



NSAI
Standards

Irish Standard
I.S. EN ISO 13140-2:2016

Electronic fee collection - Evaluation of on-board and roadside equipment for conformity to EN ISO 13141 - Part 2: Abstract test suite (ISO 13140-2:2016)

I.S. EN ISO 13140-2:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN ISO 13140-2:2016

Published:

2016-12-07

This document was published under the authority of the NSAI and comes into effect on:

2016-12-25

ICS number:

03.220.20

35.240.60

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN ISO 13140-2:2016 is the adopted Irish version of the European Document EN ISO 13140-2:2016, Electronic fee collection - Evaluation of on-board and roadside equipment for conformity to EN ISO 13141 - Part 2: Abstract test suite (ISO 13140-2:2016)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 13140-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2016

ICS 03.220.20; 35.240.60

Supersedes CEN ISO/TS 13140-2:2012

English Version

**Electronic fee collection - Evaluation of on-board and
roadside equipment for conformity to EN ISO 13141 - Part
2: Abstract test suite (ISO 13140-2:2016)**

Perception du télépéage - Évaluation des équipements
embarqués et en bord de route quant à la conformité
avec l'ISO 13141 - Partie 2: Suite d'essais abstraite (ISO
13140-2:2016)

Elektronische Gebührenerhebung - Bewertung der
Konformität von fahrzeuginternen und straßenseitigen
Ausrüstungen nach EN ISO 13141 - Teil 2:
Zusammengefasstes Prüfprogramm (ISO 13140-
2:2016)

This European Standard was approved by CEN on 6 December 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN ISO 13140-2:2016 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 13140-2:2016) 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 13140-2:2012.

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.

Endorsement notice

The text of ISO 13140-2:2016 has been approved by CEN as EN ISO 13140-2:2016 without any modification.

This page is intentionally left blank

**INTERNATIONAL
STANDARD**

**ISO
13140-2**

First edition
2016-12-01

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

**Part 2:
Abstract test suite**

*Perception du télépéage — Évaluation des équipements embarqués et
en bord de route quant à la conformité avec l'ISO 13141 —*

Partie 2: Suite d'essais abstraite



Reference number
ISO 13140-2:2016(E)

© ISO 2016

ISO 13140-2:2016(E)



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	2
5 Abstract Test Method (ATM)	3
5.1 General.....	3
5.2 Test architecture.....	3
5.3 Protocol Implementation Extra Information for Testing (PIXIT).....	3
6 Untestable Test Purposes (TP)	4
7 Abstract test suite (ATS) conventions	4
7.1 General.....	4
7.2 Naming conventions.....	4
7.2.1 Declarations part.....	4
7.2.2 Constraints part.....	6
7.2.3 Dynamic part.....	6
7.3 Implementation conventions.....	7
7.3.1 Declaration part.....	7
7.3.2 Constraint part.....	7
7.3.3 Dynamic part.....	7
Annex A (normative) Abstract test suite (ATS) for on-board equipment	8
Annex B (normative) Abstract test suite (ATS) for roadside equipment	9
Annex C (informative) PIXIT proforma for on-board equipment	10
Annex D (informative) PIXIT proforma for roadside equipment	12
Bibliography	14

ISO 13140-2:2016(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 13140-2 cancels and replaces ISO/TS 13140-2:2012, which has been technically revised. This first edition incorporates the following main modifications compared to the Technical Specification:

- 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 in ISO 13140-1 due to changes to the underlying base standards, in particular ISO 13141;
- editorial and formal corrections.

A list of all parts in the ISO 13140 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 13141:2015.

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 13141:2015.

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 (for example, between equipment manufacturers and test houses).

This document is based on

- ISO 13141:2015,
- the set of dedicated short-range communication (DSRC) standards defining the communication stack, and
- ISO 9646.

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.

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

Part 2: Abstract test suite

1 Scope

This document specifies the abstract test suite (ATS) to evaluate the conformity of on-board equipment (OBE) and roadside equipment (RSE) to ISO 13141:2015 in accordance with the test suite structure and test purposes defined in ISO 13140-1:2016.

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

NOTE The OBE and RSE are subject to additional testing in order to ascertain that they fulfil the essential radio requirements as set out in European Directives, a pre-requisite for CE marking and placing on the European market. They are also likely to be subject to additional testing of physical, environmental endurance, quality assurance and control at manufacturing, charge point integration, as part of factory, site and system acceptance testing. The definition of these tests is 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/IEC 9646-3:1998, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 3: The Tree and Tabular Combined Notation (TTCN)*

ETSI/TS 102 486-2-3 V1.2.1 (2008-10), Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Test specifications for Dedicated Short Range Communication (DSRC) transmission equipment; Part 2: DSRC application layer; Sub-Part 3: Abstract Test Suite (ATS) and partial PIXIT proforma

3 Terms and definitions

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

3.1

base standard

approved international standard, technical specification or ITU-T Recommendation

Note 1 to entry: This includes but is not limited to approved standard deliverables from ISO, ITU, CEN, CENELEC, ETSI and IEEE.

[SOURCE: ISO/IEC/TR 10000-1:1998, 3.1.1, modified]

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-