ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Testing Laboratory 3702

FCC Applicant:	ASUSTeK COMPUTER INC. 1F.No.15.Lide Rd.Beitou Dist. Taipei City 112.taiwan
Product Name:	ASUS Phone (Mobile Phone)
Brand Name:	ASUS
Model No.:	ASUS_I006D
Model Difference:	N/A
Report Number:	ER/2021/20015
FCC ID	MSQI006D
Issue Date:	June 15, 2021
Date of Test:	January 26, 2021 - May 11, 2021
Date of EUT Received:	January 26, 2021

Approved By _____
Blue Yang / Asst. Manager

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.

Revision History				
Report Number	**Revision**	**Description**	**Issue Date**	**Revised By**
ER/2021/20015	Rev.00	Original.	June 15,2021	Viola Su

Note:

1、 Disclaimer
Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

2、 Measurement results in the original test report ER/2021/20007 are partially leveraged in this test report with spot check to demonstrate compliance.

Contents

1 GENERAL INFORMATION

1.1 Product Description

Product Name:	ASUS Phone (Mobile Phone)	
Brand Name:	ASUS	
Model No.:	ASUS_I006D	
Model Difference:	N/A	
Hardware Version:	V4	
Firmware Version:	Android 11	
EUT Series No.:	N/A	
Power Supply:	3.87Vdc from Rechargeable Li-polymer Battery or 5 / 9 / 12 / 15 / 20 Vdc from AC/DC Adapter	
	Battery	Model No: C11P2003 Brand: ASUS
	Adapter	Model No: A299-200150U-US Brand: ASUS

1.2 Modulation & Data Rate

Modulation type:	1024QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA in 802.11ax
	802.11 ax_20MHz: 8.6 - 286.8 Mbps
	802.11 ax_40MHz: 17.2 - 573.6 Mbps
	802.11 ax_80MHz: 36 - 1201 Mbps
	802.11 ax_160MHz: 68 - 2402 Mbps

1.3 Antenna Designation

Antenna Type	Freq. (MHz)	Peak Antenna Gain (dBi)
PIFA	5925~6425	-0.32
	6425~6525	-3.91
	6525~6875	-4.00
	6875~7125	-5.10
PIFA	5925~6425	-2.01
	6425~6525	-3.49
	6525~6875	-3.90
	6875~7125	-4.65

Note: Investigation has been done to determine the worst case scenario for the above antennas demonstrated with measurements in this report.

1.4 Rated Power

WLAN 6E

Wi-Fi	Frequency Range	Channels	Rated Power(Avg) (dBm) (Worst Case)
ax_HE 20MHz	5955~6415	24	10.10 dBm
	6435~6515	5	10.27 dBm
	6535~6875	18	10.20 dBm
	6895~7115	12	10.12 dBm
ax_HE 40MHz	5965~6405	12	12.97 dBm
	6445~6525	3	11.02 dBm
	6565~6845	8	10.97 dBm
	6885~7085	6	10.12 dBm
ax_HE 80MHz	5985~6385	6	13.78 dBm
	6465	1	11.29 dBm
	6545~6865	5	10.87 dBm
	6945~7025	2	9.94 dBm
ax_HE 160MHz	6025~6345	3	13.82 dBm
	6505	1	9.26 dBm
	6665~6825	2	10.85 dBm
	6985	1	9.84 dBm

1.5 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01r01

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 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 A	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.

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 a 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 a 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.

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*9m*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 Configuration of Tested System

Fig. 2-1 Conducted Setup &Radiated Setup

Fig. 2-3 Conduction Setup

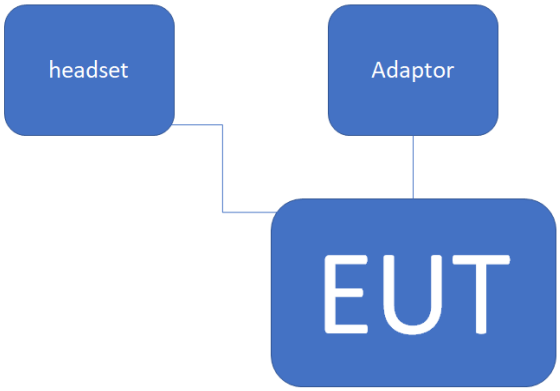


Table 2-1 Equipment Used in Tested System

Item	Equipment	MRF/Brand	Model/Type No.	Series No.	Version
1.	QRCT4	N/A	N/A	N/A	4.0.00142.0
2.	Notebook	Lenovo	L480	PF-1S9NT5	N/A

3 SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.407(a)(10) 2.1049	Emission Bandwidth	Compliant
§15.407(a)(4~8)	Maximum Conducted Output Power	Compliant
§15.407(a)(4~8)	Power Spectral Density	Compliant
§15.407(b)(6)	In-band emission	Compliant
§15.205 §15.209 §15.407(b)(5),(b)(8),(b)(9)	Undesirable Radiated Emissions	Compliant
§15.407(d)(6)	contention-based protocol	Compliant
§15.407(a)(7)(8)	Dual Client Test Demonstration of Proper Power Adjustment based on Associated AP	NA Device only assocoates with indoor AP
§15.203 §15.407(a)(9)	Antenna Requirement	Compliant

4 DESCRIPTION OF TEST MODES

4.1 Operation in U-NII Bands

UNII-5 5925~6425 MHz

20MHz				40MHz		80MHz		160MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
1	5955	49	6195	3	5965	7	5985	15	6025
5	5975	53	6215	11	6005	23	6065	47	6185
9	5995	57	6235	19	6045	39	6145	79	6345
13	6015	61	6255	27	6085	55	6225		
17	6035	65	6275	35	6125	71	6305		
21	6055	69	6295	43	6165	87	6385		
25	6075	73	6315	51	6205				
29	6095	77	6335	59	6245				
33	6115	81	6355	67	6285				
37	6135	85	6375	75	6325				
41	6155	89	6395	83	6365				
45	6175	93	6415	91	6405				

UNII-6 6425~6525 MHz

20MHz		40MHz		80MHz		160MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
97	6435	99	6445	103	6465	111	6505
101	6455	107	6485				
105	6475	115	6525				
109	6495						
113	6515						

UNII-7 6525~6875 MHz

20MHz				40MHz		80MHz		160MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
117	6535	153	6715	123	6565	119	6545	143	6665
121	6555	157	6735	131	6605	135	6625	175	6825
125	6575	161	6755	139	6645	151	6705		
129	6595	165	6775	147	6685	167	6785		
133	6615	169	6795	155	6725	183	6865		
137	6635	173	6815	163	6765				
141	6655	177	6835	171	6805				
145	6675	181	6855	179	6845				
149	6695	185	6875						

UNII-8 6875~7125 MHz

20MHz		40MHz		80MHz		160MHz	
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
189	6895	187	6885	199	6945	207	6985
193	6915	195	6925	215	7025		
197	6935	203	6965				
201	6955	211	7005				
205	6975	219	7045				
209	6995	227	7085				
213	7015						
217	7035						
221	7055						
225	7075						
229	7095						
233	7115						

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 gevin UE is pre-scanned among below modes.

Modulation	Transmission Chain				Single Transmission Spatial	Multiple Transmission Spatial
☐ 802.11 a	☐ Ch0	☐ Ch1	☐ Ch2	☐ Ch3	☐ 1TX	☐ 2TX
☐ 802.11 n	☐ Ch0	☐ Ch1	☐ Ch2	☐ Ch3	☐ SISO	☐ MIMO
☐ 802.11 ac	☐ Ch0	☐ Ch1	☐ Ch2	☐ Ch3	☐ SISO	☐ MIMO
☒ 802.11 ax	☒ Ch0	☒ Ch1	☐ Ch2	☐ Ch3	☒ SISO	☒ MIMO

4. Observations have been done for 802.11 ax available RU configurations below and found that the lowest, heighest and Full RU results higher emissions.
Only one RU can be enabled at any given time.

802.11ax	20MHz			
RU type	26-tone RU		52-tone RU	
RU index and subcarrier range	RU0	[-121: -96]	RU37	[-121: -70]
	RU1	[-95: -70]	RU38	[-68: -17]
	RU2	[-68: -43]	RU39	[17: 68]
	RU3	[-42: -17]	RU40	[70: 121]
	RU4	[-16: -4, 4: 16]	RU41	N/A
	RU5	[17: 42]	RU42	N/A
	RU6	[43: 68]	RU43	N/A
	RU7	[70: 95]	RU44	N/A
	RU8	[96: 121]	RU45	N/A
	RU9	N/A	RU46	N/A
	RU10	N/A	RU47	N/A
	RU11	N/A	RU48	N/A
	RU12	N/A	RU49	N/A
	RU13	N/A	RU50	N/A
	RU14	N/A	RU51	N/A
	RU15	N/A	RU52	N/A
	RU16	N/A		
	RU17	N/A	106-tone RU	
	RU18	N/A	RU53	[-122: -17]
	RU19	N/A	RU54	[17: 122]
	RU20	N/A	RU55	N/A
	RU21	N/A	RU56	N/A
	RU22	N/A	RU57	N/A
	RU23	N/A	RU58	N/A
	RU24	N/A	RU59	N/A
	RU25	N/A	RU60	N/A
	RU26	N/A		
	RU27	N/A	242-tone RU	
	RU28	N/A	RU61	[-122: -2, 2:122]
	RU29	N/A	RU62	N/A
	RU30	N/A	RU63	N/A
	RU31	N/A	RU64	N/A
	RU32	N/A		
	RU33	N/A		
	RU34	N/A		
	RU35	N/A		
	RU36	N/A		

802.11ax	40MHz			
RU type	26-tone RU		52-tone RU	
RU index and subcarrier range	RU0	[-243: -218]	RU37	[-243: -192]
	RU1	[-217: -192]	RU38	[-189: -138]
	RU2	[-189: -164]	RU39	[-109: -58]
	RU3	[-163: -138]	RU40	[-55: -4]
	RU4	[-136: -111]	RU41	[4: 55]
	RU5	[-109: -84]	RU42	[58: 109]
	RU6	[-83: -58]	RU43	[138: 189]
	RU7	[-55: -30]	RU44	[192: 243]
	RU8	[-29: -4]	RU45	N/A
	RU9	[4: 29]	RU46	N/A
	RU10	[30: 55]	RU47	N/A
	RU11	[58: 83]	RU48	N/A
	RU12	[84: 109]	RU49	N/A
	RU13	[111: 136]	RU50	N/A
	RU14	[138: 163]	RU51	N/A
	RU15	[164: 189]	RU52	N/A
	RU16	[192: 217]		
	RU17	[218: 243]	106-tone RU	
	RU18	N/A	RU53	[-243: -138]
	RU19	N/A	RU54	[-109: -4]
	RU20	N/A	RU55	[4: 109]
	RU21	N/A	RU56	[138: 243]
	RU22	N/A	RU57	N/A
	RU23	N/A	RU58	N/A
	RU24	N/A	RU59	N/A
	RU25	N/A	RU60	N/A
	RU26	N/A		
	RU27	N/A	242-tone RU	
	RU28	N/A	RU61	[-244: -3]
	RU29	N/A	RU62	[3: 244]
	RU30	N/A	RU63	N/A
	RU31	N/A	RU64	N/A
	RU32	N/A		
	RU33	N/A	484-tone RU	
	RU34	N/A	RU65	[-244: -3, 3: 244]
	RU35	N/A	RU66	N/A
	RU36	N/A		

