

	    CERTIFICATE 2518.08 MS ISO/IEC 17025 TESTING SAMM NO. 0825																												
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.	FCC / IC TEST REPORT Report Revision : Rev.A																												
<table><tr><td>Date/s Tested</td><td>: 13-Nov-2020 - 16-Nov-2020</td></tr><tr><td>Manufacturer/Location</td><td>: Motorola Solutions Malaysia SDN BHD</td></tr><tr><td>Manufacturer Address</td><td>: Plot 2A Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>: SIEW KHENG TAN</td></tr><tr><td>Product Type</td><td>: Portable</td></tr><tr><td>Product Version (PMN)</td><td>: MSLB-MKZ900</td></tr><tr><td>Model Number (HVIN)</td><td>: AAH90ZDU9RH1AN (PMUE5674A)</td></tr><tr><td>Frequency Band</td><td>: 5180-5825 MHz</td></tr><tr><td>Firmware Version (FVIN)</td><td>: D02.20.03.0081 (BP), D00.60.44 (AP)</td></tr><tr><td>Applicant Name</td><td>: Motorola Solutions Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr><tr><td>ISED Registrations</td><td>: MY0001</td></tr></table>  The equipment was tested accordance to the requirement listed below: <table><tr><td>(5GHz Wi-Fi) FCC 47 CFR Part 15 Subpart E IC RSS 247 Issue 2</td><td>PASS</td></tr></table>		Date/s Tested	: 13-Nov-2020 - 16-Nov-2020	Manufacturer/Location	: Motorola Solutions Malaysia SDN BHD	Manufacturer Address	: Plot 2A Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia	Requestor	: SIEW KHENG TAN	Product Type	: Portable	Product Version (PMN)	: MSLB-MKZ900	Model Number (HVIN)	: AAH90ZDU9RH1AN (PMUE5674A)	Frequency Band	: 5180-5825 MHz	Firmware Version (FVIN)	: D02.20.03.0081 (BP), D00.60.44 (AP)	Applicant Name	: Motorola Solutions Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322	FCC Registrations	: 461337	ISED Registrations	: MY0001	(5GHz Wi-Fi) FCC 47 CFR Part 15 Subpart E IC RSS 247 Issue 2	PASS
Date/s Tested	: 13-Nov-2020 - 16-Nov-2020																												
Manufacturer/Location	: Motorola Solutions Malaysia SDN BHD																												
Manufacturer Address	: Plot 2A Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia																												
Requestor	: SIEW KHENG TAN																												
Product Type	: Portable																												
Product Version (PMN)	: MSLB-MKZ900																												
Model Number (HVIN)	: AAH90ZDU9RH1AN (PMUE5674A)																												
Frequency Band	: 5180-5825 MHz																												
Firmware Version (FVIN)	: D02.20.03.0081 (BP), D00.60.44 (AP)																												
Applicant Name	: Motorola Solutions Inc																												
Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322																												
FCC Registrations	: 461337																												
ISED Registrations	: MY0001																												
(5GHz Wi-Fi) FCC 47 CFR Part 15 Subpart E IC RSS 247 Issue 2	PASS																												
This report shall not be reproduced without written approval from an officially designated representative of the Motorola Penang Adv. Comm. Laboratory. The results and statements contained in this report pertain only to the device(s) evaluated.																													
Prepared By:  Gan Boon Teong Technician	Approved Signatory: Vincent Foong Chuen Kit Responsible Engineer																												

Table of Contents

1.0. Summary of Test Results	3
2.0. Measurement Uncertainty	4
3.0. Equipment List.....	5
4.0. General Information.....	6
5.0. Test Mode Applicability and Test Channel Detail	9
6.0. Duty Cycle of Test Signal.....	13
6.0.1. Test Setup	13
6.0.2. Test Data	13
7.0. Transmitter Test Parameters	16
7.1. Bandwidth measurements	16
7.1.1. Test Setup	16
7.1.2. Test Limits.....	16
7.1.3. Test Data	16
7.2. Maximum Conducted Output Power	29
7.2.1. Test Setup	29
7.2.2. Test Limits.....	29
7.2.3. Additional Info	30
7.2.4. Test Data	30
7.3. Maximum Power Spectral Density	55
7.3.1. Test Setup	55
7.3.2. Test Limits.....	56
7.3.3. Additional Info	56
7.3.4. Test Data	56
7.4. 6dB Bandwidth	57
7.4.1. Test Setup	57
7.4.2. Test Limits.....	57
7.4.3. Test Data	57
7.5. Frequency Stability	58
7.5.1. Test Setup	58
7.5.2. Test Limits.....	58
7.5.3. Test Data	58
7.6. Band Edge Radiated Spurious Emission Measurement.....	59
7.6.1. Test Setup	59
7.6.2. Test Limits.....	60
7.6.3. Test Result.....	61
7.7. Radiated Spurious Emission Measurement	73
7.7.1. Test Setup	73
7.7.2. Test Limits.....	74
7.7.3. Test Data	75
7.8. AC Powerline Conducted Emission.....	91
7.8.1. Test Setup	91
7.8.2. Test Limits.....	91
7.8.3. Test Data	92

Report Revision History

Revision History	Description	Date	Originator
Rev. A	Initial Report	20-NOV-2020	Gan Boon Teong

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: 15.591 dBm 802.11n20/ac20: 15.772 dBm 802.11n40/ac40: 15.786 dBm 802.11ac80: 15.482 dBm	734TWV0128	Gan
15.407(a) (1/2/3)	RSS 247 6.2	Maximum Power Spectral Density	Pass	NA	NA	NA
15.407 (e)	RSS 247 6.2.4	6dB Bandwidth	Pass	Highest 99% OCB: 802.11a: 16.743 MHz (16M7D1D) 802.11n20: 17.892 MHz(17M9D1D) 802.11n40: 36.304 MHz(36M3D1D) 802.11ac80: 75.681 MHz (75M7D1D)	734TWV0128	Gan
15.407 (g)	RSS Gen 6.11	Frequency Stability	Pass	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: 802.11ac80: 51.06dBuV/m	734TWV0128	Nazrin & Qawiman
15.407 (b) (1/2/3/4/6)	RSS 247 6.2	Radiated Spurious Emission Measurement	Pass	Worst case emission: 802.11a: No spur detect (Noise Floor)	734TWV0128	Nazrin & Qawiman
15.207 15.407 (b)(6)	RSS Gen 8.8	AC Powerline Conducted Emission	Pass	NA	NA	NA
15.203	-	Antenna requirement	Pass	Internal antenna is not accessible to the end-user	NA	NA

1.0. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) (±dB)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	4.25
	200MHz ~ 1000MHz	4.25
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	4.94
	18GHz ~ 25GHz	4.94
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82

2.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.10_R2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
SPECTRUM ANALYZER	FSEK30	838495/014	19-Jan-20	19-Jan-21
CHAMBER	SH-641	92002639	9-Dec-19	9-Dec-20
POWER SUPPLY	6652A	3541A02565	26-Jun-20	26-Jun-21
SPECTRUM ANALYZER	E4445A	MY45301089	7-Sep-19	7-Sep-21

Radiated Spurious Emission (SW Version: EMC_FCC_RE_v1.6.2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	720	21-Mar-19	21-Mar-21
DRG HORN FREQ.	SAS-571	1143	14-Feb-19	14-Feb-21
POWER SUPPLY	6032A	2615A01178	21-May-20	21-May-21
SIGNAL GENERATOR	SMB 100A	181117	8-Nov-18	8-Nov-21
EMI TEST RECEIVER	ESW44	101731	3-Dec-19	3-Dec-20
EMI TEST RECEIVER	ESIB26	100017	19-Jul-19	19-Nov-20
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	Not Required	Not Required
BILOG ANTENNA	CBL6112B	2964	23-Apr-19	23-Apr-21
BILOG ANTENNA	CBL6112B	2950	8-Jul-19	8-Jul-21
DATA LOGGER	SDL500	A.016776	4-Jun-20	4-Jun-21
SYSTEM CONTROLLER	SC104V	050806-1	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	Not Required	Not Required
ANTENNA POSITIONING TOWER	TLT2	NA	Not Required	Not Required
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	27-Jan-20	27-Jan-21
18 - 40GHz PREAMPLIFIER	MITEQ Hi GAIN SUCOFLEX	001	Not Required	Not Required
PREAMPLIFIER	PAM-0118	269	24-May-19	24-May-22
LOOP ANTENNA	6502	00203479	21-Jan-20	21-Jan-21

3.0. General Information

General Description of EUT:

Product	Hand-held
Brand	Motorola Solutions
Test Model	MSLB-MKZ900
Power Supply Rating	7.5V
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)	25.12 mW for 5.180 ~ 5.240 GHz 25.12 mW for 5.260 ~ 5.320 GHz 39.81 mW for 5.50 ~ 5.720 GHz 39.81 mW for 5.745 ~ 5.825 GHz
Antenna Type	BT/WIFI ANTENNA with 5.04dBi (5G,unii 1&2a), 2.46dBi (unii 2c&3)dBi gain
SW Version	D02.20.03.0081 (BP), D00.60.44 (AP)

Note:

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
BATTERY PACK,BATTERY PACK,IMPRES GEN2, LIION,IP68, 2900T, TIA4950	MOTOROLA	PMNN4804A
UHF SLIM WHIP ANTENNA (400-527MHZ) 400 - 527MHZ	MOTOROLA	PMAE4079A
CABLE,PORTABLE PROGRAMMING CABLE	MOTOROLA	PMKN4230A

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

For RF conducted measurements a pigtail was soldered out of the board while for radiated measurements there were no modifications to the device

4.0. Test Mode Applicability and Test Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 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 $\geq$ 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 $\geq$ 1G	23.9°C, 69.8% RH	7.5V DC	Nazrin/Qawiman
RE<1G	23.9°C, 69.8% RH	7.5V DC	Nazrin/Qawiman
PLC	22.4°C, 68.6% RH	120V AC, 240V AC	NA
APCM	25°C, 50% RH	7.5V DC	Gan

Duty Cycle of Test Signal

802.11a and 802.11n (HT20): Duty cycle of test signal is 98%.

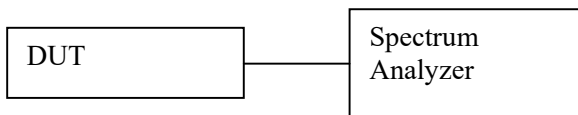
802.11n (HT40): Duty cycle of test signal is 96%.

802.11ac (VHT80): Duty cycle of test signal is 92%.

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

5.0. Duty Cycle of Test Signal

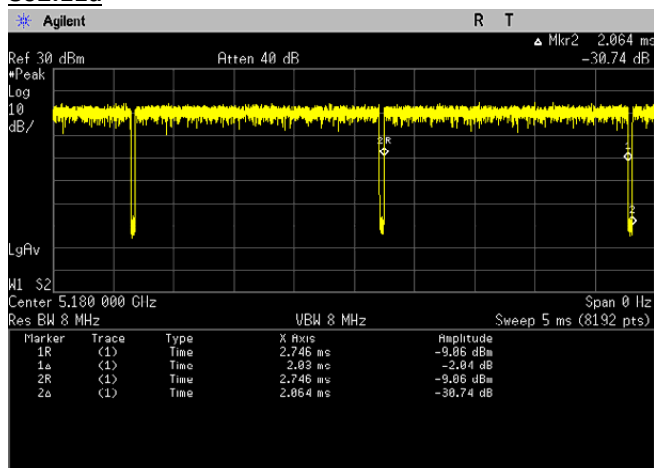
5.0.1. Test Setup



- 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.

5.0.2. Test Data

802.11a

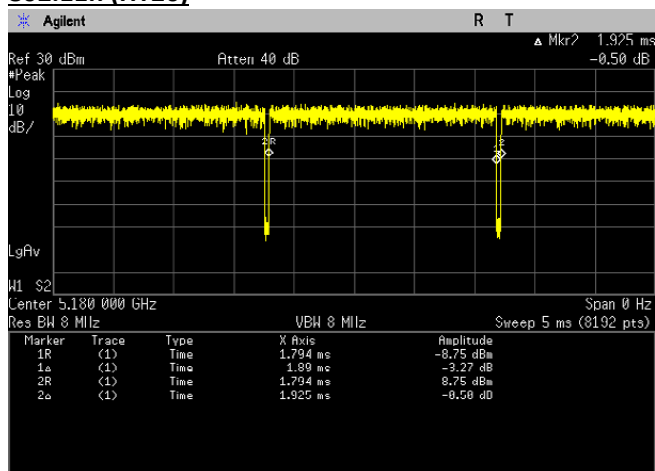


On time	2.03	ms
On + off time	2.064	ms
Duty Cycle	0.9835	
Duty Cycle Factor	0.072	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

802.11n (HT20)

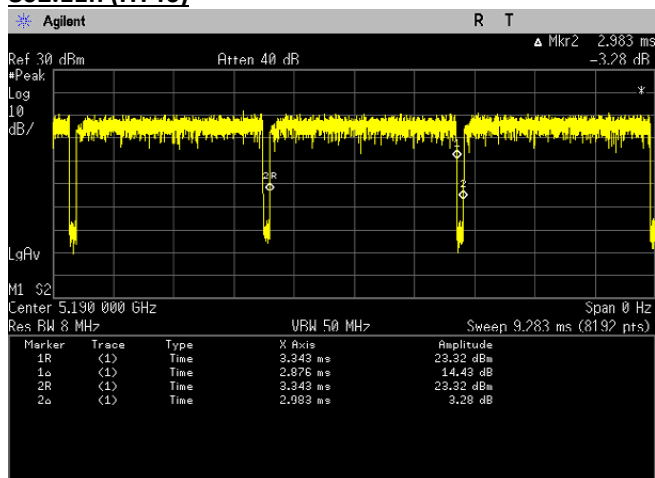


On time	1.89	ms
On + off time	1.925	ms
Duty Cycle	0.9818	
Duty Cycle Factor	0.080	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

802.11n (HT40)

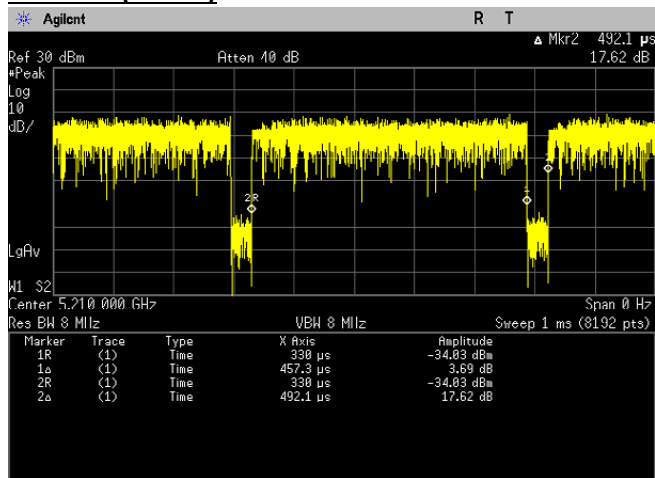


On time	2.876	ms
On + off time	2.983	ms
Duty cycle	0.9641	
Duty Cycle factor	0.159	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

802.11ac (VHT80)



On time	0.4573	ms
On + off time	0.4921	ms
Duty cycle	0.9293	
Duty Cycle factor	0.319	

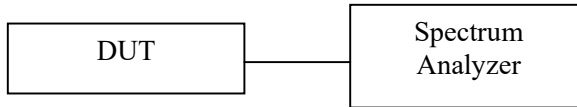
*Duty cycle = On time/ On +off time

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

6.0. Transmitter Test Parameters

6.1. Bandwidth measurements

6.1.1. 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 $\geq 3 \cdot$ 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).

6.1.2. Test Limits

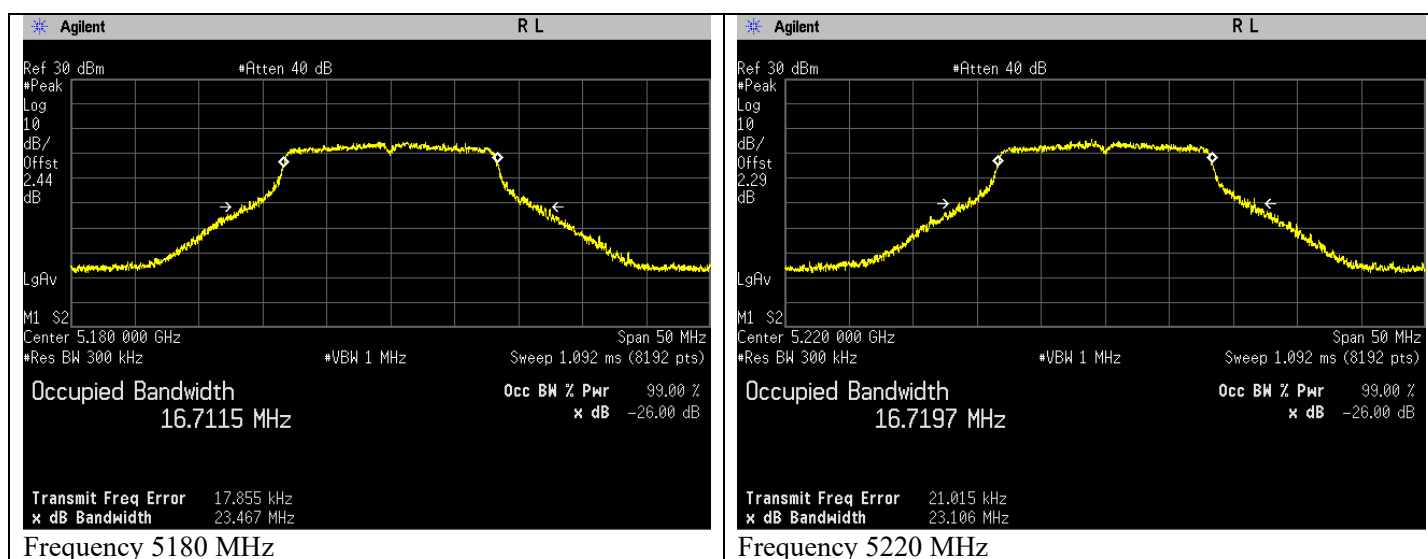
Not applicable.

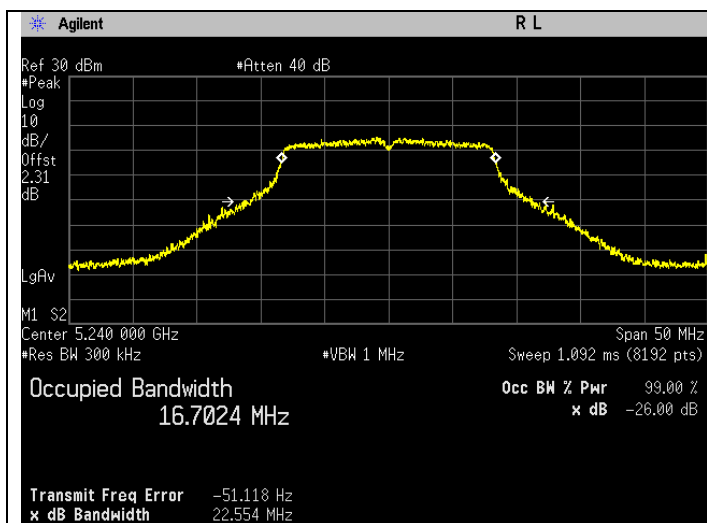
6.1.3. Test Data

802.11a

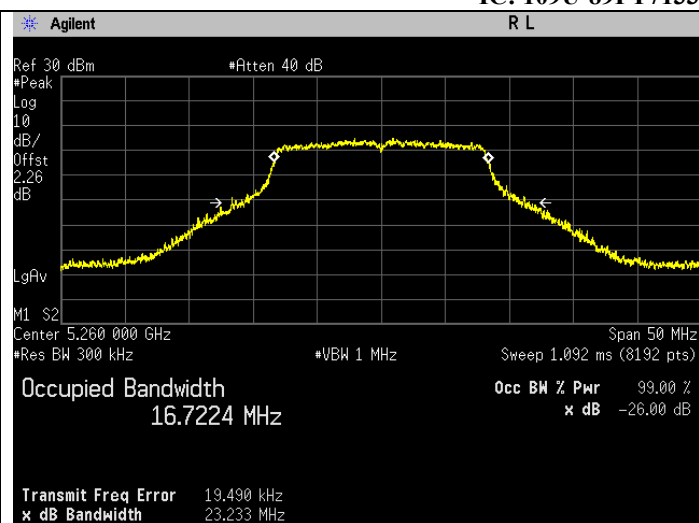
Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5180	Mod Type: BPSK, Data Rate: 6	23.467	Pass	16.710	Pass
5220	Mod Type: BPSK, Data Rate: 6	23.106	Pass	16.720	Pass
5240	Mod Type: BPSK, Data Rate: 6	22.554	Pass	16.703	Pass
5260	Mod Type: BPSK, Data Rate: 6	23.233	Pass	16.723	Pass
5300	Mod Type: BPSK, Data Rate: 6	23.154	Pass	16.730	Pass
5320	Mod Type: BPSK, Data Rate: 6	22.407	Pass	16.732	Pass
5500	Mod Type: BPSK, Data Rate: 6	22.613	Pass	16.691	Pass
5580	Mod Type: BPSK, Data Rate: 6	23.290	Pass	16.733	Pass
5700	Mod Type: BPSK, Data Rate: 6	22.972	Pass	16.730	Pass
5720	Mod Type: BPSK, Data Rate: 6, UNII-2C	16.485	Pass	13.368	Pass
5720	Mod Type: BPSK, Data Rate: 6, UNII-3	6.485	Pass	3.368	Pass
5745	Mod Type: BPSK, Data Rate: 6	22.532	Pass	16.743	Pass
5785	Mod Type: BPSK, Data Rate: 6	23.317	Pass	16.732	Pass
5825	Mod Type: BPSK, Data Rate: 6	23.551	Pass	16.722	Pass

26 dB Bandwidth/ 99% Bandwidth

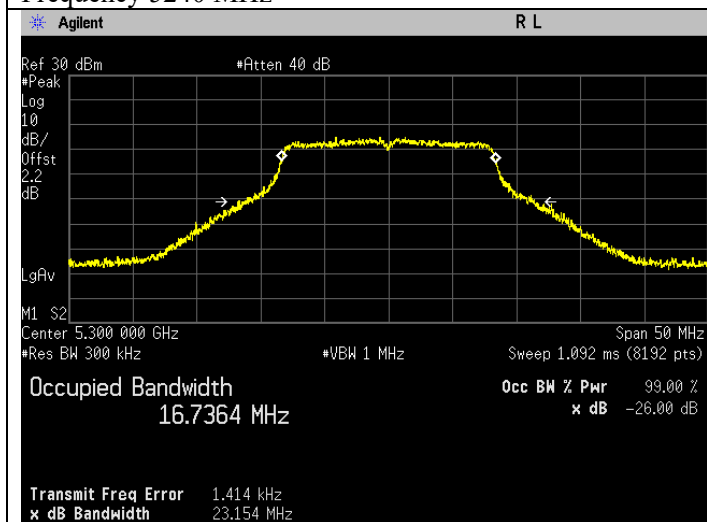




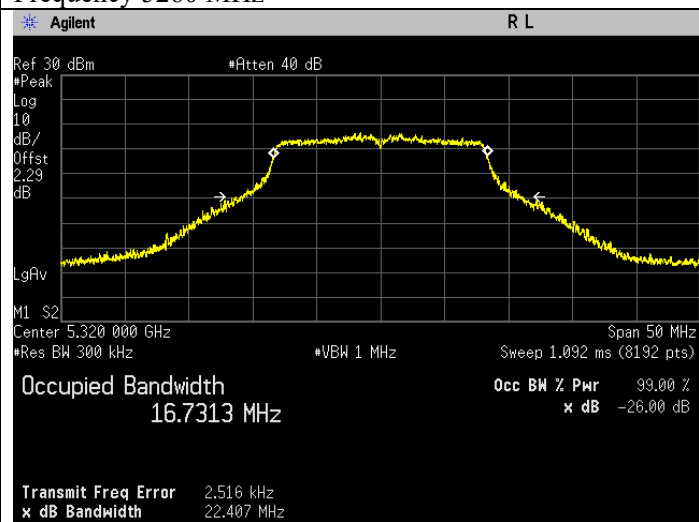
Frequency 5240 MHz



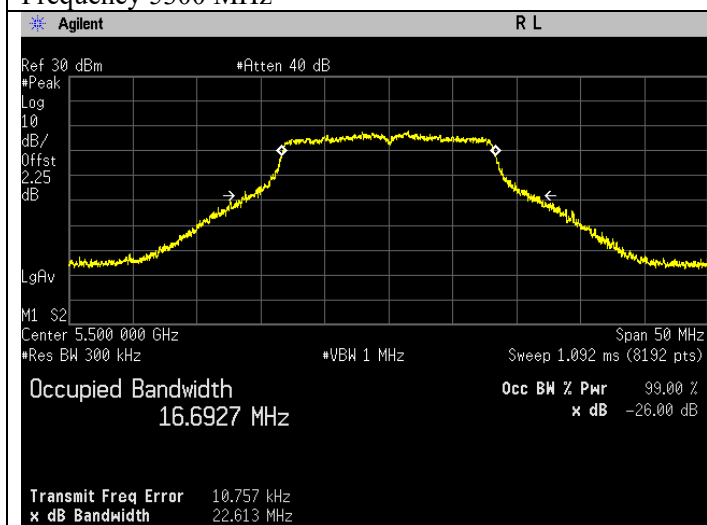
Frequency 5260 MHz



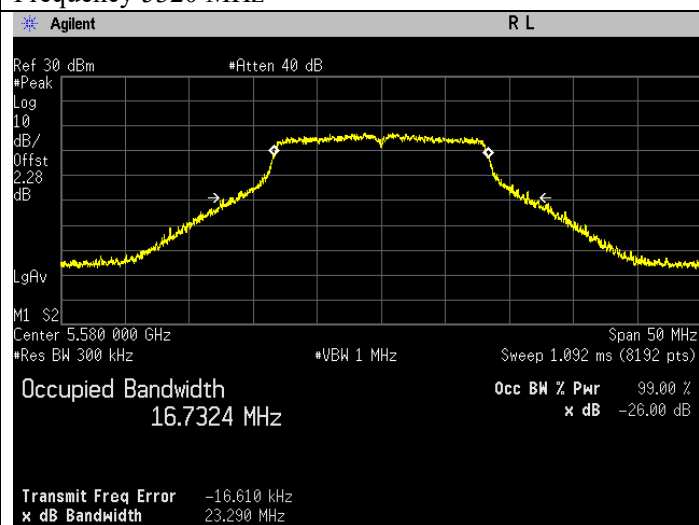
Frequency 5300 MHz



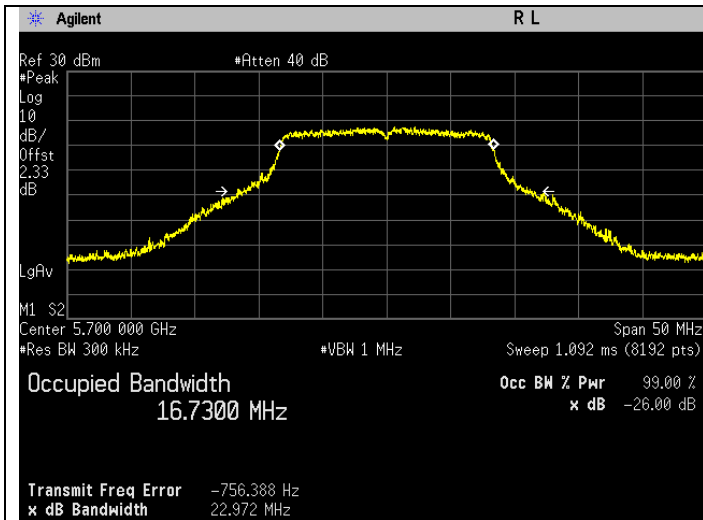
Frequency 5320 MHz



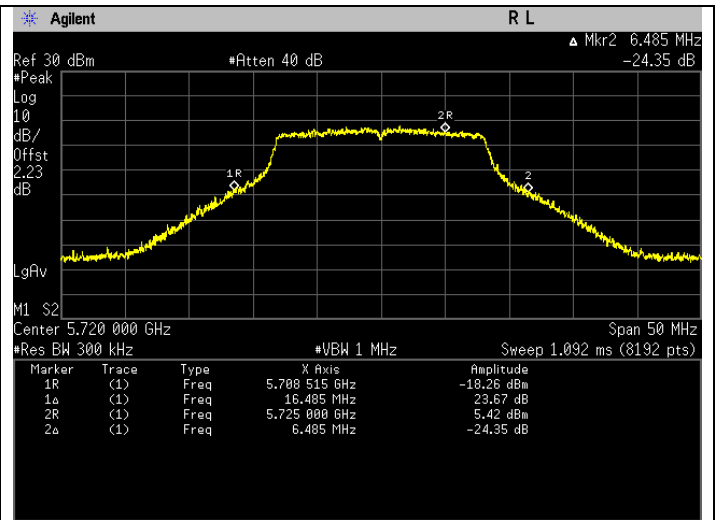
Frequency 5500 MHz



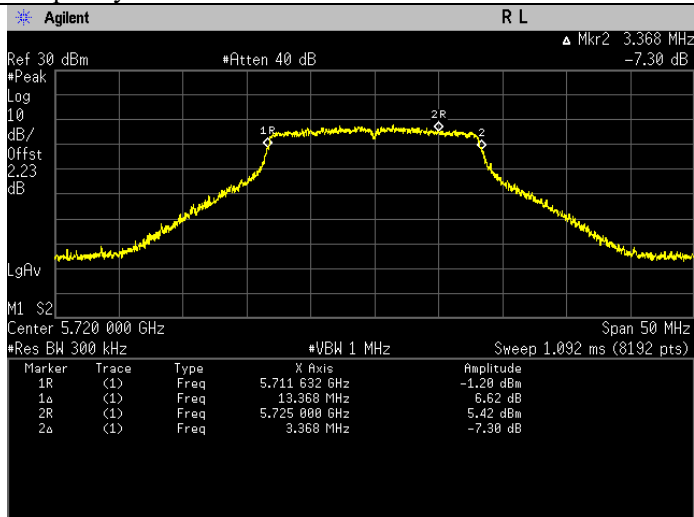
Frequency 5580 MHz



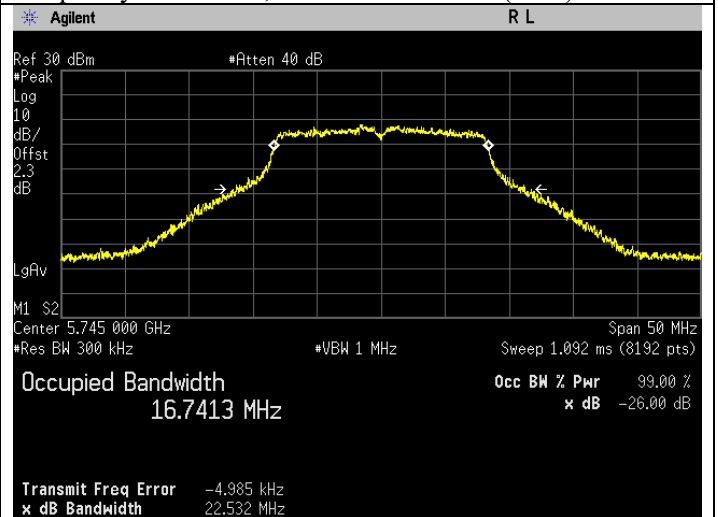
Frequency 5700 MHz



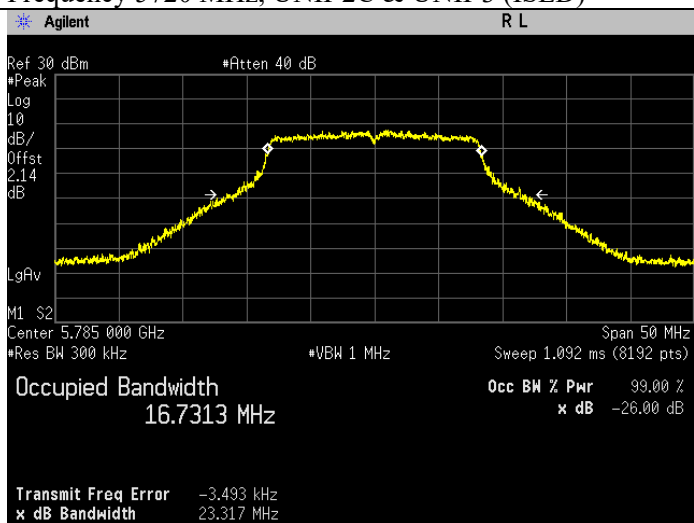
Frequency 5720 MHz, UNII-2C & UNII-3(FCC)



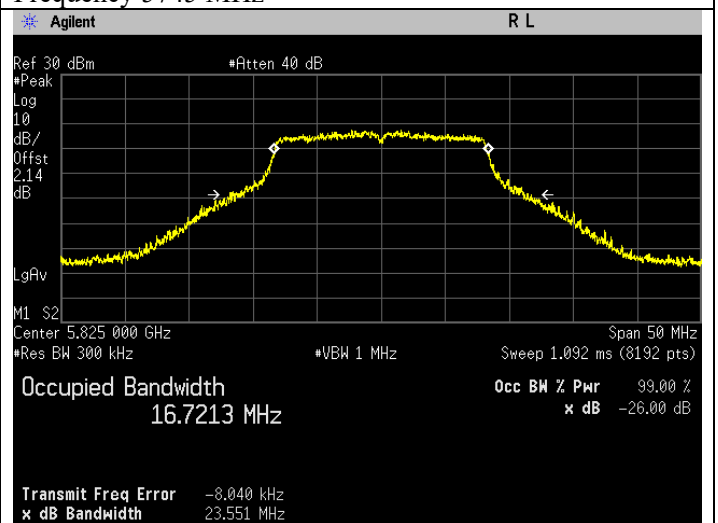
Frequency 5720 MHz, UNII-2C & UNII-3 (ISED)



Frequency 5745 MHz



Frequency 5785 MHz

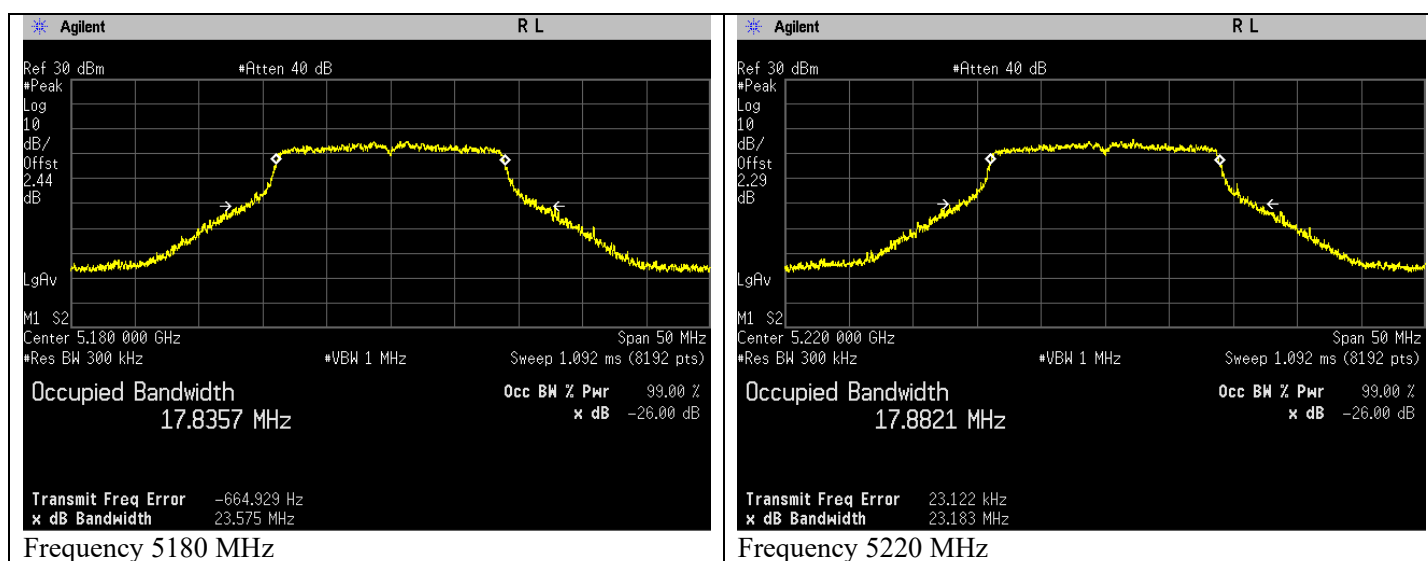


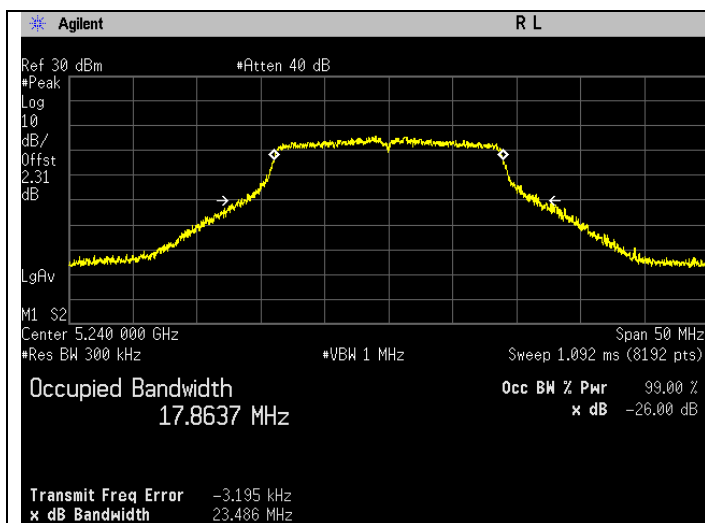
Frequency 5825 MHz

802.11n (HT20)

