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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
ISO 20730-2:2022(E)

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Foreword

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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.

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.

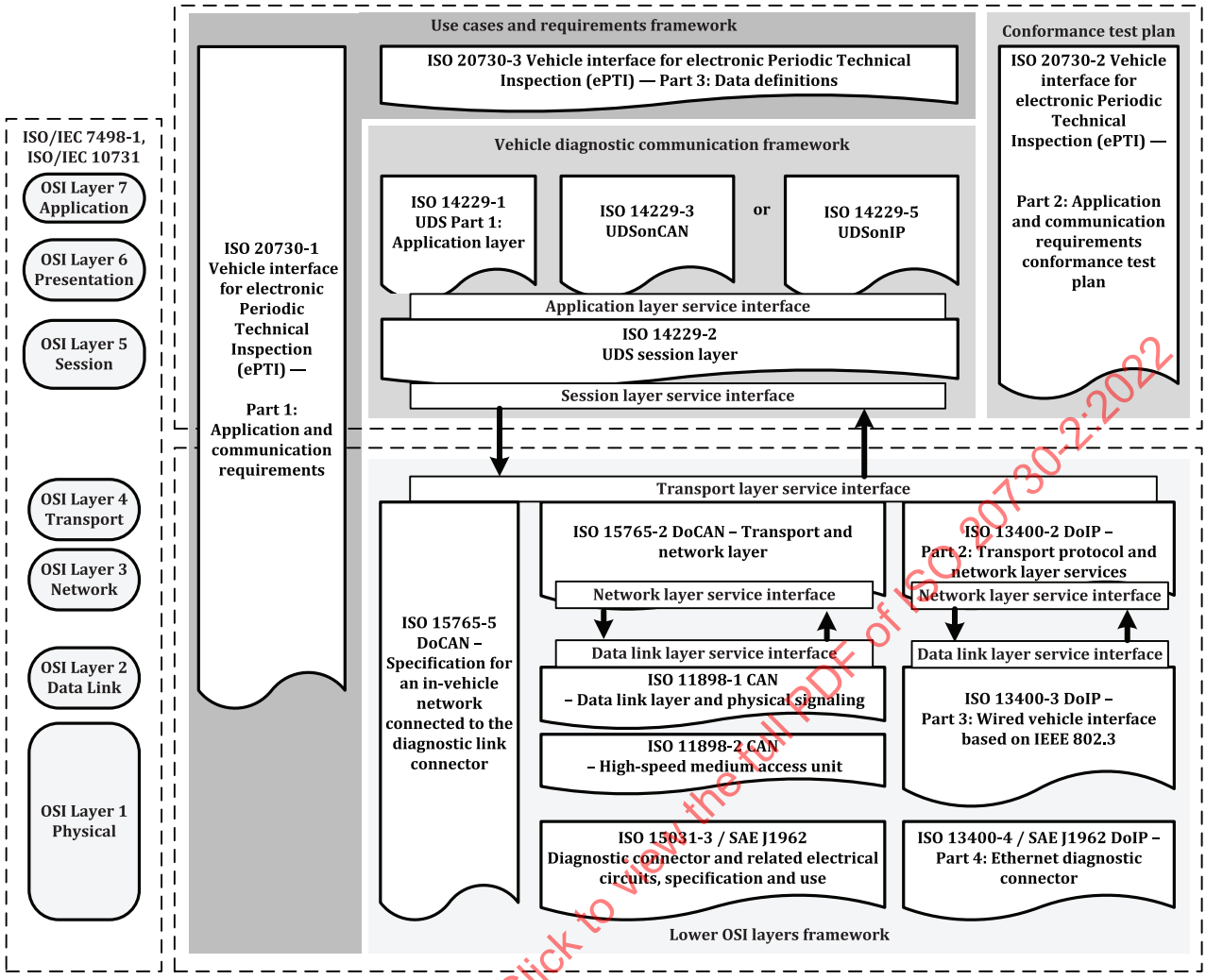


Figure 1 — ePTI document reference according to OSI model

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/

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

PCO	point of control and observation
RID	routine identifier
SA	source address
SUT	system under test
UT	upper tester

5 Conventions

This document is based on OSI service conventions as specified in ISO/IEC 10731 and ISO 9646-1[3] for conformance test system setup.

6 General test specification considerations

6.1 General

This document covers the conformance test cases (CTC) to verify the requirements specified in ISO 20730-1 and ISO 20730-3.

6.2 Test conditions

The conformance tests shall be performed at a temperature in the range of -20 °C to +40 °C.

An initialisation of the IUT shall be performed before each CTC.