802.11ax	80MHz			
RU type	26-tone RU		52-tone RU	
RU index and subcarrier range	RU0	[-499: -474]	RU37	[-499: -448]
	RU1	[-473: -448]	RU38	[-445: -394]
	RU2	[-445: -420]	RU39	[-365: -314]
	RU3	[-419: -394]	RU40	[-311: -260]
	RU4	[-392: -367]	RU41	[-257: -206]
	RU5	[-365: -340]	RU42	[-203: -152]
	RU6	[-339: -314]	RU43	[-123: -72]
	RU7	[-311: -286]	RU44	[-69: -18]
	RU8	[-285: -260]	RU45	[18: 69]
	RU9	[-257: -232]	RU46	[72: 123]
	RU10	[-231: -206]	RU47	[152: 203]
	RU11	[-203: -178]	RU48	[206: 257]
	RU12	[-177: -152]	RU49	[260: 311]
	RU13	[-150: -125]	RU50	[314: 365]
	RU14	[-123: -98]	RU51	[394: 445]
	RU15	[-97: -72]	RU52	[448: 499]
	RU16	[-69: -44]	106-tone RU	
	RU17	[-43: -18]	RU53	[-499: -394]
	RU18	[-16: -4, 4: 16]	RU54	[-365: -260]
	RU19	[18: 43]	RU55	[-257: -152]
	RU20	[44: 69]	RU56	[-123: -18]
	RU21	[72: 97]	RU57	[18: 123]
	RU22	[98: 123]	RU58	[152: 257]
	RU23	[125: 150]	RU59	[260: 365]
	RU24	[152: 177]	RU60	[394: 499]
	RU25	[178: 203]	242-tone RU	
	RU26	[206: 231]	RU61	[-500: -259]
	RU27	[232: 257]	RU62	[-258: -17]
	RU28	[260: 285]	RU63	[17: 258]
	RU29	[286: 311]	RU64	[259: 500]
	RU30	[314: 339]	484-tone RU	
	RU31	[340: 365]	RU65	[-500: -17]
	RU32	[367: 392]	RU66	[17: 500]
	RU33	[394: 419]	996-tone RU	
	RU34	[420: 445]	RU67	[-500: -3, 3: 500]
	RU35	[448: 473]		
	RU36	[474: 499]		

5. The EUT support OFDM and OFDMA modulation, 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.

4.2.1 RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE160	6025~6345	15 to 79	47	OFDMA	MCS0	Mimo
	6505	111	111			
	6665~6825	143 to 175	143			
	6985	207	207			

RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURATI	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE20	5955~6415	1 to 93	1,45,93	OFDMA	FULL RU 26/0,26/8 52/37,52/40 106/53,106/54	MCS0	Mimo
	6435~6515	97 to 113	97,105,113				
	6535~6875	117 to 185	117,149,181,185				
	6895~7115	189 to 233	189,209,233				
802.11ax_HE40	5965~6405	3 to 91	3,43,91	OFDMA	FULL RU 242/61,242/62	MCS0	Mimo
	6445~6525	99 to 115	99,107,115				
	6565~6845	123 to 179	123,147,179				
	6885~7085	187 to 227	187,195,211,227				
802.11ax_HE80	5985~6385	7 to 87	7,39,87	OFDMA	FULL RU 484/65,484/66	MCS0	Mimo
	6465	103	103				
	6545~6865	119 to 183	103				
	6945~7025	199 to 215	199,215				
802.11ax_HE160	6025~6345	15 to 79	15,47,79	OFDMA	FULL RU 484/65,484/66	MCS0	Mimo
	6505	111	111				
	6665~6825	143 to 175	143,175				
	6985	207	207				

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for channel Low, Mid and High, the worst case E1 position was reported.

4.2.2 ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURATI	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE20	5955~6415	1 to 93	1,45,93	OFDMA	FULL RU 26/0,26/8 52/37,52/40 106/53,106/54	MCS0	Mimo
	6435~6515	97 to 113	97,105,113				
	6535~6875	117 to 185	117,149,181,185				
	6895~7115	189 to 233	189,209,233				
802.11ax_HE40	5965~6405	3 to 91	3,43,91	OFDMA	FULL RU 242/61,242/62	MCS0	Mimo
	6445~6525	99 to 115	99,107,115				
	6565~6845	123 to 179	123,147,179				
	6885~7085	187 to 227	187,195,211,227				
802.11ax_HE80	5985~6385	7 to 87	7,39,87	OFDMA	FULL RU 484/65,484/66	MCS0	Mimo
	6465	103	103				
	6545~6865	119 to 183	103				
	6945~7025	199 to 215	199,215				
802.11ax_HE160	6025~6345	15 to 79	15,47,79	OFDMA	FULL RU 484/65,484/66	MCS0	Mimo
	6505	111	111				
	6665~6825	143 to 175	143,175				
	6985	207	207				

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
AC Power Line Conducted Emission	+/-	2.34	dB
26dB & 6dB Emission Bandwidth	+/-	1.53	Hz
The Maximum Output Power Measurement	+/-	1	dB
Peak Power Spectral Density Measurement	+/-	1.53	dB
Frequency Stability	+/-	1.53	Hz
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty				
Polarization: Vertical	**+/-**	**2.64**	**dB**	9kHz~30MHz
	+/-	**4.93**	**dB**	30MHz - 1000MHz
	+/-	**4.81**	**dB**	1GHz - 18GHz
	+/-	**4.52**	**dB**	18GHz - 40GHz
Polarization: Horizontal	**+/-**	**2.64**	**dB**	9kHz~30MHz
	+/-	**4.45**	**dB**	30MHz - 1000MHz
	+/-	**4.81**	**dB**	1GHz - 18GHz
	+/-	**4.52**	**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.

6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

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

Frequency range MHz	Limits dB(uV)	
	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.		

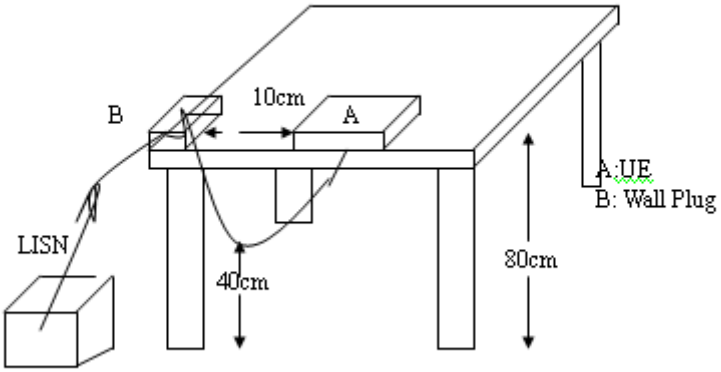
6.2 Measurement Equipment Used

Radiated Emission Test Site: Conduction 1					
EQUIPMENT TYPE	**MFR/BRAND**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
LISN	SCHWARZBECK	NSLK 8127	8127-465	04/09/2020	04/08/2021
Coaxial Cables	N/A	Coaxial Cable	161207	12/07/2020	12/06/2021
Test Software	audix	e3	Ver. 6.11-20180413	01/01/2021	12/31/2021
EMI Test Receiver	R&S	ESCI 7	100759	07/13/2020	07/12/2021

6.3 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 rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The LISN was connected with 120Vac/60Hz power source.

6.4 Test SET-UP



6.5 Measurement Procedure

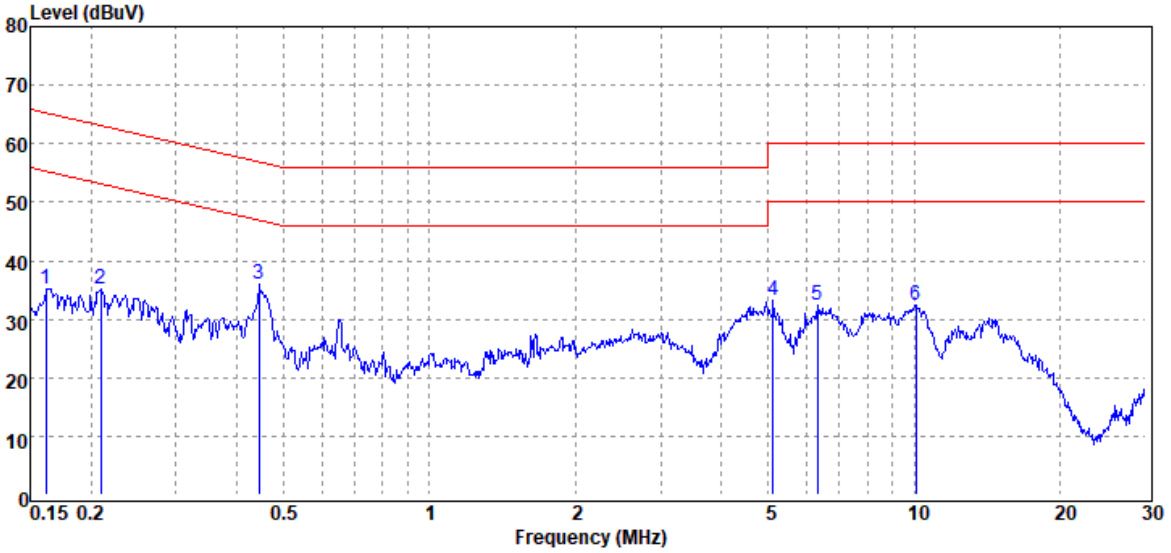
1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed.

6.6 Measurement Result

Note: Refer to next page for measurement data and plots.
Note2: The * reveals the worst-case results that closet to the limit.

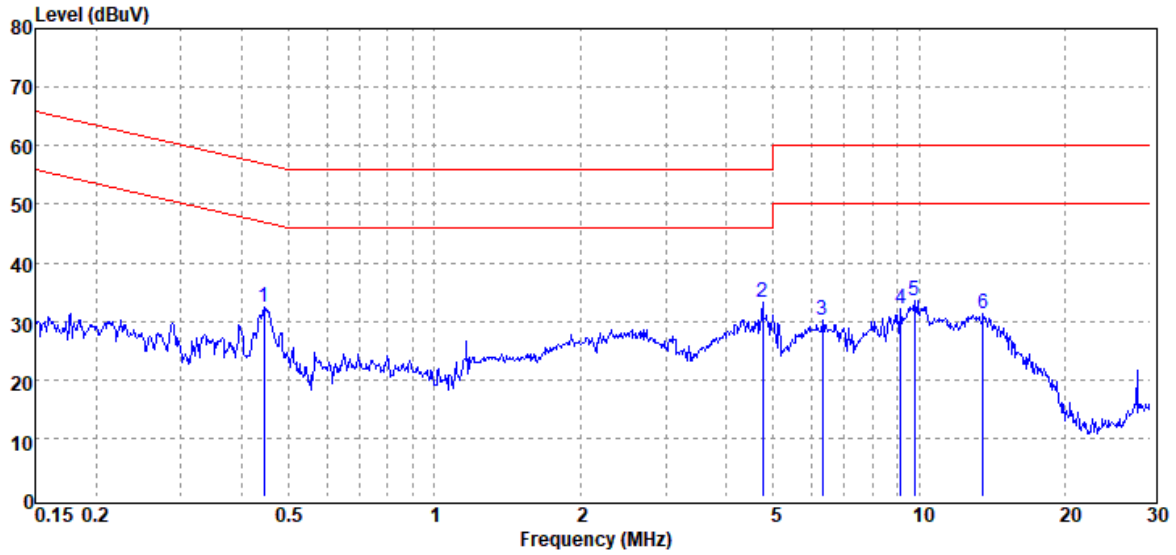
AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:ER-2021-20007	Test Site	:Conduction 6F
Test Mode	:WLAN 5G	Test Date	:2021-02-20
Power	:AC 120V/60Hz	Temp./Humi.	:22.5/47
Probe	:L	Engineer	:Neo Tsai
Note:	:		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV	Limit dBµV	Margin dB
0.16	Peak	35.23	0.04	35.27	65.38	-30.11
0.21	Peak	35.06	0.04	35.10	63.23	-28.13
0.44	Peak	35.77	0.13	35.90	56.98	-21.08
5.11	Peak	32.79	0.55	33.34	60.00	-26.66
6.32	Peak	31.75	0.64	32.39	60.00	-27.61
10.07	Peak	31.49	0.83	32.32	60.00	-27.68

Report Number	:ER-2021-20007	Test Site	:Conduction 6F
Test Mode	:WLAN 5G	Test Date	:2021-02-20
Power	:AC 120V/60Hz	Temp./Humi.	:22.5/47
Probe	:N	Engineer	:Neo Tsai
Note:	:		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV	dBµV	dB
0.44	Peak	32.12	0.19	32.31	56.98	-24.67
4.75	Peak	32.76	0.46	33.22	56.00	-22.78
6.32	Peak	29.57	0.55	30.12	60.00	-29.88
9.16	Peak	31.36	0.67	32.03	60.00	-27.97
9.76	Peak	32.78	0.69	33.47	60.00	-26.53
13.55	Peak	30.46	0.90	31.36	60.00	-28.64

7 DUTY CYCLE TEST SIGNAL

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.

