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Road vehicles — Vehicle interface for electronic Periodic Technical Inspection (ePTI) —

Part 2: Application and communication requirements conformance test plan

Véhicules routiers — Interface de véhicule pour le contrôle technique périodique électronique (ePTI) —

Partie 2: Plan de test de conformité aux exigences des couches application et communication

Reference number
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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 20730 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.

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Introduction

Roadworthiness testing is a part of a wider regime designed to ensure that road vehicles are kept in a safe and environmentally acceptable condition during their use. This regime covers periodic roadworthiness testing of vehicles and technical roadside inspections of vehicles used for commercial road transport activities and provides a vehicle registration procedure allowing for the suspension of a vehicle's authorisation to be used in road traffic where the vehicle constitutes an immediate risk to road safety. Periodic testing is the main tool to ensure roadworthiness. Technical roadside inspections of commercial vehicles are merely complementary to periodic testing.

An ePTI system list, which is defined in ISO 20730-3:2021, summarises ePTI-relevant systems and specifies a defined name (system), a unique identifier (ePTI system identifier) and a description for each ePTI system. All the definitions in this document refer to this ePTI system list.

The ISO 20730 series is based on the Open Systems Interconnection (OSI) basic reference model specified in ISO/IEC 7498-1 and ISO/IEC 10731, which structures communication systems into seven layers. When mapped on this model, the application protocol and data link framework requirements specified/referenced in the ISO 20730 series are structured according to Figure 1.

Figure 1 illustrates a standard-based documentation concept, which consists of the following main clusters:

— vehicle diagnostic communication framework: covers all relevant basic vehicle diagnostic communication specifications of OSI layers 7, 6 and 5;

— vehicle diagnostic communication use case framework: covers the master specification, which specifies the use cases and requirements of the subject matter of OSI layer 7;

— presentation layer framework: covers all data relevant specifications of OSI layer 6;

— conformance test plan: details the objectives, resources, and processes to test communication requirements of OSI layers 7, 6, and 5;

— lower OSI layer framework: covers all vehicle diagnostic protocol standards of OSI layers 4, 3, 2, and 1, which are relevant and referenced by the use case specific standard.

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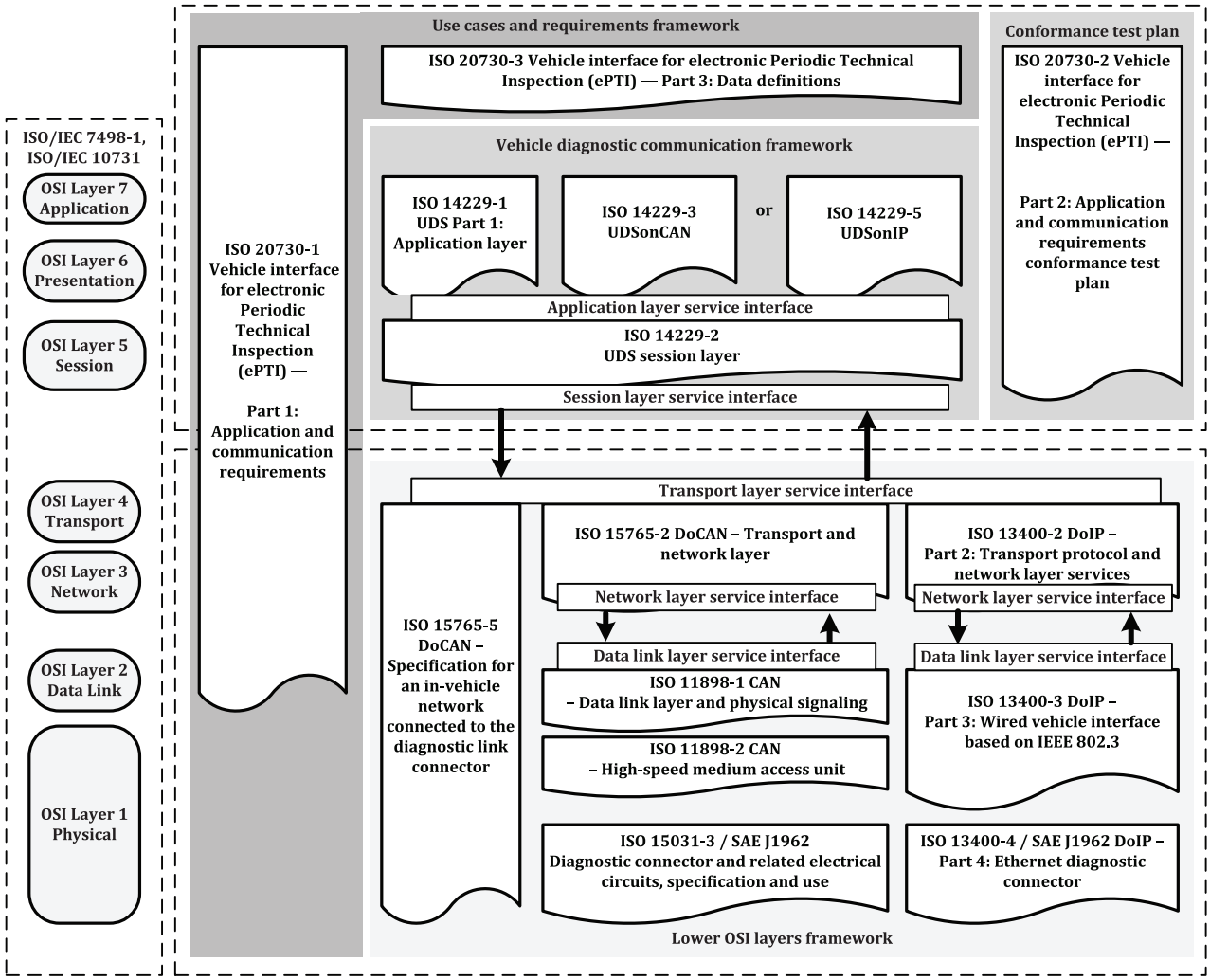


