



MEASUREMENT REPORT

FCC PART 15.247 WLAN 802.11b/g/n/ax

Report No.: S20241118761701E06

Issue Date: 03-13-2025

Applicant: Wallys Communications Technologies Co.,Ltd
Address: Room 2723,Le Jia building,Jia Rui Xiang No.8, Suzhou
Industrial Park, Suzhou, P.R
FCC ID: 2AG7VDR5018S
Product: Wireless Router Module
Model No.: DR5018S, DR5018S-DB, DR5018S-5G
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (15.247)
Test Procedure(s): ANSI C63.10-2013, KDB 558074 D01v05r02
Result: Pass
Receipt date: Nov 21, 2024
Test Date: Nov 26 2024 ~ Jan 07, 2025

Compiled By

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Senior Test Engineer

Approved By

Line Chen

(Line Chen)
Engineer Manager



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of Fanguang Inspection & Testing Co., Ltd. Wuxi Branch

The test report must not be used by the client to claim product certifications, approval, or endorsement by NVLAP, NIST or any agency of U.S. Government.

Revision History

Report No.	Version	Description	Issue Date
S20241118761701E06	Rev. 01	/	03-13-2025

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§2.1033 General Information

Applicant:	Wallys Communications Technologies Co.,Ltd
Applicant Address:	Room 2723,Le Jia building,Jia Rui Xiang No.8, Suzhou Industrial Park, Suzhou, P.R
Manufacturer:	Wallys Communications Technologies Co.,Ltd
Manufacturer Address:	Room 2723,Le Jia building,Jia Rui Xiang No.8, Suzhou Industrial Park, Suzhou, P.R
Test Site:	Fangguang Inspection & Testing Co. Ltd
LAB ID:	CN5037
Test Site Address:	No.8 Ningyun Rd., Xinwu District Wuxi, Jiangsu 214000 China
FCC Rule Part(s):	Part 15 Subpart C (15.247)
FCC ID:	2AG7VDR5018S
Test Device Serial No.:	S/N.: / ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	Digital Transmission System (DTS)

1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2. Fangguang Test Location

These measurement tests were performed at the Fangguang Inspection and testing Co.,LTD located at No.8 Ningyun Rd., Xinwu District Wuxi, Jiangsu 214000 China. The detailed description of the measurement facility was found to be in compliance with the requirements of ANSI C63.4-2014.

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	Wireless Router Module			
Model Name:	DR5018S			
Additional Model:	DR5018S-DB, DR5018S-5G			
Model Description:		P/N	Radio	Frequency
	1	DR5018S-5G	5Ghz	1G Ethernet & POE
	2	DR5018S	2.4Ghz 5Ghz	2.5G+1G Ethernet & POE
	3	DR5018S-DB	2.4Ghz 5Ghz	1G Ethernet & POE
	DR5018S-5G has 5G radio and 1x1G ethernet port and support PD feature DR5018S has 2.4G,5G radio and 1x2.5G+1x1G ethernet ports and all support PD feature DR5018S-DB has 2.4G,5G radio and 1x1G ethernet port and support PD feature			
Trade Mark:	/			
Input Voltage Range:	DC 48V			
Wi-Fi Specification:	802.11b/g/n-HT20/ax-HE20/n-HT40/ax-HE40			

Note:

1. There are two types of antennas for the Wireless Router Module. The antennas are DRA25 and DRA2G5G5D-A-B.
2. This information is provided by the Customer and its authenticity is the responsibility of the Customer.

2.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20/ax-HE20: 2412 ~ 2462MHz 802.11n-HT40/ax-HE40:2422 ~ 2452MHz
Channel Number:	802.11b/g/n-HT20/ax-HE20: 11 802.11n-HT40/ax-HE40: 7
Type of Modulation:	802.11b: DSSS 802.11g/n: OFDM 802.11ax: OFDMA
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0~MCS7 802.11ax: MCS0~MCS11
Antenna Type:	Dipole Antenna
Antenna Gain:	DRA25 Antenna: Ant1 4.56dBi, Ant2 4.56dBi DRA2G5G5D-A-B: Ant1 4.29dBi, Ant2 4.29dBi

Note:

1. The maximum Antenna Gain was declared by the manufacturer.
2. For other features of this EUT, test report will be issued separately.

2.3. Operation Frequency / Channel List

802.11b/g/n-HT20/ax-HE20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

EUT was tested with Channel 1, 6 and 11.

802.11n-HT40/ax-HE40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	--	--	--	--

EUT was tested with Channel 3, 6 and 9.

