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RF EXPOSURE REPORT

REPORT NO.: SA120816C23

MODEL NO.: TL-WDR3500

FCC ID: TE7WDR3500

RECEIVED: Aug. 16, 2012

TESTED: Aug. 24 ~ Sep. 04, 2012

ISSUED: Sep. 10, 2012

APPLICANT: TP-LINK TECHNOLOGIES CO., LTD.

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|-------------|-------------------|---------------|
| SA120816C23 | Original release | Sep. 10, 2012 |



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1. CERTIFICATION

PRODUCT: N600 Wireless Dual Band Router

MODEL NO.: TL-WDR3500

BRAND: TP-LINK

APPLICANT: TP-LINK TECHNOLOGIES CO., LTD.

TESTED: Aug. 24 ~ Sep. 04, 2012

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (model: TL-WDR3500) 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 : Sep. 10, 2012
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APPROVED BY :  , DATE : Sep. 10, 2012
Gary Chang / Technical Manager



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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

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

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**.



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2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

| FREQUENCY BAND (MHz) | MODULATION MODE | MAX POWER (dBm) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm ²) | LIMIT (mW/cm ²) |
|----------------------|-----------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462 | 802.11b | 21.88 | 5.01 | 20 | 0.097 | 1 |
| | 802.11g | 29.20 | 5.01 | 20 | 0.524 | 1 |
| | 802.11n (20MHz) | 29.12 | 5.01 | 20 | 0.515 | 1 |
| | 802.11n (40MHz) | 27.13 | 5.01 | 20 | 0.326 | 1 |
| 5180-5240 | 802.11a | 14.04 | 6 | 20 | 0.020 | 1 |
| | 802.11n (20MHz) | 14.72 | 6 | 20 | 0.023 | 1 |
| | 802.11n (40MHz) | 16.75 | 6 | 20 | 0.037 | 1 |
| 5745-5825 | 802.11a | 26.69 | 6 | 20 | 0.370 | 1 |
| | 802.11n (20MHz) | 26.78 | 6 | 20 | 0.377 | 1 |
| | 802.11n (40MHz) | 26.78 | 6 | 20 | 0.377 | 1 |

NOTE:

For 2.4GHz Band: Directional gain = $2\text{dBi} + 10\log(2) = 5.01\text{dBi}$

For 5.0GHz Band: Directional gain = $3\text{dBi} + 10\log(2) = 6\text{dBi}$

CONCULSION:

Both of the WLAN 2.4G & 5.0G can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 +etc. < 1

CPD = Calculation power density

LPD = Limit of power density

1. WLAN 2.4G + WLAN 5.0G = 0.524 + 0.377 = 0.901

Therefore, the maximum calculation of this situation is 0.901, which is less than the "1" limit.