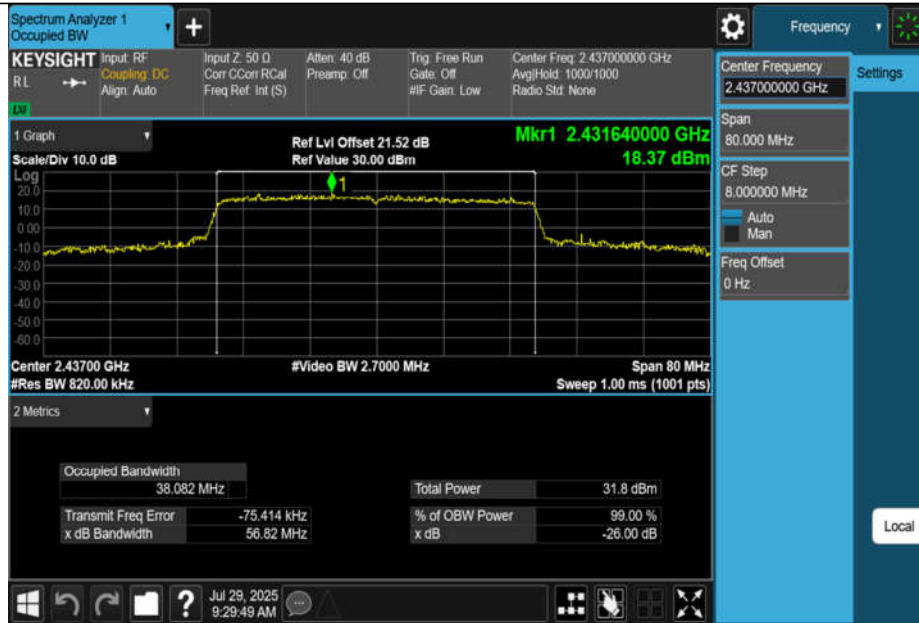
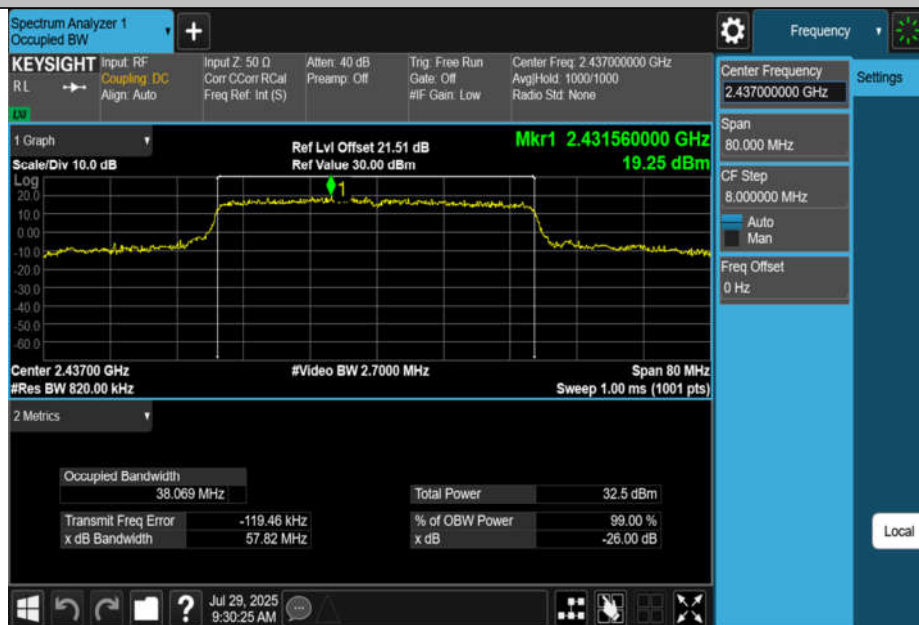
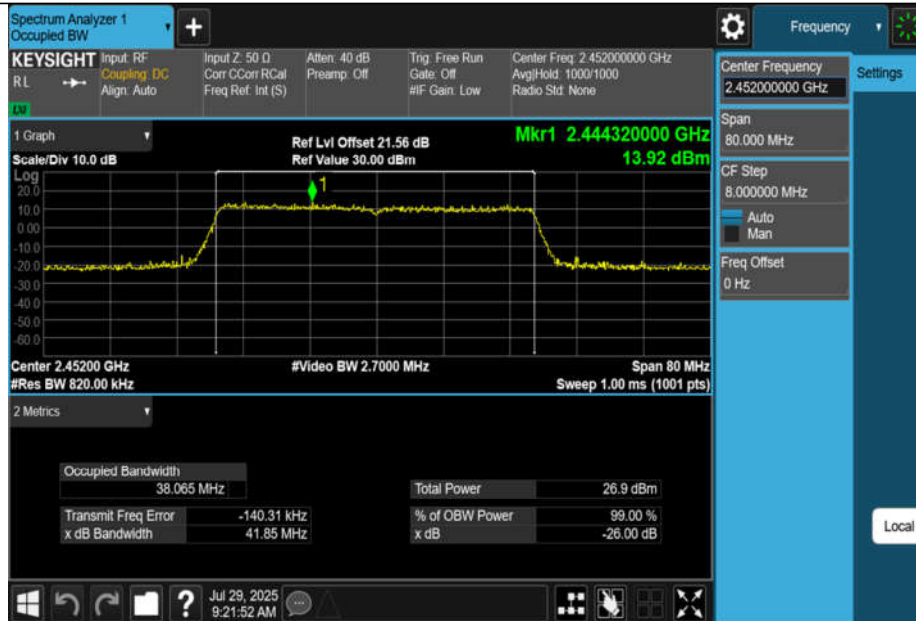




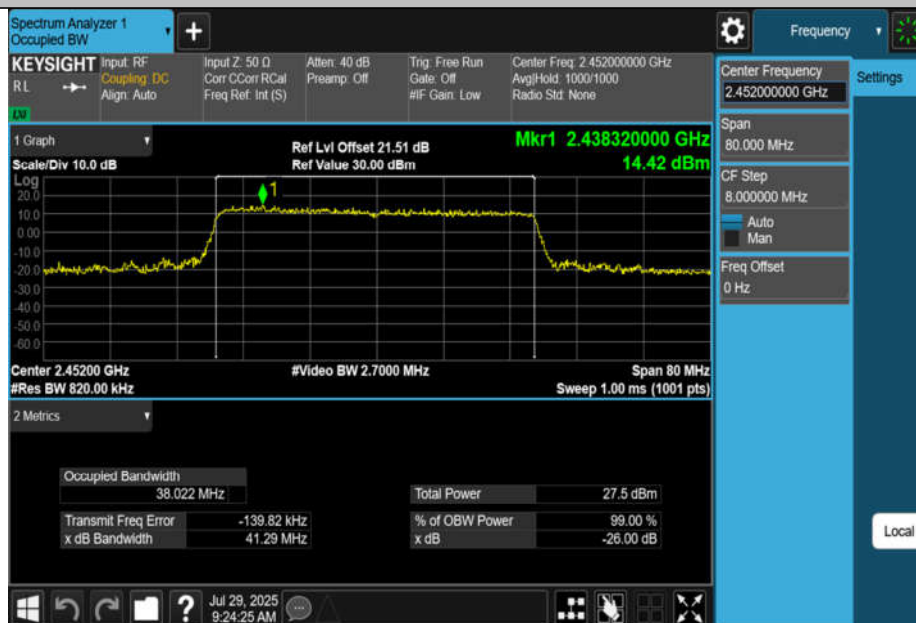
11BE40MIMO-Ant1-2437



11BE40MIMO-Ant2-2437



11BE40MIMO-Ant1-2452



11BE40MIMO-Ant2-2452

3.5 Maximum conducted output power

3.5.1 Limit

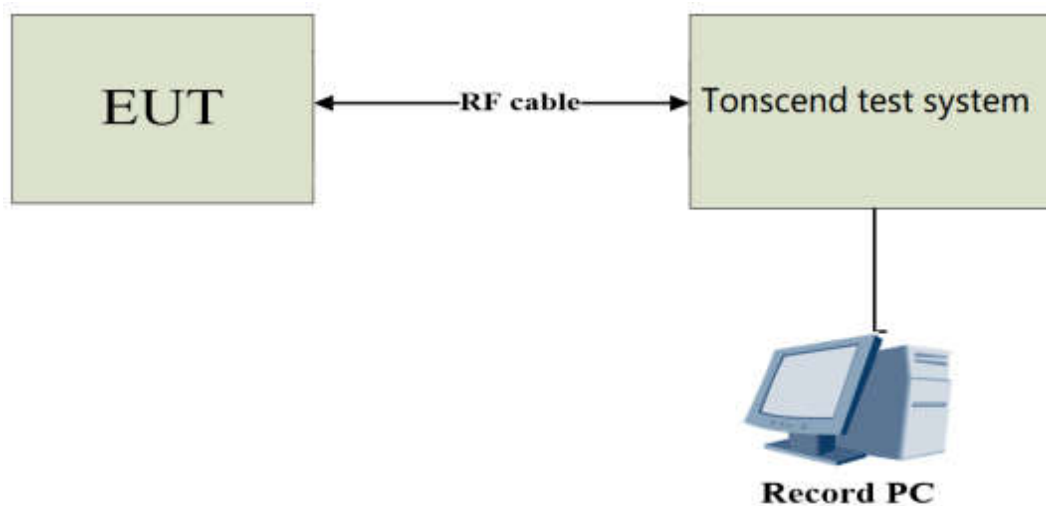
For systems using digital modulation in the 2400~2483.5MHz, The Maximum output Power shall not exceed 1W(30dBm)

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	

- The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.2.3.1 (for method AVGPM)of ANSI C63.10-2013.

3.5.3 Test Setup



3.5.4 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

No beamforming

Test Software Version	accessMTool_REL_3_3_0_2		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	82	90	82
IEEE 802.11g	65	92	65
IEEE 802.11n(20)	65	93	65
IEEE 802.11ax(20)	60	92	59
IEEE 802.11be(20)	59	92	58
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(40)	58	95	57
IEEE 802.11ax(40)	52	90	53
IEEE 802.11be(40)	55	90	55

Beamforming

Test Software Version	accessMTool_REL_3_3_0_2		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	72	79	72
IEEE 802.11g	56	82	55
IEEE 802.11n(20)	55	83	55
IEEE 802.11ax(20)	51	82	49
IEEE 802.11be(20)	49	82	48
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(40)	49	85	47
IEEE 802.11ax(40)	42	79	43
IEEE 802.11be(40)	45	80	46

3.5.5 The Result

No beamforming

Test Mode	Antenna	Frequency [MHz]	Result [dBm]	Limit [dBm]	Verdict
11B-CDD	Ant1	2412	22.47	≤30.00	PASS
11B-CDD	Ant2	2412	21.69	≤30.00	PASS
11B-CDD	total	2412	25.11	≤30.00	PASS
11B-CDD	Ant1	2437	25.98	≤30.00	PASS
11B-CDD	Ant2	2437	25.81	≤30.00	PASS
11B-CDD	total	2437	28.91	≤30.00	PASS
11B-CDD	Ant1	2462	21.7	≤30.00	PASS
11B-CDD	Ant2	2462	22.46	≤30.00	PASS
11B-CDD	total	2462	25.11	≤30.00	PASS
11G-CDD	Ant1	2412	19.4	≤30.00	PASS
11G-CDD	Ant2	2412	18.89	≤30.00	PASS
11G-CDD	total	2412	22.16	≤30.00	PASS
11G-CDD	Ant1	2437	25.89	≤30.00	PASS
11G-CDD	Ant2	2437	25.8	≤30.00	PASS
11G-CDD	total	2437	28.86	≤30.00	PASS
11G-CDD	Ant1	2462	18.04	≤30.00	PASS
11G-CDD	Ant2	2462	17.89	≤30.00	PASS
11G-CDD	total	2462	20.98	≤30.00	PASS
11N20MIMO	Ant1	2412	19.33	≤30.00	PASS
11N20MIMO	Ant2	2412	18.86	≤30.00	PASS
11N20MIMO	total	2412	22.11	≤30.00	PASS
11N20MIMO	Ant1	2437	26.09	≤30.00	PASS
11N20MIMO	Ant2	2437	25.84	≤30.00	PASS
11N20MIMO	total	2437	28.98	≤30.00	PASS
11N20MIMO	Ant1	2462	17.24	≤30.00	PASS
11N20MIMO	Ant2	2462	17.01	≤30.00	PASS
11N20MIMO	total	2462	20.14	≤30.00	PASS
11N40MIMO	Ant1	2422	17.94	≤30.00	PASS
11N40MIMO	Ant2	2422	17.48	≤30.00	PASS
11N40MIMO	total	2422	20.73	≤30.00	PASS
11N40MIMO	Ant1	2437	26.02	≤30.00	PASS
11N40MIMO	Ant2	2437	25.71	≤30.00	PASS
11N40MIMO	total	2437	28.88	≤30.00	PASS
11N40MIMO	Ant1	2452	16.38	≤30.00	PASS
11N40MIMO	Ant2	2452	16.06	≤30.00	PASS
11N40MIMO	total	2452	19.23	≤30.00	PASS
11AX20MIMO	Ant1	2412	18.34	≤30.00	PASS

