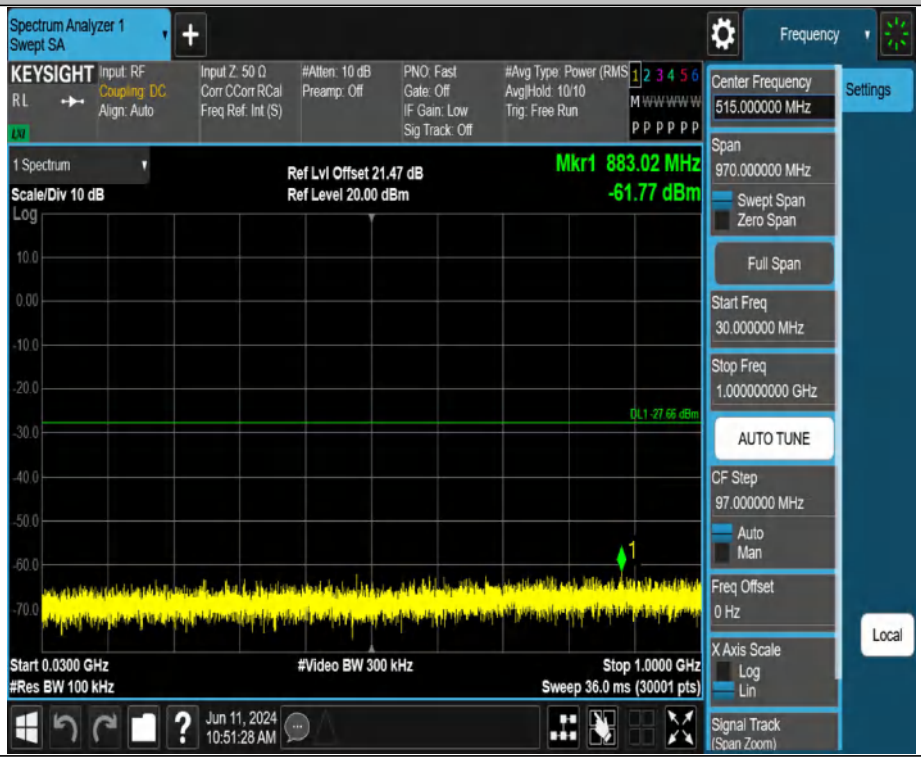
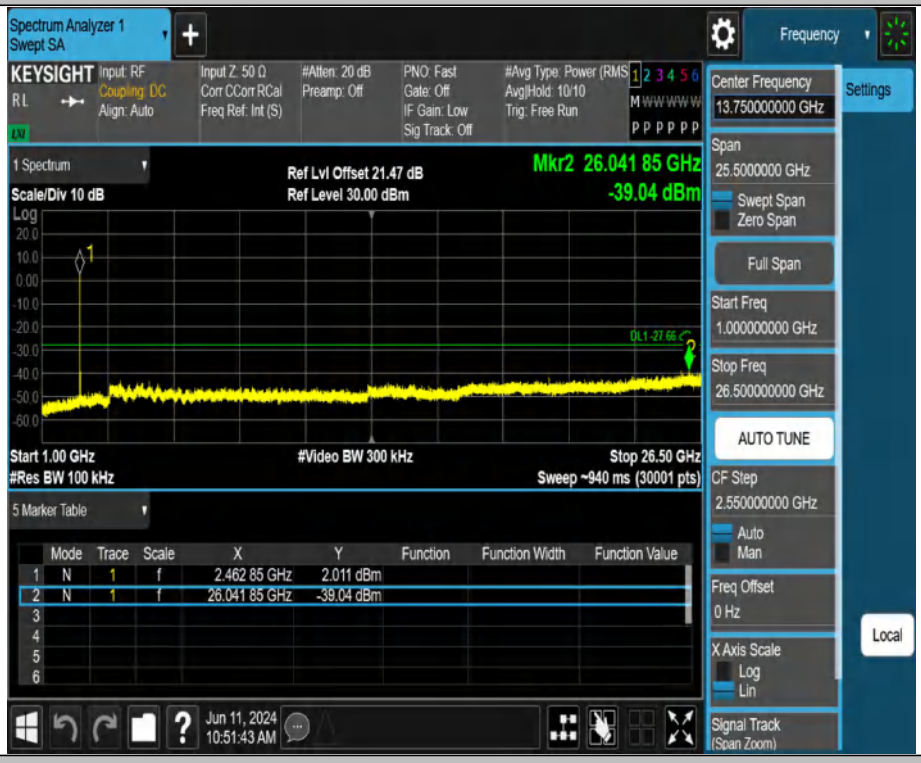
11B_Ant1_2462_0~Reference

11B_Ant1_2462_30~1000


11B_Ant1_2462_1000~26500

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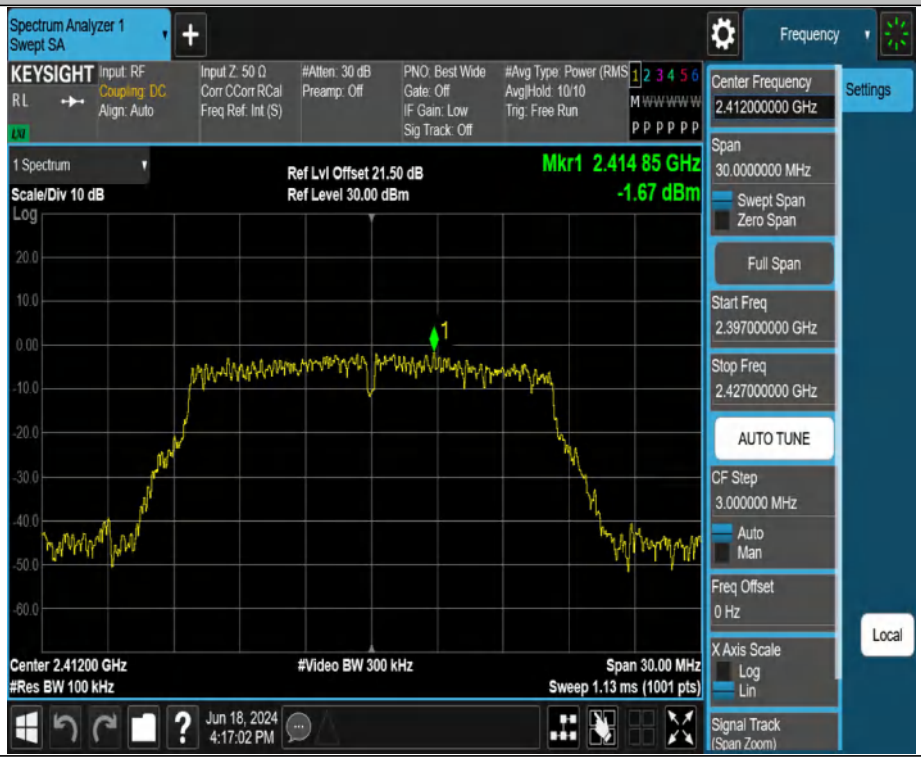
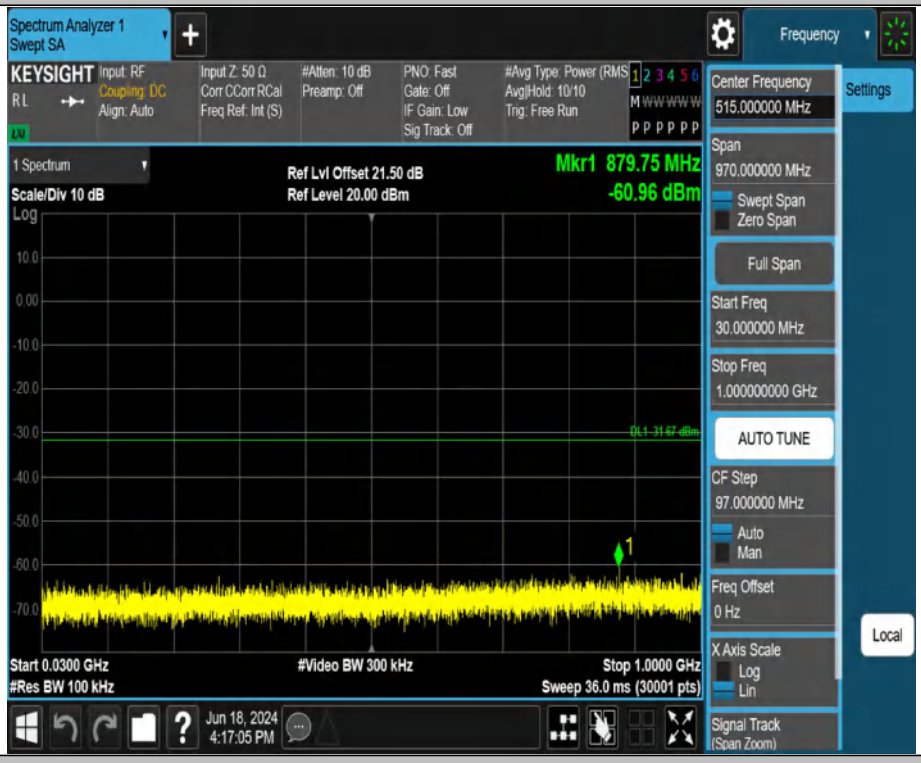
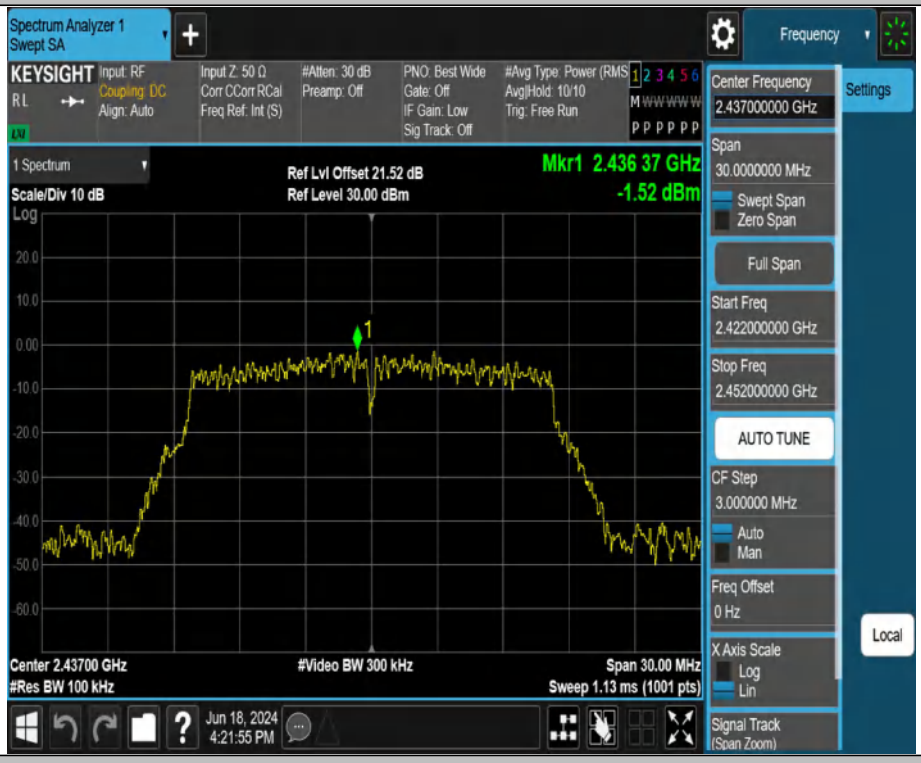


11G_Ant1_2412_30~1000

11G_Ant1_2412_1000~26500


11G_Ant1_2437_0~Reference

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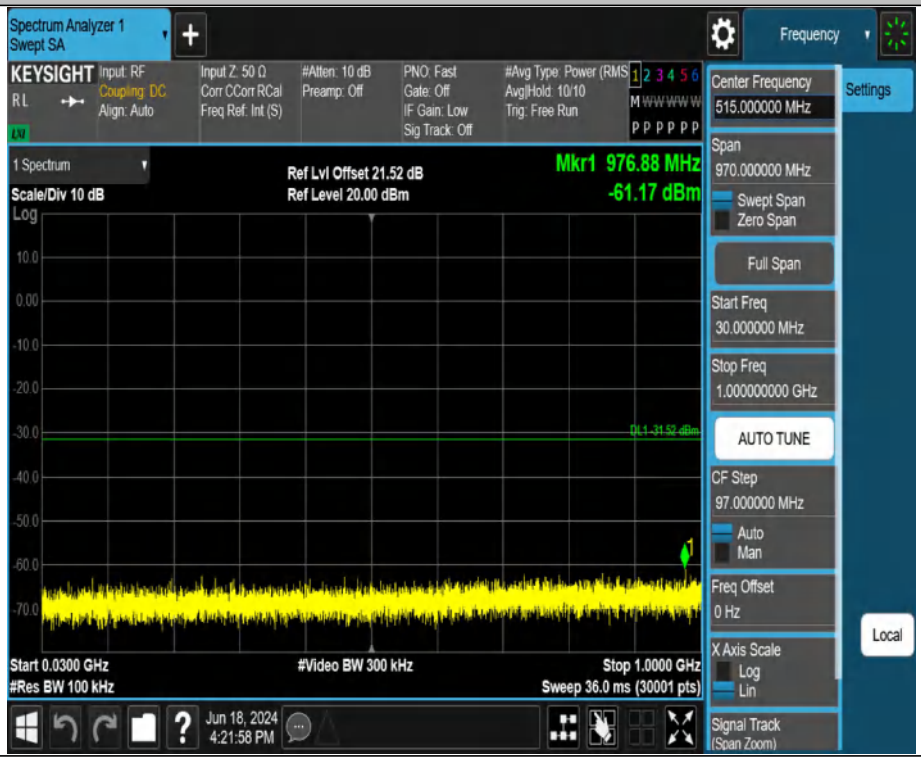

