1. Purpose and objective

This document is intended to provide an overview of the test methods that can be performed in non-accredited test laboratories at the respective locations of the MD Group.

2. Range of application

- Locations: MD(MX), MD(BG), MD(CN.B), MD(CN.C)
- Division: Test Laboratory

3. List of test methods

The following list contains all test methods including the publication date. The test methods marked with “X” can be performed at the respective location.

3.1 Test range: physically-chemical tests of plastics

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10324	**DIN EN ISO 11357-2: 2014-07 (Withdrawn)**	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and glass transition step height					
C10324	**DIN EN ISO 11357-2: 2020-08**	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and step height					
C10324	**DIN EN ISO 11357-3: 2018-07**	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization					
C10385	**DIN EN ISO 11358-1: 2014-10 (Withdrawn)**	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles					
C10385	**DIN EN ISO 11358-1: 2022-07**	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles					
C27414	**DIN EN ISO 1183-1: 2019-09**	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method					
C27413	**DIN ISO 48-2: 2021-02**	Rubber, vulcanized or thermoplastic - Determination of hardness – Part 2: Hardness between 10 IRHD and 100 IRHD					

3.2 Test range: electrical engineering / EMC

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10346	**DIN EN 13018: 2016-06**	Non-destructive testing - Visual testing - General principles		X	X	X	X
C10351	**DIN EN 50289-1-2: 2002-02 (Withdrawn)**	Communication cables - Specifications for test methods - Part 1-2: Electrical test methods; DC resistance		X	X	X	
C10351	**DIN EN 50289-1-2 VDE 0819-289-1-2 2024-01**	Communication cables - Specifications for test methods - Part 1-2: Electrical test methods; DC resistance					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10509	**DIN EN 50289-1-3: 2002-02**	Communication cables - Specifications for test methods - Part 1-3: Electrical test methods; Dielectric strength		X	X	X	X
C10348	**DIN EN 50289-1-4: 2002-02**	Communication cables - Specifications for test methods - Part 1-4: Electrical test methods; Insulation resistance		X	X	X	X
C10508	**DIN EN 50289-1-5: 2002-02**	Communication cables - Specifications for test methods - Part 1-5: Electrical test methods; Capacitance		X	X	X	
C10329	**DIN EN 50289-1-6: 2002-12**	Communication cables - Specifications for test methods - Part 1-6: Electrical test methods; Electromagnetic performance					
C10507	**DIN EN 50289-1-7: 2002-02**	Communication cables - Specifications for test methods - Part 1-7: Electrical test methods; Velocity of propagation					
C10328	**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		X	X	X	X
C11629	**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)		X	X	X	X
C11630	**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	X	X	X	X
C10327	**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		X	X	X	X
C26159	**DIN EN 50289-1-12: 2005-10**	Communication cables - Specifications for test methods - Part 1-12: Electrical test methods - Inductance					
C10346	**DIN EN 60512-1-1: 2003-01**	Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination; Test 1a: Visual examination		X	X	X	X
C10351	**DIN EN 60512-2-1: 2003-01**	Connectors for electronic equipment - Tests and measurements - Part 2-1: Electrical continuity and contact resistance tests; Test 2a: Contact resistance; Millivolt level method		X	X	X	
C37420	**DIN EN 60512-2-2: 2004-01**	Connectors for electronic equipment - Tests and measurements - Part 2-2: Electrical continuity and contact resistance tests - Test 2b: Contact resistance - Specified test current method					
C10352	**DIN EN 60512-2-5 2e: 2004-01**	Connectors for electronic equipment - Tests and measurements - Part 2-5: Electrical continuity and contact resistance tests - Test 2e: Contact disturbance		X	X	X	X
C10348	**DIN EN 60512-3-1: 2003-01**	Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests; Test 3a: Insulation resistance		X	X	X	X
C10516	**DIN EN 60512-4-1: 2004-01**	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof		X	X	X	X
C10353	**DIN EN 60512-5-1: 2003-01 With corrigendum: 2015-06**	Connectors for electronic equipment - Tests and measurements - Part 5-1: Current-carrying capacity tests; Test 5a: Temperature rise					
C10354	**DIN EN 60512-5-2: 2003-01**	Connectors for electronic equipment - Tests and measurements - Part 5-2: Current-carrying capacity tests; Test 5b: Current-temperature derating					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10356	**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		X	X	X	X
C11630	**DIN EN 60512-25-1: 2002-08**	Connectors for electronic equipment - Tests and measurements - Part 25-1: Test 25a: Crosstalk ratio		X	X	X	X