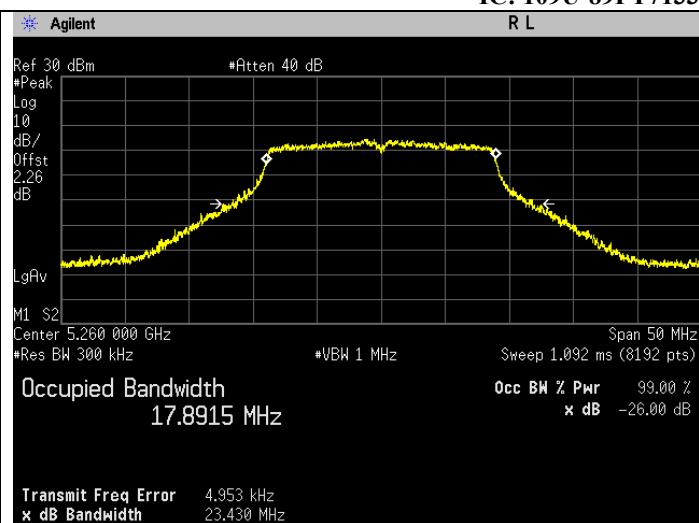
Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.575	Pass	17.836	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.183	Pass	17.882	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.486	Pass	17.863	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.430	Pass	17.892	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	25.260	Pass	17.878	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	24.137	Pass	17.873	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.994	Pass	17.907	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.687	Pass	17.861	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.836	Pass	17.858	Pass
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5), UNII-2C	17.132	Pass	13.935	Pass
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5), UNII-3	7.132	Pass	3.935	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.565	Pass	17.878	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	23.530	Pass	17.863	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	24.118	Pass	17.913	Pass

26 dB Bandwidth/ 99% Bandwidth

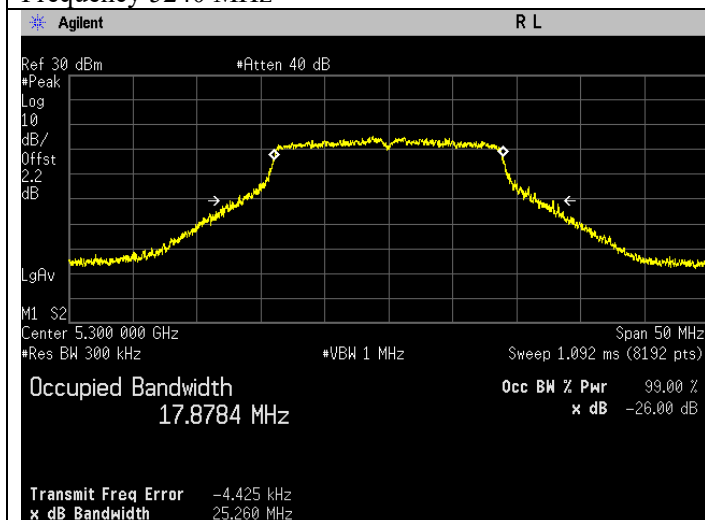




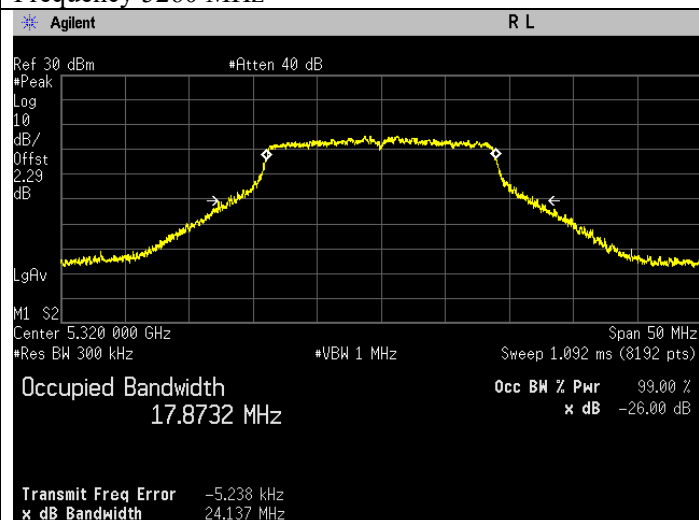
Frequency 5240 MHz



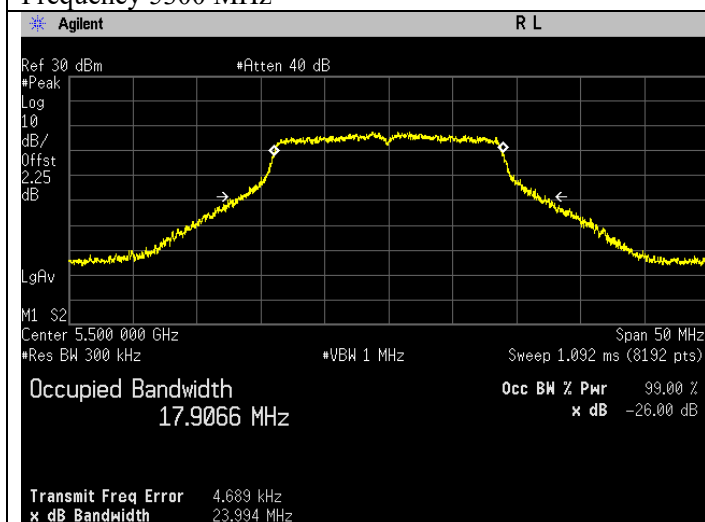
Frequency 5260 MHz



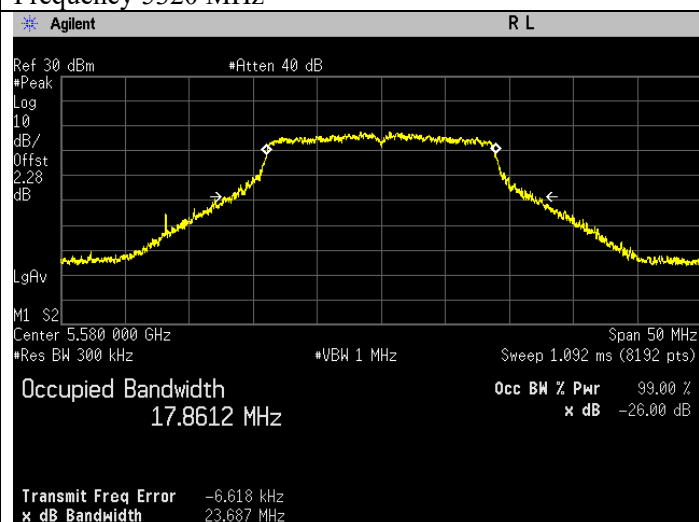
Frequency 5300 MHz



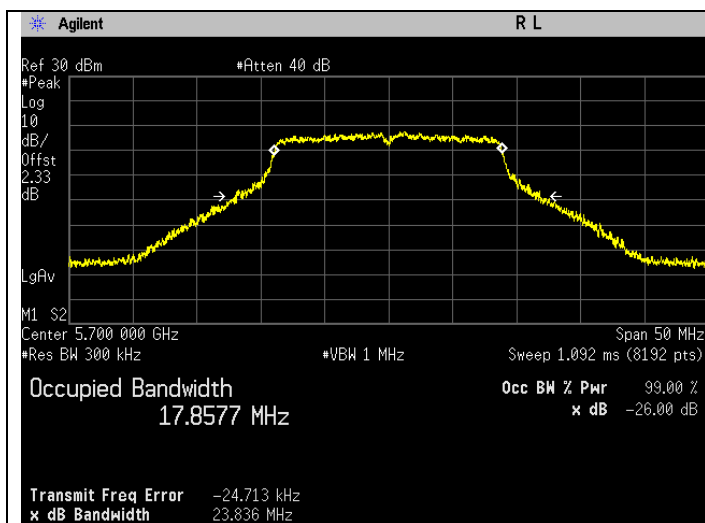
Frequency 5320 MHz



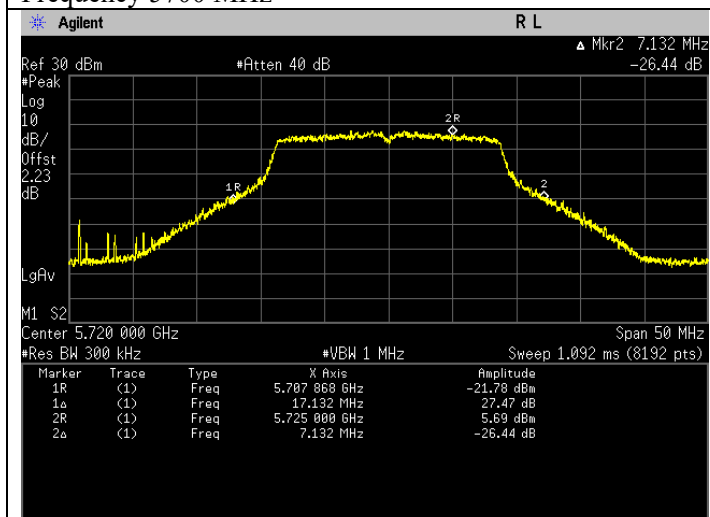
Frequency 5500 MHz



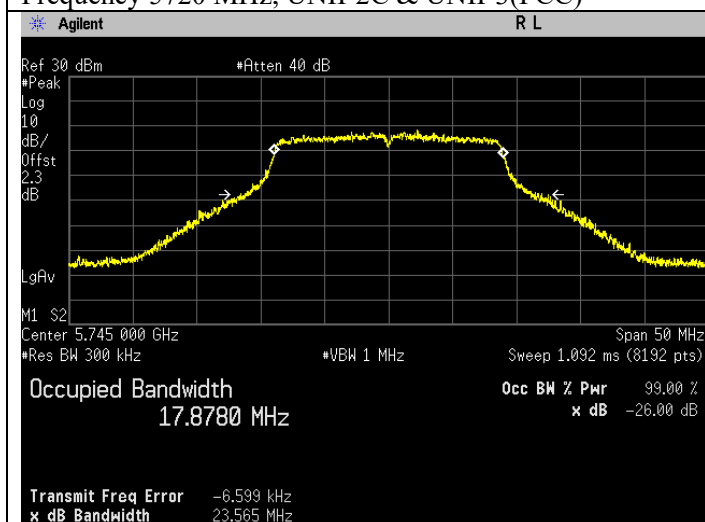
Frequency 5580 MHz



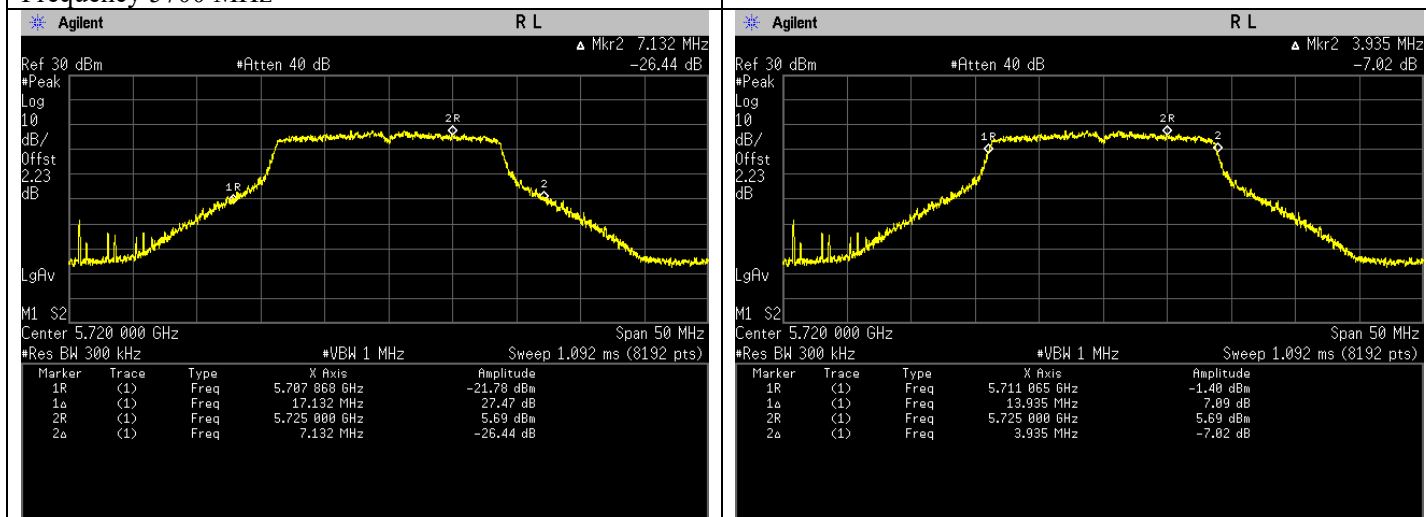
Frequency 5700 MHz



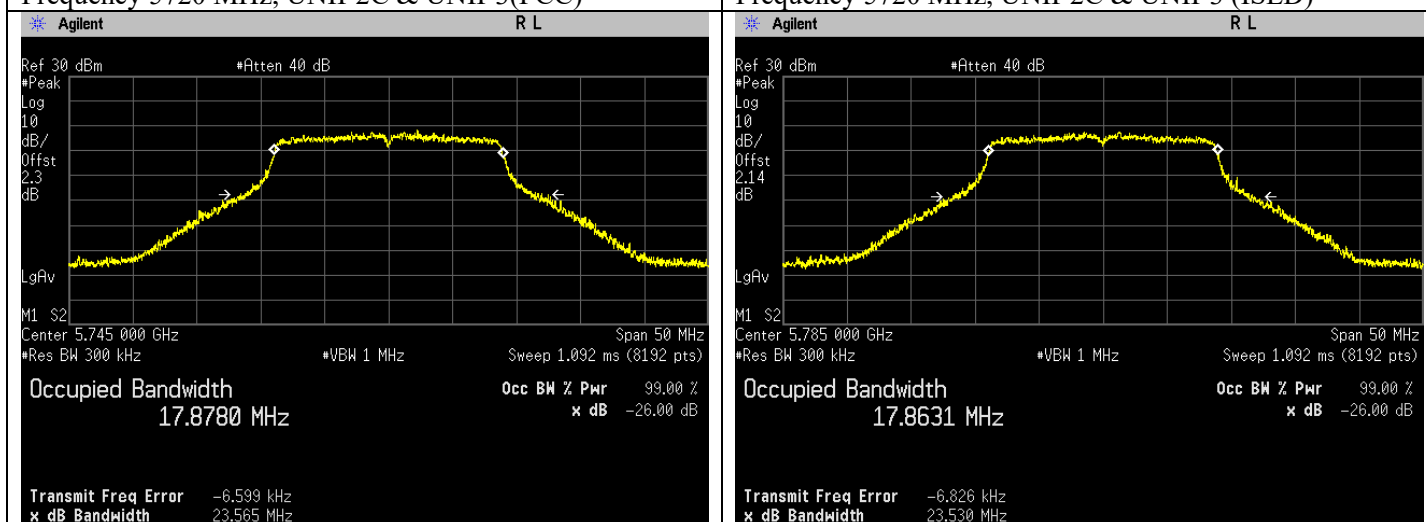
Frequency 5720 MHz, UNII-2C & UNII-3(FCC)



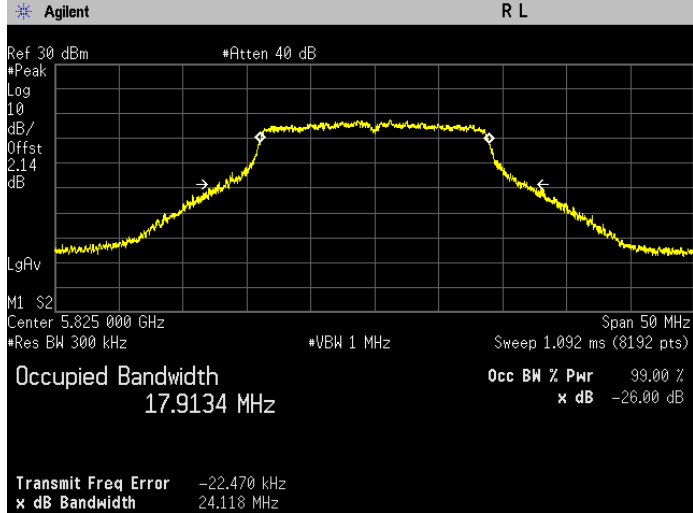
Frequency 5745 MHz



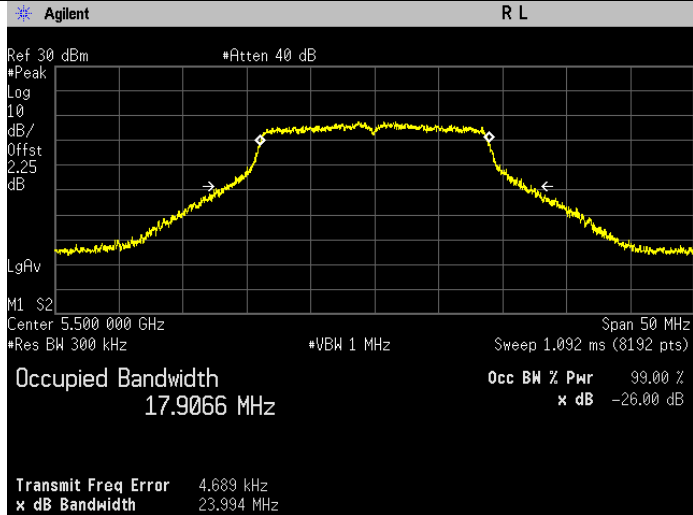
Frequency 5720 MHz, UNII-2C & UNII-3 (ISED)



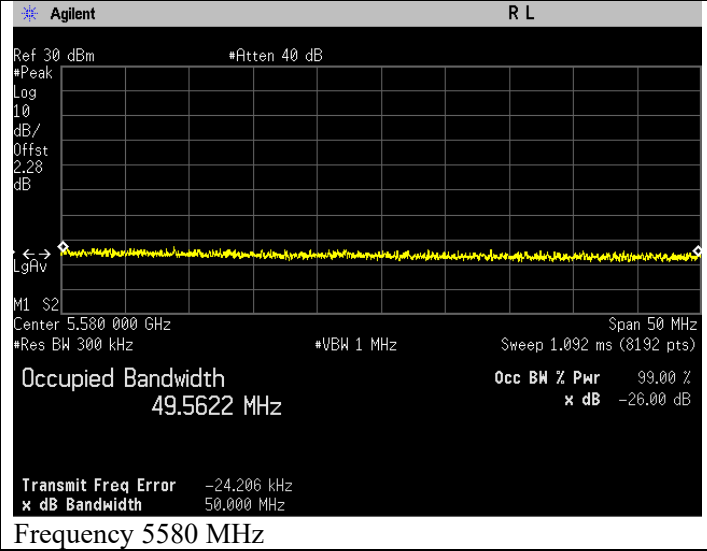
Frequency 5785 MHz



Frequency 5825 MHz



Frequency 5500 MHz

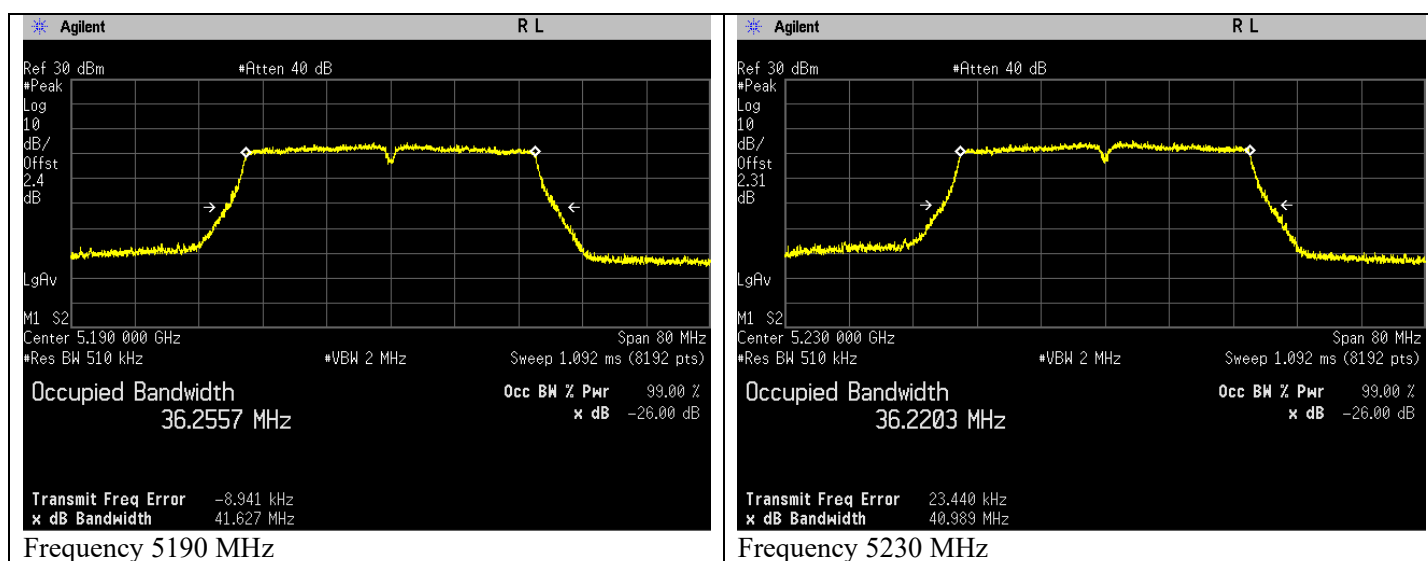


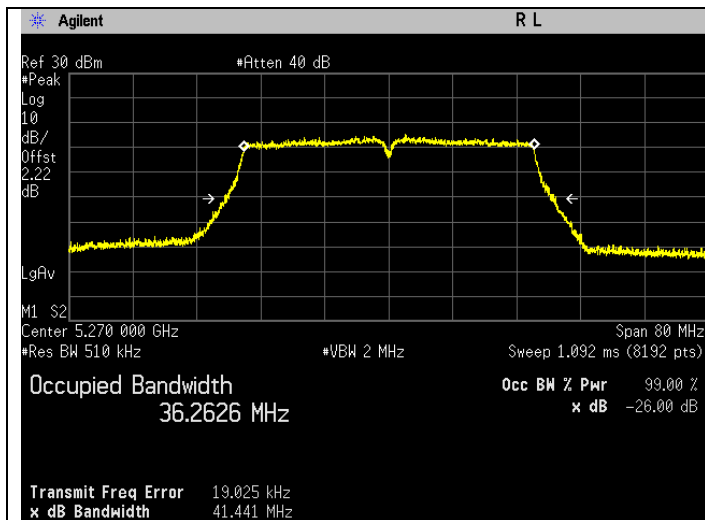
Frequency 5580 MHz

802.11n (HT40)

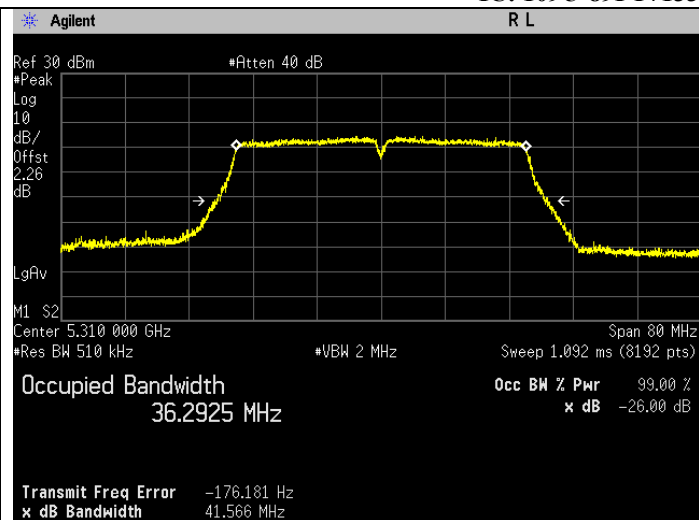
Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5190	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	41.627	Pass	36.256	Pass
5230	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	40.989	Pass	36.220	Pass
5270	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	41.441	Pass	36.260	Pass
5310	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	41.566	Pass	36.293	Pass
5510	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	40.882	Pass	36.227	Pass
5590	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	39.968	Pass	36.272	Pass
5670	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	40.377	Pass	36.304	Pass
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5), UNII-2C	35.747	Pass	33.122	Pass
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5), UNII-3	5.747	Pass	3.122	Pass
5755	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	41.645	Pass	36.285	Pass
5795	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	38.275	Pass	36.203	Pass

26 dB Bandwidth/ 99% Bandwidth

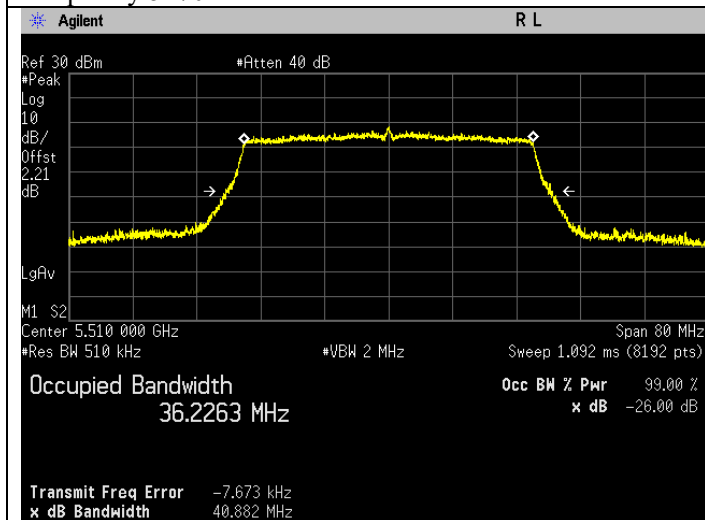




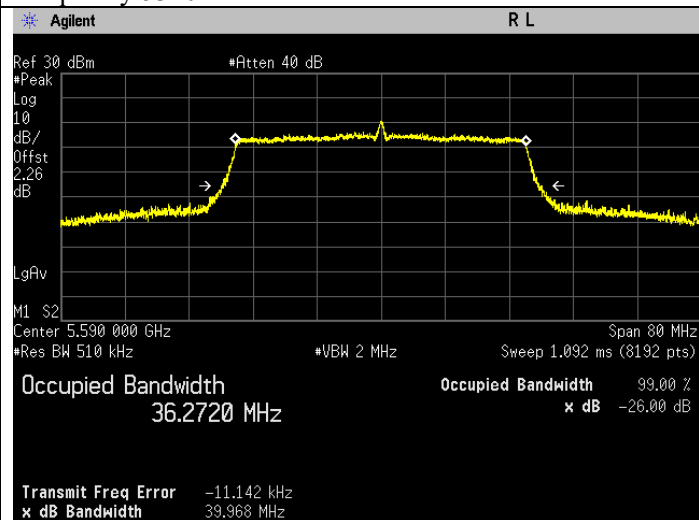
Frequency 5270 MHz



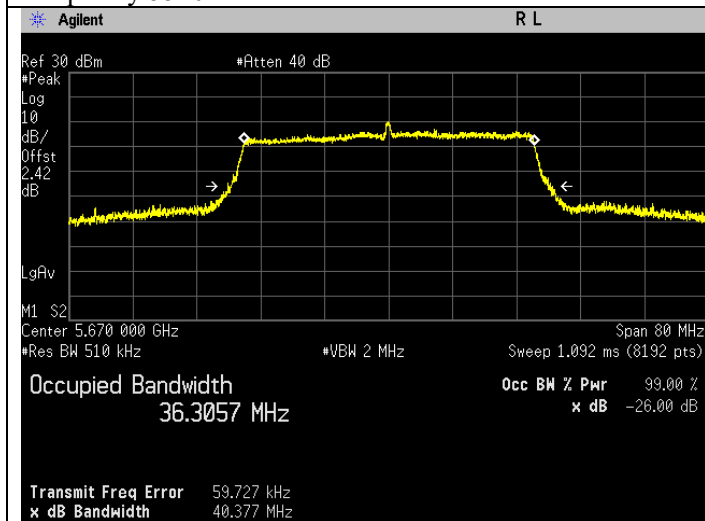
Frequency 5310 MHz



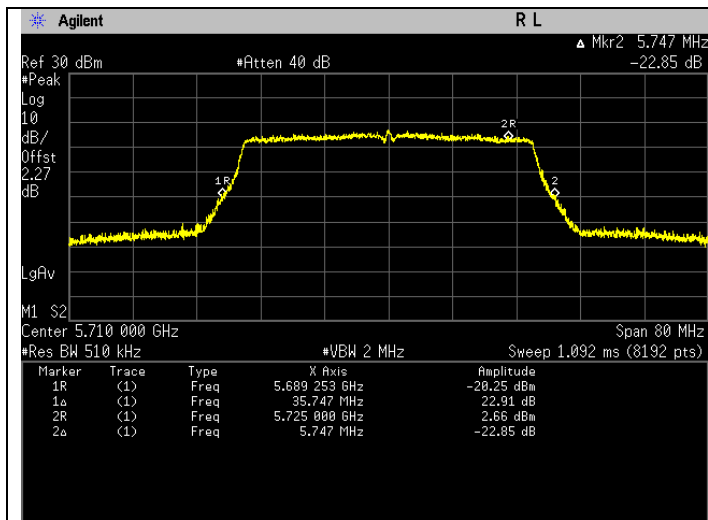
Frequency 5510 MHz



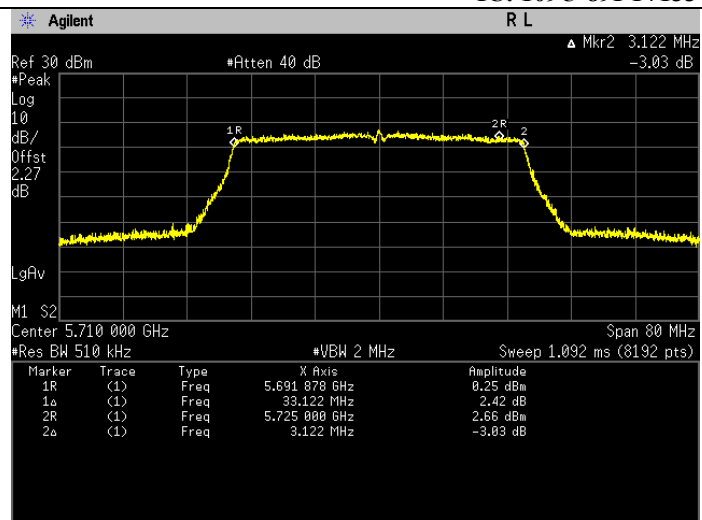
Frequency 5590 MHz



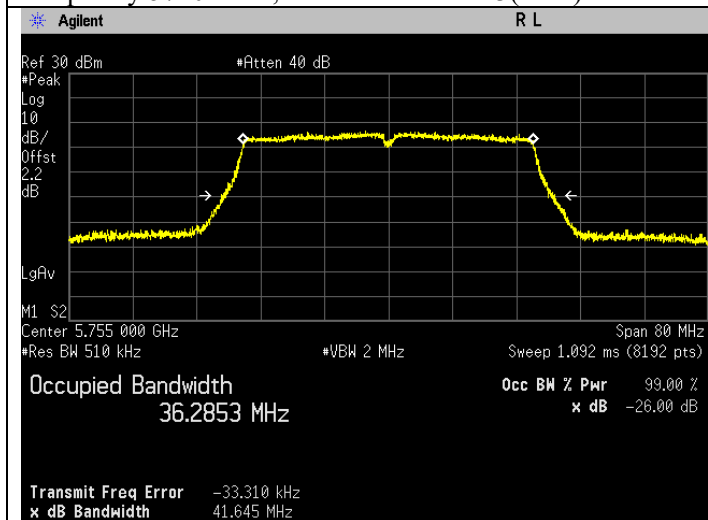
Frequency 5670 MHz



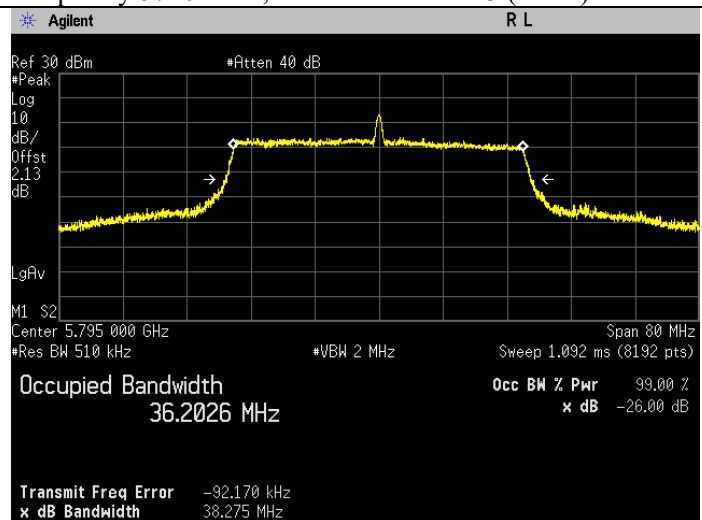
Frequency 5710 MHz, UNII-2C & UNII-3(FCC)



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



Frequency 5755 MHz

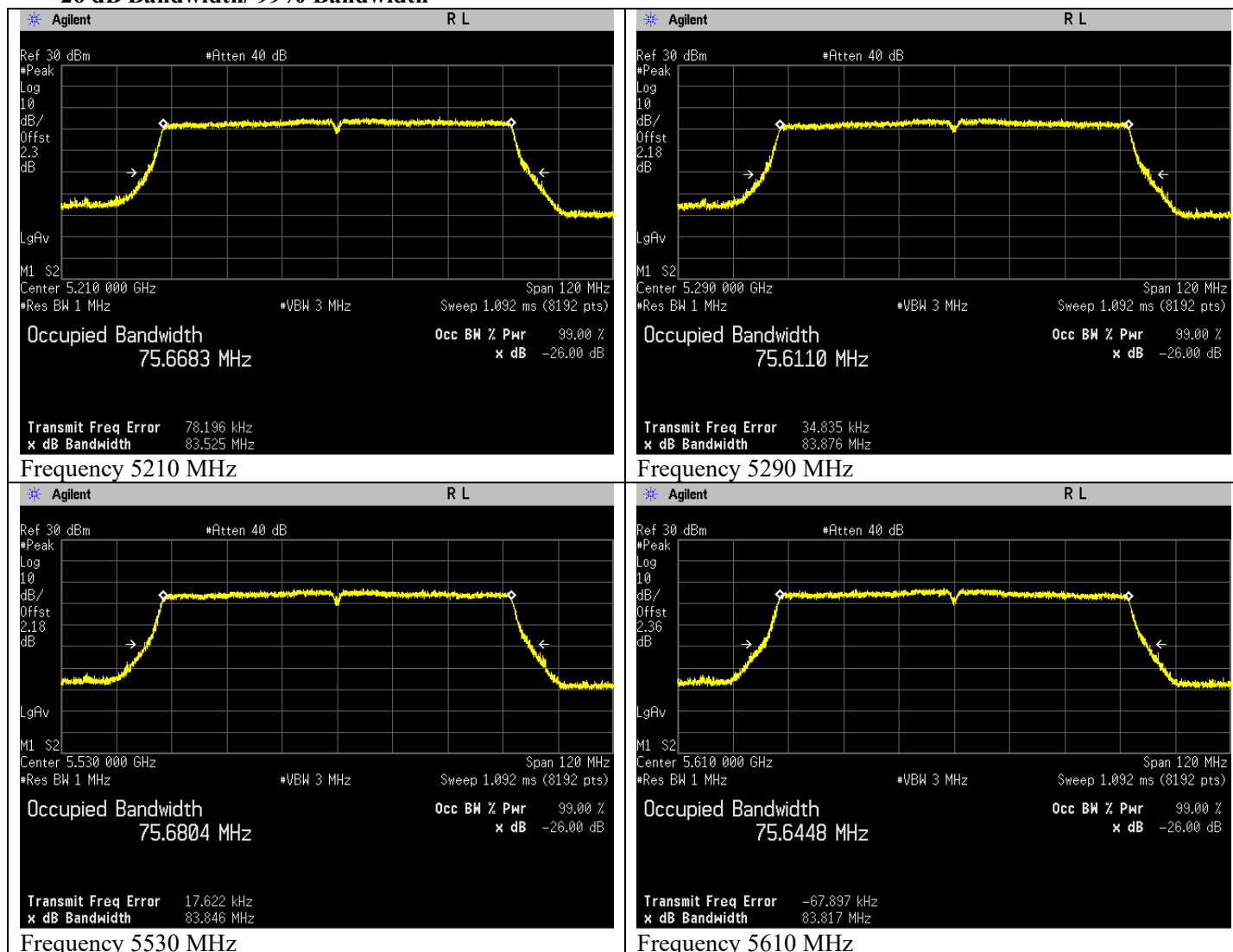


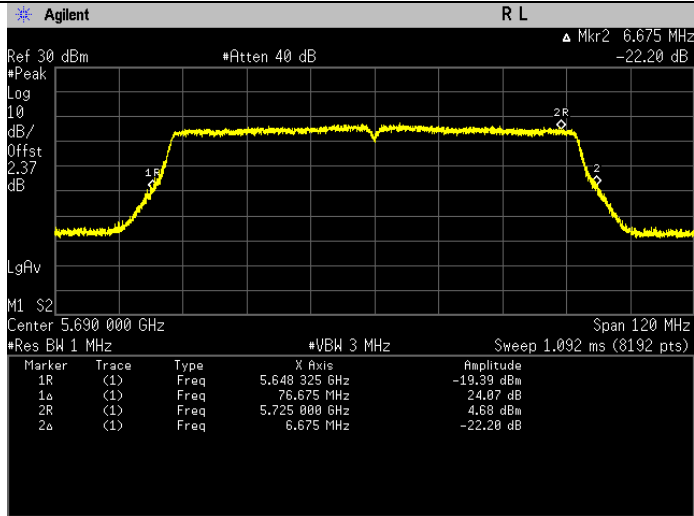
Frequency 5795 MHz

802.11ac (VHT80)

