



Test Monitoring Center

@ Carnegie Mellon University
6555 Penn Avenue, Pittsburgh, PA 15206, USA

<http://astmtmc.cmu.edu>
412-365-1000

MEMORANDUM: 20-015
DATE: May 12, 2020
TO: Rob Slocum, Chairman, L-37 Surveillance Panel
FROM: Dylan Beck *Dylan Beck*
SUBJECT: L-37 Rater Calibration from October 1, 2019 through March 31, 2020

Attached is a summary of L-37 rater calibration activity this period.

DJB/djb/mem20-015.djb.doc

cc: Frank Farber
Jeff Clark

L-37 Surveillance Panel

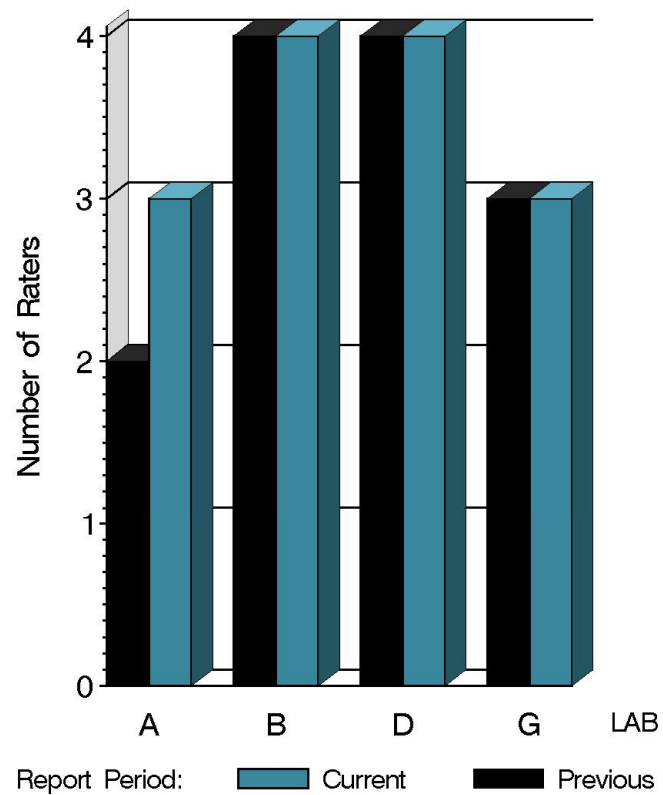
<http://www.astmtmc.cmu.edu/ftp/docs/gear/l37rc/semiannualreports/l37rc-04-2020.pdf>

Distribution: email

L-37 Rater Calibration

	Reporting Data	Calibrated on 3-31-20
Number of Labs	4	4
Number of Raters	14	14

BY-LAB RATER
DISTRIBUTION



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L-37 Rater Calibration

Test Distribution by Validity

		Totals	
		Last Period	This Period
Accepted for calibration	AC	16	16
Rejected (Mild)	OC	0	4
Rejected (Severe)	OC	7	4
Rejected (Multiple)	OC	2	2
Rejected (Precision)	OC	0	0
Workshop data	AG	9	10
Total		30	36

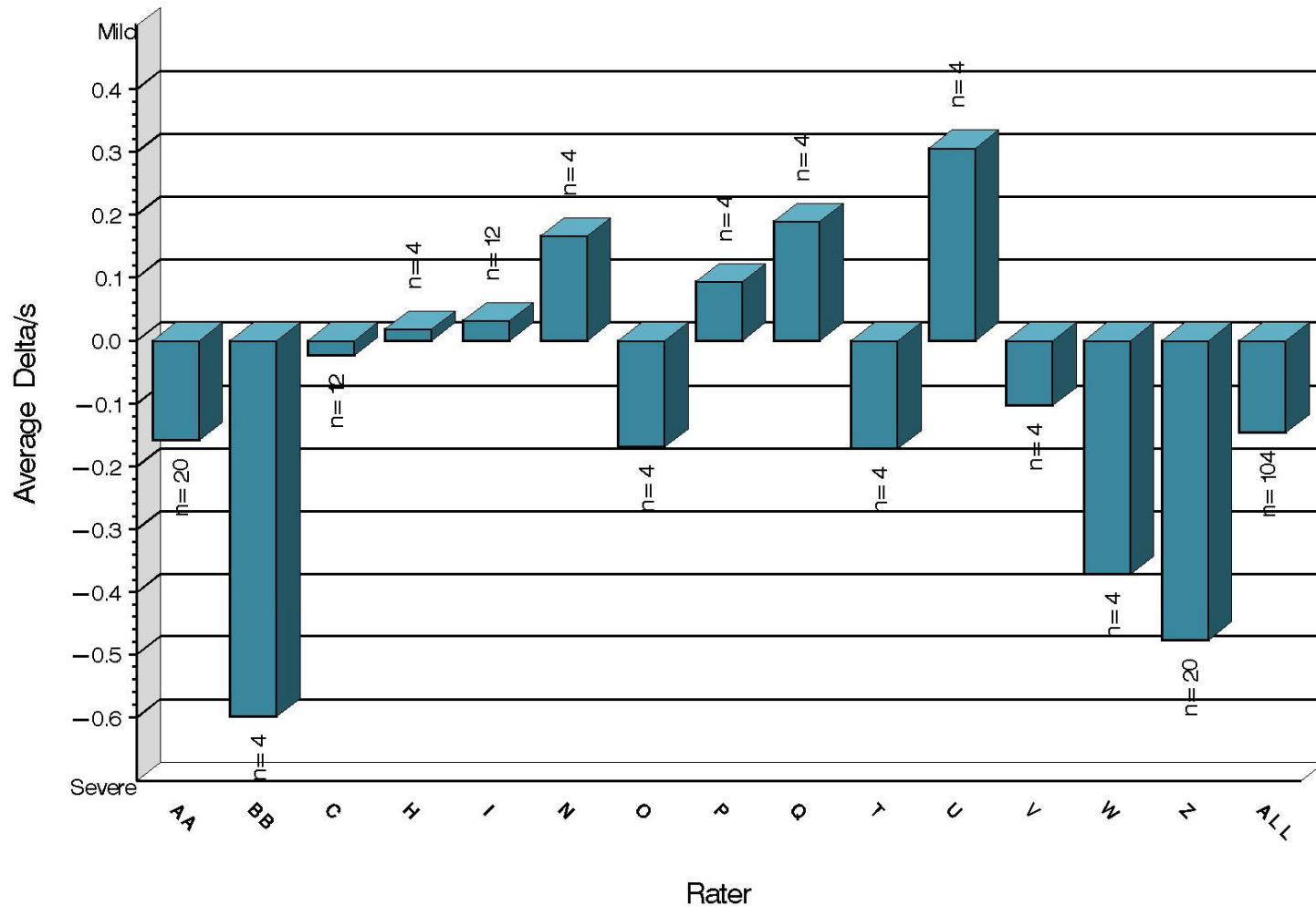
L-37 Rater Calibration

Rater	N	RIDG		RIPP		SPIT		WEAR	
		Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*
AA	20	-0.159	1.235	0.159	1.083	-0.016	0.616	-0.104	1.499
BB	4	-0.599	0.661	-0.648	1.943	0.177	0.657	-0.014	0.515
C	12	-0.024	0.936	0.081	1.490	-0.193	1.176	-0.392	0.780
H	4	0.018	0.418	-0.102	0.550	-0.065	0.347	0.384	0.303
I	12	0.031	0.839	-0.218	1.366	-0.211	0.819	0.089	2.155
N	4	0.166	0.439	-0.207	0.440	-0.142	0.165	-0.210	0.498
O	4	-0.169	0.910	0.149	0.782	0.164	0.470	-0.894	0.443
P	4	0.094	0.491	-0.201	0.765	-0.095	0.442	0.008	0.376
Q	4	0.189	0.576	-0.074	-0.678	-0.298	0.591	-0.117	1.265
T	4	-0.171	0.625	0.300	0.455	0.126	0.434	0.445	0.519
U	4	0.306	0.782	0.166	0.527	0.213	0.525	0.165	0.984
V	4	-0.103	0.661	0.002	0.469	0.036	0.072	-0.084	0.485
W	4	-0.371	0.646	-0.683	0.608	-0.265	0.306	-0.764	0.813
Z	20	-0.477	0.575	-0.238	1.564	0.031	0.355	-0.336	1.221
ALL	104	-0.146	0.828	-0.081	1.169	-0.050	0.623	-0.161	1.214

* Due to the small number of ratings per pinion, the standard deviation of the Yi values is given in place of a pooled standard deviation.

