RF Exposure Evaluation Declaration

Product Name	:	Wireless Access point
Model No.	:	ATOM-AP30
FCC ID	:	WBV-ATOM-AP30

Applicant	:	Aerohive Networks, Inc
Address	:	Aerohive Networks1011 McCarthy Boulevard Milpitas, CA 95035 United States

Date of Receipt	:	Dec. 20, 2017
Test Date		Dec. 21, 2017~ Jan. 20, 2018
Issued Date	:	Mar. 31, 2018
Report No.	:	17C2130R-RF-US-P20V01
Report Version	:	V1.1

Test Report Certification

Issued Date : Mar. 31, 2018
Report No. : 17C2130R-RF-US-P20V01

Product Name	:	Wireless Access point
Applicant	:	Aerohive Networks, Inc
Address	:	Aerohive Networks1011 McCarthy Boulevard Milpitas, CA 95035 United States
Manufacturer	:	Aerohive Networks, Inc
Address	:	Aerohive Networks1011 McCarthy Boulevard Milpitas, CA 95035 United States
Model No.	:	ATOM-AP30
FCC ID	:	WBV-ATOM-AP30
Brand Name	:	Aerohive
EUT Voltage	:	DC 5V/2A, 10W
Applicable Standard	:	KDB 447498D01V06 FCC Part1.1310
Test Result	:	Complied
Performed Location	:	DEKRA Testing and Certification (Suzhou) Co., Ltd. Corporation - Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392

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Reviewed By : Frank he

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Approved By : Harry Zhao

(Engineering Manager : Harry Zhao)

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*pi*r2)

Where

Pd = power density in mW/cm2

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

Pd is the limit of MPE, 1 mW/cm2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	Wireless Access point
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

Antenna Information:

BT:

Model No.	N/A					
Antenna manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Sectorized		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
			☐	Sectorized		
	☒	Internal	☒	PIFA		
			☐	PCB		
			☐	Ceramic Chip Antenna		
			☐	Monopole Antenna		

Antenna Technology	Ant Gain (dBi)
☒ SISO	Ant1:1.8

2.4G:

Model No.	N/A						
Antenna manufacturer	N/A						
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☐	3*TX+3*RX	
Antenna technology	☒	SISO					
	☒	MIMO	☐	Basic			
			☒	CDD			
			☐	Sectorized			
			☐	Beam-forming			
Antenna Type	☐	External	☐	Dipole			
			☐	Sectorized			
	☒	Internal	☒	PIFA			
			☐	PCB			
			☐	Ceramic Chip Antenna			
			☐	Metal plate type F antenna			

Antenna Technology	Ant Gain (dBi)	Directional Gain (dBi)	
		For Power	For PSD
☒ CDD	Ant1:1.9 Ant2: 1.6	1.9	4.9

5G:

Antenna Model No.	N/A						
Antenna Manufacturer	N/A						
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☐	3*TX+3*RX	
Antenna Technology	☒	SISO					
	☒	MIMO	☐	Basic methodology			
			☐	Sectorized antenna systems			
			☐	Cross-polarized antennas			
			☐	Unequal antenna gains, with equal transmit powers			
			☐	Spatial Multiplexing			
			☒	Cyclic Delay Diversity (CDD)			
Antenna Type	PIFA Antenna						
Antenna Gain							
Antenna Technology				Ant Gain (dBi)			
☒	SISO	☒	Ant1	5.5			
		☒	Ant2	5.5			
☒	CDD			5.5dBi for Power; 8.5dBi for PSD			

- Output Power into Antenna & RF Exposure Evaluation Distance:

Standlone modes

SISO Mode

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Power Density Limit at R = 20 cm (mW/cm2)
802.11b/g/n(20MHz)	2412 ~ 2462 MHz	21.62	1.9	0.0447	1.0
802.11a/n/ac (20MHz)	5180-5240MHz 5745-5825 MHz	20.64	5.5	0.0818	1.0
802.11n/ac (40MHz)	5190-5230MHz 5755-5795 MHz	20.41	5.5	0.0776	1.0
802.11ac(80MHz)	5210MHz 5775MHz	17.72	5.5	0.0418	1.0
BT3.0	2402-2480 MHz	10.98	1.8	0.0038	1.0
BLE	2402-2480 MHz	5.17	1.8	0.0010	1.0

MIMO Mode

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Power Density Limit at R = 20 cm (mW/cm2)
802.11b/g/n(20MHz)	2412 ~ 2462 MHz	23.96	1.9	0.0767	1.0
802.11a/n/ac (20MHz)	5180-5240MHz 5745-5825 MHz	23.09	5.5	0.1438	1.0
802.11n/ac (40MHz)	5190-5230MHz 5755-5795 MHz	23.15	5.5	0.1458	1.0
802.11ac(80MHz)	5210MHz 5775MHz	18.01	5.5	0.0446	1.0

Simultaneous transmission:

Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Power Density Limit at R = 20 cm (mW/cm2)
2412 ~ 2462	23.96	1.9	0.0767	1.0
5180-5240 5745-5825	23.15	5.5	0.1458	1.0
2402-2480	10.98	1.8	0.0038	1.0
Simultaneous transmission power density			0.2263	1.0

Note: The simultaneous transmission power density is 0.2263mW/cm^2 for Wireless Wireless Access point without any other radio equipment.

The End