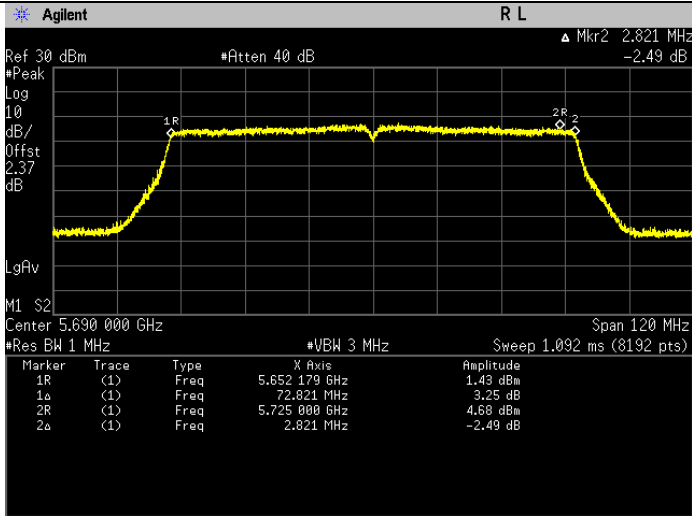
Frequency (MHz)	Test Configuration	Results			
		26 dB Bandwidth(MHz)	Status	99% Bandwidth(MHz)	Status
5210	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.525	Pass	75.665	Pass
5290	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.876	Pass	75.611	Pass
5530	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.838	Pass	75.681	Pass
5610	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.817	Pass	75.646	Pass
5690	Mod Type: BPSK, Data Rate: MCS0(29.3), UNII-2C	76.675	Pass	72.821	Pass
5690	Mod Type: BPSK, Data Rate: MCS0(29.3), UNII-3	6.675	Pass	2.821	Pass
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	83.398	Pass	75.640	Pass

26 dB Bandwidth/ 99% Bandwidth

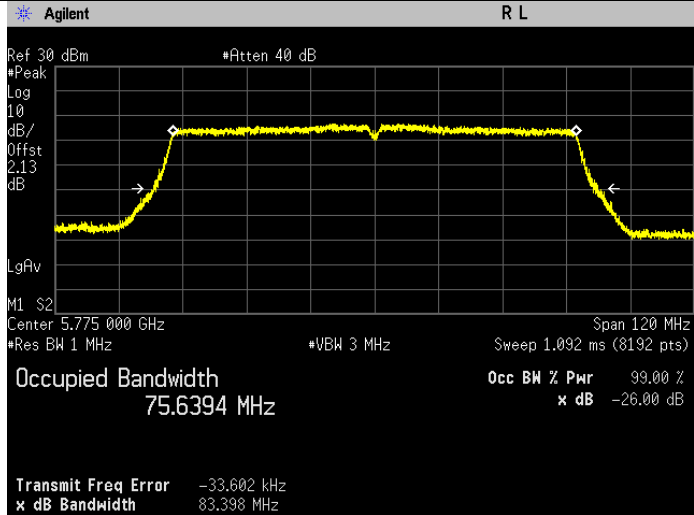




Frequency 5690 MHz, UNII-2C & UNII-3(FCC)



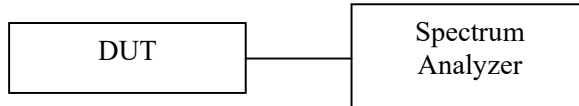
Frequency 5690 MHz, UNII-2C & UNII-3 (ISED)



Frequency 5775 MHz

6.2. Maximum Conducted Output Power

6.2.1. Test Setup



- Test setup as per illustrated above.
- Set DUT to transmit at desire transmit frequency.
- Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - Span to encompass the entire 26dB EBW or 99% Occupied Bandwidth.
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = power averaging (RMS)
 - Trace = Max hold
 - Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$
 - 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
- The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause E.2.d) Method SA-2.
- The Maximum output power results are included duty cycle correction factor.

6.2.2. Test Limits

FCC 15.407(a)

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

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)	$\leq 1\text{W}$

6.2.3. Additional Info

Antenna	Gain (dBi)
UNII1 & 2a	5.04
UNII2c & 3	2.46
Duty Cycle Correction Factor	
802.11a	0.072
802.11n20	0.080
802.11n40	0.159
802.11ac80	0.319

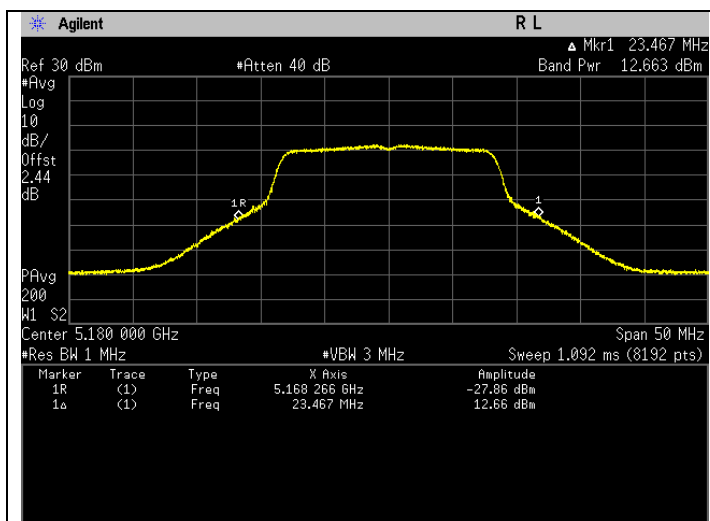
6.2.4. Test Data

Summary table

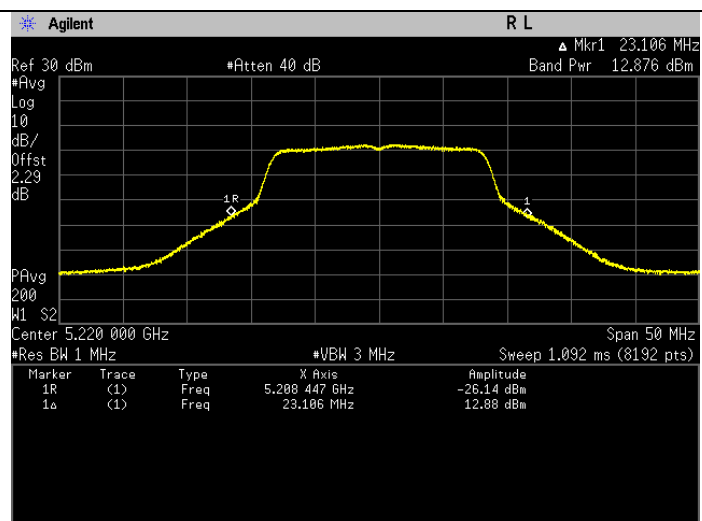
WLAN	Frequency Range (MHz)	Bandwidth (MHz)	RF Power Output		EIRP	
			Max measured (mW)	Max declared (mW)	Max measured (mW)	Max declared (mW)
802.11a	5180-5240	20	20.679	25.12	65.993	80.17
	5260-5320	20	19.603	25.12	62.56	80.17
	5500-5720	20	34.98	39.81	61.631	70.15
	5745-5825	20	34.684	39.81	61.108	70.15
802.11n	5180-5240	20	22.13	25.12	70.632	80.17
	5260-5320	20	21.656	25.12	69.119	80.17
	5500-5720	20	36.845	39.81	64.863	70.15
	5745-5825	20	36.39	39.81	64.121	70.15
802.11n	5190-5230	40	22.217	25.12	70.909	80.17
	5270-5310	40	22.96	25.12	73.282	80.17
	5510-5710	40	38.052	39.81	67.05	70.15
	5755-5795	40	35.276	39.81	62.158	70.15
802.11ac	5210	80	24.504	25.12	78.217	80.17
	5290	80	22.374	25.12	71.417	80.17
	5530-5690	80	35.111	39.81	61.859	70.15
	5775	80	33.292	39.81	58.668	70.15

802.11a (26dB EBW)

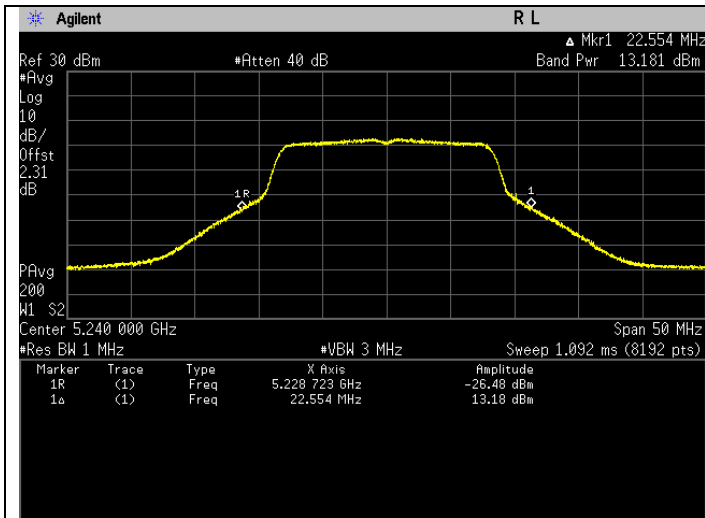
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5180	Mod Type: BPSK, Data Rate: 6	18.773	12.735	Pass
5220	Mod Type: BPSK, Data Rate: 6	19.716	12.948	Pass
5240	Mod Type: BPSK, Data Rate: 6	21.151	13.253	Pass
5260	Mod Type: BPSK, Data Rate: 6	18.519	12.676	Pass
5300	Mod Type: BPSK, Data Rate: 6	19.585	12.919	Pass
5320	Mod Type: BPSK, Data Rate: 6	20.097	13.031	Pass
5500	Mod Type: BPSK, Data Rate: 6	34.011	15.316	Pass
5580	Mod Type: BPSK, Data Rate: 6	32.706	15.146	Pass
5700	Mod Type: BPSK, Data Rate: 6	36.235	15.591	Pass
5745	Mod Type: BPSK, Data Rate: 6	34.940	15.433	Pass
5785	Mod Type: BPSK, Data Rate: 6	34.129	15.331	Pass
5825	Mod Type: BPSK, Data Rate: 6	34.208	15.341	Pass



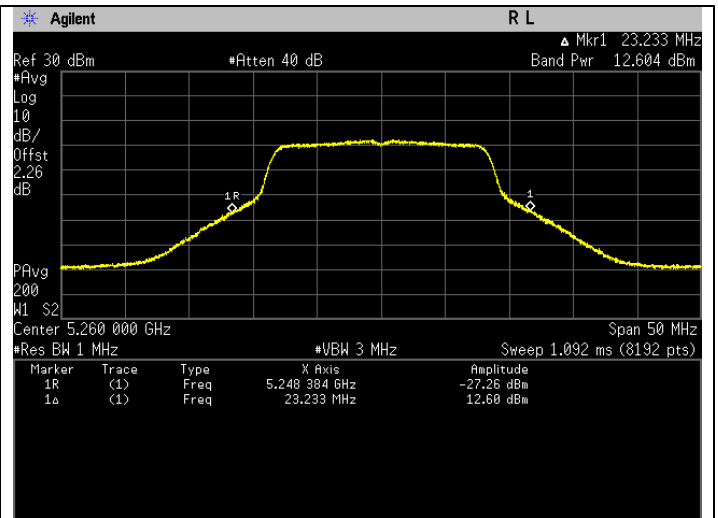
Frequency 5180 MHz, FCC.



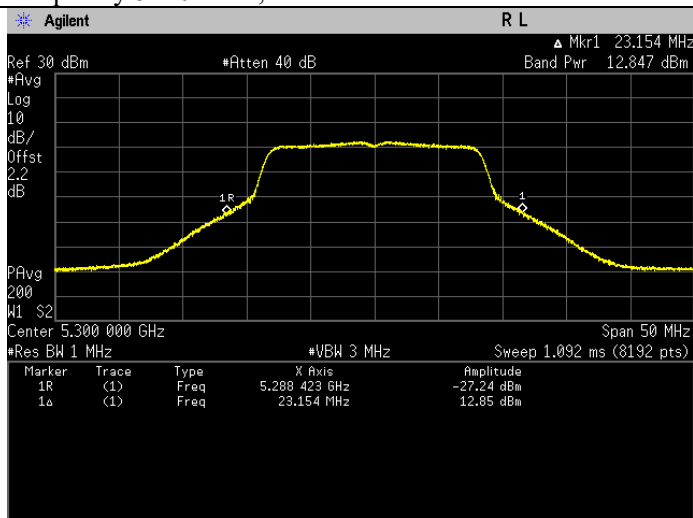
Frequency 5220 MHz, FCC.



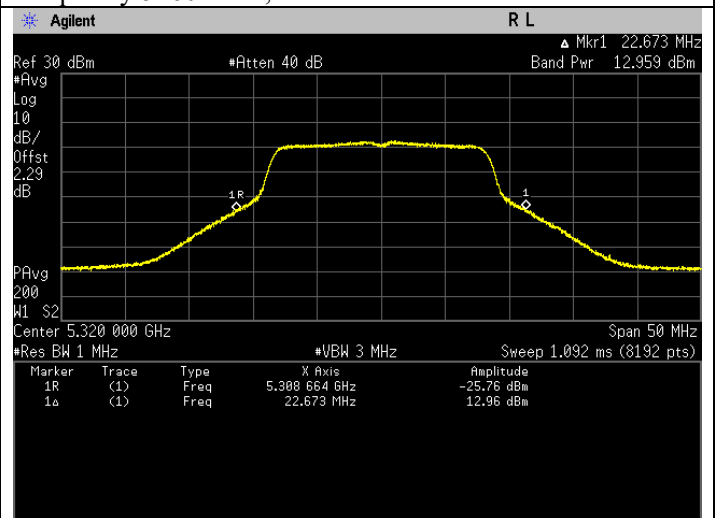
Frequency 5240 MHz, FCC.



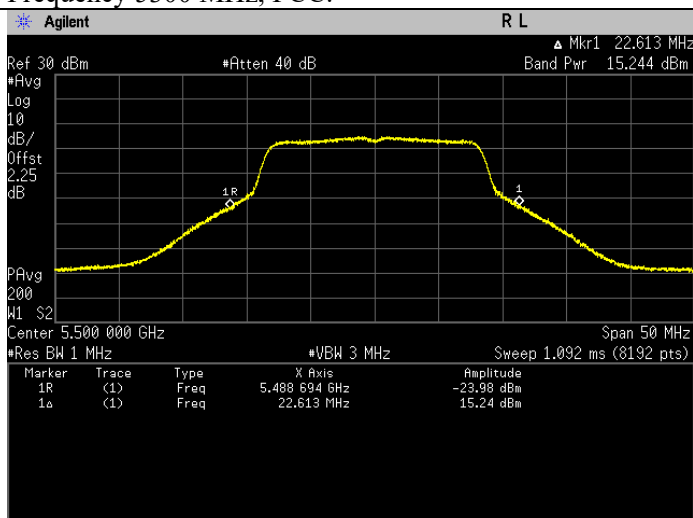
Frequency 5260 MHz, FCC.



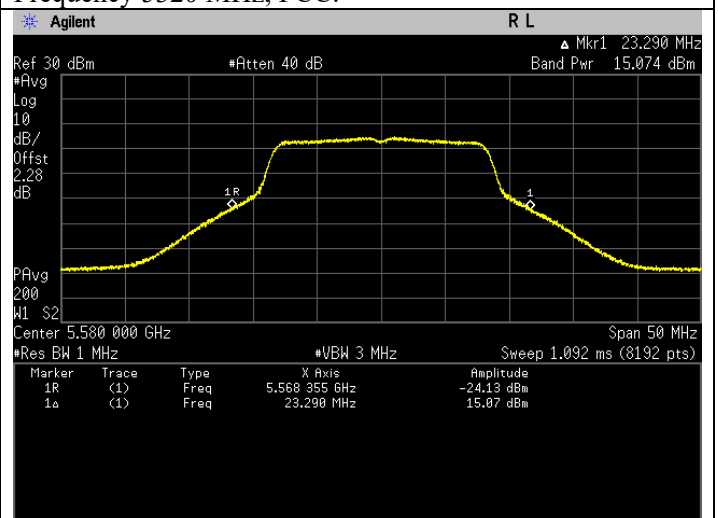
Frequency 5300 MHz, FCC.



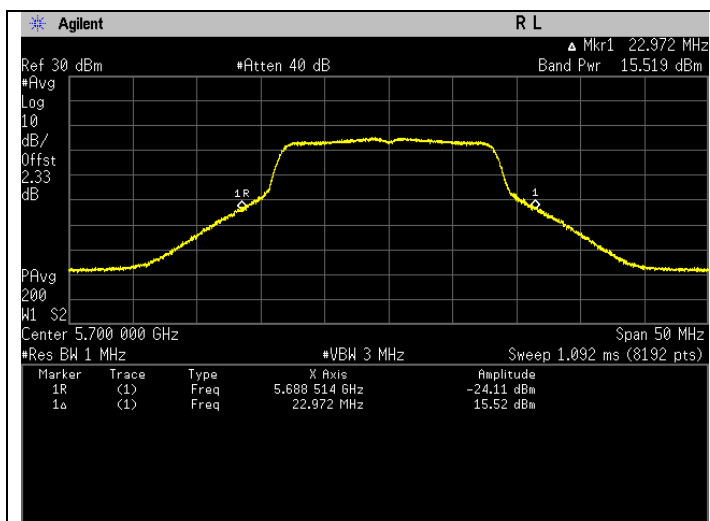
Frequency 5320 MHz, FCC.



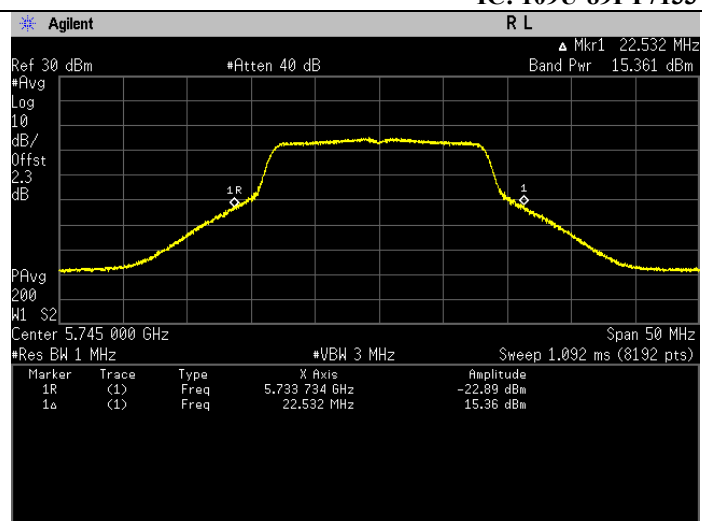
Frequency 5500 MHz, FCC.



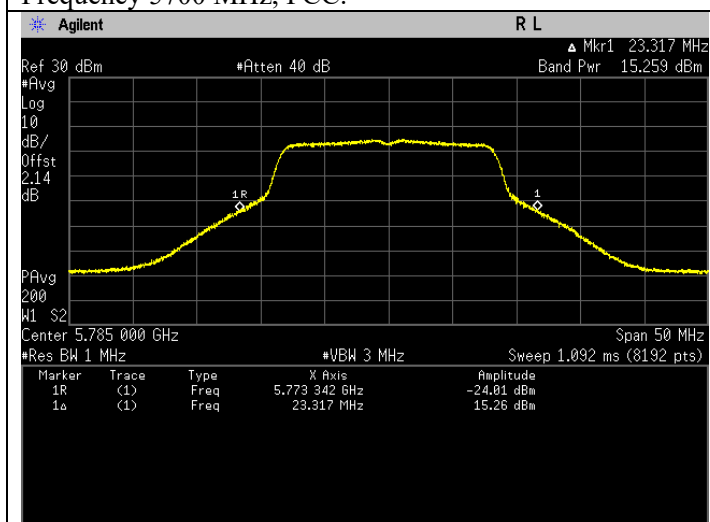
Frequency 5580 MHz, FCC.



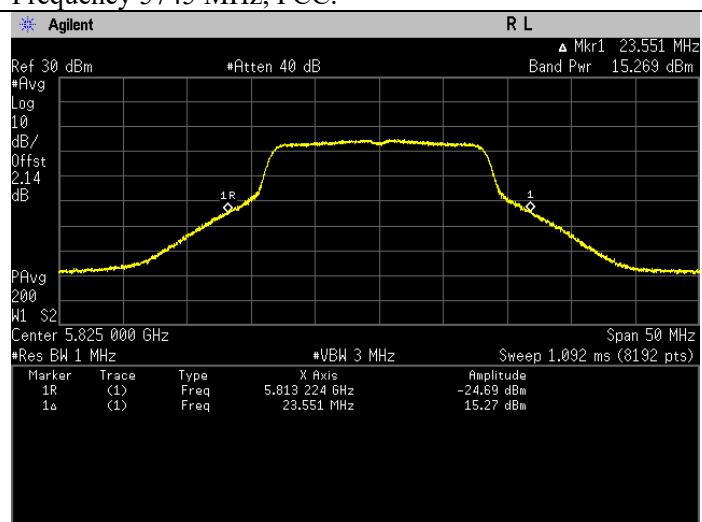
Frequency 5700 MHz, FCC.



Frequency 5745 MHz, FCC.



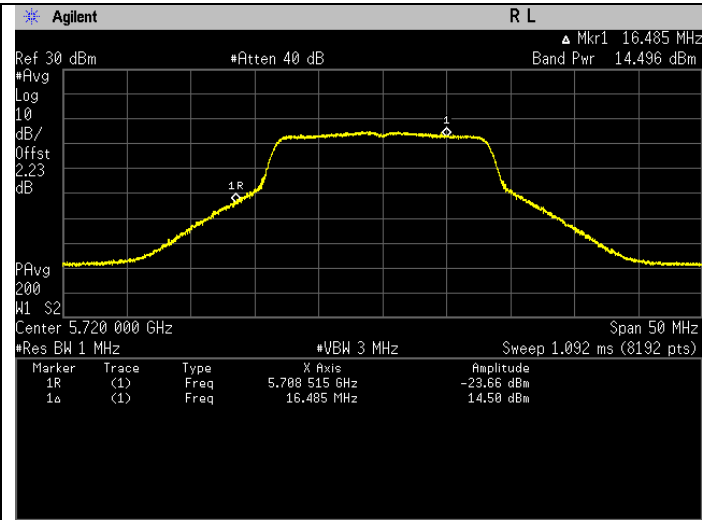
Frequency 5785 MHz, FCC.



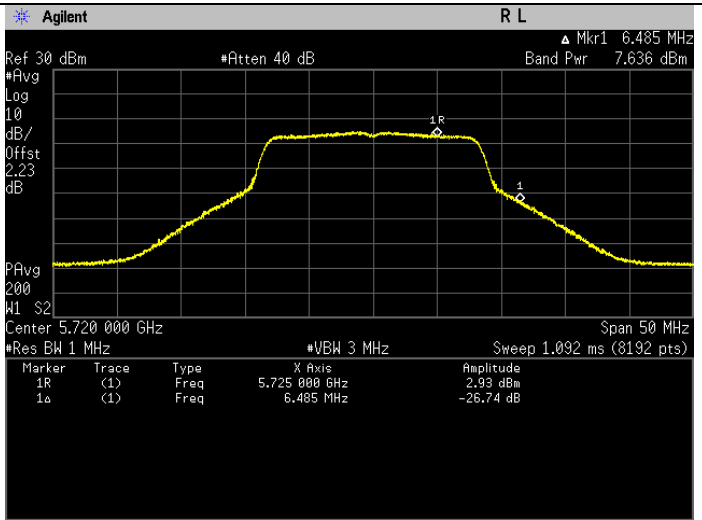
Frequency 5825 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5720	Mod Type: BPSK, Data Rate: 6	28.630	14.568	Pass
		U-NII-3		
5720	Mod Type: BPSK, Data Rate: 6	5.900	7.708	Pass



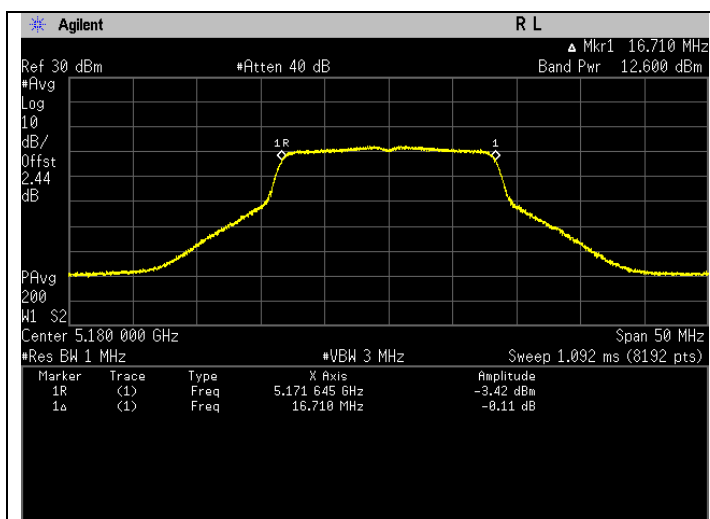
Frequency 5720 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



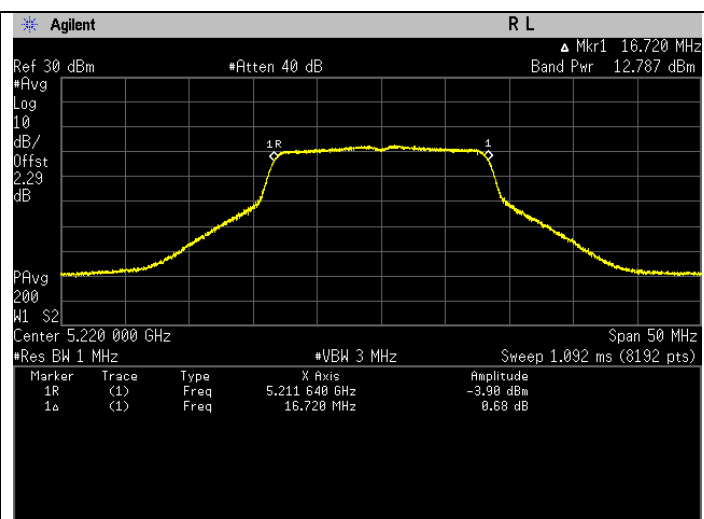
Frequency 5720 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11a (99% EBW)

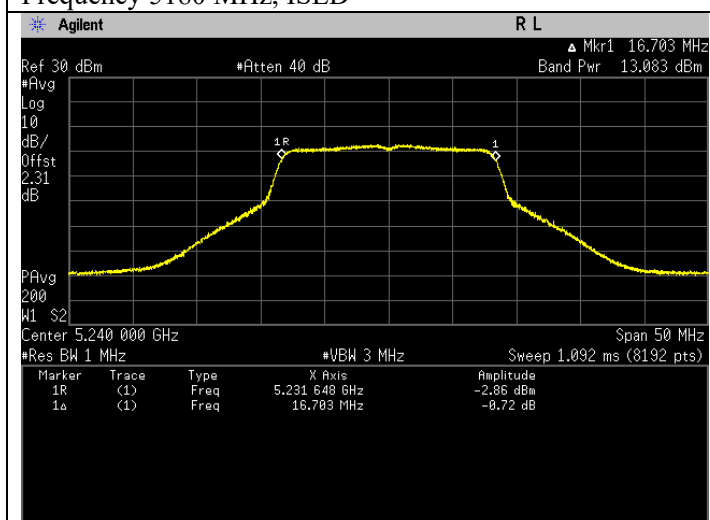
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5180	Mod Type: BPSK, Data Rate: 6	18.502	12.672	Pass	17.712	Pass
5220	Mod Type: BPSK, Data Rate: 6	19.316	12.859	Pass	17.899	Pass
5240	Mod Type: BPSK, Data Rate: 6	20.679	13.155	Pass	18.195	Pass
5260	Mod Type: BPSK, Data Rate: 6	18.434	12.656	Pass	17.696	Pass
5300	Mod Type: BPSK, Data Rate: 6	19.254	12.845	Pass	17.885	Pass
5320	Mod Type: BPSK, Data Rate: 6	19.603	12.923	Pass	17.963	Pass
5500	Mod Type: BPSK, Data Rate: 6	32.948	15.178	Pass	17.638	Pass
5580	Mod Type: BPSK, Data Rate: 6	32.601	15.132	Pass	17.592	Pass
5700	Mod Type: BPSK, Data Rate: 6	34.980	15.438	Pass	17.898	Pass
5745	Mod Type: BPSK, Data Rate: 6	34.684	15.401	Pass	17.861	Pass
5785	Mod Type: BPSK, Data Rate: 6	33.283	15.222	Pass	17.682	Pass
5825	Mod Type: BPSK, Data Rate: 6	32.683	15.143	Pass	17.603	Pass



