

	  
<p>MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn. Bhd. Plot 2A Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia.</p>	<p>FCC / IC TEST REPORT Report Revision : Rev.A</p>
<p>Date/s Tested : 17-Dec-2023 - 26-Dec-2023 Manufacturer/Location : Motorola Solutions Inc. (Schaumburg) Manufacturer Address : 1301 E. Algonquin Road Bldg II02 Room 3035 Schaumburg, IL 60196 Requestor : ROLANDO HERNANDEZ Product Type : Hand-held Product Version (PMN) : APX NEXT Model Number (HVIN) : H55TGT9PW8AN Frequency Band : 5180-5825MHz Firmware Version (FVIN) : D05.75.54 Applicant Name : Motorola Solutions Inc Applicant Address : Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia FCC Registrations : 461337 ISED Registrations : MY0001</p> <p>The equipment was tested accordance to the requirement listed below:</p> <p>(5GHz Wi-Fi) PASS FCC 47 CFR Part 15 Subpart E IC RSS 247 Issue 2</p>	
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Revision History	Description	Date	Originator
Rev. A	Initial Report	29-Jan-2024	Siti Nurhidayati

1.0. Summary of Test Results

FCC Clause	IC Clause	Test Item	Result	Remarks	Serial Number tested	Tested by
15.407 (a)(1/2/3)	RSS 247 6.2	Maximum Conducted Output Power (Average)	Pass	Highest output power: 802.11a: 21.769 dBm (150.280mW) 802.11n20/ac20: 21.563 dBm (143.318mW) 802.11n40/ac40: 21.886 dBm (154.383mW) 802.11ac80: 20.262 dBm (106.218mW)	437TZP0812	Hidayati
15.407(a) (1/2/3)	RSS 247 6.2	Maximum Power Spectral Density	NA	NA	NA	NA
15.407 (e)	RSS 247 6.2.4	6dB Bandwidth	Pass	a20: 17.096MHz (17M1D1D) n20/ac20: 18.095MHz (18M1D1D) n40/ac40: 36.403MHz (36M4D1D) ac80: 75.754MHz (75M8D1D)	437TZP0812	Hidayati
15.407 (g)	RSS Gen 6.11	Frequency Stability	NA	NA	NA	NA
15.407 (b) (1/2/3/4/6)	RSS 247 6.2	Band Edge Radiated Spurious Emission Measurement	Pass	Worst case emission: 51.8075 dBuV/m (margin: 2.1925 dB) (AVG)	437TZP0815	Nazrin & Rezza
15.407 (b) (1/2/3/4/6)	RSS 247 6.2	Radiated Spurious Emission Measurement	Pass	Worst case emission: 25.5788 dBuV/m (margin: 14.4212 dB) (QPK)	437TZP0815 437TZP0835 437TZP0845	Nazrin & Rezza
15.207 15.407 (b)(6)	RSS Gen 8.8	AC Powerline Conducted Emission	Pass	NA	437TZP0815 437TZP0835 437TZP0845	Shidee
15.203	-	Antenna requirement	Pass	Internal antenna is not accessible to the end-user	NA	NA

2.0. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) (\pmdB)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.48
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	5.88
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.84
	18GHz ~ 25GHz	6.02
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82

3.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.12)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
CHAMBER	SH-641	92003820	18-Jul-23	18-Jul-24
POWER SUPPLY (0-20V / 0-25A)	6652A	3541A02371	18-Jul-23	18-Jul-24
SPECTRUM ANALYZER	E4440A	MY48250517	8-Nov-23	8-Nov-24

Radiated Spurious Emission (SW Version: EMC FCC RE v1.6.5)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	1143	08-Mar-23	08-Mar-25
DRG HORN FREQ.	SAS-571	720	18-Apr-23	18-Apr-25
DC Power Supply	6033A	3211A06649	12-Jun-22	12-Jun-24
SIGNAL GENERATOR	SMB 100A	182511	4-Jun-21	4-Jun-24
EMI TEST RECEIVER	ESW44	101731	11-Aug-23	11-Aug-24
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
BILOG ANTENNA	CBL6112D	30991	5-Jan-23	5-Jan-24
BILOG ANTENNA	CBL6112D	2964	25-Sep-23	25-Sep-24
DATA LOGGER THERMOHYGROMETER	SDL500	A.016800	21-Jun-23	21-Jun-24
SYSTEM CONTROLLER	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	No Cal. Req'd	No Cal. Req'd
ANTENNA POSITIONING TOWER	TLT2	NA	No Cal. Req'd	No Cal. Req'd
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	22-Feb-23	22-Feb-24
PREAMPLIFIER 18-40GHz	Miteq Hi Gain Sucoflex	002	No Cal. Req'd	No Cal. Req'd
PREAMPLIFIER	PAM- 0118P	269	28-Mar-23	28-Mar-24
LOOP ANTENNA	6502	00203479	16-Feb-23	16-Feb-24

AC Power Line Conducted Spurious Emission (SW Version: EMC32 Ver. 10.60.10)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DATA LOGGER	DSB	16344143	21-Jun-23	21-Jun-24
V-NETWORK 2-LINE	ENV216	101268	15-Feb-23	15-Feb-24
EMI TEST RECEIVER	ESCI	100225	9-Feb-23	9-Feb-24
PROGRAMMABLE AC SOURCE	61604	ABR00000926	25-Jul-23	25-Jul-24

4.0. General Information

General Description of EUT:

Product	Hand-held
Brand	Motorola Solutions
Test Model	APX NEXT
Power Supply Rating	7.5Vdc
Mode of operation	WLAN 5GHz
Modulation Type	QPSK, BPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	OFDM
Transfer Rate	802.11a: 6.0/9.0/12.0/18.0/24.0/36.0/48.0/54.0 Mbps 802.11n: up to MCS15 802.11ac: up to MCS9
Operating Frequency	5.180 ~ 5.240 GHz, 5.260 ~ 5.320 GHz, 5.50 ~ 5.720 GHz, 5.745 ~ 5.825 GHz
Output Power (26 EBW or 99% OBW)	158 mW for 5.180 ~ 5.240 GHz 158 mW for 5.260 ~ 5.320 GHz 158 mW for 5.50 ~ 5.720 GHz 126 mW for 5.745 ~ 5.825 GHz
Antenna Type	Stamped metal with 1.9 to 4.0 dBi gain
SW Version	D05.75.54

Note:

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
STANDARD BATT, IMPRES GEN2, LIION, IP68, 3800T	MOTOROLA	NNTN9087A
HI-CAP BATT, IMPRES GEN2, LIION, IP68, 5650T	MOTOROLA	NNTN9089B
760 - 870 MHz	MOTOROLA	AN000296A01
CHARGER, MULTI-UNIT, IMPRES G2, 6-DISP, BASE w/INSERTS; w/US Line Cord	MOTOROLA	NNTN9115A
US Line Cord	MOTOROLA	3087791G01

Description of Test Modes:

For 5180 to 5240 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT20)

Channel	Frequency (MHz)
36	5180
40	5200
44	5220
48	5240

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency (MHz)
38	5190
46	5230

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
42	5210

For 5260 to 5320 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT20)

Channel	Frequency (MHz)
52	5260
56	5280
60	5300
64	5320

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency (MHz)
54	5270
62	5310

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
58	5290

For 5500 to 5720 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT20)

Channel	Frequency (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

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency (MHz)
102	5510
110	5550
118	5590
126	5630
134	5670
142	5710

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
106	5530
122	5610
138	5690

For 5745 to 5825 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT40)

Channel	Frequency(MHz)
149	5745
153	5765
157	5785
161	5805
165	5825

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency(MHz)
151	5755
159	5795

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
155	5775

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

FCC Part15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01r04

644545 D03 Guidance for IEEE 802 11ac New Rules v01

ANSI C63.10-2013

RSS 247 Issue 2, RSS Gen

All test have been performed and recorded as per above standards.

Deviation from standard

Not applicable as no deviation from standard test method

Modifications to EUT

No modifications were done to the UUT to facilitate the tests in this report.

5.0. Test Mode Applicability and Test Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	x	√	x	x	Power from carcharger (12Vdc)
C	x	√	x	x	Power from carcharger (24Vdc)

Where:

RE≥1G: Radiated Emission above 1GHz & Band edge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note: The EUT had been pre-scanned on the position of each 3 axis planes. The worst case was found when positioned on **Y-plane**.

Radiated Emission Test (Above 1GHz)

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Frequency Band	MODE	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36-48	36,44,48	OFDM	BPSK	6.0
-	5180-5240	802.11n/ac (HT20, VHT20)	36-48	36,44,48	OFDM	BPSK	6.5
-	5180-5240	802.11n/ac (HT40,VHT40)	38-46	38,46	OFDM	BPSK	13.5
-	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52-64	52,60,64	OFDM	BPSK	6.0
-	5260-5320	802.11n/ac (HT20, VHT20)	52-46	52,60,64	OFDM	BPSK	6.5
-	5260-5320	802.11n/ac (HT40,VHT40)	54-62	54,62	OFDM	BPSK	13.5
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5700	802.11a	100-140	100,116,140	OFDM	BPSK	6.0
-	5500-5720	802.11n/ac (HT20, VHT20)	100-144	100,116,144	OFDM	BPSK	6.5
-	5500-5720	802.11n/ac (HT40,VHT40)	102-142	102,110,142	OFDM	BPSK	13.5
-	5500-5720	802.11ac (VHT80)	106-138	106,122,138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149-165	149,157,165	OFDM	BPSK	6.0
-	5745-5825	802.11n/ac (HT20, VHT20)	149-165	149,157,165	OFDM	BPSK	6.5
-	5745-5825	802.11n/ac (HT40,VHT40)	151-159	151,159	OFDM	BPSK	13.5
-	5745-5825	802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz)

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	MODE	Frequency band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
-	802.11a	5260-5320	52 to 64		OFDM	BPSK	6.0
-	802.11a	5500-5700	100 to 140		OFDM	BPSK	6.0
-	802.11a	5745-5825	149 to 165		OFDM	BPSK	6.0

Power Line Conducted Emission Test

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	MODE	Frequency band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
-	802.11a	5260-5320	52 to 64		OFDM	BPSK	6.0
-	802.11a	5500-5700	100 to 140		OFDM	BPSK	6.0
-	802.11a	5745-5825	149 to 165		OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Frequency Band	MODE	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36-48	36,44,48	OFDM	BPSK	6.0
-	5180-5240	802.11n/ac (HT20, VHT20)	36-48	36,44,48	OFDM	BPSK	6.5
-	5180-5240	802.11n/ac (HT40,VHT40)	38-46	38,46	OFDM	BPSK	13.5
-	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52-64	52,60,64	OFDM	BPSK	6.0
-	5260-5320	802.11n/ac (HT20, VHT20)	52-46	52,60,64	OFDM	BPSK	6.5
-	5260-5320	802.11n/ac (HT40,VHT40)	54-62	54,62	OFDM	BPSK	13.5
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5700	802.11a	100-140	100,116,140	OFDM	BPSK	6.0
-	5500-5720	802.11n/ac (HT20, VHT20)	100-144	100,116,144	OFDM	BPSK	6.5
-	5500-5720	802.11n/ac (HT40,VHT40)	102-142	102,110,142	OFDM	BPSK	13.5
-	5500-5720	802.11ac (VHT80)	106-138	106,122,138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149-165	149,157,165	OFDM	BPSK	6.0
-	5745-5825	802.11n/ac (HT20, VHT20)	149-165	149,157,165	OFDM	BPSK	6.5
-	5745-5825	802.11n/ac (HT40,VHT40)	151-159	151,159	OFDM	BPSK	13.5
-	5745-5825	802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	25°C, 50% RH	3.7V DC	Nazrin/Qawiman
RE<1G	25°C, 50% RH	3.7V DC	Nazrin/Qawiman
PLC	22.4°C, 68.6% RH	120V AC,240V AC	Madi/Rudy
APCM	25°C, 50% RH	3.7V DC	Jino Lim

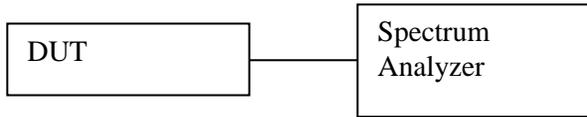
Duty Cycle of Test Signal

802.11a, 802.11n and 802.11ac (HT20, VHT20): Duty cycle of test signal is 100%.

If Duty cycle of test signal is <98%, duty cycle factor shall be considered. (Refer to section 6.0 for duty cycle measurement)

6.0. Duty Cycle of Test Signal

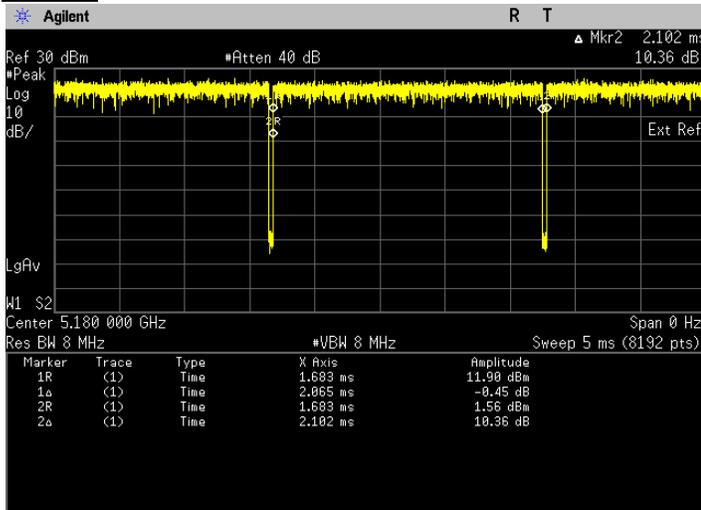
6.0.1. Test Setup



- 1) Set DUT to desire transmit frequency and transmit with maximum power.
- 2) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 3) Setting of Spectrum analyzer :
 - a. Set the RBW = 10 MHz or the highest RBW available on spectrum analyzer.
 - b. Set the VBW \geq RBW.
 - c. Set to Zero Span.
 - d. Detector = Peak.
 - e. Sweep time = 10ms or others that allow to measure accurate duty cycle.
 - f. Trace mode = Max hold.
- 4) Record the duty cycle as X and save the plot.

6.0.2. Test Data

802.11a

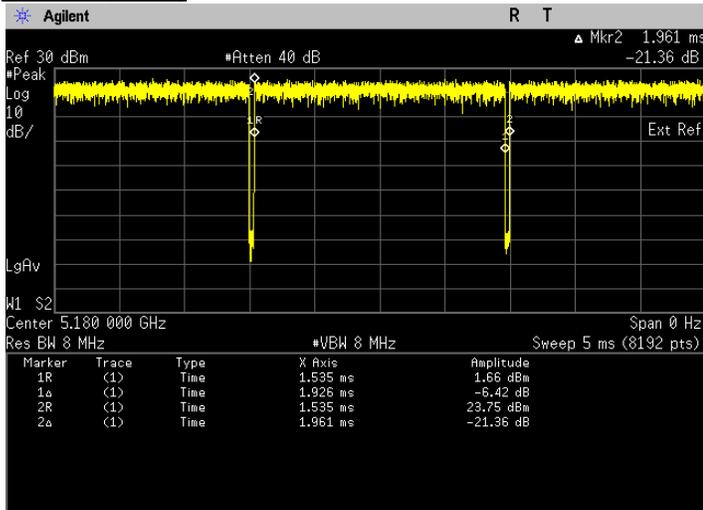


On time	2.065	ms
On + off time	2.102	ms
Duty Cycle	0.9824	
Duty Cycle Factor	0.077	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log (1/Duty Cycle)

802.11n (HT20)



On time	1.926	ms
On + off time	1.961	ms
Duty Cycle	0.9822	
Duty Cycle Factor	0.078	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log (1/Duty Cycle)

802.11n (HT40)

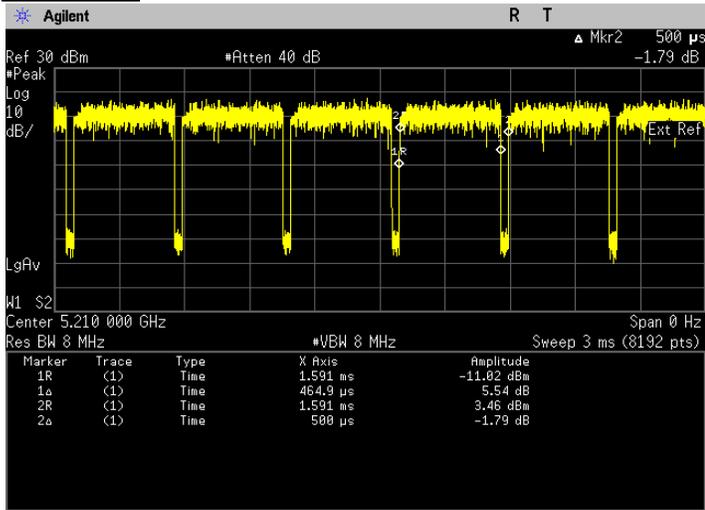


On time	0.9487	ms
On + off time	0.9839	ms
Duty cycle	0.9642	
Duty Cycle factor	0.158	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log (1/Duty Cycle)

802.11ac80



On time	0.4649	ms
On + off time	0.500	ms
Duty Cycle	0.9298	
Duty Cycle Factor	0.316	

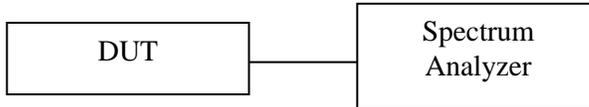
*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log (1/Duty Cycle)

7.0. Transmitter Test Parameters

7.1. Bandwidth measurements

7.1.1. Test Setup



- a) Test Setup as per illustrated above.
- b) Set DUT to transmit at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer for 26dB EBW:
 - RBW = approximate 1% of emission bandwidth
 - VBW > RBW
 - Detector = Peak
 - Trace =Max hold
 - Measure the maximum width of the emission that is 26 dB down from the maximum of the emission.
 - Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- e) Setting of Spectrum analyzer for 99% Occupied bandwidth:
 - Span = 1.5 times to 5.0 times the OBW
 - RBW = 1% to 5 % of the OBW
 - VBW \geq 3·RBW
 - Detector = Peak
 - Trace = Max Hold
 - Use the 99% power bandwidth function of the instrument
- f) The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause C.1) & D).

7.1.2. Test Limits

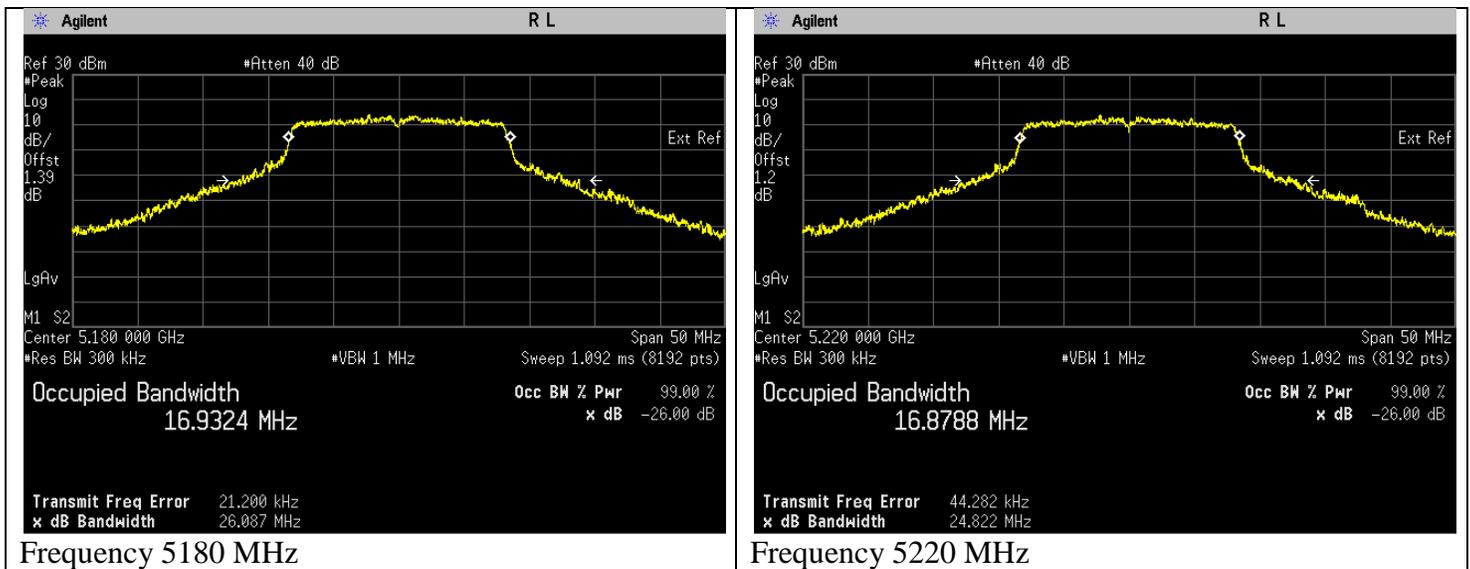
Not applicable.

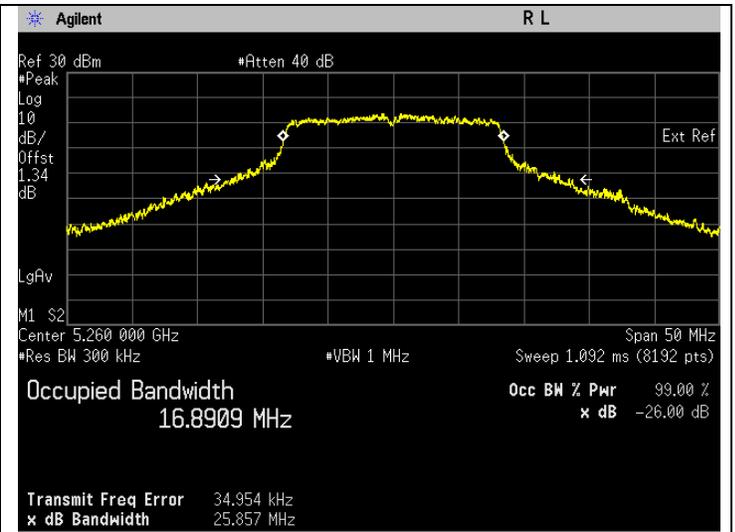
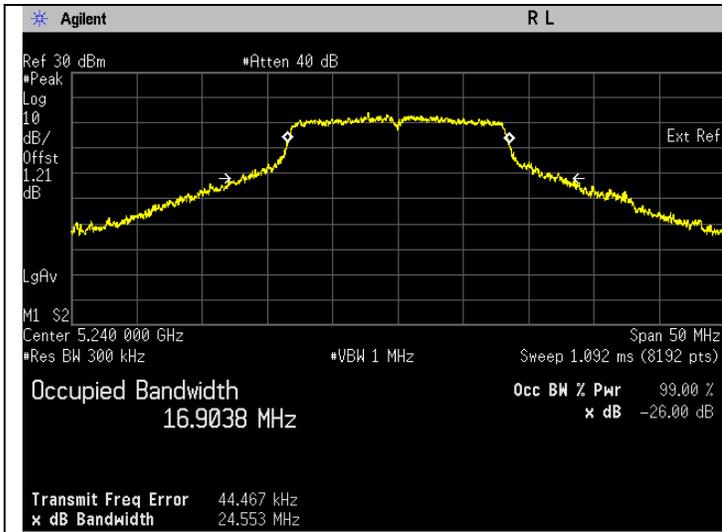
7.1.3. Test Data

802.11a

Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5180	Mod Type: BPSK, Data Rate: 6	26.087	Pass	16.932	Pass
5220	Mod Type: BPSK, Data Rate: 6	24.822	Pass	16.879	Pass
5240	Mod Type: BPSK, Data Rate: 6	24.553	Pass	16.904	Pass
5260	Mod Type: BPSK, Data Rate: 6	25.857	Pass	16.891	Pass
5300	Mod Type: BPSK, Data Rate: 6	25.143	Pass	16.934	Pass
5320	Mod Type: BPSK, Data Rate: 6	25.178	Pass	16.956	Pass
5500	Mod Type: BPSK, Data Rate: 6	24.821	Pass	16.821	Pass
5580	Mod Type: BPSK, Data Rate: 6	24.952	Pass	16.886	Pass
5700	Mod Type: BPSK, Data Rate: 6	23.446	Pass	16.691	Pass
5720	Mod Type: BPSK, Data Rate: 6, UNII-2C	17.446	Pass	13.430	Pass
5720	Mod Type: BPSK, Data Rate: 6, UNII-3	7.446	Pass	3.430	Pass
5745	Mod Type: BPSK, Data Rate: 6	24.955	Pass	16.866	Pass
5785	Mod Type: BPSK, Data Rate: 6	26.403	Pass	16.903	Pass
5825	Mod Type: BPSK, Data Rate: 6	28.067	Pass	17.096	Pass

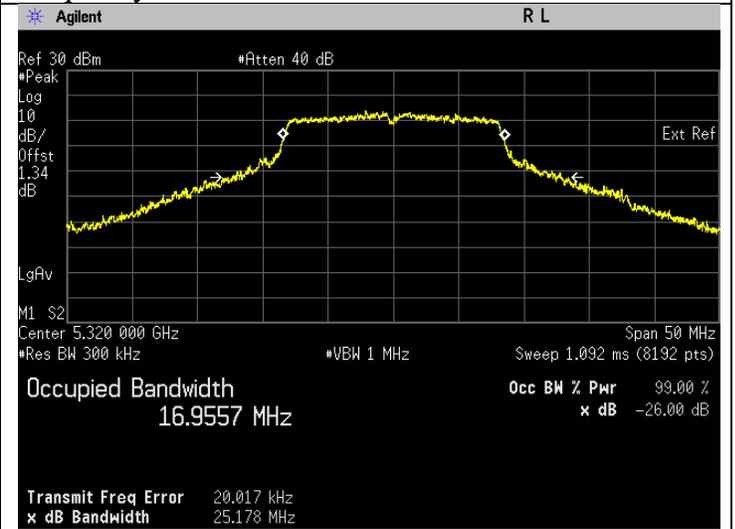
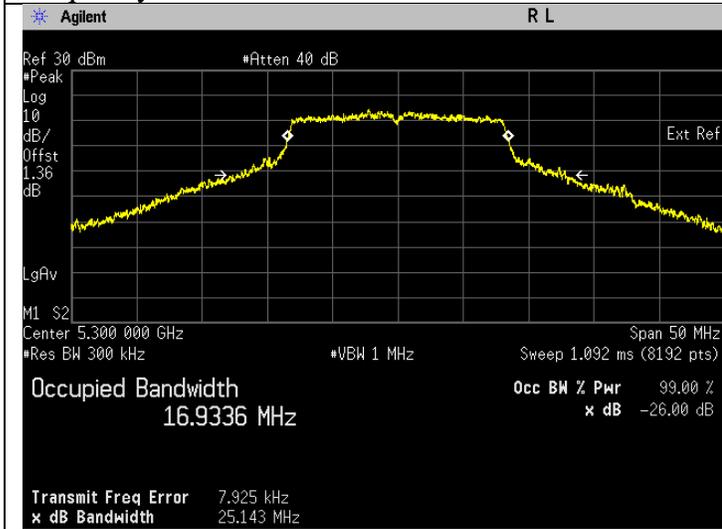
26 dB Bandwidth/ 99% Bandwidth





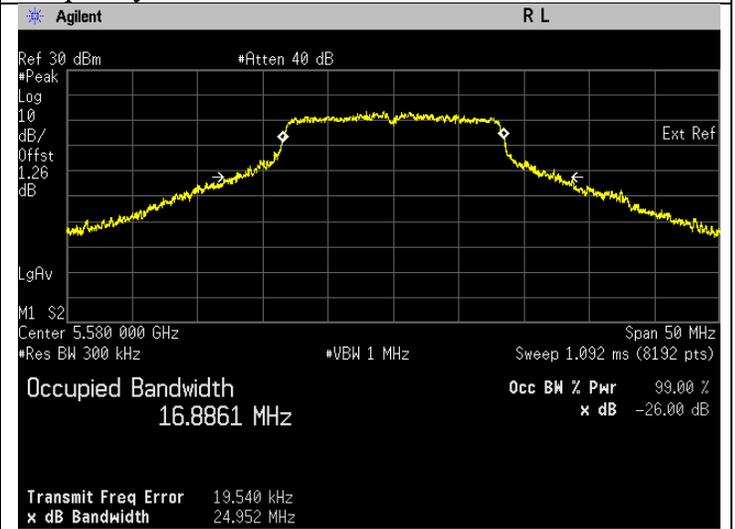
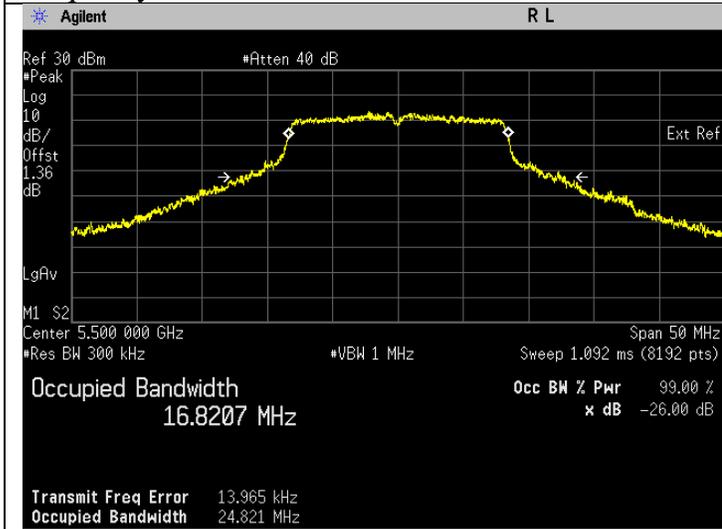
Frequency 5240 MHz

