

FCC RF EXPOSURE REPORT

FCC ID: W59XAP810

Project No. : 1707C305
Equipment : AC1200 Dual-Band Wireless Access Point
Model : XAP-810, XWS-1810
Applicant : Luxul Wireless
Address : 12884 S Frontrunner Blvd Suite 201 Draper UT
84020 USA

According: : FCC Guidelines for Human Exposure IEEE
C95.1 & FCC Part 2.1091

B T L I N C .

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MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi^2} = \frac{EIRP}{4\pi^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna

2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	N/A	N/A	Internal	N/A	3
2	N/A	N/A	Internal	N/A	3

Note: The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).

The worst case for 1TX/ 2TX as follow:

Operating Mode TX Mode	1TX	2TX
802.11b	V (ANT 1)	-
802.11g	V (ANT 1)	-
802.11n(20MHz)	-	V (ANT 1+ANT 2)
802.11n(40MHz)	-	V (ANT 1+ANT 2)

5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	3
2	N/A	N/A	Internal	N/A	3

Note:

(1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).

(2) The EUT with beamforming function, then, Direction gain = $G_{ANT} + 10\log(N_{ANT}/N_{SS})$, where N_{SS} = the number of independent spatial streams of data.

For 2TX with beamforming: Directional gain = $3 + 10\log(2/2) = 3 + 0 = 3$ dBi.

The worst case for 1TX/ 2TX as follow:

Operating Mode TX Mode	1TX	2TX
802.11a	V (ANT 1)	-
802.11n(20MHz)	-	V (ANT 1 + ANT 2)
802.11n(40MHz)	-	V (ANT 1 + ANT 2)
802.11ac(20MHz)	-	V (ANT 1 + ANT 2)
802.11ac(40MHz)	-	V (ANT 1 + ANT 2)
802.11ac(80MHz)	-	V (ANT 1 + ANT 2)

TEST RESULTS

EUT :	AC1200 Dual-Band Wireless Access Point	Model Name :	XAP-810
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		

2.4G WIFI

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3	1.9953	29.54	899.4976	0.35723	1	Complies

5G Band UNII-1 (Non-Beamforming)

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3	1.9953	25.54	358.0964	0.14222	1	Complies

5G Band UNII-1 (Beamforming)

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3	1.9953	25.54	358.0964	0.14222	1	Complies

5G Band UNII-3 (Non-Beamforming)

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3	1.9953	25.96	394.4573	0.15666	1	Complies

5G Band UNII-3 (Beamforming)

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3	1.9953	26.41	437.5221	0.17376	1	Complies

For 2.4G+5G simultaneous transmission MPE:

$$0.35723/1+0.17376/1=0.53099$$

Note: the calculated distance is 20 cm.