

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



Applicant: Toshiba Tec Singapore Pte Ltd
2 Ang Mo Kio Street 62, Singapore 569138

Manufacturer: KunShan CC&C Technologies Co., Ltd.
No.9 Building, 3rd Main Street, Kunshan Free Trade Zone,
JiangSu, China 215301

Product Name: USB Dongle

Brand Name: Toshiba Tec Singapore Pte Ltd

Model No.: CL-8822CU

Report Number: TERF2412004057E2

FCC ID: 2BMB2-CL8822CU

Date of EUT Received: N/A, the test results are fully leveraged from test report number TERF2410003206E2, for more details please refer to section 3 in this report.

Date of Test: N/A, the test results are fully leveraged from test report number TERF2410003206E2, for more details please refer to section 3 in this report.

Issue Date: December 25, 2024

Approved By _____

Aken Huang

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15.407.

The results of this report relate only to the sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2412004057E2	00	Original	December 25, 2024	Candice Li	

Note:

- 1、The remark "" indicates modification of the report upon requests from certification body.

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1 GENERAL INFORMATION

1.1 Product Description

Product Name:	USB Dongle
Brand Name:	Toshiba Tec Singapore Pte Ltd
Model No.:	CL-8822CU
Firmware Version:	ver.V15
EUT Series No.:	P2424025562
Power Supply:	5 Vdc from USB port
Test Software (Name/Version)	MP tool Version 0.0001.1020.2018

1.2 Modulation & Data Rate

Modulation type:	64QAM, 16QAM, QPSK, BPSK for OFDM in 802.11a, 11n
	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM in 802.11ac
Transition Rate:	802.11 a: 6 - 54 Mbps
	802.11 n_HT20: up to 144.4 Mbps
	802.11 n_HT40: up to 300 Mbps
	802.11 ac_VHT20: up to 173.4 Mbps
	802.11 ac_VHT40: up to 400 Mbps
	802.11 ac_VHT80: up to 866.6 Mbps

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1.3 Antenna Designation

Antenna Type	Freq. (MHz)	Ant 1/Ant 2	Peak Antenna Gain (dBi)
PIFA	5150~5250	Ant 1	3.77
	5250~5350		1.72
	5470~5725		1.88
	5725~5850		1.22
PIFA	5150~5250	Ant 2	3.3
	5250~5350		3.3
	5470~5725		1.53
	5725~5850		1.53

Note:

1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
2. Antenna information is provided by the applicant.

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1.4 FCC

Wi-Fi	Frequency Range	Channels	Rated Power(Avg) (dBm) (Worst Case)	Modulation Technology
802.11a/ 802.11n_HT20/ 802.11ac_VHT20	5180~5240	4	16.32 dBm	OFDM
	5260~5320	4	22.89 dBm	OFDM
	5500~5720	12	22.83 dBm	OFDM
	5745-5825	5	22.92 dBm	OFDM
802.11n_HT40/ 802.11ac_VHT40	5190~5230	2	15.49 dBm	OFDM
	5270~5310	2	22.79 dBm	OFDM
	5510~5710	6	22.80 dBm	OFDM
	5755-5795	2	22.90 dBm	OFDM
802.11ac_VHT80	5210	1	17.94 dBm	OFDM
	5290	1	17.41 dBm	OFDM
	5530~5690	3	20.92 dBm	OFDM
	5775	1	20.85 dBm	OFDM

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1.5 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10:2013

1.6 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	TW3702
		SAC 2		
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
Conducted G				
Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.				

1.7 Special Accessories

There are no special accessories used while test was conducted.

1.8 Equipment Modifications

There was no modification incorporated into the EUT.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

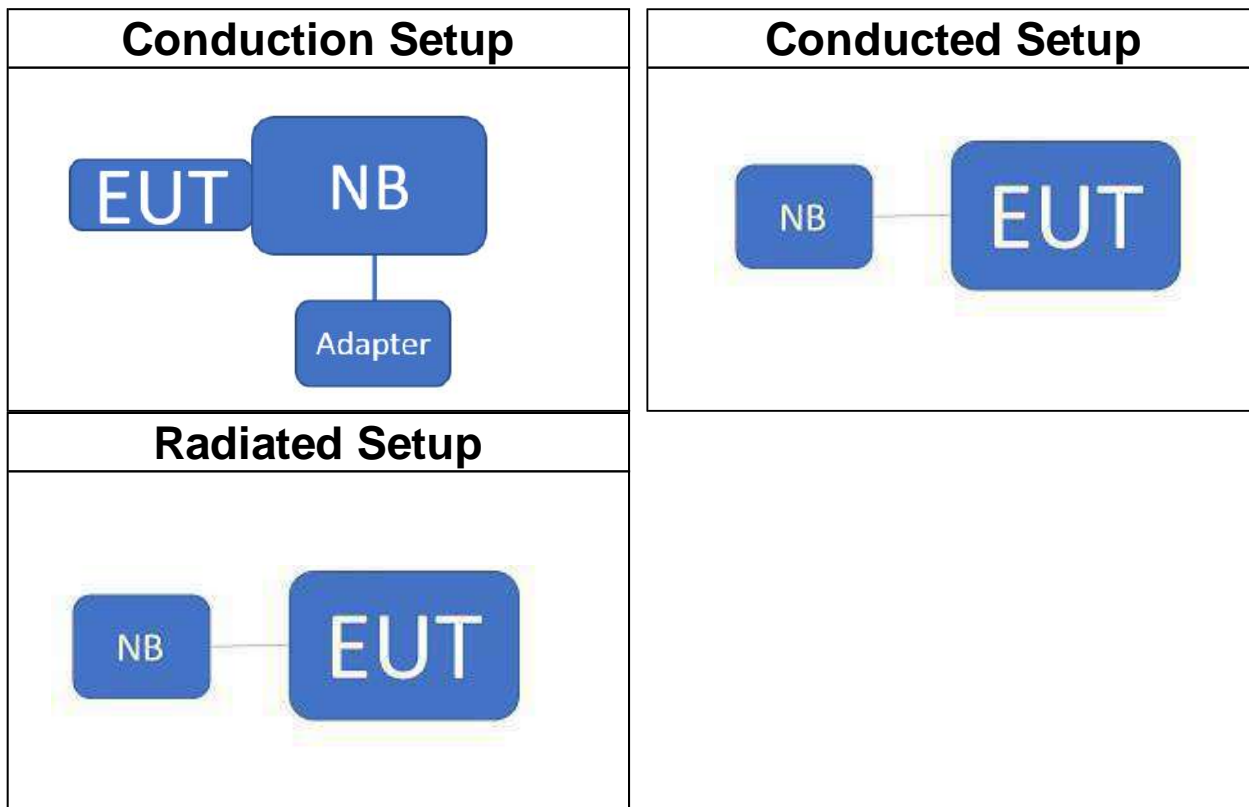
Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

2.5 Test Configuration



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2.6 Control Unit(s)

AC Power-Line Conducted Emission Test Site: Conduction C					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
NB Adapter	Lenovo	ADLX65YLC3A	8SSA10M13945L1CZ 88N0F8W	N/A	N/A
Notebook	Lenovo	T470	P0001293	N/A	N/A
Conducted Emission Test Site: Conducted D					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Notebook	Lenovo	T14	P0003332	N/A	N/A
USB Cable	Magic	MA-AMF001	P0003332	N/A	N/A
Radiated Emission Test Site: SAC D					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Notebook	Lenovo	T470	P0001293	N/A	N/A
USB Cable	DIKE	SH-USB 3M	N/A	N/A	N/A

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3 SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result	Note
§15.207	AC Power Line Conducted Emission	Compliant	
§15.407(e)	Emission Bandwidth	Compliant	
§15.407(a)	Maximum Conducted Output Power	Compliant	
§15.407(a)	Power Spectral Density	Compliant	
§15.205 §15.209 §15.407(b)	Undesirable Radiated Emissions	Compliant	
§15.407(c)	Transmission in case of Absence of Information	Compliant	
§15.203	Antenna Requirement	Compliant	

Note

1. N/S Indicates whether item(s) being newly tested [N] or spot checked [S].
2. Items other than newly tested [N] are leveraged from test report TERF2410003206E2.

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4 DESCRIPTION OF TEST MODES

4.1 Operating Frequencies

UNII-1 5150 MHz ~ 5250MHz

20MHz		40MHz		80MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

UNII-2A 5250 MHz ~ 5350MHz

20MHz		40MHz		80MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

UNII-2C 5470 MHz ~ 5725MHz

20MHz		40MHz		80MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	138	5690
112	5560	126	5630		
116	5580	134	5670		
120	5600	142	5710		
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				
144	5720				

UNII-3 5725 MHz ~ 5850MHz

20MHz		40MHz		80MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

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4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case. The given UE is pre-scanned among below modes.

Modulation		Transmission Chain								Single Transmission Spatial		Multiple Transmission Spatial	
V	802.11 a	V	Ch0	V	Ch1		Ch2		Ch3	V	1TX		2TX
V	802.11 n	V	Ch0	V	Ch1		Ch2		Ch3		1TX	V	2TX
V	802.11 ac	V	Ch0	V	Ch1		Ch2		Ch3		1TX	V	2TX
	802.11 ax		Ch0		Ch1		Ch2		Ch3		1TX		2TX
	802.11 be		Ch0		Ch1		Ch2		Ch3		1TX		2TX

4. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

CONDUCTED TEST						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	ch0
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140,144			
	5745~5825	149 to 165	149,157,165			
802.11n_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	2TX
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140,144			
	5745~5825	149 to 165	149,157,165			
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	2TX
	5270~5310	54 to 62	54,62			
	5510~5710	102 to 142	102,110,134,142			
	5755~5795	151 to 159	151,159			
802.11ac_VHT80	5210	42	42	OFDM	MCS0	2TX
	5290	58	58			
	5530~5690	106 to 138	106,122,138			
	5775	155	155			

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TRANSMIT RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	44	OFDM	6	ch0
	5260~5320	52 to 64	60			
	5500~5720	100 to 144	116			
	5745~5825	149 to 165	157			
TRANSMIT RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	ch0
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140,144			
	5745~5825	149 to 165	149,157,165			
802.11n_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	2TX
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140,144			
	5745~5825	149 to 165	149,157,165			
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	2TX
	5270~5310	54 to 62	54,62			
	5510~5710	102 to 142	102,110,134,142			
	5755~5795	151 to 159	151,159			
802.11ac_VHT80	5210	42	42	OFDM	MCS0	2TX
	5290	58	58			
	5530~5690	106 to 138	106,122,138			
	5775	155	155			

Note:

The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 1.54 dB
Output Power measurement	+/- 0.97 dB
Emission Bandwidth	+/- 1.38 Hz
Conducted emission measurement	+/- 0.77 dB
Peak Power Density	+/- 0.61 dB
Temperature	+/- 0.6 °C
Humidity	+/- 3 %
DC / AC Power Source	+/- 1 %

Radiated Spurious Emission Measurement Uncertainty			
Polarization: Vertical	+/-	1.89 dB	9kHz~30MHz
	+/-	4.15 dB	30MHz - 1000MHz
	+/-	3.43 dB	1GHz - 18GHz
	+/-	3.86 dB	18GHz - 40GHz
Polarization: Horizontal	+/-	1.89 dB	9kHz~30MHz
	+/-	4.02 dB	30MHz - 1000MHz
	+/-	3.43 dB	1GHz - 18GHz
	+/-	3.86 dB	18GHz - 40GHz
Radiated Spurious Emission	+/-	2 dB	33GHz-50GHz
	+/-	1.59 dB	50GHz-60GHz
	+/-	1.7 dB	60GHz-90GHz
	+/-	1.64 dB	90GHz-140GHz
	+/-	3.83 dB	140GHz-220GHz

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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6 MEASUREMENT EQUIPMENT USED

6.1 Emission from AC power line

AC Power-Line Conducted Emission Test Site: Conduction C					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Coaxial Cable	EC Lab	RF-HY-CAB-250	RF-HY-CAB-250-01	03/27/2024	03/26/2025
EMI Test Receiver	R&S	ESCI	101342	04/29/2024	04/28/2025
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	973	04/22/2024	04/21/2025
Pulse Limiter	EC Lab	VTSD 9561F-N	485	03/27/2024	03/26/2025
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R

6.2 Conducted Measurement

Conducted Emission Test Site: Conducted D					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Attenuator	Woken	WATT-218FS-10	RF19	11/15/2023	11/14/2024
Attenuator	Woken	WATT-218FS-10	RF19	11/14/2024	11/13/2025
Attenuator	Woken	WATT-218FS-10	RF20	11/15/2023	11/14/2024
Attenuator	Woken	WATT-218FS-10	RF20	11/14/2024	11/13/2025
DC Block	PASTERNAK	PE8210	RF153	11/15/2023	11/14/2024
DC Block	PASTERNAK	PE8210	RF153	11/14/2024	11/13/2025
Power Meter	Anritsu	ML2496A	2138002	08/28/2024	08/27/2025
Power Sensor	Anritsu	MA2411B	1911390	08/28/2024	08/27/2025
Power Sensor	Anritsu	MA2411B	1911398	08/28/2024	08/27/2025
Spectrum Analyzer	KEYSIGHT	N9010B	MY60240506	06/17/2024	06/16/2025
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

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6.3 Radiated Measurement

Radiated Emission Test Site: SAC D					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
3m Site NSA	SGS	966 chamber D	N/A	04/30/2024	04/29/2025
Active Loop Antenna	COM-POWER	AL-130R	10160105	12/04/2023	12/03/2024
Broadband Antenna	SCHWARZBECK	VULB 9168	9168-617	12/14/2023	12/13/2024
Horn Antenna	Schwarzbeck	BBHA9120D	1341	05/30/2024	05/29/2025
Horn Antenna	Schwarzbeck	BBHA9170	184	12/28/2023	12/27/2024
Spectrum Analyzer	KEYSIGHT	N9010A	MY57120200	04/03/2024	04/02/2025
Attenuator	Woken	WATT-218FS-10	RF17	11/15/2023	11/14/2024
Band Rejection Filter	Micro-Tronics	G015	RF198	11/15/2023	11/14/2024
Band Rejection Filter	Micro-Tronics	G016	RF199	11/15/2023	11/14/2024
Band Rejection Filter	Micro-Tronics	G021	RF200	11/15/2023	11/14/2024
Coaxial Cable	Huber+Suhner	EMC106-SM-SM-7200	150703	11/15/2023	11/14/2024
Coaxial Cable	Huber+Suhner	RG 214/U	W21.01	11/15/2023	11/14/2024
Highpass Filter	R&S	HPF7.0	RF174	11/15/2023	11/14/2024
Lowpass Filter	Woken	EWI-56-0019	RF173	11/15/2023	11/14/2024
Pre-Amplifier	EMC Instruments	EMC12630SE	980273	11/15/2023	11/14/2024
Pre-Amplifier	EMC Instruments	EMC18405SEE	980881	11/15/2023	11/14/2024
Pre-Amplifier	EMC Instruments	EMC9135	980234	11/15/2023	11/14/2024
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R

NOTE: N.C.R refers to Not Calibrated Required.

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7 CONDUCTED EMISSION TEST

7.1 Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

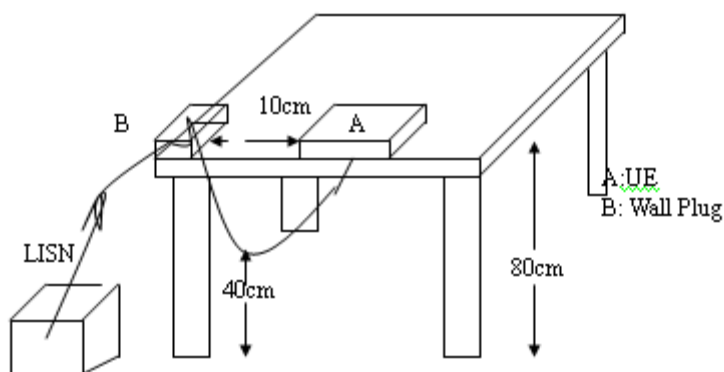
Note

- 1.The lower limit shall apply at the transition frequencies
- 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

7.2 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

7.3 Test SET-UP



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7.4 Measurement Procedure

4. The EUT was placed on a table which is 0.8m above ground plane.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Repeat above procedures until all phases of power being supplied by given UE are completed.

7.5 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The test data reveals the worst-case results that closest to the limit.

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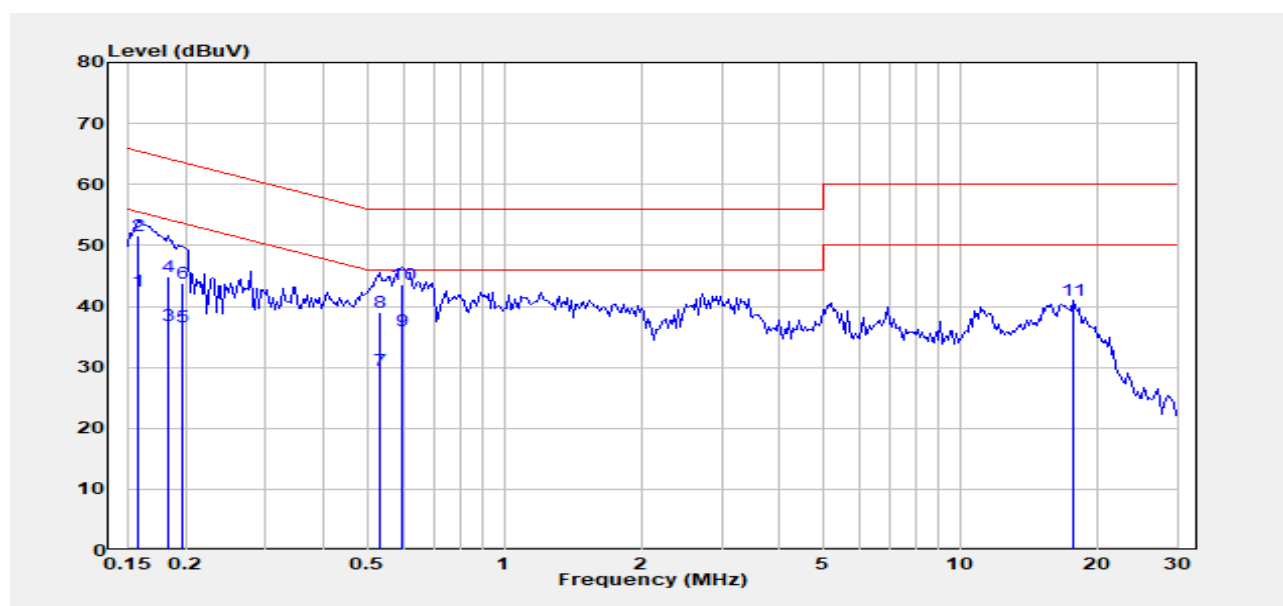
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AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:TERF2410003206E2	Test Site	:Conduction C
Test Mode	:5G	Test Date	:2024-11-04
Power	:120V/60Hz	Temp./Humi	:21.1°C/61%
Probe	:L1	Engineer	:Jacky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.156	Average	31.80	10.65	42.45	55.65	-13.20
0.156	QP	40.90	10.65	51.55	65.65	-14.10
0.183	Average	26.30	10.65	36.95	54.33	-17.38
0.183	QP	34.20	10.65	44.85	64.33	-19.48
0.198	Average	26.00	10.65	36.65	53.71	-17.06
0.198	QP	33.20	10.65	43.85	63.71	-19.86
0.535	Average	18.90	10.62	29.52	46.00	-16.48
0.535	QP	28.40	10.62	39.02	56.00	-16.98
0.595	Average	25.30	10.63	35.93	46.00	-10.07
0.595	QP	33.00	10.63	43.63	56.00	-12.37
17.661	Peak	29.88	11.12	41.01	60.00	-18.99

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Report Number :TERF2410003206E2

Test Site :Conduction C

Test Mode :5G

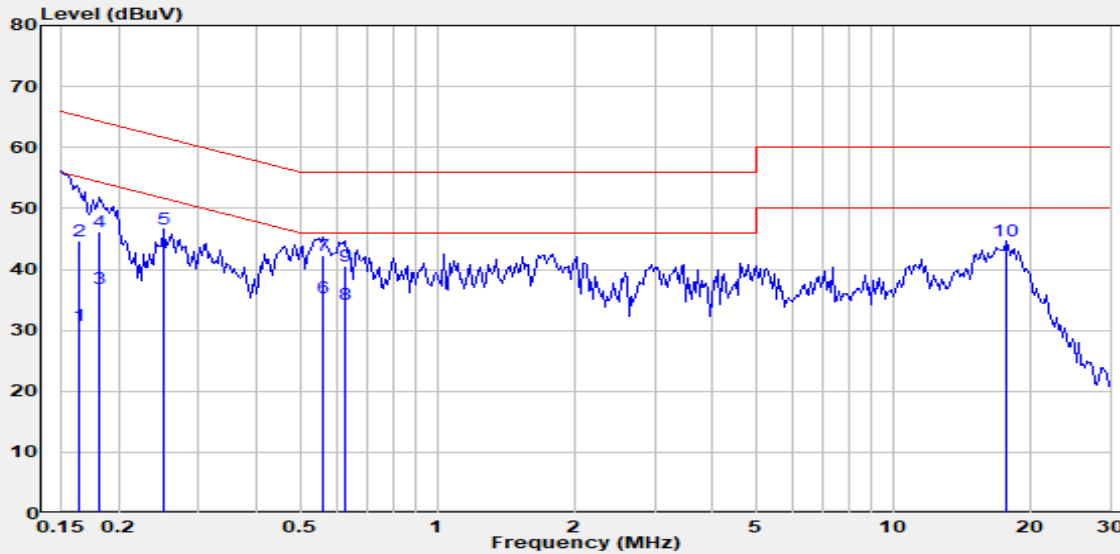
Test Date :2024-11-04

Power :120V/60Hz

Temp./Humi :21.1°C/61%

Probe :N

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.163	Average	20.20	10.66	30.86	55.30	-24.44
0.163	QP	33.90	10.66	44.56	65.30	-20.74
0.182	Average	26.10	10.65	36.75	54.42	-17.66
0.182	QP	35.50	10.65	46.15	64.42	-18.26
0.252	Peak	35.93	10.64	46.56	61.69	-15.12
0.564	Average	24.80	10.61	35.41	46.00	-10.59
0.564	QP	31.60	10.61	42.21	56.00	-13.79
0.627	Average	23.70	10.62	34.32	46.00	-11.68
0.627	QP	30.00	10.62	40.62	56.00	-15.38
17.661	Peak	33.51	11.12	44.63	60.00	-15.37

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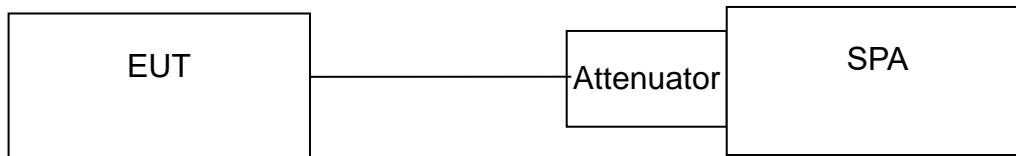
8 EMISSION BANDWIDTH MEASUREMENT

8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3.

8.2 Test Setup



8.3 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW
Sweep=auto,
Detector = Peak,
Trace Mode = Max Hold,
Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Minimum Emission Bandwidth for the band 5.725-5.850GHz
 - a. Set the spectrum analyzer as
RBW = 100 kHz,
VBW = 3*RBW,
Span = large enough to capture all products of the modulation process,
Detector=Peak,
Sweep=auto
 - b. Mark the peak frequency and -6dB (upper and lower) frequency.
6. For 99% Bandwidth: Set the spectrum analyzer as
RBW = 1%,
VBW = 3*RBW,
Span = large enough to capture all products of the modulation process,
Detector=Sample,
Sweep=auto.
7. Turn on the 99% bandwidth function, max reading.
8. Repeat above procedures until all frequency of interest measured was complete.