L-37 Rater Calibration

RIDGING
Severity as Measured by Delta/s

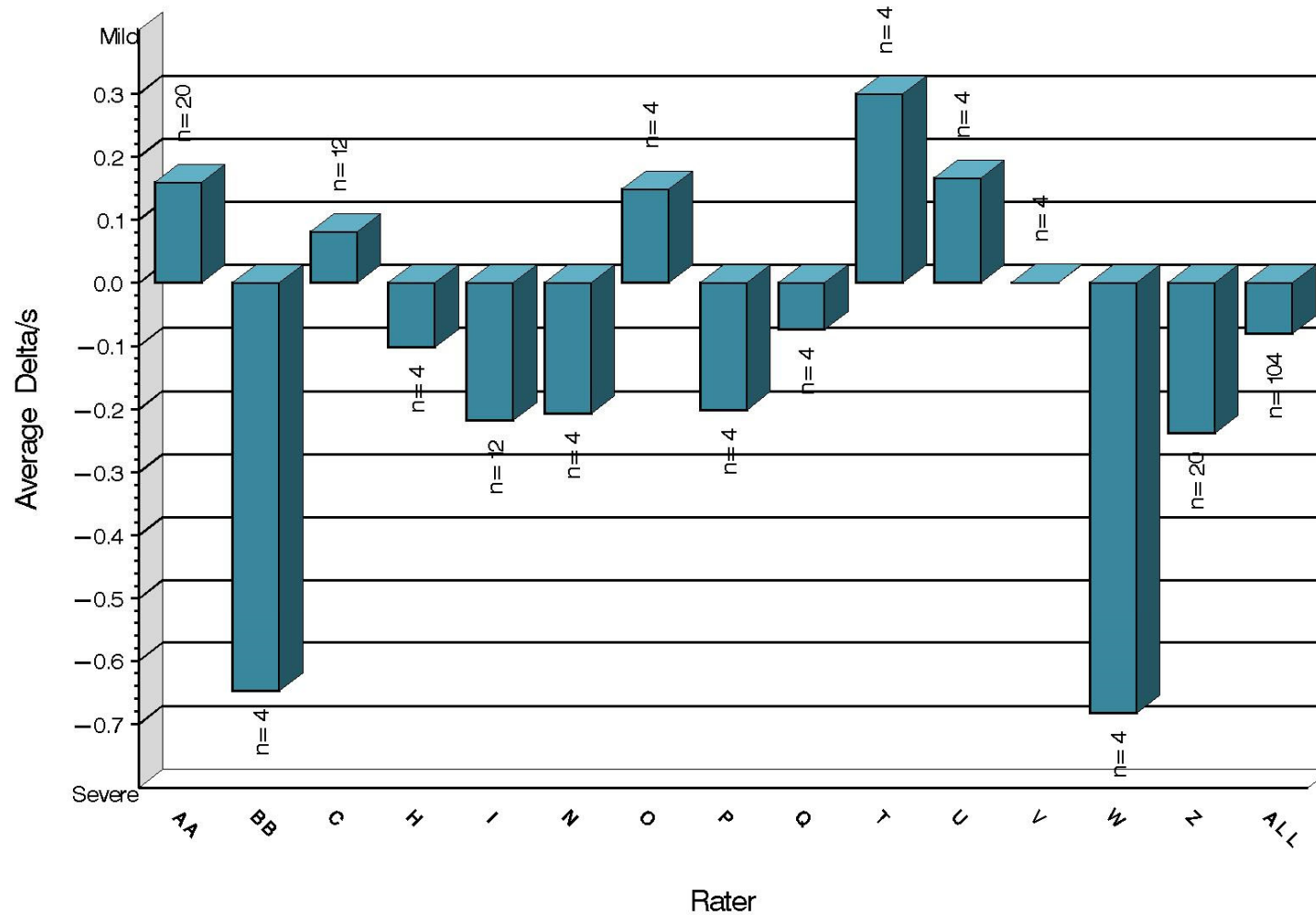


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L-37 Rater Calibration

RIPPLING

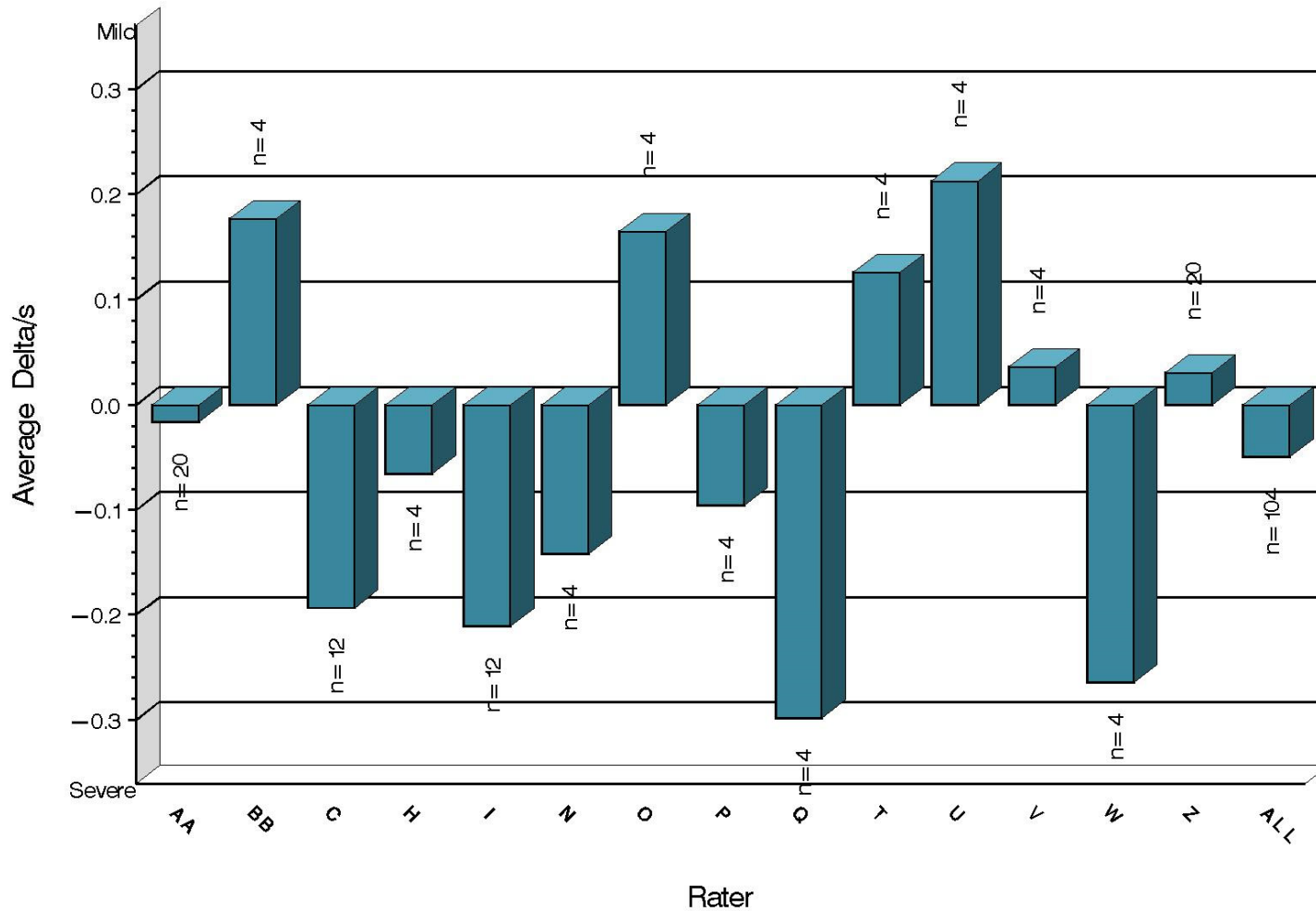
Severity as Measured by Delta/s



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L-37 Rater Calibration

SPITTING
Severity as Measured by Delta/s

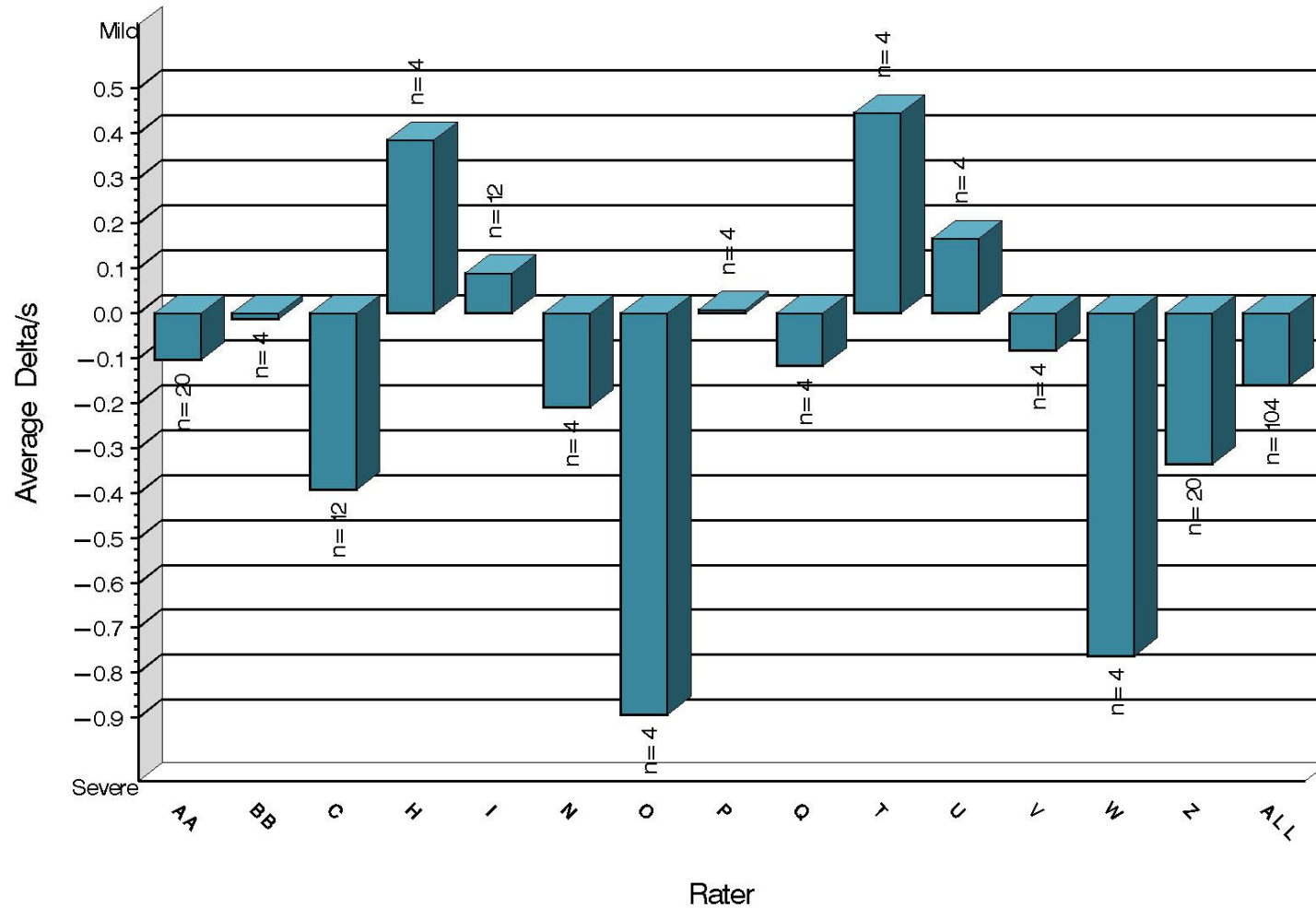


