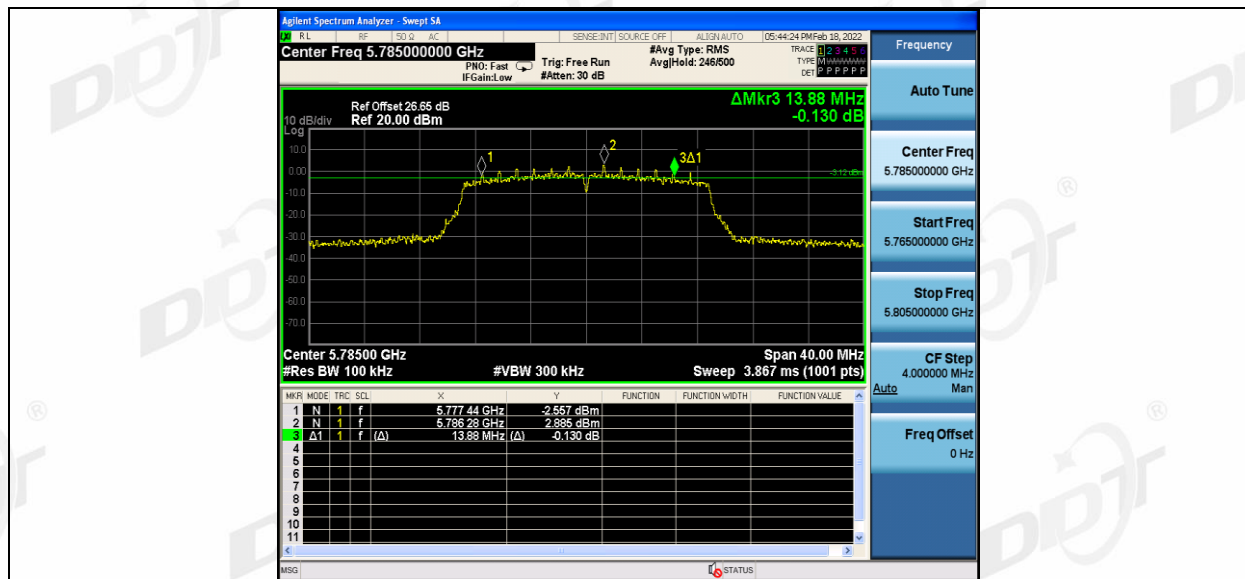
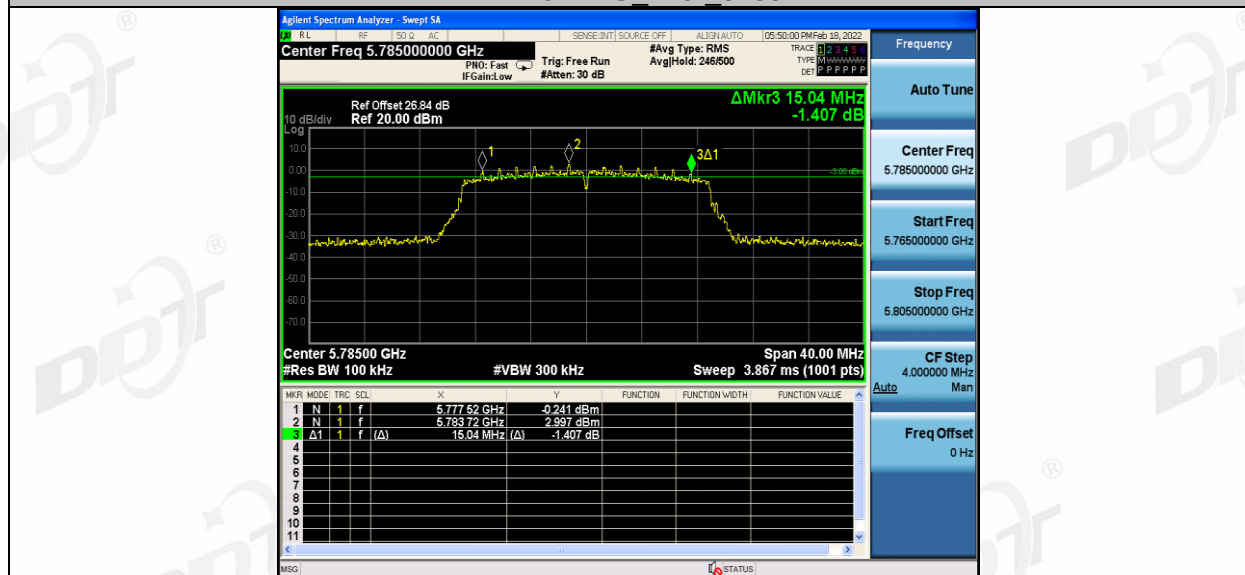
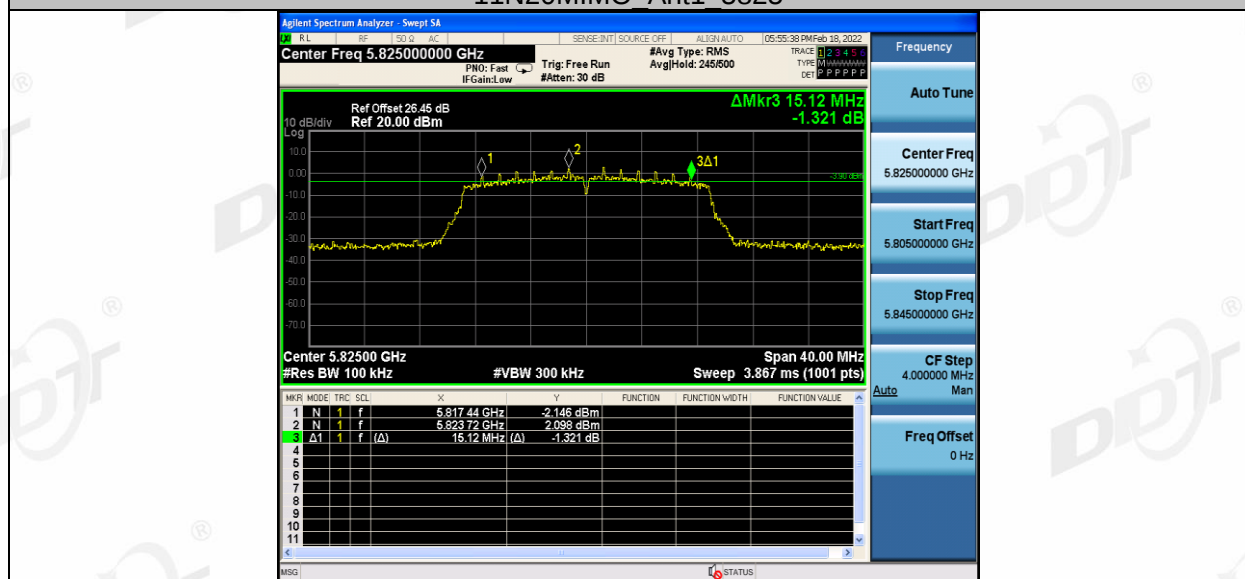