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8.4 Measurement Result

8.4.1 FCC Occupied Bandwidth

802.11a_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	18.40	12.650
5220	18.44	12.660
5240	18.31	12.630
5260	18.36	12.640
5300	18.38	12.640
5320	18.23	12.610
5500	18.30	12.620
5580	18.34	12.630
5700	18.28	12.620
5720(U-NII 2C)	14.12	11.500
5720(U-NII 3)	4.12	6.150

802.11a_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.34	12.130
5785	16.21	12.100
5825	16.35	12.140

802.11a_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.18	< 5250
5745	5736.81	> 5725

802.11n_HT20_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.14	12.820
5220	19.41	12.880
5240	19.15	12.820
5260	19.13	12.820
5300	19.28	12.850
5320	19.20	12.830
5500	19.27	12.850
5580	19.22	12.840
5700	19.24	12.840
5720(U-NII 2C)	14.62	11.650
5720(U-NII 3)	4.62	6.650

802.11n_HT20_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.27	12.370
5785	17.64	12.460
5825	17.61	12.460

802.11n_HT20_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.83	< 5250
5745	5736.40	> 5725

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802.11n_HT20_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.20	12.830
5220	19.33	12.860
5240	19.23	12.840
5260	19.26	12.850
5300	19.38	12.870
5320	19.20	12.830
5500	19.19	12.830
5580	19.35	12.870
5700	19.27	12.850
5720(U-NII 2C)	14.55	11.630
5720(U-NII 3)	4.55	6.580

802.11n_HT20_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.05	12.320
5785	17.53	12.440
5825	17.55	12.440

802.11n_HT20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.83	< 5250
5745	5736.40	> 5725

802.11n_HT40_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.33	16.060
5230	40.04	16.020
5270	41.98	16.230
5310	40.66	16.090
5510	40.54	16.080
5550	40.38	16.060
5670	41.54	16.180
5710(U-NII 2C)	35.61	15.520
5710(U-NII 3)	5.61	7.490

802.11n_HT40_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	33.87	15.300
5795	35.15	15.460

802.11n_HT40_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.06	< 5250
5755	5737.07	> 5725

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802.11n_HT40_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.76	16.100
5230	40.77	16.100
5270	41.09	16.140
5310	40.14	16.040
5510	40.62	16.090
5550	45.02	16.530
5670	40.91	16.120
5710(U-NII 2C)	35.23	15.470
5710(U-NII 3)	5.23	7.190

802.11n_HT40_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.17	15.460
5795	34.71	15.400

802.11n_HT40_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.03	< 5250
5755	5737.12	> 5725

802.11ac_VHT80_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	79.33	18.990
5290	80.13	19.040
5530	80.28	19.050
5610	80.08	19.040
5690(U-NII 2C)	75.36	18.770
5690(U-NII 3)	5.36	7.290

802.11ac_VHT80_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	72.66	18.610

802.11ac_VHT80_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.27	< 5250
5775	5737.80	> 5725

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802.11ac_VHT80_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	80.07	19.030
5290	80.08	19.040
5530	79.93	19.030
5610	80.06	19.030
5690(U-NII 2C)	75.02	18.750
5690(U-NII 3)	5.02	7.010

802.11ac_VHT80_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	72.70	18.620

802.11ac_VHT80_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.39	< 5250
5775	5737.53	> 5725

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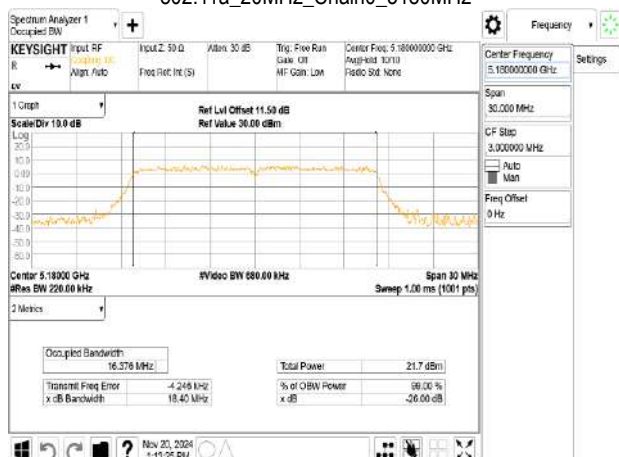
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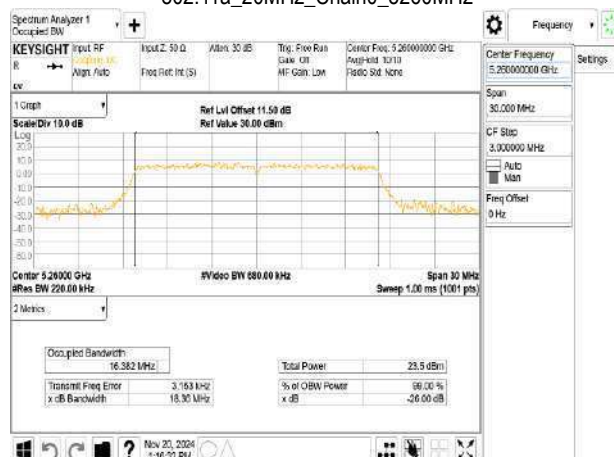
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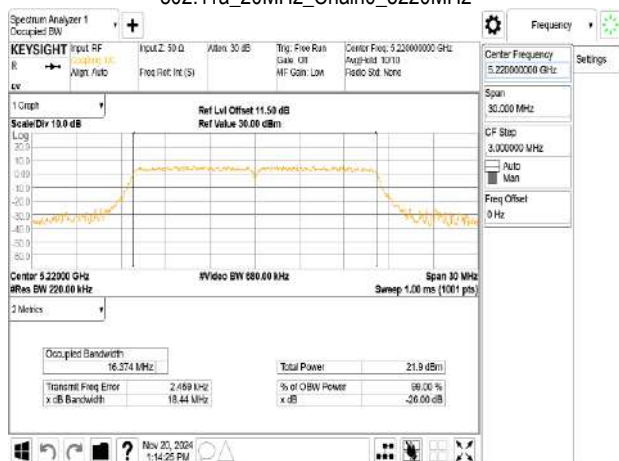
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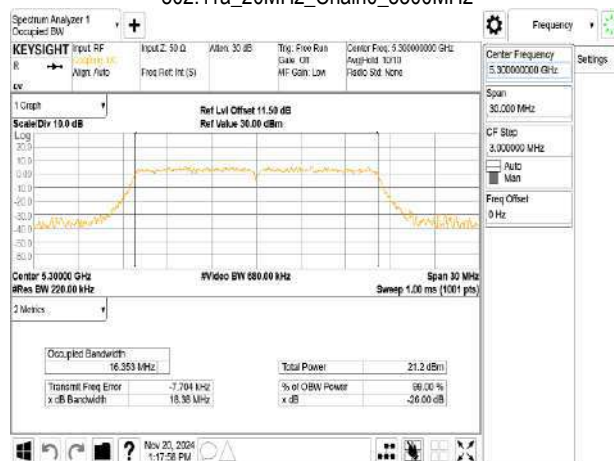
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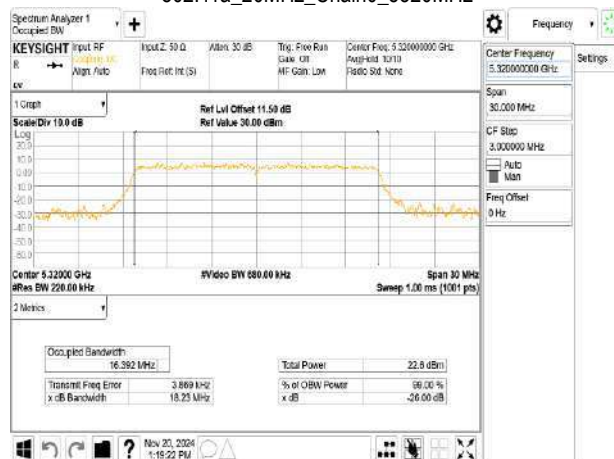
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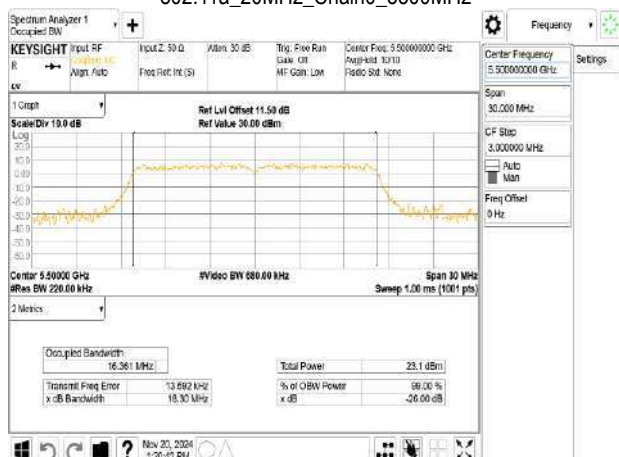


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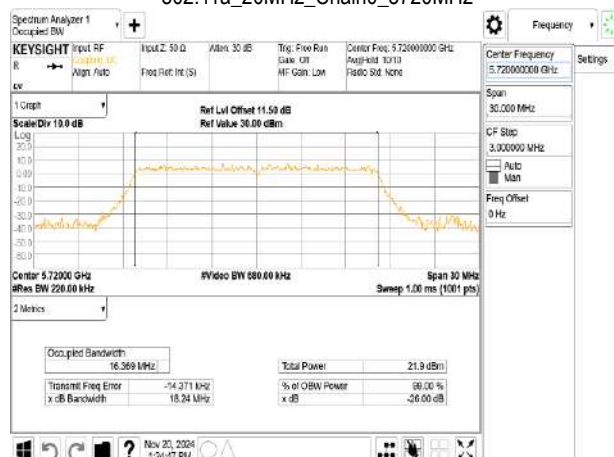
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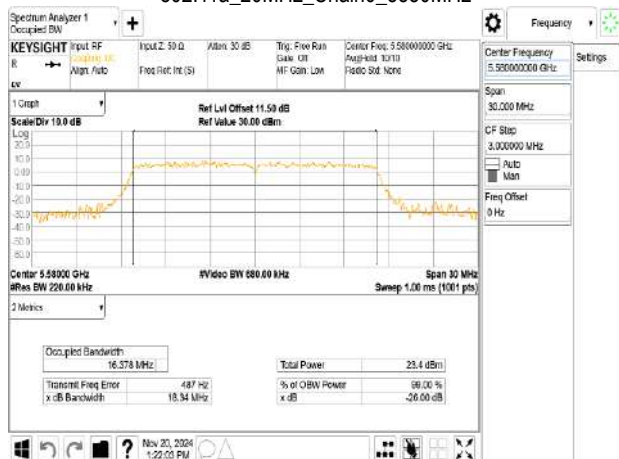
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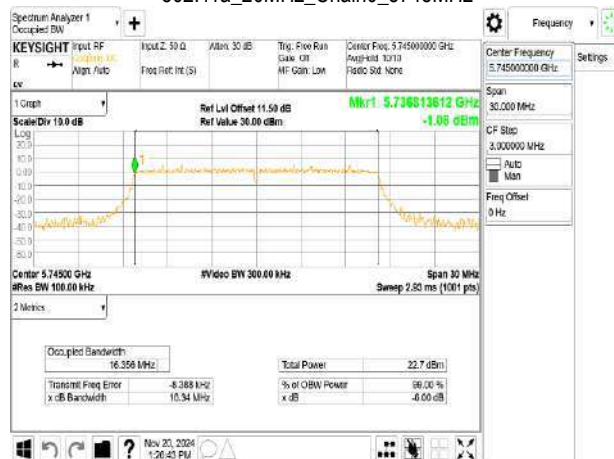
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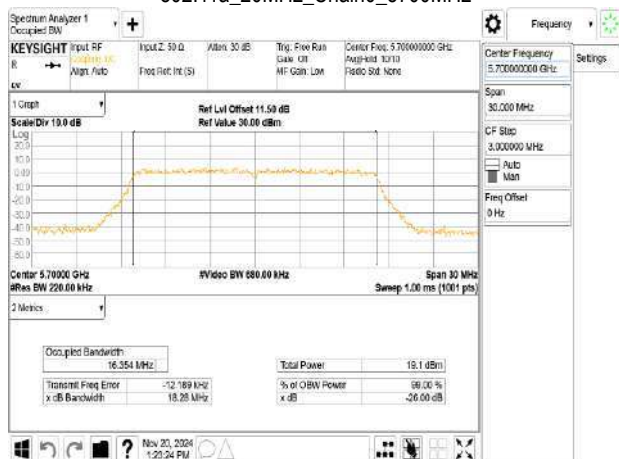
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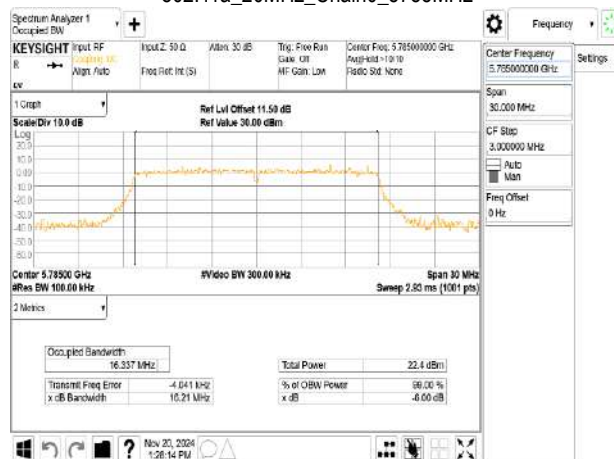
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802.11a_20MHz_Chain0_5700MHz



802.11a_20MHz_Chain0_5785MHz

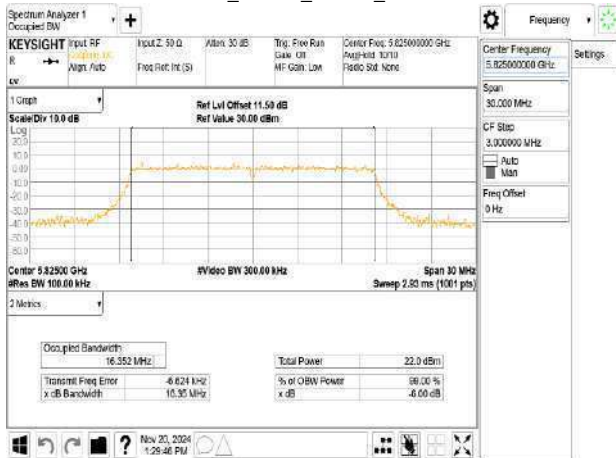


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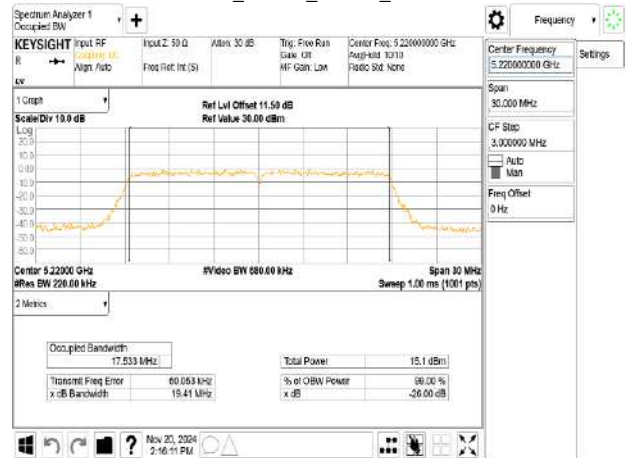
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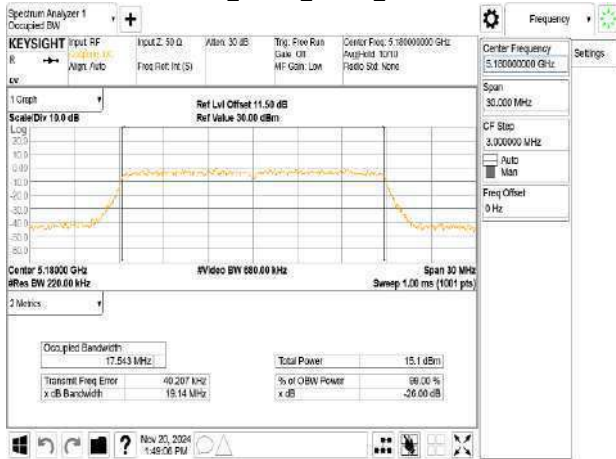
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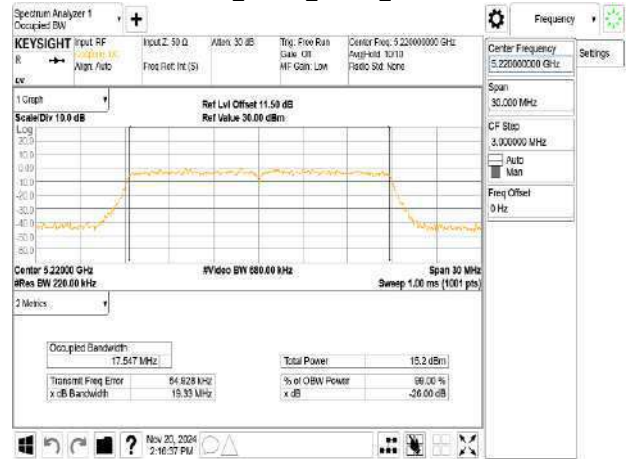
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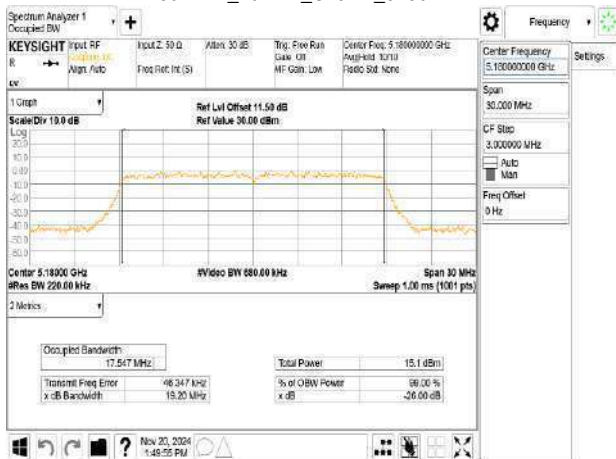
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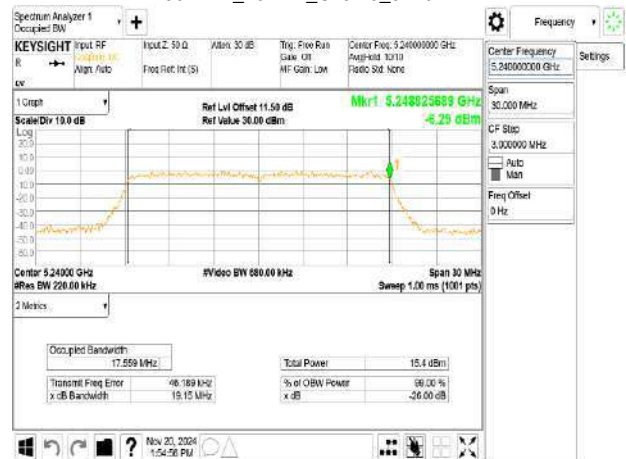
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802.11n_20MHz_Chain1_5180MHz



802.11n_20MHz_Chain0_5240MHz

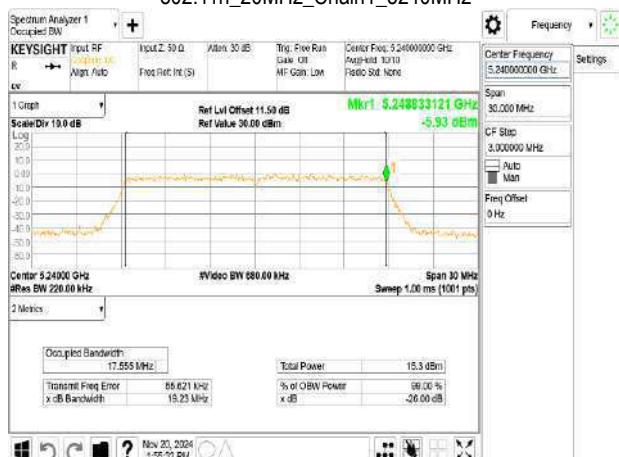


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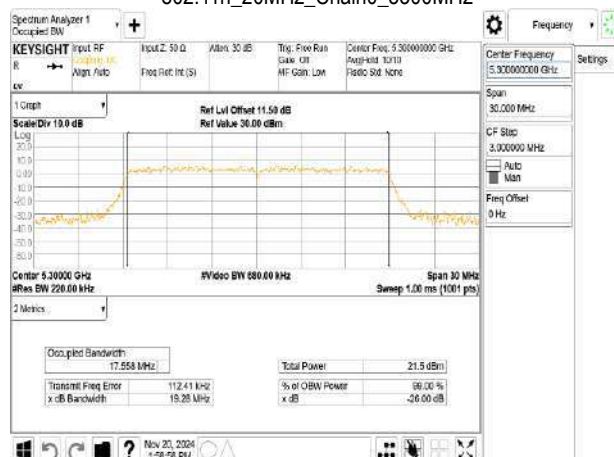
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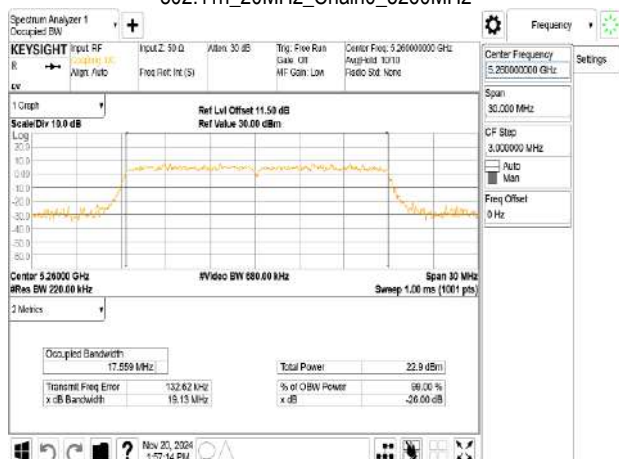
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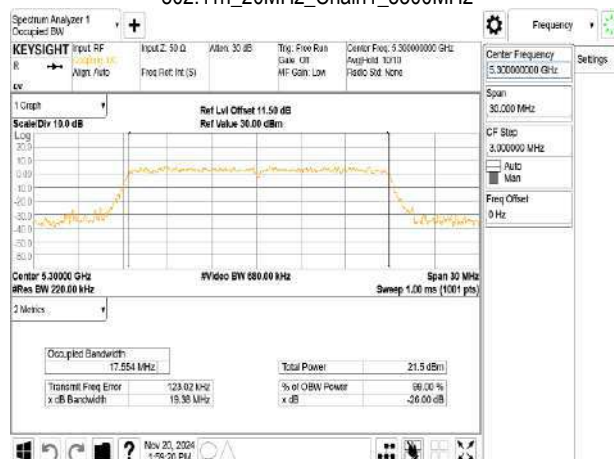
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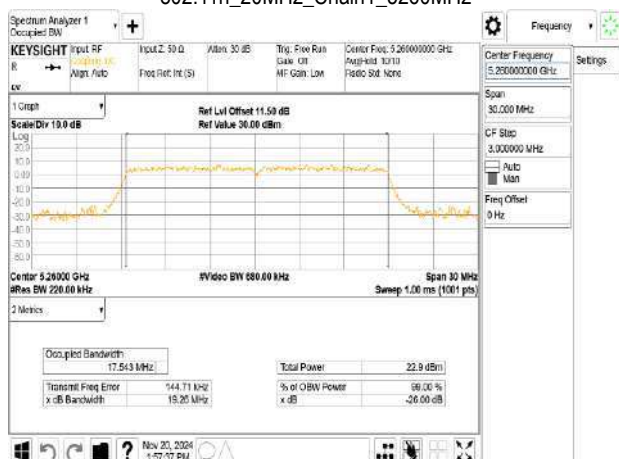
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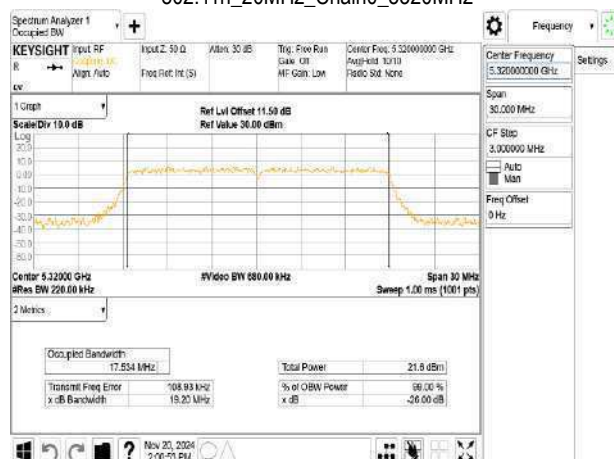
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802.11n_20MHz_Chain1_5260MHz