C10328	**DIN EN 60512-25-2: 2002-12**	Connectors for electronic equipment - Tests and measurements - Part 25-2: Test 25b: Attenuation (insertion loss)		X	X	X	X
C26129	**DIN EN 60512-25-3: 2002-08**	Connectors for electronic equipment - Tests and measurements - Part 25-3: Test 25c: Rise time degradation					
C26130	**DIN EN 60512-25-4: 2002-08**	Connectors for electronic equipment - Tests and measurements - Part 25-4: Test 25d: Propagation delay					
C10327	**DIN EN 60512-25-5: 2005-05**	Connectors for electronic equipment - Tests and measurements - Part 25-5: Test 25e - Return loss		X	X	X	X
C13085	**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)		X	X	X	X
C10359	**IEC 62153-4-3: 2013-10**	Metallic communication cable test methods - Part 4-3: Electromagnetic Compatibility (EMC) - Surface transfer impedance - Triaxial method					
C14142	**IEC 62153-4-4: 2015-04**	Metallic communication cable test methods - Part 4-4: Electro Magnetic Compatibility (EMC) - Test method for measuring of the screening attenuation as up to and above 3 GHz, triaxial method					
C10510	**DIN EN 62153-4-7, VDE 0819-153-4-7: 2016-12 (Withdrawn)**	Metallic communication cable test methods - Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring of transfer impedance ZT and screening attenuation as or coupling attenuation ac of connectors and assemblies up to and above 3 GHz - Triaxial tube in tube method					
C10510	**DIN EN 62153-4-7, VDE 0819-153-4-7: 2018-12 (Withdrawn)**	Metallic communication cable test methods - Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring of transfer impedance ZT and screening attenuation as or coupling attenuation ac of connectors and assemblies up to and above 3 GHz - Triaxial tube in tube method					
C10510	**DIN EN 62153-4-7, VDE 0819-153-4-7: 2023-06**	Metallic communication cable test methods - Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring of transfer impedance ZT and screening attenuation as or coupling attenuation ac of connectors and assemblies up to and above 3 GHz - Triaxial tube in tube method					
C10510	**IEC 62153-4-7: 2015-12 (Withdrawn)**	Metallic communication cable test methods - Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring of transfer impedance ZT and screening attenuation as or coupling attenuation aC of connectors and assemblies up to and above 3 GHz - Triaxial tube in tube method					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10510	**IEC 62153-4-7: 2021-07**	Metallic cables and other passive components test methods - Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring of transfer impedance ZT and screening attenuation aS or coupling attenuation aC of connectors and assemblies - Triaxial tube in tube method					
C26122	**DIN EN 62153-4-9, VDE 0819-153-4-9: 2016-12 (Withdrawn)**	Metallic Communication Cable test methods - Part 4-9: Electromagnetic compatibility (EMC) - Coupling attenuation of screened balanced cables, triaxial method					
C26122	**IEC 62153-4-9: 2018-05**	Metallic communication cable test methods - Part 4-9: Electromagnetic compatibility (EMC) - Coupling attenuation of screened balanced cables, triaxial method					
N/A	**DIN 72594-2: 2009-05**	Road vehicles - 50 ohm radio frequency interface (50 Ω RFI) - Part 2: Test procedures	Limitations: test group 3, temperature/ humidity cycling, 4 mechan. shock/vibration, 5 temperature, chapter 6.6 RF leakage are impossible	X	X	X	
N/A	**ISO 6722-1: 2011-10 (Withdrawn)**	Road vehicles – 60 V and 600 V single-core cables – Part 1: Dimensions, test methods and requirements for copper conductor cables					
N/A	**ISO 14572: 2011-10 (Withdrawn)**	Road vehicles – Round, sheathed, 60 V and 600 V screened and unscreened single- or multi-core cables – Test methods and requirements for basic- and high-performance cables					
N/A	**ISO 19642-2: 2019-01 (Withdrawn)**	Road vehicles – Automotive cables – Part 2: Test methods					
N/A	**ISO 19642-2: 2023-08**	Road vehicles – Automotive cables – Part 2: Test methods					
N/A	**ISO 19642-3: 2019-01**	Road vehicles – Automotive cables – Part 3: Dimensions and requirements for 30 V a.c. or 60 V d.c. single core copper conductor cables					
N/A	**ISO 20860-1: 2008-10**	Road vehicles - 50 ohms impedance radio frequency connection system interface - Part 1: Dimensions and electrical requirements		X	X	X	X
N/A	**ISO 20860-2: 2009-03**	Road vehicles - 50 ohms impedance radio frequency connection system interface - Part 2: Test procedures	Limitations: test group 3, temperature/ humidity cycling, 4 mechan. shock/vibration, 5 temperature, chapter 7.7 RF leakage are impossible	X	X	X	
C11451	**BMW GS 95006-7-1: 2016-03 (LV 214) (Withdrawn)**	Wiring harnesses in motor vehicles – Plug connector – Tests	Limitations: PG0, PG1, PG4, PG10, PG11, PG23 only B23.1 are possible	X		X	X
C11451	**BMW GS 95006-7-1: 2021-11**	Wiring harnesses in motor vehicles – Plug connector – Tests	Limitations: PG0, PG1, PG4, PG10, PG11, PG23 only B23.1 are possible	X		X	X

