



## RF Exposure Evaluation Declaration

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**FCC ID:** Q9DAPIN0518

**APPLICANT:** Hewlett Packard Enterprise Company

**Application Type:** Certification

**Product:** ACCESS POINT

**Model No.:** APIN0518

**Trademark:**  

**FCC Classification:** Digital Transmission System (DTS)  
Unlicensed National Information Infrastructure (UNII)

**Reviewed By:**   
( Paddy Chen )

**Approved By:**   
( Chenz Ker )



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

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## Revision History

| Report No.    | Version | Description             | Issue Date | Note    |
|---------------|---------|-------------------------|------------|---------|
| 2003TW0003-U6 | Rev. 01 | Initial report          | 05-23-2020 | Invalid |
| 2003TW0003-U6 | Rev. 02 | Revise some information | 06-01-2020 | Valid   |
|               |         |                         |            |         |

## 1. PRODUCT INFORMATION

### 1.1. Equipment Description

|                          |                     |
|--------------------------|---------------------|
| Product Name:            | ACCESS POINT        |
| Model No.:               | APIN0518            |
| Wi-Fi Specification:     | 802.11a/b/g/n/ac/ax |
| Bluetooth Specification: | v5.0 single mode    |
| Zigbee Specification:    | 802.15.4            |
| Operating Temperature:   | -40 ~ 65 °C         |
| Power Type:              | POE input           |
| Operating Environment:   | Indoor Use          |

## 1.2. Antenna Description

| Antenna No.                                                  | Polarization | Frequency<br>Band<br>(GHz) | Model No.    | Max Peak<br>Gain<br>(dBi) | BF Dir<br>Gain<br>(dBi) | CDD Dir Gain<br>(dBi) |         |
|--------------------------------------------------------------|--------------|----------------------------|--------------|---------------------------|-------------------------|-----------------------|---------|
|                                                              |              |                            |              |                           |                         | For Power             | For PSD |
| Wi-Fi External Antenna List (2.4GHz 2*2 MIMO, 5GHz 4*4 MIMO) |              |                            |              |                           |                         |                       |         |
| 1                                                            | Omni         | 2.4                        | AP-ANT-40    | 4.0                       | 7.01                    | 4.0                   | 7.01    |
|                                                              |              | 5                          |              | 5.0                       | 11.02                   | 5.0                   | 11.02   |
| 2                                                            | Omni         | 2.4                        | AP-ANT-19    | 3.0                       | 6.01                    | 3.0                   | 6.01    |
|                                                              |              | 5                          |              | 6.0                       | 12.02                   | 6.0                   | 12.02   |
| 3                                                            | Omni         | 2.4                        | AP-ANT-1W    | 3.8                       | 6.81                    | 3.8                   | 6.81    |
|                                                              |              | 5                          |              | 5.8                       | 11.82                   | 5.8                   | 11.82   |
| 4                                                            | Omni         | 2.4                        | AP-ANT-13B   | 2.3                       | 5.31                    | 2.3                   | 5.31    |
|                                                              |              | 5                          |              | 4.0                       | 10.02                   | 4.0                   | 10.02   |
| 5                                                            | Omni         | 2.4                        | AP-ANT-20W   | 2.0                       | 5.01                    | 2.0                   | 5.01    |
|                                                              |              | 5                          |              | 2.0                       | 8.02                    | 2.0                   | 8.02    |
| 6                                                            | Omni         | 2.4                        | AP-ANT-22    | 2.0                       | 5.01                    | 2.0                   | 5.01    |
|                                                              |              | 5                          |              | 4.0                       | 10.02                   | 4.0                   | 10.02   |
| 7                                                            | Omni         | 2.4                        | AP-ANT-16    | 3.9                       | 6.91                    | 3.9                   | 6.91    |
|                                                              |              | 5                          |              | 4.7                       | 10.72                   | 4.7                   | 10.72   |
| 8 (Note 3)                                                   | Directional  | 2.4                        | AP-ANT-45    | 4.5                       | 4.5                     | 4.5                   | 4.5     |
|                                                              |              | 5                          |              | 5.5                       | 8.51                    | 5.5                   | 8.51    |
| 9 (Note 3)                                                   | Directional  | 2.4                        | AP-ANT-48    | 8.5                       | 8.5                     | 8.5                   | 8.5     |
|                                                              |              | 5                          |              | 8.5                       | 11.51                   | 8.5                   | 11.51   |
| 10 (Note 3)                                                  | Directional  | 2.4                        | ANT-2x2-2314 | 14.0                      | 14.0                    | 14.0                  | 14.0    |
| 11 (Note 3)                                                  | Directional  | 5                          | ANT-4x4-5314 | 14.0                      | 17.01                   | 14.0                  | 17.01   |
| 12 (Note 3)                                                  | Directional  | 5                          | ANT-3x3-5712 | 11.5                      | 14.51                   | 11.5                  | 14.51   |
| 13 (Note 3)                                                  | Directional  | 2.4                        | AP-ANT-25    | 5.0                       | 5.0                     | 5.0                   | 5.0     |
|                                                              |              | 5                          |              | 5.0                       | 8.01                    | 5.0                   | 8.01    |
| 14 (Note 3)                                                  | Directional  | 2.4                        | AP-ANT-28    | 7.5                       | 7.5                     | 7.5                   | 7.5     |
|                                                              |              | 5                          |              | 7.5                       | 10.51                   | 7.5                   | 10.51   |
| Bluetooth / ZigBee Internal Antenna                          |              |                            |              |                           |                         |                       |         |
| PCB                                                          |              | 2.4                        |              | 4.2                       |                         |                       |         |

