

**Standard representation of geographic point location by
coordinates**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 6709:2010 sisaldab Euroopa standardi EN ISO 6709:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 24.06.2009.

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This Estonian standard EVS-EN ISO 6709:2010 consists of the English text of the European standard EN ISO 6709:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 24.06.2009.

The standard is available from Estonian standardisation organisation.

ICS 35.040

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ICS 35.040

English Version

Standard representation of geographic point location by
coordinates (ISO 6709:2008, including Cor 1:2009)

Représentation normalisée des latitude, longitude et
altitude pour la localisation des points géographiques (ISO
6709:2008, Cor 1:2009 inclus)

Standarddarstellung für geographische Punkte durch
Koordinaten (ISO 6709:2008, einschließlich Cor 1:2009)

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Foreword

The text of ISO 6709:2008, including Cor 1:2009 has been prepared by Technical Committee ISO/TC 211 “Geographic information/Geomatics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 6709:2009 by Technical Committee CEN/TC 287 “Geographic Information” the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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Endorsement notice

The text of ISO 6709:2008, including Cor 1:2009 has been approved by CEN as a EN ISO 6709:2009 without any modification.

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Introduction

Efficient interchange of geographic-point-location data requires formats which are universally interpretable and which allow identification of points on, above and below the earth's surface. Users in various disciplines may have different requirements. This is exemplified by the use of degrees and decimal degrees, as well as the traditional degrees, minutes and seconds, for recording latitude and longitude. Users may also require various levels of precision and may use latitude and longitude without height.

The use of this International Standard will

- a) reduce the cost of interchange of data,
- b) reduce the delay in converting non-standard coding structures in preparation for interchange by providing advance knowledge of the standard interchange format, and
- c) provide flexible support for geographic point representation.

Standard representation of geographic point location by coordinates

1 Scope

This International Standard is applicable to the interchange of coordinates describing geographic point location. It specifies the representation of coordinates, including latitude and longitude, to be used in data interchange. It additionally specifies representation of horizontal point location using coordinate types other than latitude and longitude. It also specifies the representation of height and depth that may be associated with horizontal coordinates. Representation includes units of measure and coordinate order.

This International Standard is not applicable to the representation of information held within computer memories during processing and in their use in registers of geodetic codes and parameters.

This International Standard supports point location representation through the eXtensible Markup Language (XML) and, recognizing the need for compatibility with the previous version of this International Standard, ISO 6709:1983, allows for the use of a single alpha-numeric string to describe point locations.

For computer data interchange of latitude and longitude, this International Standard generally suggests that decimal degrees be used. It allows the use of sexagesimal notations: degrees, minutes and decimal minutes or degrees, minutes, seconds and decimal seconds.

This International Standard does not require special internal procedures, file-organization techniques, storage medium, languages, etc., to be used in its implementation.

2 Conformance

To conform to this International Standard, representations of point locations by coordinates shall satisfy all of the conditions specified in the abstract test suite (see Annex A).

3 Normative references

The following referenced documents are indispensable for the application 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/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/TS 19103, *Geographic information — Conceptual schema language*

ISO 19107, *Geographic Information — Spatial schema*

ISO 19111:2007, *Geographic Information — Spatial referencing by coordinates*

ISO 19115:2003, *Geographic Information — Metadata*

ISO 19118, *Geographic information — Encoding*

ISO/TS 19127, *Geographic Information — Geodetic codes and parameters*

ISO 19133, *Geographic Information — Location based services — Tracking and navigation*

4 Terms and definitions

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

4.1

accuracy

closeness of agreement between a test result or measurement result and the true value

[ISO 3534-2:2006]

4.2

altitude

height where the chosen reference surface is mean sea level

4.3

coordinate

one of a sequence of n numbers designating the position of a point in n -dimensional space

NOTE In a coordinate reference system, the coordinate numbers are qualified by units.

[ISO 19111:2007]

4.4

coordinate set

collection of **coordinate tuples** related to the same coordinate reference system

[ISO 19111:2007]

4.5

coordinate tuple

tuple composed of a **sequence** of **coordinates**

NOTE The number of coordinates in the coordinate tuple equals the dimension of the coordinate system; the order of coordinates in the coordinate tuple is identical to the order of the axes of the coordinate system.

[ISO 19111:2007]

4.6

depth

distance of a point from a chosen reference surface measured downward along a line perpendicular to that surface

NOTE A depth above the reference surface will have a negative value.

[ISO 19111:2007]

4.7

height

h , H

distance of a point from a chosen reference surface measured upward along a line perpendicular to that surface

NOTE A height below the reference surface will have a negative value.

[ISO 19111:2007]