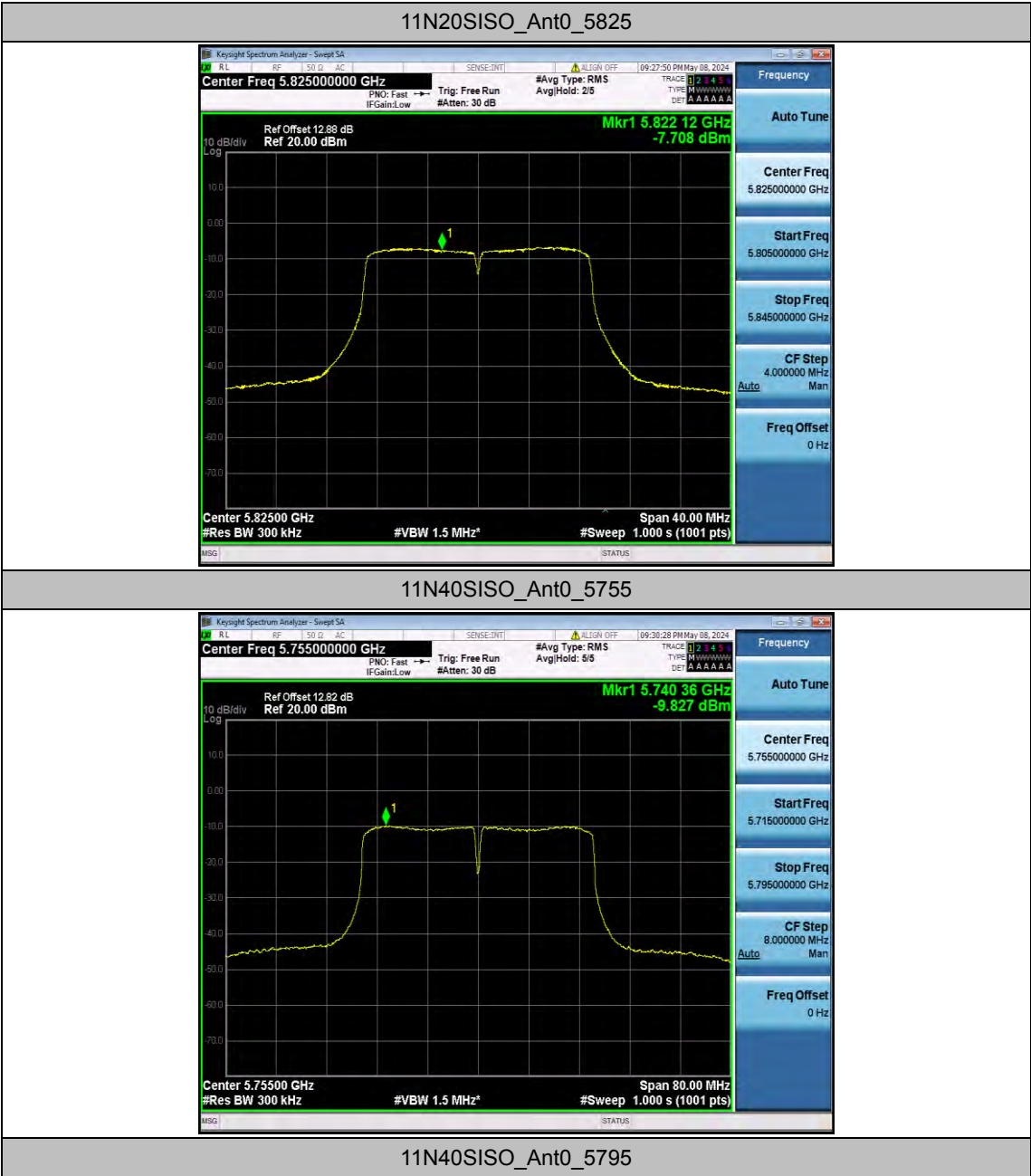


11A_Ant0_5785



11A_Ant0_5825





Keysight Spectrum Analyzer - Swept SA

ALG: FFT F: 50.0 S: 1.0 SENSE: INT

Center Freq 5.745000000 GHz

PNO: Fast IF Gain_Low Trig: Free Run #Atten: 30 dB

#Avg Type: RMS Avg/Hold: 5/5

ALIGN OFF 09:36:26 PM May 08, 2024

TRACE 1 2 x 4 x 1

TYPE: M WWWWWW

DET: A A A A A A

Frequency

Auto Tune

Center Freq 5.745000000 GHz

Start Freq 5.725000000 GHz

Stop Freq 5.765000000 GHz

CF Step 4.000000 MHz

Auto Man

Freq Offset 0 Hz

10 dB/div Log

Ref Offset 12.4 dB

Ref 20.00 dBm

Mkr1 5.738 76 GHz -6.610 dBm

Center 5.74500 GHz

#Res BW 300 kHz

#VBW 1.5 MHz*

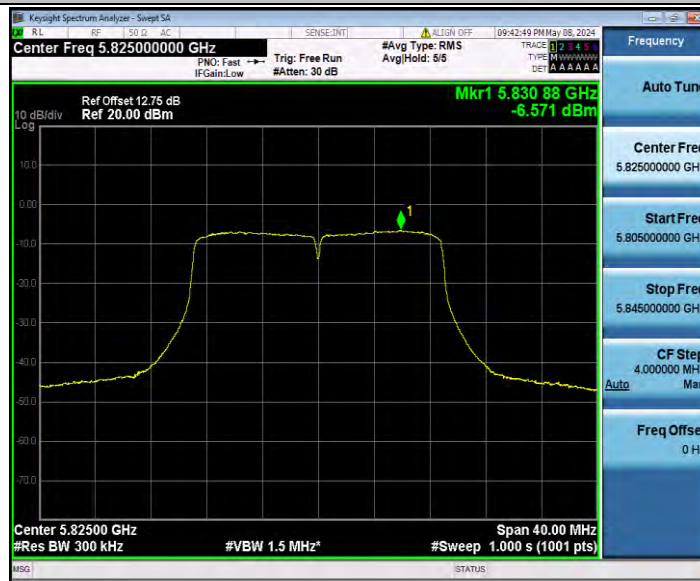
Span 40.00 MHz

#Sweep 1.000 s (1001 pts)

MSG STATUS

[illegible]

