

EMC EMISSION - TEST REPORT 64.710.17.07355.01-(E) **Report Number** 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 Zhongshan Camry Electronic CO., LTD License holder Baishawan Industrial Park, Qiwan Road East, East District, Address Zhongshan, Guangdong, China Test Result Positive □ Negative : Total pages including Appendices 20 TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch is a subcontractor to TÜV SÜD Product Service, GmbH according to the principles outlined in ISO/IEC Guide 25 and EN 45001. 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. This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

Report Number: 64.710.17.07355.01-(E)

Page 1 of 20

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



DIRECTORY - EMISSIONS

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

Report Number: 64.710.17.07355.01-(E)

Page 2 of 20

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



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
- \square Semiconductor devices

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

Report Number: 64.710.17.07355.01-(E)

Page 3 of 20



Environmental Conditions In The Laboratory:

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

Report Number: 64.710.17.07355.01-(E)

Page 4 of 20

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



Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

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

Test not applicable

I - 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
□ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100727	2017-10-31
□ -	ENV216	Rohde & Schwarz	AMN	3506.6550.05	2017-10-31
□-	ESH2-Z3	Rohde & Schwarz	Passive voltage probe	0299.7810.56	2017-10-31
□ -	RSU-M314-N	Compliance Direction Systems Inc.	RF Switch Box	08042801	2017-10-31
□-	LS16	AFJ	16A V-Network	16011030241	2017-10-31
□-	CL55C	AFJ	Click Meter	55041047172	2017-10-31
□-			Artificial Hand		
□ -			Conical metal housing		

Measurement Uncertainty: TÜV SÜD: \pm 3.3dB (9 kHz-150 kHz); \pm 2.48dB (150 kHz-30MHz); Remarks: All test equipments used are calibrated on a regular basis.

Report Number: 64.710.17.07355.01-(E)

Page 5 of 20

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



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
🗆 - ESCI	Rohde & Schwarz	EMI Test Receiver	100727	2017-10-31
□ - RSU-M314-N	Compliance Direction Systems Inc.	RF Switch Box	08042801	2017-10-31
□ - F-201-23MM	FCC	Absorbing Clamp	150	2017-10-31

Measurement Uncertainty: TÜV SÜD: ± 3.64 dB (30-300MHz) Remarks: All test equipments used are calibrated on a regular basis.

Report Number: 64.710.17.07355.01-(E)

Page 6 of 20



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
□ -	N9030A	Agilent	Spectrum analyzer	MY53310374	2018-01-14
-	317	SONOMA INSTRUMENT	Pre amplifier	340807	2018-05-12
□ -	AFS42-00101800- 25-S-42	MITEQ	Pre amplifier	1191956	2018-01-13
□ -	FMZB1513	SCHWARZBECK	Active Loop Antenna	1513-170	2018-06-02
-	VULB 9163	SCHWARZBECK	Broadband Antenna	675	2018-08-04
□ -	VULB 9163	SCHWARZBECK	Broadband Antenna	676	2016-02-04
□ -	BHA9120B	SCHWARZBECK	Waveguide Horn Antenna	602	2018-05-19
□ -	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 4.40dB (30MHz-1000MHz) Remarks: All test equipments used are calibrated on a regular basis.

Report Number: 64.710.17.07355.01-(E)

Page 7 of 20

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



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 :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
□ -	PCR6000LA	Kikusui	Multi purpose power supply	MG002890	2018-03-13
□ -	PM6000-1	Voltech	Power anyalyser	100006700229	2018-03-13
□ -	IMP555	Voltech	Impedance network	1494	2018-03-13

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

Report Number: 64.710.17.07355.01-(E)

Page 8 of 20



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

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

- I Standby
- □ Test Program (H Pattern)
- □ Test Program (Color Bar)
- □ Test Program (Customer Specified)
- In the second second
- D _____

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:

D		Туре:	
□- <u></u>			
D			
D			
□- <u></u>			
D			
D			
D			
- unshielded power cable			
- unshielded cables			
□ - shielded cables	TÜV SÜD. No.:_		
- customer specific cables			
D			
D			
Report Number: 64.710.17.07355.0	1– (E)		Page 9 of 20

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



Emissions Test Results:

MOT APPLICABLE at MHz at MHz at MHz
at MHz MHz NOT APPLICABLE dB at MHz
MHz NOT APPLICABLE dB at MHz
MHz NOT APPLICABLE dB at MHz
MOT APPLICABLE dB at MHz
MOT APPLICABLE dB at MHz
dB at MHz
dB at MHa
NOT APPLICABLE
at MHz
at MHz
ove at Harmonic
ove the Requirement
• • • • • • • • • • • • • • • • •



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.

