

## RF Exposure Test Report

**Report No.:** SA190222D16

**FCC ID:** EMJHSAP001MP

**Test Model:** HSA-P001MP

**Received Date:** Feb. 22, 2019

**Test Date:** Mar. 4, 2019

**Issued Date:** Mar. 14, 2019

**Applicant:** PRIMAX ELECTRONICS LTD.

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

**FCC Registration /  
Designation Number:** 198487 / TW2021



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### Release Control Record

| Issue No.   | Description      | Date Issued   |
|-------------|------------------|---------------|
| SA190222D16 | Original release | Mar. 14, 2019 |

## 1 Certificate of Conformity

**Product:** OMEN Outpost Mousepad with Qi Wireless Charging

**Brand:** hp

**Test Model:** HSA-P001MP

**Sample Status:** Engineering sample

**Applicant:** PRIMAX ELECTRONICS LTD.

**Test Date:** Mar. 4, 2019

**Standards:** FCC Part 1 (Section 1.1307(b), 1.1310)

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 RF characteristics under the conditions specified in this report.

**Prepared by :** Annie Chang, **Date:** Mar. 14, 2019  
Annie Chang / Senior Specialist

**Approved by :** Rex Lai, **Date:** Mar. 14, 2019  
Rex Lai / Associate Technical Manager

## 2 General Information

### 2.1 General Description of EUT

|                                             |                                                              |
|---------------------------------------------|--------------------------------------------------------------|
| Product                                     | OMEN Outpost Mousepad with Qi Wireless Charging              |
| Brand                                       | hp                                                           |
| Test Model                                  | HSA-P001MP                                                   |
| Sample Status                               | Engineering sample                                           |
| Rating                                      | Input: 5Vdc, 3A,<br>Output: 5W                               |
| Modulation Type                             | FSK                                                          |
| Operating Frequency                         | 111-148kHz                                                   |
| Antenna Type                                | Coil antenna                                                 |
| Field Strength                              | 79.00dBuV/m                                                  |
| Dimensions                                  | 14.86cm <sup>2</sup> (diameter = 435mm)                      |
| Accessory Device                            | USB-C to two USB-A Dongle (with two USB cables (0.15m each)) |
| Data Cable Supplied                         | Shielded USB type C cable (1.2m) attached on EUT             |
| Maximum Power Output from the Charging Coil | 5W                                                           |

Note:

1. The EUT is an OMEN Outpost Mousepad with Qi Wireless Charging with Qi charging function.
2. EUT has been pre-tested under following test modes, and test **mode 1** was the worst case for final test.

| Mode | Test Condition                                     |
|------|----------------------------------------------------|
| 1    | EUT Link to System (via USB Type C cable)          |
| 2    | EUT Link to System (via USB-C to two USB-A Dongle) |

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3 RF Exposure

#### 3.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| ID | Product     | Brand  | Model No.   | Serial No. | FCC ID | Remarks            |
|----|-------------|--------|-------------|------------|--------|--------------------|
| A. | Load        | N/A    | N/A         | N/A        | N/A    | Supplied by client |
| B. | Notebook PC | Lenovo | 20L6-S4GW00 | PF1EZSA2   | N/A    | Provided by Lab    |

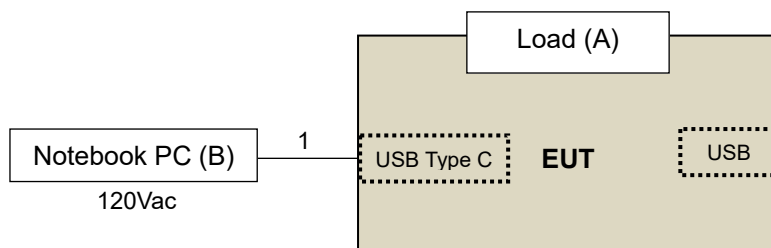
Note: All power cords of the above support units are non-shielded (1.8m).

| ID | Descriptions     | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks            |
|----|------------------|------|------------|--------------------|--------------|--------------------|
| 1. | USB Type C cable | 1    | 1.2        | N                  | 0            | Supplied by client |

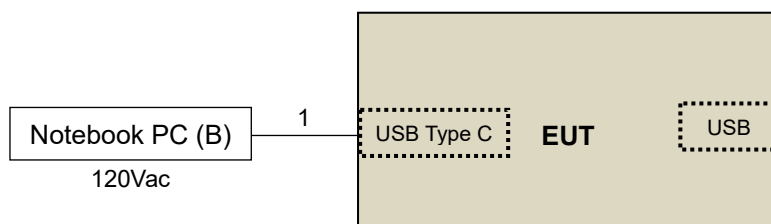
Note: The core(s) is(are) originally attached to the cable(s).