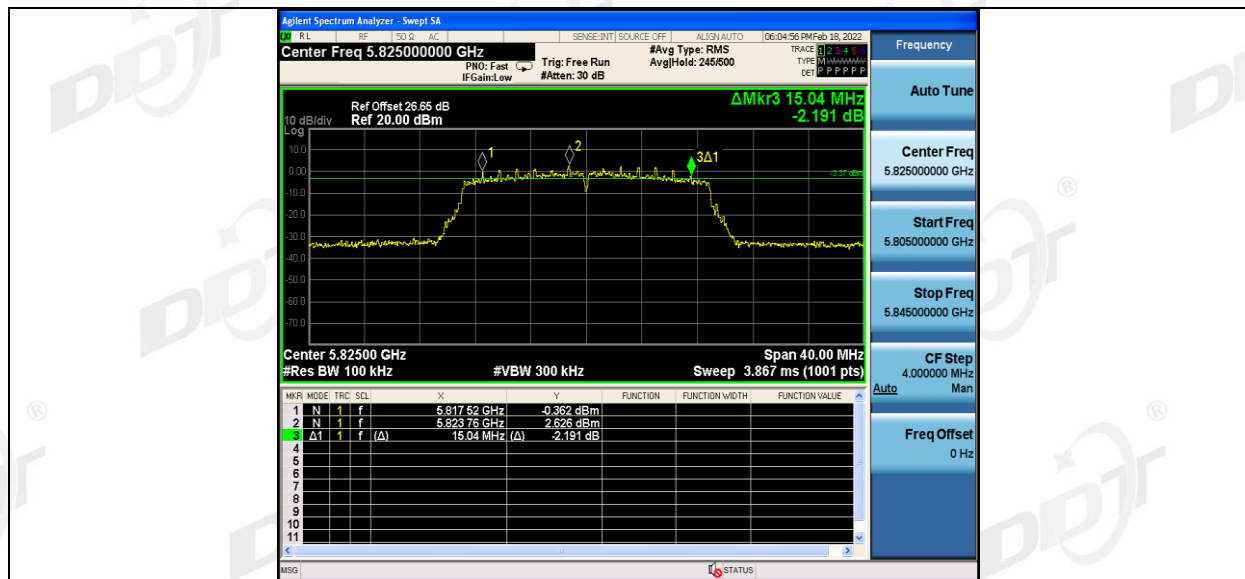
11N20MIMO Ant2 5785



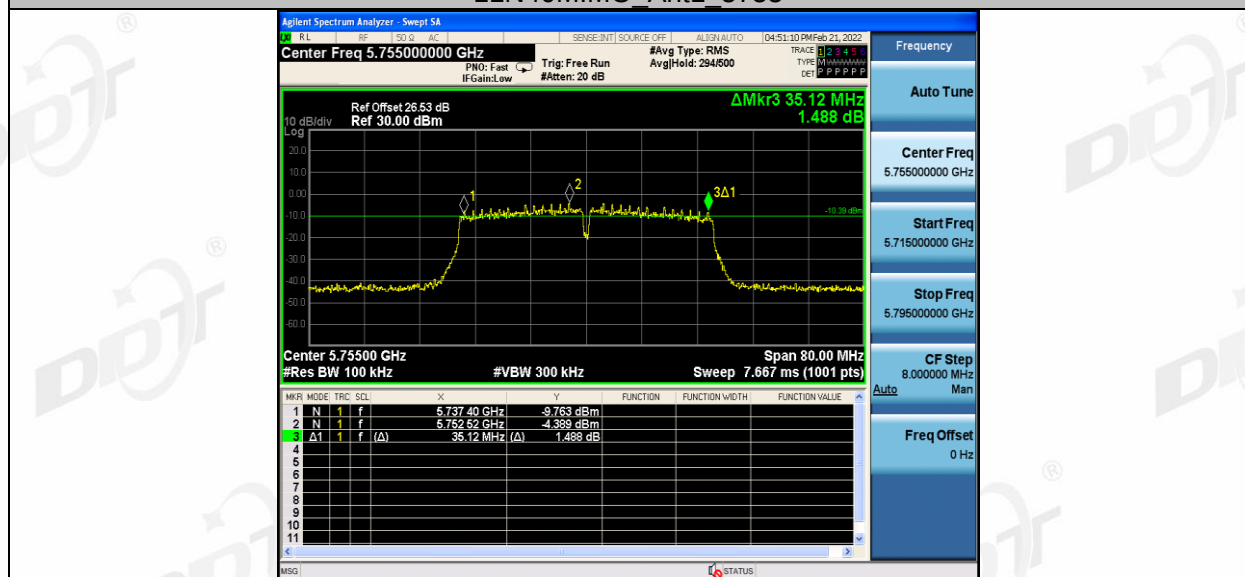
11N20MIMO Ant1 5825



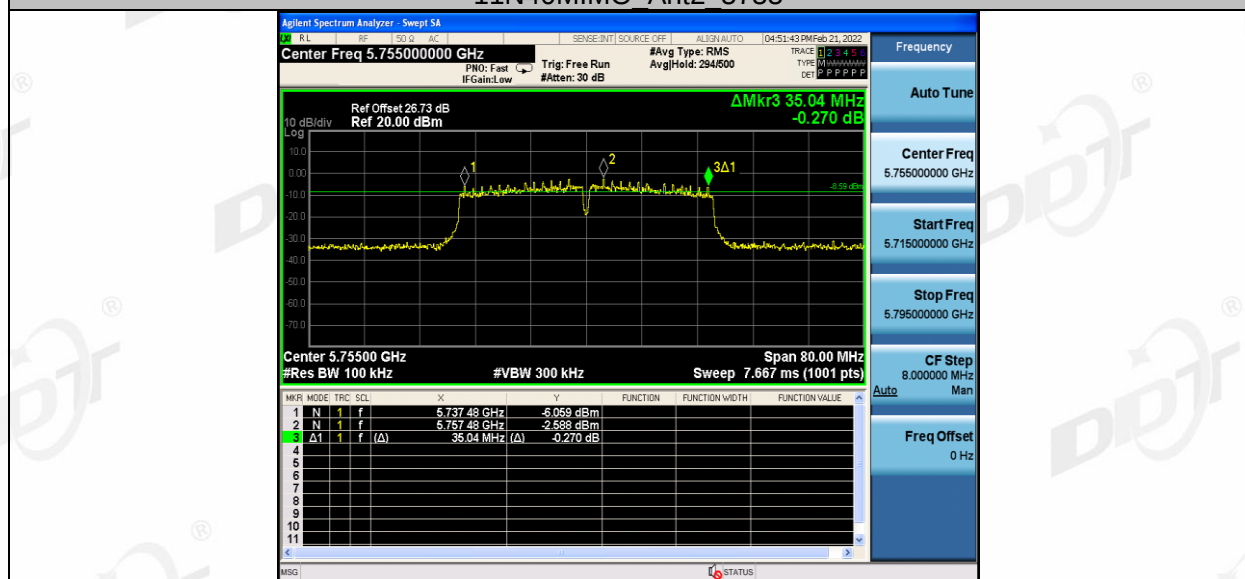
11N20MIMO Ant2 5825



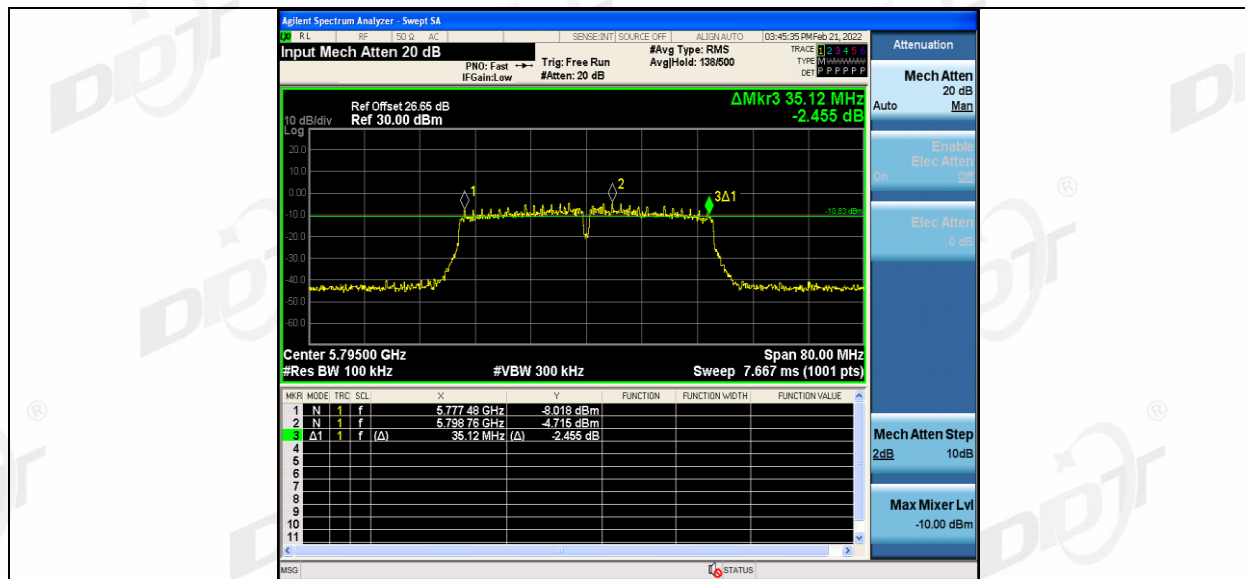
11N40MIMO Ant1 5755



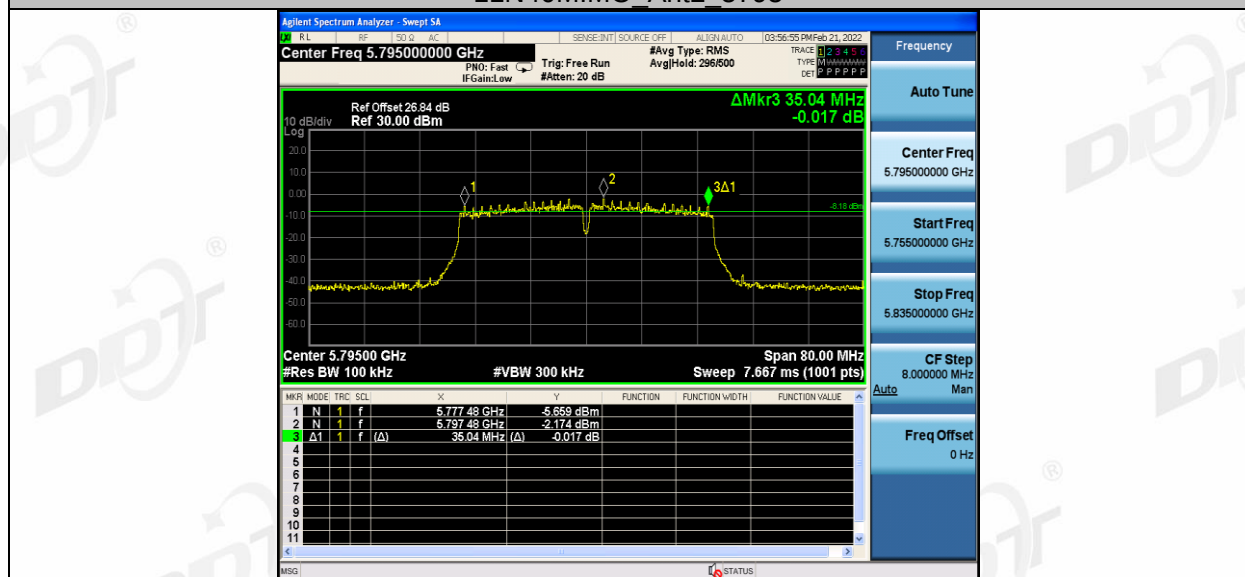
11N40MIMO Ant2 5755



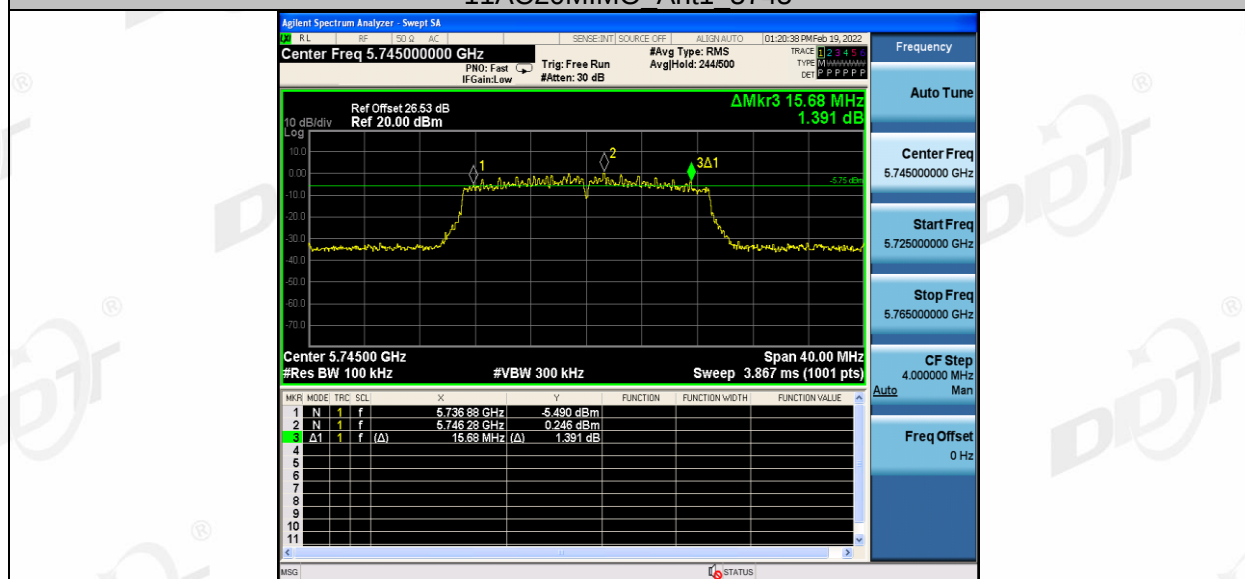
11N40MIMO Ant1 5795



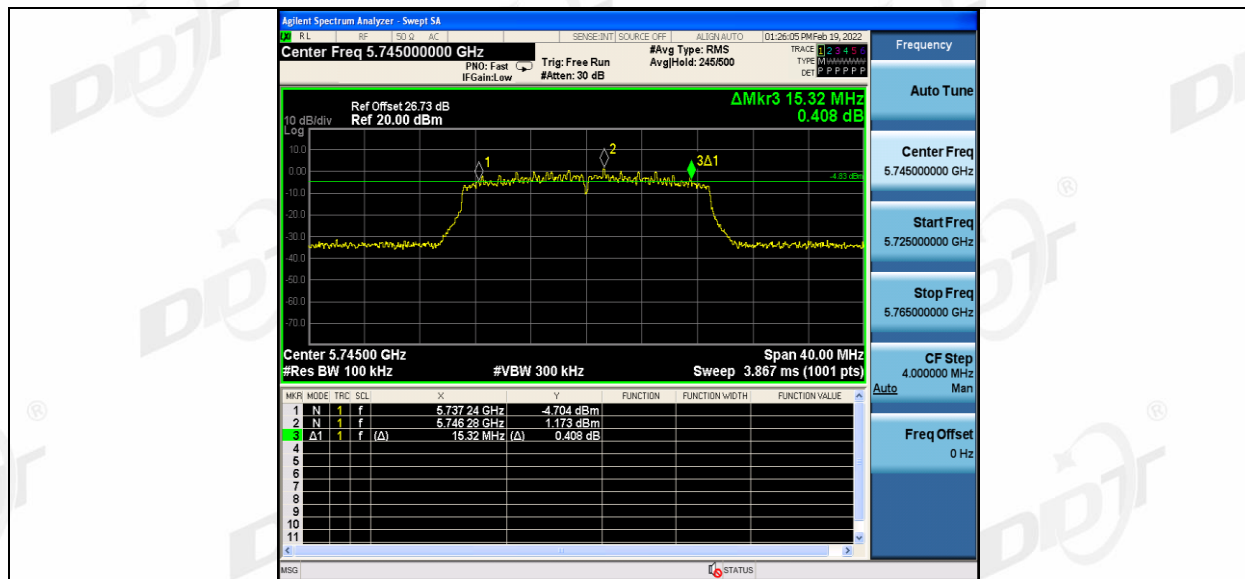
11N40MIMO Ant2 5795



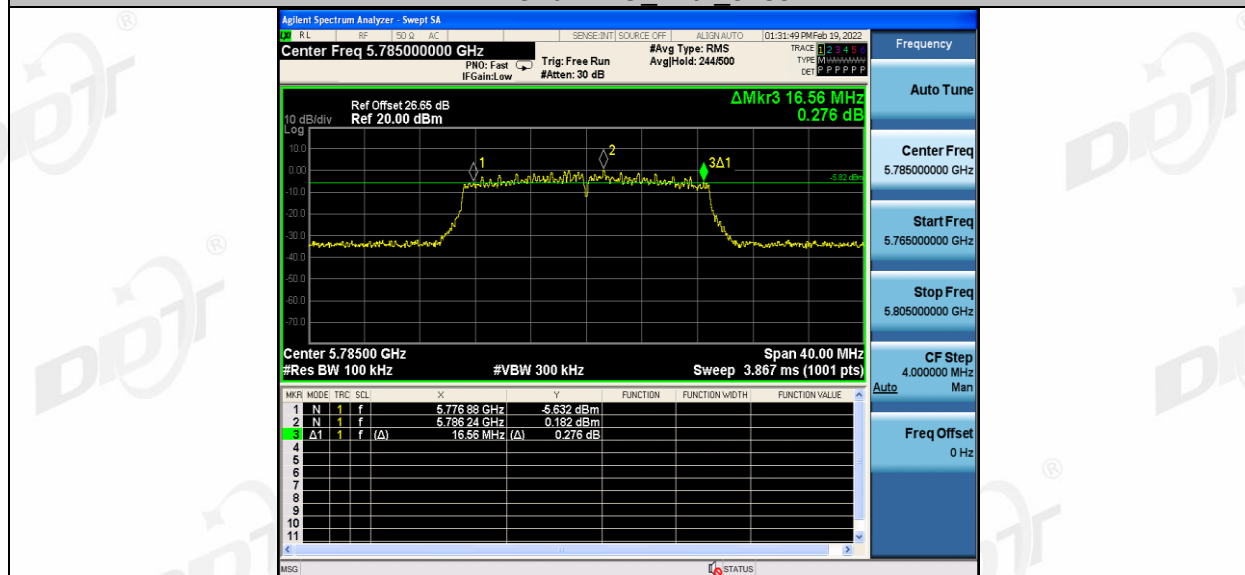
11AC20MIMO Ant1 5745



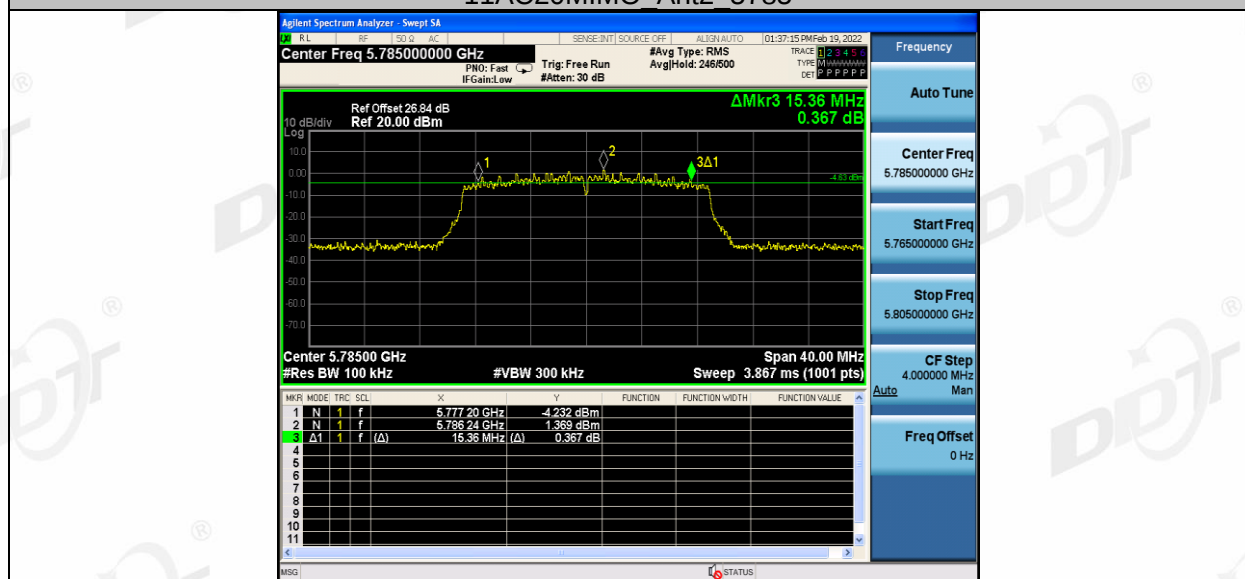
11AC20MIMO Ant2 5745



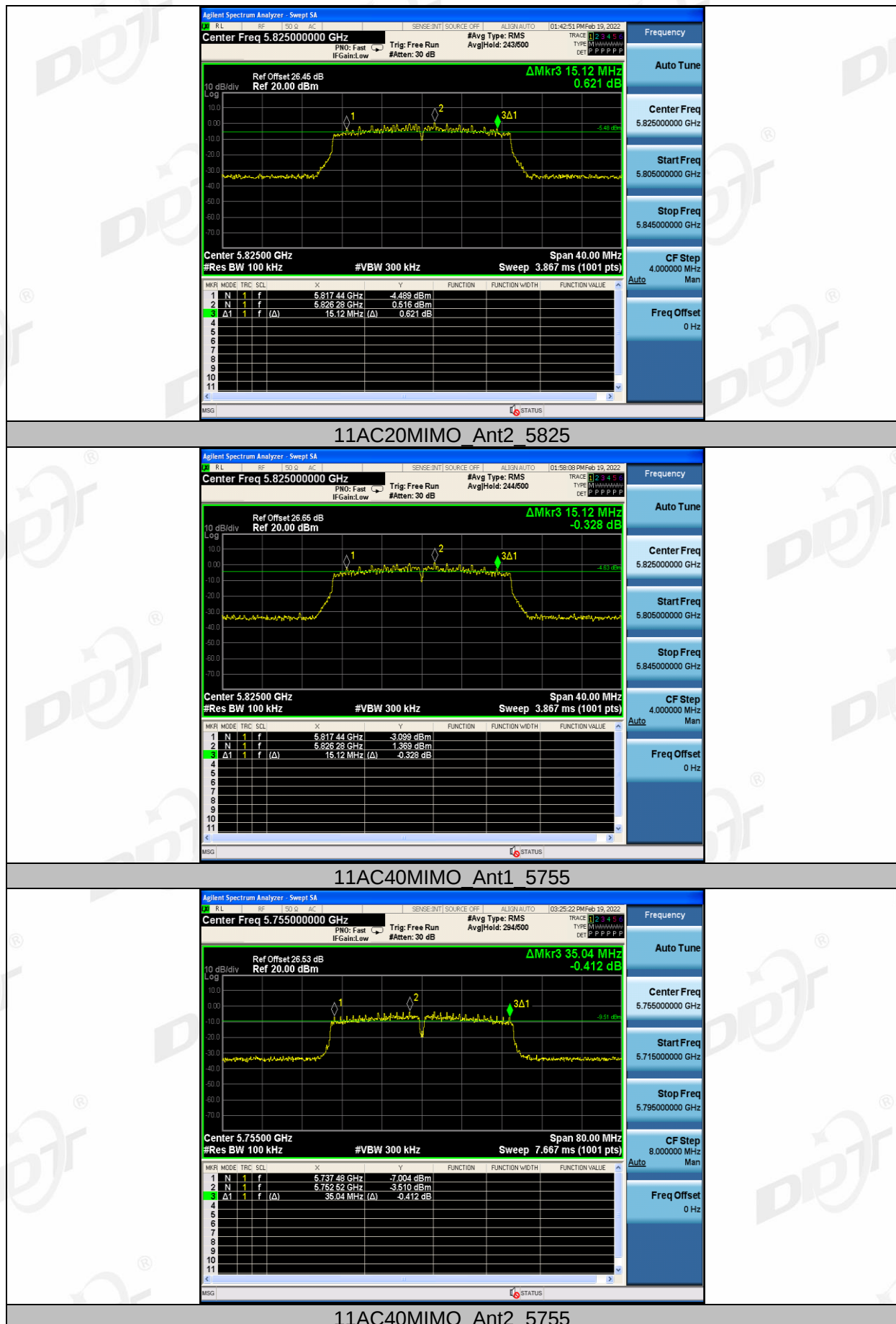
11AC20MIMO_Ant1_5785

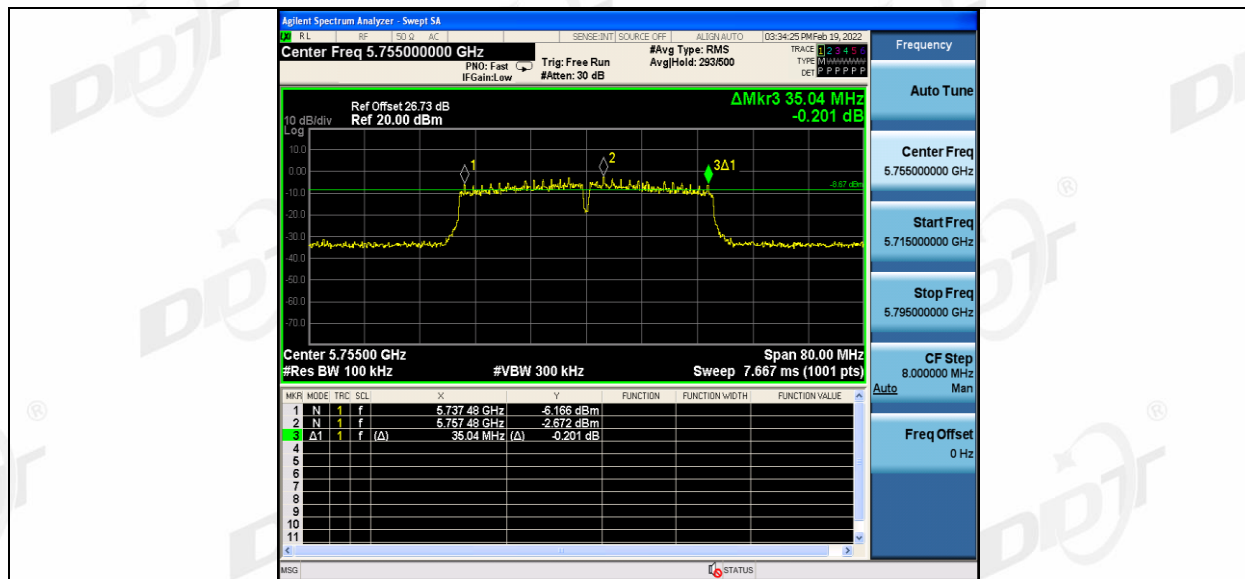


11AC20MIMO_Ant2_5785

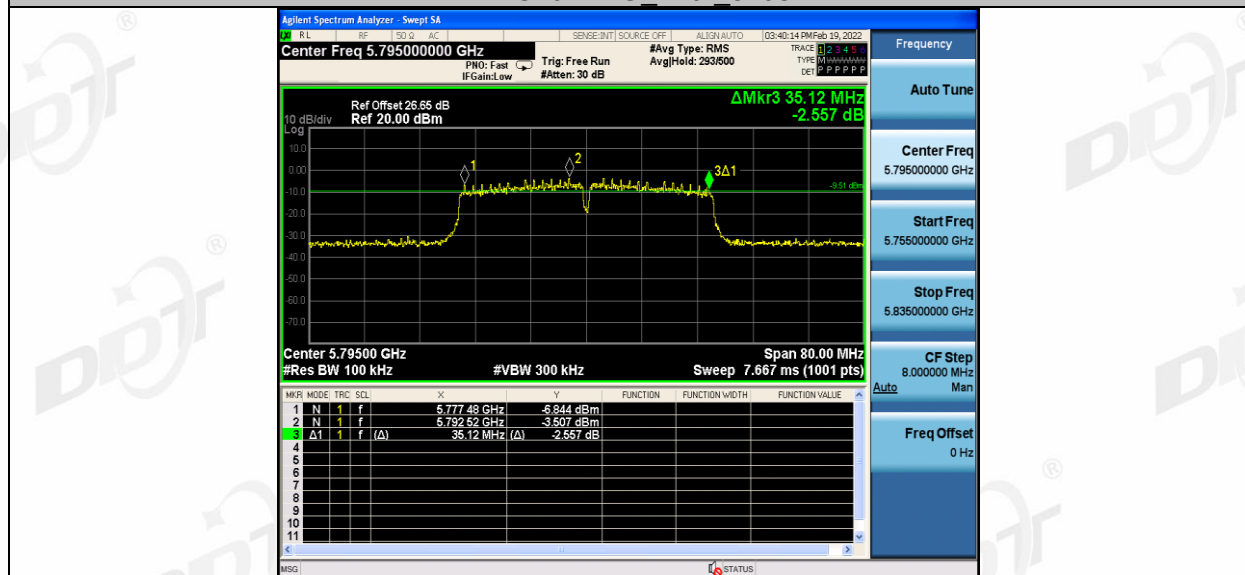


11AC20MIMO_Ant1_5825

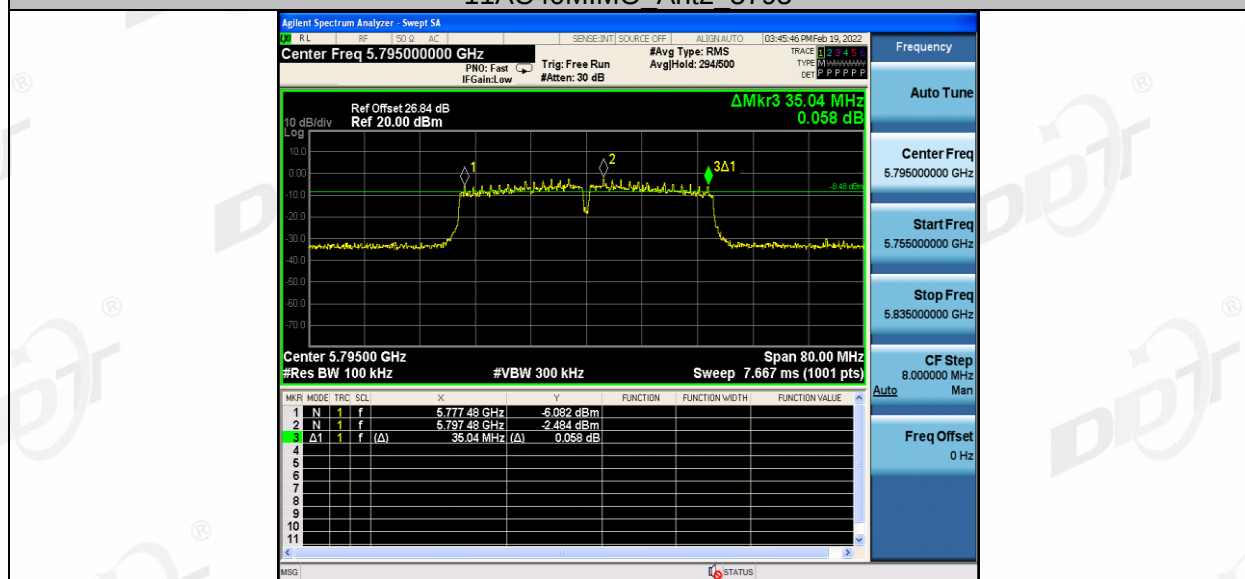




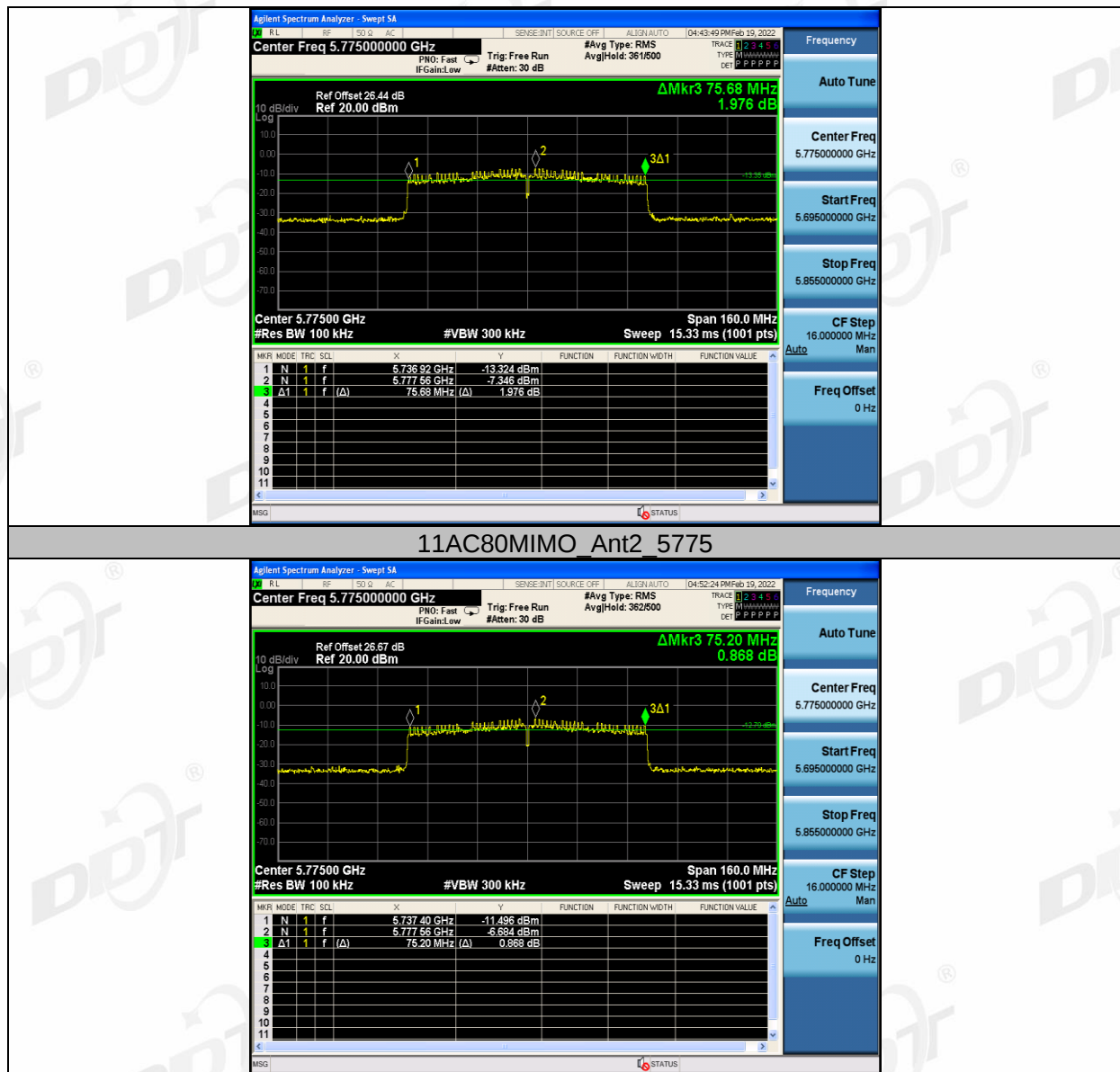
11AC40MIMO Ant1 5795



11AC40MIMO Ant2 5795



11AC80MIMO Ant1 5775



5. Maximum Output Power

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	For FCC client devices: 250 mW (24 dBm)	5150-5250
	For FCC: 250 mW (24 dBm) or $11 + 10 \log_{10} B$, whichever is lower	5250-5350
	For FCC: 250 mW (24 dBm) or $11 + 10 \log_{10} B$, whichever is lower	5470-5725
	1 Watt (30 dBm)	5725-5850
Note: 1. For FCC: B=26 bandwidth. Note: 2. For 802.11n and 802.11ac, the EUT incorporates a MIMO function. The Antenna directional gain is 7.55 dBi. The Output Power limit is the above limits-(7.55-6)		

5.3. Test Procedure

Connect each EUT's antenna output to power sensor by RF cable and attenuator

Measure the output power of each antenna port by power sensor.

5.4. Test Result

Test Mode	Ant	Test Channel	Output Power [dBm]	LIMIT [dBm]
11A	ANT1	5180	15.43	24
11A	ANT2	5180	12.52	24
11A	ANT1	5200	15.68	24
11A	ANT2	5200	12.87	24
11A	ANT1	5240	15.80	24
11A	ANT2	5240	13.33	24
11A	ANT1	5260	15.48	24
11A	ANT2	5260	12.75	24
11A	ANT1	5280	15.39	24
11A	ANT2	5280	12.37	24
11A	ANT1	5320	15.08	24
11A	ANT2	5320	11.72	24
11A	ANT1	5500	14.36	24
11A	ANT2	5500	12.30	24
11A	ANT1	5580	15.50	24
11A	ANT2	5580	12.80	24
11A	ANT1	5700	14.38	24
11A	ANT2	5700	11.49	24
11A	ANT1	5745	14.04	30
11A	ANT2	5745	12.02	30
11A	ANT1	5785	13.96	30
11A	ANT2	5785	11.96	30
11A	ANT1	5825	13.68	30
11A	ANT2	5825	11.93	30
11N20MIMO	ANT1	5180	14.99	22.45
11N20MIMO	ANT2	5180	15.08	22.45
11N20MIMO	total	5180	18.05	22.45
11N20MIMO	ANT1	5200	14.85	22.45
11N20MIMO	ANT2	5200	15.32	22.45
11N20MIMO	total	5200	18.10	22.45
11N20MIMO	ANT1	5240	15.44	22.45
11N20MIMO	ANT2	5240	15.25	22.45
11N20MIMO	total	5240	18.36	22.45
11N20MIMO	ANT1	5260	15.38	22.45
