




## Test Monitoring Center

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

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

MEMORANDUM: 16-012  
DATE: May 4, 2016  
TO: Matt Umerley, Chairman, L-37 Surveillance Panel  
FROM: Scott Parke   
SUBJECT: L-37 Rater Calibration from October 1, 2015 through March 31, 2016

Please find attached a summary of L-37 rater calibration activity this period.

SDP/sdp/mem16-012.sdp.doc

cc: Frank Farber

Jeff Clark

L-37 Surveillance Panel

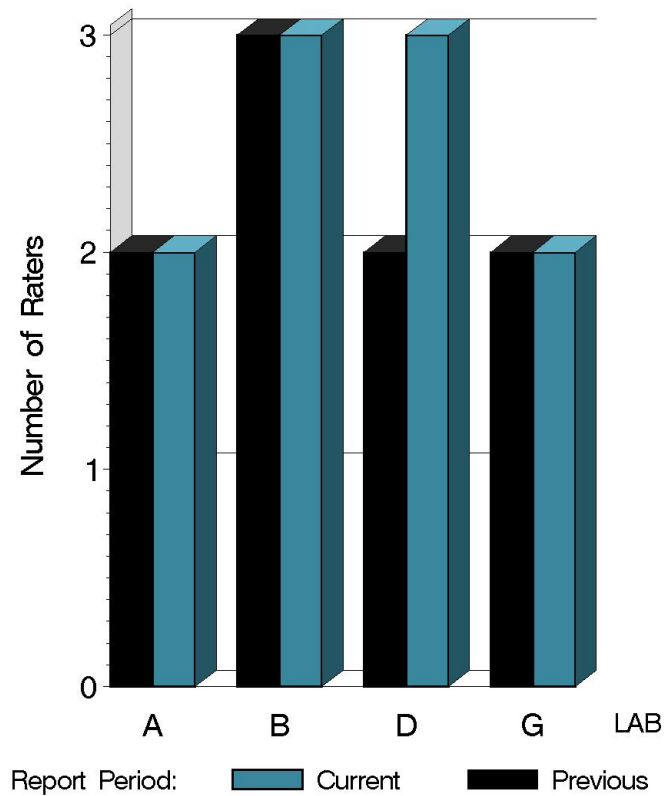
<ftp://ftp.astmtmc.cmu.edu/docs/gear/l37rc/semiannualreports/l37rc-04-2016.pdf>

Distribution: email

# L-37 Rater Calibration

	Reporting Data	Calibrated on 3-31-16
Number of Labs	4	4
Number of Raters	10	10

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	10	12
Rejected (Mild)	OC	0	0
Rejected (Severe)	OC	4	6
Rejected (Multiple)	OC	0	0
Rejected (Precision)	OC	0	0
Workshop data	AG	12	24
<hr/>			
Total		26	42

# L-37 Rater Calibration

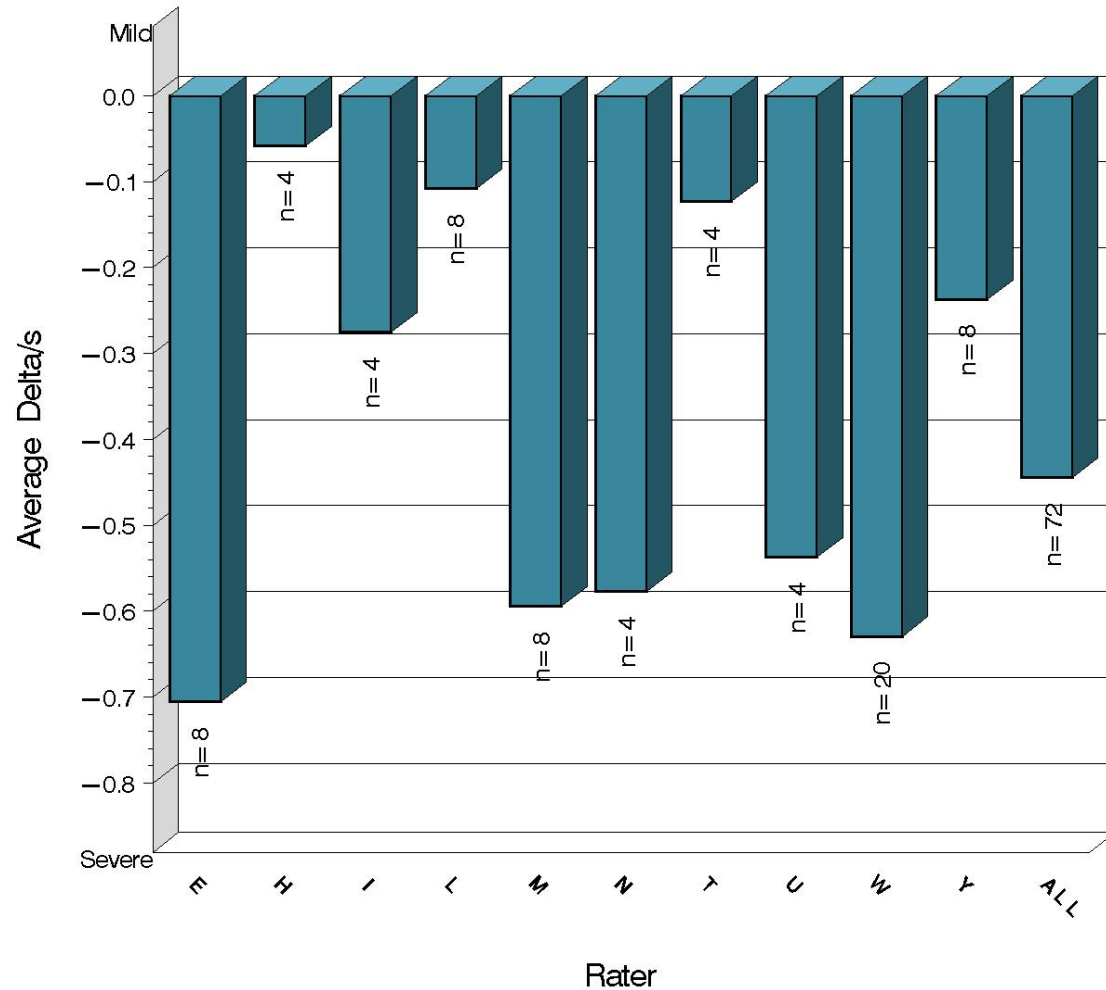
Rater	N	RIDG		RIPP		SPIT		WEAR	
		Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*
E	8	-0.706	1.491	-0.066	1.210	-0.396	1.167	0.280	0.652
H	4	-0.058	0.831	0.236	0.337	0.153	0.373	-0.468	0.555
I	4	-0.276	0.966	-0.839	0.752	-0.029	0.330	0.044	0.634
L	8	-0.108	0.738	0.543	0.375	0.055	0.353	0.160	0.559
M	8	-0.594	0.881	-0.658	1.575	0.111	0.495	-0.062	1.364
N	4	-0.577	0.537	0.030	0.398	-0.323	0.491	-0.106	0.685
T	4	-0.124	0.990	-0.874	0.798	0.318	0.762	0.076	0.788
U	4	-0.537	0.889	-0.034	0.544	-0.111	0.417	0.121	0.584
W	20	-0.629	1.471	-0.772	1.048	0.161	0.471	0.029	0.847
Y	8	-0.237	0.638	-0.219	0.533	0.164	1.199	-0.476	1.404
ALL	72	-0.445	1.086	-0.341	1.012	0.038	0.683	-0.021	0.886