##### 3.1.1 Configuration of System Under Test

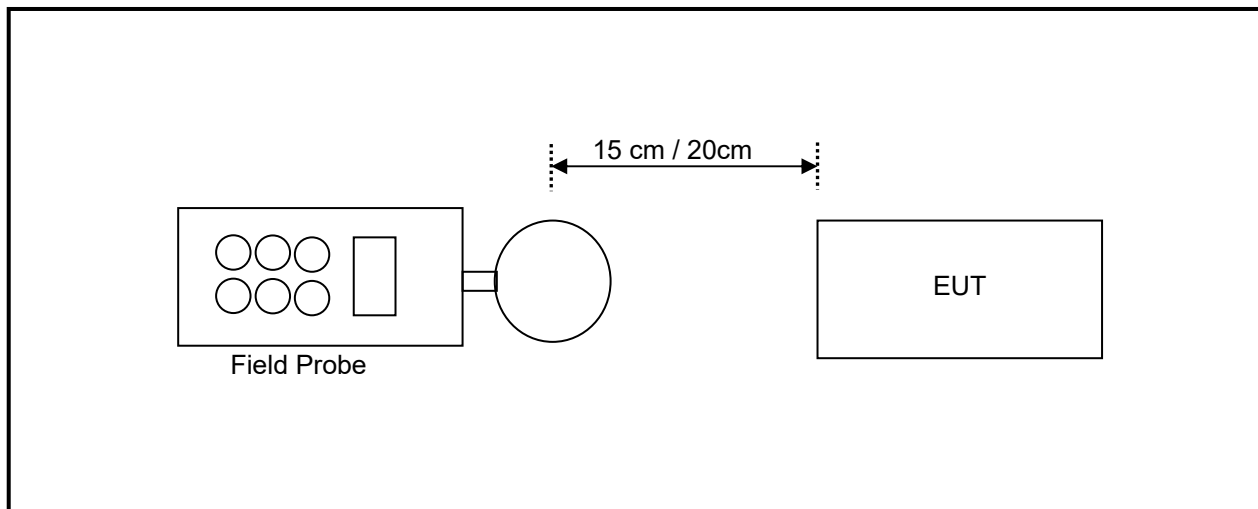
###### Charging Mode with Load:



###### Standby Mode:



### 3.2 Test Setup



Note: Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device.

### 3.3 Test Instruments

| Description           | Brand     | Model No. | Frequency Range | Calibrated Date | Calibrated Until |
|-----------------------|-----------|-----------|-----------------|-----------------|------------------|
| Broadband Field Meter | NARDA     | NBM-550   | -               | Mar. 28, 2018   | Mar. 27, 2020    |
| Magnetic Field Meter  | NARDA     | ELT-400   | 1 – 400kHz      | Apr. 12, 2018   | Apr. 11, 2020    |
| Magnetic Probe        | NARDA     | HF-3061   | 300kHz – 30MHz  | Apr. 16, 2018   | Apr. 15, 2020    |
| Magnetic Probe        | NARDA     | HF-0191   | 27 – 1000MHz    | Apr. 17, 2018   | Apr. 16, 2020    |
| Broadband Field Meter | NARDA     | NBM-550   | -               | Mar. 28, 2018   | Mar. 27, 2020    |
| Electric Field Meter  | COMBINOVA | EFM 200   | 5Hz – 400kHz    | Dec. 6, 2017    | Dec. 5, 2019     |
| E-Field Probe         | NARDA     | EF-0391   | 100kHz – 3GHz   | Mar. 28, 2018   | Mar. 27, 2020    |
| E-Field Probe         | NARDA     | EF-6091   | 100MHz – 60GHz  | Mar. 29, 2018   | Mar. 28, 2020    |

**NOTE:** 1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in Chia Pau RF Chamber

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

§ 1.1310 The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency(RF) radiation as specified in § 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of § 2.1093 of this chapter.

