SIST

SLOVENSKI STANDARD
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SIST EN ISO 13143-1:2017

Elektronsko pobiranje pristojbin - Ugotavljanje skladnosti opreme v vozilu in obcestni napravi s standardom ISO 12813 - 1. del: Zgradba preskuševalnega niza in namen preskušanja (ISO 13143-1:2020)

Electronic fee collection - Evaluation of onboard and roadside equipment for conformity to ISO 12813 - Part 1: Test suite structure and test purposes (ISO 13143-1:2020)

Elektronische Gebührenerhebung - Bewertung der Konformität fahrzeuginterner und straßenseitiger Ausrüstung nach ISO 12813 - Teil 1: Struktur und Zweck des Prüfprogrammes (ISO 13143-1:2020)

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 13143-1:2020)

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43.040.15	Avtomobilska informatika. Vgrajeni računalniški sistemi	Car informatics. On board computer systems

SIST EN ISO 13143-1:2021 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN ISO 13143-1

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ICS 03.220.20; 35.240.60

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English Version

Electronic fee collection - Evaluation of on-board and roadside equipment for conformity to ISO 12813 - Part 1: Test suite structure and test purposes (ISO 13143-1:2020)

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN ISO 13143-1:2020) 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of an identical text or by endorsement, at the latest by May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

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 EN ISO 13143-1:2016.

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

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Endorsement notice

The text of ISO 13143-1:2020 has been approved by CEN as EN ISO 13143-1:2020 without any modification.

INTERNATIONAL STANDARD

ISO 13143-1

Second edition
2020-11

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

Part 1: Test suite structure and test purposes

Perception de 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

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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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *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 13143-1:2016), which has been technically revised.

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

— amendments to reflect changes to the underlying requirements standards, in particular ISO 12813 and ISO 14906;

— amendment of terms to reflect the harmonization of terms across electronic fee collection (EFC) standards.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

On-board equipment (OBE) that uses satellite-based positioning technology to collect data required for charging for the use of roads operates in an autonomous way (i.e. without relying on dedicated roadside infrastructure). The OBE records the amount of road usage in all toll charging systems it passes through.

This document defines the process and tests for evaluation of OBE and roadside equipment (RSE) for conformity to ISO 12813.

ISO 12813 defines requirements for dedicated short-range communication (DSRC) between OBE and an interrogator for the purpose of checking conformance of road use with a local toll regime. It assumes an electronic fee collection (EFC) services architecture according to ISO 17573-1.

This document is intended to:

— assess OBE and RSE capabilities,

— assess OBE and RSE behaviour,

— serve as a guide for OBE 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,

— the set of DSRC standards defining the communication stack, and

— ISO/IEC 9646.

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 (TPs) for evaluating the conformity of on-board equipment (OBE) and roadside equipment (RSE) to ISO 12813.

It provides a basis for conformance tests for dedicated short-range communication (DSRC) OBE and RSE to support interoperability between different equipment supplied by different manufacturers.

ISO 12813 defines requirements on the compliance check communication (CCC) interface level, but not for the RSE or OBE internal functional behaviour. Consequently, tests regarding OBE and/or RSE functional behaviour remain outside the scope of this document.

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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 12813:2019, *Electronic fee collection — Compliance check communication for autonomous systems*

ISO 14816, *Road transport and traffic telematics — Automatic vehicle and equipment identification — Numbering and data structure*

ISO 14906:2018, *Electronic fee collection — Application interface definition for dedicated short-range communication*

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 12834:2003, *Road transport and traffic telematics — Dedicated Short Range Communication (DSRC) — DSRC application layer*

EN 13372:2004, *Road Transport and Traffic Telematics (RTTT) — Dedicated short-range communication — Profiles for RTTT applications*

EN 15509:2014, *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)*

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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
access credentials
AC-CR
trusted attestation or secure module that establishes the claimed identity of an object or application

[SOURCE: ISO/TS 17573-2:2020, 3.4]

3.2
attribute
addressable package of data consisting of a single data element or structured sequences of data elements

[SOURCE: ISO/TS 17573-2:2020, 3.13]

3.3
authentication
security mechanism allowing verification of the provided identity

[SOURCE: ISO/TS 17573-2:2020, 3.15]

3.4
authenticator
data, possibly encrypted, that is used for *authentication* (3.3)

[SOURCE: ISO/TS 17573-2:2020, 3.16]

3.5
data group
class of closely related *attributes* (3.2)

[SOURCE: ISO/TS 17573-2:2020, 3.55]

3.6
Element
dedicated short-range communication (DSRC) directory containing application information in the form of *attributes* (3.2)

3.7
implementation conformance statement
ICS
statement of capabilities and options that have been implemented that defines to what extent the implementation is compliant with a given specification

[SOURCE: ISO/TS 17573-2:2020, 3.90]

3.8
protocol implementation conformance statement
PICS
ICS (3.7) for an implementation or system claimed to conform to a given protocol specification

[SOURCE: ISO/IEC 9646-1:1994, 3.3.80]

3.9
on-board equipment
OBE
all required equipment on-board a vehicle for performing required electronic fee collection (EFC) functions and communication services

[SOURCE: ISO/TS 17573-2:2020, 3.126]

3.10
on-board unit
OBU
electronic unit on-board a vehicle for performing specific electronic fee collection (EFC) functions and for communication with external systems

[SOURCE: ISO/TS 17573-2:2020, 3.127]

3.11
roadside equipment
RSE
fixed of moveable electronic fee collection (EFC) equipment located along or on the road

[SOURCE: ISO/TS 17573-2:2020, 3.161, modified — Note 1 to entry deleted.]

3.12
tester
combination of equipment, humans and processes able to perform specified conformance tests

[SOURCE: ISO/TS 17573-2:2020, 3.188]

3.13
transaction
whole of the exchange of information between two physically separated communication facilities

[SOURCE: ISO/TS 17573-2:2020, 3.211]

4 Abbreviated terms

APDU	application protocol data unit
AP	application process
ATS	abstract test suite
BI	behaviour invalid (i.e. invalid behaviour tests)
BST	beacon service table
BV	behaviour valid (i.e. valid behaviour tests)
CCC	compliance check communication
DLC	data link control
DSRC	dedicated short-range communication
DUT	device under test
EFC	electronic fee collection
EID	Element identifier