



# RF Exposure Evaluation Declaration

Product Name : Wireless Access Point

Model No. : AP650

FCC ID : WBV-AP650

Applicant : Aerohive Networks, Inc.

Address : Aerohive Networks, 1011 McCarthy Boulevard, Milpitas,  
CA 95035, United States

Date of Receipt : Mar. 20, 2018

Issued Date : Sep. 28, 2018

Report No. : 1872113R-RF-US-P20V01

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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## Test Report Certification

Issued Date : Sep. 28, 2018

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Product Name : Wireless Access Point

Applicant : Aerohive Networks, Inc.

Address : Aerohive Networks, 1011 McCarthy Boulevard, Milpitas,  
CA 95035, United States

Manufacturer : Aerohive Networks, Inc.

Address : Aerohive Networks, 1011 McCarthy Boulevard, Milpitas,  
CA 95035, United States

Model No. : AP650

FCC ID : WBV-AP650

Brand Name : Aerohive

EUT Voltage : PoE 48V

Applicable Standard : KDB 447498D01V06  
FCC Part1.1310

Test Result : Complied

Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.  
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,  
215006, Jiangsu, China  
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098  
FCC Designation Number: CN1199

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(Project Assistant: Kathy Feng)

Reviewed By : Frank he  
(Senior Engineer: Frank He )

Approved By : Harry Zhao  
(Engineer 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/cm <sup>2</sup> )	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:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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:

#### BLE:

Model No.		N/A								
Antenna manufacturer		N/A								
Antenna Delivery		<input checked="" type="checkbox"/>	1*TX+1*RX		<input type="checkbox"/>	2*TX+2*RX		<input type="checkbox"/>	3*TX+3*RX	
Antenna technology		<input checked="" type="checkbox"/>	SISO							
		<input type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic					
				<input type="checkbox"/>	CDD					
				<input type="checkbox"/>	Sectorized					
				<input type="checkbox"/>	Beam-forming					
Antenna Type		<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole					
				<input type="checkbox"/>	Sectorized					
		<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA					
				<input type="checkbox"/>	PCB					
				<input type="checkbox"/>	Ceramic Chip Antenna					
				<input checked="" type="checkbox"/>	Metal plate type F antenna					
Antenna Technology		Ant Gain (dBi)								
<input checked="" type="checkbox"/>	SISO	4.2								

**2.4G:**

Model No.	N/A									
Antenna manufacturer	N/A									
Antenna Delivery	<input type="checkbox"/>	1*TX+1*RX	<input checked="" type="checkbox"/>	2*TX+2*RX	<input type="checkbox"/>	3*TX+3*RX	<input checked="" type="checkbox"/>	4*TX+4*RX		
Antenna technology	<input checked="" type="checkbox"/>	SISO								
	<input checked="" type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic						
			<input checked="" type="checkbox"/>	CDD						
			<input type="checkbox"/>	Sectorized						
			<input checked="" type="checkbox"/>	Beam-forming						
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole						
<input type="checkbox"/>			Sectorized							
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA						
			<input type="checkbox"/>	PCB						
			<input type="checkbox"/>	Ceramic Chip Antenna						
			<input checked="" type="checkbox"/>	Metal plate type F antenna						
Antenna Technology(2*TX+2*RX)	Ant Gain (dBi)							Directional Gain (dBi)		
								For Power	For PSD	
<input checked="" type="checkbox"/> CDD	5							5	8	
<input checked="" type="checkbox"/> Beam-forming								8	8	
Antenna Technology(4*TX+4*RX)	Ant Gain (dBi)							Ant Gain (dBi)		
								For Power	For PSD	
<input checked="" type="checkbox"/> CDD	5							5	11	
<input checked="" type="checkbox"/> Beam-forming								11	11	

**5G:**

Antenna Model No.	N/A									
Antenna Manufacturer	N/A									
Antenna Delivery	<input type="checkbox"/>	1*TX+1*RX	<input checked="" type="checkbox"/>	2*TX+2*RX	<input type="checkbox"/>	3*TX+3*RX	<input checked="" type="checkbox"/>	4*TX+4*RX		
Antenna Technology	<input type="checkbox"/>	SISO								
	<input checked="" type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic methodology						
			<input type="checkbox"/>	Sectorized antenna systems						
			<input type="checkbox"/>	Cross-polarized antennas						
			<input type="checkbox"/>	Unequal antenna gains, with equal transmit powers						
			<input checked="" type="checkbox"/>	Spatial Multiplexing						
			<input checked="" type="checkbox"/>	Cyclic Delay Diversity (CDD)						
Antenna Type	Metal Antenna									
Antenna Technology(2*TX+2*RX)	Ant Gain (dBi)				Directional Gain (dBi)					
					For Power			For PSD		
<input checked="" type="checkbox"/> CDD	6				6			9		
<input checked="" type="checkbox"/> Beam-forming					9			9		
Antenna Technology(4*TX+4*RX)	Ant Gain (dBi)				Directional Gain (dBi)					
					For Power			For PSD		
<input checked="" type="checkbox"/> CDD	6				6			12		
<input checked="" type="checkbox"/> Beam-forming					12			12		

## Power Density

### Standalone modes:

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 25.5 cm (mW/cm <sup>2</sup> )	Power Density Limit at R = 25.5 cm (mW/cm <sup>2</sup> )
802.11b/g/n/ac/ax 2T2R with CDD	2400 ~ 2483.5	24.12	5	0.100	1.0
802.11b/g/n/ac/ax 4T4R with CDD	2400 ~ 2483.5	26.64	5	0.179	1.0
802.11a/n/ac/ax 2T2R with CDD	5150 ~ 5850	24.00	6	0.122	1.0
802.11a/n/ac/ax 4T4R with CDD	5150 ~ 5850	25.87	6	0.188	1.0
802.11b/g/n/ac/ax 2T2R with BF	2400 ~ 2483.5	23.25	8	0.163	1.0
802.11b/g/n/ac/ax 4T4R with BF	2400 ~ 2483.5	24.91	11	0.477	1.0
802.11a/n/ac/ax 2T2R with BF	5150 ~ 5850	23.17	9	0.202	1.0
802.11a/n/ac/ax 4T4R with BF	5150 ~ 5850	23.98	12	0.485	1.0
BLE	2400 ~ 2483.5	5.94	4.2	0.001	1.0

**Simultaneous transmission:**

Wireless Configure	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(mW/cm <sup>2</sup> )	Power Density S at R = 25.5 cm (mW/cm <sup>2</sup> )	Rate	Limit
WIFI	2400 ~ 2483.5	35.91	1.0	0.477	0.963	1
	5150 ~ 5850	35.98	1.0	0.485		
BT	2400 ~ 2483.5	10.14	1.0	0.001		

The EUT support simultaneously transmit with WIFI 2.4G+5G+ BLE.

The worst combination should be shown in the report. The simultaneously safety distance is 25.5cm for installed for Wireless Access Point without any other radio equipment.

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