

Maximum Permissible Exposure Evaluation

FCC ID: 2A3SE-26001

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).

EUT Specification

Product Name:	Wireless Bridge
Trade Mark:	ULNA
Model/Type Reference:	CPE1800, CPE806S, CPE1200, CPE867, CPE867RT, CPE3000, CPE2400, CPE1800RT, CPE3000RT, CPE1800SW, CPE1800SP, CPE806S, CPE802T, CPEXXX (XXX can represent numbers, letters, and punctuation marks)
Model Differences:	All these models are identical with the Main in the same PCB, layout and electrical circuit. Just name the differences.
Frequency Band (Operating)	WLAN: 2412MHz ~ 2462MHz U-NII-3: 5745MHz ~ 5825MHz
Device Category	☐ Portable (<5mm separation) ☐ Mobile (>20cm separation) ☒ Fixed (>20cm separation) ☐ Others _____
Exposure Classification	☐ Occupational/Controlled exposure (S=5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna Diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Antenna Gain (Max)	WLAN: Ant1: 6.7dBi Ant2: 6.7dBi MIMO: 9.71dBi U-NII-3: Ant1: 13.36dBi Ant2: 13.36dBi Ant3: 13.36dBi MIMO: 18.13dBi
Evaluation Applied	☒ MPE Evaluation ☐ SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposure				
300-1500	--	--	F/300	<6
1500-100000	--	--	5	<6
(B) Limits for General Population/Uncontrolled Exposure				
300-1500	--	--	F/1500	<30
1500-100000	--	--	1	<30

Calculation Method

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

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 limit of MPE is 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Mode	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Max. Tune Up Power (dBm)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
WLAN 802.11N20MIMO	2462	9.71	17.45	17.5	0.104651	1
RLAN U-NII-3 802.11AX20MIMO	5785	18.13	17.64	18	0.816099	1

The WLAN and RLAN can transmit simultaneously.

WLAN Power density at 20cm (mW/cm ²)	RLAN Power density at 20cm (mW/cm ²)	Total Power density at 20cm (mW/cm ²)	Power density Limit (mW/cm ²)
0.104651	0.816099	0.920750	1

Note:

1. Calculate in the worst-case mode.
2. Max. Tune Up Power is declared by manufacturer, and used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

*****THE END*****