

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E AND RSS 247 REQUIREMENT

OF

Applicant: Peloton Interactive Inc.
125 W 25th Street, 11 FL, New York, NY, 10001, USA

Product Name: Peloton Console

Brand Name: Peloton

Model No.: PLTN-RB1VQ

Model Difference: N/A

FCC ID: 2AA3N-RB1VQ

IC: 21377-RB1VQ

Report Number: E2/2018/40029

FCC Rule Part: §15.407, Cat:NII

IC Rule Part: RSS-247 issue 2 Feb. 2017

Issue Date: May 18, 2018

Date of Test: Apr. 20, 2018 ~ May 15, 2018

Date of EUT Received: Apr. 20, 2018

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. 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 tested as described in this report is in compliance with conducted and radiated emission limits.

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

Tested By:

Vito Pei

Vito Pei / Sr. Engineer

Approved By:

Jim Chang

Jim Chang / Manager



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Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
E2/2018/40029	Rev.00	Initial creation of document	All	May 18, 2018	Violetta Tang

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1 GENERAL INFORMATION

1.1 Product Description

General:

Product Name:	Peloton Console	
Brand Name:	Peloton	
Model No.:	PLTN-RB1VQ	
Model Difference:	N/A	
Product SW/HW version:	EQL27A test-keys userdebug / 1.0	
Radio SW/HW version:	N/A / N/A	
Test SW Version:	N/A	
RF power setting in TEST SW:	N/A	
Power Supply:	12V from AC/DC Adapter	
	Adapter:	Model No.: FSP050-AHCN3, Supplier: FSP

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FCC WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Avg. Power (dBm)	Modulation Technology
11a_20	5150~5250	4	11.98	OFDM
	5250~5350	4	11.94	
	5470~5725	11	11.96	
	5725-5850	5	11.96	
11n_HT / ac_VHT 20M	5150~5250	4	HT: 11.96	OFDM
	5250~5350	4	HT: 11.94	
	5470~5725	11	HT: 11.93	
	5725-5850	5	HT: 11.91	
11n_HT / ac_VHT 40M	5150~5250	2	HT: 11.95	OFDM
	5250~5350	2	HT: 11.98	
	5470~5725	5	HT: 11.94	
	5725-5850	2	HT: 11.96	
11ac VHT80M	5150~5250	1	8.96	OFDM
	5250~5350	1	8.98	
	5470~5725	2	8.95	
	5725-5850	1	8.97	
Antenna Designation:	PIFA Antenna, Main Antenna: 5150~5250MHz Peak Gain: 1.97dBi 5250~5350MHz Peak Gain: 1.25dBi 5470~5725MHz Peak Gain: 1.31dBi 5725~5850MHz Peak Gain: 1.82dBi Aux Antenna: 5150~5250MHz Peak Gain: 0.56dBi 5250~5350MHz Peak Gain: -0.10dBi 5470~5725MHz Peak Gain: -0.70dBi 5725~5850MHz Peak Gain: 1.30dBi			

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IC WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Avg. or EIRP	Rated Power(dBm)	Modulation Technology
11a	5180~5240	4	EIRP	16.96	OFDM
	5260~5320	4	Avg.	11.94	
	5500~5580	5	Avg.	11.95	
	5660~5700	3	Avg.	11.96	
	5745~5825	5	Avg.	11.96	
11n_HT / ac_VHT 20M	5180~5240	4	EIRP	HT: 16.94	OFDM
	5260~5320	4	Avg.	HT: 11.94	
	5500~5580	5	Avg.	HT: 11.93	
	5660~5700	3	Avg.	HT: 11.88	
	5745~5825	5	Avg.	HT: 11.91	
11n_HT / ac_VHT 40M	5190~5230	2	EIRP	HT: 16.93	OFDM
	5270~5310	2	Avg.	HT: 11.98	
	5510~5550	2	Avg.	HT: 11.94	
	5670~5670	1	Avg.	HT: 11.92	
	5755~5795	2	Avg.	HT: 11.96	
11ac VHT80M	5210~5210	1	EIRP	13.94	OFDM
	5290~5290	1	Avg.	8.98	
	5530~5610	2	Avg.	8.95	
	5775~5775	1	Avg.	8.97	
Modulation type		64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only			
Transition Rate:		802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 - 300.0Mbps 802.11 ac_20MHz: 6.5 –144.4Mbps 802.11 ac_40MHz: 13.5 -300.0Mbps 802.11 ac_80MHz: 29.3 – 650Mbps			

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1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

KDB 789033 D02 v01r04 General UNII Test Procedures New Rules

KDB 644545 D03 v01 Guidance for IEEE 802.11ac

FCC KDB 662911 D01 Multiple Transmitter Output

RSS-247 issue 2 Feb. 2017

RSS-Gen. issue 5 Apr. 2018

ANSI C63.10:2013

Note: All test items have been performed and record as per the above standards.

1.3 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd.,
Guishan District, Taoyuan City, Taiwan 333 (TAF code 0513)

FCC Registration Numbers are: 735305 / TW0002

Canada Registration Number: 4620A-5

1.4 Special Accessories

There are no special accessories used while test was conducted.

1.5 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 a placed on as turn 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 according to §15.207. The two LISNs provide 50 ohm/ 50uH 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 Radiated Emissions

The EUT is a placed on as turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plan. 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

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.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
 Following shows an offset computation example with cable loss 7.3dB, and 10dB attenuator.
 $offset = RF\ cable\ loss\ (dB) + attenuation\ factor(dB) = 17.3(dB)$

2.5 Configuration of Tested System

Fig. 2-1 Radiated & Conducted Emission Configuration

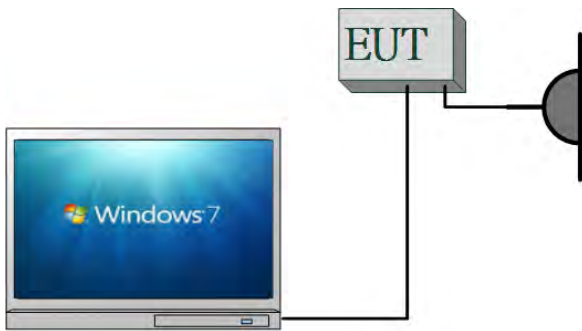


Fig.2-3 AC power line Configuration

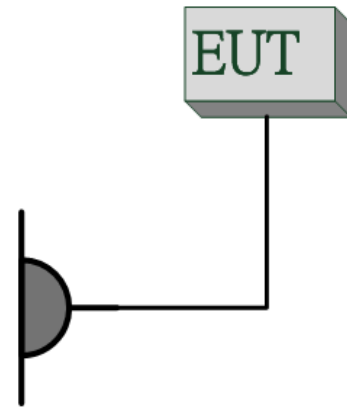


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2	Notebook	Lenovo	L430	P0000195	N/A	N/A

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3 SUMMARY OF TEST RESULT

FCC Rules	IC Rules	Description Of Test	Result
§15.207	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	RSS-247 §6.2.1~ 4 (1) RSS-Gen §6.6	26 dB & 6dB & 99% Emission Bandwidth	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Maximum Conducted Output Power	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Power Spectral Density	Compliant
§15.407(b)	RSS-247 §6.2.1~ 4 (2)	Undesirable Radiated Emissions	Compliant
§15.407(c)	RSS-247 §6.4	Transmission in case of Absence of Information	Compliant
§15.407(g)	RSS-Gen §6.11	Frequency Stability	Compliant
§15.203 §15.407(a)	RSS- Gen §6.7 RSS- Gen §8.3	Antenna Requirement	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 Operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

4 channels are provided for 802.11a, 802.11n_HT20, 802.11ac_VHT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n_HT40, 802.11ac_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac_VHT80

CHANNEL	FREQUENCY
42	5210 MHz

Operated band in 5250 MHz ~5350 MHz:

4 channels are provided for 802.11a, 802.11n_HT20, 802.11ac_VHT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n_HT40, 802.11ac_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac_VHT80

CHANNEL	FREQUENCY
58	5290 MHz

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Operated band in 5470 MHz ~5725 MHz:

11 channels are provided for 802.11a, 802.11n_HT20, 802.11ac_VHT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n_HT40, 802.11ac_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac_VHT80

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
106	5530 MHz	122	5610 MHz

Operated band in 5725 MHz ~5850 MHz:

5 channels are provided for 802.11a, 802.11n_HT20, 802.11ac_VHT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n_HT40, 802.11ac_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac_VHT80

CHANNEL	FREQUENCY
155	5775 MHz

Remark: The device will not operate in 5600~5650MHz band for IC.

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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.
4. The given UE is pre-scanned among 802.11n and ac modes, and 802.11n yields the highest reading that generates the highest emission.
5. The given UE is pre-scanned among SISO Main, SISO Aux and MIMO modes, and MIMO modes yields the highest reading that generates the highest emission. Therefore, 802.11ac+MIMO as the mode of radiated test configuration is chosen to carry out the relevantly mandatory test items.
6. Pre-scanned was done on Normal mode & CDD mode for 802.11n HT20/HT40 & ac VHT80. The Normal mode results higher emission at 5GHz. Therefore, the radiated emission measurement was done on normal mode to be presented on this test report.

RADIATED EMISSION TEST:

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	36,44,48	OFDM	6	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	MIMO
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	MIMO
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MIMO
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MIMO
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS8	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	MIMO
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS8	MIMO

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case E2 position was reported.

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ANTENNA PORT CONDUCTED MEASUREMENT:

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	MIMO
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MIMO
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MIMO
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5510~5670	102 to 134	102,110,134	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS8	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	MIMO
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS8	MIMO

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB & 6dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Measurement	+/- 0.96 dB
Peak Power Spectral Density Measurement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission:

Measurement uncertainty (Polarization : Vertical)	9kHz-30MHz: +/-2.87dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : Horizontal)	9kHz-30MHz: +/-2.87dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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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

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI 7	100950	2017/12/24	2018/12/23
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	2017/08/30	2018/08/29
LISN	Schwarzbeck	NSLK 8127	8127-648	2017/06/18	2018/06/17
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

6.3 EUT Setup

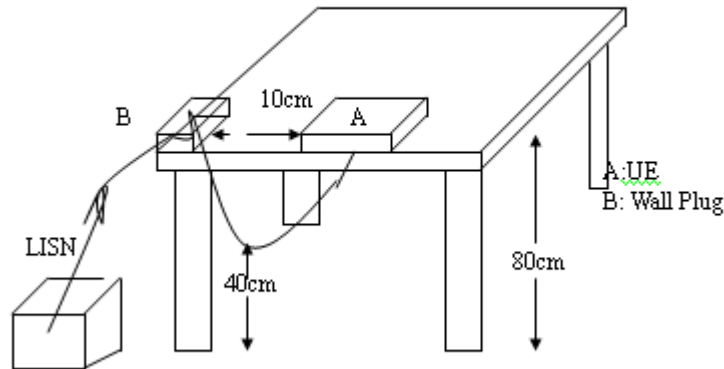
1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The LISN was connected with 120Vac/60Hz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

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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

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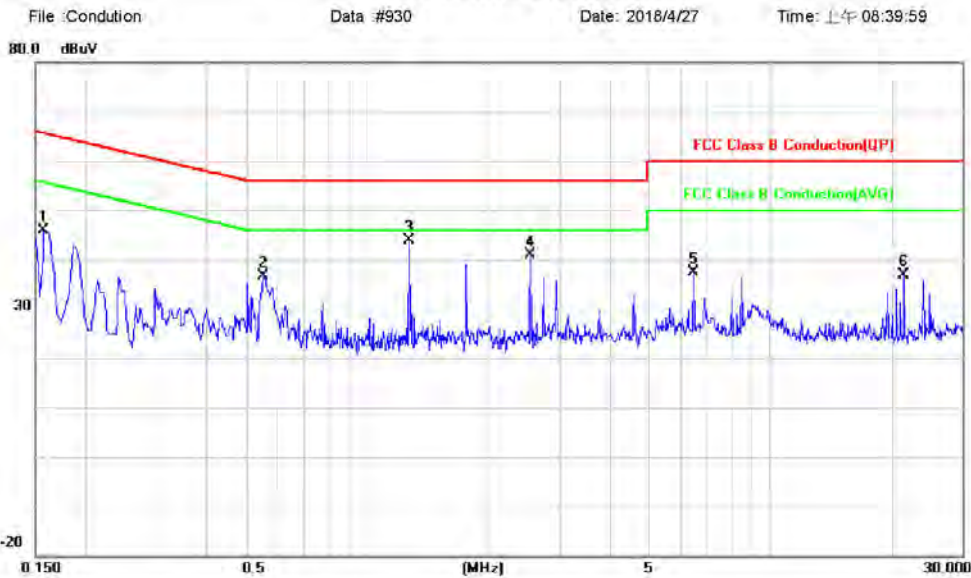
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AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation mode	Test By:	Jerry
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Site : Conduction Room	Phase: L1	Temperature: 21 °C
Limit: FCC Class B Conduction(QP)	Power: AC 120V/60Hz	Humidity: 59 %
Mode:		
Note:		

Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	26.16	19.65	45.81	65.57	-19.76	peak	
2		0.5540	16.47	20.10	36.57	56.00	-19.43	peak	
3	*	1.2740	23.77	20.04	43.81	56.00	-12.19	peak	
4		2.5500	20.47	20.48	40.95	56.00	-15.05	peak	
5		6.4740	17.34	20.08	37.42	60.00	-22.58	peak	
6		21.5900	16.73	20.17	36.90	60.00	-23.10	peak	

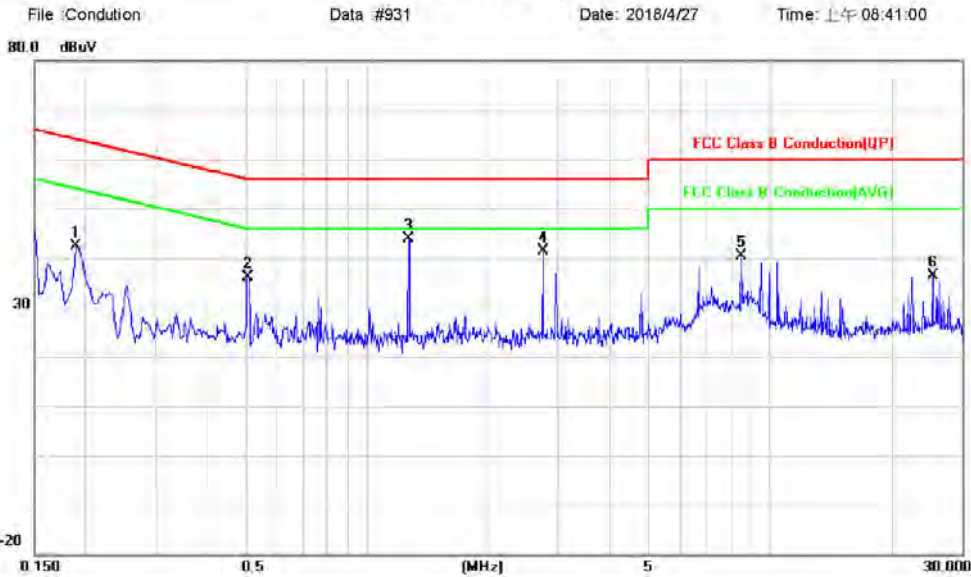
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Site : Conduction Room Phase: **N** Temperature: 21 °C
 Limit: FCC Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 59 %
 Mode:
 Note:

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1900	22.75	19.62	42.37	64.04	-21.67	peak	
2		0.5100	16.01	20.11	36.12	56.00	-19.88	peak	
3	*	1.2740	23.86	20.02	43.88	56.00	-12.12	peak	
4		2.7460	20.91	20.42	41.33	56.00	-14.67	peak	
5		8.5340	20.34	20.05	40.39	60.00	-19.61	peak	
6		25.4100	16.23	20.27	36.50	60.00	-23.50	peak	

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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.

Formula:

$$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$$

Measurement Procedure:

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

Duty Cycle:

Mode	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	93.26	0.30	0.72	1.00
802.11n_20	86.89	0.61	1.48	2.00
802.11ac_20	92.73	0.33	0.76	1.00
802.11n_40	77.20	1.12	2.88	3.00
802.11ac_40	86.70	0.62	1.53	2.00
802.11ac_80	76.00	1.19	3.10	4.00

$$\text{Duty Cycle Factor: } 10 * \log(1/0.9326) = 0.3$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.8689) = 0.61$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.9273) = 0.33$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.772) = 1.12$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.867) = 0.62$$

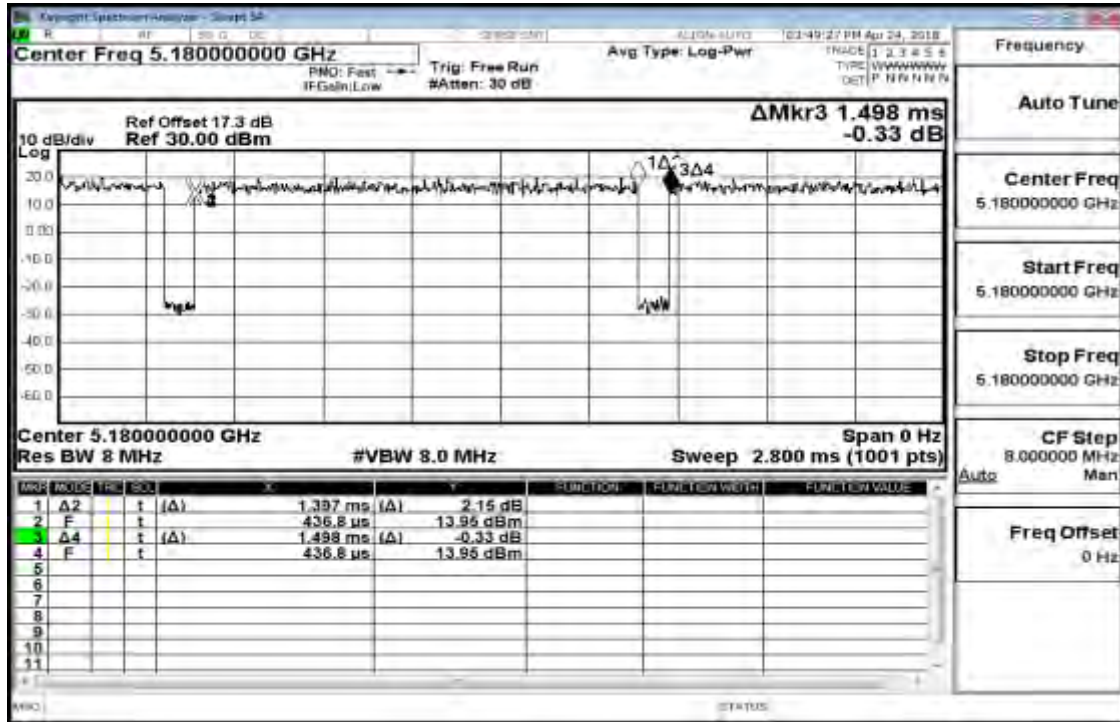
$$\text{Duty Cycle Factor: } 10 * \log(1/0.76) = 1.19$$

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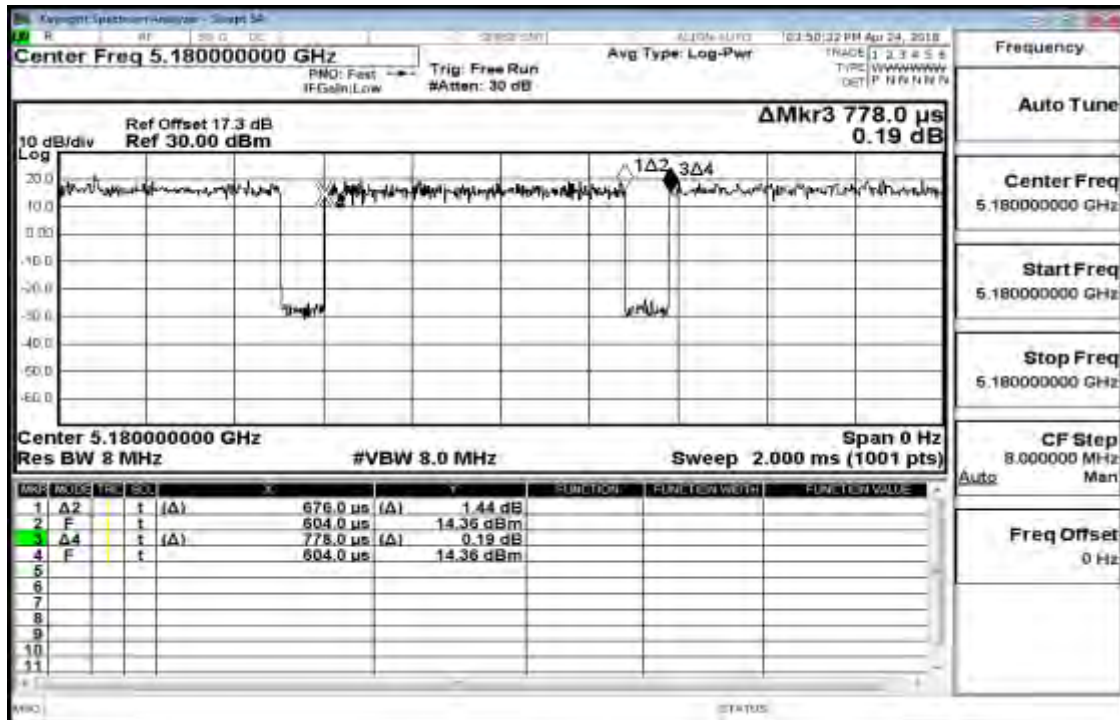
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DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



802.11n HT20

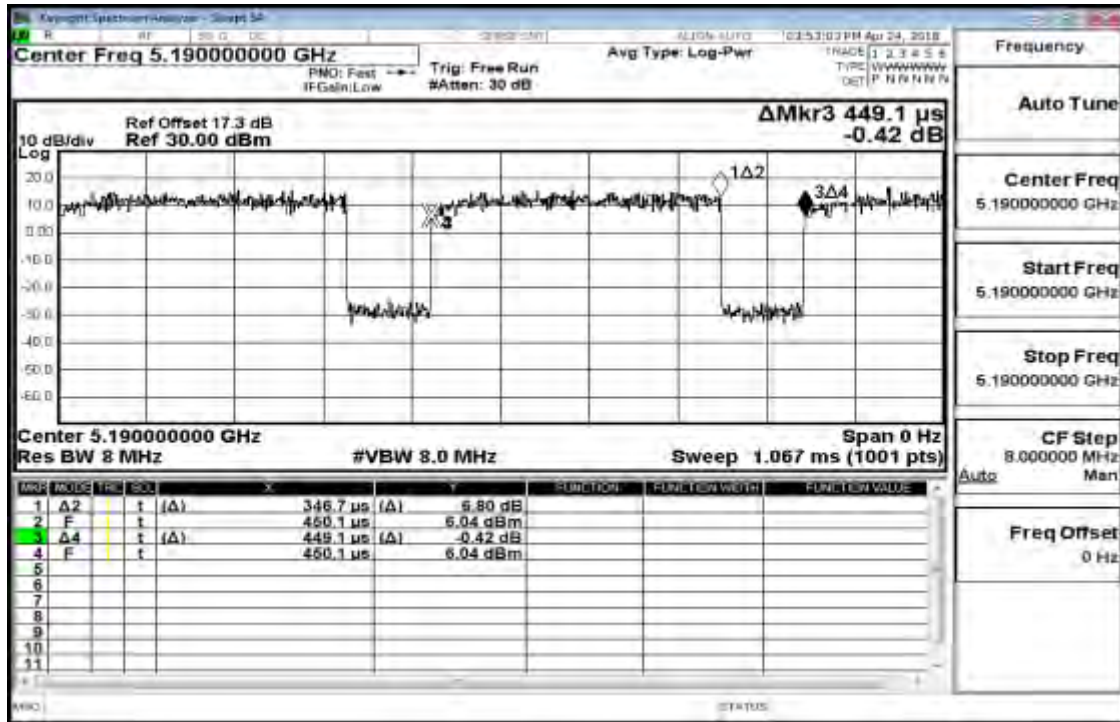


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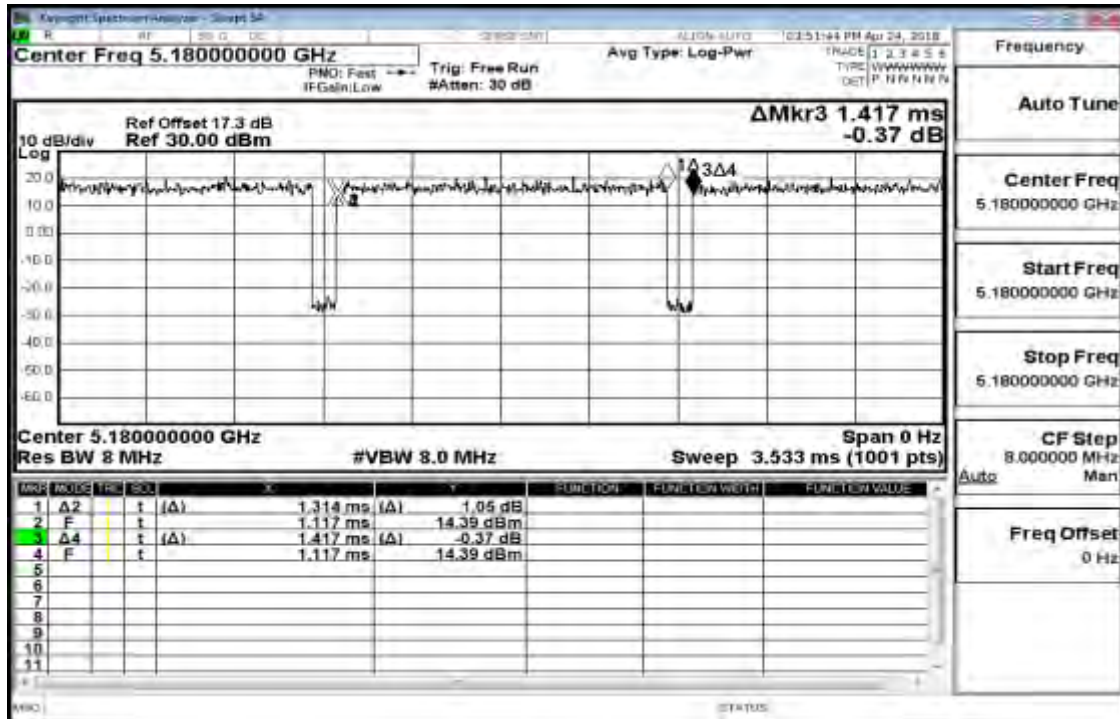
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802.11n HT 40



802.11ac VHT20



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8 26DB & 6DB 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

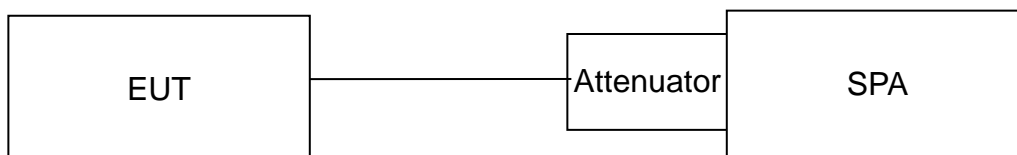
8.2 Measurement Procedure

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.
 - 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.
 - 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 = 30M/50MHz, Detector=Peak, Sweep=auto
 - b. Mark the peak frequency and -6dB (upper and lower) frequency.
6. Repeat above procedures until all test default channel measured were complete.

8.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	Agilent	N9010A	MY51440113	2017/06/21	2018/06/20
Attenuator	Marvelous	MVE2213-10	RF31	2017/12/26	2018/12/25
DC Block	PASTERNAK	PE8210	RF81	2017/12/26	2018/12/25
Notebook	Lenovo	L430	P0000195	N/A	N/A

8.4 Test Set-up



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8.5 Measurement Result

26dB and 6dB Bandwidth

802.11a_Main

802.11a_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.01	13.224	5180	21.34	13.291
5220	21.01	13.224	5220	20.90	13.202
5240	20.94	13.210	5240	21.15	13.252
5260	20.86	13.192	5260	21.13	13.248
5300	21.32	13.288	5300	21.09	13.240
5320	21.04	13.231	5320	20.95	13.212
5500	21.11	13.244	5500	21.07	13.237
5580	21.17	13.258	5580	21.29	13.282
5700	20.85	13.190	5700	21.01	13.225

802.11a_Main

802.11a_Aux1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.38	12.143	5745	16.40	12.149
5785	16.33	12.131	5785	15.75	11.973
5825	16.32	12.127	5825	16.32	12.127

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802.11n_HT20_Main

802.11n_HT20_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.12	13.247	5180	21.39	13.302
5220	21.23	13.269	5220	21.47	13.318
5240	21.11	13.244	5240	21.24	13.271
5260	21.14	13.250	5260	21.20	13.263
5300	21.17	13.258	5300	21.19	13.261
5320	21.40	13.305	5320	21.54	13.332
5500	21.26	13.276	5500	21.14	13.252
5580	21.31	13.286	5580	21.41	13.307
5700	21.27	13.277	5700	21.74	13.373

802.11n_HT20_Main

802.11n_HT20_Aux1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.55	12.444	5745	17.44	12.414
5785	17.35	12.392	5785	16.79	12.250
5825	17.55	12.443	5825	17.20	12.356

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802.11n_HT40_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.73	15.991	5190	39.32	15.946
5230	39.35	15.949	5230	39.16	15.929
5270	39.55	15.971	5270	39.73	15.991
5310	39.68	15.985	5310	39.67	15.985
5510	39.78	15.996	5510	39.35	15.950
5550	39.44	15.959	5550	39.70	15.988
5670	39.54	15.970	5670	39.36	15.951

802.11n_HT40_Aux1

802.11n_HT40_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.03	15.566	5755	35.92	15.553
5795	36.30	15.599	5795	36.08	15.572

802.11n_HT40_Aux1

802.11ac_VHT80_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	80.94	19.082	5210	81.24	19.097
5290	81.04	19.087	5290	81.01	19.085
5530	83.95	19.240	5530	84.26	19.256
5610	81.13	19.092	5610	81.29	19.101

802.11ac_VHT80_Aux1

802.11ac_VHT80_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.45	18.777	5775	75.30	18.768

802.11ac_VHT80_Aux1

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99% Bandwidth

802.11a_Main

802.11a_Aux1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.801	12.253	5180	16.838	12.263
5220	16.817	12.257	5220	16.806	12.255
5240	16.834	12.262	5240	16.771	12.246
5260	16.824	12.259	5260	16.765	12.244
5300	16.828	12.260	5300	16.830	12.261
5320	16.801	12.253	5320	16.821	12.259
5500	16.826	12.260	5500	16.837	12.263
5580	16.853	12.267	5580	16.825	12.260
5700	16.814	12.257	5700	16.794	12.252

802.11a_Main

802.11a_Aux1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.26	12.112	5745	16.33	12.131
5785	16.26	12.112	5785	16.25	12.109
5825	16.14	12.078	5825	16.28	12.116

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802.11n_HT20_Main

802.11n_HT20_Aux1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	17.840	12.514	5180	17.916	12.532
5220	17.862	12.519	5220	17.836	12.513
5240	17.839	12.514	5240	17.827	12.511
5260	17.929	12.536	5260	17.904	12.530
5300	17.859	12.519	5300	17.912	12.531
5320	17.858	12.518	5320	17.878	12.523
5500	17.890	12.526	5500	17.837	12.513
5580	17.867	12.521	5580	17.884	12.525
5700	17.875	12.522	5700	17.896	12.528

802.11n_HT20_Main

802.11n_HT20_Aux1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.56	12.445	5745	17.52	12.436
5785	17.56	12.445	5785	17.36	12.395
5825	17.41	12.407	5825	17.50	12.430

802.11n_HT40_Main

802.11n_HT40_Aux1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5190	36.150	15.581	5190	36.120	15.577
5230	36.115	15.577	5230	36.114	15.577
5270	36.091	15.574	5270	36.149	15.581
5310	36.177	15.584	5310	36.130	15.579
5510	36.160	15.582	5510	36.151	15.581
5550	36.078	15.572	5550	36.134	15.579
5670	36.110	15.576	5670	36.122	15.578

802.11n_HT40_Main

802.11n_HT40_Aux1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.35	15.605	5755	36.07	15.572
5795	36.34	15.604	5795	36.33	15.602

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802.11ac_VHT80_Main

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	75.451	18.777	5210	75.424	18.775
5290	75.490	18.779	5290	75.504	18.780
5530	75.501	18.780	5530	75.515	18.780
5610	75.360	18.771	5610	75.418	18.775

802.11ac_VHT80_Aux1

802.11ac_VHT80_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	76.22	18.821	5775	76.11	18.814

802.11ac_VHT80_Aux1

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Band-Corssing Signals

802.11a_Main
802.11a_Aux1

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)	Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5240	5248.13	< 5250	5240	5248.16	< 5250
5745	5736.72	> 5725	5745	5736.69	> 5725

802.11n_HT20_Main
802.11n_HT20_Aux1

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)	Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5240	5248.76	< 5250	5240	5248.73	< 5250
5745	5736.09	> 5725	5745	5736.12	> 5725

802.11n_HT40_Main
802.11n_HT40_Aux1

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)	Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5230	5248.00	< 5250	5230	5248.05	< 5250
5755	5736.90	> 5725	5755	5736.85	> 5725

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802.11ac_VHT20_Main

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5240	5248.76	< 5250
5745	5736.09	> 5725

802.11ac_VHT20_Aux1

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5240	5248.73	< 5250
5745	5736.12	> 5725

802.11ac_VHT40_Main

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5230	5248.05	< 5250
5755	5736.95	> 5725

802.11ac_VHT40_Aux1

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5230	5248.05	< 5250
5755	5736.85	> 5725

802.11ac_VHT80_Main

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5210	5247.50	< 5250
5775	5737.20	> 5725

802.11ac_VHT80_Aux1

Frequency (MHz)	Measured Frequency (MHz)	Limit (MHz)
5210	5247.50	< 5250
5775	5737.30	> 5725

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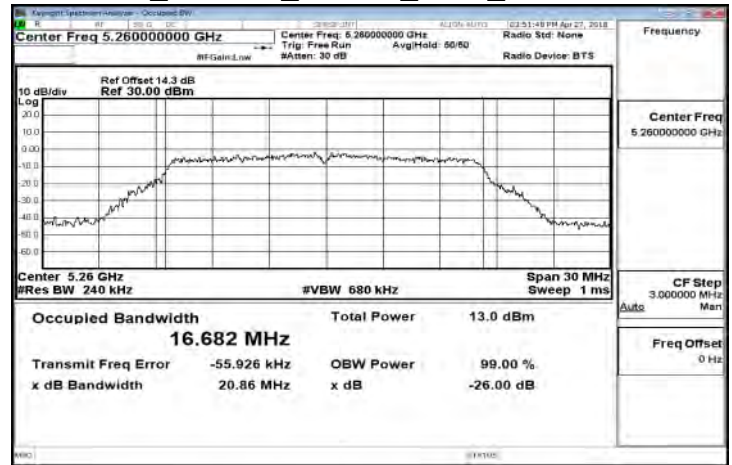
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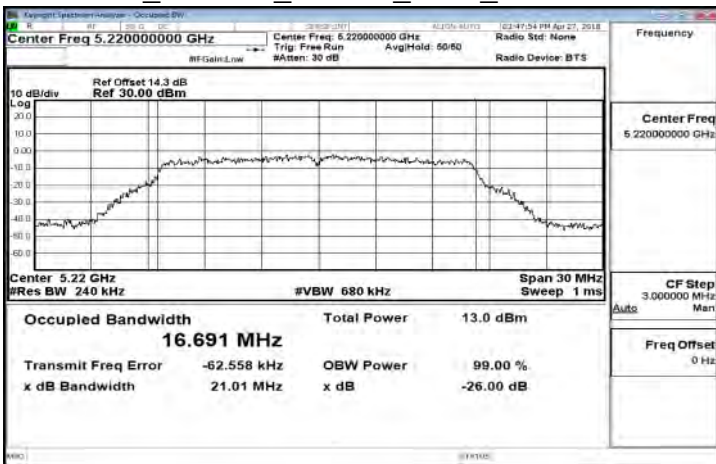
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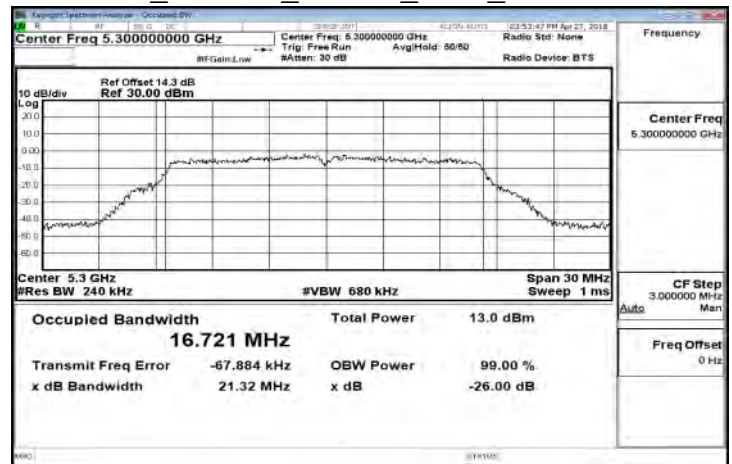
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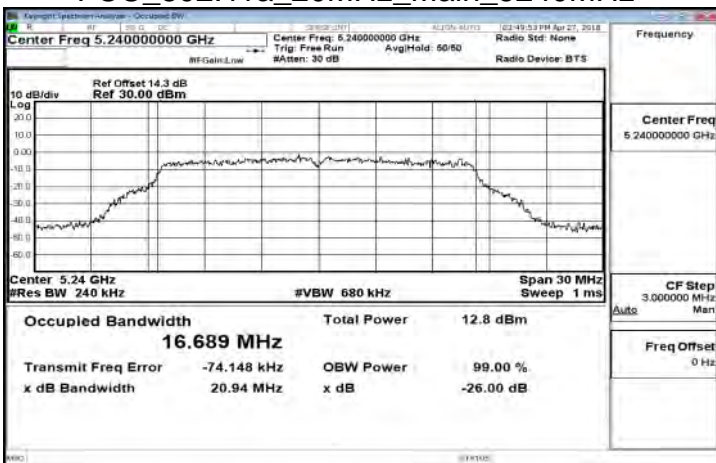
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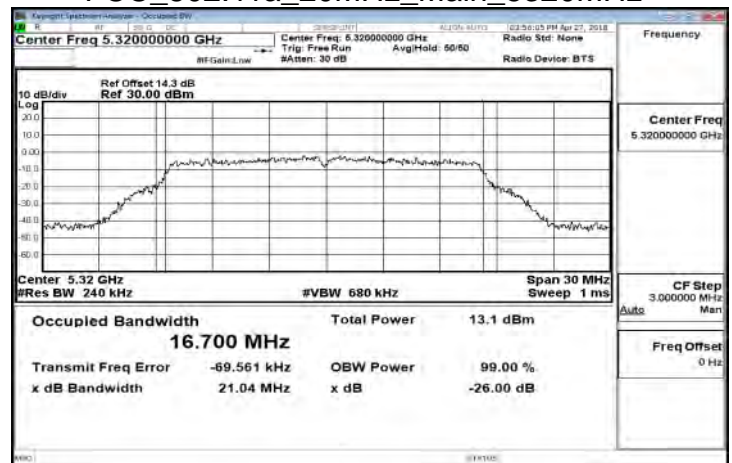
FCC_802.11a_20MHz_Main_5300MHz



