



NSAI
Standards

Irish Standard
I.S. EN ISO 16407-1:2017

Electronic fee collection - Evaluation of equipment for conformity to ISO 17575-1 - Part 1: Test suite structure and test purposes (ISO 16407-1:2017)

I.S. EN ISO 16407-1:2017

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 16407-1:2017

Published:

2017-12-06

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

2017-12-24

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 16407-1:2017 is the adopted Irish version of the European Document EN ISO 16407-1:2017, Electronic fee collection - Evaluation of equipment for conformity to ISO 17575-1 - Part 1: Test suite structure and test purposes (ISO 16407-1:2017)

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

For relationships with other publications refer to the NSAI web store.

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
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 16407-1

December 2017

ICS 03.220.20; 35.240.60

Supersedes CEN ISO/TS 16407-1:2011

English Version

**Electronic fee collection - Evaluation of equipment for
conformity to ISO 17575-1 - Part 1: Test suite structure
and test purposes (ISO 16407-1:2017)**

Perception du télépéage - Évaluation de la conformité
de l'équipement à l'ISO 17575-1 - Partie 1: Structure de
la suite d'essais et objectifs des essais (ISO 16407-
1:2017)

Elektronische Gebührenerhebung -
Konformitätsbeurteilung von Geräten nach ISO/TS
17575-1 - Teil 1: Struktur und Zweck des
Prüfprogrammes (ISO 16407-1:2017)

This European Standard was approved by CEN on 5 December 2017.

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, Serbia, 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: Rue de la Science 23, B-1040 Brussels

EN ISO 16407-1:2017 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 16407-1:2017) 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 2018, and conflicting national standards shall be withdrawn at the latest by June 2018.

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 CEN ISO/TS 16407-1:2011.

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

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 16407-1:2017 has been approved by CEN as EN ISO 16407-1:2017 without any modification.

This page is intentionally left blank

INTERNATIONAL STANDARD

**ISO
16407-1**

First edition
2017-11

Electronic fee collection — Evaluation of equipment for conformity to ISO 17575-1 —

Part 1: Test suite structure and test purposes

*Perception du télépéage — Évaluation de la conformité de
l'équipement à l'ISO 17575-1 —*

Partie 1: Structure de la suite d'essais et objectifs des essais



Reference number
ISO 16407-1:2017(E)

© ISO 2017

ISO 16407-1:2017(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, 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	2
3 Terms and definitions	2
4 Abbreviated terms	4
5 Test suite structure	5
5.1 Structure.....	5
5.2 Reference to conformance test specifications.....	5
5.3 Test purposes (TP).....	6
5.3.1 TP definition conventions.....	6
5.3.2 TP naming conventions.....	6
5.4 Conformance test report.....	7
Annex A (normative) Test purposes (TP) for Front End	8
Annex B (normative) Test purposes (TP) for Back End	93
Annex C (normative) Data structures	97
Annex D (normative) PCTR for Front End	99
Annex E (normative) PCTR for Back End	104
Bibliography	108

ISO 16407-1:2017(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 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

This first edition cancels and replaces ISO/TS 16407-1:2011, which has been technically revised.

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

- this document has been converted from a Technical Specification to an International Standard;
- this document has been amended to reflect changes to the underlying base standards, especially ISO 17575;
- this document contains major changes regarding
 - data element changes introduced by ISO 17575-1 and ISO 17575-3,
 - new test purposes related to protocol version handling and authenticated data elements,
 - removed test purposes related to rules with respect to charging which are not anymore required by ISO 17575-1,
 - revised terms and definitions, and
 - editorial and formal corrections, as well as changes to improve readability.

A list of all parts in the ISO 16407 series can be found on the ISO website.

Introduction

This document, is part of a series of International Standards that supports interoperability of autonomous electronic fee collection (EFC) systems. Autonomous systems use satellite positioning, often combined with additional sensor technologies, such as gyroscopes, odometers and accelerometers, to localize the vehicle and to find its position on a map containing the charged geographic objects, such as charged roads or charged areas. From the charged objects, the vehicle characteristics, the time of day and other data that are relevant for describing road use, the tariff and ultimately, the road usage fee is determined.

Autonomous on-board equipment (OBE) operates without relying on dedicated road-side infrastructure by employing wide-area technologies such as Global Navigation Satellite Systems (GNSS) and Cellular Communications Networks (CN). Therefore, autonomous systems can also be referred to as GNSS/CN systems.

Within the series of EFC standards, this document defines tests for conformity evaluation of Front End and Back End that comply with the requirements towards the charging specified in ISO 17575-1.

This document is based on ISO 17575-1 and the ISO/IEC 9646 series of standards on conformance test methodology.

Electronic fee collection — Evaluation of equipment for conformity to ISO 17575-1 —

Part 1: Test suite structure and test purposes

1 Scope

The ISO 16407 series of standards specifies a suite of tests in order to assess the Front End and Back End behaviour compliancy towards the requirements listed in ISO 17575-1. This document contains the definition of such tests in the form of test purposes, listing the required initial conditions, references and individual steps in a structured textual manner.

Test purposes defined in this document reflect the structural and semantical requirements stated in ISO 17575-1:

- presence/absence of particular data elements;
- semantics related to various data elements:
 - data group General (see ISO 17575-1:2016, 7.3);
 - data group Security (see ISO 17575-1:2016, 7.4);
 - data group Contract (see ISO 17575-1:2016, 7.5);
 - data group Usage (see ISO 17575-1:2016, 7.6);
 - data group Account (see ISO 17575-1:2016, 7.7);
 - data group Versioning (see ISO 17575-1:2016, 7.8).

With regard to the individual data sets and EFC attributes defined in ISO 17575-1, the test purposes have been organized into the test suite groups designated for the Front End and Back End, respectively.

Besides the test purposes, this document also specifies proforma conformance test report templates for both the Front End and Back End test purposes.

For more information regarding the requirements against which the conformance is evaluated in this document, see ISO 17575-1.

Testing of the following behaviours and functionalities is outside of the scope of this document:

- dynamic behaviour, i.e. sequence of messages and triggering events that can be exchanged/happen to fulfil certain charging scenarios;
- profiles and business logic built on top of particular pricing schemas;
- as ISO 17575-1 does not specify any Behaviour Invalid of Front End and Back End, BI test purposes are not applicable for any test purpose group.

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
-