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The Boeing Co. TEST REPORT

SCOPE OF WORK

EMC TESTING – WI-FI MODULE

REPORT NUMBER

104056598LEX-004.3W

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EMC TEST REPORT

(FULL COMPLIANCE)

Report Number: 104056598LEX-004.3W

Project Number: G104056598

Report Issue Date: 4/12/2021

Model(s) Tested: Wi-Fi Module

Standards: FCC Part 15B
ICES-003 Issue 6
FCC Part 15C, FCC part 15E
(Radiated Spurious Emissions)
RSS-247 Issue 2
(Radiated Spurious Emissions)

Tested by:
Intertek Testing Services NA, Inc.
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Lexington, KY 40510
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Client:
The Boeing Co.
Spectrum Management, MC 1K-105
P.O. Box 3707
Seattle, WA 98124-2207
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Report prepared by



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Report reviewed by



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1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
6	Radiated Emissions (Transmitters Idle) (ANSI C63.4:2014)	Pass
6	Radiated Spurious Emissions (Transmitters Active) (ANSI C63.10:2013)	Pass

Note: Testing was limited to Radiated spurious emissions due to the integration of a certified transmitter module that was not modified by The Boeing Co. Engineering judgement was used to determine that the band edge measurements were not necessary due to the fact that the module originally passed with a margin of 4.5dB and the new antenna being used was only 1.2dB higher than the originally used gain (4dBi vs. 2.8dBi in the 2.4GHz band). Output power measurements were not performed since the client made no modifications to the originally certified module.



3 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	The Boeing Co.
Address:	Spectrum Management, MC 1K-105 P.O. Box 3707 Seattle, WA 98124-2207 USA
Contact:	Joel Thorsheim
Email:	joel.d.thorsheim@boeing.com
Manufacturer Information	
Manufacturer Name:	The Boeing Co.
Manufacturer Address:	90 Laurel View Drive Smithfield, PA 15478 USA



4 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	Wi-Fi Module
Supported Transmit Bands	802.11 a/b/g/n/ac/Bluetooth 4.2 2.4 GHz (2.4GHz - 2.5 GHz) 5 GHz (5.180 GHz - 5.825 GHz)
Embedded Module	Laird ST60-2230C-P
Embedded Module hardware Version	2.1
Embedded Module Software Version	Version 7.0.0.231
Embedded Module Firmware Version	88W8997_ST_pcie_uart_v5.4.23.1.bin
FCCID	H8V-60SIPT
Receive Date	1/20/2020
Test Start Date	1/23/2019
Test End Date	2/19/2020
Device Received Condition	Good
Test Sample Type	Production
Rated Voltage	3.3 VDC (2.97 - 3.63VDC)
Description of Equipment Under Test (provided by client)	
Wi-Fi Module	

4.1 Variant Models:

There were no variant models covered by this evaluation.



5 System Setup and Method

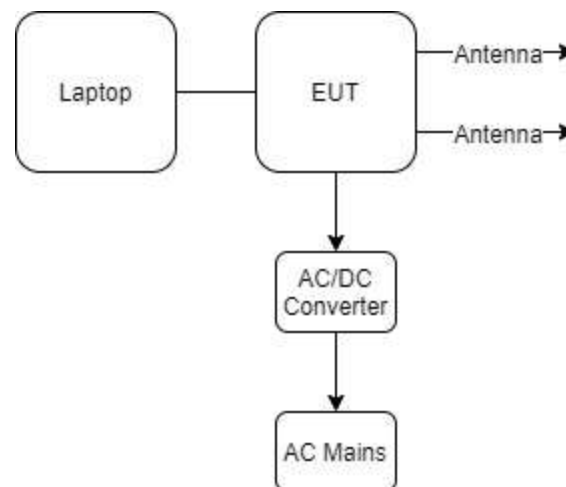
5.1 Method:

Configuration as required by ANSI C63.4:2014 and ANSI C63.10:2013.

No.	Descriptions of EUT Exercising
1	Attached to a laptop with a PCI connection, powered on, Wi-Fi turned on through PC terminal Transmit software with EN440 mode for UNII-3 bands Transmit software used ETSI Mode for all other channels except UNII-3 bands.
2	Attached to a laptop with a PCI connection, powered on, no transmitters active

Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
1	Power Cable	3m	None	None	AC Mains

5.2 EUT Block Diagram:





5.3 EUT Photo (Front):



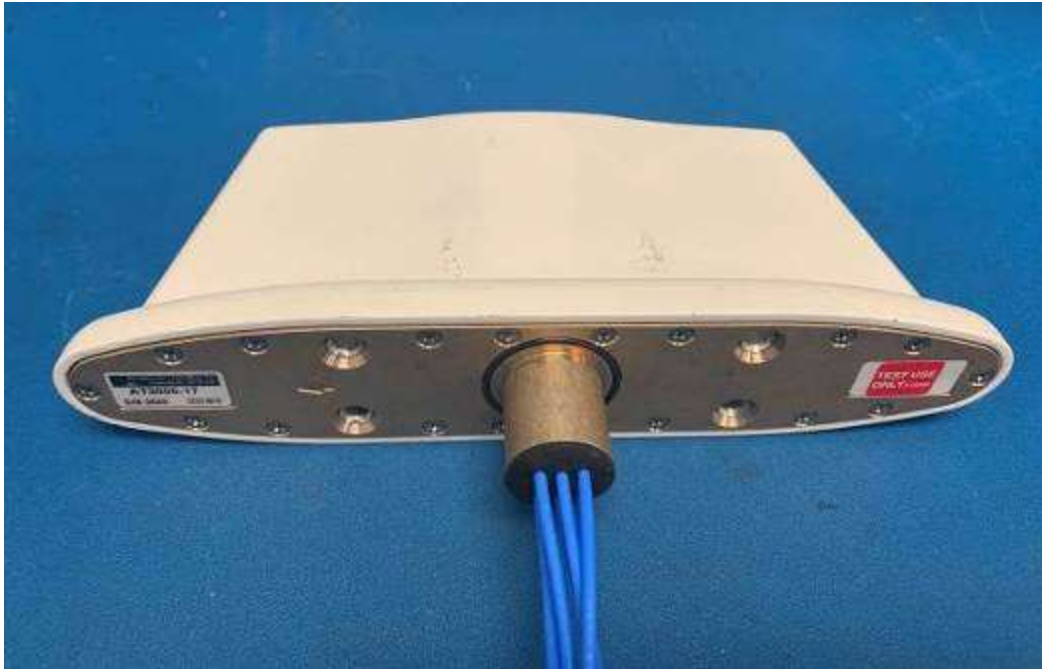


5.4 EUT Photo (Back):





5.5 Antenna Photo (AT3000-17):



Note, the highest gain antenna (AT3000-17) was used for testing. The AT3000-18 antenna may also be used since it has lower gain in the 700 – 1500MHz Band

Antenna p/n	Function	Frequency (MHz)	Max Gain (dBi)	Min Cable Loss (dB)
AT3000-17	WiFi	2400-2500	4	0.5
		5100-5900	5	0.5
	Cellular	700-1500	6	0.5
		1700-2700	4	0.5
AT3000-18	WiFi	2400-2500	4	0.5
		5100-5900	5	0.5
	Cellular	700-1500	4	0.5
		1700-2700	4	0.5



6 Radiated Emissions

6.1 Method

Tests are performed in accordance with ANSI C63.4:2014 and ANSI C63.10:2013.

TEST SITE: 10m ALSE

Site Designation: 10m Chamber

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	3.9dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	4.0dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.7dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	4.7dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	4.7dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	4.7dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required.



6.2 Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dB μ V/m

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$

NF = Net Reading in dB μ V

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$
$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

**6.3 Test Equipment Used:**

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
EMI Test Receiver	3900	Rohde & Schwarz	ESU40	9/18/2019	9/18/2020
Bilog Antenna (30MHz-1GHz)	7085	SunAR	JB6	8/8/2019	8/8/2020
Horn Antenna	3780	ETS Lindgren	3117	6/7/2019	6/7/2020
System Controller	4096	ETS Lindgren	2090	Verify at Time of Use	Verify at Time of Use
System Controller	3957	Sunol Sciences	SC99V	Verify at Time of Use	Verify at Time of Use
3m Cable Antenna→Preamp	3074			12/4/2019	12/4/2020
3m Cable Preamplifier	3918	Rohde & Schwarz	TS-PR18	12/4/2019	12/4/2020
3m Cable Preamp→Chamber	2588			12/4/2019	12/4/2020
3m Cable Chamber→Control Room	2593			12/4/2019	12/4/2020
3m Cable Control Room→Receiver	2592			12/4/2019	12/4/2020

6.4 Software Utilized:

Name	Manufacturer	Version
EMC32	Rohde & Schwarz	Version 9.15.02

6.5 Results:

The sample tested was found to Comply.

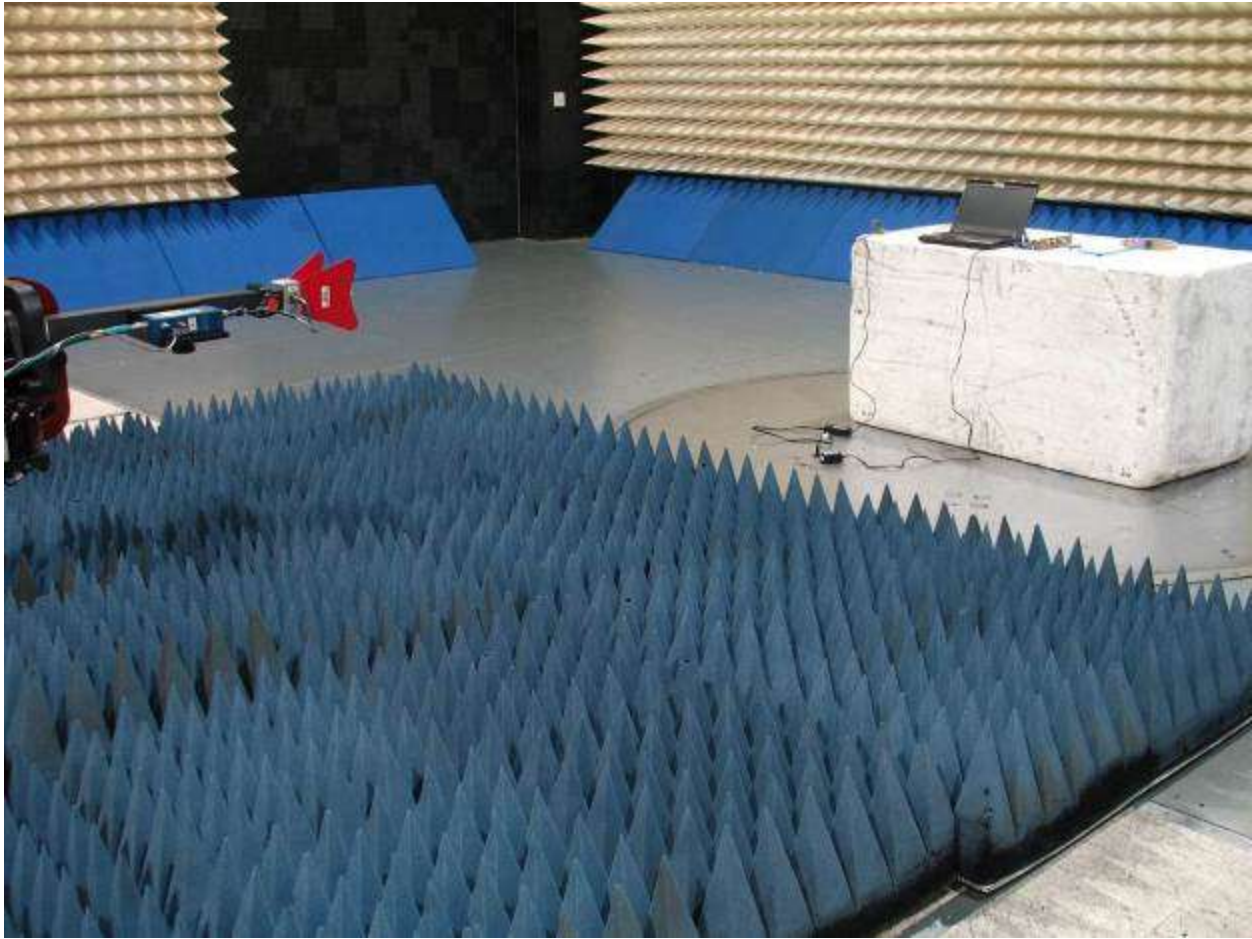


6.6 Setup Photographs: Radiated Emissions (FCC Part 15B/15C/15E, 30MHz - 1GHz)





6.7 Setup Photographs: Radiated Emissions (FCC Part 15B, 1 - 18GHz)



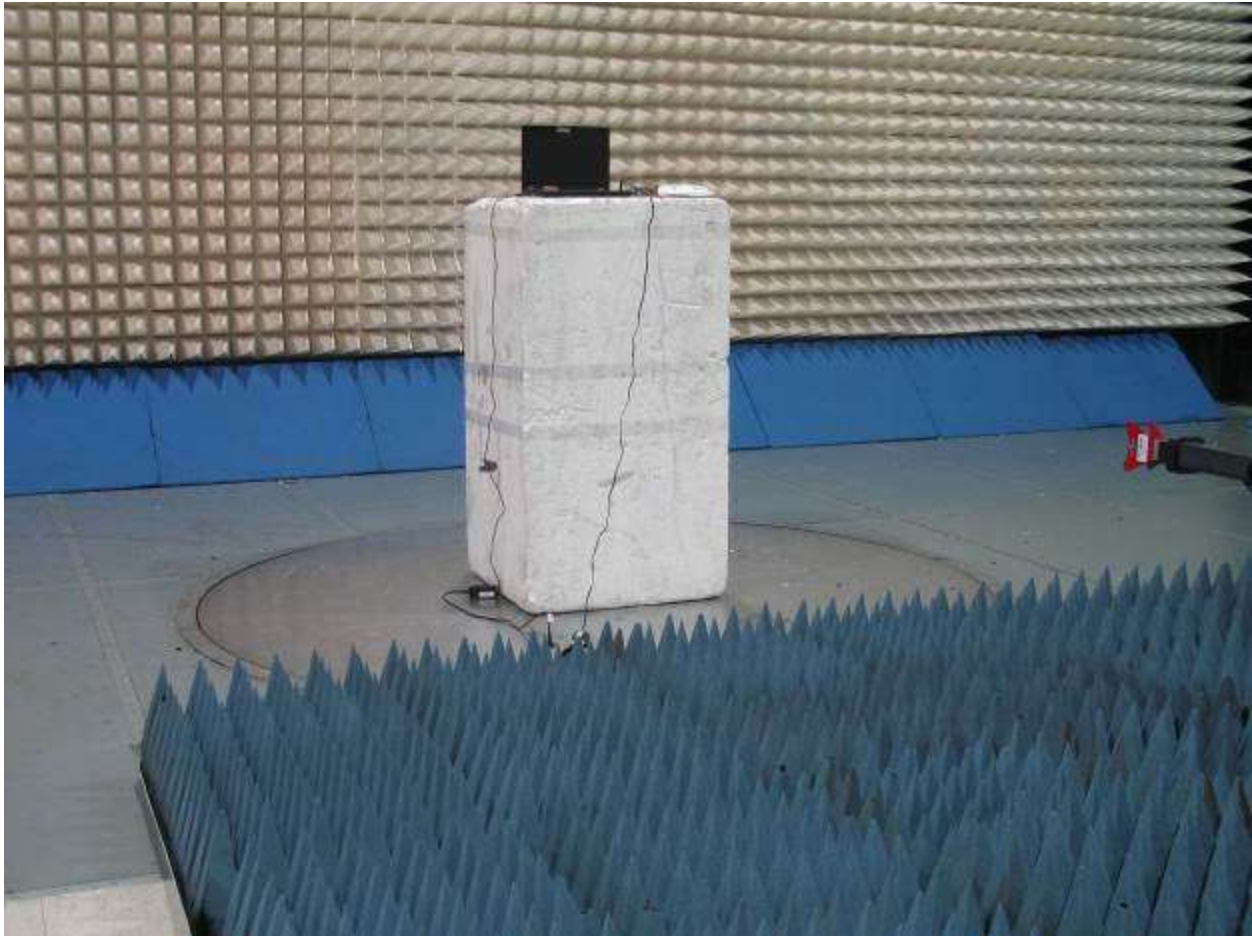


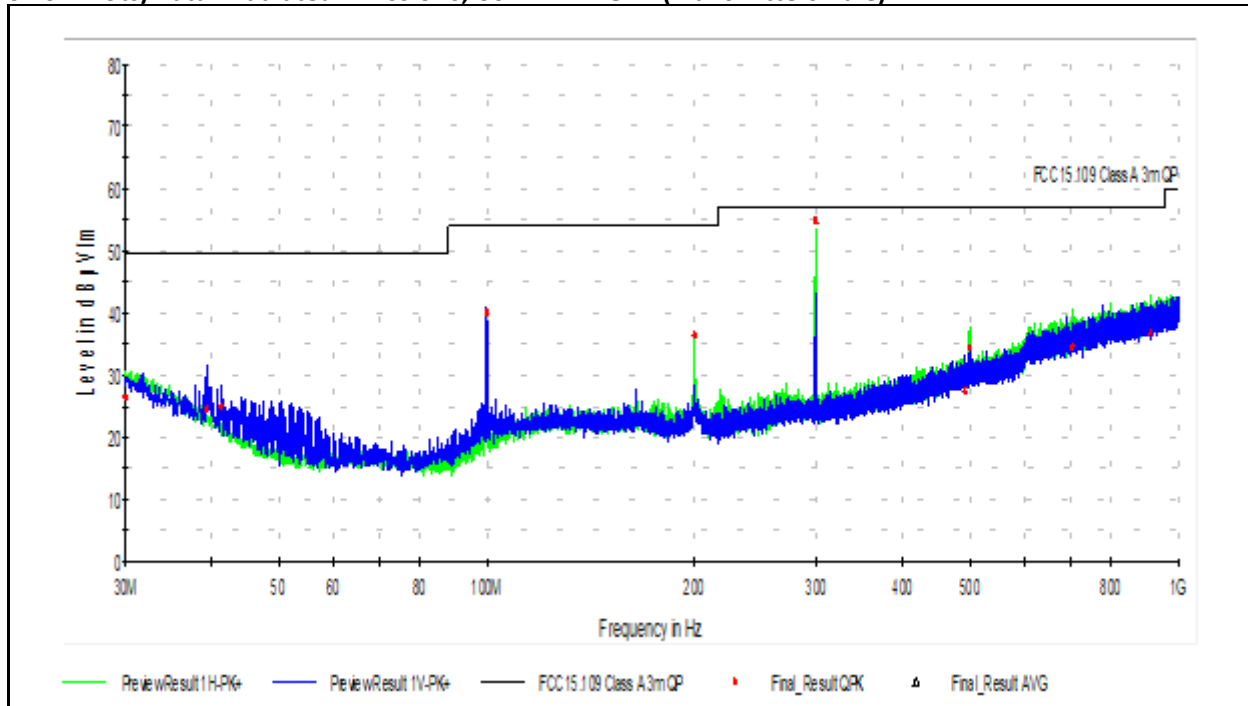
6.8 Setup Photographs: Radiated Emissions (FCC Part 15C/15E, 1 - 18GHz)





6.9 Setup Photographs: Radiated Emissions (FCC Part 15C/15E, 18 - 40GHz)



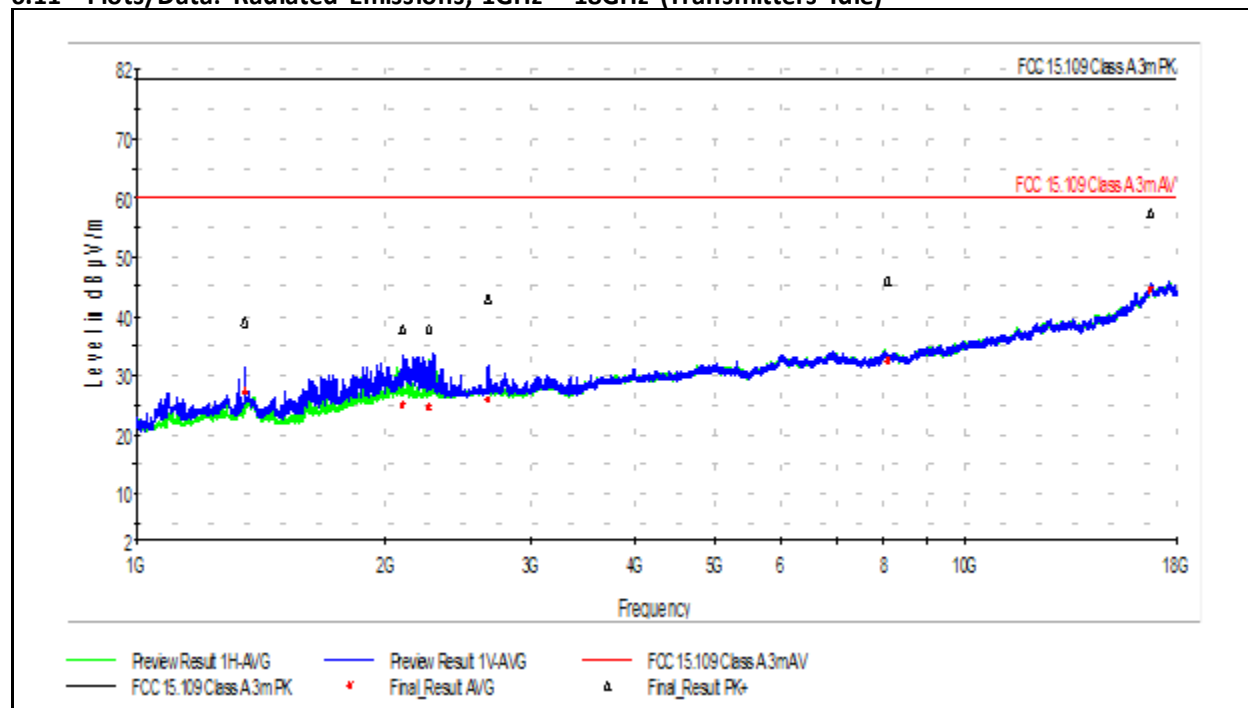
**6.10 Plots/Data: Radiated Emissions, 30MHz – 1GHz (Transmitters Idle)**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.000000	26.29	50.00	23.71	120.000	347.3	H	35.0	28.8
39.322778	24.44	50.00	25.56	120.000	104.1	V	0.0	21.2
41.262778	24.78	50.00	25.22	120.000	103.6	V	0.0	19.8
99.947778	40.11	53.52	13.41	120.000	99.8	V	304.0	19.6
199.857778	36.49	53.52	17.03	120.000	129.6	H	194.0	22.4
298.743889	54.87	56.02	1.15	120.000	105.1	H	210.0	24.0
491.288889	27.48	56.02	28.54	120.000	118.2	V	62.0	29.1
499.857222	34.43	56.02	21.59	120.000	168.6	H	138.0	29.6
702.964444	34.47	56.02	21.55	120.000	118.3	H	201.0	34.1
913.939444	36.76	56.02	19.26	120.000	400.1	H	341.0	36.9

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15B
Input Voltage: ICES-003 Issue 6
Pretest Verification w / Ambient Signals or BB Source: 120VAC / 60Hz
Yes

Test Date: 2/19/2020
Limit Applied: See Table Above
Ambient Temperature: 22.5°C
Relative Humidity: 32.0 %
Atmospheric Pressure: 995.6 mbar

Deviations, Additions, or Exclusions: None

**6.11 Plots/Data: Radiated Emissions, 1GHz – 18GHz (Transmitters Idle)**

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	39.19	80.00	40.81	1000.000	277.0	V	74.0	-0.3
2101.000000	37.77	80.00	42.23	1000.000	100.0	V	341.0	2.7
2259.000000	38.00	80.00	42.00	1000.000	150.0	H	113.0	3.3
2657.000000	42.93	80.00	37.07	1000.000	397.0	V	94.0	4.3
8073.000000	46.24	80.00	33.76	1000.000	100.0	H	153.0	12.5
16778.000000	57.43	80.00	22.57	1000.000	410.0	H	319.0	25.8

Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	27.45	60.00	32.55	1000.000	277.0	V	74.0	-0.3
2101.000000	24.74	60.00	35.26	1000.000	100.0	V	341.0	2.7
2259.000000	24.60	60.00	35.40	1000.000	150.0	H	113.0	3.3
2657.000000	25.81	60.00	34.19	1000.000	397.0	V	94.0	4.3
8073.000000	32.48	60.00	27.52	1000.000	100.0	H	153.0	12.5
16778.000000	44.42	60.00	15.58	1000.000	410.0	H	319.0	25.8

Test Personnel: Michael Carlson

Supervising/Reviewing Engineer: (Where Applicable) N/A

Product Standard: ICES-003 Issue 6

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/19/2020

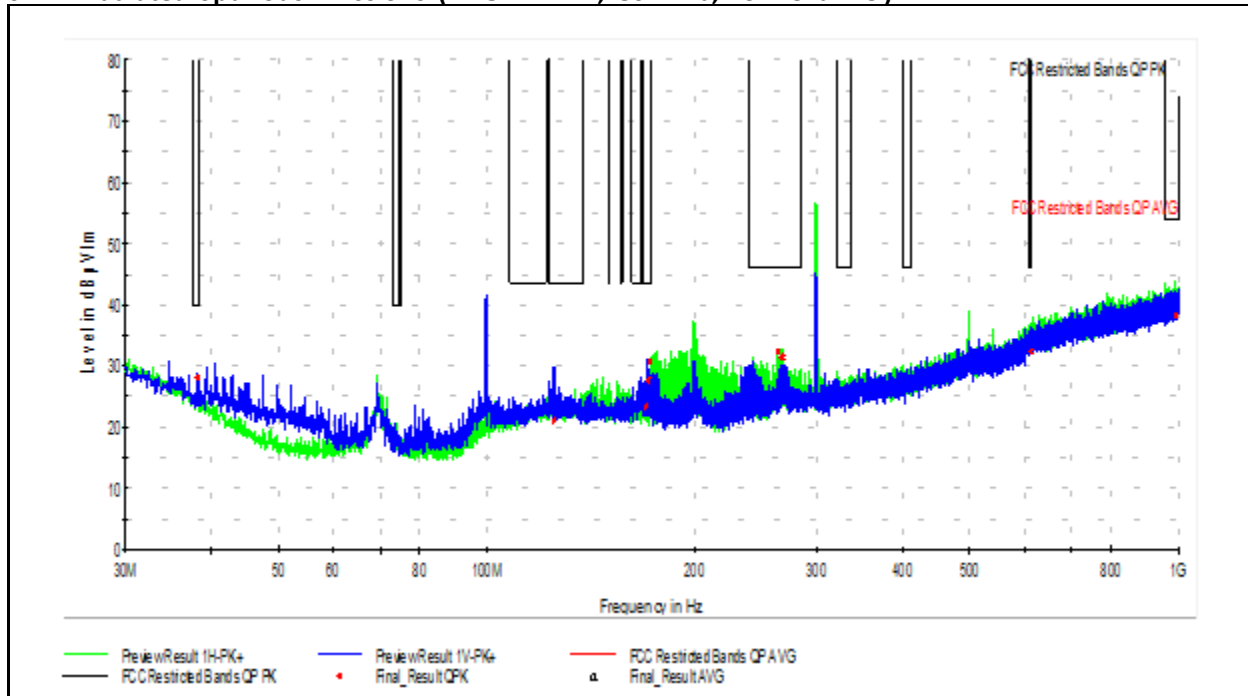
Limit Applied: See Table Above

Ambient Temperature: 22.5°C

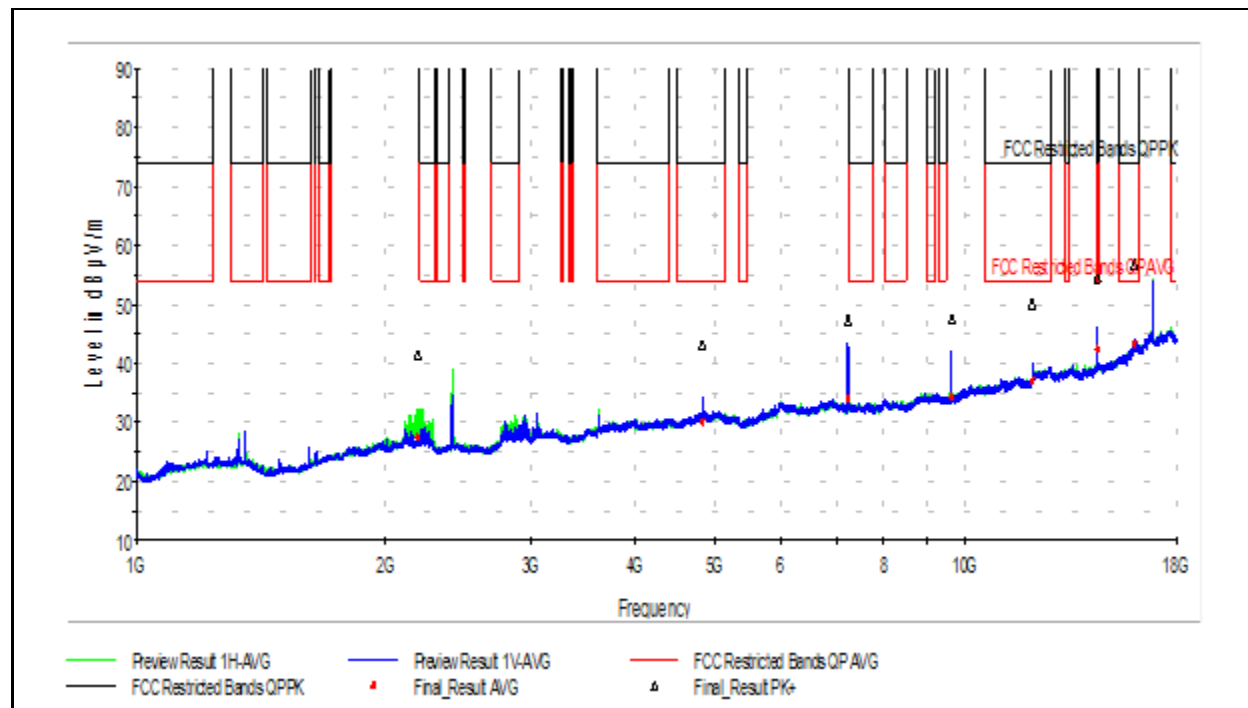
Relative Humidity: 32.0 %

Atmospheric Pressure: 995.6 mbar

Deviations, Additions, or Exclusions: None

**6.12 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11b, Low Channel)**

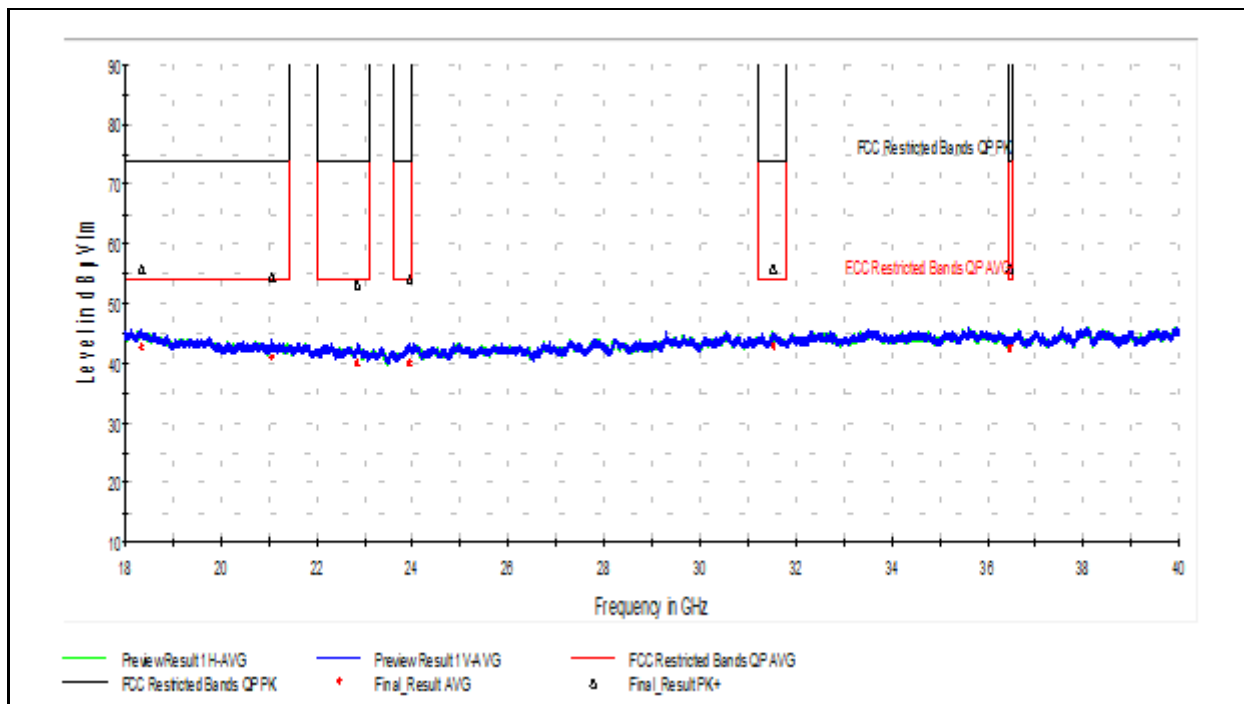
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	28.09	40.00	11.91	120.000	105.1	V	82.0	21.9
125.060000	21.02	43.52	22.50	120.000	100.3	V	112.0	22.4
170.165000	23.34	43.52	20.18	120.000	135.3	V	248.0	21.6
171.296667	27.63	43.52	15.89	120.000	189.4	V	249.0	21.5
172.374445	30.73	43.52	12.79	120.000	165.8	H	339.0	21.0
263.823889	32.27	46.02	13.75	120.000	100.0	H	65.0	23.1
267.326667	31.48	46.02	14.54	120.000	106.9	H	72.0	23.4
268.404445	31.53	46.02	14.49	120.000	106.9	H	54.0	23.4
613.023889	32.35	46.02	13.67	120.000	104.9	H	348.0	32.3
992.240000	38.20	53.98	15.78	120.000	213.5	H	192.0	38.0



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2184.500000	41.67	-	-	1000.000	100.0	H	227.0	2.8
4824.000000	43.19	73.98	30.79	1000.000	369.0	V	202.0	8.2
7239.000000	47.40	-	-	1000.000	324.0	V	212.0	11.6
9648.000000	47.55	-	-	1000.000	349.0	V	294.0	14.5
12057.500000	50.19	73.98	23.79	1000.000	410.0	V	282.0	17.8
14472.000000	54.69	73.98	19.29	1000.000	383.0	V	10.0	19.9
16046.000000	56.91	73.98	17.07	1000.000	100.0	H	233.0	25.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2184.500000	27.45	-	-	1000.000	100.0	H	227.0	2.8
4824.000000	30.04	53.98	23.94	1000.000	369.0	V	202.0	8.2
7239.000000	34.14	-	-	1000.000	324.0	V	212.0	11.6
9648.000000	34.26	-	-	1000.000	349.0	V	294.0	14.5
12057.500000	37.00	53.98	16.98	1000.000	410.0	V	282.0	17.8
14472.000000	42.33	53.98	11.65	1000.000	383.0	V	10.0	19.9
16046.000000	43.24	53.98	10.74	1000.000	100.0	H	233.0	25.1

Note: emissions that do not fall in a restricted band are noted with a “-”.



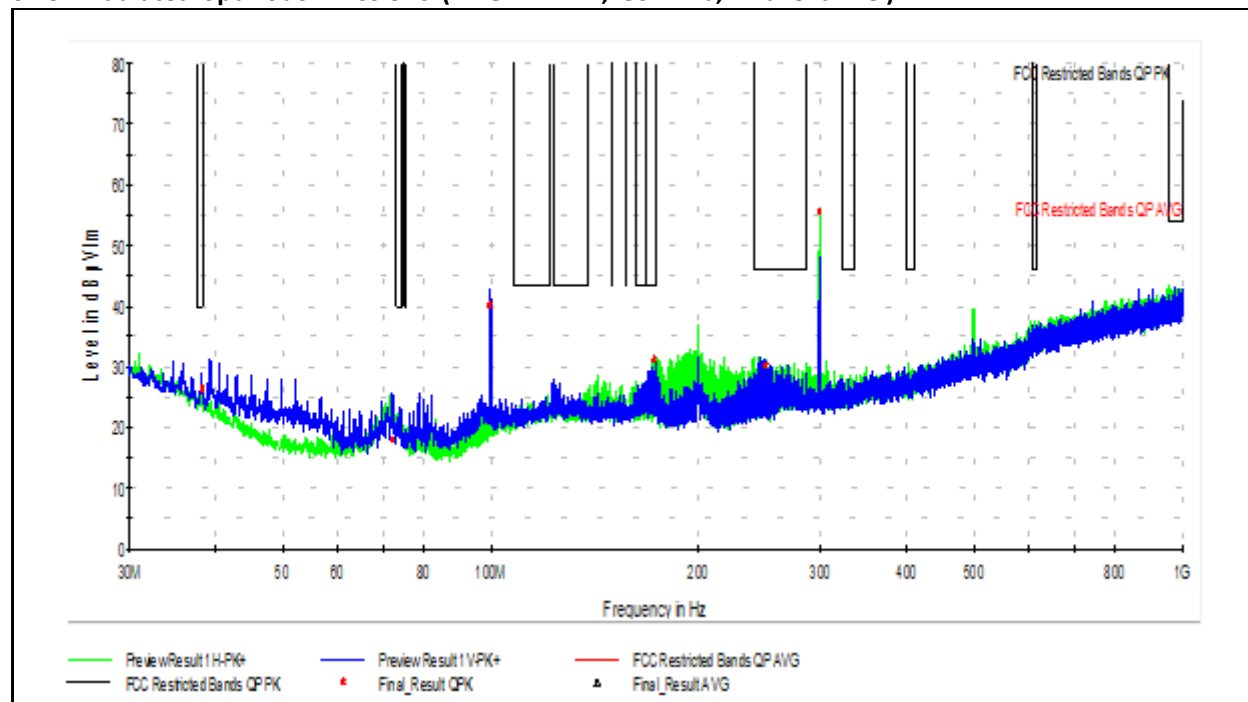
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18334.000000	55.67	73.98	18.31	1000.000	100.0	V	9.0	20.0
21047.000000	54.53	73.98	19.45	1000.000	109.0	V	294.0	10.8
22840.000000	53.26	73.98	20.72	1000.000	410.0	H	220.0	6.1
23931.000000	54.05	73.98	19.93	1000.000	410.0	V	322.0	6.1
31506.000000	56.01	73.98	17.97	1000.000	100.0	H	109.0	11.2
36460.000000	55.89	73.98	18.09	1000.000	109.0	V	148.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18334.000000	42.68	53.98	11.30	1000.000	100.0	V	9.0	20.0
21047.000000	40.88	53.98	13.10	1000.000	109.0	V	294.0	10.8
22840.000000	39.99	53.98	13.99	1000.000	410.0	H	220.0	6.1
23931.000000	40.08	53.98	13.90	1000.000	410.0	V	322.0	6.1
31506.000000	42.91	53.98	11.07	1000.000	100.0	H	109.0	11.2
36460.000000	42.53	53.98	11.45	1000.000	109.0	V	148.0	11.2

Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: NA
(Where Applicable)
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

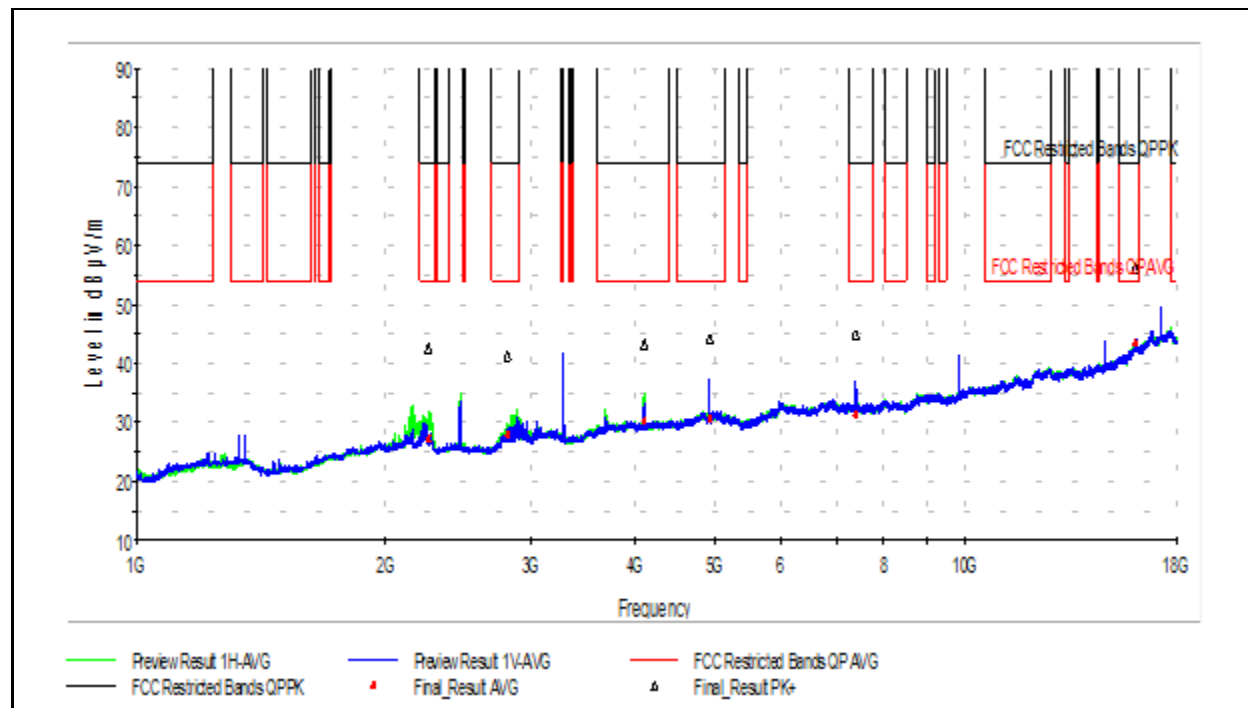
Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.13 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11b, Mid Channel)**

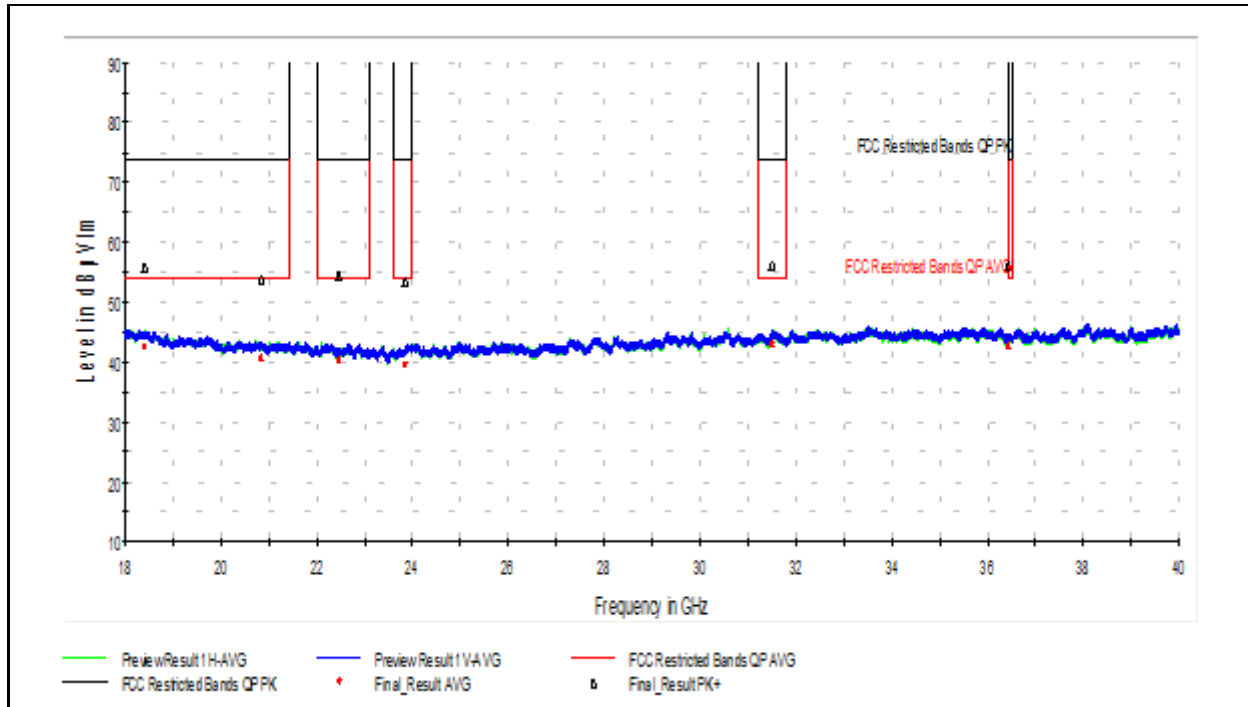
Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.137222	26.43	40.00	13.57	120.000	100.2	V	94.0	22.0
72.087222	17.92	-	-	120.000	225.6	V	82.0	14.9
99.570556	40.02	-	-	120.000	100.3	V	72.0	19.5
172.374445	31.25	43.52	12.27	120.000	177.5	H	164.0	21.0
249.866667	30.20	46.02	15.82	120.000	100.2	H	81.0	21.7
298.743889	55.58	-	-	120.000	105.0	H	193.0	24.0

Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2253.500000	42.64	73.98	31.34	1000.000	239.0	H	243.0	3.3
2810.500000	41.41	73.98	32.57	1000.000	370.0	H	125.0	4.6
4102.500000	43.37	73.98	30.61	1000.000	340.0	H	146.0	7.4
4924.000000	44.07	73.98	29.91	1000.000	265.0	V	227.0	8.2
7385.000000	44.93	73.98	29.05	1000.000	410.0	V	281.0	11.5
16058.000000	56.36	73.98	17.62	1000.000	410.0	V	249.0	25.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2253.500000	27.31	53.98	26.67	1000.000	239.0	H	243.0	3.3
2810.500000	27.84	53.98	26.14	1000.000	370.0	H	125.0	4.6
4102.500000	30.26	53.98	23.72	1000.000	340.0	H	146.0	7.4
4924.000000	30.71	53.98	23.27	1000.000	265.0	V	227.0	8.2
7385.000000	31.34	53.98	22.64	1000.000	410.0	V	281.0	11.5
16058.000000	43.41	53.98	10.57	1000.000	410.0	V	249.0	25.3



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18403.500000	55.88	73.98	18.10	1000.000	100.0	H	-1.0	19.8
20838.000000	54.03	73.98	19.95	1000.000	100.0	V	26.0	11.5
22451.000000	54.45	73.98	19.53	1000.000	100.0	V	0.0	7.3
23843.000000	53.32	73.98	20.66	1000.000	410.0	H	313.0	6.2
31495.000000	56.13	73.98	17.85	1000.000	100.0	V	214.0	11.2
36422.500000	56.12	-	-	1000.000	109.0	V	208.0	11.3

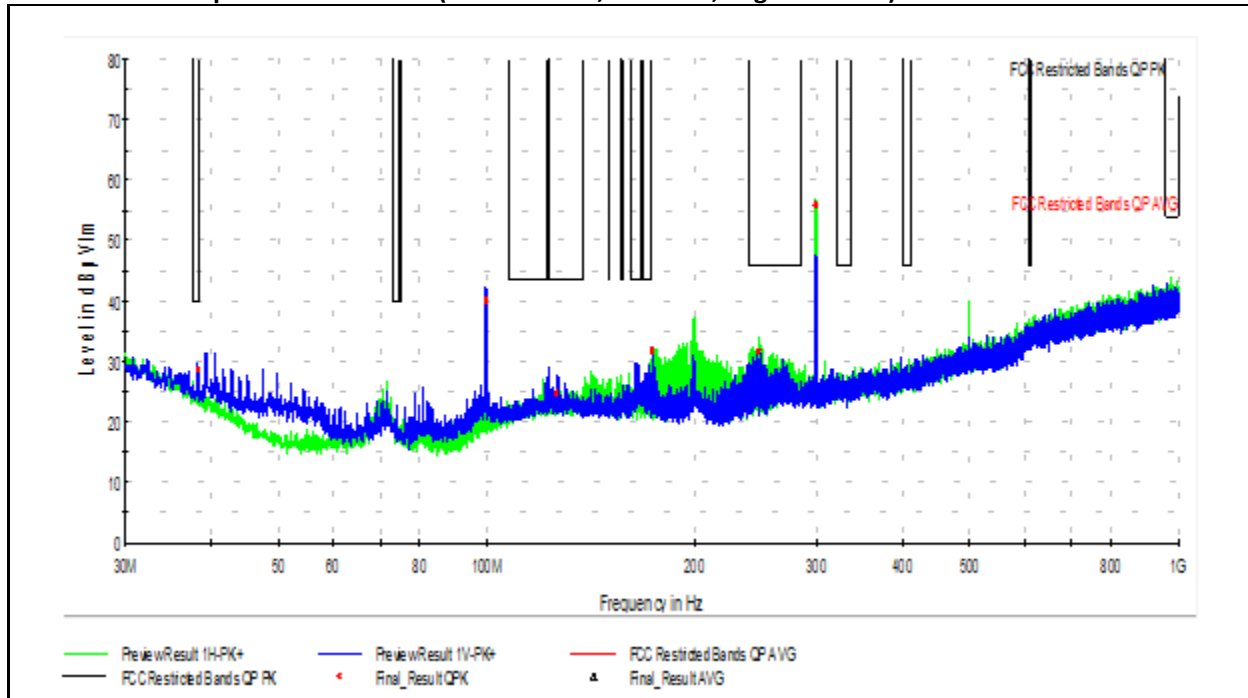
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18403.500000	42.58	53.98	11.40	1000.000	100.0	H	-1.0	19.8
20838.000000	40.74	53.98	13.24	1000.000	100.0	V	26.0	11.5
22451.000000	40.24	53.98	13.74	1000.000	100.0	V	0.0	7.3
23843.000000	39.52	53.98	14.46	1000.000	410.0	H	313.0	6.2
31495.000000	42.88	53.98	11.10	1000.000	100.0	V	214.0	11.2
36422.500000	42.79	-	-	1000.000	109.0	V	208.0	11.3

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: (Where Applicable) NA
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

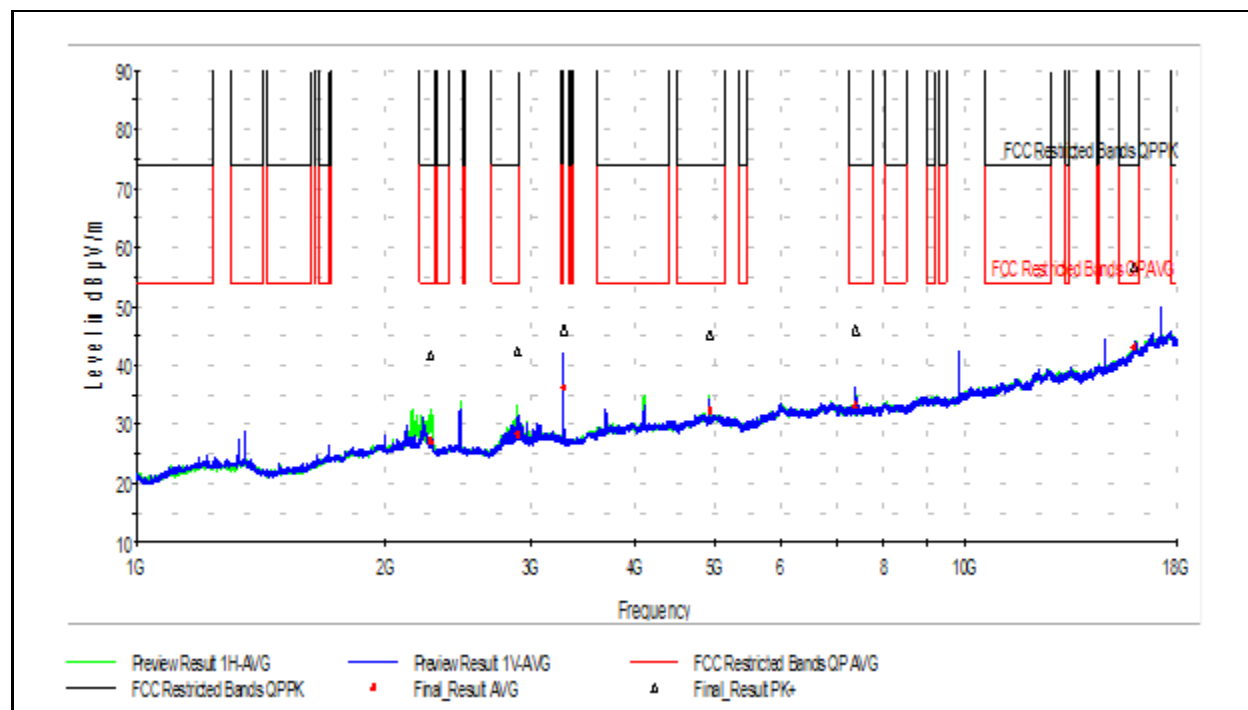
Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.14 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11b, High Channel)**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	28.54	40.00	11.46	120.000	100.0	V	117.0	21.9
99.570556	40.05	-	-	120.000	100.3	V	74.0	19.5
126.083889	24.76	43.52	18.76	120.000	100.0	V	108.0	22.4
173.506111	31.75	-	-	120.000	178.5	H	172.0	20.9
247.549445	31.62	46.02	14.40	120.000	99.6	H	95.0	21.7
298.743889	55.84	-	-	120.000	105.1	H	192.0	24.0

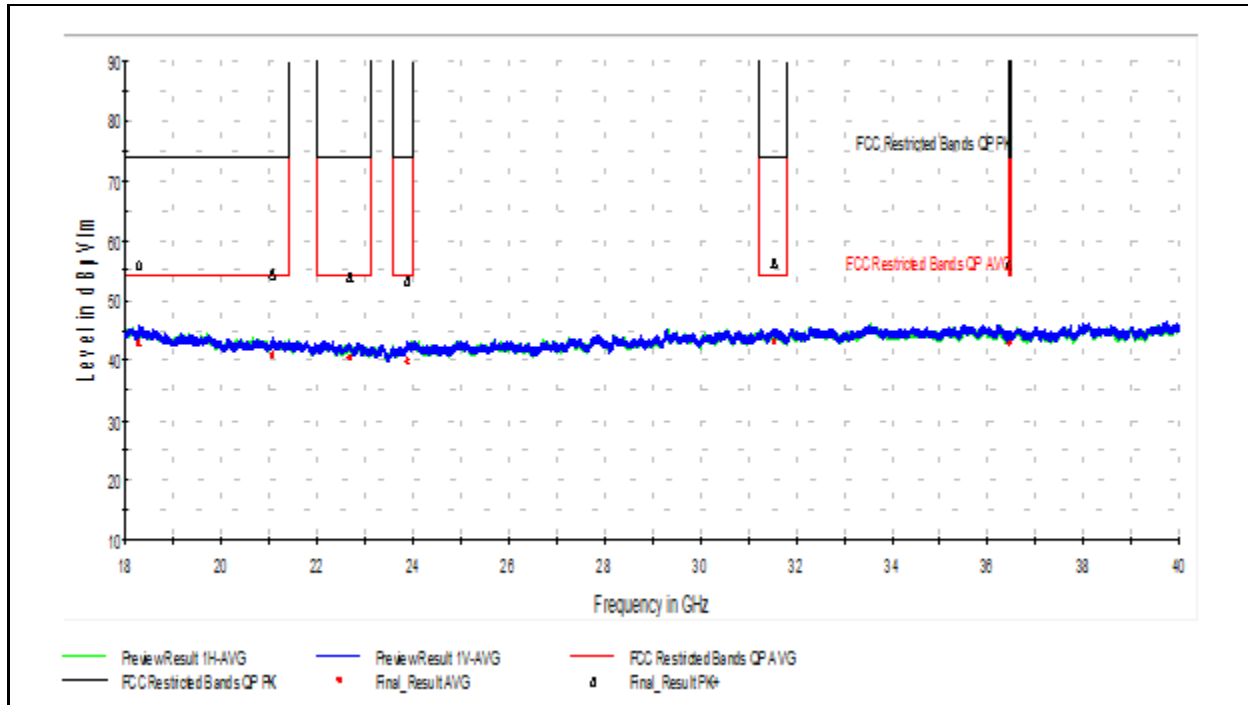
Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2269.000000	41.71	73.98	32.27	1000.000	108.0	H	226.0	3.3
2883.000000	42.47	73.98	31.51	1000.000	348.0	H	148.0	4.8
3282.500000	46.11	-	-	1000.000	287.0	V	193.0	5.3
4924.000000	45.17	73.98	28.81	1000.000	318.0	H	169.0	8.3
7384.000000	46.01	73.98	27.97	1000.000	319.0	V	0.0	11.5
16037.000000	56.63	73.98	17.35	1000.000	410.0	H	328.0	24.9

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2269.000000	27.30	53.98	26.68	1000.000	108.0	H	226.0	3.3
2883.000000	28.43	53.98	25.55	1000.000	348.0	H	148.0	4.8
3282.500000	36.29	-	-	1000.000	287.0	V	193.0	5.3
4924.000000	32.40	53.98	21.58	1000.000	318.0	H	169.0	8.3
7384.000000	33.23	53.98	20.75	1000.000	319.0	V	0.0	11.5
16037.000000	43.00	53.98	10.98	1000.000	410.0	H	328.0	24.9

Note: emissions that do not fall in a restricted band are noted with a "-".



