ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant:	FUJITSU CONNECTED TECHNOLOGIES Ltd. Chuorinkan 7-10-1 Yamato, Kanagawa 242-0007, Japan
Product Name:	Smart Phone
Brand Name:	FUJITSU
Model No.:	F-52A
Model Difference:	N/A
Report Number:	ER/2020/90016
FCC ID:	2AQYEFMP180
FCC Rule Part:	§15.407, Cat: NII
Issue Date:	Sep. 30th, 2020
Date of Test:	Sep. 14th, 2020 ~ Sep. 23nd, 2020
Date of EUT Received:	Sep. 14th, 2020

We hereby certify that:

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

Approved By:

Blue Yang / Asst. Manager

Testing Laboratory
3702

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Revision History

Report Number	Revision	Description	Issue Date	Remark
ER/2020/90016	Rev.00	Original.	Sep. 30th, 2020	Revised By: Tiffany Kao

Note:

1、Disclaimer

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

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1 GENERAL INFORMATION

1.1 Product Description

Product Name:	Smart Phone	
Brand Name:	FUJITSU	
Model No.:	F-52A	
Model Difference:	N/A	
Hardware Version:	V2.0.0	
Software Version:	V02R021B-UD	
Power Supply:	3.85Vdc from Rechargeable Li-ion Battery	
	Battery:	Model No.:CA54310-0081 Supplier: FUJITSU CONNECTED TECHNOLOGIES LIMITED
Modulation type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only	
Antenna Designation:	λ/4 Monopole Antenna, Peak Gain: -4.2dBi (WLAN#1) -5.1dBi (WLAN#2)	
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 –173.3Mbps 802.11 ac_40MHz: 13.5 –400.0Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps

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1.2 FCC worst power

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)	Modulation Technology
a	5150~5250	4	16.99	OFDM
	5250~5350	4	16.94	
	5470~5725	12	16.93	
n_HT ac_VHT 20M	5150~5250	4	HT: 16.94	OFDM
	5250~5350	4	HT: 16.87	
	5470~5725	12	HT: 16.99	
n_HT ac_VHT 40M	5150~5250	2	HT: 16.98	OFDM
	5250~5350	2	HT: 16.68	
	5470~5725	6	HT: 16.98	
ac_VHT 80M	5150~5250	1	VHT: 16.49	OFDM
	5250~5350	1	VHT: 16.36	
	5470~5725	3	VHT: 16.39	

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1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10:2013

1.4 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)
No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0027

1.5 Special Accessories

There are no special accessories used while test was conducted.

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

2.3.2 Conducted Test (RF)

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

2.3.3 Radiated Emissions

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

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2.4 Measurement Results Explanation Example

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

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

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

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2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

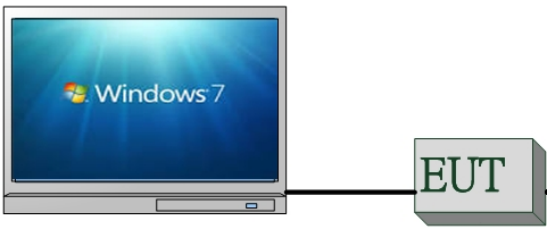

Fig. 2-2 Conducted (Antenna Port) Emission Configuration

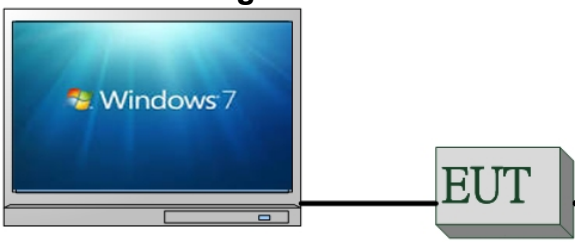

Fig. 2-3 Conducted (AC powerline) Emission Configuration

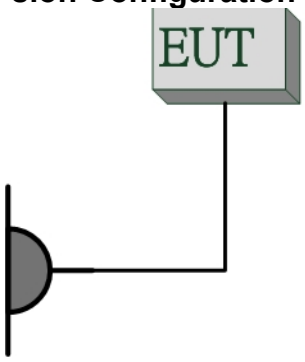

Table 2-1 Equipment Used in Tested System

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	T440P	PC-014TAK	Shielded	Unshielded

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3 SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB & 6dB Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.205 §15.209 §15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.407(g)	Frequency Stability	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 802.11a/n/ac operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

20 M	
CH	Freq (MHz)
36	5180
40	5200
44	5220
48	5240

40 M	
CH	Freq (MHz)
38	5190
46	5230

80 M	
CH	Freq (MHz)
42	5210

Operated band in 5250 MHz ~5350 MHz:

20 M	
CH	Freq (MHz)
52	5260
56	5280
60	5300
64	5320

40 M	
CH	Freq (MHz)
54	5270
62	5310

80 M	
CH	Freq (MHz)
58	5290

Operated band in 5470 MHz ~5725 MHz:

20 M	
CH	Freq (MHz)
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
144	5720

40 M	
CH	Freq (MHz)
102	5510
110	5550
118	5590
126	5630
134	5670
142	5710

80 M	
CH	Freq (MHz)
106	5530
122	5610
138	5690

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4.2 The Worst Test Modes and Channel Details

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

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

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

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4.2.1 RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	44	OFDM	6	2TX
	5260~5320	52 to 64	60			
	5500~5720	100 to 144	116			

RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	2TX
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140, 144			
802.11n_HT20	5180~5240	36 to 48	36,44,48		MCS8	MIMO
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140, 144			
802.11n_HT40	5190~5230	38 to 46	38,46		MCS8	MIMO
	5270~5310	54 to 62	54,62			
	5510~5710	102 to 142	102,110,134, 142			
802.11ac_VHT80	5210	42	42		MCS0	MIMO
	5290	58	58			
	5530~5690	106 to 138	106,122,138			

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 H position was reported.

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4.2.2 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	2TX
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140, 144			
802.11n_HT20	5180~5240	36 to 48	36,44,48		MCS8	MIMO
	5260~5320	52 to 64	52,60,64			
	5500~5720	100 to 144	100,116,140, 144			
802.11n_HT40	5190~5230	38 to 46	38,46		MCS8	MIMO
	5270~5310	54 to 62	54,62			
	5510~5710	102 to 142	102,110,134, 142			
802.11ac_VHT80	5210	42	42		MCS0	MIMO
	5290	58	58			
	5530~5690	106 to 138	106,122,138			

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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: +-2.3dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB
Polarization: Horizontal	9kHz~30MHz: +-2.3dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

Note:

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

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6 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	100759	Jul. 13rd, 2020	Jul. 12nd, 2021
LISN	SCHWARZBECK	NSLK 8127	8127-465	Apr. 9th, 2020	Apr. 8th, 2021
Coaxial Cables	N/A	Coaxial Cable	161207	Dec. 7th, 2019	Dec. 6th, 2020
Test Software	audix	e3	Ver. 6.11-20180413	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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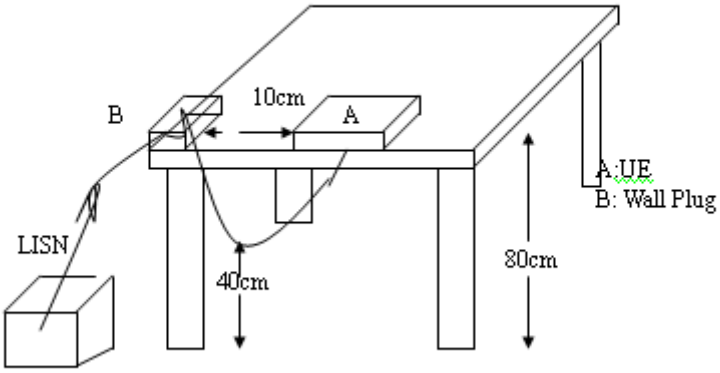
6.4 Test SET-UP



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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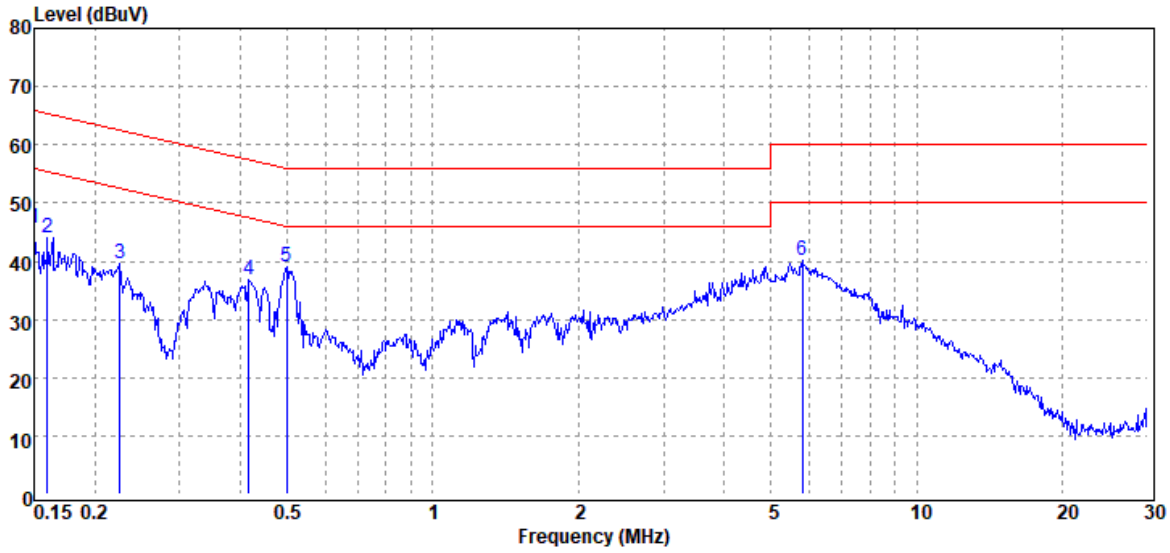
AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:ER-2020-90016	Test Site	:Conduction 6F
Test Mode	:WLAN5G	Test Date	:2020-09-14
Power	:AC 120V/60Hz	Temp./Humi.	:25.2/57
Probe	:L	Engineer	:Nick
Note:	:		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.15	Peak	43.48	2.14	45.62	66.00	-20.38
0.16	Peak	41.92	2.14	44.06	65.47	-21.41
0.23	Peak	37.47	2.14	39.61	62.61	-23.00
0.42	Peak	34.57	2.15	36.72	57.51	-20.79
0.50	Peak	36.76	2.16	38.92	56.01	-17.09
5.81	Peak	37.57	2.60	40.17	60.00	-19.83

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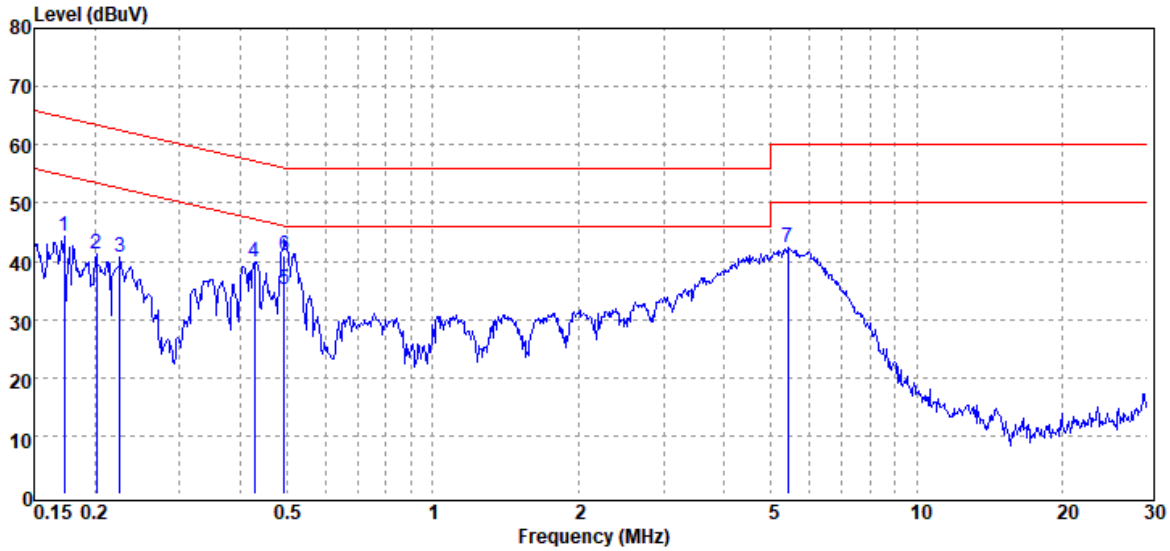
Report Number	:ER-2020-90016	Test Site	:Conduction 6F
Test Mode	:WLAN5G	Test Date	:2020-09-14
Power	:AC 120V/60Hz	Temp./Humi.	:25.2/57
Probe	:N	Engineer	:Nick
Note:	:		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV	Limit dBµV	Margin dB
0.17	Peak	42.03	2.21	44.24	64.81	-20.57
0.20	Peak	39.14	2.21	41.35	63.54	-22.19
0.23	Peak	38.43	2.21	40.64	62.61	-21.97
0.43	Peak	37.69	2.21	39.90	57.29	-17.39
0.49	Average	33.05	2.22	35.27	46.10	-10.83
0.49	QP	38.62	2.22	40.84	56.10	-15.26
5.42	Peak	39.82	2.50	42.32	60.00	-17.68

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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.

7.1 Measurement Procedure:

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

Duty Cycle:

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	98.29	0.07	0.49	0.01
802.11n_20	97.85	0.09	0.59	1.00
802.11ac_20	97.99	0.09	0.58	1.00
802.11n_40	95.73	0.19	1.19	2.00
802.11ac_40	95.83	0.18	1.18	2.00
802.11ac_80	81.69	0.88	2.41	3.00

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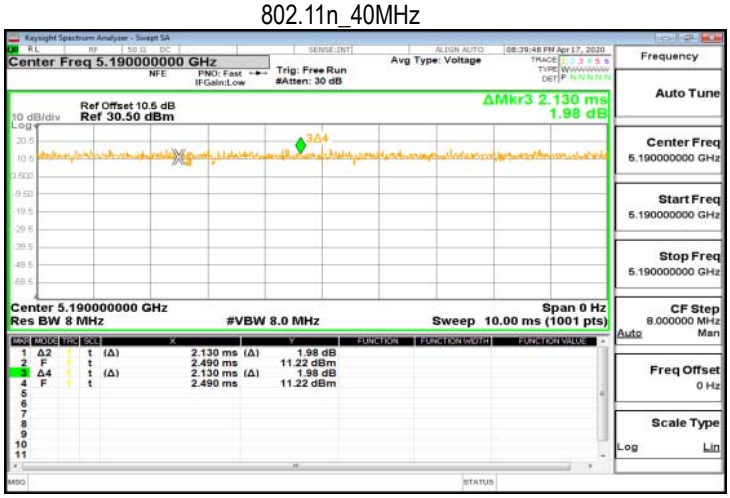
7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT

802.11a_20MHz

802.11n_40MHz



802.11n_20MHz

802.11ac_40MHz

802.11ac_20MHz

802.11ac_80MHz

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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.

