SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 14907-1:2010

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Cestna transportna in prometna telematika – Elektronsko pobiranje pristojbin - Postopki za preskušanje opreme – 1. del: Opis preskuševalnih postopkov (ISO/TS 14907-1:2010)

Road transport and traffic telematics - Electronic fee collection - Test procedures for user and fixed equipment - Part 1: Description of test procedures (ISO/TS 14907-1:2010)

Telematik für den Straßenverkehr und den Transport - Elektronische Gebührenerhebung - Testverfahren für straßenseitige und fahrzeugseitige Einrichtungen - Teil 1: Beschreibung von Testverfahren (ISO/TS 14907-1:2010)

Télématique de la circulation et du transport routier - Perception du télépéage - Modes opératoires relatifs aux équipements embarqués et aux équipements fixes - Partie 1: Description des modes opératoires (ISO/TS 14907-1:2010)

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35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade
43.040.15	Avtomobilska informatika. Vgrajeni računalniški sistemi	Car informatics. On board computer systems

SIST-TS CEN ISO/TS 14907-1:2010 **en**

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN ISO/TS 14907-1

June 2010

ICS 43.040.15; 35.240.60

Supersedes CEN ISO/TS 14907-1:2005

English Version

Electronic fee collection - Test procedures for user and fixed equipment - Part 1: Description of test procedures (ISO/TS 14907-1:2010)

Perception du télépéage - Modes opératoires relatifs aux équipements embarqués et aux équipements fixes - Partie 1: Description des modes opératoires (ISO/TS 14907-1:2010)

Elektronische Gebührenerhebung - Testverfahren für straßenseitige und fahrzeugseitige Einrichtungen - Teil 1: Beschreibung von Testverfahren (ISO/TS 14907-1:2010)

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Foreword

This document (CEN ISO/TS 14907-1:2010) 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".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN ISO/TS 14907-1:2005.

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TECHNICAL SPECIFICATION

ISO/TS 14907-1

Second edition
2010-06-15

Road transport and traffic telematics — Electronic fee collection — Test procedures for user and fixed equipment —

Part 1: Description of test procedures

Télématique de la circulation et du transport routier — Perception du télépéage — Modes opératoires relatifs aux équipements embarqués et aux équipements fixes —

Partie 1: Description des modes opératoires

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.

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 14907-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Road transport and traffic telematics*, in collaboration with ISO Technical Committee TC 204, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO/TS 14907-1:2005), which has been technically revised.

ISO/TS 14907 consists of the following parts, under the general title *Electronic fee collection — Test procedures for user and fixed equipment*:

— *Part 1: Description of test procedures*

— *Part 2: Conformance test for the onboard unit application interface*

Introduction

For an electronic fee collection (EFC) system, approvals and tests are required to determine whether the system (or individual components of the system) conforms to standards and application requirements, and to enable parameters such as quality, availability and maintainability to be measured.

There are complete EFC-systems available, including documentation and approvals, and these could already be in operation in some European countries. This part of ISO/TS 14907 provides a toolbox of tests and procedures for the assessment and proof of such EFC-systems that they are suitable for specified EFC applications under specific operational conditions. Dependent on a system to be tested, and based on the available documentation and the status of previously performed approvals, this part of ISO/TS 14907 enables parties involved, e.g. system provider, operators and test houses, to take into consideration already proven references and to identify such parameters which still have to be tested according to the specified applications.

At the time of publication of this part of ISO/TS 14907, the determination of common system requirements for Europe (or any other region) has not been agreed. For this reason, this part of ISO/TS 14907 does not specify any particular performance requirements, unless these are already determined elsewhere (such as safety or radio regulations), but rather identifies the key parameters which will comprise such requirements. Where reference to an existing test is available, this part of ISO/TS 14907 provides that reference. This part of ISO/TS 14907 defines only the test and test procedures, not the benchmark figures that these are to be measured against. Benchmark figures which the systems or components under test can be compared with and validated against, might form the subject of a future part of this Technical Specification.

This part of ISO/TS 14907 is furthermore limited to automated (electronic) payment using a standardized dedicated short-range communication (DSRC). The scope of this part of ISO/TS 14907 does not include manual payment, conventional money transaction, nor payment by means of sticker, vignettes, tickets, or magnetic-stripe cards, etc. The applications to which EFC is related are toll collection, road pricing, parking and individual traffic information.

This part of ISO/TS 14907 enables groups of operators to determine common specific performance levels and operating conditions, and to enable regional variation where appropriate. It provides operating and environmental parameters (or classes of operating and environmental parameters) within which such systems shall successfully function without impairing interoperability to ensure that the person who specified the system can state their requirements clearly to implementation designers and integrators, and to enable the measurement of the performance of such systems.

