FCC RF EXPOSURE REPORT

FCC ID: V7TAC7V3

Project No.	:	1911C209
Equipment	:	AC1200 Smart Dual-Band WiFi Router
Brand Name	:	Tenda
Test Model	:	AC7
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
Address	:	6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
Date of Receipt	:	Dec. 05, 2019
Date of Test	:	Mar. 15, 2020 ~ Apr. 10, 2020
Issued Date	:	Apr. 29, 2020
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2019110753
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.

Nick Chen

Prepared by : Nick Chen

Ethan Ma

Approved by : Ethan Ma

Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town,Dongguan, Guangdong, China.
Tel: +86-769-8318-3000
Web: www.newbtl.com

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Apr. 29, 2020

1. 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 2.4GHz

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 CDD, and all antennas have the same gain, so,

1) For Non Beamforming, Directional gain=G_{ANT}+Array Gain.
   For output power measurements, Array Gain=0 ($N_{ANT} \leq 4$), so the Directional gain=5.
   For power spectral density measurements, Array Gain=10log(N_{ANT}/N_{SS}) dB, so the Directional gain=5+10log(2/1)=8.01. So, the power spectral density limit is 8-(8.01-6)=5.99.
2) For Beamforming, Beamforming Gain: 3dB. So the Directional gain=3+5=8. So the output power limit is 30-(8-6)=28.

For 5GHz:

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 CDD, and all antennas have the same gain, so,

1) For Non Beamforming, Directional gain=G_{ANT}+Array Gain.
   For output power measurements, Array Gain=0 ($N_{ANT} \leq 4$), so the Directional gain=5.
   For power spectral density measurements, Array Gain=10log(N_{ANT}/N_{SS}) dB, so the Directional gain=5+10log(2/1)=8.01. So, 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, Beamforming Gain: 3dB. So the Directional gain=3+5=8. So the output power limit is 30-(8-6)=28.

Table for Antenna Configuration:
For 2.4GHz:
Non Beamforming:

Operating Mode / TX Mode	1TX	2TX
IEEE 802.11b	V (Ant. 2)	-
IEEE 802.11g	V (Ant. 2)	-
IEEE 802.11n (HT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	-	V (Ant. 1 + Ant. 2)

Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11n (HT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	V (Ant. 1 + Ant. 2)

For 5GHz:
Non Beamforming:

Operating Mode / TX Mode	1TX	2TX
IEEE 802.11a	V (Ant.1)	-
IEEE 802.11n (HT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)	-	V (Ant. 1 + Ant. 2)

Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11n (HT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)	V (Ant. 1 + Ant. 2)

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
5	3.1623	29.93	984.0111	0.39640	1	Complies

For 2.4GHz 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	6.3096	27.94	622.3003	0.50018	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
5	3.1623	26.4	436.5158	0.17585	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
5	3.1623	25.79	379.3150	0.15280	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	6.3096	26.43	439.5416	0.35329	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	6.3096	25.78	378.4426	0.30418	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			
0.50018	0.35329	0.85347	1	Complies

Note: The calculated distance is 25 cm.

End of Test Report