Product Name: AX5700 Tri-Band Gibabit Wi-Fi 6E Router	**Report No: FCC022022-5924RF14**
Product Model: RX27 Pro; RX27 Pro	**Security Classification: Open**
Version: V1.0	**Total Page: 8**

TIRT Testing Report

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FCC RF EXPOSURE REPORT

FCC ID: 2A9M7AP3220L

Project No.	:	022022-5924
Equipment	:	AX5700 Tri-Band Gibabit Wi-Fi 6E Router
Brand Name	:	Tenda
Test Model	:	RX27 Pro
Series Model	:	TX27 Pro
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	:	Aug. 12, 2022
Date of Test	:	Aug. 12, 2022~Sep. 30, 2022
Issued Date	:	Dec. 23, 2022
Report Version	:	V1.0
Test Sample	:	20220814019908
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091

- The test result referred exclusively to the presented test model /sample.
- Without written approval of TIRT Inc. the test report shall not reproduced except in full.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
FCC022022-5924RF14	V1.0	Original Report	Dec. 23, 2022	Valid

1. TEST FACILITY

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	101, 3 # Factory Building, Gongjin Electronics Shatin Community, Kengzi Street, Pingshan District, Shenzhen, China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Accredited Lab. Designation Number:	CN1309
FCC Test Firm Registration Number:	825524
Telephone:	+86-0755-27087573

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

For WIFI 2.4GHz:
Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Tenda	RX27V1.0	Dipole	N/A	4.84
2	Tenda	RX27V1.0	Dipole	N/A	4.84
3	Tenda	RX27V1.0	Dipole	N/A	4.84

Note:
1) This EUT supports CDD, and all antennas have the same gain, Directional gain = G_{ANT}+Array Gain.
For power measurements, Array Gain=0dB ($N_{ANT} \leqslant 4$), so the Directional gain=4.84.
For power spectral density measurements, N_{ANT}=3, N_{SS} = 1.
So the Directional gain=G_{ANT}+Array Gain=G_{ANT}+10log(N_{ANT}/ N_{SS})dBi=4.84+10log(3/1)dBi=9.61.
Then, the power spectral density limit is 8-(9.61-6)=4.39.
2) Beamforming Gain: 4.5dB. Then Directional gain=4.5+4.84=9.34. So the power limit is 30-(9.34-6)=26.66.

The antenna gain and beamforming gain are provided by the manufacturer.
Table for Antenna Configuration:

Operating Mode / TX Mode	1TX	3TX
IEEE 802.11b	V(Ant. 1)	-
IEEE 802.11g	V(Ant. 1)	-
IEEE 802.11n(HT20)	-	V(Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11n(HT40)	-	V(Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11ax(HE20)	-	V(Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11ax(HE40)	-	V(Ant. 1 + Ant. 2 + Ant. 3)

For WIFI 5GHz:

. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Tenda	RX27V1.0	Dipole	N/A	6.02
2	Tenda	RX27V1.0	Dipole	N/A	6.02

Note:

1) This EUT supports CDD, and all antennas have the same gain, Directional gain = G_{ANT}+Array Gain. For power measurements, Array Gain=0dB ($N_{ANT} \leqslant 4$), so the Directional gain=6.02. For power spectral density measurements, N_{ANT}=2, N_{SS} = 1. So the Directional gain=G_{ANT}+Array Gain=G_{ANT}+10log(N_{ANT}/ N_{SS})dBi=6.02+10log(2/1)dBi=9.03. Then, the UNII-1 power spectral density limit is 17-(9.03-6)=13.97, the UNII-2A power spectral density limit is 11-(9.03-6)=7.97, the UNII-3 power spectral density limit is 30-(9.03-6)=26.97.
2) Beamforming Gain: 3 dB. Directional gain=6.02+3=9.02 dBi. Then, the UNII-1 and UNII-3 power limit is 30-(9.02-6)=26.98, the UNII-2A power limit is 23.98-(9.02-6)=20.96.
3) The antenna gain and beamforming gain are provided by the manufacturer.

4. Table for Antenna Configuration:

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)
IEEE 802.11ac(VHT160)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE80)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE160)	-	V (Ant. 1 + Ant. 2)

For WIFI 6GHz:

. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	tp-link	N/A	Dipole	N/A	4.85
2	tp-link	N/A	Dipole	N/A	4.85

Note:

1 This EUT supports CDD, and all antennas have the same gain, Directional gain = G_{ANT}+Array Gain.
For power measurements, Array Gain=0dB ($N_{ANT} \leqslant 4$), so the Directional gain=4.85.
For power spectral density measurements, N_{ANT}=2, N_{SS} = 1.
So the Directional gain=G_{ANT}+Array Gain=G_{ANT}+10log(N_{ANT}/ N_{SS})dBi=4.85+10log(2/1)dBi=7.86.

2 Beamforming Gain: 3dB. Then the Directional gain=4.85+3=7.85. So the output power limit is 30-(7.85-6)=28.15.

3) The antenna gain and beamforming gain are provided by the manufacturer.

4. Table for Antenna Configuration:

Operating Mode / TX Mode	2TX
IEEE 802.11ax(HE20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE80)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE160)	V (Ant. 1 + Ant. 2)

3. TEST RESULTS

For 2.4GHz:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Tune up Power (dBm)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4.84	3.04789	29.78	30	0.2695	1	Complies

For 5GHz:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Tune up Power (dBm)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
6.02	3.9994	26.97	27.00	0.1772	1	Complies

For 5GHz:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Tune up Power (dBm)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4.85	3.0549	25.63	26.00	0.1075	1	Complies

For the max simultaneous transmission MPE:

Ratio			Total	Limit of Ratio	Test Result
2.4GHz	5GHz	6GHz			
0.2695	0.1772	0.1075	0.5542	1	Complies

Note: 1. The calculated distance is 30 cm.
2. Max. Tune up Power is declared by the manufacturer.
3. WIFI 2.4GHz and 5GHz can be simultaneously transmitted.

End of Test Report