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

   3.b. Mark the peak frequency and –26dB (upper and lower) frequency.

4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
   a. Set the spectrum analyzer as
   RBW = 100 kHz,
   VBW = 3*RBW,
   Span = 30M/50MHz,
   Detector=Peak,
   Sweep=auto
   b. Mark the peak frequency and –6dB (upper and lower) frequency.

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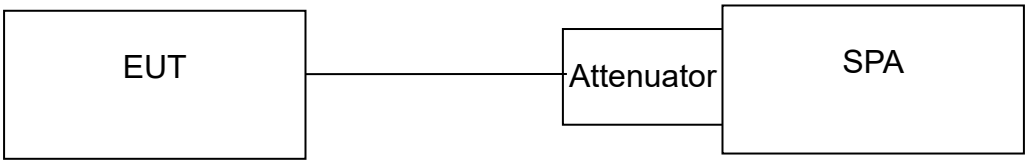
8.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	May 6th, 2020	May 5th, 2021
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021
Temperature Chamber	TERCHY	MHG-120LF	911009	May 20th, 2020	May 19th, 2021
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021

8.4 Test Set-up



8.5 Measurement Result

8.5.1 FCC 26dB Bandwidth

802.11a_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	23.07	13.630
5220	23.26	13.666
5240	22.89	13.596
5260	22.91	13.600
5300	23.67	13.742
5320	23.53	13.716
5500	22.79	13.577
5580	23.34	13.681
5700	22.92	13.602
5720	23.01	13.619

802.11a_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	23.17	13.649
5220	23.41	13.694
5240	23.31	13.675
5260	23.4	13.692
5300	23.23	13.660
5320	23.54	13.718
5500	23.01	13.619
5580	23.93	13.789
5700	23.61	13.731
5720	23.41	13.694

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802.11n_HT20_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	23.03	13.623
5220	23.38	13.688
5240	23.38	13.688
5260	22.86	13.591
5300	22.94	13.606
5320	23.4	13.692
5500	23.24	13.662
5580	23.94	13.791
5700	23.79	13.764
5720	23.07	13.630

802.11n_HT20_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	23.74	13.755
5220	24.1	13.820
5240	24.29	13.854
5260	23.5	13.711
5300	24.44	13.881
5320	23.56	13.722
5500	24.47	13.886
5580	24.06	13.813
5700	24.7	13.927
5720	24.54	13.899

802.11n _HT40_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	41.22	16.151
5230	40.73	16.099
5270	41.14	16.143
5310	41.24	16.153
5510	41.19	16.148
5550	**41.06**	16.134
5670	40.99	16.127
5710	41.13	16.142

802.11n _HT40_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	41.19	16.148
5230	41.48	16.178
5270	41.23	16.152
5310	41.21	16.150
5510	41.23	16.152
5550	**41.4**	16.170
5670	41.5	16.180
5710	41.74	16.206

802.11ac _VHT80_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	83.48	19.216
5290	82.83	19.182
5530	83.04	19.193
5610	83.51	19.217
5690	83.73	19.229

802.11ac _VHT80_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	82.43	19.161
5290	82.56	19.168
5530	83.78	19.231
5610	82.49	19.164
5690	83.08	19.195

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8.5.2 99% BW Verification for DFS Function

802.11a_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.31	< 5250

802.11a_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.83	< 5250

802.11n_HT20_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.91	< 5250

802.11n_HT20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.94	< 5250

802.11n _HT40_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.13	< 5250

802.11n _HT40_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.11	< 5250

802.11ac _VHT80_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.81	< 5250

802.11ac _VHT80_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.78	< 5250

Please see next page for test plots.

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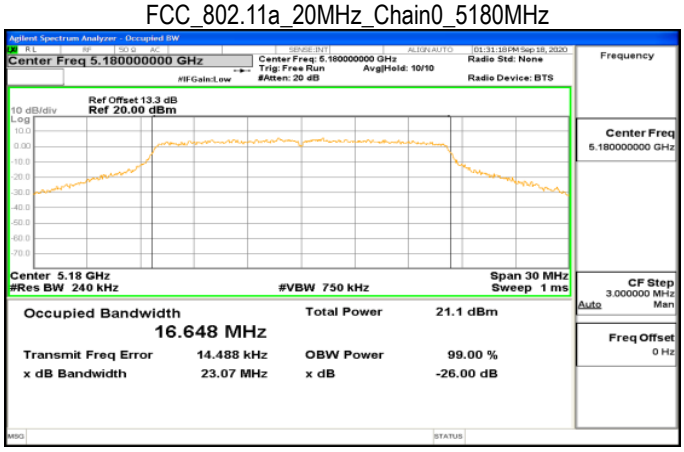
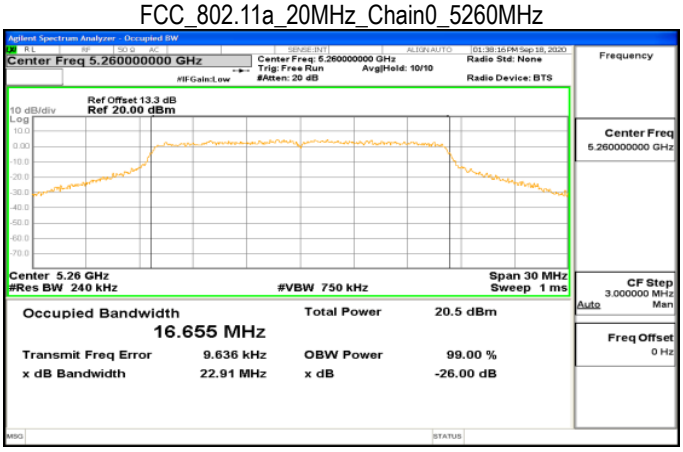
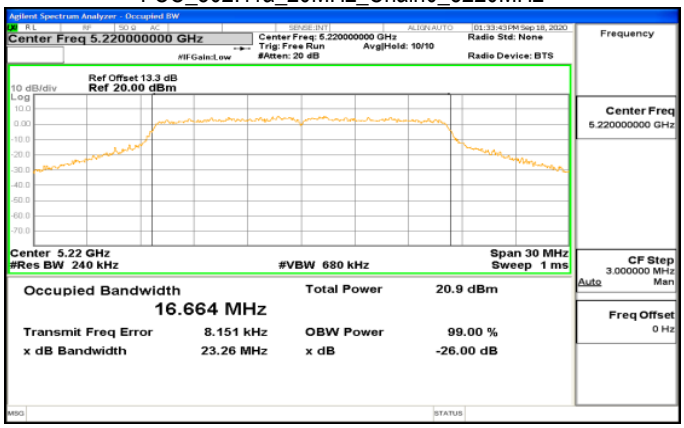
FCC_802.11a_20MHz_Chain0_5180MHz



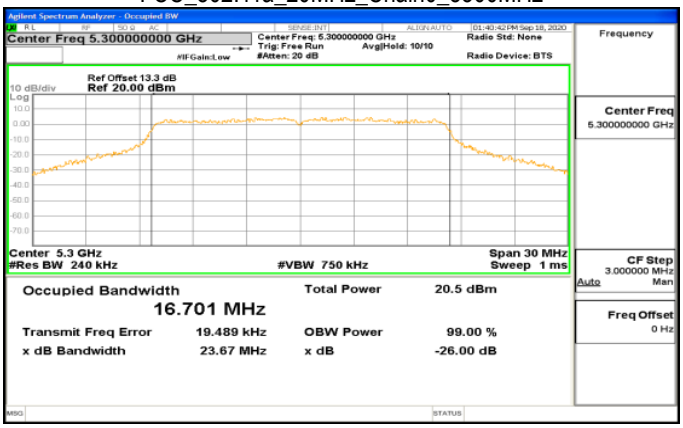
FCC_802.11a_20MHz_Chain0_5260MHz



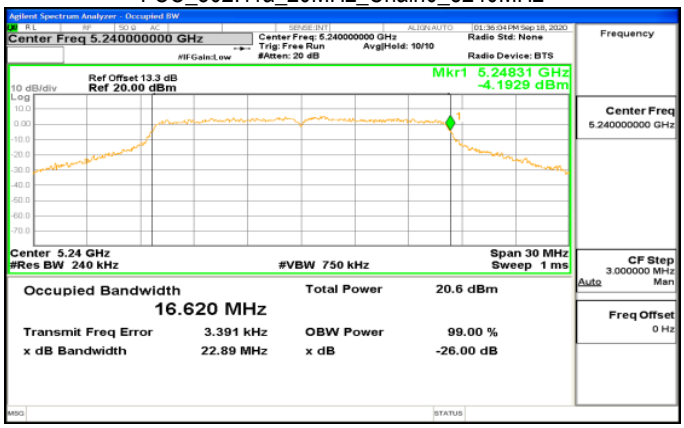
FCC_802.11a_20MHz_Chain0_5220MHz



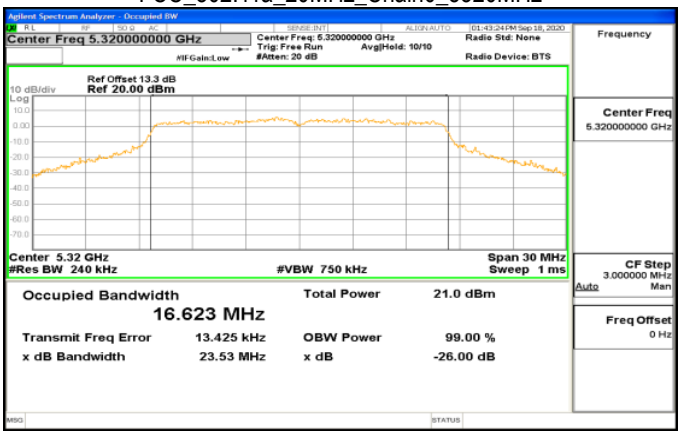
FCC_802.11a_20MHz_Chain0_5300MHz



FCC_802.11a_20MHz_Chain0_5240MHz



FCC_802.11a_20MHz_Chain0_5320MHz



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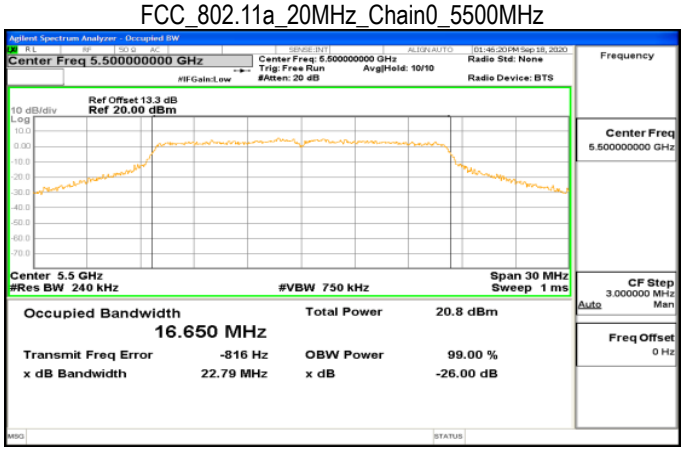
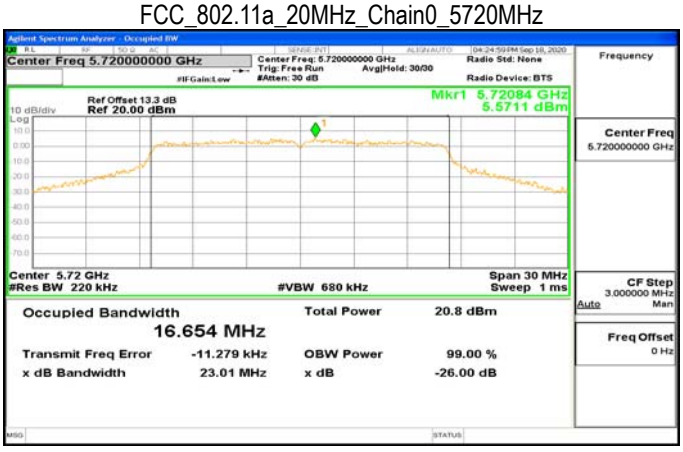
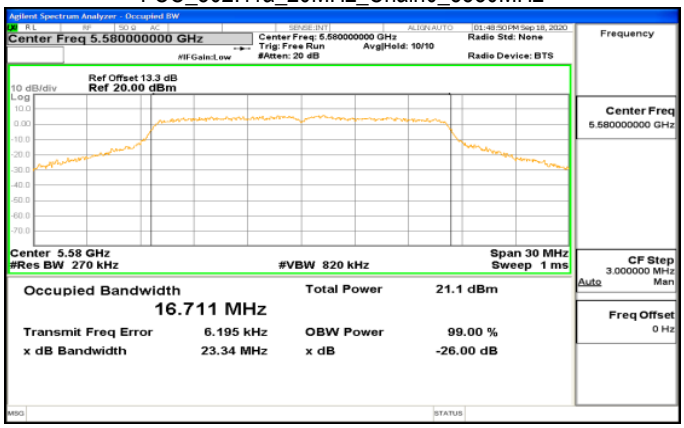
FCC_802.11a_20MHz_Chain0_5500MHz



