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
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
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^2)	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^2

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:

Radio 1									
WLAN - 2.4GHz + 5GHz									
Antenna NO.	Transmitter Circuit	Brand	Model No.	Ant. Gain (dBi) Including cable loss	Frequency Range (GHz)	Antenna Type	Connecter 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
Radio 2									
WLAN - 5GHz									
Antenna NO.	Transmitter Circuit	Brand	Model No.	Ant. Gain (dBi) Including cable loss	Frequency Range (GHz)	Antenna Type	Connecter 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
Radio 3									
Bluetooth - 2.4GHz									
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^2)	Limit (mW/cm^2)
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 = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 8.9dBi$

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

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

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

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

Radio 2

Frequency Band (MHz)	Max Tune up Power (dBm)	Max Tune up Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
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 = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G2/20})^2 / 3] = 10.02dBi$

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

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

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

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^2)	Limit (mW/cm^2)
2402-2480	9	7.943	4.24	32	0.00164	1

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……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.

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