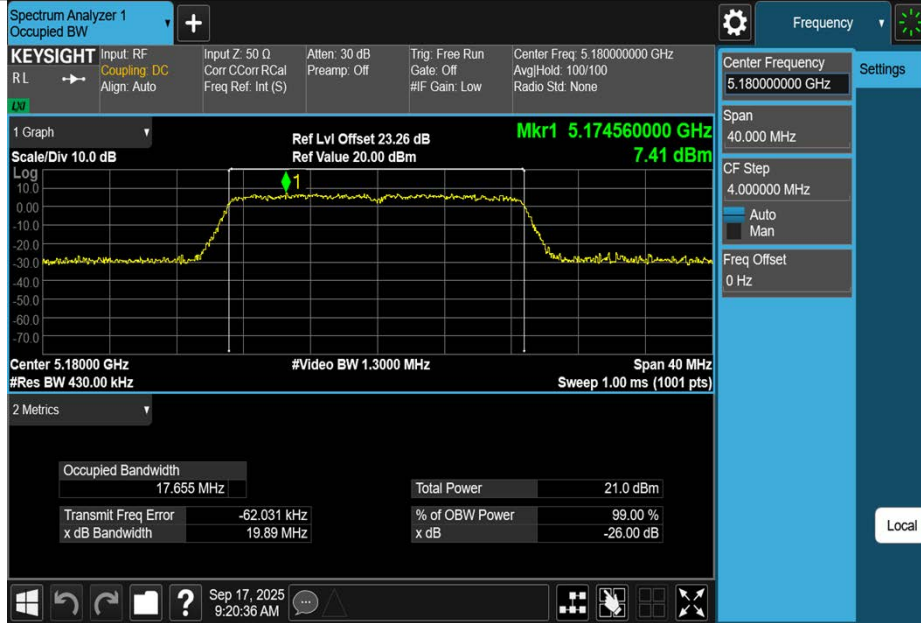
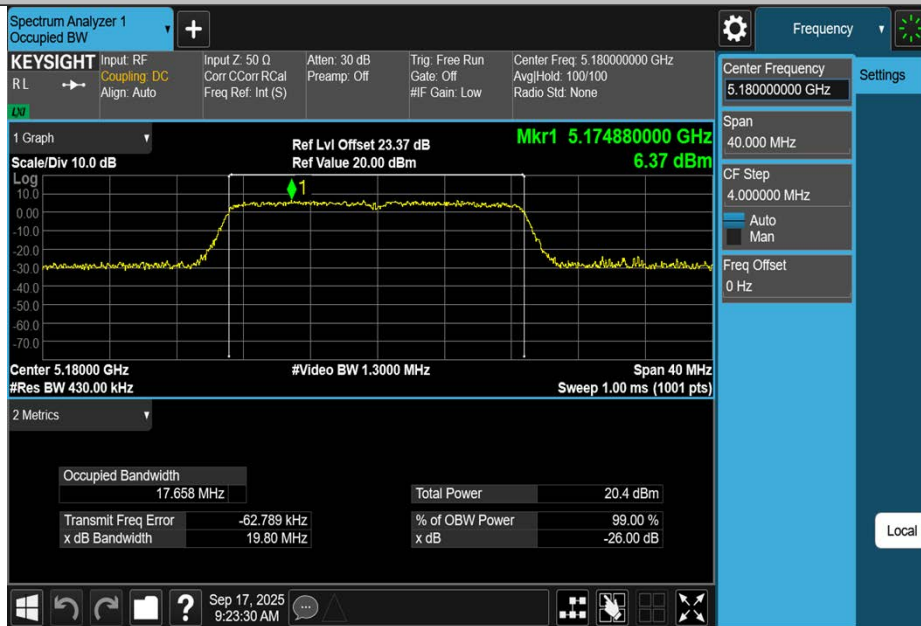
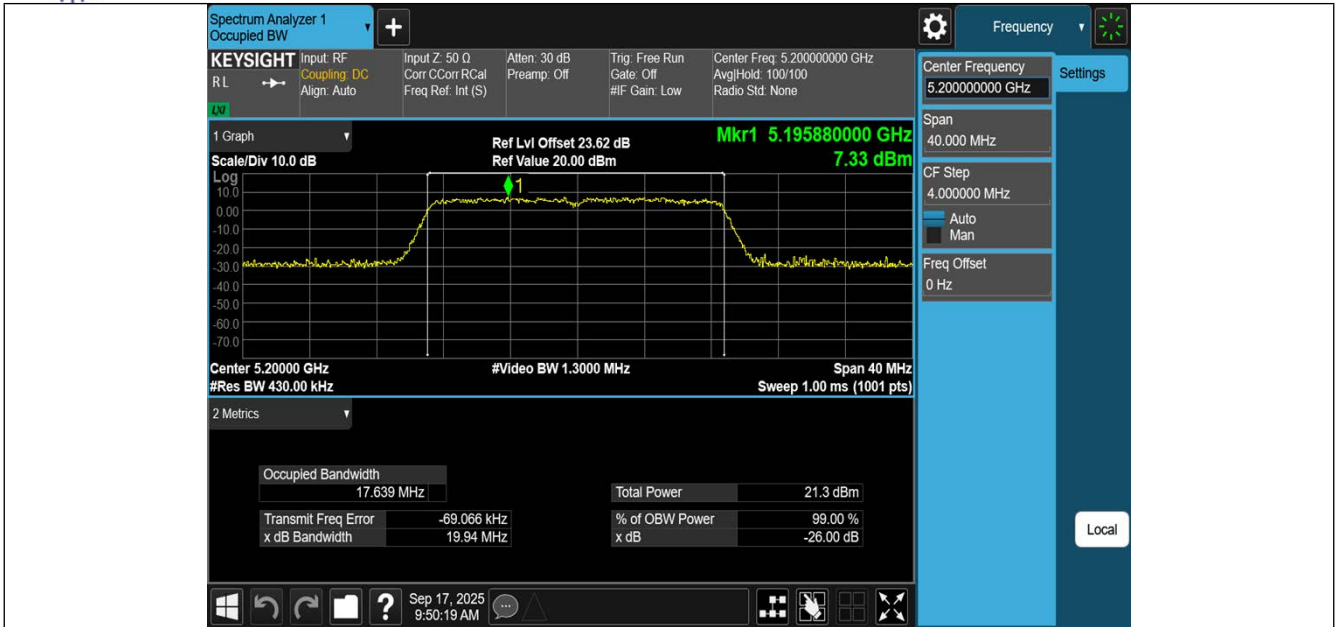