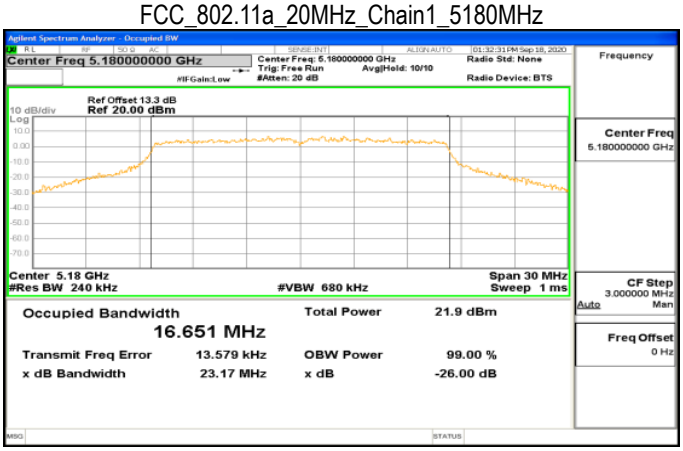
FCC_802.11a_20MHz_Chain0_5720MHz



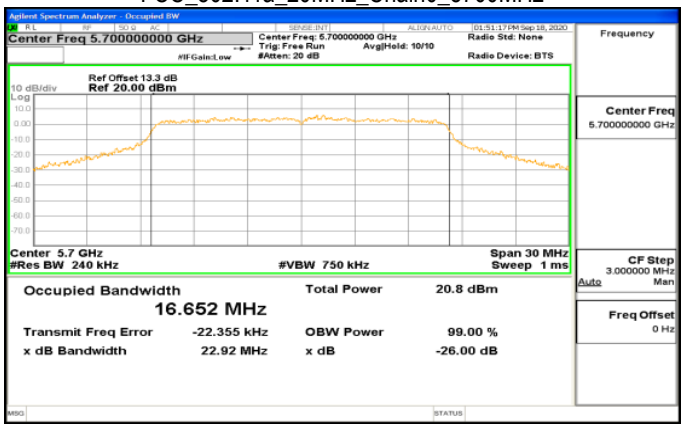
FCC_802.11a_20MHz_Chain0_5580MHz



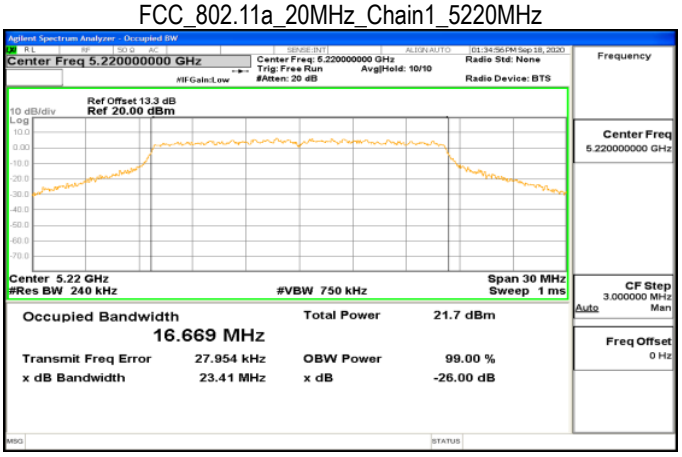
FCC_802.11a_20MHz_Chain1_5180MHz



FCC_802.11a_20MHz_Chain0_5700MHz



FCC_802.11a_20MHz_Chain1_5220MHz



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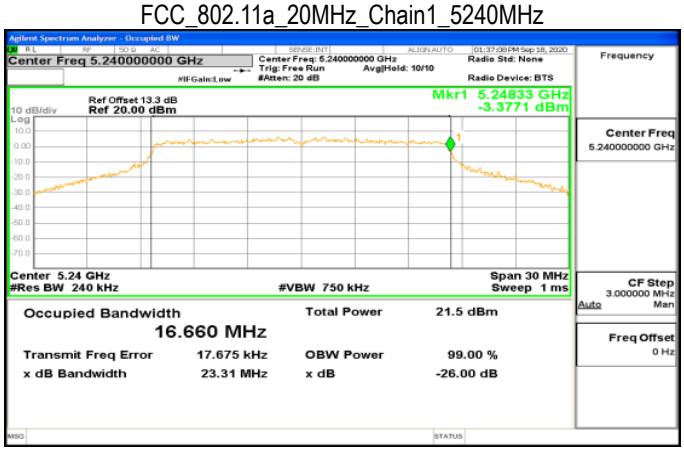
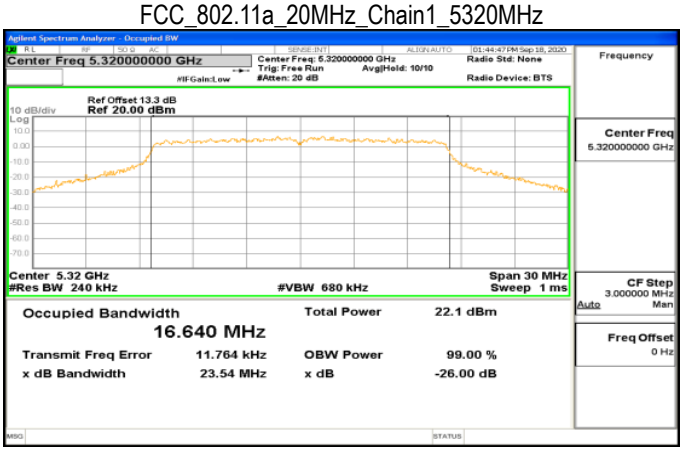
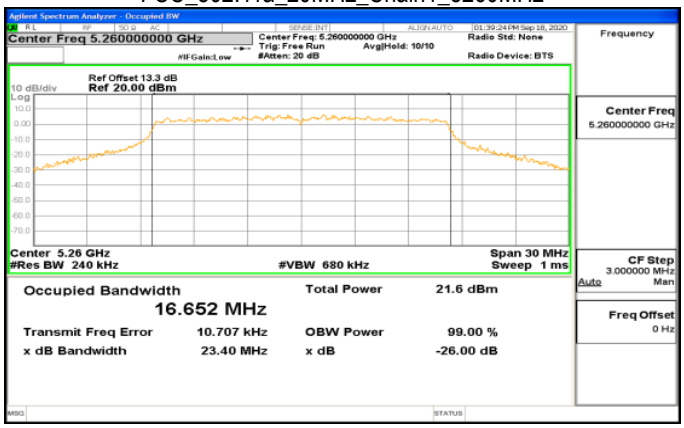
FCC_802.11a_20MHz_Chain1_5240MHz



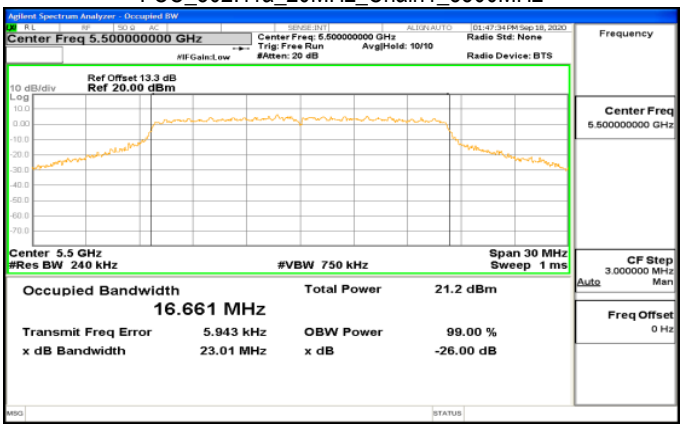
FCC_802.11a_20MHz_Chain1_5320MHz



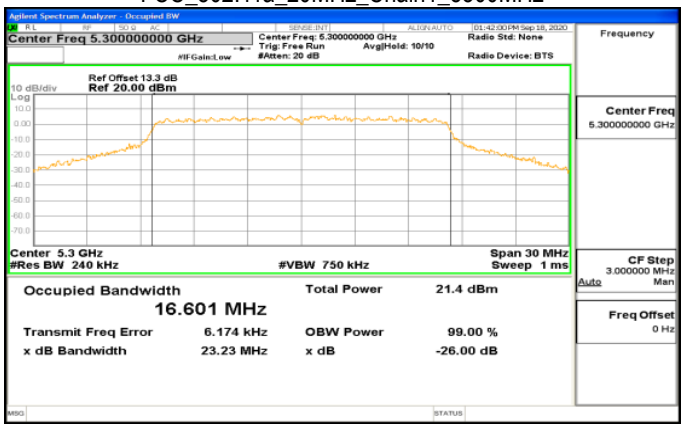
FCC_802.11a_20MHz_Chain1_5260MHz



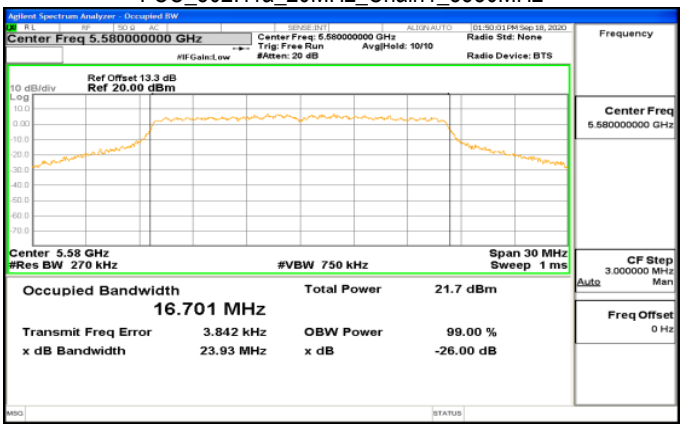
FCC_802.11a_20MHz_Chain1_5500MHz



FCC_802.11a_20MHz_Chain1_5300MHz



FCC_802.11a_20MHz_Chain1_5580MHz



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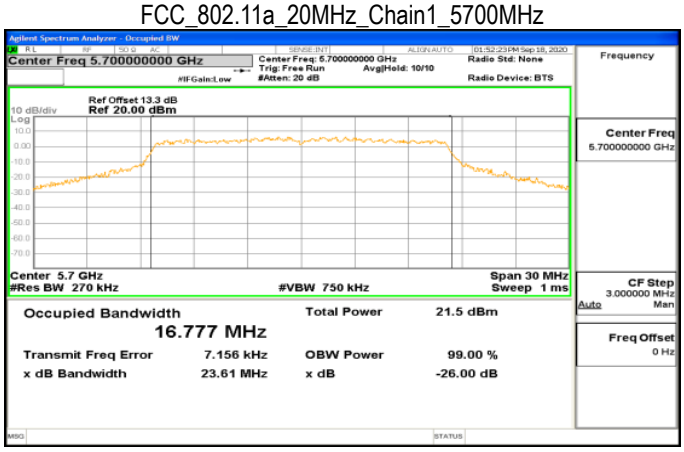
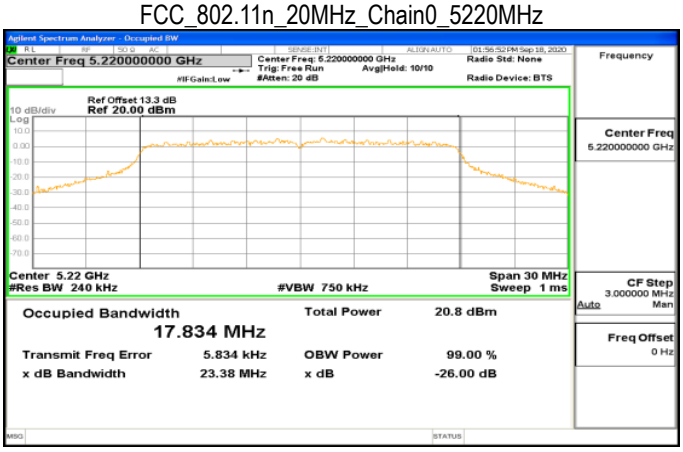
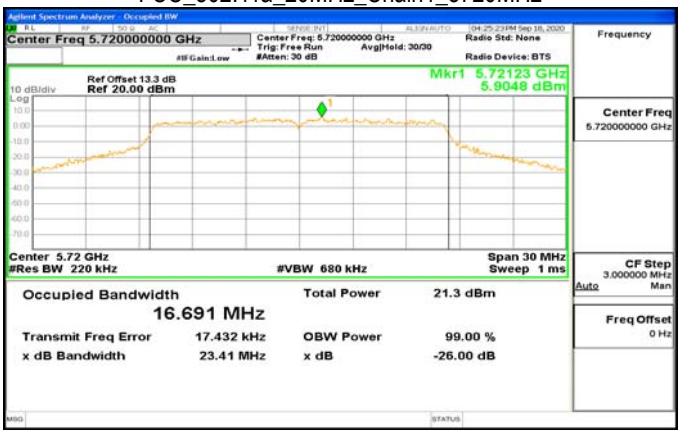
FCC_802.11a_20MHz_Chain1_5700MHz