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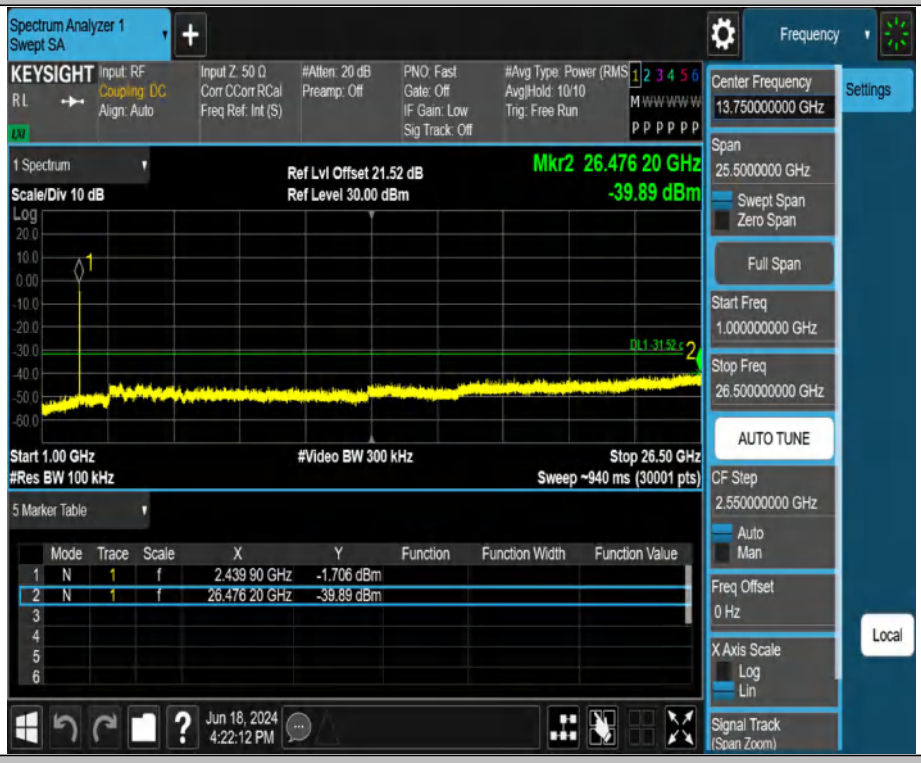
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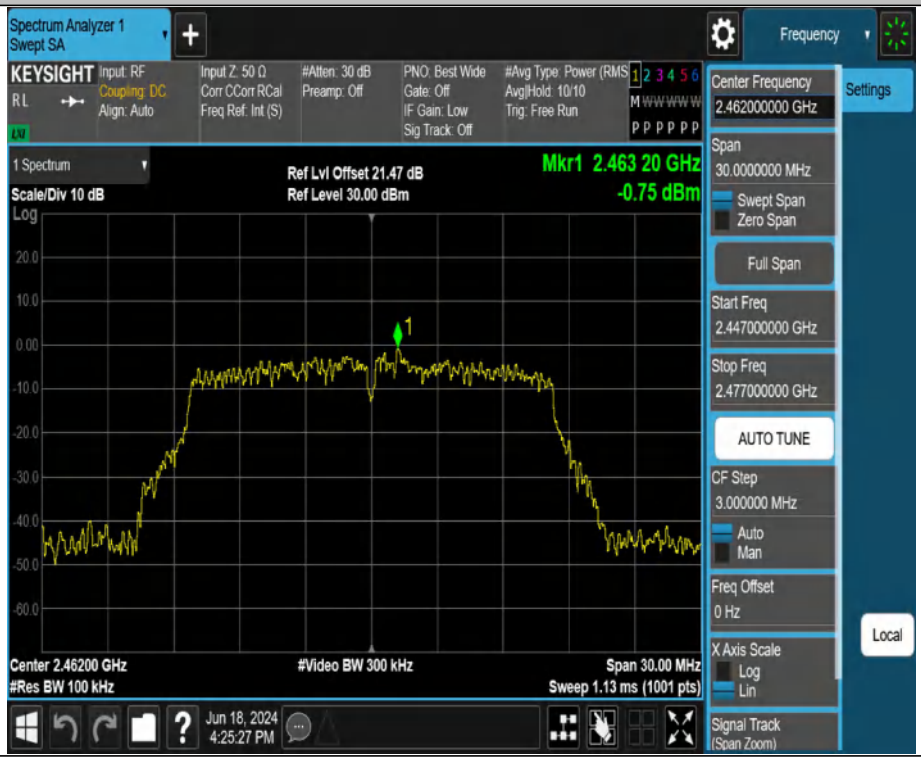

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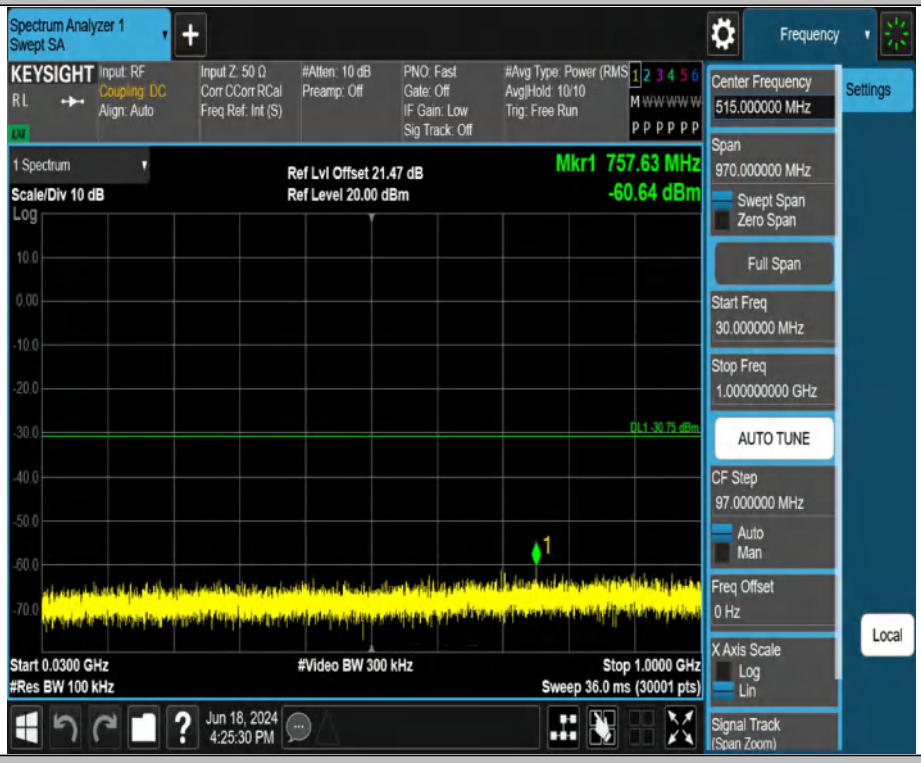
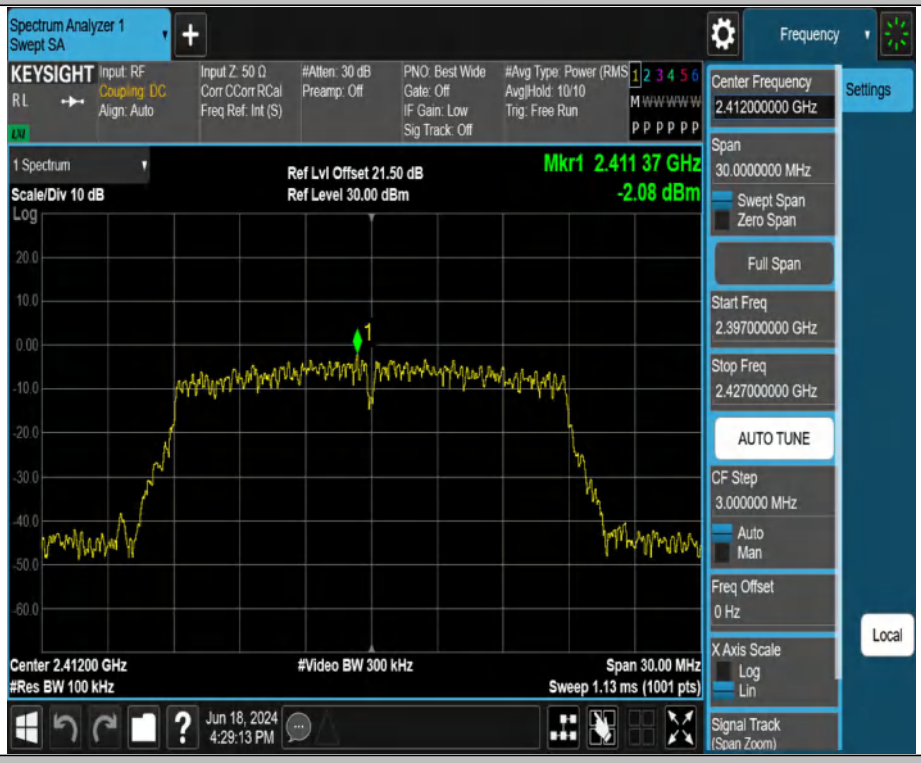

11G_Ant1_2462_1000~26500


11N20SISO_Ant1_2412_0~Reference

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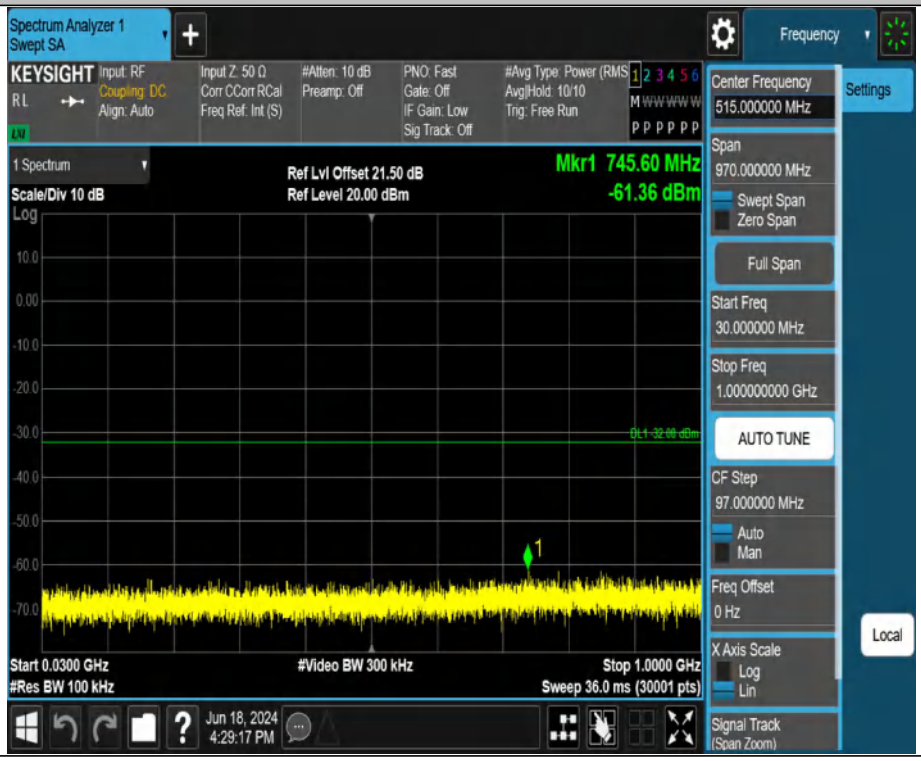

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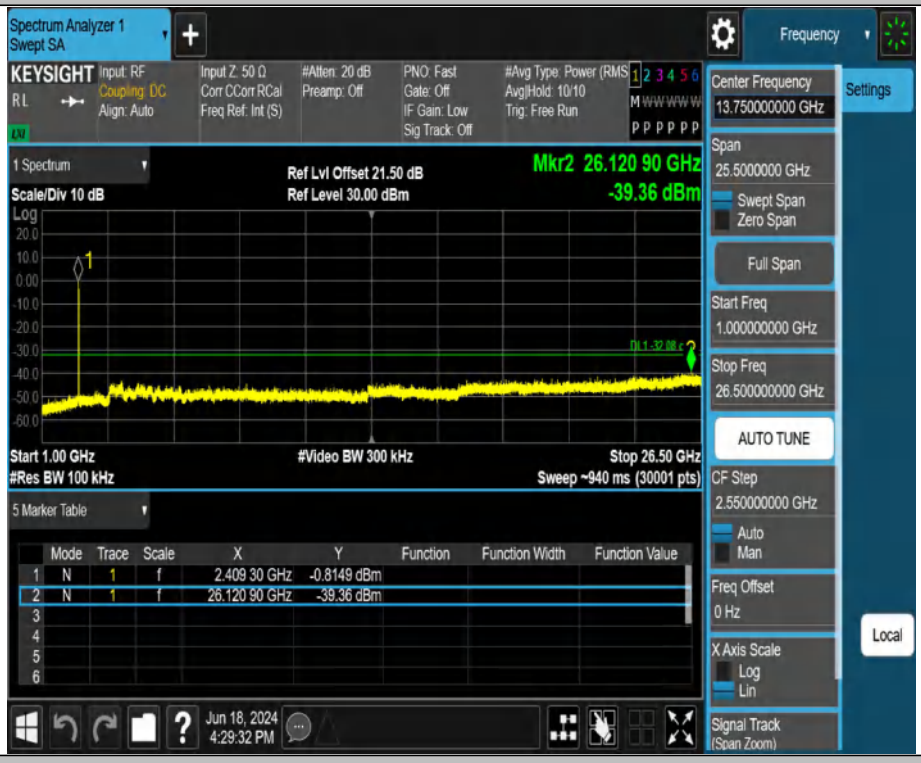
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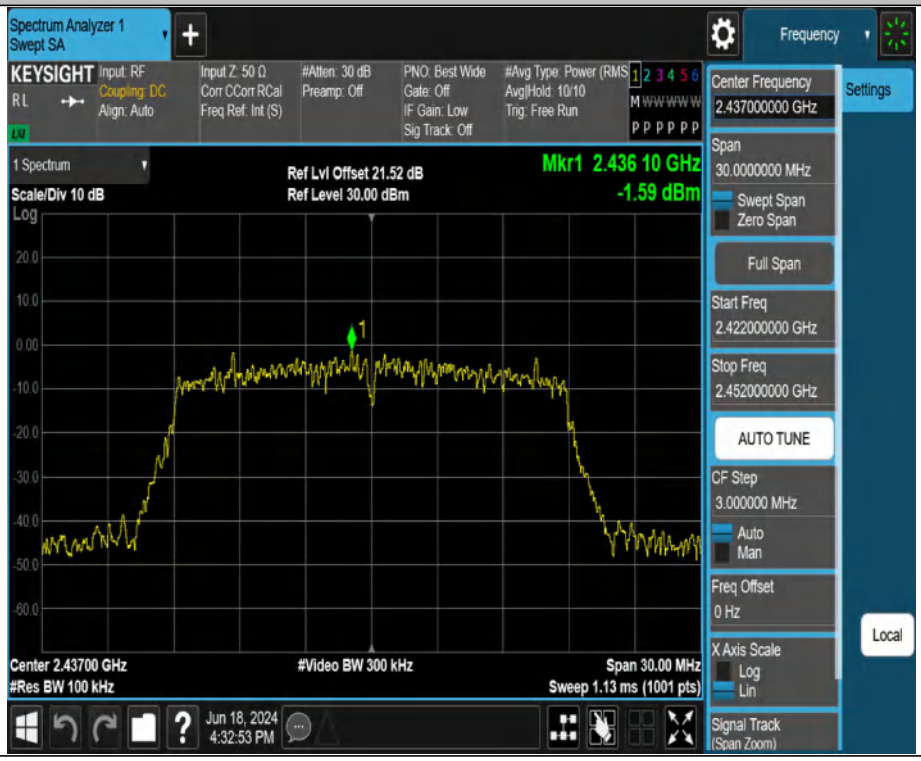

