



# EMC EMISSION - TEST REPORT

Report Number : **64.710.17.07355.01– (E)** Date of Issue: 2018-01-22

Model : EH101

Product Type : Electronic Hand Dynamometer

Applicant : Zhongshan Camry Electronic CO., LTD

Manufacturer : Zhongshan Camry Electronic CO., LTD

License holder : Zhongshan Camry Electronic CO., LTD

Address : Baishawan Industrial Park, Qiwan Road East, East District, Zhongshan, Guangdong, China

Test Result :  **Positive**  **Negative**



Total pages including Appendices : 20

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*TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch issued reports.*

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## DIRECTORY - EMISSIONS

		<b>Pages</b>
<b>A) Documentation</b>		
Directory		<u>2</u>
Test Regulations		<u>3</u>
General Remarks and Summary		<u>11</u>
<b>B) Test Data</b>		
Conducted Emissions	150 kHz - 30 MHz	<u>5,10</u>
Interference Power	30 MHz - 300 MHz	<u>6,10</u>
Radiated Emissions	30 MHz - 1000 MHz	<u>7,10</u>
Harmonic Current Emissions and Voltage Fluctuations and Flicker	2nd through 40th Harmonics	<u>8,10</u>
<b>C) Appendix A</b>		
Test Setup and Test Data Sheets		<u>12 – 15</u>
<b>D) Appendix B</b>		
Constructional Data Form and Product Information Form(s)		<u>16 - 17</u>
<b>E) Appendix C</b>		
Constructional Photographs		<u>18 - 20</u>

## EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to the following regulations:

-----  
■ - EMC - Directive 2014/30/EU and its amendments  
-----

■ - EN 55014-1:2017

■ - Household appliances and similar  
 - Portable tools  
 - Semiconductor devices

Note: For undated references, the latest edition of the publication at the time of testing (including amendments) was applied.



## Environmental Conditions In The Laboratory:

	<u>Actual</u>
Temperature:	: 23.1 °C
Relative Humidity:	: 52.0 %
Atmospheric Pressure:	: 100.7 kPa

## Power Rating of EUT:

Voltage : 3V DC ( AAA 1.5V\*2 )

## STATEMENT OF 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 that can account for a nominal measurement error (please refer to each test item). 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.

## Symbol Definitions:

- - Applicable
- - Not Applicable

## Test laboratory:

□ - TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch  
Add: 5F, Communication Building, 163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China

■ - CVC  
Add: No. 3 Tiantai Road, Kaitai Avenue, Science City, Guangzhou, China



## Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The **CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)** measurements were performed at the following test location:

■ - Test not applicable

- Test Area (TÜV SÜD Guangzhou) – Shielded room
- Test Area (TÜV SÜD Guangzhou) – Lab open area (for clicker test)

### Test Equipment Used:

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
<input type="checkbox"/>	ESCI	Rohde & Schwarz	EMI Test Receiver	100727	2017-10-31
<input type="checkbox"/>	ENV216	Rohde & Schwarz	AMN	3506.6550.05	2017-10-31
<input type="checkbox"/>	ESH2-Z3	Rohde & Schwarz	Passive voltage probe	0299.7810.56	2017-10-31
<input type="checkbox"/>	RSU-M314-N	Compliance Direction Systems Inc.	RF Switch Box	08042801	2017-10-31
<input type="checkbox"/>	LS16	AFJ	16A V-Network	16011030241	2017-10-31
<input type="checkbox"/>	CL55C	AFJ	Click Meter	55041047172	2017-10-31
<input type="checkbox"/>			Artificial Hand		
<input type="checkbox"/>			Conical metal housing		

Measurement Uncertainty: TÜV SÜD:  $\pm 3.3\text{dB}$  (9 kHz-150 kHz);  $\pm 2.48\text{dB}$  (150 kHz-30MHz);

Remarks: All test equipments used are calibrated on a regular basis.



## Emissions Test Conditions: INTERFERENCE POWER

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

- Test not applicable

- Test Area (TÜV SÜD Guangzhou) - Shield room

### Test Equipment Used :

Model Number	Manufacturer	Description	Serial Number	Cal. Due
<input type="checkbox"/> - ESCI	Rohde & Schwarz	EMI Test Receiver	100727	2017-10-31
<input type="checkbox"/> - RSU-M314-N	Compliance Direction Systems Inc.	RF Switch Box	08042801	2017-10-31
<input type="checkbox"/> - F-201-23MM	FCC	Absorbing Clamp	150	2017-10-31

Measurement Uncertainty: TÜV SÜD:  $\pm 3.64$  dB (30-300MHz)

Remarks: All test equipments used are calibrated on a regular basis.

## Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

- Test not applicable

■ - Test Area (CVC) – Anechoic ferrite lined shielded room

Testing was performed at a test distance of:

- - 3 meters
- 10 meters

Test Equipment Used:

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ -	N9038A	Agilent	EMI Test Receiver	MY53290078	2018-05-15
<input type="checkbox"/> -	N9030A	Agilent	Spectrum analyzer	MY53310374	2018-01-14
■ -	317	SONOMA INSTRUMENT	Pre amplifier	340807	2018-05-12
<input type="checkbox"/> -	AFS42-00101800- 25-S-42	MITEQ	Pre amplifier	1191956	2018-01-13
<input type="checkbox"/> -	FMZB1513	SCHWARZBECK	Active Loop Antenna	1513-170	2018-06-02
■ -	VULB 9163	SCHWARZBECK	Broadband Antenna	675	2018-08-04
<input type="checkbox"/> -	VULB 9163	SCHWARZBECK	Broadband Antenna	676	2016-02-04
<input type="checkbox"/> -	BHA9120B	SCHWARZBECK	Waveguide Horn Antenna	602	2018-05-19
<input type="checkbox"/> -	HF906	Rohde & Schwarz	Waveguide Horn Antenna	360306/008	2018-05-19
■ -	NCD	MATURO	Control	101/12570813	/
■ -	NS4900	TOYO Corporation	BAND SELECTOR	/	/

Measurement Uncertainty: CVC:  $\pm 4.40$ dB (30MHz-1000MHz)

Remarks: All test equipments used are calibrated on a regular basis.