11AC20SISO_Ant0_5825



11AC40SISO_Ant0_5755



11AC40SISO_Ant0_5795



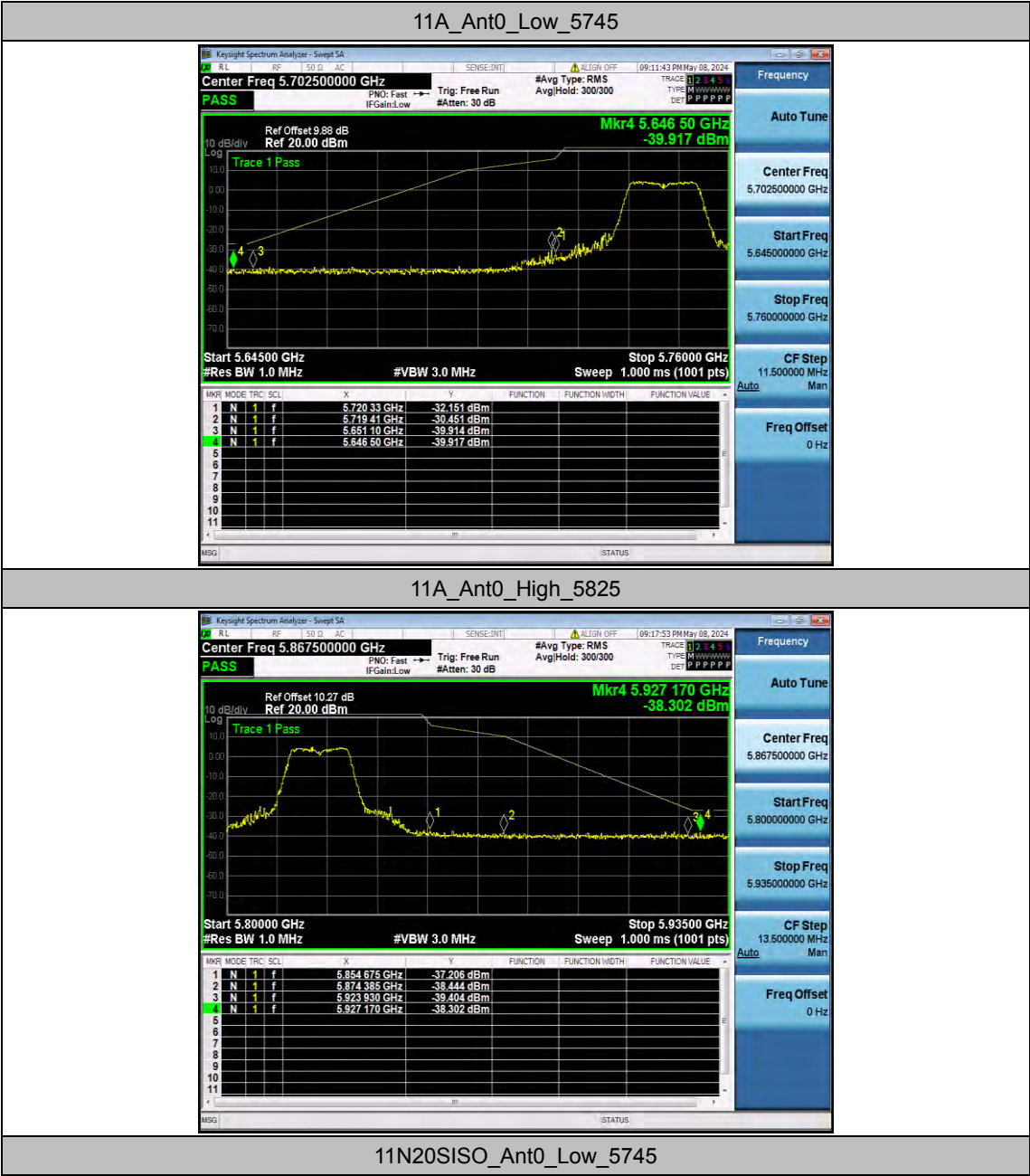
Appendix E.6: Band edge measurements

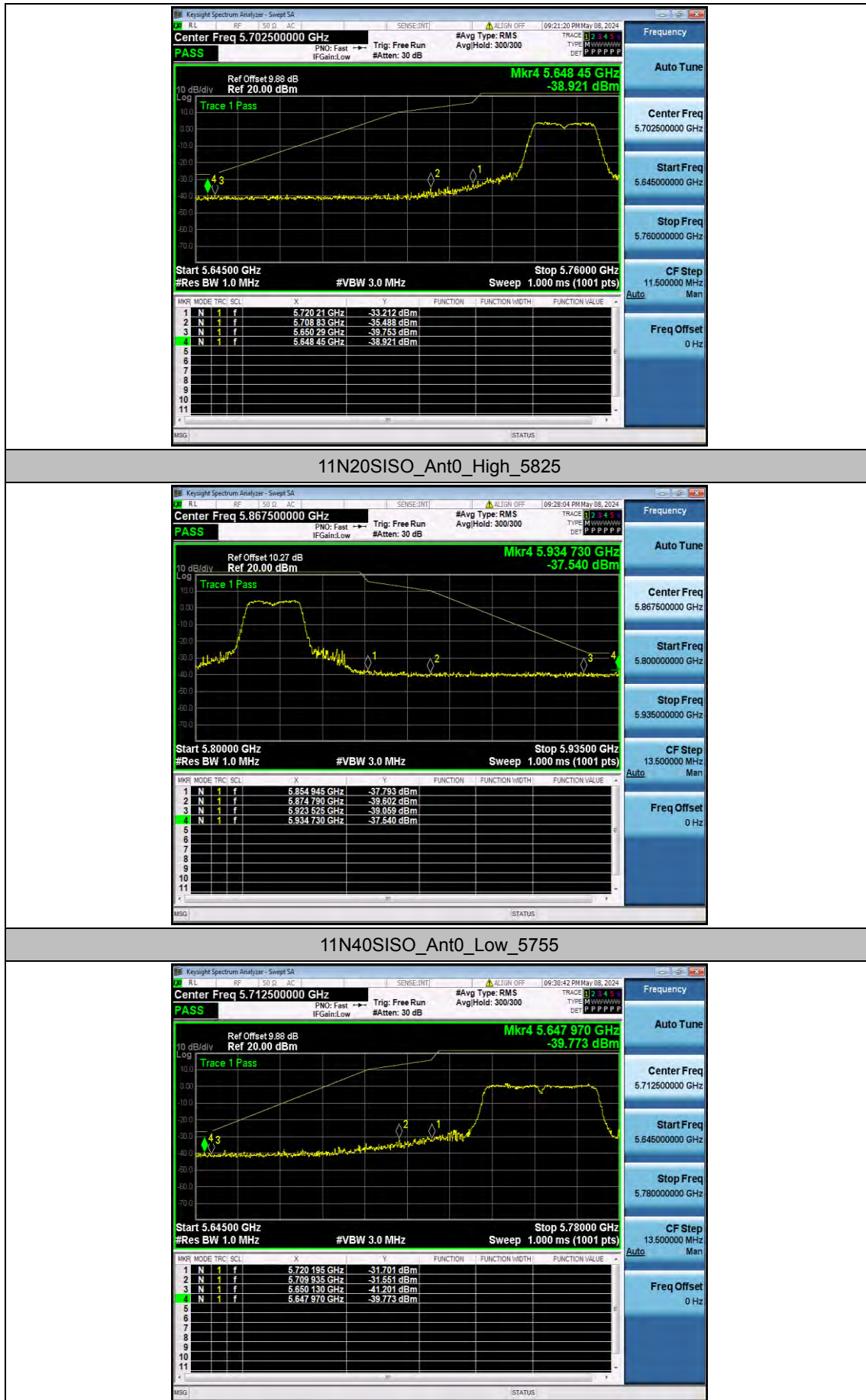
Test Result B4

TestMode	Antenna	ChName	Freq(MHz)	FreqRange [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant0	Low	5745	5650~5700	-39.91	≤-26.19	PASS
				5700~5720	-30.45	≤15.43	PASS
				5720~5725	-32.15	≤16.34	PASS
				5760~5650	-39.92	≤-27	PASS
		High	5825	5850~5855	-37.21	≤16.34	PASS
				5855~5875	-38.44	≤10.17	PASS
				5875~5925	-39.4	≤-26.21	PASS
				5925~5935	-38.3	≤-27	PASS
11N20SI SO	Ant0	Low	5745	5650~5700	-39.75	≤-26.79	PASS
				5700~5720	-35.49	≤12.47	PASS
				5720~5725	-33.21	≤16.08	PASS
				5760~5650	-38.92	≤-27	PASS
		High	5825	5850~5855	-37.79	≤15.73	PASS
				5855~5875	-39.6	≤10.06	PASS
				5875~5925	-39.06	≤-25.91	PASS
				5925~5935	-37.54	≤-27	PASS
11N40SI SO	Ant0	Low	5755	5650~5700	-41.2	≤-26.90	PASS
				5700~5720	-31.55	≤12.78	PASS
				5720~5725	-31.7	≤16.04	PASS
				5780~5650	-39.77	≤-27	PASS
		High	5795	5850~5855	-38.51	≤15.66	PASS
				5855~5875	-38.87	≤10.25	PASS
				5875~5925	-38.65	≤-26.95	PASS
				5925~5935	-38.29	≤-27	PASS
11AC20S ISO	Ant0	Low	5745	5650~5700	-39.96	≤-26.53	PASS
				5700~5720	-32.08	≤15.37	PASS
				5720~5725	-30	≤17.91	PASS
				5760~5650	-39.89	≤-27	PASS
		High	5825	5850~5855	-37.3	≤15.73	PASS
				5855~5875	-38.84	≤10.10	PASS
				5875~5925	-38.49	≤-26.21	PASS
				5925~5935	-37.06	≤-27	PASS
11AC40S ISO	Ant0	Low	5755	5650~5700	-40.63	≤-26.80	PASS
				5700~5720	-34.62	≤10.06	PASS
				5720~5725	-31.15	≤15.74	PASS
				5780~5650	-39.31	≤-27	PASS