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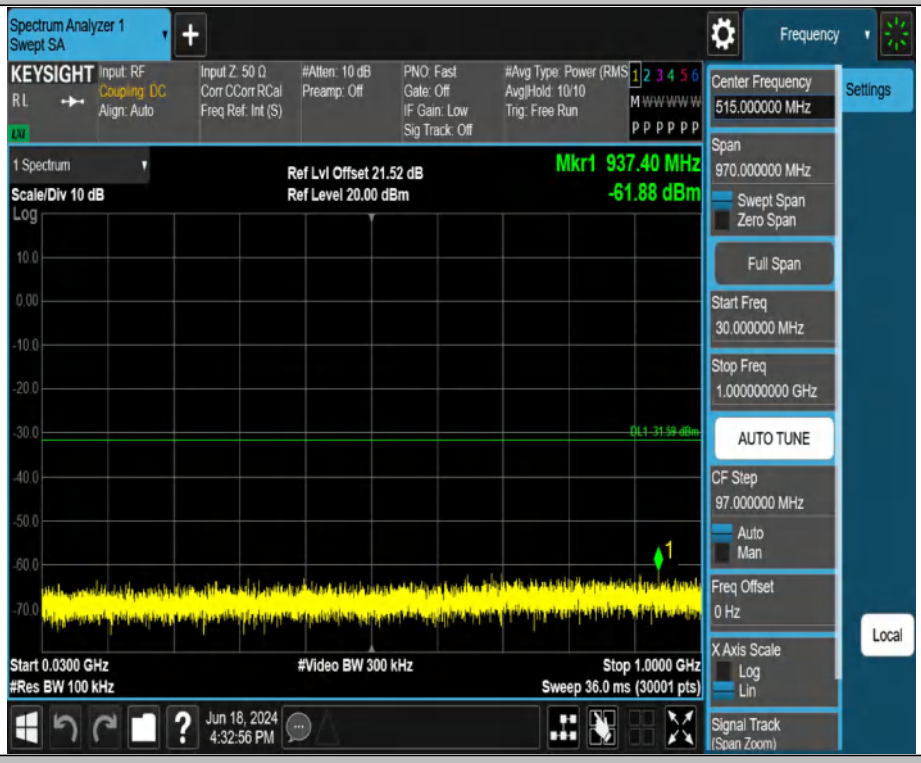
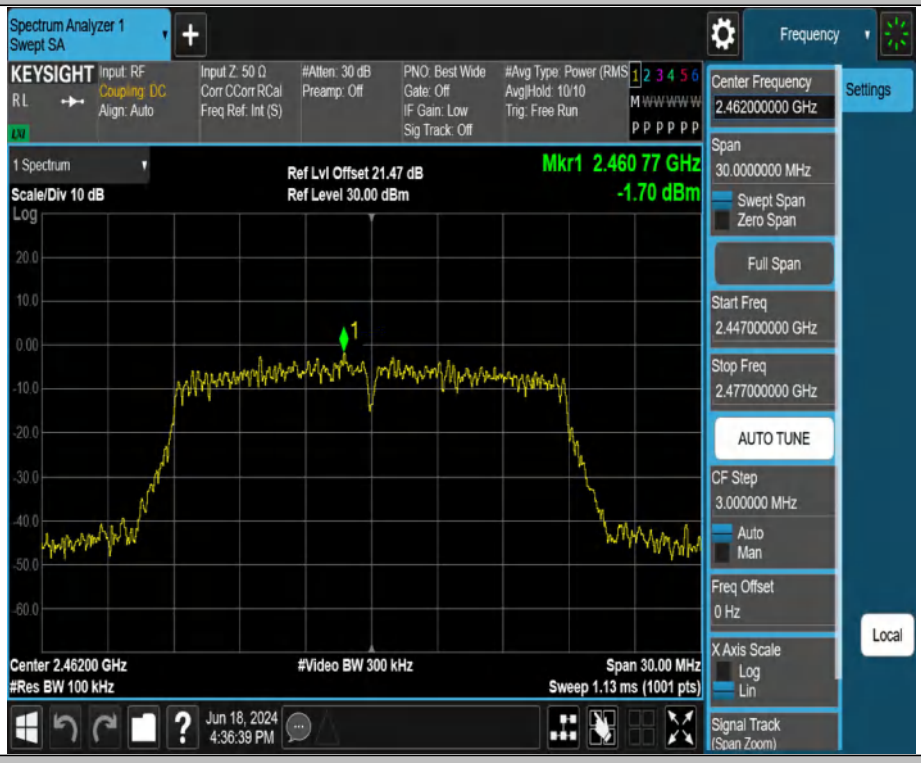

11N20SISO_Ant1_2437_1000~26500


11N20SISO_Ant1_2462_0~Reference

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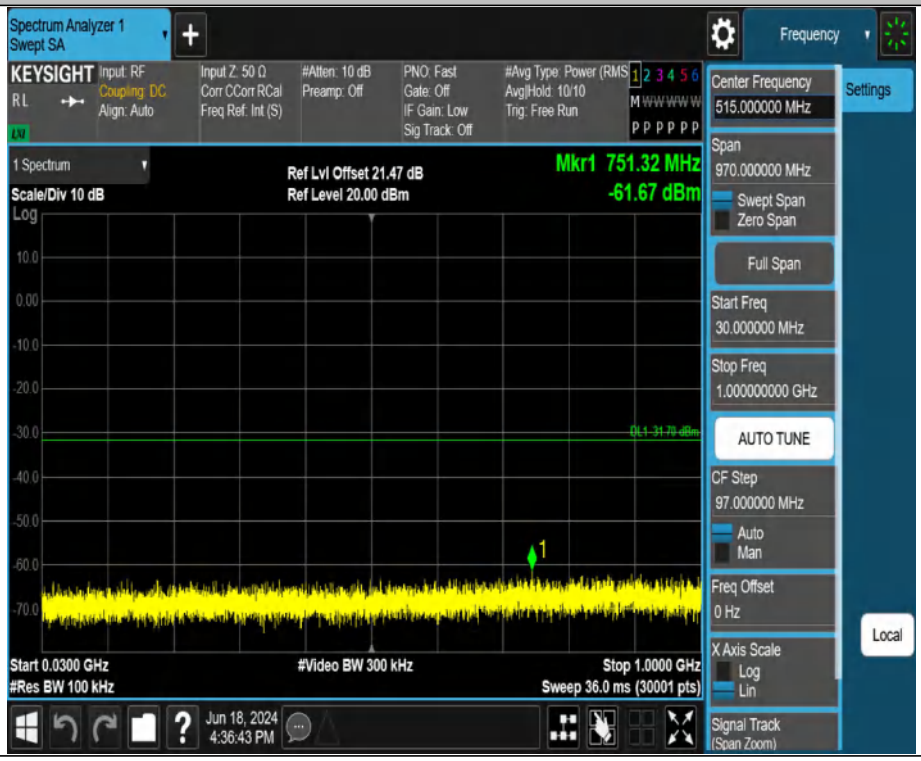
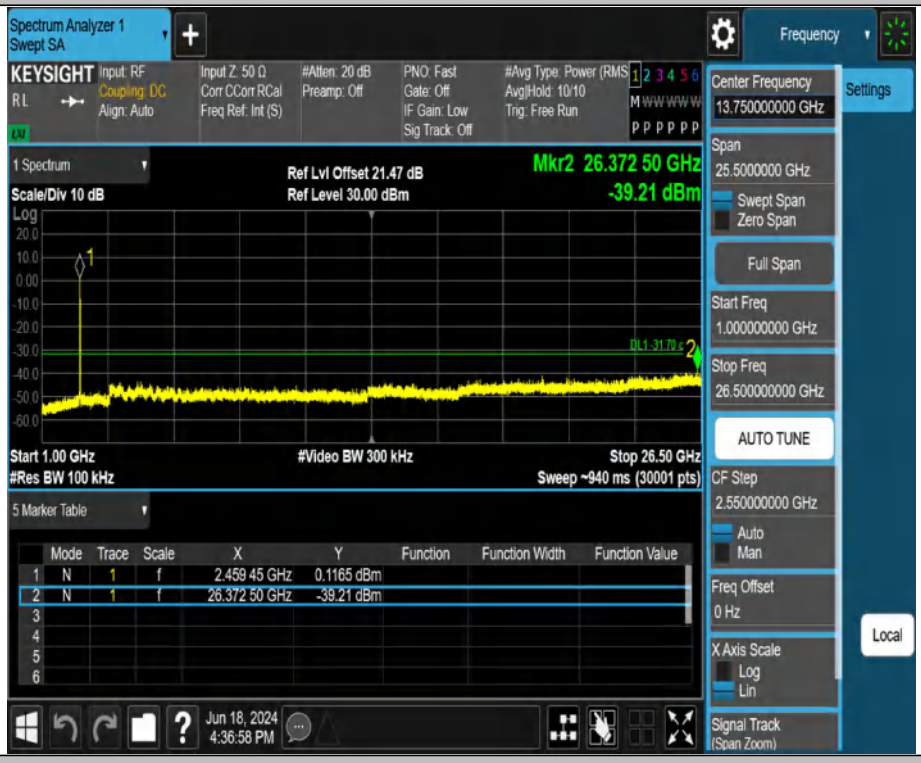
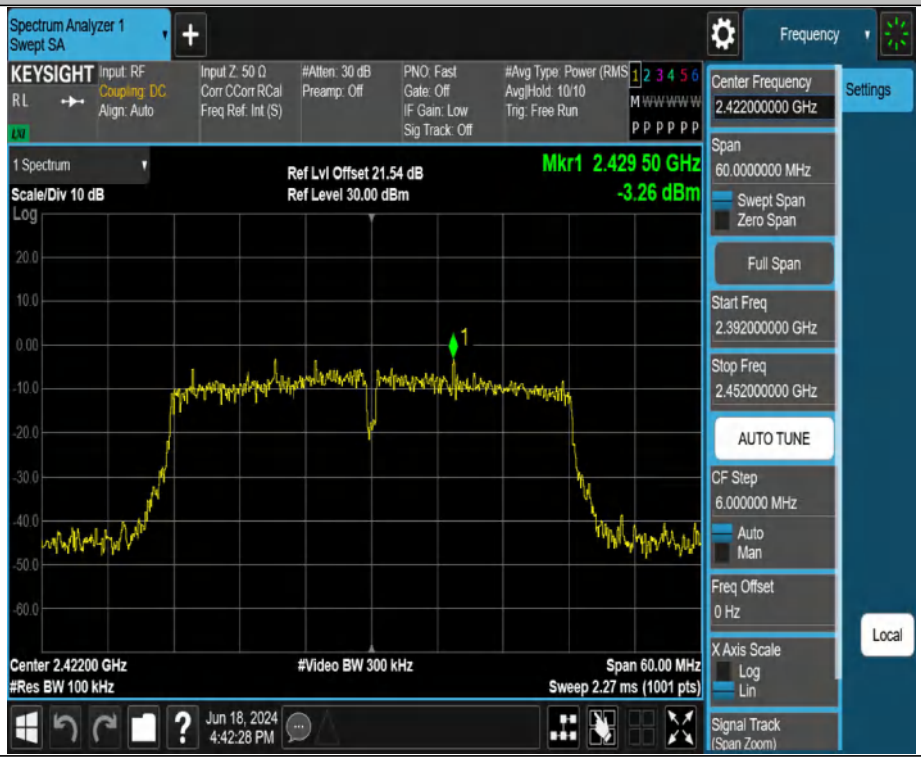
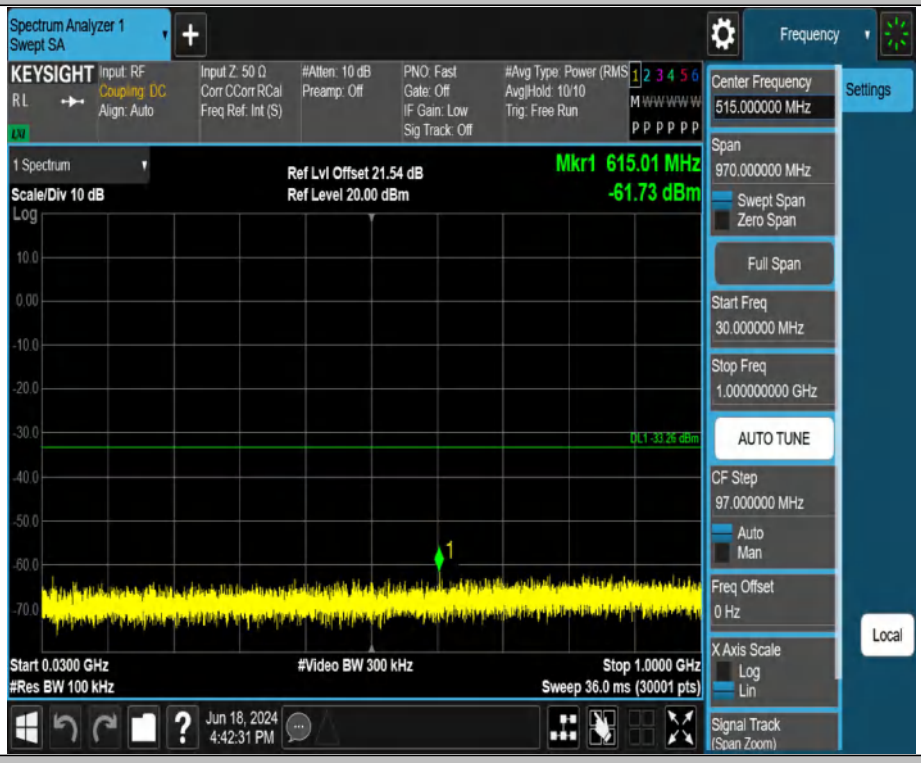
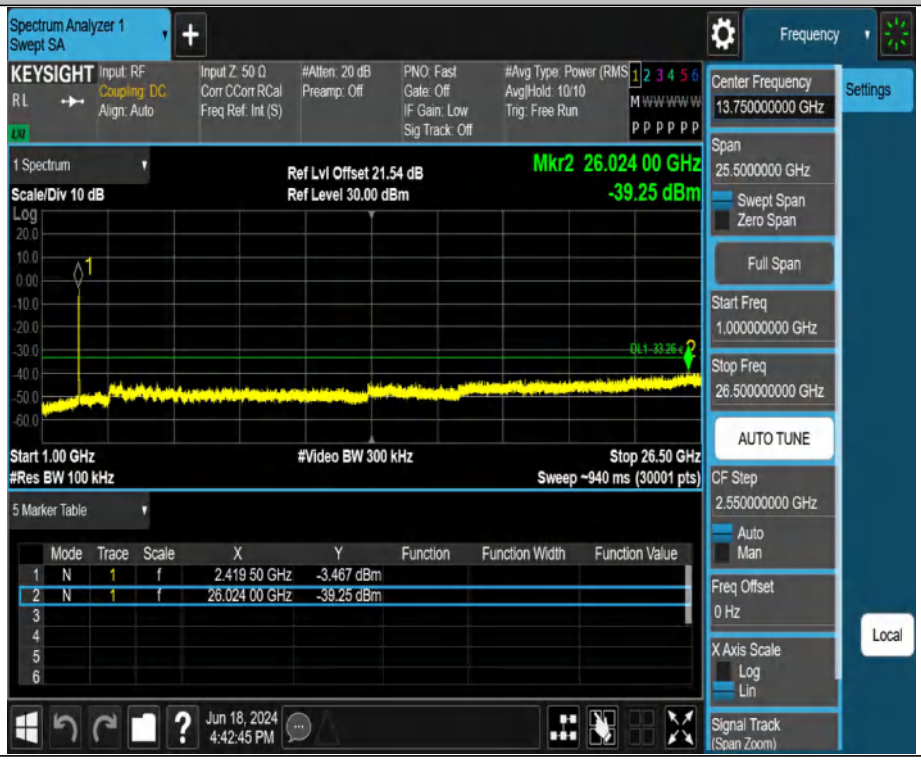


