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Intelligent transport systems (ITS) — Location referencing for geographic databases —

Part 2: Pre-coded location references (pre-coded profile)

Systèmes intelligents de transport (SIT) — Localisation pour bases de données géographiques —

Partie 2: Localisations précodées (profil précodé)

Reference number
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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

This third edition cancels and replaces the second edition (ISO 17572-2:2015), which has been technically revised.

The main changes compared to the previous edition are as follows:

— added the description of Extended TMC Location reference (Annex E, F & G).

A list of all parts in the ISO 17572 series can be found on the ISO website.

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

A Location Reference (LR) is a unique identification of a geographic object. In a digital world, a real-world geographic object can be represented by a feature in a geographic database. An example of a commonly known LR is a postal address of a house. Examples of object instances include a particular exit ramp on a particular motorway, a road junction or a hotel. For efficiency reasons, LRs are often coded. This is especially significant if the LR is used to define the location for information about various objects between different systems. For Intelligent Transport Systems (ITS), many different types of real-world objects are addressed. Amongst these, Location Referencing of the road network, or components thereof, is a particular focus.

Communication of an LR for specific geographic phenomena, corresponding to objects in geographic databases, in a standard and unambiguous manner is a vital part of an integrated ITS system in which different applications and sources of geographic data are used. Location Referencing Methods (LRM), methods of referencing object instances, differ by applications, by the data model used to create the database, or by the enforced object referencing imposed by the specific mapping system used to create and store the database. A standard LRM allows for a common and unambiguous identification of object instances representing the same geographic phenomena in different geographic databases produced by different vendors, for varied applications, and operating on multiple hardware/software platforms. If ITS applications using digital map databases are to become widespread, data reference across various applications and systems must be possible. Information prepared on one system, such as traffic messages, must be interpretable by all receiving systems. A standard method to refer to specific object instances is essential to achieving such objectives.

Japan, Korea, Australia, Canada, the US and European ITS bodies are all supporting activities of Location Referencing. Japan has developed a Link Specification for VICS. Japan has developed the Road Section Identification Data set (RSIDs) which uses road sections and reference points. In Europe, the RDS-TMC traffic messaging system has been developed. In addition, methods have been developed and refined in the EVIDENCE and AGORA projects based on intersections identified by geographic coordinates and other intersection descriptors. In the US, standards for Location Referencing have been developed to accommodate several different LRMs.

This document provides specifications for location referencing for ITS systems (although other committees or standardization bodies may subsequently consider extending it to a more generic context). This document is consistent with other International Standards such as ISO 14825.

In addition, this edition of this document does not deal with public transport location referencing; this issue will be dealt with in a later edition.

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Intelligent transport systems (ITS) — Location referencing for geographic databases —

Part 2:
Pre-coded location references (pre-coded profile)

1 Scope

The ISO 17572 series specifies LRMs that describe locations in the context of geographic databases and are used to locate transport-related phenomena in an encoder system as well as in the decoder side. The ISO 17572 series defines what is meant by such objects and describes the reference in detail, including whether or not components of the reference are mandatory or optional, and their characteristics.

The ISO 17572 series specifies two different LRMs:

— pre-coded location references (pre-coded profile);

— dynamic location references (dynamic profile).

The ISO 17572 series does not define a physical format for implementing the LRM. However, the requirements for physical formats are defined.

This document specifies the pre-coded LRM, comprising:

— specification of pre-coded location references (pre-coded profile);

— logical format for VICS link location (Annex A);

— TPEG physical format for ALERT-C (TMC) location references (Annex B, C & D);

— TPEG physical format for ETLs (Annex E, F & G);

— TPEG physical format for Korean node-link ID references (Annex H, I & J).

— logical format for Road Section Identification Data set (Annex K).

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 17572-1, *Intelligent transport systems (ITS) — Location referencing for geographic databases — Part 1: General requirements and conceptual model*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17572-1 and the following apply.

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

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

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

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3.1
major link
directed link in a road network

4 Abbreviated terms

ALERT	Advice and Problem Location for European Road Traffic
DATEX	DATa EXchange (protocol for exchange of traffic and travel information between traffic centres)
ETL	Extended TMC Location reference
GCId	Generic Component Identifier
GDF	Geographic Data File
ID	Identifier
ITRF	International Terrestrial Reference Frame
LDB	Location DataBase
LI	Location Information
LR	Location Referencing (or Reference)
LRM	Location Referencing Method
LRS	Location Referencing System
LRP	Location Referencing Procedure
MOCT	Ministry of Construction and Transportation (Republic of Korea)
RDS	Radio Data System
RSIDs	Road Section Identification Data set
SOEI	System Operating and Exchanging Information
TMC	Traffic Message Channel
TPEG	Transport Protocol Expert Group
TLR	TMC Location Reference
TTI	Traffic and Traveller Information
UTM	Universal Transverse Mercator
VICS	Vehicle Information and Communication System

5 Requirements for a location referencing standard

For details, see ISO 17572-1:2008, Clause 4.

For an inventory of LRMs, see ISO 17572-1:2008, Annex A.

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