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L-37 Rater Calibration

WEAR

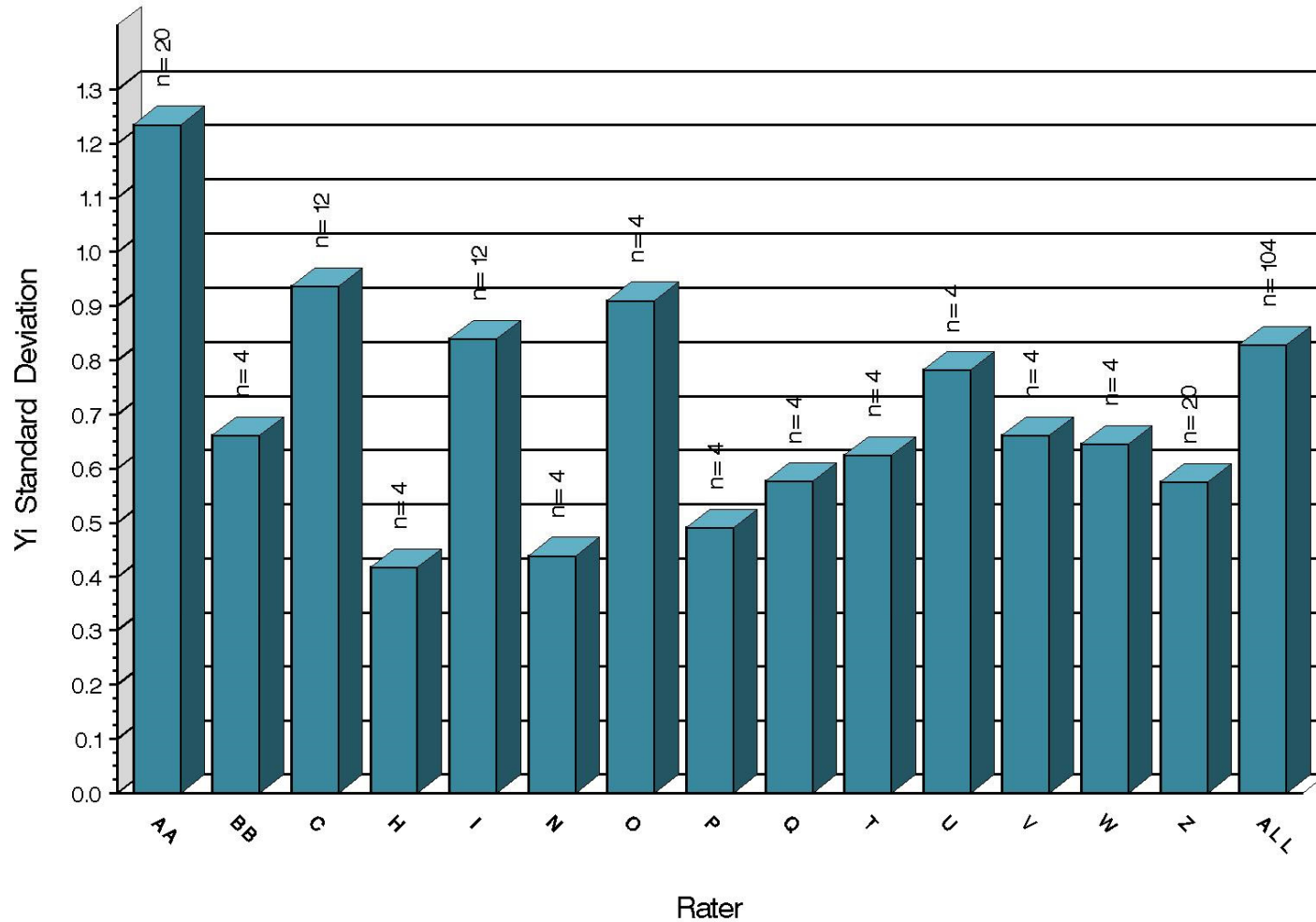
Severity as Measured by Delta/s



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L-37 Rater Calibration

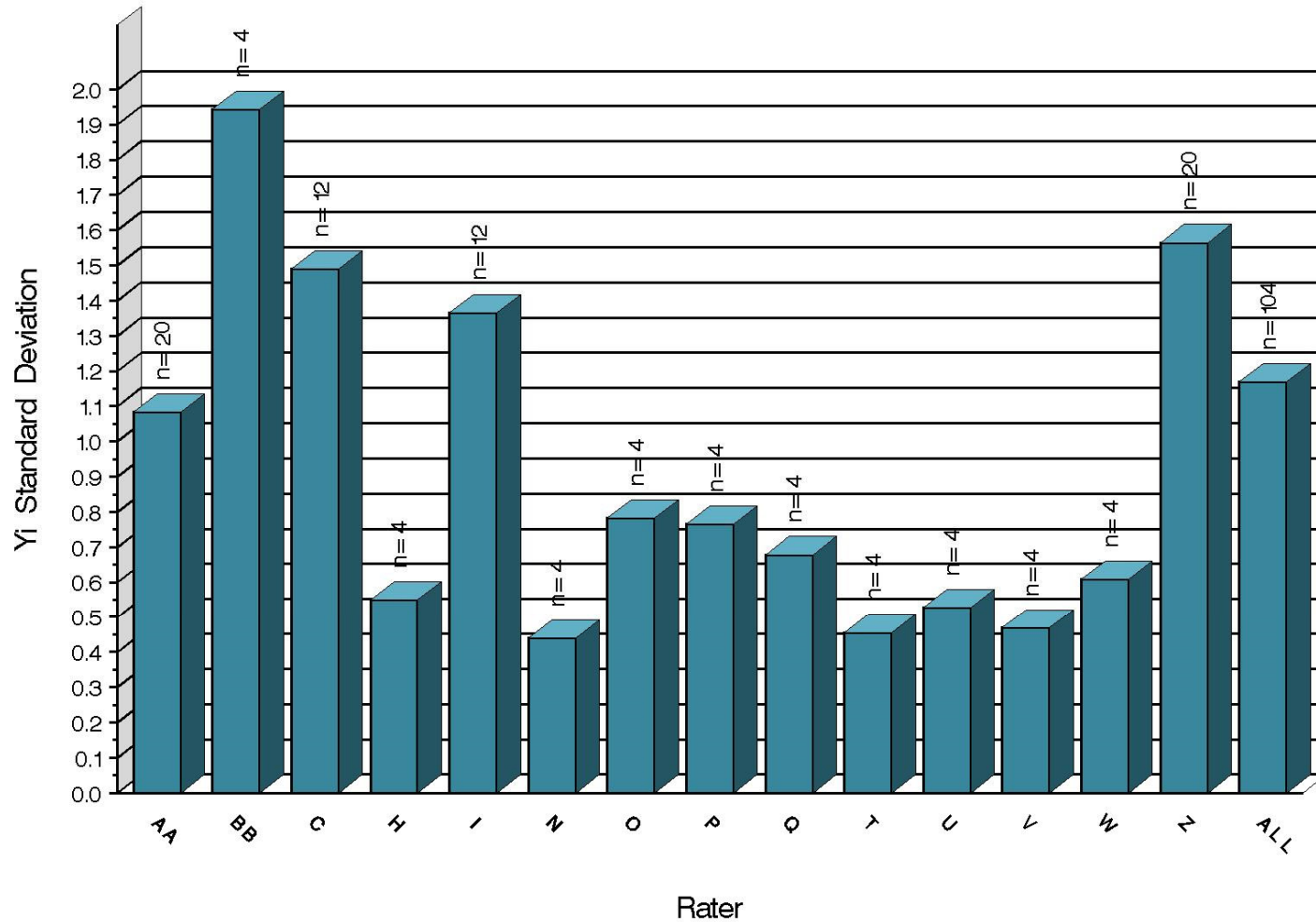
RIDGING
Precision as Measured by Y1 STD



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L-37 Rater Calibration

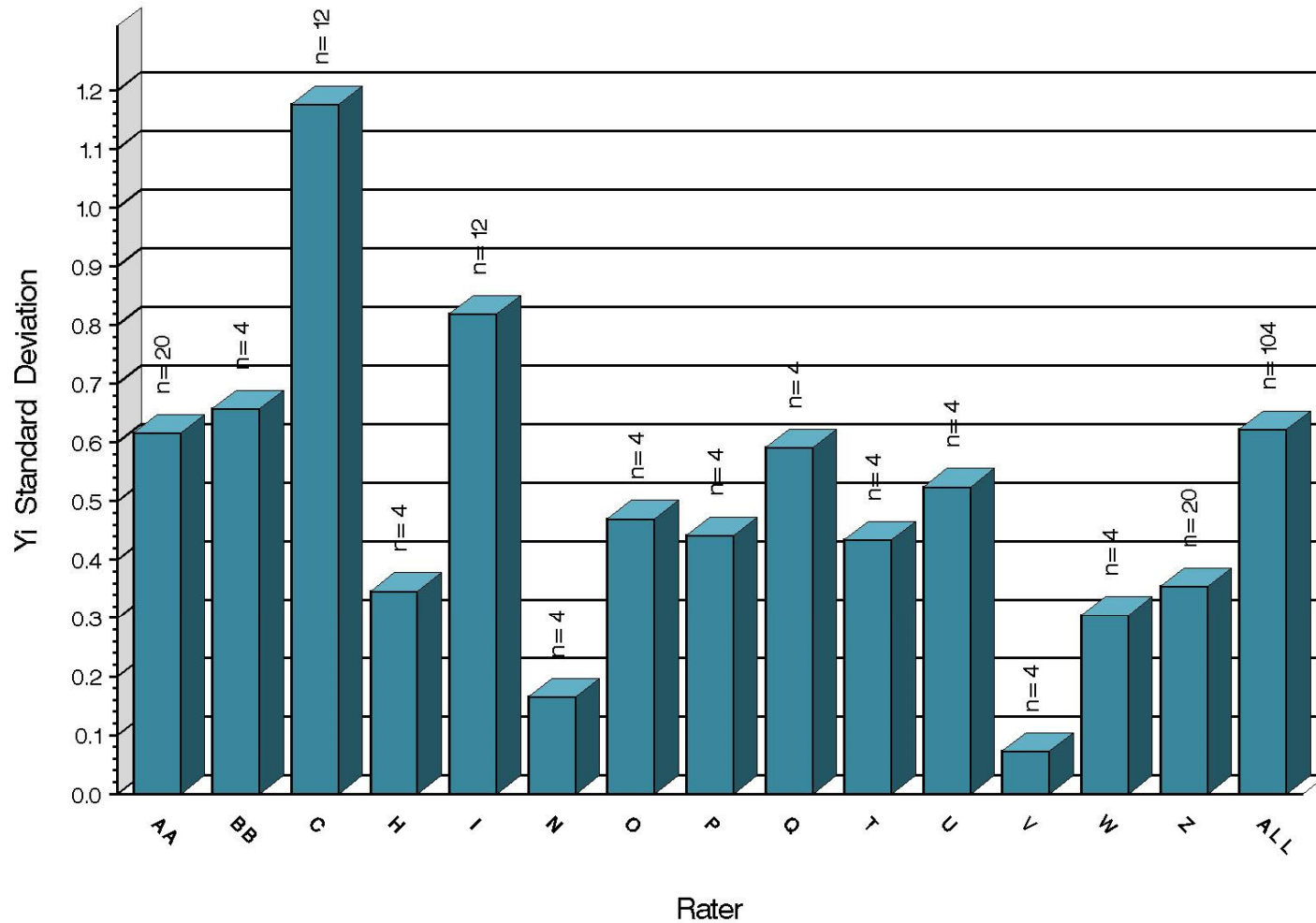
RIPPLING
Precision as Measured by Yi STD