6.3 SUT (vehicle) requirements

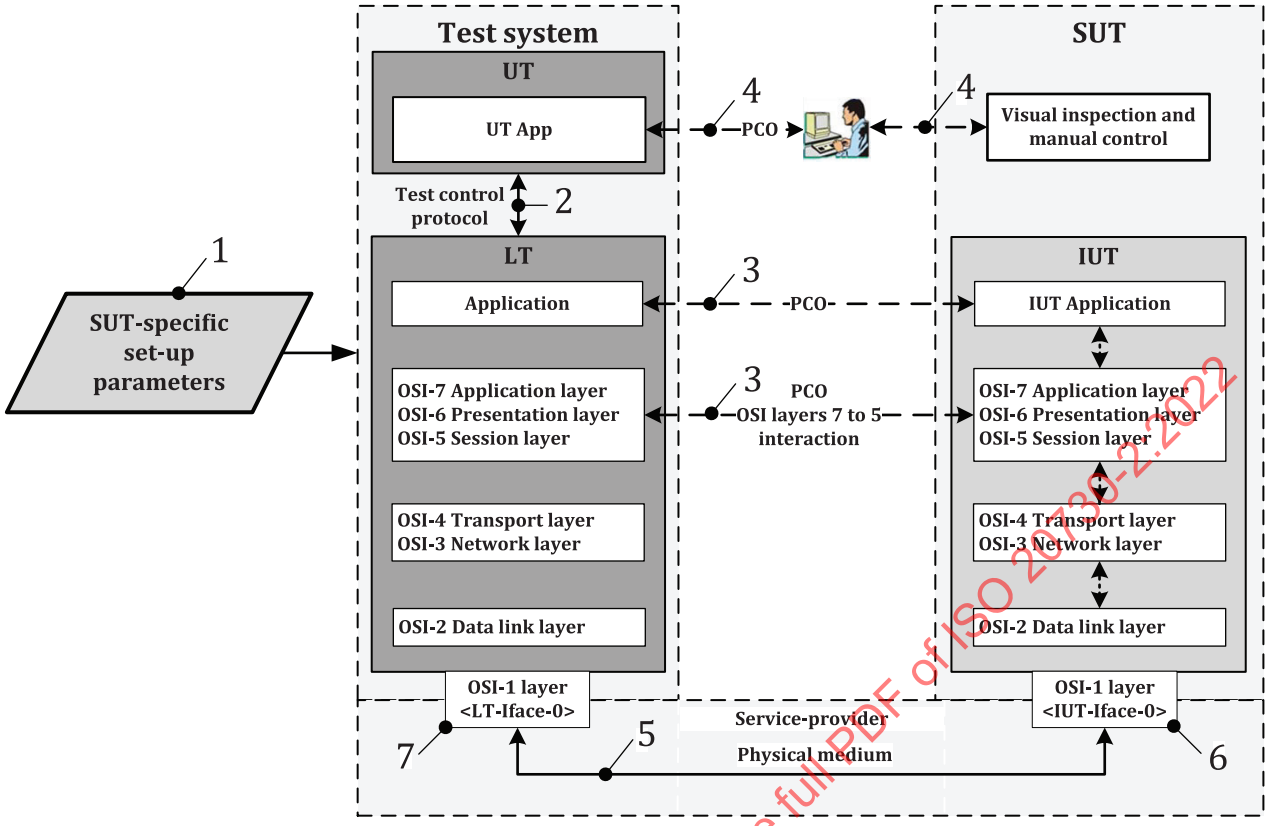
The SUT shall be initialised in the CTC respectively.

6.4 Test system topology

The test system topology follows the ISO 9646-1[3] and consists of a test setup which consists of a test system and a system under test (SUT) connected via the physical medium via LT communication interface (LT-Iface-0) and the SUT communication interface (IUT-Iface-0). The test system implements an UT and a LT. The UT uses the test control protocol (Figure 2, key 2) to control the LT. The LT supports the functionality required to test the OSI layer (Figure 2, key 3) of the IUT. The test system uses SUT-specific set-up parameters (Figure 2, key 1) for testing the communication with the SUT.

The control and measurement functionality is provided by direct logical access to the service interface (dashed line) (Figure 2, key 3) and the associated parameters of the OSI layer. The UT application instructs the inspector via the point of control and observation (PCO) (Figure 2, key 3) to perform visual inspection and manual control in the SUT (Figure 2, key 4).

The test system uses SUT-specific set-up parameters (Figure 2, key 1), e.g. ISO 20730-1 protocol and ISO 20730-3 data parameters, routine identifiers, and other vehicle manufacturer-specific parameters for testing the communication with the IUT.



1 SUT-specific set-up parameters for the test system (SUT electronic data sheet)

2 test control protocol (interface between UT and LT)

3 points of control and observation (PCO) performed by test operator

4 UT human machine interface to provide control instructions and visual inspection feedback by test system operator

5 data link connector (DLC) cable

6 IUT-Iface-0 physical interface represented by the vehicle's diagnostic link connector referenced in ISO 20730-1

7 LT-Iface-0 physical interface represented by the test system's diagnostic link connector

Figure 2 — Test system setup

6.5 Configuration of test system and SUT

The test system uses SUT-specific set-up parameters (Figure 2, key 1) to execute conformance test cases.

The SUT-specific set-up parameters specify at least the following information:

— IUT (ePTI-relevant ECUs installed in the SUT) supported application layer protocol: ISO 20730-1;

— supported protocol(s):

  — DoIP: ISO 13400-2, ISO 13400-3,

  — DLC: ISO 13400-4,

  — CAN: ISO 11898-1, ISO 11898-2,

  — DoCAN: ISO 15765-2, ISO 15765-5,

  - DLC: ISO 15031-3,
  - DLC: ISO 19689, and
  - DLC: SAE J1939-13 (Type 2).
- test system address (ePTI external test equipment) information as specified in ISO 20730-1;
- ePTI-relevant ECU(s) address information as specified in ISO 20730-1;
- application layer protocol timing information as specified in ISO 20730-1;
- data definitions as specified in ISO 20730-3.

6.6 CTC definition

Each CTC is defined in the structure as specified in Table 1. The "Step #" and "Expected response" is the equivalent of an "ICS" (implementation conformance statement).

Table 1 — CTC definition example

Item	Content
OSI#.Name	[OSI layer #].CTC_[number_name] EXAMPLE 8.CTC_1.1 APP - Test DoCAN protocol
Purpose	This CTC verifies that, e.g. the IUT supports the DoCAN protocol on the diagnostic data link connector.
Reference	ISO 20730-1:2021, 14.1: — REQ 8.1 APP – Setup vehicle's DoCAN data link framework – DoCAN diagnostic link connector; — REQ 8.2 APP – Setup vehicle's DoCAN data link framework –DoCAN connection on diagnostic link connector; — ... ISO 20730-1:2021, 15.3.1: — REQ 7.8 AL – Report ePTI-relevant system(s) – General requirement; — ... ISO 20730-3:2021, B.1, Table B.1: — DID_SUPP_SYS (supported ePTI Systems); NOTE This information is the symbolic name for that requirement which is used in ISO 20730-3. In some cases the references to requirements in ISO 20730-1 include text in parenthesis. — ... .
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The test system shall be parameterized in accordance with the SUT-specific set-up parameters as specified in 8.2. The IUT shall be in DEFAULT_SESSION state. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The LT shall transmit a request message via the LT-Iface-0 to the IUT-Iface-0. 2. The LT shall report the received information from the IUT to the UT.

