

RF EXPOSURE EVALUATION REPORT

FCC ID : SWX-GBE
Equipment : GigaBeam
Model Name : GBE
Applicant : Ubiquiti Networks, Inc.
685 Third Avenue, 27th Floor
New York, New York 10017
USA
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Ken Chen



Sporton International (USA) Inc.

1175 Montague Expressway, Milpitas, CA 95035



Table of Contents

| | |
|--|----------|
| 1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT) | 4 |
| 2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS | 4 |
| 3. RF EXPOSURE LIMIT INTRODUCTION | 5 |
| 4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION | 6 |
| 4.1. Standalone Power Density Calculation | 6 |



History of this test report

| Report No. | Version | Description | Issued Date |
|------------|---------|-------------------------|---------------|
| FA970225 | Rev. 01 | Initial issue of report | Jul. 23, 2019 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**1. Description of Equipment Under Test (EUT)**

| Product Feature & Specification | |
|---|--|
| EUT Type | GigaBeam |
| Model Name | GBE |
| FCC ID | SWX-GBE |
| Wireless Technology and Frequency Range | WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz 60G: GigaBEam |
| Mode | WLAN: 802.11a/b/g/n/ac HT20 / HT40 / VHT20 / VHT40 / VHT80 |
| HW Version | 113-007114-02-00 |
| 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.

Reviewed by: Jason Wang

Report Producer: Wan Liu

2. Maximum RF average output power among production units

| Mode | Maximum Average power(dBm) |
|-------------|----------------------------|
| 2.4GHz WLAN | 6.85 |
| 5GHz WLAN | 25.70 |

| Mode | EIRP(dBm) |
|------|-----------|
| 60G | 39 |



3. 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 33 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



4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

| Frequency (MHz) | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (W) | Average EIRP (mW) | Power Density at 33cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|-----------------|--------------------|---------------------|--------------------|------------------|-------------------|---|-----------------------------|-----------------------|
| 2412.0 | 2.00 | 6.85 | 8.850 | 0.008 | 7.674 | 0.001 | 1.000 | 0.001 |
| 5180.0 | 10.00 | 25.70 | 35.700 | 3.715 | 3715.352 | 0.272 | 1.000 | 0.272 |
| 58320.0 | | | 39.000 | 7.943 | 7943.282 | 0.581 | 1.000 | 0.581 |

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band
2. The value EIRP of 60G is referred from Sporton FCC radio test report, report number: FR190701001D (FDD ID: SWX-GBE).

| WLAN Power Density / Limit | 60G Power Density / Limit | Σ (Power Density / Limit) of WLAN+60G |
|----------------------------|---------------------------|--|
| 0.272 | 0.581 | 0.853 |

Note:

1. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WLAN + 60G.
2. Considering all 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.