

# RF Exposure Requirements

## 1.1 General Information

### Client Information

**Applicant** ..... : Guangzhou Scentper Aromatic Technology Co., Ltd.

**Address of applicant** ..... : Room 106, C406, No. 38, Garden Road, Rulin Street, Tianhe District, Guangzhou, China

**Manufacturer**..... : GUANGDONG KEGAO ELECTRONICS CO . , LTD

**Address of manufacturer**..... : No.39 East Science & Technology Ave. Zone A Shishan Science & Technology Industrial Park, Nanhai District, Foshan, Guangdong, P.R.China.

### General Description of E.U.T

**FCC ID**..... : 2BFBXAA18-02A

**Product Name** ..... : Aroma Diffuser

**Model No.** ..... : AA18-02A

**Model Description** ..... : ---

**Rated Voltage**..... : DC 5V by USB port; battery 3.7V

**Battery Capacity** ..... : ---

**Power Adapter** ..... : HCX1001-0502000U  
Input: 100-240V~, 50-60Hz, 0.4A; Output: DC 5V, 2A

### Technical Characteristics of EUT

**Support Standards** ..... : 802.11b, 802.11g, 802.11n

**Frequency Range** ..... : 2412-2462MHz for 802.11b/g/n(HT20)

**RF Output Power** ..... : 16.18 dBm (Conducted )

**Modulation** ..... : 802.11b: DSSS(DBPSK/DQPSK/CCK)  
802.11g/n: OFDM (BPSK/QPSK/16QAM/64QAM)

**Data Rate** ..... : 1Mbps for 802.11b; 54Mbps for 802.11g; MCS7 for 802.11n

**Quantity of Channels** ..... : 11 for 802.11b/g/n(HT20)

**Channel Separation**..... : 5MHz

**Type of Antenna** ..... : PCB Printed Antenna

**Antenna Gain** ..... : -0.23dBi

## 2 Applicable Standard

According to §1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|------------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                  | 6                                                                      |
| 3.0-30                | 1842/f                            | 4.89/f                            | (900/f)*                                | 6                                                                      |
| 30-300                | 61.4                              | 0.163                             | 1.0                                     | 6                                                                      |
| 300-1500              | /                                 | /                                 | F/300                                   | 6                                                                      |
| 1500-100000           | /                                 | /                                 | 5                                       | 6                                                                      |

(b) Limits for General Population / Uncontrolled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|------------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | (100)*                                  | 30                                                                     |
| 1.34-30               | 824/f                             | 2.19/f                            | (180/f)*                                | 30                                                                     |
| 30-300                | 27.5                              | 0.073                             | 0.2                                     | 30                                                                     |
| 300-1500              | /                                 | /                                 | F/1500                                  | 30                                                                     |
| 1500-100000           | /                                 | /                                 | 1                                       | 30                                                                     |

Note: f = frequency in MHz: \* = Plane-wave equivalents power density

## 3 Calculation Method

$$S = (30 \cdot P \cdot G) / (377 \cdot R^2)$$

S = power density (in appropriate units, e.g., mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm), R=20cm.

## 4 MPE Calculation Result

| Frequency (MHz) | Antenna Gain (dBi) | Numeric gain | Conducted Power (dBm) | Maximum Tune-up output power |       | PD (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|-----------------|--------------------|--------------|-----------------------|------------------------------|-------|--------------------------|-----------------------------|
|                 |                    |              |                       | (dBm)                        | (mW)  |                          |                             |
| 2402            | -0.23              | 0.95         | 16.18                 | 17.00                        | 50.12 | 0.00946                  | 1.0                         |

Result: Pass

=====End of Report=====