

SLOVENSKI STANDARD

SIST EN ISO 13143-1:2017

01-april-2017

Nadomešča:

SIST-TS CEN ISO/TS 13143-1:2011

Elektronsko pobiranje pristojbin - Ugotavljanje skladnosti opreme v vozilu in obcestni napravi s standardom ISO 12813 - 1. del: Zgradba preskuševalnega niza in namen preskušanja (ISO 13143-1:2016)

Electronic fee collection - Evaluation of on-board and roadside equipment for conformity to ISO 12813 - Part 1: Test suite structure and test purposes (ISO 13143-1:2016)

iTeh STANDARD PREVIEW

Elektronische Gebührenerhebung - Konformitätsbeurteilung von bordeigenen und straßenseitigen Ausrüstungen nach ISO 12813 - Teil 1: Struktur und Zweck des Prüfprogramms (ISO 13143-1:2016)

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7299-64b21b5/cen-ts-iso-13143-1-2017)

[https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7299-64b21b5/cen-ts-iso-13143-1-2017)

Perception du télépéage - Évaluation des équipements embarqués et en bord de route quant à la conformité avec l' ISO 12813 - Partie 1: Structure de suite d'essais et buts des essais (ISO 13143-1:2016)

Ta slovenski standard je istoveten z: EN ISO 13143-1:2016

ICS:

03.220.20	Cestni transport	Road transport
35.240.60	Uporabniške rešitve IT v prometu	IT applications in transport
43.040.15	Avtomobilska informatika. Vgrajeni računalniški sistemi	Car informatics. On board computer systems

SIST EN ISO 13143-1:2017

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](#)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

Contents	Page
European foreword.....	3

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017)
<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

European foreword

This document (EN ISO 13143-1:2016) 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.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2017, and conflicting national standards shall be withdrawn at the latest by June 2017.

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 13143-1:2011.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

PREVIEW
(standards.iteh.ai)

Endorsement notice

The text of ISO 13143-1:2016 has been approved by CEN as EN ISO 13143-1:2016 without any modification.

SIST EN ISO 13143-1:2017
<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](#)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

INTERNATIONAL
STANDARD

ISO
13143-1

First edition
2016-12-01

**Electronic fee collection — Evaluation
of on-board and roadside equipment
for conformity to ISO 12813 —**

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

iTeh STANDARD PREVIEW
*Perception du télépéage — Évaluation des équipements embarqués et
en bord de route quant à la conformité avec l'ISO 12813 —
(standards.iteh.ai)
Partie 1: Structure de suite d'essais et buts des essais*

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>



Reference number
ISO 13143-1:2016(E)

© ISO 2016

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	3
5 Test suite structure (TSS)	4
5.1 Structure.....	4
5.2 Reference to conformance test specifications.....	4
5.3 Test purposes (TP).....	5
5.3.1 TP definition conventions.....	5
5.3.2 TP naming conventions.....	5
5.4 Conformance test report.....	6
Annex A (normative) Test purposes for on-board units	7
Annex B (normative) Test purposes for roadside equipment	36
Annex C (normative) PCTR proforma for on-board units	45
Annex D (normative) PCTR proforma for roadside equipment	52
Bibliography	57

iteh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

ISO 13143-1:2016(E)

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 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.

The committee responsible for this document is ISO/TC 204, *Intelligent transport systems*.

This first edition of ISO 13143-1 cancels and replaces the first edition of ISO/TS 13143-1:2011, which has been technically revised and incorporates the following main modifications compared to ISO/TS 13143-1:

- conversion from a Technical Specification to an International Standard;
- amendment of terms, in order to reflect harmonization of terms across electronic fee collection (EFC) standards;
- amendments to reflect changes to the underlying requirements standards, in particular ISO 12813 and ISO 14906;
- editorial and formal corrections.

A list of all parts in the ISO 13143 series can be found on the ISO website.

Introduction

ISO 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 12813:2015.

Within the set of EFC standards, this document defines the process and tests for conformity evaluation of OBE and roadside equipment (RSE) that comply with the requirements in ISO 12813:2015.

