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Road transport and traffic telematics — Automatic vehicle and equipment identification — Reference architecture and terminology

Télématique du transport routier et de la circulation — Identification automatique des véhicules et des équipements — Architecture de référence et terminologie

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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 14814 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).

Introduction

The interaction between vehicles, the driver and the road infrastructure is of major importance. Various technologies are already used to assist this interaction.

There is a significant and growing requirement to enable moving vehicles to interact with the infrastructure This technical field is generally known by several abbreviations, including RTI (Road Traffic Informatics), TICS (Transport Information and Control Systems) and in CEN as RTTT (Road Transport and Traffic Telematics). More recently, there has been a coalescence to the abbreviation ITS (Intelligent Transport Systems) and both standardization committees are in the process of changing their titles to this name.

A principal means of interaction in the ITS environment is AVI/AEI (Automatic Vehicle Identification/Automatic Equipment Identification).

The data component in an ITS/RTTT environment provides the basis for unambiguous identification of the OBE (On-Board Equipment), and may also share a medium for a bi-directional interactive exchange of data between the host and OBE and to other equipment (such as smart cards or other equipment on board).

Within the ITS/RTTT sector, applications may range from simple vehicle and equipment identification to complex international and national systems. Typical direct applications are road charging, parking, vehicle management, information and control systems.

The Reference Architecture Model and the Data Construct Schemes described in this family of International Standards provide a platform for a wide range of media so that the currency of the International Standard shall remain good both for existing and future technologies. It recognizes that there are existing AVI/AEI applications and provides a means of supporting such data constructs within the International Standard.

This International Standard prescribes the overall parameters within which these subsidiary International Standards are constructed. The Architecture description defined in this International Standard is presented in a form consistent with the recommendations of ISO TC204/WG1, and is supported by that Working Group.

In many cases it is necessary or desirable to use one air carrier frequency and protocol, but this is not always possible nor even desirable in all situations.

However, there is a benefit in using a standard common core data structure that is capable of upwards integration and expandable from the simplest low-cost AVI/AEI system to the more complex functions. Such a structure must be flexible and enabling rather than prescriptive, thus enabling different degrees of interoperability within and between their host systems.

The use of Abstract Syntax Notation One (ASN.1) from the ISO/IEC 8824 and ISO/IEC 8825 series of International Standards as a data identifier structure is now widely accepted, and required by ISO TR 14813-6 for data definition in ITS International Standards. Its usage provides maximum interoperability and conformance to existing standards, and meets the specifically defined requirements for a generic International Standard model for ITS/RTTT in that it:

— enables and uses existing standard coding,

— is adaptable and expandable,

— does not include unnecessary information for a specific application, and

— has a minimum of overhead in storage and transmission.

This document is part of a series of International Standards defining AVI/AEI in the ITS/RTTT environment. Other documents in the series include ISO 14815, ISO 14816, ISO/TS 17261, ISO/TS 17262, ISO/TS 17263 and ISO/TS 17264.