802.11n_20MHz_Chain0_5320MHz

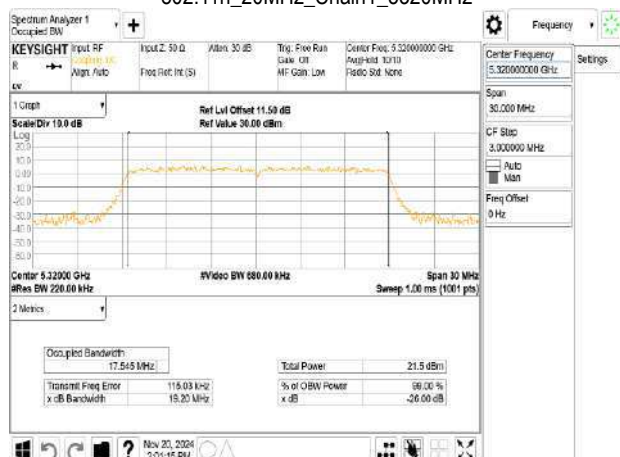


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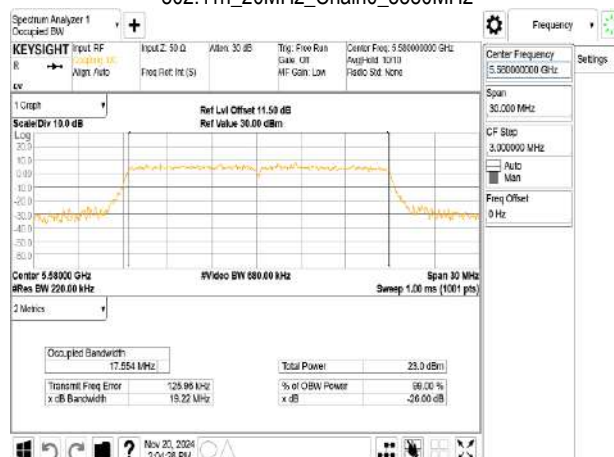
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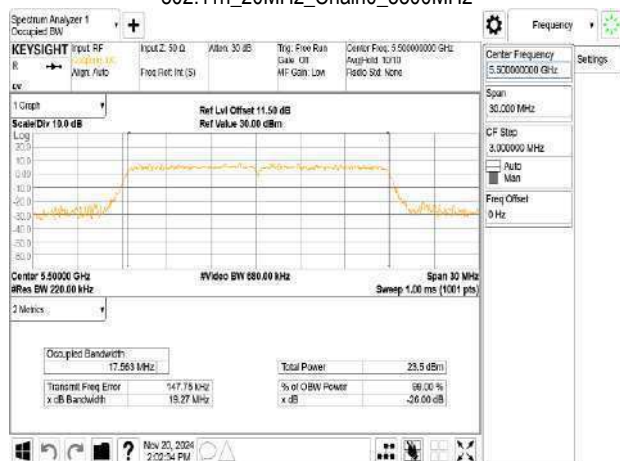
802.11n_20MHz_Chain1_5320MHz



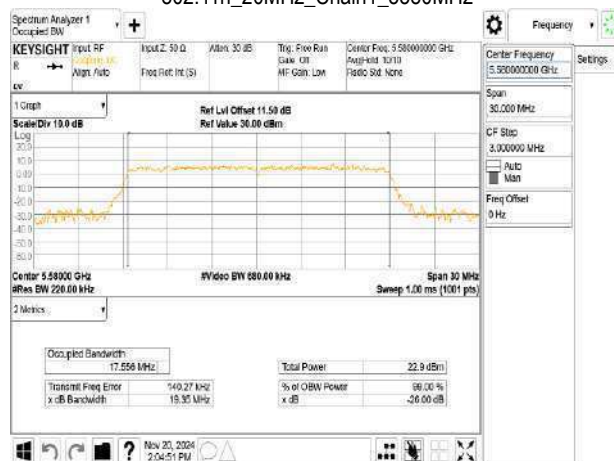
802.11n_20MHz_Chain0_5580MHz



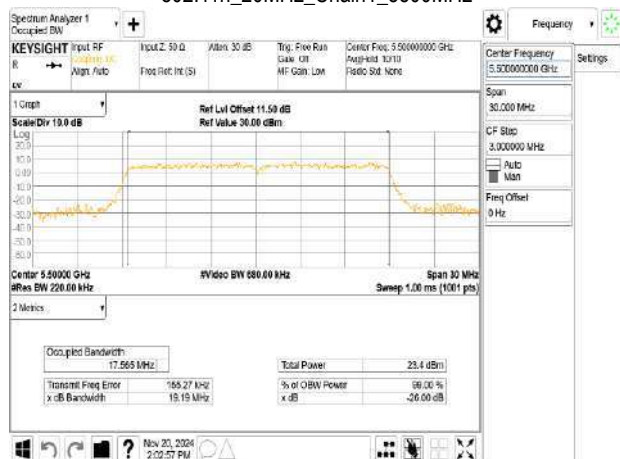
802.11n_20MHz_Chain0_5500MHz



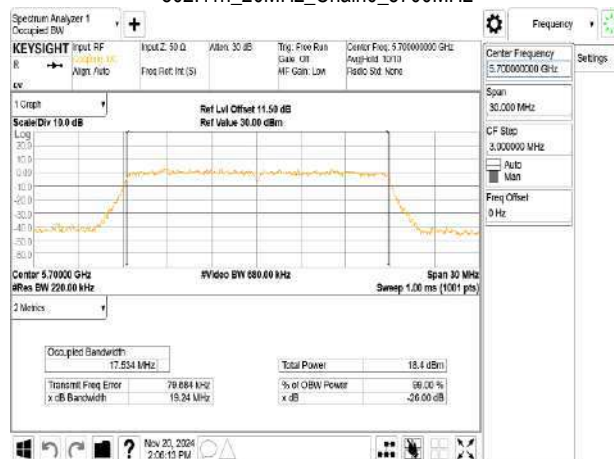
802.11n_20MHz_Chain1_5580MHz



802.11n_20MHz_Chain1_5500MHz



802.11n_20MHz_Chain0_5700MHz

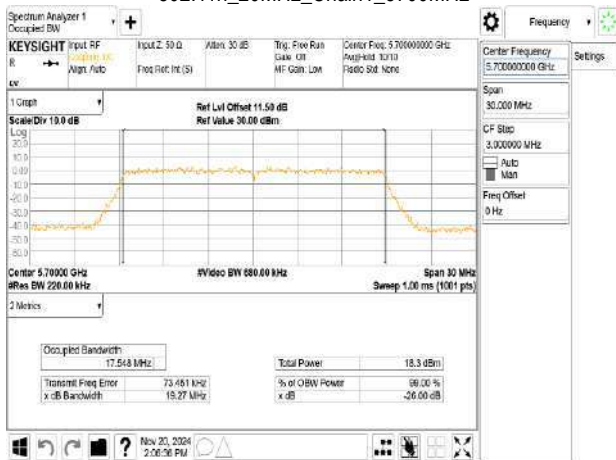


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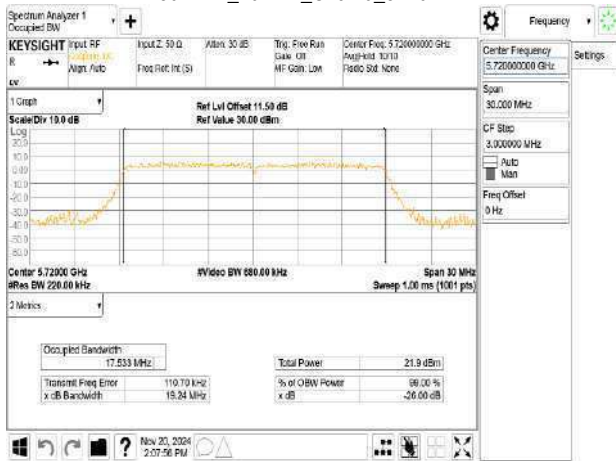
802.11n_20MHz_Chain1_5700MHz



802.11n_20MHz_Chain0_5745MHz



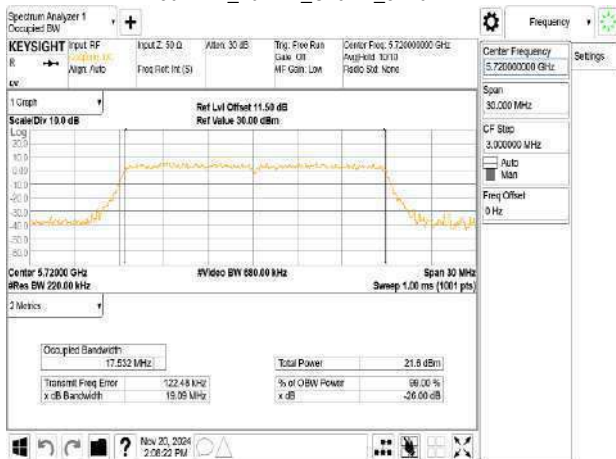
802.11n_20MHz_Chain0_5720MHz



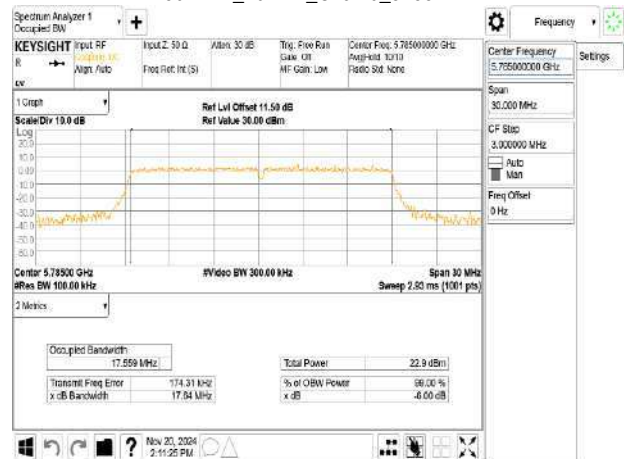
802.11n_20MHz_Chain1_5745MHz



802.11n_20MHz_Chain1_5720MHz



802.11n_20MHz_Chain0_5785MHz

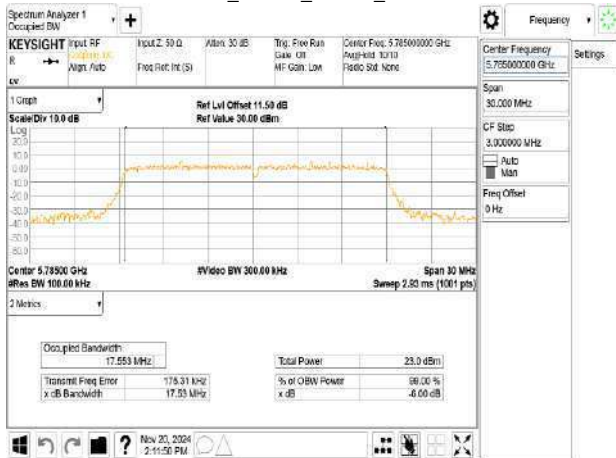


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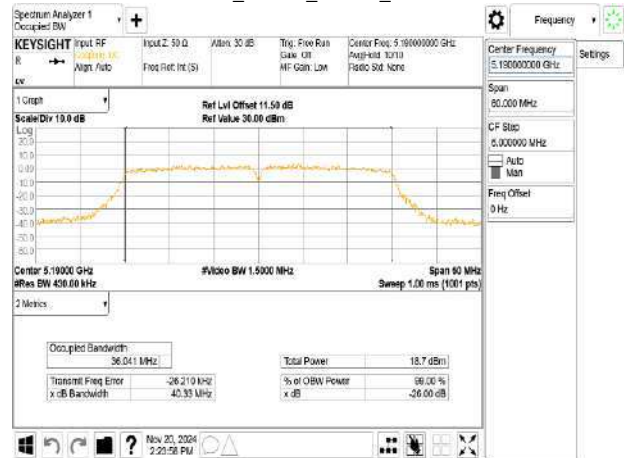
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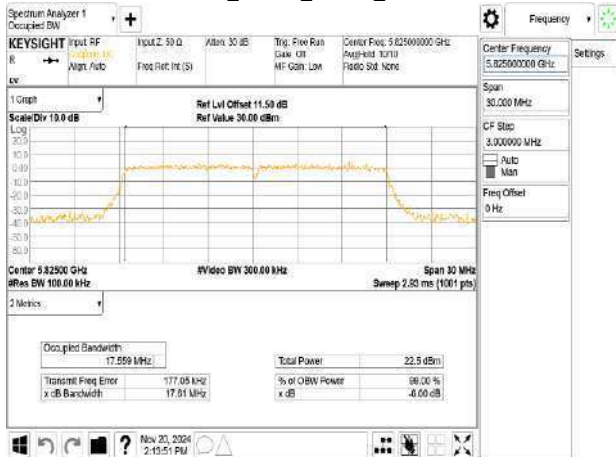
802.11n_20MHz_Chain1_5785MHz



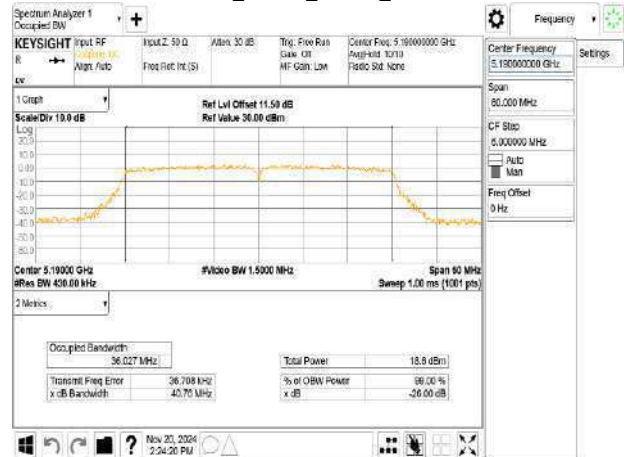
802.11n_40MHz_Chain0_5190MHz



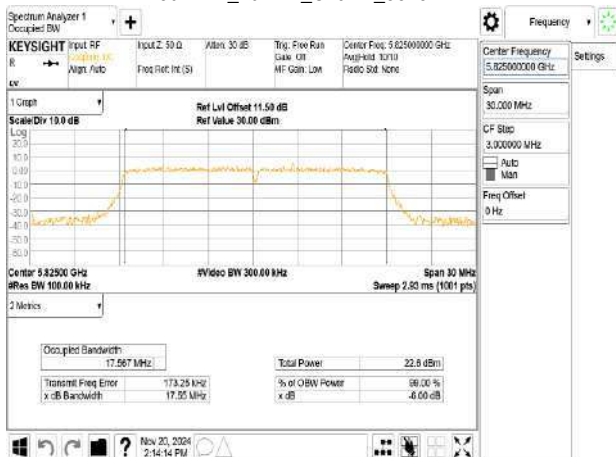
802.11n_20MHz_Chain0_5825MHz



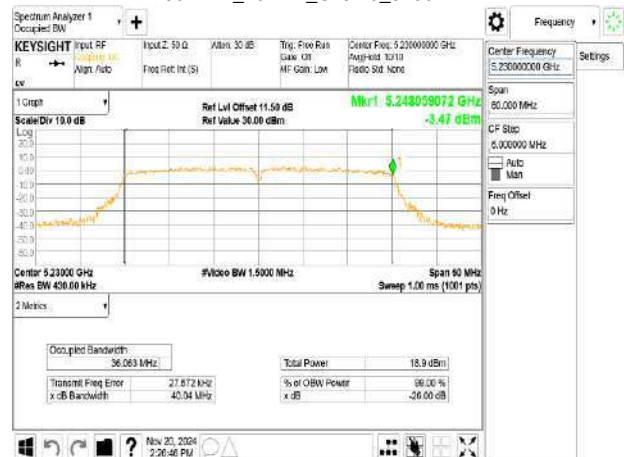
802.11n_40MHz_Chain1_5190MHz



802.11n_20MHz_Chain1_5825MHz



802.11n_40MHz_Chain0_5230MHz

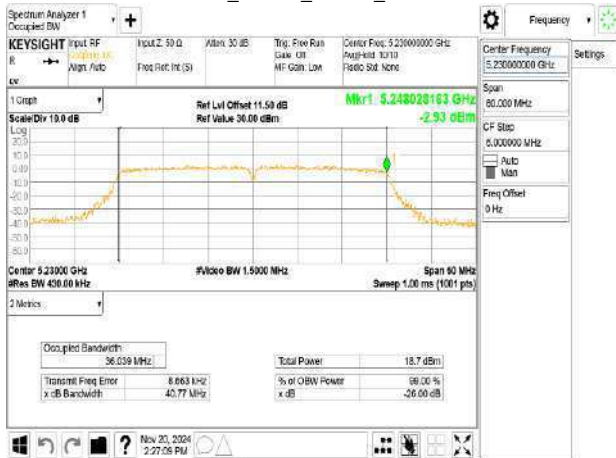


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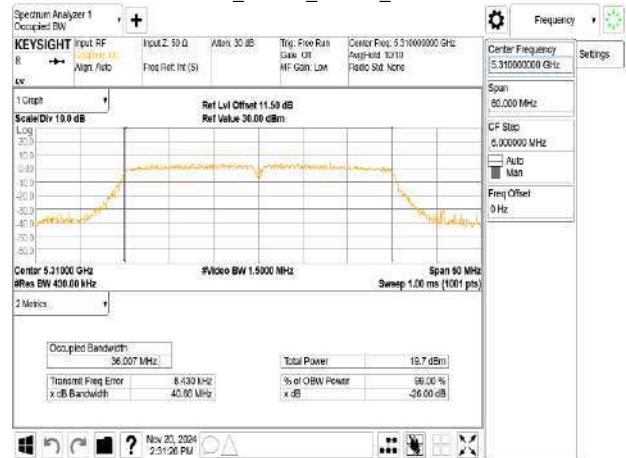
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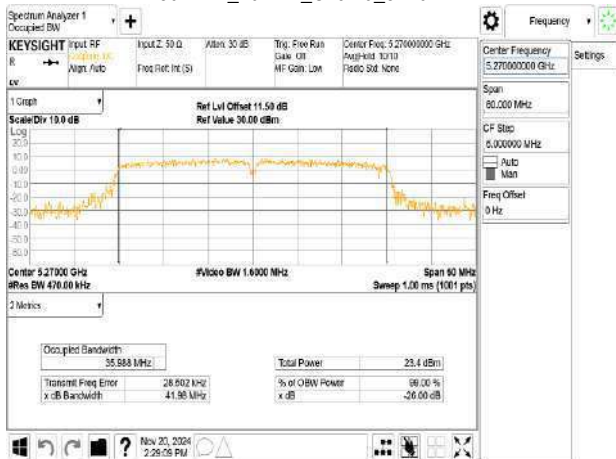
802.11n_40MHz_Chain1_5230MHz



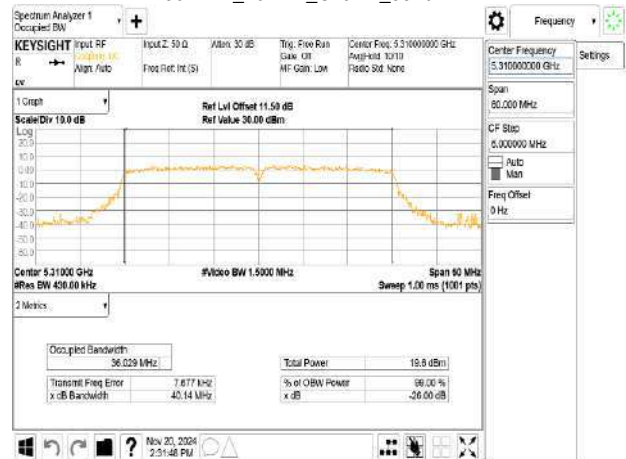
802.11n_40MHz_Chain0_5310MHz



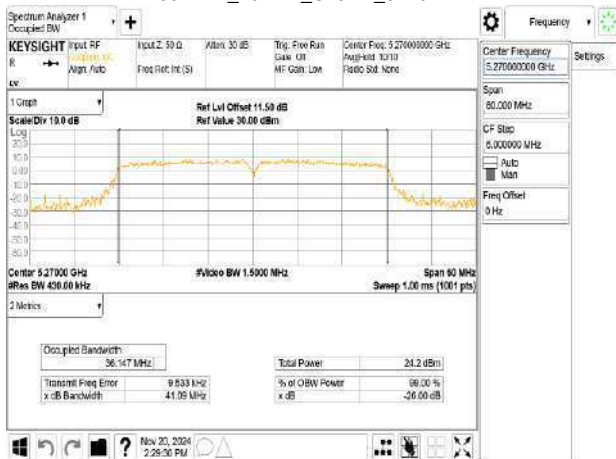
802.11n_40MHz_Chain0_5270MHz



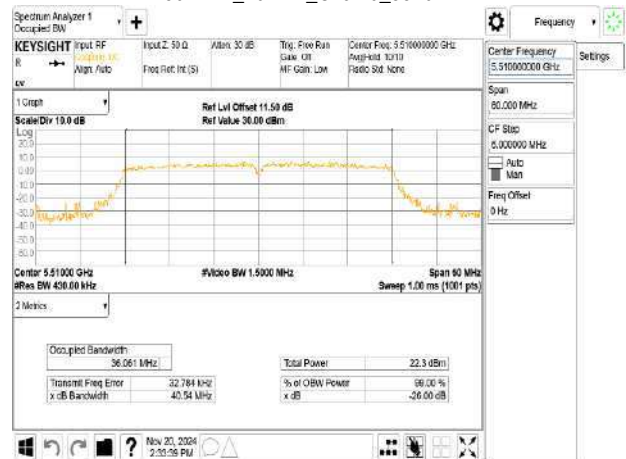
802.11n_40MHz_Chain1_5310MHz



802.11n_40MHz_Chain1_5270MHz



802.11n_40MHz_Chain0_5510MHz

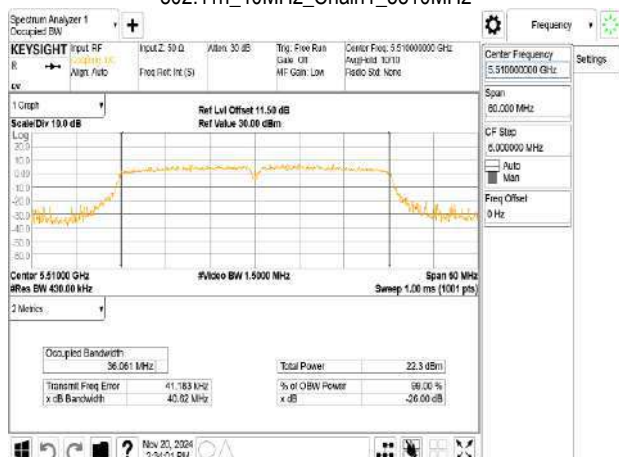


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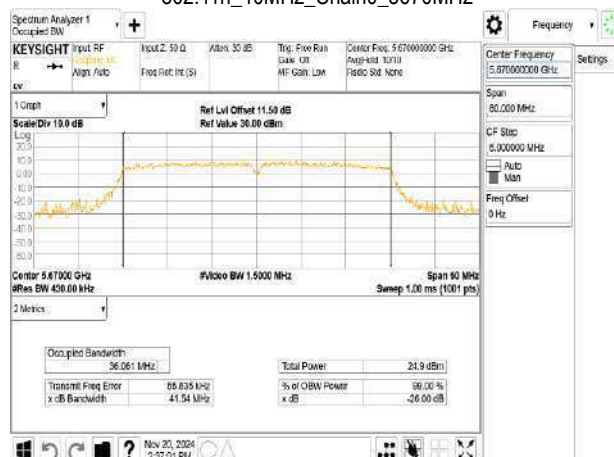
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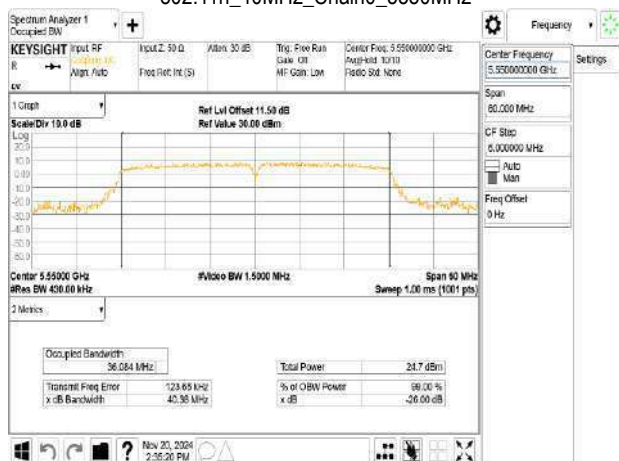
802.11n_40MHz_Chain1_5510MHz