11N20MIMO	ANT2	5260	15.06	22.45

11N20MIMO	total	5260	18.23	22.45
11N20MIMO	ANT1	5280	15.48	22.45
11N20MIMO	ANT2	5280	14.59	22.45
11N20MIMO	total	5280	18.07	22.45
11N20MIMO	ANT1	5320	15.13	22.45
11N20MIMO	ANT2	5320	13.53	22.45
11N20MIMO	total	5320	17.41	22.45
11N20MIMO	ANT1	5500	14.46	22.45
11N20MIMO	ANT2	5500	14.32	22.45
11N20MIMO	total	5500	17.40	22.45
11N20MIMO	ANT1	5580	15.40	22.45
11N20MIMO	ANT2	5580	14.83	22.45
11N20MIMO	total	5580	18.13	22.45
11N20MIMO	ANT1	5700	13.99	22.45
11N20MIMO	ANT2	5700	13.44	22.45
11N20MIMO	total	5700	16.73	22.45
11N20MIMO	ANT1	5745	13.66	28.45
11N20MIMO	ANT2	5745	13.77	28.45
11N20MIMO	total	5745	16.73	28.45
11N20MIMO	ANT1	5785	13.44	28.45
11N20MIMO	ANT2	5785	14.05	28.45
11N20MIMO	total	5785	16.77	28.45
11N20MIMO	ANT1	5825	13.61	28.45
11N20MIMO	ANT2	5825	14.18	28.45
11N20MIMO	total	5825	16.91	28.45
11N40MIMO	ANT1	5190	11.10	22.45
11N40MIMO	ANT2	5190	11.40	22.45
11N40MIMO	total	5190	14.26	22.45
11N40MIMO	ANT1	5230	11.44	22.45
11N40MIMO	ANT2	5230	11.52	22.45
11N40MIMO	total	5230	14.49	22.45
11N40MIMO	ANT1	5270	11.92	22.45
11N40MIMO	ANT2	5270	11.10	22.45
11N40MIMO	total	5270	14.54	22.45
11N40MIMO	ANT1	5310	10.83	22.45
11N40MIMO	ANT2	5310	10.52	22.45
11N40MIMO	total	5310	13.69	22.45
11N40MIMO	ANT1	5510	9.74	22.45
11N40MIMO	ANT2	5510	11.40	22.45

11N40MIMO	total	5510	13.66	22.45
11N40MIMO	ANT1	5550	10.33	22.45
11N40MIMO	ANT2	5550	11.47	22.45
11N40MIMO	total	5550	13.95	22.45
11N40MIMO	ANT1	5670	10.54	22.45
11N40MIMO	ANT2	5670	10.15	22.45
11N40MIMO	total	5670	13.36	22.45
11N40MIMO	ANT1	5755	8.72	28.45
11N40MIMO	ANT2	5755	10.31	28.45
11N40MIMO	total	5755	12.60	28.45
11N40MIMO	ANT1	5795	8.72	28.45
11N40MIMO	ANT2	5795	10.48	28.45
11N40MIMO	total	5795	12.70	28.45
11AC20MIMO	ANT1	5180	12.40	22.45
11AC20MIMO	ANT2	5180	12.74	22.45
11AC20MIMO	total	5180	15.58	22.45
11AC20MIMO	ANT1	5200	12.47	22.45
11AC20MIMO	ANT2	5200	13.02	22.45
11AC20MIMO	total	5200	15.76	22.45
11AC20MIMO	ANT1	5240	12.71	22.45
11AC20MIMO	ANT2	5240	12.99	22.45
11AC20MIMO	total	5240	15.86	22.45
11AC20MIMO	ANT1	5260	12.87	22.45
11AC20MIMO	ANT2	5260	12.89	22.45
11AC20MIMO	total	5260	15.89	22.45
11AC20MIMO	ANT1	5280	12.89	22.45
11AC20MIMO	ANT2	5280	12.55	22.45
11AC20MIMO	total	5280	15.73	22.45
11AC20MIMO	ANT1	5320	12.52	22.45
11AC20MIMO	ANT2	5320	11.77	22.45
11AC20MIMO	total	5320	15.17	22.45
11AC20MIMO	ANT1	5500	11.43	22.45
11AC20MIMO	ANT2	5500	12.23	22.45
11AC20MIMO	total	5500	14.86	22.45
11AC20MIMO	ANT1	5580	12.64	22.45
11AC20MIMO	ANT2	5580	12.76	22.45
11AC20MIMO	total	5580	15.71	22.45
11AC20MIMO	ANT1	5700	11.29	22.45
