FCC Certification 15.407
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NOTES

1) **ITEMS IN RED THROUGOUT THE REPORT ARE ITEMS THAT NEED TO BE ADDRESSED BY THE ENG AT THE TIME OF COMPLETION.**

Template Revision History

Revision	Date	Revised By	Authorized by: QM <initials>, Date	Reason for Revision
1.0	12/14/14	SM		Creation
2.0	12/16/14	AR		Created template
3.0	2/18/15	AR		Fixed formatting issues

Compliance Testing, LLC
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EMI, EMC, RF Testing Experts Since 1963

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Test Report

Prepared for: Ubiquiti Networks, Inc

Model: NSM5

Description: NanoStation M5

Serial Number: N/A

FCC ID: SWX-M5N
IC: 6545A-M5N
To

FCC Part 15.407
IC RSS-247

Date of Issue: August 22, 2016

On the behalf of the applicant:	**Ubiquiti Networks, Inc** **2580 Orchard Parkway** **San Jose, CA 95131**
Attention of:	**Kevin Forbey, Regulatory Manager** **Ph: (408) 942-3085** **E-mail: kevin.forbey@ubnt.com**

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Project No: p1630038

Paul Hay
Project Test Engineer

Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	July 18, 2016	Paul Hay	Original Document
2.0	August 18, 2016	Amanda Reed	Updated phone number in test report
3.0	August 22, 2019	Amanda Reed	Corrected issues from review

Table of Contents

ILAC / A2LA

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to the joint ISO-ILAC-IAF Communiqué dated January 2009).

The tests results contained within this test report all fall within our scope of accreditation, unless noted below.

Please refer to http://www.compliancetesting.com/labscope.html for current scope of accreditation.

Testing Certificate Number: **2152.01**

ACCREDITED
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#2152.01

FCC Site Reg. #349717

IC Site Reg. #2044A-2

Non-accredited tests contained in this report:

N/A

The applicant has been cautioned as to the following

15.21 - Information to User

The user's manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) - Special Accessories

Equipment marked to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer without an additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

Standard Test Conditions Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.10-2009 and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104°F) unless the particular equipment requirements specified testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Measurement results, unless otherwise noted, are worst-case measurements.

Environmental Conditions		
Temperature (ºC)	**Humidity (%)**	**Pressure (mbar)**
25.5 – 26.5	21.6 – 22.2	976.7 – 980.9

EUT Operation during Tests
EUT was powered by POE (Power Over Ethernet) Ethernet cable.

EUT Description
Model: NanoStation M5
Description: 5GHz MIMO Bridging Solution
Serial Number: N/A
Additional Information:
The EUT is a 2x2 MIMO 802.11a/n radio.
The EUT was tested conducted mode with RF connectors mounted on the EUT at the antenna ports.
The EUT is powered by POE (Power Over Ethernet) adapter.

EUT Specifications

EUT Specifications	15.407
Equipment Code	NII
FCC ID	SWX-M5N
Model(s)Tested	NSM5
Model(s) Covered	NSM5
Maximum Output Power	13.8 dBm
Frequency Ranges covered	5250-5350 and 5470-5725MHz
EUT temperature range	-40C to 80C
Bandwidths	10/20/30/40 MHz
Data Rates	6, 9, 12, 18, 24, 36, 48, 54, MCS0, MCS1, MCS2, MCS3, MCS4, MCS5, MCS6, MCS7, MCS8, MCS9
Modulations	BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

Antenna List

Model No.	Manufacturer	Antenna Type	Peak Gain
NanoStation M5	Ubiquiti	Sector	16

15.203: Antenna Requirement:

	The antenna is permanently attached to the EUT
	The antenna uses a unique coupling
X	The EUT must be professionally installed
	The antenna requirement does not apply

Accessories:

Qty	Description	Manufacturer	Model	S/N
1	Switching mode power supply/ POE	Ubiquiti	GP-A240-050	N/A
1	Laptop	Dell	E6420	FHRP6R1
1	Mouse	Logitech	M100	N/A

Cables:

Qty	Description	Length (M)	Shielding Y/N	Shielded Hood Y/N	Ferrite Y/N
1	Ethernet cable	<3 meters	N	N	POE power supply