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

Testing Start Date:

2018-01-11

Testing End Date: 1

2018-01-11

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

Reviewed by:	Prepared by:
Jony Lite	Damon Leung
401 400	AND HOR
Report Number: 64.710.17.07355.01– (E)	Page 11 of 20
TÜV SÜD Certification and Testir	g (China) Co. 1td Guangzhou Branch



Appendix A

Test Setup

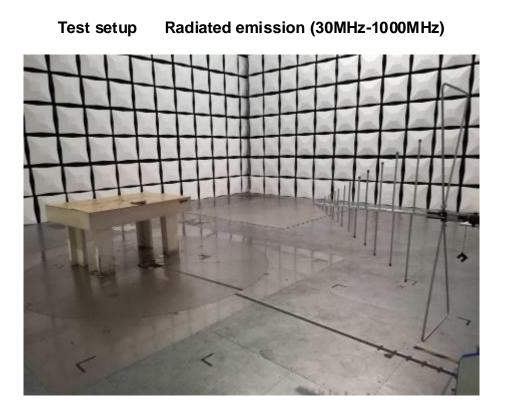
and

Test Data Sheets

Report Number: 64.710.17.07355.01-(E)

Page 12 of 20





Report Number: 64.710.17.07355.01-(E)

Page 13 of 20



[dB(uV/m)] 120 110 100 90 80 70 60 Pa 50 40 30 20 10 have a second -10 -<u>20</u> 50.000 500.000 1000.000 [MHz] 100.000 Frequency

Radiated emission 30MHz-1000MHz

No significant emission was detected within 10 dB to limit.

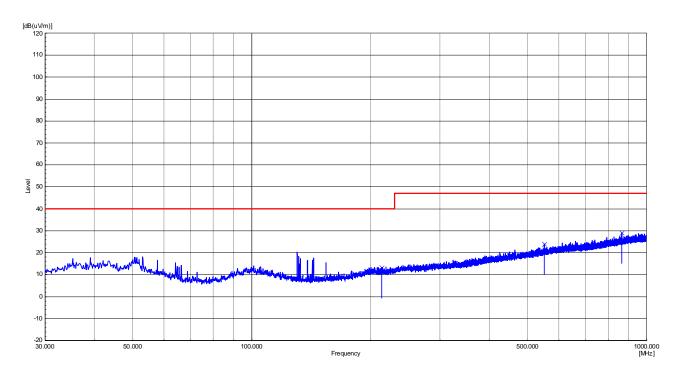
Model	:	EH101
Operating Mode	:	EUT On
Antenna	:	Horizontal polarization
Test By	:	Damon Leung
Test Date	:	2018-01-11

Report Number: 64.710.17.07355.01-(E)

Page 14 of 20

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





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

Report Number: 64.710.17.07355.01-(E)

Page 15 of 20

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



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.

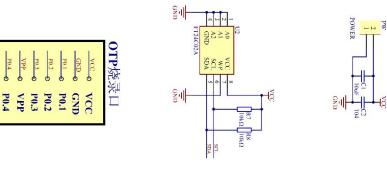
The enclosed, if any, circuit diagram / parts list / printed circuit board diagram / component layout / user manual are strictly for reference only. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall not be held responsible for any error or omission in such documents. It is the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

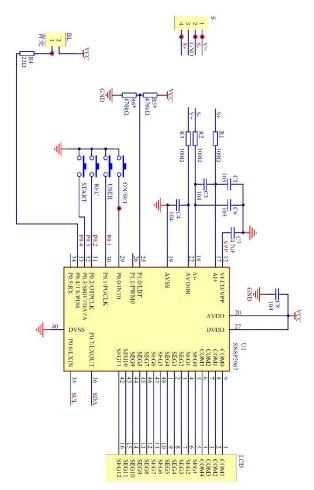
Report Number: 64.710.17.07355.01-(E)

Page 16 of 20



Electric diagram





Report Number: 64.710.17.07355.01-(E)

Page 17 of 20

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



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.

