FCC RF EXPOSURE REPORT

FCC ID: G95-EWA1230

Project No.	:	2103C023A
Equipment	:	Dual Band Wi-Fi 6 Ethernet Gateway
Brand Name	:	technicolor, Google Fiber
Model Name	:	EWA1230GFR, GRAX210T
Series Model	:	EWA1230xyz (x/y/z stands or A~Z)
Product Code	:	EWA1230
HW	:	LAB4
PCB Version	:	V0.1
SW	:	19.4.0528
Applicant	:	Technicolor Connected Home USA LLC
Address	:	5030 Sugarloaf Parkway Building 6, Lawrenceville Georgia, United States
Manufacturer	:	Technicolor Delivery Technologies
Address	:	8-10 rue du Renard, 75004 Paris, France
Date of Receipt	:	Mar. 02, 2021 May 12, 2021
Date of Test	:	Mar. 03, 2021 ~ Apr. 25, 2021
Issued Date	:	Jun. 08, 2021
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG202103032
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Prepared by : Chella Zheng

Approved by : Ethan Ma

Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town,Dongguan, Guangdong, China.
Tel: +86-769-8318-3000
Web: www.newbtl.com

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Compared with original report (BTL-FCCP-3-2103C023), added operation frequency bands: UNII-2A & UNII-2C. So the descriptions and data of operation frequency bands are recorded. The other test results please refer to original report.	Jun. 08, 2021

1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
BTL's Test Firm Registration Number for FCC: 357015
BTL's Designation Number for FCC: CN1240

2. 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

Table for Filed Antenna:
For 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	3.11
2	N/A	N/A	Internal	N/A	3.79
3	N/A	N/A	Internal	N/A	2.45

Note:

1) For CDD: Directional Gain=2.12 dBi

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

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 kth antenna is being fed by spatial stream j, or zero if it is not;
G_k is the gain in dBi of the kth antenna.

2) For TXBF: Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + … + $10^{GN/20}$)^2 /N_{ANT}]=5.97dBi

3) The antenna gain is provided by the manufacturer.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	4.01
2	N/A	N/A	Internal	N/A	3.14
3	N/A	N/A	Internal	N/A	3.46
4	N/A	N/A	Internal	N/A	4.92

Note:

1) For CDD: Directional Gain=2.50 dBi

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

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 kth antenna is being fed by spatial stream j, or zero if it is not;
G_k is the gain in dBi of the kth antenna.

2) For TXBF: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2$ /N_{ANT}]=6.83dBi.

Then, the output power limit is 23.98-(6.83-6)=23.15, the power spectral density limit is 11-(6.83-6)=10.17.

3) The antenna gain is provided by the manufacturer.

3. TEST RESULTS

For 2.4GHz Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
2.12	1.6293	29.93	984.0111	0.31912	1	Complies

For 2.4GHz Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
5.97	3.9537	26.87	486.4072	0.38278	1	Complies

For 5GHz Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
2.50	1.7783	23.97	249.4595	0.08830	1	Complies

For 5GHz Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
6.83	4.8195	23.14	206.0630	0.19767	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm^2)	Power Density (S) (mW/cm^2)	Total	Limit of Power Density (S) (mW/cm^2)	Test Result
2.4GHz	5GHz			
0.38278	0.19767	0.58045	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report