# CLIMAX TECHNOLOGY CO., LTD.

## No. 258, Sinhu 2nd Rd., Neihu District, Taipei City 114, Taiwan ( R.O.C.)

Federal Communications Commission
Authorization and Evaluation Division
Equipment Authorization Branch
7435 Oakland Mills Road
Columbia, MD 21046

## Applicant's declaration concerning RF Radiation Exposure

We hereby indicate that the product
Product description: Cellular Home Alarm System
Model No: CHMG-1

The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The integral antennas used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter within the host device.

A safety statement concerning minimum separation distances from enclosure of the
Product : Cellular Home Alarm System
will be integrated in the user's manual to provide end-users with transmitter operating conditions for satisfying RF exposure compliance.
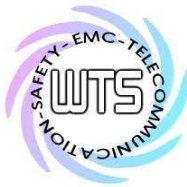
The appropriate information can be drawn from the test report no: W6M22103-20740-P-247, W6M22103-20740-C-1and the accompanying calculations.

Company: CLIMAX TECHNOLOGY CO., LTD.
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Date: 2021.03.26

Signature

George Lin

## 10 Maximum Permissible Exposure

### 10.1 Exemption Limits for Routine Evaluation according to 47 CFR FCC Part 2 Subpart J, section 2.1091

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.

The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a "worst case" or conservative prediction.

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20 cm normally can be maintained between the user and the device.

**MPE Calculation Method**

**(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 Time $|E|^2$, $|H|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f$^2$)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 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 Time $|E|^2$, $|H|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f$^2$)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | f/1500 | 30 |
| 1500-100,000 | -- | -- | 1.0 | 30 |

f = frequency in MHz          *Plane-wave equivalent power density

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

The formula can be changed to          mW/cm$^2$.
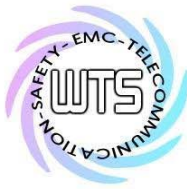
| Frequency | Max output power | | Antenna Gain | Power Density(S) (mW/cm²) | Limit of Power Density (S) (mW/cm²) | Test Result |
|---|---|---|---|---|---|---|
| | (dBm) | (W) | | | | |
| WCDMA Band II | 22.57 | 0.18 | 3.15 | 0.0742 | 1 | Complies |
| WCDMA Band IV | 22.74 | 0.19 | 3.49 | 0.0835 | 1 | Complies |
| WCDMA Band V | 23.64 | 0.23 | 1.15 | 0.0599 | 0.5644 | Complies |
| LTE Band II | 23.35 | 0.22 | 3.15 | 0.0889 | 1 | Complies |
| LTE Band IV | 23.15 | 0.21 | 3.49 | 0.0918 | 1 | Complies |
| LTE Band XII | 23.46 | 0.22 | -0.04 | 0.0437 | 0.4740 | Complies |

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.
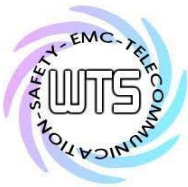
## 3.2  Equivalent Isotropic Radiated Power (EIRP)

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain
EIRP = 16.99 dBm + (-0.59 dBi [antenna gain claimed by manufacturer] )= 16.40 dBm = 43.65 mW

Test equipment used: ETSTW-RE 055

## 3.3  Exemption Limits for Routine Evaluation according to
## 47 CFR FCC Part 2 Subpart J, section 2.1091

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**MPE Calculation Method**

**(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 Time $|E|^2$, $|H|^2$ or S (minutes) |
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| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 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 Time $|E|^2$, $|H|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f$^2$)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | f/1500 | 30 |
| 1500-100,000 | -- | -- | 1.0 | 30 |

f = frequency in MHz            *Plane-wave equivalent power density

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

$$Pd \cdot \frac{30 \times P \times G}{377 \times d^2} \text{ mW/cm}^2$$

Established separation distance is 20 cm.
Operating frequency band : 2412-2462 MHz

The product meets RF exposure requirement.
Because the power density of 0.0087 mW/cm$^2$ at 2412 MHz is below the power density limit of 1 mW/cm$^2$.