Modifications: None

Test Results Summary

Specification	Test Name	Pass, Fail, N/A	Comments
15.247(b)	Peak Output Power	Pass	
15.247(b)	Conducted Spurious Emissions	Pass	
15.247(d), 15.209(a), 15.205	Radiated Spurious Emissions	Pass	
15.247(d), 15.209(a), 15.205	Emissions At Band Edges	Pass	
15.247(a)(2)	Occupied Bandwidth	Pass	
15.247(e)	Transmitter Power Spectral Density	Pass	
15.207	A/C Powerline Conducted Emissions	Pass	
§RSS-247	E.I.R.P. at Various Elevations	Pass	

Peak Output Power
Engineer: Paul Hay
Test Date: 5/16/16

Test Requirements

(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. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

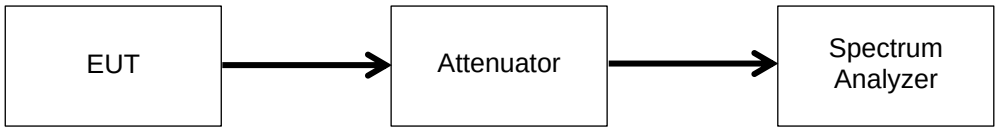
Test Procedure

The RF power was calculated using the spectrum analyzers' band power function per Method SA-1 from KDB 789033 D02 General U-NII Test Procedures New Rules v01. Measurements were made at the low, mid, and high channels of the band.

The Spectrum Analyzer was set to the following:

a. RBW = 1 MHz
b. VBW ≥ 3 MHz
c. Sweep time = auto
d. Detector = RMS
e. 100 traces in power averaging mode

Test Setup



Test Results: For a 16 dBi antenna

UNI-2A FCC

Band Width	Frequency	J4 Level	J7 Level	J4 Level	J7 Level	Combined output power	Limit	Margin
MHz	MHz	dBm	dBm	mW	mW	dBm	dBm	dB
10	5255	6.6	6.6	4.5	4.6	9.6	14	-4.4
10	5300	6.7	6.5	4.7	4.5	9.6	14	-4.4
10	5340	3.9	4.0	2.5	2.5	7.0	14	-7.0
20	5260	6.7	6.6	4.7	4.6	9.7	14	-4.3
20	5300	5.9	5.5	3.9	3.5	8.7	14	-5.3
20	5335	4.7	3.8	3.0	2.4	7.3	14	-6.7
30	5265	6.9	7.3	4.9	5.4	10.1	14	-3.9
30	5300	7.0	7.0	5.0	5.0	10.0	14	-4.0
30	5330	4.3	3.8	2.7	2.4	7.1	14	-6.9
40	5270	6.8	7.6	4.8	5.8	10.2	14	-3.8
40	5300	7.1	6.7	5.1	4.7	9.9	14	-4.1
40	5325	4.4	3.8	2.8	2.4	7.1	14	-6.9

UNII-2C

Band Width	Frequency	J4 Level	J7 Level	J4 Level	J7 Level	Combined output power	Limit	Margin
MHz	MHz	dBm	dBm	mW	mW	dBm	dBm	dB
10	5480	5.6	5.0	3.6	3.2	8.3	14	-5.7
10	5600	6.4	5.6	4.3	3.7	9.0	14	-5.0
10	5715	6.6	6.3	4.5	4.2	9.4	14	-4.6
20	5485	7.9	7.8	6.2	6.0	10.9	14	-3.1
20	5600	8.3	7.7	6.7	5.9	11.0	14	-3.0
20	5710	7.7	7.2	5.9	5.2	10.4	14	-3.6
30	5490	10.8	9.5	11.9	8.8	13.2	14	-0.8
30	5600	10.0	9.3	10.0	8.5	12.6	14	-1.4
30	5705	11.0	10.6	12.7	11.5	13.8	14	-0.2
40	5485	8.7	8.4	7.5	6.9	11.6	14	-2.4
40	5590	9.0	10.4	7.9	11.0	12.7	14	-1.3
40	5690	9.7	10.2	9.4	10.5	13.0	14	-1.0

Transmitter Power Spectral Density (PSD)

Engineer: Paul Hay

Test Date: 5/16/16

Test Requirements

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, 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, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