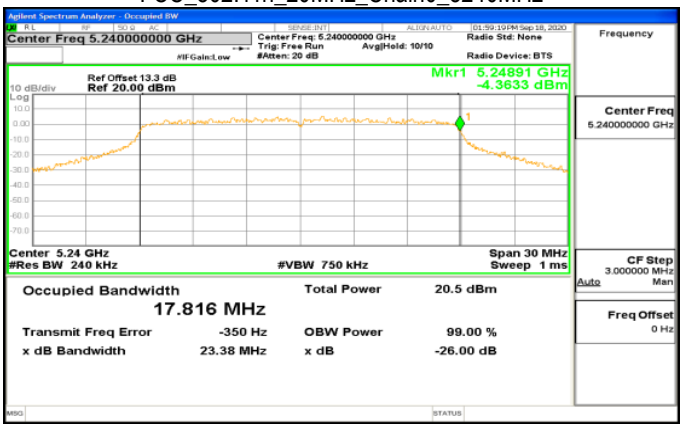
FCC_802.11n_20MHz_Chain0_5220MHz



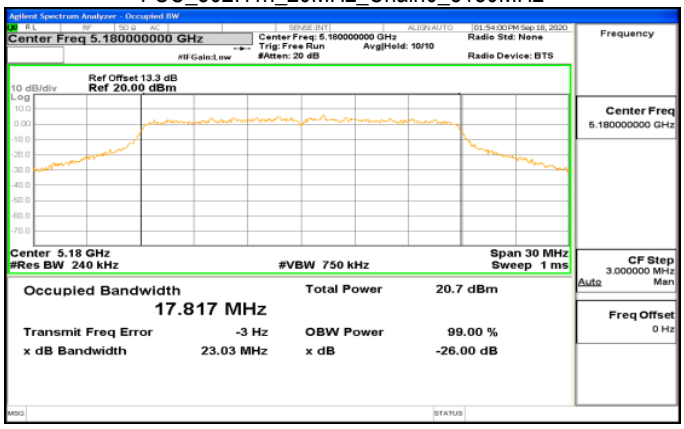
FCC_802.11a_20MHz_Chain1_5720MHz



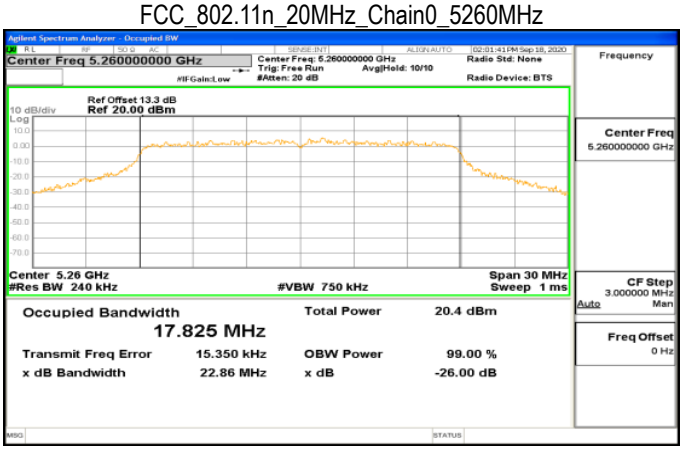
FCC_802.11n_20MHz_Chain0_5240MHz



FCC_802.11n_20MHz_Chain0_5180MHz



FCC_802.11n_20MHz_Chain0_5260MHz



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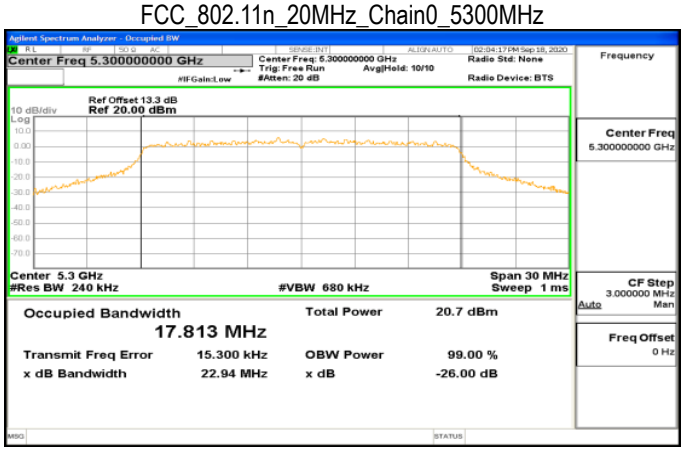
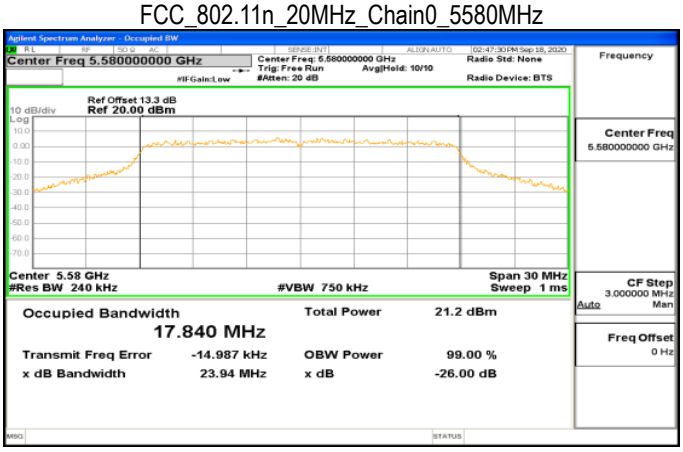
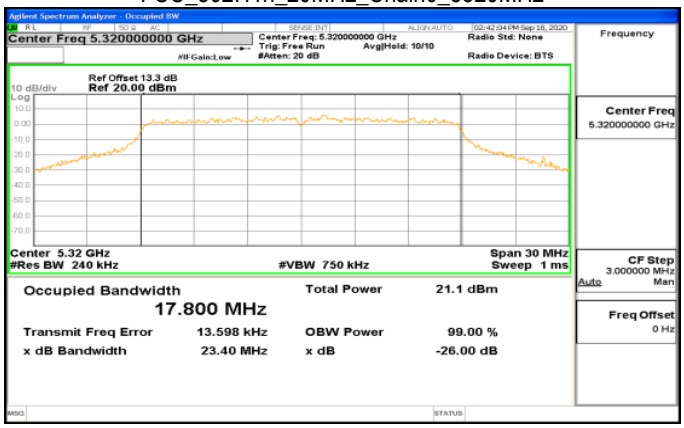
FCC_802.11n_20MHz_Chain0_5300MHz



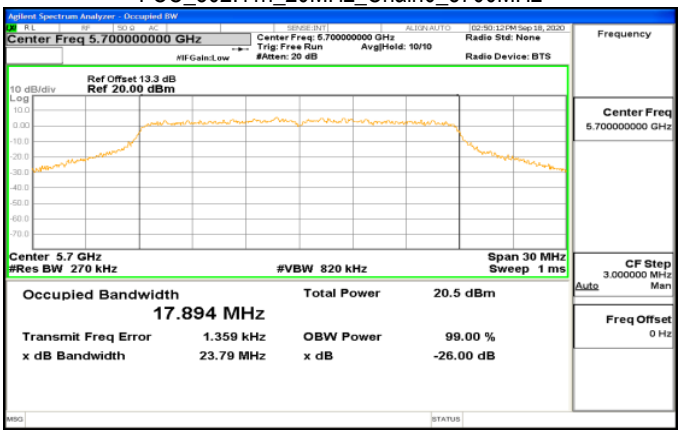
FCC_802.11n_20MHz_Chain0_5580MHz



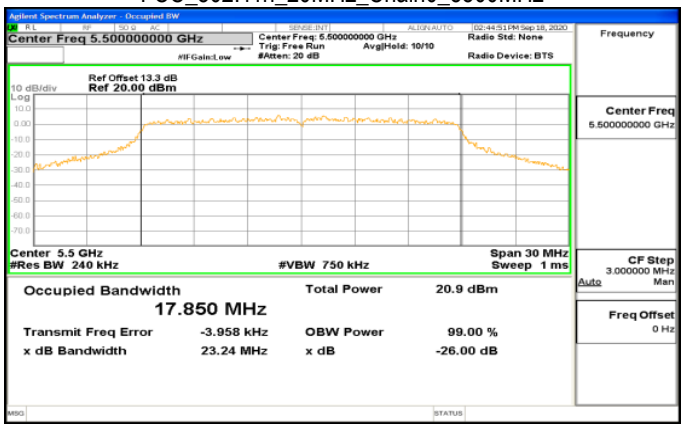
FCC_802.11n_20MHz_Chain0_5320MHz



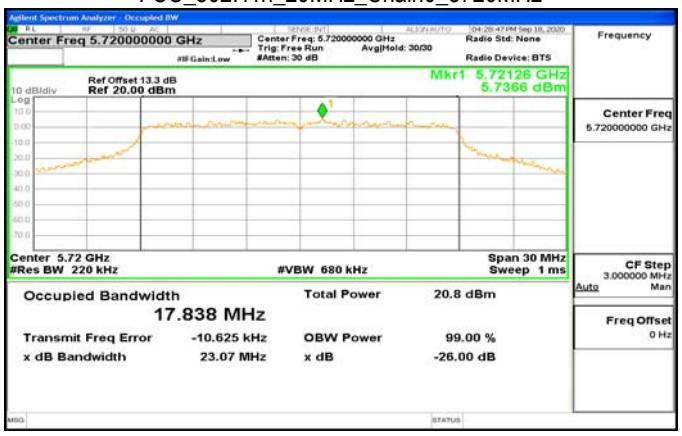
FCC_802.11n_20MHz_Chain0_5700MHz



FCC_802.11n_20MHz_Chain0_5500MHz



FCC_802.11n_20MHz_Chain0_5720MHz



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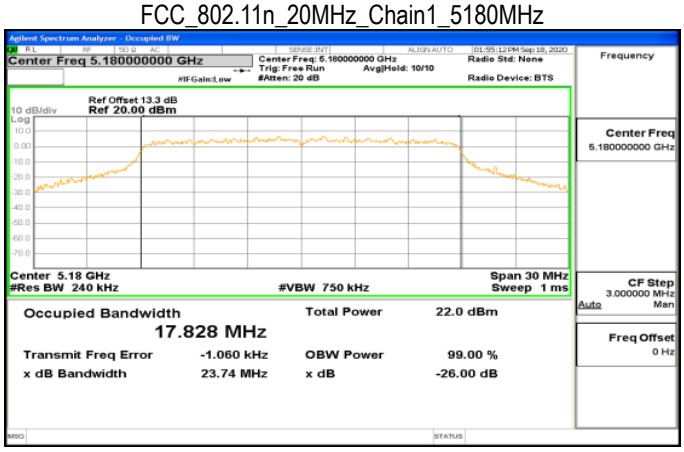
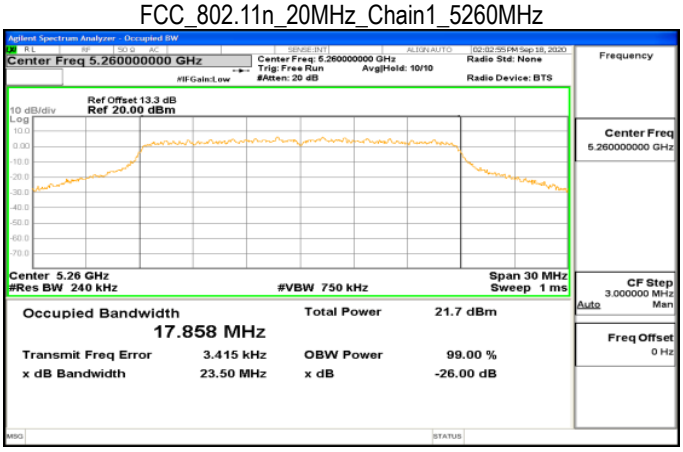
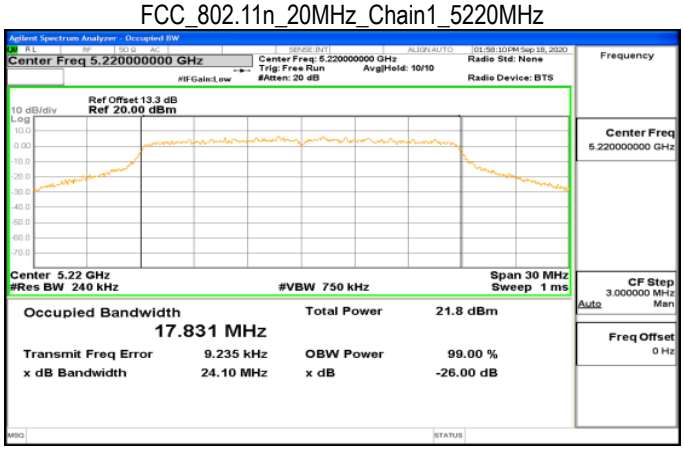
FCC_802.11n_20MHz_Chain1_5180MHz



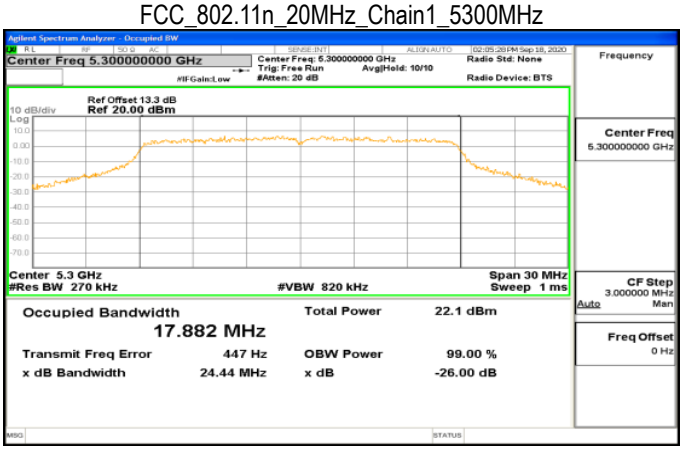
FCC_802.11n_20MHz_Chain1_5260MHz



FCC_802.11n_20MHz_Chain1_5220MHz



FCC_802.11n_20MHz_Chain1_5300MHz



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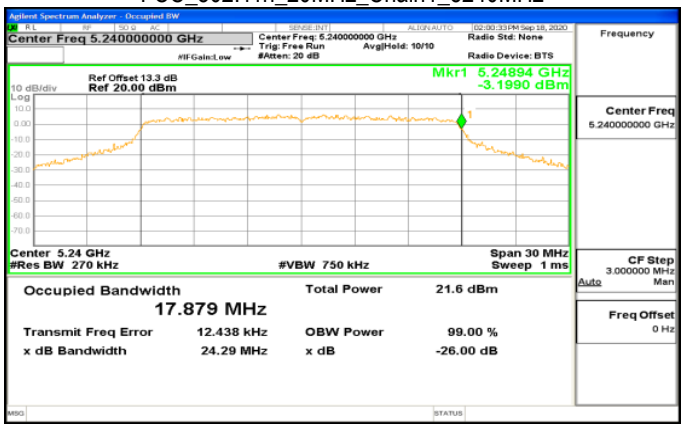
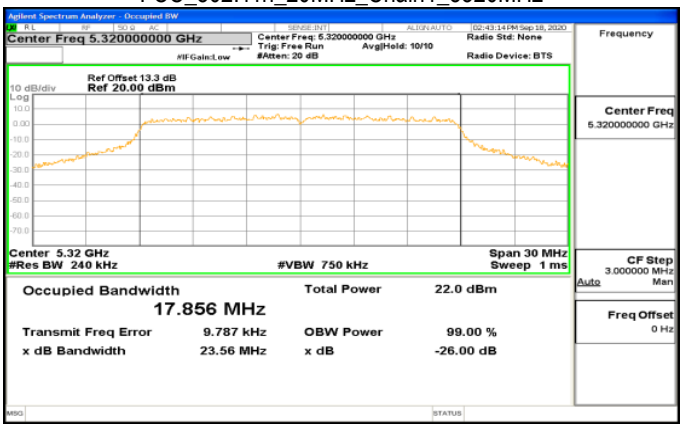


FCC_802.11n_20MHz_Chain1_5320MHz



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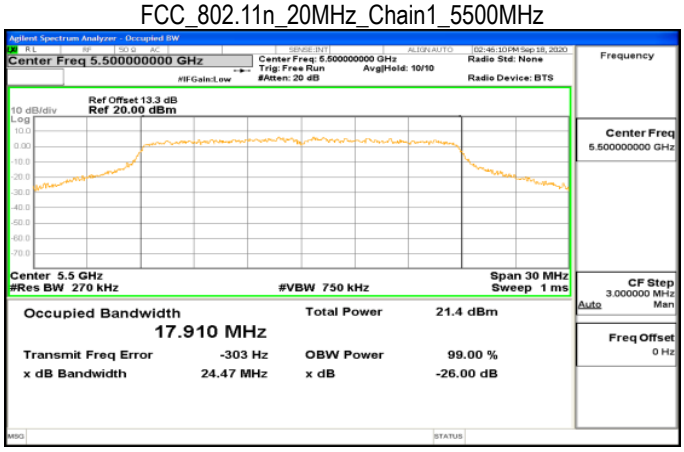
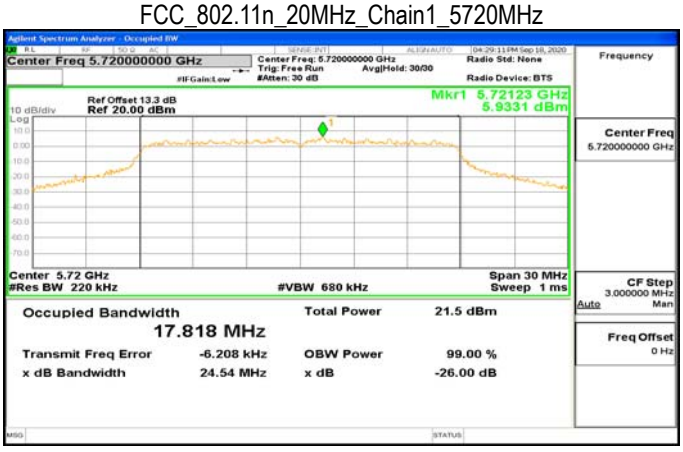
FCC_802.11n_20MHz_Chain1_5500MHz



