



中国认可  
国际互认  
检测  
TESTING  
CNAS L5313



DEKRA

## RF Exposure Evaluation Declaration

Product Name : AC1200 Wireless Dual Band Router

Model No. : Archer C50

FCC ID : TE7C50V3

Applicant : TP-Link Technologies Co., Ltd..

Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4)  
Central Science and Technology Park,Shennan Rd,  
Nanshan, Shenzhen,China

Date of Receipt : Apr. 28th, 2017

Issued Date : Jun. 30th, 2017

Report No. : 1752112R-RF- US- P20V01

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, CNAS or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.

# Test Report Certification

Issued Date : Jun. 30th, 2017

Report No. : 1752112R-RF-US-P20V01



Product Name : AC1200 Wireless Dual Band Router  
Applicant : TP-Link Technologies Co., Ltd.  
Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China  
Manufacturer : TP-Link Technologies Co., Ltd.  
Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China  
Model No. : Archer C50  
FCC ID : TE7C50V3  
EUT Voltage : DC 9V  
Test Voltage : AC 120V/60Hz  
Brand Name : TP-Link  
Applicable Standard : KDB 447498D01V06  
FCC Part1.1310  
Test Result : Complied  
Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.  
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China  
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098  
FCC Registration Number: 800392

Documented By :



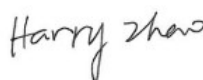
(Adm. Specialist: Kathy Feng)

Reviewed By :



(Senior Engineer: Frank He )

Approved By :



(Engineering Manager: Harry Zhao )

## 1. RF Exposure Evaluation

### 1.1. 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 <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

Friis Formula

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/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.

## 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	AC1200 Wireless Dual Band Router
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

## Antenna Information

### 2.4G:

Antenna manufacturer	N/A								
Antenna Delivery	<input type="checkbox"/>	1*TX+1*RX		<input checked="" type="checkbox"/>	2*TX+2*RX		<input type="checkbox"/>	3*TX+3*RX	
Antenna technology	<input type="checkbox"/>	SISO							
	<input checked="" type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic					
			<input type="checkbox"/>	Sectorized antenna systems					
			<input type="checkbox"/>	Cross-polarized antennas					
			<input type="checkbox"/>	Unequal antenna gains, with equal transmit powers					
			<input type="checkbox"/>	Spatial Multiplexing					
			<input checked="" type="checkbox"/>	CDD					
			<input type="checkbox"/>	Beam-forming					
Antenna Type	<input checked="" type="checkbox"/>	External	<input checked="" type="checkbox"/>	Dipole					
	<input type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA					
			<input type="checkbox"/>	PCB					
			<input type="checkbox"/>	Ceramic Chip Antenna					
			<input type="checkbox"/>	Metal plate type F antenna					
			<input type="checkbox"/>	Cross-polarize Antenna					
	Antenna Gain #0	1.8dBi							
Antenna Gain #1	1.8dBi								

**5G:**

Antenna manufacturer	N/A			
Antenna Delivery	<input type="checkbox"/> 1*TX+1*RX	<input checked="" type="checkbox"/> 2*TX+2*RX	<input type="checkbox"/> 3*TX+3*RX	
Antenna technology	<input type="checkbox"/> SISO			
	<input checked="" type="checkbox"/> MIMO	<input type="checkbox"/> Basic		
		<input type="checkbox"/> Sectorized antenna systems		
		<input type="checkbox"/> Cross-polarized antennas		
		<input type="checkbox"/> Unequal antenna gains, with equal transmit powers		
		<input type="checkbox"/> Spatial Multiplexing		
		<input checked="" type="checkbox"/> CDD		
		<input type="checkbox"/> Beam-forming		
Antenna Type	<input checked="" type="checkbox"/> External	<input checked="" type="checkbox"/> Dipole		
	<input type="checkbox"/> Internal	<input type="checkbox"/> PIFA		
		<input type="checkbox"/> PCB		
		<input type="checkbox"/> Ceramic Chip Antenna		
		<input type="checkbox"/> Metal plate type F antenna		
		<input type="checkbox"/> Cross-polarize Antenna		
Antenna Gain #0	Band 1:2.74dBi    Band 4:4.07dBi			
Antenna Gain #1	Band 1:2.99dBi    Band 4:4.44dBi			

**RF Exposure Measurement Results:**

SISO:

Operation Mode	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(W/m <sup>2</sup> )	Power Density S(W/m <sup>2</sup> )
802.11b/g/n(20MHz)	2400 – 2483.5 MHz	27.09	10	0.102
802.11n(40MHz)	2400 – 2483.5 MHz	20.44	10	0.022
802.11a/ac/n(20MHz)	5150 - 5250 MHz 5725 - 5850 MHz	28.2	10	0.131
802.11ac/n(40MHz)	5150 - 5250 MHz 5725 - 5850 MHz	28.2	10	0.131
802.11ac(80MHz)	5150 - 5250 MHz 5725 - 5850 MHz	22.01	10	0.032

Simultaneous transmission:

Operation Mode	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(W/m <sup>2</sup> )	Power Density S(W/m <sup>2</sup> )
802.11b/g/n(20MHz)	2400 - 2483.5 MHz	27.09	10	0.102
802.11ac/n(40MHz)	5150 - 5250 MHz 5725 - 5850 MHz	28.2	10	0.131
Simultaneous transmission				0.233

Note: So the simultaneous power density is 0.233 W/m<sup>2</sup> for AC1200 Wireless Dual Band Router installed without any other radio equipment.

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