



RF Exposure Evaluation Report

Equipment : Genie Air
Brand Name : AT&T DIRECTV
Model No. : HS17-100
FCC ID : G95HS17
Standard : 47 CFR Part 2.1091
Applicant : Technicolor Connected Home USA LLC
5030 Sugarloaf Parkway Building 6 Lawrenceville
Georgia United States 30044
Manufacturer : Technicolor Connected Home USA LLC
5030 Sugarloaf Parkway Building 6 Lawrenceville
Georgia United States 30044

The product sample received on Nov. 03, 2016 and completely tested on Nov. 30, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit.

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Cliff Chang
SPORTON INTERNATIONAL INC.





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REVISION HISTORY

[illegible]

1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5720 5745-5825	802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Zigbee	2400-2483.5	2425-2475	DSSS (O-QPSK)

1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA6O2141

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Add 5GHz Band 2 and Band 3 (5250 to 5350 MHz, 5470 to 5725 MHz) for this device, and it evaluated for Maximum Permissible Exposure.	MPE

Note: Maximum Permissible Exposure of 2.4GHz Band and 5GHz U-NII-1 / U-NII-3 are based on original test report.

1.3 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 25 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D - WLAN	4.60	27.18	31.78	1.50661	25	0.19183	1	0.19183
2.4G;G1D - Zigbee	4.00	6.00	10.00	0.01	25	0.00127	1	0.00127
5.2G;D1D (U-NII-1 / U-NII-3)	6.82	29.03	35.85	3.84592	25	0.48968	1	0.48968
5.3G;D1D (U-NII-2A / U-NII-2C)	6.65	23.14	29.79	0.9528	25	0.12131	1	0.12131
							Sum Ratio	0.68278
							Ratio Limit	1