Frequency 5260 MHz



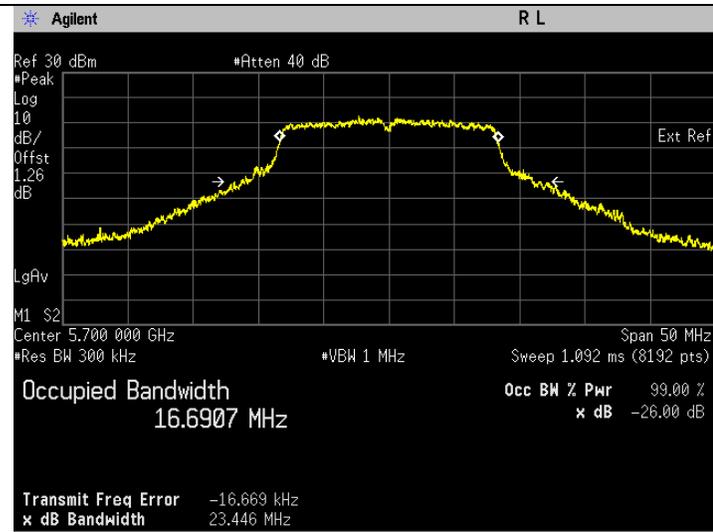
Frequency 5300 MHz

Frequency 5320 MHz

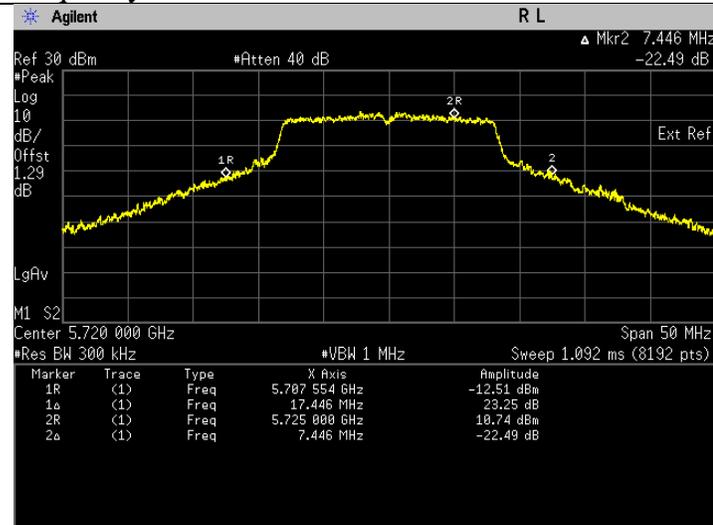


Frequency 5500 MHz

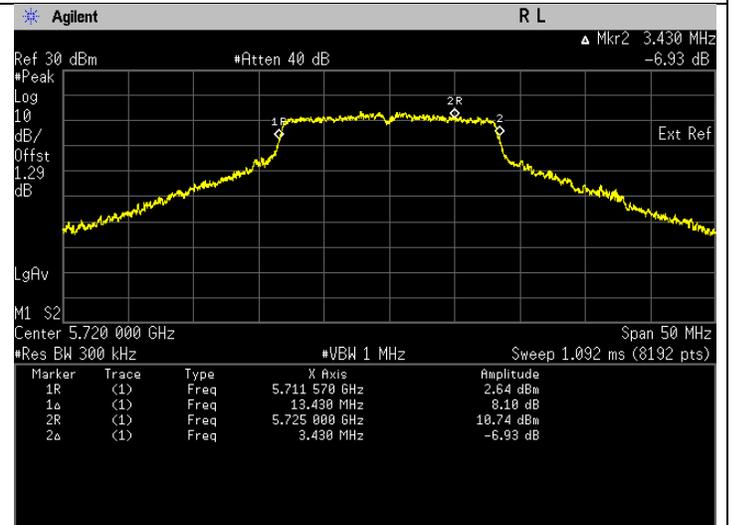
Frequency 5580 MHz



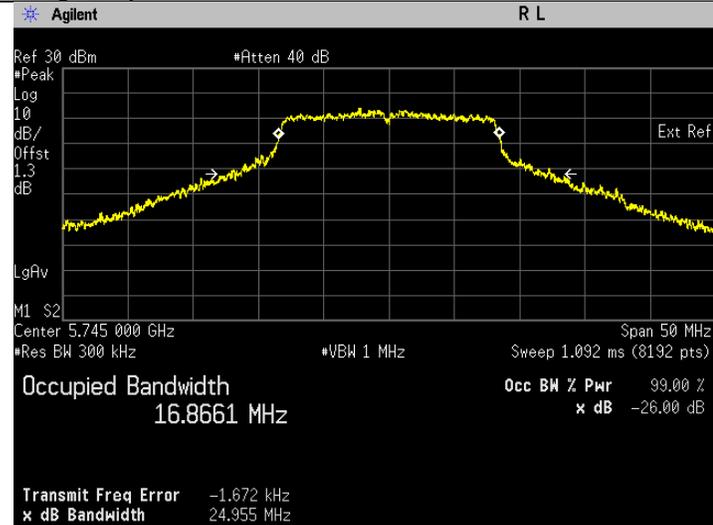
Frequency 5700 MHz



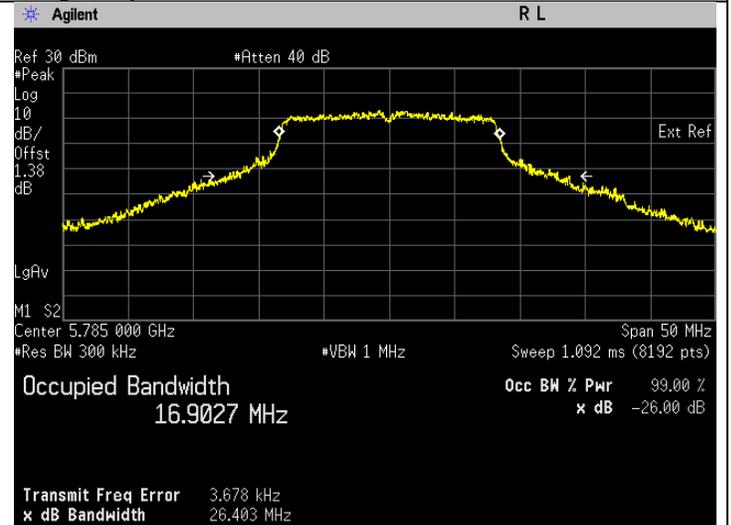
Frequency 5720 MHz, UNII-2C & UNII-3(FCC)



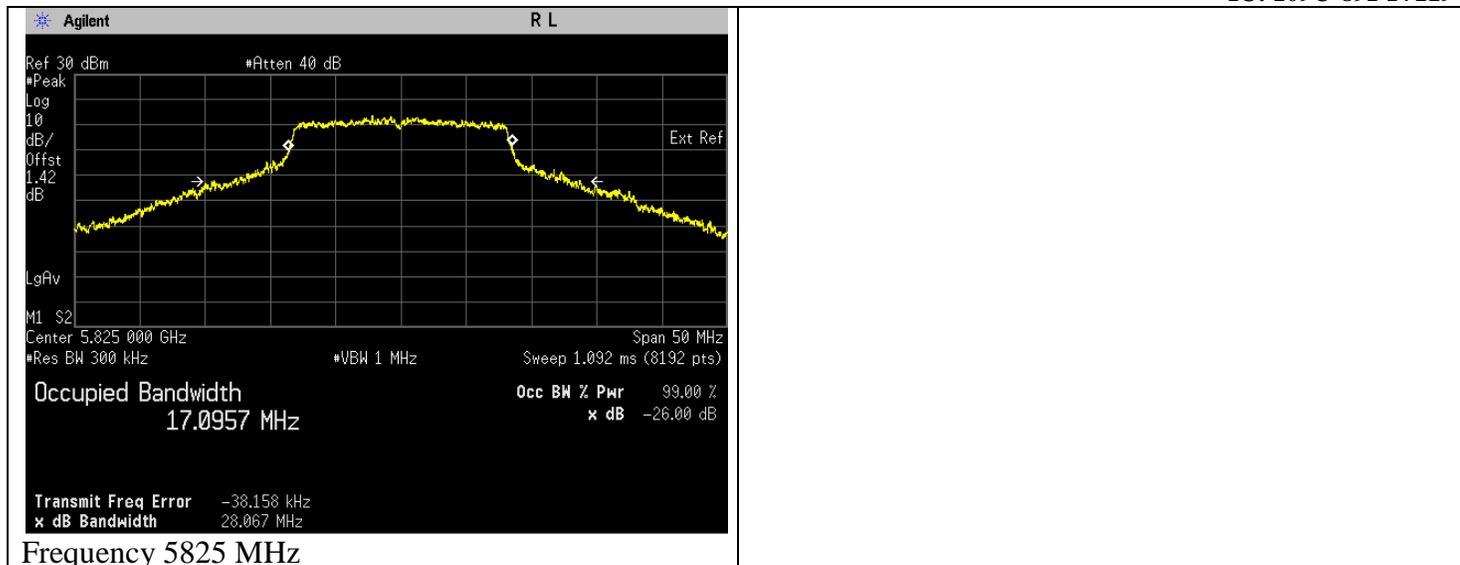
Frequency 5720 MHz, UNII-2C & UNII-3 (ISED)



Frequency 5745 MHz



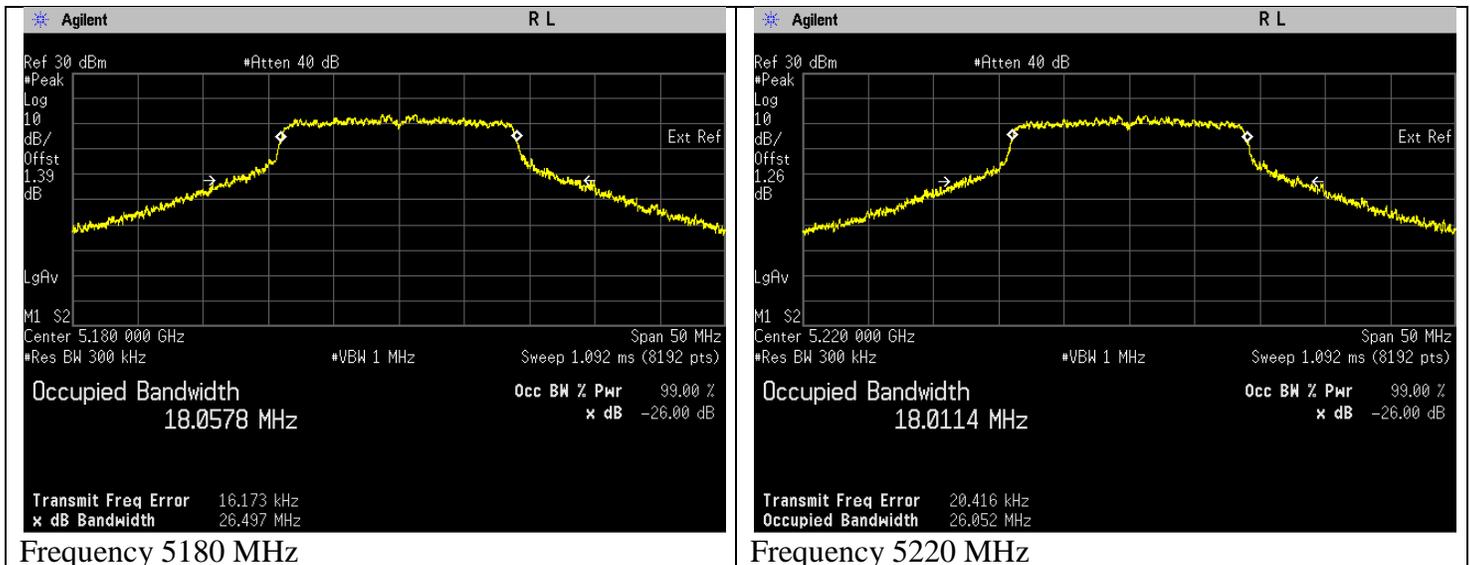
Frequency 5785 MHz

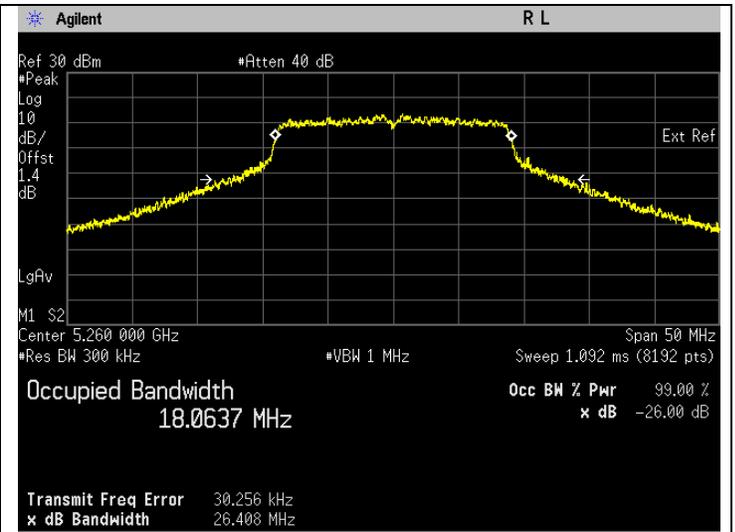
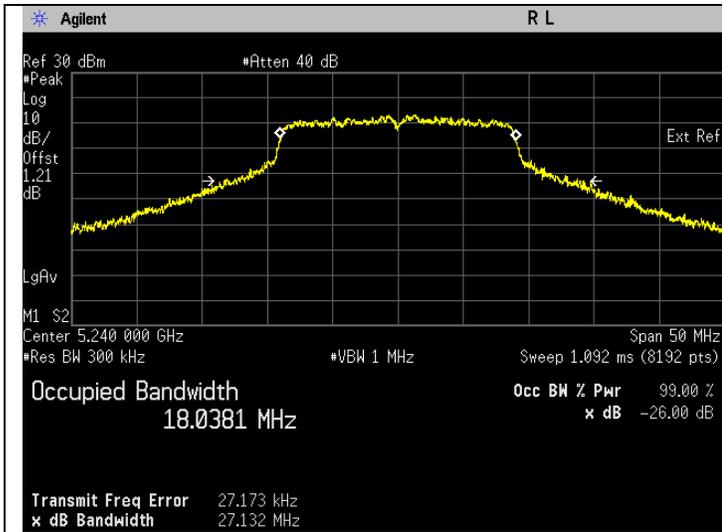


802.11n (HT20)

Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.497	Pass	18.058	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.052	Pass	18.011	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	27.132	Pass	18.038	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.408	Pass	18.064	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	27.733	Pass	18.095	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.719	Pass	18.051	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.066	Pass	17.954	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.730	Pass	18.005	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	24.095	Pass	17.888	Pass
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5), UNII-2C	18.739	Pass	14.035	Pass
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5), UNII-3	8.739	Pass	4.035	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	26.043	Pass	17.989	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	27.552	Pass	18.033	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	27.375	Pass	18.088	Pass

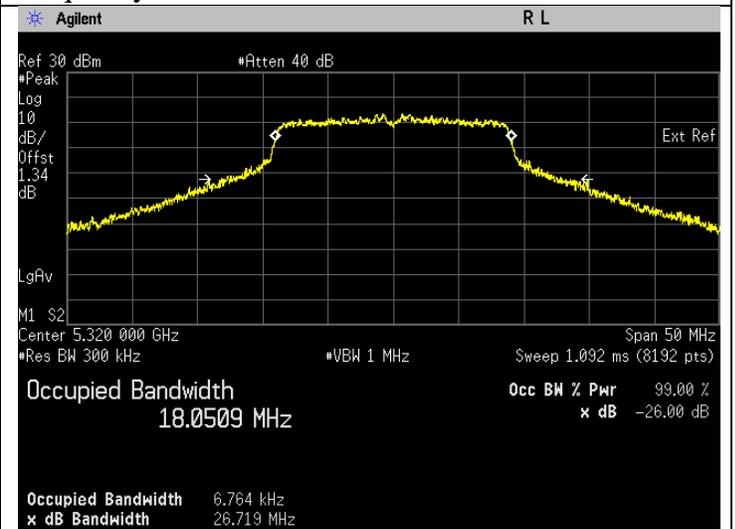
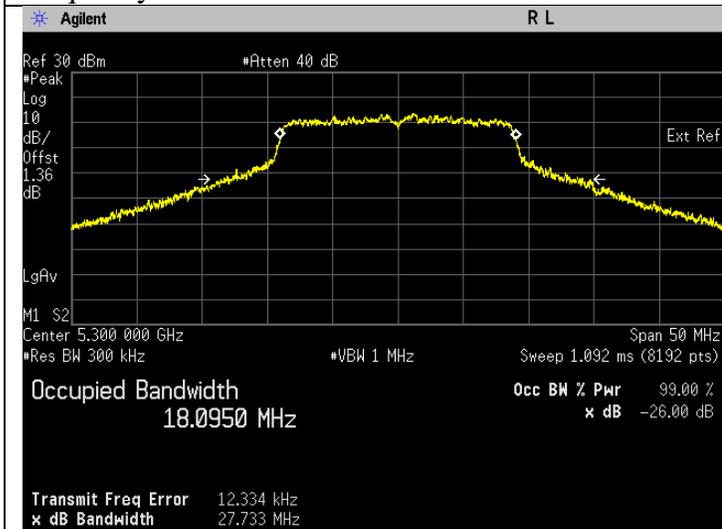
26 dB Bandwidth/ 99% Bandwidth





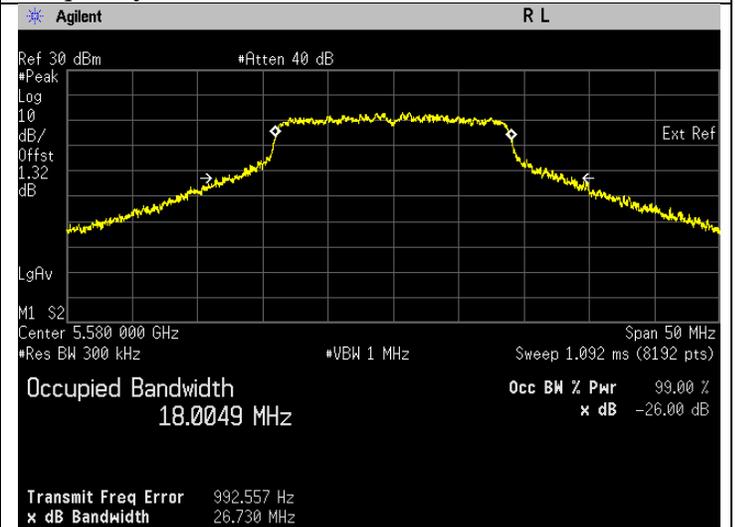
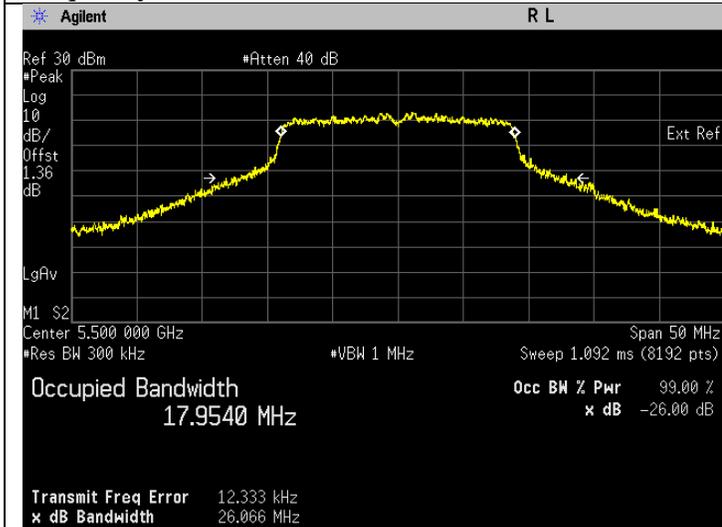
Frequency 5240 MHz

Frequency 5260 MHz



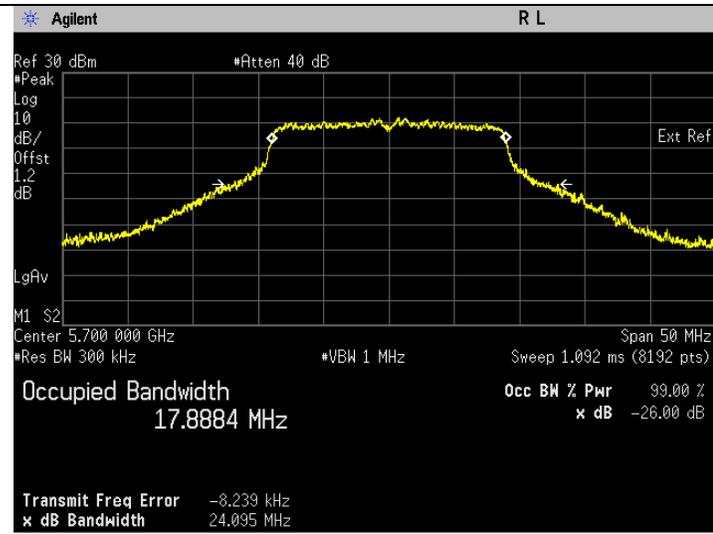
Frequency 5300 MHz

Frequency 5320 MHz

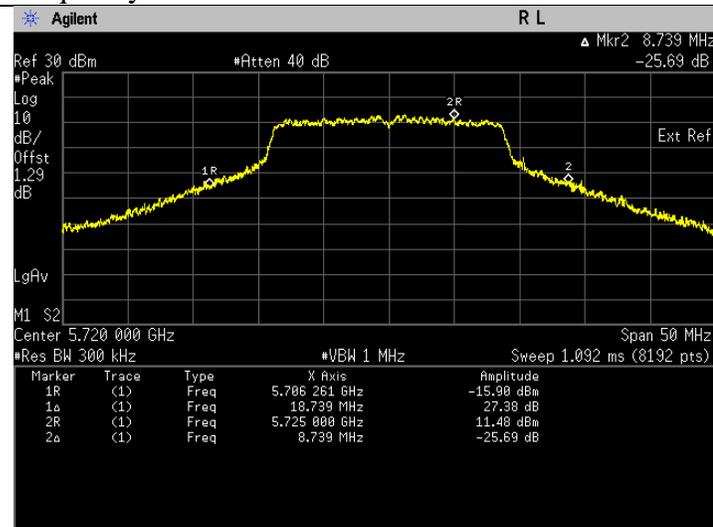


Frequency 5500 MHz

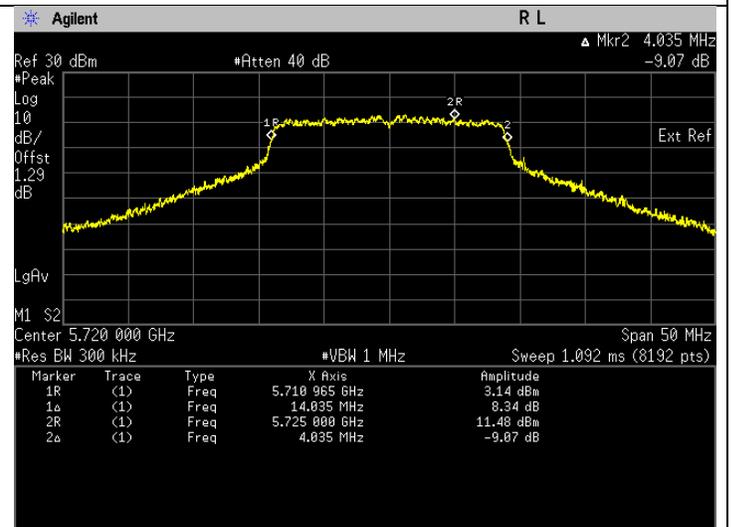
Frequency 5580 MHz



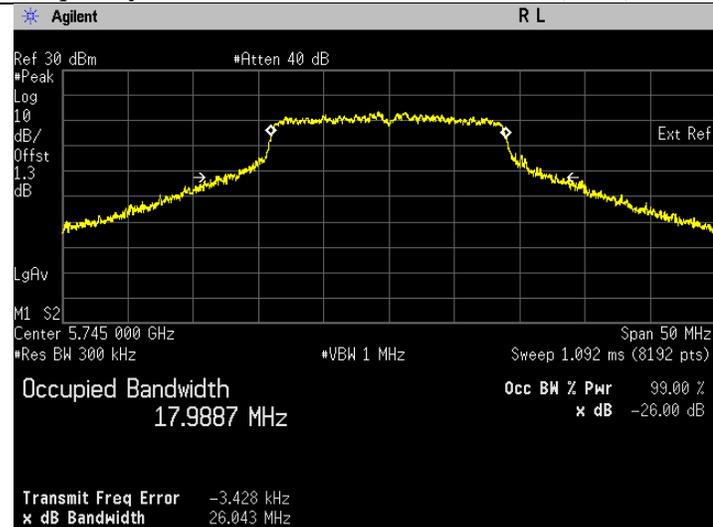
Frequency 5700 MHz



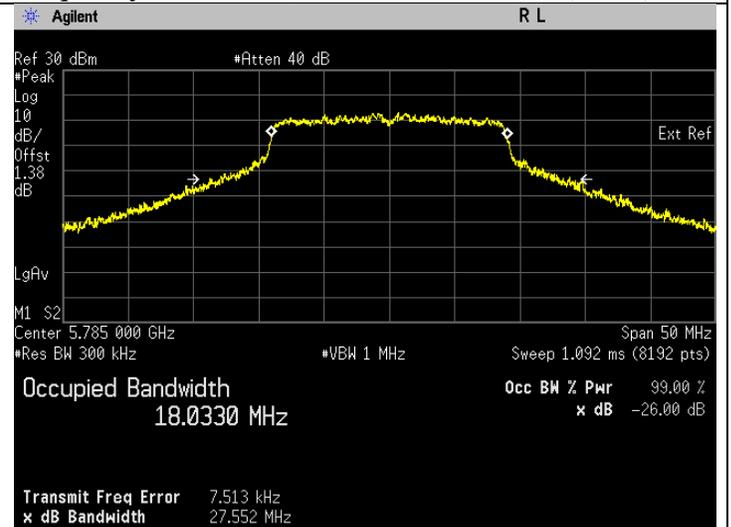
Frequency 5720 MHz, UNII-2C & UNII-3(FCC)



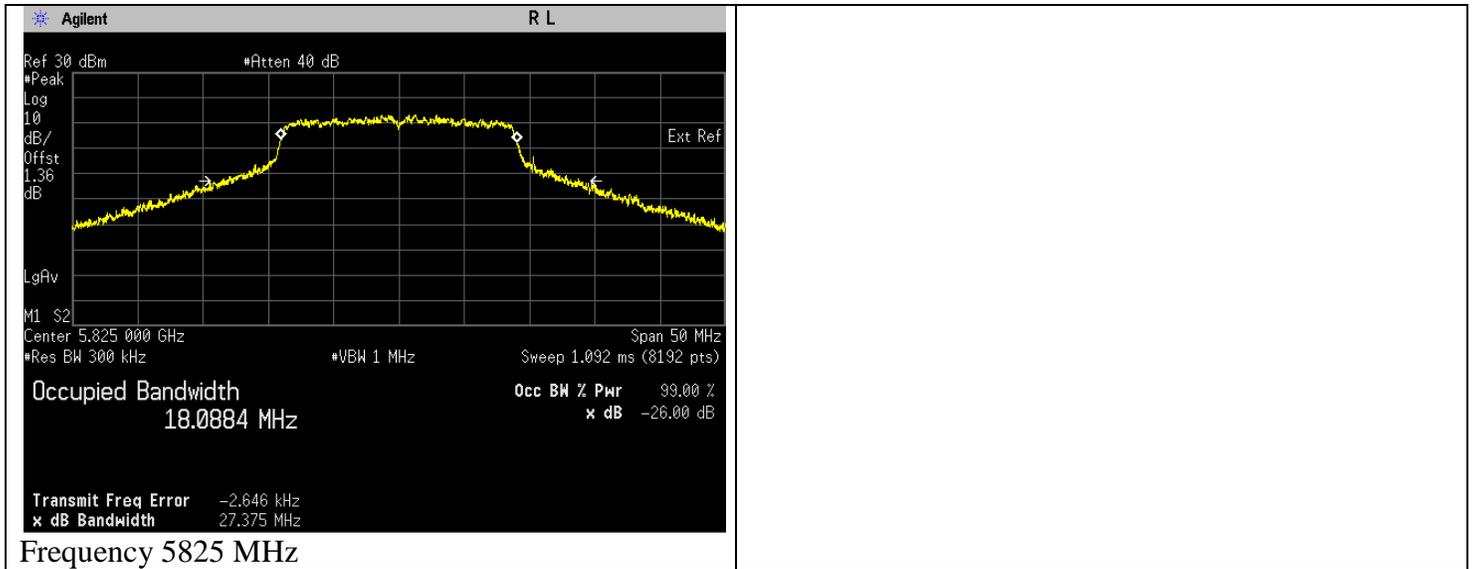
Frequency 5720 MHz, UNII-2C & UNII-3 (ISED)



Frequency 5745 MHz



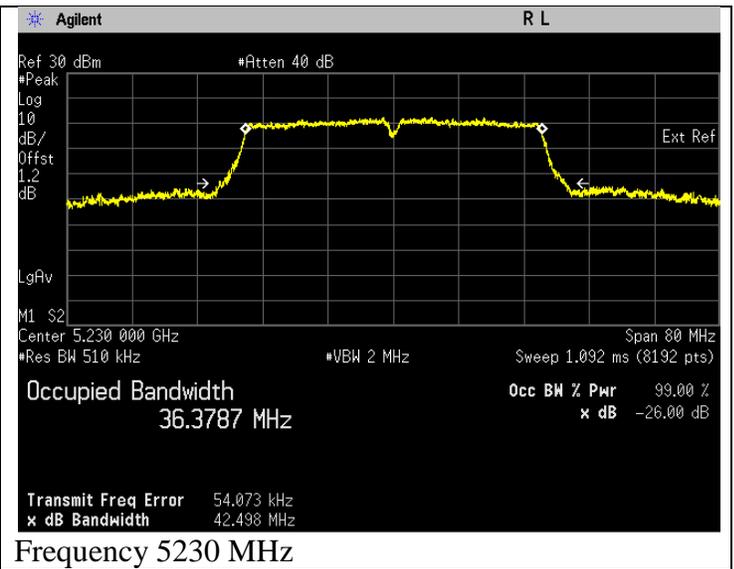
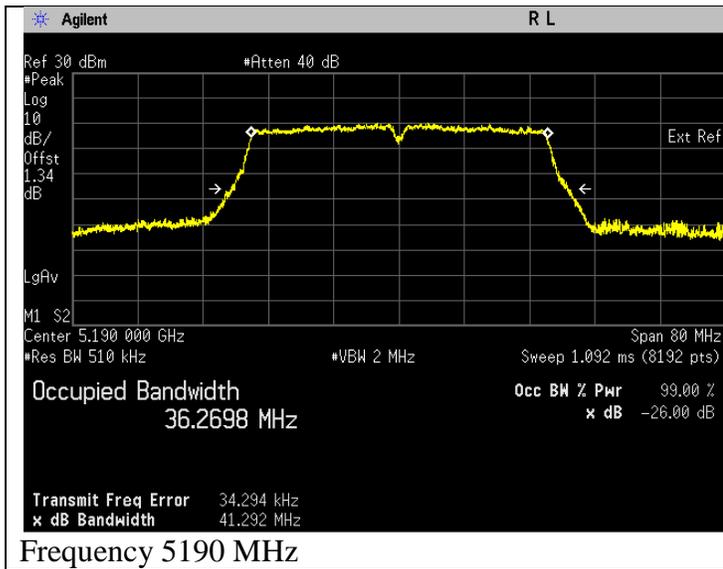
Frequency 5785 MHz