FCC_802.11a_20MHz_Main_5240MHz



FCC_802.11a_20MHz_Main_5320MHz

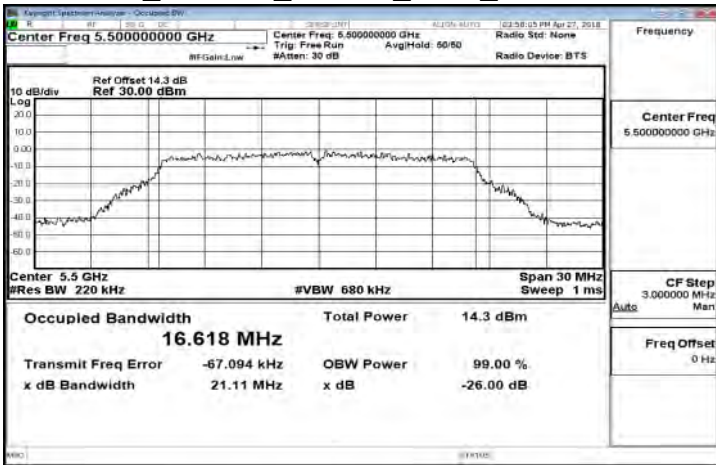


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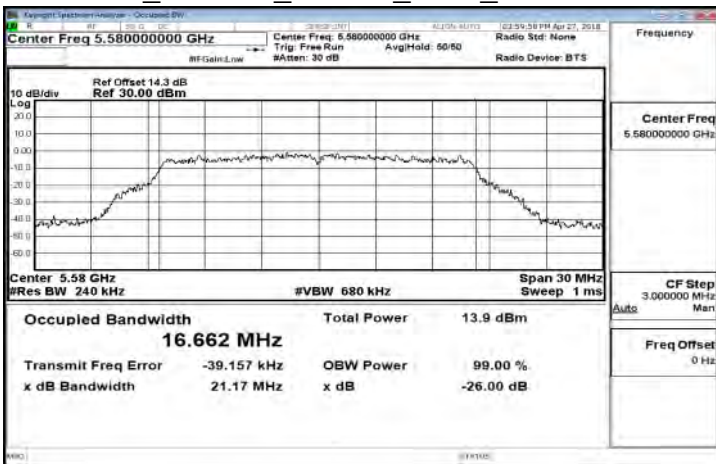
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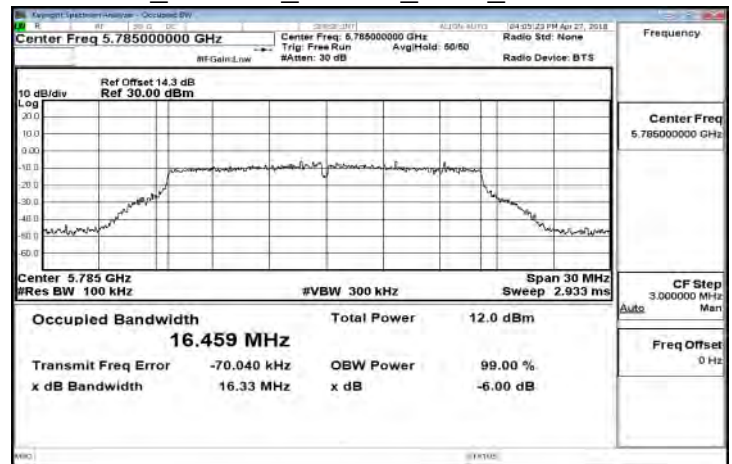
FCC_802.11a_20MHz_Main_5745MHz



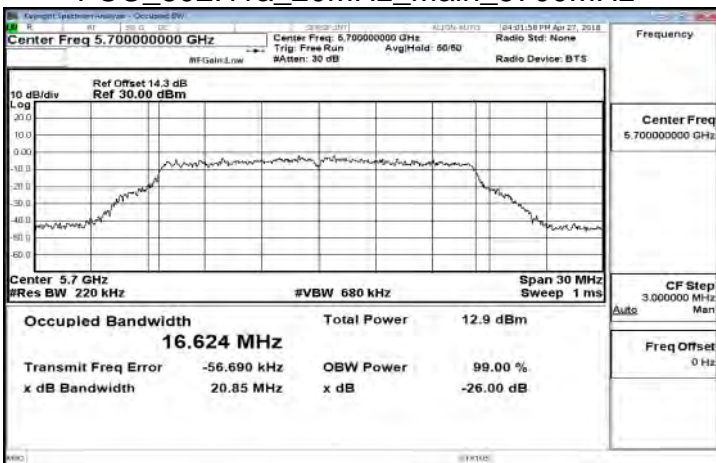
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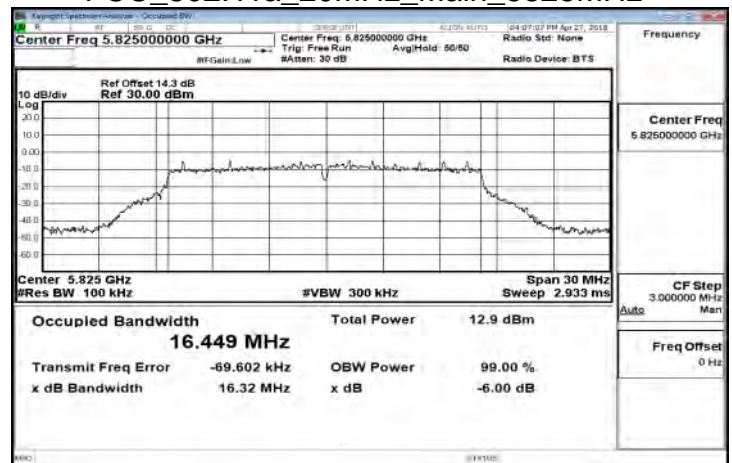
FCC_802.11a_20MHz_Main_5785MHz



FCC_802.11a_20MHz_Main_5700MHz



FCC_802.11a_20MHz_Main_5825MHz

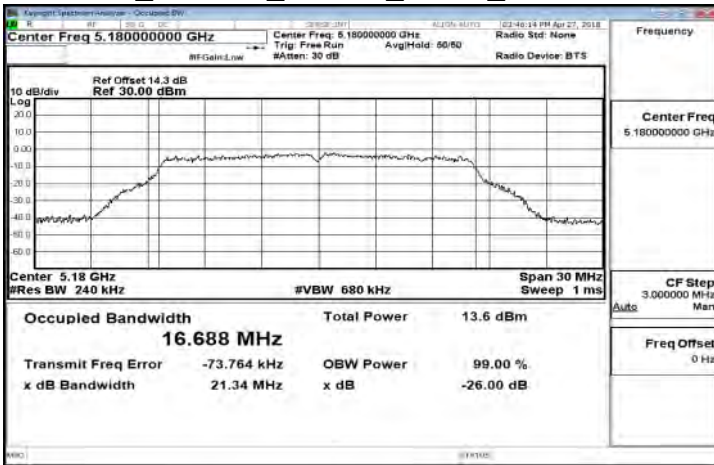


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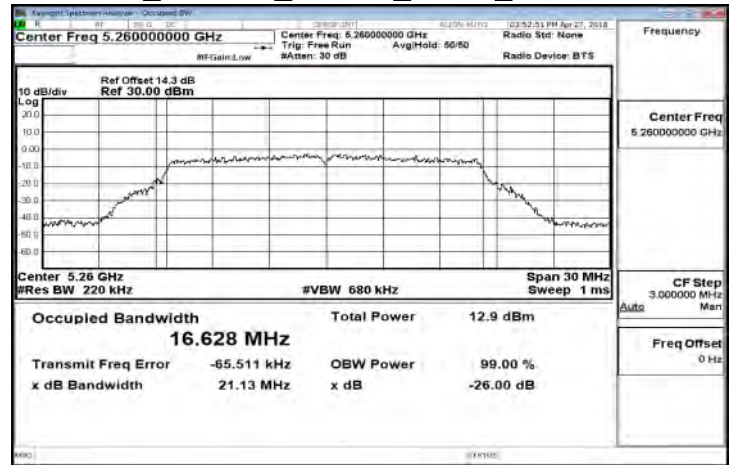
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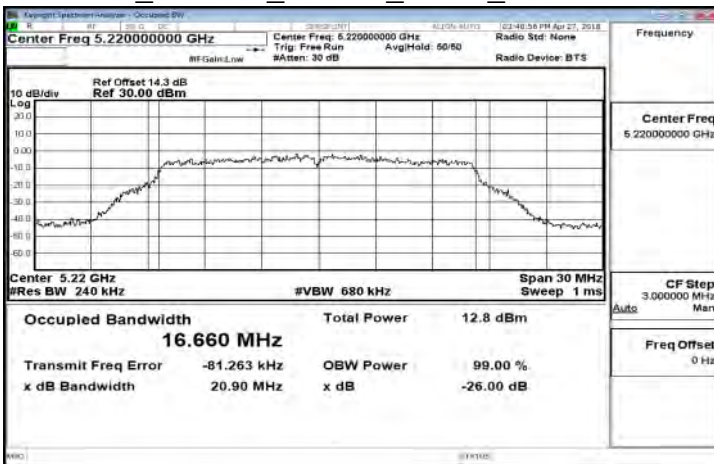
FCC_802.11a_20MHz_AUX1_5180MHz



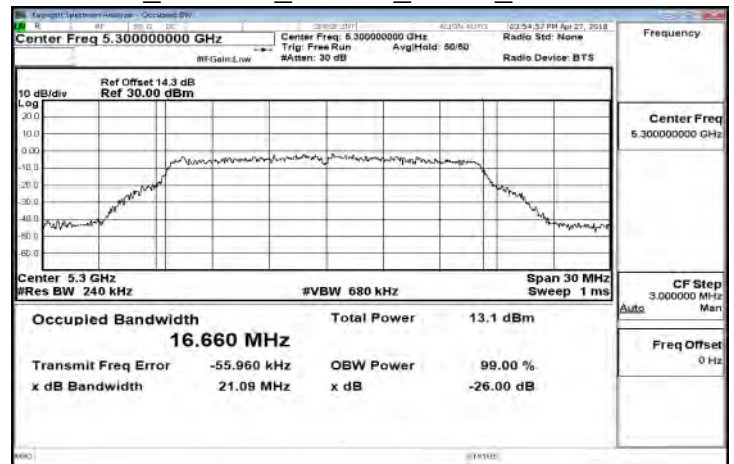
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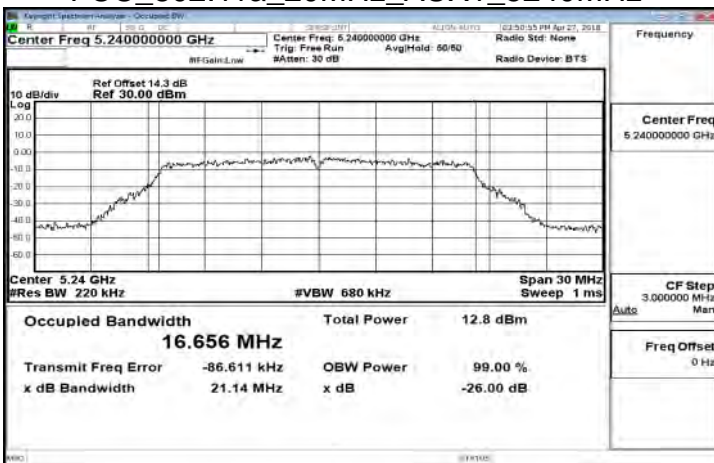
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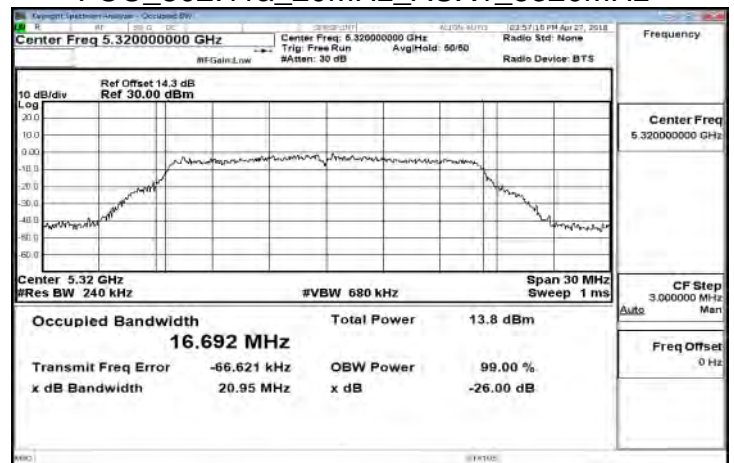
FCC_802.11a_20MHz_AUX1_5300MHz



FCC_802.11a_20MHz_AUX1_5240MHz



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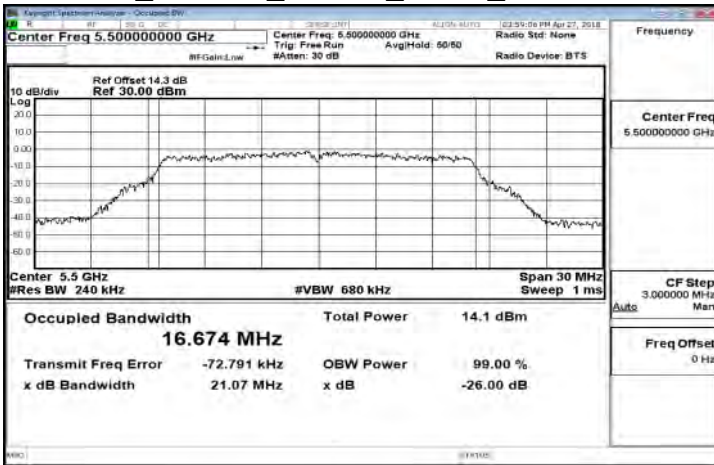


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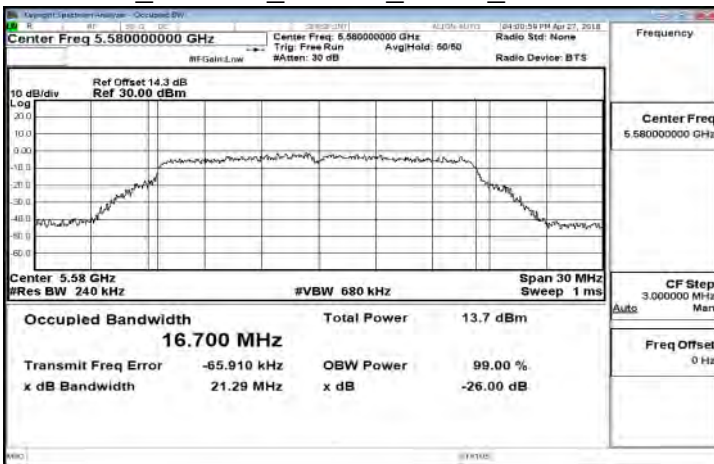
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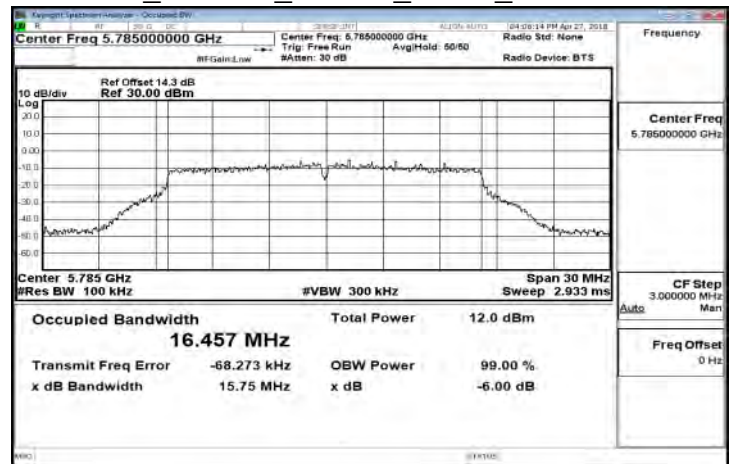
FCC_802.11a_20MHz_AUX1_5745MHz



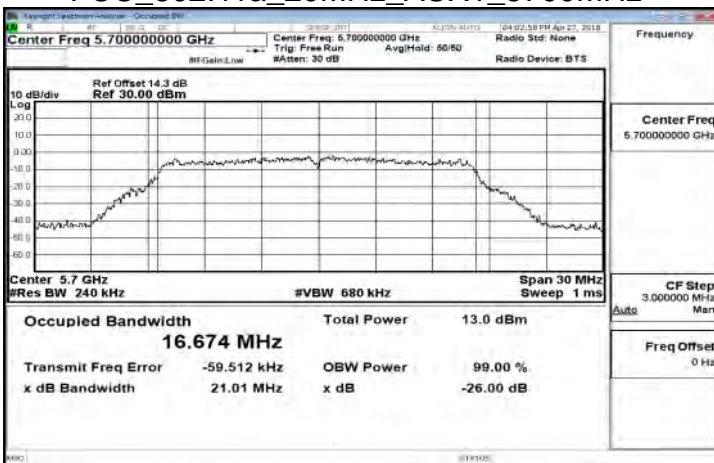
FCC_802.11a_20MHz_AUX1_5580MHz



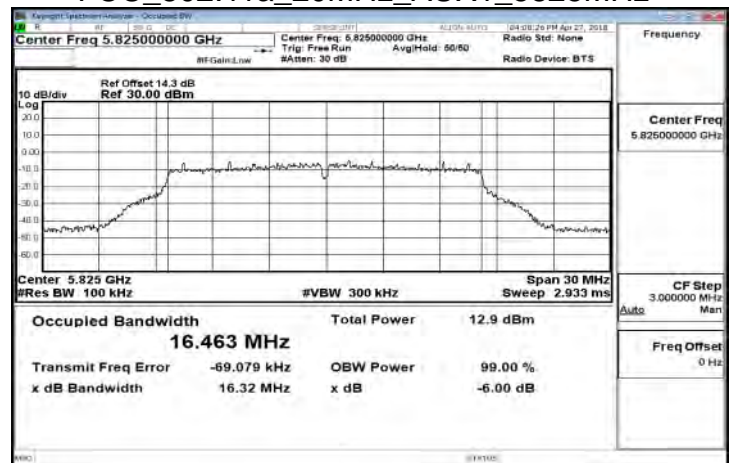
FCC_802.11a_20MHz_AUX1_5785MHz



FCC_802.11a_20MHz_AUX1_5700MHz



FCC_802.11a_20MHz_AUX1_5825MHz



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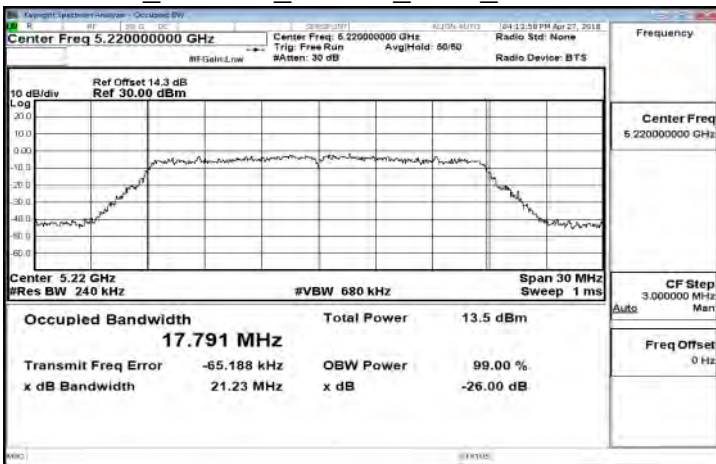
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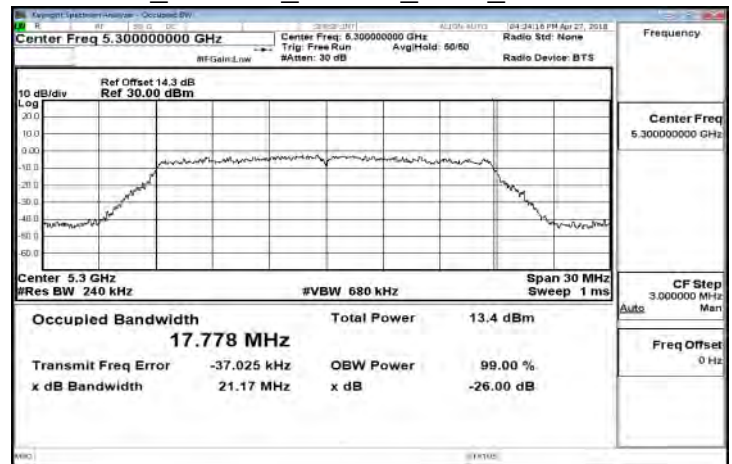
FCC_802.11n_20MHz_Main_5260MHz



FCC_802.11n_20MHz_Main_5220MHz



FCC_802.11n_20MHz_Main_5300MHz



FCC_802.11n_20MHz_Main_5240MHz



FCC_802.11n_20MHz_Main_5320MHz



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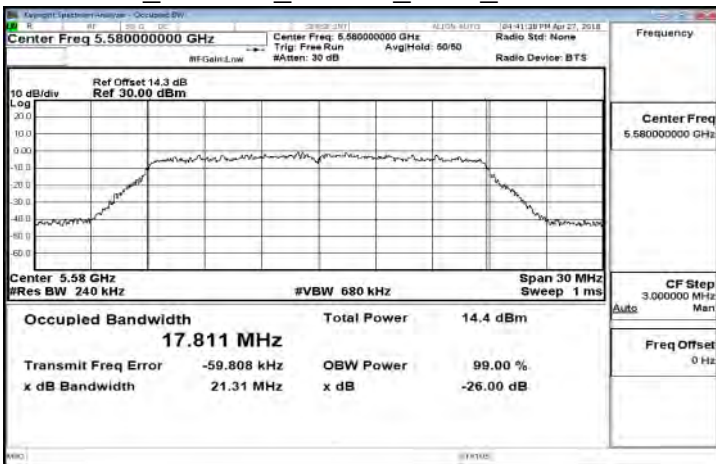
FCC_802.11n_20MHz_Main_5500MHz



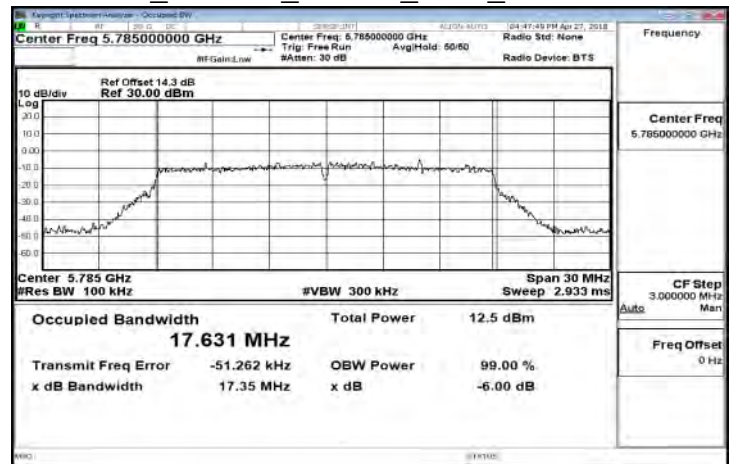
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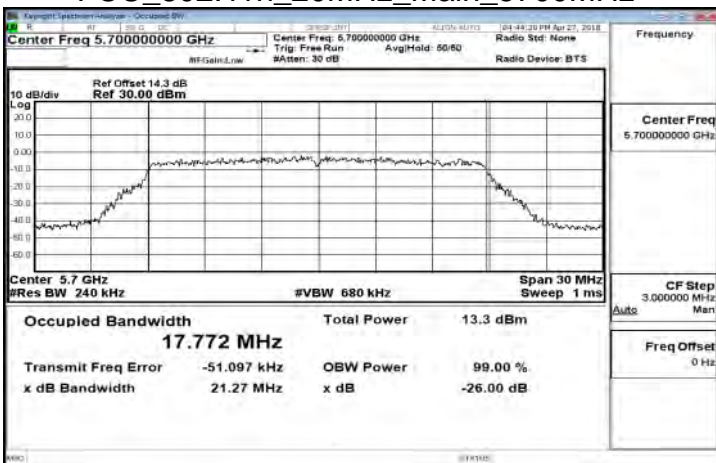
FCC_802.11n_20MHz_Main_5580MHz



FCC_802.11n_20MHz_Main_5785MHz



FCC_802.11n_20MHz_Main_5700MHz



FCC_802.11n_20MHz_Main_5825MHz

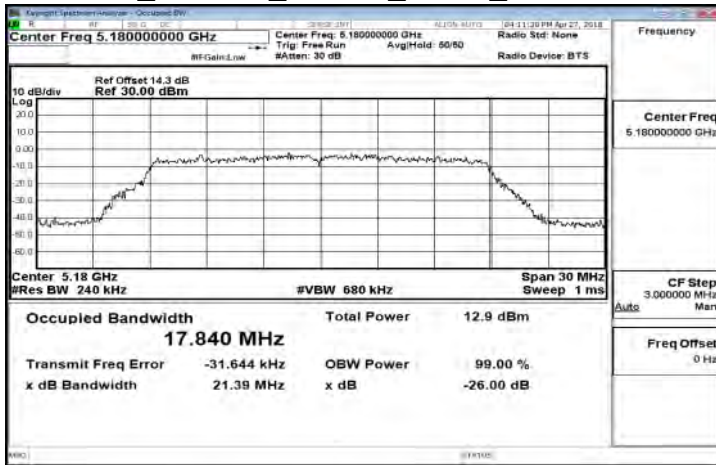


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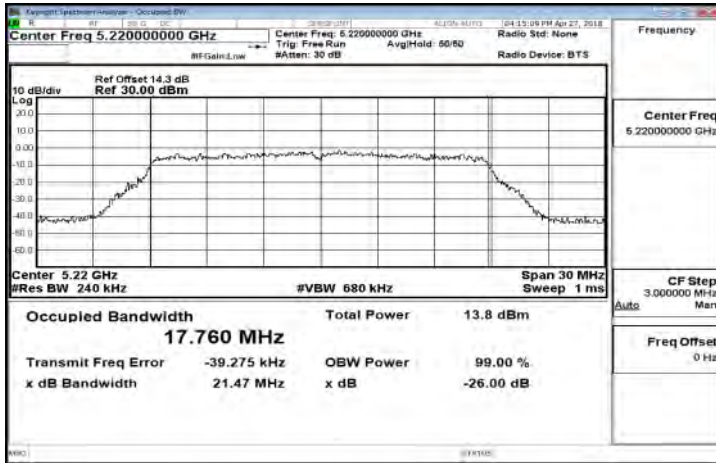
FCC_802.11n_20MHz_AUX1_5180MHz



FCC_802.11n_20MHz_AUX1_5260MHz



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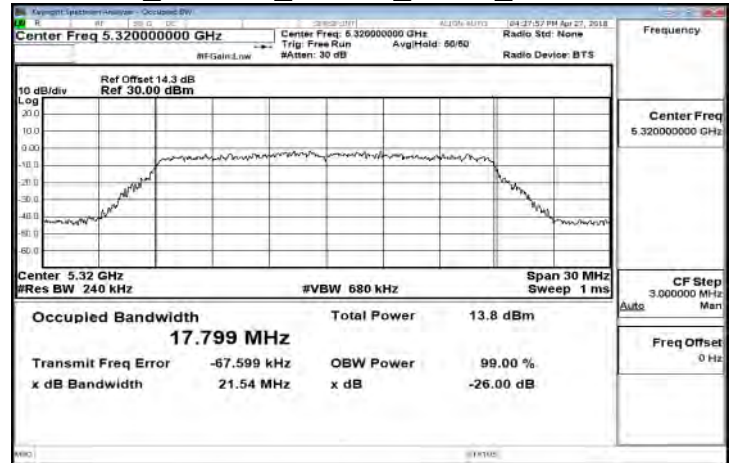
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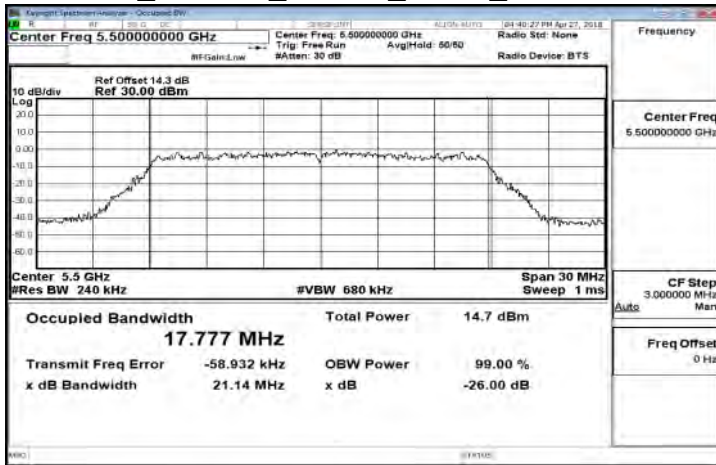


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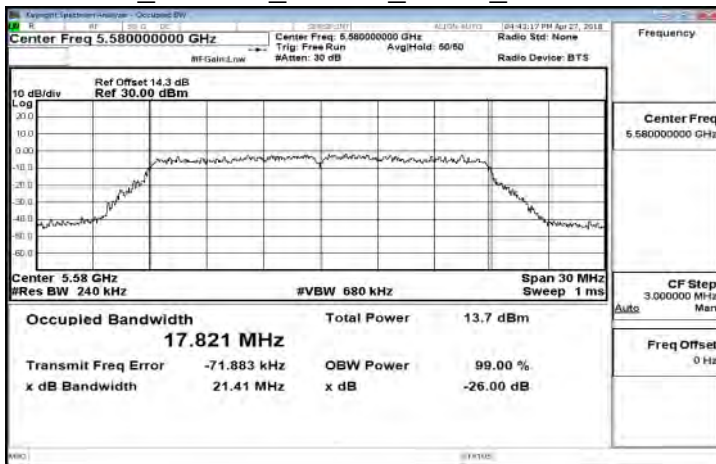
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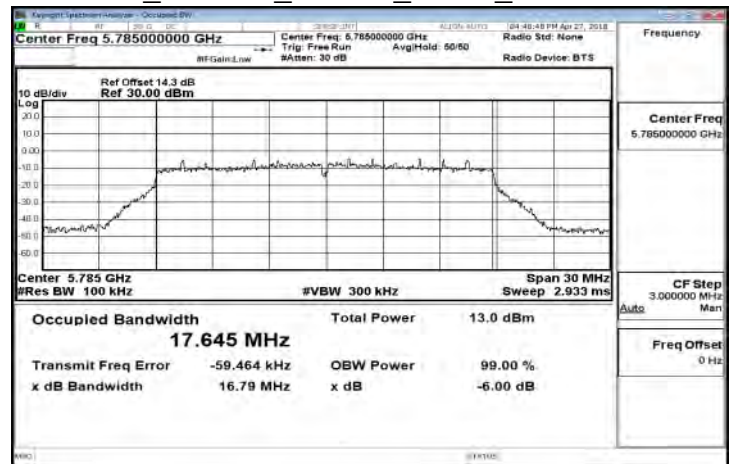
FCC_802.11n_20MHz_AUX1_5745MHz



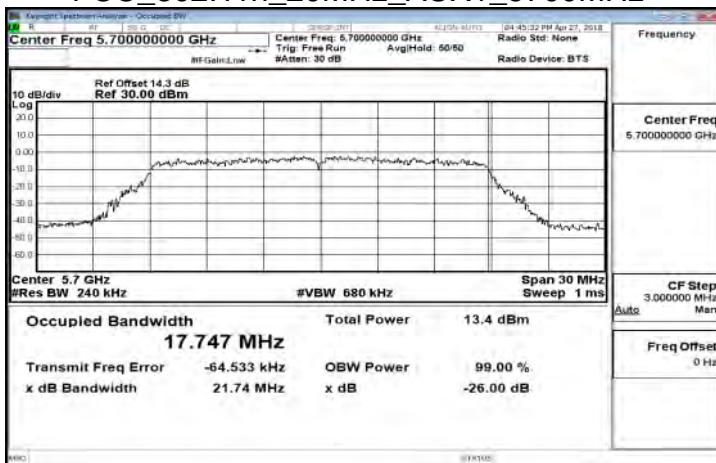
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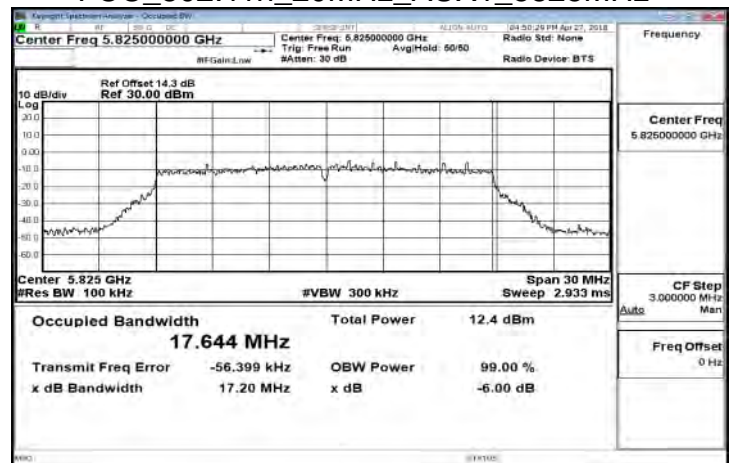
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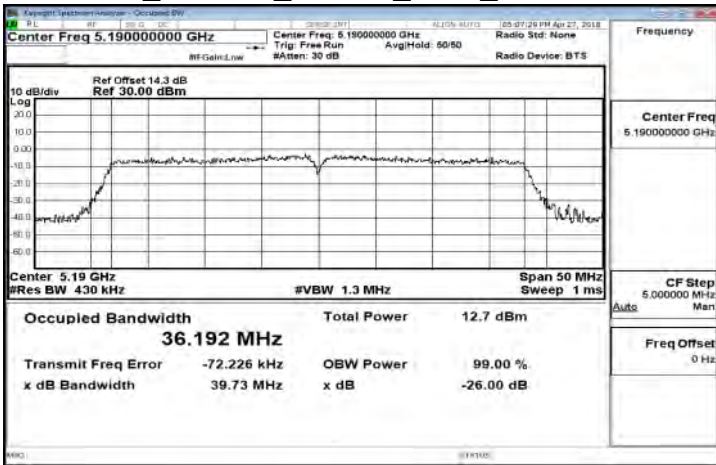