11AX20MIMO	Ant2	2412	17.77	≤30.00	PASS
11AX20MIMO	total	2412	21.07	≤30.00	PASS
11AX20MIMO	Ant1	2437	26.06	≤30.00	PASS
11AX20MIMO	Ant2	2437	26.29	≤30.00	PASS
11AX20MIMO	total	2437	29.19	≤30.00	PASS
11AX20MIMO	Ant1	2462	17.33	≤30.00	PASS
11AX20MIMO	Ant2	2462	17.21	≤30.00	PASS
11AX20MIMO	total	2462	20.28	≤30.00	PASS
11AX40MIMO	Ant1	2422	17.77	≤30.00	PASS
11AX40MIMO	Ant2	2422	18.01	≤30.00	PASS
11AX40MIMO	total	2422	20.90	≤30.00	PASS
11AX40MIMO	Ant1	2437	25.65	≤30.00	PASS
11AX40MIMO	Ant2	2437	25.86	≤30.00	PASS
11AX40MIMO	total	2437	28.77	≤30.00	PASS
11AX40MIMO	Ant1	2452	16.64	≤30.00	PASS
11AX40MIMO	Ant2	2452	16.74	≤30.00	PASS
11AX40MIMO	total	2452	19.70	≤30.00	PASS
11BE20MIMO	Ant1	2412	16.27	≤30.00	PASS
11BE20MIMO	Ant2	2412	16.33	≤30.00	PASS
11BE20MIMO	total	2412	19.31	≤30.00	PASS
11BE20MIMO	Ant1	2437	26.16	≤30.00	PASS
11BE20MIMO	Ant2	2437	26.45	≤30.00	PASS
11BE20MIMO	total	2437	29.32	≤30.00	PASS
11BE20MIMO	Ant1	2462	16.37	≤30.00	PASS
11BE20MIMO	Ant2	2462	16.48	≤30.00	PASS
11BE20MIMO	total	2462	19.44	≤30.00	PASS
11BE40MIMO	Ant1	2422	18.15	≤30.00	PASS
11BE40MIMO	Ant2	2422	18.20	≤30.00	PASS
11BE40MIMO	total	2422	21.19	≤30.00	PASS
11BE40MIMO	Ant1	2437	25.99	≤30.00	PASS
11BE40MIMO	Ant2	2437	26.13	≤30.00	PASS
11BE40MIMO	total	2437	29.07	≤30.00	PASS
11BE40MIMO	Ant1	2452	16.65	≤30.00	PASS
11BE40MIMO	Ant2	2452	16.84	≤30.00	PASS
11BE40MIMO	total	2452	19.76	≤30.00	PASS

Note: The duty cycle factor is compensated in the average conducted output power.

Beamforming

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11B-CDD	Ant1	2412	19.78	≤30.00	PASS
11B-CDD	Ant2	2412	18.97	≤30.00	PASS
11B-CDD	total	2412	22.40	≤30.00	PASS
11B-CDD	Ant1	2437	23.21	≤30.00	PASS
11B-CDD	Ant2	2437	23.11	≤30.00	PASS
11B-CDD	total	2437	26.17	≤30.00	PASS
11B-CDD	Ant1	2462	19.05	≤30.00	PASS
11B-CDD	Ant2	2462	19.85	≤30.00	PASS
11B-CDD	total	2462	22.48	≤30.00	PASS
11G-CDD	Ant1	2412	16.79	≤30.00	PASS
11G-CDD	Ant2	2412	16.06	≤30.00	PASS
11G-CDD	total	2412	19.45	≤30.00	PASS
11G-CDD	Ant1	2437	23.2	≤30.00	PASS
11G-CDD	Ant2	2437	23.1	≤30.00	PASS
11G-CDD	total	2437	26.16	≤30.00	PASS
11G-CDD	Ant1	2462	15.21	≤30.00	PASS
11G-CDD	Ant2	2462	15.2	≤30.00	PASS
11G-CDD	total	2462	18.22	≤30.00	PASS
11N20MIMO	Ant1	2412	16.62	≤30.00	PASS
11N20MIMO	Ant2	2412	16.05	≤30.00	PASS
11N20MIMO	total	2412	19.35	≤30.00	PASS
11N20MIMO	Ant1	2437	23.48	≤30.00	PASS
11N20MIMO	Ant2	2437	23.11	≤30.00	PASS
11N20MIMO	total	2437	26.31	≤30.00	PASS
11N20MIMO	Ant1	2462	14.44	≤30.00	PASS
11N20MIMO	Ant2	2462	14.2	≤30.00	PASS
11N20MIMO	total	2462	17.33	≤30.00	PASS
11N40MIMO	Ant1	2422	15.31	≤30.00	PASS
11N40MIMO	Ant2	2422	14.72	≤30.00	PASS
11N40MIMO	total	2422	18.04	≤30.00	PASS
11N40MIMO	Ant1	2437	23.34	≤30.00	PASS
11N40MIMO	Ant2	2437	22.96	≤30.00	PASS
11N40MIMO	total	2437	26.16	≤30.00	PASS
11N40MIMO	Ant1	2452	13.75	≤30.00	PASS
11N40MIMO	Ant2	2452	13.38	≤30.00	PASS
11N40MIMO	total	2452	16.58	≤30.00	PASS
11AX20MIMO	Ant1	2412	15.72	≤30.00	PASS
11AX20MIMO	Ant2	2412	15.09	≤30.00	PASS

11AX20MIMO	total	2412	18.43	≤30.00	PASS
11AX20MIMO	Ant1	2437	23.31	≤30.00	PASS
11AX20MIMO	Ant2	2437	23.57	≤30.00	PASS
11AX20MIMO	total	2437	26.45	≤30.00	PASS
11AX20MIMO	Ant1	2462	14.57	≤30.00	PASS
11AX20MIMO	Ant2	2462	14.38	≤30.00	PASS
11AX20MIMO	total	2462	17.49	≤30.00	PASS
11AX40MIMO	Ant1	2422	14.94	≤30.00	PASS
11AX40MIMO	Ant2	2422	15.39	≤30.00	PASS
11AX40MIMO	total	2422	18.18	≤30.00	PASS
11AX40MIMO	Ant1	2437	22.86	≤30.00	PASS
11AX40MIMO	Ant2	2437	23.13	≤30.00	PASS
11AX40MIMO	total	2437	26.01	≤30.00	PASS
11AX40MIMO	Ant1	2452	14.02	≤30.00	PASS
11AX40MIMO	Ant2	2452	14.07	≤30.00	PASS
11AX40MIMO	total	2452	17.06	≤30.00	PASS
11BE20MIMO	Ant1	2412	13.5	≤30.00	PASS
11BE20MIMO	Ant2	2412	13.67	≤30.00	PASS
11BE20MIMO	total	2412	16.60	≤30.00	PASS
11BE20MIMO	Ant1	2437	23.5	≤30.00	PASS
11BE20MIMO	Ant2	2437	23.73	≤30.00	PASS
11BE20MIMO	total	2437	26.63	≤30.00	PASS
11BE20MIMO	Ant1	2462	13.52	≤30.00	PASS
11BE20MIMO	Ant2	2462	13.88	≤30.00	PASS
11BE20MIMO	total	2462	16.71	≤30.00	PASS
11BE40MIMO	Ant1	2422	15.39	≤30.00	PASS
11BE40MIMO	Ant2	2422	15.47	≤30.00	PASS
11BE40MIMO	total	2422	18.44	≤30.00	PASS
11BE40MIMO	Ant1	2437	23.17	≤30.00	PASS
11BE40MIMO	Ant2	2437	23.33	≤30.00	PASS
11BE40MIMO	total	2437	26.26	≤30.00	PASS
11BE40MIMO	Ant1	2452	14.01	≤30.00	PASS
11BE40MIMO	Ant2	2452	14.12	≤30.00	PASS
11BE40MIMO	total	2452	17.08	≤30.00	PASS

Note: The duty cycle factor is compensated in the average conducted output power.

3.6 Power Spectral Density

3.6.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmitting.

3.6.2 Test Procedure

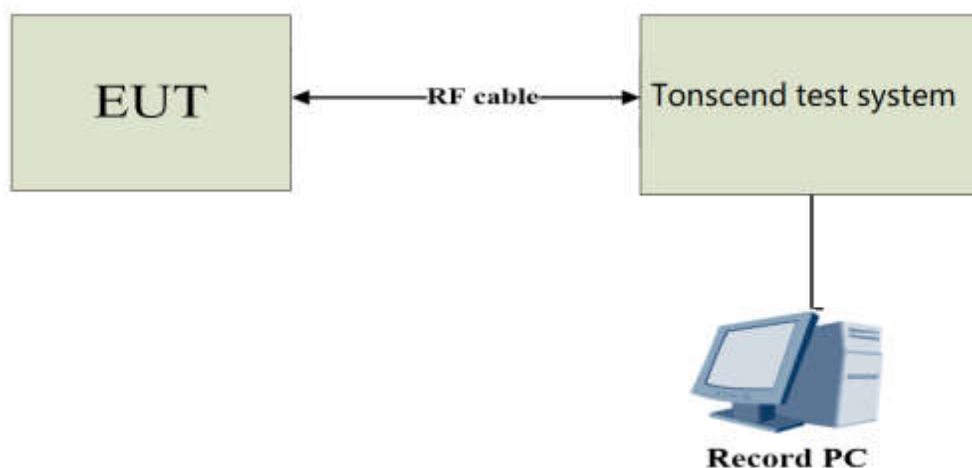
Test Method	
☒ Conducted Measurement	☐ Radiated Measurement
Test Channels	
☒ Lowest, Middle and Highest Channel	☐ Lowest and Highest Channel
Environmental conditions	
☒ Normal	☐ Normal and Extreme
Note: ● : Test ○ : No Test	

a) The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below.

b) Spectrum analyser settings as following:

Spectrum Parameters	Setting
Span Frequency	2 times the OBW bandwidth
RBW	3 kHz
VBW	10 kHz
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

3.6.3 Test Setup



3.6.4 The Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B-CDD	Ant1	2412	-6.89	≤8.00	PASS
11B-CDD	Ant2	2412	-7.59	≤8.00	PASS
11B-CDD	total	2412	-4.22	≤8.00	PASS
11B-CDD	Ant1	2437	-3.65	≤8.00	PASS
11B-CDD	Ant2	2437	-3.72	≤8.00	PASS
11B-CDD	total	2437	-0.67	≤8.00	PASS
11B-CDD	Ant1	2462	-7.55	≤8.00	PASS
11B-CDD	Ant2	2462	-8.55	≤8.00	PASS
11B-CDD	total	2462	-5.01	≤8.00	PASS
11G-CDD	Ant1	2412	-14.12	≤8.00	PASS
11G-CDD	Ant2	2412	-14.30	≤8.00	PASS
11G-CDD	total	2412	-11.20	≤8.00	PASS
11G-CDD	Ant1	2437	-5.83	≤8.00	PASS
11G-CDD	Ant2	2437	-6.49	≤8.00	PASS
11G-CDD	total	2437	-3.14	≤8.00	PASS
11G-CDD	Ant1	2462	-14.80	≤8.00	PASS
11G-CDD	Ant2	2462	-15.29	≤8.00	PASS
11G-CDD	total	2462	-12.03	≤8.00	PASS
11N20MIMO	Ant1	2412	-14.23	≤8.00	PASS
11N20MIMO	Ant2	2412	-15.37	≤8.00	PASS
11N20MIMO	total	2412	-11.75	≤8.00	PASS
11N20MIMO	Ant1	2437	-6.96	≤8.00	PASS
11N20MIMO	Ant2	2437	-6.47	≤8.00	PASS
11N20MIMO	total	2437	-3.70	≤8.00	PASS
11N20MIMO	Ant1	2462	-16.28	≤8.00	PASS
11N20MIMO	Ant2	2462	-16.26	≤8.00	PASS
11N20MIMO	total	2462	-13.26	≤8.00	PASS
11N40MIMO	Ant1	2422	-16.71	≤8.00	PASS
11N40MIMO	Ant2	2422	-16.82	≤8.00	PASS
11N40MIMO	total	2422	-13.75	≤8.00	PASS
11N40MIMO	Ant1	2437	-8.64	≤8.00	PASS
11N40MIMO	Ant2	2437	-9.46	≤8.00	PASS
11N40MIMO	total	2437	-6.02	≤8.00	PASS
11N40MIMO	Ant1	2452	-18.54	≤8.00	PASS
11N40MIMO	Ant2	2452	-19.15	≤8.00	PASS
11N40MIMO	total	2452	-15.82	≤8.00	PASS
11AX20MIMO	Ant1	2412	-15.02	≤8.00	PASS
11AX20MIMO	Ant2	2412	-14.85	≤8.00	PASS
11AX20MIMO	total	2412	-11.92	≤8.00	PASS
11AX20MIMO	Ant1	2437	-6.77	≤8.00	PASS

11AX20MIMO	Ant2	2437	-7.48	≤8.00	PASS
11AX20MIMO	total	2437	-4.10	≤8.00	PASS
11AX20MIMO	Ant1	2462	-16.11	≤8.00	PASS
11AX20MIMO	Ant2	2462	-16.60	≤8.00	PASS
11AX20MIMO	total	2462	-13.34	≤8.00	PASS
11AX40MIMO	Ant1	2422	-16.14	≤8.00	PASS
11AX40MIMO	Ant2	2422	-18.34	≤8.00	PASS
11AX40MIMO	total	2422	-14.09	≤8.00	PASS
11AX40MIMO	Ant1	2437	-10.56	≤8.00	PASS
11AX40MIMO	Ant2	2437	-9.24	≤8.00	PASS
11AX40MIMO	total	2437	-6.84	≤8.00	PASS
11AX40MIMO	Ant1	2452	-18.51	≤8.00	PASS
11AX40MIMO	Ant2	2452	-19.63	≤8.00	PASS
11AX40MIMO	total	2452	-16.02	≤8.00	PASS
11BE20MIMO	Ant2	2412	-16.93	≤8.00	PASS
11BE20MIMO	total	2412	-13.45	≤8.00	PASS
11BE20MIMO	Ant1	2412	-16.04	≤8.00	PASS
11BE20MIMO	Ant1	2437	-7.63	≤8.00	PASS
11BE20MIMO	Ant2	2437	-6.85	≤8.00	PASS
11BE20MIMO	total	2437	-4.21	≤8.00	PASS
11BE20MIMO	Ant1	2462	-16.56	≤8.00	PASS
11BE20MIMO	Ant2	2462	-16.27	≤8.00	PASS
11BE20MIMO	total	2462	-13.40	≤8.00	PASS
11BE40MIMO	Ant1	2422	-16.20	≤8.00	PASS
11BE40MIMO	Ant2	2422	-16.19	≤8.00	PASS
11BE40MIMO	total	2422	-13.18	≤8.00	PASS
11BE40MIMO	Ant1	2437	-9.28	≤8.00	PASS
11BE40MIMO	Ant2	2437	-9.33	≤8.00	PASS
11BE40MIMO	total	2437	-6.29	≤8.00	PASS
11BE40MIMO	Ant1	2452	-18.71	≤8.00	PASS
11BE40MIMO	Ant2	2452	-19.42	≤8.00	PASS
11BE40MIMO	total	2452	-16.04	≤8.00	PASS

Note: The line loss are compensated in the test graph.

