

MRT Technology (Suzhou) Co., Ltd Phone: +86-512-66308358 Web: www.mrt-cert.com Report No.: 2104RSU075-U4
Report Version: V01
Issue Date: 08-01-2021

RF Exposure Evaluation Declaration

FCC ID: 2AXJ4AX55V2

Applicant: TP-Link Corporation Limited

Application Type: Certification

Product: AX3000 Gigabit Wi-Fi 6 Router

Model No.: Archer AX55

Brand Name: tp-link

FCC Classification: Digital Transmission System (DTS)

Unlicensed National Information Infrastructure (NII)

Test Procedure(s): KDB 447498 D01v06

Test Date: June 21, 2021

Reviewed By:

Kevin Guo

Approved By:

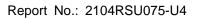




The test results relate only to the samples tested.

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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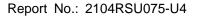
Revision History

Report No.	Version	Description	Issue Date	Note
2104RSU075-U4	Rev. 01	Initial Report	08-01-2021	Valid



CONTENTS

	scription		Page
1.	Genera	al Information	4
	1.1.	Applicant	4
	1.2.	Manufacturer	4
	1.3.	Testing Facility	4
	1.4.	Product Information	5
	1.5.	Antenna Details	5
2.	RF Exp	posure Evaluation	6
	2.1.	Test Limits	6
	2.2.	Test Result	7
Apr	endix A	A - EUT Photograph	8





1. General Information

1.1. Applicant

TP-Link Corporation Limited

Room 901, 9/F., New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hongkong

1.2. Manufacturer

TP-Link Corporation Limited

Room 901, 9/F., New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hongkong

1.3. Testing Facility

\boxtimes	Test Site – MRT Suzhou Laboratory					
	Laboratory Location (Suzhou - Wuzhong)					
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China					
	Laboratory Location (Suzhou - SIP)					
	4b Building, Liando U Valley, No.200 Xingpu Ro	d., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations					
	A2LA: 3628.01	CNAS: L10551				
	FCC: CN1166	ISED: CN0001				
	VCCI: R-20025, G-20034, C-20020, T-20020					
	Test Site – MRT Shenzhen Laboratory					
	Laboratory Location (Shenzhen)					
	1G, Building A, Junxiangda Building, Zhongsha	anyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations					
	A2LA: 3628.02	CNAS: L10551				
	FCC: CN1284	ISED: CN0105				
	Test Site – MRT Taiwan Laboratory					
	Laboratory Location (Taiwan)					
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyua	n City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations					
	TAF: L3261-190725					
	FCC: 291082, TW3261	ISED: TW3261				



1.4. Product Information

Product Name	AX3000 Gigabit Wi-Fi 6 Router			
Model No.	Archer AX55			
Brand Name	tp-link			
Wi-Fi Specification	802.11a/b/g/n/ac/ax			
Antenna Specification	Refer to section 1.5			
Power Supply	AC/DC Adapter			
Accessories				
	Model No.: T120150-2B1			
AC/DC Adapter	Input: 100-240V, 50/60Hz, 0.6A			
	Output: 12V, 1.5A			
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the				
information shall be the re	nformation shall be the responsibility of the manufacturer.			

1.5. Antenna Details

Antenna	Frequency	T _X	Max	Beamforming	CDD Directional Gain	
Туре	Band	Paths	Antenna Gain	Directional	(dBi)	
	(MHz)		(dBi)	Gain	For Power	For PSD
				(dBi)		
	2412 ~ 2462	2	3.82	6.83	3.82	6.83
Dinala	5150 ~ 5250	2	2.17	5.18	2.17	5.18
Dipole Antenna	5250 ~ 5350	2	2.25	5.26	2.25	5.26
Antenna	5470 ~ 5725	2	2.80	5.81	2.80	5.81
	5725 ~ 5850	2	2.94	5.95	2.94	5.95

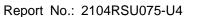
Note 1: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

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;
- For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB for $N_{ANT} \le 4$;

Note 2: The EUT also supports Beam Forming mode, and the Beam Forming support 802.11ac/ax, not include 802.11a/b/g/n. BF Directional gain = G_{ANT} + 10 log (N_{ANT}).





2. RF Exposure Evaluation

2.1. Test 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	Electric Field	Magnetic Field	Power Density	Average Time			
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm ²)	(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/cm²

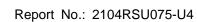
Pout = output power to antenna in mW

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/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

Product	AX3000 Gigabit Wi-Fi 6 Router
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 2.2.

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Beamforming Gain (dBi)	Maximum EIRP (dBm)
802.11b/g/n	2412 ~ 2462	27.33	6.83	34.16
	5180 ~ 5240			
802.11a/n/ac	5260 ~ 5320	29.77	5.95	35.72
002.11a/11/ac	5500 ~ 5720	29.11	5.95	35.72
	5745 ~ 5825			

Test Mode	Frequency Band	Maximum	Safety	Power Density	Limit of Power
	(MHz)	EIRP	Distance	(mW/cm ²)	Density
		(dBm)	(cm)		(mW/cm ²)
802.11b/g/n	2412 ~ 2462	34.16	25	0.3318	1
	5180 ~ 5240				
802.11a/n/ac	5260 ~ 5320	35.72	25	0.4752	1
002.11a/11/ac	5500 ~ 5720		25	0.4752	
	5745 ~ 5825				

CONCLUSION:

WLAN 2.4GHz Band and WLAN 5GHz can transmit simultaneously.

The max Power Density at R (25 cm) = 0.3318mW/cm² + 0.4752mW/cm² = 0.8071mW/cm² < 1mW/cm².

So the safety distance is 25cm for device installed without any other radio equipment.

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Appendix A - EUT Photograph

Refer to "2104RSU075-UE" file.