\* 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

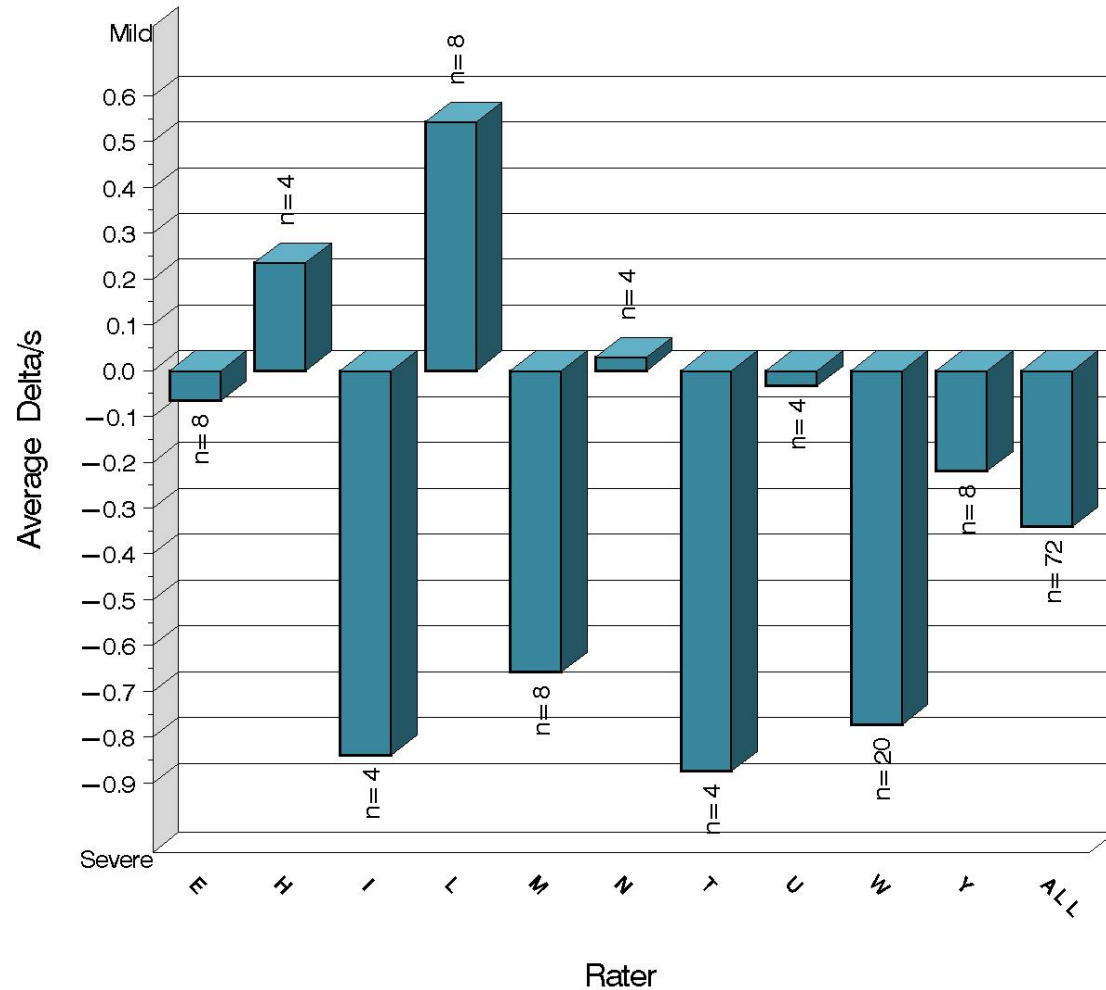


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# L-37 Rater Calibration

## RIPPLING

Severity as Measured by Delta/s

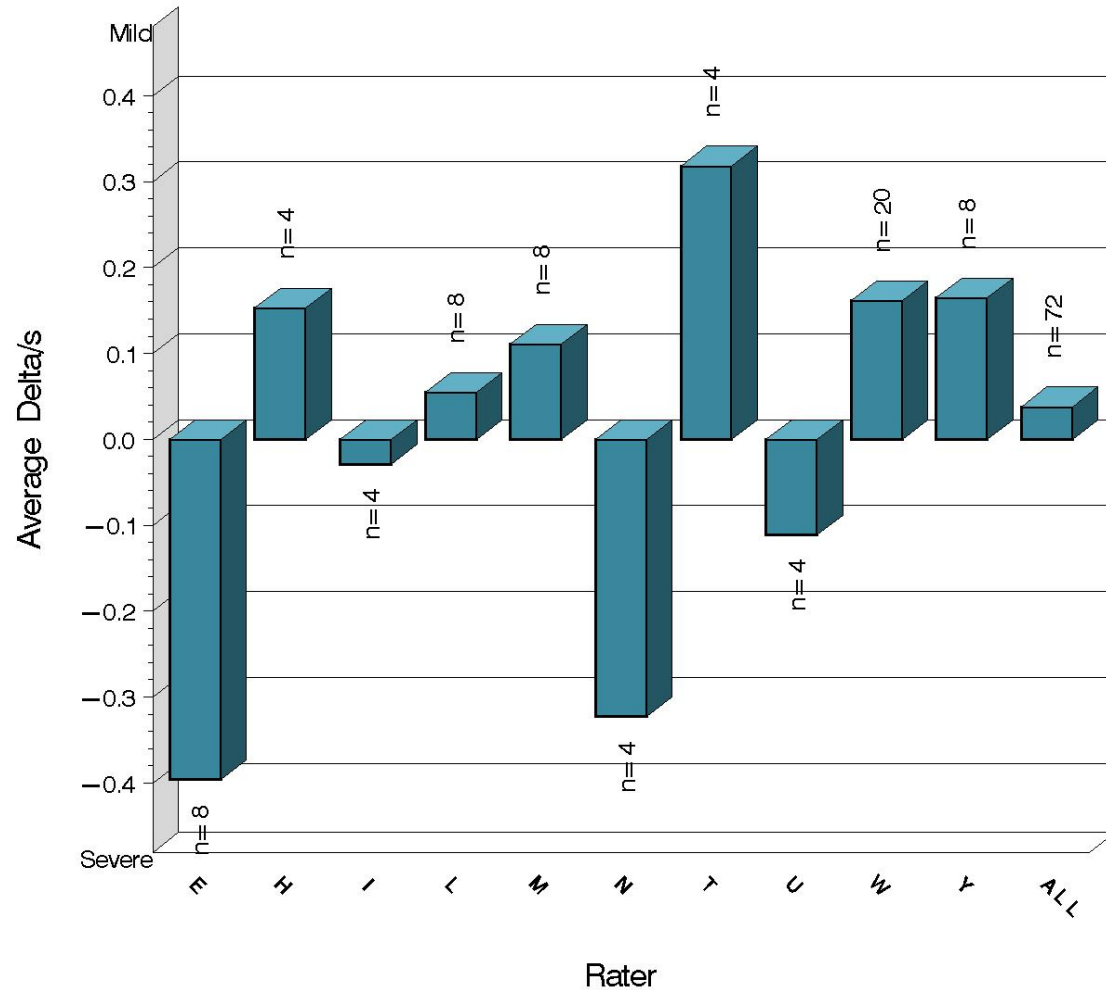


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# L-37 Rater Calibration

## SPITTING

Severity as Measured by Delta/s

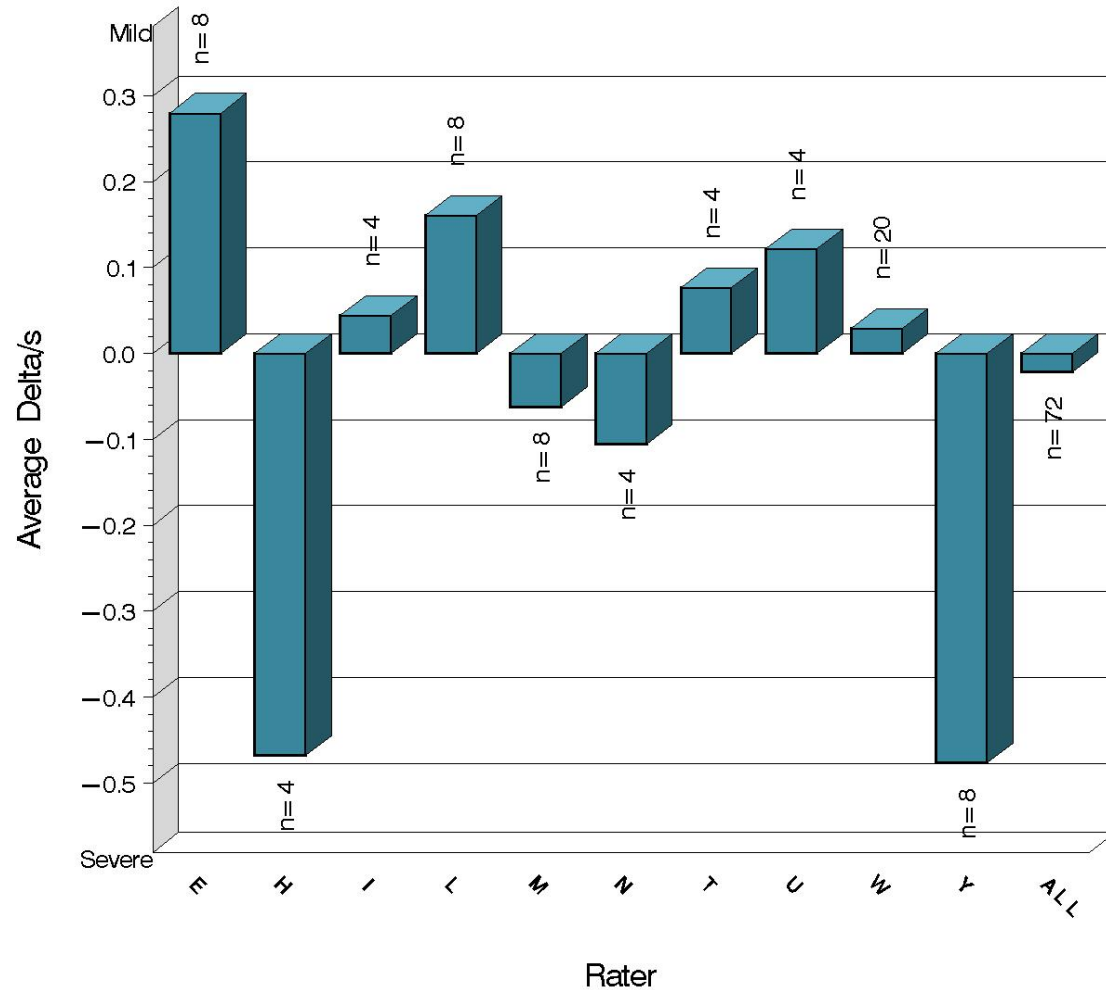


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# L-37 Rater Calibration

## WEAR

Severity as Measured by Delta/s



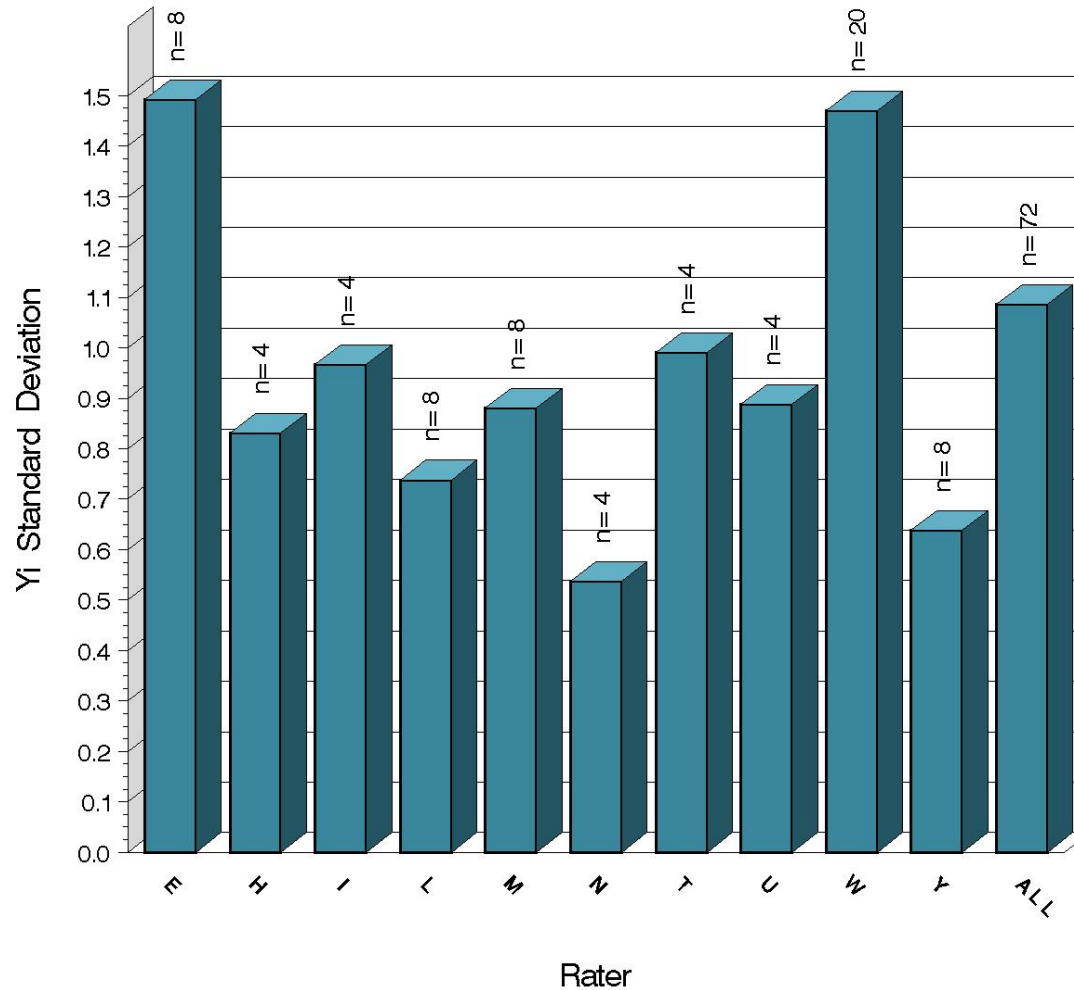
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# L-37 Rater Calibration

