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Report No.: 1703TW0106-U8
Report Version: V02
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RF Exposure Evaluation Declaration

FCC ID: Q9DAPINH203

APPLICANT: Hewlett Packard Enterprise Company


Application Type: Class II Permissible Change


Product: ACCESS POINT

Model No.: APINH203

Trademark:  

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

Reviewed By : 
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(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
1703TW0106-U8	Rev. 01	Initial report	06-02-2017	Invalid
1703TW0106-U8	Rev. 02	Add the working frequency	07-07-2017	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	ACCESS POINT
Model No.:	APINH203
Brand Name:	 
Software Version:	9.10 RC178.40
Operating Temperature:	0 ~ 40 °C
Power Type:	POE input
Wi-Fi Specification:	802.11a/b/g/n/ac

Note: The applicant has provided one POE adapter (Manufacturer: MICROSEMI & Model: PD-9001GR/AT/AC & Output: 55VDC, 0.6A) for approval testing and it is not for sale.

1.2. Antenna Description

Antenna Type	Frequency Band (MHz)	TX Paths	Max Antenna Gain (dBi)	Directional Gain (dBi)
PCB Antenna	2412 ~ 2462	1 (Note 3)	4.3	N/A
		2	3.8	6.8
	5150 ~ 5850	1 (Note 3)	6.3	N/A
		2	4.0	7.0

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11a/b/g/n/ac mode, and the transmitter output signal is correlated.

For CDD transmissions, directional gain = $G_{ANT} + \text{Array Gain}$, Array Gain = 3.0 dBi which is declared by the applicant. For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for $N_{ANT} \leq 4$.

Note 2: The EUT also supports Beam Forming technology, and the Beam Forming only support 802.11n/ac mode. Directional gain = $G_{ANT} + \text{BF Gain}$, BF Gain = 3.0 dBi which is declared by the applicant.

Note 3: For SISO mode, only Ant 2 port can transmit 2.4GHz and Ant 1 port can transmit 5GHz.

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

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1mW/cm². 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)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
802.11b/g/n SISO	2412 ~ 2462	17.08	0.0273	1
802.11b/g/n MIMO	2412 ~ 2462	20.22	0.0502	1
802.11a/n/ac SISO	5180 ~ 5320	16.87	0.0413	1
	5500 ~ 5720			
	5745 ~ 5825			
802.11a/n/ac MIMO	5180 ~ 5320	19.98	0.0497	1
	5500 ~ 5720			
	5745 ~ 5825			

CONCULISON:

Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously. Therefore, the Max Power Density at R (20 cm) = $0.0273\text{mW/cm}^2 + 0.0413\text{mW/cm}^2 = 0.0686\text{mW/cm}^2 < 1\text{mW/cm}^2$.

So the EUT complies with the requirement.

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