



Test Monitoring Center

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

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

MEMORANDUM: 19-008
DATE: April 17, 2019
TO: Rob Slocum, Chairman, L-37 Surveillance Panel
FROM: Dylan Beck *Dylan Beck*
SUBJECT: L-37 Rater Calibration from October 1, 2018 through March 31, 2019

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

DJB/djb/mem19-008.djb.doc

cc: Frank Farber
Jeff Clark

L-37 Surveillance Panel

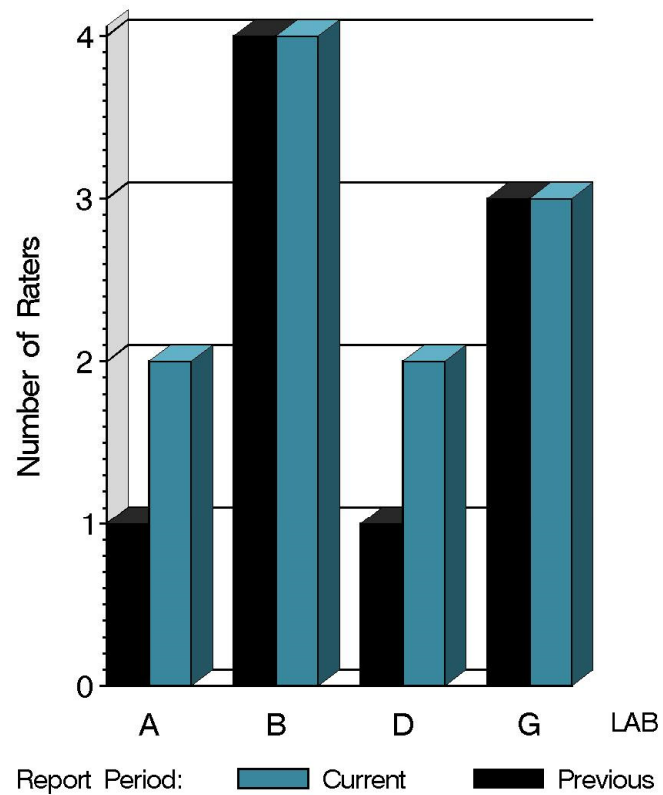
<http://www.astmtmc.cmu.edu/ftp/docs/gear/l37rc/semiannualreports/l37rc-04-2019.pdf>

Distribution: email

L-37 Rater Calibration

	Reporting Data	Calibrated on 3-31-19
Number of Labs	4	4
Number of Raters	11	11

BY-LAB RATER
DISTRIBUTION



8:27:20 12APR2019

L-37 Rater Calibration

Test Distribution by Validity

		Totals	
		Last Period	This Period
Accepted for calibration	AC	11	12
Rejected (Mild)	OC	3	1
Rejected (Severe)	OC	3	3
Rejected (Multiple)	OC	0	0
Rejected (Precision)	OC	0	1
Invalid*	LC	0	1
Workshop data	AG	15	15
Total		32	33

* Invalid test due to damage found on pinion tooth. Pinion removed from RC inventory.