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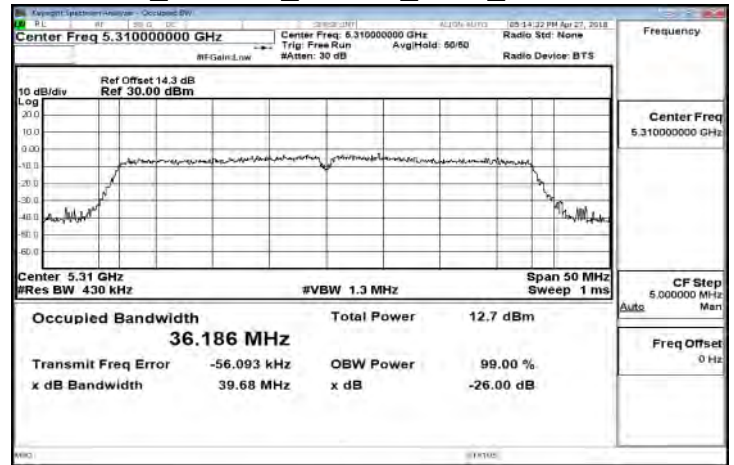
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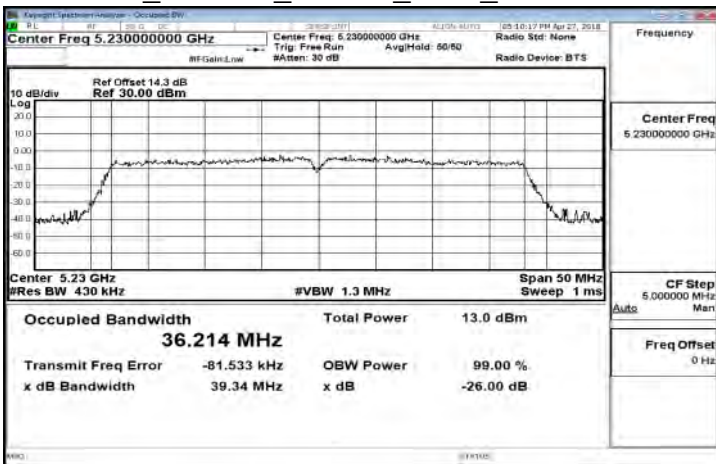
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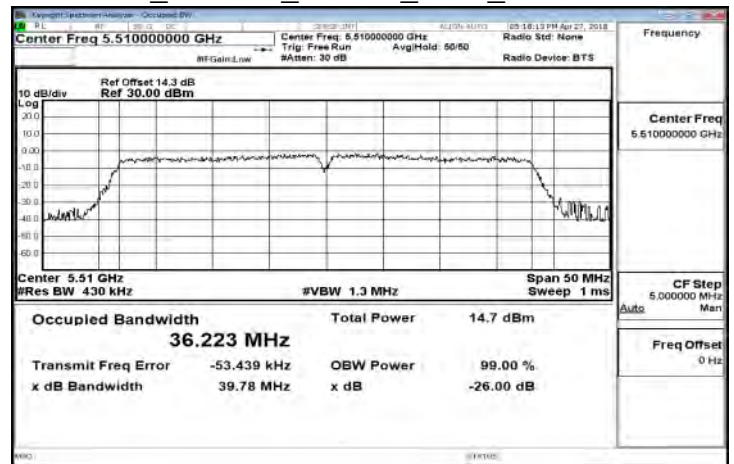
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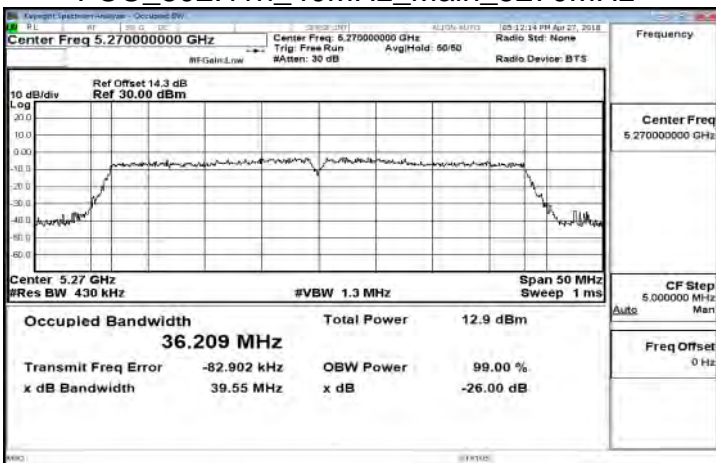
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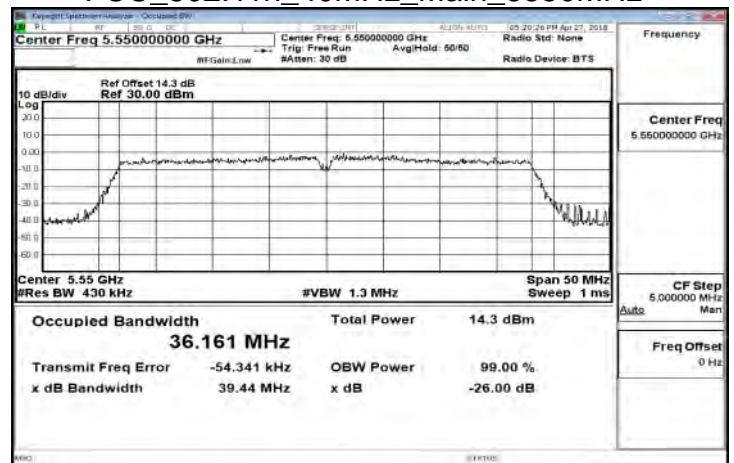
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FCC_802.11n_40MHz_Main_5270MHz



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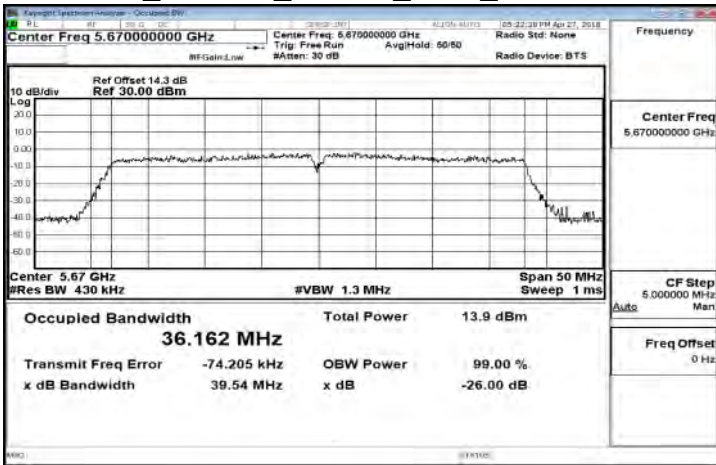


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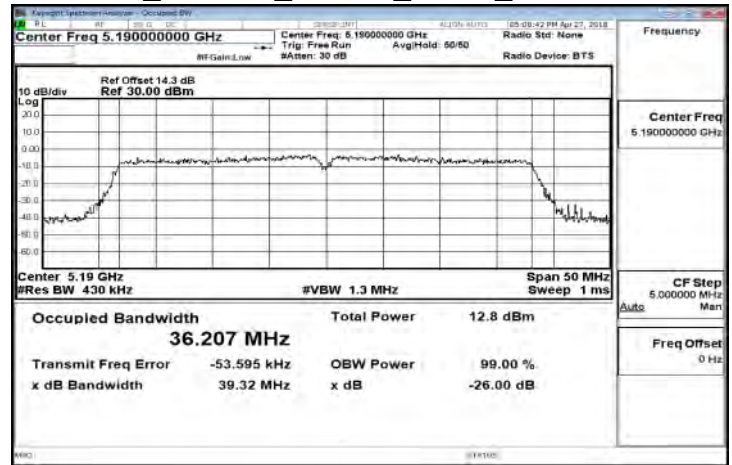
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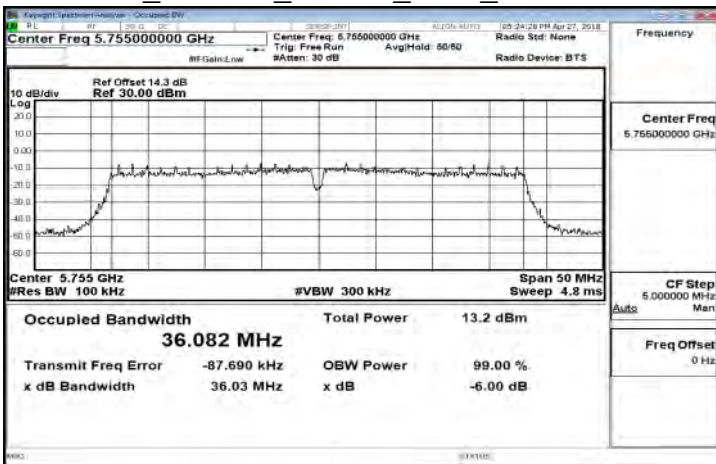
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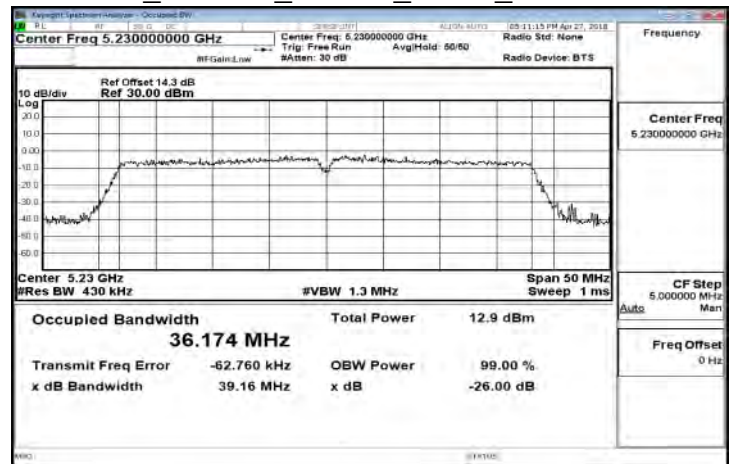
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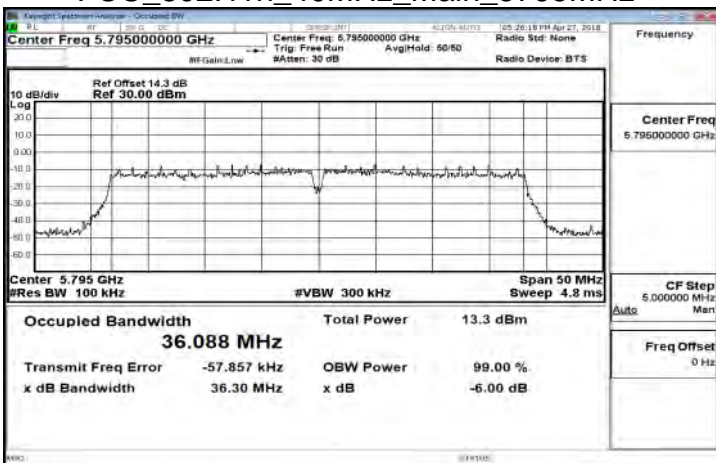
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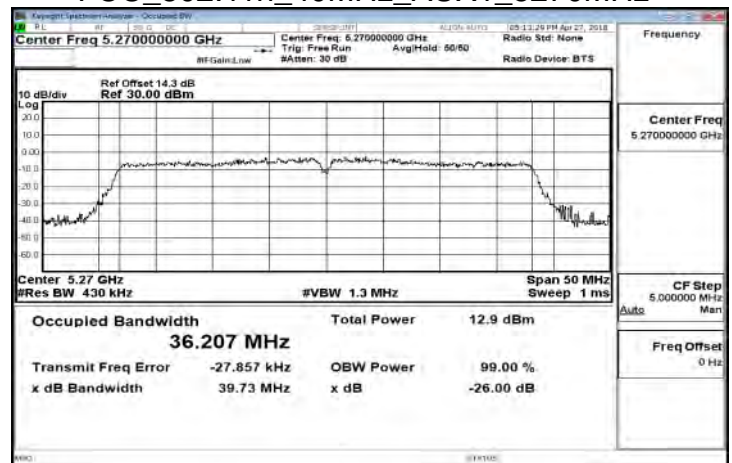
FCC_802.11n_40MHz_AUX1_5230MHz



FCC_802.11n_40MHz_Main_5795MHz



FCC_802.11n_40MHz_AUX1_5270MHz

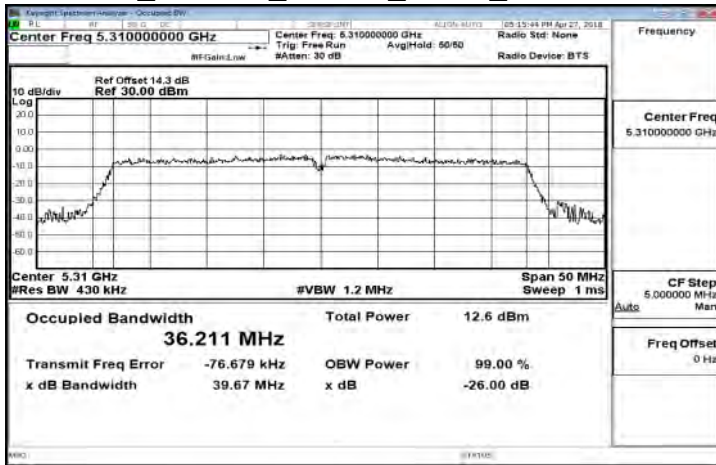


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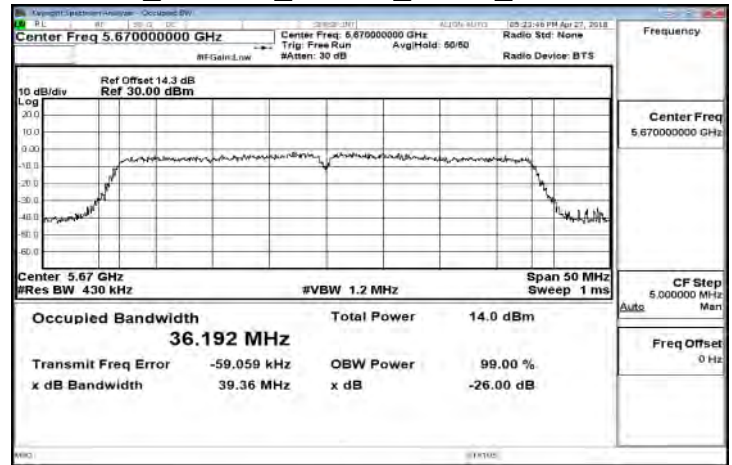
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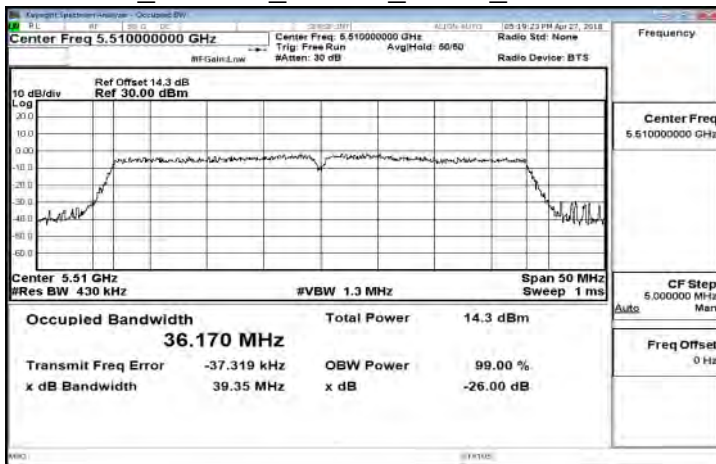
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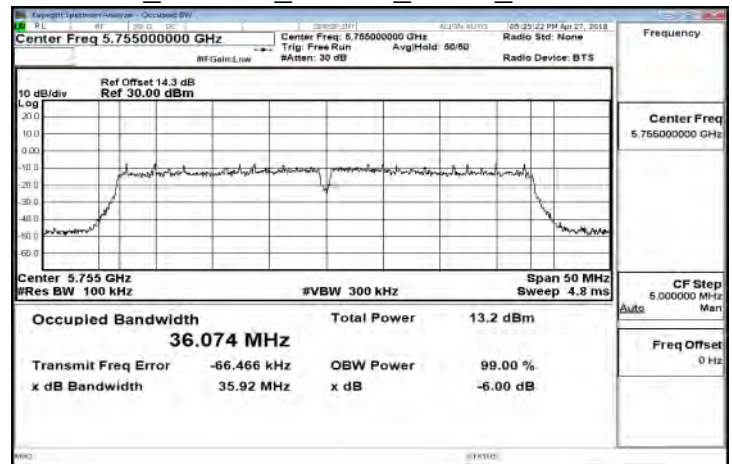
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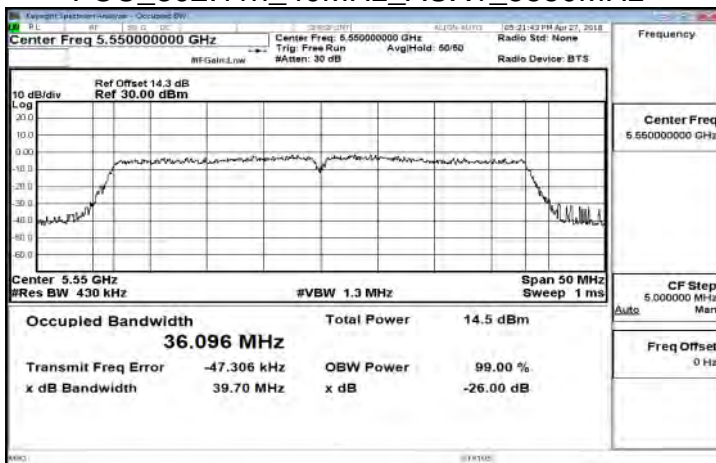
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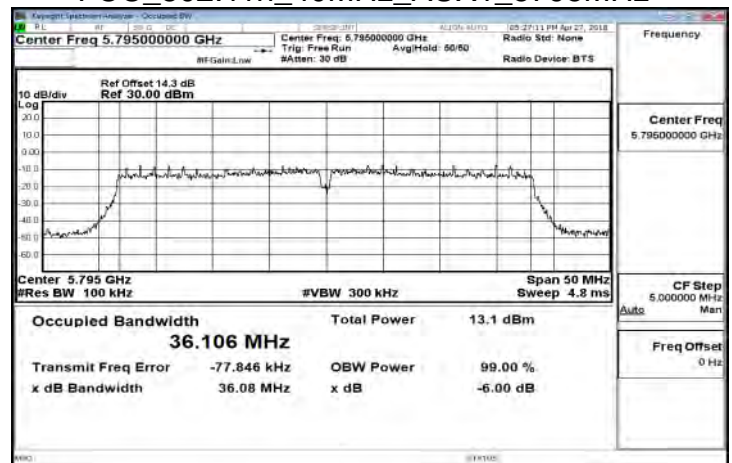
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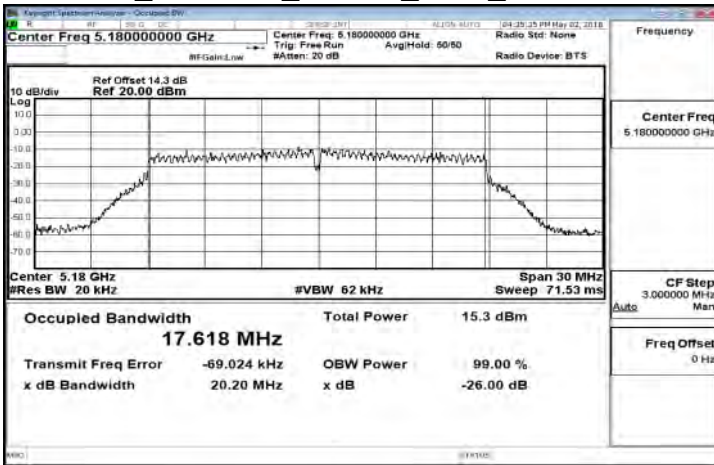


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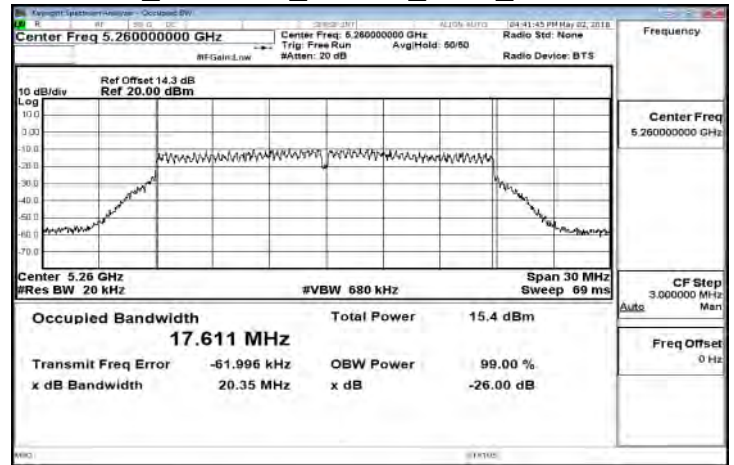
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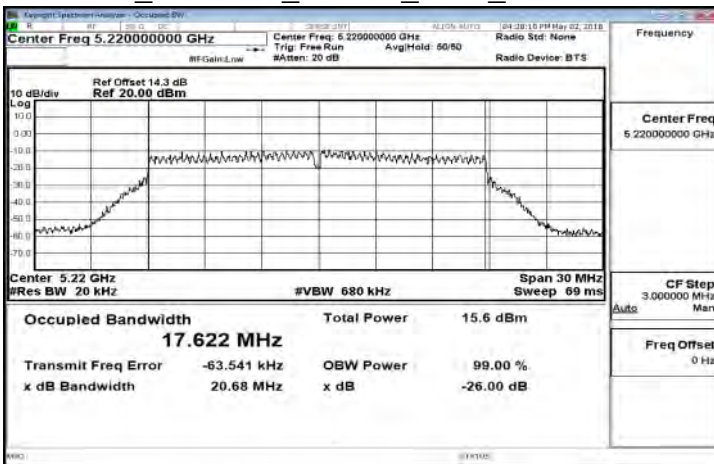
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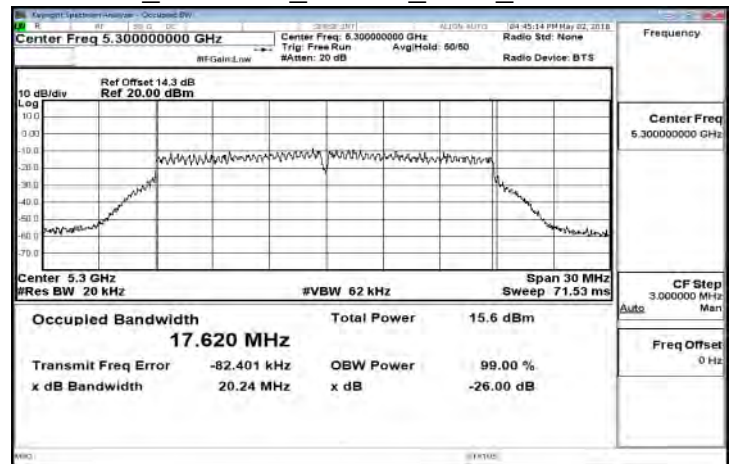
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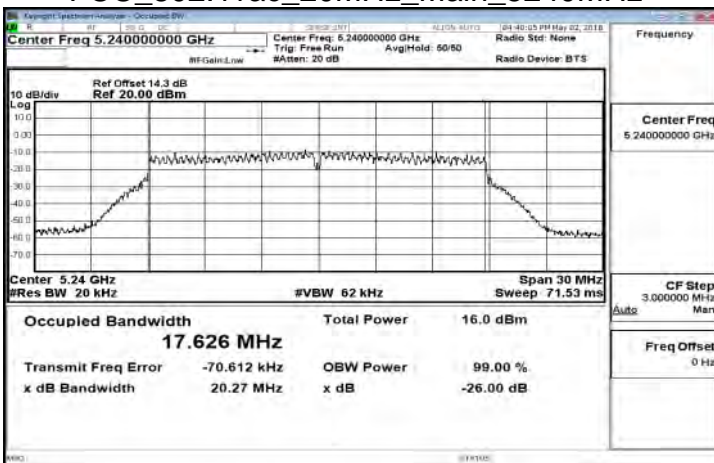
FCC_802.11ac_20MHz_Main_5220MHz



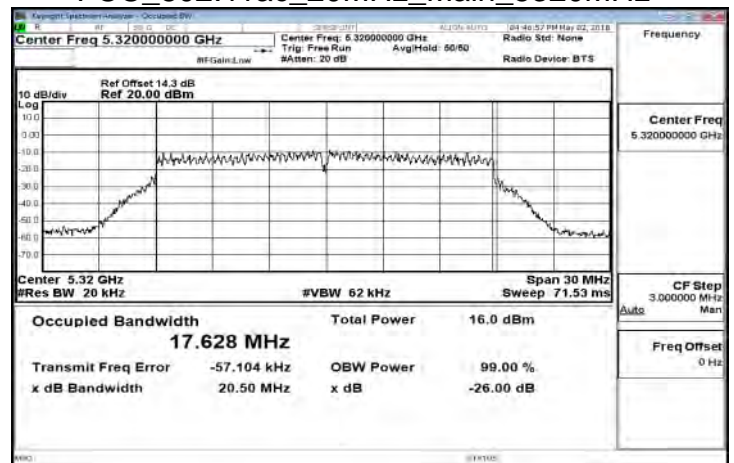
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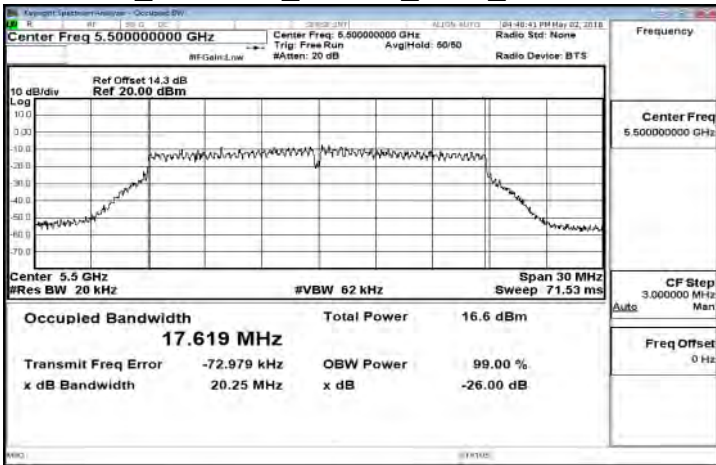


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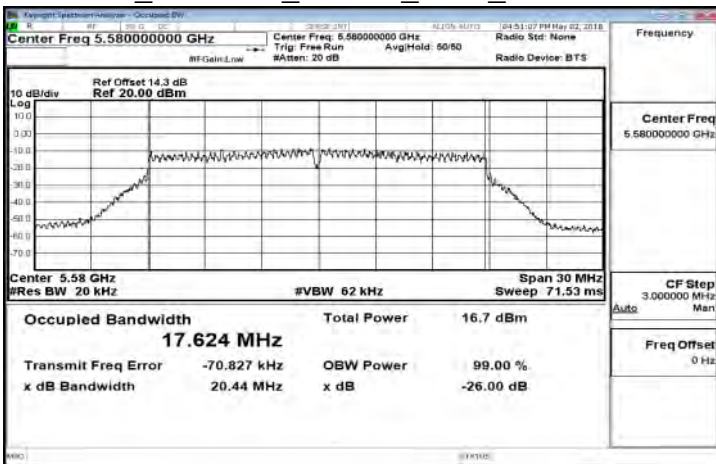
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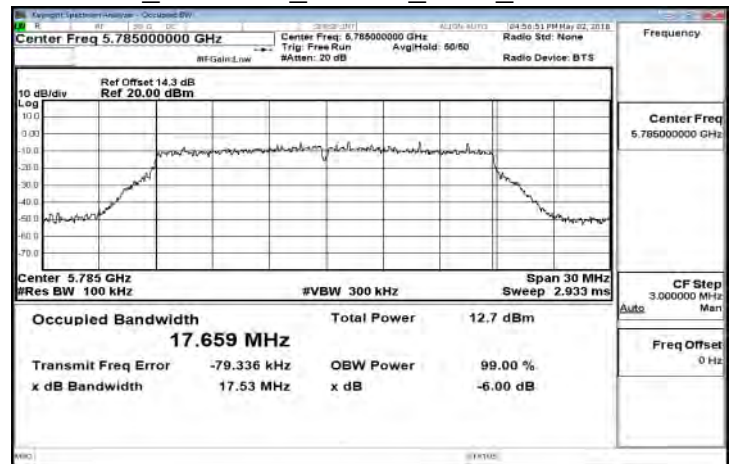
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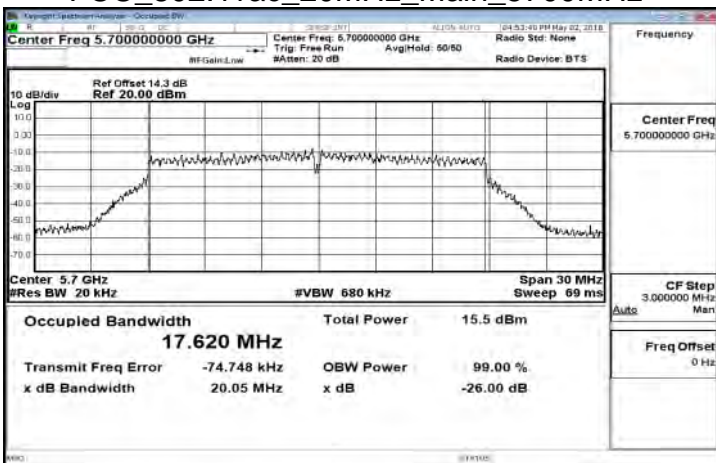
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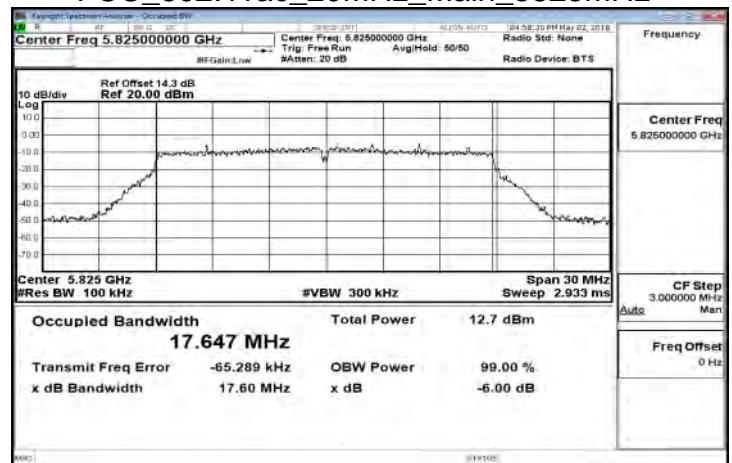
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FCC_802.11ac_20MHz_Main_5700MHz



FCC_802.11ac_20MHz_Main_5825MHz

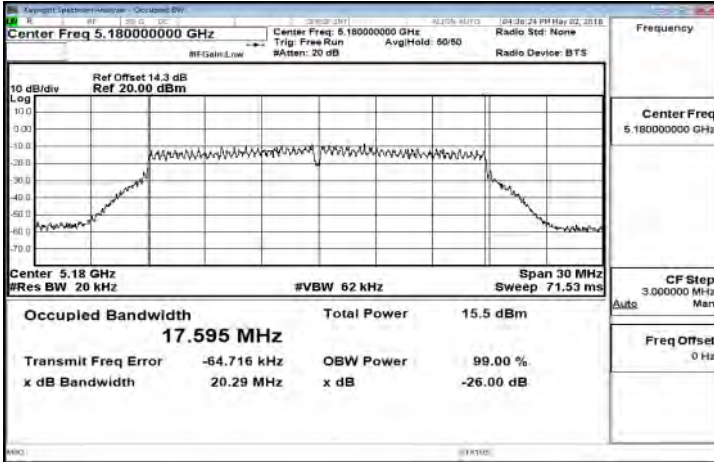


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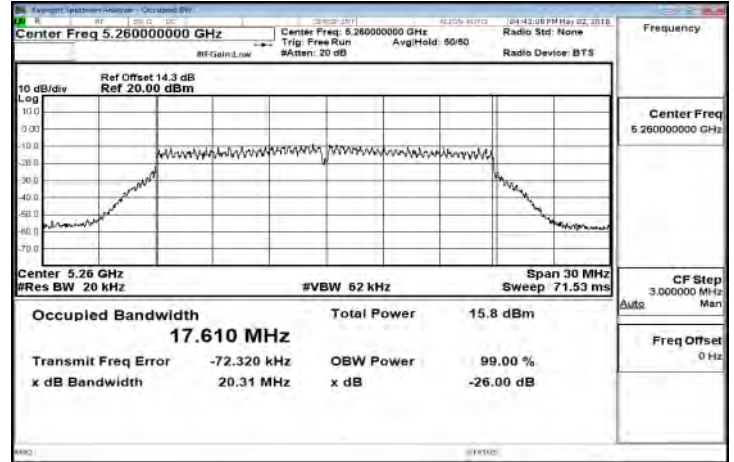
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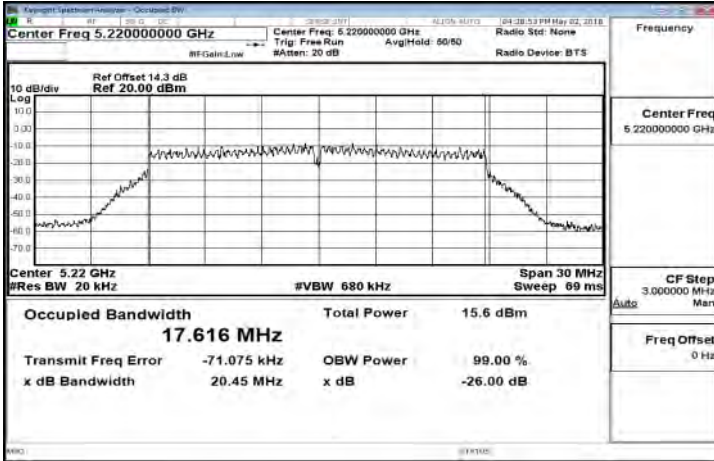
FCC_802.11ac_20MHz_AUX1_5180MHz



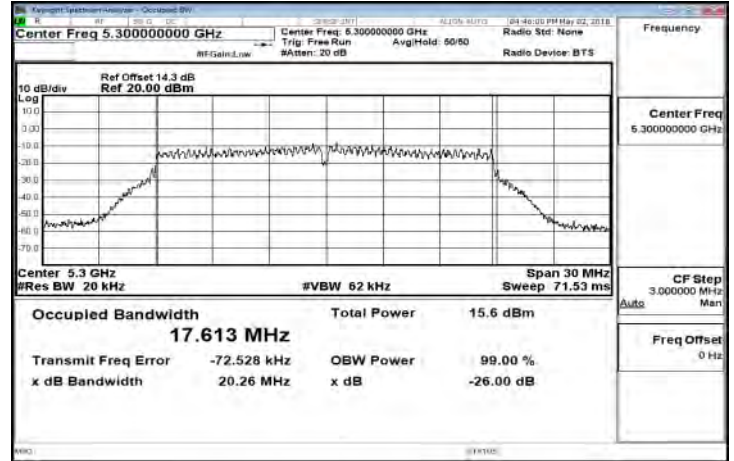
FCC_802.11ac_20MHz_AUX1_5260MHz



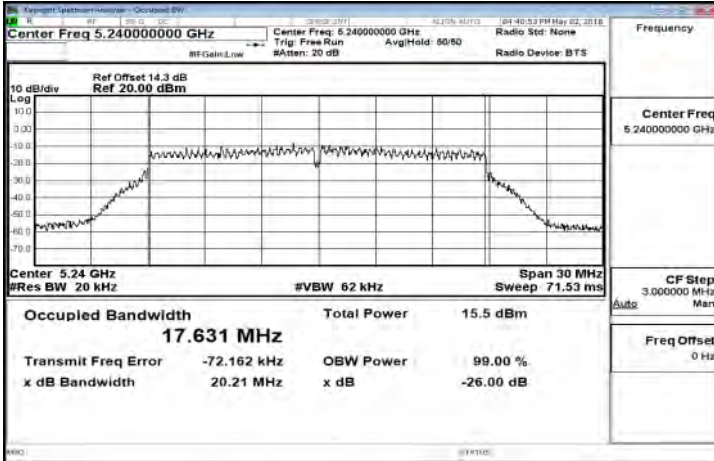
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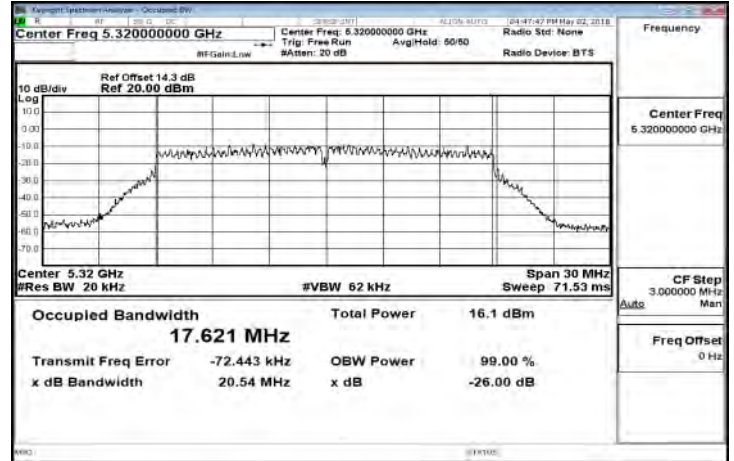
FCC_802.11ac_20MHz_AUX1_5300MHz