This document 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 communication between parties.

This document is based on

- ISO 12813:2015,
- the set of dedicated short-range communication (DSRC) standards defining the communication stack, and
- ISO/IEC 9646.

ITeH STANDARD PREVIEW

(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

This document 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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](#)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

Electronic fee collection — Evaluation of on-board and roadside equipment for conformity to ISO 12813 —

Part 1: Test suite structure and test purposes

1 Scope

This document 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 12813:2015.

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.

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 12813:2015, *Electronic fee collection — Compliance check communication for autonomous systems*

ISO 14906:1/Amd 1:2015, *Electronic fee collection — Application interface definition for dedicated short-range communication / Amendment 1*

ISO/TS 14907-2:2016, *Electronic fee collection — Test procedures for user and fixed equipment — Part 2: Conformance test for the on-board unit application interface*

EN 15509:2014, *Electronic fee collection — Interoperability application profile for DSRC*

EN 15876-1:2016, *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)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>

ISO 13143-1:2016(E)**3.1****access credentials**

trusted attestation or secure module that establishes the claimed identity of an object or application

Note 1 to entry: 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.

[SOURCE: EN 15509:2014, 3.1]

3.2**attribute**

addressable package of data consisting of a single data element or structured sequences of data elements

[SOURCE: ISO 17575-1:2016, 3.2]

3.3**authentication**

security mechanism allowing verification of the provided identity

[SOURCE: EN 301 175]

3.4**authenticator**

data, possibly encrypted, that is used for authentication

[SOURCE: EN 15509:2014, 3.3]

3.5**cryptography**

principles, means and methods for the transformation of data in order to hide its information content, prevent its undetected modification or prevent its unauthorised use

[SOURCE: EN 15509:2014, 3.6]

3.6**data group**

class of closely related attributes

[SOURCE: ISO 17575-1:2016, 3.10]

3.7**Element**

<DSRC> directory containing application information in the form of attributes

[SOURCE: ISO 14906:2011, 3.11 modified]

3.8**implementation conformance statement**

statement of capabilities and options that have been implemented defining to what extent the implementation is compliant with a given specification

[SOURCE: ISO/TS 14907-2:2016, 3.16]

3.9**implementation extra information for testing**

statement containing all of the information related to the implementation under test (IUT) and its corresponding system under test (SUT) which will enable the testing laboratory to run an appropriate test suite against that IUT

[SOURCE: ISO/TS 19015:2000, 3.20]

3.10**on-board equipment****OBE**

all required equipment on-board a vehicle for performing required EFC functions and communication services

3.11**on-board unit****OBU**

single electronic unit on-board a vehicle for performing specific EFC functions and for communication with external systems

3.12**roadside equipment****RSE**

equipment located along the road, either fixed or mobile

[SOURCE: ISO/TS 19299:2015, 3.34]

3.13**tester**

combination of equipment, humans and processes able to perform specified conformance tests

[SOURCE: EN 15876-1:2016, 3.12]

3.15**transaction**

whole of the exchange of information between two physically separated communication facilities

[SOURCE: ISO 17575-1:2016, 3.21]

iTeh STANDARD PREVIEW

(standards.iteh.ai)

[SIST EN ISO 13143-1:2017](https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/104ff0c4-5deb-4daa-ba18-7aa9e64b24c5/sist-en-iso-13143-1-2017>

4 Abbreviated terms

AC_CR	Access Credentials
ADU	Application Data Unit
APDU	Application Protocol Data Unit (ISO 14906)
AP	Application Process
ASN.1	Abstract Syntax Notation One (ISO/IEC 8824-1)
ATS	Abstract Test Suite
BI	Behaviour Invalid (i.e. Invalid Behaviour tests)
B-Kernel	Broadcast Kernel
BST	Beacon Service Table (ISO 14906)
BV	Behaviour Valid (i.e. Valid Behaviour tests)
cf	Confirm
DLC	Data link Control
DSRC	Dedicated Short-Range Communication (ISO 14906)
DUT	Device Under Test (ISO/TS 14907-2)