Table 1 *(continued)*

Item	Content
Iteration	Definition of repetitions of test procedure steps. If no repetitions required state: "Not applicable" REPEAT step 1 to step 2, n times ... REPEAT END
Expected response	After step 1 the IUT responds with the — ...
Remark	For example, if no remark "None" or if a remark is included start with "Observation of ..."

IMPORTANT — All conformance test cases reference the requirements stated in ISO 20730-1:2021, ISO 20730-3:2021, and ISO 9646-1:1994,[3] 5.6, which states "To evaluate the conformance of a particular system, it is necessary to have a statement of the capabilities and options which have been implemented, for each specification which is supported, so that the system can be tested for conformance test against relevant requirements, and against those requirements only. Such a statement is called implementation conformance statements (ICS)."

7 Basic principles and conformance test groups

7.1 Basic principles

BP1: The CTCs specified in this document are independent of the technical classification specified in each use case defined in ISO 20730-1.

BP2: The CTCs specified in this document only cover standardized diagnostic services specified in ISO 20730-1 and data parameters specified in ISO 20730-3.

BP3: The CTC test sequence is given by the sequence of CTC_X.Y as specified in this document.

BP4: The conformance test plan (CTP) only specifies CTCs which provide a positive "expected response".

BP5: The LT performs IUT application layer to session layer testing, e.g. request/response message behaviour. The LT does not interpret any data following the service identifier of the response message.

BP6: The UT performs IUT application data interpretation to be reported as CTC result(s).

7.2 Conformance test groups

Table 2 provides an overview of the main conformance test groups and associated conformance test cases.

Table 2 — CTGs and associated CTCs

CTG_	CTG name	CTC name
1	CTG_1 – Test data link discovery	8.CTC_1.1 – Test DoCAN protocol and supported ePTI-relevant system(s)
		8.CTC_1.2 – Test DoIP protocol and supported ePTI-relevant system(s)
2	CTG_2 – Test authentication	7.CTC_2.1 – Test ePTI external test equipment authentication
		7.CTC_2.2 – Test ECU(s) authentication
3	CTG_3 – Test supported ePTI-relevant ECU DID(s), RID(s), and IOCT_DID(s)	7.CTC_3.1 – Test supported ECU data identifier(s)
		7.CTC_3.2 – Test supported ECU routine identifier(s)
		7.CTC_3.3 – Test supported ECU input/output control identifier(s)

Table 2 *(continued)*

CTG_	CTG name	CTC name
4	CTG_4 – Test ePTI-relevant data	7.CTC_4.1 – Test reported VIN from ECU
		7.CTC_4.2 – Test reported vehicle odometer value
		7.CTC_4.3 – Test reported vehicle's software number(s)
		7.CTC_4.4 – Test reported information from system
		7.CTC_4.5 – Test reported vehicle's ePTI system self-test completion and system status
5	CTG_5 – Test ePTI-relevant activation	7.CTC_5.1 – Test ePTI-relevant routines
		7.CTC_5.2 – Test ePTI-relevant input/output controls

8 Conformance test plan

8.1 General

The application tests the vehicle's supported protocol(s) and data parameters according to ISO 20730-1 and ISO 20730-3.

8.2 Variables and arrays used in CTCs

Table 3 specifies the user defined configuration variables and arrays for UT and LT.

Table 3 — CTC user defined configuration variables and arrays for UT and LT

Variables, Arrays	Description
PROT_TYPE	This variable is set by the test system and associated to the protocol supported by the SUT, e.g. DoCAN, DoIP.
PROT_BIT_RATE	This variable is set by the test system and associated to the protocol bit rate.
DEFAULT_SESSION	Default session state of the ECU
EXT_DIAG_SESSION	Extended diagnostic session state of the ECU
LIST_OF_SUPP_ECUs_SYSs[i]	List of ECU address information and associated supported system(s) as reported by the IUT: LIST_OF_SUPP_ECUs_SYSs[i] = {N_AI[SA], ePTI system identifier(s)}
LIST_OF_SUPP_ECUs_DIDs[j]	List of ECU address information and associated supported DID(s) as reported by the IUT: LIST_OF_SUPP_ECUs_DIDs[j] = {N_AI[SA], DID(s)}
LIST_OF_SUPP_ECUs_RIDs[k]	List of ECU address information and associated supported RID(s) as reported by the IUT: LIST_OF_SUPP_ECUs_RIDs[k] = {N_AI[SA], RID(s)}
LIST_OF_SUPP_ECUs_IOCT_DIDs[l]	List of ECU address information and associated supported IOCT_DID(s) as reported by the IUT: LIST_OF_SUPP_ECUs_IOCT_DIDs[l] = {N_AI[SA], IOCT_DID(s)}

8.3 CTG_1 – Test data link discovery

8.3.1 CTC_1.1 – Test DoCAN protocol and supported ePTI-relevant system(s)

Table 4 specifies the CTC_1.1 – Test DoCAN protocol and supported ePTI-relevant system(s).

