

This is a preview of "INCITS/ISO 6709:2008...". Click here to purchase the full version from the ANSI store.

INCITS/ISO 6709:2008[R2013]

INCITS/ISO 6709-2008
(ISO 6709:2008, IDT)

American National Standard

*Standard representation
of geographic point location
by coordinates*

Developed by



Where IT all begins



This is a preview of "INCITS/ISO 6709:2008...". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.

Date of ANSI Approval: 12/18/2008

Published by American National Standards Institute,
25 West 43rd Street, New York, New York 10036

Copyright 2008 by Information Technology Industry Council (ITI).
All rights reserved.

These materials are subject to copyright claims of International Standardization Organization (ISO), International Electrotechnical Commission (IEC), American National Standards Institute (ANSI), and Information Technology Industry Council (ITI). Not for resale. No part of this publication may be reproduced in any form, including an electronic retrieval system, without the prior written permission of ITI. All requests pertaining to this standard should be submitted to ITI, 1250 Eye Street NW, Washington, DC 20005.
Printed in the United States of America

This is a preview of "INCITS/ISO 6709:2008...". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2008-07-15

Standard representation of geographic point location by coordinates

*Représentation normalisée des latitude, longitude et altitude pour la
localisation des points géographiques*



Reference number
ISO 6709:2008(E)

© ISO 2008

This is a preview of "INCITS/ISO 6709:2008...". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "INCITS/ISO 6709:2008...". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Conformance	1
3 Normative references	1
4 Terms and definitions.....	2
5 Abbreviated terms	3
6 Requirements for the representation of geographic point location.....	3
6.1 Conceptual model for geographic point locations.....	3
6.2 Elements required for geographic point location	5
6.3 Coordinate Reference System identification	5
6.4 Representation of horizontal position	5
6.5 Representation of vertical position.....	6
6.6 Coordinate resolution.....	6
6.7 Utilization of geographic point locations	6
7 Representation of geographic point location	6
7.1 UML model.....	6
7.2 XML representation	6
7.3 Text string representation	7
Annex A (normative) Conformance and abstract test suite	8
Annex B (informative) Latitude and longitude coordinates are not unique	10
Annex C (normative) UML description for representation of geographic point locations	12
Annex D (informative) Representation of latitude and longitude at the human interface	17
Annex E (informative) Latitude and longitude resolution	19
Annex F (informative) Utilization of Geographic Point Locations.....	20
Annex G (informative) Examples of XML representation	23
Annex H (informative) Text string representation of point location.....	25
Bibliography	28

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 6709 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

This second edition cancels and replaces the first edition (ISO 6709:1983), which has been technically revised.

The first edition provided for the representation of latitude and longitude for geographic point locations. This second edition extends the use of the representation to applications requiring latitude or longitude values to be quoted separately, for example when quoting a difference in two meridian values. It also extends the representation of latitude and longitude to allow the values for each to be held in separate numeric fields.

This second edition additionally provides for the representation of horizontal point location by coordinates other than latitude and longitude, and makes provisions for a variable-length format which has the flexibility to cover these various requirements. It also includes provisions for heights and depths.

This second edition is primarily intended for data interchange between computer systems. Informative Annex D, which summarises the different requirements at the human interface, has been added.

The first edition used the term *altitude* to describe vertical position. This International Standard uses the more general term height and also allows for vertical location to be described as *depth*.

This is a preview of "INCITS/ISO 6709:2008...". [Click here to purchase the full version from the ANSI store.](#)

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.