## RIDGING

Precision as Measured by Yi STD

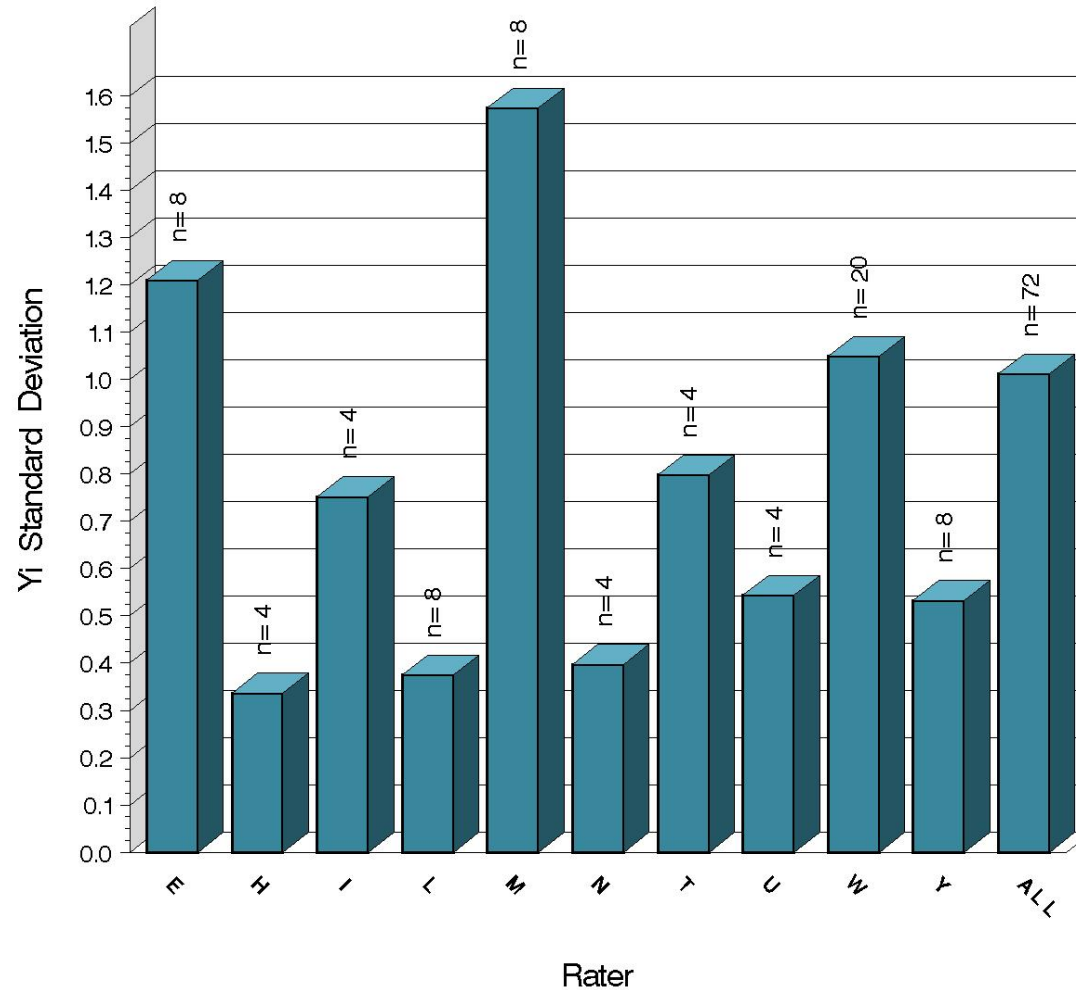


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# L-37 Rater Calibration

## RIPPLING

Precision as Measured by Yi STD

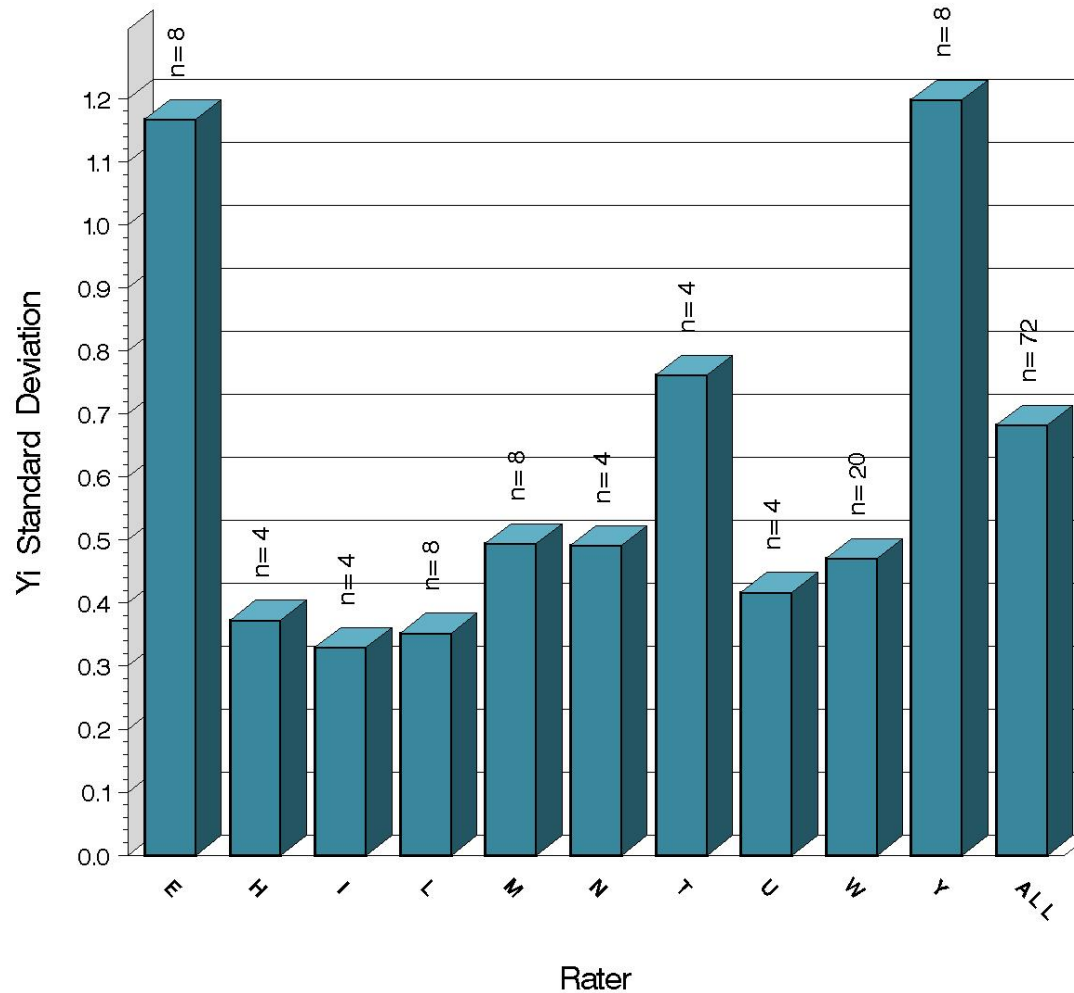


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# L-37 Rater Calibration

## SPITTING

Precision as Measured by Yi STD

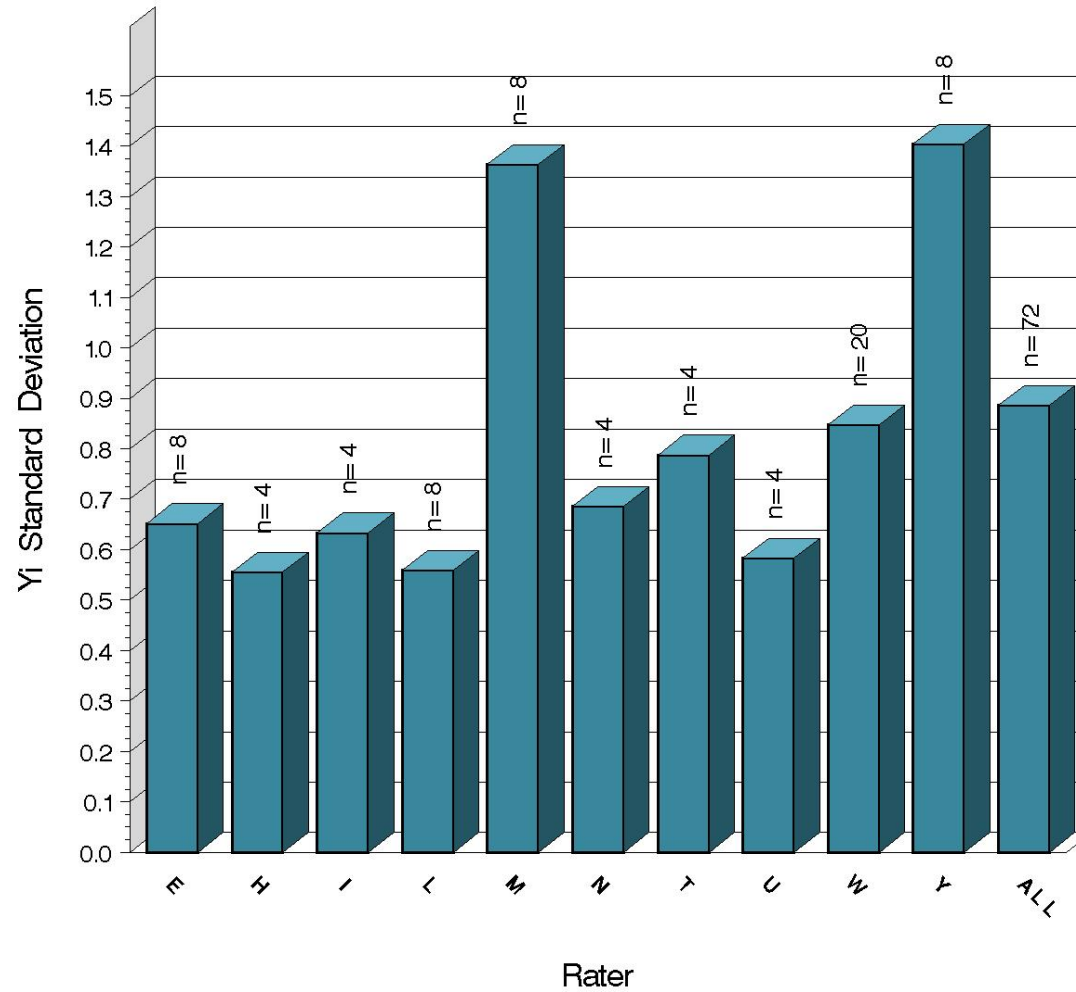


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# L-37 Rater Calibration

## WEAR

Precision as Measured by Yi STD



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# L-37 Rater Calibration