## Emissions Test Conditions: CONDUCTED EMISSIONS (Harmonics and Flicker)

The *Harmonic Current Emissions and Voltage Fluctuations and Flicker* measurements were performed at the following test location :

- Test not applicable

- Test Area (TÜV SÜD Guangzhou) – Laboratory open area

### Test Equipment Used :

	<b>Model Number</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Serial Number</b>	<b>Cal. Due</b>
<input type="checkbox"/>	PCR6000LA	Kikusui	Multi purpose power supply	MG002890	2018-03-13
<input type="checkbox"/>	PM6000-1	Voltech	Power analyser	100006700229	2018-03-13
<input type="checkbox"/>	IMP555	Voltech	Impedance network	1494	2018-03-13

Remarks: All test equipments used are calibrated on a regular basis.





**Equipment Under Test (EUT) Test Operation Mode - Emissions Tests :**

The equipment under test was operated under the following conditions during emissions testing:

- Standby
- Test Program (H - Pattern)
- Test Program (Color Bar)
- Test Program (Customer Specified)
- Normal Operating Mode
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Configuration of the equipment under test:**

- See Constructional Data Form in Appendix B
- See Product Information Form(s) in Appendix B

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

- |                                  |              |
|----------------------------------|--------------|
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |

- unshielded power cable
- unshielded cables
- shielded cables

TÜV SÜD.  
No.: \_\_\_\_\_

- customer specific cables
- \_\_\_\_\_
- \_\_\_\_\_



## Emissions Test Results:

### Conducted Emissions, 150 kHz - 30 MHz

- PASS       - FAIL       - NOT APPLICABLE

Minimum limit margin \_\_\_\_\_ dB      at \_\_\_\_\_ MHz

Maximum limit exceeding \_\_\_\_\_ dB      at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Interference Power at the Mains and Interface Cables, 30 MHz - 300 MHz

- PASS       - FAIL       - NOT APPLICABLE

Minimum limit margin \_\_\_\_\_ dB      at \_\_\_\_\_ MHz

Maximum limit exceeding \_\_\_\_\_ dB      at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Radiated Emissions (Electric Field), 30 MHz - 1000 MHz

- PASS       - FAIL       - NOT APPLICABLE

Minimum limit margin \_\_\_\_\_ dB      at \_\_\_\_\_ MHz

Maximum limit exceeding \_\_\_\_\_ dB      at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_  
\_\_\_\_\_

### Harmonic Current Emissions and Voltage Fluctuations and Flicker

- PASS       - FAIL       - NOT APPLICABLE

Harmonic measurement exceeding limit \_\_\_\_\_ Above      at \_\_\_\_\_ Harmonic

Flicker measurement exceeding limit \_\_\_\_\_ Above      the \_\_\_\_\_ Requirement

Remarks: \_\_\_\_\_  
\_\_\_\_\_

**GENERAL REMARKS:**

**SUMMARY:**

All tests according to the regulations cited on page 3 were

- Performed

- Not Performed

The Equipment Under Test

- **Fulfills** the general approval requirements cited on page 3.

- **Does not** fulfill the general approval requirements cited on page 3.

Testing Start Date: 2018-01-11

Testing End Date: 2018-01-11

- TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch -

Reviewed by:

Prepared by:

