



Nemko Test Report: 183286RUS1

Applicant: Ubiquiti Networks
495-499 Montague Expressway
Milpitas, CA 95035

**Equipment Under Test:
(E.U.T.)** XR2

FCC Identifier: SWX-XR2

In Accordance With: **FCC Part 15, Subpart C, 15.247 and
Industry Canada RSS-210, Issue 8**
Digital Transmission Systems

Tested By: Nemko USA, Inc.
802 N. Kealy
Lewisville, Texas 75057-3136

TESTED BY: 

David Light, Senior Wireless Engineer **DATE:** 11-Nov-2011

APPROVED BY: 

Mike Cantwell **DATE:** 7-Dec-2011

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EQUIPMENT: XR2

Section 1. Summary of Test Results

Manufacturer: Ubiquiti Networks

Model No.: XR2

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 and Industry Canada RSS-210, Issue 8 for Digital Transmission Systems. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC and Industry Canada..

- | | | | |
|-------------------------------------|----------------------------|--------------------------|---------------------|
| <input type="checkbox"/> | New Submission | <input type="checkbox"/> | Production Unit |
| <input checked="" type="checkbox"/> | Class II Permissive Change | <input type="checkbox"/> | Pre-Production Unit |

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



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EQUIPMENT: XR2

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Powerline Conducted Emissions	15.207(a)	NA
Minimum 6 dB Bandwidth	15.247(a)(2)	NA
Maximum Peak Power Output	15.247(b)(3)	NA
Spurious Emissions (Antenna Conducted)	15.247(d)	NA
Spurious Emissions (Restricted Bands)	15.247(d)/15.209(a)	Complies
Peak Power Spectral Density	15.247(e)	NA

Footnotes:

Class II permissive change to include additional antenna.

EQUIPMENT: XR2

Section 2. Equipment Under Test (E.U.T.)

General Equipment Information

Frequency Band (MHz):	902-928	2400-2483.5	5725-5850
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Operating Frequency of Test Sample: 2412 to 2452 MHz*

Channel Spacing: 5 MHz

User Frequency Adjustment: Software controlled

*Note – Transmitter will only be used on channels 1 through 9 with new antenna

Description of EUT

802.11b/g WLAN module.

EQUIPMENT: XR2

Section 3. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.247 (d)
TESTED BY: David Light	DATE: 11 November 2011

Test Results: Complies.

Measurement Data: See attached table(s).

Test Conditions: 48 %RH
23 °C

Measurement Uncertainty: +/-1.7 dB

Test Equipment Used: 1767-1783-1016-1480-791-993

Notes:

- For handheld devices, the EUT was tested on three orthogonal axis'
- The device was tested from 30 MHz to the tenth harmonic of the highest fundamental frequency per 15.33
- The device was tested on three channels per 15.31(l).
- No emissions were detected within 20 dB of the specification limit therefore none are reported per 15.31(o). Band edge data is presented below.

RBW=VBW=100 kHz below 1000 MHz
RBW=VBW=1 MHz above 1000 MHz (Peak)
RBW= 1 MHz VBW=10Hz (Average)

EQUIPMENT: XR2

Radiated Emissions

802.11g Mode

Meas. Freq. (MHz)	Ant. Pol. (HV)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail Unc.	Comment
2483.5	V	0	39.1	29.8	3.1	0.0	72.0	74.0	-2.0	Pass	802.11g
2483.5	V	0	17.6	29.8	3.1	0.0	50.5	54.0	-3.5	Pass	Channel 9
2483.5	H	0	36	29.8	3.1	0.0	68.9	74.0	-5.1	Pass	
2483.5	H	0	13	29.8	3.1	0.0	45.9	54.0	-8.1	Pass	
4904	V	0	44.4	35.3	4.3	31.9	52.1	74.0	-21.9	Pass	
4904	V	0	36	35.3	4.3	31.9	43.7	54.0	-10.3	Pass	
7356	V	0	45	37.5	5.3	32.0	55.8	74.0	-18.2	Pass	
7356	V	0	34.3	37.5	5.3	32.0	45.1	54.0	-8.9	Pass	
4904	H	0	43	35.3	4.3	31.9	50.7	74.0	-23.3	Pass	
4905	H	0	32	35.3	4.3	31.9	39.7	54.0	-14.3	Pass	
											Channel 5
4864	V	0	47.1	35.3	4.3	31.9	54.8	74.0	-19.2	Pass	
4864	V	0	39	35.3	4.3	31.9	46.7	54.0	-7.3	Pass	
7296	V	0	50	37.5	5.3	32.0	60.8	74.0	-13.2	Pass	
7296	V	0	36	37.5	5.3	32.0	46.8	54.0	-7.2	Pass	
4864	H	0	42	35.3	4.3	31.9	49.7	74.0	-24.3	Pass	
4864	H	0	32.6	35.3	4.3	31.9	40.3	54.0	-13.7	Pass	
											Channel 1
4864	V	0	46	35.3	4.3	31.9	53.7	74.0	-20.3	Pass	
4864	V	0	36	35.3	4.3	31.9	43.7	54.0	-10.3	Pass	
7296	V	0	49.3	37.5	5.3	32.0	60.1	74.0	-13.9	Pass	
7296	V	0	36.3	37.5	5.3	32.0	47.1	54.0	-6.9	Pass	
4864	H	0	40	35.3	4.3	31.9	47.7	74.0	-26.3	Pass	
4864	H	0	30	35.3	4.3	31.9	37.7	54.0	-16.3	Pass	
7296	H	0		37.5	5.3	32.0	10.8	74.0	-63.2	Pass	
7296	H	0		37.5	5.3	32.0	10.8	54.0	-43.2	Pass	
											Power level was set
											at 25 dBm while in
											802.11g mode.

