



DPC: 25/30474535 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 15 July 2025

Origin: International

Latest date for receipt of comments: 07 September 2025

Project No. 2023/01104

Responsible committee: IST/36 Geographic information

Interested committees:

Title: Draft BS ISO 19127 Geographic information - Geodetic register.

Please notify admin.start@bsigroup.com if you are aware of any keywords that might assist in clarifying or identifying the standard or of the content of this standard:

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 07 September 2025

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <https://standardsdevelopment.bsigroup.com/>.

E-mail: admin.start@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 19127

Geographic information — Geodetic register

Information géographique — Registre géodésiques

ICS: 07.040; 35.240.70

ISO/TC 211

Secretariat: **SIS**

Voting begins on:
2025-07-15

Voting terminates on:
2025-10-07

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENTS AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

Reference number
ISO/DIS 19127:2025(en)

Full document details: 25/30474535 DC

© ISO 2025  **Documents**
Document Sharing Hub



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Conformance	1
5 Conventions	1
6 Audience and accessibility	1
7 ISO Geodetic Register roles and responsibilities	2
7.1 General	2
7.2 Register owner	2
7.3 Register manager	2
7.4 Control body	3
7.4.1 Control body responsibilities	3
7.4.2 Control body membership	3
7.4.3 Approval of register content	3
7.4.4 Reporting	3
7.5 Register system manager	3
7.6 Proposer	4
7.7 Register user	4
8 ISO Geodetic Register governance processes	4
8.1 Proposal process	4
8.2 Approval process	5
8.2.1 General	5
8.2.2 Addition	5
8.2.3 Modification	5
8.2.4 Retirement	6
8.3 Appeal process	6
8.4 Content management process	6
8.5 Statuses and relationships	7
9 ISO Geodetic Register system content requirements	7
9.1 Identifiers	7
9.2 Register item class data	7
9.3 Register item class governance	8
9.4 Register item data	8
9.5 Register item governance	8
10 ISO Geodetic Register content requirements	8
Annex A (normative) Abstract test suite	12
Annex B (normative) ISO Geodetic Register content	13
Annex C (informative) Best practices for the ISO geodetic register content	37
Annex D (informative) Metadata	48
Annex E (informative) Requirements list	51
Bibliography	54

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 of 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 www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces ISO 19127:2019, which has been technically revised.

This document constitutes a major revision, incorporating changes in ISO 19111:2019 and ISO/DIS 19135.

In accordance with the ISO/IEC Directives, Part 2, 2021, *Principles and rules for the structure and drafting of ISO and IEC documents*, "The decimal sign shall be a comma on the line in all language versions". However, the General Conference on Weights and Measures (*Conférence Générale des Poids et Mesures*) at its 22nd meeting in 2003, unanimously passed resolution 10, which reads as follows:

"The decimal marker shall be either a point on the line or a comma on the line."

In practice, the choice between these alternatives depends on customary use in the language concerned. In the technical areas of geodesy and geographic information it is customary for the decimal point to be used, for all languages. That practice is used throughout this document.

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.

Introduction

This document specifically governs procedures for the ISO 19127 geodetic register, but may have applicability to similar national and international registers of geodetic information.

The ISO 19127 geodetic register and the ISO 19127 geodetic register system are referred to as the ISO geodetic register and ISO geodetic register system, respectively, throughout this document.

ISO/DIS 19135 provides for the structural and governance requirements of a register and its management. Register management processes include the establishment, management, operation and publication of a register.

ISO 19111:2019 describes elements necessary to define various types of coordinate reference systems applicable to geographic information. The subset of elements required is partially dependent upon the type of coordinates. Optional fields allow for the inclusion of metadata about the coordinate reference systems. ISO 19111:2019 also provides for the description of a coordinate operation between two different coordinate reference systems or a coordinate operation to account for crustal motion over time. With such information, spatial data referenced to different coordinate reference systems can be referenced to one specified coordinate reference system at a specified time.

This document describes how the structural, governance and management requirements within ISO/DIS 19135 are to be applied to the ISO geodetic register of elements applicable to geodetic referencing by coordinates in accordance with ISO 19111:2019. Reference may be made to other register system codes as aliases within the ISO geodetic register.

[Annex A](#), which is normative, provides four tests for conformance to this document.

[Annex B](#), which is normative, provides tables that specify information for elements to be included in the ISO geodetic register.

[Annex C](#), which is informative, provides best practices for the ISO geodetic register content.

