

**ELECTROMAGNETIC EMISSIONS
COMPLIANCE REPORT**

Applicant: Murata Manufacturing Co., Ltd.
10-1, Higashikotari 1-chome Nagaokakyo-shi, Kyoto 617-8555 Japan

Manufacturer: Murata Manufacturing Co., Ltd.
10-1, Higashikotari 1-chome Nagaokakyo-shi, Kyoto 617-8555 Japan

Product Name: Communication Module

Brand Name: muRata

Model No.: LBEE6ZZ1TA

Model Difference: N/A

Report Number: TERF2310002627ER

FCC ID VPYLB1TA

IC: 772C-LB1TA

Date of EUT Received: October 17, 2023

Date of Test: October 18, 2023 ~ November 21, 2023

Issue Date: December 29, 2023

Approved By**Blue Yang****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, ISSED RSS-247.

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
TERF2310002627ER	00	Original	December 13, 2023	Yuri Tsai	
TERF2310002627ER	01	Update P7	December 29, 2023	Yuri Tsai	

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:	Communication module
Brand Name:	muRata
Model No.:	LBEE6ZZ1TA
Model Difference:	N/A
Hardware Version:	1.0
Firmware Version:	1.0
EUT Series No.:	1002681000006063
Power Supply:	3.3Vdc and 1.8Vdc from the motherboard
Test Software (Name/Version)	DutApiMimoApApp V 2.0.0.86

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
	1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA in 802.11ax
Transition Rate:	802.11 a: 6 - 54 Mbps
	802.11 n_20MHz: up to 144.4 Mbps
	802.11 n_40MHz: up to 300 Mbps
	802.11 ac_20MHz: up to 173.4 Mbps
	802.11 ac_40MHz: up to 400 Mbps
	802.11 ac_80MHz: up to 866.6 Mbps
	802.11 ax_20MHz: up to 286.8 Mbps
	802.11 ax_40MHz: up to 573.6 Mbps
	802.11 ax_80MHz: up to 1201 Mbps

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1.3 Antenna Designation

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
PIFA	TE Connectivity	PT00014349	5150~5850	2.57
				2.57
				2.57
				2.57
Monopole	TE Connectivity	PT00039248	5150~5850	0.06
				0.06
				0.06
				0.06

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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Wi-Fi	Frequency Range (MHz)	Channels	Rated Power(Avg) (dBm) (Worst Case)	Modulation Technology
a/ n_HT/ ac_VHT/ ax_HE 20M	5180~5240	4	18.99 dBm	OFDM/OFDMA
	5260~5320	4	18.86 dBm	OFDM/OFDMA
	5500~5720	12	18.99 dBm	OFDM/OFDMA
	5745-5825	5	18.99 dBm	OFDM/OFDMA
n_HT ac_VHT/ ax_HE 40M	5190~5230	2	17.98 dBm	OFDM/OFDMA
	5270~5310	2	17.88 dBm	OFDM/OFDMA
	5510~5710	6	17.97 dBm	OFDM/OFDMA
	5755-5795	2	17.99 dBm	OFDM/OFDMA
ac_VHT/ ax_HE 80M	5210	1	15.99 dBm	OFDM/OFDMA
	5290	1	15.95 dBm	OFDM/OFDMA
	5530~5690	3	15.96 dBm	OFDM/OFDMA
	5775	1	15.99 dBm	OFDM/OFDMA

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WLAN 5 GHz for ISED

Wi-Fi	Frequency Range (MHz)	Channels	EIRP/Avg	Rated Power(EIRP/Avg) (dBm) (Worst Case)	Modulation Technology
a/ n_HT/ ac_VHT/ ax_HE 20M	5180~5240	4	EIRP	13.56 dBm	OFDM/OFMDA
	5260~5320	4	EIRP	13.54 dBm	OFDM/OFMDA
	5500~5700	8	Avg	18.99 dBm	OFDM/OFMDA
	5720 (U-NII 2C)	1	Avg	17.65 dBm	OFDM/OFMDA
	5720 (U-NII 3)	1	Avg	12.98 dBm	OFDM/OFMDA
	5745-5825	5	Avg	18.99 dBm	OFDM/OFMDA
n_HT ac_VHT/ ax_HE 40M	5190~5230	2	EIRP	14.56 dBm	OFDM/OFMDA
	5270~5310	2	EIRP	14.55 dBm	OFDM/OFMDA
	5510~5670	3	Avg	17.97 dBm	OFDM/OFMDA
	5710 (U-NII 2C)	1	Avg	17.29 dBm	OFDM/OFMDA
	5710 (U-NII 3)	1	Avg	8.89 dBm	OFDM/OFMDA
	5755-5795	2	Avg	17.99 dBm	OFDM/OFMDA
ac_VHT/ ax_HE 80M	5210	1	EIRP	14.55 dBm	OFDM/OFMDA
	5290	1	EIRP	14.56 dBm	OFDM/OFMDA
	5530	1	Avg	14.87 dBm	OFDM/OFMDA
	5690 (U-NII 2C)	1	Avg	15.70 dBm	OFDM/OFMDA
	5690 (U-NII 3)	1	Avg	4.41 dBm	OFDM/OFMDA
	5775	1	Avg	15.99 dBm	OFDM/OFMDA

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1.6 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

FCC KDB 291074 D02 EMC Measurement v01

RSS-247 issue 3 Aug. 2023

RSS-Gen, issue 5 April, 2018

ANSI C63.10:2013

1.7 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	
		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	TW3702
		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.

1.8 Special Accessories

There are no special accessories used while test was conducted.

1.9 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

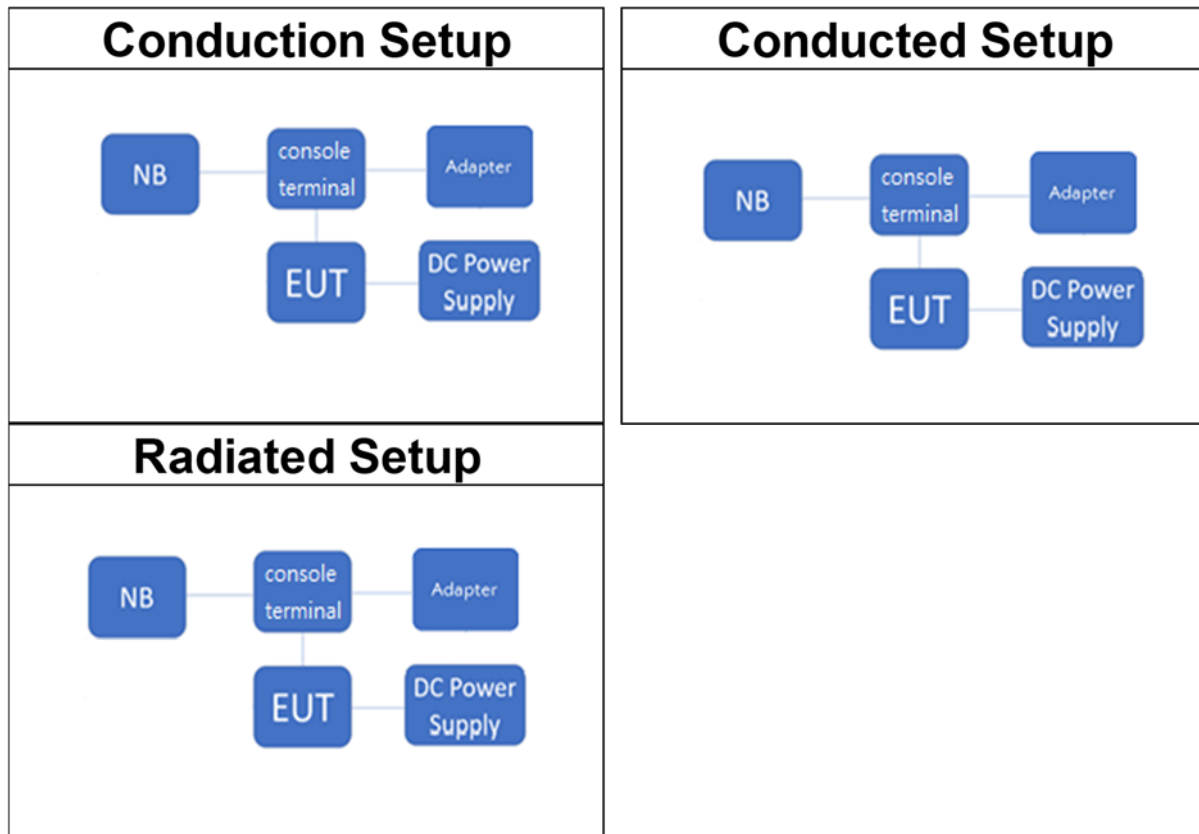
Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

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 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Notebook	Lenovo	T440p	PB-02Y6RK 14/07	N/A	N/A
console terminal	GIGABYTE	GB-BSi7-6500	N/A	N/A	N/A
Adapter	FSP GROUP INC.	FSP065-REBN2	N/A	N/A	N/A
Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Notebook	Lenovo	T440p	PB-02Y6RK 14/07	N/A	N/A
console terminal	GIGABYTE	GB-BSi7-6500	N/A	N/A	N/A
Adapter	FSP GROUP INC.	FSP065-REBN2	N/A	N/A	N/A
Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Notebook	Lenovo	T440p	PB-02Y6RK 14/07	N/A	N/A
console terminal	GIGABYTE	GB-BSi7-6500	N/A	N/A	N/A
Adapter	FSP GROUP INC.	FSP065-REBN2	N/A	N/A	N/A

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3 SUMMARY OF TEST RESULT

FCC Rules	ISED Rules	Description Of Test	Result
§15.207	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.407(e)	RSS-Gen §6.7	Emission Bandwidth	Compliant
§15.407(a)	RSS-247 §6.2.1~4 (1) RSS-247 §6.2.5 (2)	Maximum Conducted Output Power	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1) RSS-247 §6.2.5 (2)	Power Spectral Density	Compliant
§15.205 §15.209 §15.407(b)	RSS-247 §6.2.1~3 (2) §6.2.4 (3) RSS-247 §6.2.5 (3)	Undesirable Radiated Emissions	Compliant
§15.407(c)	RSS-247 §6.4	Transmission in case of Absence of Information	Compliant
§15.203	N/A	Antenna Requirement	Compliant

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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	WLAN1	v	WLAN2		WLAN3		WLAN4	v	1TX	v	2TX
v	802.11 n	v	WLAN1	v	WLAN2		WLAN3		WLAN4	v	1TX	v	2TX
v	802.11 ac	v	WLAN1	v	WLAN2		WLAN3		WLAN4	v	1TX	v	2TX
v	802.11 ax	v	WLAN1	v	WLAN2		WLAN3		WLAN4	v	1TX	v	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	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_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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CONDUCTED TEST							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURATION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE20	5180~5240	36 to 48	36,44,48	OFDMA	FULL RU 26/0,26/8 52/37,52/40 106/53,106/54	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				
802.11ax_HE40	5190~5230	38 to 46	38,46	OFDMA	FULL RU 242/61,242/62	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				
802.11ax_HE80	5210	42	42	OFDMA	FULL RU 484/65,484/66	MCS0	2TX
	5290	58	58				
	5530~5690	106 to 138	106,122,138				
	5775	155	155				
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		2TX
	5260~5320	52 to 64	60				
	5500~5720	100 to 144	116				
	5745~5825	149 to 165	157				

FCC(5150-5850MHz) + ISDE(5470-5850MHz)

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	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_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 (ABOVE 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURATION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE20	5180~5240	36 to 48	36,44,48	OFDMA	FULL RU 26/0,26/8 52/37,52/40 106/53,106/54	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				
802.11ax_HE40	5190~5230	38 to 46	38,46	OFDMA	FULL RU 242/61,242/62	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				
802.11ax_HE80	5210	42	42	OFDMA	FULL RU 484/65,484/66	MCS0	2TX
	5290	58	58				
	5530~5690	106 to 138	106,122,138				
	5775	155	155				

ISED(5150-5350MHz)

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	2TX
	5260~5320	52 to 64	52,60,64			
802.11n_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	SISO/2TX
	5260~5320	52 to 64	52,60,64			
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	SISO/2TX
	5270~5310	54 to 62	54,62			
802.11ac_VHT80	5210	42	42	OFDM	MCS0	SISO/2TX
	5290	58	58			

TRANSMIT RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURATION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE20	5180~5240	36 to 48	36,44,48	OFDMA	FULL RU	MCS0	SISO/2TX
	5260~5320	52 to 64	52,60,64				
802.11ax_HE40	5190~5230	38 to 46	38,46	OFDMA	FULL RU	MCS0	SISO/2TX
	5270~5310	54 to 62	54,62				
802.11ax_HE80	5210	42	42	OFDMA	FULL RU	MCS0	SISO/2TX
	5290	58	58				

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	+/- 2.32 dB
Output Power measurement	+/- 1 dB
Emission Bandwidth	+/- 1.53 Hz
Undesignable radiated emission measurement	+/- 1.68 dB
Peak Power Density	+/- 2.16 dB
Temperature	+/- 0.7 °C
Humidity	+/- 3 %
DC / AC Power Source	+/- 1 %

Radiated Spurious Emission Measurement Uncertainty			
Polarization: Vertical	+/-	2.8 dB	9kHz~30MHz
	+/-	4.82 dB	30MHz - 1000MHz
	+/-	4.37 dB	1GHz - 18GHz
	+/-	4.21 dB	18GHz - 40GHz
Polarization: Horizontal	+/-	2.8 dB	9kHz~30MHz
	+/-	4.54 dB	30MHz - 1000MHz
	+/-	4.37 dB	1GHz - 18GHz
	+/-	4.21 dB	18GHz - 40GHz

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 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESR 7	102525	02/18/2023	02/17/2024
DC Power Supply	HILA	DP-3003N	11233K0716024	03/17/2023	03/16/2024
Pulse Limiter	SCHWARZBECK	VTSD 9561F-N	793	06/22/2023	06/21/2024
LISN	SCHWARZBECK	NSLK 8127	01040	09/06/2023	09/05/2024
LISN	SCHWARZBECK	NSLK 8127	01041	10/26/2023	10/25/2024
Coaxial Cables	EMC Instruments Corp.	EMCCFD300-BM-BM-3000	161207	06/22/2023	06/21/2024
Test Software	audix	e3	Ver. 9 210322	N.C.R	N.C.R

Note: Tested date for Emission from AC power line on 11/03/2023.

6.2 Conducted Measurement

Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY59071541	07/13/2023	07/12/2024
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R
Power Meter	Anritsu	ML2496A	2132007	09/25/2023	09/24/2024
Power Sensor	Anritsu	MA2411B	1911391	09/25/2023	09/24/2024
Power Sensor	Anritsu	MA2411B	1911392	09/25/2023	09/24/2024
DC Power Supply	Agilent	E3640A	MY52410006	12/26/2022	12/25/2023
Attenuator	Mini-Circuits	BW-S10W2+	4	12/13/2022	12/12/2023
DC Block	Mini-Circuits	BLK-18-S+	1	12/13/2022	12/12/2023

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6.3 Radiated Measurement

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Horn Antenna	RF SPIN	DRH0844	LE2D05A0844	07/03/2023	07/02/2024
Horn Antenna	SCHWARZBECK	BBHA9120D	1441	09/23/2023	09/22/2024
Bi-log Antenna	SCHWARZBECK	VULB9168	378	08/09/2023	08/08/2024
Loop Antenna	ETS.LINDGREN	6502	0014303	05/23/2023	05/22/2024
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY63440386	01/17/2023	01/16/2024
EMI Test Receiver	R&S	ESCI 7	100759	08/21/2023	08/20/2024
DC Power Supply	HILA	DP-3003N	11233K0716024	03/17/2023	03/16/2024
Pre-Amplifier	EMC Instruments	EMC118A45SEE	980868	08/31/2023	08/30/2024
Pre-Amplifier	EMC Instruments	EMC184045B	980135	08/31/2023	08/30/2024
Pre-Amplifier	HP	8447D	2944A07676	08/31/2023	08/30/2024
Attenuator	Mini-Circuit	BW-S10W2+	4	12/13/2022	12/12/2023
Filter 5150-5350 MHz	Micro-Tronics	BRM50703	1	12/13/2022	12/12/2023
Filter 5470-5725 MHz	Micro-Tronics	BRM50704	1	12/13/2022	12/12/2023
Filter 5725-5875 MHz	Micro-Tronics	BRM50705	1	12/13/2022	12/12/2023
High Pass Filter	WI	WHKX7.0/18G-8SS	45	12/13/2022	12/12/2023
Coaxial Cables	EMCI+Huber Suhner	EMC107-SM-SM-1000+EMC107-SM-SM-1500+EMC107-SM-SM-8000+SUCOFLEX 104PEA	RX Cable 9K-18G (221110+221106+221212+MY4251/4PEA)	08/31/2023	08/30/2024
Coaxial Cables	Huber Suhner	SUCOFLEX 102	RX Cable 18G-40G MY2630/2+805062/2	08/31/2023	08/30/2024
Site Cal	SGS	SAC 3	N/A	08/31/2023	08/30/2024
Test Software	audix	e3	Ver. 9.210616	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

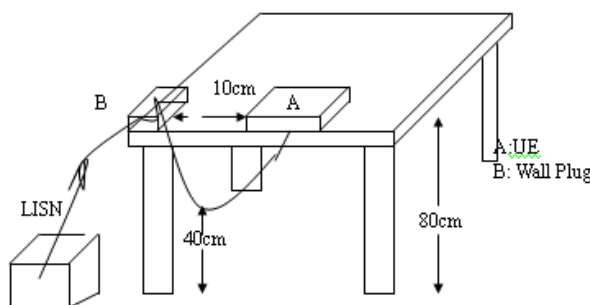
Note

- 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



7.4 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. 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 * reveals the worst-case results that closest to the limit.