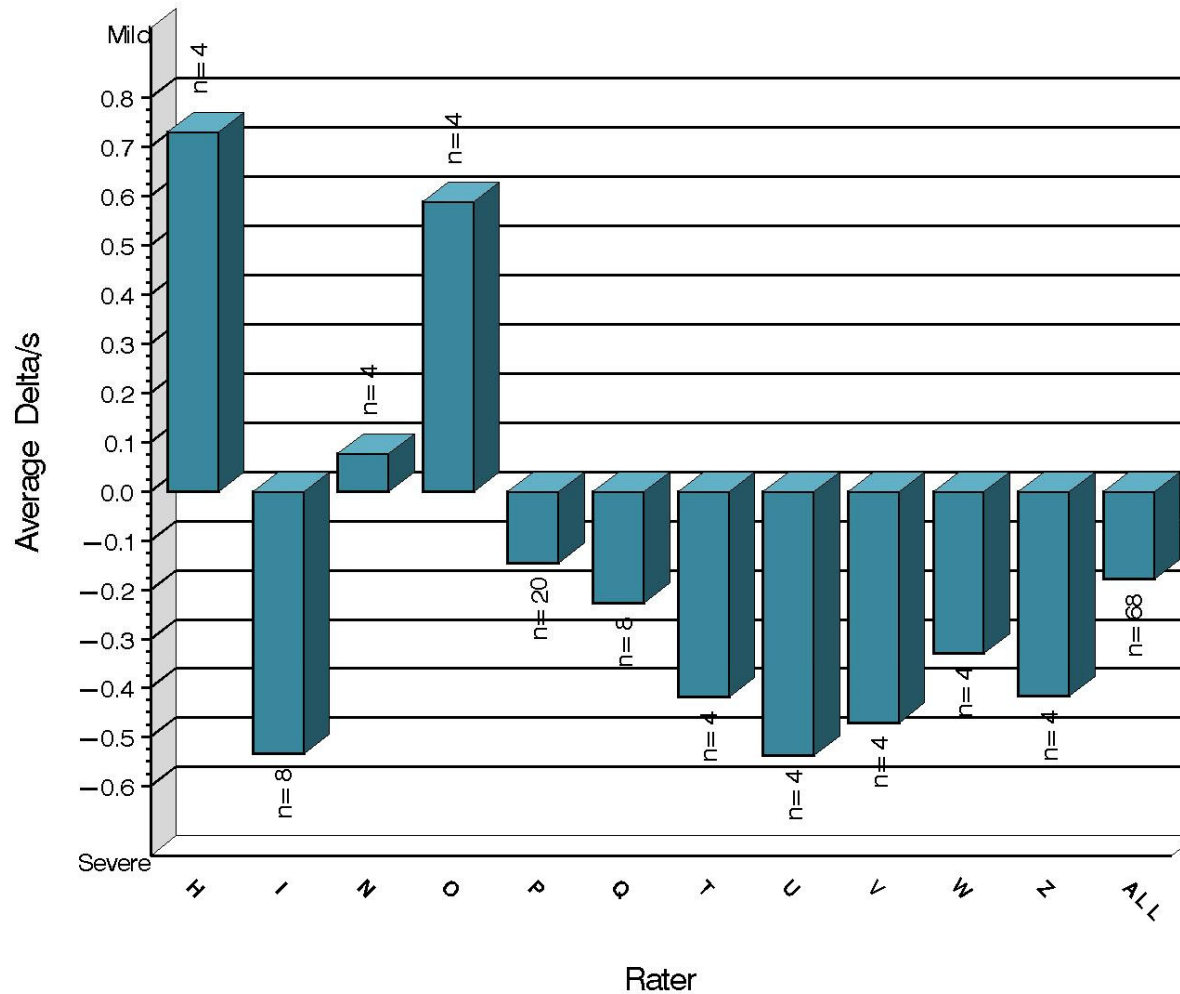
L-37 Rater Calibration

Rater	N	RIDG		RIPP		SPIT		WEAR	
		Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*
H	4	0.730	0.768	-0.398	1.127	0.646	1.407	0.144	0.747
I	8	-0.534	1.303	-0.291	1.179	0.085	0.344	0.082	0.694
N	4	0.077	0.872	-0.342	1.920	0.089	0.179	0.045	0.826
O	4	0.587	0.671	-1.668	1.112	-0.208	0.240	-0.776	0.336
P	20	-0.145	1.000	0.257	0.704	-0.055	0.364	0.847	1.707
Q	8	-0.226	0.747	-0.287	0.963	0.037	0.359	0.219	1.203
T	4	-0.420	0.442	-0.135	0.509	-0.258	0.620	-0.692	0.278
U	4	-0.539	0.561	-0.134	0.747	-0.030	0.509	0.168	0.747
V	4	-0.472	0.730	-0.088	0.937	0.063	0.279	-0.181	0.608
W	4	-0.329	0.175	-0.097	1.306	-0.354	1.142	-0.647	0.643
Z	4	-0.418	0.808	-0.274	1.144	-0.323	0.491	-0.391	0.581
ALL	68	-0.178	0.895	-0.177	1.034	-0.024	0.552	0.147	1.212