FCC_802.11n_20MHz_Chain1_5720MHz



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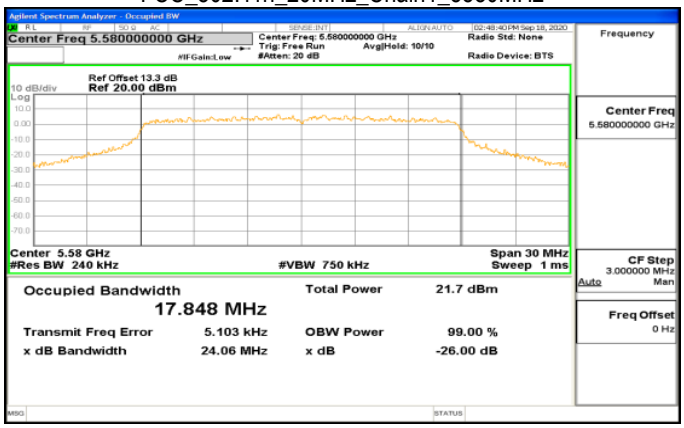
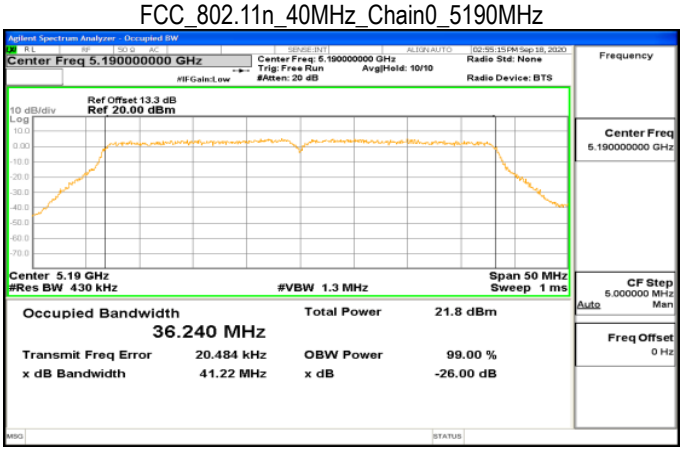
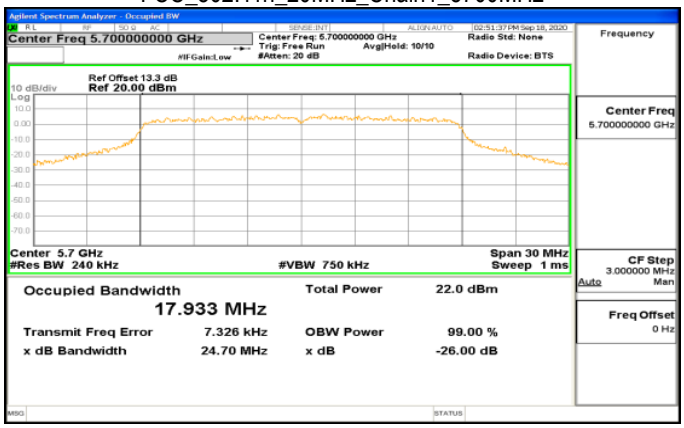


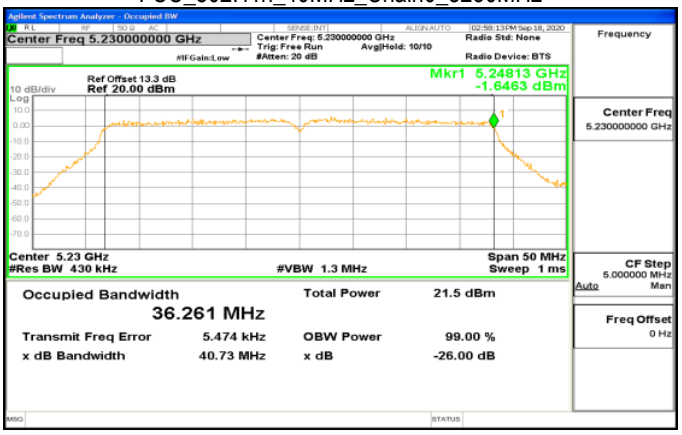
FCC_802.11n_40MHz_Chain0_5190MHz



FCC_802.11n_20MHz_Chain1_5700MHz



FCC_802.11n_40MHz_Chain0_5230MHz



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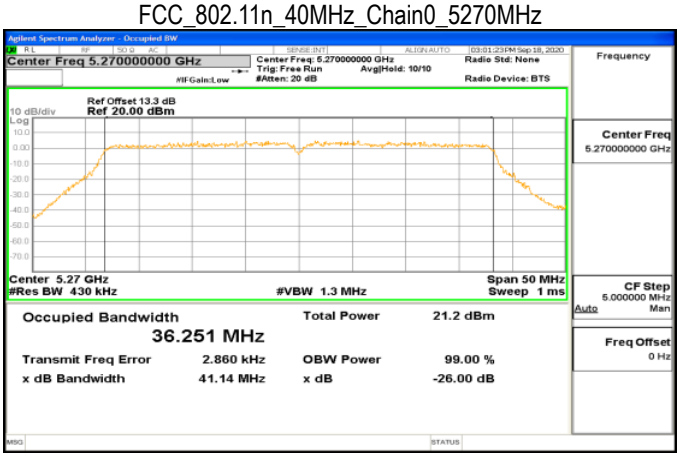
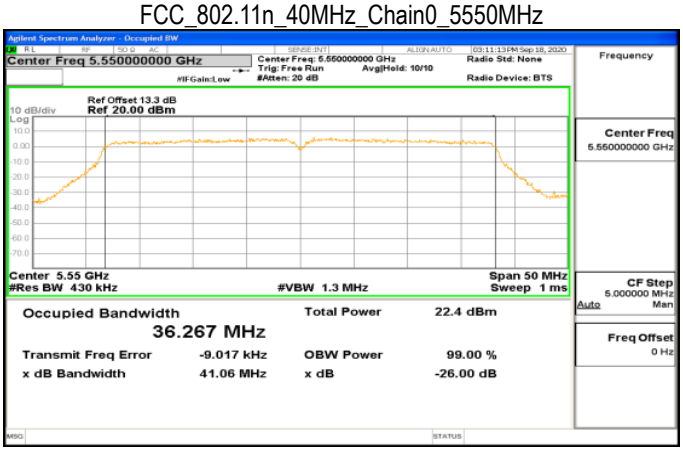
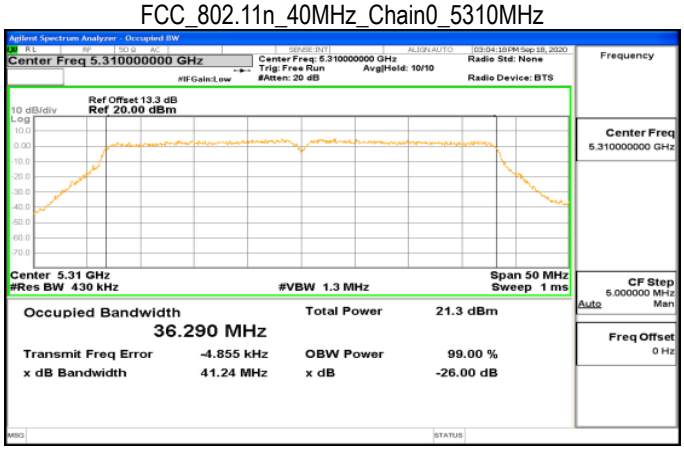
FCC_802.11n_40MHz_Chain0_5270MHz



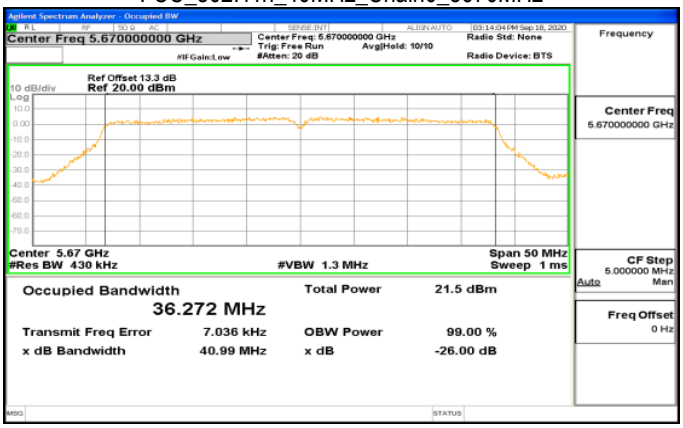
FCC_802.11n_40MHz_Chain0_5550MHz



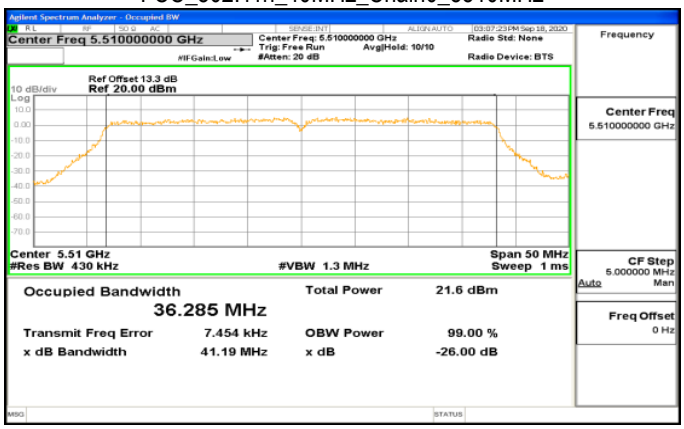
FCC_802.11n_40MHz_Chain0_5310MHz



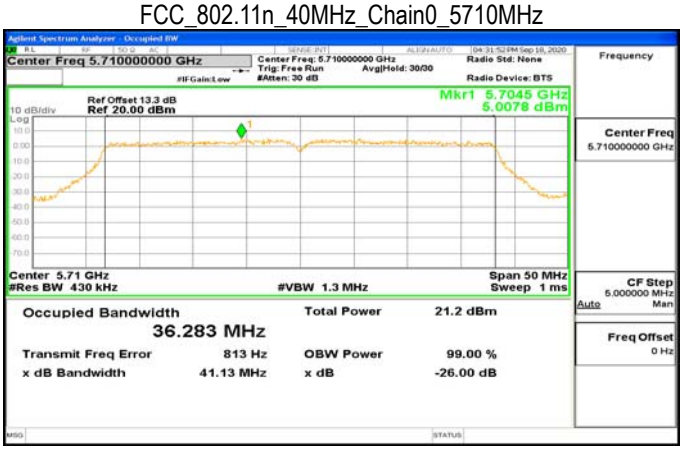
FCC_802.11n_40MHz_Chain0_5670MHz



FCC_802.11n_40MHz_Chain0_5510MHz



FCC_802.11n_40MHz_Chain0_5710MHz



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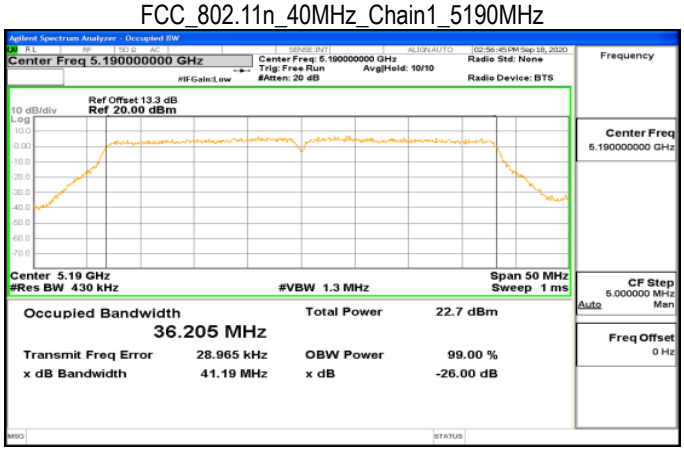
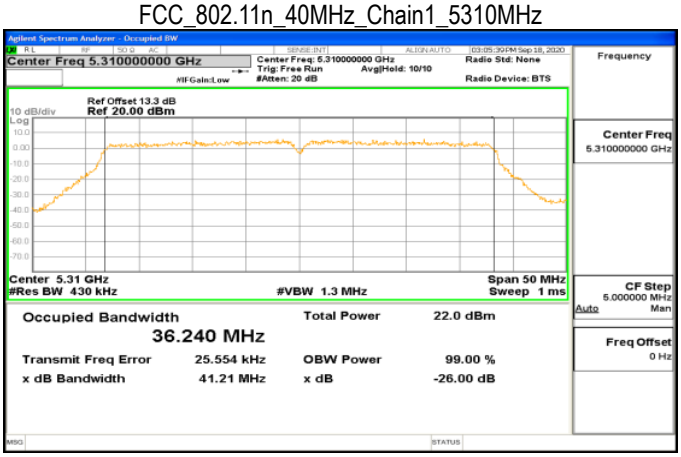
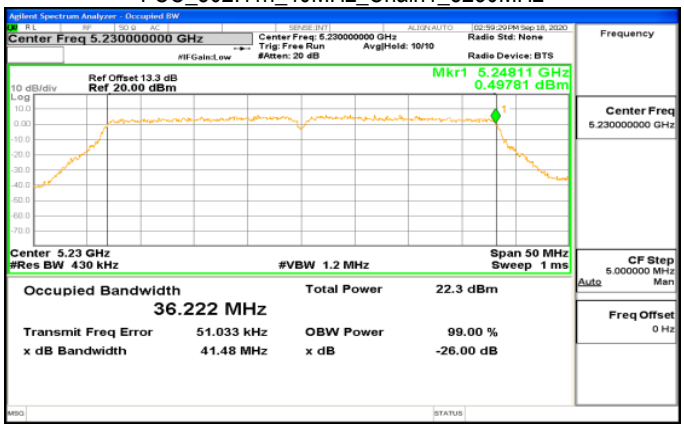
FCC_802.11n_40MHz_Chain1_5190MHz