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AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number :TERF2310002627ER

Test Site :Conduction 1

Operation Mode :WLAN 5G

Test Date :2023-11-03

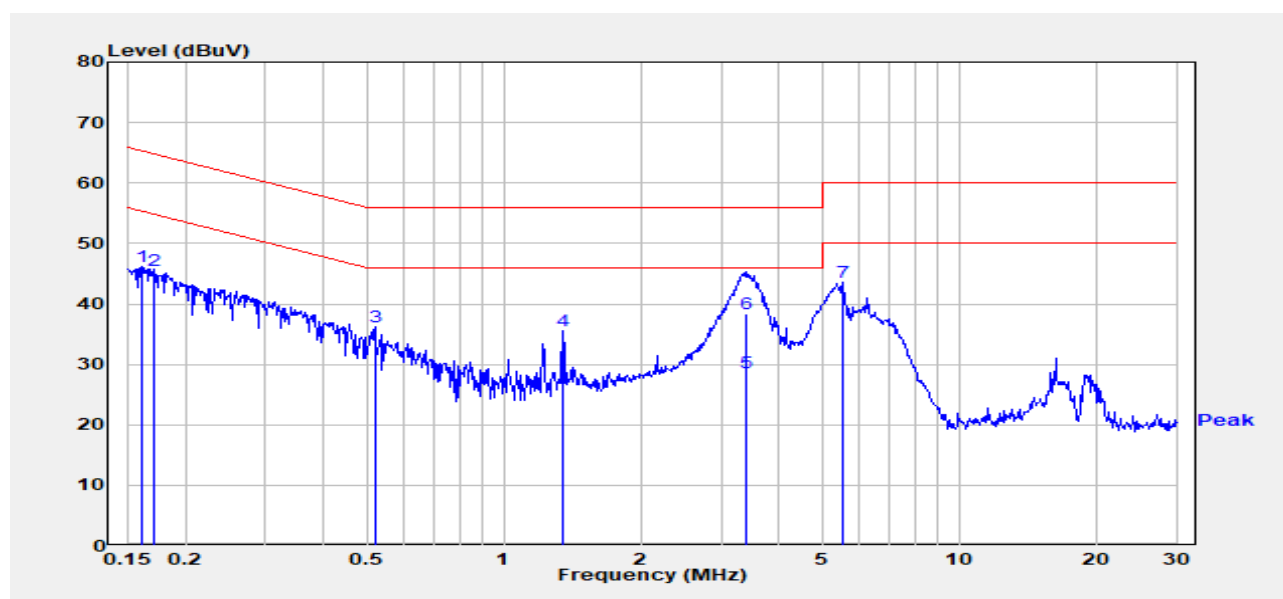
Power :120V/60Hz

Temp./Humi. :24.9°C/63%

Probe :L

Engineer :Nick Lin

Note: :



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.161	Peak	36.09	10.13	46.22	65.43	-19.20
0.171	Peak	35.49	10.13	45.62	64.90	-19.28
0.521	Peak	26.06	10.17	36.23	56.00	-19.77
1.345	Peak	25.36	10.20	35.55	56.00	-20.45
3.399	Average	18.24	10.27	28.51	46.00	-17.49
3.399	QP	28.13	10.27	38.40	56.00	-17.60
5.535	Peak	33.31	10.35	43.66	60.00	-16.34

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Report Number :TERF2310002627ER

Operation Mode :WLAN 5G

Power :120V/60Hz

Probe :N

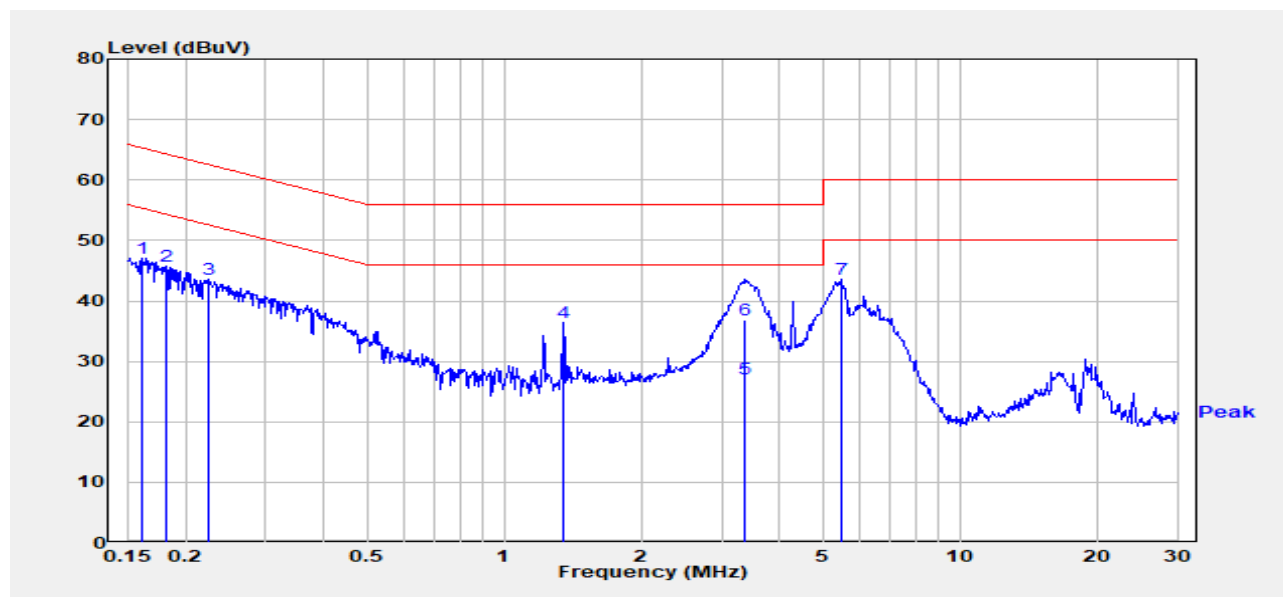
Note: :

Test Site :Conduction 1

Test Date :2023-11-03

Temp./Humi. :24.9°C/63%

Engineer :Nick Lin



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode	Reading Level		FS		
	PK/QP/AV	dBμV	dB	dBμV	dBμV	dB
0.161	Peak	36.95	10.12	47.07	65.43	-18.36
0.181	Peak	35.71	10.12	45.83	64.46	-18.63
0.224	Peak	33.52	10.13	43.65	62.66	-19.01
1.352	Peak	26.29	10.19	36.48	56.00	-19.52
3.364	Average	16.84	10.28	27.12	46.00	-18.88
3.364	QP	26.62	10.28	36.90	56.00	-19.10
5.476	Peak	33.18	10.36	43.54	60.00	-16.46

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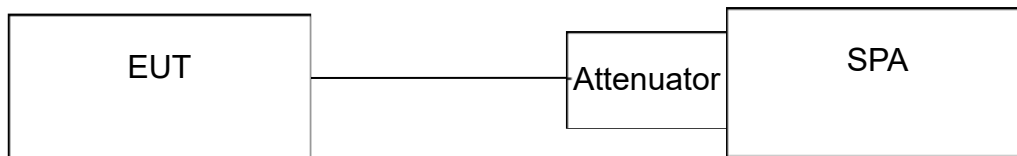
8 EMISSION BANDWIDTH MEASUREMENT

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_WLAN1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.43	12.880
5220	19.42	12.880
5240	19.26	12.850
5260	19.39	12.880
5300	19.76	12.960
5320	19.58	12.920
5500	19.73	12.950
5580	19.50	12.900
5700	19.54	12.910
5720(U-NII 2C)	14.63	11.650
5720(U-NII 3)	4.63	6.660

802.11a_WLAN2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.30	12.860
5220	19.57	12.920
5240	19.36	12.870
5260	19.31	12.860
5300	19.52	12.900
5320	19.56	12.910
5500	19.44	12.890
5580	19.43	12.880
5700	19.19	12.830
5720(U-NII 2C)	14.69	11.670
5720(U-NII 3)	4.69	6.720

802.11a_WLAN1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.45	12.160
5785	16.48	12.170
5825	16.45	12.160

802.11a_WLAN2

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.40	12.150
5785	16.38	12.140
5825	16.43	12.160

802.11a_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.35	< 5250
5745	5736.76	> 5725

802.11a_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.26	< 5250
5745	5736.78	> 5725

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802.11n_HT20_WLAN1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.96	13.000
5220	19.96	13.000
5240	19.66	12.940
5260	19.88	12.980
5300	19.81	12.970
5320	19.84	12.980
5500	19.92	12.990
5580	19.70	12.940
5700	19.75	12.960
5720(U-NII 2C)	14.93	11.740
5720(U-NII 3)	4.93	6.930

802.11n_HT20_WLAN2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.87	12.980
5220	19.77	12.960
5240	19.82	12.970
5260	19.87	12.980
5300	19.87	12.980
5320	19.78	12.960
5500	19.74	12.950
5580	19.74	12.950
5700	19.85	12.980
5720(U-NII 2C)	14.90	11.730
5720(U-NII 3)	4.90	6.900

802.11n_HT20_WLAN1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.96	12.290
5785	16.94	12.290
5825	17.52	12.440

802.11n_HT20_WLAN2

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.57	12.450
5785	16.97	12.300
5825	17.58	12.450

802.11n_HT20_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.82	< 5250
5745	5736.21	> 5725

802.11n_HT20_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.84	< 5250
5745	5736.22	> 5725

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802.11n_HT40_WLAN1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.45	16.070
5230	39.99	16.020
5270	39.63	15.980
5310	40.18	16.040
5510	40.10	16.030
5550	40.01	16.020
5670	40.12	16.030
5710(U-NII 2C)	35.07	15.450
5710(U-NII 3)	5.07	7.050

802.11n_HT40_WLAN2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.42	15.960
5230	39.47	15.960
5270	39.46	15.960
5310	39.94	16.010
5510	39.55	15.970
5550	39.82	16.000
5670	40.28	16.050
5710(U-NII 2C)	35.20	15.470
5710(U-NII 3)	5.20	7.160

802.11n_HT40_WLAN1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.17	15.460
5795	35.40	15.490

802.11n_HT40_WLAN2

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.41	15.490
5795	34.91	15.430

802.11n_HT40_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.07	< 5250
5755	5736.75	> 5725

802.11n_HT40_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.08	< 5250
5755	5737.00	> 5725

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802.11ac_VHT80_WLAN1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	81.47	19.110
5290	81.47	19.110
5530	81.67	19.120
5610	81.71	19.120
5690(U-NII 2C)	75.84	18.800
5690(U-NII 3)	5.84	7.660

802.11ac_VHT80_WLAN1

Freq. (MHz)	40.26	10 Log (B) (dB)
5775	76.13	18.820

802.11ac_VHT80_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.03	< 5250
5775	5737.12	> 5725

802.11ac_VHT80_WLAN2

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	81.31	19.100
5290	81.58	19.120
5530	81.41	19.110
5610	81.25	19.100
5690(U-NII 2C)	75.67	18.790
5690(U-NII 3)	5.67	7.540

802.11ac_VHT80_WLAN2

Freq. (MHz)	39.83	10 Log (B) (dB)
5775	76.36	18.830

802.11ac_VHT80_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.04	< 5250
5775	5737.15	> 5725

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802.11ax_HE20_WLAN1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5180	full	20.04	13.020
5220	full	20.28	13.070
5240	full	20.31	13.080
5260	full	20.21	13.060
5300	full	20.17	13.050
5320	full	19.97	13.000
5500	full	20.15	13.040
5580	full	20.12	13.040
5700	full	20.27	13.070
5720 (U-NII 2C)	full	15.08	11.780
5720 (U-NII 3)	full	5.08	7.060

802.11ax_HE20_WLAN2

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5180	full	20.33	13.080
5220	full	19.99	13.010
5240	full	20.51	13.120
5260	full	20.45	13.110
5300	full	20.43	13.100
5320	full	20.11	13.030
5500	full	20.14	13.040
5580	full	20.27	13.070
5700	full	20.05	13.020
5720 (U-NII 2C)	full	15.30	11.850
5720 (U-NII 3)	full	5.30	7.240

802.11ax_HE20_WLAN1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	18.01	12.560
5785	full	17.50	12.430
5825	full	17.48	12.430

802.11ax_HE20_WLAN2

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	18.63	12.700
5785	full	17.66	12.470
5825	full	18.04	12.560

802.11ax_HE20_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5249.38	< 5250
5745	5735.61	> 5725

802.11ax_HE20_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5249.41	< 5250
5745	5735.56	> 5725

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802.11ax_HE40_WLAN1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	39.96	16.020
5230	full	40.23	16.050
5270	full	40.14	16.040
5310	full	40.41	16.060
5510	full	40.18	16.040
5550	full	40.06	16.030
5670	full	40.18	16.040
5710 (U-NII 2C)	full	35.04	15.450
5710 (U-NII 3)	full	5.04	7.020

802.11ax_HE40_WLAN2

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	39.88	16.010
5230	full	39.73	15.990
5270	full	39.81	16.000
5310	full	40.27	16.050
5510	full	39.66	15.980
5550	full	40.27	16.050
5670	full	40.19	16.040
5710 (U-NII 2C)	full	35.09	15.450
5710 (U-NII 3)	full	5.09	7.060

802.11ax_HE40_WLAN1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	36.16	15.580
5795	full	35.82	15.540

802.11ax_HE40_WLAN2

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	35.84	15.540
5795	full	35.65	15.520

802.11ax_HE40_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.75	< 5250
5755	5736.23	> 5725

802.11ax_HE40_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.79	< 5250
5755	5736.32	> 5725

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802.11ax_HE80_WLAN1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5210	full	80.41	19.050
5290	full	80.34	19.050
5530	full	80.48	19.060
5610	full	80.36	19.050
5690 (U-NII 2C)	full	75.23	18.760
5690 (U-NII 3)	full	5.23	7.190

802.11ax_HE80_WLAN1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	77.89	18.910

802.11ax_HE80_WLAN1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.83	< 5250
5775	5736.21	> 5725

802.11ax_HE80_WLAN2

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5210	full	80.31	19.050
5290	full	80.54	19.060
5530	full	80.52	19.060
5610	full	80.62	19.060
5690 (U-NII 2C)	full	75.15	18.760
5690 (U-NII 3)	full	5.15	7.110

802.11ax_HE80_WLAN2

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	77.85	18.910

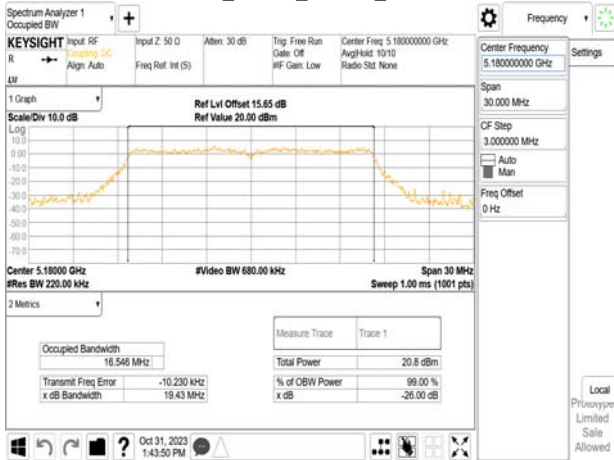
802.11ax_HE80_WLAN2

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.74	< 5250
5775	5736.31	> 5725

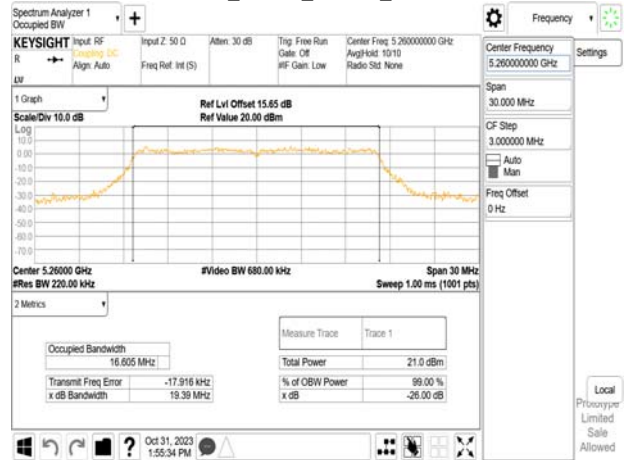
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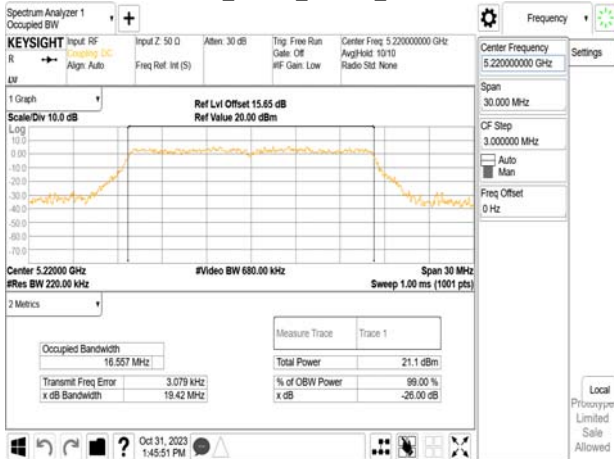
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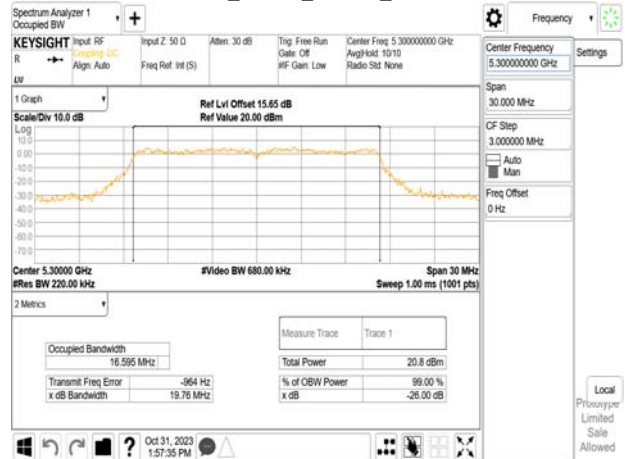
802.11a_20MHz_WLAN1_5260MHz



802.11a_20MHz_WLAN1_5220MHz



802.11a_20MHz_WLAN1_5300MHz



802.11a_20MHz_WLAN1_5240MHz



802.11a_20MHz_WLAN1_5320MHz

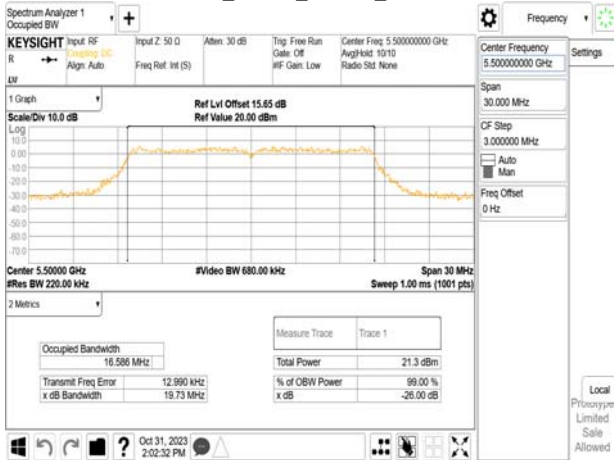


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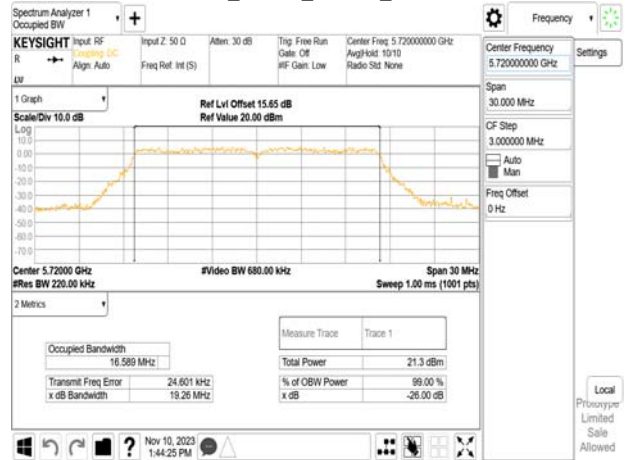
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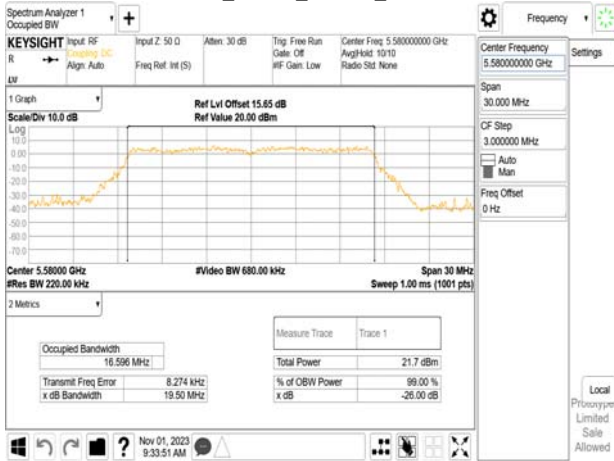
802.11a_20MHz_WLAN1_5500MHz



