

# FCC RF EXPOSURE REPORT

## FCC ID: 2APRGMS30

**Project No.** : 2403G073  
**Equipment** : AX3000 Whole-Home Wi-Fi 6 Mesh System with 2.5G Port  
**Brand Name** : Cudy  
**Test Model** : M3000  
**Series Model** : N/A  
**Applicant** : Shenzhen Cudy Technology Co., Ltd.  
**Address** : Room A606, Gaoxinqi Industrial Park, Liuxianyi Road, Baoan District, Shenzhen, China  
**Manufacturer** : Shenzhen Cudy Technology Co., Ltd.  
**Address** : Room A606, Gaoxinqi Industrial Park, Liuxianyi Road, Baoan District, Shenzhen, China  
**Factory** : Shenzhen Cudy Technology Co., Ltd.  
**Address** : Room A606, Gaoxinqi Industrial Park, Liuxianyi Road, Baoan District, Shenzhen, China  
**Date of Receipt** : Mar. 14, 2024  
**Date of Test** : Mar. 19, 2024 ~ May 29, 2024  
**Issued Date** : Jun. 06, 2024  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: SSL2024031414  
**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.

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**REPORT ISSUED HISTORY**

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2403G073	R00	Original Report.	Jun. 06, 2024	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 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South star	3.N101.1076	PCB	N/A	4.24
2	 South star	3.N101.1077	PCB	N/A	4.25

Note:

- 1) This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain= $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$  dBi, that is Directional gain =  $10\log[(10^{4.24/20} + 10^{4.25/20})^2 / 2]$  dBi = 7.26.
- 2) Beamforming Gain: 3 dB, that is Directional gain = 3 + 4.25 = 7.25.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South star	3.N101.1078	PCB	N/A	5.55
2	 South star	3.N101.1078	PCB	N/A	5.55
3	 South star	3.N101.1078	PCB	N/A	5.55

Note:

- 1) This EUT supports MIMO 3X3, any transmit signals are correlated with each other, so Directional gain =  $G_{ANT} + 10\log(N)$  dBi, that is Directional gain = 5.55 + 10log(3) dBi = 10.32.
- 2) Beamforming Gain: 4.77 dB, that is Directional gain = 4.77 + 5.55 = 10.32.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

### 3. TABLE FOR ANTENNA CONFIGURATION

For 2.4GHz Non Beamforming:

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 2.4GHz 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 802.11ax(HE20)		V(Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)		V(Ant. 1 + Ant. 2)

For 5GHz Non Beamforming:

Operating Mode	TX 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)

For 5GHz Beamforming:

Operating Mode	TX Mode	3TX
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)

#### 4. CALCULATED RESULT

For 2.4GHz\_Non Beamforming:

Directional gain (dBi)	Directional gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
7.26	5.3211	25.81	381.0658	0.25830	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 <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
7.25	5.3088	23.49	223.3572	0.15105	1	Complies

For 5GHz\_Non Beamforming:

Directional gain (dBi)	Directional gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
10.32	10.7647	25.66	368.1290	0.50481	1	Complies

For 5GHz\_Beamforming:

Directional gain (dBi)	Directional gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
10.32	10.7647	25.37	344.3499	0.47220	1	Complies

**For the max simultaneous transmission MPE:**

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.25830	0.50481	0.76311	1	Complies

Note: The calculated distance is 25 cm.

**End of Test Report**