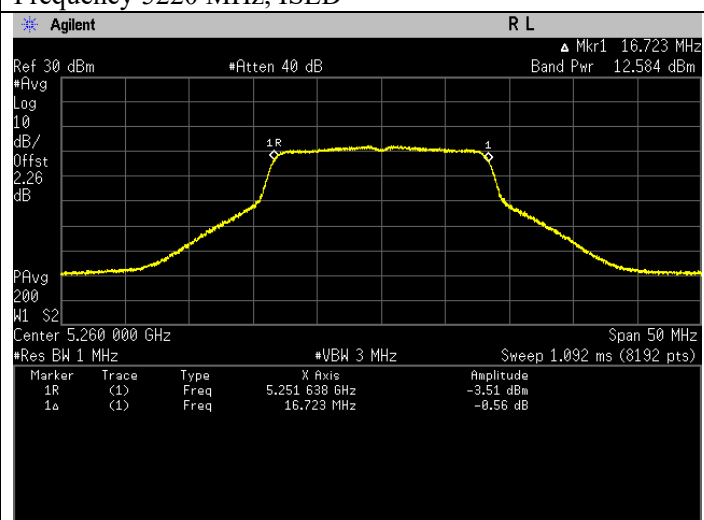
Frequency 5180 MHz, ISED



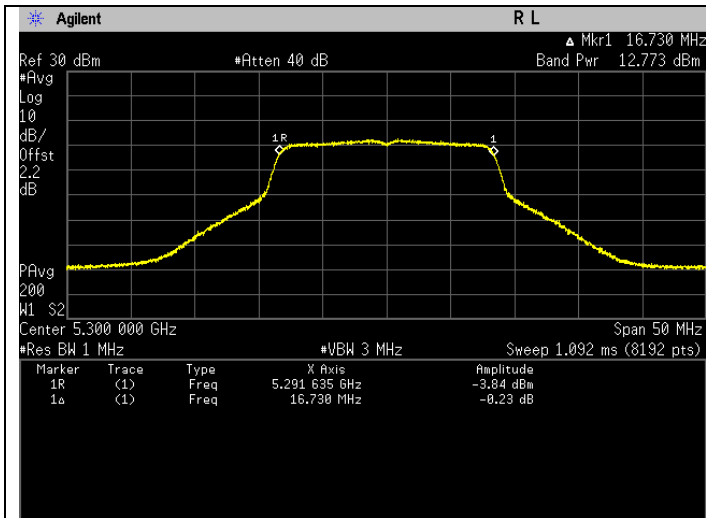
Frequency 5220 MHz, ISED



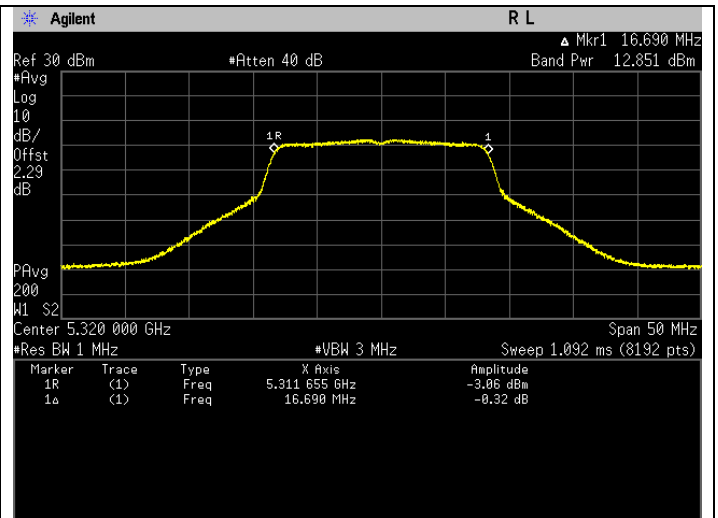
Frequency 5240 MHz, ISED



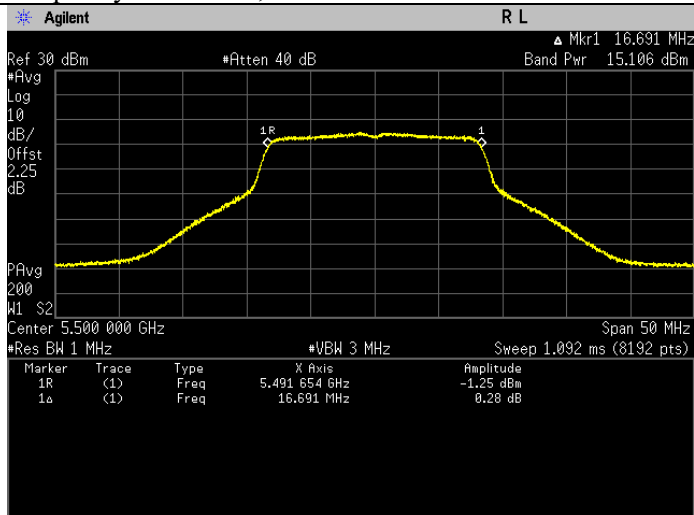
Frequency 5260 MHz, ISED



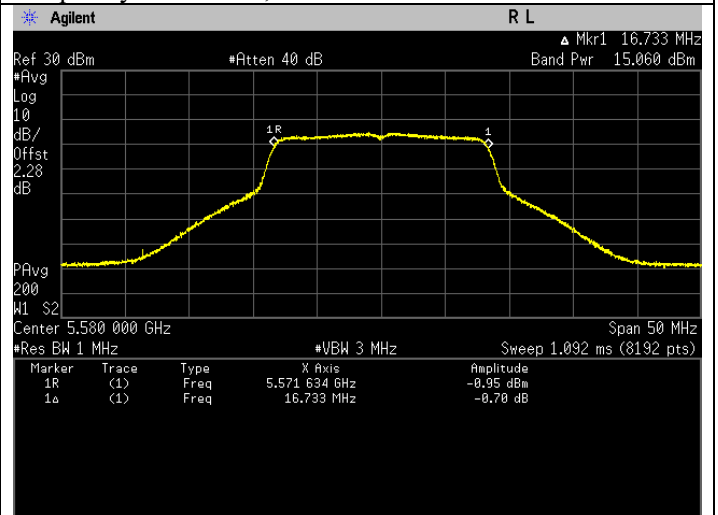
Frequency 5300 MHz, ISED



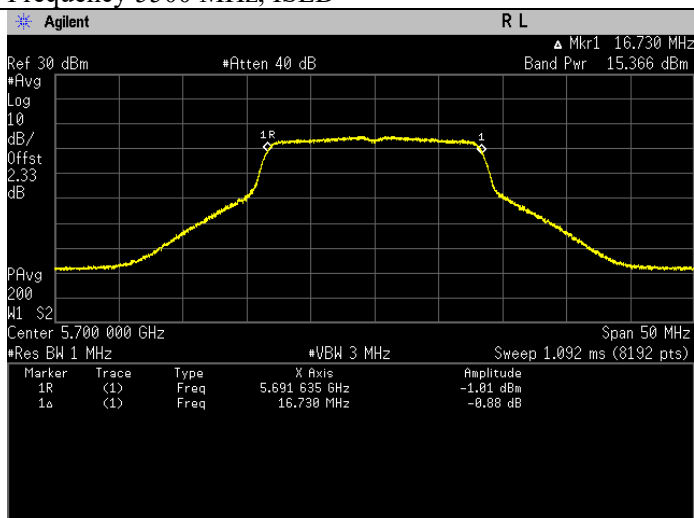
Frequency 5320 MHz, ISED



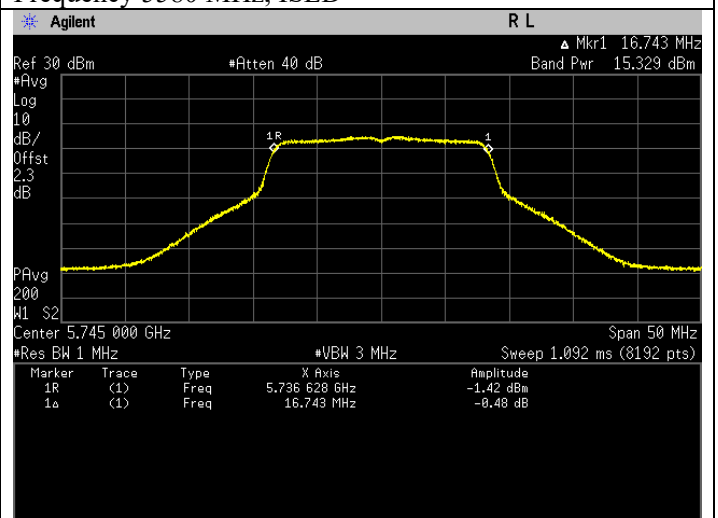
Frequency 5500 MHz, ISED



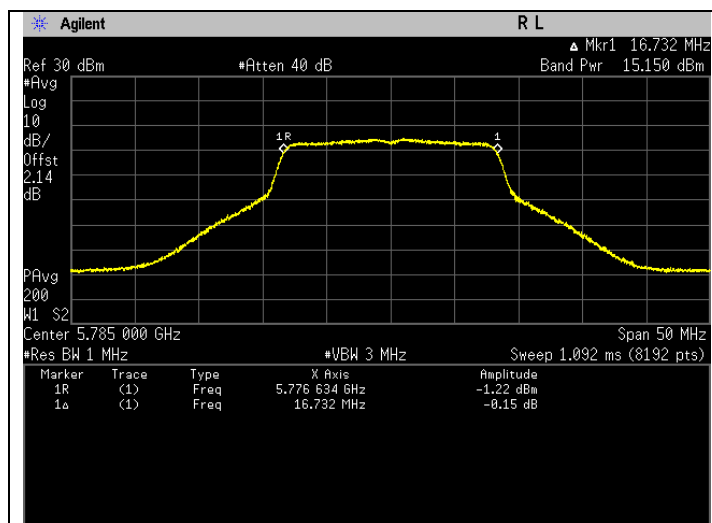
Frequency 5580 MHz, ISED



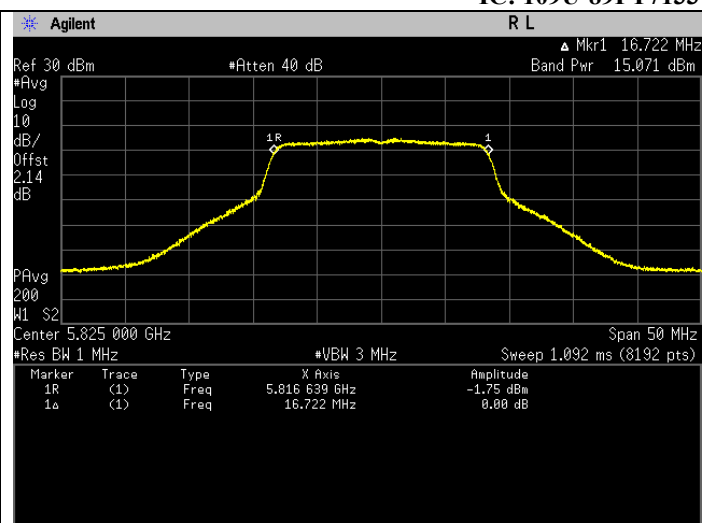
Frequency 5700 MHz, ISED



Frequency 5745 MHz, ISED



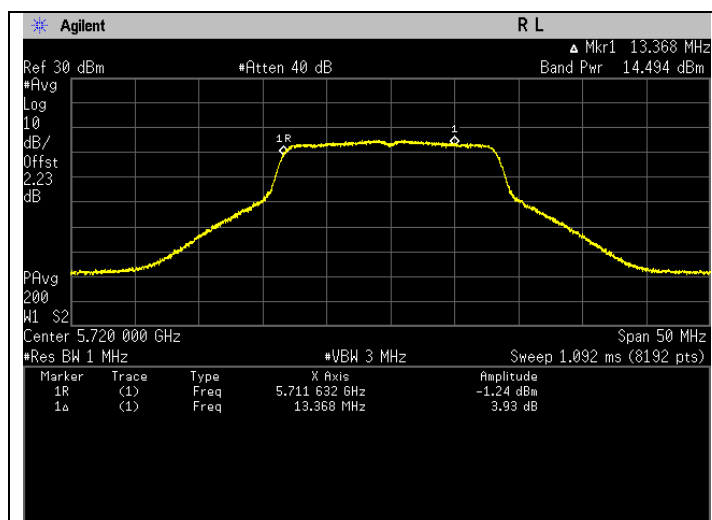
Frequency 5785 MHz, ISSED



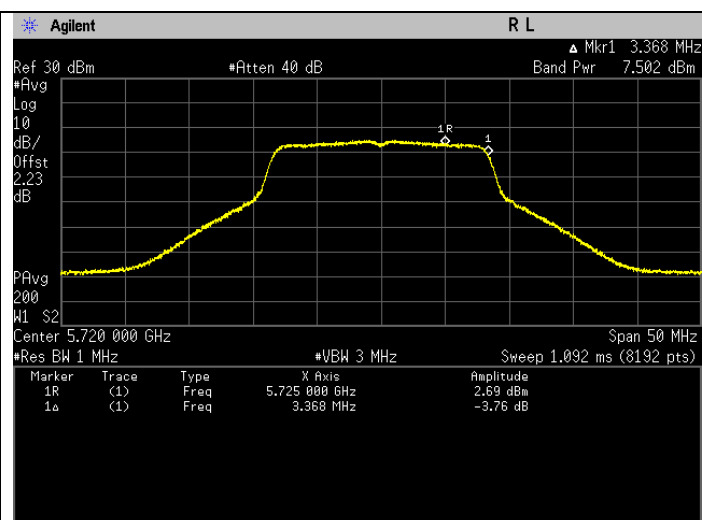
Frequency 5825 MHz, ISSED

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)	28.617	14.566	Pass	17.026	Pass
U-NII-3						
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	5.720	7.574	Pass	10.034	Pass



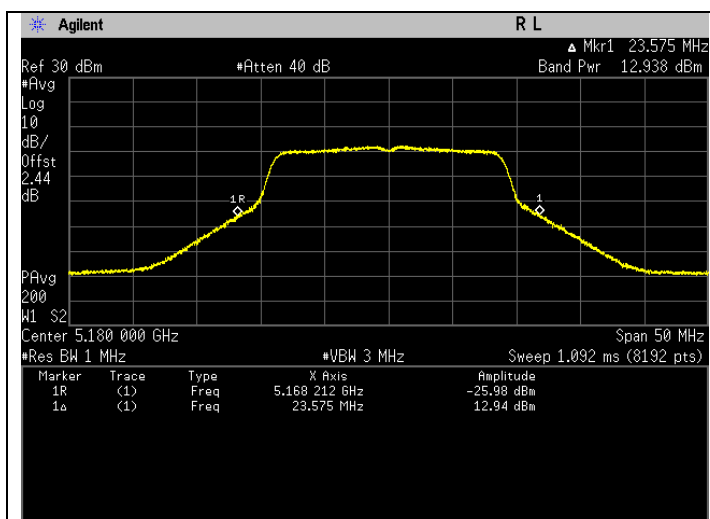
Frequency 5720 MHz, ISSED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



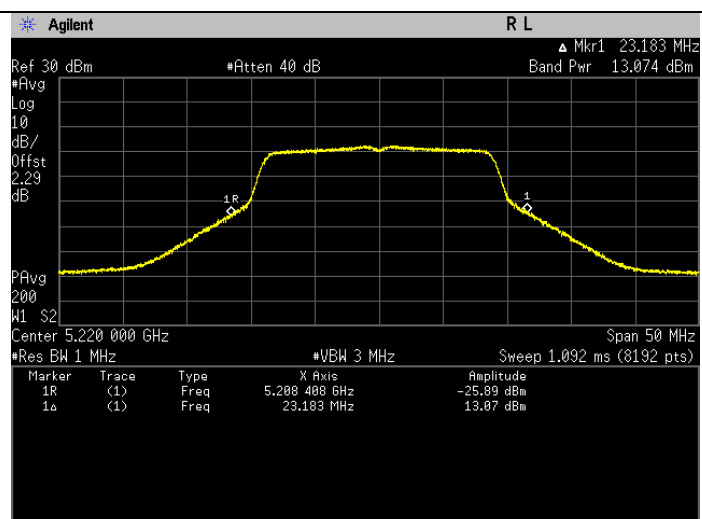
Frequency 5720 MHz, ISSED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT20)(26dB EBW)

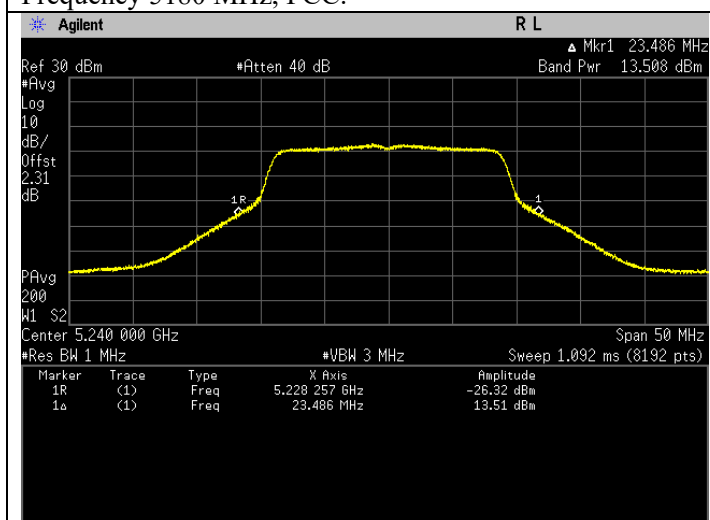
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	20.034	13.018	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	20.672	13.154	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	22.844	13.588	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	18.633	12.703	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	20.796	13.180	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	22.324	13.488	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	36.777	15.656	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	35.627	15.518	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	37.773	15.772	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	36.845	15.664	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	35.693	15.526	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	35.316	15.480	Pass



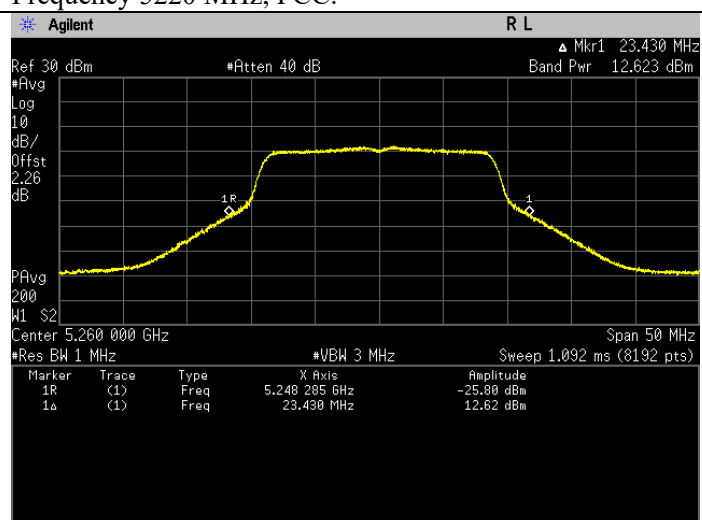
Frequency 5180 MHz, FCC.



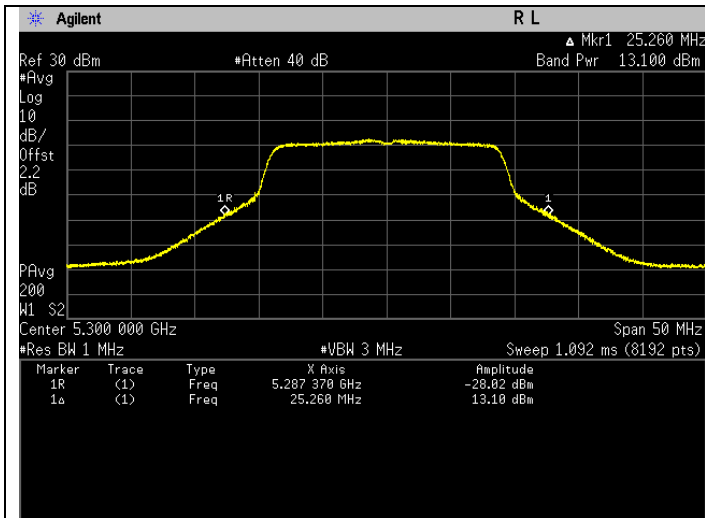
Frequency 5220 MHz, FCC.



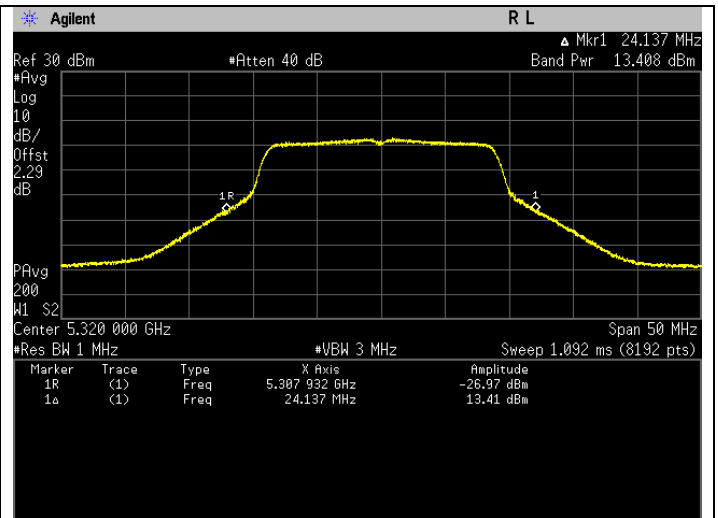
Frequency 5240 MHz, FCC.



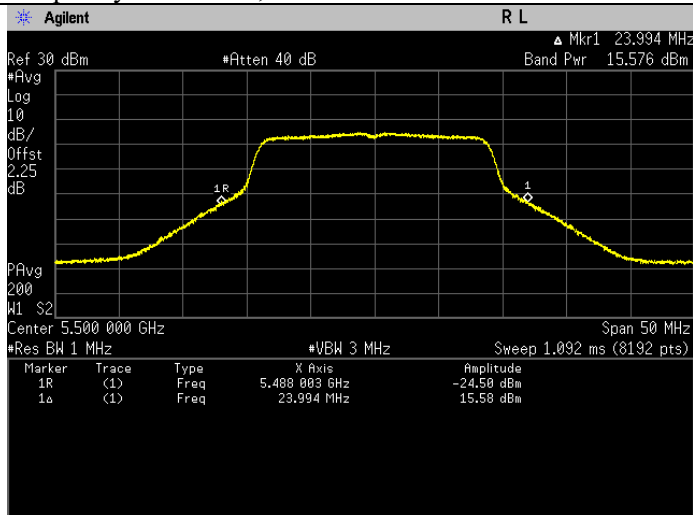
Frequency 5260 MHz, FCC.



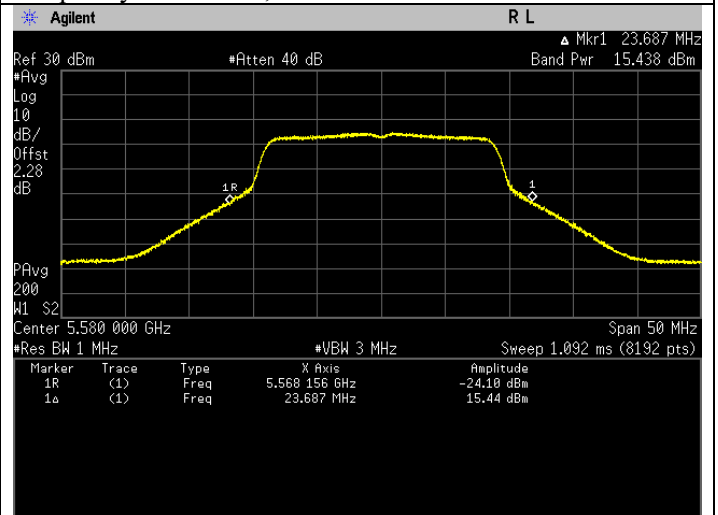
Frequency 5300 MHz, FCC.



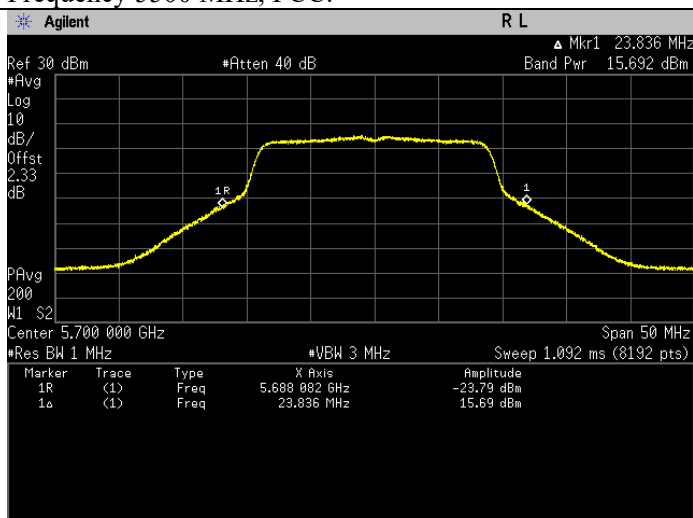
Frequency 5320 MHz, FCC.



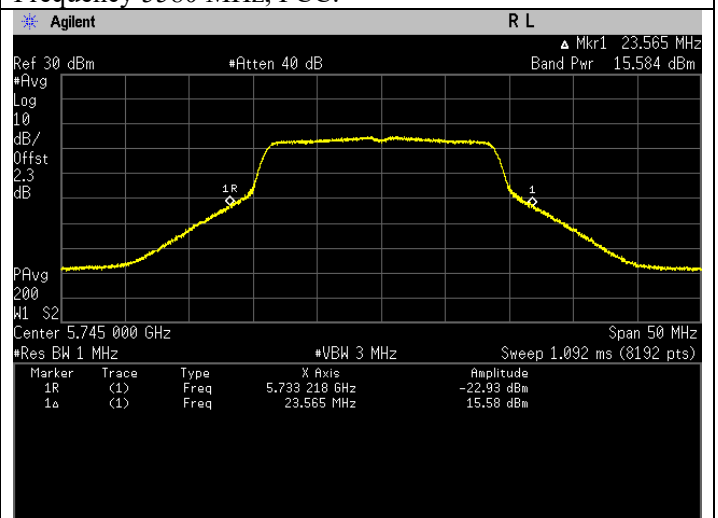
Frequency 5500 MHz, FCC.



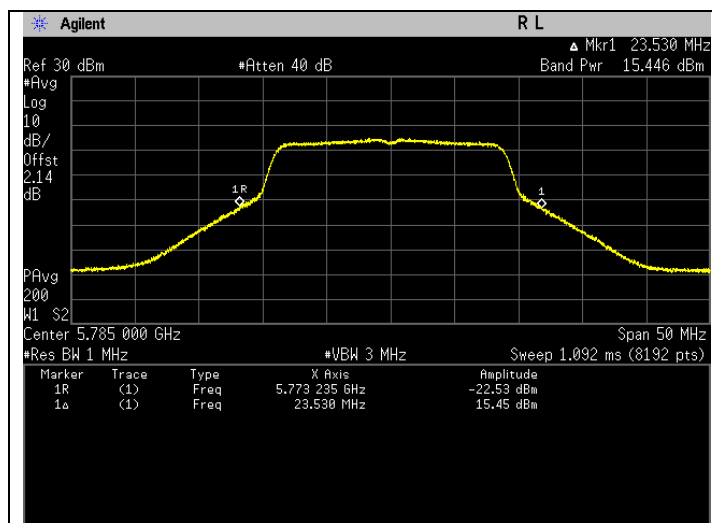
Frequency 5580 MHz, FCC.



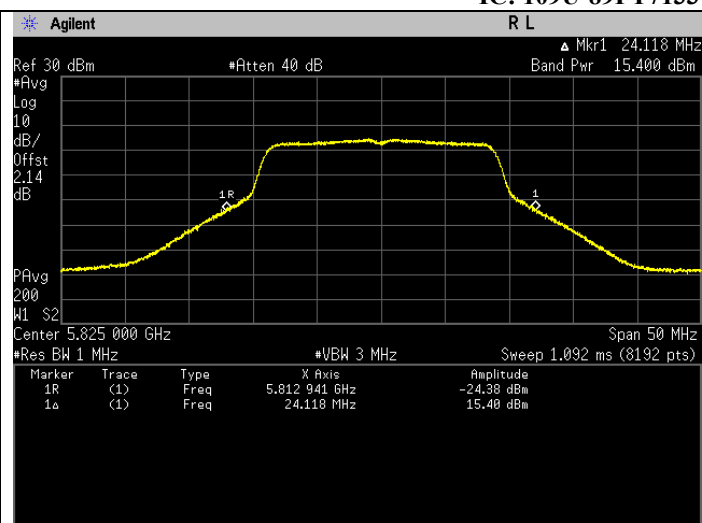
Frequency 5700 MHz, FCC.



Frequency 5745 MHz, FCC.



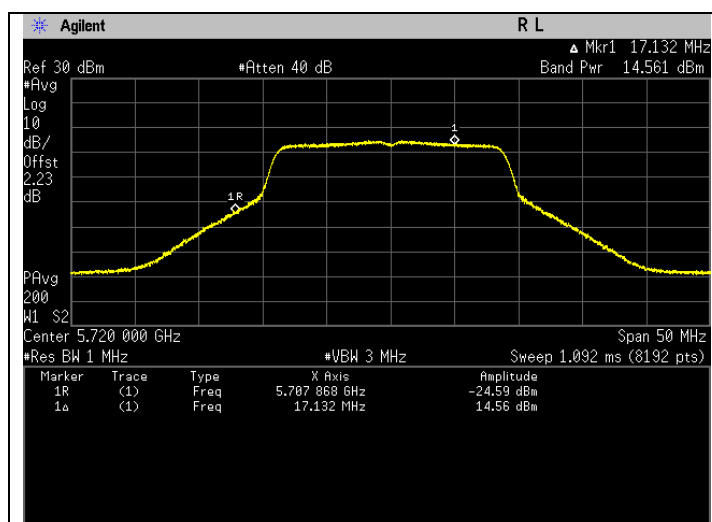
Frequency 5785 MHz, FCC.



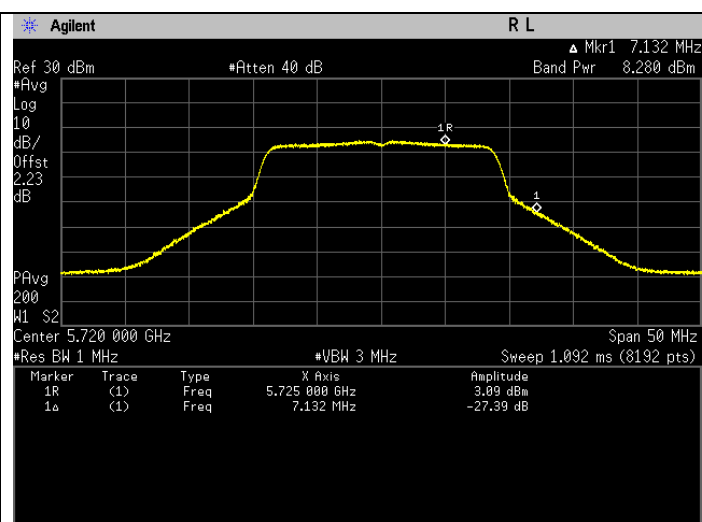
Frequency 5825 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	29.112	14.641	Pass
U-NII-3				
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	6.855	8.360	Pass



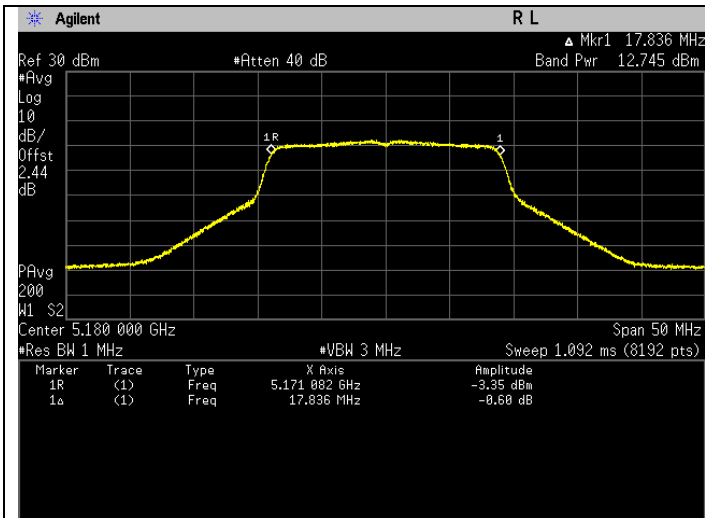
Frequency 5720 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



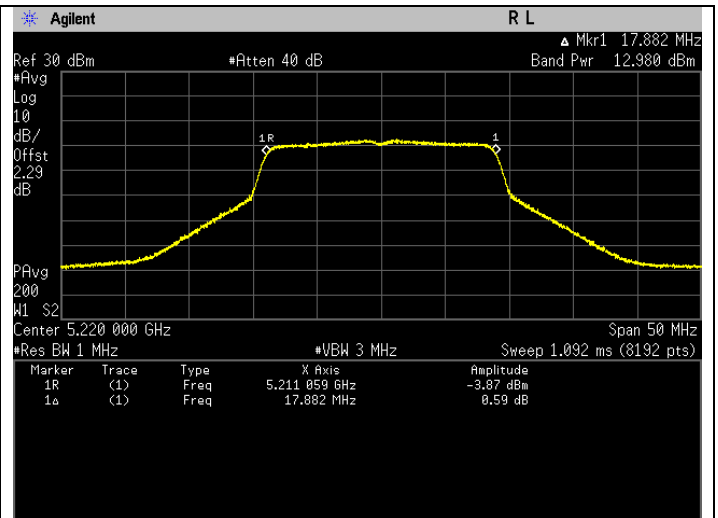
Frequency 5720 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT20)(99% EBW)

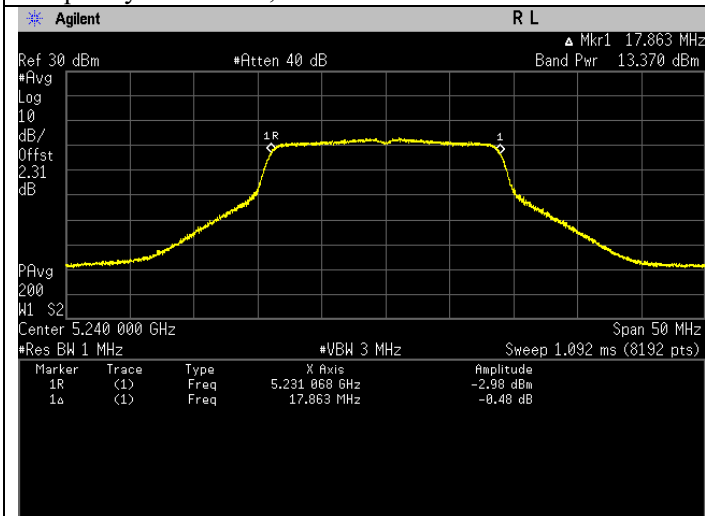
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	19.164	12.825	Pass	17.865	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	20.229	13.060	Pass	18.100	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	22.130	13.450	Pass	18.490	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	18.403	12.649	Pass	17.689	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	20.572	13.133	Pass	18.173	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	21.656	13.356	Pass	18.396	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	35.349	15.484	Pass	17.944	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	34.125	15.331	Pass	17.791	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	36.845	15.664	Pass	18.124	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	36.390	15.610	Pass	18.070	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	35.268	15.474	Pass	17.934	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	34.648	15.397	Pass	17.857	Pass



