

## RF Exposure Report

**Report No.:** SA150727C01A

**FCC ID:** TE7D5V2

**Test Model:** Archer D5

**Received Date:** Aug. 05, 2015

**Test Date:** Aug. 24 ~ Oct. 29, 2015

**Issued Date:** Nov. 02, 2015

**Applicant:** TP-LINK TECHNOLOGIES CO., LTD.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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### Release Control Record

Issue No.	Description	Date Issued
SA150727C01A	Original release	Nov. 02, 2015

## 1 Certificate of Conformity

**Product:** AC1200 Wireless Dual Band Gigabit ADSL2+Modem Router

**Brand:** TP-LINK

**Test Model:** Archer D5

**Sample Status:** Prototype

**Applicant:** TP-LINK TECHNOLOGIES CO., LTD.

**Test Date:** Aug. 24 ~ Oct. 29, 2015

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D03

IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**  , **Date:** Nov. 02, 2015

Ivy Lin / Specialist

**Approved by :**  , **Date:** Nov. 02, 2015

Ken Liu / Senior Manager

## 2 RF Exposure

### 2.1 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)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$$

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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

### 3 Calculation Result of Maximum Conducted Power

#### CDD Mode

Frequency Band (MHz)	Mode	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	802.11b	21.44	2	20	0.044	1
	802.11g	24.56	5.01	20	0.180	1
	802.11n (HT20)	24.39	5.01	20	0.173	1
	802.11n (HT40)	17.77	5.01	20	0.038	1
5180-5240	802.11a	22.07	3	20	0.064	1
	802.11n (HT20)	25.28	6.01	20	0.268	1
	802.11n (HT40)	24.34	6.01	20	0.216	1
	802.11ac (VHT80)	20.44	6.01	20	0.088	1
5745-5825	802.11a	22.22	3	20	0.066	1
	802.11n (HT20)	22.89	6.01	20	0.154	1
	802.11n (HT40)	22.12	6.01	20	0.129	1
	802.11ac (VHT80)	18.87	6.01	20	0.061	1

#### Beamforming Mode

Frequency Band (MHz)	Mode	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240	802.11n (HT20)	23.51	6.01	20	0.178	1
	802.11n (HT40)	24.34	6.01	20	0.216	1
	802.11ac (VHT80)	19.32	6.01	20	0.068	1
5745-5825	802.11n (HT20)	21.99	6.01	20	0.126	1
	802.11n (HT40)	21.62	6.01	20	0.115	1
	802.11ac (VHT80)	18.12	6.01	20	0.051	1

#### Note:

2412-2462MHz: Directional gain = 2dBi + 10log(2) = 5.01dBi.

5GHz band: Directional gain = 3dBi + 10log(2) = 6.01dBi

**Conclusion:**

The formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.180 + 0.216 = 0.396$$

Therefore all the maximum calculations of above situations are less than the "1" limit.

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