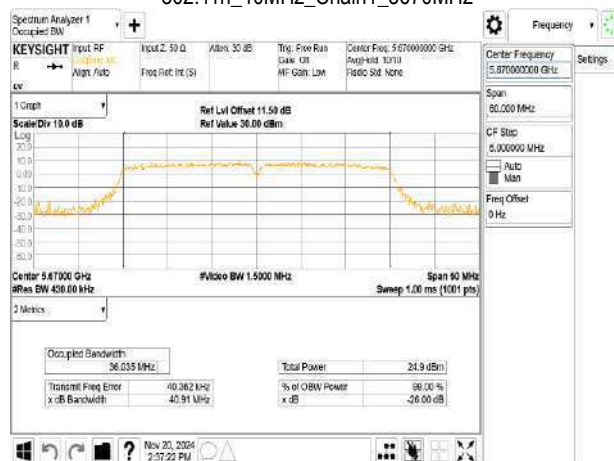
802.11n_40MHz_Chain0_5670MHz



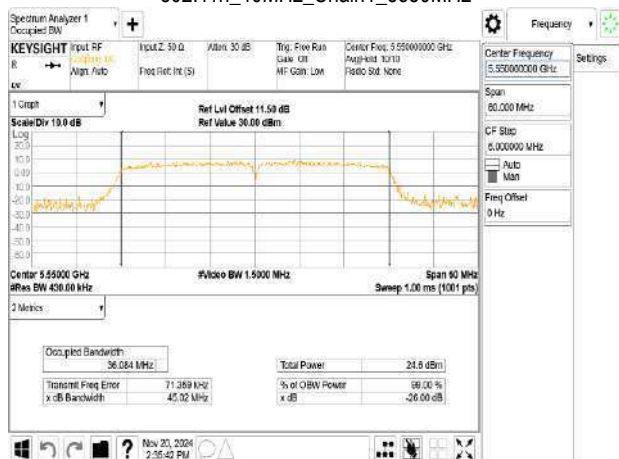
802.11n_40MHz_Chain0_5550MHz



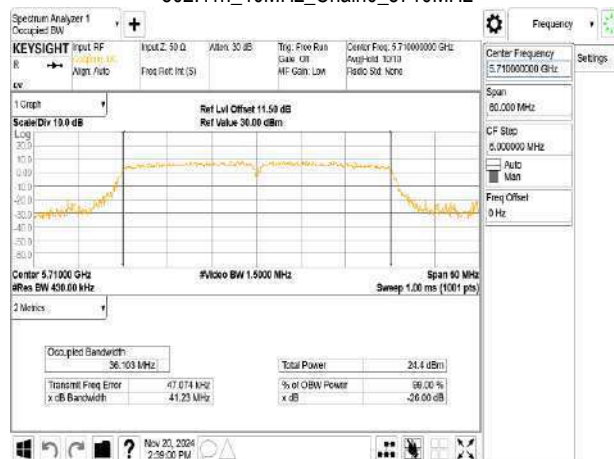
802.11n_40MHz_Chain1_5670MHz



802.11n_40MHz_Chain1_5550MHz



802.11n_40MHz_Chain0_5710MHz

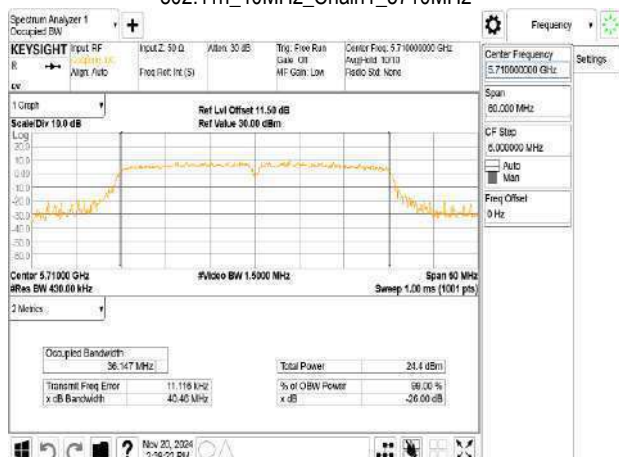


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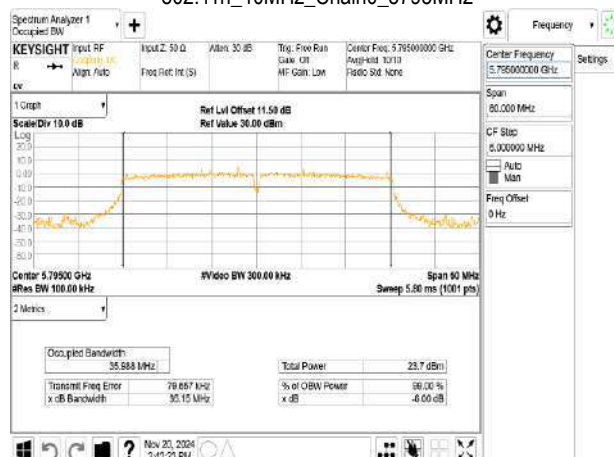
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802.11n_40MHz_Chain1_5710MHz



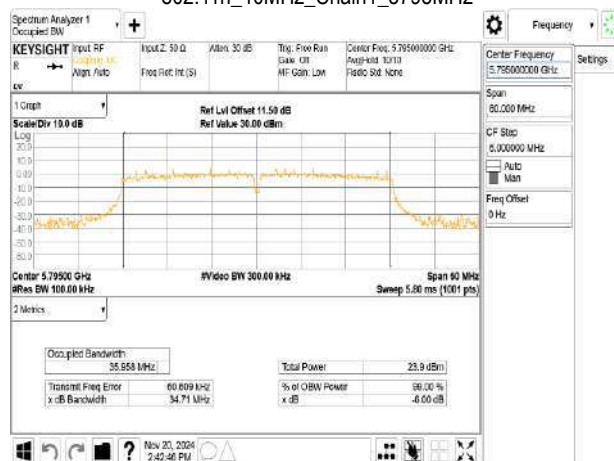
802.11n_40MHz_Chain0_5795MHz



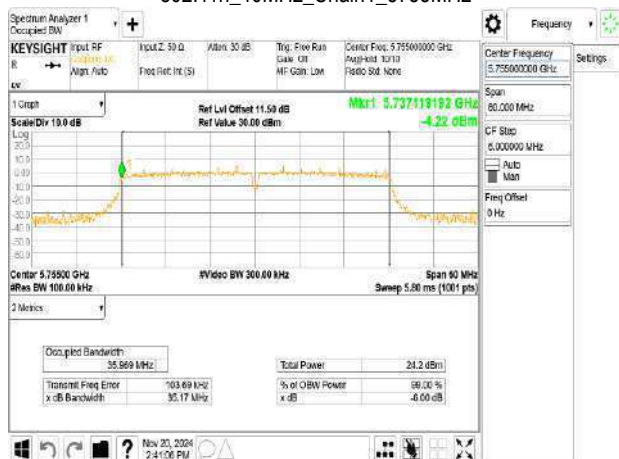
802.11n_40MHz_Chain0_5755MHz



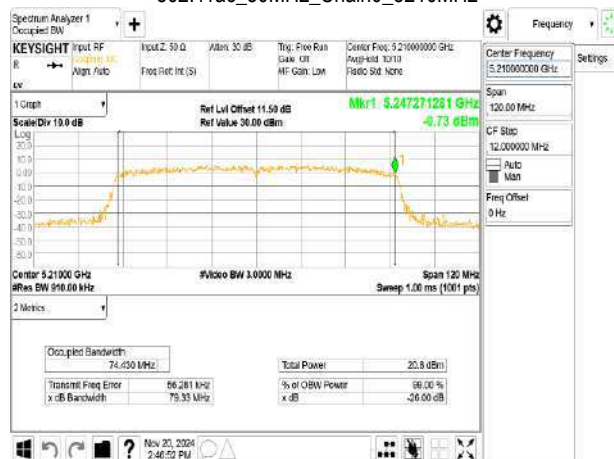
802.11n_40MHz_Chain1_5795MHz



802.11n_40MHz_Chain1_5755MHz



802.11ac_80MHz_Chain0_5210MHz

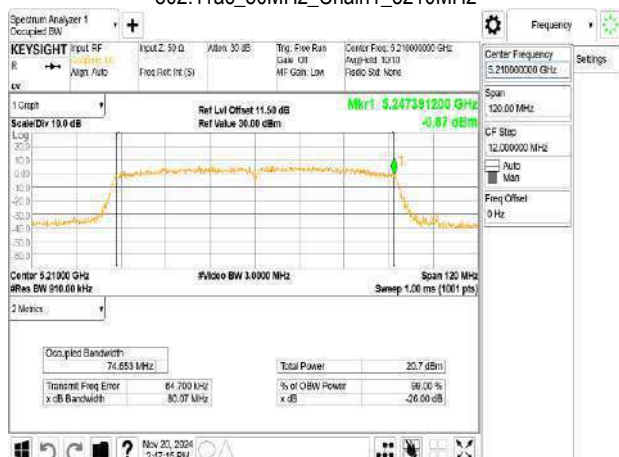


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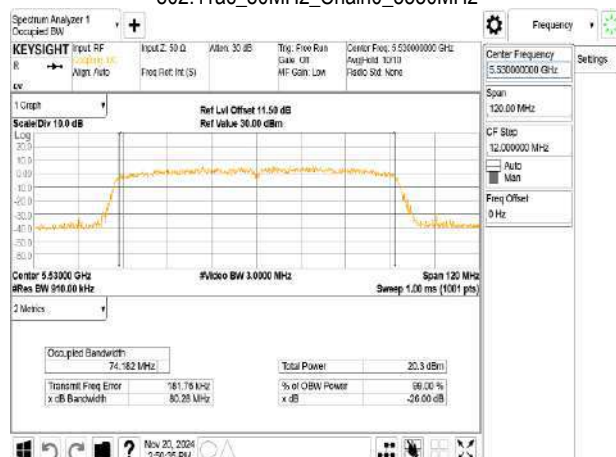
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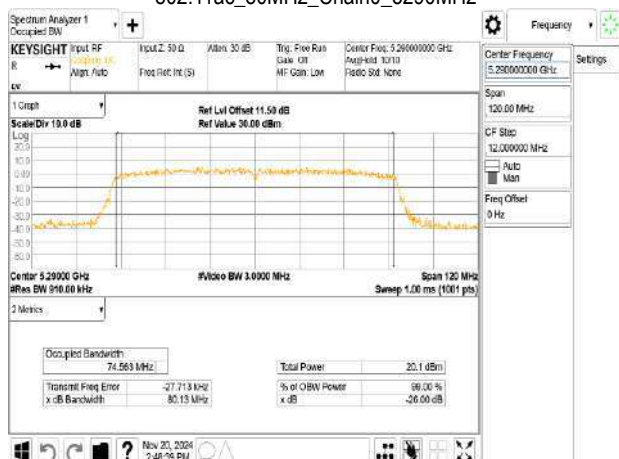
802.11ac_80MHz_Chain1_5210MHz



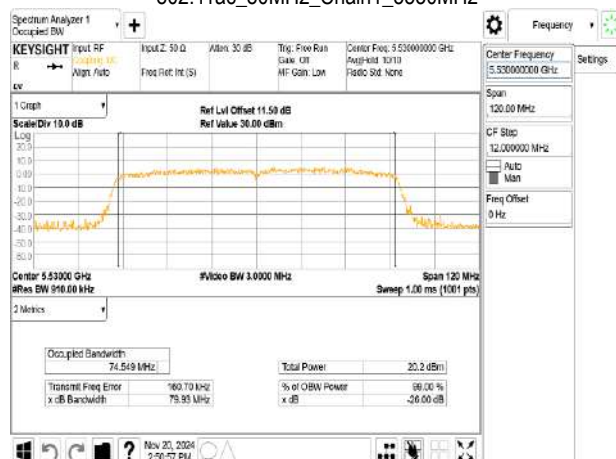
802.11ac_80MHz_Chain0_5530MHz



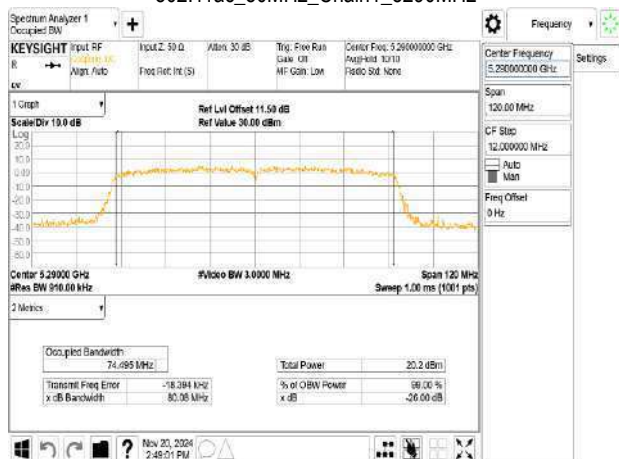
802.11ac_80MHz_Chain0_5290MHz



802.11ac_80MHz_Chain1_5530MHz



802.11ac_80MHz_Chain1_5290MHz



802.11ac_80MHz_Chain0_5610MHz

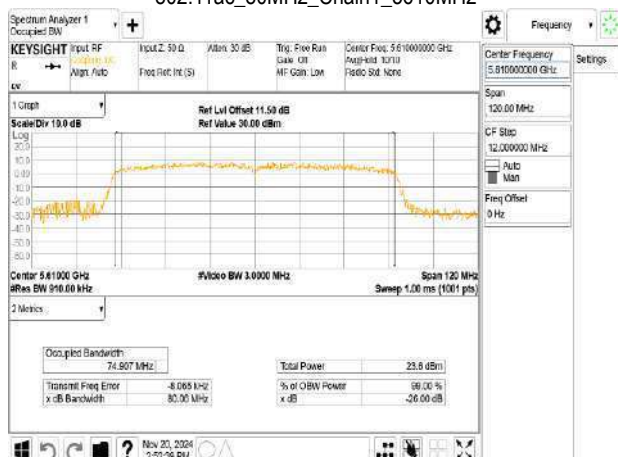


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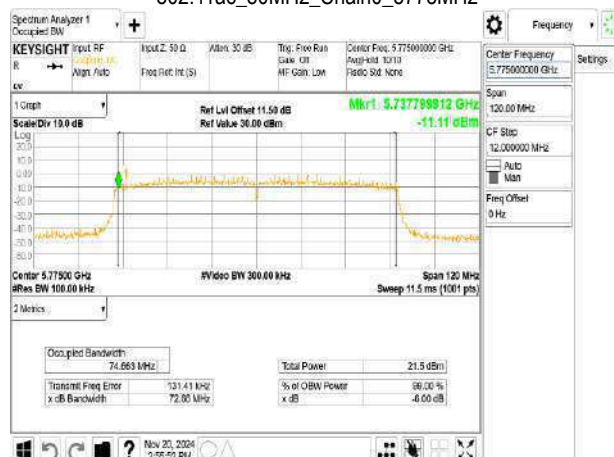
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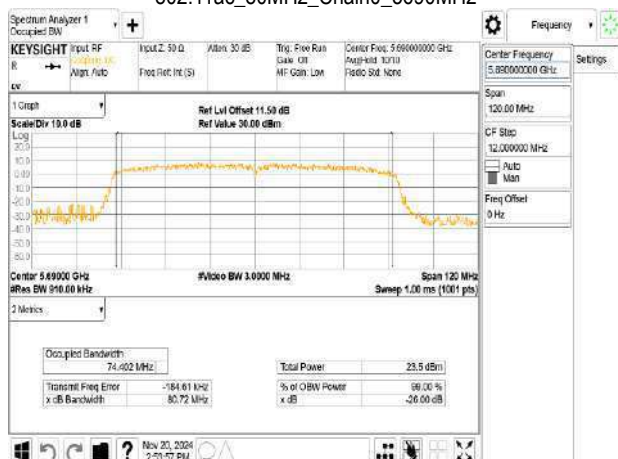
802.11ac_80MHz_Chain1_5610MHz



802.11ac_80MHz_Chain0_5775MHz



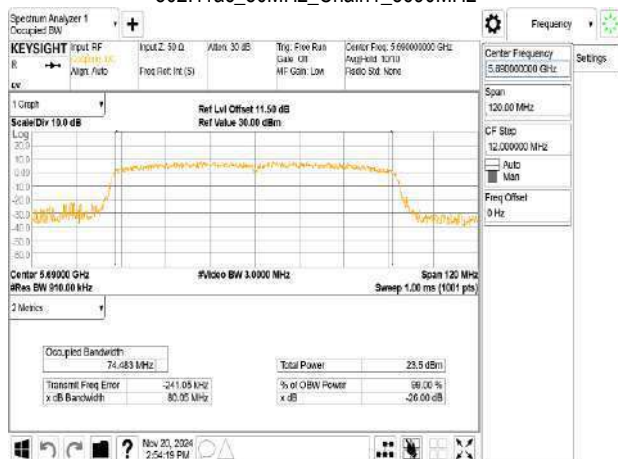
802.11ac_80MHz_Chain0_5690MHz



802.11ac_80MHz_Chain1_5775MHz



802.11ac_80MHz_Chain1_5690MHz



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8.4.2 ISED Occupied Bandwidth

802.11a_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.364	12.140
5220	16.357	12.140
5240	16.368	12.140
5260	16.384	12.140
5300	16.356	12.140
5320	16.358	12.140
5500	16.353	12.140
5580	16.373	12.140
5700	16.384	12.140
5720(U-NII 2C)	13.178	11.200
5720(U-NII 3)	3.178	5.020

802.11n_HT20_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.532	12.440
5220	17.529	12.440
5240	17.527	12.440
5260	17.579	12.450
5300	17.550	12.440
5320	17.553	12.440
5500	17.561	12.450
5580	17.550	12.440
5700	17.555	12.440
5720(U-NII 2C)	13.769	11.390
5720(U-NII 3)	3.769	5.760

802.11a_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	16.347	16.32
5785	16.347	16.30
5825	16.355	16.34

802.11n_HT20_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.574	17.47
5785	17.567	17.45
5825	17.554	17.52

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802.11n_HT20_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.545	12.440
5220	17.547	12.440
5240	17.546	12.440
5260	17.558	12.440
5300	17.549	12.440
5320	17.554	12.440
5500	17.546	12.440
5580	17.539	12.440
5700	17.544	12.440
5720(U-NII 2C)	13.771	11.390
5720(U-NII 3)	3.771	5.760

802.11n_HT40_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.004	15.560
5230	35.990	15.560
5270	36.120	15.580
5310	36.091	15.570
5510	35.970	15.560
5550	36.028	15.570
5670	36.055	15.570
5710(U-NII 2C)	33.014	15.190
5710(U-NII 3)	3.014	4.790

802.11n_HT20_Ch1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.547	17.62
5785	17.557	17.59
5825	17.533	17.49

802.11n_HT40_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	35.960	35.66
5795	35.995	35.65

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802.11n_HT40_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.035	15.570
5230	36.007	15.560
5270	36.112	15.580
5310	36.073	15.570
5510	36.014	15.560
5550	36.137	15.580
5670	36.088	15.570
5710(U-NII 2C)	32.980	15.180
5710(U-NII 3)	2.980	4.740

802.11n_HT40_Ch1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	36.025	36.06
5795	36.084	36.26

802.11ac_VHT80_Ch0

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	74.409	18.720
5290	74.566	18.730
5530	74.297	18.710
5610	74.725	18.730
5690(U-NII 2C)	72.174	18.580
5690(U-NII 3)	2.174	3.370

802.11ac_VHT80_Ch0

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	74.523	73.46

802.11ac_VHT80_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	74.602	18.730
5290	74.566	18.730
5530	74.354	18.710
5610	74.637	18.730
5690(U-NII 2C)	72.327	18.590
5690(U-NII 3)	2.327	3.670

802.11ac_VHT80_Ch1

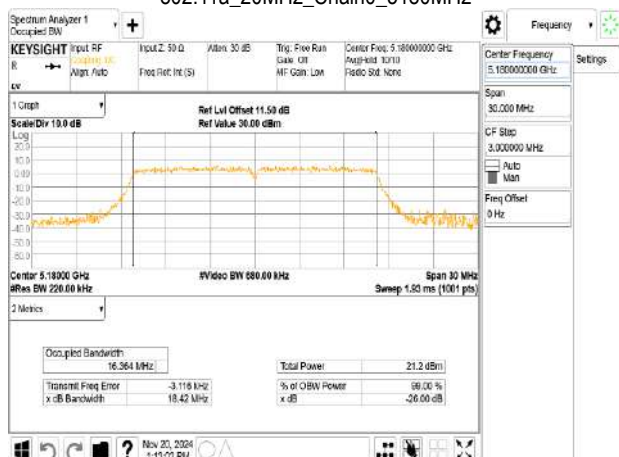
Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	74.471	71.69

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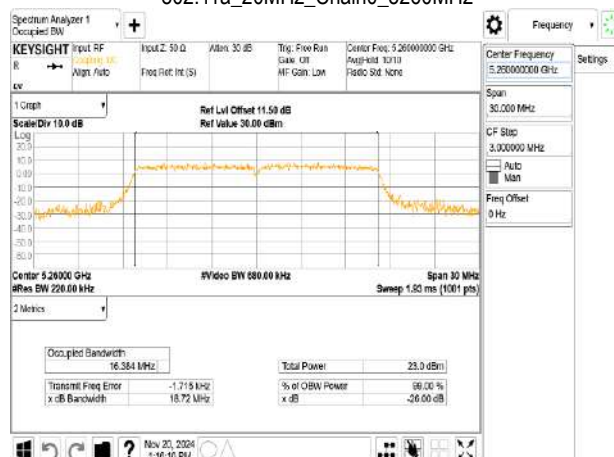
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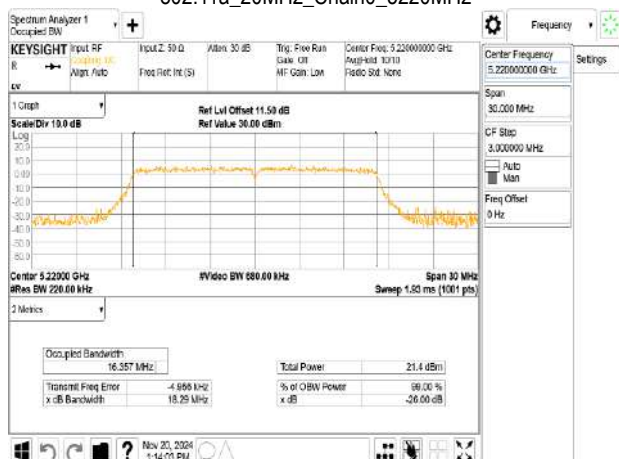
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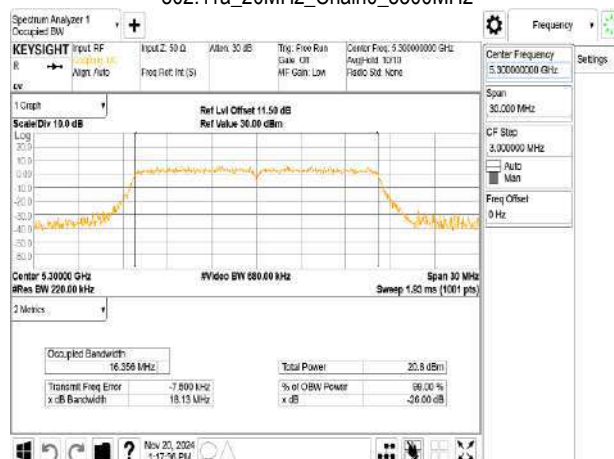
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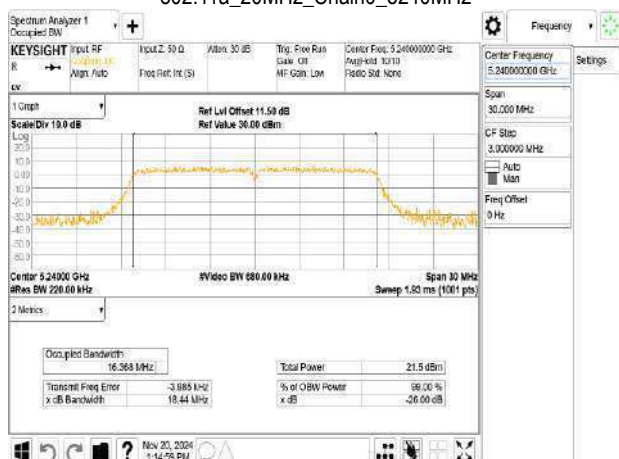
802.11a_20MHz_Chain0_5220MHz



