

DIN EN ISO 19111:2020-09 (E)

Geographic information - Referencing by coordinates (ISO 19111:2019); English
version EN ISO 19111:2020

Contents

Page

Foreword	v
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms, definitions, symbols and abbreviated terms	2
3.1 Terms and definitions	2
3.2 Symbols	11
3.3 Abbreviated terms	11
4 Conformance requirements	12
5 Conventions	13
5.1 Unified Modeling Language notation	13
5.2 Attribute status	13
6 Referencing by coordinates — Data model overview	14
7 Coordinates package	15
7.1 Relationship between coordinates and coordinate reference system	15
7.2 Coordinate reference system identification	16
7.3 Requirements for coordinate metadata	16
7.3.1 Requirements class: Static CRS coordinate metadata	16
7.3.2 Requirements class: Dynamic CRS coordinate metadata	17
7.4 UML schema for the Coordinates package	17
7.5 UML schema for change of coordinates	19
8 Common Classes package	21
8.1 General attributes	21
8.1.1 Introduction	21
8.1.2 Name and alias	21
8.1.3 Identifier	21
8.1.4 Scope and Domain of Validity	21
8.2 UML schema for the Common Classes package	22
9 Coordinate Reference Systems package	25
9.1 Coordinate reference system	25
9.1.1 General	25
9.1.2 Principal subtypes of coordinate reference system	25
9.2 Derived coordinate reference system	26
9.2.1 General	26
9.2.2 Projected coordinate reference system	26
9.3 Compound coordinate reference system	27
9.3.1 General	27
9.3.2 Spatial compound coordinate reference system	27
9.3.3 Spatio-temporal compound coordinate reference system	27
9.3.4 Spatio-parametric compound coordinate reference system	27
9.3.5 Spatio-parametric-temporal compound coordinate reference system	27
9.4 UML schema for the Coordinate Reference Systems package	27

10	Coordinate Systems package	36
10.1	Coordinate system — General.....	36
10.2	Parametric coordinate system.....	37
10.3	Temporal coordinate system.....	37
10.4	Coordinate system axis.....	38
10.5	UML schema for the Coordinate Systems package.....	38
11	Datums (reference frames) package	49
11.1	Types of datum and reference frame.....	49
11.2	Geodetic reference frame.....	49
11.2.1	Prime meridian.....	49
11.2.2	Ellipsoid.....	49
11.3	Dynamic reference frame.....	50
11.4	Datum ensemble.....	50
11.5	Temporal datum.....	50
11.6	UML schema for the Datums package.....	50
12	Coordinate Operations package	58
12.1	General characteristics of coordinate operations.....	58
12.2	UML schema for the Coordinate Operations package.....	59
	Annex A (normative) Abstract test suite	71
	Annex B (informative) Spatial referencing by coordinates — Geodetic concepts	76
	Annex C (informative) Spatial referencing by coordinates — Context for modelling	81
	Annex D (informative) Temporal referencing by coordinates — Context for modelling	95
	Annex E (informative) Examples	99
	Annex F (informative) Recommended best practice for interfacing to ISO 19111	137
	Annex G (informative) Backward compatibility with ISO 19111:2007	138
	Bibliography	143