Table 4 — CTC_1.1 – Test DoCAN protocol and supported ePTI-relevant system(s)

Item	Content
OSI#.Name	8.CTC_1.1 – Test DoCAN protocol and supported ePTI-relevant system(s)

Table 4 *(continued)*

Item	Content
Purpose	This CTC verifies that the IUT supports the DoCAN protocol and reports the supported ePTI-relevant systems via the diagnostic data link connector.
Reference	ISO 20730-1:2021, 14.1: — REQ 8.1 APP – Setup vehicle's DoCAN data link framework – DoCAN diagnostic link connector; — REQ 8.2 APP – Setup vehicle's DoCAN data link framework – DoCAN connection on diagnostic link connector; — REQ 8.3 APP – Setup vehicle's DoCAN data link framework – DoCAN configuration of 29-bit CANID protocol (see ISO 20730-1:2021, Table 21); — REQ 8.4 APP – Setup vehicle's DoCAN data link framework – DoCAN 29-bit CANID maximum number of ECUs; — REQ 8.5 APP – Setup vehicle's DoCAN data link framework – DoCAN normal fixed addressing format; — REQ 8.6 APP – Setup vehicle's DoCAN data link framework – DoCAN functional addressing; — REQ 8.8 APP - Setup vehicle's DoCAN data link framework – Size of A_PDU in the request message; — REQ 8.9 APP – Setup vehicle's DoCAN data link framework – DoCAN application message timing definition in defaultSession; — REQ 8.17 APP – Choice of DoCAN and DoIP data link in the vehicle. ISO 20730-1:2021, 15.3.1: — REQ 7.8 AL – Report ePTI-relevant system(s) – General requirement; — REQ 7.9 AL – Report ePTI-relevant system(s) – Request and response message processing; — REQ 7.10 AL – Report ePTI-relevant system(s) – MsgParam – DID_SUPP_SYS (supported ePTI Systems); — REQ 7.11 AL – Report ePTI-relevant system(s) – PosRspMsgParam – dataRecord; — REQ 7.12 AL – Report ePTI-relevant system(s) – PosRspMsgParam – ePTI system identifier. ISO 20730-3:2021, Table A.1: — ePTI-relevant system identifiers. ISO 20730-3:2021, B.1, REQ 7.1, Table B.1: — DID_SUPP_SYS (supported ePTI Systems).
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.

Table 4 *(continued)*

Item	Content
Step	1. The UT shall command to the LT to set up the data link discovery for the DoCAN protocol. 2. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.9, Table 24 and ISO 20730-3:2021, B.1, Table B.1 (DID set to DID_SUPP_SYS). 3. The LT shall receive at least one or multiple ReadDataByIdentifier response message(s) from the IUT as specified in ISO 20730-1:2021 (one response message per ECU), REQ 7.9, Table 24. If true, then set the variable PROT_TYPE to DoCAN. 4. The LT shall report the value of the variable PROT_TYPE and the ECU-specific response message A_PDU(s) to the UT. 5. The UT shall fill the LIST_OF_SUPP_ECUs_SYSs[] = {N_AI[SA], ePTI system identifier(s)} for each ECU with the A_PDU data containing the ePTI system identifier(s) of the ReadDataByIdentifier response message.
Iteration	Not applicable
Expected response	After step 2 the IUT sends one response message from a single ECU or one response message from each ECU. This indicates support of the DoCAN protocol. After step 5 the UT displays the value of the variable PROT_TYPE and the interpreted content of LIST_OF_SUPP_ECUs_SYSs[].
Remark	ISO 20730-1:2021, 15.3.3, Table 25 shows an example of ECUs and supported ePTI systems which is specified in step 5: LIST_OF_SUPP_ECUs_SYSs[i = 0, i < 3, i++] = [{ N_AI[SA] ECU#1, ePTI system identifier #1, ePTI system identifier #2},{ N_AI[SA] ECU#2, ePTI system identifier #3},{ N_AI[SA] ECU#3, ePTI system identifier #1, ePTI system identifier #4}].

8.3.2 CTC_1.2 – Test DoIP protocol and supported ePTI-relevant system(s)

Table 5 specifies the CTC_1.2 – Test DoIP protocol and supported ePTI-relevant system(s).

Table 5 — CTC_1.2 – Test DoIP protocol and supported ePTI-relevant system(s)

Item	Content
OSI#.Name	8.CTC_1.2 – Test DoIP protocol and supported ePTI-relevant system(s)
Purpose	This CTC verifies that the IUT supports the DoIP protocol and reports the supported ePTI-relevant systems via the diagnostic data link connector.

Table 5 *(continued)*

Item	Content
Reference	ISO 20730-1:2021, 14.2: — REQ 8.10 APP – Setup vehicle's DoIP data link framework – DoIP diagnostic link connector; — REQ 8.11 APP – Setup vehicle's DoIP data link framework – DoIP configuration of protocol; — REQ 8.12 APP – Setup vehicle's DoIP data link framework – DoIP logical address (see Table 22); — REQ 8.13 APP – Setup vehicle's DoIP data link framework – DoIP functional addressing; — REQ 8.15 APP – Setup vehicle's DoIP data link framework – Size of A_PDU in the request message; — REQ 8.16 APP – Setup vehicle's DoIP data link framework – DoIP application message timing definition in defaultSession; — REQ 8.17 APP – Choice of DoCAN and DoIP data link in the vehicle. ISO 20730-1:2021, 15.3.1: — REQ 7.8 AL – Report ePTI-relevant system(s) – General requirement; — REQ 7.9 AL – Report ePTI-relevant system(s) – Request and response message processing; — REQ 7.10 AL – Report ePTI-relevant system(s) – MsgParam – DID_SUPP_SYS (supported ePTI Systems); — REQ 7.11 AL – Report ePTI-relevant system(s) – PosRspMsgParam – dataRecord; — REQ 7.12 AL – Report ePTI-relevant system(s) – PosRspMsgParam – ePTI system identifier. ISO 20730-3:2021, Table A.1: — ePTI-relevant system identifiers. ISO 20730-3:2021, B.1, REQ 7.1, Table B.1: — DID_SUPP_SYS (supported ePTI Systems).
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The UT shall command to the LT to set up the data link discovery for the DoIP protocol. 2. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.9, Table 24 and ISO 20730-3:2021, B.1, Table B.1: DID set to DID_SUPP_SYS (supported ePTI Systems). 3. The LT shall receive at least one or multiple (one response message per ECU) ReadDataByIdentifier response message(s) from the IUT as specified in ISO 20730-1:2021, REQ 7.9 Table 24. If true, then set the variable PROT_TYPE to DoIP. 4. The LT shall report the value of the variable PROT_TYPE and the ECU-specific response message A_PDU(s) to the UT. 5. The UT shall fill the LIST_OF_SUPP_ECUs_SYSs[] = {N_AI[SA], ePTI system identifier(s)} for each ECU with the A_PDU data containing the ePTI system identifier(s) of the ReadDataByIdentifier response message.
Iteration	Not applicable

