

# 1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

## 1.1 Client Information

| Client Information       |  |
|--------------------------|--|
| Applicant:               | <b>Shenzhen Chuanghongyu Technology Co., Ltd</b>   |
| Address of applicant:    | 301 Jinjin Building, No. 242 Jihua Road, Jihua Street, Longgang District, Shenzhen,Guangdong,China |
| Manufacturer:            | <b>Shenzhen Chuanghongyu Technology Co., Ltd</b>   |
| Address of manufacturer: | 301 Jinjin Building, No. 242 Jihua Road, Jihua Street, Longgang District, Shenzhen,Guangdong,China |

| General Description of EUT |  |
|----------------------------|--|
| Name of EUT                | Dash camera,Car Dvr  |
| Model Number               | V25  |
| Listed Models              | /  |
| Power Supply               | DC5V, 2A from Car charging   |
| Frequency Range            | 2412MHz~2462MHz for 802.11b/802.11g/802.11n(HT20)<br>2422MHz~2452MHz for 802.11n(HT40) |
| Channel number:            | 11 for 802.11b/802.11g/802.11n(HT20)<br>7 for 802.11n(HT40)                            |
| Modulation Type            | DSSS for 802.11b<br>OFDM for 802.11g/802.11n(HT20)/802.11n(HT40)                       |
| Channel separation:        | 5MHz   |
| Antenna Type               | Integral Antenna   |
| Antenna Gain               | -1.0dBi  |
| Sample ID:                 | S-01   |
| FCC ID:                    | 2BHLL-V25  |

## 1.2 Standard Applicable

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

### 1.3 MPE 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)

### 1.4 MPE Calculation Result

Maximum peak output power: 18.50(dBm)

Tune-Up Max output power: 19(dBm), 79.43(mW)

Prediction distance: >20(cm)

Prediction frequency: 2462 (MHz)

Antenna gain: 2(dBi)

Directional gain: 0.65 (numeric)

The worst case is power density at prediction frequency at 20cm: 0.00995(mw/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

$$0.00995(\text{mw/cm}^2) < 1 (\text{mw/cm}^2)$$

So the transmitter complies with the RF exposure requirements and the SAR is not required.