

WG4

Title: Automatic Vehicle Identification and Automatic Equipment Identification

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1. Draft Document: ISO/CD14814

Title: Reference Architectures and Terminology

Scope: This standard is to establish a common framework to achieve unambiguous identification in ITS/RTTT: AVI/AEI applications.

Reference Architecture Model is designed to be an 'enabling' structure to allow interoperability between different commercial systems, and is not prescriptive in any specific system. It includes neither frequency nor air interface protocol specific. The standard provides maximum interoperability, has a high population capability, and provides the possibility of upwards migration to more capable systems.

This standard provides a reference structure which enables an unambiguous identification and also defines the data construct for an ITS/RTTT message. This is particularly important within an EDI environment. The construct also identifies which ITS/RTTT data structure is contained in the message.

The structure determined in this standard can support a wide variety of applications, such as simple AVI/AEI, complex unambiguous ITS/RTTT messages (in either user identified or anonymous formats), and new or undefined message structures.

The principles of data element structure determined in ISO 8824 have been adopted to provide an interoperable architecture within a standard framework.

A key feature of the structure is to provide interoperability of data constructs. This

AVI/AEI scheme may also be used as part of a data construct for purposes such as automatic fee collection and enables interoperability with systems under existing standards.

Numbering and Data Structure shall be operational both by a read/write device and by a read only device where there is no requirement (or if there is no possibility) to write to an on-board equipment (OBE).

Status of Document : Committee Draft

2. Draft Document: ISO/TS 14815

Title: System Specification

Scope: This pre-standard defines a generic AVI/AEI System specification for normal AVI/AEI to provide an enabling standard, allowing the system specification to determine the performance levels and operating conditions. The standard provides a framework for nominal interoperability.

Within the Road context on the Transport and Traffic Telematics Sector, AVI and AEI systems have an objective of achieving unique or unambiguous positive identification of a vehicle or items of equipment, and making the identification automatically.

This standard only refers to AVI/AEI in the road environment. Multimodal and intermodal exchanges of AVI/AEI are outside the scope of this pre-standard.

This standard is designed for system specification that will enable nominal interoperability based on a DSRC link (as defined by prENV ISO 17264 and referred to in clause 5.5).

The scope of this standard is confined to Generic AVI/AEI System specification for the systems that have the following 'core' components:

--A means of communication between the vehicle/equipment and the reading station (e.g. a DSRC link, reference prENV ISO 17264)

--Operation within a reference architecture which enables compatible systems to read and Interpret the identification (See ENV 12314-1)

--Compliance to commonly understood data structures that enable meaningful interpretation of the data exchanged in the identification sequence (See ISO/TS 14816)

--Provision of operating and environmental parameters (or classes of operating parameters) within which such systems must successfully function without impairing interoperability.

Status of Document: Technical Standard

3. Draft Document: ISO/TS 14816

Title: Numbering and Data structure

Scope: 1. OVERALL NUMBERING SCHEME

This standard establishes a common framework data structure for unambiguous identification in RTTT/TICS systems. The standard excludes any physical aspects such as interfaces.

The principles of data element structure and description determined in ISO/IEC 8824:1998, ISO/IEC 8825-1:1998, ISO/IEC 8825-2:1998 and ISO/IEC DIS 8825-3:1992 have been adopted to provide an interoperable architecture within a standard framework according to guidelines from CEN TC278 as well as ISO TC204.

This standard defines data structures based on the ISO/IEC 8824-1 ASN.1 UNIVERSAL CLASS types that may be directly IMPORTED to other application standards that would need only subsets of the full APPLICATION CLASS types.

These UNIVERSAL CLASS and APPLICATION CLASS types are uniquely defined as an ASN.1 module in Annex B. This module may be directly linked into an application data definition.

This standard defines defaults encoded for simple AVI/AEI applications where no other relevant application standard exists. This definition forms Clause 4.

2. AVI/AEI NUMBERING SCHEME

The structures defined in this standard provides interoperability, not only between simple AVI/AEI and more complex RTTT/TICS functions, but also with pre-existing standards (e.g. ISO 10374 Freight containers - Coding, identification and marking)

There will be one Central Registration Authority that will administer the AVI Numbering Scheme according to the rules of CEN and ISO (See Annex A (normative)).

Status of Document: Technical Standard

4. Draft Document: ISO WD17261

Title: AVI/AEI Intermodal and Multimodal Reference Architecture

Scope: This standard describes the conceptual and logical architecture for Automatic Vehicle and Equipment identification (AVI/AEI) and supporting services in an Intermodal/Multimodal environment.

This standard presents a high level view of AEI Intermodal and Multimodal System Architecture. The standard describes the key sub systems, their associated interfaces and interactions and how they fit into the system wide functions such as Management, Security and Information Flow.