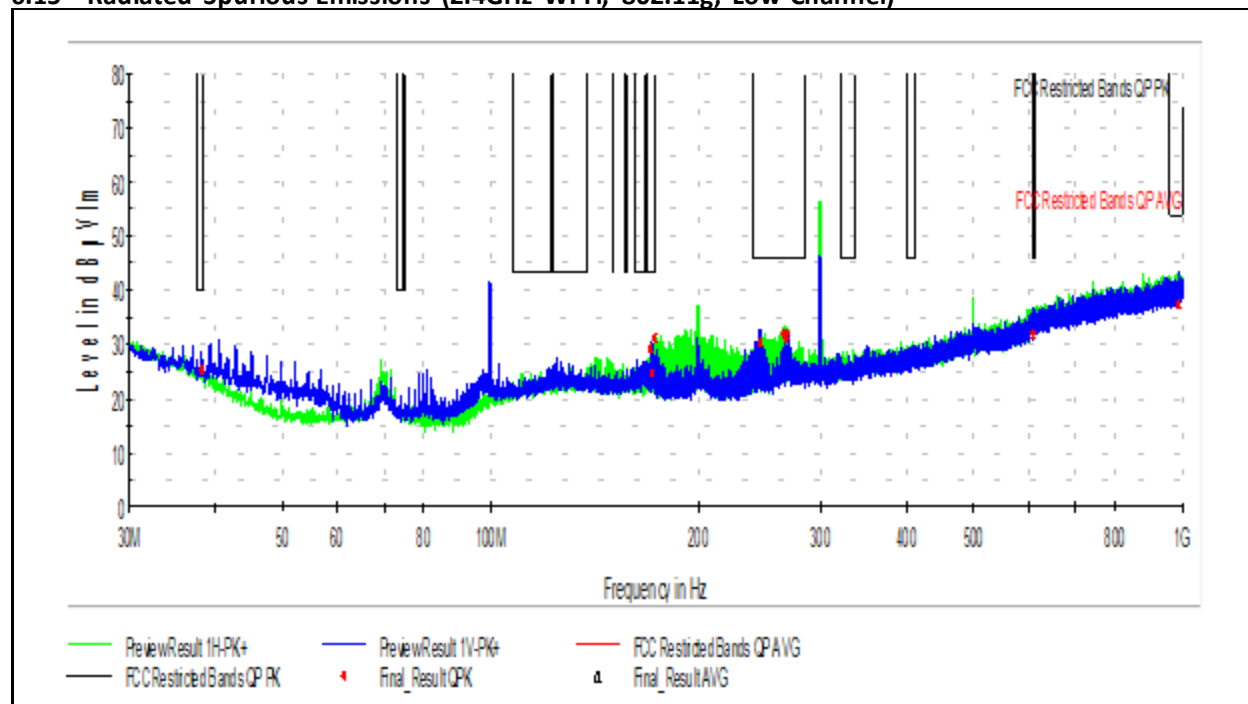
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18277.500000	56.03	73.98	17.95	1000.000	100.0	V	166.0	20.1
21066.000000	54.46	73.98	19.52	1000.000	100.0	V	211.0	10.8
22684.500000	53.81	73.98	20.17	1000.000	100.0	H	308.0	6.7
23892.500000	53.45	73.98	20.53	1000.000	109.0	V	27.0	5.9
31537.000000	56.21	73.98	17.77	1000.000	100.0	V	100.0	11.1
36438.500000	56.13	73.98	17.85	1000.000	109.0	H	46.0	11.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18277.500000	42.95	53.98	11.03	1000.000	100.0	V	166.0	20.1
21066.000000	40.87	53.98	13.11	1000.000	100.0	V	211.0	10.8
22684.500000	40.38	53.98	13.60	1000.000	100.0	H	308.0	6.7
23892.500000	39.75	53.98	14.23	1000.000	109.0	V	27.0	5.9
31537.000000	43.03	53.98	10.95	1000.000	100.0	V	100.0	11.1
36438.500000	42.70	53.98	11.28	1000.000	109.0	H	46.0	11.3

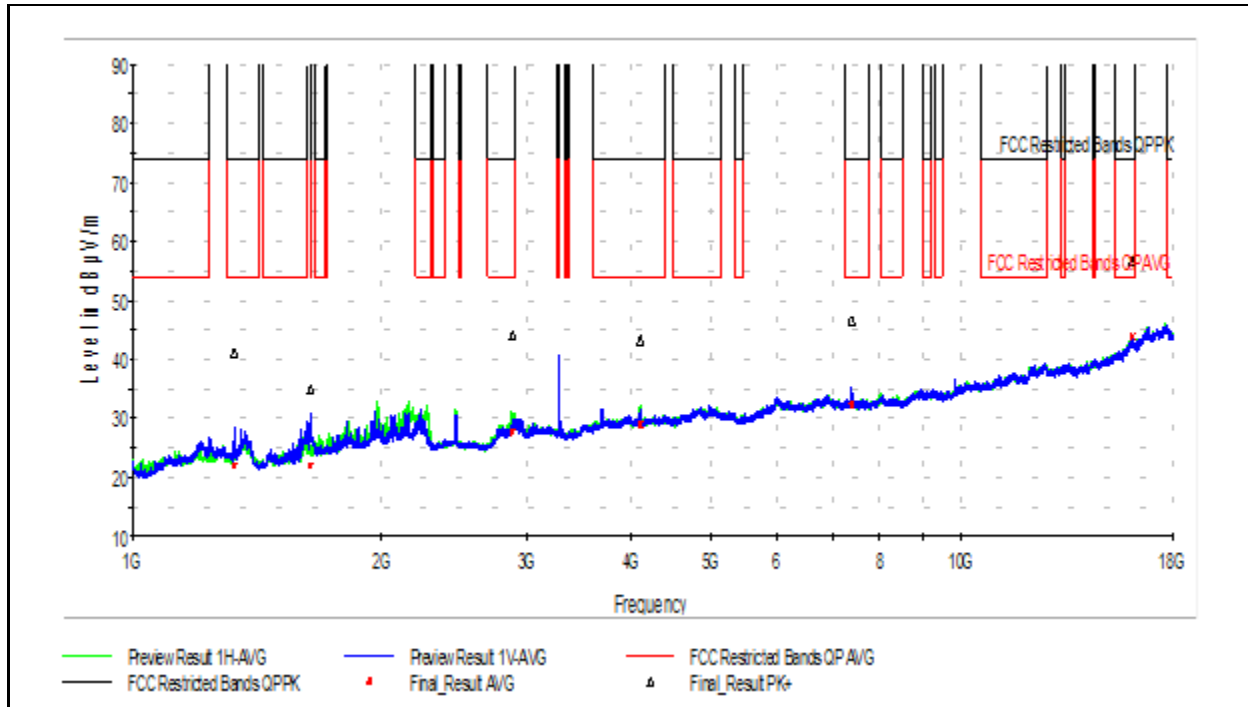
Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: NA
(Where Applicable)
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.15 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11g, Low Channel)**

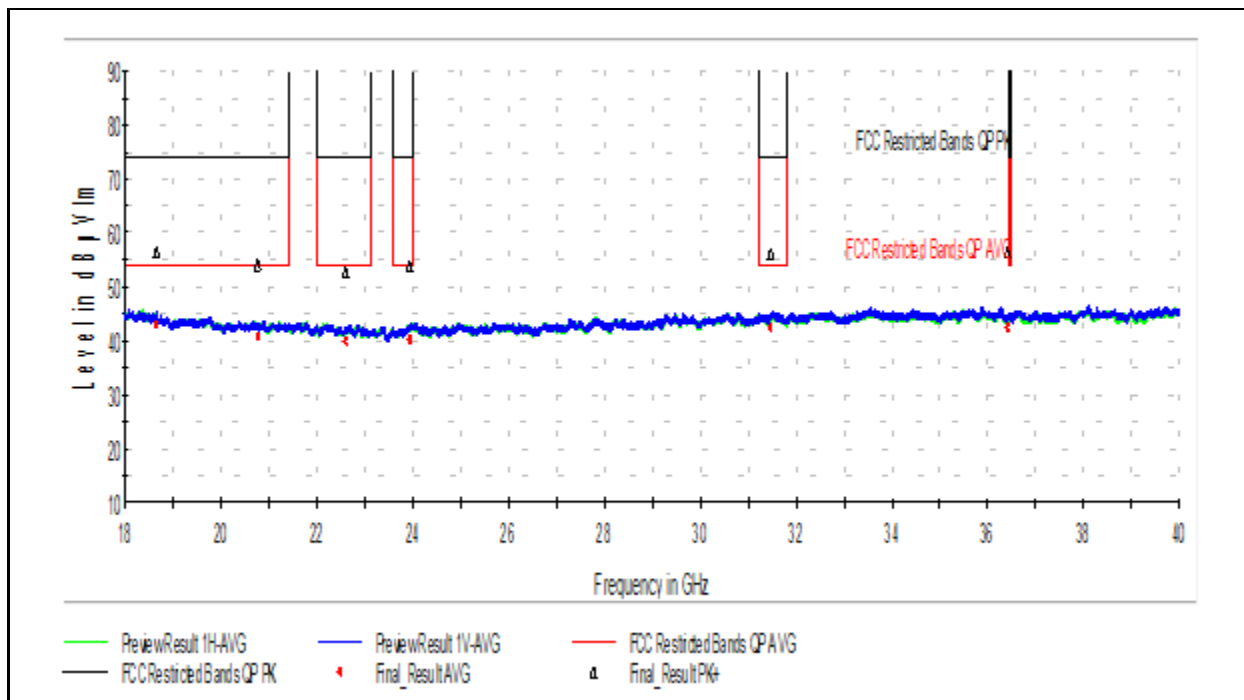
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.137222	25.28	40.00	14.72	120.000	100.0	V	36.0	22.0
170.111111	29.12	43.52	14.40	120.000	165.5	V	262.0	21.6
171.188889	24.78	43.52	18.74	120.000	156.2	V	260.0	21.5
172.428333	31.25	43.52	12.27	120.000	177.8	H	173.0	21.0
245.340000	30.45	46.02	15.57	120.000	104.9	V	118.0	21.9
264.955556	32.13	46.02	13.89	120.000	100.1	H	56.0	23.3
267.326667	31.13	46.02	14.89	120.000	105.0	H	84.0	23.4
268.458333	31.77	46.02	14.25	120.000	105.1	H	54.0	23.4
608.120000	31.75	46.02	14.27	120.000	129.9	V	-1.0	31.7
988.467778	37.33	53.98	16.65	120.000	118.0	V	0.0	37.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.000000	41.21	73.98	32.77	1000.000	156.0	H	230.0	-0.8
1640.500000	34.86	-	-	1000.000	337.0	V	168.0	-0.8
2879.500000	44.24	73.98	29.74	1000.000	394.0	H	149.0	4.8
4100.500000	43.20	73.98	30.78	1000.000	318.0	H	136.0	7.4
7383.500000	46.59	73.98	27.39	1000.000	334.0	V	272.0	11.5
16093.000000	56.71	73.98	17.27	1000.000	386.0	V	267.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.000000	21.97	53.98	32.01	1000.000	156.0	H	230.0	-0.8
1640.500000	21.97	-	-	1000.000	337.0	V	168.0	-0.8
2879.500000	27.66	53.98	26.32	1000.000	394.0	H	149.0	4.8
4100.500000	29.09	53.98	24.89	1000.000	318.0	H	136.0	7.4
7383.500000	32.37	53.98	21.61	1000.000	334.0	V	272.0	11.5
16093.000000	43.84	53.98	10.14	1000.000	386.0	V	267.0	26.1

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18649.000000	56.29	73.98	17.69	1000.000	410.0	V	321.0	18.6
20751.000000	54.10	73.98	19.88	1000.000	236.0	V	54.0	11.7
22586.000000	52.79	73.98	21.19	1000.000	100.0	V	168.0	6.7
23924.500000	53.92	73.98	20.06	1000.000	410.0	V	336.0	6.1
31469.500000	56.21	73.98	17.77	1000.000	223.0	V	258.0	11.0
36414.500000	56.37	-	-	1000.000	118.0	H	132.0	11.3

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18649.000000	43.05	53.98	10.93	1000.000	410.0	V	321.0	18.6
20751.000000	40.75	53.98	13.23	1000.000	236.0	V	54.0	11.7
22586.000000	39.94	53.98	14.04	1000.000	100.0	V	168.0	6.7
23924.500000	40.12	53.98	13.86	1000.000	410.0	V	336.0	6.1
31469.500000	42.45	53.98	11.53	1000.000	223.0	V	258.0	11.0
36414.500000	42.44	-	-	1000.000	118.0	H	132.0	11.3

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Michael Carlson

Supervising/Reviewing Engineer: (Where Applicable) NA

Product Standard: FCC Part 15C

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2029

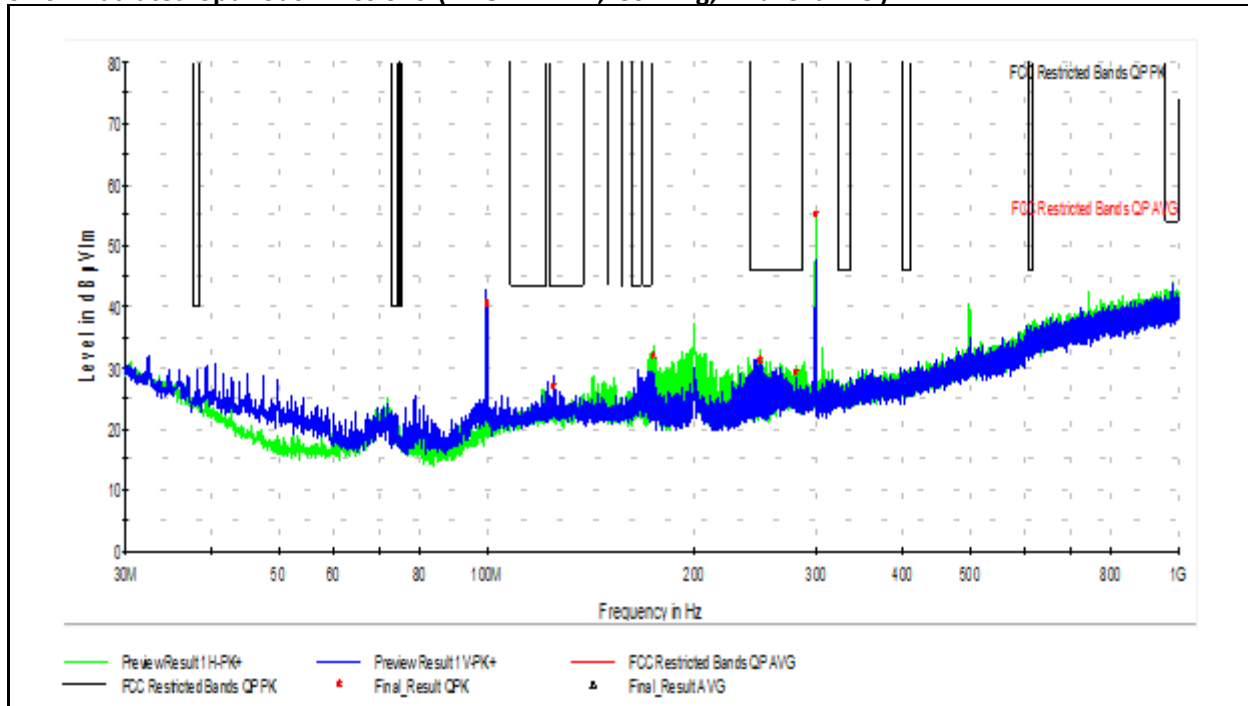
Limit Applied: See Table Above

Ambient Temperature: 22.9 °C

Relative Humidity: 18.2 %

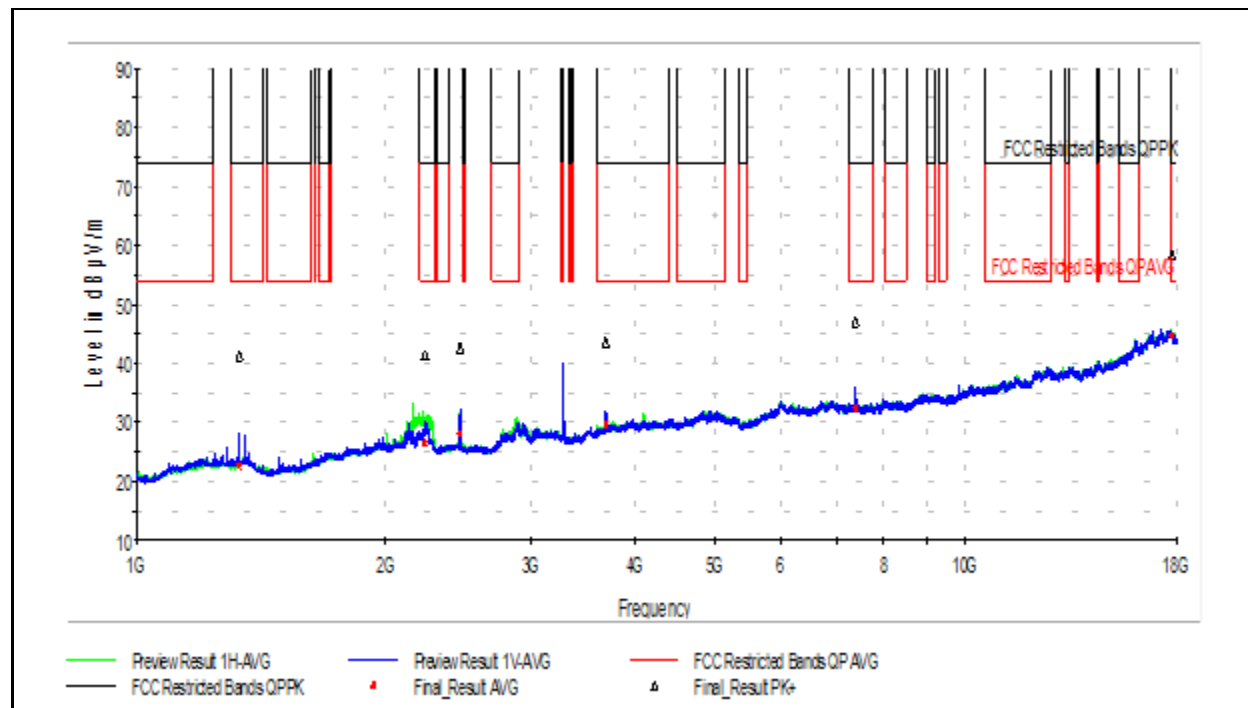
Atmospheric Pressure: 990.5 mbar

Deviations, Additions, or Exclusions: None

**6.16 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11g, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
99.893889	40.57	-	-	120.000	100.1	V	71.0	19.6
124.952222	27.02	43.52	16.50	120.000	105.4	V	109.0	22.4
174.691667	32.07	-	-	120.000	166.6	H	177.0	20.8
248.735000	31.19	46.02	14.83	120.000	99.9	H	92.0	21.7
279.990556	29.23	46.02	16.79	120.000	106.8	H	182.0	23.7
298.797778	54.98	-	-	120.000	105.0	H	194.0	24.0

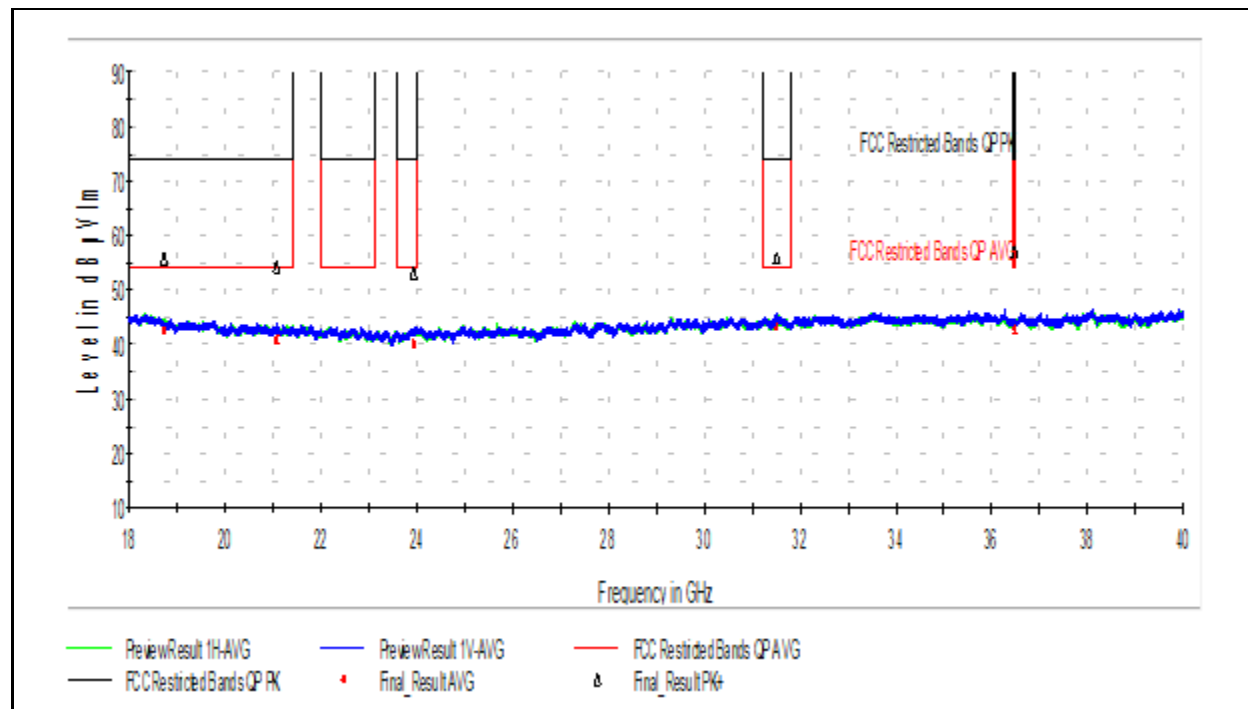
Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1331.500000	41.39	73.98	32.59	1000.000	117.0	V	301.0	-0.3
2232.500000	41.64	73.98	32.34	1000.000	302.0	H	217.0	3.2
2459.500000	42.63	-	-	1000.000	367.0	V	22.0	3.9
3689.500000	43.74	73.98	30.24	1000.000	392.0	V	299.0	6.3
7387.500000	47.11	73.98	26.87	1000.000	324.0	V	271.0	11.5
17789.000000	58.47	73.98	15.51	1000.000	410.0	H	0.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1331.500000	22.63	53.98	31.35	1000.000	117.0	V	301.0	-0.3
2232.500000	26.33	53.98	27.65	1000.000	302.0	H	217.0	3.2
2459.500000	28.17	-	-	1000.000	367.0	V	22.0	3.9
3689.500000	29.66	53.98	24.32	1000.000	392.0	V	299.0	6.3
7387.500000	32.31	53.98	21.67	1000.000	324.0	V	271.0	11.5
17789.000000	44.85	53.98	9.13	1000.000	410.0	H	0.0	26.3

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18722.500000	55.60	73.98	18.38	1000.000	100.0	H	184.0	18.3
21064.000000	54.27	73.98	19.71	1000.000	229.0	V	290.0	10.8
23933.000000	53.23	73.98	20.75	1000.000	100.0	H	26.0	6.1
31505.500000	56.00	73.98	17.98	1000.000	100.0	V	124.0	11.3
36475.500000	57.22	73.98	16.76	1000.000	251.0	V	24.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18722.500000	42.53	53.98	11.45	1000.000	100.0	H	184.0	18.3
21064.000000	40.95	53.98	13.03	1000.000	229.0	V	290.0	10.8
23933.000000	40.14	53.98	13.84	1000.000	100.0	H	26.0	6.1
31505.500000	43.02	53.98	10.96	1000.000	100.0	V	124.0	11.3
36475.500000	42.56	53.98	11.42	1000.000	251.0	V	24.0	11.2

Test Personnel: Brandon Norris

Supervising/Reviewing Engineer: NA

(Where Applicable) Product Standard: FCC Part 15C

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2020

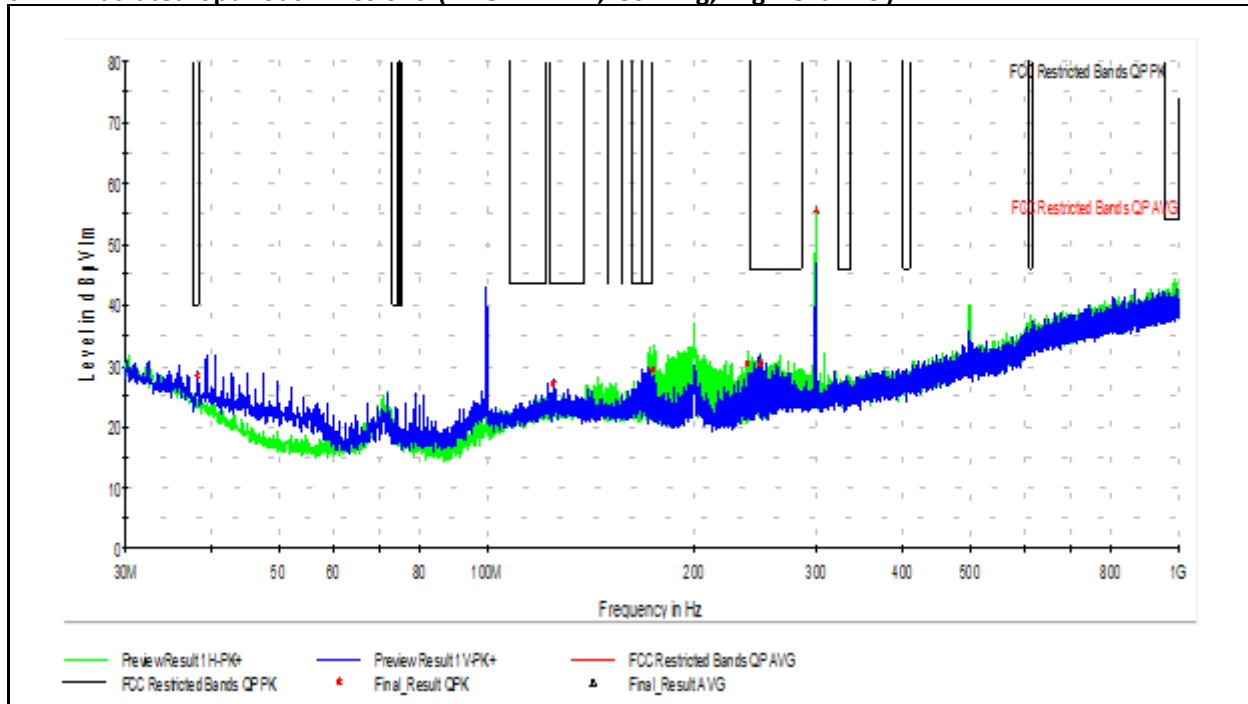
Limit Applied: See Table Above

Ambient Temperature: 22.7°C

Relative Humidity: 19.0 %

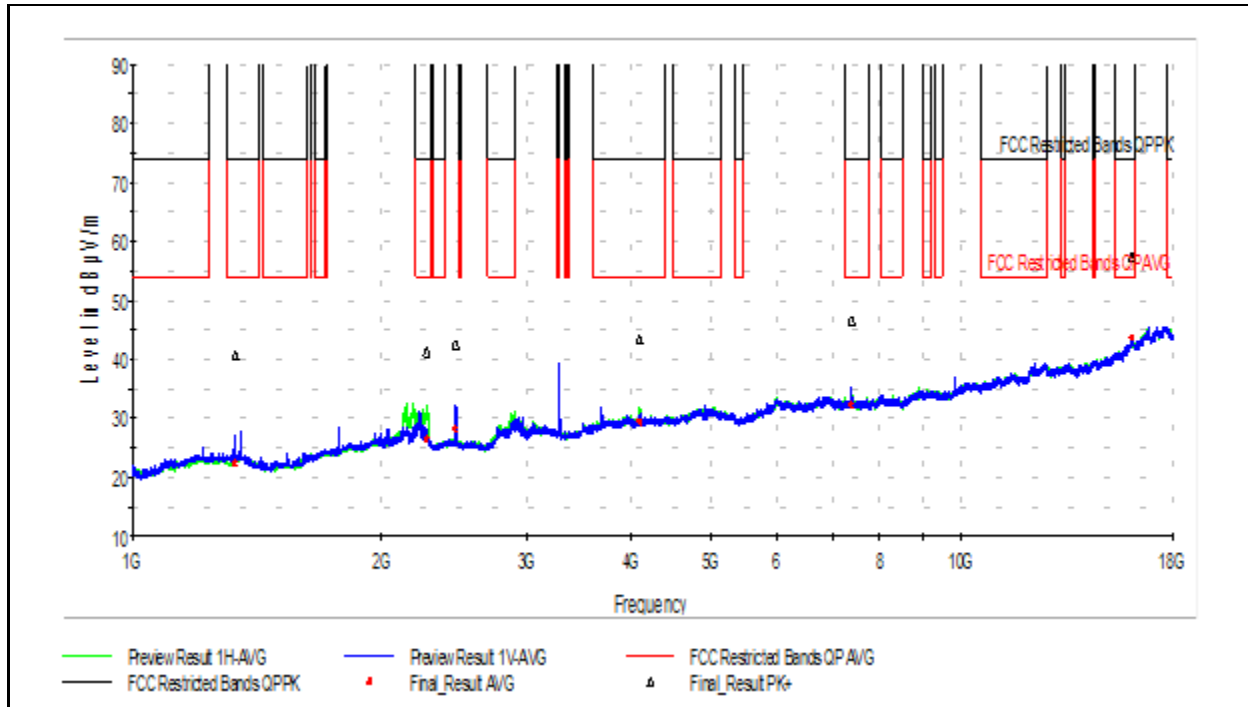
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.17 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11g, High Channel)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	28.45	40.00	11.55	120.000	105.2	V	93.0	21.9
124.952222	27.07	43.52	16.45	120.000	100.2	V	108.0	22.4
173.506111	29.39	-	-	120.000	142.7	H	173.0	20.9
238.334445	30.20	-	-	120.000	118.4	H	73.0	21.5
248.735000	30.45	46.02	15.57	120.000	100.0	H	80.0	21.7
299.875556	55.46	-	-	120.000	100.4	H	193.0	24.0

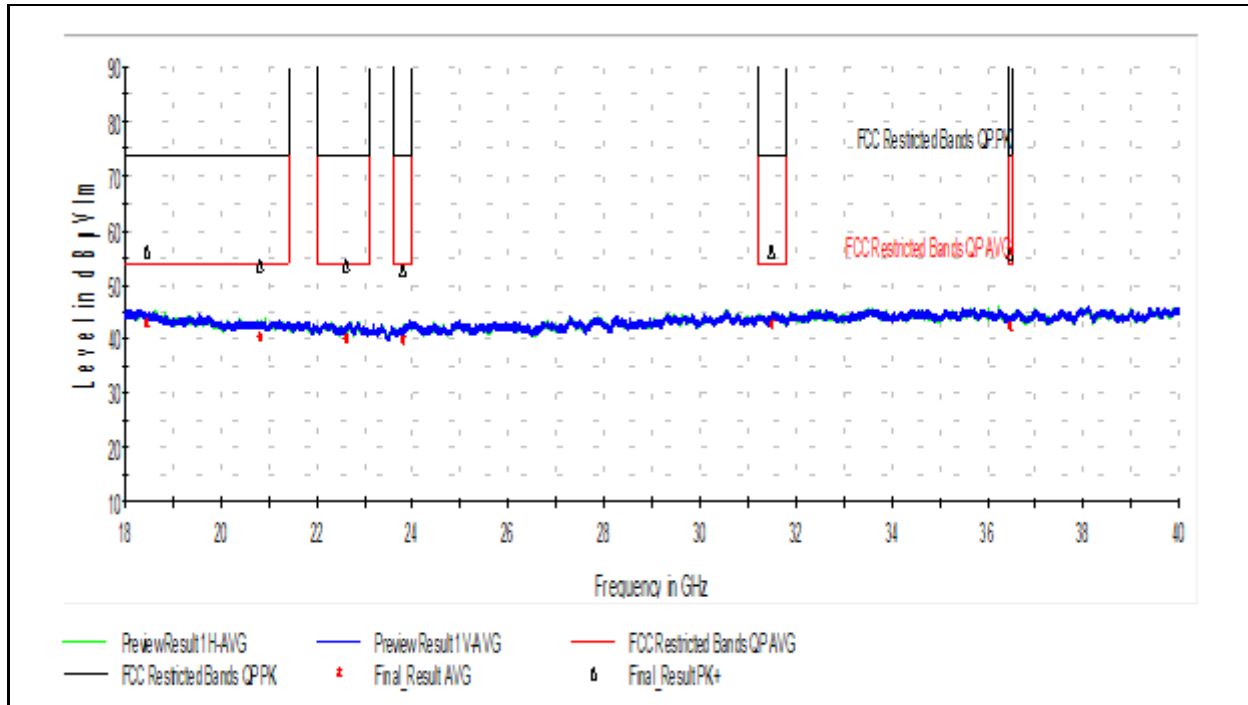
Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1330.500000	40.69	73.98	33.29	1000.000	194.0	V	292.0	-0.3
2267.500000	41.45	73.98	32.53	1000.000	109.0	H	222.0	3.3
2454.500000	42.58	-	-	1000.000	360.0	V	31.0	3.9
4096.000000	43.56	73.98	30.42	1000.000	410.0	H	122.0	7.4
7383.000000	46.59	73.98	27.39	1000.000	326.0	V	270.0	11.5
16089.000000	57.46	73.98	16.52	1000.000	100.0	V	276.0	26.0

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1330.500000	22.40	53.98	31.58	1000.000	194.0	V	292.0	-0.3
2267.500000	26.41	53.98	27.57	1000.000	109.0	H	222.0	3.3
2454.500000	28.14	-	-	1000.000	360.0	V	31.0	3.9
4096.000000	29.36	53.98	24.62	1000.000	410.0	H	122.0	7.4
7383.000000	32.21	53.98	21.77	1000.000	326.0	V	270.0	11.5
16089.000000	43.81	53.98	10.17	1000.000	100.0	V	276.0	26.0

Note: emissions that do not fall in a restricted band are noted with a "-".



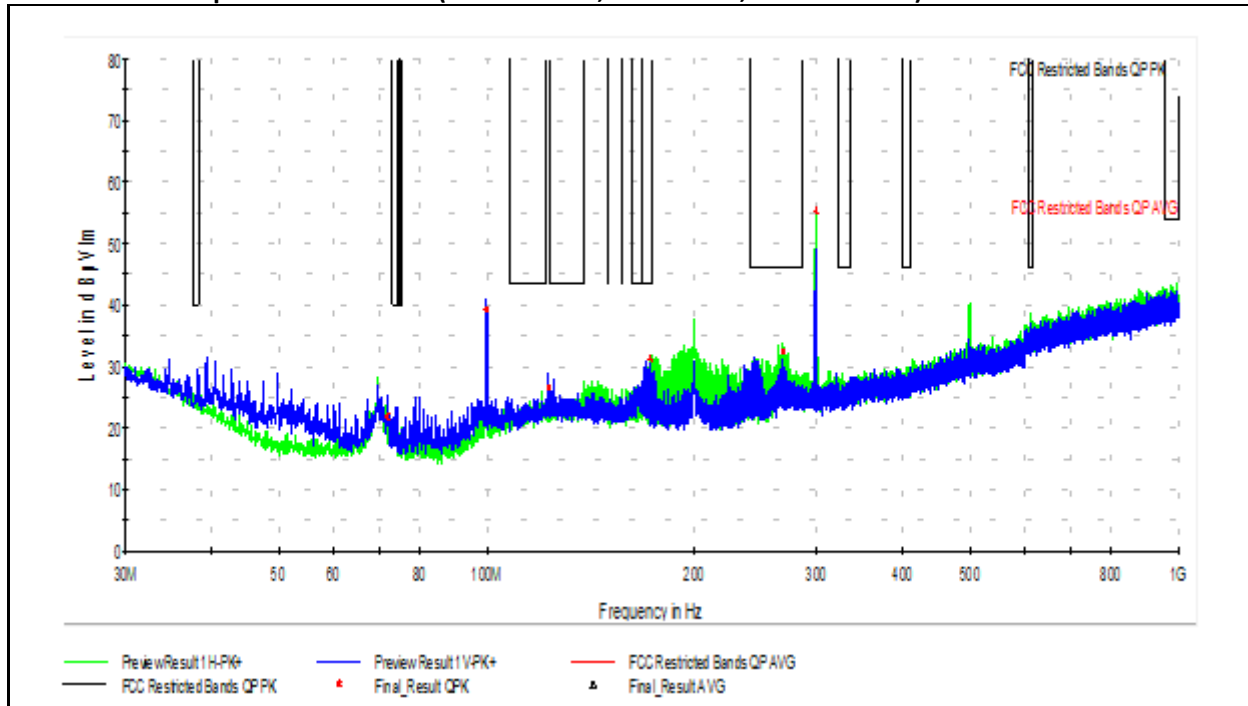
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18440.000000	56.13	73.98	17.85	1000.000	109.0	H	100.0	19.5
20805.000000	53.57	73.98	20.41	1000.000	109.0	H	80.0	11.7
22613.500000	53.49	73.98	20.49	1000.000	109.0	V	210.0	6.7
23789.500000	52.81	73.98	21.17	1000.000	109.0	H	212.0	6.3
31480.500000	56.08	73.98	17.90	1000.000	295.0	V	296.0	11.1
36464.000000	55.82	73.98	18.16	1000.000	100.0	H	54.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18440.000000	43.01	53.98	10.97	1000.000	109.0	H	100.0	19.5
20805.000000	40.52	53.98	13.46	1000.000	109.0	H	80.0	11.7
22613.500000	40.16	53.98	13.82	1000.000	109.0	V	210.0	6.7
23789.500000	39.72	53.98	14.26	1000.000	109.0	H	212.0	6.3
31480.500000	42.80	53.98	11.18	1000.000	295.0	V	296.0	11.1
36464.000000	42.44	53.98	11.54	1000.000	100.0	H	54.0	11.2

Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: NA
(Where Applicable)
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

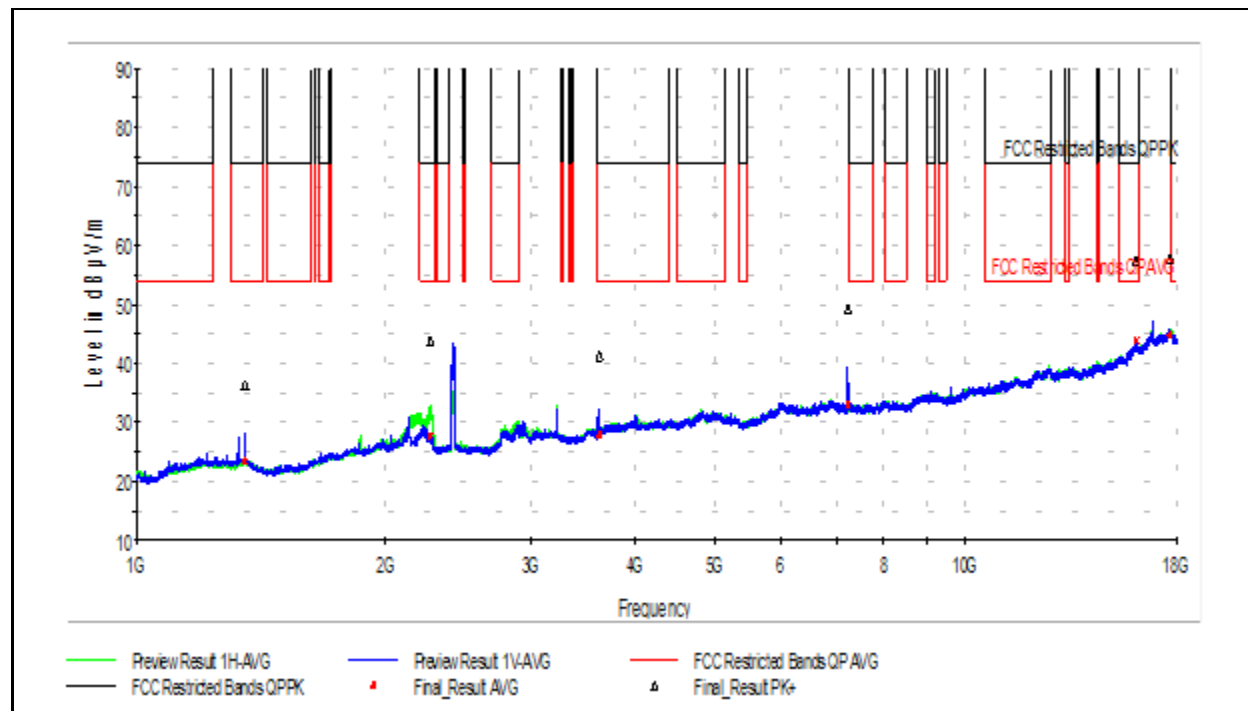
Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.18 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11n20, Low Channel)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
71.710000	21.90	-	-	120.000	216.9	V	90.0	14.9
99.893889	39.20	-	-	120.000	100.1	V	294.0	19.6
122.635000	26.48	-	-	120.000	100.2	V	92.0	22.4
172.374445	31.35	43.52	12.17	120.000	153.9	H	349.0	21.0
268.458333	32.43	46.02	13.59	120.000	105.1	H	46.0	23.4
299.821667	55.37	-	-	120.000	100.1	H	194.0	24.0

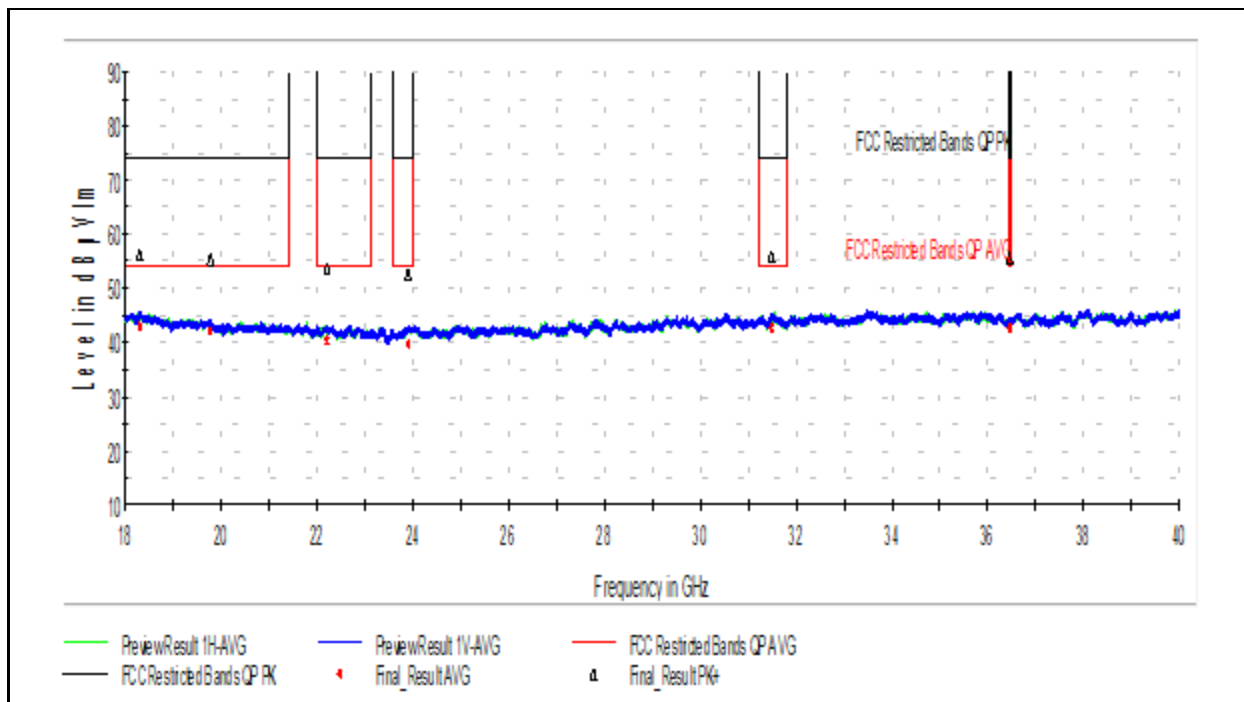
Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	36.52	73.98	37.46	1000.000	307.0	V	274.0	-0.3
2267.500000	43.88	73.98	30.10	1000.000	264.0	H	234.0	3.3
3619.000000	41.45	73.98	32.53	1000.000	360.0	V	204.0	6.0
7237.500000	49.35	-	-	1000.000	311.0	V	214.0	11.6
16103.000000	57.39	73.98	16.59	1000.000	100.0	H	107.0	26.2
17730.000000	57.69	73.98	16.29	1000.000	100.0	H	240.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	23.45	53.98	30.53	1000.000	307.0	V	274.0	-0.3
2267.500000	27.79	53.98	26.19	1000.000	264.0	H	234.0	3.3
3619.000000	27.97	53.98	26.01	1000.000	360.0	V	204.0	6.0
7237.500000	32.96	-	-	1000.000	311.0	V	214.0	11.6
16103.000000	44.00	53.98	9.98	1000.000	100.0	H	107.0	26.2
17730.000000	44.88	53.98	9.10	1000.000	100.0	H	240.0	26.1

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18289.000000	56.17	73.98	17.81	1000.000	100.0	V	0.0	20.1
19771.500000	55.36	73.98	18.62	1000.000	242.0	V	283.0	15.4
22201.000000	53.64	73.98	20.34	1000.000	110.0	V	9.0	8.2
23900.500000	52.65	73.98	21.33	1000.000	110.0	H	113.0	5.9
31481.000000	55.83	73.98	18.15	1000.000	110.0	V	237.0	11.1
36464.000000	55.77	73.98	18.21	1000.000	110.0	V	58.0	11.2

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18289.000000	42.87	53.98	11.11	1000.000	100.0	V	0.0	20.1
19771.500000	42.17	53.98	11.81	1000.000	242.0	V	283.0	15.4
22201.000000	40.23	53.98	13.75	1000.000	110.0	V	9.0	8.2
23900.500000	39.71	53.98	14.27	1000.000	110.0	H	113.0	5.9
31481.000000	42.75	53.98	11.23	1000.000	110.0	V	237.0	11.1
36464.000000	42.61	53.98	11.37	1000.000	110.0	V	58.0	11.2

