

## RF Exposure Report

**Report No.:** SA181105C12B

**FCC ID:** Q9DAPEX0387

**Test Model:** APEX0387

**Received Date:** Nov. 05, 2018

**Test Date:** Nov. 12 to 19, 2018

**Issued Date:** May 24, 2019

**Applicant:** Hewlett Packard Enterprise Company

**Address:** 6280 America Center Drive, San Jose, CA 95002, USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

| Issue No.    | Description       | Date Issued  |
|--------------|-------------------|--------------|
| SA181105C12B | Original release. | May 24, 2019 |

## 1 Certificate of Conformity

**Product:** AP-387

**Brand:** HPE / Aruba

**Test Model:** APEX0387

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Hewlett Packard Enterprise Company

**Test Date:** Nov. 12 to 19, 2018

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**

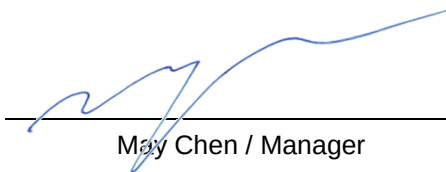


**Date:**

May 24, 2019

Claire Kuan / Specialist

**Approved by :**



**Date:**

May 24, 2019

May Chen / Manager

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz)                                 | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Average Time (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| 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 <sup>2</sup> )*              | 30                     |
| 30-300                                                | 27.5                          | 0.073                         | 0.2                                 | 30                     |
| 300-1500                                              | ...                           | ...                           | f/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 33cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

| WLAN antenna spec.      |                        |                        |                   |                   |
|-------------------------|------------------------|------------------------|-------------------|-------------------|
| Transmitter Circuit     | Frequency range (GHz)  | Antenna Net Gain (dBi) | Antenna Type      | Antenna Connector |
| Chain (0)               | 5.15 ~ 5.85            | 9.6                    | Directional       | I-PEX             |
| Chain (1)               | 5.15 ~ 5.85            | 9.6                    | Directional       | I-PEX             |
| WiGig antenna spec.     |                        |                        |                   |                   |
| Frequency range (GHz)   | Antenna Net Gain (dBi) | Antenna Type           | Antenna Connector |                   |
| 57.44GHZ ~ 63.5GHZ      | 24.49                  | Printed phased array   | None / Integral   |                   |
| Bluetooth antenna spec. |                        |                        |                   |                   |
| Frequency range (GHz)   |                        | Antenna Net Gain (dBi) | Antenna Type      | Antenna Connector |
| 2.4 ~ 2.4835            |                        | 4.3                    | Omnidirectional   | I-PEX             |

## 2.5 Calculation Result

This report is prepared for FCC class III permissive change.

There is no addition evaluation need to be performed. All test data was copied from the original test report (Report No.: SA181105C12).

| Operation Mode | Theoretical Max EIRP Power (dBm) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------|----------------------------------|---------------|-------------------------------------|-----------------------------|
| WLAN 5GHz      | 34                               | 33            | 0.18355                             | 1                           |

Note: The Theoretical Max EIRP Power values refer to Theory of Operation document.

| Operation Mode                   | Frequency (MHz) | Theoretical Max EIRP Power (dBm) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------------------|-----------------|----------------------------------|---------------|-------------------------------------|-----------------------------|
| WiGig 60GHz                      | 60480           | 40                               | 33            | 0.73074                             | 1                           |
| WiGig 60GHz (Unwanted emissions) | 125280          | -13.7                            | 33            | 0.000003                            | 1                           |
| WiGig 60GHz (Unwanted emissions) | 200000          | -14.2                            | 33            | 0.000003                            | 1                           |

Note: The Theoretical Max EIRP Power values refer to Theory of Operation document.

| Operation Mode | Theoretical Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------|-----------------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| BT-LE          | 4                           | 4.3                | 33            | 0.00049                             | 1                           |

Note: The Theoretical Max Power values refer to Theory of Operation document.

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$WLAN\ 5GHz + Bluetooth + WiGig\ 60GHz = 0.18355 / 1 + 0.00049 / 1 + 0.73074 / 1 + 0.000003 / 1 + 0.000003 / 1 = 0.91479$$

Therefore the maximum calculations of above situations are less than the "1" limit.

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