

TEST REPORT

Product Name : Microwave Motion Sensor
Model Number : HD016VCR-1A, HD016VCR-1B, HD016VCR-2A,
HD016VCR-2B, HB001VCR-1A, HB001VCR-1B,
HB001VCR-2A, HB001VCR-2B
FCC ID : 2AN7F-HDM031

Prepared for : Shenzhen Haisen Technology Co., Ltd
Address : 1201, Building 2, No.155, Hongtian Road, Huangpu
Community, Xinqiao Street, Bao'an District, Shenzhen

Prepared by : EMTEK (DONGGUAN) CO., LTD.
Address : -1&2/F., Building 2, Zone A, Zhongda Marine Biotechnology
Research and Development Base, No.9, Xincheng Avenue,
Songshanhu High-technology Industrial Development Zone,
Dongguan, Guangdong, China

TEL: +86-0769-22807078
FAX: +86-0769-22807079

Report Number : EDG2303310062E00102R
Date(s) of Tests : March 31, 2023 to April 28, 2023
Date of issue : April 28, 2023

Table of Contents

1. TEST RESULT CERTIFICATION	3
2. EUT SPECIFICATION	5
3. TEST REQUIREMENT	6
4. MEASUREMENT RESULT	7



1. TEST RESULT CERTIFICATION

Applicant : Shenzhen Haisen Technology Co., Ltd

Address : 1201, Building 2, No.155, Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen

Manufacturer : Dongguan Haiyue Intelligent Technology Co., LTD

Address : Room 1305, Building 1, Songhu Zhigu Industrial Building, No.9 Liaobu South Yanhe Road, Liaobu Town, Dongguan City, Guangdong Province

EUT : Microwave Motion Sensor

Model Name : HD016VCR-1A, HD016VCR-1B, HD016VCR-2A, HD016VCR-2B, HB001VCR-1A, HB001VCR-1B, HB001VCR-2A, HB001VCR-2B

Trademark : HAISEN

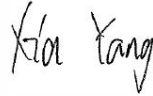
Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
§ 15.247(i), § 2.1093	PASS

The above equipment was tested by EMTEK(DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules FCC § 15.247(i), § 2.1093.

The test results of this report relate only to the tested sample identified in this report

Date of Test : March 31, 2023 to April 28, 2023

Prepared by : 

Xia Yang /Editor

Reviewer : 

Tim Dong/ Supervisor

Approve & Authorized Signer :  

Sam Lv / Manager

Modified History

Version	Report No.	Revision Date	Summary
	EDG2303310062E00102R	/	Original Report



2. EUT Specification

Characteristics	Description
Product:	Microwave Motion Sensor
Model Number:	HD016VCR-1A, HD016VCR-1B, HD016VCR-2A, HD016VCR-2B, HB001VCR-1A, HB001VCR-1B, HB001VCR-2A, HB001VCR-2B All models have the same RF module and antenna, PCB layout, schematics and components. Only the model and exterior color are different. Here we selected HD016VCR-1A for all the test
Sample:	1#
Modulation:	FMCW
Operating Frequency Range(s) :	5731MHz-5850MHz
Number of Channels:	120 Channels
Transmit Power Max:	92.94 dBuV@3m
Antenna Type:	Integrated Antenna
Antenna Gain:	-0.37 dBi
Power supply:	DC 14V
Evaluation applied:	☐ MPE Evaluation ☒ SAR Evaluation

3. Test Requirement

RF EXPOSURE EVALUATION

According to §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,²⁴ where

- $f_{\text{(GHz)}}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation²⁵
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval. One antenna is available for the EUT. The minimum separation distance is 5mm.

According to ANSI C63.10-2013

9.5 Equations to calculate EIRP

Calculate the EIRP from the radiated field strength in the far field using Equation (22):

$$\text{EIRP} = E + 20 \log(d) - 104.7 \quad (22)$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E is the field strength of the emission at the measurement distance, in dBμV/m

d is the measurement distance, in m

4. Measurement Result

Antenna gain:-0.37 dBi

When a single module works, the measurement results are as follows:

5.8G

Channel Freq. (MHz)	Max Field Strength (dBuV/m)	peak output power (dBm)	Tune upPower (dBm)	Max tune up power(dBm)	Calculation Result	1-g SAR
5731	92.94	-2.5876	-3±1	-2	0.30209616	3
5800	91.32	-4.2076	-5±1	-4	0.19175381	3
5850	89.65	-5.8776	-6±1	-5	0.15297059	3

According to KDB 447498 D01, no stand-alone required for BT antenna, and no simultaneous SAR measurement is required.

*** End of Report ***