11AC20MIMO	ANT2	5700	11.57	22.45

11AC20MIMO	total	5700	14.44	22.45
11AC20MIMO	ANT1	5745	10.99	28.45
11AC20MIMO	ANT2	5745	11.71	28.45
11AC20MIMO	total	5745	14.38	28.45
11AC20MIMO	ANT1	5785	10.65	28.45
11AC20MIMO	ANT2	5785	11.95	28.45
11AC20MIMO	total	5785	14.36	28.45
11AC20MIMO	ANT1	5825	10.70	28.45
11AC20MIMO	ANT2	5825	12.06	28.45
11AC20MIMO	total	5825	14.44	28.45
11AC40MIMO	ANT1	5190	10.88	22.45
11AC40MIMO	ANT2	5190	11.38	22.45
11AC40MIMO	total	5190	14.15	22.45
11AC40MIMO	ANT1	5230	11.76	22.45
11AC40MIMO	ANT2	5230	11.51	22.45
11AC40MIMO	total	5230	14.65	22.45
11AC40MIMO	ANT1	5270	11.91	22.45
11AC40MIMO	ANT2	5270	11.29	22.45
11AC40MIMO	total	5270	14.62	22.45
11AC40MIMO	ANT1	5310	11.37	22.45
11AC40MIMO	ANT2	5310	10.36	22.45
11AC40MIMO	total	5310	13.90	22.45
11AC40MIMO	ANT1	5510	10.52	22.45
11AC40MIMO	ANT2	5510	11.06	22.45
11AC40MIMO	total	5510	13.81	22.45
11AC40MIMO	ANT1	5550	11.72	22.45
11AC40MIMO	ANT2	5550	11.72	22.45
11AC40MIMO	total	5550	14.73	22.45
11AC40MIMO	ANT1	5670	11.17	22.45
11AC40MIMO	ANT2	5670	10.30	22.45
11AC40MIMO	total	5670	13.77	22.45
11AC40MIMO	ANT1	5755	10.14	28.45
11AC40MIMO	ANT2	5755	10.36	28.45
11AC40MIMO	total	5755	13.26	28.45
11AC40MIMO	ANT1	5795	9.68	28.45
11AC40MIMO	ANT2	5795	10.70	28.45
11AC40MIMO	total	5795	13.23	28.45
11AC80MIMO	ANT1	5210	9.75	22.45
11AC80MIMO	ANT2	5210	9.91	22.45

11AC80MIMO	total	5210	12.84	22.45
11AC80MIMO	ANT1	5290	10.48	22.45
11AC80MIMO	ANT2	5290	9.22	22.45
11AC80MIMO	total	5290	12.91	22.45
11AC80MIMO	ANT1	5530	9.72	22.45
11AC80MIMO	ANT2	5530	9.31	22.45
11AC80MIMO	total	5530	12.53	22.45
11AC80MIMO	ANT1	5610	9.75	22.45
11AC80MIMO	ANT2	5610	9.44	22.45
11AC80MIMO	total	5610	12.61	22.45
11AC80MIMO	ANT1	5775	8.46	28.45
11AC80MIMO	ANT2	5775	9.35	28.45
11AC80MIMO	total	5775	11.94	28.45

6. Power Spectral Density

6.1. Block diagram of test setup

Same with 4.1

6.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	11 dBm/MHz	5250-5350
	11 dBm/MHz	5470-5725
	30 dBm/500 kHz	5725-5850
Note: For 802.11n and 802.11ac, the EUT incorporates a MIMO function. The Antenna directional gain is 7.55 dBi. The Power Spectral Density limit is the above limits-(7.55-6)		

6.3. Test Procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.

Connect the UUT to the spectrum analyser and use the following settings:

5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Note:

1. For UNII-3, according to KDB publication 789033 D02 General U-NII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 1 MHz and VBW at 3 MHz if the

spectrum analyzer does not have 500 kHz RBW.