[Annex D](#), which is informative, provides the metadata for the ISO geodetic register.

[Annex E](#), which is informative, provides a summary of the conformance requirements that are found in the text body of this document.

Geographic information — Geodetic register

1 Scope

This document defines the structure, governance and management of the ISO Geodetic Register, in accordance with ISO/DIS 19135, and identifies the data elements applicable to geodetic referencing by coordinates, in accordance with ISO 19111:2019.

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 19111:2019, *Geographic information — Referencing by coordinates*

ISO 19127:2019, *Geographic information — Geodetic register*

ISO 19162:2019, *Geographic information — Well-known text representation of coordinate reference systems*

ISO 19115-1:2014, *Geographic information — Metadata — Part 1: Fundamentals*

ISO/DIS 19135, *Geographic information — Registration and register governance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19111:2019 and ISO/DIS 19135 apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Conformance

To conform to this document, the ISO geodetic register shall satisfy all of the conditions specified in [Annex A](#).

5 Conventions

This document uses URIs as identifiers as described in RFC 3986.

6 Audience and accessibility

The ISO Geodetic Register supports public users in uniquely identifying and using geodetic coordinate reference systems, coordinate operations and related data elements. The ISO Geodetic Register is a publicly-accessible, read-only register.

The ISO Geodetic Register is publicly-accessible via a publicly-available URI, which is published on the ISO/TC211's website at <https://committee.iso.org/sites/tc211/home/re.html>.

7 ISO Geodetic Register roles and responsibilities

7.1 General

The roles and responsibilities of the register owner, register manager, control body, register system manager, proposer and register user are set out in ISO/DIS 19135 Clause 10.

This document is compliant with ISO/DIS 19135 requirements class 39, /req/register-specification.

7.2 Register owner

The register owner is ISO/TC 211, as per the ISO/IEC Directives.

The register owner shall comply with ISO/DIS 19135 requirements class 27, /req/roles/register-owner, which requires that the register owner:

- document the governance procedures and requirements of the register in a register specification, which is this document.
- appoint a register manager, control body and register system manager.
- specify the criteria to qualify as a proposer.
- specify the register users eligible to access to the register.
- specify the process for a proposer to submit a proposal and the time limit in which the approval process shall be completed.
- define the process for a proposer to appeal decisions of the control body and specify the time limit in which the appeal process shall be completed.
- consider the needs of register users when selecting methods of access to and publication of the content of the register.
- specify the method of publication of the content of the register, in order to provide access to its intended audience.
- set the terms and conditions regarding different levels of access to the register.
- set rules and guidelines on what constitutes an addition or modification and define what kind of modification constitutes a substantive change.

7.3 Register manager

The register manager is responsible for content management of the register, and for liaising with the control body and the proposers.

The register manager shall comply with ISO/DIS 19135 requirements class 28, /req/roles/register-manager, which requires that the register manager:

- manage the register in accordance with the this document.
- be responsible for disseminating the information necessary for submitting proposals to eligible proposers.
- shall process proposals from proposers.

7.4 Control body

7.4.1 Control body responsibilities

The control body is responsible for vetting proposals that modify register content.

The control body shall comply with ISO/DIS 19135 requirements class 29, /req/roles/control-body, which requires that the control body:

- follow the rules and procedures specified in the **Register Owner's Operational Manual**.
- review proposals received from the register manager and render a decision regarding the approval of each proposal.

7.4.2 Control body membership

The control body for the ISO Geodetic Register shall consist of experts knowledgeable in geodetic reference systems.

The chair and vice-chair of the control body shall be nominated by the International Association of Geodesy (IAG) and approved by ISO/TC 211 resolution.

The members of the control body shall be nominated by P-members and liaison organizations. Nominations shall be sent to the ISO/TC 211 which shall review and appoint nominees to the control body.

Each P-member or liaison organization may nominate a primary expert and an alternate.

The control body members shall be appointed for a term of three years.

In rendering its decisions, the Control Body may consult with external advisors to address specific technical issues.

7.4.3 Approval of register content

The control body shall meet a minimum of twice a year and as required otherwise to approve ISO Geodetic Register content.

A quorum of five Control Body members representing P-members and liaison organizations is required to ratify decisions of the Control Body.

Control Body approval of content shall be made by consensus. In the event that consensus is not possible, decisions shall be made by majority vote.

Each P-member and liaison organization shall be eligible to cast one vote through their Control Body member(s).