Table 5 *(continued)*

Item	Content
Expected response	After step 2 the IUT sends one ReadDataByIdentifier response message from a single ECU or one ReadDataByIdentifier response message from each ECU. This indicates support of the DoIP protocol. After step 5 the UT displays the value of the variable PROT_TYPE and the interpreted content of LIST_OF_SUPP_ECUs_SYSs[].
Remark	ISO 20730-1:2021, 15.3.3, Table 25 shows an example of ECUs and supported ePTI systems which is specified in step 5: LIST_OF_SUPP_ECUs_SYSs[i = 0, i < 3, i++] = [{ N_AI[SA] ECU#1, ePTI system identifier #1, ePTI system identifier #2},{ N_AI[SA] ECU#2, ePTI system identifier #3},{ N_AI[SA] ECU#3, ePTI system identifier #1, ePTI system identifier #4}].

8.4 CTG_2 – Test authentication

8.4.1 CTC_2.1 – Test ePTI external test equipment authentication

Table 6 specifies the CTC_2.1 – Test ePTI external test equipment authentication.

Table 6 — CTC_2.1 – Test ePTI external test equipment authentication

Item	Content
OSI#.Name	**7.CTC_2.1 – Test ePTI external test equipment authentication**
Purpose	This CTC verifies that the IUT supports the ePTI external test equipment authentication.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework –DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.2.1: — REQ 7.3 AL – ePTI external test equipment authentication – General requirement #1; — REQ 7.4 AL – ePTI external test equipment authentication – General requirement #2; — REQ 7.5 AL – ePTI external test equipment authentication – Allowed security concepts for using service "Authentication"; — REQ 7.6 AL – ePTI external test equipment authentication – Publication of used algorithms. ISO 14229-1:2020, 10.4, 10.6.
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters. The test system shall be set up with the credentials (e.g. certificate) required for ePTI external test equipment authentication.

Table 6 *(continued)*

Item	Content
Step	1. The LT shall perform the Authentication (e.g. challenge response) or SecurityAccess sequence according to the SUT-specific set-up parameters (see Figure 2) as specified in ISO 20730-1:2021, REQ 7.3. 2. The LT shall receive the Authentication or SecurityAccess response messages from the IUT as specified in ISO 20730-1:2021, REQ 7.3. 3. The LT shall report the A_PDU(s) of the ECU-specific Authentication or SecurityAccess response message(s) to the UT. 4. The UT shall evaluate the ECU-specific Authentication (e.g. challenge response) according to the SUT-specific set-up parameters (see Figure 2).
Iteration	REPEAT step 1 to step 4, i = 0 LIST_OF_SUPP_ECUs_SYSs[i]; i++; REPEAT END
Expected response	After step 1 the IUT transmits the Authentication (e.g. challenge response) or SecurityAccess response messages according to the SUT-specific set-up parameters (see Figure 2) as specified in ISO 20730-1:2021, REQ 7.3. After step 4 the UT displays the Authentication or SecurityAccess result(s) of the IUT.
Remark	None

8.4.2 CTC_2.2 – Test ECU(s) authentication

Table 7 specifies the CTC_2.2 – Test ECU(s) authentication.

Table 7 — CTC_2.2 – Test ECU(s) authentication

Item	Content
OSI#.Name	**7.CTC_2.2 – Test ECU(s) authentication**
Purpose	This CTC verifies that the IUT supports the ECU(s) authentication.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.2.2: — REQ 7.7 AL – ECU authentication – Vehicle ECU authentication. ISO 14229-1:2020, 10.6.
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters. The test system shall be set up with the IUT credentials (e.g. ECU certificate) required for ECU authentication.

Table 7 *(continued)*

Item	Content
Step	1. The LT shall perform the Authentication sequence (e.g. challenge response) according to the SUT-specific set-up parameters (see Figure 2) as specified in ISO 20730-1:2021, REQ 7.7. 2. The LT shall receive the Authentication or SecurityAccess response messages from the IUT as specified in ISO 20730-1:2021, REQ 7.7. 3. The LT shall report the A_PDU(s) of the ECU-specific Authentication response message(s) to the UT. 4. The UT shall evaluate the ECU-specific Authentication (e.g. challenge response) according to the SUT-specific set-up parameters (see Figure 2).
Iteration	REPEAT step 1 to step 4, i = 0 LIST_OF_SUPP_ECUs_SYSs[i]; i++; REPEAT END
Expected response	After step 1 the IUT transmits the Authentication response messages (e.g. challenge response) according to the SUT-specific set-up parameters (see Figure 2) as specified in ISO 20730-1:2021, REQ 7.7. After step 4 the UT displays the Authentication (e.g. challenge response) result(s) of the IUT.
Remark	None

8.5 CTG_3 – Test supported ePTI-relevant, ECU DID(s), RID(s), and IOCT_DID(s)

8.5.1 CTC_3.1 – Test supported ECU data identifier(s)

Table 8 specifies the CTC_3.1 – Test supported ECU data identifier(s).

Table 8 — CTC_3.1 – Test supported ECU data identifier(s)

Item	Content
OSI#.Name	**7.CTC_3.1 – Test supported ECU data identifier(s)**
Purpose	This CTC verifies that the IUT supports ePTI-relevant data identifiers (DID) upon request by the test system.

Table 8 *(continued)*

Item	Content
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.4.1: — REQ 7.13 AL – Report ECU supported data identifier(s) – General requirement; — REQ 7.14 AL – Report ECU supported data identifier(s) – Request and response message processing; — REQ 7.15 AL – Report ECU supported data identifier(s) – MsgParam – DID_SUPP_DID (SupportedePTIDataIDs); — REQ 7.16 AL – Report ECU supported data identifier(s) – PosRspMsgParam – dataRecord; — REQ 7.17 AL – Report ECU supported data identifier(s) – PosRspMsgParam – DID. ISO 20730-3:2021, B.1, REQ 7.1, Table B.1: — DID_ISO_ED_NUM (ISO edition number); — DID_SUPP_DID (supported ePTI data IDs); — DID_SUPP_SYS (supported ePTI systems); — DID_SUPP_RID (supported ePTI routine identifiers); — DID_SUPP_IOCT_DID (supported ePTI input/output control identifiers); — DID_SYS_STATUS (ePTI system status); — Optional DIDs. ISO 20730-3:2021, B.2, REQ 7.2, Table B.2: — DID_VIN (vehicle identification number); — DID_ODO (vehicle odometer); — Optional DIDs.
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.14, Table 27 and ISO 20730-3:2021 B.1, Table B.1 (DID set to DID_SUPP_DID). 2. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.14, Table 27. 3. The LT shall report the A_PDU from each ECU ReadDataByIdentifier response message to the UT. 4. The UT shall fill the LIST_OF_SUPP_ECUs_DIDs[] = {N_AI[SA], DID(s)} for each ECU with the A_PDU data containing the DIDs of the ReadDataByIdentifier response message.

Table 8 *(continued)*

Item	Content
Iteration	REPEAT step 1 to step 3, i = 0 LIST_OF_SUPP_ECUs_SYSs[i]; i++; REPEAT END
Expected response	After step 1 the IUT sends one ReadDataByIdentifier response message from a single ECU or one ReadDataByIdentifier response message from each ECU including the list of DIDs supported by this ECU. After step 4 the UT displays the interpreted DID(s) of LIST_OF_SUPP_ECUs_DIDs[].
Remark	Each ECU reports the mandatory and optional DID(s). ISO 20730-1:2021, 15.3.3, Table 25 shows an example of ECUs and supported ePTI systems: LIST_OF_SUPP_ECUs_SYSs[i = 0, i < 3, i++] = [{ N_AI[SA] ECU#1, ePTI system identifier #1, ePTI system identifier #2},{ N_AI[SA] ECU#2, ePTI system identifier #3},{ N_AI[SA] ECU#3, ePTI system identifier #1, ePTI system identifier #4}].

8.5.2 CTC_3.2 – Test supported ECU routine identifier(s)

Table 9 specifies the CTC_3.2 – Test supported ECU routine identifier(s).

Table 9 — CTC_3.2 – Test supported ECU routine identifier(s)

Item	Content
OSI#.Name	**7.CTC_3.2 – Test supported ECU routine identifier(s)**
Purpose	This CTC verifies that the IUT supports ePTI-relevant routine identifiers (RID) upon request by the test system.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.5.1: — REQ 7.18 AL – Report ECU supported routine identifier(s) – General requirement; — REQ 7.19 AL – Report ECU supported routine identifier(s) – Request and response message processing; — REQ 7.20 AL – Report ECU supported routine identifier(s) – MsgParam – DID_SUPP_RID (SupportedePTIRoutineIDs); — REQ 7.21 AL – Report ECU supported routine identifier(s) – PosRspMsgParam – dataRecord; — REQ 7.22 AL – Report ECU supported routine identifier(s) – PosRspMsgParam – RID. ISO 20730-3:2021, B.1, REQ 7.1, Table B.1: — DID_SUPP_RID (supported ePTI routine IDs). ISO 20730-3:2021, C.1, REQ 7.25, Table C.1; — RID_MIL_ACT (malfunction indicator activation); — RID_EXT_LI_ACT (exterior light device activation); — optional RIDs.

Table 9 *(continued)*

Item	Content
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.19, Table 29 and ISO 20730-3:2021, B.1, Table B.1: DID set to DID_SUPP_RID. 2. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.19, Table 29. 3. The LT shall report the A_PDU from each ECU-specific ReadDataByIdentifier response message to the UT. 4. The UT shall fill the LIST_OF_SUPP_ECUs_RIDs[] = {N_AI[SA], RID(s)} for each ECU with the A_PDU data containing the RIDs of the ReadDataByIdentifier response message.
Iteration	REPEAT step 1 to step 3, i = 0 LIST_OF_SUPP_ECUs_SYSs[i]; i++; REPEAT END
Expected response	After step 1 the IUT sends one ReadDataByIdentifier response message from a single ECU or one ReadDataByIdentifier response message from each ECU including the list of RIDs supported by this ECU. After step 4 the UT displays the interpreted RID(s) of LIST_OF_SUPP_ECUs_RIDs[].
Remark	Each ECU reports the mandatory and optional RID(s). ISO 20730-1:2021, 15.3.3, Table 25 shows an example of ECUs and supported ePTI systems. LIST_OF_SUPP_ECUs_SYSs[i = 0, i < 3, i++] = [{ N_AI[SA] ECU#1, ePTI system identifier #1, ePTI system identifier #2},{ N_AI[SA] ECU#2, ePTI system identifier #3},{ N_AI[SA] ECU#3, ePTI system identifier #1, ePTI system identifier #4}];

8.5.3 CTC_3.3 – Test supported ECU input/output control identifier(s)

Table 10 specifies the CTC_3.3 – Test supported ECU input/output control identifier(s).