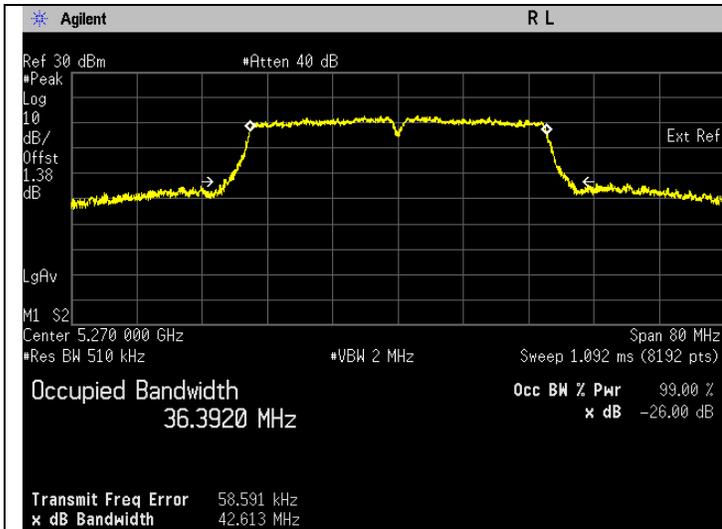


802.11n (HT40)

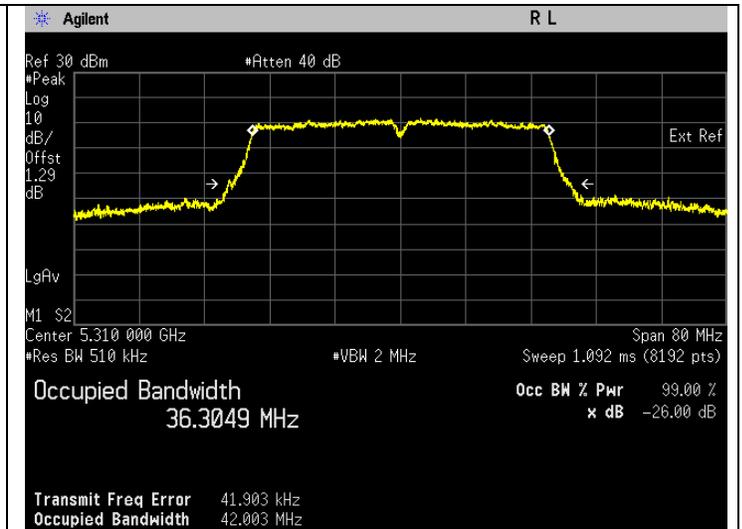
Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5190	Mod Type: BPSK, Data Rate: MCS0 (13.5)	41.292	Pass	36.270	Pass
5230	Mod Type: BPSK, Data Rate: MCS0 (13.5)	42.498	Pass	36.379	Pass
5270	Mod Type: BPSK, Data Rate: MCS0 (13.5)	42.613	Pass	36.392	Pass
5310	Mod Type: BPSK, Data Rate: MCS0 (13.5)	42.003	Pass	36.305	Pass
5510	Mod Type: BPSK, Data Rate: MCS0 (13.5)	41.272	Pass	36.272	Pass
5590	Mod Type: BPSK, Data Rate: MCS0 (13.5)	42.016	Pass	36.360	Pass
5670	Mod Type: BPSK, Data Rate: MCS0 (13.5)	42.087	Pass	36.372	Pass
5710	Mod Type: BPSK, Data Rate: MCS0 (13.5), UNII-2C	36.031	Pass	33.204	Pass
5710	Mod Type: BPSK, Data Rate: MCS0 (13.5), UNII-3	6.031	Pass	3.204	Pass
5755	Mod Type: BPSK, Data Rate: MCS0 (13.5)	42.236	Pass	36.368	Pass
5795	Mod Type: BPSK, Data Rate: MCS0 (13.5)	47.618	Pass	36.403	Pass

26 dB Bandwidth/ 99% Bandwidth

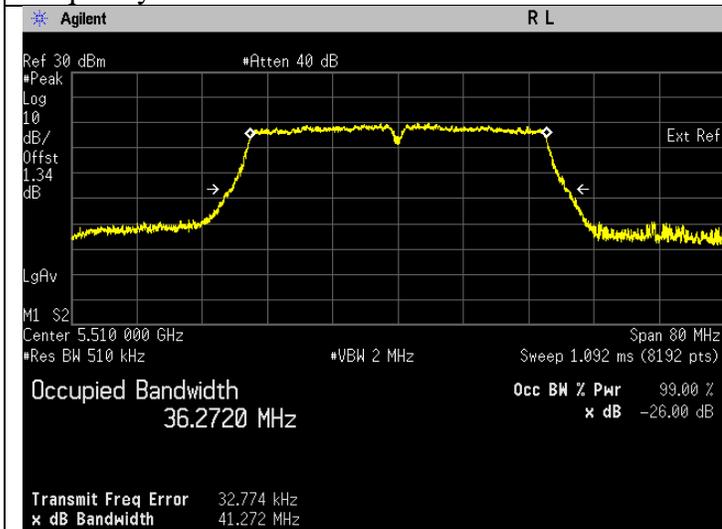




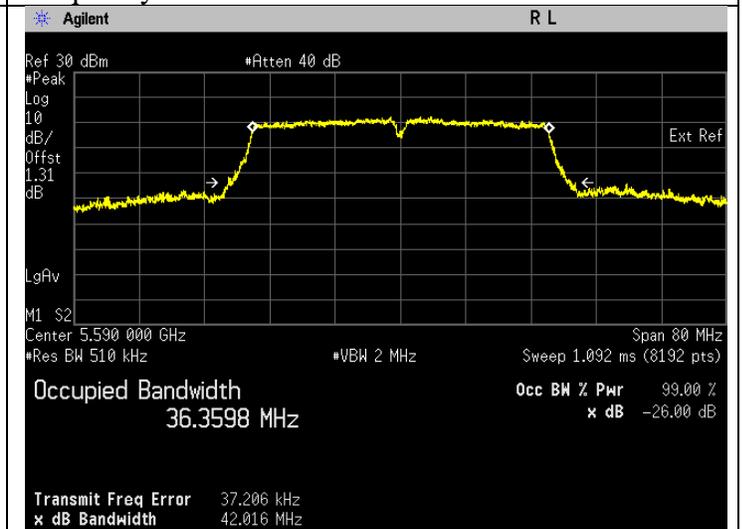
Frequency 5270 MHz



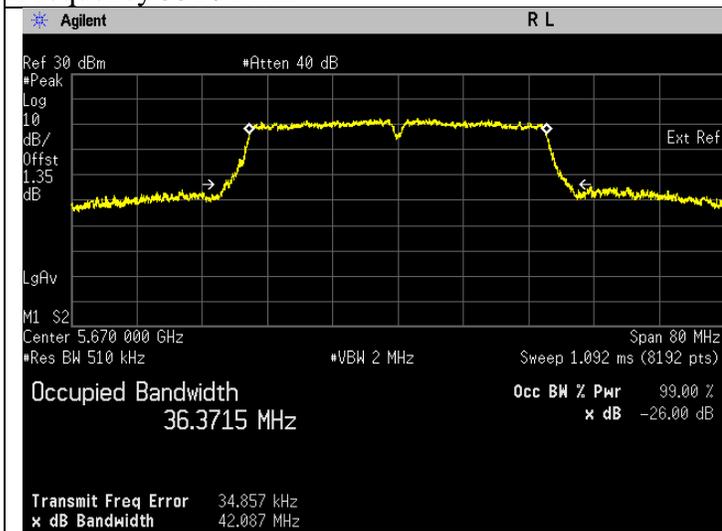
Frequency 5310 MHz



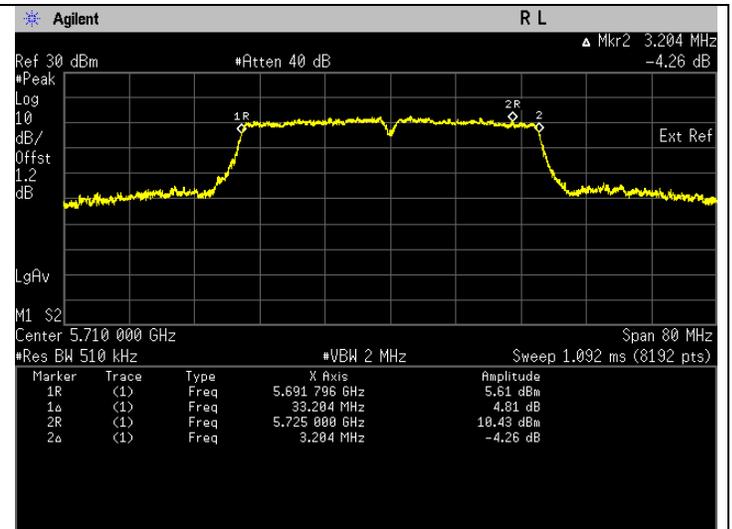
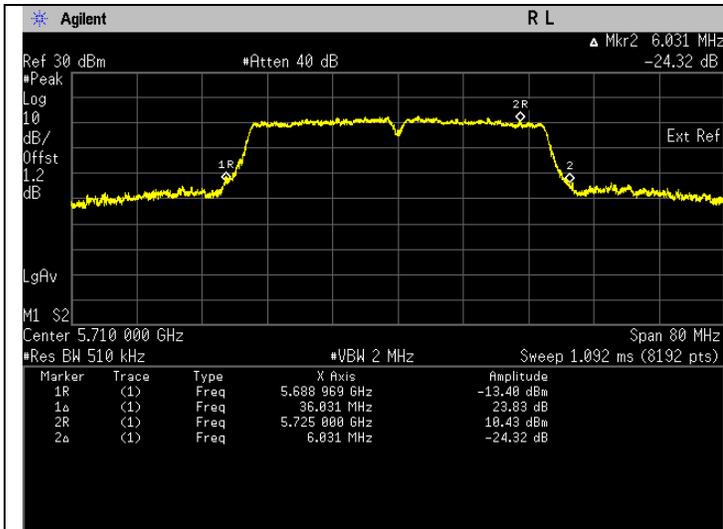
Frequency 5510 MHz



Frequency 5590 MHz

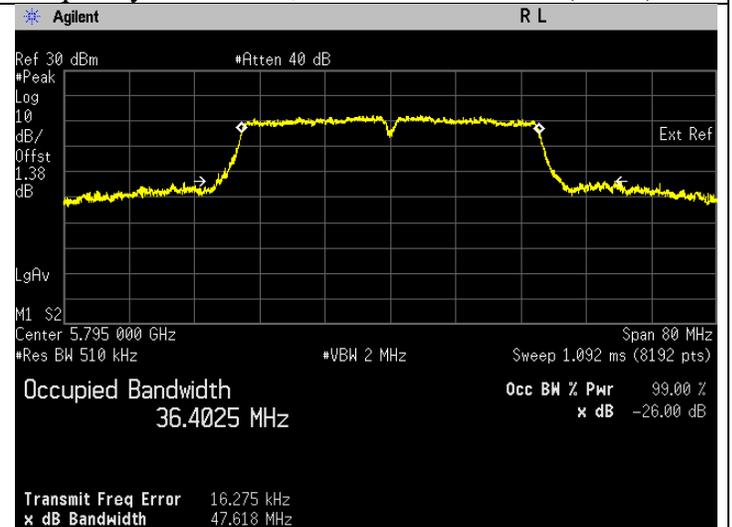
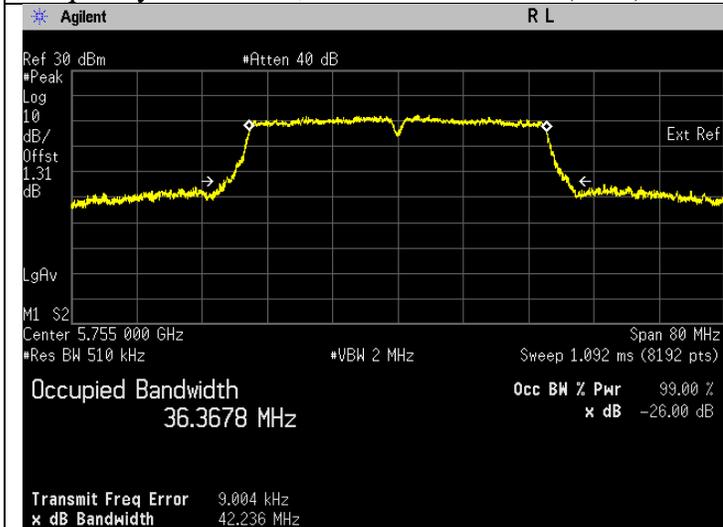


Frequency 5670 MHz



Frequency 5710 MHz, UNII-2C & UNII-3(FCC)

Frequency 5710 MHz, UNII-2C & UNII-3 (ISED)



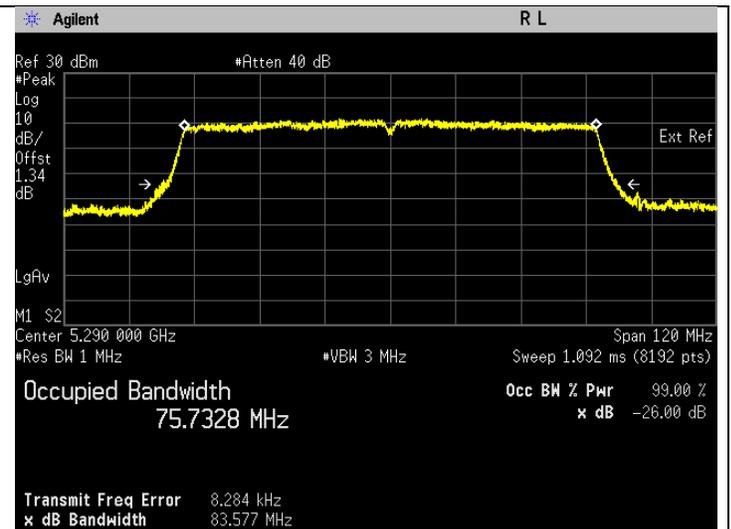
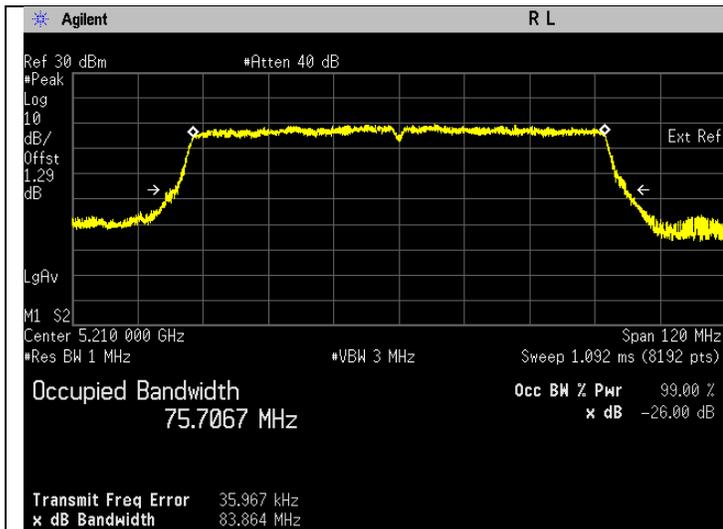
Frequency 5755 MHz

Frequency 5795 MHz

802.11ac (HT80)

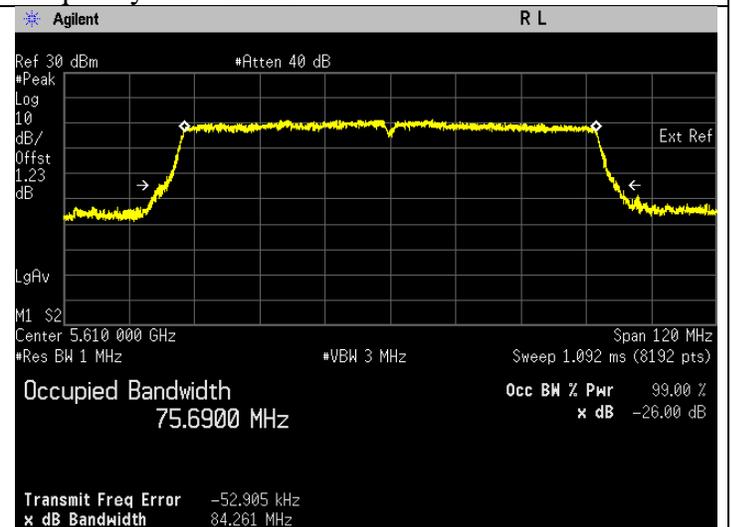
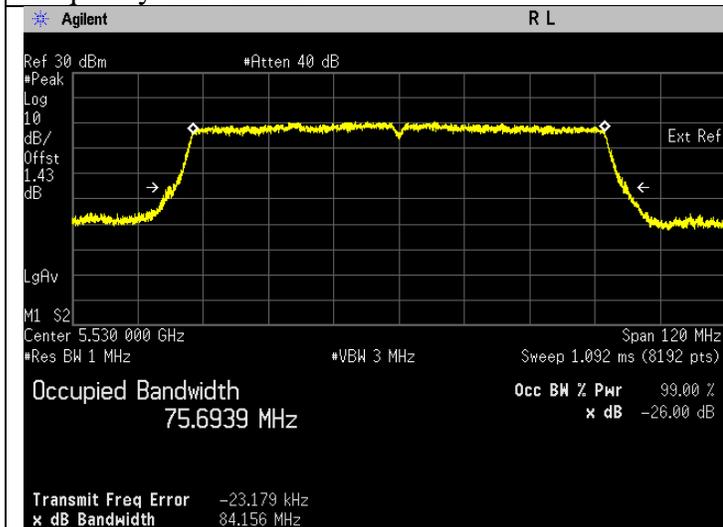
Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5210	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.864	Pass	75.707	Pass
5290	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.577	Pass	75.733	Pass
5530	Mod Type: BPSK, Data Rate: MCS0(29.3)	84.156	Pass	75.694	Pass
5610	Mod Type: BPSK, Data Rate: MCS0(29.3)	84.261	Pass	75.690	Pass
5690	Mod Type: BPSK, Data Rate: MCS0(29.3), UNII-2C	76.982	Pass	72.861	Pass
5690	Mod Type: BPSK, Data Rate: MCS0(29.3), UNII-3	6.982	Pass	2.861	Pass
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	84.124	Pass	75.754	Pass

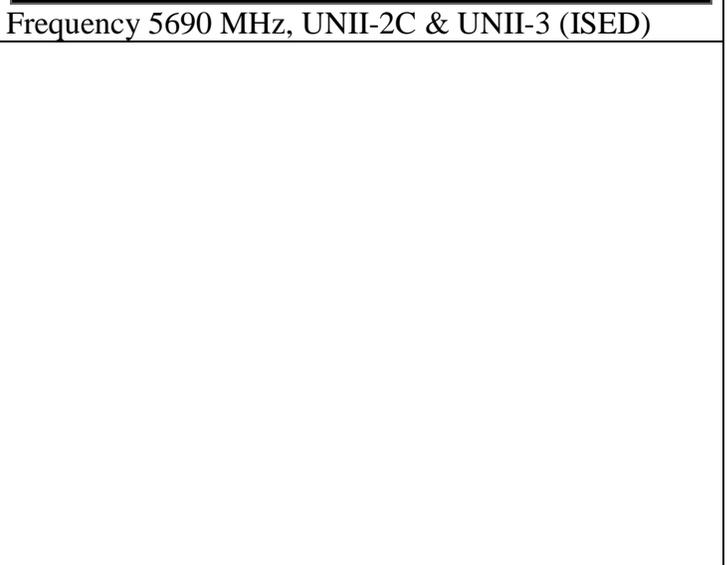
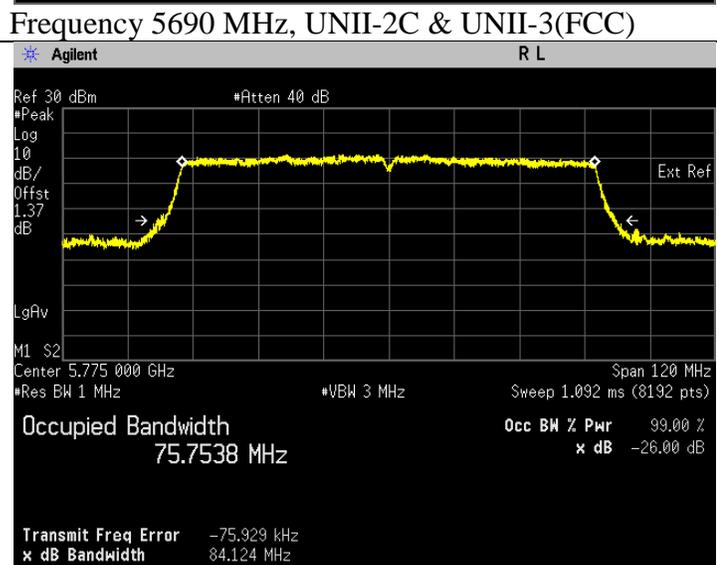
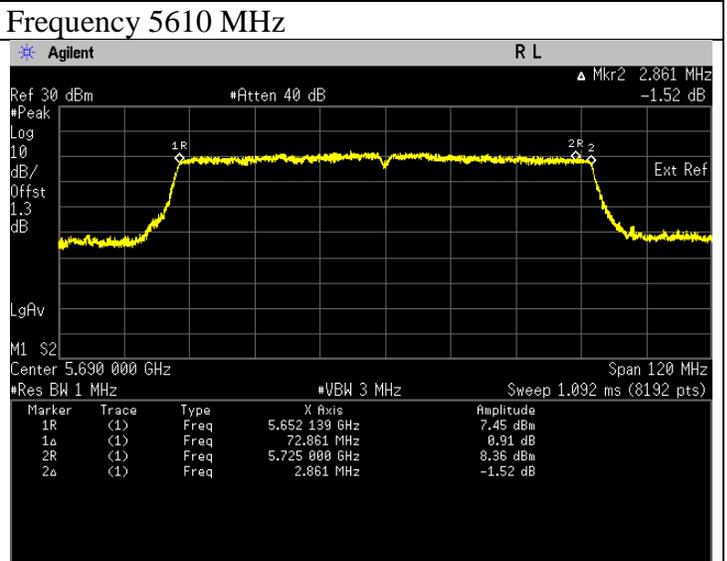
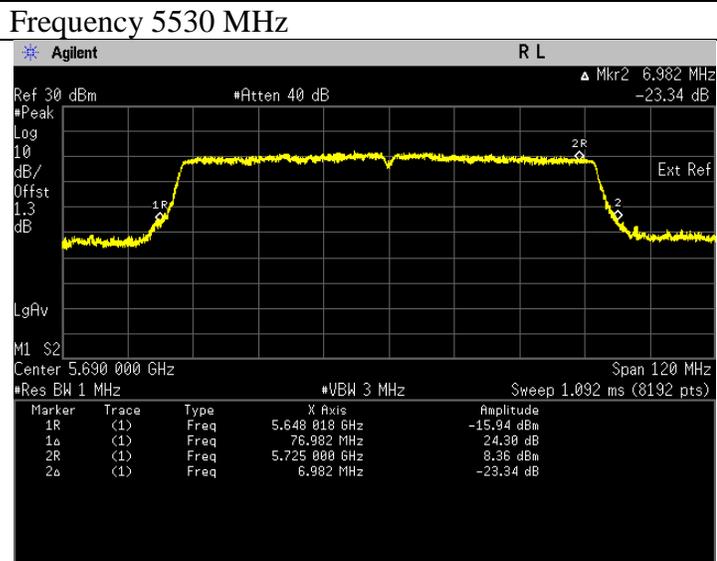
26 dB Bandwidth/ 99% Bandwidth



Frequency 5210 MHz

Frequency 5290 MHz

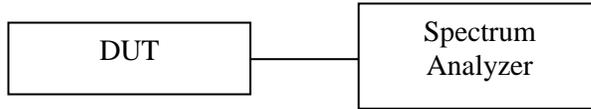




Frequency 5775 MHz

7.2. Maximum Conducted Output Power

7.2.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - Span to encompass the entire 26dB EBW or 99% Occupied Bandwidth.
 - RBW = 1 MHz
 - VBW ≥ 3 MHz
 - Detector = power averaging (RMS)
 - Trace = Max hold
 - Number of points in sweep ≥ 2 × span / RBW
 - Sweep time = auto
 - Trace average at least 100 traces in power averaging (rms) mode
 - Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges.
 - Add 10 log (1/x), where x is the duty cycle, to the measured power to compute the average power during the actual transmission times
- e) The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause E.2.d) Method SA-2.
- f) The Maximum output power results are included duty cycle correction factor.

7.2.2. Test Limits

FCC 15.407(a)

Range(GHz)	Condition	Output Power Limit
5.15-5.25 (UNII-1)		Outdoor AP
		Indoor AP
		Fixed Point to Point AP
	√	Mobile and Portable client devices
5.25-5.35 (UNII-2A)	√	≤250mW or 11dBm+10log ₁₀ B*
5.47-5.525 (UNII-2C)	√	*B is 26dB emission bandwidth in MHz
5.725-5.85 (UNII-3)	√	≤1W

RSS-247 6.2

Range(GHz)	Condition	Output Power Limit
5.15-5.25	indoor only (e.i.r.p.)	$\leq 200\text{mW}$ or $10+10\log_{10}B^*$ *B is 99% emission bandwidth in 1MHz
5.25-5.35	(Conducted & e.i.r.p.)	Conducted: $\leq 250\text{mW}$ or $11+10\log_{10}B^*$ EIRP: $< 1.0\text{W}$ or $17+10\log_{10}B^*$ *B is 99% emission bandwidth in 1MHz
5.47-5.6 5.65-5.725	(Conducted & e.i.r.p.)	Conducted: $\leq 250\text{mW}$ or $11+10\log_{10}B^*$ EIRP: $< 1.0\text{W}$ or $17+10\log_{10}B^*$ *B is 99% emission bandwidth in 1MHz
5.725-5.85	(Conducted)	$\leq 1\text{W}$

7.2.3. Additional Info

Antenna	Gain (dBi)
5180	2.8
5500	4.0
5850	1.9
Duty Cycle Correction Factor	
802.11a	0.077
802.11n20	0.078
802.11n40	0.158
802.11ac80	0.316

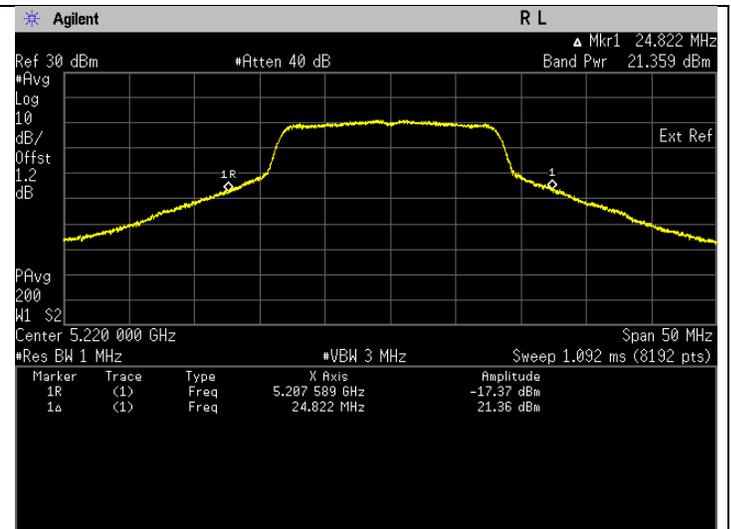
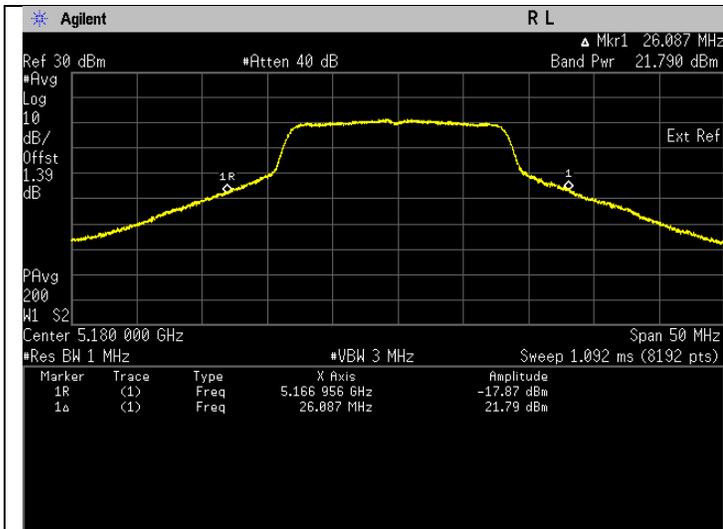
7.2.4. Test Data

Summary table

WLAN	Frequency Range (MHz)	Bandwidth (MHz)	RF Power Output		EIRP		Max Emission Designator
			Max measured (mW)	Max declared (mW)	Max measured (mW)	Max declared (mW)	
802.11a	5180-5240	20	150.28	158.49	286.35	302.00	16M9D1D
	5260-5320	20	143.95	158.49	274.28	302.00	17M0D1D
	5500-5580	20	133.29	158.49	334.81	398.11	16M9D1D
	5660-5720	20	97.21	158.49	244.17	398.11	16M9D1D
	5745-5825	20	135.11	158.49	209.27	245.47	17M1D1D
802.11n/ac	5180-5240	20	143.32	158.49	273.09	302.00	18M1D1D
	5260-5320	20	139.09	158.49	265.03	302.00	18M1D1D
	5500-5580	20	126.91	158.49	318.79	398.11	18M0D1D
	5660-5720	20	98.42	158.49	247.23	398.11	18M1D1D
	5745-5825	20	131.61	158.49	203.84	245.47	18M1D1D
802.11n/ac	5190-5230	40	144.05	158.49	274.47	302.00	36M4D1D
	5270-5310	40	154.38	158.49	294.17	302.00	36M4D1D
	5510-5550	40	79.23	158.49	199.02	398.11	36M3D1D
	5670-5710	40	140.83	158.49	353.75	398.11	36M4D1D
	5755-5795	40	138.26	158.49	214.14	245.47	36M4D1D
802.11ac	5210	80	64.15	125.89	122.24	239.88	75M7D1D
	5290	80	106.22	125.89	202.40	239.88	75M7D1D
	5530	80	82.11	125.89	206.25	316.23	75M7D1D
	5690	80	101.62	125.89	255.27	316.23	75M7D1D
	5775	80	97.77	125.89	151.43	194.98	75M8D1D

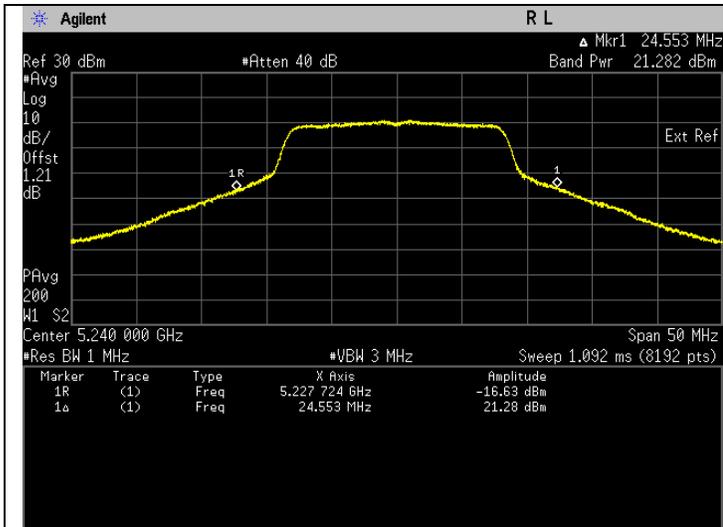
802.11a (26dB EBW)

Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5180	Mod Type: BPSK, Data Rate: 6	153.709	21.867	Pass
5220	Mod Type: BPSK, Data Rate: 6	139.187	21.436	Pass
5240	Mod Type: BPSK, Data Rate: 6	136.741	21.359	Pass
5260	Mod Type: BPSK, Data Rate: 6	144.611	21.602	Pass
5300	Mod Type: BPSK, Data Rate: 6	146.825	21.668	Pass
5320	Mod Type: BPSK, Data Rate: 6	141.189	21.498	Pass
5500	Mod Type: BPSK, Data Rate: 6	130.768	21.165	Pass
5580	Mod Type: BPSK, Data Rate: 6	137.057	21.369	Pass
5700	Mod Type: BPSK, Data Rate: 6	99.289	19.969	Pass
5745	Mod Type: BPSK, Data Rate: 6	136.616	21.355	Pass
5785	Mod Type: BPSK, Data Rate: 6	131.674	21.195	Pass
5825	Mod Type: BPSK, Data Rate: 6	131.462	21.188	Pass

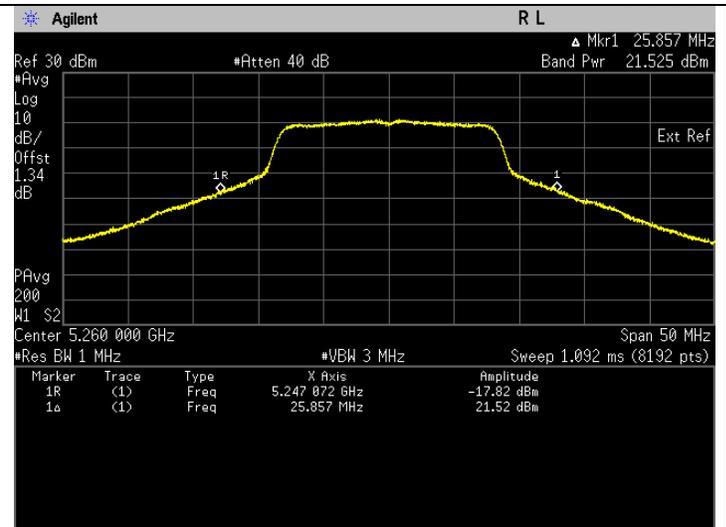


Frequency 5180 MHz, FCC.

