# Public transport - Road vehicle scheduling and control systems - Part 1: WORLDFIP definition and application rules for onboard data transmission

Public transport - Road vehicle scheduling and control systems - Part 1: WORLDFIP definition and application rules for onboard data transmission

**EESTI STANDARDI EESSÕNA** **NATIONAL FOREWORD**

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| Käesolev Eesti standard EVS-EN 13149-1:2004 sisaldab Euroopa standardi EN 13149-1 :2004 ingliskeelset teksti.<br><br>Käesolev dokument on jõustatud 23.11.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.<br><br>Standard on kättesaadav Eesti standardiorganisatsioonist. | This Estonian standard EVS-EN 13149-1:2004 consists of the English text of the European standard EN 13149-1 :2004.<br><br>This document is endorsed on 23.11.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.<br><br>The standard is available from Estonian standardisation organisation. |

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| **Käsitlusala:**<br>The present document specifies the choice and the general application's rules of an onboard data transmission bus between the different equipment for service operations and monitoring of the fleet. This applies to equipment installed onboard buses, trolleybuses and tramways only as part of a bus fleet operation. It excludes tramways when they are operated as part of a train, subway or metro operation. The equipment includes operations aid systems, automatic passenger information systems, fare collection systems, etc.... | **Scope:**<br>The present document specifies the choice and the general application's rules of an onboard data transmission bus between the different equipment for service operations and monitoring of the fleet. This applies to equipment installed onboard buses, trolleybuses and tramways only as part of a bus fleet operation. It excludes tramways when they are operated as part of a train, subway or metro operation. The equipment includes operations aid systems, automatic passenger information systems, fare collection systems, etc.... |

**ICS** 35.100.05, 35.240.60, 43.080.20, 45.060.01

**Võtmesõnad:**

EUROPEAN STANDARD

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# EN 13149-1

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ICS 35.100.05; 35.240.60; 43.080.20; 45.060.01

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English version

# Public transport - Road vehicle scheduling and control systems - Part 1: WORLDFIP definition and application rules for onboard data transmission

Öffentlicher Verkehr - Planungs- und Steuerungssysteme für Straßenfahrzeuge - Teil 1: WORLDFIP Definitions- und Anwendungsrichtlinien für bordeigene Datenübertragung

This European Standard was approved by CEN on 1 April 2004.

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.

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COMITÉ EUROPÉEN DE NORMALISATION
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Ref. No. EN 13149-1:2004: E

# Contents

## Foreword

This document (EN 13149-1:2004) has been prepared by Technical Committee CEN/TC 278 "Road Transport and Traffic Telematics", 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 February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

This document supersedes ENV 13149-1:1999.

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

The present situation is the following:

— A large number of Vehicle Scheduling and Control Systems (VSCS) do not use a data bus, resulting in

  — point to point data links with expensive cabling which cannot be preinstalled during the manufacturing of the vehicle, increasing the cost of the system

  — different proprietary transmission protocols which have to be implemented as and when required

  — difficulty in changing the provider of a given type of equipment as no compatibility exists between different providers of the same type of equipment

— Some systems implement the VDV IBIS bus specification, but:

  — IBIS bus is very slow and no longer covers the need for high speed data transmission between equipment

  — IBIS bus is not an open system and does not cover some of the necessary messages

  — practically every VSCS manufacturer has been obliged to implement a second high speed data bus which is proprietary, resulting in no possibility of interchanging equipment with other manufacturers

The buses, which are proposed by CEN/TC278, aim at avoiding the preceding difficulties with the following characteristics:

— high capacity and high speed data bus

— consistent workplan ensuring interoperability down to the message level

— low cost solution

— already standardised data bus

— large number of already existing and future applications outside the VSCS area, ensuring the existence of equipment on the market, the progressive decrease of the cost of the necessary chips and the timelessness of the solution

— existing chips and basic software up to and including the layer 7 of the ISO 7 layer communication model and existing developments tools, minimising the development costs

The buses proposed by CEN/TC 278 have been chosen among others through a progressive selection process. This work took into account a flexible approach to the range of applications, the potential traffic loading under different operating circumstances and the definition of objective criteria for a transmission bus. The candidate buses were evaluated against the criteria in terms of performance, cost, industrial support and the existence of maintained documents.

# 1 Scope

The present document specifies the choice and the general application's rules of an onboard data transmission bus between the different equipment for service operations and monitoring of the fleet. This applies to equipment installed onboard buses, trolleybuses and tramways only as part of a bus fleet operation. It excludes tramways when they are operated as part of a train, subway or metro operation. The equipment includes operations aid systems, automatic passenger information systems, fare collection systems, etc....

The equipment directly related to the functioning of the vehicle (driver dashboard, engine management, brake systems, door opening systems, etc...) are excluded from the scope of the present document and are dealt with in other standardisation bodies.

Two alternative transmission buses will be accepted. This document refers to the so called WORLDFIP bus. A second set of documents will be published for the second solution (so called CAN). There is no ranking between the two solutions and the selected bus system, between the two standardised alternatives, shall be subject to an agreement between each transport operating organisation and its equipment providers.

The present document refers to the so-called OSI transmission model and covers OSI layers 1,2,7, the other layers are not used in our applications.

The present document covers the link between equipment inside a single vehicle. Although it could be applied to multiple vehicles, this application is not explicitly covered by this document.

The present document is the first part of a set of standards, related to the onboard transmission bus, which will comprise, for each allowed transmission bus, the following set of documents:

a) choice of the bus and general application's rules (EN 13149-1)

b) cabling specifications (EN 13149-2)

c) message's content specifications (prCEN TS 13149-3)

# 2 Normative references

The following referenced documents are indispensable for the application 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.

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| EN 13149-2 | *Public transport - Road vehicle scheduling and control systems - Part 2: WORLDFIP cabling specifications* |
| EN 50170 | *General purpose field communication system* |
| EN 61158-2:1994 | *Fieldbus standard for use in industrial control systems; part 2: physical layer specification and service definition (IEC 61158-2:1993)* |