

SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 13143-1:2011
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Elektronsko pobiranje pristojbin - Ugotavljanje skladnosti opreme v vozilu in obcestni napravi s tehnično specifikacijo ISO/TS 12813 - 1. del: Zgradba preskuševalnega niza in namen preskušanja (ISO/TS 13143-1:2011)

Electronic fee collection - Evaluation of on-board and roadside equipment for conformity to ISO/TS 12813 - Part 1: Test suite structure and test purposes (ISO/TS 13143-1:2011)

Straßenverkehrstelematik - Elektronische Gebührenerfassung - Konformitätskontrolle für GNSS/CN Systeme über DSRC (ISO/TS 13143-1:2011)

Perception du télépéage - Évaluation des équipements embarqués et en bord de route quant à la conformité avec l'ISO/TS 12813 - Partie 1: Structure de suite d'essais et buts des essais (ISO/TS 13143-1:2011)

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SPÉCIFICATION TECHNIQUE
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CEN ISO/TS 13143-1

April 2011

ICS 35.240.60; 03.220.20

English Version

**Electronic fee collection - Evaluation of on-board and roadside
equipment for conformity to ISO/TS 12813 - Part 1: Test suite
structure and test purposes (ISO/TS 13143-1:2011)**

Perception du télépéage - Évaluation des équipements
embarqués et en bord de route quant à la conformité avec
l'ISO/TS 12813 - Partie 1: Structure de suite d'essais et
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Straßenverkehrstelematik - Elektronische
Gebührenerfassung - Konformitätskontrolle für GNSS/CN
Systeme über DSRC (ISO/TS 13143-1:2011)

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Foreword

This document (CEN ISO/TS 13143-1:2011) 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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TECHNICAL
SPECIFICATION

ISO/TS
13140-1

First edition
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**Electronic fee collection — Evaluation of
on-board and roadside equipment for
conformity to ISO/TS 13141 —**

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

*Perception du télépéage — Évaluation des équipements embarqués et
en bord de route quant à la conformité avec l'ISO/TS 13141 —
Partie 1. Structure de suite d'essai et buts des essais*

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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.

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ISO/TS 13140-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Road transport and traffic telematics*, in collaboration with Technical Committee ISO/TC 204, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO/TS 13140 consists of the following parts, under the general title *Electronic fee collection — Evaluation of on-board and roadside equipment for conformity to ISO/TS 13141*:

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

Introduction

ISO/TS 17575 is part of a set of standards that supports interoperability of autonomous EFC-systems. It defines the EFC context data, their charge reports and their use of communication infrastructure.

The set of standards also supports short range communication links in the context of autonomous electronic fee collection (EFC) on-board equipment (OBE) to enable spot checks for the enforcement process. The application interface is defined in ISO/TS 13141:2010.

Within the set of EFC standards this part of ISO/TS 13140 defines the process and tests for conformity evaluation of OBE and roadside equipment (RSE) that comply with the requirements in ISO/TS 13141:2010.

This part of ISO/TS 13140 is intended to

- assess OBU and RSE capabilities,
- assess OBU and RSE behaviour,
- serve as a guide for OBU and RSE 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.

This part of ISO/TS 13140 is based on

- ISO/TS 13141:2010,
- the set of dedicated short range communication (DSRC) standards defining the communication stack, and
- ISO 9646.

This part of ISO/TS 13140 is based on using the tree and tabular combined notation (TTCN) that is a standardized language suitable for specification of test cases and steps for assessment of protocol and application behaviour. The TTCN language is also supported by modern automated tools that accelerate software design, implementation and testing.

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Electronic fee collection — Evaluation of on-board and roadside equipment for conformity to ISO/TS 13141 —

Part 1: Test suite structure and test purposes

1 Scope

This part of ISO/TS 13140 specifies the test suite structure (TSS) and test purposes (TP) to evaluate the conformity of on-board units (OBU) and roadside equipment (RSE) to ISO/TS 13141:2010.

It provides a basis for conformance tests for dedicated short range communication (DSRC) equipment (on-board units and roadside units) to enable interoperability between different equipment supplied by different manufacturers.