FCC_802.11ac_20MHz_AUX1_5240MHz



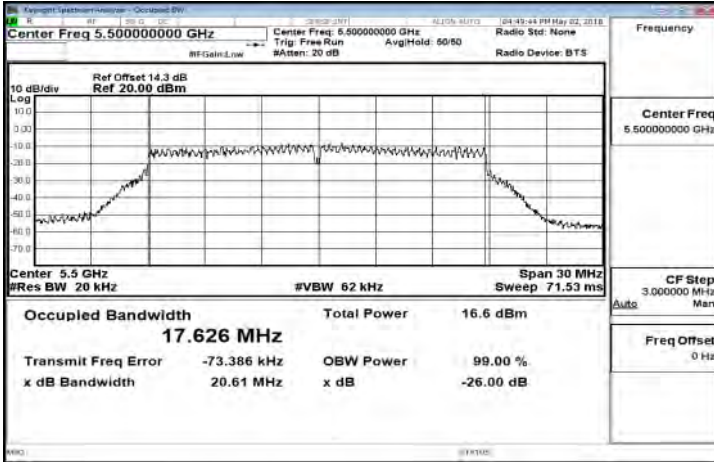
FCC_802.11ac_20MHz_AUX1_5320MHz



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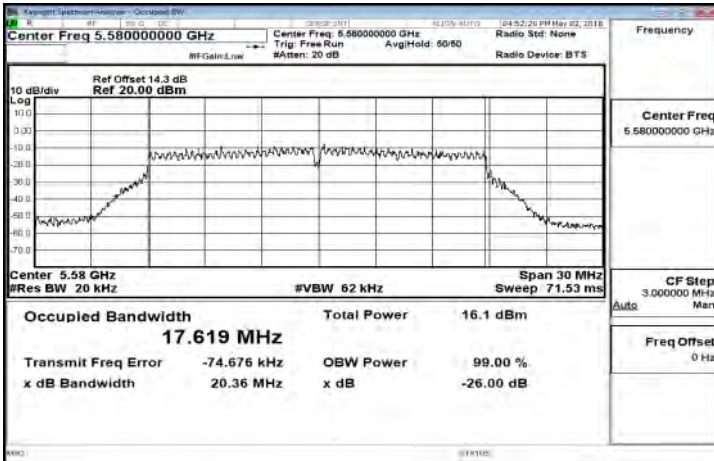
FCC_802.11ac_20MHz_AUX1_5500MHz



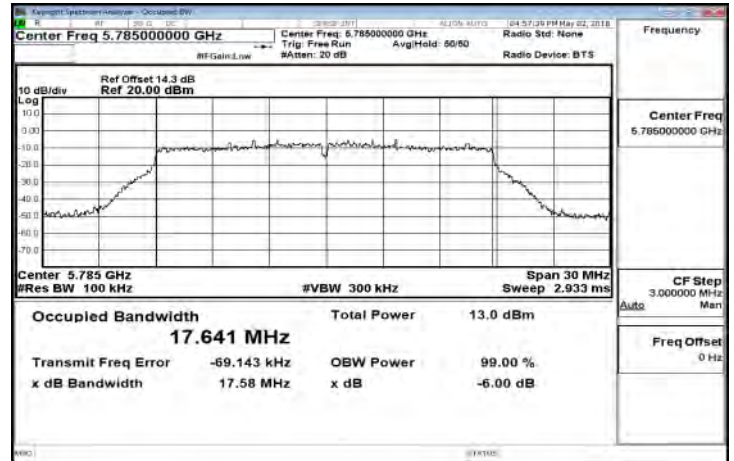
FCC_802.11ac_20MHz_AUX1_5745MHz



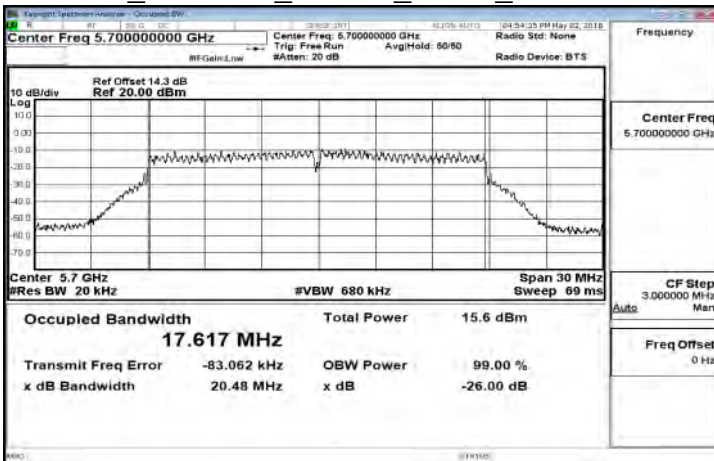
FCC_802.11ac_20MHz_AUX1_5580MHz



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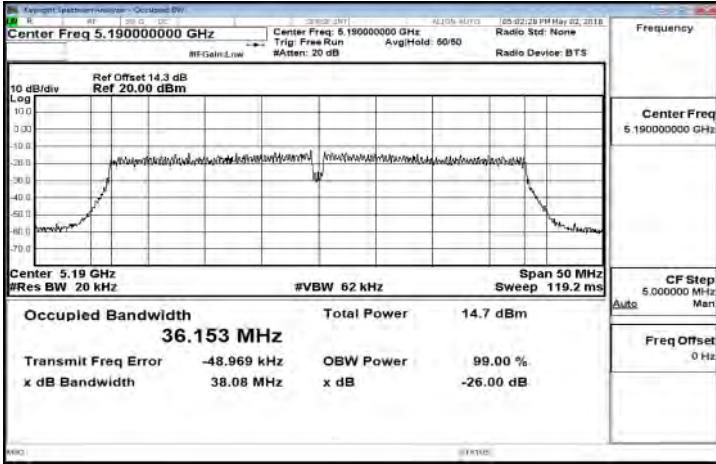


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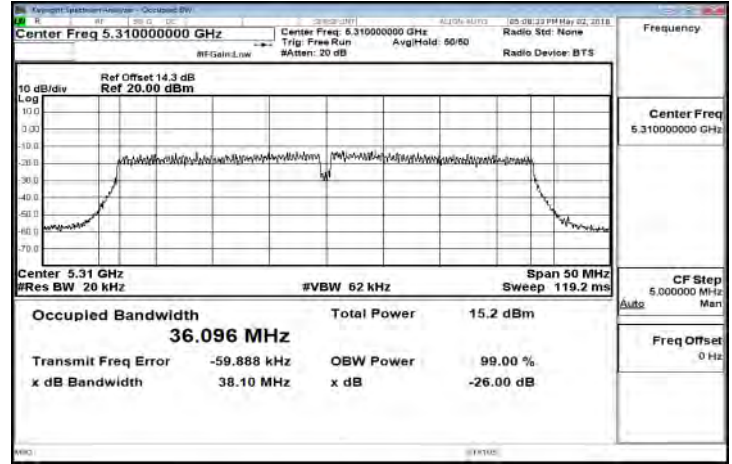
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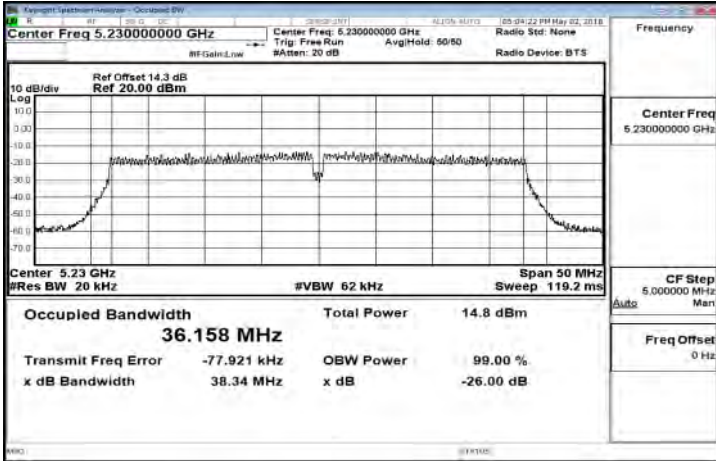
FCC_802.11ac_40MHz_Main_5190MHz



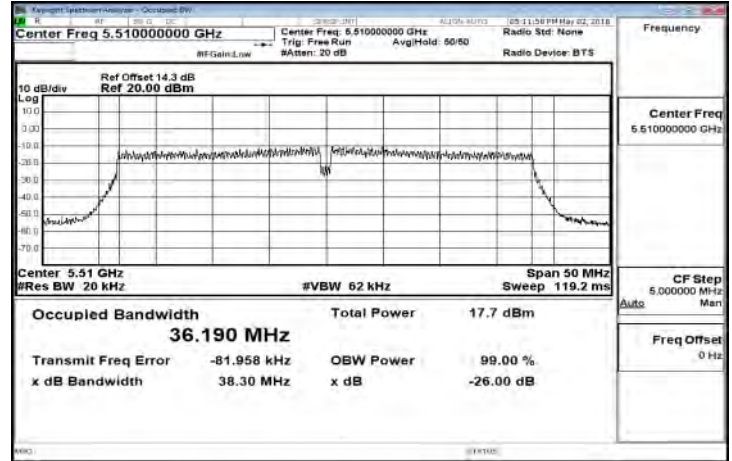
FCC_802.11ac_40MHz_Main_5310MHz



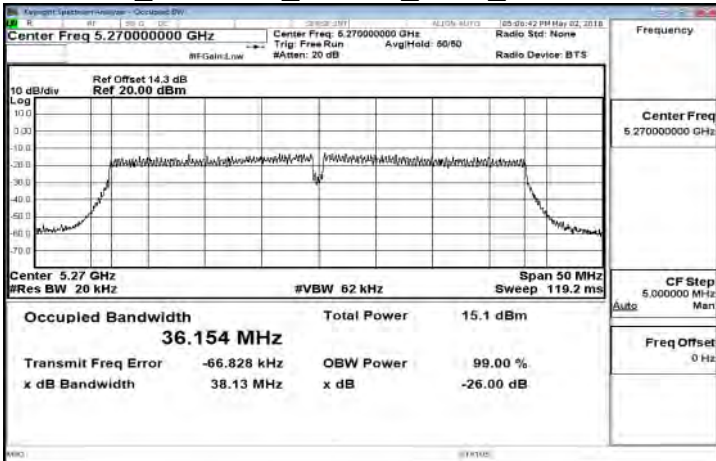
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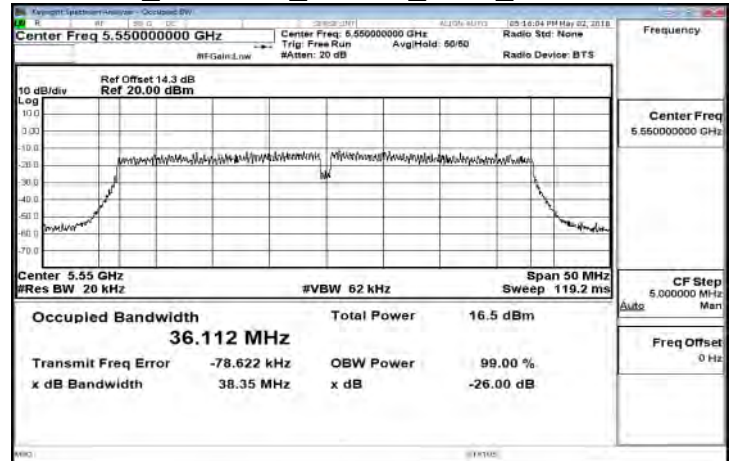
FCC_802.11ac_40MHz_Main_5510MHz



FCC_802.11ac_40MHz_Main_5270MHz



FCC_802.11ac_40MHz_Main_5550MHz

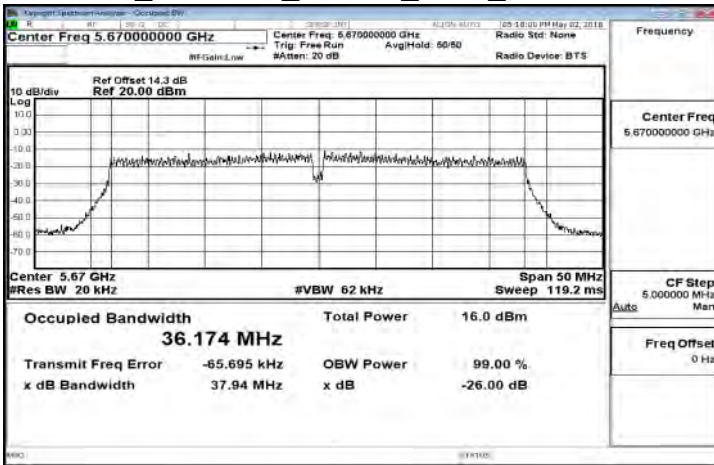


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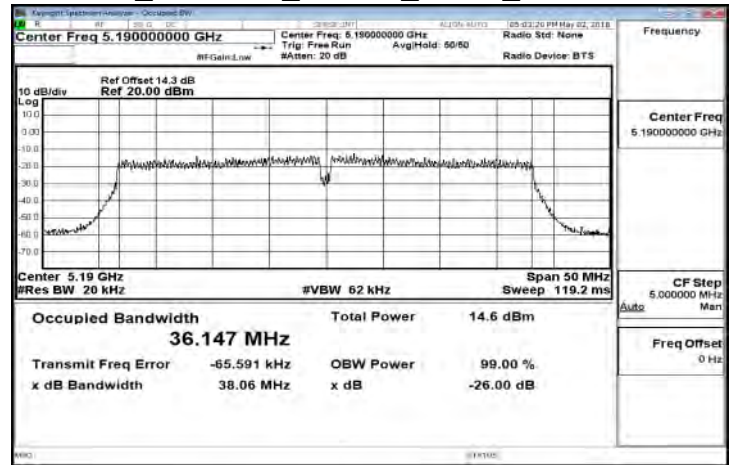
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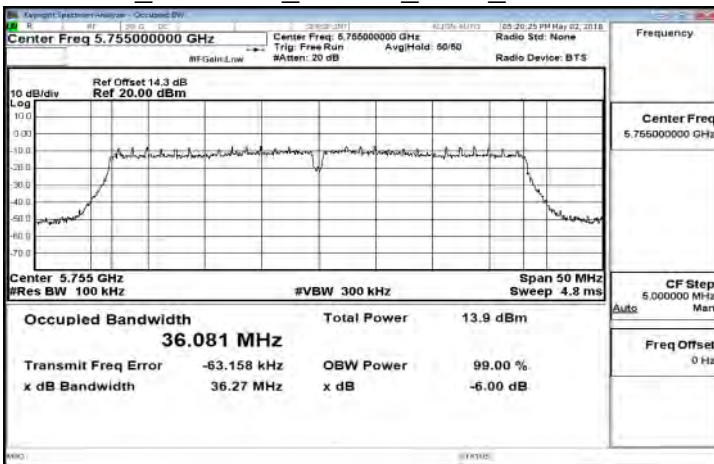
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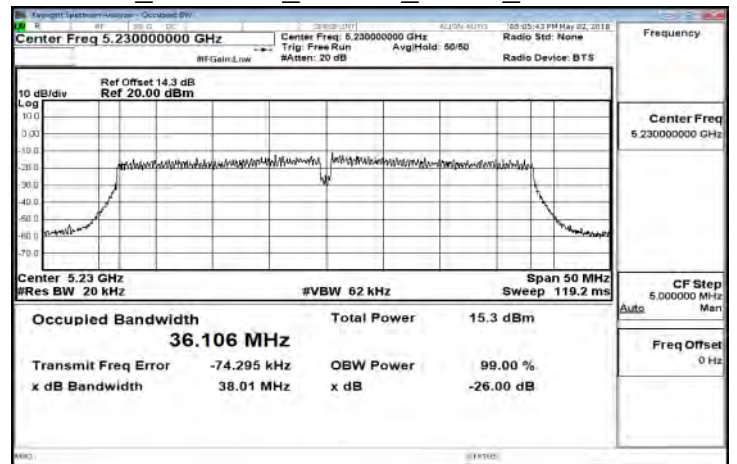
FCC_802.11ac_40MHz_AUX1_5190MHz



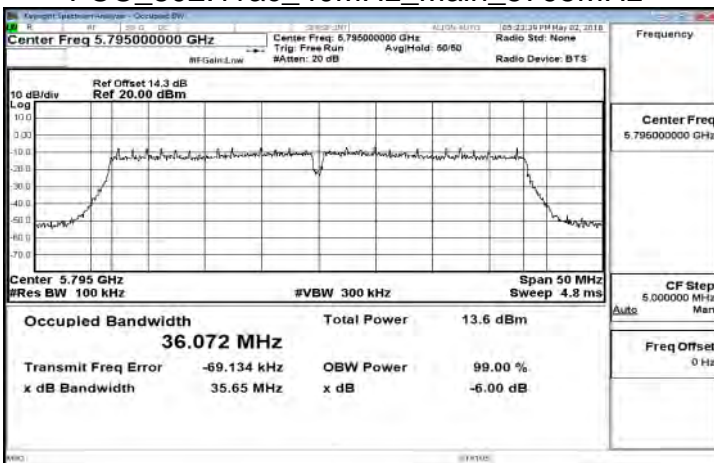
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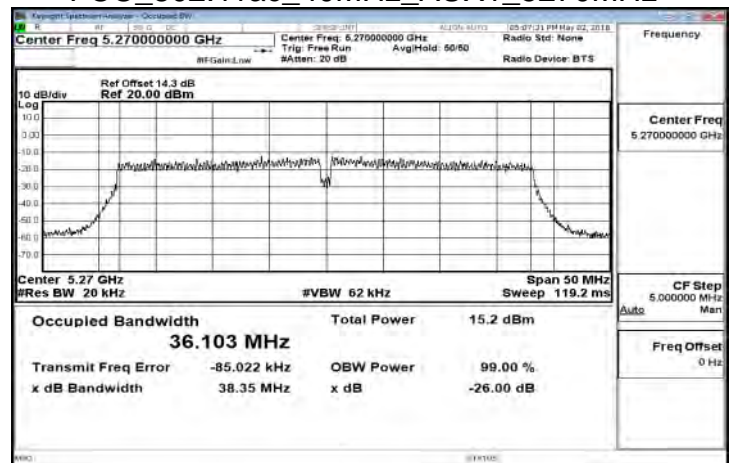
FCC_802.11ac_40MHz_AUX1_5230MHz



FCC_802.11ac_40MHz_Main_5795MHz



FCC_802.11ac_40MHz_AUX1_5270MHz

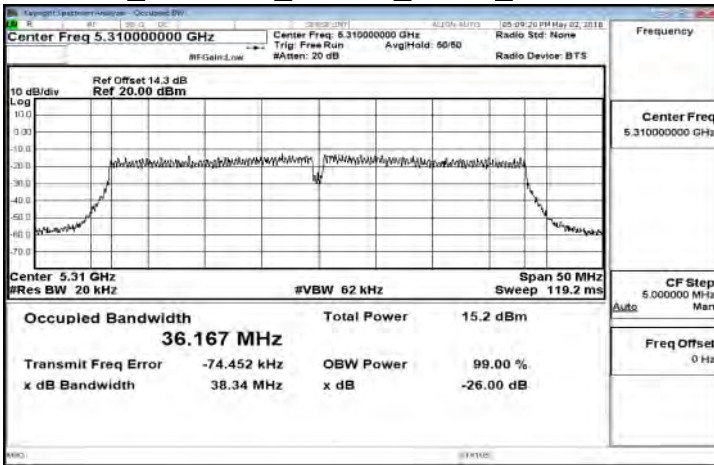


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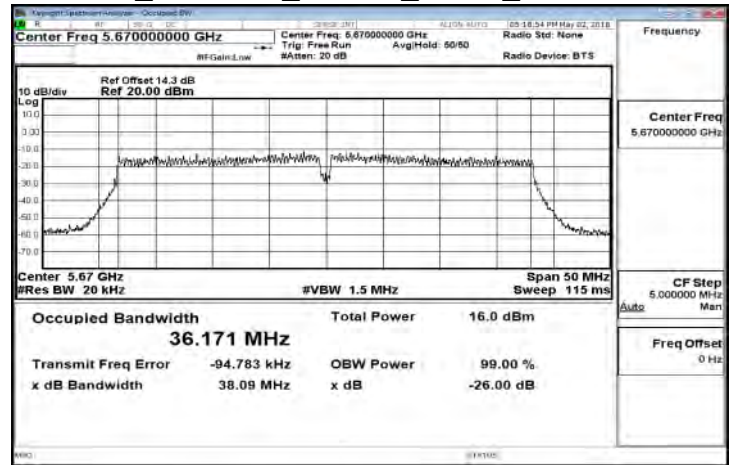
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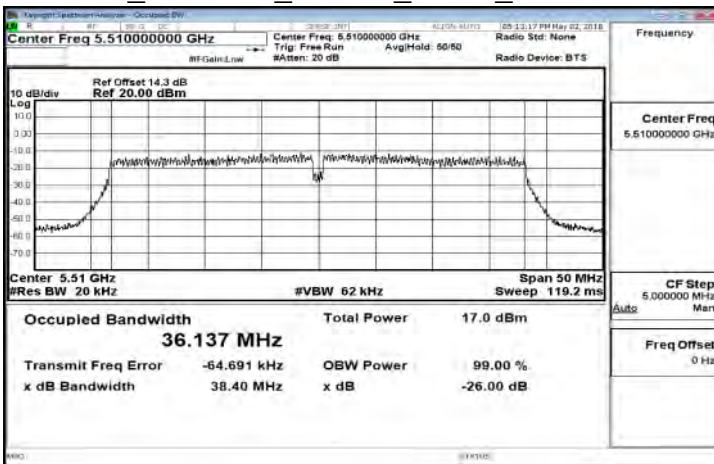
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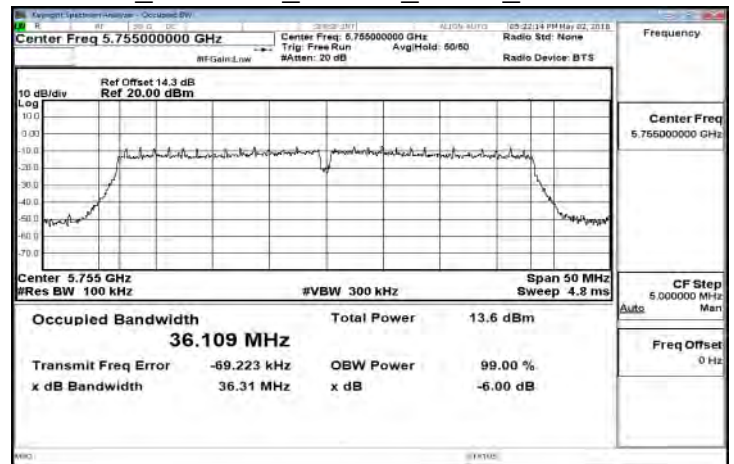
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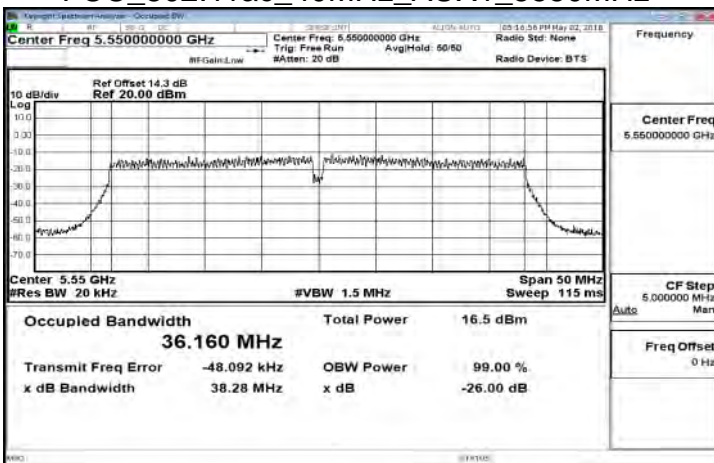
FCC_802.11ac_40MHz_AUX1_5510MHz



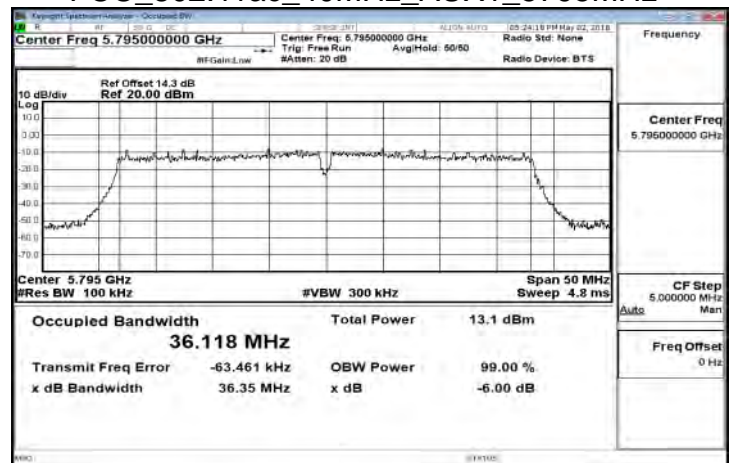
FCC_802.11ac_40MHz_AUX1_5755MHz



FCC_802.11ac_40MHz_AUX1_5550MHz



FCC_802.11ac_40MHz_AUX1_5795MHz

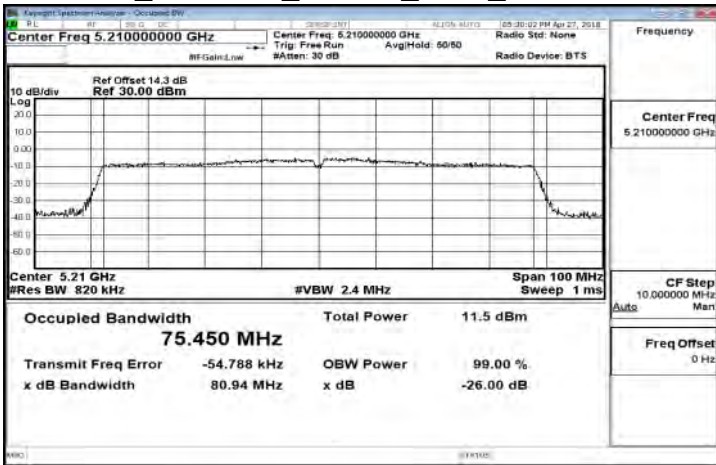


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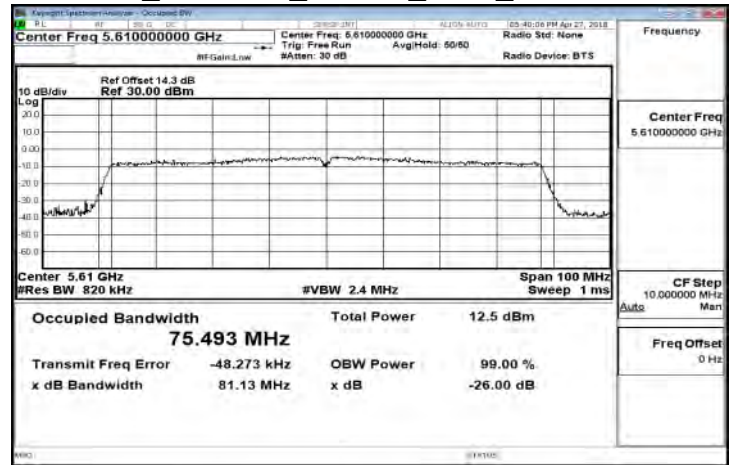
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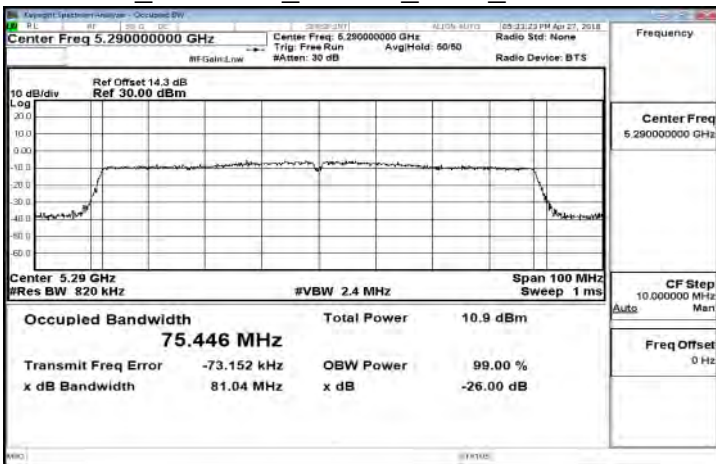
FCC_802.11ac_80MHz_Main_5210MHz



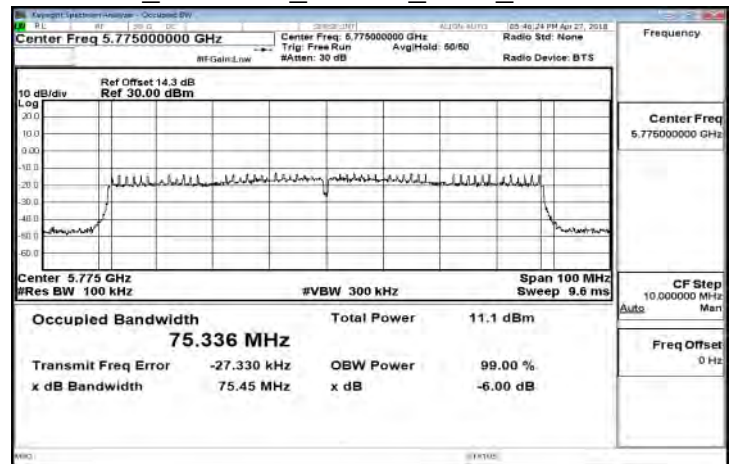
FCC_802.11ac_80MHz_Main_5610MHz



FCC_802.11ac_80MHz_Main_5290MHz



FCC_802.11ac_80MHz_Main_5775MHz



FCC_802.11ac_80MHz_Main_5530MHz



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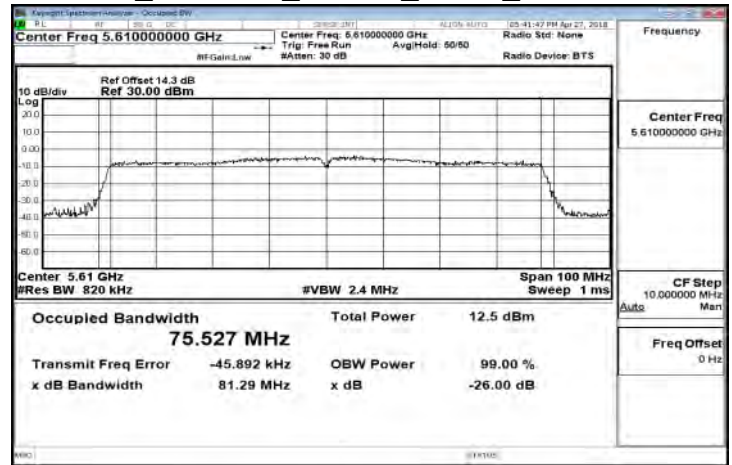
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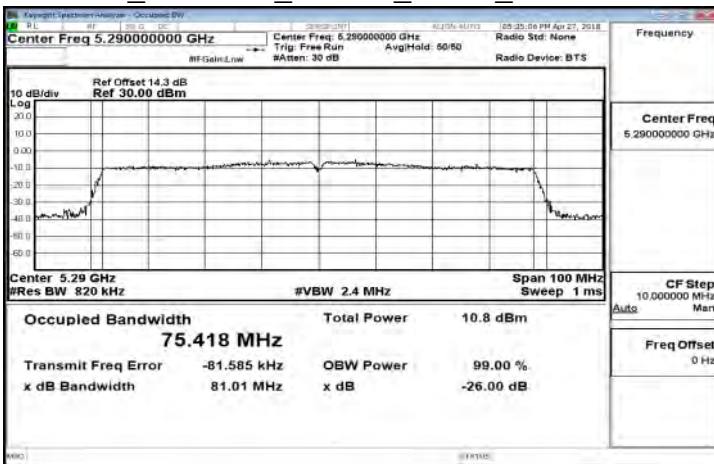
FCC_802.11ac_80MHz_AUX1_5210MHz



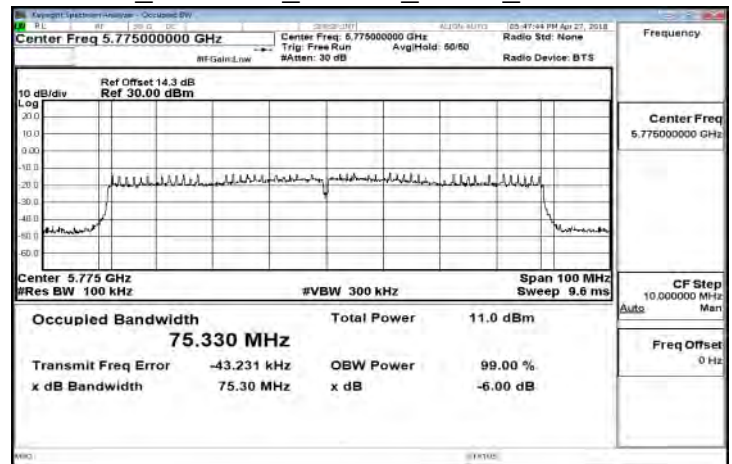
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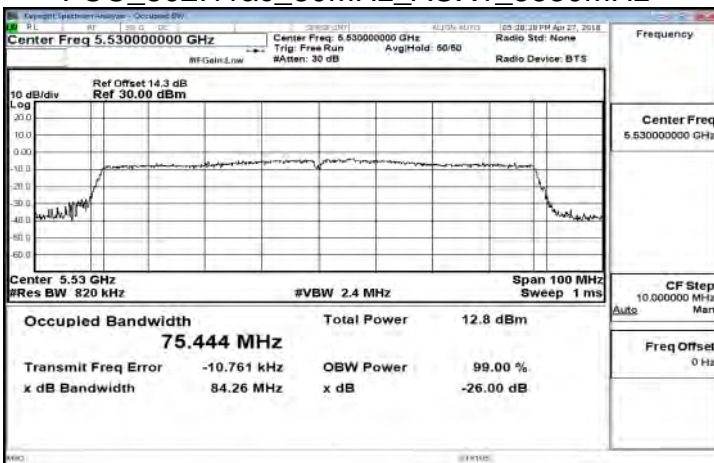
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FCC_802.11ac_80MHz_AUX1_5775MHz



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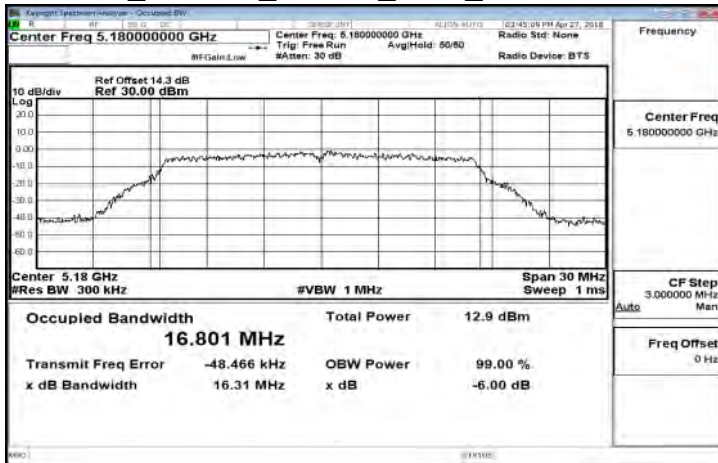


