



深圳华通威国际检验有限公司

SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD

TEST REPORT

Report No. : HTWE140601

Random Code : 39693

Applicant : HOPE MICROELECTRONICS Co., Ltd.

Product : SENSOR

Model No. : HP206C

Test by : Heidi Zhang

Reviewed by : Tong Jiang

Date : 2014-6-19

Date : 2014-6-19

Recognized by China National Accreditation Service for Conformity Assessment (CNAS) , the American Association for Laboratory Accreditation (A2LA), General Administration of Quality Supervision Inspection and Quarantine(AQSIQ), and China Metrology Accreditation (CMA) , is a CBTL recognized by International Electrotechnical Commission (IEC) CB-Scheme. is a Subordinate laboratory of China Certification Inspection Group Co.,Ltd.(CCIC).

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EMC -- TEST REPORT

Test Report No. :	HTWE140601	Jun 19 2014
		Date of issue

Equipment under Test : Sensor

Type / Model : HP206C

Listed models : /

Applicant : HOPE MICROELECTRONICS Co., Ltd.

Address : 2/F,Building3,pingshan Private Enterprise science and Technology Park,xili Town,Nanshan District,Shenzhen,China

Manufacturer : HOPE MICROELECTRONICS Co., Ltd.

Address : 2/F,Building3,pingshan Private Enterprise science and Technology Park,xili Town,Nanshan District,Shenzhen,China

Test Result according to the standards on page 4:	Positive
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[IEC61000-4-2:2008](#)

Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample : Jun 18, 2014

Testing commenced on : Jun 18, 2014

Testing concluded on : Jun 19, 2014

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : 230V / 50 Hz 115V / 60Hz
 12 V DC 24 V DC
 Other (specified in blank below)

____/

2.3. Short description of the Equipment under Test (EUT)

The EUT is a Sensor, model is HP206C.

Serial number: Prototype

2.4. EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

Test program (customer specific)

Immunity tests: According to IEC61000-4-2:2008, searching for the highest susceptibility.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- o - supplied by the lab
- N/A
- o N/A

2.6. Compliance criteria

Under the test conditions specified in 6.2.1.10 of IEC 61000-4-2: 2008, the equipment of system shall be able to provide the essential performance and remain safe. The following degradations associated with essential performance and safety shall not be allowed:

- component failures;
- changes in programmable parameters;
- reset to factory defaults (manufacturer's presets);
- change of operating mode;
- false alarms;
- cessation or interruption of any intended operation, even if accompanied by an alarm;
- initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- error of a displayed numerical value sufficiently large to affect diagnosis or treatment;
- noise on a waveform in which the noise would interfere with diagnosis, treatment or monitoring;
- artifact or distortion in an image in which the artifact would interfere with diagnosis, treatment or monitoring;
- failure of automatic diagnosis or treatment equipment and systems to diagnose or treat, even if accompanied by an alarm.

For equipment and systems with multiple functions, the criteria apply to each function, parameter and channel.

The equipment or system may exhibit degradation of performance (e.g. deviation from manufacturer's specifications) that does not affect essential performance or safety.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd.
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Tel: 86-755-26748019 Fax: 86-755-26748089

3.2. Test Facility

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

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 01, 2012. Valid time is until February 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept 30, 2015.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date Jul. 01, 2012, valid time is until Jun. 01, 2015.

IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Dec. 31, 2013, valid time is until Dec. 31, 2016.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.:R-2484. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 29, 2015.

Radiated disturbance above 1GHz measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2013. Valid time is until Dec. 23, 2016.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 19, 2015.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2013. Valid time is until May 06, 2016.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	<u>15-35 ° C</u>
Humidity:	<u>25-75 %</u>
Atmospheric pressure:	<u>950-1050mbar</u>

3.4. Test Description

Immunity Measurement		
Electrostatic Discharge	IEC 61000-4-2: 2008	PASS

Remark: The measurement uncertainty is not included in the test result.

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4 : Uncertainty in EM C Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

3.6. Equipments Used during the Test

Electrostatic Discharge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1	ESD Simulator	EM TEST	DITO	0301-04	11/22/2013	11/21/2014

4. TEST CONDITIONS AND RESULTS

4.1. Electrostatic discharge

For test instruments and accessories used see section 3.6.

4.1.1. Description of the test location and date

Test location: Shielded room No. 1

Date of test: Jun 19, 2014

Operator: MINGHUA.FAN

4.1.2. Severity levels of electrostatic discharge

4.1.2.1. Severity level: Contact Discharge at $\pm 2KV$

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1	2	2
2	4	4
3	6	8
4	8	15
X	Special	Special

4.1.2.2. Performance criterion: **B**

4.1.3. Description of the test set-up

4.1.3.1. Operating Condition

The EUT is setting work in standby mode during the test, and the results of the highest susceptibility are recorded.

4.1.3.2. Test Configuration and Procedure:

Direct Discharge:

Air Discharge:

- This test is done on a non-conductive surfaces. The round discharge tip of the Electrostatic Discharge simulator shall be approached as fast as possible then to touch the EUT. After each discharge, the simulator shall be removed from the EUT. The simulator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

Contact Discharge:

