



Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640

Fax: +86-755-26648637

Website: www.cqa-cert.com

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RF Exposure Evaluation Report

Report No.: CQASZ20210901550E-02
Applicant: Shenzhen Inkbird Technology Co., Ltd.
Address of Applicant: Floor 4th East, Building 713, Pengji Industrial Zone, LianTang, Luohu District, Shenzhen, PRC.
Equipment Under Test (EUT):
EUT Name: Bluetooth Digital Food Thermometer
Model No.: IHT-2PB, IHT-1PB, IHT-2KB, IHT-1KB
Teat Model No.: IHT-2PB
Brand Name: INKBIRD
FCC ID: 2AYZDIHT-2PB
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-09-01
Date of Test: 2021-09-01 to 2021-09-16
Date of Issue: 2021-10-21
Test Result: PASS*

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

Tested By:

Timo Lei

(Timo Lei)

Reviewed By:

Rock Huang

(Rock Huang)

Approved By:

Jack Ai

(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210901550E-02	Rev.01	Initial report	2021-10-21

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Inkbird Technology Co., Ltd.
Address of Applicant:	Floor 4th East, Building 713, Pengji Industrial Zone, LianTang, Luohu District, Shenzhen, PRC.
Manufacturer:	Shenzhen Inkbird Technology Co., Ltd.
Address of Manufacturer:	Floor 4th East, Building 713, Pengji Industrial Zone, LianTang, Luohu District, Shenzhen, PRC.
Factory:	Shenzhen Inkbird Technology Co., Ltd.
Address of Factory:	Floor 4th East, Building 713, Pengji Industrial Zone, LianTang, Luohu District, Shenzhen, PRC.

3.2 General Description of EUT

Product Name:	Bluetooth Digital Food Thermometer
Model No.:	IHT-2PB, IHT-1PB, IHT-2KB, IHT-1KB
Test Model No.:	IHT-2PB
Trade Mark:	INKBIRD
Hardware Version:	REV.A
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	CMOSTEK
Antenna Type:	PCB antenna
Antenna Gain:	1.5dBi
EUT Power Supply:	lithium battery: DC 3.7V 250mAh, Charge by DC 5.0V

Note:

Model No.: IHT-2PB, IHT-1PB, IHT-2KB, IHT-1KB

Only the model IHT-2PB was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance 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 ≤ 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 calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 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

1) For BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.86	-1.5±1	0.5	1.122
Middle(2440MHz)	-2.26	-2.0±1	-1.0	0.794
Highest(2480MHz)	-2.58	-2.5±1	-1.5	0.708
GFSK(2Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.73	-1.5±1	0.5	1.122
Middle(2440MHz)	-2.15	-2.0±1	-1.0	0.794
Highest(2480MHz)	-2.47	-2.5±1	-1.5	0.708

Worst case: GFSK(2Mbps)						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-1.73	-1.5±1	0.5	1.122	0.348	3.0
Middle (2440MHz)	-2.15	-2.0±1	-1.0	0.794	0.248	
Highest (2480MHz)	-2.47	-2.5±1	-1.5	0.708	0.223	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20210901550E-01

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