* 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

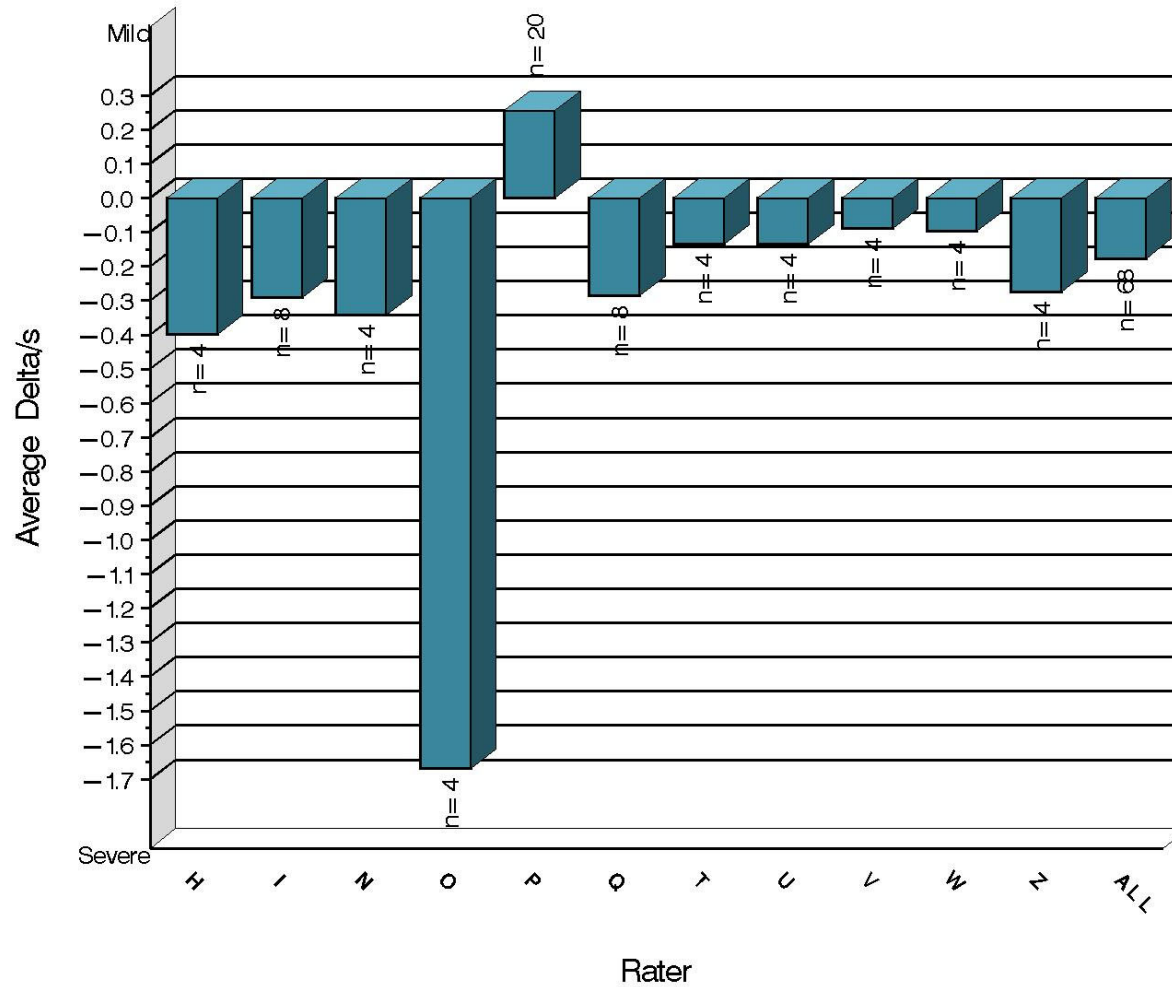


858.06 15APR2019

L-37 Rater Calibration

