

RF Exposure Requirements

1.1 General Information

Client Information

Applicant : Guangdong Titan Smart Electrical Appliance Co., Ltd.
Address of applicant : 3rd Fl. Building No.2, 1Xinhua Road, Sanjiao town, Zhongshan, Guangdong, China
Manufacturer : The same as above
Address of manufacturer : The same as above

General Description of E.U.T

FCC ID : 2AZKD-HMCW-25US
Product Name : Ultrasonic Humidifer
Model No. : 10012P, HMCW-25US
Model Description : Model 10012P is same as HMCW-25US except for the model name. Therefore the full tests were performed on model HMCW-25US.
Rating : AC 120V, 60Hz, 25W
Battery Capacity : ---
Power Adapter : ---

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 : 16.44 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 : 2.54dBi

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 ²) | Averaging Times E ² , H ² 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 ²) | Averaging Times E ² , H ² 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 equivalent power density

3 Calculation Method

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

S = power density (in appropriate units, e.g., mW/cm²)

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 ²) | Limit (mW/cm ²) |
|-----------------|--------------------|--------------|-----------------------|------------------------------|-------|--------------------------|-----------------------------|
| | | | | (dBm) | (mW) | | |
| 2402 | 2.54 | 1.79 | 16.44 | 17.00 | 50.12 | 0.01789 | 1 |

Result: Pass

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