# SLOVENSKI STANDARD
# SIST-TS CEN ISO/TS 18750:2015

**01-september-2015**

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**Inteligentni transportni sistemi - Kooperativni sistem - Vzpostavitev globalnega koncepta lokalnih dinamičnih zemljevidov (ISO/TS 18750:2014)**

Intelligent transport systems - Cooperative systems - Definition of a global concept for Local Dynamic Maps (ISO/TS 18750:2014)

Intelligente Transportsysteme - Kooperative Systeme - Festlegung eines globalen Konzeptes für lokale dynamische Karten (ISO/TS 18750:2014)



Systèmes intelligents de transport - Systèmes coopératifs - Définition d'un concept global pour cartes dynamiques locales (ISO/TS 18750:2014)



**Ta slovenski standard je istoveten z: CEN ISO/TS 18750:2015**

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**ICS:**

| | | |
|---|---|---|
| 03.220.20 | Cestni transport | Road transport |
| 35.240.60 | Uporabniške rešitve IT v transportu in trgovini | IT applications in transport and trade |

**SIST-TS CEN ISO/TS 18750:2015 en,fr,de**

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

# CEN ISO/TS 18750

May 2015

ICS 35.240.60; 03.220.20

English Version

# Intelligent transport systems - Cooperative systems - Definition of a global concept for Local Dynamic Maps (ISO/TS 18750:2015)

Systèmes intelligents de transport - Systèmes coopératifs - Définition d'un concept global pour cartes dynamiques locales (ISO/TS 18750:2015)

Intelligente Transportsysteme - Kooperative Systeme - Festlegung eines globalen Konzeptes für lokale dynamische Karten (ISO/TS 18750:2015)

This Technical Specification (CEN/TS) was approved by CEN on 21 March 2015 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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# Foreword

This document (CEN ISO/TS 18750:2015) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 “Intelligent transport systems” the secretariat of which is held by NEN.

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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## Endorsement notice

The text of ISO/TS 18750:2015 has been approved by CEN as CEN ISO/TS 18750:2015 without any modification.

TECHNICAL SPECIFICATION

# ISO/TS 18750

First edition
2015-05-15

# Intelligent transport systems — Cooperative systems — Definition of a global concept for Local Dynamic Maps

*Systèmes intelligents de transport — Systèmes coopératifs — Définition d'un concept global pour cartes dynamiques locales*



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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 documents 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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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.



ISO/TS 18750 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO/TC 204, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).



 

# Introduction

An essential property of cooperative intelligent transport systems (C-ITS)[16] is the sharing of data between different ITS applications providing different ITS services to the users. This approach replaces the traditional approach where each application is operated in an isolated environment, i.e. referred to as “silo approach”. The C-ITS approach enables synergies in components of an ITS station unit, e.g. sharing of communication tools, improves overall performance and reliability, and reduces overall cost. In order to protect the interests of the various ITS applications, C-ITS implements the concept of an ITS station (ITS-S) operated as bounded secured managed domain.

The sharing of data between applications is achieved by subscribe/publish mechanisms, where at least two mechanisms are distinguished, i.e. one allowing ITS-S application processes to subscribe to standardized messages from ITS message sets (direct forwarding upon reception of such messages in an ITS station unit) and one using a Local Dynamic Map (LDM) as repository of standardized data objects. Such data objects stored in an LDM are named LDM Data Objects (LDM-DOs). LDM-DOs provide self-consistent information on real objects existing at a given geo-location during a given lifetime-interval. Authorized ITS-S application processes may add LDM-DOs to an LDM and may retrieve LDM-DOs from an LDM. Retrieval of LDM-DOs may be performed in queries and by means of subscription. A subscription will result in automatic notifications of selected LDM-DOs either in defined time intervals or event driven.

This Technical Specification introduces the usage of LDMs and specifies the LDM for global usage in C-ITS.

Initial implementations of LDMs were in the EU research projects CVIS[32] and Safespot[34].