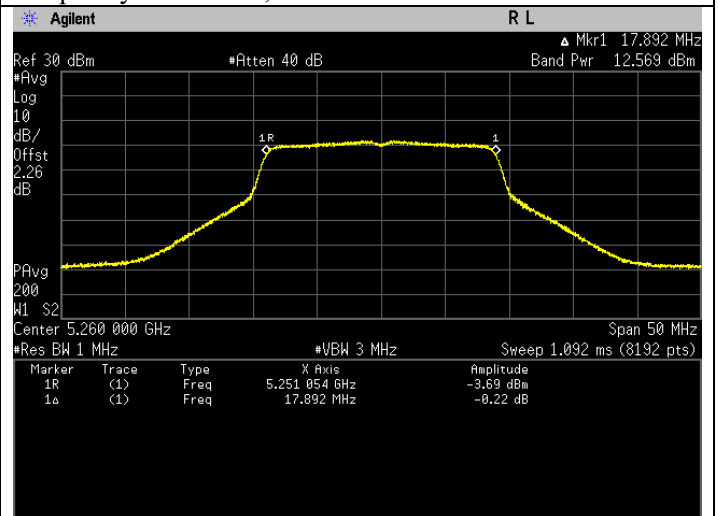
Frequency 5180 MHz, ISSED



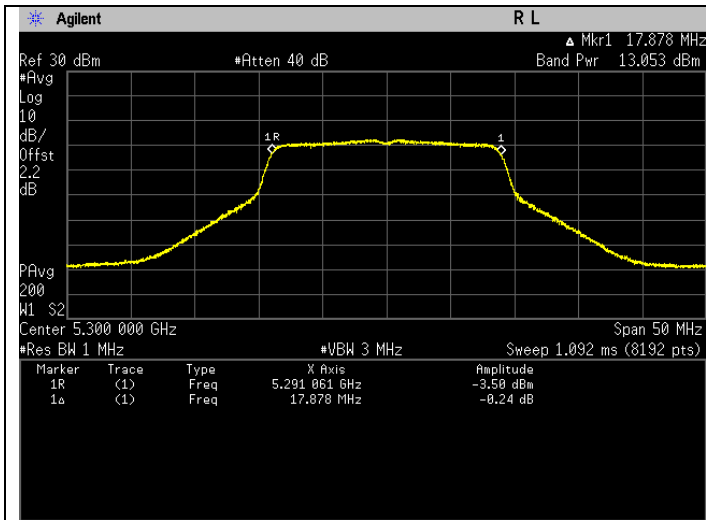
Frequency 5220 MHz, ISSED



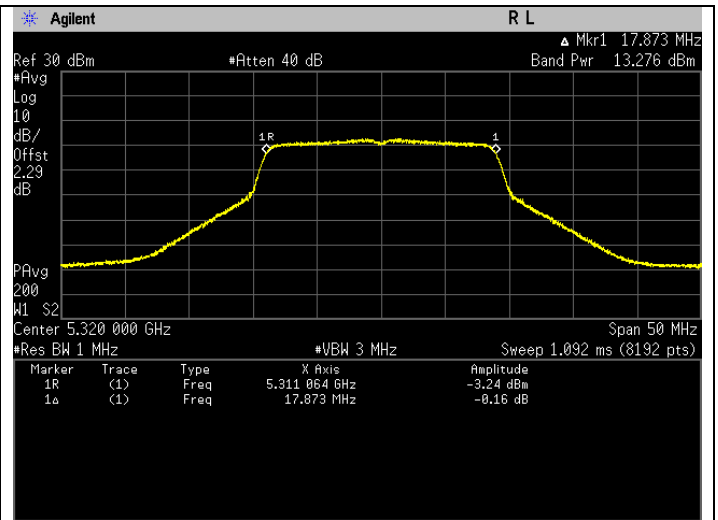
Frequency 5240 MHz, ISSED



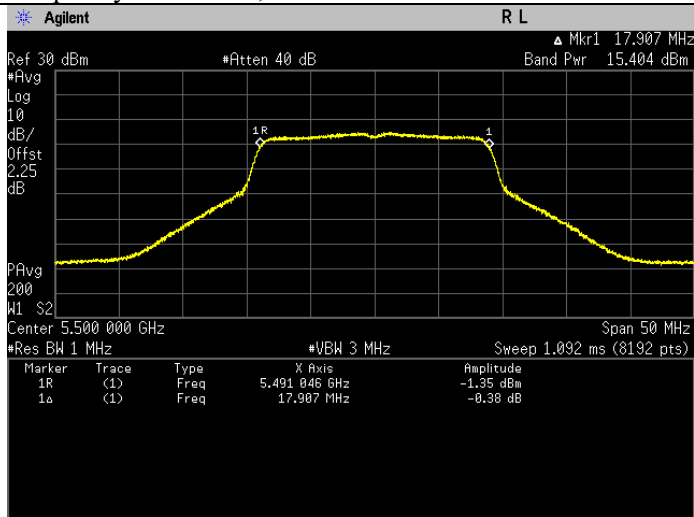
Frequency 5260 MHz, ISSED



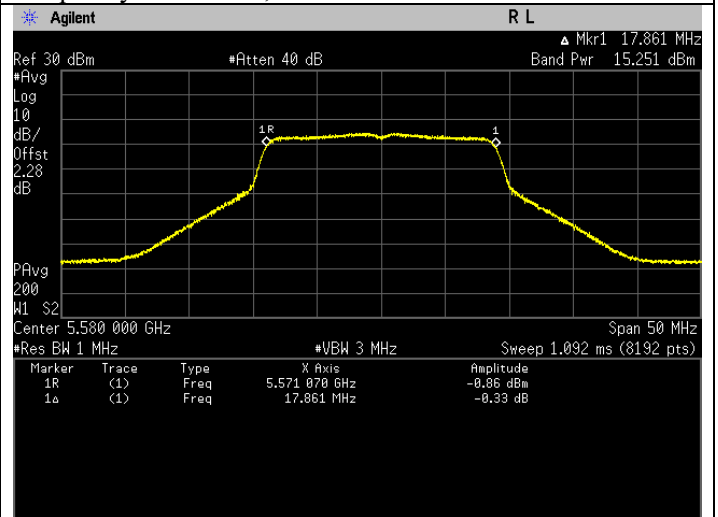
Frequency 5300 MHz, ISED



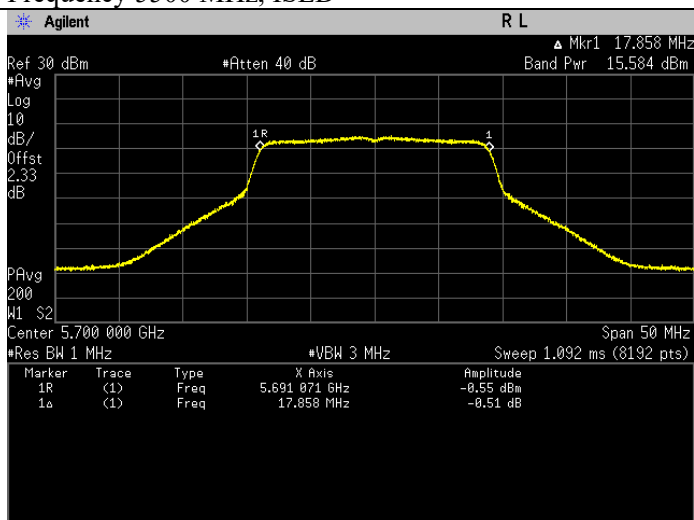
Frequency 5320 MHz, ISED



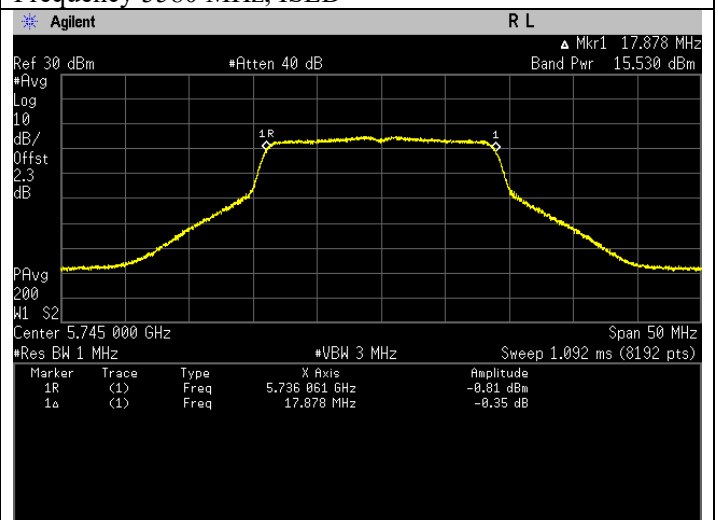
Frequency 5500 MHz, ISED



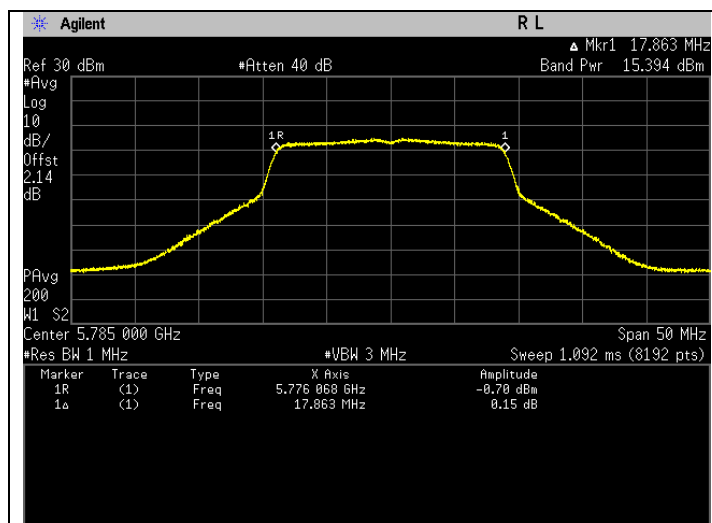
Frequency 5580 MHz, ISED



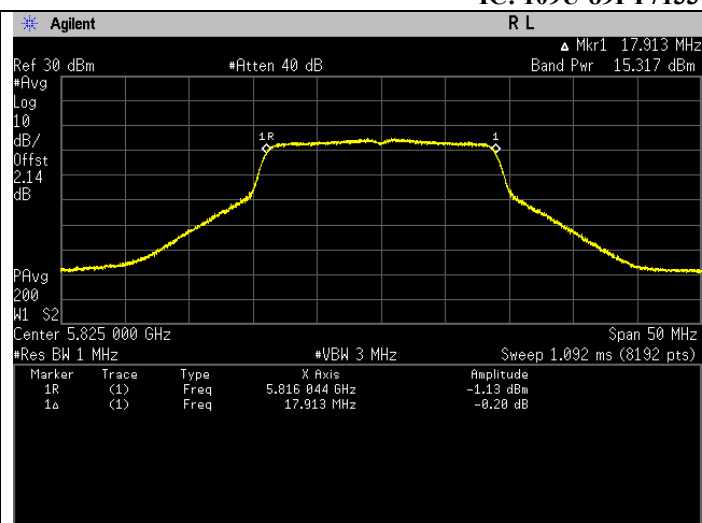
Frequency 5700 MHz, ISED



Frequency 5745 MHz, ISED



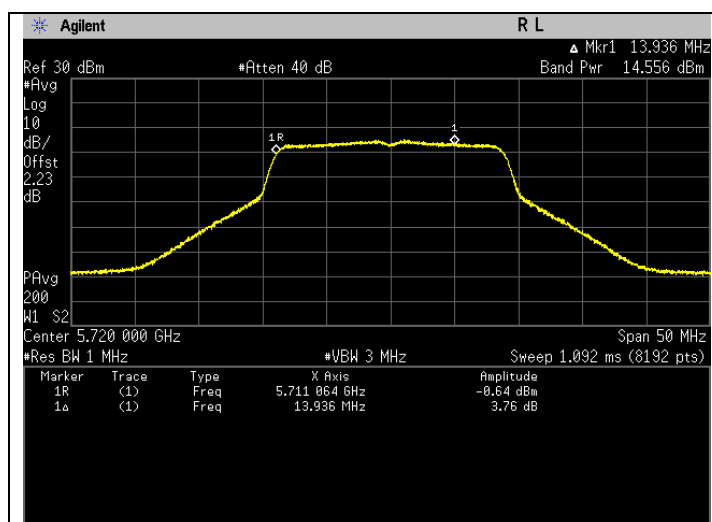
Frequency 5785 MHz, ISSED



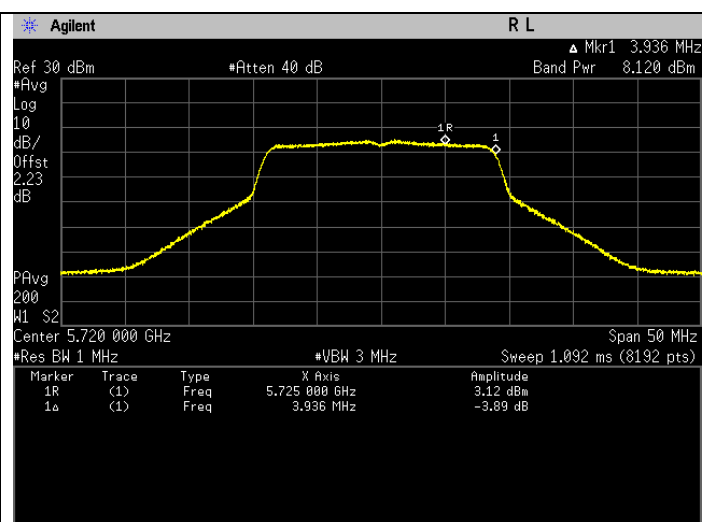
Frequency 5825 MHz, ISSED

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)	29.079	14.636	Pass	17.096	Pass
U-NII-3						
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	6.607	8.200	Pass	10.660	Pass



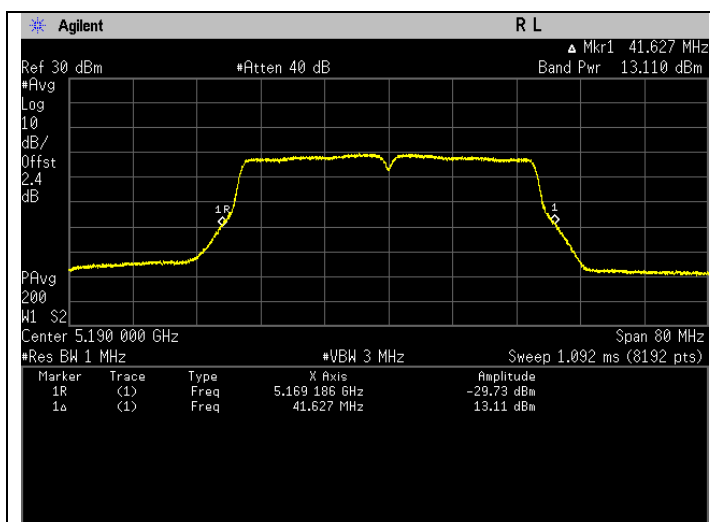
Frequency 5720 MHz, ISSED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



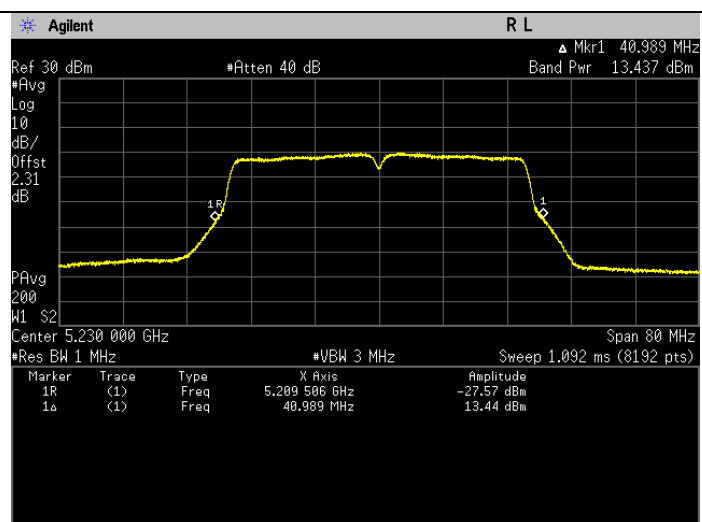
Frequency 5720 MHz, ISSED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT40)(26dB EBW)

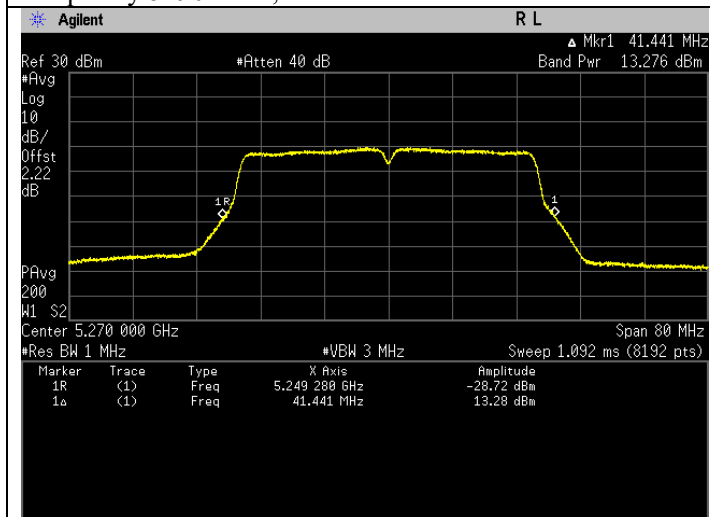
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5190	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	21.226	13.269	Pass
5230	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	22.886	13.596	Pass
5270	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	22.054	13.435	Pass
5310	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	23.773	13.761	Pass
5510	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	35.800	15.539	Pass
5590	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	37.895	15.786	Pass
5670	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	36.281	15.597	Pass
5755	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	35.923	15.554	Pass
5795	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	33.922	15.305	Pass



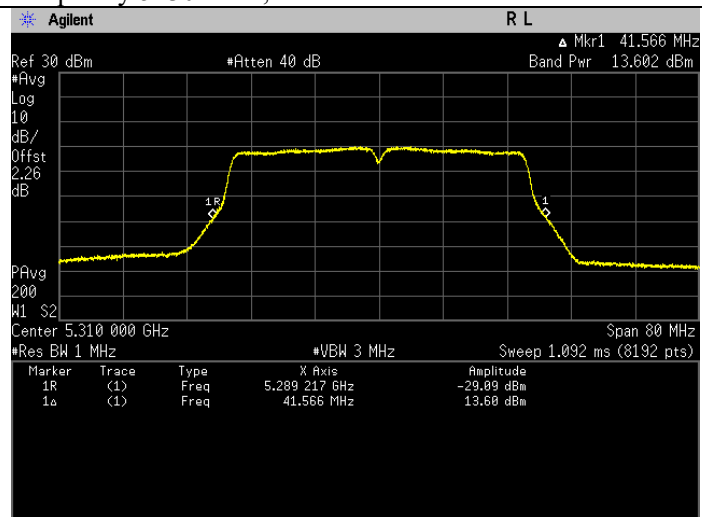
Frequency 5190 MHz, FCC.



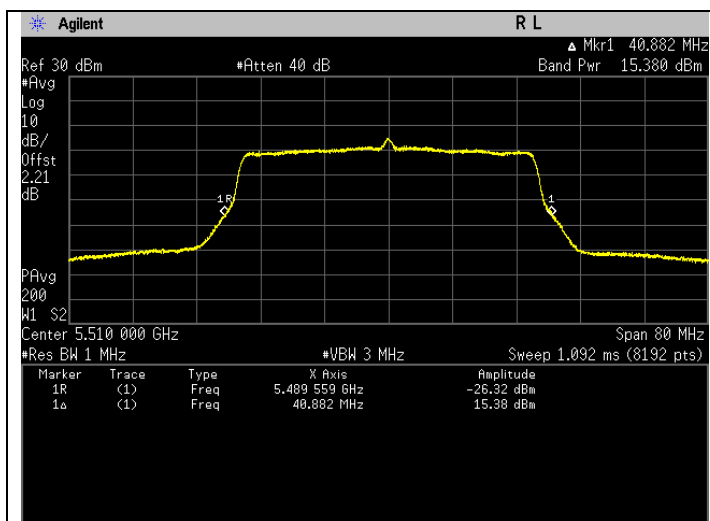
Frequency 5230 MHz, FCC.



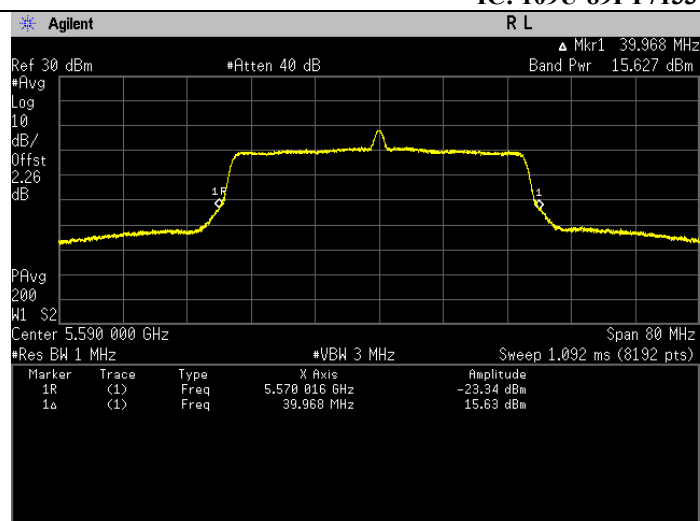
Frequency 5270 MHz, FCC.



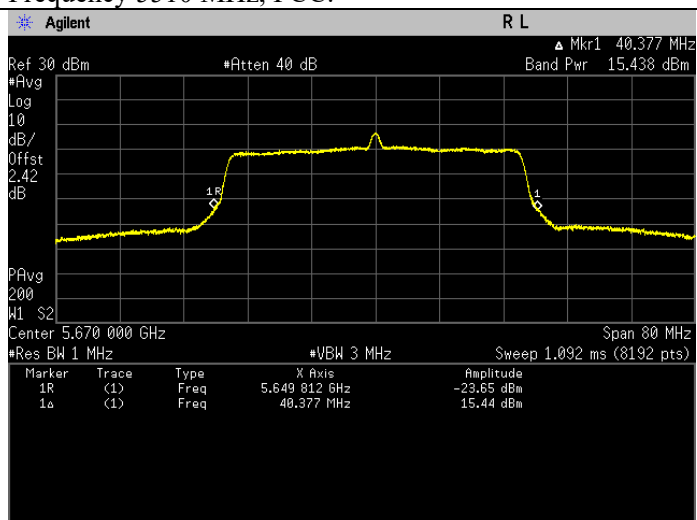
Frequency 5310 MHz, FCC.



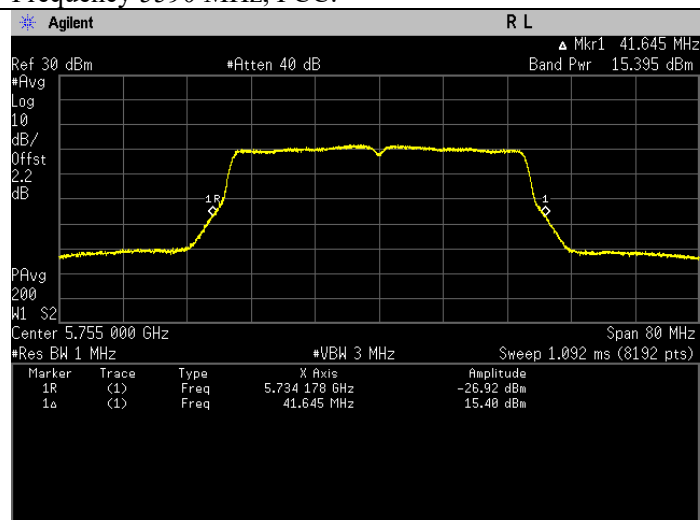
Frequency 5510 MHz, FCC.



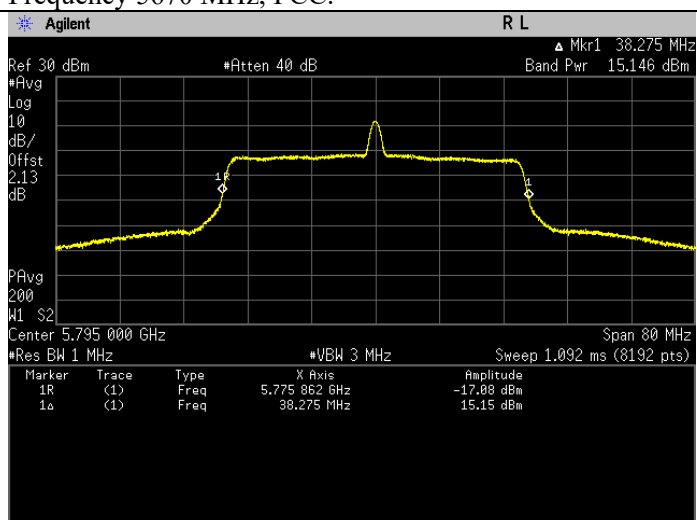
Frequency 5590 MHz, FCC.



Frequency 5670 MHz, FCC.



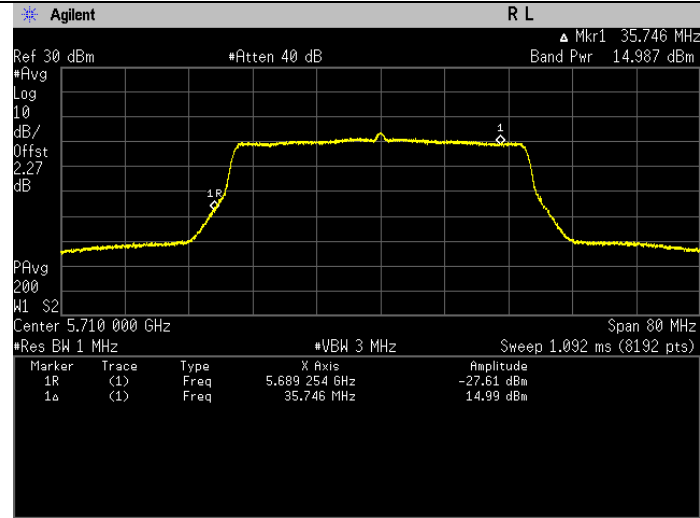
Frequency 5755 MHz, FCC.



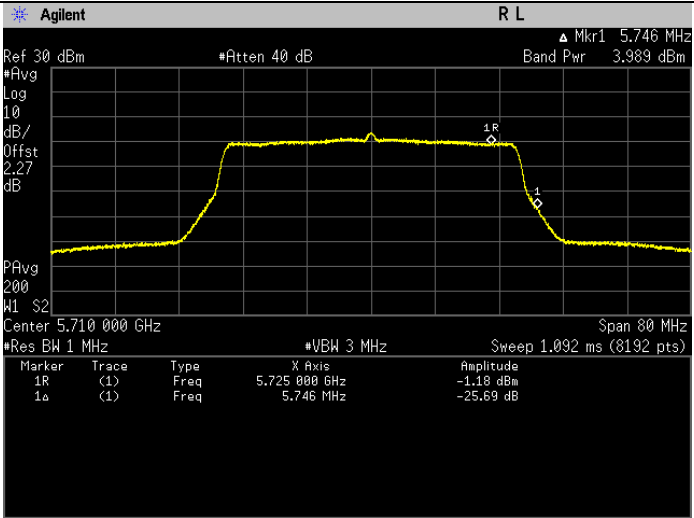
Frequency 5795 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	32.702	15.146	Pass
		U-NII-3		
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	2.599	4.148	Pass



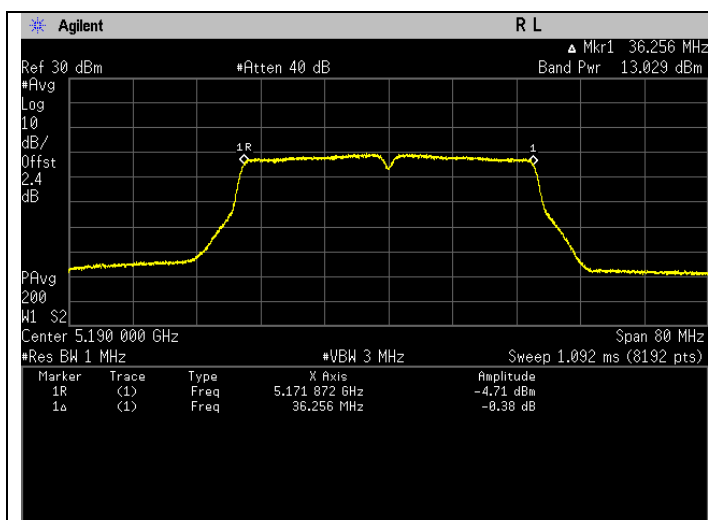
Frequency 5710 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



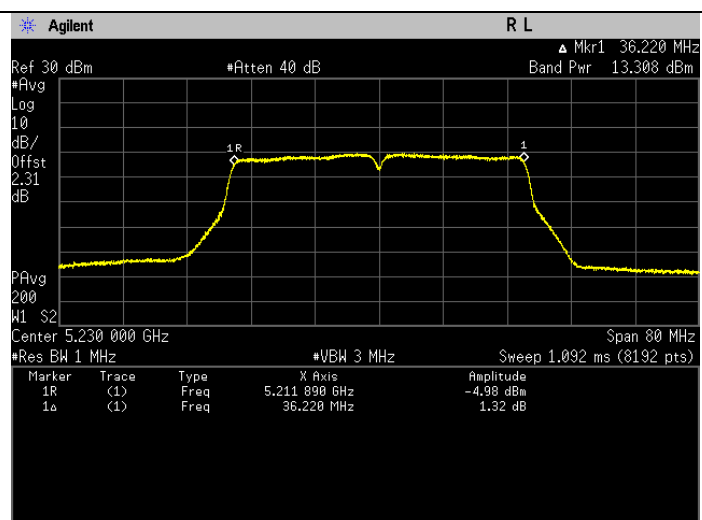
Frequency 5710 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT40)(99% EBW)

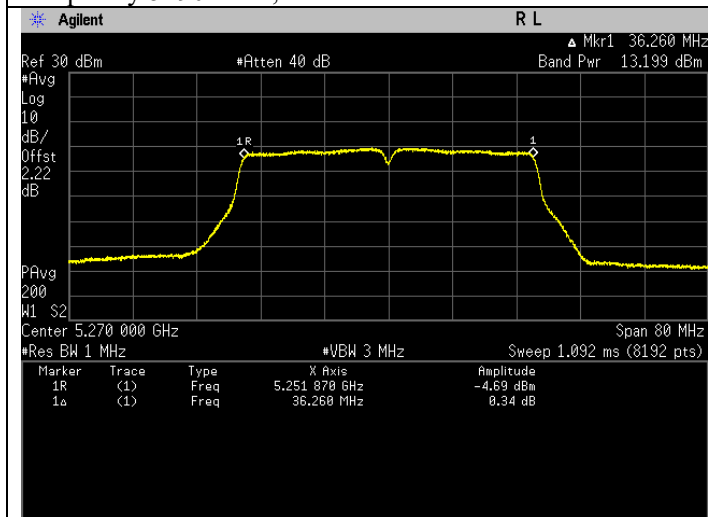
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5190	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	20.834	13.188	Pass	18.228	Pass
5230	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	22.217	13.467	Pass	18.507	Pass
5270	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	21.666	13.358	Pass	18.398	Pass
5310	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	22.960	13.610	Pass	18.650	Pass
5510	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	35.243	15.471	Pass	17.931	Pass
5590	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	38.052	15.804	Pass	18.264	Pass
5670	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	35.114	15.455	Pass	17.915	Pass
5755	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	35.276	15.475	Pass	17.935	Pass
5795	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	33.875	15.299	Pass	17.759	Pass



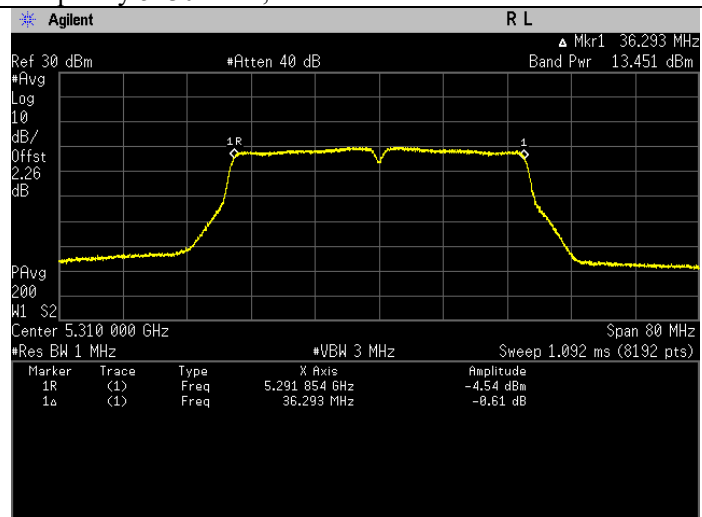
Frequency 5190 MHz, ISED



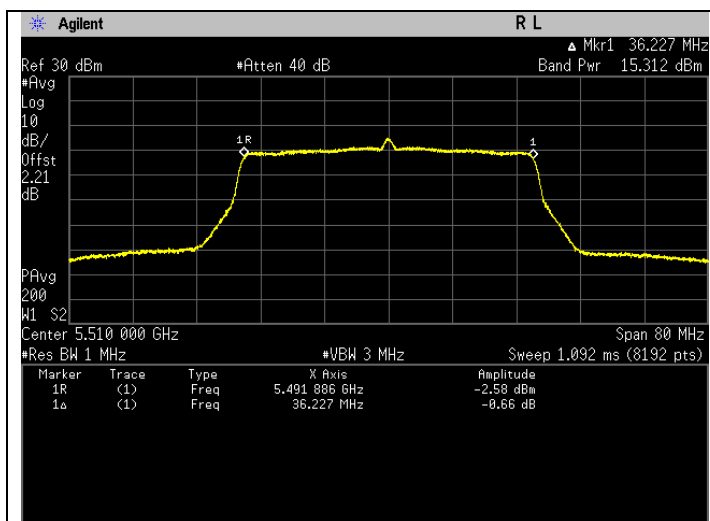
Frequency 5230 MHz, ISED



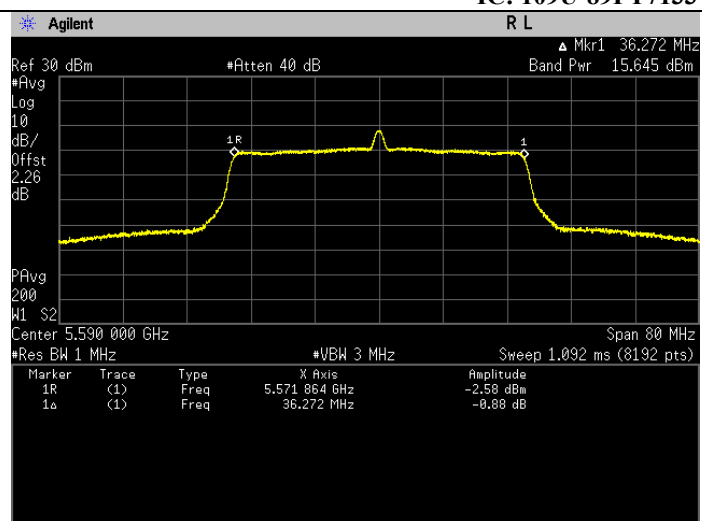
Frequency 5270 MHz, ISED



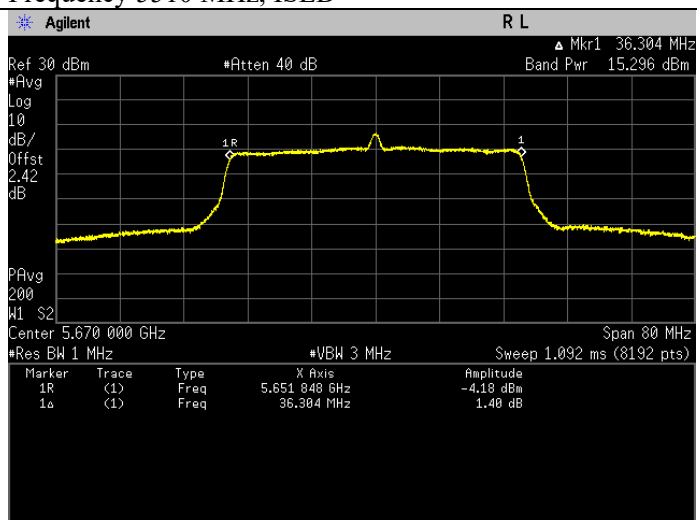
Frequency 5310 MHz, ISED



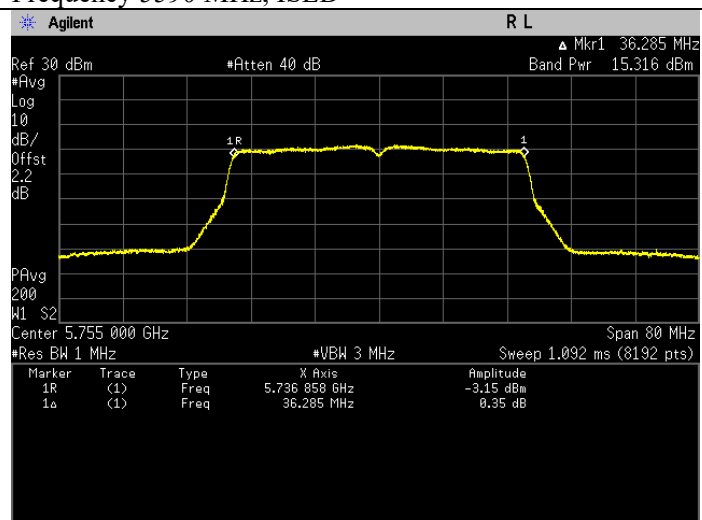
Frequency 5510 MHz, ISED



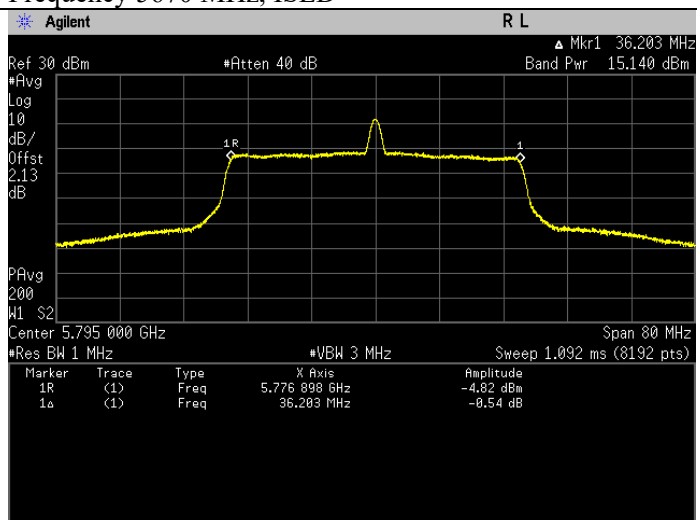
Frequency 5590 MHz, ISED



Frequency 5670 MHz, ISED



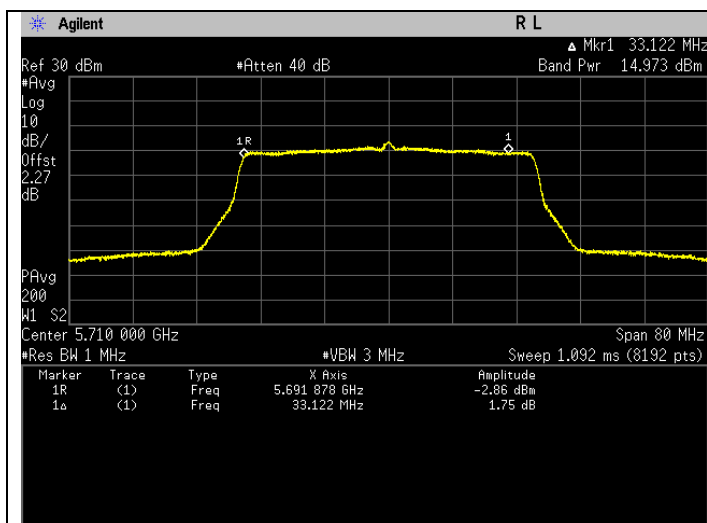
Frequency 5755 MHz, ISED



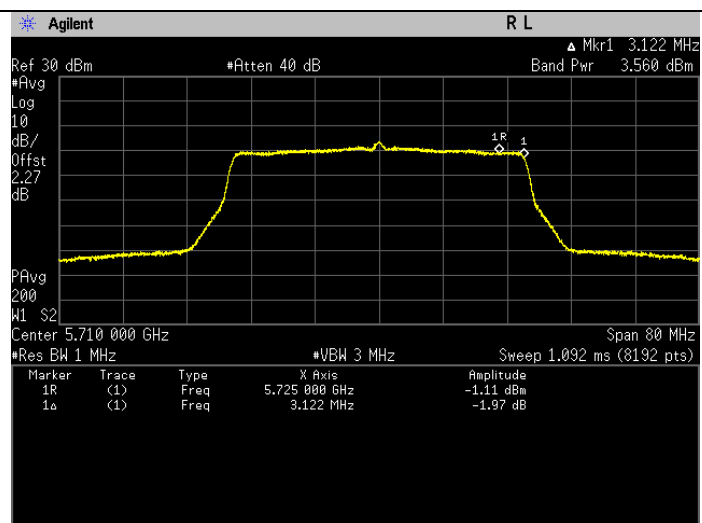
Frequency 5795 MHz, ISED

Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	32.597	15.132	Pass	17.592	Pass
U-NII-3						
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	2.354	3.719	Pass	6.179	Pass



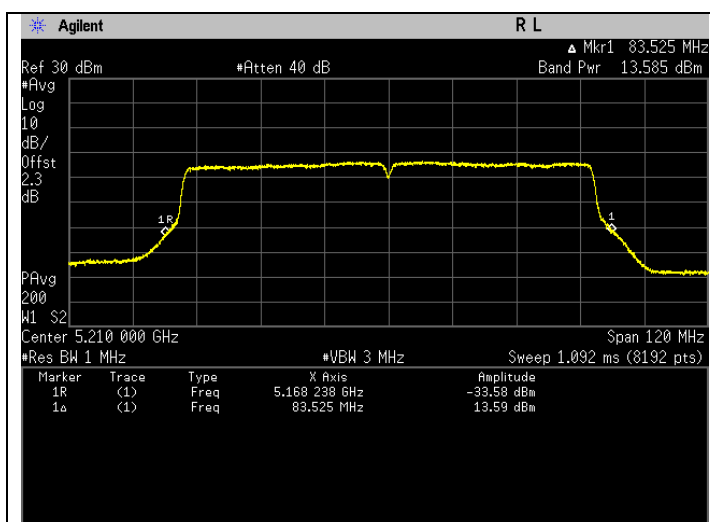
Frequency 5710 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



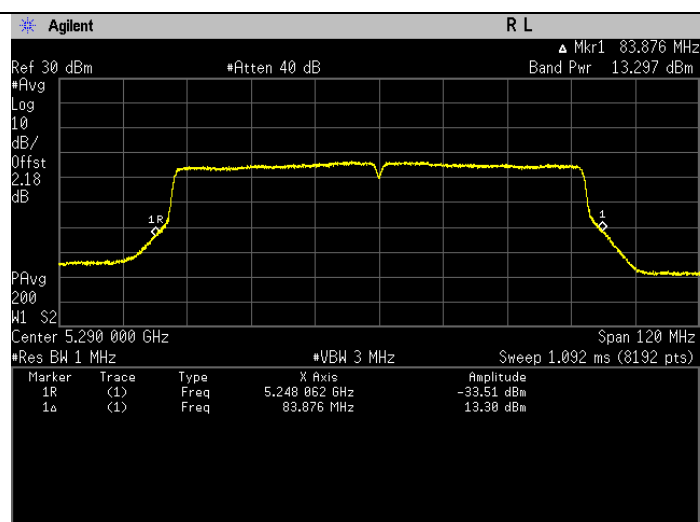
Frequency 5710 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11ac (VHT80)(26dB EBW)

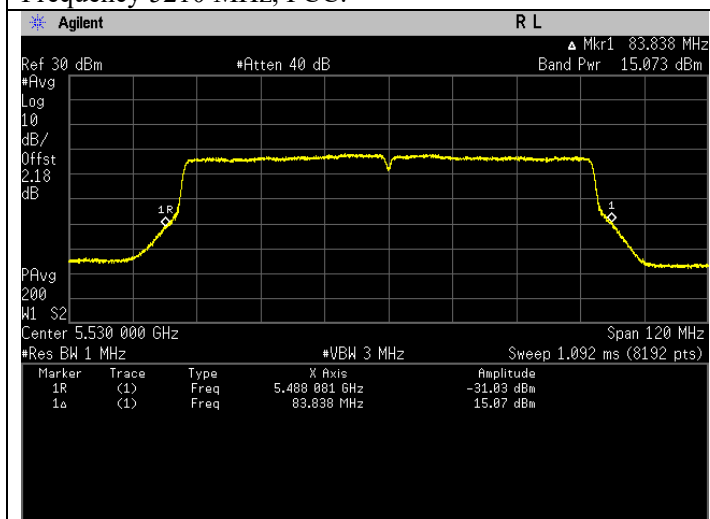
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5210	Mod Type: BPSK, Data Rate: MCS0(29.3)	24.567	13.904	Pass
5290	Mod Type: BPSK, Data Rate: MCS0(29.3)	22.990	13.616	Pass
5530	Mod Type: BPSK, Data Rate: MCS0(29.3)	34.605	15.392	Pass
5610	Mod Type: BPSK, Data Rate: MCS0(29.3)	35.330	15.482	Pass
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	33.755	15.284	Pass



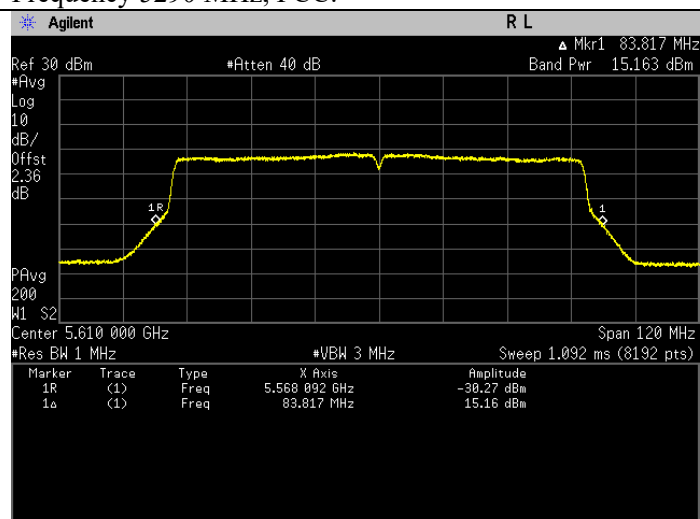
Frequency 5210 MHz, FCC.



