RF Exposure Evaluation Declaration

FCC ID:	Q9DAPIN0655
APPLICANT:	Hewlett Packard Enterprise Company
Application Type:	Certification
Product:	ACCESS POINT
Model No.:	APIN0655
Trademark:	aruba a Hewlett Packard Enterprise company , Hewlett Packard Enterprise
FCC Classification:	Digital Transmission System (DTS) Unlicensed National Information Infrastructure (NII) 15E 6GHz Low Power Indoor Access Point (6ID)

Reviewed By: Paddy Chen
(Paddy Chen)

Approved By: Chenz Ker
(Chenz Ker)

Testing Laboratory
3261

Revision History

Report No.	Version	Description	Issue Date	Note
2105TW0602-U6	V1.0	Initial report	02-15-2022	Valid

CONTENTS

General Information

Applicant	Hewlett Packard Enterprise Company
Applicant Address	3333 Scott Blvd, Santa Clara, CA 95054, USA
Manufacturer	Hewlett Packard Enterprise Company
Manufacturer Address	3333 Scott Blvd, Santa Clara, CA 95054, USA
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.

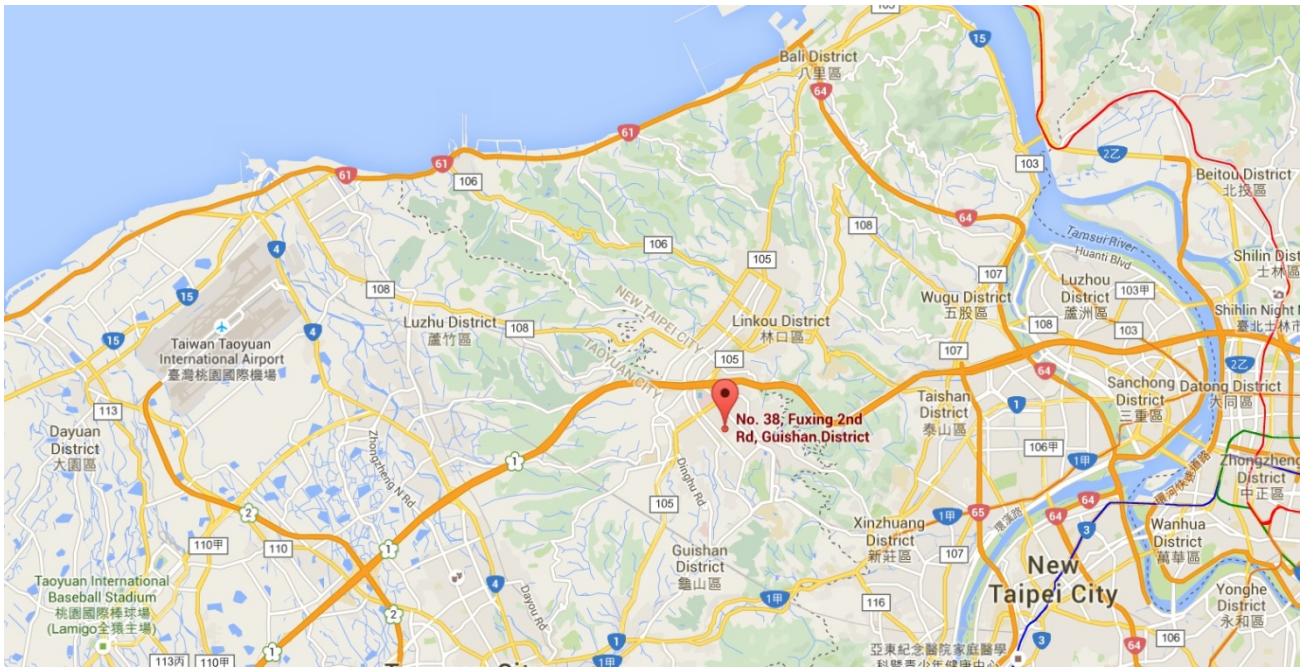
1. Introductiom

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. Product Information

2.1. Equipment Description

Product Name	ACCESS POINT
Model No.	APIN0655
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Version	v5.0 single mode, BLE only
Zigbee Specification	802.15.4
GNSS Specification	GPS, GLONASS, Galileo
Operating Temperature	0 ~ 50 °C
Power Type	AC Adapter or PoE input
Operating Environment	Indoor Use

2.2. Description of Available Antennas

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	CDD Directional Gain (dBi)		BF Directional Gain (dBi)
			For Power	For PSD	
Wi-Fi Internal Antenna (4*4 MIMO)					
PIFA	2.4 ~ 2.5	3.26	3.26	6.23	6.23
	5.15 ~ 5.9	2.88	2.88	5.60	5.60
	5.9 ~ 7.2	3.97	3.97	6.97	6.97
Bluetooth / ZigBee Internal Antenna					
PIFA	2.4 ~ 2.5	3.60			

Note:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g.
3. For beamforming operation, Aruba OS automatically backs power down based on a 10log(N) factor based on CDD power.
4. All Wi-Fi antennas have cross polarized design, the detail information and calculation method refer to antenna specification.

3. RF Exposure Evaluation

3.1. Test Limit

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.

3.2. Test Result

Product	ACCESS POINT
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 2.2.

Test Mode	Frequency Band (MHz)	Max Conducted Power (dBm)	Antenna Gain (dBi)	Max EIRP (dBm)
Bluetooth-LE	2402 ~ 2480	7.00	3.60	10.6
ZigBee	2405 ~ 2480	7.00	3.60	10.6
802.11b/g/n/ax	2412 ~ 2462	26.0	3.26	29.26
802.11a/n/ac/ax	5180 ~ 5320, 5500 ~ 5720, 5745 ~ 5825, 5845 ~ 5885	26.0	2.88	28.88
802.11ax	5955~7095	26.0	3.97	29.97

Note: Conducted power is max turn-up power from operation description.

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	10.6	0.0023	1
ZigBee	2405 ~ 2480	10.6	0.0023	1
802.11b/g/n/ax	2412 ~ 2462	29.26	0.1678	1
802.11a/n/ac/ax	5180 ~ 5320, 5500 ~ 5720, 5745 ~ 5825, 5845 ~ 5885	28.88	0.1537	1
802.11ax	5955~7095	29.97	0.1976	1

CONCLUSION:

Wi-Fi 2.4GHz, Wi-Fi 5GHz, Wi-Fi 6GHz and Bluetooth-LE or ZigBee can transmit simultaneously.

The max Power Density at R (20 cm) = $0.0023mW/cm^2 + 0.1678mW/cm^2 + 0.1537mW/cm^2 + 0.1976mW/cm^2 = 0.5214mW/cm^2 < 1mW/cm^2$.

Therefore, the Min Compliance Distance is 20cm.

The End