HEADQUARTERS: 914 WEST PATAPSCO AVENUE • BALTIMORE, MARYLAND 21230 • PHONE (410) 354-3300 • FAX (410) 354-3313

1/16/2023

HP, Inc.
1501 Page Mill Road
Palo Alto CA 94304

Dear Tony Griffiths,

Enclosed is the EMC Wireless test report for compliance testing of the HP, Inc. P033 as tested to the requirements of FCC Part 15 E and RSS-247 Issue 2 for Intentional Radiators.

Thank you for using the services of Eurofins MET Labs. If you have any questions regarding these results or if MET can be of further service to you, please feel free to contact me.

Sincerely yours,
EUROFINS MET LABS

Nancy LaBrecque
Documentation Department

Reference: WIRA118717-FCC407 RSS247 Rev 2

HEADQUARTERS: 914 WEST PATAPSCO AVENUE • BALTIMORE, MARYLAND 21230 • PHONE (410) 354-3300 • FAX (410) 354-3313

5GHz UNII Band WiFi Test Report
for the

HP, Inc.
P033

Tested under
FCC Part 15 E and RSS-247 Issue 2
For Intentional Radiators

Bryan Taylor, Wireless Team Lead
Electromagnetic Compatibility Lab

Nancy LaBrecque
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules Part 15.247 under normal use and maintenance.

Matthew Hinojosa
EMC Manager, Austin Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	12/19/2022	Initial Issue.
1	1/7/2023	Addressing comments from TCB review
2	1/16/2023	Addressing further comments from TCB review

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List of Terms and Abbreviations

AC	**A**lternating **C**urrent
ACF	**A**ntenna **C**orrection **F**actor
Cal	**Cal**ibration
d	**M**easurement **D**istance
dB	**D**eci**b**els
dBµA	**D**eci**b**els above one **micro**amp
dBµV	**D**eci**b**els above one **micro**volt
dBµA/m	**D**eci**b**els above one **micro**amp **per m**eter
dBµV/m	**D**eci**b**els above one **micro**volt **per m**eter
DC	**D**irect **C**urrent
E	**E**lectric Field
DSL	**D**igital **S**ubscriber **L**ine
ESD	**E**lectro**s**tatic **D**ischarge
EUT	**E**quipment **U**nder **T**est
f	**F**requency
FCC	**F**ederal **C**ommunications **C**ommission
GRP	**G**round **R**eference **P**lane
H	Magnetic Field
HCP	**H**orizontal **C**oupling **P**lane
Hz	**H**ert**z**
IEC	**I**nternational **E**lectrotechnical **C**ommission
kHz	**K**ilo**h**ert**z**
kPa	**K**ilo**pa**scal
kV	**K**ilo**v**olt
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
MHz	**M**ega**h**ertz
µH	**Microh**enry
µ	**Microf**arad
µs	**Micros**econds
PRF	**P**ulse **R**epetition **F**requency
RF	**R**adio **F**requency
RMS	**R**oot-**M**ean-**S**quare
TWT	**T**raveling **W**ave **T**ube
V/m	**V**olts **per m**eter
VCP	**V**ertical **C**oupling **P**lane

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the HP, Inc. P033, with the requirements of FCC Part 15 E and RSS-247 Issue 2 . HP, Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the P033, has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15 E and RSS-247 Issue 2 , in accordance with HP, Inc. purchase order number 10000013761. All tests were conducted using measurement procedures ANSI C63.4-2014 and ANSI C63.10-2013.

FCC Reference	Description	Results
§15.203	Antenna Requirement	Compliant
§15.407(b)(9)	Conducted Emission Limits	Compliant
§15.403(i)	26dB Occupied Bandwidth	Compliant
§15.407 (a)	Maximum Conducted Output Power	Compliant
§15.407 (a)	Maximum Power Spectral Density	Compliant
§15.407 (b)	Undesirable Emissions	Compliant
§15.407(g)	Frequency Stability	Compliant

Table 1. Executive Summary of FCC Part 15.407 ComplianceTesting

ISED Reference	Description	Results
RSS-Gen (8.7)	Conducted Emission Limits	Compliant
RSS-Gen (6.7)	99% Occupied Bandwidth	Compliant
RSS-247 (6.2)	26dB Occupied Bandwidth	Compliant
RSS-247 (6.2)	Maximum Conducted Output Power	Compliant
RSS-247 (6.2)	Effective Isotropic Radiated Power	Compliant
RSS-247 (6.2)	Maximum Power Spectral Density	Compliant
RSS-247 (6.2)	EIRP Spectral Density	Compliant
RSS-247 (6.2)	Undesirable Emissions	Compliant
RSS-247 (6.2)	Transmissions in the 5600 – 5650MHz Band	Compliant
RSS-247 (6.2)	Frequency Stability	Compliant

Table 2. Executive Summary of ISED ComplianceTesting

II. Equipment Configuration

A. Overview

Eurofins MET Labs was contracted by HP, Inc. to perform testing on the P033, under HP, Inc.'s purchase order number 10000013761.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the HP, Inc. P033.

The results obtained relate only to the item(s) tested.

Model(s) Tested:	P033	
Model(s) Covered:	P033	
EUT Specifications:	Primary Power: 120VAC	
	Type of Modulations:	OFDM
	Equipment Code:	NII
	Antenna Gain[1]:	3.64dBi (Antenna Path 1) 3.64dBi (Antenna Path 2) Directional Gain = 3.64 + 10log(2) = 6.64dBi Note: the array gain was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.
	EUT Frequency Ranges:	U-NII-1: 5150 – 5250 MHz
		U-NII-2A: 5250 – 5350 MHz
		U-NII-2C: 5470 – 5725 MHz
		U-NII-3: 5725 – 5850 MHz
	Maximum Conducted Output Power:	U-NII-1: 12.27dBm
		U-NII-2A: 12.72dBm
		U-NII-2C: 13.44dBm
		U-NII-3: 10.26dBm
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35º C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Type of Filing:	Original	
Evaluated by:	Bryan Taylor	
Report Date(s):	4/20/2022 through 1/12/2023	

Table 3. EUT Summary

[1] The antenna gain information was provided by HP, Inc. at the time of testing.

B. References

CFR 47, Part 15, Subpart E	Unlicensed National Information Infrastructure Devices (UNII)
RSS-247: Issue 2	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS-Gen: Issue 5	General Requirements for Compliance of Radio Apparatus
ANSI C63.4:2014	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
ISO/IEC 17025:2005	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
789033 D02 General UNII Test Procedures New Rules v02	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

Table 4. References

C. Test Site

All testing was performed at Eurofins MET Labs, Inc., 13501 McCallen Pass, Austin TX 78753. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Radiated Emissions measurements were performed in a 10 meter semi-anechoic chamber (equivalent to an Open Area Test Site). In accordance with §2.948(a)(3), a complete site description is contained at Eurofins MET Labs.

D. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.97 dB	2	95%
RF Power Radiated Emissions	±2.95 dB	2	95%

Table 5. Uncertainty Calculations Summary

E. Description of Test Sample

The HP, Inc. P033 (marketed as P033), is a video conferencing video bar designed to act as an audio / video endpoint codec over LAN networks. The device is powered by a AC/DC mains adapter and contains 2.4GHz / 5Ghz Wifi and Bluetooth radio interfaces.

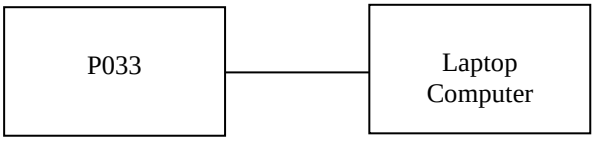


Figure 1. Block Diagram of Test Configuration

F. Equipment Configuration

The EUT was set up as outlined in **Error! Reference source not found.**, Block Diagram of Test Setup. The laptop computer was used to send test commands to force the transmitters to operate in the appropriate test mode.

Ref. ID	Name / Description	Model Number	Part Number	Serial Number	Revision
1	P033	P033	N/A	Test Sample 1	N/A

Table 6. Equipment Configuration

G. Support Equipment

Support equipment necessary for the operation and testing of the EUT is included in the following list.

Ref. ID	Name / Description	Manufacturer	Model Number	Customer Supplied Calibration Data
1	Laptop Computer	Dell	HW_Lab	--

Table 7. Support Equipment

H. Ports and Cabling Information

Ref. Id	Port Name on EUT	Qty	Length as tested (m)	Shielded? (Y/N)	Termination Box ID & Port Name
5	DC Power	1	2m	No	AC/DC adaptor
9	USB C	1	10m	No	Laptop Computer

Table 8. Ports and Cabling Information

I. Mode of Operation

The support laptop provided a direct means of controlling transmitter parameters. Unless otherwise stated or shown, all tests were performed at worst-case modulation and data rates on the following channels.

Transmit Band	Operating Mode	Worst Case Transmission Bandwidth	Channel Numbers Tested	Channel Frequencies Tested	Test Tool Power Setting
U-NII-1	802.11a	20MHz	36 / 40 / 48	5180MHz / 5200MHz / 5240MHz	10.5dBm
	802.11n	20MHz	36 / 40 / 48	5180MHz / 5200MHz / 5240MHz	10.5dBm
	802.11n (40)	40MHz	38 / 46	5190MHz / 5230MHz	10.5dBm
	802.11ac	80MHz	42	5210MHz	10.5dBm
	802.11ax	80MHz	42	5210MHz	10.5dBm
U-NII-2A	802.11a	20MHz	52 / 56 / 64	5260MHz / 5280MHz / 5320MHz	10.5dBm
	802.11n	20MHz	52 / 56 / 64	5260MHz / 5280MHz / 5320MHz	10.5dBm
	802.11n (40)	40MHz	54 / 62	5270MHz / 5310MHz	10.5dBm
	802.11ac	80MHz	58	5290MHz	10.5dBm
	802.11ax	80MHz	58	5290MHz	10.5dBm
U-NII-2A	802.11a	20MHz	100 / 120 / 144	5500MHz / 5600MHz / 5720MHz	10.5dBm
	802.11n	20MHz	100 / 120 / 144	5500MHz / 5600MHz / 5720MHz	10.5dBm
	802.11n (40)	40MHz	102 / 118 / 142	5510MHz / 5590MHz / 5710MHz	10.5dBm
	802.11ac	80MHz	106 / 122 / 138	5230MHz / 5610MHz / 5690MHz	10.5dBm
	802.11ax	80MHz	106 / 122 / 138	5230MHz / 5610MHz / 5690MHz	10.5dBm
U-NII-3	802.11a	20MHz	149 / 157 / 165	5745MHz / 5785MHz / 5825MHz	10.5dBm
	802.11n	20MHz	149 / 157 / 165	5745MHz / 5785MHz / 5825MHz	10.5dBm
	802.11n (40)	40MHz	151 / 159	5755MHz / 5780MHz	10.5dBm
	802.11ac	80MHz	155	5775MHz	10.5dBm
	802.11ax	80MHz	155	5775MHz	10.5dBm

Table 9. Test Channels Utilized

J. Method of Monitoring EUT Operation

A spectrum analyzer was used to confirm proper transmitter operation.

K. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

L. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Polycom Inc. upon completion of testing.

III. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.203 Antenna Requirement

Test Requirement: **§ 15.203:** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The structure and application of the EUT were analyzed to determine compliance with Section 15.203 of the Rules. Section 15.203 states that the subject device must meet at least one of the following criteria:

a.) Antenna must be permanently attached to the unit.

b.) Antenna must use a unique type of connector to attach to the EUT.

c.) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

Results: The EUT as tested is compliant the criteria of §15.203. The antenna is not accessible by the end user.

