RF Exposure Evaluation Report

APPLICANT	:	Ubiquiti Networks, Inc.
EQUIPMENT	:	rocket PRISM AC
BRAND NAME	:	UBIQUITI
MODEL NAME	:	R2AC
FCC ID	:	SWX-R2ACN
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

Testing Laboratory
1190

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

Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA581010-04	Rev. 01	Initial issue of report	Aug. 17, 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	rocket PRISM AC
Brand Name	UBIQUITI
Model Name	R2AC
FCC ID	SWX-R2ACN
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	802.11a/n/ac HT20/VHT10/VHT20/VHT40
Antenna Gain	WLAN 2.4GHz : 10 dBi / 24 dBi WLAN 5G Hz : -6 dBi
EUT Stage	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

General note :

There are two kinds of 2.4GHz WLAN output Power mode on this device :

(1) When equipped with 10 dBi antenna, the 2.4GHz WLAN maximum output power as follows :

Mode	Maximum Average Power (dBm)
2.4GHz WLAN	24.5

(2) When equipped with 24 dBi antenna, the 2.4GHz WLAN maximum output power as follows :

Mode	Maximum Average Power (dBm)
2.4GHz WLAN	11.5

Mode	Maximum Average Power (dBm)
5GHz WLAN	24.5

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^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	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 24 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 24cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
2.4GHz WLAN	2412.0	10.0	24.5	34.500	2.818	2818.383	0.390	1.000	0.390
2.4GHz WLAN	2412.0	24.0	11.5	35.500	3.548	3548.134	0.490	1.000	0.490
5GHz WLAN	5745.0	-6.0	24.5	18.500	0.071	70.795	0.010	1.000	0.010

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

5.2. Collocated Power Density Calculation

Maximum 2.4GHz WLAN Power Density / Limit	5GHz WLAN Power Density / Limit	∑(Power Density / Limit) of 2.4GHz WLAN + 5GHz WLAN
0.490	0.010	0.500

Note:

1. 2.4GHz WLAN and 5GHz WLAN can transmit simultaneously.
2. ∑(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.
3. Considering the 2.4GHz WLAN module collocation with the 5GHz WLAN of the 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.