

RF Exposure Report

Report No.: SA150805C24

FCC ID: TE7RE450

Test Model: RE450

Received Date: Aug. 05, 2015

Test Date: Aug. 10 ~ Oct. 05, 2015

Issued Date: Oct. 07, 2015

Applicant: TP-LINK TECHNOLOGIES CO., LTD.

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Release Control Record

Issue No.	Description	Date Issued
SA150805C24	Original release.	Oct. 07, 2015



1 Certificate of Conformity

Product: AC1750 Wi-Fi Range Extender
Brand: TP-LINK
Test Model: RE450
Sample Status: Prototype
Applicant: TP-LINK TECHNOLOGIES CO., LTD.
Test Date: Aug. 10 ~ Oct. 05, 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.

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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 21cm 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	27.94	6.77	21	0.534	1
5180-5240	25.69	7.77	21	0.400	1
5745-5825	25.26	7.77	21	0.363	1

2.4GHz Band: Directional gain = 2dBi + 10log(3) = 6.77dBi

5GHz Band: Directional gain = 3dBi + 10log(3) = 7.77dBi

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

$$\text{WLAN 2.4G} + \text{WLAN 5.0G} = 0.534 + 0.400 = 0.934$$

Therefore, the maximum calculation of this situation is 0.934, which is less than the "1" limit.

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