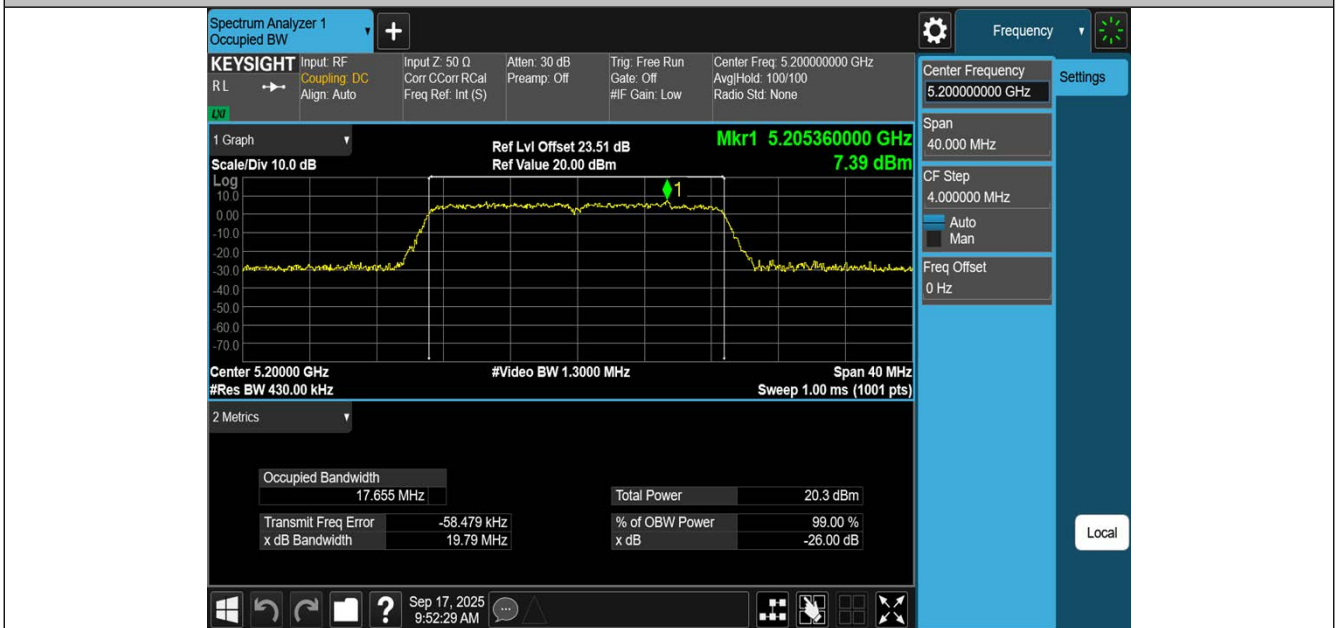
11AC20MIMO-Ant1-5180



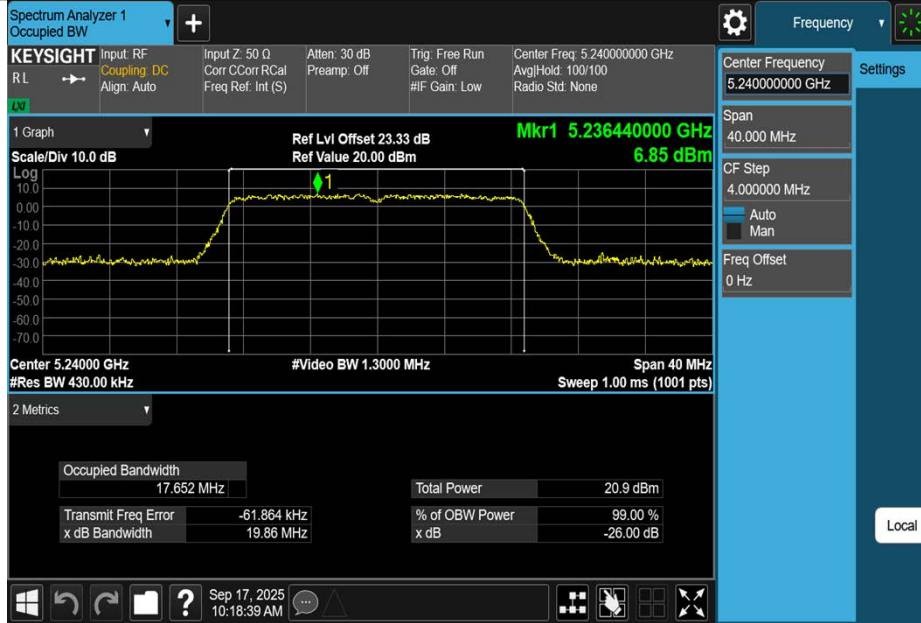
11AC20MIMO-Ant2-5180



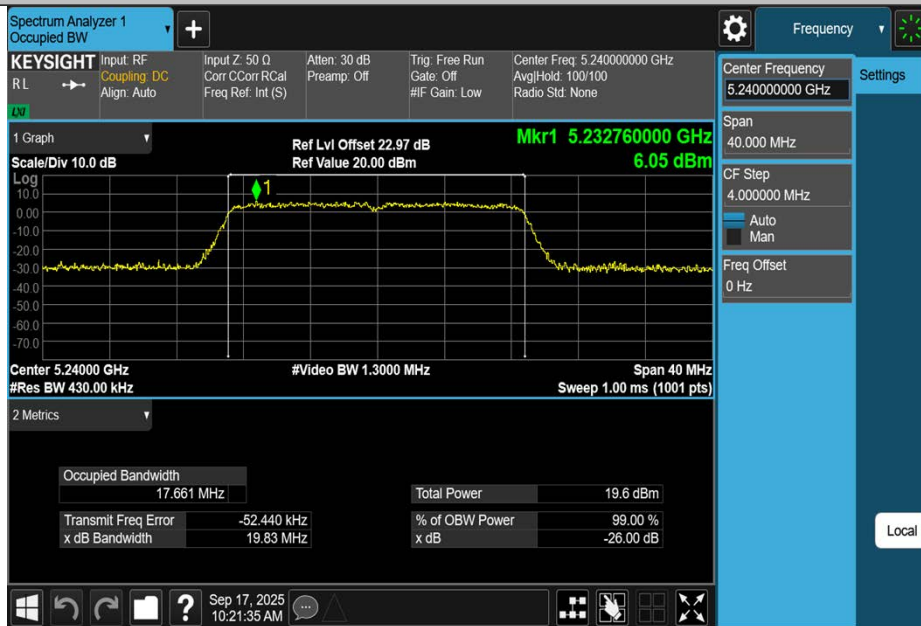
11AC20MIMO-Ant1-5200



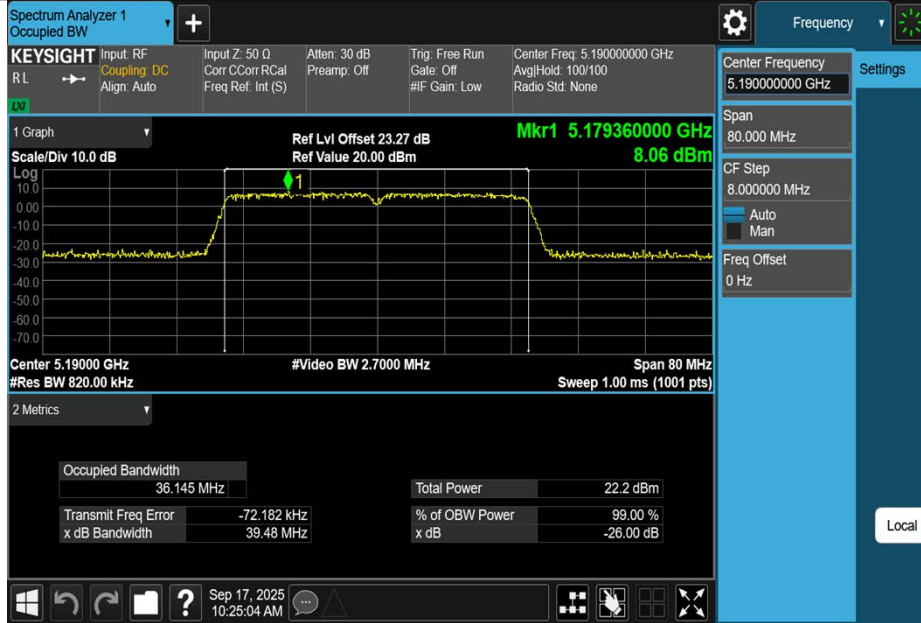
11AC20MIMO-Ant2-5200



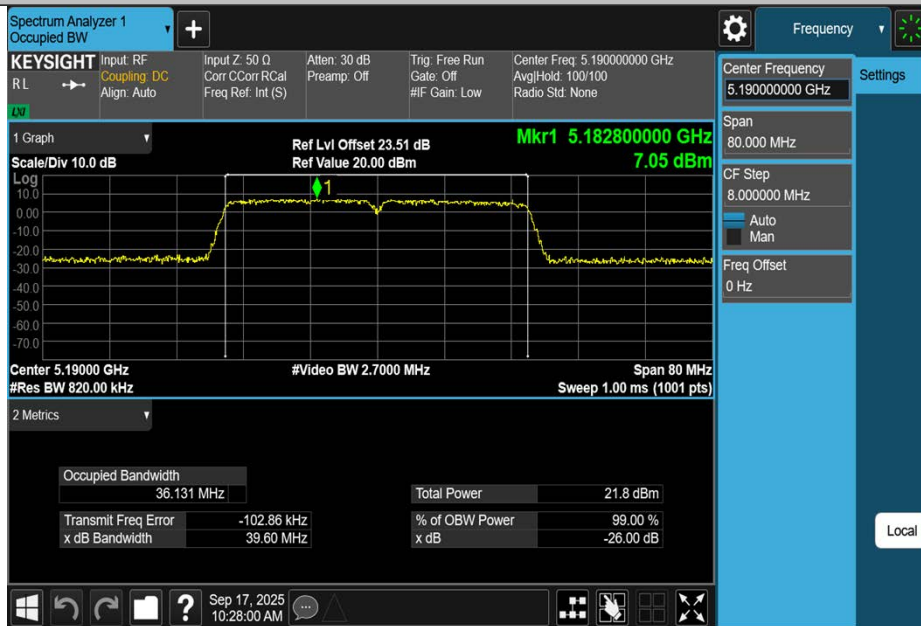
11AC20MIMO-Ant1-5240



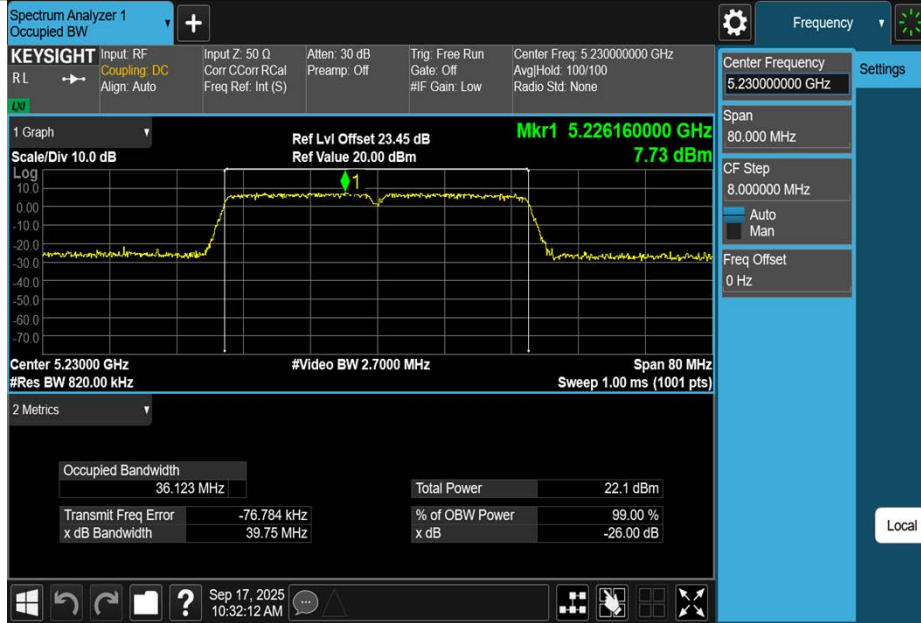
11AC20MIMO-Ant2-5240



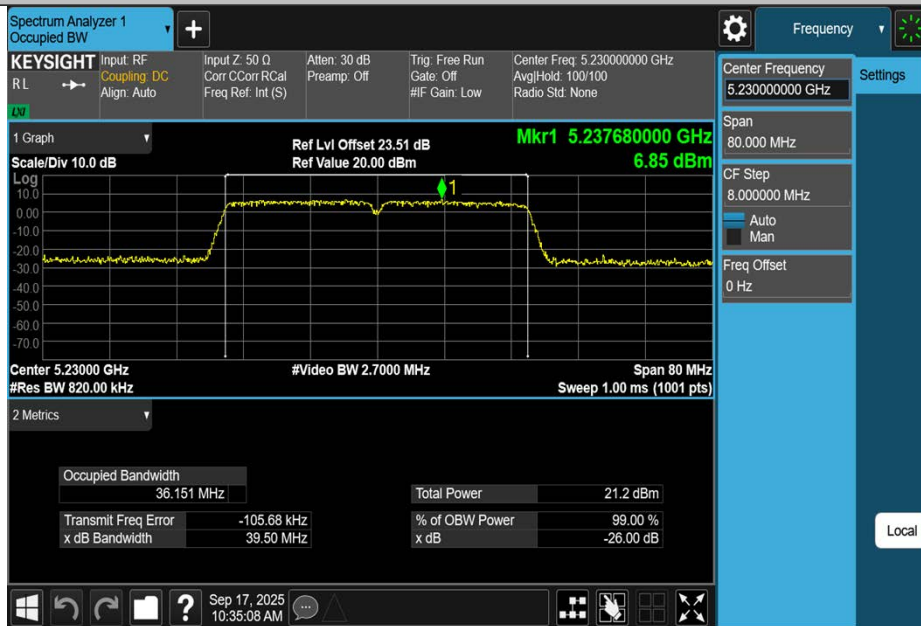
11AC40MIMO-Ant1-5190



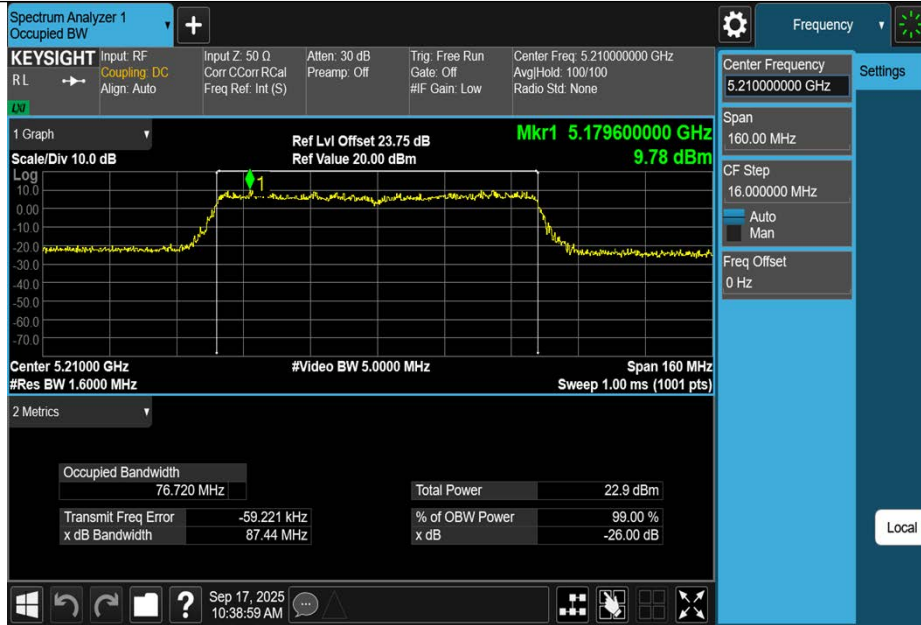
11AC40MIMO-Ant2-5190



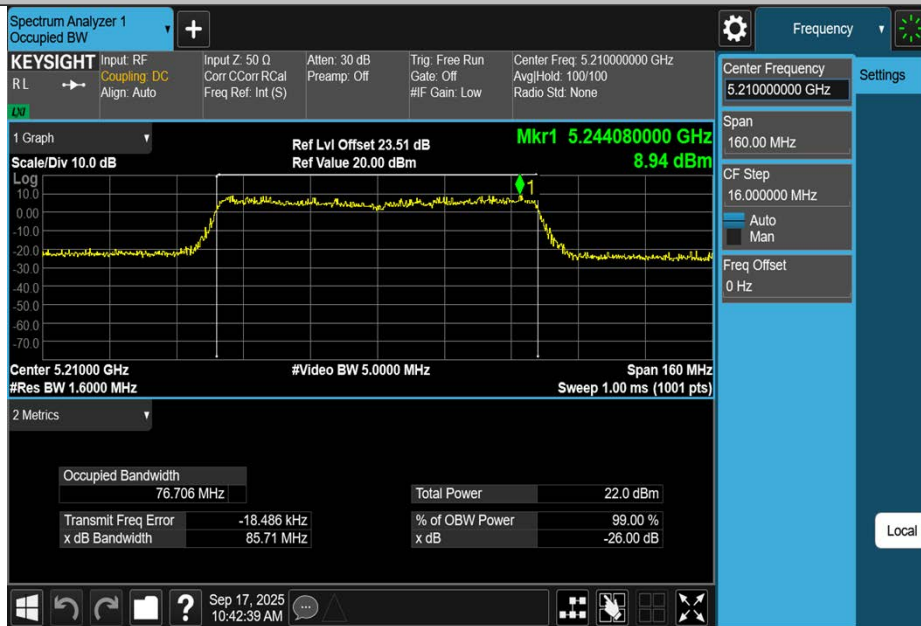
11AC40MIMO-Ant1-5230



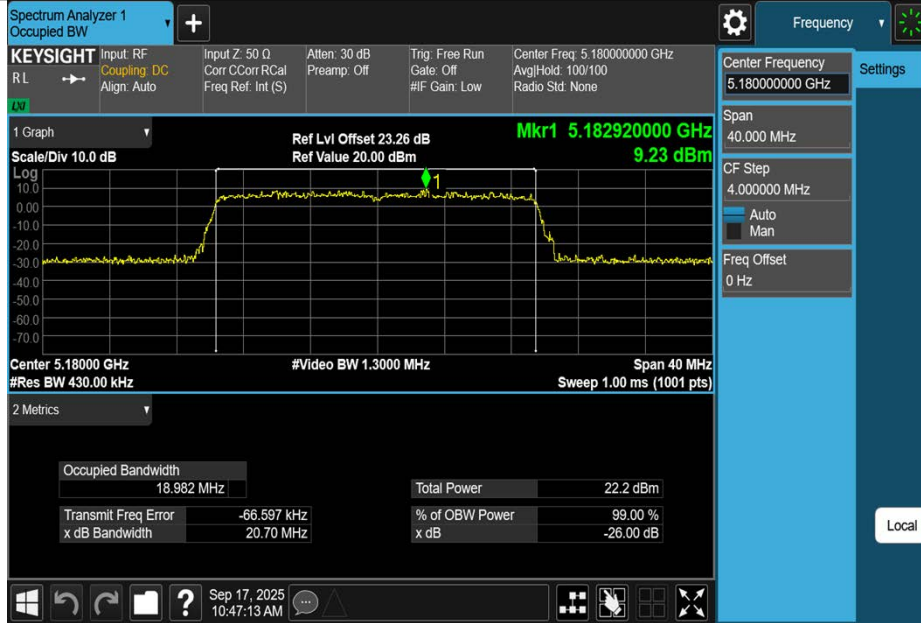
11AC40MIMO-Ant2-5230



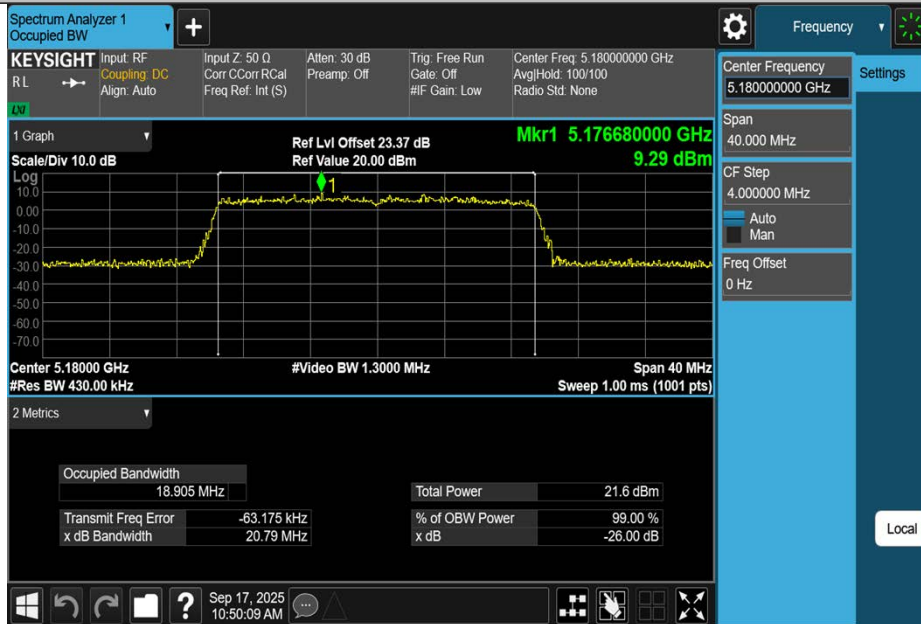
11AC80MIMO-Ant1-5210



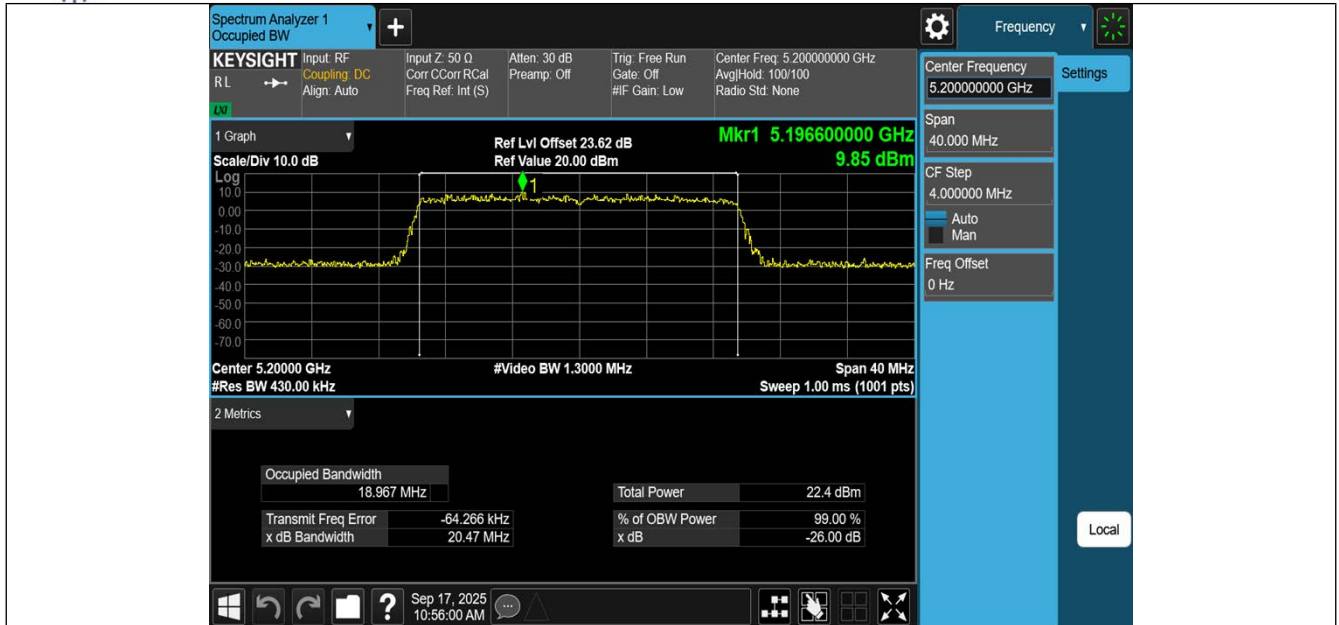
11AC80MIMO-Ant2-5210



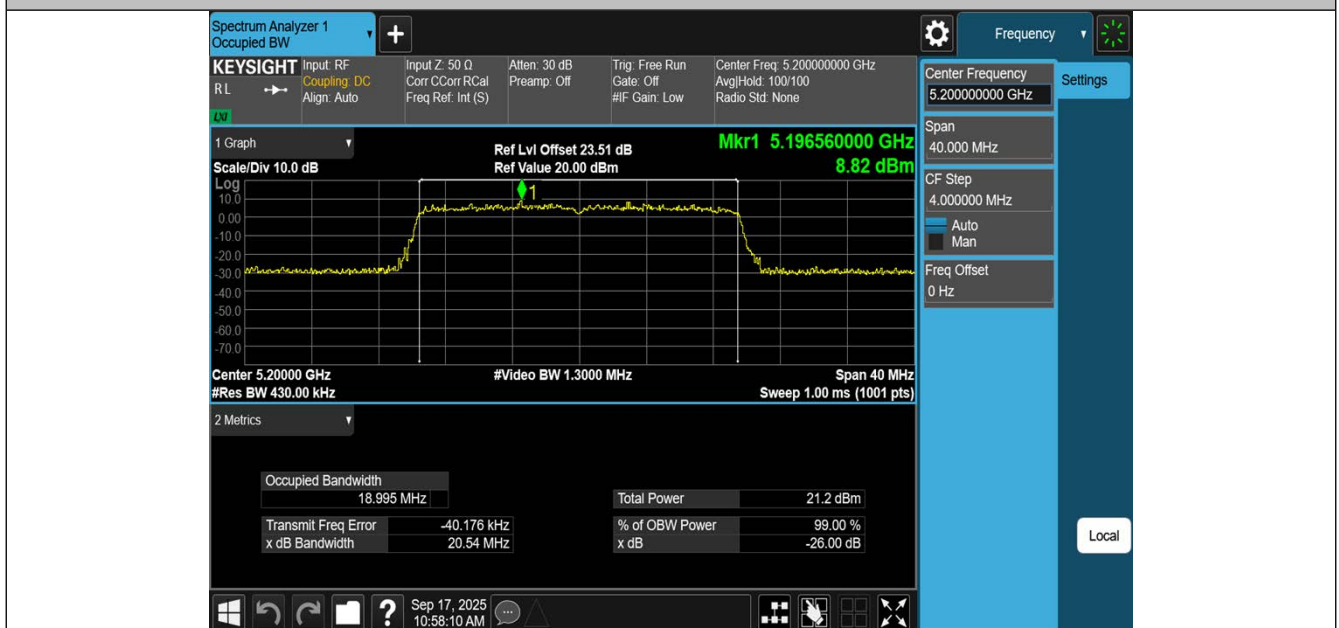
11AX20MIMO-Ant1-5180



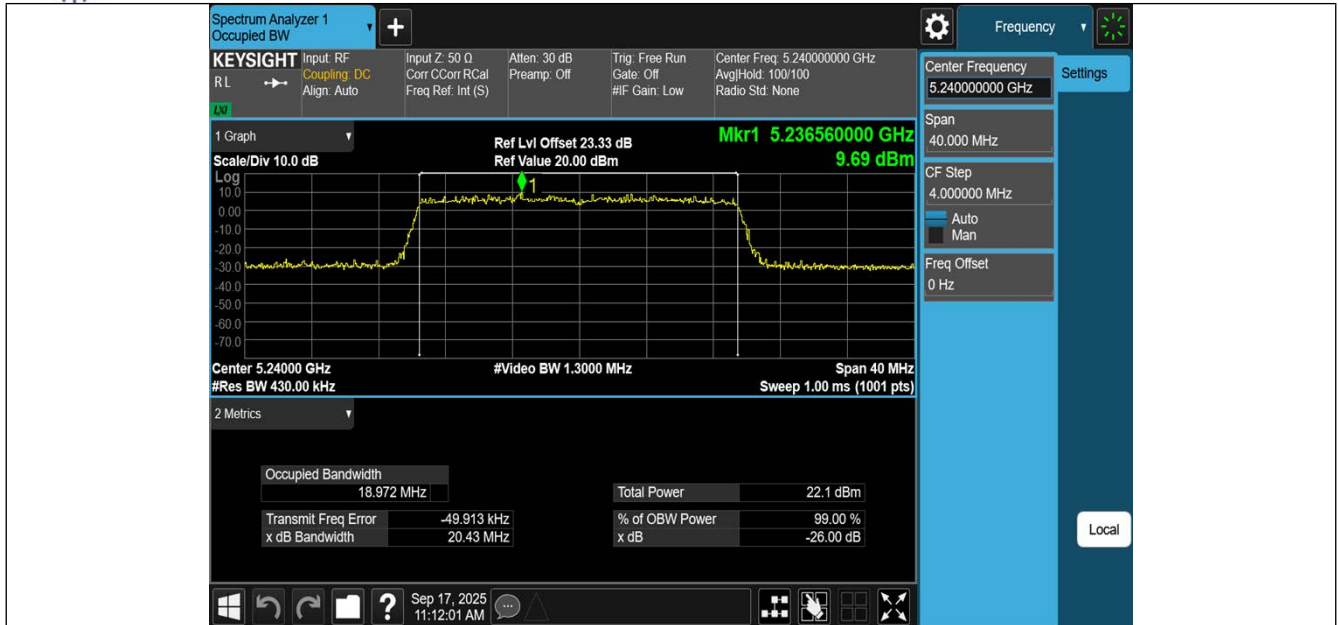
11AX20MIMO-Ant2-5180



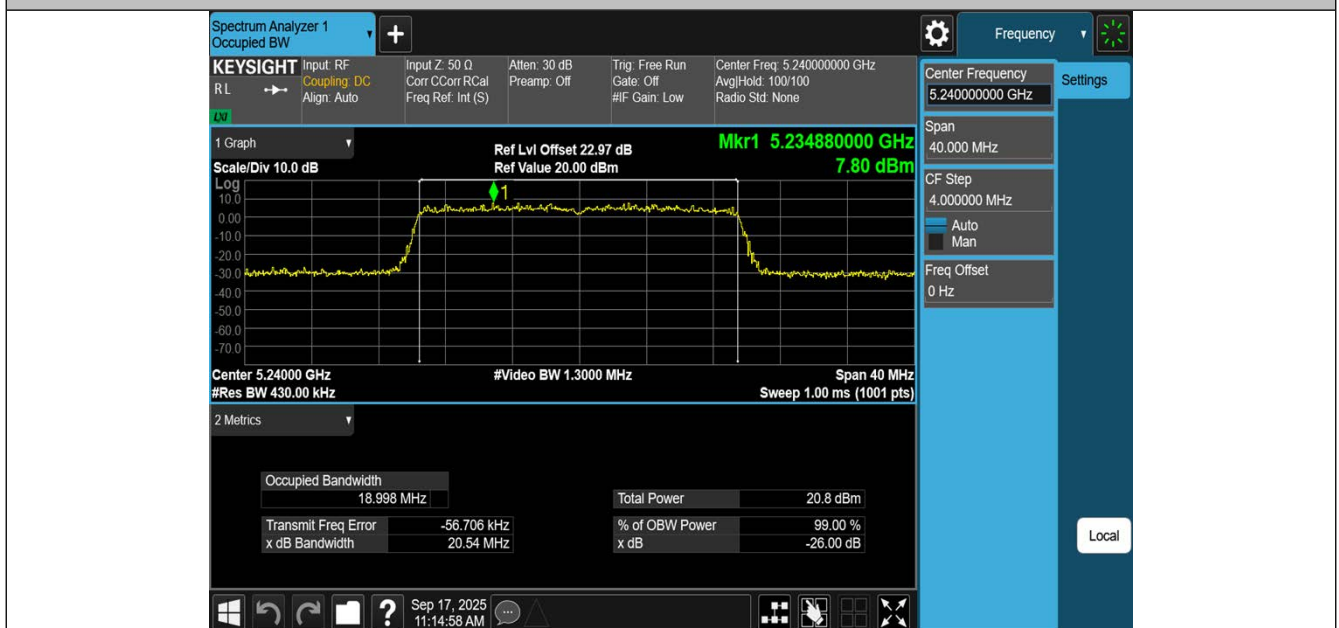
11AX20MIMO-Ant1-5200



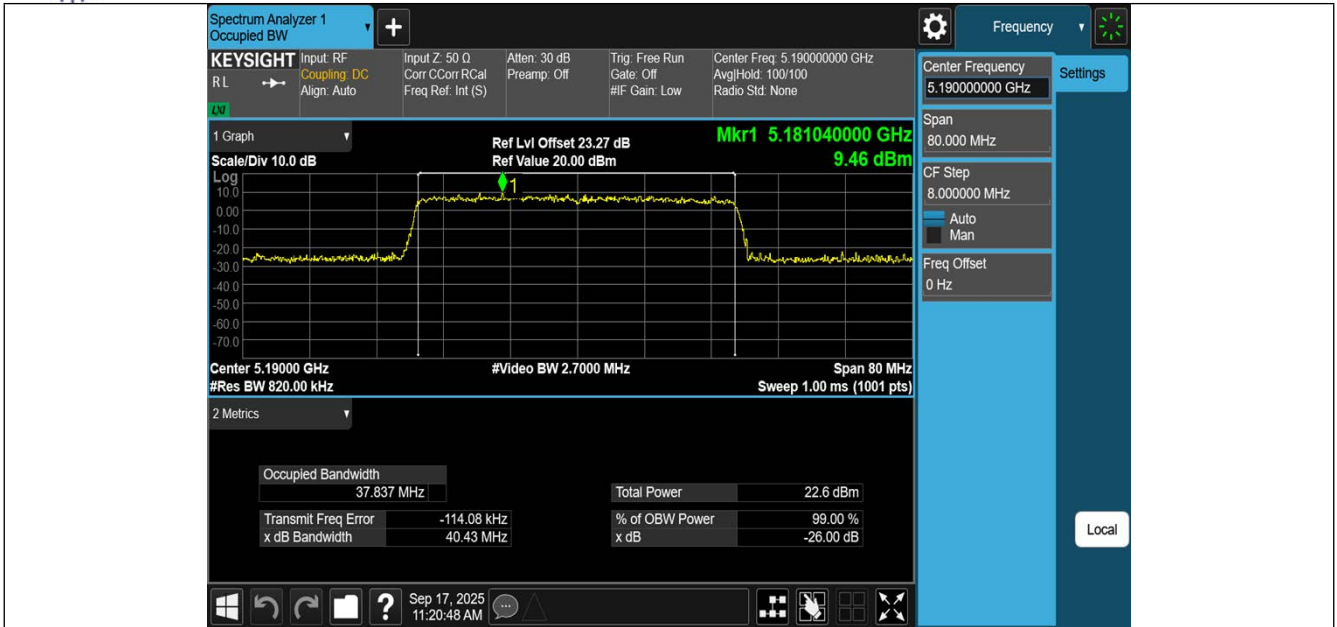
11AX20MIMO-Ant2-5200



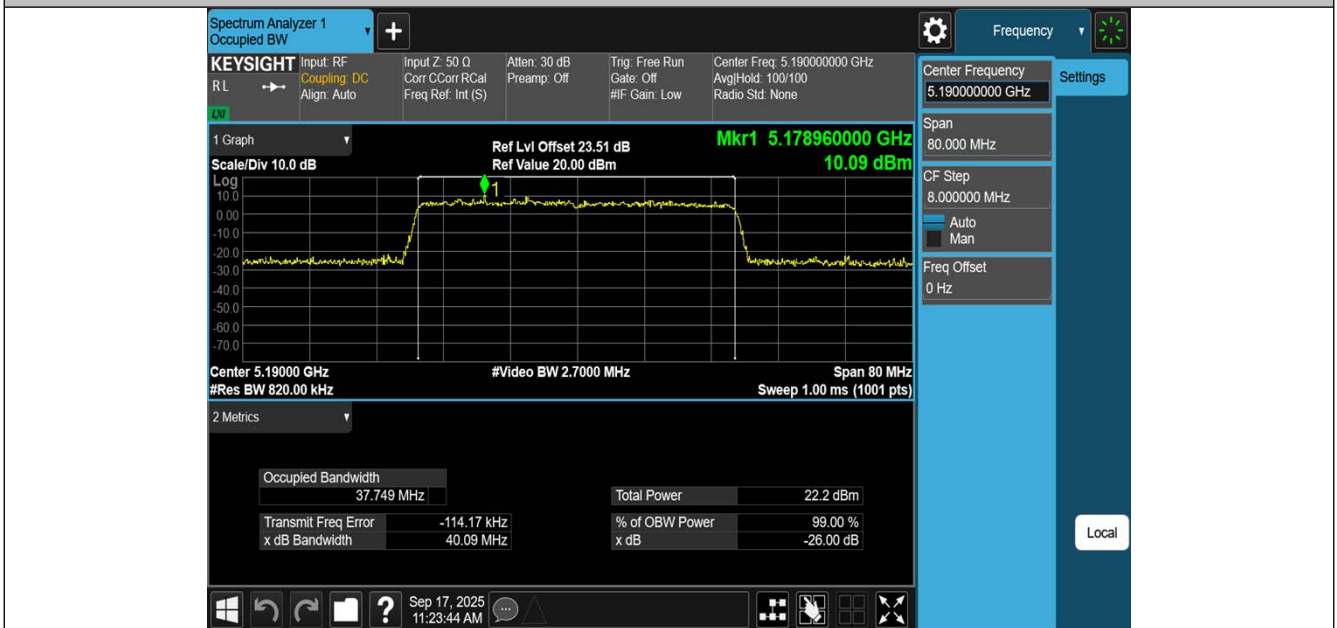
11AX20MIMO-Ant1-5240



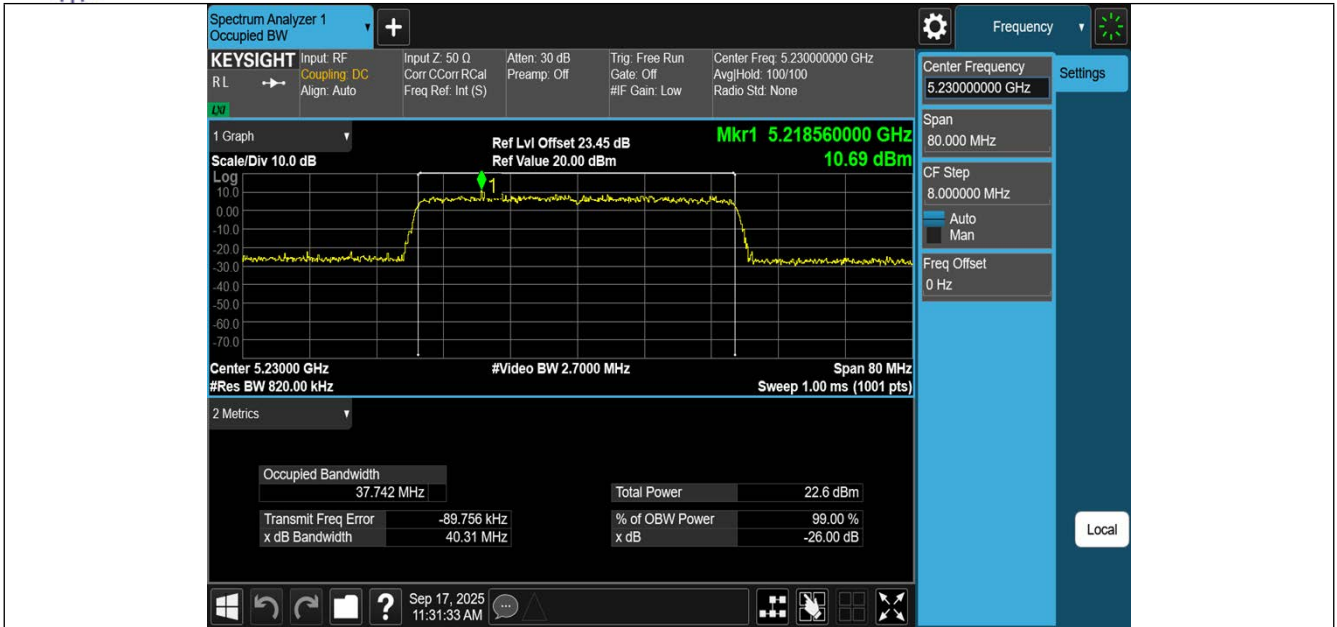
11AX20MIMO-Ant2-5240



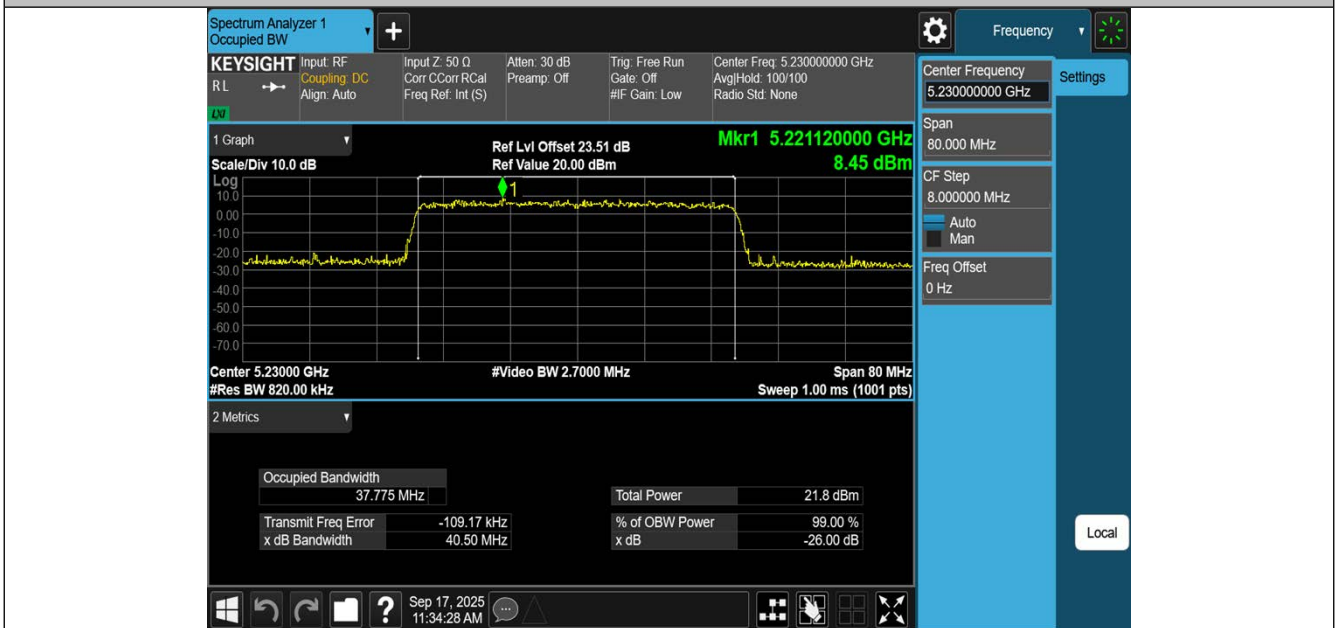
11AX40MIMO-Ant1-5190



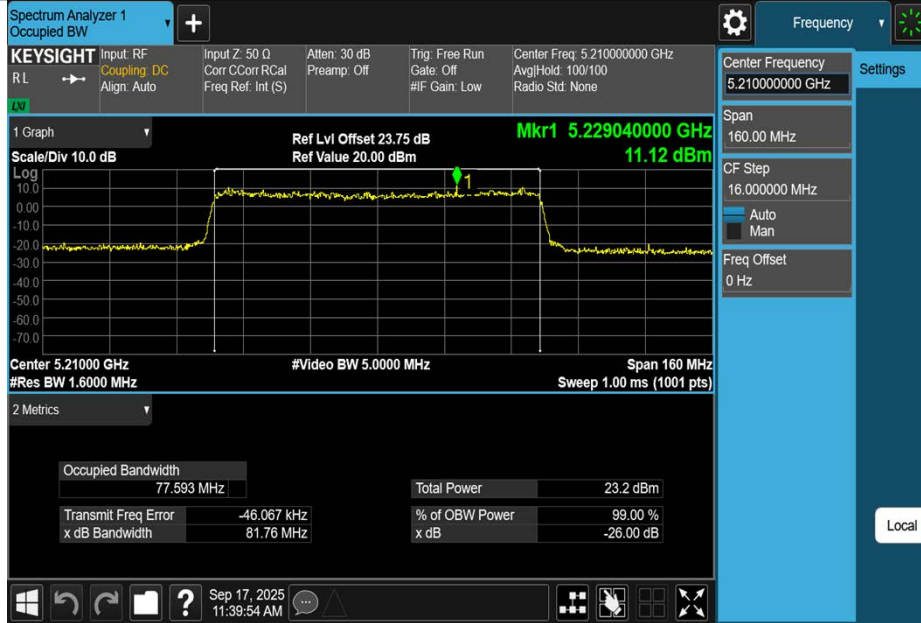
11AX40MIMO-Ant2-5190



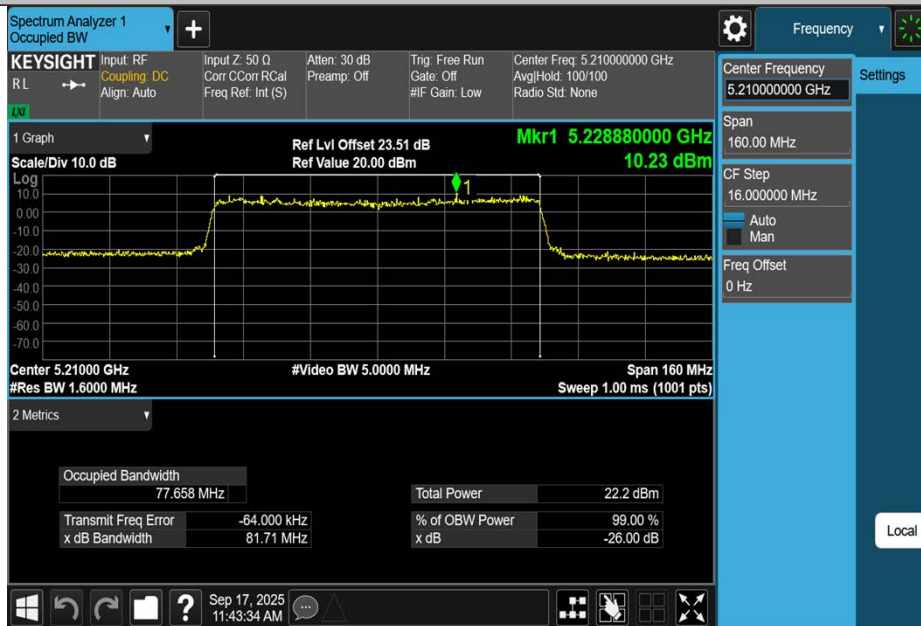
11AX40MIMO-Ant1-5230



11AX40MIMO-Ant2-5230



11AX80MIMO-Ant1-5210



11AX80MIMO-Ant2-5210

3.4 Conducted Output Power

3.4.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Conducted Output Power	Master device: 1 Watt (30 dBm) Client device: 250 mW (23.98 dBm)	5150-5250
		250 mW (23.98 dBm)	5250-5350
		250 mW (23.98 dBm)	5470-5725
		1 Watt (30dBm)	5725-5850

Note:

- For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26dB Bandwidth in megahertz.

