



RF Exposure Evaluation Declaration

Product Name : Wireless Access Point
Model No. : AP460C
FCC ID : QXO-AP460C

Applicant : Extreme Networks, Inc
Address : 6480 Via Del Oro, San Jose, CA 95119

Date of Receipt : Sep. 20, 2019
Issued Date : Mar. 17, 2020
Report No. : 19A2144R-RF-US-P20V01
Report Version : V1.0

The test results presented in this report relate only to the object tested.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements

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Test Report Certification

Issued Date: Mar. 17, 2020
Report No.: 19A2144R-RF-US-P20V01



Product Name : Wireless Access Point
Applicant : Extreme Networks, Inc
Address : 6480 Via Del Oro, San Jose, CA 95119
Manufacturer : Extreme Networks, Inc
Address : 6480 Via Del Oro, San Jose, CA 95119
Model No. : AP460C
Brand : Extreme Networks
FCC ID : QXO-AP460C
EUT Voltage : DC 37~57V
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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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 ²) | 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/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d 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°C 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 2.4GHz:

| | | | | | | |
|----------------------|-------------------------------------|-----------|--------------------------|---|--------------------------|-----------|
| Antenna 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 methodology | | |
| | | | <input type="checkbox"/> | Sectorized antenna systems | | |
| | | | <input type="checkbox"/> | Cross-polarized antennas | | |
| | | | <input type="checkbox"/> | Unequal antenna gains, with equal transmit powers | | |
| | | | <input type="checkbox"/> | Spatial Multiplexing | | |
| | | | <input type="checkbox"/> | Cyclic Delay Diversity (CDD) | | |
| Antenna Type | PIFA | | | | | |
| Antenna Gain | 3.20dBi | | | | | |

WLAN 2.4GHz:

| | | | |
|--|--|--|------------------------------------|
| Antenna Model No. | N/A | | |
| Antenna Manufacturer | N/A | | |
| Antenna Delivery | <input checked="" type="checkbox"/> 1*TX+1*RX | <input checked="" type="checkbox"/> 2*TX+2*RX | <input type="checkbox"/> 3*TX+3*RX |
| Antenna Technology | <input checked="" 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 | PIFA | | |
| Antenna Gain(Radio 1) | | | |
| Antenna Technology | Ant Gain (dBi) | | |
| Ant 4(Radio 1) | 3.74 | | |
| Antenna Gain(Radio 2) | | | |
| Antenna Technology | Ant Gain (dBi) | | |
| <input checked="" type="checkbox"/> SISO | <input checked="" type="checkbox"/> Ant1 (Radio 2) | 2.94 | |
| | <input checked="" type="checkbox"/> Ant2 (Radio 2) | 3.24 | |
| <input checked="" type="checkbox"/> CDD | 3.24dBi for Power; 6.25dBi for PSD | | |
| <input checked="" type="checkbox"/> Beam-forming | 6.25dBi for Power; 6.25dBi for PSD | | |

WLAN 5GHz:

| | | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|-------------------------------------|-----------|-------------------------------------|-----------|
| Antenna Model No. | N/A | | | | | | | |
| Antenna Manufacturer | N/A | | | | | | | |
| Antenna Delivery | <input checked="" type="checkbox"/> | 1*TX+1*RX | <input checked="" type="checkbox"/> | 2*TX+2*RX | <input checked="" 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 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 | PIFA | | | | | | | |
| Antenna Gain(Radio 1) | | | | | | | | |
| Antenna Technology | Ant Gain (dBi) | | | | | | | |
| Ant 4(Radio 1) | 3.42 | | | | | | | |
| Antenna Gain(Radio 2) | | | | | | | | |
| Antenna Technology | Ant Gain (dBi) | | | | | | | |
| <input checked="" type="checkbox"/> | SISO | <input checked="" type="checkbox"/> | Ant1 (Radio 2) | 3.56 | | | | |
| | | <input checked="" type="checkbox"/> | Ant2 (Radio 2) | 3.51 | | | | |
| <input checked="" type="checkbox"/> | CDD | | 3.56dBi for Power; 6.57dBi for PSD | | | | | |
| <input checked="" type="checkbox"/> | Beam-forming | | 6.57dBi for Power; 6.57dBi for PSD | | | | | |

