

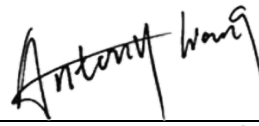
FCC RF EXPOSURE REPORT

FCC ID: G95EGA228

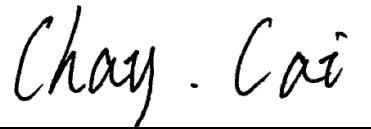
Project No. : 2401C198D
Equipment : Dual Band WiFi 7 Fiber Gateway
Brand Name : Vantiva
Test Model : FGA228BPLT
Series Model : EGA228BVBV5, EGA228BSAS
Applicant : Vantiva USA LLC
Address : 4855 Peachtree Industrial Blvd, Suite 200 Norcross, GA 30092 U.S.A
Manufacturer : Vantiva USA LLC
Address : 4855 Peachtree Industrial Blvd, Suite 200 Norcross, GA 30092 U.S.A
Factory : FUYU PRECISION COMPONENT CO., LTD.
Address : Lot M1, Lot F and Lot T1, Quang Chau Industrial Zone, Van Trung Ward, Viet Yen Town, Bac Giang Province, Viet Nam
Date of Receipt : Oct. 21, 2024
Date of Test : Oct. 23, 2024 ~ Mar. 11, 2025
Issued Date : Apr. 09, 2025
Report Version : R00
Test Sample : Engineering Sample No.: DG20241021284
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.

Prepared by :


Antony Liang

Approved by :


Chay Cai

Room 108-116, 309-310, 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-4-2401C198D	R00	Original Report.	Apr. 09, 2025	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	Model Name	Antenna Type	Connector	Gain (dBi)
1		N/A	PCB	N/A	3.4
2		N/A	PCB	N/A	3.0
3		N/A	PCB	N/A	4.1
4		N/A	PCB	N/A	4.1

Note:

1) For CDD: The directional gain is 1.01.

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the k th antenna is being fed by spatial stream j , or zero if it is not;

G_k is the gain in dBi of the k th antenna.

2) The beamforming directional gain is 6.41.

3) The antenna gain and beamforming directional gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1		NA	PCB	N/A	5.0
2		NA	PCB	N/A	4.6
3		NA	PCB	N/A	4.1
4		NA	PCB	N/A	4.7

Note:

- 1) For CDD: The directional gain is 2.68.

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the k th antenna is being fed by spatial stream j , or zero if it is not;
 G_k is the gain in dBi of the k th antenna.

- 2) For TX BF: The beamforming directional gain is 7.44.
- 3) The antenna gain, directional gain and beamforming directional gain are provided by the manufacturer.

3. TABLE FOR ANTENNA CONFIGURATION

For 2.4GHz:

For Non Beamforming:

Operating Mode	TX Mode	4TX
IEEE 802.11b		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11g		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT20)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT40)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE20)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE40)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT20)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT40)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)

For Beamforming:

Operating Mode	TX Mode	4TX
IEEE 802.11n(HT20)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT40)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE20)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE40)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT20)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT40)		V(Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)

For 5GHz:

For Non Beamforming:

Operating Mode	TX Mode	4TX
IEEE 802.11a		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT80)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT160)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE80)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE160)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT80)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT160)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)

For Beamforming:

Operating Mode	TX Mode	4TX
IEEE 802.11n(HT20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT80)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT160)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE80)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE160)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT20)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT40)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT80)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11be(EHT160)		V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)

4. CALCULATED RESULT

For 2.4GHz_Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.01	1.2618	27.54	567.5446	0.06335	1	Complies

For 2.4GHz_Beamforming:

Beamforming Directional Gain (dBi)	Beamforming Directional Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.41	4.3752	26.58	454.9881	0.17610	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
2.68	1.8535	29.99	997.7001	0.16359	1	Complies

For 5GHz_Beamforming:

Beamforming Directional Gain (dBi)	Beamforming 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
7.44	5.5463	28.54	714.4963	0.35056	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.17610	0.35056	0.52666	1	Complies

Note:

- (1) The calculated distance is 30 cm.
- (2) Ratio=Power Density (S) (mW/cm²)/Limit of Power Density (S) (mW/cm²)

End of Test Report