2.4. Description of Available Antennas

1) For Antenna DRA25

Antenna	Frequency Band (GHz)	Product Number	Tx Paths	Antenna
FPC dipole	2.4	WiFi module	2	Ant 1+Ant 2

Antenna	Frequency Band (MHz)	Tx Paths	Per Chain Max Antenna Gain (dBi)		Beam Forming Directional Gain (dBi)	Directional Gain (dBi)
			Ant 0	Ant 1		
WIFI Ant 1+Ant 2	2412 ~2462	2	4.56	4.56	Nonsupport	7.57

2) For Antenna DRA2G5G5D-A-B

Antenna	Frequency Band (GHz)	Product Number	Tx Paths	Antenna
FPC dipole	2.4	WiFi module	2	Ant 1+Ant 2

Antenna	Frequency Band (MHz)	Tx Paths	Per Chain Max Antenna Gain (dBi)		Beam Forming Directional Gain (dBi)	Directional Gain (dBi)
			Ant 0	Ant 1		
WIFI Ant 1+Ant 2	2412 ~2462	2	4.29	4.29	Nonsupport	7.30

Note:

Unequal Antenna gains, with equal transmit powers. For Antenna gains given by $G_1, G_2, \dots, G_N$ dBi transmit signals are correlated, then

- Directional gain = $10 \cdot \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]
- Directional Gain(2.4G) = $10 \cdot \log[(10^{4.56/20} + 10^{4.56/20})^2 / 2] = 7.57$ dBi
- Directional Gain(2.4G) = $10 \cdot \log[(10^{4.29/20} + 10^{4.29/20})^2 / 2] = 7.30$ dBi

2.5. Device Capabilities

This device contains the following capabilities: 2.4GHz WLAN (DTS)&5GHz WLAN (UNII).

Note: 2.4GHz WLAN (DTS) operation is possible in 20MHz/40MHz channel bandwidths. The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 8MHz. The RBW and VBW were both greater than $50/T$, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. All the test mode and antenna port were tested, the test results for “duty cycles” showed as below is the worst case for all test mode:

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	19.00	19.00	100.00
	Ant1	2437	19.00	19.00	100.00
	Ant1	2462	19.00	19.00	100.00
11G	Ant1	2412	2.10	2.12	99.06
	Ant1	2437	2.10	2.11	99.53
	Ant1	2462	2.10	2.12	99.06
11N20SISO	Ant1	2412	5.43	5.45	99.63
	Ant1	2437	5.43	5.45	99.63
	Ant1	2462	19.00	19.00	100.00
11N40SISO	Ant1	2422	5.43	5.45	99.63
	Ant1	2437	5.43	5.45	99.63

	Ant1	2452	5.43	5.45	99.63
11AX20SISO	Ant1	2412	5.45	5.47	99.63
	Ant1	2437	5.45	5.47	99.63
	Ant1	2462	5.44	5.46	99.63
	Ant1	2422	5.44	5.46	99.63
11AX40SISO	Ant1	2437	5.45	5.47	99.63
	Ant1	2452	19.00	19.00	100.00
	Ant1	2422	5.44	5.46	99.63
11B-CDD	Ant1	2412	19.00	19.00	100.00
	Ant1	2437	19.00	19.00	100.00
	Ant1	2462	19.00	19.00	100.00
11G-CDD	Ant1	2412	2.10	2.11	99.53
	Ant1	2437	2.09	2.11	99.05
	Ant1	2462	2.09	2.11	99.05
11N20MIMO	Ant1	2412	5.43	5.44	99.82
	Ant1	2437	5.42	5.44	99.63
	Ant1	2462	17.00	17.00	100.00
11N40MIMO	Ant1	2422	19.00	19.00	100.00
	Ant1	2437	5.43	5.44	99.82
	Ant1	2452	5.43	5.44	99.82
11AX20MIMO	Ant1	2412	5.44	5.46	99.63
	Ant1	2437	19.00	19.00	100.00
	Ant1	2462	5.45	5.46	99.82
11AX40MIMO	Ant1	2422	5.45	5.47	99.63
	Ant1	2437	5.44	5.46	99.63
	Ant1	2452	5.43	5.46	99.45

