

FCC RF EXPOSURE REPORT

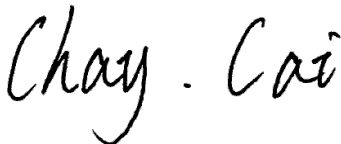
FCC ID: V7TMESH3V3

Project No. : 2111C147
Equipment : Whole Home Mesh WiFi System
Brand Name : Tenda
Test Model : Mesh3
Series Model : MW6
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 : Nov. 23, 2021
Date of Test : Nov. 26, 2021 ~ Dec. 18, 2021
Issued Date : Dec. 30, 2021
Report Version : R01
Test Sample : Engineering Sample No.: DG2021112426
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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TESTING CERT #5123.02

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Dec. 24, 2021
R01	Recalculate the test results.	Dec. 30, 2021

1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of China.

BTL's Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

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 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	<i>Tenda</i>	MW6 V2.0	PCB	N/A	3.85
2	<i>Tenda</i>	MW6 V2.0	PCB	N/A	3.85

Note:

- This EUT supports CDD, and all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$. For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the Directional gain=3.85. For power spectral density measurements, $N_{ANT}=2$, $N_{SS} = 1$. So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 3.85 + 10\log(2/1)\text{dBi} = 6.86$. Then, the power spectral density limit is $8 - (6.86 - 6) = 7.14$.
- Beamforming gain:3dB. Then, the Directional gain = $3 + 3.85 = 6.85$, so the output power limit is $30 - (6.85 - 6) = 29.15$.
- The antenna gain and beamforming gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	<i>Tenda</i>	MW6 V2.0	PCB	N/A	4.09
2	<i>Tenda</i>	MW6 V2.0	PCB	N/A	4.36

Note:

- This EUT supports CDD, and all antenna gains are not equal, so Directional gain= $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]\text{dBi}$, that is Directional gain= $10\log[(10^{4.09/20} + 10^{4.36/20})^2 / 2]\text{dBi} = 7.24$. So, the UNII-1, UNII-3 output power limit is $30 - (7.24 - 6) = 28.76$. The UNII-1 power spectral density limit is $17 - (7.24 - 6) = 15.76$, the UNII-3 power spectral density limit is $30 - (7.24 - 6) = 28.76$.
- Beamforming gain:3dB. Then, the Directional gain = $3 + 4.36 = 7.36$, so the output power limit is $30 - (7.36 - 6) = 28.64$.
- The antenna gain and beamforming gain are provided by the manufacturer.

Table for Antenna Configuration:

For 2.4GHz:

For 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)

For 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:

For Non Beamforming:

Operating Mode	TX Mode	1TX	2TX
IEEE 802.11a		V (Ant. 2)	-
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)

For 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)

3. TEST RESULTS

For 2.4GHz Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.86	4.8529	19.38	86.6962	0.08374	1	Complies

For 2.4GHz Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.85	4.8417	18.78	75.5092	0.07277	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
7.24	5.2966	26.36	432.5138	0.45598	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
7.36	5.4450	26.02	399.9447	0.43346	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
7.24	5.2966	27.90	616.5950	0.65006	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
7.36	5.4450	26.57	453.9416	0.49198	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm ²) 2.4GHz	Power Density (S) (mW/cm ²) 5GHz	Total	Limit of Power Density (S) (mW/cm ²)	Test Result
0.08374	0.65006	0.73380	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report