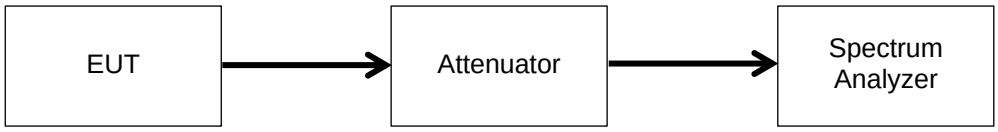
Test Procedure

The Power Spectral Density was measured using the method per SA-1 from KDB 789033 D02 General U-NII Test Procedures New Rules v01. Measurements were made at the low, mid, and high channels of the band. The maximum PSD was determine by finding the peak value across the carrier bandwidth.

The Spectrum Analyzer was set to the following:

a. RBW = 1 MHz
b. VBW ≥ 3 MHz
c. Span 1.5 * BW
d. Sweep time = auto
e. Detector = RMS
f. 100 traces in power averaging mode

Test Setup



Test Results: For a 16 dBi antenna

UNII-2A

Band Width	Frequency	J4 Level	J7 Level	J4 Level	J7 Level	Combined output power	Limit	Margin
MHz	MHz	dBm	dBm	mW	mW	dBm	dBm	dB
10	5255	-2.5	-1.7	0.56	0.68	0.9	1	-0.1
10	5300	-2.2	-2.1	0.60	0.62	0.9	1	-0.1
10	5340	-4.5	-3.9	0.35	0.41	-1.2	1	-2.2
20	5260	-5.0	-5.1	0.32	0.31	-2.0	1	-3.0
20	5300	-5.3	-5.5	0.30	0.28	-2.4	1	-3.4
20	5335	-7.0	-7.9	0.20	0.16	-4.4	1	-5.4
30	5265	-6.4	-5.8	0.23	0.26	-3.1	1	-4.1
30	5300	-6.6	-6.6	0.22	0.22	-3.6	1	-4.6
30	5330	-8.7	-9.2	0.13	0.12	-5.9	1	-6.9
40	5270	-7.4	-7.4	0.18	0.18	-4.4	1	-5.4
40	5300	-7.3	-7.6	0.19	0.17	-4.4	1	-5.4
40	5325	-10.2	-10.7	0.10	0.09	-7.4	1	-8.4

UNII-2C

Band Width	Frequency	J4 Level	J7 Level	J4 Level	J7 Level	Combined output power	Limit	Margin
MHz	MHz	dBm	dBm	mW	mW	dBm	dBm	dB
10	5480	-3.0	-3.1	0.5	0.5	0.0	1	-1.0
10	5600	-2.5	-2.9	0.6	0.5	0.3	1	-0.7
10	5715	-2.3	-2.0	0.6	0.6	0.9	1	-0.1
20	5485	-3.4	-3.2	0.5	0.5	-0.3	1	-1.3
20	5600	-3.1	-3.4	0.5	0.5	-0.2	1	-1.2
20	5710	-4.0	-4.2	0.4	0.4	-1.1	1	-2.1
30	5490	-2.8	-2.6	0.5	0.5	0.3	1	-0.7
30	5600	-3.2	-3.6	0.5	0.4	-0.4	1	-1.4
30	5705	-2.1	-2.4	0.6	0.6	0.8	1	-0.2
40	5485	-5.9	-6.0	0.3	0.3	-2.9	1	-3.9
40	5590	-5.4	-3.5	0.3	0.4	-1.3	1	-2.3
40	5690	-4.2	-4.9	0.4	0.3	-1.5	1	-2.5

Conducted Spurious Emissions
Engineer: Paul Hay
Test Date: 5/11/16

Test Requirements

Unwanted Emissions that fall Outside Restricted Bands

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.

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.

As specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz. However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz maximum emission limit.

The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz

The provisions of §15.205 apply to intentional radiators operating under this section

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

For Conducted Unwanted Emissions in the Restricted Bands

For conducted measurements above 1000 MHz, EIRP was determined and then the field strength computed by the following:
E[dBµV/m] = EIRP[dBm] - 20 log(d[meters]) + 104.77, where E = field strength and d = 3m
E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

Test Procedure

Per KDB 789033 D02 General U-NII Test Procedures New Rules v01 conducted RF port measurements were made in lieu of radiated. In addition, Cabinet Emissions measurements were performed in a semi-anechoic chamber with the antenna port terminated by a matching load. See additional section for Radiated Emissions.