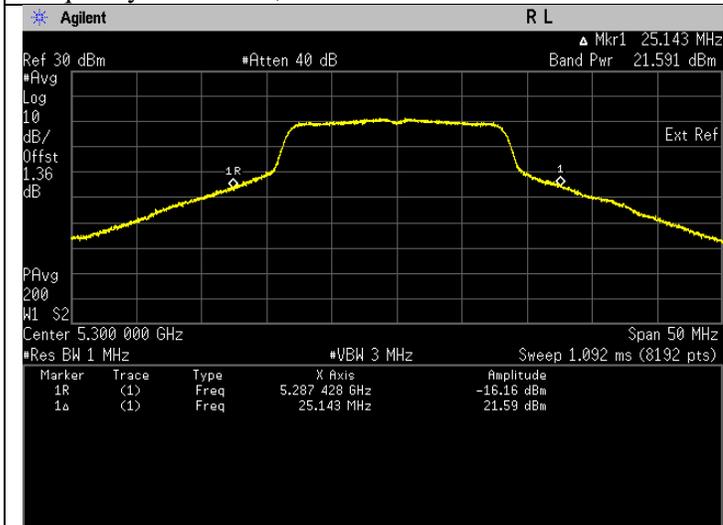
Frequency 5220 MHz, FCC.



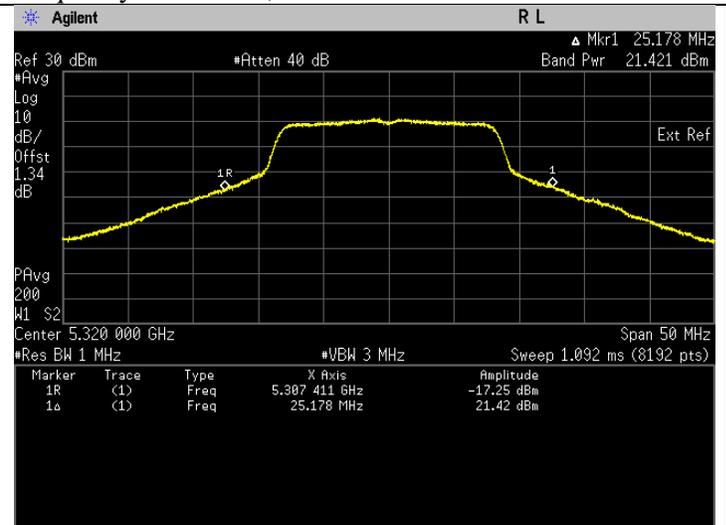
Frequency 5240 MHz, FCC.



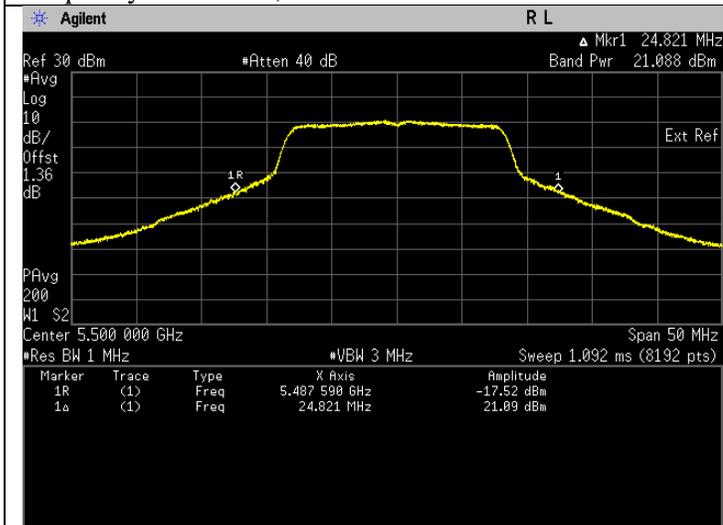
Frequency 5260 MHz, FCC.



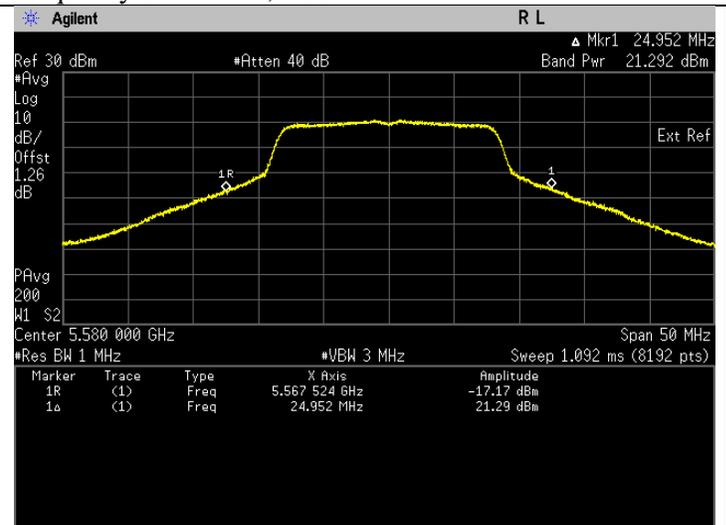
Frequency 5300 MHz, FCC.



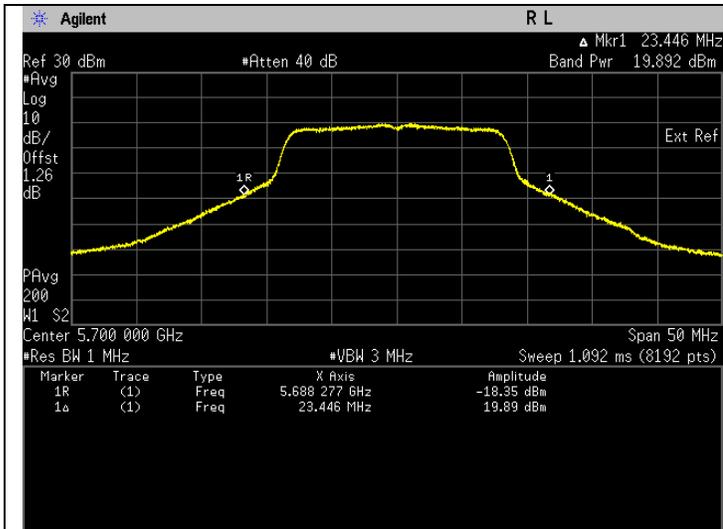
Frequency 5320 MHz, FCC.



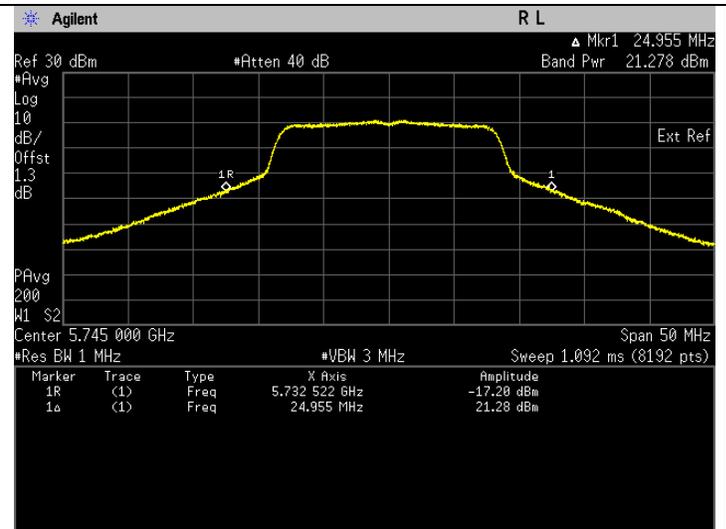
Frequency 5500 MHz, FCC.



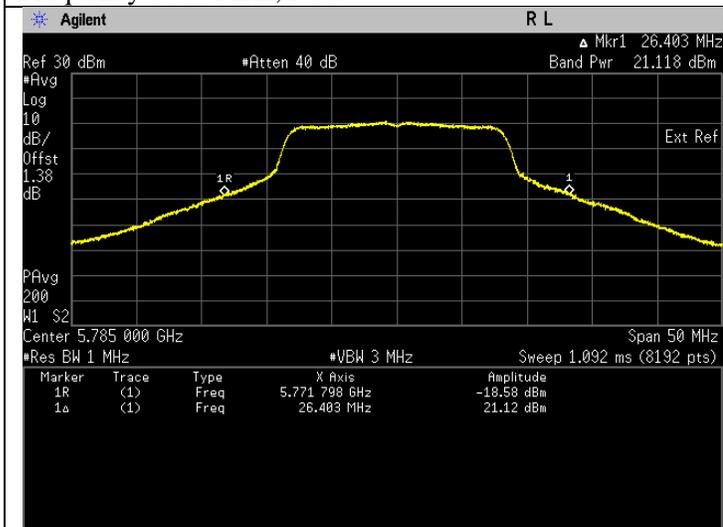
Frequency 5580 MHz, FCC.



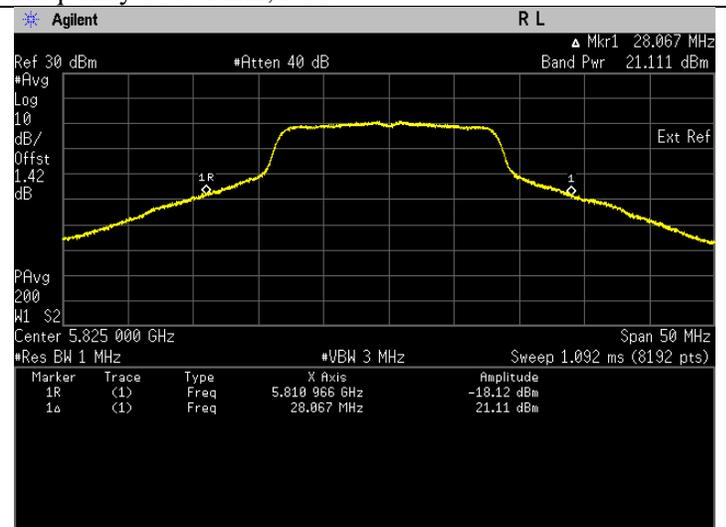
Frequency 5700 MHz, FCC.



Frequency 5745 MHz, FCC.



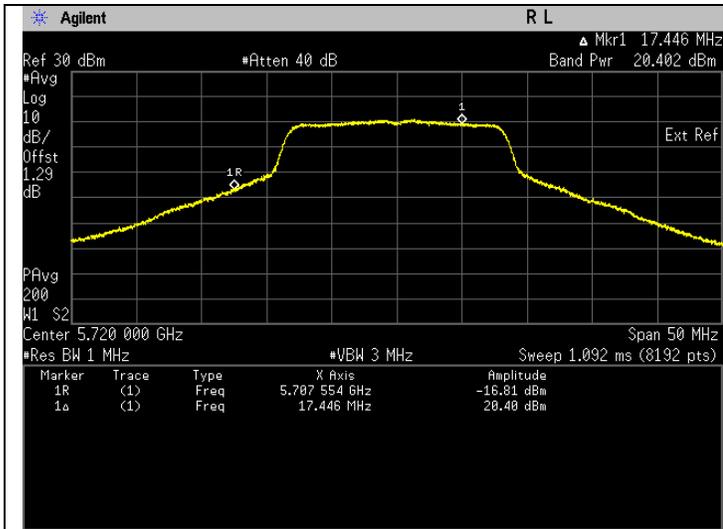
Frequency 5785 MHz, FCC.



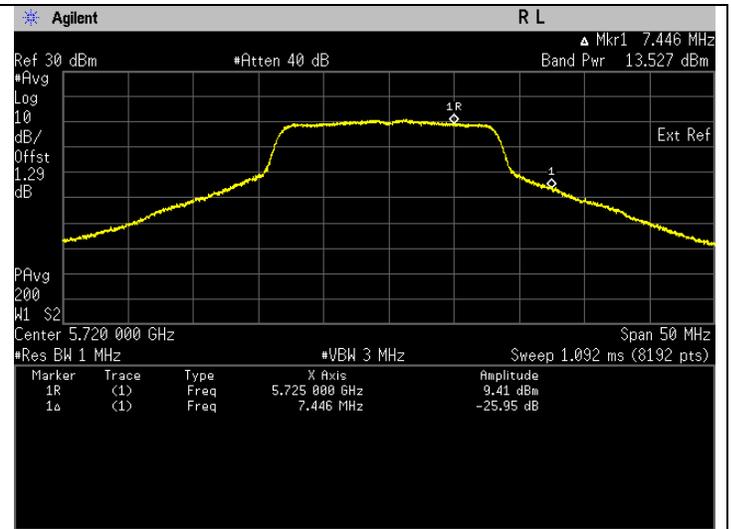
Frequency 5825 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5720	Mod Type: BPSK, Data Rate: 6	111.661	20.479	Pass
		U-NII-3		
5720	Mod Type: BPSK, Data Rate: 6	22.930	13.604	Pass



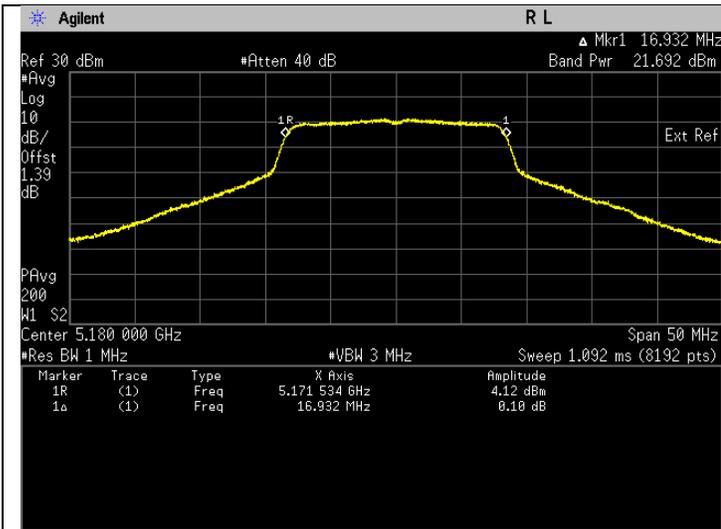
Frequency 5720 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



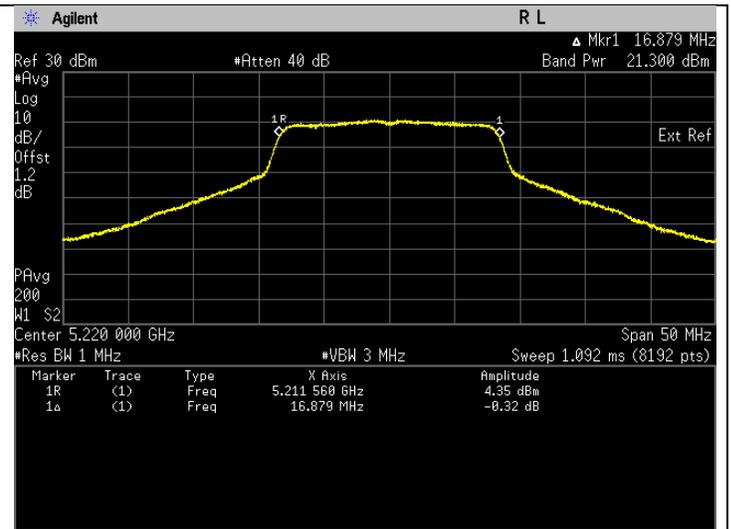
Frequency 5720 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11a (99% EBW)

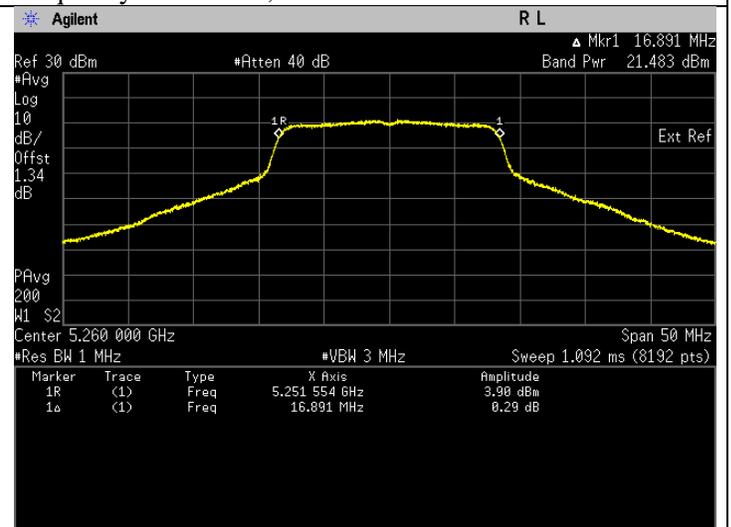
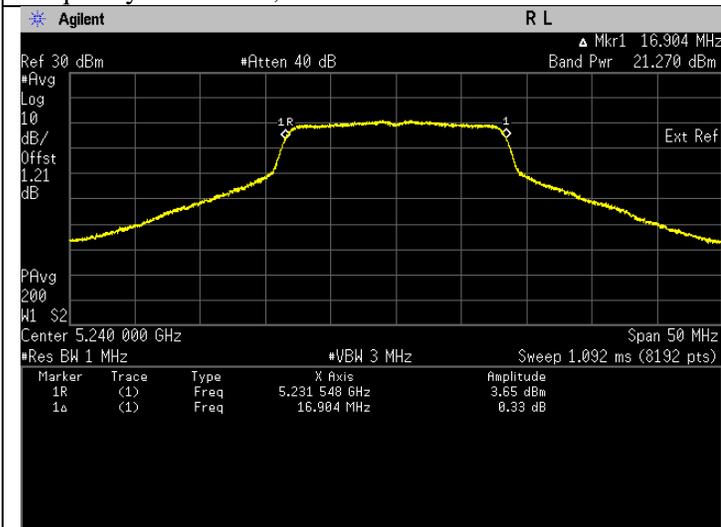
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5180	Mod Type: BPSK, Data Rate: 6	150.280	21.769	Pass	24.569	Pass
5220	Mod Type: BPSK, Data Rate: 6	137.309	21.377	Pass	24.177	Pass
5240	Mod Type: BPSK, Data Rate: 6	136.364	21.347	Pass	24.147	Pass
5260	Mod Type: BPSK, Data Rate: 6	143.219	21.560	Pass	24.360	Pass
5300	Mod Type: BPSK, Data Rate: 6	143.946	21.582	Pass	24.382	Pass
5320	Mod Type: BPSK, Data Rate: 6	138.931	21.428	Pass	24.228	Pass
5500	Mod Type: BPSK, Data Rate: 6	129.122	21.110	Pass	25.110	Pass
5580	Mod Type: BPSK, Data Rate: 6	133.291	21.248	Pass	25.248	Pass
5700	Mod Type: BPSK, Data Rate: 6	97.208	19.877	Pass	23.877	Pass
5745	Mod Type: BPSK, Data Rate: 6	135.114	21.307	Pass	23.207	Pass
5785	Mod Type: BPSK, Data Rate: 6	130.227	21.147	Pass	23.047	Pass
5825	Mod Type: BPSK, Data Rate: 6	129.837	21.134	Pass	23.034	Pass

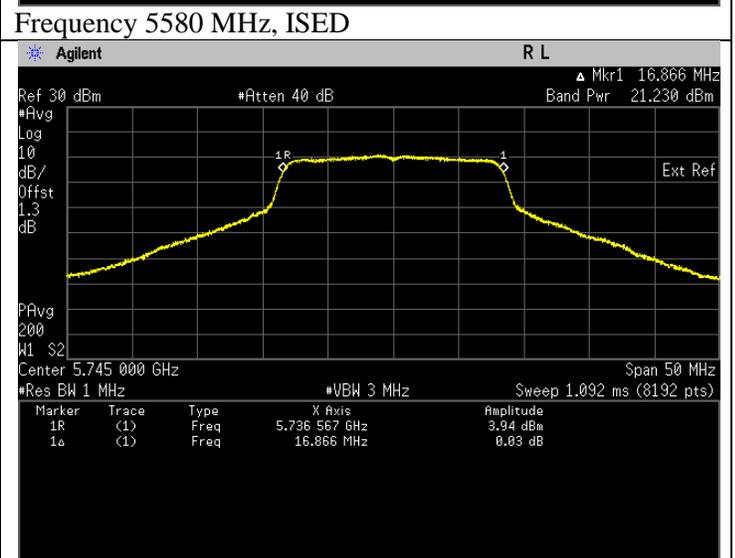
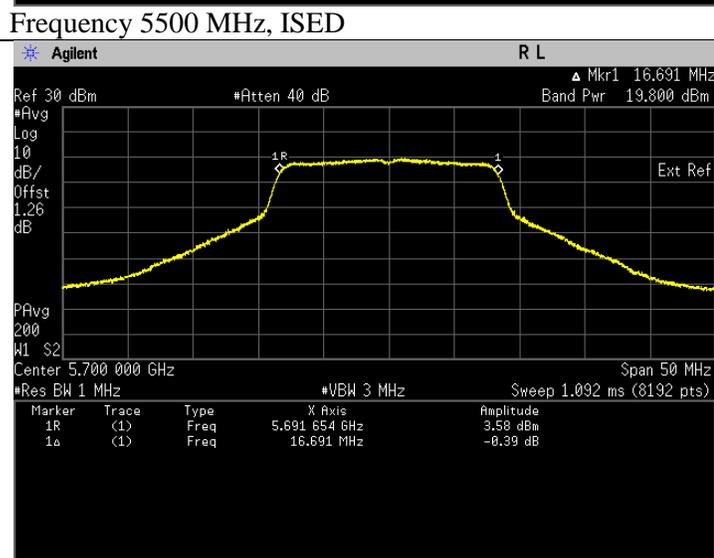
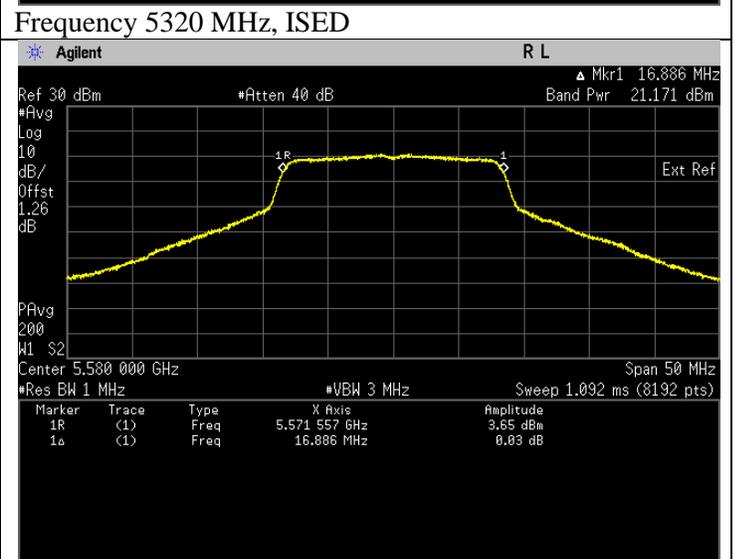
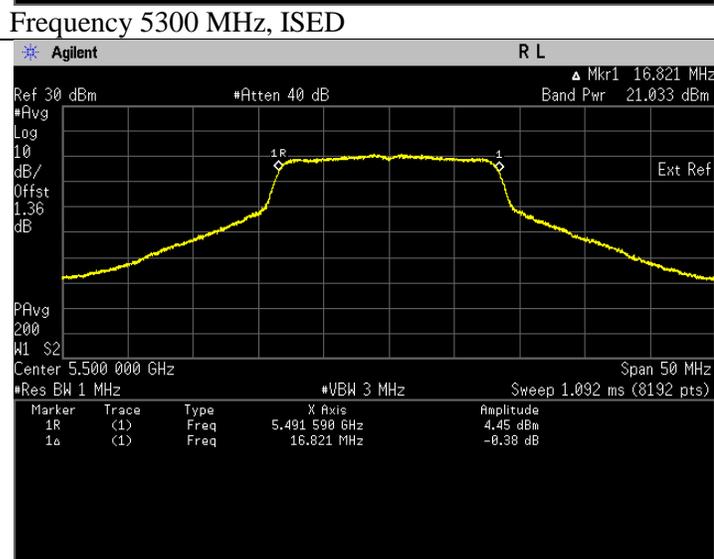
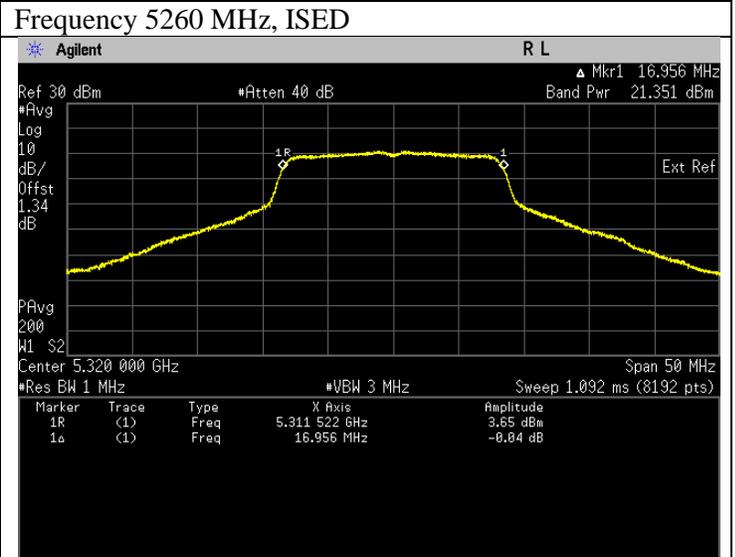
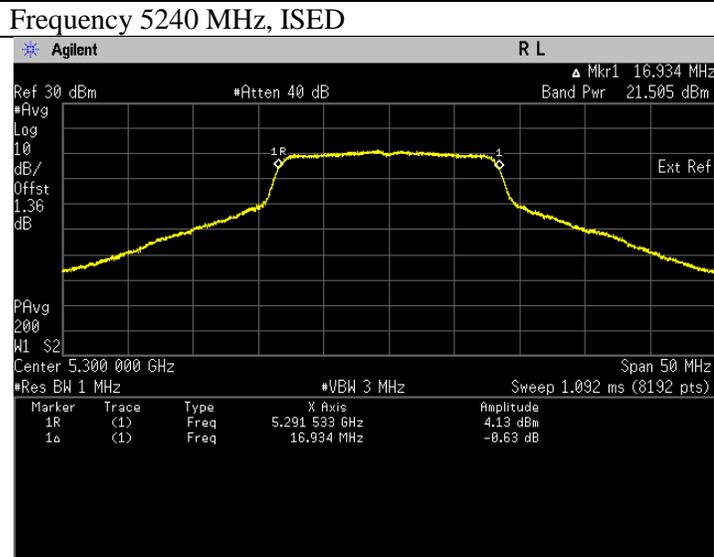


