

FCC RF EXPOSURE REPORT

FCC ID: V7TAC5V3

Project No. : 1912C183
Equipment : AC1200 Smart Dual-band WiFi Router
Brand Name : Tenda
Test Model : AC5
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
Manufacturer : SHENZHEN TENDA TECHNOLOGY CO.,LTD
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Date of Receipt : Dec. 27, 2019
Date of Test : Jan. 03, 2020 ~ Jan. 12, 2020
Issued Date : Feb. 11, 2020
Report Version : R00
Test Sample : Engineering Sample No.: DG2019122778
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
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.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Feb. 11, 2020

1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

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

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: This EUT supports MIMO 2X2, and all antennas have the same gain,

(1) 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: This EUT supports MIMO 2X2, and all antennas have the same gain,

(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 $30 - (8 - 6) = 28$.

2. TEST RESULTS

For 2.4GHz_Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
8.01	6.3241	27.94	622.3003	0.78334	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
8.00	6.3096	27.85	609.5369	0.76551	1	Complies

For 5GHz UNII-1_Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
8.01	6.3241	20.35	108.3927	0.13644	1	Complies

For 5GHz UNII-1_Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
8.00	6.3096	20.25	105.9254	0.13303	1	Complies

For 5GHz UNII-3_Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
8.01	6.3241	18.32	67.9204	0.08550	1	Complies

For 5GHz UNII-3_Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
8.00	6.3096	18.01	63.2412	0.07942	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm ²)	Power Density (S) (mW/cm ²)	Total	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4GHz	5GHz			
0.78334	0.13644	0.91978	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report