



## 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 : Aug. 23, 2018

Report No. : 1842038R-RF-US-P20V01

Report Version : V1.1

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.

This report must not be used to claim product endorsement by TAF, A2LA or any agency of the government.

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## Test Report Certification

Issued Date : Aug. 23, 2018


Report No. : 1842038R-RF-US-P20V01



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

Documented By :   
(Project Assistant: Kathy Feng)

Reviewed By :   
(Senior Engineer: Frank He )

Approved By :   
(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/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 ~ 5250 5725 ~ 5850	24.00	6	0.122	1.0
802.11a/n/ac/ax 4T4R with CDD	5150 ~ 5250 5725 ~ 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 ~ 5250 5725 ~ 5850	23.17	9	0.202	1.0
802.11a/n/ac/ax 4T4R with BF	5150 ~ 5250 5725 ~ 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/cm2)	Power Density S at R = 25.5 cm (mW/cm2)	Rate	Limit
WIFI	2400 ~ 2483.5	35.91	1.0	0.477	0.963	1
	5150 ~ 5250 5470 ~ 5850	35.98	1.0	0.485		
	BT	2400 ~ 2483.5	10.14	1.0		

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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