



## RF Exposure Report

**Report No.:** SA150921E04

**FCC ID:** RRKWAPAC14

**Test Model:** WAP-AC14

**Series Model:** T1023WLAN-PA

**Received Date:** Sep. 21, 2015

**Test Date:** Oct. 05, 2015

**Issued Date:** Nov. 18, 2015

**Applicant:** Alpha Networks Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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### Release Control Record

Issue No.	Description	Date Issued
SA150921E04	Original release.	Nov. 18, 2015

## 1 Certificate of Conformity

**Product:** 11ac 4T4R enterprise AP

**Brand:** Freescale

**Test Model:** WAP-AC14

**Series Model:** T1023WLAN-PA

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Alpha Networks Inc.

**Test Date:** Oct. 05, 2015

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D03

IEEE C95.1

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:** Nov. 18, 2015  
Claire Kuan / Specialist

**Approved by :**  , **Date:** Nov. 18, 2015  
May Chen / 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 <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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 37cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 3 Antenna Gain

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

The antennas provided to the DCA, please refer to the following table:

For 2.4GHz									
Transmitter Circuit	Brand	Model	Antenna Gain (dBi) (excluding cable loss)	Frequency range (GHz to GHz)	Cable Loss(dB)	Net Gain (dBi) (Included cable loss)	Antenna Type	Connector Type	Cable Length (mm)
Chain (0)	NA	5320813170AWG	4.04	2.4-2.4835	1.2	2.84	Dipole	R-SMA	430
Chain (1)		5320813170AWG							
Chain (2)		5320813170AWG							
Chain (3)		5320813170AWG							
For 5GHz									
Transmitter Circuit	Brand	Model	Antenna Gain (dBi) (excluding cable loss)	Frequency range (GHz to GHz)	Cable Loss(dB)	Net Gain (dBi) (Included cable loss)	Antenna Type	Connector Type	Cable Length (mm)
Chain (0)	NA	5321813181AWG	6.37	5.15-5.85	1.5	4.87	Dipole	R-SMA	130
Chain (1)		5321813181AWG							
Chain (2)		5321813181AWG							
Chain (3)		5321813181AWG							

#### 4 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	743.05	8.86	37	0.33220	1
5180-5240	577.099	10.89	37	0.41175	1
5745-5825	857.501	10.89	37	0.61182	1

NOTE:

2.4GHz: Directional gain = 2.84dBi + 10log(4) = 8.86dBi

5GHz: Directional gain = 4.87dBi + 10log(4) = 10.89dBi

#### Conclusion:

Both of the 2.4GHz/5GHz can transmit simultaneously, the formula of calculated the MPE is

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is  $0.33220 / 1 + 0.61182 / 1 = 0.94402$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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