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Vägtrafikinformatik – Automatisk fordons- och utrustningsidentifiering – Gränssnitt (ISO 17264:2009)

Intelligent transport systems – Automatic vehicle and equipment identification – Interfaces (ISO 17264:2009)

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN ISO 17264

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English Version

Intelligent transport systems - Automatic vehicle and equipment identification - Interfaces (ISO 17264:2009)

Systèmes intelligents de transport - Identification automatique des véhicules et de leurs équipements - Interfaces (ISO 17264:2009)

This European Standard was approved by CEN on 28 October 2009.

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Foreword

This document (EN ISO 17264:2009) has been prepared by Technical Committee CEN/TC 278 “Road transport and traffic telematics”, the secretariat of which is held by NEN, in collaboration with Technical Committee ISO/TC 204 "Intelligent transport systems".

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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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.

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Introduction

This International Standard provides requirements for interoperable ITS transactions in an “Automatic Vehicle Identification” (AVI), “Automatic Equipment Identification” (AEI) or “Electronic Registration Identification” (ERI) context. An AVI/AEI transaction is based on defined sets of AVI/AEI functions and data attributes as specified in this International Standard.

NOTE The principal definitions of AVI, AEI, ERI are to be found in ISO 14814, ISO 14815, ISO 14816, ISO 17261, ISO/TS 17262, ISO 17263, ISO/TS 24534 (all parts) and ISO 24535.

This International Standard specifies an application interface for AVI/AEI systems, based on standardized air interface protocols enabling interoperability between different AVI/AEI service providers.

In order to achieve full interoperability, AVI/AEI service providers will additionally have to agree on issues such as:

— protocol implementation conformance statements from manufacturers, detailing which optional features in the AVI/AEI transaction and air interface protocol are actually being implemented and used;

— any contractual agreements needed between AVI/AEI service providers in order to regulate the handling of different AVI/AEI transactions.

NOTE The definitions and examples provided in this International Standard may also be used in an ERI context, and those interested in this context are advised to also refer to ISO 24534 (all parts) and ISO 24535.

This International Standard has the following structure:

— Clauses 1 to 5 comprise the Scope, Conformance, Normative references, Terms and definitions, and Abbreviated terms.

— In Clause 6, the AVI/AEI transaction requirements are defined, which are independent of any air interface protocol.

— In Annex A, the AVI/AEI application interface architecture is described in terms of its relation to the DSRC communication architecture, based on EN 12834/ISO 15628.

— In Annex B, the AVI/AEI application interface architecture is described in terms of its relation to the air interfaces defined by the ISO/IEC 18000 series.

— In Annex C, AVI/AEI transaction examples are provided.

Intelligent transport systems — Automatic vehicle and equipment identification — Interfaces

1 Scope

This International Standard provides the specifications of:

— common AVI/AEI transaction requirements, which define the common steps of any AVI/AEI transaction;

— AVI/AEI application interface to standardized wireless protocols (referred to as the “Air Interface”) supporting the AVI transaction requirements, so as to enable interoperability.

In Figure 1 the conceptual architecture model is shown for AVI transactions between “On-board Equipment” and “Fixed Equipment”. The air interface concerns the reference point DELTA in ISO 14814.

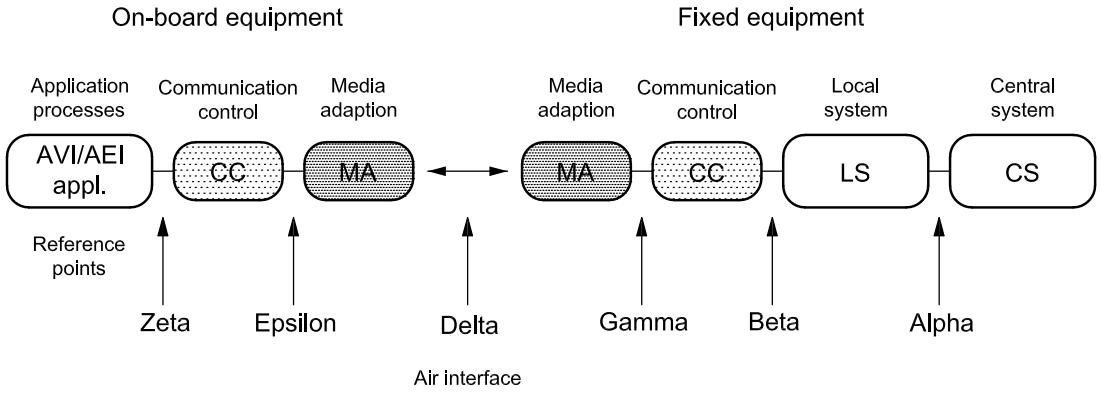

Figure 1 — Overall conceptual reference architecture model showing the context of AVI/AEI (ISO 14814)

