



Technical Specification

ISO/TS 5474-5

Electrically propelled road vehicles — Functional and safety requirements for power transfer between vehicle and external electric circuit —

Part 5: Automatic conductive power transfer

*Véhicules routiers à propulsion électrique — Exigences
fonctionnelles et de sécurité pour le transfert de puissance entre
le véhicule et le circuit électrique externe —*

Partie 5: Transfert de puissance automatique par conduction

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Foreword

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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled vehicles*.

A list of all parts in the ISO 5474 series can be found on the ISO website.

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

This document specifies requirements for the onboard side of an automatic connection system to charge electric vehicles. It gives guidance in terms of safety and compatibility with the offboard side of automatic connection systems.

Technological maturity:

It is pointed out, that this document has been established in parallel to the technological development of automatic connection systems. Due to the fact that the experience with the technology is very limited, the requirements given in this document do not comprehensively cover all aspects/requirements for an interoperable operation at this stage. Current and future product developments will continuously prove, disprove and refine the requirements of this document.

Furthermore, it is worthwhile to mention that at the date of publication of this document, no standard for a vehicle coupler of category 3 (at the underbody of the vehicle) is available.

Relation to other parts of the ISO 5474 series:

There is no direct relation of content or structure of this document to any other part of the ISO 5474 series (including ISO 5474-1). Wherever needed, other parts of the series are specifically referenced.

Electrically propelled road vehicles — Functional and safety requirements for power transfer between vehicle and external electric circuit —

Part 5: Automatic conductive power transfer

1 Scope

This document defines requirements for the onboard system (vehicle side) related to the automatic connection for conductive alternating current (AC) and/or direct current (DC) power transfer between electrically propelled road vehicles (EVs) and external electric circuits. This document addresses the following aspects:

- electrical and mechanical safety requirements;
- compatibility requirements;
- environmental conditions;
- functionality requirements;
- test procedures.

This document applies to:

- EVs supporting automatic connection of a vehicle inlet according to IEC 62196-2, IEC 62196-3, IEC TS 62196-3-1 or IEC TS 63379¹⁾ (category 1) and
- EVs supporting automatic connection of a category 3 vehicle inlet or category 3 plug (typically at the underbody of the vehicle) according to IEC TS 61851-26.

NOTE 1 IEC TS 61851-26 does not include automatic connection of vehicle inlets or plugs of category 1 and category 2, that can also be mounted at the underbody of the vehicle.

Requirements for EVs equipped with an ACD or ACD counterpart of category 2 are specified in EN 50696 and IEC 63407²⁾.

Requirements for simultaneous operation of multiple power transfer interfaces are under consideration and not covered in this document.

NOTE 2 Requirements for ACD infrastructure, communication sequence and communication interface are specified in IEC 61851-23-1, IEC TS 61851-26 and IEC TS 61851-27.

NOTE 3 EMC requirements for vehicles conductively connected to the supply network are defined in IEC 61851-21-1.

1) Under preparation. Stage at the time of publication: IEC TS/CDM 63379:2023.

2) Under preparation. Stage at the time of publication: IEC/CDM 63407:2023.