  
\_\_\_\_\_  
Tony Liu

  
\_\_\_\_\_  
Damon Leung



China

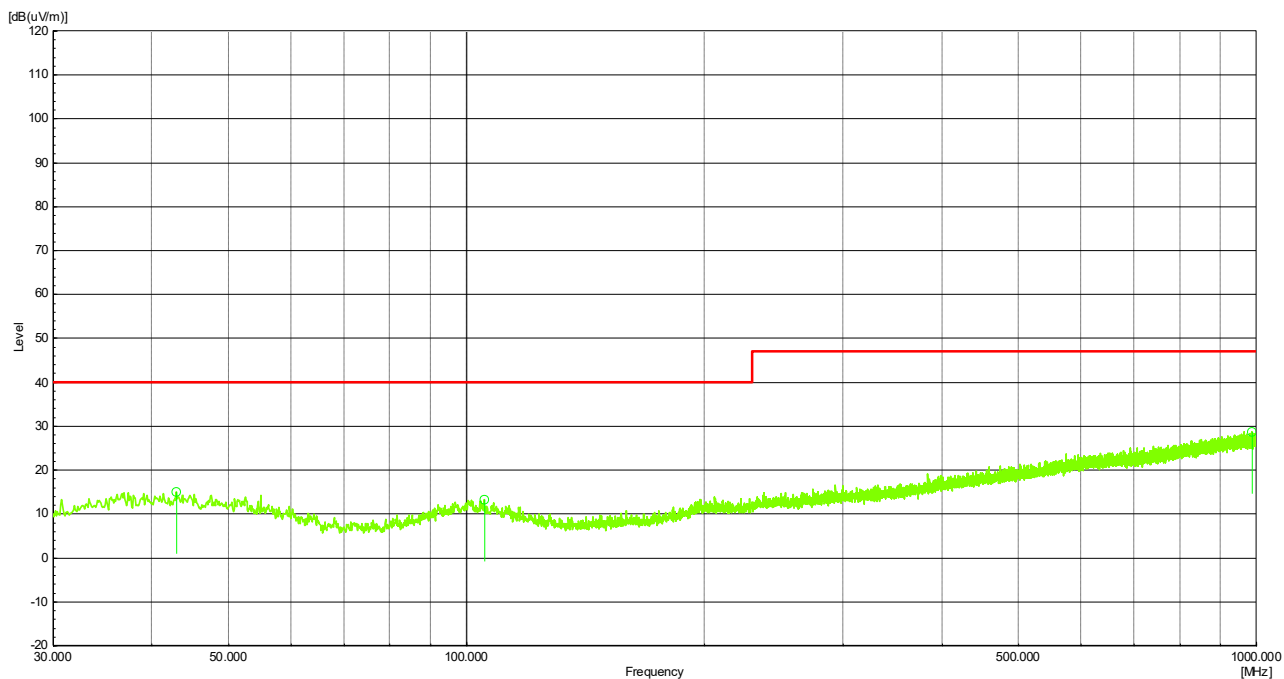
## Appendix A

Test Setup  
and  
Test Data Sheets

**Test setup Radiated emission (30MHz-1000MHz)**



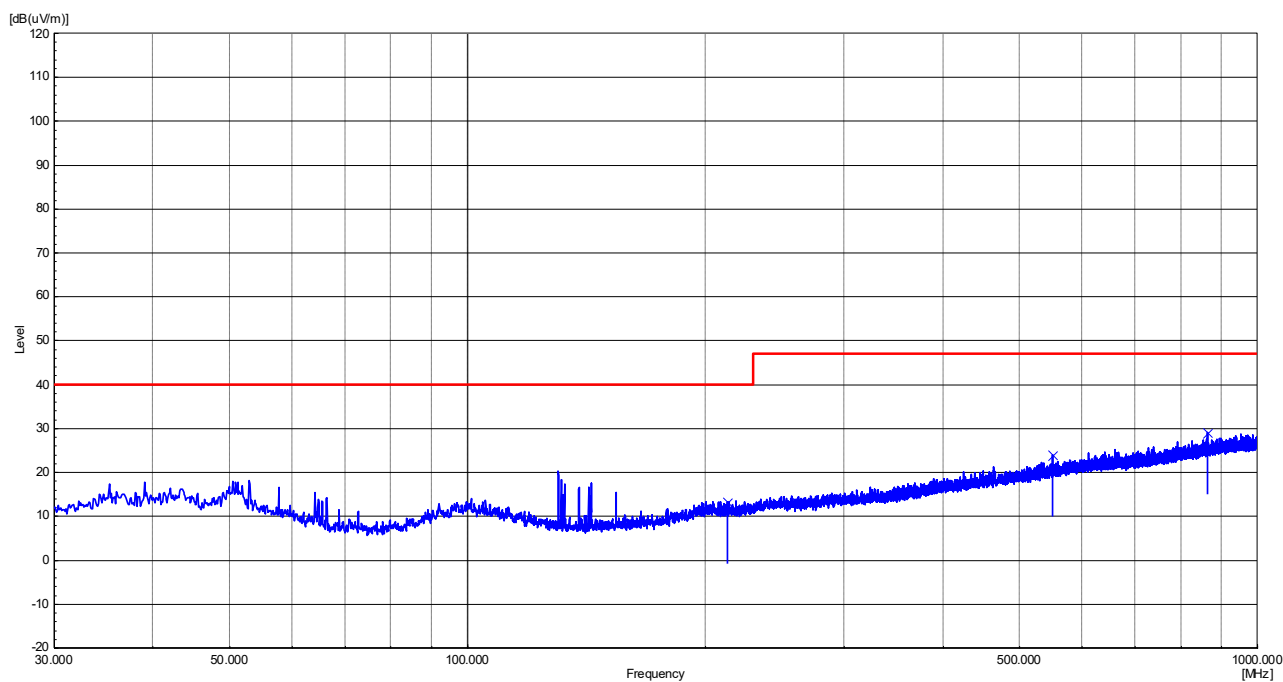
### Radiated emission 30MHz-1000MHz



No significant emission was detected within 10 dB to limit.

Model : EH101  
Operating Mode : EUT On  
Antenna : Horizontal polarization  
Test By : Damon Leung  
Test Date : 2018-01-11

## Radiated emission 30MHz-1000MHz



No significant emission was detected within 10 dB to limit.

Model : EH101  
Operating Mode : EUT On  
Antenna : Vertical polarization  
Test By : Damon Leung  
Test Date : 2018-01-11



## Appendix B

Constructional Data Form  
and  
Product Information Form(s)

**Any safety relevant information or constructional aspect concerning the sample or equipment under test as submitted by the applicant / report holder / certificate holder or any authorized agent is deemed to have no adverse effect on the electromagnetic compatibility (EMC) performance. Insofar as safety or compliance with Low Voltage Directive (LVD) or any relevant directive is concerned, the applicant / report holder / certificate holder or any authorized agent is required, by virtue of the relevant EU Directive provisions, to have satisfied that the product concerned (for which a sample was tested) meets with LVD or other relevant directives before placing it on the market.**

Where applicable, changes or modifications made to the original sample submitted for testing are documented herein. The applicant or manufacturer shall ensure that such changes or modifications are applied to the production units. Any further changes or modifications made to the production units may void the validity of this test report unless such changes or modifications have been formally assessed by TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch through technical evaluations or other means as appropriate and it has been confirmed that the EMC performance of such units is not adversely affected.