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

Test Graphs



11B-CDD-Ant1-2412-PASS



11B-CDD-Ant2-2412-PASS



11B-CDD-Ant1-2437-PASS



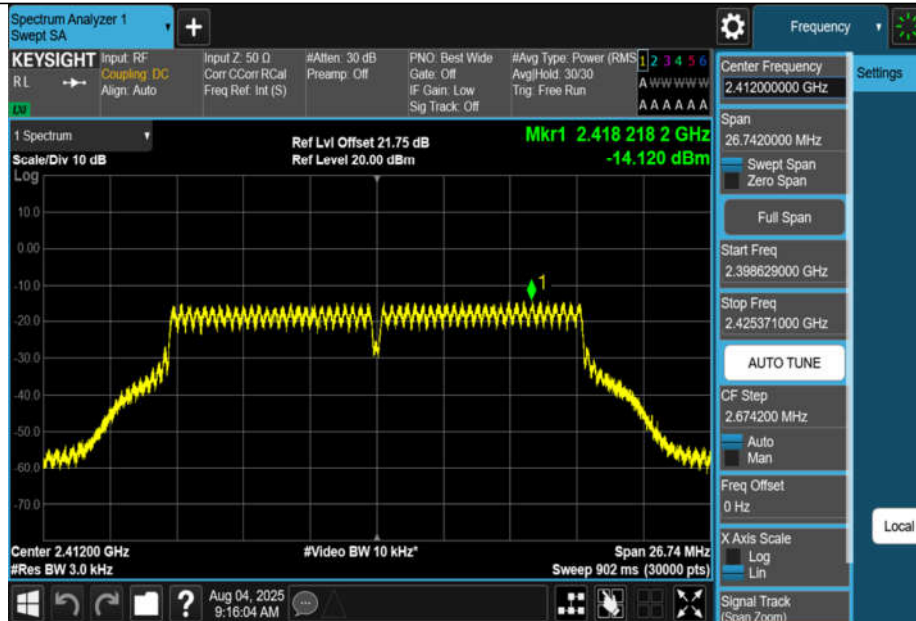
11B-CDD-Ant2-2437-PASS



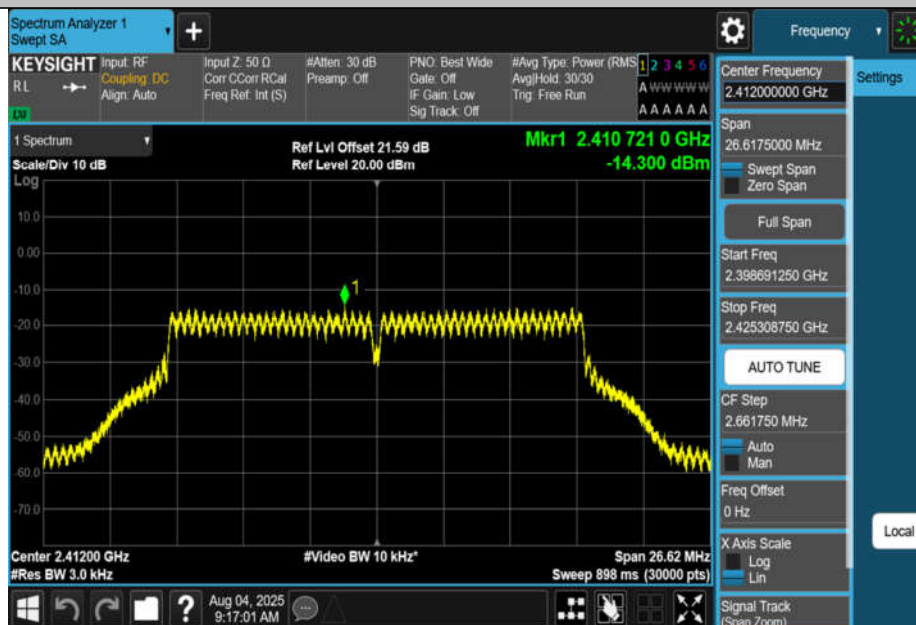
11B-CDD-Ant1-2462-PASS



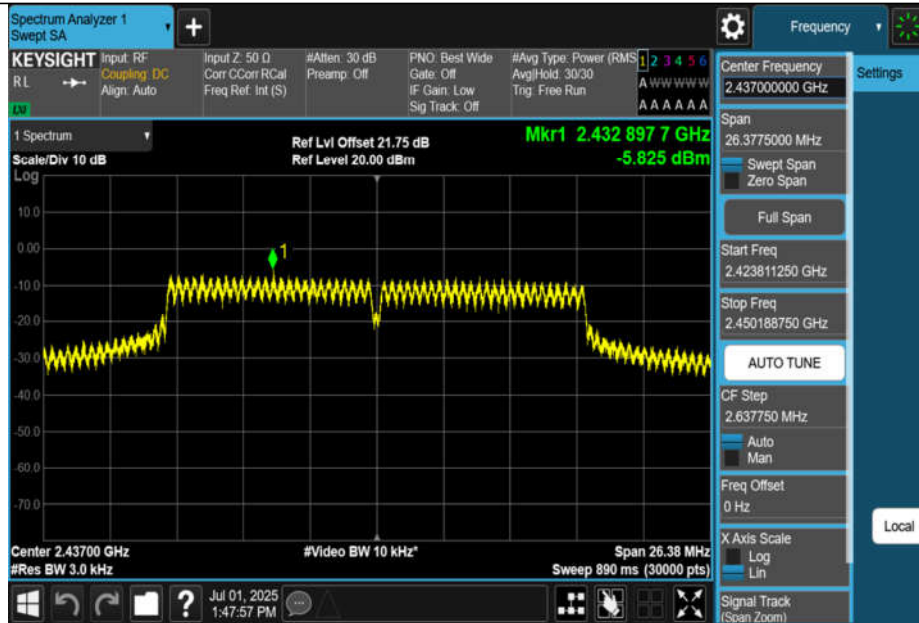
11B-CDD-Ant2-2462-PASS



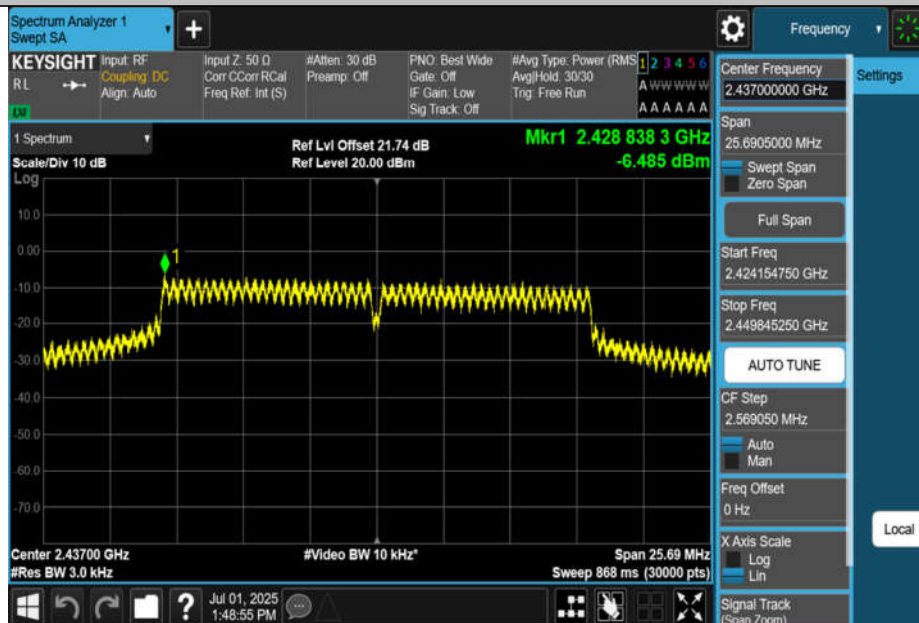
11G-CDD-Ant1-2412-PASS



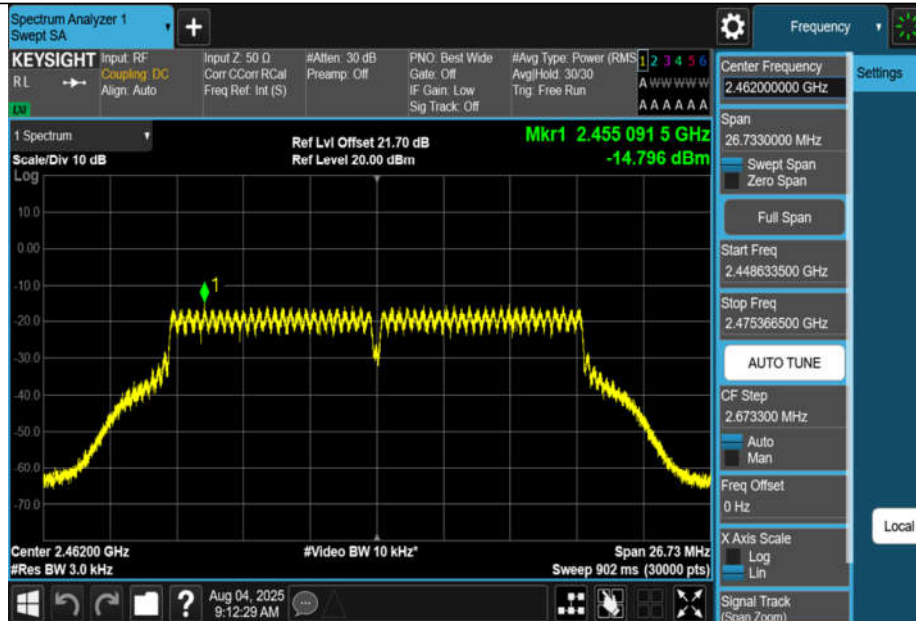
11G-CDD-Ant2-2412-PASS



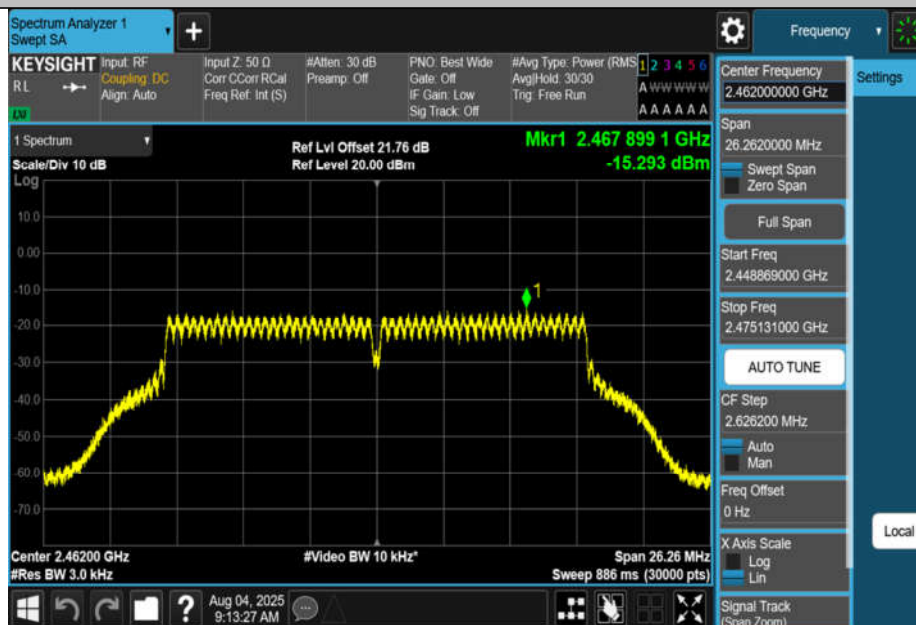
11G-CDD-Ant1-2437-PASS



