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Systèmes de transport intelligents — Identification unique au niveau global

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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

This second edition cancels and replaces the first edition (ISO 17419:2018), which has been technically revised. It also incorporates the Amendment ISO 17419:2018/Amd. 1:2024.

The main changes are as follows:

— "Cooperative systems" has been removed from the title to align with the unchanged scope;

— the titles of references have been updated;

— ASN.1 modules have been provided as machine-readable electronic attachments;

— Annex A has been updated to enable the feature of ASN.1 minorVersion, and to provide SHA-256 cryptographic hash digests for the electronic attachments;

— errors in the ASN.1 modules have been corrected;

— the ASN.1 type of ITS-MsgSetID has been corrected;

— the data dictionary has been updated;

— general editorial improvements have been performed.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Classification and management of intelligent transport systems (ITS) applications in a global context covers more than just the ITS applications themselves. It also covers elements of the environment in which ITS applications are instantiated.

ITS provide services to users by execution of ITS applications, which typically requires communications between ITS station (ITS-S) application processes residing in ITS station units (ITS-SU). Communications includes messages dedicated to ITS applications, and messages from ITS message sets.

In accordance with the definitions in ETSI TS 102 860,[20] ITS applications and ITS application classes are referred to as ITS application objects. ITS application objects are uniquely identified by the registered "ITS Application Identifier" (ITS-AID) specified in this document.

NOTE 1 An ITS application class groups ITS applications together that provide the same type of service, for example "Electronic Fee Collection" (EFC), but operate in different contexts. Prior to start of service provisioning, the applicable context is negotiated. The definition of ITS application classes is based on the concept of the dedicated short range communication (DSRC) application entity as introduced in ISO 15628,[7] which is identified by a DSRCApplicationEntityID; negotiation of the applicable context is performed by BST/VST exchange.

In ETSI TS 102 860, ITS message sets were referred to as ITS application objects. This definition is not used in this document due to the very different nature of ITS message sets and ITS application objects. ITS message sets are uniquely identified by the registered "ITS Message Set Identifier" (ITS-MsgSetID) specified in this document.

This document is an extension towards more general and global applicability of ETSI TS 102 860. This document introduces the term "ITS-S object" as a general reference to ITS application objects, ITS message sets and other objects that can require globally unique identification and registration.

NOTE 2 Examples of other ITS-S objects are ITS-S communication protocols and ITS-S security protocols.

Management of ITS-S objects is specified in the ISO 24102 series[9] – [12],[14] and in ISO 17423.[2]. This document focuses on certain management aspects related to authorized and controlled operation of ITS-S objects, which require considerations of ITS-S object identifiers, e.g. ITS-AID, ITS-MsgSetID, ITS-SUID, ITS-SCUID, addresses and protocol identifiers used in the communication protocol stack of an ITS-S, and others.

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Intelligent transport systems — Globally unique identification

1 Scope

This document:

— describes and specifies globally unique addresses and identifiers (ITS-S object identifiers) that are both internal and external to ITS stations and are used for ITS station management;

— describes how ITS-S object identifiers and related technical parameters are used for classification, registration and management of ITS applications and ITS application classes;

— describes how ITS-S object identifiers are used in the ITS communication protocol stack;

— introduces an organizational framework for registration and management of ITS-S objects;

— defines and specifies management procedures at a high functional level;

— specifies an ASN.1 module for the identifiers, addresses and registry records identified in this document; and

— specifies an ASN.1 module for a C-ITS data dictionary containing ASN.1 type definitions of general interest.

This document is based on the architecture of an ITS station specified in ISO 21217 as a bounded secured managed domain (BSMD).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 21217, *Intelligent transport systems — Station and communication architecture*

ITU-T X.911, *(10/2001), Information technology — Open Distributed Processing — Reference Model — Enterprise Language*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21217, ITU-T X.911 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
ITS application class
ITS application designed for operation in different contexts involving real-time negotiation of the appropriate context

Note 1 to entry: The functional concepts of “application class” and “application context” were introduced in ISO 15628. ITS application class is used, e.g. in ISO 22418. An example of an application class can be found in ISO 14906.

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