		High	5795	5850~5855	-40.09	≤ 15.66	PASS
				5855~5875	-38.75	≤ 10.02	PASS
				5875~5925	-39.21	≤ -26.59	PASS
				5925~5935	-38.74	≤ -27	PASS
11AC80S ISO	Ant0	Low	5775	5650~5700	-38.02	≤ -26.34	PASS
				5700~5720	-32.62	≤ 10.01	PASS
				5720~5725	-31.79	≤ 15.65	PASS
				5800~5650	-37.58	≤ -27	PASS
		High	5775	5850~5855	-33.84	≤ 15.84	PASS
				5855~5875	-31.03	≤ 12.52	PASS
				5875~5925	-38.88	≤ -26.19	PASS
				5925~5935	-39.32	≤ -27	PASS

Test Graphs B4





11N40SISO_Ant0_High_5795



11AC20SISO_Ant0_Low_5745



11AC20SISO_Ant0_High_5825

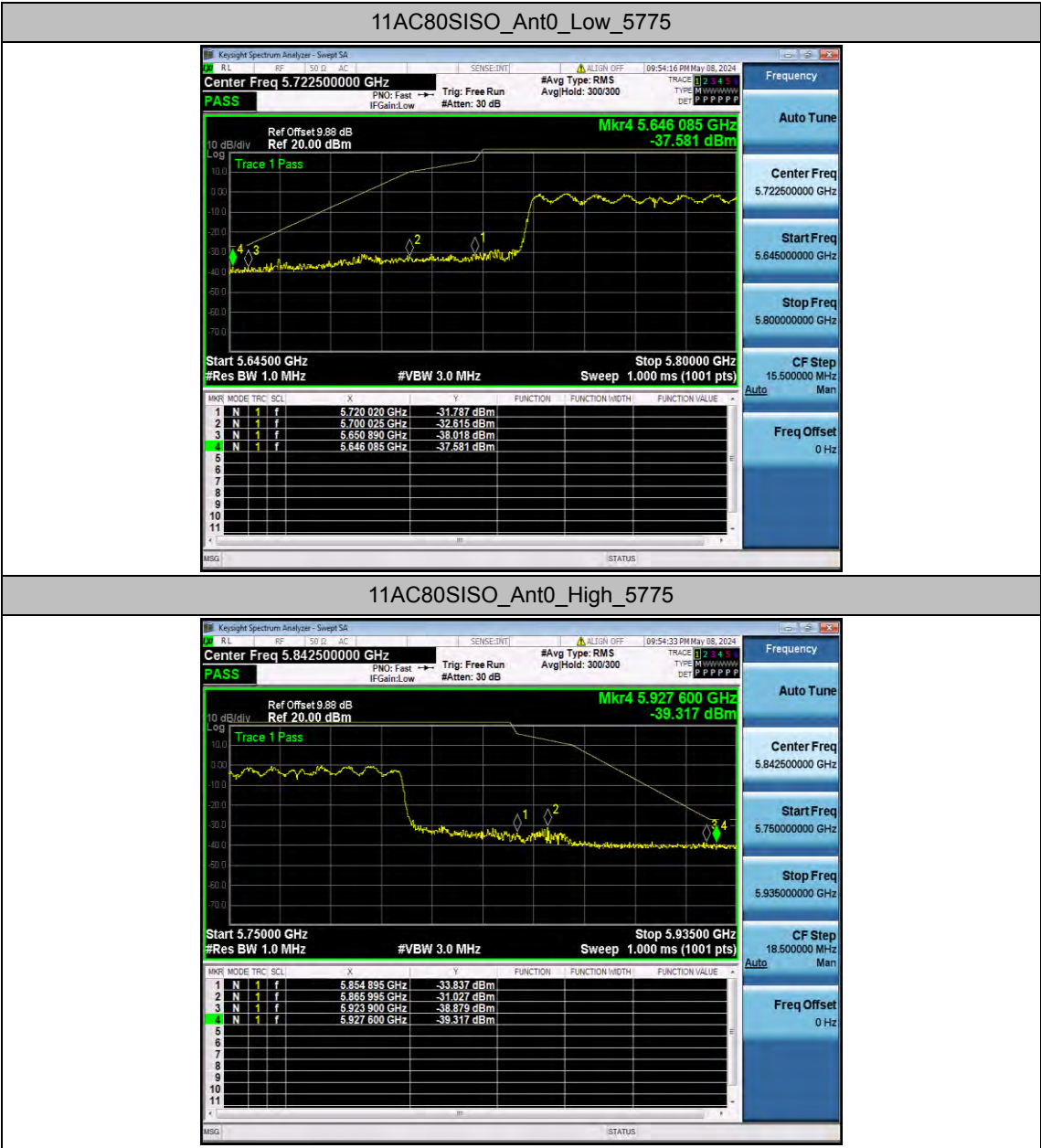


11AC40SISO_Ant0_Low_5755



11AC40SISO_Ant0_High_5795



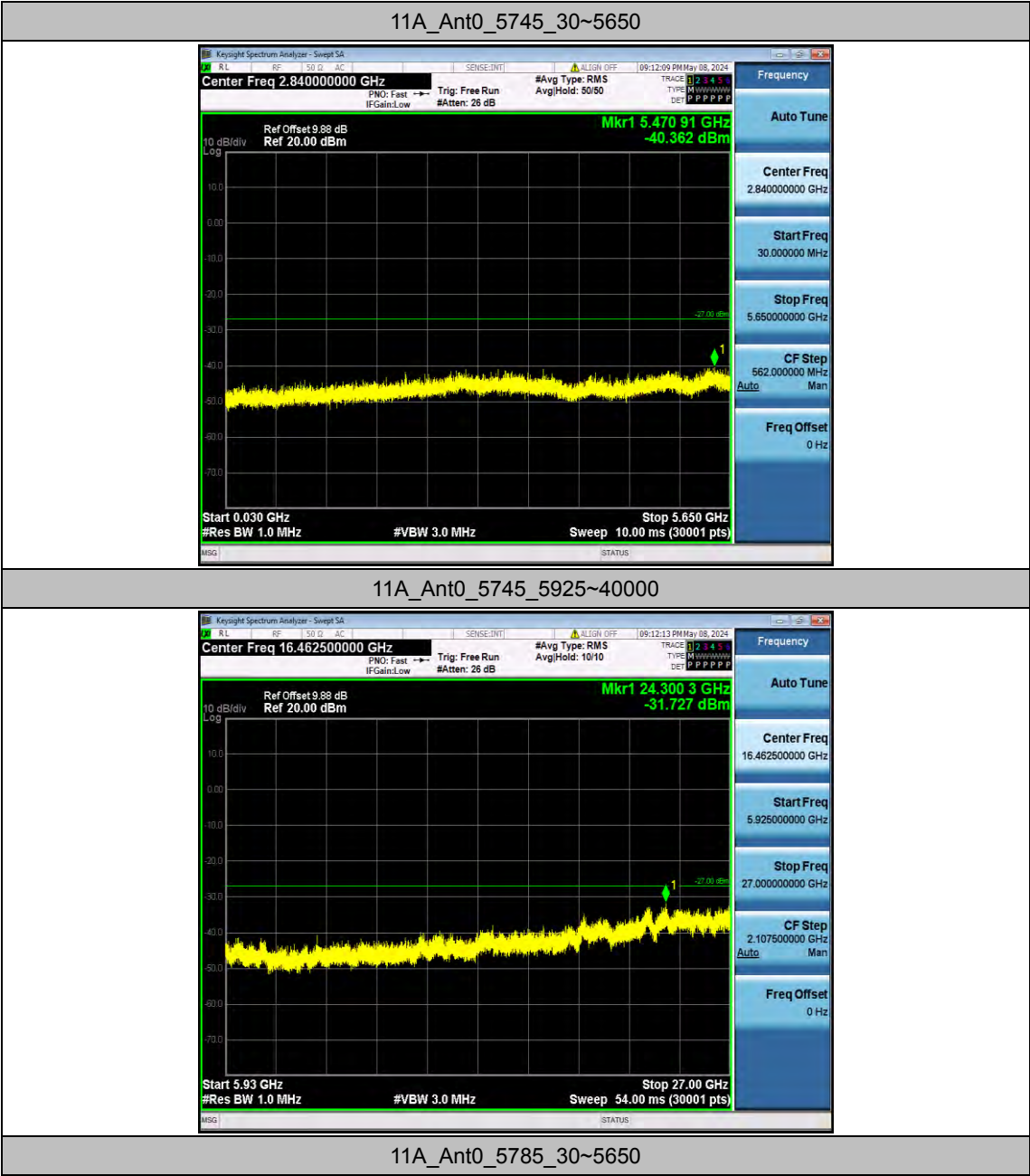


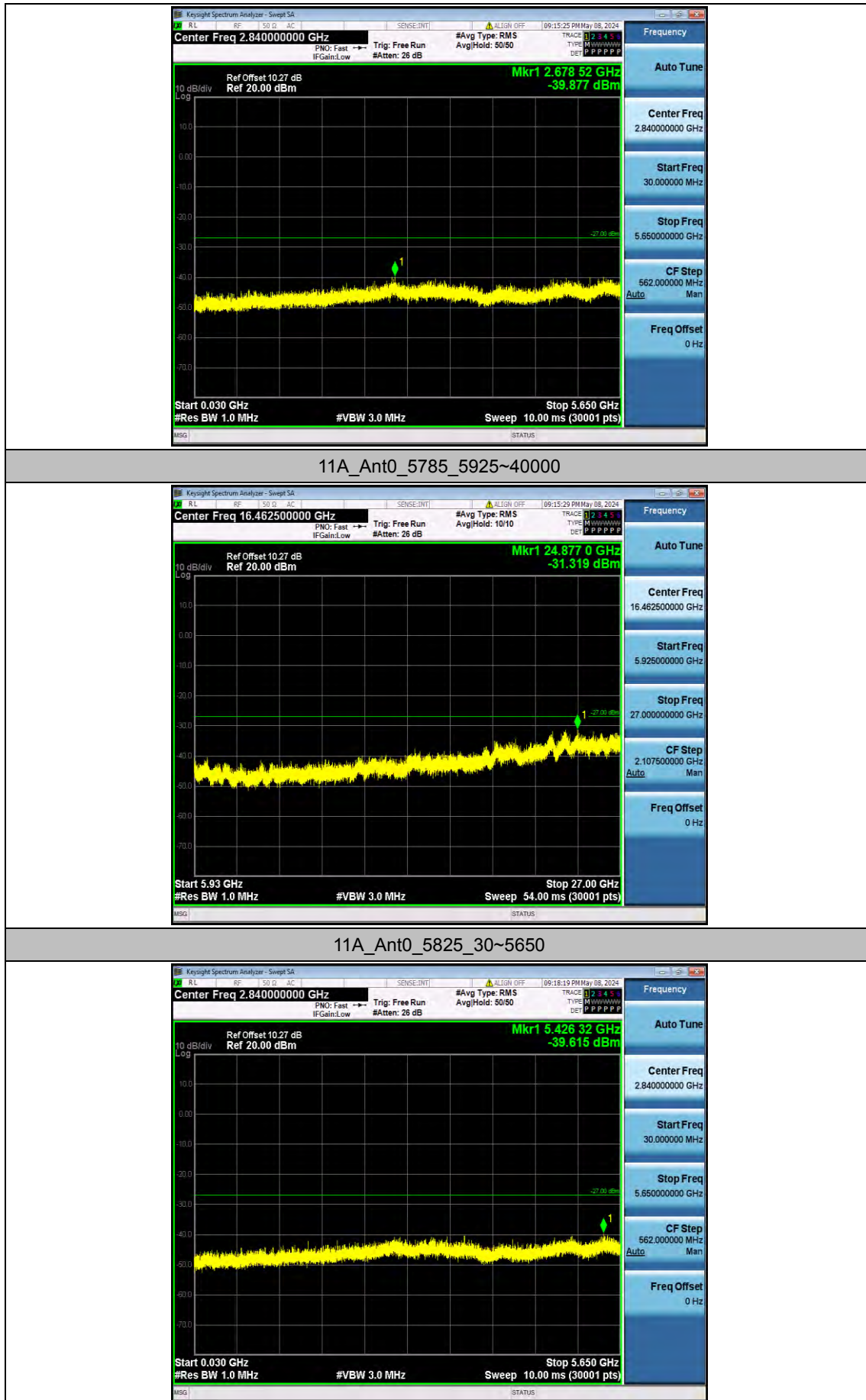
Appendix E.7: Conducted Spurious Emission

Test Result

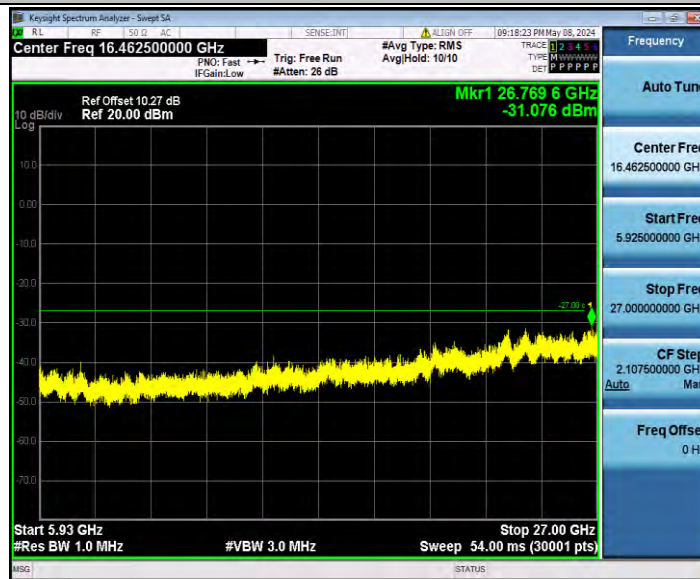
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	Max. Fre [MHz]	Max. Level [dBm]	Limit [dBm]	Verdict
11A	Ant0	5745	30~5650	5470.91	-40.36	≤-27	PASS
			5925~40000	24300.29	-31.73	≤-27	PASS
		5785	30~5650	2678.52	-39.88	≤-27	PASS
