



1 Cover Page

RF Exposure Evaluation Report

Application No.: SHEM2101000672CR
FCC ID: 2AN76-SSD02
Applicant: Smart Sensor Devices in Sweden AB
Address of Applicant: Sollentunavagen 67A, 19140 Sollentuna, Sweden
Manufacturer: Smart Sensor Devices in Sweden AB
Address of Manufacturer: Sollentunavagen 67A, 19140 Sollentuna, Sweden
Equipment Under Test (EUT):
EUT Name: HibouAir (PM,CO2)
Model No.: SSD002/1,SSD002/2
Standard(s) : FCC Rules 47 CFR §2.1091
KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-01-21
Date of Test: 2021-02-02 to 2021-03-02
Date of Issue: 2021-04-28

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan

Parlam Zhan
E&E Section Manager

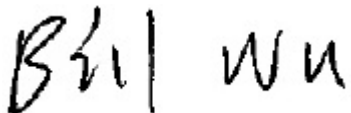
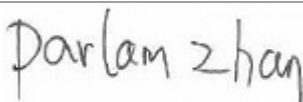
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Revision Record			
Version	Description	Date	Remark
00	Original	2021-04-28	/

Authorized for issue by:			
			
		Bill Wu / Project Engineer	
			
		Parlam Zhan /Reviewer	



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SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center EMC Laboratory

NO.588 West Jindu Road, Songjiang District, Shanghai, China 201612
中国·上海·松江区金都西路588号 邮编: 201612

t(86-21) 61915666 f(86-21) 61915678 www.sgs.com.cn
t(86-21) 61915666 f(86-21) 61915678 e.sgs.china@sgs.com



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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 5V 1A By adapter Adapter: Model:GAT-050100 Input:AC 100-240V~50/60Hz Output:5V 1A
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3.2 Technical Specifications

BLE

Antenna Gain:	-1.2dBi (Provided by manufacturer)
Antenna Type:	PCB Antenna
Bluetooth Version:	V5.0 LE
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz

WiFi

Antenna Gain:	2.5dBi (provided by Manufacturer)
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20): 13
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Power Class:	>=10mW





3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA).

• **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized by Federal Communications Commission (FCC) as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. ISED#: 8617A.

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.





4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 Measurement and Calculation

5.1 Maximum transmit power

For BLE:

The Power Data is based on the RF Test Report SHEM210100067201.

Test mode	Channel	Peak Power (dBm)	Peak Power (mW)
GFSK	2402	1.38	1.37
	2440	1.38	1.37
	2480	0.48	1.12

For WiFi:

The Power Data is based on the FCC certificate module of CC3220MODASF12MON,

FCC ID is: FCC ID:Z64-CC3220MOD.,the output power refer to test report FR731625.

Test Mode	Test Channel	Power [dBm]	Power [mW]
11B	2412	18.11	64.71
11B	2437	18.50	70.79
11B	2462	18.56	71.78
11G	2412	19.65	92.26
11G	2437	20.31	107.4
11G	2462	19.56	90.36
11N20SISO	2412	19.48	88.72
11N20SISO	2437	20.08	101.86
11N20SISO	2462	19.47	88.51



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t(86-21) 61915666 f(86-21) 61915678 www.sgsgroup.com.cn
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5.2 MPE Calculation

For FCC:

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm²

For BLE

The max. antenna gain is -1.2 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
1.37	0.759	20	0.00021	1	Pass

For 2.4G WiFi

The max. antenna gain is 2.5 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
107.4	1.778	20	0.03800	1	Pass

The BT and the DTS modules can simultaneous transmitting at frequency 2.4GHz band. But the maximum rate of MPE is $0.00021/10 + 0.03386/10 = 0.003596 \leq 1.0$. according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--

