

# Maximum Permissible Exposure Evaluation

## ***FCC ID: 2AL8K-ONESCREEN-6***

### 1. Client Information

|                     |   |                                                                                                      |
|---------------------|---|------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>    | : | NZS Inc. DBA Clary Icon                                                                              |
| <b>Addres</b>       | : | 8168 Miramar Road, San Diego CA 92126, United States                                                 |
| <b>Manufacturer</b> | : | Shenzhen Konka E-display Co.,Ltd                                                                     |
| <b>Address</b>      | : | 22A,KONKA Building,South Technology Road No.12th,High-tech<br>Industrial Park,Nanshan,Shenzhen China |

*TB-RF-075-1.0*

## 2. General Description of EUT

|                               |                                                                                                     |                                                                                                                                                     |
|-------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT Name</b>               | Interactive Touch Screen/ Interactive Flat Panel                                                    |                                                                                                                                                     |
| <b>Models No.</b>             | OneScreen 6, OneScreen * (* stands for 0-9,or A-Z,or a-z,or blank)                                  |                                                                                                                                                     |
| <b>Model Different</b>        | All these models are the same PCB, layout and electrical circuit, the only different is model name. |                                                                                                                                                     |
| <b>Product Description</b>    | Operation Frequency:                                                                                | 802.11b/g/n(HT20): 2412MHz~2462MHz<br>802.11n(HT40): 2422MHz~2452MHz<br>U-NII-1: 5180MHz~5240MHz<br>U-NII-3: 5745MHz~5825MHz<br>BLE:2402MHz-2480MHz |
|                               | Antenna Gain:                                                                                       | 5dBi Reverse SMA Antenna                                                                                                                            |
| <b>Power Supply</b>           | :                                                                                                   | Input: AC 100-240V, 50/60Hz                                                                                                                         |
| <b>Connecting I/O Port(S)</b> | :                                                                                                   | Please refer to the User's Manual                                                                                                                   |
| <b>Remark</b>                 | :                                                                                                   | The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.                                      |

## MPE Calculations for WIFI

### 1. Antenna Gain:

Reverse SMA Antenna: 5.0dBi.

### 2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

### 3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

**S:** power density

**P:** power input to the antenna

**G:** power gain of the antenna in the direction of interest relative to an isotropic radiator.

**R:** distance to the center of radiation of the antenna

### 4. Test Result:

#### 2.4G WIFI

| Mode              | Conducted Power(max)<br>(dBm) | Turn-up Power<br>(dB) | Max tune up power<br>(dBm)<br>[P] | ANT Gain<br>(dBi)<br>[G] | Distance<br>(cm)<br>[R] | Power Density<br>(mW/ cm <sup>2</sup> )<br>[S] |
|-------------------|-------------------------------|-----------------------|-----------------------------------|--------------------------|-------------------------|------------------------------------------------|
| 802.11b           | 15.51                         | 15±1                  | 16                                | 5                        | 20                      | 0.025046                                       |
| 802.11g           | 14.90                         | 14±1                  | 15                                | 5                        | 20                      | 0.019893                                       |
| 802.11n<br>(HT20) | 13.49                         | 13±1                  | 14                                | 5                        | 20                      | 0.015803                                       |
| 802.11n<br>(HT40) | 12.52                         | 13±1                  | 14                                | 5                        | 20                      | 0.015803                                       |

#### BLE

| Mode | Conducted Power(max)<br>(dBm) | Turn-up Power<br>(dB) | Max tune up power<br>(dBm)<br>[P] | ANT Gain<br>(dBi)<br>[G] | Distance<br>(cm)<br>[R] | Power Density<br>(mW/ cm <sup>2</sup> )<br>[S] |
|------|-------------------------------|-----------------------|-----------------------------------|--------------------------|-------------------------|------------------------------------------------|
| GFSK | -0.156                        | 0±1                   | 1                                 | 5                        | 20                      | 0.000792                                       |