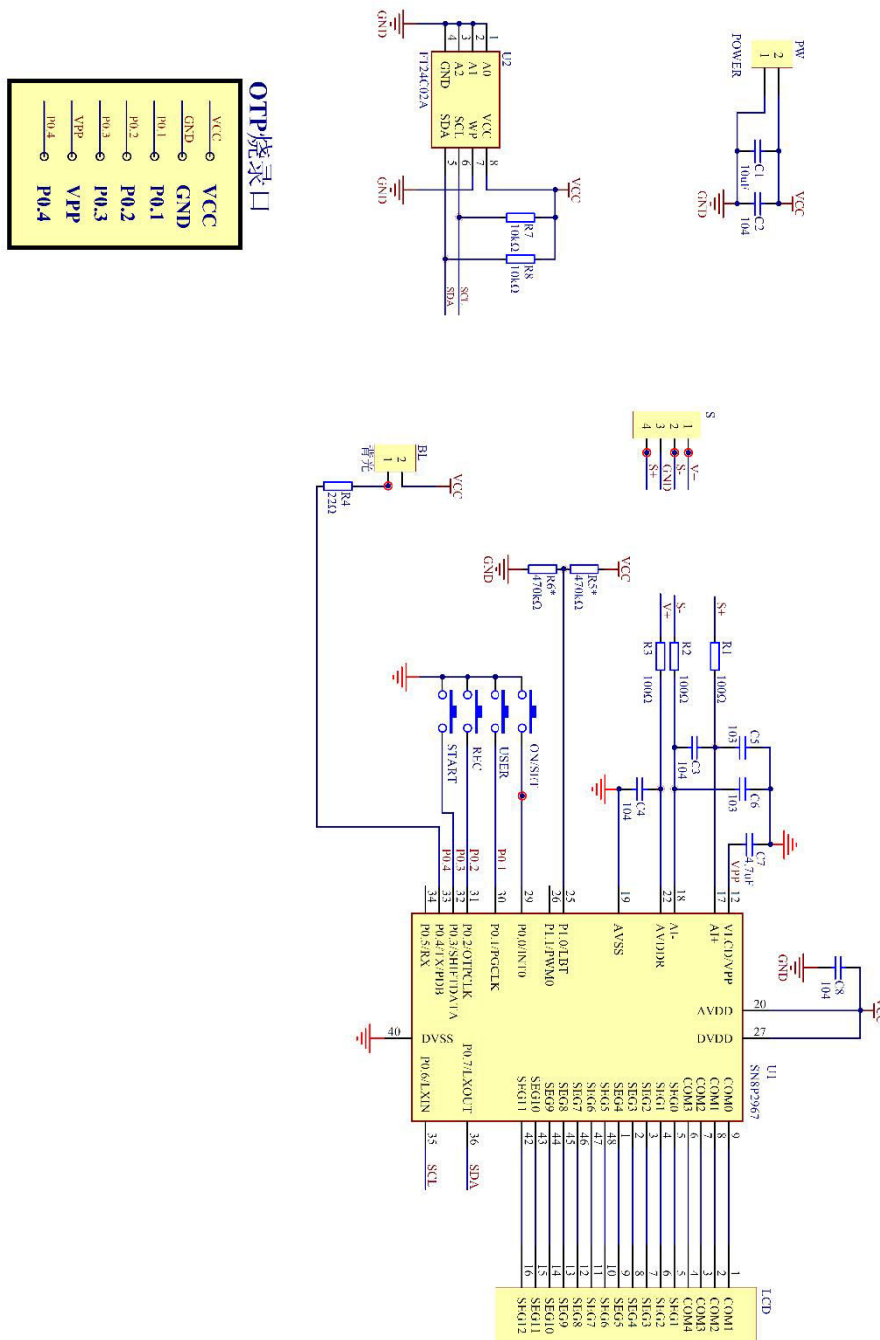
The enclosed, if any, circuit diagram / parts list / printed circuit board diagram / component layout / user manual are strictly for reference only. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall not be held responsible for any error or omission in such documents. It is the manufacturer's responsibility to ensure that production units conform to the tested sample.