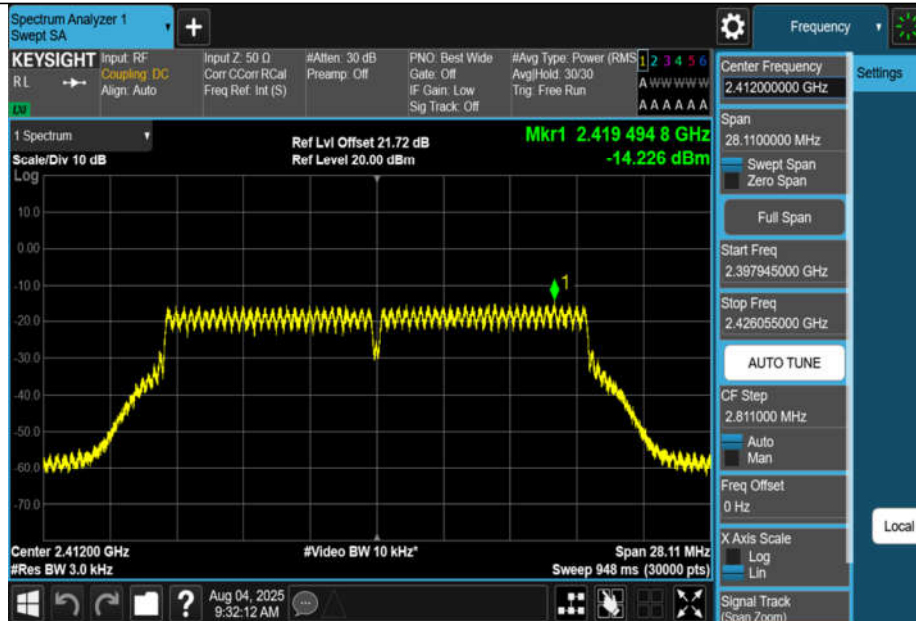
11G-CDD-Ant2-2437-PASS



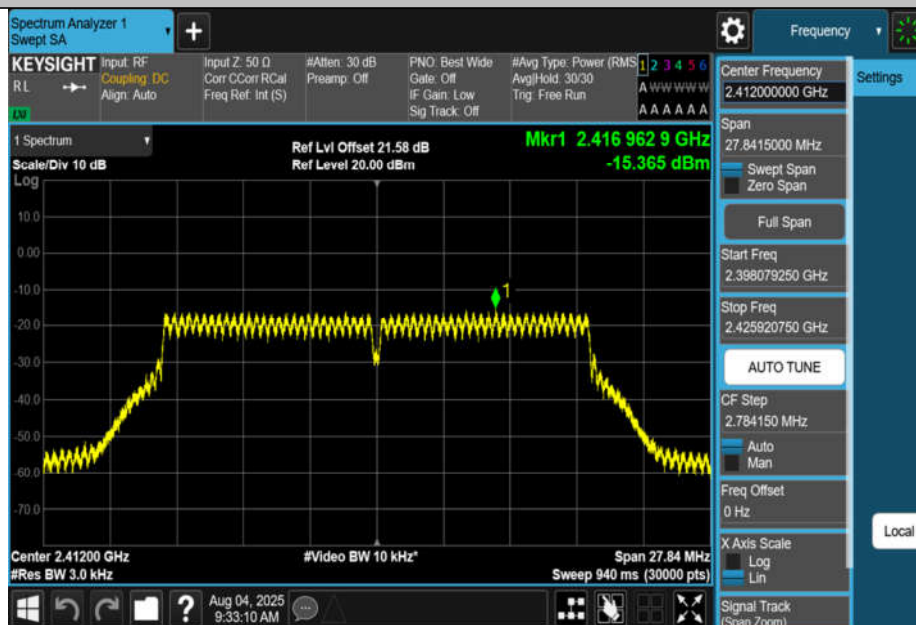
11G-CDD-Ant1-2462-PASS



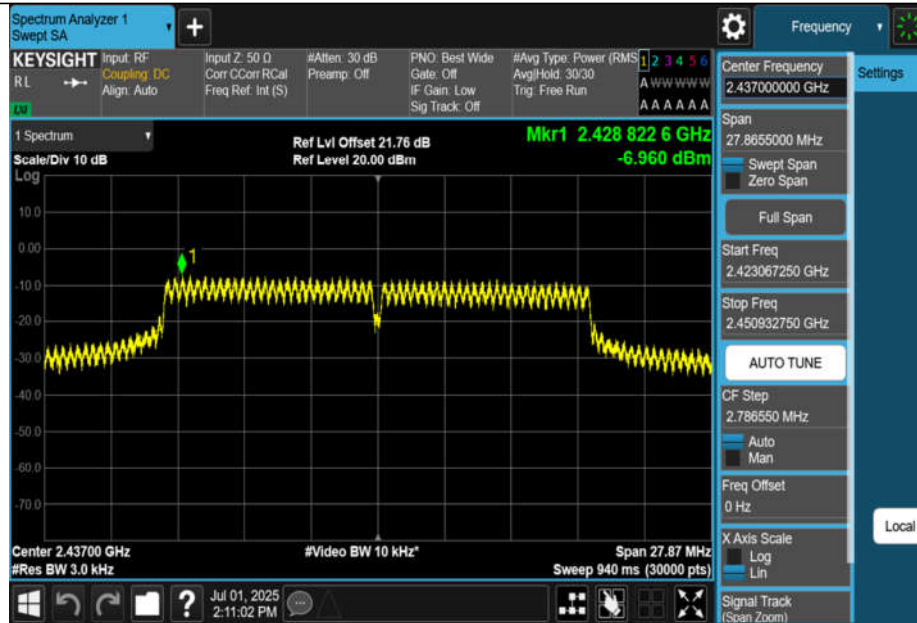
11G-CDD-Ant2-2462-PASS



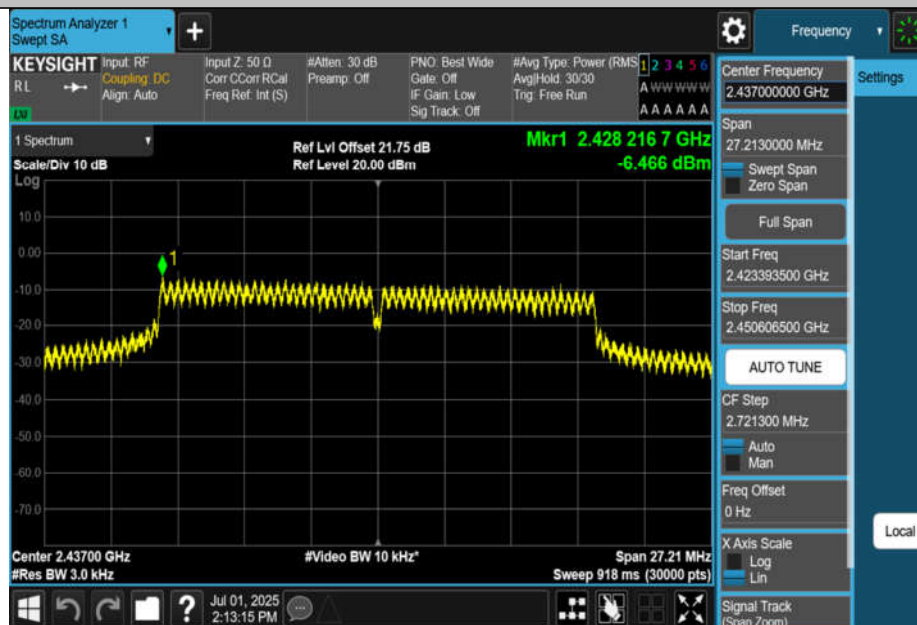
11N20MIMO-Ant1-2412-PASS



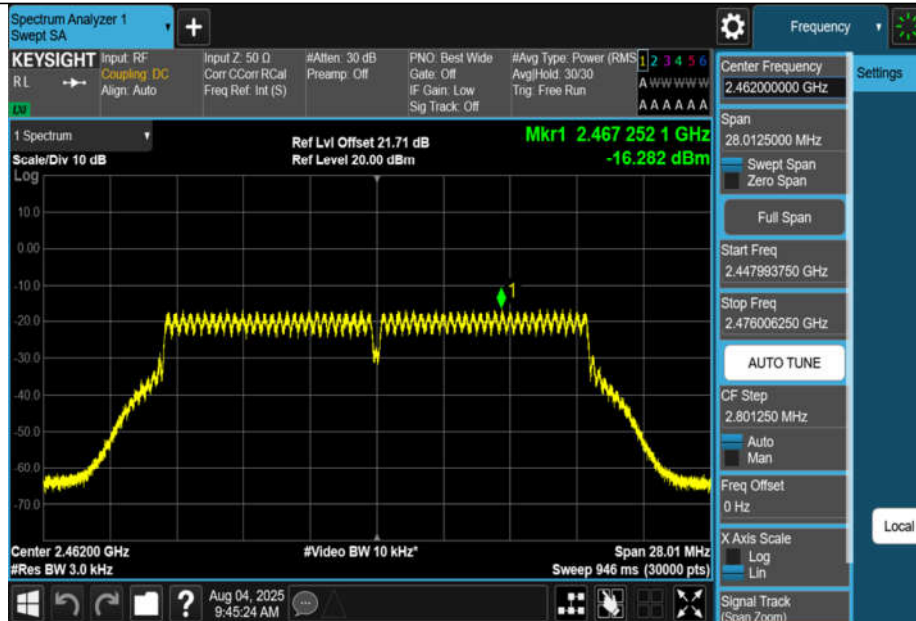
11N20MIMO-Ant2-2412-PASS



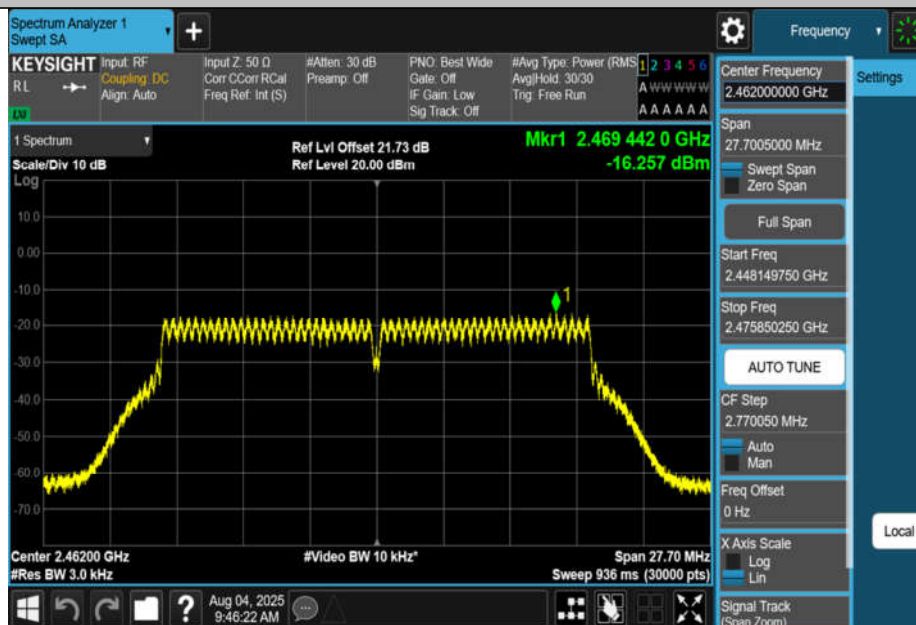
11N20MIMO-Ant1-2437-PASS



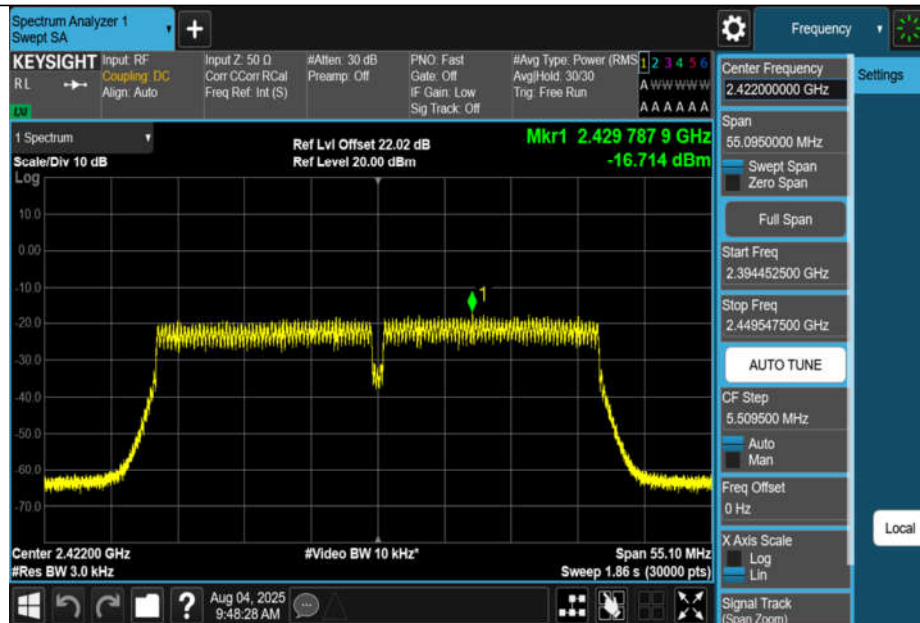
11N20MIMO-Ant2-2437-PASS



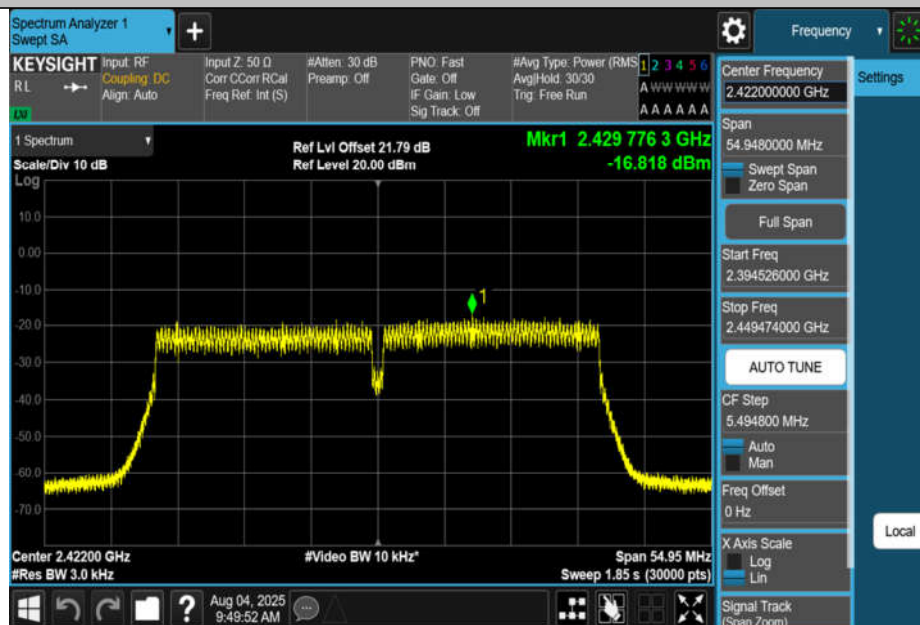
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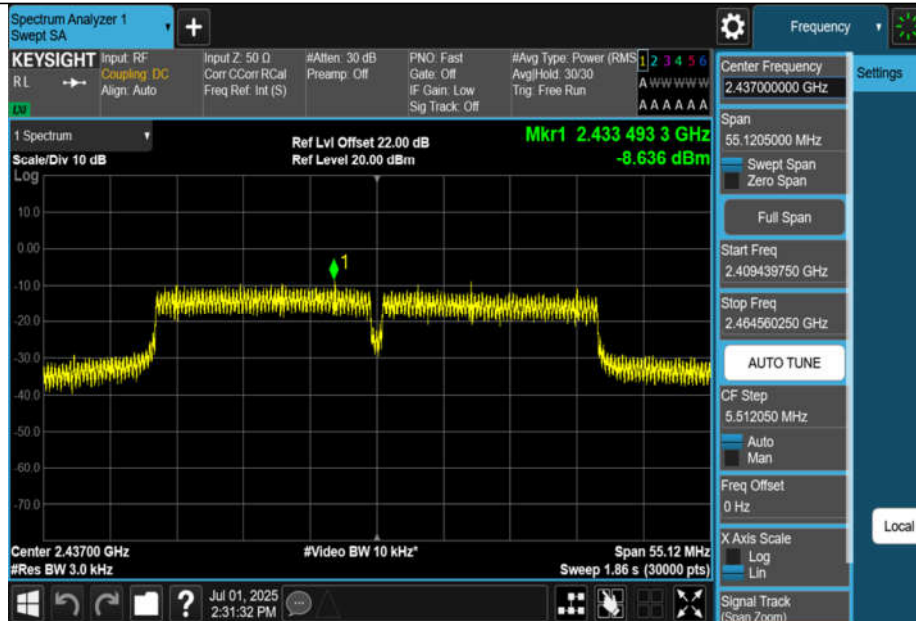