RIPPLING

Severity as Measured by Delta/s

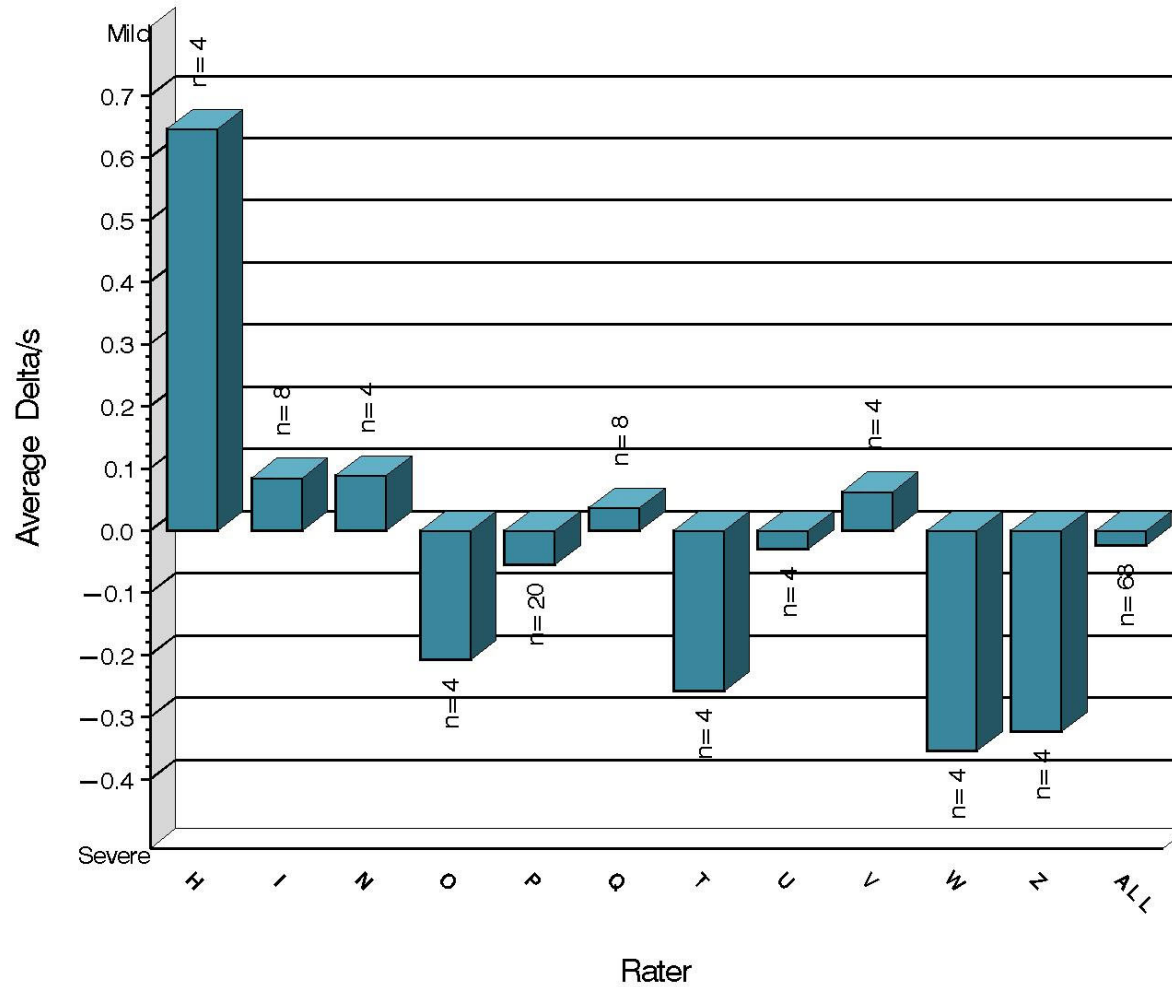


858:06 15APR2019

L-37 Rater Calibration