802.11a_20MHz_WLAN1_5720MHz



802.11a_20MHz_WLAN1_5580MHz



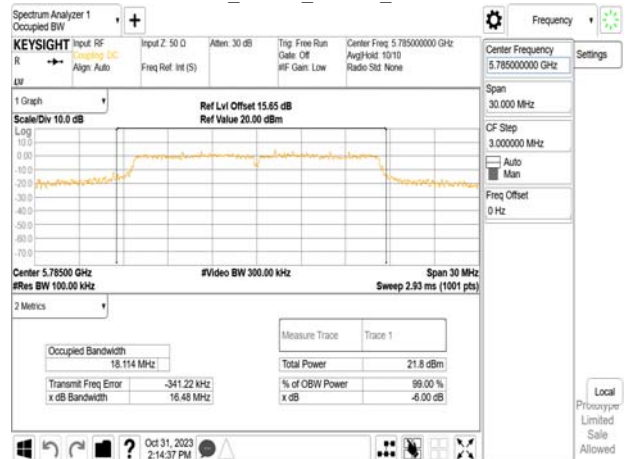
802.11a_20MHz_WLAN1_5745MHz



802.11a_20MHz_WLAN1_5700MHz



802.11a_20MHz_WLAN1_5785MHz

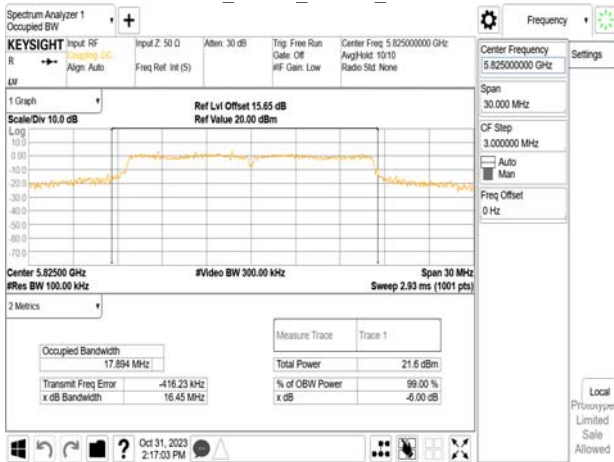


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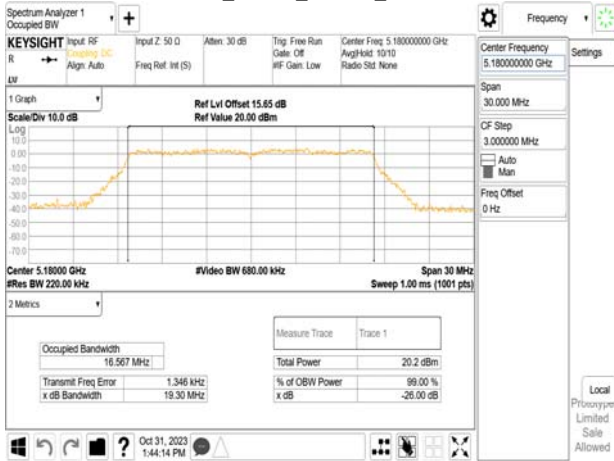
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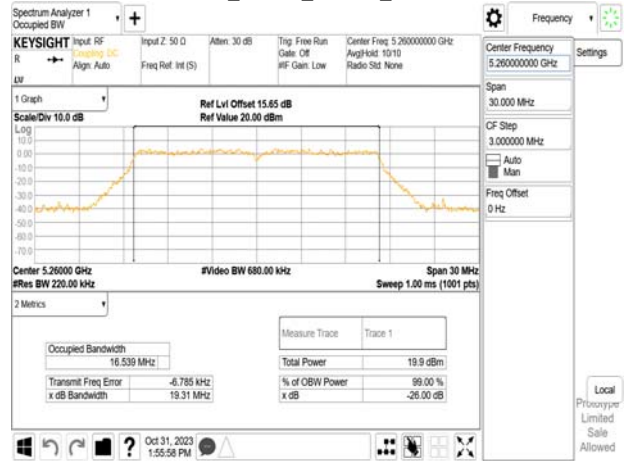
802.11a_20MHz_WLAN2_5240MHz



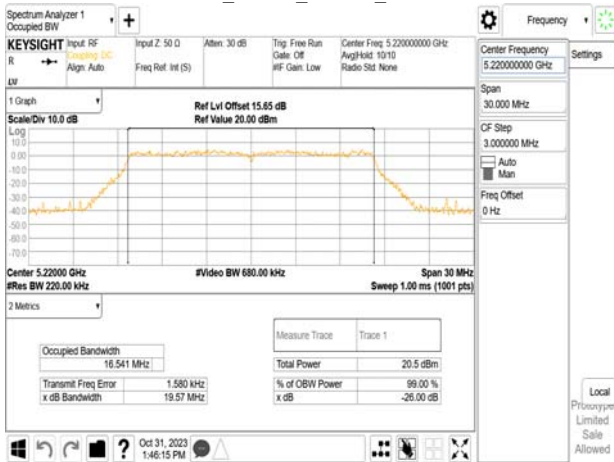
802.11a_20MHz_WLAN2_5180MHz



802.11a_20MHz_WLAN2_5260MHz



802.11a_20MHz_WLAN2_5220MHz



802.11a_20MHz_WLAN2_5300MHz

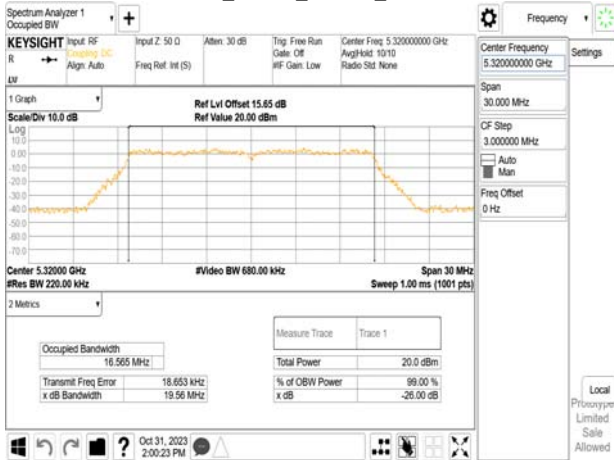


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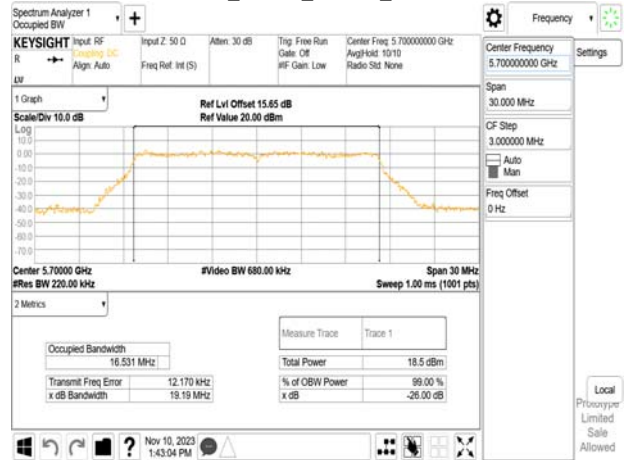
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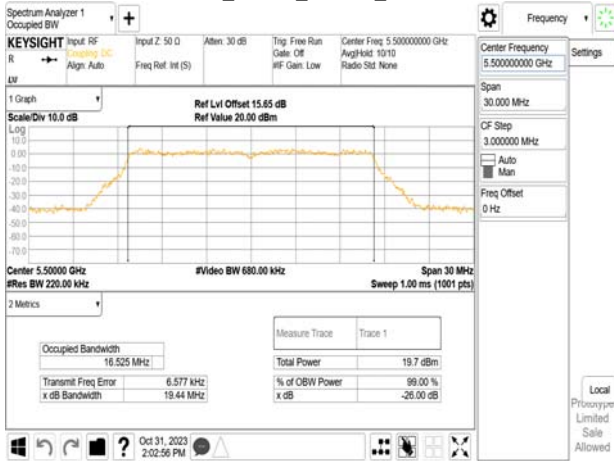
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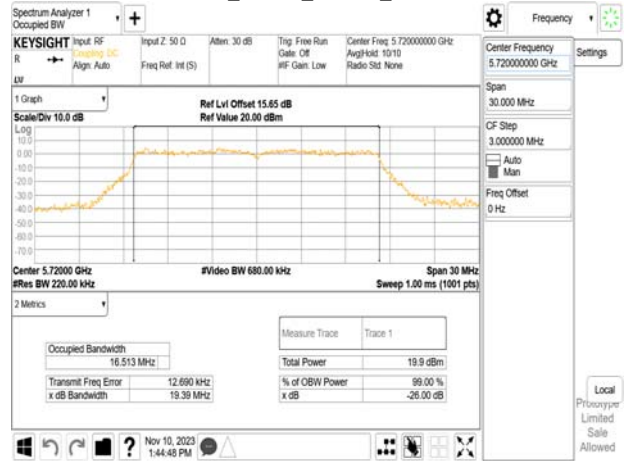
802.11a_20MHz_WLAN2_5700MHz



802.11a_20MHz_WLAN2_5500MHz



802.11a_20MHz_WLAN2_5720MHz



802.11a_20MHz_WLAN2_5580MHz



802.11a_20MHz_WLAN2_5745MHz

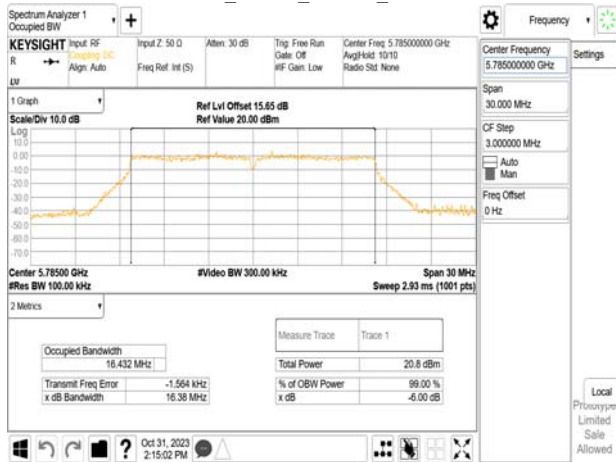


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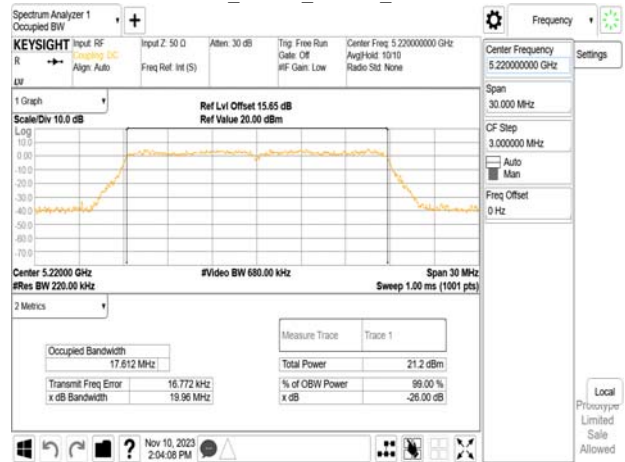
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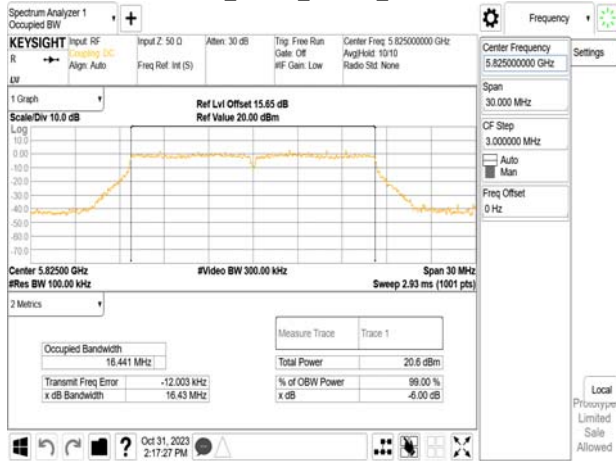
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802.11n_20MHz_WLAN1_5220MHz



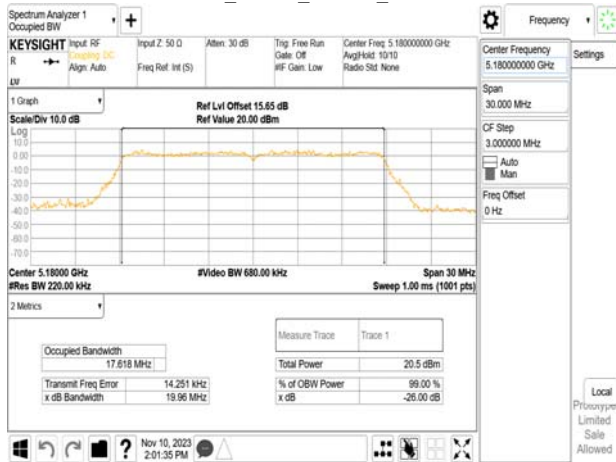
802.11a_20MHz_WLAN2_5825MHz



802.11n_20MHz_WLAN1_5240MHz



802.11n_20MHz_WLAN1_5180MHz



802.11n_20MHz_WLAN1_5260MHz

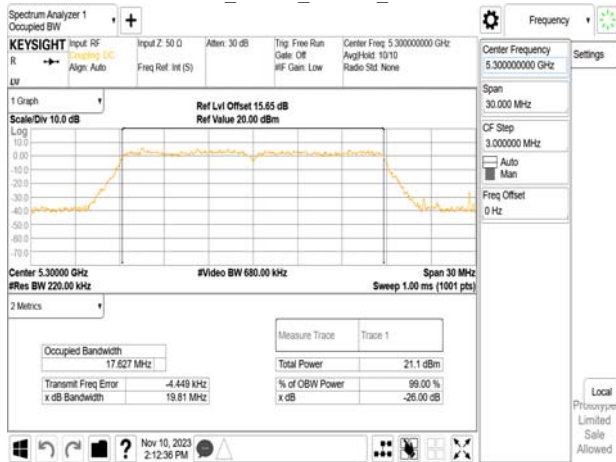


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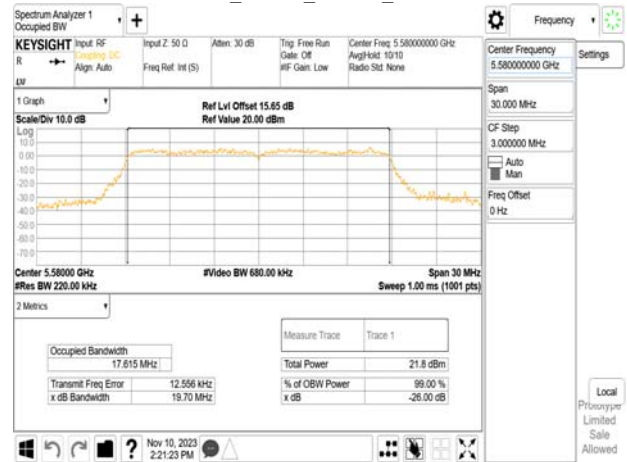
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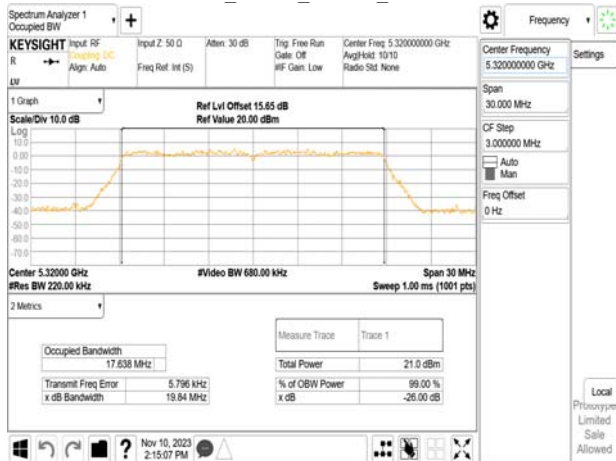
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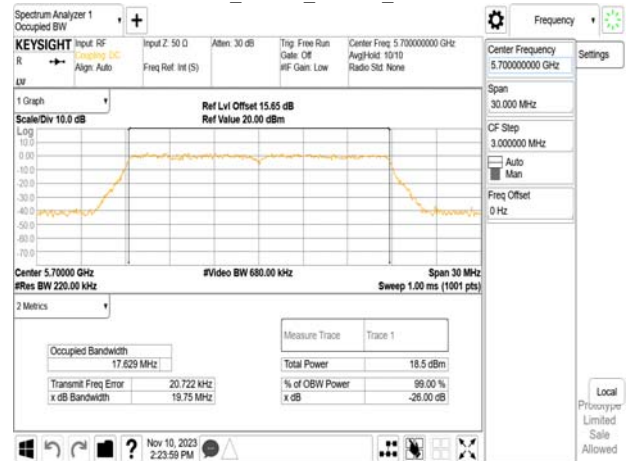
802.11n_20MHz_WLAN1_5580MHz



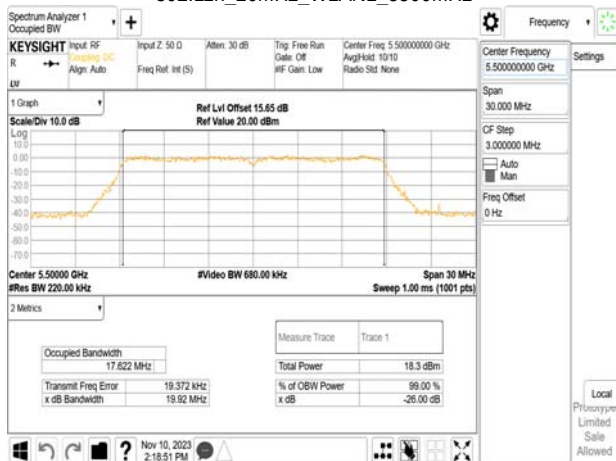
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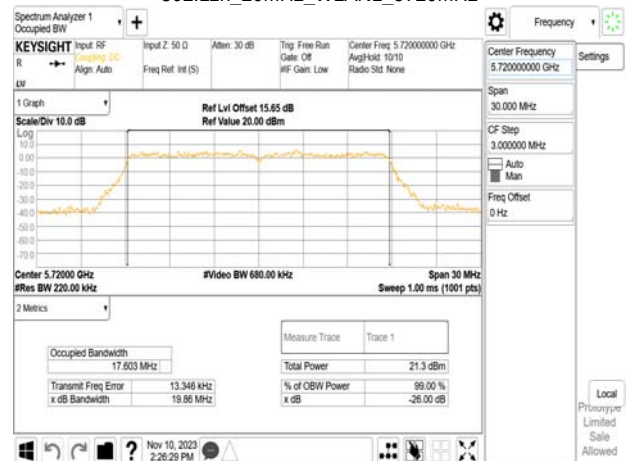
802.11n_20MHz_WLAN1_5700MHz