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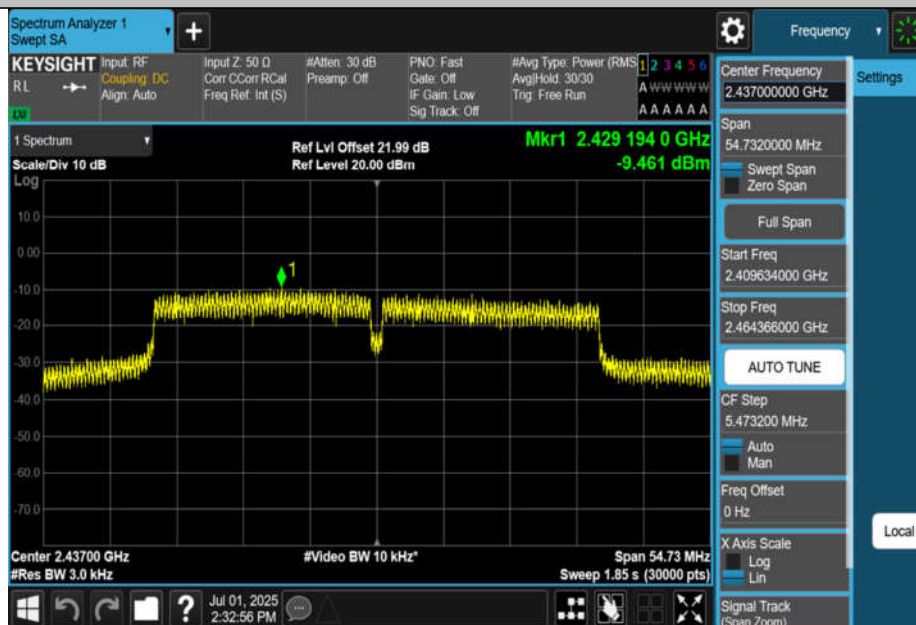
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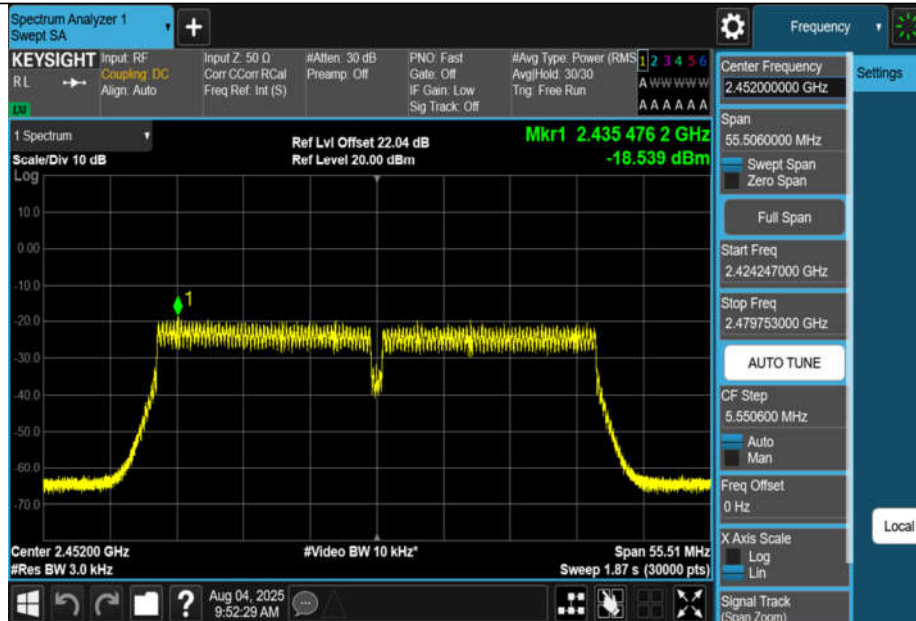
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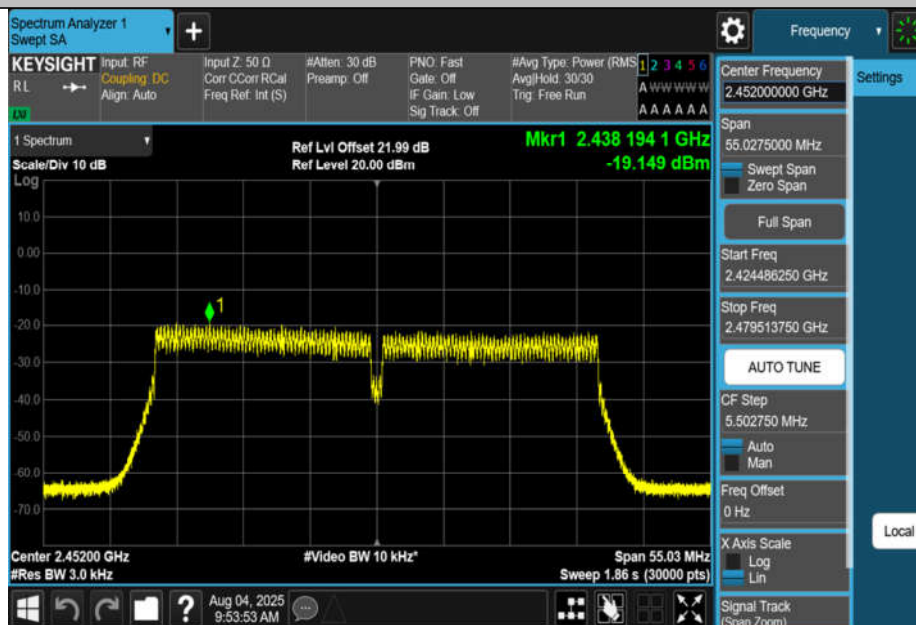
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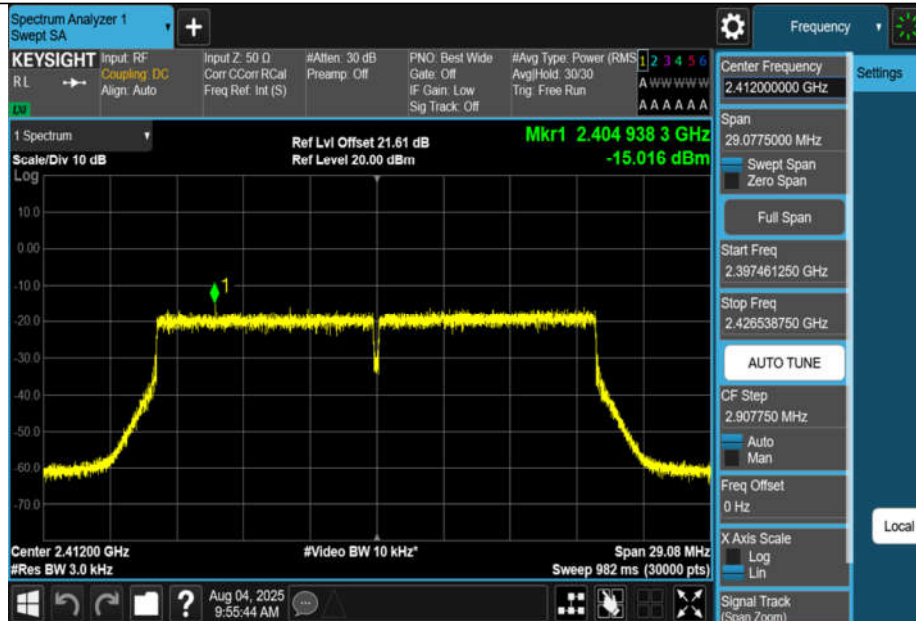
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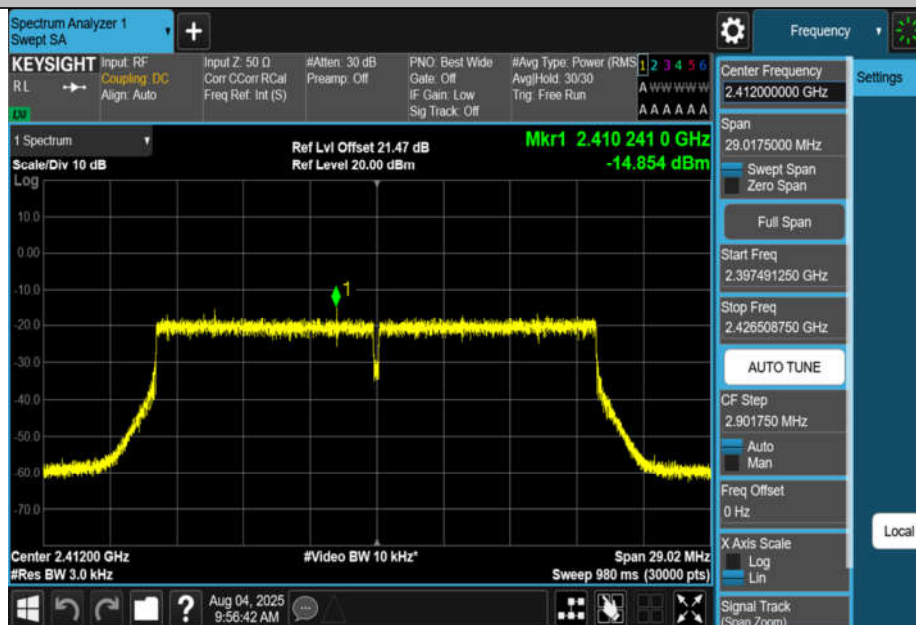
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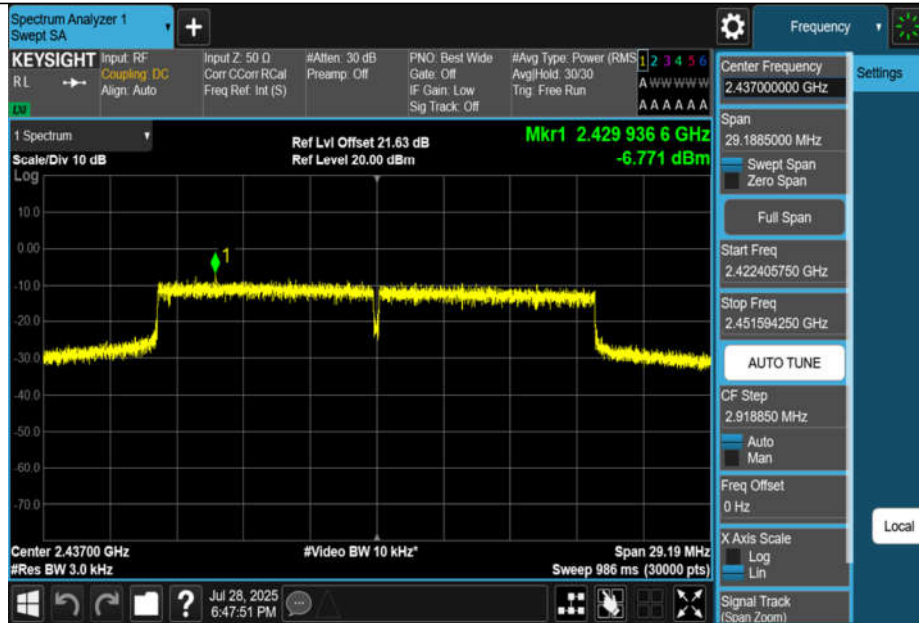