Report Number: 64.710.17.07355.01–(E)

Page 18 of 20



Constructional Photographs



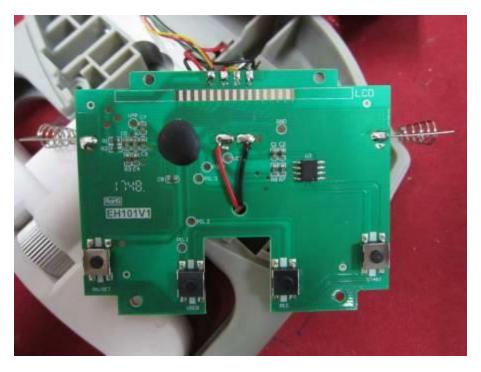


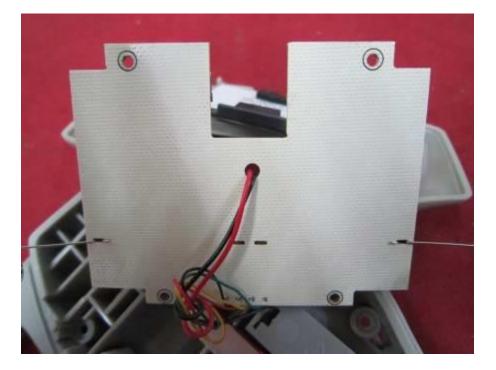
Report Number: 64.710.17.07355.01-(E)

Page 19 of 20



Constructional Photographs





Report Number: 64.710.17.07355.01-(E)

Page 20 of 20



64.710.17.07355.01- (I) **Report Number** 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 Zhongshan Camry Electronic CO., LTD License holder Address Baishawan Industrial Park, Qiwan Road East, East District, Zhongshan, Guangdong, China Test Result □ Negative Positive 2

EMC IMMUNITY - TEST REPORT

Total pages including Appendices

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch is a subcontractor to TÜV SÜD Product Service, GmbH according to the principles outlined in ISO/IEC Guide 25 and EN 45001.

18

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.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

Report Number: 64.710.17.07355.01-(I)

Page 1 of 18

DIRECTORY - IMMUNITY

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

Remark:

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

Report Number: 64.710.17.07355.01-(I)

Page 2 of 18

China

 $\ensuremath{\text{TUV}}$ SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch



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.

Report Number: 64.710.17.07355.01-(I)

Page 3 of 18

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



Environmental Conditions In The Laboratory:

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

I - 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

Report Number: 64.710.17.07355.01-(I)

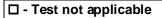
Page 4 of 18

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



Immunity Test Conditions: ELECTROSTATIC DISCHARGE (ESD)

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



Test Area (CVC)Laboratory open area

Test Equipment Used	:						
Model Number	Manufacturer		Serial Number				
■ - NSG438	TESEQ	ESD tester	996	2018-12-15			
	CVC	H/V Coupling Plan	ne /	/			
Remarks: All test equipments used are calibrated on a regular basis.							
Test Specification:							
Discharge Voltage (Air)		□ - 2 kV	■ - 8 kV	🗆 - 6 kV			
	C	⊐- 4 kV	□ - 15 kV	□ kV			
Disabarga Valtaga (Ca	ntaat):	□-2 kV	□- 6 kV	□- kV			
Discharge Voltage (Co	<i>+</i>	□ - 2 kv ■ - 4 kV	$\Box - 8 \mathrm{kV}$	LI KV			
	_						
Discharge Impedance:		■ - 330 Ω / 150 pF	🛛 - 150 Ω / 150 pF				
Discharge Repetition R	late:	■ - ≥ 1 sec.					
Number of Discharges	_						
Number of Discharges:		$- \ge 10$ at all locations					
Kind of Discharges:		 Air discharge 	- Conducted discharge				
		I - Direct	Indirect				
<u>Polarity:</u>		 Positive 	- Negative				
Location of Discharge:	-	- HCP/VCP					
Location of Discharge.			surface touchable by han	d			
		□ - See drawing in Appe		-			
		□					
Result :		Mat Oritarian A					
 No degradation of f Distortion of function 		- Met Criterion A					
\Box - Distortion of function		- Met Criterion B - Met Criterion C					
\Box - Loss of function		- Unrecoverable Failure					
Remarks:							

Report Number: 64.710.17.07355.01-(I)