The following criteria were addressed:

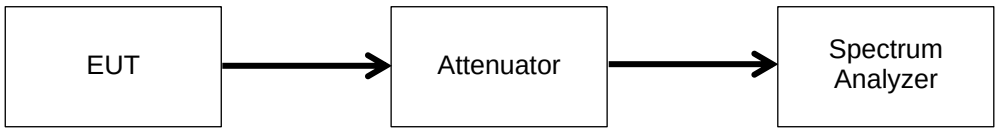
The Spectrum Analyzer was set to the following for emissions > 1000MHz:

a. RBW = 1 MHz
b. VBW ≥ 3 MHz
c. Detector = Peak.
d. Sweep time = auto
e. Trace mode = max hold
    1. Note: For emissions where the peak exceeded that of the average 15.209 emission limit the following was performed.
f. VBW ≤ RBW/100 (i.e., 10 kHz) but not less than 10 Hz

For emissions below 1000MHz the Spectrum Analyzer settings were as follows:

a. RBW = 100 kHz
b. VBW ≥ 300 kHz
c. Detector = Peak
d. Sweep time = auto
e. Trace mode = max hold

Test Setup



Test Results: **See Annex A: Undesirable Emissions Conducted**

Radiated Spurious Emissions
Engineer: Poona Saber
Test Date: 5/11/16

Test Requirements

The provision of §15.209 were applied. In addition the requirements of §15.205 were also applied.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits

Frequency (MHz)	Frequency (microvolts/meter)	Frequency (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBµV/m) = 20 log E field strength (uV/m)

Test Procedure

The EUT was setup in accordance with ANSI C63.10. 2009 and tested per KDB 789033. The antenna was replaced with non-radiating matched load. The EUT is placed on non-conductive platform at a height of 0.8 meters above the ground plane of the semi-anechoic chambers. The EUT was rotated 360 degrees and the receive antenna raised and lowered to find the maximum emissions from 30MHz to the 10th harmonic of the fundamental. The EUT was set to the maximum power level allowed and the low, mid, and high channels were investigated for emissions.

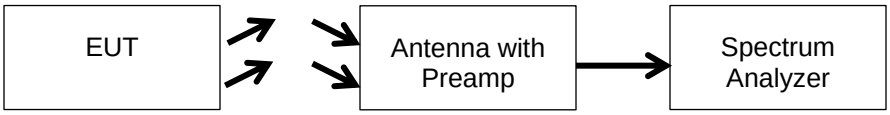
The Spectrum Analyzer was set to the following for emissions > 1000MHz:

a. (RBW = 1 MHz
b. VBW ≥ 3 MHz
c. Detector = Peak
d. Sweep time = auto
e. Trace mode = max hold
    1. Note: For emissions where the peak exceeded that of the average 15.209 emission limit the following was performed.
f. RBW = 1 MHz
g. VBW ≤ RBW/100 (i.e., 10 kHz) but not less than 10Hz

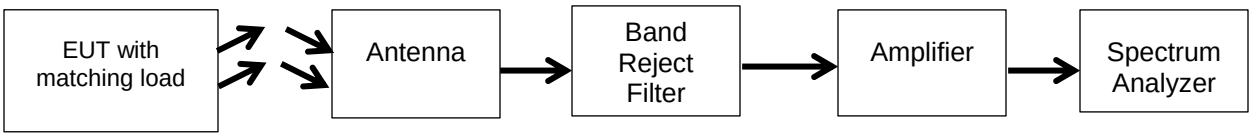
For emissions below 1000MHz the Spectrum Analyzer settings were as follows:

a. RBW = 100 kHz
b. VBW ≥ 300 kHz
c. Detector = Peak
d. Sweep time = auto
e. Trace mode = max hold
    1. Note: A quasi peak detector was used for emissions where the peak exceeded that of the average 15.209 emission limits

Test Setup below 1000MHz



Test Setup above 1000MHz



Test Results: **See Annex B: Undesirable Emission Radiated**

Occupied Bandwidth
Engineer: Paul Hay
Test Date: 5/16/16

Test Requirement

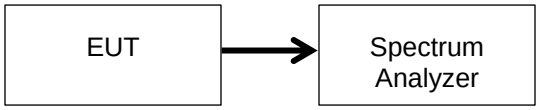
The emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is 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 Spectrum Analyzer was set to the following parameters:

a. RBW = approximately 1 to 5% of the emission bandwidth.
b. VBW > RBW.
c. Detector = Peak.
d. Trace mode = max hold.