2. The value measured with RBW=1MHz is to be added with $10\log(500\text{kHz}/1\text{MHz})$ which is - 3dB. For example, if the measured value is +10 dBm using RBW=1 MHz (that is +10 dBm/MHz), then the converted value will be +7 dBm/500 kHz.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

6.4. Test Result

Test Mode	Antenna	Freq (MHz)	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	4.36	≤11.00	Pass
	Ant2	5180	1.44	≤11.00	Pass
	Ant1	5200	4.84	≤11.00	Pass
	Ant2	5200	2.08	≤11.00	Pass
	Ant1	5240	5.25	≤11.00	Pass
	Ant2	5240	2.44	≤11.00	Pass
	Ant1	5260	4.57	≤11.00	Pass
	Ant2	5260	2.09	≤11.00	Pass
	Ant1	5280	4.85	≤11.00	Pass
	Ant2	5280	1.67	≤11.00	Pass
	Ant1	5320	4.42	≤11.00	Pass
	Ant2	5320	0.84	≤11.00	Pass
	Ant1	5500	3.96	≤11.00	Pass
	Ant2	5500	1.41	≤11.00	Pass
	Ant1	5580	4.26	≤11.00	Pass
	Ant2	5580	1.71	≤11.00	Pass
	Ant1	5700	3.37	≤11.00	Pass
	Ant2	5700	0.17	≤11.00	Pass
11N20MIMO	Ant1	5180	3.11	≤9.45	Pass
	Ant2	5180	3.46	≤9.45	Pass
	total	5180	6.30	≤9.45	Pass
	Ant1	5200	3.06	≤9.45	Pass
	Ant2	5200	3.29	≤9.45	Pass
	total	5200	6.19	≤9.45	Pass
	Ant1	5240	3.62	≤9.45	Pass
	Ant2	5240	3.51	≤9.45	Pass
	total	5240	6.58	≤9.45	Pass
	Ant1	5260	3.28	≤9.45	Pass
	Ant2	5260	3.40	≤9.45	Pass
	total	5260	6.35	≤9.45	Pass
	Ant1	5280	3.55	≤9.45	Pass
	Ant2	5280	2.65	≤9.45	Pass
	total	5280	6.13	≤9.45	Pass
	Ant1	5320	3.23	≤9.45	Pass
	Ant2	5320	1.74	≤9.45	Pass
	total	5320	5.56	≤9.45	Pass
	Ant1	5500	2.34	≤9.45	Pass
	Ant2	5500	2.45	≤9.45	Pass
	total	5500	5.41	≤9.45	Pass
	Ant1	5580	3.11	≤9.45	Pass
	Ant2	5580	2.65	≤9.45	Pass

	total	5580	5.90	≤9.45	Pass
	Ant1	5700	2.17	≤9.45	Pass
	Ant2	5700	1.20	≤9.45	Pass
	total	5700	4.72	≤9.45	Pass
11N40MIMO	Ant1	5190	-2.90	≤9.45	Pass
	Ant2	5190	-2.48	≤9.45	Pass
	total	5190	0.33	≤9.45	Pass
	Ant1	5230	-1.98	≤9.45	Pass
	Ant2	5230	-1.84	≤9.45	Pass
	total	5230	1.10	≤9.45	Pass
	Ant1	5270	-1.68	≤9.45	Pass
	Ant2	5270	-2.44	≤9.45	Pass
	total	5270	0.97	≤9.45	Pass
	Ant1	5310	-2.76	≤9.45	Pass
	Ant2	5310	-2.67	≤9.45	Pass
	total	5310	0.30	≤9.45	Pass
	Ant1	5510	-3.46	≤9.45	Pass
	Ant2	5510	-2.09	≤9.45	Pass
	total	5510	0.29	≤9.45	Pass
	Ant1	5550	-3.61	≤9.45	Pass
	Ant2	5550	-1.84	≤9.45	Pass
	total	5550	0.37	≤9.45	Pass
	Ant1	5670	-3.32	≤9.45	Pass
	Ant2	5670	-3.84	≤9.45	Pass
	total	5670	-0.56	≤9.45	Pass
11AC20MIMO	Ant1	5180	1.44	≤9.45	Pass
	Ant2	5180	1.88	≤9.45	Pass
	total	5180	4.68	≤9.45	Pass
	Ant1	5200	1.63	≤9.45	Pass
	Ant2	5200	2.20	≤9.45	Pass
	total	5200	4.93	≤9.45	Pass
	Ant1	5240	1.91	≤9.45	Pass
	Ant2	5240	2.56	≤9.45	Pass
	total	5240	5.26	≤9.45	Pass
	Ant1	5260	2.00	≤9.45	Pass
	Ant2	5260	2.01	≤9.45	Pass
	total	5260	5.02	≤9.45	Pass
	Ant1	5280	2.32	≤9.45	Pass
	Ant2	5280	1.70	≤9.45	Pass
	total	5280	5.03	≤9.45	Pass
	Ant1	5320	1.55	≤9.45	Pass
	Ant2	5320	0.73	≤9.45	Pass
	total	5320	4.17	≤9.45	Pass
	Ant1	5500	0.80	≤9.45	Pass
	Ant2	5500	1.21	≤9.45	Pass
	total	5500	4.02	≤9.45	Pass
	Ant1	5580	1.51	≤9.45	Pass
	Ant2	5580	1.72	≤9.45	Pass
	total	5580	4.63	≤9.45	Pass
	Ant1	5700	0.47	≤9.45	Pass
	Ant2	5700	0.50	≤9.45	Pass

	total	5700	3.50	≤9.45	Pass
11AC40MIMO	Ant1	5190	-2.66	≤9.45	Pass
	Ant2	5190	-2.04	≤9.45	Pass
	total	5190	0.67	≤9.45	Pass
	Ant1	5230	-1.50	≤9.45	Pass
	Ant2	5230	-2.15	≤9.45	Pass
	total	5230	1.20	≤9.45	Pass
	Ant1	5270	-1.26	≤9.45	Pass
	Ant2	5270	-2.56	≤9.45	Pass
	total	5270	1.15	≤9.45	Pass
	Ant1	5310	-2.03	≤9.45	Pass
	Ant2	5310	-3.78	≤9.45	Pass
	total	5310	0.19	≤9.45	Pass
	Ant1	5510	-2.54	≤9.45	Pass
	Ant2	5510	-2.58	≤9.45	Pass
	total	5510	0.45	≤9.45	Pass
	Ant1	5550	-1.80	≤9.45	Pass
	Ant2	5550	-1.47	≤9.45	Pass
	total	5550	1.38	≤9.45	Pass
	Ant1	5670	-2.42	≤9.45	Pass
	Ant2	5670	-3.57	≤9.45	Pass
	total	5670	0.05	≤9.45	Pass
11AC80MIMO	Ant1	5210	-6.00	≤9.45	Pass
	Ant2	5210	-6.00	≤9.45	Pass
	total	5210	-2.99	≤9.45	Pass
	Ant1	5290	-6.21	≤9.45	Pass
	Ant2	5290	-6.34	≤9.45	Pass
	total	5290	-3.26	≤9.45	Pass
	Ant1	5530	-5.53	≤9.45	Pass
	Ant2	5530	-6.10	≤9.45	Pass
	total	5530	-2.80	≤9.45	Pass
	Ant1	5610	-6.04	≤9.45	Pass
	Ant2	5610	-5.77	≤9.45	Pass
	total	5610	-2.89	≤9.45	Pass

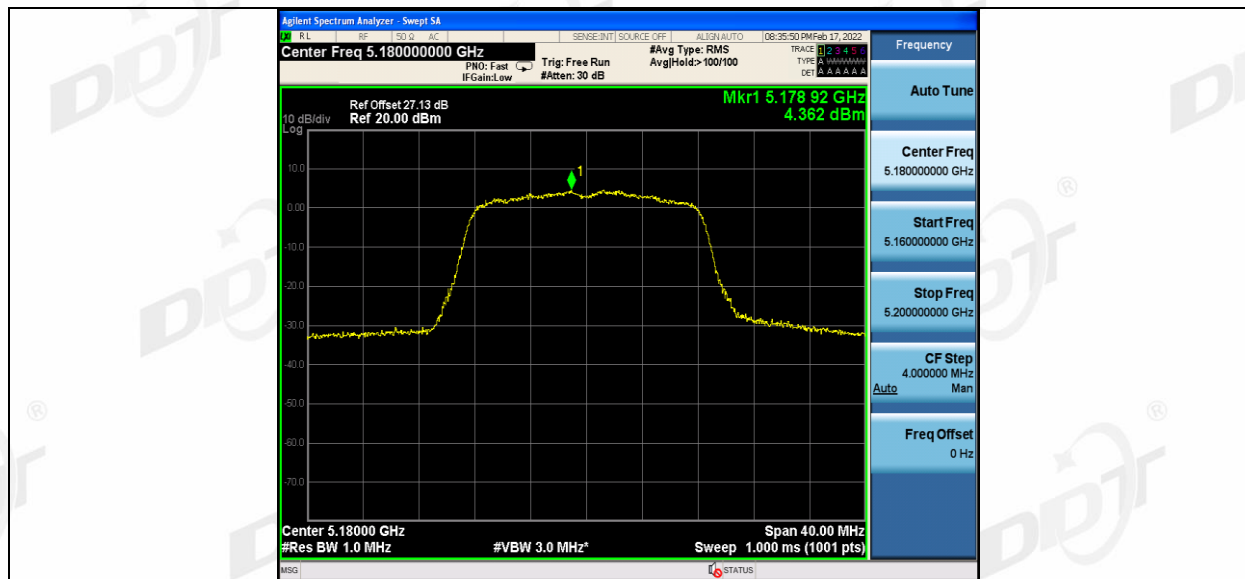
(5725-5850)

Test Mode	Antenna	Freq (MHz)	PSD [dBm/500kHz]	Limit [dBm/500kHz]	Verdict
11A	ANT1	5745	-2.76	≤28.45	Pass
	ANT2	5745	-1.98	≤28.45	Pass
	ANT1	5785	-2.04	≤28.45	Pass
	ANT2	5785	-2.56	≤28.45	Pass
	ANT1	5825	-2.26	≤28.45	Pass
	ANT2	5825	-1.36	≤28.45	Pass
11N20MIMO	ANT1	5745	-2.89	≤28.45	Pass
	ANT2	5745	-3.00	≤28.45	Pass
	total	5745	0.07	≤28.45	Pass

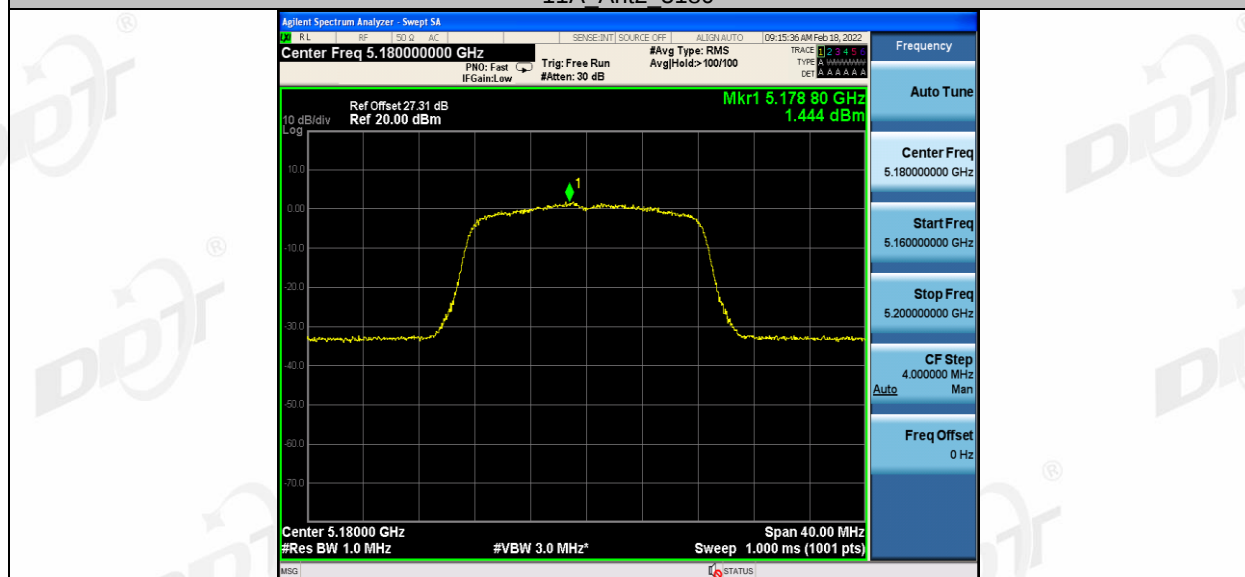
	ANT1	5785	-3.33	≤28.45	Pass
	ANT2	5785	-2.48	≤28.45	Pass
	total	5785	0.13	≤28.45	Pass
	ANT1	5825	-3.15	≤28.45	Pass
	ANT2	5825	-2.85	≤28.45	Pass
	total	5825	0.01	≤28.45	Pass
11N40MIMO	ANT1	5755	-6.52	≤28.45	Pass
	ANT2	5755	-6.12	≤28.45	Pass
	total	5755	-3.31	≤28.45	Pass
	ANT1	5795	-6.38	≤28.45	Pass
	ANT2	5795	-5.60	≤28.45	Pass
	total	5795	-2.96	≤28.45	Pass
11AC20MIMO	ANT1	5745	-1.79	≤28.45	Pass
	ANT2	5745	-2.07	≤28.45	Pass
	total	5745	1.08	≤28.45	Pass
	ANT1	5785	-2.18	≤28.45	Pass
	ANT2	5785	-1.44	≤28.45	Pass
	total	5785	1.22	≤28.45	Pass
	ANT1	5825	-2.93	≤28.45	Pass
	ANT2	5825	-1.84	≤28.45	Pass
	total	5825	0.66	≤28.45	Pass
11AC40MIMO	ANT1	5755	-6.66	≤28.45	Pass
	ANT2	5755	-6.69	≤28.45	Pass
	total	5755	-3.66	≤28.45	Pass
	ANT1	5795	-6.85	≤28.45	Pass
	ANT2	5795	-5.74	≤28.45	Pass
	total	5795	-3.25	≤28.45	Pass
11AC80MIMO	ANT1	5775	-9.71	≤28.45	Pass
	ANT2	5775	-9.35	≤28.45	Pass
	total	5775	-6.52	≤28.45	Pass