The following guidelines have been followed when selecting the test procedures for test parameters:

— reference as far as possible to existing standardized test procedures;

— focusing on those tests that are essential to ensure that EFC equipment is able to exchange information and mutually use the exchanged information.

A brief guide describing how to use this part of ISO/TS 14907 is provided by Annex A.

Whilst this part of ISO/TS 14907 relates to general test procedures, certain provisions relate specifically to test procedures for certification purposes. Many features of this part of ISO/TS 14907 are relevant internationally; it is recognized that due to different regulatory requirements outside Europe, extension will be required to make its applicability as comprehensive in non-EU countries, before this document can be reviewed for acceptance as an International Standard.

Road transport and traffic telematics — Electronic fee collection — Test procedures for user and fixed equipment —

Part 1: Description of test procedures

1 Scope

This part of ISO/TS 14907 specifies the test procedures of EFC roadside equipment (RSE) and on-board equipment (OBE) with regard to the conformance to standards and requirements for type approval and acceptance testing which is within the realm of EFC application specifically.

The scope of this part of ISO/TS 14907 is restricted to systems operating within the radio emission, EMC regulations, traffic and other regulations of the countries in which they are operated and it is therefore a requirement that all required equipment approvals from an authenticated and accredited test house have been obtained in order to claim compliance.

This part of ISO/TS 14907 identifies a set of suitable parameters and provides test procedures to enable the proof of a complete EFC-system as well as components of an EFC-system, e.g. OBE, related to the defined requirements of an application. The defined parameter and tests are assigned to the following groups of parameters:

— functionality;

— quality;

— referenced pre-tests.

An overview of the tests and parameters provided by this part of ISO/TS 14907 is given in 5.1 and 5.2. OBU conformance testing relative to ISO 14906 (EFC — Application interface definition for DSRC) is covered by ISO/TS 14907-2.

This part of ISO/TS 14907 describes procedures, methods and tools, and a test plan which shows the relation between all tests and the sequence of these tests. It lists all tests that are required to measure the performance of EFC equipment. It describes which EFC equipment is covered by the test procedures; the values of the parameters to be tested are not included. It also describes how the tests are to be performed, and which tools and prerequisites are necessary before this series of tests can be undertaken. It is assumed that the security of the system is inherent in the communications and EFC functionality tests, therefore they are not addressed here. All tests in this part of ISO/TS 14907 provide instructions to evaluate the test results.

The test procedures can be used for prototype testing, type approvals, test of installations and periodic inspections. Thus this Part 1 is a document that defines only the test and test procedures, not the benchmark figures that these are to be measured against.

Related to a conceptual model of an EFC-system, this part of ISO/TS 14907 relates only to the equipment of the user and the service provider as illustrated in Figure 1. Any other entities are outside the scope of this part of ISO/TS 14907.

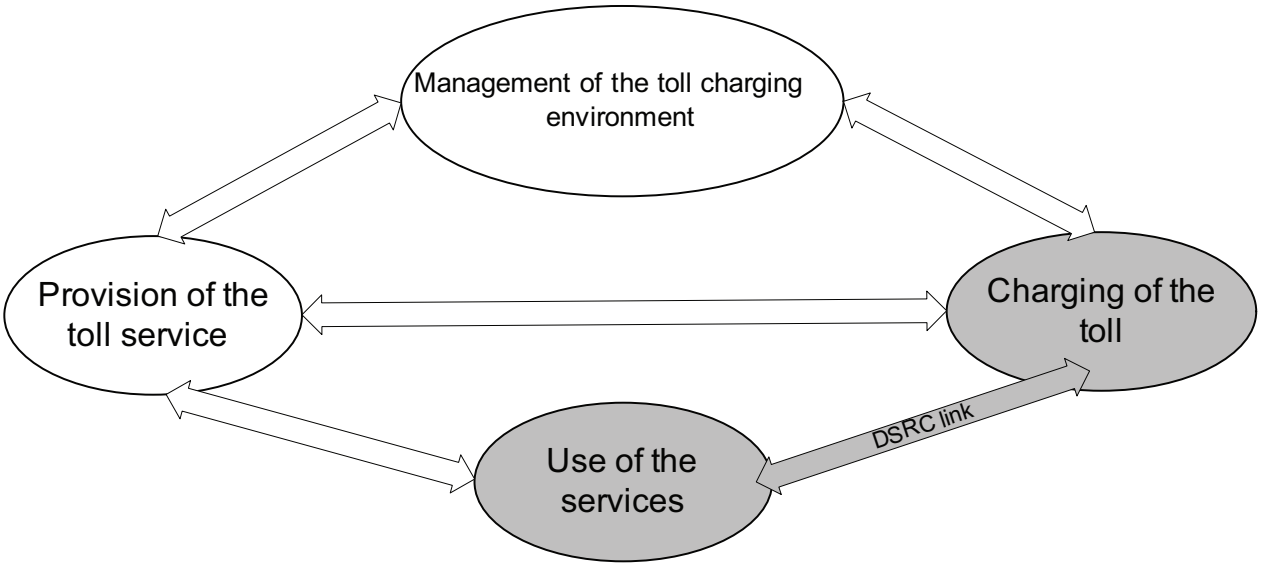

Figure 1 — Conceptual model of EFC

EFC-systems for DSRC consist, in principle, of a group of technical components, which in combination fulfil the functions required for the collection of fees by electronic automatic means. These components comprise all, or most, of the following:

