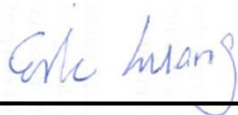


# RF Exposure Evaluation Report

APPLICANT : Ubiquiti Networks, Inc.  
EQUIPMENT : NanoBeam® ac  
BRAND NAME : UBIQUITI  
MODEL NAME : NBE-2AC-13  
FCC ID : SWX-NBE2AC13  
STANDARD : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



## SPORTON INTERNATIONAL INC.

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)



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**Revision History**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA5D3042	Rev. 01	Initial issue of report	Jan. 26, 2016



**1. Administration Data**

**1.1. Testing Laboratory**

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Ubiquiti Networks, Inc.
Address	12F, No.105, Song Ren Rd.,SinYi District, Taipei 110,Taiwan

Manufacturer	
Company Name	Ubiquiti Networks, Inc.
Address	12F, No.105, Song Ren Rd.,SinYi District, Taipei 110,Taiwan

## **2. Description of Equipment Under Test (EUT)**

<b>Product Feature &amp; Specification</b>	
<b>EUT Type</b>	NanoBeam® ac
<b>Brand Name</b>	UBIQUITI
<b>Model Name</b>	NBE-2AC-13
<b>FCC ID</b>	SWX-NBE2AC13
<b>Wireless Technology and Frequency Range</b>	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
<b>Mode</b>	• 802.11ac VHT20(10MHz)/VHT20/VHT40
<b>Antenna Type</b>	Dish Antenna
<b>EUT Stage</b>	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## **3. Maximum RF average output power among production units**

Mode	Channel	Frequency	Transmit Path	Upper Limit
802.11ac VHT20(10M) MIMO Ant 0+1	CH 01	2412 MHz	0+1	22.0
	CH 06	2437 MHz	0+1	22.0
	CH 11	2462 MHz	0+1	22.0
802.11ac VHT20 MIMO Ant 0+1	CH 01	2412 MHz	0+1	16.5
	CH 06	2437 MHz	0+1	22.0
	CH 11	2462 MHz	0+1	13.0
802.11ac VHT40 MIMO Ant 0+1	CH 03	2422 MHz	0+1	11.0
	CH 06	2437 MHz	0+1	15.5
	CH 09	2452 MHz	0+1	8.5



### 4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 22 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



**5. Radio Frequency Radiation Exposure Evaluation**

**5.1. Power Density Calculation**

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 22cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2.4GHz WLAN	2412.0	13.0	22.0	35.000	3.162	3162.278	0.520	1.000

**Note:** For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band

**Conclusion:**

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.