			5925~40000	24877.05	-31.32	≤-27	PASS
		5825	30~5650	5426.32	-39.62	≤-27	PASS
			5925~40000	26769.58	-31.08	≤-27	PASS
11N20SISO	Ant0	5745	30~5650	5450.12	-39.81	≤-27	PASS
			5925~40000	26897.44	-32.04	≤-27	PASS
		5785	30~5650	5439.25	-39.87	≤-27	PASS
			5925~40000	24281.33	-31.6	≤-27	PASS
		5825	30~5650	5455.55	-40.26	≤-27	PASS
			5925~40000	26573.58	-32.25	≤-27	PASS
11N40SISO	Ant0	5755	30~5650	2652.48	-40.09	≤-27	PASS
			5925~40000	26577.8	-32.17	≤-27	PASS
		5795	30~5650	5392.79	-39.66	≤-27	PASS
			5925~40000	24337.53	-31.19	≤-27	PASS
11AC20SISO	Ant0	5745	30~5650	5434.57	-40.32	≤-27	PASS
			5925~40000	24214.59	-31.05	≤-27	PASS
		5785	30~5650	3168.77	-39.86	≤-27	PASS
			5925~40000	24768.86	-31.37	≤-27	PASS
		5825	30~5650	4959.11	-40.48	≤-27	PASS
			5925~40000	24236.37	-32.08	≤-27	PASS
11AC40SISO	Ant0	5755	30~5650	4927.27	-40.56	≤-27	PASS
			5925~40000	26106.42	-31.16	≤-27	PASS
		5795	30~5650	5401.03	-39.36	≤-27	PASS
			5925~40000	25985.59	-31.12	≤-27	PASS
11AC80SISO	Ant0	5775	30~5650	5646.44	-37.96	≤-27	PASS
			5925~40000	24345.25	-32.52	≤-27	PASS