Test Graphs

11B_Ant1_2412



11B_Ant1_2437



11B_Ant1_2462



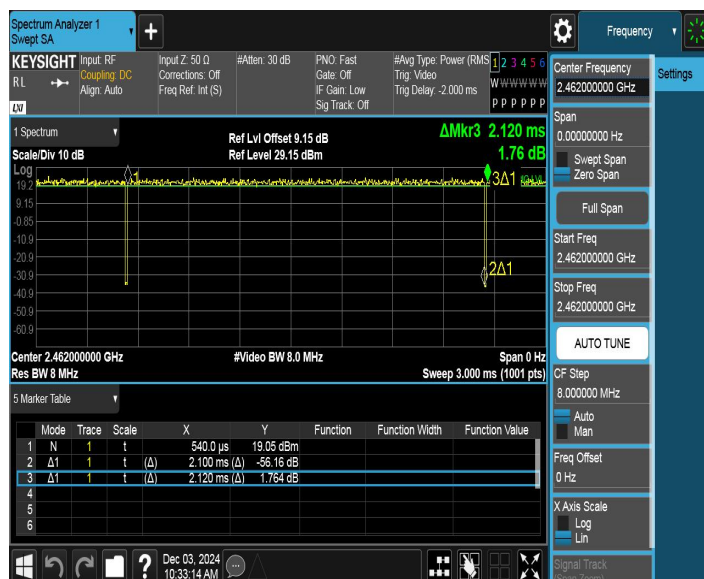
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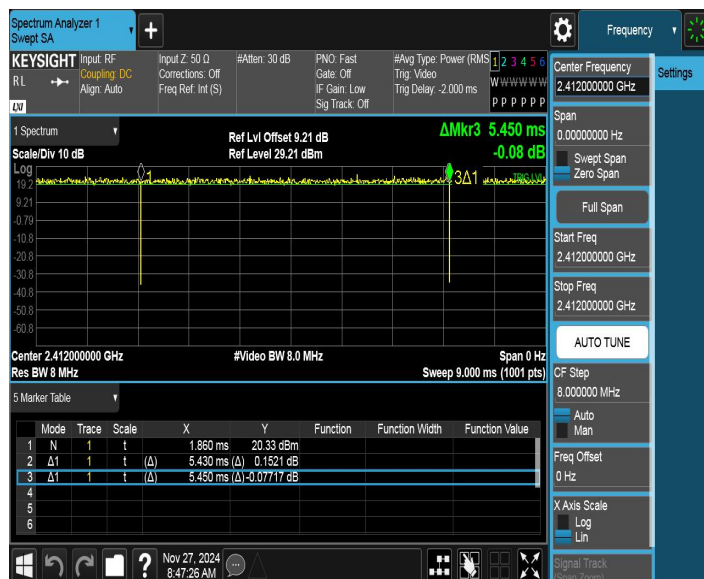
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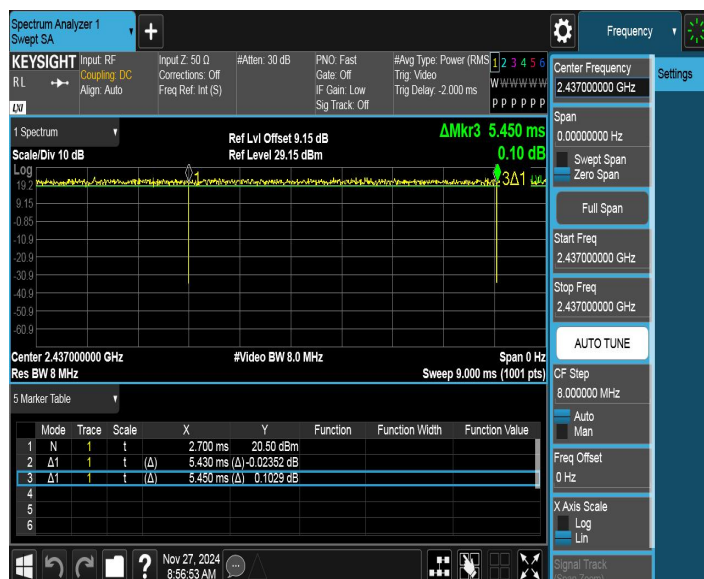
11G_Ant1_2462



11N20SISO_Ant1_2412



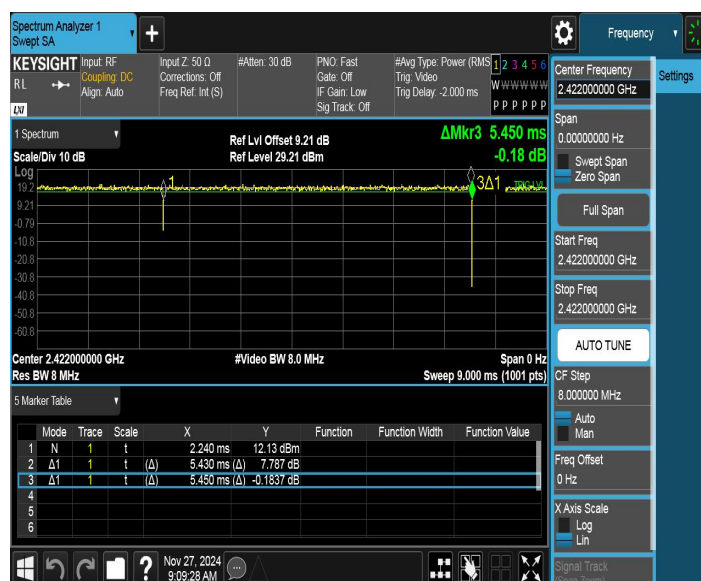
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11N20SISO_Ant1_2462



