



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

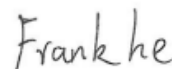
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Documented By :



(Adm. Specialist: Kitty Li)

Reviewed By :



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Approved By :



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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 ²)	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/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². 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		
			<input type="checkbox"/>	Beam-forming		
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole		
	<input checked="" 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 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 ²)	Power Density Limit at R = 20 cm (mW/cm ²)
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/cm² for 5GHz 300Mbps 13dBi Outdoor CPE without any other radio equipment.

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