RF Exposure Evaluation Declaration

FCC ID: Q9DAPINH503

Applicant: Hewlett Packard Enterprise Company

Application Type: Certification

Product: ACCESS POINT

Model No.: APINH503

Trademark: aruba a Hewlett Packard Enterprise company , Hewlett Packard Enterprise

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

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Testing Laboratory
3261

Revision History

Report No.	Version	Description	Issue Date	Note
2007TW0002-U6	Rev. 01	Initial Report	08-06-2020	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	ACCESS POINT
Model No.	APINH503
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	v5.0 single mode, BLE only
Zigbee Specification	802.15.4
Operating Temperature	0 ~ 40 °C
Power Type	AC Adapter or PoE input
Operating Environment	Indoor Use

1.2. Antenna Description

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	BF Dir Gain (dBi)	CDD Dir Gain (dBi)	
				For Power	For PSD
Wi-Fi Internal Antenna (2.4GHz 2*2 MIMO, 5GHz 2*2 MIMO)					
PIFA	2.4	1.73	4.71	1.73	4.71
	5	5.04	8.05	5.04	8.05
Bluetooth / ZigBee Internal Antenna					
Monopole	2.4	2.49			

Note:

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

For CDD transmissions, directional gain is calculated as follows, N_{ANT} = 2, N_{SS} = 1.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

  Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.11 devices,

  Array Gain = 0 dB for N_{ANT} ≤ 4;

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 Gain, BF Gain was declared by the applicant.
3. Antenna type and antenna gain are provided by the manufacturer.

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: $Pd = (Pout*G)/(4*pi*r^2)$

Where
Pd = power density in mW/cm^2
Pout = 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

Pd is the limit of MPE, $1mW/cm^2$. 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)
Bluetooth-LE	2402 ~ 2480	9.0	2.49	11.49
ZigBee	2405 ~ 2480	9.0	2.49	11.49
802.11b/g/n/ax	2412 ~ 2462	25.0	1.73	26.73
802.11a/n/ac/ax	5180 ~ 5320, 5500 ~ 5720, 5745 ~ 5825	25.0	5.04	30.04

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^2)	Limit (mW/cm^2)
Bluetooth-LE	2402 ~ 2480	11.49	0.0028	1
ZigBee	2405 ~ 2480	11.49	0.0028	1
802.11b/g/n/ax	2412 ~ 2462	26.73	0.0937	1
802.11a/n/ac/ax	5180 ~ 5320, 5500 ~ 5720, 5745 ~ 5825	30.04	0.2008	1

CONCULISON:

WLAN 2.4GHz, WLAN 5GHz and Bluetooth-LE or ZigBee can transmit simultaneously.

The max Power Density at R (20 cm) = $0.0028mW/cm^2 + 0.0937mW/cm^2 + 0.2008mW/cm^2 = 0.2973mW/cm^2 < 1mW/cm^2$.

Therefore, the Min Safety Distance is 20cm.

The End

Appendix - EUT Photograph

Refer to “2007TW0002-UE” file.