802.11a_20MHz_Chain0_5300MHz



802.11a_20MHz_Chain0_5240MHz



802.11a_20MHz_Chain0_5320MHz

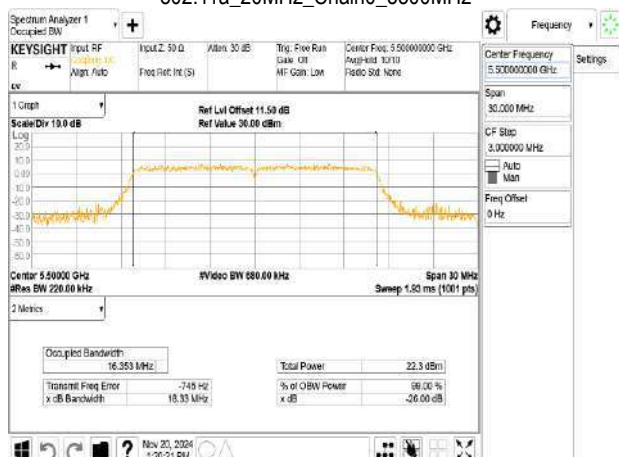


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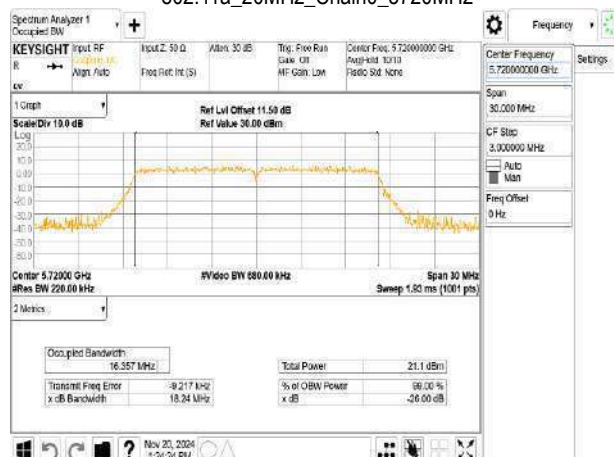
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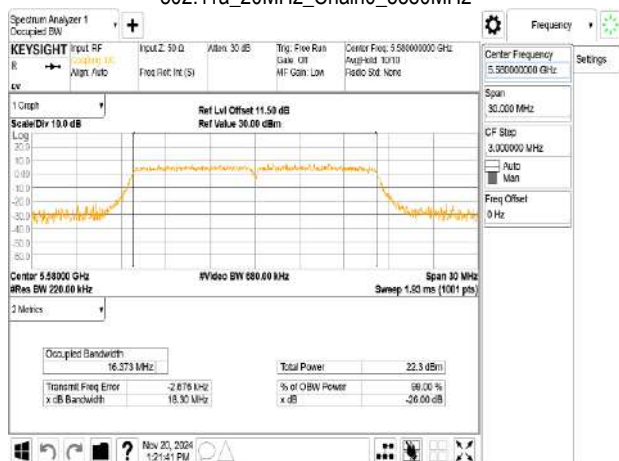
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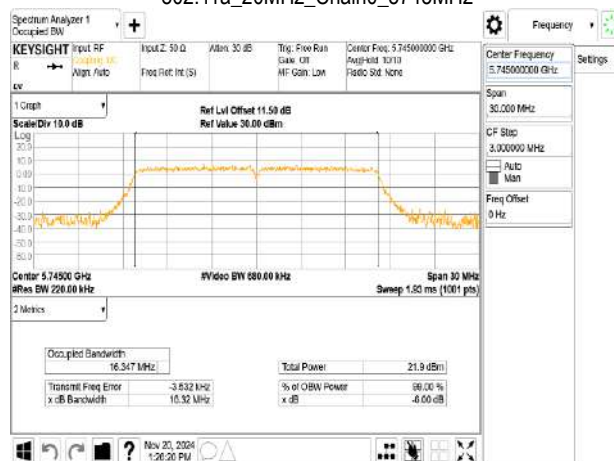
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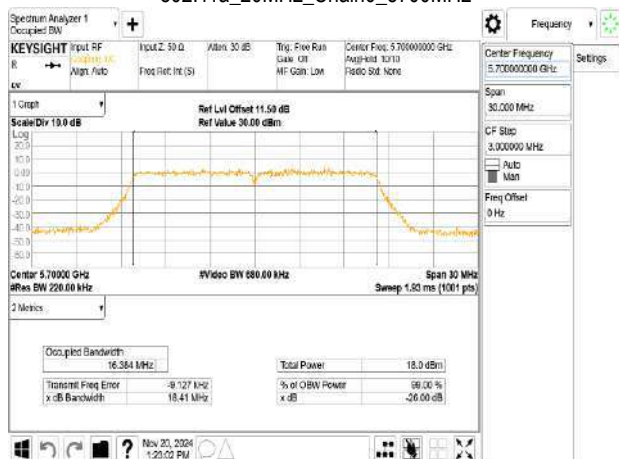
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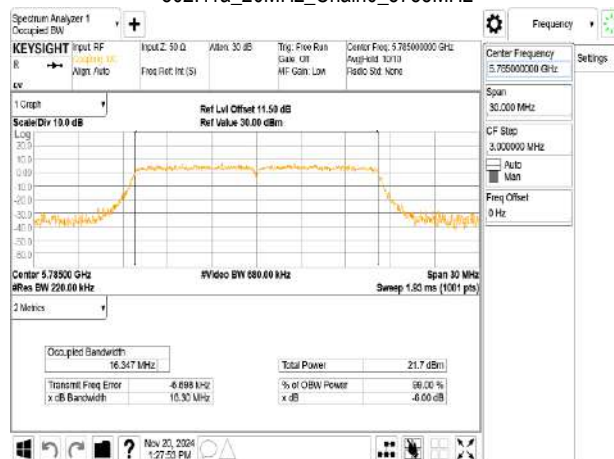
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802.11a_20MHz_Chain0_5700MHz



802.11a_20MHz_Chain0_5785MHz

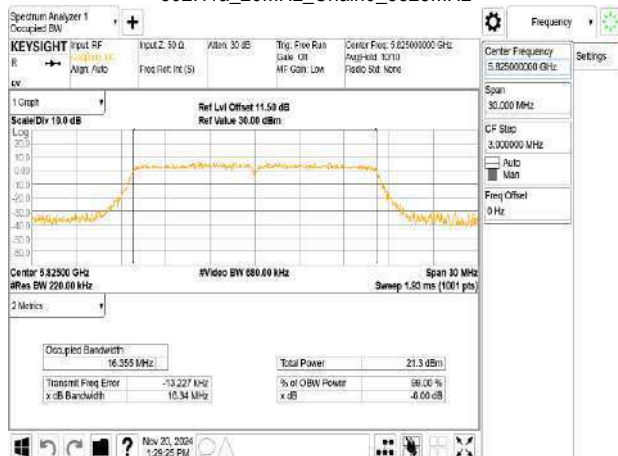


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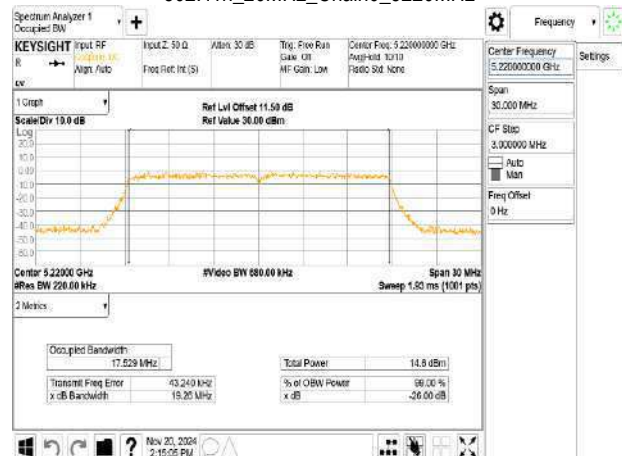
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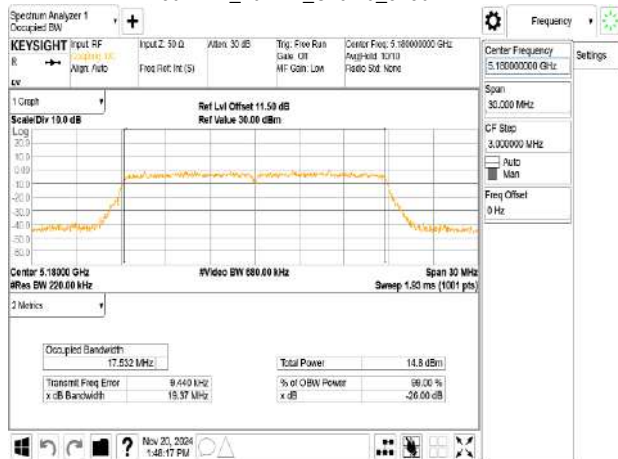
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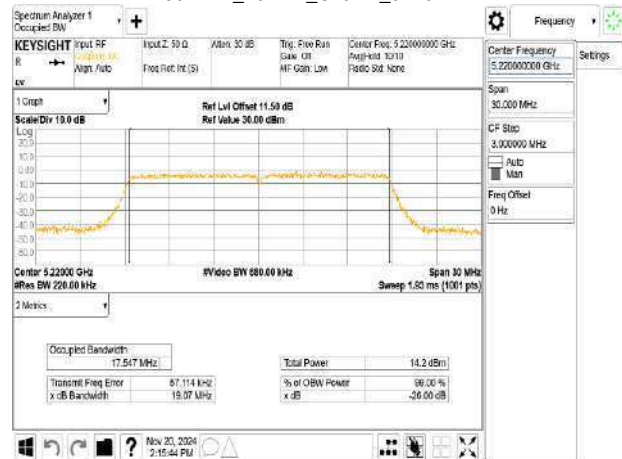
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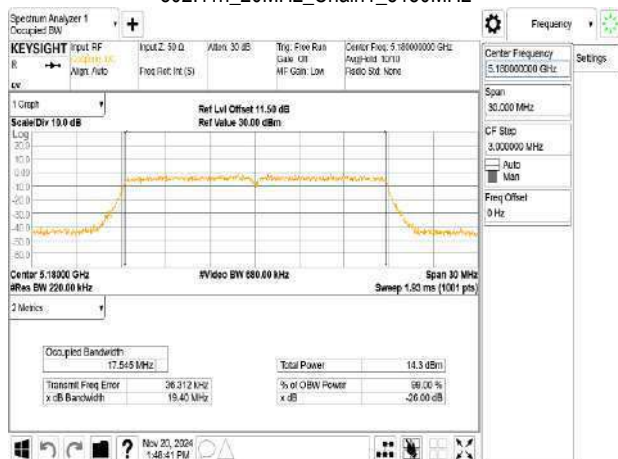
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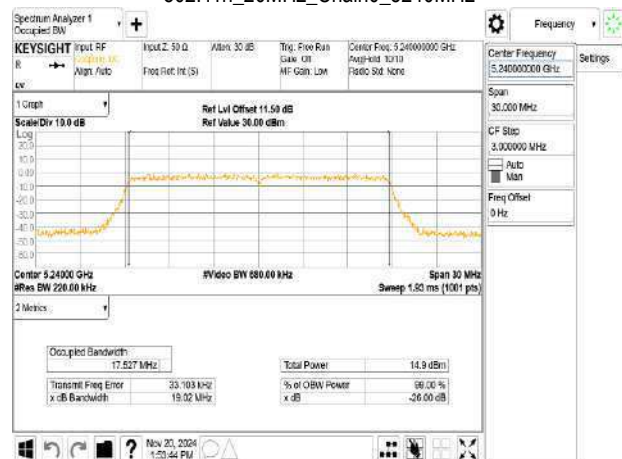
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802.11n_20MHz_Chain1_5180MHz



802.11n_20MHz_Chain0_5240MHz

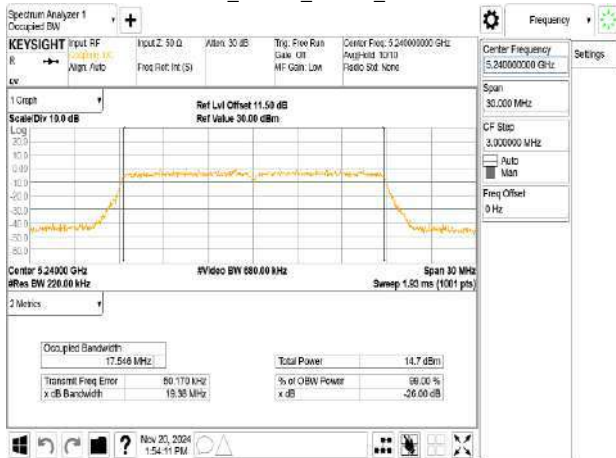


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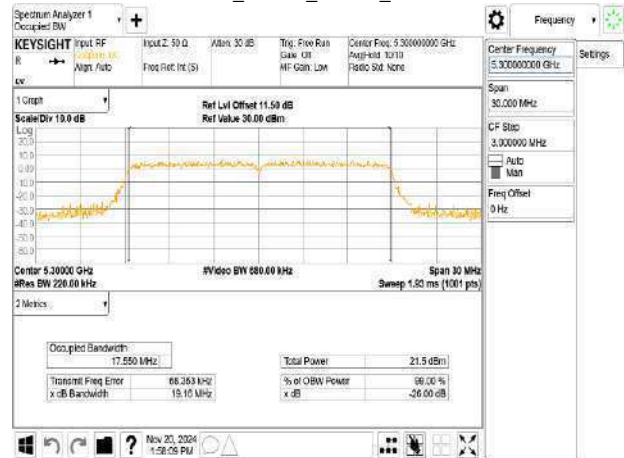
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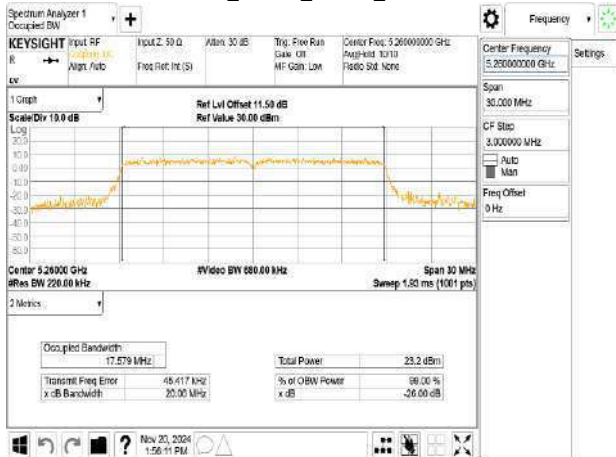
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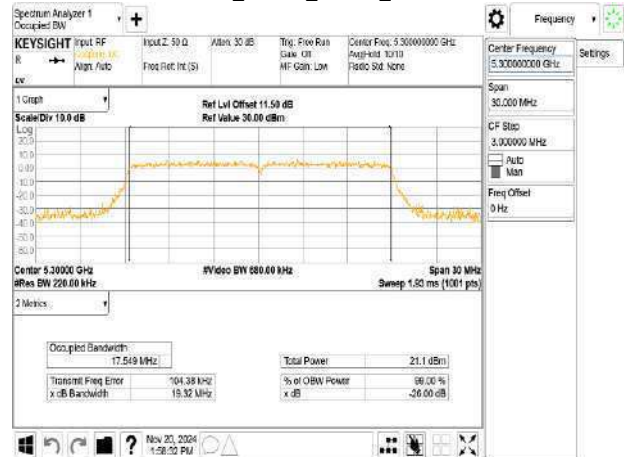
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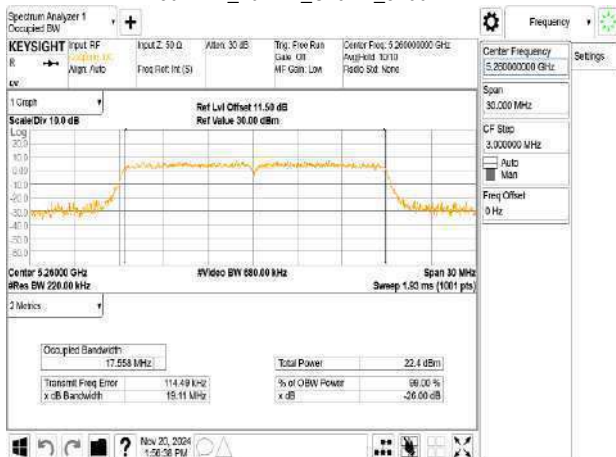
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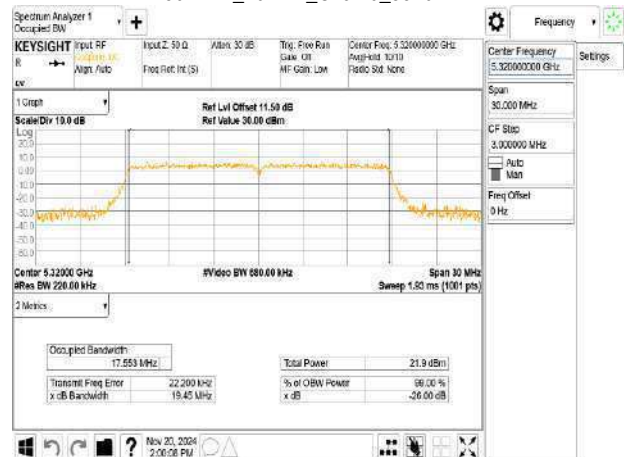
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802.11n_20MHz_Chain1_5260MHz



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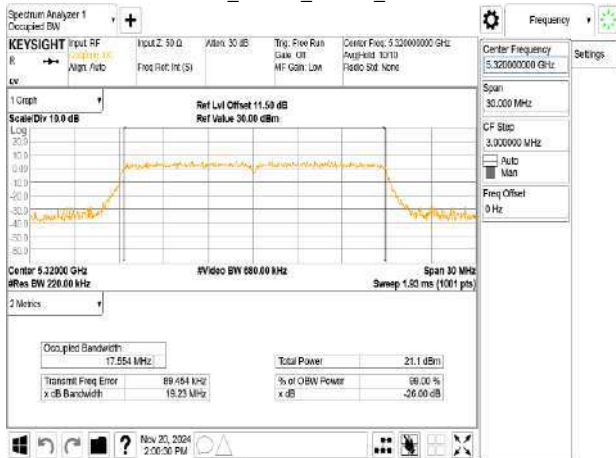


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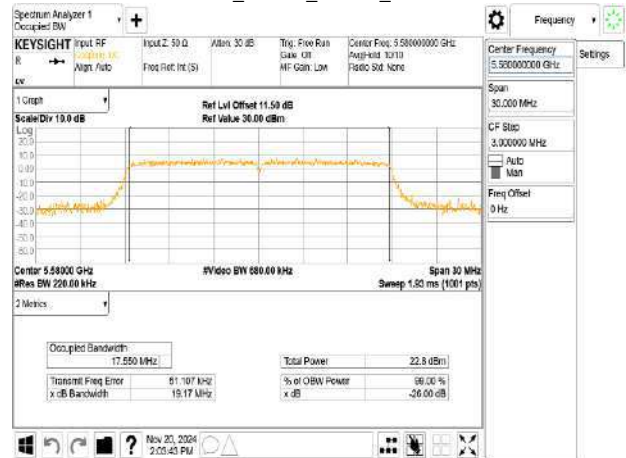
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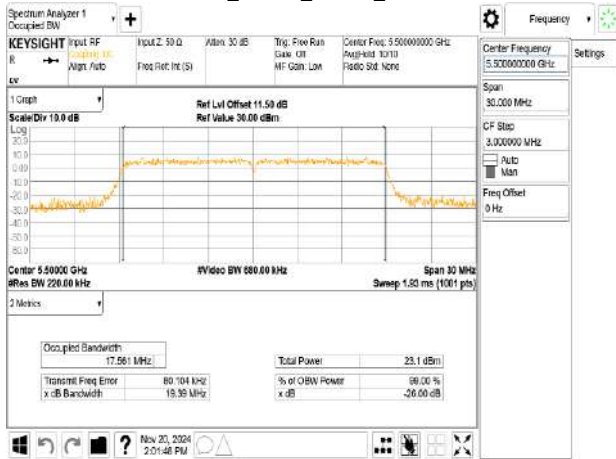
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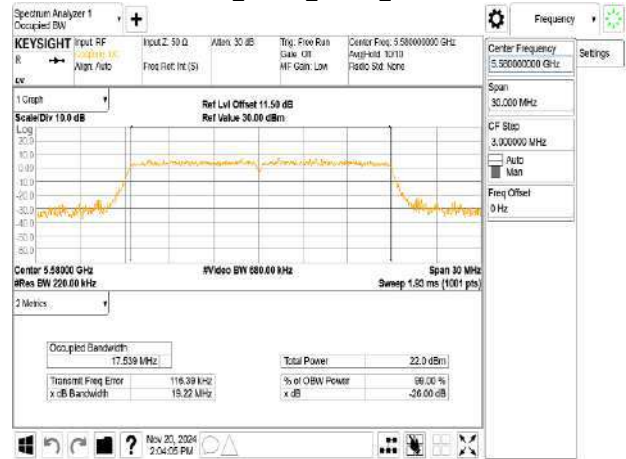
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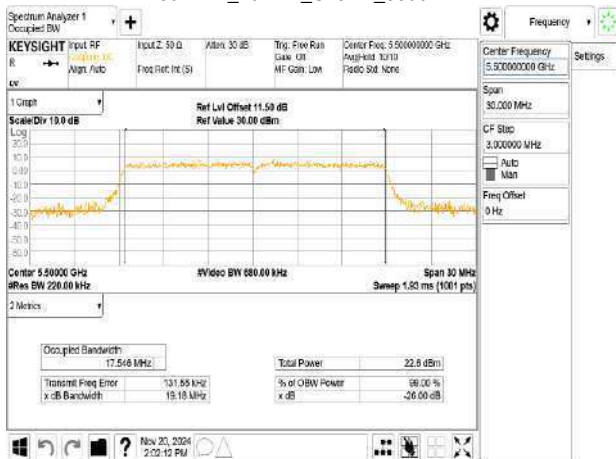
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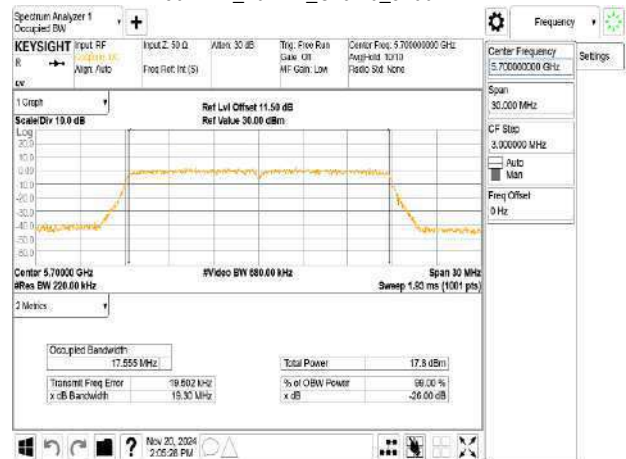
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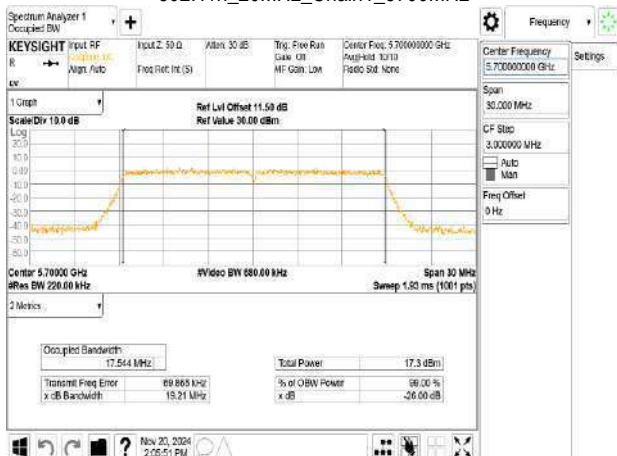


