

E DIN EN ISO 19157:2011-08 (E)

Erscheinungsdatum: 2011-08-22

Geographic information - Data quality (ISO/DIS 19157:2011); English version prEN ISO 19157:2011

Inhalt	Seite
Foreword	6
Introduction.....	7
1 Scope	8
2 Conformance	8
3 Normative references	8
4 Terms and definitions	9
5 Abbreviated terms	11
5.1 Abbreviations.....	11
5.2 Package abbreviations.....	11
6 Overview of data quality	12
7 Components of data quality	13
7.1 Overview of the components	13
7.2 Data quality unit.....	14
7.3 Data quality scope	15
7.4 Data quality elements.....	16
7.4.1 General	16
7.4.2 Completeness	17
7.4.3 Logical consistency	17
7.4.4 Positional accuracy	18
7.4.5 Thematic accuracy	18
7.4.6 Temporal quality	18
7.4.7 Usability element	18
7.5 Descriptors of data quality elements	19
7.5.1 General	19
7.5.2 Measure	19
7.5.3 Evaluation method	20
7.5.4 Result.....	20
7.6 Metaquality elements	22
7.7 Descriptors of a metaquality element	23
8 Data quality measures	24
8.1 General	24
8.2 Standardised data quality measures	24
8.3 User defined data quality measures	24
8.4 Catalogue of data quality measures	24
8.5 List of components	25
8.6 Component details	26
8.6.1 Measure identifier	26
8.6.2 Name	26
8.6.3 Alias	26
8.6.4 Element name	26
8.6.5 Basic measure	26
8.6.6 Definition	26
8.6.7 Description	26
8.6.8 Parameter	27
8.6.9 Value type.....	27
8.6.10 Value structure	27

8.6.11	Source reference.....	27
8.6.12	Example	27
9	Data quality evaluation.....	27
9.1	The process for evaluating data quality.....	27
9.1.1	Introduction	27
9.1.2	The process flow.....	27
9.1.3	Process steps.....	28
9.2	Data quality evaluation methods.....	29
9.2.1	Classification of data quality evaluation methods	29
9.2.2	Direct evaluation	30
9.2.3	Indirect evaluation	30
9.3	Aggregation and derivation	31
10	Data quality reporting.....	31
10.1	General.....	31
10.2	Particular cases	32
10.2.1	Reporting Aggregation (aggregated results).....	32
10.2.2	Reporting Derivation (derived results)	32
10.2.3	Reference to the original data quality result.....	33
Annex A	(normative) Abstract test suites.....	34
A.1	Test case identifier: Quality evaluation process	34
A.2	Test case identifier: Data quality metadata.....	34
A.3	Test case identifier: Metadata conformity.....	34
A.4	Test case identifier: Standalone quality report	35
A.5	Test case identifier: Data quality measures.....	35
Annex B	(informative) Data quality concepts and their use	36
B.1	Framework of data quality concepts	36
B.2	The structure of datasets and components for quality description.....	37
B.3	When to use quality evaluation procedures	38
B.4	Reporting quality information	39
B.4.1	Why report data quality	39
B.4.2	When to report quality information.....	39
B.4.3	How to report quality information	40
Annex C	(normative) Data dictionary for data quality.....	42
C.1	Data dictionary overview	42
C.1.1	Introduction	42
C.1.2	Name/role name	42
C.1.3	Definition	42
C.1.4	Obligation/Condition	42
C.1.5	Maximum occurrence.....	43
C.1.6	Data type.....	43
C.1.7	Domain.....	43
C.2	Quality package data dictionaries.....	44
C.2.1	Data quality information.....	44
C.2.2	Measures information	52
C.3	CodeLists and enumerations	56
C.3.1	Introduction	56
C.3.2	DQ_EvaluationMethodTypeCode <<CodeList>>	56
C.3.3	DQM_ValueStructure <<CodeList>>	56
Annex D	(normative) List of standardised data quality measures.....	57
D.1	Introduction	57
D.2	Completeness	57
D.2.1	Commission	57
D.2.2	Omission.....	60
D.3	Logical consistency	61
D.3.1	Conceptual consistency	61
D.3.2	Domain consistency.....	66
D.3.3	Format consistency.....	68
D.3.4	Topological consistency	69