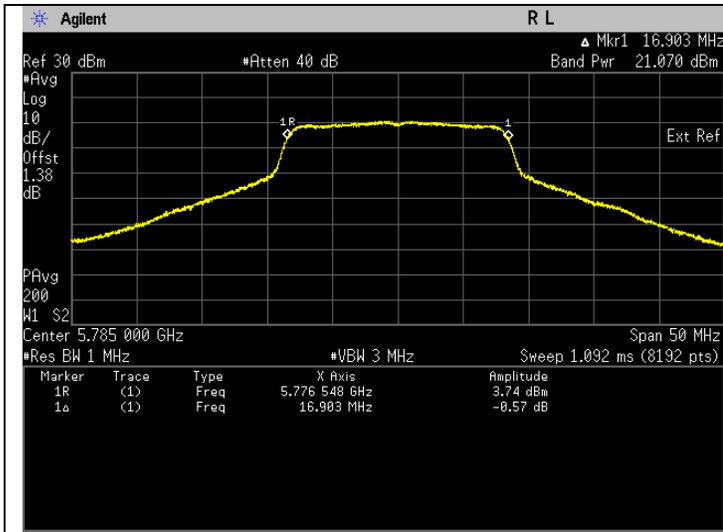
Frequency 5180 MHz, ISED



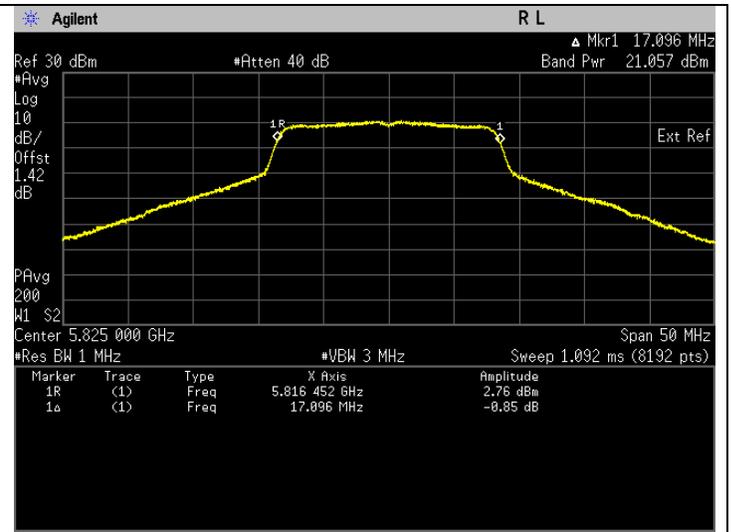
Frequency 5220 MHz, ISED







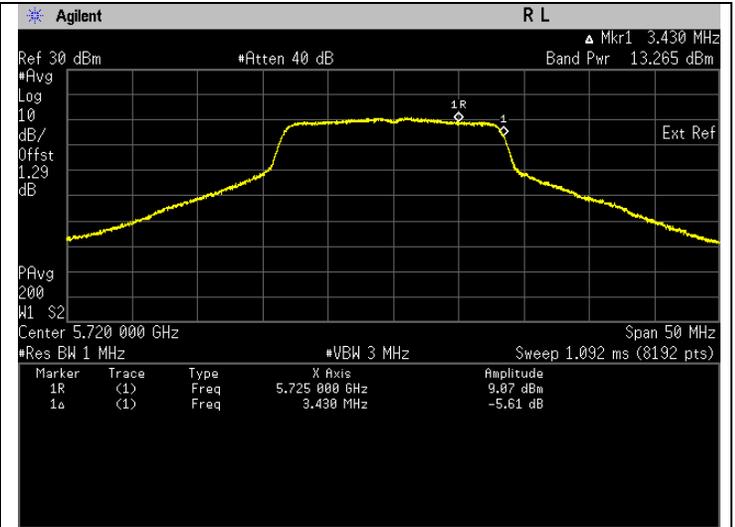
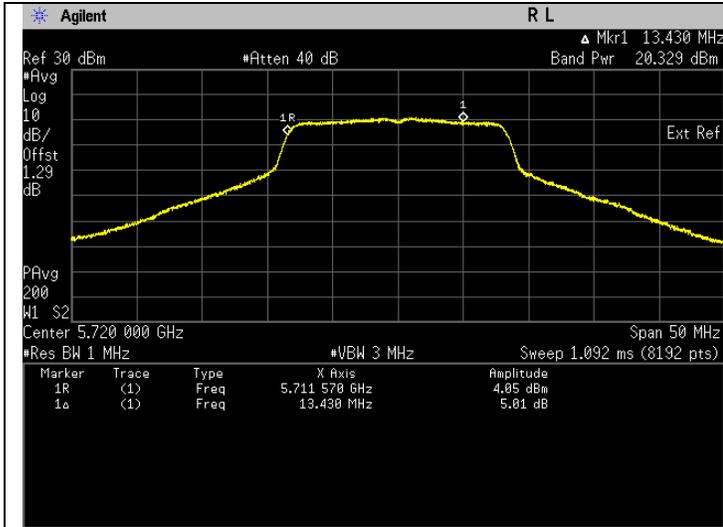
Frequency 5785 MHz, ISED



Frequency 5825 MHz, ISED

Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5720	Mod Type: BPSK, Data Rate: 6	109.799	20.406	Pass	24.406	Pass
		U-NII-3				
5720	Mod Type: BPSK, Data Rate: 6	21.587	13.342	Pass	17.342	Pass

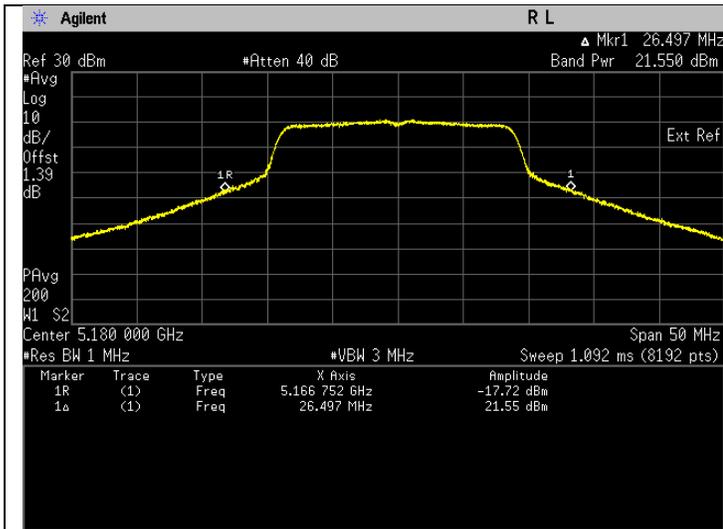


Frequency 5720 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.

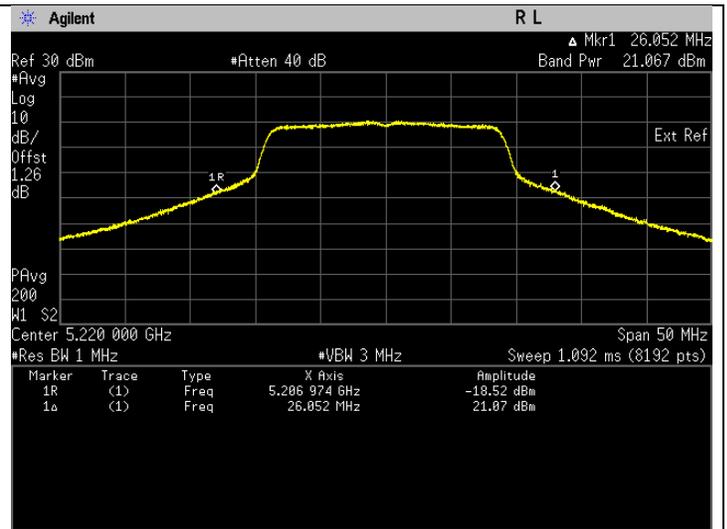
Frequency 5720 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT20)(26dB EBW)

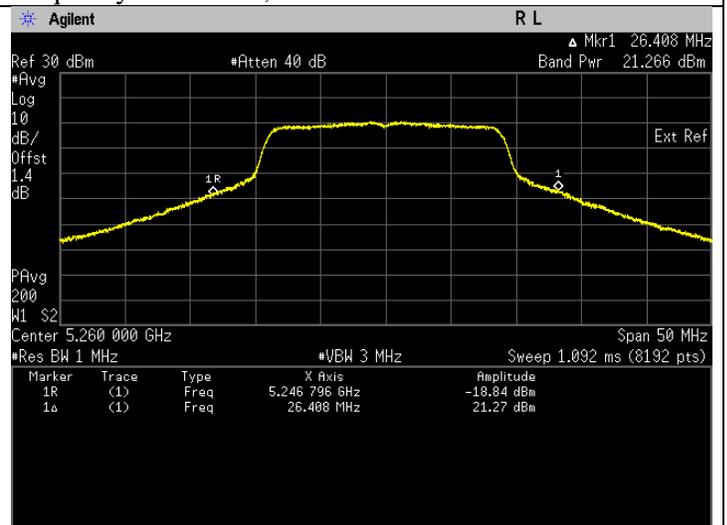
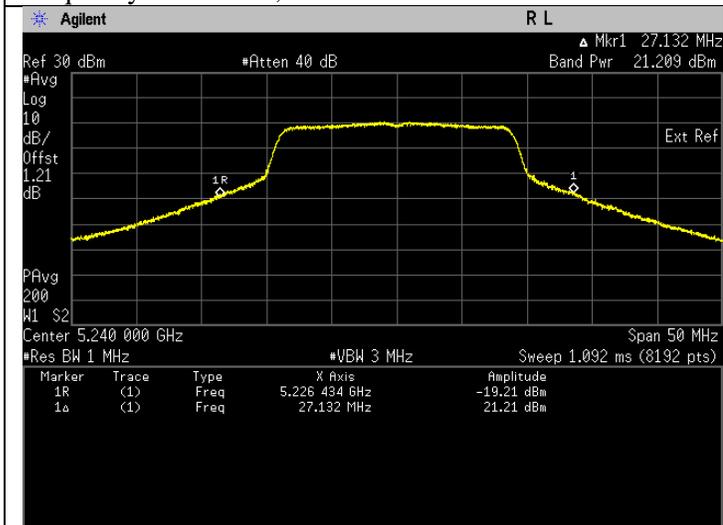
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	145.479	21.628	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	130.167	21.145	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	134.493	21.287	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	136.270	21.344	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	140.994	21.492	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	133.321	21.249	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	125.980	21.003	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	129.122	21.110	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	99.243	19.967	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	133.260	21.247	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	127.204	21.045	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	134.927	21.301	Pass

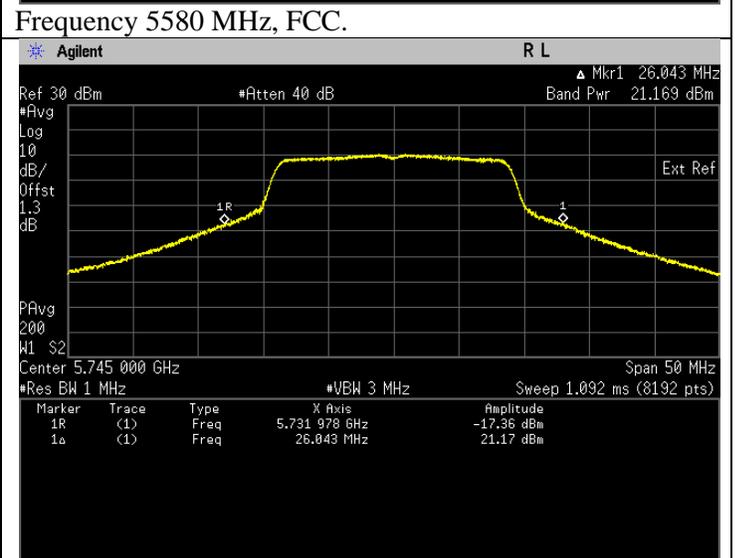
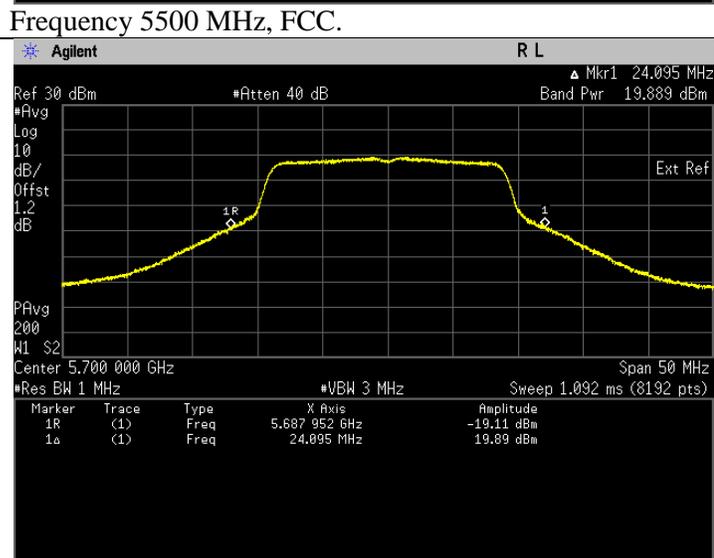
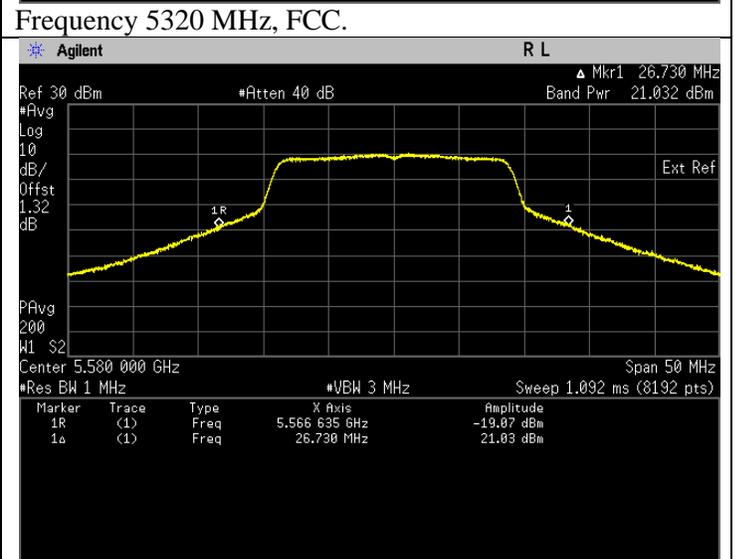
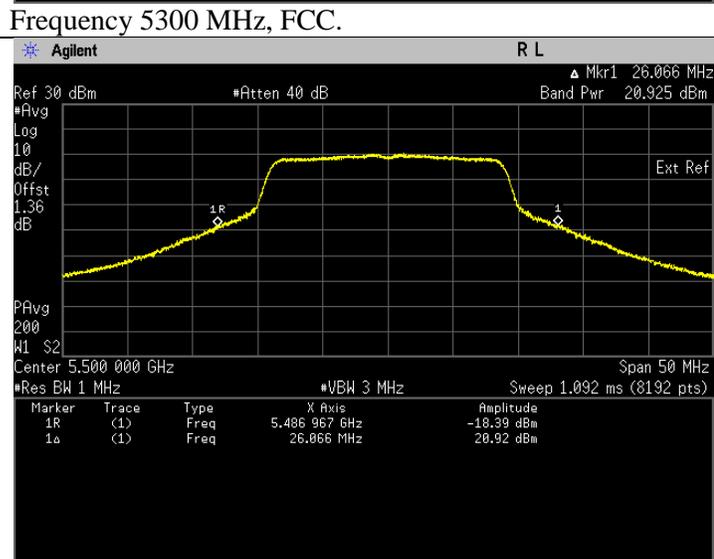
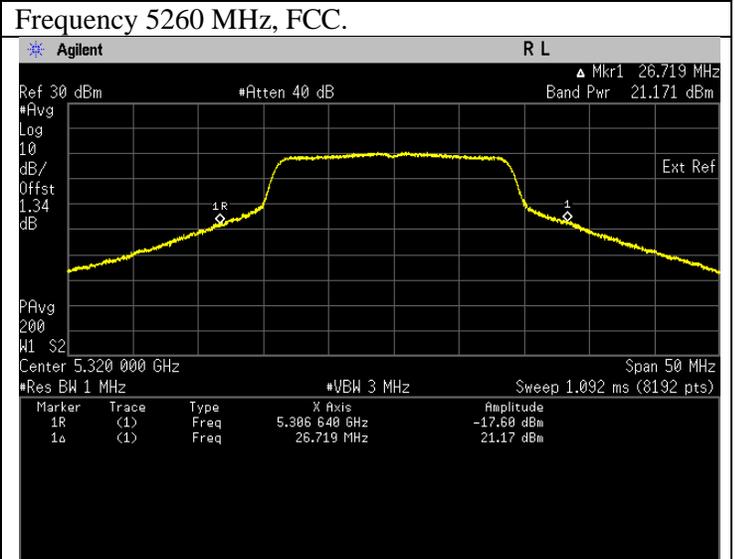
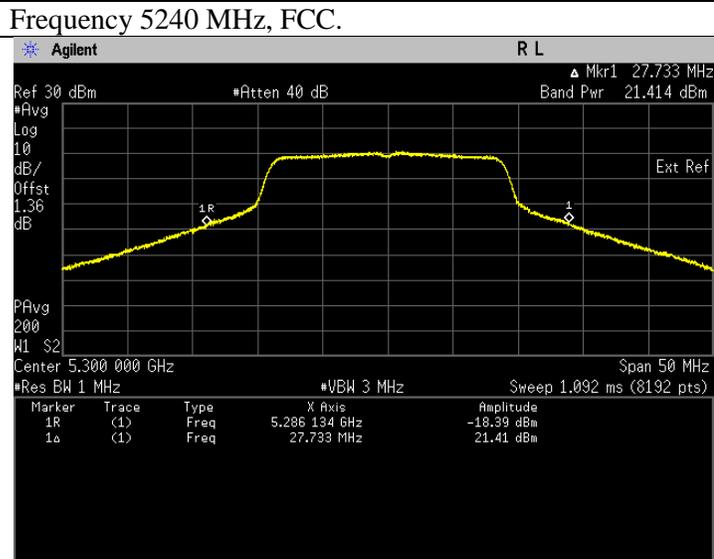


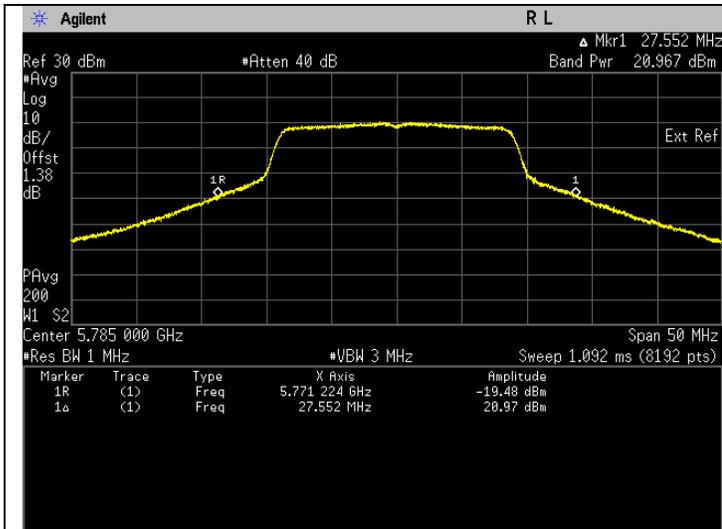
Frequency 5180 MHz, FCC.



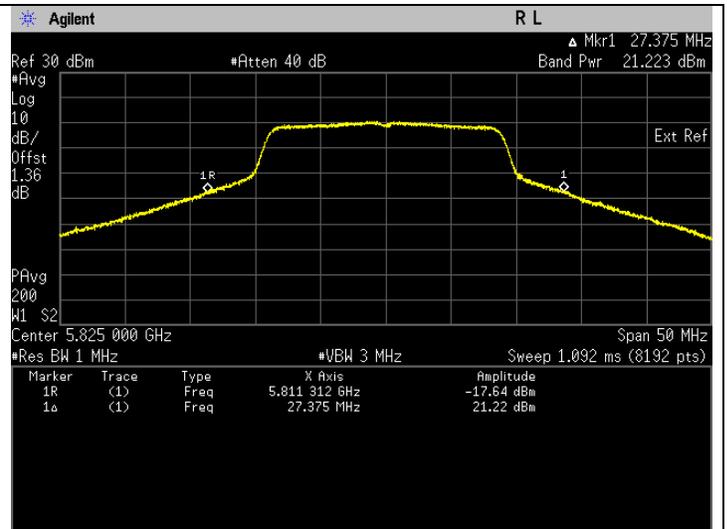
Frequency 5220 MHz, FCC.







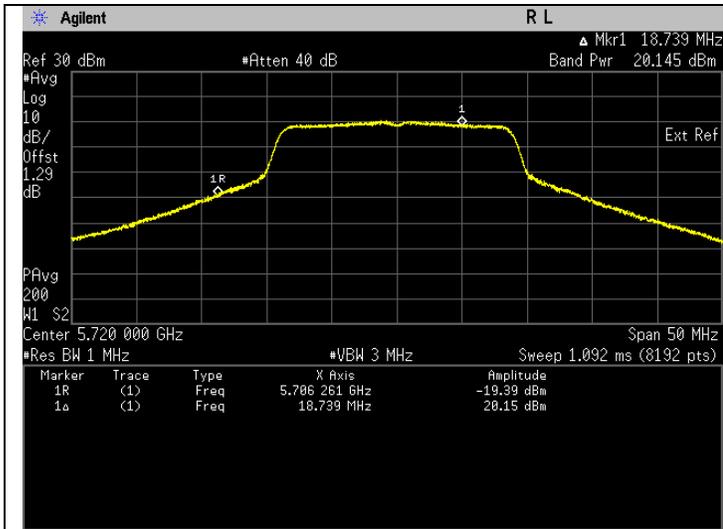
Frequency 5785 MHz, FCC.



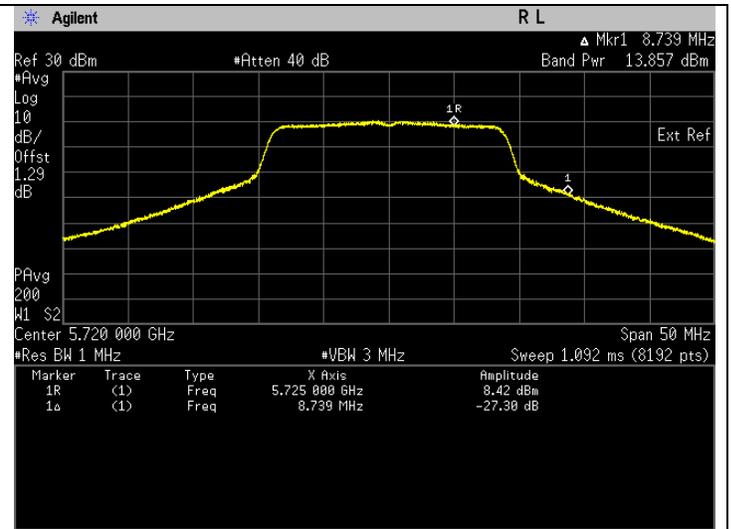
Frequency 5825 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	105.269	20.223	Pass
		U-NII-3		
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	24.746	13.935	Pass



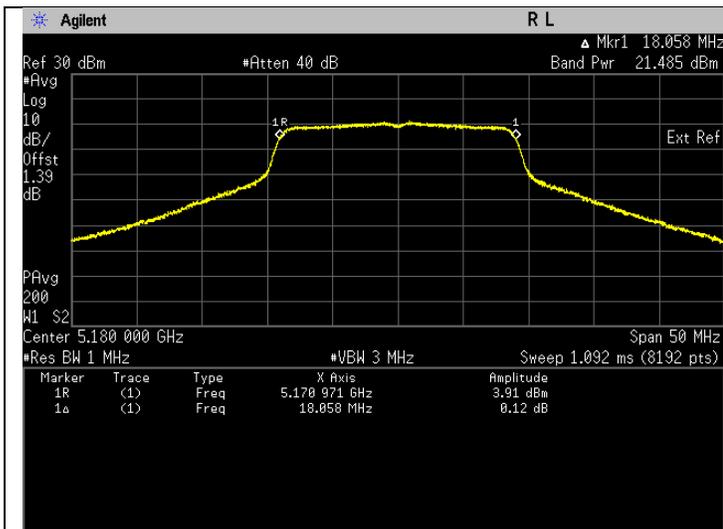
Frequency 5720 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



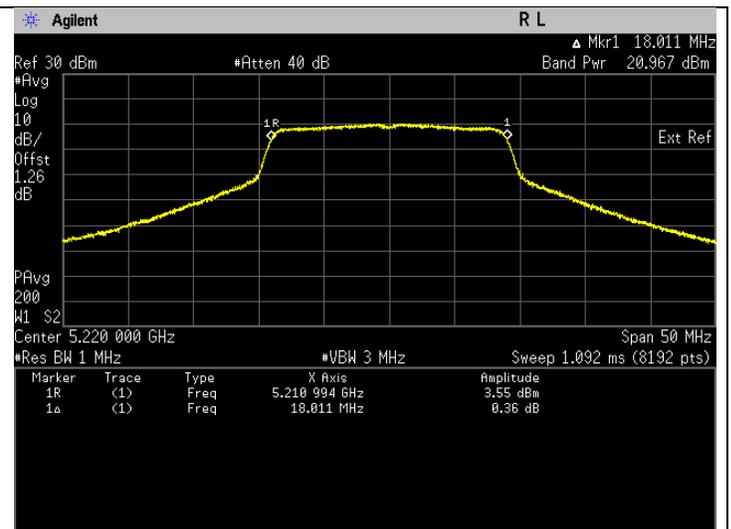
Frequency 5720 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT20)(99% EBW)

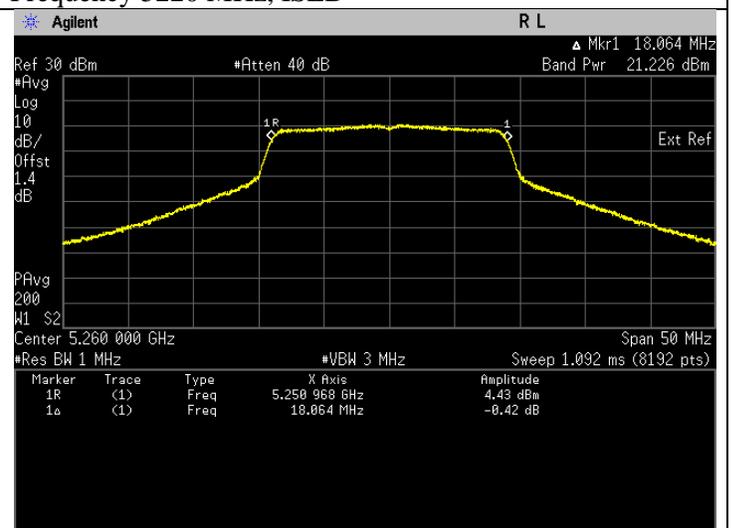
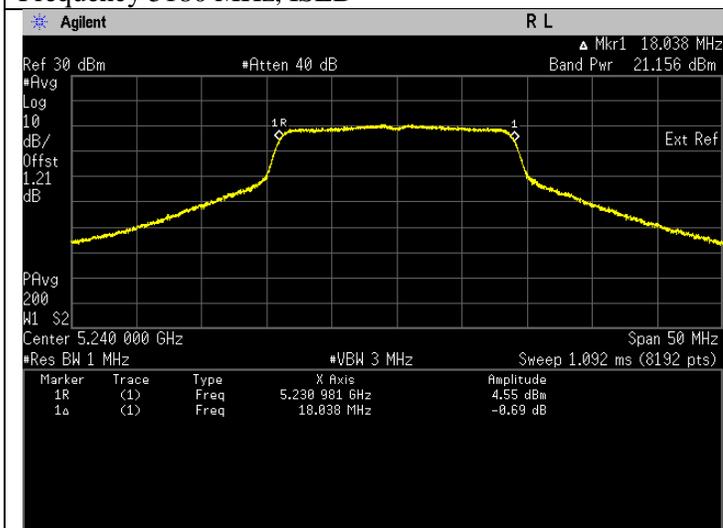
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	143.318	21.563	Pass	24.363	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	127.204	21.045	Pass	23.845	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	132.862	21.234	Pass	24.034	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	135.021	21.304	Pass	24.104	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	139.091	21.433	Pass	24.233	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	131.220	21.180	Pass	23.980	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	122.829	20.893	Pass	24.893	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	126.911	21.035	Pass	25.035	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	98.424	19.931	Pass	23.931	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	131.462	21.188	Pass	23.088	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	124.796	20.962	Pass	22.862	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	131.613	21.193	Pass	23.093	Pass

