3.4.5 The Result

No Beamforming

Test Mode	Antenna	Frequency[MHz]	TPC Mode	Result [dBm]	Limit [dBm]	Verdict
11A-CDD	Ant0	5180	NA	21.38	≤29.50	PASS
	Ant1	5180	NA	21.99	≤29.50	PASS
	total	5180	NA	24.71	≤29.50	PASS
	Ant0	5200	NA	22.17	≤29.50	PASS
	Ant1	5200	NA	22.42	≤29.50	PASS
	total	5200	NA	25.31	≤29.50	PASS
	Ant0	5240	NA	22.1	≤29.50	PASS
	Ant1	5240	NA	22.33	≤29.50	PASS
	total	5240	NA	25.23	≤29.50	PASS
	Ant0	5745	NA	26.22	≤29.50	PASS
	Ant1	5745	NA	25.56	≤29.50	PASS
	total	5745	NA	28.91	≤29.50	PASS
	Ant0	5785	NA	25.47	≤29.50	PASS
	Ant1	5785	NA	25.10	≤29.50	PASS
	total	5785	NA	28.30	≤29.50	PASS
	Ant0	5825	NA	25.40	≤29.50	PASS
	Ant1	5825	NA	25.75	≤29.50	PASS
	total	5825	NA	28.59	≤29.50	PASS
11AX20MIMO	Ant0	5180	NA	23.38	≤29.50	PASS
	Ant1	5180	NA	22.46	≤29.50	PASS
	total	5180	NA	25.95	≤29.50	PASS
	Ant0	5200	NA	23.5	≤29.50	PASS
	Ant1	5200	NA	24.03	≤29.50	PASS
	total	5200	NA	26.78	≤29.50	PASS
	Ant0	5240	NA	23.83	≤29.50	PASS
	Ant1	5240	NA	23.85	≤29.50	PASS
	total	5240	NA	26.85	≤29.50	PASS
	Ant0	5745	NA	25.48	≤29.50	PASS
	Ant1	5745	NA	24.95	≤29.50	PASS
	total	5745	NA	28.23	≤29.50	PASS
	Ant0	5785	NA	25.68	≤29.50	PASS
	Ant1	5785	NA	25.31	≤29.50	PASS
	total	5785	NA	28.51	≤29.50	PASS
	Ant0	5825	NA	24.64	≤29.50	PASS
	Ant1	5825	NA	24.82	≤29.50	PASS
	total	5825	NA	27.74	≤29.50	PASS
11AX40MIMO	Ant0	5190	NA	22.09	≤29.50	PASS
	Ant1	5190	NA	22.22	≤29.50	PASS

	total	5190	NA	25.17	≤29.50	PASS
	Ant0	5230	NA	25.69	≤29.50	PASS
	Ant1	5230	NA	25.7	≤29.50	PASS
	total	5230	NA	28.71	≤29.50	PASS
	Ant0	5755	NA	25.40	≤29.50	PASS
	Ant1	5755	NA	24.93	≤29.50	PASS
	total	5755	NA	28.18	≤29.50	PASS
	Ant0	5795	NA	26.20	≤29.50	PASS
	Ant1	5795	NA	25.77	≤29.50	PASS
	total	5795	NA	29.00	≤29.50	PASS
11AX80MIMO	Ant0	5210	NA	22.28	≤29.50	PASS
	Ant1	5210	NA	22.48	≤29.50	PASS
	total	5210	NA	25.39	≤29.50	PASS
	Ant0	5775	NA	24.22	≤29.50	PASS
	Ant1	5775	NA	23.89	≤29.50	PASS
	total	5775	NA	27.07	≤29.50	PASS
11BE20MIMO	Ant0	5180	NA	22.47	≤29.50	PASS
	Ant1	5180	NA	22.35	≤29.50	PASS
	total	5180	NA	25.42	≤29.50	PASS
	Ant0	5200	NA	23.46	≤29.50	PASS
	Ant1	5200	NA	23.97	≤29.50	PASS
	total	5200	NA	26.73	≤29.50	PASS
	Ant0	5240	NA	23.75	≤29.50	PASS
	Ant1	5240	NA	23.62	≤29.50	PASS
	total	5240	NA	26.7	≤29.50	PASS
	Ant0	5745	NA	26.38	≤29.50	PASS
	Ant1	5745	NA	25.71	≤29.50	PASS
	total	5745	NA	**29.07**	≤29.50	PASS
	Ant0	5785	NA	25.48	≤29.50	PASS
	Ant1	5785	NA	25.08	≤29.50	PASS
	total	5785	NA	28.29	≤29.50	PASS
	Ant0	5825	NA	25.05	≤29.50	PASS
	Ant1	5825	NA	25.54	≤29.50	PASS
	total	5825	NA	28.31	≤29.50	PASS
11BE40MIMO	Ant0	5190	NA	22.91	≤29.50	PASS
	Ant1	5190	NA	22.39	≤29.50	PASS
	total	5190	NA	25.67	≤29.50	PASS
	Ant0	5230	NA	25.78	≤29.50	PASS
	Ant1	5230	NA	25.79	≤29.50	PASS
	total	5230	NA	**28.8**	≤29.50	PASS
	Ant0	5755	NA	25.47	≤29.50	PASS
	Ant1	5755	NA	25.00	≤29.50	PASS
	total	5755	NA	28.25	≤29.50	PASS

	Ant0	5795	NA	25.62	≤29.50	PASS
	Ant1	5795	NA	25.46	≤29.50	PASS
	total	5795	NA	28.55	≤29.50	PASS
11BE80MIMO	Ant0	5210	NA	21.18	≤29.50	PASS
	Ant1	5210	NA	20.81	≤29.50	PASS
	total	5210	NA	24.01	≤29.50	PASS
	Ant0	5775	NA	23.51	≤29.50	PASS
	Ant1	5775	NA	23.33	≤29.50	PASS
	total	5775	NA	26.43	≤29.50	PASS

Beamforming

Test Mode	Antenna	Frequency[MHz]	TPC Mode	Result [dBm]	Limit [dBm]	Verdict
11AX20MIMO	Ant0	5180	NA	22.3	≤29.50	PASS
	Ant1	5180	NA	22.82	≤29.50	PASS
	total	5180	NA	25.58	≤29.50	PASS
	Ant0	5200	NA	23.71	≤29.50	PASS
	Ant1	5200	NA	23.39	≤29.50	PASS
	total	5200	NA	26.56	≤29.50	PASS
	Ant0	5240	NA	23.6	≤29.50	PASS
	Ant1	5240	NA	23.13	≤29.50	PASS
	total	5240	NA	26.38	≤29.50	PASS
	Ant0	5745	NA	26.23	≤29.50	PASS
	Ant1	5745	NA	25.62	≤29.50	PASS
	total	5745	NA	28.95	≤29.50	PASS
	Ant0	5785	NA	25.67	≤29.50	PASS
	Ant1	5785	NA	24.88	≤29.50	PASS
	total	5785	NA	28.30	≤29.50	PASS
	Ant0	5825	NA	24.95	≤29.50	PASS
	Ant1	5825	NA	25.42	≤29.50	PASS
	total	5825	NA	28.20	≤29.50	PASS
11AX40MIMO	Ant0	5190	NA	22.07	≤29.50	PASS
	Ant1	5190	NA	22.41	≤29.50	PASS
	total	5190	NA	25.25	≤29.50	PASS
	Ant0	5230	NA	25.48	≤29.50	PASS
	Ant1	5230	NA	25.58	≤29.50	PASS
	total	5230	NA	28.54	≤29.50	PASS
	Ant0	5755	NA	25.42	≤29.50	PASS
	Ant1	5755	NA	24.88	≤29.50	PASS
	total	5755	NA	28.17	≤29.50	PASS

	Ant0	5795	NA	26.35	≤29.50	PASS
	Ant1	5795	NA	25.73	≤29.50	PASS
	total	5795	NA	29.06	≤29.50	PASS
11AX80MIMO	Ant0	5210	NA	21.91	≤29.50	PASS
	Ant1	5210	NA	22.3	≤29.50	PASS
	total	5210	NA	25.12	≤29.50	PASS
	Ant0	5775	NA	23.96	≤29.50	PASS
	Ant1	5775	NA	23.48	≤29.50	PASS
	total	5775	NA	26.74	≤29.50	PASS
11BE20MIMO	Ant0	5180	NA	22.98	≤29.50	PASS
	Ant1	5180	NA	22.33	≤29.50	PASS
	total	5180	NA	25.68	≤29.50	PASS
	Ant0	5200	NA	22.99	≤29.50	PASS
	Ant1	5200	NA	23.48	≤29.50	PASS
	total	5200	NA	26.25	≤29.50	PASS
	Ant0	5240	NA	23.32	≤29.50	PASS
	Ant1	5240	NA	23.31	≤29.50	PASS
	total	5240	NA	26.33	≤29.50	PASS
	Ant0	5745	NA	26.41	≤29.50	PASS
	Ant1	5745	NA	25.66	≤29.50	PASS
	total	5745	NA	29.06	≤29.50	PASS
	Ant0	5785	NA	25.21	≤29.50	PASS
	Ant1	5785	NA	24.76	≤29.50	PASS
	total	5785	NA	28.00	≤29.50	PASS
	Ant0	5825	NA	25.06	≤29.50	PASS
	Ant1	5825	NA	25.72	≤29.50	PASS
	total	5825	NA	28.41	≤29.50	PASS
11BE40MIMO	Ant0	5190	NA	23.21	≤29.50	PASS
	Ant1	5190	NA	22.37	≤29.50	PASS
	total	5190	NA	25.82	≤29.50	PASS
	Ant0	5230	NA	25.73	≤29.50	PASS
	Ant1	5230	NA	25.81	≤29.50	PASS
	total	5230	NA	28.78	≤29.50	PASS
	Ant0	5755	NA	25.34	≤29.50	PASS
	Ant1	5755	NA	25.04	≤29.50	PASS
	total	5755	NA	28.20	≤29.50	PASS
	Ant0	5795	NA	25.69	≤29.50	PASS
	Ant1	5795	NA	25.53	≤29.50	PASS
	total	5795	NA	28.62	≤29.50	PASS
11BE80MIMO	Ant0	5210	NA	21.48	≤29.50	PASS
	Ant1	5210	NA	20.72	≤29.50	PASS
	total	5210	NA	24.13	≤29.50	PASS
	Ant0	5775	NA	23.57	≤29.50	PASS

	Ant1	5775	NA	23.50	≤29.50	PASS
	total	5775	NA	26.55	≤29.50	PASS

Note: The Duty Cycle Factor is compensated in the test system

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:

1. 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.
2. 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).