7.4.4 Reporting

A summary report of Control Body activities shall be submitted to the Register Management Group (ISO/TC 211 Advisory Group 14) at its plenary meetings or as otherwise required.

7.5 Register system manager

The register system manager is responsible for the information system where the register is managed.

The register system manager shall comply with ISO/DIS 19135 requirements class 30, /req/roles/register-system-manager, which requires that the register system manager follow the rules and procedures specified in the **Register Owner's Operational Manual**.

7.6 Proposer

A proposer is responsible for making proposals to modify register content. Proposers for the ISO geodetic register consist of organizations and/or persons responsible for defining and maintaining geodetic parameters.

The proposer shall comply with ISO/DIS 19135 requirements class 31, /req/roles/proposer, which requires that the proposer meet the eligibility criteria and follow the rules and procedures specified in the **Register Owner's Operational Manual**.

7.7 Register user

The public is allowed to view and utilize the ISO Geodetic Register.

The register user shall comply with ISO/DIS 19135 requirements class 32, /req/roles/register-user, which requires that the register user follow the rules and procedures specified in the **Register Owner's Operational Manual**.

8 ISO Geodetic Register governance processes

8.1 Proposal process

The proposal process shall comply with ISO/DIS 19135 requirements class 34, /req/proposal-process, which requires that:

- The submitted proposal satisfies the requirements defined in the **Register Owner's Operational Manual**.
- The proposer shall submit the proposal to the register manager.
- The proposer shall clarify proposals to the control body, register manager or register owner when requested.
- The proposer shall have the option to withdraw a proposal at any time during the approval process.
- When a proposal is received, the register manager shall verify eligibility of the proposer in accordance with the defined eligibility criteria specified in the **Register Owner's Operational Manual**.
- The register manager shall reject proposals that do not meet the proposal requirements.
- The register manager shall forward eligible proposals to the control body for deliberations on acceptability.
- The register manager shall retain documentation on the submission of the proposal and the deliberations taken.

Proposers prepare and submit a proposal via the ISO Geodetic Register's online platform. The proposer may propose the:

- Addition of a new register item.
- Modification of an existing register item (modification of fields).
- Retirement of an existing register item

Addition: The proposer must complete all the mandatory fields, including contact information, as specified in the **Register Owner's Operational Manual**.

Modification: The proposer must indicate which register item fields to be modified, what the values are to be changed to, and the justification for modifying these fields, as specified in the **Register Owner's Operational Manual**.

Retirement: The proposer must indicate which register items should be retired, and the justification for such retirement, as specified in **the Register Owner's Operational Manual**.

When a new proposal is received, the register manager will perform a cursory validation check to determine whether the submission has been completed correctly. If the proposal is acceptable, the register manager will forward the proposal to the control body for consideration.

8.2 Approval process

8.2.1 General

The approval process shall be set out in the **Register Owner's Operational Manual** and shall comply with ISO/DIS 19135 requirements class 35, /req/approval-process, which requires that it:

- be completed within the time limit specified by the register owner in the **Register Owner's Operational Manual**.
- specify how the register manager determines the acceptability of proposals submitted by any proposer.
- specify how the register manager forwards eligible proposals to the control body for determination of acceptability.
- specify how the control body requests the proposer to revise a proposal if changes to the proposal are required for its acceptance.
- specify how the control body decides whether to accept or reject the proposal.
- specify how the control body issues the decision on the proposal within a time limit specified by the register owner.
- specify how the control body informs the register manager of a decision on each proposal, with information including, at a minimum, the rationale for the decision.
- specify how the register manager forwards the proposal decision by the control body, once the decision on a proposal is issued, with supplementary information provided by the control body to the proposer.
- specify how the register manager forwards the decision of the proposal to the proposer within the time limit specified by the register owner in the **Register Owner's Operational Manual**.
- specify how the register manager incorporates the proposal according to the approved proposal by the control body, if the decision of the control body is positive, with any required changes determined by the control body.

8.2.2 Addition

The control body shall consider the proposed new register item based on the information submitted by the proposer and the justification provided. In doing so, the control body shall:

- Confirm that the proposer is an authoritative source and is authorized to make the addition.
- Confirm that there are no duplicates in the register.
- Confirm that the data provided is accurate and complete.
- Assess the justification of the proposed new register item to determine its relevance.