802.11n_20MHz_WLAN1_5500MHz



802.11n_20MHz_WLAN1_5720MHz



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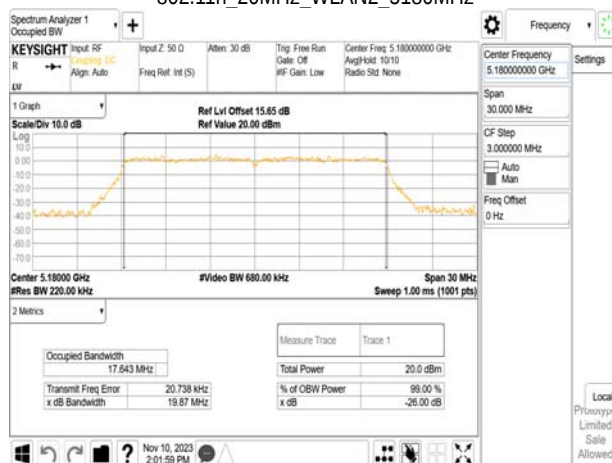
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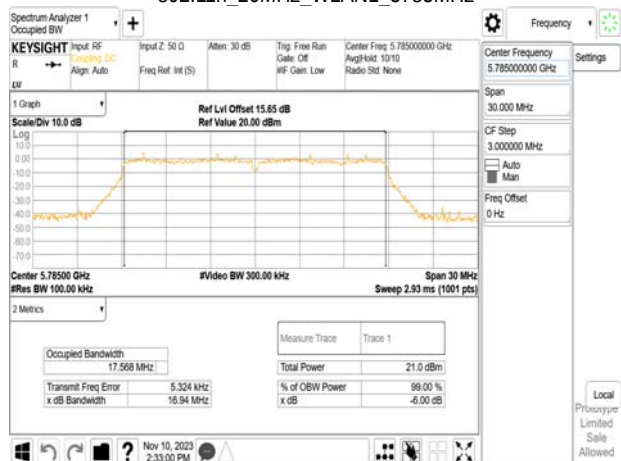
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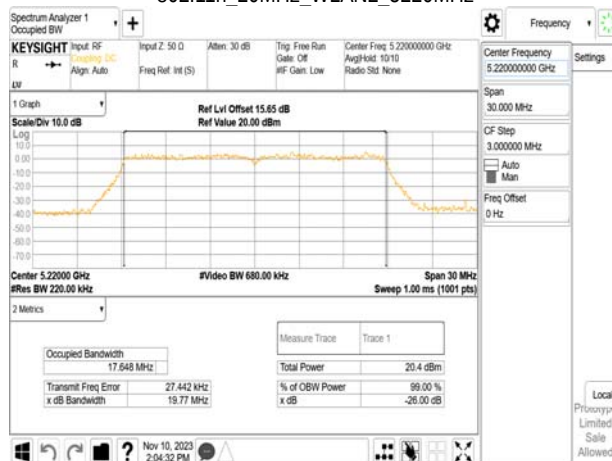
802.11n_20MHz_WLAN2_5180MHz



802.11n_20MHz_WLAN1_5785MHz



802.11n_20MHz_WLAN2_5220MHz



802.11n_20MHz_WLAN1_5825MHz



802.11n_20MHz_WLAN2_5240MHz

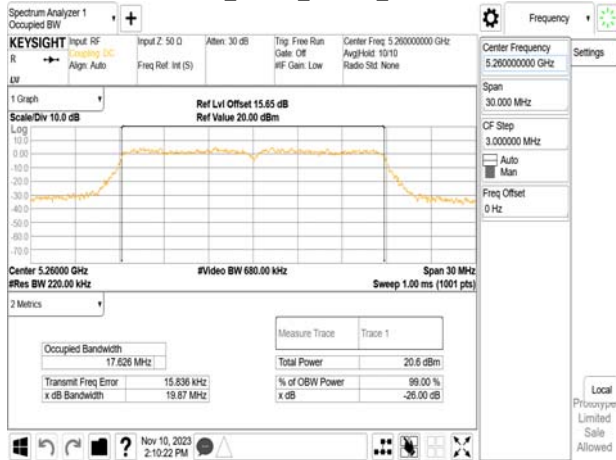


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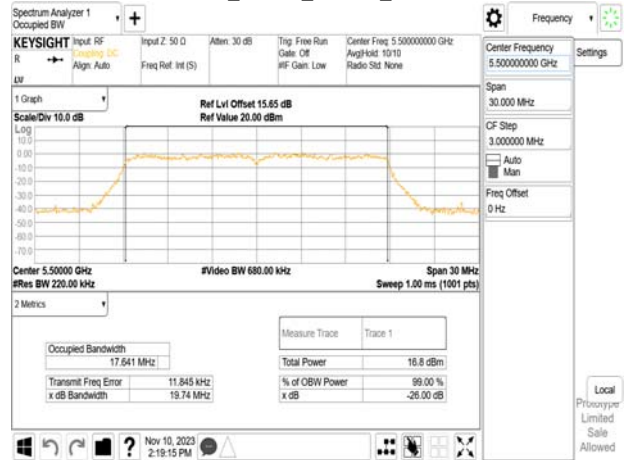
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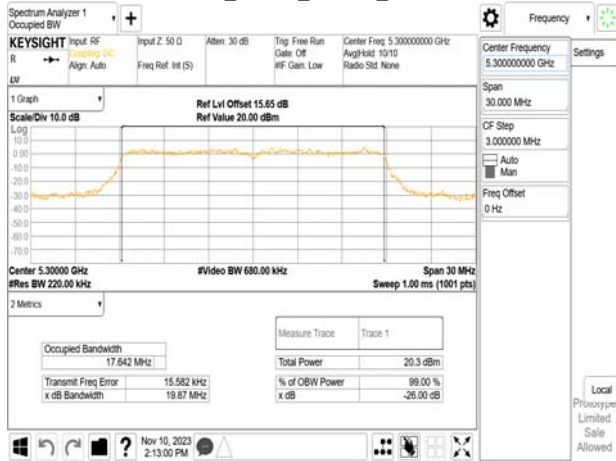
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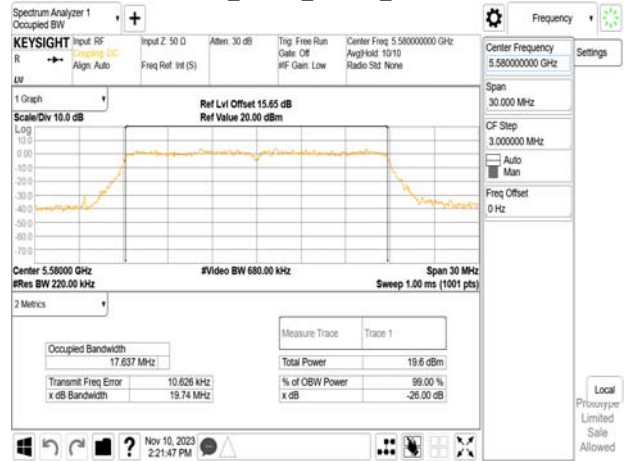
802.11n_20MHz_WLAN2_5500MHz



802.11n_20MHz_WLAN2_5300MHz



802.11n_20MHz_WLAN2_5580MHz



802.11n_20MHz_WLAN2_5320MHz



802.11n_20MHz_WLAN2_5700MHz



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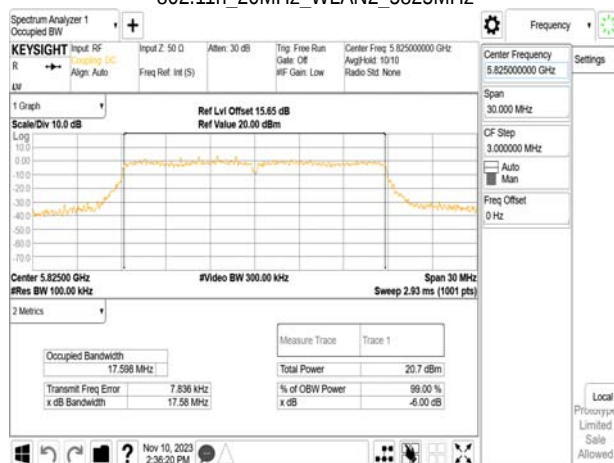
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802.11n_20MHz_WLAN2_5720MHz



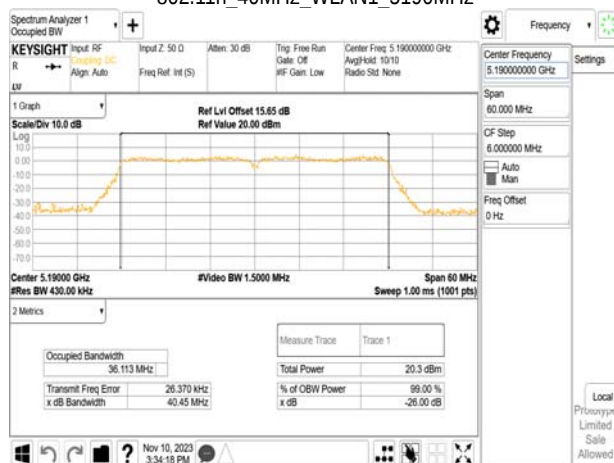
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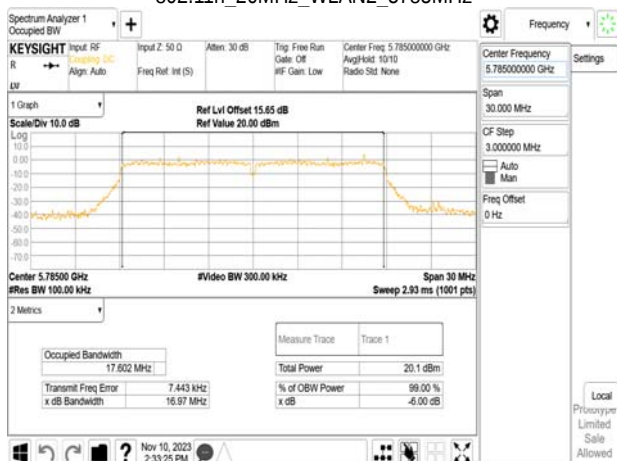
802.11n_20MHz_WLAN2_5745MHz



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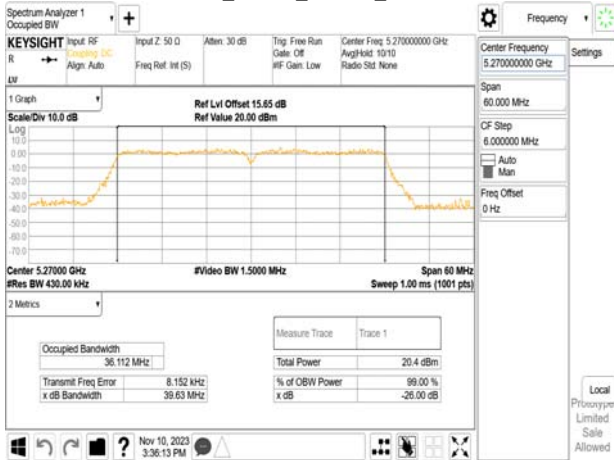


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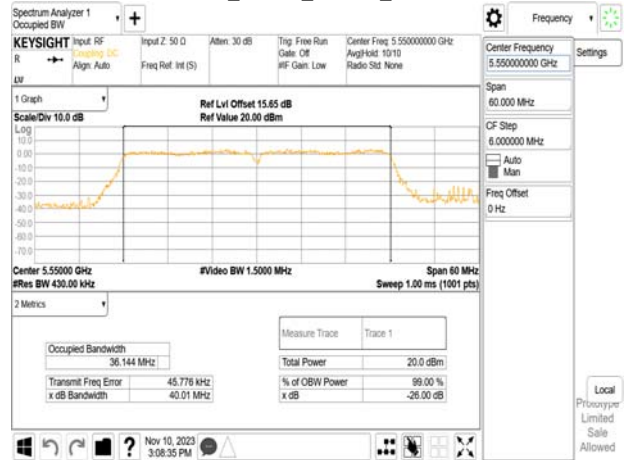
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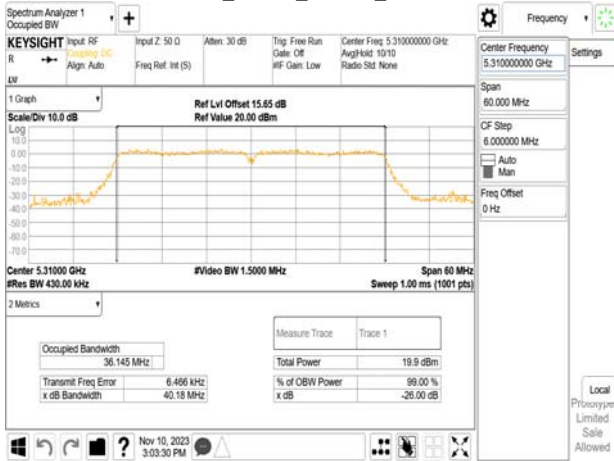
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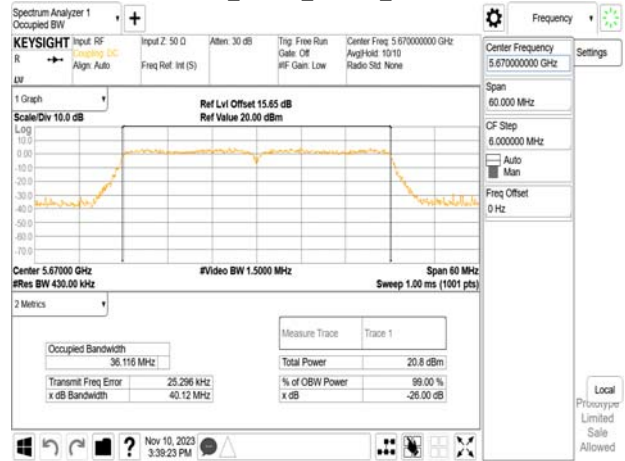
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802.11n_40MHz_WLAN1_5310MHz



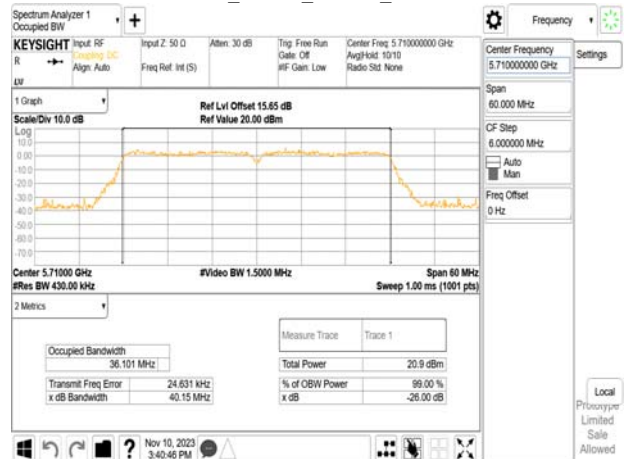
802.11n_40MHz_WLAN1_5670MHz



802.11n_40MHz_WLAN1_5510MHz



802.11n_40MHz_WLAN1_5710MHz



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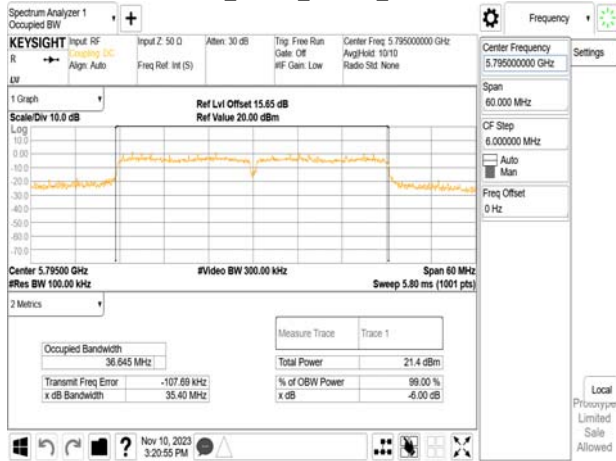
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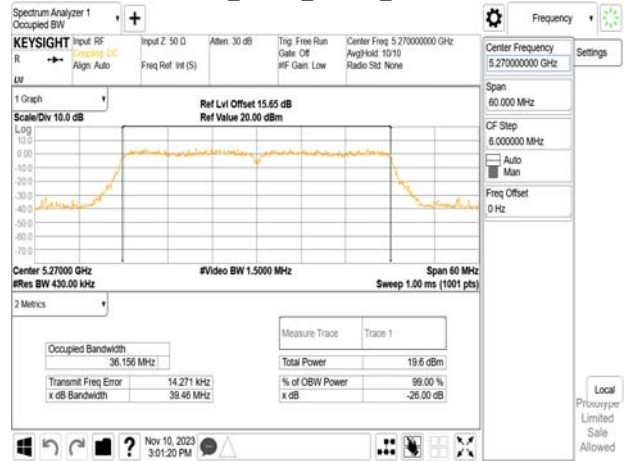
802.11n_40MHz_WLAN2_5230MHz



802.11n_40MHz_WLAN1_5795MHz



802.11n_40MHz_WLAN2_5270MHz



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802.11n_40MHz_WLAN2_5310MHz

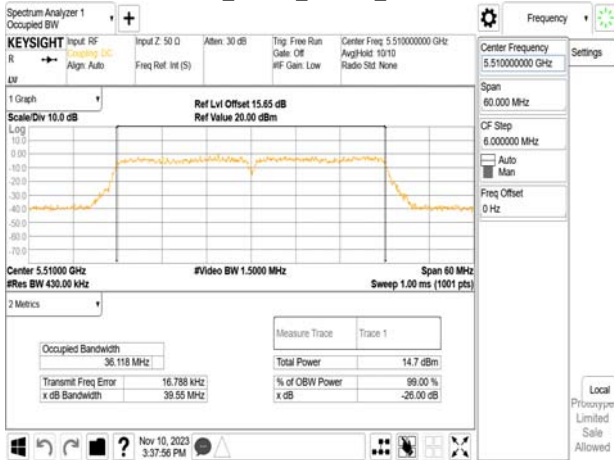


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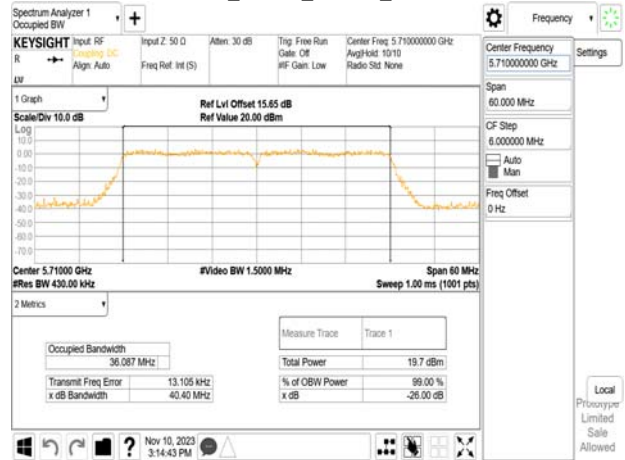
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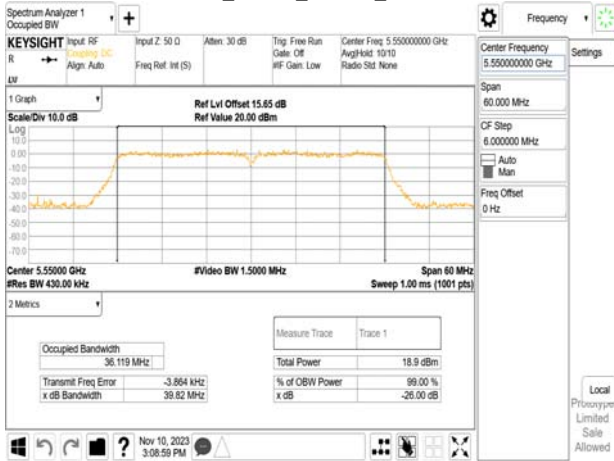
802.11n_40MHz_WLAN2_5510MHz