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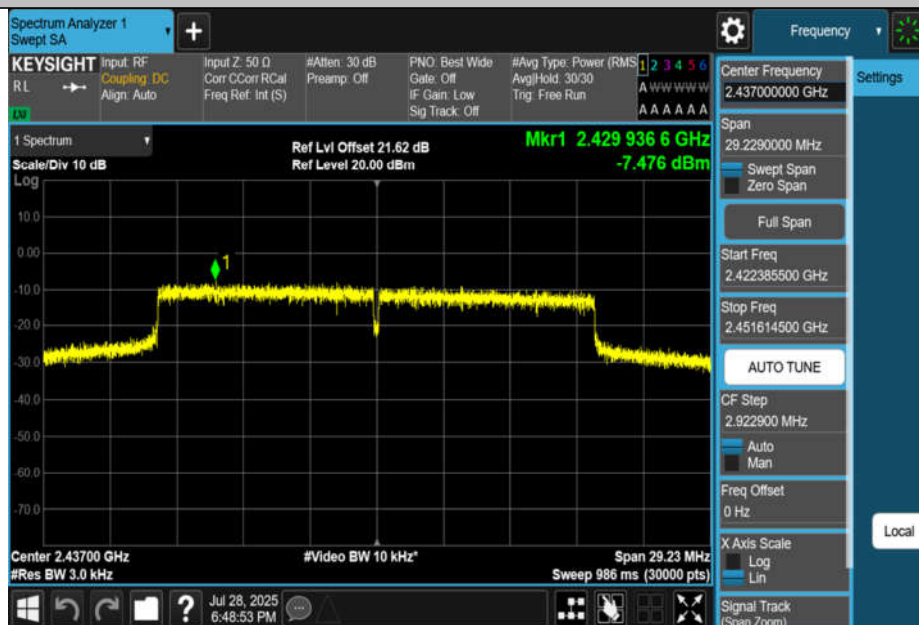
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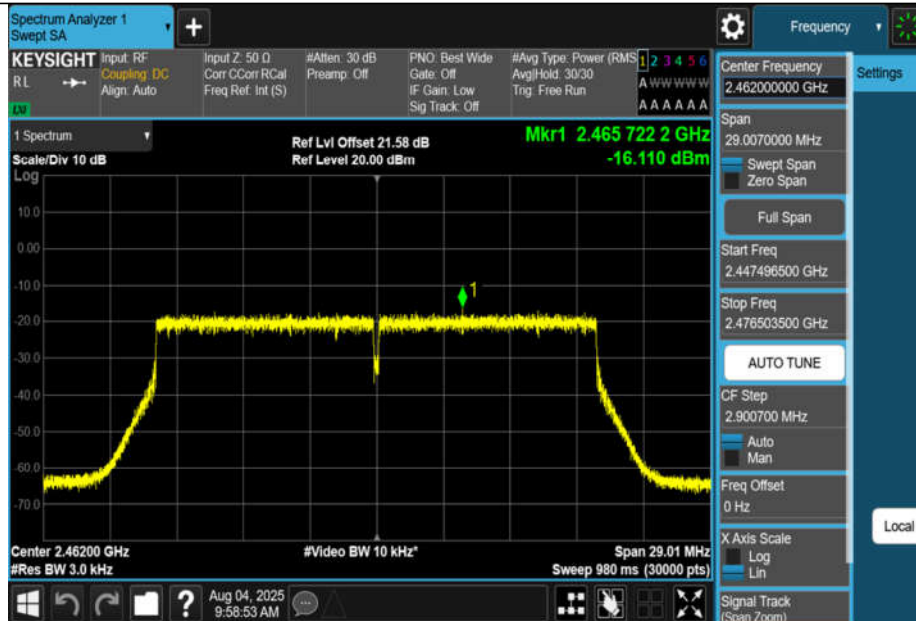
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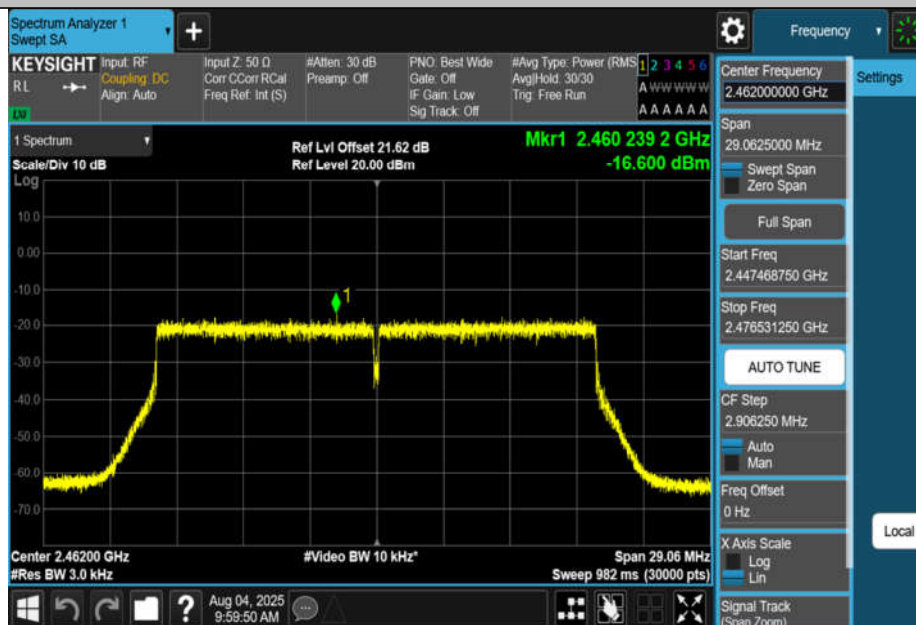
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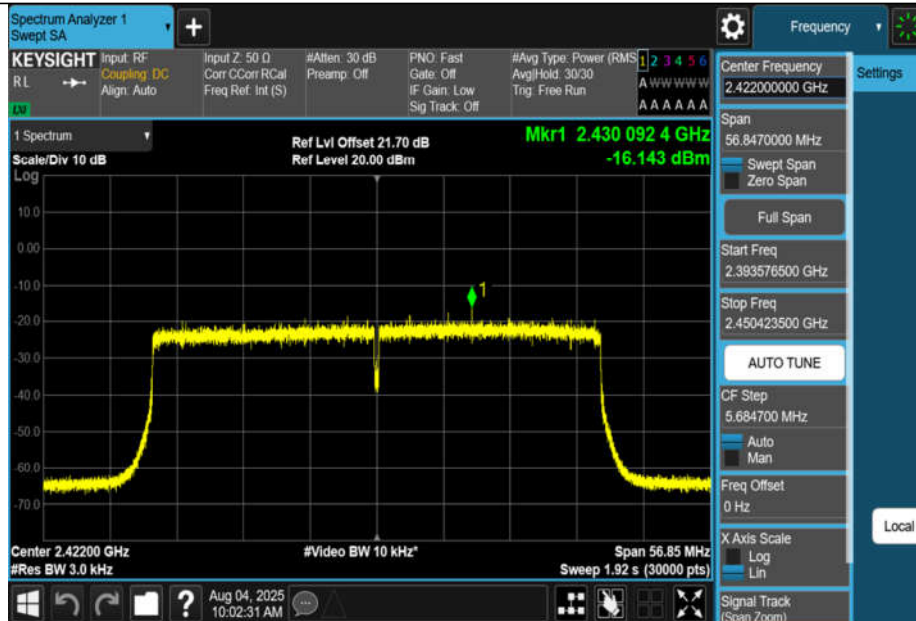
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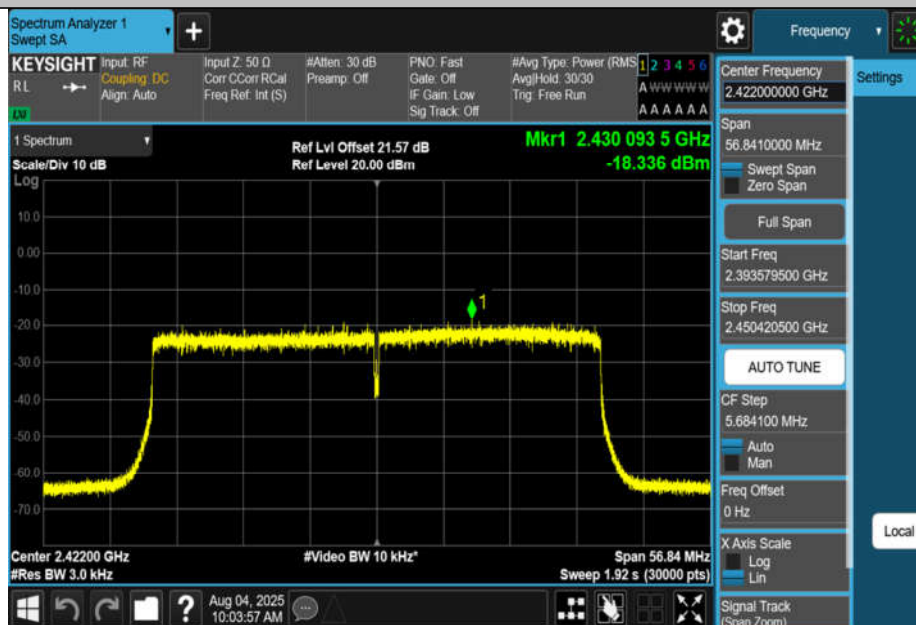
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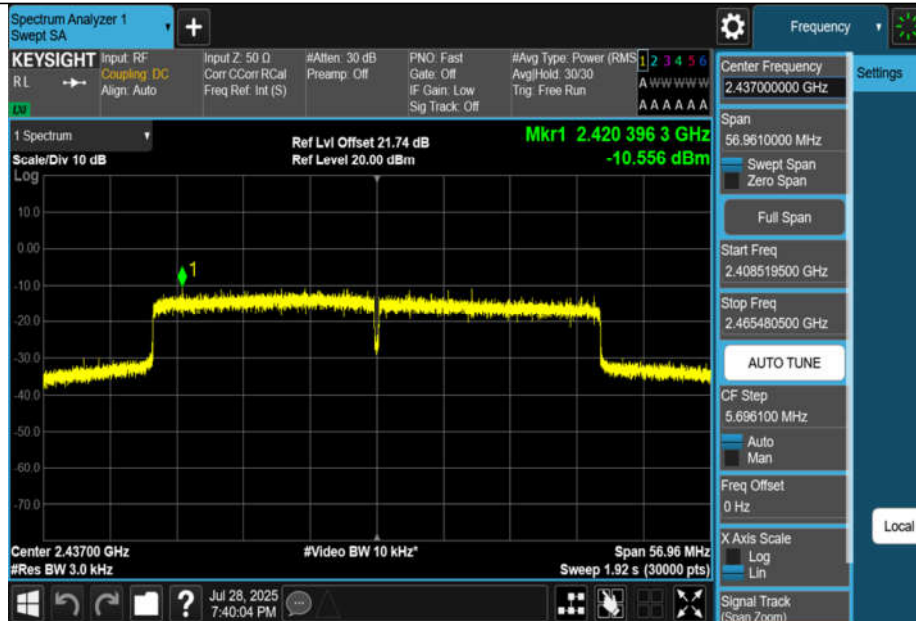