Test Graphs

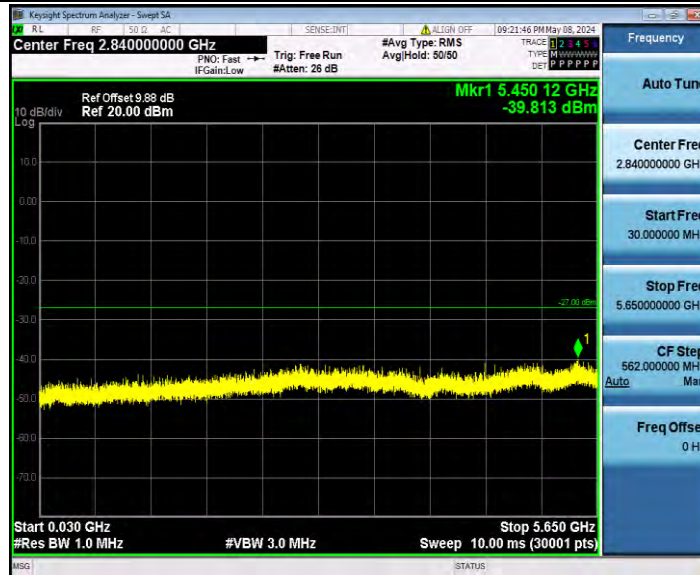




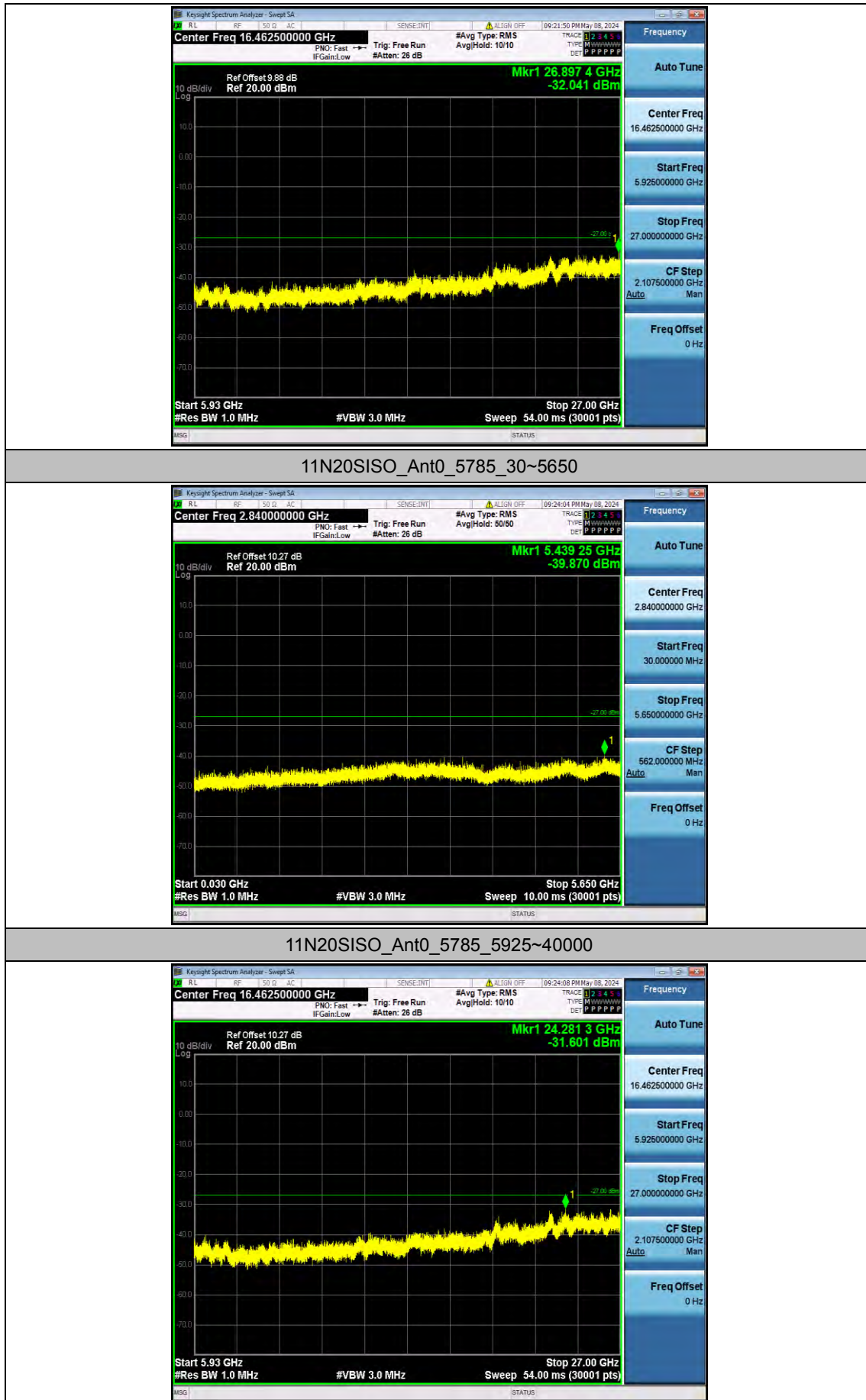
11A_Ant0_5825_5925~40000



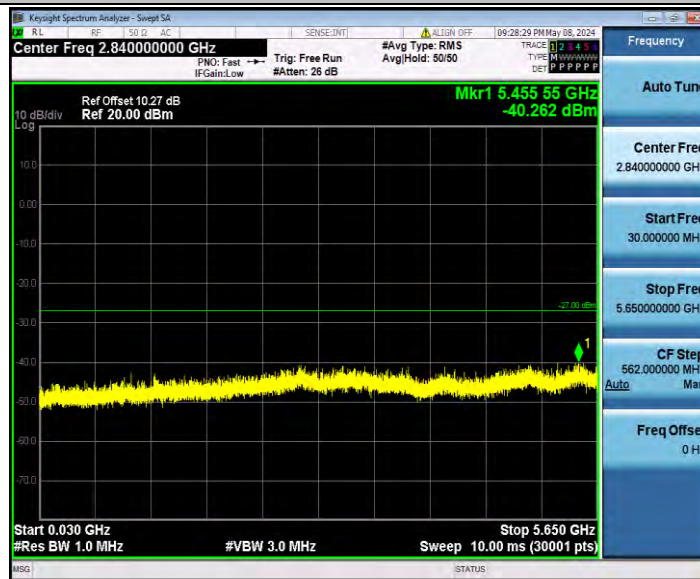
11N20SISO_Ant0_5745_30~5650



11N20SISO_Ant0_5745_5925~40000



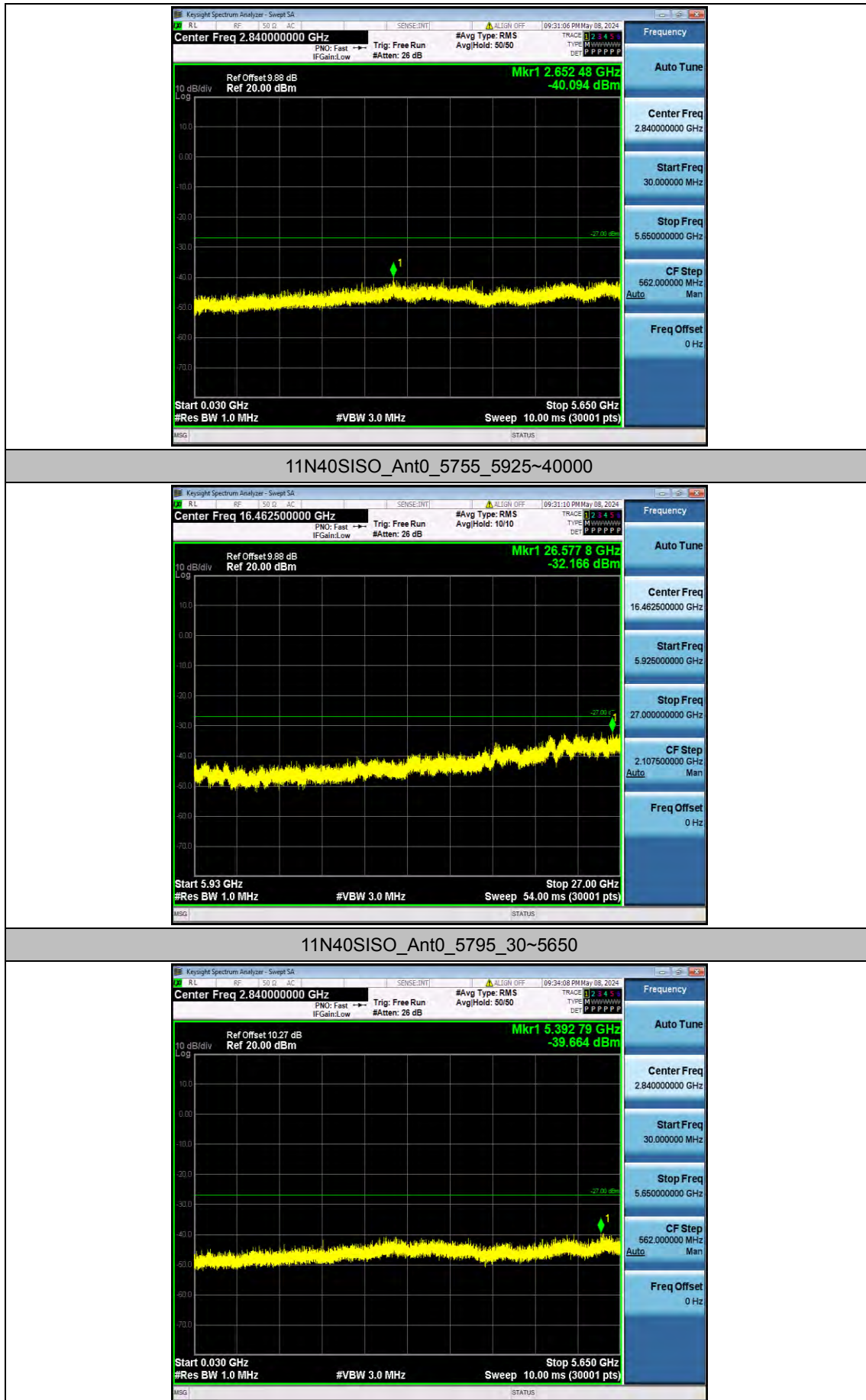
11N20SISO_Ant0_5825_30~5650



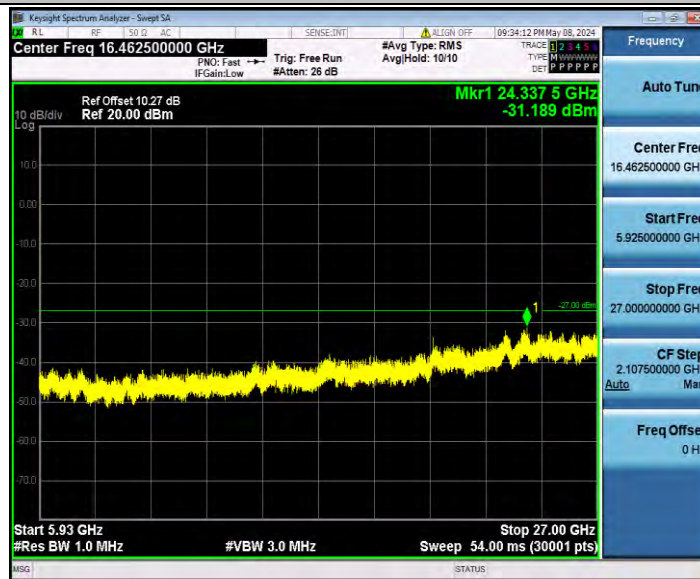
11N20SISO_Ant0_5825_5925~40000



11N40SISO_Ant0_5755_30~5650



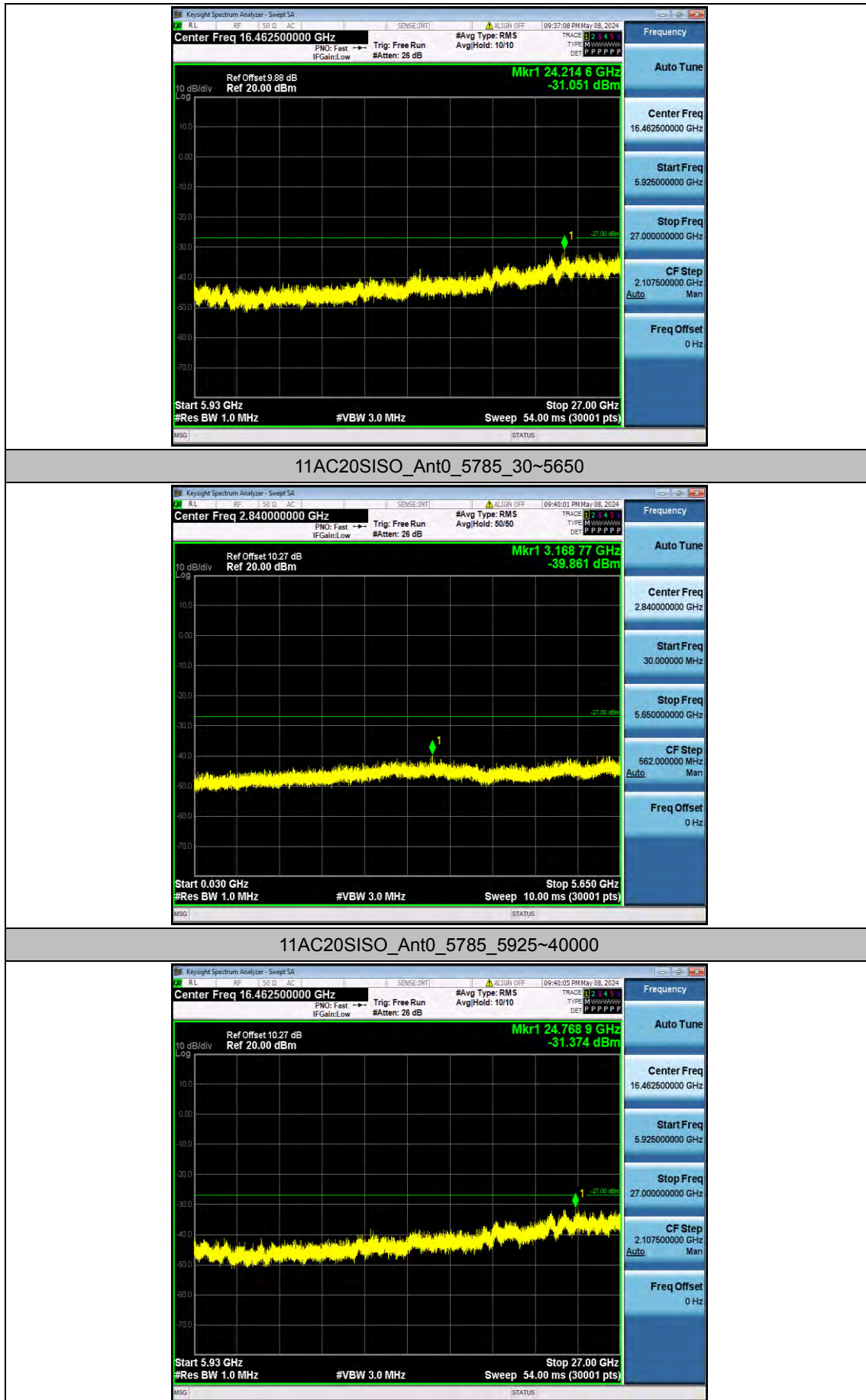
11N40SISO_Ant0_5795_5925~40000



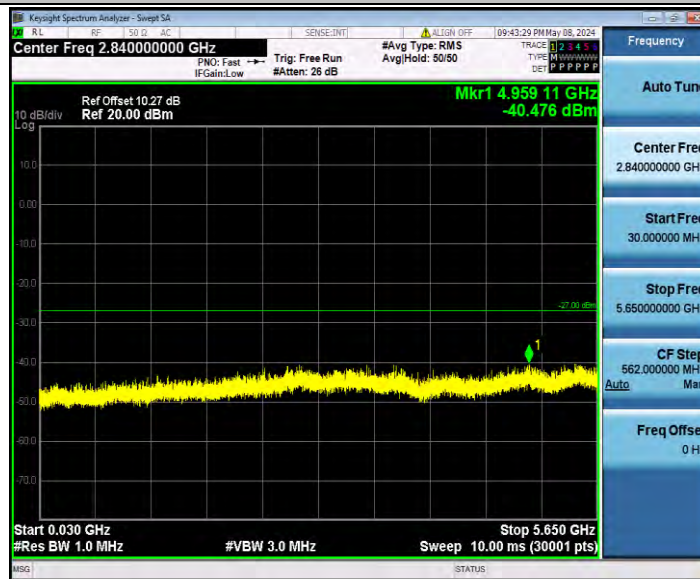
11AC20SISO_Ant0_5745_30~5650



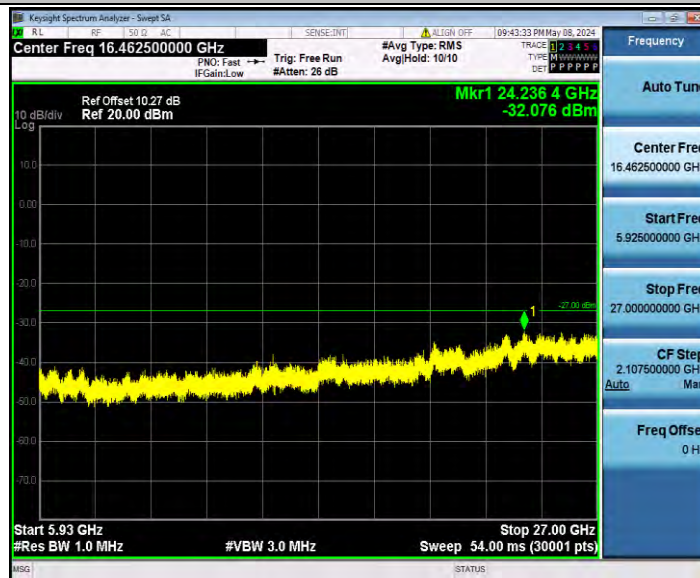
11AC20SISO_Ant0_5745_5925~40000



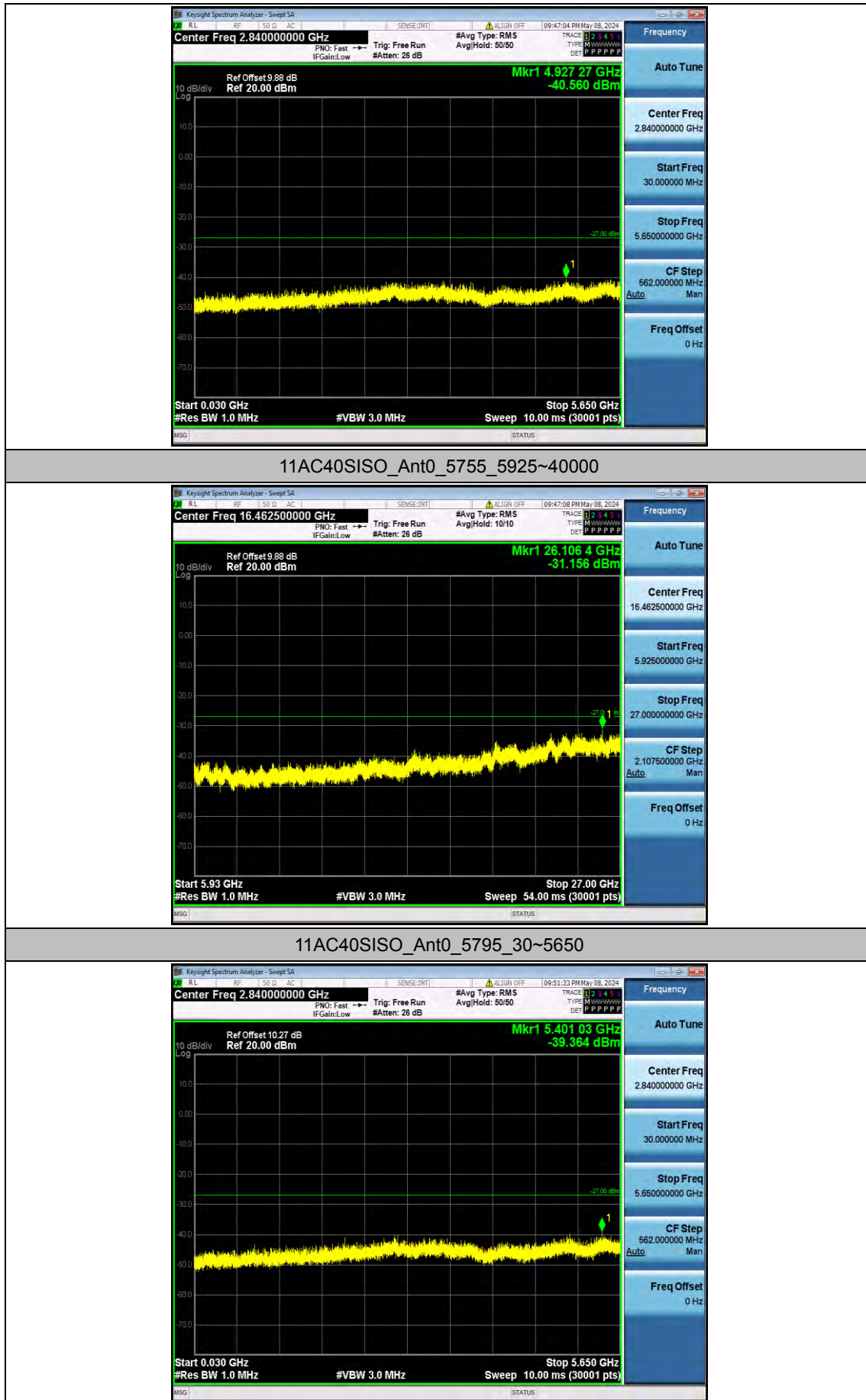
11AC20SISO_Ant0_5825_30~5650



11AC20SISO_Ant0_5825_5925~40000



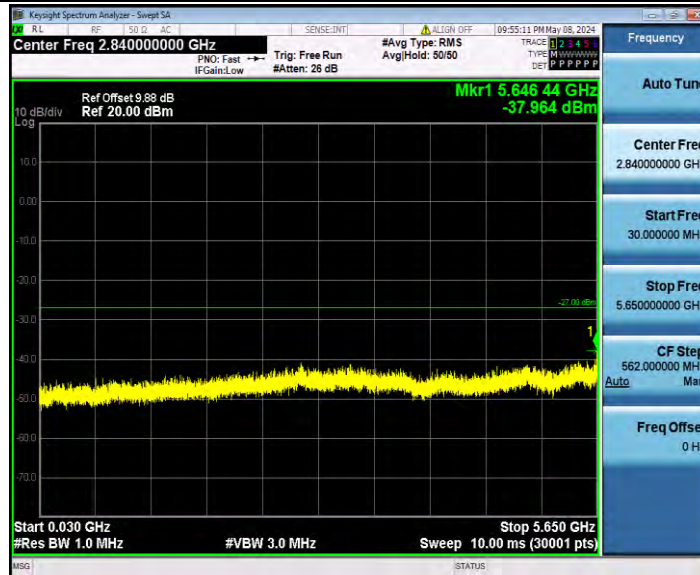
11AC40SISO_Ant0_5755_30~5650



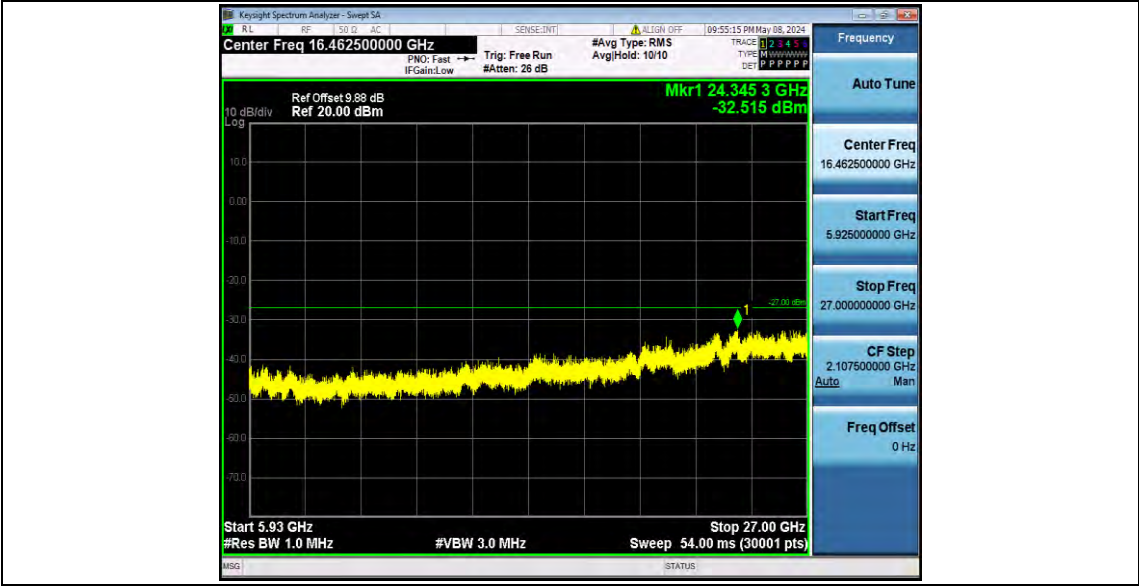
11AC40SISO_Ant0_5795_5925~40000



11AC80SISO_Ant0_5775_30~5650



11AC80SISO_Ant0_5775_5925~40000