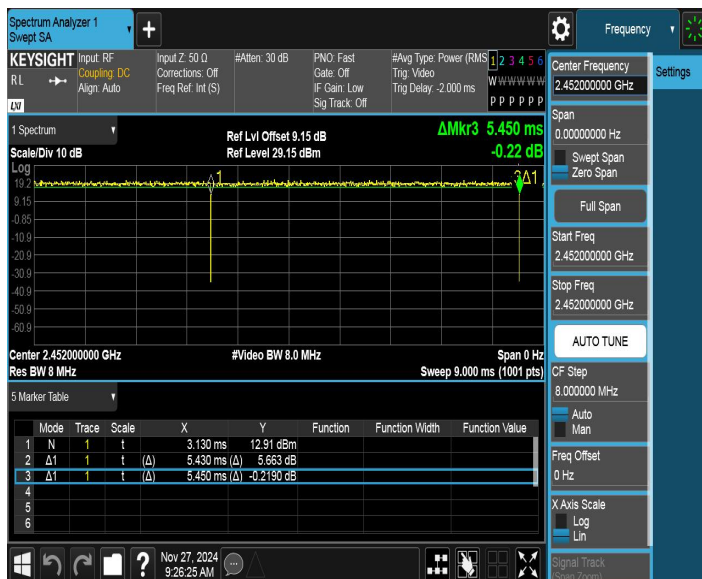
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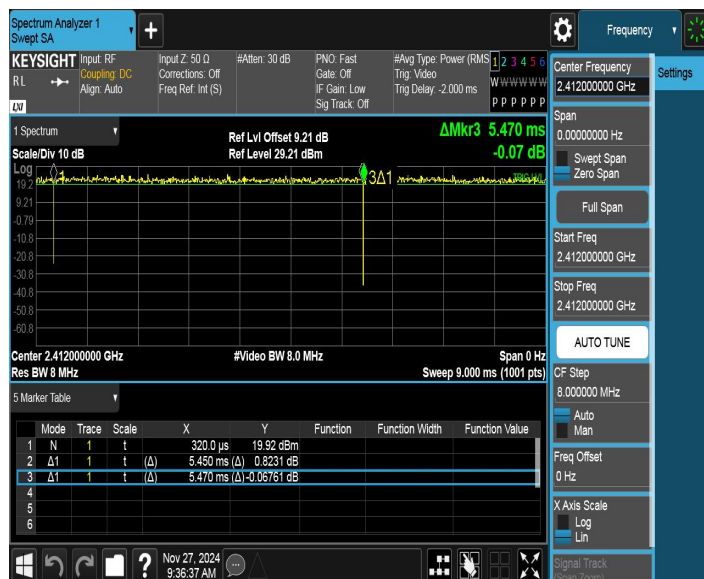
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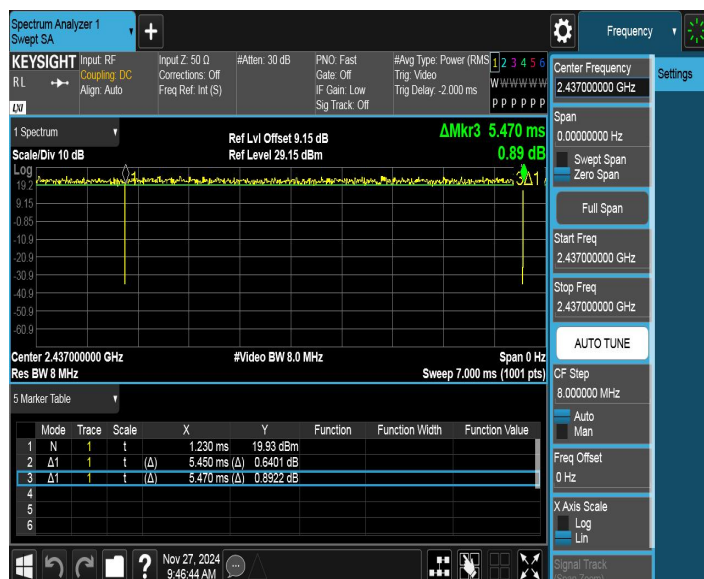
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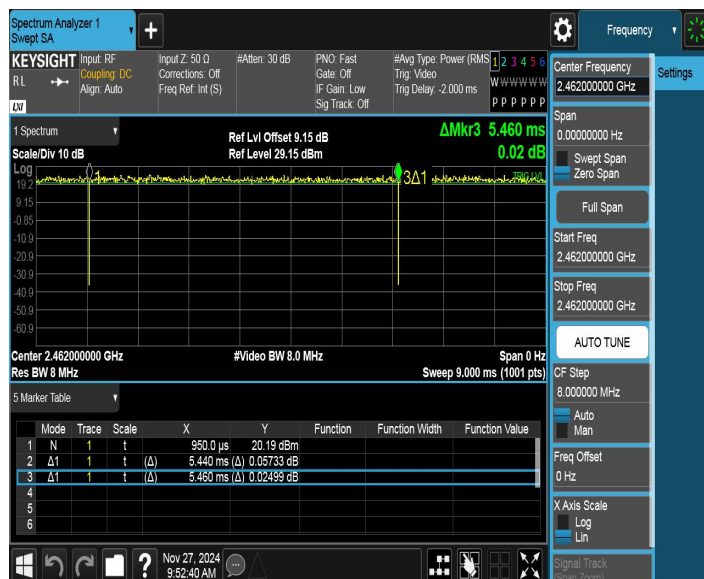
