

RF Exposure Evaluation Report

APPLICANT : Ubiquiti Networks, Inc.
EQUIPMENT : BULLET M2
BRAND NAME : UBIQUITI
MODEL NAME : BulletM2-HP, BM2-Ti
FCC ID : SWX-M2BW
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: Anderson Chiu / 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
FA712408-03	Rev. 01	Initial issue of report	Feb. 14, 2018

**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	BULLET M2
Brand Name	UBIQUITI
Model Name	BulletM2-HP, BM2-Ti
FCC ID	SWX-M2BW
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Mode	802.11b (5, 8, 10, 20) MHz 802.11g (5, 8, 10, 20) MHz 802.11n HT(5, 8, 10, 20, 30, 40) MHz
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 three kinds of 2.4GHz WLAN output Power mode on this device :

- (1) When equipped with AMO-2G10 / AMO-2G13 antenna (Peak Gain: 13 dBi), the maximum output power as following :

Mode	Maximum Average Power (dBm)
2.4GHz WLAN	20.01

- (2) When equipped with AM-V2G-Ti antenna (Peak Gain: 17 dBi), the maximum output power as following :

Mode	Maximum Average Power (dBm)
2.4GHz WLAN	13.89

- (3) When equipped with RD-2G24 antenna (Peak Gain: 24 dBi), the maximum output power as following :

Mode	Maximum Average Power (dBm)
2.4GHz WLAN	9.94



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/f ²)	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/f ²)	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 20 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

Antenna Model Name	Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
AMO-2G13	2.4GHz WLAN	2412.0	13.00	20.01	33.010	2.000	1999.862	0.398	1.000
AM-V2G-Ti	2.4GHz WLAN	2412.0	17.00	13.89	30.890	1.227	1227.439	0.244	1.000
RD-2G24	2.4GHz WLAN	2412.0	24.00	9.94	33.940	2.477	2477.422	0.493	1.000

Note: For conservativeness, the lowest 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.