Appendix E.8: Emissions in Restricted Bands

Test Result

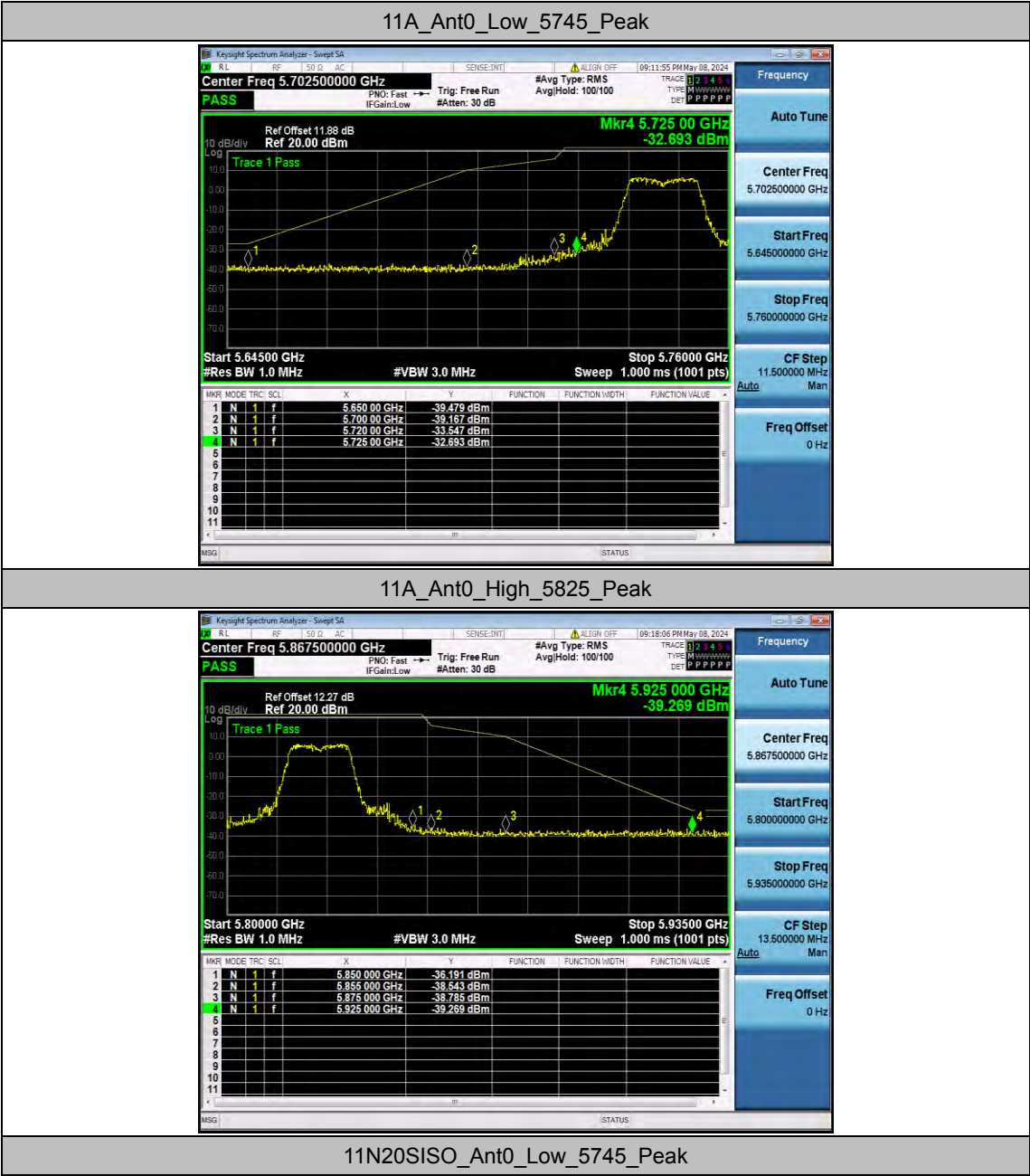
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11A	Ant0	Low	5745	Peak	5650.000	-39.47 9	≤-27.00	---	---	PASS
				Peak	5700.000	-39.17	≤10.00	---	---	PASS
				Peak	5720.000	-33.55	≤15.60	---	---	PASS
				Peak	5725.000	-32.69	≤27.00	- - -	- - -	PASS
		High	5825	Peak	5850.000	-36.19 1	≤27.00	---	---	PASS
				Peak	5855.000	-38.54	≤15.60	---	---	PASS
				Peak	5875.000	-38.79	≤10.00	---	---	PASS
				Peak	5925.000	-39.27	≤-27.00	- - -	- - -	PASS
11N20SISO	Ant0	Low	5745	Peak	5650.000	-38.55 2	≤-27.00	---	---	PASS
				Peak	5700.000	-39.63	≤10.00	---	---	PASS
				Peak	5720.000	-34.76	≤15.60	---	---	PASS
				Peak	5725.000	-30.76	≤27.00	- - -	- - -	PASS
		High	5825	Peak	5850.000	-36.25 7	≤27.00	---	---	PASS
				Peak	5855.000	-38.16	≤15.60	---	---	PASS
				Peak	5875.000	-39.31	≤10.00	---	---	PASS
				Peak	5925.000	-36.93	≤-27.00	- - -	- - -	PASS