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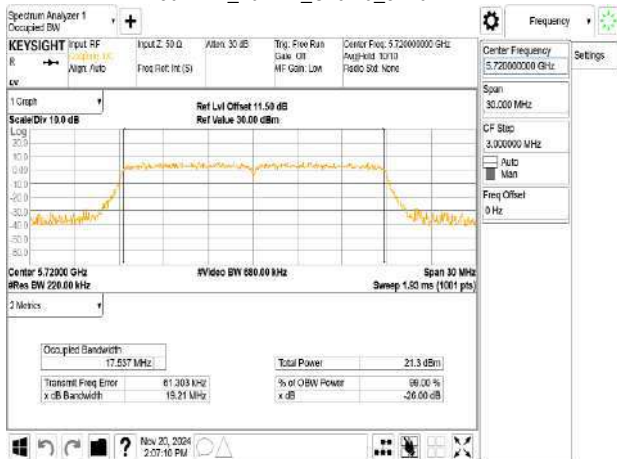
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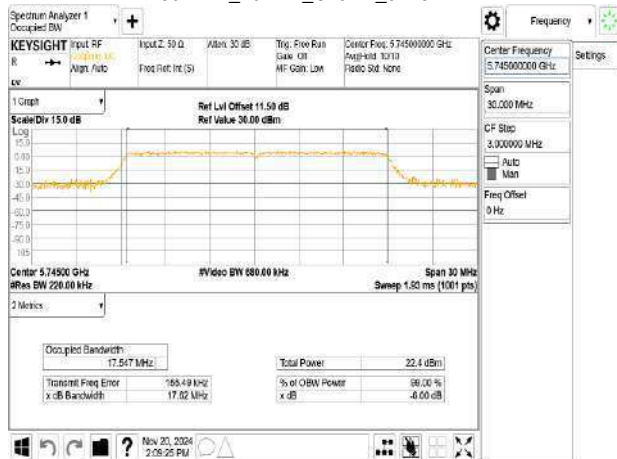
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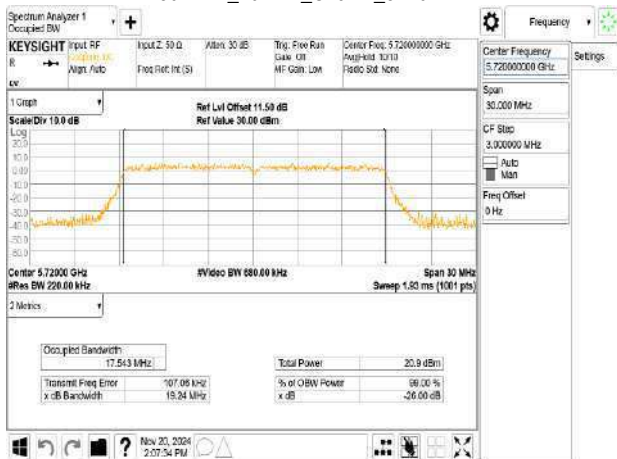
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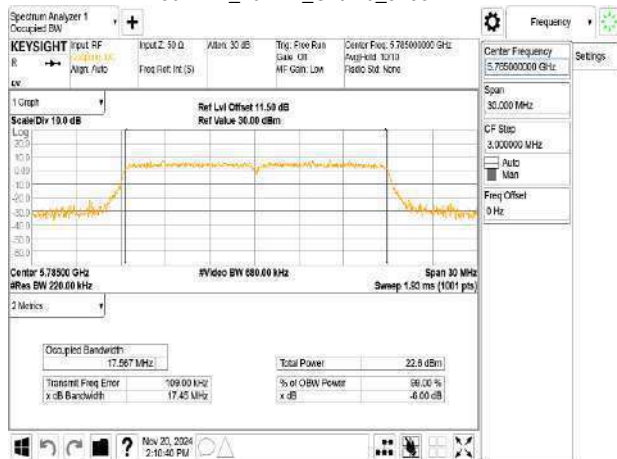
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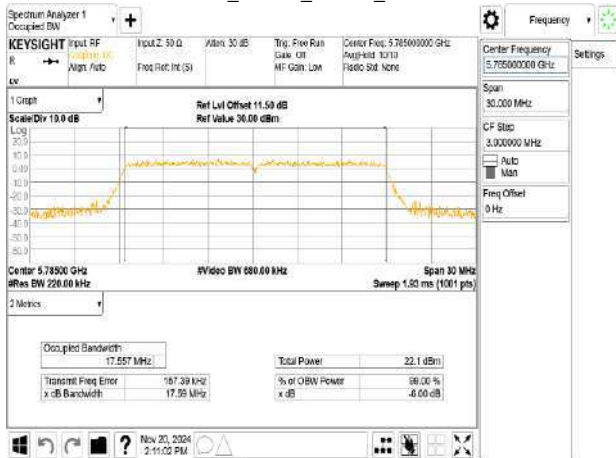


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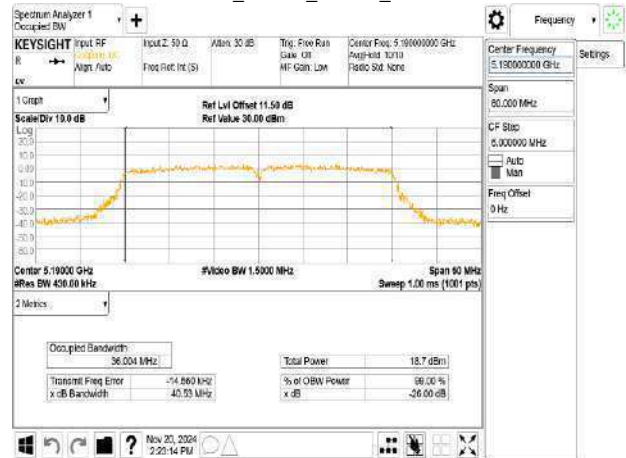
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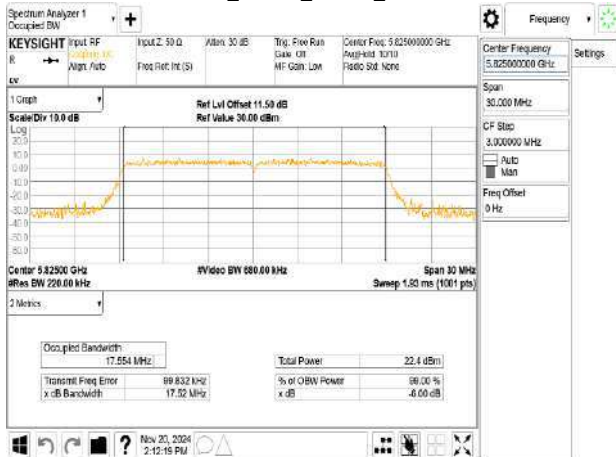
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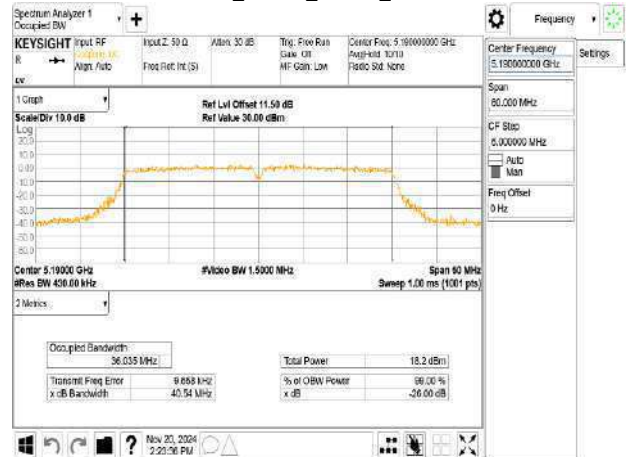
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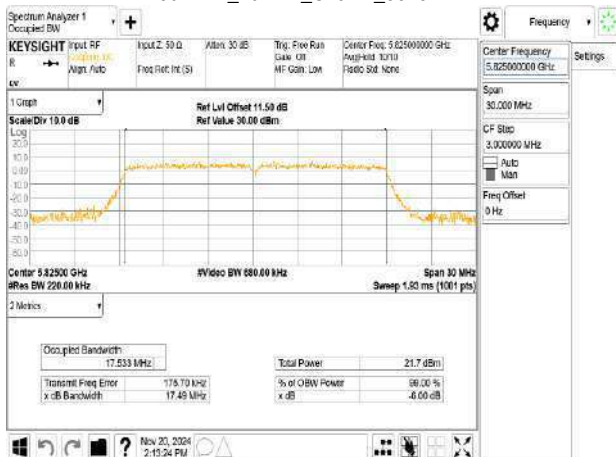
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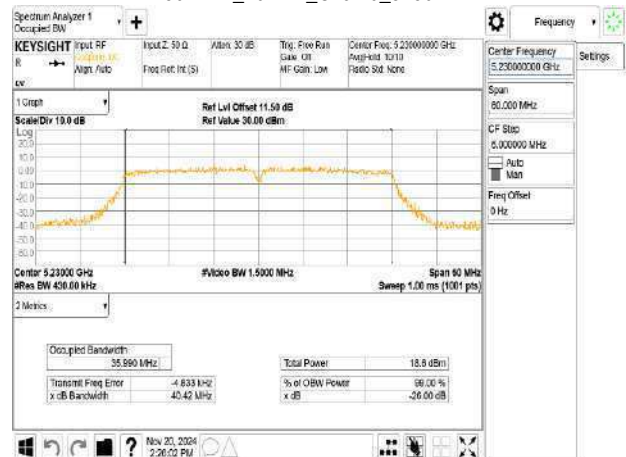
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802.11n_20MHz_Chain1_5825MHz



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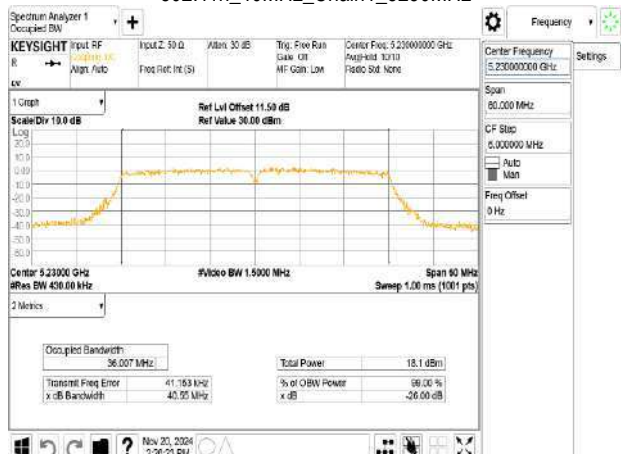


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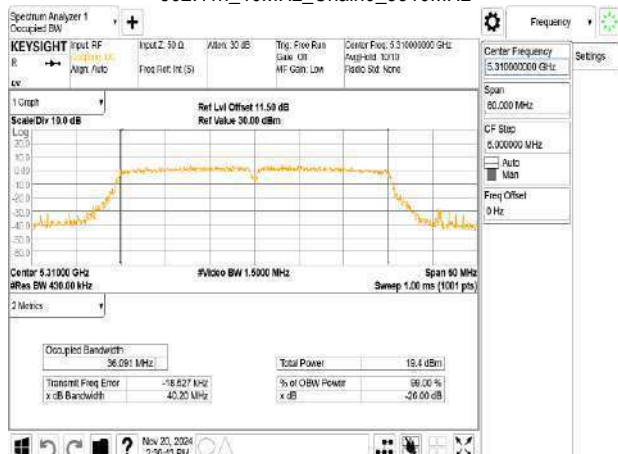
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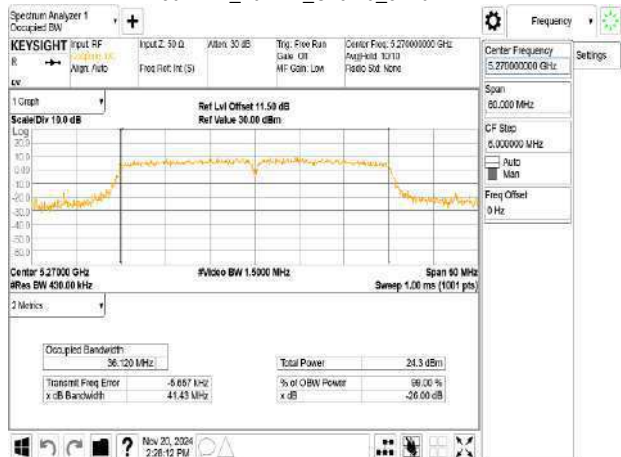
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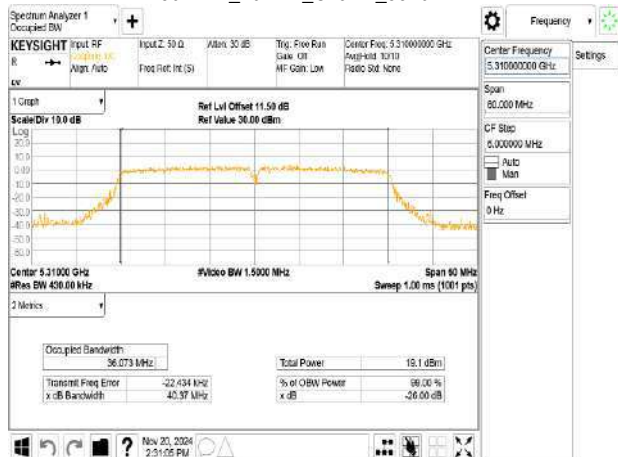
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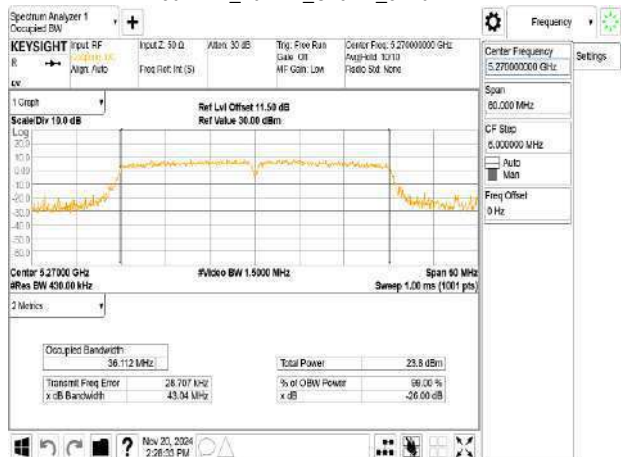
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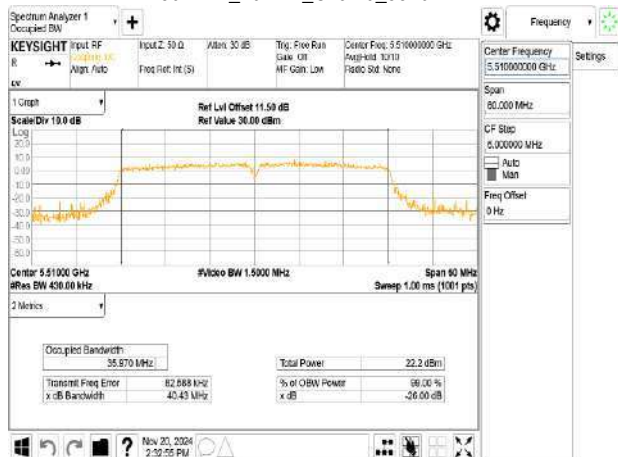
802.11n_40MHz_Chain1_5310MHz



802.11n_40MHz_Chain1_5270MHz



802.11n_40MHz_Chain0_5510MHz

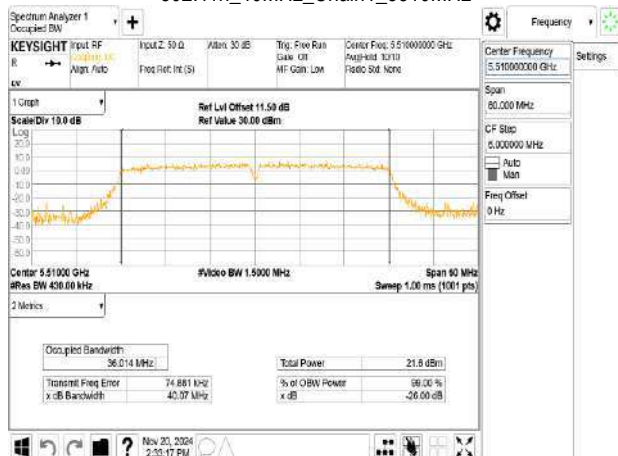


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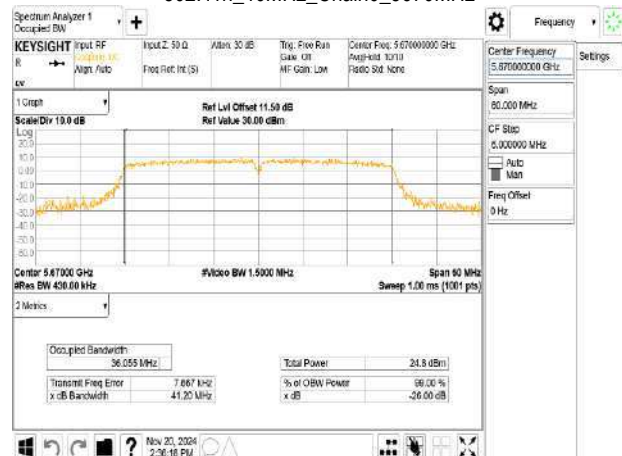
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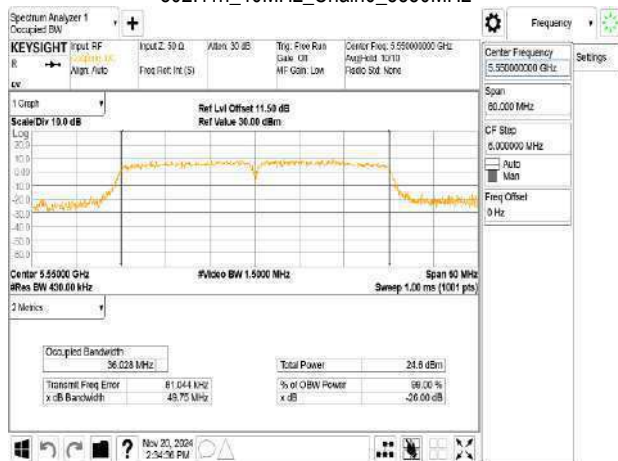
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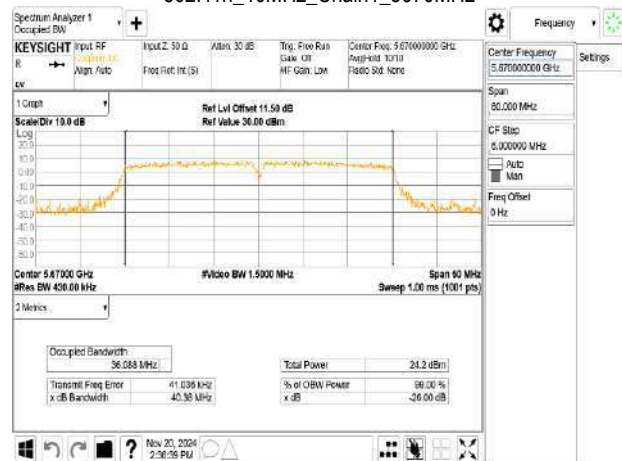
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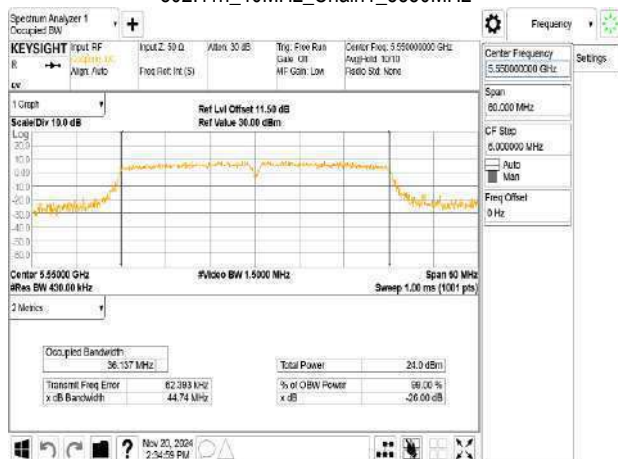
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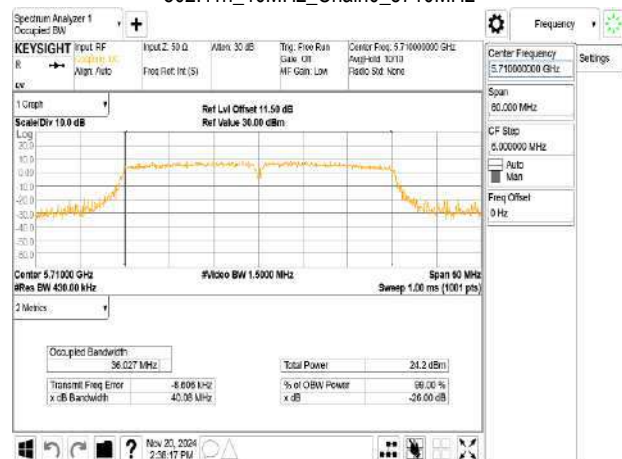
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802.11n_40MHz_Chain1_5550MHz



802.11n_40MHz_Chain0_5710MHz

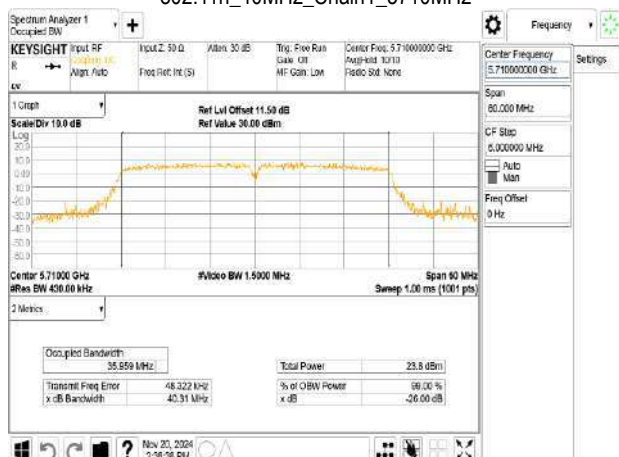


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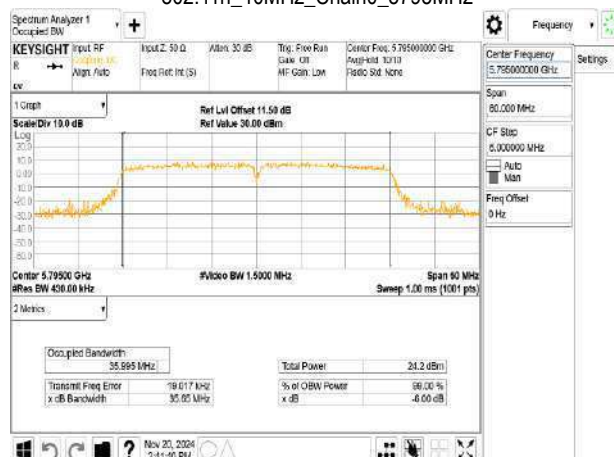
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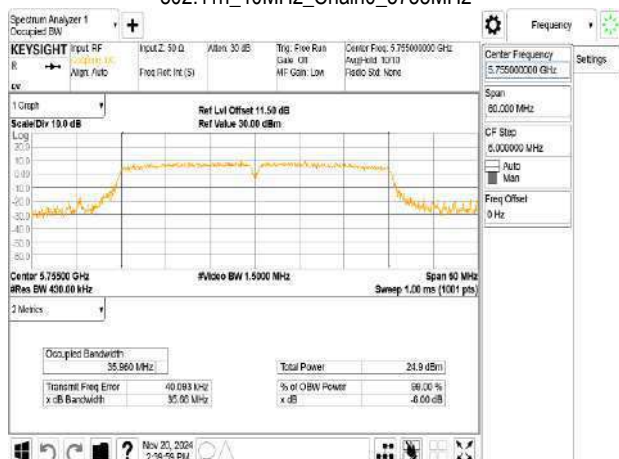
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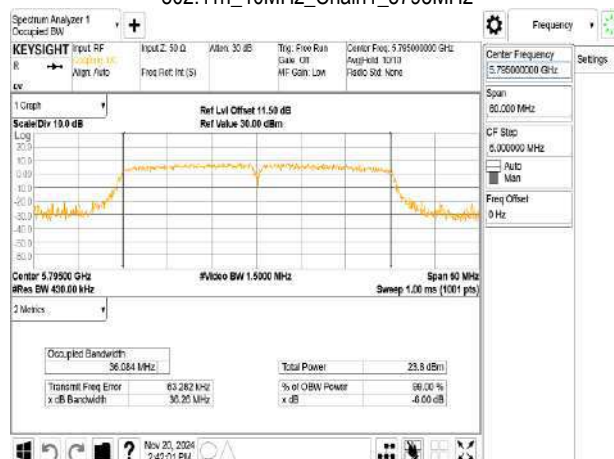
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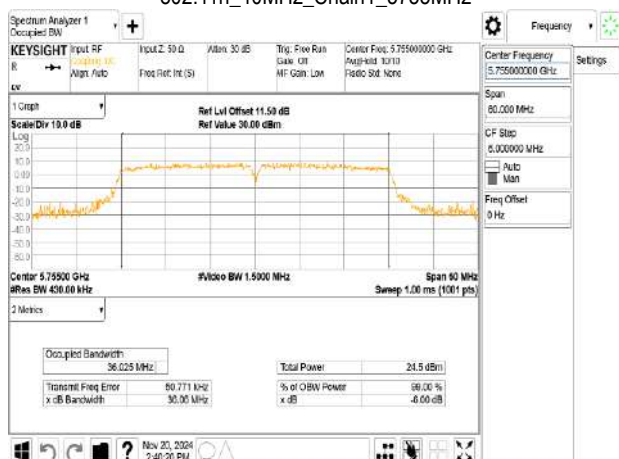
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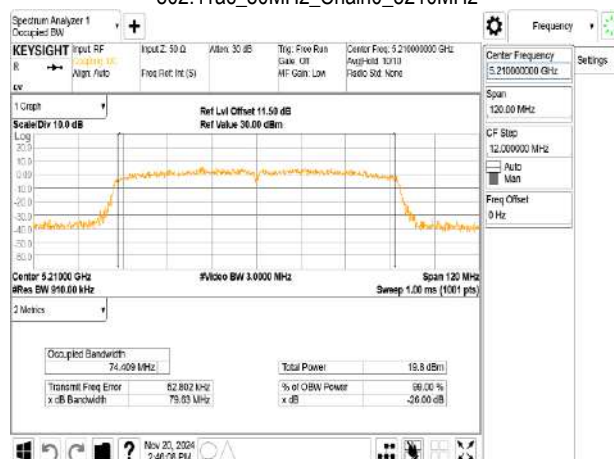
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802.11n_40MHz_Chain1_5755MHz



