



# CTC Laboratories, Inc.

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## Maximum Permissible Exposure Evaluation

FCC ID: 2AT7J-G3

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:              | Robot Vacuum Cleaner   |
| Model/Type reference:      | G3   |
| Listed Model(s):           | G5,G7  |
| Frequency band (Operating) | <input type="checkbox"/> BT: 2.402GHz ~ 2.480GHz<br><input type="checkbox"/> BLE: 2.402GHz ~ 2.480GHz<br><input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> RLAN: 5.150GHz ~ 5.250GHz<br><input type="checkbox"/> RLAN: 5.250GHz ~ 5.350GHz<br><input type="checkbox"/> RLAN: 5.470GHz ~ 5.725GHz<br><input type="checkbox"/> RLAN: 5.725GHz ~ 5.850GHz<br><input type="checkbox"/> Others ____ |
| 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 type="checkbox"/> Multiple antenna<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity   |
| Antenna gain (Max)         | 0dBi   |
| 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.

| Type     | Channel Frequency (MHz) | Antenna | Max. Measured Power (dBm) | Max. Tune up Power (dBm) | Antenna Gain (dBi) | Power density at 20cm (mW/cm <sup>2</sup> ) | Power density Limits (mW/cm <sup>2</sup> ) |
|----------|-------------------------|---------|---------------------------|--------------------------|--------------------|---|--|
| 802.11 G | 2412                    | Ant1    | 23.09                     | 23.5                     | 0                  | 0.04454                                     | 1  |

Note:

1. Calculate by Worst-case mode.
2. Max. Tune Up Power by Manufacturer's Declaration, and Max. Tune Up Power is used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

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