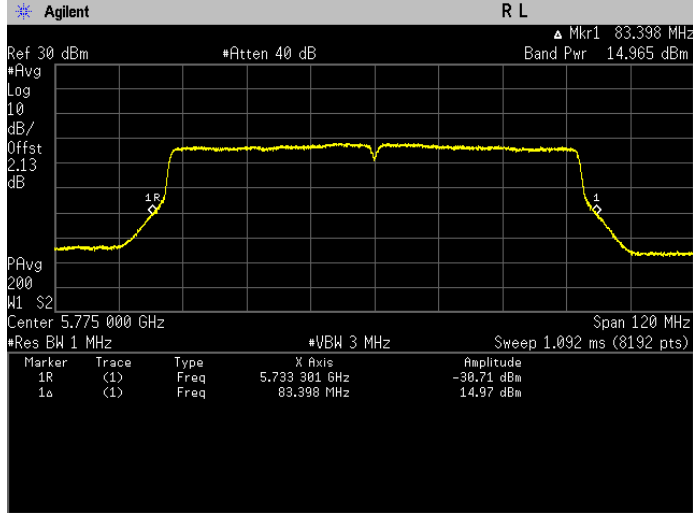
Frequency 5290 MHz, FCC.



Frequency 5530 MHz, FCC.



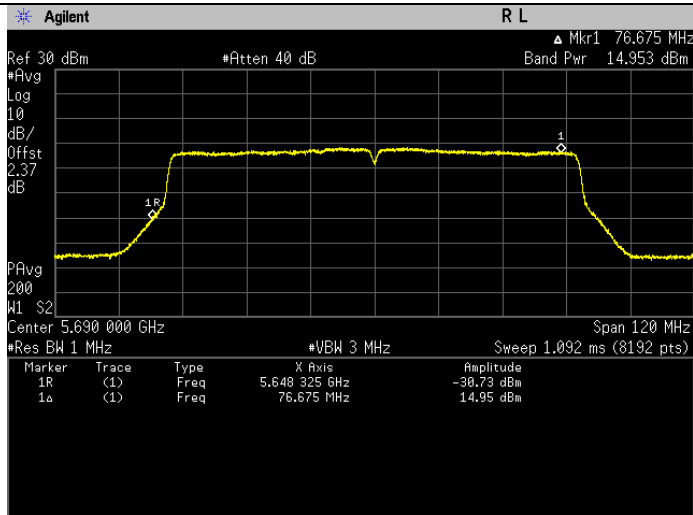
Frequency 5610 MHz, FCC.



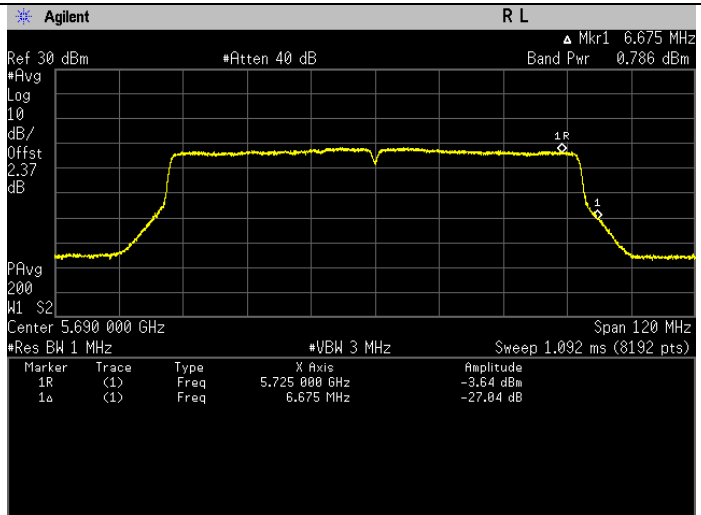
Frequency 5775 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	33.662	15.272	Pass
U-NII-3				
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	1.290	1.105	Pass



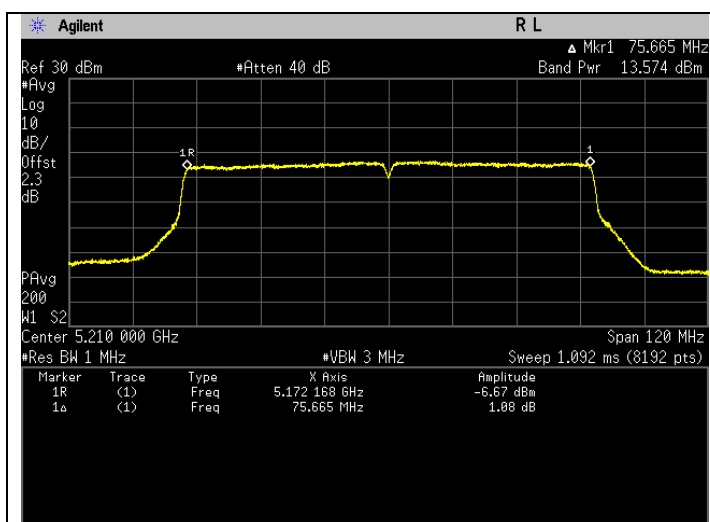
Frequency 5690 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



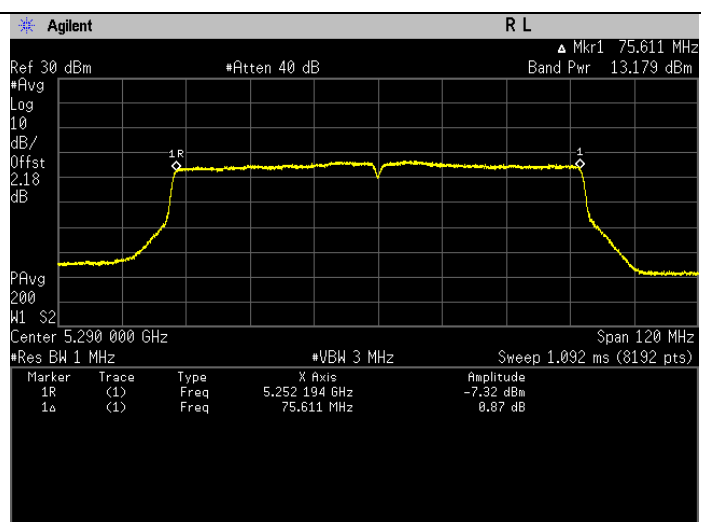
Frequency 5690 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11ac (VHT80)(99% EBW)

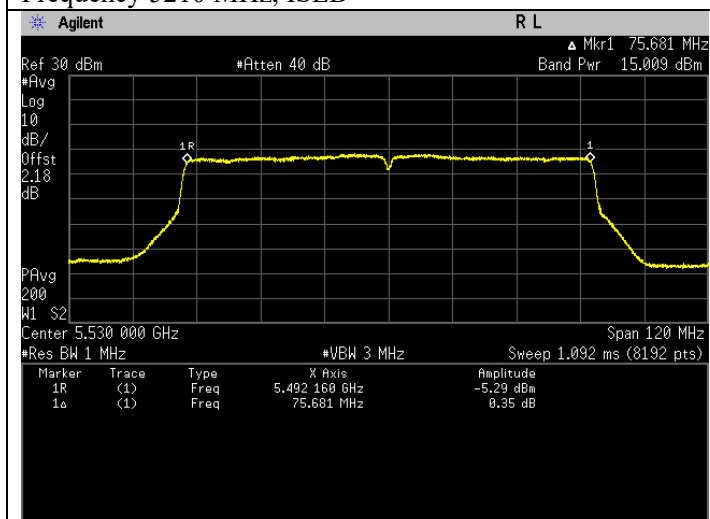
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5210	Mod Type: BPSK, Data Rate: MCS0(29.3)	24.504	13.892	Pass	18.933	Pass
5290	Mod Type: BPSK, Data Rate: MCS0(29.3)	22.374	13.497	Pass	18.538	Pass
5530	Mod Type: BPSK, Data Rate: MCS0(29.3)	34.099	15.327	Pass	17.788	Pass
5610	Mod Type: BPSK, Data Rate: MCS0(29.3)	35.111	15.454	Pass	17.914	Pass
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	33.292	15.223	Pass	17.684	Pass



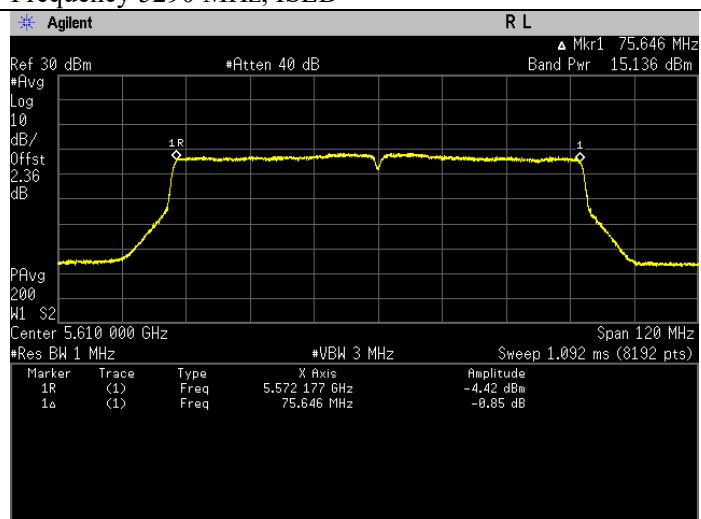
Frequency 5210 MHz, ISED



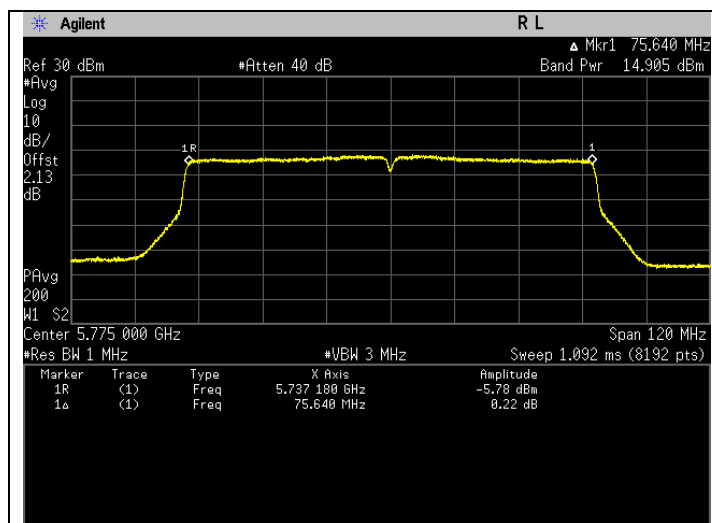
Frequency 5290 MHz, ISED



Frequency 5530 MHz, ISED



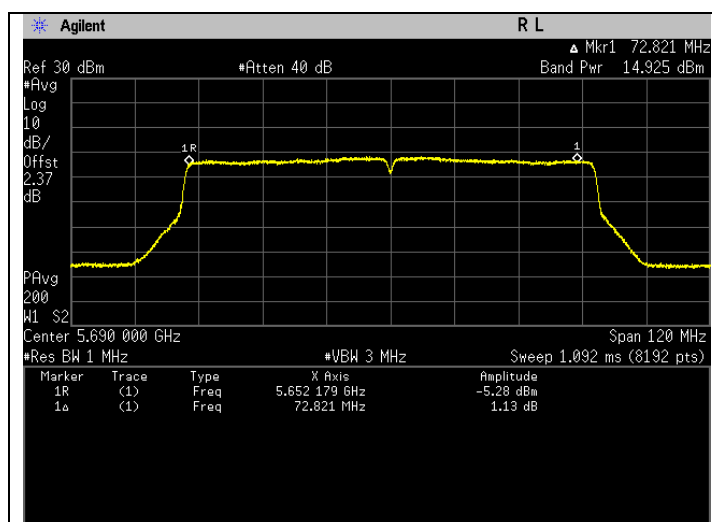
Frequency 5610 MHz, ISED



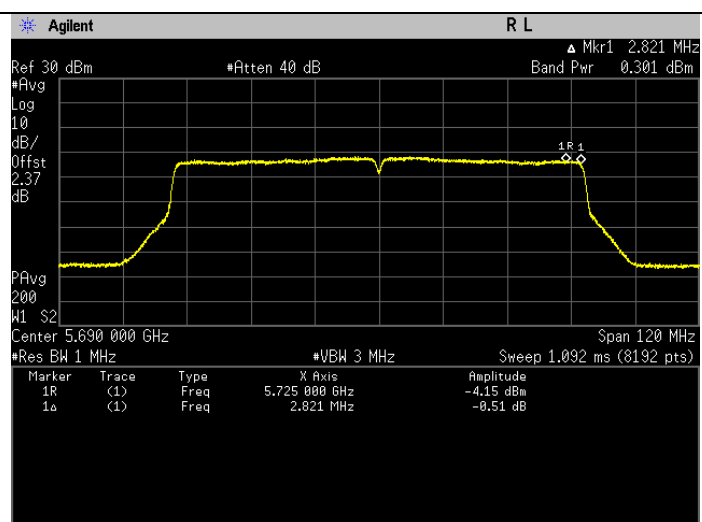
Frequency 5775 MHz, ISED

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)	33.446	15.243	Pass	17.703	Pass
		U-NII-3				
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	1.153	0.619	Pass	3.079	Pass



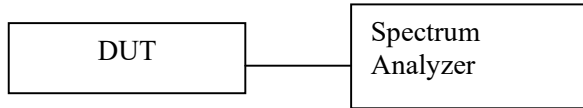
Frequency 5690 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



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

6.3. Maximum Power Spectral Density

6.3.1. 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 $\geq 3 \cdot$ RBW
 - Detector = power averaging (RMS)
 - Trace = Max hold
 - Number of points in sweep $\geq 2 \times$ 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.

6.3.2. 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

6.3.3. Additional Info

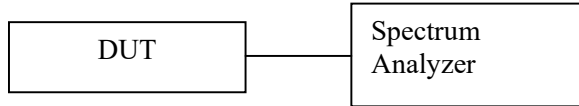
Antenna Type	Gain (dBi)
Antenna 1	
Duty Cycle Correction Factor	
Antenna 1	

6.3.4. Test Data

Not Applicable

6.4. 6dB Bandwidth

6.4.1. 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 $\geq 3 \cdot$ 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).

6.4.2. 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

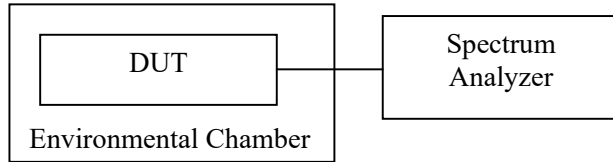
For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

6.4.3. Test Data

Not Applicable

6.5. Frequency Stability

6.5.1. Test Setup



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

6.5.2. 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.

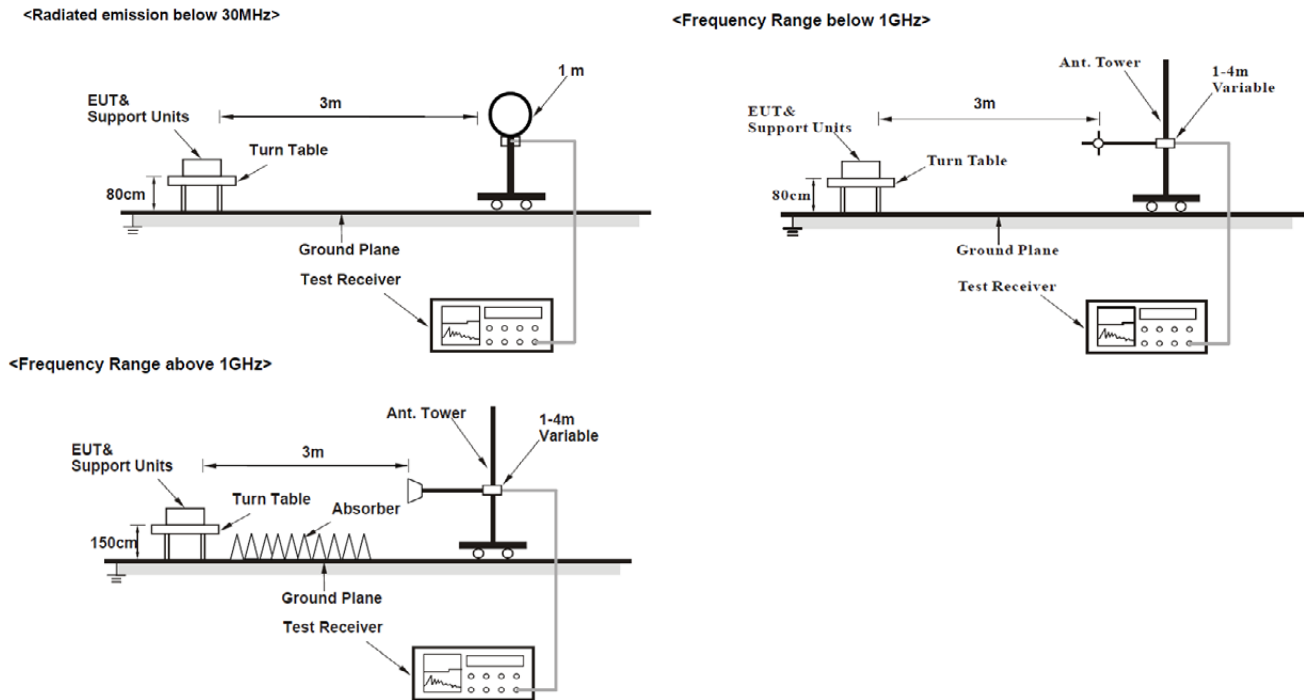
RSS-GEN 6.11

6.5.3. Test Data

Not Applicable

6.6. Band Edge Radiated Spurious Emission Measurement

6.6.1. 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 $\geq 98\%$) 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.

6.6.2. 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 (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:

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

802.11ac(VHT80)

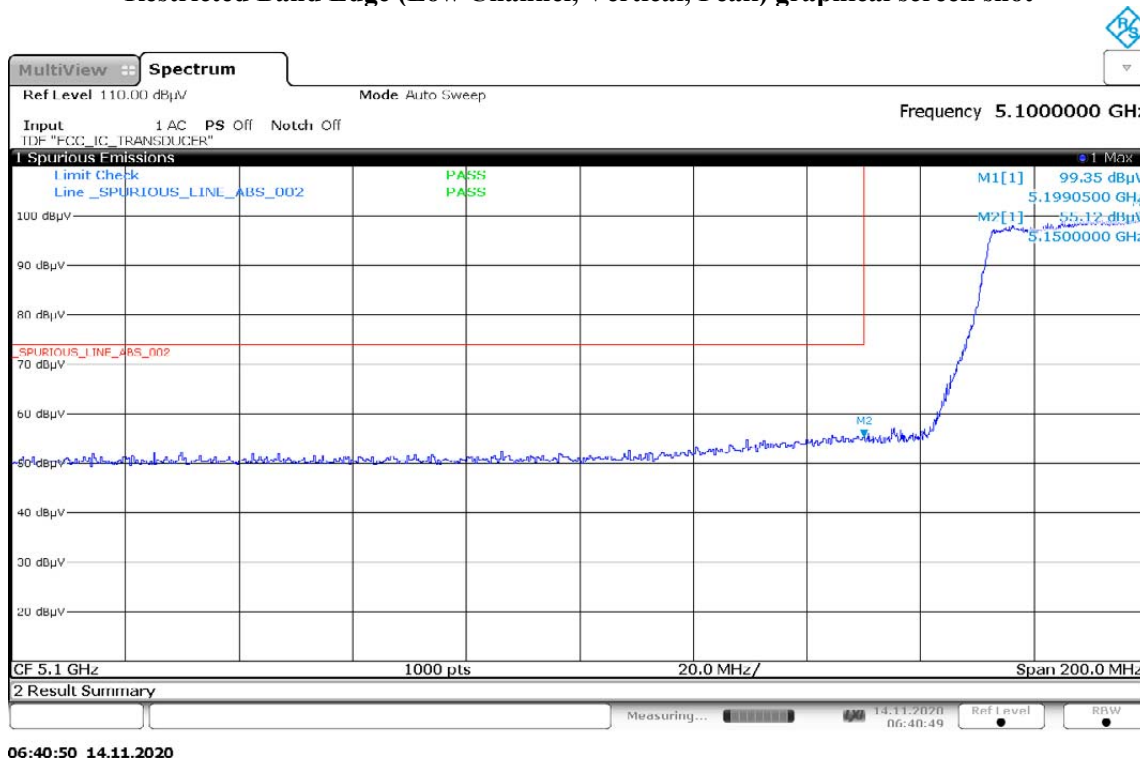
Model Number: AAH90ZDU9RH1AN S/N: 734TWV0114 EMC SR ID#: 18058-EMC-00099
Battery: PMNN4804A Accessory: PMAE4079A
Test Channel: Low Test Frequency: 5210.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11ac 80MHz)

Vertical Radiated Emission Result

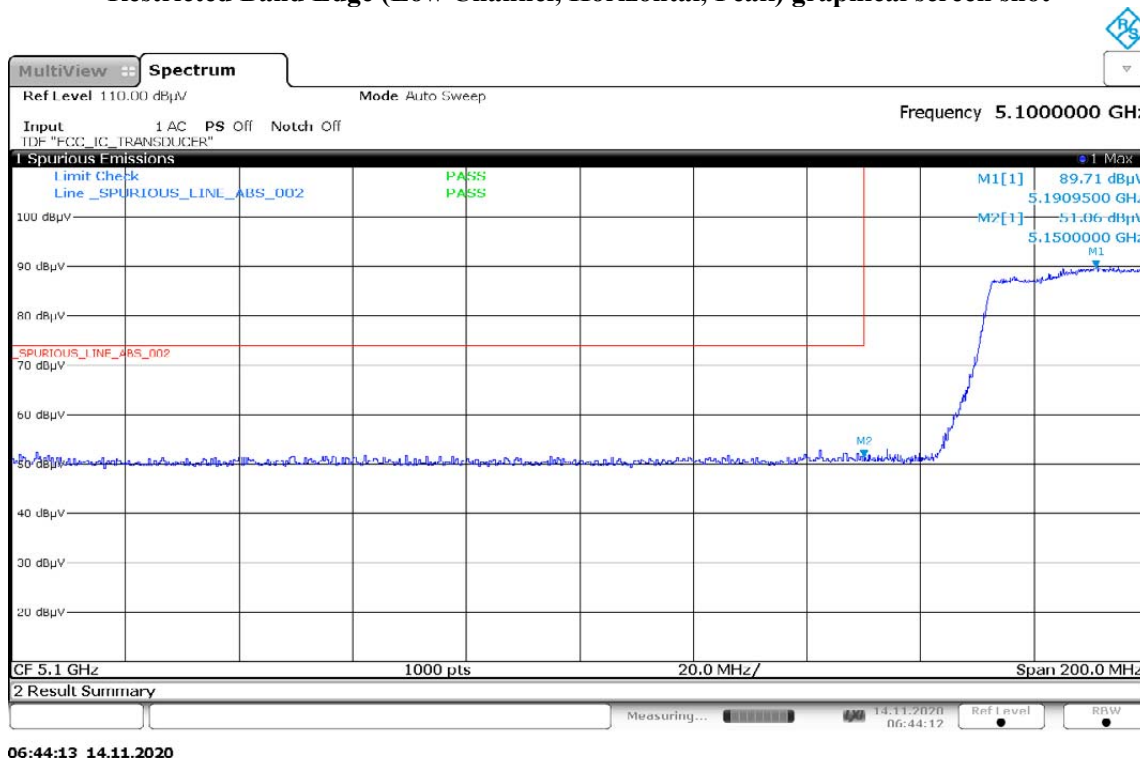
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Humidity (%): 69.8
Test Date: Sat, 14 Nov, 2020

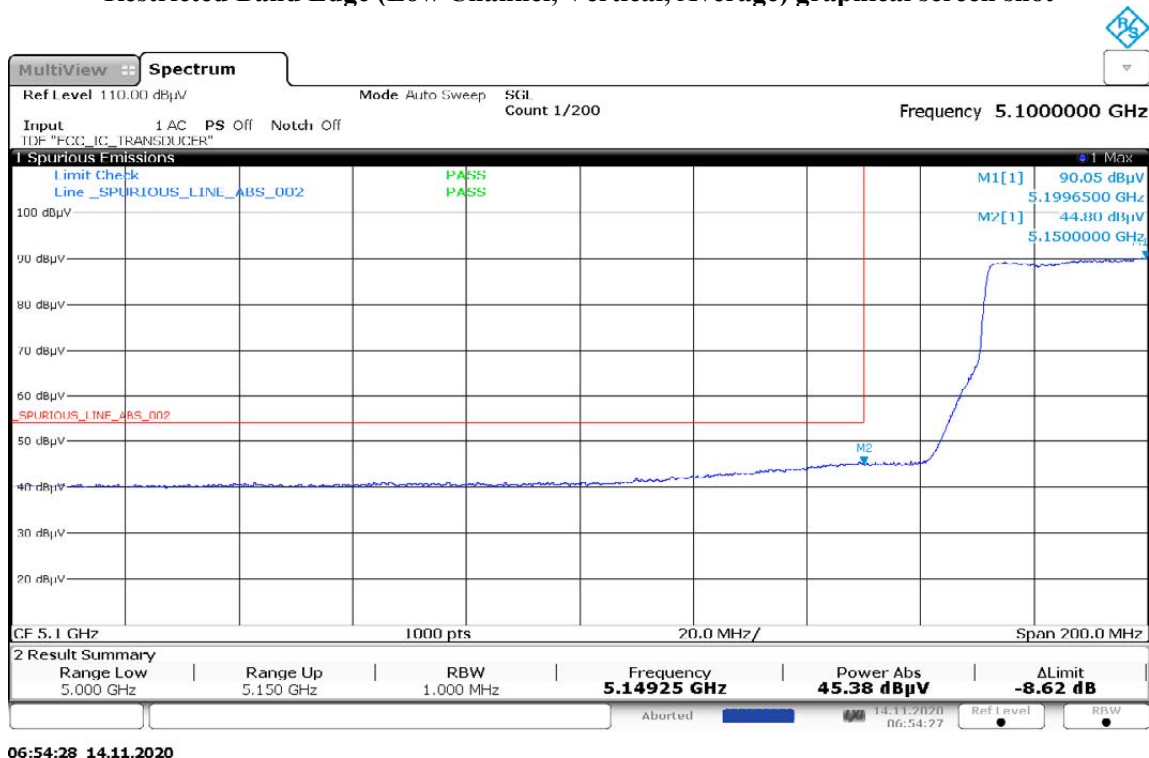
Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



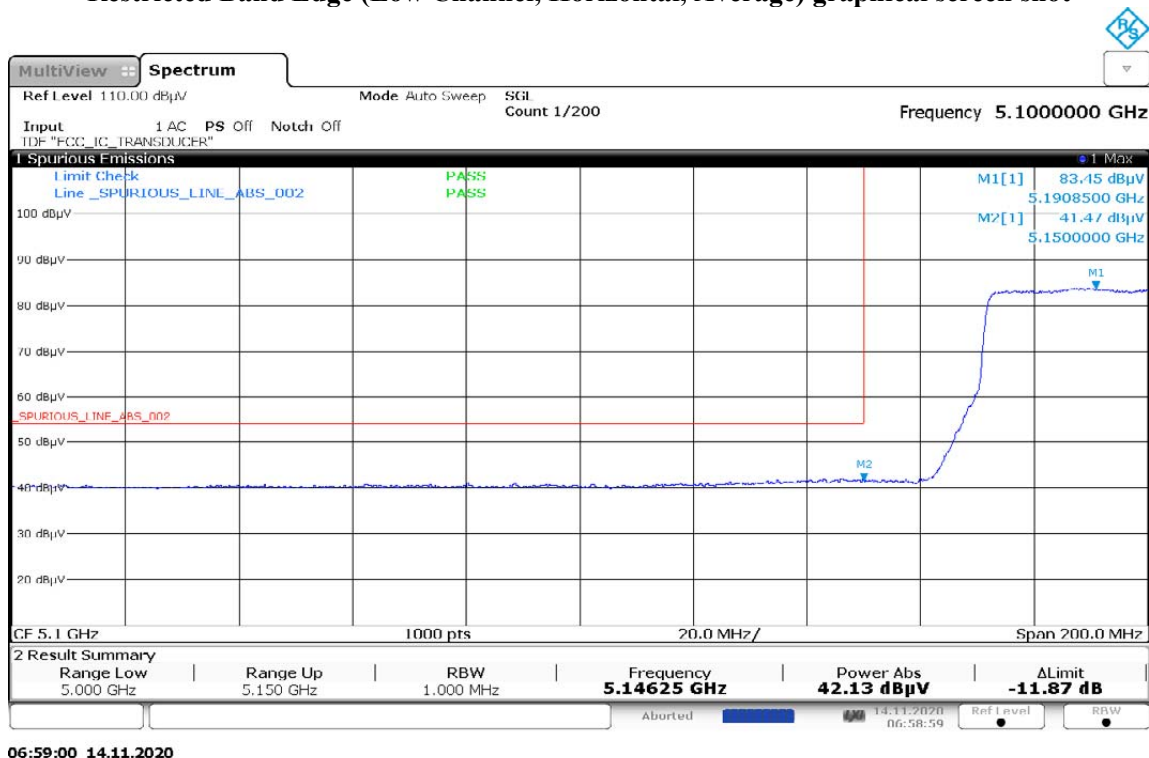
Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



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



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



Test: WIFI SAC Restricted Band Edge
Model Number: AAH90ZDU9RH1AN S/N: 734TWV0114 EMC SR ID#: 18058-EMC-00099
Battery: PMNN4804A Accessory: PMAE4079A
Test Channel: High Test Frequency: 5290.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11ac 80MHz)

Vertical Radiated Emission Result

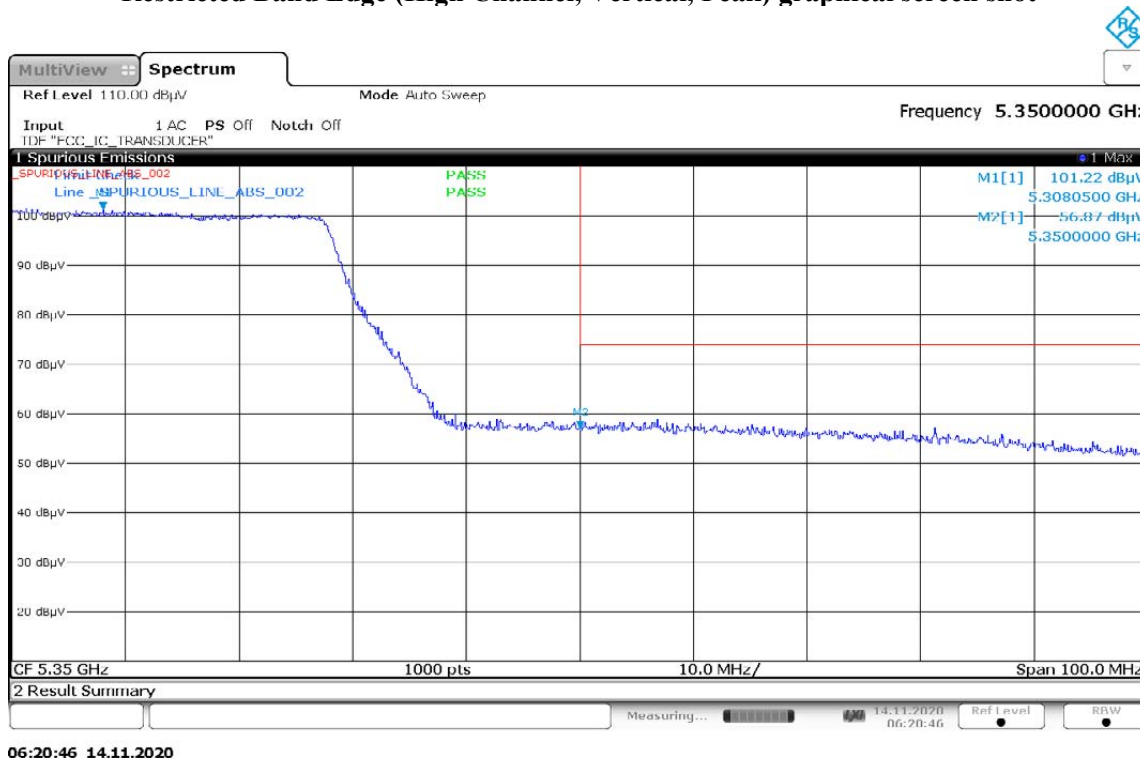
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

