



# 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.

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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 Band (GHz)	Model No.	Max Peak Gain (dBi)	BF Dir Gain (dBi)	CDD Dir Gain (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 (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (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, 5500 ~ 5720, 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, 5500 ~ 5720, 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.