## SUMMARY OF SEVERITY & PRECISION

### Severity

Industry rater severity for WEAR and SPIT remained within limits throughout this report period. RIPP had 4 severe failing results that drove the industry rater chart beyond the action limit. The chart has since recovered. RIDG has been continuously slightly severe since 2007. It is currently exceeding the action limit.

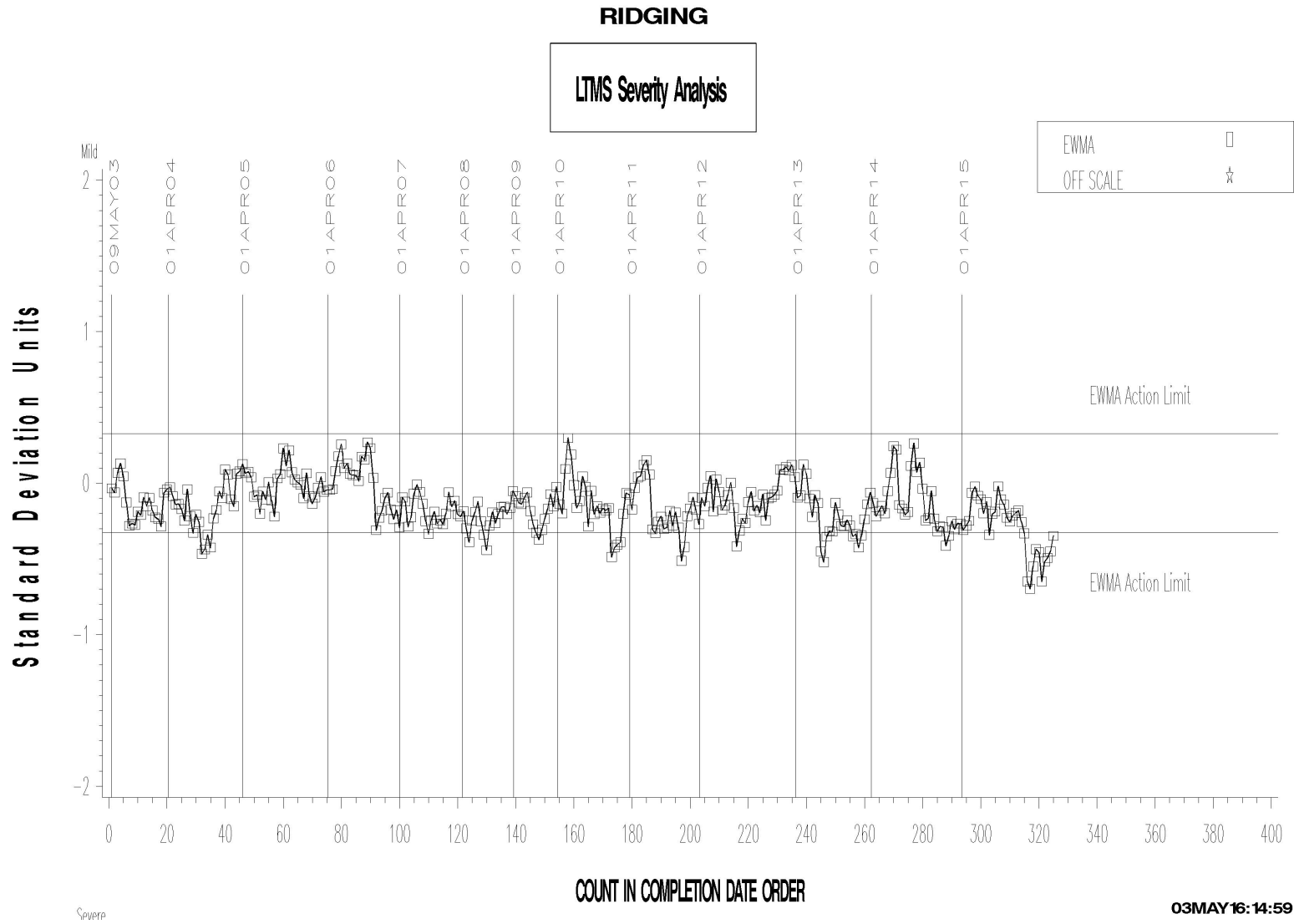
### Precision

Industry precision for all parameters also remained within limits throughout the period.

Industry rater control charts follow.

# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

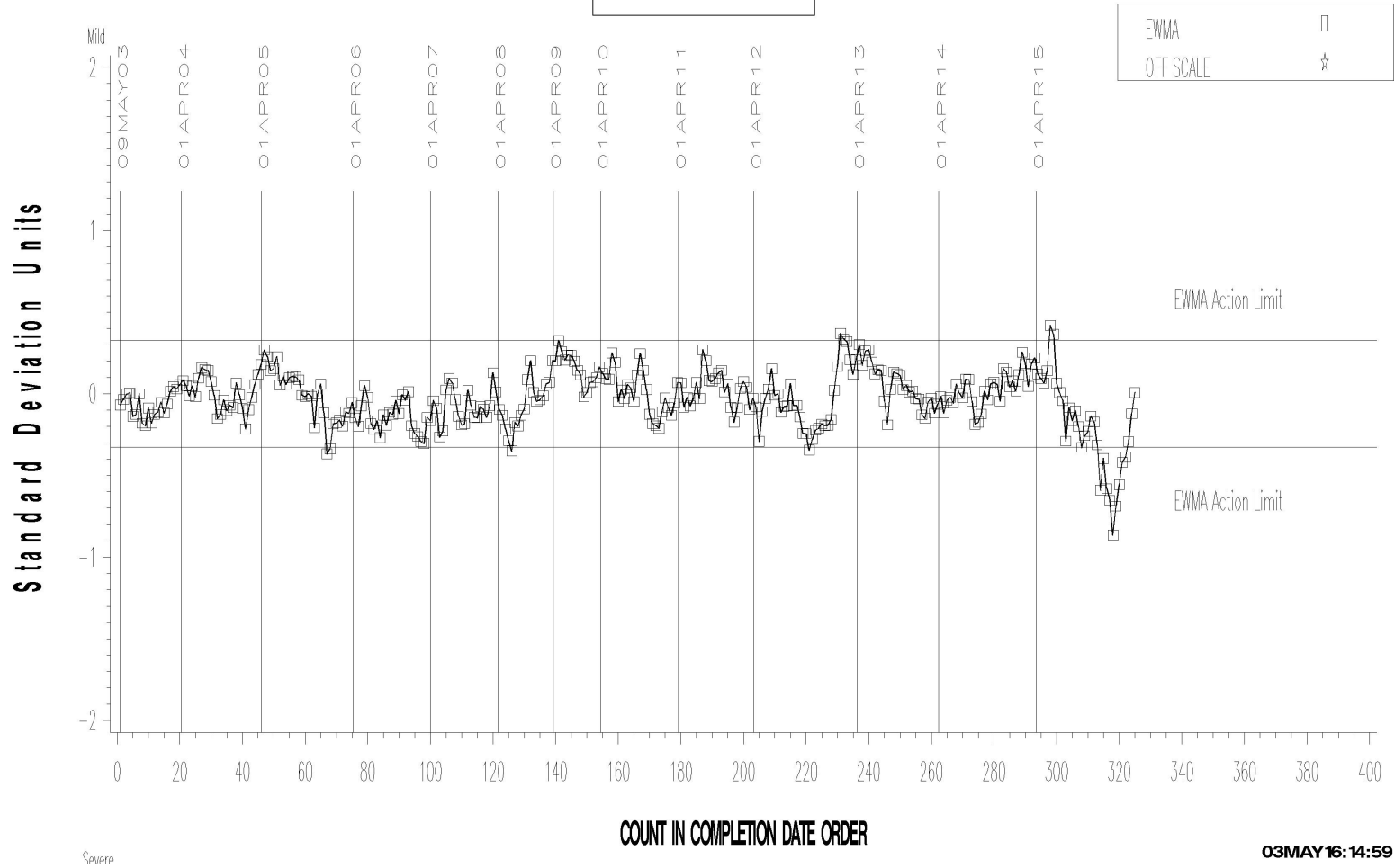


# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

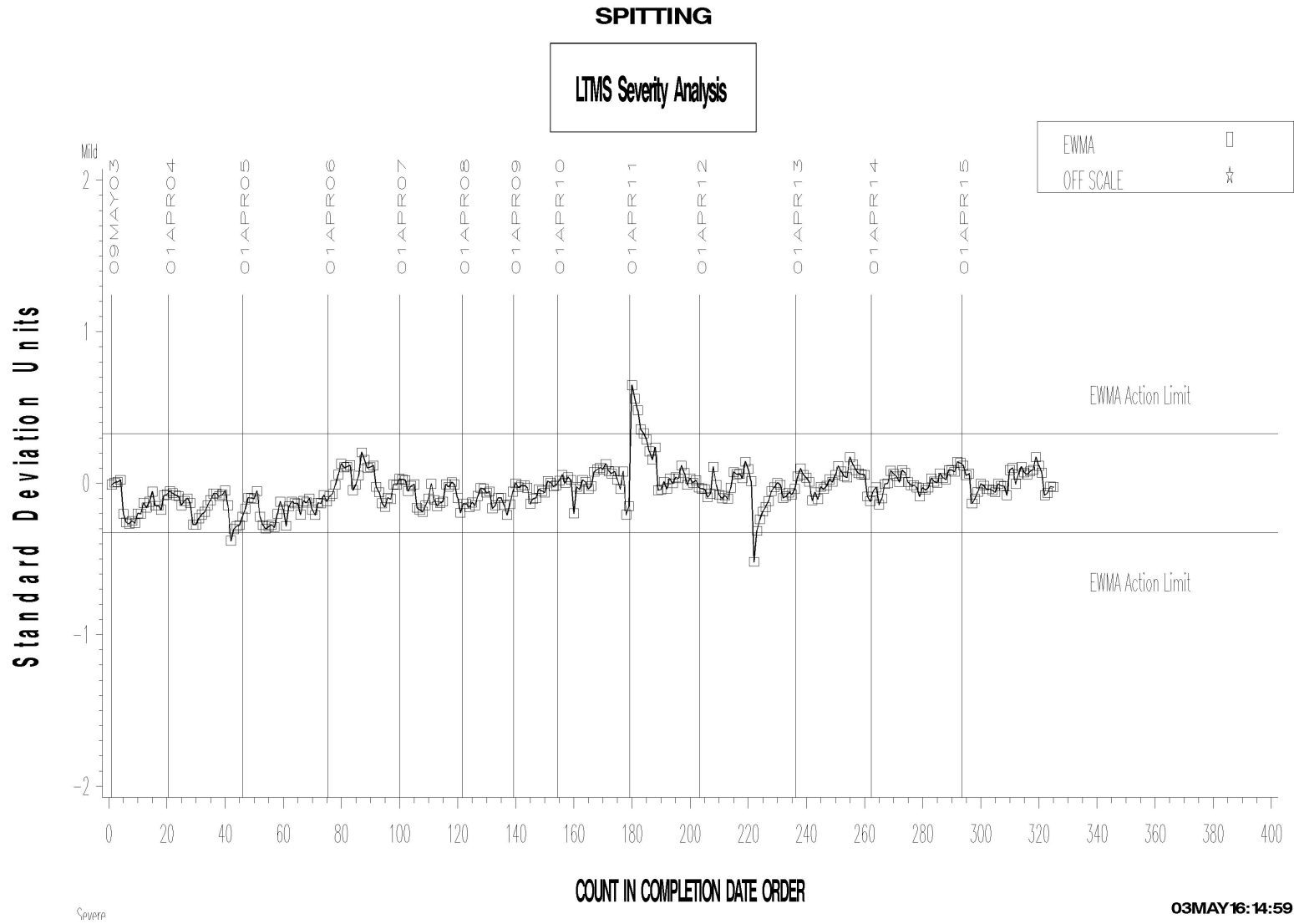
RIPPLING

LTMS Severity Analysis



# L-37 Rater Calibration

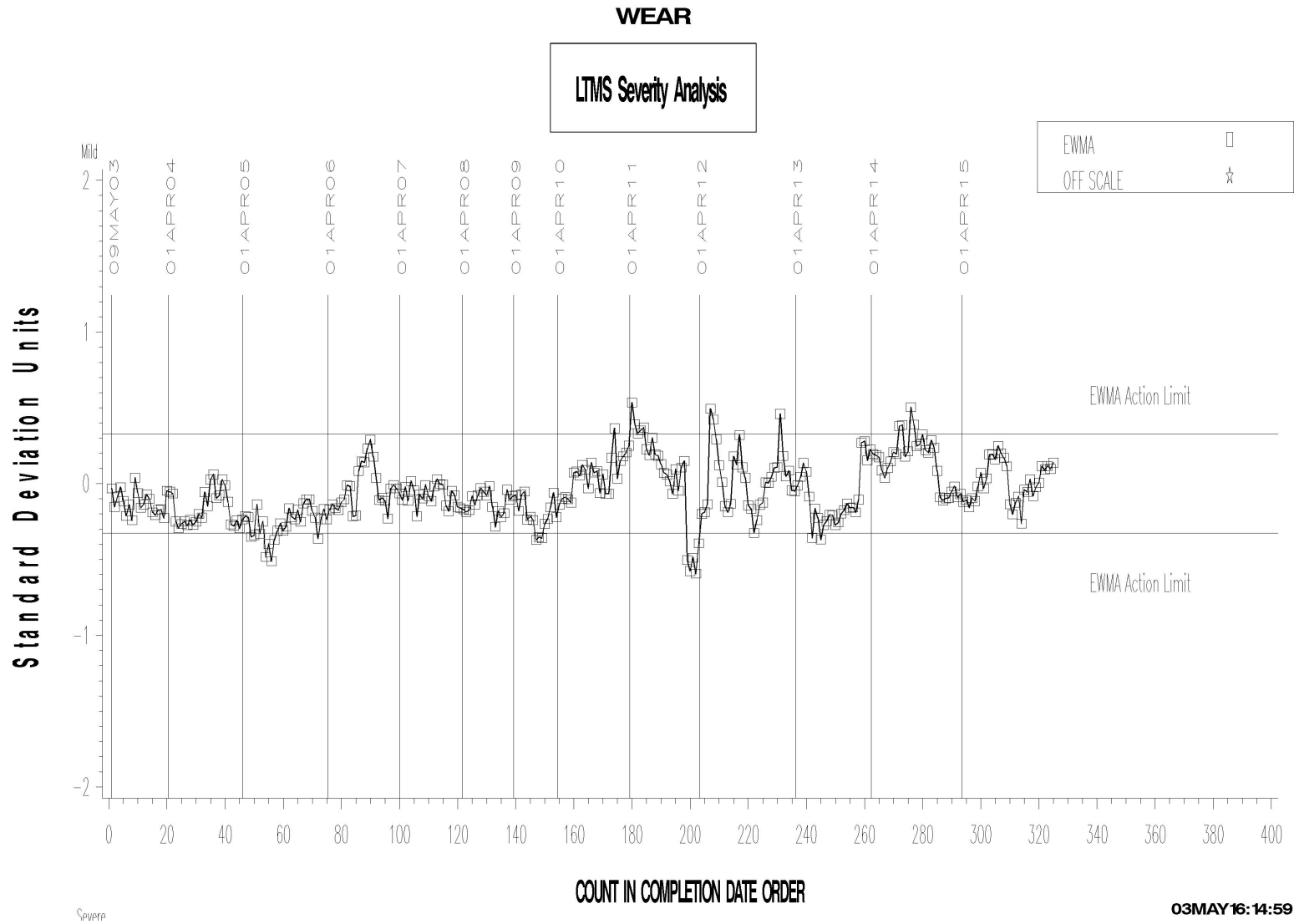
L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA





# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

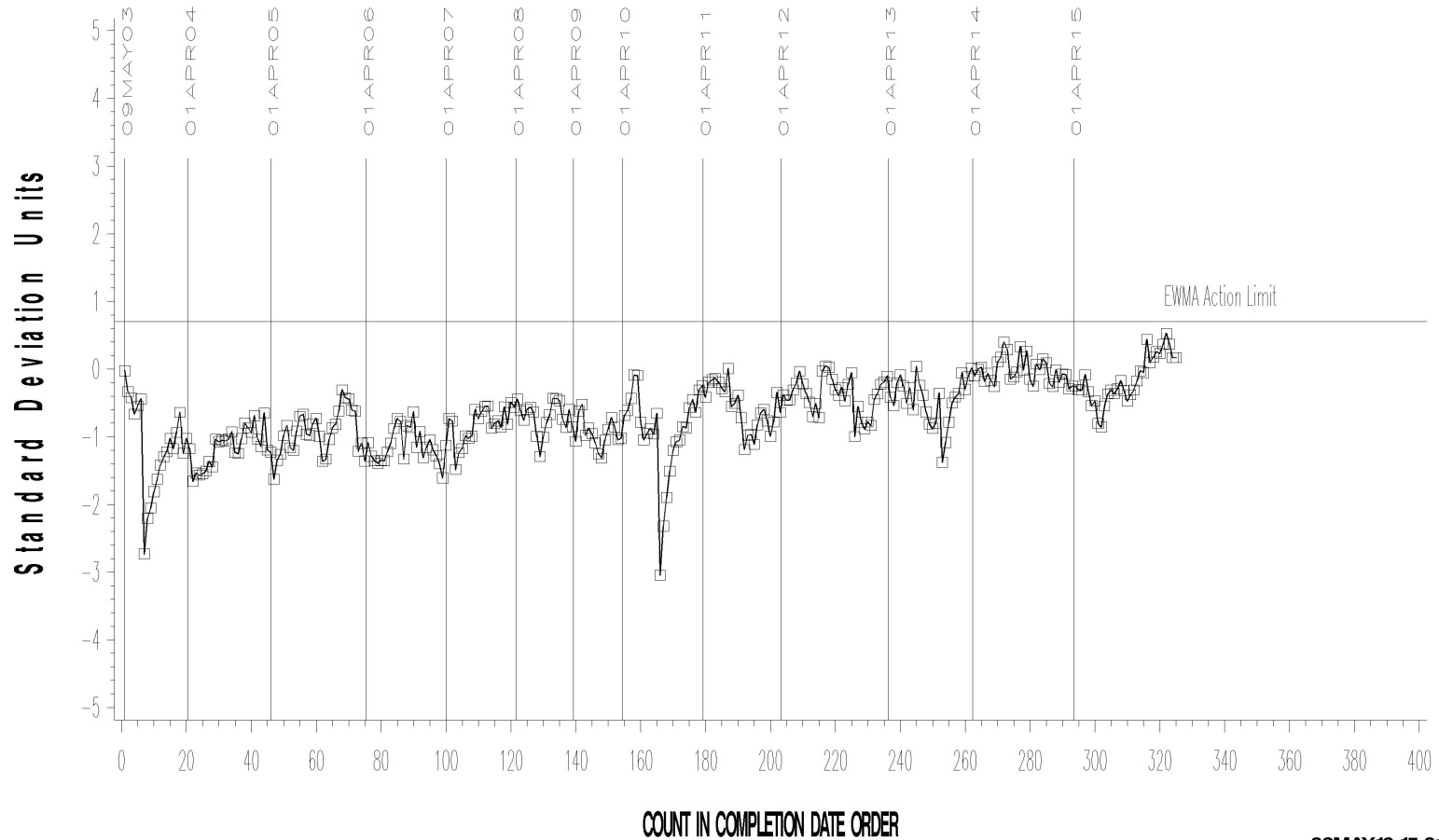


# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

LTMS Precision Analysis



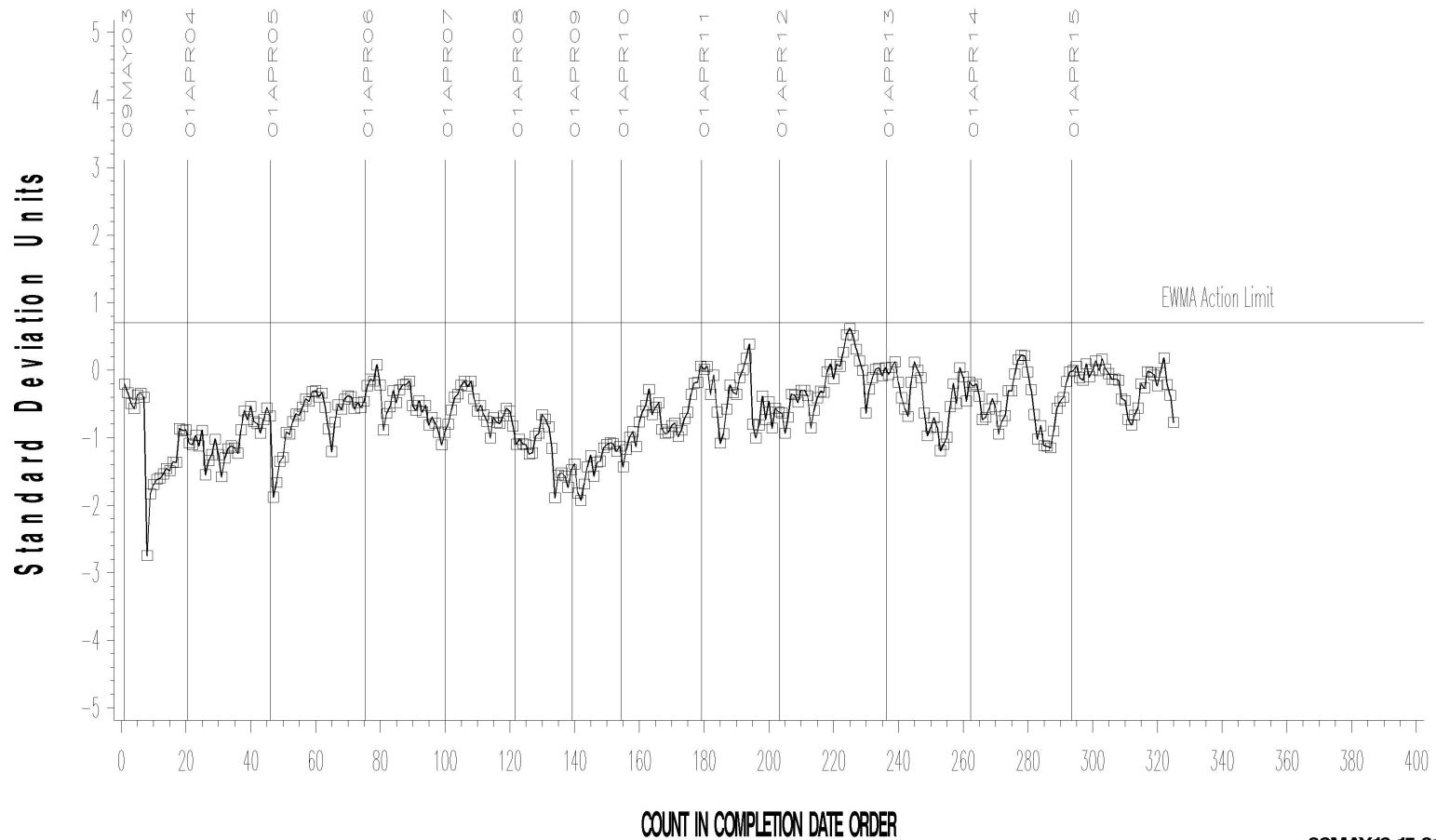
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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

LTMS Precision Analysis



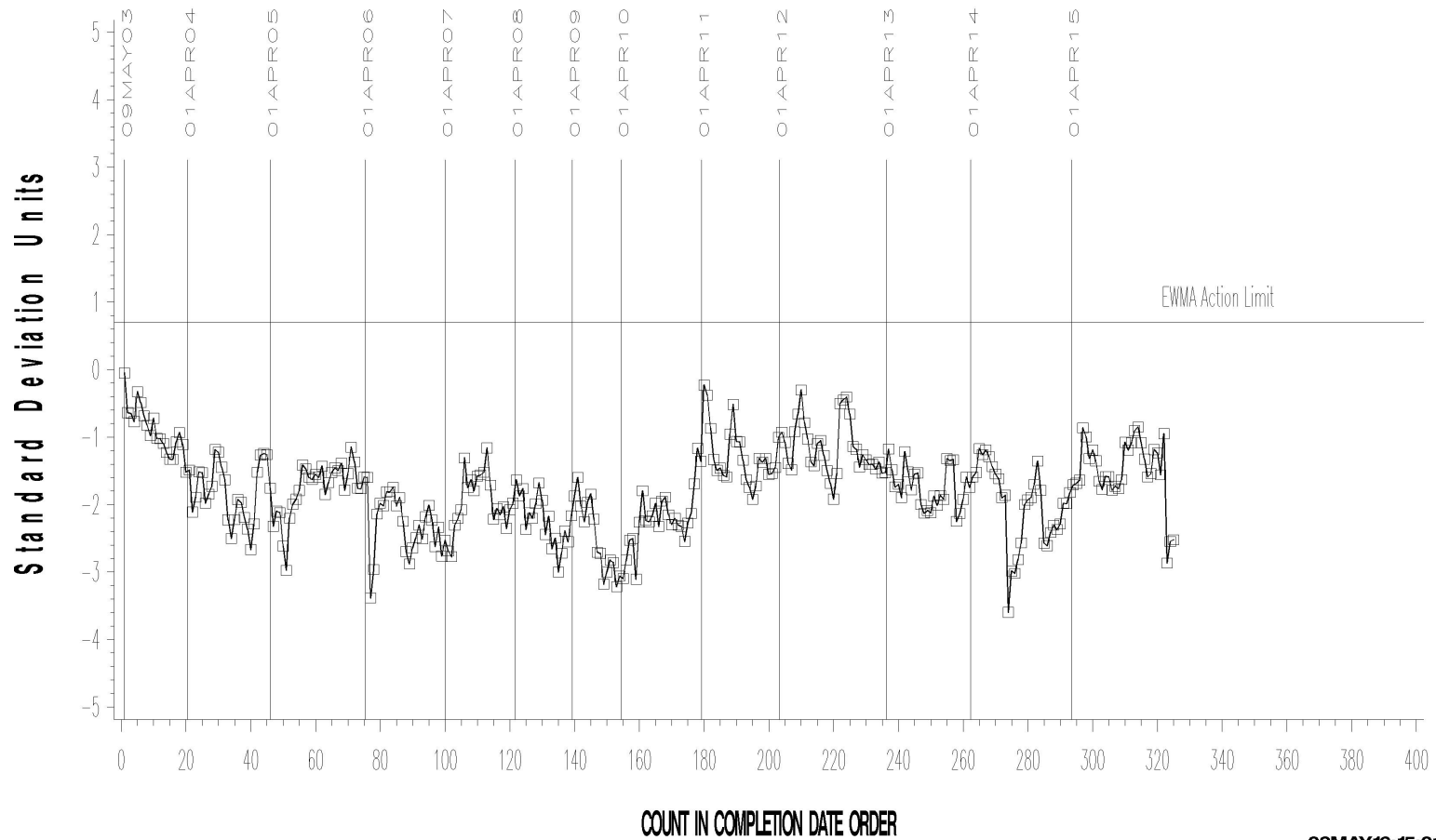
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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

