RF Exposure Evaluation Declaration

Product Name	:	Wireless Access Point
Model No.	:	AP305CX
FCC ID	:	QXO-AP305C

Applicant	:	Extreme Networks, Inc
Address	:	Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119 U.S.A.

Date of Receipt	:	Oct. 14, 2020
Issued Date	:	Dec. 02, 2020
Report No.	:	20A0241R-RF-US-P20V01
Report Version	:	V1.0

Test Report Certification

Issued Date: Dec. 02, 2020
Report No.: 20A0241R-RF-US-P20V01

Product Name	:	Wireless Access Point
Applicant	:	Extreme Networks, Inc
Address	:	Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119 U.S.A.
Manufacturer	:	Extreme Networks, Inc
Address	:	Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119 U.S.A.
Model No.	:	AP305CX
Brand	:	Extreme Networks
FCC ID	:	QXO-AP305C
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 : Kitty Li

(Project Assistant: Kitty Li)

Reviewed By : Frank he

(Senior Engineer: Frank He)

Approved By : Jack zhang

(Engineer Supervisor: Jack Zhang)

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:

2.4GHz WiFi

ML-2452-PTA2M2-036:

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	OMNI					
Categorization	Correlated					
Antenna Gain						

Antenna Technology			Ant Gain(Radio 0) (dBi)
☒	SISO	☒ Ant1	4
		☒ Ant2	4
☒	CDD		4dBi for Power; 7.01dBi for PSD
☒	Beam-forming		7.01dBi for Power; 7.01dBi for PSD

ML-2452-PTA4M4-036:

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	OMNI						
Antenna Gain							

Antenna Technology				Ant Gain(Radio 0) (dBi)
☒	SISO	☒	Ant1	5
		☒	Ant2	5
☒	CDD			5dBi for Power; 8.01dBi for PSD
☒	Beam-forming			8.01dBi for Power; 8.01dBi for PSD

AI-DQ04360S:

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	OMNI						
Categorization	Correlated						
Antenna Gain							

Antenna Technology				Ant Gain(Radio 0) (dBi)
☒	SISO	☒	Ant1	5.5
		☒	Ant2	5.5
☒	CDD			5.5dBi for Power; 8.51dBi for PSD
☒	Beam-forming			8.51dBi for Power; 8.51dBi for PSD

ML-2452-SEC6M4-036:

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	Sector						
Categorization	Correlated						

Antenna Gain			
Antenna Technology			Ant Gain(Radio 0) (dBi)
☒	SISO	☒ Ant1	6.9
		☒ Ant2	6.9
☒	CDD		6.9dBi for Power; 9.91dBi for PSD
☒	Beam-forming		9.91dBi for Power; 9.91dBi for PSD

5GHz WiFi
ML-2452-PTA2M2-036:

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	OMNI						
Categorization	Correlated						
Antenna Gain							

Antenna Technology				Ant Gain(Radio 0) (dBi)
☒	SISO	☒	Ant1	5
		☒	Ant2	5
☒	CDD			5dBi for Power; 8.01dBi for PSD
☒	Beam-forming			8.01dBi for Power; 8.01dBi for PSD
Antenna Technology				Ant Gain(Radio 1) (dBi)
☒	SISO	☒	Ant3	5
		☒	Ant4	5
☒	CDD			5dBi for Power; 8.01dBi for PSD
☒	Beam-forming			8.01dBi for Power; 8.01dBi for PSD

ML-2452-PTA4M4-036:

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	OMNI						
Categorization	Correlated						

Antenna Gain		
Antenna Technology		Ant Gain(Radio 0) (dBi)
☒ SISO	☒ Ant1	6.6
	☒ Ant2	6.6
☒ CDD		6.6dBi for Power; 9.61dBi for PSD
☒ Beam-forming		9.61dBi for Power; 9.61dBi for PSD
Antenna Technology		Ant Gain(Radio 1) (dBi)
☒ SISO	☒ Ant3	6.6
	☒ Ant4	6.6
☒ CDD		6.6dBi for Power; 9.61dBi for PSD
☒ Beam-forming		9.61dBi for Power; 9.61dBi for PSD

AI-DQ04360S:

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	OMNI					
Categorization	Correlated					
Antenna Gain						
Antenna Technology			Ant Gain(Radio 0) (dBi)			
☒	SISO	☒	Ant1	6		
		☒	Ant2	6		
☒	CDD	6dBi for Power; 9.01dBi for PSD				
☒	Beam-forming	9.01dBi for Power; 9.01dBi for PSD				
Antenna Technology			Ant Gain(Radio 1) (dBi)			
☒	SISO	☒	Ant3	6		
		☒	Ant4	6		
☒	CDD	6dBi for Power; 9.01dBi for PSD				
☒	Beam-forming	9.01dBi for Power; 9.01dBi for PSD				

ML-2452-SEC6M4-036:

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	Sector						
Categorization	Correlated						
Antenna Gain							
Antenna Technology			Ant Gain(Radio 0) (dBi)				
☒	SISO	☒	Ant1	7.2			
		☒	Ant2	7.2			
☒	CDD			7.2dBi for Power; 7.2dBi for PSD			
☒	Beam-forming			7.2dBi for Power; 7.2dBi for PSD			
Antenna Technology			Ant Gain(Radio 1) (dBi)				
☒	SISO	☒	Ant3	7.2			
		☒	Ant4	7.2			
☒	CDD			7.2dBi for Power; 10.21dBi for PSD			
☒	Beam-forming			10.21dBi for Power; 10.21dBi for PSD			

Power Density

Standalone modes:

AP305CX:

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20cm (mW/cm2)	Power Density Limit at R = 20 cm (mW/cm2)
802.11b/g/n/ac/ax	2400 ~ 2483.5	29.45	0.175	1.0
802.11a/n/ac/ax(Radio 0)	5150 ~ 5350	27.06	0.101	1.0
802.11a/n/ac/ax(Radio 1)	5150 ~ 5350 5470 ~ 5850	28.80	0.151	1.0
BLE	2400 ~ 2483.5	9.72	0.002	1.0

Simultaneous transmission:

AP305CX:

Wireless Configure	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(mW/cm2)	Power Density S at R = 20 cm (mW/cm2)	Rate	Limit
WIFI(Radio 0)	5150 ~ 5350	27.06	1.0	0.101	0.252	1
WIFI(Radio 1)	5470 ~ 5850	28.32	1.0	0.151		

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

The worst combination should be shown in the report. The simultaneously safety distance is 20cm for installed for Wireless Access Point without any other radio equipment.

The End