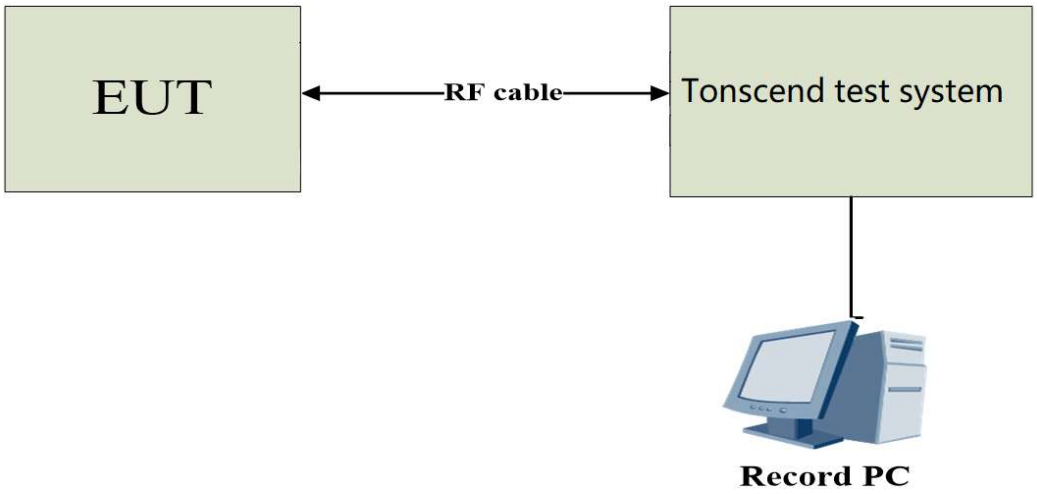
3.5.2 Test Procedure

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 tonscend 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); = 500kHz (Band4)
VBW	≥3 x RBW
Frequency span	2 x Nominal Channel Bandwidth
Detector Mode	RMS
Trace Mode	Max Hold
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-CDD	Ant0	5180	11.79	≤17.00	PASS
	Ant1	5180	12.56	≤17.00	PASS
	total	5180	15.20	≤16.50	PASS
	Ant0	5200	12.85	≤17.00	PASS
	Ant1	5200	13.46	≤17.00	PASS
	total	5200	16.18	≤16.50	PASS
	Ant0	5240	12.84	≤17.00	PASS
	Ant1	5240	13.61	≤17.00	PASS
	total	5240	16.25	≤16.50	PASS
	Ant0	5745	13.28	≤30.00	PASS
	Ant1	5745	13.41	≤30.00	PASS
	total	5745	16.36	≤29.50	PASS
	Ant0	5785	12.61	≤30.00	PASS
	Ant1	5785	12.92	≤30.00	PASS
	total	5785	15.78	≤29.50	PASS
	Ant0	5825	12.71	≤30.00	PASS
	Ant1	5825	13.10	≤30.00	PASS
	total	5825	15.92	≤29.50	PASS
11AX20MIMO	Ant0	5180	12.75	≤17.00	PASS
	Ant1	5180	11.67	≤17.00	PASS
	total	5180	15.25	≤16.50	PASS
	Ant0	5200	13.18	≤17.00	PASS
	Ant1	5200	13.64	≤17.00	PASS
	total	5200	16.43	≤16.50	PASS
	Ant0	5240	13.31	≤17.00	PASS
	Ant1	5240	13.60	≤17.00	PASS
	total	5240	16.47	≤16.50	PASS
	Ant0	5745	13.58	≤30.00	PASS
	Ant1	5745	13.45	≤30.00	PASS
	total	5745	16.53	≤29.50	PASS
	Ant0	5785	12.52	≤30.00	PASS
	Ant1	5785	13.01	≤30.00	PASS
	total	5785	15.78	≤29.50	PASS
	Ant0	5825	12.81	≤30.00	PASS
	Ant1	5825	13.17	≤30.00	PASS
	total	5825	16.00	≤29.50	PASS
11AX40MIMO	Ant0	5190	8.71	≤17.00	PASS
	Ant1	5190	9.19	≤17.00	PASS
	total	5190	11.97	≤16.50	PASS
	Ant0	5230	12.92	≤17.00	PASS
	Ant1	5230	12.26	≤17.00	PASS

	total	5230	15.61	≤16.50	PASS
	Ant0	5755	10.26	≤30.00	PASS
	Ant1	5755	9.38	≤30.00	PASS
	total	5755	12.85	≤29.50	PASS
	Ant0	5795	10.62	≤30.00	PASS
	Ant1	5795	10.95	≤30.00	PASS
	total	5795	13.80	≤29.50	PASS
11AX80MIMO	Ant0	5210	6.27	≤17.00	PASS
	Ant1	5210	6.32	≤17.00	PASS
	total	5210	9.31	≤16.50	PASS
	Ant0	5775	5.42	≤30.00	PASS
	Ant1	5775	5.94	≤30.00	PASS
	total	5775	8.70	≤29.50	PASS
11BE20MIMO	Ant0	5180	11.43	≤17.00	PASS
	Ant1	5180	11.74	≤17.00	PASS
	total	5180	14.60	≤16.50	PASS
	Ant0	5200	13.01	≤17.00	PASS
	Ant1	5200	13.79	≤17.00	PASS
	total	5200	16.43	≤16.50	PASS
	Ant0	5240	13.29	≤17.00	PASS
	Ant1	5240	13.18	≤17.00	PASS
	total	5240	16.25	≤16.50	PASS
	Ant0	5745	13.69	≤30.00	PASS
	Ant1	5745	13.54	≤30.00	PASS
	total	5745	16.63	≤29.50	PASS
	Ant0	5785	12.63	≤30.00	PASS
	Ant1	5785	12.99	≤30.00	PASS
	total	5785	15.82	≤29.50	PASS
	Ant0	5825	12.10	≤30.00	PASS
	Ant1	5825	13.29	≤30.00	PASS
	total	5825	15.75	≤29.50	PASS
11BE40MIMO	Ant0	5190	9.48	≤17.00	PASS
	Ant1	5190	9.40	≤17.00	PASS
	total	5190	12.45	≤16.50	PASS
	Ant0	5230	12.62	≤17.00	PASS
	Ant1	5230	12.82	≤17.00	PASS
	total	5230	15.73	≤16.50	PASS
	Ant0	5755	9.98	≤30.00	PASS
	Ant1	5755	10.00	≤30.00	PASS
	total	5755	13.00	≤29.50	PASS
	Ant0	5795	9.95	≤30.00	PASS
	Ant1	5795	10.27	≤30.00	PASS
	total	5795	13.12	≤29.50	PASS

11BE80MIMO	Ant0	5210	5.22	≤17.00	PASS
	Ant1	5210	4.49	≤17.00	PASS
	total	5210	7.88	≤16.50	PASS
	Ant0	5775	4.97	≤30.00	PASS
	Ant1	5775	4.92	≤30.00	PASS
	total	5775	7.96	≤29.50	PASS

Note: The Duty Cycle Factor is compensated in the test system

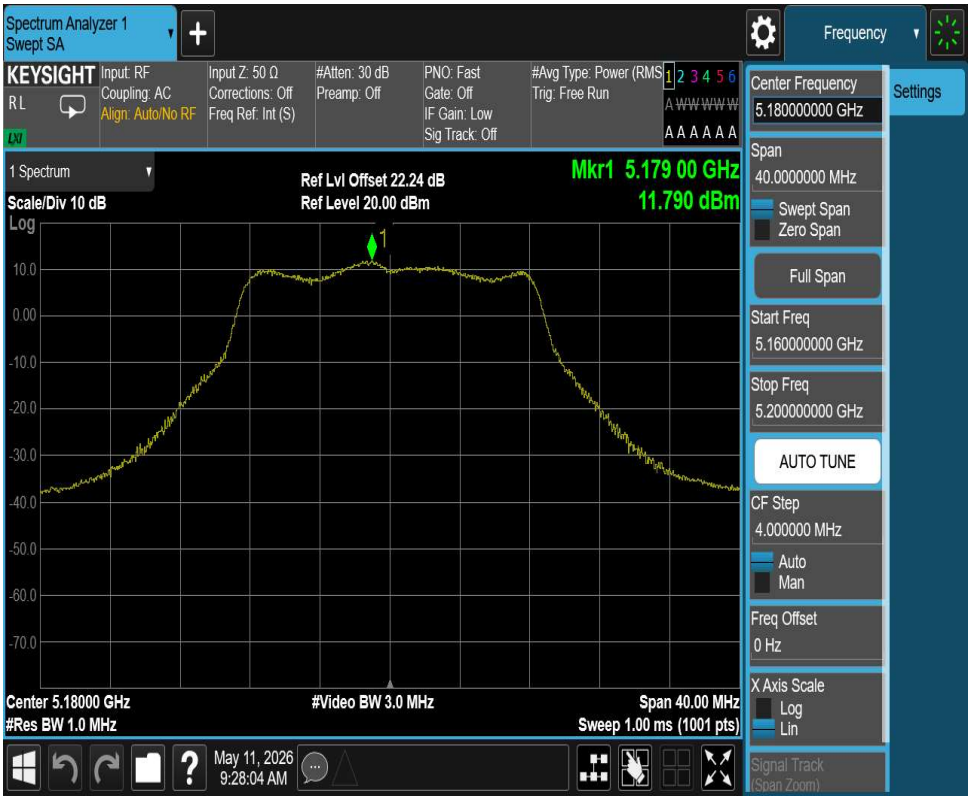
For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 300kHz and VBW at 1500kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add 10 log (500 kHz/300 kHz) to the measured result, i.e. 2.22 dB.