Note 1: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

Note 2: The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g. Directional gain =  $G_{ANT} + BF \text{ Gain}$ , BF Gain was declared by the applicant.

Note 3: These antennas have Cross-Polarized design, only each two outputs driving a pair of antennas that are cross-polarized, the detail see the antenna specification.

## 2. RF Exposure Evaluation

### 2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range<br>(MHz)                                  | Electric Field<br>Strength (V/m) | Magnetic Field<br>Strength (A/m) | Power Density<br>(mW/cm <sup>2</sup> ) | Average Time<br>(Minutes) |
|-----------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| (A) Limits for Occupational/ Control Exposures            |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | f/300                                  | 6                         |
| 1500-100,000                                              | --                               | --                               | 5                                      | 6                         |
| (B) Limits for General Population/ Uncontrolled Exposures |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | f/1500                                 | 6                         |
| 1500-100,000                                              | --                               | --                               | 1                                      | 30                        |

f= Frequency in MHz

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

$P_d$  is the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 2.2. Test Result of RF Exposure Evaluation

|           |                        |
|-----------|------------------------|
| Product   | ACCESS POINT           |
| Test Item | RF Exposure Evaluation |

Antenna Gain: Refer to clause 1.2.

| Test Mode       | Frequency Band (MHz)                        | Max Conducted Power (dBm) | Antenna Gain (dBi) | Max EIRP (dBm) |
|-----------------|---------------------------------------------|---------------------------|--------------------|----------------|
| BLE             | 2402 ~ 2480                                 | 8.50                      | 4.2                | 12.7           |
| ZigBee          | 2405 ~ 2480                                 | 8.50                      | 4.2                | 12.7           |
| 802.11b/g/n/ax  | 2412 ~ 2462                                 | 27.00                     | 2.0                | 29.0           |
| 802.11a/n/ac/ax | 5180 ~ 5320,<br>5500 ~ 5720,<br>5745 ~ 5825 | 30.00                     | 2.0                | 32.0           |

Note: Turn-up power from operation description was taken into account for above max conducted power.

| Test Mode       | Frequency Band (MHz)                        | Maximum EIRP (dBm) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|-----------------|---------------------------------------------|--------------------|--------------------------------------------------|-----------------------------|
| Bluetooth-LE    | 2402 ~ 2480                                 | 12.7               | 0.0037                                           | 1                           |
| ZigBee          | 2405 ~ 2480                                 | 12.7               | 0.0037                                           | 1                           |
| 802.11b/g/n     | 2412 ~ 2462                                 | 29.0               | 0.1580                                           | 1                           |
| 802.11a/n/ac/ax | 5180 ~ 5320,<br>5500 ~ 5720,<br>5745 ~ 5825 | 32.0               | 0.3153                                           | 1                           |

Note:

### CONCLUSION:

Both of the WLAN 2.4GHz Band, WLAN 5GHz Band and BLE Band can transmit simultaneously.

The max Power Density at R (20 cm) =  $0.0037\text{mW/cm}^2 + 0.1580\text{mW/cm}^2 + 0.3153\text{mW/cm}^2 = 0.4770\text{mW/cm}^2 < 1\text{mW/cm}^2$ .

Therefore, the Min Safety Distance is 20cm.

The End

## **Appendix A - EUT Photograph**

Refer to “2003TW0003-UE” file.