TABLE 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> ) | Averaging time (minutes) |
|----------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                               |                               |                                     |                          |
| 0.3–3.0                                                        | 614                           | 1.63                          | *(100)                              | 6                        |
| 3.0–30                                                         | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | 6                        |
| 30–300                                                         | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300–1500                                                       |                               |                               | f/300                               | 6                        |
| 1500–100,000                                                   |                               |                               | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 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

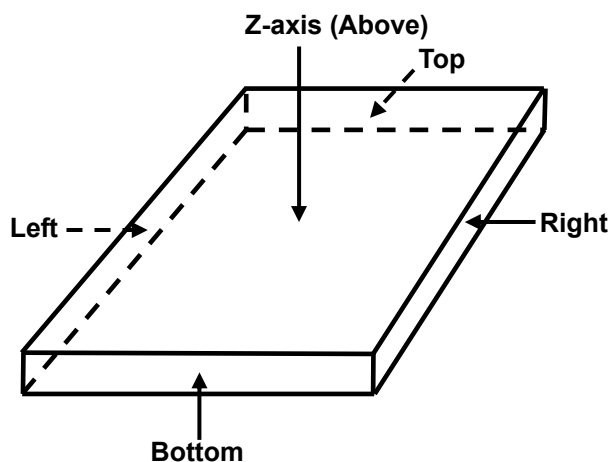
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

### 3.5 Test Point Description



#### 4 Calculation Result of Maximum Conducted Power

Charging Mode with 10% Load (at center)

| E-Field Measurement |           |           |           |           |           |
|---------------------|-----------|-----------|-----------|-----------|-----------|
| Distance            | 15cm      |           |           |           | 20cm      |
| EUT Side            | Left      | Right     | Top       | Bottom    | Z-axis    |
| Max E-field (V/m)   | 1.1900    | 0.5300    | 1.1300    | 5.1400    | 2.3300    |
| Limit (V/m)         | 614       | 614       | 614       | 614       | 614       |
| Margin (V/m)        | -612.8100 | -613.4700 | -612.8700 | -608.8600 | -611.6700 |
| 50 % Limit (V/m)    | 307       | 307       | 307       | 307       | 307       |
| 50 % Margin (V/m)   | -305.8100 | -306.4700 | -305.8700 | -301.8600 | -304.6700 |

| H-Field Measurement |         |         |         |         |         |
|---------------------|---------|---------|---------|---------|---------|
| Distance            | 15cm    |         |         |         | 20cm    |
| EUT Side            | Left    | Right   | Top     | Bottom  | Z-axis  |
| Max H-field (uT)    | 0.1110  | 0.1010  | 0.1320  | 0.1290  | 0.1980  |
| Max H-field (A/m)   | 0.0888  | 0.0808  | 0.1056  | 0.1032  | 0.1584  |
| Limit (A/m)         | 1.63    | 1.63    | 1.63    | 1.63    | 1.63    |
| Margin (A/m)        | -1.5412 | -1.5492 | -1.5244 | -1.5268 | -1.4716 |
| 50 % Limit (A/m)    | 0.815   | 0.815   | 0.815   | 0.815   | 0.815   |
| 50 % Margin (A/m)   | -0.7262 | -0.7342 | -0.7094 | -0.7118 | -0.6566 |

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

Charging Mode with 50% Load (at center)

| E-Field Measurement |           |           |           |           |           |
|---------------------|-----------|-----------|-----------|-----------|-----------|
| Distance            | 15cm      |           |           |           | 20cm      |
| EUT Side            | Left      | Right     | Top       | Bottom    | Z-axis    |
| Max E-field (V/m)   | 1.1500    | 0.5100    | 1.0400    | 4.7300    | 2.1400    |
| Limit (V/m)         | 614       | 614       | 614       | 614       | 614       |
| Margin (V/m)        | -612.8500 | -613.4900 | -612.9600 | -609.2700 | -611.8600 |
| 50 % Limit (V/m)    | 307       | 307       | 307       | 307       | 307       |
| 50 % Margin (V/m)   | -305.8500 | -306.4900 | -305.9600 | -302.2700 | -304.8600 |

| H-Field Measurement |         |         |         |         |         |
|---------------------|---------|---------|---------|---------|---------|
| Distance            | 15cm    |         |         |         | 20cm    |
| EUT Side            | Left    | Right   | Top     | Bottom  | Z-axis  |
| Max H-field (uT)    | 0.1060  | 0.0990  | 0.1180  | 0.1110  | 0.1650  |
| Max H-field (A/m)   | 0.0848  | 0.0792  | 0.0944  | 0.0888  | 0.1320  |
| Limit (A/m)         | 1.63    | 1.63    | 1.63    | 1.63    | 1.63    |
| Margin (A/m)        | -1.5452 | -1.5508 | -1.5356 | -1.5412 | -1.4980 |
| 50 % Limit (A/m)    | 0.815   | 0.815   | 0.815   | 0.815   | 0.815   |
| 50 % Margin (A/m)   | -0.7302 | -0.7358 | -0.7206 | -0.7262 | -0.6830 |

