RF Exposure Report

Report No.:	SA190821E02A
FCC ID:	G95FGA2230
Test Model:	FGA2230TCH2
Received Date:	Aug. 21, 2019
Test Date:	Aug. 22 to Sep. 02, 2019
Issued Date:	Mar. 23, 2020
Applicant:	Technicolor Connected Home USA LLC
Address:	5030 Sugarloaf Parkway, Building 6 Lawrenceville, GA 30044, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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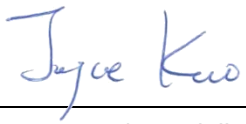
Release Control Record

Issue No.	Description	Date Issued
SA190821E02A	Original release.	Mar. 23, 2020

1 Certificate of Conformity

Product:	Technicolor Gateway
Brand:	Technicolor
Test Model:	FGA2230TCH2
Sample Status:	ENGINEERING SAMPLE
Applicant:	Technicolor Connected Home USA LLC
Test Date:	Aug. 22 to Sep. 02, 2019
Standards:	FCC Part 2 (Section 2.1091) IEEE C95.3 -2002
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Mar. 23, 2020

Joyce Kuo / Specialist

Approved by :  , **Date:** Mar. 23, 2020

Clark Lin / Technical Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	…	…	f/1500	30
1500-100,000	…	…	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 26cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

1 The antennas provided to the EUT, please refer to the following table:

Antenna NO.	RF Chain NO.	Frequency range	Antenna Type	Connector Type
2.4G1	Chain 2	2.4~2.4835GHz	Dipole	i-pex(MHF)
2.4G2	Chain 1	2.4~2.4835GHz	Dipole	NA
2.4G3	Chain 0	2.4~2.4835GHz	PIFA	NA
5G1	Chain 3	5.15~5.25GHz	Dipole	NA
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		
5G2	Chain 2	5.15~5.25GHz	PIFA	NA
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		
5G3	Chain 1	5.15~5.25GHz	PIFA	NA
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		
5G4	Chain 0	5.15~5.25GHz	Dipole	i-pex(MHF)
		5.25~5.35GHz		
		5.47~5.725GHz		
		5.725~5.85GHz		

2 The directional antenna gain, please refer to the following table:

Frequency Range (GHz)	Maximum Peak Gain (dBi)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4 ~ 2.4835	3.48	4.82	Refer to Note 1	Refer to Note 1
5.15 ~ 5.25	4.92	7.58		
5.25 ~ 5.35	5.03	7.70		
5.47 ~ 5.725	3.78	7.15		
5.725 ~ 5.85	3.78	6.81		

2.1 Calculation Result of Maximum Conducted Power

For 2.4GHz and 5GHz (U-NII-1 & U-NII-3 band) data was copied from the original test report (Report No.: SA190821E02)

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN 2.4GHz	2437	833.324	4.82	26	0.29762	1
WLAN 5GHz (U-NII-1)	5230	877.58	7.58	26	0.59174	1
WLAN 5GHz (U-NII-3)	5745	898.529	6.81	26	0.50743	1
WLAN 5GHz (U-NII-2A)	5270	245.107	7.71	26	0.28713	1
WLAN 5GHz (U-NII-2C)	5550	250.784	7.15	26	0.25884	1

Note:

NOTE:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz directional gain = 4.82dBi
   5GHz (U-NII-1) directional gain = 7.58dBi
   5GHz (U-NII-2A) directional gain =7.71dBi
   5GHz (U-NII-2C) directional gain = 7.15dBi
   5GHz (U-NII-3) directional gain =6.81dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz=0.29762 / 1 + 0.59174 / 1= 0.88936

Therefore the maximum calculations of above situations are less than the "1" limit.

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