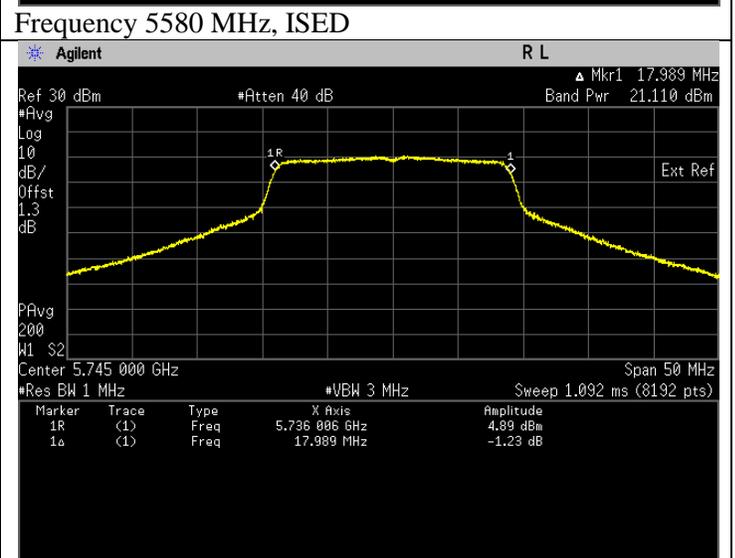
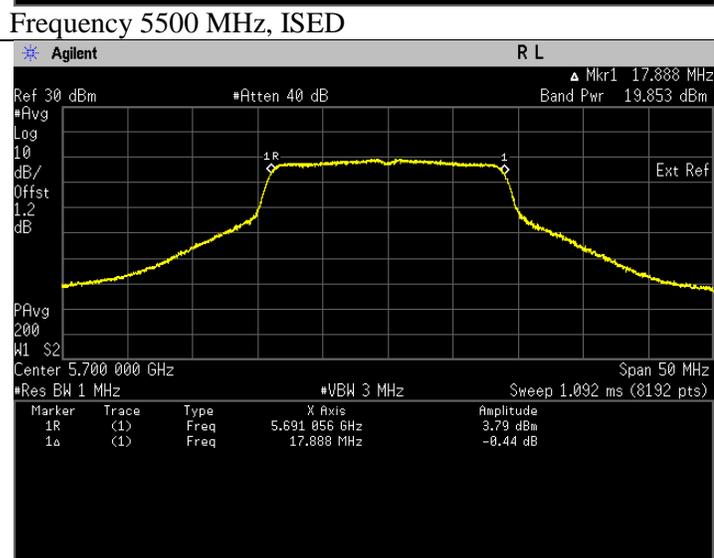
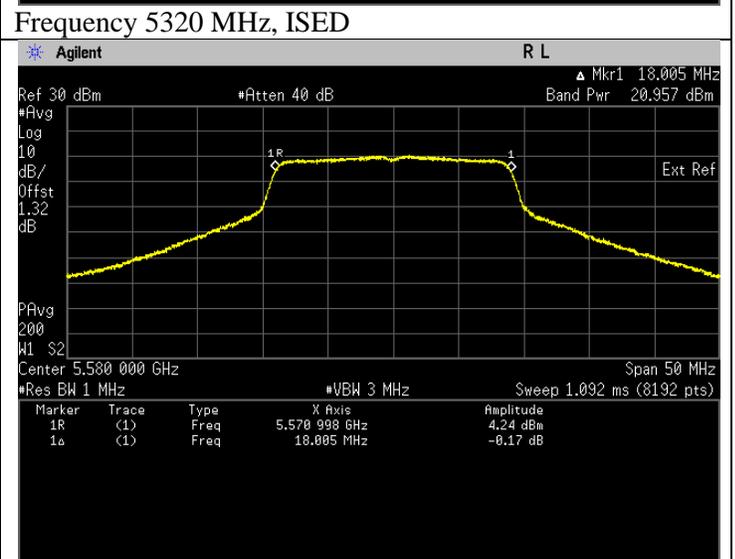
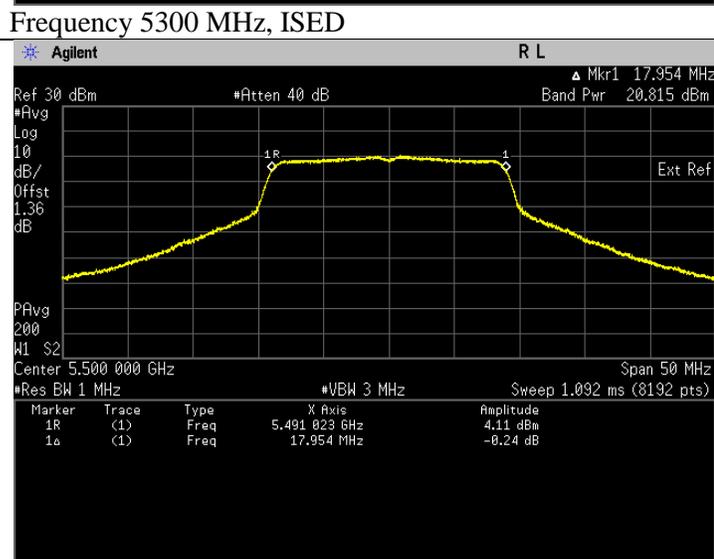
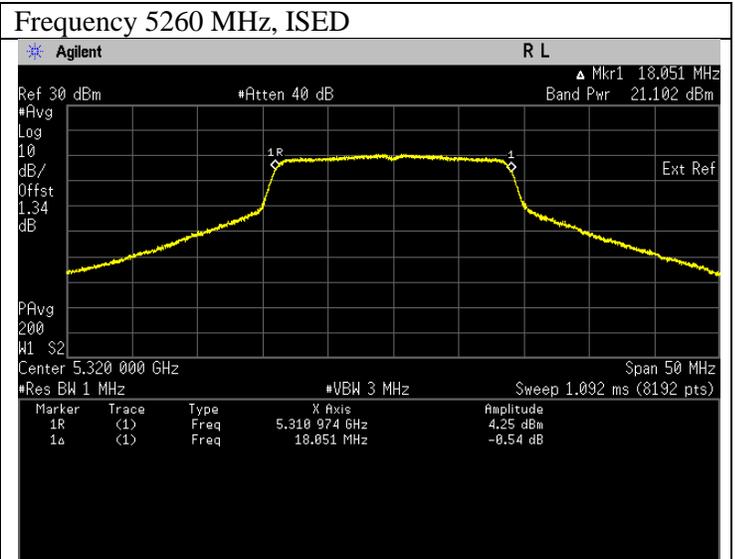
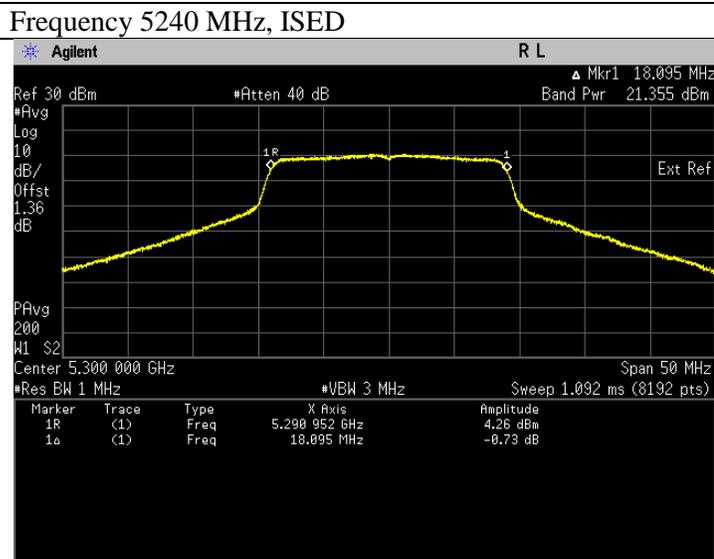


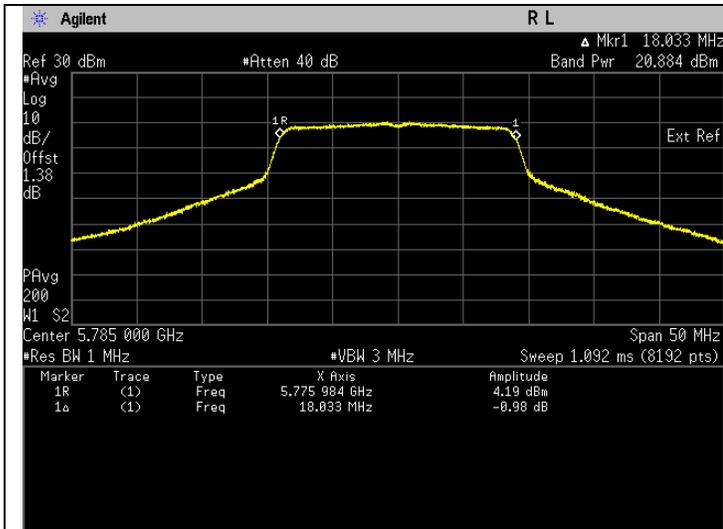
Frequency 5180 MHz, ISED



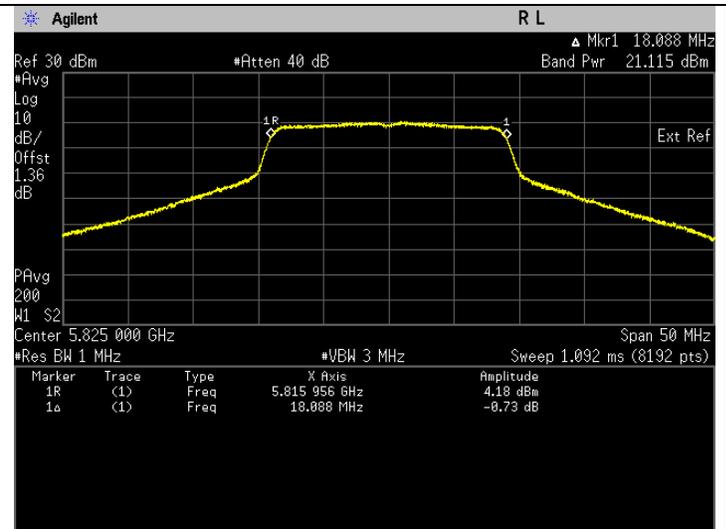
Frequency 5220 MHz, ISED







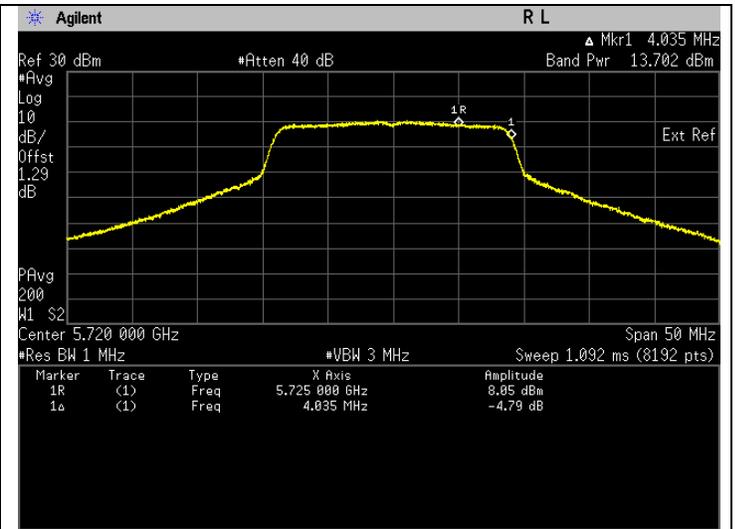
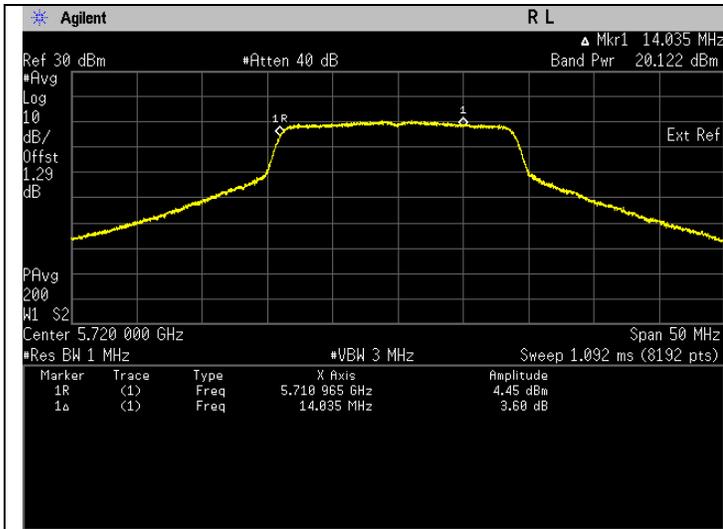
Frequency 5785 MHz, ISED



Frequency 5825 MHz, ISED

Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	104.713	20.200	Pass	24.200	Pass
		U-NII-3				
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.878	13.780	Pass	17.780	Pass

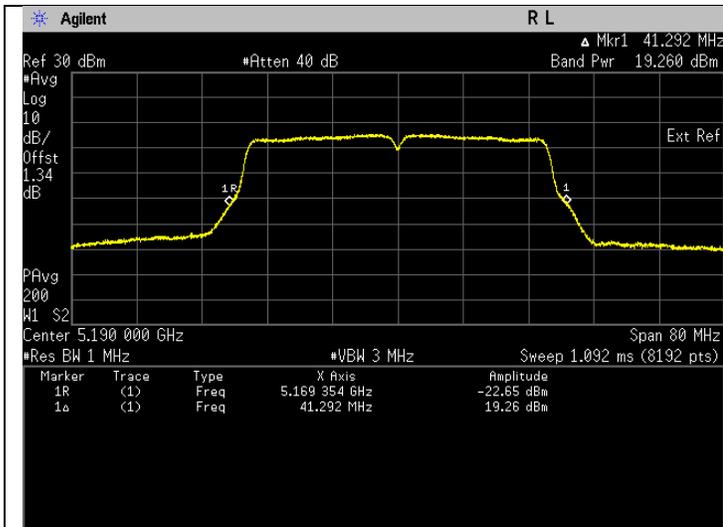


Frequency 5720 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.

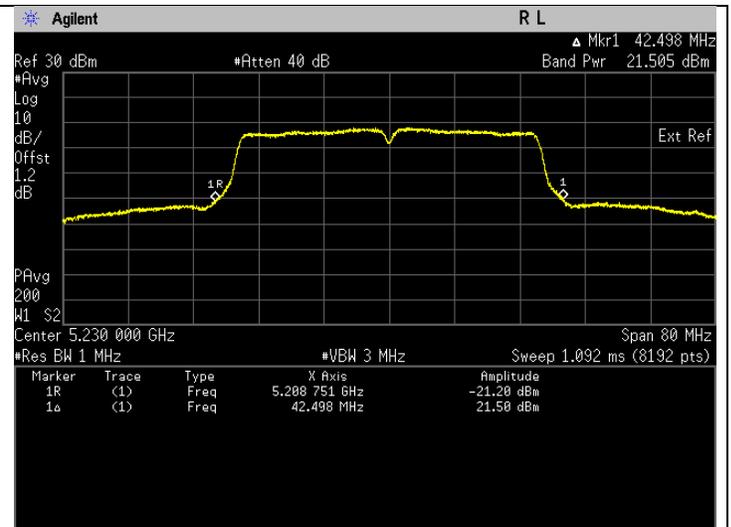
Frequency 5720 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT40)(26dB EBW)

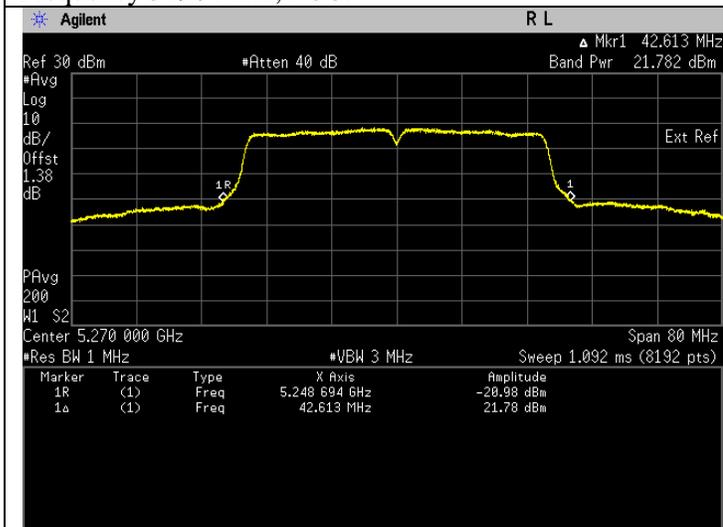
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5190	Mod Type: BPSK, Data Rate: MCS0 (13.5)	87.458	19.418	Pass
5230	Mod Type: BPSK, Data Rate: MCS0 (13.5)	146.656	21.663	Pass
5270	Mod Type: BPSK, Data Rate: MCS0 (13.5)	156.315	21.940	Pass
5310	Mod Type: BPSK, Data Rate: MCS0 (13.5)	125.285	20.979	Pass
5510	Mod Type: BPSK, Data Rate: MCS0 (13.5)	81.096	19.090	Pass
5590	Mod Type: BPSK, Data Rate: MCS0 (13.5)	138.229	21.406	Pass
5670	Mod Type: BPSK, Data Rate: MCS0 (13.5)	141.579	21.510	Pass
5755	Mod Type: BPSK, Data Rate: MCS0 (13.5)	139.027	21.431	Pass
5795	Mod Type: BPSK, Data Rate: MCS0 (13.5)	140.443	21.475	Pass



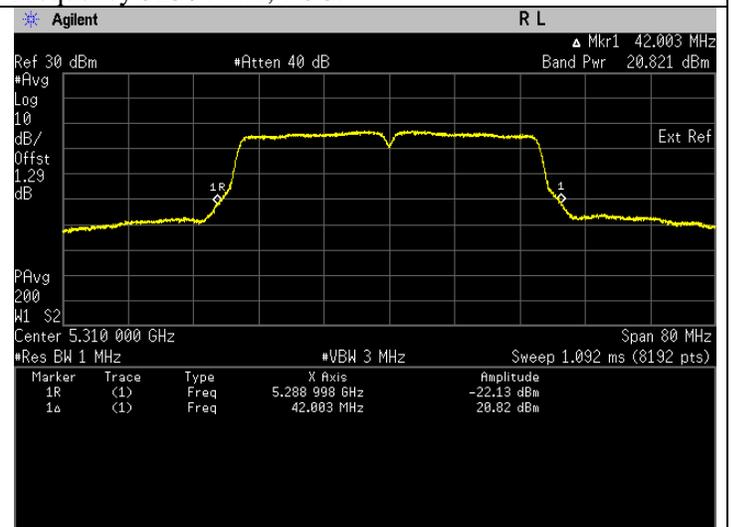
Frequency 5190 MHz, FCC.



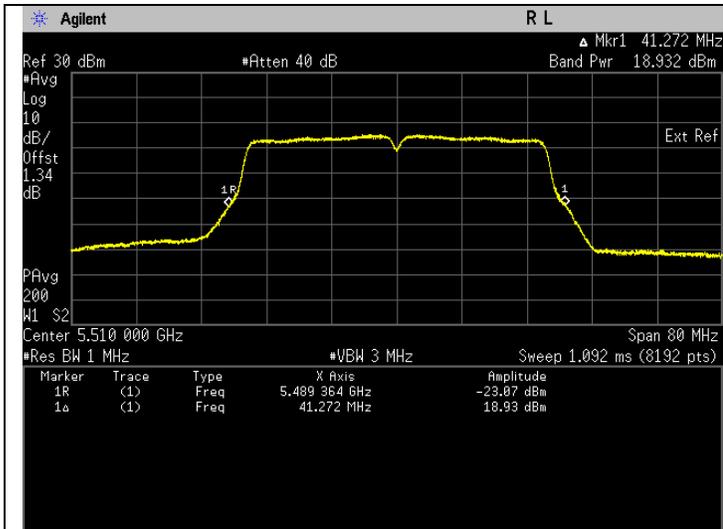
Frequency 5230 MHz, FCC.



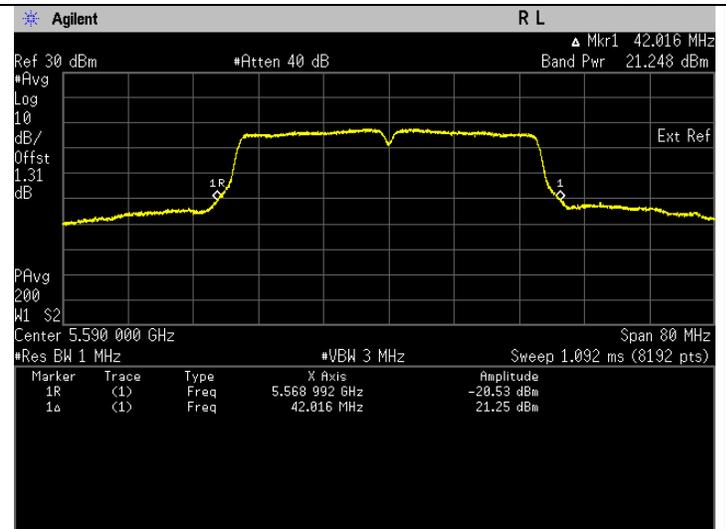
Frequency 5270 MHz, FCC.



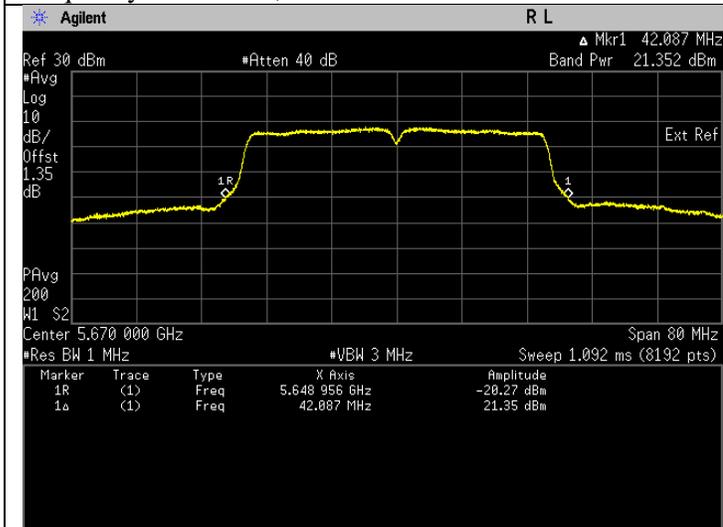
Frequency 5310 MHz, FCC.



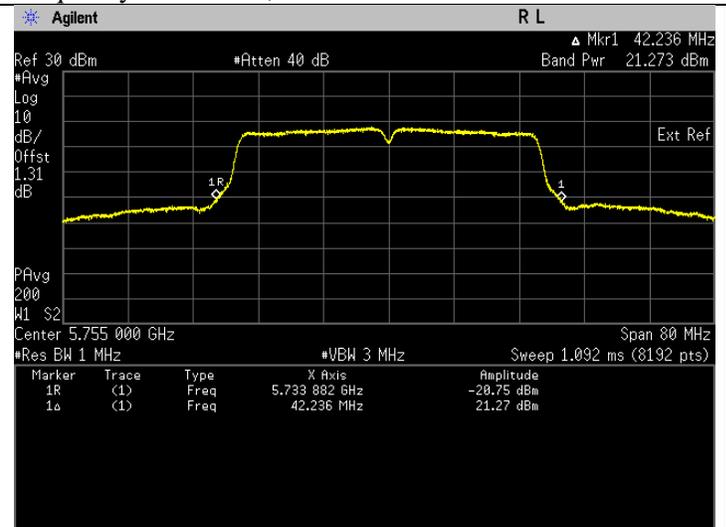
Frequency 5510 MHz, FCC.



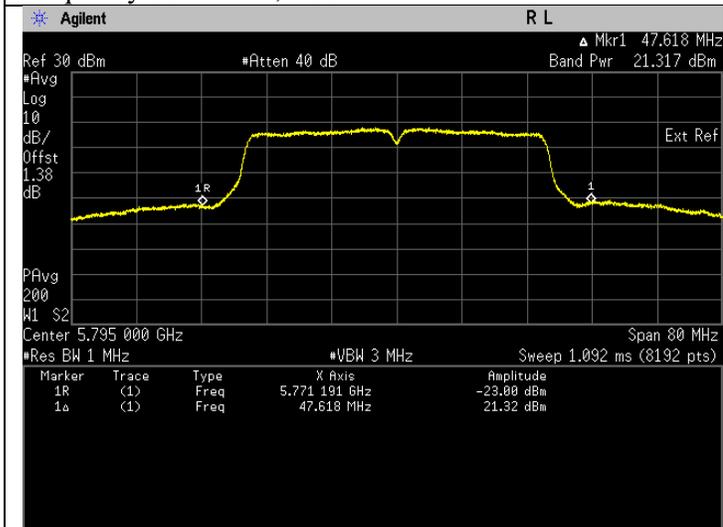
Frequency 5590 MHz, FCC.



Frequency 5670 MHz, FCC.



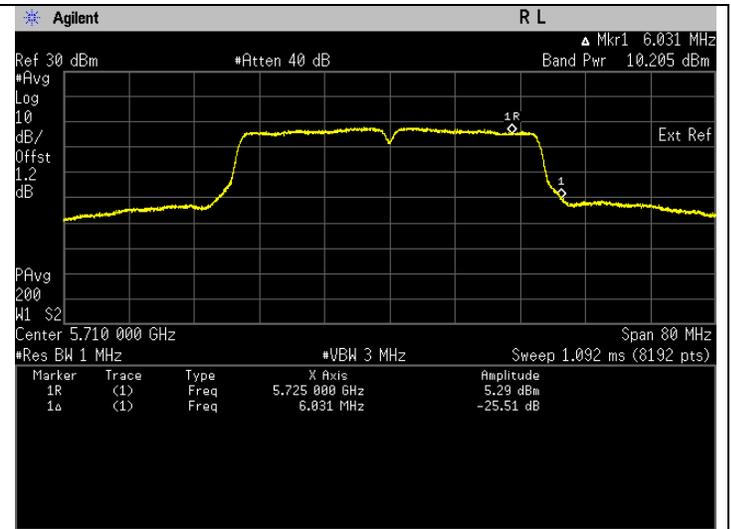
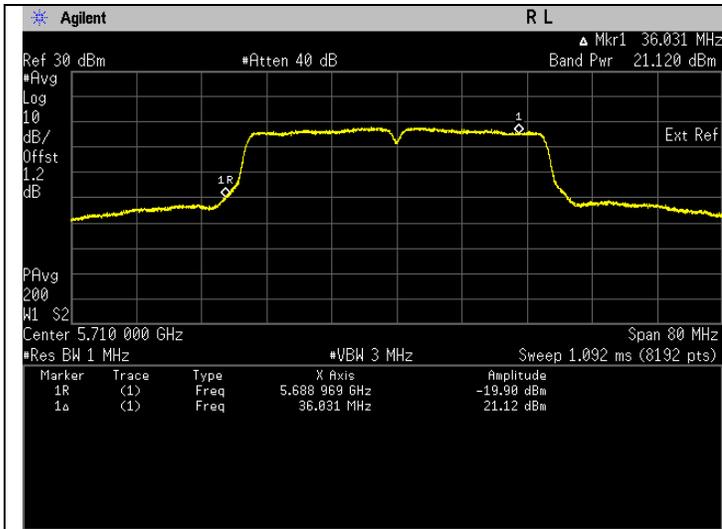
Frequency 5755 MHz, FCC.



Frequency 5795 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5710	Mod Type: BPSK, Data Rate: MCS0 (13.5)	134.215	21.278	Pass
		U-NII-3		
5710	Mod Type: BPSK, Data Rate: MCS0 (13.5)	10.872	10.363	Pass

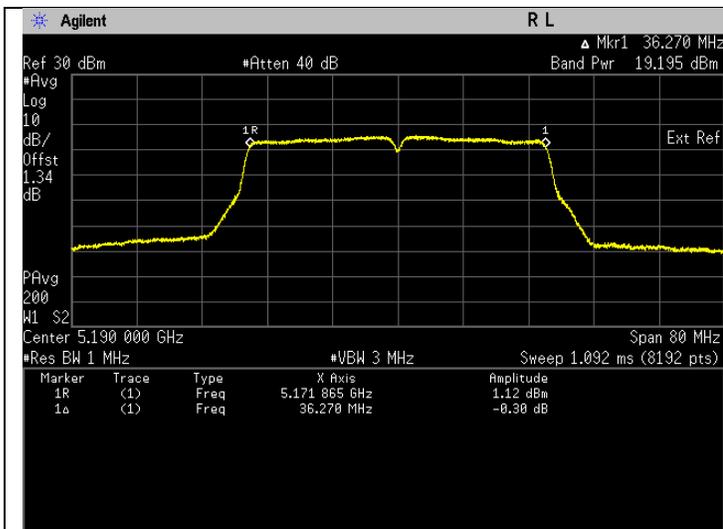


Frequency 5710 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.