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).

Pre-scan TPC_H PSD and TPC_L PSD, worst case for TPC_H PSD was recorded.

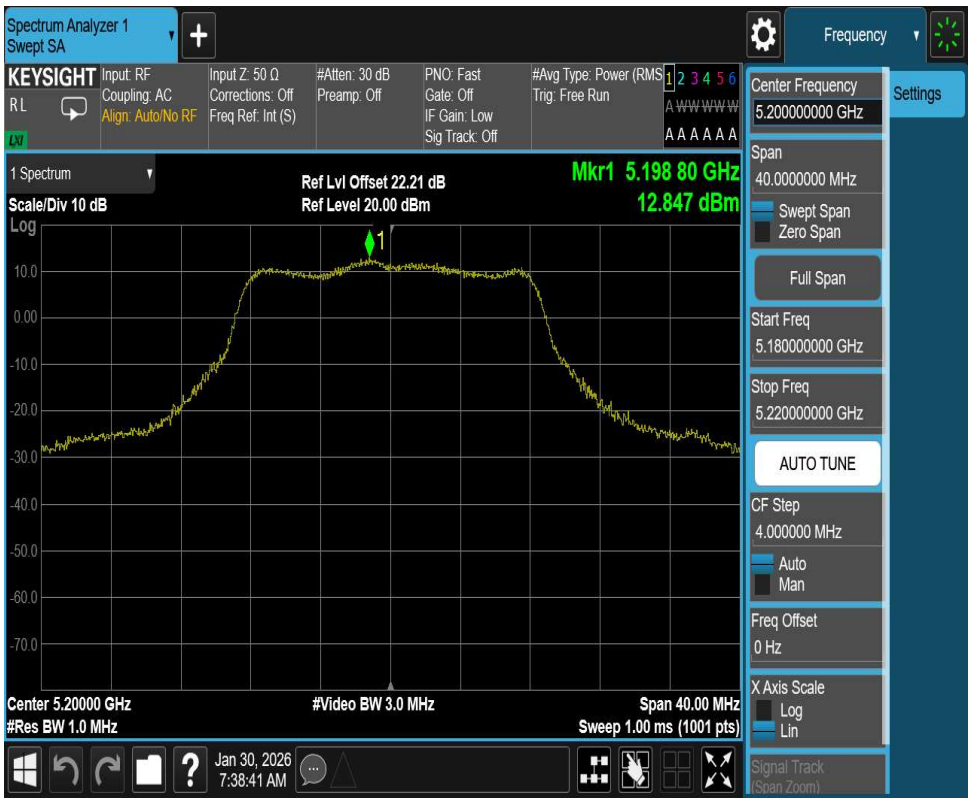
Beamforming conducted power less than no beamforming conducted power, so only no beamforming conducted power spectral density was recorded.

11A-CDD_Ant0_5180



11A-CDD_Ant1_5180

11A-CDD_Ant0_5200



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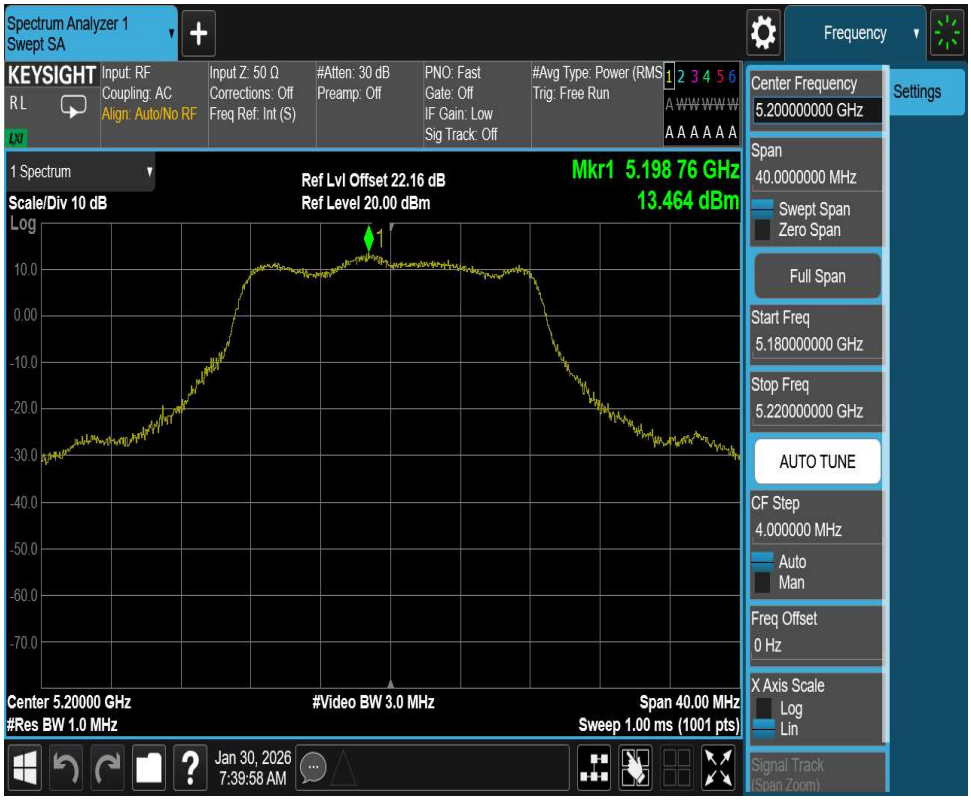

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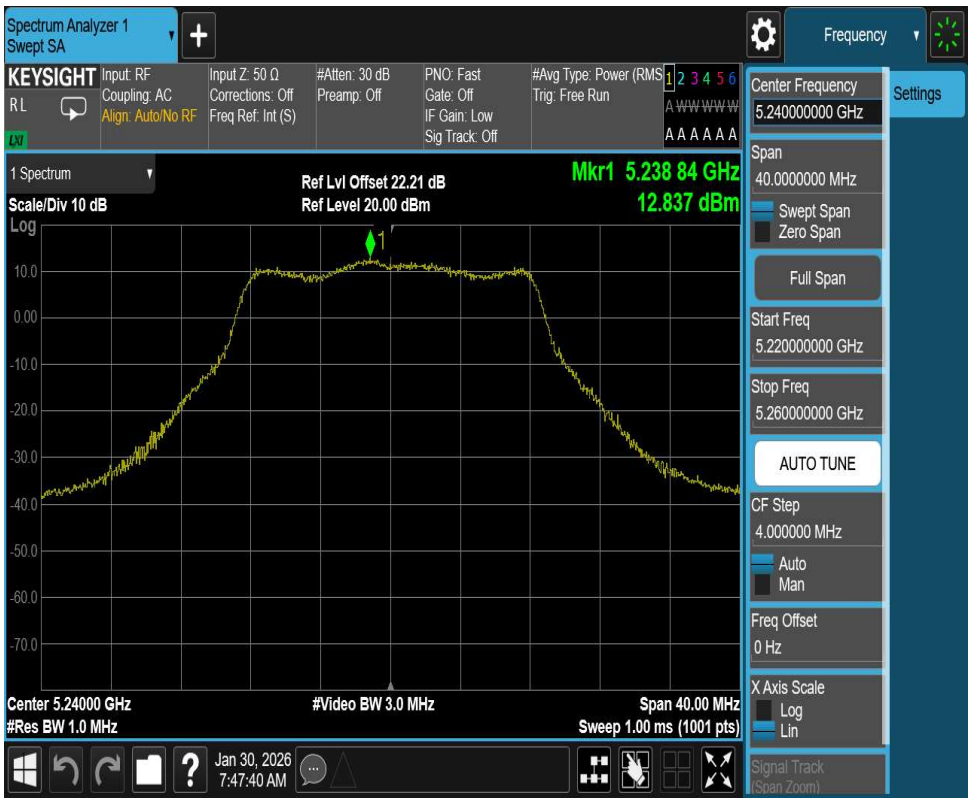