Test Engineer(s): Bryan Taylor

Test Date(s): 5/4/2022

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(b)(6) Conducted Emissions

Test Requirement(s): **§ 15.407 (b)(6):** Any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

§ 15.207 (a): For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency range (MHz)	§ 15.207(a), Conducted Limit (dBμV)	
	Quasi-Peak	Average
0.15- 0.5	66 – 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

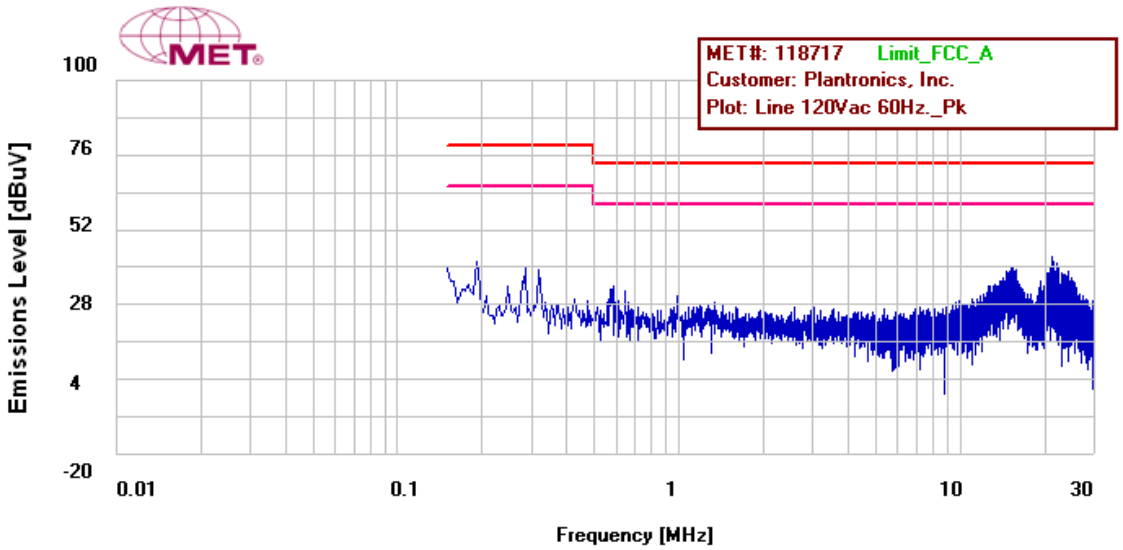
Table 10. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Test Procedure: The EUT was placed on a non-metallic table above a ground plane. The EUT was situated such that the back of the EUT was 0.4 m from one wall of the vertical ground plane, and the remaining sides of the EUT were no closer than 0.8 m from any other conductive surface. The EUT was powered from a 50 Ω/50 μH Line Impedance Stabilization Network (LISN). The EMC receiver scanned the frequency range from 150 kHz to 30 MHz. Conducted Emissions measurements were made in accordance with *ANSI C63.4-2014 "Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40 GHz"*. Scans were performed with the transmitter on.

Test Results: The EUT was compliant with requirements of this section.

Test Engineer(s): Bryan Taylor, James Seib

Test Date(s): 5/3/2022 – 5/18/2022

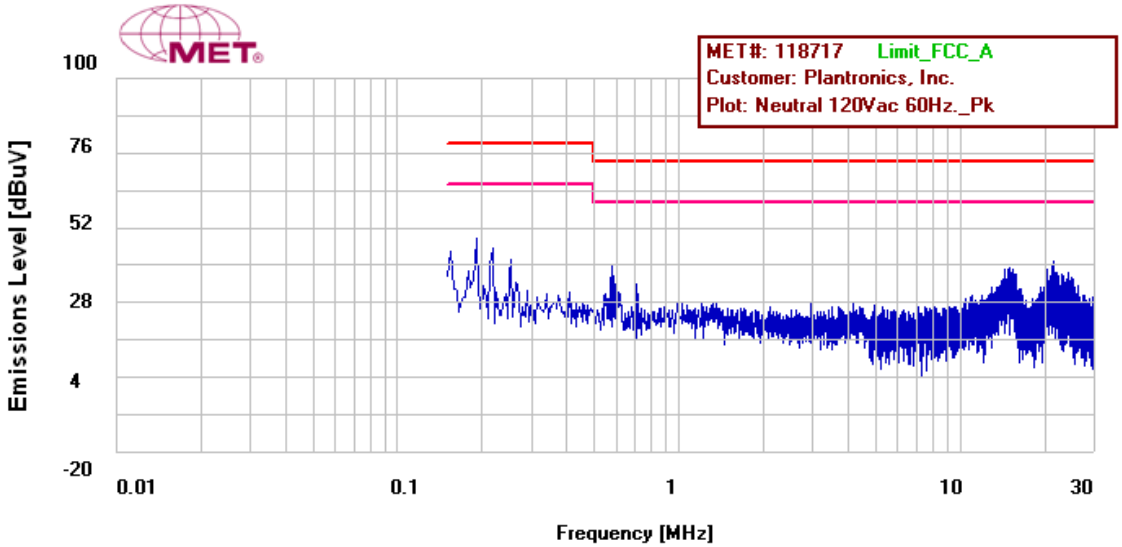


Plot 1. Conducted Emissions Voltage, Phase

Measurement Location	Measurement	Limit	Result
Bonding measurement from LISN ground to ground plane	2.095 mΩ	< 2.5 mΩ	Pass

Line	Freq (MHz)	QP Amplitude (dBµV)	QP Limit (dBµV)	Margin (dB)	Result	Average Amplitude (dBµV)	Average Limit (dBµV)	Margin (dB)	Result
Line 120 VAC/60 Hz.	21.234	42.40	73.00	-30.60	Pass	38.90	60.00	-21.10	Pass
Line 120 VAC/60 Hz.	0.190	42.40	79.00	-36.60	Pass	28.50	66.00	-37.50	Pass
Line 120 VAC/60 Hz.	15.578	36.90	73.00	-36.10	Pass	31.50	60.00	-28.50	Pass
Line 120 VAC/60 Hz.	0.150	48.50	79.00	-30.50	Pass	32.50	66.00	-33.50	Pass
Line 120 VAC/60 Hz.	0.286	33.40	79.00	-45.60	Pass	21.70	66.00	-44.30	Pass
Line 120 VAC/60 Hz.	0.318	32.00	79.00	-47.00	Pass	22.00	66.00	-44.00	Pass

Table 11. Conducted Emissions Voltage, Test Results, Phase



Plot 2. Conducted Emissions Voltage, Neutral

Measurement Location	Measurement	Limit	Result
Bonding measurement from LISN ground to ground plane	2.095 mΩ	< 2.5 mΩ	Pass

Line	Freq (MHz)	QP Amplitude (dBµV)	QP Limit (dBµV)	Margin (dB)	Result	Average Amplitude (dBµV)	Average Limit (dBµV)	Margin (dB)	Result
Neutral 120 VAC/60 Hz.	0.190	43.20	79.00	-35.80	Pass	29.20	66.00	-36.80	Pass
Neutral 120 VAC/60 Hz.	0.218	39.50	79.00	-39.50	Pass	25.90	66.00	-40.10	Pass
Neutral 120 VAC/60 Hz.	0.154	48.40	79.00	-30.60	Pass	32.00	66.00	-34.00	Pass
Neutral 120 VAC/60 Hz.	0.254	36.00	79.00	-43.00	Pass	23.00	66.00	-43.00	Pass
Neutral 120 VAC/60 Hz.	21.482	41.70	73.00	-31.30	Pass	38.20	60.00	-21.80	Pass
Neutral 120 VAC/60 Hz.	0.582	37.50	73.00	-35.50	Pass	30.20	60.00	-29.80	Pass

Table 12. Conducted Emissions Voltage, Test Results, Neutral

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15. 407 26dB Bandwidth

Test Requirements: For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

Test Procedure: The transmitter was set to low, mid, and high operating frequencies at the highest output power and connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using a RBW approximately equal to 1% of the total emission bandwidth, VBW > RBW. The 26 dB Bandwidth was measured and recorded.

Test Results The 26 dB Bandwidth was compliant with the requirements of this section. The worst-case tabular data for each UNII band is shown below. Due to the large number of individual plots for each measurement, they are contained in a separate appendix.

Test Engineer(s): Bryan Taylor

Test Date(s): 5/4/2022

U-NII SubBand 1 and 2A OBW	Port 1 (-26dB) (MHz)	Port 1 (99%) (MHz)	Port 2 (-26dB) (MHz)	Port 2 (99%) (MHz)
U-NII-1_5180MHz_Low Ch_36_20MHz BW_a-mode	19.118	16.591	19.535	16.558
U-NII-1_5200MHz_low_mid Ch_40_20MHz BW_a-mode	19.742	16.563	19.118	16.591
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_a-mode	19.050	16.554	19.540	16.579
U-NII-1_5180MHz_Low Ch_36_20MHz BW_n-mode	20.348	17.717	20.068	17.745
U-NII-1_5200MHz_low_mid Ch_40_20MHz BW_n-mode	20.448	17.751	20.200	17.675
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_n-mode	20.325	17.705	20.412	17.692
U-NII-1_5190MHz_Low Ch_38_40MHz BW_n-mode	40.205	36.182	40.150	36.136
U-NII-1_5230MHz_high_mid Ch_46_40MHz BW_n-mode	40.077	36.163	39.890	36.205
U-NII-1_5210MHz_Low mid Ch_42_80MHz BW_ac-mode	82.619	75.885	82.785	75.573
U-NII-1_5210MHz_Low mid Ch_42_80MHz BW_ax-mode	84.305	77.690	84.009	77.387
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_a-mode	19.652	16.769	19.599	16.613
U-NII-2A_5280MHz_high_mid Ch_56_20MHz BW_a-mode	19.484	16.541	19.539	16.556
U-NII-2A_5320MHz_High Ch_64_20MHz BW_a-mode	19.658	16.613	19.287	16.601
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_n-mode	19.953	16.622	20.531	17.690
U-NII-2A_5280MHz_high_mid Ch_56_20MHz BW_n-mode	19.520	16.581	20.382	17.738
U-NII-2A_5320MHz_High Ch_64_20MHz BW_n-mode	20.371	17.714	20.311	17.699
U-NII-2A_5270MHz_low_mid Ch_54_40MHz BW_n-mode	40.038	36.230	39.810	36.154
U-NII-2A_5310MHz_High Ch_62_40MHz BW_n-mode	40.104	36.222	40.077	36.152
U-NII-2A_5290MHz_High Ch_58_80MHz BW_ac-mode	82.797	75.823	82.973	75.852
U-NII-2A_5290MHz_High Ch_58_80MHz BW_ax-mode	83.071	77.507	84.356	77.335

Table 13. Occupied Bandwidth, Test Results (UNII-1 and UNII 2A)

U-NII SubBand 2C OBW	Port 1 (-26dB) (MHz)	Port 1 (99%) (MHz)	Port 2 (-26dB) (MHz)	Port 2 (99%) (MHz)
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_a-mode	21.80	16.58	21.99	16.53
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_a-mode	21.85	16.54	21.67	16.54
U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	21.96	16.71	22.06	16.66
U-NII-2C_5500MHz_High Ch_100_20MHz BW_n-mode	22.30	17.79	22.46	17.73
U-NII-2C_5600MHz_High Ch_120_20MHz BW_n-mode	22.32	17.77	22.85	17.81
U-NII-2C_5720MHz_Low Ch_144_20MHz BW_n-mode	22.41	17.75	22.49	17.96
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_ac-mode	22.36	17.76	22.31	17.70
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_ac-mode	22.08	17.76	22.37	17.74
U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	22.25	17.78	22.22	17.78
U-NII-2C_5510MHz_High Ch_102_40MHz BW_n-mode	44.36	36.25	44.00	36.21
U-NII-2C_5590MHz_High Ch_118_40MHz BW_n-mode	44.10	36.35	44.25	36.20
U-NII-2C_5710MHz_Low Ch_142_40MHz BW_n-mode	44.43	36.24	44.41	36.27
U-NII-2C_5510MHz_Mid Ch_102_40MHz BW_ac-mode	44.06	36.26	44.19	36.28
U-NII-2C_5590MHz_High Ch_118_40MHz BW_ac-mode	44.29	36.40	44.43	36.32
U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	44.39	36.23	44.15	36.31
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ac-mode	89.53	75.89	89.52	76.06
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ac-mode	89.96	75.57	89.66	75.72
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	89.73	75.97	89.68	76.03
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ax-mode	89.82	77.48	90.27	77.47
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ax-mode	90.60	77.25	90.16	77.52
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	89.96	77.97	90.25	78.09

Table 14. Occupied Bandwidth, Test Results (UNII-2C)

U-NII SubBand 3 OBW	Port 1 (-26dB) (MHz)	Port 1 (99%) (MHz)	Port 2 (-26dB) (MHz)	Port 2 (99%) (MHz)
U-NII-3_5745MHz_Low Ch_149_20MHz BW_a-mode	16.279	16.472	16.470	16.427
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_a-mode	16.207	16.490	16.473	16.405
U-NII-3_5825MHz_High Ch_165_20MHz BW_a-mode	16.250	16.495	16.385	16.431
U-NII-3_5745MHz_Low Ch_149_20MHz BW_n-mode	17.587	17.664	17.635	17.711
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_n-mode	16.401	16.510	15.796	16.493
U-NII-3_5825MHz_High Ch_165_20MHz BW_n-mode	16.426	16.451	16.124	16.443
U-NII-3_5755MHz_Low Ch_151_40MHz BW_n-mode	17.690	17.616	36.325	36.123
U-NII-3_5795MHz_High Ch_159_40MHz BW_n-mode	35.326	36.197	36.424	36.018
U-NII-3_5775MHz_High Ch_155_80MHz BW_ac-mode	75.980	75.912	81.535	75.646
U-NII-3_5775MHz_High Ch_155_80MHz BW_ax-mode	77.835	77.340	73.472	77.256

Table 15. Occupied Bandwidth, Test Results (UNII-3)

Electromagnetic Compatibility Criteria for Intentional Radiators

§15. 407(a) Maximum Conducted Output Power

Test Requirements:

§15.407(a)(1)(iv): For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(2): For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(3)(i): For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure:

The EUT was connected to a spectrum analyzer through a cable and attenuator. Measurements were taken with the EUT set to transmit continuously on its low, mid, and high channels. Its power was measured according to measurement method SA-1, as described in ANSI C63.10. the maximum conducted power across all ports was calculated via the following formula:

Max Conducted Output Power, combined = 10 * log (10^(Port 1dBm/10) + 10^(Port2dBm))

Test Results:

The EUT as tested is compliant with the requirements of this section. The worst-case tabular data for each UNII band is shown below. Due to the large number of individual plots for each measurement, they are contained in a separate appendix.