6.5. Original test data

11A Ant1 5180



11A_Ant2_5180



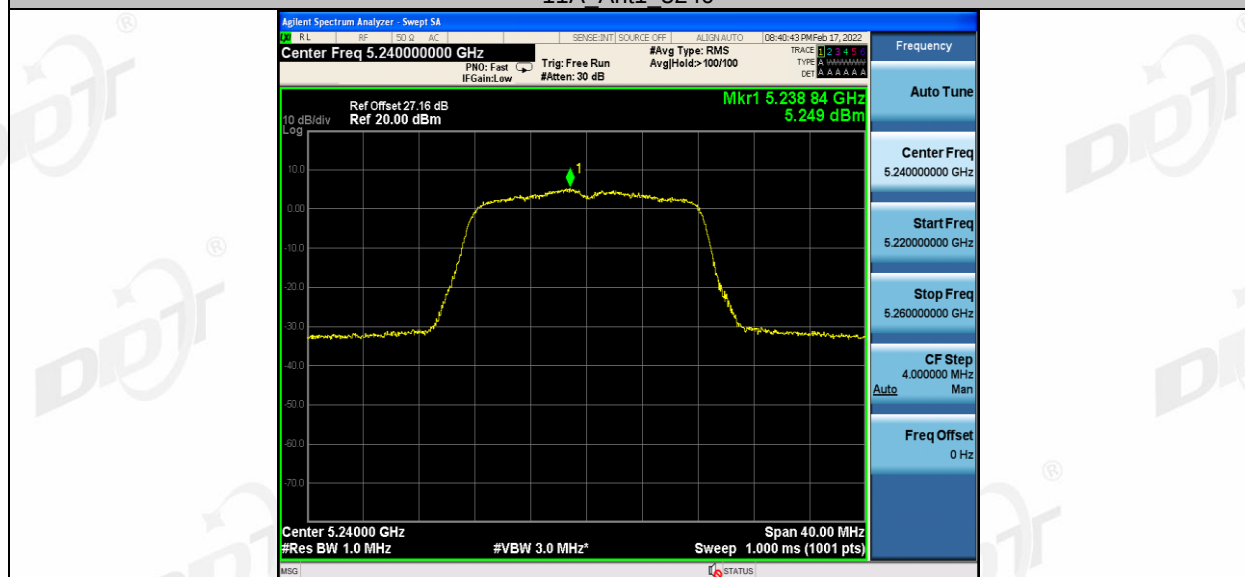
11A_Ant1_5200



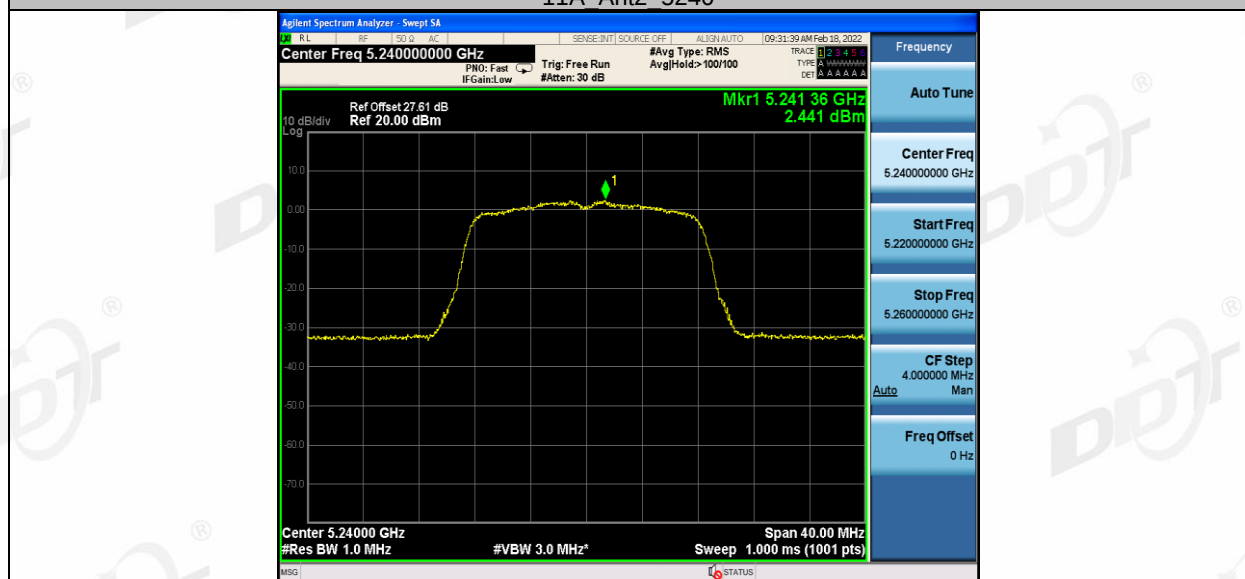
11A_Ant2_5200



11A_Ant1_5240



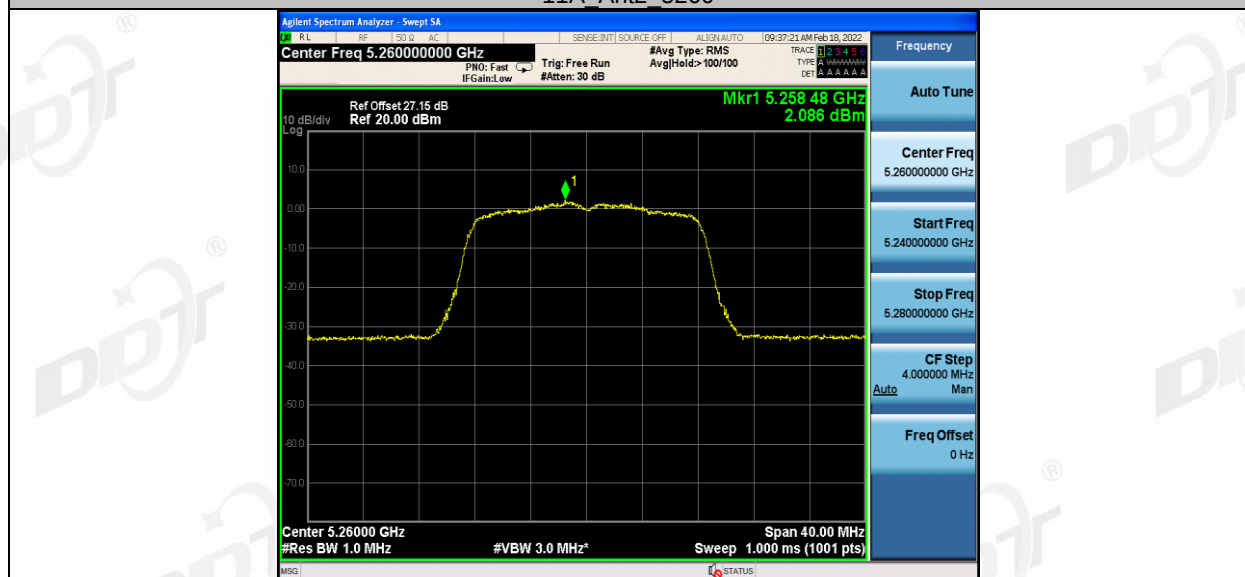
11A_Ant2_5240



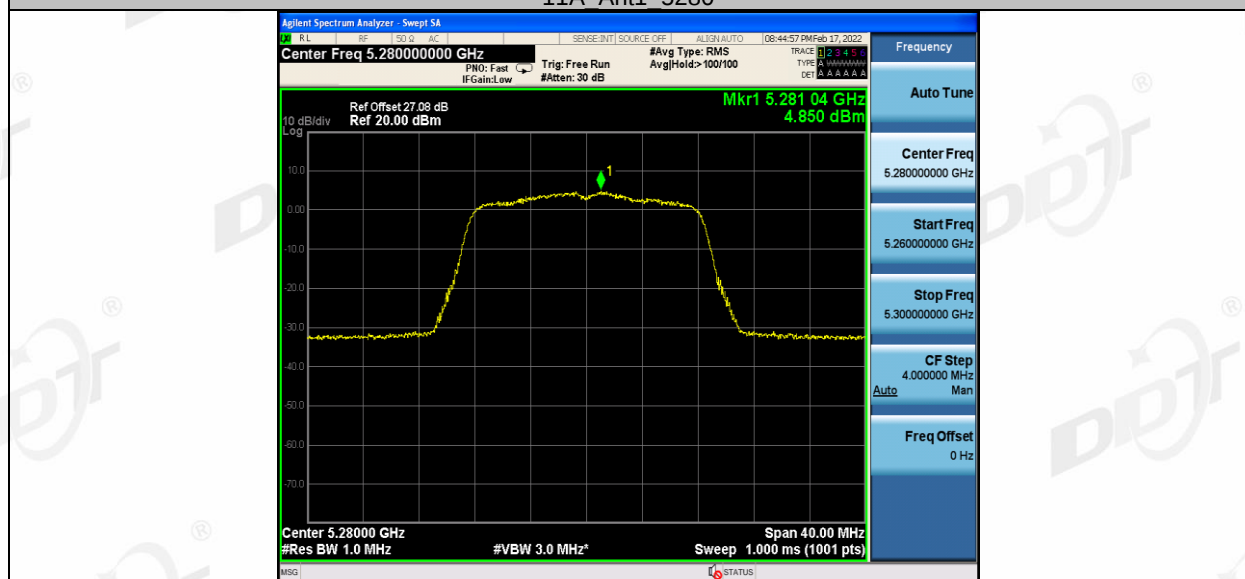
11A_Ant1_5260



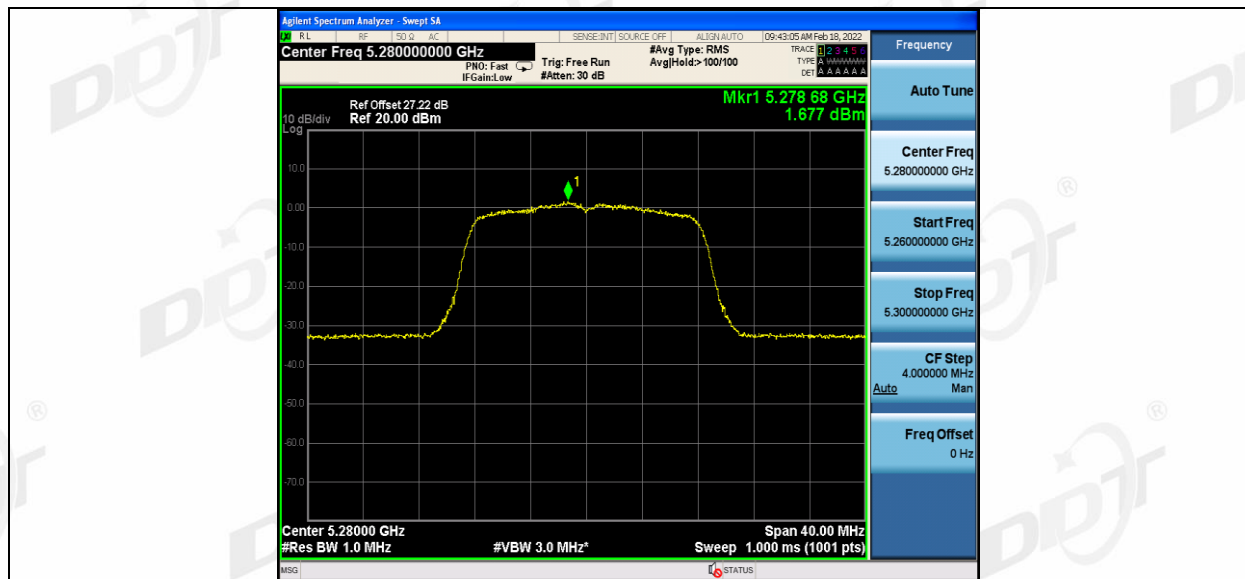