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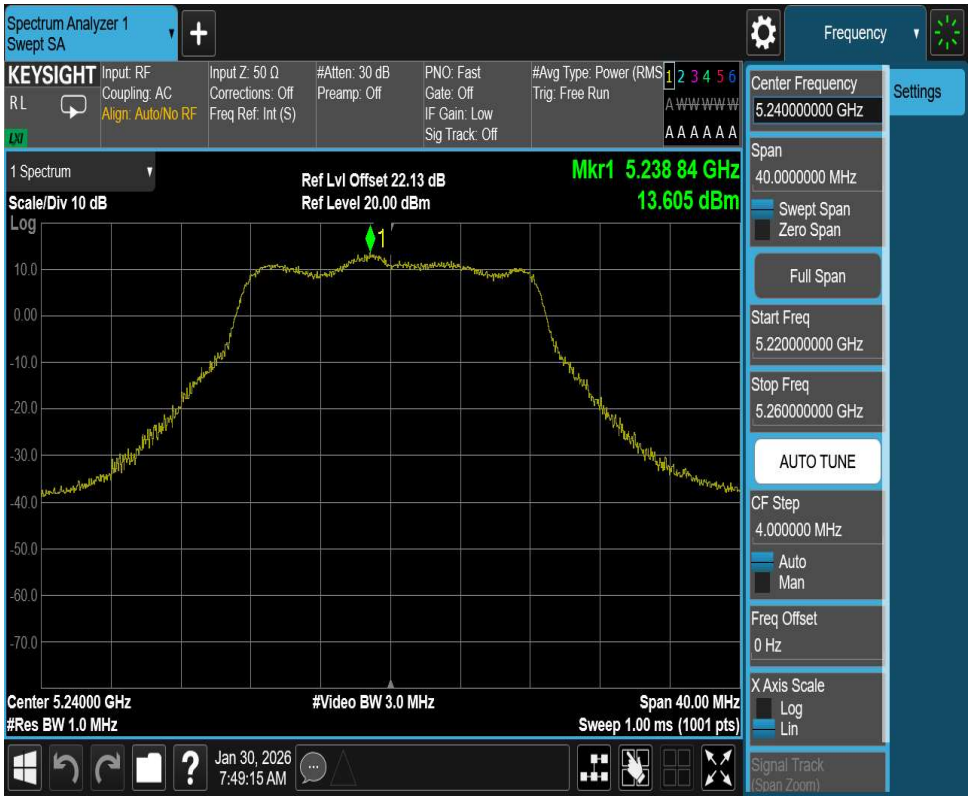
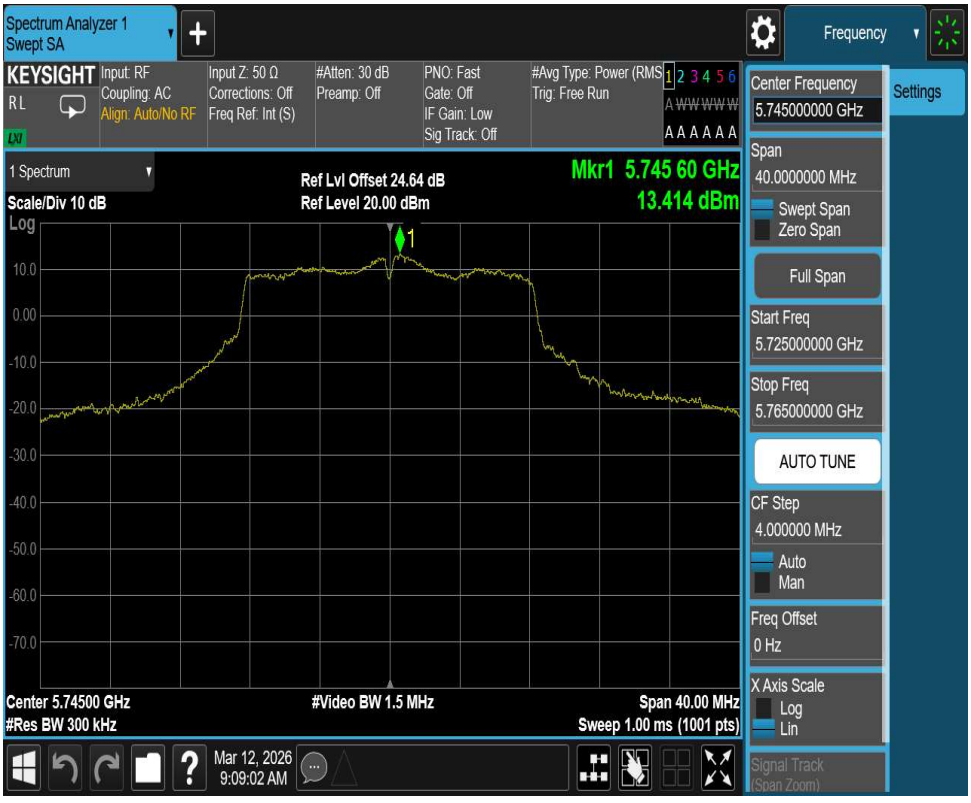


11A-CDD_Ant0_5745

11A-CDD_Ant1_5745



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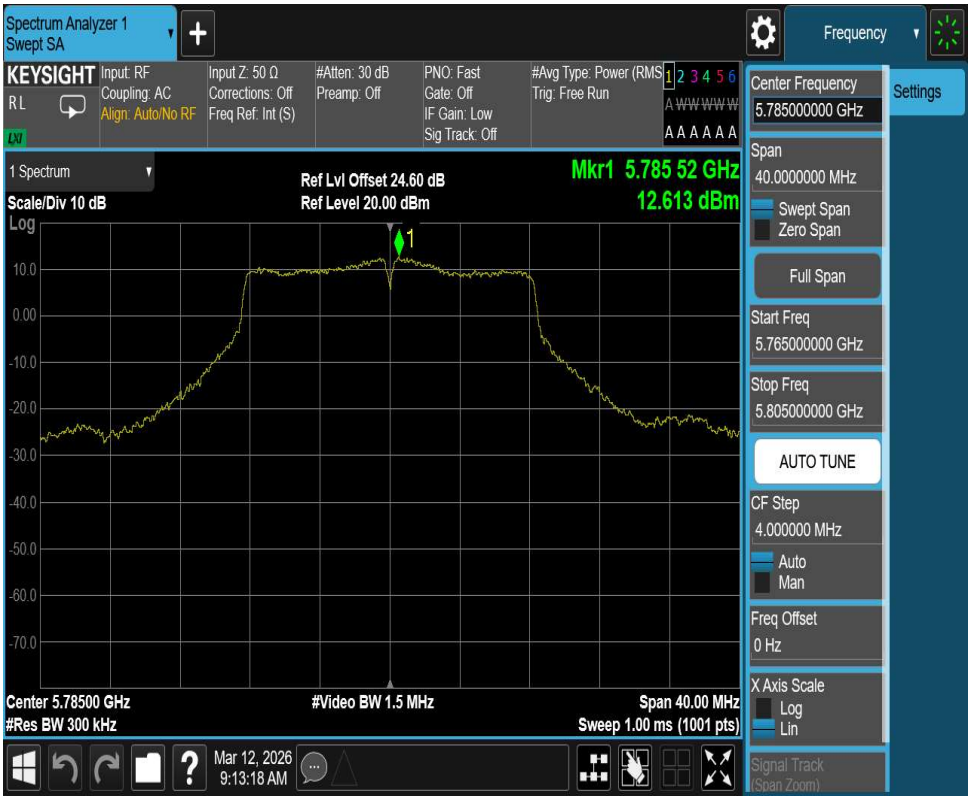

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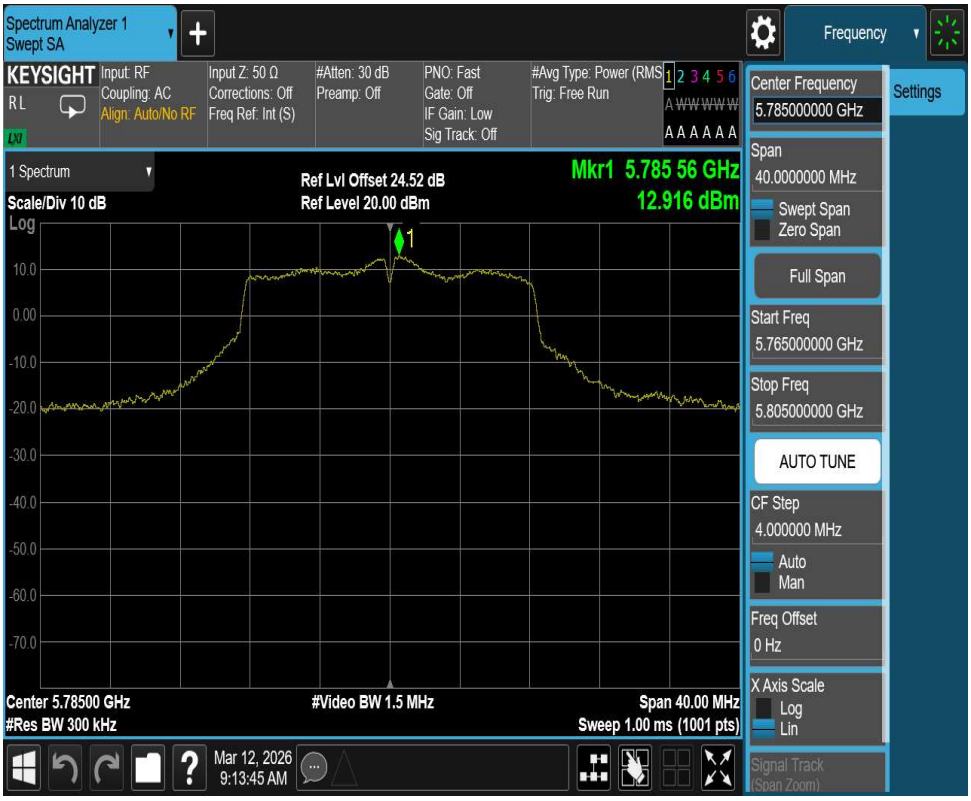

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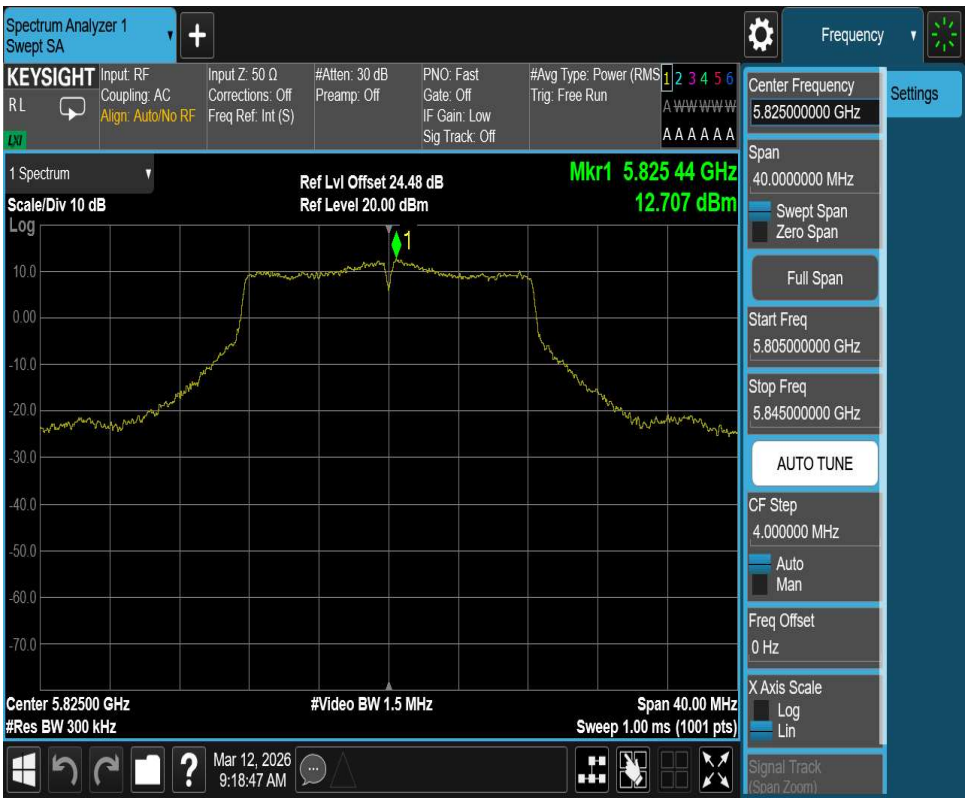

