AS/NZS ISO 6709:2011
ISO 6709:2008
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AS/NZS ISO 6709:2011

Australian/New Zealand Standard™

# Standard representation of geographic point location by coordinates


This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-004, Geographical Information/Geomatics. It was approved on behalf of the Council of Standards Australia on 15 November 2011 and on behalf of the Council of Standards New Zealand on 14 November 2011.
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The following are represented on Committee IT-004:

ANZLIC—The Spatial Information Council
Australasian Fire and Emergency Service Authorities Council
Australian Antarctic Division
Australian Hydrographic Office
Australian Map Circle
CSIRO Exploration and Mining
Department of Lands, NSW
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*This Standard was issued in draft form for comment as DR AS/NZS ISO 6709.*

Australian/New Zealand Standard™

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# PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-004, Geographical Information/Geomatics to supersede AS/NZS ISO 6709:2008, *Standard representation of latitude, longitude and altitude for geographic point locations*.

The objective of this Standard is to provide geographic point location data formats which are universally interpretable and that allow unique identification of points on, above or below the earth's surface for the representation of latitude, longitude and altitude for use in data interchange. This Standard provides a variable-length format.

This Standard is identical with, and has been reproduced from ISO 6709:2008, *Standard representation of geographic point location by coordinate,* including Corrigendum 1, 2009, which is added at the end of the source text.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

| *Reference to International Standard* | | *Australian/New Zealand Standard* | |
|---|---|---|---|
| ISO/TS | | AS/NZS ISO | |
| 19103 | Geographic information—Conceptual schema language | 19103 | Geographic information—Conceptual schema language |
| 19107 | Geographic information—Spatial schema | 19107 | Geographic information—Spatial schema |
| 19111 | Geographic information—Spatial referencing by coordinates | 19111 | Geographic information—Spatial referencing by coordinates |
| 19115 | Geographic information—Metadata | 19115 | Geographic information—Metadata |
| 19118 | Geographic information—Encoding | 19118 | Geographic information—Encoding |
| 19127 | Geographic information—Geodetic codes and parameters | 19127 | Geographic information—Geodetic codes and parameters |
| 19133 | Geographic information—Location-based services—Tracking and navigation | 19133 | Geographic information—Location-based services—Tracking and navigation |

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

# CONTENTS

# 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.

AUSTRALIAN/NEW ZEALAND STANDARD

# 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*