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**BMW GS 95007-3-1: 2015-08 (LV 212-1)**	Low voltage cables for motor vehicles – Sheathed cables – Requirements, tests					
N/A	**BMW GS 95007-3-2: 2015-09 (LV 212-2)**	Low voltage cables for motor vehicles – Shielded sheathed cables for analog and low frequency applications – Requirements, tests					
C10511	**BMW GS 95007-5-1: 2018-09**	Radio-frequency cables for motor vehicles – Coaxial cables – Requirements, tests	Limitations: Testing group 10: Cable construction, Testing group 11.1-11.3: HF properties, 12.1: Insulation strippability, 12.5.1: Static bending test, 12.7.2: Dielectric strength are possible	X	X	X	
N/A	**BMW GS 95007-5-2: 2018-09**	Radio-frequency cables for motor vehicles – Communication cables – Requirements, tests					
N/A	**BMW GS 95024-2: 2021-03**	Electrical and electronic components in motor vehicles – Electrical requirements and tests in 12-V onboard electrical systems					
N/A	**BMW GS 95024-2-1: 2010-01 (Withdrawn)**	Electrical and electronic components in motor vehicles – Electrical requirements and tests					
N/A	**BMW GS 95024-3-1: 2013-07 (Withdrawn)**	Electrical and electronic components in motor vehicles – Environmental requirements and testings					
N/A	**BMW GS 95024-3-1: 2019-08 (Withdrawn)**	Electrical and electronic components in motor vehicles – Environmental requirements and testings					
N/A	**BMW GS 95024-3-1: 2023-02**	Electrical and electronic components in motor vehicles – Environmental requirements and testings					
N/A	**BMW GS 95024-3-2: 2010-01 (Withdrawn)**	Electrical and electronic components in motor vehicles – Environmental requirements and testings Supplementary requirements regarding GS 95024-3-1					
N/A	**FCA PF-10745: 2020-12**	Coaxial Cable Assemblies For Use With Satellite Audio, AM/FM, GPS/Glonass; DMB, FM2 Diversity, BT/WiFi and Cellular Systems (CDMA, LTE)					
N/A	**FCA PF-A0547: 2019-12 (Withdrawn)**	LVDS Cable Assemblies for Automotive Applications					
N/A	**FCA PF-A0547: 2020-10**	LVDS Cable Assemblies for Automotive Applications					
N/A	**Ford FSB479-18812-AD Rev. D**	Antenna Cable Assembly Functional Specification					
N/A	**Ford FPD Link 00.06.01.005 Version AB 2019-01**	FPDLINK Cable / Connector Assembly Specification					
N/A	**LAH V03 825 V05.00R: 2016-08 (Withdrawn)**	Component Performance Specification for Cables – Manufactured Coaxial Cables – Processing of RF standard parts and multi-use parts					
N/A	**LAH V03 825 V06.00R: 2019-08 (Withdrawn)**	Component Performance Specification for Cables – Manufactured Coaxial Cables – Processing of RF standard parts and multi-use parts	Limitations: E04 Screening attenuation and M04 Dyn. tensile test are impossible	X	X	X	X

