



Compliance Testing, LLC

Previously Flom Test Lab

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Test Report

Prepared for: Ubiquiti Networks, Inc

Model: B-DB-AC, Bullet

Description: Dual Band Networking Device

Serial Number: N/A

FCC ID: SWX-BDBAC

To

FCC Part 1.1310

Date of Issue: September 10, 2018

On the behalf of the applicant:

**Ubiquiti Networks, Inc
2580 Orchard Parkway
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Attention of:

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**Poona Saber
Project Test Engineer**

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	January 23, 2018	Poona Saber	Original Document
2.0	January 31, 2018	Poona Saber	Added a note on page 3
3.0	September 10, 2018	Poona Saber	Changed the maximum power and minimum safe distance based on new power measurements



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: B-DB-AC, Bullet

Description: Dual Band Networking Device

Firmware: N/A

Software: N/A

Serial Number: N/A

Additional Information: The Bullet AC (Model: B-DB-AC) is a dual band networking device that is powered over ethernet (passive POE, 24V) and provides an N-type antenna connection. It features dual-band AC mode operation in 5GHz and 2.4GHz bands, and a dedicated 2.4 GHz WiFi management radio for convenient device setup.

EUT Operation during Tests

Radio testing has been done conducted and radiated with controlling the device for continuous modulation transmission on low, middle and high channels with client's provided commands through telnet.

Note: Power is brought down one by one for other antennas mathematically so the highest EIRP for 4dBi antenna would be the same for other antennas as well.



Source Based Time Averaged Power Calculation

Average Power calculations

Average Power = Peak Power * duty-cycle%

Point to multipoint application

Tuned Frequency (MHz)	Conducted Peak Output Power (dBm)	Maximum Tolerance (dB)	Duty Cycle (%)	Average Power (mW)
2437	17.48	2 dB	100	88.71

Point to Point application

Tuned Frequency (MHz)	Conducted Peak Output Power (dBm)	Maximum Tolerance (dB)	Duty Cycle (%)	Average Power (mW)
5735	23.1	2 dB	100	323.59



MPE Evaluation for Point to Multipoint Application

This is a portable device used in Uncontrolled Exposure environment.

Limits Uncontrolled Exposure 47 CFR 1.1310 Table 1, (B)

0.3-1.234 MHz:	Limit [mW/cm ²] = 100
1.34-30 MHz:	Limit [mW/cm ²] = (180/f ²)
30-300 MHz:	Limit [mW/cm ²] = 0.2
300-1500 MHz:	Limit [mW/cm ²] = f/1500
1500-100,000 MHz	Limit [mW/cm ²] = 1.0

Test Data

Test Frequency, MHz	2437
Power, Conducted, mW (P)	88.71
Antenna Gain Isotropic	13 dBi
Antenna Gain Numeric (G)	19.95
Antenna Type	Omni
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm ²

Power Density (S) =0.35
Limit = (from above table) = 1

MPE Evaluation for Point to Point Application

Test Data

Test Frequency, MHz	5735
Power, Conducted, mW (P)	323.59
Antenna Gain Isotropic	34 dBi
Antenna Gain Numeric (G)	2511.8
Antenna Type	Dish
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm ²

Power Density (S) =161.7
Limit = (from above table) = 1



Minimum Safe Distance Evaluation

Since the power density is over the limit the minimum safe distance evaluation is done per below to find the minimum installation distance for power density being below the limit.

Test Data

Test Frequency, MHz	5735
Power, Conducted, mW (P)	323.59
Antenna Gain Isotropic	34 dBi
Antenna Gain Numeric (G)	2511.8
Antenna Type	Dish
Limit (L)	20 cm

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
254.38	323.59	2511.8	1

The minimum safe distance for point to point application is 254.38 centimeters.