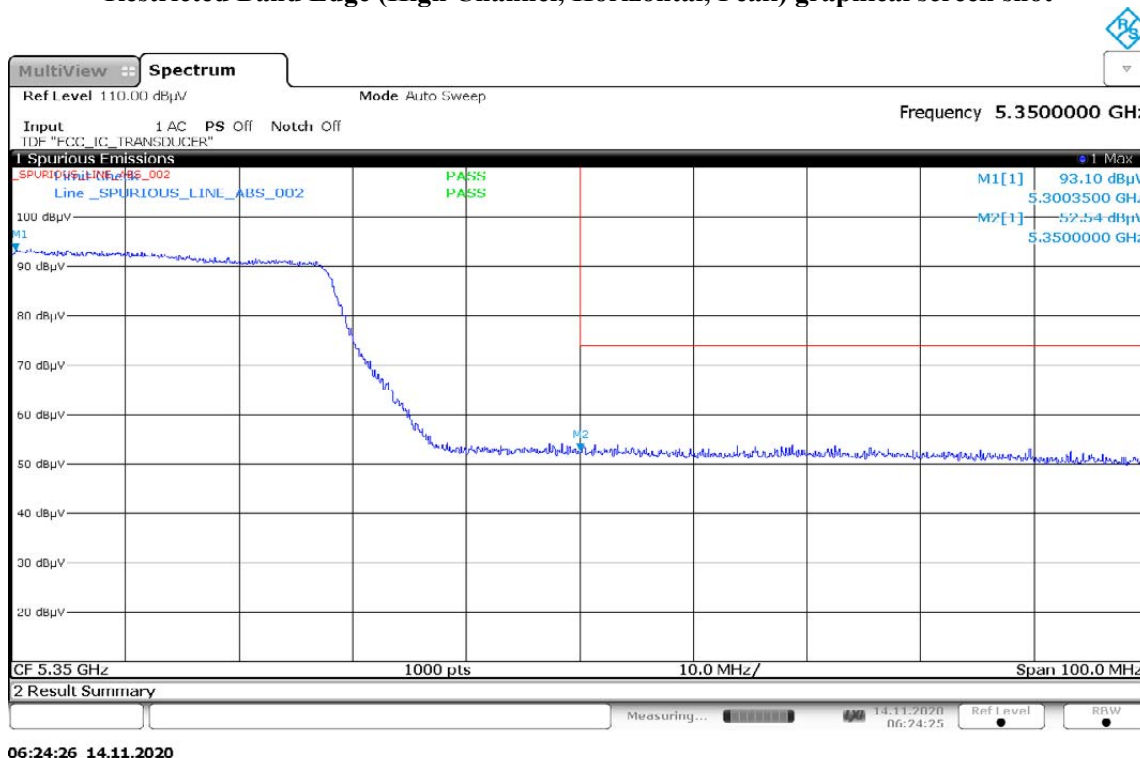
Temperature (degC): 23.9
Test Performed by: Nazrin&Qawiman
System MU: 4.03dB

Humidity (%): 69.8
Test Date: Sat, 14 Nov, 2020

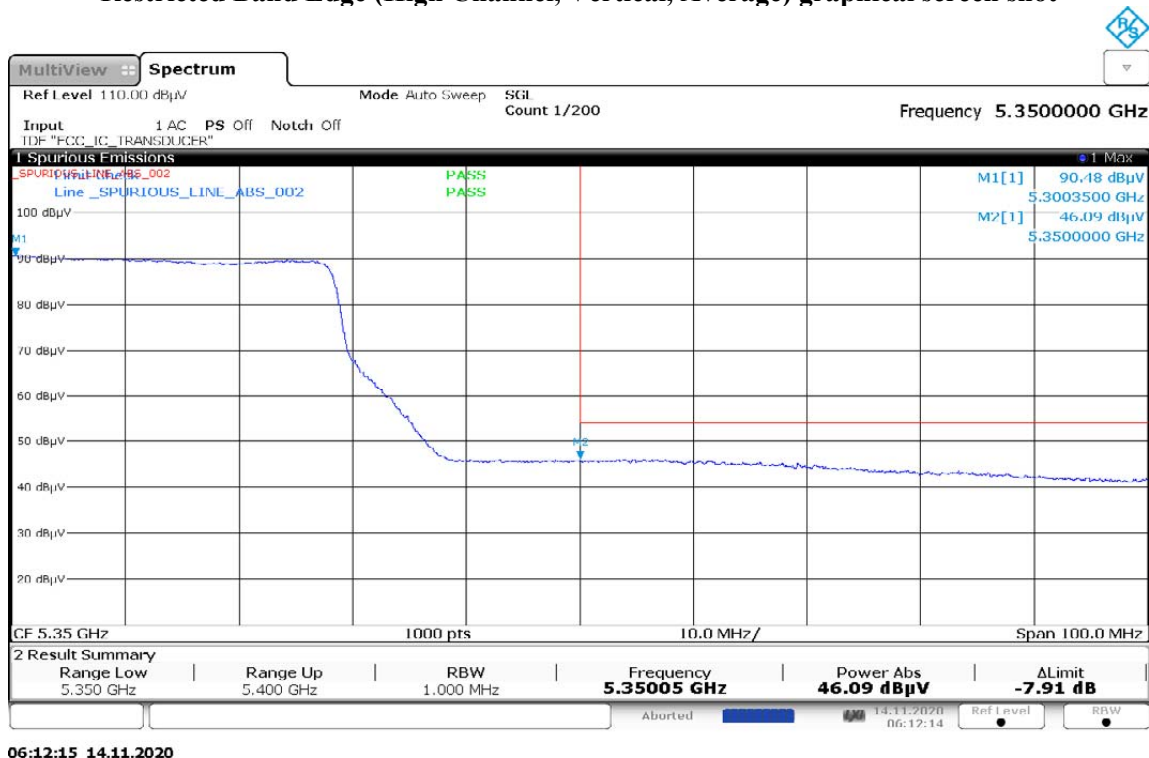
Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



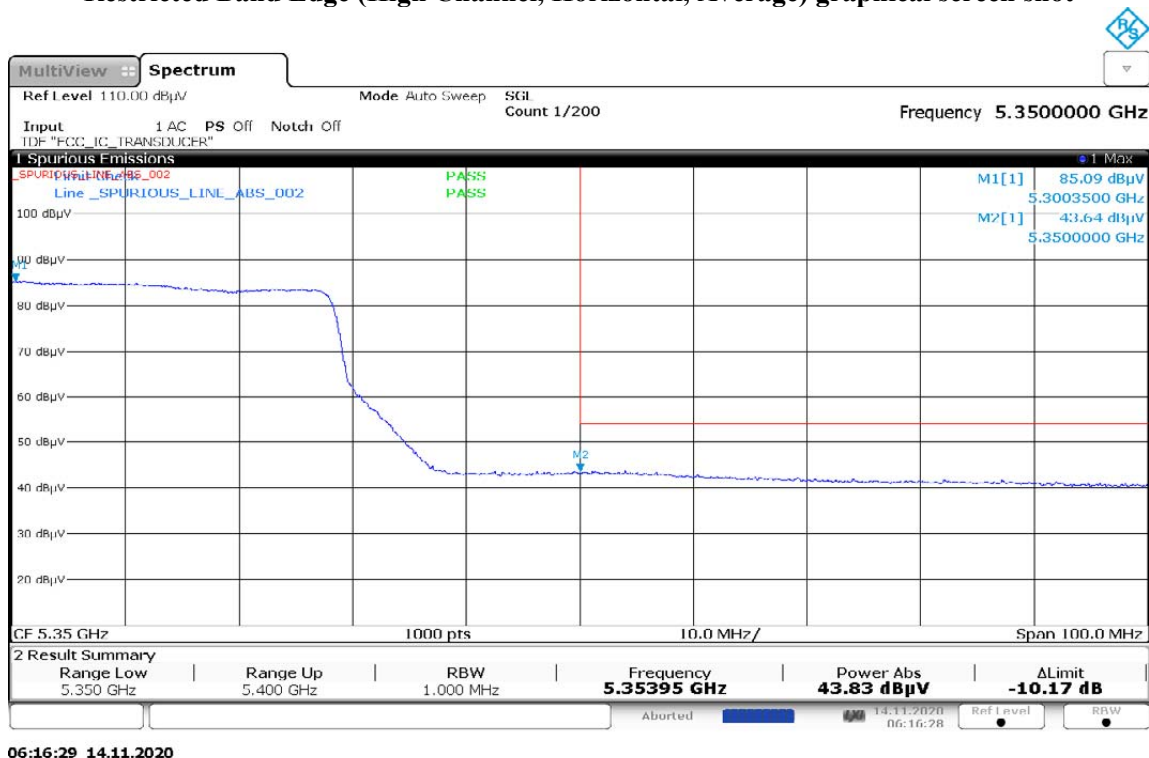
Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



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



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

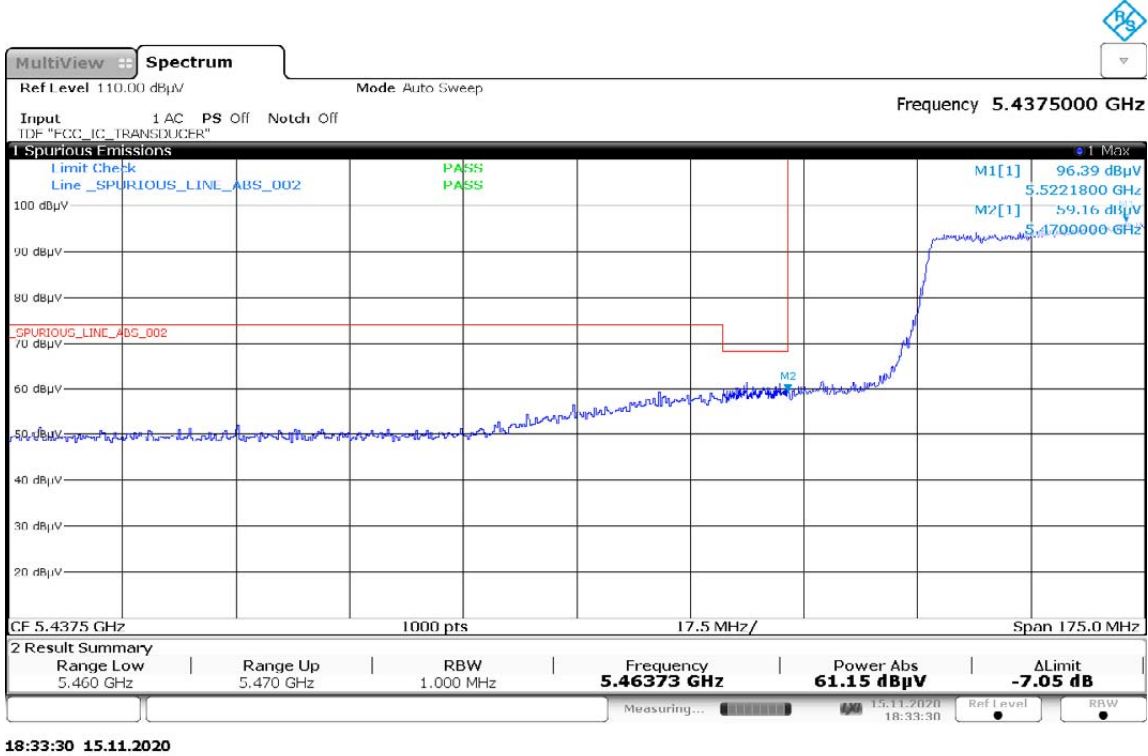


Restricted Band Edge (Low Channel) tabular data

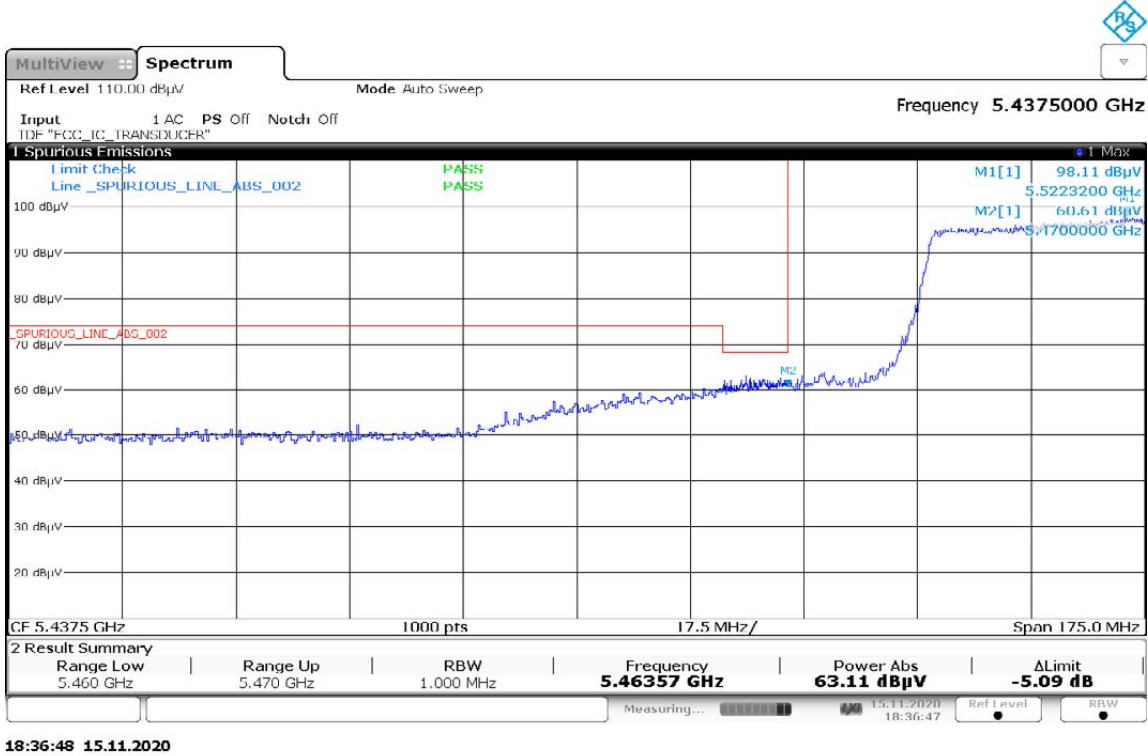
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Humidity (%): 69.8
Test Date: Mon, 16 Nov, 2020

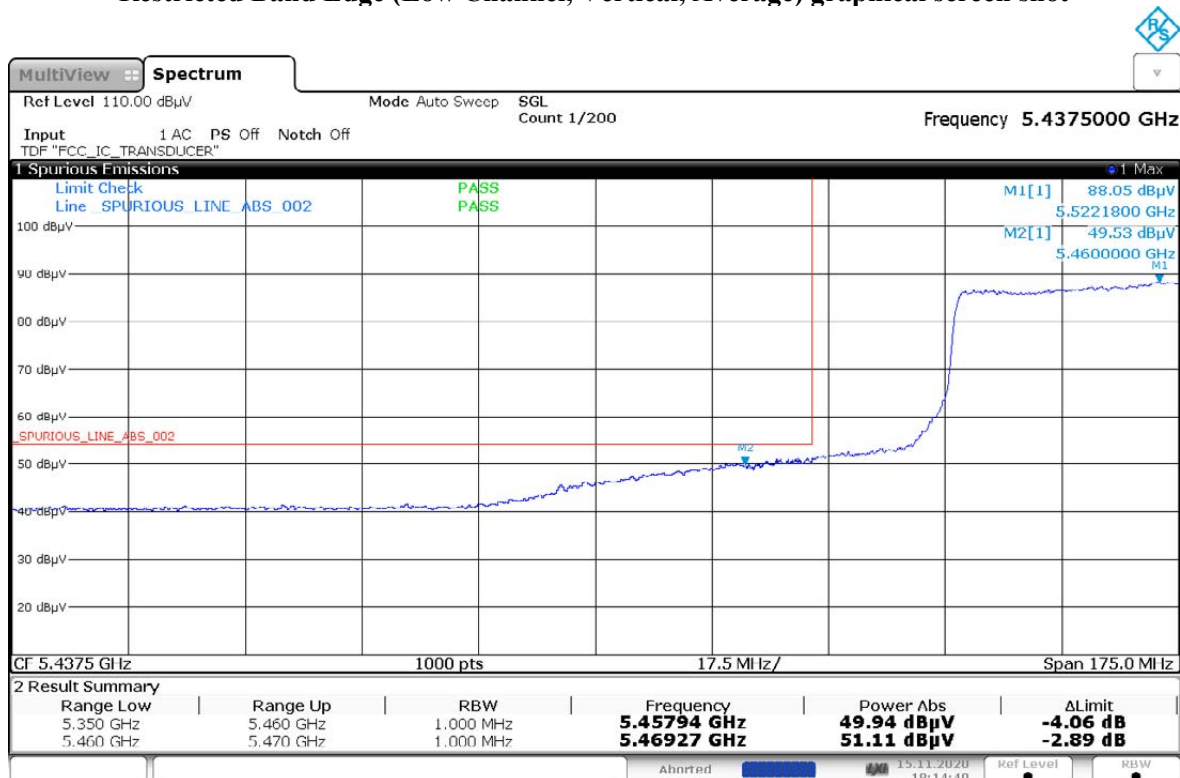
Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



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



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



18:14:49 15.11.2020

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



18:19:05 15.11.2020

Test: WIFI SAC Restricted Band Edge
Model Number: AAH90ZDU9RH1AN S/N: 734TWV0114 EMC SR ID#: 18058-EMC-00099
Battery: PMNN4804A Accessory: PMAE4079A
Test Channel: Low Test Frequency: 5755.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n 40MHz)

Vertical Radiated Emission Result

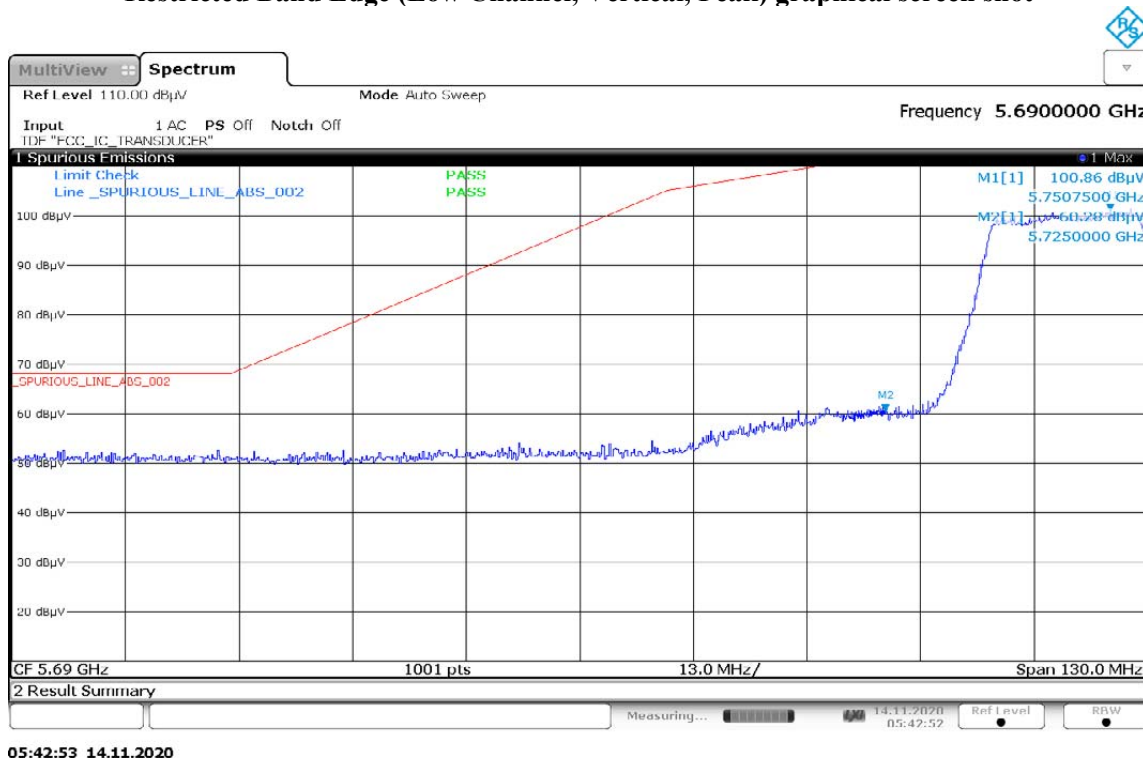
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

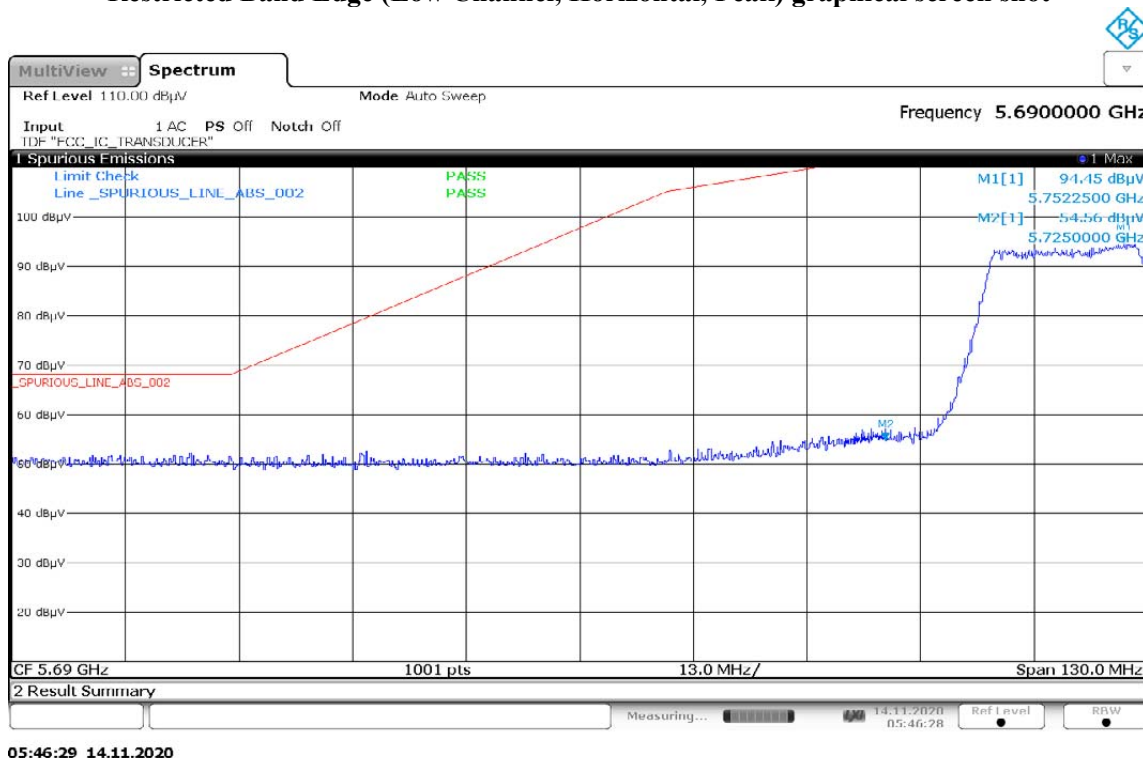
Temperature (degC):23.9
Test Performed by: Nazrin&Qawiman
System MU: 4.03dB

Humidity (%): 69.8
Test Date: Sat, 14 Nov, 2020

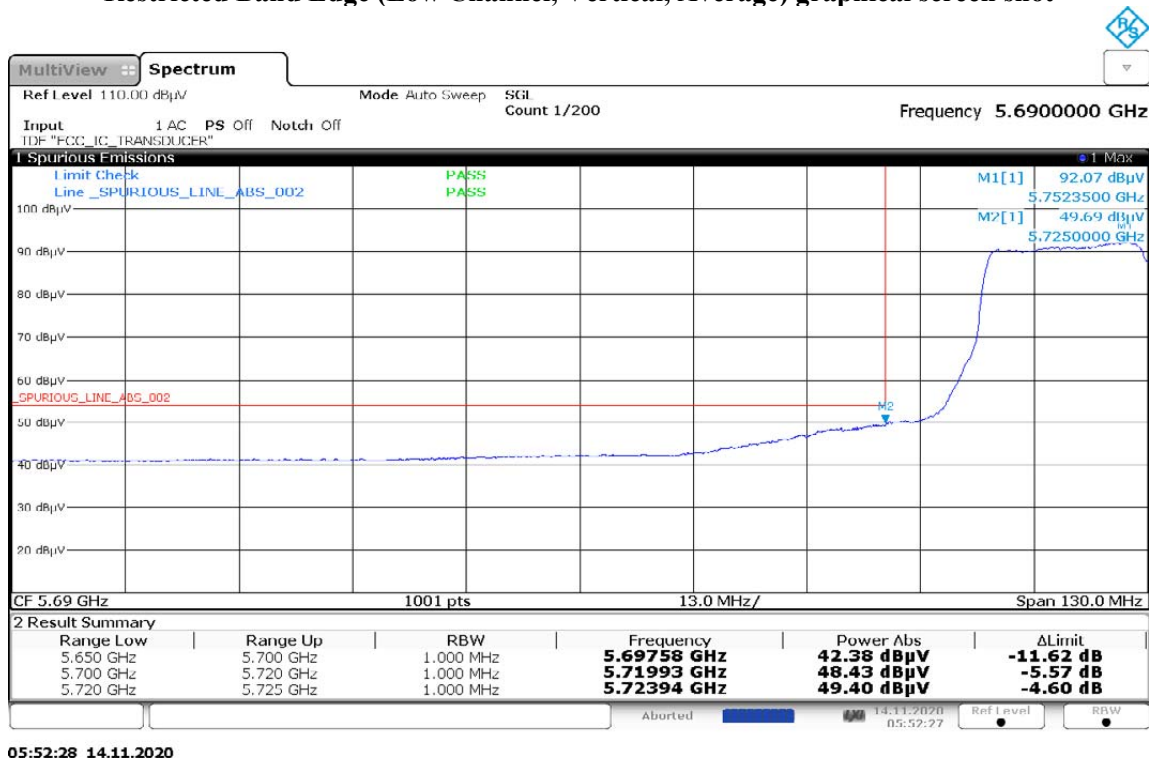
Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



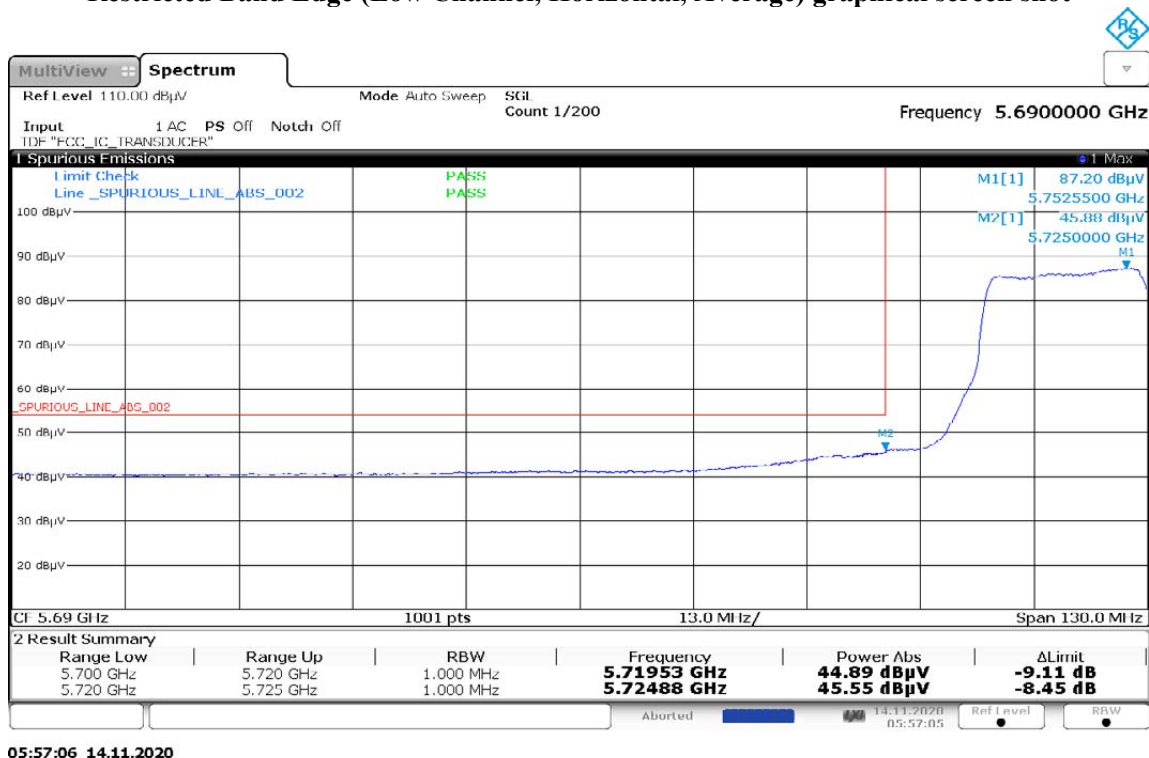
Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



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



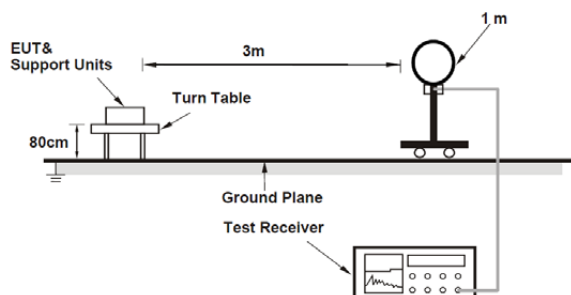
Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



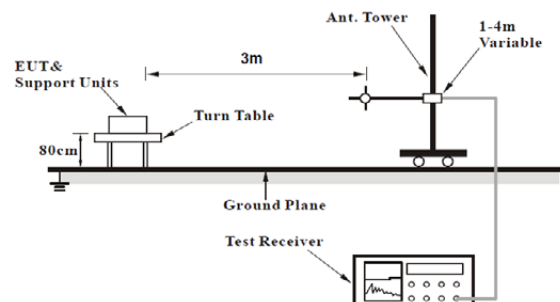
6.7. Radiated Spurious Emission Measurement

6.7.1. Test Setup

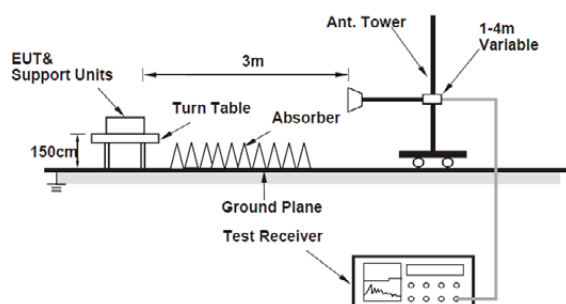
<Radiated emission below 30MHz>



<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 $\geq 98\%$) 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.

6.7.2. 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:

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

802.11a

Model#: AAH90ZDU9RH1AN S/N: 734TWV0114 EMC SR ID#: 18058-EMC-00099
 Battery: PMNN4804A Accessory: PMAE4079A
 Test Channel: Mid Test Frequency: 5220.0000 MHz Test Standard: ANSI C63.10-2013
 Worst Case Plane: Z-Plane (802.11a 20MHz)

Vertical Radiated Emission Result

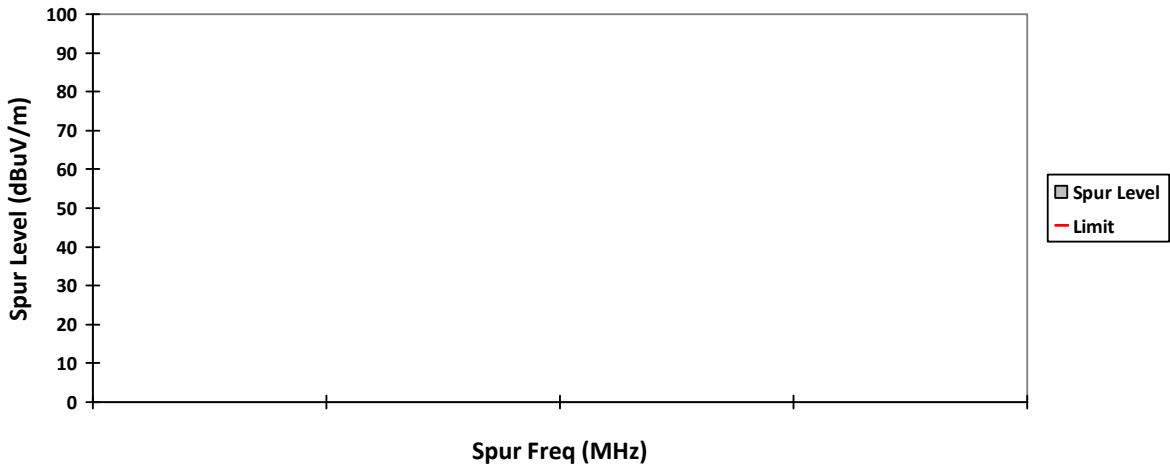
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

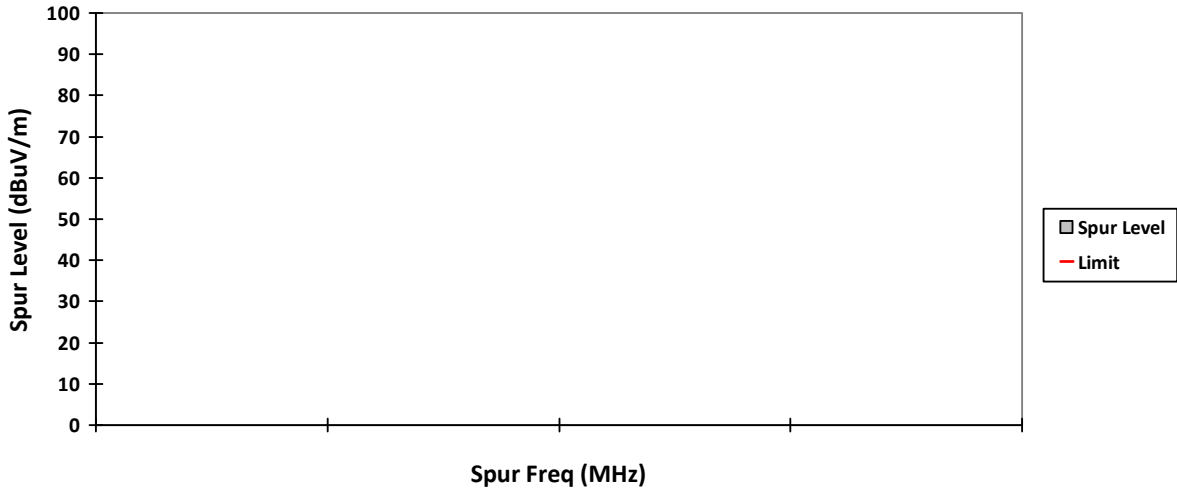
Humidity (%): 69.8
Test Date: Sun, 15 Nov, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

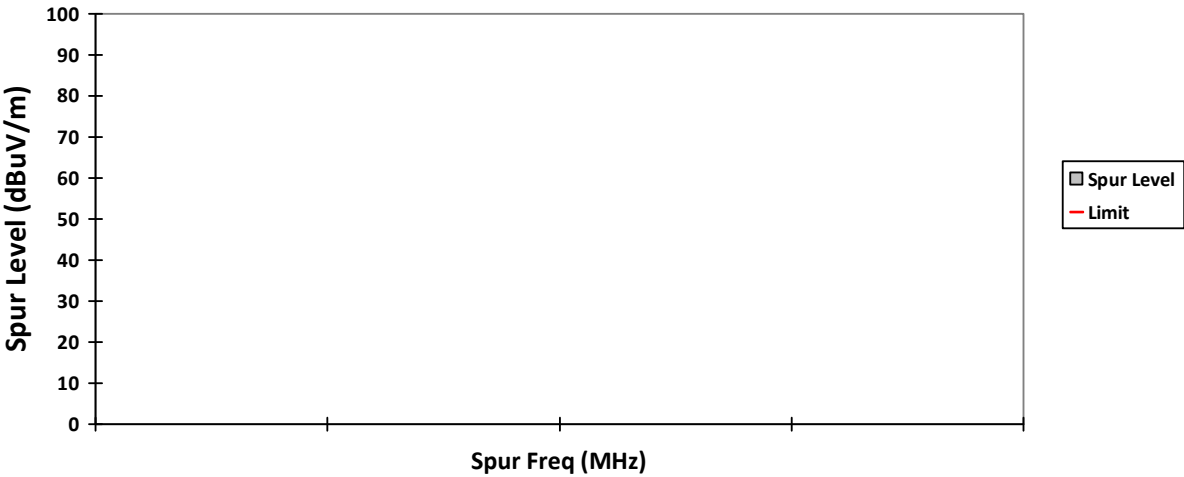
VERTICAL, QPK



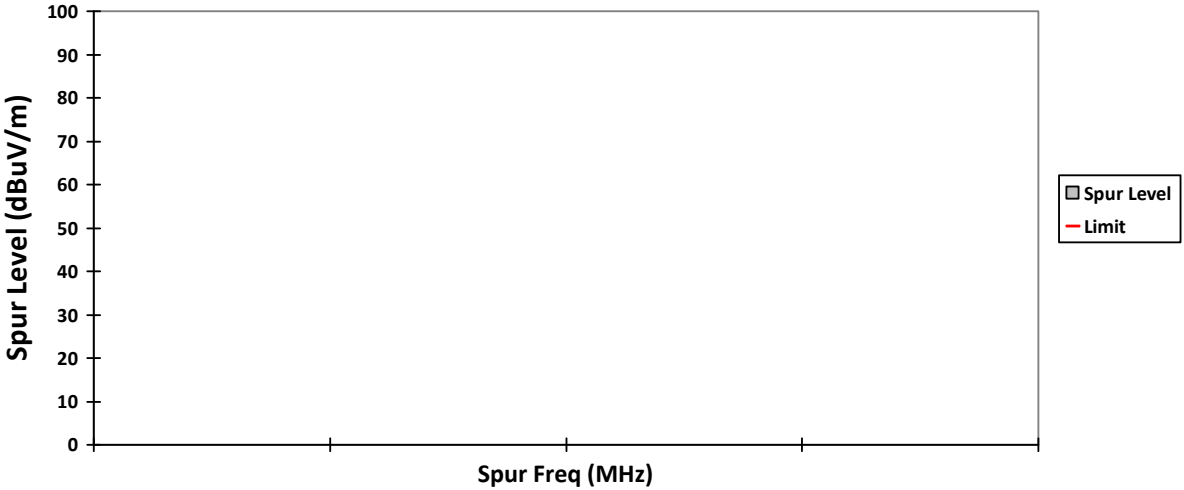
HORIZONTAL, QPK



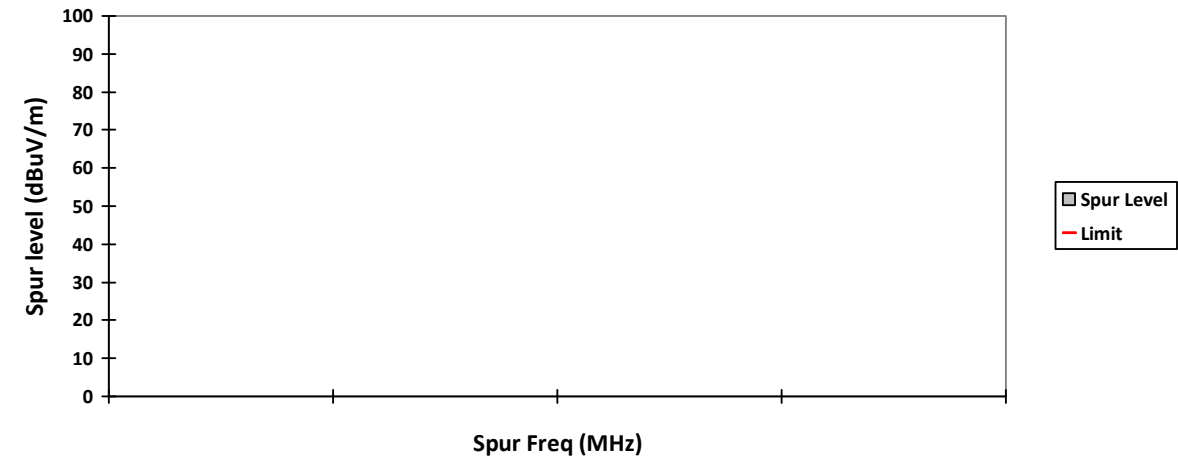
VERTICAL, PK



HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH90ZDU9RH1AN **S/N: 734TWV0114** **EMC SR ID#: 18058-EMC-00099**
Battery: PMNN4804A **Accessory: PMAE4079A**
Test Channel: Low **Test Frequency: 5260.0000 MHz** **Test Standard: ANSI C63.10-2013**
Worst Case Plane: Z-Plane (802.11a 20MHz)

