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# RF Exposure Evaluation Report

**Report No.:** CQASZ20220200200E-02  
**Applicant:** Shenzhen Inkbird Technology Co., Ltd.  
**Address of Applicant:** Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community, Liantang, Luohu District, Shenzhen, China.  
**Equipment Under Test (EUT):**  
**EUT Name:** Temperature & Humidity Smart Sensor  
**Test Model No.:** ITH-12S, ITH-13S, ITH-15S, ITH-16S  
**Model No.:** ITH-12S  
**Brand Name:** INKBIRD  
**FCC ID:** 2AYZD-ITH12S  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2022-02-16  
**Date of Test:** 2022-02-16 to 2022-02-21  
**Date of Issue:** 2022-02-25  
**Test Result:** PASS\*

\*In the configuration tested, the EUT complied with the standards specified above

**Tested By:**

*Lewis Zhou*

( Lewis Zhou )

**Reviewed By:**

*Rock Huang*

( Rock Huang )

**Approved By:**

*Jack Ai*

( Jack Ai )



## 1 Version

### Revision History Of Report

| Report No.           | Version | Description    | Issue Date |
|----------------------|---------|----------------|------------|
| CQASZ20220200200E-02 | Rev.01  | Initial report | 2022-02-25 |

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### 3 General Information

#### 3.1 Client Information

|                          |                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------|
| Applicant:               | Shenzhen Inkbird Technology Co., Ltd.                                                                       |
| Address of Applicant:    | Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community, Liantang, Luohu District, Shenzhen, China. |
| Manufacturer:            | Shenzhen Inkbird Technology Co., Ltd.                                                                       |
| Address of Manufacturer: | Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community, Liantang, Luohu District, Shenzhen, China. |
| Factory:                 | Shenzhen Inkbird Technology Co., Ltd.                                                                       |
| Address of Factory:      | Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community, Liantang, Luohu District, Shenzhen, China. |

#### 3.2 General Description of EUT

|                                  |                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Product Name:                    | Temperature & Humidity Smart Sensor                                                                                |
| Model No.:                       | ITH-12S, ITH-13S, ITH-15S, ITH-16S                                                                                 |
| Test Model No                    | ITH-12S                                                                                                            |
| Trade Mark:                      | INKBIRD                                                                                                            |
| EUT Supports Radios application: | Bluetooth mode<br>2402-2480MHz                                                                                     |
| Software Version:                | REV 2.0                                                                                                            |
| Hardware Version:                | REV 1.0                                                                                                            |
| Sample Type:                     | <input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location |
| EUT Power Supply:                | Button Battery: 3V                                                                                                 |

#### 3.3 General Description of BT&BLE

|                       |                                              |
|-----------------------|----------------------------------------------|
| Operation Frequency:  | 2402MHz~2480MHz                              |
| Bluetooth Version:    | V5.0                                         |
| Modulation Technique: | Non Frequency Hopping Spread Spectrum(NFHSS) |
| Modulation Type:      | GFSK                                         |
| Number of Channel:    | 40                                           |
| Transfer Rate:        | 1Mbps/2Mbps                                  |
| Test Software of EUT: | Phypluskit                                   |
| Antenna Type:         | PCB antenna                                  |
| Antenna Gain:         | 1dBi                                         |

Note:

Model No.: ITH-12S, ITH-13S, ITH-15S, ITH-16S

The model ITH-12S was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, only difference of the appearance color and model name.

## 4 SAR Evaluation

### 4.1 RF Exposure Compliance Requirement

#### 4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### 4.1.2 Limits

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:

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

$f(\text{GHz})$  is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

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

### 4.1.3 EUT RF Exposure

#### Measurement Data

| Channel                                                 | Maximum Peak<br>Conducted<br>Output Power<br>(dBm) | Tune up<br>tolerance<br>(dBm) | Maximum tune-<br>up Power |       | Calculated<br>value | Exclusion<br>threshold |
|---------------------------------------------------------|----------------------------------------------------|-------------------------------|---------------------------|-------|---------------------|------------------------|
|                                                         |                                                    |                               | (dBm)                     | (mW)  |                     |                        |
| Lowest<br>(2402MHz)                                     | 1.3                                                | 1.0±1                         | 2.0                       | 1.585 | 0.491               | 3.0                    |
| Middle<br>(2440MHz)                                     | 1.65                                               | 1.5±1                         | 2.5                       | 1.778 | 0.556               |                        |
| Highest<br>(2480MHz)                                    | 1.26                                               | 1.0±1                         | 2.0                       | 1.585 | 0.499               |                        |
| Conclusion: the calculated value ≤3.0, SAR is exempted. |                                                    |                               |                           |       |                     |                        |

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20220200200E-01.

\*\*\* END OF REPORT \*\*\*