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L-37 Rater Calibration

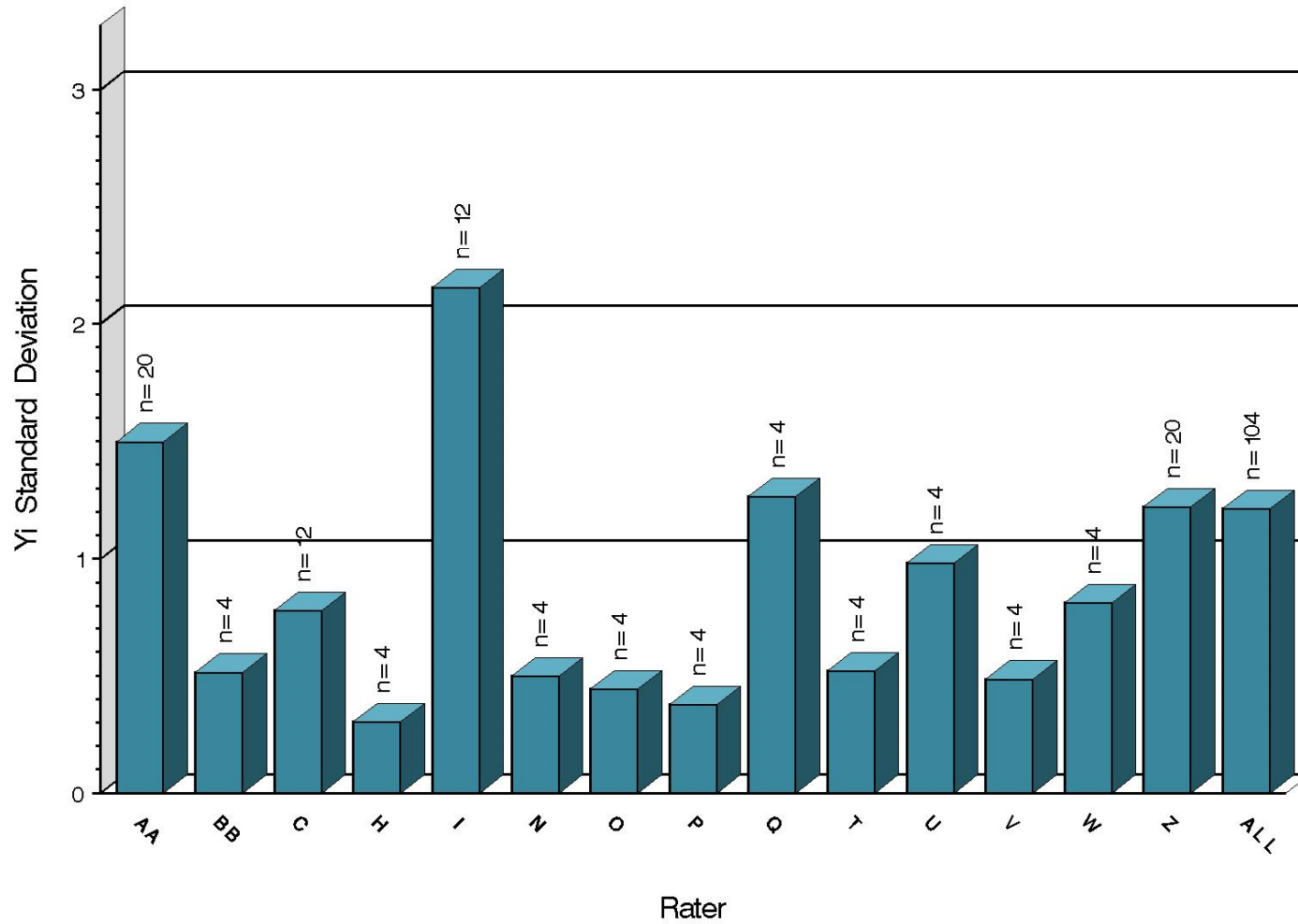
SPITTING
Precision as Measured by Yi STD



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L-37 Rater Calibration

WEAR
Precision as Measured by Yi STD



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L-37 Rater Calibration

SUMMARY OF SEVERITY & PRECISION

Severity

WEAR, RIPP, and RIDG all briefly exceeded the action limit this period, but have since returned within limits. SPIT remained within limits throughout the period.

Precision

WEAR exceeded the action limit with one test this period but has since returned within limits. All other parameters remained within limits throughout the period.

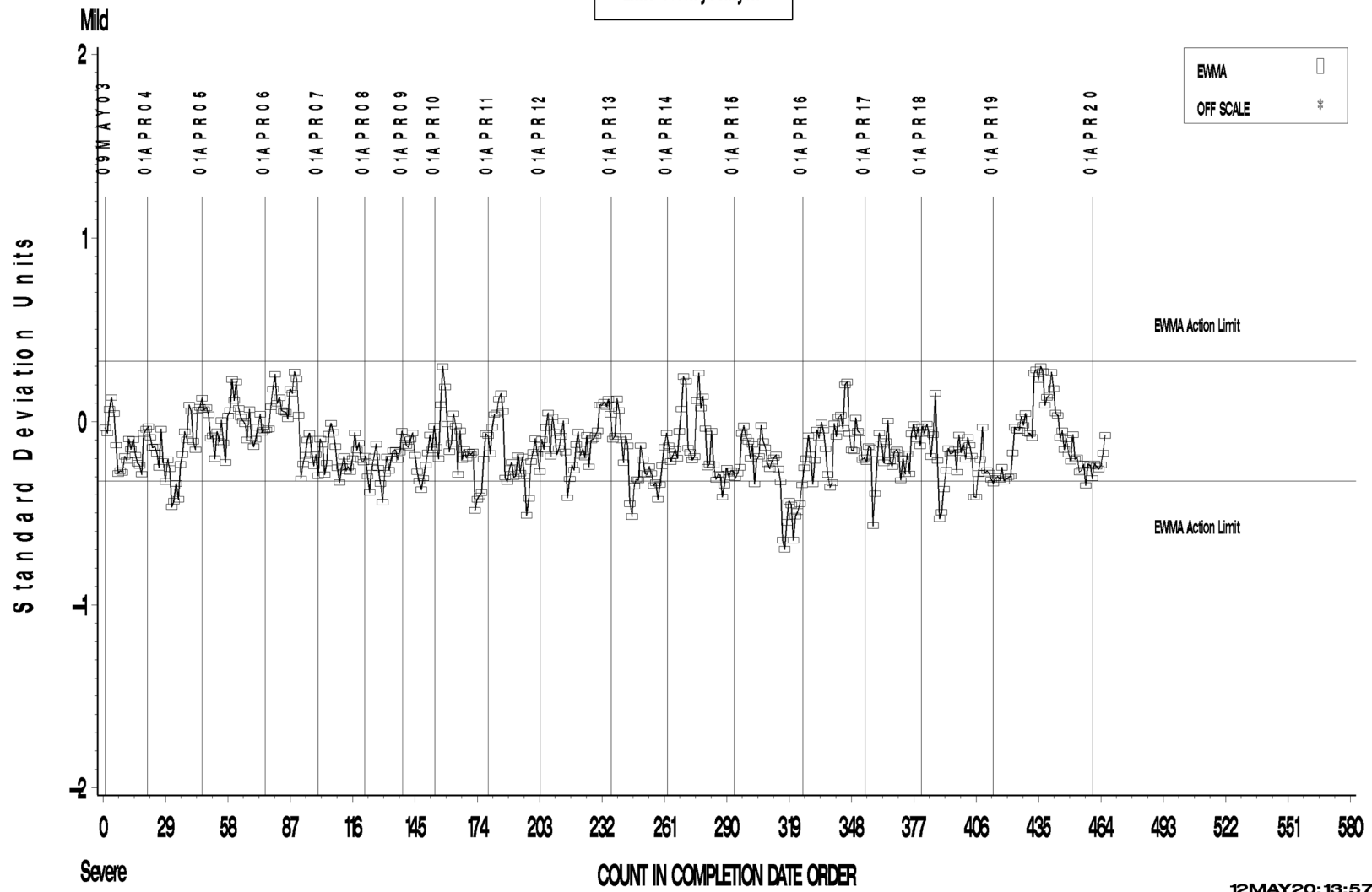
Industry rater control charts follow.