Vertical Radiated Emission Result

[illegible]

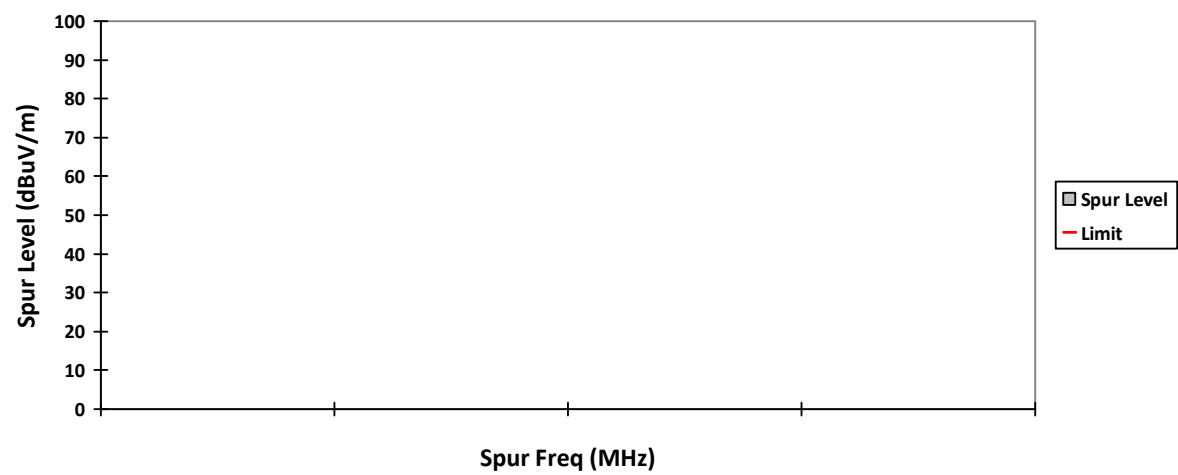
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 23.9
Test Performed by: Nazrin&Qawiman
System MU: 4.03dB

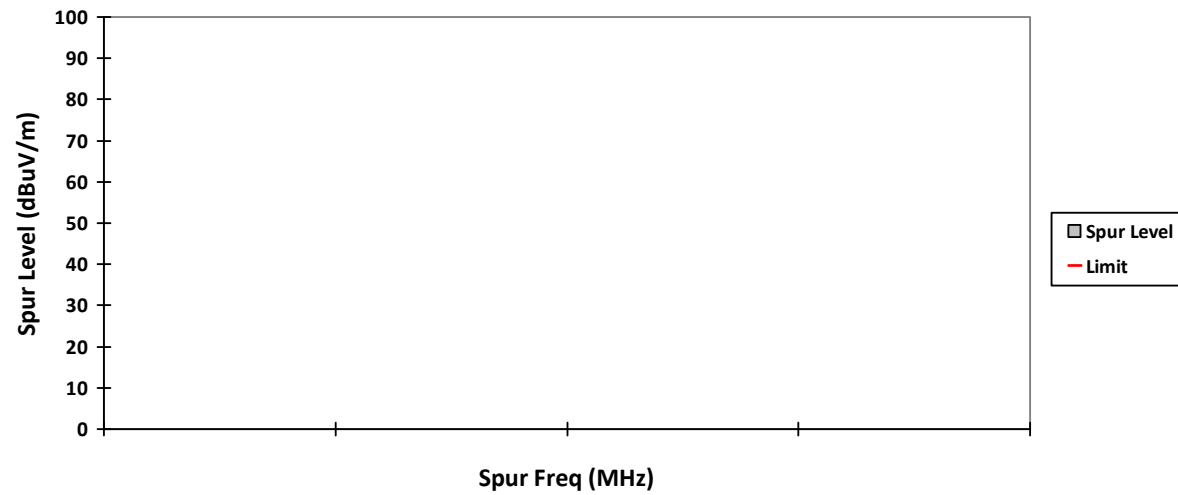
Humidity (%): 69.8
Test Date: Sun, 15 Nov, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

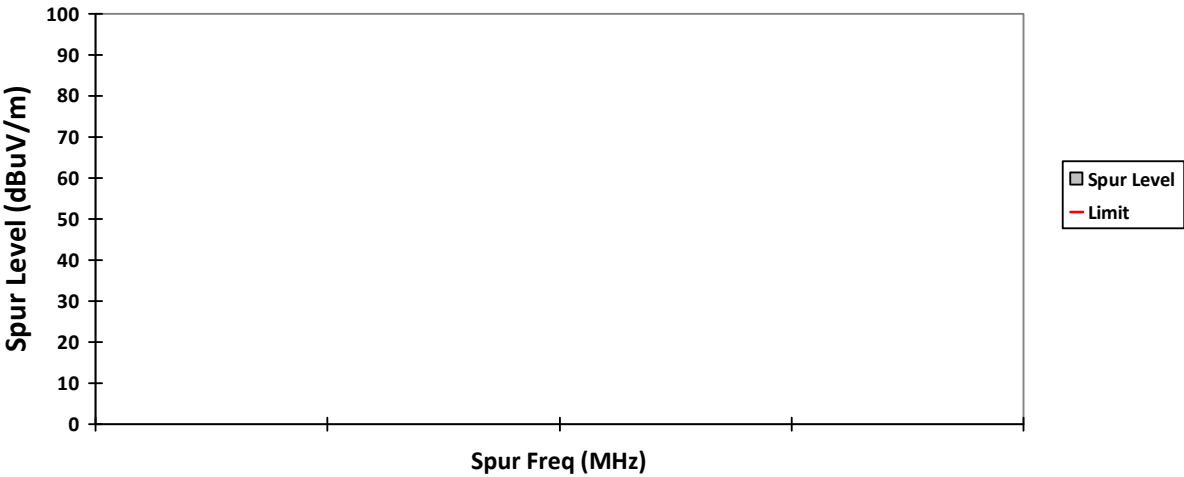
VERTICAL, QPK



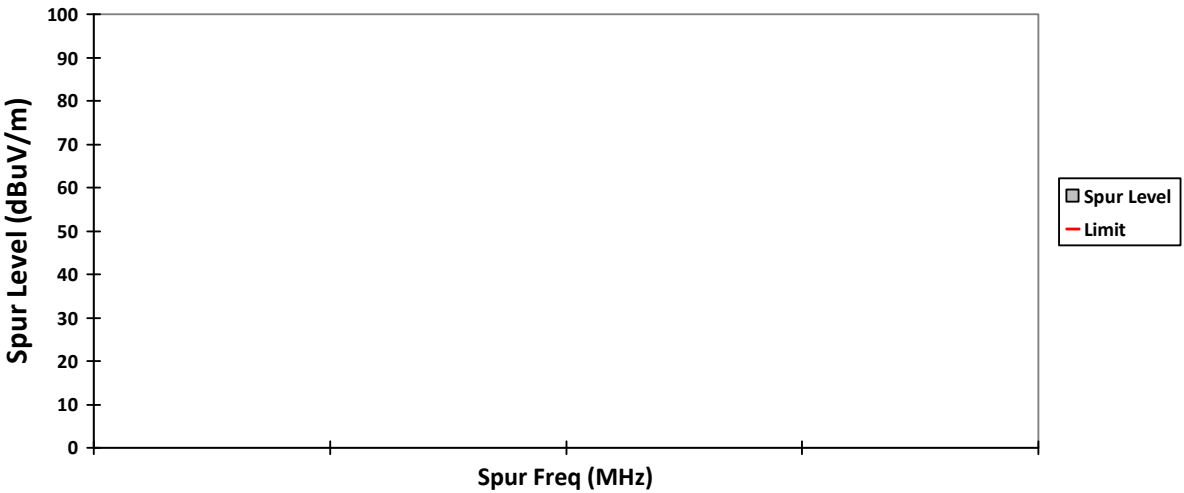
HORIZONTAL, QPK



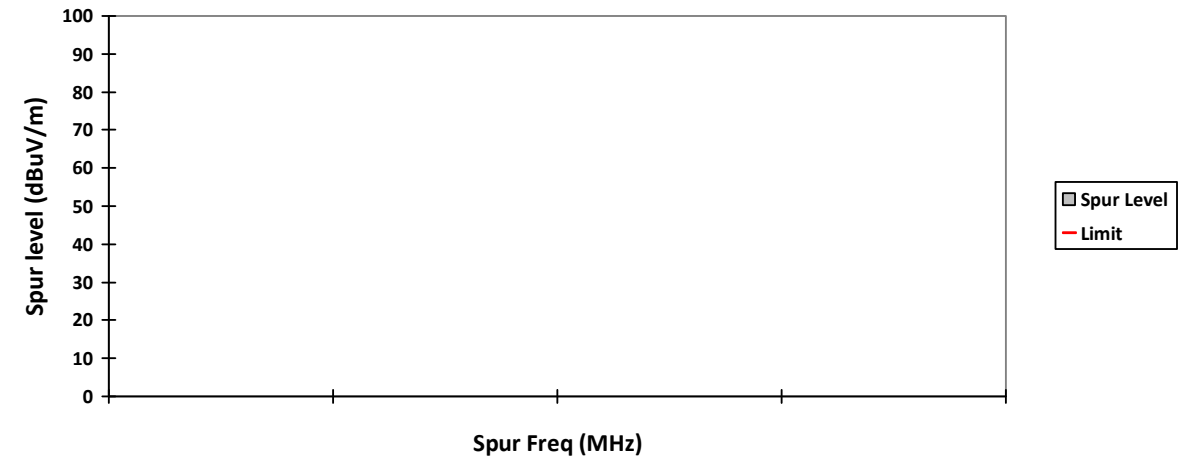
VERTICAL, PK



HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



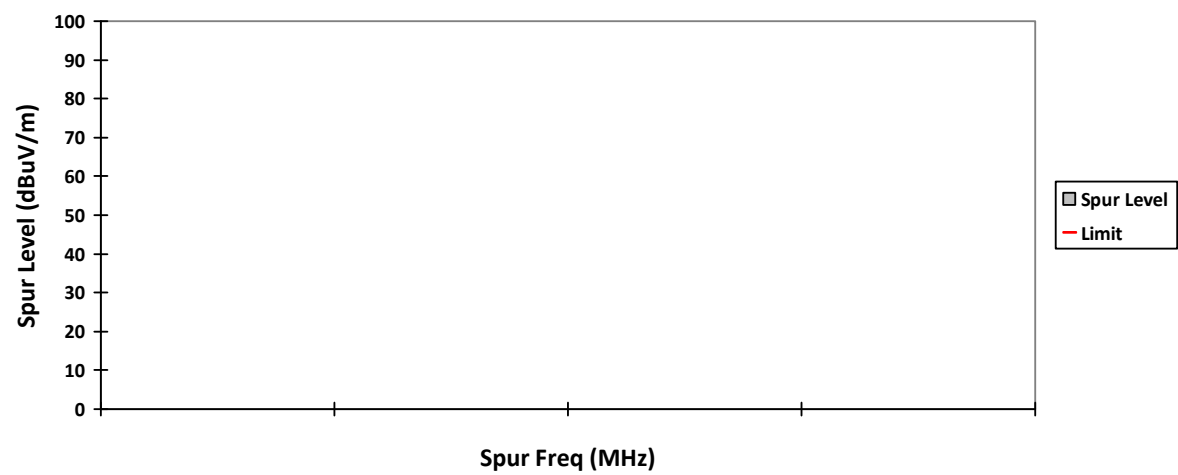
Radiated Emission (Mid Channel) tabular data

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

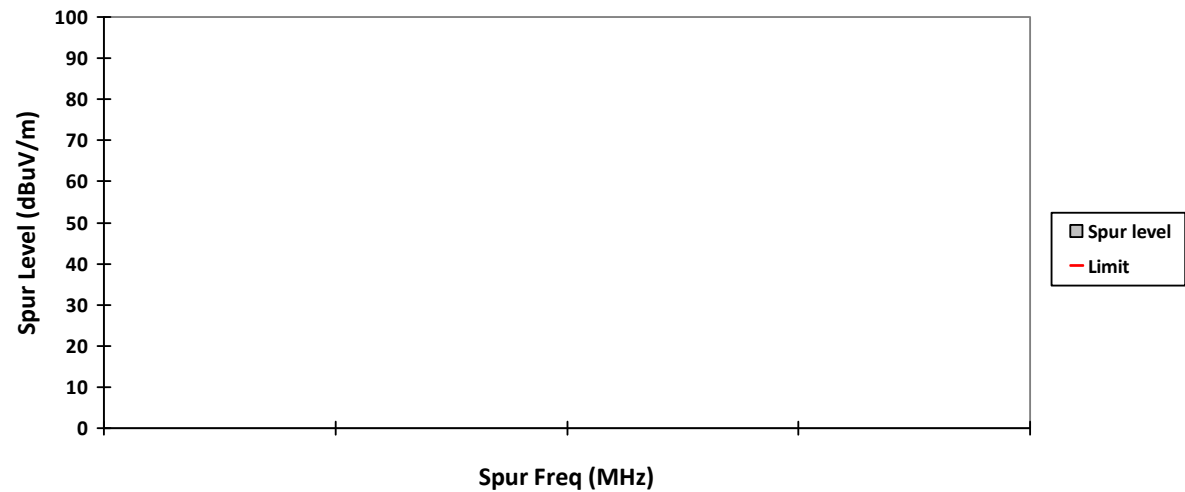
Humidity (%): 69.8
Test Date: Sun, 15 Nov, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

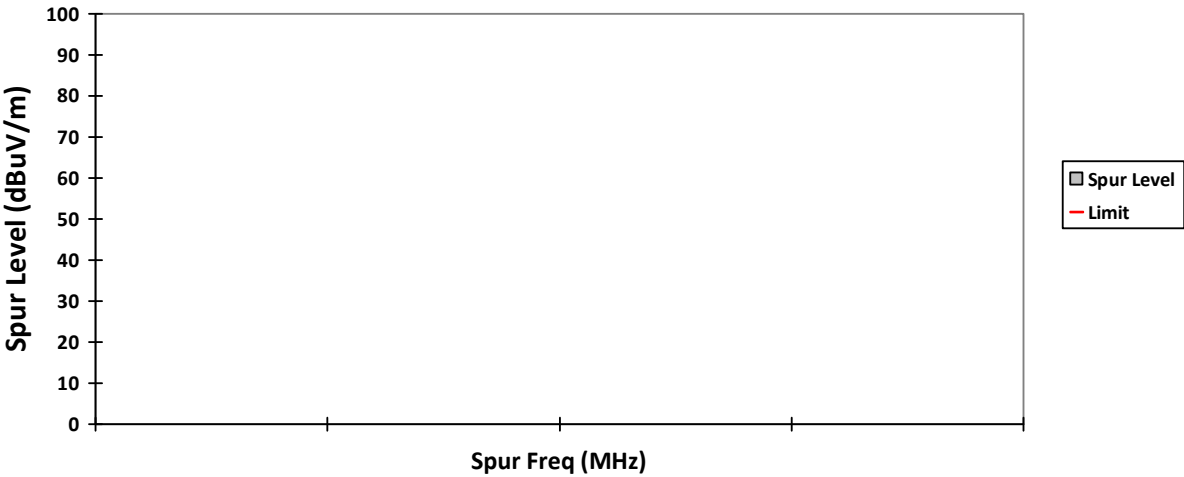
VERTICAL, QPK



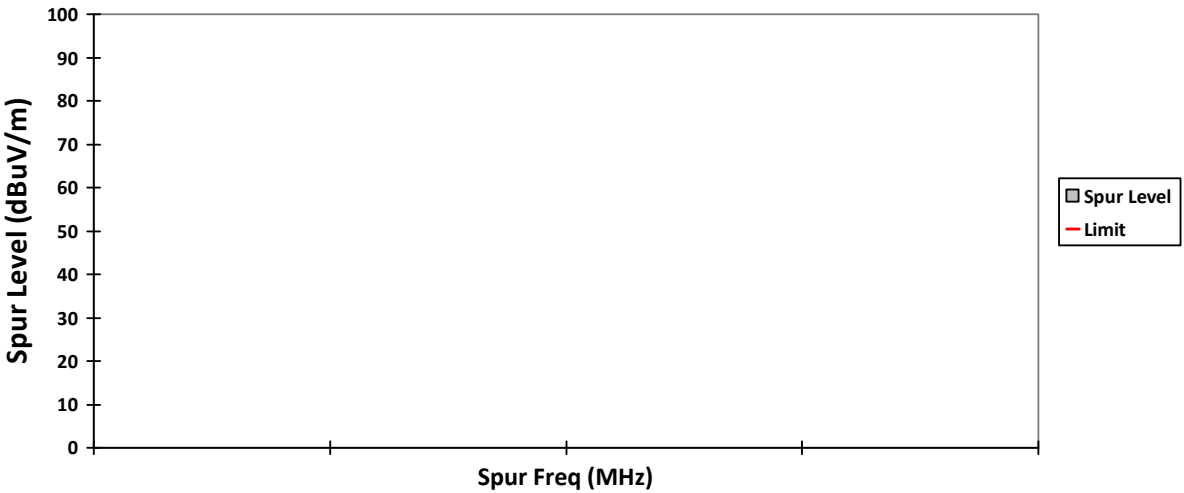
HORIZONTAL, QPK



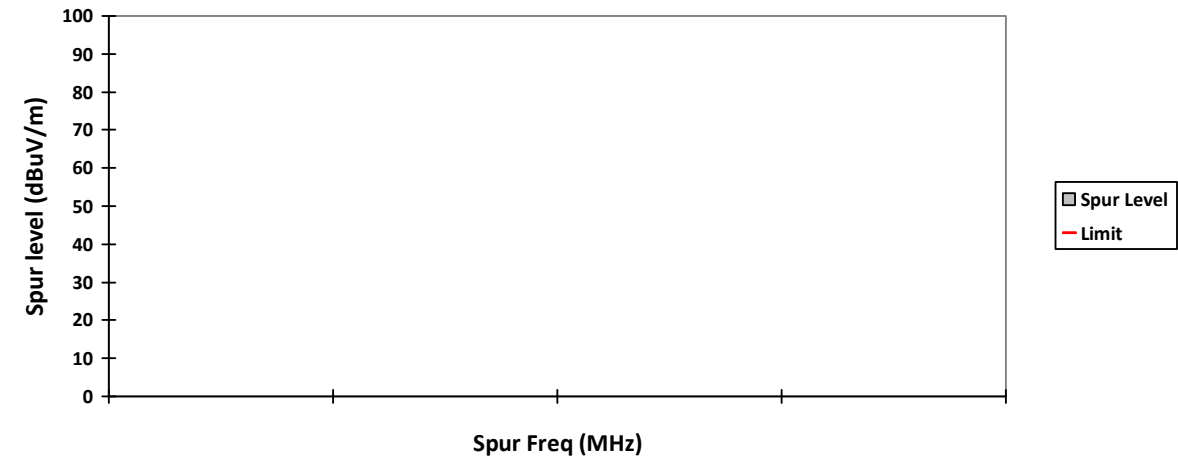
VERTICAL, PK



HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH90ZDU9RH1AN S/N: 734TWV0114 EMC SR ID#: 18058-EMC-00099
Battery: PMNN4804A Accessory: PMAE4079A
Test Channel: Mid Test Frequency: 5785.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11a 20MHz)

Radiated Emission (Mid Channel) tabular data

Vertical Radiated Emission Result

Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit QPK (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin QPK (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)
11570	-	51.3785**	**	-	74	54	-	22.62**	-	-
17355	-	51.7860**	**	-	74	54	-	22.21**	-	-
23140	-	31.4434**	**	-	74	54	-	42.56**	-	-
28925	-	33.5484**	**	-	74	54	-	40.45**	-	-
34710	-	37.0443**	**	-	74	54	-	36.96**	-	-
40495	-	46.8217**	**	-	74	54	-	27.18**	-	-
46280	-	46.8217**	**	-	74	54	-	27.18**	-	-
52065	-	46.8217**	**	-	74	54	-	27.18**	-	-
57850	-	46.8217**	**	-	74	54	-	27.18**	-	-

Horizontal Radiated Emission Result

Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit QPK (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin QPK (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)
11570	-	50.7066**	**	-	74	54	-	23.29**	-	-
17355	-	52.8038**	**	-	74	54	-	21.20**	-	-
23140	-	32.3722**	**	-	74	54	-	41.63**	-	-
28925	-	34.0912**	**	-	74	54	-	39.91**	-	-
34710	-	37.6843**	**	-	74	54	-	36.32**	-	-
40495	-	46.8101**	**	-	74	54	-	27.19**	-	-
46280	-	46.8101**	**	-	74	54	-	27.19**	-	-
52065	-	46.8101**	**	-	74	54	-	27.19**	-	-
57850	-	46.8101**	**	-	74	54	-	27.19**	-	-

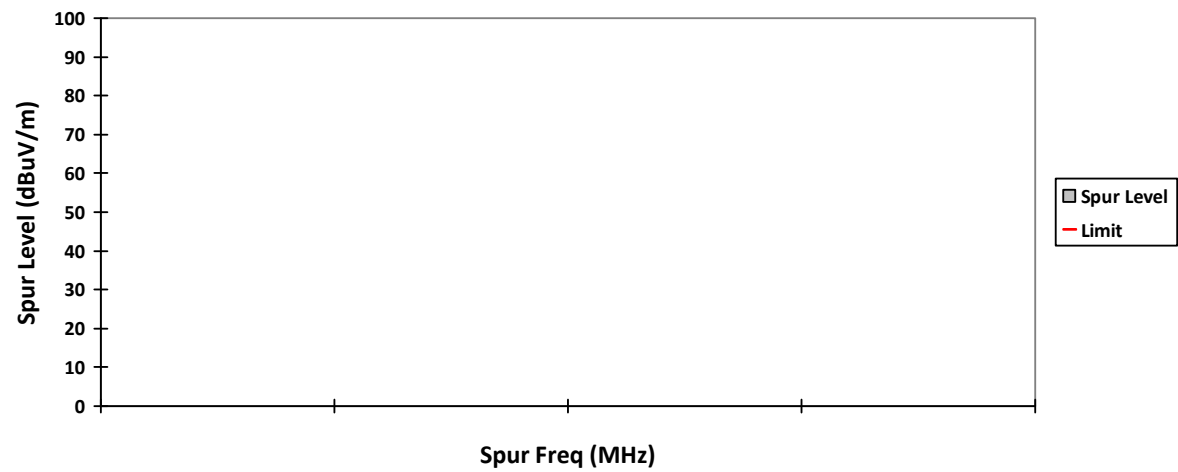
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 23.9
Test Performed by: Nazrin&Qawiman
System MU: 4.03dB

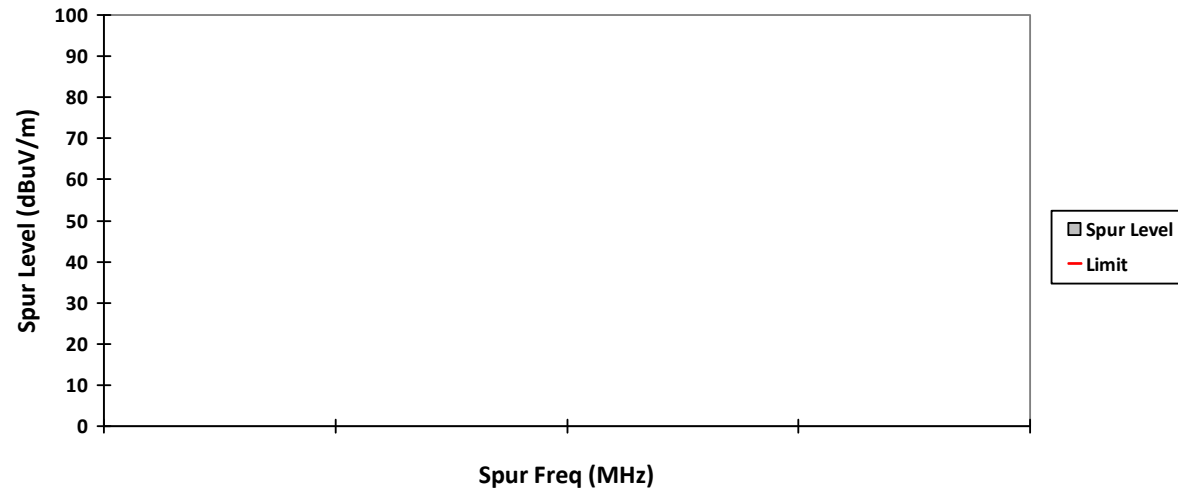
Humidity (%): 69.8
Test Date: Sun, 15 Nov, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

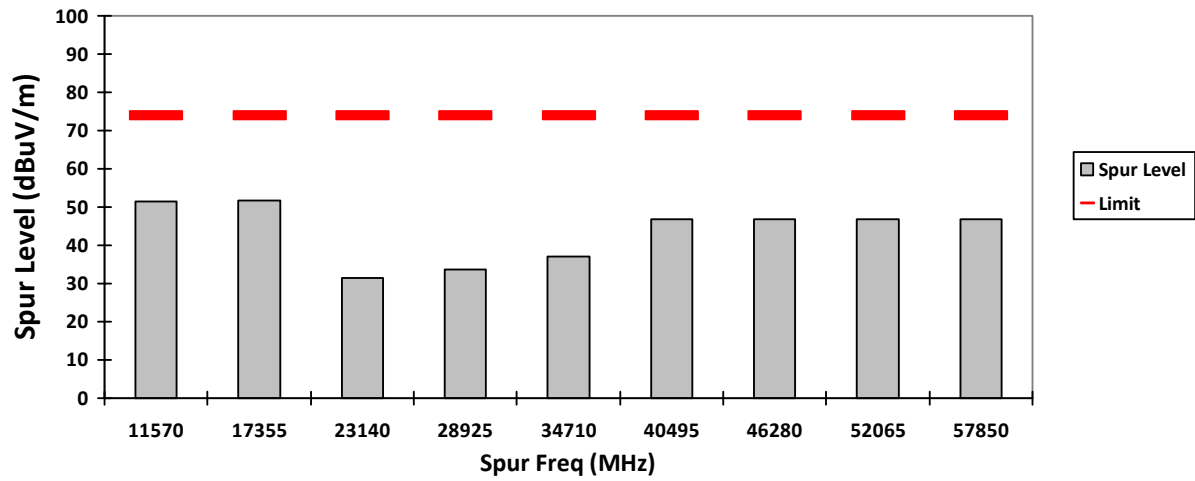
VERTICAL, QPK



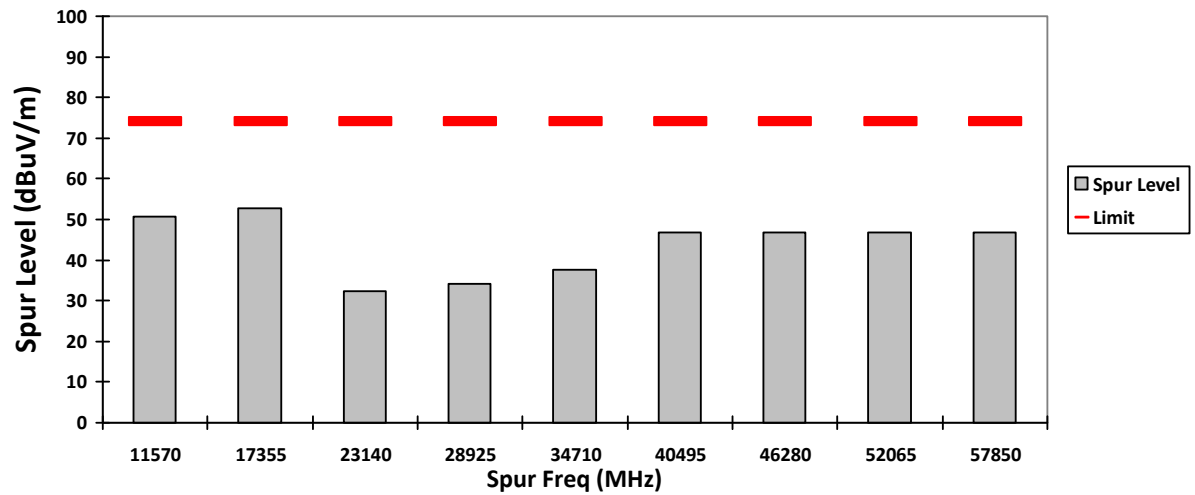
HORIZONTAL, QPK



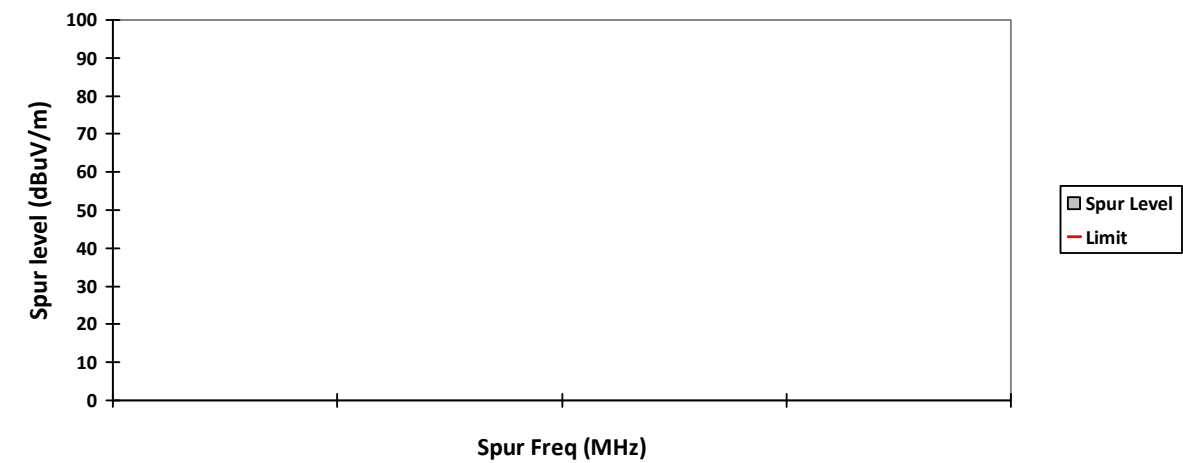
VERTICAL, PK



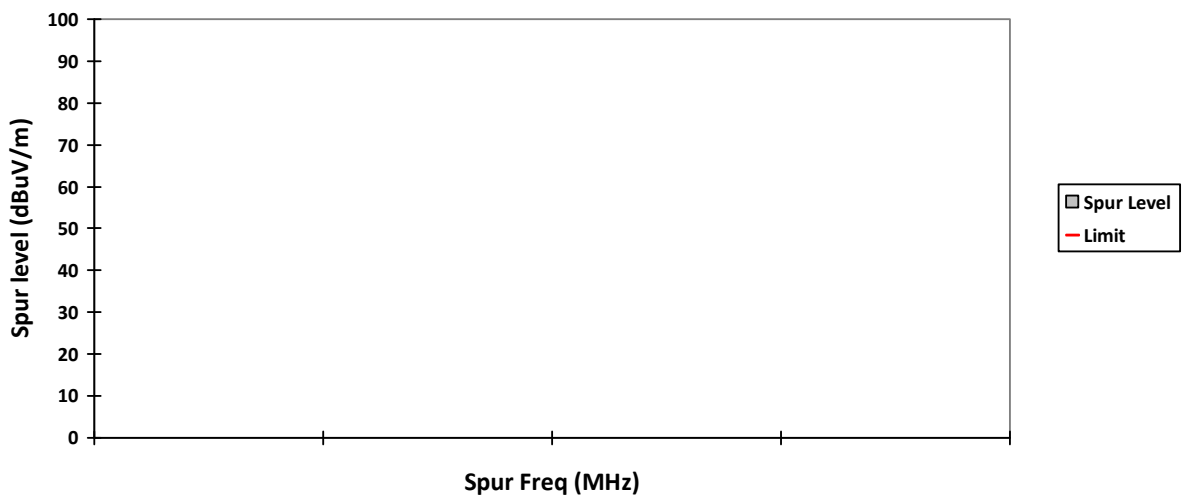
HORIZONTAL, PK



VERTICAL, AV

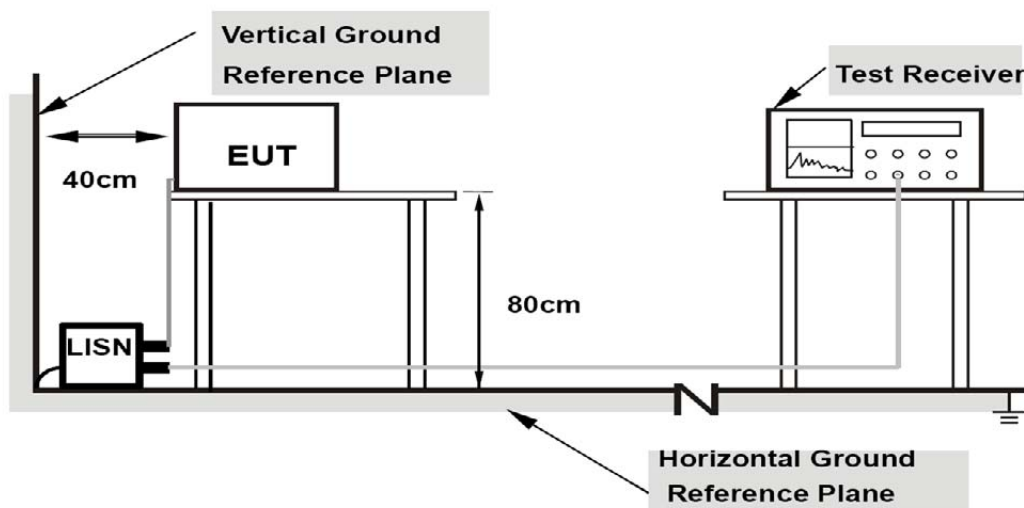


HORIZONTAL, AV



6.8. AC Powerline Conducted Emission

6.8.1. 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.

6.8.2. 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(μV)	
	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

6.8.3. Test Data

Not Applicable

END OF TEST REPORT