



FINAL DRAFT International Standard

ISO/FDIS 15118-21

Road vehicles — Vehicle to grid communication interface —

Part 21:

Common 2nd generation network layer and application layer requirements conformance test plan

*Véhicules routiers — Interface de communication entre véhicule
et réseau électrique —*

*Partie 21: Plan de test de conformité aux exigences communes de
la couche réseau et de la couche application de 2ème génération*

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Foreword

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This document was prepared jointly by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*, and Technical Committee IEC/TC 69, *Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks*, and with the European Committee for Standardization (CEN) Technical Committee CEN/TC 301, *Road vehicles*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

Resulting from the 2nd generation network layer and application layer requirements for the vehicle to grid communication interface specified in ISO 15118-20, a corresponding set of abstract test cases is necessary to verify the conformance of implementations. Hence, this document specifies a conformance test suite for the 2nd generation network layer and application layer protocols to derive a common basis for conformance tests. The resulting test suite is a prerequisite for downstream interoperability tests. Since interoperability tests also involve the actual application logic of an implementation, such tests are beyond the scope of this document (see NOTE 1). Therefore, this document focuses on the communication interface aspects and the corresponding requirements given in ISO 15118-20 only.

The layered structure of the conformance test documents with reference to ISO 15118-20 is shown in [Figure 1](#). The complete set of relevant conformance test documents per charging type is composed of all the documents within its column according to [Figure 1](#).

| Charging Type | AC | DC | ACDP | WPT |
|------------------------|--|--------------------|--|---|
| ServiceID: ServiceName | 1: AC 5: AC_BPT | 2: DC 6: DC_BPT | 4: DC_ACDP 7: DC_ACDP_BPT | 3: WPT |
| Common test plans | Test plan for common network & application layer requirements (ISO 15118-21) | | | |
| | Test plan for common security requirements | | | |
| Specific test plans | Test plan for AC-/DC-specific network & application layer requirements | | Test plan for ACDP-specific network & application layer requirements | Test plan for WPT-specific network & application layer requirements |
| | | | | |

Figure 1 — Overview of relevant conformance test plans for ISO 15118-20 per charging type

EXAMPLE For a SUT supporting DC-charging, the following conformance test plan documents apply:

- test plan for common network and application layer requirements (this document);
- test plan for common security requirements;
- test plan for AC-/DC-specific network and application layer requirements (only DC-specific subset applies).

NOTE 1 Practical limitations make it impossible to specify 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. Instead, it gives confidence that a conforming implementation has the required capabilities and that its behaviour conforms consistently in representative instances of communication.

NOTE 2 This document generally refers to SUT instead of implementation under test (IUT), due to the black box testing paradigm adopted in this document and related certification processes.

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NOTE 3 This document has some interdependencies to the conformance tests specified in ISO 15118-5 and ISO 15118-9 which result from ISO/OSI cross layer dependencies in the underlying protocol specification (e.g. for sleep mode).

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