Straddle channels which have transmissions that extend from U-NII-2C into the U-NII-3 band are presented in the U-NII-3 data table.

Test Engineer(s): Bryan Taylor

Test Date(s): 5/4/2022

U-NII SubBand 1 and 2A FCC PWR	Port 1 (dBm)	Port 2 (dBm)	Sum (dBm)	Limit (dBm)	Margin dB
U-NII-1_5180MHz_Low Ch_36_20MHz BW_a-mode	8.08	8.18	11.14	24	12.86
U-NII-1_5200MHz_low_Mid Ch_40_20MHz BW_a-mode	8.59	8.50	11.56	24	12.44
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_a-mode	9.22	9.30	12.27	24	11.73
U-NII-1_5180MHz_Low Ch_36_20MHz BW_n-mode	8.23	7.91	11.08	24	12.92
U-NII-1_5200MHz_low_Mid Ch_40_20MHz BW_n-mode	8.30	8.30	11.31	24	12.69
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_n-mode	9.03	8.99	12.02	24	11.98
U-NII-1_5190MHz_Low Ch_38_40MHz BW_n-mode	8.57	8.56	11.57	24	12.43
U-NII-1_5230MHz_high_Mid Ch_46_40MHz BW_n-mode	9.05	9.08	12.07	24	11.93
U-NII-1_5210MHz_Low Mid Ch_42_80MHz BW_ac-mode	9.00	8.96	11.99	24	12.01
U-NII-1_5210MHz_Low Mid Ch_42_80MHz BW_ax-mode	9.02	9.00	12.02	24	11.98
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_a-mode	9.25	9.30	12.29	24	11.71
U-NII-2A_5300MHz_high_Mid Ch_60_20MHz BW_a-mode	9.61	9.49	12.56	24	11.44
U-NII-2A_5320MHz_High Ch_64_20MHz BW_a-mode	9.43	9.42	12.43	24	11.57
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_n-mode	9.09	9.03	12.07	24	11.93
U-NII-2A_5300MHz_high_Mid Ch_60_20MHz BW_n-mode	9.28	9.27	12.29	24	11.71
U-NII-2A_5320MHz_High Ch_64_20MHz BW_n-mode	9.24	9.16	12.21	24	11.79
U-NII-2A_5270MHz_low_Mid Ch_54_40MHz BW_n-mode	9.44	9.38	12.42	24	11.58
U-NII-2A_5310MHz_High Ch_62_40MHz BW_n-mode	9.44	9.49	12.47	24	11.53
U-NII-2A_5290MHz_High_Mid Ch_58_80MHz BW_ac-mode	9.70	9.68	12.70	24	11.30
U-NII-2A_5290MHz_High_Mid Ch_58_80MHz BW_ax-mode	9.69	9.74	12.72	24	11.28

Table 16. Conducted Output Power, Test Results (UNII-1 and 2A)

U-NII SubBand 2C FCC PWR	Port 1 (dBm)	Port 2 (dBm)	Sum (dBm)	Limit (dBm)	Margin dB
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_a-mode	8.70	8.71	11.72	24	12.28
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_a-mode	8.38	8.40	11.40	24	12.60
U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	9.27	9.29	12.29	24	11.71
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_n-mode	8.54	8.55	11.56	24	12.44
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_n-mode	8.14	8.20	11.18	24	12.82
U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	9.14	9.10	12.13	24	11.87
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_n-mode	8.82	8.82	11.83	24	12.17
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_n-mode	8.44	8.41	11.44	24	12.56
U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	9.41	9.28	12.36	24	11.64
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_ac-mode	8.81	8.86	11.85	24	12.15
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_ac-mode	8.43	8.42	11.44	24	12.56
U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	9.39	9.46	12.43	24	11.57
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ac-mode	8.63	8.67	11.66	24	12.34
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ac-mode	8.50	8.59	11.55	24	12.45
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	9.03	9.03	12.04	24	11.96
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ax-mode	10.56	10.29	13.44	24	10.56
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ax-mode	10.38	9.85	13.14	24	10.86
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	10.07	9.58	12.84	24	11.16

Table 17. Conducted Output Power, Test Results (UNII-2C)

U-NII SubBand 3 PWR	Port 1 (dBm)	Port 2 (dBm)	Sum (dBm)	Limit (dBm)	Margin dB
U-NII-3_5745MHz_Low Ch_149_20MHz BW_a-mode	7.21	6.66	9.95	30	20.05
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_a-mode	7.18	6.39	9.81	30	20.19
U-NII-3_5825MHz_High Ch_165_20MHz BW_a-mode	7.08	6.00	9.58	30	20.42
U-NII-3_5745MHz_Low Ch_149_20MHz BW_n-mode	7.07	6.55	9.83	30	20.17
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_n-mode	6.96	6.14	9.58	30	20.42
U-NII-3_5825MHz_High Ch_165_20MHz BW_n-mode	6.89	5.88	9.42	30	20.58
U-NII-3_5755MHz_Low Ch_151_40MHz BW_n-mode	7.46	6.94	10.22	30	19.78
U-NII-3_5795MHz_High_Mid Ch_159_40MHz BW_n-mode	7.13	6.52	9.85	30	20.15
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ac-mode	7.63	6.83	10.26	30	19.74
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ax-mode	7.50	6.86	10.20	30	19.80
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	1.70	1.64	4.68	30	25.32
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	1.93	1.91	4.93	30	25.07
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	1.83	1.93	4.89	30	25.11
Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	-2.28	-2.28	0.73	30	29.27
Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	-2.32	-2.26	0.72	30	29.28
Straddle Ch_ U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	-6.47	-6.47	-3.46	30	33.46

Table 18. Conducted Output Power, Test Results (UNII-3)

Electromagnetic Compatibility Criteria for Intentional Radiators

RSS-247 (6) Effective Isotropic Radiated Power (EIRP)

Test Requirements:

§6.2.1.1 (5150 – 5250MHz): For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

§6.2.2.1 (5250 – 5350MHz): Devices, other than devices installed in vehicles, shall comply with the following:

- The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

§6.2.3.1 (5470 – 5600MHz and 5650 – 5725MHz): The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Test Procedure:

The maximum sum conducted output power (across all transmit ports) was added to the antenna gain to arrive at the EIRP. The antenna gain used was the worst case directional gain calculated per KDB 662911 D01 for two equal gain antennas with correlated signals; 6.64dBi in this case.

Test Results:

The EUT as tested is compliant with the requirements of this section. The worst-case tabular data for each UNII band is shown below. Due to the large number of individual plots for each measurement, they are contained in a separate appendix.

Straddle channels which have transmissions that extend from U-NII-2C into the U-NII-3 band are presented in the U-NII-3 data table.

Test Engineer(s): Bryan Taylor

Test Date(s): 5/4/2022 – 8/31/2022

U-NII SubBand 1 and 2A FCC PWR	Conducted Power Sum (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin dB
U-NII-1_5180MHz_Low Ch_36_20MHz BW_a-mode	11.14	6.64	17.78	22.1	4.32
U-NII-1_5200MHz_low_Mid Ch_40_20MHz BW_a-mode	11.56	6.64	18.2	22.1	3.9
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_a-mode	12.27	6.64	18.91	22.1	3.19
U-NII-1_5180MHz_Low Ch_36_20MHz BW_n-mode	11.08	6.64	17.72	22.1	4.38
U-NII-1_5200MHz_low_Mid Ch_40_20MHz BW_n-mode	11.31	6.64	17.95	22.1	4.15
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_n-mode	12.02	6.64	18.66	22.1	3.44
U-NII-1_5190MHz_Low Ch_38_40MHz BW_n-mode	11.57	6.64	18.21	22.1	3.89
U-NII-1_5230MHz_high_Mid Ch_46_40MHz BW_n-mode	12.07	6.64	18.71	22.1	3.39
U-NII-1_5210MHz_Low Mid Ch_42_80MHz BW_ac-mode	11.99	6.64	18.63	22.1	3.47
U-NII-1_5210MHz_Low Mid Ch_42_80MHz BW_ax-mode	12.02	6.64	18.66	22.1	3.44
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_a-mode	12.29	6.64	18.93	29.1	10.17
U-NII-2A_5300MHz_high_Mid Ch_60_20MHz BW_a-mode	12.56	6.64	19.2	29.1	9.9
U-NII-2A_5320MHz_High Ch_64_20MHz BW_a-mode	12.43	6.64	19.07	29.1	10.03
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_n-mode	12.07	6.64	18.71	29.1	10.39
U-NII-2A_5300MHz_high_Mid Ch_60_20MHz BW_n-mode	12.29	6.64	18.93	29.1	10.17
U-NII-2A_5320MHz_High Ch_64_20MHz BW_n-mode	12.21	6.64	18.85	29.1	10.25
U-NII-2A_5270MHz_low_Mid Ch_54_40MHz BW_n-mode	12.42	6.64	19.06	29.1	10.04
U-NII-2A_5310MHz_High Ch_62_40MHz BW_n-mode	12.47	6.64	19.11	29.1	9.99
U-NII-2A_5290MHz_High_Mid Ch_58_80MHz BW_ac-mode	12.7	6.64	19.34	29.1	9.76
U-NII-2A_5290MHz_High_Mid Ch_58_80MHz BW_ax-mode	12.72	6.64	19.36	29.1	9.74

Table 19. EIRP, Test Results (UNII-1 and 2A)

U-NII SubBand 2C FCC PWR	Conducted Power Sum (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin dB
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_a-mode	11.72	6.64	18.36	29.1	10.74
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_a-mode	11.4	6.64	18.04	29.1	11.06
U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	12.29	6.64	18.93	29.1	10.17
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_n-mode	11.56	6.64	18.2	29.1	10.9
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_n-mode	11.18	6.64	17.82	29.1	11.28
U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	12.13	6.64	18.77	29.1	10.33
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_n-mode	11.83	6.64	18.47	29.1	10.63
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_n-mode	11.44	6.64	18.08	29.1	11.02
U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	12.36	6.64	19	29.1	10.1
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_ac-mode	11.85	6.64	18.49	29.1	10.61
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_ac-mode	11.44	6.64	18.08	29.1	11.02
U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	12.43	6.64	19.07	29.1	10.03
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ac-mode	11.66	6.64	18.3	29.1	10.8
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ac-mode	11.55	6.64	18.19	29.1	10.91
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	12.04	6.64	18.68	29.1	10.42
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ax-mode	13.44	6.64	20.08	29.1	9.02
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ax-mode	13.14	6.64	19.78	29.1	9.32
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	12.84	6.64	19.48	29.1	9.62

Table 20. EIRP, Test Results (UNII-2C)

U-NII SubBand 3 PWR	Conducted Power Sum (dBm)	Directional Array Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin dB
U-NII-3_5745MHz_Low Ch_149_20MHz BW_a-mode	9.95	6.64	16.59	30	20.05
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_a-mode	9.81	6.64	16.45	30	20.19
U-NII-3_5825MHz_High Ch_165_20MHz BW_a-mode	9.58	6.64	16.22	30	20.42
U-NII-3_5745MHz_Low Ch_149_20MHz BW_n-mode	9.83	6.64	16.47	30	20.17
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_n-mode	9.58	6.64	16.22	30	20.42
U-NII-3_5825MHz_High Ch_165_20MHz BW_n-mode	9.42	6.64	16.06	30	20.58
U-NII-3_5755MHz_Low Ch_151_40MHz BW_n-mode	10.22	6.64	16.86	30	19.78
U-NII-3_5795MHz_High_Mid Ch_159_40MHz BW_n-mode	9.85	6.64	16.49	30	20.15
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ac-mode	10.26	6.64	16.9	30	19.74
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ax-mode	10.2	6.64	16.84	30	19.8
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	4.68	6.64	11.32	30	19.8
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	4.93	6.64	11.57	30	19.8
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	4.89	6.64	11.53	30	19.8
Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	0.73	6.64	7.37	30	19.8
Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	0.72	6.64	7.36	30	19.8
Straddle Ch_ U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	-3.46	6.64	3.18	30	19.8

Table 21. EIRP, Test Results (UNII-3)

Electromagnetic Compatibility Criteria for Intentional Radiators

§15.407(a)(1) Maximum Power Spectral Density

Test Requirements:

§15.407(a)(1)(iv): For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(2): For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(3)(i): For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure:

The EUT was connected to a spectrum analyzer through a cable and attenuator. Measurements were taken with the EUT set to transmit continuously on its low, mid, and high channels. Its power was measured according KDB 789033 D02 General UNII Test Procedures v02.

