FCC RF EXPOSURE REPORT

FCC ID: G95-UIW4054

Project No.	:	2104C150E
Equipment	:	Set Top Box
Brand Name	:	Hotwire Communications
Test Model	:	UIW4054HWC
Series Model	:	N/A
Applicant	:	Technicolor Connected Home USA LLC
Address	:	4855 Peachtree Industrial Blvd, Suite 200, Norcross, GA 30092, USA
Manufacturer	:	Technicolor Connected Home USA LLC
Address	:	4855 Peachtree Industrial Blvd, Suite 200, Norcross, GA 30092, USA
Factory	:	1# Maintek Computer (Suzhou) Co Ltd 2# PT. PEGATRON TECHNOLOGY INDONESIA
Address	:	1# 233 Jinfeng Road, New District, Suzhou, Jiangsu, 215011, China 2# JL Beringin, Lot 2/Lot 5/Lot 11 Batam Industrial Park, Muka Kuning, Sungai Beduk, Batam, 29433, Indonesia
Date of Receipt	:	Apr. 20, 2021
Date of Test	:	Apr. 22, 2021 ~ Jul. 16, 2021
Issued Date	:	Sep. 24, 2021
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG20210420128, DG2021070533
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.

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TESTING CERT #5123.02

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Sep. 24, 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 Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of 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 BT / LE:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	3.2

Note: The antenna gain is provided by the manufacturer.

For WLAN 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	3.94
2	N/A	N/A	Internal	N/A	2.78

Note:
1) For CDD: Directional Gain=2.33 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=10log[$(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}$]=4.98dBi.
3) The antenna gain is provided by the manufacturer.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Internal	N/A	5.83	UNII-1
2	N/A	N/A	Internal	N/A	5.61	
1	N/A	N/A	Internal	N/A	5.83	UNII-2A
2	N/A	N/A	Internal	N/A	5.61	
1	N/A	N/A	Internal	N/A	5.29	UNII-2C
2	N/A	N/A	Internal	N/A	5.26	
1	N/A	N/A	Internal	N/A	5.61	UNII-3
2	N/A	N/A	Internal	N/A	5.67	

Note:

1) For CDD: UNII-1 Directional Gain=3.25 dBi, UNII-2A Directional Gain=3.25 dBi, UNII-2C Directional Gain=2.95 dBi, UNII-3 Directional Gain=2.95 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=10log[($10^{G1/20}$+$10^{G2/20}$+…+$10^{GN/20}$)2/N_{ANT}]dBi.
Then, UNII-1 Directional Gain=5.66dBi, UNII-2A Directional Gain=5.66dBi, UNII-2C Directional Gain=5.10dBi, UNII-3 Directional Gain=5.39dBi

3) The antenna gain is provided by the manufacturer.

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 802.11ax(HE20)	V(Ant. 1 + Ant. 2)

For 2.4GHz Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11n(HT20)	V(Ant. 1 + Ant. 2)
IEEE 802.11ax(HE20)	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 802.11ax(HE20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE80)	V (Ant. 1 + Ant. 2)

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 802.11ax(HE20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE80)	V (Ant. 1 + Ant. 2)

3. TEST RESULTS

For BT EDR:

Antenna Gain (dBi)	Antenna 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
3.20	2.0893	5.07	3.2137	0.00134	1	Complies

For BT LE:

Antenna Gain (dBi)	Antenna 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
3.20	2.0893	4.73	2.9717	0.00124	1	Complies

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
2.33	1.7100	21.62	145.2112	0.04943	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
4.98	3.1477	21.39	137.7209	0.08629	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
2.95	1.9724	24.85	305.4921	0.11994	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
5.39	3.4594	24.7	295.1209	0.20321	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
BT EDR	5GHz			
0.00134	0.20321	0.20455	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report