



# CTC Laboratories, Inc.

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## Maximum Permissible Exposure Evaluation

FCC ID: 2AFIW-SF1200

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:	AC1200 Gigabit Wireless Router
Trade Mark:	GL.iNET
Model/Type reference:	GL-SF1200
Listed Model(s):	/
Frequency band (Operating)	WLAN: 2.412GHz ~ 2.462GHz RLAN: 5.150GHz ~ 5.250GHz RLAN: 5.725GHz ~ 5.850GHz
Device category	<input type="checkbox"/> Portable (<5mm separation) <input type="checkbox"/> Mobile (>20cm separation) <input checked="" type="checkbox"/> Fixed (>20cm separation) <input type="checkbox"/> Others ____
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S=5mW/cm2) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Antenna gain (Max)	2.4GHz WIFI: 5.80dBi 5GHz WIFI U-NII-1: 5.57dBi 5GHz WIFI U-NII-3: 5.89dBi
Antenna 1 + 2 Directional gain (Max)	2.4GHz WIFI: 8.81dBi 5GHz WIFI U-NII-1: 8.58dBi 5GHz WIFI U-NII-3: 8.90dBi
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> 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 <sup>2</sup> )	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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

Where

$P_d$  = Power density in  $mW/cm^2$

$P_{out}$  = 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

$P_d$  the limit of MPE  $1mW/cm^2$ . 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

Only show the value of the worst antenna.

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Power Density at 20cm ( $mW/cm^2$ )	Limit ( $mW/cm^2$ )
WLAN 802.11b	2412	5.80	16.40	$16 \pm 1$	17	0.03791	1.000
WLAN 802.11g	2437	5.80	16.14	$16 \pm 1$	17	0.03791	1.000
WLAN 802.11n(HT20)	2412	8.81	16.94	$17 \pm 1$	18	0.09544	1.000
WLAN 802.11n(HT40)	2422	8.81	14.62	$15 \pm 1$	16	0.06022	1.000
RLAN U-NII-1 802.11a	5180	5.57	19.32	$19 \pm 1$	20	0.07174	1.000
RLAN U-NII-1 802.11n(HT20)	5180	8.58	21.80	$22 \pm 1$	23	0.28625	1.000
RLAN U-NII-1 802.11n(HT40)	5190	8.58	20.69	$20 \pm 1$	21	0.18061	1.000
RLAN U-NII-1 802.11ac(VHT20)	5180	8.58	20.04	$20 \pm 1$	21	0.18061	1.000
RLAN U-NII-1 802.11ac(VHT40)	5190	8.58	19.72	$20 \pm 1$	21	0.18061	1.000
RLAN U-NII-1 802.11ac(VHT80)	5210	8.58	18.42	$18 \pm 1$	19	0.11396	1.000
RLAN U-NII-3 802.11a	5785	5.89	18.73	$18 \pm 1$	19	0.06134	1.000
RLAN U-NII-3 802.11n(HT20)	5785	8.90	20.57	$20 \pm 1$	21	0.19442	1.000
RLAN U-NII-3 802.11n(HT40)	5795	8.90	20.32	$20 \pm 1$	21	0.19442	1.000
RLAN U-NII-3 802.11ac(VHT20)	5745	8.90	20.44	$20 \pm 1$	21	0.19442	1.000
RLAN U-NII-3 802.11ac(VHT40)	5755	8.90	19.41	$19 \pm 1$	20	0.15443	1.000
RLAN U-NII-3 802.11ac(VHT80)	5775	8.90	18.23	$18 \pm 1$	19	0.12267	1.000



The WLAN and RLAN can transmit simultaneously

WLAN Power density at 20cm (mW/cm <sup>2</sup> )	RLAN Power density at 20cm (mW/cm <sup>2</sup> )	Total Power density at 20cm	Power density Limits
0.09544	0.28625	0.38169	1

Note:

For a more detailed features description, Please refer to the RF Test Report.

\*\*\*\*\*THE END\*\*\*\*\*