11A_Ant2_5260



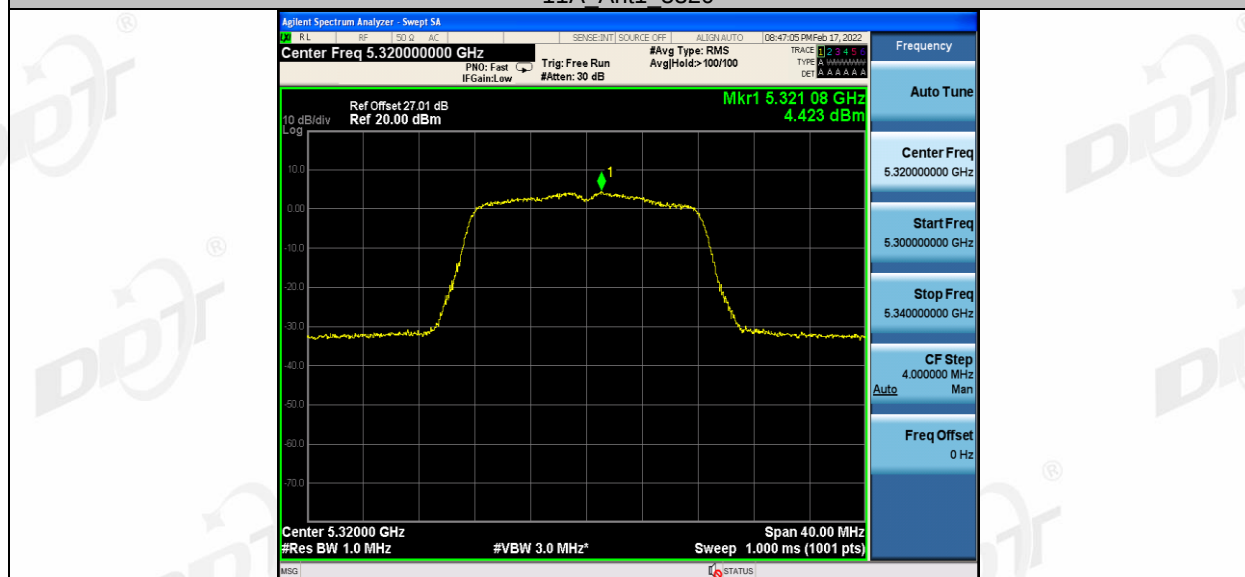
11A_Ant1_5280



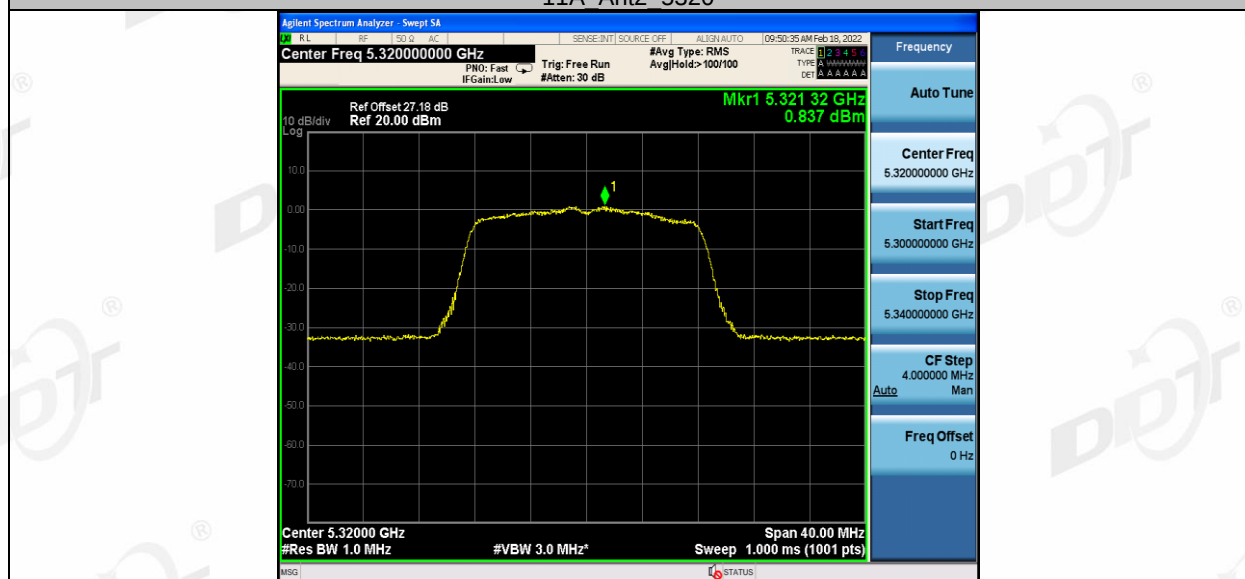
11A_Ant2_5280



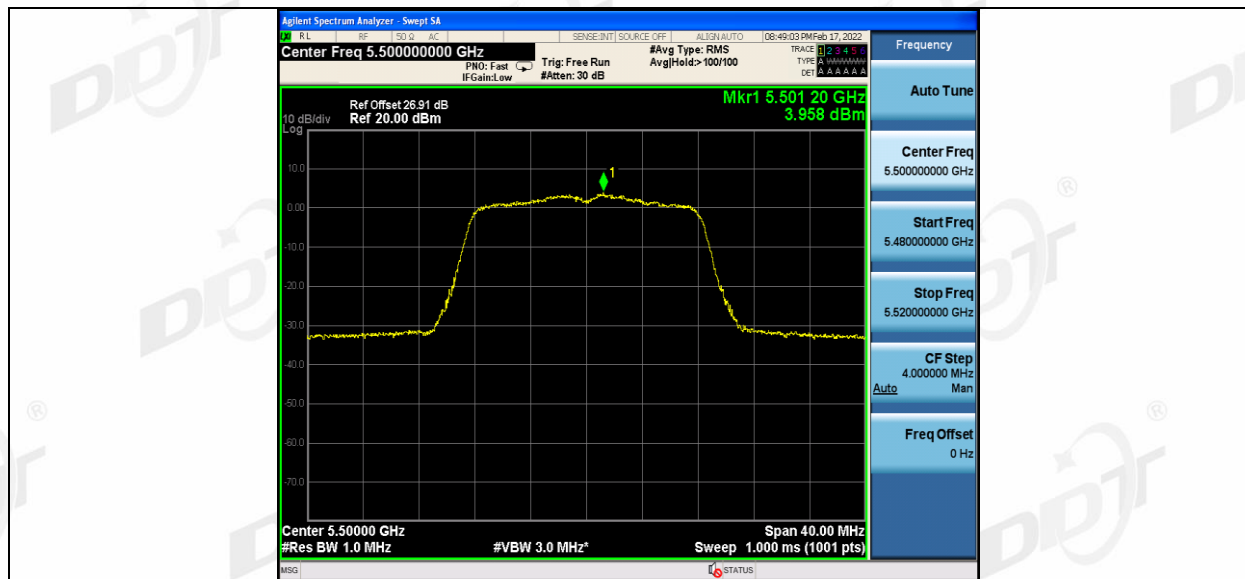
11A_Ant1_5320



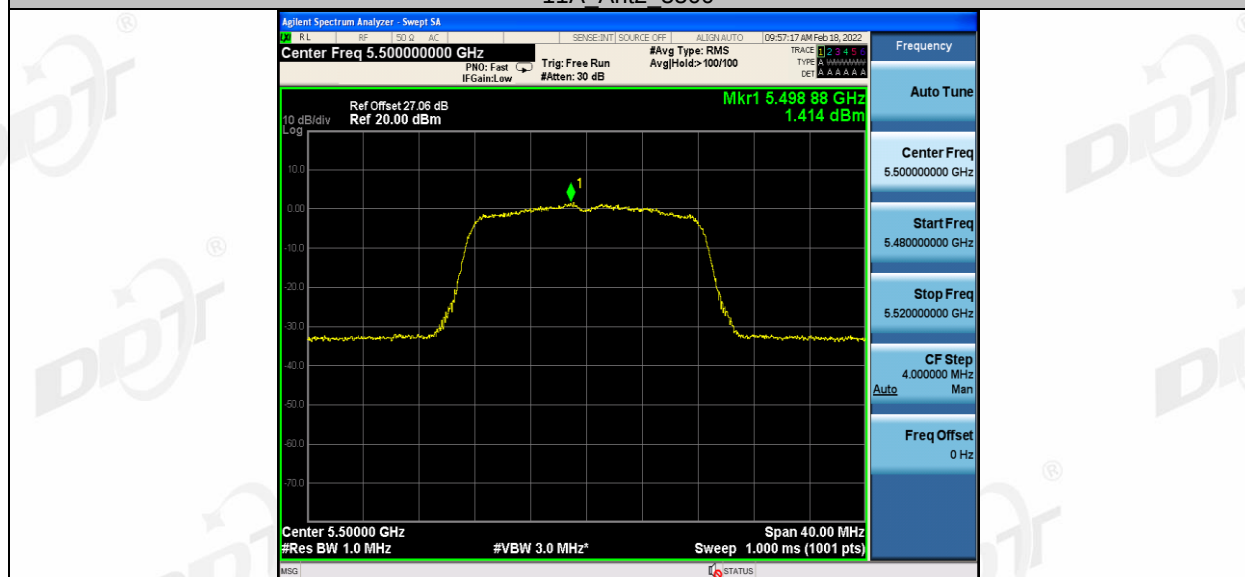
11A_Ant2_5320



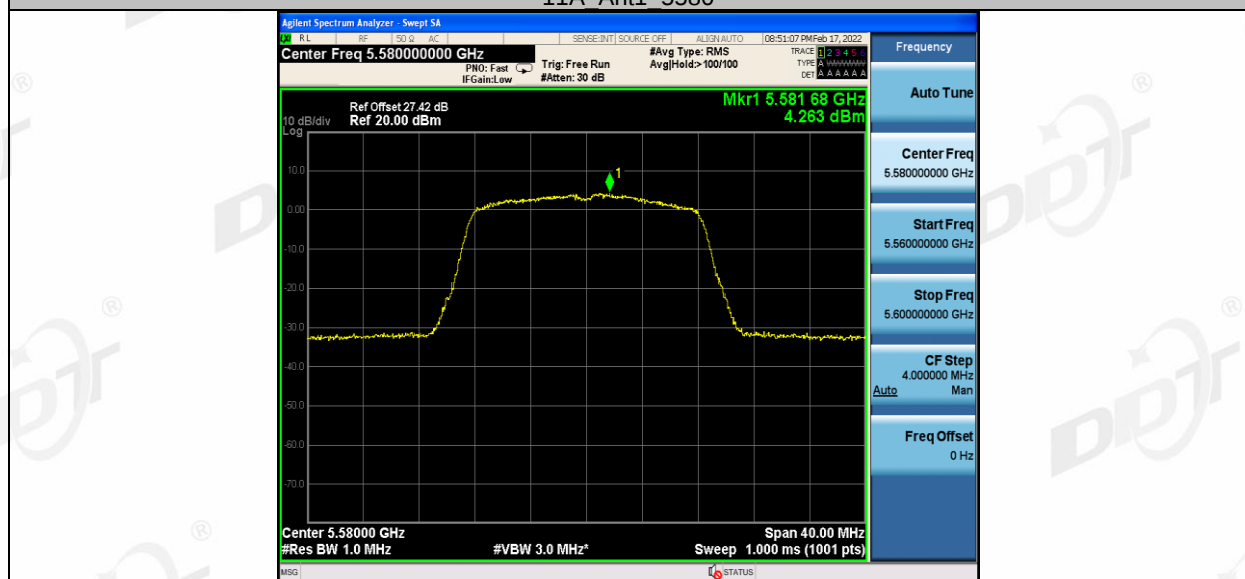
11A_Ant1_5500



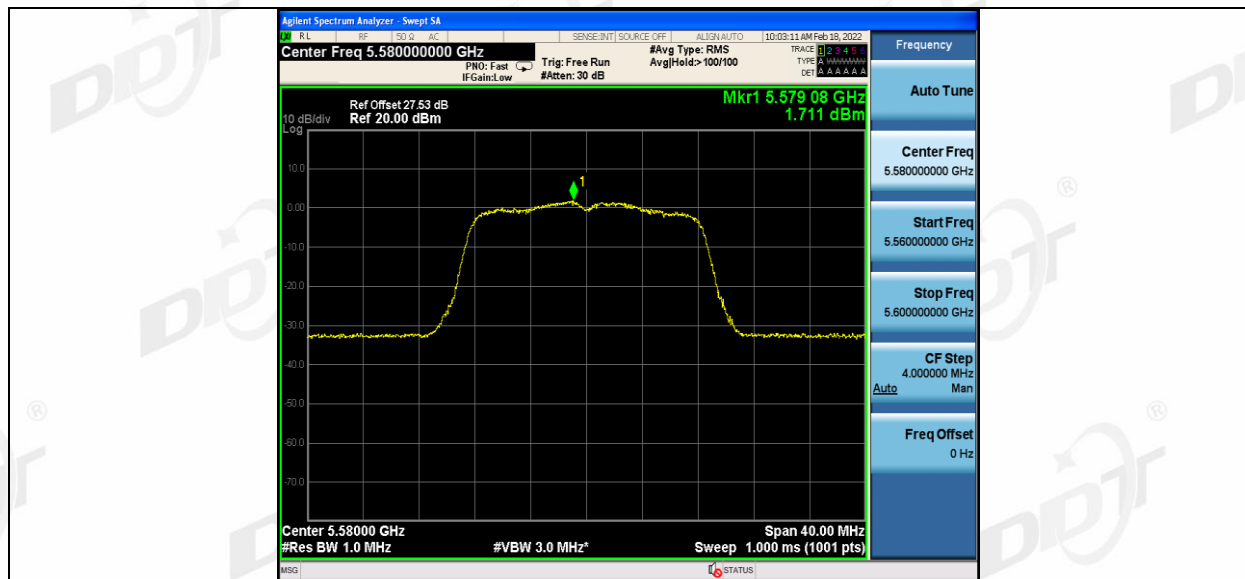