802.11n_40MHz_WLAN2_5710MHz



802.11n_40MHz_WLAN2_5550MHz



802.11n_40MHz_WLAN2_5755MHz



802.11n_40MHz_WLAN2_5670MHz



802.11n_40MHz_WLAN2_5795MHz



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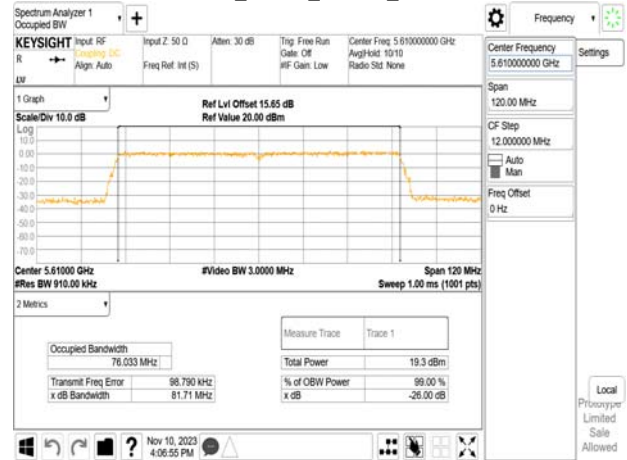
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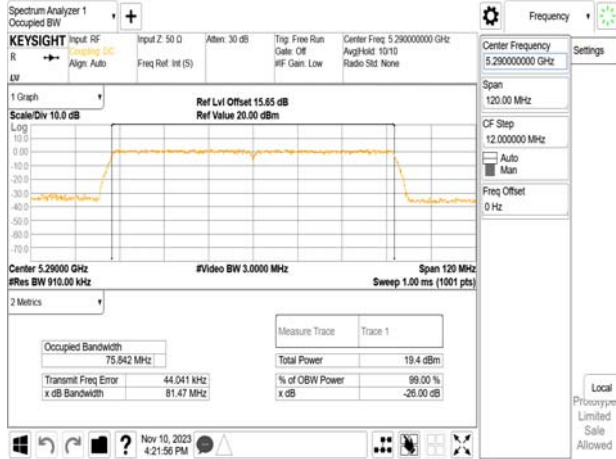
802.11ac_80MHz_WLAN1_5210MHz



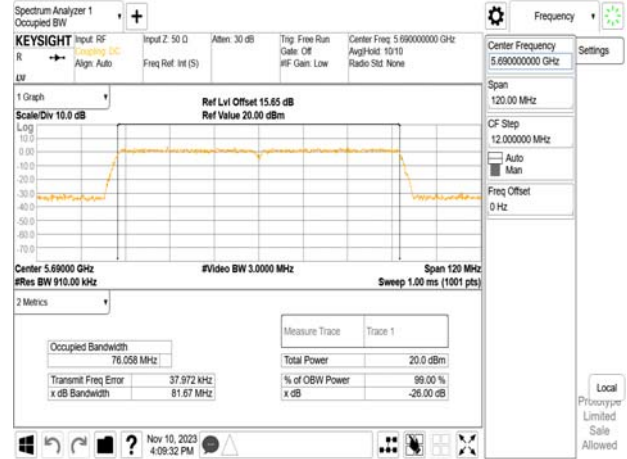
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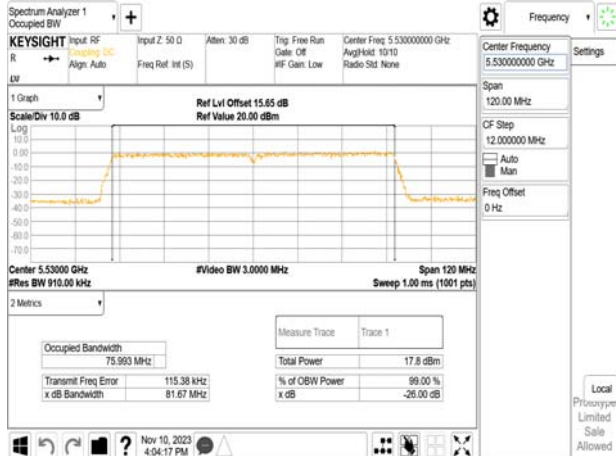
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802.11ac_80MHz_WLAN1_5690MHz



802.11ac_80MHz_WLAN1_5530MHz



802.11ac_80MHz_WLAN1_5775MHz



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f (886-2) 2298-0488

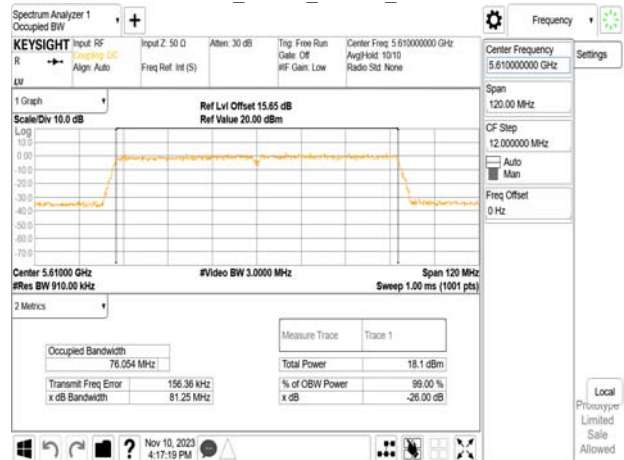
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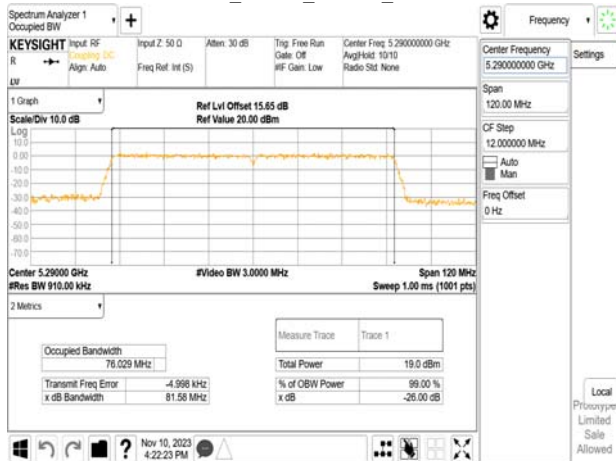
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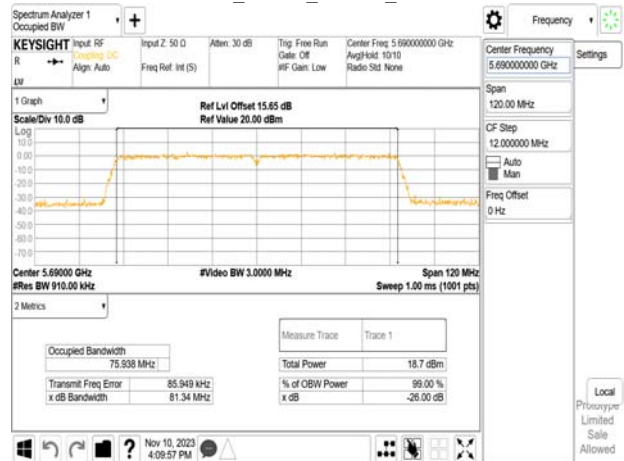
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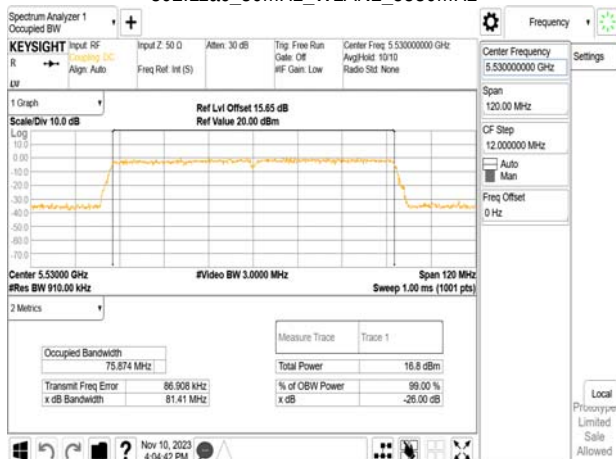
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802.11ac_80MHz_WLAN2_5690MHz



802.11ac_80MHz_WLAN2_5530MHz



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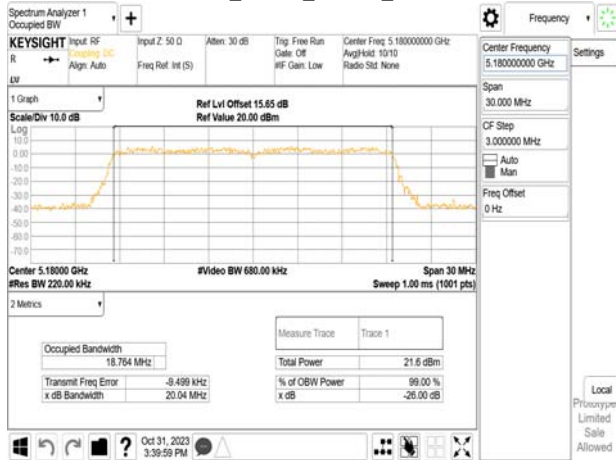


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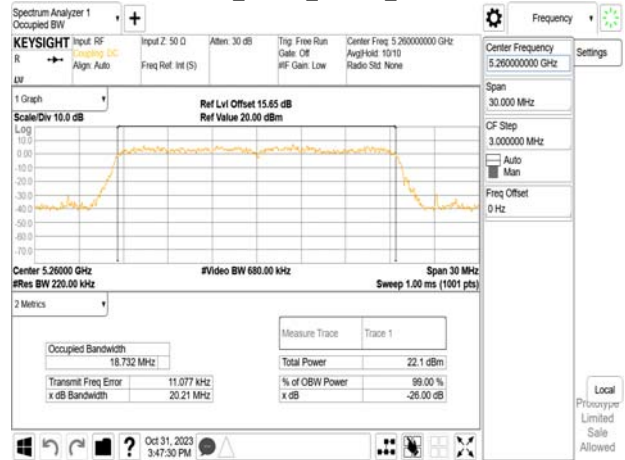
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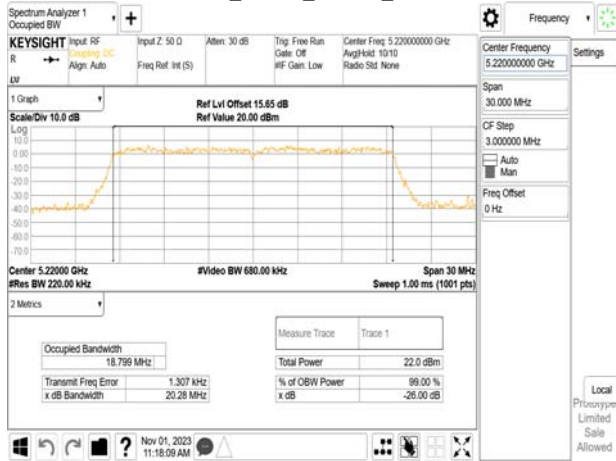
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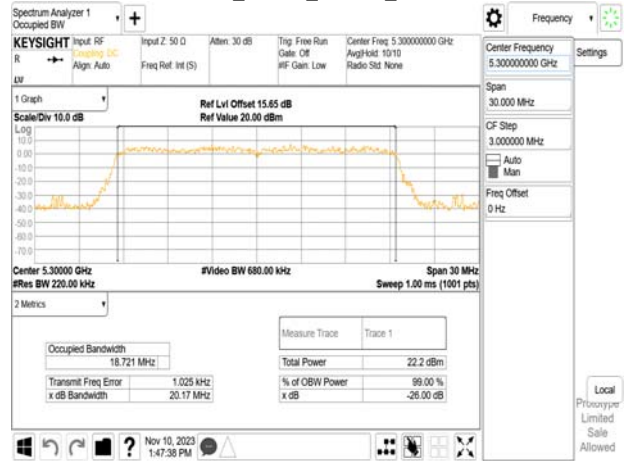
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802.11ax_20MHz_WLAN1_5220MHz



802.11ax_20MHz_WLAN1_5300MHz



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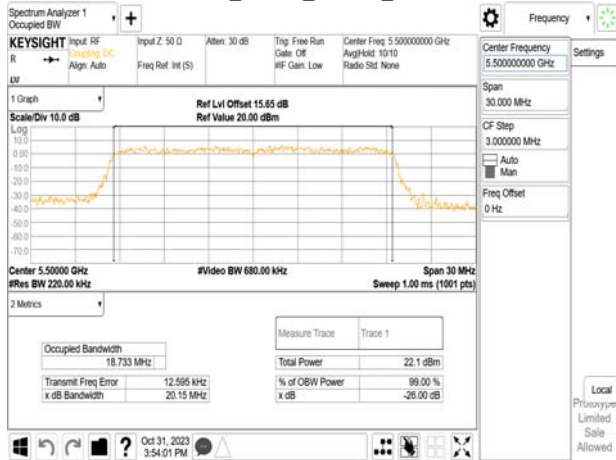


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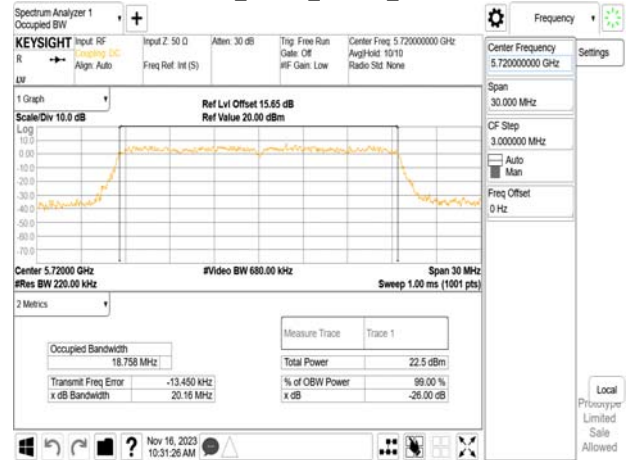
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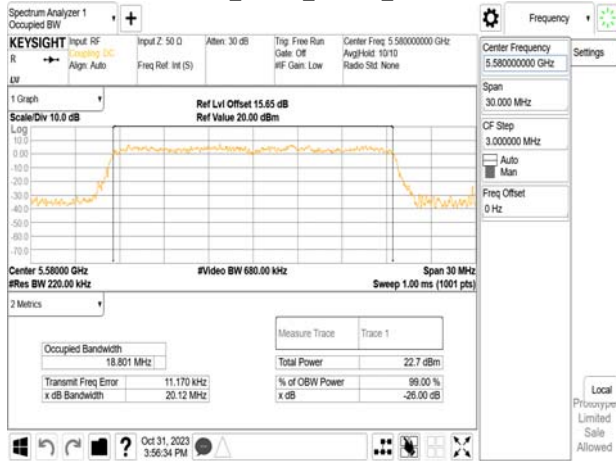
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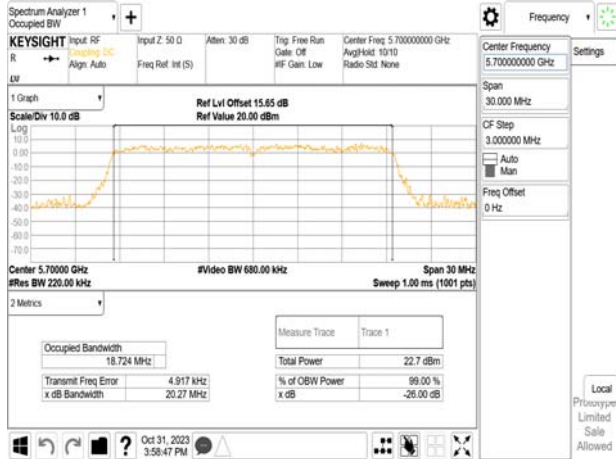
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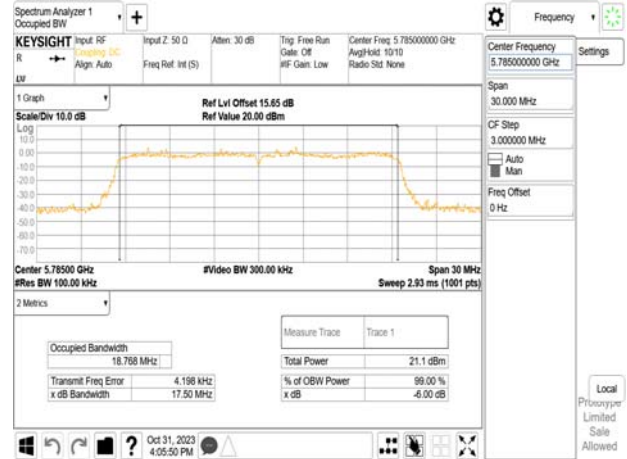
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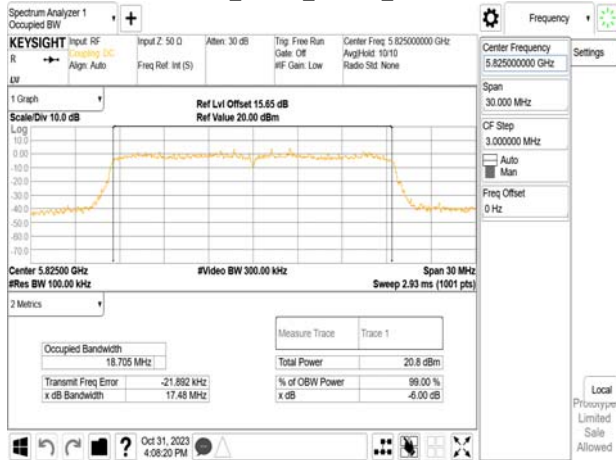


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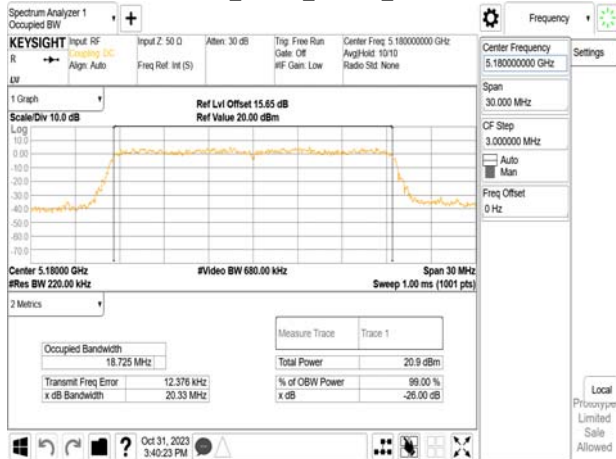
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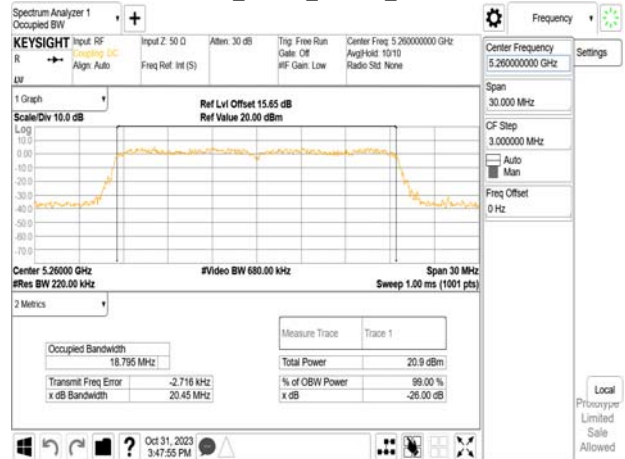
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802.11ax_20MHz_WLAN2_5180MHz



802.11ax_20MHz_WLAN2_5260MHz



802.11ax_20MHz_WLAN2_5220MHz



802.11ax_20MHz_WLAN2_5300MHz



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台灣檢驗科技股份有限公司

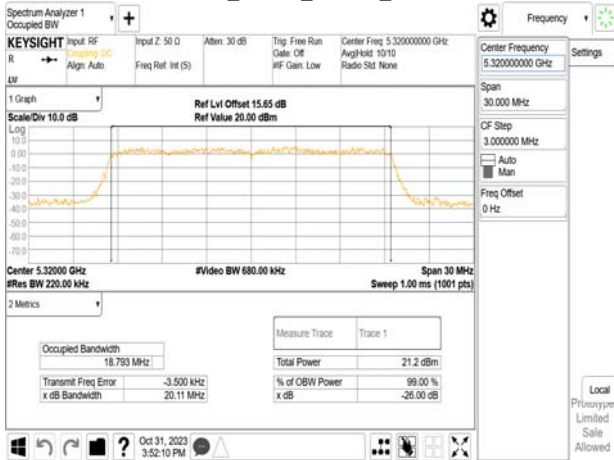
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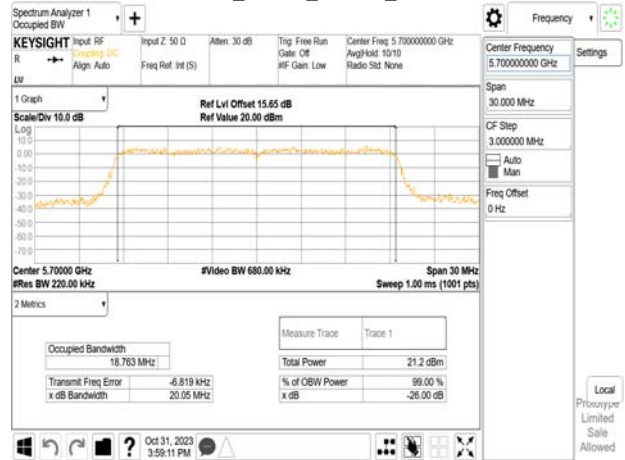
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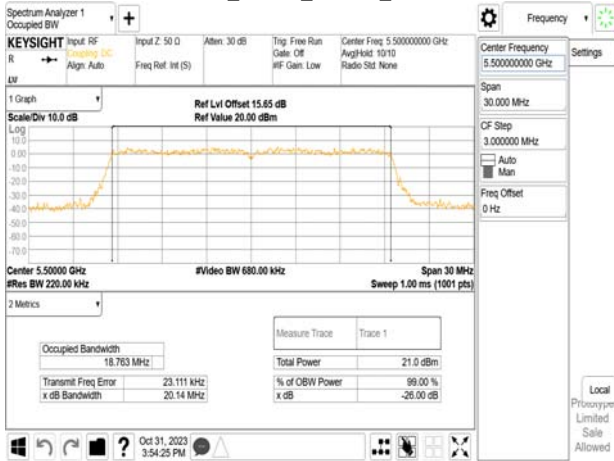
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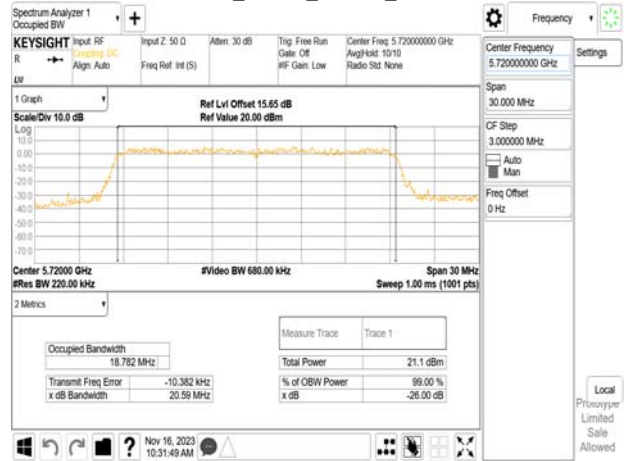
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802.11ax_20MHz_WLAN2_5500MHz



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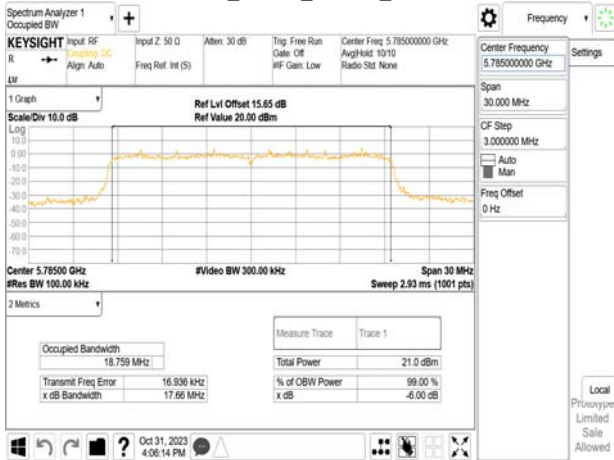


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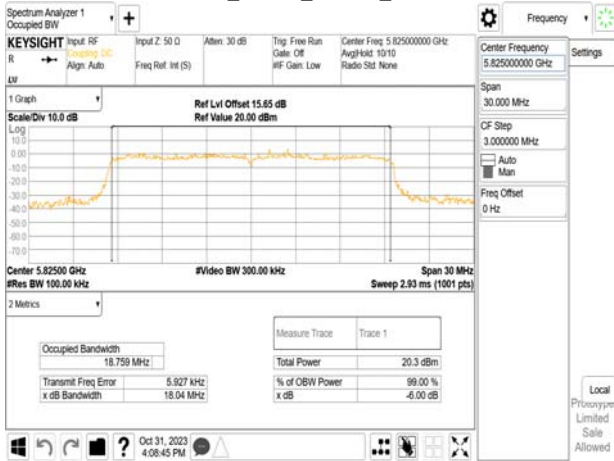
802.11ax_20MHz_WLAN2_5785MHz



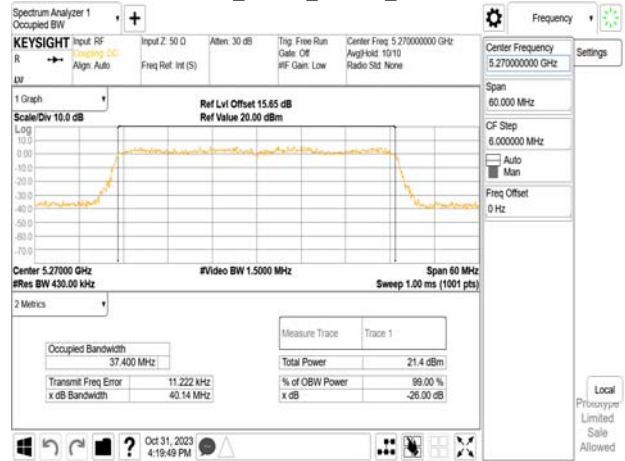
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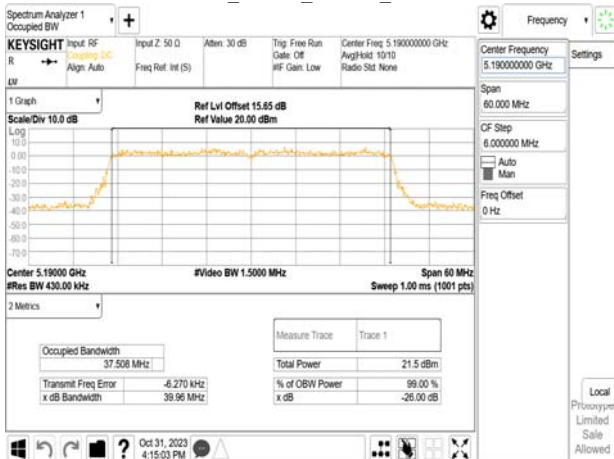
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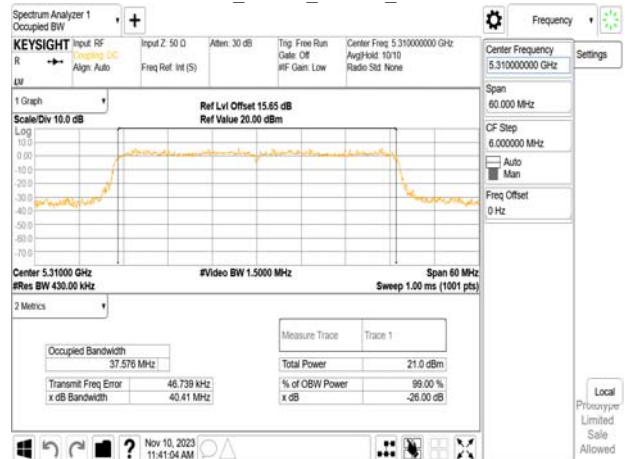
802.11ax_40MHz_WLAN1_5270MHz



802.11ax_40MHz_WLAN1_5190MHz



802.11ax_40MHz_WLAN1_5310MHz

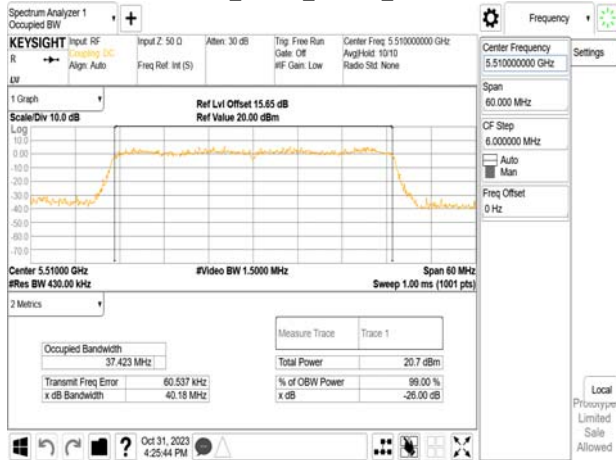


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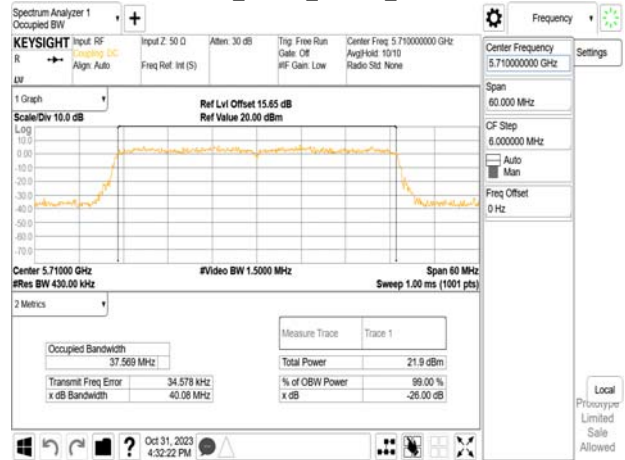
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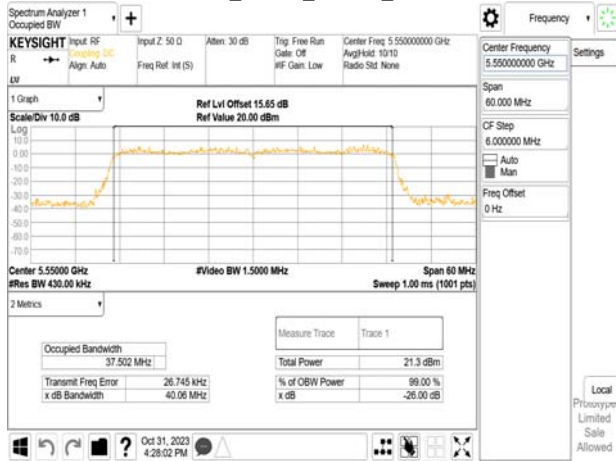
802.11ax_40MHz_WLAN1_5510MHz



802.11ax_40MHz_WLAN1_5710MHz



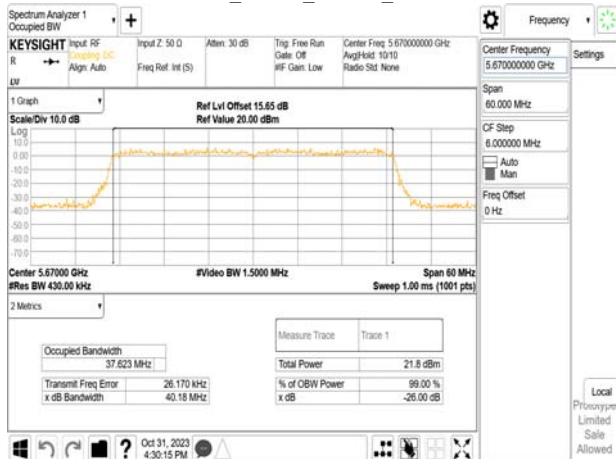
802.11ax_40MHz_WLAN1_5550MHz



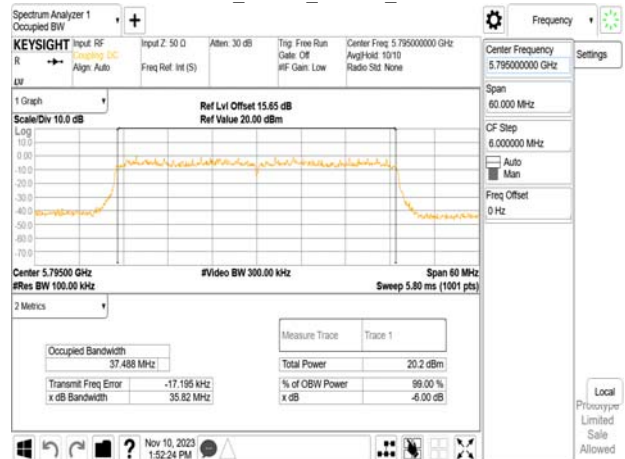
802.11ax_40MHz_WLAN1_5755MHz



802.11ax_40MHz_WLAN1_5670MHz



802.11ax_40MHz_WLAN1_5795MHz

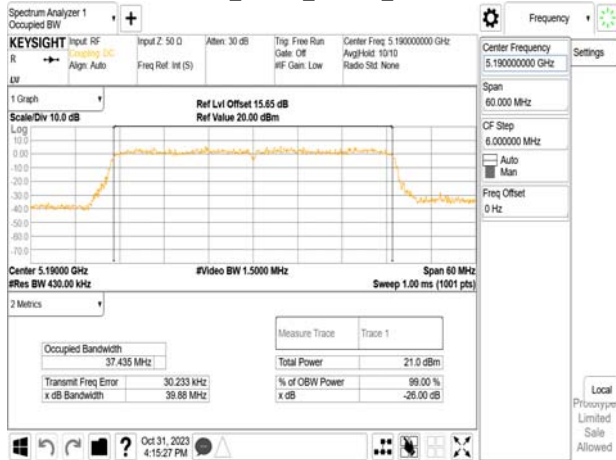


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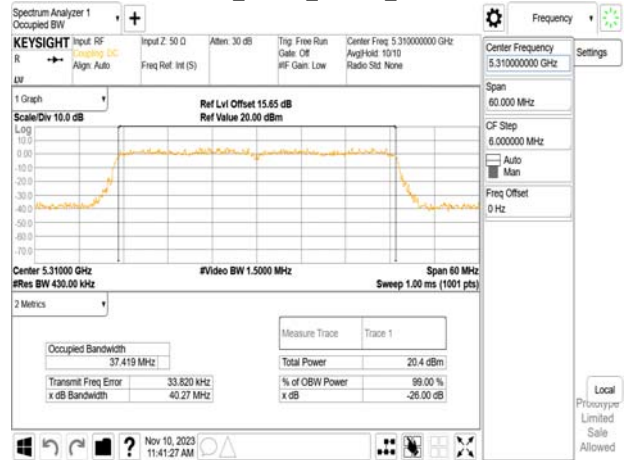
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802.11ax_40MHz_WLAN2_5190MHz



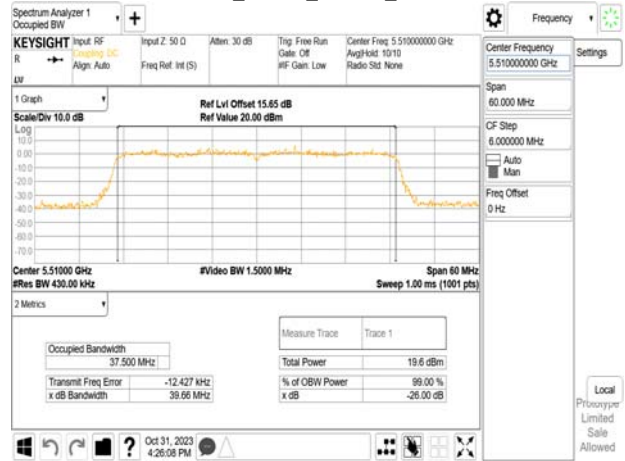
802.11ax_40MHz_WLAN2_5310MHz



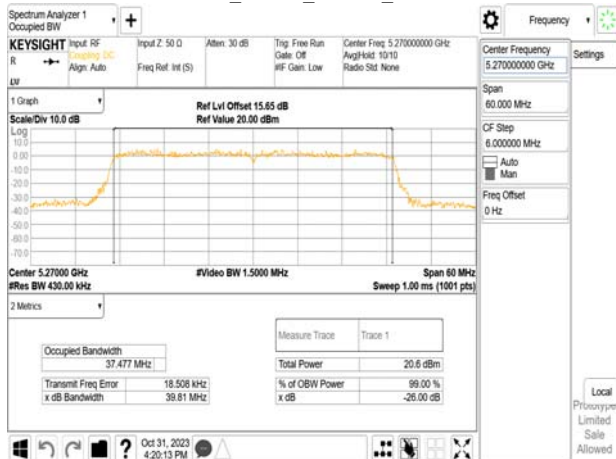
802.11ax_40MHz_WLAN2_5230MHz



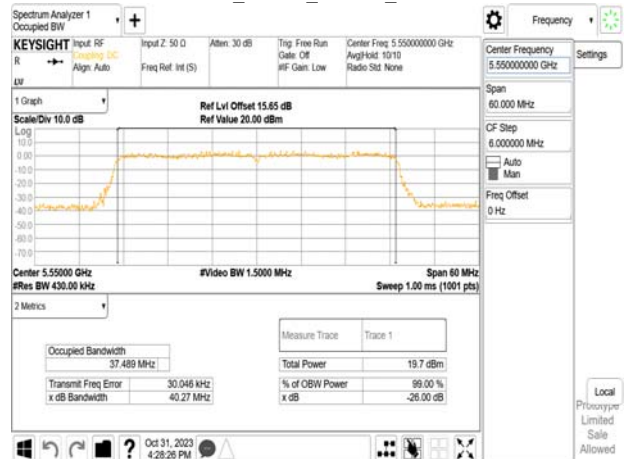
802.11ax_40MHz_WLAN2_5510MHz



802.11ax_40MHz_WLAN2_5270MHz



802.11ax_40MHz_WLAN2_5550MHz

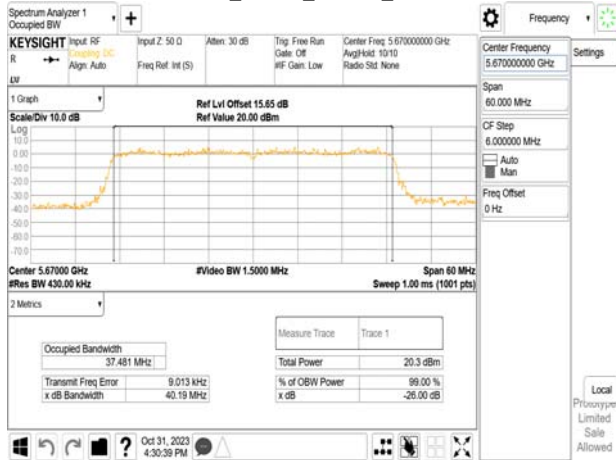


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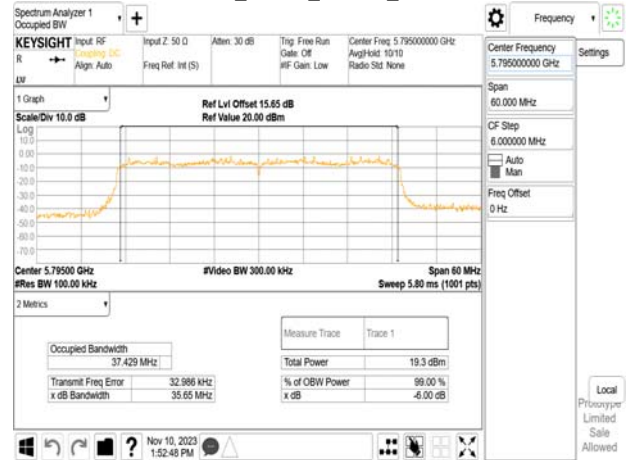
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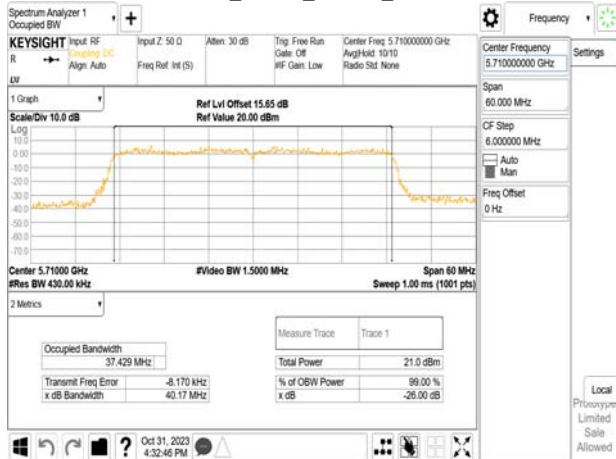
802.11ax_40MHz_WLAN2_5670MHz