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**LAH V03 825 V06.01R: 2020-02**	Component Performance Specification for Cables – Manufactured Coaxial Cables	Limitations: E04 Screening attenuation and M04 Dyn. tensile test are impossible	X	X	X	X
N/A	**LAH V03 825 D V03R: 2016-09 (Withdrawn)**	Component Performance Specification for Cables – Manufactured HSD and HSDe cables – Processing of HSD and HSDe standard parts and multi-use parts					
N/A	**LAH V03 825 D V04.02R: 2020-03**	Component Performance Specification for Cables – Manufactured HSD and HSDe cables	Limitations: E05 Screening attenuation is impossible	X	X	X	
N/A	**LAH 4N0 035 K V2: 2019-10 (Withdrawn)**	Component test specification mini Coax – Test specification mini Coax					
N/A	**LAH 4N0 035 K V3: 2022-05**	Component test specification mini Coax – Test specification mini Coax					
N/A	**LAH.85E.035.D: 2022-05**	Component Performance Specification for Cables – Manufactured Multi Gigabit Shielded Twisted Pair Cables – Processing of RF standard parts and multi-use parts					
N/A	**MBN 10306: 2020-06**	Electrical and electronic components in motor vehicles – Environmental requirements and testings					
C11451	**MBN 10384: 2010-11 (LV 214)**	Motor Vehicle Connectors – Test Specification	Limitations: PG0, PG1, PG4, PG10, PG11, PG23 only B23.1 are possible	X		X	X
N/A	**MBN 10567: 2018-03 (Withdrawn)**	Electrical and electronic components in motor vehicles – 12 V On-Board Electrical System – Requirements and Tests – Electrical Requirements					
N/A	**MBN 10567: 2023-10**	Electrical and electronic components in motor vehicles – 12 V On-Board Electrical System – Requirements and Tests – Electrical Requirements					
N/A	**MBN LV124-1: 2013-03**	Electric and Electronic Components in Motor Vehicles up to 3,5t – General Requirements, Test Conditions and Tests, Part 1: Electrical Requirements and Tests – 12 V On-Board Electrical System					
N/A	**MBN LV124-2: 2013-08**	Electric and Electronic Components in Motor Vehicles up to 3,5t – General Requirements, Test Conditions and Tests, Part 2: Environmental Requirements					
N/A	**QV 61 101: 2018-05**	Release and validation guideline for prefabricated coaxial cables (FAKRA / Mini Coax)					
N/A	**QV 61 111: 2018-06**	Release and validation guideline for prefabricated HSD cables					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C34640 C11451	**SAE/USCAR-2-7: 2020-02 (Withdrawn)**	Performance Specification for Automotive Electrical Connector Systems	Limitations: Terminal Bend Resistance, Maximum Test Current Capability, Current Cycling, Vibration / Mechanical Shock, Connector-to-connector Audible Click Test, Connector Seal Retention – Unmated Connector, Fluid Resistance, High Pressure Spray, Pressure/Vacuuml eak are impossible	X		X	
N/A	**SAE/USCAR-2-8: 2022-06**	Performance Specification for Automotive Electrical Connector Systems					
N/A	**SAE/USCAR-17-5: 2016-11 (Withdrawn)**	Performance Specification for Automotive RF Connector Systems	Limitations: Connector-to-connector Audible Click Test, RF leakage, Environmental tests are impossible	X		X	
N/A	**SAE/USCAR-17-5: 2023-07**	Performance Specification for Automotive RF Connector Systems					
N/A	**SAE/USCAR-18-4: 2016-07 (Withdrawn)**	USCAR-17 Supplement					
N/A	**SAE/USCAR-18-4: 2023-07**	USCAR-17 Supplement					
N/A	**SAE/USCAR-21-4: 2020-01**	Performance Specification for Cable-to-Terminal Electrical Crimps	Limitations: Electrical Current Cycling Test (ECC),ENV, Accelerated Temperature/Humi dity Cycle Conditioning, Thermal Shock, Voltage Drop is impossible	X		X	
N/A	**SAE/USCAR-25-3: 2016-03**	Ergonomics Specification for Electrical Connections					