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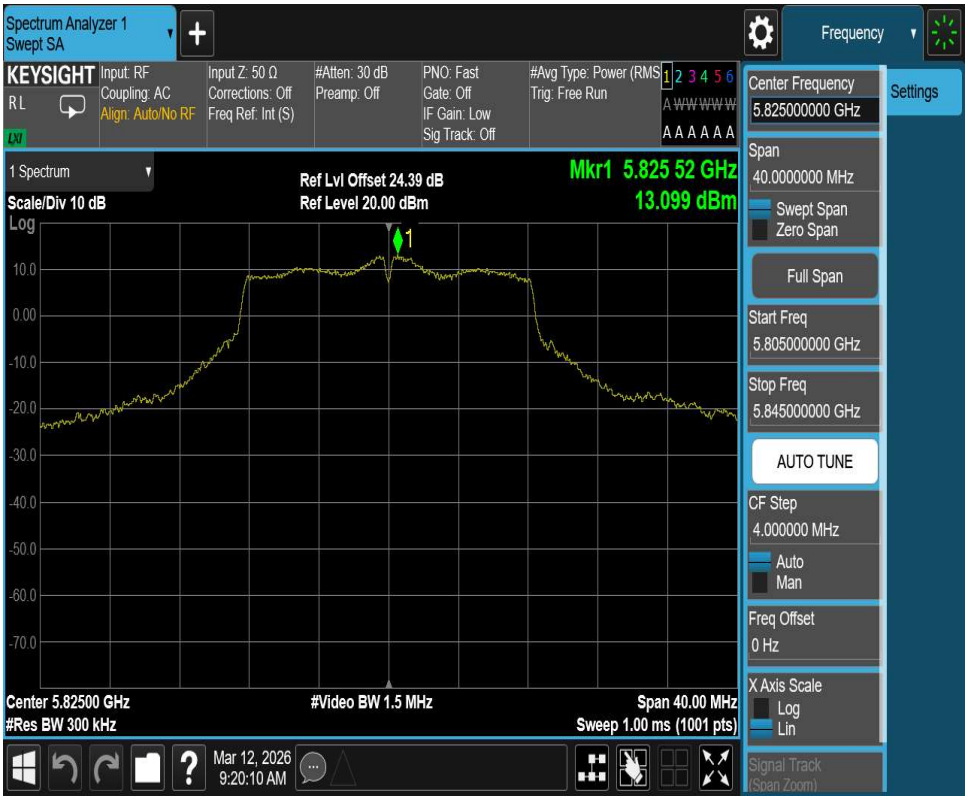
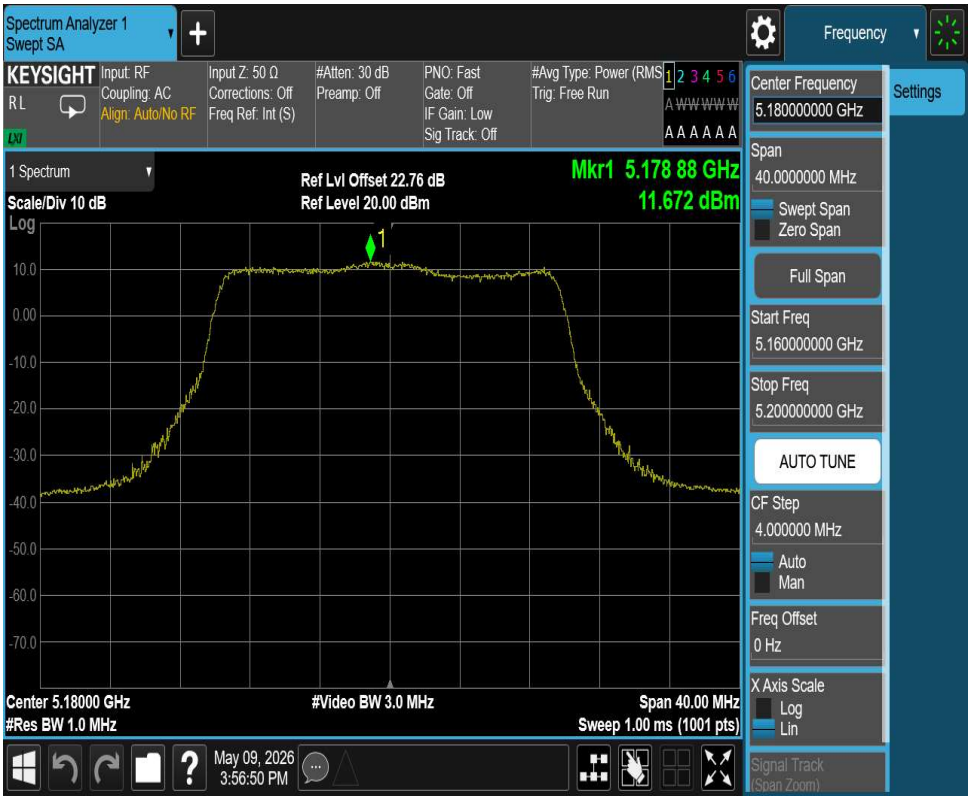


11AX20MIMO_Ant0_5180

11AX20MIMO_Ant1_5180



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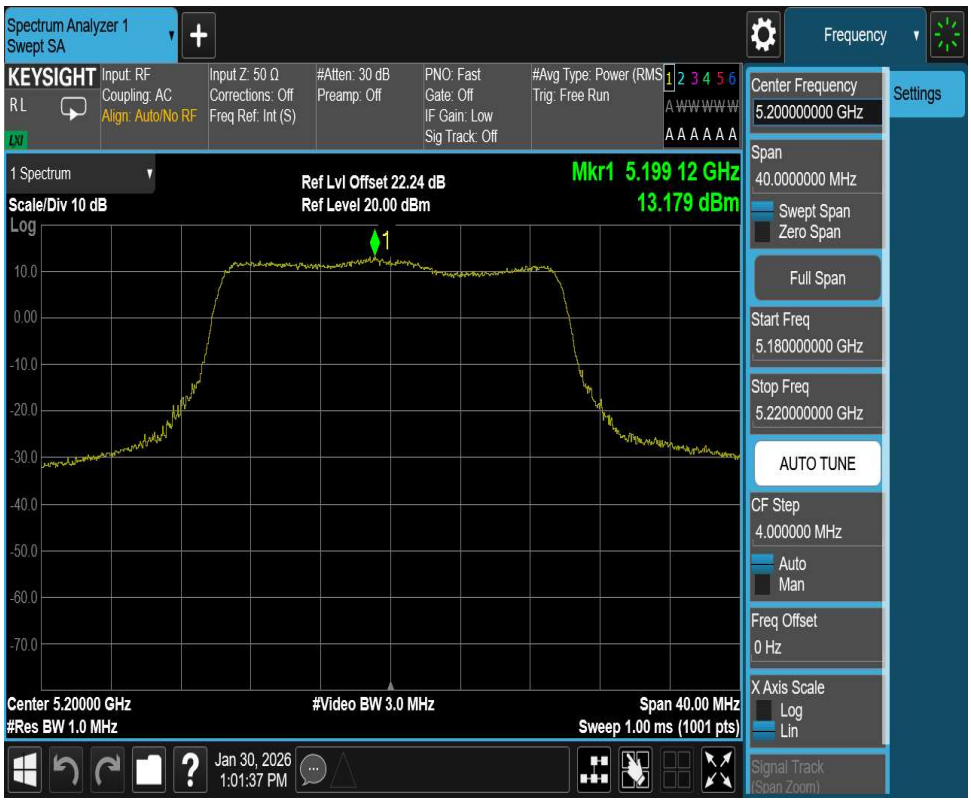