— on-board equipment (OBE) within a vehicle;

— on-board unit containing the communications and computing sub-functions;

— optional integrated circuit card which may carry electronic money, service rights and other secured information;

— communication between OBE and RSE based on DSRC;

— equipment for the fee collection at the roadside (RSE) containing the communications and computing sub-functions;

— equipment for the enforcement at the roadside;

— central equipment for the administration and operation of the system.

The scope of this part of ISO/TS 14907 relates solely to OBE and RSE and the DSRC interface between OBE and RSE including its functions to perform the fee collection as illustrated by Figure 2. All the equipment used for enforcement (e.g. detection, classification, localization and registration) and central equipment are outside the scope of this part of ISO/TS 14907.

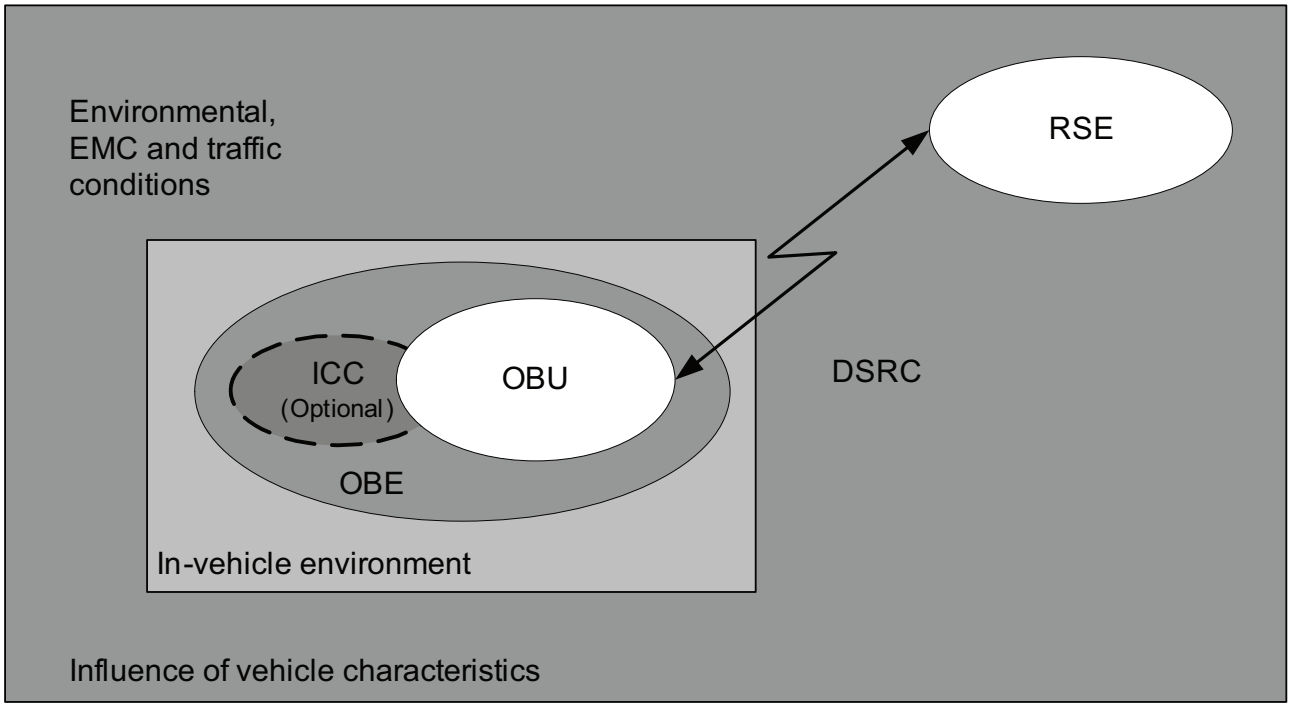

Figure 2 — OBE/RSE interface and associated environments

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 Guide 65, *General requirements for bodies operating product certification systems*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

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

3.1
acceptance testing
examination that a duly identified product, process or service is in conformity with the system specification

3.2
availability
probability that a unit at a random point in time within a given interval is in a certain degree of preparedness to function or functioning under given running, environmental and maintenance conditions

3.3
certification
procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements