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Railway applications – Current collection systems – Validation of simulation of the dynamic interaction between pantograph and overhead contact line

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RAILWAY APPLICATIONS – CURRENT COLLECTION SYSTEMS –
VALIDATION OF SIMULATION OF THE DYNAMIC INTERACTION
BETWEEN PANTOGRAPH AND OVERHEAD CONTACT LINE**

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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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- withdrawn, or
- revised.

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RAILWAY APPLICATIONS – CURRENT COLLECTION SYSTEMS – VALIDATION OF SIMULATION OF THE DYNAMIC INTERACTION BETWEEN PANTOGRAPH AND OVERHEAD CONTACT LINE

1 Scope

Simulation techniques are used to assess the dynamic interaction between overhead contact lines and pantographs, as part of the prediction of current collection quality. This document specifies functional requirements for the validation of such simulation tools to ensure confidence in, and mutual acceptance of the results of the simulations.

This document deals with:

- input and output parameters of the simulation;
- comparison with line test measurements, and the characteristics of those line tests;
- validation of pantograph models;
- comparison between different simulation tools;
- limits of application of validated methods to assessments of pantographs and overhead contact lines.

This document applies to the current collection from an overhead contact line by pantographs mounted on railway vehicles. It does not apply to trolley bus systems.

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.

IEC 60494-1:2013, *Railway applications – Rolling stock – Pantographs – Characteristics and tests – Part 1: Pantographs for main line vehicles*

IEC 60913:2024, *Railway applications – Fixed installations – Electric traction overhead contact line systems*

IEC 62846:2016, *Railway applications – Current collection systems – Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line*

IEC 62486:2017, *Railway applications – Current collection systems – Technical criteria for the interaction between pantograph and overhead contactline (to achieve free access)*