11N20SISO_Ant1_2462_1000~26500

11N40SISO_Ant1_2422_0~Reference


11N40SISO_Ant1_2422_30~1000

11N40SISO_Ant1_2422_1000~26500


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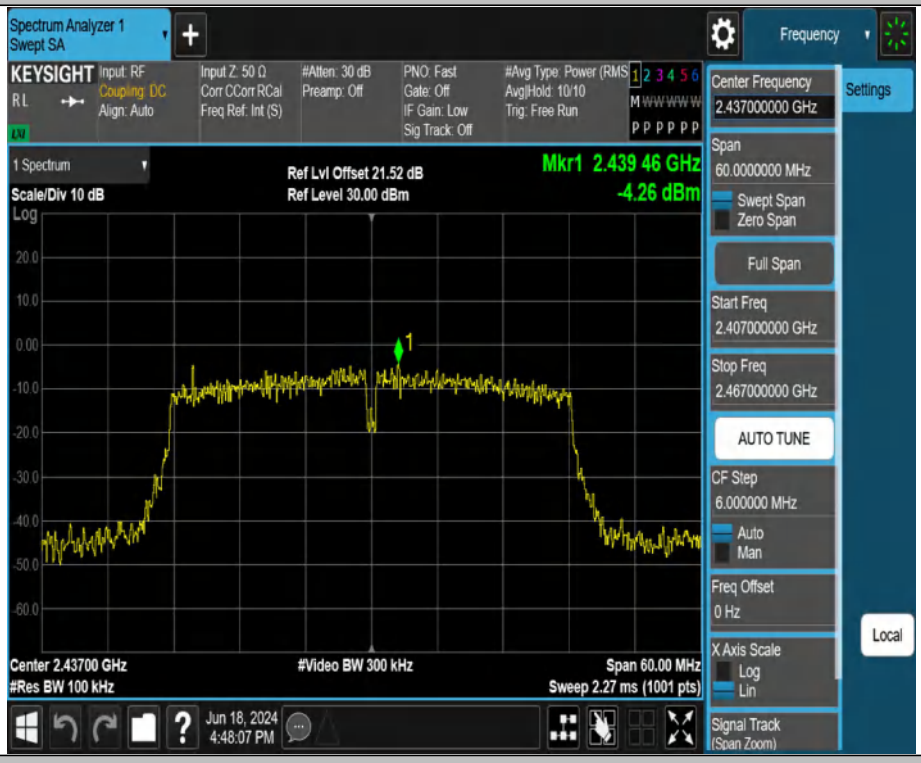
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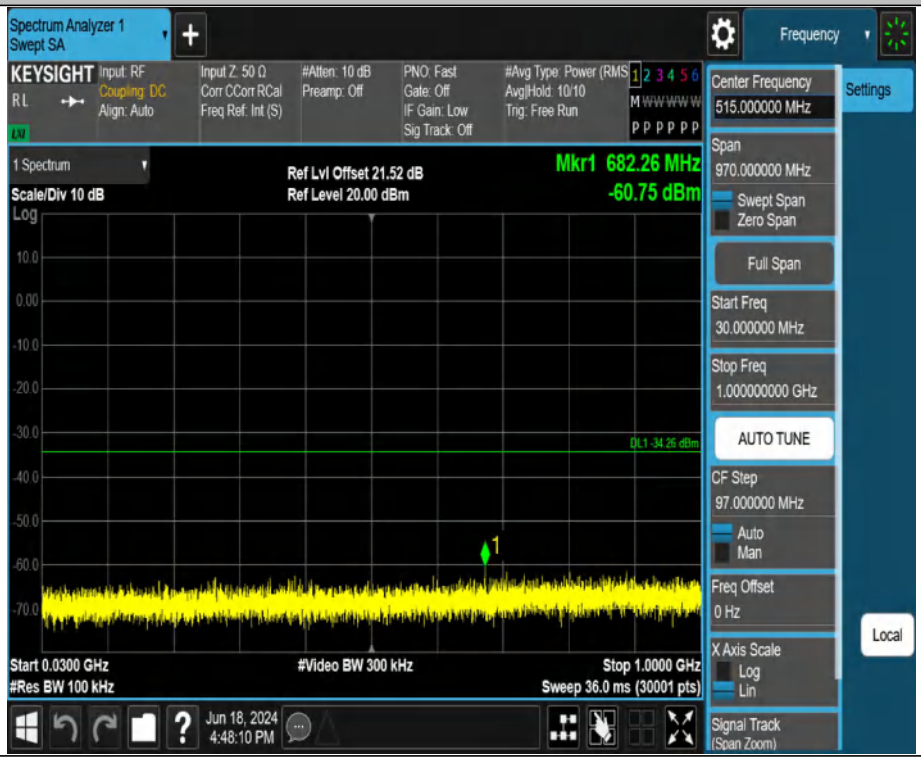
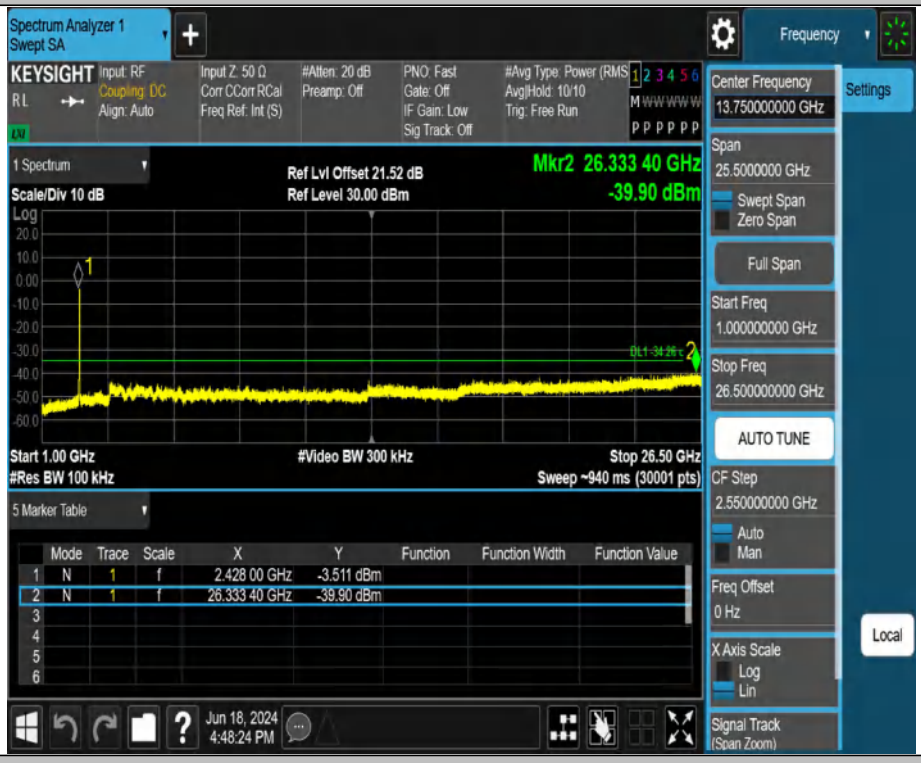