SPITTING

LTMS Precision Analysis



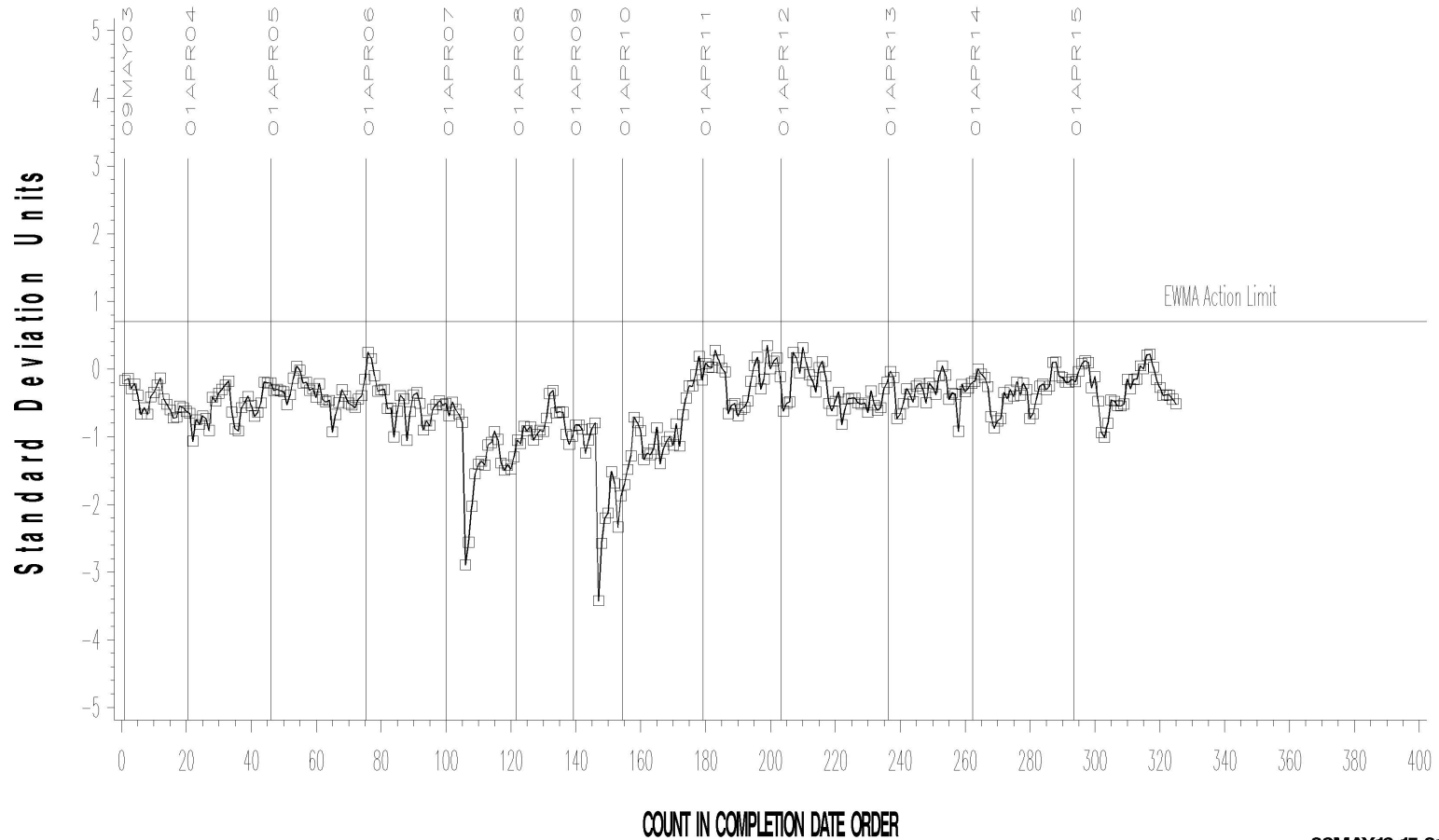
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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR

LTMS Precision Analysis



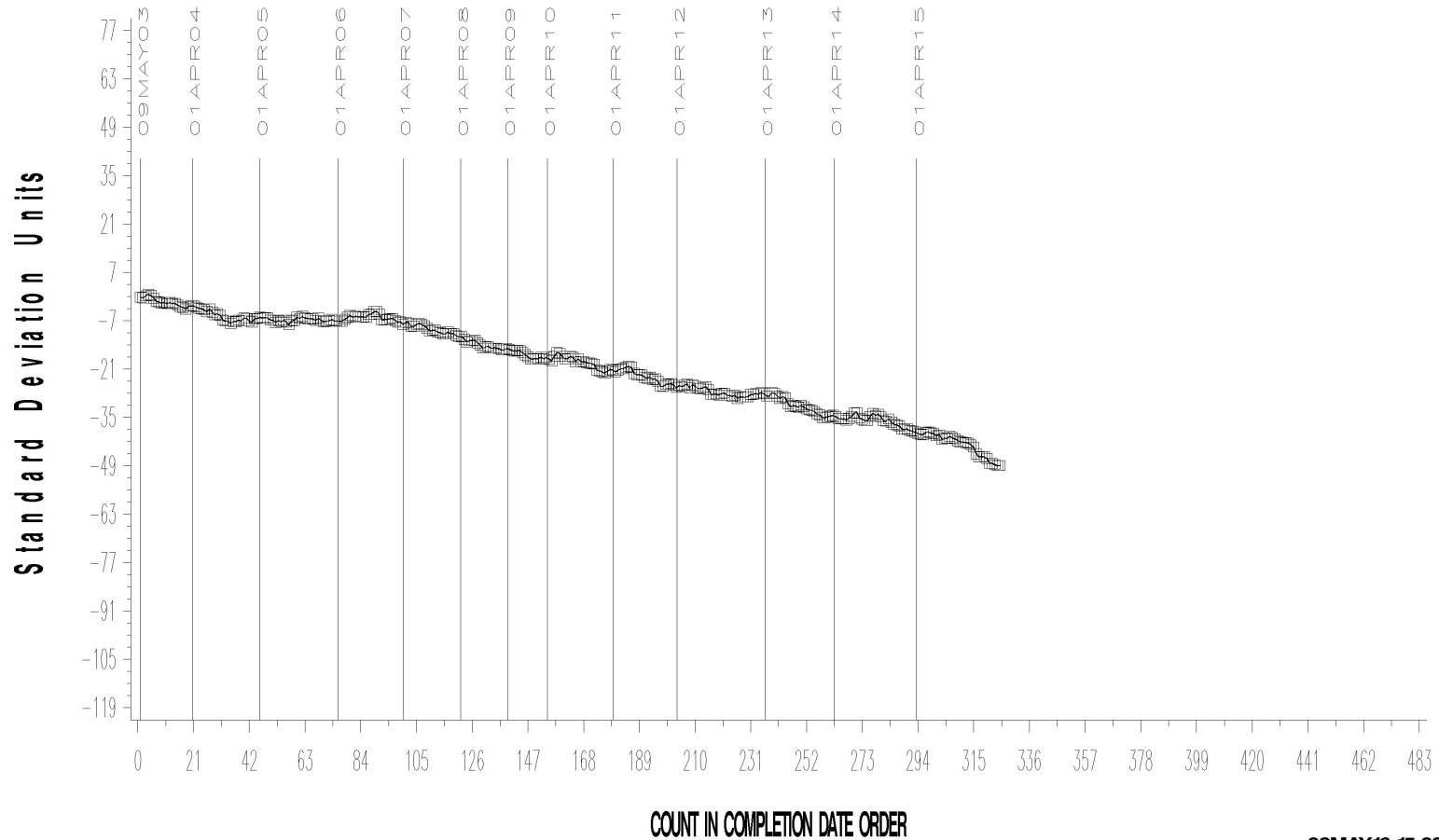
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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