N/A	**VW 60306-1: 2018-09 (Withdrawn)**	Electrical Cables for Motor Vehicles – Part 1: Copper Cable; Single-Core, Unshielded					
N/A	**VW 60306-1: 2021-10**	Electrical Cables for Motor Vehicles – Part 1: Copper Cable; Single-Core, Unshielded					
N/A	**VW 60306-2: 2019-11 (Withdrawn)**	Electrical Cables for Motor Vehicles – Aluminum Cables; Single-Core, Unshielded					
N/A	**VW 60306-2: 2021-11**	Electrical Cables for Motor Vehicles – Aluminum Cables; Single-Core, Unshielded					
N/A	**VW 60306-4: 2019-11 (Withdrawn)**	Electrical Cables for Motor Vehicles – Copper Alloy Cables; Single-Core, Unshielded					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**VW 60306-4: 2021-12**	Electrical Cables for Motor Vehicles – Copper Alloy Cables; Single-Core, Unshielded					
C11451	**VW 75174: 2018-10**	Motor Vehicle Connectors – Test	Limitations: PG0, PG1, PG4, PG10, PG11, PG23 only B23.1 are possible	X		X	X
N/A	**VW 75174-3: 2010-04 (LV 214, LV 214-3)**	Motor Vehicle Connectors – Test Sequences					
N/A	**VW 75205: 2019-11**	Twisted and Stranded Cables – Requirements and Tests					
C10511	**VW 75206-1: 2008-10 (Withdrawn)**	Radio-Frequency Cables in Motor Vehicles: Coaxial Cables	Limitations: Testing group 8: Cable structure, Testing group 9: RF properties (except 9.4 and 9.5), 10.1: Insulation strippability, 10.5.1: Static bending test, 10.7.2: Dielectric strength are possible	X	X	X	
C10511	**VW 75206-1: 2020-11**	Radio-Frequency Cables in Motor Vehicles - Requirements for Coaxial Cables	Limitations: Testing group 5: Cable structure, Testing group 6: RF properties (except 6.5 and 6.6), 7.1: Insulation strippability, 7.5.2: Static bending test, 7.7: Electrical properties are possible	X	X	X	
N/A	**VW 75206-2: 2009-04 (Withdrawn)**	Radio-Frequency Cables in Motor Vehicles - that are no single coaxial cables					
N/A	**VW 75206-2: 2022-09**	Radio-Frequency Cables - that are no single coaxial cables					
C33819 C33824 C33825	**VW 75209-1: 2019-11 (Withdrawn)**	Sheathed Cables for Motor Vehicles – Requirements and Tests					
C33819 C33824 C33825	**VW 75209-1: 2021-12**	Sheathed Cables for Motor Vehicles – Requirements and Tests					
N/A	**VW 75209-2: 2019-11 (Withdrawn)**	Shielded Sheathed Cables for Analog and Low-Frequency Applications in Motor Vehicles – Requirements and Tests					
N/A	**VW 75209-2: 2021-12**	Shielded Sheathed Cables for Analog and Low-Frequency Applications in Motor Vehicles – Requirements and Tests					
N/A	**VW 80000: 2017-10 (Withdrawn)**	Electrical and Electronic Components in Motor Vehicles up to 3,5 t – General Requirements, Test Conditions, and Tests					
N/A	**VW 80000: 2021-07 (Withdrawn)**	Electrical and Electronic Components in Motor Vehicles up to 3,5 t – General Requirements, Test Conditions, and Tests					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**VW 80000: 2022-12**	Electrical and Electronic Components in Motor Vehicles up to 3,5 t – General Requirements, Test Conditions, and Tests					
N/A	**Q/JLY J7111620A: 2020-12**	Audio / video FAKRA & HSD Special wire assembly technical requirement – Enterprise Standard of Zhejinag Geely Automobile Research Institute Co.,Ltd	Limitation to: 5.2.13 High pressure test (AC voltage) 5.2.9 Torsion test 5.2.13 High pressure 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 are impossible			X	X
N/A	**Q/JLY J7111175B: 2022-10**	Technical Specification for Audio / video FAKRA & HSD Connector – Enterprise Standard of Zhejinag Geely Automobile Research Institute Co.,Ltd	Limitation to: 5.2.12 until 5.2.14 and 5.2.20 are impossible			X	X
N/A	**SMTC 2 861 001: 2013-11**	Low-Voltage harness for automobiles design procedure – Enterprise Standard of SAIC MOTOR Technical Center	Limitation to: only 6.1.1 Crimping of terminal possible			X	X