11N40SISO_Ant1_2437_1000~26500

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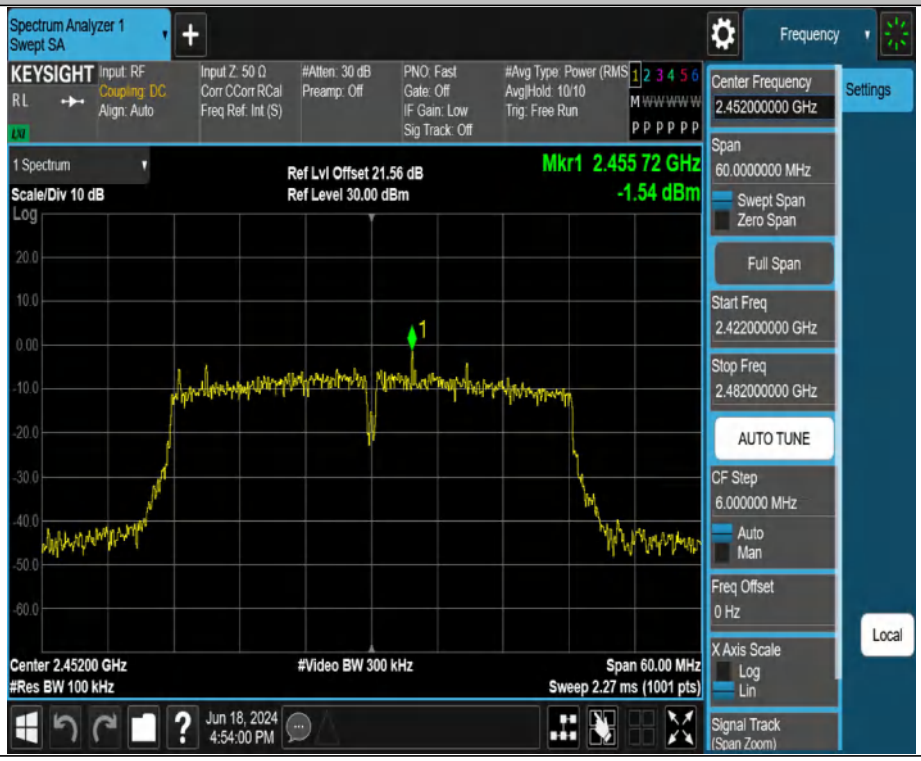
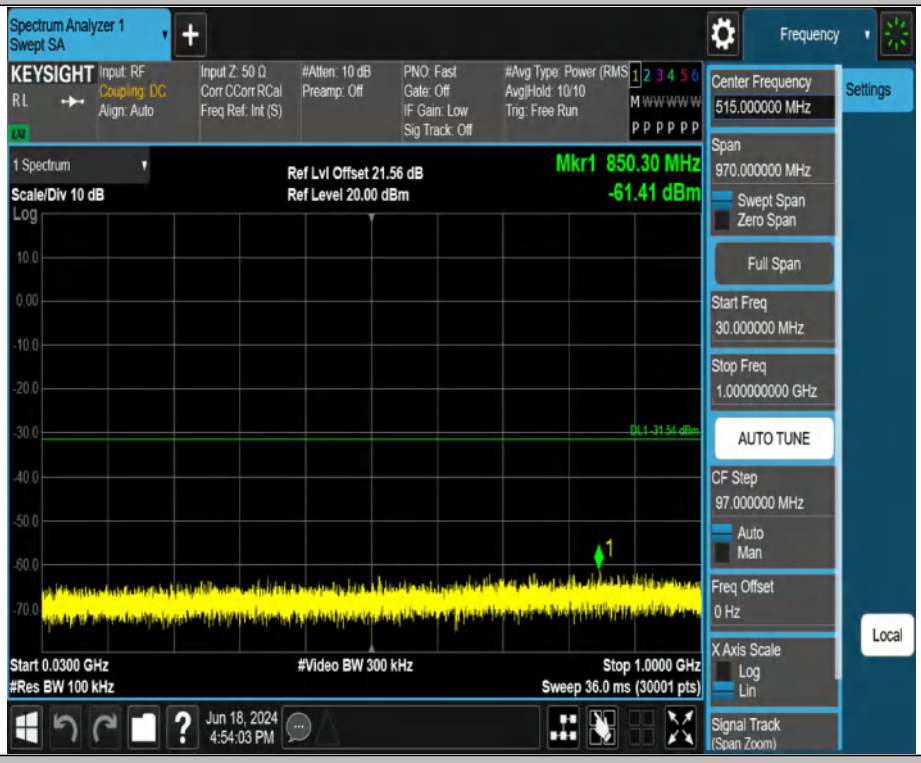
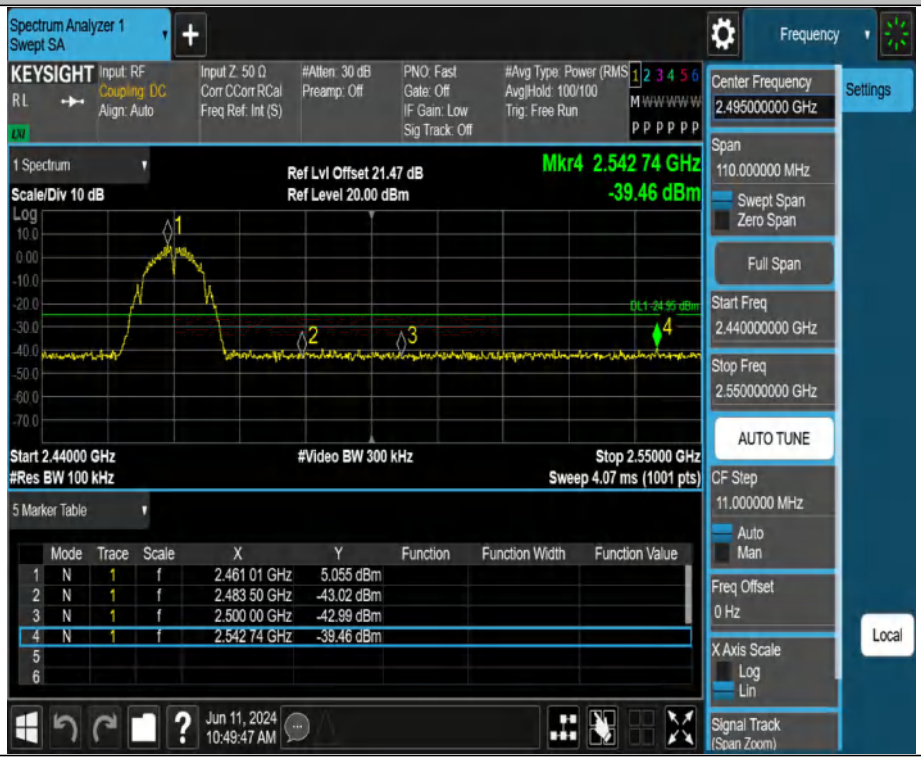
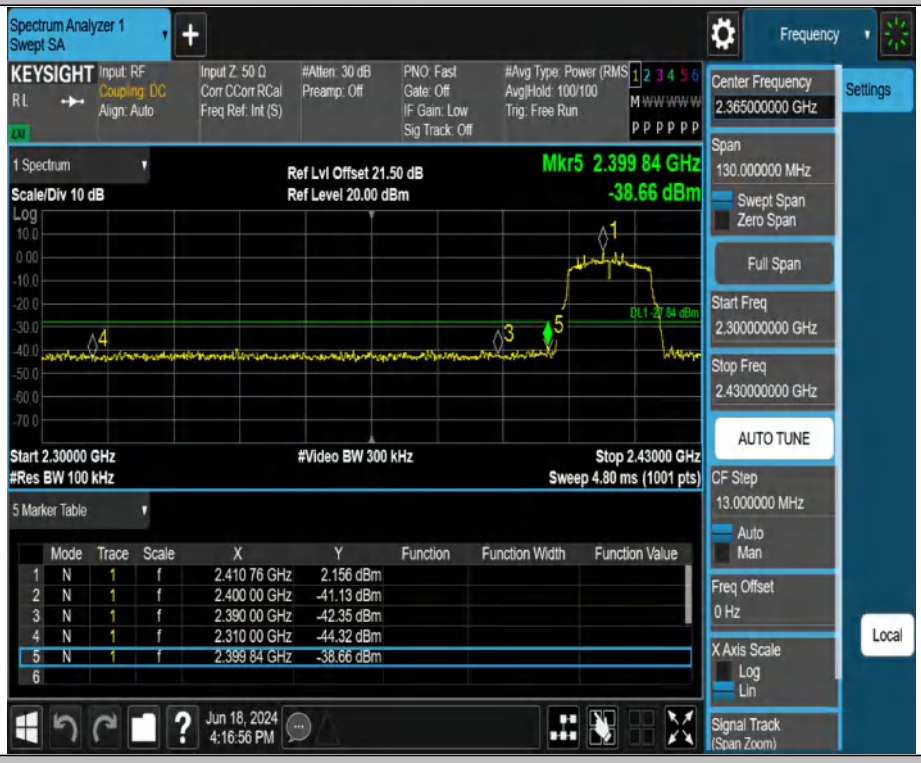
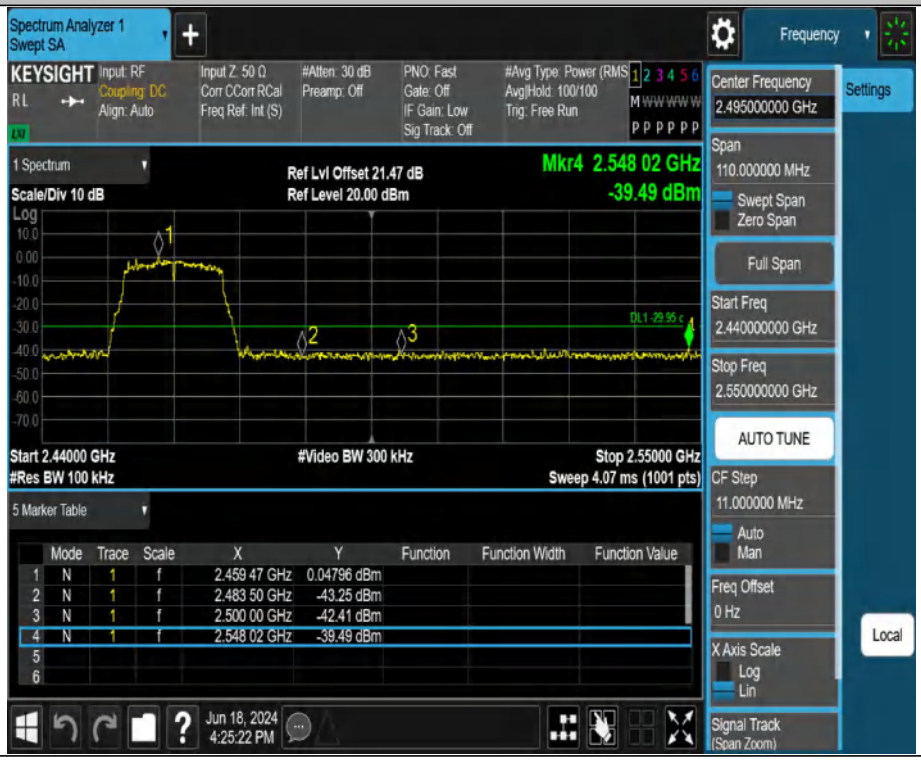


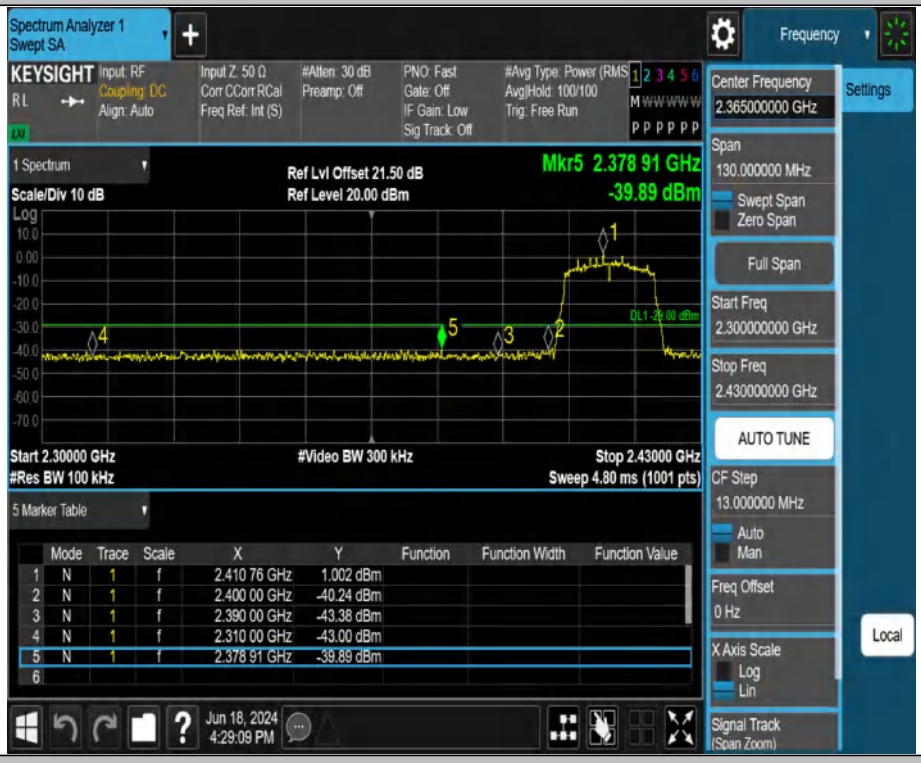
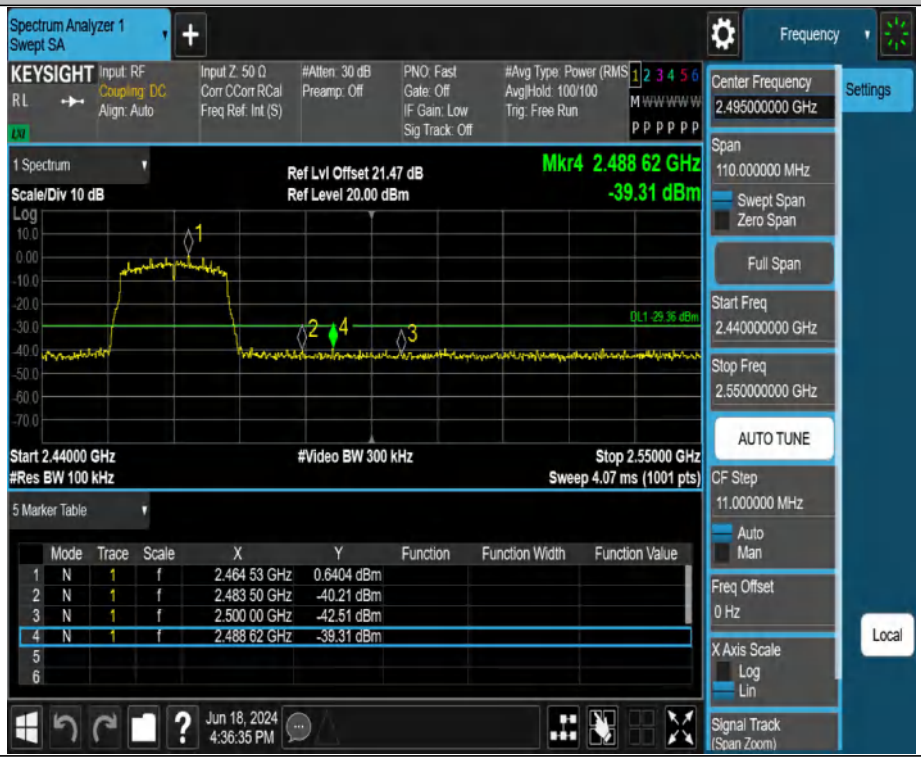
11N40SISO_Ant1_2452_30~1000