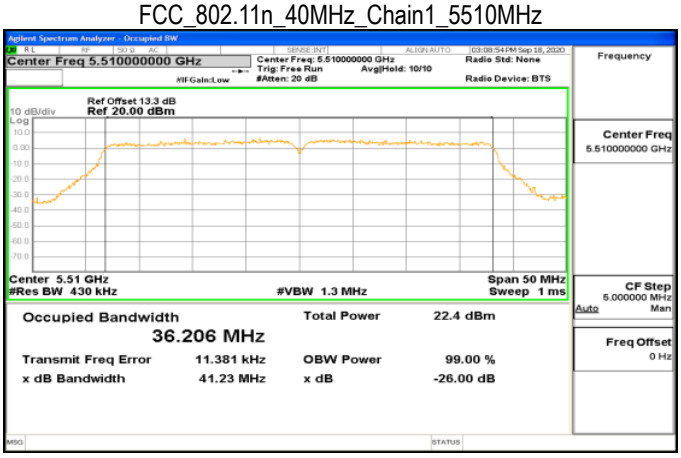
FCC_802.11n_40MHz_Chain1_5310MHz



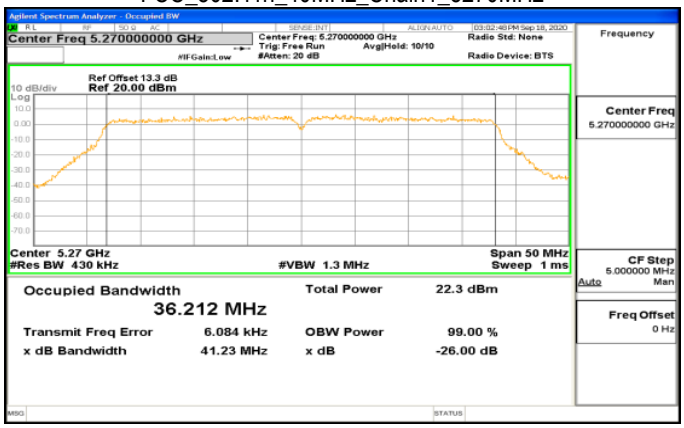
FCC_802.11n_40MHz_Chain1_5230MHz



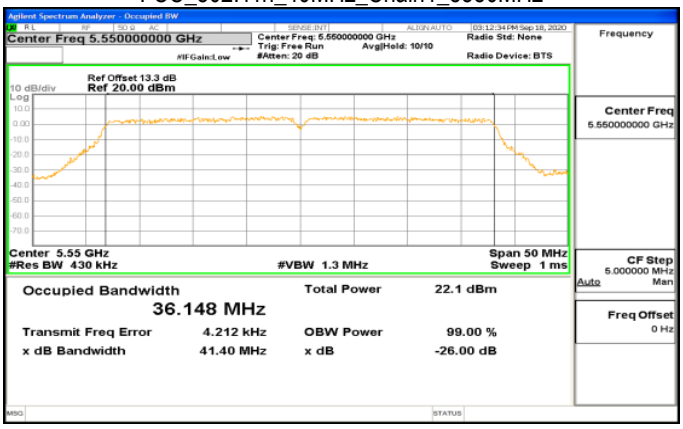
FCC_802.11n_40MHz_Chain1_5510MHz



FCC_802.11n_40MHz_Chain1_5270MHz



FCC_802.11n_40MHz_Chain1_5550MHz



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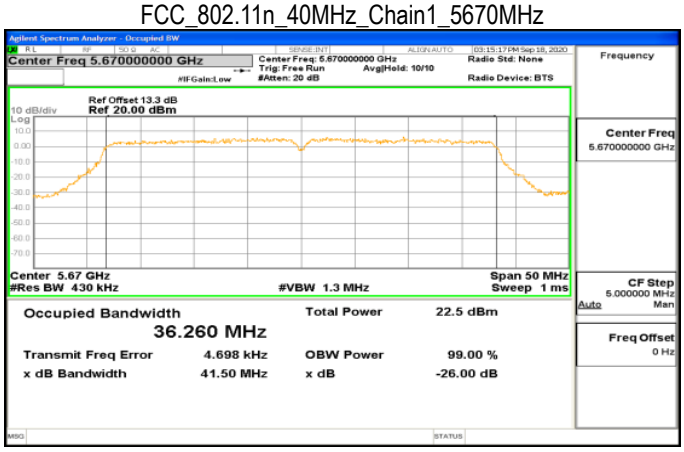
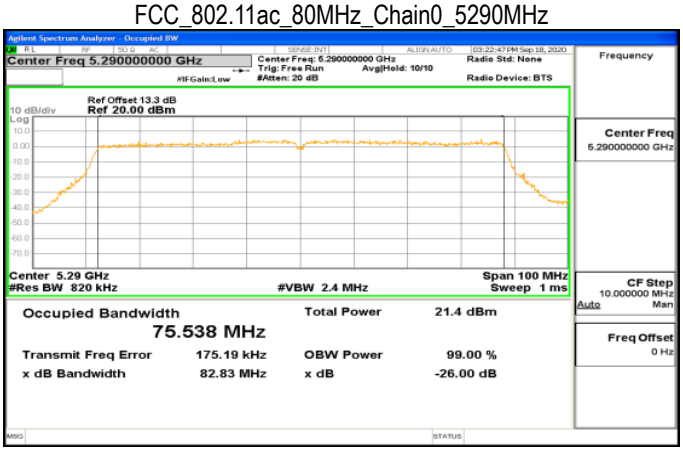
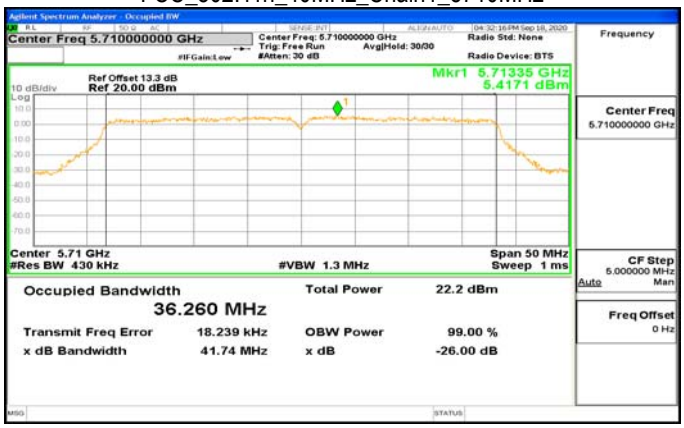
FCC_802.11n_40MHz_Chain1_5670MHz



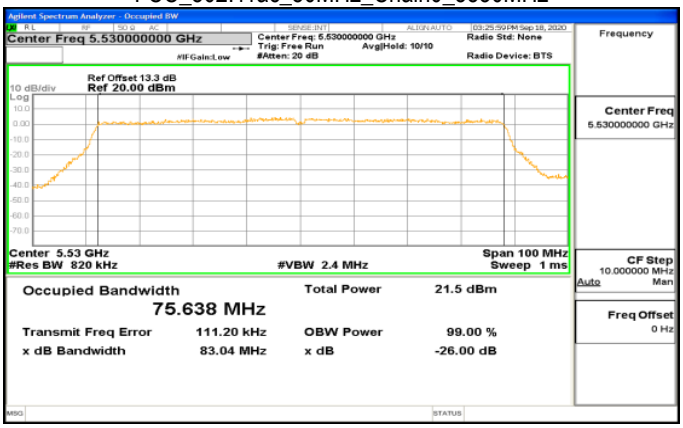
FCC_802.11ac_80MHz_Chain0_5290MHz



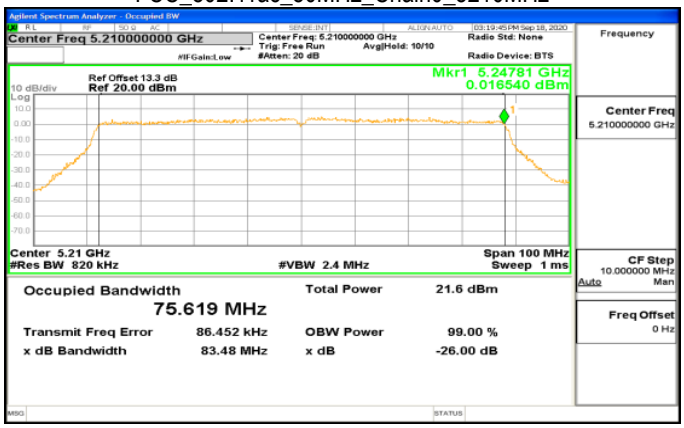
FCC_802.11n_40MHz_Chain1_5710MHz



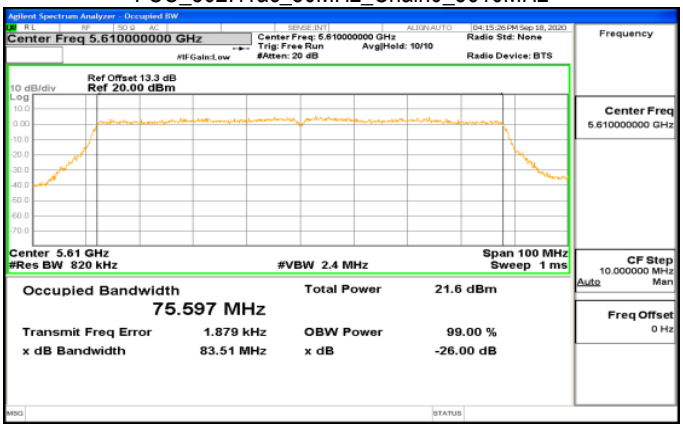
FCC_802.11ac_80MHz_Chain0_5530MHz



FCC_802.11ac_80MHz_Chain0_5210MHz



FCC_802.11ac_80MHz_Chain0_5610MHz



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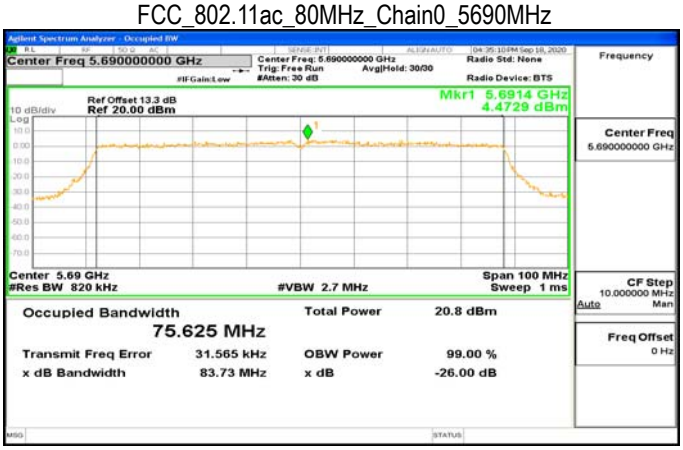
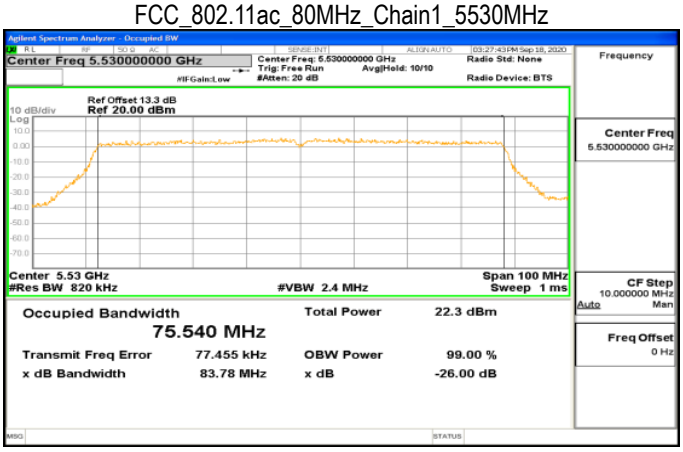
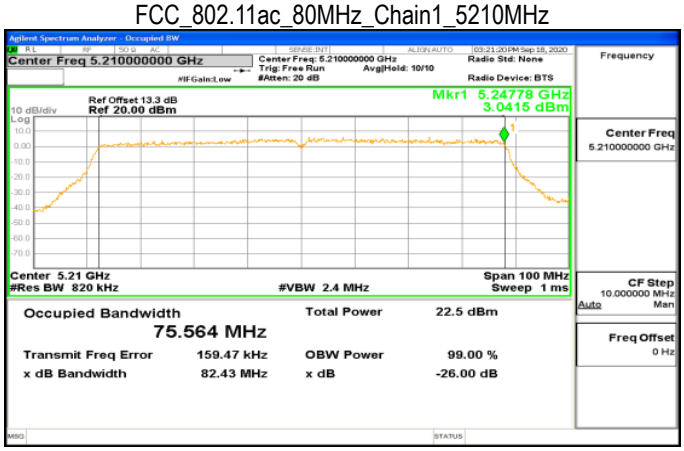
FCC_802.11ac_80MHz_Chain0_5690MHz



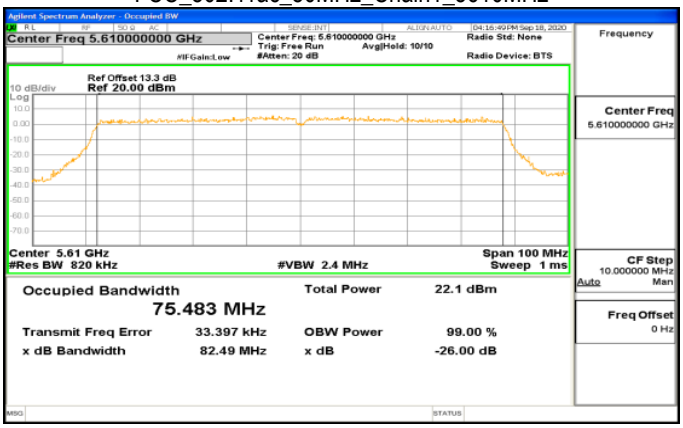
FCC_802.11ac_80MHz_Chain1_5530MHz



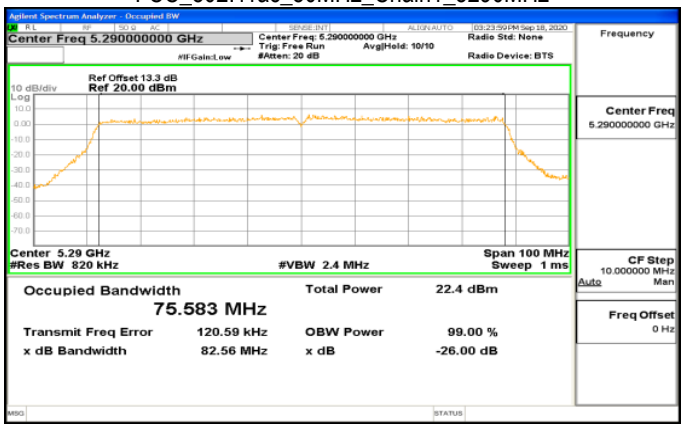
FCC_802.11ac_80MHz_Chain1_5210MHz



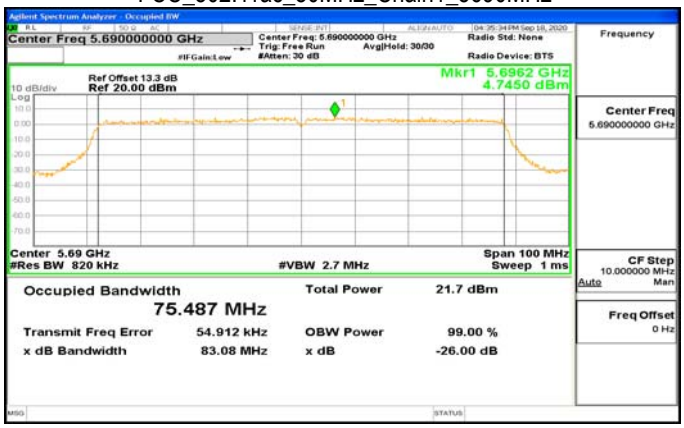
FCC_802.11ac_80MHz_Chain1_5610MHz



FCC_802.11ac_80MHz_Chain1_5290MHz



FCC_802.11ac_80MHz_Chain1_5690MHz



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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 (Master device)	1 Watt(30dBm)
		Fixed point-to-point Access Ponit	1 Watt(30dBm)
	√	Mobile and portable client 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)
If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna exceeds 6 dBi.			

