

# **FCC ID : 2ATIZ-WEEA11A**

## **RF EXPOSURE EVALUATION**

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)

Limits for Maximum Permissible Exposure (MPE)

| <b>Frequency Range(MHz)</b>                                  | <b>Electric Field Strength(V/m)</b> | <b>Magnetic Field Strength(A/m)</b> | <b>Power Density(mW/cm<sup>2</sup>)</b> | <b>Average Time</b> |
|--------------------------------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|---------------------|
| <b>(A) Limits for Occupational/Control Exposures</b>         |                                     |                                     |                                         |                     |
| <b>300-1500</b>                                              | --                                  | --                                  | <b>F/300</b>                            | <b>6</b>            |
| <b>1500-100000</b>                                           | --                                  | --                                  | <b>5</b>                                | <b>6</b>            |
| <b>(B) Limits for General Population/Uncontrol Exposures</b> |                                     |                                     |                                         |                     |
| <b>300-1500</b>                                              | --                                  | --                                  | <b>F/1500</b>                           | <b>6</b>            |
| <b>1500-100000</b>                                           | --                                  | --                                  | <b>1</b>                                | <b>30</b>           |

### **11.1 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

$G$ = Numeric gain of the antenna relative to isotropic antenna

$\pi$ =3.1416

$R$ = distance between observation point and center of the radiator in 20cm

$P_d$  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.

## 11.2 EUT TECHNICAL DESCRIPTION

| Characteristics     | Description                                                                                                                                                          |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product</b>      | Pro Air Purifier                                                                                                                                                     |
| <b>Model Number</b> | Miya, Miya 2.0, Max, Max2.0, Mage, Mage2.0<br>(Note: The only difference in models is the appearance and control plate location, all other information is the same.) |

|                                  |              |
|----------------------------------|--------------|
| <b>Device Type</b>               | BLE V4.2     |
| <b>Data Rate</b>                 | 1Mbps        |
| <b>Modulation</b>                | GFSK         |
| <b>Operating Frequency Range</b> | 2402-2480MHz |
| <b>Number of Channels</b>        | 40 Channels  |
| <b>Antenna Type</b>              | PCB Antenna  |
| <b>Antenna Gain</b>              | 2.5 dBi      |

|                                        |                                                                                                                                                                    |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IEEE 802.11 WLAN Mode Supported</b> | <input checked="" type="checkbox"/> 802.11b<br><input checked="" type="checkbox"/> 802.11g<br><input checked="" type="checkbox"/> 802.11n(20MHz channel bandwidth) |
| <b>Modulation</b>                      | DSSS with DBPSK/DQPSK/CCK for 802.11b<br>OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n                                                                             |
| <b>Operating Frequency Range</b>       | 2412-2462MHz for 802.11b/g/n(HT20)                                                                                                                                 |
| <b>Number of Channels</b>              | 11 channels for 802.11b/g/n(HT20)                                                                                                                                  |
| <b>Transmit Power Max</b>              | 17.83 dBm                                                                                                                                                          |
| <b>Antenna Type</b>                    | PCB Antenna                                                                                                                                                        |
| <b>Antenna Gain</b>                    | 2.5 dBi                                                                                                                                                            |
| <b>Power Supply</b>                    | AC 120V/60Hz                                                                                                                                                       |
| <b>Temperature Range</b>               | -10°C ~ 50°C                                                                                                                                                       |

## 11.2 Measurement Result

| Mode      | Max Measured power (dBm) | Antenna gain (dBi) | Antenna Gain Numeric | R (cm) | Evaluation result (mW/cm <sup>2</sup> ) | Power density Limits (mW/cm <sup>2</sup> ) |
|-----------|--------------------------|--------------------|----------------------|--------|-----------------------------------------|--------------------------------------------|
| BLE       | 6.19                     | 2.5                | 1.78                 | 20     | 0.001                                   | 1                                          |
| 2.4G WIFI | 15.33                    | 2.5                | 1.78                 | 20     | 0.012                                   | 1                                          |

----- The End -----