

## RF Exposure Report

**Report No.:** SA151116E02-2

**FCC ID:** WBV-AP250

**Test Model:** AP250

**Received Date:** Nov. 16, 2015

**Test Date:** Feb. 18, 2016

**Issued Date:** June 29, 2016

**Applicant:** Aerohive Networks Inc.

**Address:** 1011 McCarthy Blvd, Milpitas, CA 95035, USA

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

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**Test Location (1):** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**Test Location (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin  
Chu Hsien 307, Taiwan R.O.C.



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### Release Control Record

Issue No.	Description	Date Issued
SA151116E02-2	Original release.	June 29, 2016

## 1 Certificate of Conformity

**Product:** Access Point

**Brand:** Aerohive

**Test Model:** AP250

**Sample Status:** Engineer Sample (DVT2)

**Applicant:** Aerohive Networks Inc.

**Test Date:** Feb. 18, 2016


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

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-2005

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:** June 29, 2016  
Claire Kuan / Specialist

**Approved by :**  \_\_\_\_\_, **Date:** June 29, 2016  
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

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

where

Pd = power density in mW/cm<sup>2</sup>

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 32cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

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

<b>Radio 1</b>									
<b>WLAN - 2.4GHz + 5GHz</b>									
Antenna NO.	Transmitter Circuit	Brand	Model No.	Ant. Gain (dBi) Including cable loss	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Loss(dB)	Cable Length
ANT1	Chain (0)	N/A	XKAA-N08	5.14 5.41 5.02 5.25 5.13	2.4~2.4835 5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	PIFA	i-pex (MHF)	0.21	54mm
ANT2	Chain (1)	N/A	XKAA-N08	4.28 4.82 5.16 5.14 5.31	2.4~2.4835 5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	PIFA	i-pex (MHF)	0.19	49mm
ANT3	Chain (2)	N/A	XKAA-N08	2.80 5.25 5.46 5.37 5.65	2.4~2.4835 5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	PIFA	i-pex (MHF)	0.39	101mm
<b>Radio 2</b>									
<b>WLAN - 5GHz</b>									
Antenna NO.	Transmitter Circuit	Brand	Model No.	Ant. Gain (dBi) Including cable loss	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Loss(dB)	Cable Length
ANT5	Chain (0)	N/A	XKAA-N08	5.32 5.78 5.26 5.3	5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	V-pol PIFA	i-pex (MHF)	0.82	213mm
ANT6	Chain (1)	N/A	XKAA-N08	5.54 5.72 5.56 5.1	5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	V-pol PIFA	i-pex (MHF)	0.25	66mm
ANT7	Chain (1)	N/A	XKAA-N08	5.24 6.38 5.36 5.27	5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	H-pol Dipole	i-pex (MHF)	0.58	150mm
ANT8	Chain (2)	N/A	XKAA-N08	4.88 4.27 4.84 5.19	5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	H-pol Dipole	i-pex (MHF)	0.77	201mm
ANT9	Chain (0)	N/A	XKAA-N08	4.41 4.55 4.79 4.87	5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.85	H-pol Dipole	i-pex (MHF)	0.73	190mm
<b>Radio 3</b>									
<b>Bluetooth - 2.4GHz</b>									
ANT4	Chain (0)	N/A	XKAA-N08	4.24	2.4~2.4835	Dipole	i-pex (MHF)	0.62	160mm

### 3 Calculation Result of Maximum Tune up Power

The data (Except WLAN: 5260-5320MHz & 5500-5720MHz) was copied from the original test report (Report No.: SA151116E02).

#### Radio 1

Frequency Band (MHz)	Max Tune up Power (dBm)	Max Tune up Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	27.77	598.411	8.9	32	0.36098	1
5180-5240	23.77	238.23	9.93	32	0.18217	1
5260-5320	24.77	299.916	9.99	32	0.23254	1
5500-5720	24.77	299.916	10.03	32	0.23469	1
5745-5825	24.77	299.916	10.14	32	0.24071	1

#### NOTE:

2412-2462MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 8.9\text{dBi}$

5180-5240MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 9.93\text{dBi}$

5260-5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 9.99\text{dBi}$

5500-5720MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 10.03\text{dBi}$

5745-5825MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 10.14\text{dBi}$

#### Radio 2

Frequency Band (MHz)	Max Tune up Power (dBm)	Max Tune up Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240	25.77	377.57	10.02	32	0.29477	1
5260-5320	24.77	299.916	10.06	32	0.23254	1
5500-5720	24.77	299.916	10	32	0.23469	1
5745-5825	25.77	377.57	9.97	32	0.29140	1

#### NOTE:

5180-5240MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 10.02\text{dBi}$

5260-5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 10.06\text{dBi}$

5500-5720MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 10\text{dBi}$

5745-5825MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 9.97\text{dBi}$

#### Radio 3 (Bluetooth)

Frequency Band (MHz)	Max Tune up Power (dBm)	Max Tune up Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402-2480	9	7.943	4.24	32	0.00164	1

**Conclusion:**

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  $0.36098 / 1 + 0.29477 / 1 + 0.00164 / 1 = 0.65739$ , which is less than "1".

This confirmed that the device comply with FCC 1.1310 MPE limit.

**NOTE:**

All radio technologies can transmit simultaneously, but Radio 1 & Radio 2 will not simultaneously in the same sub-band.

**--- END ---**