



中国认可  
国际互认  
检测  
TESTING  
CNAS L5313



DEKRA

## RF Exposure Evaluation Declaration

Product Name : 5GHz 300Mbps 13dBi Outdoor CPE

Model No. : CPE510

FCC ID : TE7CPE510V2

Applicant : TP-Link Technologies Co., Ltd.

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

Date of Receipt : Feb. 06th, 2017

Test Date : Feb. 06th, 2017~ Mar. 24th, 2017

Issued Date : Mar. 28th, 2017

Report No. : 1722006R-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. Corporation.

# Test Report Certification

Issued Date : Mar. 28th, 2017

Report No. : 1722006R-RF-US-P20V01



Product Name : 5GHz 300Mbps 13dBi Outdoor CPE  
Applicant : TP-Link Technologies Co., Ltd.  
Address : Building 24(floors1,3,4,5) and 28(floors1-4) Central  
Science and Technology Park, Shennan Rd, Nanshan,  
Shenzhen, China  
Manufacturer : TP-Link Technologies Co., Ltd.  
Address : Building 24(floors1,3,4,5) and 28(floors1-4) Central  
Science and Technology Park, Shennan Rd, Nanshan,  
Shenzhen, China  
Model No. : CPE510  
FCC ID : TE7CPE510V2  
Brand Name : TP-Link  
EUT Voltage : DC 24V  
Applicable Standard : KDB 447498D01V06  
FCC Part1.1310  
Test Result : Complied  
Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.  
Corporation - Suzhou EMC Laboratory  
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

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Reviewed By : Frank He  
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(Engineering Manager : Harry Zhao )

### History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1722006R-RF-US-P20V01	V1.0	Initial Issued Report	Mar. 28th, 2017

## 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)
<b>(A) Limits for Occupational/ Control Exposures</b>				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
<b>(B) Limits for General Population/ Uncontrolled Exposures</b>				
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 and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	5GHz 300Mbps 13dBi Outdoor CPE
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

### Antenna Information:

Antenna Model No.	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	
Antenna Type	<input type="checkbox"/> External	<input type="checkbox"/> Dipole	
		<input type="checkbox"/> PIFA	
	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> PCB	
		<input type="checkbox"/> Ceramic Chip Antenna	
		<input type="checkbox"/> Metal plate type F antenna	
		<input checked="" type="checkbox"/> Cross-polarize Antenna	
Antenna Gain #0	13dBi		
Antenna Gain #1	13dBi		

- 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> )
802.11n(5MHz) with CDD	5180-5240MHz 5745-5825 MHz	23.02	13.00	0.7957	1.0
802.11n(10MHz) with CDD	5180-5240MHz 5745-5825 MHz	23.06	13.00	0.8030	1.0
802.11a/n/ (20MHz) with CDD	5180-5240MHz 5745-5825 MHz	23.24	13.00	0.8370	1.0
802.11n (40MHz) with CDD	5190-5230MHz 5755-5795 MHz	23.07	13.00	0.8049	1.0

Note: The simultaneous transmission power density is 0.8370mW/cm<sup>2</sup> for 5GHz 300Mbps 13dBi Outdoor CPE without any other radio equipment.

————— The End —————