



RF Exposure Evaluation Report

Equipment : Home Wi-Fi Solution Kit
Brand Name : AirTies
Model No. : Air 4930
FCC ID : Z3WAIR4930
Standard : 47 CFR Part 2.1091
Applicant : AirTies Wireless Networks
Mithat Uluunlu Sokak No. 23 Esentepe, Sisli
Istanbul, 34394 Turkey
Manufacturer : AirTies Wireless Networks
Mithat Uluunlu Sokak No. 23 Esentepe, Sisli
Istanbul, 34394 Turkey

The product sample received on Sep. 29, 2017 and completely tested on Feb. 22, 2018. 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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PHOTOGRAPHS OF EUT V01		

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	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)

1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA792934

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

Description	Performance Checking
Adding 5 GHz Band 2 and Band3 (5250~5350 MHz, 5470~5725 MHz)	RF Exposure Evaluation

Note: RF Exposure Evaluation of 5GHz Band 1, 4 and 2.4GHz Band 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

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

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 20 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)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	1.70	21.88	23.58	0.50	24.08	0.25586	20	0.051	1.00000
5.2G;D1D	7.52	28.42	35.94	0.06	36.00	3.98107	20	0.792	1.00000
5.3G;D1D	8.32	21.60	29.92	0.50	30.42	1.10154	20	0.219	1.00000
5.6G;D1D	7.92	22.04	29.96	0.50	30.46	1.11173	20	0.221	1.00000
5.8G;D1D	9.02	26.94	35.96	0.04	36.00	3.98107	20	0.792	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz+WLAN 5GHz

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;G1D	1.70	21.88	23.58	0.50	24.08	0.25586	20	0.051	1	0.05092
5.8G;D1D	9.02	26.94	35.96	0.04	36.00	3.98107	20	0.792	1	0.79241
									Sum Ratio	0.84333
									Ratio Limit	1