

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Accreditation Certificate** that the testing laboratory

MD (China) ELECTRONICS Co., Ltd.
No. 5, Yunhu Road, Jintan District
CHANGZHOU 213200, P. R. CHINA

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the testing laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

This accreditation was issued after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This accreditation certificate with accreditation number D-PL-22492-01 is valid to 12.06.2029. It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 11 pages.

Registration number of the accreditation certificate: **D-PL-22492-01-00**



Berlin, 13.06.2024

Florian Burkart
Head of Technical Unit

The certificate together with the annex reflects the status as indicated by the date of issue. The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH (www.dakks.de).

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The Deutsche Akkreditierungsstelle GmbH (DAkKS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkKS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

The accreditation certificate shall be recognised as equivalent by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

DAkKS is a signatory to the multilateral agreements for mutual recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC).

The up-to-date state of membership can be retrieved from the following websites:

EA: www.european-accreditation.org

ILAC: www.ilac.org

IAF: www.iaf.nu

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Within the test ranges marked with *, the test laboratory is permitted, without the prior information and the agreement of the DAkkS, to apply the standardized test methods listed here or equivalent test methods (company standards) with different publication dates.

Within the fields of accreditation marked with *, the test laboratory is permitted, without the prior information and the agreement of the DAkkS, to apply the standardized test methods listed here or equivalent test methods with different publication dates.**

The test laboratory has a current list of all test methods in the flexible field of accreditation.

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A: No. 6, Tian Wei 3 Street, Tian Zhu AIZ A, Shunyi District, 101312 Beijing (RPC)

B: No. 5, Yunhu Road, Jintan District, 213200 Changzhou (RPC)

1 Flexibilization of accreditation according category I *

Department / Location	Test area	Test range	Characteristic test procedure
Mechanic			
A, B	Push and pull	Force transducer: 2 N until 1 kN Length variation traverse: 0,5 mm until 50 mm	DIN EN 60512-16-4 DIN EN 60512-13-1 DIN EN 60512-13-2 DIN EN 60512-13-5 DIN EN 60512-15-6

2 Test range: electrical engineering / EMC

Department	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation
Electrical engineering			
B	DIN EN 50289-1-3: 2002-02***	Communication cables - Specifications for test methods - Part 1-3: Electrical test methods; Dielectric strength	
A	DIN EN 50289-1-3: 2002-02***	Communication cables - Specifications for test methods - Part 1-3: Electrical test methods; Dielectric strength	Only DC voltage possible
A,B	DIN EN 50289-1-4: 2002-02***	Communication cables - Specifications for test methods - Part 1-4: Electrical test methods; Insulation resistance	

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Department	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation
A,B	DIN EN 50289-1-8, VDE 0819-289-1-8: 2018-02***	Communication cables - Specifications for test methods - Part 1-8: Electrical test methods - Attenuation	
A,B	DIN EN 50289-1-9, VDE 0819-289-1-9: 2018-01***	Communication cables - Specifications for test methods - Part 1-9: Electrical test methods - Unbalance attenuation (transverse conversion loss TCL transverse conversion transfer loss TCTL)	
A,B	DIN EN 50289-1-10: 2002-07***	Communication cables - Specifications for test methods - Part 1-10: Electrical test methods; Crosstalk	Is performed without balun measuring technique
A,B	DIN EN 50289-1-11, VDE 0819-289-1-11: 2018-08***	Communication cables - Specifications for test methods - Part 1-11: Electrical test methods - Characteristic impedance, input impedance, return loss	
A,B	DIN EN 13018: 2016-06***	Non-destructive testing - Visual testing - General principles	
A,B	DIN EN 60512-1-1: 2003-01***	Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination; Test 1a: Visual examination	
A,B	DIN EN 60512-3-1: 2003-01***	Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests; Test 3a: Insulation resistance	
A	DIN EN 60512-4-1: 2004-01***	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof	Only DC voltage possible
B	DIN EN 60512-4-1: 2004-01***	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof	
A,B	DIN EN 60512-25-1: 2002-08***	Connectors for electronic equipment - Tests and measurements - Part 25-1: Test 25a: Crosstalk ratio	
A,B	DIN EN 60512-25-2: 2002-12***	Connectors for electronic equipment - Tests and measurements - Part 25-2: Test 25b: Attenuation (insertion loss)	

