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RF Exposure Evaluation Report

Report No.: CQASZ20220400713E-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 SENSOR
Test Model No.: IBS-TH3-WIFI, IBS-TH5-WIFI, IBS-TH3-PLUS-WIFI, IBS-TH5-PLUS-WIFI
Model No.: IBS-TH3-WIFI
Brand Name: INKBIRD
FCC ID: 2AYZD-IBSTH3
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2022-04-28
Date of Test: 2022-04-28 to 2022-05-11
Date of Issue: 2022-05-26
Test Result: PASS*

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

Tested By: Lewis Zhou
(Lewis Zhou)

Reviewed By: K. Liao
(K Liao)

Approved By: Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220400713E-02	Rev.01	Initial report	2022-05-26

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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:	INKBIRD TECH.C.L.
Address of Factory:	6th Floor, Building 713, Pengji Liantang Industrial Area, NO.2 Pengxing Road, Luohu District, Shenzhen, China

3.2 General Description of EUT

Product Name:	TEMPERATURE HUMIDITY SENSOR
Model No.:	IBS-TH3-WIFI, IBS-TH5-WIFI, IBS-TH3-PLUS-WIFI, IBS-TH5-PLUS-WIFI
Test Model No	IBS-TH3-WIFI
Trade Mark:	INKBIRD
EUT Supports Radios application:	2.4GHz: Wi-Fi: 802.11b/g/n(HT20): 2412MHz~2462MHz; 802.11n(HT40): 2422MHz~2452MHz
Software Version:	V1.0
Hardware Version:	V2.0
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
EUT Power Supply:	AAA Battery*3 4.5V

3.3 General Description of BT

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channel:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps IEEE for 802.11n(HT40) : 13.5Mbps/27Mbps/40.5Mbps/54Mbps/81Mbps/108Mbps/121.5Mbps/135Mbps
Test Software of EUT:	WifiTestTool(v1.5.2)
Antenna Type:	PCB antenna

Antenna Gain:	2.21dBi
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Note:

Model No.: IBS-TH3-WIFI, IBS-TH5-WIFI, IBS-TH3-PLUS-WIFI, IBS-TH5-PLUS-WIFI

Only the model IBS-TH3-WIFI was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being capacity.

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

Measurement Data

Channel	Maximum Peak Conducted Output Power (dBm)	Maximum tune- up Power	Calculated value	Exclusion threshold
		(mW)		
Lowest (2412MHz)	8.12	6.486	2.011	3.0
Middle (2437MHz)	8.92	7.798	2.437	
Highest (2462MHz)	7.29	5.358	1.688	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.				

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20220400713E-01.

*** END OF REPORT ***