Test Personnel: Brandon Norris

Supervising/Reviewing Engineer: _____

(Where Applicable) NA

Product Standard: FCC Part 15C

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2020

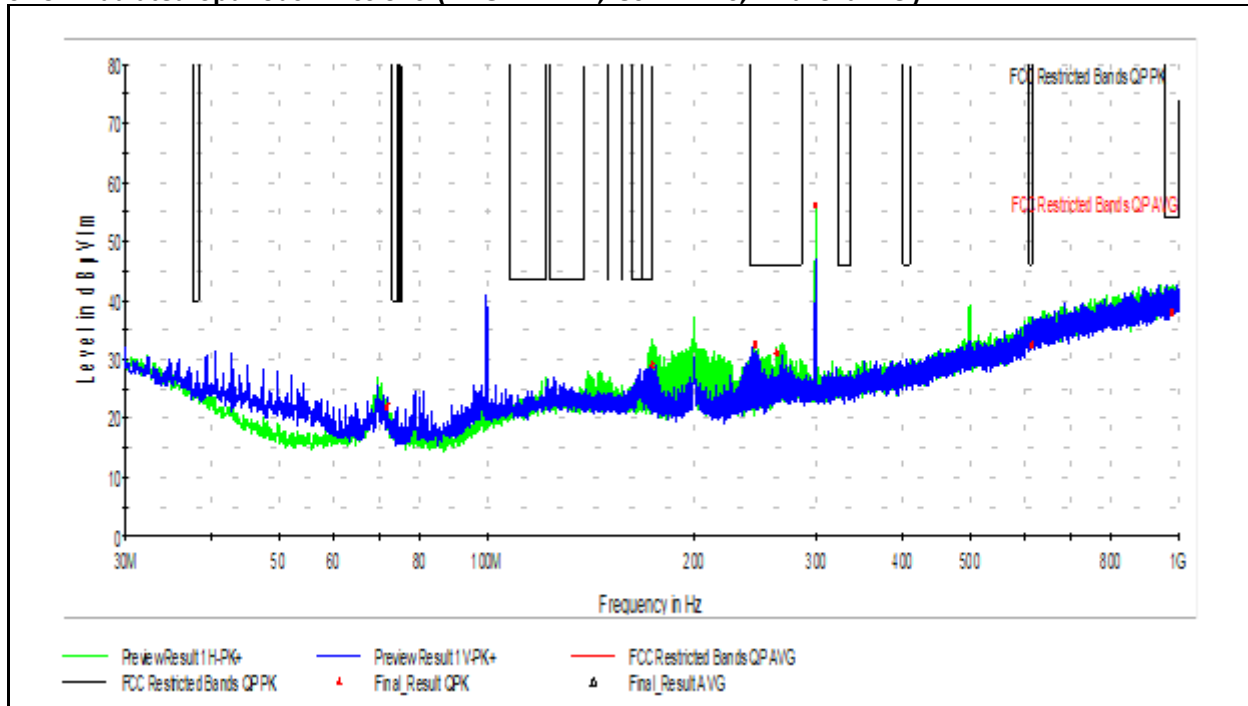
Limit Applied: See Table Above

Ambient Temperature: 22.7°C

Relative Humidity: 19.0 %

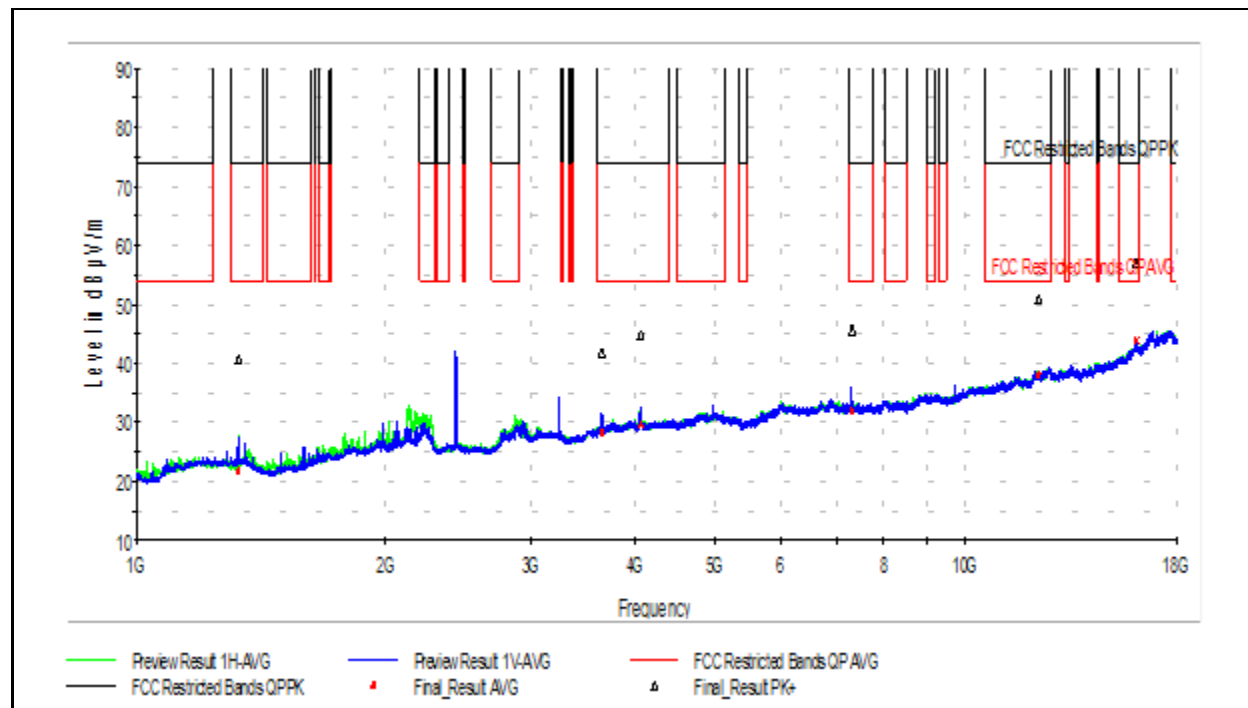
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.19 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11n20, Mid Channel)**

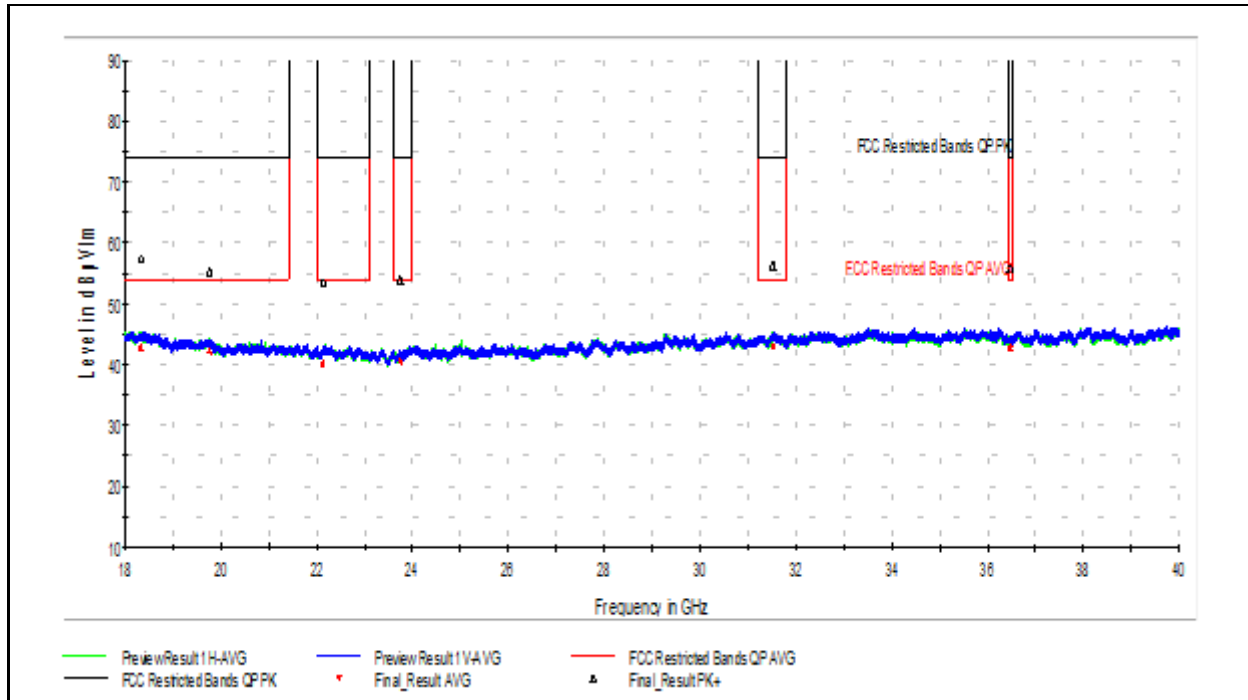
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
71.710000	22.05	-	-	120.000	213.1	V	93.0	14.9
173.613889	29.06	-	-	120.000	200.9	H	342.0	20.8
244.154445	32.59	46.02	13.43	120.000	105.1	H	193.0	21.7
262.638333	31.15	46.02	14.87	120.000	100.0	H	56.0	22.9
298.797778	56.05	-	-	120.000	104.9	H	195.0	24.0
615.071667	32.46	-	-	120.000	153.7	H	0.0	32.3
979.145000	37.94	53.98	16.04	120.000	308.9	H	304.0	37.7

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1327.500000	40.68	73.98	33.30	1000.000	151.0	H	230.0	-0.8
3647.000000	41.76	73.98	32.22	1000.000	394.0	V	291.0	6.2
4065.000000	44.70	73.98	29.28	1000.000	368.0	V	191.0	7.1
7308.500000	45.70	73.98	28.28	1000.000	397.0	V	281.0	11.5
12270.500000	50.91	73.98	23.07	1000.000	100.0	H	93.0	18.5
16087.000000	57.14	73.98	16.84	1000.000	100.0	H	180.0	26.0

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1327.500000	21.83	53.98	32.15	1000.000	151.0	H	230.0	-0.8
3647.000000	28.29	53.98	25.69	1000.000	394.0	V	291.0	6.2
4065.000000	29.70	53.98	24.28	1000.000	368.0	V	191.0	7.1
7308.500000	31.88	53.98	22.10	1000.000	397.0	V	281.0	11.5
12270.500000	37.85	53.98	16.13	1000.000	100.0	H	93.0	18.5
16087.000000	43.82	53.98	10.16	1000.000	100.0	H	180.0	26.0



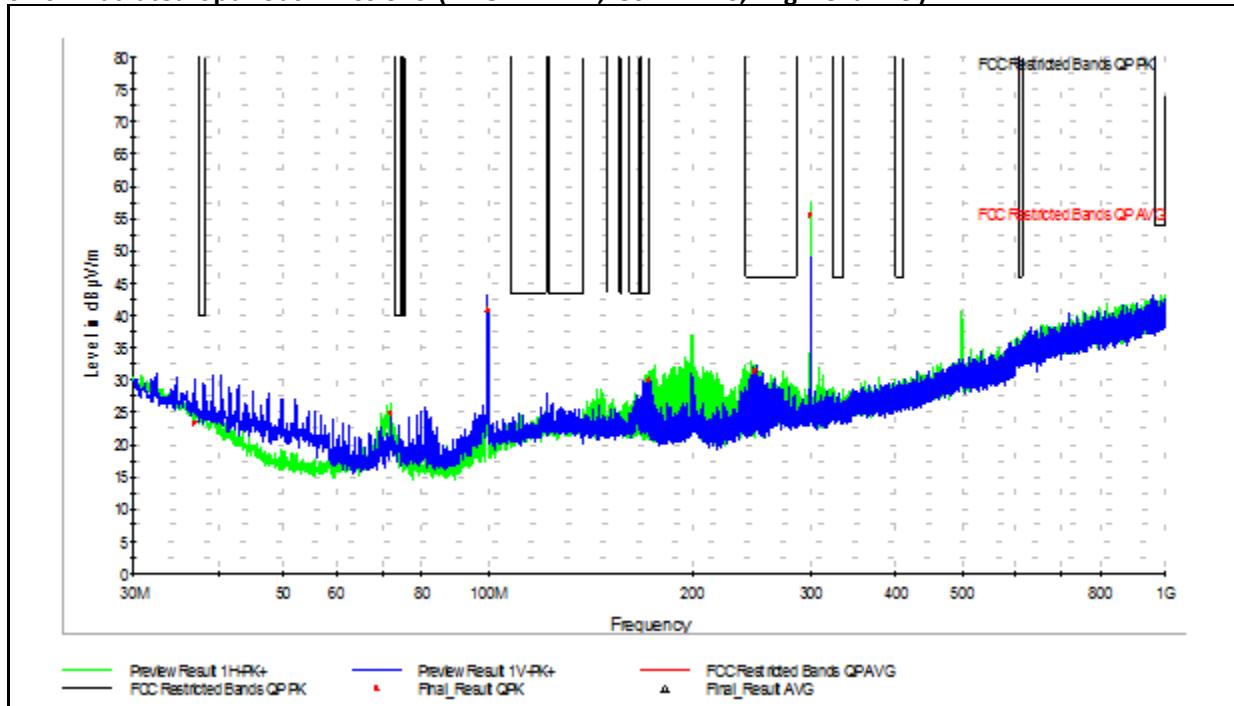
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18324.000000	57.36	73.98	16.62	1000.000	100.0	H	92.0	19.9
19750.500000	55.38	73.98	18.60	1000.000	100.0	H	284.0	15.5
22125.000000	53.53	73.98	20.45	1000.000	213.0	V	0.0	7.9
23738.000000	53.99	73.98	19.99	1000.000	410.0	H	180.0	6.0
31516.500000	56.29	73.98	17.69	1000.000	100.0	H	297.0	11.1
36467.500000	55.98	73.98	18.00	1000.000	100.0	V	91.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18324.000000	42.74	53.98	11.24	1000.000	100.0	H	92.0	19.9
19750.500000	42.16	53.98	11.82	1000.000	100.0	H	284.0	15.5
22125.000000	40.13	53.98	13.85	1000.000	213.0	V	0.0	7.9
23738.000000	40.51	53.98	13.47	1000.000	410.0	H	180.0	6.0
31516.500000	42.97	53.98	11.01	1000.000	100.0	H	297.0	11.1
36467.500000	42.78	53.98	11.20	1000.000	100.0	V	91.0	11.2

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer:
(Where Applicable) NA
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient
Signals or BB Source: Yes

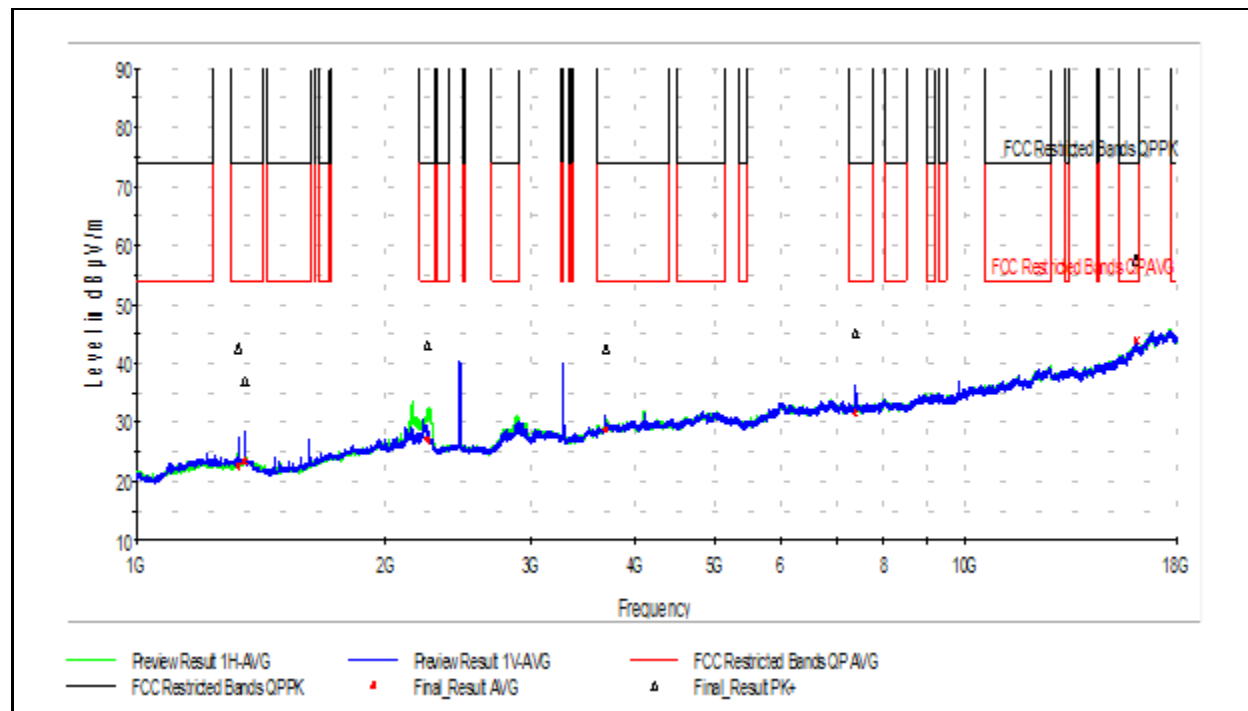
Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.20 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11n20, High Channel)**

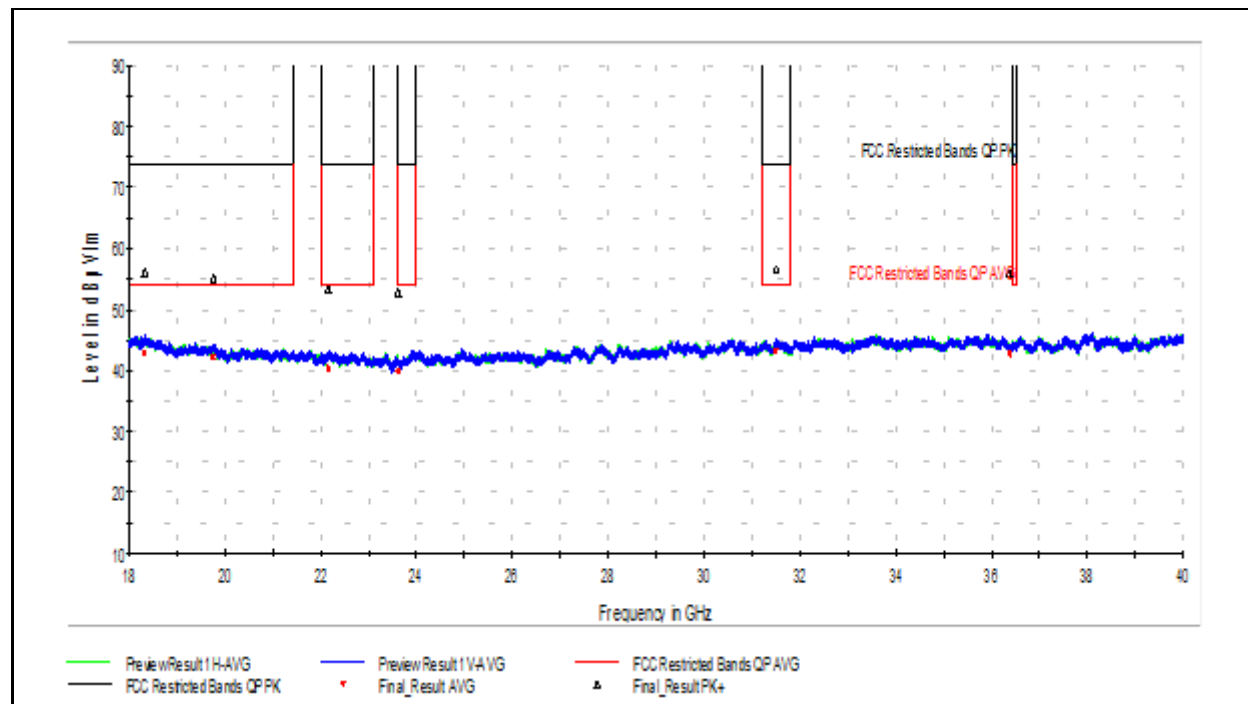
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.951667	23.31	-	-	120.000	99.9	V	26.0	22.8
71.763889	24.91	-	-	120.000	255.2	H	173.0	15.7
99.893889	40.68	-	-	120.000	106.8	V	72.0	19.6
172.428333	29.90	43.52	13.62	120.000	142.2	H	174.0	21.0
247.603333	31.22	46.02	14.80	120.000	100.1	H	92.0	21.7
298.743889	55.58	-	-	120.000	104.9	H	194.0	24.0

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.000000	42.73	73.98	31.25	1000.000	240.0	V	296.0	-0.2
1354.000000	37.18	73.98	36.80	1000.000	168.0	V	68.0	-0.3
2245.500000	43.16	73.98	30.82	1000.000	334.0	H	234.0	3.2
3685.500000	42.44	73.98	31.54	1000.000	310.0	H	212.0	6.4
7382.500000	45.13	73.98	28.85	1000.000	410.0	V	282.0	11.5
16092.500000	57.47	73.98	16.51	1000.000	123.0	V	147.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.000000	22.66	53.98	31.32	1000.000	240.0	V	296.0	-0.2
1354.000000	23.35	53.98	30.63	1000.000	168.0	V	68.0	-0.3
2245.500000	27.03	53.98	26.95	1000.000	334.0	H	234.0	3.2
3685.500000	28.80	53.98	25.18	1000.000	310.0	H	212.0	6.4
7382.500000	31.59	53.98	22.39	1000.000	410.0	V	282.0	11.5
16092.500000	43.85	53.98	10.13	1000.000	123.0	V	147.0	26.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18324.500000	56.17	73.98	17.81	1000.000	109.0	V	9.0	20.0
19749.500000	55.18	73.98	18.80	1000.000	233.0	H	212.0	15.5
22145.000000	53.44	73.98	20.54	1000.000	100.0	V	326.0	8.0
23600.500000	52.89	73.98	21.09	1000.000	240.0	H	72.0	6.4
31496.500000	56.67	73.98	17.31	1000.000	218.0	V	23.0	11.2
36367.500000	55.93	-	-	1000.000	109.0	H	9.0	11.4

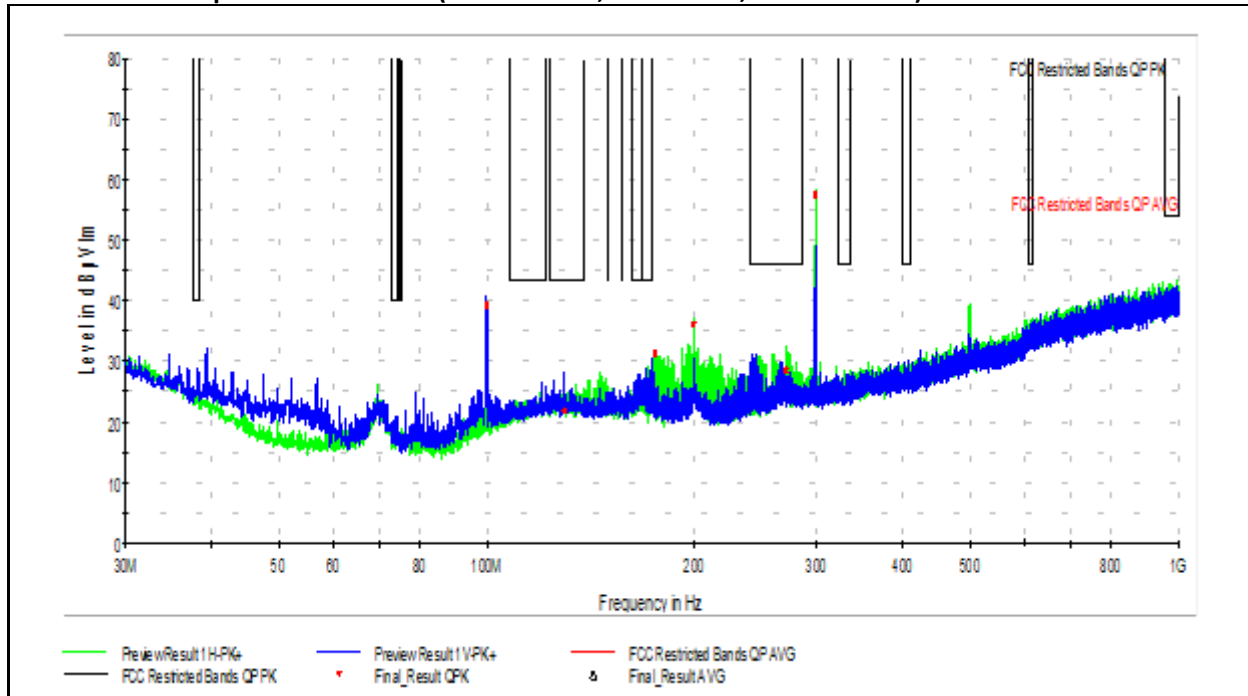
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18324.500000	42.84	53.98	11.14	1000.000	109.0	V	9.0	20.0
19749.500000	42.29	53.98	11.69	1000.000	233.0	H	212.0	15.5
22145.000000	40.37	53.98	13.61	1000.000	100.0	V	326.0	8.0
23600.500000	39.89	53.98	14.09	1000.000	240.0	H	72.0	6.4
31496.500000	43.10	53.98	10.88	1000.000	218.0	V	23.0	11.2
36367.500000	42.86	-	-	1000.000	109.0	H	9.0	11.4

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: (Where Applicable) NA
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

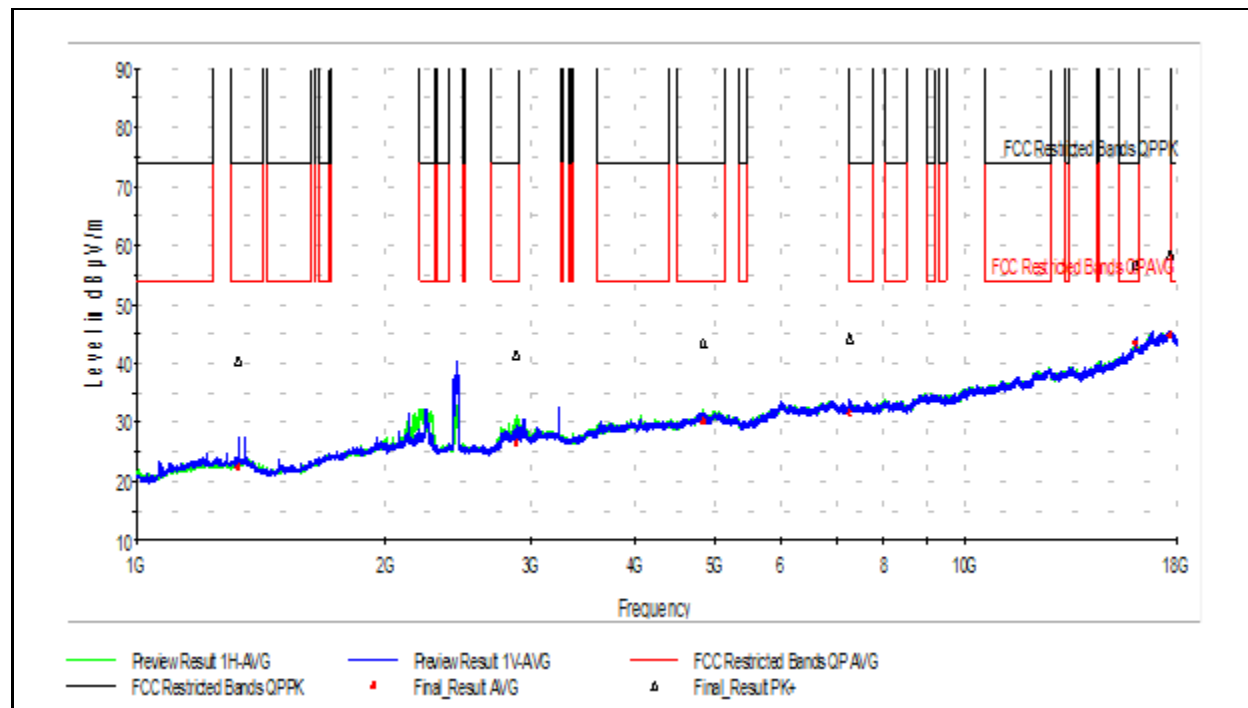
Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.21 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11n40, Low Channel)**

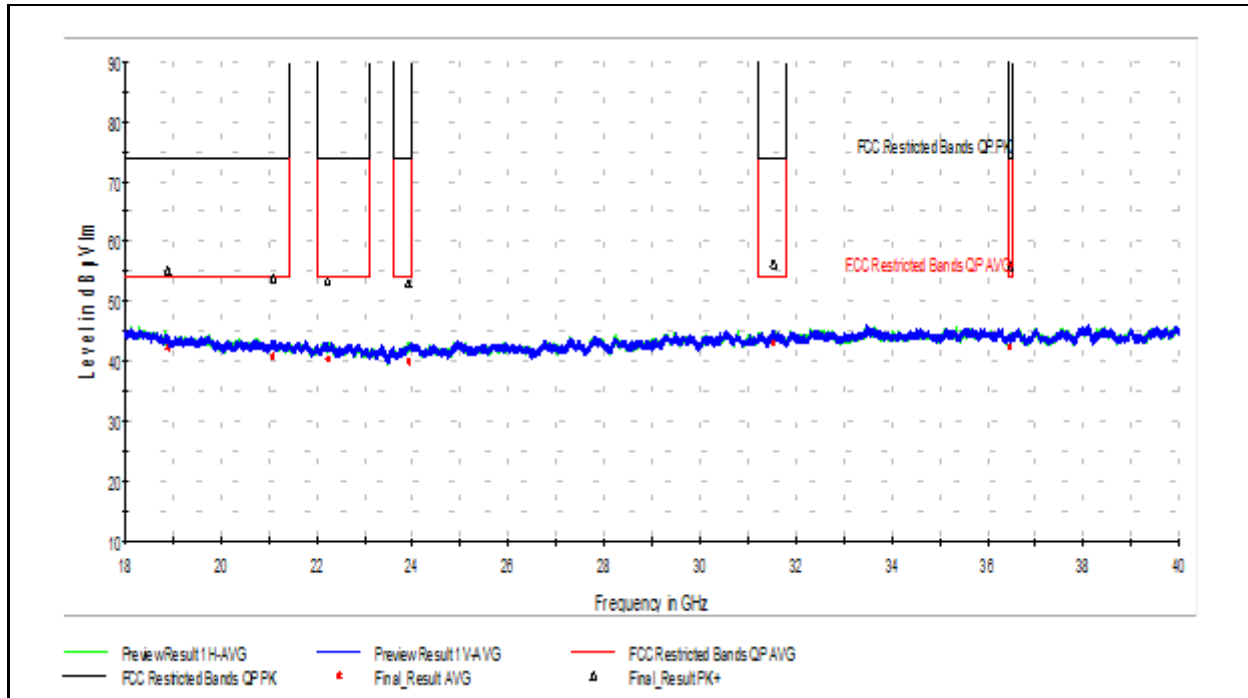
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
99.893889	39.21	-	-	120.000	100.0	V	301.0	19.6
129.586667	21.99	43.52	21.53	120.000	105.0	V	90.0	22.4
174.799445	31.29	-	-	120.000	165.7	H	174.0	20.7
199.211111	36.18	-	-	120.000	142.6	H	182.0	22.3
270.775556	28.59	46.02	17.43	120.000	100.0	H	66.0	23.5
298.743889	57.47	-	-	120.000	109.9	H	200.0	24.0

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1328.500000	40.56	73.98	33.42	1000.000	191.0	V	292.0	-0.2
2878.000000	41.67	73.98	32.31	1000.000	196.0	H	181.0	4.8
4839.000000	43.50	73.98	30.48	1000.000	100.0	H	217.0	8.4
7265.500000	44.43	73.98	29.55	1000.000	320.0	V	214.0	11.5
16052.000000	56.94	73.98	17.04	1000.000	100.0	V	256.0	25.2
17717.000000	58.37	73.98	15.61	1000.000	100.0	H	0.0	26.0

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1328.500000	22.42	53.98	31.56	1000.000	191.0	V	292.0	-0.2
2878.000000	26.39	53.98	27.59	1000.000	196.0	H	181.0	4.8
4839.000000	30.18	53.98	23.80	1000.000	100.0	H	217.0	8.4
7265.500000	31.48	53.98	22.50	1000.000	320.0	V	214.0	11.5
16052.000000	43.35	53.98	10.63	1000.000	100.0	V	256.0	25.2
17717.000000	44.81	53.98	9.17	1000.000	100.0	H	0.0	26.0



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18878.000000	55.15	73.98	18.83	1000.000	109.0	V	0.0	18.2
21086.500000	54.14	73.98	19.84	1000.000	100.0	V	48.0	10.9
22223.500000	53.53	73.98	20.45	1000.000	232.0	V	124.0	8.1
23906.500000	53.15	73.98	20.83	1000.000	109.0	H	60.0	5.9
31530.500000	56.47	73.98	17.51	1000.000	240.0	H	294.0	11.1
36459.500000	55.82	73.98	18.16	1000.000	109.0	H	9.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18878.000000	42.20	53.98	11.78	1000.000	109.0	V	0.0	18.2
21086.500000	40.92	53.98	13.06	1000.000	100.0	V	48.0	10.9
22223.500000	40.37	53.98	13.61	1000.000	232.0	V	124.0	8.1
23906.500000	39.92	53.98	14.06	1000.000	109.0	H	60.0	5.9
31530.500000	42.97	53.98	11.01	1000.000	240.0	H	294.0	11.1
36459.500000	42.42	53.98	11.56	1000.000	109.0	H	9.0	11.2

Test Personnel: Brandon Norris

Supervising/Reviewing Engineer: _____

(Where Applicable) NA

Product Standard: FCC Part 15C

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2020

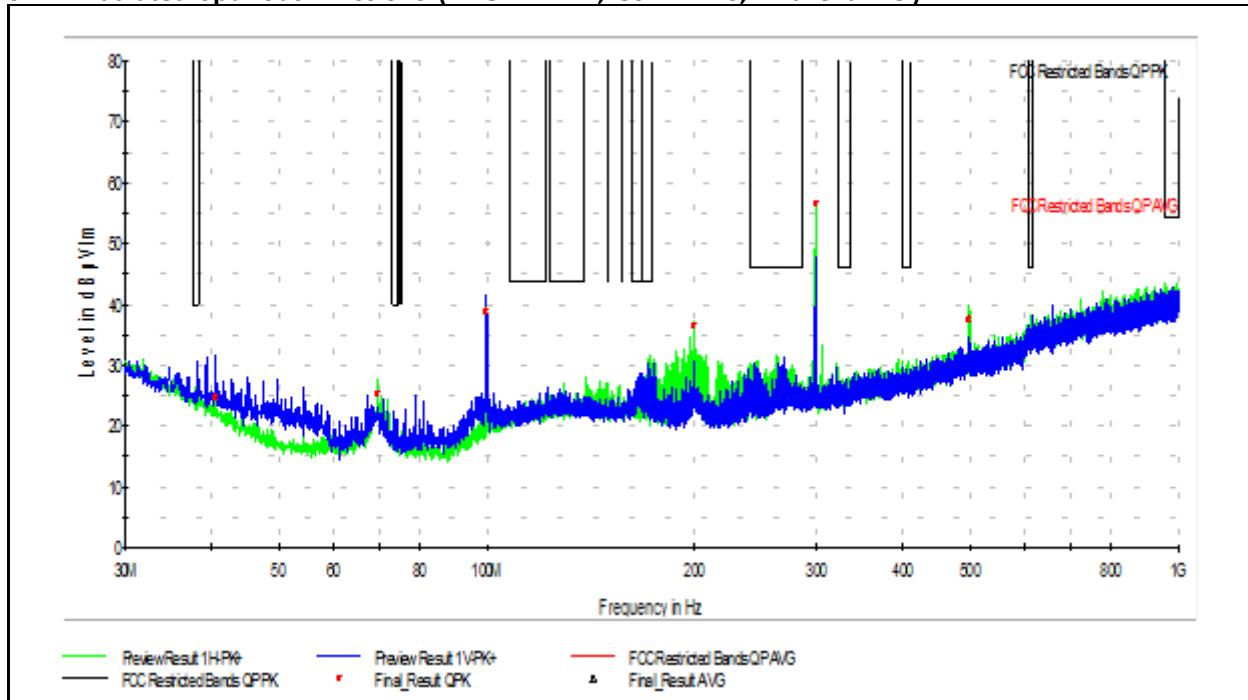
Limit Applied: See Table Above

Ambient Temperature: 22.7°C

Relative Humidity: 19.0 %

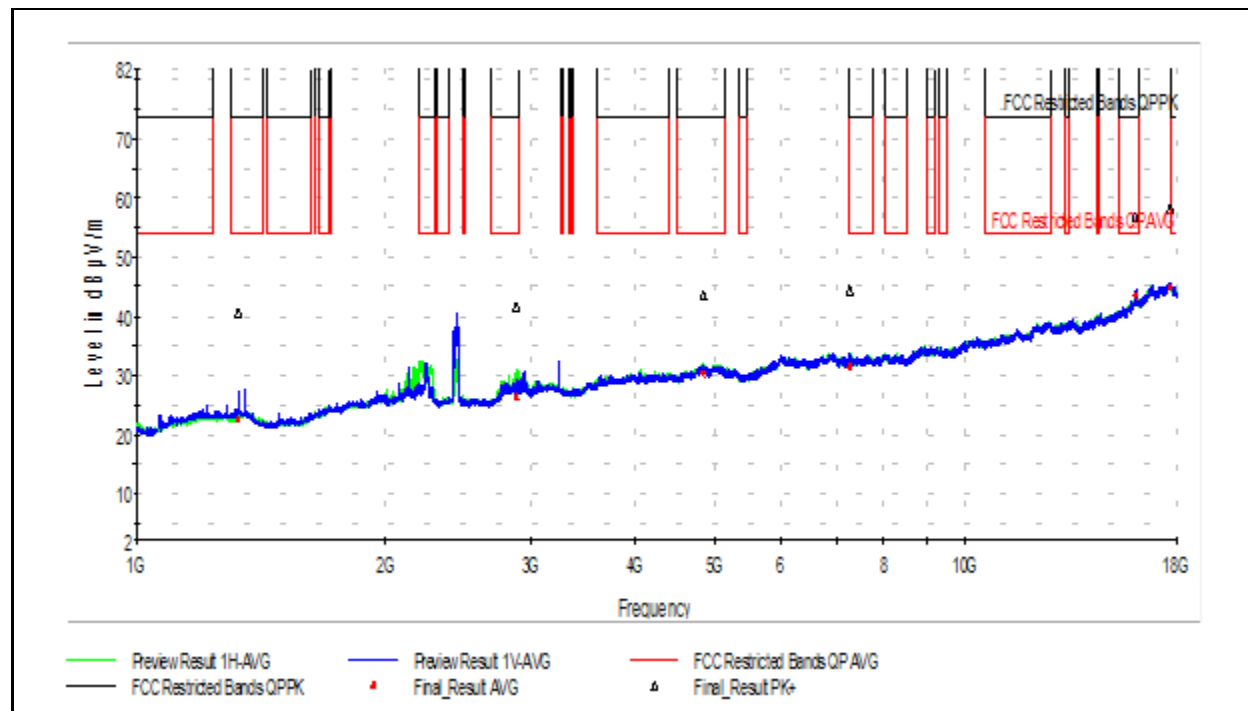
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.22 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11n40, Mid Channel)**

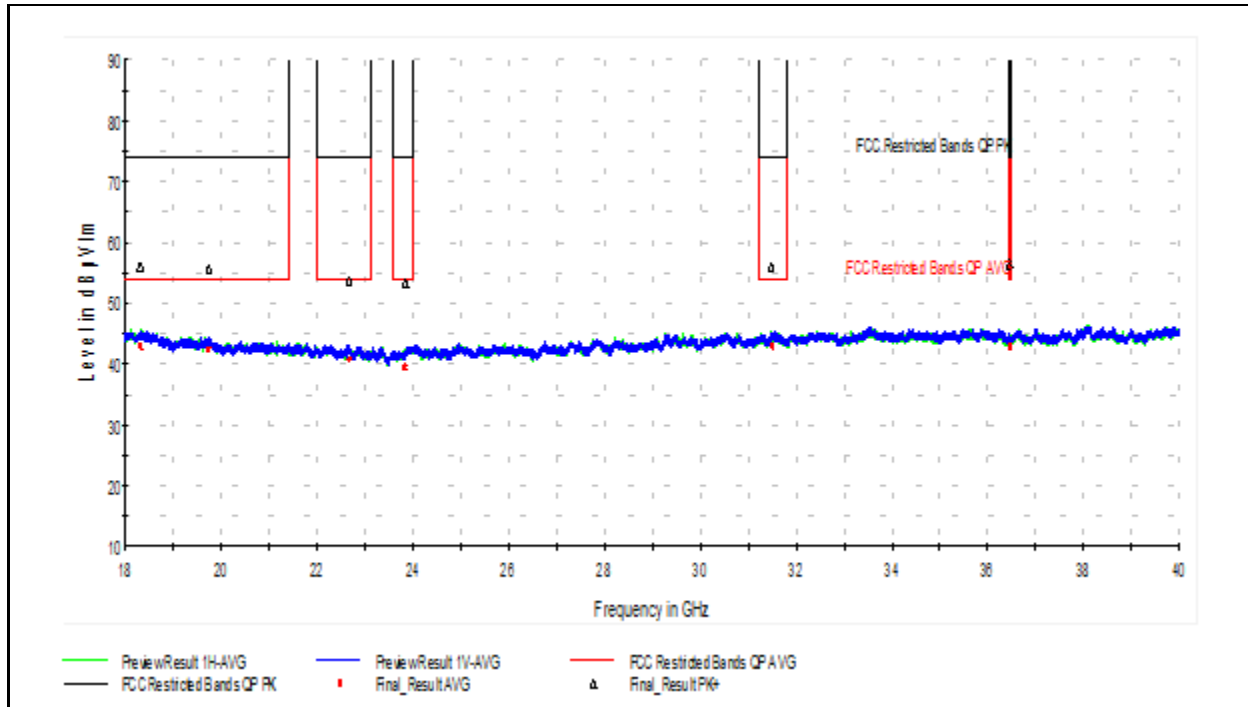
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.454445	24.61	-	-	120.000	108.3	V	64.0	20.4
69.446667	25.12	-	-	120.000	273.1	H	174.0	15.7
99.570556	38.82	-	-	120.000	100.4	V	292.0	19.5
199.211111	36.39	-	-	120.000	142.2	H	176.0	22.3
298.797778	56.38	-	-	120.000	105.1	H	194.0	24.0
497.971111	37.48	-	-	120.000	189.7	H	347.0	29.5

Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1328.500000	40.56	73.98	33.42	1000.000	191.0	V	292.0	-0.2
2878.000000	41.67	73.98	32.31	1000.000	196.0	H	181.0	4.8
4839.000000	43.50	73.98	30.48	1000.000	100.0	H	217.0	8.4
7265.500000	44.43	73.98	29.55	1000.000	320.0	V	214.0	11.5
16052.000000	56.94	73.98	17.04	1000.000	100.0	V	256.0	25.2
17717.000000	58.37	73.98	15.61	1000.000	100.0	H	0.0	26.0

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1328.500000	22.42	53.98	31.56	1000.000	191.0	V	292.0	-0.2
2878.000000	26.39	53.98	27.59	1000.000	196.0	H	181.0	4.8
4839.000000	30.18	53.98	23.80	1000.000	100.0	H	217.0	8.4
7265.500000	31.48	53.98	22.50	1000.000	320.0	V	214.0	11.5
16052.000000	43.35	53.98	10.63	1000.000	100.0	V	256.0	25.2
17717.000000	44.81	53.98	9.17	1000.000	100.0	H	0.0	26.0



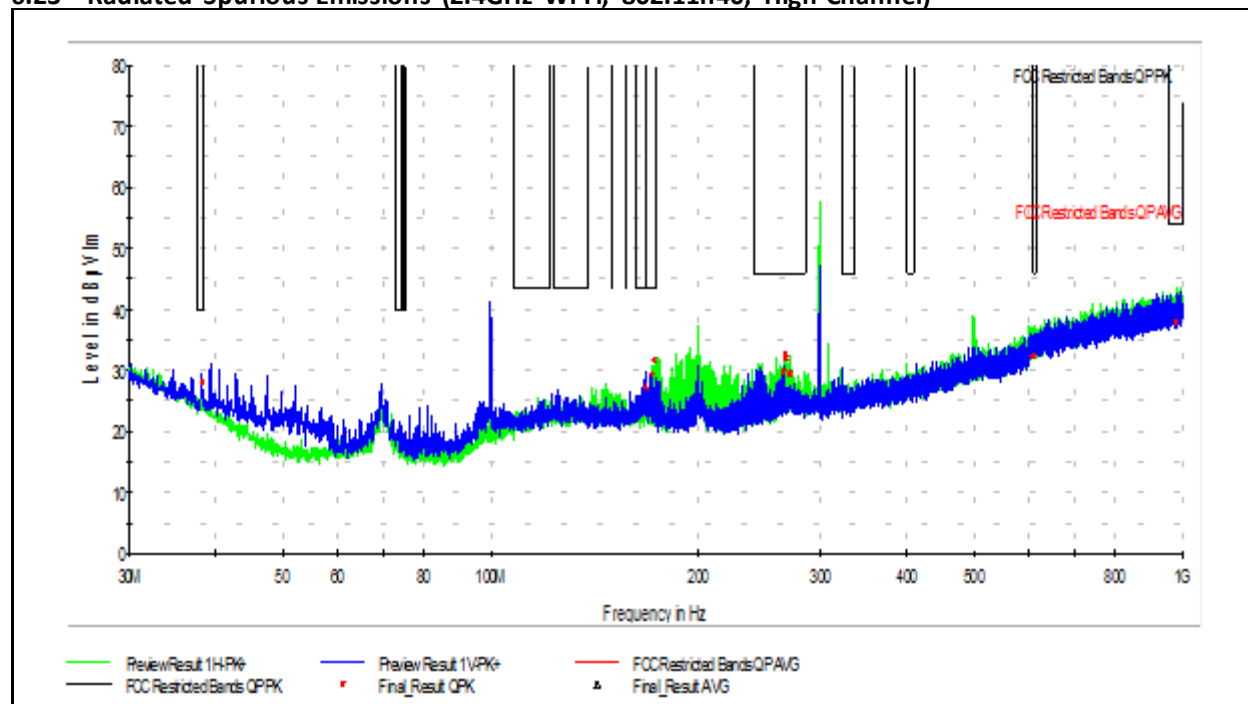
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18315.000000	56.01	73.98	17.97	1000.000	100.0	H	22.0	19.9
19744.500000	55.69	73.98	18.29	1000.000	410.0	V	88.0	15.5
22675.500000	53.82	73.98	20.16	1000.000	410.0	V	0.0	6.8
23834.500000	53.30	73.98	20.68	1000.000	100.0	H	296.0	6.2
31484.500000	56.12	73.98	17.86	1000.000	410.0	H	290.0	11.1
36461.500000	56.56	73.98	17.42	1000.000	109.0	V	0.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18315.000000	43.00	53.98	10.98	1000.000	100.0	H	22.0	19.9
19744.500000	42.26	53.98	11.72	1000.000	410.0	V	88.0	15.5
22675.500000	40.59	53.98	13.39	1000.000	410.0	V	0.0	6.8
23834.500000	39.39	53.98	14.59	1000.000	100.0	H	296.0	6.2
31484.500000	42.88	53.98	11.10	1000.000	410.0	H	290.0	11.1
36461.500000	42.94	53.98	11.04	1000.000	109.0	V	0.0	11.2

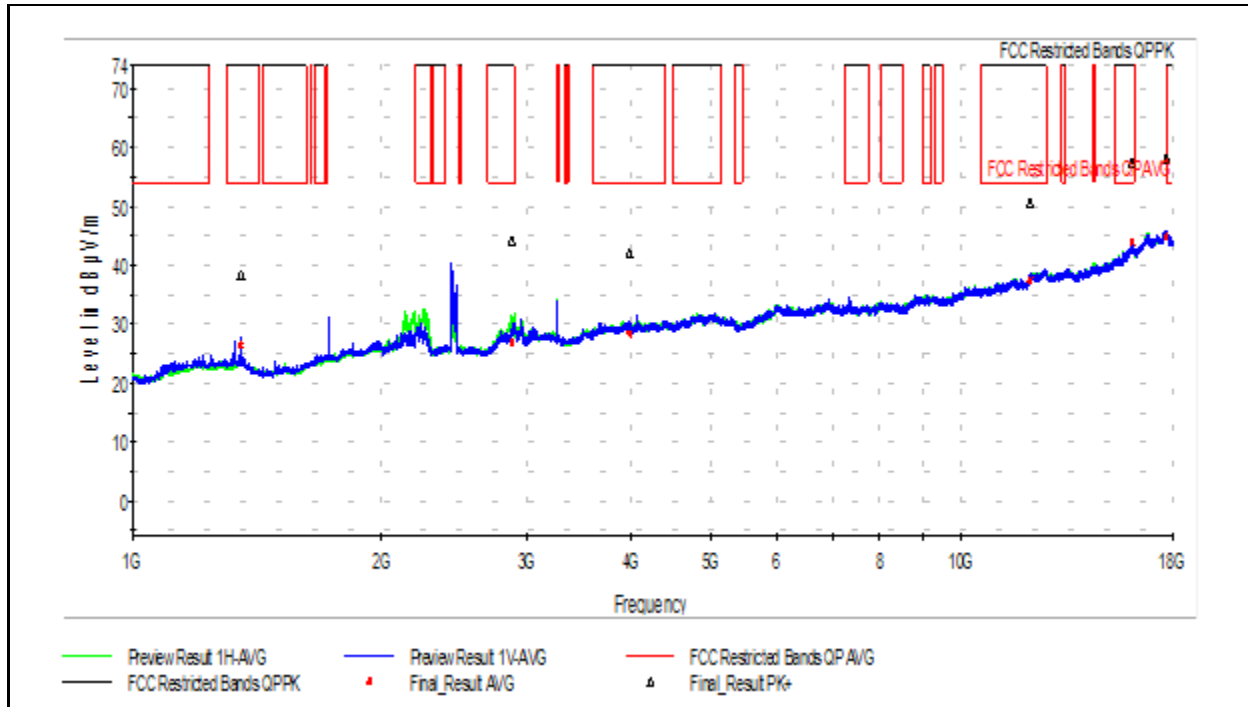
Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: NA
(Where Applicable)
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

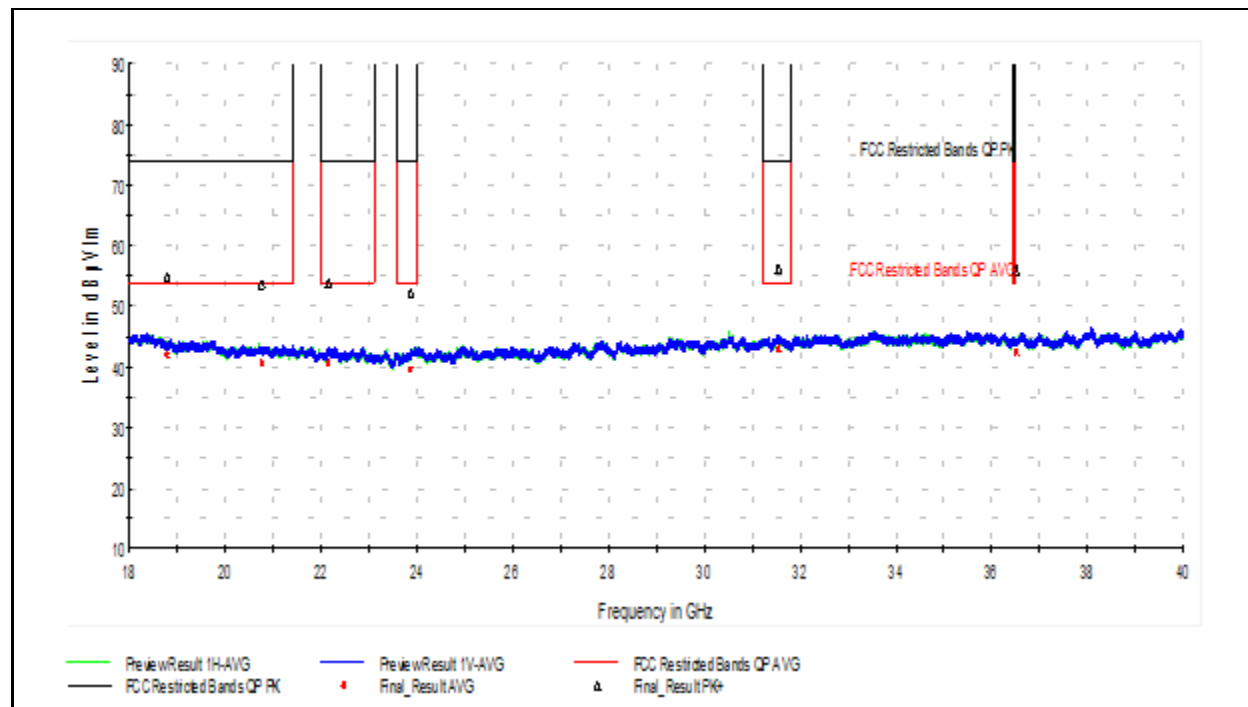
**6.23 Radiated Spurious Emissions (2.4GHz Wi-Fi, 802.11n40, High Channel)**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	27.95	40.00	12.05	120.000	100.1	V	101.0	21.9
167.793889	27.20	43.52	16.32	120.000	100.0	V	256.0	21.7
171.296667	29.29	43.52	14.23	120.000	177.3	H	166.0	21.2
172.482222	31.60	43.52	11.92	120.000	177.8	H	339.0	21.0
265.009445	29.64	46.02	16.38	120.000	100.3	H	64.0	23.3
266.248889	32.52	46.02	13.50	120.000	105.0	H	64.0	23.3
267.434445	32.04	46.02	13.98	120.000	110.0	H	63.0	23.4
270.829445	29.49	46.02	16.53	120.000	100.1	H	81.0	23.5
610.437222	32.37	46.02	13.65	120.000	189.7	H	0.0	32.3
980.546111	37.95	53.98	16.03	120.000	107.3	H	108.0	37.8



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	38.45	73.98	35.53	1000.000	247.0	V	70.0	-0.3
2874.500000	44.04	73.98	29.94	1000.000	393.0	H	156.0	4.8
3982.500000	42.08	73.98	31.90	1000.000	183.0	V	64.0	7.2
12123.500000	50.52	73.98	23.46	1000.000	100.0	H	340.0	18.4
16096.000000	57.26	73.98	16.72	1000.000	100.0	V	194.0	26.2
17720.000000	57.97	73.98	16.01	1000.000	100.0	V	63.0	26.0

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	26.47	53.98	27.51	1000.000	247.0	V	70.0	-0.3
2874.500000	26.81	53.98	27.17	1000.000	393.0	H	156.0	4.8
3982.500000	28.43	53.98	25.55	1000.000	183.0	V	64.0	7.2
12123.500000	37.35	53.98	16.63	1000.000	100.0	H	340.0	18.4
16096.000000	43.97	53.98	10.01	1000.000	100.0	V	194.0	26.2
17720.000000	44.87	53.98	9.11	1000.000	100.0	V	63.0	26.0