SPITTING

Severity as Measured by Delta/s

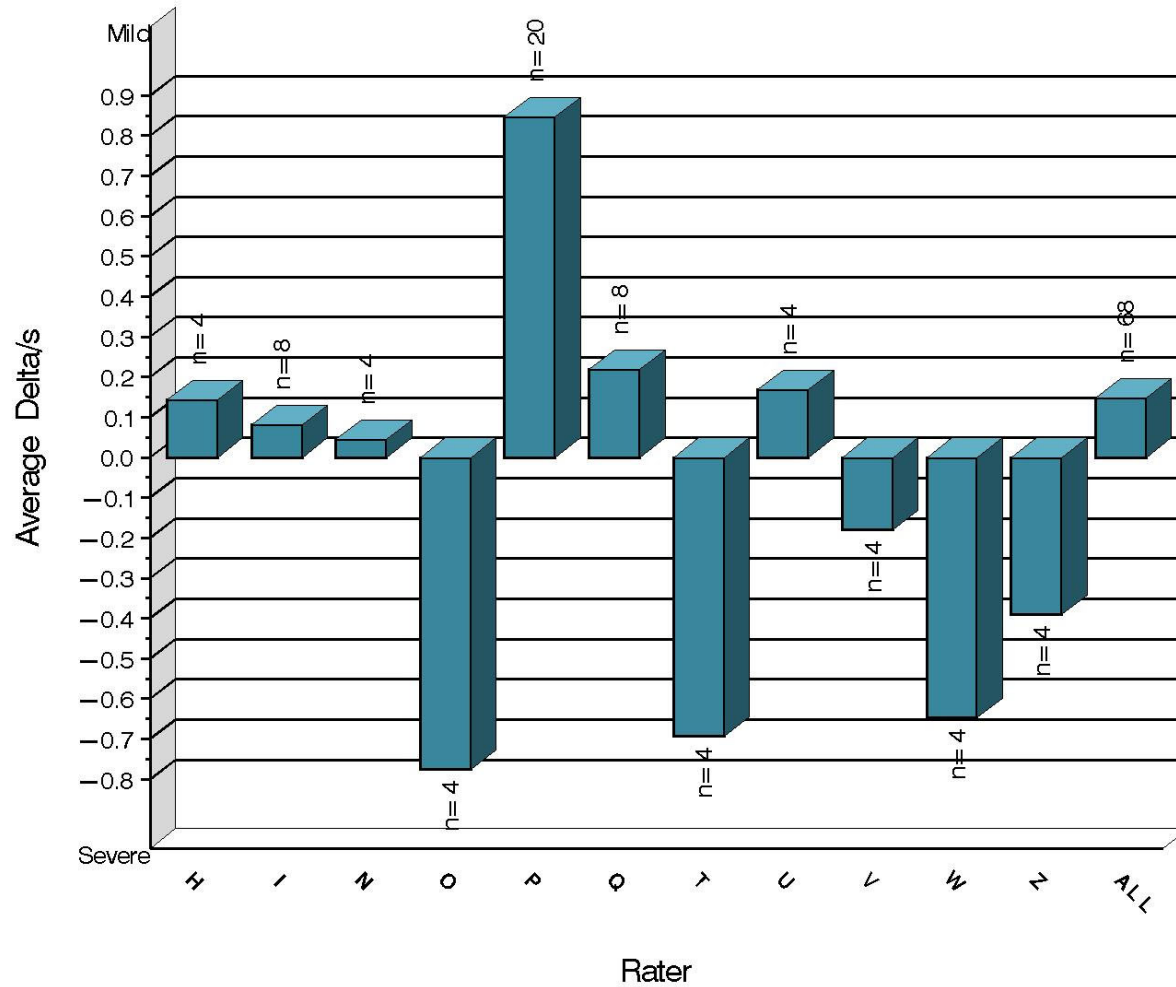


858:06 15APR2019

L-37 Rater Calibration

