



# RADIO TEST REPORT

Report No: STS2201157W01

Issued for

Shenzhen Kaadas Intelligent Technology co.,Ltd.  
 Floor 9,Building B,Tsinghua HiTech Park,Nanshan  
 District,Shenzhen,Guangdong,China

|                       |                   |
|-----------------------|-------------------|
| <b>Product Name:</b>  | Smart Keypad      |
| <b>Brand Name:</b>    | Array             |
| <b>Model Name:</b>    | Revive Keypad     |
| <b>Series Model:</b>  | N/A               |
| <b>FCC ID:</b>        | 2AQY4-H101K       |
| <b>Test Standard:</b> | FCC 47CFR §2.1093 |

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### Test Report Certification

**Applicant's Name**..... : Shenzhen Kaadas Intelligent Technology co.,Ltd.  
**Address** ..... : Floor 9,Building B,Tsinghua HiTech Park,Nanshan District,Shenzhen,Guangdong,China  
**Manufacturer's Name** ..... : Shenzhen Kaadas Intelligent Technology co.,Ltd.  
**Address** ..... : Floor 9,Building B,Tsinghua HiTech Park,Nanshan District,Shenzhen,Guangdong,China

#### Product Description

**Product Name**..... : Smart Keypad  
**Brand Name** ..... : Array  
**Model Name** ..... : Revive Keypad  
**Series Model**..... : N/A

**Standards** ..... : FCC 47CFR §2.1093

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#### Date of Test .....

**Date of receipt of test item** ..... : 20 Jan. 2021  
**Date (s) of performance of tests** ..... : 20 Jan. 2021 ~ 21 Feb. 2022  
**Date of Issue**..... : 21 Feb. 2022  
**Test Result**..... : **Pass**

Testing Engineer :

(Chris Chen)

Technical Manager :

(Sean she)

Authorized Signatory :

(Vita Li)





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**Revision History**

| Rev. | Issue Date   | Report No.    | Effect Page | Contents      |
|------|--------------|---------------|-------------|---------------|
| 00   | 21 Feb. 2022 | STS2201157H01 | ALL         | Initial Issue |
|      |              |               |             |               |





## 1. GENERAL INFORMATION

### 1.1 GENERAL DESCRIPTION OF THE EUT

|                     |                         |                 |
|---------------------|-------------------------|-----------------|
| Product Name        | Smart Keypad            |                 |
| Brand Name          | Array                   |                 |
| Model Name          | Revive Keypad           |                 |
| Series Model        | N/A                     |                 |
| Model Difference    | N/A                     |                 |
| Product Description | The EUT is Smart Keypad |                 |
|                     | Operation Frequency:    | 2402~2480 MHz   |
|                     | Modulation Type:        | GFSK            |
|                     | Antenna gain:           | 3dBi            |
|                     | Antenna Designation:    | Ceramic antenna |
| Power Rating        | Input: DC 3V            |                 |
| Hardware Version    | M5A80-B                 |                 |
| Software Version    | HP101_Keypad_V1.1       |                 |



## 1.2 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,  
Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01





## 2. FCC 47CFR §2.1093 REQUIREMENT

### 2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in KDB 447498 D01 General RF Exposure Guidance v06 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

### 2.2 LIMIT

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

| MHz  | 5   | 10  | 15  | 20  | 25  | mm                                       |
|------|-----|-----|-----|-----|-----|--|
| 150  | 39  | 77  | 116 | 155 | 194 | <i>SAR Test Exclusion Threshold (mW)</i> |
| 300  | 27  | 55  | 82  | 110 | 137 |  |
| 450  | 22  | 45  | 67  | 89  | 112 |  |
| 835  | 16  | 33  | 49  | 66  | 82  |  |
| 900  | 16  | 32  | 47  | 63  | 79  |  |
| 1500 | 12  | 24  | 37  | 49  | 61  |  |
| 1900 | 11  | 22  | 33  | 44  | 54  |  |
| 2450 | 10  | 19  | 29  | 38  | 48  |  |
| 3600 | 8   | 16  | 24  | 32  | 40  |  |
| 5200 | 7   | 13  | 20  | 26  | 33  |  |
| 5400 | 6   | 13  | 19  | 26  | 32  |  |
| 5800 | 6   | 12  | 19  | 25  | 31  |  |
| MHz  | 30  | 35  | 40  | 45  | 50  |  |
| 150  | 232 | 271 | 310 | 349 | 387 | <i>SAR Test Exclusion Threshold (mW)</i> |
| 300  | 164 | 192 | 219 | 246 | 274 |  |
| 450  | 134 | 157 | 179 | 201 | 224 |  |
| 835  | 98  | 115 | 131 | 148 | 164 |  |
| 900  | 95  | 111 | 126 | 142 | 158 |  |
| 1500 | 73  | 86  | 98  | 110 | 122 |  |
| 1900 | 65  | 76  | 87  | 98  | 109 |  |
| 2450 | 57  | 67  | 77  | 86  | 96  |  |
| 3600 | 47  | 55  | 63  | 71  | 79  |  |
| 5200 | 39  | 46  | 53  | 59  | 66  |  |
| 5400 | 39  | 45  | 52  | 58  | 65  |  |
| 5800 | 37  | 44  | 50  | 56  | 62  |  |



The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where  $f(\text{GHz})$  is the RF channel transmit frequency in GHz.

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.







### 2.3 TEST RESULT

Maximum measured transmitter power.

BLE The Worst Case

| Mode | frequency | Maximum AV Output Power | Tune up tolerance | Max Tune up |
|------|-----------|-------------------------|-------------------|-------------|
|      | GHz       | dBm                     | dBm               | dBm         |
| GFSK | 2.402     | 0.10                    | 0±1               | 1           |

Remark: The worst case gain of the antenna is 3dBi.

3dBi logarithmic terms convert to numeric result is nearly 1.96.

Maximum Tune up Power<sub>(2402)</sub>= 1.259mW

[(GFSK power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]= 1.259/5\*√2.402=0.390≤3.0

Threshold at which no SAR required is 0.390≤ 3.0 for 1-g SAR, Separation distance ≤ 5mm.

※※※※※END OF THE REPORT※※※※※