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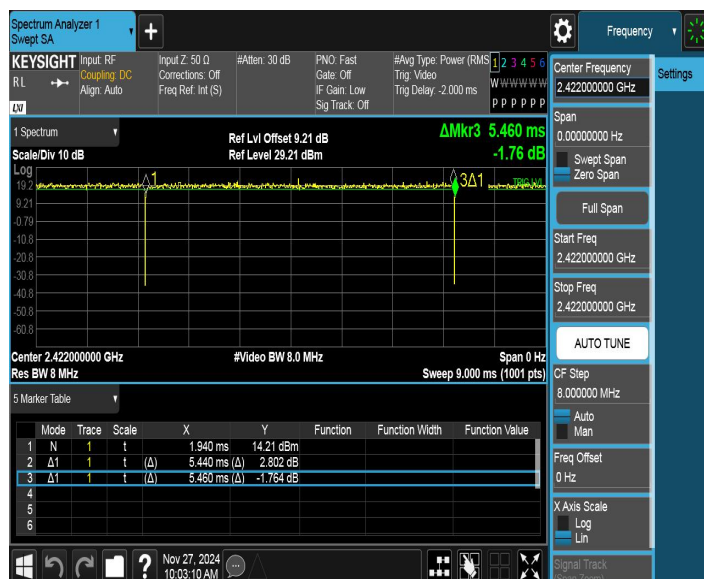
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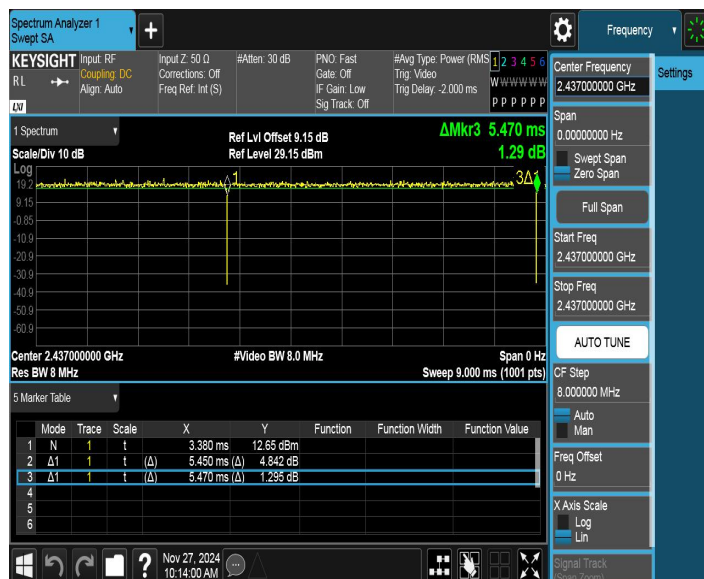
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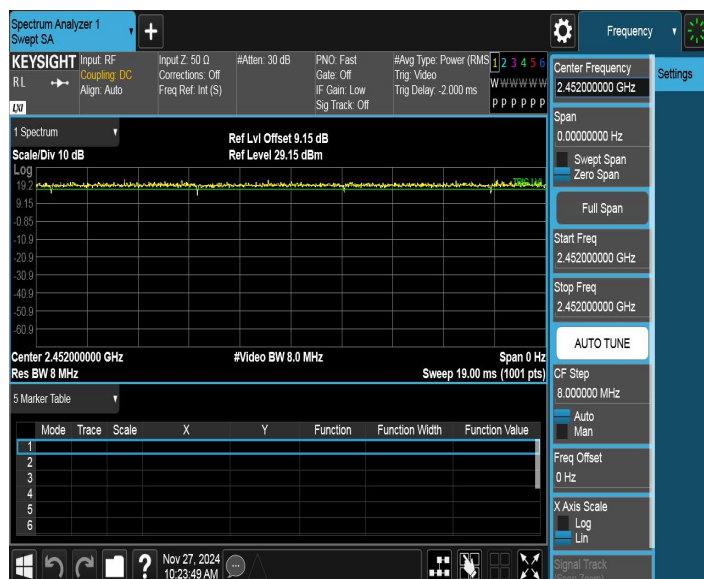
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11AX40SISO_Ant1_2437