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

LTMS Severity Analysis

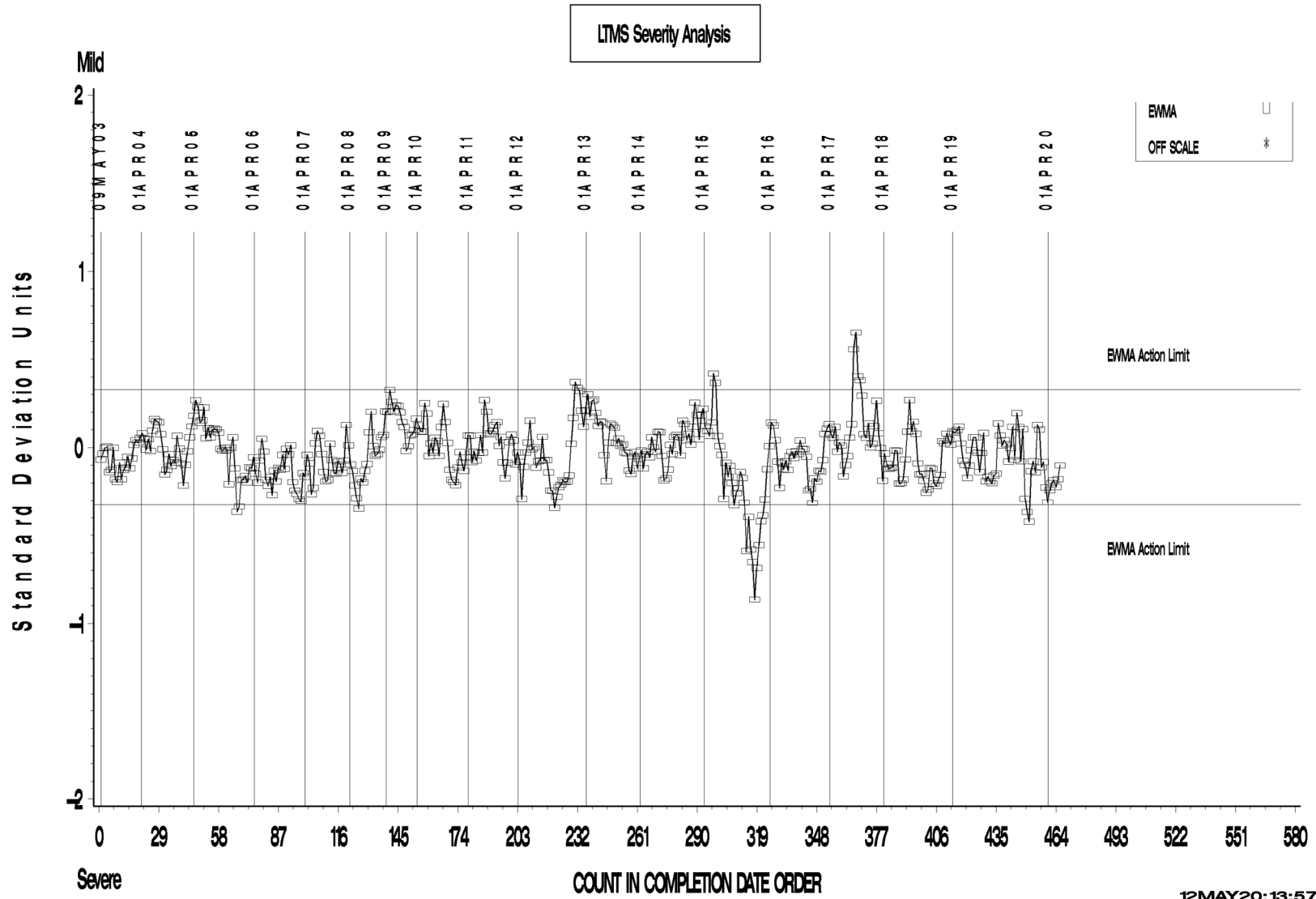


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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING



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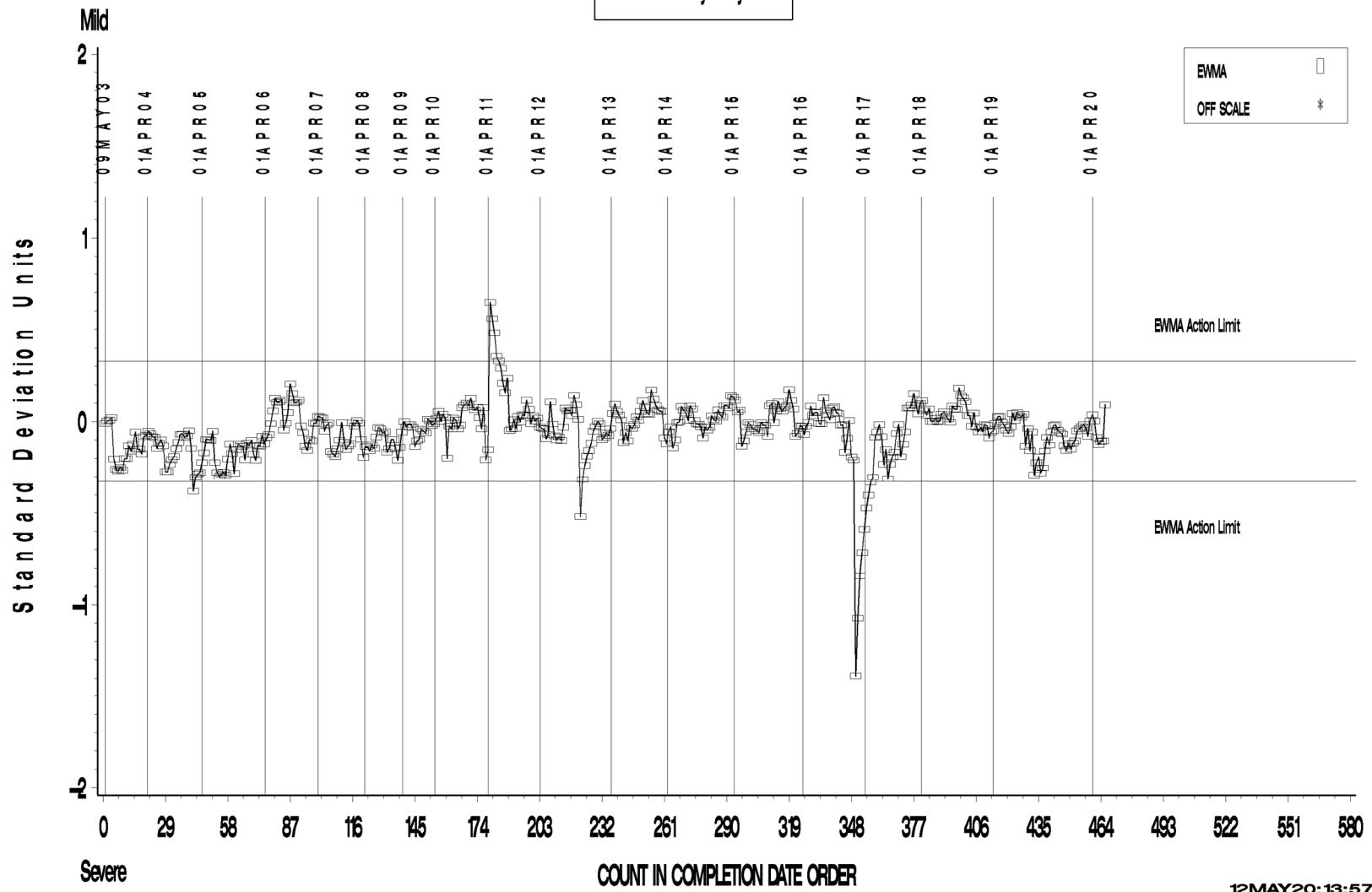
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L-37 Rater Calibration

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SPITTING

LTMS Severity Analysis



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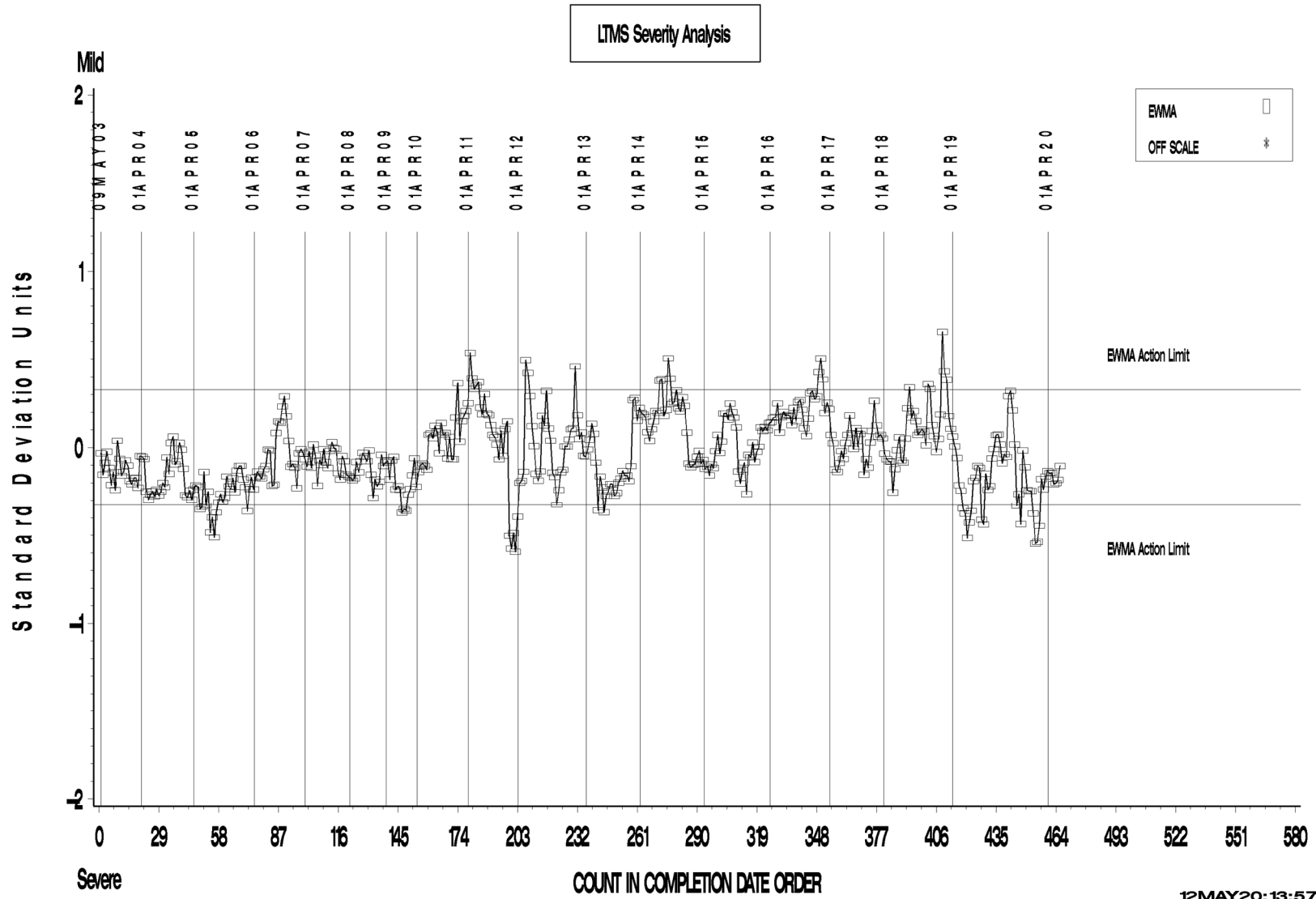


