Certificate #7130.01

CE RF Exposure Report

Project No.	:	2502C138
Equipment	:	AX1500 Whole Home Mesh Wi-Fi 6 System
Brand Name	:	Cudy
Test Model	:	M1500
Series Model	:	N/A
Applicant	:	Shenzhen Cudy Technology Co., Ltd.
Address	:	7/F, Lepu Tower (West), 66 Xingke Rd, Nanshan, Shenzhen, China
Manufacturer	:	Shenzhen Cudy Technology Co., Ltd.
Address	:	7/F, Lepu Tower (West), 66 Xingke Rd, Nanshan, Shenzhen, China
Factory	:	Shenzhen Cudy Technology Co., Ltd.
Address	:	7/F, Lepu Tower (West), 66 Xingke Rd, Nanshan, Shenzhen, China
Date of Receipt	:	Feb. 19, 2025
Date of Test	:	Feb. 20, 2025 ~ Mar. 11, 2025
Issued Date	:	Mar. 20, 2025
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2025021962
Standard(s)	:	EN 50385:2017 EN IEC 62311:2020 EN 62232:2017

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-ETSP-4-2502C138	R00	Original Report.	Mar. 20, 2025	Valid

1. MAXIMUM PERMISSIBLE EXPOSURE

1.1 APPLICABLE STANDARD

According to its specifications, the EUT must comply with the requirements of the following standards:

EN 50385 - Product standard to demonstrate the compliance of base station equipment with radiofrequency electromagnetic field exposure limits (110 MHz - 100 GHz), when placed on the market

EN IEC 62311 - Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)

EN 62232 - Determination of RF field strength, power density and SAR in the vicinity of radio communication base stations for the purpose of evaluating human exposure

1 LIMIT

Council Recommendation 1999/519/EC Annex III
Reference levels for electric, magnetic and electromagnetic fields (0Hz to 300GHz)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m^2)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	4 000/f	5 000/f	—
0,025-0,8 kHz	250/f	4/f	5/f	—
0,8-3 kHz	250/f	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	0,73/f	0,92/f	—
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

2 MPE Calculation Method

If a reflecting ground plane is present (e.g. see Figure B.14), use Equation (B.18):

$$S = (1+|\Gamma|)^2 \frac{\overline{P}_{net} G_{\theta,\phi}}{4\pi r^2} \quad \text{(B.18)}$$

with reflection coefficient $|\Gamma| = 1$ for the theoretical highest field strength scenario of a perfectly conducting ground plane (e.g. flat metallic roof) or with reflection coefficient $|\Gamma| = 0{,}6$ for typical [15] ground reflection conditions. Use of the far-field spherical formulas in the near-field region will overestimate the field strength levels.

| Γ | = 0.6

$\overline{P}_{net}$ = Output Power (W)

$G_{\theta,\phi}$ = EUT Antenna gain (Linear ratio)

e.i.r.p. (W) = $\overline{P}_{net}$ * $G_{\theta,\phi}$

r=0.20m, as the calculated distance.

2. TABLE FOR FILED ANTENNA

For 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	South Star	N/A	PCB	N/A	4.63
2	South Star	N/A	PCB	N/A	4.35

Note:
1) The EUT supports CDD. Physically, the EUT provides two completed transmitters and receivers (2T2R).
2) Beamforming Gain: 3 dB.
3) The antenna gain and beamforming gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	South Star	N/A	PCB	N/A	5.85
2	South Star	N/A	PCB	N/A	5.56

Note:
1) The EUT supports CDD. Physically, the EUT provides two completed transmitters and receivers (2T2R).
2) Beamforming Gain: 3 dB.
3) The antenna gain and beamforming gain are provided by the manufacturer.

3. TEST RESULTS

For 2.4GHz:

Max. e.i.r.p. (dBm)	Max. e.i.r.p. (W)	Power density (W/m²)	Limit (W/m²)	Result
19.80	0.0955	0.4866	10	Pass

For 5GHz:

Max. e.i.r.p. (dBm)	Max. e.i.r.p. (W)	Power density (W/m²)	Limit (W/m²)	Result
22.63	0.1832	0.9337	10	Pass

Conclusion:

Both of the 2.4GHz and 5GHz device can transmit simultaneously, the formula of calculated the exposure is:

(CPD 1 / LPD1) + (CPD2 / LPD2) + ……etc. < 1
CPD = Calculation Power Density
LPD = Limit of Power Density

Therefore, the calculation of this situation is (0.4866 / 10) + (0.9337 / 10) =0.1420, which is less than the “1” limit.

RF exposure assessment has been performed above to prove that this unit will not generate the harmful EM emission above the reference level as specified in EC Council Recommendation (1999/519/EC).

End of Test Report