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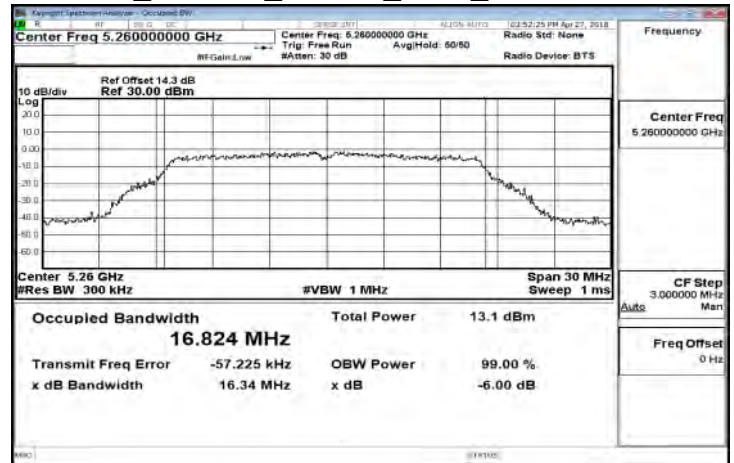
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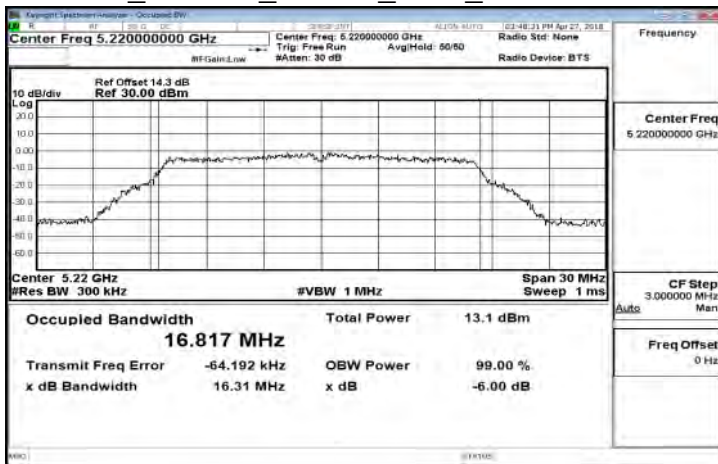
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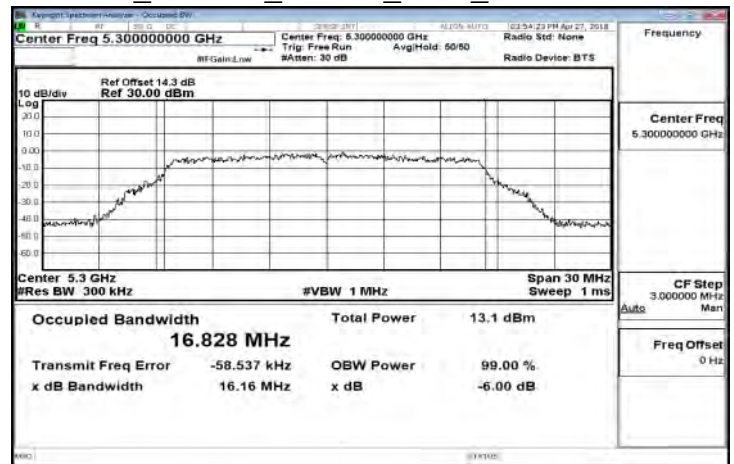
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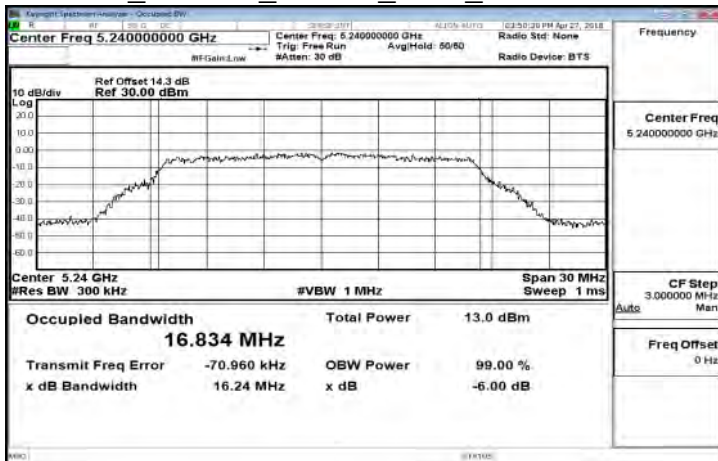
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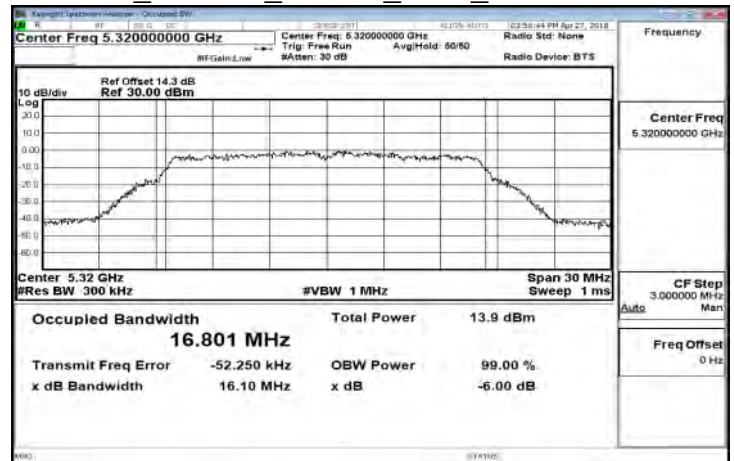
IC_802.11a_20MHz_Main_5300MHz



IC_802.11a_20MHz_Main_5240MHz



IC_802.11a_20MHz_Main_5320MHz

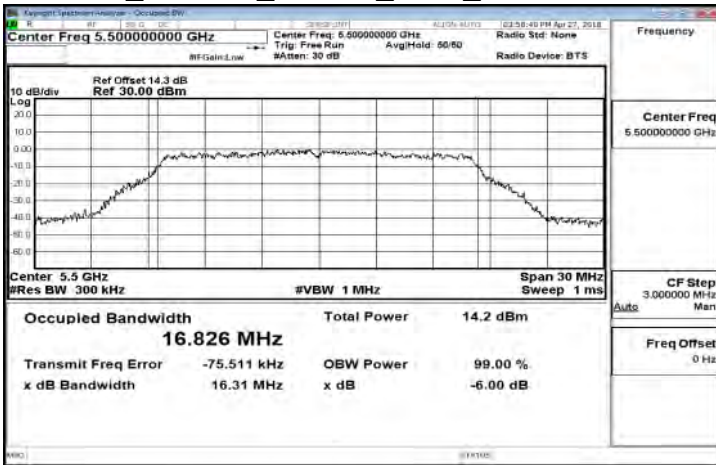


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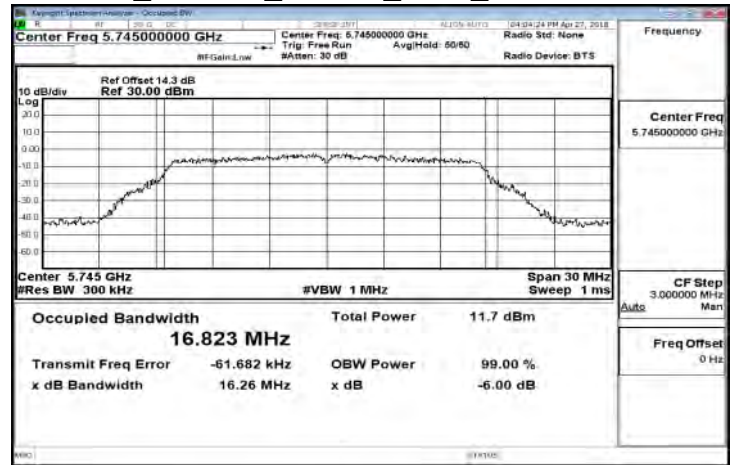
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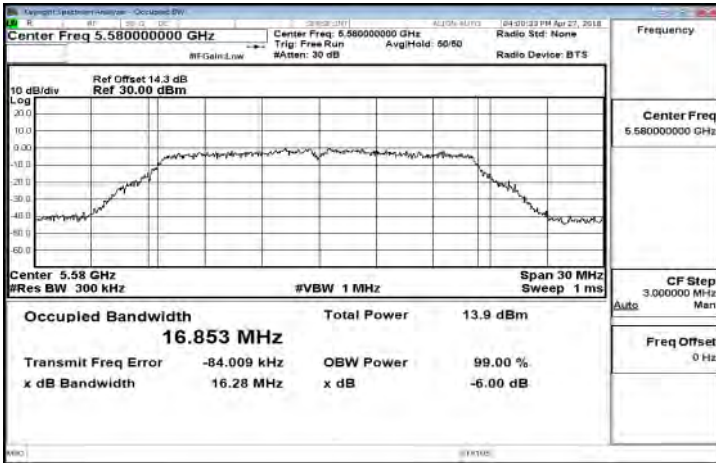
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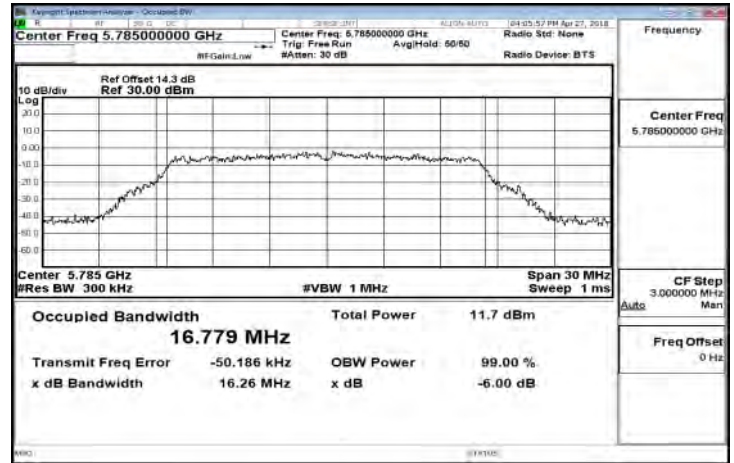
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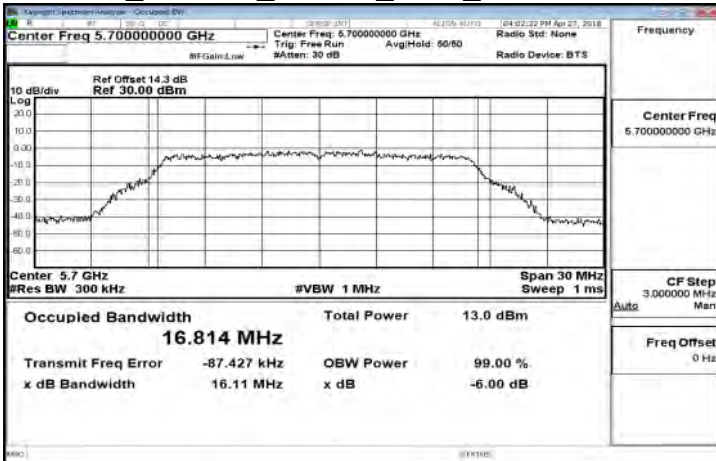
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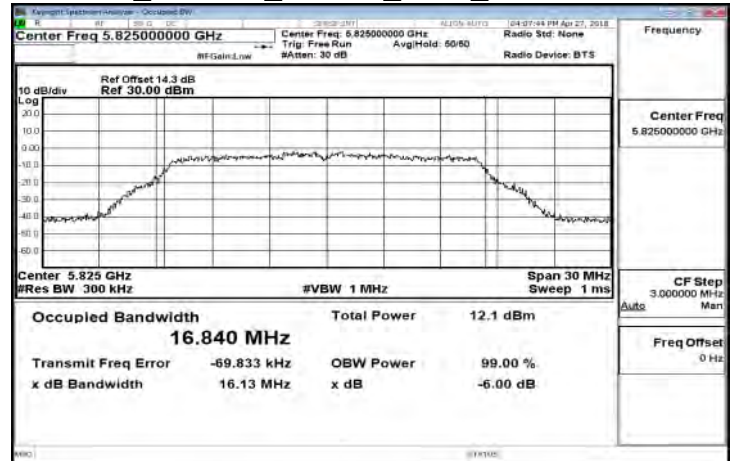
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IC_802.11a_20MHz_Main_5700MHz



IC_802.11a_20MHz_Main_5825MHz

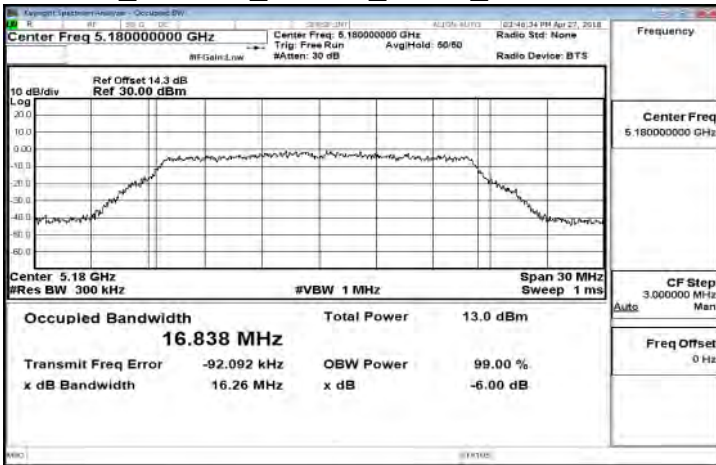


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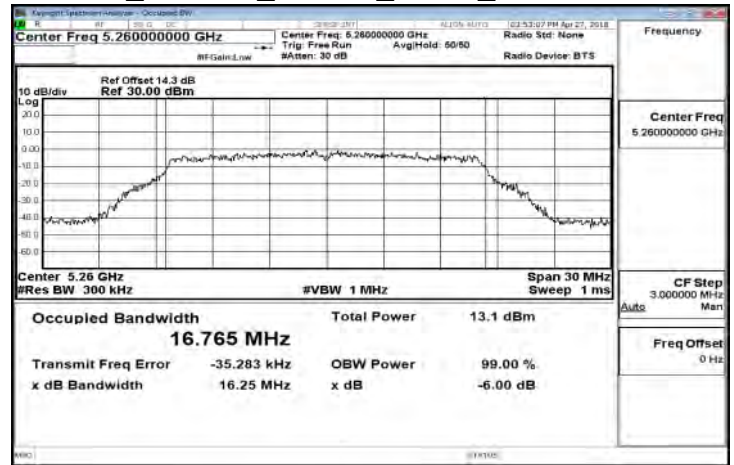
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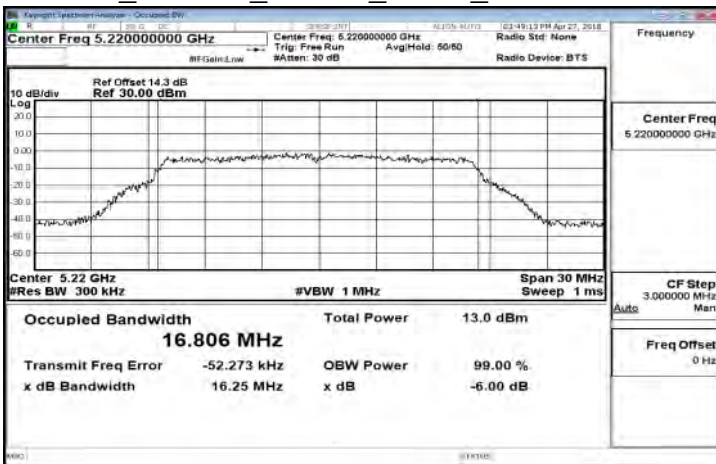
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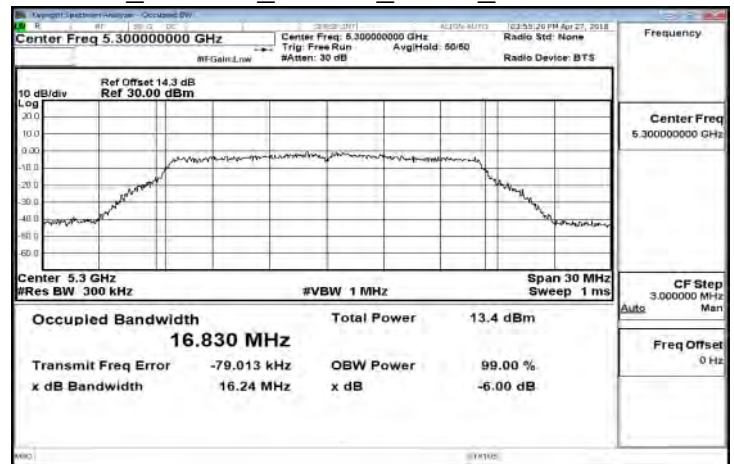
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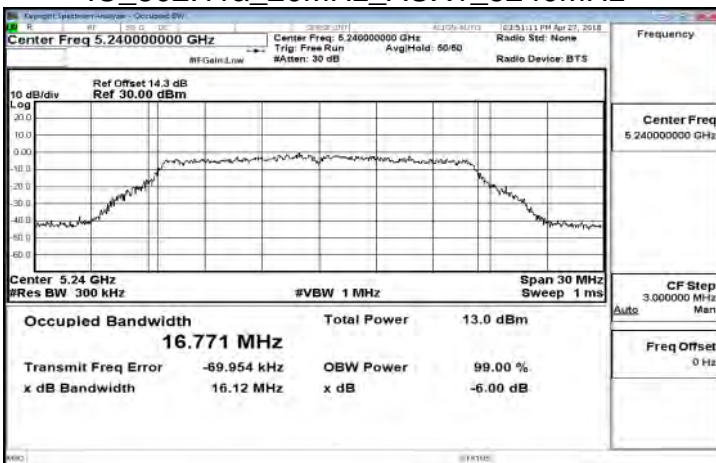
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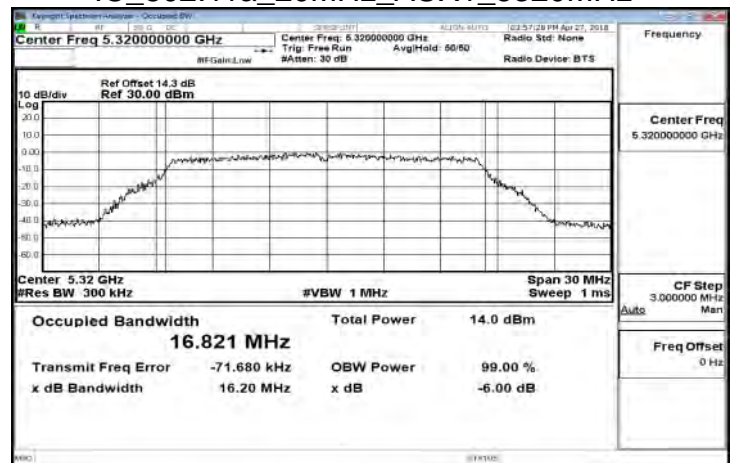
IC_802.11a_20MHz_AUX1_5300MHz



IC_802.11a_20MHz_AUX1_5240MHz



IC_802.11a_20MHz_AUX1_5320MHz



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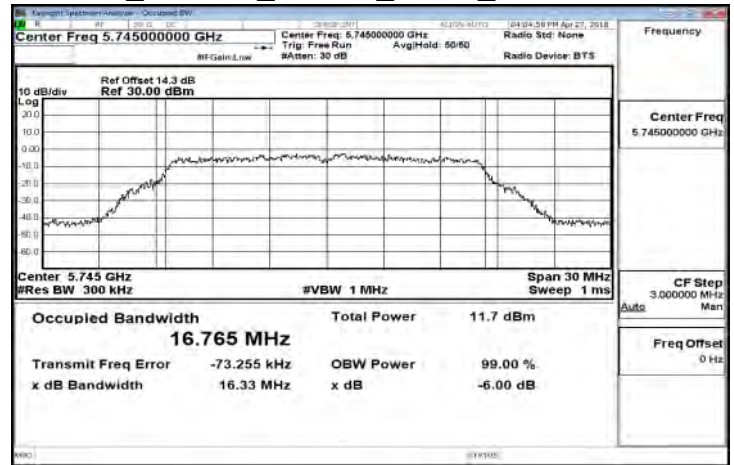
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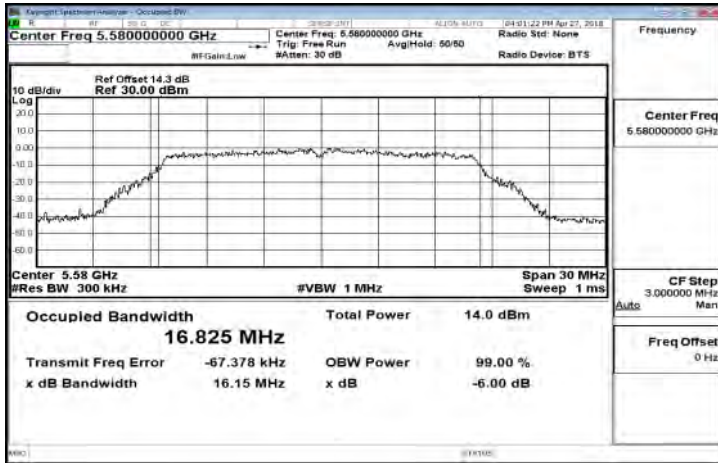
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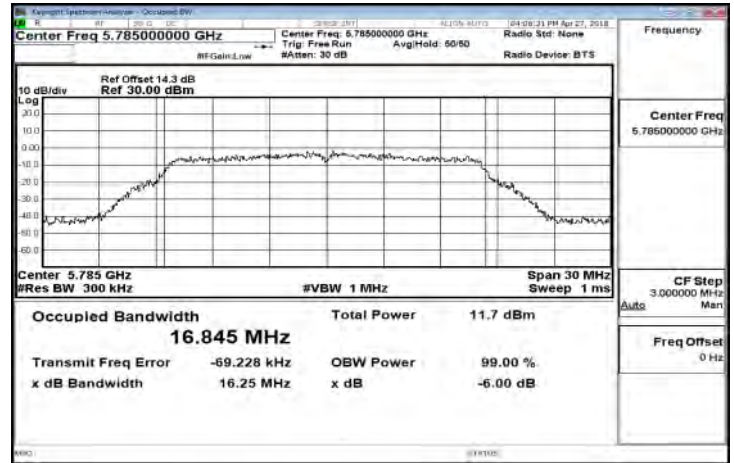
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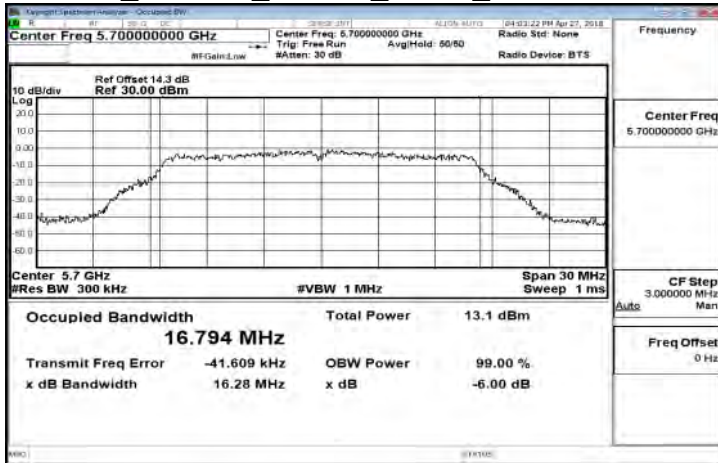
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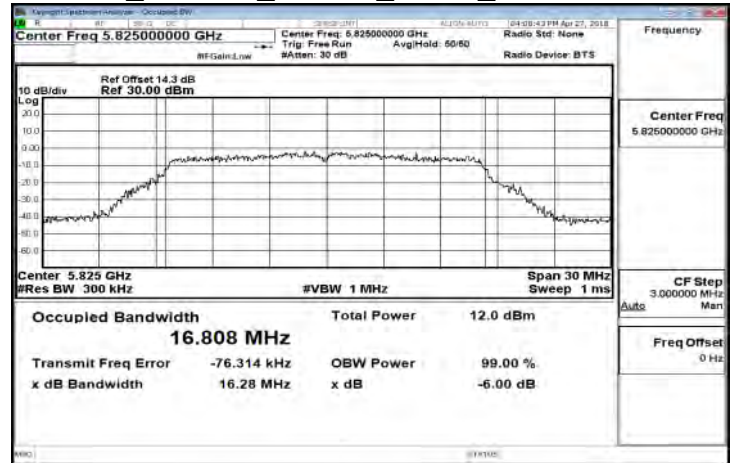
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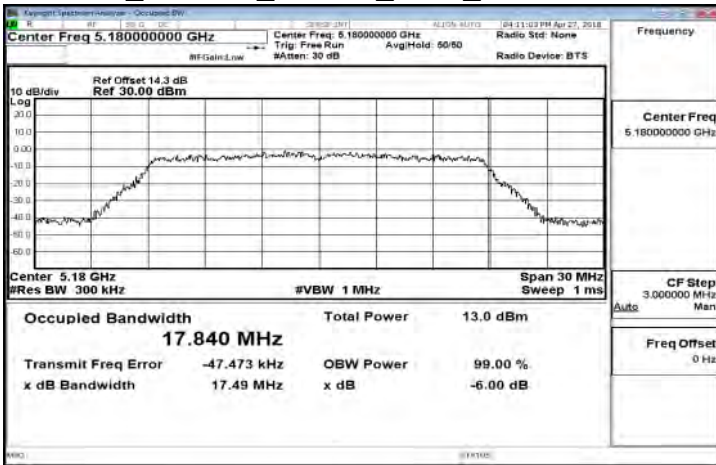


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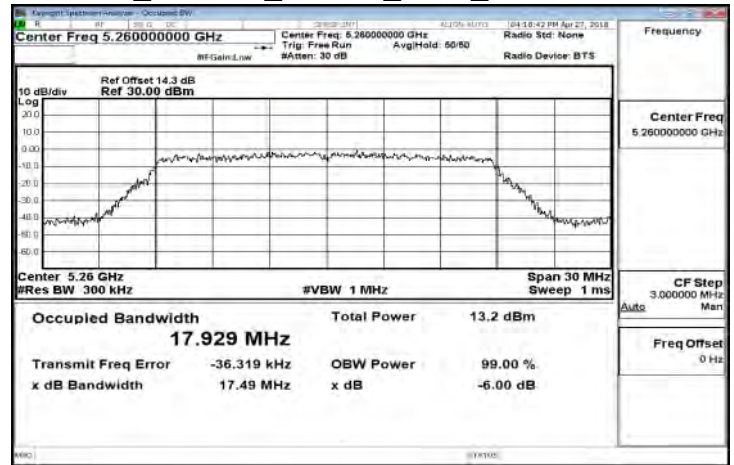
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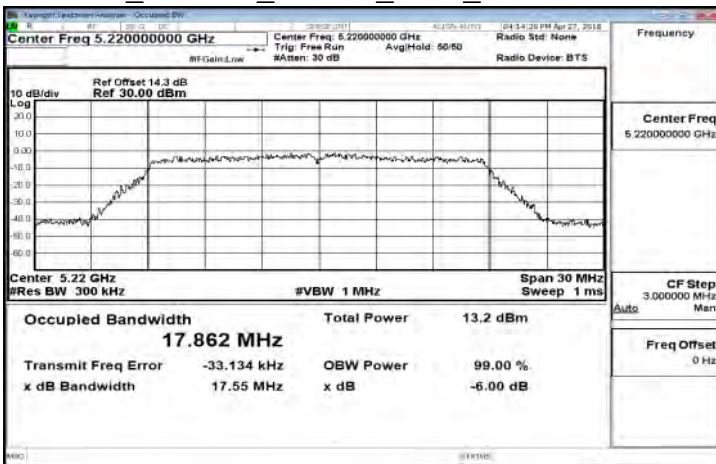
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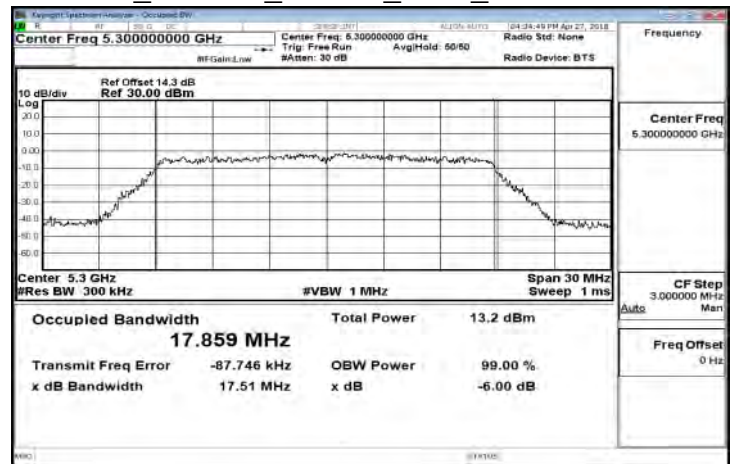
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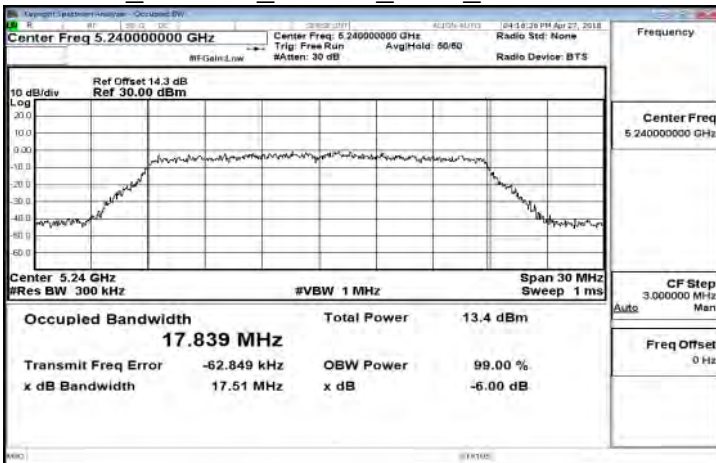
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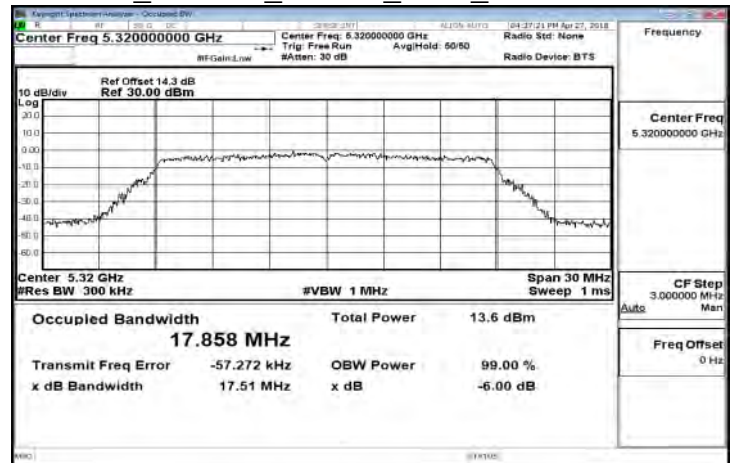
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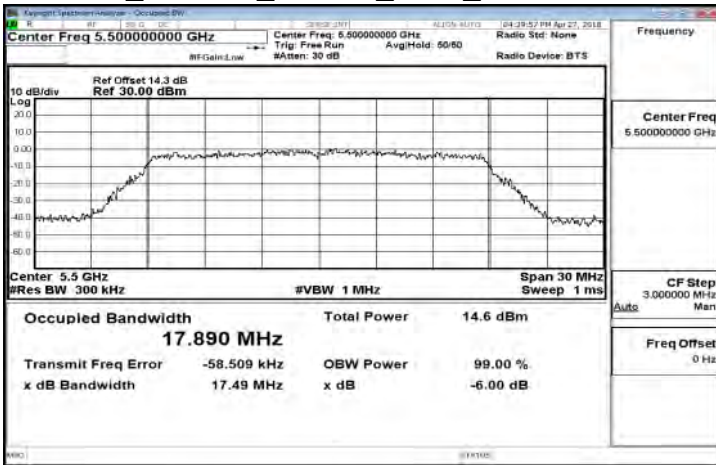


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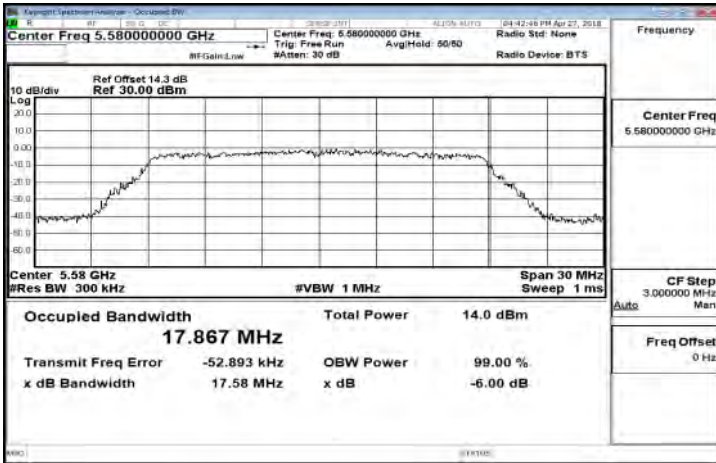
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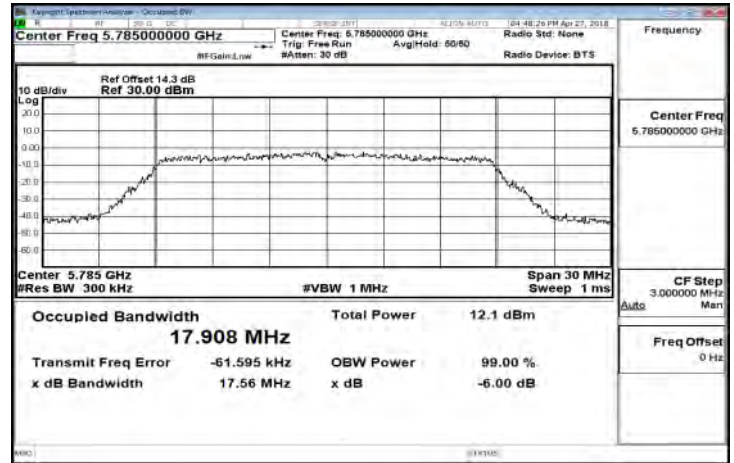
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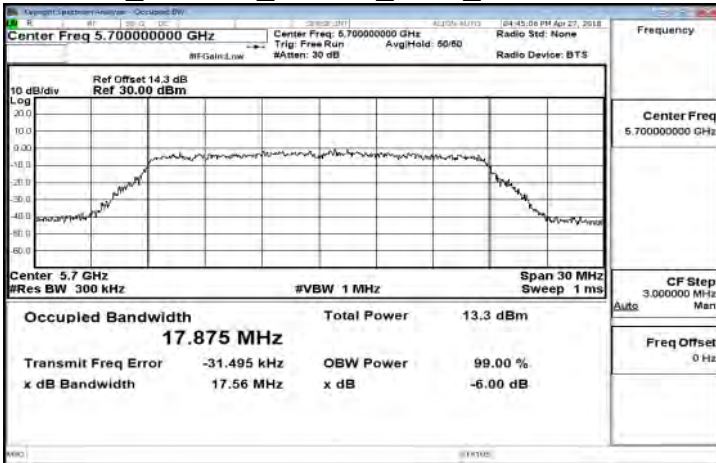
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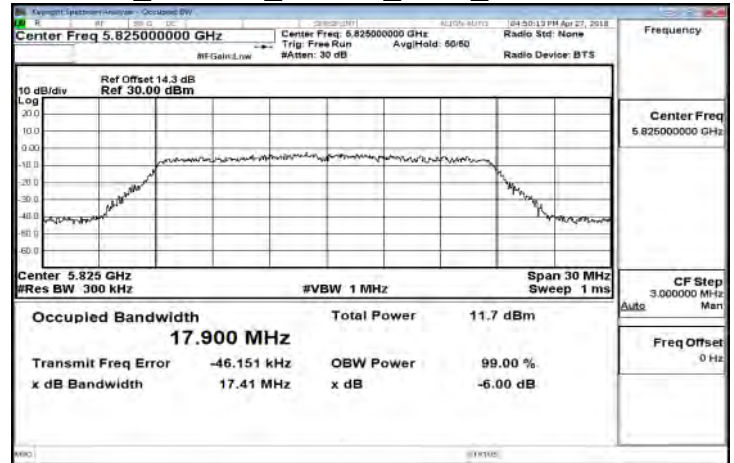
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IC_802.11n_20MHz_Main_5700MHz