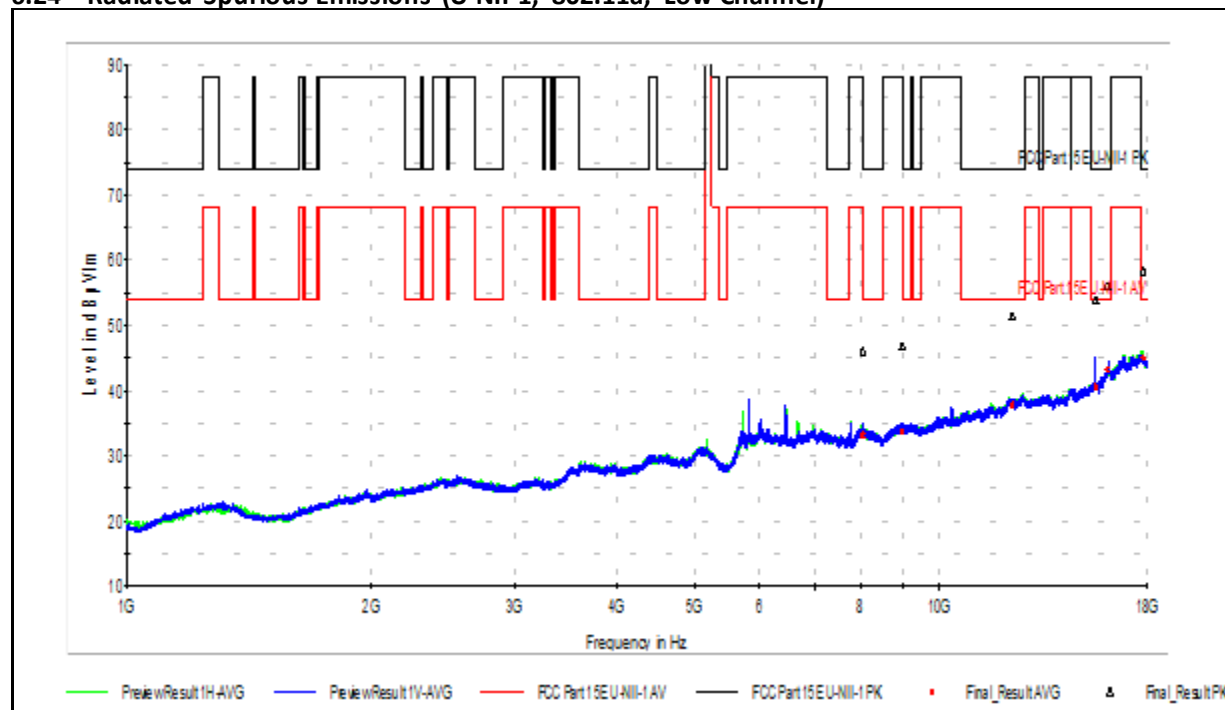
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18792.500000	54.92	73.98	19.06	1000.000	100.0	H	-1.0	18.3
20751.500000	53.60	73.98	20.38	1000.000	410.0	H	262.0	11.7
22163.500000	53.97	73.98	20.01	1000.000	231.0	V	271.0	8.0
23873.000000	52.37	73.98	21.61	1000.000	100.0	V	115.0	6.0
31549.500000	56.17	73.98	17.81	1000.000	188.0	H	90.0	11.0
36499.000000	56.08	73.98	17.90	1000.000	100.0	V	36.0	11.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18792.500000	41.80	53.98	12.18	1000.000	100.0	H	-1.0	18.3
20751.500000	40.76	53.98	13.22	1000.000	410.0	H	262.0	11.7
22163.500000	40.62	53.98	13.36	1000.000	231.0	V	271.0	8.0
23873.000000	39.50	53.98	14.48	1000.000	100.0	V	115.0	6.0
31549.500000	42.94	53.98	11.04	1000.000	188.0	H	90.0	11.0
36499.000000	42.47	53.98	11.51	1000.000	100.0	V	36.0	11.1

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) NA
Product Standard: FCC Part 15C
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 1/23/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.24 Radiated Spurious Emissions (U-NII-1, 802.11a, Low Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
8050.000000	46.14	73.98	27.84	1000.000	100.0	V	191.0	12.4
8996.000000	46.98	88.23	41.25	1000.000	100.0	V	42.0	13.6
12275.500000	51.43	73.98	22.55	1000.000	108.0	V	69.0	18.4
15543.000000	53.95	73.98	20.03	1000.000	133.0	V	128.0	21.9
16046.500000	56.22	73.98	17.76	1000.000	100.0	V	292.0	25.1
17778.000000	58.49	73.98	15.49	1000.000	100.0	V	309.0	26.2

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
8050.000000	33.07	53.98	20.91	1000.000	100.0	V	191.0	12.4
8996.000000	33.56	68.23	34.67	1000.000	100.0	V	42.0	13.6
12275.500000	37.83	53.98	16.15	1000.000	108.0	V	69.0	18.4
15543.000000	40.55	53.98	13.43	1000.000	133.0	V	128.0	21.9
16046.500000	43.17	53.98	10.81	1000.000	100.0	V	292.0	25.1
17778.000000	44.93	53.98	9.05	1000.000	100.0	V	309.0	26.2

Test Personnel: Michael Carlson

Supervising/Reviewing Engineer: (Where Applicable) N/A

Product Standard: FCC Part 15E

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/3/2020

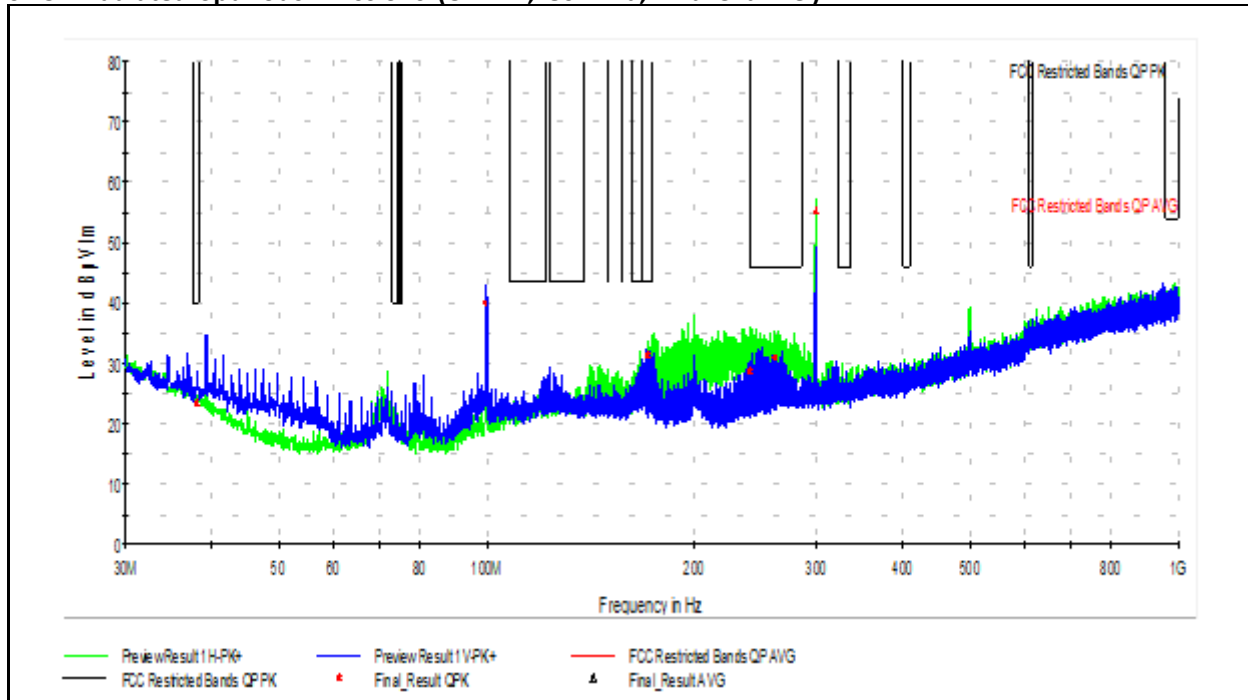
Limit Applied: See Table Above

Ambient Temperature: 22.7 °C

Relative Humidity: 19.0 %

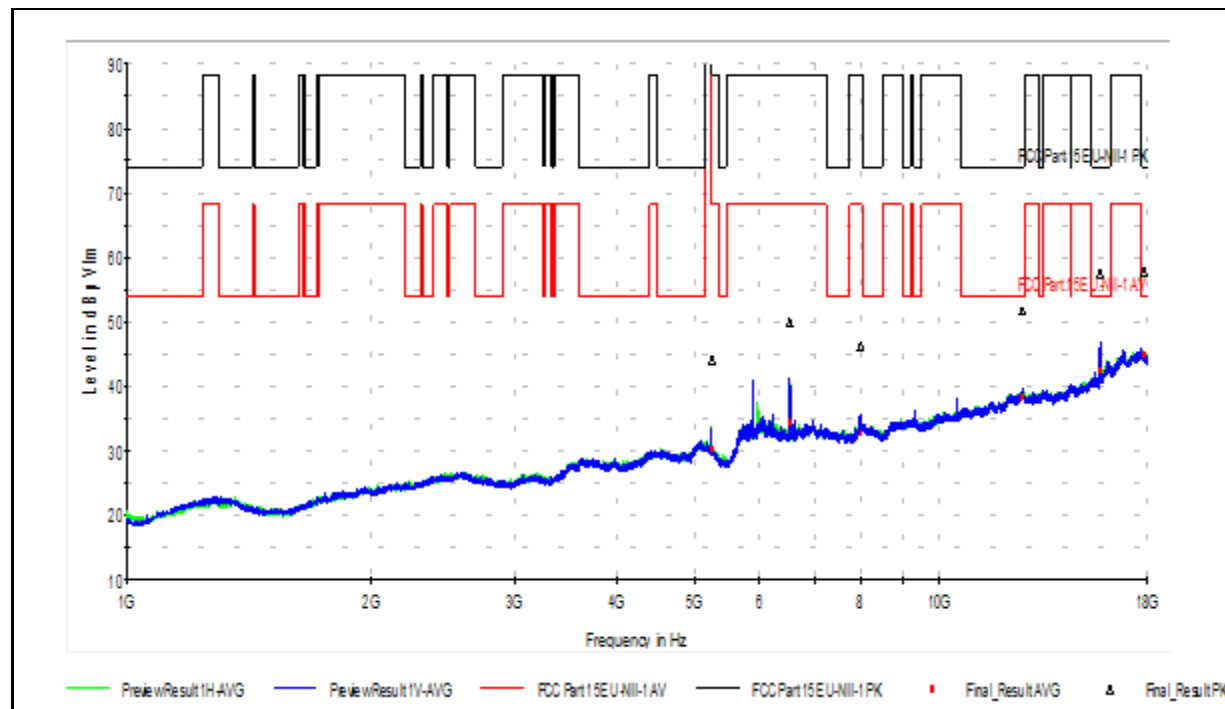
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.25 Radiated Spurious Emissions (U-NII-1, 802.11a, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.083333	23.42	40.00	16.58	120.000	100.2	V	64.0	22.0
99.570556	39.81	-	-	120.000	100.2	V	73.0	19.5
171.081111	31.31	43.52	12.21	120.000	156.5	H	165.0	21.2
240.436111	28.68	46.02	17.34	120.000	130.3	H	156.0	21.6
261.291111	30.95	46.02	15.07	120.000	104.5	H	284.0	22.8
299.821667	55.37	-	-	120.000	104.9	H	191.0	24.0

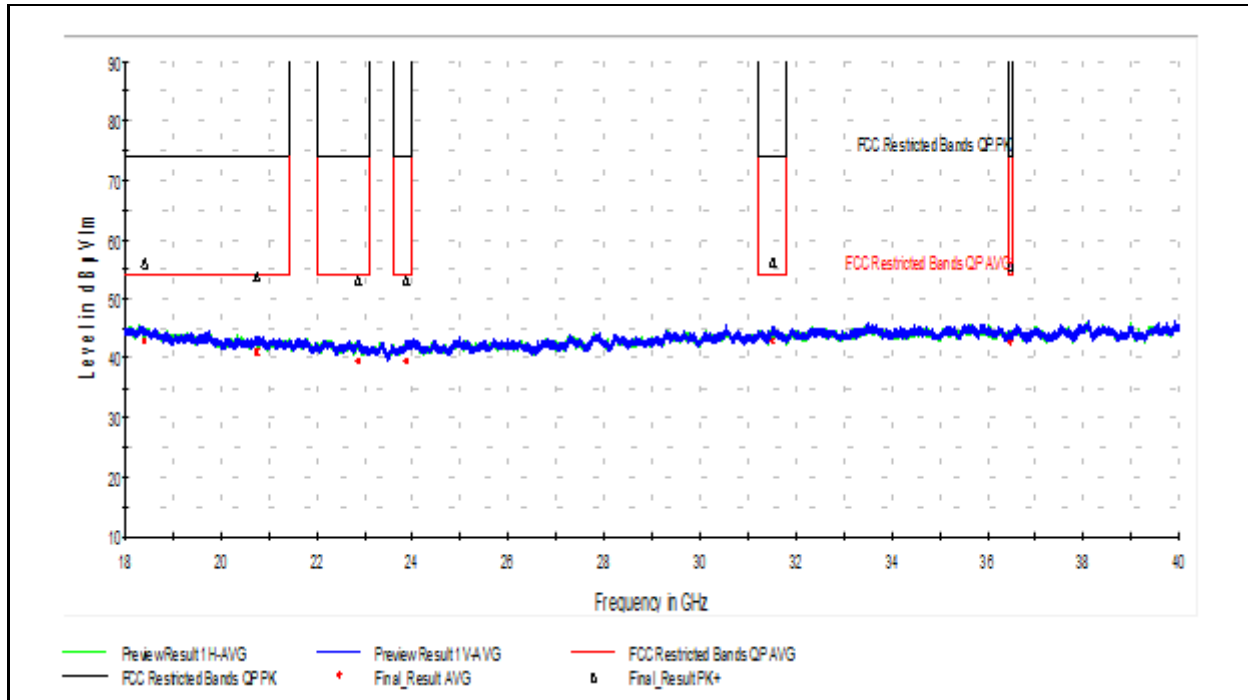
Note: emissions that do not fall in a restricted band are noted with a "-".



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5247.000000	43.97	-	-	1000.000	183.0	H	146.0	8.9
6542.500000	50.04	88.23	38.19	1000.000	379.0	V	202.0	10.8
7997.000000	46.20	88.23	42.03	1000.000	100.0	V	86.0	12.4
12628.500000	51.69	73.98	22.29	1000.000	394.0	V	298.0	19.1
15723.500000	57.47	73.98	16.51	1000.000	321.0	V	282.0	22.6
17808.000000	57.79	73.98	16.19	1000.000	410.0	H	221.0	26.4

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5247.000000	30.44	-	-	1000.000	183.0	H	146.0	8.9
6542.500000	34.57	68.23	33.66	1000.000	379.0	V	202.0	10.8
7997.000000	32.67	68.23	35.56	1000.000	100.0	V	86.0	12.4
12628.500000	38.26	53.98	15.72	1000.000	394.0	V	298.0	19.1
15723.500000	42.57	53.98	11.41	1000.000	321.0	V	282.0	22.6
17808.000000	44.87	53.98	9.11	1000.000	410.0	H	221.0	26.4

Note: emissions that do not fall in a restricted band are noted with a "-".



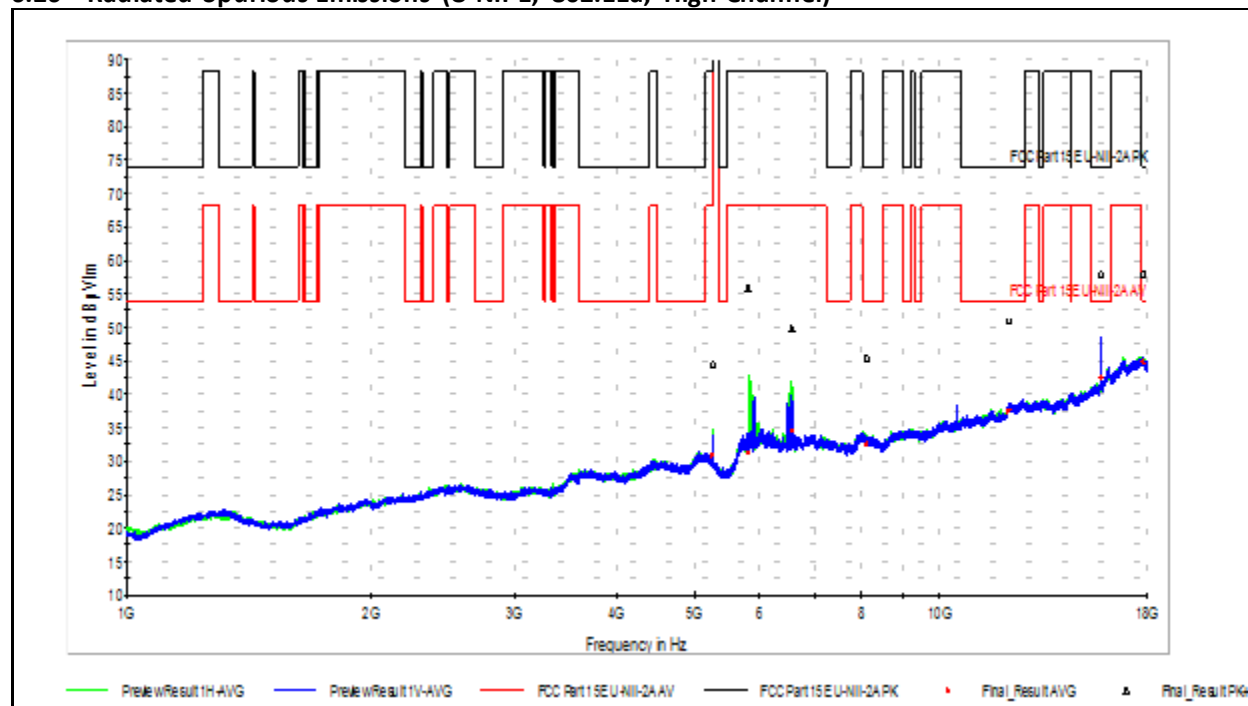
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18404.000000	55.94	73.98	18.04	1000.000	100.0	V	132.0	19.9
20735.000000	53.87	73.98	20.11	1000.000	271.0	H	46.0	11.7
22846.000000	53.22	73.98	20.76	1000.000	100.0	V	102.0	6.3
23850.000000	53.26	73.98	20.72	1000.000	201.0	H	232.0	6.1
31508.000000	56.18	73.98	17.80	1000.000	159.0	H	282.0	11.2
36476.500000	55.60	73.98	18.38	1000.000	100.0	H	292.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18404.000000	42.87	53.98	11.11	1000.000	100.0	V	132.0	19.9
20735.000000	41.06	53.98	12.92	1000.000	271.0	H	46.0	11.7
22846.000000	39.49	53.98	14.49	1000.000	100.0	V	102.0	6.3
23850.000000	39.56	53.98	14.42	1000.000	201.0	H	232.0	6.1
31508.000000	42.92	53.98	11.06	1000.000	159.0	H	282.0	11.2
36476.500000	42.48	53.98	11.50	1000.000	100.0	H	292.0	11.2

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9 °C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.26 Radiated Spurious Emissions (U-NII-1, 802.11a, High Channel)**

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5260.500000	44.59	-	-	1000.000	221.0	H	203.0	9.0
5814.000000	55.81	88.23	32.42	1000.000	124.0	H	146.0	9.9
6582.500000	49.79	88.23	38.44	1000.000	367.0	H	208.0	10.9
8119.500000	45.54	73.98	28.44	1000.000	410.0	H	264.0	12.4
12144.500000	50.99	73.98	22.99	1000.000	100.0	H	198.0	18.4
15779.000000	58.10	73.98	15.88	1000.000	301.0	V	279.0	22.7
17793.000000	58.10	73.98	15.88	1000.000	410.0	V	0.0	26.3

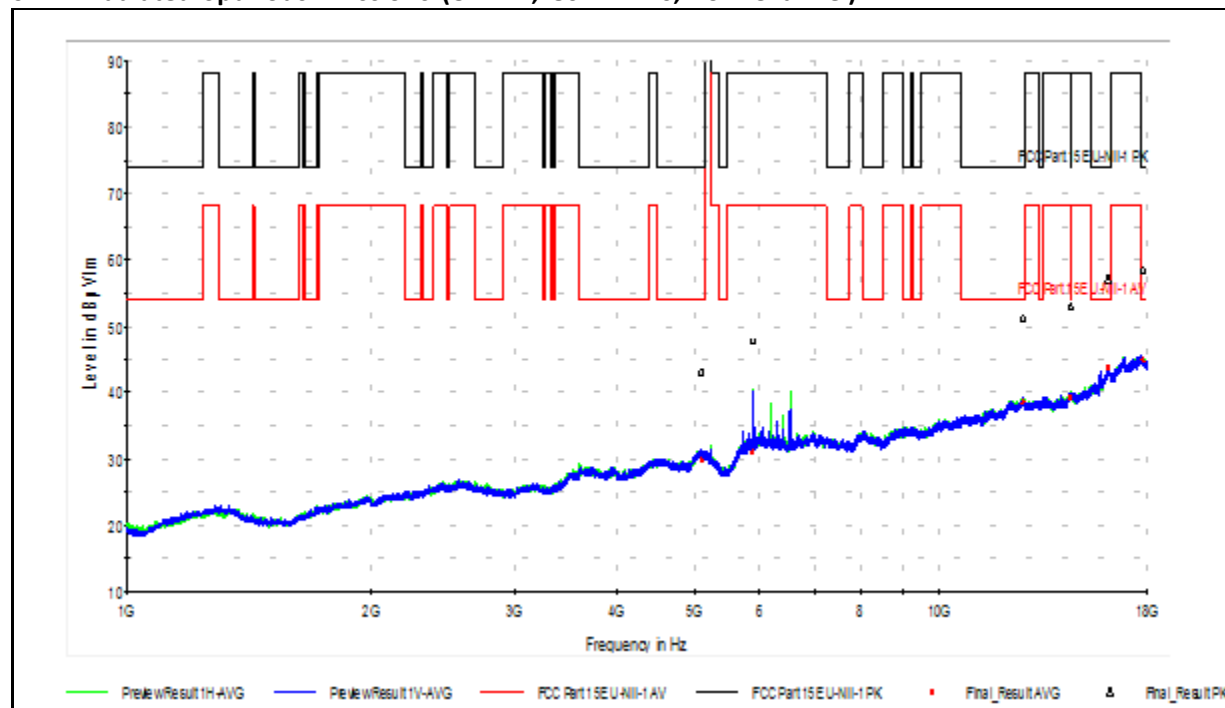
Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5260.500000	30.82	-	-	1000.000	221.0	H	203.0	9.0
5814.000000	31.31	68.23	36.92	1000.000	124.0	H	146.0	9.9
6582.500000	34.59	68.23	33.64	1000.000	367.0	H	208.0	10.9
8119.500000	32.53	53.98	21.45	1000.000	410.0	H	264.0	12.4
12144.500000	37.47	53.98	16.51	1000.000	100.0	H	198.0	18.4
15779.000000	42.39	53.98	11.59	1000.000	301.0	V	279.0	22.7
17793.000000	44.84	53.98	9.14	1000.000	410.0	V	0.0	26.3

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9 °C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.27 Radiated Spurious Emissions (U-NII-1, 802.11n20, Low Channel)**

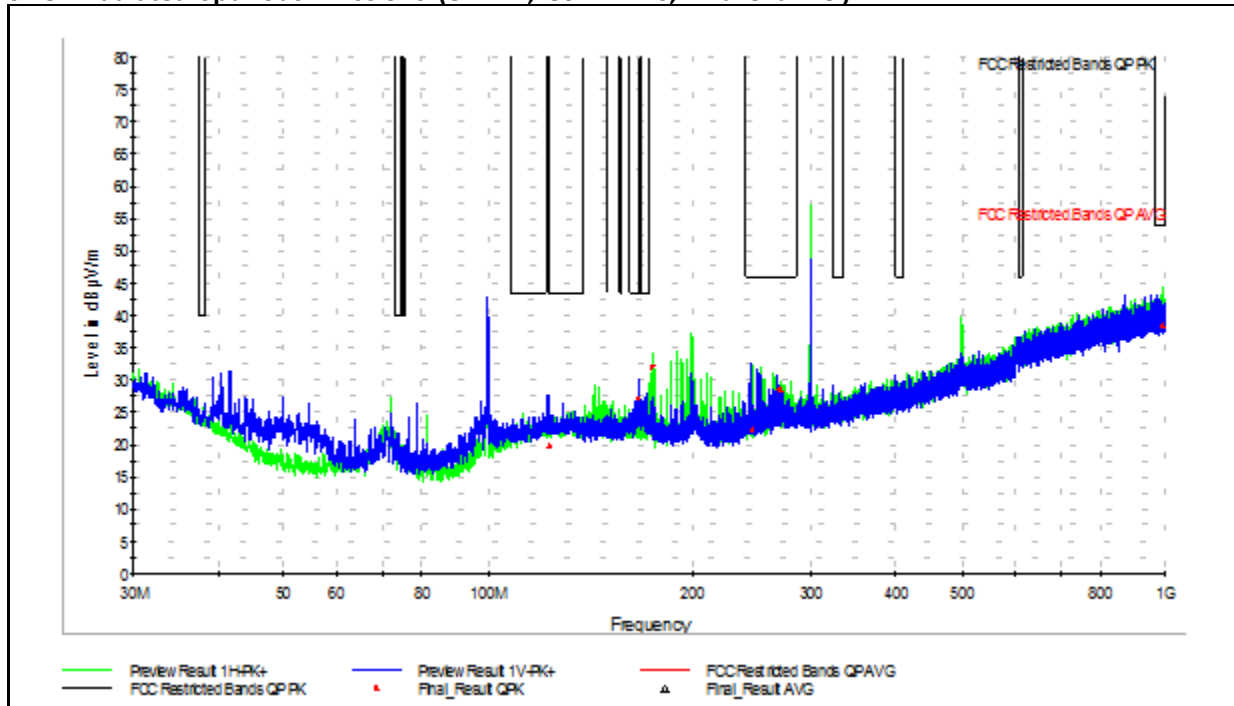
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5085.000000	43.33	73.98	30.65	1000.000	100.0	V	0.0	8.4
5888.000000	47.92	88.23	40.31	1000.000	410.0	H	281.0	9.9
12651.000000	51.37	73.98	22.61	1000.000	100.0	H	330.0	19.2
14483.500000	53.09	73.98	20.89	1000.000	410.0	H	347.0	20.0
16086.000000	57.19	73.98	16.79	1000.000	410.0	H	251.0	26.0
17777.000000	58.69	73.98	15.29	1000.000	410.0	H	180.0	26.3

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5085.000000	29.75	53.98	24.23	1000.000	100.0	V	0.0	8.4
5888.000000	30.92	68.23	37.31	1000.000	410.0	H	281.0	9.9
12651.000000	38.37	53.98	15.61	1000.000	100.0	H	330.0	19.2
14483.500000	39.27	53.98	14.71	1000.000	410.0	H	347.0	20.0
16086.000000	43.67	53.98	10.31	1000.000	410.0	H	251.0	26.0
17777.000000	44.91	53.98	9.07	1000.000	410.0	H	180.0	26.3

Test Personnel: Michael Carlson
 Supervising/Reviewing Engineer: (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient Signals or BB Source: Yes

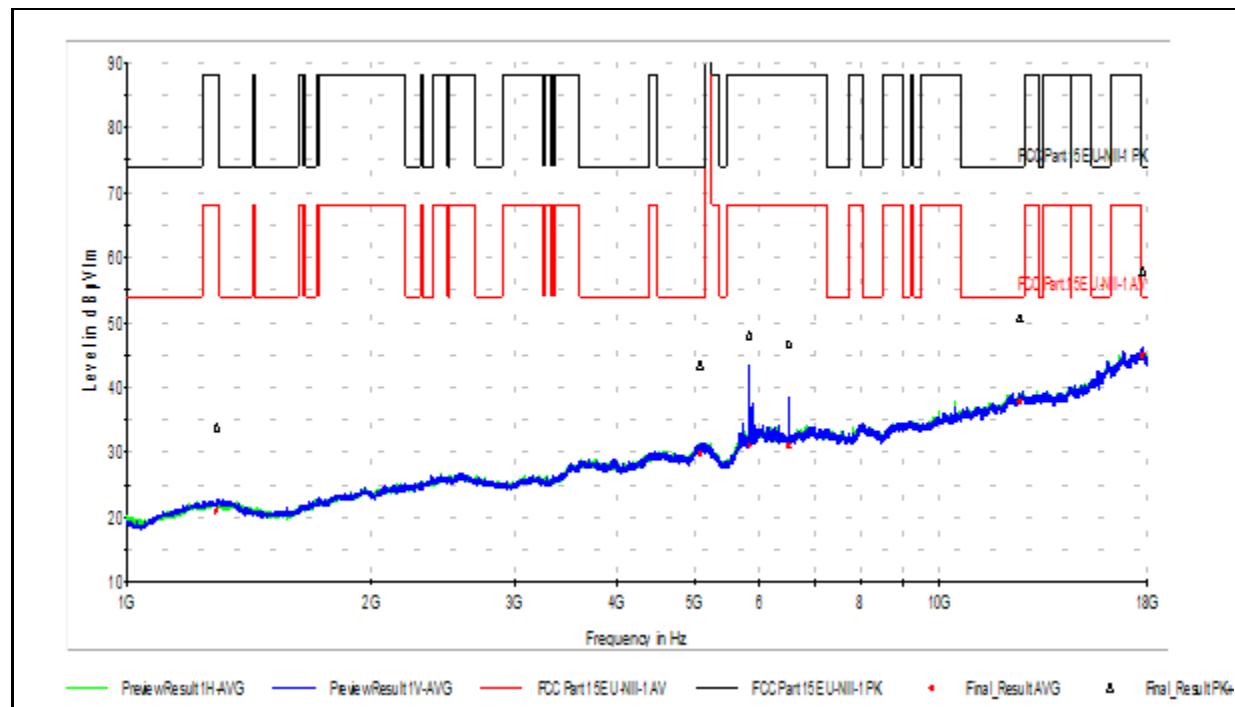
Test Date: 2/4/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.9 °C
 Relative Humidity: 35.9 %
 Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.28 Radiated Spurious Emissions (U-NII-1, 802.11n20, Mid Channel)**

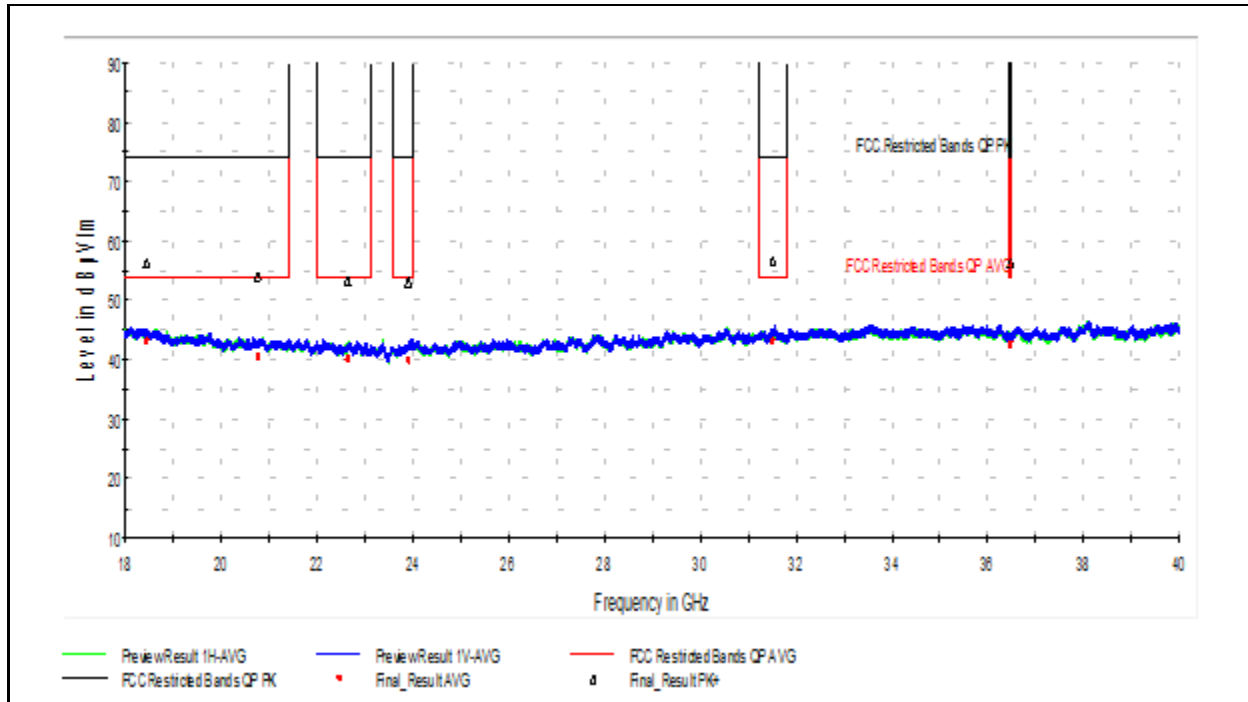
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
123.173889	19.68	43.52	23.84	120.000	189.8	V	46.0	22.4
166.716111	27.10	43.52	16.42	120.000	104.8	V	231.0	21.6
174.853333	31.97	-	-	120.000	177.9	H	175.0	20.7
245.447778	22.12	46.02	23.90	120.000	110.6	H	0.0	21.7
269.805556	28.53	46.02	17.49	120.000	105.5	H	295.0	23.5
988.845000	38.20	53.98	15.78	120.000	356.2	H	20.0	38.0

Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1292.000000	34.02	88.23	54.21	1000.000	109.0	V	120.0	-0.3
5071.000000	43.43	73.98	30.55	1000.000	100.0	H	247.0	8.5
5830.500000	48.15	88.23	40.08	1000.000	117.0	V	190.0	9.7
6523.000000	46.88	88.23	41.35	1000.000	264.0	V	110.0	10.9
12538.000000	50.73	73.98	23.25	1000.000	109.0	V	198.0	18.9
17733.000000	57.84	73.98	16.14	1000.000	109.0	V	280.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1292.000000	20.91	68.23	47.32	1000.000	109.0	V	120.0	-0.3
5071.000000	29.85	53.98	24.13	1000.000	100.0	H	247.0	8.5
5830.500000	30.78	68.23	37.45	1000.000	117.0	V	190.0	9.7
6523.000000	31.03	68.23	37.20	1000.000	264.0	V	110.0	10.9
12538.000000	37.90	53.98	16.08	1000.000	109.0	V	198.0	18.9
17733.000000	44.87	53.98	9.11	1000.000	109.0	V	280.0	26.1



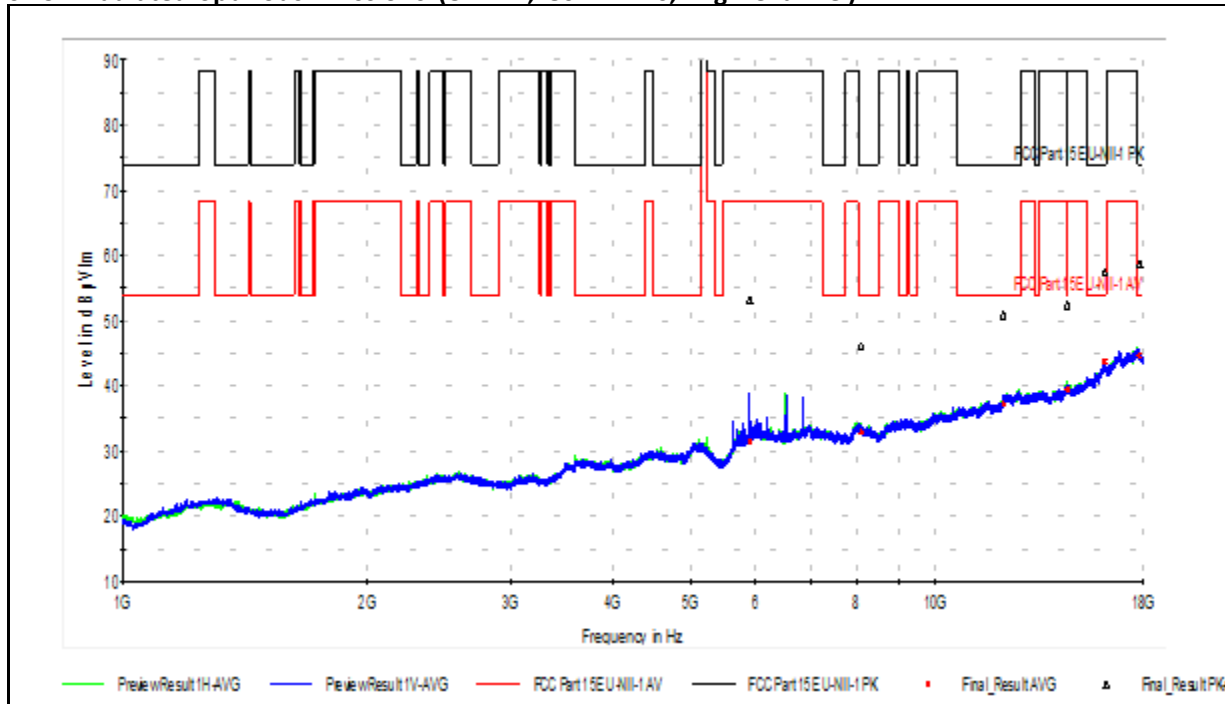
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18442.000000	56.35	73.98	17.63	1000.000	118.0	V	175.0	19.5
20751.500000	54.03	73.98	19.95	1000.000	100.0	H	281.0	11.7
22631.500000	53.22	73.98	20.76	1000.000	395.0	H	314.0	6.6
23897.500000	53.16	73.98	20.82	1000.000	100.0	H	110.0	5.9
31507.000000	56.55	73.98	17.43	1000.000	205.0	V	0.0	11.2
36478.000000	56.36	73.98	17.62	1000.000	109.0	H	12.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18442.000000	43.09	53.98	10.89	1000.000	118.0	V	175.0	19.5
20751.500000	40.60	53.98	13.38	1000.000	100.0	H	281.0	11.7
22631.500000	40.13	53.98	13.85	1000.000	395.0	H	314.0	6.6
23897.500000	39.99	53.98	13.99	1000.000	100.0	H	110.0	5.9
31507.000000	43.06	53.98	10.92	1000.000	205.0	V	0.0	11.2
36478.000000	42.53	53.98	11.45	1000.000	109.0	H	12.0	11.2

Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: N/A
(Where Applicable)
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/3/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7 °C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.29 Radiated Spurious Emissions (U-NII-1, 802.11n20, High Channel)**

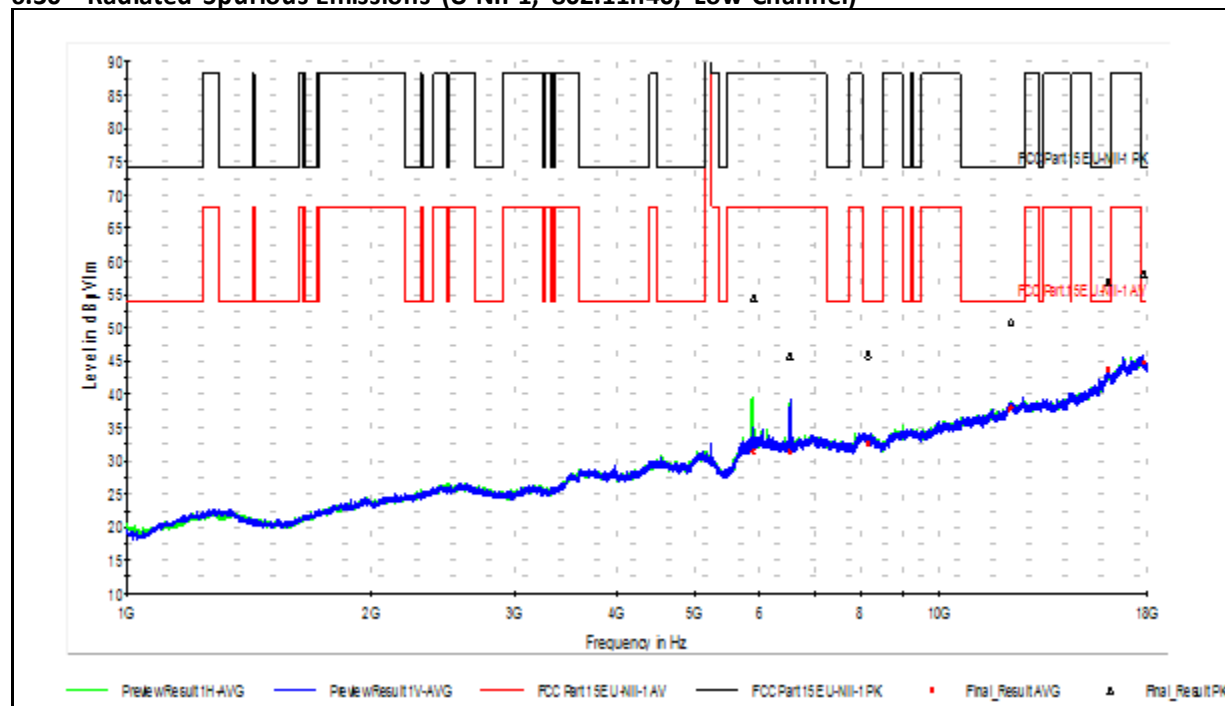
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5902.500000	53.22	88.23	35.01	1000.000	351.0	V	213.0	10.0
8093.500000	46.15	73.98	27.83	1000.000	176.0	H	242.0	12.4
12100.500000	50.87	73.98	23.11	1000.000	125.0	V	9.0	18.3
14514.000000	52.43	88.23	35.80	1000.000	100.0	H	0.0	20.0
16113.000000	57.49	73.98	16.49	1000.000	100.0	H	336.0	25.9
17822.500000	58.77	73.98	15.21	1000.000	410.0	V	0.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5902.500000	31.42	68.23	36.81	1000.000	351.0	V	213.0	10.0
8093.500000	32.85	53.98	21.13	1000.000	176.0	H	242.0	12.4
12100.500000	37.19	53.98	16.79	1000.000	125.0	V	9.0	18.3
14514.000000	39.30	68.23	28.93	1000.000	100.0	H	0.0	20.0
16113.000000	43.79	53.98	10.19	1000.000	100.0	H	336.0	25.9
17822.500000	44.68	53.98	9.30	1000.000	410.0	V	0.0	26.3

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.30 Radiated Spurious Emissions (U-NII-1, 802.11n40, Low Channel)**

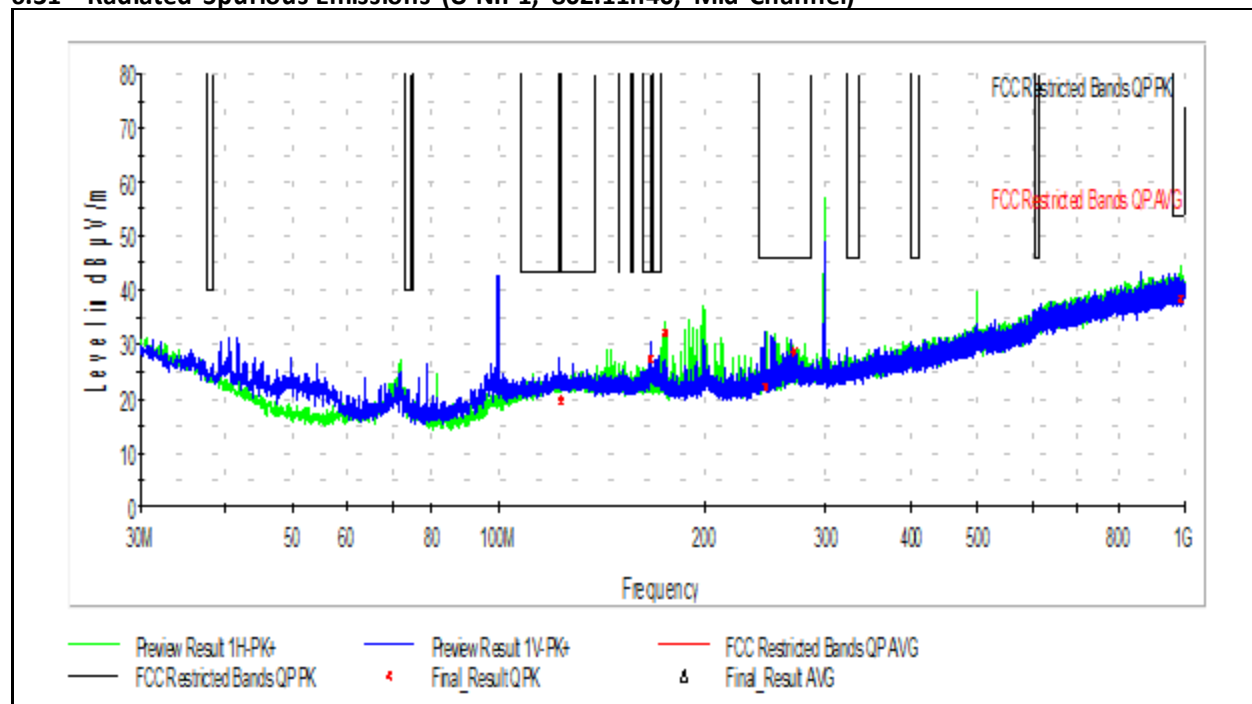
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5903.000000	54.54	88.23	33.69	1000.000	273.0	H	147.0	10.0
6542.000000	45.71	88.23	42.52	1000.000	389.0	H	213.0	10.8
8162.500000	45.93	73.98	28.05	1000.000	410.0	V	182.0	12.4
12226.000000	50.98	73.98	23.00	1000.000	100.0	H	234.0	18.5
16087.500000	56.75	73.98	17.23	1000.000	410.0	H	123.0	26.0
17820.500000	58.02	73.98	15.96	1000.000	296.0	V	277.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5903.000000	31.28	68.23	36.95	1000.000	273.0	H	147.0	10.0
6542.000000	31.15	68.23	37.08	1000.000	389.0	H	213.0	10.8
8162.500000	32.43	53.98	21.55	1000.000	410.0	V	182.0	12.4
12226.000000	37.74	53.98	16.24	1000.000	100.0	H	234.0	18.5
16087.500000	43.69	53.98	10.29	1000.000	410.0	H	123.0	26.0
17820.500000	44.72	53.98	9.26	1000.000	296.0	V	277.0	26.3

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9 °C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.31 Radiated Spurious Emissions (U-NII-1, 802.11n40, Mid Channel)**

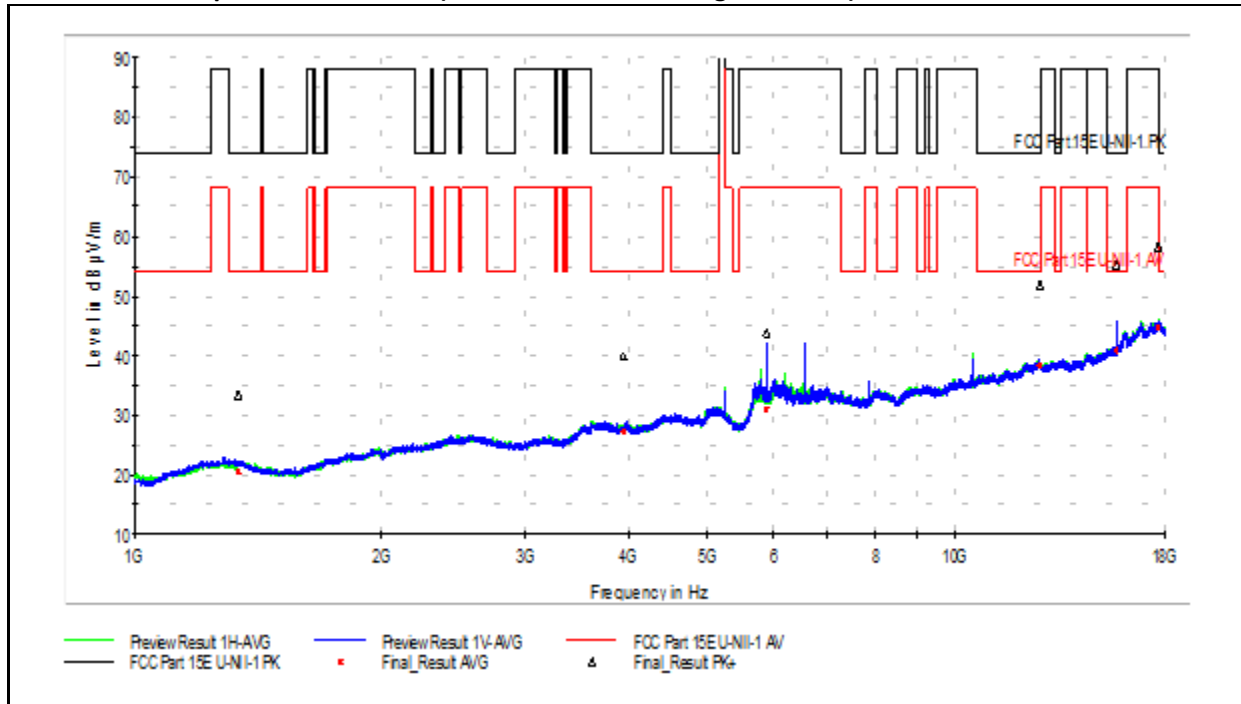
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
123.173889	19.68	43.52	23.84	120.000	189.8	V	46.0	22.4
166.716111	27.10	43.52	16.42	120.000	104.8	V	231.0	21.6
174.853333	31.97	-	-	120.000	177.9	H	175.0	20.7
245.447778	22.12	46.02	23.90	120.000	110.6	H	0.0	21.7
269.805556	28.53	46.02	17.49	120.000	105.5	H	295.0	23.5
988.845000	38.20	53.98	15.78	120.000	356.2	H	20.0	38.0

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Brandon Norris
 Supervising/Reviewing Engineer: _____
 (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient
 Signals or BB Source: Yes

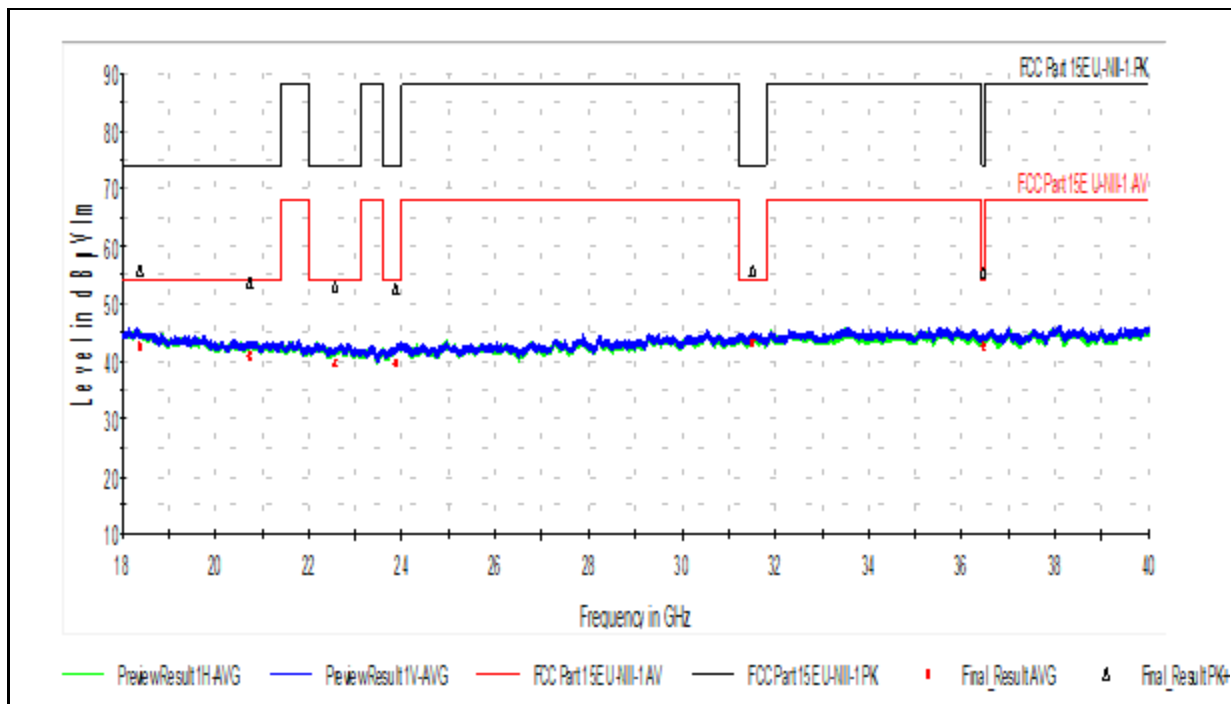
Test Date: 2/3/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.7°C
 Relative Humidity: 19.0 %
 Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.32 Radiated Spurious Emissions (U-NII-1, 802.11n40, High Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1339.500000	33.41	73.98	40.57	1000.000	410.0	H	249.0	-0.5
3936.500000	39.98	73.98	34.00	1000.000	253.0	H	321.0	7.0
5892.500000	44.02	88.23	44.21	1000.000	299.0	V	215.0	9.9
12676.500000	51.87	73.98	22.11	1000.000	410.0	H	258.0	19.2
15719.000000	55.40	73.98	18.58	1000.000	410.0	V	299.0	22.6
17679.000000	58.35	88.23	29.88	1000.000	410.0	H	336.0	25.9

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1339.500000	20.62	53.98	33.36	1000.000	410.0	H	249.0	-0.5
3936.500000	27.17	53.98	26.81	1000.000	253.0	H	321.0	7.0
5892.500000	30.90	68.23	37.33	1000.000	299.0	V	215.0	9.9
12676.500000	38.28	53.98	15.70	1000.000	410.0	H	258.0	19.2
15719.000000	40.82	53.98	13.16	1000.000	410.0	V	299.0	22.6
17679.000000	44.79	68.23	23.44	1000.000	410.0	H	336.0	25.9