8.2.3 Modification

The control body shall identify the register item and determine whether the modification request is required. In doing so, the control body shall:

- Confirm that the proposer is an authoritative source and is authorized to make the modification.

- Confirm that register item exists in the register.
- Confirm that the data provided is accurate and complete.
- Assess the justification for modifying the register item.
- Determine whether the modification constitutes a major or minor change.

8.2.4 Retirement

The control body shall identify the register item and determines whether the retirement request is required. In doing so, the control body shall:

- Confirm that the proposer is an authoritative source and is authorized to make the modification.
- Confirm that register item exists in the register.
- Confirm that the data provided is accurate and complete.
- Assess the justification for retiring the register item.

8.3 Appeal process

Should proposals be rejected, the proposers may lodge appeals.

The appeal process shall be set out in the **Register Owner's Operational Manual** and shall comply with ISO/DIS 19135 requirements class 36, /req/appeal-process, which requires that:

- the register manager inform the proposers of the eligibility and deadline for an appeal.
- the proposers shall follow the rules for appeal as defined in the **Register Owner's Operational Manual** when submitting their appeal.
- The proposer shall have the option to withdraw an appeal at any time during the appeal process.
- On receiving an appeal from the proposer, the register manager shall forward the appeal to the control body.
- On receiving an appeal from the register manager, the control body shall decide whether to accept or reject the appeal.
- The control body shall issue the decision on the proposal within the time limit specified in the in the **Register Owner's Operational Manual**.
- The control body shall inform the register manager of the appeal decision.
- The register manager shall forward the appeal decision by the control body to the proposer within the time limit specified in the **Register Owner's Operational Manual**.
- The register manager shall incorporate the appealed proposal if the control body has approved the appeal.
- The register manager shall retain documentation on the submission of the appeal and the deliberations taken.

8.4 Content management process

The content management process shall comply with ISO/DIS 19135 requirements class 37, /req/ content-management-process, which requires that the register manager implement an approved proposal:

- containing new content not previously represented in the register, by incorporating the content into the register with appropriately assigned identifiers.
- containing content that constitutes a substantive change, by incorporating the content into the register as a new major version of the content to be updated, with appropriately assigned identifiers.

- containing content that constitutes a non-substantive change, by incorporating the content into the register as a new minor version of the content to be updated, with appropriately assigned identifiers.
- to redact content in the register by performing a redaction on a register item.
- to change the status of a register item as needed.
- to create, modify or remove relationships between register items as needed.

8.5 Statuses and relationships

The Register item statuses and relationships shall comply with ISO/DIS 19135 requirements class 8, /req/register-item-statuses, which has requirement classes 9 (validity), 10 (publication), 11 (redaction) and 12 (suppression) as pre-requisites, which requires that:

- The validity of a register item be set to either valid or invalid.
- The validity status of a register item support specification with a time interval indicating the duration of applicability of the status.
- The publication status of a register item be set to either published or unpublished.
- The publication status of a register item support specification with a time interval indicating the duration of applicability of the status.
- A register item be marked as redacted when at least a part of its managed content is redacted.
- The date and time of redaction of a register item be documented.
- A register item be marked as a replacement of one or more register items through the supersession relationship.
- If a register item is superseded by another register item, record the date and time the succession occurred.

9 ISO Geodetic Register system content requirements

9.1 Identifiers

The identifiers shall comply with ISO/DIS 19135 requirements class 1, /req/identifiers, which requires that:

- The methods and structures used to construct identifiers used in the register be defined.
- An identifier within the register support specification of hierarchy.
- The meaning of identifiers in the register, used to identify components within a register, be defined and persist throughout the lifetime of the register.
- The register be assigned a globally-unique identifier.
- All identifiers used within the register shall be unique within the register.

9.2 Register item class data

The register item class data shall comply with ISO/DIS 19135 requirements class 3, /req/register-item-class-data, which requires that:

- Register items belonging to a register item class comply with the data definition described in the register item class.
- A register item class be assigned at least one persistent identifier unique within the register.

9.3 Register item class governance

The register item class governance shall comply with ISO/DIS 19135 requirements class 4, /req/register-item-class-governance, which requires that:

- Register item classes be individually managed, with changes approved through a defined governance process.
- Change history of each register item class be maintained.

9.4 Register item data

The register item data shall comply with ISO/DIS 19135 requirements class 6, /req/register-item-data, which requires that:

- A register item be assigned at least one persistent identifier unique within the register.
- A relationship between two or more register items be set with directionality.
- A register item relationship be specified with a time interval indicating the period of applicability.