IC_802.11n_20MHz_Main_5825MHz

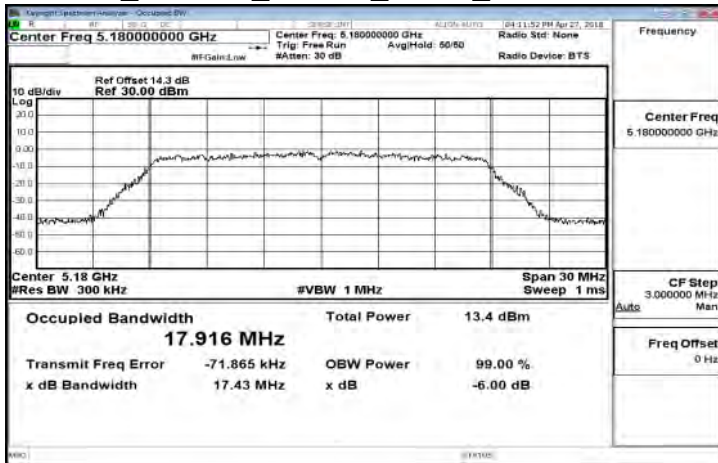


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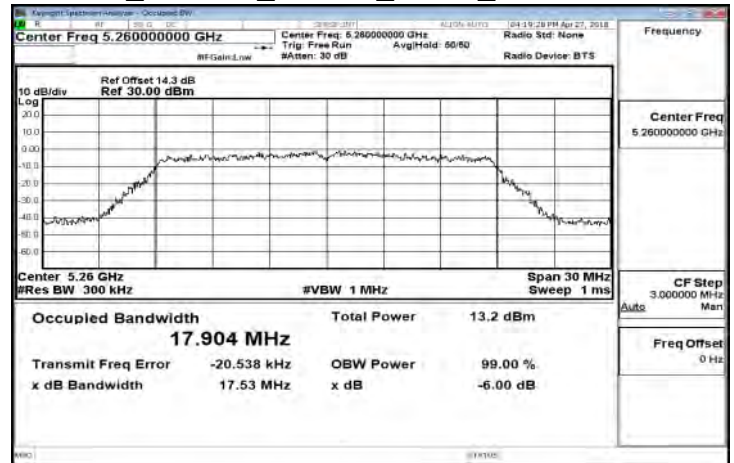
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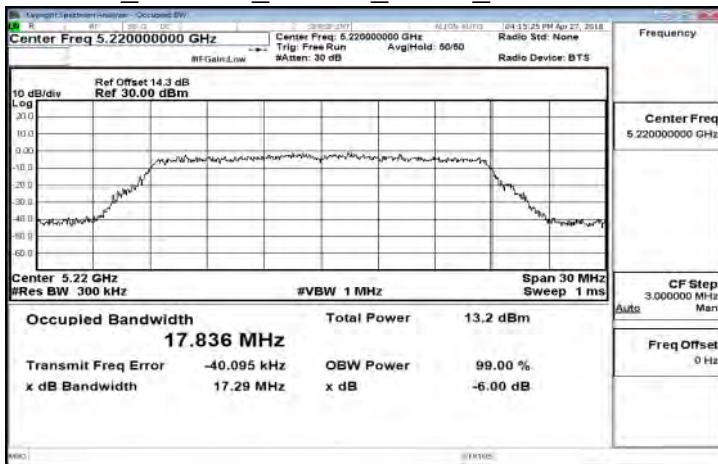
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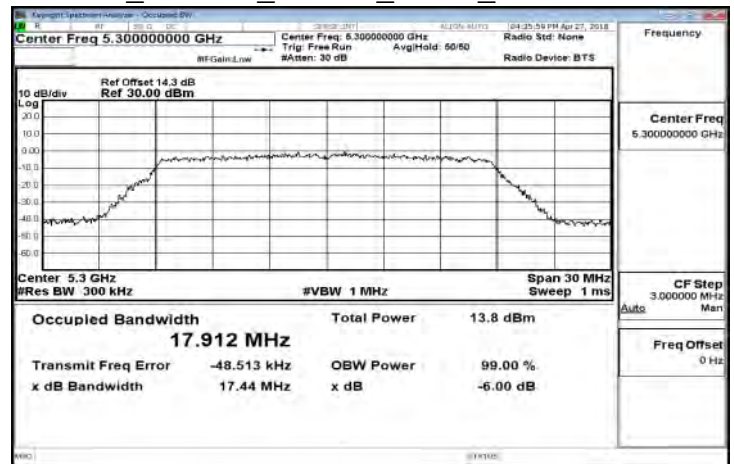
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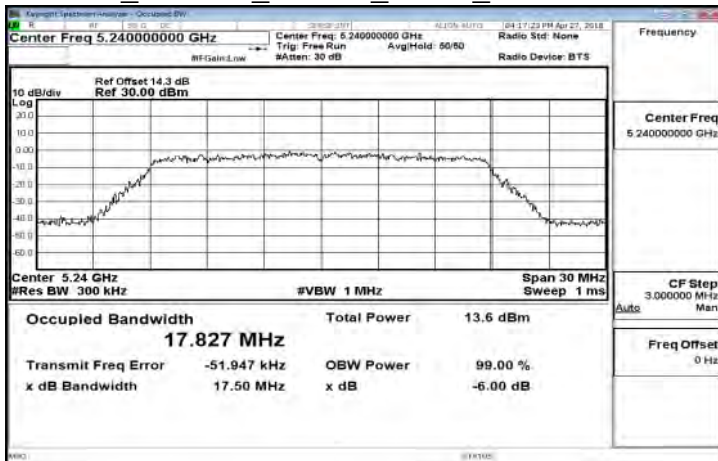
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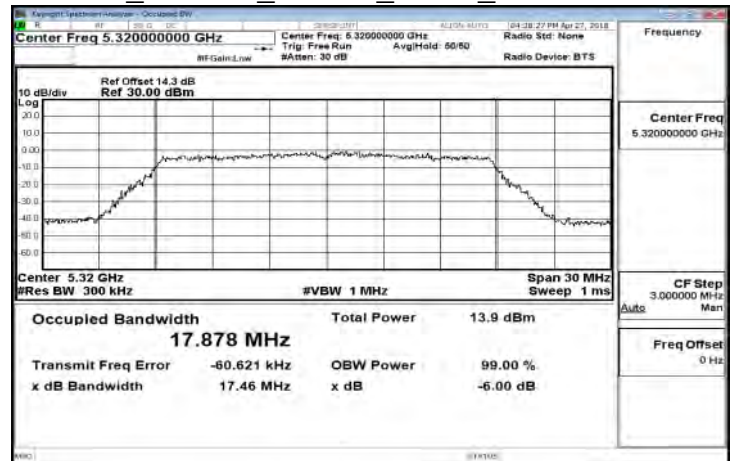
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IC_802.11n_20MHz_AUX1_5240MHz



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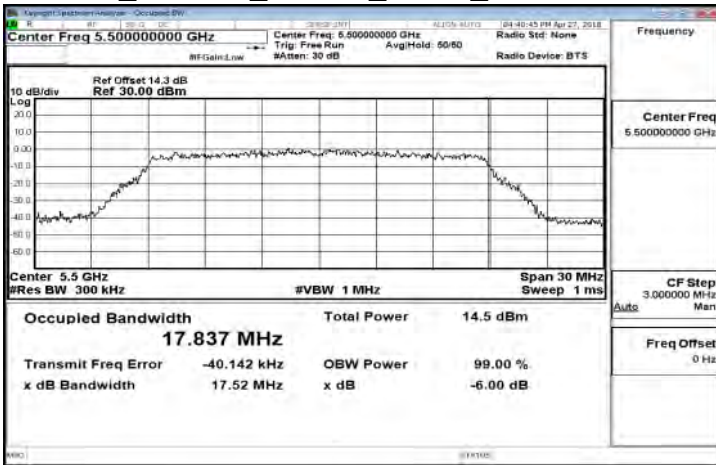


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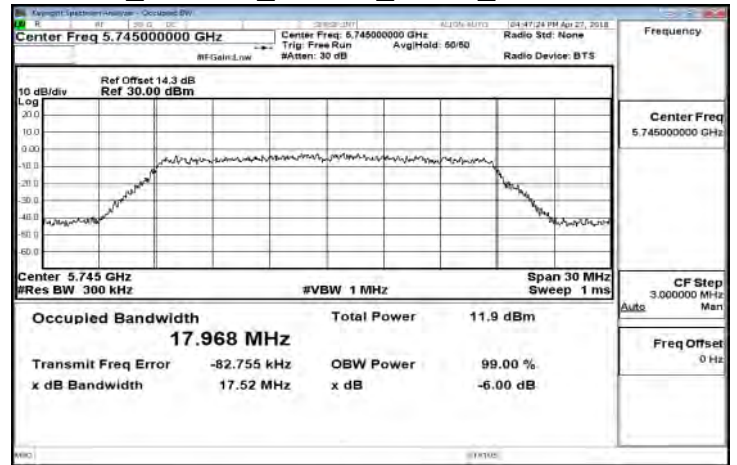
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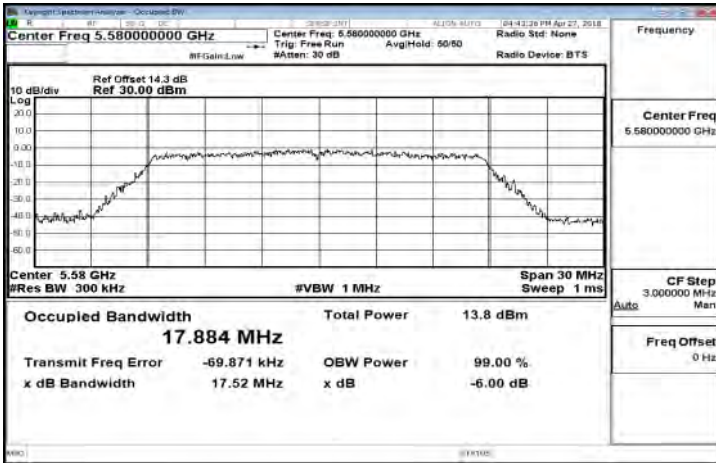
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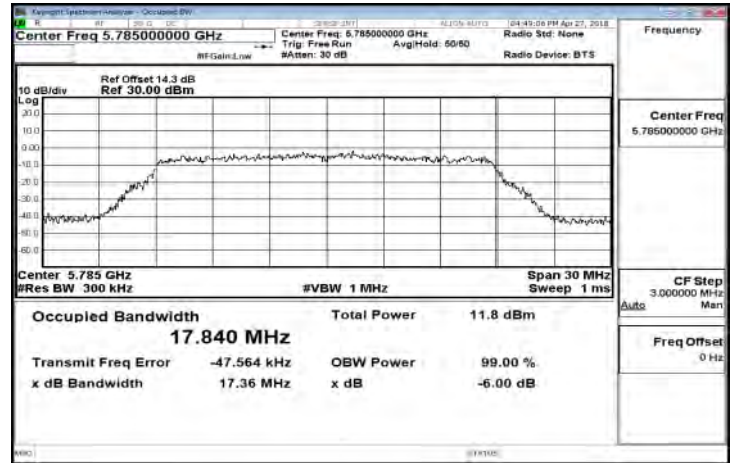
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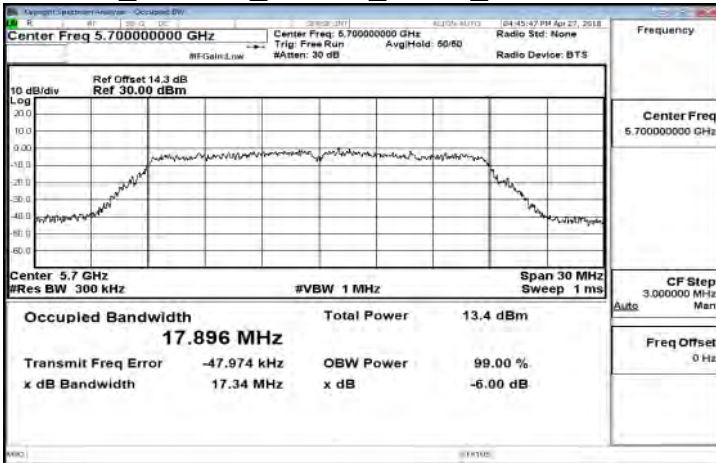
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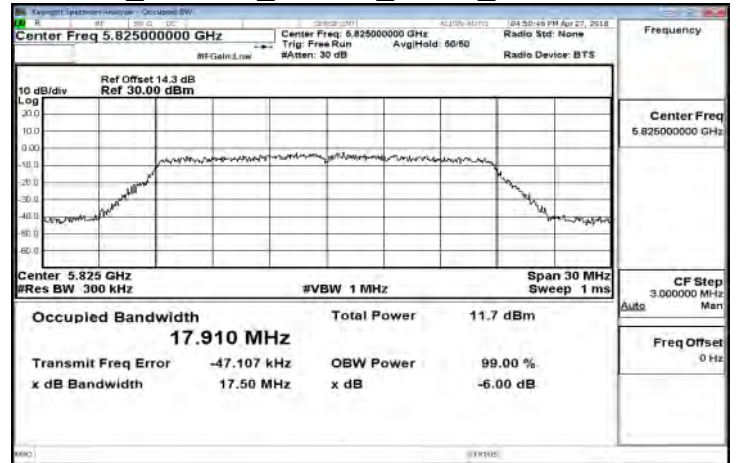
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IC_802.11n_20MHz_AUX1_5700MHz



IC_802.11n_20MHz_AUX1_5825MHz

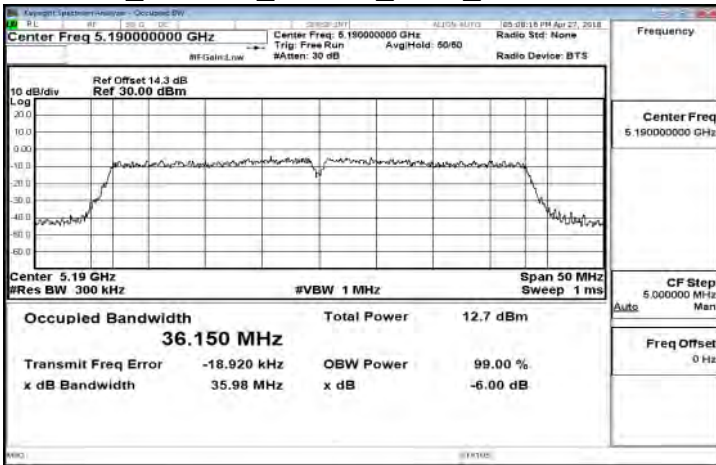


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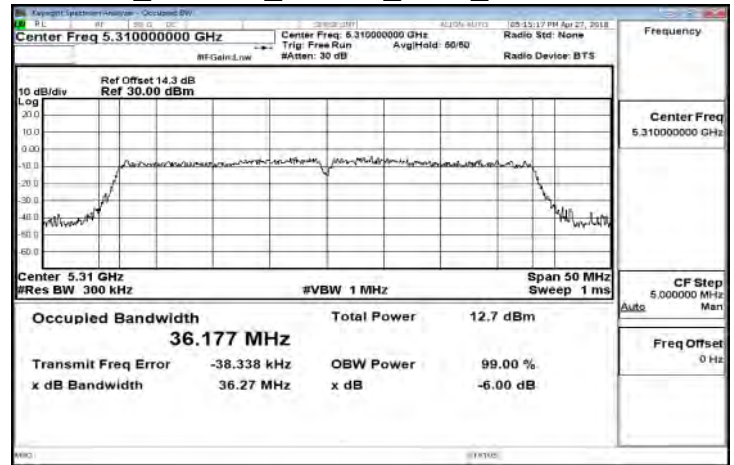
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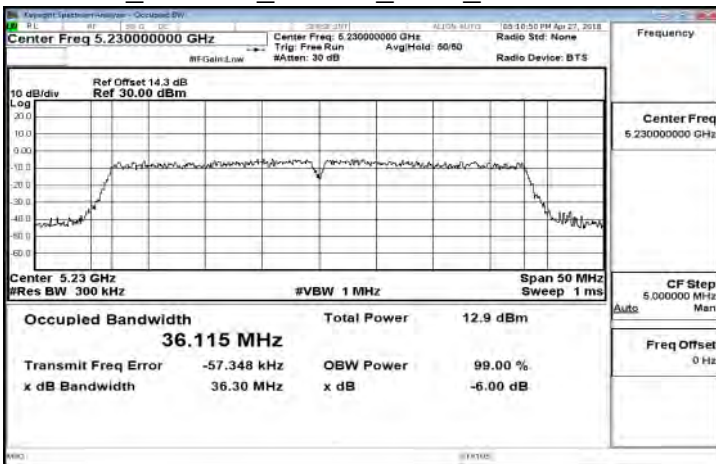
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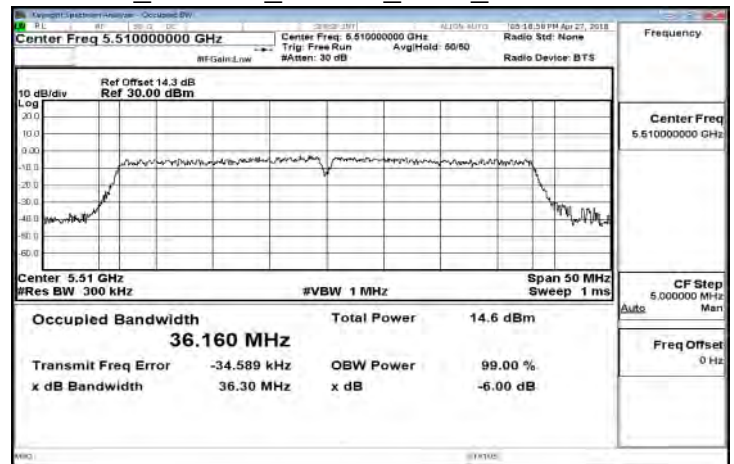
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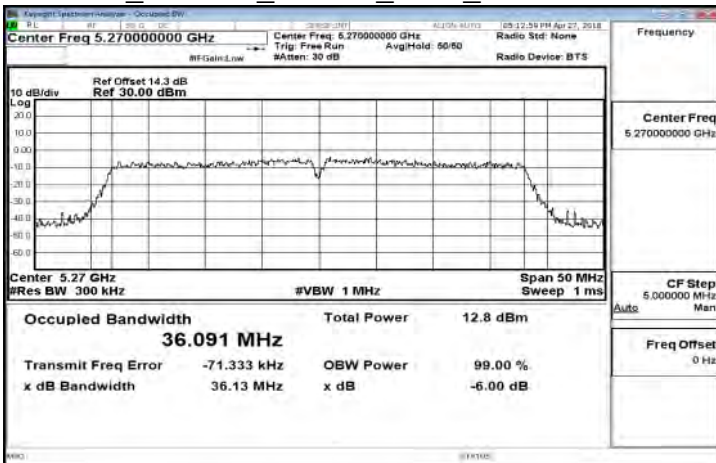
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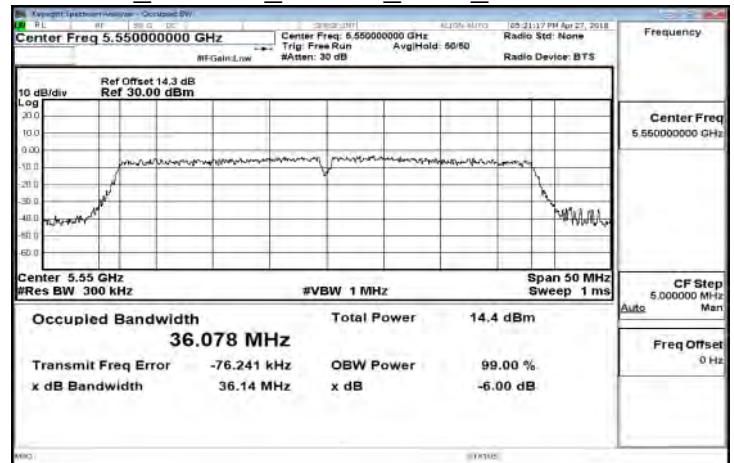
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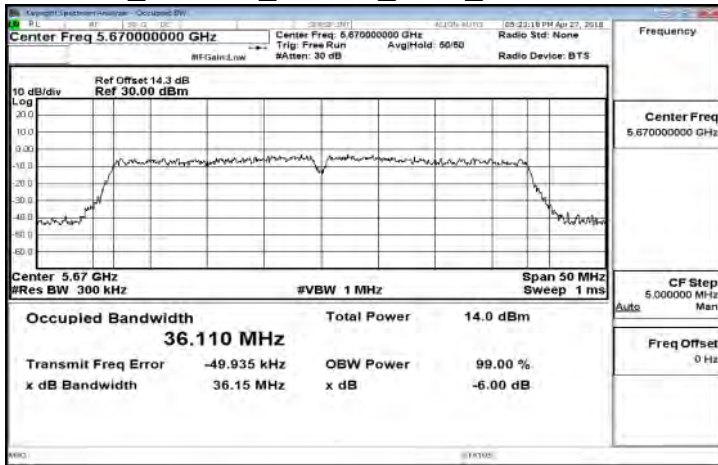


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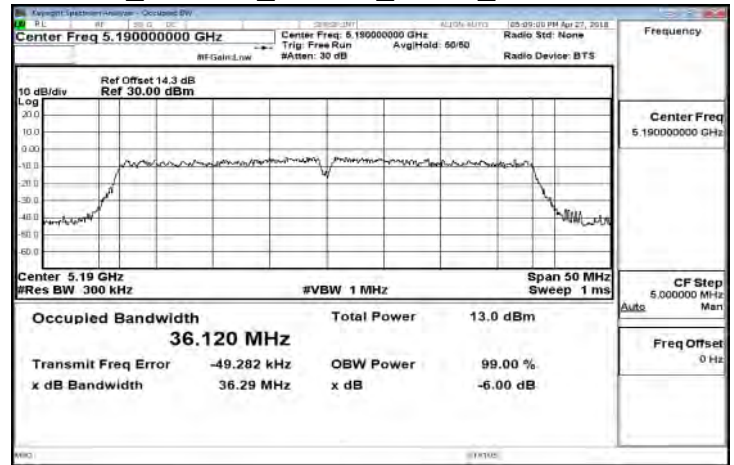
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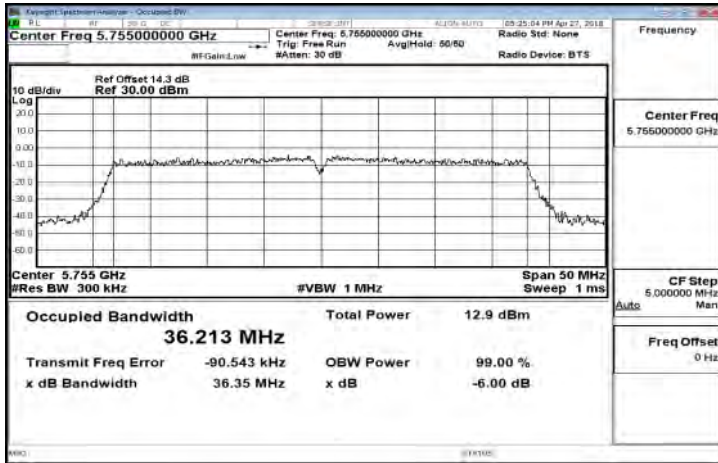
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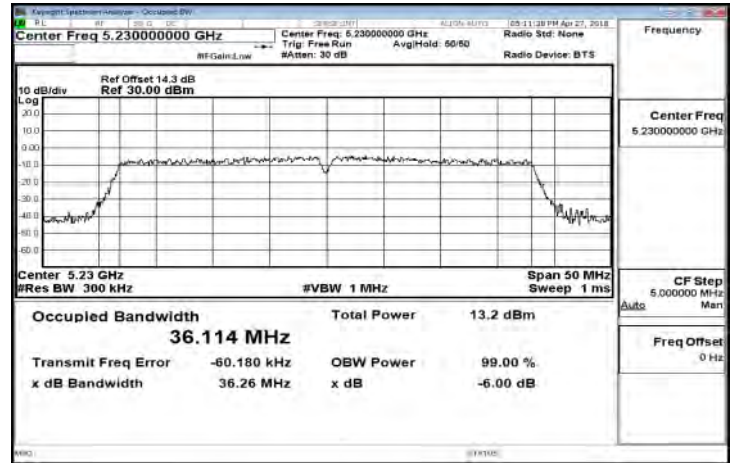
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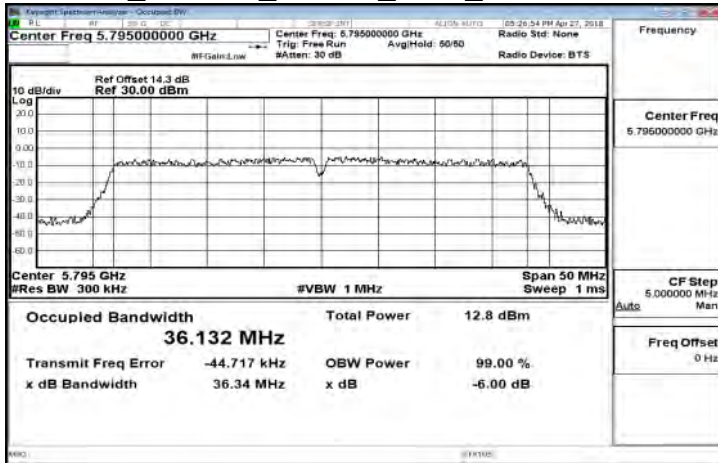
IC_802.11n_40MHz_Main_5755MHz



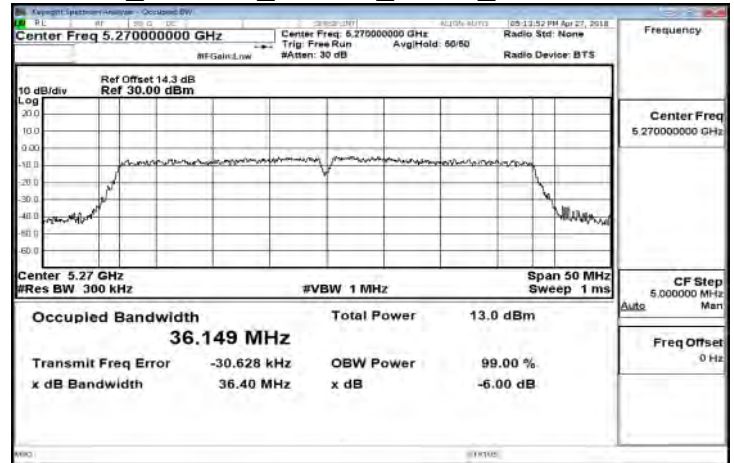
IC_802.11n_40MHz_AUX1_5230MHz



IC_802.11n_40MHz_Main_5795MHz



IC_802.11n_40MHz_AUX1_5270MHz

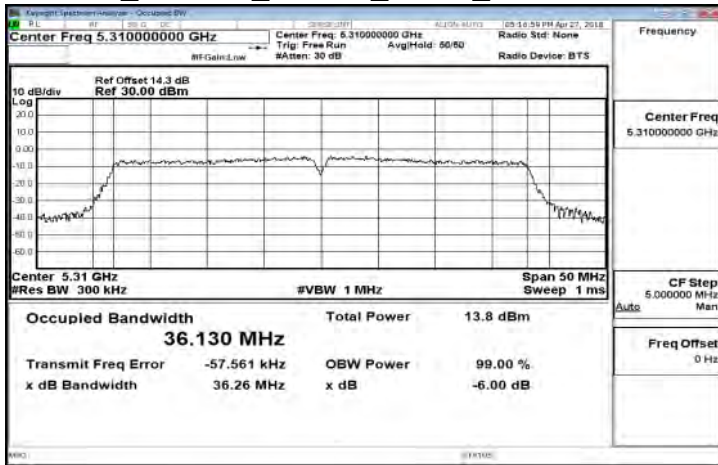


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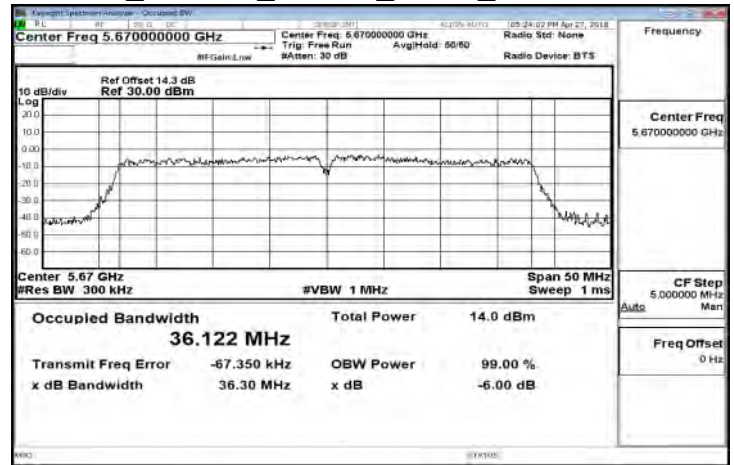
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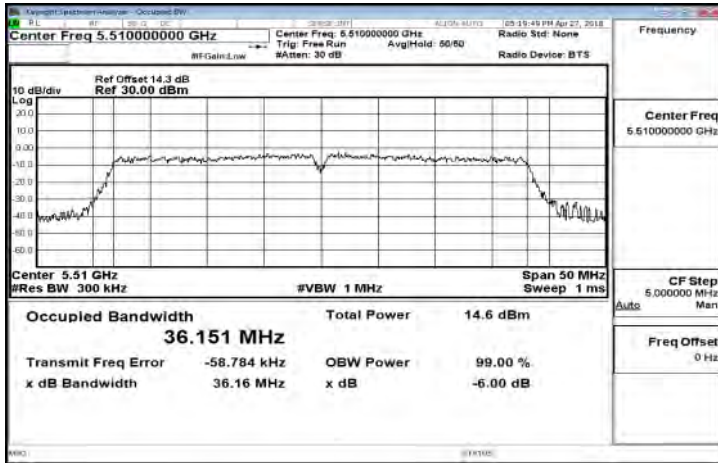
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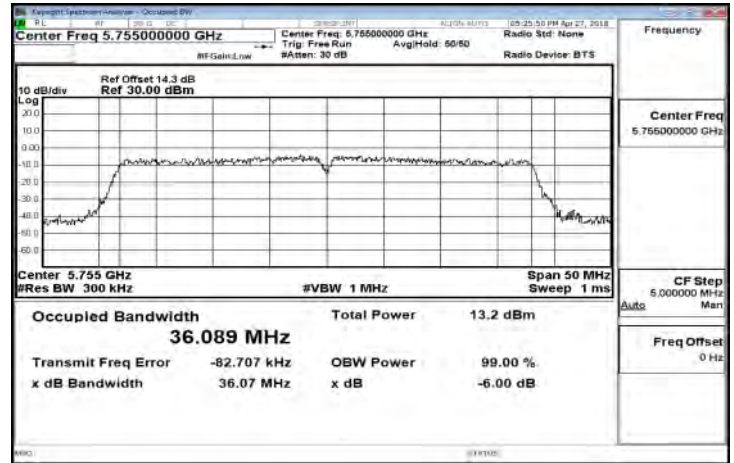
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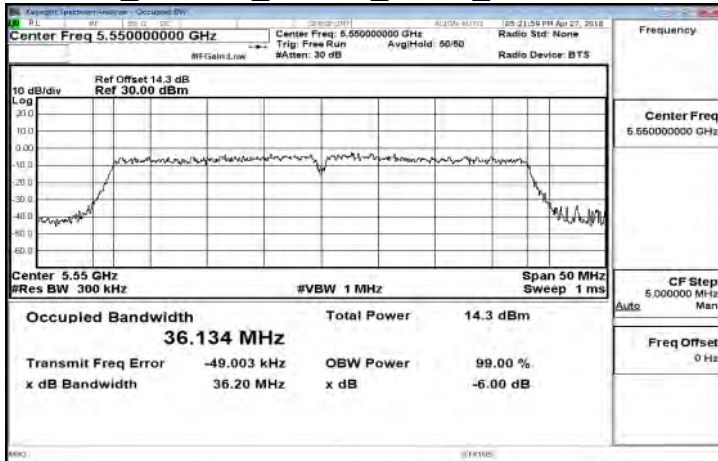
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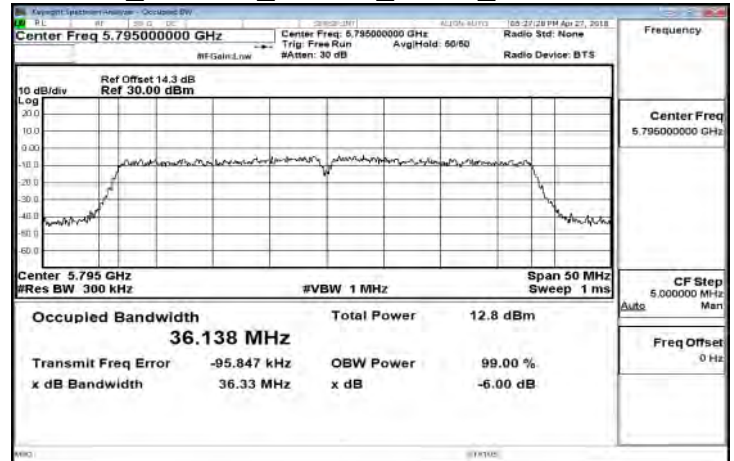
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IC_802.11n_40MHz_AUX1_5550MHz



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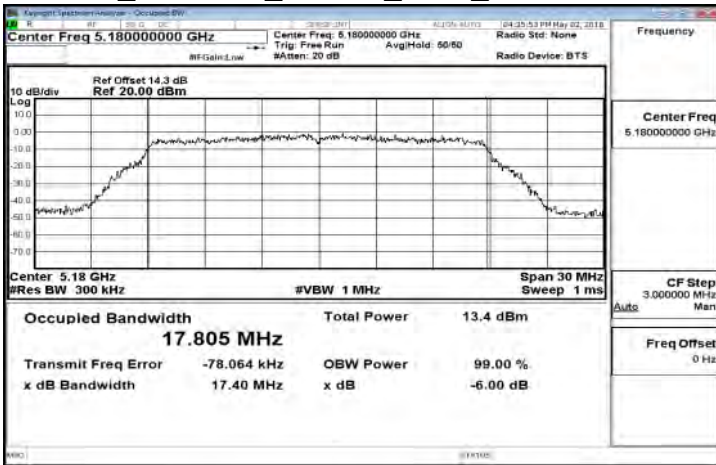


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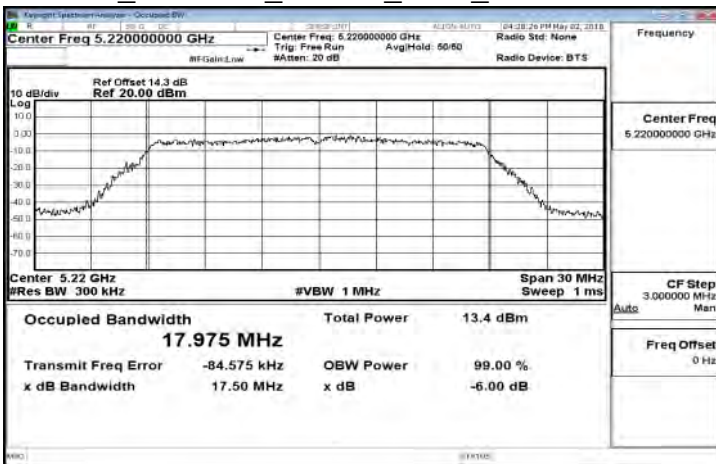
IC_802.11ac_20MHz_Main_5180MHz



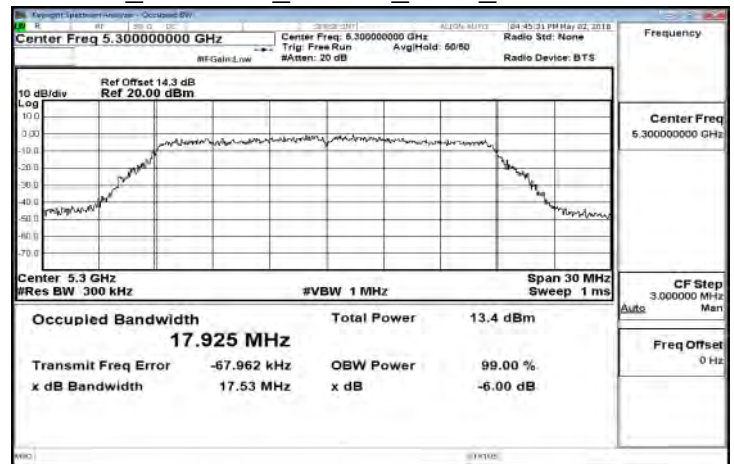
IC_802.11ac_20MHz_Main_5260MHz



IC_802.11ac_20MHz_Main_5220MHz



IC_802.11ac_20MHz_Main_5300MHz



IC_802.11ac_20MHz_Main_5240MHz



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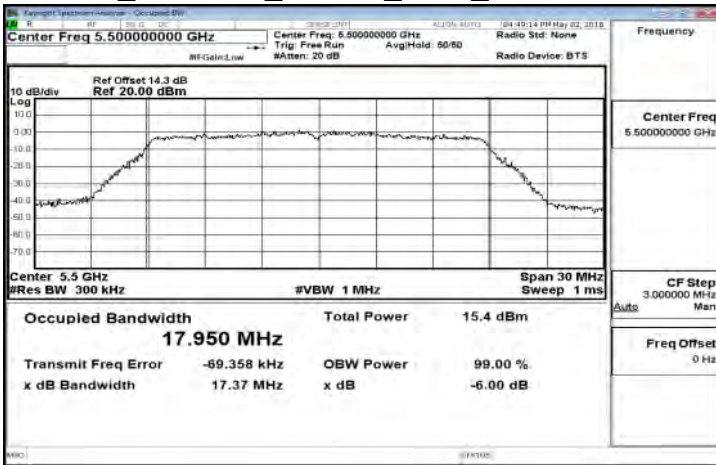