11AX40SISO_Ant1_2452



11B-CDD_Ant1_2412



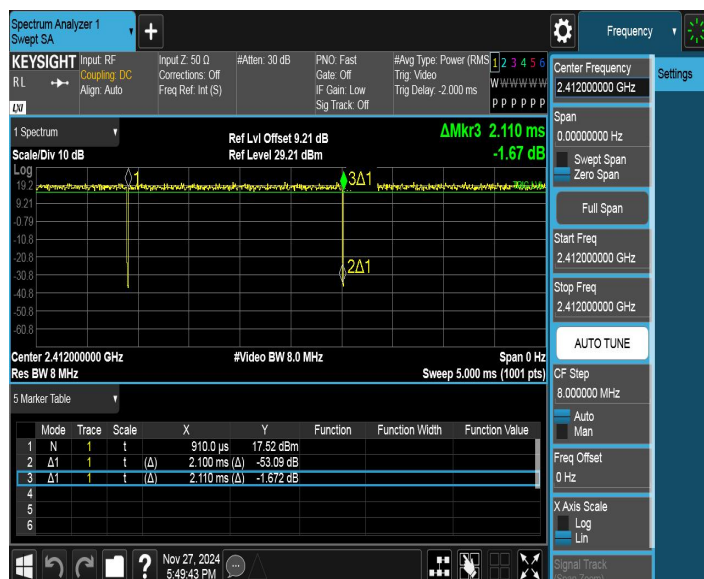
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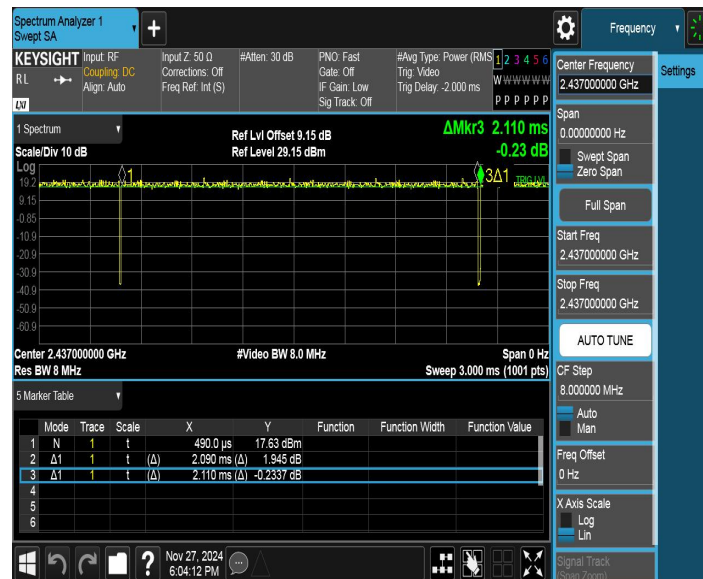
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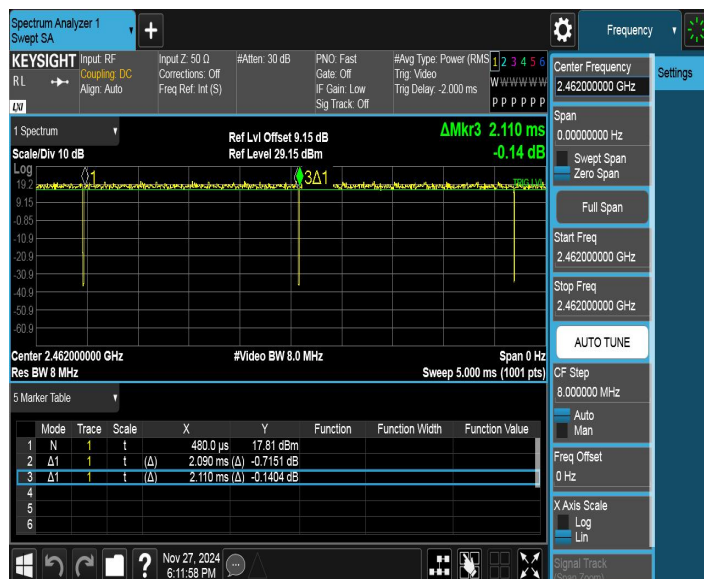
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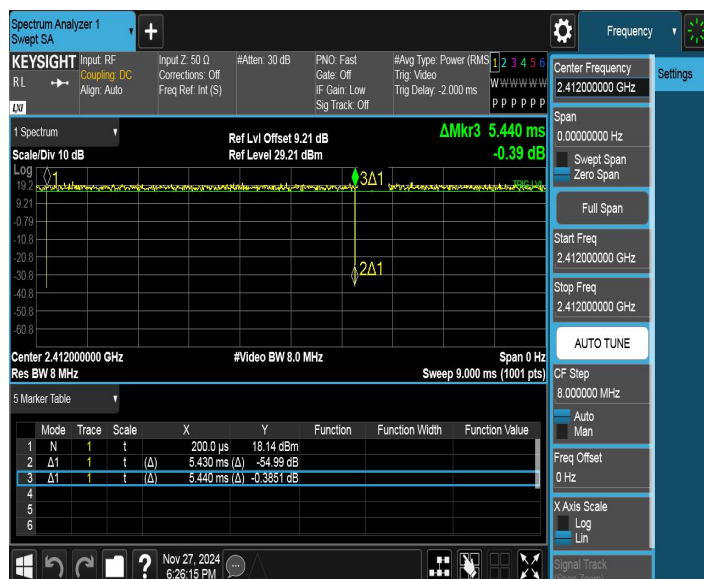