Page 5 of 18

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



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 □ - 9 kHz - 27 MHz □ - 1.4GHz – 2 GHz	□ - 26 MHz – 1 GHz ■ - 80 MHz – 1 GHz □ - 2 GHz – 2.7GHz
Field Strength:	□ - 1 V/m □ - 10 V/m	■ - 3 V/m □ V/m
Distance Antenna - EUT:	🗆 - 1 m	■ - 3 m

Report Number: 64.710.17.07355.01-(I)

Page 6 of 18

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



Test Specification (continued):

Modulation:	 ■ - AM : □ - FM : ■ - sine wave: ■ - unmodulated 	80% kHz dev.	1kHz kHz
	□ - Pulse	ON/OFF	Duty Cycle: %
Step:	□ - <u><</u> 0.015 decades / se	9C	■ - 1%
Polarization of Antenna:	Horizontal	 Vertical 	
Result : ■ - No degradation of function □ - Distortion of function □ - Error of function □ - Loss of function	- Met Criterion A - Met Criterion B - Met Criterion C - Unrecoverable Failure)	
Remarks:			

Report Number: 64.710.17.07355.01-(I)

Page 7 of 18

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



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	Manufac	turer	Description		Serial Numbe	r Cal. Due
□ -		Teseq		Immunity test s		34595	2017-10-31
□ -	CDN8014	Teseq		Coupling Clam	р	25528	2017-10-31
Rem	narks: All test equip	ments use	d are cali	brated on a reg	ular basis	i.	
Test	Specification:						
	e Amplitude - AC Po	wer Port:	□ - 1,0	kV	🗆 - 2,0 k	۲V	
			□ - 4,0	kV	□	kV	
Dula	a Amalituda DC Da	war Darti	— 10			A/	
Puis	e Amplitude - DC Po	wer Port:	□ - 1,0 □ - 4,0		□ - 2,0 k □		
			ш ч,0	ις v	Ш	κ.v	
Puls	e Amplitude - Signal	/Data	□-0,5	kV	🗆 - 1,0 k	۲V	
<u>Non</u>	control Port:		□ - 2,0	kV	□	kV	
Dule	e Amplitude - Proces	· · ·	□-0,5		□- 1,0 k	ΔI	
	surement & Control P		$\Box = 0,3$ $\Box = 2,0$				
<u>10100</u>			_ 2,0		—		
Burs	st Frequency:		□-2,5	kHz	🗆 - 5,0 k	κHz	🗆 kHz
-					- 400		
lime	e of Coupling:		□ - 60 :	seconds	□ - 120 s	seconas	\Box seconds
Cou	pling Method:		🗆 - Cou	pling/decoupling	network		Coupling clamp
	<u></u>			F			9 ••••• •
<u>Pola</u>	<u>arity:</u>		🗆 - Posi	tive	🗆 - Nega	ntive	

Report Number: 64.710.17.07355.01-(I)

Page 8 of 18

 $\ensuremath{\text{TUV}}$ SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch



Immunity Test Conditions: FAST TRANSIENTS (BURST), continued

Location of Coupling:

name of lines: type of lines: status of lines: kind of transmission: length of lines:	AC POWER CORD	□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
name of lines: type of lines: status of lines: kind of transmission: length of lines:		□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
name of lines: type of lines: status of lines: kind of transmission: length of lines:		□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
Result : No degradation of function Distortion of function Error of function Loss of function 	- Met Crite - Met Crite	erion B	
Remarks:			

Report Number: 64.710.17.07355.01-(I)

Page 9 of 18

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



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		
□ - 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 Por	<u>wer Port</u> : □ - 1,0 □ - 4,0					
Pulse Amplitude - DC Po) kV 🛛 - 2,				
Pulse Amplitude - Signal/ Non control Port:	<u>Data</u> □ - 0,5 □ - 2,0	,				
Pulse Amplitude - Proces Measurement & Control F						
Source Impedance:		•	Ω + 9 μF Ω + 0,5 μF			
Number of Surges:	🗆 - 5 s	urges/angle 🛛	_ surges /angle			
<u>Angle:</u>	□ - 90 □ - 270					
Repetition Rate:	□ - 60	sec. 🛛	_ sec.			
Polarity:	🗆 - Pos	sitive 🛛 - Ne	gative			

Report Number: 64.710.17.07355.01-(I)

