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Road vehicles — Test procedures for electric vehicles to determine charging performance

Véhicules routiers — Procédures d'essai des véhicules électriques pour déterminer les performances de charge

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Foreword

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This document was jointly prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled vehicles* and SAE Hybrid – EV Committee.

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. Alternatively, to provide feedback on this document, please visit http://standards.sae.org/PRODCODE.

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Introduction

The test procedures were derived from typical use cases. Both test procedures and use cases were established based on the following premises:

— Comparability: the charging performance determined according to this document enables a comparison of the performance of different electrically propelled vehicles in realistic scenarios. The application of specific optimizing features to improve the charging performance (e.g. battery thermal preconditioning based on navigation systems) is taken into account.

— Imitability and plausibility: the possibility to retrace the determined charging performance in principle.

— Reproducibility: the specified test conditions, test methods and test processes ensure reproducibility within common measurement tolerances. It was important to leave as little space as possible for inadvertent deviations or manipulations.

The test results serve for information purposes, e.g. for vehicle operator interfaces or manufacturer specifications.

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Road vehicles — Test procedures for electric vehicles to determine charging performance

1 Scope

This document specifies test procedures to determine the charging performance of electric vehicles. This document facilitates clear and consistent comparisons of realistic charging capabilities of electrically propelled vehicles (EVs) via commercially available electric vehicle supply equipment. It provides details about test conditions, test methods and test processes derived from typical use cases. Furthermore, it specifies requirements regarding the information for the vehicle operator.

This document is applicable to EVs, including plug-in hybrid EVs.

This document does not provide requirements for mopeds and motorcycles.

Unless specified otherwise, all test procedures can be applied to AC, DC or wireless charging methods.

NOTE Specifications for reverse power transfer are under consideration.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
applicable driving test
ADT
driving test provision including test procedure and requirements for homologation in the intended market

EXAMPLE Worldwide harmonized light vehicles test procedure; SAE J1634.

3.2
ADT schedule
collection of one or more driving cycle(s)

EXAMPLE Worldwide light-duty test cycle; urban dynamometer driving schedule.

3.3
DC electric energy consumption
EC_{DC}
$R_{EC,DC}$
energy withdrawn per unit of distance from the *RESS* (3.9) for operating the *EV* (3.5) as measured by the combined test procedure defined in the *ADT* (3.1)

Note 1 to entry: Charging losses due to AC charging are excluded.

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