3.4.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- Test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

3.4.3 Test Setup



3.4.4 Table of Parameters of Text Software Setting

UNII-1				
Test Software Version		MPTool		
Frequency (MHz)		5180	5200	5240
IEEE 802.11a	Ant1	16	16	16
	Ant2	16	16	16
IEEE 802.11n20		16	16	16
IEEE 802.11ac20		16	16	16
IEEE 802.11ax20		16	16	16
Frequency (MHz)		5190	5230	
IEEE 802.11n40		15	15	
IEEE 802.11ac40		15	15	
IEEE 802.11ax40		15	15	
Frequency (MHz)		5210		
IEEE 802.11ac80		12		
IEEE 802.11ax80		12		

3.4.5 The Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	15.30	≤22.35	PASS
11A	Ant2	5180	14.37	≤22.35	PASS
11A	Ant1	5200	15.52	≤22.35	PASS
11A	Ant2	5200	14.49	≤22.35	PASS
11A	Ant1	5240	14.99	≤22.35	PASS
11A	Ant2	5240	13.52	≤22.35	PASS
11N20MIMO	Ant1	5180	15.52	≤22.35	PASS
11N20MIMO	Ant2	5180	14.76	≤22.35	PASS
11N20MIMO	total	5180	18.17	≤22.35	PASS
11N20MIMO	Ant1	5200	15.26	≤22.35	PASS
11N20MIMO	Ant2	5200	14.63	≤22.35	PASS
11N20MIMO	total	5200	17.97	≤22.35	PASS
11N20MIMO	Ant1	5240	14.99	≤22.35	PASS
11N20MIMO	Ant2	5240	13.81	≤22.35	PASS
11N20MIMO	total	5240	17.45	≤22.35	PASS
11N40MIMO	Ant1	5190	14.02	≤22.35	PASS
11N40MIMO	Ant2	5190	14.02	≤22.35	PASS
11N40MIMO	total	5190	17.03	≤22.35	PASS
11N40MIMO	Ant1	5230	14.07	≤22.35	PASS
11N40MIMO	Ant2	5230	13.80	≤22.35	PASS
11N40MIMO	total	5230	16.95	≤22.35	PASS
11AC20MIMO	Ant1	5180	15.30	≤22.35	PASS
11AC20MIMO	Ant2	5180	14.58	≤22.35	PASS
11AC20MIMO	total	5180	17.97	≤22.35	PASS
11AC20MIMO	Ant1	5200	15.38	≤22.35	PASS
11AC20MIMO	Ant2	5200	14.45	≤22.35	PASS
11AC20MIMO	total	5200	17.95	≤22.35	PASS
11AC20MIMO	Ant1	5240	15.22	≤22.35	PASS
11AC20MIMO	Ant2	5240	13.95	≤22.35	PASS
11AC20MIMO	total	5240	17.64	≤22.35	PASS
11AC40MIMO	Ant1	5190	14.21	≤22.35	PASS
11AC40MIMO	Ant2	5190	14.54	≤22.35	PASS