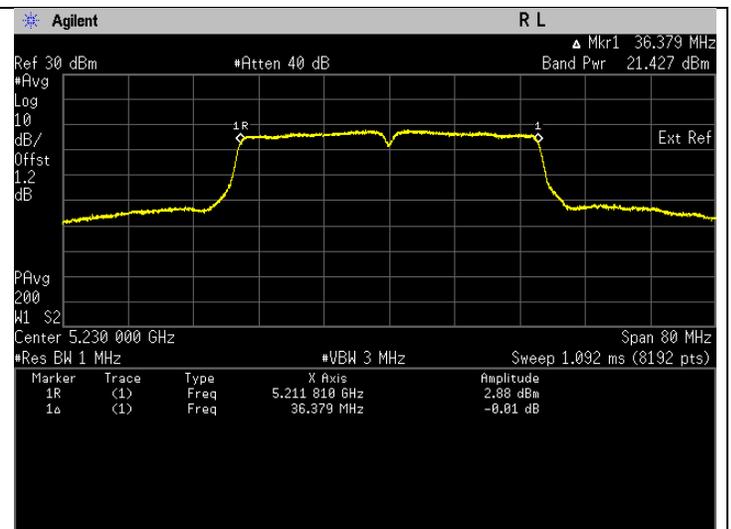
Frequency 5710 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT40)(99% EBW)

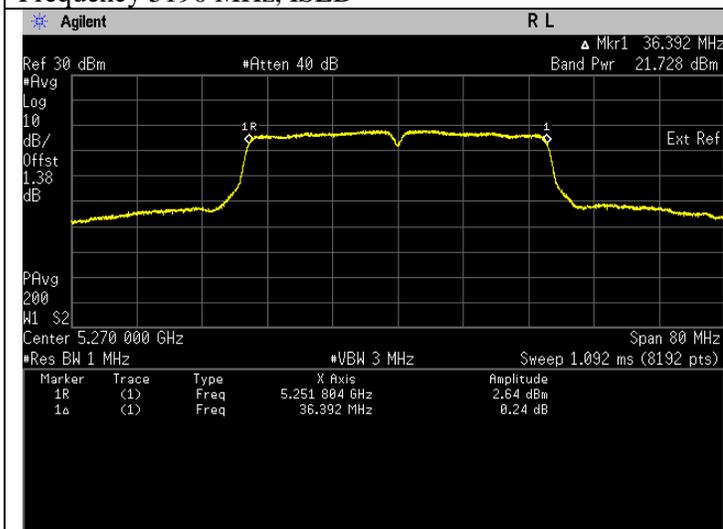
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5190	Mod Type: BPSK, Data Rate: MCS0 (13.5)	86.159	19.353	Pass	22.153	Pass
5230	Mod Type: BPSK, Data Rate: MCS0 (13.5)	144.046	21.585	Pass	24.385	Pass
5270	Mod Type: BPSK, Data Rate: MCS0 (13.5)	154.383	21.886	Pass	24.686	Pass
5310	Mod Type: BPSK, Data Rate: MCS0 (13.5)	123.709	20.924	Pass	23.724	Pass
5510	Mod Type: BPSK, Data Rate: MCS0 (13.5)	79.232	18.989	Pass	22.989	Pass
5590	Mod Type: BPSK, Data Rate: MCS0 (13.5)	135.052	21.305	Pass	25.305	Pass
5670	Mod Type: BPSK, Data Rate: MCS0 (13.5)	140.832	21.487	Pass	25.487	Pass
5755	Mod Type: BPSK, Data Rate: MCS0 (13.5)	136.301	21.345	Pass	23.245	Pass
5795	Mod Type: BPSK, Data Rate: MCS0 (13.5)	138.261	21.407	Pass	23.307	Pass



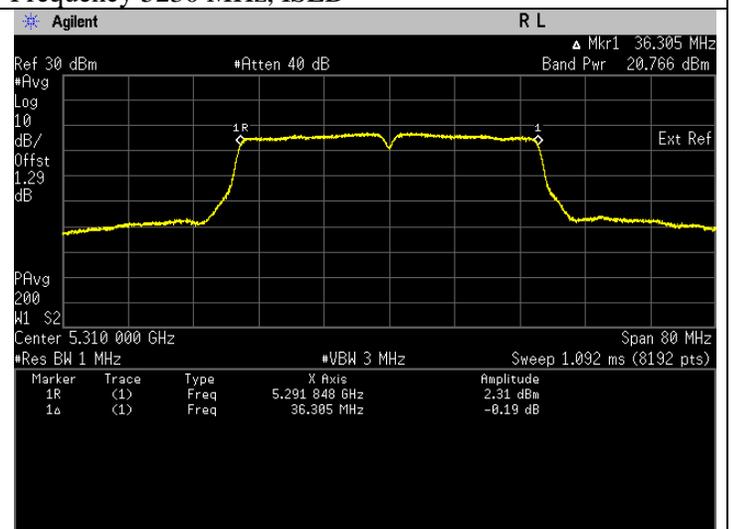
Frequency 5190 MHz, ISED



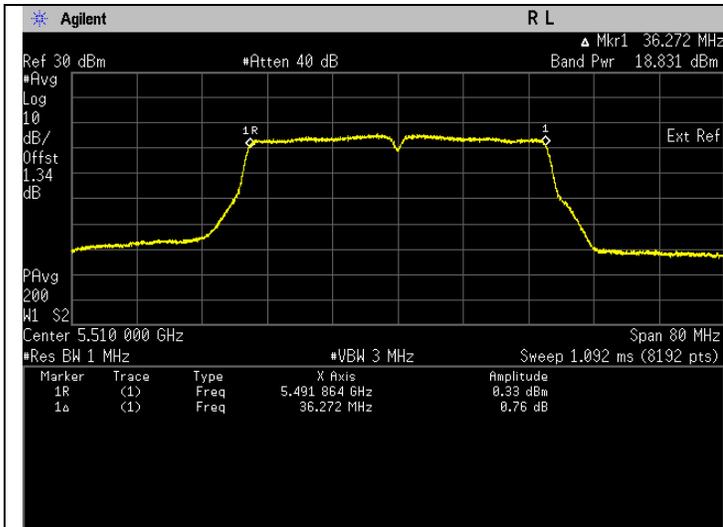
Frequency 5230 MHz, ISED



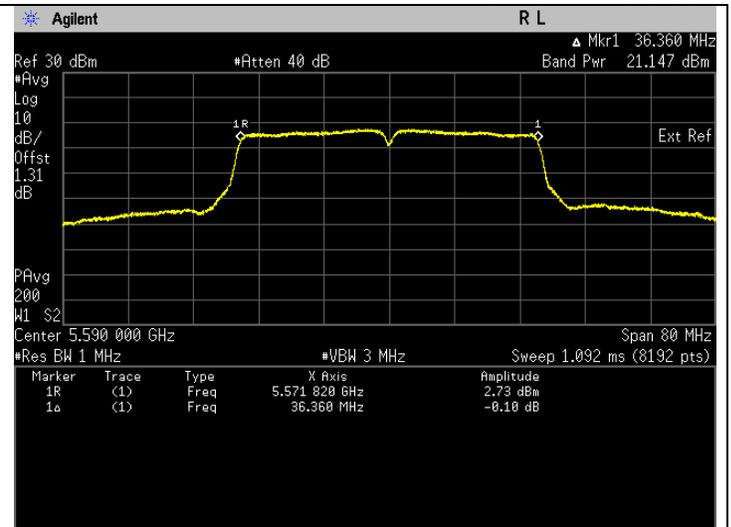
Frequency 5270 MHz, ISED



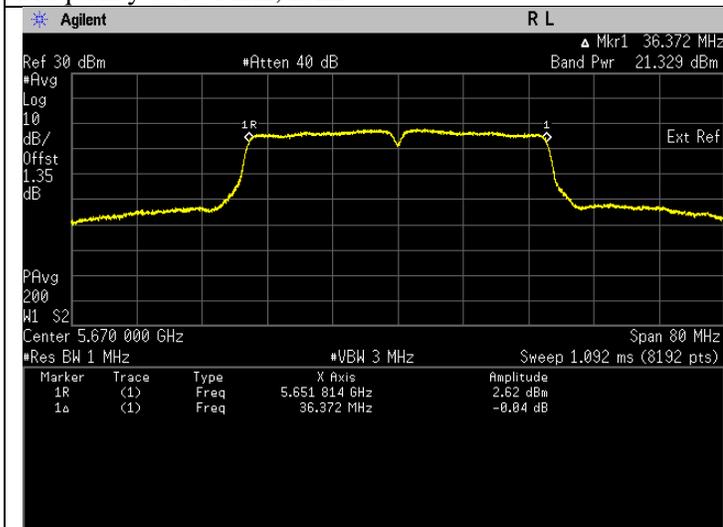
Frequency 5310 MHz, ISED



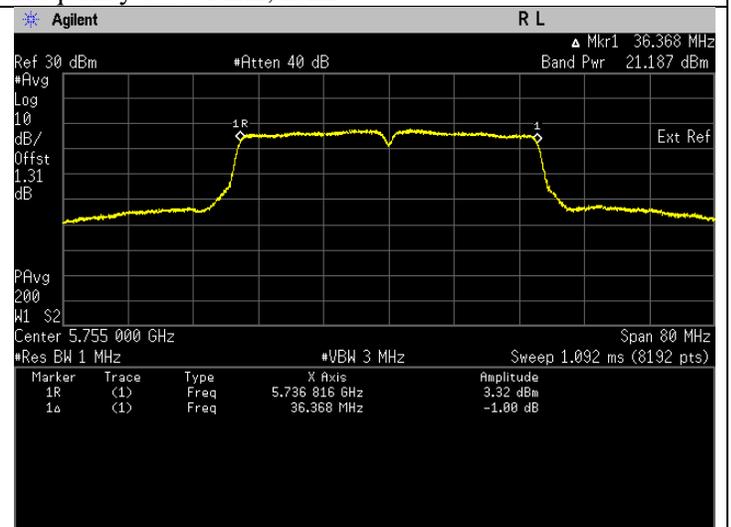
Frequency 5510 MHz, ISED



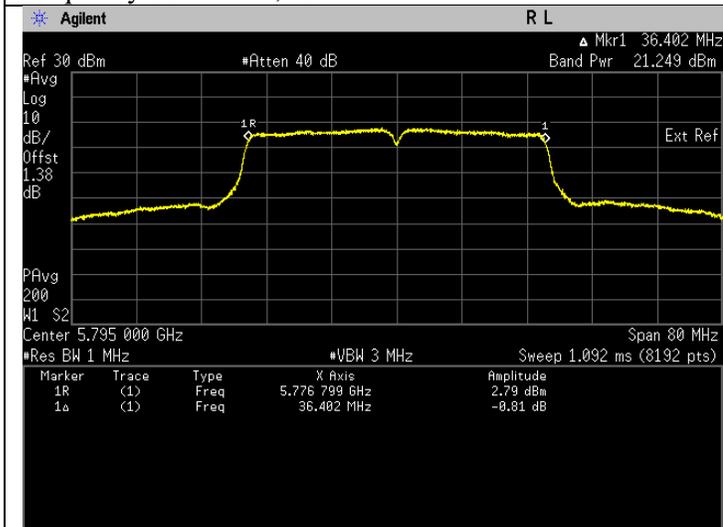
Frequency 5590 MHz, ISED



Frequency 5670 MHz, ISED



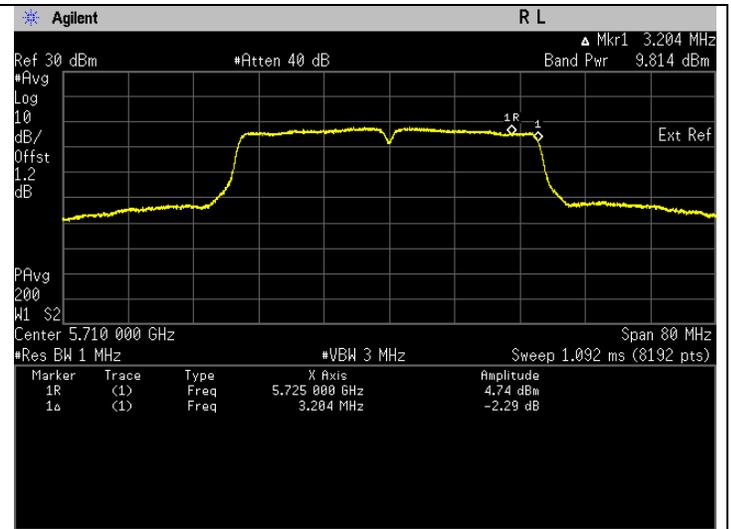
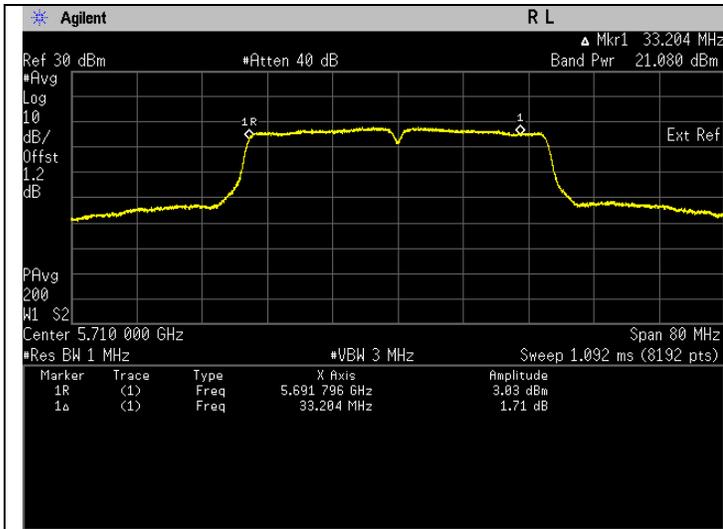
Frequency 5755 MHz, ISED



Frequency 5795 MHz, ISED

Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5710	Mod Type: BPSK, Data Rate: MCS0 (13.5)	132.984	21.238	Pass	25.238	Pass
U-NII-3						
5710	Mod Type: BPSK, Data Rate: MCS0 (13.5)	9.936	9.972	Pass	13.972	Pass

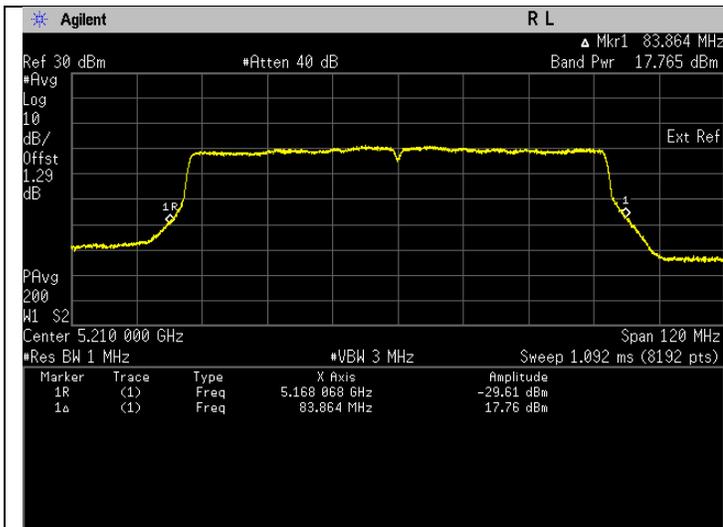


Frequency 5710 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.

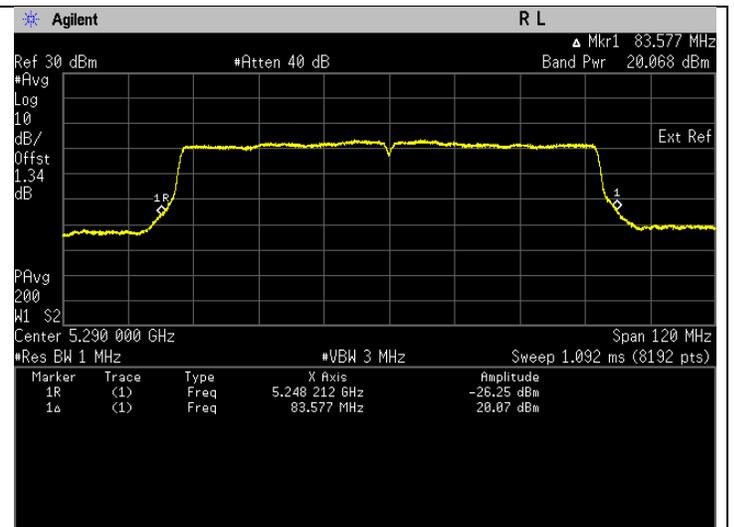
Frequency 5710 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11ac (HT80)(26dB EBW)

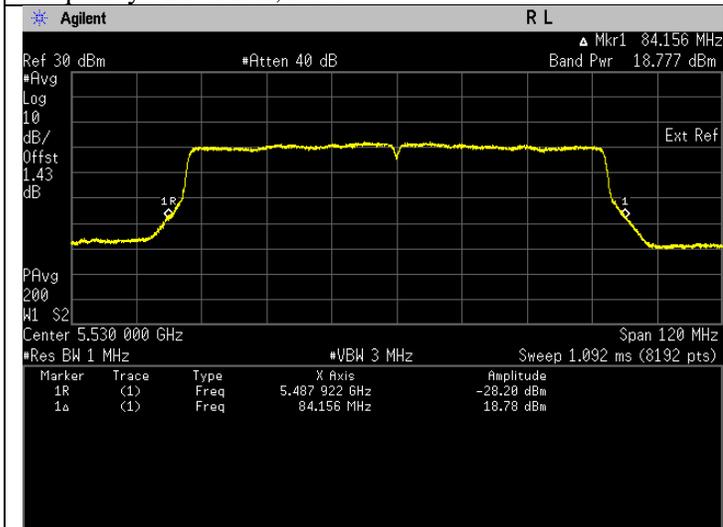
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5210	Mod Type: BPSK, Data Rate: MCS0(29.3)	64.284	18.081	Pass
5290	Mod Type: BPSK, Data Rate: MCS0(29.3)	109.245	20.384	Pass
5530	Mod Type: BPSK, Data Rate: MCS0(29.3)	81.152	19.093	Pass
5610	Mod Type: BPSK, Data Rate: MCS0(29.3)	95.543	19.802	Pass
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	99.541	19.980	Pass



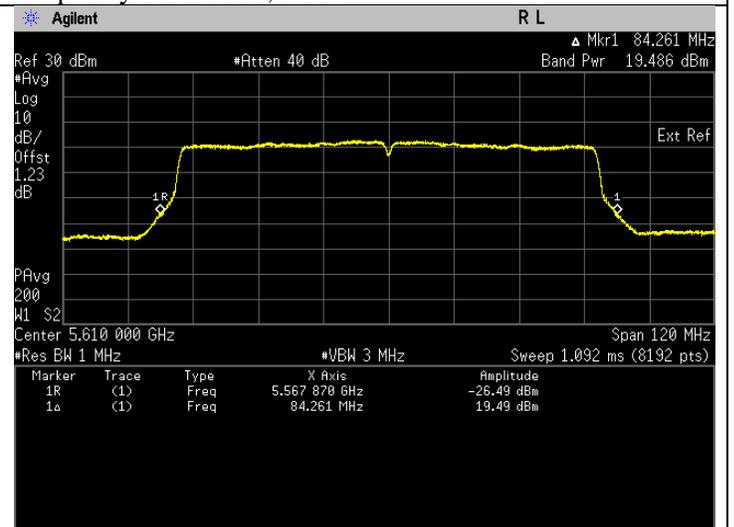
Frequency 5210 MHz, FCC.



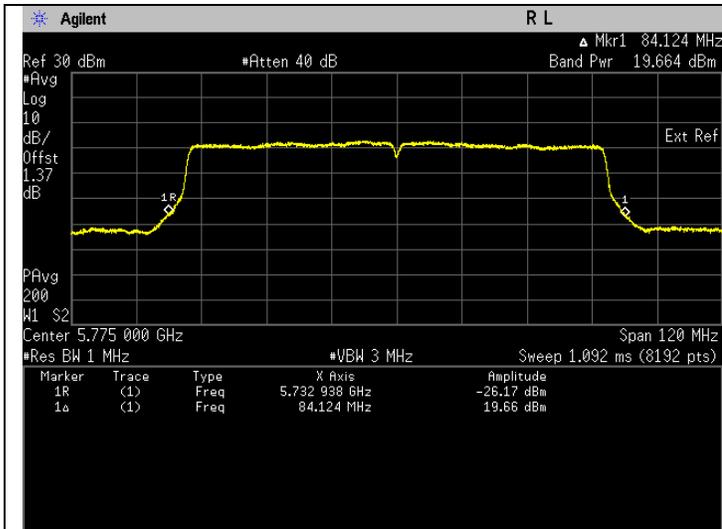
Frequency 5290 MHz, FCC.



Frequency 5530 MHz, FCC.



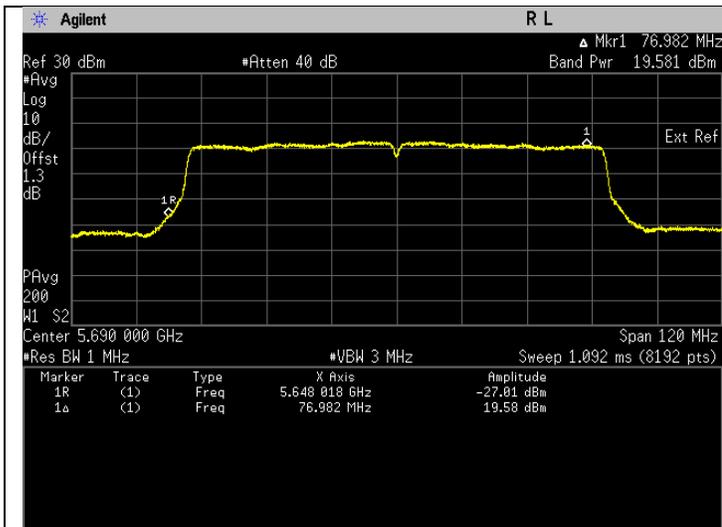
Frequency 5610 MHz, FCC.



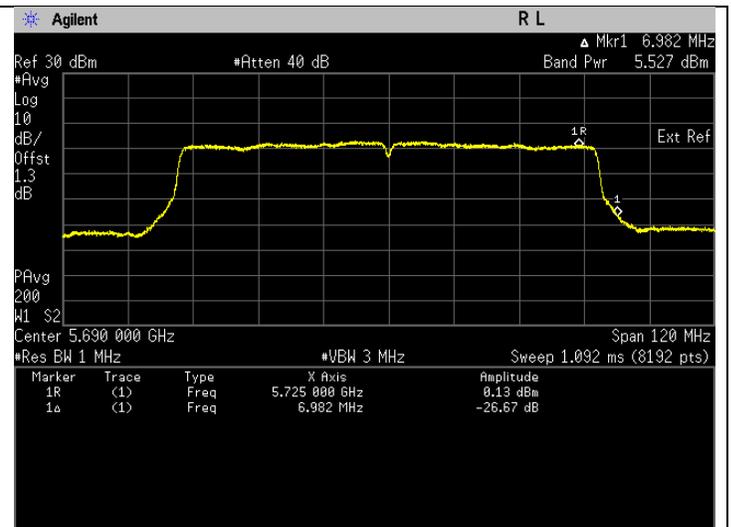
Frequency 5775 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	97.656	19.897	Pass
		U-NII-3		
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	3.840	5.843	Pass



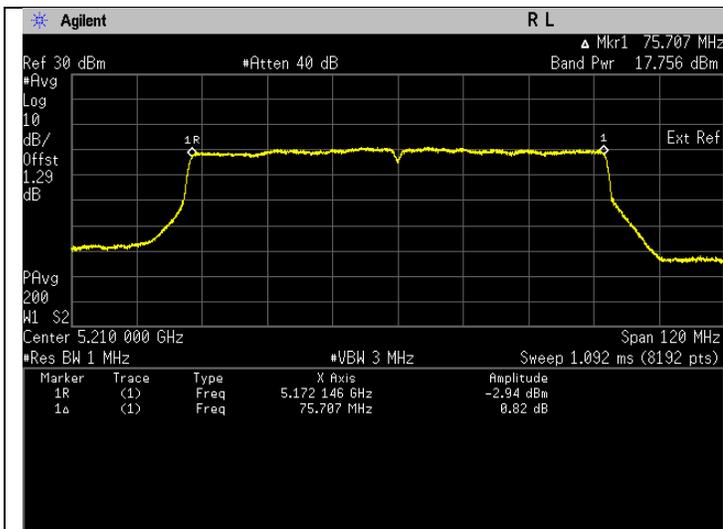
Frequency 5690 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



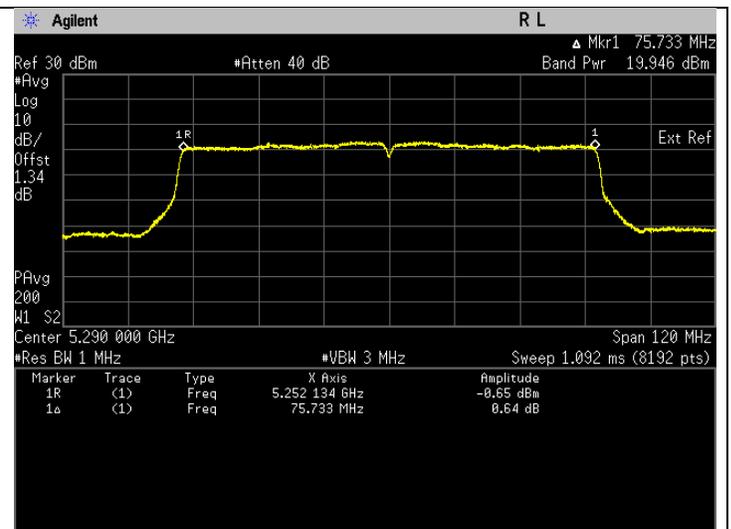
Frequency 5690 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11ac (HT80)(99% EBW)

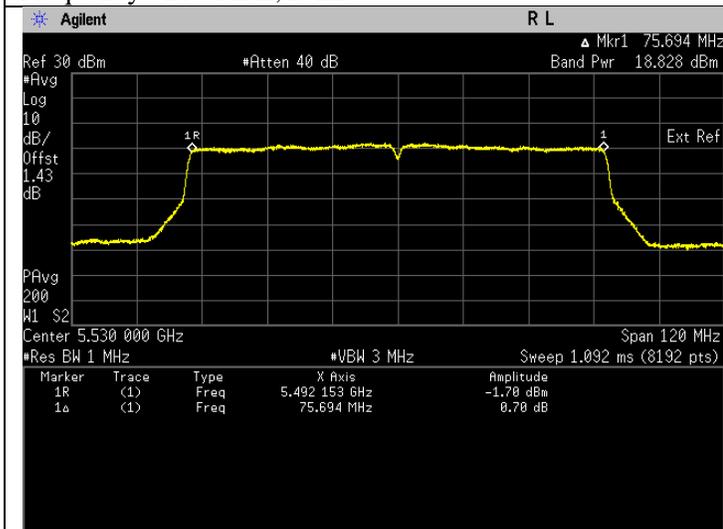
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5210	Mod Type: BPSK, Data Rate: MCS0(29.3)	64.150	18.072	Pass	20.872	Pass
5290	Mod Type: BPSK, Data Rate: MCS0(29.3)	106.218	20.262	Pass	23.062	Pass
5530	Mod Type: BPSK, Data Rate: MCS0(29.3)	82.111	19.144	Pass	23.144	Pass
5610	Mod Type: BPSK, Data Rate: MCS0(29.3)	95.060	19.780	Pass	23.780	Pass
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	97.769	19.902	Pass	21.802	Pass



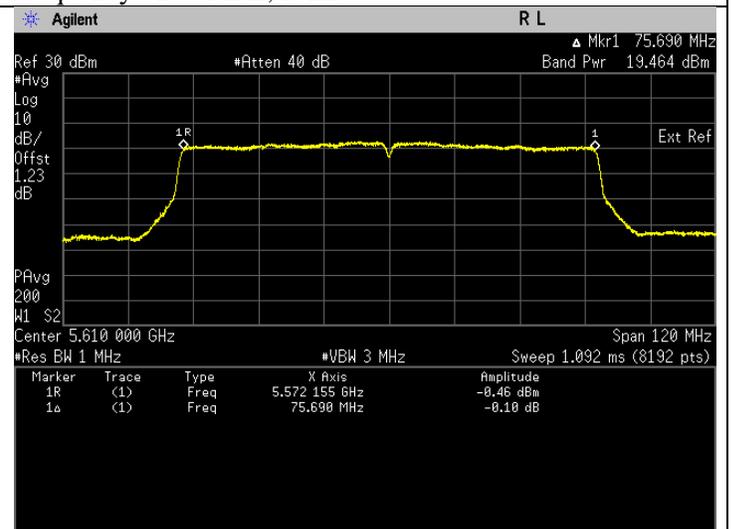
Frequency 5210 MHz, ISED



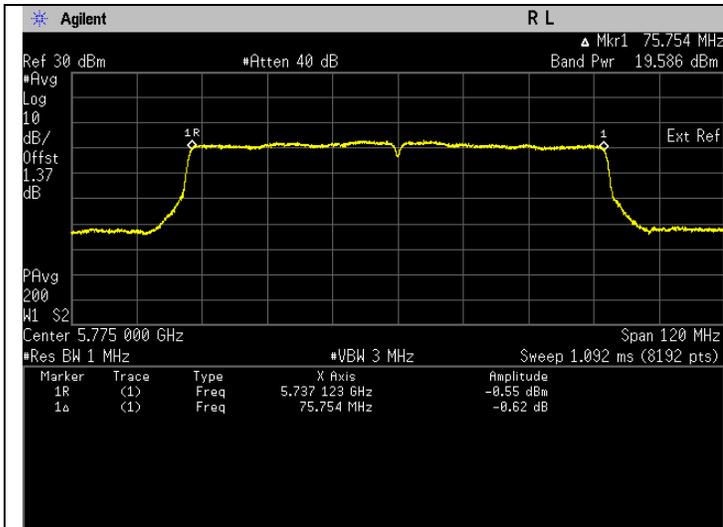
Frequency 5290 MHz, ISED



Frequency 5530 MHz, ISED



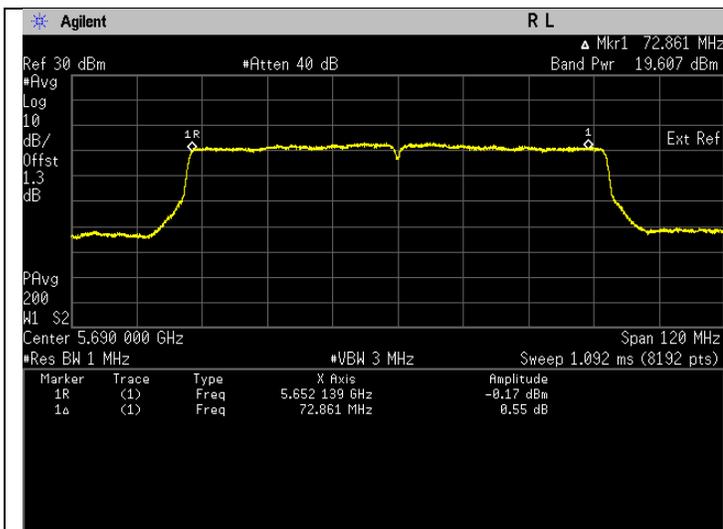
Frequency 5610 MHz, ISED



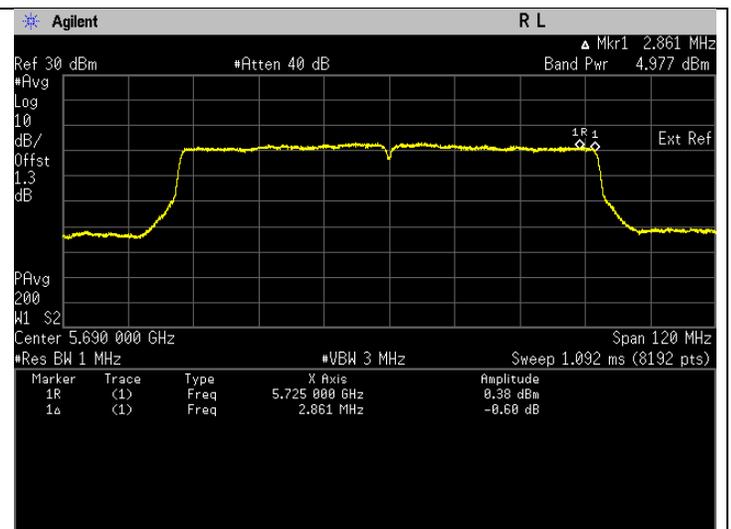
Frequency 5775 MHz, ISED

Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	98.243	19.923	Pass	23.923	Pass
		U-NII-3				
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	3.383	5.293	Pass	9.293	Pass



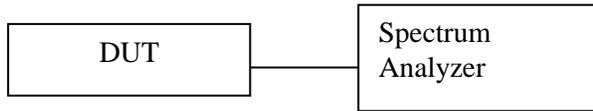
Frequency 5690 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



Frequency 5690 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

7.3. Maximum Power Spectral Density

7.3.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - Span to encompass the entire 26dB EBW or 99% occupied bandwidth.
 - RBW = 1 MHz (5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz) / 500 kHz (5.725-5.85 GHz)
 - VBW ≥ 3·RBW
 - Detector = power averaging (RMS)
 - Trace = Max hold
 - Number of points in sweep ≥ 2 × span / RBW
 - Sweep time = auto
 - Trace average at least 100 traces in power averaging (rms) mode
- e) Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- f) Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum.
- g) The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause F) Method SA-2.
- h) The Maximum power spectral density results are included duty cycle correction factor.