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

#### Charging Mode with Full Load (at center)

| E-Field Measurement |           |           |           |           |           |
|---------------------|-----------|-----------|-----------|-----------|-----------|
| Distance            | 15cm      |           |           |           | 20cm      |
| EUT Side            | Left      | Right     | Top       | Bottom    | Z-axis    |
| Max E-field (V/m)   | 0.8100    | 0.4800    | 0.8200    | 4.9500    | 2.0200    |
| Limit (V/m)         | 614       | 614       | 614       | 614       | 614       |
| Margin (V/m)        | -613.1900 | -613.5200 | -613.1800 | -609.0500 | -611.9800 |
| 50 % Limit (V/m)    | 307       | 307       | 307       | 307       | 307       |
| 50 % Margin (V/m)   | -306.1900 | -306.5200 | -306.1800 | -302.0500 | -304.9800 |

| H-Field Measurement |         |         |         |         |         |
|---------------------|---------|---------|---------|---------|---------|
| Distance            | 15cm    |         |         |         | 20cm    |
| EUT Side            | Left    | Right   | Top     | Bottom  | Z-axis  |
| Max H-field (uT)    | 0.1030  | 0.0970  | 0.1150  | 0.1090  | 0.1580  |
| Max H-field (A/m)   | 0.0824  | 0.0776  | 0.0920  | 0.0872  | 0.1264  |
| Limit (A/m)         | 1.63    | 1.63    | 1.63    | 1.63    | 1.63    |
| Margin (A/m)        | -1.5476 | -1.5524 | -1.5380 | -1.5428 | -1.5036 |
| 50 % Limit (A/m)    | 0.815   | 0.815   | 0.815   | 0.815   | 0.815   |
| 50 % Margin (A/m)   | -0.7326 | -0.7374 | -0.7230 | -0.7278 | -0.6886 |

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

#### Standby Mode

| E-Field Measurement |           |           |           |           |           |
|---------------------|-----------|-----------|-----------|-----------|-----------|
| Distance            | 15cm      |           |           |           | 20cm      |
| EUT Side            | Left      | Right     | Top       | Bottom    | Z-axis    |
| Max E-field (V/m)   | 0.6500    | 0.4100    | 0.9100    | 5.1700    | 1.3000    |
| Limit (V/m)         | 614       | 614       | 614       | 614       | 614       |
| Margin (V/m)        | -613.3500 | -613.5900 | -613.0900 | -608.8300 | -612.7000 |
| 50 % Limit (V/m)    | 307       | 307       | 307       | 307       | 307       |
| 50 % Margin (V/m)   | -306.3500 | -306.5900 | -306.0900 | -301.8300 | -305.7000 |

| H-Field Measurement |         |         |         |         |         |
|---------------------|---------|---------|---------|---------|---------|
| Distance            | 15cm    |         |         |         | 20cm    |
| EUT Side            | Left    | Right   | Top     | Bottom  | Z-axis  |
| Max H-field (uT)    | 0.1040  | 0.1020  | 0.1070  | 0.1090  | 0.1150  |
| Max H-field (A/m)   | 0.0832  | 0.0816  | 0.0856  | 0.0872  | 0.0920  |
| Limit (A/m)         | 1.63    | 1.63    | 1.63    | 1.63    | 1.63    |
| Margin (A/m)        | -1.5468 | -1.5484 | -1.5444 | -1.5428 | -1.5380 |
| 50 % Limit (A/m)    | 0.815   | 0.815   | 0.815   | 0.815   | 0.815   |
| 50 % Margin (A/m)   | -0.7318 | -0.7334 | -0.7294 | -0.7278 | -0.7230 |

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

## 5 Photographs of the Test Configuration

Please refer to the attached file (Test Setup Photo).

--- END ---