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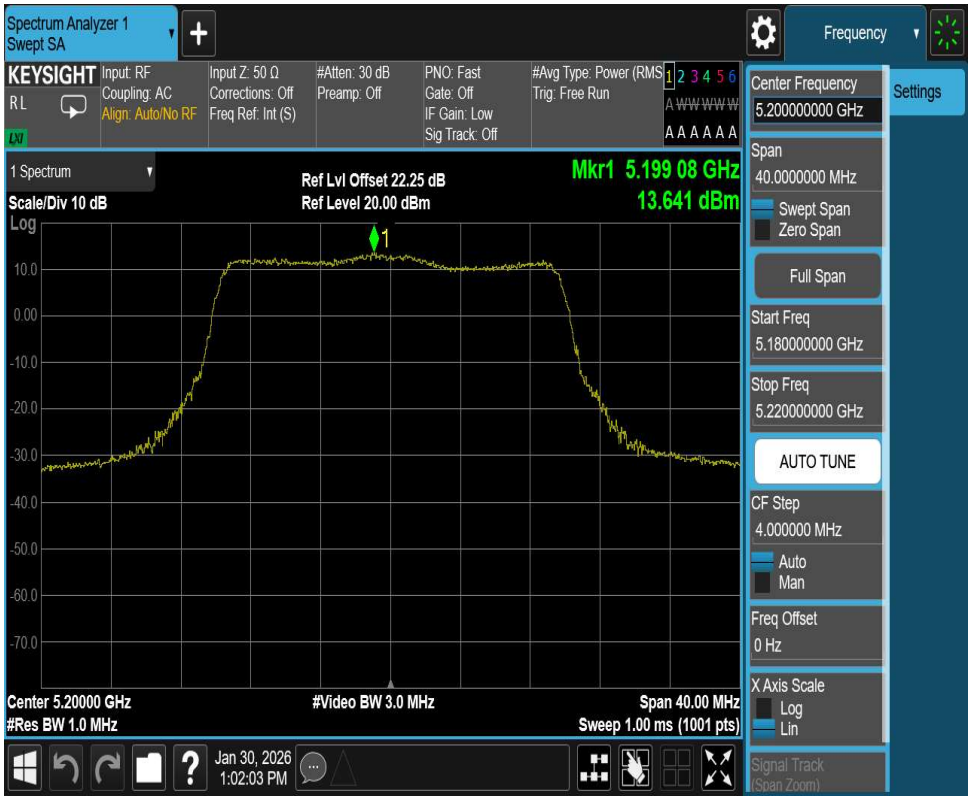
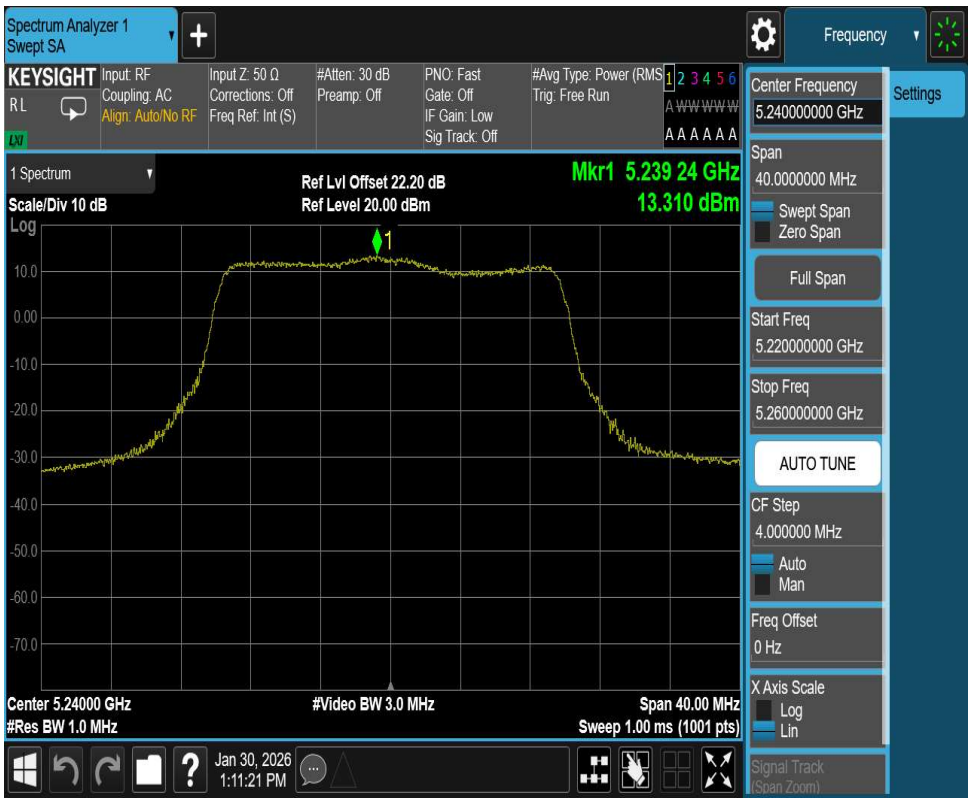


11AX20MIMO_Ant0_5240



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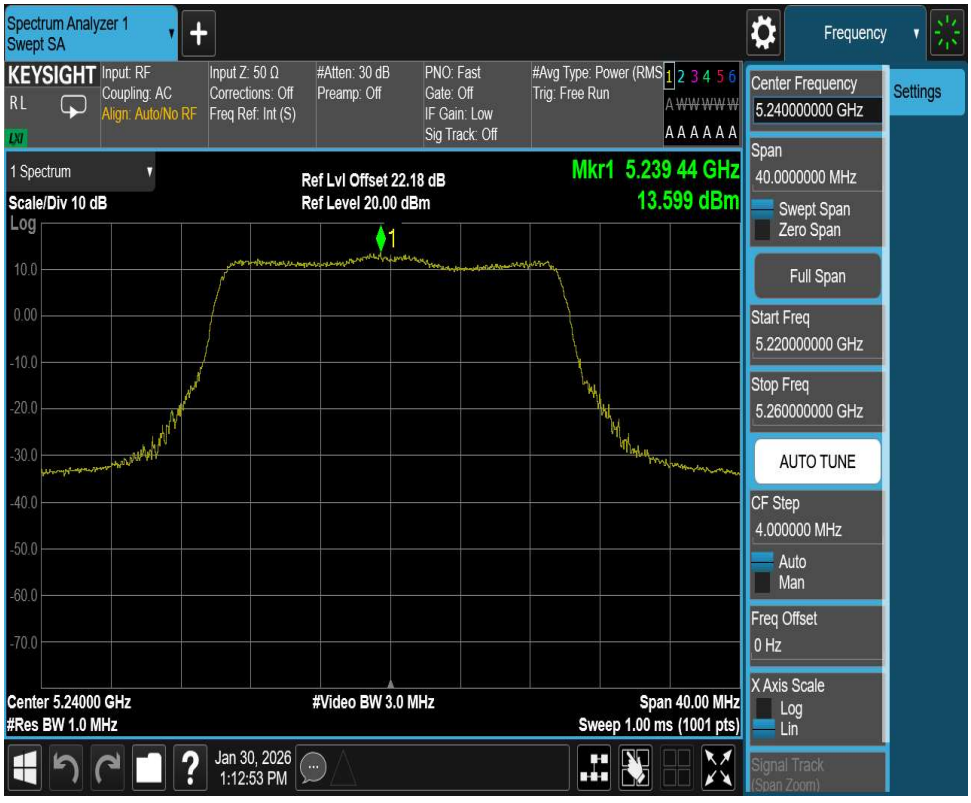

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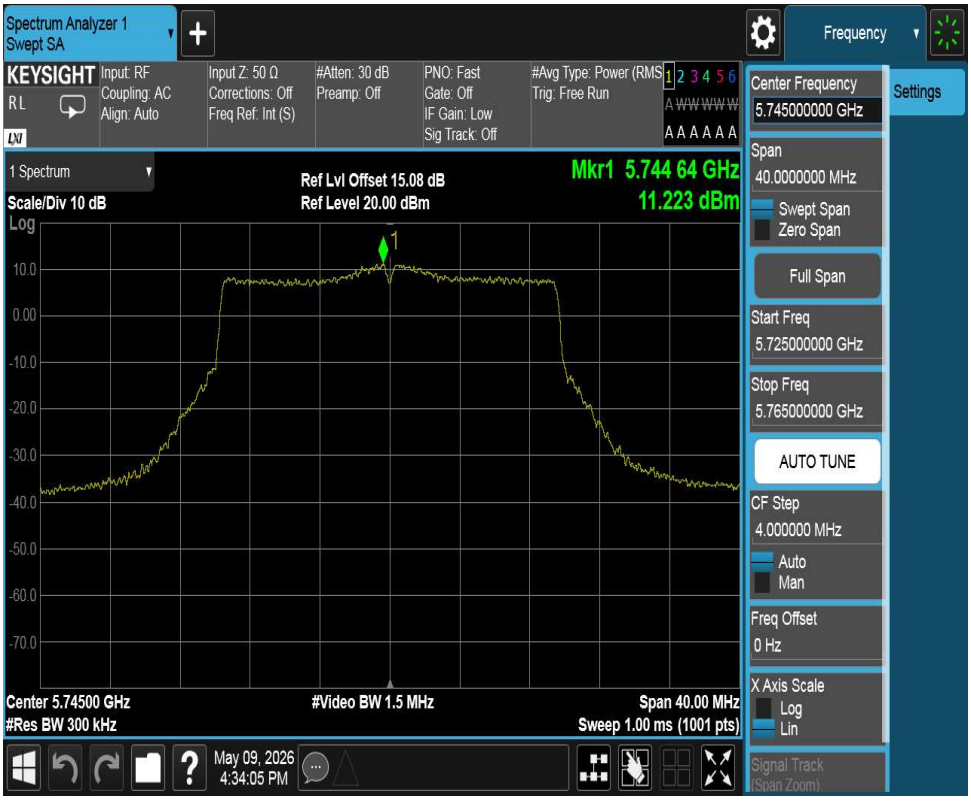

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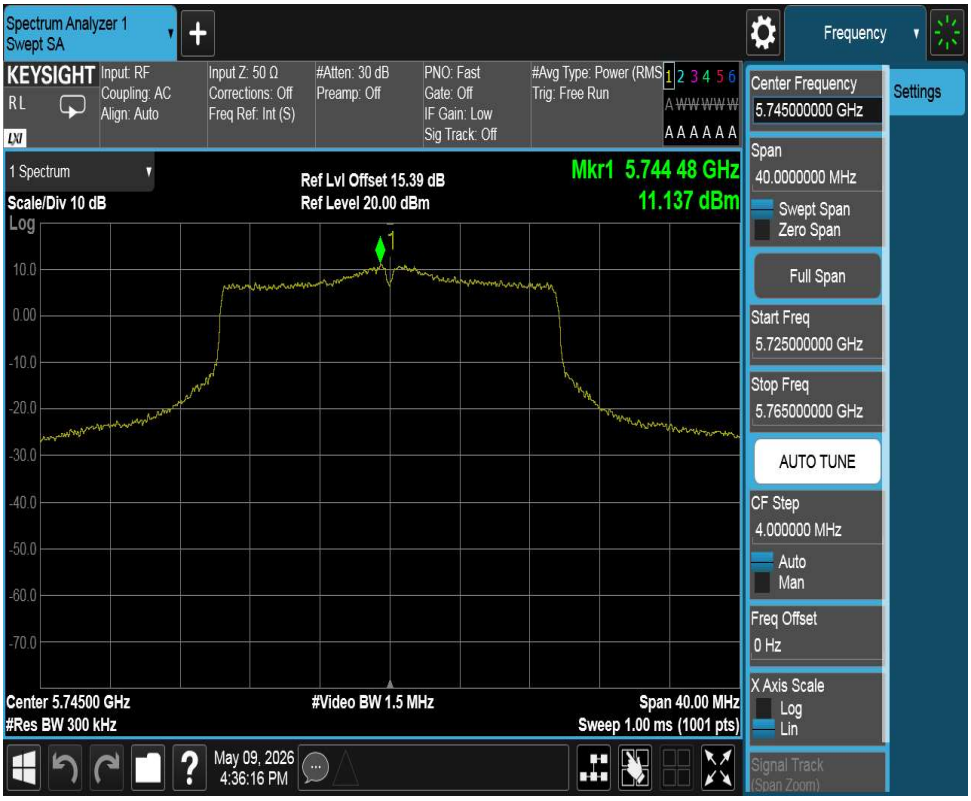