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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR



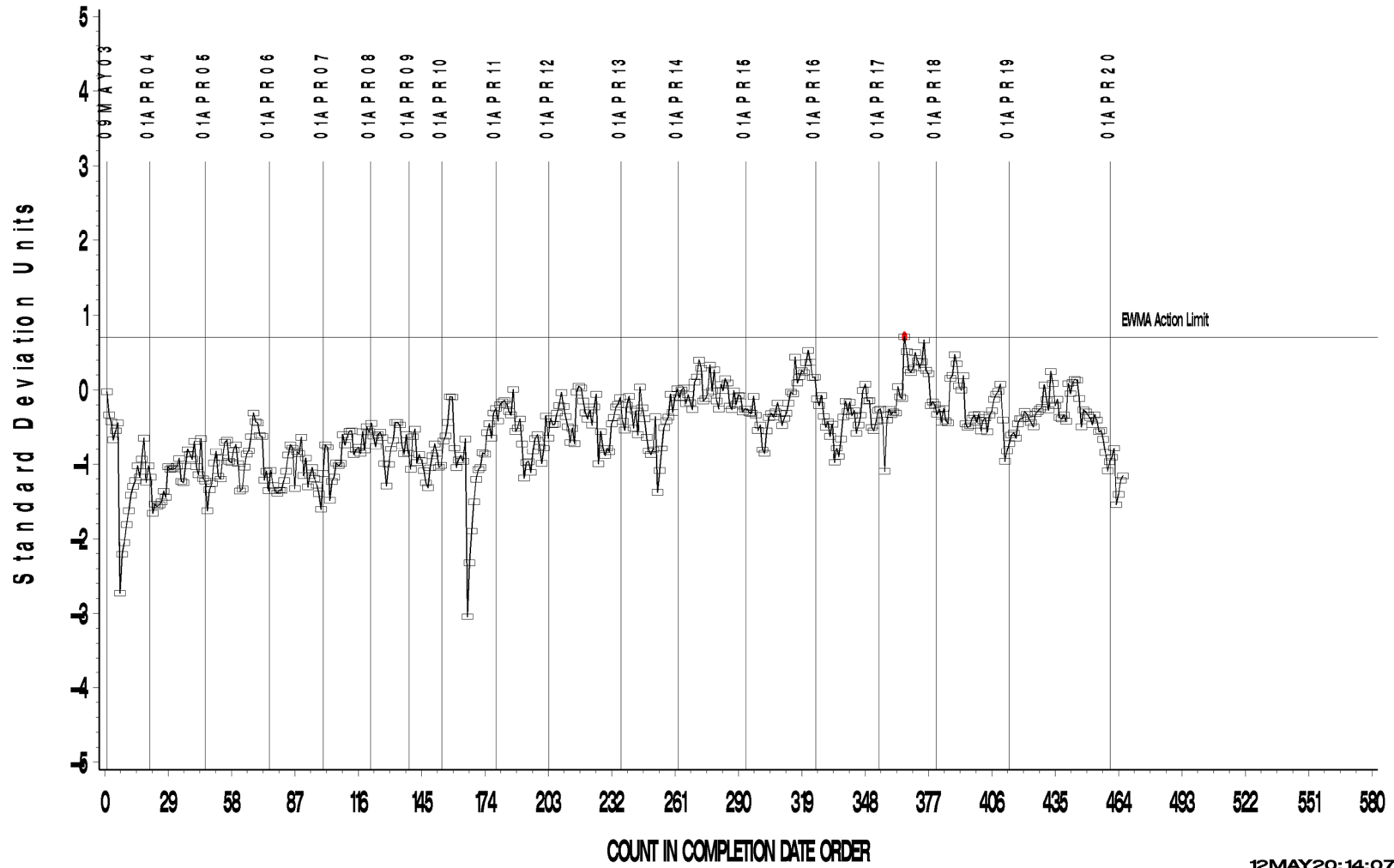
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L-37 Rater Calibration

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RIDGING

LTMS Precision Analysis



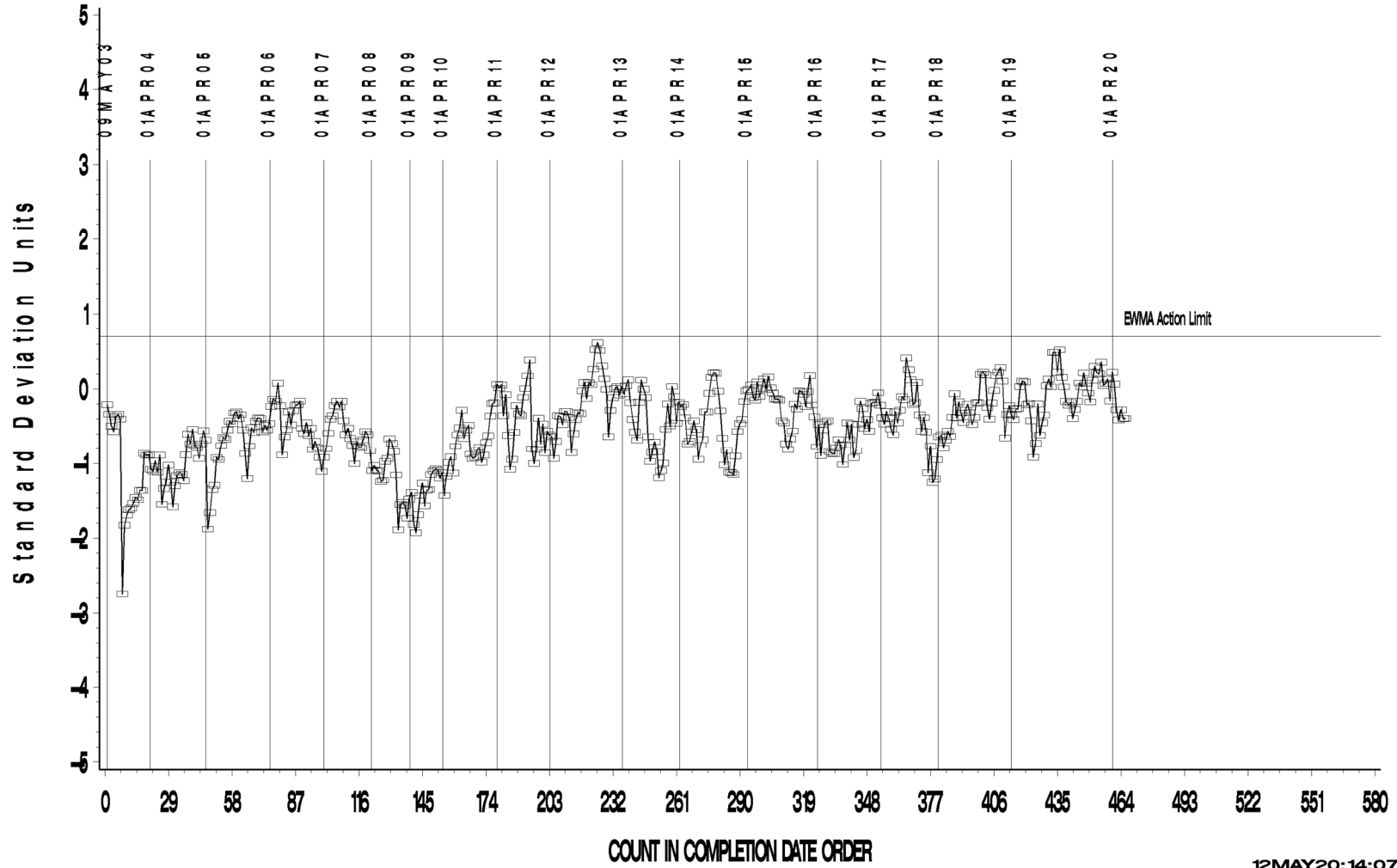
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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

LTMS Precision Analysis



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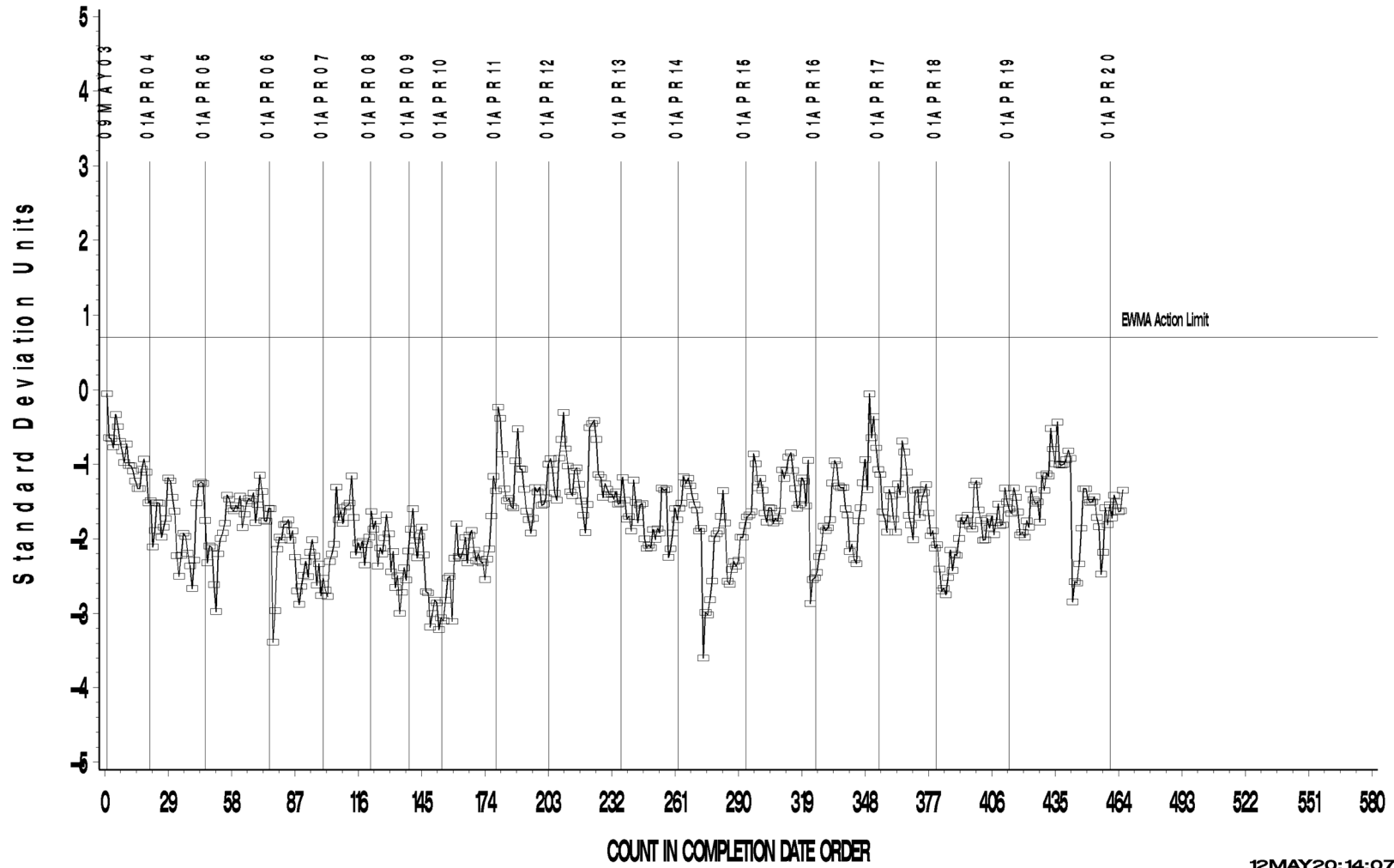
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LTMS Precision Analysis