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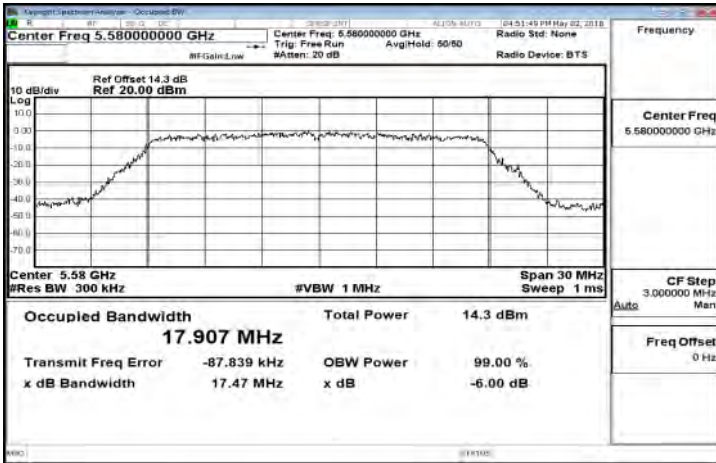
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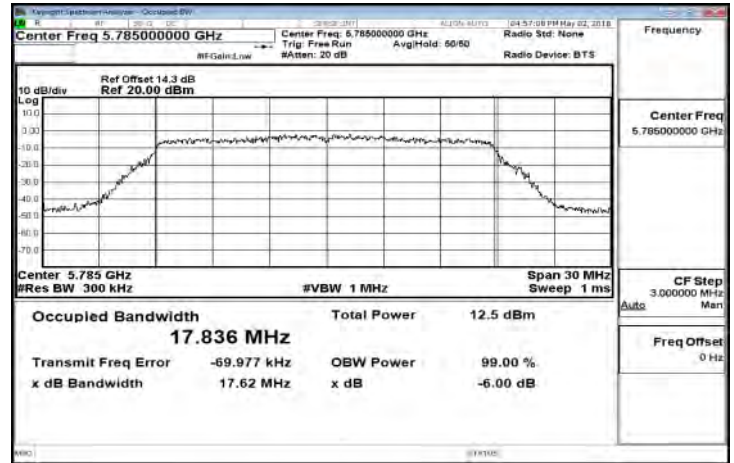
IC_802.11ac_20MHz_Main_5745MHz



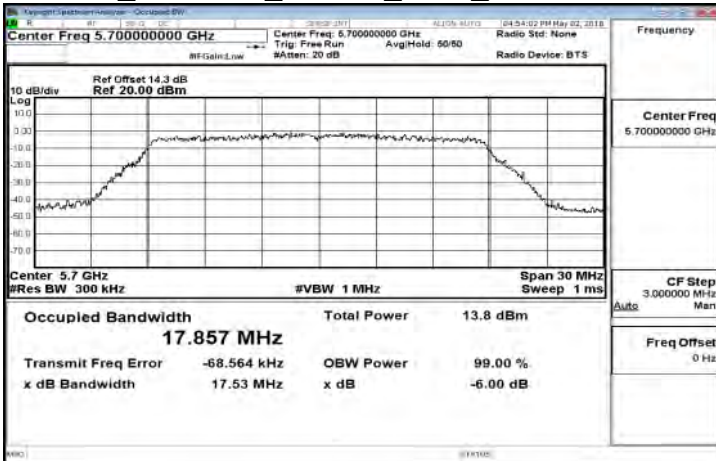
IC_802.11ac_20MHz_Main_5580MHz



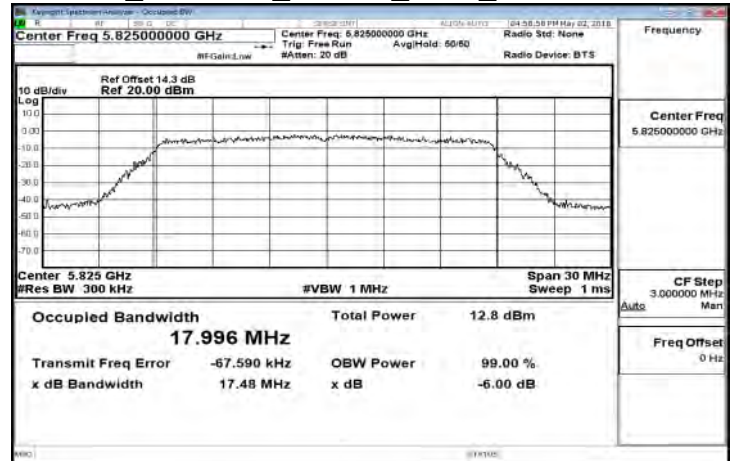
IC_802.11ac_20MHz_Main_5785MHz



IC_802.11ac_20MHz_Main_5700MHz



IC_802.11ac_20MHz_Main_5825MHz

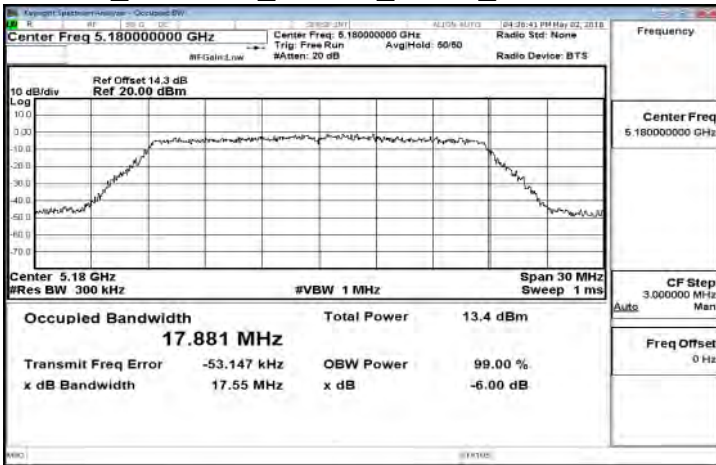


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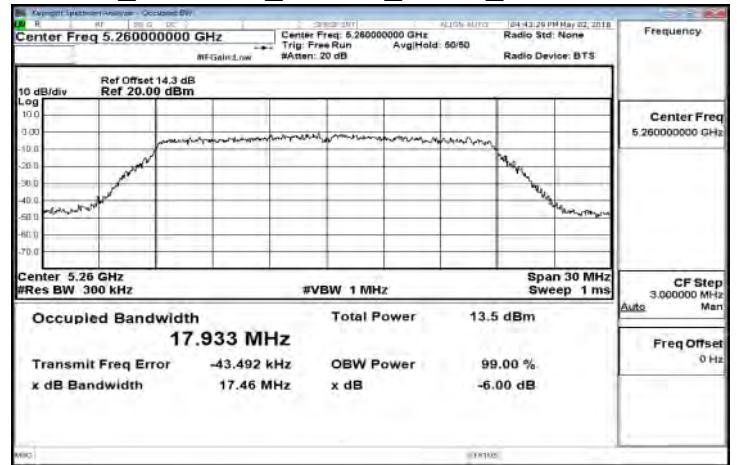
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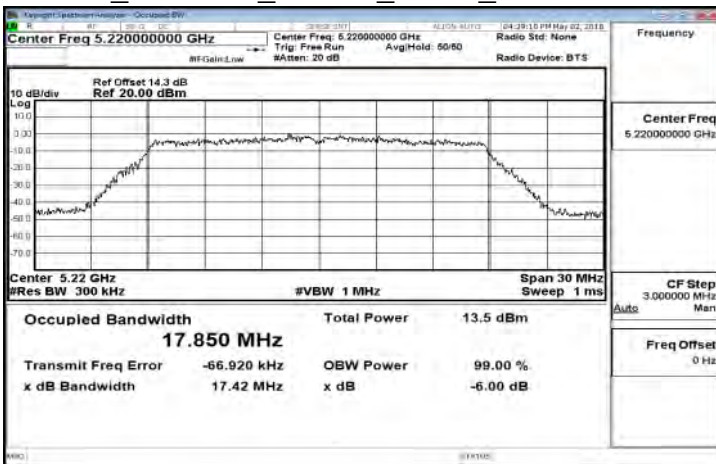
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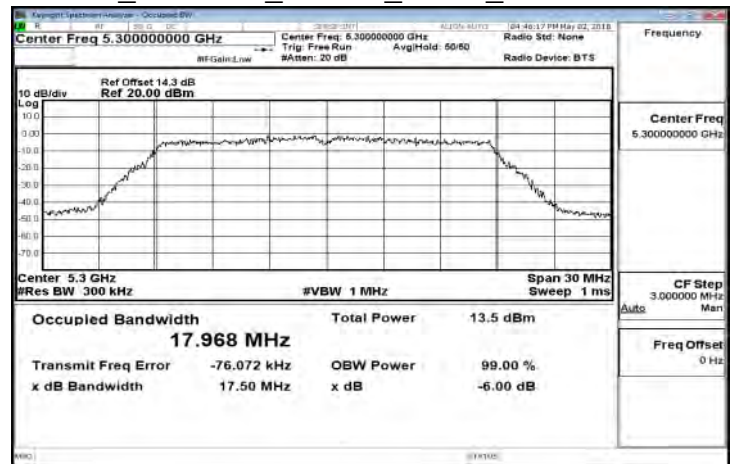
IC_802.11ac_20MHz_AUX1_5260MHz



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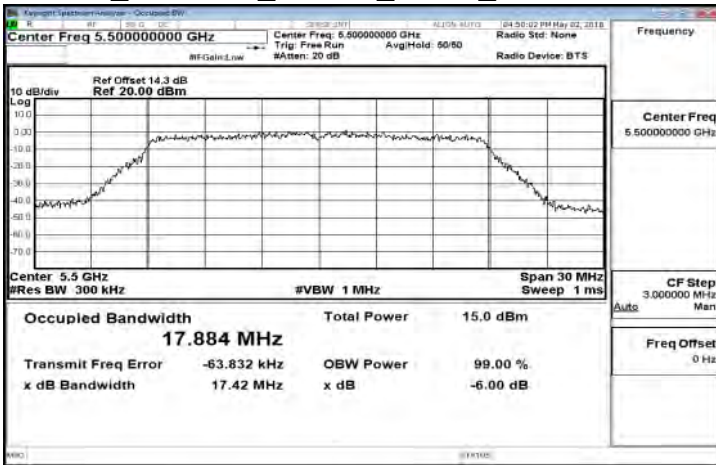
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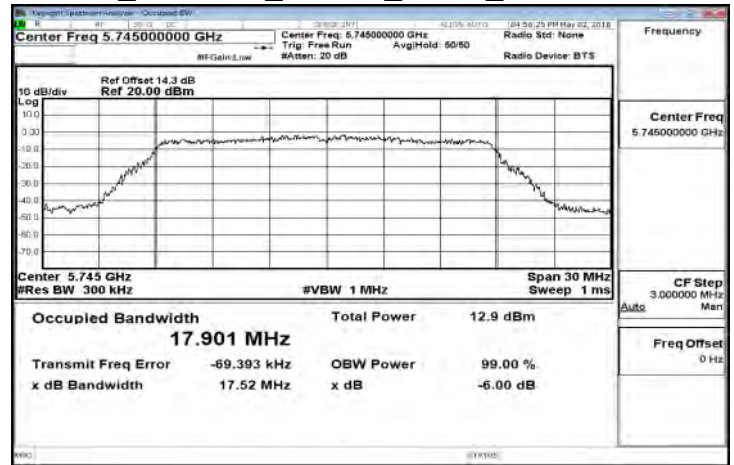
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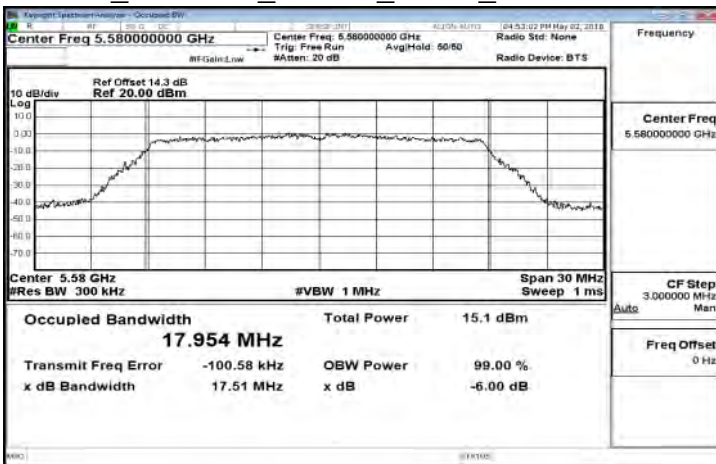
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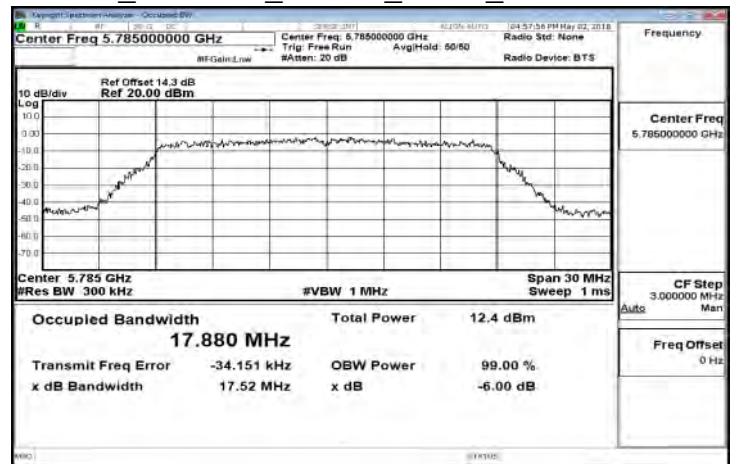
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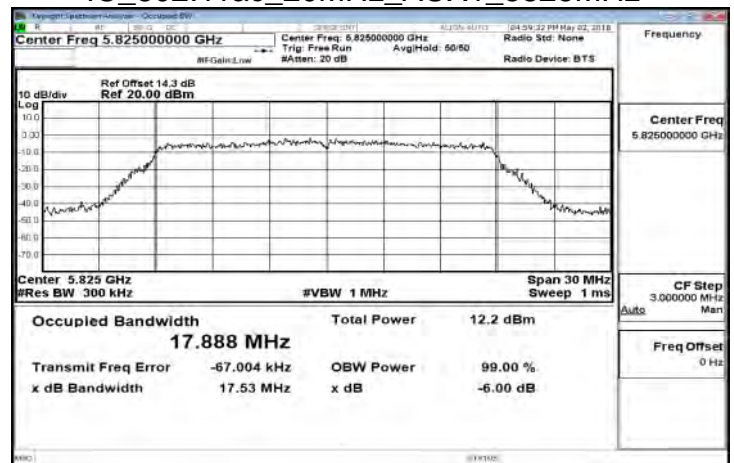
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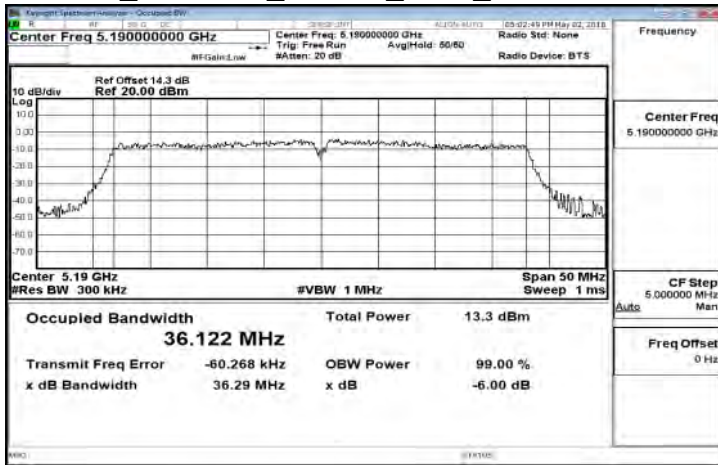


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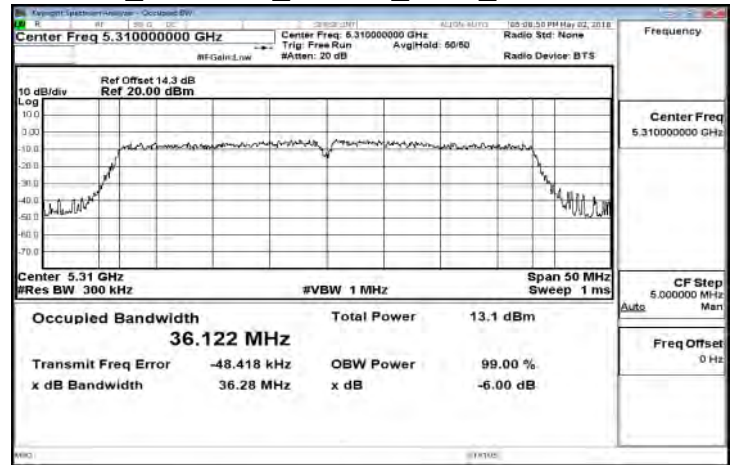
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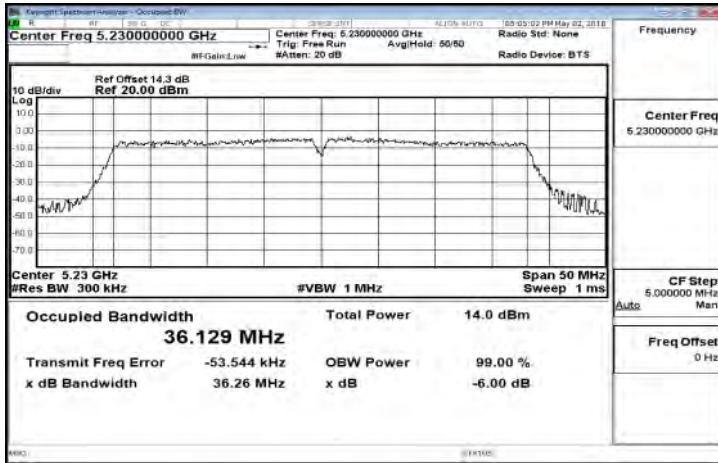
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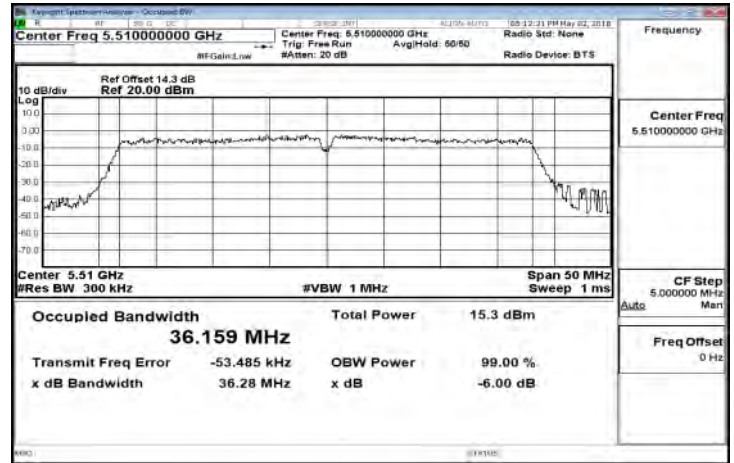
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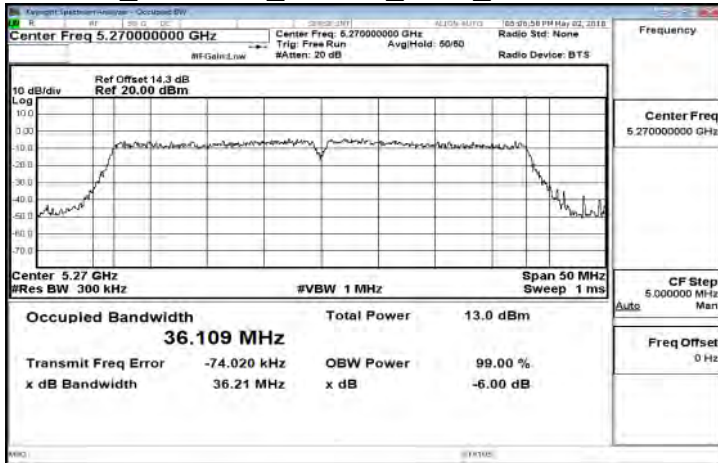
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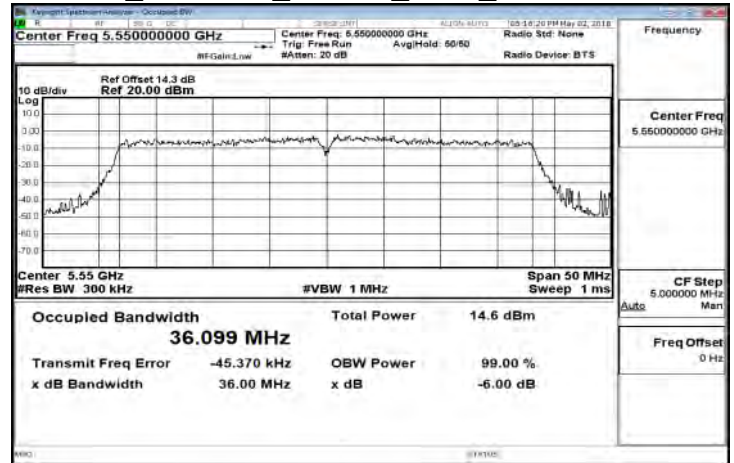
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IC_802.11ac_40MHz_Main_5270MHz



IC_802.11ac_40MHz_Main_5550MHz

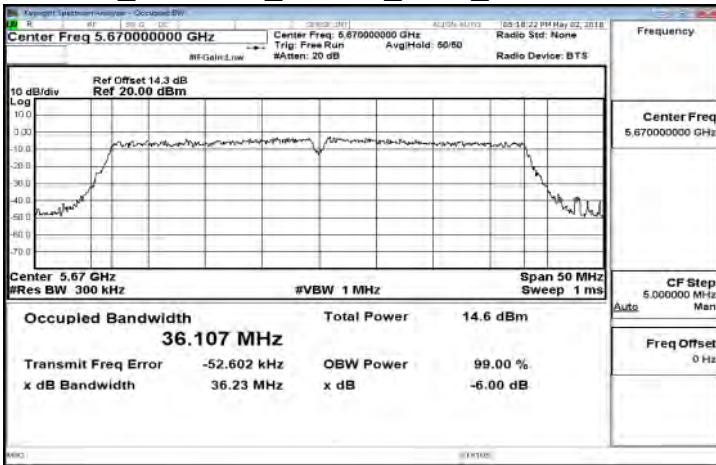


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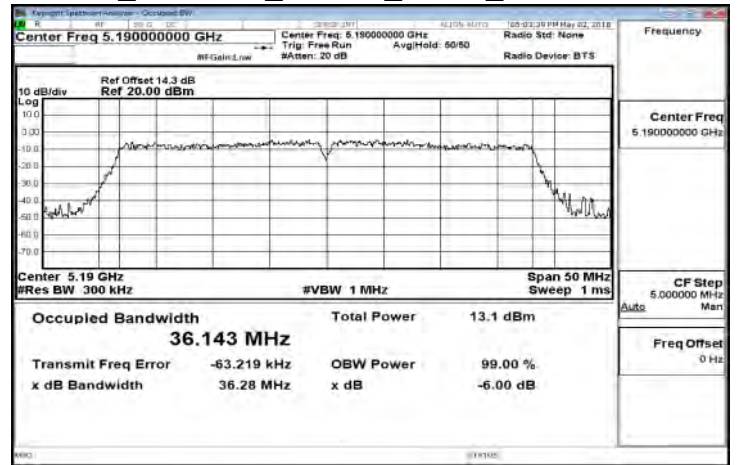
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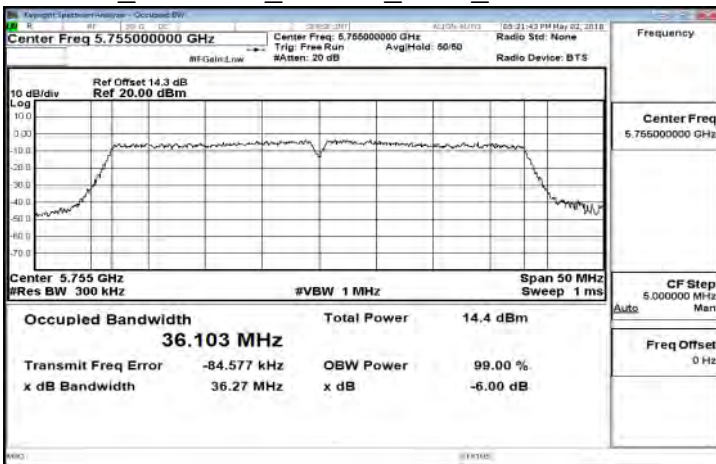
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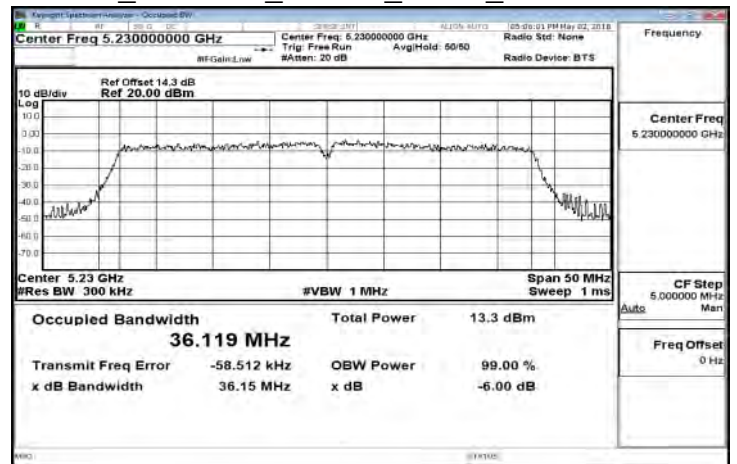
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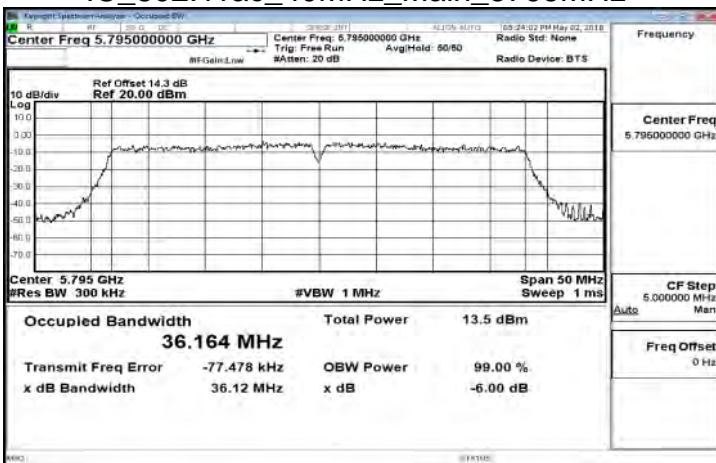
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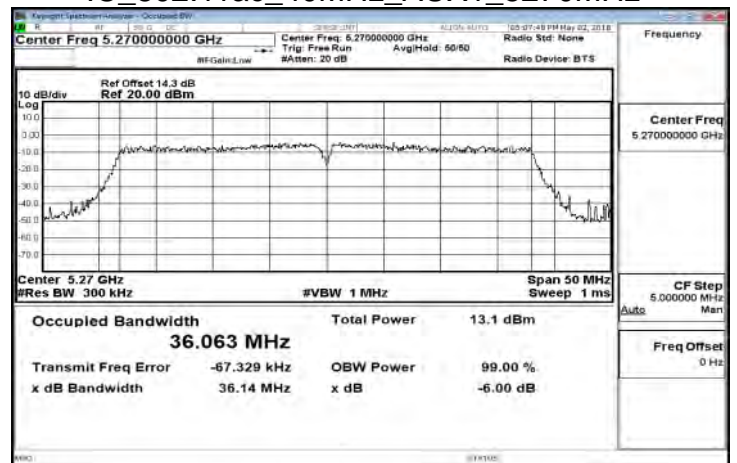
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IC_802.11ac_40MHz_Main_5795MHz



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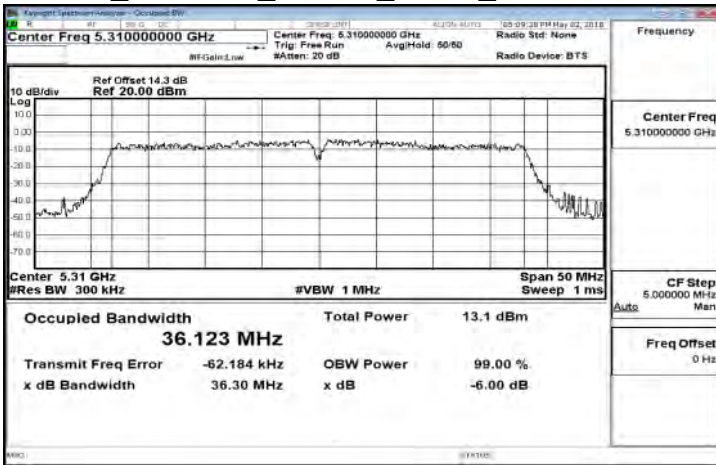


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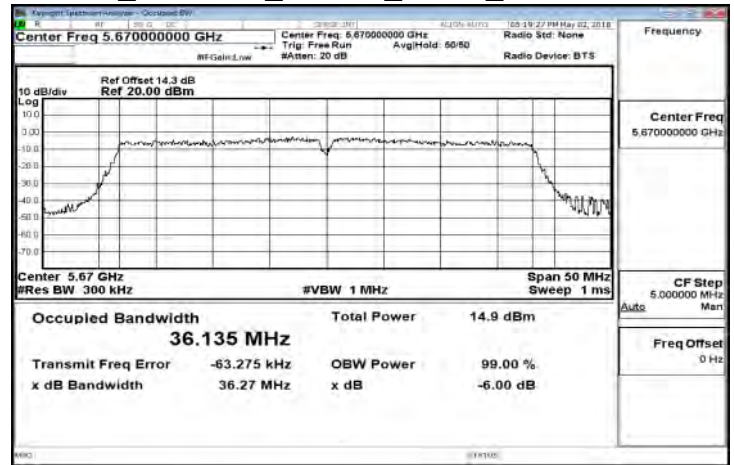
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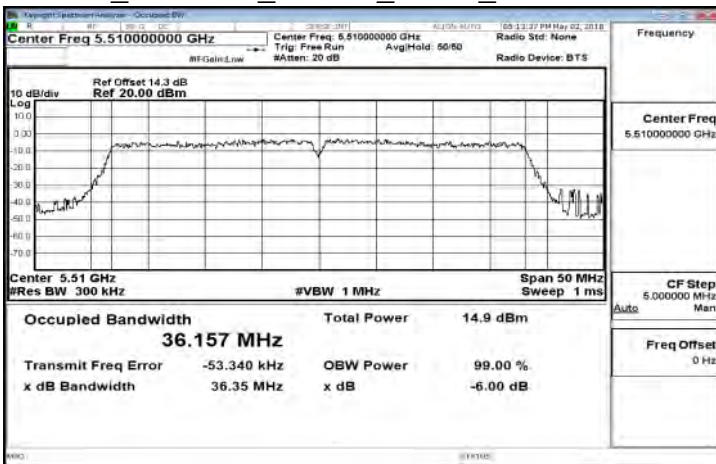
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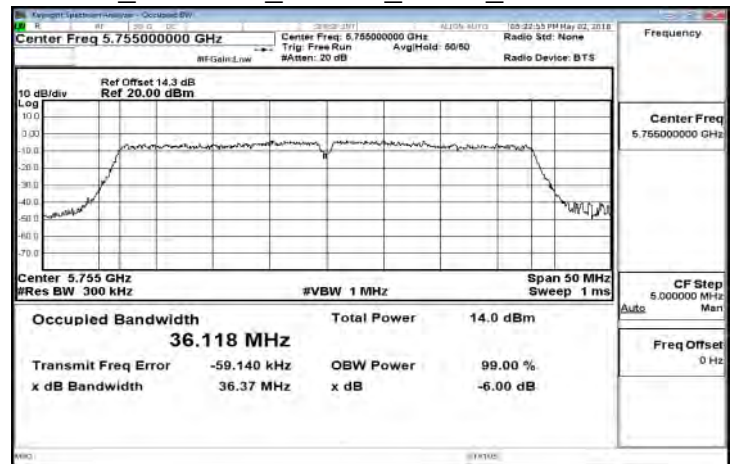
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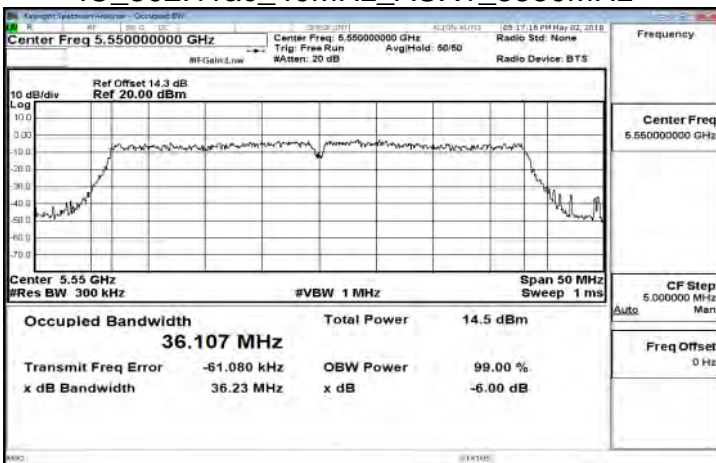
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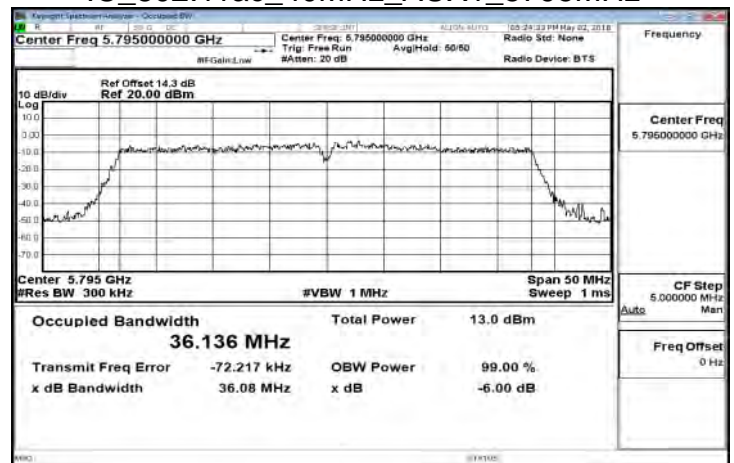
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IC_802.11ac_40MHz_AUX1_5550MHz