CUSUM Severity Analysis



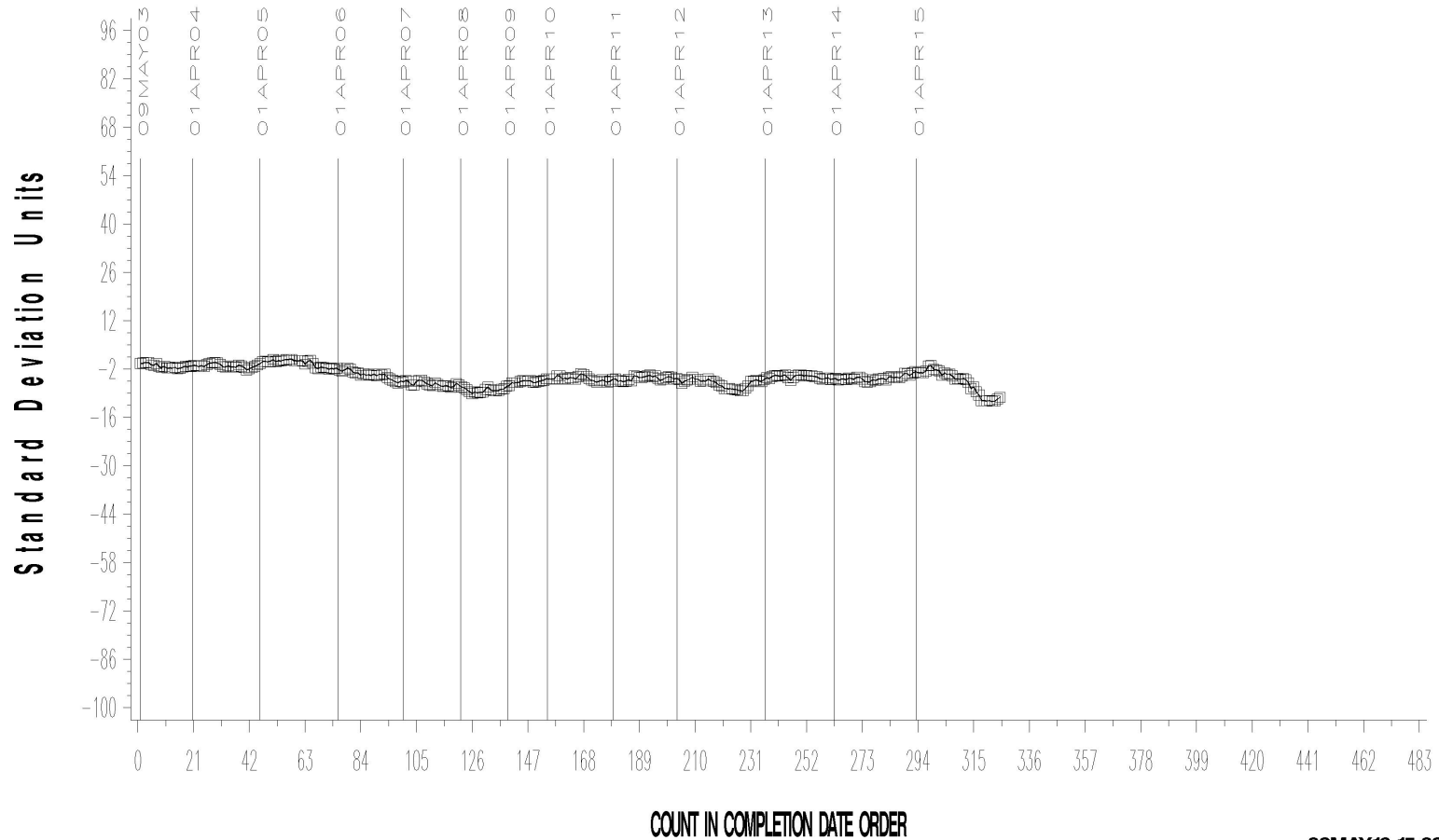
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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

CUSUM Severity Analysis



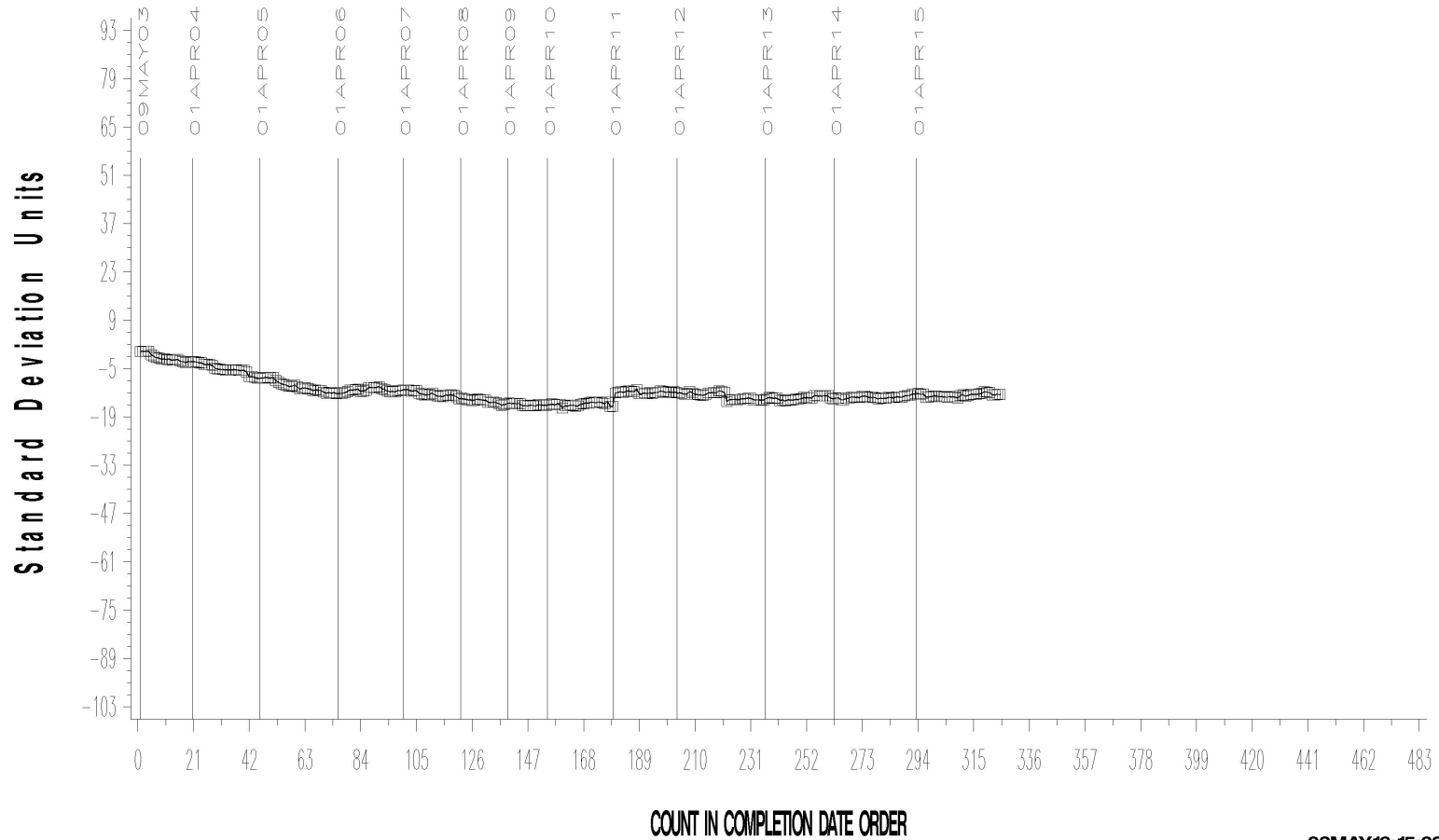
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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

SPITTING

CUSUM Severity Analysis

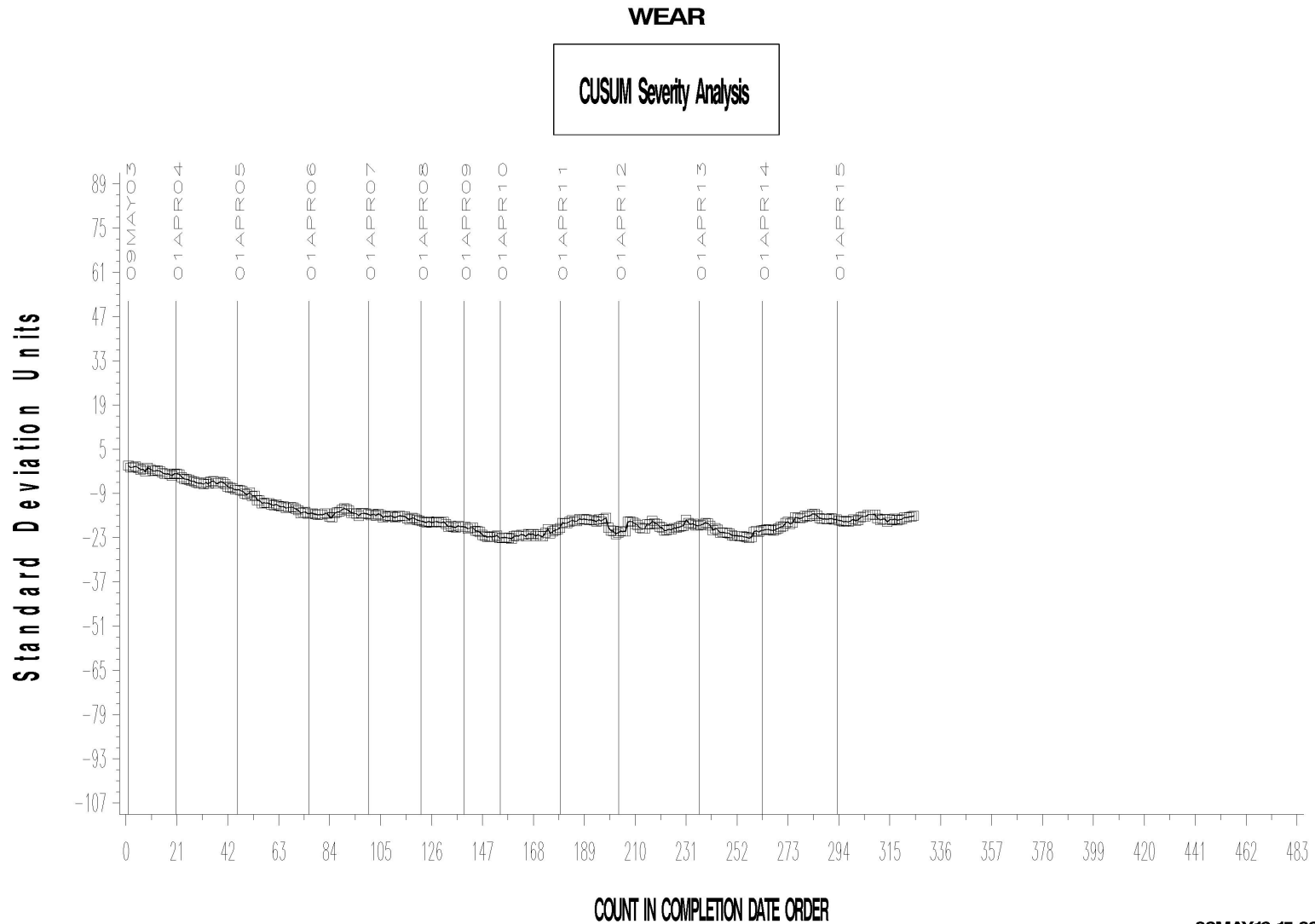


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# L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA



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