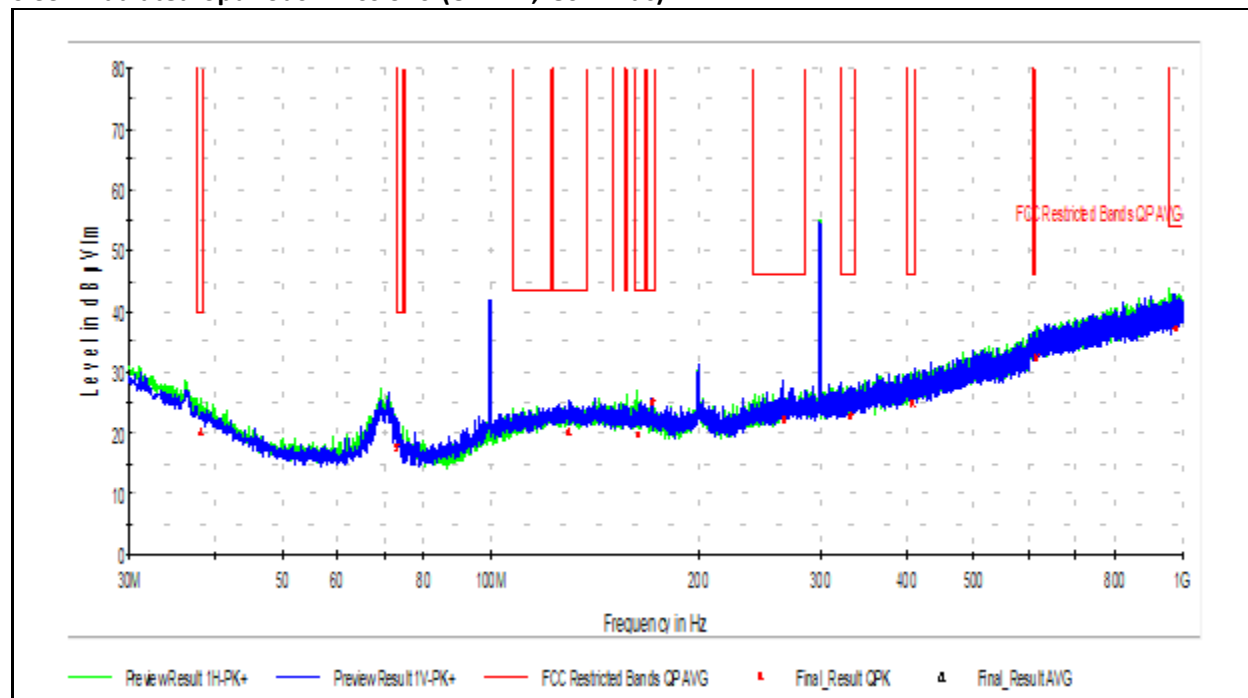
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18370.500000	55.98	73.98	18.00	1000.000	100.0	V	75.0	19.9
20726.500000	53.73	73.98	20.25	1000.000	100.0	H	46.0	11.7
22563.000000	52.99	73.98	20.99	1000.000	410.0	H	267.0	6.8
23850.000000	52.66	73.98	21.32	1000.000	217.0	H	208.0	6.1
31511.000000	55.88	73.98	18.10	1000.000	252.0	V	324.0	11.2
36459.500000	55.57	73.98	18.41	1000.000	110.0	H	110.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18370.500000	42.55	53.98	11.43	1000.000	100.0	V	75.0	19.9
20726.500000	40.83	53.98	13.15	1000.000	100.0	H	46.0	11.7
22563.000000	39.71	53.98	14.27	1000.000	410.0	H	267.0	6.8
23850.000000	39.54	53.98	14.44	1000.000	217.0	H	208.0	6.1
31511.000000	42.99	53.98	10.99	1000.000	252.0	V	324.0	11.2
36459.500000	42.42	53.98	11.56	1000.000	110.0	H	110.0	11.2

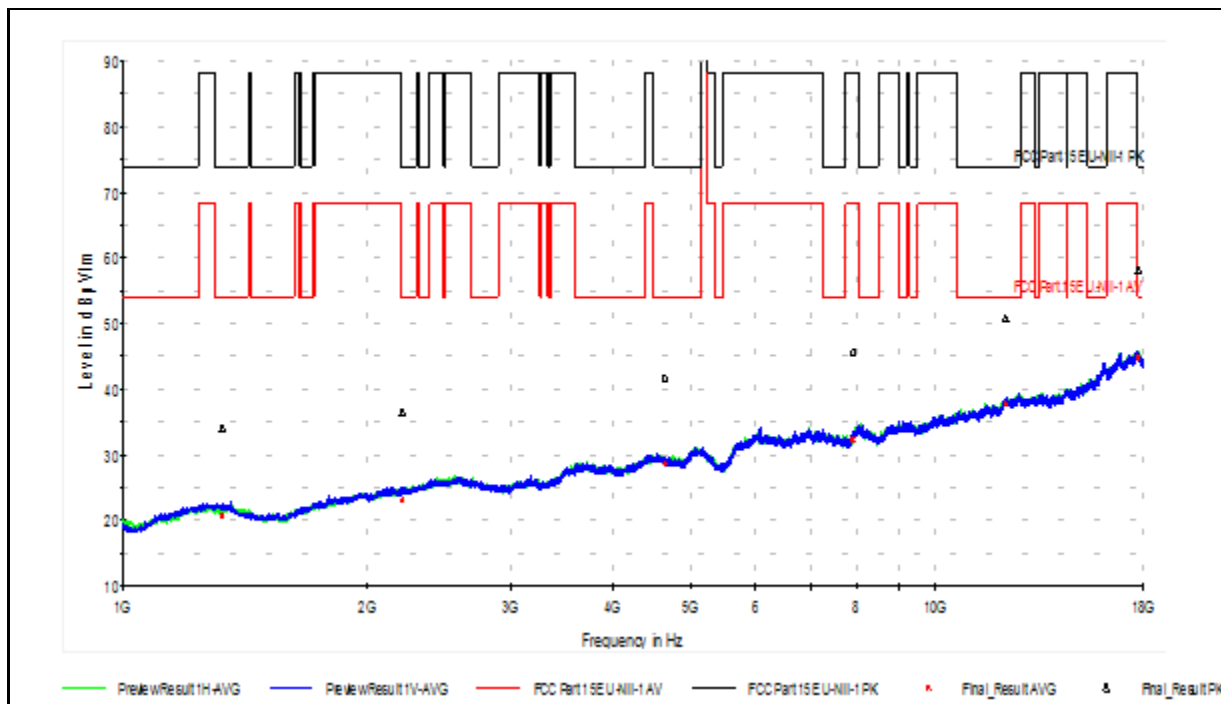
Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9 °C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

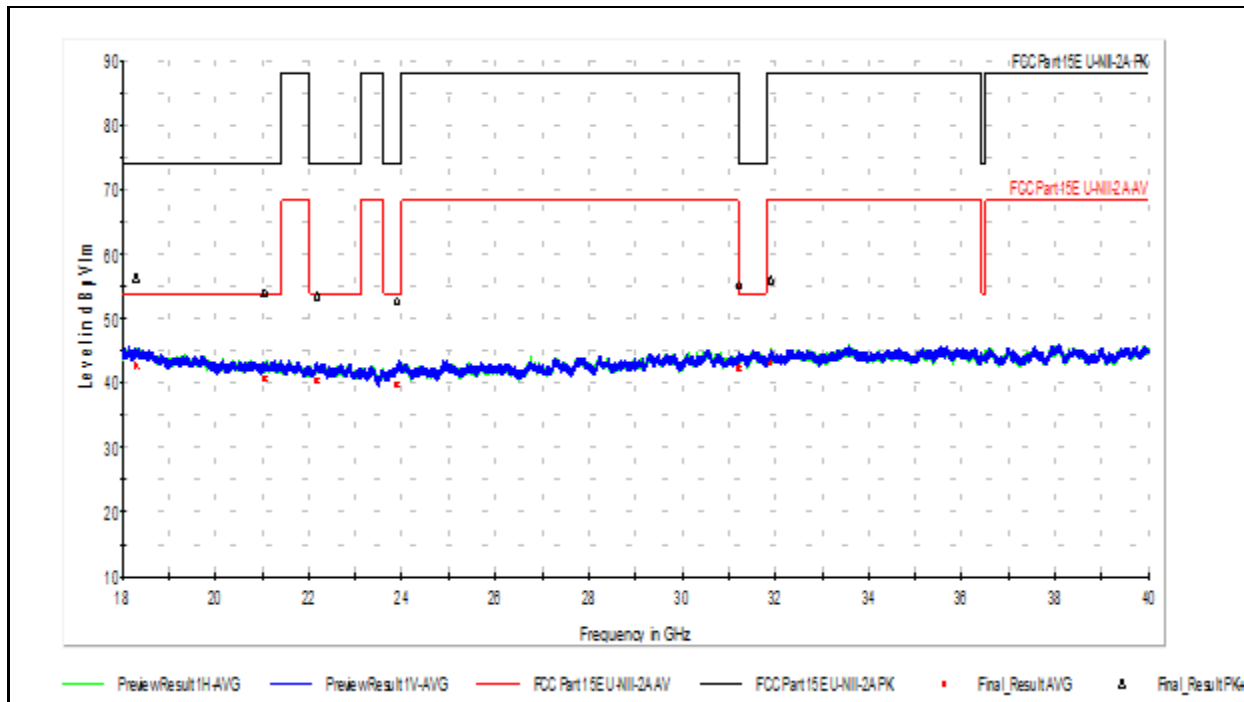
**6.33 Radiated Spurious Emissions (U-NII-1, 802.11ac)**

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.083333	20.26	40.00	19.74	120.000	100.0	H	64.0	22.9
73.057222	17.61	40.00	22.39	120.000	400.0	V	167.0	14.8
129.425000	20.25	43.52	23.27	120.000	400.0	V	138.0	22.4
163.105556	19.76	43.52	23.76	120.000	136.0	H	147.0	21.7
171.404445	25.00	43.52	18.52	120.000	388.0	V	52.0	21.4
265.225000	22.23	46.02	23.79	120.000	196.0	V	163.0	23.2
331.292778	22.66	46.02	23.36	120.000	220.0	V	182.0	24.5
406.952778	25.06	46.02	20.96	120.000	100.0	H	0.0	27.2
613.993889	32.37	46.02	13.65	120.000	148.0	H	239.0	32.3
979.037222	37.26	53.98	16.72	120.000	112.0	V	295.0	37.0



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1326.000000	34.08	73.98	39.90	1000.000	100.0	V	73.0	-0.2
2209.000000	36.50	73.98	37.48	1000.000	118.0	H	131.0	3.1
4643.500000	41.81	73.98	32.17	1000.000	410.0	V	103.0	8.2
7906.500000	45.78	88.23	42.45	1000.000	410.0	H	151.0	12.4
12185.500000	50.77	73.98	23.21	1000.000	276.0	H	97.0	18.5
17735.000000	58.27	73.98	15.71	1000.000	353.0	H	0.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1326.000000	20.82	53.98	33.16	1000.000	100.0	V	73.0	-0.2
2209.000000	23.10	53.98	30.88	1000.000	118.0	H	131.0	3.1
4643.500000	28.52	53.98	25.46	1000.000	410.0	V	103.0	8.2
7906.500000	32.32	68.23	35.91	1000.000	410.0	H	151.0	12.4
12185.500000	37.65	53.98	16.33	1000.000	276.0	H	97.0	18.5
17735.000000	44.82	53.98	9.16	1000.000	353.0	H	0.0	26.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18285.500000	56.31	73.98	17.67	1000.000	100.0	H	12.0	20.0
21045.500000	54.07	73.98	19.91	1000.000	100.0	H	278.0	10.7
22175.000000	53.65	73.98	20.33	1000.000	213.0	H	122.0	8.0
23879.500000	52.88	73.98	21.10	1000.000	410.0	V	338.0	6.0
31219.500000	55.40	73.98	18.58	1000.000	100.0	V	146.0	11.1
31899.500000	56.03	88.23	32.20	1000.000	232.0	H	234.0	11.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18285.500000	42.80	53.98	11.18	1000.000	100.0	H	12.0	20.0
21045.500000	40.68	53.98	13.30	1000.000	100.0	H	278.0	10.7
22175.000000	40.43	53.98	13.55	1000.000	213.0	H	122.0	8.0
23879.500000	39.75	53.98	14.23	1000.000	410.0	V	338.0	6.0
31219.500000	42.31	53.98	11.67	1000.000	100.0	V	146.0	11.1
31899.500000	43.01	68.23	25.22	1000.000	232.0	H	234.0	11.3

Test Personnel: Brandon Norris

Supervising/Reviewing Engineer: N/A

(Where Applicable)

Product Standard: FCC Part 15E

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/3/2020

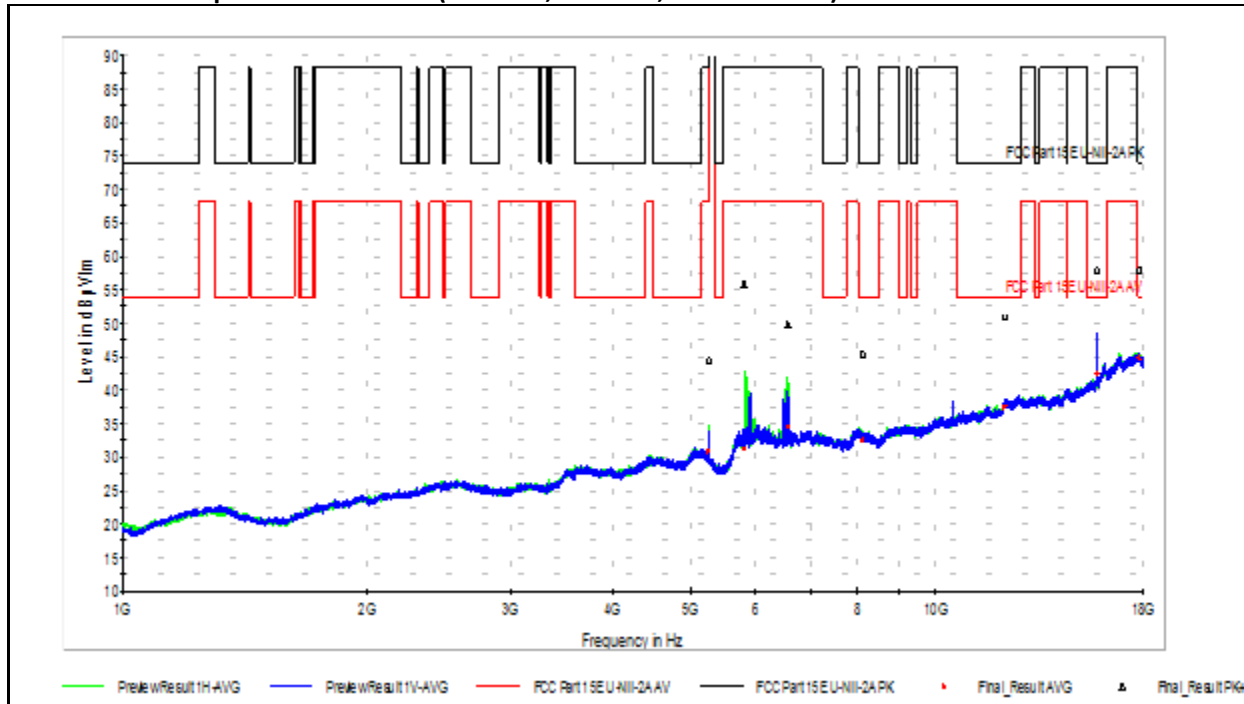
Limit Applied: See Table Above

Ambient Temperature: 22.7°C

Relative Humidity: 19.0 %

Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.34 Radiated Spurious Emissions (U-NII-2A, 802.11a, Low Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5260.500000	44.59	-	-	1000.000	221.0	H	203.0	9.0
5814.000000	55.81	88.23	32.42	1000.000	124.0	H	146.0	9.9
6582.500000	49.79	88.23	38.44	1000.000	367.0	H	208.0	10.9
8119.500000	45.54	73.98	28.44	1000.000	410.0	H	264.0	12.4
12144.500000	50.99	73.98	22.99	1000.000	100.0	H	198.0	18.4
15779.000000	58.10	73.98	15.88	1000.000	301.0	V	279.0	22.7
17793.000000	58.10	73.98	15.88	1000.000	410.0	V	0.0	26.3

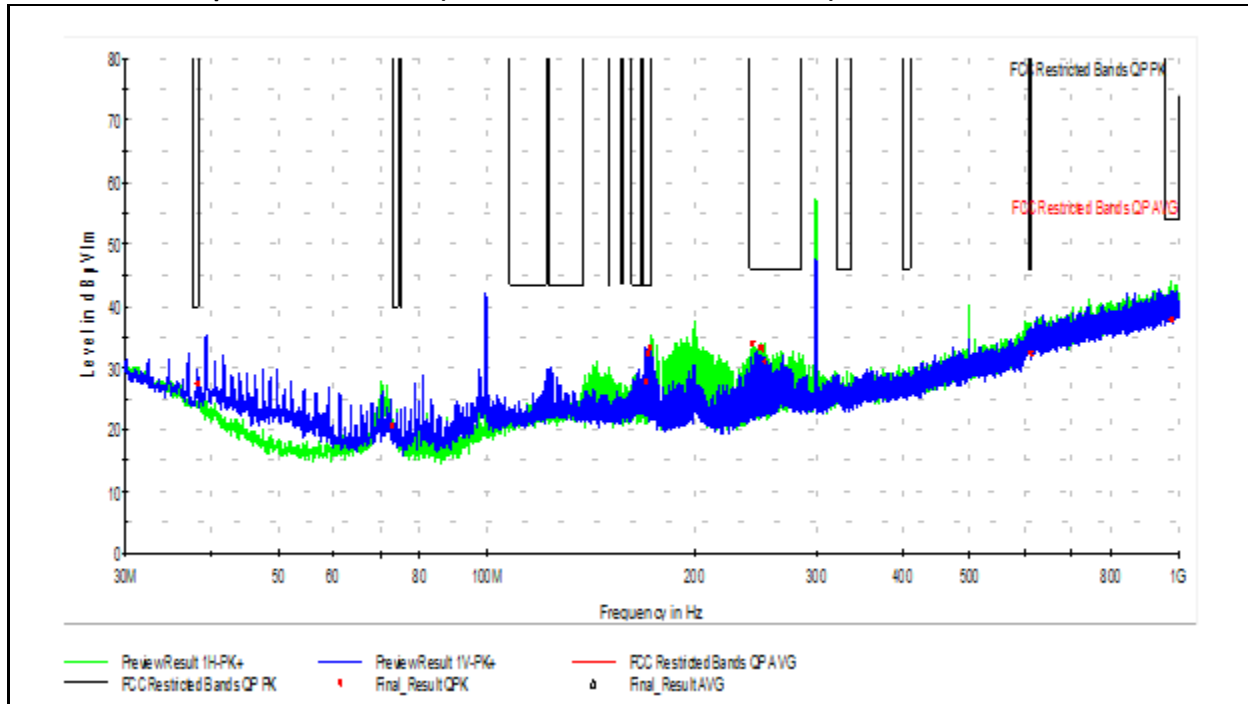
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5260.500000	30.82	-	-	1000.000	221.0	H	203.0	9.0
5814.000000	31.31	68.23	36.92	1000.000	124.0	H	146.0	9.9
6582.500000	34.59	68.23	33.64	1000.000	367.0	H	208.0	10.9
8119.500000	32.53	53.98	21.45	1000.000	410.0	H	264.0	12.4
12144.500000	37.47	53.98	16.51	1000.000	100.0	H	198.0	18.4
15779.000000	42.39	53.98	11.59	1000.000	301.0	V	279.0	22.7
17793.000000	44.84	53.98	9.14	1000.000	410.0	V	0.0	26.3

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

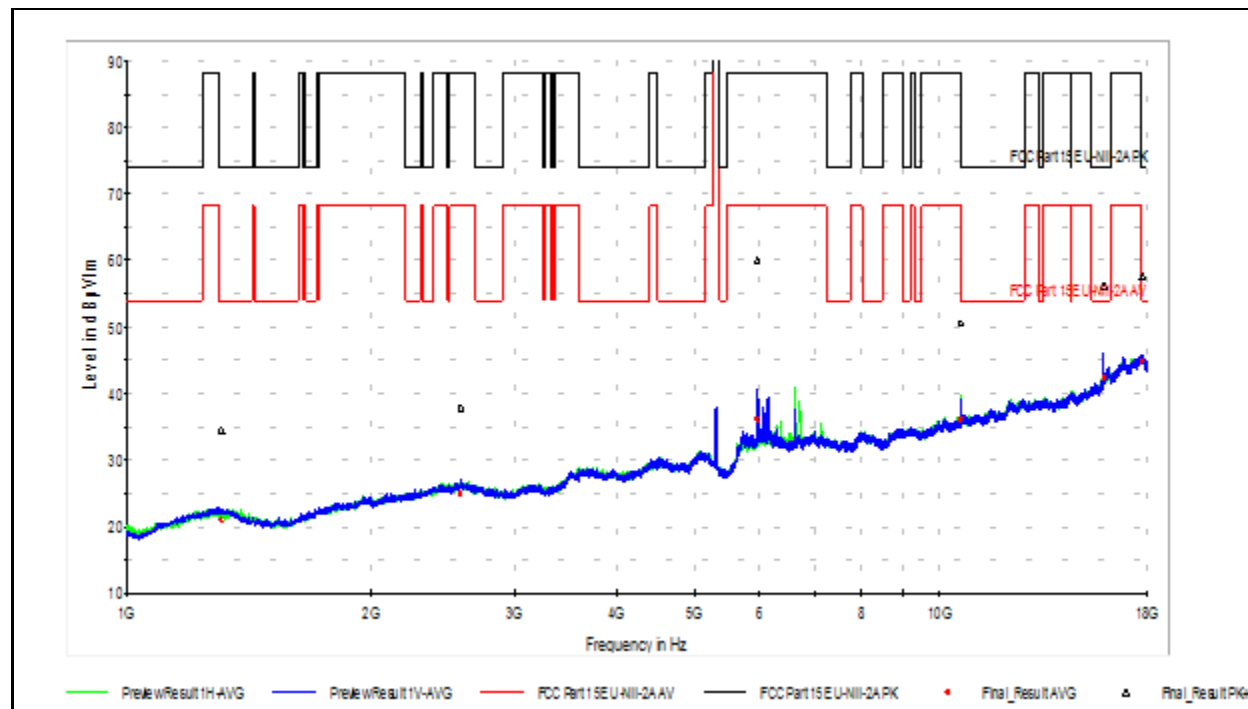
Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9 °C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.35 Radiated Spurious Emissions (U-NII-2A, 802.11a, Mid Channel)**

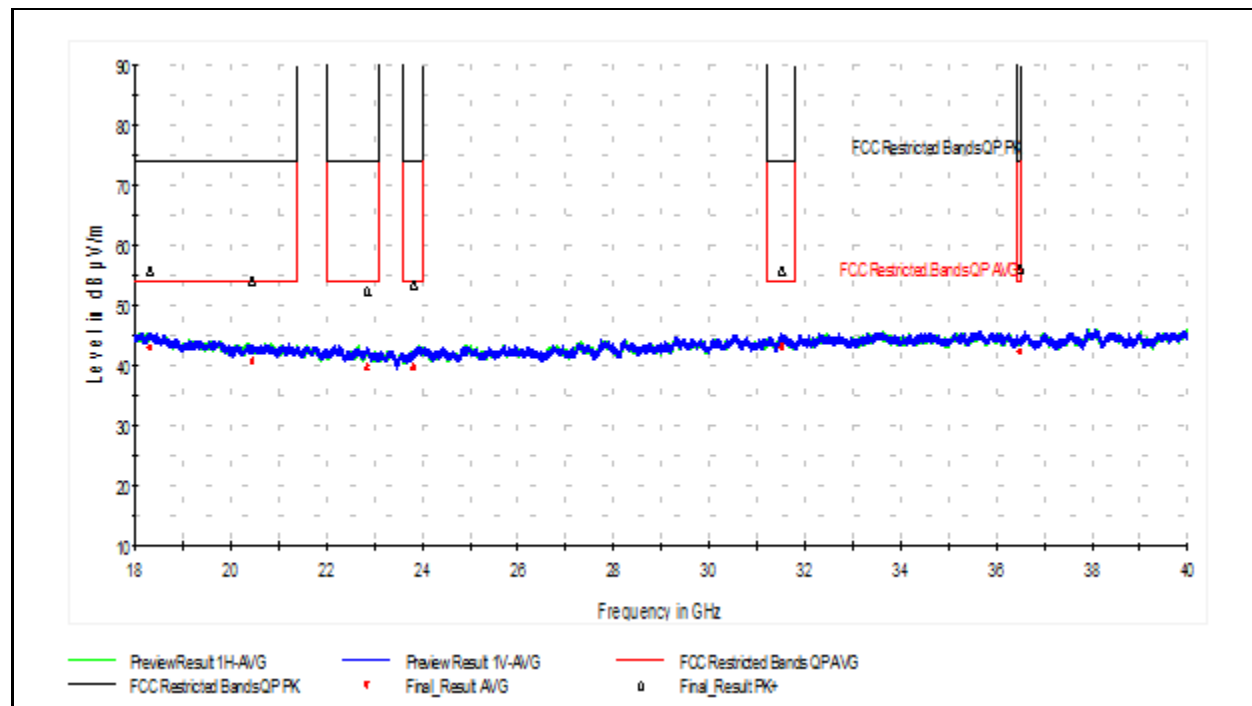
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.137222	27.55	40.00	12.45	120.000	100.1	V	91.0	22.0
72.895556	20.63	-	-	120.000	213.2	V	96.0	14.8
170.003333	27.90	43.52	15.62	120.000	154.4	V	246.0	21.6
171.081111	32.22	43.52	11.30	120.000	202.3	H	166.0	21.2
172.266667	33.27	43.52	10.25	120.000	177.7	H	164.0	21.0
242.807222	33.80	46.02	12.22	120.000	105.1	H	81.0	21.7
248.573333	33.39	46.02	12.63	120.000	100.1	H	82.0	21.7
249.705000	33.24	46.02	12.78	120.000	105.2	H	82.0	21.7
252.076111	30.78	46.02	15.24	120.000	105.1	H	65.0	21.8
613.778333	32.35	46.02	13.67	120.000	400.0	H	264.0	32.3
978.228889	37.79	53.98	16.19	120.000	400.1	H	241.0	37.7

Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1308.000000	34.52	73.98	39.46	1000.000	118.0	V	171.0	-0.2
2577.000000	37.94	88.23	50.29	1000.000	410.0	V	252.0	4.3
5960.000000	60.00	88.23	28.23	1000.000	397.0	V	8.0	10.1
10599.500000	50.60	88.23	37.63	1000.000	368.0	H	316.0	16.2
15901.000000	56.30	73.98	17.68	1000.000	410.0	H	0.0	23.4
17728.500000	57.78	73.98	16.20	1000.000	100.0	H	137.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1308.000000	20.91	53.98	33.07	1000.000	118.0	V	171.0	-0.2
2577.000000	24.78	68.23	43.45	1000.000	410.0	V	252.0	4.3
5960.000000	36.10	68.23	32.13	1000.000	397.0	V	8.0	10.1
10599.500000	36.06	68.23	32.17	1000.000	368.0	H	316.0	16.2
15901.000000	42.24	53.98	11.74	1000.000	410.0	H	0.0	23.4
17728.500000	44.88	53.98	9.10	1000.000	100.0	H	137.0	26.1



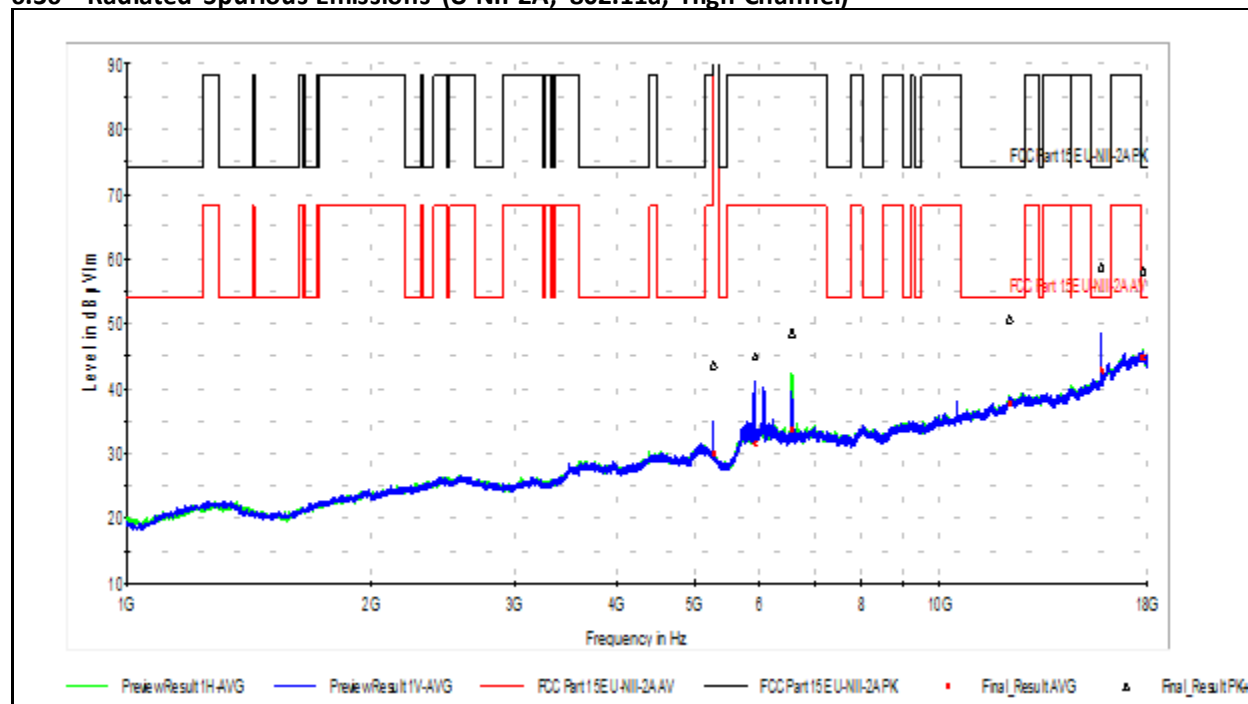
Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18321.000000	55.75	73.98	18.23	1000.000	100.0	H	93.0	19.9
20455.000000	54.04	73.98	19.94	1000.000	100.0	V	148.0	12.5
22857.000000	52.48	73.98	21.50	1000.000	100.0	V	200.0	6.4
23813.000000	53.55	73.98	20.43	1000.000	240.0	V	147.0	6.4
31507.000000	55.80	73.98	18.18	1000.000	410.0	V	182.0	11.2
36492.500000	56.03	73.98	17.95	1000.000	100.0	V	60.0	11.1

Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18321.000000	42.89	53.98	11.09	1000.000	100.0	H	93.0	19.9
20455.000000	40.80	53.98	13.18	1000.000	100.0	V	148.0	12.5
22857.000000	39.64	53.98	14.34	1000.000	100.0	V	200.0	6.4
23813.000000	39.64	53.98	14.34	1000.000	240.0	V	147.0	6.4
31507.000000	43.06	53.98	10.92	1000.000	410.0	V	182.0	11.2
36492.500000	42.40	53.98	11.58	1000.000	100.0	V	60.0	11.1

Test Personnel: Brandon Norris
Supervising/Reviewing Engineer: N/A
(Where Applicable)
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/3/2020
Limit Applied: See Table Above
Ambient Temperature: 22.7°C
Relative Humidity: 19.0 %
Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.36 Radiated Spurious Emissions (U-NII-2A, 802.11a, High Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5267.500000	43.80	-	-	1000.000	382.0	V	201.0	8.9
5925.000000	44.98	88.23	43.25	1000.000	291.0	V	212.0	10.1
6583.000000	48.61	88.23	39.62	1000.000	366.0	H	212.0	10.9
12181.500000	50.72	73.98	23.26	1000.000	100.0	V	222.0	18.5
15789.000000	58.80	73.98	15.18	1000.000	278.0	V	282.0	22.8
17783.500000	58.11	73.98	15.87	1000.000	198.0	H	226.0	26.3

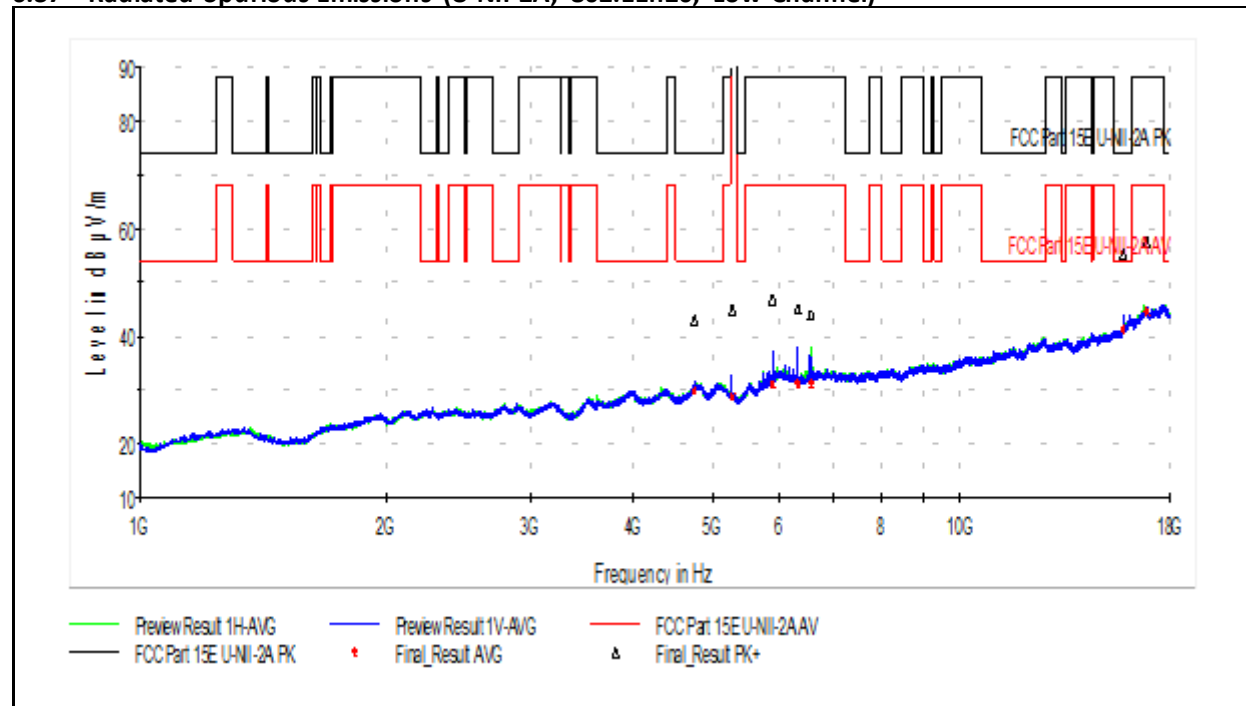
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5267.500000	29.96	-	-	1000.000	382.0	V	201.0	8.9
5925.000000	31.56	68.23	36.67	1000.000	291.0	V	212.0	10.1
6583.000000	33.72	68.23	34.51	1000.000	366.0	H	212.0	10.9
12181.500000	37.67	53.98	16.31	1000.000	100.0	V	222.0	18.5
15789.000000	42.72	53.98	11.26	1000.000	278.0	V	282.0	22.8
17783.500000	44.84	53.98	9.14	1000.000	198.0	H	226.0	26.3

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: _____
Supervising/Reviewing Engineer: _____
(Where Applicable) _____
Product Standard: FCC Part 15E _____
Input Voltage: _____
Pretest Verification w / Ambient _____
Signals or BB Source: Yes _____

Test Date: _____
Limit Applied: See Table Above _____
Ambient Temperature: XX °C _____
Relative Humidity: XX % _____
Atmospheric Pressure: XXX.x mbar _____

Deviations, Additions, or Exclusions: None

**6.37 Radiated Spurious Emissions (U-NII-2A, 802.11n20, Low Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4747.500000	42.87	73.98	31.11	1000.000	410.0	H	37.0	8.1
5267.500000	44.69	-	-	1000.000	356.0	V	0.0	8.9
5910.000000	46.95	88.23	41.28	1000.000	328.0	V	261.0	10.0
6333.500000	45.07	88.23	43.16	1000.000	410.0	V	0.0	10.6
6573.500000	43.98	88.23	44.25	1000.000	410.0	H	307.0	10.9
15783.000000	55.18	73.98	18.80	1000.000	291.0	H	330.0	22.8
16852.500000	57.64	88.23	30.59	1000.000	334.0	H	295.0	26.1

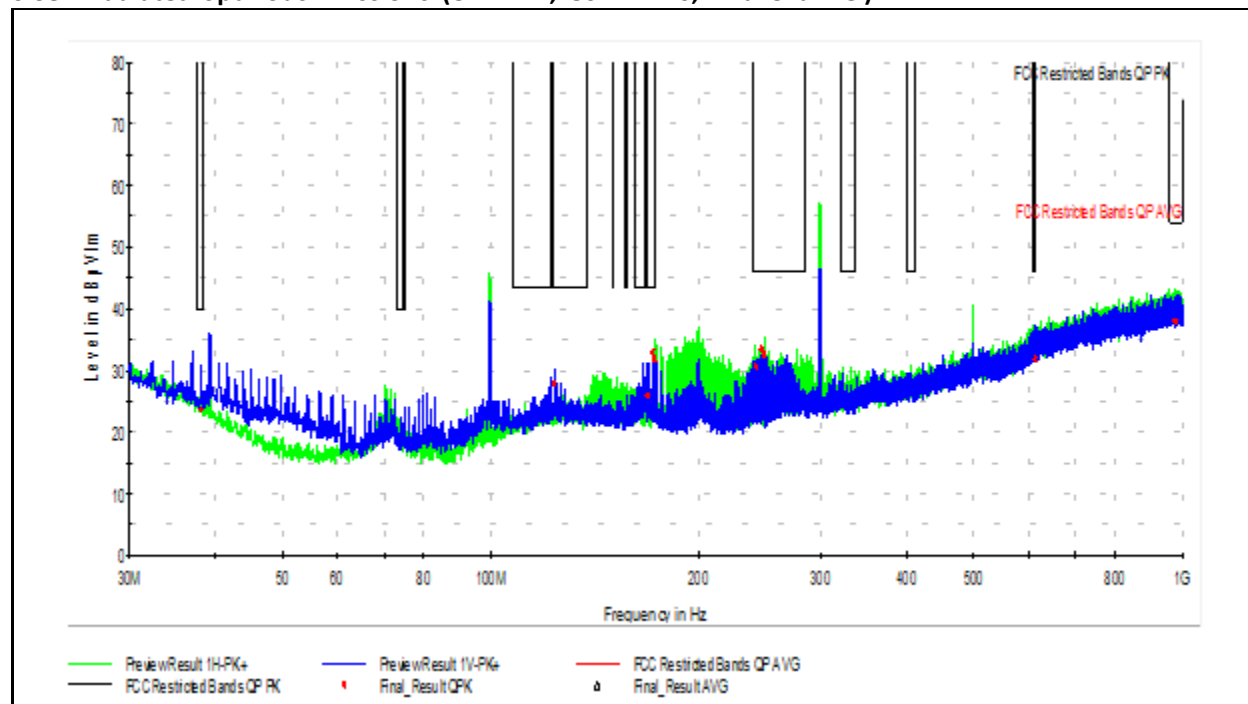
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4747.500000	29.63	53.98	24.35	1000.000	410.0	H	37.0	8.1
5267.500000	28.68	-	-	1000.000	356.0	V	0.0	8.9
5910.000000	31.14	68.23	37.09	1000.000	328.0	V	261.0	10.0
6333.500000	30.95	68.23	37.28	1000.000	410.0	V	0.0	10.6
6573.500000	31.00	68.23	37.23	1000.000	410.0	H	307.0	10.9
15783.000000	41.29	53.98	12.69	1000.000	291.0	H	330.0	22.8
16852.500000	44.61	68.23	23.62	1000.000	334.0	H	295.0	26.1

Note: emissions that do not fall in a restricted band are noted with a "-".

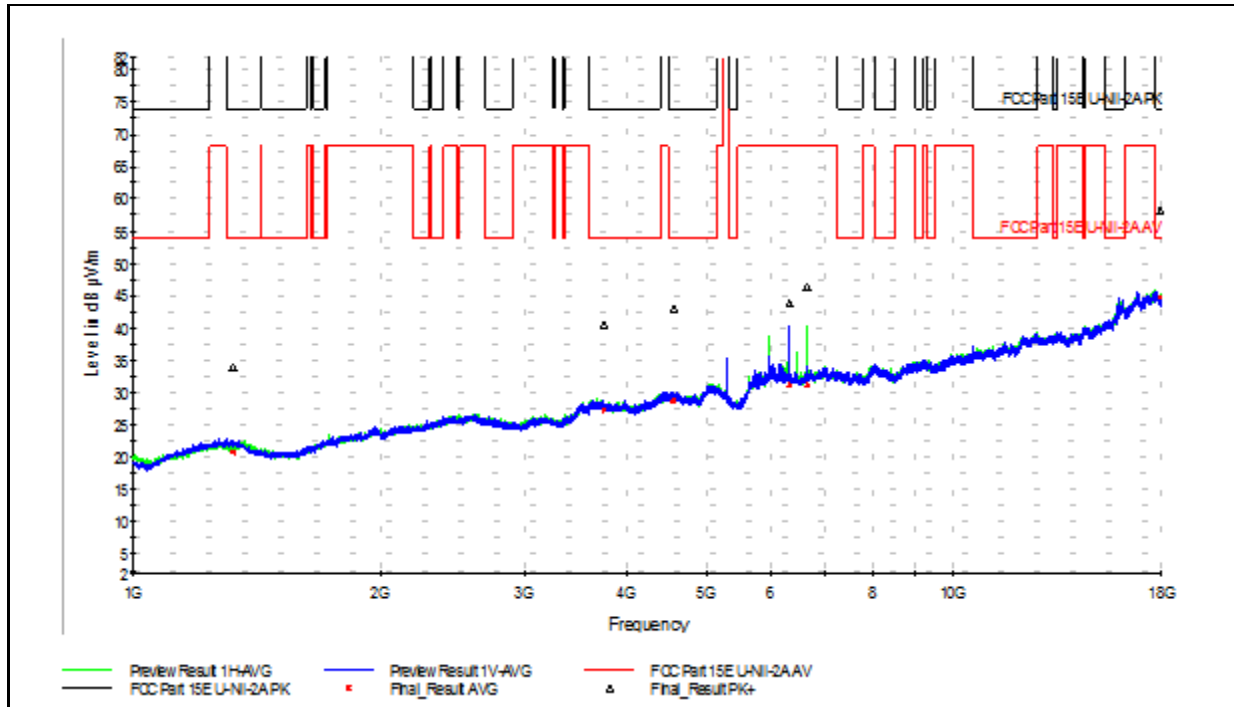
Test Personnel: Michael Carlson
 Supervising/Reviewing Engineer: (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.9°C
 Relative Humidity: 35.9 %
 Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

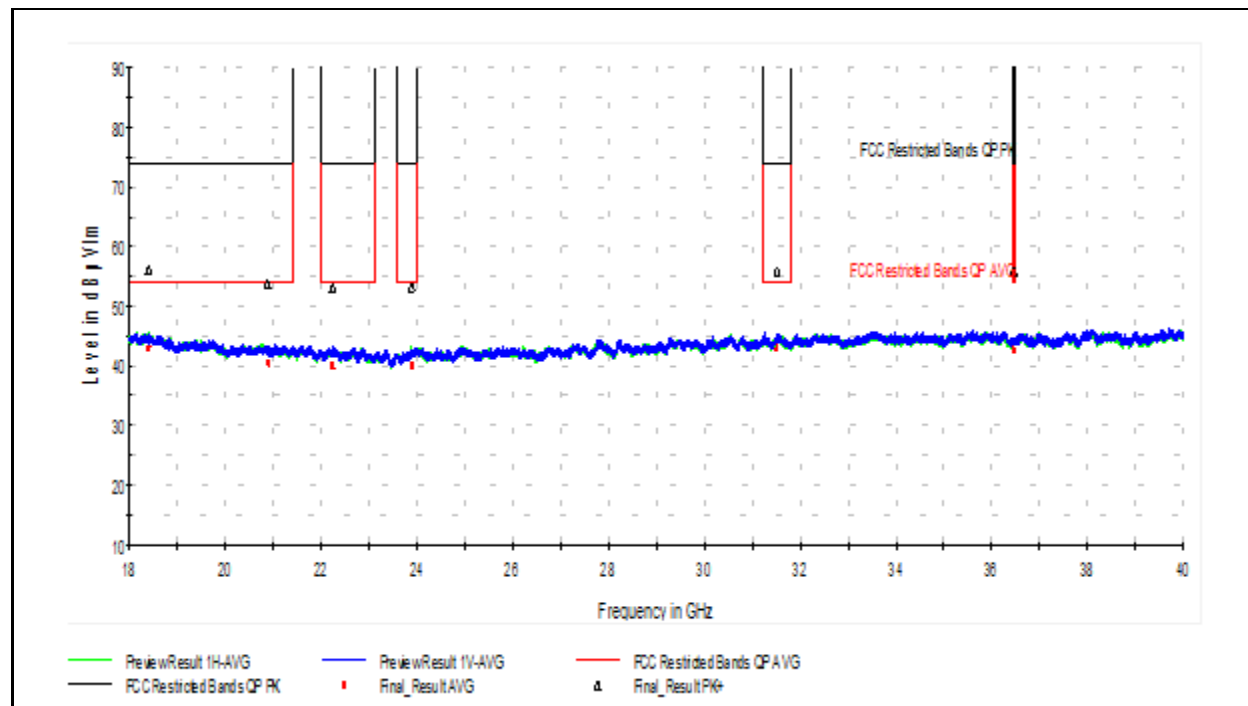
**6.38 Radiated Spurious Emissions (U-NII-2A, 802.11n20, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.083333	23.56	40.00	16.44	120.000	100.2	V	52.0	22.0
123.658889	27.74	43.52	15.78	120.000	100.2	V	91.0	22.4
168.710000	25.93	43.52	17.59	120.000	105.1	V	240.0	21.6
171.081111	32.92	43.52	10.60	120.000	202.6	H	172.0	21.2
172.212778	31.84	43.52	11.68	120.000	165.7	H	7.0	21.0
241.567778	30.63	46.02	15.39	120.000	130.0	H	73.0	21.7
246.256111	33.54	46.02	12.48	120.000	100.3	H	103.0	21.7
247.387778	33.23	46.02	12.79	120.000	100.4	H	92.0	21.7
248.573333	32.65	46.02	13.37	120.000	100.2	H	94.0	21.7
613.293333	31.84	46.02	14.18	120.000	190.1	V	129.0	31.8
978.821667	37.97	53.98	16.01	120.000	142.0	H	100.0	37.7



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1322.500000	33.99	73.98	39.99	1000.000	118.0	V	245.0	-0.2
3753.000000	40.41	73.98	33.57	1000.000	292.0	V	54.0	6.6
4562.500000	42.98	73.98	31.00	1000.000	100.0	H	236.0	8.1
6323.500000	43.91	88.23	44.32	1000.000	410.0	V	318.0	10.6
6633.500000	46.47	88.23	41.76	1000.000	410.0	H	348.0	11.0
17902.500000	58.21	73.98	15.77	1000.000	410.0	H	284.0	26.4

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1322.500000	20.77	53.98	33.21	1000.000	118.0	V	245.0	-0.2
3753.000000	27.30	53.98	26.68	1000.000	292.0	V	54.0	6.6
4562.500000	28.77	53.98	25.21	1000.000	100.0	H	236.0	8.1
6323.500000	31.11	68.23	37.12	1000.000	410.0	V	318.0	10.6
6633.500000	31.08	68.23	37.15	1000.000	410.0	H	348.0	11.0
17902.500000	44.71	53.98	9.27	1000.000	410.0	H	284.0	26.4



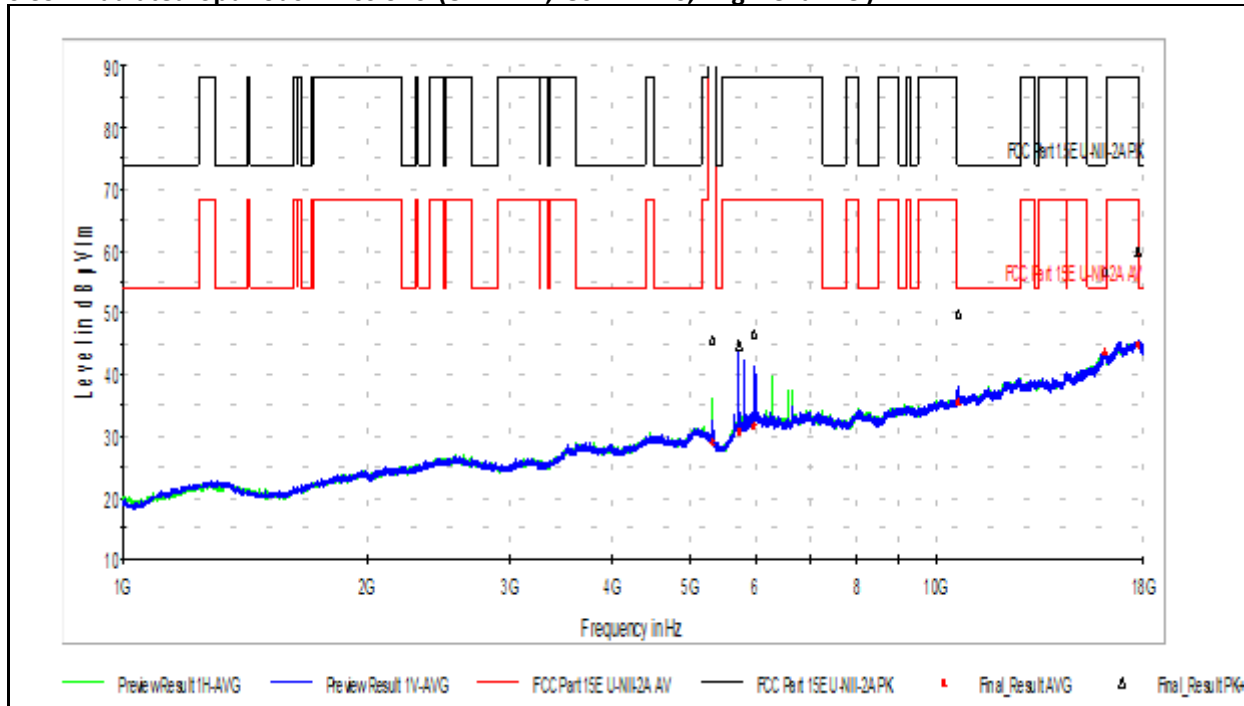
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18394.500000	56.16	73.98	17.82	1000.000	100.0	H	94.0	19.9
20874.000000	53.70	73.98	20.28	1000.000	100.0	V	249.0	11.3
22242.500000	53.10	73.98	20.88	1000.000	100.0	V	187.0	8.0
23889.500000	53.30	73.98	20.68	1000.000	100.0	H	71.0	5.9
31516.000000	55.96	73.98	18.02	1000.000	178.0	V	252.0	11.2
36462.000000	55.94	73.98	18.04	1000.000	100.0	V	24.0	11.2

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18394.500000	42.97	53.98	11.01	1000.000	100.0	H	94.0	19.9
20874.000000	40.53	53.98	13.45	1000.000	100.0	V	249.0	11.3
22242.500000	39.98	53.98	14.00	1000.000	100.0	V	187.0	8.0
23889.500000	40.03	53.98	13.95	1000.000	100.0	H	71.0	5.9
31516.000000	43.02	53.98	10.96	1000.000	178.0	V	252.0	11.2
36462.000000	42.76	53.98	11.22	1000.000	100.0	V	24.0	11.2

Test Personnel: Brandon Norris
 Supervising/Reviewing Engineer: N/A
 (Where Applicable)
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/3/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.7°C
 Relative Humidity: 19.0 %
 Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

**6.39 Radiated Spurious Emissions (U-NII-2A, 802.11n20, High Channel)**

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5317.000000	45.52	-	-	1000.000	124.0	H	144.0	9.0
5731.000000	44.75	88.23	43.48	1000.000	410.0	V	200.0	9.6
5978.000000	46.67	88.23	41.56	1000.000	410.0	V	220.0	10.3
10645.000000	49.83	73.98	24.15	1000.000	410.0	V	0.0	16.5
16117.000000	56.74	73.98	17.24	1000.000	392.0	V	72.0	25.8
17692.500000	59.91	88.23	28.32	1000.000	312.0	V	335.0	25.9

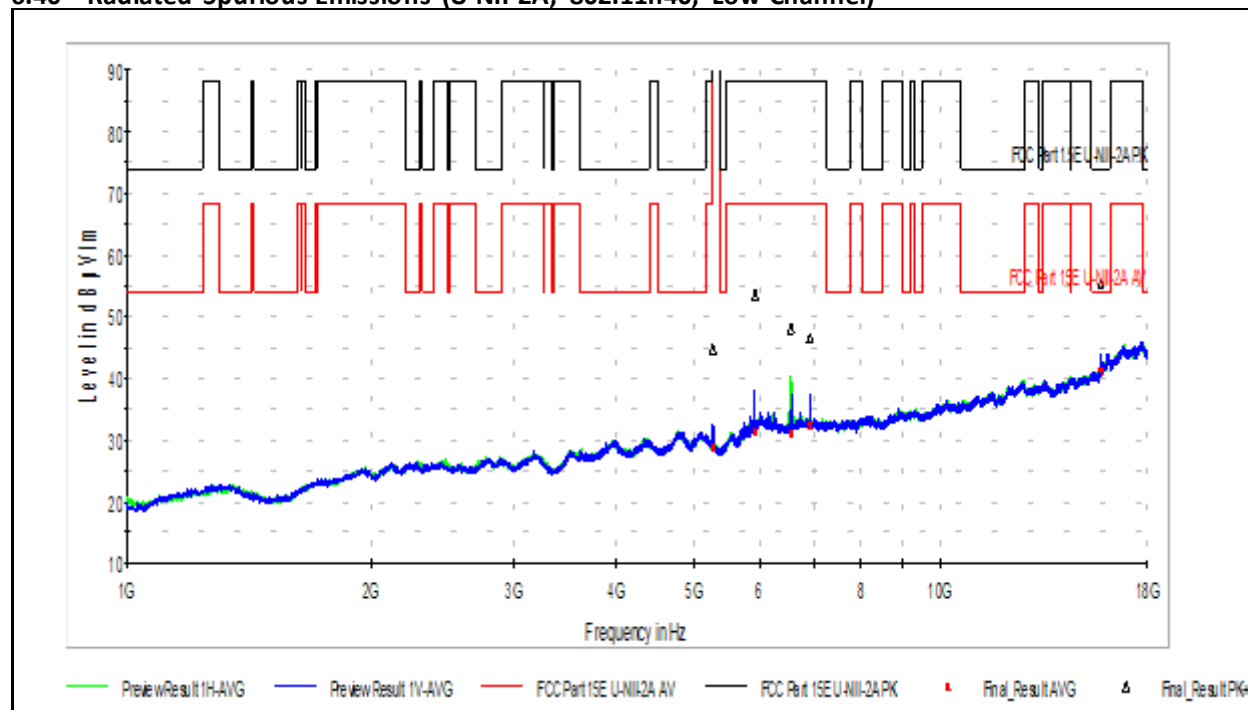
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5317.000000	28.96	-	-	1000.000	124.0	H	144.0	9.0
5731.000000	30.55	68.23	37.68	1000.000	410.0	V	200.0	9.6
5978.000000	31.40	68.23	36.83	1000.000	410.0	V	220.0	10.3
10645.000000	35.57	53.98	18.41	1000.000	410.0	V	0.0	16.5
16117.000000	43.77	53.98	10.21	1000.000	392.0	V	72.0	25.8
17692.500000	44.71	68.23	23.52	1000.000	312.0	V	335.0	25.9

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient
Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.40 Radiated Spurious Emissions (U-NII-2A, 802.11n40, Low Channel)**

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5263.000000	44.71	-	-	1000.000	395.0	V	9.0	8.9
5925.500000	53.57	88.23	34.66	1000.000	320.0	V	12.0	10.1
6567.000000	48.07	88.23	40.16	1000.000	410.0	H	330.0	10.8
6917.000000	46.60	88.23	41.63	1000.000	410.0	V	9.0	11.5
15771.500000	55.47	73.98	18.51	1000.000	274.0	V	292.0	22.7

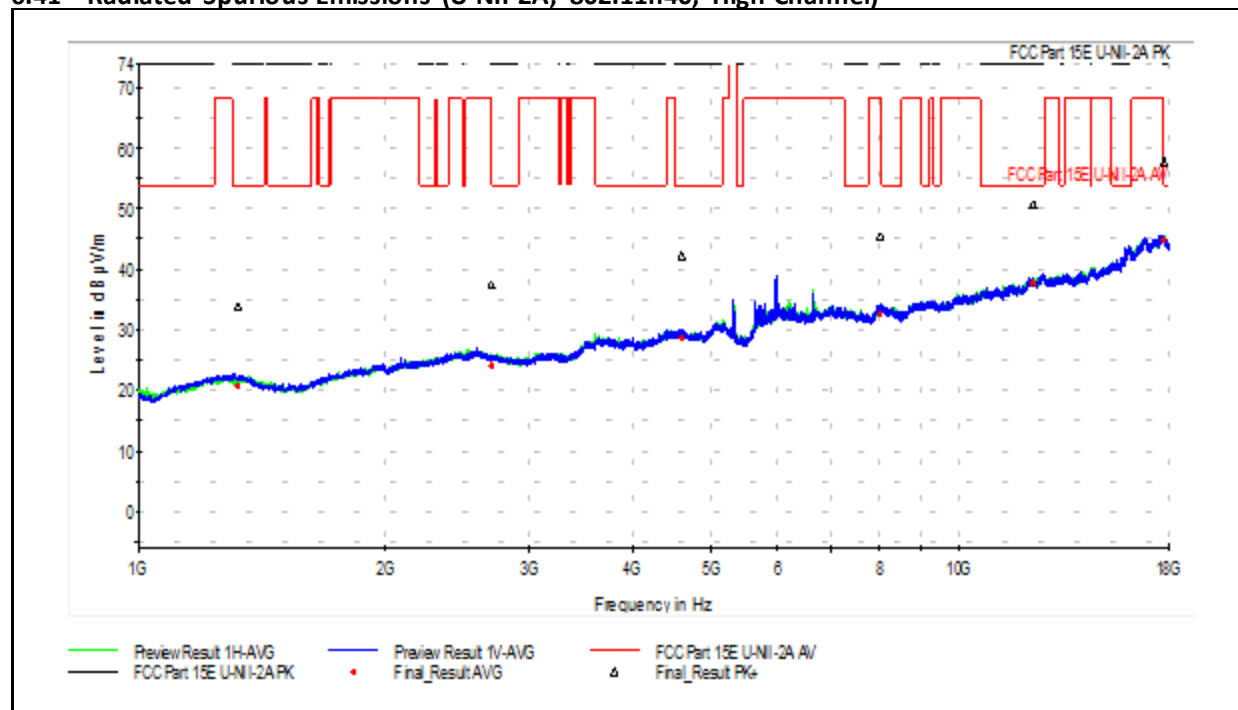
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5263.000000	28.66	-	-	1000.000	395.0	V	9.0	8.9
5925.500000	31.29	68.23	36.94	1000.000	320.0	V	12.0	10.1
6567.000000	31.01	68.23	37.22	1000.000	410.0	H	330.0	10.8
6917.000000	32.22	68.23	36.01	1000.000	410.0	V	9.0	11.5
15771.500000	41.25	53.98	12.73	1000.000	274.0	V	292.0	22.7

Note: emissions that do not fall in a restricted band are noted with a "-".

