

Laboratory: Boya

Authority: Landgate

Description: Barcode Staff Calibration Range

Location: Victor Road, Darlington

Audit Test: Test 56:Boya

Audit Staff: 26296

Date: 17/11/2020

Audit Level: Leica-LS15-702272

Confidence Level: 95%

Comments: Barcode Staff Calibration Range

Interval	Height Diff (metres)	Uncertainty (mm)	Observation Count
1-2	0.09093	0.03	1
2-3	0.16400	0.03	1
3-4	0.14618	0.03	1
4-5	0.21298	0.03	1
5-6	0.18609	0.03	1
6-7	0.19971	0.03	1
7-8	0.20499	0.02	2
8-9	0.24692	0.02	2
9-10	0.26760	0.02	2
10-11	0.33312	0.02	2
11-12	0.26385	0.02	2
12-13	0.12587	0.02	2
13-14	0.12978	0.02	2
14-15	0.22846	0.02	2
15-16	0.18240	0.03	1
16-17	0.15187	0.03	1
17-18	0.15327	0.03	1
18-19	0.15711	0.04	1
19-20	0.14867	0.04	1
20-21	0.20965	0.04	1

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Pin	Height
1	100.00000
2	99.90907
3	99.74507
4	99.59889
5	99.38591
6	99.19982
7	99.00011
8	98.79511
9	98.54820
10	98.28060
11	97.94748
12	97.68363
13	97.55776
14	97.42798
15	97.19952
16	97.01712
17	96.86525
18	96.71198
19	96.55487
20	96.40620
21	96.19655

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Interval	Adjusted Height Diff (metres)	Observed Height Diff (metres)	Residual (metres)	Std Deviation Observation (mm)	Std Deviation Residual (mm)	Std Residual
1- 2	0. 09093	0. 09093	0. 00000	0. 01	0. 00	0. 0
2- 3	0. 16400	0. 16400	0. 00000	0. 01	0. 00	0. 0
3- 4	0. 14618	0. 14618	0. 00000	0. 01	0. 00	0. 0
4- 5	0. 21298	0. 21298	0. 00000	0. 01	0. 00	0. 0
5- 6	0. 18609	0. 18609	0. 00000	0. 01	0. 00	0. 0
6- 7	0. 19971	0. 19971	0. 00000	0. 01	0. 00	0. 0
7- 8	0. 20499	0. 20500	- 0. 00001	0. 01	0. 01	- 1. 0
7- 8	0. 20499	0. 20498	0. 00001	0. 01	0. 01	1. 0
8- 9	0. 24692	0. 24693	- 0. 00001	0. 01	0. 01	- 1. 5
8- 9	0. 24692	0. 24690	0. 00001	0. 01	0. 01	1. 5
9- 10	0. 26760	0. 26759	0. 00001	0. 01	0. 01	1. 0
9- 10	0. 26760	0. 26761	- 0. 00001	0. 01	0. 01	- 1. 0
10- 11	0. 33312	0. 33312	0. 00000	0. 01	0. 01	0. 0
10- 11	0. 33312	0. 33312	0. 00000	0. 01	0. 01	0. 0
11- 12	0. 26385	0. 26385	0. 00000	0. 01	0. 01	0. 0
11- 12	0. 26385	0. 26385	0. 00000	0. 01	0. 01	0. 0
12- 13	0. 12587	0. 12588	- 0. 00001	0. 01	0. 01	- 1. 5
12- 13	0. 12587	0. 12585	0. 00001	0. 01	0. 01	1. 5
13- 14	0. 12978	0. 12978	0. 00000	0. 01	0. 01	0. 0
13- 14	0. 12978	0. 12978	0. 00000	0. 01	0. 01	0. 0
14- 15	0. 22846	0. 22843	0. 00003	0. 01	0. 01	2. 5
14- 15	0. 22846	0. 22848	- 0. 00003	0. 01	0. 01	- 2. 5
15- 16	0. 18240	0. 18240	0. 00000	0. 01	0. 00	0. 0
16- 17	0. 15187	0. 15187	0. 00000	0. 01	0. 00	0. 0
17- 18	0. 15327	0. 15327	0. 00000	0. 01	0. 00	0. 0
18- 19	0. 15711	0. 15711	0. 00000	0. 02	0. 00	0. 0

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Interval	Adjusted Height Diff (metres)	Observed Height Diff (metres)	Residual (metres)	Std Deviation Observation (mm)	Std Deviation Residual (mm)	Std Residual
19- 20	0. 14867	0. 14867	0. 00000	0. 02	0. 00	0. 0
20- 21	0. 20965	0. 20965	0. 00000	0. 02	0. 00	0. 0

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## Comparison between Staff Calibration Range Audits

	Test 56:Boya	Test 55:Boya	Test 54:Boya	Test 53:Boya	Test 52:Boya	Test 51:Boya	Test 50:Boya	Test 49:Boya
Pins	17/11/2020	17/09/2020	19/08/2020	13/07/2020	1/07/2020	15/06/2020	8/06/2020	12/05/2020
1 - 2	0. 09093	0. 09081	0. 09079	0. 09087	0. 09089	0. 09082	0. 09072	0. 09081
2 - 3	0. 16400	0. 16401	0. 16406	0. 16403	0. 16403	0. 16402	0. 16405	0. 16404
3 - 4	0. 14618	0. 14617	0. 14607	0. 14614	0. 14616	0. 14617	0. 14617	0. 14618
4 - 5	0. 21298	0. 21303	0. 21310	0. 21303	0. 21303	0. 21297	0. 21302	0. 21302
5 - 6	0. 18609	0. 18606	0. 18606	0. 18609	0. 18600	0. 18608	0. 18606	0. 18606
6 - 7	0. 19971	0. 19973	0. 19969	0. 19969	0. 19972	0. 19974	0. 19977	0. 19976
7 - 8	0. 20499	0. 20499	0. 20496	0. 20501	0. 20498	0. 20499	0. 20492	0. 20496
8 - 9	0. 24692	0. 24687	0. 24682	0. 24689	0. 24686	0. 24687	0. 24692	0. 24691
9 - 10	0. 26760	0. 26762	0. 26765	0. 26761	0. 26764	0. 26761	0. 26765	0. 26763
10 - 11	0. 33312	0. 33305	0. 33301	0. 33307	0. 33308	0. 33309	0. 33305	0. 33305
11 - 12	0. 26385	0. 26385	0. 26389	0. 26383	0. 26381	0. 26382	0. 26382	0. 26384
12 - 13	0. 12587	0. 12587	0. 12588	0. 12587	0. 12587	0. 12590	0. 12587	0. 12584
13 - 14	0. 12978	0. 12978	0. 12970	0. 12976	0. 12977	0. 12975	0. 12968	0. 12976
14 - 15	0. 22846	0. 22844	0. 22844	0. 22841	0. 22839	0. 22843	0. 22853	0. 22852
15 - 16	0. 18240	0. 18240	0. 18237	0. 18238	0. 18237	0. 18239	0. 18234	0. 18241
16 - 17	0. 15187	0. 15185	0. 15184	0. 15186	0. 15181	0. 15183	0. 15187	0. 15178
17 - 18	0. 15327	0. 15323	0. 15325	0. 15321	0. 15322	0. 15320	0. 15317	0. 15329
18 - 19	0. 15711	0. 15712	0. 15706	0. 15709	0. 15708	0. 15713	0. 15712	0. 15708
19 - 20	0. 14867	0. 14860	0. 14860	0. 14862	0. 14862	0. 14863	0. 14865	0. 14866
20 - 21	0. 20965	0. 20963	0. 20961	0. 20955	0. 20960	0. 20958	0. 20956	0. 20960

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## Comparison between Staff Calibration Range Audits

	Merge 8:Boya	Merge 7:Boya	Merge 6:Boya	Merge 5:Boya	Merge 4:Boya	Merge 3:Boya	Merge 2:Boya	Merge 1:Boya
Pins	13/11/2017	20/02/2015	6/06/2013	21/02/2011	28/01/2009	25/07/2007	26/06/2002	21/04/2002
1 - 2	0. 09083	0. 09086	0. 09086	0. 09088	0. 09092	0. 09088	0. 09082	0. 09100
2 - 3	0. 16399	0. 16404	0. 16404	0. 16398	0. 16400	0. 16403	0. 16407	0. 16402
3 - 4	0. 14587	0. 14579	0. 14601	0. 14609	0. 14599	0. 14600	0. 14599	0. 14587
4 - 5	0. 21322	0. 21327	0. 21309	0. 21311	0. 21337	0. 21332	0. 21332	0. 21358
5 - 6	0. 18616	0. 18623	0. 18612	0. 18607	0. 18596	0. 18590	0. 18589	0. 18584
6 - 7	0. 19971	0. 19974	0. 19971	0. 19973	0. 19978	0. 19969	0. 19971	0. 19976
7 - 8	0. 20496	0. 20496	0. 20500	0. 20504	0. 20503	0. 20501	0. 20499	0. 20501
8 - 9	0. 24689	0. 24695	0. 24694	0. 24690	0. 24689	0. 24686	0. 24686	0. 24689
9 - 10	0. 26759	0. 26765	0. 26759	0. 26763	0. 26760	0. 26721	0. 26721	0. 26721
10 - 11	0. 33308	0. 33305	0. 33308	0. 33313	0. 33310	0. 33344	0. 33347	0. 33353
11 - 12	0. 26380	0. 26384	0. 26384	0. 26382	0. 26386	0. 26381	0. 26384	0. 26387
12 - 13	0. 12569	0. 12550	0. 12543	0. 12546	0. 12535	0. 12530	0. 12502	0. 12500
13 - 14	0. 12948	0. 12969	0. 12965	0. 12969	0. 12976	0. 12978	0. 13003	0. 13009
14 - 15	0. 22898	0. 22912	0. 22900	0. 22903	0. 22897	0. 22889	0. 22894	0. 22904
15 - 16	0. 18224	0. 18215	0. 18223	0. 18220	0. 18235	0. 18229	0. 18220	0. 18196
16 - 17	0. 15197	0. 15207	0. 15193	0. 15204	0. 15205	0. 15199	0. 15208	0. 15237
17 - 18	0. 15231	0. 15239	0. 15230	0. 15236	0. 15238	0. 15230	0. 15228	0. 15235
18 - 19	0. 15809	0. 15812	0. 15811	0. 15807	0. 15817	0. 15807	0. 15806	0. 15814
19 - 20	0. 14868	0. 14868	0. 14863	0. 14880	0. 14869	0. 14863	0. 14865	0. 14867
20 - 21	0. 20963	0. 20968	0. 20958	0. 20967	0. 20967	0. 20955	0. 20956	0. 20971