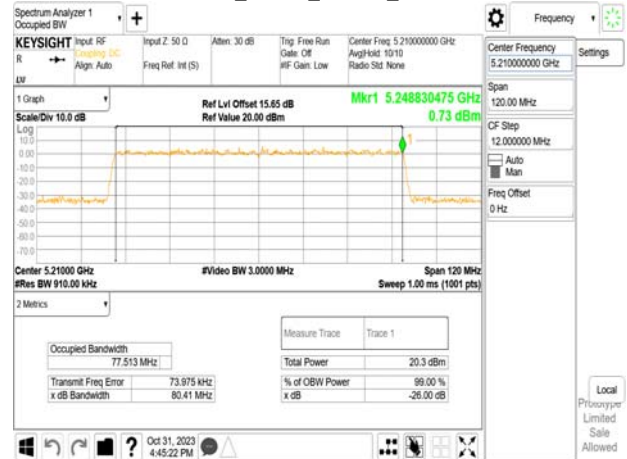
802.11ax_40MHz_WLAN2_5795MHz



802.11ax_40MHz_WLAN2_5710MHz



802.11ax_80MHz_WLAN1_5210MHz



802.11ax_40MHz_WLAN2_5755MHz



802.11ax_80MHz_WLAN1_5290MHz

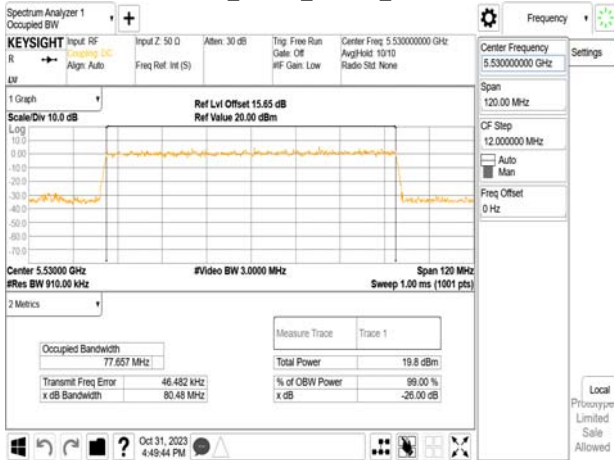


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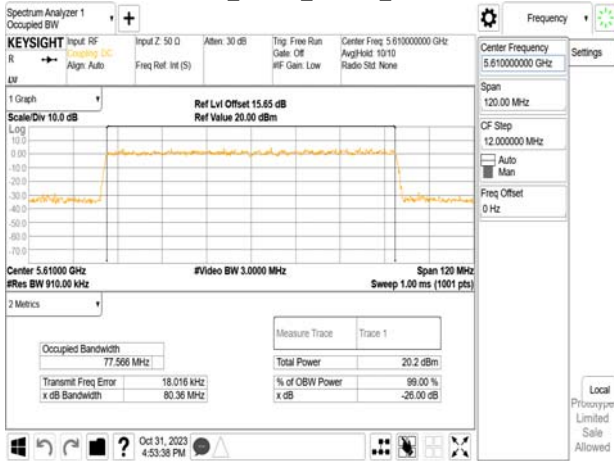
802.11ax_80MHz_WLAN1_5530MHz



802.11ax_80MHz_WLAN1_5775MHz



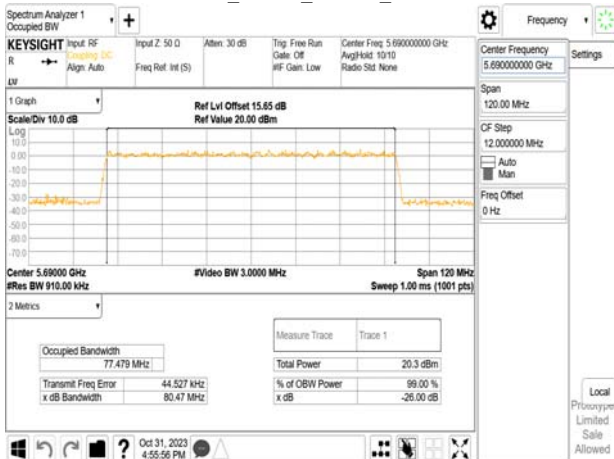
802.11ax_80MHz_WLAN1_5610MHz



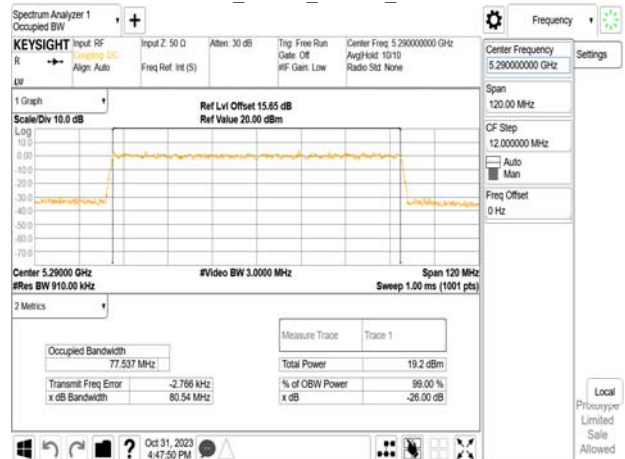
802.11ax_80MHz_WLAN2_5210MHz



802.11ax_80MHz_WLAN1_5690MHz



802.11ax_80MHz_WLAN2_5290MHz

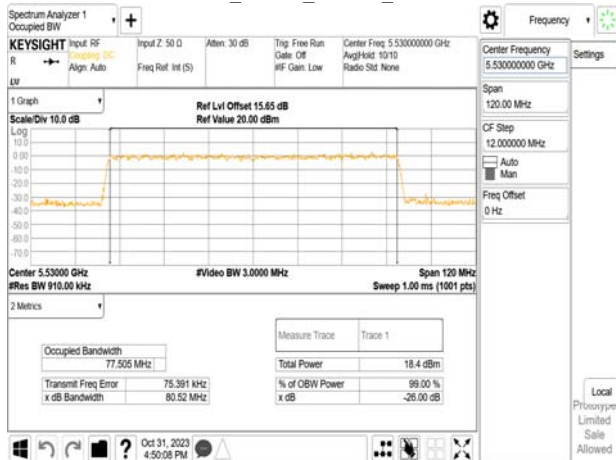


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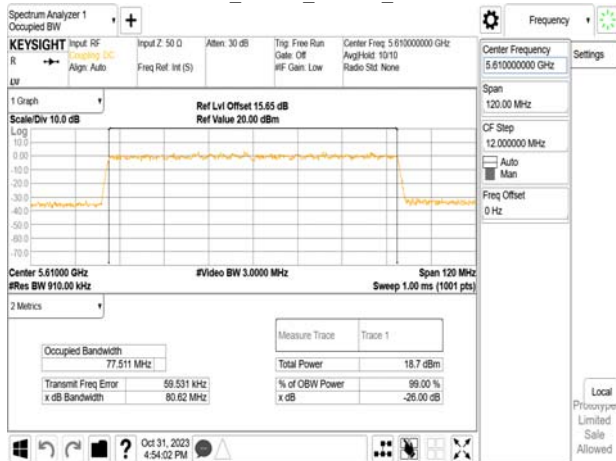
802.11ax_80MHz_WLAN2_5530MHz



802.11ax_80MHz_WLAN2_5775MHz



802.11ax_80MHz_WLAN2_5610MHz



802.11ax_80MHz_WLAN2_5690MHz



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台灣檢驗科技股份有限公司

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8.4.2 ISED Occupied Bandwidth

802.11a_WLAN1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.577	12.200
5220	16.580	12.200
5240	16.538	12.180
5260	16.582	12.200
5300	16.581	12.200
5320	16.545	12.190
5500	16.545	12.190
5580	16.749	12.240
5700	16.860	12.270
5720(U-NII 2C)	13.445	11.290
5720(U-NII 3)	3.445	5.370

802.11a_WLAN2

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.567	12.190
5220	16.516	12.180
5240	16.547	12.190
5260	16.523	12.180
5300	16.539	12.190
5320	16.539	12.190
5500	16.528	12.180
5580	16.540	12.190
5700	16.532	12.180
5720(U-NII 2C)	13.267	11.230
5720(U-NII 3)	3.267	5.140

802.11a_WLAN1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	16.558	16.390
5785	16.575	16.430
5825	16.523	16.410

802.11a_WLAN2

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	16.519	16.450
5785	16.587	16.440
5825	16.536	16.420

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802.11n_HT20_WLAN1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.620	12.460
5220	17.609	12.460
5240	17.604	12.460
5260	17.598	12.450
5300	17.617	12.460
5320	17.609	12.460
5500	17.619	12.460
5580	17.596	12.450
5700	17.587	12.450
5720(U-NII 2C)	13.811	11.400
5720(U-NII 3)	3.811	5.810

802.11n_HT20_WLAN2

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.642	12.470
5220	17.628	12.460
5240	17.626	12.460
5260	17.633	12.460
5300	17.639	12.460
5320	17.635	12.460
5500	17.639	12.460
5580	17.620	12.460
5700	17.634	12.460
5720(U-NII 2C)	13.803	11.400
5720(U-NII 3)	3.803	5.800

802.11n_HT20_WLAN1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.623	17.610
5785	17.603	17.590
5825	17.627	17.590

802.11n_HT20_WLAN2

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5745	17.610	17.570
5785	17.630	17.580
5825	17.613	17.590

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802.11n_HT40_WLAN1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.098	15.570
5230	36.125	15.580
5270	36.127	15.580
5310	36.088	15.570
5510	36.103	15.580
5550	36.096	15.570
5670	36.530	15.630
5710(U-NII 2C)	33.266	15.220
5710(U-NII 3)	3.266	5.140

802.11n_HT40_WLAN2

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.081	15.570
5230	36.137	15.580
5270	36.134	15.580
5310	36.040	15.570
5510	36.141	15.580
5550	36.117	15.580
5670	36.115	15.580
5710(U-NII 2C)	33.087	15.200
5710(U-NII 3)	3.087	4.900

802.11n_HT40_WLAN1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	36.528	35.980
5795	36.966	36.170

802.11n_HT40_WLAN2

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5755	36.126	36.190
5795	36.040	36.060

802.11ac_VHT80_WLAN1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	76.078	18.810
5290	75.965	18.810
5530	76.059	18.810
5610	76.015	18.810
5690(U-NII 2C)	72.991	18.630
5690(U-NII 3)	2.991	4.760

802.11ac_VHT80_WLAN2

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	75.937	18.800
5290	76.112	18.810
5530	75.857	18.800
5610	75.796	18.800
5690(U-NII 2C)	72.980	18.630
5690(U-NII 3)	2.980	4.740

802.11ac_VHT80_WLAN1

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	75.858	76.390

802.11ac_VHT80_WLAN2

Frequency (MHz)	99% BW (MHz)	6dB BW (MHz)
5775	75.996	76.290

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802.11ax_HE20_WLAN1

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5180	full	18.745	12.730
5220	full	18.737	12.730
5240	full	18.750	12.730
5260	full	18.761	12.730
5300	full	18.786	12.740
5320	full	18.731	12.730
5500	full	18.800	12.740
5580	full	18.769	12.730
5700	full	18.753	12.730
5720(U-NII 2C)	full	14.431	11.590
5720(U-NII 3)	full	4.431	6.470

802.11ax_HE20_WLAN2

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5180	full	18.718	12.720
5220	full	18.760	12.730
5240	full	18.774	12.740
5260	full	18.763	12.730
5300	full	18.781	12.740
5320	full	18.797	12.740
5500	full	18.757	12.730
5580	full	18.784	12.740
5700	full	18.740	12.730
5720(U-NII 2C)	full	14.380	11.580
5720(U-NII 3)	full	4.380	6.410

802.11ax_HE20_WLAN1

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5745	full	18.766	18.530
5785	full	18.736	18.400
5825	full	18.767	18.790

802.11ax_HE20_WLAN2

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5745	full	18.864	18.660
5785	full	18.777	18.730
5825	full	18.774	18.520

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802.11ax_HE40_WLAN1

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5190	full	37.476	15.740
5230	full	37.482	15.740
5270	full	37.493	15.740
5310	full	37.470	15.740
5510	full	37.484	15.740
5550	full	37.548	15.750
5670	full	37.798	15.770
5710(U-NII 2C)	full	33.718	15.280
5710(U-NII 3)	full	3.718	5.700

802.11ax_HE40_WLAN2

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5190	full	37.617	15.750
5230	full	37.544	15.750
5270	full	37.551	15.750
5310	full	37.485	15.740
5510	full	37.430	15.730
5550	full	37.502	15.740
5670	full	37.479	15.740
5710(U-NII 2C)	full	33.703	15.280
5710(U-NII 3)	full	3.703	5.690

802.11ax_HE40_WLAN1

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5755	full	37.483	36.420
5795	full	37.431	37.370

802.11ax_HE40_WLAN2

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5755	full	37.507	36.390
5795	full	37.560	37.750

802.11ax_HE80_WLAN1

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5210	full	77.570	18.900
5290	full	77.479	18.890
5530	full	77.637	18.900
5610	full	77.611	18.900
5690(U-NII 2C)	full	73.798	18.680
5690(U-NII 3)	full	3.798	5.800

802.11ax_HE80_WLAN2

Frequency (MHz)	RU config	99% BW (MHz)	10 Log (B) (dB)
5210	full	77.378	18.890
5290	full	77.514	18.890
5530	full	77.595	18.900
5610	full	77.587	18.900
5690(U-NII 2C)	full	73.712	18.680
5690(U-NII 3)	full	3.712	5.700

802.11ax_HE80_WLAN1

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5775	full	77.653	78.000

802.11ax_HE80_WLAN2

Frequency (MHz)	RU config	99% BW (MHz)	6dB BW (MHz)
5775	full	77.576	78.170

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台灣檢驗科技股份有限公司

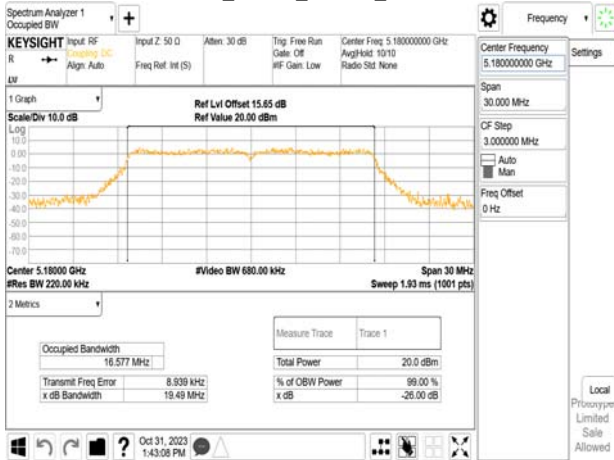
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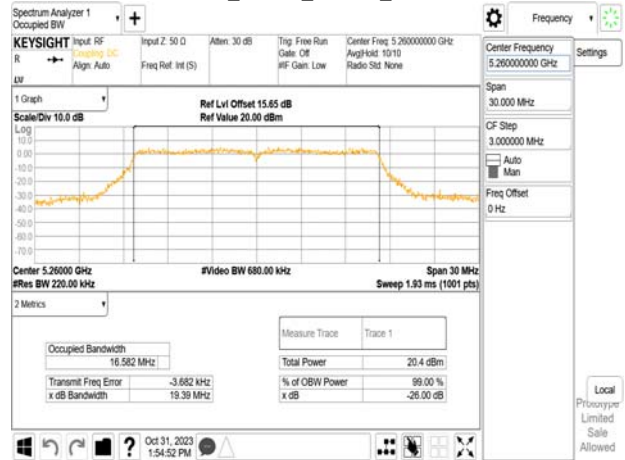
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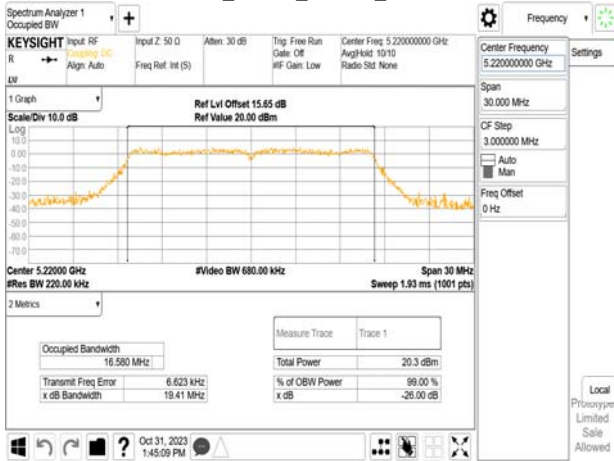
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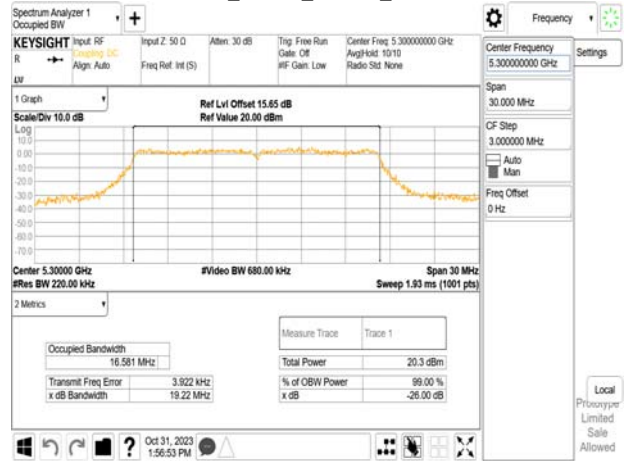
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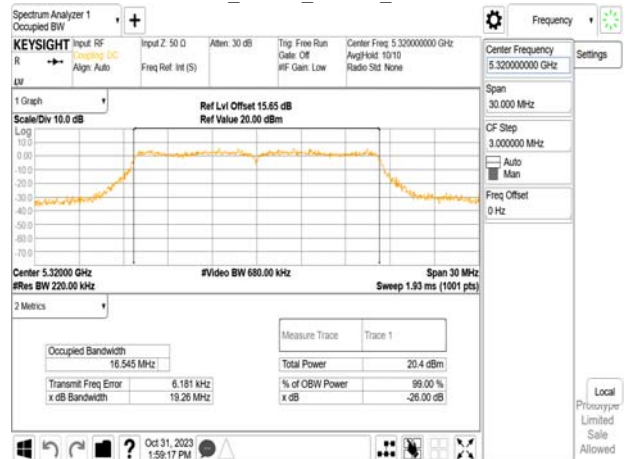
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802.11a_20MHz_WLAN1_5240MHz