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

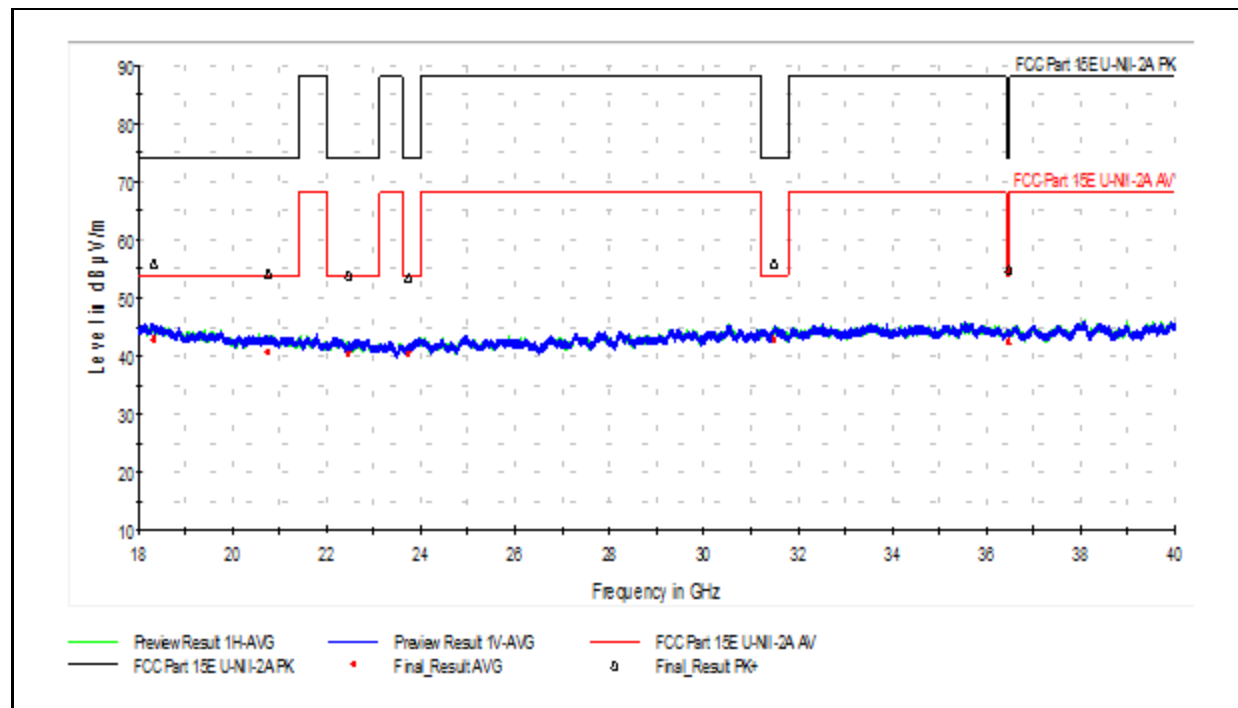
Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9 °C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.41 Radiated Spurious Emissions (U-NII-2A, 802.11n40, High Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1324.500000	33.92	73.98	40.06	1000.000	116.0	V	274.0	-0.2
2689.000000	37.44	88.23	50.79	1000.000	151.0	H	59.0	4.4
4592.500000	42.35	73.98	31.63	1000.000	410.0	V	149.0	8.1
8019.000000	45.63	88.23	42.60	1000.000	410.0	H	330.0	12.4
12295.500000	50.93	73.98	23.05	1000.000	410.0	H	345.0	18.5
17730.000000	57.89	73.98	16.09	1000.000	410.0	H	329.0	26.1

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1324.500000	20.73	53.98	33.25	1000.000	116.0	V	274.0	-0.2
2689.000000	24.22	68.23	44.01	1000.000	151.0	H	59.0	4.4
4592.500000	28.73	53.98	25.25	1000.000	410.0	V	149.0	8.1
8019.000000	32.71	68.23	35.52	1000.000	410.0	H	330.0	12.4
12295.500000	37.72	53.98	16.26	1000.000	410.0	H	345.0	18.5
17730.000000	44.83	53.98	9.15	1000.000	410.0	H	329.0	26.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18317.500000	56.14	73.98	17.84	1000.000	109.0	H	173.0	19.9
20750.500000	54.22	73.98	19.76	1000.000	100.0	H	18.0	11.7
22463.000000	54.01	73.98	19.97	1000.000	265.0	V	56.0	7.3
23723.000000	53.54	73.98	20.44	1000.000	109.0	V	166.0	5.9
31494.500000	56.07	73.98	17.91	1000.000	100.0	H	226.0	11.2
36475.000000	55.09	73.98	18.89	1000.000	109.0	V	288.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18317.500000	42.93	53.98	11.05	1000.000	109.0	H	173.0	19.9
20750.500000	40.70	53.98	13.28	1000.000	100.0	H	18.0	11.7
22463.000000	40.39	53.98	13.59	1000.000	265.0	V	56.0	7.3
23723.000000	40.25	53.98	13.73	1000.000	109.0	V	166.0	5.9
31494.500000	42.86	53.98	11.12	1000.000	100.0	H	226.0	11.2
36475.000000	42.44	53.98	11.54	1000.000	109.0	V	288.0	11.2

Test Personnel: Brandon Norris

Supervising/Reviewing Engineer: N/A

(Where Applicable)

Product Standard: FCC Part 15E

Input Voltage: 120VAC / 60Hz

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/3/2020

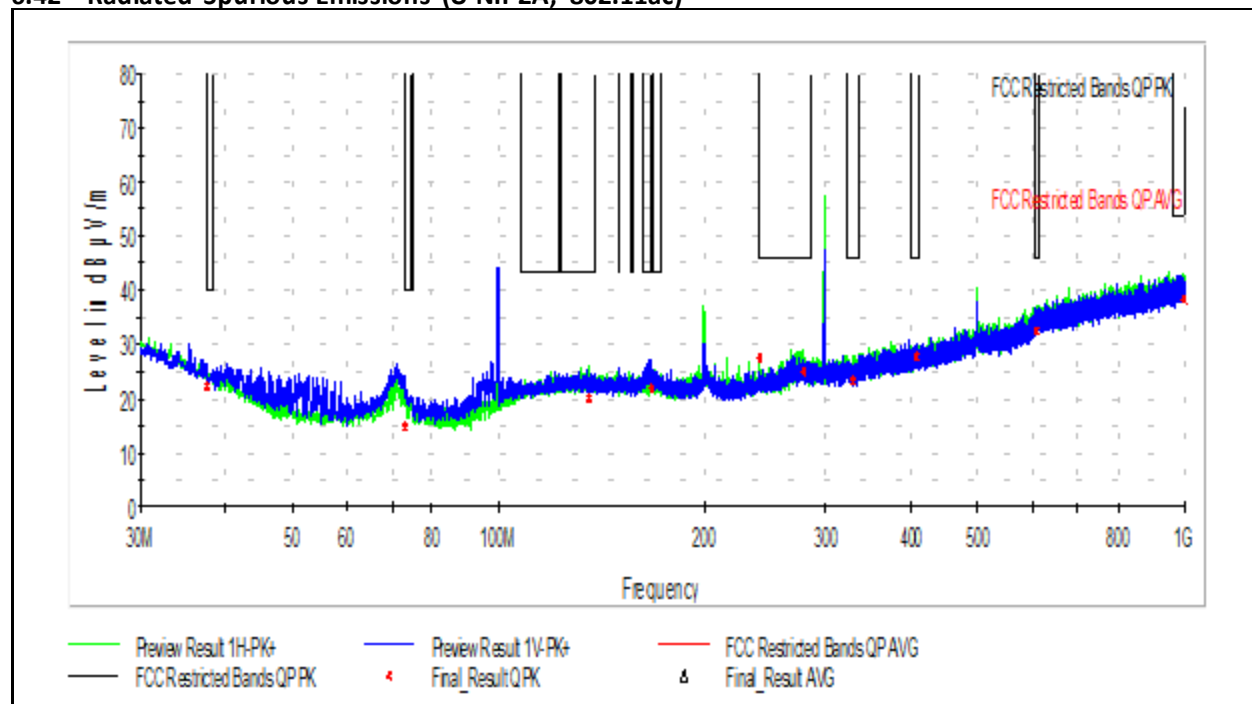
Limit Applied: See Table Above

Ambient Temperature: 22.7°C

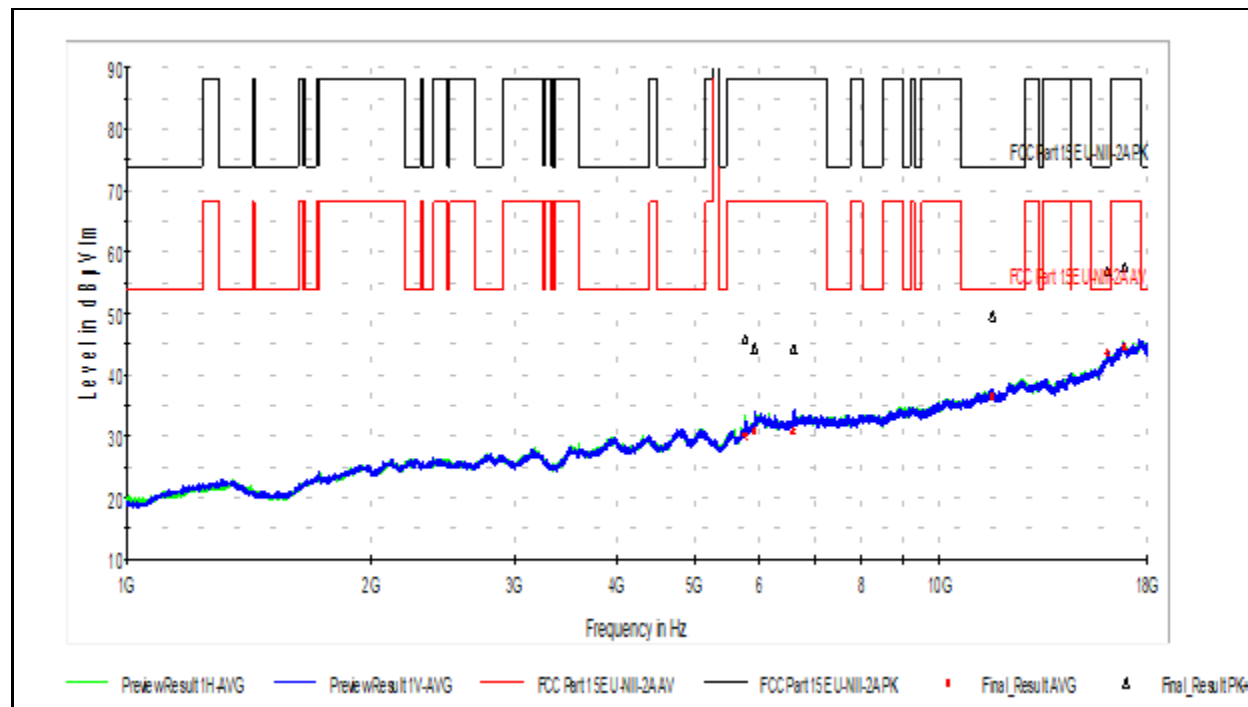
Relative Humidity: 19.0 %

Atmospheric Pressure: 988.2 mbar

Deviations, Additions, or Exclusions: None

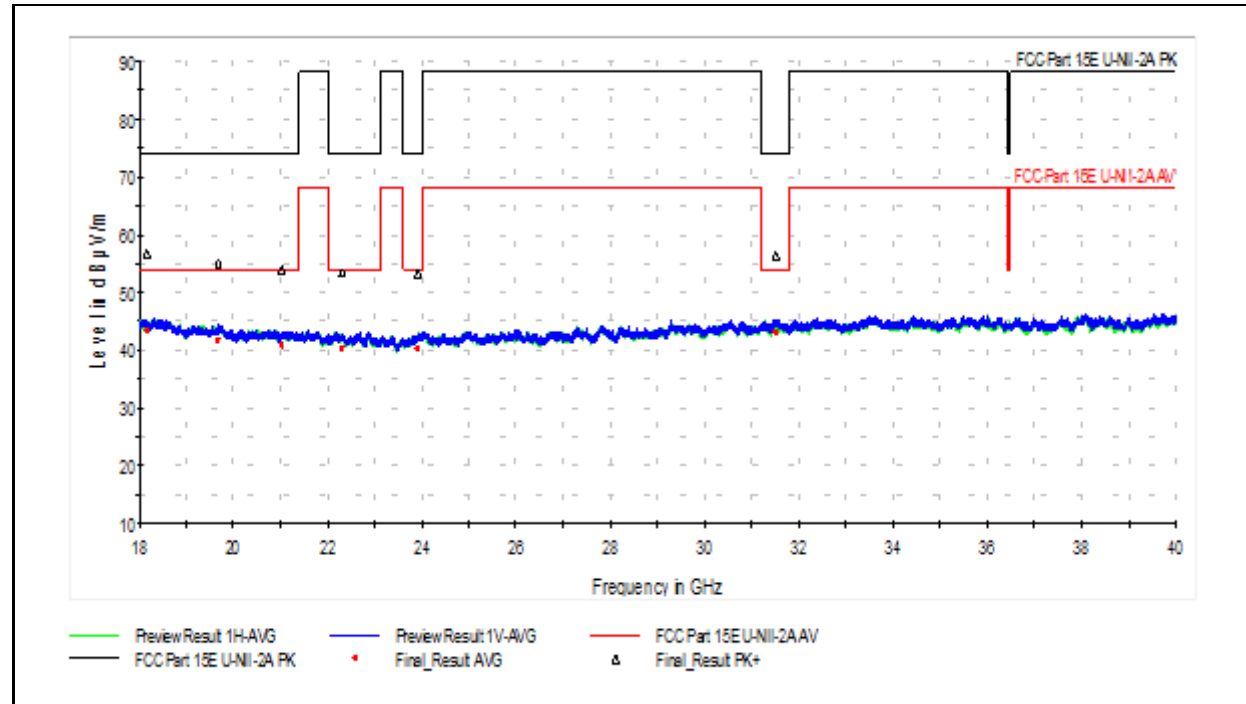
**6.42 Radiated Spurious Emissions (U-NII-2A, 802.11ac)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.544445	22.17	40.00	17.83	120.000	100.1	V	340.0	22.4
73.057222	14.81	40.00	25.19	120.000	104.9	V	84.0	14.8
135.514445	19.79	43.52	23.73	120.000	207.1	H	331.0	21.9
166.985556	21.78	43.52	21.74	120.000	100.4	V	212.0	21.6
240.005000	27.59	46.02	18.43	120.000	131.1	H	163.0	21.5
278.212222	24.87	46.02	21.15	120.000	105.2	H	289.0	23.7
328.867778	23.18	46.02	22.84	120.000	100.0	H	264.0	25.0
407.383889	27.87	46.02	18.15	120.000	118.5	V	256.0	26.9
609.790556	32.46	46.02	13.56	120.000	178.5	H	34.0	32.3
997.628889	38.28	53.98	15.70	120.000	249.4	H	296.0	38.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5767.500000	45.78	88.23	42.45	1000.000	100.0	H	8.0	9.7
5921.500000	44.33	88.23	43.90	1000.000	373.0	V	324.0	10.1
6605.500000	44.35	88.23	43.88	1000.000	410.0	V	0.0	10.9
11588.500000	49.77	73.98	24.21	1000.000	334.0	H	258.0	17.6
16066.500000	57.11	73.98	16.87	1000.000	334.0	V	264.0	25.5
16852.500000	57.62	88.23	30.61	1000.000	398.0	H	147.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5767.500000	30.04	68.23	38.19	1000.000	100.0	H	8.0	9.7
5921.500000	30.95	68.23	37.28	1000.000	373.0	V	324.0	10.1
6605.500000	30.93	68.23	37.30	1000.000	410.0	V	0.0	10.9
11588.500000	36.59	53.98	17.39	1000.000	334.0	H	258.0	17.6
16066.500000	43.53	53.98	10.45	1000.000	334.0	V	264.0	25.5
16852.500000	44.61	68.23	23.62	1000.000	398.0	H	147.0	26.1



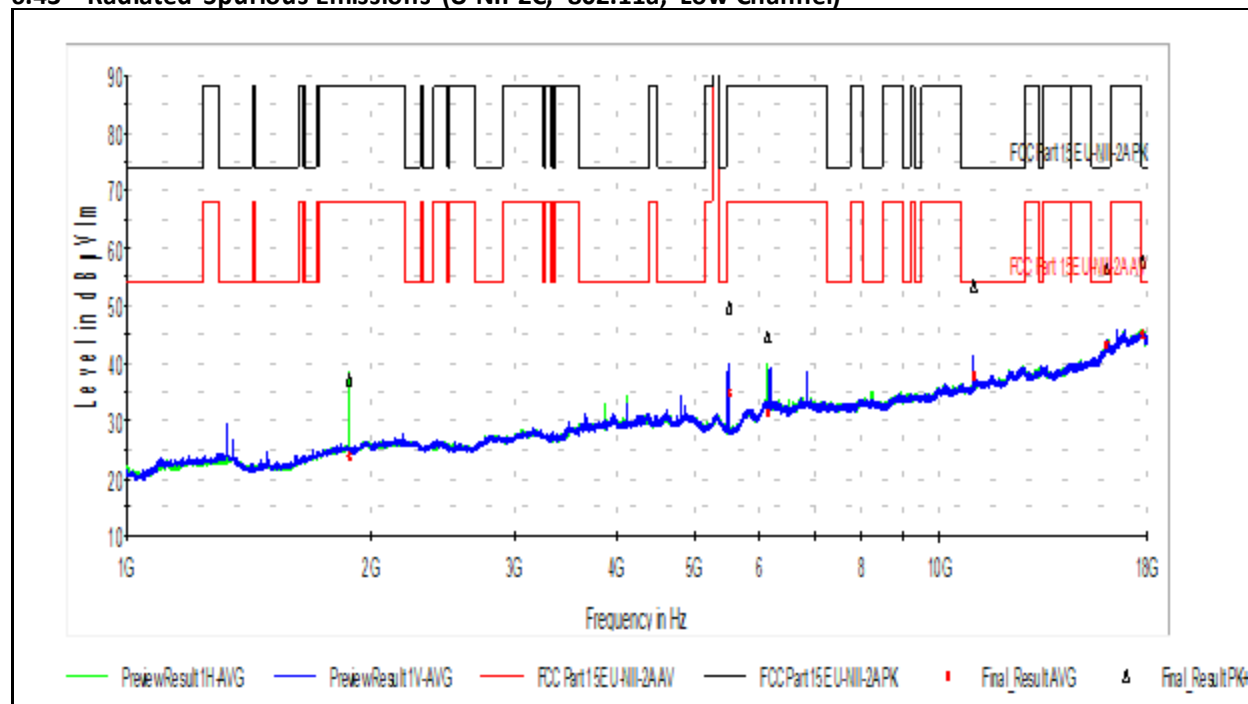
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18163.500000	56.72	73.98	17.26	1000.000	239.0	H	182.0	20.6
19671.000000	55.17	73.98	18.81	1000.000	100.0	V	35.0	15.7
21023.000000	53.96	73.98	20.02	1000.000	221.0	V	46.0	10.7
22309.500000	53.50	73.98	20.48	1000.000	206.0	V	263.0	7.7
23918.000000	53.40	73.98	20.58	1000.000	392.0	H	287.0	6.0
31515.000000	56.32	73.98	17.66	1000.000	100.0	V	62.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18163.500000	43.39	53.98	10.59	1000.000	239.0	H	182.0	20.6
19671.000000	41.60	53.98	12.38	1000.000	100.0	V	35.0	15.7
21023.000000	40.78	53.98	13.20	1000.000	221.0	V	46.0	10.7
22309.500000	40.34	53.98	13.64	1000.000	206.0	V	263.0	7.7
23918.000000	40.18	53.98	13.80	1000.000	392.0	H	287.0	6.0
31515.000000	43.12	53.98	10.86	1000.000	100.0	V	62.0	11.2

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.43 Radiated Spurious Emissions (U-NII-2C, 802.11a, Low Channel)**

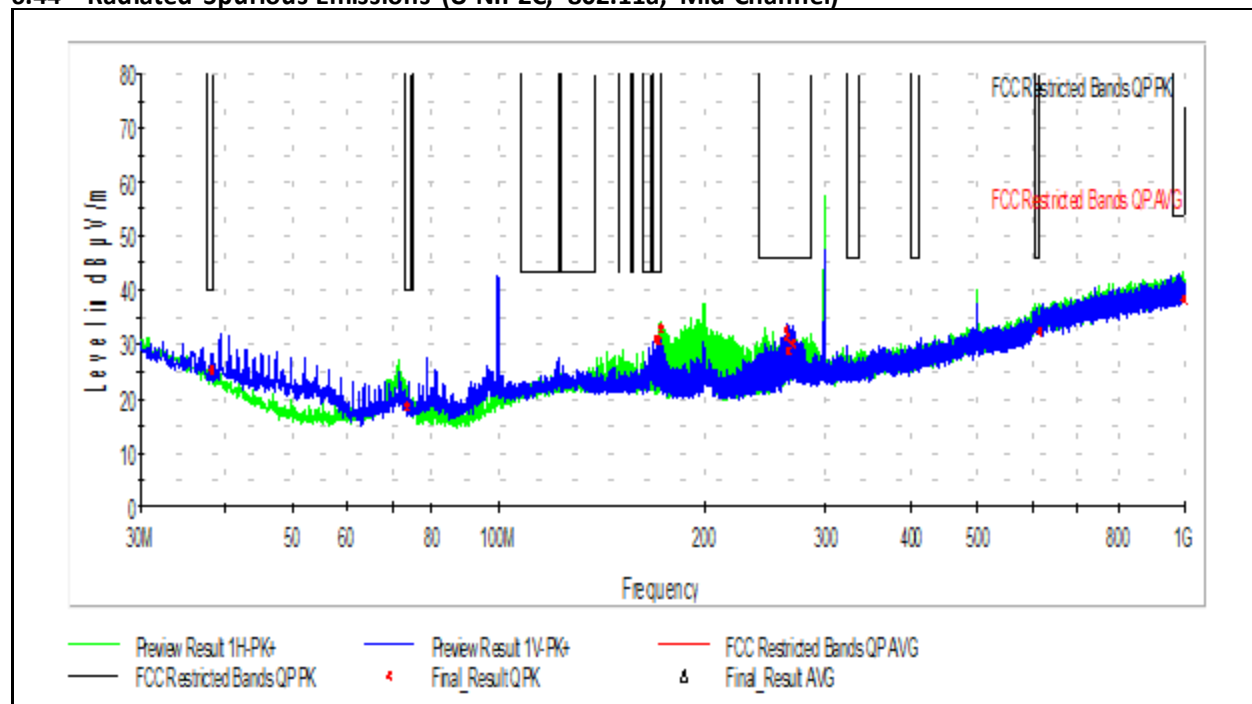
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1880.000000	37.09	88.23	51.14	1000.000	410.0	H	25.0	2.0
5508.000000	49.78	88.23	38.45	1000.000	356.0	V	332.0	9.2
6139.000000	44.61	88.23	43.62	1000.000	410.0	H	324.0	10.4
11000.000000	53.53	73.98	20.45	1000.000	306.0	V	193.0	16.9
16040.000000	56.34	73.98	17.64	1000.000	410.0	V	223.0	24.9
17753.500000	57.82	73.98	16.16	1000.000	410.0	H	69.0	26.1

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1880.000000	23.79	68.23	44.44	1000.000	410.0	H	25.0	2.0
5508.000000	34.86	68.23	33.37	1000.000	356.0	V	332.0	9.2
6139.000000	31.32	68.23	36.91	1000.000	410.0	H	324.0	10.4
11000.000000	37.66	53.98	16.32	1000.000	306.0	V	193.0	16.9
16040.000000	43.15	53.98	10.83	1000.000	410.0	V	223.0	24.9
17753.500000	44.88	53.98	9.10	1000.000	410.0	H	69.0	26.1

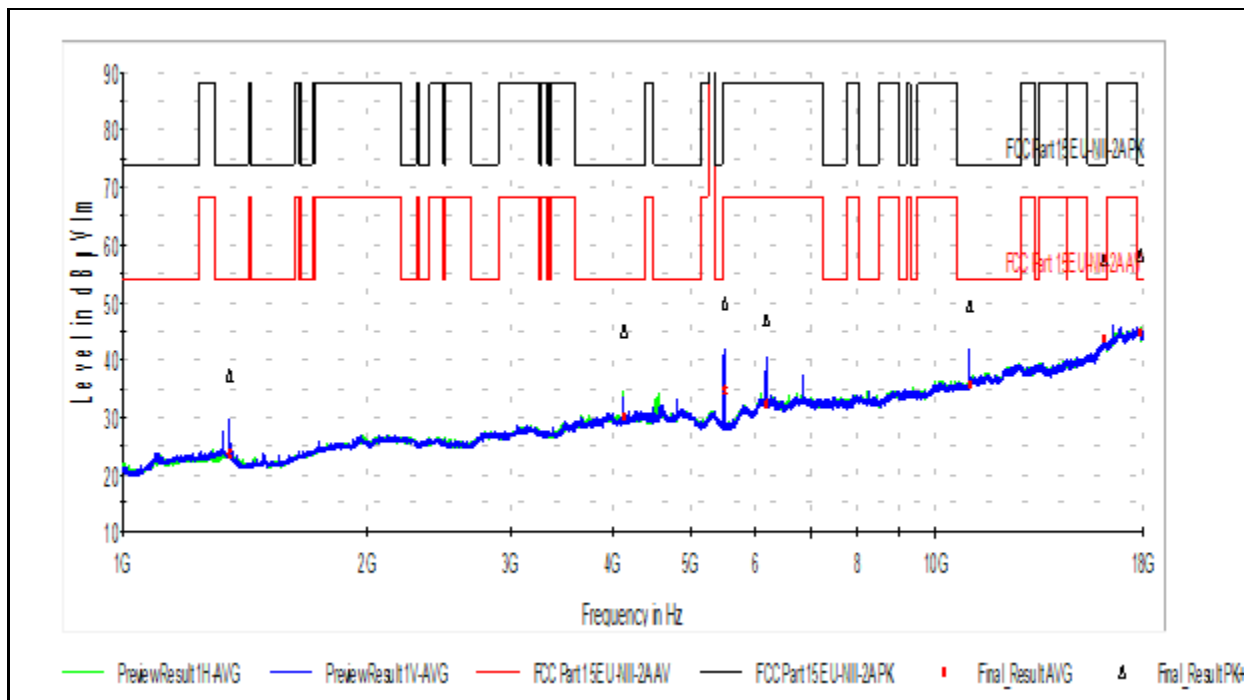
Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

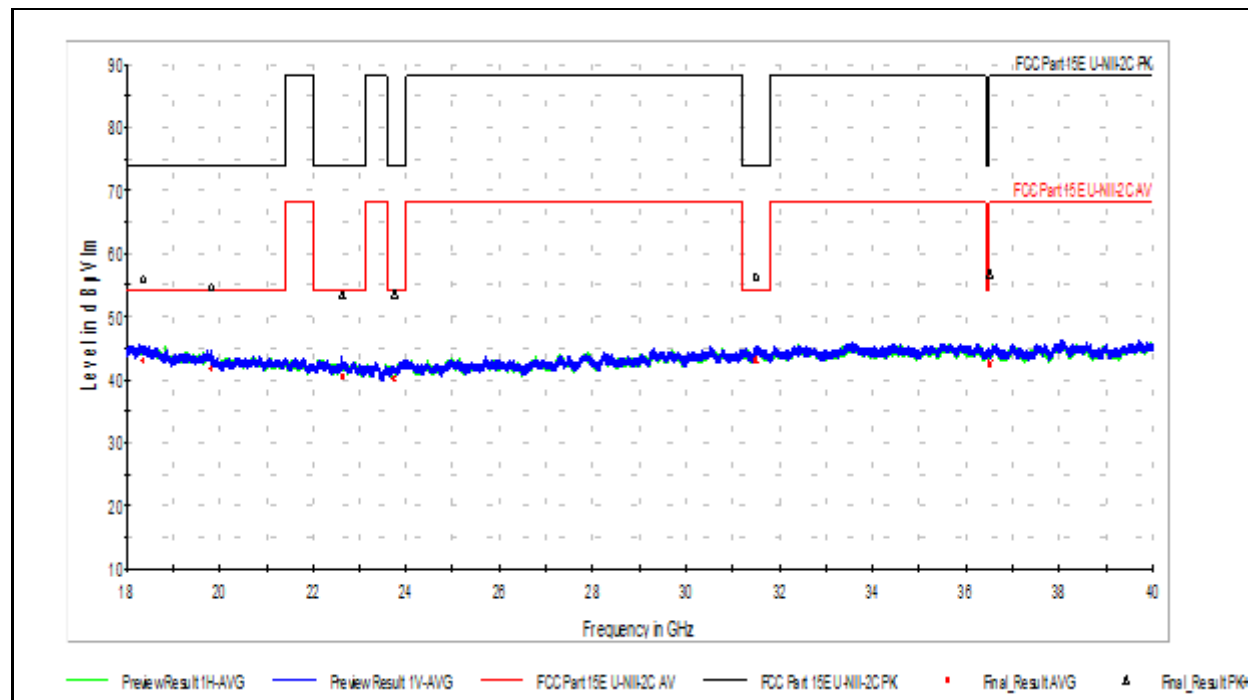
**6.44 Radiated Spurious Emissions (U-NII-2C, 802.11a, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.137222	25.33	40.00	14.67	120.000	110.1	V	64.0	22.0
73.596111	18.48	40.00	21.52	120.000	400.1	H	172.0	15.7
170.003333	30.84	43.52	12.68	120.000	190.1	H	164.0	21.3
171.135000	30.68	43.52	12.84	120.000	202.4	H	164.0	21.2
172.320556	33.02	43.52	10.50	120.000	178.1	H	166.0	21.0
262.584445	32.50	46.02	13.52	120.000	99.9	V	116.0	22.9
263.770000	31.07	46.02	14.95	120.000	100.1	V	102.0	23.0
264.955556	28.52	46.02	17.50	120.000	100.2	V	89.0	23.2
268.404445	29.93	46.02	16.09	120.000	100.0	V	100.0	23.3
613.832222	32.47	46.02	13.55	120.000	332.9	H	8.0	32.3
995.688889	38.31	53.98	15.67	120.000	105.0	H	36.0	38.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	37.38	73.98	36.60	1000.000	374.0	V	34.0	-0.3
4133.000000	45.10	73.98	28.88	1000.000	109.0	H	64.0	7.4
5497.500000	49.95	88.23	38.28	1000.000	278.0	V	0.0	9.1
6190.500000	46.79	88.23	41.44	1000.000	311.0	V	306.0	10.6
10996.500000	49.25	73.98	24.73	1000.000	410.0	V	293.0	16.9
16104.000000	57.37	73.98	16.61	1000.000	109.0	H	126.0	26.2
17814.500000	58.24	73.98	15.74	1000.000	410.0	H	1.0	26.4

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	23.76	53.98	30.22	1000.000	374.0	V	34.0	-0.3
4133.000000	29.96	53.98	24.02	1000.000	109.0	H	64.0	7.4
5497.500000	34.56	68.23	33.67	1000.000	278.0	V	0.0	9.1
6190.500000	32.19	68.23	36.04	1000.000	311.0	V	306.0	10.6
10996.500000	35.62	53.98	18.36	1000.000	410.0	V	293.0	16.9
16104.000000	43.80	53.98	10.18	1000.000	109.0	H	126.0	26.2
17814.500000	44.90	53.98	9.08	1000.000	410.0	H	1.0	26.4



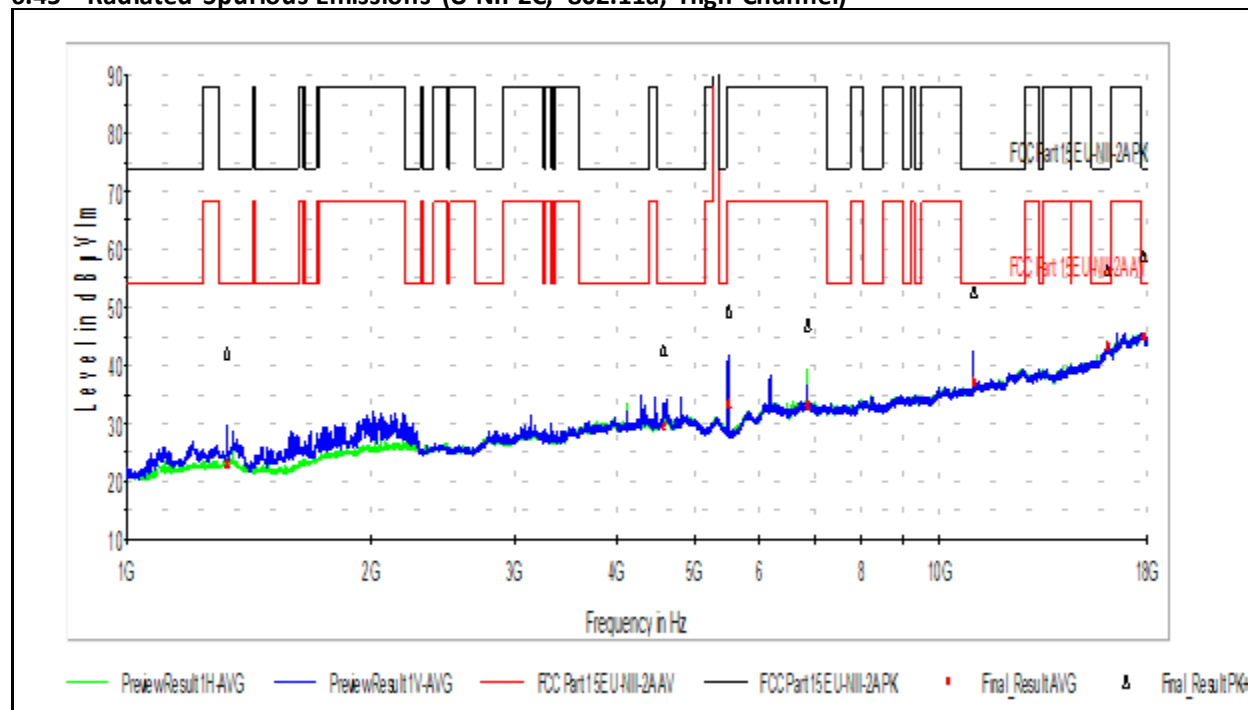
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18349.500000	56.11	73.98	17.87	1000.000	100.0	V	36.0	20.0
19810.500000	54.82	73.98	19.16	1000.000	100.0	V	66.0	15.2
22620.500000	53.49	73.98	20.49	1000.000	248.0	V	262.0	6.7
23744.500000	53.67	73.98	20.31	1000.000	232.0	V	137.0	6.0
31500.000000	56.38	73.98	17.60	1000.000	100.0	V	88.0	11.3
36505.500000	56.80	88.23	31.43	1000.000	109.0	V	200.0	11.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18349.500000	42.87	53.98	11.11	1000.000	100.0	V	36.0	20.0
19810.500000	41.56	53.98	12.42	1000.000	100.0	V	66.0	15.2
22620.500000	40.25	53.98	13.73	1000.000	248.0	V	262.0	6.7
23744.500000	40.21	53.98	13.77	1000.000	232.0	V	137.0	6.0
31500.000000	43.09	53.98	10.89	1000.000	100.0	V	88.0	11.3
36505.500000	42.48	68.23	25.75	1000.000	109.0	V	200.0	11.1

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.45 Radiated Spurious Emissions (U-NII-2C, 802.11a, High Channel)**

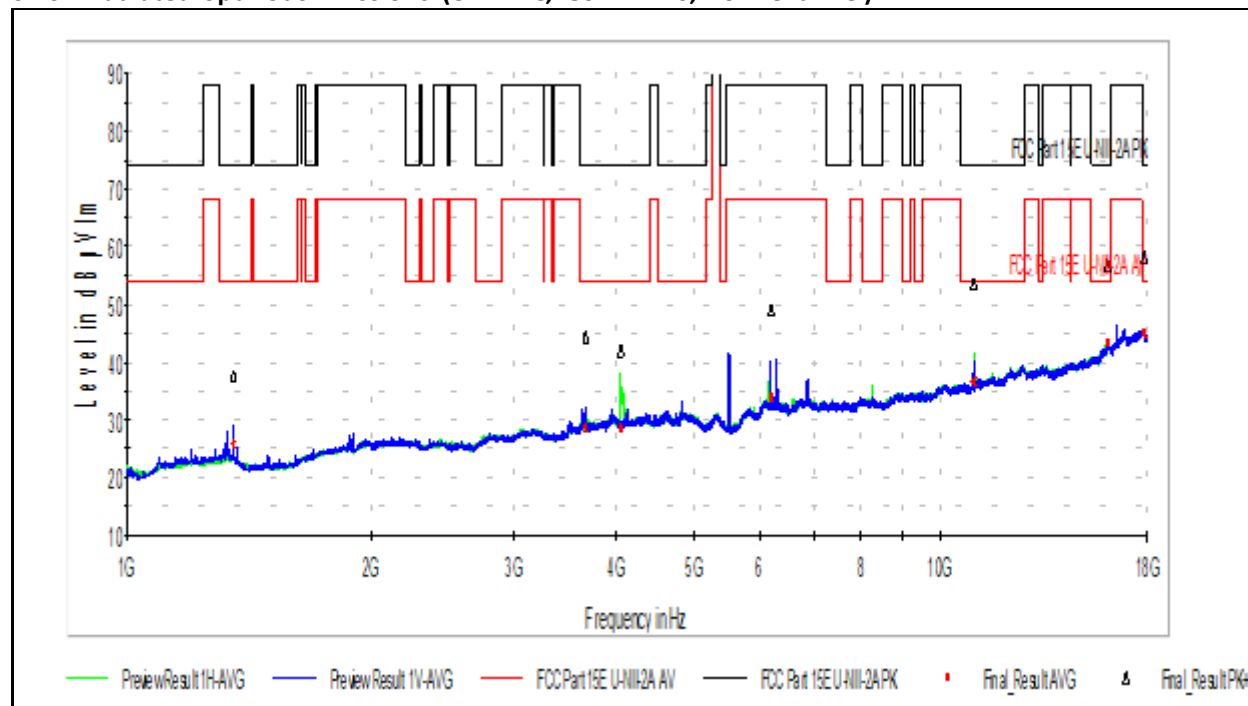
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.000000	42.17	73.98	31.81	1000.000	395.0	V	336.0	-0.2
4565.000000	42.76	73.98	31.22	1000.000	340.0	V	0.0	8.1
5502.500000	49.37	88.23	38.86	1000.000	290.0	V	337.0	9.1
6873.000000	47.12	88.23	41.11	1000.000	100.0	H	314.0	11.4
10998.000000	52.79	73.98	21.19	1000.000	410.0	V	322.0	16.9
16049.000000	56.57	73.98	17.41	1000.000	410.0	H	292.0	25.1
17775.500000	58.86	73.98	15.12	1000.000	319.0	H	179.0	26.2

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.000000	22.95	53.98	31.03	1000.000	395.0	V	336.0	-0.2
4565.000000	29.40	53.98	24.58	1000.000	340.0	V	0.0	8.1
5502.500000	33.43	68.23	34.80	1000.000	290.0	V	337.0	9.1
6873.000000	33.00	68.23	35.23	1000.000	100.0	H	314.0	11.4
10998.000000	37.10	53.98	16.88	1000.000	410.0	V	322.0	16.9
16049.000000	43.36	53.98	10.62	1000.000	410.0	H	292.0	25.1
17775.500000	45.01	53.98	8.97	1000.000	319.0	H	179.0	26.2

Test Personnel: Michael Carlson
 Supervising/Reviewing Engineer: _____
 (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient
 Signals or BB Source: Yes

Test Date: 2/5/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.9°C
 Relative Humidity: 35.9 %
 Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.46 Radiated Spurious Emissions (U-NII-2C, 802.11n20, Low Channel)**

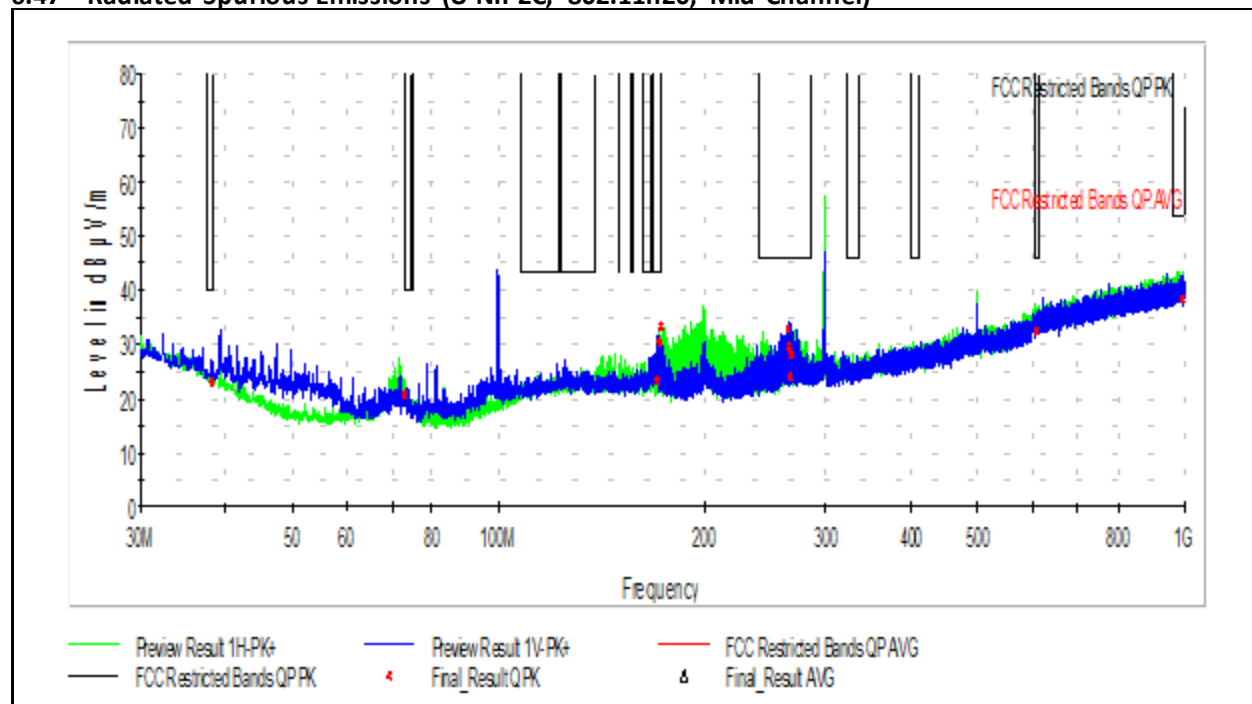
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	37.86	73.98	36.12	1000.000	363.0	V	35.0	-0.3
3665.000000	44.41	73.98	29.57	1000.000	312.0	V	291.0	6.2
4049.500000	41.95	73.98	32.03	1000.000	134.0	H	57.0	7.2
6194.500000	49.09	88.23	39.14	1000.000	325.0	V	301.0	10.6
10997.000000	53.62	73.98	20.36	1000.000	235.0	H	312.0	16.9
16062.000000	57.00	73.98	16.98	1000.000	410.0	V	224.0	25.4
17815.000000	58.16	73.98	15.82	1000.000	373.0	H	164.0	26.4

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	25.76	53.98	28.22	1000.000	363.0	V	35.0	-0.3
3665.000000	28.63	53.98	25.35	1000.000	312.0	V	291.0	6.2
4049.500000	28.65	53.98	25.33	1000.000	134.0	H	57.0	7.2
6194.500000	33.94	68.23	34.29	1000.000	325.0	V	301.0	10.6
10997.000000	36.56	53.98	17.42	1000.000	235.0	H	312.0	16.9
16062.000000	43.51	53.98	10.47	1000.000	410.0	V	224.0	25.4
17815.000000	44.93	53.98	9.05	1000.000	373.0	H	164.0	26.4

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: N/A
(Where Applicable)
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

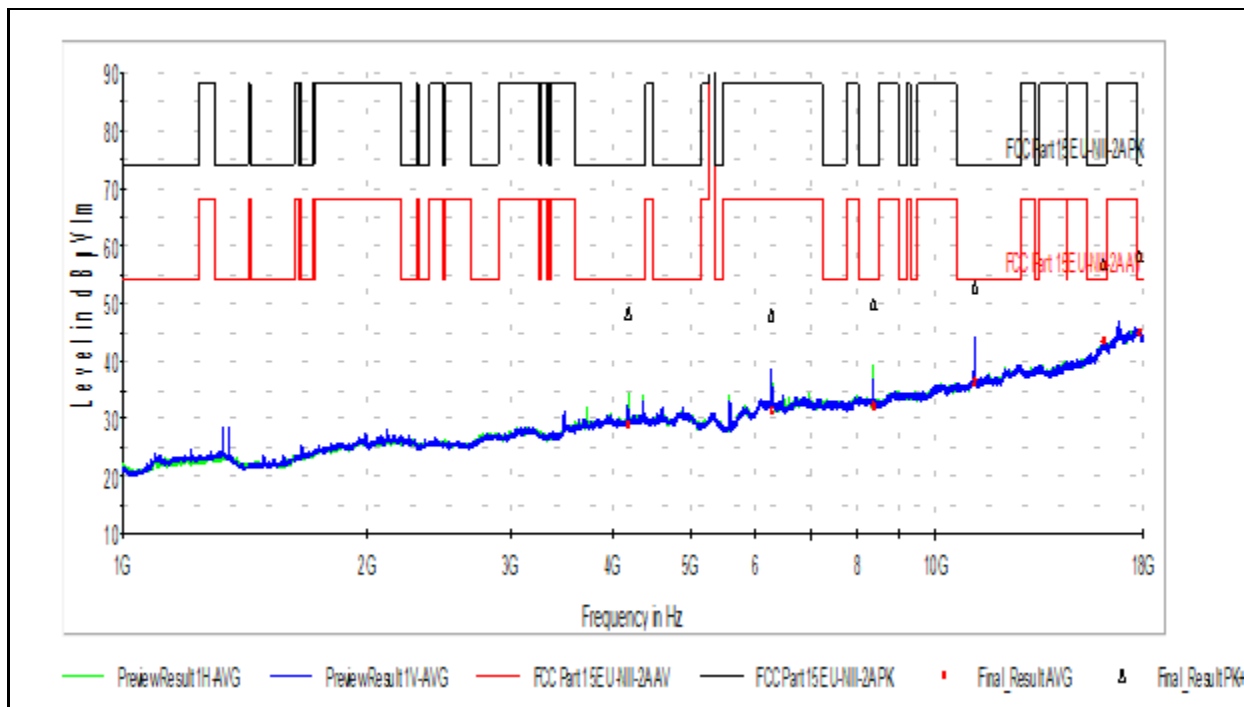
Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.47 Radiated Spurious Emissions (U-NII-2C, 802.11n20, Mid Channel)**