11N40SISO	Ant0	Low	5755	Peak	5650.000	-40.39 8	≤-27.00	---	---	PASS
				Peak	5700.000	-35.04	≤10.00	---	---	PASS
				Peak	5720.000	-29.05	≤15.60	---	---	PASS
				Peak	5725.000	-32.02	≤27.00	- - -	- - -	PASS
		High	5795	Peak	5850.000	-39.06 4	≤27.00	---	---	PASS
				Peak	5855.000	-39.15	≤15.60	---	---	PASS
				Peak	5875.000	-38.58	≤10.00	---	---	PASS
				Peak	5925.000	-38.56	≤-27.00	- - -	- - -	PASS
11AC20SISO	Ant0	Low	5745	Peak	5650.000	-39.68 7	≤-27.00	---	---	PASS
				Peak	5700.000	-39.58	≤10.00	---	---	PASS
				Peak	5720.000	-34.99	≤15.60	---	---	PASS
				Peak	5725.000	-30.83	≤27.00	- - -	- - -	PASS
		High	5825	Peak	5850.000	-35.09 8	≤27.00	---	---	PASS

				Peak	5855.000	-38.38	≤ 15.60	---	---	PASS
				Peak	5875.000	-38.32	≤ 10.00	---	---	PASS
				Peak	5925.000	-39.42	≤ -27.00	---	---	PASS
11AC40SI SO	Ant0	Low	5755	Peak	5650.000	-39.58 4	≤ -27.00	---	---	PASS
				Peak	5700.000	-34.76	≤ 10.00	---	---	PASS
				Peak	5720.000	-31.59	≤ 15.60	---	---	PASS
				Peak	5725.000	-31.96	≤ 27.00	---	---	PASS
