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SIST-TS CEN ISO/TS 16410-1:2011

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Elektronsko pobiranje pristojbin - Ugotavljanje skladnosti opreme s tehnično specifikacijo ISO/TS 17575-3 - 1. del: Zgradba preskuševalnega niza in namen preskušanja (ISO/TS 16410-1:2011)

Electronic fee collection - Evaluation of equipment for conformity to ISO/TS 17575-3 - Part 1: Test suite structure and test purposes (ISO/TS 16410-1:2011)

Elektronische Gebührenerfassung - Konformitätsevaluierung von Equipment zur CEN ISO/TS 17575-3 - Teil 1: Struktur der Testfolge und Testabsichten (ISO/TS 16410-1:2011)

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Perception du télépéage - Évaluation de la conformité de l'équipement à l'ISO/TS 17575-3 - Partie 1: Structure de la suite d'essais et objectifs des essais (ISO/TS 16410-1:2011)

Ta slovenski standard je istoveten z: **CEN ISO/TS 16410-1:2011**

ICS:

03.220.20	Cestni transport	Road transport
35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade

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TECHNICAL SPECIFICATION

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English Version

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This Technical Specification (CEN/TS) was approved by CEN on 15 August 2011 for provisional application.

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Foreword

This document (CEN ISO/TS 16410-1:2011) has been prepared by Technical Committee CEN/TC 278 “Road transport and traffic telematics”, the secretariat of which is held by NEN, in collaboration with Technical Committee ISO/TC 204 “Intelligent transport systems”.

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Part 1: Test suite structure and test purposes

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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.

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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 16410-1 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 16410 consists of the following parts, under the general title *Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-3*:

— *Part 1: Test suite structure and test purposes*

— *Part 2: Abstract test suites*

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Introduction

This part of ISO 16410 is part of a set of standards that supports interoperability of autonomous EFC-systems, which includes ISO/TS 17575 parts 1 to 4 that define the EFC 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 17575-3.

This part of ISO 16410 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, and

— facilitate communications between parties.

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This part of ISO 16410 is based on

— ISO/TS 17575-3, and

— the ISO 9646 family of standards on conformance test methodology.

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Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-3 —

Part 1: Test suite structure and test purposes

1 Scope

This part of ISO/TS 16410 specifies the test suite structure (TSS) and test purposes (TP) to evaluate the conformity of Front End and Back End to ISO/TS 17575-3.

The objective of this part of ISO/TS 16410 is to provide a basis for conformance tests for the Front End and the Back End in Electronic Fee Collection (EFC) based on autonomous on-board equipment (OBE) to enable interoperability between different equipment supplied by different manufacturers.

Autonomous 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). These EFC systems are referred to by a variety of names. Besides the terms autonomous systems and GNSS/CN systems, also the terms GPS/GSM systems and wide-area charging systems are in use.

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Autonomous systems use satellite positioning, often combined with additional sensor technologies such as gyroscopes, odometers, and accelerometers, to localise 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 is determined.

For more information regarding autonomous systems, please refer to ISO/TS 17575-3.

Testing of the following behaviours and functionalities is outside of the scope of this part of ISO/TS 16410:

— dynamic behaviour, i.e. sequence of messages and triggering events that must be exchanged/happen to fulfil certain charging scenarios;

— profiles and business logic built on top of particular pricing schemas;

— authentication, as its handling is not described in ISO/TS 17575-3;

— Front End behaviour with respect to optional data elements in ChargeReportConfiguration, as handling of configurations requesting presence/absence of parent data element, and absence/presence of child data element is not specified in ISO/TS 17575-3.

As ISO/TS 17575-3 does not specify any invalid behaviour of Front End and Back End, BI test purposes are not applicable for any test purpose group.

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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/IEC 9646-6, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 6: Protocol profile test specification*

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*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
area pricing
charging process based on road usage occurring within a given area

[ISO/TS 17575-1:2010, definition 3.1]

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3.2
attribute
application information formed by one or by a sequence of data elements, and that is managed by different actions used for implementation of a transaction

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[ISO 14906:2011, definition 3.3]

3.3
authenticator
data appended to, or a cryptographic transformation of, a data unit that allows a recipient of the data unit to prove the source and/or the integrity of the data unit and protect against forgery

[ISO 14906:2011, definition 3.4]

3.4
Back End
generic name for the computing and communication facilities of the Service Provider and the Toll Charger exchanging data with the Front End

NOTE 1 Adapted from ISO/TS 17575-1.

NOTE 2 According to the architecture defined in ISO 17573, it is assumed in this part of ISO/TS 16410 that the Front End in general communicates with the Back End typically controlled and operated by the Service Provider.

3.5
charge object
any object that is part of the toll context description, including toll objects but also used for parking fees, etc.

NOTE Adapted from ISO/TS 17575-1.

3.6
charge report
data structure transmitted from the Front End to the Back End to report road usage data and supplementary related information

[ISO/TS 17575-1:2010, definition 3.5]

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3.7
contract
expression of an agreement between two or more parties concerning the use of the road infrastructure

[ISO 14906:2011, definition 3.7]

3.8
cordon
border line of an area

[ISO/TS 17575-1:2010, definition 3.8]

3.9
cordon pricing
charging process based on registering passages of a cordon

[ISO/TS 17575-1:2010, definition 3.9]

3.10
data element
datum, which might itself consist of lower level data elements

[ISO/TS 17575-1:2010, definition 3.10]

3.11
Front End
part(s) of the toll system where road usage data for an individual road user are collected, processed and delivered to the Back End

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

[ISO/TS 17575-1:2010, definition 3.13]

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3.12
service provider
operator that accepts the user's payment means and in return provides a road-use service to the user

NOTE Taken from ISO 14906:2004.

3.13
tester
combination of equipment and processes which is able to perform conformance tests according to this part of ISO/TS 16410

NOTE Adapted from ISO/TS 14907-2.

3.14
toll charger
legal entity charging a toll for vehicles in a toll domain

[ISO/TS 17574:2009, definition 3.27]

3.15
toll context
logical view of a toll scheme as defined by attributes and functions

[ISO/TS 17575-1:2010, definition 3.22]

3.16
toll regime
set of rules, including enforcement rules, governing the collection of toll in a toll

[ISO/TS 17575-1:2010, definition 3.25]

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