China

### Electric diagram



## Appendix C

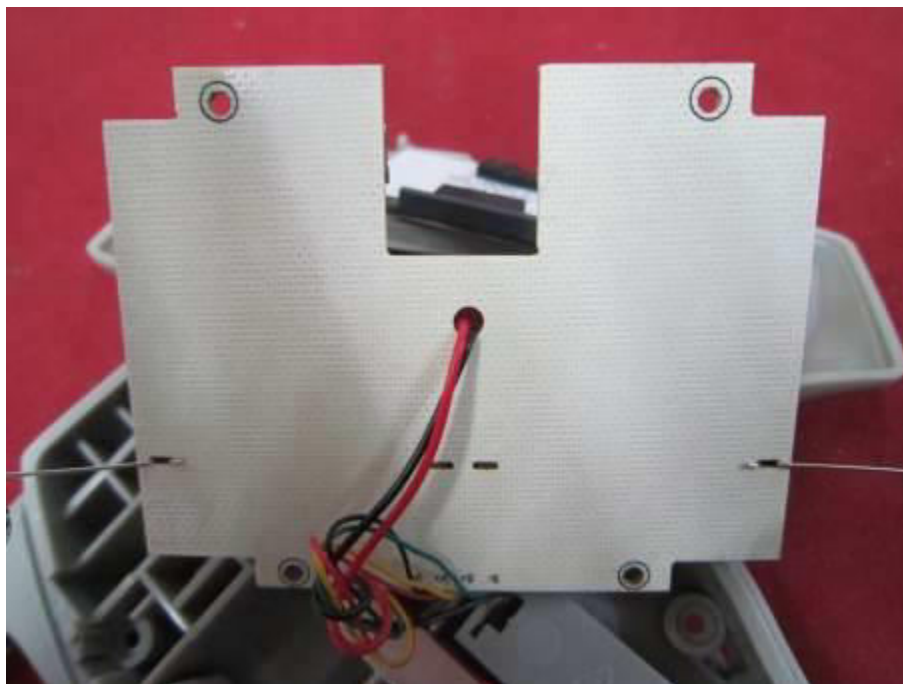
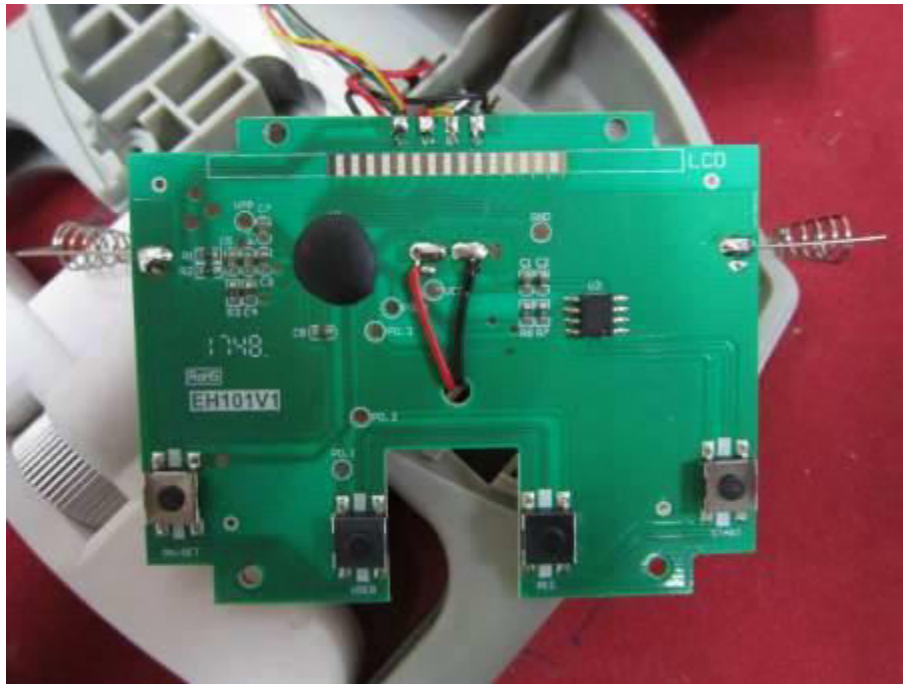
Constructional Photographs  
of  
Equipment under test (EUT)

**Any safety relevant information or constructional aspect concerning the sample or equipment under test as submitted by the applicant / report holder / certificate holder or any authorized agent is deemed to have no adverse effect on the electromagnetic compatibility (EMC) performance. Insofar as safety or compliance with Low Voltage Directive (LVD) or any relevant directive is concerned, the applicant / report holder / certificate holder or any authorized agent is required, by virtue of the relevant EU Directive provisions, to have satisfied that the product concerned (for which a sample was tested) meets with LVD or other relevant directives before placing it on the market.**

### Constructional Photographs



### Constructional Photographs





# EMC IMMUNITY - TEST REPORT

Report Number : **64.710.17.07355.01- (I)** Date of Issue: 2018-01-22

Model : EH101

Product Type : Electronic Hand Dynamometer

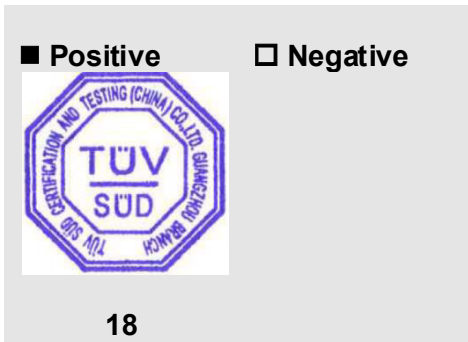
Applicant : Zhongshan Camry Electronic CO., LTD

Manufacturer : Zhongshan Camry Electronic CO., LTD

License holder : Zhongshan Camry Electronic CO., LTD

Address : Baishawan Industrial Park, Qiwan Road East, East District, Zhongshan, Guangdong, China

Test Result :  **Positive**  **Negative**



Total pages including Appendices : 18

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## DIRECTORY - IMMUNITY

	<b>Pages</b>
<b>A) Documentation</b>	
Directory	<u>2</u>
Test Regulations	<u>3</u>
General Remarks and Summary	<u>16</u>
<b>B) Test data: Immunity against</b>	
Electrostatic Discharge	<u>5</u>
Radiated field immunity	<u>6 - 7</u>
Fast Transients (Burst)	<u>8 - 9</u>
Surge Transients	<u>10 - 11</u>
Conducted Disturbance	<u>12 - 13</u>
Voltage Dips, Interruptions & Variations	<u>14</u>
<b>C) Appendix A</b>	
Test Setup Photo(s)	<u>17 - 18</u>

**Remark:**

Constructional Data Form and Product Information Form(s) and Constructional Photographs of EUT refer to emission test report.