7.1 Measurement Procedure:

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

Duty Cycle:

Duty Cycle

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11ax_20	100.00	0.00	0.00	0.01
802.11ax_40	100.00	0.00	0.00	0.01
802.11ax_80	100.00	0.00	0.00	0.01
802.11ax_160	100.00	0.00	0.00	0.01

7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT

Duty Cycle_802.11ax_20MHz_Chain0_5955MHz

Duty Cycle_802.11ax_80MHz_Chain0_5985MHz

Duty Cycle_802.11ax_40MHz_Chain0_5965MHz

Duty Cycle_802.11ax_160MHz_Chain0_6025MHz

8 EMISSION BANDWIDTH

8.1 Standard Applicable

The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

8.1 GHz band is 320 megahertz.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.

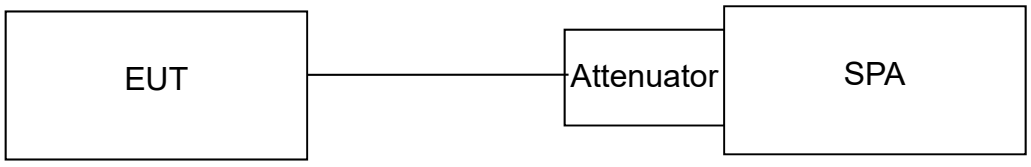
   3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW
   Sweep=auto,
   Detector = Peak,
   Trace Mode = Max Hold,
   Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.

   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. For 99% Bandwidth: Set the spectrum analyzer as
   RBW=1%,
   VBW = 3*RBW,
   Span = 30M/50MHz,
   Detector=Sample,
   Sweep=auto.
6. Turn on the 99% bandwidth function, max reading.
7. Repeat above procedures until all frequency of interest measured was complete.

8.2 Measurement Equipment Used

Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY59071571	06/27/2020	06/26/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021

8.3 Test Set-up



8.4 Measurement Result

8.4.1 FCC 26dB Bandwidth

802.11ax_20_Ch0

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
1	5955	18.916	20.81
45	6175	18.923	21.23
93	6415	18.950	20.96
97	6435	18.902	21.08
105	6475	18.941	20.65
113	6515	18.932	21.06
117	6535	18.957	20.90
149	6695	**18.897**	**20.96**
181	6855	**18.907**	**20.67**
185	6875(U-NII 7)	**9.430**	**10.54**
185	6875(U-NII 8)	**9.430**	**10.54**
189	6895	**18.852**	**20.82**
209	6995	**18.892**	**20.90**
233	7115	**18.927**	**20.83**

802.11ax_20_Ch1

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
1	5955	18.928	20.86
45	6175	18.939	20.93
93	6415	18.941	20.96
97	6435	18.968	20.96
105	6475	18.936	21.18
113	6515	18.880	20.82
117	6535	18.918	20.90
149	6695	**18.902**	**20.86**
181	6855	**18.942**	**20.49**
185	6875(U-NII 7)	**9.475**	**10.40**
185	6875(U-NII 8)	**9.475**	**10.40**
189	6895	**18.960**	**21.08**
209	6995	**18.922**	**20.61**
233	7115	**18.966**	**20.99**

802.11ax _40_Ch0

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
3	5965	37.715	40.72
43	6165	37.747	40.39
91	6405	37.704	39.90
99	6445	37.733	39.85
107	6485	37.680	40.17
115	6525(U-NII 6)	18.862	20.16
115	6525(U-NII 7)	18.862	20.16
123	6565	37.651	40.08
147	6685	**37.686**	**40.11**
179	6845	**37.696**	**39.93**
187	6885(U-NII 7)	**8.885**	**10.03**
187	6885(U-NII 8)	**28.885**	**30.03**
195	6925	**37.700**	**40.09**
211	7005	**37.703**	**39.72**
227	7085	**37.743**	**40.12**

802.11ax _40_Ch1

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
3	5965	37.761	39.99
43	6165	37.839	40.50
91	6405	37.863	40.22
99	6445	37.779	40.08
107	6485	37.840	39.88
115	6525(U-NII 6)	18.929	20.05
115	6525(U-NII 7)	18.929	20.05
123	6565	37.730	40.47
147	6685	**37.774**	**40.08**
179	6845	**37.704**	**40.10**
187	6885(U-NII 7)	**8.881**	**10.02**
187	6885(U-NII 8)	**28.881**	**30.02**
195	6925	**37.764**	**40.50**
211	7005	**37.667**	**40.26**
227	7085	**37.715**	**40.05**

802.11ax _80_Ch0

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
7	5985	76.999	81.92
39	6145	77.242	81.57
87	6385	77.068	81.54
103	6465	76.960	81.23
119	6545(U-NII 6)	18.685	26.24
119	6545(U-NII 7)	58.685	66.24
135	6625	77.239	81.50
151	6705	77.120	81.79
167	6785	77.106	**81.22**
183	6865(U-NII 7)	48.556	**50.69**
183	6865(U-NII 8)	28.556	30.69
199	6945	77.062	**82.03**
215	7025	77.146	**81.21**

802.11ax _80_Ch1

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
7	5985	77.20	80.85
39	6145	77.12	81.84
87	6385	77.41	82.13
103	6465	77.16	81.55
119	6545(U-NII 6)	18.65	21.78
119	6545(U-NII 7)	58.65	61.78
135	6625	77.53	81.16
151	6705	77.33	81.16
167	6785	77.01	**80.89**
183	6865(U-NII 7)	48.63	**60.27**
183	6865(U-NII 8)	28.63	40.27
199	6945	77.24	**81.59**
215	7025	76.92	**81.38**

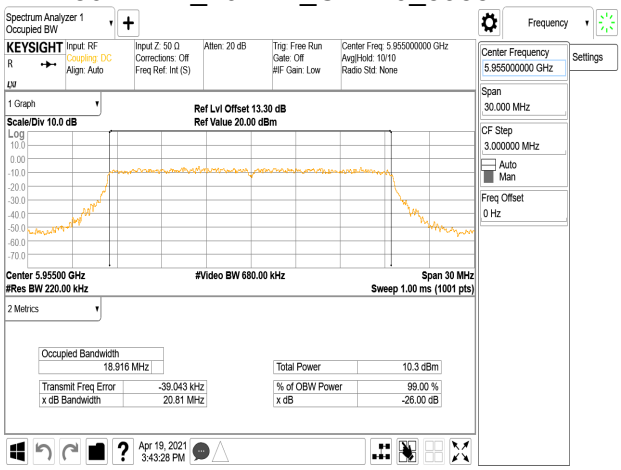
802.11ax _160_Ch0

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
15	6025	156.335	165.7
47	6185	156.165	164.0
79	6345	155.971	164.6
111	6505(U-NII 6)	98.331	131.3
111	6505(U-NII 7)	58.331	91.3
143	6665	156.397	200.3
175	6825(U-NII 7)	128.191	132.2
175	6825(U-NII 8)	28.191	32.2
207	6985	156.067	165.6

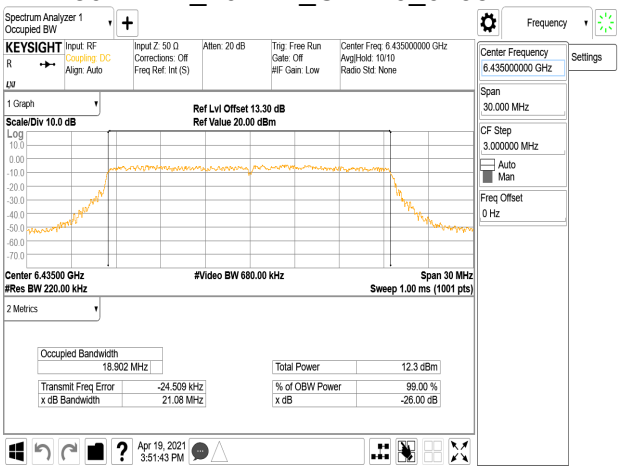
802.11ax _160_Ch1

CH	Frequency (MHz)	99% BW (MHz)	26dB BW (MHz)
15	6025	156.15	164.4
47	6185	156.60	165.0
79	6345	156.04	164.6
111	6505(U-NII 6)	98.52	136.3
111	6505(U-NII 7)	58.52	96.3
143	6665	156.88	236.3
175	6825(U-NII 7)	128.18	151.3
175	6825(U-NII 8)	28.18	51.3
207	6985	155.75	165.4