9.5 Register item governance

The register item governance shall comply with ISO ISO/DIS 19135 requirements class 7, /req/register-item-governance, which requires that:

- Register items be individually managed, with changes to their metadata and content approved through a defined governance process set out in the **Register Owner's Operational Manual**.
- Register items have their change history maintained.
- Every action taken on a register item be maintained in change history, with a minimum of the following details retained:
 - originator of the change;
 - action taken;
 - date and time the action was taken;
 - content changes made; and
 - justification of the action.
- Register items be retained in the register to support the interpretation of data dependent on them.

10 ISO Geodetic Register content requirements

The content requirements of the register are set out in [Annex D](#).

The content shall abide by the following requirements:

- **Requirement 1:** The minimum level of information that the register manager shall accept from a proposer is complete data for a coordinate reference system that conforms to the requirements as specified in these content requirements. The register manager shall also accept data for compound coordinate reference systems, single coordinate operations and concatenated coordinate operations that conform to the requirements of ISO 19111:2019 and these content requirements.
- **Requirement 2:** The register manager shall assign individual registration identifiers for records for entities so that multiple records can point to them. Records for ISO Geodetic Register entities are interdependent. When a record for an entity is modified, dependent records shall be assessed and, if required, modified.

- **Requirement 3:** The ISO Geodetic Register shall use open standardization (refer to [Clause C.1](#)) for the units of measure of ellipsoids, coordinate conversion and coordinate transformation parameters.
- **Requirement 4:** The ISO Geodetic Register shall conform to the ISO 6709:2022^[1] conventions that geographic latitude is positive north of the equator and geographic longitude is positive east of Greenwich (refer to [C.4.1](#)).
- **Requirement 5:** Geographic coordinates and angles, which are natively in sexagesimal degree representation, shall be held in the ISO Geodetic Register such that the degree, minute and second values, and, if required, the hemisphere (negative for the southern hemisphere and positive for the northern hemisphere), are stored uniquely. The sexagesimal degree may be stored in a single field containing the concatenation of the hemisphere, the degree value, a period, the minute value (with leading zero if less than 10) and the second value (any precision with leading zero if less than 10), or as four separate fields for the hemisphere, the degree value, the minute value and the second value (refer to [Clause C.3](#)).
- **Requirement 6:** The ISO Geodetic Register shall conform to the International Association of Geodesy's convention for a geocentric Cartesian coordinate system, with origin at the centre of the Earth, that the Z axis is along the Earth's rotation axis through the north pole, X is in the plane of the equator and through the intersection of the prime meridian with the equator, and Y is in the plane of the equator forming a right-handed coordinate system (refer to [C.4.1](#)).
- **Requirement 7:** The ISO Geodetic Register shall apply a closed standard (refer to [Clause C.1](#)) for the presentation of coordinate system coordinates as follows (refer to [C.4.2](#)):
 - geocentric Cartesian coordinates: X, Y, Z;
 - geographical two-dimensional coordinates: latitude, longitude or longitude, latitude;
 - geographical three-dimensional coordinates: latitude, longitude, ellipsoidal height or longitude, latitude, ellipsoidal height.
- **Requirement 8:** The ISO Geodetic Register shall apply an open standard (refer to [Clause C.1](#)) for the positive direction of axes, and the order in which the axes are presented, in a projected coordinate reference system as part of the system definition (i.e. the positive direction of axes may be in any order of north/south and east/west) (refer to [C.4.1](#)).
- **Requirement 9:** The ISO Geodetic Register shall implement an open standard (refer to [Clause C.1](#)) for coordinate system linear units. Allowing native units for coordinate system linear units will avoid the danger of corruption of values caused by the misunderstanding of conversion factors.
- **Requirement 10:** The ISO Geodetic Register shall apply an open standard to the two rotation conventions, which are to apply the rotations to the point's vector or to apply the rotations to the coordinate frame, with the proviso that the applied algorithm is valid for that convention (refer to [C.5.1](#)).
- **Requirement 11:** The ISO Geodetic Register shall name and describe coordinate operation formulae clearly and unambiguously.
- **Requirement 12:** The ISO Geodetic Register shall include either coordinate operation formulae or a publicly available citation to coordinate operation formulae for each coordinate operation method, define the coordinate operation parameters that are used as variables in those formulae and have coordinate operation parameter values that are relevant to those formulae.
- **Requirement 13:** The ISO Geodetic Register shall describe whether a coordinate operation method may be used for the reverse operation and, when reversible, indicate whether the coordinate operation parameters are used in the reverse operation with the same or reversed sign (refer to [C.5.2](#)).
- **Requirement 14:** The ISO Geodetic Register shall record the direction of coordinate transformations, and related parameter values, as provided by the authoritative source/proposer. The recommended practice is to record the direction of a coordinate transformation between an earlier coordinate reference system and a later coordinate reference system from the older system (source) to the later system (target), subject to this direction not being indeterminate (refer to [C.8.11](#)).