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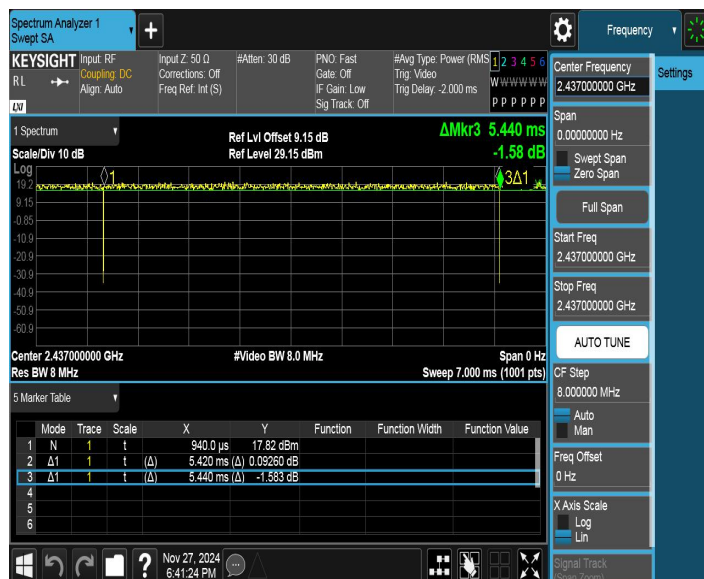
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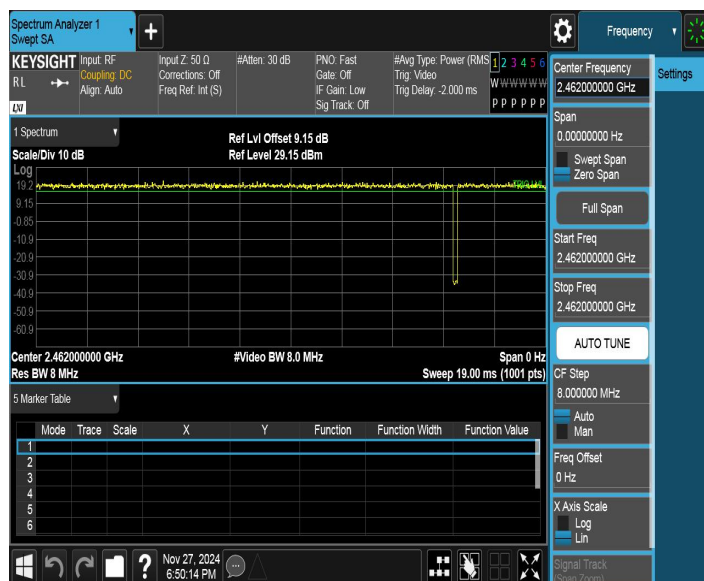
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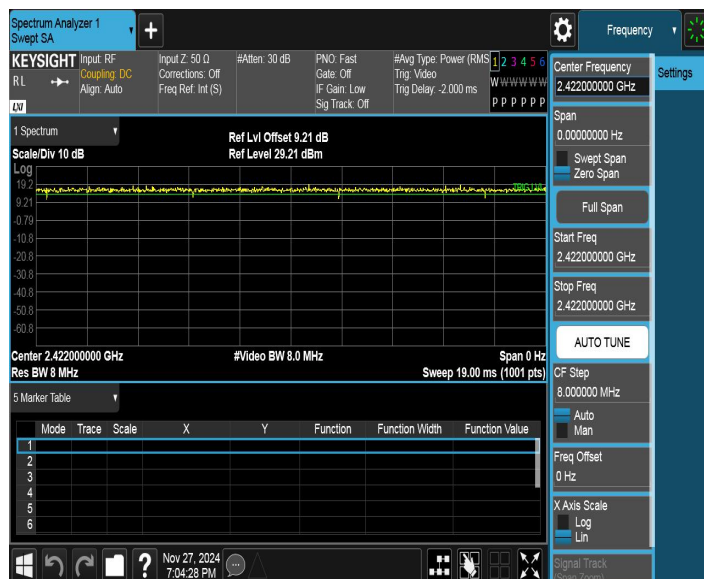
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11N20MIMO_Ant1_2462