## 5G WiFi U-NII 1:

| Worst Maximum MPE Result                                                |                                |        |                    |                             |        |                    |                   |                                          |       |       |                                            |        |
|-------------------------------------------------------------------------|--------------------------------|--------|--------------------|-----------------------------|--------|--------------------|-------------------|------------------------------------------|-------|-------|--------------------------------------------|--------|
| Mode                                                                    | Conducted Power(max) (dBm) [P] |        | Tune up Power (dB) | Max tune up power (dBm) [P] |        | ANT Gain (dBi) [G] | Distance (cm) [R] | Power Density (mW/ cm <sup>2</sup> ) [S] |       |       | Power Density Limit (mW/ cm <sup>2</sup> ) | Result |
|                                                                         | Ant 0                          | Ant 1  |                    | Ant 0                       | Ant 1  |                    |                   | Ant 0                                    | Ant 1 | Sum   |                                            |        |
| 802.11a                                                                 | 15.733                         | 15.742 | ±1                 | 16.733                      | 16.742 | 5                  | 20                | 0.030                                    | 0.030 | ---   | 1.000                                      | PASS   |
| 802.11n (HT20)                                                          | 14.729                         | 14.761 | ±1                 | 15.729                      | 15.761 | 5                  | 20                | 0.024                                    | 0.024 | 0.048 |                                            |        |
| 802.11n (HT40)                                                          | 13.881                         | 13.928 | ±1                 | 14.881                      | 14.928 | 5                  | 20                | 0.019                                    | 0.020 | 0.039 |                                            |        |
| 802.11ac (VHT20)                                                        | 14.749                         | 14.679 | ±1                 | 15.749                      | 15.679 | 5                  | 20                | 0.024                                    | 0.023 | 0.047 |                                            |        |
| 802.11ac (VHT40)                                                        | 13.626                         | 13.603 | ±1                 | 14.626                      | 14.603 | 5                  | 20                | 0.018                                    | 0.018 | 0.036 |                                            |        |
| Note:                                                                   |                                |        |                    |                             |        |                    |                   |                                          |       |       |                                            |        |
| (1) RF Output power specifies that Maximum Conducted Peak Output Power. |                                |        |                    |                             |        |                    |                   |                                          |       |       |                                            |        |

## 5G WiFi U-NII 3:

| Worst Maximum MPE Result                                                         |                                |        |                    |                             |        |                    |                   |                                          |       |       |                                            |        |
|----------------------------------------------------------------------------------|--------------------------------|--------|--------------------|-----------------------------|--------|--------------------|-------------------|------------------------------------------|-------|-------|--------------------------------------------|--------|
| Mode                                                                             | Conducted Power(max) (dBm) [P] |        | Tune up Power (dB) | Max tune up power (dBm) [P] |        | ANT Gain (dBi) [G] | Distance (cm) [R] | Power Density (mW/ cm <sup>2</sup> ) [S] |       |       | Power Density Limit (mW/ cm <sup>2</sup> ) | Result |
|                                                                                  | Ant 0                          | Ant 1  |                    | Ant 0                       | Ant 1  |                    |                   | Ant 0                                    | Ant 1 | Sum   |                                            |        |
| 802.11a                                                                          | 15.910                         | 15.519 | ±1                 | 16.910                      | 16.519 | 5                  | 20                | 0.031                                    | 0.028 | ---   | 1.000                                      | PASS   |
| 802.11n (HT20)                                                                   | 14.640                         | 14.665 | ±1                 | 15.640                      | 15.665 | 5                  | 20                | 0.023                                    | 0.023 | 0.046 |                                            |        |
| 802.11n (HT40)                                                                   | 13.587                         | 13.407 | ±1                 | 14.587                      | 14.407 | 5                  | 20                | 0.018                                    | 0.017 | 0.035 |                                            |        |
| 802.11ac (VHT20)                                                                 | 14.681                         | 14.785 | ±1                 | 15.681                      | 15.785 | 5                  | 20                | 0.023                                    | 0.024 | 0.047 |                                            |        |
| 802.11ac (VHT40)                                                                 | 13.899                         | 13.250 | ±1                 | 14.899                      | 14.250 | 5                  | 20                | 0.019                                    | 0.017 | 0.036 |                                            |        |
| Note:<br>(1) RF Output power specifies that Maximum Conducted Peak Output Power. |                                |        |                    |                             |        |                    |                   |                                          |       |       |                                            |        |

**5. Conclusion:**

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

**Limits for General Population/ Uncontrolled Exposure**

| Frequency Range (MHz) | Power density (mW/ cm <sup>2</sup> ) |
|-----------------------|--------------------------------------|
| 300-1,500             | F/1500                               |
| 1,500-100,000         | 1.0                                  |

| Power density Limits (mW/cm2 )<br>2.4G WIFI | Power density Limits (mW/cm2 )<br>2.4G BLE | Power density Limits (mW/cm2 )<br>5G WIFI | Calculate Evaluation result (mW/cm2 ) | Power density Limits (mW/cm2) |
|---------------------------------------------|--------------------------------------------|-------------------------------------------|---------------------------------------|-------------------------------|
| 0.025046                                    | 0.000792                                   | 0.048                                     | 0.073828                              | 1.0                           |

For 802.11b/g/n:2412~2462 MHz

For BLE: 2402MHz~2480MHz

For U-NII-1: 5180MHz~5240MHz

For U-NII-3: 5745MHz~5825MHz

MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as  $0.073828 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$ . So, the device compliance the RF Exposure requirement.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

**Note**

For a more detailed features description, please refer to the RF Test Report.

-----END OF REPORT-----