



# RF Exposure Evaluation Declaration

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**FCC ID:** 2AXJ4AXE95  
**Applicant:** TP-Link Corporation Limited  
**Application Type:** Certification  
**Product:** AXE7800 Tri-Band Wi-Fi 6E Router  
**Model No.:** Archer AXE95  
**Brand Name:** tp-link  
**FCC Classification:** Digital Transmission System (DTS)  
Unlicensed National Information Infrastructure (NII)  
15E 6GHz Low Power Indoor Access Point (6ID)  
**Test Procedure(s):** KDB 447498 D01v06

**Reviewed By:**

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Jame Yuan

**Approved By:**

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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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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### Revision History

Report No.	Version	Description	Issue Date	Note
2105RSU073-U5	Rev. 01	Initial Report	12-05-2021	Valid

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#### 1.4. Product Information

Product Name	AXE7800 Tri-Band Wi-Fi 6E Router
Model No.	Archer AXE95
Brand Name	tp-link
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Antenna Information	Refer to section 1.5
Power Supply	AC/DC Adapter
Accessory	
Adapter	Model: S042-1A120330VU Input: 100-240V~, 50/60Hz, 1.0A Output: 12Vdc, 3.3A
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

#### 1.5. Antenna Details

Antenna Type	Frequency Band (MHz)	T <sub>x</sub> Paths	Number of spatial streams	Max Antenna Gain (dBi)	Beamforming Directional Gain (dBi)	CDD Directional Gain (dBi)	
						For Power	For PSD
Dipole Antenna	2412 ~ 2462	2	1	2.11	5.12	2.11	5.12
	5150 ~ 5250	4	1	2.02	8.04	2.02	8.04
	5250 ~ 5350	4	1	2.24	8.26	2.24	8.26
	5470 ~ 5725	4	1	2.13	8.15	2.13	8.15
		4	2	2.13	--	2.13	5.14
	5725 ~ 5850	4	1	1.97	7.99	1.97	7.99
	5925 ~ 6425	2	1	2.10	5.11	2.10	5.11
		2	2	2.10	--	2.10	2.10
	6425 ~ 6525	2	1	2.03	5.04	2.03	5.04
		2	2	2.03	--	2.03	2.03
	6525 ~ 6875	2	1	2.04	5.05	2.04	5.05
		2	2	2.04	--	2.04	2.04
	6875 ~ 7125	2	1	1.93	4.94	1.93	4.94
		2	2	1.93	--	1.93	1.93
Remark: 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 =  $G_{ANT} + \text{Array Gain}$ , 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  $N_{ANT} \leq 4$ ;
2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11 ac/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 (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:  $Pd = (Pout * G) / (4 * pi * r^2)$

Where

Pd = power density in mW/cm<sup>2</sup>

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<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

Product	AXE7800 Tri-Band Wi-Fi 6E Router
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 1.5.

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Antenna Gain (or Beamforming Gain) (dBi)	Maximum EIRP (dBm)
802.11b/g/n/ax	2412 ~ 2462	28.20	5.12	33.32
802.11a/n/ac/ax	5180 ~ 5240 5260 ~ 5320 5500 ~ 5700 5745 ~ 5825	28.52	8.04	36.56
802.11ax	6115 ~ 7095	22.59	2.03	24.62

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Compliance Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit of Power Density (mW/cm <sup>2</sup> )
802.11b/g/n/ax	2412 ~ 2462	33.32	23.60	0.3069	1
802.11a/n/ac/ax	5180 ~ 5240 5260 ~ 5320 5500 ~ 5700 5745 ~ 5825	36.56	23.60	0.6471	1
802.11ax	6115 ~ 7095	24.62	23.60	0.0414	1

### CONCLUSION:

WLAN 2.4GHz Band, WLAN 5GHz and WLAN 6GHz can transmit simultaneously.

The max Power Density at R (23.6 cm) =  $0.3069\text{mW/cm}^2 + 0.6471\text{mW/cm}^2 + 0.0414\text{mW/cm}^2 = 0.9954\text{mW/cm}^2 < 1\text{mW/cm}^2$ .

So the compliance distance is 23.6cm for device installed without any other radio equipment.

## Appendix A - EUT Photograph

Refer to "2105RSU073-UE" file.

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