



Standard for tiers, classes, and orders of LINZ data

LINZS25006

21 September 2009

Table of contents

TERMS AND DEFINITIONS	3
FOREWORD	4
1 SCOPE.....	5
2 INTENDED USE OF STANDARD	5
3 TIERS.....	6
4 CLASSES	7
5 LANDONLINE ORDERS	8
APPENDIX A: LANDONLINE ORDER MAPPING	9

Tables

Table 1: LINZ tiers.....	6
Table 2: LINZ classes	7
Table 3: Landonline orders.....	8
Table 4: Landonline order mapping	9

Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

Term/abbreviation	Definition
class	a categorisation of a coordinate's local accuracy, as defined in <i>LINZS25005: Standard for the geospatial accuracy framework</i>
coordinate	any one of a set of numbers used in specifying the location of a point on a line, in space, or on a given plane or other surface. For example, latitudes and longitudes are coordinates of a point on the Earth's surface.
local accuracy	a value that represents the uncertainty of a coordinate relative to other nearby coordinates, as defined in <i>LINZS25005: Standard for the geospatial accuracy framework</i>
LINZ	Land Information New Zealand
network accuracy	a value that represents the uncertainty of a coordinate relative to a datum, as defined in <i>LINZS25005: Standard for the geospatial accuracy framework</i>
order	a combined categorisation of a coordinate's local and network accuracy, as specified in paragraph 5
tier	a categorisation of a coordinate's network accuracy, as defined in <i>LINZS25005: Standard for the geospatial accuracy framework</i>

Foreword

Purpose of standard

The purpose of this standard is to ensure that the geospatial accuracy framework is consistently applied across Land Information New Zealand (LINZ) cadastral survey and control system datasets.

Brief history of standard

This is a new standard.

References

The following document is necessary for the application of this standard:

LINZ 2009, *LINZS25005: Standard for the geospatial accuracy framework*, Office of the Surveyor-General, LINZ, Wellington

1 Scope

- (a) This standard defines the tiers and classes that must be used to classify the network and local accuracy of LINZ cadastral survey and control system data in accordance with *LINZS25005: Standard for the geospatial accuracy framework*.
- (b) This standard defines how classes and tiers must be combined into orders to enable *LINZS10003: Standard for integration and provision of cadastral survey data* and *LINZS25003: Standard for the New Zealand survey control system* to be implemented in Landonline.

2 Intended use of standard

- (a) This standard may be referenced by other LINZ standards for specifying coordinate accuracy criteria.
- (b) The accuracy classification of cadastral survey and control system data provided to, and supplied by, LINZ must comply with this standard.
- (c) Other users of spatial data may use this standard but may only claim conformance with the standard if they have used the parameters defined in it.

3 Tiers

- (a) The tier classifications defined in Table 1 must be used when classifying the **network accuracy** of LINZ cadastral survey and control system data.
- (b) The network accuracy of a coordinate must be assessed at the 95 % confidence level as defined in *LINZS25005: Standard for the geospatial accuracy framework*.
- (c) A coordinate may only be assigned to a tier if its network accuracy is numerically smaller than the corresponding tier accuracy as defined in Table 1.

Table 1: LINZ tiers

Tier	Accuracy (m)
A	0.05
B	0.10
C	0.15
D	0.20
E	0.25
F	0.35
G	0.50
H	1
J	2
K	5
M	10
N	20
P	50
R	100

4 Classes

- (a) The class classifications defined in Table 2 must be used when classifying the **local accuracy** of LINZ cadastral survey and control system data.
- (b) Coordinates must be assigned to a class in accordance with *LINZS25005: Standard for the geospatial accuracy framework*.

Table 2: LINZ classes

Class	Constant term (c) (m)	Distance dependent term (p) (m)
I	0.003	1×10^{-8}
II	0.003	3×10^{-8}
III	0.003	1×10^{-7}
IV	0.003	3×10^{-7}
V	0.003	1×10^{-6}
VI	0.01	3×10^{-6}
VII	0.01	1×10^{-5}
VIII	0.01	5×10^{-5}
IX	0.02	1×10^{-4}
X	0.03	1.5×10^{-4}
XI	0.06	1.5×10^{-4}
XII	0.30	6×10^{-4}
XIII	0.60	1×10^{-3}
XIV	1	3×10^{-3}
XV	3	1×10^{-2}
XVI	10	3×10^{-2}

5 Landonline orders

- (a) The order classifications defined in Table 3 must be used when classifying the accuracy of coordinates in Landonline.
- (b) A coordinate must only be assigned to an order if it achieves both the tier and class standards for that order, except as described in (c).
- (c) A coordinate may be assigned to order 5 without achieving the vertical tier and class standards set out in Table 3 if no height is associated with that coordinate.

Table 3: Landonline orders

Landonline order	Horizontal tier	Horizontal class	Vertical tier	Vertical class
0	A	II	A	II
1	A	III	B	IV
2	B	V	E	VI
3	B	VI	F	VII
4	C	VII	F	VIII
5	C	VIII	F	IX
6	C	X	-	-
7	D	XI	-	-
8	G	XII	-	-
9	K	XIV	-	-
10	N	XV	-	-
11	P	XVI	-	-
12 ^a	-	-	-	-
1V	-	-	E	VI
2V	-	-	F	VII
3V	-	-	F	IX
4V	-	-	G	X
5V	-	-	H	XII
6V ^b	-	-	-	-
<p>^a Order 12 includes all coordinates that do not achieve the order 11 requirements</p> <p>^b Order 6V includes all coordinates that do not achieve the order 5V requirements</p>				

Appendix A: Landonline order mapping

- (a) New Zealand’s cadastral and survey control data has been stored within the Landonline application since its release in 2000. Landonline classified coordinates into 13 orders according to their absolute accuracy, relative accuracy, and source.
- (b) This standard replaces the Landonline orders described above with those defined in paragraph 5. This standard also changes the way that coordinate quality is assessed. The previous Landonline orders are superseded by this standard.
- (c) Table 4 shows how coordinates were mapped from the previous Landonline orders to the orders defined in paragraph 5.

Table 4: Landonline order mapping

LINZS25006 Landonline order	Previous Landonline order	Order purpose
0	0	national reference frame
1	1	national deformation monitoring
2	2	regional deformation monitoring
3	3	-
4	4	local deformation monitoring
5	5	<ul style="list-style-type: none"> • cadastral horizontal control • basic geospatial network
6	6	cadastral permanent reference and witness marks
7	7(i)	class A boundary marks
8	7(ii) 7(iii)	class B boundary marks
9	8	class C boundary marks
10	9	-
11	-	-
12	10	-
1V	1V	national height network
2V	2V	-
3V	3V	cadastral vertical control
4V	4V	-
5V	5V	-
6V	6V	-