11AC40MIMO	total	5190	17.39	≤22.35	PASS
11AC40MIMO	Ant1	5230	13.87	≤22.35	PASS
11AC40MIMO	Ant2	5230	14.04	≤22.35	PASS
11AC40MIMO	total	5230	16.97	≤22.35	PASS
11AC80MIMO	Ant1	5210	11.78	≤22.35	PASS
11AC80MIMO	Ant2	5210	10.82	≤22.35	PASS
11AC80MIMO	total	5210	14.34	≤22.35	PASS

11AX20MIMO	Ant1	5180	15.44	≤22.35	PASS
11AX20MIMO	Ant2	5180	14.55	≤22.35	PASS
11AX20MIMO	total	5180	18.03	≤22.35	PASS
11AX20MIMO	Ant1	5200	15.66	≤22.35	PASS
11AX20MIMO	Ant2	5200	14.40	≤22.35	PASS
11AX20MIMO	total	5200	18.09	≤22.35	PASS
11AX20MIMO	Ant1	5240	15.01	≤22.35	PASS
11AX20MIMO	Ant2	5240	13.76	≤22.35	PASS
11AX20MIMO	total	5240	17.44	≤22.35	PASS
11AX40MIMO	Ant1	5190	14.30	≤22.35	PASS
11AX40MIMO	Ant2	5190	13.99	≤22.35	PASS
11AX40MIMO	total	5190	17.16	≤22.35	PASS
11AX40MIMO	Ant1	5230	14.07	≤22.35	PASS
11AX40MIMO	Ant2	5230	13.92	≤22.35	PASS
11AX40MIMO	total	5230	17.01	≤22.35	PASS
11AX80MIMO	Ant1	5210	11.54	≤22.35	PASS
11AX80MIMO	Ant2	5210	10.88	≤22.35	PASS
11AX80MIMO	total	5210	14.23	≤22.35	PASS

Note:

Cable Loss and duty cycle factor are compensated in the average conducted output power.

for mimo mode: Directional gain = GANT + 10 log(NANT) dBi=4.64+3.01=7.63dBi

3.5 Power Spectral Density

3.5.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Power Spectral Density	Master device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250
		11 dBm/MHz	5250-5350
		11 dBm/MHz	5470-5725
		30 dBm/500 kHz	5725-5850

Note:

- For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 300kHz and VBW at 1500kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add 10 log (500 kHz/300 kHz) to the measured result, i.e. 2.22 dB.
- During the test of U-NII 3 PSD, the measurement result with RBW=300kHz has been added 2.22 dB by compensating offset, offset=cable loss+duty factor+10log(500kHz/300kHz).