IC_802.11ac_40MHz_AUX1_5795MHz

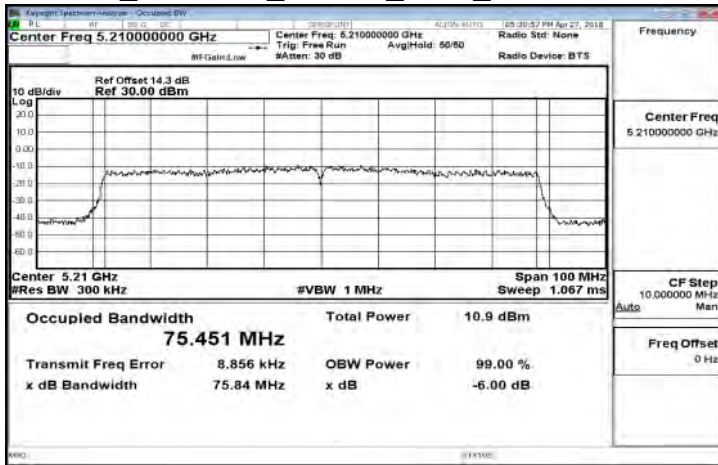


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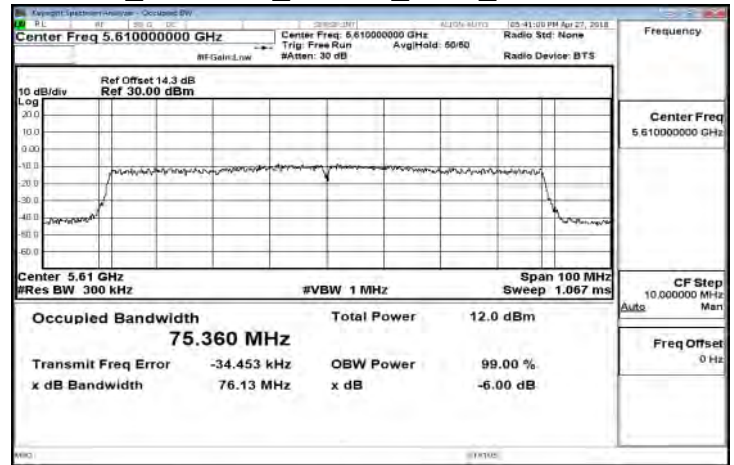
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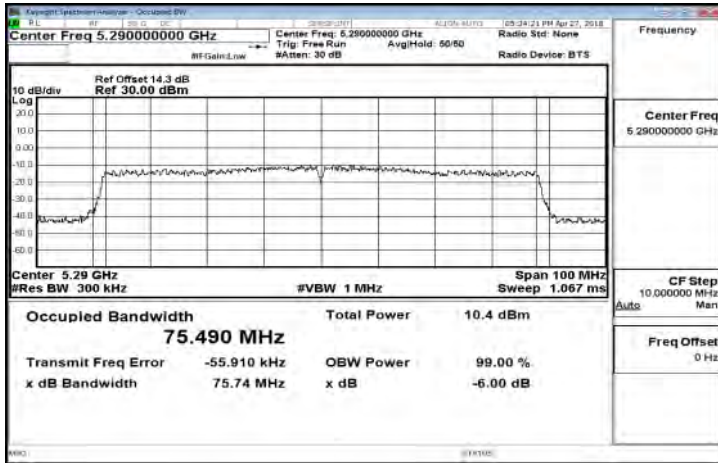
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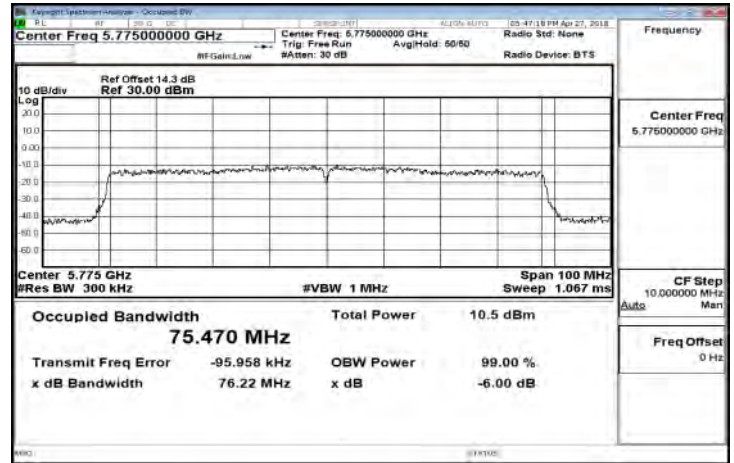
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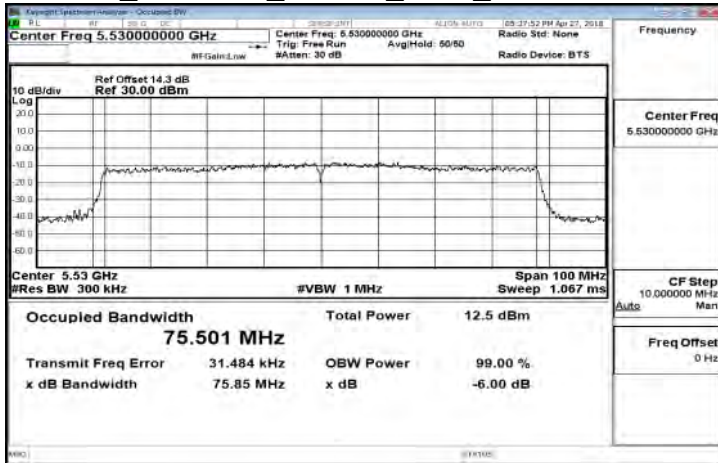
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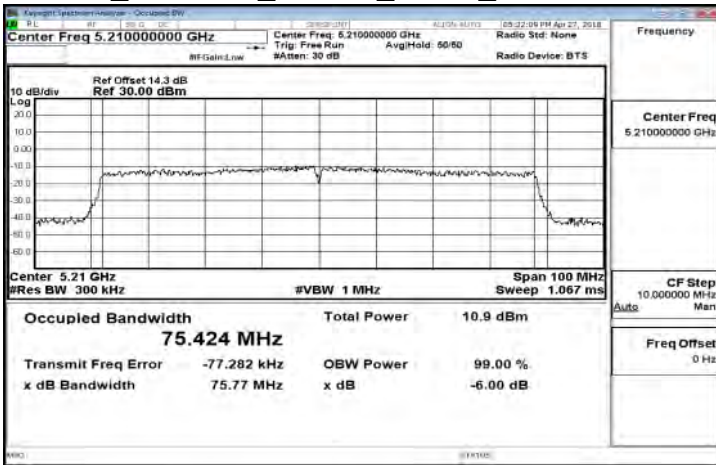


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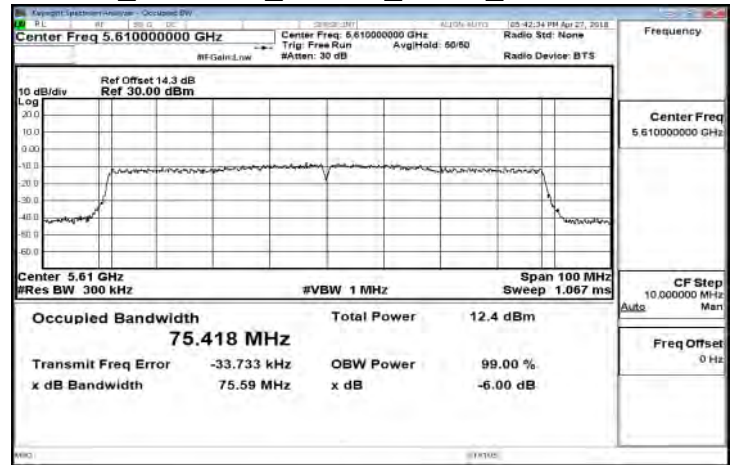
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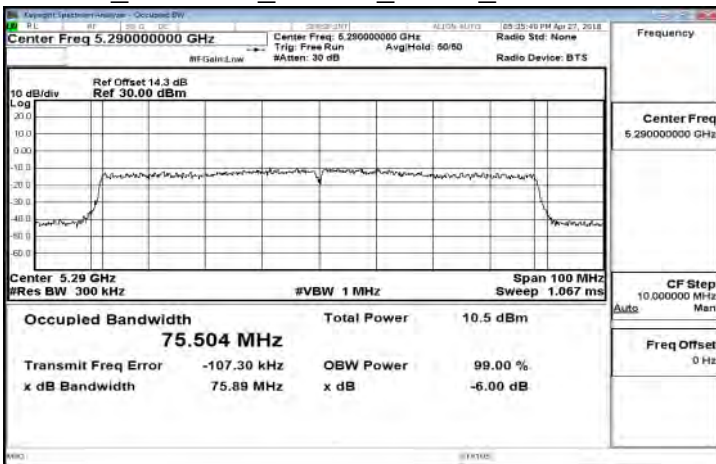
IC_802.11ac_80MHz_AUX1_5210MHz



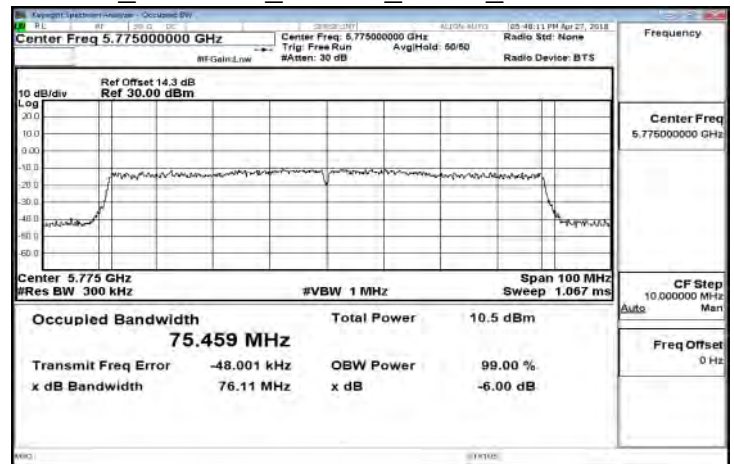
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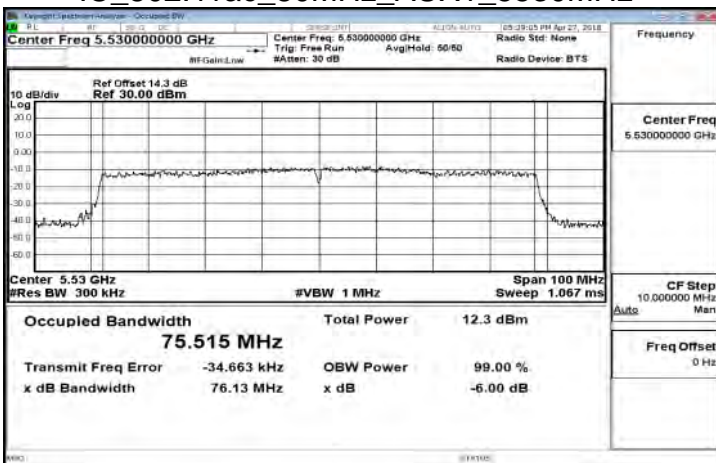
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IC_802.11ac_80MHz_AUX1_5775MHz



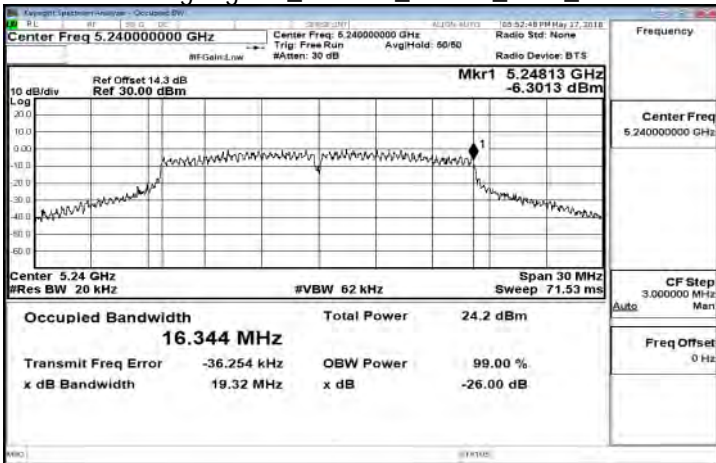
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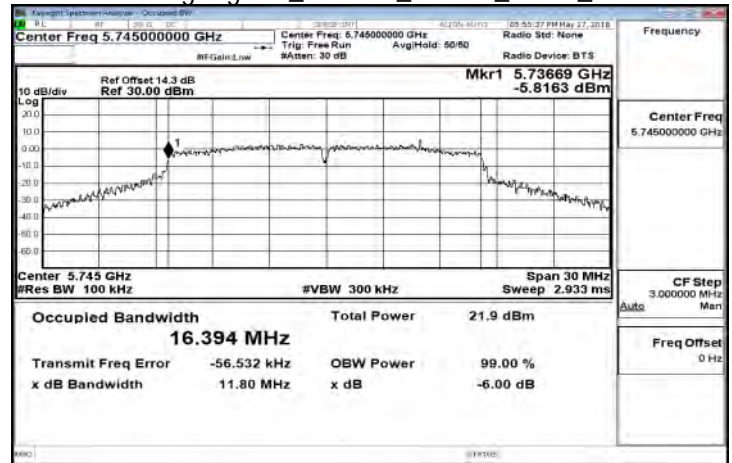
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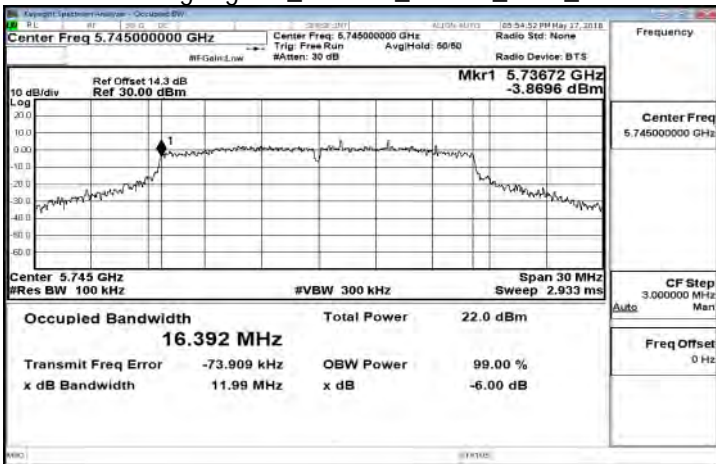
Band-Crossing Signals_802.11a_20MHz_Main_5240MHz



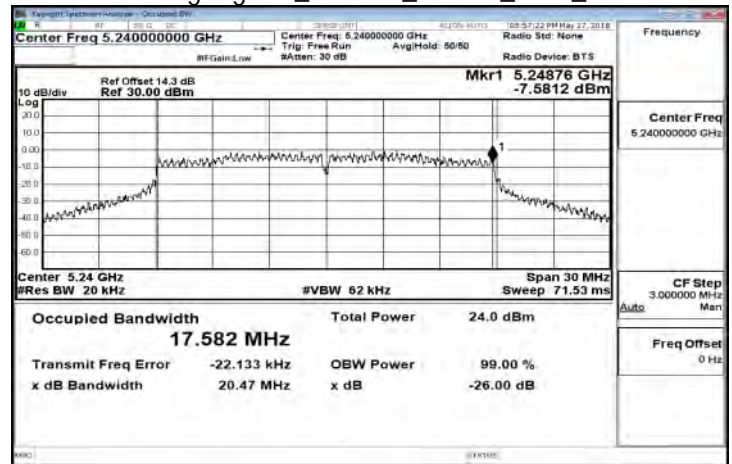
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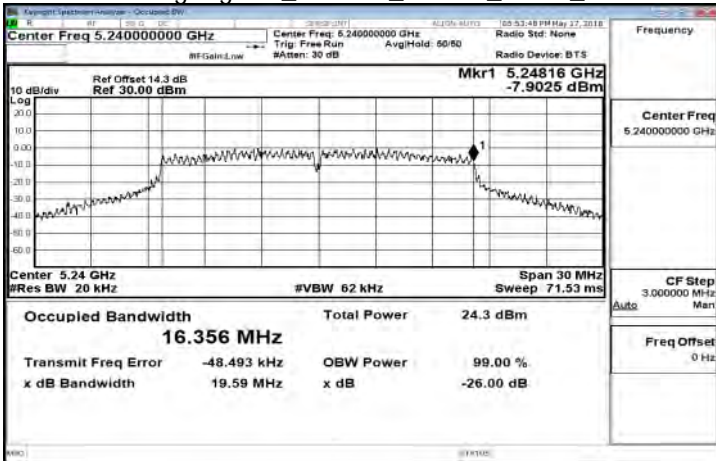
Band-Crossing Signals_802.11a_20MHz_Main_5745MHz



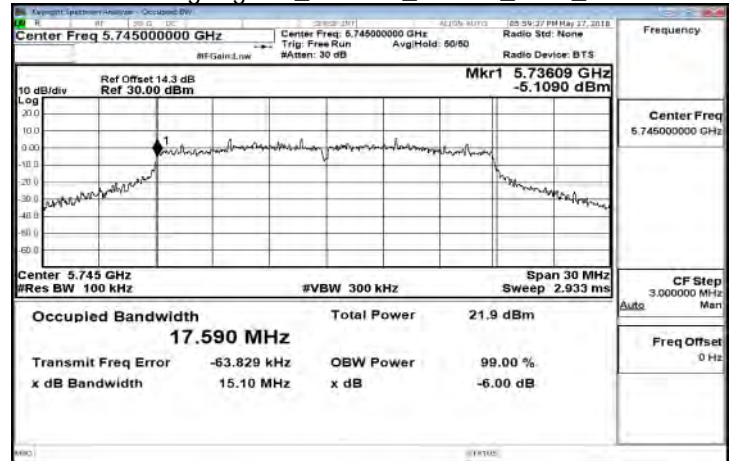
Band-Crossing Signals_802.11n_20MHz_Main_5240MHz



Band-Crossing Signals_802.11a_20MHz_AUX1_5240MHz



Band-Crossing Signals_802.11n_20MHz_Main_5745MHz

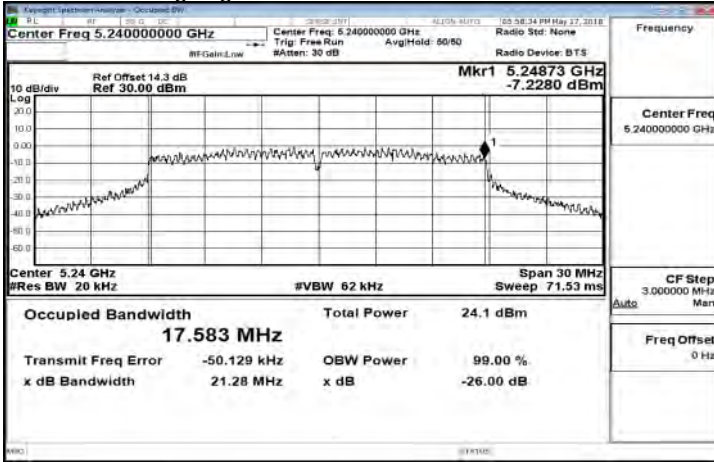


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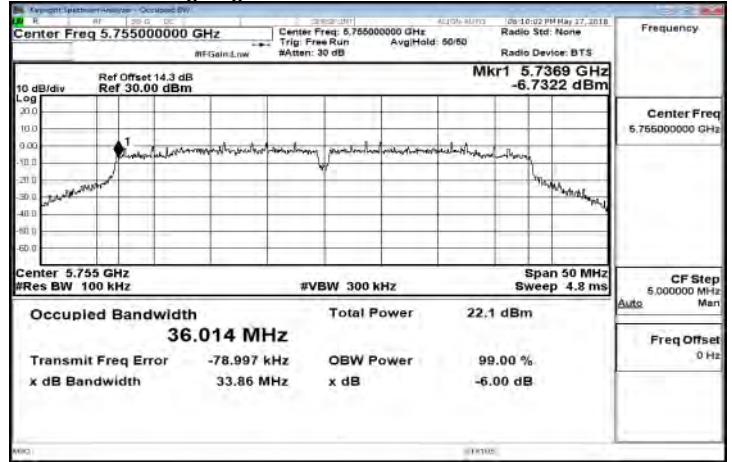
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Band-Crossing Signals 802.11n_20MHz_AUX1_5240MHz



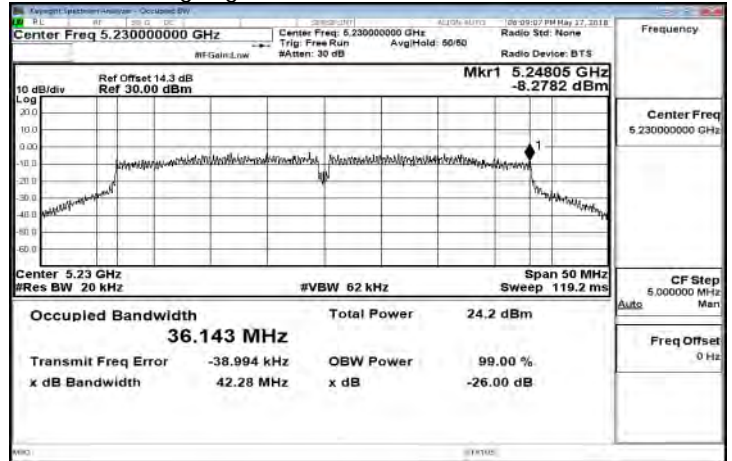
Band-Crossing Signals 802.11n_40MHz_Main_5755MHz



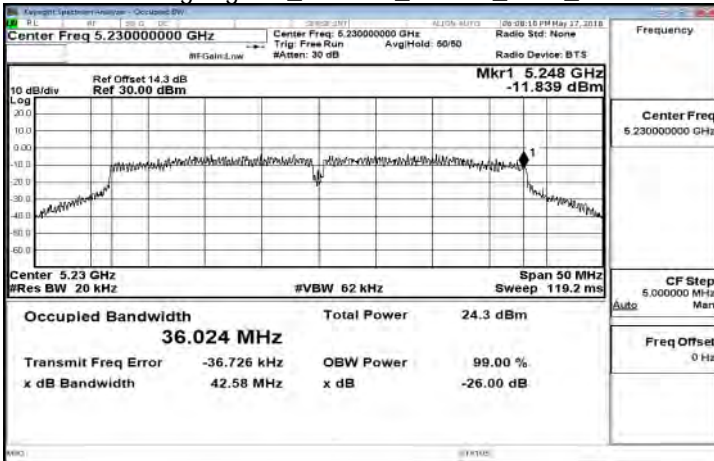
Band-Crossing Signals 802.11n_20MHz_AUX1_5745MHz



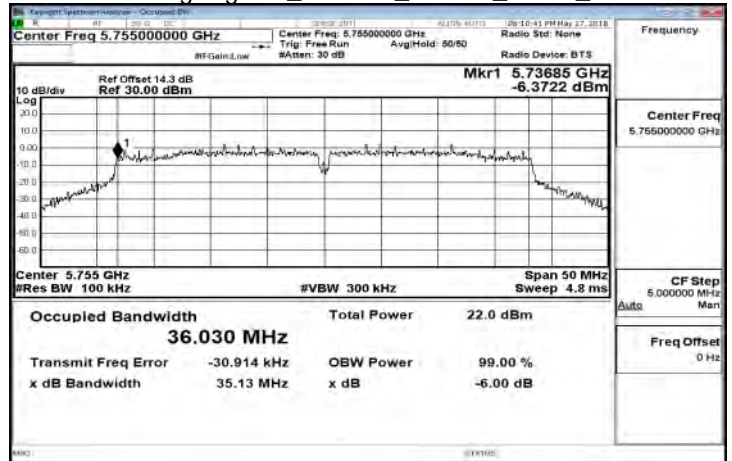
Band-Crossing Signals 802.11n_40MHz_AUX1_5230MHz



Band-Crossing Signals 802.11n_40MHz_Main_5230MHz



Band-Crossing Signals 802.11n_40MHz_AUX1_5755MHz

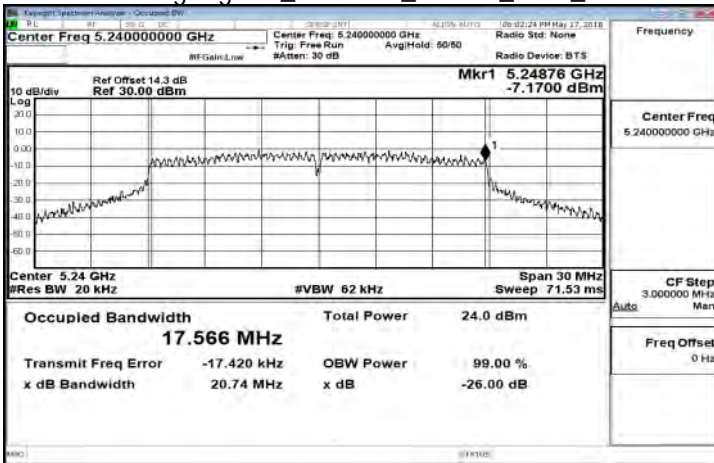


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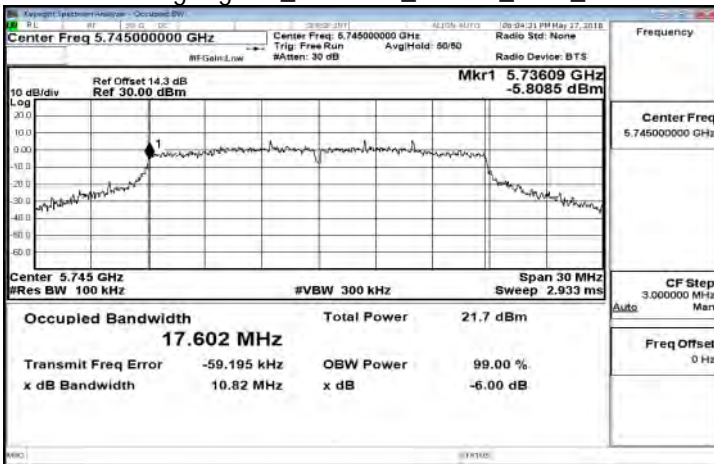
Band-Crossing Signals_802.11ac_20MHz_Main_5240MHz



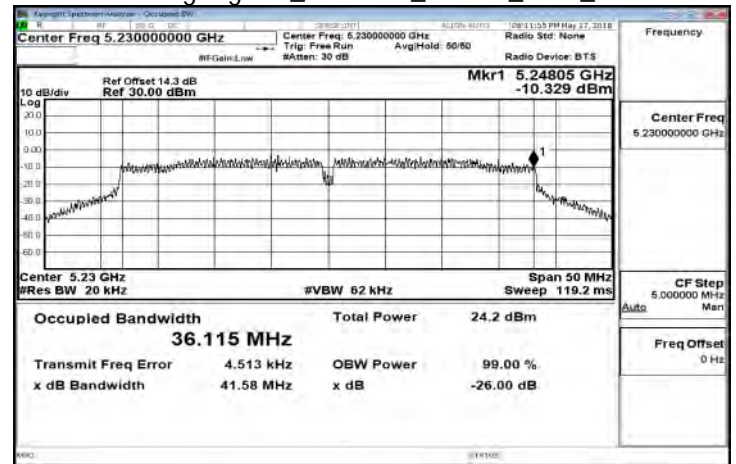
Band-Crossing Signals_802.11ac_20MHz_AUX1_5745MHz



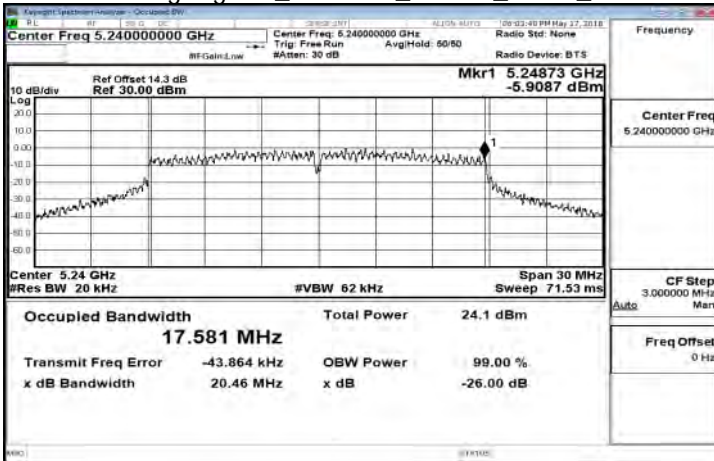
Band-Crossing Signals_802.11ac_20MHz_Main_5745MHz



Band-Crossing Signals_802.11ac_40MHz_Main_5230MHz



Band-Crossing Signals_802.11ac_20MHz_AUX1_5240MHz



Band-Crossing Signals_802.11ac_40MHz_Main_5755MHz

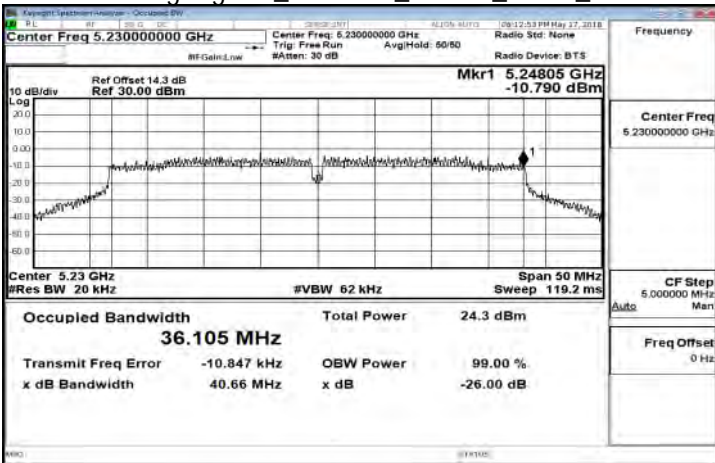


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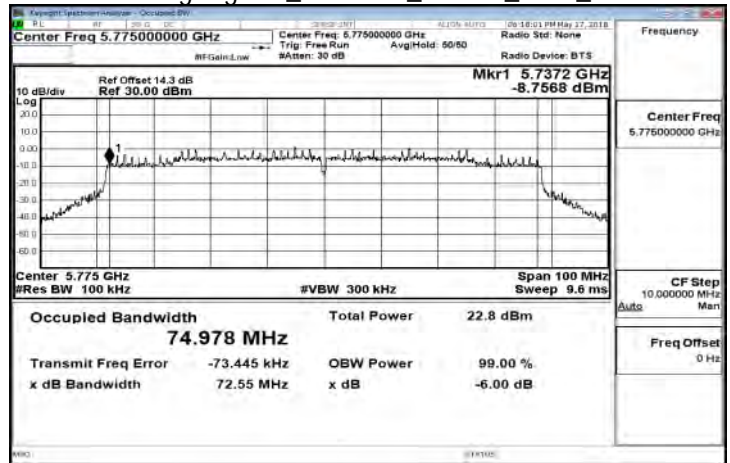
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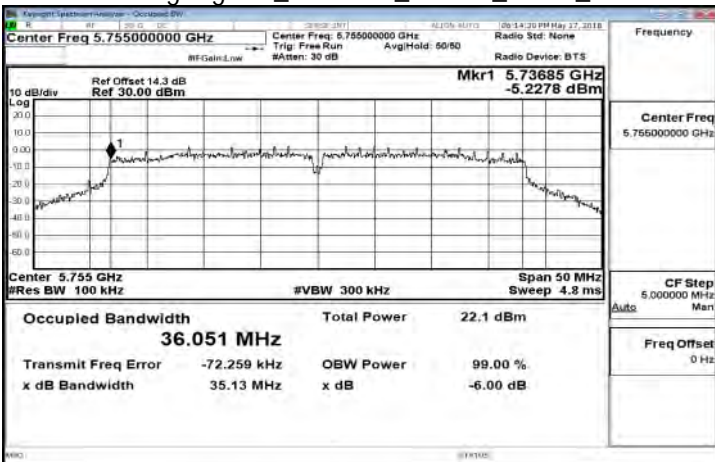
Band-Crossing Signals_802.11ac_40MHz_AUX1_5230MHz



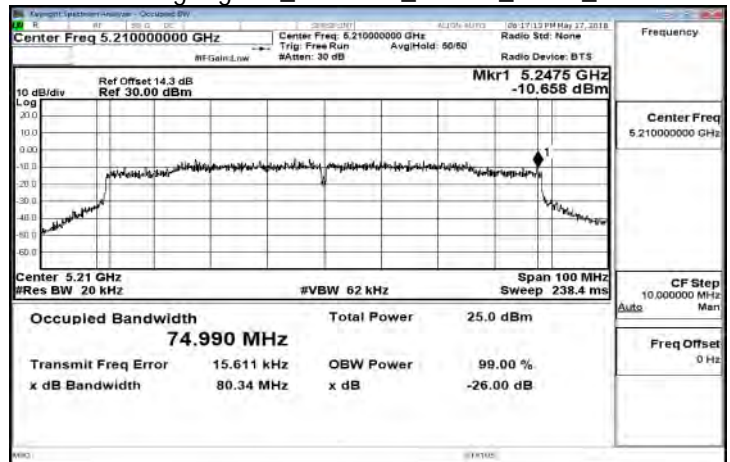
Band-Crossing Signals_802.11ac_80MHz_Main_5775MHz



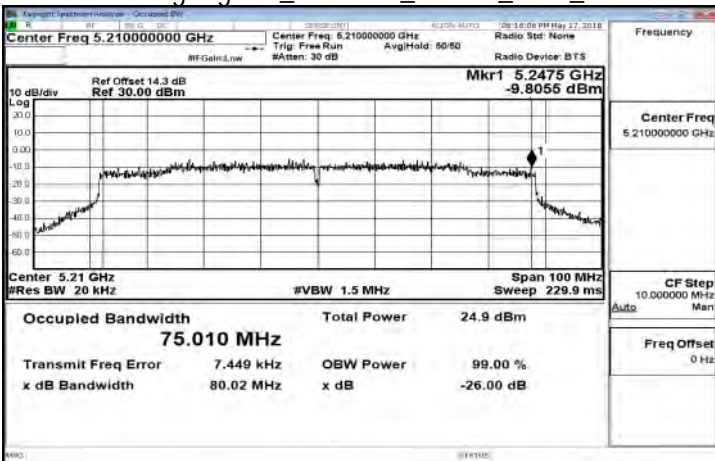
Band-Crossing Signals_802.11ac_40MHz_AUX1_5755MHz



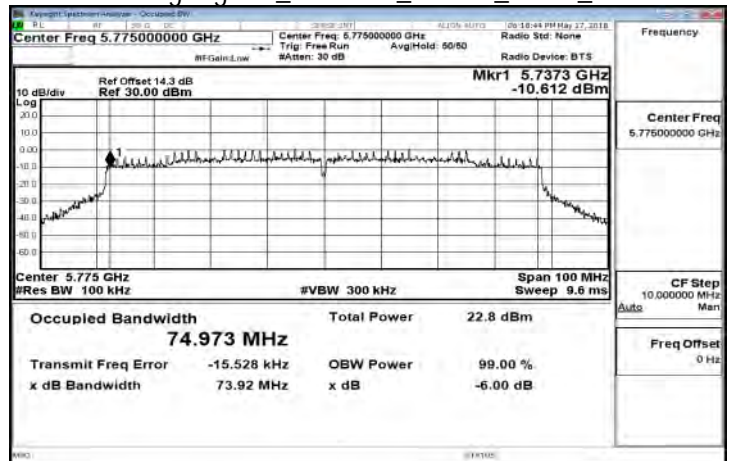
Band-Crossing Signals_802.11ac_80MHz_AUX1_5210MHz



Band-Crossing Signals_802.11ac_80MHz_Main_5210MHz



Band-Crossing Signals_802.11ac_80MHz_AUX1_5775MHz



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9 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

9.1 Standard Applicable

FCC

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device)	1 Watt(30dBm)
		Fixed point-to-point Access Ponit	1 Watt(30dBm)
	√	Mobile and portable clinet device	250mW(23.98dBm)
U-NII-2A	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-3	√		1 Watt(30dBm)

IC

OPERZTION FREQUENCY BAND	LIMIT
5150~5250 MHz	EIRP shall not exceed 200 mW or 10 + 10 log ₁₀ B, dBm
5250~5350 MHz	Conducted output power shall not exceed 250 mW or 11 +10 log ₁₀ B EIRP shall not exceed 1.0 W or 17 + 10 log ₁₀ B, dBm
5470-5600 MHz and 5650-5725 MHz	Conducted output power shall not exceed 250 mW or 11 +10 log ₁₀ B EIRP shall not exceed 1.0 W or 17 + 10 log ₁₀ B, dBm
5725~5850 MHz	Conducted output power shall not exceed 1 W

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the direction-al gain of the antenna exceeds 6 dBi.

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As per FCC KDB 662911 D01

Directional Gain Calculations for In-Band Measurements

a) Basic methodology with N_{ANT} transmit antennas, each with the same directional gain G_{ANT} dBi, being driven by N_{ANT} transmitter outputs of equal power. Directional gain is to be computed as follows:

(i) If any transmit signals are correlated with each other, Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi

Main Antenna Gain	dBi
Antenna Assembly Gain for 5.15-5.25G	1.97
Antenna Assembly Gain for 5.25-5.35G	1.25
Antenna Assembly Gain for 5.47-5.725G	1.31
Antenna Assembly Gain for 5.725-5.825G	1.82

Aux1 Antenna Gain	dBi
Antenna Assembly Gain for 5.15-5.25G	0.56
Antenna Assembly Gain for 5.25-5.35G	-0.1
Antenna Assembly Gain for 5.47-5.725G	-0.7
Antenna Assembly Gain for 5.725-5.825G	1.3

Mimo Antenna Gain	dBi
Antenna Assembly Gain for 5.15-5.25G	4.98
Antenna Assembly Gain for 5.25-5.35G	4.26
Antenna Assembly Gain for 5.47-5.725G	4.32
Antenna Assembly Gain for 5.725-5.825G	4.83

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