
**Electronic fee collection — Evaluation of
equipment for conformity to
ISO/TS 17575-4 —**

**Part 2:
Abstract test suite**

iTeh STANDARD PREVIEW
*Perception du télépéage — Évaluation de conformité de l'équipement à
l'ISO/TS 17575-4 —
(standards.iteh.ai)
Partie 2: Suite d'essai abstraite*

ISO/TS 16403-2:2012

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO/TS 16403-2 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*, in collaboration with Technical Committee CEN/TC 278, *Road transport and traffic telematics*.

ISO/TS 16403 consists of the following parts, under the general title *Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-4*:

- *Part 1: Test suite structure and test purposes*
- *Part 2: Abstract test suite*

Introduction

This part of ISO/TS 16403 is part of a set of standards that supports interoperability of autonomous electronic fee collection (EFC) systems. These include ISO/TS 17575, which defines EFC systems' context data, their charge reports and their use of communication infrastructure.

Within the suite of EFC standards, this conformance evaluation procedure defines the process and tests for conformity evaluation of Front End and Back End that comply with the requirements in ISO/TS 17575-4.

ISO/TS 16403 is intended to:

- assess Front End and Back End capabilities;
- assess Front End and Back End behaviour;
- serve as a guide for Front End and Back End conformance evaluation and type approval;
- achieve comparability between the results of the corresponding tests applied in different places at different times;
- facilitate communications between parties.

ISO/TS 16403 is based on:

- ISO/TS 17575-4, *Electronic fee collection — Application interface definition for autonomous systems — Part 4: Roaming*; <https://standards.iteh.ai/catalog/standards/sist/d1790616-932f-4975-85a4-568c6ab2875d/iso-ts-16403-2-2012>
- ISO/TS 17575-1, *Electronic fee collection — Application interface definition for autonomous systems — Part 1: Charging*;
- ISO/TS 17575-3, *Electronic fee collection — Application interface definition for autonomous systems — Part 3: Context data*.

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Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-4 —

Part 2: Abstract test suite

1 Scope

The objective of this part of ISO/TS 16403 is to provide a basis for conformance tests for Front End and Back End in electronic fee collection, based on autonomous on-board equipment. This supports interoperability between different equipment supplied by different manufacturers.

The present abstract test suite (ATS) is directly derived from ISO/TS 16403-1.

2 Normative references

The following referenced documents are indispensable for the application 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/TS 16403-1:2012, *Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-4 — Part 1: Test suite structure and test purposes*

ISO/TS 17575-1:2010, *Electronic fee collection — Application interface definition for autonomous systems — Part 1: Charging*

ISO/TS 17575-2:2010, *Electronic fee collection — Application interface definition for autonomous systems — Part 2: Communication and connection to the lower layers*

ISO/TS 17575-3, *Electronic fee collection — Application interface definition for autonomous systems — Part 3: Context data*

ISO/TS 17575-4, *Electronic fee collection — Application interface definition for autonomous systems — Part 4: Roaming*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 16403-1 and the following apply.

3.1.1

Back End

BE
generic name for the computing and communication facilities of the Service Provider and/or the Toll Charger

[ISO/TS 17575-4:2011, definition 3.4]

3.1.2

conformance testing

testing the extent to which an IUT is a conforming implementation

[ISO/IEC 9646-1:1994, definition 3.3.23]

3.1.3

equipment access port

eaPort
port used to control the implementation under test

3.1.4

Front End

FE
part(s) of the toll system where usage data for an individual user are collected, processed and delivered to the Back End

NOTE 1 The Front End comprises the on-board equipment and an optional proxy.

NOTE 2 Adapted from ISO/TS 17575-4:2011.

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3.1.5

IUT
implementation under test

an implementation of one or more OS1 protocols in an adjacent user/provider relationship, being that part of a real open system which is to be studied by testing

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

3.1.6

system under test

SUT
the real open system in which the IUT resides

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

3.1.7

test case

TC
an abstract or executable test case

[ISO/IEC 9646-1:1994, definition 3.3.107]

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply throughout the document unless otherwise specified.

ADU Application data unit

ASN.1 Abstract Syntax Notation One (see ISO/IEC 8824-1)

ATM	Abstract test method
ATS	Abstract test suite
DUT	Device under test
EUT	Equipment under test
pco	Point of control and observation
PIXIT	Protocol Implementation Extra Information for Testing
SAP	Service access point
TP	Test purpose

4 Abstract test method

4.1 General

This clause describes the ATM used to test the layers at the FE side and at the BE side.

4.2 Test architecture

The implementation under test is either the FE or the BE. The system under test comprises also the communication sub-layer, which is necessary to perform the IUT tests.

The tester shall execute the TTCN-3 test cases as defined in Annex A of the present test specification, running on an emulated communication sub-layer.

The figure below depicts the test architecture.

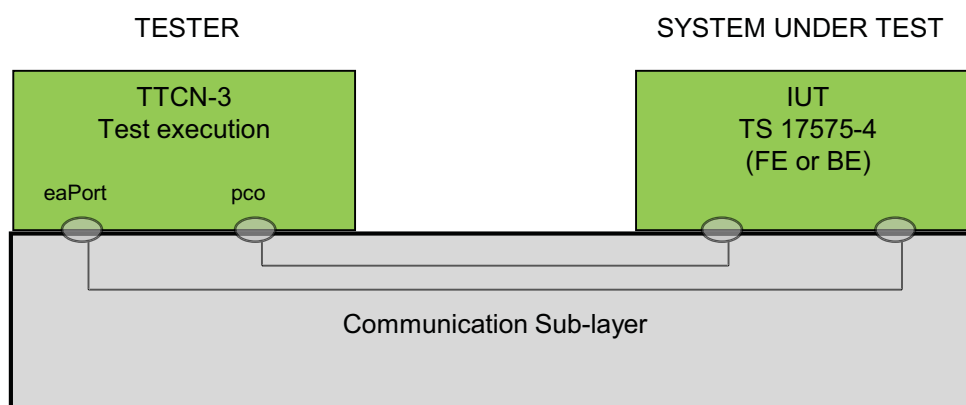


Figure 1 — Test system architecture

4.3 Protocol Implementation Extra Information for Testing

The supplier of the Front End and Back End, respectively, is responsible for providing a Protocol Implementation Extra Information for Testing (PIXIT).

The supplier of the Front End and the Back End shall complete a PIXIT; see Annex B for a proforma.