Company: Hewlett Packard Enterprise

Test of: APIN0344 & APIN0345

To: FCC CFR 47 Part 1.1310

Report No.: HPEN111-U15_MPE Rev A

MPE/RF EXPOSURE TEST REPORT

MPE/RF EXPOSURE TEST REPORT

FROM

Test of: Hewlett Packard Enterprise APIN0344 & APIN0345

to

To: FCC CFR 47 Part 1.1310

Test Report Serial No.: HPEN111-U15_MPE Rev A

This report supersedes: NONE

Applicant:	Hewlett Packard Enterprise 1344 Crossman Ave Sunnyvale, California 94089 USA
Product Function:	Wireless Access Point with BLE
Issue Date:	23rd August 2017

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com

ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

1. MAXIMUM PERMISSABLE EXPOSURE

Calculations for Maximum Permissible Exposure Levels

Power Density = Pd (mW/cm^2) = EIRP/(4*π*d^2)
EIRP = P * G
P = Peak output power (mW)
G = Antenna numeric gain (numeric)
d = Separation distance (cm)
Numeric Gain = 10 ^ (G (dBi)/10)
The calculations in the table below use the highest conducted power values together with the lowest antenna gain specified for the EUT. These calculations represent worst case in terms of the exposure levels.

All Frequency Bands

Worst case for output power configuration all frequency bands

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density (mW/cm^2) @ 20cm	Power Density Limit (mW/cm^2)	Min Calculated safe distance for Limit (cm)	Calculated Power Density (mW/cm^2) @ Safe Distance
2400.0 - 2483.5	5.50	3.55	2.34	1.71	0.00	1.00	1.00	1.00
2400.0 - 2483.5	4.00	2.51	27.47	558.31	0.28	1.00	11.00	1.00
5150.0 - 5250.0	2.00	1.58	27.57	571.66	0.18	1.00	9.00	1.00
5250.0 - 5350.0	2.00	1.58	22.14	163.75	0.05	1.00	5.00	1.00
5470.0 - 5725.0	2.00	1.58	22.10	162.21	0.05	1.00	5.00	1.00
5725.0 - 5850.0	2.00	1.58	26.66	463.80	0.15	1.00	8.00	1.00

For operation the unit is limited to transmitting one of the following modes:			
Mode 0	Mode 1	Mode 2	Mode 3
a).. 2.4 GHz BLE	a).. 2.4 GHz BLE	a).. 2.4 GHz BLE	a).. 2.4 GHz BLE
b).. 2.4 GHz WiFi	b).. 2.4 GHz WiFi	b).. 2.4 GHz WiFi	b).. 2.4 GHz WiFi
c).. UNII Band 1 WiFi	c).. UNII Band 2a WiFi	c).. UNII Band 2c WiFi	c).. UNII Band 3 WiFi
Mode 4	Mode 5	Mode 6	Mode 7
a).. 2.4 GHz BLE	a).. 2.4 GHz BLE	a).. 2.4 GHz BLE	a).. 2.4 GHz BLE
b).. UNII Band 1 WiFi	b).. UNII Band 1 WiFi	b).. UNII Band 1 WiFi	b).. UNII Band 2a WiFi
c).. UNII Band 2a WiFi	c).. UNII Band 2c WiFi	c).. UNII Band 3 WiFi	c).. UNII Band 2c WiFi
Mode 8	--	--	--
a).. 2.4 GHz BLE	--	--	--
b).. UNII Band 2a WiFi	--	--	--
c).. UNII Band 3 WiFi	--	--	--

Assessment for simultaneous operation Mode 0:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
2400.0 - 2483.5 (WiFi)	4.00	2.51	27.47	558.31	11.00	0.28	11.00
5150.0 – 5250.0	2.00	1.58	27.57	571.66	9.00	0.18	9.00
EIRP TOTAL (mW/EIRP) : 1131.68					**10.00**	**0.46**	**20.00**

Assessment for simultaneous operation Mode 1:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
2400.0 - 2483.5 (WiFi)	4.00	2.51	27.47	558.31	11.00	0.28	11.00
5250.0 – 5350.0	2.00	1.58	22.14	163.75	5.00	0.05	5.00
EIRP TOTAL (mW/EIRP) : 723.77					**8.00**	**0.33**	**20.00**

Assessment for simultaneous operation Mode 2:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
2400.0 - 2483.5 (WiFi)	4.00	2.51	27.47	558.31	11.00	0.28	11.00
5470.0 - 5725.0	2.00	1.58	22.10	162.21	5.00	0.05	5.00
EIRP TOTAL (mW/EIRP) : 722.23					**8.00**	**0.33**	**20.00**

Assessment for simultaneous operation Mode 3:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
2400.0 - 2483.5 (WiFi)	4.00	2.51	27.47	558.31	11.00	0.28	11.00
5725.0 – 5850.0	2.00	1.58	26.66	463.80	8.00	0.15	8.00
EIRP TOTAL (mW/EIRP) : 1023.82					**10.00**	**0.43**	**20.00**

Assessment for simultaneous operation Mode 4:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
5150.0 – 5250.0	2.00	1.58	27.57	571.66	9.00	0.18	9.00
5250.0 – 5350.0	2.00	1.58	22.14	163.75	5.00	0.05	5.00
EIRP TOTAL (mW/EIRP) : 737.12					**8.00**	**0.23**	**20.00**

Assessment for simultaneous operation Mode 5:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
5150.0 – 5250.0	2.00	1.58	27.57	571.66	9.00	0.18	9.00
5470.0 - 5725.0	2.00	1.58	22.10	162.21	5.00	0.05	5.00
EIRP TOTAL (mW/EIRP) : 735.58					**8.00**	**0.23**	**20.00**

Assessment for simultaneous operation Mode 6:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
5150.0 – 5250.0	2.00	1.58	27.57	571.66	9.00	0.18	9.00
5725.0 – 5850.0	2.00	1.58	26.66	463.80	8.00	0.15	8.00
EIRP TOTAL (mW/EIRP) : 1037.17					**10.00**	**0.33**	**20.00**

Assessment for simultaneous operation Mode 7:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm²	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
5250.0 – 5350.0	2.00	1.58	22.14	163.75	5.00	0.05	5.00
5470.0 - 5725.0	2.00	1.58	22.10	162.21	5.00	0.05	5.00
EIRP TOTAL (mW/EIRP) : 327.67					**6.00**	**0.10**	**20.00**

Assessment for simultaneous operation Mode 8:

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm^2	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
2400.0 - 2483.5 (BLE)	5.50	3.55	2.34	1.71	1.00	0.00	1.00
5250.0 – 5350.0	2.00	1.58	22.14	163.75	5.00	0.05	5.00
5725.0 – 5850.0	2.00	1.58	26.66	463.80	8.00	0.15	8.00
EIRP TOTAL (mW/EIRP) : 629.26					**8.00**	**0.20**	**20.00**

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification - Maximum Permissible Exposure Limits

The Limit is defined in Table 1 of FCC §1.1310.

575 Boulder Court
Pleasanton, California 94566, USA
Tel: +1 (925) 462 0304
Fax: +1 (925) 462 0306
www.micomlabs.com