Test Results:

The EUT as tested is compliant with the requirements of this section. The worst-case tabular data for each UNII band is shown below. Due to the large number of individual plots for each measurement, they are contained in a separate appendix.

Straddle channels which have transmissions that extend from U-NII-2C into the U-NII-3 band are presented in the U-NII-3 data table.

Test Engineer(s): Bryan Taylor

Test Date(s): 5/4/2022 – 8/31/2022

U-NII SubBand 1 and 2A FCC SD	Port 1 (dBm)	Port 2 (dBm)	Sum (dBm)	Limit (dBm)	Margin dB
U-NII-1_5180MHz_Low Ch_36_20MHz BW_a-mode	-1.41	-1.26	1.68	11	9.32
U-NII-1_5200MHz_low_mid Ch_40_20MHz BW_a-mode	-1.02	-0.79	2.10	11	8.90
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_a-mode	-0.49	-0.64	2.44	11	8.56
U-NII-1_5180MHz_Low Ch_36_20MHz BW_n-mode	-1.37	-1.46	1.60	11	9.40
U-NII-1_5200MHz_low_mid Ch_40_20MHz BW_n-mode	-1.29	-1.18	1.78	11	9.22
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_n-mode	-0.88	-0.51	2.32	11	8.68
U-NII-1_5190MHz_Low Ch_38_40MHz BW_n-mode	-3.90	-4.02	-0.95	11	11.95
U-NII-1_5230MHz_high_mid Ch_46_40MHz BW_n-mode	-3.47	-3.61	-0.53	11	11.53
U-NII-1_5210MHz_Low mid Ch_42_80MHz BW_ac-mode	-6.76	-6.90	-3.82	11	14.82
U-NII-1_5210MHz_Low mid Ch_42_80MHz BW_ax-mode	-6.92	-6.96	-3.93	11	14.93
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_a-mode	0.55	0.35	2.56	11	8.44
U-NII-2A_5280MHz_high_mid Ch_56_20MHz BW_a-mode	0.46	0.41	2.58	11	8.42
U-NII-2A_5320MHz_High Ch_64_20MHz BW_a-mode	0.03	0.45	2.78	11	8.22
U-NII-2A_5260MHz_low_mid Ch_52_20MHz BW_n-mode	0.70	1.02	2.16	11	8.84
U-NII-2A_5280MHz_high_mid Ch_56_20MHz BW_n-mode	0.49	0.65	2.44	11	8.56
U-NII-2A_5320MHz_High Ch_64_20MHz BW_n-mode	0.60	1.12	2.16	11	8.84
U-NII-2A_5270MHz_low_mid Ch_54_40MHz BW_n-mode	3.84	3.53	-0.67	11	11.67
U-NII-2A_5310MHz_High Ch_62_40MHz BW_n-mode	3.33	3.70	-0.50	11	11.50
U-NII-2A_5290MHz_High Ch_58_80MHz BW_ac-mode	6.29	6.62	-3.44	11	14.44
U-NII-2A_5290MHz_High Ch_58_80MHz BW_ax-mode	6.57	6.65	-3.60	11	14.60

Table 22. Power Spectral Density, Test Results (UNII-1 and 2A)

U-NII SubBand 2C FCC SD	Port 1 (dBm)	Port 2 (dBm)	Sum (dBm)	Limit (dBm)	Margin dB
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_a-mode	-2.30	-2.15	0.79	11	10.21
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_a-mode	-2.65	-2.69	0.34	11	10.66
U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	-1.84	-1.80	1.19	11	9.81
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_n-mode	-2.76	-2.86	0.20	11	10.80
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_n-mode	-3.08	-3.22	-0.14	11	11.14
U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	-2.18	-2.10	0.87	11	10.13
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_ac-mode	-0.54	-0.98	2.26	11	77.26
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_ac-mode	-3.04	-3.11	-0.07	11	11.07
U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	-2.19	-2.18	0.83	11	10.17
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_n-mode	-5.51	-5.64	-2.56	11	13.56
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_n-mode	-5.97	-6.04	-3.00	11	14.00
U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	-4.94	-4.98	-1.95	11	12.95
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_ac-mode	-5.56	-5.41	-2.47	11	13.47
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_ac-mode	-5.78	-5.94	-2.85	11	13.85
U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	-4.91	-4.97	-1.93	11	12.93
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ac-mode	-8.88	-8.88	-5.87	11	16.87
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ac-mode	-9.02	-8.88	-5.94	11	16.94
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	-8.63	-8.65	-5.63	11	16.63
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ax-mode	-6.76	-6.91	-3.83	11	14.83
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ax-mode	-6.93	-7.53	-4.21	11	15.21
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	-7.09	-7.44	-4.25	11	15.25

Table 23. Power Spectral Density, Test Results (UNII-2C)

U-NII SubBand 3 SD	Port 1 (dBm)	Port 2 (dBm)	Sum (dBm)	Limit (dBm)	Margin dB
U-NII-3_5745MHz_Low Ch_149_20MHz BW_a-mode	-6.42	-7.18	-3.77	30	33.77
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_a-mode	-6.43	-7.37	-3.86	30	33.86
U-NII-3_5825MHz_High Ch_165_20MHz BW_a-mode	-6.47	-7.43	-3.91	30	33.91
U-NII-3_5745MHz_Low Ch_149_20MHz BW_n-mode	-6.84	-7.53	-4.16	30	34.16
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_n-mode	-6.61	-7.76	-4.13	30	34.13
U-NII-3_5825MHz_High Ch_165_20MHz BW_n-mode	-7.04	-8.21	-4.57	30	34.57
U-NII-3_5755MHz_Low Ch_151_40MHz BW_n-mode	-9.64	-10.21	-6.90	30	36.90
U-NII-3_5795MHz_High_Mid Ch_159_40MHz BW_n-mode	-9.82	-10.47	-7.12	30	37.12
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ac-mode	-12.90	-13.73	-10.29	30	40.29
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ax-mode	-12.80	-13.60	-10.17	30	40.17
Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	-1.84	-1.80	1.19	30	28.81
*Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	-2.18	-2.10	0.87	30	29.13
*Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	-2.19	-2.18	0.83	30	29.17
*Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	-2.19	-2.18	0.83	30	29.17
*Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	-4.91	-4.97	-1.93	30	31.93
*Straddle Ch_ U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	-8.63	-8.65	-5.63	30	35.63
*Straddle Ch_U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	-7.09	-7.44	-4.25	30	34.25

*The straddle channel results shown are the PSD measurements from the UNII-2C band which were measured with a 1MHz RBW. The actual PSD results for just the portion of the signal extending into the UNII-3 band would be lower (and pass with a higher margin) than the values shown in this table since they would be measured with a 500kHz RBW and compared to a higher limit (30dBm/500kHz for UNII-3 vs 11dBm/MHz for UNII-2C).

Table 24. Power Spectral Density, Test Results (UNII-3)

Electromagnetic Compatibility Criteria for Intentional Radiators

RSS-247 (6) EIRP Spectral Density

Test Requirements: **§6.2.1.1 (5150 – 5250MHz):** For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Test Procedure: The maximum summed conducted power spectral density (across all transmit ports) was added to the antenna gain to arrive at the EIRP spectral density. The antenna gain used was the worst case directional gain calculated per KDB 662911 D01 for two equal gain antennas with correlated signals; 6.64dBi in this case.

Test Results: The EUT as tested is compliant with the requirements of this section. The worst-case tabular data for each UNII band is shown below. Due to the large number of individual plots for each measurement, they are contained in a separate appendix.

Straddle channels which have transmissions that extend from U-NII-2C into the U-NII-3 band are presented in the U-NII-3 data table.

Test Engineer(s): Bryan Taylor

Test Date(s): 5/4/2022 – 8/31/2022

U-NII SubBand 1 and 2A FCC SD	Conducted Power Spectral Density Sum (dBm)	Antenna Gain (dBi)	EIRP Spectral Density (dBm)	Limit (dBm)	Margin dB
U-NII-1_5180MHz_Low Ch_36_20MHz BW_a-mode	1.68	6.64	8.32	10	1.68
U-NII-1_5200MHz_low_mid Ch_40_20MHz BW_a-mode	2.1	6.64	8.74	10	1.26
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_a-mode	2.44	6.64	9.08	10	0.92
U-NII-1_5180MHz_Low Ch_36_20MHz BW_n-mode	1.6	6.64	8.24	10	1.76
U-NII-1_5200MHz_low_mid Ch_40_20MHz BW_n-mode	1.78	6.64	8.42	10	1.58
U-NII-1_5240MHz_high_mid Ch_48_20MHz BW_n-mode	2.32	6.64	8.96	10	1.04
U-NII-1_5190MHz_Low Ch_38_40MHz BW_n-mode	-0.95	6.64	5.69	10	4.31
U-NII-1_5230MHz_high_mid Ch_46_40MHz BW_n-mode	-0.53	6.64	6.11	10	3.89
U-NII-1_5210MHz_Low mid Ch_42_80MHz BW_ac-mode	-3.82	6.64	2.82	10	7.18
U-NII-1_5210MHz_Low mid Ch_42_80MHz BW_ax-mode	-3.93	6.64	2.71	10	7.29

Table 25. EIRP Spectral Density, Test Results (UNII-1 and 2A)

U-NII SubBand 2C FCC SD	Sum (dBm)	Antenna Gain (dBi)	EIRP Spectral Density (dBm)	Limit (dBm)	Margin dB
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_a-mode	0.79	6.64	7.43	11	3.57
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_a-mode	0.34	6.64	6.98	11	4.02
U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	1.19	6.64	7.83	11	3.17
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_n-mode	0.2	6.64	6.84	11	4.16
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_n-mode	-0.14	6.64	6.5	11	4.5
U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	0.87	6.64	7.51	11	3.49
U-NII-2C_5500MHz_Low Ch_100_20MHz BW_ac-mode	2.26	6.64	8.9	11	2.1
U-NII-2C_5600MHz_Mid Ch_120_20MHz BW_ac-mode	-0.07	6.64	6.57	11	4.43
U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	0.83	6.64	7.47	11	3.53
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_n-mode	-2.56	6.64	4.08	11	6.92
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_n-mode	-3	6.64	3.64	11	7.36
U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	-1.95	6.64	4.69	11	6.31
U-NII-2C_5510MHz_Low Ch_102_40MHz BW_ac-mode	-2.47	6.64	4.17	11	6.83
U-NII-2C_5590MHz_Mid Ch_118_40MHz BW_ac-mode	-2.85	6.64	3.79	11	7.21
U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	-1.93	6.64	4.71	11	6.29
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ac-mode	-5.87	6.64	0.77	11	10.23
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ac-mode	-5.94	6.64	0.7	11	10.3
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	-5.63	6.64	1.01	11	9.99
U-NII-2C_5530MHz_Low Ch_106_80MHz BW_ax-mode	-3.83	6.64	2.81	11	8.19
U-NII-2C_5610MHz_Mid Ch_122_80MHz BW_ax-mode	-4.21	6.64	2.43	11	8.57
U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	-4.25	6.64	2.39	11	8.61

Table 26. EIRP Spectral Density, Test Results (UNII-2C)

U-NII SubBand 3 SD	Conducted Power Spectral Density Sum (dBm)	Directional Array Antenna Gain (dBi)	EIRP Spectral Density (dBm)	Limit (dBm)	Margin dB
U-NII-3_5745MHz_Low Ch_149_20MHz BW_a-mode	-3.77	6.64	2.87	30	27.13
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_a-mode	-3.86	6.64	2.78	30	27.22
U-NII-3_5825MHz_High Ch_165_20MHz BW_a-mode	-3.91	6.64	2.73	30	27.27
U-NII-3_5745MHz_Low Ch_149_20MHz BW_n-mode	-4.16	6.64	2.48	30	27.52
U-NII-3_5785MHz_Mid Ch_157_20MHz BW_n-mode	-4.13	6.64	2.51	30	27.49
U-NII-3_5825MHz_High Ch_165_20MHz BW_n-mode	-4.57	6.64	2.07	30	27.93
U-NII-3_5755MHz_Low Ch_151_40MHz BW_n-mode	-6.9	6.64	-0.26	30	30.26
U-NII-3_5795MHz_High_Mid Ch_159_40MHz BW_n-mode	-7.12	6.64	-0.48	30	30.48
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ac-mode	-10.29	6.64	-3.65	30	33.65
U-NII-3_5775MHz_High_Mid Ch_155_80MHz BW_ax-mode	-10.17	6.64	-3.53	30	33.53
*Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_a-mode	4.68	6.64	11.32	30	18.68
*Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_n-mode	4.93	6.64	11.57	30	18.43
*Straddle Ch_ U-NII-2C_5720MHz_High Ch_144_20MHz BW_ac-mode	4.89	6.64	11.53	30	18.47
*Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_n-mode	0.73	6.64	7.37	30	22.63
*Straddle Ch_ U-NII-2C_5710MHz_High Ch_142_40MHz BW_ac-mode	0.72	6.64	7.36	30	22.64
*Straddle Ch_ U-NII-2C_5690MHz_High Ch_138_80MHz BW_ac-mode	-3.46	6.64	3.18	30	26.82
*Straddle Ch_U-NII-2C_5690MHz_High Ch_138_80MHz BW_ax-mode	-4.25	6.64	2.39	30	19.8

*The straddle channel results shown are the PSD measurements from the UNII-2C band which were measured with a 1MHz RBW. The actual PSD results for just the portion of the signal extending into the UNII-3 band would be lower (and pass with a higher margin) than the values shown in this table since they would be measured with a 500kHz RBW and compared to a higher limit (30dBm/500kHz for UNII-3 vs 11dBm/MHz for UNII-2C).

