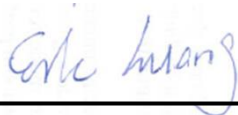


# RF Exposure Evaluation Report

APPLICANT : Ubiquiti Networks, Inc.  
EQUIPMENT : NanoBeam AC  
BRAND NAME : UBIQUITI  
MODEL NAME : NBE-5AC-Gen2  
FCC ID : SWX-NBE5ACG2W  
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 / 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**

<b>REPORT NO.</b>	<b>VERSION</b>	<b>DESCRIPTION</b>	<b>ISSUED DATE</b>
FA561115-04	Rev. 01	Initial issue of report	Oct. 16, 2017



**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	685 Third Avenue, 27th Floor New York, New York 10017 USA

Manufacturer	
Company Name	Ubiquiti Networks, Inc.
Address	685 Third Avenue, 27th Floor New York, New York 10017 USA



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

Product Feature & Specification	
EUT Type	NanoBeam AC
Brand Name	UBIQUITI
Model Name	NBE-5AC-Gen2
FCC ID	SWX-NBE5ACG2W
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5160 MHz ~ 5245 MHz WLAN 5.3GHz Band: 5255 MHz ~ 5340 MHz WLAN 5.5GHz Band: 5480 MHz ~ 5715 MHz WLAN 5.8GHz Band: 5735 MHz ~ 5840 MHz
Mode	802.11a/b/g/n/ac HT20/HT40/VHT10/VHT20/VHT30/VHT40/VHT50/VHT60/VHT80
EUT Stage	Identical Prototype

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This is a variant report to enable 5.3GHz / 5.5GHz WLAN operation.

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

Mode	Maximum Average Power (dBm)
5.3GHz / 5.5GHz WLAN	12.5



### 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 29 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. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 29cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density / Limit
5.3/5.5GHz WLAN	5255.0	17.00	12.50	29.500	0.891	891.251	0.084	1.000	0.084

5.2. Collocated Power Density Calculation

2.4GHz WLAN Power Density / Limit	5GHz WLAN Power Density / Limit	$\Sigma$ (Power Density / Limit) of 2.4GHz WLAN + 5GHz WLAN
0.006	0.947	0.953

Note:

- The table above has considered the collocation of power density for all radio transmitters, for WLAN2.4GHz / WLAN5.2GHZ / WLAN5.8GHz power density can refer to Sporton RF Exposure Evaluation Original Report, Report No: FA561115-03.
- $\Sigma$  (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for 2.4GHz WLAN + 5GHz WLAN
- Considering all EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

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