11N40SISO_Ant1_2452_1000~26500

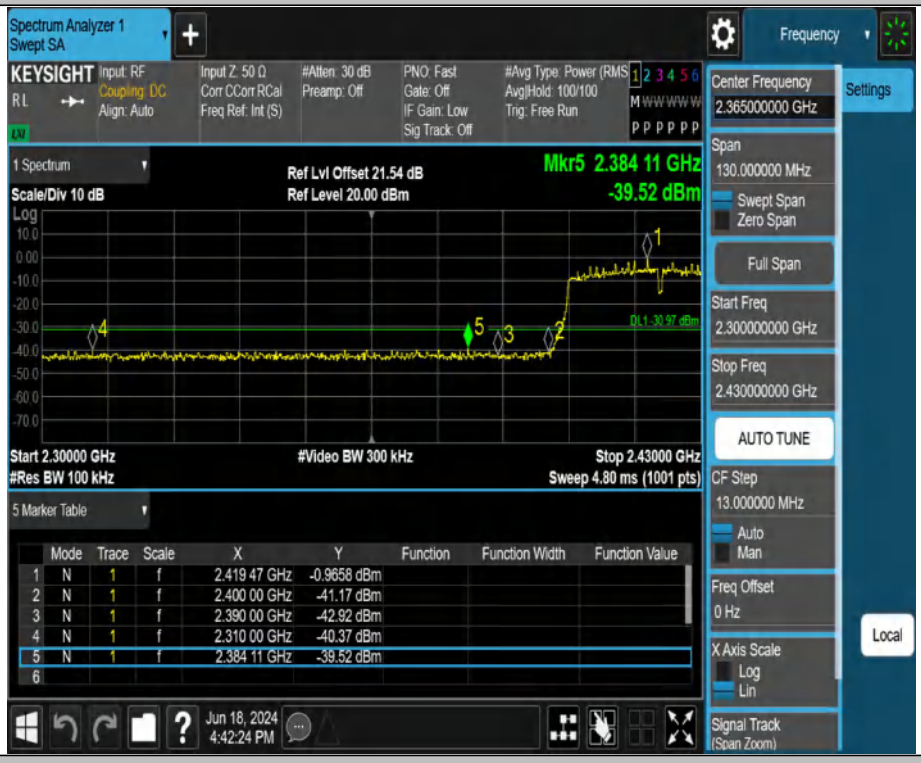
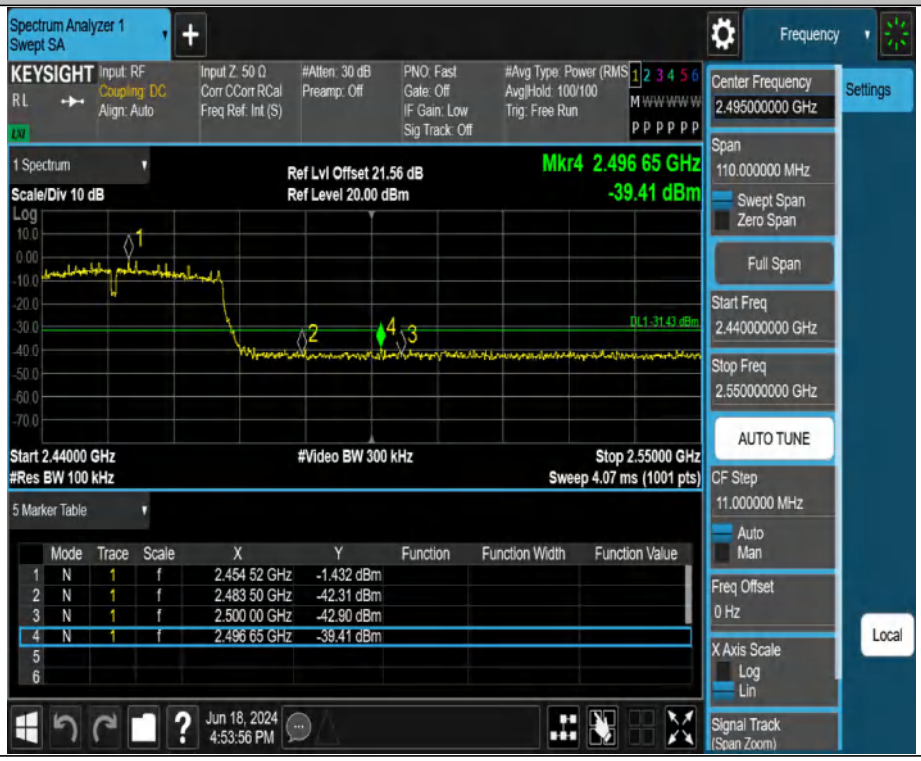

Band edge

11B_Ant1_Low_2412

11B_Ant1_High_2462


11G_Ant1_Low_2412

11G_Ant1_High_2462


11N20SISO_Ant1_Low_2412

11N20SISO_Ant1_High_2462


11N40SISO_Ant1_Low_2422

11N40SISO_Ant1_High_2452


3.4 6dB Bandwidth

3.4.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

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	

a) The EUT was connected to the tonscend test system, and the spectrum analyser is set as follow:

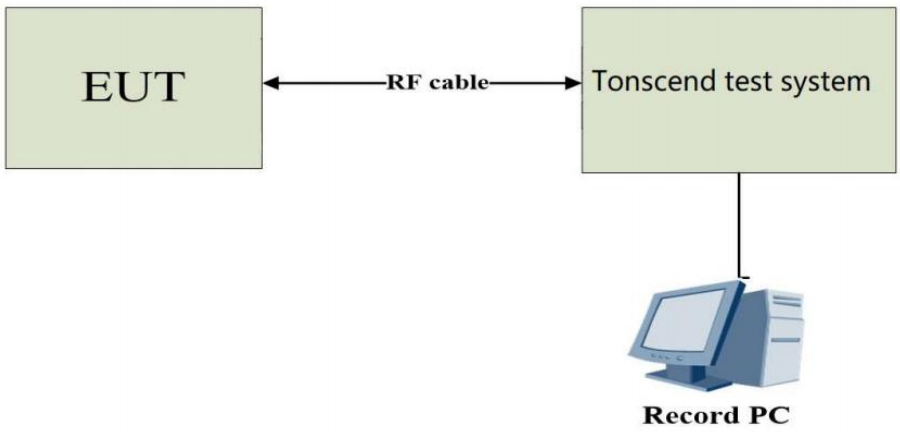
Centre Frequency	The centre frequency of the channel under test
RBW	100kHz
VBW	300kHz
Frequency span	2x Nominal Channel Bandwidth
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

b) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

c) Use the -6dB bandwidth function of the spectrum analyser to measure the 6dB Bandwidth of the EUT. This value shall be recorded.

d) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

3.4.3 Test Setup



3.4.4 Test Result

DTS Bandwidth

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.040	2408.480	2415.520	0.5	PASS
		2437	7.040	2433.480	2440.520	0.5	PASS
		2462	7.120	2458.440	2465.560	0.5	PASS
11G	Ant1	2412	15.920	2403.840	2419.760	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	15.640	2454.120	2469.760	0.5	PASS
11N20SISO	Ant1	2412	16.920	2403.600	2420.520	0.5	PASS
		2437	14.160	2429.440	2443.600	0.5	PASS
		2462	16.440	2454.080	2470.520	0.5	PASS
11N40SISO	Ant1	2422	33.840	2405.680	2439.520	0.5	PASS
		2437	33.840	2420.680	2454.520	0.5	PASS
		2452	33.840	2435.680	2469.520	0.5	PASS

11B_Ant1_2412

11B_Ant1_2437


11B_Ant1_2462

11G_Ant1_2412


11G_Ant1_2437

11G_Ant1_2462


11N20SISO_Ant1_2412

11N20SISO_Ant1_2437


11N20SISO_Ant1_2462

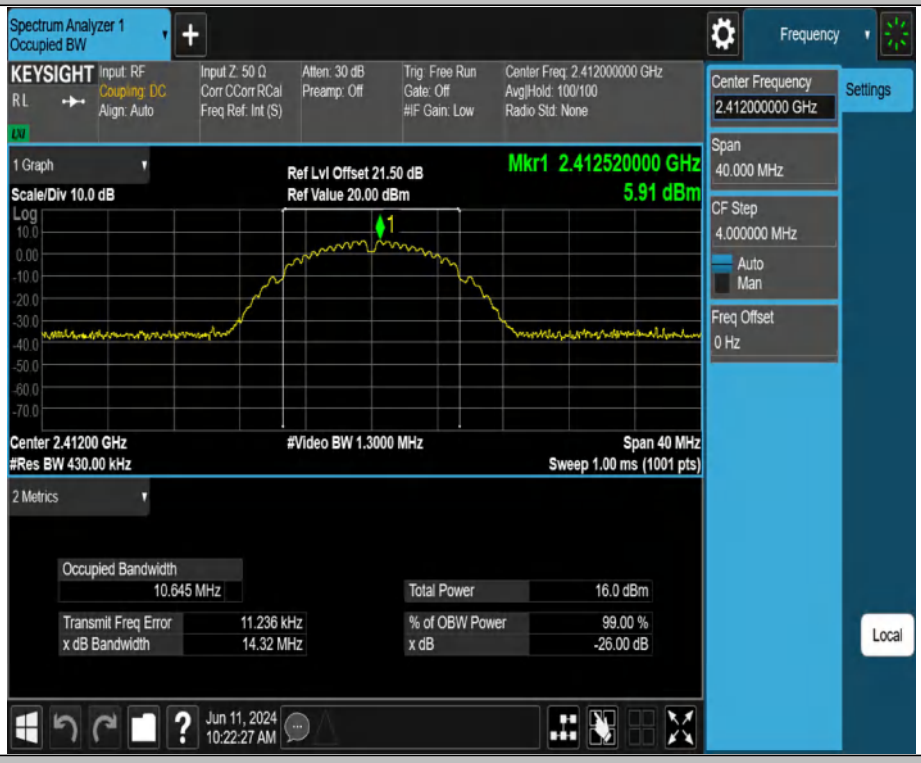
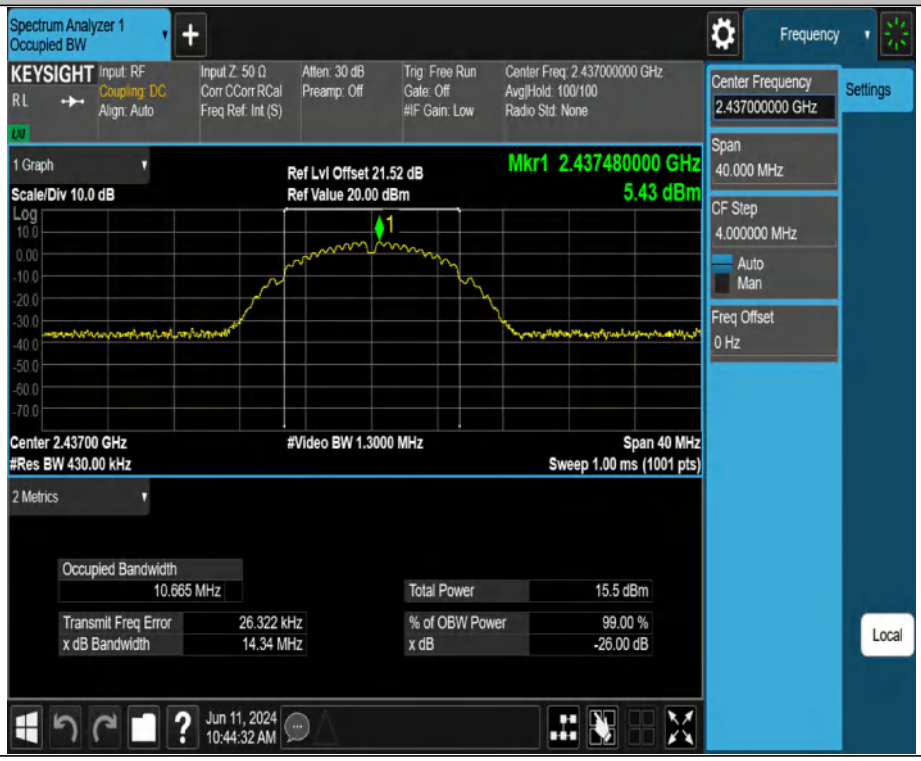
11N40SISO_Ant1_2422

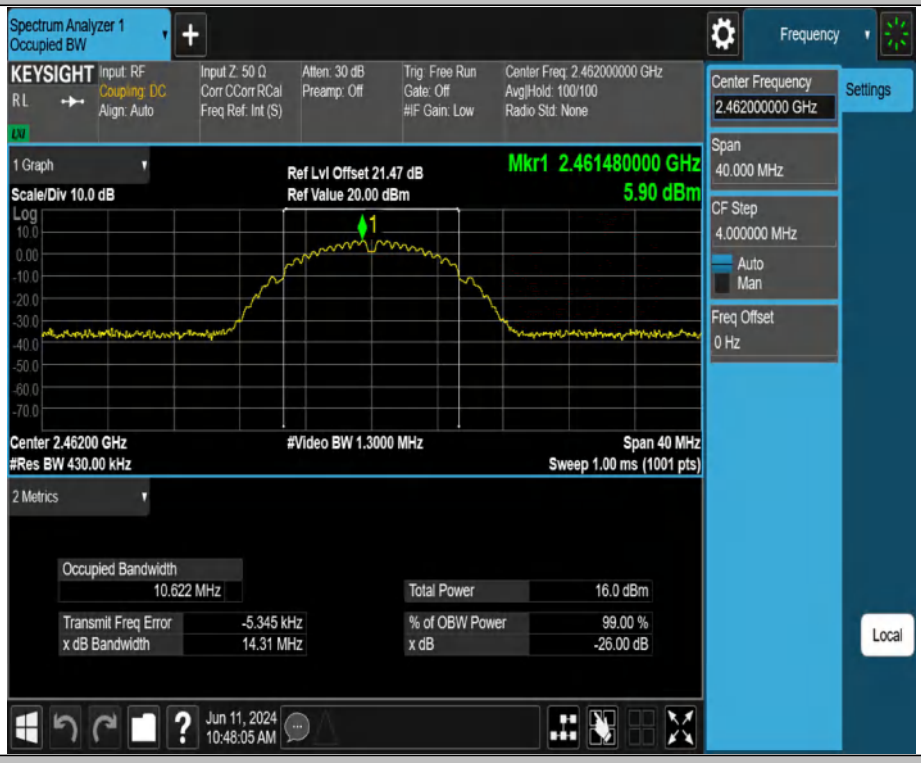

11N40SISO_Ant1_2437

11N40SISO_Ant1_2452


Occupied Channel Bandwidth

Test Mode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.645	2406.6887	2417.3337	---	---
		2437	10.665	2431.6938	2442.3588	---	---
		2462	10.622	2456.6837	2467.3057	---	---
11G	Ant1	2412	16.801	2403.5815	2420.3825	---	---
		2437	16.847	2428.5844	2445.4314	---	---
		2462	16.835	2453.5466	2470.3816	---	---
11N20SISO	Ant1	2412	17.827	2403.0901	2420.9171	---	---
		2437	17.827	2428.0512	2445.8782	---	---
		2462	17.823	2453.0712	2470.8942	---	---
11N40SISO	Ant1	2422	36.041	2403.9592	2440.0002	---	---
		2437	36.082	2418.9322	2455.0142	---	---
		2452	36.085	2433.9335	2470.0185	---	---