Table 27. EIRP Spectral Density, Test Results (UNII-3)

Electromagnetic Compatibility Criteria for Intentional Radiators

§15.407(b)(1 – 4, 9, 10) Undesirable Emissions

Test Requirements:

§ 15.407(b)(1): For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

§ 15.407(b)(2): For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

§ 15.407(b)(3): For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz

§ 15.407(b)(4): For transmitters operating solely in the 5.725-5.850 GHz band:

All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge

§ 15.407(b)(9): Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.

§ 15.407(b)(10): The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Test Procedure:

Unwanted emission measurements were performed per ANSI C63.10: 2013 Section 12.7. Measurements for unwanted emissions in the restricted bands were performed via a direct connection to the antenna ports per 12.7.2 using peak and average detection.

Additionally, the cabinet emissions measurements were performed in a 10m semi-anechoic chamber. The EUT was placed on a non-conducting table on a turntable in a chamber. The turntable was rotated 360 degrees, the EUT was oriented through its three orthogonal axes, and the receive antenna height was varied in order to maximize emissions. The -27dBm/MHz limit was converted to field strength using the formula shown in ANSI C63.27 Section 12.7.2

E[dBuV/m] = EIRP[dBm} + 95.2 (for a measurement distance of 3m)

Test Results: The EUT was compliant with the requirements of this section. The worst-case tabular data for each UNII band is shown below. Due to the large number of individual plots for each measurement, they are contained in a separate appendix.

The antenna gain specification sheet indicated a worst case gain of 3.64dBi. During the testing the conducted scans were performed with either 3.5dBi for the gain or the default 2dBi from ANSI C63.10. Due to the high margin on the plots the additional gain in all cases still demonstrates a passing result when the array gain is applied.

A table is presented showing the worst-case restricted band edge measurements for transmissions adjacent to the restricted bands of 4.5 – 5.15GHz and 5.35 – 5.46GHz with the directional array gain included. Similarly, a table with the worst-case emissions demonstrating compliance with the -27dBm/MHz EIRP requirement (with the directional array gain applied) is also provided.

Test Engineer(s): Bryan Taylor, James Seib, Sergio Gutierrez

Test Date(s): 5/4/2022 – 8/31/2022

TX Port	TX Mode	Ch.	Freq. (GHz)	Avg Amplitude (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dBuV/m)	Peak Amplitude (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dBuV/m)	TX Antenna Gain *(dBi)
1	802.11n	36	5.149	34.53	54	19.47	46.53	74	27.47	6.64
2	802.11n	36	5.149	34.9	54	19.1	48.13	74	25.87	6.64
1	802.11a	36	5.15	34.74	54	19.26	46.39	74	27.61	6.64
2	802.11a	36	5.15	34.95	54	19.05	46.49	74	27.51	6.64
1	802.11n(40)	38	5.149	49.98	54	4.02	63.92	74	10.08	6.64
2	802.11n(40)	38	5.149	44.6	54	9.4	57.15	74	16.85	6.64
1	802.11ac (80)	42	5.149	52.71	54	1.29	63.59	74	10.41	6.64
2	802.11ac (80)	42	5.149	47.22	54	6.78	61.7	74	12.3	6.64
1	802.11ax (80)	42	5.149	52.51	54	1.49	64.61	74	9.39	6.64
2	802.11ax (80)	42	5.149	47.32	54	6.68	59.4	74	14.6	6.64

*These measurements were performed using the conducted methodology from ANSI C63.10 section 12.7.2. The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

Table 28. UNII-1 Worst Case Restricted Band Edge Emissions

TX Port	TX Mode	Channel	Frequency (GHz)	Peak Amplitude (dBm/MHz)	Limit (dBm/MHz)	Peak Margin (dBuV/m)	TX Antenna Gain *(dBi)
1	**802.11a**	**36**	**5.138**	**-41.82**	**-27**	**14.82**	**6.64**
2	**802.11a**	**36**	**5.032**	**-41.98**	**-27**	**14.98**	**6.64**
1	**802.11n**	**36**	**5.13**	**-41.82**	**-27**	**14.82**	**6.64**
2	**802.11n**	**36**	**5.024**	**-41.9**	**-27**	**14.9**	**6.64**
1	**802.11n (40)**	**38**	**5.15**	**-31.45**	**-27**	**4.45**	**6.64**
2	**802.11n (40)**	**38**	**5.147**	**-37.77**	**-27**	**10.77**	**6.64**
1	**802.11ac(80)**	**42**	**5.144**	**-31.29**	**-27**	**4.29**	**6.64**
2	**802.11ac(80)**	**42**	**5.148**	**-36.16**	**-27**	**9.16**	**6.64**
1	**802.11ax(80)**	**42**	**5.147**	**-31.73**	**-27**	**4.73**	**6.64**
2	**802.11ax(80)**	**42**	**5.147**	**-34.18**	**-27**	**7.18**	**6.64**

* The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

Table 29. UNII-1 Worst Case -27dBm/MHz EIRP Emissions

TX Port	TX Mode	Ch.	Freq. (GHz)	Avg Amplitude (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dBuV/m)	Peak Amplitude (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dBuV/m)	TX Antenna Gain *(dBi)
1	802.11ac (80)	58	5.35	52.71	54	1.29	66.73	74	7.27	6.64
2	802.11ac (80)	58	5.35	52.85	54	1.15	60.36	74	13.64	6.64
1	802.11ax (80)	58	5.35	52.65	54	1.35	65.7	74	8.3	6.64
2	802.11ax (80)	58	5.35	52.65	54	1.35	60.73	74	13.27	6.64
1	802.11n(40)	62	5.35	51.14	54	2.86	65.61	74	8.39	6.64
2	802.11n(40)	62	5.35	47.82	54	6.18	59.53	74	14.47	6.64
1	802.11a	64	5.35	34.53	54	19.47	61.3	74	12.7	6.64
2	802.11a	64	5.35	34.5	54	19.5	62.79	74	11.21	6.64
1	802.11n	64	5.35	37.61	54	16.39	61.56	74	12.44	6.64
2	802.11n	64	5.35	36.76	54	17.24	61.76	74	12.24	6.64

*These measurements were performed using the conducted methodology from ANSI C63.10 section 12.7.2. The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

Table 30. UNII-2A Worst Case Restricted Band Edge Emissions

TX Port	TX Mode	Channel	Frequency (GHz)	Peak Amplitude (dBm/MHz)	Limit (dBm/MHz)	Peak Margin (dBuV/m)	TX Antenna Gain *(dBi)
1	802.11ac(80)	58	5.352	-29.03	-27	2.03	6.64
2	802.11ac(80)	58	5.356	-29.55	-27	2.55	6.64
1	802.11ax(80)	58	5.36	-28.24	-27	1.24	6.64
2	802.11ax(80)	58	5.353	-33.56	-27	6.56	6.64
1	802.11n (40)	62	5.35	-34.94	-27	7.94	6.64
2	802.11n (40)	62	5.35	-29.16	-27	2.16	6.64
1	802.11n	64	5.45	-41.55	-27	14.55	6.64
2	802.11n	64	5.452	-41.77	-27	14.77	6.64
1	802.11a	64	5.353	-39.84	-27	12.84	6.64
2	802.11a	64	5.424	-41.36	-27	14.36	6.64

* The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

Table 31. UNII-2A Worst Case -27dBm/MHz EIRP Emissions

TX Port	TX Mode	Ch.	Freq. (GHz)	Avg Amplitude (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dBuV/m)	Peak Amplitude (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dBuV/m)	TX Antenna Gain *(dBi)
1	802.11n	100	5.459	33.22	54	20.78	44.85	74	29.15	6.64
2	802.11n	100	5.352	32.58	54	21.42	44.61	74	29.39	6.64
1	802.11a	100	5.405	33.63	54	20.37	45.32	74	28.68	6.64
2	802.11a	100	5.405	33.04	54	20.96	44.91	74	29.09	6.64
1	802.11n (40)	102	5.457	35.42	54	18.58	46.15	74	27.85	6.64
2	802.11n (40)	102	5.459	33.51	54	20.49	45.57	74	28.43	6.64
1	802.11ac (80)	106	5.458	46.5	54	7.5	58.26	74	15.74	6.64
2	802.11ac (80)	106	5.459	48.23	55	6.77	59.69	75	15.31	6.64
1	802.11ax (80)	106	5.459	48.62	56	7.38	59	76	17	6.64
2	802.11ax (80)	106	5.459	47.69	57	9.31	58.19	77	18.81	6.64

*These measurements were performed using the conducted methodology from ANSI C63.10 section 12.7.2. The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

Table 32. UNII-2C Worst Case Restricted Band Edge Emissions

TX Port	TX Mode	Channel	Frequency (GHz)	Peak Amplitude (dBm/MHz)	Limit (dBm/MHz)	Peak Margin (dBuV/m)	TX Antenna *Gain (dBi)
1	802.11a	100	5.376	-41.61	-27	14.61	6.64
2	802.11a	100	5.376	-41.93	-27	14.93	6.64
1	802.11n	100	5.759	-40.72	-27	13.72	6.64
2	802.11n	100	5.76	-42.09	-27	15.09	6.64
1	802.11n (40)	102	5.727	-40.42	-27	13.42	6.64
2	802.11n (40)	102	5.727	-41.94	-27	14.94	6.64
1	802.11ac(80)	106	5.454	-35.38	-27	8.38	6.64
2	802.11ac(80)	106	5.467	-34.14	-27	7.14	6.64
1	802.11ax(80)	106	5.469	-34.51	-27	7.51	6.64
2	802.11ax(80)	106	5.466	-33.54	-27	6.54	6.64

* The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

Table 33. UNII-2C Worst Case -27dBm/MHz EIRP Emissions

Note: There are no restricted bands of operation adjacent to UNII-3 band.

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
30.0E+06	34.8	100000	22.8	1.16	-25.16	33.6	68.23	-34.63
399.9679E+06	31.24	100000	19.9	4.3	-25.25	30.19	68.23	-38.04
449.7115E+06	28.84	100000	20.8	4.66	-25.08	29.23	68.23	-39
30.0E+06	35.17	100000	22.3	1.16	-25.16	33.47	68.23	-34.76
120.1603E+06	37.16	100000	15.92	2.31	-25.14	30.25	68.23	-37.98
236.7468E+06	32.31	100000	15.77	3.3	-25.2	26.18	68.23	-42.05
300.4808E+06	30.19	100000	17.6	3.69	-25.37	26.11	68.23	-42.12
2.7163E+09	62.41	1000000	32.28	3.69	-38.82	59.56	68.23	-8.67
2.7436E+09	63.13	1000000	32.22	3.74	-38.92	60.18	68.23	-8.05
5.7676E+09	52.71	1000000	34.54	5.97	-45.32	47.89	68.23	-20.34
12.1426E+09	46.86	1000000	38.6	9.38	-49.53	45.31	68.23	-22.92
15.1122E+09	43.1	1000000	39.31	11.15	-48.23	45.32	68.23	-22.91
16.3381E+09	48.06	1000000	40.5	11.66	-52.51	47.72	68.23	-20.51
16.3654E+09	47.34	1000000	40.53	11.69	-52.54	47.02	68.23	-21.21
16.3926E+09	47.27	1000000	40.57	11.71	-52.57	46.98	68.23	-21.25
16.4199E+09	46.75	1000000	40.61	11.78	-52.99	46.15	68.23	-22.08
16.4471E+09	47.2	1000000	40.66	11.85	-53.55	46.17	68.23	-22.06
16.8285E+09	47.87	1000000	41.25	11.16	-54.57	45.71	68.23	-22.52
16.8558E+09	47.64	1000000	41.23	11.22	-54.43	45.66	68.23	-22.57
20.8205E+09	28.3	1000000	45.2	7.97	-41.5	39.98	68.23	-28.25
26.0032E+09	28.04	1000000	45.82	10.06	-42.72	41.21	68.23	-27.02
31.2212E+09	26.23	1000000	46.84	11.56	-40.93	43.7	68.23	-24.53
36.4038E+09	28.39	1000000	46.5	11.58	-42.12	44.35	68.23	-23.88

*denotes average detection was used. Otherwise, peak detection was used.