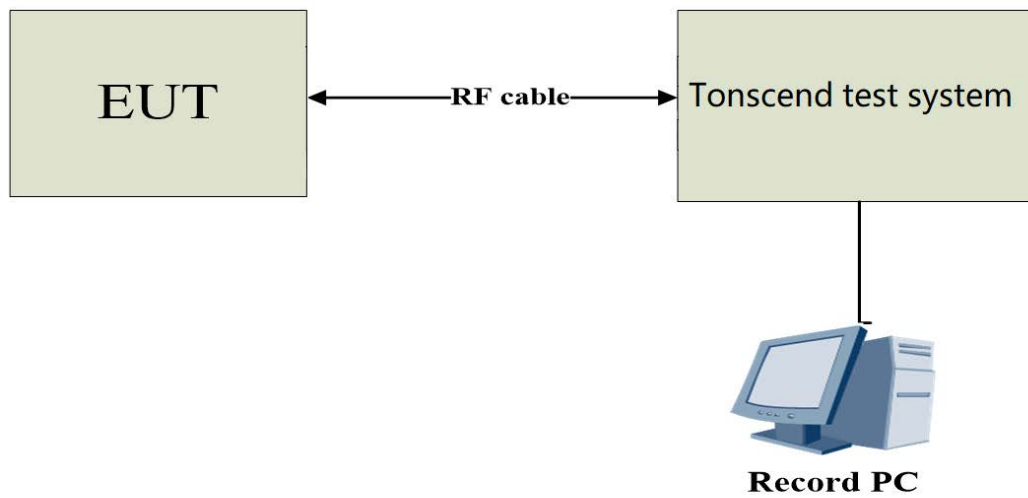
3.5.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below. Spectrum analyser settings as following:

Centre Frequency	The centre frequency of the channel under test
RBW	= 1 MHz (Band1/2/3); = 300kHz (Band4)
VBW	≥3 x RBW
Frequency span	2 x Nominal Channel Bandwidth
Detector Mode	RMS
Trace Mode	Average
Sweep Time	Auto Couple

3.5.3 Test Setup



3.5.4 The Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	4.17	≤9.37	PASS
11A	Ant2	5180	3.62	≤9.37	PASS
11A	Ant1	5200	4.10	≤9.37	PASS
11A	Ant2	5200	3.40	≤9.37	PASS
11A	Ant1	5240	4.81	≤9.37	PASS
11A	Ant2	5240	3.16	≤9.37	PASS
11N20MIMO	Ant1	5180	3.99	≤9.37	PASS
11N20MIMO	Ant2	5180	3.42	≤9.37	PASS
11N20MIMO	total	5180	6.72	≤9.37	PASS
11N20MIMO	Ant1	5200	3.73	≤9.37	PASS
11N20MIMO	Ant2	5200	3.06	≤9.37	PASS
11N20MIMO	total	5200	6.42	≤9.37	PASS
11N20MIMO	Ant1	5240	3.48	≤9.37	PASS
11N20MIMO	Ant2	5240	2.85	≤9.37	PASS
11N20MIMO	total	5240	6.19	≤9.37	PASS
11N40MIMO	Ant1	5190	0.18	≤9.37	PASS
11N40MIMO	Ant2	5190	0.13	≤9.37	PASS
11N40MIMO	total	5190	3.17	≤9.37	PASS
11N40MIMO	Ant1	5230	-0.12	≤9.37	PASS
11N40MIMO	Ant2	5230	0.44	≤9.37	PASS
11N40MIMO	total	5230	3.18	≤9.37	PASS
11AC20MIMO	Ant1	5180	3.87	≤9.37	PASS
11AC20MIMO	Ant2	5180	3.47	≤9.37	PASS
11AC20MIMO	total	5180	6.68	≤9.37	PASS
11AC20MIMO	Ant1	5200	4.06	≤9.37	PASS
11AC20MIMO	Ant2	5200	3.45	≤9.37	PASS
11AC20MIMO	total	5200	6.78	≤9.37	PASS
11AC20MIMO	Ant1	5240	4.58	≤9.37	PASS
11AC20MIMO	Ant2	5240	3.54	≤9.37	PASS
11AC20MIMO	total	5240	7.10	≤9.37	PASS
11AC40MIMO	Ant1	5190	0.23	≤9.37	PASS
11AC40MIMO	Ant2	5190	0.43	≤9.37	PASS
11AC40MIMO	total	5190	3.34	≤9.37	PASS
11AC40MIMO	Ant1	5230	0.01	≤9.37	PASS
11AC40MIMO	Ant2	5230	-0.33	≤9.37	PASS
11AC40MIMO	total	5230	2.85	≤9.37	PASS
11AC80MIMO	Ant1	5210	-4.55	≤9.37	PASS
11AC80MIMO	Ant2	5210	-5.61	≤9.37	PASS

11AC80MIMO	total	5210	-2.04	≤9.37	PASS
11AX20MIMO	Ant1	5180	3.83	≤9.37	PASS
11AX20MIMO	Ant2	5180	3.19	≤9.37	PASS
11AX20MIMO	total	5180	6.53	≤9.37	PASS
11AX20MIMO	Ant1	5200	4.10	≤9.37	PASS
11AX20MIMO	Ant2	5200	3.14	≤9.37	PASS
11AX20MIMO	total	5200	6.66	≤9.37	PASS
11AX20MIMO	Ant1	5240	4.00	≤9.37	PASS
11AX20MIMO	Ant2	5240	2.55	≤9.37	PASS
11AX20MIMO	total	5240	6.35	≤9.37	PASS
11AX40MIMO	Ant1	5190	0.41	≤9.37	PASS
11AX40MIMO	Ant2	5190	0.44	≤9.37	PASS
11AX40MIMO	total	5190	3.44	≤9.37	PASS
11AX40MIMO	Ant1	5230	0.76	≤9.37	PASS
11AX40MIMO	Ant2	5230	-0.03	≤9.37	PASS
11AX40MIMO	total	5230	3.39	≤9.37	PASS
11AX80MIMO	Ant1	5210	-5.38	≤9.37	PASS
11AX80MIMO	Ant2	5210	-5.53	≤9.37	PASS
11AX80MIMO	total	5210	-2.44	≤9.37	PASS

Note:

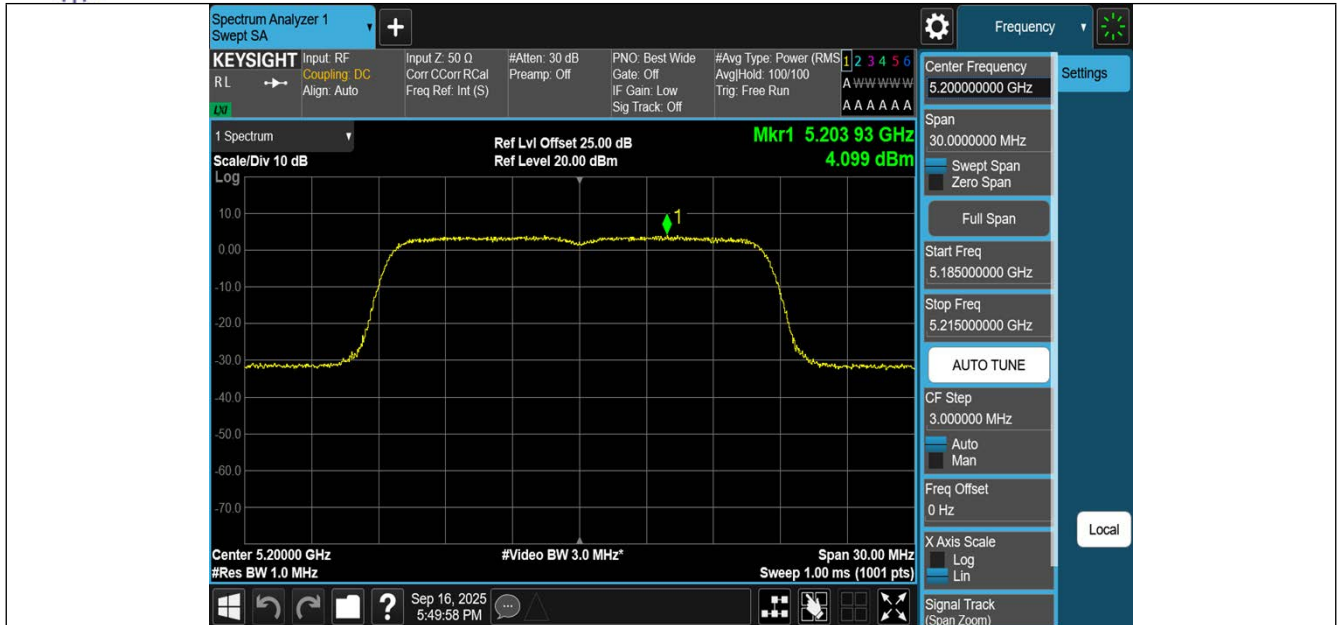
The duty cycle and line loss have been compensated in the test chart.