11B_Ant1_2412

11B_Ant1_2437


11B_Ant1_2462

11G_Ant1_2412

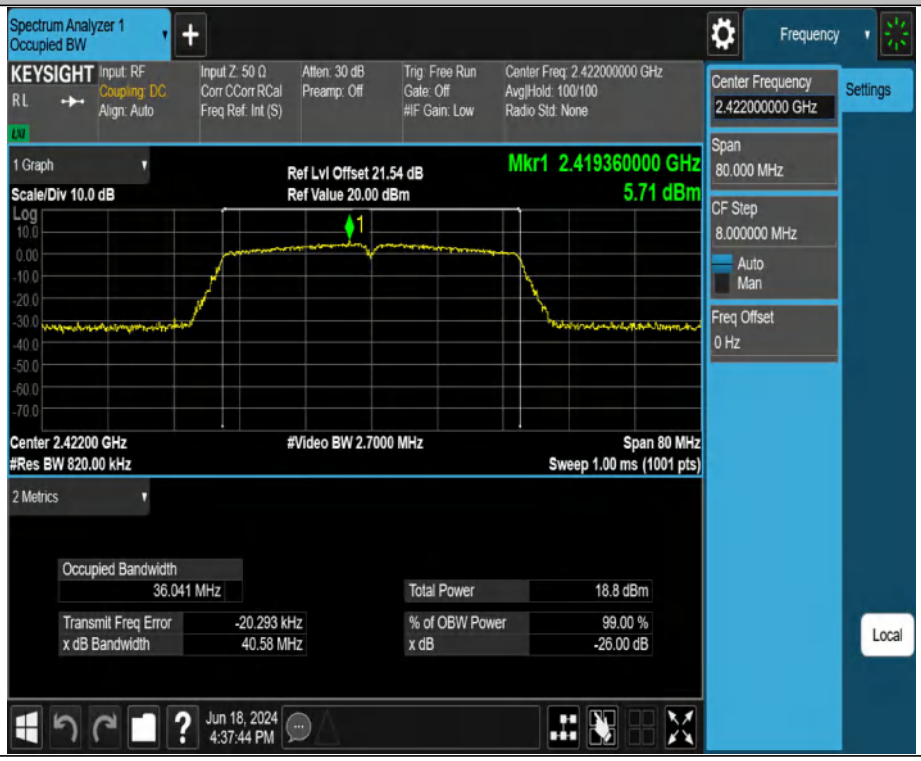

11G_Ant1_2437

11G_Ant1_2462


11N20SISO_Ant1_2412

11N20SISO_Ant1_2437


11N20SISO_Ant1_2462

11N40SISO_Ant1_2422


11N40SISO_Ant1_2437

11N40SISO_Ant1_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)

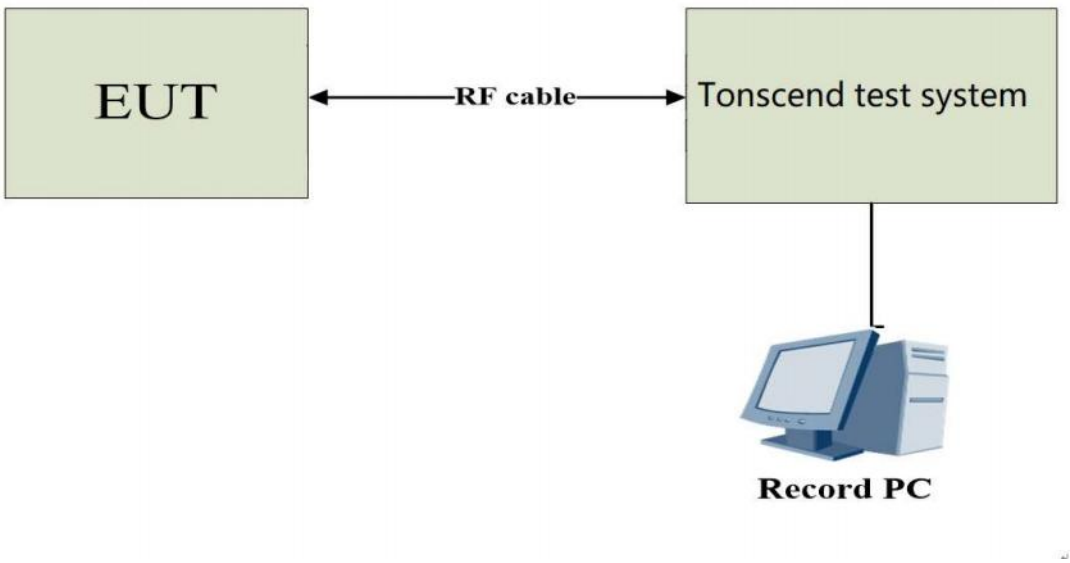
3.5.2 Test Procedure

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	

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

b) The maximum conducted output power was performed in accordance with method 11.9.2.3 (for average power) 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.

For Power setting value

Test Mode	Power Level Setting defined by Manufacturer		
Test Software Version	cmd.exe		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	Default	Default	Default
IEEE 802.11g	Default	Default	Default
IEEE 802.11n(20)	Default	Default	Default
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(20)	Default	Default	Default

3.5.5 The Result

Test Mode	Antenna	Frequency[MHz]	Maximum conducted output Power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	12.93	≤30.00	PASS
		2437	12.77	≤30.00	PASS
		2462	**13.20**	≤30.00	PASS
11G	Ant1	2412	12.75	≤30.00	PASS
		2437	12.46	≤30.00	PASS
		2462	12.18	≤30.00	PASS
11N20SISO	Ant1	2412	11.64	≤30.00	PASS
		2437	11.80	≤30.00	PASS
		2462	11.48	≤30.00	PASS
11N40SISO	Ant1	2422	11.82	≤30.00	PASS
		2437	11.83	≤30.00	PASS
		2452	11.77	≤30.00	PASS

Note: The duty cycle factor and line loss are 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

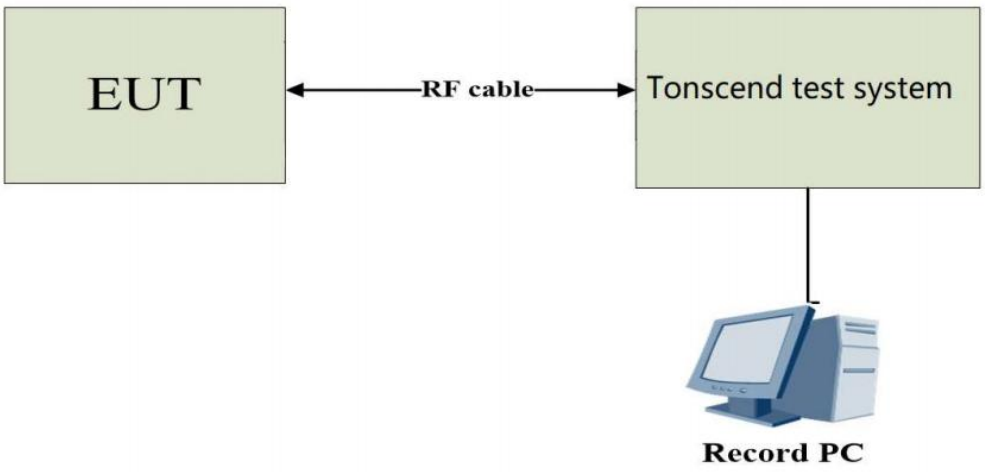
Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

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	1.5 times the DTS bandwidth
RBW	3 kHz
VBW	10 kHz
Detector	Average
Trace	Max Hold
Sweep Time	Auto

3.6.3 Test Setup



3.6.4 The Result

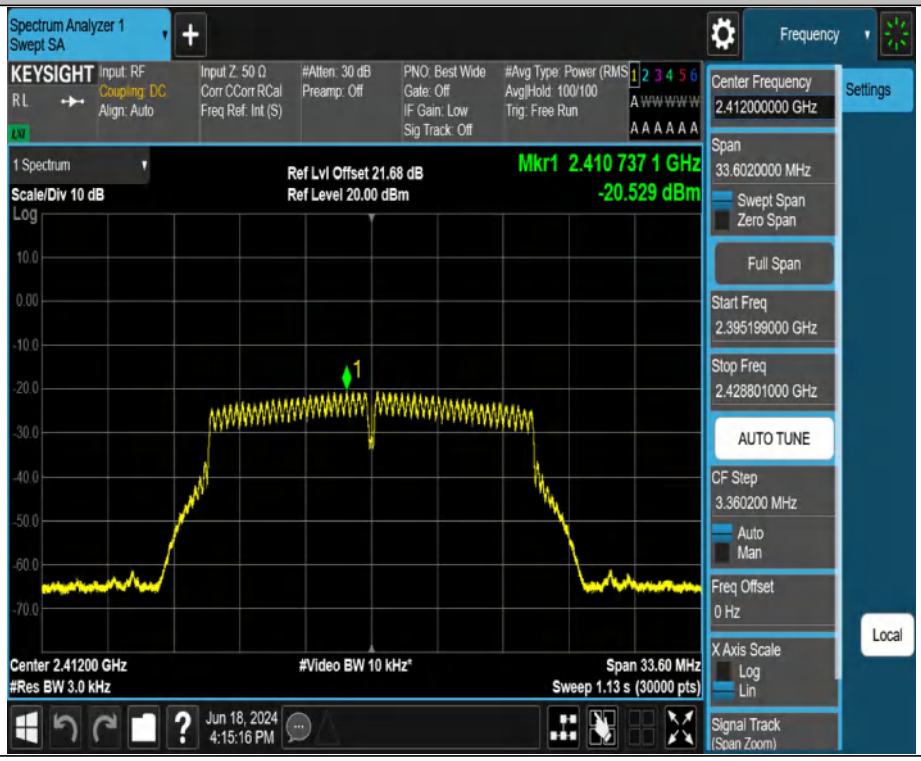
Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-16.25	≤8.00	PASS
		2437	-16.43	≤8.00	PASS
		2462	-16.10	≤8.00	PASS
11G	Ant1	2412	-20.53	≤8.00	PASS
		2437	-20.62	≤8.00	PASS
		2462	-20.83	≤8.00	PASS
11N20SISO	Ant1	2412	-21.20	≤8.00	PASS
		2437	-20.99	≤8.00	PASS
		2462	-21.48	≤8.00	PASS
11N40SISO	Ant1	2422	-22.68	≤8.00	PASS
		2437	-22.89	≤8.00	PASS
		2452	-22.31	≤8.00	PASS

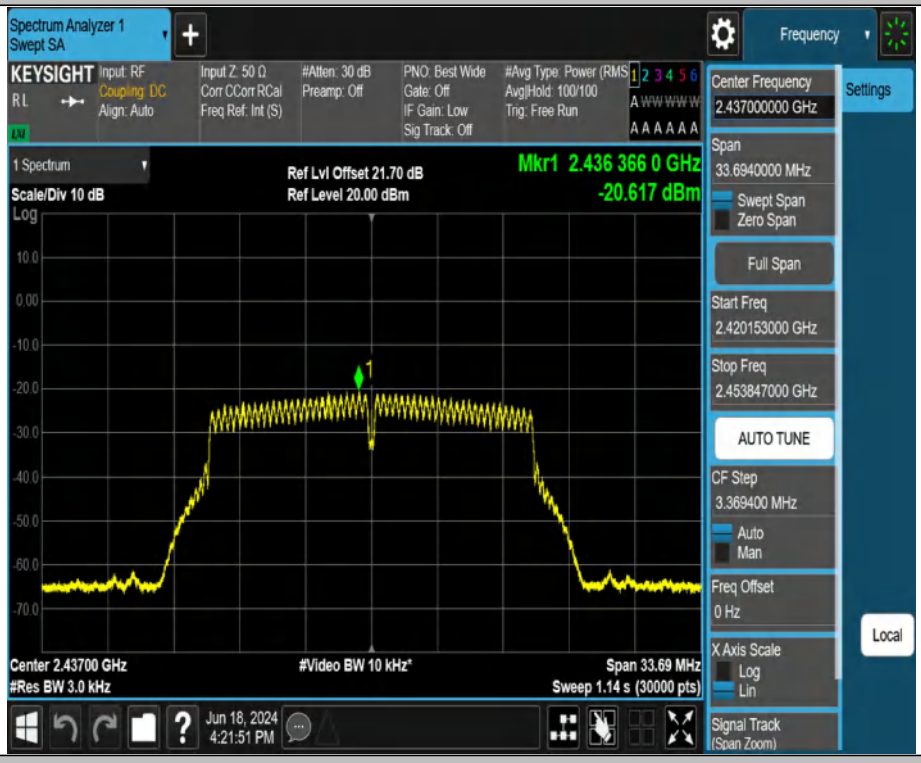
Note: The duty cycle factor and line loss are compensated in the test graph.