## IMMUNITY TEST REGULATIONS:

The immunity tests were performed according to the following regulations:

-----  
■ - EMC - Directive 2014/30/EU and its amendments  
-----

■ - EN 55014-2:2015  
-----

- - IEC 61000-4-2:2008
- - IEC 61000-4-3:2006+A1:2007+A2:2010
- IEC 61000-4-4:2012
- IEC 61000-4-5:2014
- IEC 61000-4-6:2013
- IEC 61000-4-11:2004

Note: For undated references, the latest edition of the publication at the time of testing (including amendments) was applied.



## Environmental Conditions In The Laboratory:

	<u>Actual</u>
Temperature:	: 23.0 °C
Relative Humidity:	: 42.0-45.0%
Atmospheric Pressure:	: 100.7kPa

## Power Rating of EUT:

Voltage : 3V DC ( AAA 1.5V\*2 )

## STATEMENT OF MEASUREMENT UNCERTAINTY

The tolerances for each tests are reduced by the uncertainty reported on the calibration certificate for the measurement, all the parameters are within the tolerances required by the relevant standard, reduced by the uncertainty reported on the calibration certificate, so the laboratory has confidence that all the tests compliant with the relevant standards with a 95% confidence level.

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.

## Symbol Definitions:

- - Applicable
- - Not Applicable

## Test laboratory:

□ - TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch  
Add: 5F, Communication Building, 163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China

■ - CVC  
Add: No. 3 Tiantai Road, Kaitai Avenue, Science City, Guangzhou, China



## Immunity Test Conditions: ELECTROSTATIC DISCHARGE (ESD)

The immunity against *ELECTROSTATIC DISCHARGE (ESD)* events was performed in the following location:

- Test not applicable

■ - Test Area (CVC)Laboratory open area

### Test Equipment Used :

Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ - NSG438	TESEQ	ESD tester	996	2018-12-15
■ - ---	CVC	H/V Coupling Plane	/	/

Remarks: All test equipments used are calibrated on a regular basis.

### Test Specification:

Discharge Voltage (Air):

<input type="checkbox"/> - 2 kV	■ - 8 kV	<input type="checkbox"/> - 6 kV
<input type="checkbox"/> - 4 kV	<input type="checkbox"/> - 15 kV	<input type="checkbox"/> - _ kV

Discharge Voltage (Contact):

<input type="checkbox"/> - 2 kV	<input type="checkbox"/> - 6 kV	<input type="checkbox"/> - _ kV
■ - 4 kV	<input type="checkbox"/> - 8 kV	

Discharge Impedance:

■ - 330 Ω / 150 pF	<input type="checkbox"/> - 150 Ω / 150 pF
--------------------	---

Discharge Repetition Rate:

■ - ≥ 1 sec.

Number of Discharges:

■ - ≥ 10 at all locations

Kind of Discharges:

■ - Air discharge	■ - Conducted discharge
■ - Direct	■ - Indirect

Polarity:

■ - Positive	■ - Negative
--------------	--------------

Location of Discharge:

■ - HCP/VCP
■ - Each location on the surface touchable by hand
<input type="checkbox"/> - See drawing in Appendix A
<input type="checkbox"/> - _____

### Result :

■ - No degradation of function	- Met Criterion A
<input type="checkbox"/> - Distortion of function	- Met Criterion B
<input type="checkbox"/> - Error of function	- Met Criterion C
<input type="checkbox"/> - Loss of function	- Unrecoverable Failure

Remarks: \_\_\_\_\_

## Immunity Test Conditions: RADIATED ELECTROMAGNETIC FIELDS

The immunity against *RADIATED ELECTROMAGNETIC FIELDS* exposure was performed in the following location:

- Test not applicable

■ - Test Area (CVC) - Anechoic ferrite lined shielded room

### Test Equipment Used:

Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ - E4332B	Agilent	Signal Generator	MY43350242	2018-01-12
■ - CBA9413A	Schaffner	Power Ampelifier	9906	/
■ - 51011-EMC	BOONTON	Power Sensor	31510	2018-05-13
■ - FP5000	AMPLIFIER RESEARCH	Field Probe	26923	2018-01-12
■ - 4232A	BOONTON	Power Meter	41001	2018-05-13

Remarks: All test equipments used are calibrated on a regular basis.

### Test Specification:

Frequency Range:

- 27 MHz - 500 MHz     - 26 MHz – 1 GHz  
 - 9 kHz - 27 MHz    ■ - 80 MHz – 1 GHz  
 - 1.4GHz – 2 GHz     - 2 GHz – 2.7GHz

Field Strength:

- 1 V/m    ■ - 3 V/m  
 - 10 V/m     - \_ V/m

Distance Antenna - EUT:

- 1 m    ■ - 3 m



**Test Specification (continued):**

Modulation:                     - AM :                    80%                    1kHz  
    - FM :                    \_\_\_ kHz dev.                    \_\_\_ kHz  
    - sine wave:  
    - unmodulated  
    - Pulse                    ON/OFF                    Duty Cycle: \_\_\_ %

Step:                             - ≤ 0.015 decades / sec                     - 1%

Polarization of Antenna:                     - Horizontal                     - Vertical