Reflyoffset= duty cycle factor+ Cable Loss

for mimo mode: Directional gain = GANT + 10 log(NANT) dBi=4.64+3.01=7.63dBi

Test graph

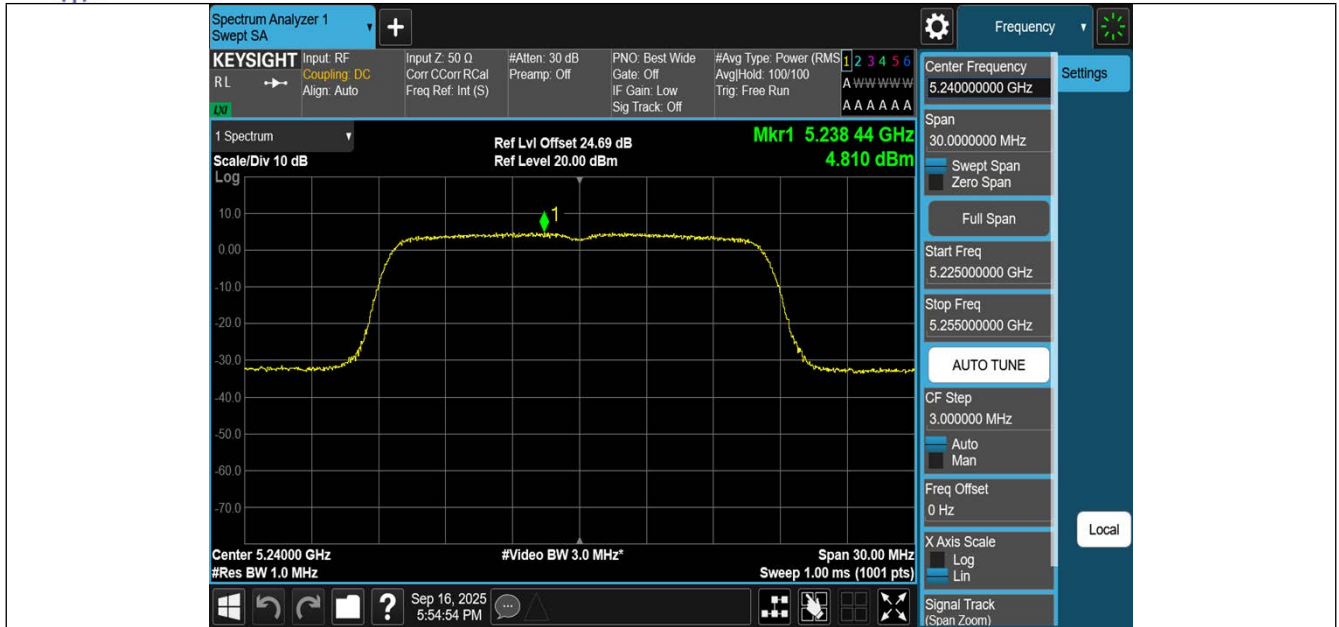




11A-Ant1-5200-PASS



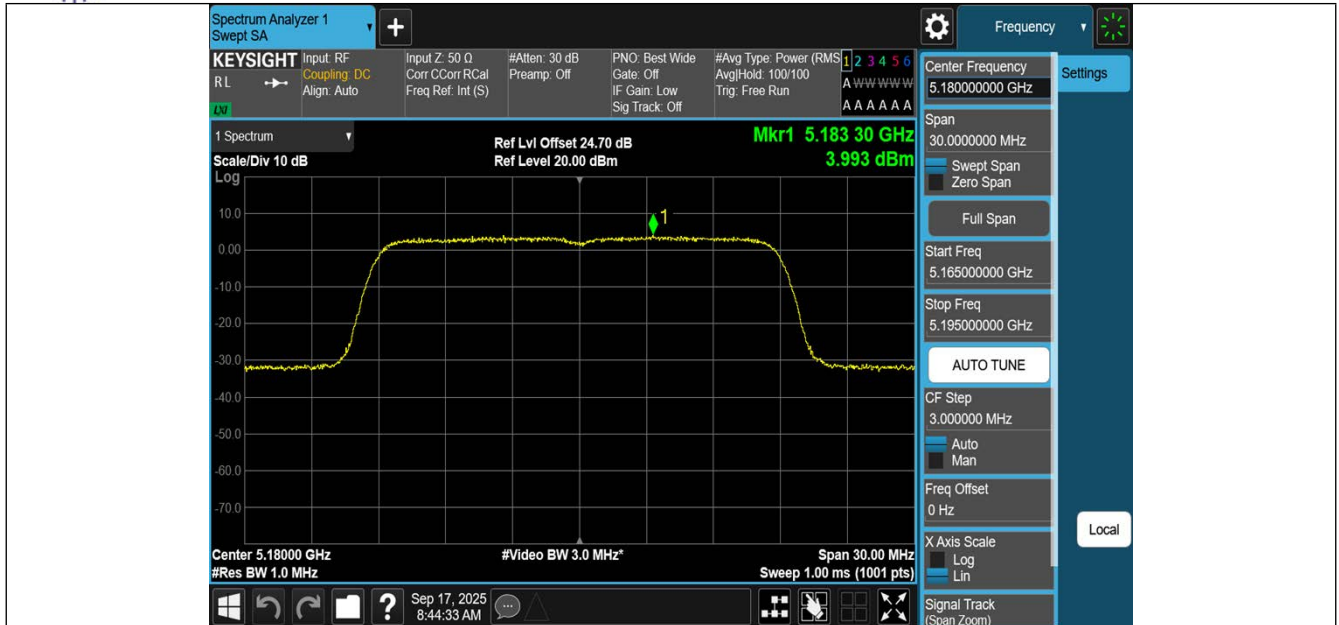
11A-Ant2-5200-PASS



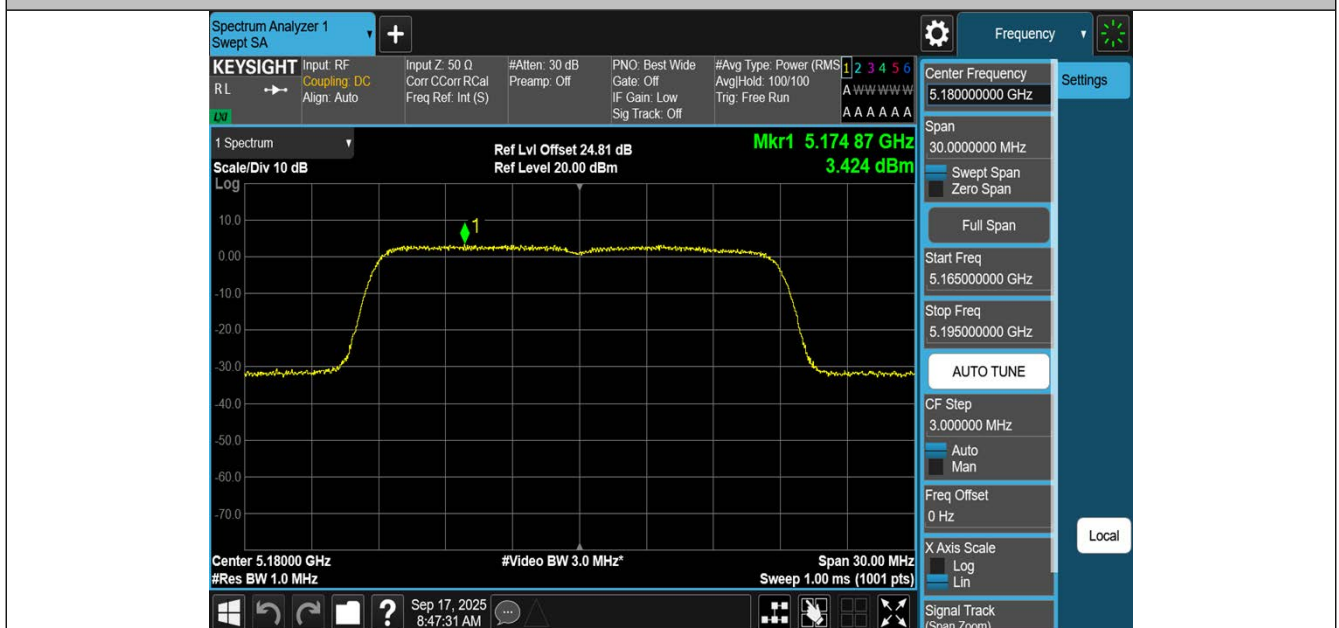
11A-Ant1-5240-PASS



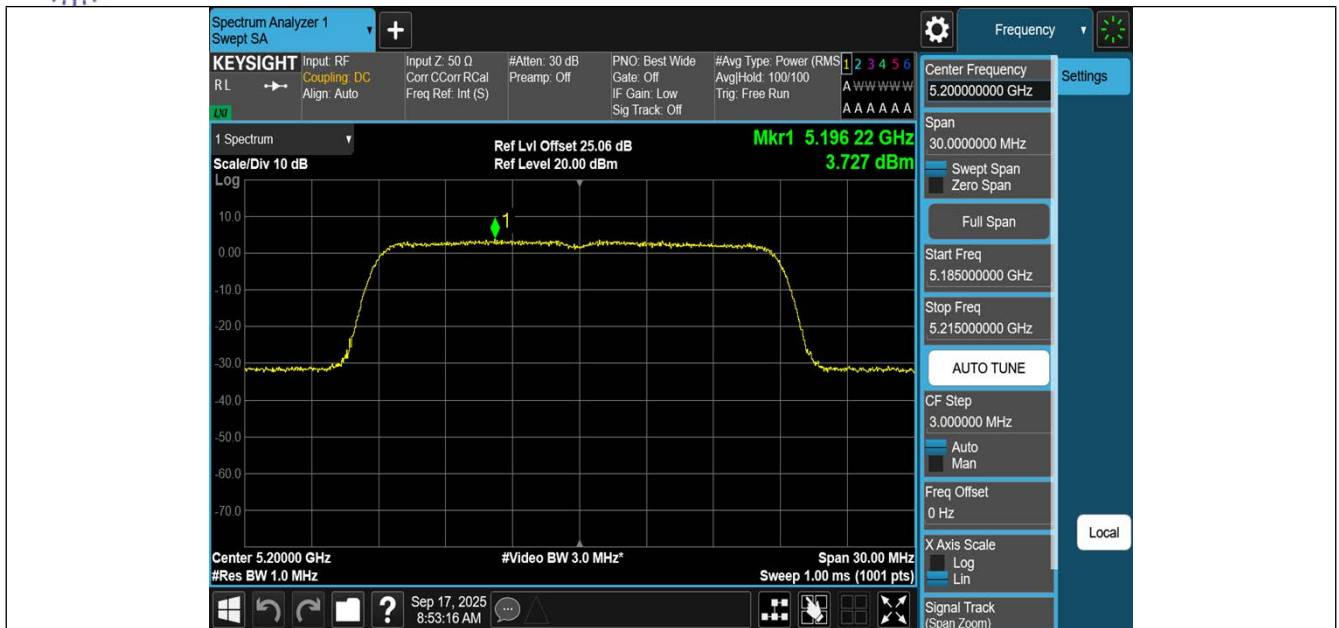
11A-Ant2-5240-PASS



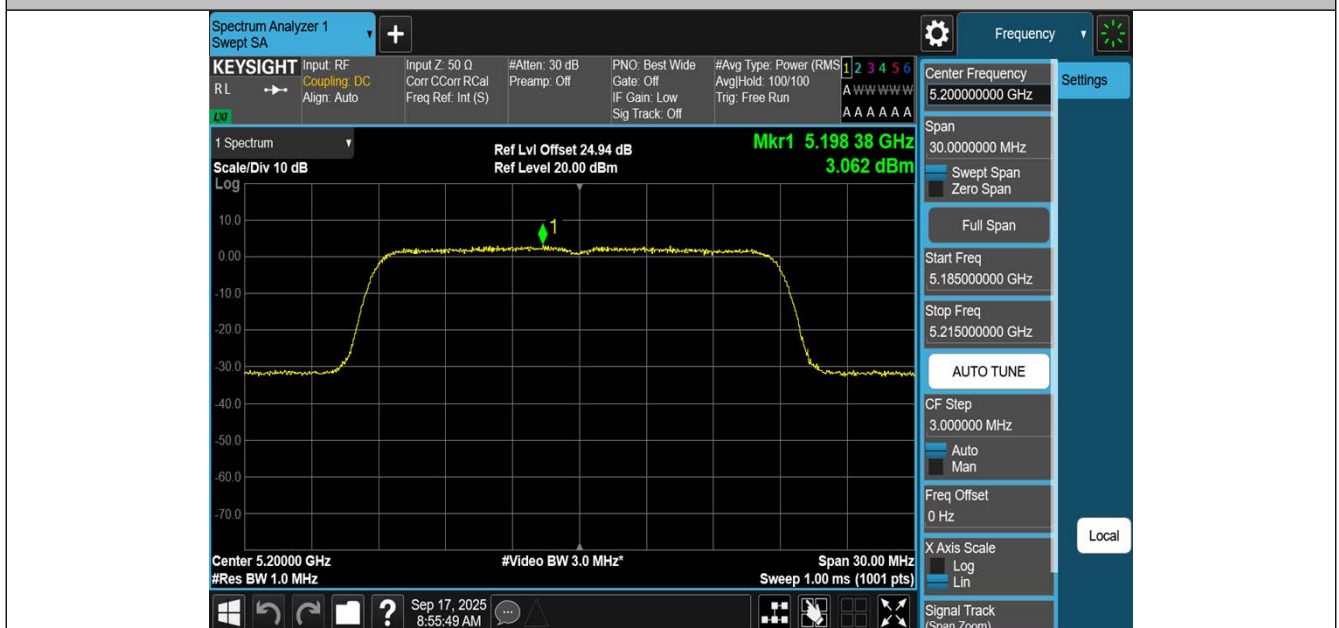
11N20MIMO-Ant1-5180-PASS



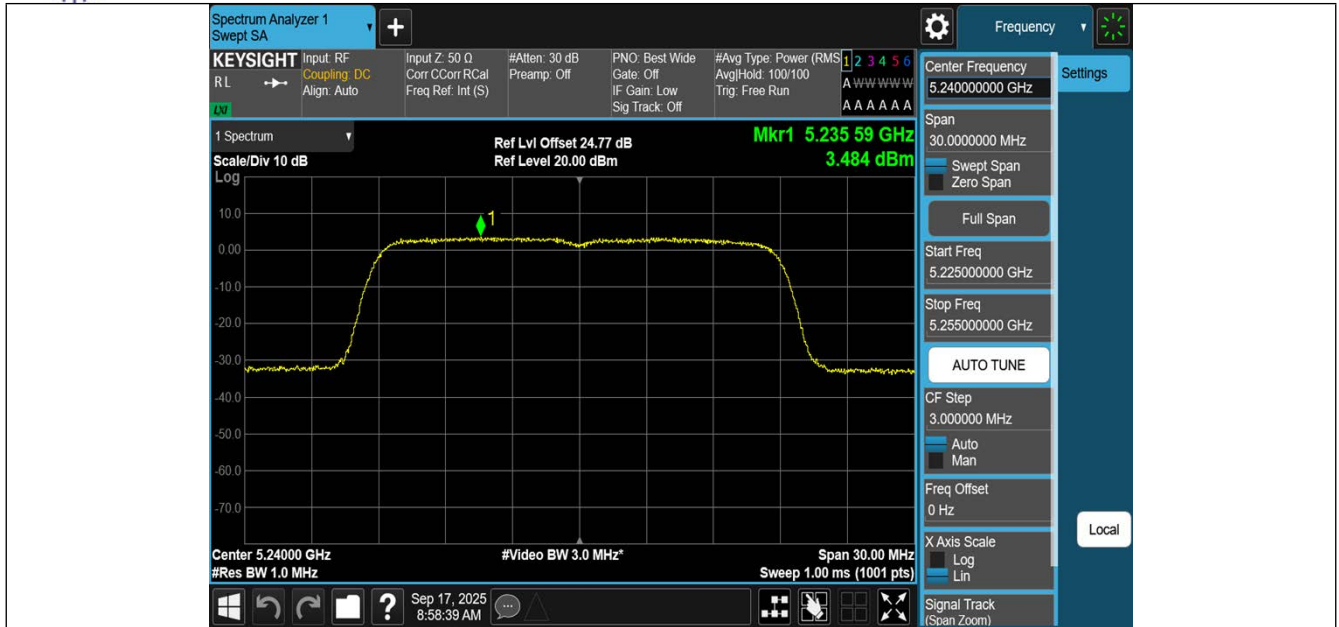
11N20MIMO-Ant2-5180-PASS



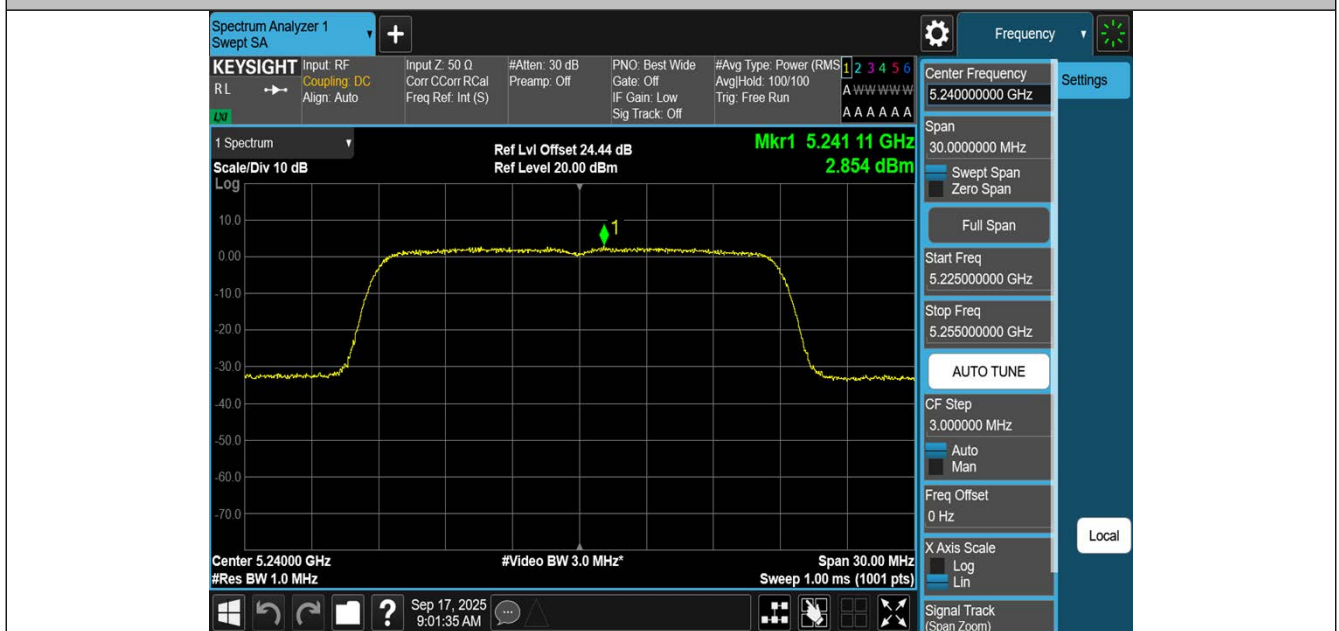
11N20MIMO-Ant1-5200-PASS



11N20MIMO-Ant2-5200-PASS



11N20MIMO-Ant1-5240-PASS



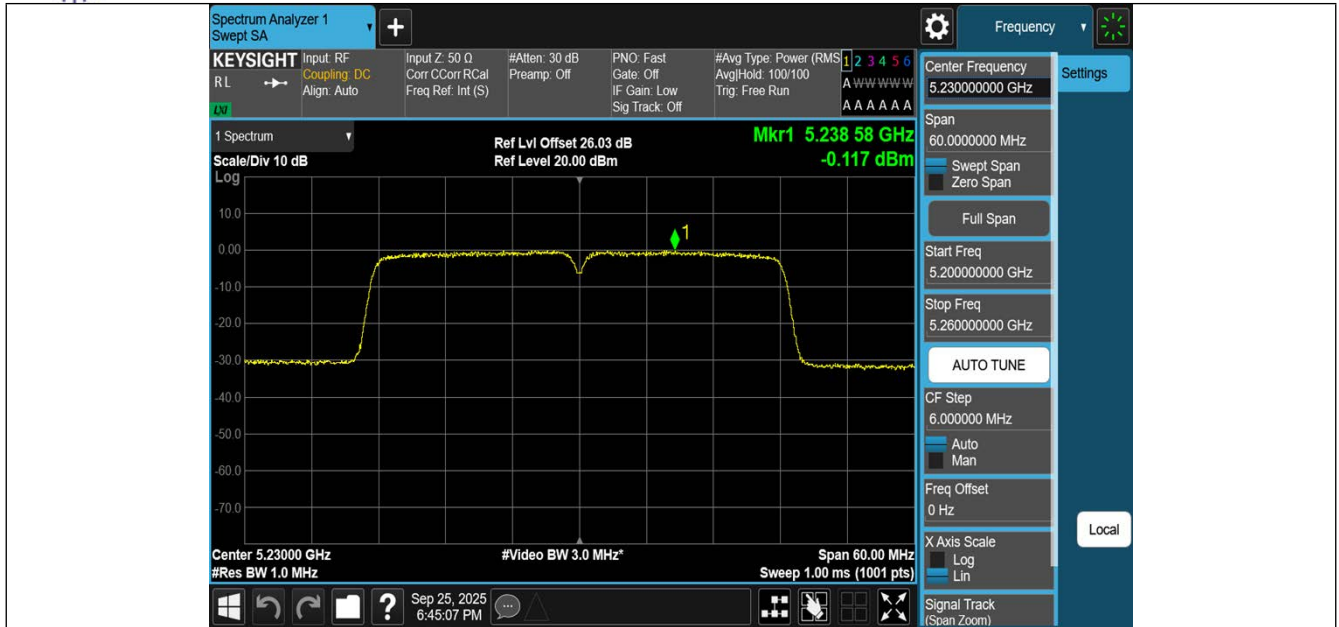
