INTERNATIONAL STANDARD

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Intelligent transport systems — Automatic vehicle and equipment identification — System parameters

Systèmes intelligents de transport — Identification automatique des véhicules et des équipements — Paramètres des systèmes

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 17263 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Road transport and traffic telematics*, in collaboration with Technical Committee ISO/TC 204, *Intelligent transport systems,*in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 17263 cancels and replaces ISO/TS 17263:2003, which has been technically revised.

Introduction

This International Standard specifies parameters for a system for the automatic identification of equipment, vehicles and items (AEI) used in intermodal transport chains. This International Standard is designed to enable users and suppliers of AEI systems to specify or use a system or components of a system that will enable interoperability. Such systems are designed to read and transfer the identity and some further important data of equipment, vehicles and items used in intermodal transport to other partners in each possible transport chain to minimize the expenditure and to automate the process of transport observation and control. This standard is a part of a family of standards for that purpose.

AEI systems are necessary as a basic tool for RTTT/TICS applications in intermodal transport operation. These information systems need real-time highly reliable data about the identity, status, time, location, etc. of the equipment, vehicles or items during the transport operation. The characteristics of an intermodal transport chain is that pieces of equipment or items will be loaded or unloaded more than once from other pieces of equipment or vehicles. AEI systems in such applications are also able to provide the identity of both units at the loading and unloading process. The purpose is to capture the event so that the information system reflects the real world.

This International Standard is specifically aimed at DSRC-type air interfaces. The requirement and test methods may not apply for Intermodal AEI systems using long-range communications such as Cellular Networks or Satellite, or vicinity communication such as inductively coupled antennas. The interoperability across the air interface (reference point Delta) is outside the scope of this International Standard. Please see ISO 17264.

Any system used to read identity and related data has to be based on a standardized system to allocate an unambiguous identity to each item, vehicle, load unit or equipment as defined in ISO 17262.

Intelligent transport systems — Automatic vehicle and equipment identification — System parameters

1 Scope

1.1 General

This International Standard establishes an AEI system based on radio frequency technologies. This system is intended for general application in RTTT/TICS. It allows the transfer of the identification codes and further information about equipment and vehicles used in intermodal transport into such RTTT/TICS and information systems related to intermodal transport processes. Within the intermodal context of the RTTT/TICS Sector, AEI systems have the specific objective of achieving an unambiguous identification of an ITU or related equipment or vehicle or item used in intermodal transport, and to make that identification automatically. Vehicles will be considered and handled under Intermodal aspects as “Intermodal Equipment”. Therefore, a differentiation between AEI and AVI systems for the purpose of this standard is not required.

1.2 Aim

The aim of this International Standard is to define, describe and specify the System Parameters related to an intermodal AEI system to provide an enabling Standard, which, while allowing the system specifier to determine the performance levels and operating conditions, provides a framework for interoperability. Therefore this International Standard specifies

a) parameters and requirements of the identification system itself,

b) performance criteria necessary to ensure consistent and reliable operation of AEI systems within international transport processing,

c) requirements of the performance and the position of the electronic devices (tag) when installed on intermodal equipment, and

d) requirements for the installation of readers, and performance data related to these components.

These parameters of an AEI system shall be identical, compatible or interoperable world-wide in respect of systems complying to this Standard. Yet it is recognized that, at the implementation level, there may be requirements for regional or operational differences in the performance levels achieved against these parameters.

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.

ISO 10374, *Freight containers — Automatic identification*

ISO 14815, *Road transport and traffic telematics — Automatic Vehicle and Equipment Identification – System specification*

ISO 17261, *Intelligent transport systems — Automatic vehicle and equipment identification — Intermodal goods transport architecture and terminology*

ISO 17262, *Intelligent transport systems — Automatic vehicle and equipment identification — Numbering and data structures*

ISO 17264, *Intelligent transport systems — Automatic vehicle and equipment identification — Interfaces*

ISO 17363, *Supply chain applications of RFID-Freight containers*

ISO 17365, *Supply chain applications of RFID-Transport units*

ISO 18185-1, *Freight containers — Electronic seals — Part 1: Communication protocol*

ISO 24534 (all parts), *Automatic vehicle and equipment identification — Electronic Registration Identification (ERI) for vehicles*

ISO 24535, *Intelligent transport systems — Automatic vehicle identification — Basic electronic registration identification (Basic ERI)*

EN 13044, *Swap Bodies — Coding, Identification and Marking*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17261 and the following apply.

3.1
AEI Reader
complete equipment even if it consists of more than one components required to interrogate, receive and interpret the data in the tag in order to present the identification

3.2
AEI System
AEI application in a RTTT/TICS system either as a stand-alone system or as part of a RTTT/TICS application

3.3
category
grouping of common class requirements to support interoperability between AEI systems of common purpose

EXAMPLE A "Ruggedised" category versus a "Standard" category.

3.4
class
term used to differentiate between system components with different "grades" of requirements for parameters

3.5
intermodal transport
movement of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves when changing modes

3.6
interoperability
stands for "Application Area Interoperability" in a region spanning two or more areas with cross-border operation between operator domains, districts or nations; the capability for an AEI Reader to operate with a AEI System tag

3.7
load unit
containers, swap bodies and semi-trailers suitable for intermodal transport

3.8
transport means
vehicle used for the transport of goods

EXAMPLES vessel, train, truck

3.9
operational parameter
term used to describe different operational component properties/specifications

3.10
shadowing
condition where the close proximity of a vehicle/equipment interposed between reader and tag obscures the signals thus preventing a successful AEI transaction

3.11
small container unit
intermodal transport units which are smaller than a standard 20-foot-ISO-Standard container or CEN-swap body

NOTE Small containers are also called medium containers or “less than container unit” (LCU).

NOTE The size of such LCU´s will be at least one ISO- or Euro-palette.

3.12
tag
equipment fitted to the unit, vehicle or item to be identified and containing the unambiguous identification, and if required some further data

NOTE For special purposes, the tag can be installed in a fixed position with a mobile reader

4 Symbols and abbreviated terms

AEI	Automatic Equipment Identification
ASN.1	Abstract Syntax Notation number One
DSRC	Dedicated Short Range Communication
ITU	Intermodal Transport Unit
LCU	Small container

NOTE Less than Container Unit.

RTTT	Road Transport and Traffic Telematics (CEN TC 278)
TICS	Transport Information and Control Systems (ISO TC204)

5 System architecture and specification

5.1 Generic specification

This International Standard is designed to enable users and suppliers of AEI systems to define a system specification including system requirements to enable international interoperability based on harmonised DSRC links.

NOTE The interoperability across the air interface (reference point Delta) is outside the scope of this International Standard. Please see ISO 17264.

The term “AEI” is used both to describe “independently functioning AEI systems” and as “the function of identification within other RTTT/TICS applications”. Both such uses are supported by this International Standard where no other application or sector standard applies.

The Generic System specification for AEI Systems in the intermodal transport world in terms of functions supported, the interface requirements, the structure of the information and data related to system components and the data exchange shall be in accordance to the specification described in the following standards:

— ISO 17261, *Architecture and terminology*;
— ISO 17262, *Numbering and data structures*;
— ISO 17264, *AVI/AEI interfaces*,