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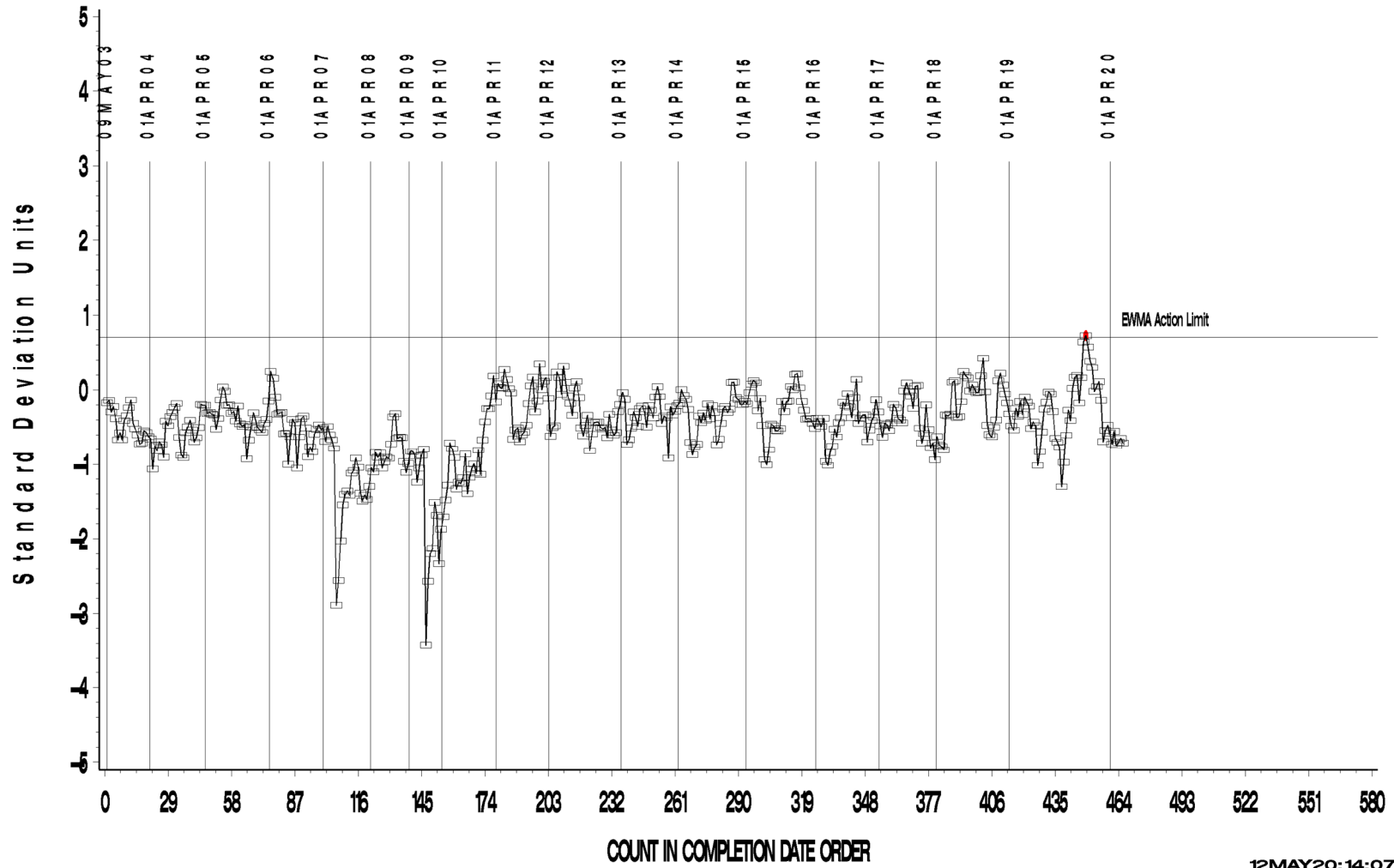
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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR

LTMS Precision Analysis



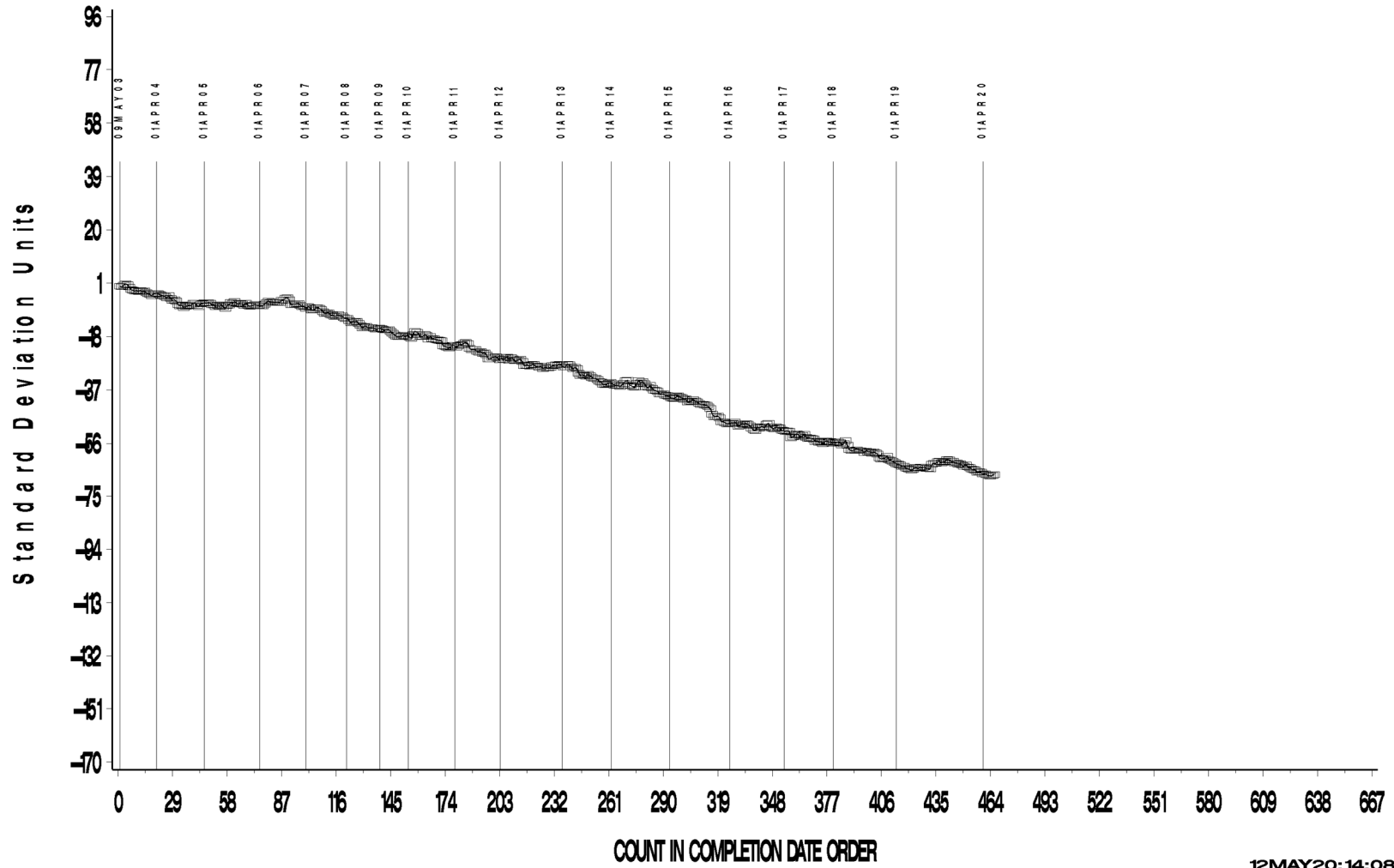
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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