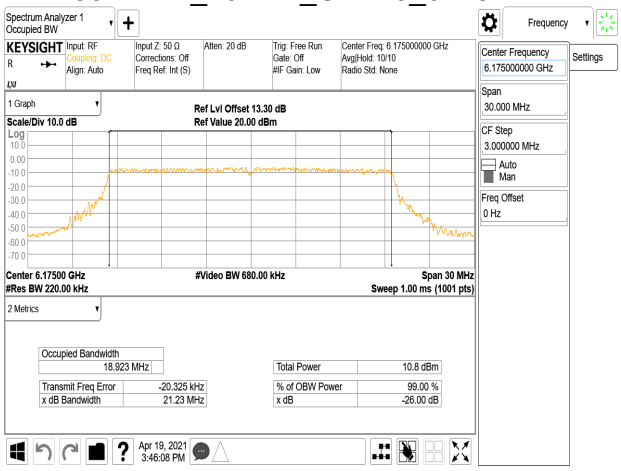
802.11ax_20MHz_Chain0_5955MHz



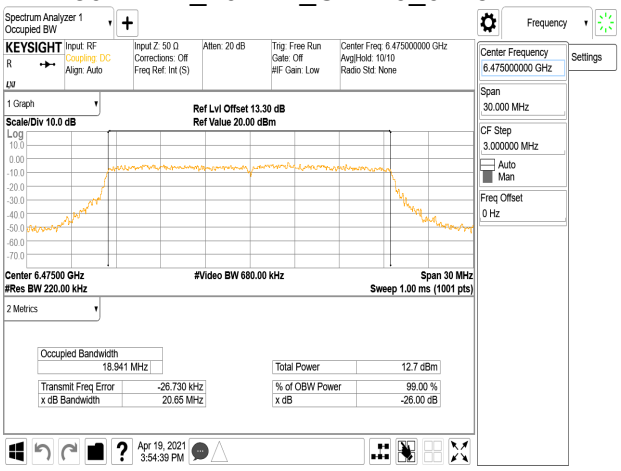
802.11ax_20MHz_Chain0_6435MHz



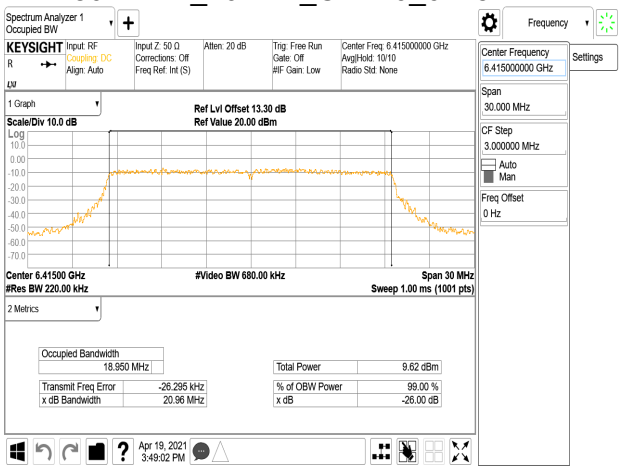
802.11ax_20MHz_Chain0_6175MHz



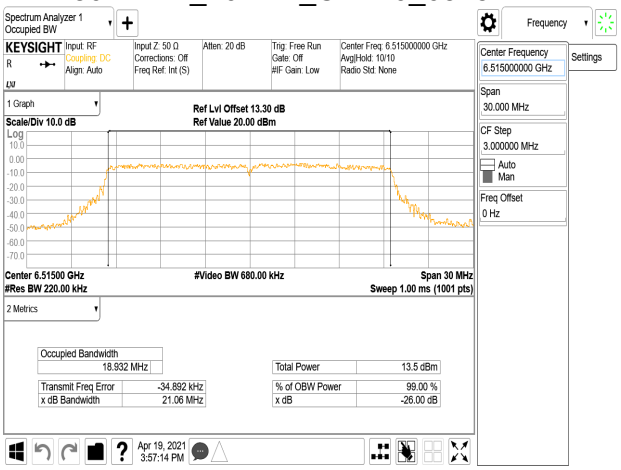
802.11ax_20MHz_Chain0_6475MHz



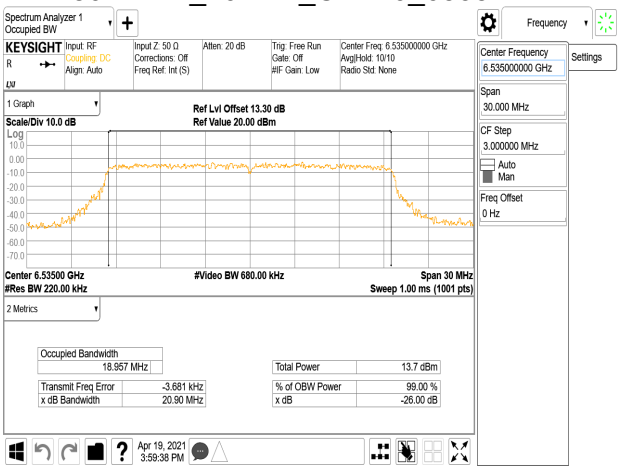
802.11ax_20MHz_Chain0_6415MHz



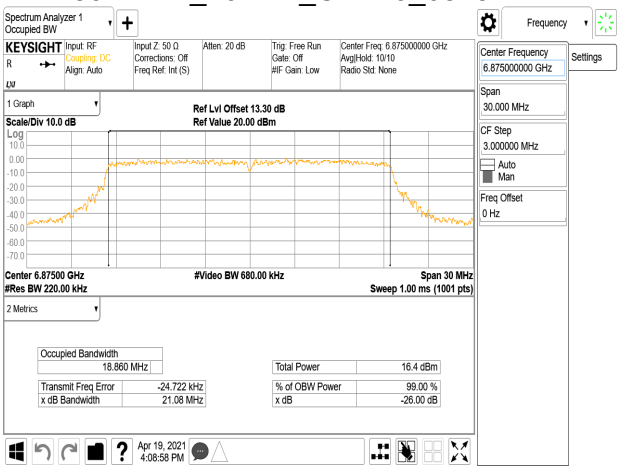
802.11ax_20MHz_Chain0_6515MHz



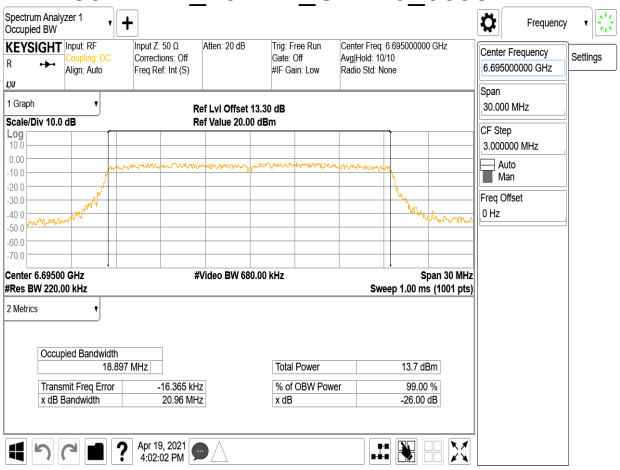
802.11ax_20MHz_Chain0_6535MHz



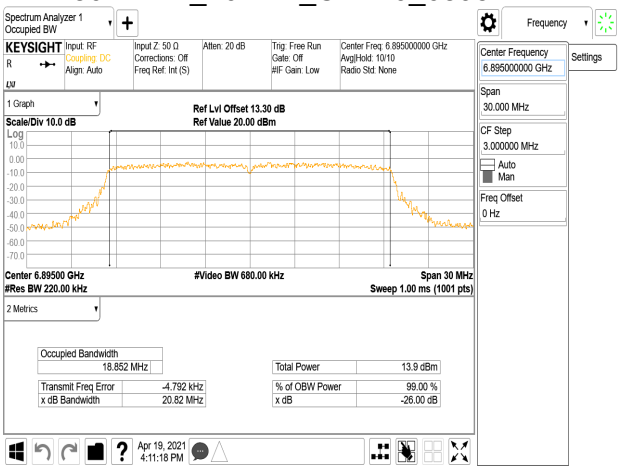
802.11ax_20MHz_Chain0_6875MHz



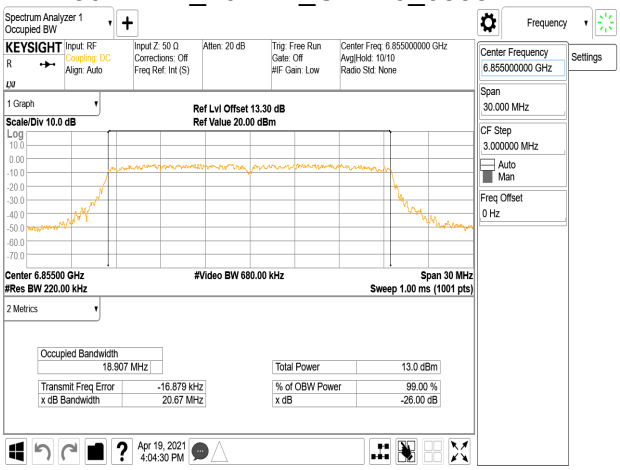
802.11ax_20MHz_Chain0_6695MHz



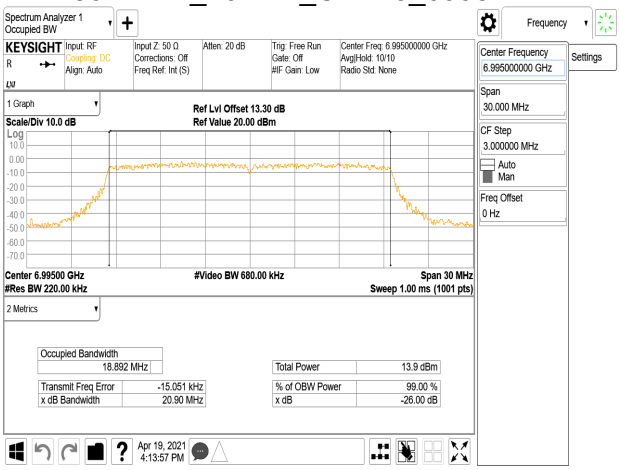
802.11ax_20MHz_Chain0_6895MHz



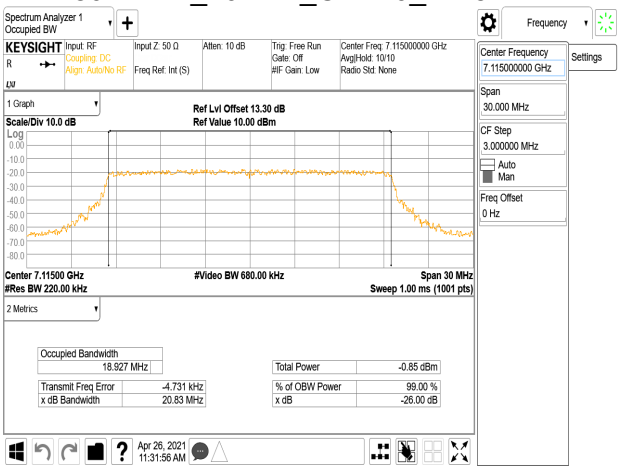
802.11ax_20MHz_Chain0_6855MHz



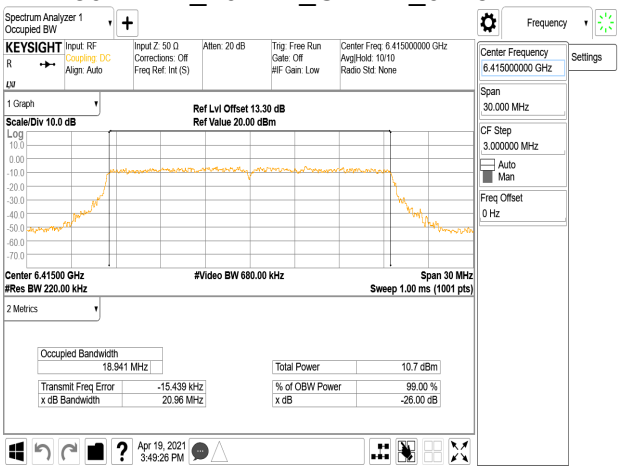