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**SMTC 3 862 001: 2019-09**	Test method of automobile connectors - Enterprise Standard of SAIC MOTOR Technical Center	Limitation to: 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 (7.3.2.3.1-step 8 are impossible) 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			X	X
N/A	**SMTC 3 861 004: 2012-04**	Low-Voltage vinyl sheath shielded cable – Enterprise Standard of SAIC MOTOR Technical Center	Limitation to: 6.1 Construction of individual cores 6.2 Test of diameter 6.3 Wall-thickness of sheath are possible			X	X
N/A	**SMTC 3 861 003: 2012-09**	Low-Voltage for automobile cable test procedure – Enterprise Standard of SAIC MOTOR Technical Center	Limitation to: 9 Dimensional check (9.5 is impossible) 10.1 Conductor resistance 11.2 Adhesion of insulating layer to conductor are possible			X	X

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**CTS-17.01.01.41-a1: 2019-05**	Technical Specification for FAKRA Wire Harness for Automobiles – CHANGAN	Limitation to: 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			X	X
N/A	**CTS-17.01.01.40-a1: 2019-05**	Technical Specification for HSD Harness for Automobiles – CHANGAN	Limitation to: 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			X	X

3.3 Test range: environmental simulation

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10330	**DIN EN 60068-2-1, VDE 0468-2-1: 2008-01**	Environmental testing - Part 2-1: Tests - Test A: Cold					
C10331	**DIN EN 60068-2-2, VDE 0468-2-2: 2008-05**	Environmental testing - Part 2-2: Tests - Test B: Dry heat					
C10332	**DIN EN 60068-2-6, VDE 0468-2-6: 2008-10**	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)					
C10333	**DIN EN 60068-2-11 Ka: 2000-02 (Withdrawn)**	Environmental testing - Part 2: Tests; test Ka: Salt mist					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10333	**DIN EN 60068-2-11 Ka: 2022-10**	Environmental testing - Part 2: Tests; test Ka: Salt mist					
C10335	**DIN EN 60068-2-14, VDE 0468-2-14: 2010-04**	Environmental testing - Part 2-14: Tests - Test N: Change of temperature					
C10336	**DIN EN 60068-2-14 Na: 2010-04**	Environmental testing - Part 2: Tests - Test N: Na: Temperature shock (without housing)					
C10337	**DIN EN 60068-2-14: Nb: 2010-04**	Environmental testing - Part 2: Tests - Test N: Nb: Change of temperature					
C10338	**DIN EN 60068-2-27, VDE 0468-2-27: 2010-02**	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock					
C10339	**DIN EN 60068-2-30: 2006-06**	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)					
C10340	**DIN EN 60068-2-38, VDE 0468-2-38: 2010-06 (Withdrawn)**	Environmental testing - Part 2-38: Tests - Test Z/AD: Composite temperature/humidity cyclic test					
C10340	**DIN EN IEC 60068-2-38, VDE 0468-2-38: 2022-09**	Environmental testing - Part 2-38: Tests - Test Z/AD: Composite temperature/humidity cyclic test					
C10341	**DIN EN 60068-2-52: 1996-10 (Withdrawn)**	Environmental testing - Part 2: Tests, Test Kb: Salt mist, cyclic (sodium chloride solution)					
C10341	**DIN EN IEC 60068-2-52, VDE 0468-2-52: 2018-08**	Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)					
C10341	**DIN EN IEC 60068-2-52, VDE 0468-2-52: 2018-08 With corrigendum: 2019-02**	Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)					
C10531	**DIN EN 60068-2-53, VDE 0468-2-53: 2011-02**	Environmental testing - Part 2-53: Tests and guidance: Combined climatic (temperature/humidity) and dynamic (vibration/shock) tests					