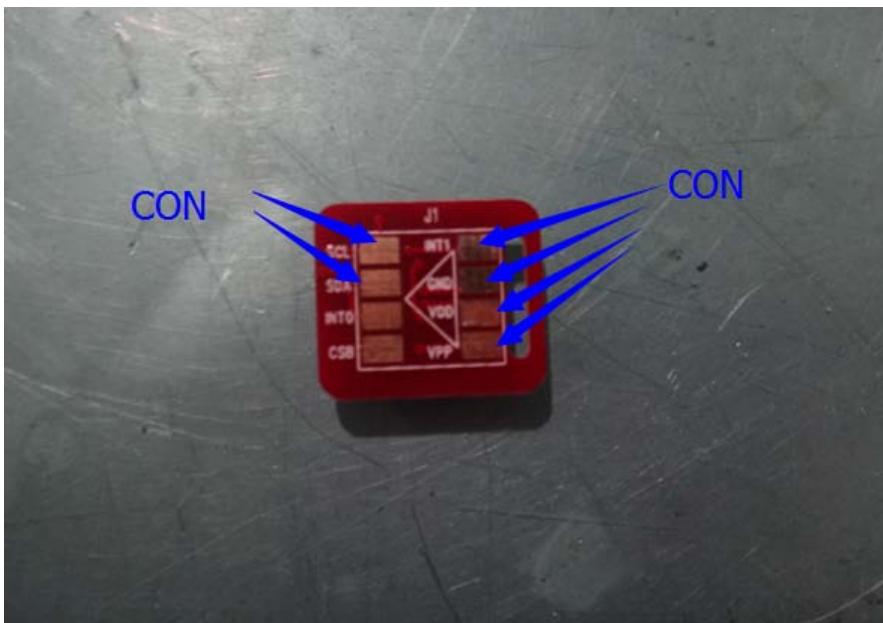
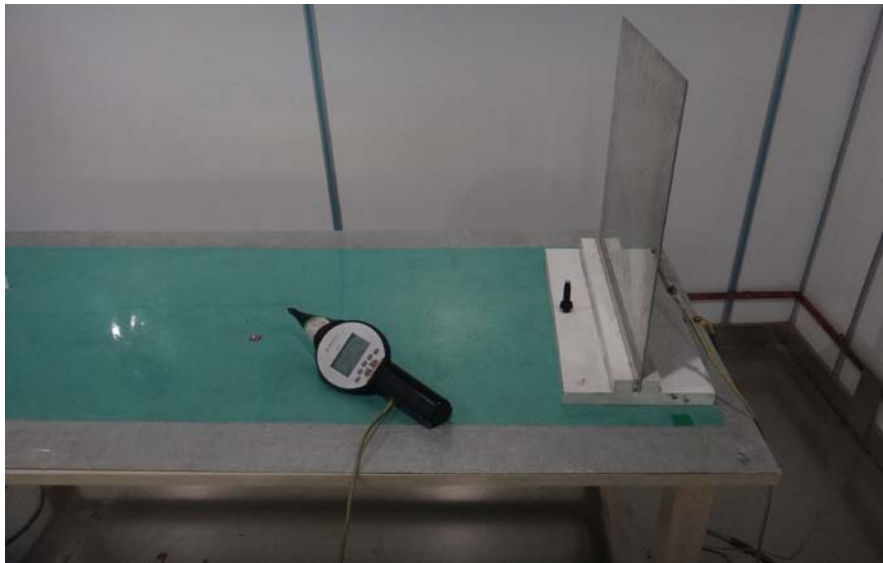
- All the procedure shall be same as air discharge, except using the acute discharge tip. The top end of the Electrostatic Discharge simulator is touch the EUT all the time when the simulator is re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.

Indirect Discharge:

- The vertical coupling plane(VCP) is placed 0.1m away from EUT. The top end of Electrostatic Discharge simulator should aim at the center of one border of the VCP for at least 10 times discharge.
- The top end of Electrostatic Discharge simulator should place at the point 0.1m away from EUT on the horizontal coupling plane(HCP). At least 10 times discharge should be done for every pre-selected point around EUT.

Record any performance degradation of the EUT during the test and judge the test result according to nce criterion.

4.1.3.3. Photo of the test set-up



4.1.4. Test specification:

Contact discharge voltage:

- 4 kV
- 2 kV

Number of discharges:

- 10
- 25

Air discharge voltage:

- 2 kV
- 4 kV
- 8 kV

Number of discharges:

- 10
- 25

Type of discharge:

- Direct discharge Air discharge
- Indirect discharge Contact discharge
- Contact discharge

Polarity:

- Positive
- Negative

Discharge location:

- see photo documentation of the test set-up
- all external locations accessible by hand
- Horizontal coupling plane (HCP)
- vertical coupling plane (VCP)

4.1.5. Test result

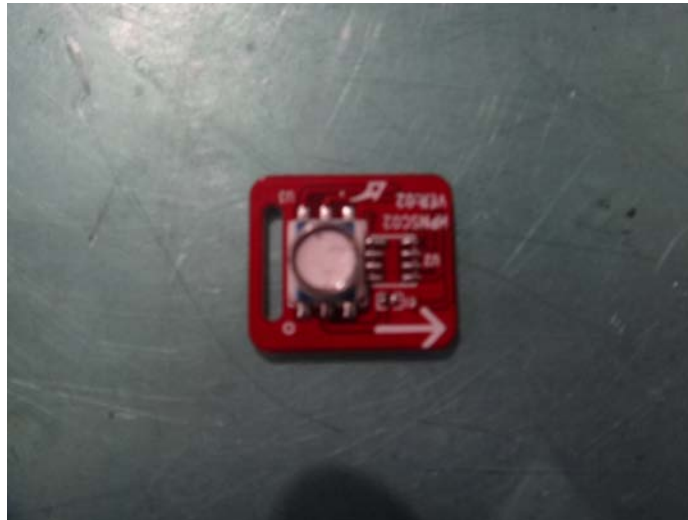
The requirements are **Fulfilled**

Performance Criterion: **B**

Remarks: During the test no deviation was detected to the selected operation mode(s).

5. External and Internal Photos of the EUT

5.1. External photos of the EUT



.....End of Report.....