802.11ax_20MHz_Chain0_6995MHz



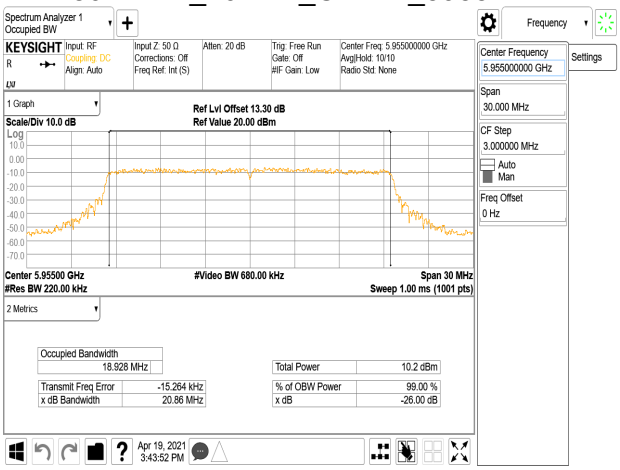
802.11ax_20MHz_Chain0_7115MHz



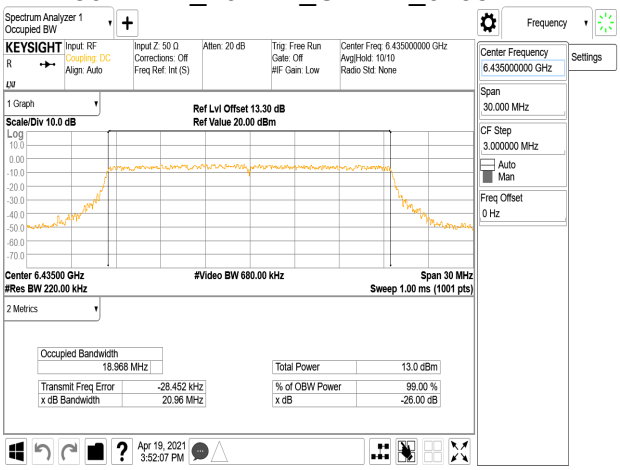
802.11ax_20MHz_Chain1_6415MHz



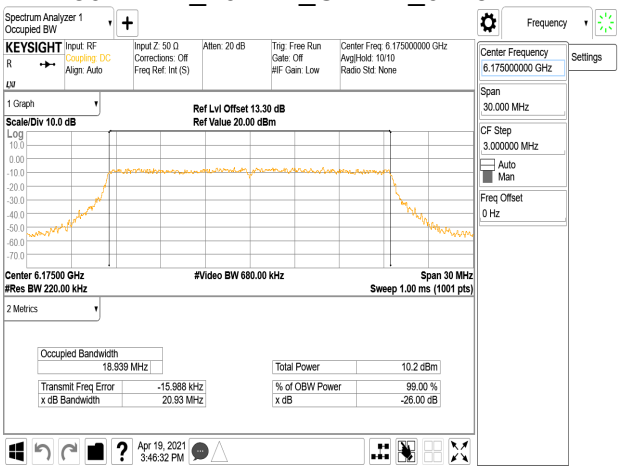
802.11ax_20MHz_Chain1_5955MHz



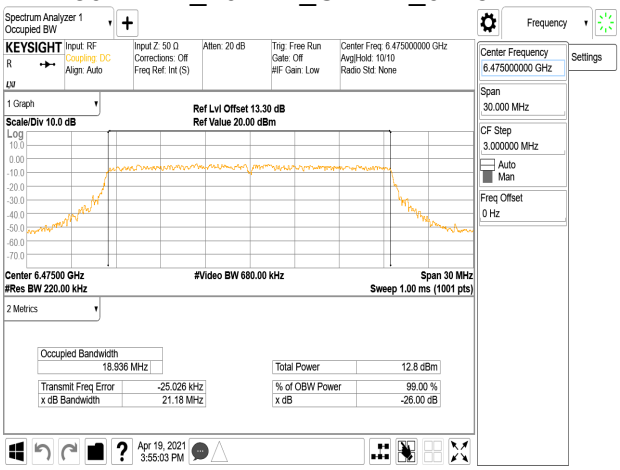
802.11ax_20MHz_Chain1_6435MHz



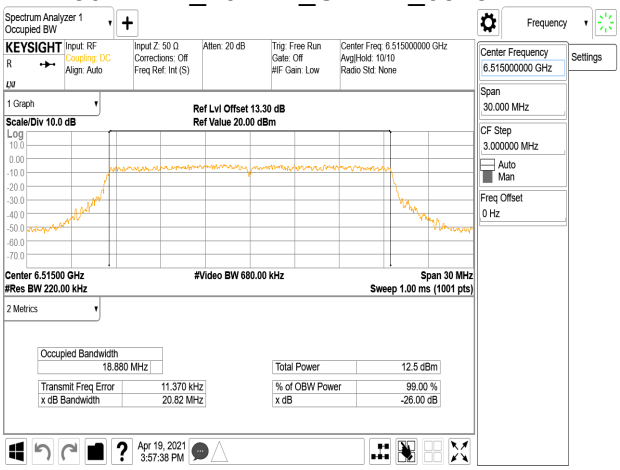
802.11ax_20MHz_Chain1_6175MHz



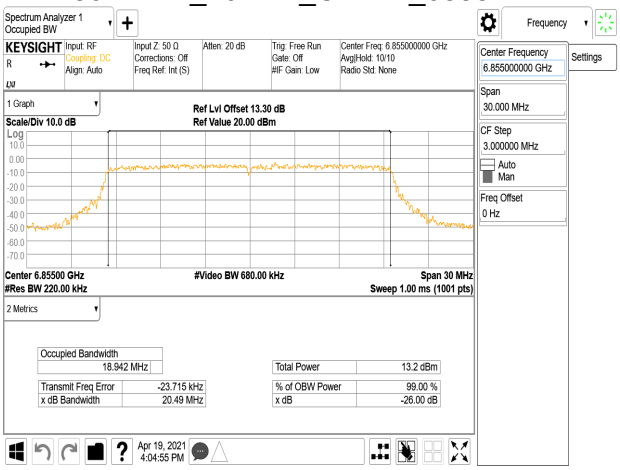
802.11ax_20MHz_Chain1_6475MHz



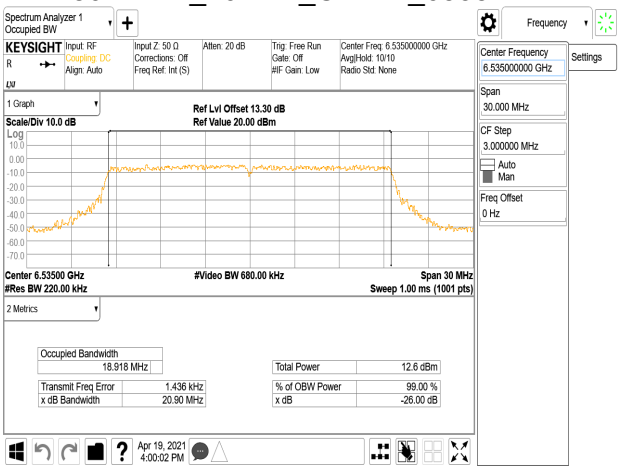
802.11ax_20MHz_Chain1_6515MHz



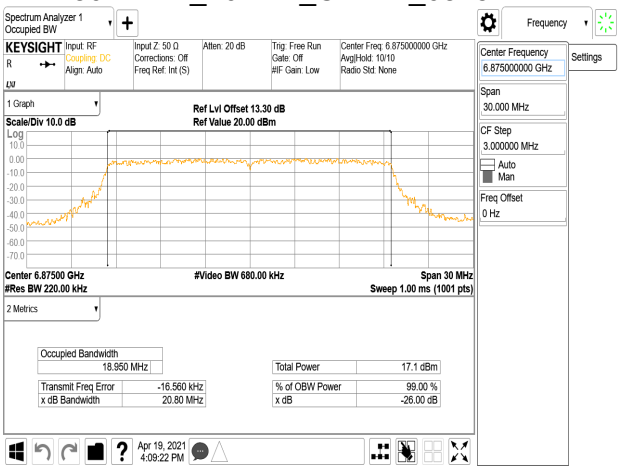
802.11ax_20MHz_Chain1_6855MHz



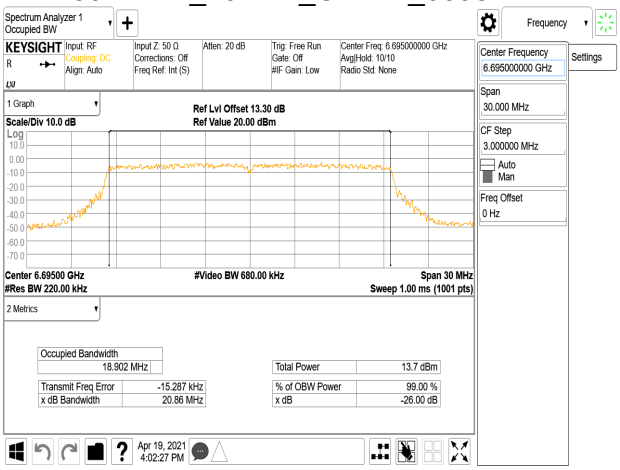
802.11ax_20MHz_Chain1_6535MHz



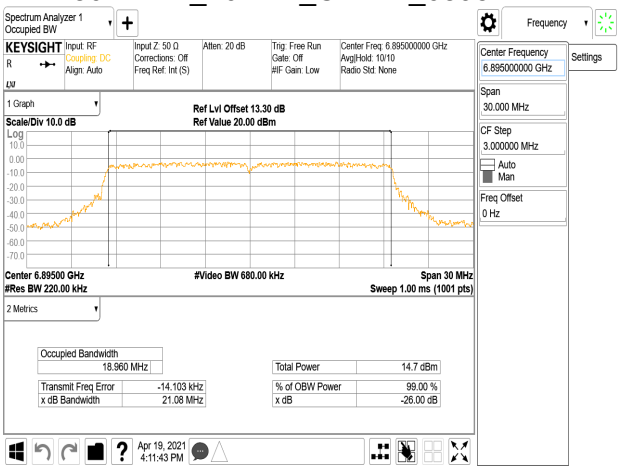
802.11ax_20MHz_Chain1_6875MHz



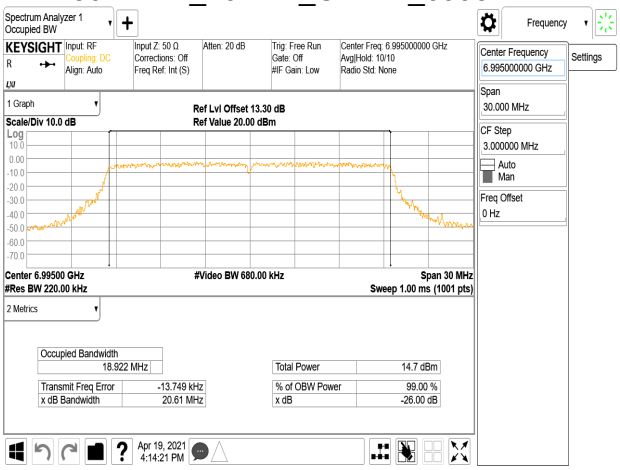
802.11ax_20MHz_Chain1_6695MHz



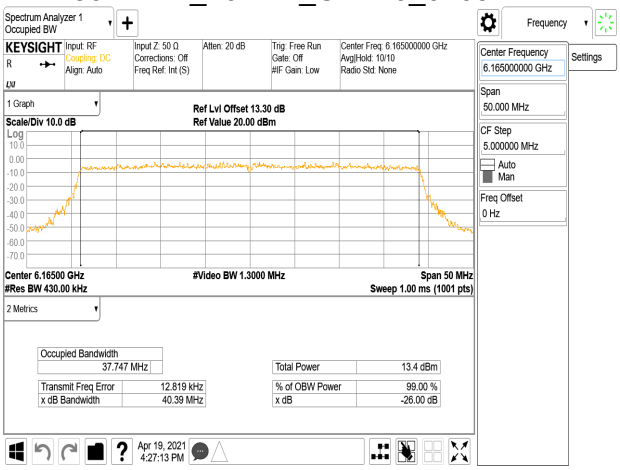