- **Requirement 15:** The ISO Geodetic Register shall identify the unit for each parameter and include the conversion ratio required to change that unit to the ISO standard unit. Scalars shall include the conversion ratio required to change the scalar to unity (refer to [C.5.4](#)).
- **Requirement 16:** The ISO Geodetic Register shall record zoned map projections individually (refer to [C.5.5](#)).
- **Requirement 17:** The ISO Geodetic Register shall apply a closed standard by recording the semi-major axis radius (a) and the inverse of the flattening (1/f) as defining parameters for the ellipsoid. Where the inverse of the flattening (1/f) is derived from other parameters, it should be captured to a precision of not less than 10 significant digits (refer to [Clause C.6](#)).
- **Requirement 18:** The ISO Geodetic Register shall apply a naming format for coordinate systems as follows (refer to [C.8.3](#)):
 - *<CS type>. Axes:<axes description(s)>. Orientations:<orientation description(s)>. Uom: <unit of measure description(s)>*
- **Requirement 19:** The ISO Geodetic Register shall apply a naming format for geodetic and vertical coordinate reference systems as follows (refer to [C.8.5](#), [C.8.6](#) and [C.8.9](#)):
 - *<Geodetic CRS [abbreviated] name> - <coordinate system axes reference>*
 - *<Vertical CRS [abbreviated] name> - <coordinate system axis reference>*
- **Requirement 20:** The ISO Geodetic Register shall apply a naming format for projected coordinate reference systems as follows (refer to [C.8.8](#)):
 - *<Base geodetic CRS [abbreviated] name> / <projection coordinate operation [abbreviated] name> (<unit of measure if not the metre>) - <zone and ordered projected coordinate system axes references>*
- **Requirement 21:** The ISO Geodetic Register shall apply a naming format for compound coordinate reference systems as follows (refer to [C.8.10](#)):
 - *<Horizontal CRS [abbreviated] name> (<unit of measure if not the metre>) + <Vertical CRS [abbreviated] name> (<unit of measure if not the metre>)*
- **Requirement 22:** The ISO Geodetic Register shall apply a naming format for coordinate transformations as follows (refer to [C.8.11](#)):
 - *<Source CRS [abbreviated] name> to <Target CRS [abbreviated] name> [<transformation version name>]*
- **Requirement 23:** The ISO Geodetic Register shall have a unique name for each unit of measure, coordinate operation, ellipsoid, prime meridian, datum, coordinate system and coordinate reference system.
- **Requirement 24:** Information on the scope of a coordinate reference system and a coordinate operation and their elements is mandatory for acceptance in the register. Some coordinate reference systems have a legal status in their valid area; this status shall be included in the scope.
- **Requirement 25:** The geographic extent description and bounding box is mandatory for acceptance in the register.
- **Requirement 26:** The geographic extent shall comprise of a north up bounding box with the southern and western extents preceding the northern and eastern extents. The southern and northern extents shall be described as decimal degrees about the equator (± 90) that are positive in the northern hemisphere. The western and eastern extents shall be described as decimal degrees about the zero meridian (± 180) that are positive in the eastern hemisphere (refer to [C.7.2](#)).
- **Requirement 27:** The geographic area(s) where use of the coordinate reference system is accepted shall be logically consistent with the geographic area(s) where use of the datum is accepted and, if applicable, the geographic area where use of the map projection is accepted.

ISO/DIS 19127:2025(en)

- **Requirement 28:** Description of valid area(s) for a coordinate operation shall be logically consistent with the valid area(s) for the source coordinate reference system and the target coordinate reference system.
- **Requirement 29:** Information on datum type is mandatory for registration validation purposes.
- **Requirement 30:** The attributes of the submitting organization shall be accessible to register users.
- **Requirement 31:** The ISO Geodetic Register system shall export data using well-known text in accordance with ISO 19162:2019.