

FCC RF EXPOSURE REPORT

FCC ID: VGYAP962C

This report concerns: Original Grant

Project No. : 2312G131A
Equipment : 802.11ax Ceiling-mount Access Point
Brand Name : DrayTek
Test Model : VigorAP 962C
Series Model : N/A
Applicant : Draytek Corporation
Address : No.26, Fu Shing Rd., HuKou County, Hsinchu Industrial Park, Hsinchu, Taiwan 303
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 : Feb. 04, 2024
Date of Test : Feb. 21, 2024 ~ May 22, 2024
Jun. 14, 2024
Issued Date : Jun. 17, 2024
Report Version : R01
Test Sample : Engineering Sample No.: SSL2024020480
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.

Grani Zhou

Prepared by : _____
Grani Zhou

Chay Cai

Approved by : _____
Chay Cai

Room 108, 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-4-2312G131A	R00	Original Report.	May 31, 2024	Invalid
BTL-FCCP-4-2312G131A	R01	Modified the comments.	Jun. 17, 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		3.N101.1181	PIFA	N/A	4.29
2		3.N101.1182	PIFA	N/A	4.33

Note:

- 1) This EUT supports MIMO, any transmit signals are correlated with each other, so Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N]$ dBi, that is Directional gain= $10\log[(10^{4.29/20}+10^{4.33/20})^2/2]$ dBi =7.32.
- 2) Beamforming Gain is 3dBi. So direction gain = 3+4.33=7.33.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		3.N101.1183	PIFA	N/A	5.18
2		3.N101.1184	Monopole	N/A	6.83
3		3.N101.1185	PIFA	N/A	4.96

Note:

- 1) This EUT supports MIMO, any transmit signals are correlated with each other, so Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N]$ dBi, that is Directional gain= $10\log[(10^{5.18/20}+10^{6.83/20}+10^{4.96/20})^2/3]$ dBi =10.47.
- 2) Beamforming Gain is 4.77dBi. So direction gain = 4.77+6.83=11.60.
- 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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
7.32	5.3951	25.62	364.7539	0.32372	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
7.33	5.4075	24.12	258.2260	0.22970	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
10.47	11.1429	25.50	354.8134	0.65038	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
11.60	14.4544	24.37	273.5269	0.65038	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.32372	0.65038	0.9741	1	Complies

Note: The calculated distance is 22 cm.

End of Test Report