**Result :**  
 - No degradation of function                    - Met Criterion A  
 - Distortion of function                    - Met Criterion B  
 - Error of function                    - Met Criterion C  
 - Loss of function                    - Unrecoverable Failure

Remarks: \_\_\_\_\_  
\_\_\_\_\_

## Immunity Test Conditions: FAST TRANSIENTS (BURST)

The immunity against *FAST TRANSIENTS (BURST)* events was performed in the following test location:

- Test not applicable

- Test Area (TÜV SÜD Guangzhou) - Laboratory open area

### Test Equipment Used :

Model Number	Manufacturer	Description	Serial Number	Cal. Due
<input type="checkbox"/> - MODULA6150	Teseq	Immunity test system	34595	2017-10-31
<input type="checkbox"/> - CDN8014	Teseq	Coupling Clamp	25528	2017-10-31

**Remarks: All test equipments used are calibrated on a regular basis.**

### Test Specification:

Pulse Amplitude - AC Power Port:  - 1,0 kV  - 2,0 kV  
 - 4,0 kV  - \_\_\_ kV

Pulse Amplitude - DC Power Port:  - 1,0 kV  - 2,0 kV  
 - 4,0 kV  - \_\_\_ kV

Pulse Amplitude - Signal/Data Non control Port:  - 0,5 kV  - 1,0 kV  
 - 2,0 kV  - \_\_\_ kV

Pulse Amplitude - Process: Measurement & Control Port  - 0,5 kV  - 1,0 kV  
 - 2,0 kV  - \_\_\_ kV

Burst Frequency:  - 2,5 kHz  - 5,0 kHz  - \_\_\_ kHz

Time of Coupling:  - 60 seconds  - 120 seconds  - \_\_\_ seconds

Coupling Method:  - Coupling/decoupling network  - Coupling clamp

Polarity:  - Positive  - Negative

## Immunity Test Conditions: FAST TRANSIENTS (BURST), continued

### Location of Coupling:

name of lines: AC POWER CORD

type of lines:  - shielded  - unshielded

status of lines:  - Passive  - active

kind of transmission:  - analog  - digital

length of lines: \_\_\_\_\_

name of lines: \_\_\_\_\_

type of lines:  - shielded  - unshielded

status of lines:  - Passive  - active

kind of transmission:  - analog  - digital

length of lines: \_\_\_\_\_

name of lines: \_\_\_\_\_

type of lines:  - shielded  - unshielded

status of lines:  - Passive  - active

kind of transmission:  - analog  - digital

length of lines: \_\_\_\_\_

### **Result :**

- |   |                         |
|---|-------------------------|
| <input type="checkbox"/> - No degradation of function | - Met Criterion A       |
| <input type="checkbox"/> - Distortion of function     | - Met Criterion B       |
| <input type="checkbox"/> - Error of function          | - Met Criterion C       |
| <input type="checkbox"/> - Loss of function           | - Unrecoverable Failure |

Remarks: \_\_\_\_\_

\_\_\_\_\_

## Immunity Test Conditions: SURGE TRANSIENTS

The immunity against *SURGE TRANSIENTS* events was performed in the following test location:

- Test not applicable

- Test Area (TÜV SÜD Guangzhou) - Laboratory open area

### Test Equipment Used:

Model Number	Manufacturer	Description	Serial Number	Cal. Due
<input type="checkbox"/> - MODULA6150	Teseq	Immunity test system	34595	2017-10-31

**Remarks: All test equipments used are calibrated on a regular basis.**

### Test Specification:

Pulse Amplitude - AC Power Port:     - 1,0 kV                       - 2,0 kV  
      - 4,0 kV                       - 0,5 kV

Pulse Amplitude - DC Power Port:     - 1,0 kV                       - 2,0 kV  
      - 4,0 kV                       - \_\_\_ kV

Pulse Amplitude - Signal/Data  
Non control Port:                       - 0,5 kV                       - 1,0 kV  
      - 2,0 kV                       - \_\_\_ kV

Pulse Amplitude - Process:  
Measurement & Control Port         - 0,5 kV                       - 1,0 kV  
      - 2,0 kV                       - \_\_\_ kV

Source Impedance:                       - 2 Ω + 18 μF                       - 12 Ω + 9 μF  
      - 42 Ω + 0,1 μF                       - 42 Ω + 0,5 μF

Number of Surges:                       - 5 surges/angle                       - \_\_\_ surges /angle

Angle:                                         - 90 °  
      - 270 °

Repetition Rate:                         - 60 sec.                               - \_\_\_ sec.

Polarity:                                     - Positive                               - Negative

**Immunity Test Conditions: SURGE TRANSIENTS**, continued

Location of Coupling:

name of lines: AC POWER CORD  
 type of lines:  - shielded  - unshielded  
 status of lines:  - Passive  - active  
 kind of transmission:  - analog  - digital  
 length of lines: \_\_\_\_\_

name of lines: \_\_\_\_\_  
 type of lines:  - shielded  - unshielded  
 status of lines:  - Passive  - active  
 kind of transmission:  - analog  - digital  
 length of lines: \_\_\_\_\_

name of lines: \_\_\_\_\_  
 type of lines:  - shielded  - unshielded  
 status of lines:  - Passive e  - active  
 kind of transmission:  - analog  - digital  
 length of lines: \_\_\_\_\_

**Result:**

- |   |                         |
|---|-------------------------|
| <input type="checkbox"/> - No degradation of function | - Met Criterion A       |
| <input type="checkbox"/> - Distortion of function     | - Met Criterion B       |
| <input type="checkbox"/> - Error of function          | - Met Criterion C       |
| <input type="checkbox"/> - Loss of function           | - Unrecoverable Failure |

