



# RF EXPOSURE REPORT

**REPORT NO.:** SA120516C16

**MODEL NO.:** TL-WR841N, TL-WR841ND

**FCC ID:** TE7WR841NXV8

**RECEIVED:** May 16, 2012

**TESTED:** June 29, 2012

**ISSUED:** July 11, 2012

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

**ADDRESS:** Building 24 (floors 1,3,4,5) and 28 (floors1-4)  
Central Science and Technology Park,Shennan  
Rd, Nanshan, Shenzhen,China

**ISSUED BY:** Bureau Veritas Consumer Products Services (H.K.) Ltd.,  
Taoyuan Branch Hsin Chu Laboratory

**LAB ADDRESS:** No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA120516C16	Original release	July 11, 2012

## 1. CERTIFICATION

**PRODUCT:** 300Mbps Wireless N Router  
**BRAND NAME:** TP-LINK  
**MODEL NO.:** TL-WR841N, TL-WR841ND  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**APPLICANT:** TP-LINK TECHNOLOGIES CO., LTD.  
**TESTED DATE:** June 29, 2012  
**STANDARDS:** FCC Part 2 (Section 2.1091)  
FCC OET Bulletin 65, Supplement C (01-01)  
IEEE C95.1

The above equipment (Model: TL-WR841ND) 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:** July 11, 2012  
( Elsie Hsu, Specialist )

**APPROVED BY** :  , **DATE:** July 11, 2012  
( May Chen, Deputy Manager )

## 2. RF EXPOSURE LIMIT

### 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)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 3. MPE CALCULATION FORMULA

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

### 4. 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**.

## 5. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

### 802.11b:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	65.577	8.01	20	0.08251	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

### 802.11g:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	381.496	8.01	20	0.47998	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

### 802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	332.005	8.01	20	0.41771	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

### 802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2422-2452	302.793	8.01	20	0.38096	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

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