

MRT Technology (Suzhou) Co., Ltd Phone: +86-512-66308358

Web: www.mrt-cert.com

Report No.: 2104RSU020-U4 Report Version: V01 Issue Date: 10-18-2021

# **RF Exposure Evaluation Declaration**

FCC ID: 2AXJ4RE300V2

**Applicant:** TP-Link Corporation Limited

**Application Type:** Certification

**Product:** AC1200 Wi-Fi Range Extender

Model No.: RE300

Brand Name: tp-link

FCC Classification: Digital Transmission System (DTS)

Unlicensed National Information Infrastructure (NII)

Test Procedure(s): KDB 447498 D01v06

Test Date: October 18, 2021

Approved By:

Reviewed By:

Kevin Guo

Robin Wu

Robin Wu

Reviewed 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.

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





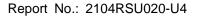
## **Revision History**

Report No.	Version	Description	Issue Date	Note
2104RSU020-U4	Rev. 01	Initial Report	10-18-2021	Valid



## CONTENTS

	cription		Page
1.	Gene	ral 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 E	xposure Evaluation	6
	2.1.	Test Limits	6
	2.2.	Test Result	7
App	endix	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 Rd., Shengpu Town, Suzhou Industrial Park, China					
	Laboratory Accre	editations				
	A2LA: 3628.01		CNAS	S: L10551		
	FCC: CN1166		ISED:	CN0001		
	VCCI:	□R-20025	☐G-20034	□C-20020	□T-20020	
	VCCI.	□R-20141	□G-20134	□C-20103	□T-20104	
	Test Site – MRT Shenzhen Laboratory					
	Laboratory Loca	tion (Shenzhen)				
	1G, Building A, Ju	ınxiangda Building,	Zhongshanyuan Roa	d West, Nanshan Dis	strict, Shenzhen, China	
	Laboratory Accreditations					
	A2LA: 3628.02	CNAS: L10551				
	FCC: CN1284 ISED: CN0105					
	Test Site - MRT	Taiwan Laboratory	1			
	Laboratory Location (Taiwan)  No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)					
	Laboratory Accreditations  TAF: L3261-190725					
	FCC: 291082, TW3261 ISED: TW3261					



#### 1.4. Product Information

Product Name	AC1200 Wi-Fi Range Extender
Model No.	RE300
Brand Name	tp-link
Wi-Fi Specification	802.11a/b/g/n/ac
Antenna Specification	Refer to section 1.5
Power Supply	AC100~240V/50~60Hz

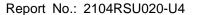
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

#### 1.5. Antenna Details

Antenna Type	Frequency Band	T <sub>X</sub> Paths	Max Antenna Gain (dBi)	Beamforming Directional Gain	CDD Directional Gain (dBi)	
	(MHz)			(dBi)	For Power	For PSD
PCB	2412 ~ 2462	2	1.0	-	1.0	4.01
Antenna	5150 ~ 5850	2	2.0	5.01	2.0	5.01

#### Remark:

- The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
   If all antennas have the same gain, G<sub>ANT</sub>, Directional gain = G<sub>ANT</sub> + Array Gain, where Array Gain is as follows.
  - For power spectral density (PSD) measurements on all devices,
     Array Gain = 10 log (N<sub>ANT</sub>/ N<sub>SS</sub>) dB;
  - For power measurements on IEEE 802.11 devices,
     Array Gain = 0 dB for N<sub>ANT</sub> ≤ 4;
- 2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac, not include 802.11a/b/g. 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 <sup>2</sup> )	(Minutes)		
	(A) Limits for Occupational/ Control Exposures					
300-1500			f/300	6		
1500-100,000			5 6			
	(B) Limits for Gen	eral Population/ Uncor	ntrolled 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	AC1200 Wi-Fi Range Extender
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 1.5.

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Directional Gain (dBi)	Maximum EIRP (dBm)
802.11b/g/n	2412 ~ 2462	22.00	1.0	23.00
	5180 ~ 5240	25.20	5.01	30.39
802.11a/n/ac	5260 ~ 5320			
	5500 ~ 5700	25.38		
	5745 ~ 5825			

Test Mode	Frequency Band	Maximum EIRP	Compliance	Power Density	Limit of Power	
	(MHz)	(dBm)	Distance	(mW/cm <sup>2</sup> )	Density	
			(cm)		(mW/cm <sup>2</sup> )	
802.11b/g/n	2412 ~ 2462	23.00	20.00	0.0397	1	
	5180 ~ 5240					
802.11a/n/ac	5260 ~ 5320	00.00	20.20	20.00	0.0470	1
	5500 ~ 5700	30.39	20.00	0.2176	1	
	5745 ~ 5825					

## CONCLUSION:

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

The max Power Density at R (20 cm) = 0.-397mW/cm<sup>2</sup> + 0.2176mW/cm<sup>2</sup> = 0.2573mW/cm<sup>2</sup> < 1mW/cm<sup>2</sup>.

So the compliance distance is 20cm for device installed without any other radio equipment.





<b>Appendix</b>	Δ_	FUT	Photo	aranh
Appelluix	A -	EUI	FIIOU	Julabii

Refer to "2104RSU020-UE" file.

\_\_\_\_\_ The End \_\_\_\_\_