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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/TS 13141:2010, *Electronic fee collection — Localisation augmentation communication for autonomous systems*

ISO 14906:2011, *Electronic fee collection — Application interface definition for dedicated short-range communication*

ISO/TS 14907-2:2011, *Road transport and traffic telematics — Electronic fee collection — Test procedures for user and fixed equipment — Part 2: Conformance test for the onboard unit application interface*

EN 15509:2007, *Road transport and traffic telematics — Electronic fee collection — Interoperability application profile for DSRC*

EN 15876-1, *Electronic fee collection — Evaluation of on-board and roadside equipment for conformity to EN 15509 — Part 1: Test suite structure and test purposes*

ETSI TS 102 486-2-2 V1.2.1 (2008-10), *Intelligent transport systems (ITS); Road Transport and Traffic Telematics (RTTT); Test specifications for Dedicated Short Range Communication (DSRC) transmission equipment; Part 2: DSRC application layer; Sub-Part 2: Test Suite Structure and Test Purposes (TSS&TP)*

ISO/TS 13140-1:2011(E)

3 Terms and definitions

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

**3.1
access credentials**
data that is transferred to on-board equipment (OBE), in order to establish the claimed identity of a roadside equipment (RSE) application process entity

[ISO 14906:2011, definition 3.1]

NOTE Access credentials carry information needed to fulfil access conditions in order to perform the operation on the addressed element in the OBE. Access credentials can carry passwords as well as cryptography-based information such as authenticators.

**3.2
attribute**
application information formed by one or by a sequence of data elements, used for implementation of a transaction

NOTE Adapted from ISO 14906:2011.

**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
channel**
information transfer path <https://standards.iteh.ai/catalog/standards/sist/351d8581-8d37-48e9-a327-edcd8dddff75/sist-ts-cen-iso-ts-13143-1-2011>

[ISO 7498-2:1989, definition 3.3.13]

**3.5
component**
logical and physical entity composing an on-board equipment, supporting a specific functionality

[ISO 14906:2011, definition 3.6]

**3.6
contract**
expression of an agreement between two or more parties concerning the use of the road infrastructure

[ISO 14906:2011, definition 3.7]

**3.7
cryptography**
discipline which embodies principles, means, and methods for the transformation of data in order to hide its information content, prevent its undetected modification and/or prevent its unauthorized use

[ISO 7498-2:1989, definition 3.3.20]

**3.8
data group**
collection of closely related EFC data attributes which together describe a distinct part of an EFC transaction

[ISO 14906:2011, definition 3.9]

3.9**data integrity**

property that data has not been altered or destroyed in an unauthorized manner

[ISO 7498-2:1989, definition 3.3.21]

3.10**element**

⟨DSRC⟩ directory containing application information in the form of attributes

[ISO 14906:2011, definition 3.11]

3.11**implementation conformance statement**

statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented

[ISO/TS 14907-2:2011, definition 3.12]

3.12**implementation conformance statement pro forma**

document, in the form of a questionnaire, which when completed for an implementation or system becomes an implementation conformance statement

[ISO/TS 14907-2:2011, definition 3.13]

3.13**implementation extra information for testing**

statement made by the supplier or an implementer of a DUT which contains or references all of the information (in addition to that given in the implementation conformance statement) related to the DUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the DUT

NOTE Adapted from ISO/TS 14907-2:2011.

3.14**implementation extra information for testing pro forma**

document, in the form of a questionnaire, which when completed for a DUT becomes an implementation extra information for testing

NOTE Adapted from ISO/TS 14907-2:2011.

3.15**on-board equipment****OBE**

equipment fitted within or on the outside of a vehicle and used for toll purposes

NOTE The OBE does not need to include payment means.

[ISO 14906:2011, definition 3.13]

3.16**on-board unit****OBU**

minimum component of an on-board equipment, whose functionality always includes at least the support of the DSRC interface

[ISO 14906:2011, definition 3.14]

3.17**roadside equipment****RSE**

equipment located along the road transport network, for the purpose of communication and data exchanges with on-board equipment

[ISO 14906:2011, definition 3.16]