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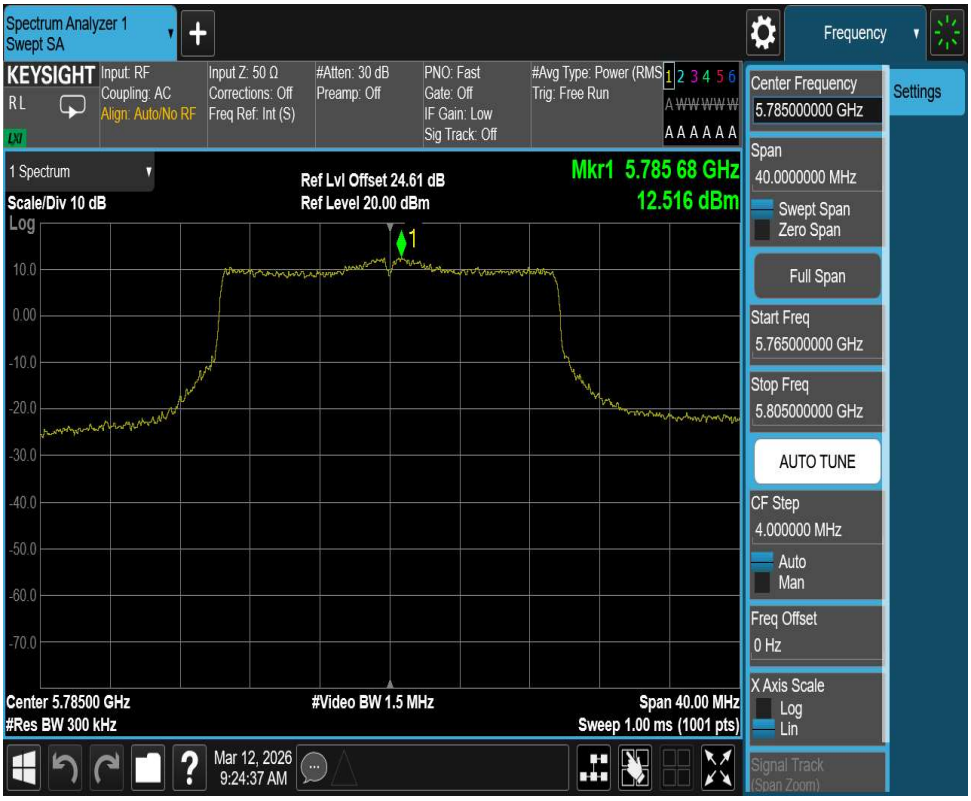

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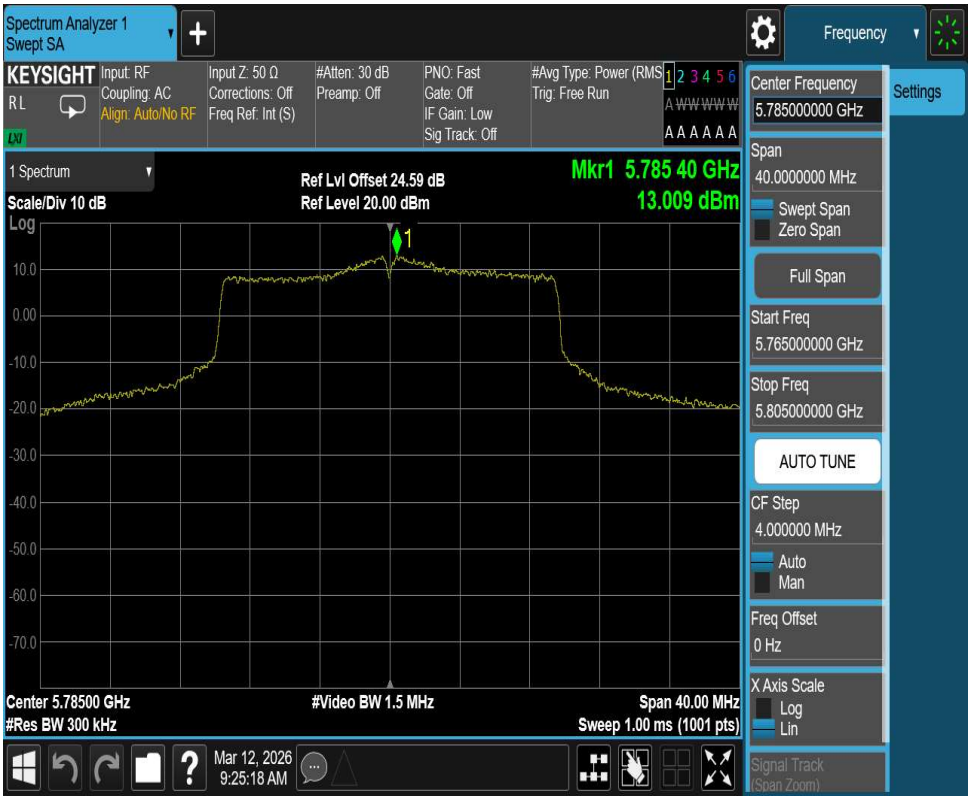

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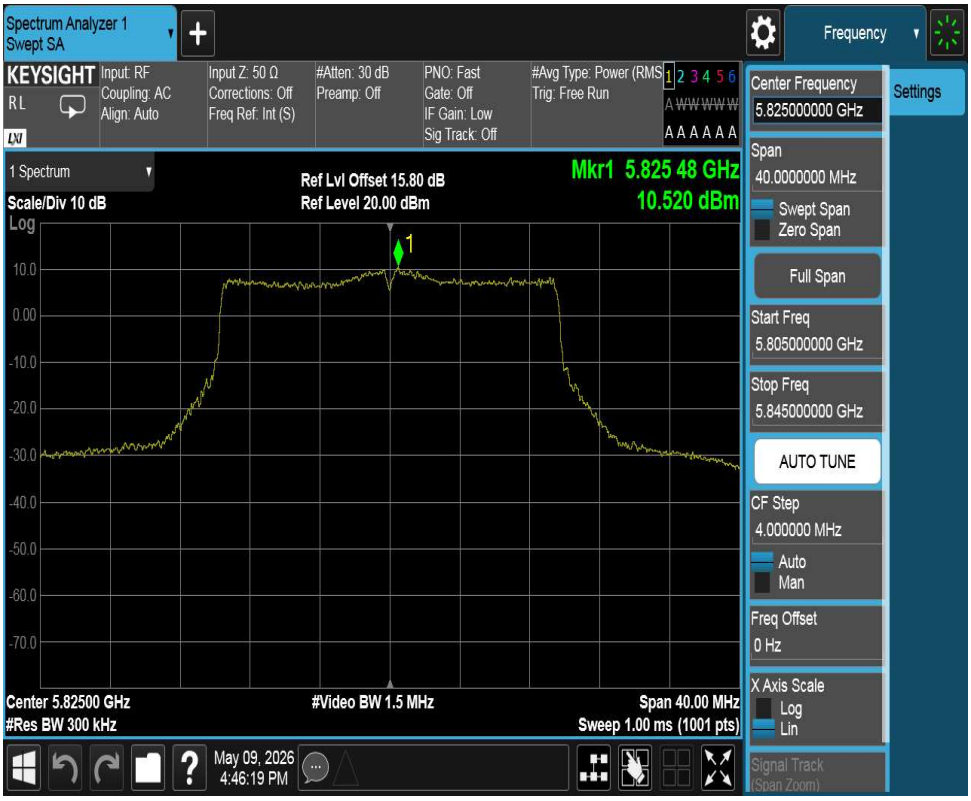

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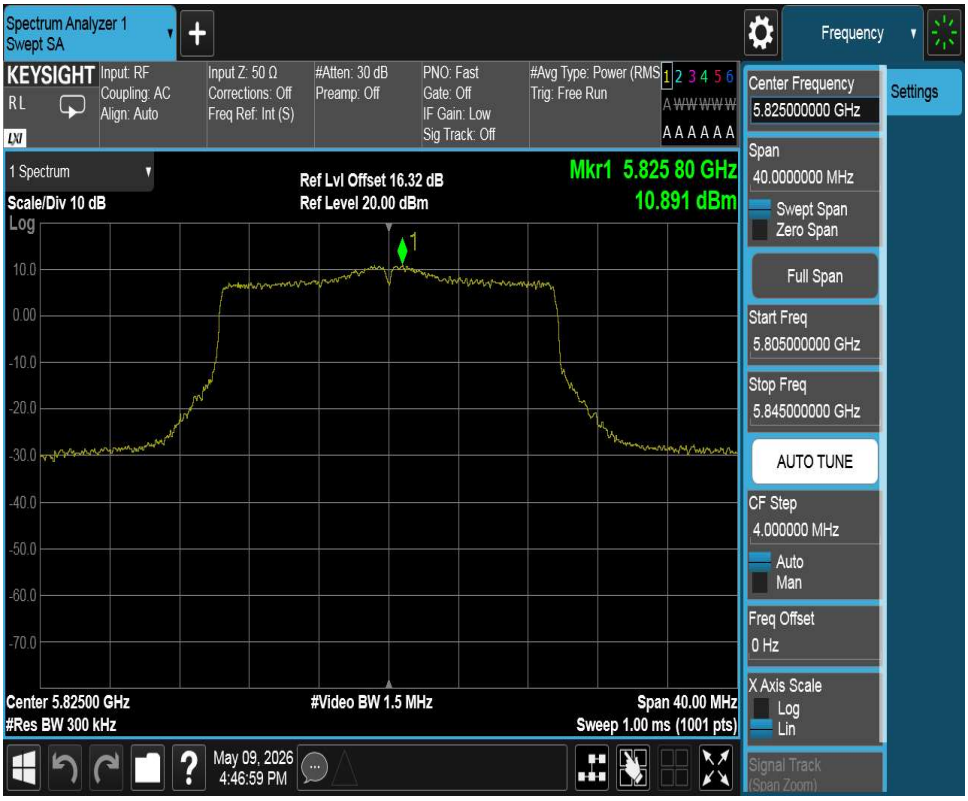

