



428A Boston Street ♦ Topsfield, Massachusetts 01983 ♦ Tel: 978-887-5781 ♦ Fax: 978-887-5782 ♦ www.EastCoastMetrology.com

Calibration Certificate

Customer: Boxboro Systems LLC, 369 Sargent Road, Boxboro, MA 01719

P.O. Number: 071115

Certificate Date: July 20, 2015

Date Due: July 20, 2016

ECM W.O Number: 11585

Model: DTMS #47

Serial Number: N/A

Certificate Number: 47-07202015

Reference Standards, NIST, NPL Traceability

Faro Laser Tracker Model: X Serial Number: 2088 Due Date: 04/07/2016

Reference Standard Uncertainty: +/-0.03mm

Certification Conditions

Temperature: 70 deg F Relative Humidity: 37.5% Barometer: 29.8 inHg

Certification Results Summary

Tool Condition as Received

Calibration Certification Required

Tool Condition Ongoing

Calibration Certified

DTMS Accuracy Results (Std Dev)					
Segments	dY	dZ	dRx	dRy	dRz
Half	0.03	0.06	0.034		
1	0.20	0.12	0.024	0.003	0.012
2	0.84	0.40	0.039	0.041	0.017
3	0.86	0.57	0.013	0.008	0.048
4	1.33	1.69	0.047	0.032	0.037
5	1.40	1.04	0.073	0.042	0.049

Table 1: (Units are reported in mm and degrees)

This certification shall not be reproduced without the permission of East Coast Metrology, LLC. The results of this certification relate only to the items calibrated or tested. East Coast Metrology is a registered ISO 9001:2008 & ISO/IEC 17025:2005 company. The above listed equipment's calibration was certified using standards traceable to the National Institute of Standards and Technology.

Calibrated by: Eric Rosenberg
Authorized by: Gary Confalone
Date: July 20, 2015



Calibration Certificate

Customer: Boxboro Systems LLC, 369 Sargent Road, Boxboro, MA 01719

P.O. Number: 071115

Certificate Date: July 20, 2015

Date Due: July 20, 2016

ECM W.O Number: 11585

Model: DTMS 47

Serial Number: N/A

Certificate Number: 47-07202015

1 Segement					
Trial	dY	dZ	dRx	dRy	dRz
1	0.00	0.04	-0.004	-0.006	-0.004
2	0.31	0.03	0.039	-0.007	0.021
3	0.17	0.26	0.009	-0.007	0.005
4	0.09	0.22	0.010	-0.004	-0.009
5	-0.23	0.26	-0.027	0.001	-0.004
Std Dev	0.20	0.12	0.024	0.003	0.012
Max (Abs)	0.31	0.26	0.007	0.021	0.007
2 Segment					
Trial	dY	dZ	dRx	dRy	dRz
1	0.29	0.37	0.034	-0.019	0.013
2	1.10	0.73	0.088	0.061	0.021
3	0.86	-0.28	0.006	-0.004	0.023
4	0.14	-0.05	0.034	0.007	0.002
5	-1.05	0.02	-0.016	-0.053	-0.020
Std Dev	0.84	0.40	0.039	0.041	0.017
Max (Abs)	1.10	0.73	0.088	0.061	0.023
3 Segment					
Trial	dY	dZ	dRx	dRy	dRz
1	-0.02	-0.06	0.067	-0.012	0.005
2	1.13	0.62	0.093	-0.003	0.014
3	1.68	-0.64	0.065	-0.006	0.028
4	-0.05	-0.50	0.076	0.008	-0.078
Std Dev	0.86	0.57	0.013	0.008	0.048
Max (Abs)	1.68	0.64	0.093	0.012	0.078

Table 2: (Units are reported in mm and degrees)

This certification shall not be reproduced without the permission of East Coast Metrology, LLC. The results of this certification relate only to the items calibrated or tested. East Coast Metrology is a registered ISO 9001:2008 & ISO/IEC 17025:2005 company. The above listed equipment's calibration was certified using standards traceable to the National Institute of Standards and Technology.

Calibrated by: Eric Rosenberg
Authorized by: Gary Confalone
Date: July 20, 2015



Calibration Certificate

Customer: *Boxboro Systems LLC, 369 Sargent Road, Boxboro, MA 01719*

P.O. Number: 071115

Certificate Date: July 20, 2015

Date Due: July 20, 2016

ECM W.O Number: 11585

Model: DTMS 47

Serial Number: N/A

Certificate Number: 47-07202015

4 Segment					
Trial	dY	dZ	dRx	dRy	dRz
1	0.34	0.23	0.038	-0.002	-0.023
2	2.18	1.80	0.050	0.043	-0.019
3	3.06	0.28	0.114	0.020	0.002
4	0.35	-0.21	-0.013	0.005	0.067
5	0.09	-2.84	0.020	-0.044	-0.012
Std Dev	1.33	1.69	0.047	0.032	0.037
Max (Abs)	3.06	2.84	0.114	0.044	0.067
5 Segment					
Trial	dY	dZ	dRx	dRy	dRz
1	0.36	-1.48	0.087	0.007	0.024
2	1.73	-0.68	0.178	-0.003	0.047
3	3.43	-2.77	-0.010	-0.032	0.111
4	1.05	-1.18	0.048	0.069	0.016
5	-0.19	-3.10	0.020	-0.037	-0.020
Std Dev	1.40	1.04	0.073	0.042	0.049
Max (Abs)	3.43	2.77	0.178	0.069	0.111

Table 2 (continued): (Units are reported in mm and degrees)

This certification shall not be reproduced without the permission of East Coast Metrology, LLC. The results of this certification relate only to the items calibrated or tested. East Coast Metrology is a registered ISO 9001:2008 & ISO/IEC 17025:2005 company. The above listed equipment's calibration was certified using standards traceable to the National Institute of Standards and Technology.

Calibrated by: Eric Rosenberg
Authorized by: Gary Confalone
Date: July 20, 2015



428A Boston Street ♦ Topsfield, Massachusetts 01983 ♦ Tel: 978-887-5781 ♦ Fax: 978-887-5782 ♦ www.EastCoastMetrology.com

Calibration Certificate

Customer: Boxboro Systems LLC, 369 Sargent Road, Boxboro, MA 01719

P.O. Number: 071115

Certificate Date: July 20, 2015

Date Due: July 20, 2016

ECM W.O Number: 11585

Model: DTMS 47

Serial Number: N/A

Certificate Number: 47-07202015

Half Segment Test Results			
Trial	dY	dZ	dRx
1	0.03	0.03	0.000
2	0.01	0.00	0.081
3	0.01	0.00	0.017
4	0.03	0.00	-0.005
5	0.02	0.03	0.044
6	0.02	-0.02	-0.019
7	0.07	0.12	0.040
8	0.04	0.05	0.042
9	0.05	0.18	-0.034
10	-0.03	0.10	0.007
Std Dev	0.03	0.06	0.034
Max (Abs)	0.07	0.18	0.081

Table 3: (Units are reported in mm and degrees)

This certification shall not be reproduced without the permission of East Coast Metrology, LLC. The results of this certification relate only to the items calibrated or tested. East Coast Metrology is a registered ISO 9001:2008 & ISO/IEC 17025:2005 company. The above listed equipment's calibration was certified using standards traceable to the National Institute of Standards and Technology.

Calibrated by: Eric Rosenberg
Authorized by: Gary Confalone
Date: July 20, 2015