

FCC RF EXPOSURE REPORT

FCC ID: G95-UIW4020A

This report concerns: ☒ Class II Change

Project No. : 1904C199A
Equipment : SET TOP BOX
Brand Name : Technicolor
Test Model : UIW4020WOW
Series Model : UIW4020COG, UIW4020TLU
Applicant : Technicolor Connected Home USA LLC
Address : 5030 Sugarloaf Parkway Building 6 Lawrenceville Georgia United States
Manufacturer : Technicolor Connected Home USA LLC
Address : 5030 Sugarloaf Parkway Building 6 Lawrenceville Georgia United States
Factory : Fuhong Precision Component (Bac Giang) COMPANY Limited
Address : Dinh Tram Industrial Park, Hoang Ninh Commune, Viet Yen District,
Bac Giang Province, Vietnam Postcode: 10000
Date of Receipt : Apr. 29, 2019
Jul. 09, 2019
Date of Test : Apr. 30, 2019 ~ May 30, 2019
Jul. 09, 2019 ~ Sep. 02, 2019
Issued Date : Sep. 12, 2019
Report Version : R00
Test Sample : Engineering Sample No.: D190404649 for conducted and Non
Beamforming radiated, DG19051493 for With Beamforming radiated.
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1
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.

Chay. Cai

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Compared with original report (BTL-FCCP-5-1904C199), Added the data for UNII-2A and UNII-2C mode. Other are kept the same.	Sep. 12, 2019

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

Antenna Specification:

For BT / LE:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PIFA	N/A	2.8

For 2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PIFA	N/A	4.40
2	N/A	N/A	PIFA	N/A	4.42

Note:

This EUT supports MIMO 2X2, any transmit signals are correlated with each other, and the CDD 1S2T directional gain =4.42dBi.

For 5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PIFA	N/A	5.2
2	N/A	N/A	PIFA	N/A	5.25
3	N/A	N/A	PIFA	N/A	5.2
4	N/A	N/A	PIFA	N/A	4.17

Note:

This EUT supports MIMO 4X4, any transmit signals are correlated with each other. So,

(1) For CDD 1S4T Non Beamforming, Directional gain = 5.25dBi

(2) For CDD 1S4T Beamforming, Directional gain = 8.11dBi

the UNII-1 output power limit is $30-8.11+6=27.89$,

the UNII-2A and UNII-2C output power limit is $24-8.11+6=21.89$,

the UNII-3 output power limit is $30-8.11+6=27.89$,

the UNII-1 power spectral density limit is $17-8.11+6=14.89$,

the UNII-2A and UNII-2C power spectral density limit is $11-8.11+6=8.89$,

the UNII-3 power spectral density limit is $30-8.11+6=27.89$.

2. TEST RESULTS

For BT:

Antenna Gain (dBi)	Antenna 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
2.8	1.9055	3.61	2.2961	0.00087	1	Complies

For LE:

Antenna Gain (dBi)	Antenna 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
2.8	1.9055	2.3	1.6982	0.00064	1	Complies

For 2.4GHz:

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
4.42	2.7669	26.34	430.5266	0.23711	1	Complies

For 5GHz UNII-1_Non Beamforming:

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
5.25	3.3497	25.53	357.2728	0.23821	1	Complies

For 5GHz UNII-2A_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
5.25	3.3497	21.55	142.8894	0.09527	1	Complies

For 5GHz UNII-2C_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
5.25	3.3497	20.71	117.7606	0.07851	1	Complies

For 5GHz UNII-3_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
5.25	3.3497	26.77	475.3352	0.31692	1	Complies

For 5GHz UNII-1_With 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
8.11	6.4714	23.62	230.1442	0.29645	1	Complies

For 5GHz UNII-2A_With 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
8.11	6.4714	21.01	126.1828	0.16254	1	Complies

For 5GHz UNII-2C_With 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
8.11	6.4714	21.11	129.1219	0.16632	1	Complies

For 5GHz UNII-3_With 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
8.11	6.4714	27.00	501.1872	0.64558	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm ²)	Power Density (S) (mW/cm ²)	Power Density (S) (mW/cm ²)	Total	Limit of Power Density (S) (mW/cm ²)	Test Result
BT	2.4GHz	5GHz			
0.00087	0.23711	0.64558	0.88356	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report