7.3.2. Test Limits

FCC 15.407(a)

Range (GHz)	Condition	Limit
5.15-5.25	Outdoor AP	17dBm/ 1MHz
	Indoor AP	17dBm/ 1MHz
	Fixed Point to Point AP	17dBm/ 1MHz
	√ Mobile and Portable Client Devices	11dBm/ 1MHz
5.25-5.35	√	11dBm/ 1MHz
5.47-5.525	√	11dBm/ 1MHz
5.725-5.85	√	30dBm/ 500kHz

RSS-247 6.2

Range(GHz)	Condition	Limit
5.15-5.25	Indoor Operation Only	EIRP: 10dBm/ 1MHz
5.25-5.35		11dBm/ 1MHz
5.47-5.6 5.6-5.525		11dBm/ 1MHz
5.725-5.85		30dBm/ 500kHz

7.3.3. Additional Info

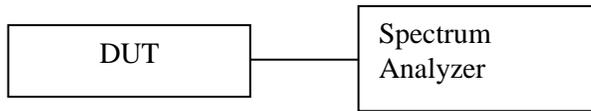
Antenna	Gain (dBi)
5180	2.8
5500	4.0
5580	1.9
Duty Cycle Correction Factor	
802.11a	0.077
802.11n20	0.078
802.11n40	0.158
802.11ac80	0.316

7.3.4. Test Data

Not applicable

7.4. 6dB Bandwidth

7.4.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit at desire transmit frequency.
- c) 6dB bandwidth is applicable for the band 5.725-5.85GHz only.
- d) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- e) Setting of Spectrum analyzer :
 - RBW = 100 kHz
 - VBW \geq 3·RBW
 - Detector = Peak
 - Trace = Max Hold
 - Sweep = Auto couple
- f) Allow trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
- h) The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause C.2).

7.4.2. Test Limits

FCC 15.407(e)

Within the 5.725-5.85GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

RSS 247 6.2.4

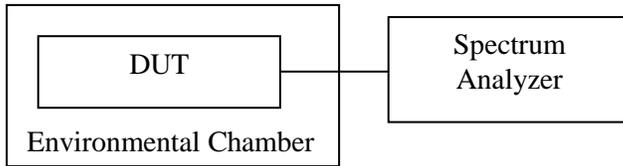
For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

7.4.3. Test Data

Not Applicable

7.5. Frequency Stability

7.5.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit un-modulated signal at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) The DUT was operated at the maximum output power, and spectrum which is set to maximum hold function and peak detector.
- e) The peak value of the power envelope was measured and noted.
- f) Test was conducted from temperature range from -30°C to 50°C with step size of 10°C on manufacturer's rated supply voltage.
- g) At temperature of 20°C , $\pm 15\%$ of manufacturer's rated voltage are to be applied.
- h) The frequency stability is measured and recorded of frequency deviation due to temperature and supply voltage variations as mentioned at condition f) & g) above.

7.5.2. Test Limits

FCC 15.407(g)

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

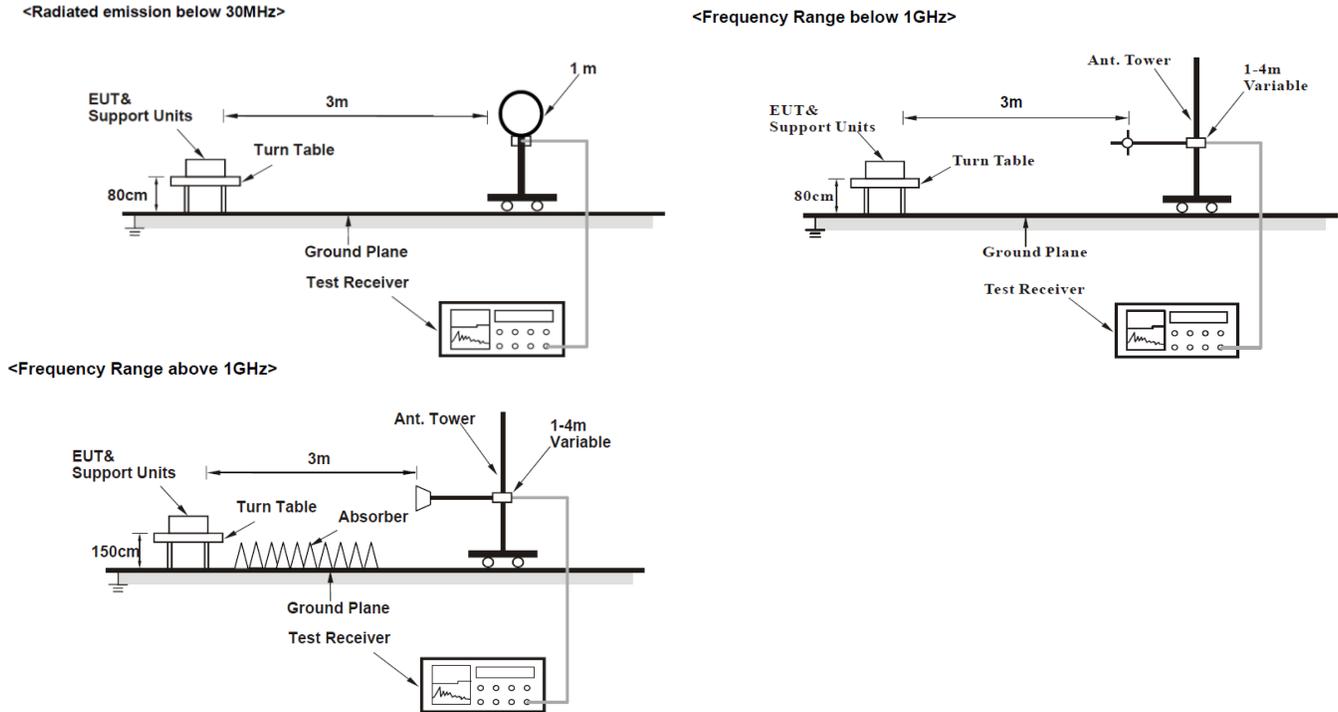
RSS-GEN 6.11

7.5.3. Test Data

Not Applicable

7.6. Band Edge Radiated Spurious Emission Measurement

7.6.1. Test Setup



1. The EUT is placed on the top of a rotating table 0.8m/1.5m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
2. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
3. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection using reduced video bandwidth (Duty cycle ≥98%) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $1/\tau$ Hz, where τ is minimum transmitter on time (Duty cycle <98%) for Average detection using reduced video bandwidth at frequency above 1GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7.6.2. Test Limits

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

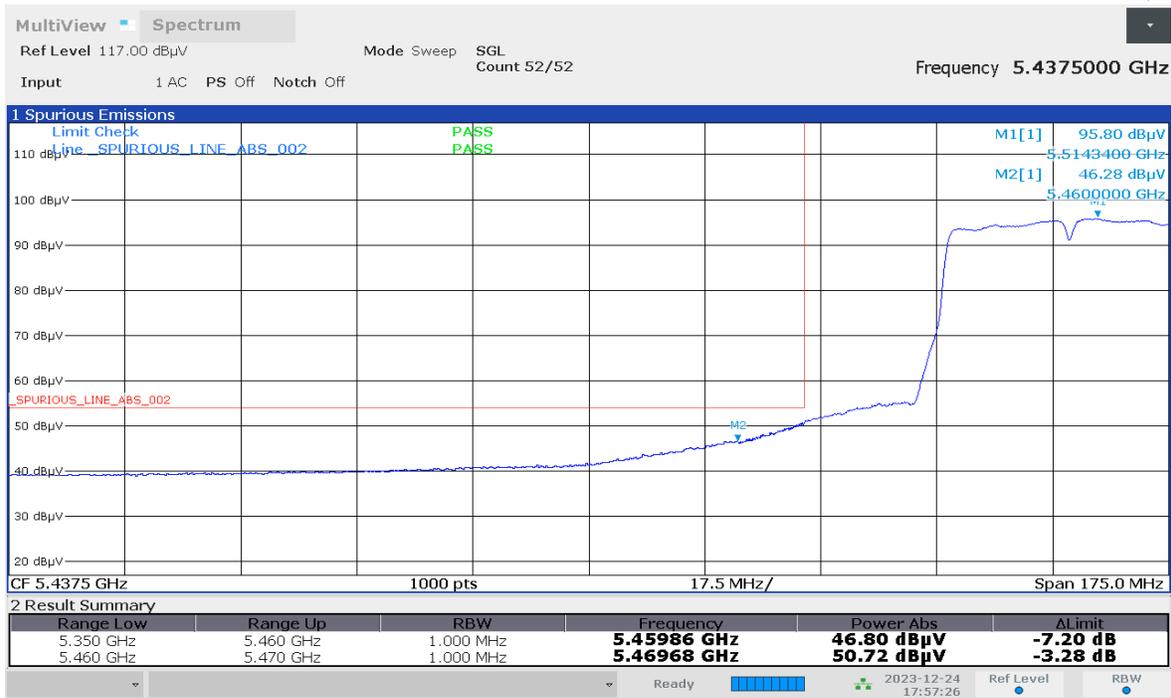
For Radiated emissions which fall out of the restricted bands must comply with the radiated emission limits specified as below table.

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBµV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBµV/m) ^{*1} PK:105.2 (dBµV/m) ^{*2} PK: 110.8 (dBµV/m) ^{*3} PK:122.2 (dBµV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

NOTE:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

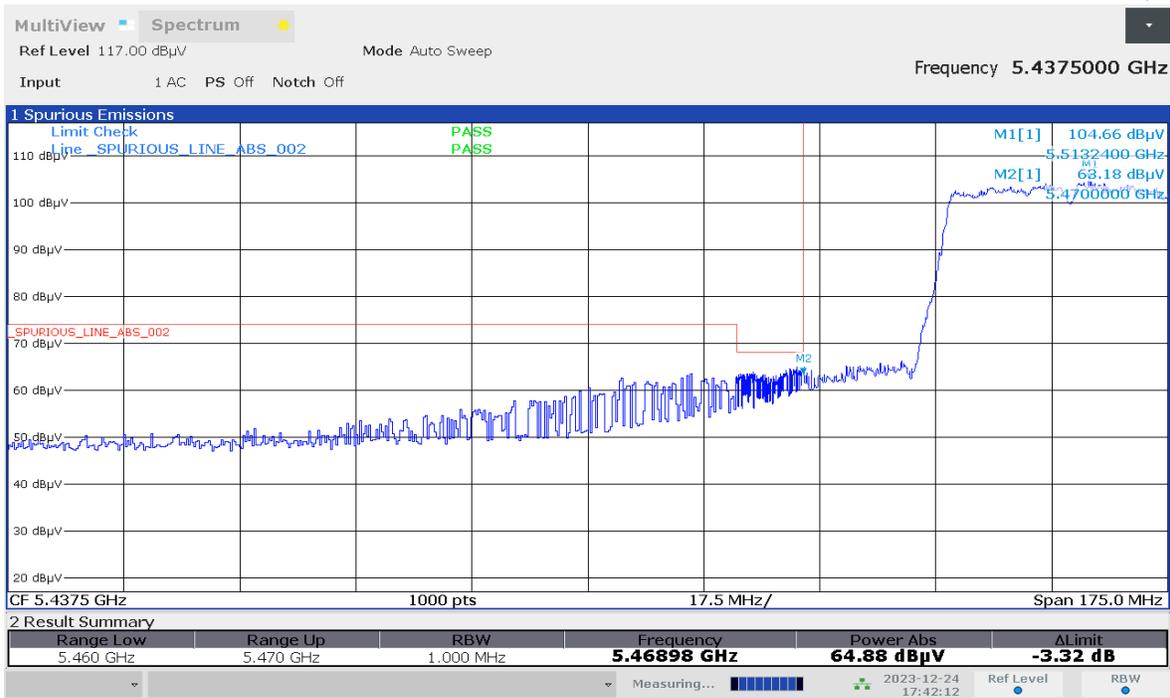
$$E = ((1000000 \sqrt{(30P)}) / 3) \mu\text{V/m, where P is the eirp (Watts)}$$



Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot

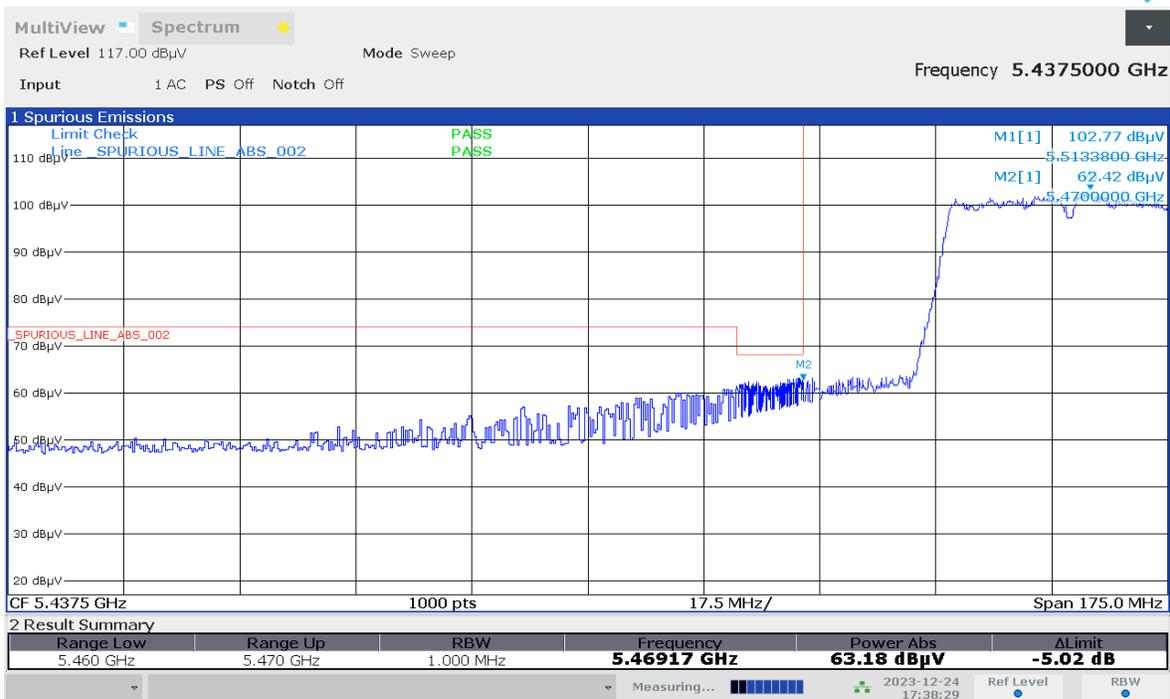


Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



05:42:13 PM 12/24/2023

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot

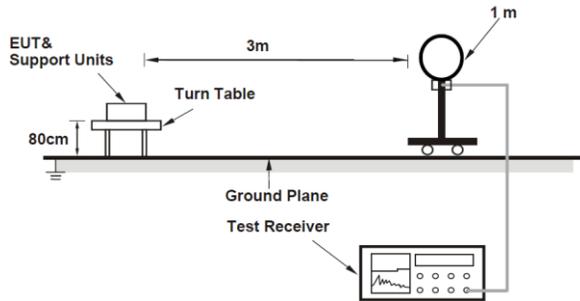


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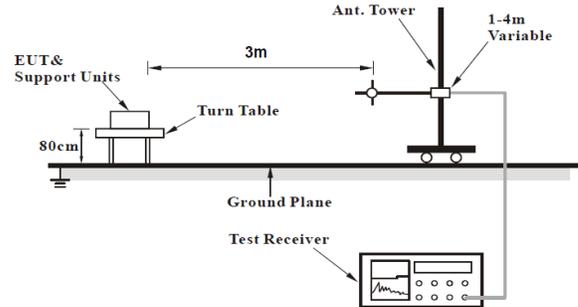
7.7. Radiated Spurious Emission Measurement

7.7.1. Test Setup

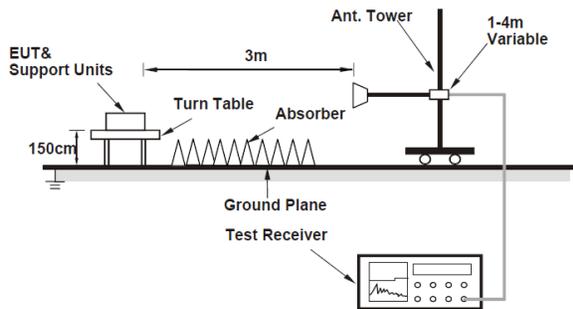
<Radiated emission below 30MHz>



<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



1. The EUT is placed on the top of a rotating table 0.8m/1.5m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
2. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
3. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection using reduced video bandwidth (Duty cycle ≥98%) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1/ τ Hz, where τ is minimum transmitter on time (Duty cycle <98%) for Average detection using reduced video bandwidth at frequency above 1GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7.7.2. Test Limits

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

For Radiated emissions which fall out of the restricted bands must comply with the radiated emission limits specified as below table.

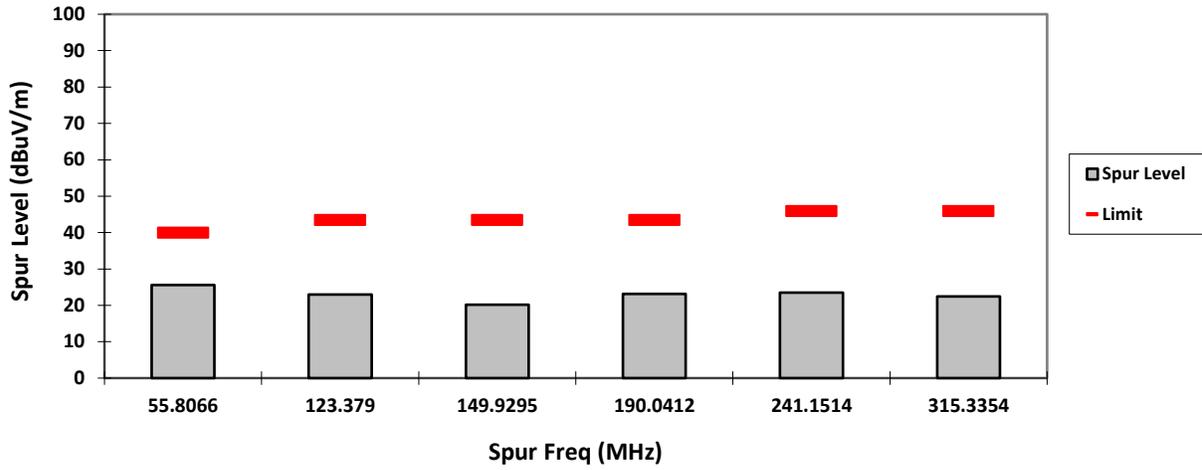
Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBuV/m)	AV: 54 (dBuV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ¹ PK:10 (dBm/MHz) ² PK:15.6 (dBm/MHz) ³ PK:27 (dBm/MHz) ⁴	PK: 68.2 (dBuV/m) ¹ PK:105.2 (dBuV/m) ² PK: 110.8 (dBuV/m) ³ PK:122.2 (dBuV/m) ⁴
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
¹ beyond 75 MHz or more above of the band edge.			
² below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.			
³ below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			
⁴ from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

NOTE:

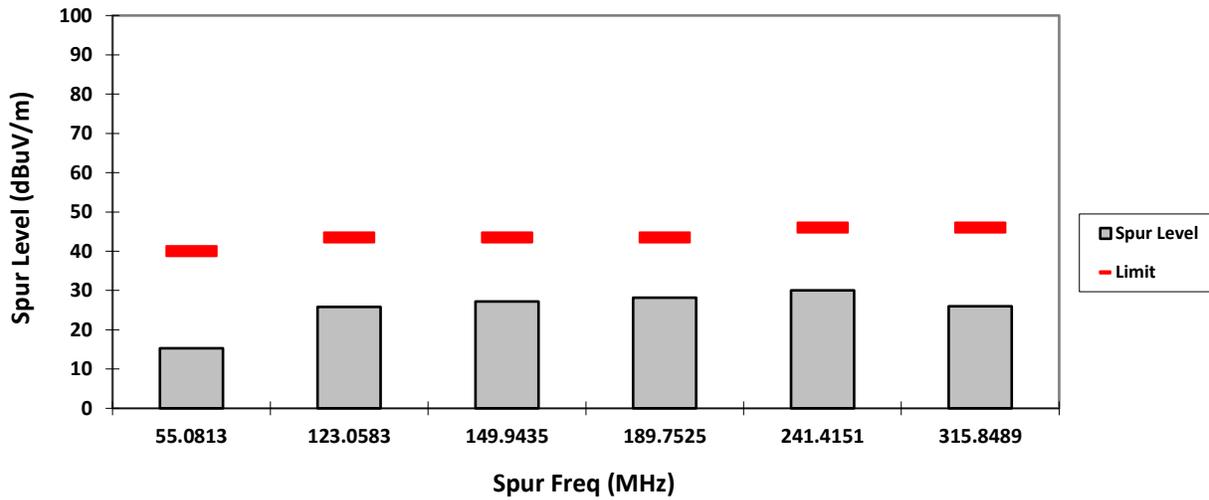
The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = ((1000000 \sqrt{30P}) / 3) \mu\text{V/m, where P is the eirp (Watts)}$$

VERTICAL, QPK

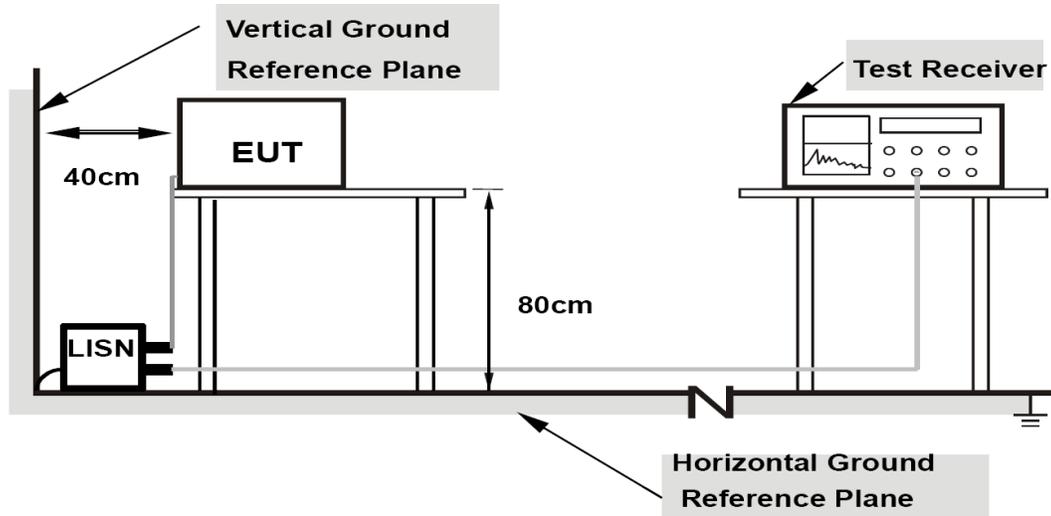


HORIZONTAL, QPK



7.8. AC Powerline Conducted Emission

7.8.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

7.8.2. Test Limits

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

**Limits for conducted disturbance at the mains ports
of class A ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60

NOTE The lower limit shall apply at the transition frequency.

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

**Limits for conducted disturbance at the mains ports
of class B ITE**

Frequency range MHz	Limits dB(μ V)	
	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.
NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.

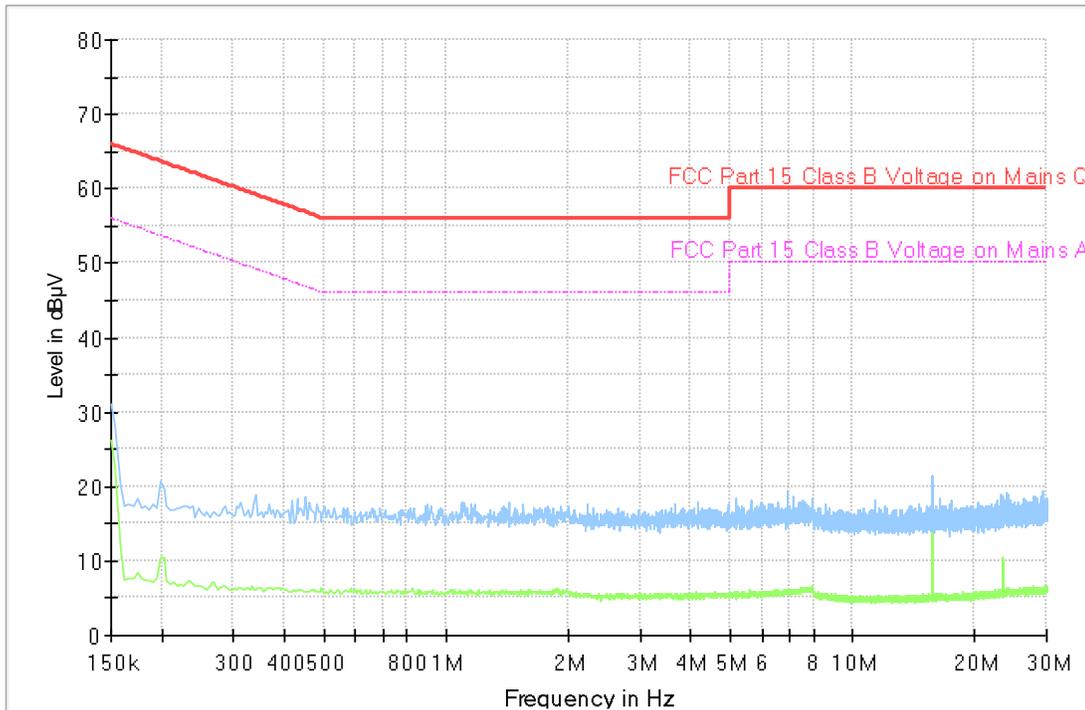
Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

7.8.3. Test Data

Report ID.:	: 12464-EMC-00263
Ambient Temperature:	: 20.7 °C
Humidity:	: 59.4 %RH
Tester:	: Shidee
Date of test:	: 27 December 2023

1) Ambient

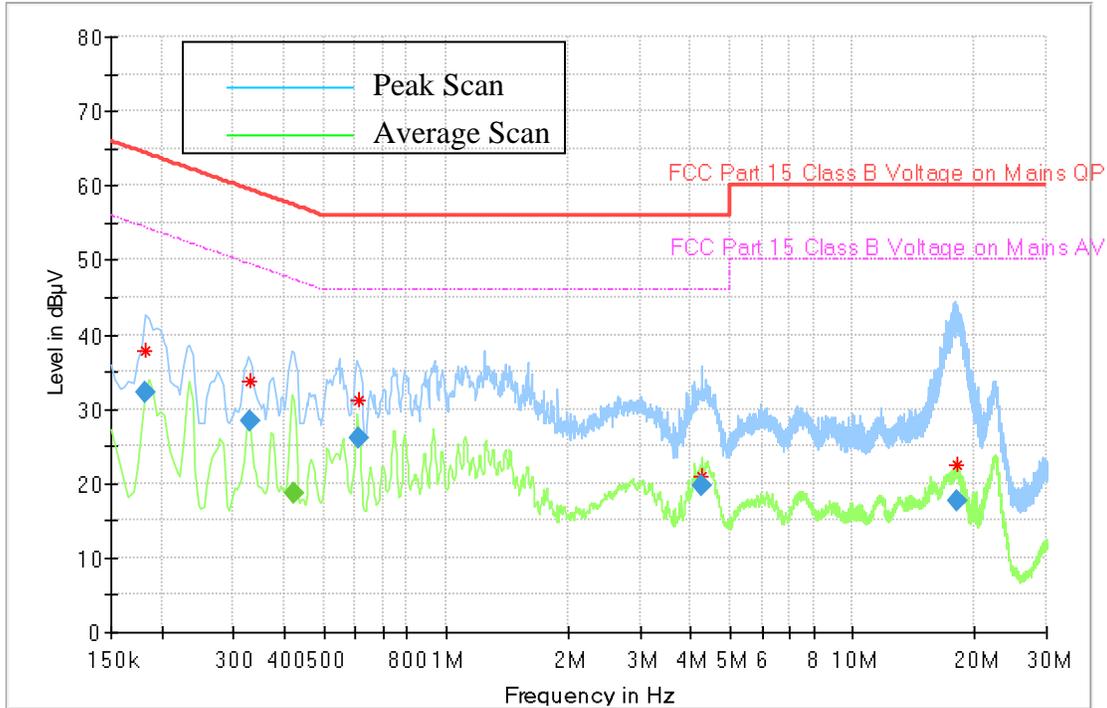
Full Spectrum



120 Vac, 60Hz

1) Charger + Radio Standby with WiFi 5GHz

Full Spectrum



Quasipeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Comment
0.182000	32.23	---	64.39	32.16	1000.0	9.000	N	ON	10.5	Pass
0.330000	28.50	---	59.45	30.95	1000.0	9.000	N	ON	10.3	Pass
0.422000	---	18.61	47.41	28.80	1000.0	9.000	L1	ON	10.3	Pass
0.610000	26.09	---	56.00	29.91	1000.0	9.000	L1	ON	10.3	Pass
4.262000	19.74	---	56.00	36.26	1000.0	9.000	L1	ON	10.3	Pass
18.038000	17.67	---	60.00	42.33	1000.0	9.000	L1	ON	10.4	Pass

* Expanded Uncertainty (U) = +/- 3.48dB

END OF TEST REPORT