



# CTC Laboratories, Inc.

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## Maximum Permissible Exposure Evaluation

FCC ID: 2AFIW-SFT1200

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 Wireless Travel Router  |
| Trade Mark:                           | GL.iNET  |
| Model/Type reference:                 | GL-SFT1200   |
| Listed Model(s):                      | /  |
| Frequency band (Operating)            | WLAN: 2.412GHz ~ 2.462GHz<br>RLAN: 5.150GHz ~ 5.250GHz<br>RLAN: 5.725GHz ~ 5.850GHz  |
| Device category                       | <input type="checkbox"/> Portable (<5mm separation)<br><input type="checkbox"/> Mobile (>20cm separation)<br><input checked="" type="checkbox"/> Fixed (>20cm separation)<br><input type="checkbox"/> Others ____              |
| Exposure classification               | <input type="checkbox"/> Occupational/Controlled exposure (S=5mW/cm2)<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm2)  |
| Antenna diversity                     | <input type="checkbox"/> Single antenna<br><input checked="" type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity |
| Antenna technology:                   | Beamforming Mode   |
| Antenna delivery:                     | 2.4GHz: 2*TX + 2*RX<br>5GHz: 2*TX + 2*RX   |
| Antenna 1 and 2 gain: (Max)           | 2.4GHz WIFI: 3.79dBi<br>5GHz WIFI U-NII-1: 4.12dBi<br>5GHz WIFI U-NII-3: 4.25dBi   |
| Antenna 1 + 2 Directional gain: (Max) | 2.4GHz: 6.80dBi<br>5GHz WIFI U-NII-1: 7.13dBi<br>5GHz WIFI U-NII-3: 7.26dBi  |
| Evaluation applied                    | <input checked="" type="checkbox"/> MPE Evaluation<br><input type="checkbox"/> SAR Evaluation  |

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## 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           |

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

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = 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<sup>2</sup>. 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 <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|------------------------------|-----------------|--------------------|---------------------|-------------------------|--------------------------|---|-----------------------------|
| WLAN 802.11b                 | 2462            | 3.79               | 16.52               | 16 ± 1                  | 17                       | 0.02386                                     | 1.000                       |
| WLAN 802.11g                 | 2412            | 3.79               | 12.14               | 12 ± 1                  | 13                       | 0.00950                                     | 1.000                       |
| WLAN 802.11n(HT20)           | 2437            | 6.80               | 14.20               | 14 ± 1                  | 15                       | 0.03011                                     | 1.000                       |
| WLAN 802.11n(HT40)           | 2437            | 6.80               | 11.15               | 11 ± 1                  | 12                       | 0.01509                                     | 1.000                       |
| RLAN U-NII-1 802.11a         | 5180            | 4.12               | 16.36               | 16 ± 1                  | 17                       | 0.02575                                     | 1.000                       |
| RLAN U-NII-1 802.11n(HT20)   | 5180            | 7.13               | 18.88               | 19 ± 1                  | 20                       | 0.10274                                     | 1.000                       |
| RLAN U-NII-1 802.11n(HT40)   | 5190            | 7.13               | 15.15               | 15 ± 1                  | 16                       | 0.04090                                     | 1.000                       |
| RLAN U-NII-1 802.11ac(VHT20) | 5180            | 7.13               | 18.93               | 19 ± 1                  | 20                       | 0.10274                                     | 1.000                       |
| RLAN U-NII-1 802.11ac(VHT40) | 5190            | 7.13               | 14.64               | 14 ± 1                  | 15                       | 0.03249                                     | 1.000                       |
| RLAN U-NII-1 802.11ac(VHT80) | 5210            | 7.13               | 14.20               | 14 ± 1                  | 15                       | 0.03249                                     | 1.000                       |
| RLAN U-NII-3 802.11a         | 5785            | 4.25               | 15.76               | 15 ± 1                  | 16                       | 0.02107                                     | 1.000                       |
| RLAN U-NII-3 802.11n(HT20)   | 5745            | 7.26               | 18.33               | 18 ± 1                  | 19                       | 0.08161                                     | 1.000                       |
| RLAN U-NII-3 802.11n(HT40)   | 5755            | 7.26               | 18.35               | 18 ± 1                  | 19                       | 0.08161                                     | 1.000                       |
| RLAN U-NII-3 802.11ac(VHT20) | 5745            | 7.26               | 18.34               | 18 ± 1                  | 19                       | 0.08161                                     | 1.000                       |
| RLAN U-NII-3 802.11ac(VHT40) | 5755            | 7.26               | 18.31               | 18 ± 1                  | 19                       | 0.08161                                     | 1.000                       |
| RLAN U-NII-3 802.11ac(VHT80) | 5775            | 7.26               | 17.92               | 18 ± 1                  | 19                       | 0.08161                                     | 1.000                       |



The WLAN and RLAN can transmit simultaneously

| WLAN<br>Power density at 20cm<br>(mW/cm <sup>2</sup> ) | RLAN<br>Power density at 20cm<br>(mW/cm <sup>2</sup> ) | Total<br>Power density at<br>20cm | Power density Limits |
|--|--|-----------------------------------|----------------------|
| 0.02386  | 0.02575  | 0.04961                           | 1                    |

Note:

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

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