11B_Ant1_2412

11B_Ant1_2437


11B_Ant1_2462

11G_Ant1_2412


11G_Ant1_2437

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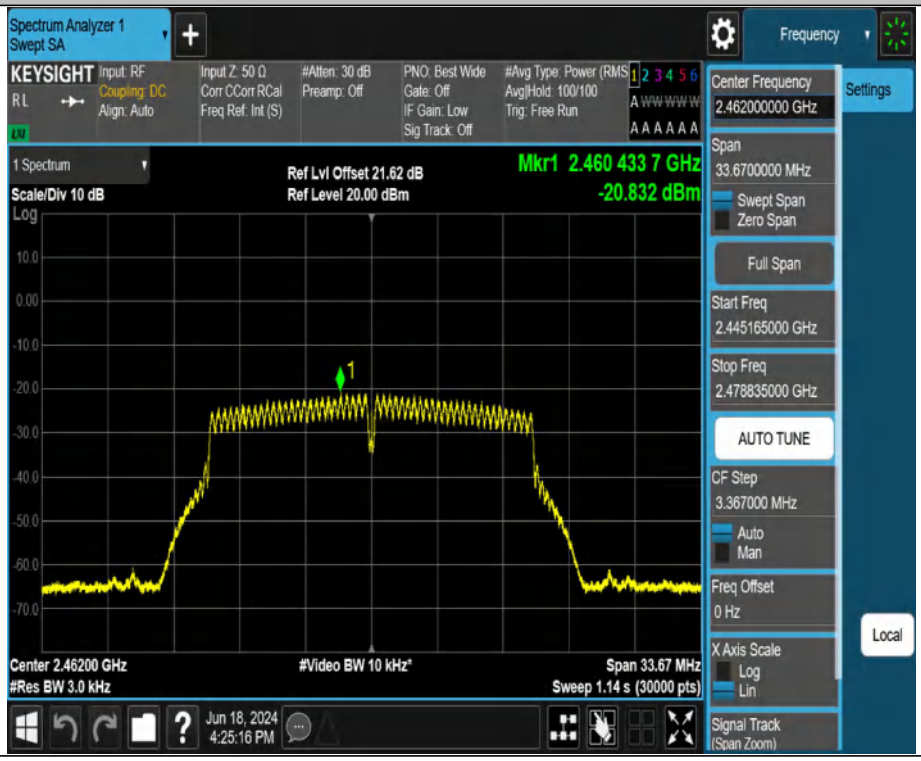
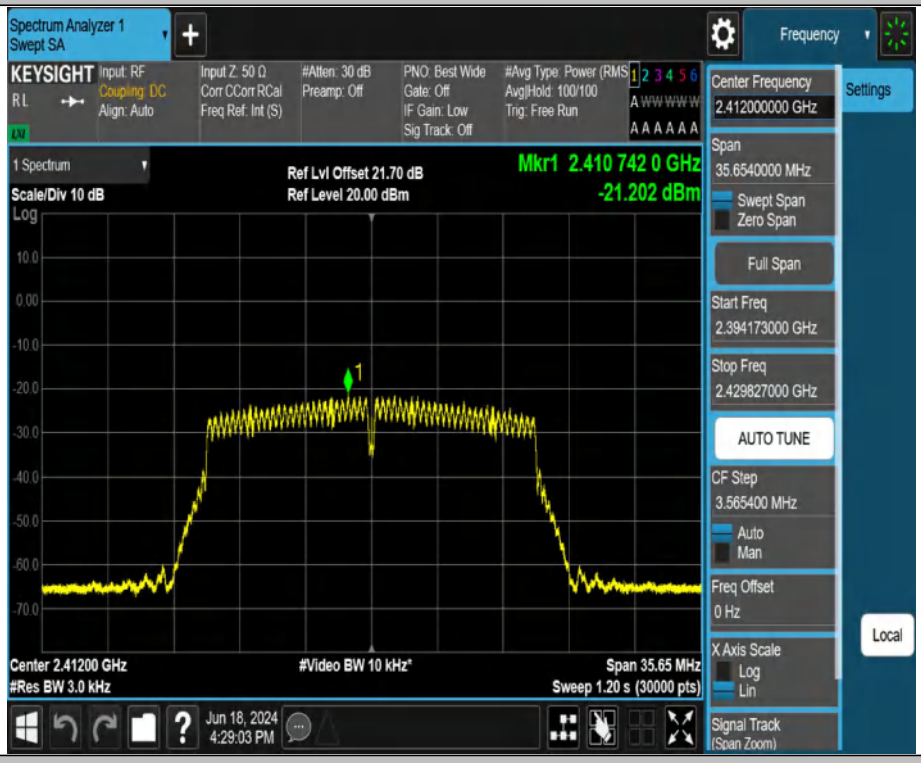


11N20SISO_Ant1_2412

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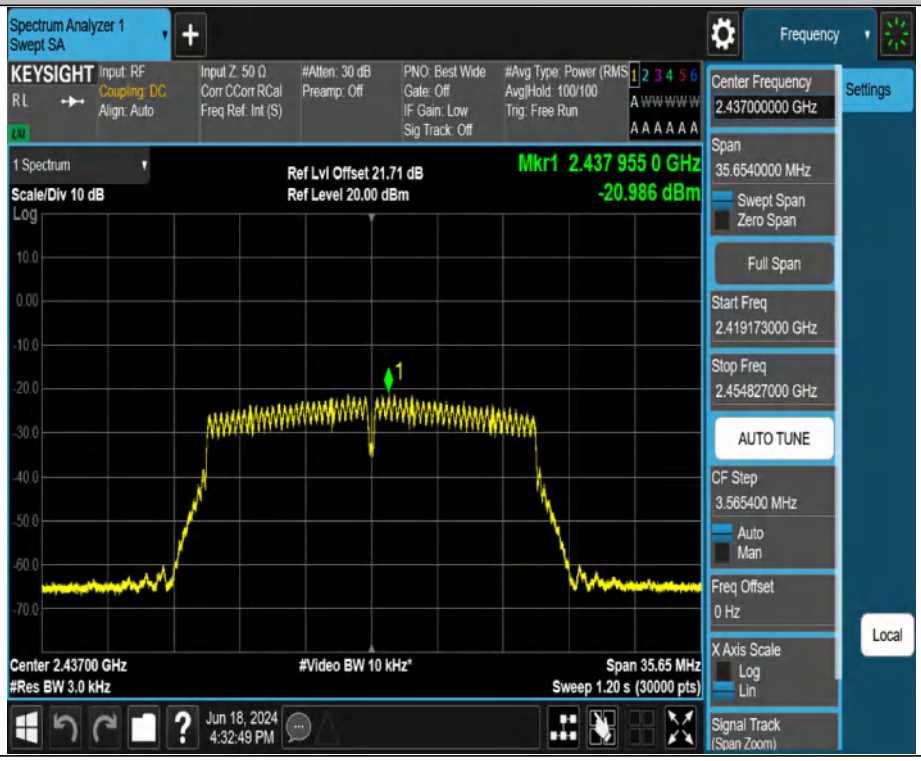

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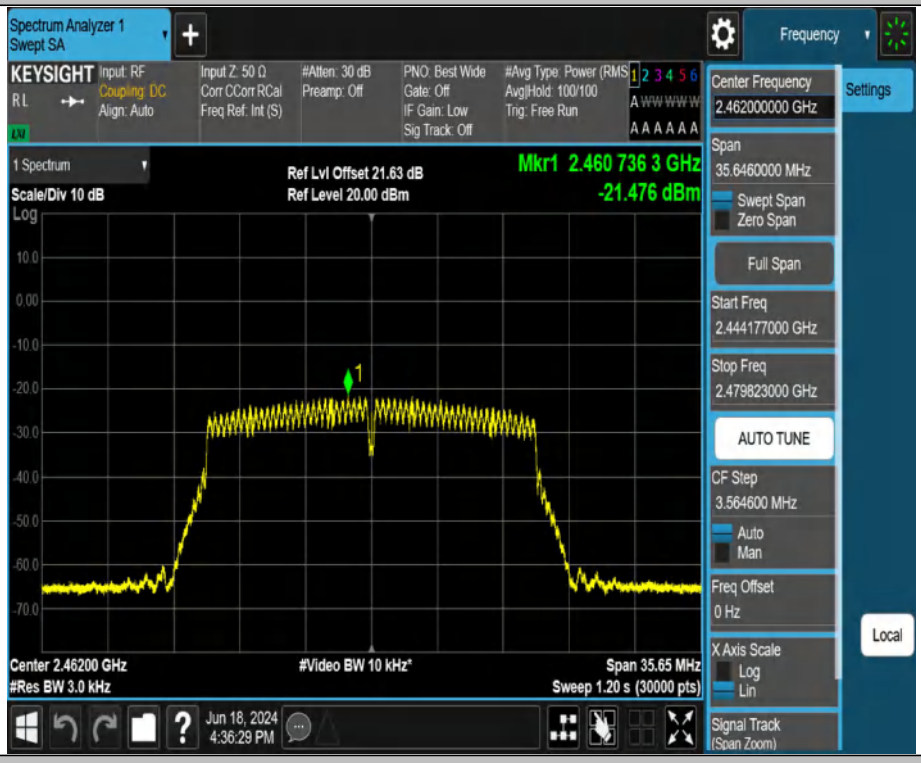
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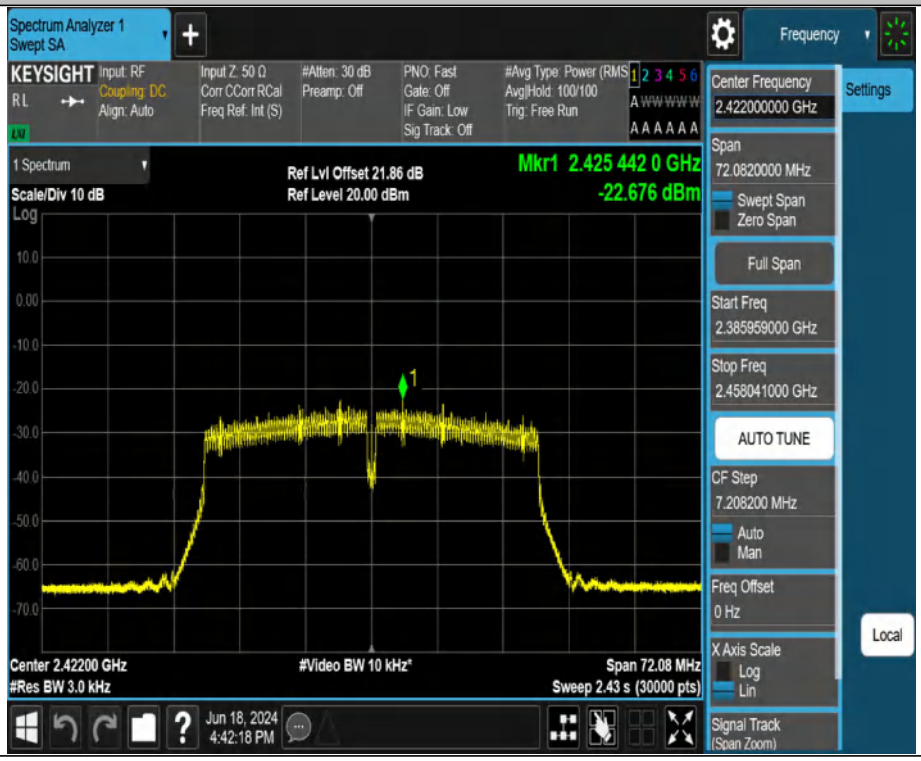

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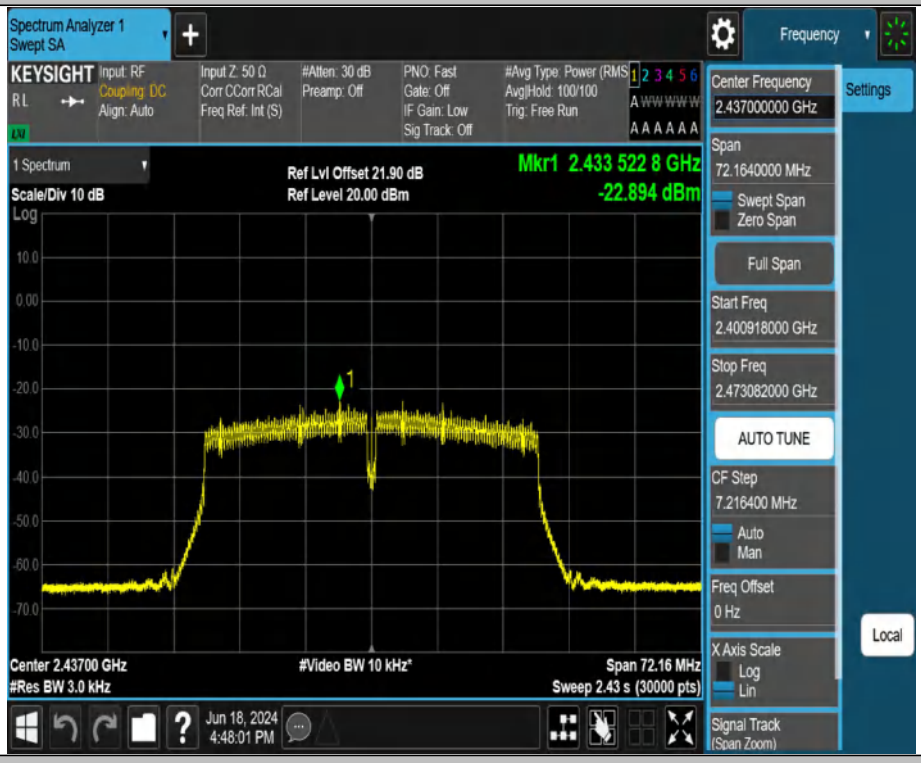
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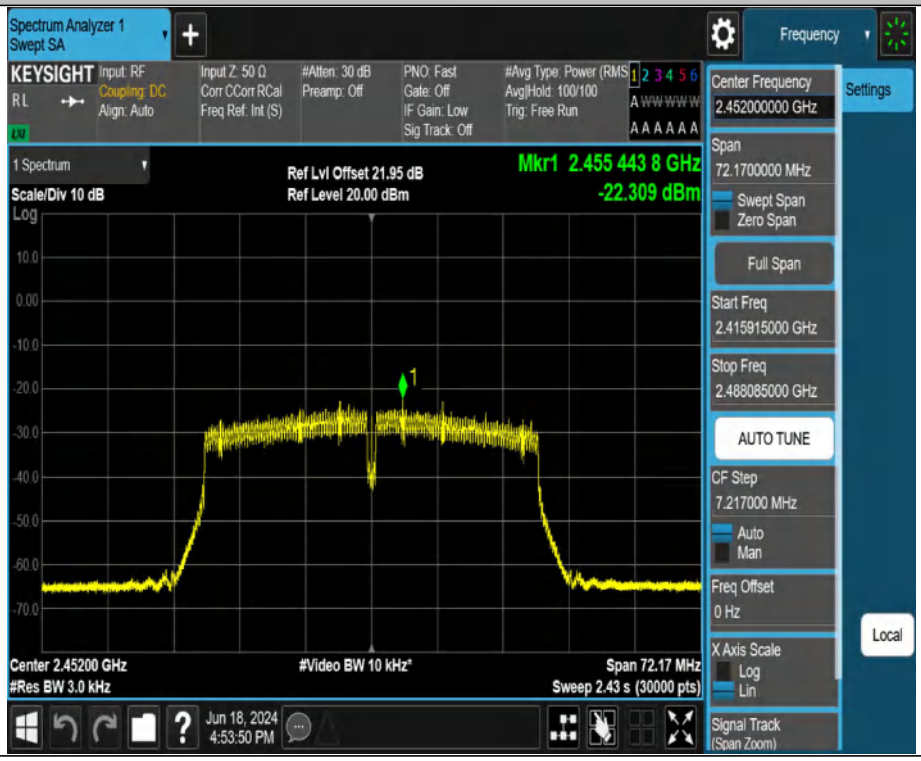

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technology 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 Technology 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