802.11a_20MHz_WLAN1_5320MHz

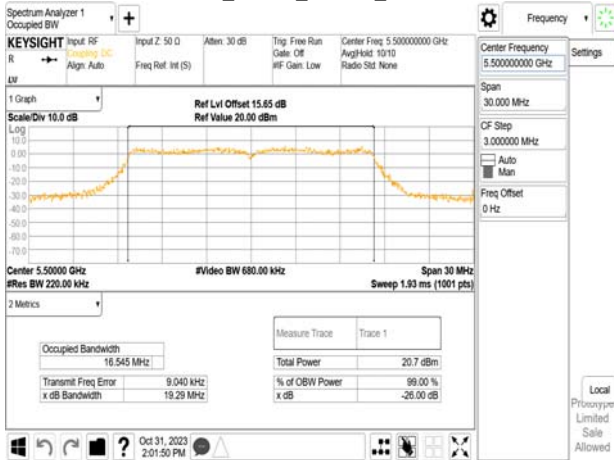


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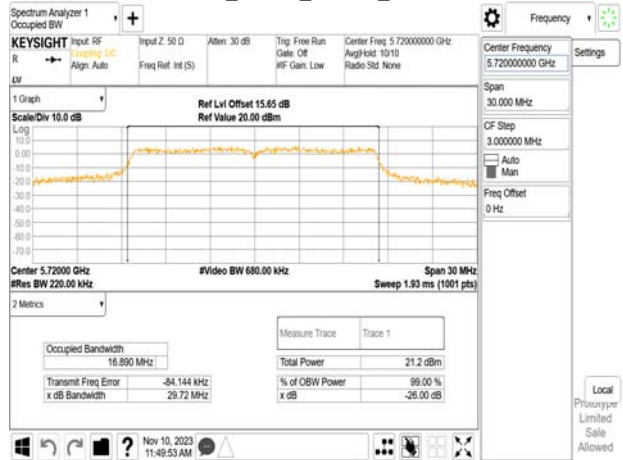
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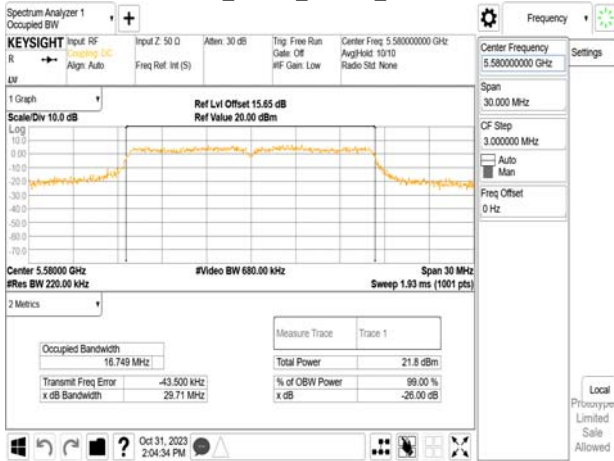
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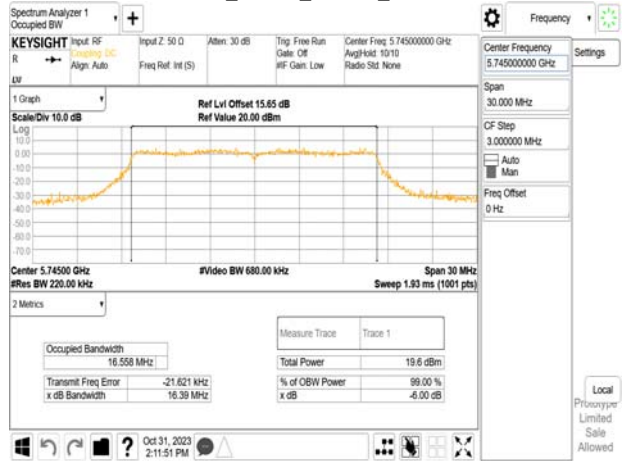
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802.11a_20MHz_WLAN1_5580MHz



802.11a_20MHz_WLAN1_5745MHz



802.11a_20MHz_WLAN1_5700MHz



802.11a_20MHz_WLAN1_5785MHz

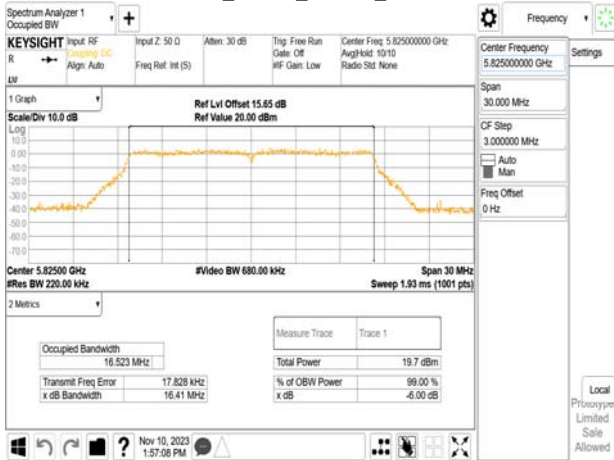


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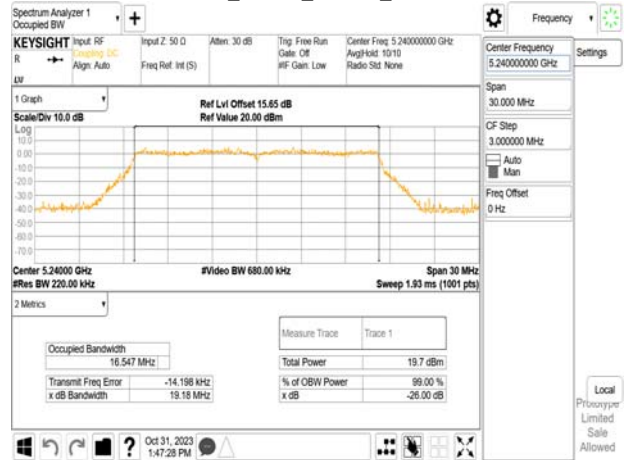
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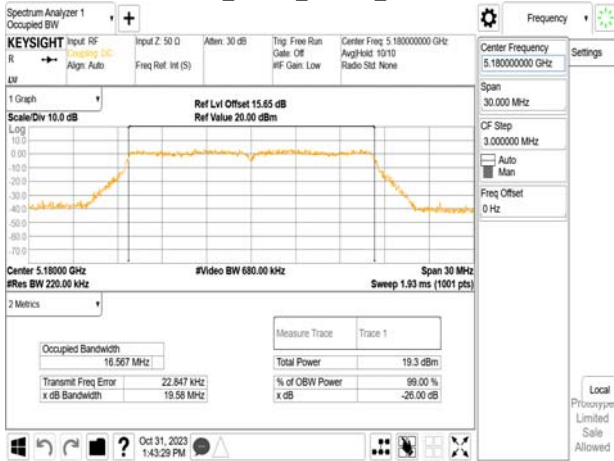
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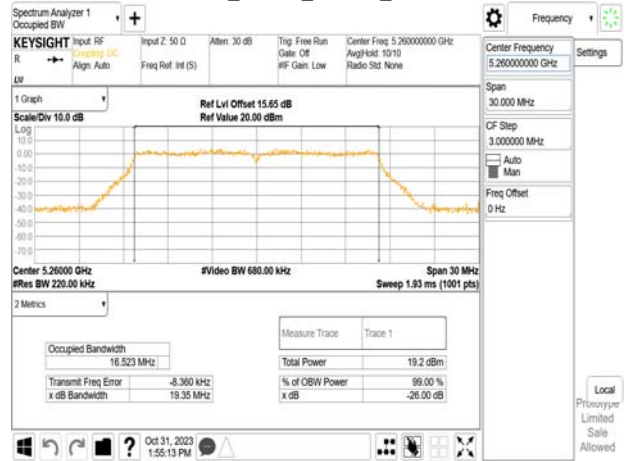
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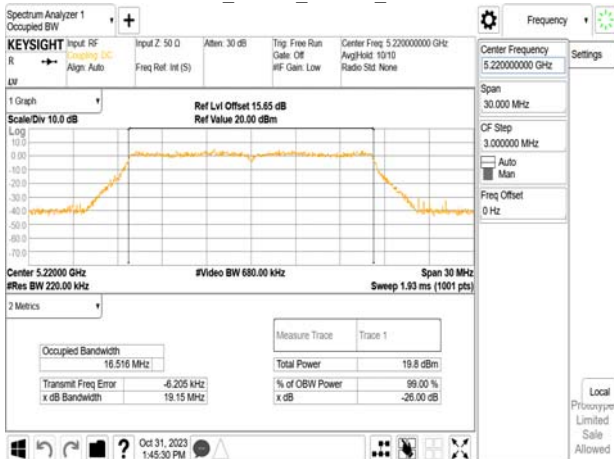
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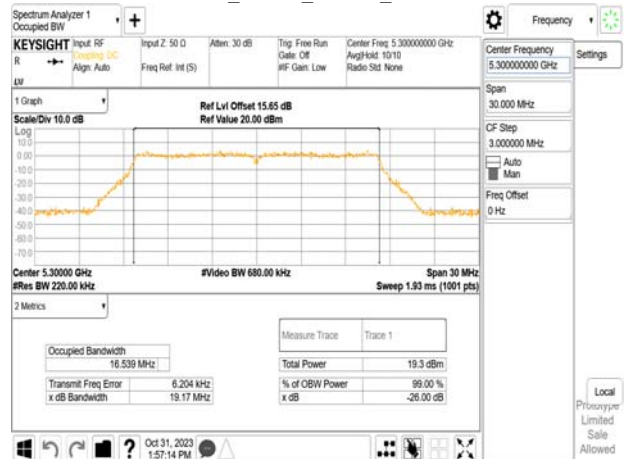
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802.11a_20MHz_WLAN2_5220MHz



802.11a_20MHz_WLAN2_5300MHz

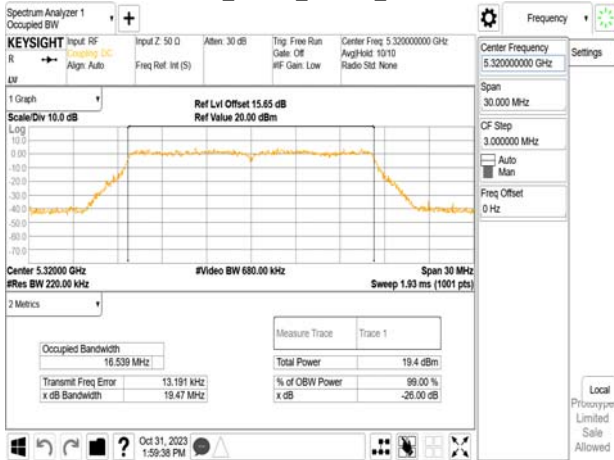


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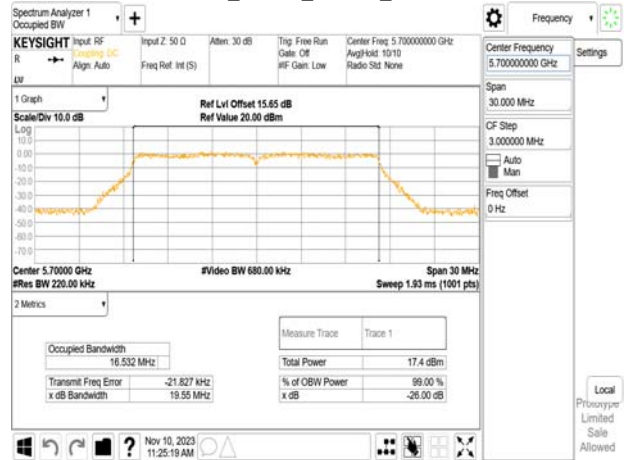
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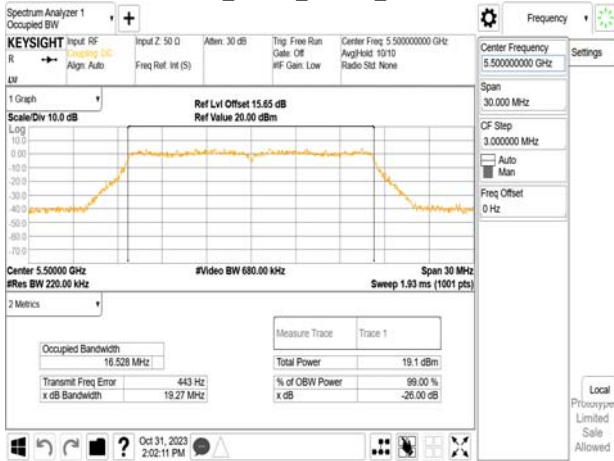
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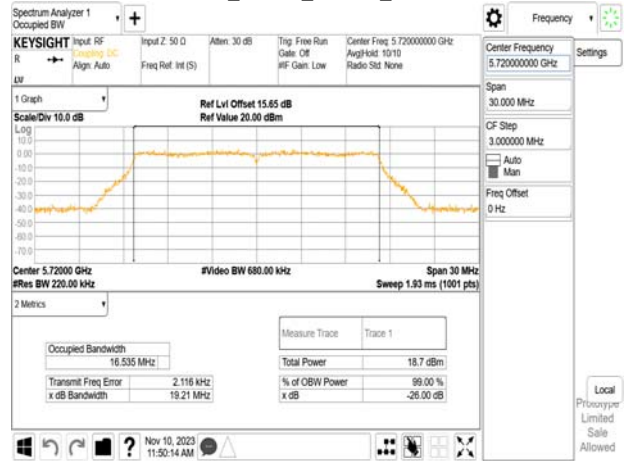
802.11a_20MHz_WLAN2_5700MHz



802.11a_20MHz_WLAN2_5500MHz



802.11a_20MHz_WLAN2_5720MHz



802.11a_20MHz_WLAN2_5580MHz



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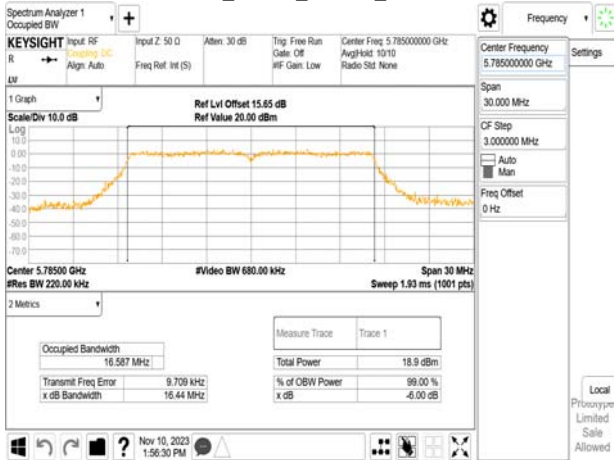


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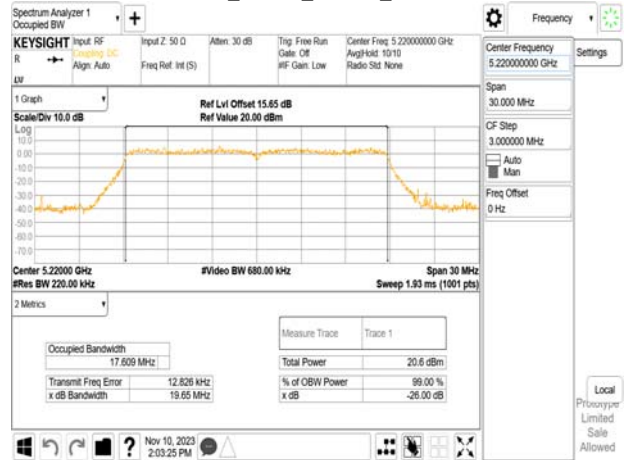
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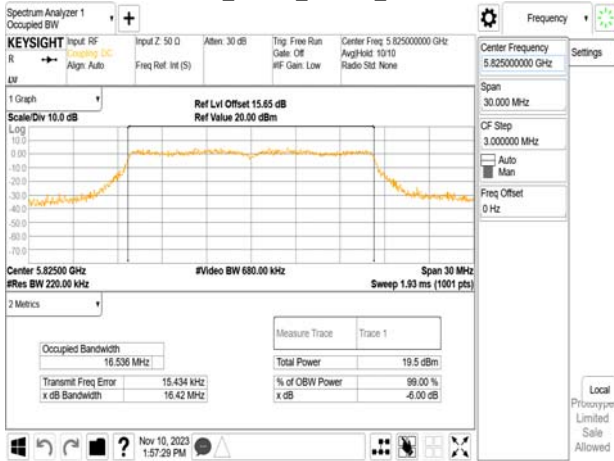
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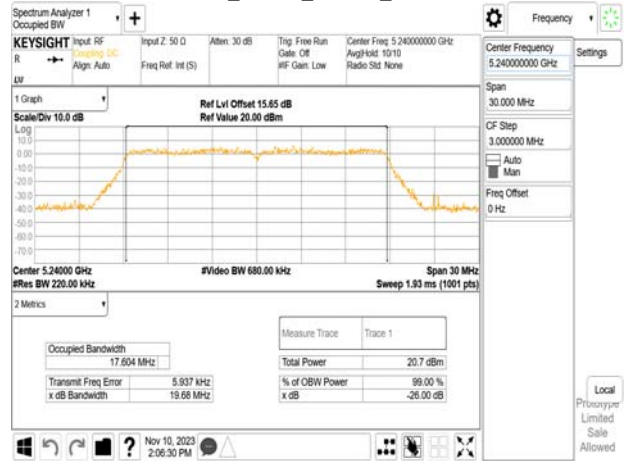
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802.11a_20MHz_WLAN2_5825MHz



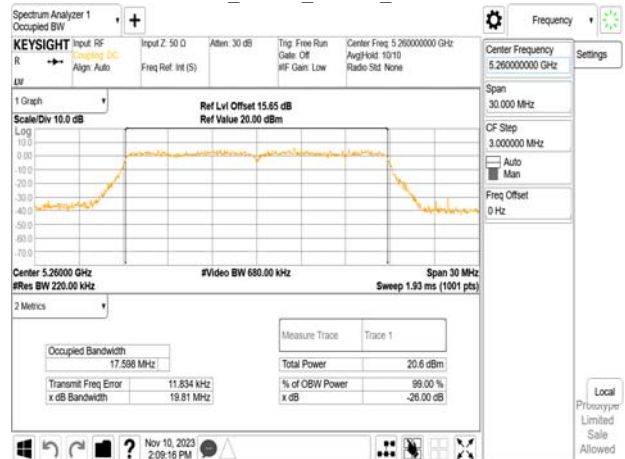
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802.11n_20MHz_WLAN1_5180MHz



802.11n_20MHz_WLAN1_5260MHz



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