11A_Ant2_5500



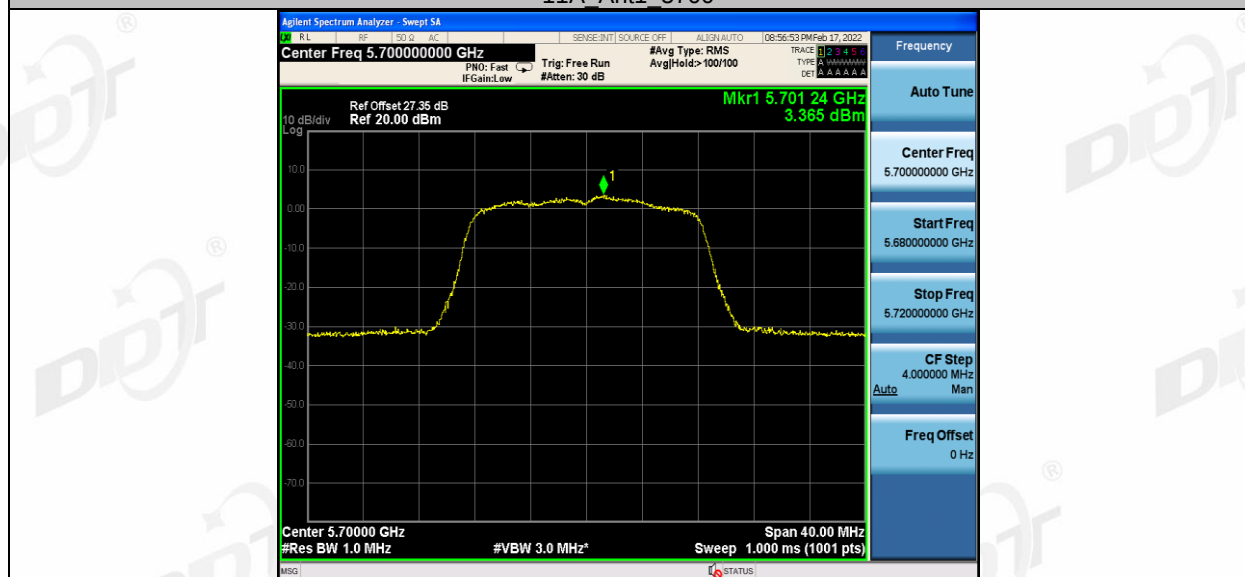
11A_Ant1_5580



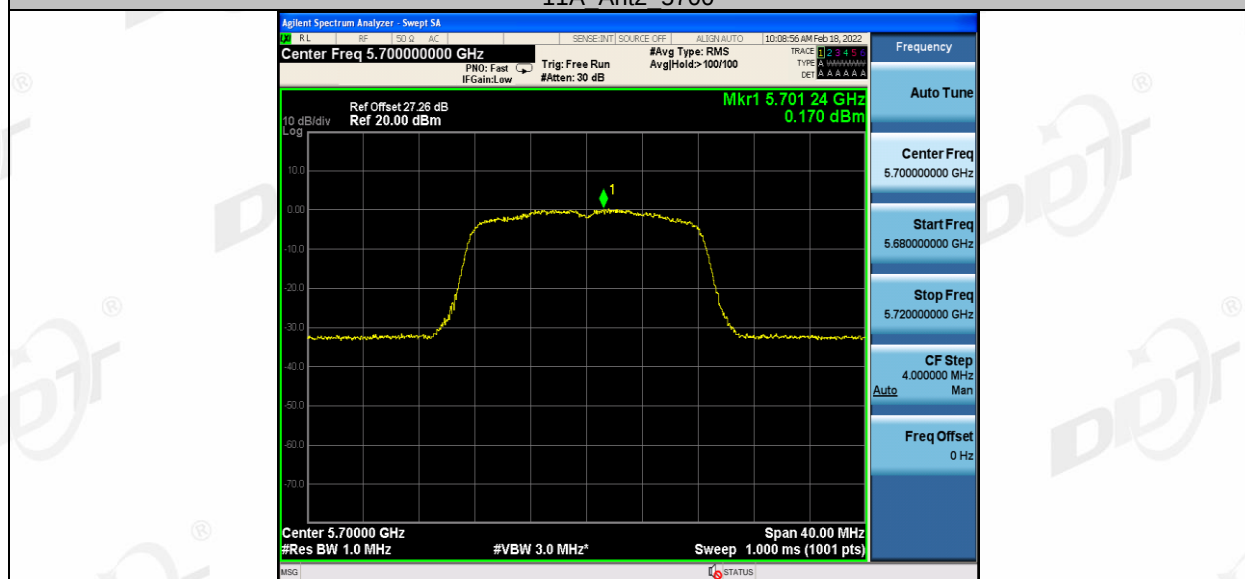
11A_Ant2_5580



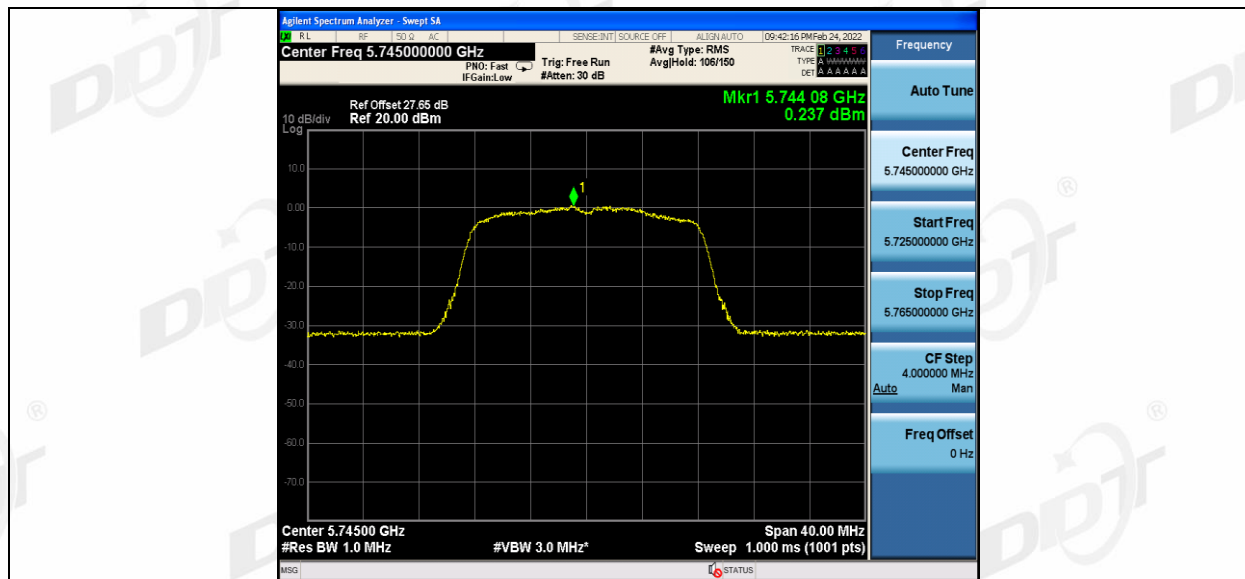
11A_Ant1_5700



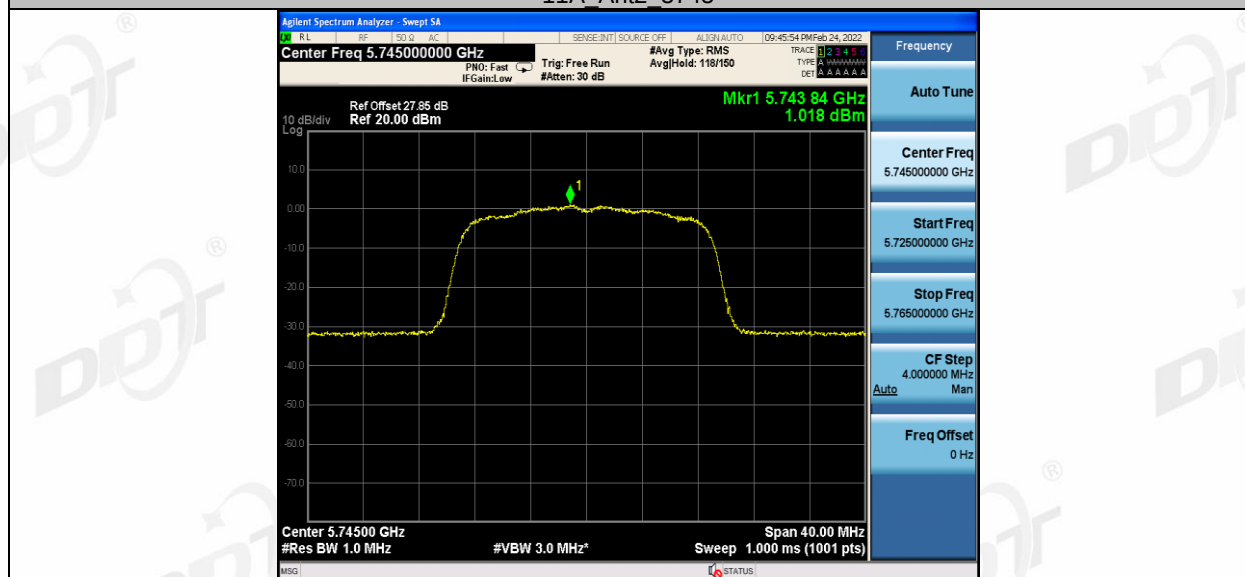
11A_Ant2_5700



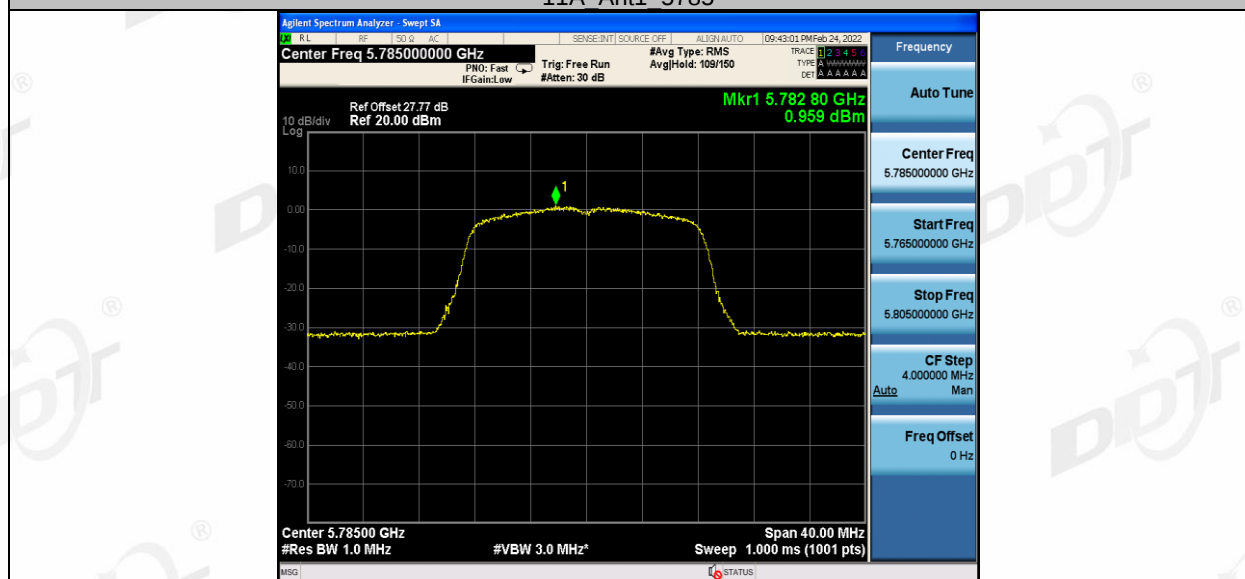
11A_Ant1_5745



11A_Ant2_5745



11A_Ant1_5785



11A_Ant2_5785

