

RF Exposure Report

Report No.: SA160218C04

FCC ID: TE7WR902AC

Test Model: TL-WR902AC

Received Date: Feb. 18, 2016

Test Date: Mar. 03 ~ Apr. 20, 2016

Issued Date: Apr. 25, 2016

Applicant: TP-LINK TECHNOLOGIES CO., LTD.

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Release Control Record

Issue No.	Description	Date Issued
SA160218C04	Original release	Apr. 25, 2016

1 Certificate of Conformity

Product: AC750 Wireless Travel Router

Brand: TP-LINK

Test Model: TL-WR902AC

Sample Status: Prototype

Applicant: TP-LINK TECHNOLOGIES CO., LTD.

Test Date: Mar. 03 ~ Apr. 20, 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.

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Approved by : Ken Liu , **Date:** Apr. 25, 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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

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

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

WLAN:

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	24.66	5.11	20	0.189	1
5180-5240	17.59	3.75	20	0.027	1
5745-5825	18.19	2.98	20	0.026	1

Note:

2.4GHz Band: Directional gain = 2.1dBi + 10log(2) = 5.11dBi

Max. Power for 3G/4G Dongle: (Brand: D-Link, Model: DWM-221, FCC ID: KA2WM221B1)

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
829-844 (LTE Band 5)	22.56	0	20	0.036	0.562

CONCLUSION:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4G + WLAN 5.0G + WWAN = 0.189 + 0.027 + 0.036 = 0.252

Therefore, the maximum calculation of this situation is 0.216, which is less than the "1" limit.

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