802.11ac_80MHz_Chain0_5210MHz

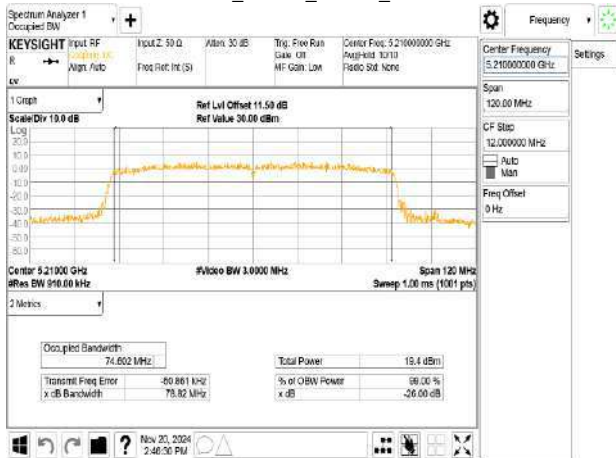


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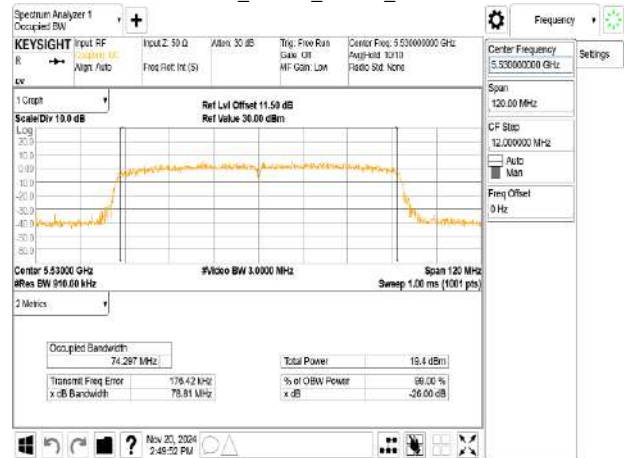
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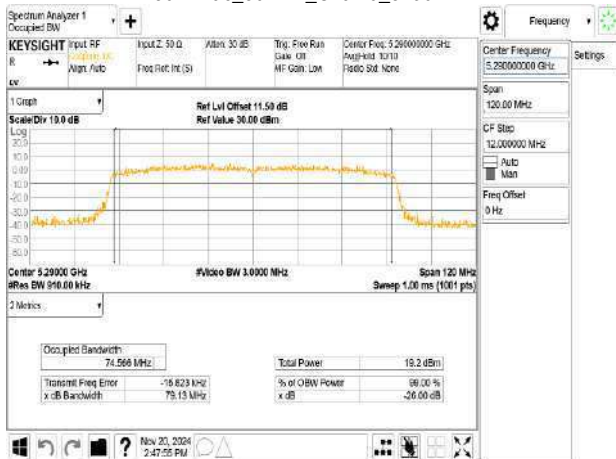
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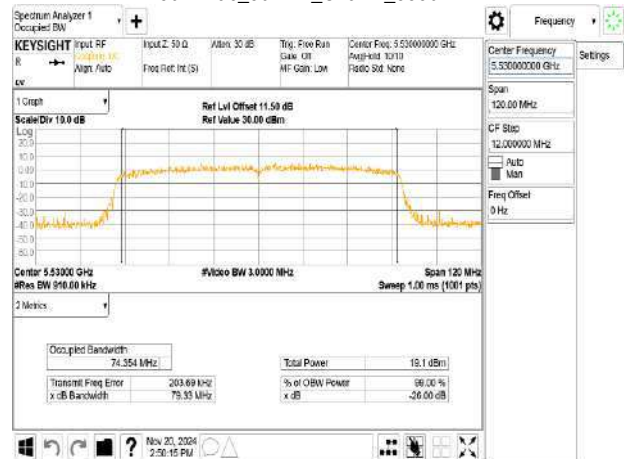
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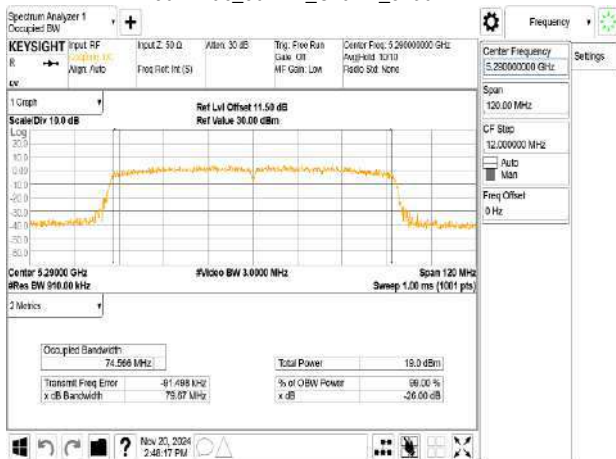
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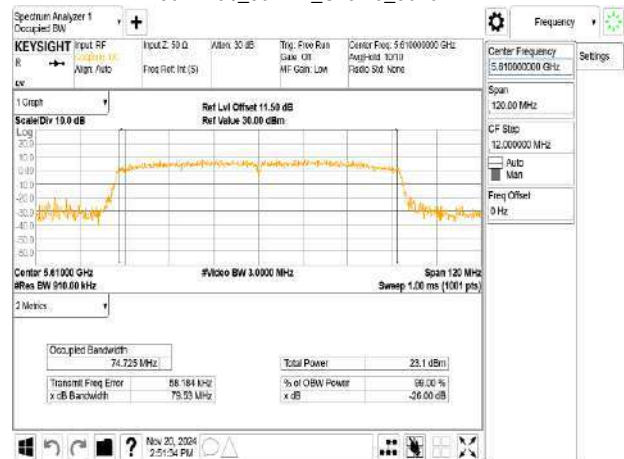
802.11ac_80MHz_Chain1_5530MHz



802.11ac_80MHz_Chain1_5290MHz



802.11ac_80MHz_Chain0_5610MHz

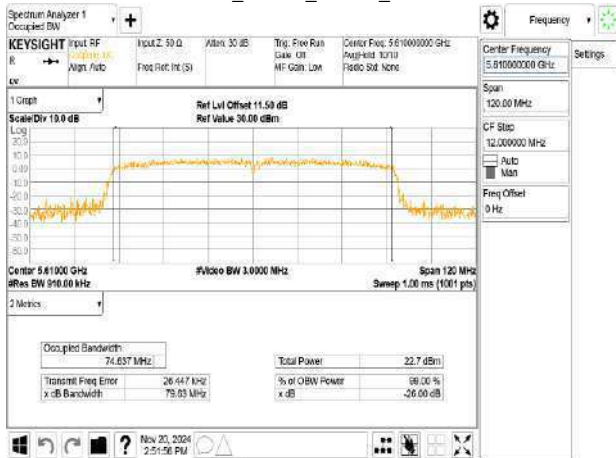


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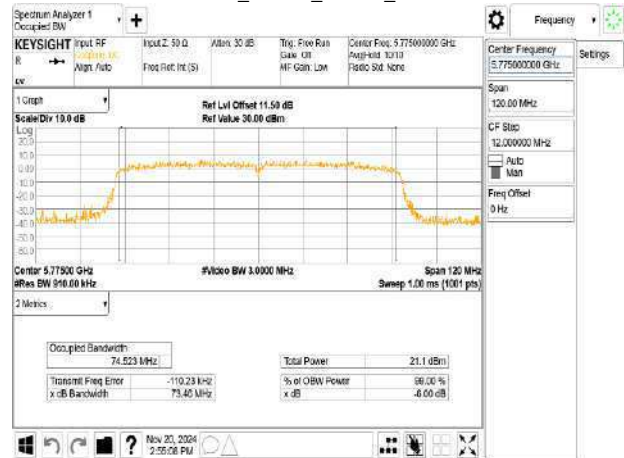
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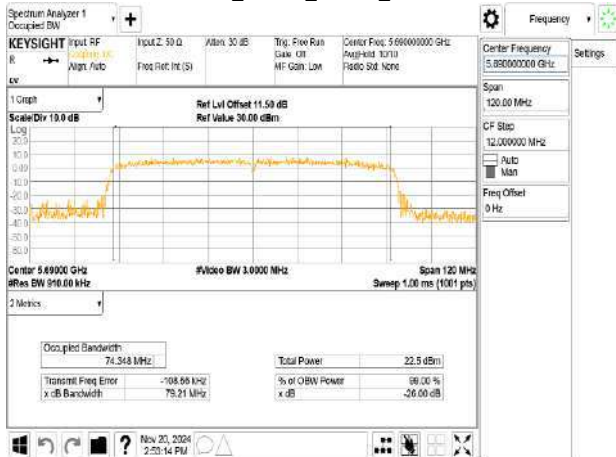
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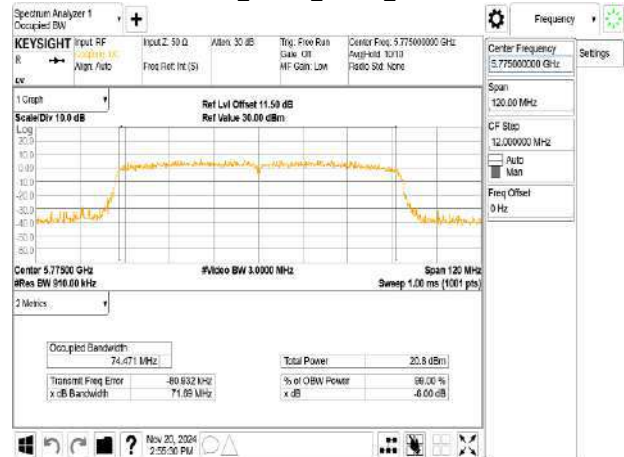
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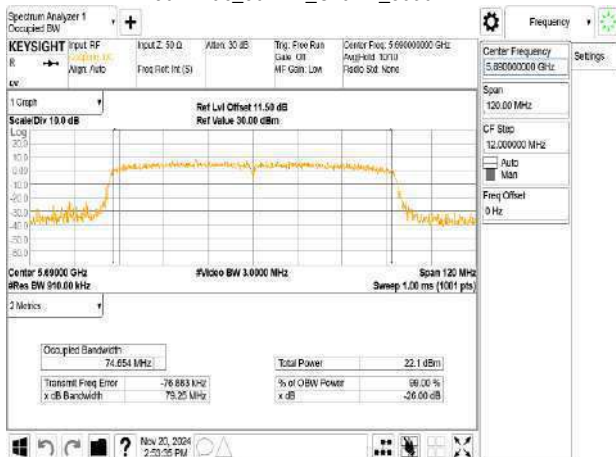
802.11ac_80MHz_Chain0_5690MHz



802.11ac_80MHz_Chain1_5775MHz



802.11ac_80MHz_Chain1_5690MHz



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9 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

9.1 Standard Applicable

9.1.1 Duty Cycle

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

9.1.2 FCC

Band	EUT CATEGORY		e-CRF Title 47 §15.407			
			Conducted Output Power	EIRP	TPC	Antenna Directional Gain Requirements
U-NII-1		Fixed point-to-point	1 Watt(30dBm)	Not required	Not required	23dBi
		Outdoor AP	1 Watt(30dBm)	Elevation angle above 30 degrees 125mW (21dBm)	Not required	6dBi
		Indoor AP	1 Watt(30dBm)	Not required	Not required	6dBi
	V	Other	250mW(23.98dBm)	Not required	Not required	6dBi
U-NII-2A	V	Other	250mW(23.98dBm) or 11dBm+10 log B	Not required	When EIRP >500mW At least 6dB below EIRP 1W (30dBm)	6dBi
U-NII-2C	V	Other	250mW(23.98dBm) or 11dBm+10 log B	Not required		6dBi
U-NII-3	V	Other	1 Watt(30dBm)	Not required	Not required	6dBi
		Fixed point-to-point	1 Watt(30dBm)	Not required	Not required	Not required
U-NII-4		Indoor AP (a channel spans 5725~5850 and 5850~5895MHz)	Not required	36dBm	Not required	Not required
		Indoor client (a channel spans 5725~5850 and 5850~5895MHz)	Not required	30dBm	Not required	Not required
		Subordinate device	Not required	36dBm	Not required	Not required

1. If transmitting antennas of directional gain greater than the antenna requirements column, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna.

2. For the 10 log B, B is the 26 dB emission bandwidth.

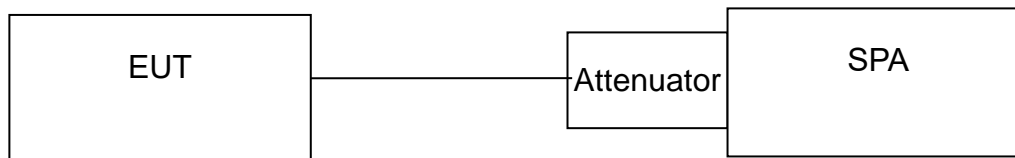
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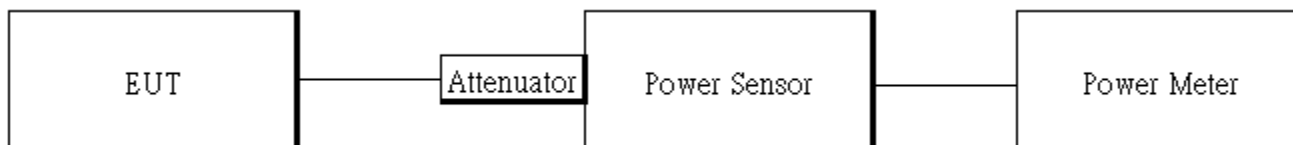
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9.2 Test Setup

9.2.1 Duty Cycle



9.2.2 Output Power



9.3 Measurement Procedure

9.3.1 Duty Cycle Measurements

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

9.3.2 Output Power Measurements

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
5. Record the max. reading and add $10 \log(1/\text{duty cycle})$.
6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.
7. MIMO mode: offset is set with "measure and add 10 Log (N)" to measurement for MIMO mode. Offset = cable loss + $10 \log(N)$, where N is number of transmitting antenna, cable loss is specified below.

Note:

For U-NII1, 2A, 2C and 3 Bands, when the antenna gain is greater than 6 dBi, the power limit attenuated accordingly.

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As per section F. 2). e). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

$$\bullet \quad \text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

NSS = the number of independent spatial streams of data;

NANT = the total number of antennas

$g_{j,k}$ = / 20 10Gk if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

9.4 Duty Cycle Measurement Result

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	72.96	1.37	0.74	1.00
802.11n_20	71.70	1.44	0.79	1.00
802.11ac_20	56.85	2.45	1.51	2.00
802.11n_40	55.73	2.54	1.58	2.00
802.11ac_40	40.90	3.88	2.89	3.00
802.11ac_80	27.03	5.68	5.38	6.00

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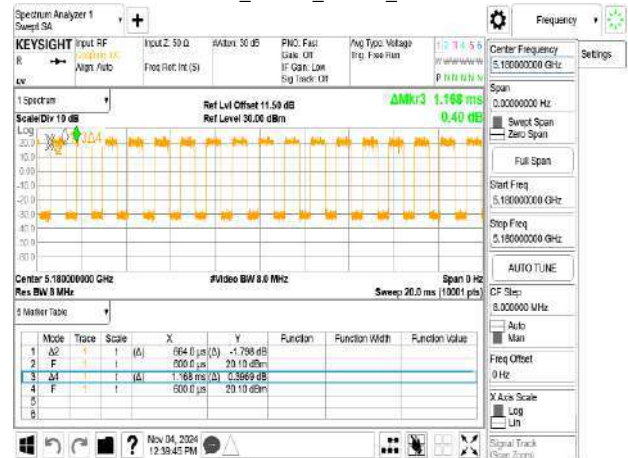
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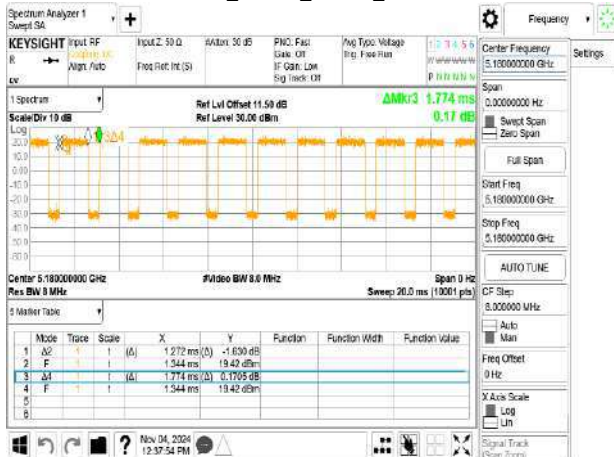
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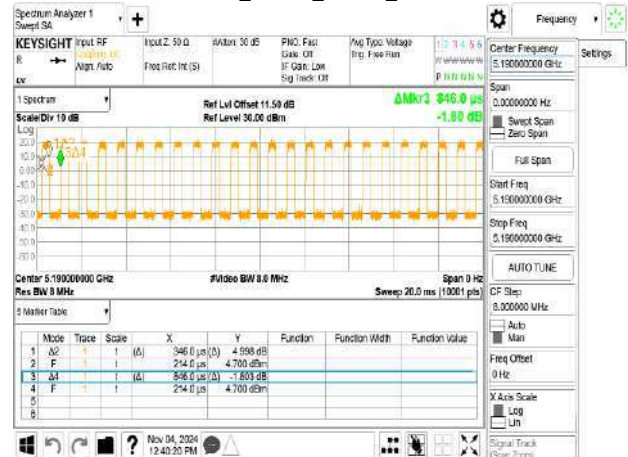
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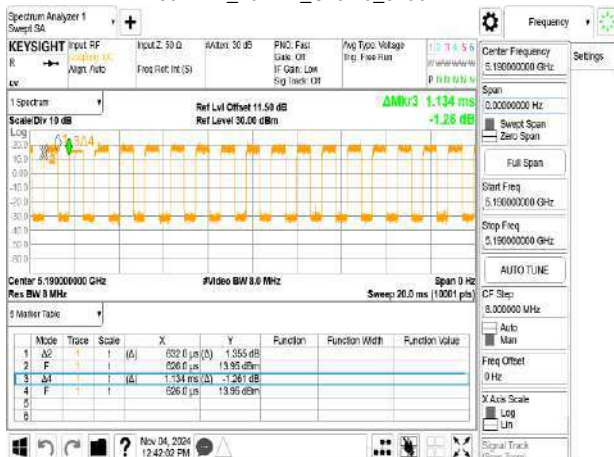
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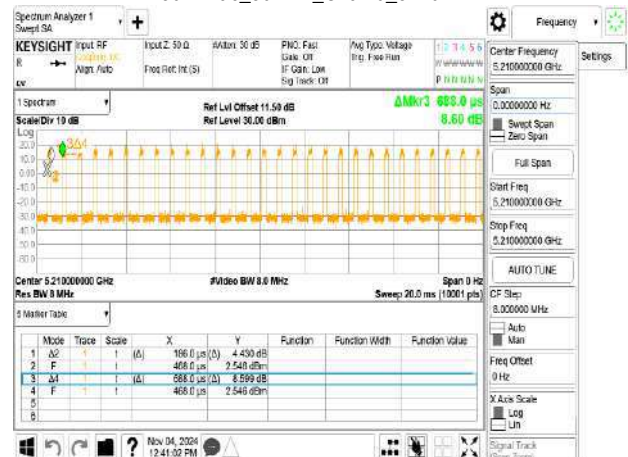
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802.11n_40MHz_Chain0_5190MHz



802.11ac_80MHz_Chain0_5210MHz



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9.5 Output Power Measurement Result

9.5.1 FCC Output power

802.11a_Ch0

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	76	42.259	16.26	23.98	PASS
44	5220	6	76	42.846	16.32	23.98	PASS
48	5240	6	76	41.487	16.18	23.98	PASS
52	5260	6	82	77.431	18.89	23.64	PASS
60	5300	6	72	36.301	15.60	23.64	PASS
64	5320	6	79	74.117	18.70	23.61	PASS
100	5500	6	72	53.941	17.32	23.62	PASS
116	5580	6	70	73.437	18.66	23.63	PASS
140	5700	6	57	37.576	15.75	23.62	PASS
144	5720(U-NII 2C)	6	70	56.980	17.56	22.5	PASS
144	5720 (U-NII 3)	6	70	16.626	12.21	30	PASS
149	5745	6	70	95.921	19.82	30	PASS
157	5785	6	70	94.605	19.76	30	PASS
165	5825	6	70	93.093	19.69	30	PASS

802.11a_Ch1

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	78	41.297	16.16	23.98	PASS
44	5220	6	78	41.871	16.22	23.98	PASS
48	5240	6	78	40.918	16.12	23.98	PASS
52	5260	6	84	75.148	18.76	23.64	PASS
60	5300	6	74	35.720	15.53	23.64	PASS
64	5320	6	81	72.263	18.59	23.61	PASS
100	5500	6	72	53.078	17.25	23.62	PASS
116	5580	6	72	72.097	18.58	23.63	PASS
140	5700	6	59	36.468	15.62	23.62	PASS
144	5720(U-NII 2C)	6	72	55.427	17.44	22.5	PASS
144	5720 (U-NII 3)	6	72	16.339	12.13	30	PASS
149	5745	6	72	93.954	19.73	30	PASS
157	5785	6	72	91.604	19.62	30	PASS
165	5825	6	72	90.974	19.59	30	PASS

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802.11n_HT20_Ch0

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	49	10.777	10.32	23.98	PASS
44	5220	MCS0	49	10.556	10.23	23.98	PASS
48	5240	MCS0	49	10.702	10.29	23.98	PASS
52	5260	MCS0	84	75.942	18.80	23.82	PASS
60	5300	MCS0	90	94.293	19.74	23.82	PASS
64	5320	MCS0	78	59.358	17.73	23.85	PASS
100	5500	MCS0	79	94.511	19.75	23.83	PASS
116	5580	MCS0	74	74.728	18.73	23.85	PASS
140	5700	MCS0	57	37.453	15.73	23.84	PASS
144	5720(U-NII 2C)	MCS0	74	57.839	17.62	23.84	PASS
144	5720 (U-NII 3)	MCS0	74	18.278	12.62	30	PASS
149	5745	MCS0	79	95.385	19.79	30	PASS
157	5785	MCS0	79	94.076	19.73	30	PASS
165	5825	MCS0	79	95.605	19.80	30	PASS

802.11n_HT20_Ch1

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	51	10.507	10.21	23.98	PASS
44	5220	MCS0	51	10.221	10.09	23.98	PASS
48	5240	MCS0	51	10.363	10.15	23.98	PASS
52	5260	MCS0	86	73.364	18.65	23.84	PASS
60	5300	MCS0	92	91.935	19.63	23.85	PASS
64	5320	MCS0	80	57.741	17.61	23.87	PASS
100	5500	MCS0	81	92.572	19.66	23.83	PASS
116	5580	MCS0	76	72.524	18.60	23.83	PASS
140	5700	MCS0	59	36.939	15.67	23.87	PASS
144	5720(U-NII 2C)	MCS0	76	56.026	17.48	23.85	PASS
144	5720 (U-NII 3)	MCS0	76	17.507	12.43	30	PASS
149	5745	MCS0	81	91.513	19.61	30	PASS
157	5785	MCS0	81	92.359	19.65	30	PASS
165	5825	MCS0	81	93.429	19.70	30	PASS

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802.11n_HT20_2TX

CH	Frequency (MHz)	Data Rate	Power Setting	Avg. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	MCS0	55	10.88	9.95	22.156	13.45	23.98	PASS
44	5220	MCS0	55	10.83	9.93	21.970	13.42	23.98	PASS
48	5240	MCS0	55	10.94	9.88	22.169	13.46	23.98	PASS
52	5260	MCS0	90	19.33	18.39	154.899	21.90	23.82	PASS
60	5300	MCS0	96	20.05	19.69	194.484	22.89	23.85	PASS
64	5320	MCS0	84	18.33	17.21	120.812	20.82	23.83	PASS
100	5500	MCS0	85	20.09	19.53	192.049	22.83	23.83	PASS
116	5580	MCS0	80	19.42	18.31	155.435	21.92	23.84	PASS
140	5700	MCS0	63	16.47	15.32	78.489	18.95	23.84	PASS
144	5720(U-NII 2C)	MCS0	80	18.10	17.21	117.247	20.69	22.63	PASS
144	5720 (U-NII 3)	MCS0	80	13.10	12.16	36.865	15.67	30	PASS
149	5745	MCS0	85	20.13	19.66	195.725	22.92	30	PASS
157	5785	MCS0	85	20.22	19.53	195.155	22.90	30	PASS
165	5825	MCS0	85	20.06	19.59	192.596	22.85	30	PASS

802.11n_HT40_Ch0

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	58	17.414	12.41	23.98	PASS
46	5230	MCS0	58	17.018	12.31	23.98	PASS
54	5270	MCS0	83	93.521	19.71	23.98	PASS
62	5310	MCS0	63	26.910	14.30	23.98	PASS
102	5510	MCS0	68	54.816	17.39	23.98	PASS
110	5550	MCS0	77	94.387	19.75	23.98	PASS
134	5670	MCS0	77	91.814	19.63	23.98	PASS
142	5710(U-NII 2C)	MCS0	77	81.345	19.10	23.98	PASS
142	5710 (U-NII 3)	MCS0	77	12.825	11.08	30	PASS
151	5755	MCS0	77	93.521	19.71	30	PASS
159	5795	MCS0	77	96.363	19.84	30	PASS