Note:

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

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

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

where

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

NSS = the number of independent spatial streams of data;

NANT = the total number of antennas

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

G_k is the gain in dBi of the kth antenna.

The antenna gain is not granter than 6 dBi. Therefore, reduction of power is not required.

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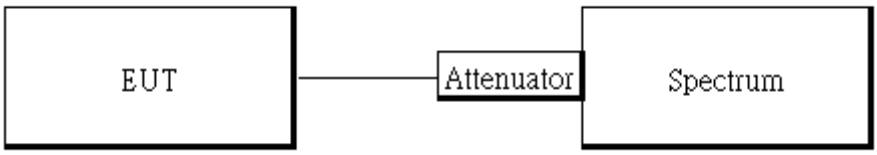
9.2 Measurement Procedure

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 power meter
4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
5. Record the max. reading and add 10 log(1/duty cycle).
6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

9.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Power Meter	Anritsu	ML2496A	1804001	Feb. 20th, 2020	Feb. 19th, 2021
Power Sensor	Anritsu	MA2411B	1726104	Feb. 20th, 2020	Feb. 19th, 2021
Power Sensor	Anritsu	MA2411B	1726107	Feb. 20th, 2020	Feb. 19th, 2021
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021

9.4 Test Set-up



Note:
Cable Loss= 13.30 dB

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9.5 Measurement Result

9.5.1 Conducted output power (FCC)

802.11a_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	**13.95**	24.859	23.98	PASS
44	5220	6	13.94	24.802	23.98	PASS
48	5240	6	13.91	24.631	23.98	PASS
52	5260	6	13.84	24.238	23.98 or 11+10log(B) = 24.60	PASS
60	5300	6	13.82	24.126	23.98 or 11+10log(B) = 24.74	PASS
64	5320	6	**13.86**	24.350	23.98 or 11+10log(B) = 24.72	PASS
100	5500	6	**13.98**	25.032	23.98 or 11+10log(B) = 24.58	PASS
116	5580	6	13.96	24.917	23.98 or 11+10log(B) = 24.68	PASS
140	5700	6	13.88	24.462	23.98 or 11+10log(B) = 24.60	PASS
144	5720(U-NII 2C)	6	12.51	17.83	23.98 or 11+10log(B) = 24.62	PASS
144	5720 (U-NII 3)	6	**8.47**	7.03	30	PASS

802.11a_Ch1

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	**13.93**	24.745	23.98	PASS
44	5220	6	13.77	23.850	23.98	PASS
48	5240	6	13.64	23.147	23.98	PASS
52	5260	6	13.68	23.361	23.98 or 11+10log(B) = 24.69	PASS
60	5300	6	13.59	22.882	23.98 or 11+10log(B) = 24.66	PASS
64	5320	6	**13.83**	24.182	23.98 or 11+10log(B) = 24.72	PASS
100	5500	6	**13.89**	24.518	23.98 or 11+10log(B) = 24.62	PASS
116	5580	6	13.85	24.294	23.98 or 11+10log(B) = 24.79	PASS
140	5700	6	13.79	23.960	23.98 or 11+10log(B) = 24.73	PASS
144	5720(U-NII 2C)	6	**12.21**	16.63	23.98 or 11+10log(B) = 24.69	PASS
144	5720 (U-NII 3)	6	**8.24**	6.68	30	PASS

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802.11a_2Tx

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
36	5180	6	13.25	14.47	**16.99**	49.979	23.98	PASS
44	5220	6	13.14	14.25	16.82	48.035	23.98	PASS
48	5240	6	12.95	14.25	16.73	47.138	23.98	PASS
52	5260	6	12.89	14.28	16.73	47.050	23.98 or 11+10log(B) = 24.60	PASS
60	5300	6	12.88	14.02	16.57	45.420	23.98 or 11+10log(B) = 24.66	PASS
64	5320	6	13.31	14.34	**16.94**	49.439	23.98 or 11+10log(B) = 24.72	PASS
100	5500	6	13.51	13.82	16.75	47.348	23.98 or 11+10log(B) = 24.58	PASS
116	5580	6	13.58	14.1	**16.93**	49.351	23.98 or 11+10log(B) = 24.68	PASS
140	5700	6	13.16	14.24	16.82	48.069	23.98 or 11+10log(B) = 24.60	PASS
144	5720(U-NII 2C)	6	11.68	12.54	15.23	33.342	23.98 or 11+10log(B) = 24.62	PASS
144	5720 (U-NII 3)	6	7.63	8.58	**11.19**	13.141	30	PASS

802.11n_HT20_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	**13.87**	24.403	23.98	PASS
44	5220	MCS0	13.78	23.902	23.98	PASS
48	5240	MCS0	13.75	23.738	23.98	PASS
52	5260	MCS0	13.68	23.358	23.98 or 11+10log(B) = 24.59	PASS
60	5300	MCS0	13.96	24.914	23.98 or 11+10log(B) = 24.61	PASS
64	5320	MCS0	**13.98**	25.029	23.98 or 11+10log(B) = 24.69	PASS
100	5500	MCS0	**13.92**	24.685	23.98 or 11+10log(B) = 24.66	PASS
116	5580	MCS0	13.91	24.629	23.98 or 11+10log(B) = 24.79	PASS
140	5700	MCS0	13.75	23.738	23.98 or 11+10log(B) = 24.76	PASS
144	5720(U-NII 2C)	MCS0	**12.40**	17.37	23.98 or 11+10log(B) = 24.63	PASS
144	5720 (U-NII 3)	MCS0	**8.37**	6.86	30	PASS

802.11n_HT20_Ch1

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	**13.80**	24.013	23.98	PASS
44	5220	MCS0	13.53	22.565	23.98	PASS
48	5240	MCS0	13.51	22.462	23.98	PASS
52	5260	MCS0	13.50	22.410	23.98 or 11+10log(B) = 24.71	PASS
60	5300	MCS0	**13.93**	24.742	23.98 or 11+10log(B) = 24.88	PASS
64	5320	MCS0	13.83	24.179	23.98 or 11+10log(B) = 24.72	PASS
100	5500	MCS0	**13.73**	23.629	23.98 or 11+10log(B) = 24.89	PASS
116	5580	MCS0	13.63	23.091	23.98 or 11+10log(B) = 24.81	PASS
140	5700	MCS0	13.60	22.932	23.98 or 11+10log(B) = 24.93	PASS
144	5720(U-NII 2C)	MCS0	**12.10**	16.21	23.98 or 11+10log(B) = 24.90	PASS
144	5720 (U-NII 3)	MCS0	**8.34**	6.82	30	PASS

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802.11n_HT20_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
36	5180	MCS8	13.27	14.34	**16.94**	49.460	23.98	PASS
44	5220	MCS8	13.03	14.14	16.73	47.044	23.98	PASS
48	5240	MCS8	12.91	14.06	16.63	46.001	23.98	PASS
52	5260	MCS8	12.87	14.04	16.60	45.698	23.98 or 11+10log(B) = 24.59	PASS
60	5300	MCS8	12.93	14.46	**16.87**	48.604	23.98 or 11+10log(B) = 24.61	PASS
64	5320	MCS8	13.21	14.16	16.82	48.035	23.98 or 11+10log(B) = 24.69	PASS
100	5500	MCS8	13.36	13.75	16.66	46.388	23.98 or 11+10log(B) = 24.66	PASS
116	5580	MCS8	13.76	14	**16.99**	49.961	23.98 or 11+10log(B) = 24.79	PASS
140	5700	MCS8	12.99	13.97	16.61	45.838	23.98 or 11+10log(B) = 24.76	PASS
144	5720(U-NII 2C)	MCS8	11.58	12.23	**15.07**	32.126	23.98 or 11+10log(B) = 24.63	PASS
144	5720 (U-NII 3)	MCS8	7.55	8.48	**11.04**	12.697	30	PASS

802.11n_HT40_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	**13.98**	25.001	23.98	PASS
46	5230	MCS0	13.97	24.943	23.98	PASS
54	5270	MCS0	13.92	24.658	23.98 or 11+10log(B) = 27.14	PASS
62	5310	MCS0	**13.96**	24.886	23.98 or 11+10log(B) = 27.15	PASS
102	5510	MCS0	**13.89**	24.488	23.98 or 11+10log(B) = 27.15	PASS
110	5550	MCS0	13.86	24.319	23.98 or 11+10log(B) = 27.13	PASS
134	5670	MCS0	13.72	23.548	23.98 or 11+10log(B) = 27.13	PASS
142	5710(U-NII 2C)	MCS0	**13.30**	21.37	23.98 or 11+10log(B) = 27.14	PASS
142	5710 (U-NII 3)	MCS0	**5.24**	3.34	30	PASS

802.11n_HT40_Ch1

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	13.70	23.440	23.98	PASS
46	5230	MCS0	**13.84**	24.208	23.98	PASS
54	5270	MCS0	**13.82**	24.096	23.98 or 11+10log(B) = 27.15	PASS
62	5310	MCS0	13.67	23.278	23.98 or 11+10log(B) = 27.15	PASS
102	5510	MCS0	13.51	22.436	23.98 or 11+10log(B) = 27.15	PASS
110	5550	MCS0	13.54	22.592	23.98 or 11+10log(B) = 27.17	PASS
134	5670	MCS0	**13.55**	22.644	23.98 or 11+10log(B) = 27.18	PASS
142	5710(U-NII 2C)	MCS0	**13.20**	20.90	23.98 or 11+10log(B) = 27.21	PASS
142	5710 (U-NII 3)	MCS0	**5.34**	3.42	30	PASS

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802.11n_HT40_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
38	5190	MCS8	13.2	14.3	**16.98**	49.941	23.98	PASS
46	5230	MCS8	12.97	14.29	16.88	48.750	23.98	PASS
54	5270	MCS8	12.85	14.03	**16.68**	46.556	23.98 or 11+10log(B) = 27.14	PASS
62	5310	MCS8	12.84	13.83	16.56	45.321	23.98 or 11+10log(B) = 27.15	PASS
102	5510	MCS8	13.39	13.87	16.84	48.266	23.98 or 11+10log(B) = 27.15	PASS
110	5550	MCS8	13.55	13.85	16.90	49.005	23.98 or 11+10log(B) = 27.13	PASS
134	5670	MCS8	13.15	14.33	**16.98**	49.886	23.98 or 11+10log(B) = 27.13	PASS
142	5710(U-NII 2C)	MCS8	12.21	13.47	**16.10**	40.749	23.98 or 11+10log(B) = 27.14	PASS
142	5710 (U-NII 3)	MCS8	4.15	5.61	**8.05**	6.376	30	PASS

802.11ac_VHT80_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
42	5210	MCS0	**13.49**	22.327	23.98	PASS
58	5290	MCS0	**13.47**	22.224	23.98 or 11+10log(B) = 30.18	PASS
106	5530	MCS0	**13.44**	22.071	23.98 or 11+10log(B) = 30.19	PASS
122	5610	MCS0	13.23	21.030	23.98 or 11+10log(B) = 30.22	PASS
138	5690(U-NII 2C)	MCS0	**12.82**	19.13	23.98 or 11+10log(B) = 30.23	PASS
138	5690 (U-NII 3)	MCS0	**2.33**	1.71	30	PASS

802.11ac_VHT80_Ch1

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
42	5210	MCS0	**13.22**	20.981	23.98	PASS
58	5290	MCS0	**13.05**	20.176	23.98 or 11+10log(B) = 30.17	PASS
106	5530	MCS0	**13.20**	20.885	23.98 or 11+10log(B) = 30.23	PASS
122	5610	MCS0	13.06	20.222	23.98 or 11+10log(B) = 30.16	PASS
138	5690(U-NII 2C)	MCS0	**12.68**	18.54	23.98 or 11+10log(B) = 30.19	PASS
138	5690 (U-NII 3)	MCS0	**2.00**	1.58	30	PASS

802.11ac_VHT80_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
42	5210	MCS0	12.24	12.93	**16.49**	44.538	23.98	PASS
58	5290	MCS0	12.26	12.67	**16.36**	43.236	23.98 or 11+10log(B) = 30.17	PASS
106	5530	MCS0	12.27	12.41	16.23	41.968	23.98 or 11+10log(B) = 30.19	PASS
122	5610	MCS0	12.45	12.56	**16.39**	43.591	23.98 or 11+10log(B) = 30.16	PASS
138	5690(U-NII 2C)	MCS0	11.61	12.11	**15.75**	37.575	23.98 or 11+10log(B) = 30.19	PASS
138	5690 (U-NII 3)	MCS0	1.12	1.43	**5.26**	3.356	30	PASS

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10 MAXIMUM POWER SPECTRAL DENSITY

10.1 Standard Applicable

FCC

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Master device)	17dBm/ MHz
		Fixed point-to-point Access Ponit	
	√	Mobile and portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3			30dBm/ 500kHz
If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.			

Note:

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

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

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

where

Each antenna is driven by no more than one spatial stream;
NSS = the number of independent spatial streams of data;
NANT = the total number of antennas
$g_{j,k}$ = / 20 10Gk if the kth antenna is being fed by spatial stream j, or zero if it is not;
G_k is the gain in dBi of the kth antenna.

The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

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10.2 Measurement Procedure

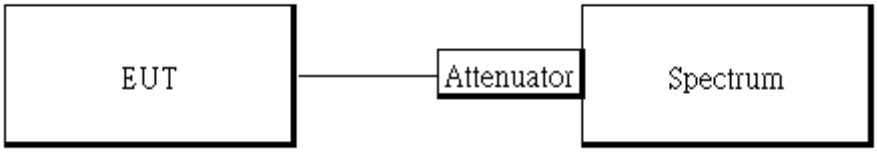
1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. **For U-NII1, U-NII-2A, U-NII-2C Band**:
   Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
   For U-NII-3 Band:
   Set RBW=500 kHz, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. User the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
7. Repeat above procedures until all default test channel (low, middle, and high) was complete.
8. MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure the PSD for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna.
9.

Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between WLAN#1 Antenna at single transmitting mode and WLAN#2 that yields the higher value. The MIMO transmitting mode produces higher value of outcome

10.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	May 6th, 2020	May 5th, 2021
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021
Temperature Chamber	TERCHY	MHG-120LF	911009	May 20th, 2020	May 19th, 2021
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021

10.4 Test Set-up



Note:
Cable Loss= 13.30 dB

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10.5 Measurement Result

10.5.1 Power spectral density

POWER DENSITY 802.11a MODE_2TX					
Frequency (MHz)	PSD W/O Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Duty Factor	PSD With Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Limit (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Margin (dB)
5180.00	6.67	-	6.67	11.00	-4.33
5220.00	6.52	-	6.52	11.00	-4.48
5240.00	6.35	-	6.35	11.00	-4.65
5260.00	6.26	-	6.26	11.00	-4.74
5300.00	6.23	-	6.23	11.00	-4.77
5320.00	6.75	-	6.75	11.00	-4.25
5500.00	6.57	-	6.57	11.00	-4.43
5580.00	7.02	-	7.02	11.00	-3.98
5700.00	6.51	-	6.51	11.00	-4.49
5720 (U-NII 2C)	6.64	-	6.64	11.00	-4.36
5720 (U-NII 3)	2.25	-	2.25	30.00	-27.75

POWER DENSITY 802.11n HT20 MODE_MIMO					
Frequency (MHz)	PSD W/O Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Duty Factor	PSD With Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Limit (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Margin (dB)
5180	5.90	0.09	5.99	11	-5.01
5220	5.58	0.09	5.67	11	-5.33
5240	5.63	0.09	5.72	11	-5.28
5260	5.47	0.09	5.56	11	-5.44
5300	5.96	0.09	6.05	11	-4.95
5320	6.11	0.09	6.20	11	-4.80
5500	6.40	0.09	6.49	11	-4.51
5580	6.33	0.09	6.42	11	-4.58
5700	5.56	0.09	5.65	11	-5.35
5720 (U-NII 2C)	6.06	0.09	6.16	11	-4.84
5720 (U-NII 3)	1.64	0.09	1.74	30	-28.26

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POWER DENSITY 802.11n HT40 MODE_MIMO					
Frequency (MHz)	PSD W/O Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Duty Factor	PSD With Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Limit (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Margin (dB)
5190	3.36	0.19	3.55	11	-7.45
5230	2.94	0.19	3.13	11	-7.87
5270	2.85	0.19	3.04	11	-7.96
5310	2.79	0.19	2.98	11	-8.02
5510	3.35	0.19	3.54	11	-7.46
5550	3.65	0.19	3.84	11	-7.16
5670	3.05	0.19	3.24	11	-7.76
5710 (U-NII 2C)	2.99	0.19	3.18	11	-7.82
5710 (U-NII 3)	-1.61	0.19	-1.42	30	-31.42

POWER DENSITY 802.11ac VHT80 MODE_MIMO					
Frequency (MHz)	PSD W/O Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Duty Factor	PSD With Duty Factor (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Limit (dBm/MHz)-UNII 1~2C (dBm/500kHz)-UNII 3	Margin (dB)
5210	-1.11	0.88	-0.23	11	-11.23
5290	-0.69	0.88	0.19	11	-10.81
5530	-1.06	0.88	-0.18	11	-11.18
5610	-0.66	0.88	0.22	11	-10.78
5690 (U-NII 2C)	-1.11	0.88	-0.23	11	-11.23
5690 (U-NII 3)	-6.16	0.88	-5.28	30	-35.28

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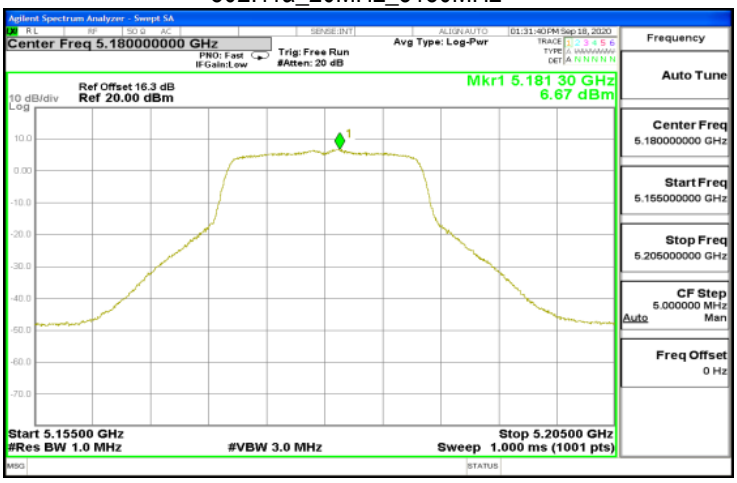
802.11a_20MHz_5180MHz



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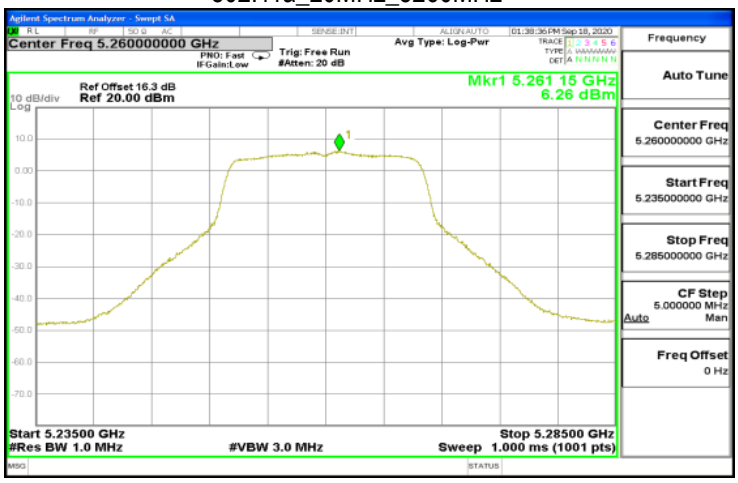
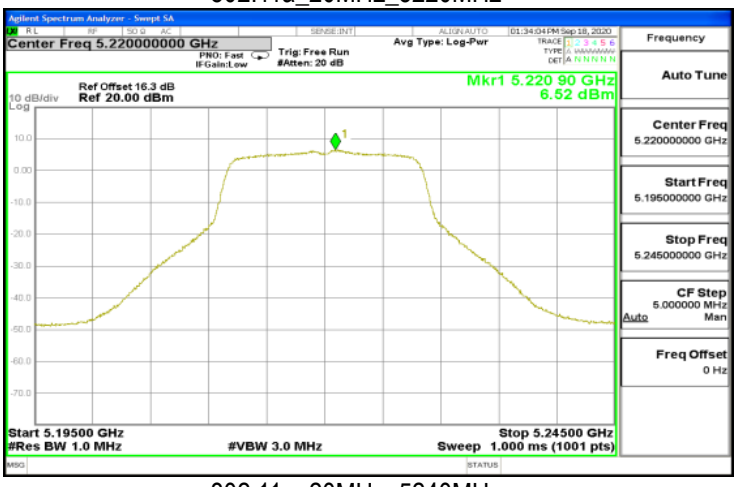


802.11a_20MHz_5220MHz



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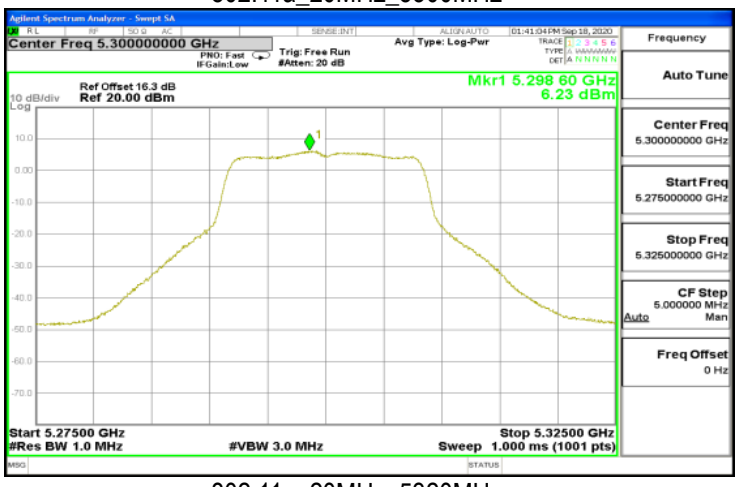
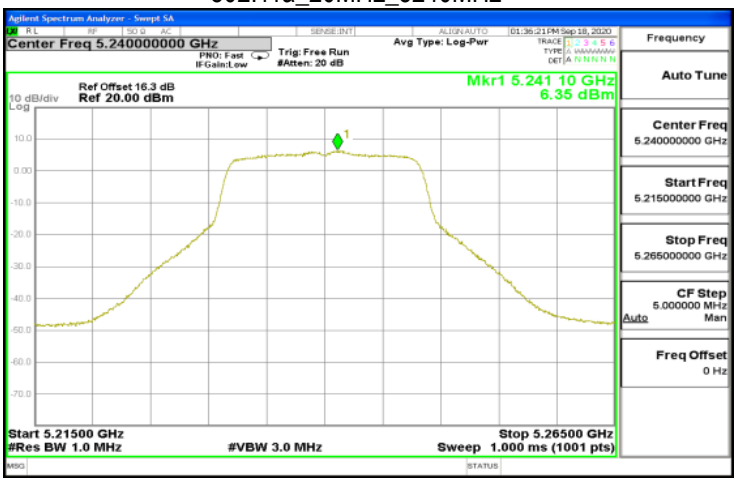
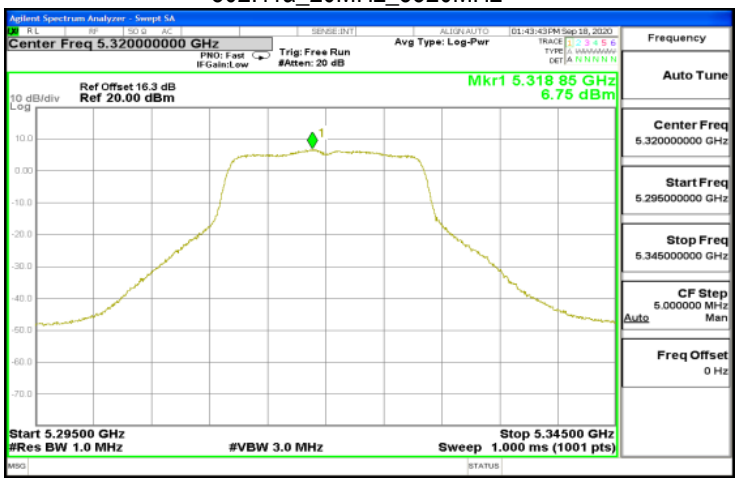


802.11a_20MHz_5240MHz



802.11a_20MHz_5320MHz



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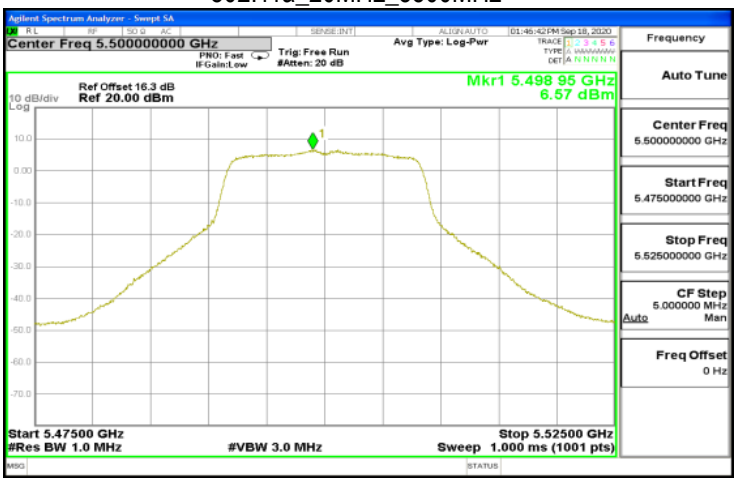
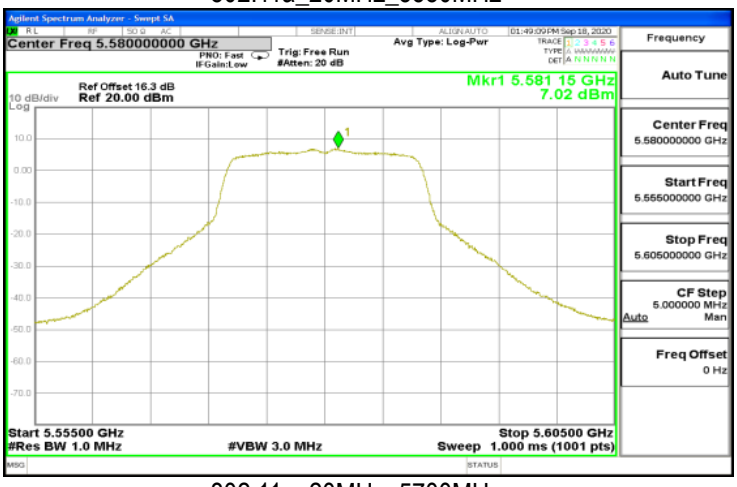
802.11a_20MHz_5500MHz



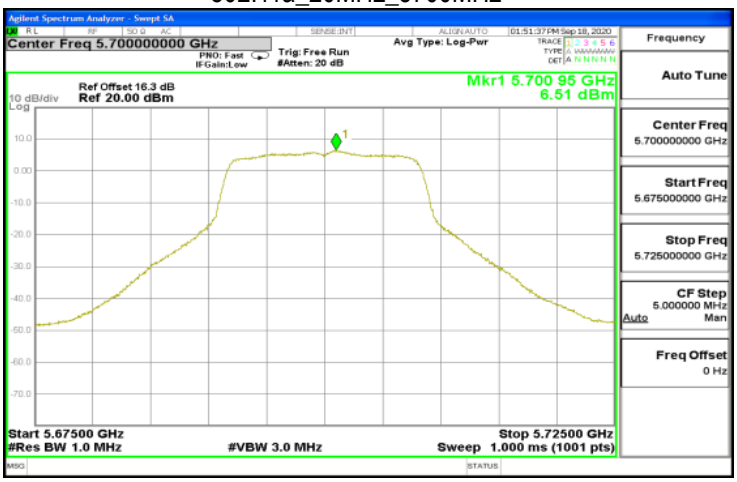
802.11a_20MHz_5720MHz_2C

802.11a_20MHz_5580MHz

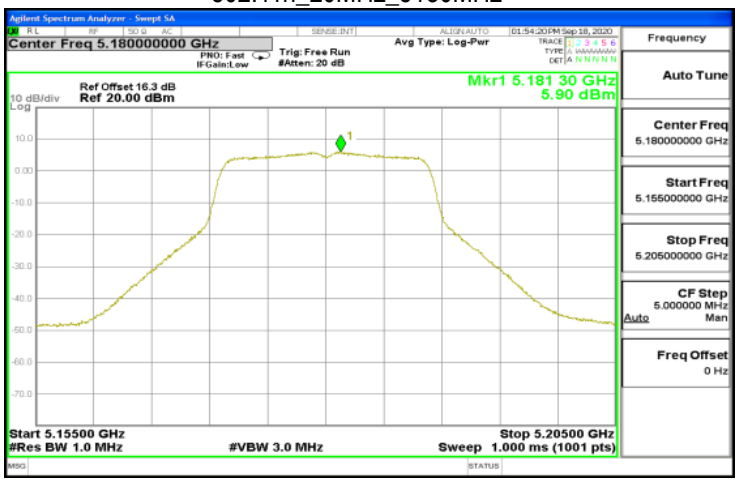


802.11a_20MHz_5720MHz_3

802.11a_20MHz_5700MHz



802.11n_20MHz_5180MHz



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