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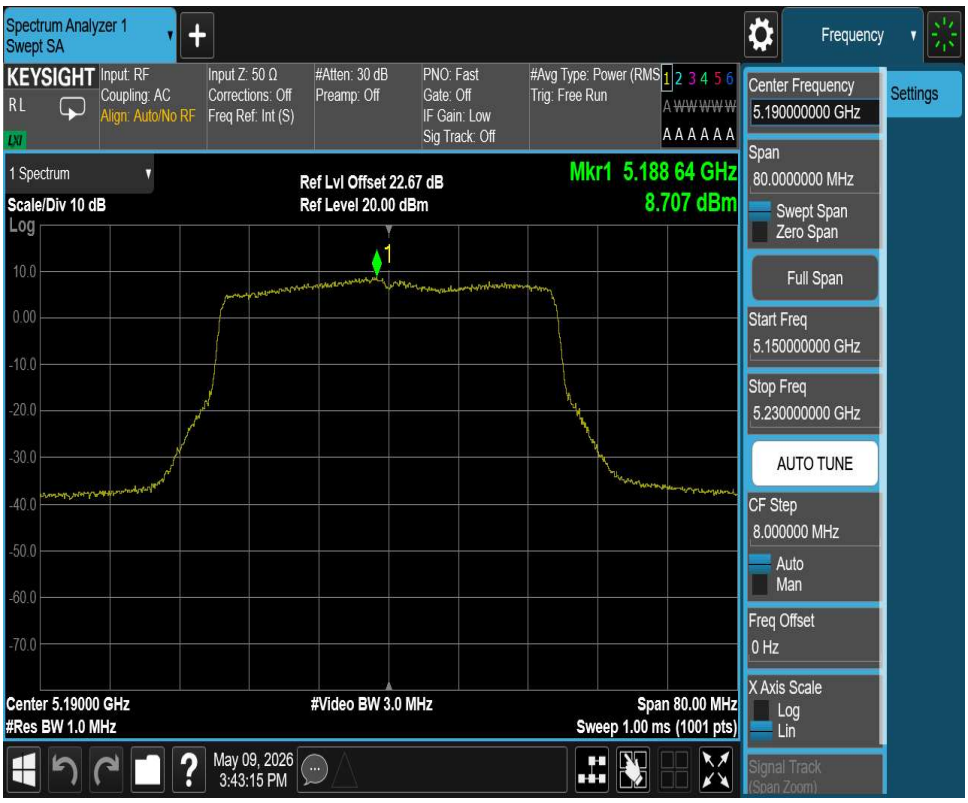

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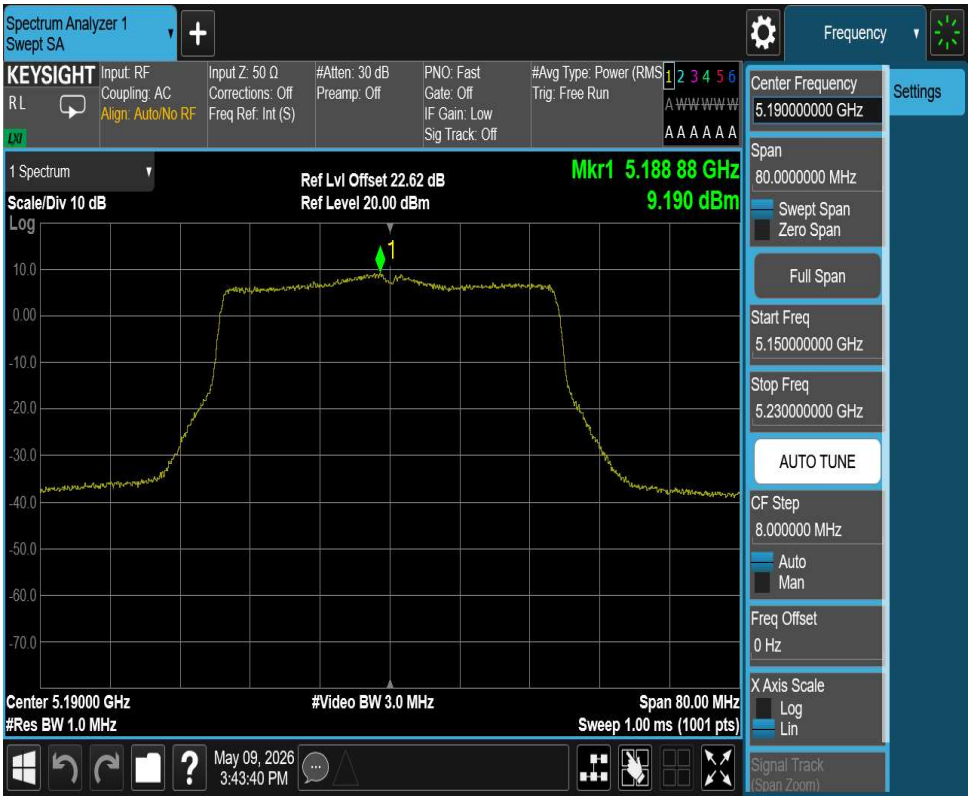

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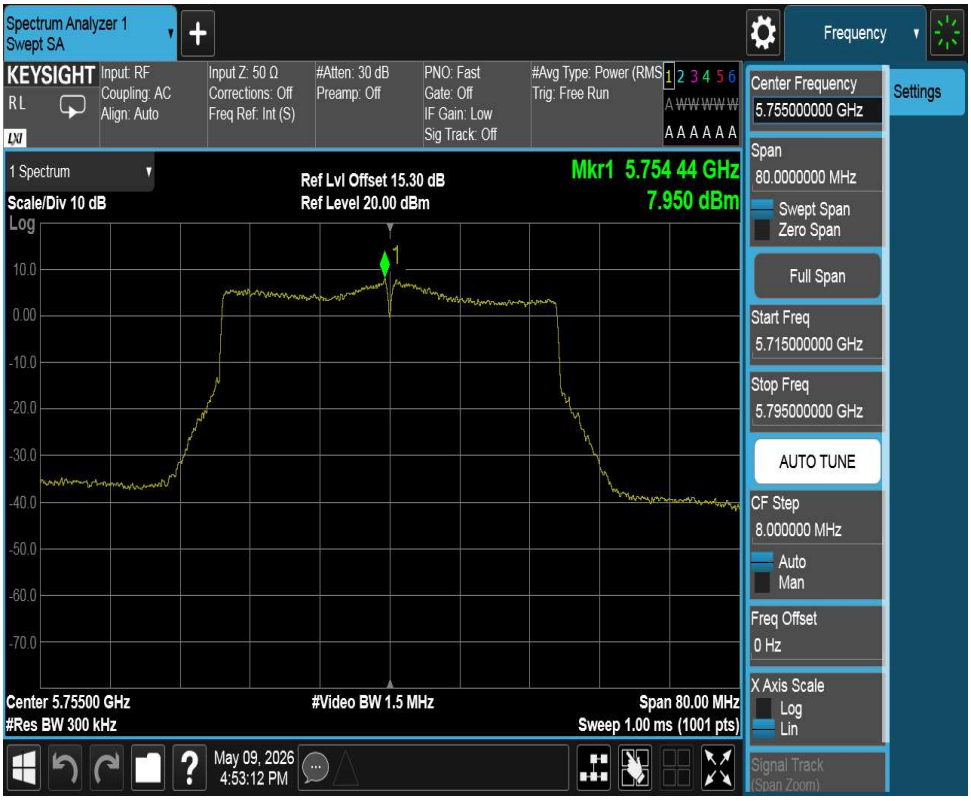
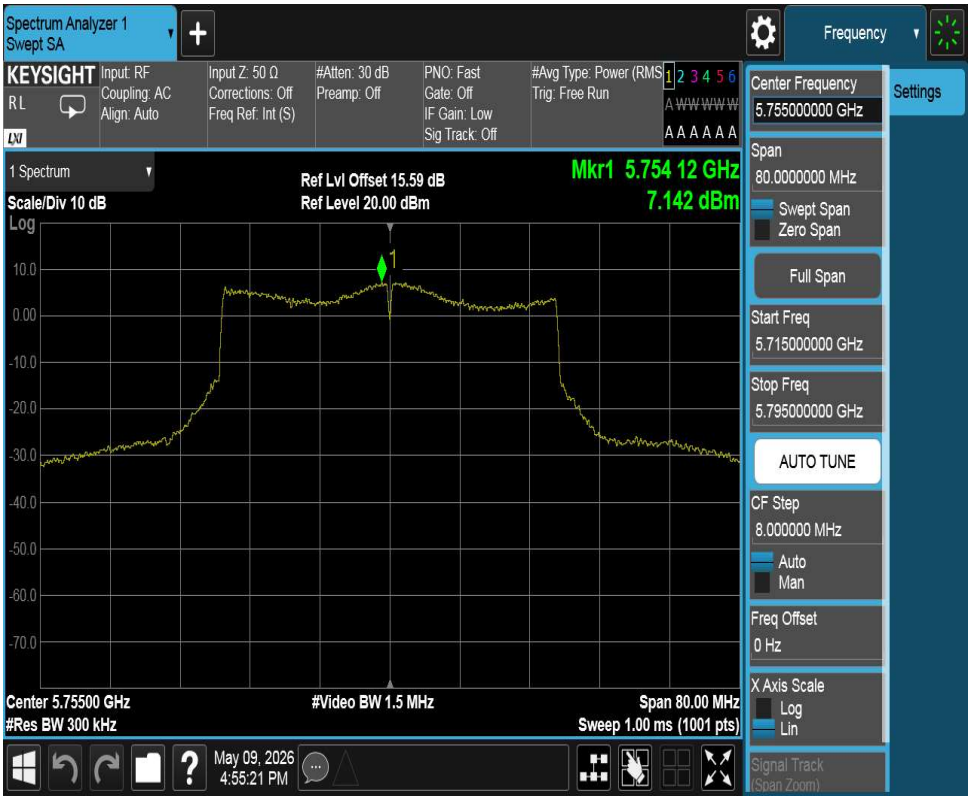
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