802.11n_HT40_Ch1

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	60	16.823	12.26	23.98	PASS
46	5230	MCS0	60	16.707	12.23	23.98	PASS
54	5270	MCS0	85	92.238	19.65	23.98	PASS
62	5310	MCS0	65	26.176	14.18	23.98	PASS
102	5510	MCS0	70	53.692	17.30	23.98	PASS
110	5550	MCS0	79	91.814	19.63	23.98	PASS
134	5670	MCS0	79	90.346	19.56	23.98	PASS
142	5710(U-NII 2C)	MCS0	79	80.315	19.05	23.98	PASS
142	5710 (U-NII 3)	MCS0	79	11.923	10.76	30	PASS
151	5755	MCS0	79	91.393	19.61	30	PASS
159	5795	MCS0	79	94.387	19.75	30	PASS

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802.11n_HT40_2TX

CH	Frequency (MHz)	Data Rate	Power Setting	Avg. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
38	5190	MCS0	65	12.97	11.92	35.368	15.49	23.98	PASS
46	5230	MCS0	65	12.92	11.85	34.892	15.43	23.98	PASS
54	5270	MCS0	90	20.20	19.31	189.984	22.79	23.98	PASS
62	5310	MCS0	70	14.97	13.85	55.660	17.46	23.98	PASS
102	5510	MCS0	75	17.89	16.96	111.154	20.46	23.98	PASS
110	5550	MCS0	84	20.28	19.24	190.567	22.80	23.98	PASS
134	5670	MCS0	84	20.33	19.04	188.024	22.74	23.98	PASS
142	5710(U-NII 2C)	MCS0	84	19.75	18.65	167.726	22.25	23.98	PASS
142	5710 (U-NII 3)	MCS0	84	11.73	10.36	25.769	14.11	30	PASS
151	5755	MCS0	84	20.29	19.19	189.852	22.78	30	PASS
159	5795	MCS0	84	20.46	19.23	194.886	22.90	30	PASS

802.11ac_VHT20_Ch0

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	49	10.575	10.243	23.98	PASS
44	5220	MCS0	49	10.239	10.103	23.98	PASS
48	5240	MCS0	49	10.358	10.153	23.98	PASS
52	5260	MCS0	70	58.112	17.643	23.82	PASS
60	5300	MCS0	70	59.603	17.753	23.82	PASS
64	5320	MCS0	70	58.515	17.673	23.85	PASS
100	5500	MCS0	70	59.329	17.733	23.83	PASS
116	5580	MCS0	70	57.979	17.633	23.85	PASS
140	5700	MCS0	57	37.091	15.693	23.84	PASS
144	5720(U-NII 2C)	MCS0	70	44.876	16.520	23.84	PASS
144	5720 (U-NII 3)	MCS0	70	14.181	11.517	30	PASS
149	5745	MCS0	70	57.447	17.593	30	PASS
157	5785	MCS0	70	59.466	17.743	30	PASS
165	5825	MCS0	70	57.712	17.613	30	PASS

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802.11ac_VHT20_Ch1

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	51	10.263	10.11	23.98	PASS
44	5220	MCS0	51	10.099	10.04	23.98	PASS
48	5240	MCS0	51	10.192	10.08	23.98	PASS
52	5260	MCS0	72	56.399	17.51	23.84	PASS
60	5300	MCS0	72	58.381	17.66	23.85	PASS
64	5320	MCS0	72	57.315	17.58	23.87	PASS
100	5500	MCS0	72	58.112	17.64	23.83	PASS
116	5580	MCS0	72	56.790	17.54	23.83	PASS
140	5700	MCS0	59	36.667	15.64	23.87	PASS
144	5720(U-NII 2C)	MCS0	72	43.469	16.38	23.85	PASS
144	5720 (U-NII 3)	MCS0	72	13.583	11.33	30	PASS
149	5745	MCS0	72	56.659	17.53	30	PASS
157	5785	MCS0	72	58.515	17.67	30	PASS
165	5825	MCS0	72	56.921	17.55	30	PASS

802.11ac_VHT20_2TX

CH	Frequency (MHz)	Data Rate	Power Setting	Avg. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	MCS0	55	10.77	9.94	21.816	13.39	23.98	PASS
44	5220	MCS0	55	10.73	9.84	21.482	13.32	23.98	PASS
48	5240	MCS0	55	10.75	9.89	21.648	13.35	23.98	PASS
52	5260	MCS0	80	18.32	17.19	120.355	20.80	23.82	PASS
60	5300	MCS0	80	18.41	17.26	122.629	20.89	23.85	PASS
64	5320	MCS0	80	18.28	17.22	120.095	20.80	23.83	PASS
100	5500	MCS0	75	18.25	17.34	121.110	20.83	23.83	PASS
116	5580	MCS0	75	18.38	17.22	121.664	20.85	23.84	PASS
140	5700	MCS0	63	16.16	15.34	75.550	18.78	23.84	PASS
144	5720(U-NII 2C)	MCS0	75	17.19	15.98	92.005	19.64	22.63	PASS
144	5720 (U-NII 3)	MCS0	75	12.19	10.93	28.934	14.61	30	PASS
149	5745	MCS0	75	18.26	17.31	120.890	20.82	30	PASS
157	5785	MCS0	75	18.42	17.24	122.545	20.88	30	PASS
165	5825	MCS0	75	18.28	17.29	120.952	20.83	30	PASS

802.11ac_VHT40_Ch0

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	56	16.954	12.29	23.98	PASS
46	5230	MCS0	56	16.760	12.24	23.98	PASS
54	5270	MCS0	73	58.651	17.68	23.98	PASS
62	5310	MCS0	61	26.747	14.27	23.98	PASS
102	5510	MCS0	61	52.635	17.21	23.98	PASS
110	5550	MCS0	63	58.922	17.70	23.98	PASS
134	5670	MCS0	63	58.247	17.65	23.98	PASS
142	5710(U-NII 2C)	MCS0	63	51.963	17.16	23.98	PASS
142	5710 (U-NII 3)	MCS0	63	8.192	9.13	30	PASS
151	5755	MCS0	63	57.980	17.63	30	PASS
159	5795	MCS0	63	59.330	17.73	30	PASS

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802.11ac_VHT40_Ch1

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	58	16.530	12.18	23.98	PASS
46	5230	MCS0	58	16.228	12.10	23.98	PASS
54	5270	MCS0	75	56.791	17.54	23.98	PASS
62	5310	MCS0	63	25.720	14.10	23.98	PASS
102	5510	MCS0	63	51.675	17.13	23.98	PASS
110	5550	MCS0	65	57.184	17.57	23.98	PASS
134	5670	MCS0	65	56.530	17.52	23.98	PASS
142	5710(U-NII 2C)	MCS0	65	50.485	17.03	23.98	PASS
142	5710 (U-NII 3)	MCS0	65	7.495	8.75	30	PASS
151	5755	MCS0	65	57.053	17.56	30	PASS
159	5795	MCS0	65	58.247	17.65	30	PASS

802.11ac_VHT40_2TX

CH	Frequency (MHz)	Data Rate	Power Setting	Avg. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
38	5190	MCS0	63	12.74	11.94	34.447	15.37	23.98	PASS
46	5230	MCS0	63	12.67	11.86	33.860	15.30	23.98	PASS
54	5270	MCS0	83	18.43	17.32	123.692	20.92	23.98	PASS
62	5310	MCS0	68	14.79	13.83	54.319	17.35	23.98	PASS
102	5510	MCS0	71	17.77	16.91	109.001	20.37	23.98	PASS
110	5550	MCS0	73	18.49	17.37	125.287	20.98	23.98	PASS
134	5670	MCS0	73	18.39	17.48	125.079	20.97	23.98	PASS
142	5710(U-NII 2C)	MCS0	73	17.73	16.69	105.935	20.25	23.98	PASS
142	5710 (U-NII 3)	MCS0	73	9.70	8.41	16.272	12.11	30	PASS
151	5755	MCS0	73	18.43	17.21	122.342	20.88	30	PASS
159	5795	MCS0	73	18.26	17.31	120.892	20.82	30	PASS

802.11ac_VHT80_Ch0

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
42	5210	MCS0	60	30.772	14.88	23.98	PASS
58	5290	MCS0	58	27.489	14.39	23.98	PASS
106	5530	MCS0	49	27.362	14.37	23.98	PASS
122	5610	MCS0	63	58.905	17.70	23.98	PASS
138	5690(U-NII 2C)	MCS0	63	56.404	17.51	23.98	PASS
138	5690 (U-NII 3)	MCS0	63	4.012	6.03	30	PASS
155	5775	MCS0	55	61.398	17.88	30	PASS

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802.11ac_VHT80_Ch1

CH	Frequency (MHz)	Data Rate	Power Setting	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
42	5210	MCS0	62	30.002	14.77	23.98	PASS
58	5290	MCS0	60	27.174	14.34	23.98	PASS
106	5530	MCS0	51	26.494	14.23	23.98	PASS
122	5610	MCS0	65	58.500	17.67	23.98	PASS
138	5690(U-NII 2C)	MCS0	65	55.208	17.42	23.98	PASS
138	5690 (U-NII 3)	MCS0	65	3.698	5.68	30	PASS
155	5775	MCS0	57	58.365	17.66	30	PASS

802.11ac_VHT80_2TX

CH	Frequency (MHz)	Data Rate	Power Setting	Avg. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
42	5210	MCS0	70	15.45	14.33	62.199	17.94	23.98	PASS
58	5290	MCS0	68	14.35	14.44	55.044	17.41	23.98	PASS
106	5530	MCS0	59	14.62	14.33	56.095	17.49	23.98	PASS
122	5610	MCS0	73	18.43	17.32	123.658	20.92	23.98	PASS
138	5690(U-NII 2C)	MCS0	73	18.24	16.91	115.819	20.64	23.98	PASS
138	5690 (U-NII 3)	MCS0	73	6.76	5.17	8.034	9.05	30	PASS
155	5775	MCS0	66	18.41	17.17	121.505	20.85	30	PASS

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f (886-2) 2298-0488

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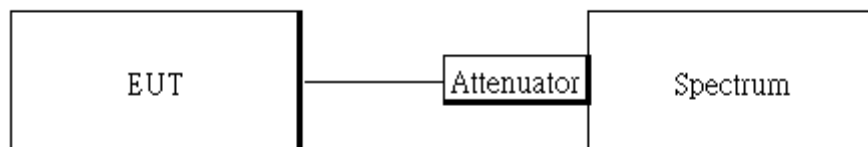
10 MAXIMUM POWER SPECTRAL DENSITY

10.1 FCC Standard

Operation Bands	EUT CATEGORY		e-CRF Title 47 §15.407 Power Spectral Density	Antenna Directional Gain Requirements
U-NII-1		Outdoor Access Point (Master)	1. 17dBm/ MHz 2. EIRP<=125mW(21dBm) at any elevation angle > 30°	6dBi
		Indoor Access Point (Master)	17dBm / MHz	6dBi
		Fixed point-to-point Access Point	17dBm / MHz	23dBi
	V	Client device	11dBm / MHz	6dBi
U-NII-2A	V	All	11dBm / MHz	6dBi
U-NII-2C	V	All	11dBm / MHz	6dBi
U-NII-3	V	All	30dBm / 500kHz	6dBi
U-NII-4		Indoor AP	20dBm / MHz e.i.r.p.	Not required
		Indoor client	14dBm / MHz e.i.r.p.	Not required
		Subordinate device	20dBm / MHz e.i.r.p.	Not required

If transmitting antennas of directional gain greater than the antenna requirements column, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna.

10.2 Test Setup



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10.3 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. **For U-NII1, U-NII-2A, U-NII-2C Band:**
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (1001 pts), Detector = power averaging (rms), if available. Otherwise, use sample detector mode, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth).
For U-NII-3 Band:
Set RBW=300kHz, VBW=1MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto, detector = RMS or sample, traces 100 sweeps of video averaging. In addition, measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result.
5. User the cursor on spectrum to peak search the highest level of trace
6. (1)Duty cycle $\geq 98\%$: Record the max. reading.
(2)Duty cycle $< 98\%$: Record the max. reading and add 10 log(1/duty cycle).
7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

Note:

For U-NII1, 2A, 2C and 3 Bands, when the antenna gain is greater than 6 dBi, the power spectral density limit attenuated accordingly.

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As per section F. 2). e). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

NSS = the number of independent spatial streams of data;

NANT = the total number of antennas

$g_{j,k}$ = / 20 10Gk if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

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10.4 Measurement Result

POWER DENSITY 802.11a MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maximum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5180	4.629	-	1.37	6.00		11.00 dBm/MHz	-5.00
5220	4.731	-	1.37	6.10		11.00 dBm/MHz	-4.90
5240	4.510	-	1.37	5.88		11.00 dBm/MHz	-5.12
5260	7.154	-	1.37	8.52		11.00 dBm/MHz	-2.48
5300	4.568	-	1.37	5.94		11.00 dBm/MHz	-5.06
5320	6.141	-	1.37	7.51		11.00 dBm/MHz	-3.49
5500	5.313	-	1.37	6.68		11.00 dBm/MHz	-4.32
5580	6.162	-	1.37	7.53		11.00 dBm/MHz	-3.47
5700	2.964	-	1.37	4.33		11.00 dBm/MHz	-6.67
5720 (U-NII 2C)	5.610	-	1.37	6.98		11.00 dBm/MHz	-4.02
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maximum Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5720 (U-NII 3)	-0.560	-	1.37	2.22	3.59	30.00 dBm/500kHz	-26.41
5745	1.840	-	1.37	2.22	5.43	30.00 dBm/500kHz	-24.57
5785	0.890	-	1.37	2.22	4.48	30.00 dBm/500kHz	-25.52
5825	0.666	-	1.37	2.22	4.26	30.00 dBm/500kHz	-25.74
POWER DENSITY 802.11n HT20 MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maximum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5180	-2.587	-2.201	1.44	2.06		10.46 dBm/MHz	-8.40
5220	-2.236	-2.994	1.44	1.85		10.46 dBm/MHz	-8.61
5240	-1.654	-2.108	1.44	2.58		10.46 dBm/MHz	-7.88
5260	5.783	4.711	1.44	9.73		11.00 dBm/MHz	-1.27
5300	6.133	6.362	1.44	10.70		11.00 dBm/MHz	-0.30
5320	4.009	3.254	1.44	8.10		11.00 dBm/MHz	-2.90
5500	6.199	6.083	1.44	10.59		11.00 dBm/MHz	-0.41
5580	6.183	5.480	1.44	10.30		11.00 dBm/MHz	-0.70
5700	2.422	2.196	1.44	6.76		11.00 dBm/MHz	-4.24
5720 (U-NII 2C)	6.130	5.250	1.44	10.16		11.00 dBm/MHz	-0.84
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maximum Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5720 (U-NII 3)	0.160	-0.150	1.44	2.22	6.68	30.00 dBm/500kHz	-23.32
5745	3.341	2.368	1.44	2.22	9.55	30.00 dBm/500kHz	-20.45
5785	2.781	2.489	1.44	2.22	9.31	30.00 dBm/500kHz	-20.69
5825	2.420	1.385	1.44	2.22	8.60	30.00 dBm/500kHz	-21.40

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POWER DENSITY 802.11n HT40 MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maximum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5190	-3.134	-3.620	2.54	2.18		10.46 dBm/MHz	-8.28
5230	-3.547	-3.468	2.54	2.04		10.46 dBm/MHz	-8.42
5270	2.004	3.794	2.54	8.54		11.00 dBm/MHz	-2.46
5310	-2.453	-2.596	2.54	3.03		11.00 dBm/MHz	-7.97
5510	3.306	3.783	2.54	9.10		11.00 dBm/MHz	-1.90
5550	1.500	0.259	2.54	6.47		11.00 dBm/MHz	-4.53
5670	4.571	3.806	2.54	9.76		11.00 dBm/MHz	-1.24
5710 (U-NII 2C)	4.530	3.590	2.54	9.64		11.00 dBm/MHz	-1.36
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maximum Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5710 (U-NII 3)	-3.880	-3.870	2.54	2.22	3.90	30.00 dBm/500kHz	-26.10
5755	-0.562	-0.409	2.54	2.22	7.29	30.00 dBm/500kHz	-22.71
5795	-0.833	-0.654	2.54	2.22	7.03	30.00 dBm/500kHz	-22.97

POWER DENSITY 802.11ac VHT80 MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maximum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5210	-6.367	-6.204	5.68	2.41		10.46 dBm/MHz	-8.05
5290	-4.244	-3.865	5.68	4.64		11.00 dBm/MHz	-6.36
5530	-2.535	-2.909	5.68	5.97		11.00 dBm/MHz	-5.03
5610	-1.807	-2.647	5.68	6.48		11.00 dBm/MHz	-4.52
5690 (U-NII 2C)	-2.260	-2.870	5.68	6.14		11.00 dBm/MHz	-4.86
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maximum Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5690 (U-NII 3)	-13.640	-14.440	5.68	2.22	-3.11	30.00 dBm/500kHz	-33.11
5775	-7.044	-8.022	5.68	2.22	3.40	30.00 dBm/500kHz	-26.60

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EIRP spectral density 802.11a MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5180	5.999	3.77	9.77	10	-0.23
5220	6.101	3.77	9.87	10	-0.13
5240	5.880	3.77	9.65	10	-0.35
EIRP spectral density 802.11n HT20 MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5180	2.061	6.54	8.60	10	-1.40
5220	1.852	6.54	8.39	10	-1.61
5240	2.575	6.54	9.12	10	-0.88
EIRP spectral density 802.11n HT40 MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5190	2.180	6.54	8.72	10	-1.28
5230	2.043	6.54	8.58	10	-1.42
EIRP spectral density 802.11ac VHT80 MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5210	2.406	6.54	8.95	10	-1.05

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802.11a_20MHz_Chain0_5180MHz



802.11a_20MHz_Chain0_5260MHz



802.11a_20MHz_Chain0_5220MHz



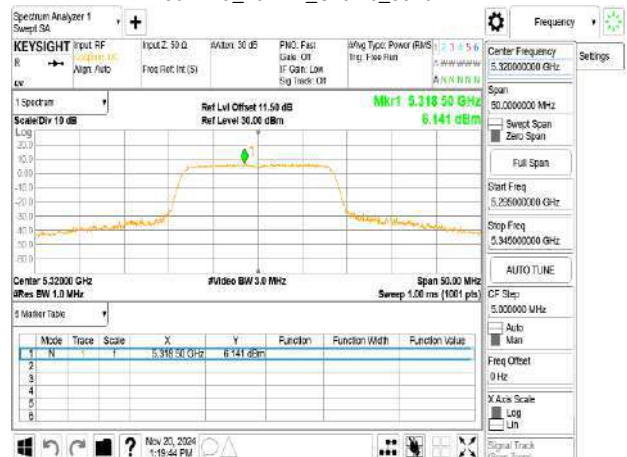
802.11a_20MHz_Chain0_5300MHz



802.11a_20MHz_Chain0_5240MHz



802.11a_20MHz_Chain0_5320MHz



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802.11a_20MHz_Chain0_5500MHz



802.11a_20MHz_Chain0_5720MHz_UNII 2C



802.11a_20MHz_Chain0_5580MHz



802.11a_20MHz_Chain0_5720MHz_UNII 3



802.11a_20MHz_Chain0_5700MHz



802.11a_20MHz_Chain0_5745MHz



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802.11a_20MHz_Chain0_5785MHz



802.11n_20MHz_Chain1_5180MHz



802.11a_20MHz_Chain0_5825MHz



802.11n_20MHz_Chain0_5220MHz



802.11n_20MHz_Chain0_5180MHz



802.11n_20MHz_Chain1_5220MHz

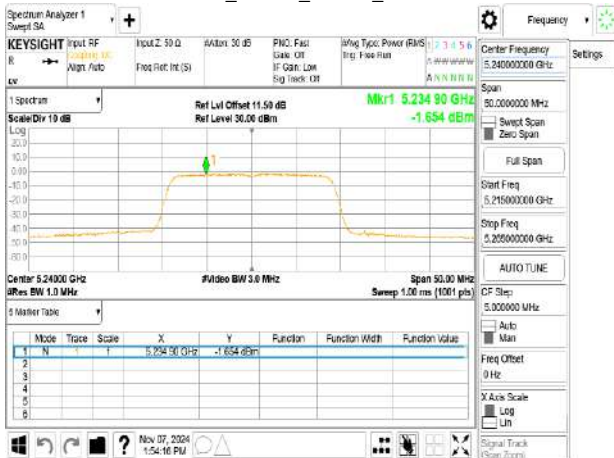


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802.11n_20MHz_Chain0_5240MHz



802.11n_20MHz_Chain1_5260MHz



802.11n_20MHz_Chain1_5240MHz



802.11n_20MHz_Chain0_5300MHz



802.11n_20MHz_Chain0_5260MHz



802.11n_20MHz_Chain1_5300MHz



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802.11n_20MHz_Chain0_5320MHz



802.11n_20MHz_Chain1_5500MHz



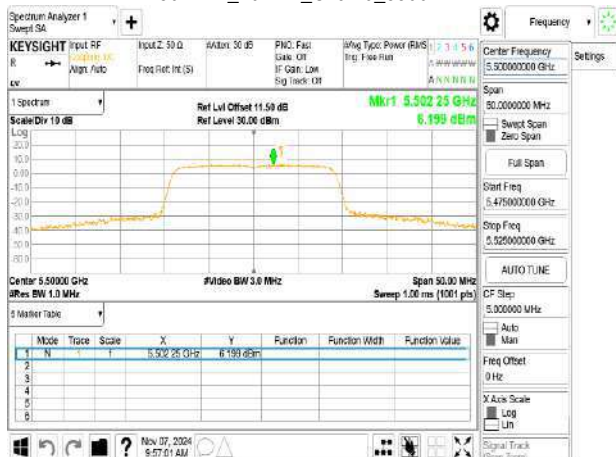
802.11n_20MHz_Chain1_5320MHz



802.11n_20MHz_Chain0_5580MHz



802.11n_20MHz_Chain0_5500MHz



802.11n_20MHz_Chain1_5580MHz



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802.11n_20MHz_Chain0_5700MHz



802.11n_20MHz_Chain0_5720MHz_UNII 3



802.11n_20MHz_Chain1_5700MHz



802.11n_20MHz_Chain1_5720MHz_UNII 2C



802.11n_20MHz_Chain0_5720MHz_UNII 2C



802.11n_20MHz_Chain1_5720MHz_UNII 3



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802.11n_20MHz_Chain0_5745MHz



802.11n_20MHz_Chain1_5785MHz



802.11n_20MHz_Chain1_5745MHz



802.11n_20MHz_Chain0_5825MHz



802.11n_20MHz_Chain0_5785MHz



802.11n_20MHz_Chain1_5825MHz



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802.11n_40MHz_Chain0_5190MHz



802.11n_40MHz_Chain1_5230MHz



802.11n_40MHz_Chain1_5190MHz



802.11n_40MHz_Chain0_5270MHz



802.11n_40MHz_Chain0_5230MHz



802.11n_40MHz_Chain1_5270MHz



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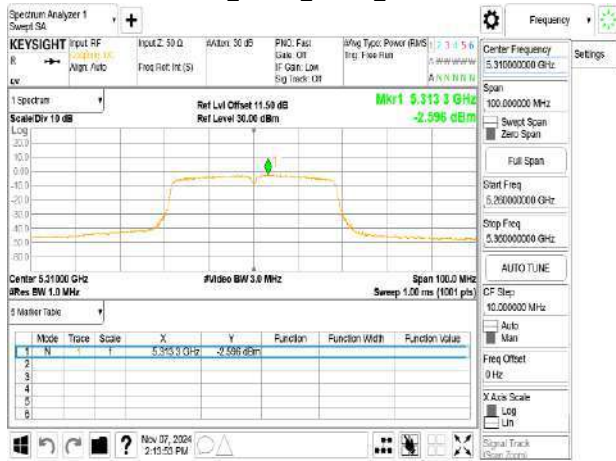
802.11n_40MHz_Chain0_5310MHz



802.11n_40MHz_Chain1_5510MHz



802.11n_40MHz_Chain1_5310MHz



802.11n_40MHz_Chain0_5550MHz



802.11n_40MHz_Chain0_5510MHz



802.11n_40MHz_Chain1_5550MHz



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802.11n_40MHz_Chain0_5670MHz



802.11n_40MHz_Chain0_5710MHz_UNII 3



802.11n_40MHz_Chain1_5670MHz



802.11n_40MHz_Chain1_5710MHz_UNII 2C



802.11n_40MHz_Chain0_5710MHz_UNII 2C



802.11n_40MHz_Chain1_5710MHz_UNII 3



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SGS Taiwan Ltd.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.sgs.com.tw

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