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

## Immunity Test Conditions: CONDUCTED DISTURBANCE

The immunity against *CONDUCTED DISTURBANCE* events, induced by radio frequency fields above 9 kHz, was performed in the following test location:

- Test not applicable

- Test Area (TÜV SÜD Guangzhou) - Laboratory open area

### Test Equipment Used:

Model Number	Manufacturer	Description	Serial Number	Cal. Due
<input type="checkbox"/> - CIT-10/75	Frankonia	C/S test generator	102D1319	2017-10-31
<input type="checkbox"/> - 75-A-MFN-06	BIRD	6dB attenuator	0638	2017-10-31
<input type="checkbox"/> - M2+M3-801	Frankonia	CDN	A3011123	2017-10-31
<input type="checkbox"/> - F-203I-32mm	FCC	EM Injected Clamp	08511	2017-10-31

**Remarks: All test equipments used are calibrated on a regular basis.**

### Test Specification:

Frequency Range:  - 0,15 MHz - 230 MHz  - 0,15 MHz - 80 MHz

Voltage Level (EMF):  - 1 V  - 3 V  
 - 10 V  - \_\_\_ V

Modulation:  - AM : 80 % 1 kHz  
 - FM : \_\_\_ kHz dev. \_\_\_ kHz  
 - sine wave:  
 - unmodulated  
 - Pulse ON/OFF Duty Cycle: \_\_\_ %

Step:  - ≤ 1%



**Immunity Test Conditions: CONDUCTED DISTURBANCE, continued**

Location of Coupling:

name of lines: AC POWER CORD  
 type of lines:  - shielded  - unshielded  
 status of lines:  - Passive  - active  
 kind of transmission:  - analog  - digital  
 length of lines: \_\_\_\_\_

name of lines: \_\_\_\_\_  
 type of lines:  - shielded  - unshielded  
 status of lines:  - Passive  - active  
 kind of transmission:  - analog  - digital  
 length of lines: \_\_\_\_\_

name of lines: \_\_\_\_\_  
 type of lines:  - shielded  - unshielded  
 status of lines:  - Passive  - active  
 kind of transmission:  - analog  - digital  
 length of lines: \_\_\_\_\_

**Result:**

- |   |                         |
|---|-------------------------|
| <input type="checkbox"/> - No degradation of function | - Met Criterion A       |
| <input type="checkbox"/> - Distortion of function     | - Met Criterion B       |
| <input type="checkbox"/> - Error of function          | - Met Criterion C       |
| <input type="checkbox"/> - Loss of function           | - Unrecoverable Failure |

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

## Immunity Test Conditions: VOLTAGE DIPS

The immunity against *VOLTAGE DIPS* was performed in the following test location:

- Test not applicable

- Test Area (TÜV SÜD Guangzhou) - Laboratory open area

### Test Equipment Used:

Model Number	Manufacturer	Description	Serial Number	Cal. Due
<input type="checkbox"/> - MODULA6150	Teseq	Immunity test system	34595	2017-10-31
<input type="checkbox"/> - INA6501	Teseq	Step power supply	159	2017-10-31

**Remarks: All test equipments used are calibrated on a regular basis.**

### Test Specification:

Nominal Mains Voltage ( $V_{NOM}$ ):  - 230 Vac  - 100 Vac  - \_\_\_ Vdc

Level of Reduction (dip):

- 25 cycles at 30% of  $V_{NOM}$  50Hz
- 10 cycles at 60% of  $V_{NOM}$  50Hz
- 30 cycles at 30% of  $V_{NOM}$  60Hz
- 12 cycles at 60% of  $V_{NOM}$  60Hz
- 0.5 cycles at 0% of  $V_{NOM}$

### Result :

- No degradation of function      - Met Criterion A  
 - Distortion of function            - Met Criterion B  
 - Error of function                    - Met Criterion C  
 - Loss of function                    - Unrecoverable Failure

Remarks: \_\_\_\_\_

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**Equipment Under Test (EUT) Test Operation Mode - Immunity Tests :**

The equipment under test was operated under the following conditions during immunity testing :

- Standby
- Test Program (H - Pattern)
- Test Program (Color Bar)
- Test Program (Customer Specified)
- Normal Operating Mode
- \_\_\_\_\_
- \_\_\_\_\_

**Configuration of the equipment under test:**

- See Constructional Data Form in Appendix B - Page B2
- See Product Information Form(s) in Appendix B - Page B2

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

- |                                  |              |
|----------------------------------|--------------|
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |

- unshielded power cable
- unshielded cables
- shielded cables

TÜV. SUD  
No.: \_\_\_\_\_

- customer specific cables
- \_\_\_\_\_
- \_\_\_\_\_

**GENERAL REMARKS:**

**SUMMARY:**

All tests according to the regulations cited on page 3 were

- Performed
- **Not** Performed

The Equipment Under Test

- **Fulfills** the general approval requirements cited on page 3.
- **Does not** fulfill the general approval requirements cited on page 3.


Testing Start Date: 2018-01-13

Testing End Date: 2018-01-13

- TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch -

Reviewed by:

Prepared by:

  
\_\_\_\_\_  
Tony Liu

  
\_\_\_\_\_  
Damon Leung

## Appendix A

Test Setup Photo(s)

**Test setup: ESD**



**Test setup Radiated Electromagnetic Fields**