Page 10 of 18

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



Immunity Test Conditions: SURGE TRANSIENTS, continued

Location of Coupling:

name of lines: <u>A</u> type of lines: status of lines: kind of transmission: length of lines:	C POWER CORD	□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
name of lines: type of lines: status of lines: kind of transmission: length of lines:		□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
name of lines: type of lines: status of lines: kind of transmission: length of lines:		□ - shielded □ - Passive e □ - analog	□ - unshielded □ - active □ - digital
Result: - No degradation of function - Distortion of function - Error of function - Loss of function	- Met Crite - Met Crite	erion B	
Remarks:			

Report Number: 64.710.17.07355.01-(I)

Page 11 of 18

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



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
□ -	CIT-10/75	Frankonia	C/S test generator	102D1319	2017-10-31
□ -	75-A-MFN-06	BIRD	6dB attenuator	0638	2017-10-31
□ -	M2+M3-801	Frankonia	CDN	A3011123	2017-10-31
□ -	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 □ - 10 V	□-3V □V		
Modulation:	□ - AM : □ - FM : □ - sine wave: □ - unmodulated □ - Pulse	80 % kHz dev. ON/OFF	1 kHz kHz Duty Cycle: %	
<u>Step:</u>	□ - <u><</u> 1%			

Report Number: 64.710.17.07355.01-(I)

Page 12 of 18

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



Immunity Test Conditions: CONDUCTED DISTURBANCE, continued

Location of Coupling:

name of lines: type of lines: status of lines: kind of transmission: length of lines:	AC POWER CORD	□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
name of lines: type of lines: status of lines: kind of transmission: length of lines:		□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
name of lines: type of lines: status of lines: kind of transmission: length of lines:		□ - shielded □ - Passive □ - analog	□ - unshielded □ - active □ - digital
Result: - No degradation of fu - Distortion of function - Error of function - Loss of function	- Met Crite - Met Crite	erion B	
Remarks:			

Report Number: 64.710.17.07355.01-(I)

Page 13 of 18

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



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	Manufacture	r Description	Se	rial Number	Cal. Due
□ - MODULA6150	Teseq	Immunity test s		595	2017-10-31
□ - INA6501	Teseq	Step power su	pply 159	9	2017-10-31
Remarks: All test equ	uipments usec	l are calibrated on a reg	ular basis.		
Test Specification:					
Nominal Mains Voltage	<u>е</u> (V _{NOM}):	□ - 230 Vac	🗆 - 100 Vac	□- <u></u>	Vdc
Level of Reduction (dip	<u>):</u>	 □ - 25 cycles at 30% of □ - 10 cycles at 60% of □ - 30 cycles at 30% of □ - 12 cycles at 60% of □ - 0.5 cycles at 0% of 	V _{NOM} 50Hz V _{NOM} 60Hz V _{NOM} 60Hz		
Result : ☐ - No degradation of f ☐ - Distortion of function ☐ - Error of function ☐ - Loss of function		- Met Criterion A - Met Criterion B - Met Criterion C - Unrecoverable Failure			
Remarks:					

Report Number: 64.710.17.07355.01-(I)

Page 14 of 18

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



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)
- Image: Normal Operating Mode
- D-____

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:

D	Тур	e :	
D			
D			
D			
D			
D			
D -			
D			
 unshielded power cable 			
- unshielded cables			
□ - shielded cables	TÜV. SUD No.:		
- customer specific cables			
D			
□			
Report Number: 64.710.17.07355.0	01— (I)		Page 15 of 18

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

GENERAL REMARKS:

SUMMARY:

All tests according to the regulations cited on page 3 were

Performed

I - Not Performed

The Equipment Under Test

- Fulfills the general approval requirements cited on page 3.

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

Testing Start Date:

2018-01-13

China

.

Testing End Date:

;

2018-01-13

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

Reviewed by:	Prepared by:
	Testing (Chine) as
Toryty	Bamen Leung SUD
Report Number: 64.710.17.07355.01– (I)	Page 16 of 18
TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch 55. Communication Building, 163 Pingwun, Rd. Guangzhou 510656 P.R. China TEL: ±86 20 3832 0668, EAX: ±86 20 3832 0478	



Appendix A

Test Setup Photo(s)

Report Number: 64.710.17.07355.01-(I)

Page 17 of 18



Test setup: <u>ESD</u>



Test setup Radiated Electromagnetic Fields



Report Number: 64.710.17.07355.01-(I)

Page 18 of 18