 

# Intelligent transport systems — Cooperative systems — Definition of a global concept for Local Dynamic Maps

## 1 Scope

This Technical Specification

— describes the functionality of a "Local Dynamic Map" (LDM) in the context of the "Bounded Secured Managed Domain" (BSMD), and

— specifies

  — general characteristics of LDM Data Objects (LDM-DOs) that may be stored in an LDM, i.e. information on real objects such as vehicles, road works sections, slow traffic sections, special weather condition sections, etc. which are as a minimum requirement location-referenced and time-referenced,

  — service access point functions providing interfaces in an ITS station (ITS-S) to access an LDM for

    — secure add, update, and delete access for ITS-S application processes,

    — secure read access (query) for ITS-S application processes,

    — secure notifications (upon subscription) to ITS-S application processes, and

    — management access,

      — secure registration, de-registration, and revocation of ITS-S application processes at LDM, and

      — secure subscription and cancellation of subscriptions of ITS-S application processes,

  — procedures in an LDM considering

    — means to maintain the content and integrity of the data store, and

  — mechanisms supporting several LDMs in a single ITS station unit.



## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 — Communications access for land mobiles (CALM) — Architecture*

ISO/IEC 8824-1:2008, *Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation — Part 1*

ISO/IEC 8825-2:2008, *Information technology — ASN.1 encoding rules: Specification of Packed Encoding Rules (PER) — Part 2*

ISO 24102-3, *Intelligent transport systems — Communications access for land mobiles (CALM) — ITS station management — Part 3: Service access points*

 

## 3 Terms and definitions

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

**3.1**
**data integrity**
property that data has not been altered or destroyed in an unauthorized manner

[SOURCE: ISO 24534-5]

**3.2**
**International Atomic Time**
time since 00:00:00 UTC, 1 January, 2004, identical with UTC except that no leap seconds need to be added

**3.3**
**LDM area of interest**
location requirement used in the filter process of queries and automatic notifications

**3.4**
**LDM area of maintenance**
information on the operational location area of an LDM used by LDM maintenance

Note 1 to entry: Reference [22] restricts the LDM Area of Maintenance to "geographical area specified by the LDM for LDM maintenance"

**3.5**
**LDM permissions**
information on how a specific ITS-S application process may use an LDM



**3.6**
**LDM data object**
location-referenced and time-referenced representation of a real object that is self-explanatory without any further context information

**3.7**
**LDM data object ID**
identifier of an LDM data object which is unique in an LDM

**3.8**
**LDM data dictionary**
dictionary of LDM data object types

**3.9**
**LDM data object type**
identifier of the type of information contained in an LDM data record

**3.10**
**location validity**
information indicating a location at which an LDM data object is valid

**3.11**
**time validity**
information indicating a time interval during which an LDM data object is valid

**3.12**
**LDM time of interest**
time requirement used in the filter process of queries and automatic notifications

**3.13**
**Local Dynamic Map**
entity consisting of LDM data objects, services, and interfaces for manipulating these LDM data objects

 

**3.14**
**location reference**
uniquely identifiable description of position or area in the real world

**3.15**
**metadata**
data about data

Note 1 to entry: The term "metadata" is ambiguous as it is used for fundamentally different concepts. Structural metadata are information related to the design and specification of data structures; it is also referred to as "data about the containers of data". Descriptive metadata are information on instances of data, i.e. the data content; it is also referred to as "data about data content".

[SOURCE: ISO 19115]

**3.16**
**time of creation**
time when an LDM data record was created and updated

**3.17**
**time of deletion**
time when an LDM data record may be deleted and will no more be considered by the LDM search functionality

**3.18**
**time of generation**
time when the content of the LDM data object information field was created

Note 1 to entry: This is different to the time when the LDM data object was written into an LDM.



## 4 Symbols and abbreviated terms

| | |
|---|---|
| BSMD | Bounded Secured Managed Domain |
| BSME | Bounded Secured Managed Entity |
| IAT | International Atomic Time |
| ICS | Implementation Conformance Statement |
| ITS | Intelligent Transport Systems |
| ITS-SU | ITS Station Unit |
| IUT | Implementation Under Test |
| LDM | Local Dynamic Map |
| LDM-DD | LDM Data Dictionary |
| LDM-DT | LDM Data Type |
| LDM-DAT | LDM Data Attribute Type |
| LDM-DATID | LDM-DAT Identifier |
| LDM-DTID | LDM-DT Identifier |
| NoO | Notification of Obligations |
| OoT | Obligation of Trust |