| Antenna Gain(Radio 3) | | | |
|-------------------------------------|------------------|--|--------------------------------------|
| Antenna Technology | | | Ant Gain (dBi) |
| <input checked="" type="checkbox"/> | SISO | <input checked="" type="checkbox"/> Ant3 (Radio 3) | 4.19 |
| | | <input checked="" type="checkbox"/> Ant5 (Radio 3) | 3.22 |
| | | <input checked="" type="checkbox"/> Ant6 (Radio 3) | 3.96 |
| | | <input checked="" type="checkbox"/> Ant7 (Radio 3) | 4.21 |
| <input checked="" type="checkbox"/> | 2*2 CDD | | 4.21dBi for Power; 7.22dBi for PSD |
| <input checked="" type="checkbox"/> | 2*2 Beam-forming | | 7.22dBi for Power; 7.22dBi for PSD |
| <input checked="" type="checkbox"/> | 4*4 CDD | | 4.21dBi for Power; 10.23dBi for PSD |
| <input checked="" type="checkbox"/> | 4*4 Beam-forming | | 10.23dBi for Power; 10.23dBi for PSD |

Note: The device supports 3 radios, radio 1(1*1 2.4GHz & 1*1 5GHz full band); radio 2(2*2 2.4GHz & 2*2 5GHz low band); radio 3(4*4 5GHz full band & 1*1 BLE), and radio 2 & 3 can works with Dual 2.4GHz & 5GHz mode and Dual 5GHz mode. As the 5GHz high band filter is different between two modes, additional Radio 3 5GHz high band mode is tested for compliance.

Dual 2.4GHz & 5GHz mode: Radio 2(2.4GHz 2*2) + Radio 3(5GHz full band 4*4)

Dual 5GHz mode: Radio 2(5GHz low band 2*2) + Radio 3(5GHz high band 4*4)

Power Density

Standalone modes:

AP460C:

| Wireless Radio | Test Mode | Frequency Band (MHz) | Maximum EIRP (dBm) | Power Density at R = 30cm (mW/cm ²) | Power Density Limit at R = 30 cm (mW/cm ²) |
|-------------------|-----------------|---------------------------|--------------------|---|--|
| Radio 3 | BLE | 2400 ~ 2483.5 | 9.51 | 0.001 | 1.0 |
| Radio 1 | 802.11b/g/n/ax | 2400 ~ 2483.5 | 26.53 | 0.040 | 1.0 |
| Radio 2 | 802.11b/g/n/ax | 2400 ~ 2483.5 | 31.06 | 0.113 | 1.0 |
| Radio 1 | 802.11a/n/ac/ax | 5150 ~ 5250 & 5725 ~ 5850 | 23.41 | 0.019 | 1.0 |
| Radio 2 | 802.11a/n/ac/ax | 5150 ~ 5250 | 22.64 | 0.016 | 1.0 |
| Radio 3 Full band | 802.11a/n/ac/ax | 5150 ~ 5250 & 5725 ~ 5850 | 39.67 | 0.819 | 1.0 |
| Radio 3 High band | 802.11a/n/ac/ax | 5725 ~ 5850 | 38.35 | 0.605 | 1.0 |

Simultaneous transmission:

| Wireless Configure | Frequency Range (MHz) | Maximum EIRP (dBm) | | | | Limit of Power Density S(mW/cm ²) | Power Density S at R = 30 cm (mW/cm ²) | | | | Rate | Limit |
|--|-----------------------|--------------------|---------|---------|------|---|--|---------|---------|-------|--------|-------|
| | | Radio 1 | Radio 2 | Radio 3 | BLE | | Radio 1 | Radio 2 | Radio 3 | BLE | | |
| Radio 1 + Radio 2(2.4GHz Only) + Radio 3(5GHz Full Band) + BLE | 2.4G+5G | 26.53 | 31.06 | 39.67 | 9.51 | 1.0 | 0.040 | 0.113 | 0.819 | 0.001 | 10.973 | 1 |
| Radio 1 + Radio 2(5GHz Low Band) + Radio 3(5GHz High Band) + BLE | 2.4G+5G | 26.53 | 22.64 | 38.35 | 9.51 | 1.0 | 0.040 | 0.016 | 0.605 | 0.001 | 10.662 | 1 |

The EUT support simultaneously transmit with Radio 1 + Radio 2+ Radio 3 + BLE.

The worst combination should be shown in the report. The simultaneously safety distance is 30cm for installed for Wireless Access Point without any other radio equipment.

_____ The End _____