# SLOVENSKI STANDARD
# SIST EN 1545-2:2005

**01-december-2005**

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**Sistemi z identifikacijskimi karticami ï Aplikacije za prevoze po kopnem ï 2. del: Elementi podatkov in seznami pravil za plaļ ila prevozov in potovanj**

Identification card systems - Surface transport applications - Part 2: Transport and travel payment related data elements and code lists

Identifikationskartensysteme - Landgebundene Transportanwendungen - Teil 2: Datenelemente und Codelisten für Zahlungsvorgänge in Transport- und Reiseanwendungen

Systemes de cartes d'identification - Applications pour le transport terrestre - Partie 2: Eléments de données et listes de codes relatifs au paiement du transport



**Ta slovenski standard je istoveten z:** **EN 1545-2:2005**

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**ICS:**

| | | |
|---|---|---|
| 35.240.15 | Identifikacijske kartice in sorodne naprave | Identification cards and related devices |
| 35.240.60 | Uporabniške rešitve IT v transportu in trgovini | IT applications in transport and trade |

**SIST EN 1545-2:2005** **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 1545-2

October 2005

ICS 35.240.15

Supersedes ENV 1545-2:1998

English Version

# Identification card systems - Surface transport applications - Part 2: Transport and travel payment related data elements and code lists

Systèmes de cartes d'identification - Applications pour le transport terrestre - Partie 2: Eléments de données et listes de codes relatifs au paiement du transport

Identifikationskartensysteme - Landgebundene Beförderungsanwendungen - Teil 2: Datenelemente und Codelisten für Zahlungsvorgänge in Transport- und Reiseanwendungen

This European Standard was approved by CEN on 19 May 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## Foreword

This European Standard (EN 1545-2:2005) has been prepared by Technical Committee CEN/TC 224 “Machine readable cards, related device interfaces and operations”, the secretariat of which is held by AFNOR.

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 April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

This European Standard comprises the following parts, under the general title "Identification card systems - Surface transport applications":

General part:

Part 1: Elementary data types, general code lists and general data elements.

Sector specific part:

Part 2: Transport and travel payment related data elements and codes.

This European Standard supersedes ENV 1545-2:1998.



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

## Introduction

ICs offer far greater opportunities for use in surface transport applications (STA) when compared to magnetic stripe and barcoded cards. The standardisation of data elements, which is the purpose of this European Standard, facilitates the use of ICs across multiple transport applications and operators, and in a variety of transport related terminals. This European Standard also permits application builders to minimise data duplication.

This European Standard contains definitions of data formats, data elements and specifies data elements with associated codelists related to transport and travel payment. It is for use in the creation of surface transport related data structures that may reside on a transport application. Abstract Syntax Notation One (ASN.1) has been used in the definition of data types in this European Standard.

This European Standard provides a comprehensive toolbox of data elements and types as the basis for the creation of data structures to be used in STAs. This European Standard alone does not ensure interoperability; this is left to the application builders. The definition of data structures to be used in STAs is left to applications.

This European Standard has a hierarchical approach:



1. basis for all definitions used in this European Standard is ASN.1 (ISO/IEC 8824);

2. EN1545-1 standardises its general elements, data types and data elements with associated code lists in accordance with ASN.1;



3. The sectoral parts of this European Standard (EN 1545-2) define the sector specific elements and codes. Apart from the sector specific codes that are directly based on ASN.1 all definitions of sector specific data elements have to be based on EN 1545-1 definitions;

4. It is left to the applications to define the relevant data structures (data objects) strictly based on the definitions of EN 1545:

4. Any transport application
  data structures (sets)
    sector specific data elements from EN 1545-sectoral
    sector specific codes from EN 1545-sectoral
  general data elements from EN 1545-1
    elementary data types from EN 1545-1
    general data elements with code lists from EN 1545-1

3. EN 1545-sectoral
  Sector specific data elements
    general data elements from EN 1545-1
    elementary data types from EN 1545-1
  sector specific code lists
    codes expressed in ASN.1

2. EN 1545-1
  general data elements
    elementary data types from EN 1545-1
    universal ASN.1 types from ISO/IEC 8824
  general data elements with associated code lists

codes expressed in ASN.1
elementary data types
universal ASN.1 types from ISO/IEC 8824

1. ISO/IEC 8824
universal ASN.1 data types

This European Standard refers to existing ASN.1 encoding rules (transfer syntaxes), such as the basic and packed encoding rules, for use within surface transport applications. However this European Standard does not exclude the use of other encoding rules. The abstract syntax notation (ASN.1) has been used in the definition of data types (i.e. ASN.1 types) in this European Standard.

The ASN.1 basic encoding rules (BER) includes significant redundancy in order to make transferred data fully self-defining, which may result in data structures too large to be used in applications on ICs with restricted data storage capacity. Therefore this European Standard allows the use of alternative encoding rules such as the ones based upon the ASN.1 packed encoding rules (PER) (see Clause 9).

This European Standard does not pretend to identify and specify every possible ASN.1 type that may be used in future applications by application builders. In addition, local systems may be defined in their own way.

This European Standard will be updated and added to over time as new surface transport applications are created in the normal CEN practice.

## 1 Scope

This European Standard specifies data formats, data elements and data elements with associated code lists for use within Surface Transport Applications on ICs. This European Standard defines those data elements and code lists related to transport and travel payment and the specific data elements needed for low memory capacity ICs.

