**Compliance Testing, LLC**
Previously Flom Test Lab
EMI, EMC, RF Testing Experts Since 1963

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# Test Report

**Prepared for: Ubiquiti Networks, Inc**

**Model: PBE-M5**

**Description: PowerBeam M5**

**Serial Number: N/A**

**FCC ID: SWX-PBE5M**

**To**

**FCC Part 1.1310**

**Date of Issue: May 27, 2015**

| | |
|---|---|
| **On the behalf of the applicant:** | **Ubiquiti Networks, Inc**<br>**91 E. Tasman Drive**<br>**San Jose, CA 95134** |
| **Attention of:** | **Michael Taylor, Compliance Manager**<br>**Ph: (408) 942-3085**<br>**E-mail: compliance@ubnt.com** |

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**Project No: p14a0028**

**Alex Macon**
**Project Test Engineer**

**Test Report Revision History**

| Revision | Date | Revised By | Reason for Revision |
|---|---|---|---|
| 1.0 | May 22, 2015 | Alex Macon | Original Document |
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**ILAC / A2LA**

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009)

The tests results contained within this test report all fall within our scope of accreditation, unless below

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Testing Certificate Number: **2152.01**

**FCC Site Reg. #349717**

**IC Site Reg. #2044A-2**

**Non-accredited tests contained in this report:**

**N/A**

**EUT Description**
**Model:** PBE-M5
**Description:** PowerBeam M5
**Firmware:** N/A
**Software:** N/A
**Serial Number:** N/A
**Additional Information:**
The EUT is a 2x2 MIMO 802.11ac radio.
The EUT was tested conducted mode with RF connectors mounted on the EUT at the antenna ports.
The EUT is powered by POE (Power Over Ethernet) adapter.
The different data rates were evaluated and the worst case data rate was chosen for all the testing.

**MPE Limit Calculations**

Exposure Limit 1mW/cm$^2$

**Source Based Time Averaged Power Calculation**

**Average Power Calculations**

Average Power = Peak Power * duty-cycle%

| Band | Tuned Frequency (MHz) | Conducted Peak Output Power (mW) | Duty Cycle (%) | Average Power (mW) |
|---|---|---|---|---|
| UNII-2A | 5300 | 110 | 100 | 110 |
| UNII-2C | 5710 | 63.1 | 100 | 63.1 |

**MPE Evaluation**

This is a **fixed/mobile** device used in uncontrolled /general population exposure environment.

| | | |
|---|---|---|
| **Limits Uncontrolled Exposure** | 0.3-1.234 MHz | Limit [mW/cm²] = 100 |
| **47 CFR 1.1310** | 1.34-30 MHz | Limit [mW/cm²] = (180/f²) |
| **Table 1, (B)** | 30-300 MHz | Limit [mW/cm²] = 0.2 |
| | 300-1500 MHz | Limit [mW/cm²] = f/1500 |
| | 1500-100,000 MHz | Limit [mW/cm²] = 1.0 |

**Test Data**

| | |
|---|---|
| Test Frequency, MHz | 5300 |
| Power, Conducted, mW (P) | 110 |
| Antenna Gain Isotropic | 6 |
| Antenna Gain Numeric (G) | 3.98 |
| Antenna Type | Omni |
| Distance (R) | 20 cm |

$$S = \frac{P * G}{4\pi r^2}$$

| Power Density (S) mw/cm$^2$ | Power mW (P) | Numeric Gain (G) | Distance (r$^2$) cm |
|---|---|---|---|
| 0.0871001114 | 110 | 3.98 | 20 |

| | |
|---|---|
| Power Density (S) = | 0.0871 |
| Limit =(from above table) = | 1.0 |

**Note: Due to out of band emission limitations the highest EIRP occurs with the 6dBi Omni antenna. Therefore the power density cannot exceed 0.087 mW/cm2**

**MPE Evaluation**

This is a **fixed/mobile** device used in uncontrolled /general population exposure environment.

| | | |
|---|---|---|
| **Limits Uncontrolled Exposure** | 0.3-1.234 MHz | Limit [mW/cm²] = 100 |
| **47 CFR 1.1310** | 1.34-30 MHz | Limit [mW/cm²] = (180/f²) |
| **Table 1, (B)** | 30-300 MHz | Limit [mW/cm²] = 0.2 |
| | 300-1500 MHz | Limit [mW/cm²] = f/1500 |
| | 1500-100,000 MHz | Limit [mW/cm²] = 1.0 |

**Test Data**

| | |
|---|---|
| Test Frequency, MHz | 5710 |
| Power, Conducted, mW (P) | 63.1 |
| Antenna Gain Isotropic | 6 |
| Antenna Gain Numeric (G) | 3.98 |
| Antenna Type | Omni |
| Distance (R) | 20 cm |

$$S = \frac{P * G}{4\pi r^2}$$

| Power Density (S) mw/cm$^2$ | Power mW (P) | Numeric Gain (G) | Distance ($r^2$) cm |
|---|---|---|---|
| 0.0499637912 | 63.1 | 3.98 | 20 |

| | |
|---|---|
| Power Density (S) = | 0.05 |
| Limit =(from above table) = | 1.0 |

**Note: Due to out of band emission limitations the highest EIRP occurs with the 6dBi Omni antenna. Therefore the power density cannot exceed 0.05 mW/cm2**

END OF TEST REPORT