802.11ax_20MHz_Chain1_6895MHz



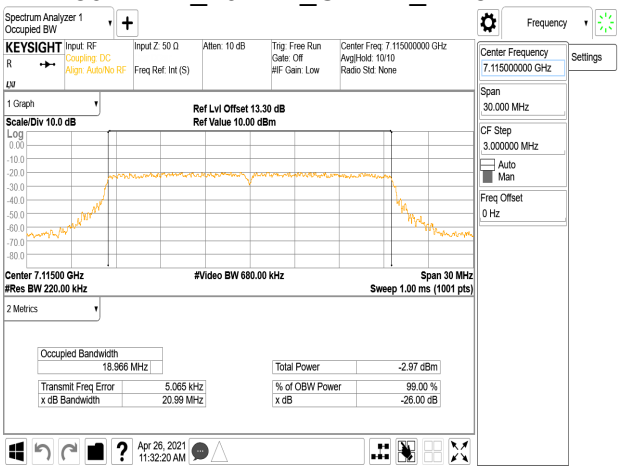
802.11ax_20MHz_Chain1_6995MHz



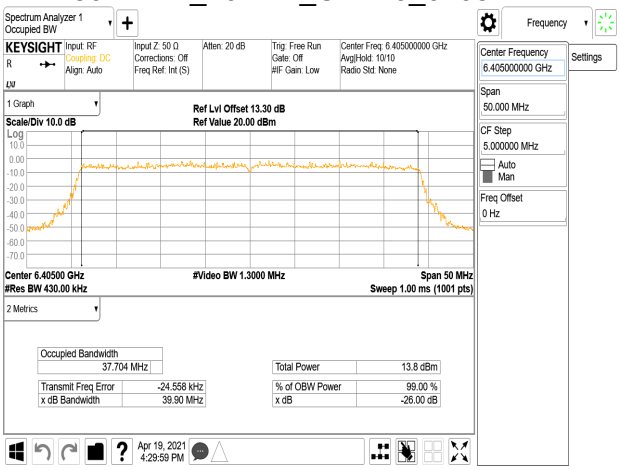
802.11ax_40MHz_Chain0_6165MHz



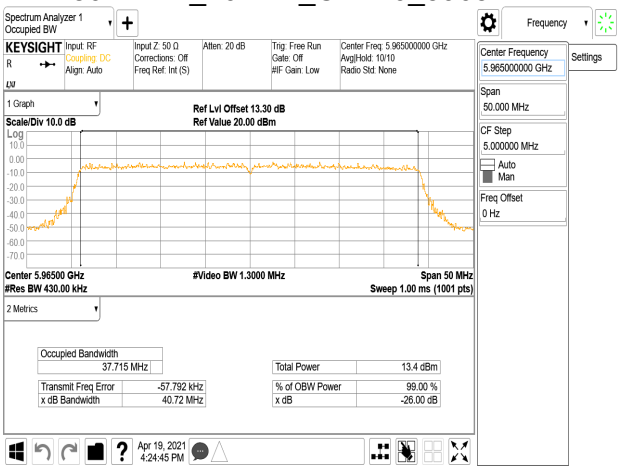
802.11ax_20MHz_Chain1_7115MHz



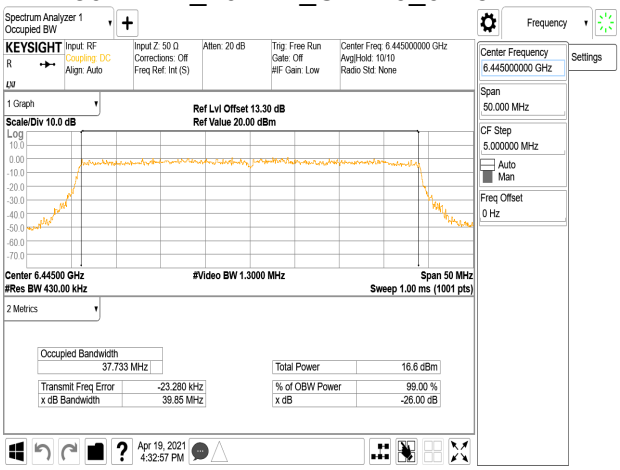
802.11ax_40MHz_Chain0_6405MHz



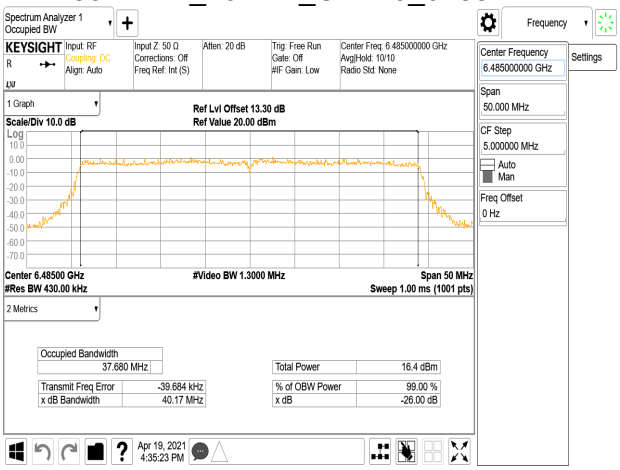
802.11ax_40MHz_Chain0_5965MHz



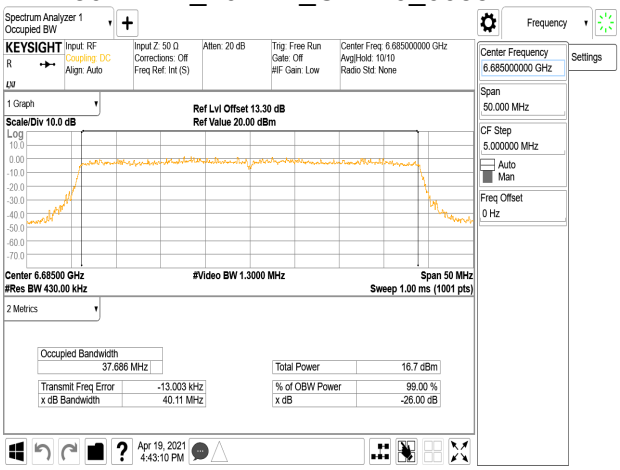
802.11ax_40MHz_Chain0_6445MHz



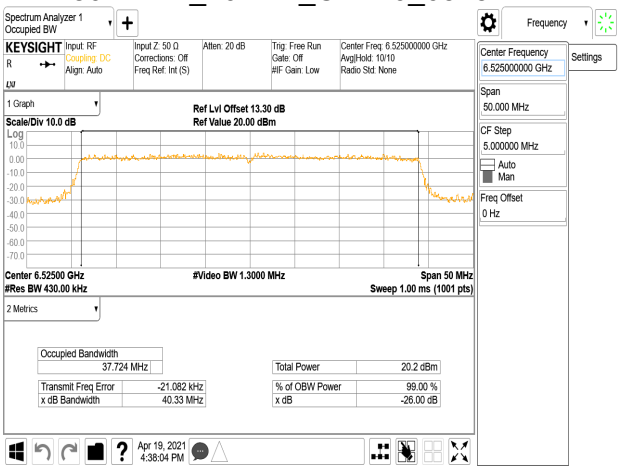
802.11ax_40MHz_Chain0_6485MHz



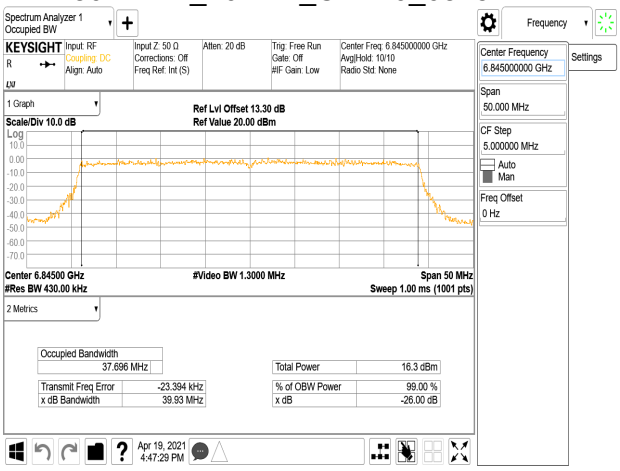
802.11ax_40MHz_Chain0_6685MHz



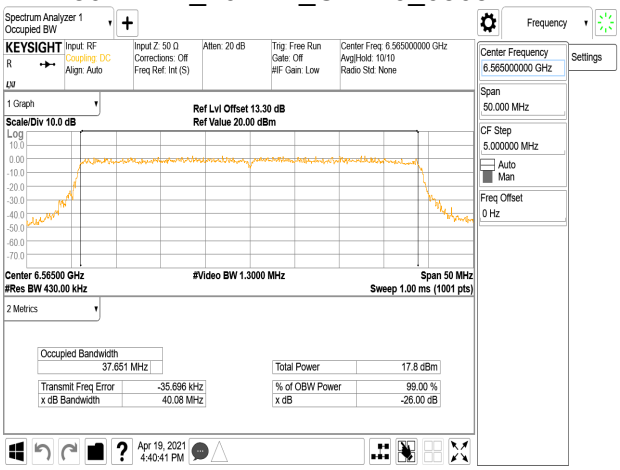
802.11ax_40MHz_Chain0_6525MHz



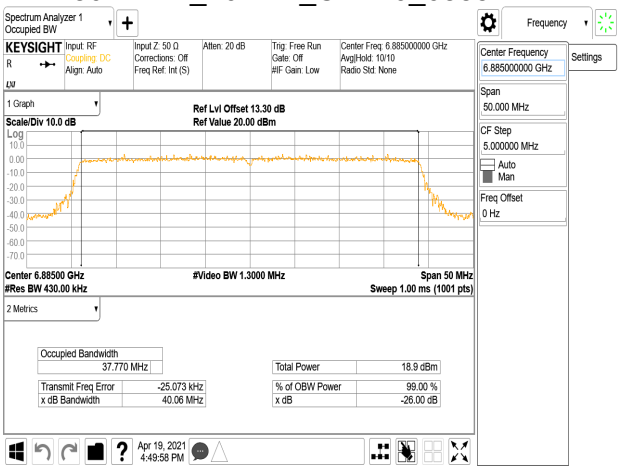
802.11ax_40MHz_Chain0_6845MHz



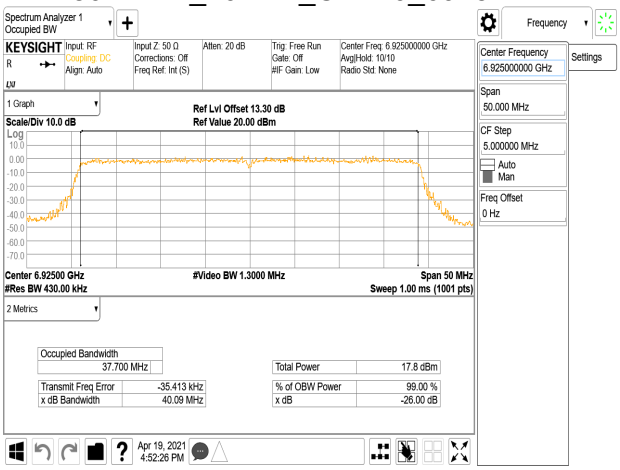
802.11ax_40MHz_Chain0_6565MHz



