



FCC RADIO EXPOSURE TEST REPORT

FCC ID : Z3WAIR4921

Equipment : Home Wi-Fi Solution Kit, Air4921 3x3 11ac Smart Mesh Access Point, AT&T SMART WI-FI EXTENDER, AIRTIES WIFI EXTENDER

Brand Name : AirTies

Model Name : Air 4921

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

Standard : 47 CFR Part 2.1091

The product was received on Nov. 21, 2018, and testing was started from Nov. 21, 2018 and completed on Nov. 30, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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Photographs of EUT v01



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Comments and Explanations:

None

Reviewed by: **Cliff Chang**

Report Producer: **Vicky Huang**



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 Multiple Listing

The equipment names in the following table are all refer to the identical product.

Equipment Name	Description
Home Wi-Fi Solution Kit	All the equipment are identical, the difference equipment served as marketing strategy.
Air4921 3x3 11ac Smart Mesh Access Point	
AT&T SMART WI-FI EXTENDER	
AIRTIES WIFI EXTENDER	

From the above, equipment name: Home Wi-Fi Solution Kit was selected as representative for the test and its data was recorded in this report.

1.3 Table for EUT support function

Function
AP Router mode
Mesh mode

Note:

The EUT supports AP Router and Mesh mode, only AP Router mode was tested and recorded in this test report for applicant request.



1.4 Testing Location

Testing Location		
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	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:

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

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	3.24	23.57	26.81	0.50	27.31	0.53827	20	0.10709	1.00000
5.2G;D1D	8.97	26.70	35.67	0.33	36.00	3.98107	20	0.79199	1.00000
5.3G;D1D	8.97	20.95	29.92	0.08	30.00	1.00000	20	0.19894	1.00000
5.6G;D1D	8.97	21.00	29.97	0.03	30.00	1.00000	20	0.19894	1.00000
5.8G;D1D	8.87	27.12	35.99	0.01	36.00	3.98107	20	0.79199	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;D1D	3.24	23.57	26.81	0.50	27.31	0.53827	20	0.10709	1.00000	0.10709
5.2G;D1D	8.97	26.70	35.67	0.33	36.00	3.98107	20	0.79199	1.00000	0.79199
									Sum Ratio	0.89908
									Ratio Limit	1

————THE END————