CUSUM Severity Analysis



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Test Monitoring Center
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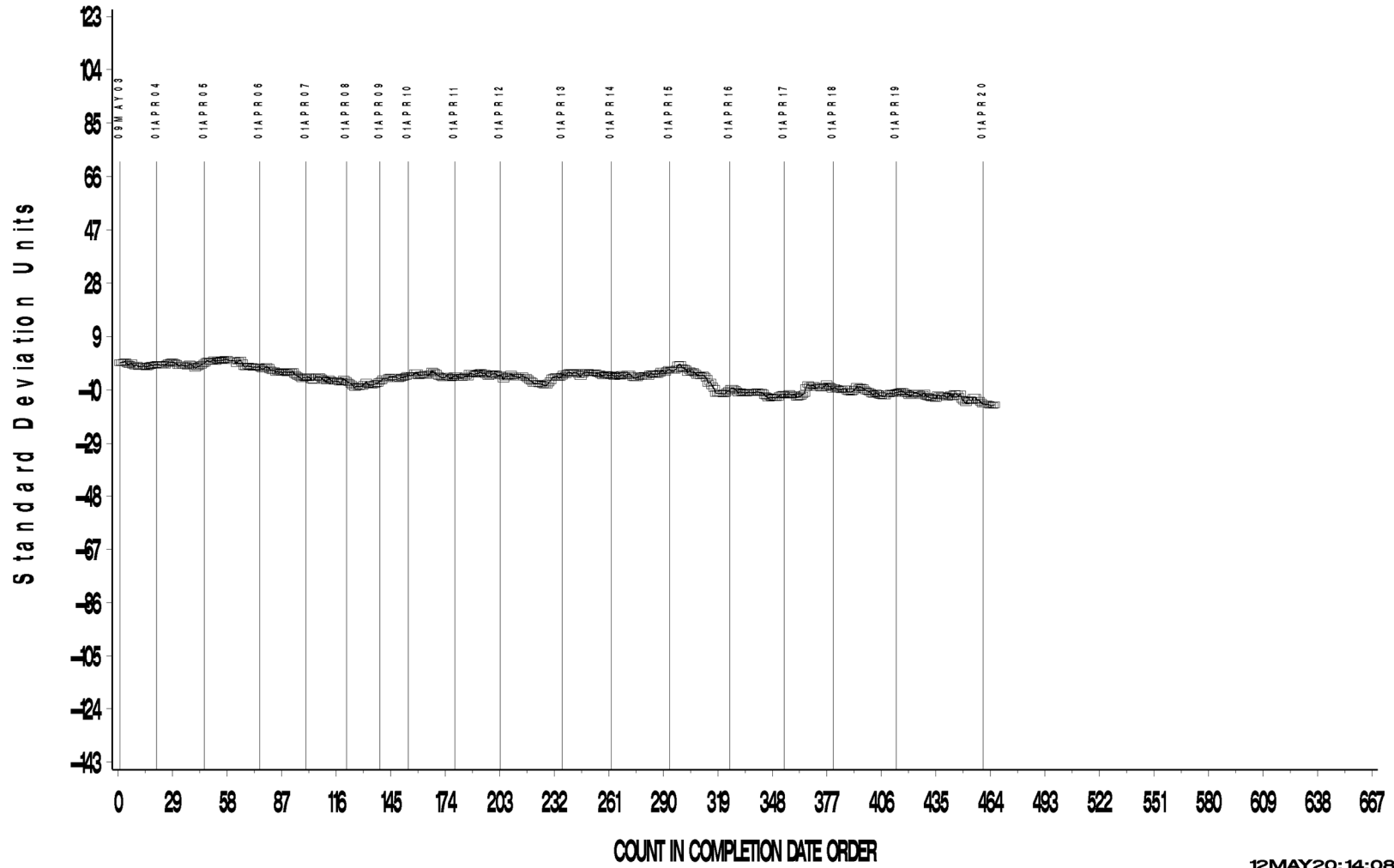
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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

CUSUM Severity Analysis



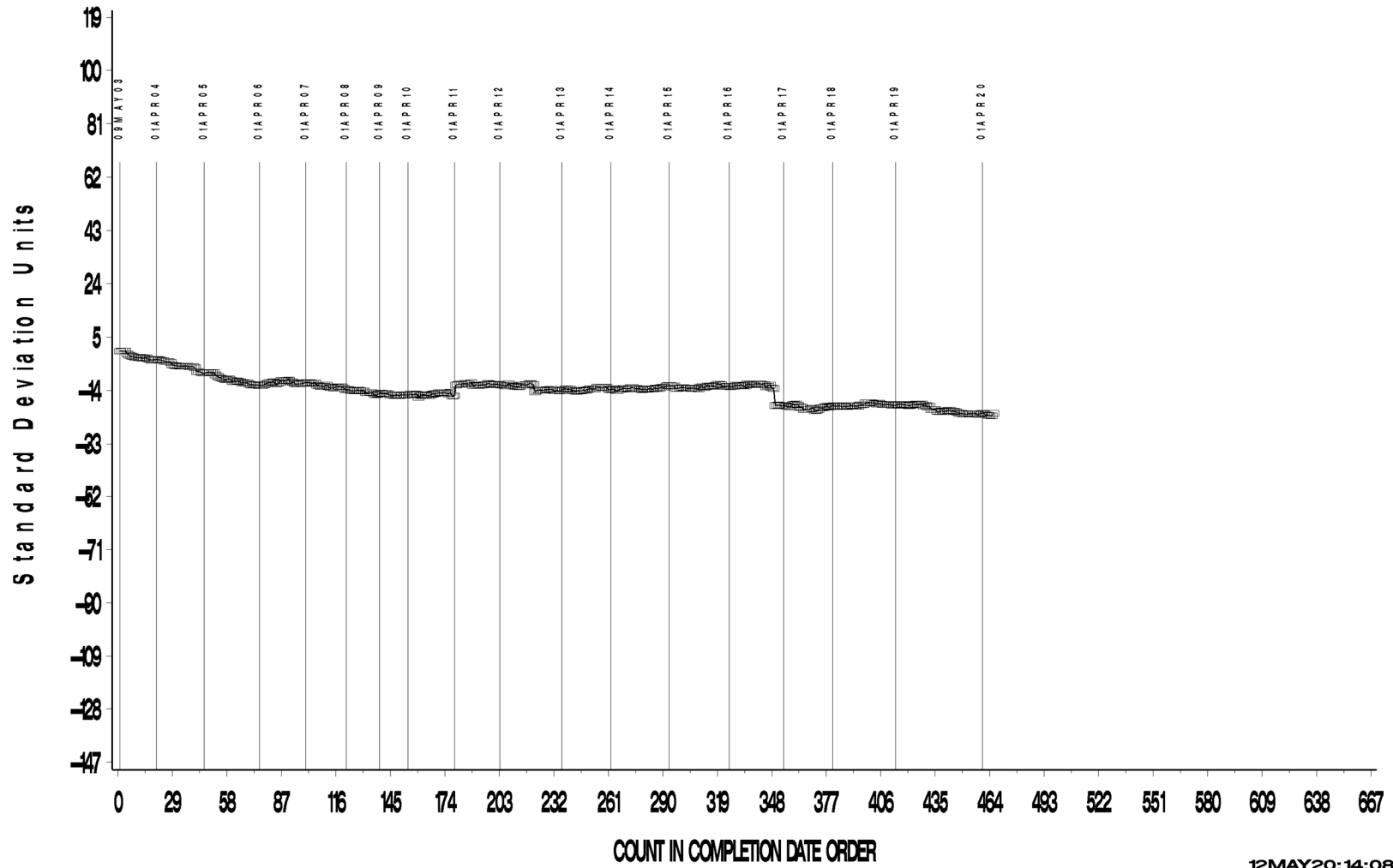
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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

SPITTING

CUSUM Severity Analysis



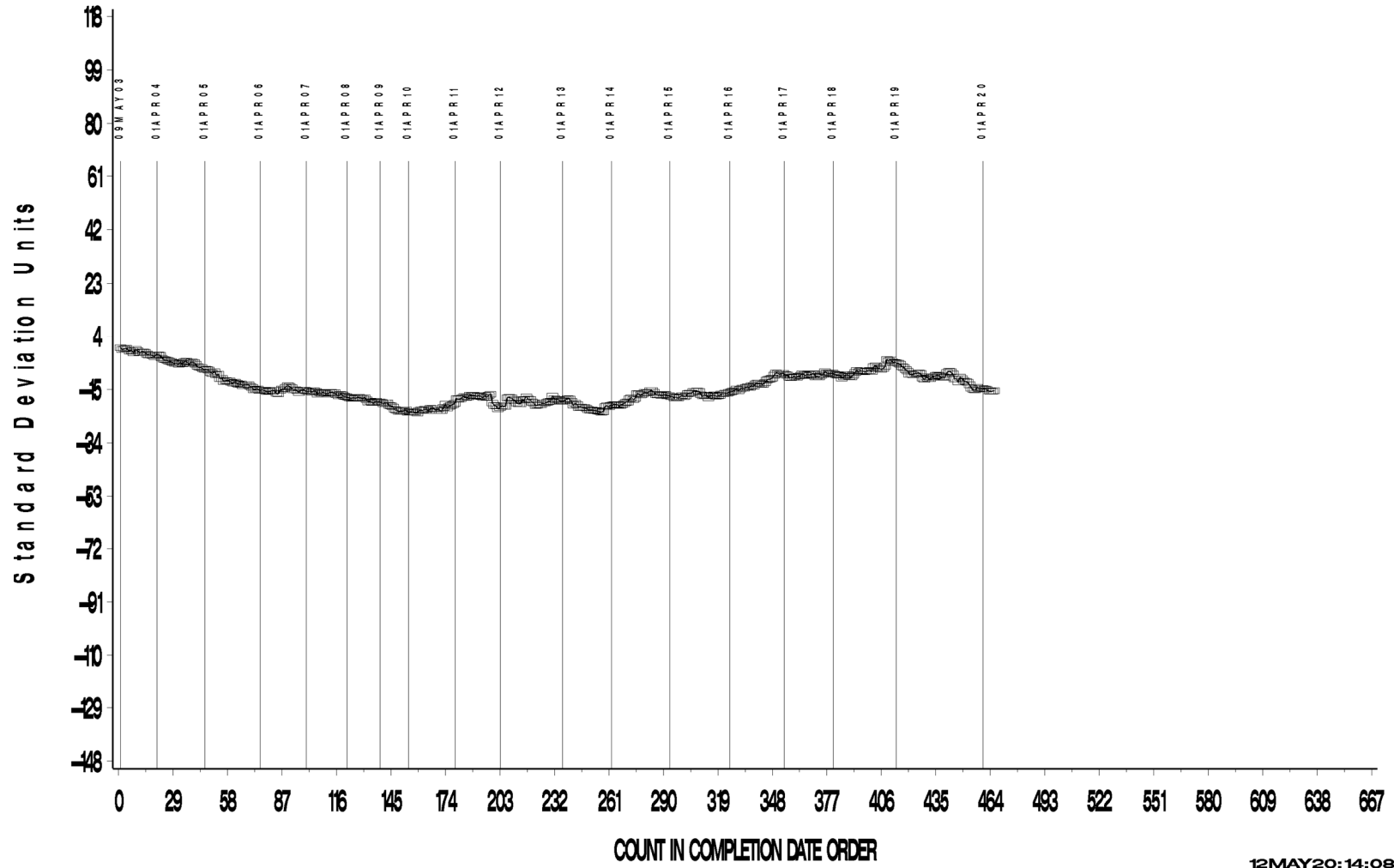
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L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR

CUSUM Severity Analysis



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