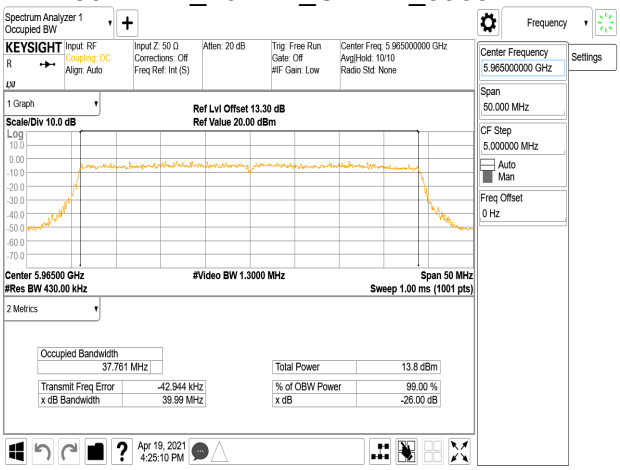
802.11ax_40MHz_Chain0_6885MHz



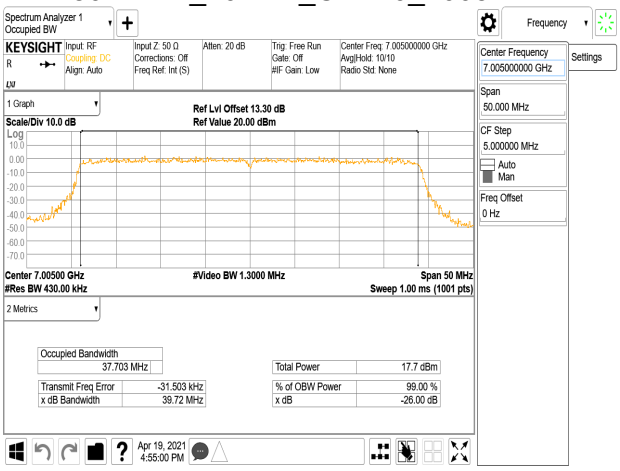
802.11ax_40MHz_Chain0_6925MHz



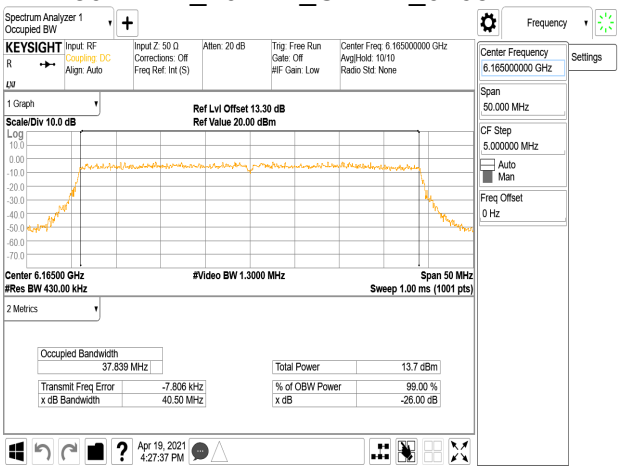
802.11ax_40MHz_Chain1_5965MHz



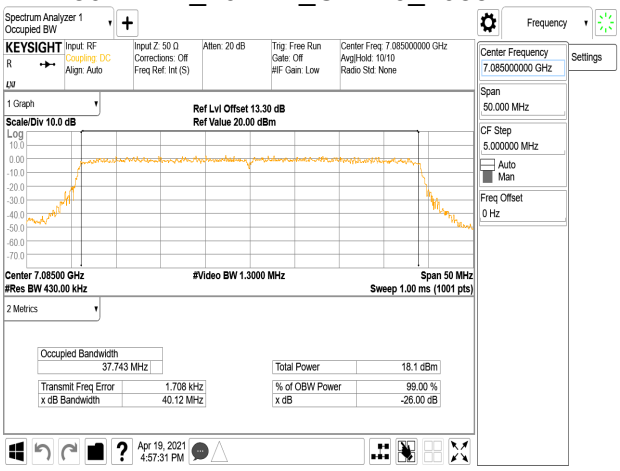
802.11ax_40MHz_Chain0_7005MHz



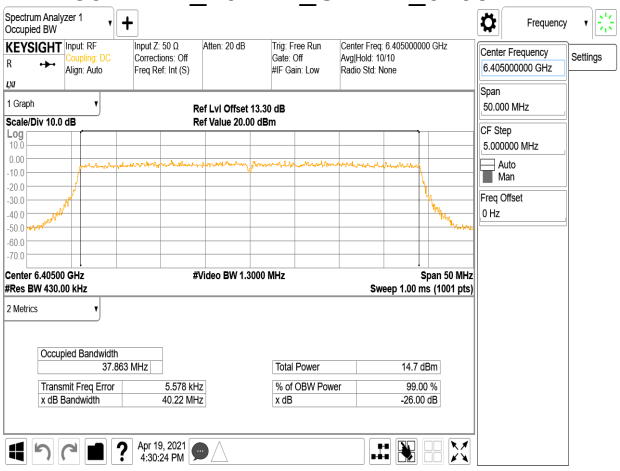
802.11ax_40MHz_Chain1_6165MHz



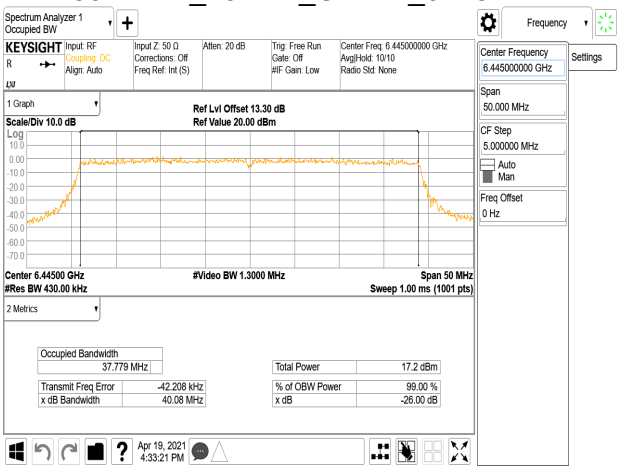
802.11ax_40MHz_Chain0_7085MHz



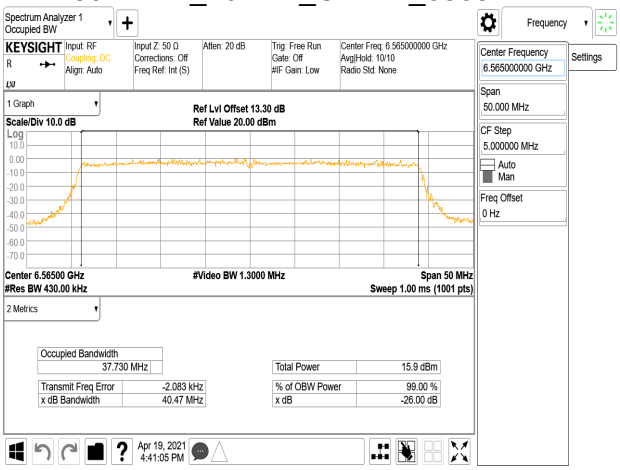
802.11ax_40MHz_Chain1_6405MHz



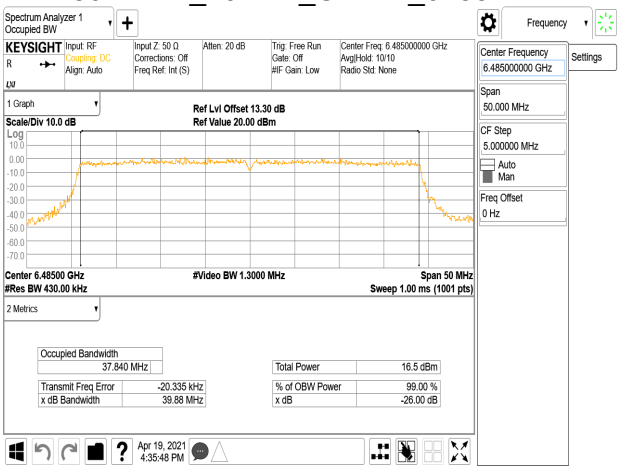
802.11ax_40MHz_Chain1_6445MHz



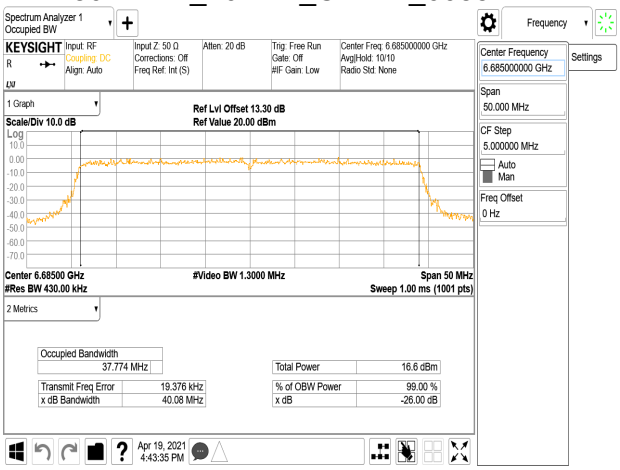
802.11ax_40MHz_Chain1_6565MHz



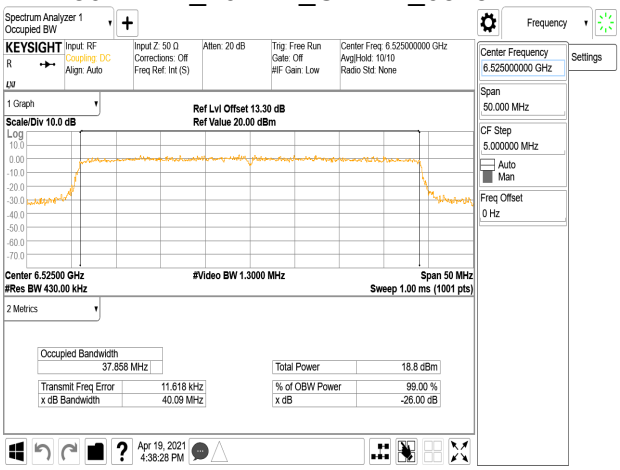
802.11ax_40MHz_Chain1_6485MHz



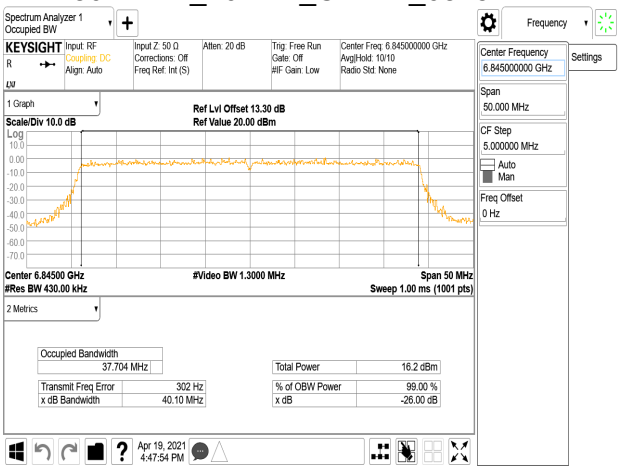
802.11ax_40MHz_Chain1_6685MHz



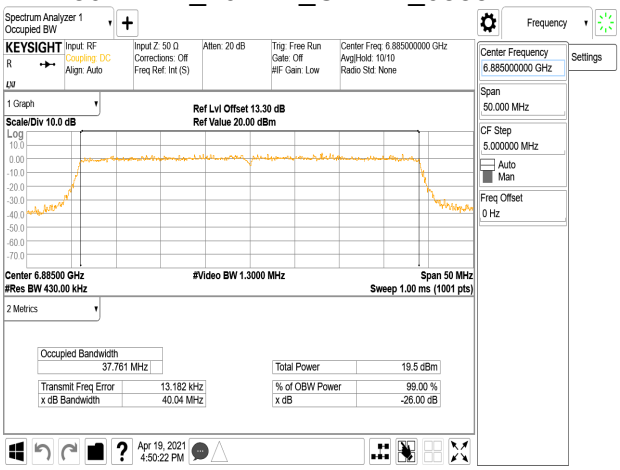
