

FCC RF EXPOSURE REPORT

FCC ID: 2A5LO-ZLTW304VAPRO

Project No. : 2410C139
Equipment : Wi-Fi6 Wireless Router
Brand Name : TOZED KANGWEI
Test Model : ZLT W304VA PRO
Series Model : N/A
Applicant : Tozed Kangwei Tech Co., Ltd
Address : Room 1301, NO. 37 Jinlong , Nansha Street, Xiangjiang Financial Business Center, Nansha District, Guangzhou, China
Manufacturer : Tozed Kangwei Tech Co., Ltd
Address : Room 1301, NO. 37 Jinlong , Nansha Street, Xiangjiang Financial Business Center, Nansha District, Guangzhou, China
Factory : Tozed Kangwei Tech Co., Ltd
Address : Room 1301, NO. 37 Jinlong , Nansha Street, Xiangjiang Financial Business Center, Nansha District, Guangzhou, China
Date of Receipt : Oct. 30, 2024
Date of Test : Nov. 01, 2024 ~ Nov. 30, 2024
Issued Date : Dec. 05, 2024
Report Version : R00
Test Sample : Engineering Sample No.: DG20241030382
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
FCC Title 47 Part 2.1091 & KDB 447498 D01 v06

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

Prepared by : Chella Zheng
Chella Zheng
Approved by : Chay Cai
Chay Cai

Room 108-116, 309-310, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China

Tel: +86-769-8318-3000 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2410C139	R00	Original Report.	Dec. 05, 2024	Valid

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

2. ANTENNA SPECIFICATION

For WIFI 2.4G:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		01.52303336	Dipole	IPEX	4.44
2		01.52303337	Dipole	IPEX	4.84

Note:

- 1) This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain=10log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})²/N]dBi, that is Directional gain=10log[(10^{4.44/20}+10^{4.84/20})²/2]dBi =7.65. So, the output power limit is 30-(7.65-6)=28.35, the power spectral density limit is 8-(7.65-6)=6.35.
- 2) The antenna gain is provided by the manufacturer.

For WIFI 5G:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		01.52303335	Dipole	IPEX	6.62
2		01.52303334	Dipole	IPEX	5.71
3		01.52303333	Dipole	Internal	5.75

Note:

- 3) This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain=10log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})²/N]dBi, that is Directional gain=10log[(10^{6.62/20}+10^{5.75/20})²/2]dBi =9.21. So, the UNII-1, UNII-3 output power limit is 30-(9.21-6)=26.79, the UNII-2A, UNII-2C output power limit is 24-(9.21-6)=20.79. The UNII-1 power spectral density limit is 17-(9.21-6)=13.79, the UNII-2A, UNII-2C power spectral density limit is 11-(9.21-6)=7.79, the UNII-3 power spectral density limit is 30-(9.21-6)=26.79.
- 1) Three antennas can intelligently switch to any combination of two antennas, with the largest being 2TX/2RX.
- 2) The antenna gain is provided by the manufacturer.

3. TABLE FOR ANTENNA CONFIGURATION

For WIFI 2.4G:

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

For WIFI 5G:

Operating Mode TX Mode	1TX	2TX
IEEE 802.11b	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)

4. CALCULATED RESULT

For 2.4GHz:

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
7.65	5.8210	18.48	70.4693	0.08165	1	Complies

For 5GHz:

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
9.21	8.3368	25.64	366.4376	0.60807	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.08165	0.60807	0.68972	1	Complies

Note:

- (1) The calculated distance is 25 cm.
- (2) Ratio=Power Density (S) (mW/cm²)/Limit of Power Density (S) (mW/cm²)

End of Test Report