D.4	Positional accuracy	76
D.4.1	Absolute or external accuracy	76
D.4.2	Gridded data position accuracy	99
D.5	Temporal quality	100
D.5.1	Accuracy of a time measurement	100
D.5.2	Temporal consistency	103
D.5.3	Temporal validity	103
D.6	Thematic accuracy	103
D.6.1	Classification correctness	103
D.6.2	Non-quantitative attribute correctness	108
D.6.3	Quantitative attribute accuracy	109
D.7	Aggregation Measures	112
Annex E	(informative) Evaluating and reporting data quality	115
E.1	Introduction	115
E.2	Dataset description	115
E.2.1	Data product specification	115
E.2.2	Representation of the real world, the universe of discourse and the dataset	116
E.3	Quality evaluation process	119
E.3.1	Specify data quality unit(s)	119
E.3.2	Specify data quality measures	119
E.3.3	Specify data quality evaluation procedures	119
E.3.4	Determine the output of the data quality evaluation (Result)	120
E.4	Reporting data quality	126
E.4.1	Reporting as metadata	126
E.4.2	Reporting in a standalone quality report	134
E.5	Additional examples	134
E.5.1	General	134
E.5.2	Reporting descriptive results as metadata	135
E.5.3	Reporting metaquality as metadata	135
E.5.4	How to report sampling procedure	137
Annex F	(informative) Sampling methods for evaluating	139
F.1	Introduction	139
F.2	Lot and item	139
F.3	Sample size	139
F.4	Sampling strategies	140
F.4.1	Introduction	140
F.4.2	Probabilistic versus judgemental sampling	141
F.4.3	Feature-guided versus area-guided sampling	141
F.5	Probability-based sampling	143
F.5.1	General considerations	143
F.5.2	Existing standard for inspection by sampling	143
F.5.3	Sampling process	146
Annex G	(normative) Data quality basic measures	147
G.1	Purpose of data quality basic measures	147
G.2	Counting-related data quality basic measures	147
G.3	Uncertainty-related data quality basic measures	148
G.3.1	General	148
G.3.2	One-dimensional random variable, Z	148
G.3.3	Two-dimensional random variable X and Y	150
G.3.4	Three-dimensional random variable X, Y, Z	151
Annex H	(informative) Management of data quality measures	152
H.1	Introduction	152
H.2	Storage of data quality measures	152
H.2.1	General	152
H.2.2	Catalogue of data quality measures	153
H.2.3	Register of data quality measures	153
Annex I	(informative) Guidelines for the use of Quality Elements	156
I.1	Overview	156

I.2	Data quality element categories.....	156
I.2.1	General.....	156
I.2.2	Ordering in data quality evaluation.....	156
I.3	The relationships between the data quality elements	158
I.3.1	General.....	158
I.3.2	Data quality elements related to missing attribute values	158
I.3.3	Relationships between the different aspects of accuracy	158
I.3.4	Dependency between completeness and accuracy.....	159
I.4	Data quality elements – example of use.....	160
I.4.1	Completeness	160
I.4.2	Logical consistency	160
I.4.3	Positional accuracy	162
I.4.4	Temporal quality	162
I.4.5	Thematic accuracy.....	163
I.5	Discussions on difficult cases	163
I.5.1	Relation between misclassification and completeness at feature type level.....	163
I.5.2	Quality elements related to unique identifiers.....	164
Annex J (informative)	Aggregation of data quality results	165
J.1	Introduction	165
J.2	100% pass/fail	165
J.3	Weighted pass/fail	165
J.4	Maximum/minimum value	166
	Bibliography	167