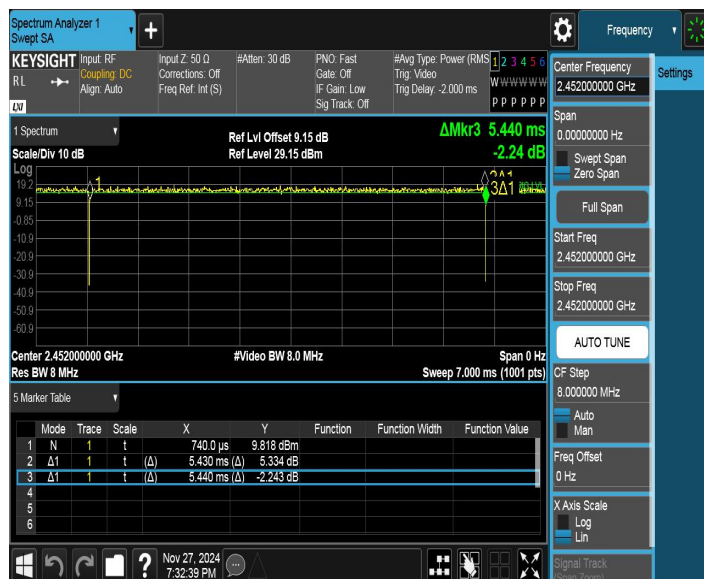
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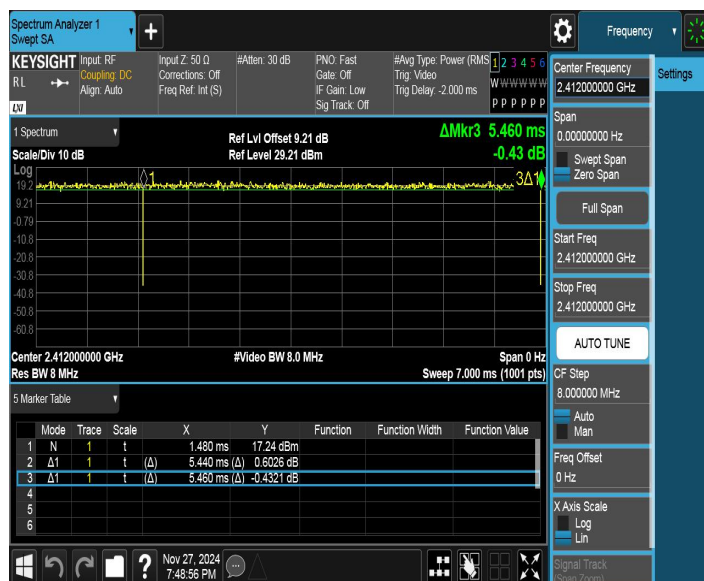
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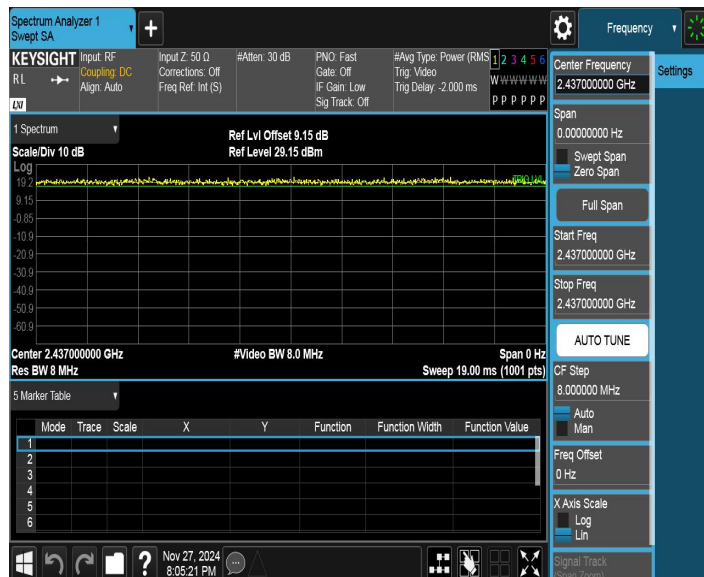
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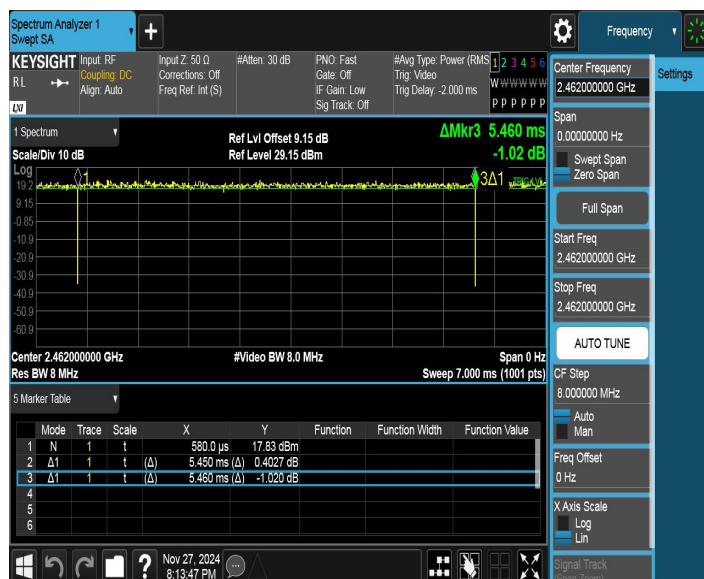
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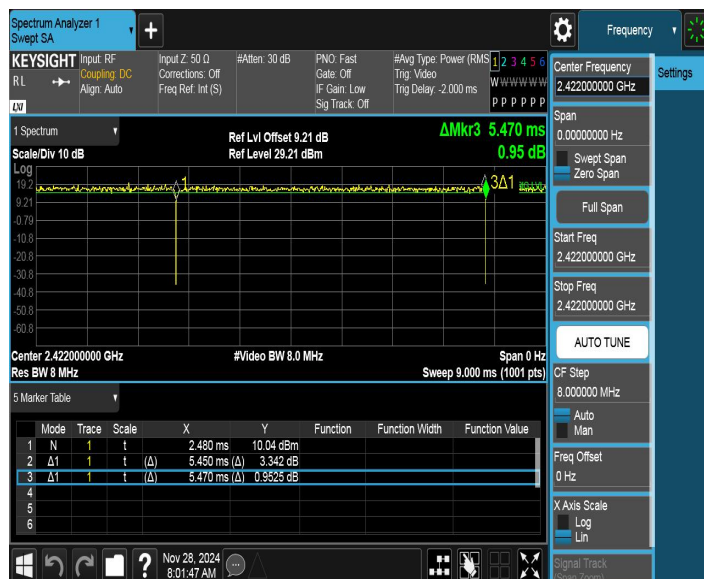
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11AX20MIMO_Ant1_2462



11AX40MIMO_Ant1_2422



11AX40MIMO_Ant1_2437

