
**Road vehicles — Test methods and
performance requirements for voltage
class B connectors**

*Véhicules routiers — Méthodes d'essai et exigences de performance
pour connecteurs haute tension*



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Contents

Page

Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test and requirements	3
4.1 General	3
4.1.1 Preconditioning for environmental and mechanical durability	3
4.1.2 Test conditions	3
4.1.3 Test sequences and sample quantities	4
4.2 Visual examination	10
4.2.1 Purpose	10
4.2.2 Test	10
4.2.3 Requirements	10
4.3 Connection and disconnection	10
4.3.1 Purpose	10
4.3.2 Test	11
4.3.3 Requirements	11
4.4 Tensile strength between terminal and cable	11
4.4.1 Purpose	11
4.4.2 Test	11
4.4.3 Requirements	12
4.5 Tensile strength for shield connections	12
4.5.1 Purpose	12
4.5.2 Test	12
4.5.3 Requirements	13
4.6 Locking device strength	13
4.6.1 Purpose	13
4.6.2 Test	13
4.6.3 Requirements	13
4.7 Unintentional lever release force	14
4.7.1 Purpose	14
4.7.2 Test	14
4.7.3 Requirements	14
4.8 Lock button release force	14
4.8.1 Purpose	14
4.8.2 Test	14
4.8.3 Requirements	14
4.9 Locking force of CPA	14
4.9.1 Purpose	14
4.9.2 Test	15
4.9.3 Requirements	15
4.10 Disengage force of CPA	15
4.10.1 Purpose	15
4.10.2 Test	15
4.10.3 Requirements	15
4.11 Locking force of TPA	15
4.11.1 Purpose	15
4.11.2 Test	15
4.11.3 Requirements	16
4.12 Extraction force of TPA	16
4.12.1 Purpose	16
4.12.2 Test	16

4.12.3	Requirements	16
4.13	Connector coding and polarization effectiveness	16
4.13.1	Purpose	16
4.13.2	Test	16
4.13.3	Requirements	17
4.14	Terminal insertion force	17
4.14.1	Purpose	17
4.14.2	Test	17
4.14.3	Requirements	17
4.15	Terminal insertion force with incorrect orientation	17
4.15.1	Purpose	17
4.15.2	Test	17
4.15.3	Requirements	17
4.16	Terminal extraction force	18
4.16.1	Purpose	18
4.16.2	Test	18
4.16.3	Requirements	18
4.17	Connector engagement sound	19
4.17.1	Purpose	19
4.17.2	Test	19
4.17.3	Requirements	19
4.18	Connection resistance (voltage drop)	19
4.18.1	Purpose	19
4.18.2	Test	19
4.18.3	Requirements	19
4.19	Temperature rise	20
4.19.1	Purpose	20
4.19.2	Test	20
4.19.3	Requirements	21
4.20	Insulation resistance	21
4.20.1	Purpose	21
4.20.2	Test	22
4.20.3	Requirements	22
4.21	Withstanding voltage	22
4.21.1	Purpose	22
4.21.2	Test	23
4.21.3	Requirements	23
4.22	Electromagnetic shielding performance	23
4.22.1	Purpose	23
4.22.2	Test	23
4.22.3	Requirements	23
4.23	Water tightness	23
4.23.1	Purpose	23
4.23.2	Test	24
4.23.3	Requirements	26
4.24	Mechanical shock	26
4.24.1	Purpose	26
4.24.2	Test	26
4.24.3	Requirements	27
4.25	Drop	27
4.25.1	Purpose	27
4.25.2	Test	27
4.25.3	Requirements	27
4.26	Vibration with thermal cycling	27
4.26.1	Purpose	27
4.26.2	Test	28
4.26.3	Requirements	29
4.27	Current cycling at environmental temperature	30

4.27.1	Purpose	30
4.27.2	Test	30
4.27.3	Requirements	30
4.28	Thermal aging	30
4.28.1	Purpose	30
4.28.2	Test	30
4.28.3	Requirements	30
4.29	Thermal shock	30
4.29.1	Purpose	30
4.29.2	Test	30
4.29.3	Requirements	31
4.30	Temperature/humidity cycle	31
4.30.1	Purpose	31
4.30.2	Test	31
4.30.3	Requirements	31
4.31	Condensation	32
4.31.1	Purpose	32
4.31.2	Test	32
4.31.3	Requirements	32
4.32	Salt spray	32
4.32.1	Purpose	32
4.32.2	Test	32
4.32.3	Requirements	33
4.33	High-pressure/steam-jet cleaning	33
4.33.1	Purpose	33
4.33.2	Test	33
4.33.3	Requirements	36
4.34	Dust resistance	36
4.34.1	Purpose	36
4.34.2	Test	36
4.34.3	Requirements	36
4.35	Oil and liquid resistance	36
4.35.1	Purpose	36
4.35.2	Test	36
4.35.3	Requirements	36
Annex A (informative) EMC test methods		37
Annex B (informative) Typical sample preparation for environmental tests		55
Bibliography		57

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 32, *Electrical and electronic components and general system aspects*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

High voltage connectors differ from low voltage connectors in several ways due to their higher operating voltage and need for shielding. These differences lead to unique failure modes and a need for unique validation tests. This document is a test specification that is unique to high voltage connectors on road vehicles. Some of the unique items that are tested in this document are:

- higher limits on dielectric withstanding voltage,
- more exhaustive testing for airtightness,
- evaluation of EMC compatibility, and
- evaluation of unique components such as shielding and metal housings (also for electrical shielding).

Note that safety features in a connector design to prevent electric shock (such as high voltage interlock) are specific to the connector and the vehicle electrical architecture and therefore must be assessed separately.

Road vehicles — Test methods and performance requirements for voltage class B connectors

WARNING — The use of this document can involve hazardous materials, operations and equipment. It does not purport to address all of the safety or environmental problems associated with its use.

1 Scope

This document defines terms and specifies test methods for general performance requirements of voltage class B connectors with single-pole and multi-pole connections used with electrical wiring harnesses of road vehicles.

This document applies to connectors for voltage class B electric circuits of electric propulsion systems and conductively connected auxiliary electric systems of electrically propelled road vehicles.

This document applies to voltage class B connectors designed to be disconnected after mounting in the vehicle for repair and maintenance only. It does not apply to vehicle inlets of charging systems.

This document applies to cable conductor sizes ranging from 1,5 mm² to 120mm².

This document is not applicable to internal connections of electronic devices.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8092-2:2005, *Road vehicles — Connections for on-board electrical wiring harnesses — Part 2: Definitions, test methods and general performance requirements*

ISO 8092-5¹⁾, *Road vehicles — Connections for on-board electrical wiring harnesses — Part 5: Automotive parts — Test methods and general performance requirements for wiring harness connector operation*

ISO 19453-3:2018, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment for drive system of electric propulsion vehicles — Part 3: Mechanical loads*

ISO 19453-4:2018, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment for drive system of electric propulsion vehicles — Part 4: Climatic loads*

ISO 19453-5, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment for drive system of electric propulsion vehicles — Part 5: Chemical loads*

ISO 20653, *Road vehicles — Degrees of protection (IP code) — Protection of electrical equipment against foreign objects, water and access*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

1) Under preparation. Stage at the time of publication: ISO/DIS 8092-5:2019.