Table 34. Worst Case Cabinet Radiation (802.1a, UNII-1, Horizontal Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
30.0E+06	35.17	100000	22.3	1.16	-25.16	33.47	68.23	-34.76
120.1603E+06	37.16	100000	15.92	2.31	-25.14	30.25	68.23	-37.98
236.7468E+06	32.31	100000	15.77	3.3	-25.2	26.18	68.23	-42.05
300.4808E+06	30.19	100000	17.6	3.69	-25.37	26.11	68.23	-42.12
2.7163E+09	68.43	1000000	32.25	3.69	-38.82	65.55	68.23	-2.68
2.7436E+09	70.74	1000000	32.21	3.74	-38.92	67.77	68.23	-0.46
*2.7436E+09	27.8	1000000	32.21	3.74	-38.92	24.83	68.23	-43.4
3.5337E+09	51.28	1000000	32.89	4.88	-40.63	48.42	68.23	-19.81
15.1122E+09	45.97	1000000	39.29	11.15	-48.23	48.18	68.23	-20.05
15.1394E+09	46.17	1000000	39.31	11.19	-48.87	47.8	68.23	-20.43
16.3381E+09	49.85	1000000	40.48	11.66	-52.51	49.5	68.23	-18.73
16.3654E+09	48.66	1000000	40.52	11.69	-52.54	48.33	68.23	-19.9
16.3926E+09	48.53	1000000	40.55	11.71	-52.57	48.22	68.23	-20.01
16.4199E+09	48.62	1000000	40.6	11.78	-52.99	48.01	68.23	-20.22
16.4471E+09	49.05	1000000	40.66	11.85	-53.55	48.01	68.23	-20.22
17.7276E+09	47.04	1000000	40.58	11.93	-51.14	48.41	68.23	-19.82
17.891E+09	47.5	1000000	40.49	12.27	-51.54	48.72	68.23	-19.51

*denotes average detection was used. Otherwise, peak detection was used.

Table 35. Worst Case Cabinet Radiation (802.1a, UNII-1, Vertical Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
30.0E+06	34.4	100000	22.8	1.16	-25.16	33.2	68.23	-35.03
399.9679E+06	30.43	100000	19.9	4.3	-25.25	29.38	68.23	-38.85
449.7115E+06	29.14	100000	20.8	4.66	-25.08	29.53	68.23	-38.7
2.7163E+09	63.81	1000000	32.28	3.69	-38.82	60.97	68.23	-7.26
2.7436E+09	58.57	1000000	32.22	3.74	-38.92	55.62	68.23	-12.61
5.2772E+09	54.68	1000000	34.1	5.91	-43.75	50.94	68.23	-17.29
5.7676E+09	52.98	1000000	34.54	5.97	-45.32	48.17	68.23	-20.06
12.1426E+09	47.38	1000000	38.6	9.38	-49.53	45.82	68.23	-22.41
16.3381E+09	47.62	1000000	40.5	11.66	-52.51	47.28	68.23	-20.95
16.3654E+09	48.16	1000000	40.53	11.69	-52.54	47.84	68.23	-20.39
16.3926E+09	47.32	1000000	40.57	11.71	-52.57	47.03	68.23	-21.2
16.4199E+09	47.13	1000000	40.61	11.78	-52.99	46.53	68.23	-21.7
16.4471E+09	47.51	1000000	40.66	11.85	-53.55	46.47	68.23	-21.76
39.5064E+09	27.41	1000000	47.4	12.27	-36.65	50.43	68.23	-17.8
39.5417E+09	27.21	1000000	47.44	12.24	-36.62	50.26	68.23	-17.97
39.5769E+09	27.29	1000000	47.48	12.2	-36.59	50.38	68.23	-17.85
39.6474E+09	27.65	1000000	47.55	12	-36.5	50.69	68.23	-17.54
39.6827E+09	27.33	1000000	47.59	11.86	-36.45	50.32	68.23	-17.91
39.7179E+09	27.55	1000000	47.62	11.79	-36.39	50.57	68.23	-17.66
39.7532E+09	27.67	1000000	47.66	11.8	-36.32	50.81	68.23	-17.42
39.7885E+09	27.6	1000000	47.71	11.8	-36.25	50.86	68.23	-17.37
39.8237E+09	27.53	1000000	47.76	11.86	-36.17	50.98	68.23	-17.25
39.859E+09	27.39	1000000	47.81	11.95	-36.08	51.07	68.23	-17.16
39.8942E+09	27.46	1000000	47.86	12.05	-35.98	51.38	68.23	-16.85
39.9295E+09	27.48	1000000	47.91	12	-35.9	51.49	68.23	-16.74
39.9647E+09	27.58	1000000	47.96	11.93	-35.82	51.65	68.23	-16.58
40.0E+09	27.39	1000000	48.01	11.86	-35.74	51.52	68.23	-16.71

*denotes average detection was used. Otherwise, peak detection was used.

Table 36. Worst Case Cabinet Radiation (802.1a, UNII-2A, Horizontal Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
30.0E+06	34.85	100000	22.3	1.16	-25.16	33.15	68.23	-35.08
120.1603E+06	37.7	100000	15.92	2.31	-25.14	30.79	68.23	-37.44
235.1923E+06	33.46	100000	15.62	3.29	-25.16	27.21	68.23	-41.02
675.1122E+06	27.15	100000	23.1	5.63	-25.3	30.57	68.23	-37.66
2.7163E+09	65.85	1000000	32.25	3.69	-38.82	62.97	68.23	-5.26
2.7436E+09	66.47	1000000	32.21	3.74	-38.92	63.51	68.23	-4.72
2.7981E+09	50.66	1000000	32.05	3.85	-39.11	47.44	68.23	-20.79
5.2772E+09	54.68	1000000	34.14	5.91	-43.75	50.99	68.23	-17.24
16.3381E+09	47.93	1000000	40.48	11.66	-52.51	47.57	68.23	-20.66
16.3654E+09	47.48	1000000	40.52	11.69	-52.54	47.15	68.23	-21.08
16.3926E+09	47.32	1000000	40.55	11.71	-52.57	47.01	68.23	-21.22
16.4199E+09	47.01	1000000	40.6	11.78	-52.99	46.39	68.23	-21.84
16.4471E+09	47.41	1000000	40.66	11.85	-53.55	46.37	68.23	-21.86
16.6923E+09	47.33	1000000	41.14	11.48	-53.5	46.45	68.23	-21.78
39.5064E+09	27.41	1000000	47.4	12.27	-36.65	50.43	68.23	-17.8
39.5417E+09	27.21	1000000	47.44	12.24	-36.62	50.26	68.23	-17.97
39.5769E+09	27.29	1000000	47.48	12.2	-36.59	50.38	68.23	-17.85
39.6474E+09	27.65	1000000	47.55	12	-36.5	50.69	68.23	-17.54
39.6827E+09	27.33	1000000	47.59	11.86	-36.45	50.32	68.23	-17.91
39.7179E+09	27.55	1000000	47.62	11.79	-36.39	50.57	68.23	-17.66
39.7532E+09	27.67	1000000	47.66	11.8	-36.32	50.81	68.23	-17.42
39.7885E+09	27.6	1000000	47.71	11.8	-36.25	50.86	68.23	-17.37
39.8237E+09	27.53	1000000	47.76	11.86	-36.17	50.98	68.23	-17.25
39.859E+09	27.39	1000000	47.81	11.95	-36.08	51.07	68.23	-17.16
39.8942E+09	27.46	1000000	47.86	12.05	-35.98	51.38	68.23	-16.85
39.9295E+09	27.48	1000000	47.91	12	-35.9	51.49	68.23	-16.74
39.9647E+09	27.58	1000000	47.96	11.93	-35.82	51.65	68.23	-16.58
40.0E+09	27.39	1000000	48.01	11.86	-35.74	51.52	68.23	-16.71

*denotes average detection was used. Otherwise, peak detection was used.

Table 37. Worst Case Cabinet Radiation (802.1a, UNII-2A, Vertical Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
30.0E+06	33.69	100000	22.8	1.16	-25.16	32.49	68.23	-35.74
399.9679E+06	28.91	100000	19.9	4.3	-25.25	27.86	68.23	-40.37
449.7115E+06	29.11	100000	20.8	4.66	-25.08	29.49	68.23	-38.74
2.7163E+09	62.61	1000000	32.28	3.69	-38.82	59.76	68.23	-8.47
2.7436E+09	63.68	1000000	32.22	3.74	-38.92	60.73	68.23	-7.5
2.7981E+09	48.91	1000000	32.07	3.85	-39.11	45.71	68.23	-22.52
5.5769E+09	50.9	1000000	34.4	5.93	-44.33	46.91	68.23	-21.32
5.6042E+09	53.95	1000000	34.44	5.9	-44.29	50	68.23	-18.23
16.3381E+09	48.16	1000000	40.5	11.66	-52.51	47.82	68.23	-20.41
16.3654E+09	47.83	1000000	40.53	11.69	-52.54	47.51	68.23	-20.72
16.3926E+09	47.58	1000000	40.57	11.71	-52.57	47.29	68.23	-20.94
16.4199E+09	47.49	1000000	40.61	11.78	-52.99	46.89	68.23	-21.34
16.4471E+09	47.18	1000000	40.66	11.85	-53.55	46.14	68.23	-22.09
16.6923E+09	46.42	1000000	41.18	11.48	-53.5	45.58	68.23	-22.65
16.7196E+09	46.8	1000000	41.23	11.4	-53.73	45.7	68.23	-22.53
39.5064E+09	27.29	1000000	47.42	12.27	-36.65	50.33	68.23	-17.9
39.6122E+09	27.14	1000000	47.54	12.13	-36.55	50.26	68.23	-17.97
39.6827E+09	27.38	1000000	47.62	11.86	-36.45	50.41	68.23	-17.82
39.7179E+09	27.38	1000000	47.66	11.79	-36.39	50.44	68.23	-17.79
39.7532E+09	27.63	1000000	47.7	11.8	-36.32	50.81	68.23	-17.42
39.7885E+09	27.42	1000000	47.75	11.8	-36.25	50.72	68.23	-17.51
39.8237E+09	27.47	1000000	47.8	11.86	-36.17	50.96	68.23	-17.27
39.859E+09	27.53	1000000	47.84	11.95	-36.08	51.25	68.23	-16.98
39.8942E+09	27.33	1000000	47.89	12.05	-35.98	51.28	68.23	-16.95
39.9295E+09	27.42	1000000	47.94	12	-35.9	51.46	68.23	-16.77
39.9647E+09	27.42	1000000	47.99	11.93	-35.82	51.52	68.23	-16.71
40.0E+09	27.4	1000000	48.03	11.86	-35.74	51.55	68.23	-16.68

*denotes average detection was used. Otherwise, peak detection was used.

Table 38. Worst Case Cabinet Radiation (802.1a, UNII-2C, Horizontal Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
31.5545E+06	37.16	100000	21.37	1.27	-25.06	34.74	68.23	-33.49
120.1603E+06	36.2	100000	15.92	2.31	-25.14	29.29	68.23	-38.94
238.3013E+06	32.91	100000	15.9	3.3	-25.24	26.88	68.23	-41.35
300.4808E+06	30.87	100000	17.6	3.69	-25.37	26.79	68.23	-41.44
2.7163E+09	70.04	1000000	32.25	3.69	-38.82	67.16	68.23	-1.07
2.7436E+09	69.48	1000000	32.21	3.74	-38.92	66.52	68.23	-1.71
2.7981E+09	49.97	1000000	32.05	3.85	-39.11	46.76	68.23	-21.47
2.8253E+09	49.5	1000000	32	3.87	-39.3	46.07	68.23	-22.16
5.5769E+09	51.08	1000000	34.4	5.93	-44.33	47.09	68.23	-21.14
5.6042E+09	52.79	1000000	34.4	5.9	-44.29	48.8	68.23	-19.43
15.0304E+09	45.65	1000000	39.27	10.85	-49.86	45.92	68.23	-22.31
16.3381E+09	48.71	1000000	40.48	11.66	-52.51	48.35	68.23	-19.88
16.3654E+09	48.52	1000000	40.52	11.69	-52.54	48.19	68.23	-20.04
16.3926E+09	47.82	1000000	40.55	11.71	-52.57	47.51	68.23	-20.72
16.4199E+09	47.37	1000000	40.6	11.78	-52.99	46.75	68.23	-21.48
16.4471E+09	46.99	1000000	40.66	11.85	-53.55	45.96	68.23	-22.27
39.5064E+09	27.32	1000000	47.4	12.27	-36.65	50.34	68.23	-17.89
39.6122E+09	27.31	1000000	47.51	12.13	-36.55	50.4	68.23	-17.83
39.6474E+09	27.2	1000000	47.55	12	-36.5	50.24	68.23	-17.99
39.6827E+09	27.27	1000000	47.59	11.86	-36.45	50.26	68.23	-17.97
39.7179E+09	27.47	1000000	47.62	11.79	-36.39	50.49	68.23	-17.74
39.7532E+09	27.54	1000000	47.66	11.8	-36.32	50.67	68.23	-17.56
39.7885E+09	27.57	1000000	47.71	11.8	-36.25	50.82	68.23	-17.41
39.8237E+09	27.61	1000000	47.76	11.86	-36.17	51.07	68.23	-17.16
39.859E+09	27.63	1000000	47.81	11.95	-36.08	51.32	68.23	-16.91
39.8942E+09	27.31	1000000	47.86	12.05	-35.98	51.23	68.23	-17
39.9295E+09	27.46	1000000	47.91	12	-35.9	51.47	68.23	-16.76
39.9647E+09	27.7	1000000	47.96	11.93	-35.82	51.76	68.23	-16.47
40.0E+09	27.49	1000000	48.01	11.86	-35.74	51.62	68.23	-16.61

*denotes average detection was used. Otherwise, peak detection was used.

Table 39. Worst Case Cabinet Radiation (802.1a, UNII-2C, Vertical Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
31.5545E+06	34.12	100000	21.92	1.27	-25.06	32.25	68.23	-35.98
399.9679E+06	30.5	100000	19.9	4.3	-25.25	29.45	68.23	-38.78
449.7115E+06	29.83	100000	20.8	4.66	-25.08	30.22	68.23	-38.01
2.7163E+09	60.31	1000000	32.28	3.69	-38.82	57.46	68.23	-10.77
2.7436E+09	61.34	1000000	32.22	3.74	-38.92	58.38	68.23	-9.85
5.7949E+09	50.9	1000000	34.57	5.97	-45.45	45.99	68.23	-22.24
16.3381E+09	48.28	1000000	40.5	11.66	-52.51	47.93	68.23	-20.3
16.3654E+09	47.35	1000000	40.53	11.69	-52.54	47.03	68.23	-21.2
16.3926E+09	46.63	1000000	40.57	11.71	-52.57	46.34	68.23	-21.89
16.5288E+09	46.78	1000000	40.81	11.87	-54.33	45.14	68.23	-23.09
16.7196E+09	46.64	1000000	41.23	11.4	-53.73	45.53	68.23	-22.7
16.7468E+09	47.42	1000000	41.28	11.29	-54.06	45.92	68.23	-22.31
16.8013E+09	47.11	1000000	41.27	11.09	-54.7	44.77	68.23	-23.46
16.8285E+09	48.27	1000000	41.25	11.16	-54.57	46.11	68.23	-22.12
39.5769E+09	27.29	1000000	47.5	12.2	-36.59	50.4	68.23	-17.83
39.6122E+09	27.19	1000000	47.54	12.13	-36.55	50.31	68.23	-17.92
39.6827E+09	27.31	1000000	47.62	11.86	-36.45	50.33	68.23	-17.9
39.7179E+09	27.52	1000000	47.66	11.79	-36.39	50.58	68.23	-17.65
39.7532E+09	27.68	1000000	47.7	11.8	-36.32	50.85	68.23	-17.38
39.7885E+09	27.52	1000000	47.75	11.8	-36.25	50.82	68.23	-17.41
39.8237E+09	27.72	1000000	47.8	11.86	-36.17	51.21	68.23	-17.02
39.859E+09	27.44	1000000	47.84	11.95	-36.08	51.16	68.23	-17.07
39.8942E+09	27.62	1000000	47.89	12.05	-35.98	51.57	68.23	-16.66
39.9295E+09	27.32	1000000	47.94	12	-35.9	51.36	68.23	-16.87
39.9647E+09	27.49	1000000	47.99	11.93	-35.82	51.58	68.23	-16.65
40.0E+09	27.59	1000000	48.03	11.86	-35.74	51.75	68.23	-16.48

*denotes average detection was used. Otherwise, peak detection was used.

Table 40. Worst Case Cabinet Radiation (802.1a, UNII-3, Horizontal Polarity)

Frequency (Hz)	Meter Reading (dBuV)	RBW (Hz)	Antenna Factor (dBuV)	Cable Factor (dB)	Preamp Factor (dB)	Corrected Measurement (dBuV/m)	Limit 1, FCC 15.407 (dBuV/m)	Margin 1 (dB)
31.5545E+06	35.68	100000	21.37	1.27	-25.06	33.26	68.23	-34.97
120.1603E+06	36.77	100000	15.92	2.31	-25.14	29.86	68.23	-38.37
236.7468E+06	33.25	100000	15.77	3.3	-25.2	27.12	68.23	-41.11
2.7163E+09	70.12	1000000	32.25	3.69	-38.82	67.24	68.23	-0.99
*2.7163E+09	44.4	1000000	32.25	3.69	-38.82	42.24	68.23	-25.99
2.7436E+09	64.18	1000000	32.21	3.74	-38.92	61.22	68.23	-7.01
2.7708E+09	49.91	1000000	32.14	3.79	-39.01	46.82	68.23	-21.41
2.7981E+09	53.57	1000000	32.05	3.85	-39.11	50.35	68.23	-17.88
16.3381E+09	47.5	1000000	40.48	11.66	-52.51	47.14	68.23	-21.09
16.3654E+09	47.92	1000000	40.52	11.69	-52.54	47.59	68.23	-20.64
16.3926E+09	47.29	1000000	40.55	11.71	-52.57	46.98	68.23	-21.25
16.4199E+09	45.54	1000000	40.6	11.78	-52.99	44.93	68.23	-23.3
16.7196E+09	46.72	1000000	41.18	11.4	-53.73	45.57	68.23	-22.66
16.8013E+09	47.95	1000000	41.25	11.09	-54.7	45.59	68.23	-22.64
16.8285E+09	47.39	1000000	41.24	11.16	-54.57	45.22	68.23	-23.01
18.0E+09	44.42	1000000	40.54	12.03	-52.2	44.79	68.23	-23.44
39.5769E+09	27.19	1000000	47.48	12.2	-36.59	50.27	68.23	-17.96
39.6827E+09	27.3	1000000	47.59	11.86	-36.45	50.29	68.23	-17.94
39.7179E+09	27.52	1000000	47.62	11.79	-36.39	50.54	68.23	-17.69
39.7532E+09	27.47	1000000	47.66	11.8	-36.32	50.6	68.23	-17.63
39.7885E+09	27.53	1000000	47.71	11.8	-36.25	50.78	68.23	-17.45
39.8237E+09	27.53	1000000	47.76	11.86	-36.17	50.98	68.23	-17.25
39.859E+09	27.52	1000000	47.81	11.95	-36.08	51.2	68.23	-17.03
39.8942E+09	27.48	1000000	47.86	12.05	-35.98	51.4	68.23	-16.83
39.9295E+09	27.32	1000000	47.91	12	-35.9	51.33	68.23	-16.9
39.9647E+09	27.39	1000000	47.96	11.93	-35.82	51.46	68.23	-16.77
40.0E+09	27.34	1000000	48.01	11.86	-35.74	51.47	68.23	-16.76

*denotes average detection was used. Otherwise, peak detection was used.

Table 41. Worst Case Cabinet Radiation (802.1a, UNII-3, Vertical Polarity)

Electromagnetic Compatibility Criteria for Intentional Radiators

RSS-247 (6.2.3) Transmissions in the 5600 – 5650MHz Band

Test Requirements: **§6.2.3** Until further notice, devices subject to this section shall not be capable of transmitting in the band 5600-5650 MHz. This restriction is for the protection of Environment Canada's weather radars operating in this band.

Test Results: It was verified that no transmission occurred in the 5600 – 5650MHz band by performing -27dB down band edge measurements. Antenna port conducted methodologies were used per ANSI C63.10 section 12.7.4.2. The measurements were performed on transmit chain 1 and 2 and the vertical scale of the analyzer was offset with the cable loss and the directional array gain for the two transmitting antennas. For the lower band edge measurements at 5600MHz, the classical band edge procedures were followed. For the upper band edge measurements the channel integration method was employed per ANSI C63.10 Section 12.7.4.4.3. These measurements were preformed on transmit channels adjacent to the 5600 – 5650MHz band supported by devices that will be sold into the Canadian market.

Test Results: The EUT as tested is compliant with the requirements of this section. According to HP, Inc. the P033 will have channels that reside in the 5600 – 5650MHz band disabled when sold into the Canadian market. Additionally, the band edge measurements confirm that the channels that are adjacent to this band do not have any transmissions above -27dBm/MHz (EIRP) that extend into the band.

Test Engineer(s): Bryan Taylor

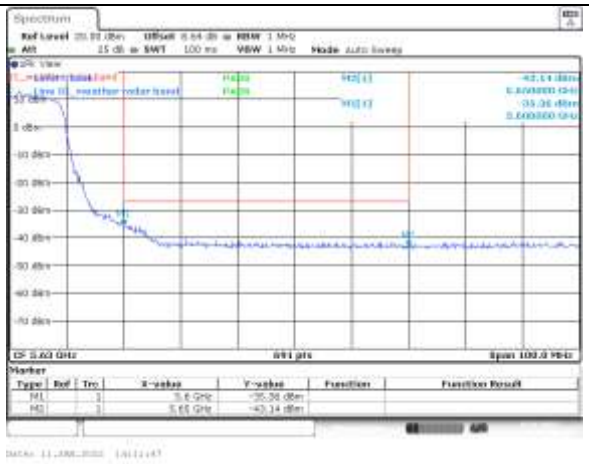
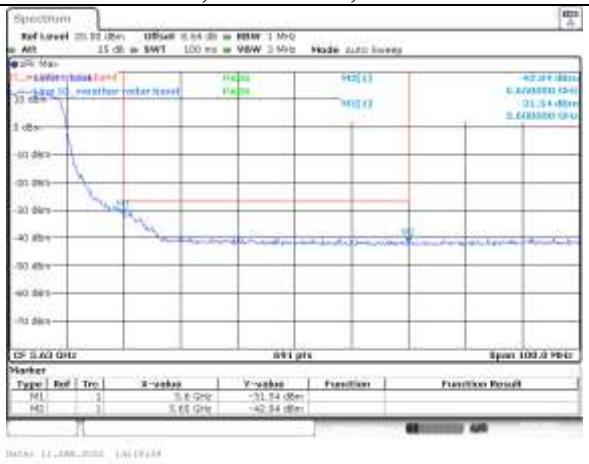
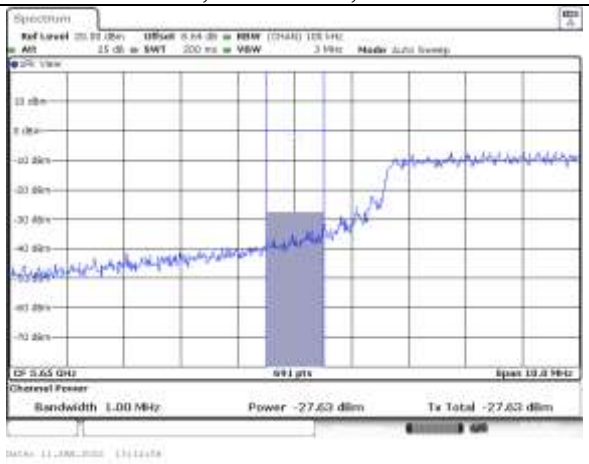
Test Date(s): 1/11/2023 – 1/12/2023

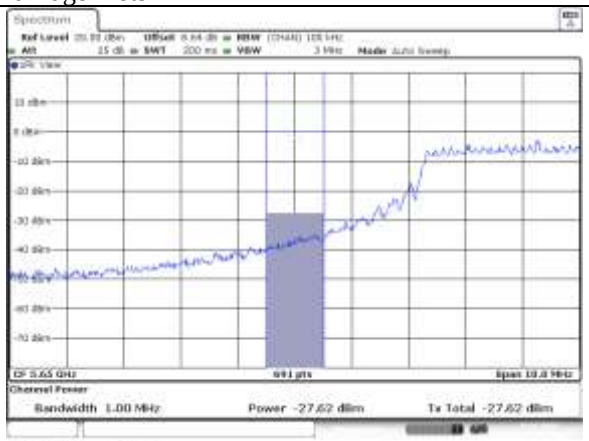
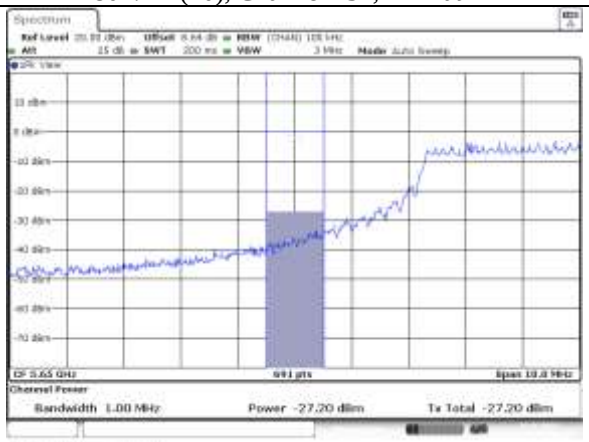
TX Port	TX Mode	Channel	Band Edge Frequency (GHz)	Peak Amplitude (dBm/MHz)	Limit (dBm/MHz)	Peak Margin (dB)	TX Antenna *Gain (dBi)
1	802.11a	116	5.6	-34.12	-27	7.12	6.64
2	802.11a	116	5.6	-29.92	-27	2.92	6.64
1	802.11a	132	5.65	-27.17	-27	0.17	6.64
2	802.11a	132	5.65	-27.56	-27	0.56	6.64
1	802.11n	116	5.6	-35.36	-27	8.36	6.64
2	802.11n	116	5.6	-31.54	-27	4.54	6.64
1	802.11n	132	5.65	-27.18	-27	0.18	6.64
2	802.11n	132	5.65	-27.63	-27	0.63	6.64
1	802.11n (40)	110	5.6	-41.70	-27	14.7	6.64
2	802.11n (40)	110	5.6	-39.20	-27	12.2	6.64
1	802.11n (40)	1345	5.65	-27.62	-27	0.62	6.64
2	802.11n (40)	134	5.65	-27.20	-27	0.2	6.64
1	802.11ac	106	5.6	-38.84	-27	11.84	6.64
2	802.11ac	106	5.6	-35.19	-27	8.19	6.64
1	802.11ac	138	5.65	-27.47	-27	0.47	6.64
2	802.11ac	138	5.65	-27.38	-27	0.38	6.64
1	802.11ax	106	5.6	-39.04	-27	12.04	6.64
2	802.11ax	106	5.6	-35.44	-27	8.44	6.64
1	802.11ax	138	5.65	-27.44	-27	0.44	6.64
2	802.11ax	138	5.65	-27.48	-27	0.48	6.64

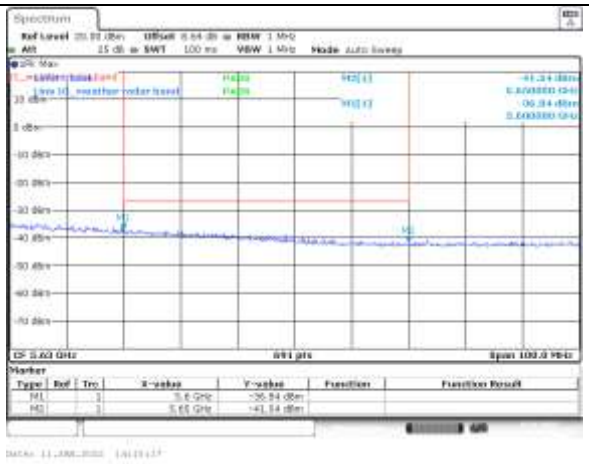
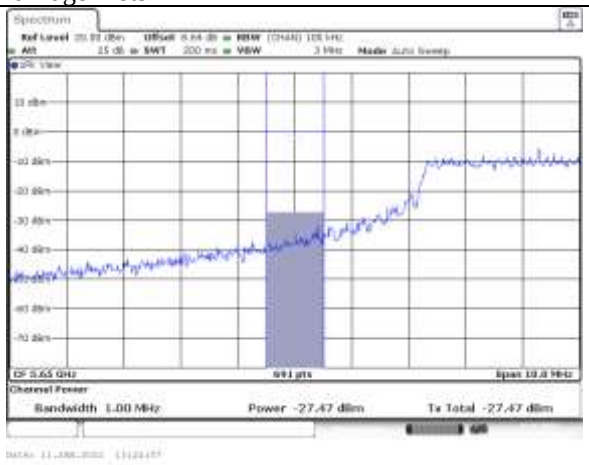
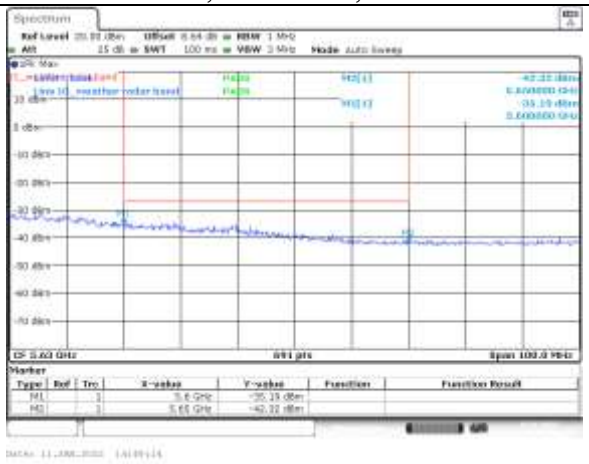
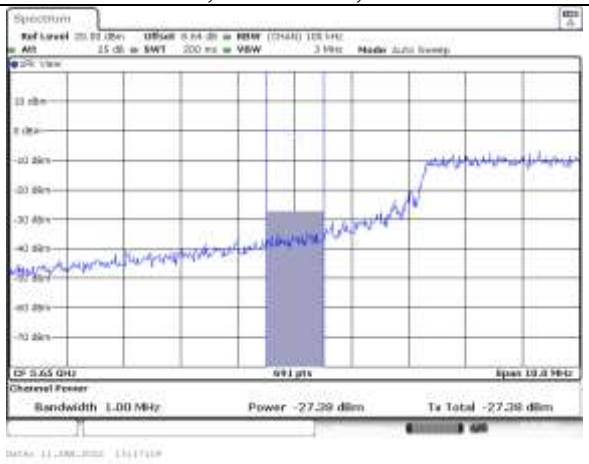
* The antenna gain used is the directional array gain which was calculated per KDB 662911 D01 Section F.2.a.(i) for correlated signals with equal antenna gains.

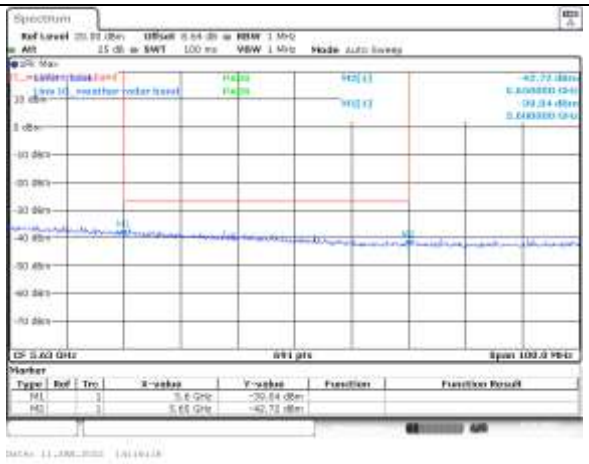
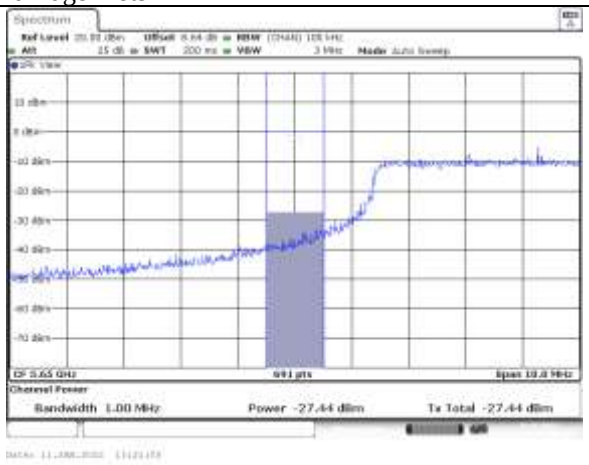
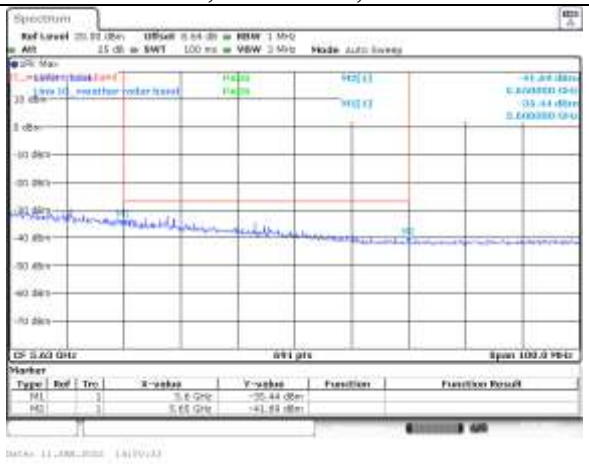
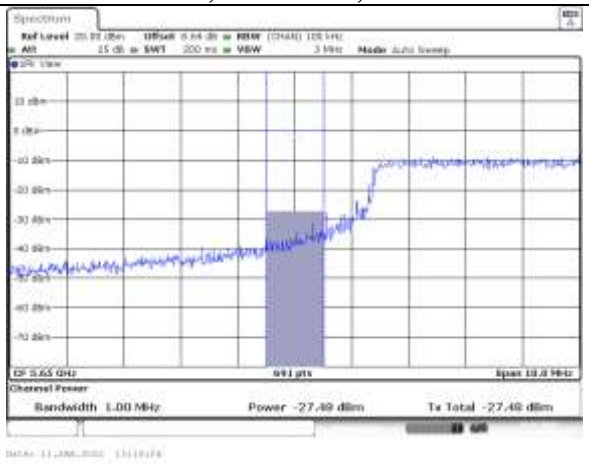
Table 42. UNII-2C Worst Case Band Edge Emissions Adjacent to the 5600 – 5650MHz Band

Weather Radar Band Edge Plots	
	
802.11a, Channel 116, TX Path 1	802.11a, Channel 132, TX Path 1
	
802.11a, Channel 116, TX Path 2	802.11a, Channel 132, TX Path 2

Weather Radar Band Edge Plots	
	
802.11n, Channel 116, TX Path 1	802.11n, Channel 132, TX Path 1
	
802.11n, Channel 116, TX Path 2	802.11n, Channel 132, TX Path 2

Weather Radar Band Edge Plots	
	
802.11n(40), Channel 110, TX Path 1	802.11n(40), Channel 134, TX Path 1
	
802.11n(40), Channel 110, TX Path 2	802.11n(40), Channel 134, TX Path 2

Weather Radar Band Edge Plots	
	
802.11ac, Channel 106, TX Path 1	802.11ac, Channel 138, TX Path 1
	
802.11ac, Channel 106, TX Path 2	802.11ac, Channel 138, TX Path 2

Weather Radar Band Edge Plots	
	
802.11ax, Channel 106, TX Path 1	802.11ax, Channel 138, TX Path 1
	
802.11ax, Channel 106, TX Path 2	802.11ax, Channel 138, TX Path 2

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(g) Frequency Stability

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

Test Results: The EUT was compliant with the requirements of this section. TX emission is maintained within the band of operation under all conditions of normal operation.

IV. Test Equipment

Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2005.

MET Asset #	Description	Manufacturer	Model	Last Cal Date	Cal Due Date
1T4771	Spectrum Analyzer	Keysight	E4446A	4/25/2022	10/25/2023
1A1083	Receiver	Rohde & Schwarz	ESU40	7/1/2021	7/1/2022
1A1176	Active Loop Antenna (9KHz-30MHz)	ETS-Lindgren	6502	06/28/2021	06/28/2022
1A1050	Bilog Antenna (30MHz – 1GHz)	Schaffner	CBL 6112D	12/01/2020	12/01/2022
1A1183	Horn Antenna (1GHz – 18GHz)	ETS Lindgren	3117	06/01/2020	06/01/2022
1A1161	Horn Antenna (18GHz – 40GHz)	ETS Lindgren	3116C	06/03/2020	06/03/2022
1A1065	EMI Receiver	Rohde & Schwarz	ESCI	07/01/2021	07/01/2022
1A1087	Pulse Limiter	Rohde & Schwarz	ESH3Z2	06/30/2021	06/30/2022
1A1122	LISN	Teseq	NNB 51	09/13/202	09/13/2022
1A1123	LISN	Teseq	NNB 51	11/20/2021	11/20/2022
1A1197	RF Current Probe	Fisher Custom Communications (FCC)	F-33-2	09/13/2021	09/13/2022
1A1169	Temp, Humidity, and Pressure Recorder	Omega	OM-CP-PRHTemp2000	03/02/2022	03/02/2023
1A1149	DC Milliohm Meter	GW Instek	GOM-802	06/08/2021	06/08/2022
1A1119	Conducted Emissions Test Area	Custom Made	N/A	06/08/2021	06/08/2022
1A1099	Generator	Com-Power	CGO-51000	See Note	
1A1088	Preamplifier	Rohde & Schwarz	TS-PR1	See Note	
1A1044	Generator	Com-Power	CG-520	See Note	
1A1073	Multi Device Controller	ETS	2090	See Note	
1A1074	System Controller	Panasonic	WV-CU101	See Note	
1A1080	Multi-Device	ETS	2090	See Note	
1A1180	Preamplifier	Miteq	AMF-7D-01001800-22-10P	See Note	

Table 43. Test Equipment List

Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.