

RF Exposure Evaluation Report

Applicant: ASmart LIGHT CO.,LTD

Address of Applicant: 506 N GARFIELD AVE SUITE#210 ALHAMBRA,CA 91801
USA

Equipment Under Test (EUT)

Product Name: Microwave motion Sensor

Model No.: HB01DMS-A, HB01DMS-B, HB01DMS-C

Trade mark: ASmart

FCC ID: 2AW5A-HB01DMS-A

Applicable standards: FCC CFR Title 47 Part 2 Subpart J Section 2.1091

Date of sample receipt: 09 Oct., 2021

Date of Test: 09 Oct., to 20 Oct., 2021

Date of report issue: 12 Nov., 2021

Test Result: PASS*

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	21 Oct., 2021	Original
01	09 Nov., 2021	Update page 5
02	12 Nov., 2021	Update page 6

Tested by: Mike.Ou
Test Engineer

Date: 12 Nov., 2021

Reviewed by: Winner Zhang
Project Engineer

Date: 12 Nov., 2021

3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION	2
3 CONTENTS	3
4 GENERAL INFORMATION.....	4
4.1 CLIENT INFORMATION	4
4.2 GENERAL DESCRIPTION OF E.U.T.	4
4.3 OPERATING MODES	4
4.4 ADDITIONS TO, DEVIATIONS, OR EXCLUSIONS FROM THE METHOD	4
4.5 LABORATORY FACILITY	4
4.6 LABORATORY LOCATION	4
5 TECHNICAL REQUIREMENTS SPECIFICATION IN FCC CFR TITLE 47 PART 2.1091	5
5.1 LIMITS	5
5.2 TEST PROCEDURE.....	5
5.3 RESULT	6
5.4 CONCLUSION	6

4 General Information

4.1 Client Information

Applicant:	ASmart LIGHT CO.,LTD
Address:	506 N GARFIELD AVE SUITE#210 ALHAMBRA,CA 91801 USA
Manufacturer:	ASmart LIGHT CO.,LTD
Address:	506 N GARFIELD AVE SUITE#210 ALHAMBRA,CA 91801 USA

4.2 General Description of E.U.T.

Product Name:	Microwave motion Sensor
Model No.:	HB01DMS-A, HB01DMS-B, HB01DMS-C
Operation Frequency:	5743.5-5860MHz
Modulation technology:	FMCW
Antenna Type:	Internal Antenna
Antenna gain:	-0.61 dBi
Remark :	Model No.: HB01DMS-A, HB01DMS-B, HB01DMS-C were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being outgoing cable connection mode.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Operating Modes

Operating mode	Detail description
SRD mode	Keep the EUT in continuously transmitting in SRD mode

4.4 Additions to, deviations, or exclusions from the method

No

4.5 Laboratory Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC - Designation No.: CN1211 JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551. ● ISED – CAB identifier.: CN0021 The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf
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4.6 Laboratory Location

<p>JianYan Testing Group Shenzhen Co., Ltd. Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com</p>

5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1091

5.1 Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

5.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

5.3 Result

According to the calculation formula of power :

$$EIRP = P * G = (E * d)^2 / 30$$

Where:

P = transmitter output power in watts,

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator (unitless),

E = electric field strength in V/m, --- $10^{((dBuV/m)/20)}/10^6$,

d = measurement distance in meters (m)---3m,

So, $P_{Max} = (E * d)^2 / 30 * G$:

Frequency (MHz)	Maximum field strength @3m (dBuV/m)	Maximum field strength @3 m (V/m)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (m)	Output power (mW)
5796.85	85.83	0.020	-0.61	0.87	3	0.100

So:

Frequency (MHz)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm ²)	Limits for General Population/ Uncontrolled Exposure (mW/cm ²)
FMCW						
5796.85	0.100	-0.61	0.87	20.00	0.000017	1.0

Note: Just the worst case mode was shown in report.

5.4 Conclusion

Cuz 0.000016 < 1.0, the device is exempt from the SAR test and satisfies RF exposure evaluation.

-----End of report-----