

# FCC RF EXPOSURE REPORT

**FCC ID: V7TW18E**

**Project No.** : 1904C032  
**Equipment** : AC1200 Gigabit Wireless Hotspot Router  
**Model Name** : W18E  
**Series Model** : N/A  
**Applicant** : SHENZHEN TENDA TECHNOLOGY CO.,LTD  
**Address** : 6-8 Floor, Tower E3, No. 1001,  
Zhongshanyuan Road, Nanshan District,  
Shenzhen, China. 518052

**According** : FCC Guidelines for Human Exposure IEEE  
C95.1 & FCC Part 2.1091

## **B T L I N C .**

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan,  
Guangdong, China.

TEL: +86-769-8318-3000 FAX: +86-769-8319-6000



Certificate #5123.02

## 1. GENERAL SUMMARY

Equipment : AC1200 Gigabit Wireless Hotspot Router  
Brand Name : Tenda  
Test Model : W18E  
Series Model : N/A  
Applicant : SHENZHEN TENDA TECHNOLOGY CO.,LTD  
Manufacturer : SHENZHEN TENDA TECHNOLOGY CO.,LTD  
Address : 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District,  
Shenzhen, China. 518052  
Date of Test : Apr. 11, 2019 ~ Apr. 30, 2019  
Test Sample : Engineering Sample No.: D190403603  
Standards : FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-3-1904C032) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 17025 quality assessment standard and technical standard(s).

## 2. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna:

For 2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	5
2	N/A	N/A	Dipole	N/A	5

Note:

(1) For Non-Beamforming Function:

Antenna Gain=5 dBi. This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain =  $G_{ANT} + 10\log(N)$  dBi, that is Directional gain =  $5 + 10\log(2)$  dBi = 8.01. So, the output power limit is  $30 - 8.01 + 6 = 27.99$ , the power spectral density limit is  $8 - 8.01 + 6 = 5.99$ .

(2) For Beamforming Function:

Beamforming Gain=3 dBi, Directional gain=3+5=8 dBi. So, the output power limit is  $30 - 8 + 6 = 28$ , the power spectral density limit is  $8 - 8 + 6 = 6$ .

For 5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	5
2	N/A	N/A	Dipole	N/A	5

Note:

(1) For Non-Beamforming Function:

Antenna Gain=5 dBi. This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain =  $G_{Ant} + 10\log(N)$  dBi, that is Directional gain =  $5 + 10\log(2)$  dBi = 8.01. So, the UNII-1, UNII-3 output power limit is  $30 - 8.01 + 6 = 27.99$ . The UNII-1 power spectral density limit is  $17 - 8.01 + 6 = 14.99$ , the UNII-3 power spectral density limit is  $30 - 8.01 + 6 = 27.99$ .

(2) For Beamforming Function:

Beamforming Gain=3 dBi, Directional gain=3+5=8 dBi. So, the UNII-1, UNII-3 output power limit is  $30 - 8 + 6 = 28$ . The UNII-1 power spectral density limit is  $17 - 8 + 6 = 15$ , the UNII-3 power spectral density limit is  $30 - 8 + 6 = 28$ .

### 3. TEST RESULTS

For 2.4GHz Non-Beamforming:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5.00	3.1623	28.86	769.1304	0.48412	1	Complies

For 2.4GHz With Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
8.00	6.3096	25.35	342.7678	0.43048	1	Complies

For 5GHz Non-Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
8.01	6.3241	24.98	314.7748	0.39623	1	Complies

For 5GHz With Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
8.00	6.3096	24.21	263.6331	0.33109	1	Complies

**For the max simultaneous transmission MPE:**

Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Total	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2.4GHz	5GHz			
0.48412	0.39623	0.88035	1	Complies

Note: The calculated distance is 20 cm.

**End of Test Report**