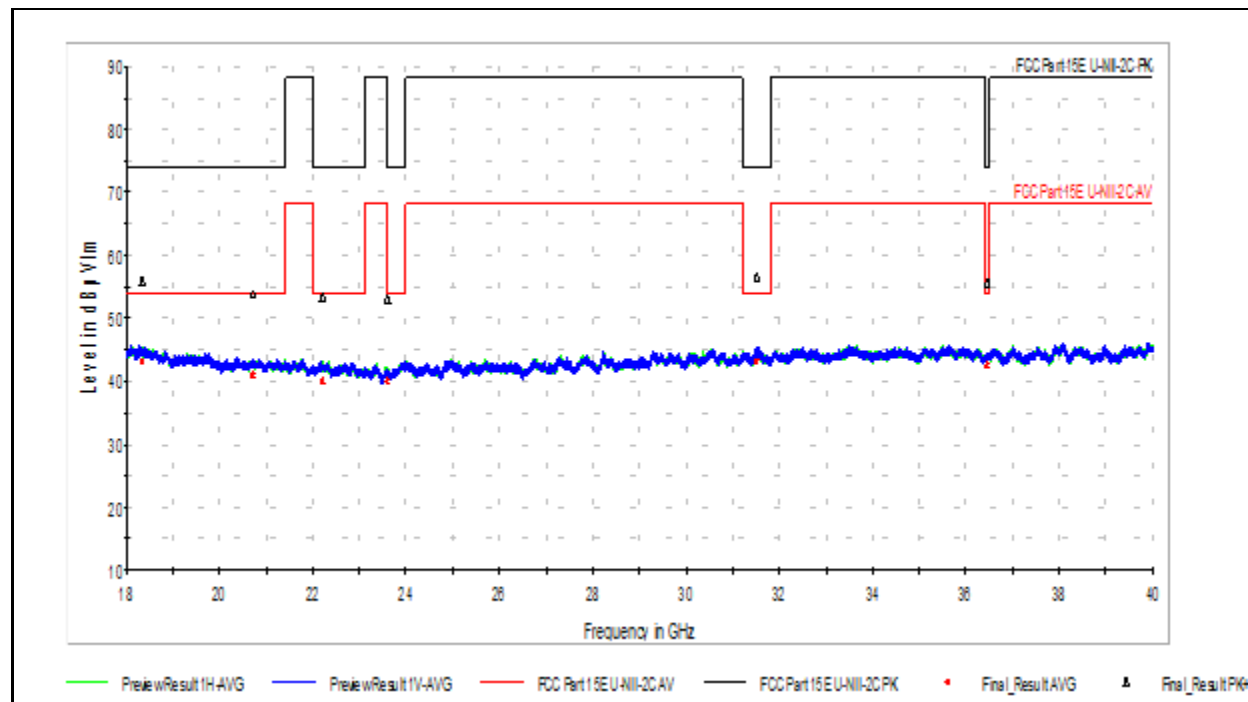
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.137222	22.98	40.00	17.02	120.000	105.0	V	80.0	22.0
72.949445	20.69	-	-	120.000	263.6	H	173.0	15.7
170.057222	23.26	43.52	20.26	120.000	266.7	V	240.0	21.6
171.242778	30.39	43.52	13.13	120.000	130.3	H	173.0	21.2
172.428333	33.05	43.52	10.47	120.000	177.6	H	164.0	21.0
263.877778	32.86	46.02	13.16	120.000	100.2	V	108.0	23.0
264.955556	29.45	46.02	16.57	120.000	100.2	V	108.0	23.2
266.087222	24.01	46.02	22.01	120.000	104.9	V	74.0	23.2
267.272778	27.95	46.02	18.07	120.000	105.2	V	93.0	23.2
609.143889	32.36	46.02	13.66	120.000	105.0	H	242.0	32.3
995.527222	38.26	53.98	15.72	120.000	347.2	H	0.0	38.1

Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4186.000000	48.47	73.98	25.51	1000.000	331.0	H	65.0	7.5
6270.500000	48.02	88.23	40.21	1000.000	355.0	V	314.0	10.7
8375.500000	50.09	73.98	23.89	1000.000	324.0	H	291.0	12.6
11162.500000	52.95	73.98	21.03	1000.000	276.0	V	288.0	17.2
16066.500000	56.94	73.98	17.04	1000.000	100.0	H	128.0	25.5
17777.000000	58.26	73.98	15.72	1000.000	100.0	H	324.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4186.000000	28.82	53.98	25.16	1000.000	331.0	H	65.0	7.5
6270.500000	31.42	68.23	36.81	1000.000	355.0	V	314.0	10.7
8375.500000	32.04	53.98	21.94	1000.000	324.0	H	291.0	12.6
11162.500000	36.17	53.98	17.81	1000.000	276.0	V	288.0	17.2
16066.500000	43.51	53.98	10.47	1000.000	100.0	H	128.0	25.5
17777.000000	44.98	53.98	9.00	1000.000	100.0	H	324.0	26.3



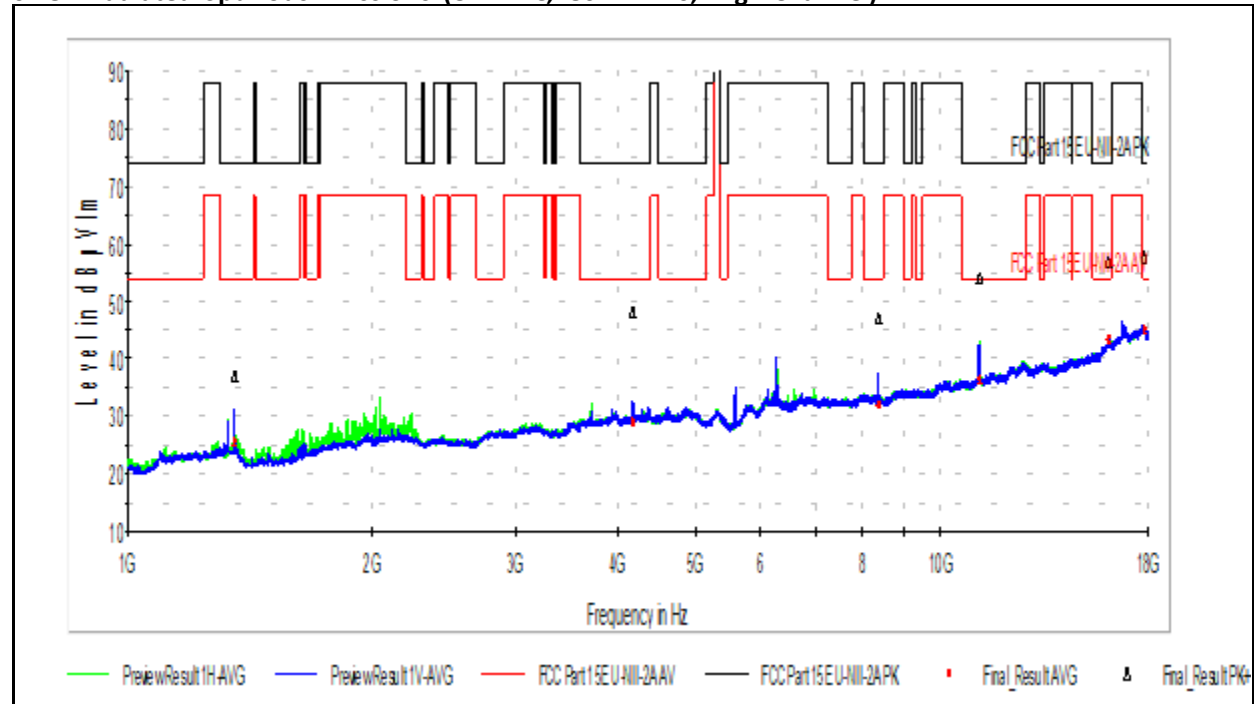
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18336.500000	56.00	73.98	17.98	1000.000	109.0	V	14.0	20.0
20705.500000	54.04	73.98	19.94	1000.000	100.0	V	310.0	11.7
22200.000000	53.41	73.98	20.57	1000.000	100.0	H	219.0	8.1
23598.000000	53.03	88.23	35.20	1000.000	109.0	H	164.0	6.4
31506.500000	56.71	73.98	17.27	1000.000	109.0	V	46.0	11.2
36456.000000	55.85	73.98	18.13	1000.000	109.0	H	25.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18336.500000	43.08	53.98	10.90	1000.000	109.0	V	14.0	20.0
20705.500000	41.02	53.98	12.96	1000.000	100.0	V	310.0	11.7
22200.000000	40.10	53.98	13.88	1000.000	100.0	H	219.0	8.1
23598.000000	39.97	68.23	28.26	1000.000	109.0	H	164.0	6.4
31506.500000	43.08	53.98	10.90	1000.000	109.0	V	46.0	11.2
36456.000000	42.65	53.98	11.33	1000.000	109.0	H	25.0	11.2

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.48 Radiated Spurious Emissions (U-NII-2C, 802.11n20, High Channel)**

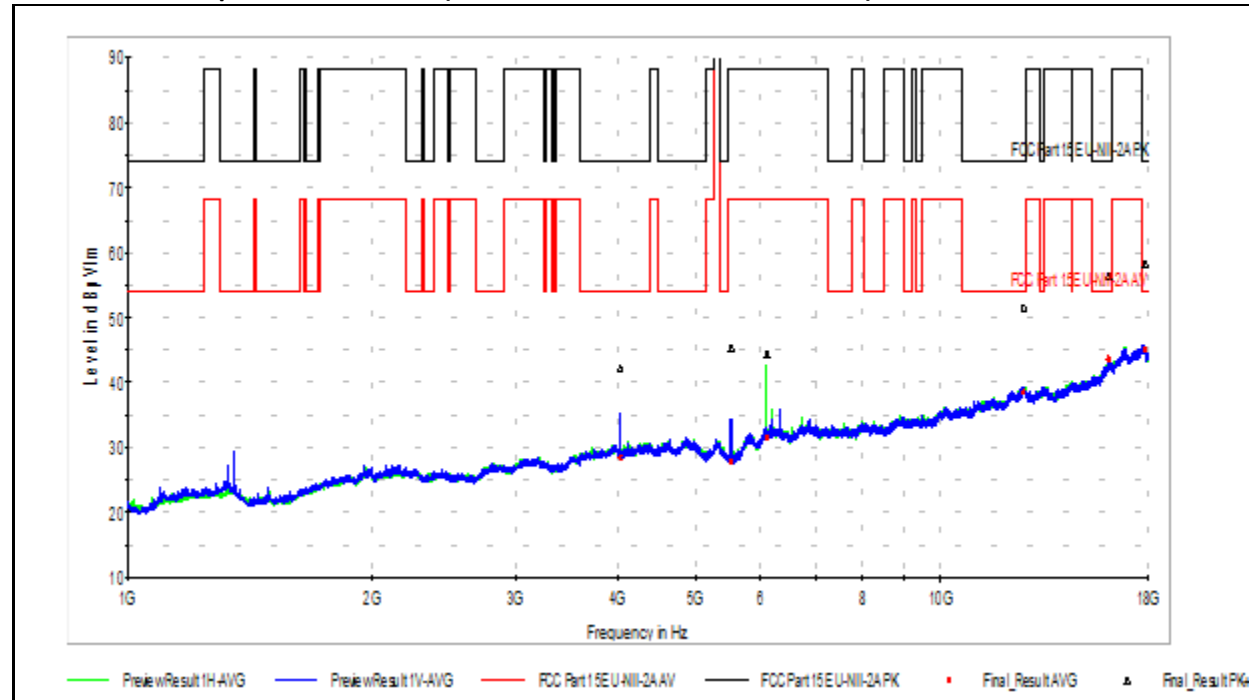
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	37.10	73.98	36.88	1000.000	287.0	V	75.0	-0.3
4179.000000	48.36	73.98	25.62	1000.000	410.0	V	269.0	7.6
8374.000000	47.26	73.98	26.72	1000.000	410.0	V	298.0	12.6
11156.000000	54.25	73.98	19.73	1000.000	410.0	H	290.0	17.2
16053.000000	56.94	73.98	17.04	1000.000	410.0	H	69.0	25.2
17777.500000	57.70	73.98	16.28	1000.000	410.0	H	0.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.500000	25.33	53.98	28.65	1000.000	287.0	V	75.0	-0.3
4179.000000	28.89	53.98	25.09	1000.000	410.0	V	269.0	7.6
8374.000000	31.89	53.98	22.09	1000.000	410.0	V	298.0	12.6
11156.000000	36.17	53.98	17.81	1000.000	410.0	H	290.0	17.2
16053.000000	43.42	53.98	10.56	1000.000	410.0	H	69.0	25.2
17777.500000	44.88	53.98	9.10	1000.000	410.0	H	0.0	26.3

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.49 Radiated Spurious Emissions (U-NII-2C, 802.11n40, Low Channel)**

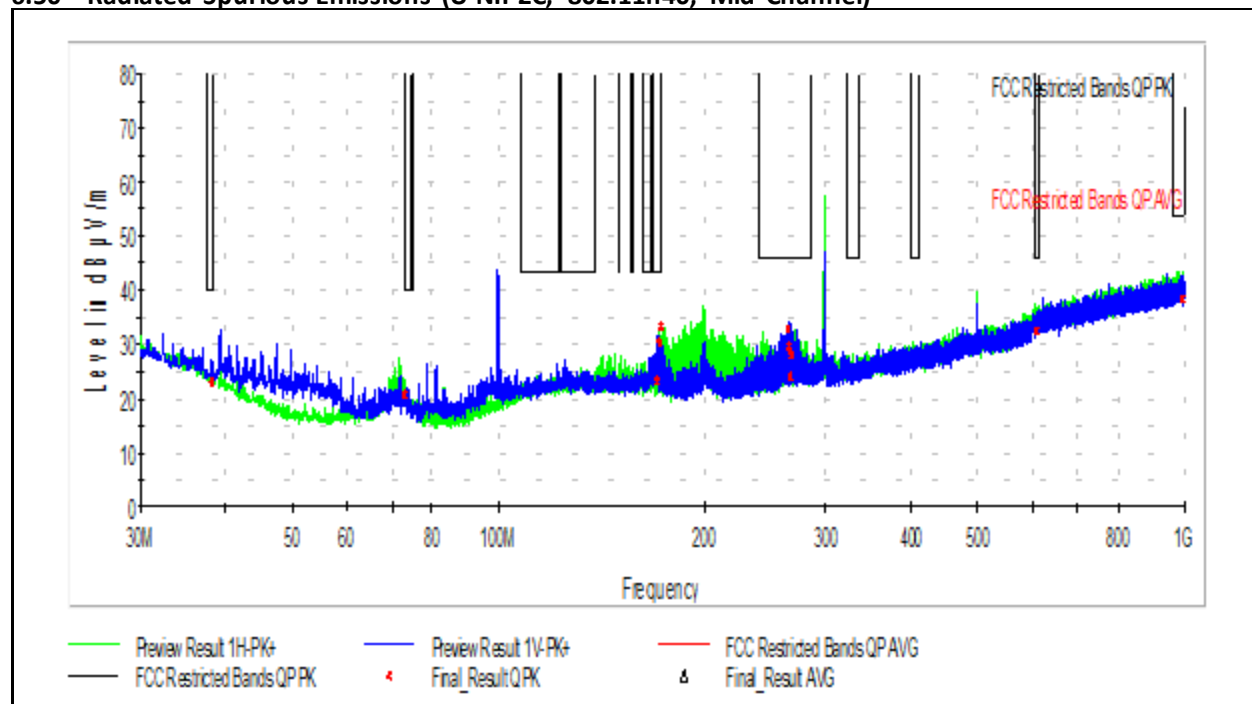
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4033.500000	42.25	73.98	31.73	1000.000	410.0	V	167.0	7.1
5516.500000	45.43	88.23	42.80	1000.000	322.0	V	334.0	9.2
6115.500000	44.51	88.23	43.72	1000.000	100.0	H	313.0	10.4
12628.500000	51.66	73.98	22.32	1000.000	100.0	H	92.0	19.2
16072.000000	56.56	73.98	17.42	1000.000	108.0	V	78.0	25.6
17800.000000	58.41	73.98	15.57	1000.000	100.0	V	268.0	26.4

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4033.500000	28.50	53.98	25.48	1000.000	410.0	V	167.0	7.1
5516.500000	27.81	68.23	40.42	1000.000	322.0	V	334.0	9.2
6115.500000	31.55	68.23	36.68	1000.000	100.0	H	313.0	10.4
12628.500000	38.51	53.98	15.47	1000.000	100.0	H	92.0	19.2
16072.000000	43.60	53.98	10.38	1000.000	108.0	V	78.0	25.6
17800.000000	45.09	53.98	8.89	1000.000	100.0	V	268.0	26.4

Test Personnel: Ben Coolbear
 Supervising/Reviewing Engineer: (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient Signals or BB Source: Yes

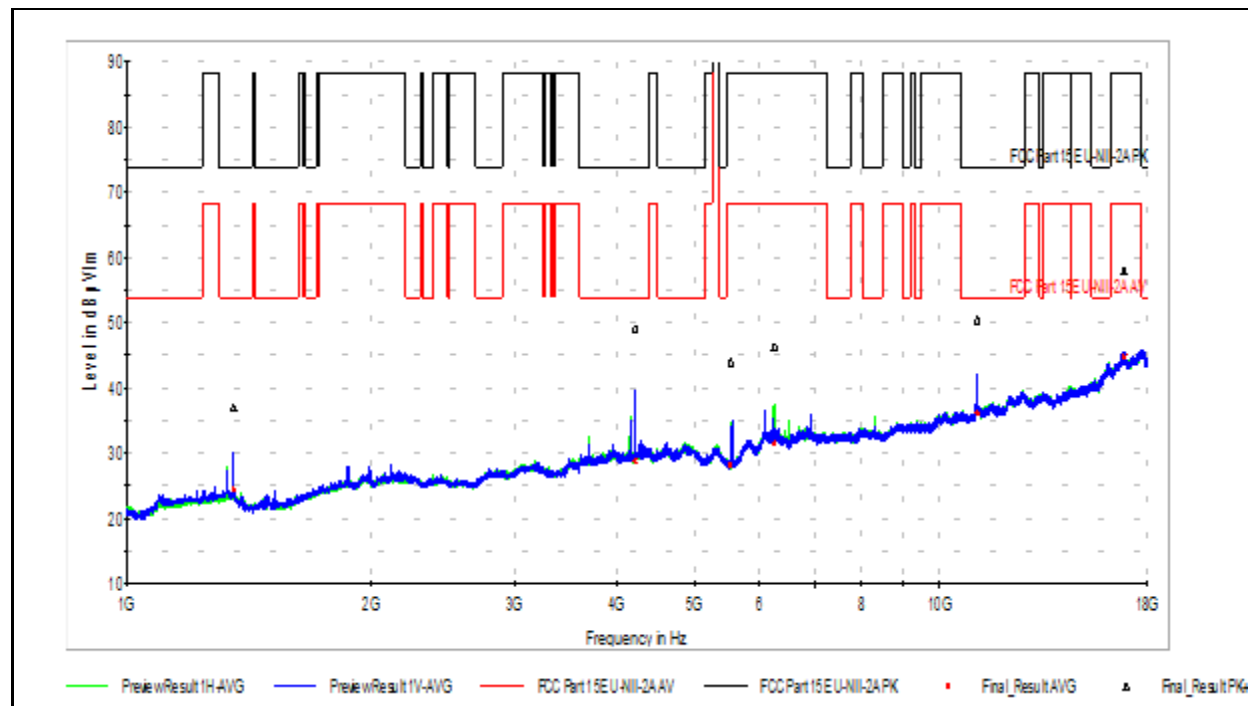
Test Date: 2/4/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.9°C
 Relative Humidity: 35.9 %
 Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.50 Radiated Spurious Emissions (U-NII-2C, 802.11n40, Mid Channel)**

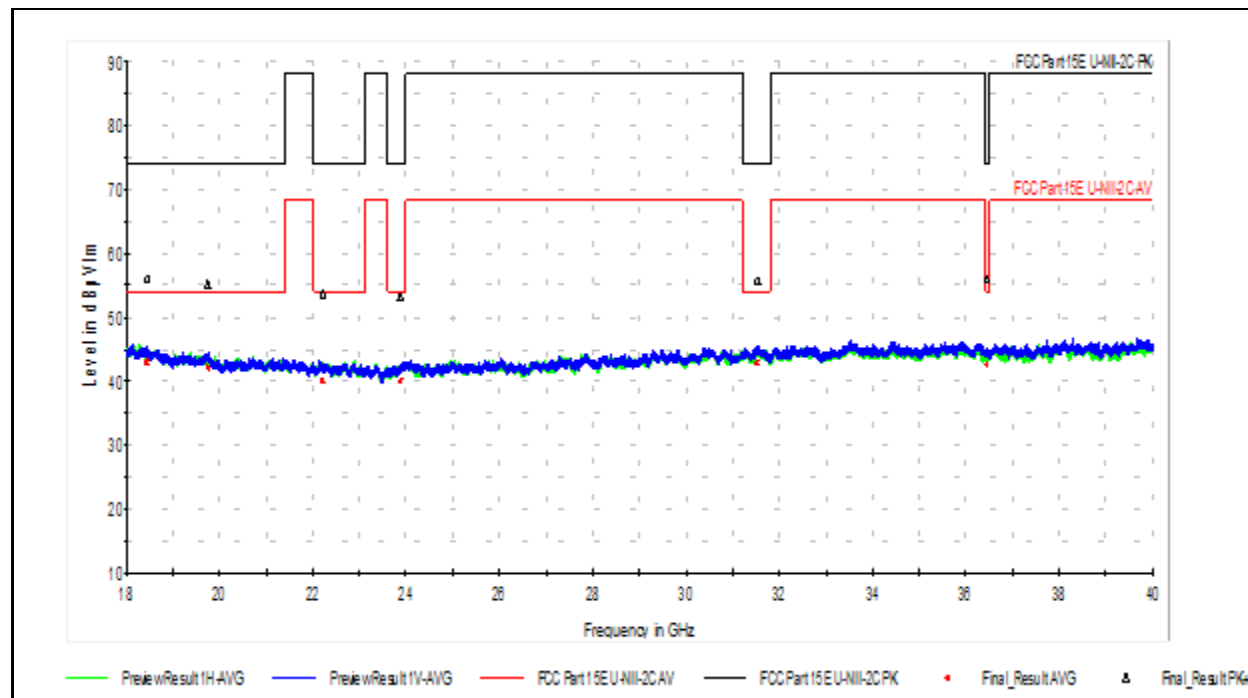
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.137222	22.98	40.00	17.02	120.000	105.0	V	80.0	22.0
72.949445	20.69	-	-	120.000	263.6	H	173.0	15.7
170.057222	23.26	43.52	20.26	120.000	266.7	V	240.0	21.6
171.242778	30.39	43.52	13.13	120.000	130.3	H	173.0	21.2
172.428333	33.05	43.52	10.47	120.000	177.6	H	164.0	21.0
263.877778	32.86	46.02	13.16	120.000	100.2	V	108.0	23.0
264.955556	29.45	46.02	16.57	120.000	100.2	V	108.0	23.2
266.087222	24.01	46.02	22.01	120.000	104.9	V	74.0	23.2
267.272778	27.95	46.02	18.07	120.000	105.2	V	93.0	23.2
609.143889	32.36	46.02	13.66	120.000	105.0	H	242.0	32.3
995.527222	38.26	53.98	15.72	120.000	347.2	H	0.0	38.1

Note: emissions that do not fall in a restricted band are noted with a “-”.



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	37.05	73.98	36.93	1000.000	246.0	V	270.0	-0.3
4220.500000	49.16	73.98	24.82	1000.000	410.0	V	0.0	7.7
5532.000000	44.06	88.23	44.17	1000.000	381.0	V	344.0	9.2
6258.000000	46.45	88.23	41.78	1000.000	318.0	H	329.0	10.8
11106.000000	50.49	73.98	23.49	1000.000	300.0	V	179.0	17.2
16825.000000	57.99	88.23	30.24	1000.000	410.0	V	260.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	24.45	53.98	29.53	1000.000	246.0	V	270.0	-0.3
4220.500000	28.79	53.98	25.19	1000.000	410.0	V	0.0	7.7
5532.000000	28.06	68.23	40.17	1000.000	381.0	V	344.0	9.2
6258.000000	31.47	68.23	36.76	1000.000	318.0	H	329.0	10.8
11106.000000	36.09	53.98	17.89	1000.000	300.0	V	179.0	17.2
16825.000000	44.76	68.23	23.47	1000.000	410.0	V	260.0	26.1



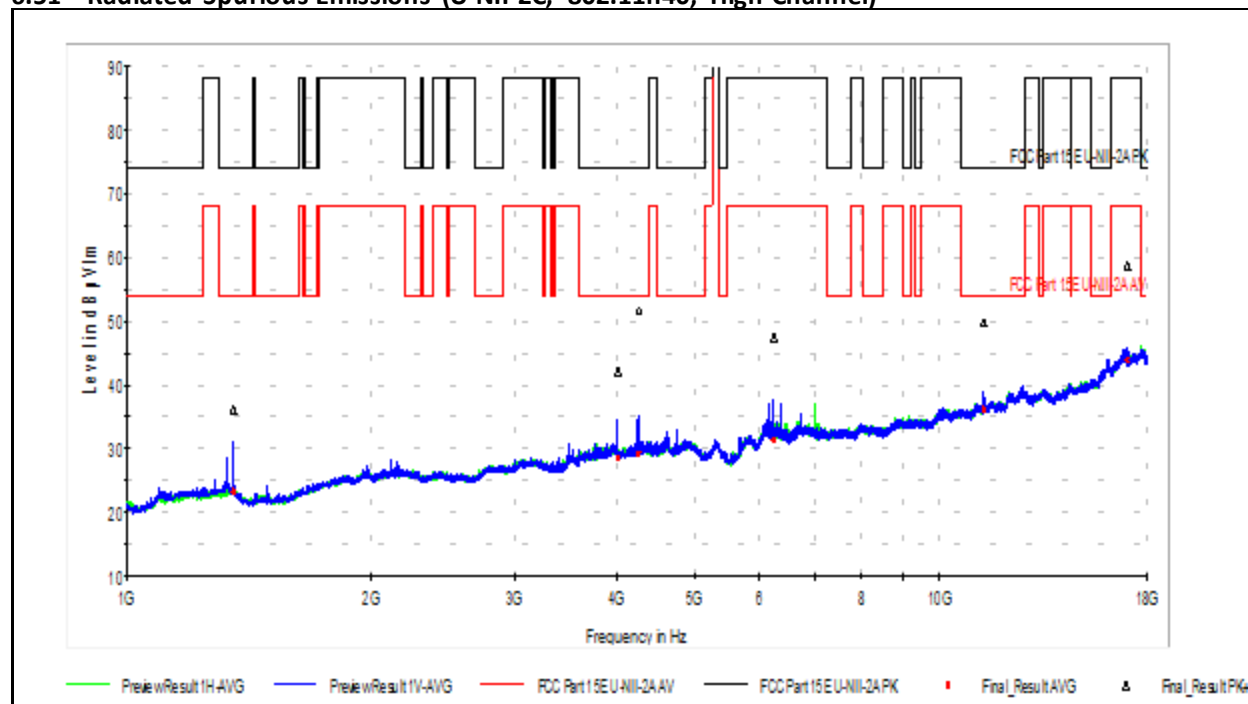
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18453.500000	56.28	73.98	17.70	1000.000	410.0	V	139.0	19.4
19741.500000	55.20	73.98	18.78	1000.000	410.0	V	132.0	15.6
22210.000000	53.67	73.98	20.31	1000.000	172.0	H	20.0	8.1
23874.500000	53.16	73.98	20.82	1000.000	410.0	V	242.0	6.0
31521.500000	55.94	73.98	18.04	1000.000	234.0	V	140.0	11.2
36448.500000	56.03	73.98	17.95	1000.000	100.0	V	72.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18453.500000	43.00	53.98	10.98	1000.000	410.0	V	139.0	19.4
19741.500000	42.19	53.98	11.79	1000.000	410.0	V	132.0	15.6
22210.000000	40.11	53.98	13.87	1000.000	172.0	H	20.0	8.1
23874.500000	39.92	53.98	14.06	1000.000	410.0	V	242.0	6.0
31521.500000	43.04	53.98	10.94	1000.000	234.0	V	140.0	11.2
36448.500000	42.46	53.98	11.52	1000.000	100.0	V	72.0	11.2

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.51 Radiated Spurious Emissions (U-NII-2C, 802.11n40, High Channel)**

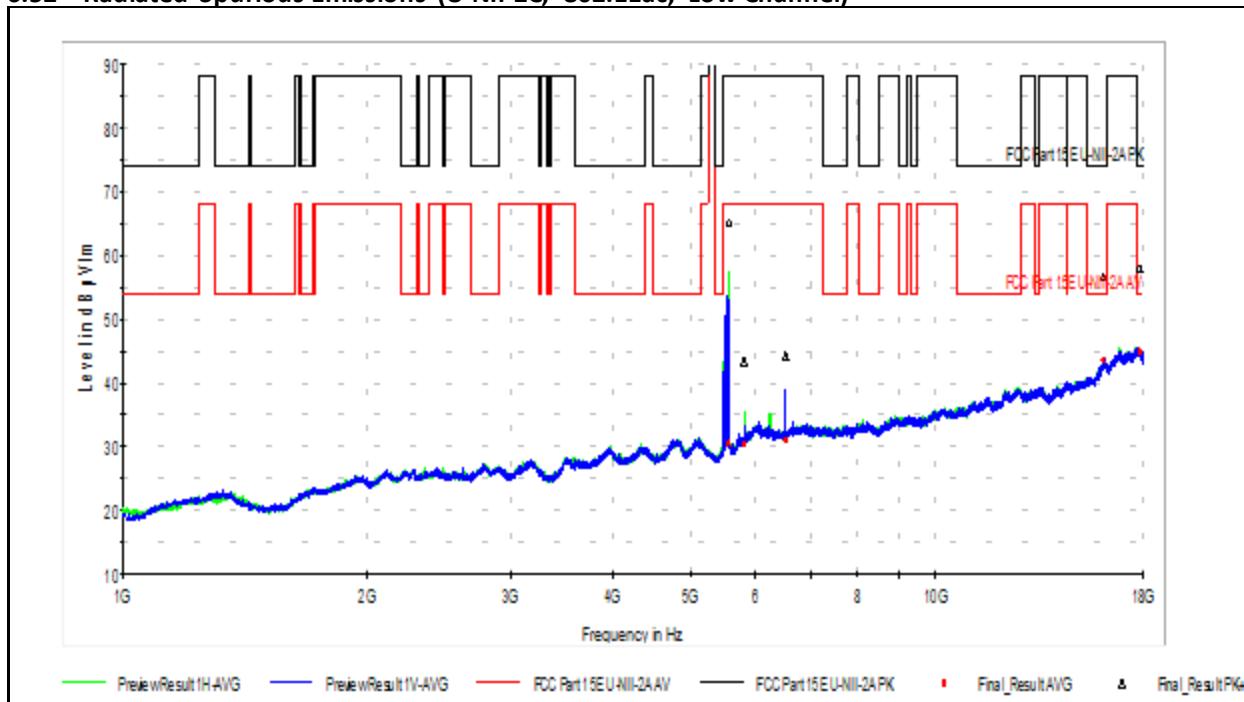
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	36.29	73.98	37.69	1000.000	344.0	V	40.0	-0.3
4017.500000	42.19	73.98	31.79	1000.000	410.0	V	288.0	7.2
4264.000000	51.81	73.98	22.17	1000.000	344.0	V	266.0	7.5
6249.500000	47.65	88.23	40.58	1000.000	410.0	V	342.0	10.7
11319.500000	49.78	73.98	24.20	1000.000	360.0	V	288.0	17.2
17020.000000	58.75	88.23	29.48	1000.000	337.0	V	0.0	25.6

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	23.21	53.98	30.77	1000.000	344.0	V	40.0	-0.3
4017.500000	28.54	53.98	25.44	1000.000	410.0	V	288.0	7.2
4264.000000	29.14	53.98	24.84	1000.000	344.0	V	266.0	7.5
6249.500000	31.35	68.23	36.88	1000.000	410.0	V	342.0	10.7
11319.500000	36.15	53.98	17.83	1000.000	360.0	V	288.0	17.2
17020.000000	43.88	68.23	24.35	1000.000	337.0	V	0.0	25.6

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.52 Radiated Spurious Emissions (U-NII-2C, 802.11ac, Low Channel)**

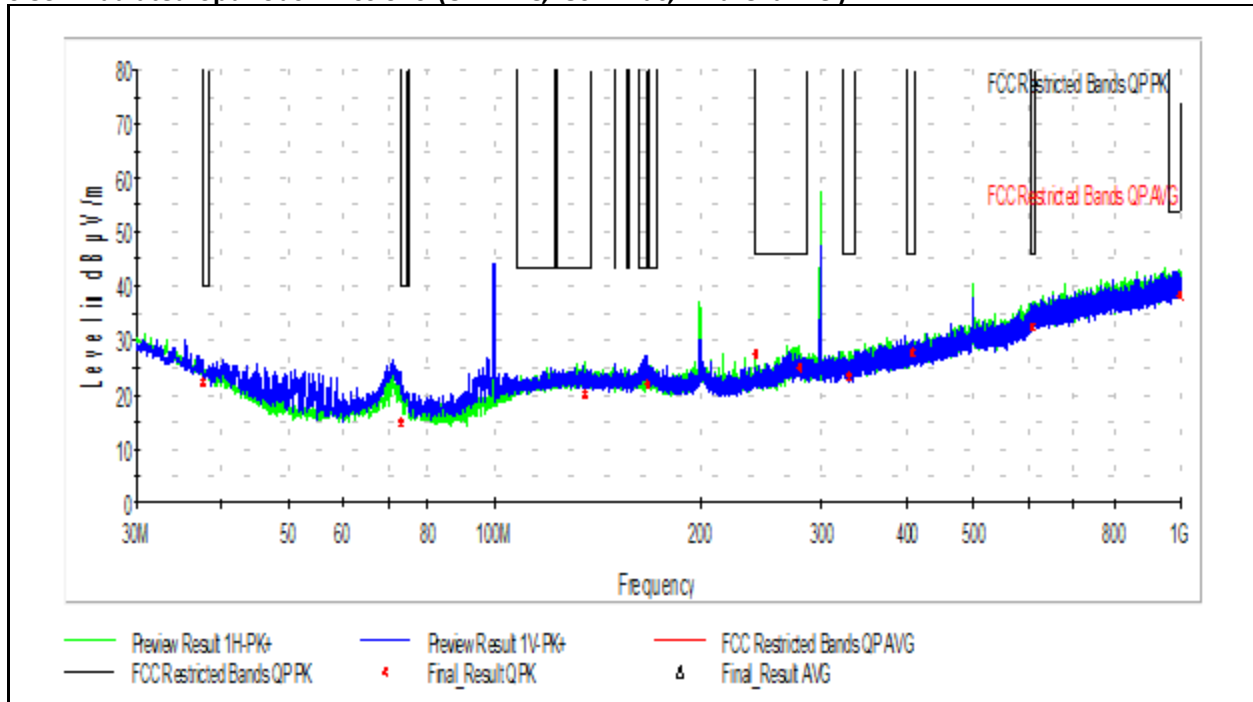
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5565.500000	65.43	88.23	22.80	1000.000	156.0	H	36.0	9.2
5805.000000	43.42	88.23	44.81	1000.000	410.0	H	244.0	9.8
6539.000000	44.38	88.23	43.85	1000.000	410.0	V	334.0	10.8
16068.000000	56.71	73.98	17.27	1000.000	290.0	H	50.0	25.6
17777.000000	58.13	73.98	15.85	1000.000	329.0	H	175.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5565.500000	30.55	68.23	37.68	1000.000	156.0	H	36.0	9.2
5805.000000	30.30	68.23	37.93	1000.000	410.0	H	244.0	9.8
6539.000000	30.96	68.23	37.27	1000.000	410.0	V	334.0	10.8
16068.000000	43.56	53.98	10.42	1000.000	290.0	H	50.0	25.6
17777.000000	44.92	53.98	9.06	1000.000	329.0	H	175.0	26.3

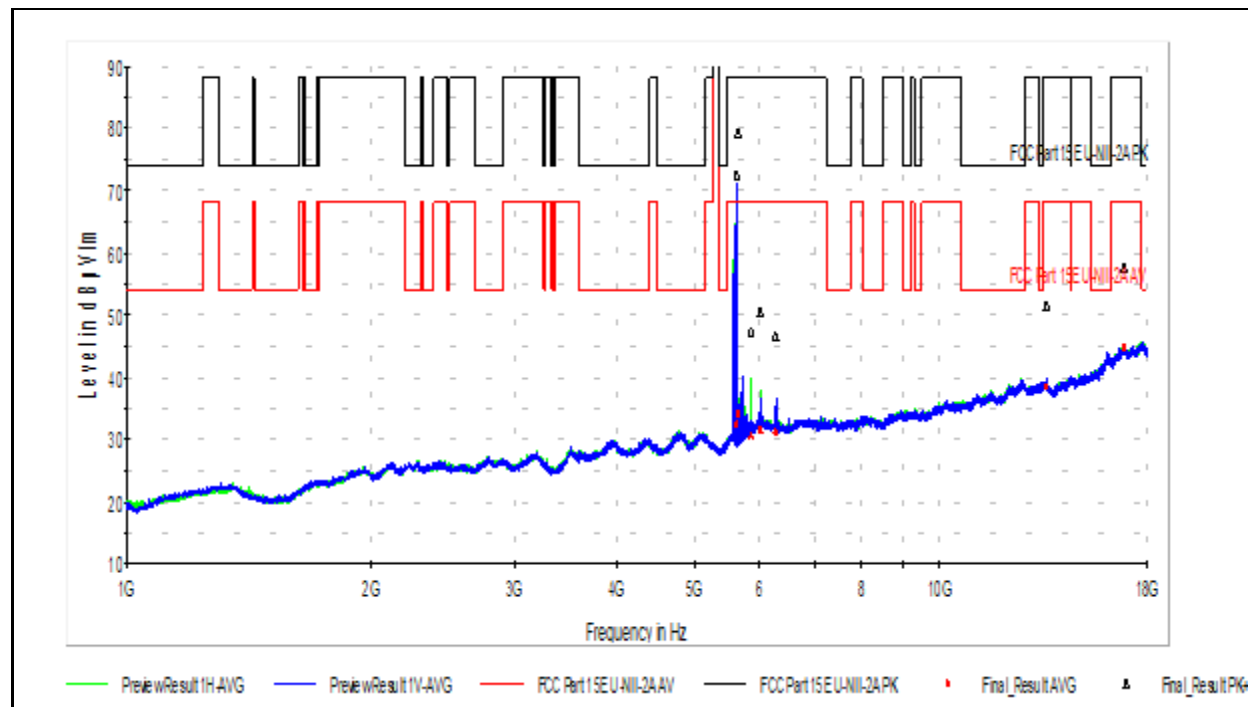
Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

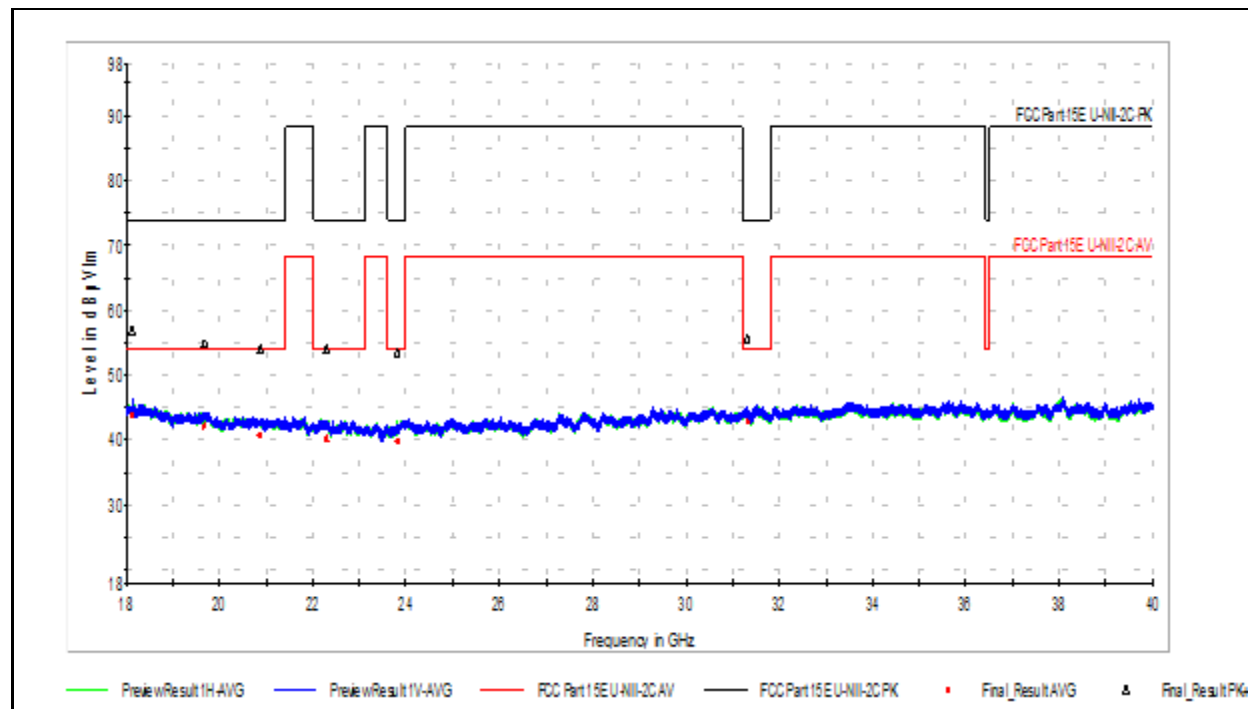
**6.53 Radiated Spurious Emissions (U-NII-2C, 802.11ac, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.544445	22.17	40.00	17.83	120.000	100.1	V	340.0	22.4
73.057222	14.81	40.00	25.19	120.000	104.9	V	84.0	14.8
135.514445	19.79	43.52	23.73	120.000	207.1	H	331.0	21.9
166.985556	21.78	43.52	21.74	120.000	100.4	V	212.0	21.6
240.005000	27.59	46.02	18.43	120.000	131.1	H	163.0	21.5
278.212222	24.87	46.02	21.15	120.000	105.2	H	289.0	23.7
328.867778	23.18	46.02	22.84	120.000	100.0	H	264.0	25.0
407.383889	27.87	46.02	18.15	120.000	118.5	V	256.0	26.9
609.790556	32.46	46.02	13.56	120.000	178.5	H	34.0	32.3
997.628889	38.28	53.98	15.70	120.000	249.4	H	296.0	38.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5617.500000	72.65	88.23	15.58	1000.000	310.0	V	264.0	9.2
5643.500000	79.32	88.23	8.91	1000.000	231.0	H	36.0	9.3
5852.000000	47.35	88.23	40.88	1000.000	100.0	H	98.0	9.8
6011.500000	50.62	88.23	37.61	1000.000	398.0	V	12.0	10.3
6273.500000	46.78	88.23	41.45	1000.000	364.0	V	0.0	10.7
13525.000000	51.59	88.23	36.64	1000.000	295.0	V	331.0	19.1
16834.500000	57.60	88.23	30.63	1000.000	335.0	H	91.0	26.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5617.500000	32.35	68.23	35.88	1000.000	310.0	V	264.0	9.2
5643.500000	34.33	68.23	33.90	1000.000	231.0	H	36.0	9.3
5852.000000	30.68	68.23	37.55	1000.000	100.0	H	98.0	9.8
6011.500000	31.56	68.23	36.67	1000.000	398.0	V	12.0	10.3
6273.500000	31.31	68.23	36.92	1000.000	364.0	V	0.0	10.7
13525.000000	38.43	68.23	29.80	1000.000	295.0	V	331.0	19.1
16834.500000	44.65	68.23	23.58	1000.000	335.0	H	91.0	26.2



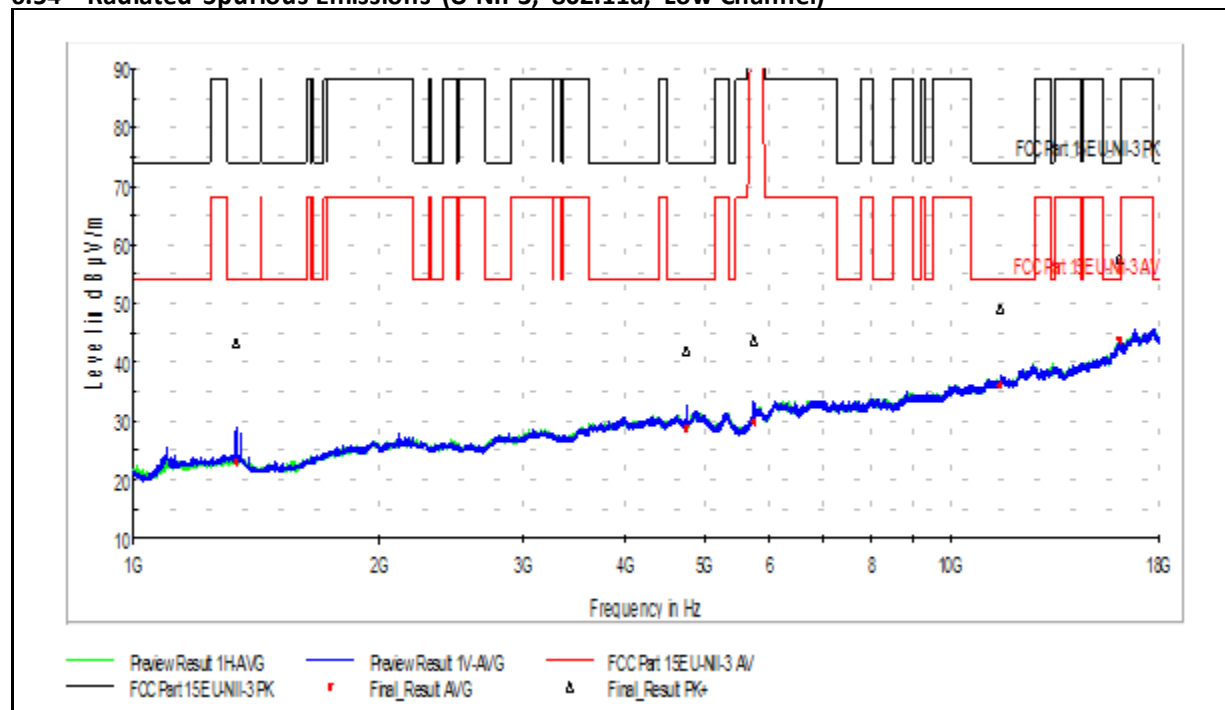
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18124.000000	56.78	73.98	17.20	1000.000	410.0	V	258.0	20.7
19677.000000	55.06	73.98	18.92	1000.000	100.0	V	300.0	15.7
20866.500000	53.95	73.98	20.03	1000.000	100.0	V	136.0	11.3
22283.500000	54.02	73.98	19.96	1000.000	410.0	V	282.0	7.8
23806.500000	53.50	73.98	20.48	1000.000	100.0	H	8.0	6.4
31312.500000	55.66	73.98	18.32	1000.000	207.0	V	236.0	10.9

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18124.000000	43.83	53.98	10.15	1000.000	410.0	V	258.0	20.7
19677.000000	41.99	53.98	11.99	1000.000	100.0	V	300.0	15.7
20866.500000	40.76	53.98	13.22	1000.000	100.0	V	136.0	11.3
22283.500000	40.24	53.98	13.74	1000.000	410.0	V	282.0	7.8
23806.500000	39.69	53.98	14.29	1000.000	100.0	H	8.0	6.4
31312.500000	42.71	53.98	11.27	1000.000	207.0	V	236.0	10.9

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/4/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.54 Radiated Spurious Emissions (U-NII-3, 802.11a, Low Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1332.500000	43.26	73.98	30.72	1000.000	153.0	V	298.0	-0.3
4744.500000	42.08	73.98	31.90	1000.000	410.0	V	319.0	8.0
5738.500000	43.85	-	-	1000.000	326.0	V	338.0	9.6
11490.000000	49.13	73.98	24.85	1000.000	362.0	V	341.0	17.2
16102.000000	57.65	73.98	16.33	1000.000	410.0	H	288.0	26.2

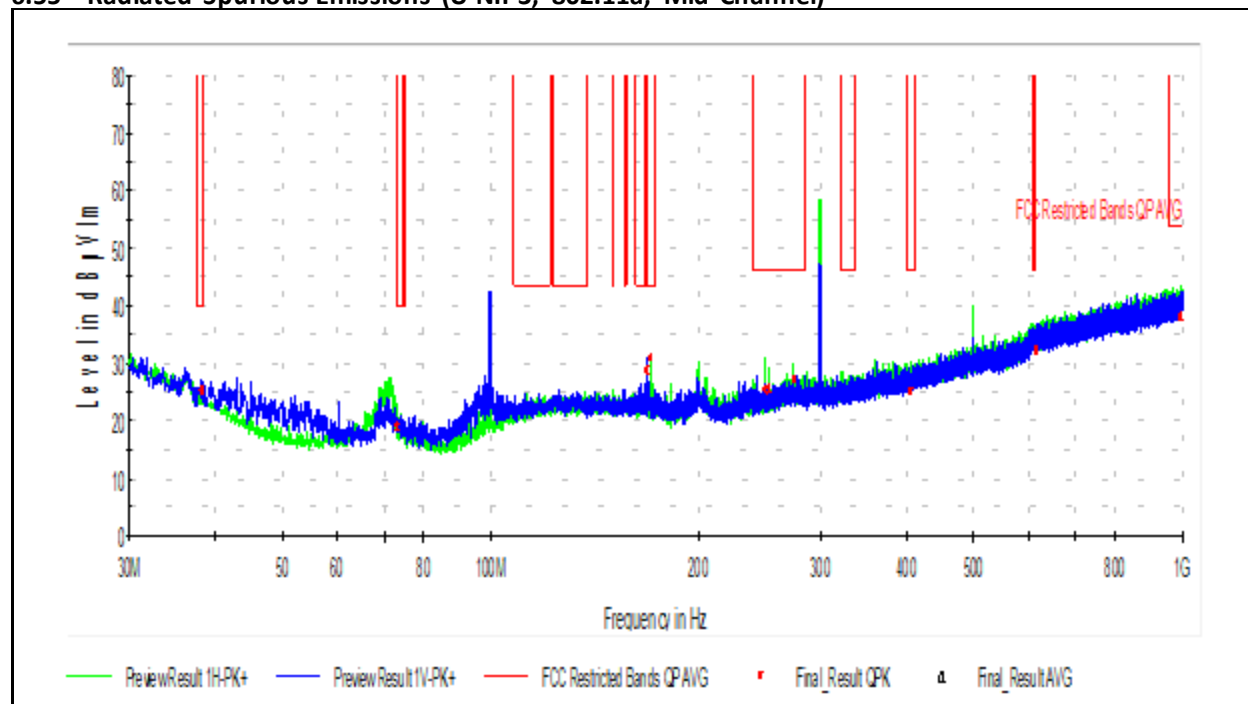
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1332.500000	23.13	53.98	30.85	1000.000	153.0	V	298.0	-0.3
4744.500000	28.81	53.98	25.17	1000.000	410.0	V	319.0	8.0
5738.500000	29.99	-	-	1000.000	326.0	V	338.0	9.6
11490.000000	35.99	53.98	17.99	1000.000	362.0	V	341.0	17.2
16102.000000	43.85	53.98	10.13	1000.000	410.0	H	288.0	26.2

Note: emissions that do not fall in a restricted band are noted with a "-".