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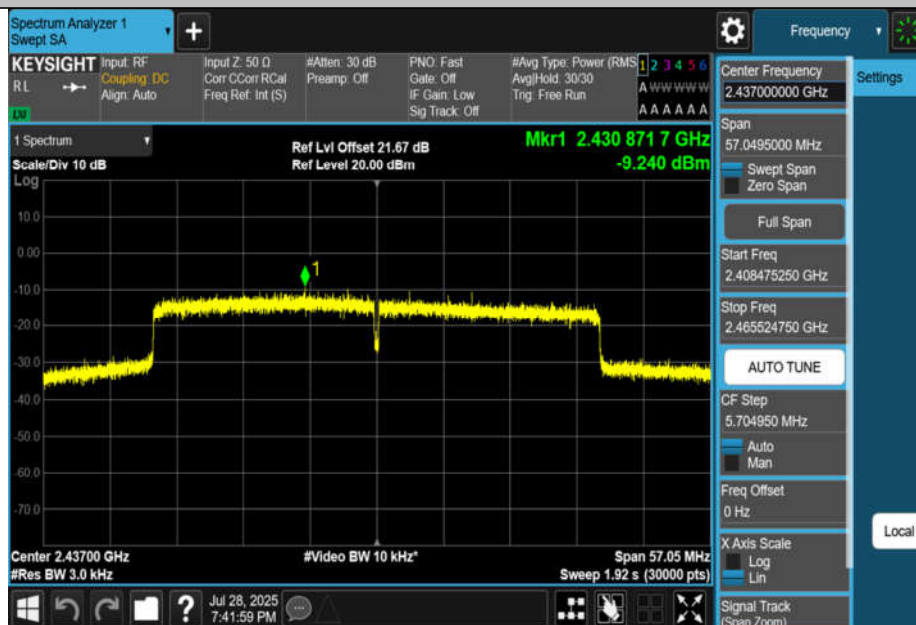
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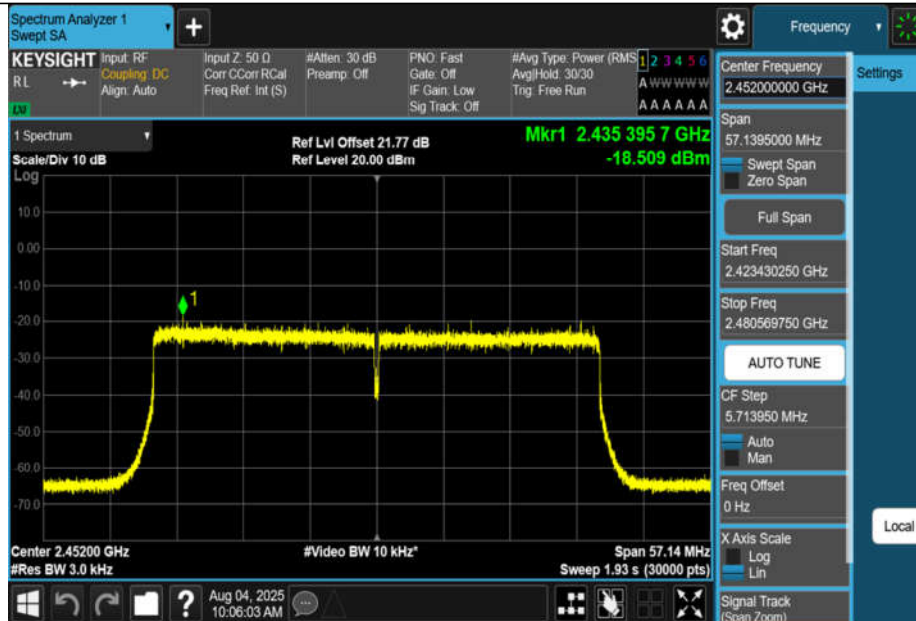
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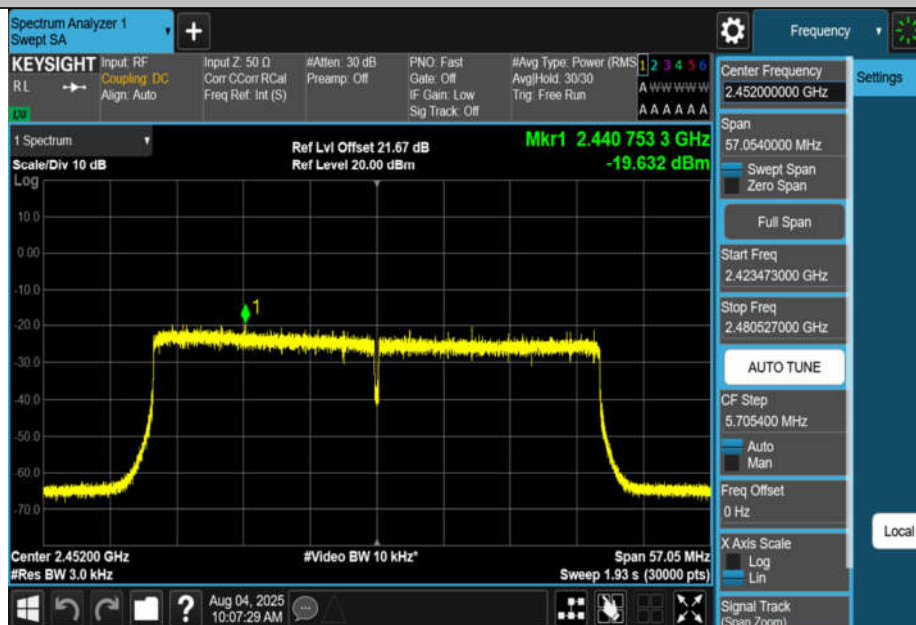
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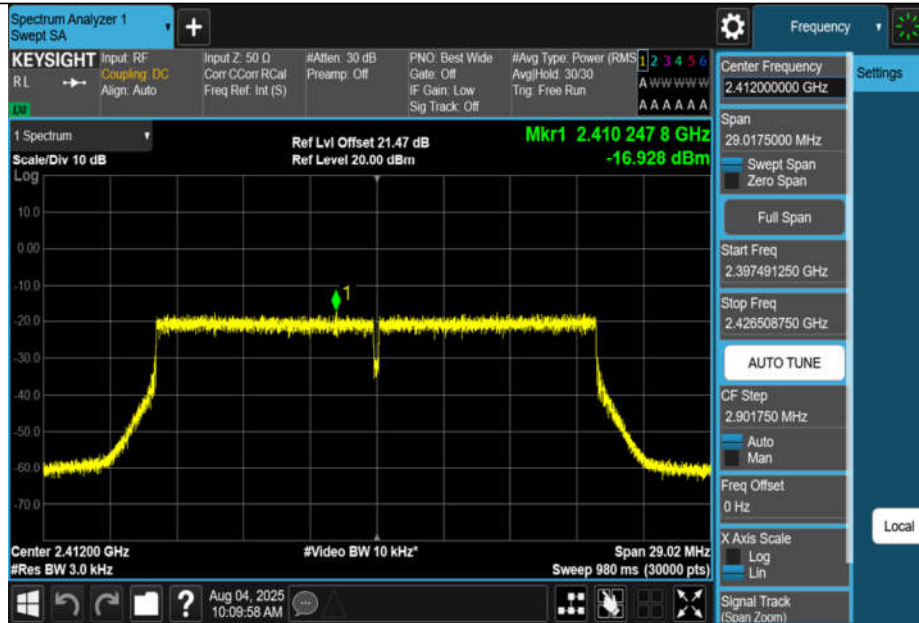
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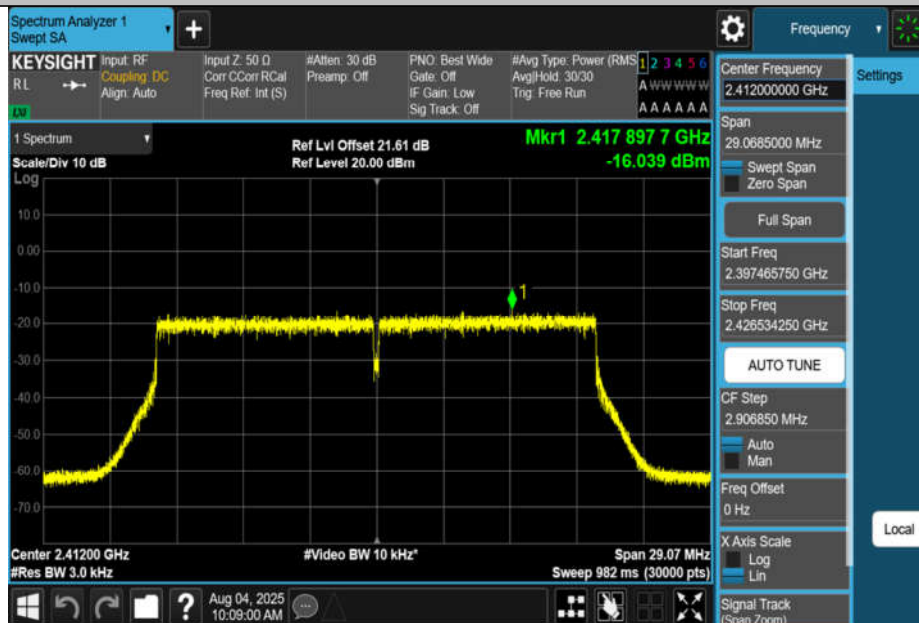
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11AX40MIMO-Ant2-2452-PASS