C10342	**DIN EN 60068-2-60: 1996-09 (Withdrawn)**	Environmental testing - Part 2: Tests - Test Ke: Flowing mixed gas corrosion test					
C10342	**DIN EN 60068-2-60, VDE 0468-2-60: 2016-06**	Environmental testing - Part 2-60: Tests - Test Ke: Flowing mixed gas corrosion test					
C10343	**DIN EN 60068-2-64, VDE 0468-2-64: 2020-09**	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance					
C10570	**DIN EN 60068-2-67: 1996-07 (Withdrawn)**	Environmental testing - Part 2: Tests; test Cy: Damp heat, steady state, accelerated test primarily intended for components					
C10570	**DIN EN 60068-2-67, VDE 0468-2-67: 2020-08**	Environmental testing - Part 2-67: Tests - Test Cy: Damp heat, steady state, accelerated test primarily intended for components					
C10344	**DIN EN 60068-2-78, VDE 0468-2-78: 2014-02**	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state					
C10532	**DIN EN 60068-2-80: 2006-05**	Environmental testing - Part 2-80: Tests - Test Fi: Vibration - Mixed mode					
C10355	**DIN EN 60512-11-14: 2004-06**	Connectors for electronic equipment - Tests and measurements - Part 11-14: Climatic tests - Test 11p: Flowing single gas corrosion test					
C11066	**DIN EN 60512-14-5: 2006-11**	Connectors for electronic equipment - Tests and measurements - Part 14-5: Sealing tests - Test 14e: Immersion at low air pressure					

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10362	**DIN 75220: 1992-11**	Ageing of automotive components in solar simulation units					
C10365	**ISO 20653: 2013-02 (Withdrawn)**	Road vehicles - Degrees of protection (IP code) - Protection of electrical equipment against foreign objects, water and access – Cleaning process with high pressure / steam jet cleaning					
C10365	**ISO 20653: 2013-02**	Road vehicles - Degrees of protection (IP code) - Protection of electrical equipment against foreign objects, water and access – Cleaning process with high pressure / steam jet cleaning					
C10379	**BMW GS 95011-4: 2010-06**	Electronic components in motor vehicles – Condensation test and climate test This applies to the standards GS 95024 and DIN EN 60068-2-38					

3.4 Test range: mechanical tests

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
N/A	**DIN EN 50289-3-9: 2002-05**	Communication cables - Specifications for test methods - Part 3-9: Mechanical test methods; Bending tests					
C35073	**DIN EN 50289-3-17: 2002-09**	Communication cables - Specifications for test methods - Part 3-17: Mechanical test methods; Adhesion of dielectric and sheath		X	X	X	X
N/A	**DIN EN 50396, VDE 0473-396: 2006-07 With update 2012-03**	Non electrical test methods for low voltage energy cables					
N/A	**DIN EN 50525-2-21, VDE 0285-525-2-21: 2012-01**	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) - Part 2-21: Cables for general applications - Flexible cables with crosslinked elastomeric insulation					
C26157	**DIN EN 60068-2-31, VDE 0468-2-31: 2009-04**	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens					
C10347	**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		X	X	X	X
C26157	**DIN EN 60512-7-1, VDE 0687-512-7-1: 2010-12**	Connectors for electronic equipment - Tests and measurements - Part 7-1: Impact tests (free connectors) - Test 7a: Free fall (repeated)					
C26158	**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		X	X	X	X
C26156	**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		X	X	X	X