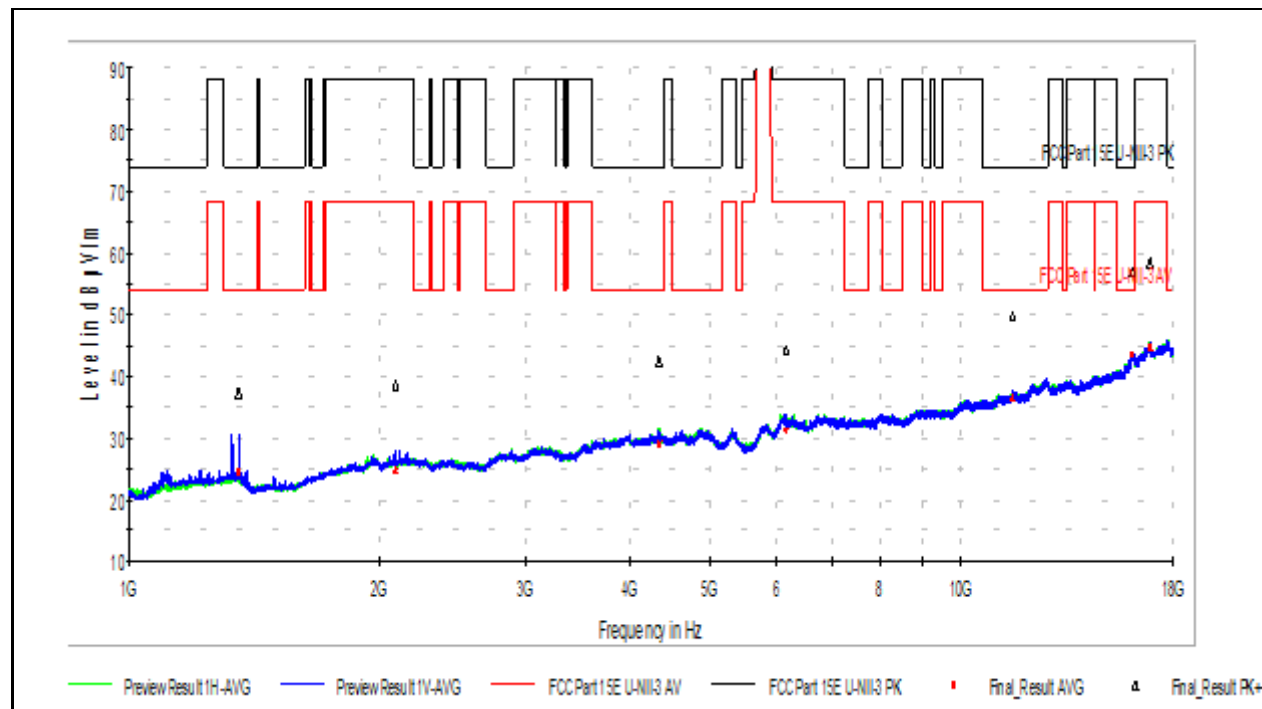
Test Personnel: Ben Coolbear
 Supervising/Reviewing Engineer: _____
 (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.9°C
 Relative Humidity: 35.9 %
 Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

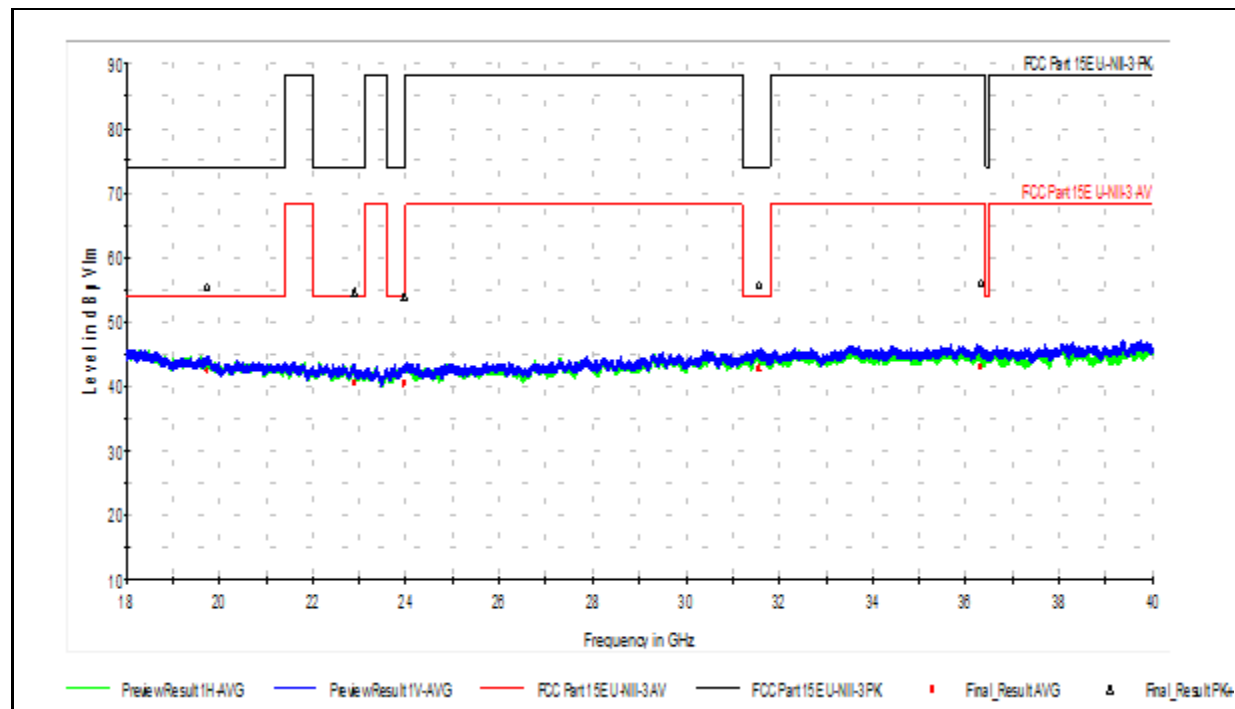
**6.55 Radiated Spurious Emissions (U-NII-3, 802.11a, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	25.45	40.00	14.55	120.000	100.4	V	119.0	21.9
73.057222	19.04	40.00	20.96	120.000	248.6	H	172.0	15.7
167.955556	28.68	43.52	14.84	120.000	100.2	V	26.0	21.7
170.272778	31.06	43.52	12.46	120.000	134.9	H	164.0	21.3
248.950556	25.29	46.02	20.73	120.000	105.2	H	193.0	21.7
252.507222	25.52	46.02	20.50	120.000	129.7	H	218.0	21.8
274.493889	27.12	46.02	18.90	120.000	100.3	H	155.0	23.6
404.366111	25.11	46.02	20.91	120.000	104.9	H	221.0	27.1
613.993889	32.36	46.02	13.66	120.000	264.3	H	162.0	32.3
995.311667	38.24	53.98	15.74	120.000	320.7	H	1.0	38.0



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	37.46	73.98	36.52	1000.000	162.0	V	268.0	-0.3
2094.500000	38.61	88.23	49.62	1000.000	100.0	V	308.0	2.7
4333.000000	42.37	73.98	31.61	1000.000	242.0	H	67.0	7.6
6159.500000	44.23	88.23	44.00	1000.000	312.0	H	339.0	10.5
11540.500000	49.86	73.98	24.12	1000.000	100.0	H	186.0	17.5
16074.500000	56.91	73.98	17.07	1000.000	116.0	H	220.0	25.7
16874.000000	58.43	88.23	29.80	1000.000	100.0	V	320.0	26.1

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	24.50	53.98	29.48	1000.000	162.0	V	268.0	-0.3
2094.500000	24.67	68.23	43.56	1000.000	100.0	V	308.0	2.7
4333.000000	28.93	53.98	25.05	1000.000	242.0	H	67.0	7.6
6159.500000	31.15	68.23	37.08	1000.000	312.0	H	339.0	10.5
11540.500000	36.45	53.98	17.53	1000.000	100.0	H	186.0	17.5
16074.500000	43.52	53.98	10.46	1000.000	116.0	H	220.0	25.7
16874.000000	44.73	68.23	23.50	1000.000	100.0	V	320.0	26.1



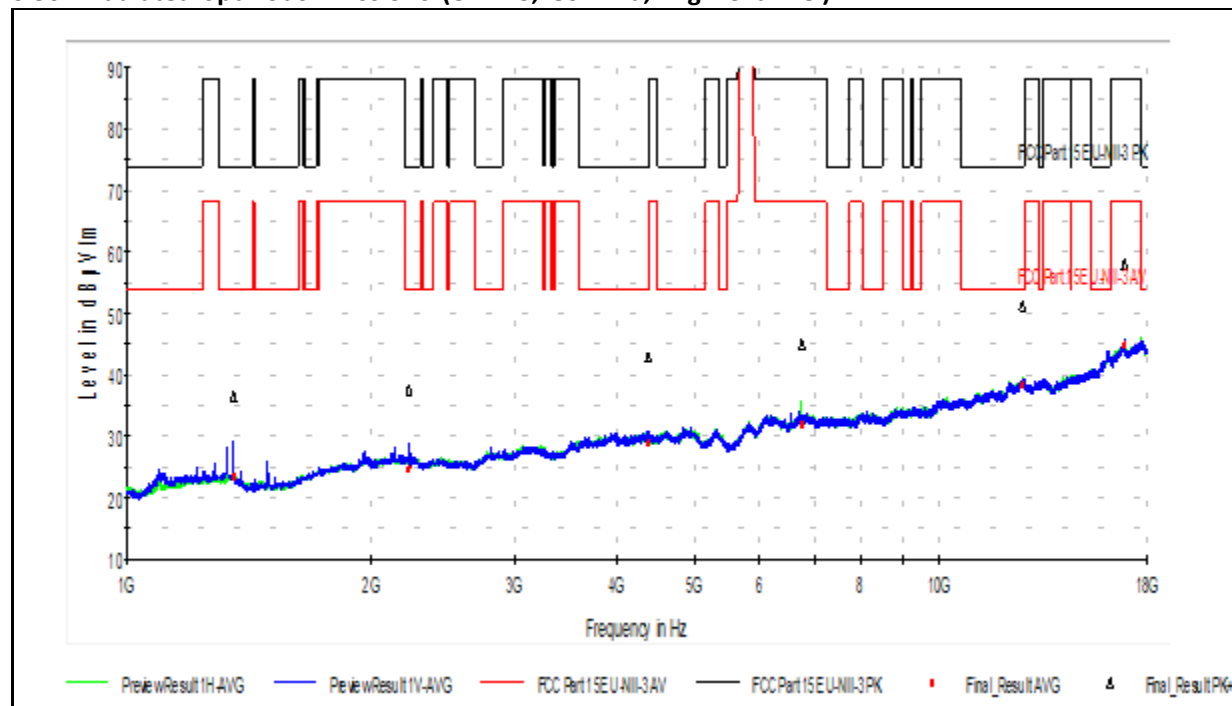
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
19725.500000	55.46	73.98	18.52	1000.000	269.0	V	307.0	15.6
22879.500000	54.55	73.98	19.43	1000.000	100.0	V	234.0	6.6
23968.000000	53.88	73.98	20.10	1000.000	395.0	H	333.0	6.4
31562.000000	55.87	73.98	18.11	1000.000	286.0	V	176.0	11.0
36325.500000	56.16	88.23	32.07	1000.000	109.0	V	0.0	11.4

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
19725.500000	42.28	53.98	11.70	1000.000	269.0	V	307.0	15.6
22879.500000	40.65	53.98	13.33	1000.000	100.0	V	234.0	6.6
23968.000000	40.55	53.98	13.43	1000.000	395.0	H	333.0	6.4
31562.000000	42.86	53.98	11.12	1000.000	286.0	V	176.0	11.0
36325.500000	43.10	68.23	25.13	1000.000	109.0	V	0.0	11.4

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.56 Radiated Spurious Emissions (U-NII-3, 802.11a, High Channel)**

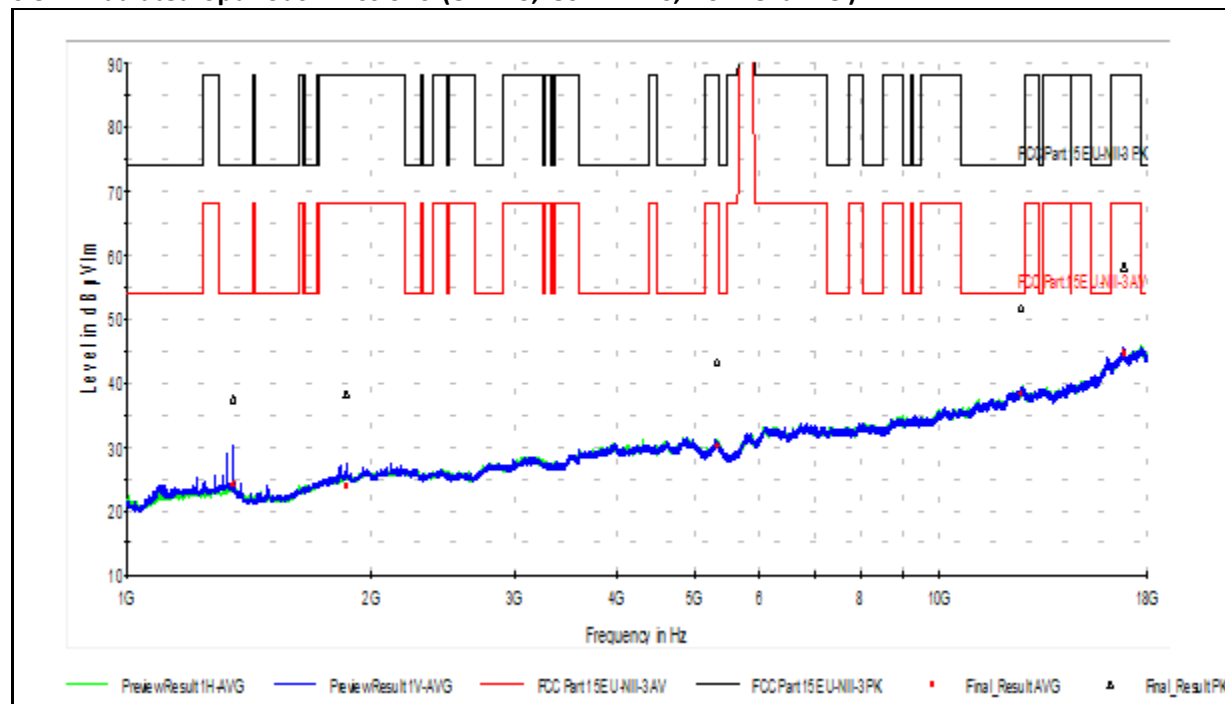
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	36.61	73.98	37.37	1000.000	126.0	V	312.0	-0.3
2223.500000	37.62	73.98	36.36	1000.000	100.0	V	200.0	3.3
4376.000000	42.99	73.98	30.99	1000.000	362.0	H	74.0	7.8
6762.500000	44.95	88.23	43.28	1000.000	410.0	H	311.0	11.0
12646.500000	51.34	73.98	22.64	1000.000	410.0	V	254.0	19.1
16852.000000	58.07	88.23	30.16	1000.000	410.0	V	325.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	23.53	53.98	30.45	1000.000	126.0	V	312.0	-0.3
2223.500000	24.67	53.98	29.31	1000.000	100.0	V	200.0	3.3
4376.000000	29.09	53.98	24.89	1000.000	362.0	H	74.0	7.8
6762.500000	31.86	68.23	36.37	1000.000	410.0	H	311.0	11.0
12646.500000	38.38	53.98	15.60	1000.000	410.0	V	254.0	19.1
16852.000000	44.80	68.23	23.43	1000.000	410.0	V	325.0	26.1

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.57 Radiated Spurious Emissions (U-NII-3, 802.11n20, Low Channel)**

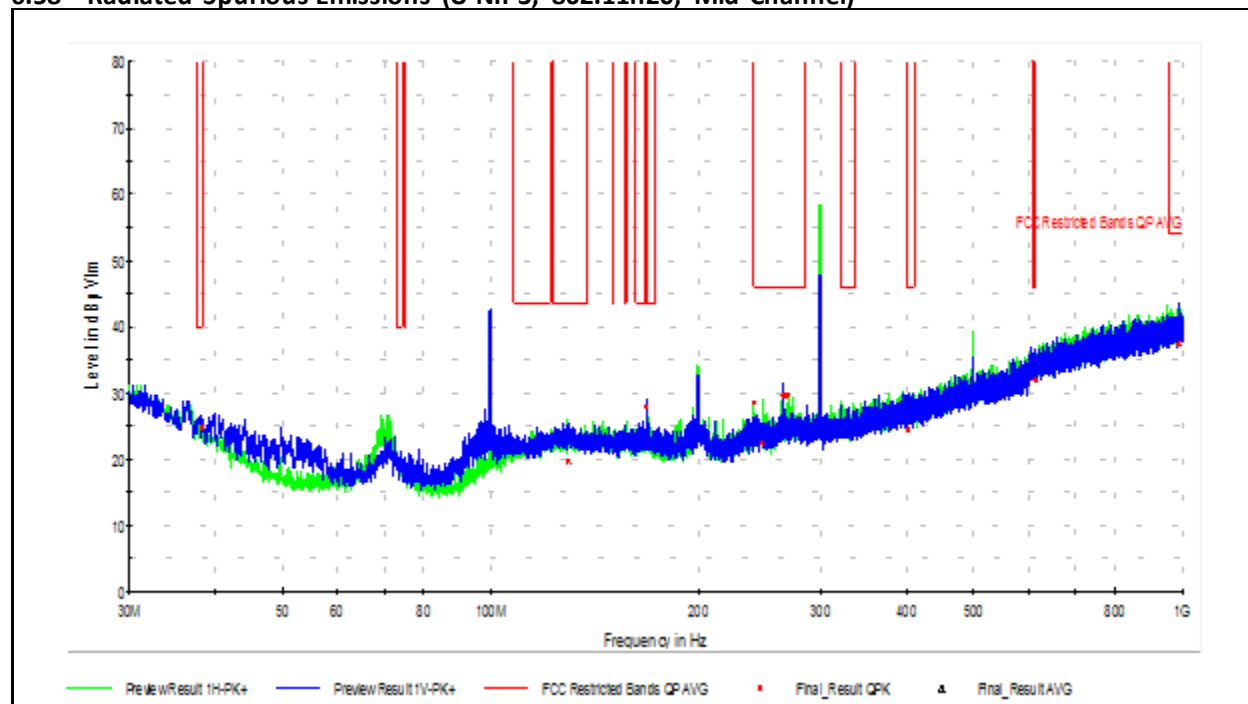
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	37.66	73.98	36.32	1000.000	292.0	V	54.0	-0.3
1864.000000	38.21	88.23	50.02	1000.000	278.0	V	333.0	2.1
5317.500000	43.29	88.23	44.94	1000.000	100.0	H	112.0	9.0
12575.500000	51.96	73.98	22.02	1000.000	100.0	H	283.0	19.0
16828.000000	58.23	88.23	30.00	1000.000	100.0	V	27.0	26.1

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	24.33	53.98	29.65	1000.000	292.0	V	54.0	-0.3
1864.000000	24.00	68.23	44.23	1000.000	278.0	V	333.0	2.1
5317.500000	30.10	68.23	38.13	1000.000	100.0	H	112.0	9.0
12575.500000	38.25	53.98	15.73	1000.000	100.0	H	283.0	19.0
16828.000000	44.77	68.23	23.46	1000.000	100.0	V	27.0	26.1

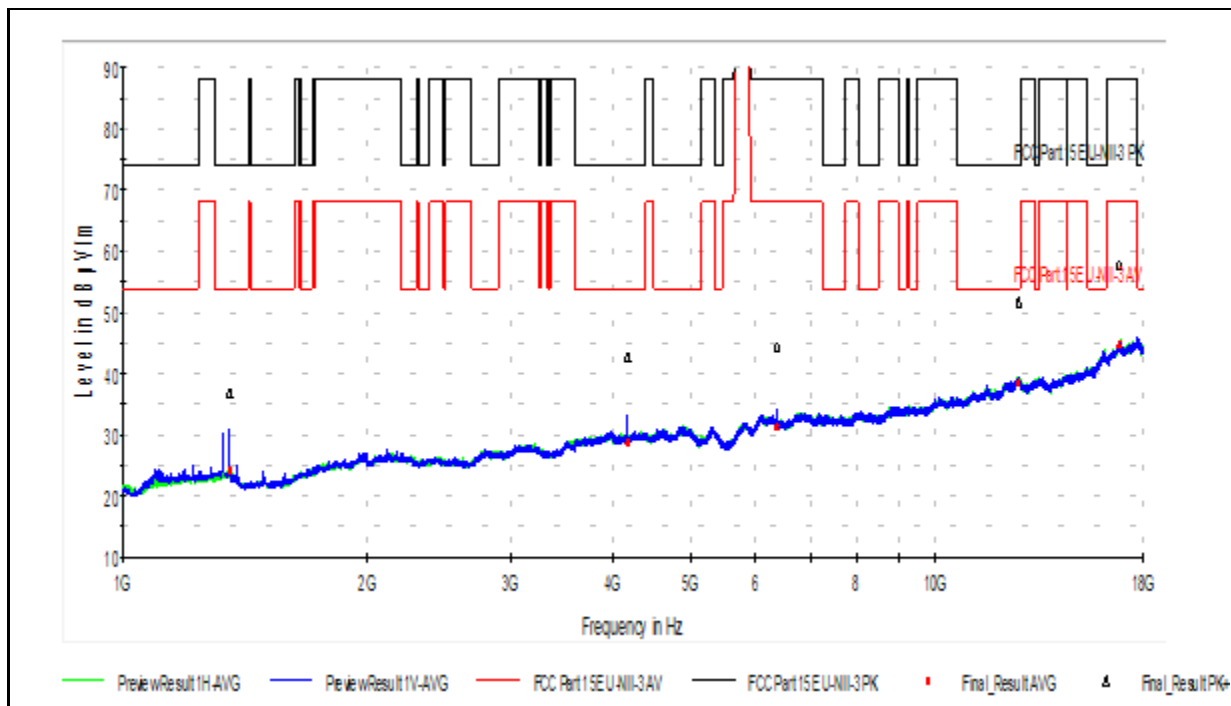
Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

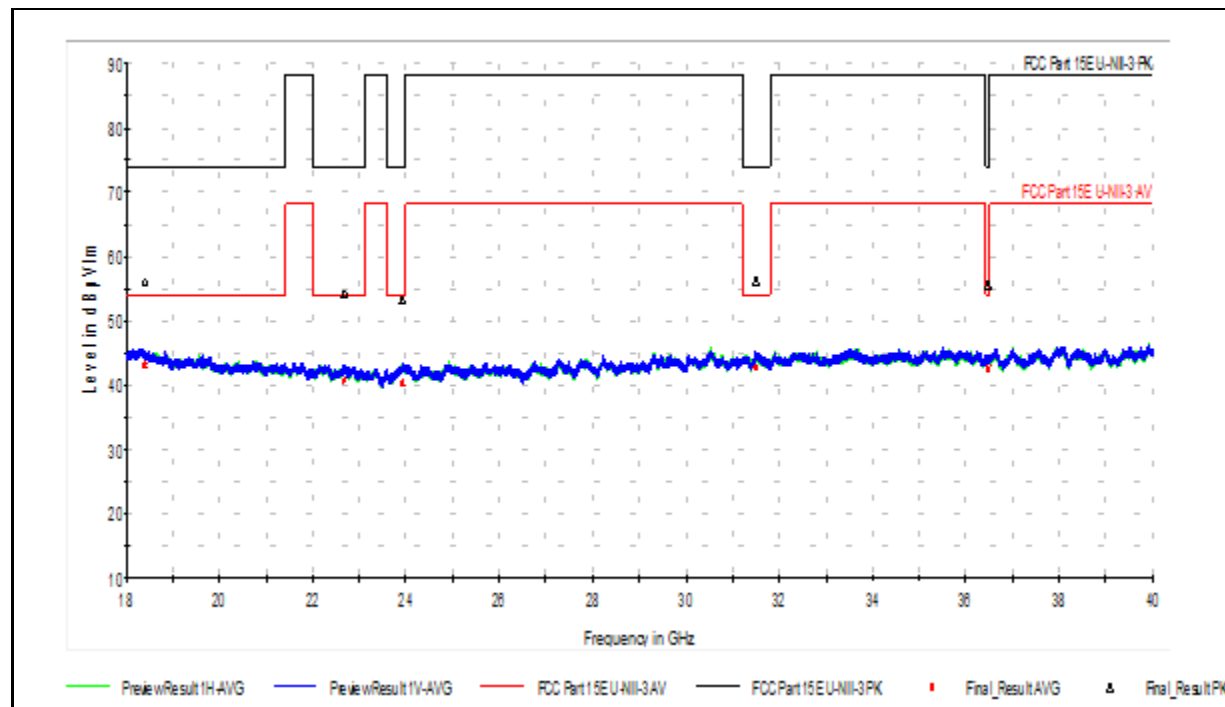
**6.58 Radiated Spurious Emissions (U-NII-3, 802.11n20, Mid Channel)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	24.64	40.00	15.36	120.000	100.0	V	321.0	21.9
129.263333	19.70	43.52	23.82	120.000	142.4	H	129.0	22.0
167.901667	27.99	43.52	15.53	120.000	100.0	V	28.0	21.7
240.005000	28.50	46.02	17.52	120.000	99.9	H	186.0	21.5
246.633333	22.41	46.02	23.61	120.000	100.0	H	176.0	21.7
265.225000	29.62	46.02	16.40	120.000	142.1	V	116.0	23.2
269.859445	29.67	46.02	16.35	120.000	100.4	H	165.0	23.5
401.833333	24.58	46.02	21.44	120.000	260.8	V	0.0	26.7
613.023889	31.90	46.02	14.12	120.000	142.2	V	226.0	31.8
991.162222	37.43	53.98	16.55	120.000	331.7	V	43.0	37.2



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	36.93	73.98	37.05	1000.000	304.0	V	273.0	-0.3
4177.500000	42.85	73.98	31.13	1000.000	100.0	V	232.0	7.6
6379.500000	44.55	88.23	43.68	1000.000	410.0	V	331.0	11.0
12623.500000	51.78	73.98	22.20	1000.000	410.0	H	337.0	19.2
16808.000000	57.95	88.23	30.28	1000.000	410.0	H	186.0	26.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	24.27	53.98	29.71	1000.000	304.0	V	273.0	-0.3
4177.500000	28.71	53.98	25.27	1000.000	100.0	V	232.0	7.6
6379.500000	31.27	68.23	36.96	1000.000	410.0	V	331.0	11.0
12623.500000	38.53	53.98	15.45	1000.000	410.0	H	337.0	19.2
16808.000000	44.72	68.23	23.51	1000.000	410.0	H	186.0	26.2



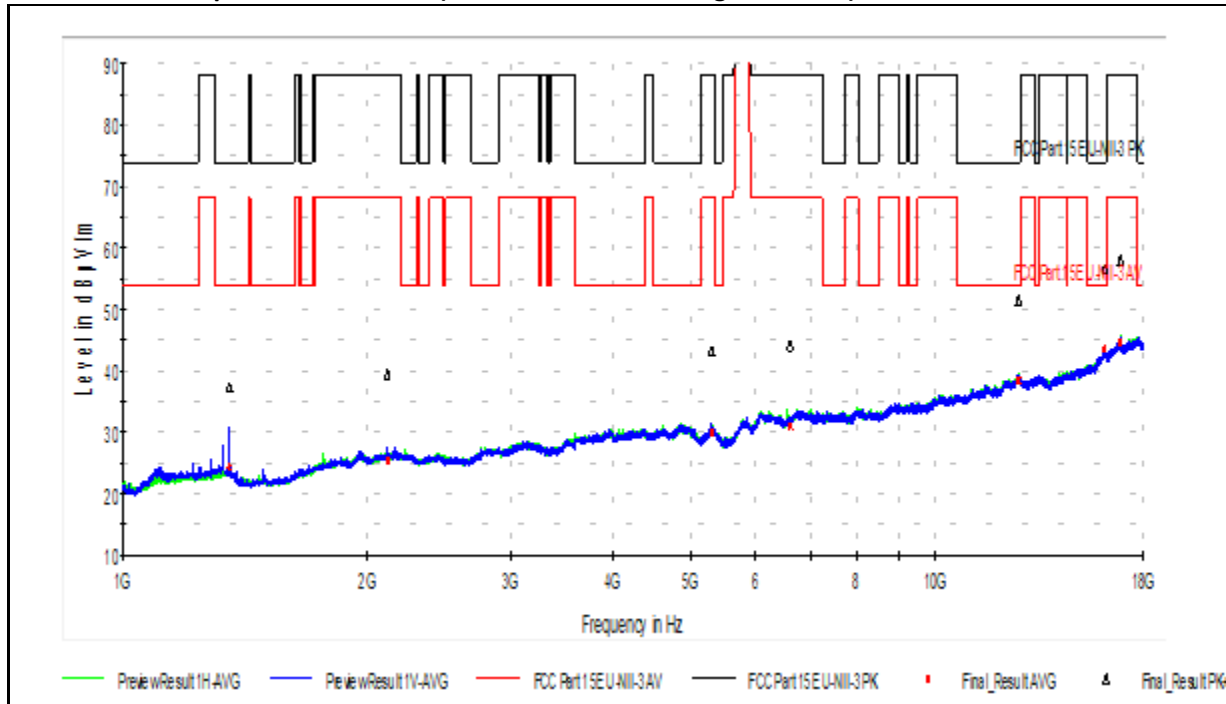
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18400.000000	56.03	73.98	17.95	1000.000	100.0	H	112.0	19.9
22688.500000	54.32	73.98	19.66	1000.000	100.0	V	320.0	6.8
23923.500000	53.27	73.98	20.71	1000.000	277.0	H	210.0	6.0
31493.500000	56.25	73.98	17.73	1000.000	100.0	V	80.0	11.2
36476.500000	55.61	73.98	18.37	1000.000	140.0	V	318.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18400.000000	43.08	53.98	10.90	1000.000	100.0	H	112.0	19.9
22688.500000	40.62	53.98	13.36	1000.000	100.0	V	320.0	6.8
23923.500000	40.31	53.98	13.67	1000.000	277.0	H	210.0	6.0
31493.500000	42.79	53.98	11.19	1000.000	100.0	V	80.0	11.2
36476.500000	42.57	53.98	11.41	1000.000	140.0	V	318.0	11.2

Test Personnel: Ben Coolbear
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/5/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.59 Radiated Spurious Emissions (U-NII-3, 802.11n20, High Channel)**

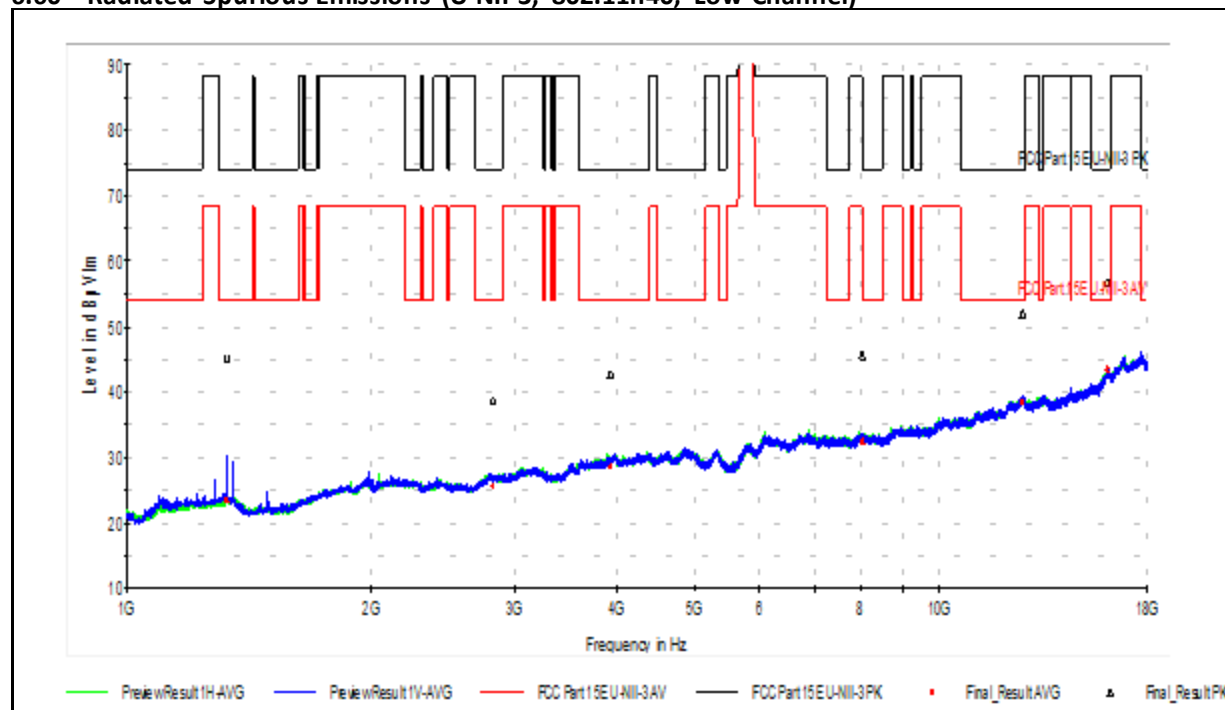
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	37.39	73.98	36.59	1000.000	239.0	V	326.0	-0.3
2118.000000	39.49	88.23	48.74	1000.000	141.0	V	11.0	2.6
5302.500000	43.41	88.23	44.82	1000.000	410.0	V	86.0	8.9
6612.000000	44.17	88.23	44.06	1000.000	152.0	H	318.0	11.0
12641.500000	51.59	73.98	22.39	1000.000	410.0	V	205.0	19.1
16124.500000	56.67	73.98	17.31	1000.000	410.0	H	248.0	25.7
16882.000000	58.11	88.23	30.12	1000.000	410.0	H	271.0	26.1

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	24.35	53.98	29.63	1000.000	239.0	V	326.0	-0.3
2118.000000	25.45	68.23	42.78	1000.000	141.0	V	11.0	2.6
5302.500000	29.97	68.23	38.26	1000.000	410.0	V	86.0	8.9
6612.000000	31.06	68.23	37.17	1000.000	152.0	H	318.0	11.0
12641.500000	38.45	53.98	15.53	1000.000	410.0	V	205.0	19.1
16124.500000	43.51	53.98	10.47	1000.000	410.0	H	248.0	25.7
16882.000000	44.67	68.23	23.56	1000.000	410.0	H	271.0	26.1

Test Personnel: Ben Coolbear
 Supervising/Reviewing Engineer: _____
 (Where Applicable) N/A
 Product Standard: FCC Part 15E
 Input Voltage: 120VAC / 60Hz
 Pretest Verification w / Ambient
 Signals or BB Source: Yes

Test Date: 2/5/2020
 Limit Applied: See Table Above
 Ambient Temperature: 22.9°C
 Relative Humidity: 35.9 %
 Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.60 Radiated Spurious Emissions (U-NII-3, 802.11n40, Low Channel)**

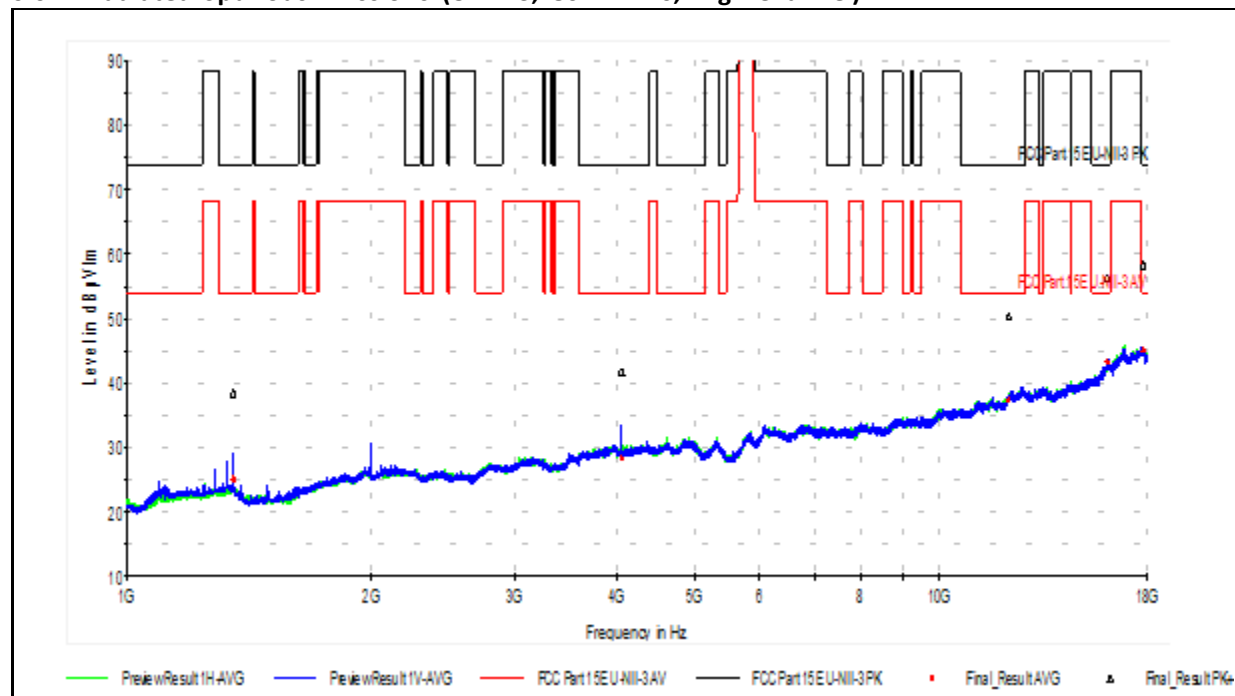
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1330.500000	45.26	73.98	28.72	1000.000	410.0	V	330.0	-0.3
2822.500000	38.75	73.98	35.23	1000.000	100.0	V	162.0	4.6
3938.000000	42.87	73.98	31.11	1000.000	100.0	H	347.0	7.0
8020.500000	45.57	88.23	42.66	1000.000	410.0	H	154.0	12.4
12624.500000	51.96	73.98	22.02	1000.000	410.0	V	0.0	19.1
16063.000000	56.84	73.98	17.14	1000.000	410.0	V	313.0	25.4

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1330.500000	23.48	53.98	30.50	1000.000	410.0	V	330.0	-0.3
2822.500000	25.59	53.98	28.39	1000.000	100.0	V	162.0	4.6
3938.000000	28.47	53.98	25.51	1000.000	100.0	H	347.0	7.0
8020.500000	32.51	68.23	35.72	1000.000	410.0	H	154.0	12.4
12624.500000	38.50	53.98	15.48	1000.000	410.0	V	0.0	19.1
16063.000000	43.45	53.98	10.53	1000.000	410.0	V	313.0	25.4

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient
Signals or BB Source: Yes

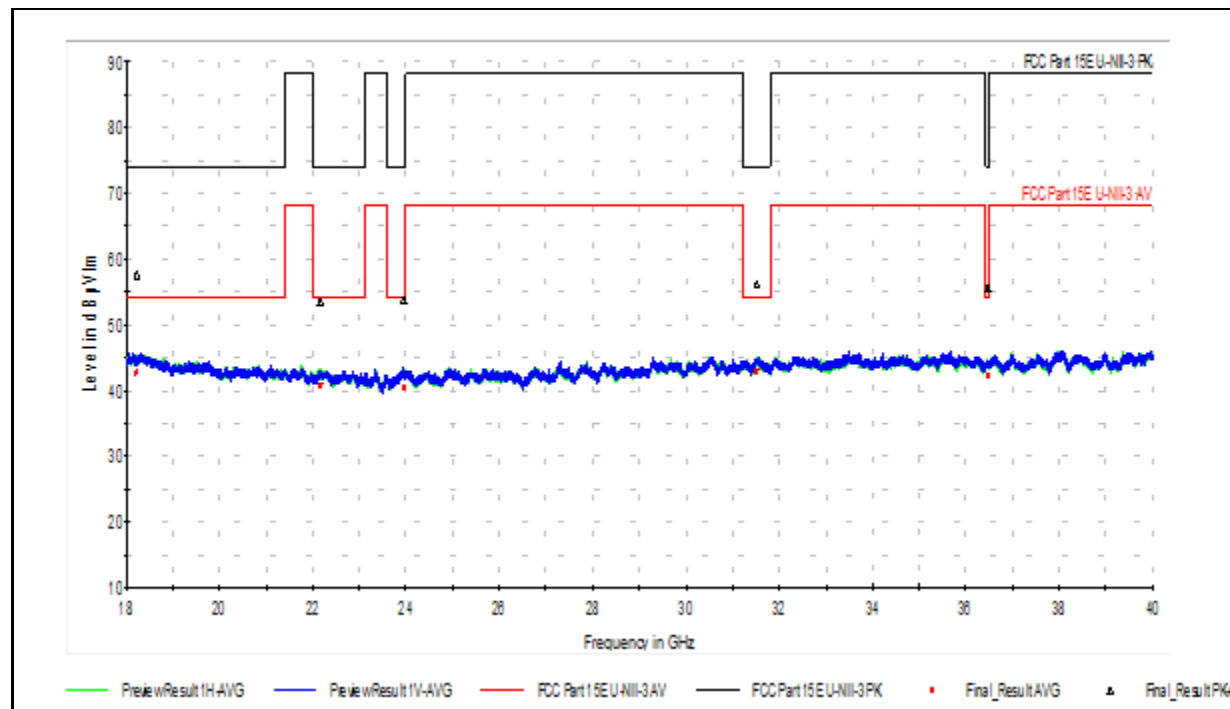
Test Date: 2/6/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

**6.61 Radiated Spurious Emissions (U-NII-3, 802.11n40, High Channel)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	38.56	73.98	35.42	1000.000	212.0	V	66.0	-0.3
4058.000000	41.91	73.98	32.07	1000.000	410.0	V	322.0	7.1
12143.500000	50.46	73.98	23.52	1000.000	100.0	H	270.0	18.4
16046.500000	56.35	73.98	17.63	1000.000	100.0	H	0.0	25.1
17795.000000	58.44	73.98	15.54	1000.000	100.0	H	338.0	26.3

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1354.000000	25.15	53.98	28.83	1000.000	212.0	V	66.0	-0.3
4058.000000	28.33	53.98	25.65	1000.000	410.0	V	322.0	7.1
12143.500000	37.34	53.98	16.64	1000.000	100.0	H	270.0	18.4
16046.500000	43.29	53.98	10.69	1000.000	100.0	H	0.0	25.1
17795.000000	44.97	53.98	9.01	1000.000	100.0	H	338.0	26.3



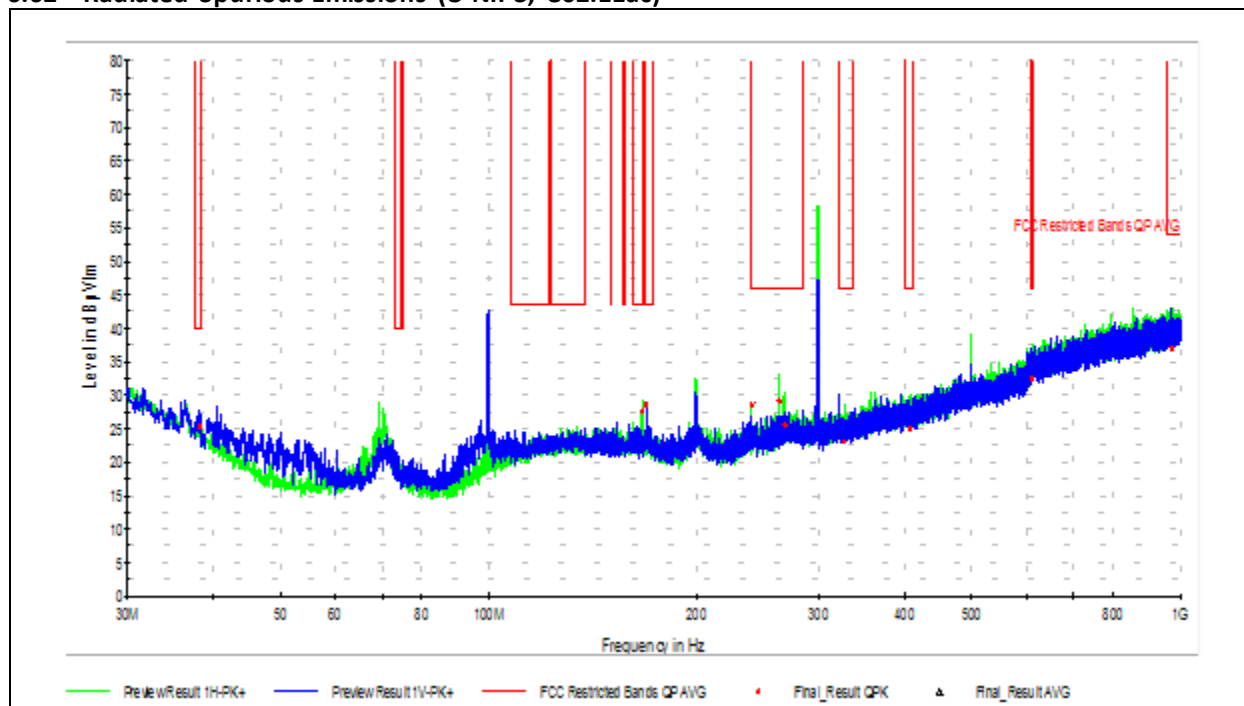
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18217.000000	57.53	73.98	16.45	1000.000	100.0	H	232.0	20.3
22157.000000	53.53	73.98	20.45	1000.000	100.0	H	241.0	8.0
23940.500000	53.83	73.98	20.15	1000.000	100.0	V	176.0	6.2
31506.000000	56.23	73.98	17.75	1000.000	399.0	H	130.0	11.2
36464.500000	55.51	73.98	18.47	1000.000	108.0	H	7.0	11.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18217.000000	42.79	53.98	11.19	1000.000	100.0	H	232.0	20.3
22157.000000	40.71	53.98	13.27	1000.000	100.0	H	241.0	8.0
23940.500000	40.58	53.98	13.40	1000.000	100.0	V	176.0	6.2
31506.000000	42.86	53.98	11.12	1000.000	399.0	H	130.0	11.2
36464.500000	42.44	53.98	11.54	1000.000	108.0	H	7.0	11.2

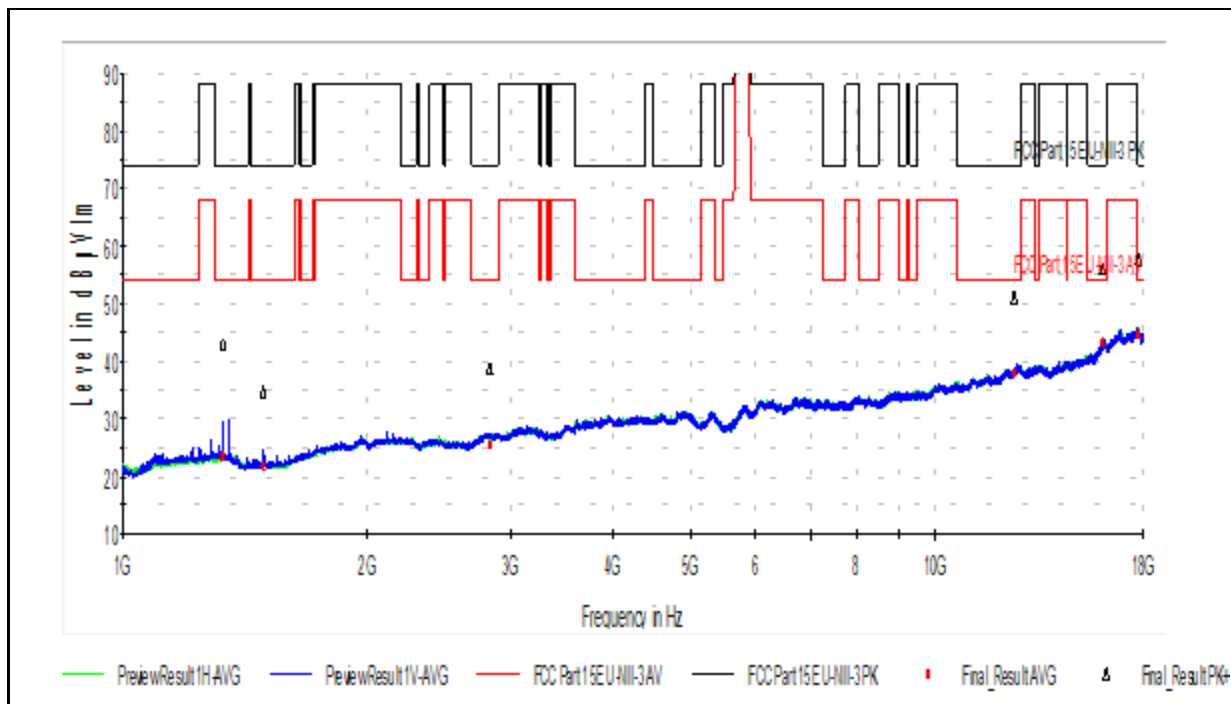
Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/6/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None

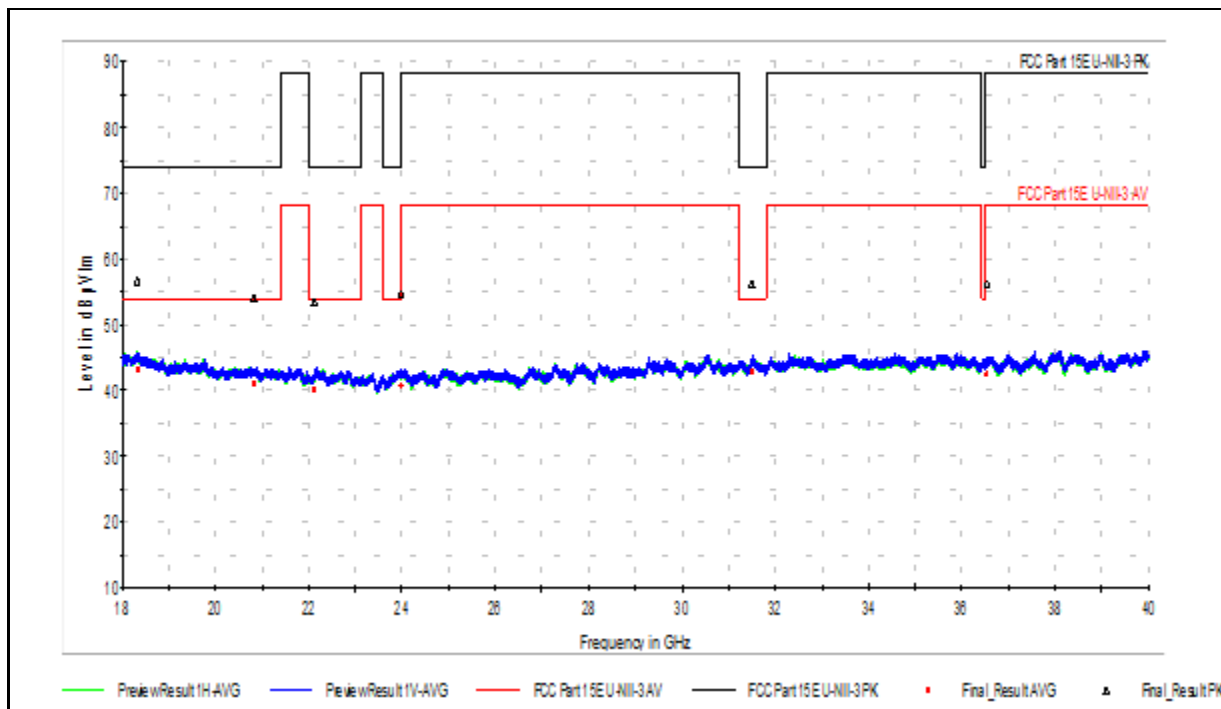
**6.62 Radiated Spurious Emissions (U-NII-3, 802.11ac)**

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.191111	25.20	40.00	14.80	120.000	99.9	V	119.0	21.9
166.770000	27.63	43.52	15.89	120.000	142.2	H	174.0	21.6
169.087222	28.61	43.52	14.91	120.000	99.9	V	193.0	21.6
240.005000	28.55	46.02	17.47	120.000	105.2	H	194.0	21.5
262.907778	29.03	46.02	16.99	120.000	107.0	H	164.0	22.9
268.620000	25.59	46.02	20.43	120.000	99.9	H	164.0	23.4
326.820000	23.00	46.02	23.02	120.000	106.3	H	111.0	24.9
406.898889	25.05	46.02	20.97	120.000	177.7	H	210.0	27.2
611.461111	32.42	46.02	13.60	120.000	272.9	H	65.0	32.3
972.893889	37.03	53.98	16.95	120.000	100.2	V	322.0	36.9



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.500000	43.02	73.98	30.96	1000.000	394.0	V	323.0	-0.2
1490.000000	34.67	73.98	39.31	1000.000	140.0	V	61.0	-1.6
2827.000000	38.76	73.98	35.22	1000.000	100.0	H	257.0	4.5
12478.000000	51.14	73.98	22.84	1000.000	410.0	H	22.0	19.0
16045.000000	56.08	73.98	17.90	1000.000	410.0	H	273.0	25.1
17740.500000	57.64	73.98	16.34	1000.000	410.0	H	246.0	26.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1329.500000	23.26	53.98	30.72	1000.000	394.0	V	323.0	-0.2
1490.000000	21.84	53.98	32.14	1000.000	140.0	V	61.0	-1.6
2827.000000	25.48	53.98	28.50	1000.000	100.0	H	257.0	4.5
12478.000000	37.92	53.98	16.06	1000.000	410.0	H	22.0	19.0
16045.000000	43.28	53.98	10.70	1000.000	410.0	H	273.0	25.1
17740.500000	44.65	53.98	9.33	1000.000	410.0	H	246.0	26.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18319.500000	56.80	73.98	17.18	1000.000	100.0	H	130.0	19.9
20819.000000	54.14	73.98	19.84	1000.000	100.0	H	25.0	11.6
22121.000000	53.47	73.98	20.51	1000.000	100.0	H	281.0	7.8
23980.500000	54.66	73.98	19.32	1000.000	100.0	V	26.0	6.5
31491.500000	56.31	73.98	17.67	1000.000	230.0	V	90.0	11.2
36534.000000	56.31	88.23	31.92	1000.000	100.0	V	0.0	11.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
18319.500000	43.09	53.98	10.89	1000.000	100.0	H	130.0	19.9
20819.000000	40.96	53.98	13.02	1000.000	100.0	H	25.0	11.6
22121.000000	40.23	53.98	13.75	1000.000	100.0	H	281.0	7.8
23980.500000	40.64	53.98	13.34	1000.000	100.0	V	26.0	6.5
31491.500000	42.81	53.98	11.17	1000.000	230.0	V	90.0	11.2
36534.000000	42.53	68.23	25.70	1000.000	100.0	V	0.0	11.1

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15E
Input Voltage: 120VAC / 60Hz
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 2/6/2020
Limit Applied: See Table Above
Ambient Temperature: 22.9°C
Relative Humidity: 35.9 %
Atmospheric Pressure: 999.7 mbar

Deviations, Additions, or Exclusions: None



7 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	3/27/2020	104056598LEX-004	MC	BCT	Original Issue
1	5/20/2020	104056598LEX-004.1	MC	BCT	Added a photo of the antenna and made some additional editorial corrections.
2	11/18/2020	104056598LEX-004.2W	MC	BCT	Updated contact info and included antenna gain information for alternate antennas. Listed RSS-247 on the cover page.
3	4/12/2021	104056598LEX-004.3W	MC	BCT	Added a note under the test summary on page 4 explaining the engineering judgements used for not performing conducted output power and band edge measurements.