		High	5795	Peak	5850.000	-39.27 6	≤ 27.00	---	---	PASS
				Peak	5855.000	-39.15	≤ 15.60	---	---	PASS
				Peak	5875.000	-36.95	≤ 10.00	---	---	PASS
				Peak	5925.000	-39.4	≤ -27.00	---	---	PASS
11AC80SI SO	Ant0	Low	5775	Peak	5650.000	-37.36 7	≤ -27.00	---	---	PASS
				Peak	5700.000	-30.66	≤ 10.00	---	---	PASS
				Peak	5720.000	-29.76	≤ 15.60	---	---	PASS
				Peak	5725.000	-32.5	≤ 27.00	---	---	PASS
		High	5775	Peak	5850.000	-33.77 4	≤ 27.00	---	---	PASS
				Peak	5855.000	-35.8	≤ 15.60	---	---	PASS
				Peak	5875.000	-37.07	≤ 10.00	---	---	PASS
				Peak	5925.000	-39.38	≤ -27.00	---	---	PASS

Note:

1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. 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





11N20SISO_Ant0_High_5825_Peak



11N40SISO_Ant0_Low_5755_Peak



11N40SISO_Ant0_High_5795_Peak



11AC20SISO_Ant0_Low_5745_Peak



11AC20SISO_Ant0_High_5825_Peak



11AC40SISO_Ant0_Low_5755_Peak



11AC40SISO_Ant0_High_5795_Peak