The mechanism for how to establish the application context, including the decision of which encoding rules to use, is outside the scope of this European Standard.

## 2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1545-1:2005, *Identification card systems — Surface transport applications — Part 1: Elementary data types, general codelists and general data elements*

ISO 4217, *Codes for the representation of currencies and funds*

## 3 Terms and definitions

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

**3.1**
**account**
held in a central location, used for payment for services. When payment is made through the use of a card, the card identifies the centrally held account
[EN 1545-1:2005]



**3.2**
**contract**
specific relationship between a transport service provider and a customer. The contract defines the conditions under which the customer may use the services which are predefined by the service provider. The contract may also indicate how the customer is charged. In public transport, a ticket represents a contract



**3.3**
**coupon**
ticket in a group of tickets sold as a group, where each ticket has the same nominal value valid for one journey e.g. a carnet or multi-journey ticket

**3.4**
**currency**
unit in which a value is expressed. This may be conventional legal currency or proprietary tokens

**3.5**
**customer**
individual or organisation which receives a service in a commercial relationship with a service provider

**3.6**
**event**
circumstance which causes data to be written to a machine readable card. This may be an external event or a card event. The card may already be available at the Interface device, or it may be presented, which action may itself create an event

**3.7**
**first event**
first of a set of related events which are deemed to constitute a single journey

**3.8**
**holder**
person or organisation that is recognised as being the authorised user of the application

**3.9**
**interchange**
transfer of a passenger from one vehicle to another between two journey segments

**3.10**
**interface device**
device used to interface with the Integrated Circuit Card

**3.11**
**journey**
complete sequence of one or more journey legs required to achieve a specific purpose at a specific destination. This sequence may include the use of more than one vehicle and using more than one transport mode

**3.12**
**journey segment**
part of a journey in which the customer uses one vehicle only. Some journeys consist of just one segment

**3.13**
**machine readable card**
ID-1 standard card containing information that may be read or written to by a machine or a card reading device

**3.14**
**network**
all coordinated lines of road based, rail based, water based transport within a defined geographical area and/or under a specified authority where a card is uniquely used



**3.15**
**operator**
organisation responsible for the operation of a surface transport service



**3.16**
**point**
when used as a location reference, the smallest addressable location in space (where smallest will depend on the context in which the reference is used)

**3.17**
**purse**
electronic purse
generic name for all types of card based payment means where value is expressed electronically on the card. Applications may range from an inter-sector electronic purse to a prepaid value card for one application within one company. In this latter case, the term On-board Account is sometimes used

**3.18**
**route**
ordered sequence of points passed through by a transport service

**3.19**
**service**
facilities provided and/or actions performed by an operator/service provider

**3.20**
**transport mode**
means of transport characterised by the technology of the vehicle and infrastructure employed

**3.21**
**zone**
area in which all points are considered identical from the point of view of fare collection

## 4 Abbreviations

For the purposes of this European Standard, the following abbreviations apply.

AID Application Identifier [ISO/IEC 7816-5:2004]

ASN.1 Abstract Syntax Notation One, [ISO/IEC 8824-1:2002]

BCD Binary Coded Decimal

BER Basic Encoding Rules, [ISO/IEC 8825-1:2002]

BIBO Be-in, Be-out

CAD Card accepting device

CICO Check-in, Check-out

CIBO Check-in, Be-out

EAN European Article Numbering

IC Integrated Circuit

IEP Inter Sector Electronic Purse according to the EC e-Money Directive 2000/46

MII Major Industry Identifier, [EN ISO/IEC 7812-1:2000]

PER Packed Encoding Rules

RFU Reserved for Future Use

STA Surface Transport Application

STR Stored Travel Rights

VAT Value Added Tax

WIWO Walk-in, Walk-out



## 5 Approach for definitions of data types

See EN 1545-1:2005, Clause 5.

## 6 Transport and Travel Payment related Data Elements with Associated Code lists

### 6.1 AccommodationClassCode

Code representing an accommodation class.

```
AccommodationClassCode ::= ENUMERATED {
    unknown                     (0),
    first                       (1),
    second-standard-traveller   (2),
    small                       (3),
    large                       (4),
    business                    (5),
    economy                     (6),
    club                        (7),
    enhanced-standard           (8),
    premium                     (9),
    rfuCEN1                     (10),
    rfuCEN2                     (11),
    rfuCEN3                     (12),
    networkIdSpecific1          (13),
    networkIdSpecific2          (14),
    networkIdSpecific3          (15)
}
```

### 6.2 AssistanceTypeCode

Code defining the service provided by service provider staff.

```
AssistanceTypeCode ::= ENUMERATED {
    unspecified                         (0),
    assist-wheelchair-user              (1),
    assist-visually-impaired-person     (2),
    assist-hearing-impaired-person      (3),
    assist-mobility-impaired-person     (4),  -- without wheelchair
    assist-persons-accompanied-by-infants (5),
    assist-unaccompanied-minor          (6),
    assist-mentally-handicapped-person  (7),
    rfuCEN1                             (8),
    rfuCEN2                             (9),
    rfuCEN3                             (10),
    rfuCEN4                             (11),
    networkIdSpecific1                  (12),
    networkIdSpecific2                  (13),
    networkIdSpecific3                  (14),
    networkIdSpecific4                  (15)
}
```



### 6.3 DiscountCode

A code specifying the validity criteria and percentage discount to which the holder is entitled. On the basis of the defined element the fare reduction is calculated in the CAD or background system.