Test Setup



Test Results: **See Annex C: Occupied Bandwidth**

Frequency Stability
Engineer: Paul Hay
Test Date: 5/18/16

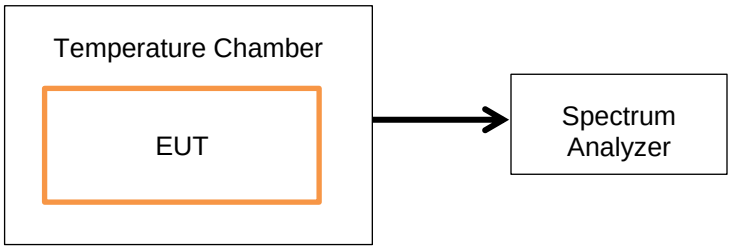
Test Requirement

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 Procedure

a. The EUT was placed into a temperature chamber and the temperature ranges were set to the manufacturer's specifications.
b. The RF output of the EUT was connected to a spectrum analyzer
c. The lowest and highest channels of the band were set to transmit
d. The carrier plots were measured to insure that the 26dB band width remained within the band over the prescribed temperature extremes.

Test Setup



Test Results: **See Annex D: Frequency Stability**

RF Exposure
Engineer: Paul Hay
Test Date: 5/17/16

Requirements

U-NII devices are subject to the radio frequency radiation exposure requirements specified in §1.1307(b), §2.1091 and §2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. In addition, systems operating under the provisions of this section shall be operated in a manner that insures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

Exposure Limits

At operating frequencies less than or equal to 6 GHz, the limits for maximum permissible exposure (MPE) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Section 1.1307(b), except for portable devices as defined in §2.1093 as these evaluations shall be performed according to the SAR provisions in §2.1093 of this chapter.

MPE Limit Calculations

Exposure Limit 1mW/cm^2

Source Based Time Averaged Power Calculation

Average Power Calculations

Average Power = Peak Power * duty-cycle%

Band	Tuned Frequency (MHz)	Conducted Peak Output Power (mW)	Duty Cycle (%)	Average Power (mW)
UNII-2A	5270	10.5	100	0.741
UNII-2C	5705	24.0	100	24.0

MPE Evaluation

This is a **fixed/mobile** device used in uncontrolled /general population exposure environment.

Limits Uncontrolled Exposure	0.3-1.234 MHz	Limit [mW/cm²] = 100
47 CFR 1.1310	1.34-30 MHz	Limit [mW/cm²] = (180/f²)
Table 1, (B)	30-300 MHz	Limit [mW/cm²] = 0.2
	300-1500 MHz	Limit [mW/cm²] = f/1500
	1500-100,000 MHz	Limit [mW/cm²] = 1.0

UNII-2A Test Data

Test Frequency, MHz	5270
Power, Conducted, mW (P)	0.741
Antenna Gain Isotropic	16
Antenna Gain Numeric (G)	39.81
Antenna Type	Sector
Distance (R)	20

$$S = \frac{P * G}{4\pi r^2}$$

Power Density (S) mw/cm^2	Power mW (P)	Numeric Gain (G)	Distance (r^2) cm
	0.741	39.81	20

Power Density (S) = 0.005869 mw/cm^2
Limit =(from above table) = 1.0 mw/cm^2

UNII-2C Test Data

Test Frequency, MHz	5705
Power, Conducted, mW (P)	24.0
Antenna Gain Isotropic	16
Antenna Gain Numeric (G)	39.81
Antenna Type	Sector
Distance (R)	20

$$S = \frac{P * G}{4\pi r^2}$$

Power Density (S) mw/cm^2	Power mW (P)	Numeric Gain (G)	Distance (r^2) cm
	24.0	39.81	20

