

English Version

**Electronic fee collection - Evaluation of equipment for
conformity to ISO/TS 17575-2 - Part 2: Abstract test suite
(ISO/TR 16401-2:2018)**

Perception du télépéage - Évaluation de conformité de
l'équipement à l'ISO/TS 17575-2 - Partie 2: Suite
d'essai abstraite (ISO/TR 16401-2:2018)

Elektronische Gebührenerhebung -
Konformitätsevaluierung von Einrichtungen nach
ISO/TS 17575-2 - Teil 2: Zusammengefasstes
Prüfprogramm (ISO/TR 16401-2:2018)

This Technical Report was approved by CEN on 14 January 2018. It has been drawn up by the Technical Committee CEN/TC 278.

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European foreword

This document (CEN ISO/TR 16401-2:2018) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 "Intelligent transport systems" the secretariat of which is held by NEN.

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.

This document supersedes CEN ISO/TR 16401-2:2012.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Endorsement notice

The text of ISO/TR 16401-2:2018 has been approved by CEN as CEN ISO/TR 16401-2:2018 without any modification.

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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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

This first edition of ISO/TR 16401-2 cancels and replaces ISO/TS 16401-2:2012, which has been technically revised.

The main changes compared to the previous edition are as follows:

- conversion from a Technical Specification to Technical Report has been made;
- the terms and definitions have been revised;
- editorial and formal corrections as well as changes to improve readability have been made.

A list of all parts in the ISO 16401 series can be found on the ISO website.

Introduction

This document is part of a set of standards that supports interoperability of autonomous electronic fee collection (EFC) systems. Autonomous systems use satellite positioning, often combined with additional sensor technologies such as gyroscopes, odometers, and accelerometers, to localize the vehicle and to find its position on a map containing the charged geographic objects, such as charged roads or charged areas. From the charged objects, the vehicle characteristics, the time of day and other data that are relevant for describing road use, the tariff and ultimately the road usage fee are determined.

The ISO/TR 16401 series provides tests to assess the Front End Communications API and Front End application behaviours compliancy towards the requirements listed in ISO 17575-2. ISO/TR 16401-1 contains the definition of such tests in the form of test purposes, listing the initial conditions, references and individual steps in a structured textual manner. This document contains the identical tests written in Testing and Test Control Notation version 3 (TTCN-3).

Autonomous on-board equipment (OBE) operates without relying on dedicated road-side infrastructure by employing wide-area technologies such as Global Navigation Satellite Systems (GNSS) and Cellular Communications Networks (CN). Therefore, autonomous systems may also be referred to as GNSS/CN systems.

Within the suite of EFC standards, this document defines tests for conformity evaluation of Front End and Back End that comply with the requirements towards the context data specified in ISO 17575-2.

This document is intended to

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

Electronic fee collection — Evaluation of equipment for conformity to ISO 17575-2 —

Part 2: Abstract test suite

1 Scope

This document contains the definition of test cases, reflecting the individual steps listed in specific test purposes defined in ISO/TR 16401-1. The test cases are written in Testing and Test Control Notation version 3 (TTCN-3).

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17575-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 conformance testing

testing the extent to which an IUT is a conforming implementation

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

3.2 Front End application

part of the Front End above the API

[SOURCE: ISO/TR 16401-1:2017, 3.12]

3.3 implementation under test IUT

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

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