11N20MIMO-Ant2-5240-PASS



11N40MIMO-Ant1-5190-PASS



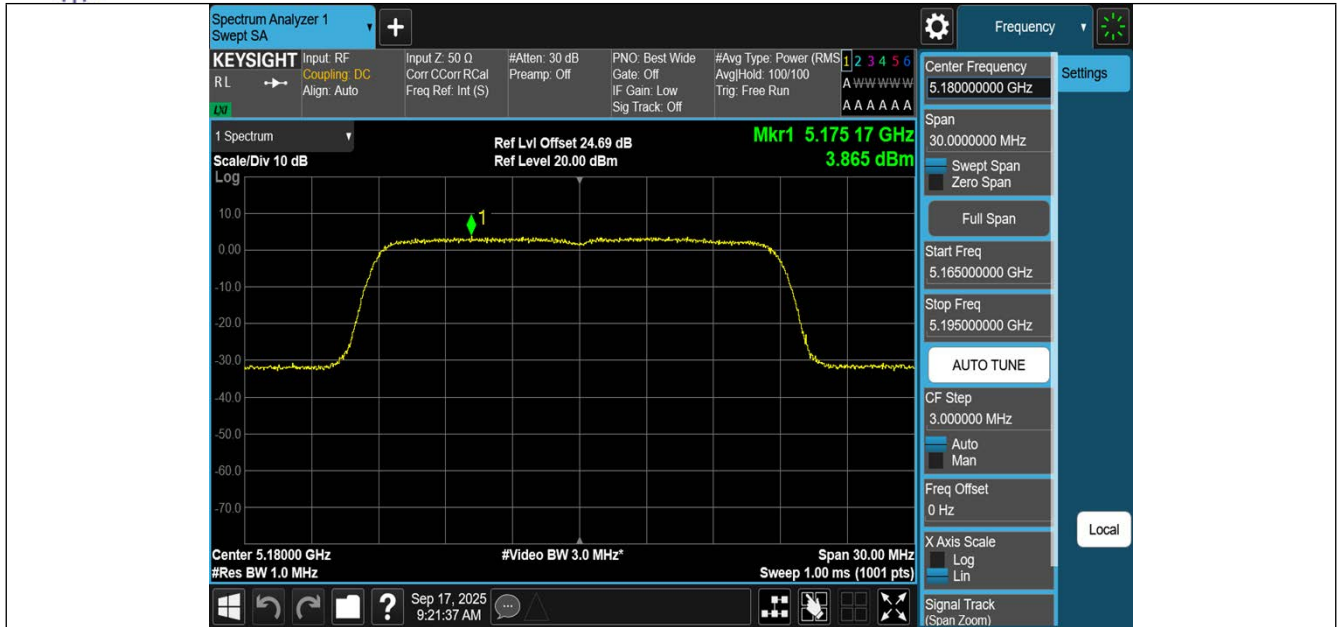
11N40MIMO-Ant2-5190-PASS



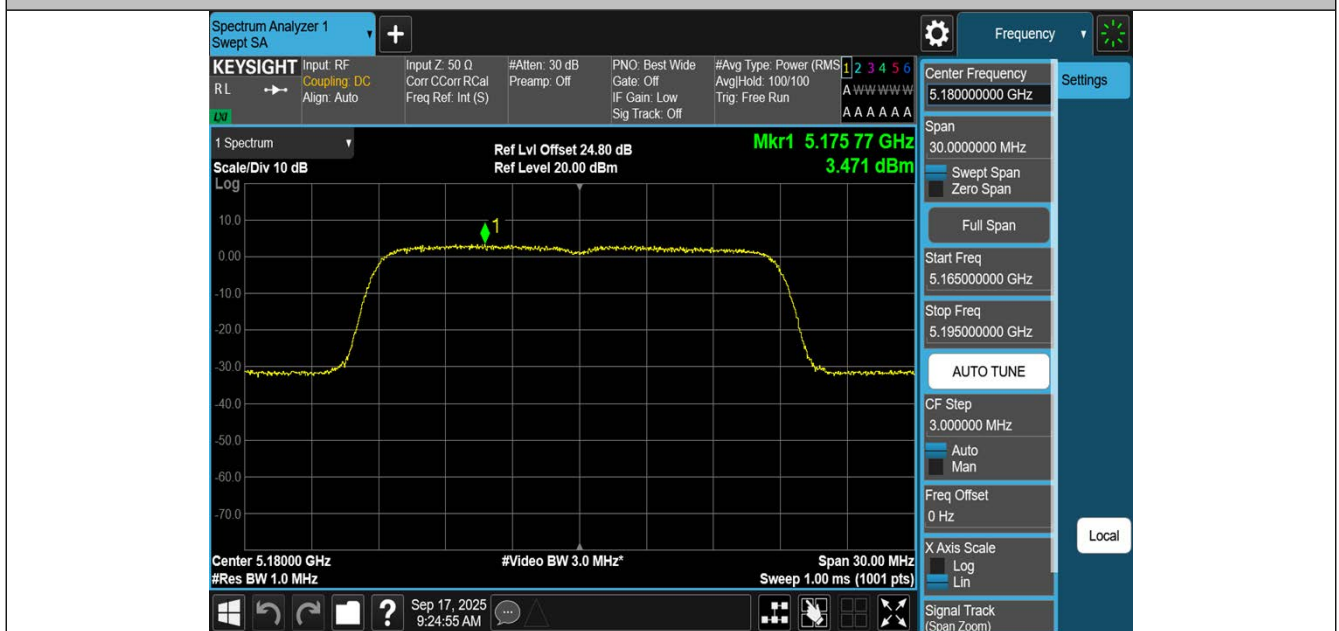
11N40MIMO-Ant1-5230-PASS



11N40MIMO-Ant2-5230-PASS



11AC20MIMO-Ant1-5180-PASS



11AC20MIMO-Ant2-5180-PASS



11AC20MIMO-Ant1-5200-PASS



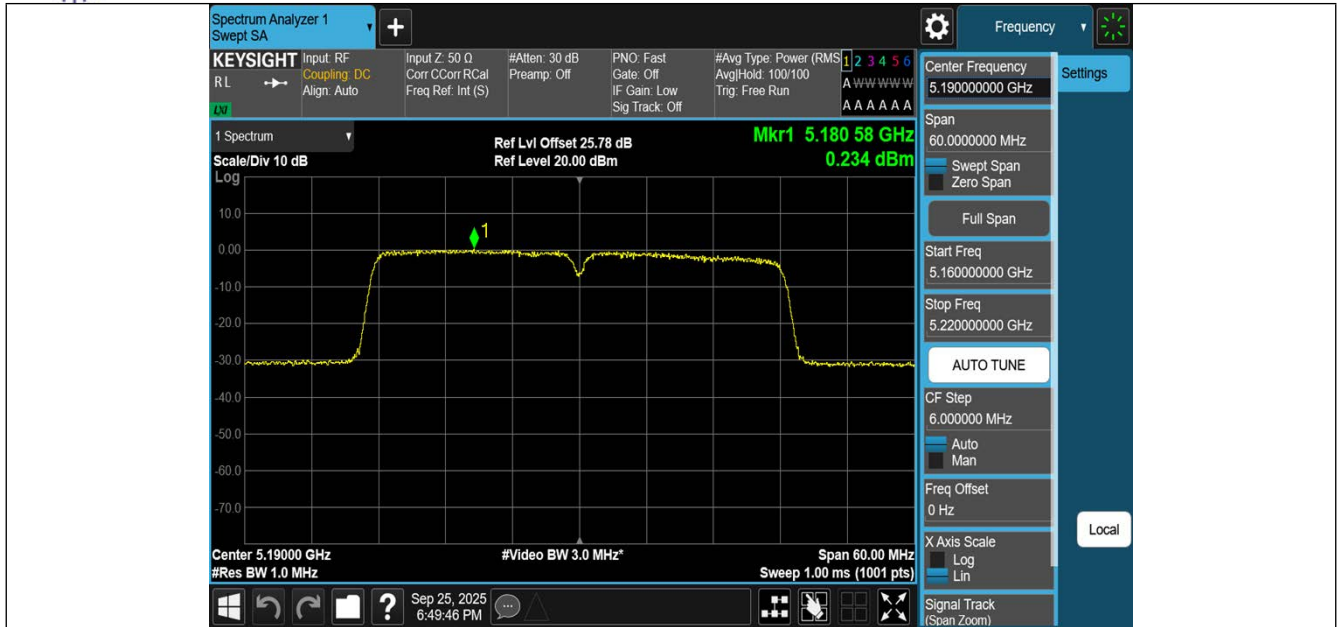
11AC20MIMO-Ant2-5200-PASS



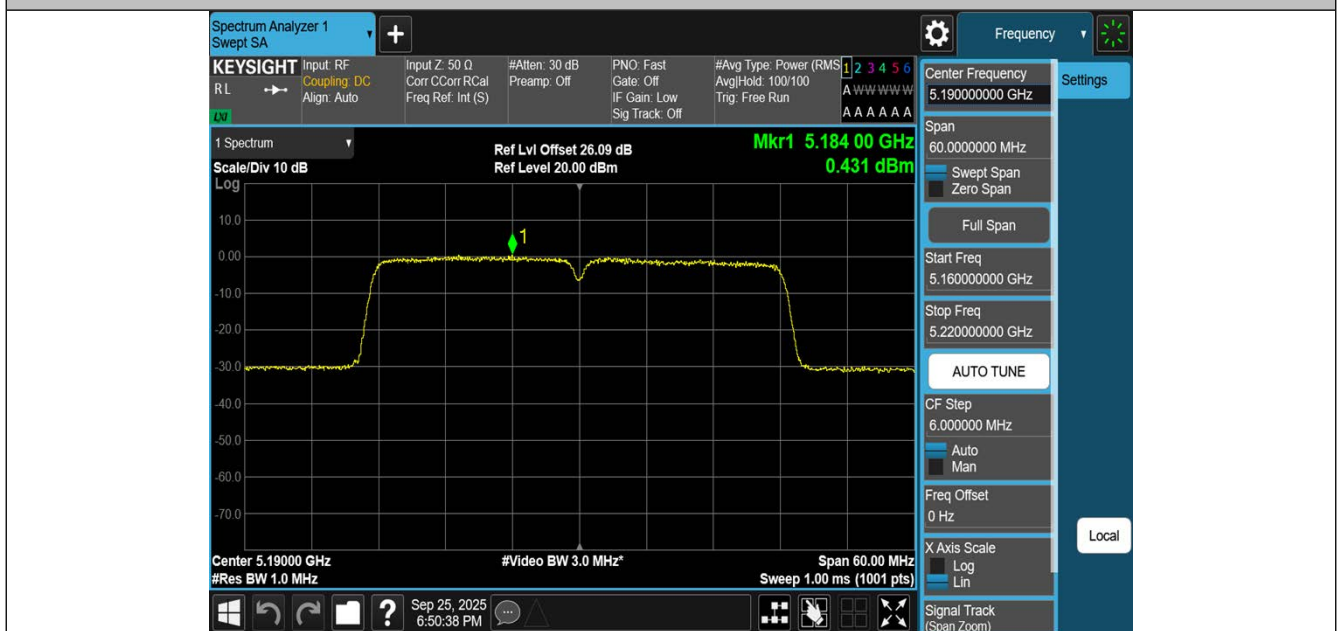
11AC20MIMO-Ant1-5240-PASS



11AC20MIMO-Ant2-5240-PASS



11AC40MIMO-Ant1-5190-PASS



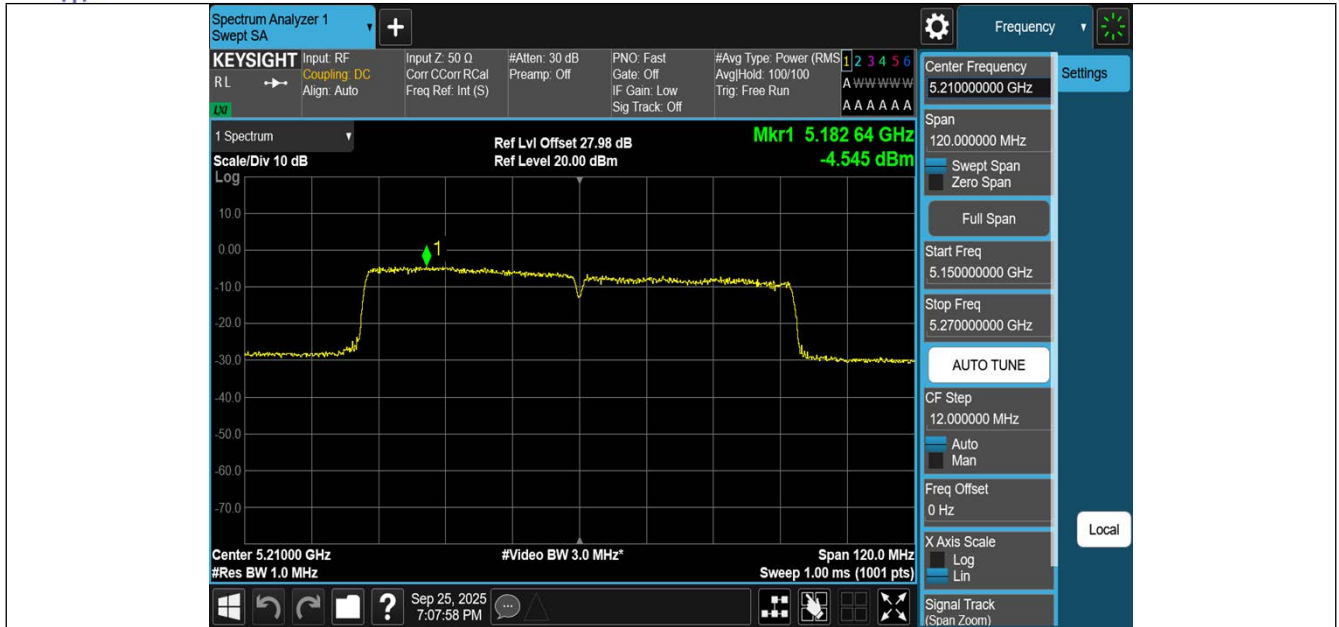
11AC40MIMO-Ant2-5190-PASS



11AC40MIMO-Ant1-5230-PASS



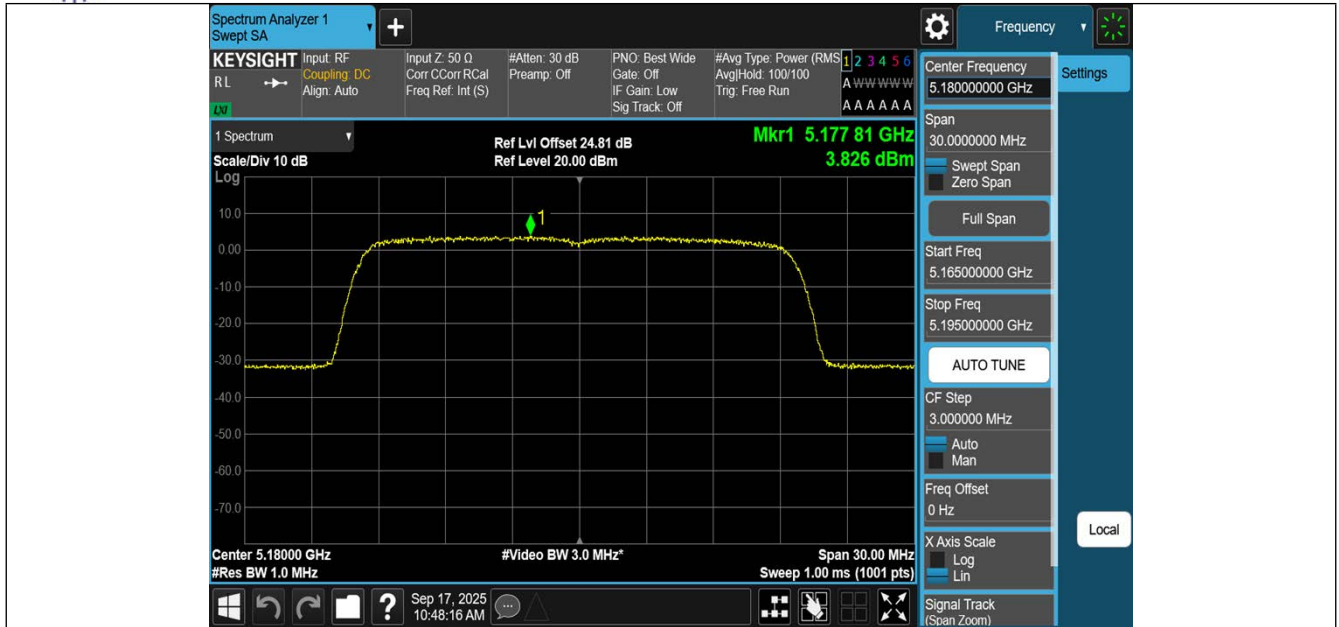
11AC40MIMO-Ant2-5230-PASS



11AC80MIMO-Ant1-5210-PASS



