



中国认可  
国际互认  
检测  
TESTING  
CNAS L5313



TAF  
Testing Laboratory  
1596



DEKRA

## RF Exposure Evaluation Declaration

Product Name : AC1900 Smart Wi-Fi Router

Model No. : K3C

FCC ID : YJYK3C

Applicant : Phicomm (Shanghai) Co., Ltd.

Address : NO.3666,Sixian Rd.,Songjiang District, Shanghai,  
P.R.China

Date of Receipt : Feb. 21st, 2017

Test Date Feb. 21st, 2017~ Apr. 07th, 2017

Issued Date : July. 07th, 2017

Report No. : 1722077R-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 : July. 07th, 2017  
Report No. : 1722077R-RF-US-P20V01



Product Name : AC1900 Smart Wi-Fi Router  
Applicant : Phicomm (Shanghai) Co., Ltd.  
Address : NO.3666,Sixian Rd.,Songjiang District, Shanghai, P.R.China  
Manufacturer : Phicomm (Shanghai) Co., Ltd.  
Address : NO.3666,Sixian Rd.,Songjiang District, Shanghai, P.R.China  
Model No. : K3C  
FCC ID : YJYK3C  
EUT Voltage : DC 12V  
Test Voltage : AC 120V/60Hz  
Brand Name : PHICOMM  
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: Kitty Li )

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	:	AC1900 Smart Wi-Fi Router		
Test Item	:	RF Exposure Evaluation		
Test Site	:	AC-6		

Antenna Information:

### 2.4G:

Antenna manufacturer	VICTORY GIANT TECHNOLOGY ( HUI ZHOU ) CO. , LTD.					
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX	<input type="checkbox"/>	2*TX+2*RX	<input checked="" type="checkbox"/>	3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/>	SISO for 802.11b				
	<input checked="" type="checkbox"/>	MIMO for 802.11g/n	<input type="checkbox"/>	Basic		
			<input checked="" type="checkbox"/>	CDD		
			<input type="checkbox"/>	Beam-forming		
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole		
	<input checked="" type="checkbox"/>	Internal	<input checked="" type="checkbox"/>	PIFA		
			<input type="checkbox"/>	PCB		
			<input type="checkbox"/>	Ceramic Chip Antenna		
			<input type="checkbox"/>	Metal plate type F antenna		
Antenna Gain #1	4dBi					
Antenna Gain #2	4dBi					
Antenna Gain #3	4dBi					
Directional Gain	Power : 4dBi					
	PSD : 8.77dBi					

## 5G :

Antenna manufacturer	VICTORY GIANT TECHNOLOGY ( HUI ZHOU ) CO. , LTD.					
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX	<input type="checkbox"/>	2*TX+2*RX	<input checked="" type="checkbox"/>	3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/>	SISO for 802.11a				
Antenna technology	<input checked="" type="checkbox"/>	MIMO for 802.11n/ac	<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 checked="" type="checkbox"/>	Beam-forming		
	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole		
Antenna Type	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA		
			<input checked="" 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	6dBi					
Antenna Gain #1	6dBi					
Antenna Gain #2	6dBi					
Directional Gain	Power: 6dBi					
	PSD : 10.77dBi					
Beam-forming Gain	4.77dBi					
Directional Gain	10.77dBi					

- Output Power into Antenna & RF Exposure Evaluation Distance
- Standalone modes

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Power Density Limit at R = 20 cm (mW/cm <sup>2</sup> )
802.11b/g/n(20MHz)	2412 ~ 2462 MHz	23.17	4.0	0.1037	1.0
802.11n(40MHz)	2422 ~ 2452 MHz	19.32	4.0	0.0427	1.0
802.11a/n/ac(20MHz)	5180-5240MHz 5745-5825 MHz	29.97	6.0	0.7866	1.0
802.11n/ac (40MHz)	5190-5230MHz 5755-5795 MHz	29.66	6.0	0.7324	1.0
802.11ac(80MHz)	5210MHz 5775MHz	29.17	6.0	0.6542	1.0

**Simultaneous transmission:**

Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Power Density Limit at R = 20 cm (mW/cm <sup>2</sup> )
2412 ~ 2462	23.17	4.0	0.1037	1.0
5180-5240 5745-5825	29.97	6.0	0.7866	1.0
Simultaneous transmission power density			0.8903	1.0

Note: The simultaneous transmission power density is 0.8903mW/cm<sup>2</sup> for AC1900 Smart Wi-Fi Router without any other radio equipment.

————— The End —————