LAA	Standard / in-house method / version	Title of the standard or in-house method (If applicable specify deviations / modifications of standard methods)	Test range / limitation	Location			
				MD MX	MD BG	MD CN B	MD CN C
C10357	**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		X	X	X	X
C10358	**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)		X	X	X	X
C37400	**DIN EN 60811-201, VDE 0473-811-201: 2018-05**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 201: General tests - Measurement of insulation thickness					
C37400	**DIN EN 60811-202, VDE 0473-811-202: 2018-05**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 202: General tests - Measurement of thickness of non-metallic sheath					
C37400	**DIN EN 60811-203, VDE 0473-811-203: 2012-12**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 203: General tests - Measurement of overall dimensions					
N/A	**DIN EN 60811-501, VDE 0473-811-501: 2019-04**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 501: Mechanical tests - Tests for determining the mechanical properties of insulating and sheathing compounds					
N/A	**DIN EN 60811-502, VDE 0473-811-502: 2012-12**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 502: Mechanical tests - Shrinkage test for insulations					
C37401	**DIN EN 60811-507, VDE 0473-811-507: 2012-12**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 507: Mechanical tests - Hot set test for cross-linked materials					
C33825	**DIN EN 60811-508, VDE 0473-811-508: 2018-05**	Electric and optical fibre cables - Test methods for non-metallic materials - Part 508: Mechanical tests - Pressure test at high temperature for insulation and sheaths					
C10375	**BMW GS 95006-7-2: 2008-03 (Withdrawn)**	Wiring harnesses in motor vehicles – Plug connector – Slow-motion test					
C10375	**BMW GS 95006-7-2: 2018-08**	Wiring harnesses in motor vehicles – Plug connector – Slow-motion test					
C10375	**MBN 10 384-2: 2007-12 (LV 214-2)**	Road vehicles – Automotive connections – Slow-motion test					
C11581	**VW 60330: 2013-12**	Crimp Connections Solderless electrical connections	Limitations: Chap. 4.2.1 General, Chap. 4.2.2 Stripping, Chap. 4.3.1 Contact element, Chap. 5.2 Crimp equipment are impossible	X	X	X	X
C10375	**VW 75174-2: 2008-01 (Withdrawn)**	Vehicle Contacts – Slow Motion Test					
C10375	**VW 75174-2: 2020-02**	Vehicle Contacts – Slow Motion Test					

Used abbreviations:

BMW	Bayerische Motoren Werke Aktiengesellschaft
DIN	German Institute for Standardization
EMC	Electromagnetic compatibility
EN	European standard
GS	Group standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
Kfz	Motor vehicle
LAH	Specification sheet
LV	Delivery specifications
MBN	Mercedes Benz standard
SAE	Society of Automotive Engineers, Inc.
VDE	Association for Electrical, Electronic & Information Technologies
VW	Volkswagen Aktiengesellschaft
LAA	Laboratory work instruction
MD (CN.B)	MD (Beijing) ELECTRONICS Co., Ltd.
MD (CN.C)	MD (China) ELECTRONICS Co., Ltd.

4 Modification history

Revision status	Originator	Type of modification	Modification date
10078278	Sicorschi U.	Document created	5/17/2014
10113022	Sicorschi U.	New layout; heading and “Division” field updated; LAA no. entered	8/25/2017
10116378	Sicorschi U.	English version updated	10/12/2017
10156160	Sicorschi U.	New layout, update due to standards’ update	4/17/2019
10187734	Sicorschi U.	Location MD(BG) added and publication date updated	6/5/2020
10189891	Sicorschi U.	Test range of MD(MX) and MD(CN) updated	7/1/2020
10216755	Krauter M.	Complete update - Standard/test method/publication date revised - Location MD(CZ) deleted - Locations in China specified in detail	6/13/2022
10263682	Krauter M.	Update	1/25/2023
70012461	Sicorschi U. / Haas M.	Complete update -Transfer to the new template -Standard/test method/publication date revised	1/18/2024

Modifications are carried out exclusively by the technically responsible organizational unit.
The last modifications are always highlighted with blue font color.