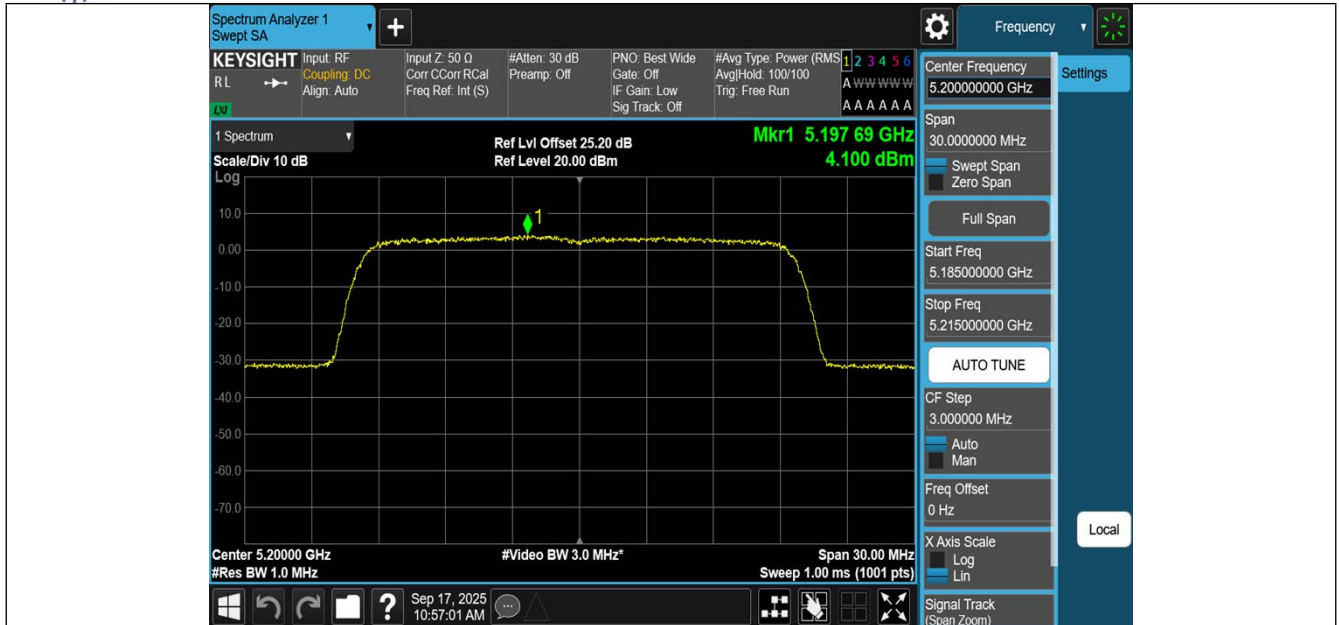
11AC80MIMO-Ant2-5210-PASS



11AX20MIMO-Ant1-5180-PASS



11AX20MIMO-Ant2-5180-PASS



11AX20MIMO-Ant1-5200-PASS



11AX20MIMO-Ant2-5200-PASS



11AX20MIMO-Ant1-5240-PASS



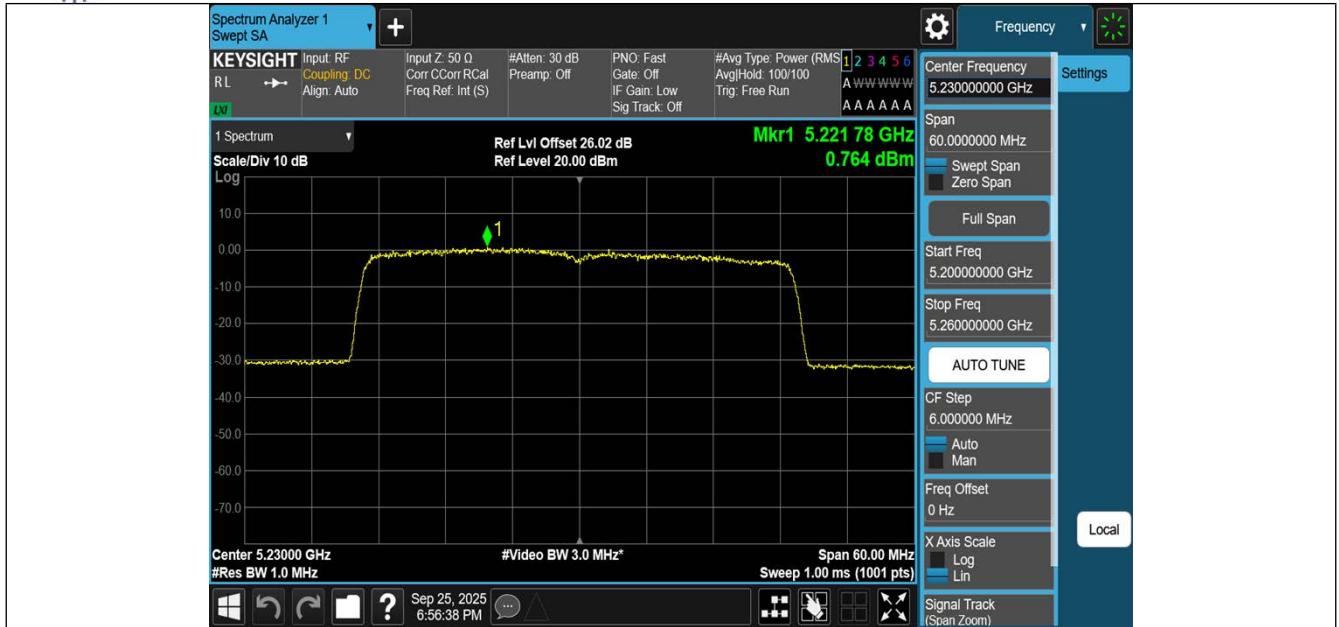
11AX20MIMO-Ant2-5240-PASS



11AX40MIMO-Ant1-5190-PASS



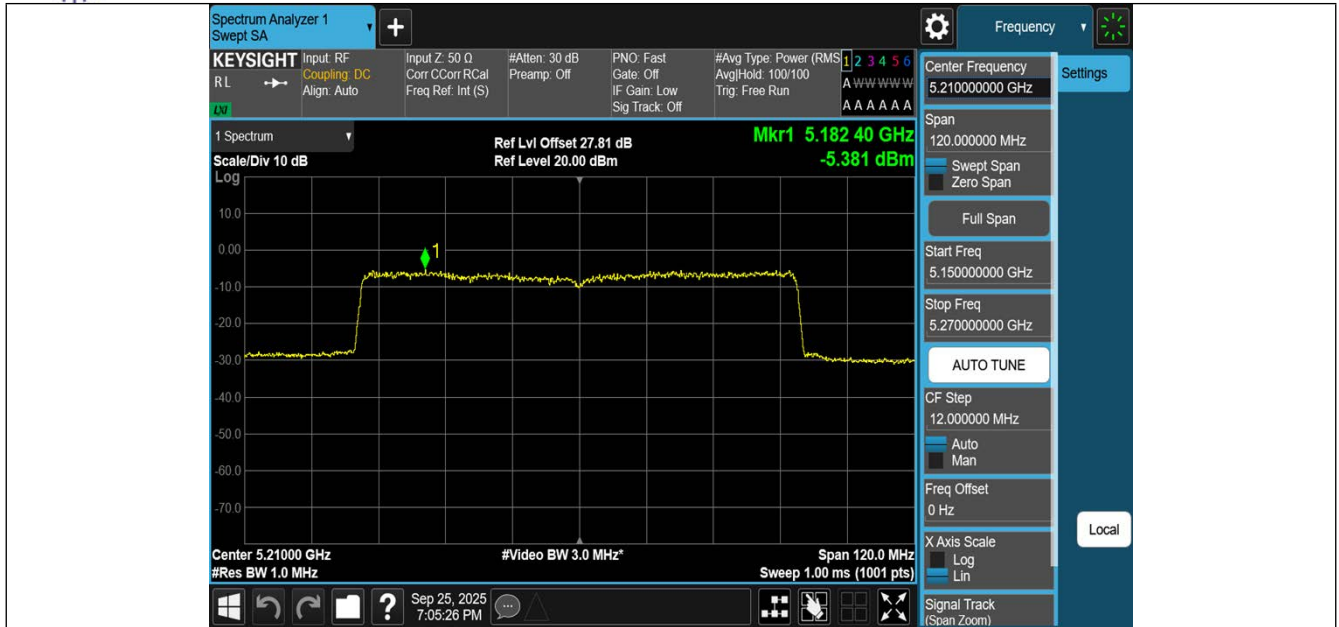
11AX40MIMO-Ant2-5190-PASS



11AX40MIMO-Ant1-5230-PASS



11AX40MIMO-Ant2-5230-PASS



11AX80MIMO-Ant1-5210-PASS



11AX80MIMO-Ant2-5210-PASS

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technical Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

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(END OF REPORT)