802.11ax_40MHz_Chain1_6525MHz



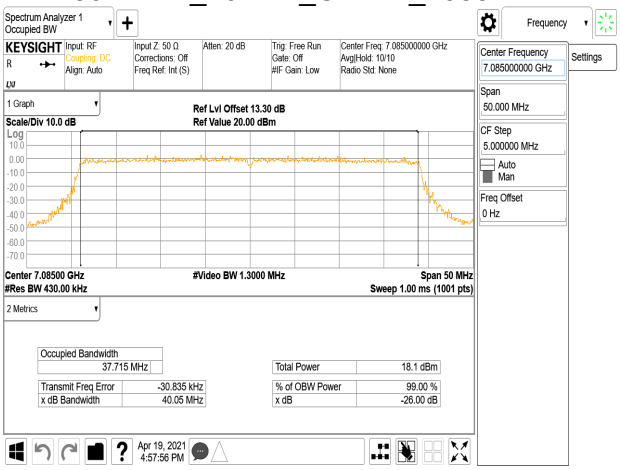
802.11ax_40MHz_Chain1_6845MHz



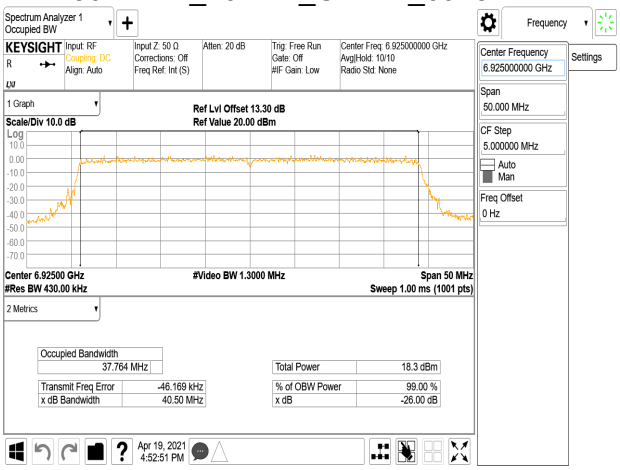
802.11ax_40MHz_Chain1_6885MHz



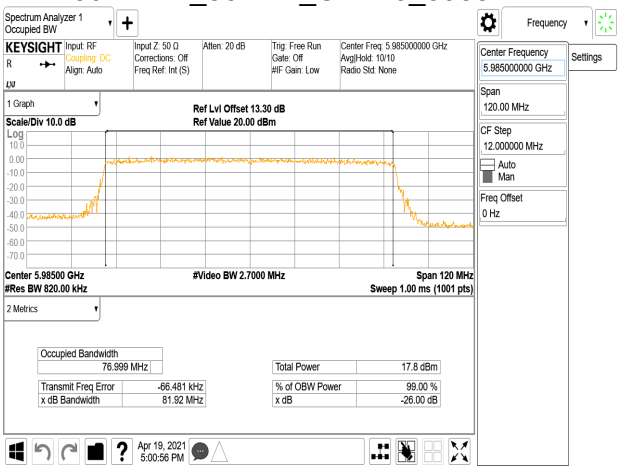
802.11ax_40MHz_Chain1_7085MHz



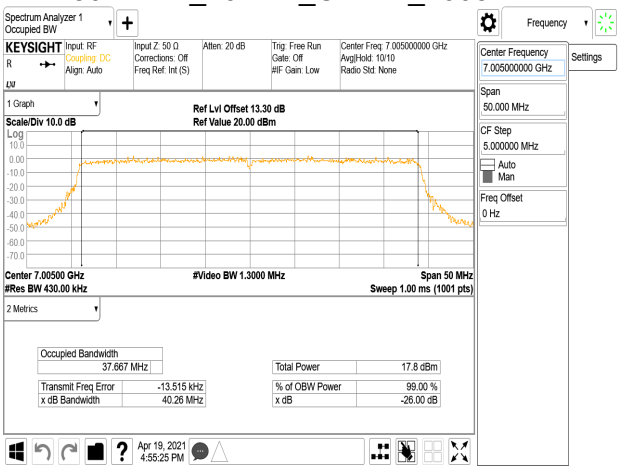
802.11ax_40MHz_Chain1_6925MHz



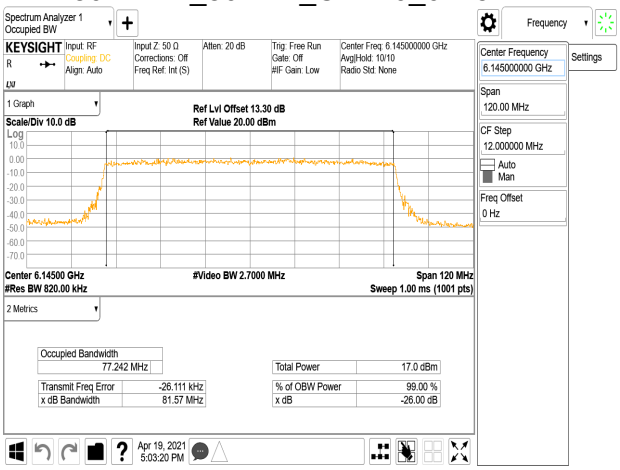
802.11ax_80MHz_Chain0_5985MHz



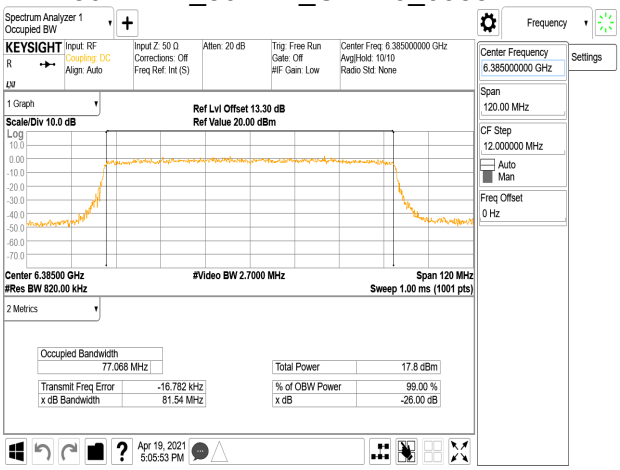
802.11ax_40MHz_Chain1_7005MHz



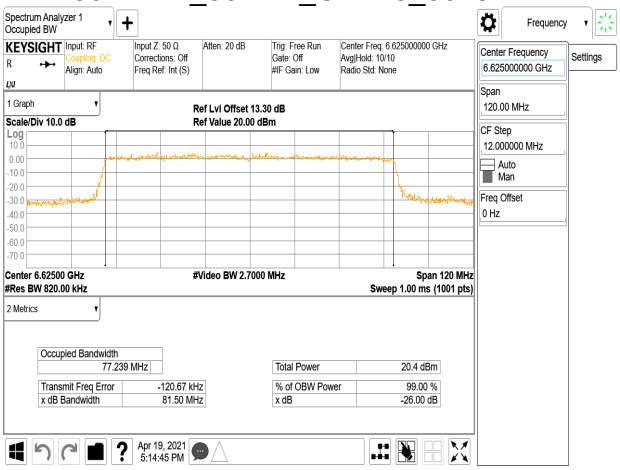
802.11ax_80MHz_Chain0_6145MHz



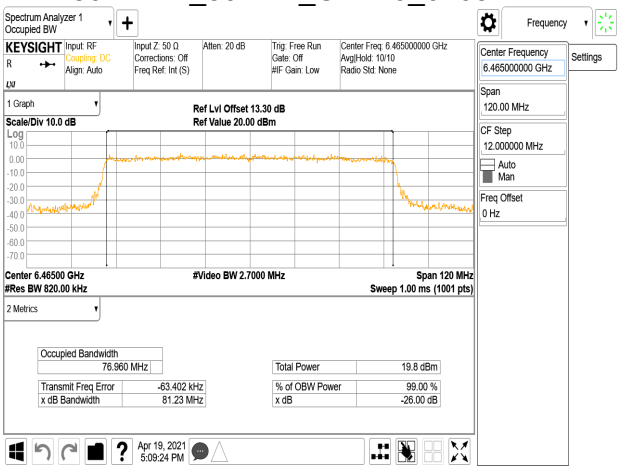
802.11ax_80MHz_Chain0_6385MHz



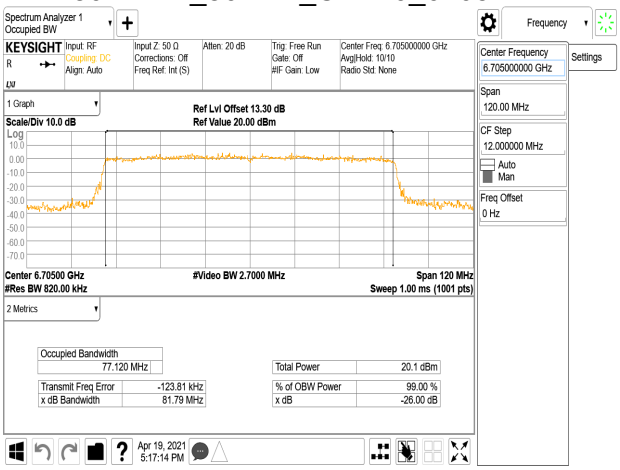
802.11ax_80MHz_Chain0_6625MHz



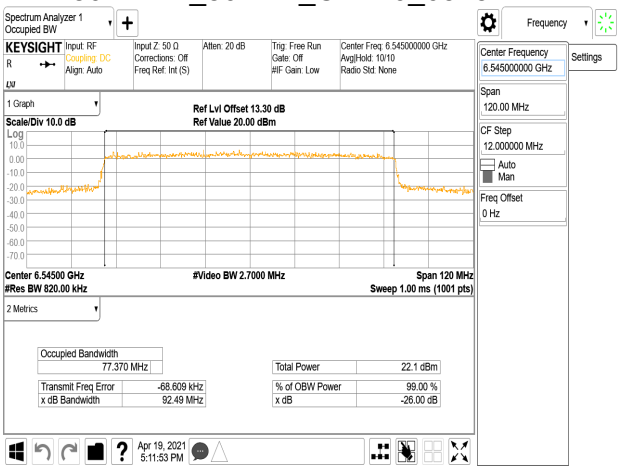
802.11ax_80MHz_Chain0_6465MHz



802.11ax_80MHz_Chain0_6705MHz



802.11ax_80MHz_Chain0_6545MHz



802.11ax_80MHz_Chain0_6785MHz