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A,B	DIN EN 60512-25-5: 2005-05***	Connectors for electronic equipment - Tests and measurements - Part 25-5: Test 25e - Return loss	
A,B	DIN EN 60512-25-7: 2005-12***	Connectors for electronic equipment - Tests and measurements - Part 25-7: Test 25g - Impedance, reflection coefficient and standing voltage wave ratio (VSWR)	
A	DIN 72594-2: 2009-05***	Road vehicles - 50 ohm radio frequency interface (50 Ω RFI) - Part 2: Test procedures	<u>Limitation to:</u> Without Test group 2 Environmental test, 3 Temperature/humidity cycling, 4 Mechan. shock/ vibration and 5 Temperature, and also 6.3 Dielectric withstand voltage, 6.7 RF leakage
B	DIN 72594-2: 2009-05***	Road vehicles - 50 ohm radio frequency interface (50 Ω RFI) - Part 2: Test procedures	<u>Limitation to:</u> Without 7.1 Gauge test in test group 1 Test group 2 Environmental test, 3 Temperature/humidity cycling, 4 Mechan. shock/ vibration and 5 Temperature, and also 6.1 Contact resistance, 6.7 RF leakage
A,B	ISO 20860-1: 2008-10***	Road vehicles - 50 ohms impedance radio frequency connection system interface - Part 1: Dimensions and electrical requirements	

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A	ISO 20860-2: 2009-03***	Road vehicles - 50 ohms impedance radio frequency connection system interface - Part 2: Test procedures	<u>Limitation to:</u> Without Test group 2 Environmental test, 3 Temperature/humidity cycling, 4 Mechan. shock/ vibration and 5 Temperature, and also 7.4 Dielectric withstand voltage, 7.7 RF leakage
B	ISO 20860-2: 2009-03***	Road vehicles - 50 ohms impedance radio frequency connection system interface - Part 2: Test procedures	<u>Limitation to:</u> Without Test group 1 8.1 gauge test 2 Environmental tests, 3 Temperature / humidity cycling, 4 Mech. shock/ vibration and 5 Temperature, and also 7.2 Contact resistance 7.7 RF leakage
A,B	LAH V03.825 V06.00R: 2019-08	Component Performance specification for cables Manufactured Coaxial Cables	<u>Limitation to:</u> Without E-04 Shielding effectiveness and M-06 Dynamic tensile test
A,B	LAH V03.825 V06.01R: 2020-02	Component Performance specification for cables Manufactured Coaxial Cables	<u>Limitation to:</u> Without E-04 Shielding effectiveness and M-04 Dynamic tensile test
A,B	LAH V03 825 D V04.02R: 2020-03	Component Performance Specification for cables, Manufactured HSD and HSDe cables	<u>Limitation to:</u> Without E-01 Contact resistance and E-05 Shielding effectiveness

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Department	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation
A,B	Q/JLY J7111620A: 2020-12	Audio / video FAKRA & HSD Special wire assembly technical requirement – Enterprise Standard of Zhejinag Geely Automobile Research Institute Co.,Ltd	<u>Limitation to:</u> Without 5.2.9 Torsion test 5.2.16 Shielding effectiveness 5.2.18 Vibration test 5.2.19 Cycling bending load 5.2.20 Bending test 5.2.21 High/low temperature storage 5.2.22 Temperature and humidity cycle 5.2.23 Thermal aging test
A,B	Q/JLY J7111175B: 2022-10	Technical Specification for Audio / video FAKRA & HSD Connector – Enterprise Standard of Zhejinag Geely Automobile Research Institute Co.,Ltd	<u>Limitation to:</u> Without 5.2.12 until 5.2.14 and 5.2.20, 5.2.24 to 5.2.35
A,B	SMTC 2 861 001: 2013-11	Low-Voltage harness for automobiles design procedure – Enterprise Standard of SAIC MOTOR Technical Center	<u>Limitation to:</u> only 6.1.1 Crimping of terminal possible