The architecture is product independent: Individual modules within subsystems or the Data Tag module within the Data Capture sub system will be described in terms of system parameters, not in terms of defined or named product specification.

The standard identifies the context of Intermodal/Multimodal AEI within the overall AVI/AEI context and key external inter-dependency, and interfaces to the Intermodal /Multimodal Sector IT infrastructure. These include interfaces for the external and internal users of the Intermodal/Multimodal System services and their associated IT systems, interfaces to Intermodal/Multimodal management systems, existing Intermodal/Multimodal Networks and System Operations. These specifically include interfaces between item identification and the domain of ISO/IEC SC31, item logistics Standards. As an architecture it is designed to be complementary and consistent with that domain.

This standard relates to AVI/AEI units, but not to smaller containers and items (pallet loads, trays, parcels etc.) being transported. The architecture described within this standard shows the interrelationship to the item identification domain (see Annex A).

Standardization will be undertaken by ISO/IEC JTC1 SC31. Supporting the standards developed by ISO TC204 will be limited to vehicle, trailer and AVI/AEI unit identification. ISO/SC31 will work on the standards for from units of pallet (and equivalent) size down to item level.

This standard is also complementary and consistent with the Standards of ISO TC104 (ISO Containers)

This specification extends the conceptual and communication AVI architecture determined in ISO14814 and includes neither frequency nor air interface protocol specific. It provides maximum interoperability, has a high population capability, and provides the possibility of upwards migration to more capable systems.

Status of Document: Working Draft

5. Draft Document: ISO/TS 17262

Title: Intermodal Goods Transport Numbering and Data Structure

Scope: This Pre-Standard defines generic numbering and data structures for unambiguous

identification of equipment used for Intermodal goods transport. These data are known as Intermodal Goods Transport Numbering and Data Structures.

This Pre-Standard defines data independently of the data carrier. The modeling of data is based on Abstract Syntax Notation One (ASN.1) as defined in ISO8824.

Data defined in this Pre-Standard require a system for control and distribution of number series. The system is independent of the different AVI/AEI systems. This is required in order to avoid ambiguity and to provide the necessary level of security where appropriate. For this reason the registration authority defined in ISO14816 applies for this Pre-Standard.

This Pre-Standard provides interoperability, not only between simple AVI/AEI and more complex RTTT/TICS functions, but also with pre-existing standards such as one for containers (ISO 10374). Specifications for protecting against changes, classifying and qualifying security aspects of the data are out of scope of this Pre-Standard.

This Pre-Standard relates to AVI/AEI units, but not to smaller containers and units being transported. (pallet loads, trays, parcels etc.)

This Pre-Standard provides the capability to carry application data. The data are associated with the identification and carried as part of the AVI/AEI message.

Within this Pre-Standard this is provided as a “black box” facility.

Status of Document: Technical Standard

6. Draft Document: ISO/TS 17263

Title: Intermodal Goods Transport System Parameter

Scope: 1. General

This Technical Specification establishes an AEI-System based on radio 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 objectives of achieving an unambiguous identification of an ITU, related equipment, vehicle or item used in intermodal transport and making that identification automatically. Vehicles will be considered and handled as “Intermodal Equipment“ under Intermodal aspects. Therefore, a differentiation between AEI and AVI systems under the purpose of this standard is not required.

This 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 17263. Please see EN ISO 17264- AVI/AEI Interfaces.

2. Aim

The aims of this standard are to define, describe, and specify the System Parameters related to an intermodal AEI system to provide an enabling standard, allowing the system specifier to determine the performance levels and operating conditions. To provide a framework for nominal interoperability is also one of the aims.

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 location of the electronic devices (TAG) when installed on intermodal equipment
- d) Requirements for the installation of readers and performance data related to these components.

3. Pre-requisite

Any system 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 EN ISO 17262-AVI/AEI Numbering and Data Structures.

Status of Document: Technical Standard

7. Draft Document: ISO/WD 24534

Title: Electronic Registration Identification (ERI)

Scope: This standard provides requirements for an Electronic Registration

Identification (ERI) that is:

- based on an identifier assigned to a vehicle (e.g. for recognition by national administrations)
- suitable to be used for :
 - electronic identification of vehicles by administrations, police etc.
 - vehicle manufacturing, in-life-maintenance and end-of-life identification (vehicle life cycle management)
 - safety related purposes
 - crime reduction
 - commercial services
- adhering to privacy and data protection regulations.

The in-vehicle device containing the ERI data is called the Electronic Registration Device (ERD).

This standard will include:

- identifiers and possible related vehicle information (as contained in registration certificates)
- interface between an ERD and (road side) reading and writing equipment
- interface between an ERD and other On Board Equipment (OBE)
- security issues and system protection profile for the ERD
- environmental and mechanical requirements for the ERD and the other OBE
- life cycle management and operational requirements for the ERD and the

other OBE

Status of Document: Working Draft