Table 10 — CTC_3.3 – Test supported ECU input/output control identifier(s)

Item	Content
OSI#.Name	**7.CTC_3.3 – Test supported ECU input/output control identifier(s)**
Purpose	This CTC verifies that the IUT supports ePTI-relevant input/output control identifier(s) (DID) upon request by the test system.

Table 10 *(continued)*

Item	Content
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.6.1: — REQ 7.23 AL – Report ECU supported input/output control identifier(s) – General requirement; — REQ 7.24 AL – Report ECU supported input/output control identifier(s) – Request and response message processing; — REQ 7.25 AL – Report ECU supported input/output control identifier(s) – MsgParam – DID_SUPP_IOCT_DID (supported ePTI input/output control identifier(s)); — REQ 7.26 AL – Report ECU supported input/output control identifier(s) – PosRspMsgParam – dataRecord; — REQ 7.27 AL – Report ECU supported input/output control identifier(s) – PosRspMsgParam – DID. ISO 20730-3:2021, B.1, REQ 7.1, Table B.1: — DID_SUPP_IOCT_DID (supported ePTI input/output control IDs).
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.24, Table 31 and ISO 20730-3:2021, B.1, Table B.1 (DID set to DID_SUPP_IOCT_DID). 2. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.24, Table 31. 3. The LT shall report the A_PDU from each ECU ReadDataByIdentifier response message to the UT. 4. The UT shall fill the LIST_OF_SUPP_ECUs_IOCT_DIDs[] = {N_AI[SA], IOCT_DID(s)} for each ECU with the A_PDU data containing the IOCT_DIDs of the ReadDataByIdentifier response message.
Iteration	REPEAT step 1 to step 3, i = 0 LIST_OF_SUPP_ECUs_SYSs[i]; i++; REPEAT END
Expected response	After step 1 the IUT sends one ReadDataByIdentifier response message from a single ECU or one ReadDataByIdentifier response message from each ECU including the list of IOCT_DIDs supported by this ECU. After step 4 the UT displays the interpreted IOCT_DID(s) of LIST_OF_SUPP_ECUs_IOCT_DIDs[].
Remark	Each ECU reports the mandatory and optional IOCT_DID(s). ISO 20730-1:2021, 15.3.3, Table 25 shows an example of ECUs and supported ePTI systems: LIST_OF_SUPP_ECUs_SYSs[i = 0, i < 3, i++] = [{ N_AI[SA] ECU#1, ePTI system identifier #1, ePTI system identifier #2},{ N_AI[SA] ECU#2, ePTI system identifier #3},{ N_AI[SA] ECU#3, ePTI system identifier #1, ePTI system identifier #4}].

8.6 CTG_4 – Test ePTI-relevant data

8.6.1 CTC_4.1 – Test reported VIN from ECU

Table 11 specifies the CTC_4.1 – Test reported VIN from ECU.

Table 11 — CTC_4.1 – Test reported VIN from ECU

Item	Content
OSI#.Name	**CTC_4.1 – Test reported VIN from ECU**
Purpose	This CTC verifies that the IUT reports the vehicle identification number upon request by the test system.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.7.1: — REQ 7.28 AL – Report VIN from ECU – General requirement; — REQ 7.29 AL – Report VIN from ECU – Request and response message processing; — REQ 7.30 AL – Report VIN from ECU – MsgParam – DID_VIN (vehicle identification number); — REQ 7.31 AL – Report VIN from ECU – PosRspMsgParam – dataRecord; — REQ 7.32 AL – Report VIN from ECU – PosRspMsgParam – VINData. ISO 20730-3:2021, B.2, REQ 7.2, Table B.2: — DID_VIN, (VINData).
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position IV); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The UT shall receive the DID_VIN included in the LIST_OF_SUPP_ECUs_DIDs[]. If true then continue with step 2, otherwise abort this CTC. 2. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.29 Table 33 with the DID value set to DID_VIN. 3. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.29, Table 33 and ISO 20730-3:2021, B.2, Table B.2: DID set to DID_VIN. 4. The LT shall report the A_PDU from the ECU ReadDataByIdentifier response message to the UT. 5. The UT shall interpret the A_PDU and extract the VINData.
Iteration	Not applicable
Expected response	After step 2 the IUT sends a ReadDataByIdentifier response message from the ECU with the DID_VIN and associated VINData. After step 5 the UT displays the interpreted VINData and the test system operator compares the VINData with the VIN of the vehicle.
Remark	None

8.6.2 CTC_4.2 – Test reported vehicle odometer value

Table 12 specifies the CTC_4.2 – Test reported vehicle odometer value.