Power level was set to 25 dBm while in 802.11g mode.

EQUIPMENT: XR2

Section 4. Test Equipment List

Asset Tag	Description	Manufacturer	Model	Serial #	Last Cal	Next Cal
993	Antenna, Horn	A.H. Systems	SAS-200/571	162	22-Sep-2011	22-Sep-2013
1016	Preamplifier	Hewlett Packard	8449A	2749A00159	20-Jul-2011	20-Jul-2012
1480	Antenna, Bilog	Schaffner- Chase	CBL6111C	2572	19-Jan-2011	19-Jan-2012
1767	Receiver	Rohde & Schwartz	ESIB26	837491/0002	01-Dec-2010	01-Dec-2011
1783	Cable Assy,	Nemko	Chamber		26-Sep-2011	26-Sep-2012
791	30MHz to 1GHz Pre Amplifier	Nemko, USA	CRA69 321003 9605	119	19-May-2011	19-May-2012

ANNEX A - TEST DETAILS

EQUIPMENT: XR2

NAME OF TEST: Radiated Spurious Emissions	PARA. NO.: 15.247(c)
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Minimum Standard: In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits:

Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$ @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC

15.205 Restricted Bands

MHz	MHz	MHz	GHz
0.09-0.11	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41	1718		

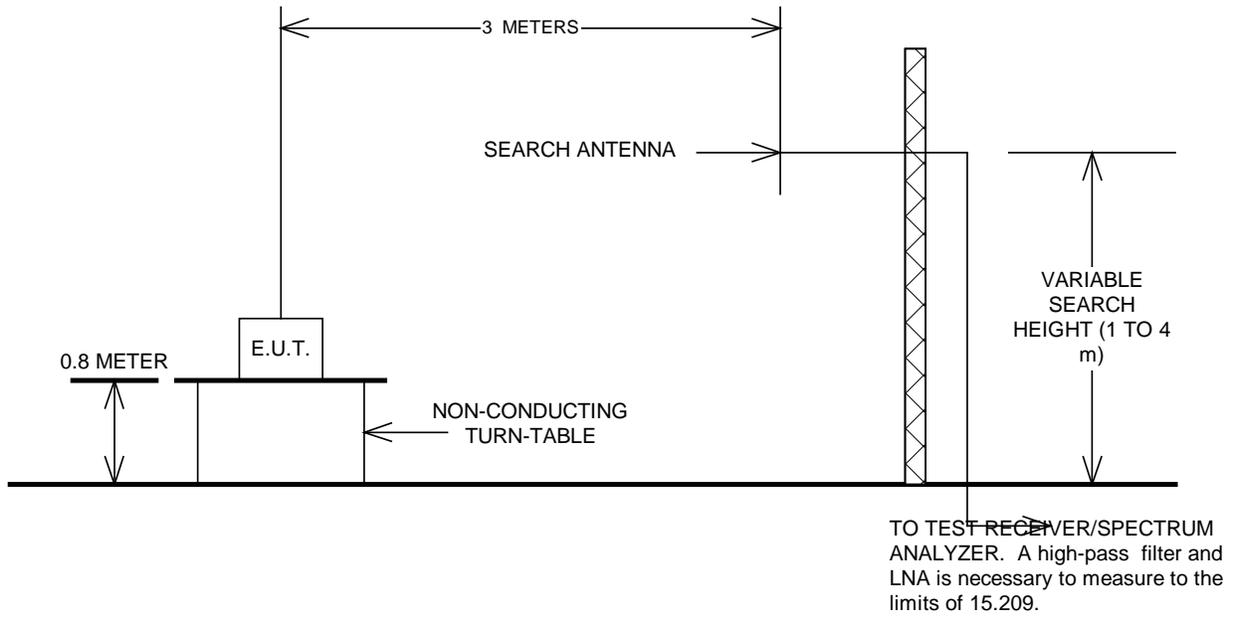
Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

ANNEX B - TEST DIAGRAMS

EQUIPMENT: XR2

Test Site For Radiated Emissions



Conducted Emissions