Power Density (S) = 0.190082 mw/cm^2
Limit =(from above table) = 1.0 mw/cm^2

A/C Powerline Conducted Emission

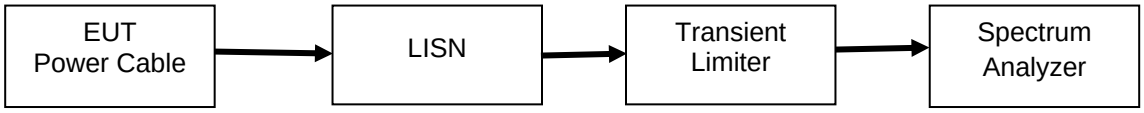
Engineer: Paul Hay

Test Date: 5/12/16

Test Procedure

The EUT power cable was connected to a LISN and the monitored output of the LISN was connected to a transient limiter, which then connected directly to a spectrum analyzer. The conducted emissions from 150 kHz to 30 MHz were measured and compared to the specification limits.

Test Setup



Test Results: **See Annex E: A/C Powerline Conducted Emission**

Emissions at Band Edges

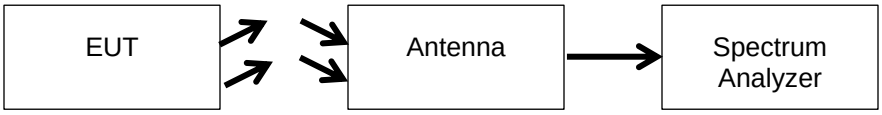
Engineer: Poona Saber

Test Date: 5/19/16

Test Procedure

The EUT was tested in a semi-anechoic chamber set 3m from the receiving antenna. A spectrum analyzer was used to verify that the EUT met the requirements for band edge and restricted band for both peak and average measurements. The cable and antenna correction factors were input into the analyzer as a reference level offset to ensure accurate readings. For the restricted band the amplifier and band reject filter correction factors were also input to the spectrum analyzer.

Band Edge Test Setup



Restricted Band Test Setup

Test Results: **See Annex A Conducted Spurious**

Transmitter E.I.R.P. at Various Elevations

Engineer: Paul Hay

Test Date: 7/8/16

Test Requirements

(i) For an outdoor access point operating in the band 5.25-5.35 GHz, the maximum power spectral density shall not exceed -13 dBW in any 1 megahertz band for 0°≤ θ< 8°, -13 − 0.716 (θ-8) dBW/MHz for 8° ≤ θ< 40°, -35.9 − 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45° and -42 dBW/MHz for θ > 45°. θ is the angle above the local horizontal plane (of the Earth). For ease of testing the following conversion was used.

1dbW=31dBm

Test Procedure

The E.I.R.P was measured using the method per RSS-247 May 2015, Annex A, Method 2. The following equation was followed.

e.i.r.p. density = $PSD_{MAX} + G_{Norm} + G_{MAX}$
G_{Norm} = the normalized gain value, in dB (original amplitude axis of the antenna pattern);
G_{MAX} = the maximum antenna gain value, in dBi.

Antenna	Polarization	Worst-Case Tilt Angle (°)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
NanoStationM5-16	Vertical	45	-12.1	-12	-0.1

Test Equipment Utilized

Description	Manufacturer	Model #	CT Asset #	Last Cal Date	Cal Due Date
Temperature Chamber	Tenney	Tenney II Benchmaster	i00287	NCR	NCR
Preamplifier	HP	8447D	i00055	NCR	NCR
Horn Antenna	EMCO	3115	i00103	1/20/15	1/20/17
Harmonic Mixer	HP	11970A	i00193	6/21/15	6/21/17
Horn Antenna, Amplified	ARA	DRG-118/A	i00271	5/8/14	5/8/16
Horn Antenna, Amplified	ARA	MWH-1826/B	i00273	04/22/15	04/22/17
Spectrum Analyzer	Agilent	E4407B	i00331	09/18/15	09/18/16
Bi-Log Antenna	Schaffner	CBL 6111D	i00349	10/8/15	10/8/16
EMI Analyzer	Agilent	E7405A	i00379	2/11/16	2/11/17
3 Meter Semi-Anechoic Chamber	Panashield	3 Meter Semi-Anechoic Chamber	i00428	11/26/13	11/26/16
PSA Spectrum Analyzer	Agilent	E4445A	i00471	8/26/15	8/26/16

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT