

ANNEX G

ELLIPSOID HEIGHT ORDER-AND-CLASS (OC) CODES

This annex contains ellipsoid height Order and Class (OC) codes. These two-digit codes are used to classify each ellipsoid height value observed and adjusted at horizontal control points.

The first character of the OC code indicates the order and the second character the class, in accordance with the following draft standards for classifying ellipsoid height determinations:

<u>OC Code</u>	<u>Classification</u>	<u>b = Maximum Height Difference Accuracy</u>
11	First Order, Class I	0.5
12	First Order, Class II	0.7
21	Second Order, Class I	1.0
22	Second Order, Class II	1.3
31	Third Order, Class I	2.0
32	Third Order, Class II	3.0
41	Fourth Order, Class I	6.0
42	Fourth Order, Class II	15.0
51	Fifth Order, Class I	30.0
52	Fifth Order, Class II	60.0

The ellipsoid height difference accuracy (**b**) is computed from a minimally constrained, correctly weighted, least squares adjustment by the formula:

$$b = s / \text{sqrt}(d)$$

where: **d** = horizontal distance in kilometers between control points.  
**s** = propagated standard deviation of ellipsoid height difference in millimeters between control points obtained from the least squares adjustment.

The following table lists the standard errors of ellipsoid height differences at various distances:

<u>Distance (km)</u>	<u>Standard Error (mm)</u>									
	<u>OC Code</u>									
	<u>11</u>	<u>12</u>	<u>21</u>	<u>22</u>	<u>31</u>	<u>32</u>	<u>41</u>	<u>42</u>	<u>51</u>	<u>52</u>
1	.5	.7	1.0	1.3	2	3	6	15	30	60
5	1.1	1.6	2.2	2.9	4.5	6.7	13	34	67	134
10	1.6	2.2	3.2	4.1	6.3	9.5	19	47	95	190
25	2.5	3.5	5.0	6.5	10	15	30	75	150	300
50	3.5	4.9	7.1	9.2	14	21	42	106	212	424
75	4.3	6.1	8.7	11	17	26	52	130	260	520
100	5.0	7.0	10	13	20	30	60	150	300	600

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