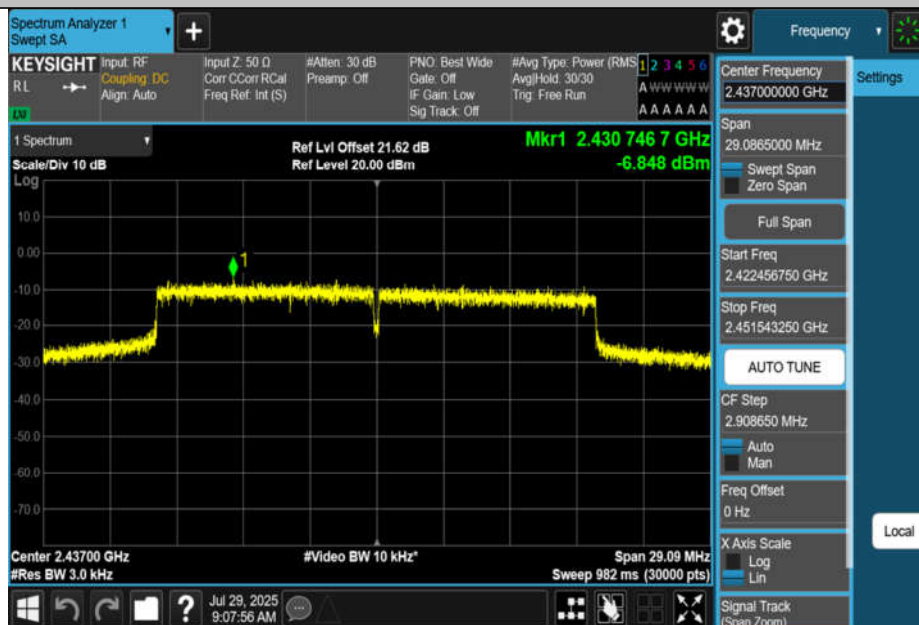
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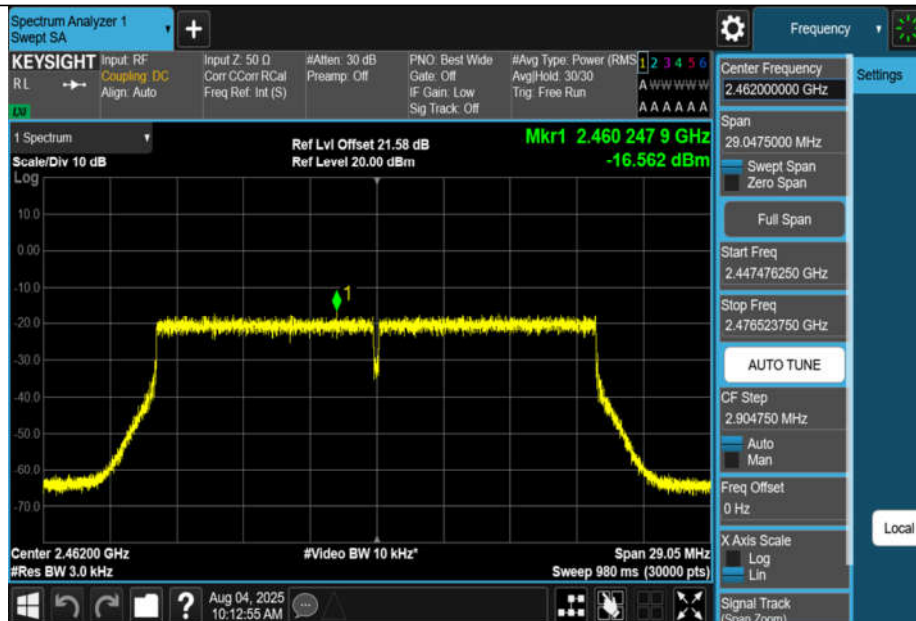
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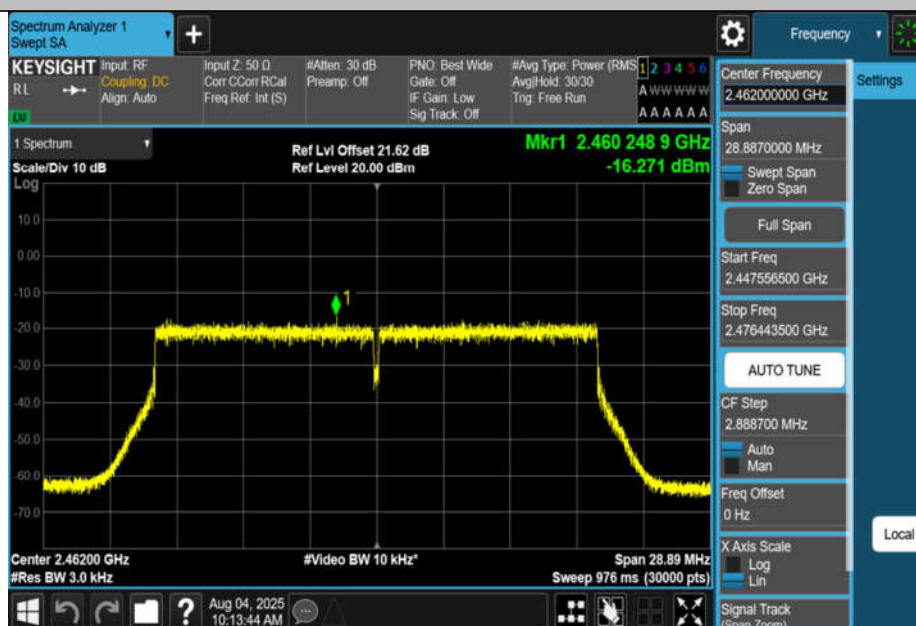
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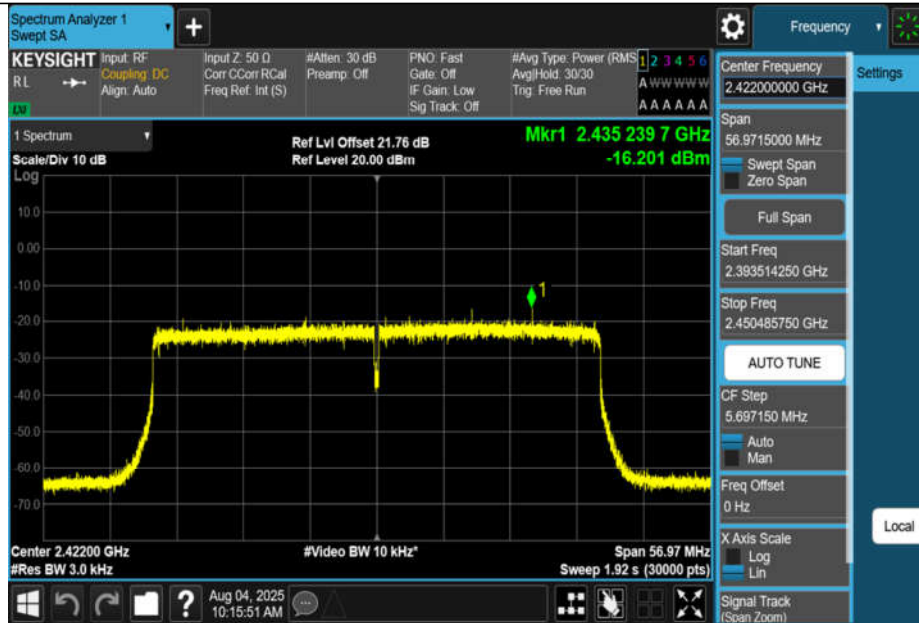
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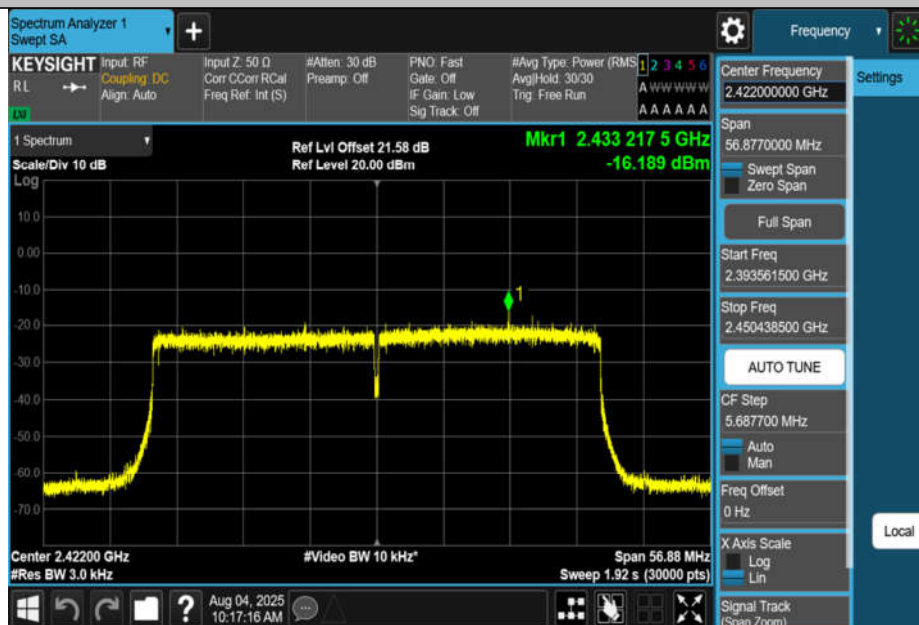
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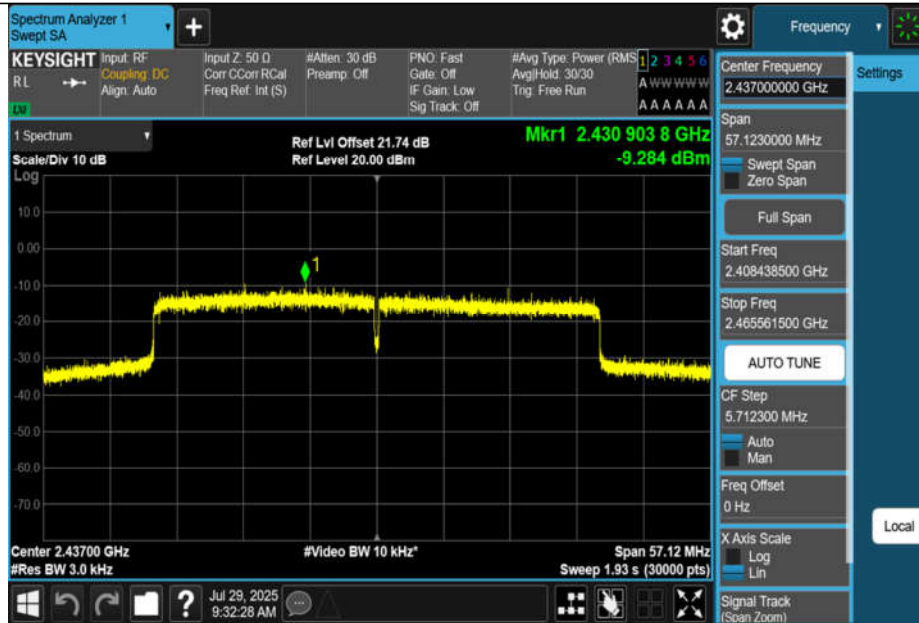
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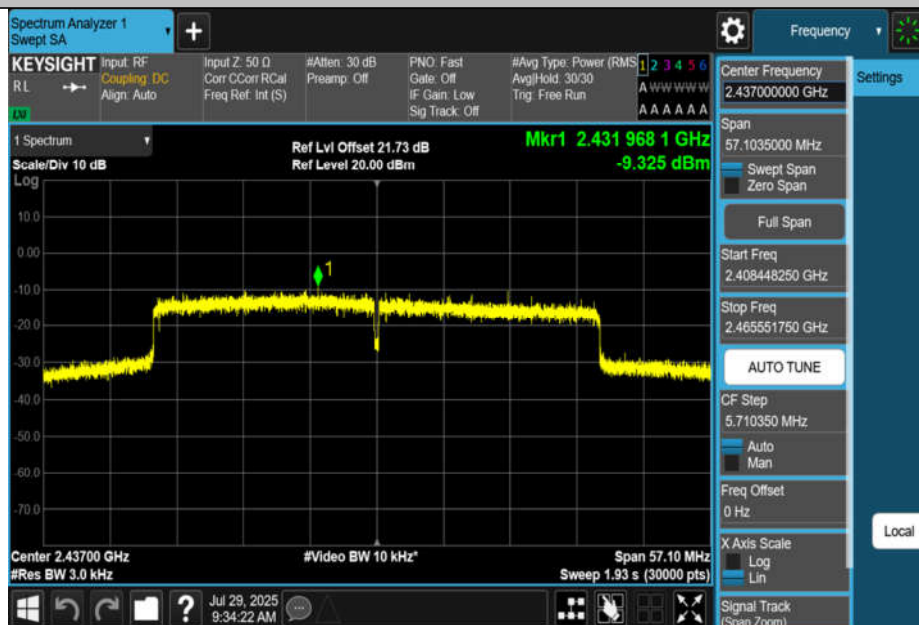
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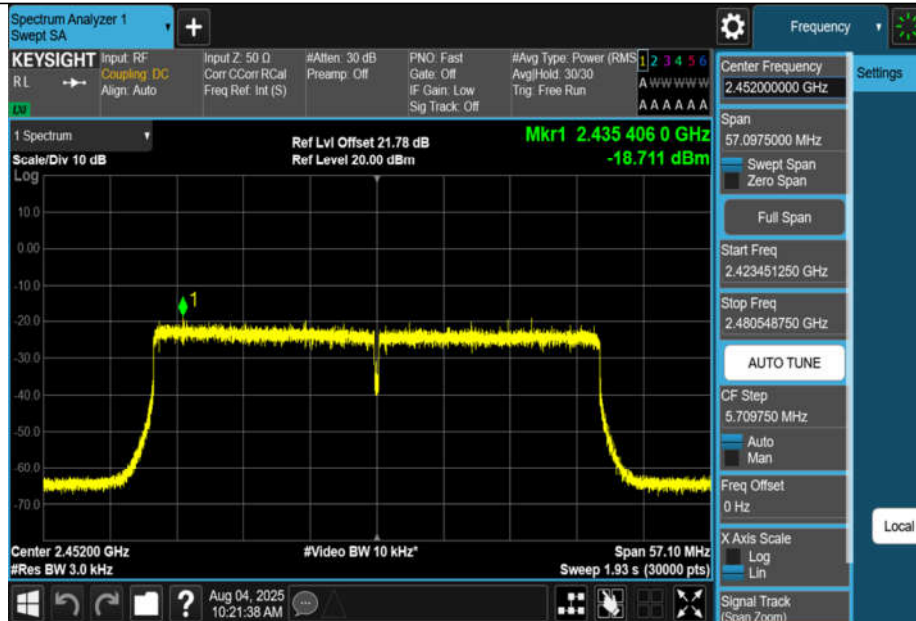
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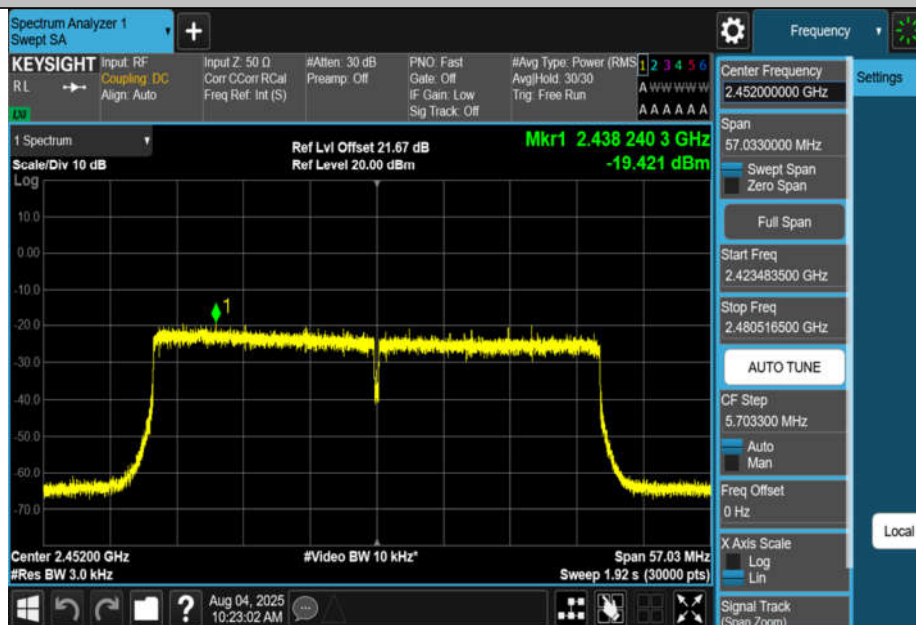
11BE40MIMO-Ant1-2437-PASS



11BE40MIMO-Ant2-2437-PASS



11BE40MIMO-Ant1-2452-PASS



11BE40MIMO-Ant2-2452-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.

Shenzhen Haiyun Standard Technical Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

Tel: 0755-26024411

Email: service@hy-lab.cn

End of Test Report