Table 12 — CTC_4.2 – Test reported vehicle odometer value

Item	Content
OSI#.Name	**7.CTC_4.2 – Test reported vehicle odometer value**
Purpose	This CTC verifies that the IUT reports the odometer value upon request by the test system.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.8.1: — REQ 7.33 AL – Report vehicle odometer value – General requirement; — REQ 7.34 AL – Report vehicle odometer value – Request and response message processing; — REQ 7.53 AL – Report vehicle odometer value – MsgParam – DID_ODO (vehicle odometer); — REQ 7.36 AL – Report vehicle odometer value – PosRspMsgParam – dataRecord; — REQ 7.37 AL – Report vehicle odometer value – PosRspMsgParam – OdometerData. ISO 20730-3:2021, B.2, REQ 7.2, Table B.2: — DID_ODO, (OdometerData).
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The UT shall receive the DID_ODO included in the LIST_OF_SUPP_ECUs_DIDs[]. If true then continue with step 2, otherwise abort this CTC. 2. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.34, Table 35 and ISO 20730-3:2021, B.2, Table B.2: DID set to DID_ODO. 3. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.34, Table 35. 4. The LT shall report the A_PDU from the ECU ReadDataByIdentifier response message to the UT. 5. The UT shall interpret the A_PDU and extract the OdometerData.
Iteration	Not applicable
Expected response	After step 2 the IUT sends a ReadDataByIdentifier response message from the ECU with the DID_ODO and associated OdometerData. After step 5 the UT displays the interpreted OdometerData and the test system operator compares the OdometerData with the odometer value displayed in the instrument panel cluster of the vehicle.
Remark	None

8.6.3 CTC_4.3 – Test reported vehicle's software number(s)

Table 13 specifies the CTC_4.3 – Test reported vehicle's software number(s).

Table 13 — CTC_4.3 – Test reported vehicle's software number(s)

Item	Content
OSI#.Name	**7.CTC_4.3 – Test reported vehicle's software number(s)**

Table 13 *(continued)*

Item	Content
Purpose	This CTC verifies that the IUT reports the vehicle's software number(s) and information from system upon request by the test system.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.9.1: — REQ 7.38 AL – Report vehicle's software number(s) – General requirement; — REQ 7.39 AL – Report vehicle's software number(s) – Request and response message processing. ISO 20730-3:2021, B.2, REQ 7.2, Table B.2: — DID_RxSWIN (optional regulation 'X' software identification number). ISO 14229-1:2020, C.1, Table C.1: — RxSWIN (regulation 'X' software identification numbers).
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The UT shall receive the DID_RxSWIN included in the LIST_OF_SUPP_ECUs_DIDs[]. If true then continue with step 2, otherwise abort this CTC. 2. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.39, Table 37 and ISO 20730-3:2021, B.2, Table B.2: DID set to DID_RxSWIN. 3. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.39 Table 37. 4. The LT shall report the A_PDU from the ECU ReadDataByIdentifier response message to the UT. 5. The UT shall interpret the A_PDU and extract the RxSWINData.
Iteration	REPEAT step 1 to step 5, j = 0 IF (LIST_OF_SUPP_ECUs_DIDs[j] ≠ DID_RxSWIN); j++; REPEAT END
Expected response	After step 2 the IUT sends a ReadDataByIdentifier response message from the ECU with the DID_RxSWIN and associated RxSWINData. After step 5 the UT displays the interpreted RxSWINData and the test system operator compares the RxSWINData with the documentation provided by the vehicle manufacturer.
Remark	Optional: DID_RxSWIN (regulation 'X' software identification number).

8.6.4 CTC_4.4 – Test reported information from system

Table 14 specifies the CTC_4.4 – Test reported information from system.

Table 14 — CTC_4.4 – Test reported information from system

Item	Content
OSI#.Name	**7.CTC_4.4 – Test reported information from system**

Table 14 *(continued)*

Item	Content
Purpose	This CTC verifies that the IUT reports the vehicle's system information (current and/or stored values) upon request by the test system.
Reference	ISO 20730-1:2021, 14.1, 14.2: — REQ 8.7 APP – Setup vehicle's DoCAN data link framework – DoCAN physical addressing; or — REQ 8.14 APP – Setup vehicle's DoIP data link framework – DoIP physical addressing. ISO 20730-1:2021, 15.10.1: — REQ 7.40 AL – Report information from system – General requirement #1; — REQ 7.41 AL – Report information from system – General requirement #2; — REQ 7.42 AL – Report information from system – Request and response message processing; — REQ 7.43 AL – Report information from system – MsgParam – DID; — REQ 7.44 AL – Report information from system – PosRspMsgParam – dataRecord; — REQ 7.45 AL – Report information from system – PosRspMsgParam – data. ISO 20730-3:2021, B.1, REQ 7.1, Table B.1: — optional DIDs. ISO 20730-3:2021, B.2, REQ 7.2, Table B.2: — optional DIDs.
Prerequisite	The SUT (vehicle) shall: — be in ignition RUN (position II); — have all ePTI-relevant ECUs operational.
Setup	The test system setup shall be in accordance with Figure 2. The UT shall initialize the LT with the IUT-specific set-up parameters.
Step	1. The LT shall transmit a ReadDataByIdentifier request message to the IUT as specified in ISO 20730-1:2021, REQ 7.42, Table 37 and ISO 20730-3:2021, B.1, Table B.1 and B.2, Table B.2: DID set to the respective value of LIST_OF_SUPP_ECUs_DIDs. 2. The LT shall receive a ReadDataByIdentifier response message from the IUT as specified in ISO 20730-1:2021, REQ 7.42, Table 37. 3. The LT shall report the A_PDU from the ECU ReadDataByIdentifier response message to the UT. 4. The UT shall interpret the A_PDU and extract the respective data.
Iteration	REPEAT step 1 to step 4, j = 0 LIST_OF_SUPP_ECUs_DIDs[j]; j++; REPEAT END
Expected response	After step 1 the IUT sends a ReadDataByIdentifier response message from the ECU with the DID and associated DID data. After step 4 the UT displays the interpreted DID and data.
Remark	This CTC tests all supported DIDs except: — DID_VIN (vehicle identification number); — DID_ODO (vehicle odometer); — DID_SYS_STATUS (ePTI system status); — optional: DID_RxSWIN (regulation 'X' software identification number).