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Department	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation
A,B	SMTC 3 862 001: 2019-09	Connectors for electrical wiring harness test procedure - Enterprise Standard of SAIC MOTOR Technical Center	<u>Limitation to:</u> 7.2.1 Connection and disconnection of terminal 7.2.2 Tensile Strength of Cable Attachment 7.2.3 Side pull test 7.2.4 Terminal Bend Resistance 7.3.1 Terminal-housing insertion force 7.3.2 Terminal retention in housing Without 7.3.2.3.1 7.3.3 Connection of assembled connectors 7.3.4 Intentional disconnection of assembled connectors 7.3.5 Unintentional disconnection of assembled Connectors 7.4.1 Contact Resistance-Low Voltage 7.5.1 Insulation Resistance, are possible.
A,B	SMTC 3 861 004: 2012-04	Low-Voltage vinyl sheath shielded cable – Enterprise Standard of SAIC MOTOR Technical Center	<u>Limitation to:</u> 6.1 Construction of individual cores 6.2 Test of diameter 6.3 Wall-thickness of sheath are possible

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A,B	SMTC 3 861 003: 2012-09	Low-Voltage for automobile cable test procedure – Enterprise Standard of SAIC MOTOR Technical Center	<u>Limitation to:</u> 9 Dimensional check Without 9.5 Measurement of conductor lay length 10.1 Conductor resistance 11.2 Adhesion of insulating layer to conductor are possible
A,B	CTS-17.01.01.41-a1: 2019-05	Technical Specification for FAKRA Wire Harness for Automobiles – CHANGAN	<u>Limitation to:</u> 7.2 Appearance and dimensions 7.3.1 Connector bonding force 7.3.2 Connector disengagement force 7.3.3 Connector locking retention force 7.3.4 Connector cable retention force 7.3.5 Unlocking force 7.4 Electrical performance without 7.4.1 contact resistance. and 7.4.3 withstand high voltage 7.5 Signal integrity test without RF leakage are possible

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Department	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation
A,B	CTS-17.01.01.40-a1: 2019-05	Technical Specification for HSD Harness for Automobiles – CHANGAN	<u>Limitation to:</u> 7.2 Appearance and dimensions 7.3 Mechanical properties 7.4 Electrical performance (without 7.4.1 contact resistance. and 7.4.3 withstand high voltage) 7.5 Signal integrity test without eye chart are possible

3 Test range: mechanical tests

Department	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation
Mechanical tests			
A,B	DIN EN 60512-1-2: 2003-01***	Connectors for electronic equipment - Tests and measurements - Part 1-2: General examination; Test 1b: Examination of dimension and mass	
A,B	DIN EN 60512-13-1: 2006-11*** with corrigendum: 2008-11***	Connectors for electronic equipment - Tests and measurements - Part 13-1: Mechanical operation tests - Test 13a: Engaging and separating forces	
A,B	DIN EN 60512-13-2: 2006-11*** with corrigendum: 2008-11***	Connectors for electronic equipment - Tests and measurements - Part 13-2: Mechanical operation tests - Test 13b: Insertion and withdrawal forces	
A,B	DIN EN 60512-13-5: 2006-11*** with corrigendum: 2008-11***	Connectors for electronic equipment - Tests and measurements - Part 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method	

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A,B	DIN EN 60512-15-6: 2009-03***	Connectors for electronic equipment - Tests and measurements - Part 15-6: Connector tests (mechanical) - Test 15f: Effectiveness of connector coupling devices	
A,B	DIN EN 60512-16-4: 2009-03***	Connectors for electronic equipment - Tests and measurements - Part 16-4: Mechanical tests on contacts and terminations - Test 16d: Tensile strength (crimped connections)	
A,B	VW 60330: 2013-12	Crimp Connections; Solderless Electrical Connections	<u>Limitation to:</u> Without Chap. 4.2.1 General Chap. 4.2.2 Stripping Chap. 4.3.1 Contact element Chap. 5.2 Crimp equipment

Abbreviations used:

DIN	Deutsches Institut für Normung e.V.
EN	European Standard
ISO	International Organization for Standardization
CTS	CHANGAN Technical Specification
EMC	electromagnetic compatibility
LAH	Lastenheft (specification sheet)
SMTC	SAIC Motor Technical Center
VDE	Verband Deutscher Elektrotechniker (Association for Electrical, Electronic & Information Technologies)
VW	Volkswagen Aktiengesellschaft