

FCC RF EXPOSURE REPORT

FCC ID: 2APRGWR3000SE

Report No. : BTL-FCCP-4-2406G034
Equipment : AX3000 Gigabit Mesh Wi-Fi 6 Router
Model Name : WR3000S
Series Model : WR3000E
Brand Name : Cudy
Applicant : Shenzhen Cudy Technology Co., Ltd.
Address : 7/F, Lepu Tower (West), 66 Xingke Rd, Nanshan, Shenzhen, China

Radio Function : WLAN 2.4 GHz
RLAN 5 GHz (U-NII 1, U-NII 2a, U-NII 2c, U-NII 3)

FCC Rule Part(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
FCC Title 47 Part 2.1091 & KDB 447498 D01 v06

Date of Receipt : 2024/8/26, 2024/9/12
Date of Test : 2024/8/28 ~ 2024/9/12, 2024/9/18 ~ 2025/1/17
Issued Date : 2025/2/26

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

Prepared by :


Poken Huang, Engineer

Approved by :


Peter Chen, Supervisor



BTL Inc.

No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan

Tel: +886-2-2657-3299 Fax: +886-2-2657-3331 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2406G034	R00	Original Report.	2025/2/26	Valid

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

2. ANTENNA SPECIFICATION

For WLAN 2.4 GHz:

For WR3000S:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South star	660100141	PCB	N/A	5.17
2	 South star	660100144	PCB	N/A	5.49

For WR3000E:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South star	660100177	PCB	N/A	5.28
2	 South star	660100174	PCB	N/A	4.28

NOTE:

- 1) This EUT supports CDD, and all antenna gains are not equal, Directional gain = $G_{ANT\ MAX} + \text{Array Gain}$.
For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the Directional gain=5.49.
For power spectral density measurements, $N_{ANT}=2$, $N_{SS} = 1$.
- 2) The antenna gain is provided by the manufacturer.

Operating Mode	TX Mode	2TX
IEEE 802.11b		V(Ant. 1 + Ant. 2)
IEEE 802.11g		V(Ant. 1 + Ant. 2)
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 RLAN 5 GHz:
For WR3000S:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South star	660100141	PCB	N/A	5.32
2	 South star	660100142	PCB	N/A	5.41
3	 South star	660100143	PCB	N/A	5.41

For WR3000E:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South star	660100174	PCB	N/A	5.52
2	 South star	660100175	PCB	N/A	5.55
3	 South star	660100176	PCB	N/A	5.10

Note:

- This EUT supports CDD, and all antennas are not equal, Directional gain = $G_{ANT} + \text{Array Gain}$.
For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the Directional gain=5.41.
For power spectral density measurements, $N_{ANT}=3$, $N_{SS}=1$.
So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 5.41 + 10\log(3/1)\text{dBi} = 10.18$.
- The antenna gain is provided by the manufacturer.

TX Mode	Operating Mode	3TX
	IEEE 802.11a	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11n(HT20)	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11n(HT40)	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11ac(VHT20)	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11ac(VHT40)	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11ac(VHT80)	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11ac(VHT160)	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)
	IEEE 802.11ax(HE80)	V(Ant. 1 + Ant. 2+ Ant. 3)
	IEEE 802.11ax(HE160)	V(Ant. 1 + Ant. 2+ Ant. 3)

3. CALCULATED RESULT

For WLAN 2.4 GHz:

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
5.49	3.5400	18.87	77.0903	0.05432	1	Complies

For RLAN 5 GHz:

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
5.41	3.4754	25.82	381.9443	0.26421	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.05432	0.26421	0.31853	1	Complies

Note:

- (1) The calculated distance is 20 cm.
- (2) Ratio=Power Density (S) (mW/cm²)/Limit of Power Density (S) (mW/cm²)

End of Test Report