Figure 1 — ePTI document reference according to OSI model

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Road vehicles — Vehicle interface for electronic Periodic Technical Inspection (ePTI) —

Part 2: Application and communication requirements conformance test plan

1 Scope

This document specifies the conformance test plan for the communication requirements stated in ISO 20730-1 of road vehicles' ePTI-relevant systems and associated measurement and control data as specified in ISO 20730-3, which are subject to the usage of the electronic vehicle interface during the periodic technical inspection (ePTI).

The conformance test plan specifies test requirements and expected response behaviour of the system under test (SUT) to verify conformance of a vehicle with respect to ISO 20730-1 and ISO 20730-3 requirements.

This document provides technical information that test results are identical even on different test systems, if the particular test suite and the test system are compliant to the content of this document.

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.

ISO 13400-2, *Road vehicles — Diagnostic communication over Internet Protocol (DoIP) — Part 2: Transport protocol and network layer services*

ISO 14229-1:2020, *Road vehicles — Unified diagnostic services (UDS) — Part 1: Application layer*

ISO 14229-2, *Road vehicles — Unified diagnostic services (UDS) — Part 2: Session layer services*

ISO 20730-1:2021, *Road vehicles — Vehicle interface for electronic Periodic Technical Inspection (ePTI) — Part 1: Application and communication requirements*

ISO 20730-3:2021, *Road vehicles — Vehicle interface for electronic Periodic Technical Inspection (ePTI) — Part 3: Data definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13400-2, ISO 14229-1, ISO 14229-2, ISO 20730-1, ISO 20730-3 and the following 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/

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3.1
implementation under test
implementation of one or more OSI protocols in an adjacent user/provider relationship, being the part of a real open system which is to be studied by testing

[SOURCE: ISO/IEC 9646-1:1994, 3.3.43]

3.2
operational
in respective diagnostic session, authenticated, authorized state, and pre-conditions to execute the respective diagnostic service, DID(s), and RID(s)

3.3
REPEAT
pseudo code command for an iteration

3.4
REPEAT END
pseudo code command for ending an iteration

3.5
system under test
real open system in which the IUT resides

[SOURCE: ISO/IEC 9646-1:1994, 3.3.103]

4 Abbreviated terms

AL	application layer
CAN	controller area network
CTC	conformance test case
CTG	conformance test group
CTP	conformance test plan
DID	data identifier
DLC	data link connector
DoCAN	diagnostic communication over CAN
DoIP	diagnostic communication over Internet Protocol
ECU	electronic control unit
ICS	implementation conformance statements
IOCT_DID	input/output control data identifier
IUT	implementation under test
LT	lower tester
N_AI	network address information
OSI	open system interconnection

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