

# RF EXPOSURE REPORT

|           |                                                                                                            |
|-----------|------------------------------------------------------------------------------------------------------------|
| Applicant | Shenzhen Everbest Machinery Industry Co., Ltd                                                              |
| Address   | 19th Building, 5th Region, Baiwangxin Industrial Park, SongBai Rd., Baimang, Xili, Nanshan, Shenzhen China |

|                                      |                                                                                                            |
|--------------------------------------|------------------------------------------------------------------------------------------------------------|
| Manufacturer or Supplier             | Shenzhen Everbest Machinery Industry Co., Ltd                                                              |
| Address                              | 19th Building, 5th Region, Baiwangxin Industrial Park, SongBai Rd., Baimang, Xili, Nanshan, Shenzhen China |
| Product                              | Face Recognition Scanner                                                                                   |
| Brand Name                           | <b>CEM</b>                                                                                                 |
| Model                                | AI-321                                                                                                     |
| Additional Models & Model Difference | AI-322, AI-328                                                                                             |
| Date of tests                        | May. 21, 2020 ~ Jun. 22, 2020                                                                              |

☒ FCC Part 2 (Section 2.1091)

☒ KDB 447498 D01

☒ IEEE C95.1

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

|                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Tested by Breeze Jiang<br>Senior Project Engineer / EMC Department                  | Approved by Glyn He<br>Assistant Manager / EMC Department                             |
|  |  |

Date: Jun. 24, 2020

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Test Report No.: FM200521N025

## RELEASE CONTROL RECORD

| ISSUE NO.    | REASON FOR CHANGE | DATE ISSUED   |
|--------------|-------------------|---------------|
| FM200521N025 | Original release  | Jun. 24, 2020 |

## 1. CERTIFICATION

|                        |                                               |
|------------------------|-----------------------------------------------|
| <b>FCC ID:</b>         | WIGAI-321                                     |
| <b>PRODUCT:</b>        | Face Recognition Scanner                      |
| <b>BRAND NAME:</b>     | <u><i>CEM</i></u>                             |
| <b>MODEL NO.:</b>      | AI-321                                        |
| <b>ADDITIONAL NO.:</b> | AI-322, AI-328                                |
| <b>TEST SAMPLE:</b>    | Engineering Sample                            |
| <b>APPLICANT:</b>      | Shenzhen Everbest Machinery Industry Co., Ltd |
| <b>STANDARDS:</b>      | FCC Part 2 (Section 2.1091)                   |
|                        | KDB 447498 D01                                |
|                        | IEEE C95.1                                    |

Note:

1. Additional models AI-322, AI-328 are identical with the test model AI-321 except the model name for trading purpose.

## 2. RF EXPOSURE LIMIT

### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| FREQUENCY RANGE (MHz)                                 | ELECTRIC FIELD STRENGTH (V/m) | MAGNETIC FIELD STRENGTH (A/m) | POWER DENSITY (mW/cm <sup>2</sup> ) | AVERAGE TIME (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE |                               |                               |                                     |                        |
| 300-1500                                              | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

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

## 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

| Mode | Transmitter Circuit | Peak Gain (dBi) | Antenna Type     |
|------|---------------------|-----------------|------------------|
| BT   | Chain 0             | 2.32            | Integral Antenna |
| WIFI | Chain 0             | 2.32            | Integral Antenna |

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

The tuned conducted Average Power (declared by client)

| Mode         | Frequency (MHz) | Target Power (dBm) | Tolerance (dBm) | Lower Tolerance (dBm) | Upper Tolerance (dBm) |
|--------------|-----------------|--------------------|-----------------|-----------------------|-----------------------|
| BT (GFSK)    | 2402-2480MHz    | -2                 | +3.5            | -5.5                  | 1.5                   |
| BT (8DPSK)   | 2402-2480MHz    | -6.5               | +3.5            | -10                   | -3                    |
| BT-LE (GFSK) | 2402-2480MHz    | 7                  | +2              | 5                     | 9                     |
| 802.11b      | 2412-2462MHz    | 15                 | +1              | 14                    | 16                    |
| 802.11g      | 2412-2462MHz    | 14                 | +1              | 13                    | 15                    |
| 802.11n HT20 | 2412-2462MHz    | 13                 | +1              | 12                    | 14                    |

The measured conducted Average Power

| Mode         | Frequency (MHz) | Averaged Power (dBm) |
|--------------|-----------------|----------------------|
| BT (GFSK)    | 2402            | 0.98                 |
| BT (8DPSK)   | 2402            | -4.19                |
| BT-LE (GFSK) | 2402            | 7.36                 |
| 802.11b      | 2462            | 15.43                |
| 802.11g      | 2462            | 14.02                |
| 802.11n HT20 | 2437            | 13.29                |



| <b>FREQUENCY<br/>BAND<br/>(MHz)</b> | <b>MAX AVERAGE<br/>POWER<br/>(dBm)</b> | <b>ANTENNA<br/>GAIN<br/>(dBi)</b> | <b>DISTANCE<br/>(cm)</b> | <b>POWER<br/>DENSITY<br/>(mW/cm<sup>2</sup>)</b> | <b>LIMIT<br/>(mW/cm<sup>2</sup>)</b> |
|-------------------------------------|----------------------------------------|-----------------------------------|--------------------------|--------------------------------------------------|--------------------------------------|
| BT 2402-2480                        | 9                                      | 2.32                              | 20                       | 0.002696                                         | 1.0                                  |
| WiFi 2412-2462                      | 16                                     | 2.32                              | 20                       | 0.013512                                         | 1.0                                  |

**CONCLUSION:**

The BT and WiFi can transmit simultaneously, the formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

**CPD = Calculation power density**

**LPD = Limit of power density**

$$(0.002696/1) + (0.013512/1) = 0.016208 < 1, \text{ which is less than the "1" limit.}$$

**--- END ---**