

SLOVENSKI STANDARD

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Cestna vozila - Komunikacijski vmesnik med vozilom in omrežjem - 4. del: Preskus skladnosti omrežja in aplikacijskega protokola (ISO 15118-4:2018)

Road vehicles - Vehicle to grid communication interface - Part 4: Network and application protocol conformance test (ISO 15118-4:2018)

Straßenfahrzeuge - Kommunikationsschnittstelle zwischen Fahrzeug und Ladestation - Teil 4: Konformitätsprüfungen für das Netzwerk- und Anwendungsprotokoll (ISO 15118-4:2018)

Véhicules routiers - Interface de communication entre véhicule et réseau électrique - Partie 4: Essai de conformité du protocole d'application et du réseau (ISO 15118-4:2018)

Ta slovenski standard je istoveten z: EN ISO 15118-4:2019

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43.040.15	Avtomobilska informatika. Vgrajeni računalniški sistemi	Car informatics. On board computer systems

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**Road vehicles - Vehicle to grid communication interface -
Part 4: Network and application protocol conformance test
(ISO 15118-4:2018)**

Véhicules routiers - Interface de communication entre
véhicule et réseau électrique - Partie 4: Essai de
conformité du protocole d'application et du réseau
(ISO 15118-4:2018)

Straßenfahrzeuge - Kommunikationsschnittstelle
zwischen Fahrzeug und Ladestation - Teil 4:
Konformitätsprüfungen für das Netzwerk- und
Anwendungsprotokoll (ISO 15118-4:2018)

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European foreword

The text of ISO 15118-4:2018 has been prepared by Technical Committee ISO/TC 22 "Road vehicles" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15118-4:2019 by Technical Committee CEN/TC 301 "Road vehicles" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2019, and conflicting national standards shall be withdrawn at the latest by August 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Part 4: Network and application protocol conformance test

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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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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Electrical and electronic equipment*, and Technical Committee IEC/TC 69 *Electric road vehicles and electric industrial trucks*. The draft was circulated for voting to the national bodies of both ISO and IEC.

A list of all parts in the ISO 15118 series can be found on the ISO website.

Introduction

The first three parts of ISO 15118 describe the use cases and the technical specification of the Vehicle-to-Grid Communication Interface which is intended for the optimized use of energy resources so that electric road vehicles can recharge in the most economic or most energy efficient way. It is furthermore required to develop efficient and convenient billing systems in order to cover the resulting micro-payments. The necessary communication channel may serve in the future to contribute to the stabilization of the electrical grid as well as to support additional information services required to operate electric vehicles efficiently and economically.

The complexity resulting from the network and application protocol requirements defined in the second part of the standard requires a considerable amount of testing in order to enable interoperability between independent implementations. This document therefore defines a conformance test suite for the network and application layer protocols in order to derive a common and agreed basis for conformance tests. The resulting test suite is a necessary prerequisite for downstream interoperability tests. Since interoperability furthermore involves the actual application logic of an implementation those tests are beyond the scope of this document. Hence this document focuses on the interface aspects and the corresponding requirements given in part two only.

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Road vehicles — Vehicle to grid communication interface — Part 4: Network and application protocol conformance test

1 Scope

This document specifies conformance tests in the form of an Abstract Test Suite (ATS) for a System Under Test (SUT) implementing an EVCC or SECC according to ISO 15118-2. These conformance tests specify the testing of capabilities and behaviors of an SUT as well as checking what is observed against the conformance requirements specified in ISO 15118-2 and against what the supplier states the SUT implementation's capabilities are.

The capability tests within the ATS check that the observable capabilities of the SUT are in accordance with the static conformance requirements defined in ISO 15118-2. The behavior tests of the ATS examine an implementation as thoroughly as is practical over the full range of dynamic conformance requirements defined in ISO 15118-2 and within the capabilities of the SUT (see NOTE).

A test architecture is described in correspondence to the ATS. The conformance test cases in this document are described leveraging this test architecture and are specified in TTCN-3 Core Language for ISO/OSI Network Layer (Layer 3) and above. The conformance test cases for the Data Link Layer (Layer 2) and Physical Layer (Layer 1) are described in ISO 15118-5. Test cases with overlapping scopes are explicitly detailed.

This document does not include specific tests of other standards referenced within ISO 15118-2, e.g. IETF RFCs. Furthermore, the conformance tests specified in this document do not include the assessment of performance nor robustness or reliability of an implementation. They cannot provide judgments on the physical realization of abstract service primitives, how a system is implemented, how it provides any requested service, nor the environment of the protocol implementation. Furthermore, the test cases defined in this document only consider the communication protocol defined ISO 15118-2. Power flow between the EVSE and the EV is not considered.

NOTE 1 Practical limitations make it impossible to define an exhaustive test suite, and economic considerations can restrict testing even further. Hence, the purpose of this document is to increase the probability that different implementations are able to interwork. This is achieved by verifying them by means of a protocol test suite, thereby increasing the confidence that each implementation conforms to the protocol specification. However, the specified protocol test suite cannot guarantee conformance to the specification since it detects errors rather than their absence. Thus conformance to a test suite alone cannot guarantee interworking. What it does do is give confidence that an implementation has the required capabilities and that its behavior conforms consistently in representative instances of communication.

NOTE 2 This document has some interdependencies to the conformance tests defined in ISO 15118-5 which result from ISO/OSI cross layer dependencies in the underlying protocol specification (e.g. for sleep mode)