

FCC RF EXPOSURE REPORT

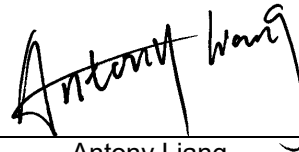
FCC ID: 2APRGP5

Project No. : 2403G078
Equipment : 5G NR AX3000 Wi-Fi 6 Router
Brand Name : Cudy
Test Model : P5
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. 18, 2024 ~ May 30, 2024
Issued Date : Jul. 08, 2024
Report Version : R01
Test Sample : Engineering Sample No.: SSL2024031423
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-4-2403G078	R00	Original Report.	May 31, 2024	Invalid
BTL-FCCP-4-2403G078	R01	Updated the calculated distance.	Jul. 08, 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 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	RFlink	U00T01S004N03481	Dipole	MHF Plug	3.59
2	RFlink	U00T01S004N03483	Dipole	MHF Plug	2.84

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain=10log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})²/N]dBi, that is Directional gain=10log[(10^{3.59/20}+10^{2.84/20})²/2]dBi=6.23.
- 2) Beamforming Gain: 3 dB, that is Directional gain=3+3.59=6.59.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	RFlink	U00T01S004N03481	Dipole	MHF Plug	4.79
2	RFlink	U00T01S004N03483	Dipole	MHF Plug	4.49

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain=10log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})²/N]dBi, that is Directional gain=10log[(10^{4.79/20}+10^{4.49/20})²/2]dBi=7.65.
- 2) Beamforming Gain: 3 dB, that is Directional gain=3+4.79=7.79.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

For WCDMA / LTE / 5G NR:

WCDMA Band II:	0.91dBi	WCDMA Band IV:	1.47dBi
WCDMA Band V:	2.68dBi		
LTE Band 2:	0.91dBi(Ant0)	LTE Band 4:	-1.47dBi(Ant0)

LTE Band 5:	2.68dBi(Ant0)	LTE Band 7:	0.55dBi(Ant0)
LTE Band 12:	-0.2dBi(Ant0)	LTE Band 13:	1.54dBi(Ant0)
LTE Band 14:	2.42dBi(Ant0)	LTE Band 17:	-0.2dBi(Ant0)
LTE Band 25:	0.25dBi(Ant0)	LTE Band 26:	2.87dBi(Ant0)
LTE Band 30:	-5.7dBi(Ant0)	LTE Band 38:	-0.23dBi(Ant0)
LTE Band 41:	0.78dBi(Ant0)	LTE Band 42:	-6.1dBi(Ant0)
LTE Band 43:	-6.1dBi(Ant0)	LTE Band 66:	-1.47dBi(Ant0)
LTE Band 71:	1.22dBi(Ant0)	LTE CA_2C:	0.91dBi(Ant0)
LTE Band 48:	-6.10dBi(Ant0)	LTE CA_48C:	-6.10dBi(Ant0)
LTE CA_5B:	2.68dBi(Ant0)	LTE CA_7C:	0.55dBi(Ant0)
LTE CA_38C:	-0.23dBi(Ant0)	LTE CA_41C:	0.78dBi(Ant0)
LTE CA_43C:	-6.1dBi(Ant0)	LTE CA_66B:	-1.47dBi(Ant0)
LTE CA_66C:	-1.47dBi(Ant0)		
n2:	0.25dBi (Ant0)	n5:	2.68dBi (Ant0)
n7:	0.55dBi (Ant0)	n12:	-0.2dBi (Ant0)
n13:	1.54dBi (Ant0)	n14:	2.42dBi (Ant0)
n25:	0.25dBi (Ant0)	n26:	2.87dBi (Ant0)
n30:	-5.7dBi (Ant0)	n38 MIMO:	-0.23dBi (Ant0); -0.23dBi (Ant2)
n41 MIMO:	0.78dBi (Ant0); 0.78dBi (Ant2)	n66:	1.47dBi (Ant0)
		n70:	1.3dBi (Ant2)
n71:	1.22dBi (Ant0)	n77 MIMO:	-6.1dBi (Ant0); -6.1dBi (Ant2)
n78 MIMO:	-6.1dBi (Ant0); -6.1dBi (Ant2)		

Note: The antenna gain is 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	2TX
IEEE 802.11a		V(Ant. 1 + Ant. 2)
IEEE 802.11n(HT20)		V(Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)		V(Ant. 1 + Ant. 2)
IEEE 802.11ac(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 5GHz 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)
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 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
6.23	4.1976	26.7	467.7351	0.16266	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.59	4.5604	26.36	432.5138	0.16341	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
7.65	5.8210	27.9	616.5950	0.29736	1	Complies

For 5GHz 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
7.79	6.0117	27.45	555.9043	0.27688	1	Complies

For WCDMA / LTE / 5G NR:

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
2.68	1.8535	25.53	357.2728	0.05486	0.5498	Complies

For the max simultaneous transmission MPE:

Ratio			Total	Limit of Ratio	Test Result
2.4GHz	5GHz	LTE			
0.16341	0.29736	0.09978	0.56055	1	Complies

Note:

- 1) The calculated distance is 31 cm.
- 2) Ratio= Power Density (S) (mW/cm²) / Limit of Power Density (S) (mW/cm²)
- 3) The e.i.r.p. of WCDMA/LTE/5G NR are reference from report No.: SEWA2204000008RG04.

End of Test Report