

RF Exposure Report

Report No.: SA151105C02

FCC ID: TE7C50V2

Test Model: Archer C50

Received Date: Nov. 05, 2015

Test Date: Nov. 18, 2015 ~ Jan. 15, 2016

Issued Date: Jan. 19, 2016

Applicant: TP-LINK TECHNOLOGIES CO., LTD.

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Release Control Record

Issue No.	Description	Date Issued
SA151105C02	Original release	Jan. 19, 2016

1 Certificate of Conformity

Product: AC1200 Wireless Dual Band Router
Brand: TP-LINK
Test Model: Archer C50
Sample Status: Prototype
Applicant: TP-LINK TECHNOLOGIES CO., LTD.
Test Date: Nov. 18, 2015 ~ Jan. 15, 2016
Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 (October 23, 2015)
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:** Jan. 19, 2016
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Approved by :  , **Date:** Jan. 19, 2016
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 ²)	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

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

where

Pd = power density in mW/cm²

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

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	29.23	5.04	20	0.532	1
5180-5240	28.33	4.65	20	0.395	1
5745-5825	27.38	5.13	20	0.355	1

Note:

2412-2462MHz: Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] = 5.04\text{dBi}$

5180-5240MHz: Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] = 4.65\text{dBi}$

5745-5825MHz: Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] = 5.13\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.532 + 0.395 = 0.927

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

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