This is an interface standard, adhering to the open systems interconnection (OSI) philosophy (ISO/IEC 7498-1), and it is as such not concerned with the implementation choices to be realized at either side of the air interface between the “Fixed Equipment” and “OBE”.

2 Conformance

Conformance may be claimed where equipment conforms to the provisions of this International Standard.

No specific performance tests are defined within this International Standard.

3 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.

ISO/IEC 8824-1, *Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation — Part 1*

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

ISO 15628, *Road transport and traffic telematics — Dedicated short range communication (DSRC) — DSRC application layer*

ISO/TS 17262, *Automatic vehicle and equipment identification — Intermodal goods transport — Numbering and data structures*

ISO/IEC 18000-3, *Information technology — Radio frequency identification for item management — Part 3: Parameters for air interface communication at 13,56 MHz*

ISO/IEC 18000-4, *Information technology — Radio frequency identification for item management — Part 4: Parameters for air interface communication at 2,45 GHz*

ISO/IEC 18000-6, *Information technology — Radio frequency identification for item management — Part 6: Parameters for air interface communications at 860 MHz to 960 MHz*

ISO/IEC 18000-7, *Information technology — Radio frequency identification for item management — Part 7: Parameters for active air interface communications at 433 MHz*

CEN ISO/TS 24534-3, *Automatic vehicle and equipment identification — Electronic Registration Identification (ERI) for vehicles — Part 3: Vehicle data*

EN 12834, *Road Transport and Traffic Telematics — Dedicated Short Range Communication (DSRC) — DSRC application layer*

4 Terms and definitions

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

4.1
action
function that an application process resident at the **roadside equipment** can invoke in order to make the on-board equipment execute a specific operation during the **AVI/AEI transaction**

4.2
air interface
conductor-free medium between an **OBE** and the reader/interrogator through which the linking of the **OBE** to the reader/interrogator is achieved by means of electro-magnetic signals

[ISO 14814:2006, definition 3.2]

4.3
attribute
application information formed by one or by a sequence of data elements, and managed by different actions used for implementation of an **AVI/AEI transaction**

4.4
AVI/AEI transaction
completed cycle of communication (across the air interface at reference point delta) wherein a message identifying a vehicle or item of equipment is successfully received and understood by the receiver during one passage through the read zone

[ISO 14815:2005, definition 4.19]

4.5
component
logical and physical entity composing **on-board equipment** supporting a specific functionality

4.6
element
in the context of DSRC, a directory containing application information in the form of **attributes**

4.7
fixed equipment
roadside equipment
equipment located at a fixed position along the road transport network, for the purpose of communication and data exchanges with the **on-board equipment** of passing vehicles

NOTE See also **reader**.

4.8
on-board equipment
OBE
device on board or attached to the vehicle/equipment to perform the functionality of **AVI/AEI**

[ISO 14814:2006, definition 3.18]

4.9
on-board unit
minimum component of on-board equipment, whose functionality always includes at least the support of the air interface

4.10
reader
device that transmits a signal as a means of initiating a response in a compatible **OBE** and subsequently receives the modulated electro-magnetic response and decodes the data

[ISO 14814:2006, definition 3.22]

NOTE The reader is or can be, part of the **roadside equipment/fixed equipment**.

4.11
service
AVI/AEI
road transport related facility provided by a **service provider**

NOTE Normally this is a type of infrastructure, the use of which is offered to the user and for which the user may be requested to identify his/her **OBE**.

4.12
service primitive (communication)
elementary communication service provided by the air interface to the application **AVI/AEI**

NOTE The invocation of a service primitive by an application process implicitly calls upon and uses services offered by the lower protocol layers.