WEAR

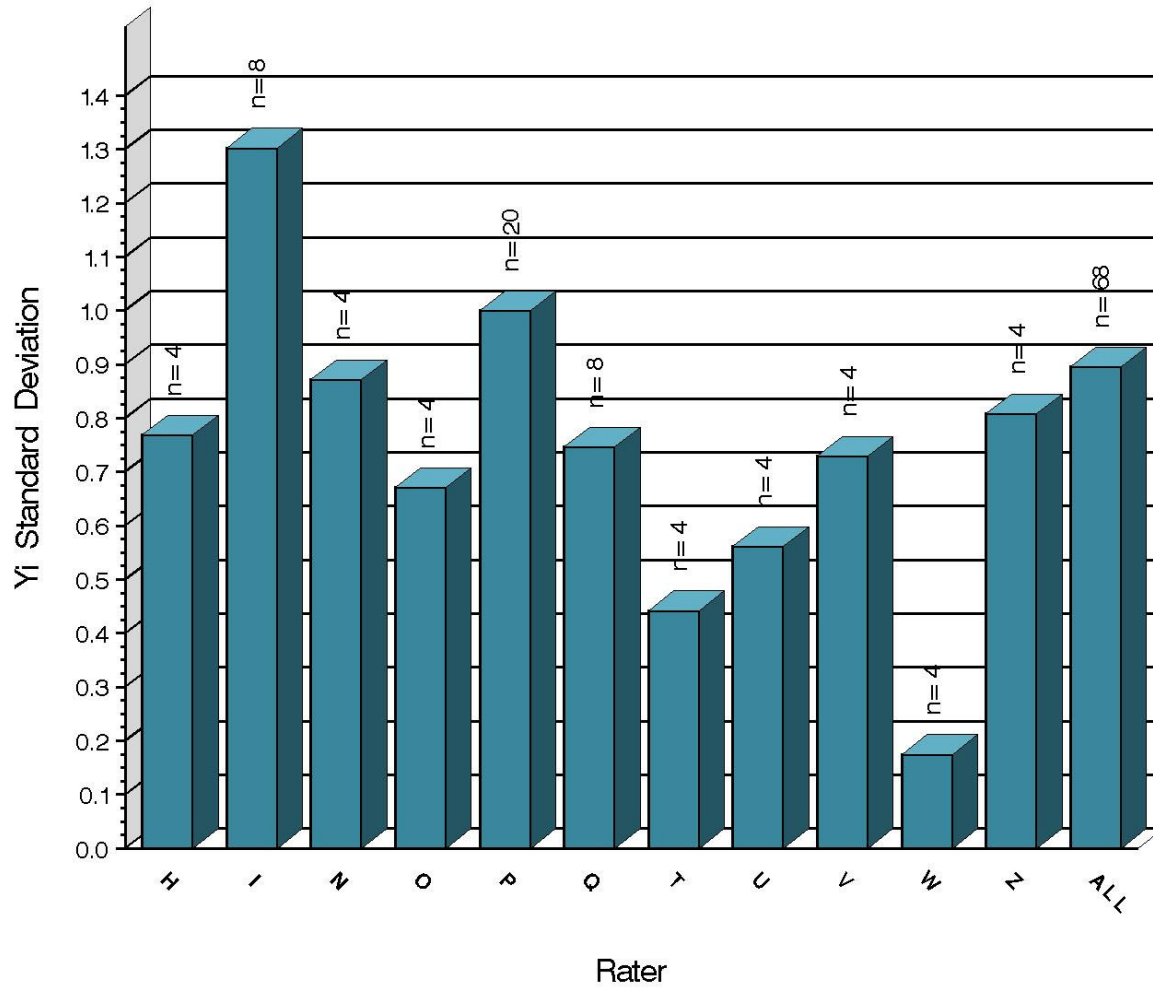
Severity as Measured by Delta/s



858:06 15APR2019

L-37 Rater Calibration

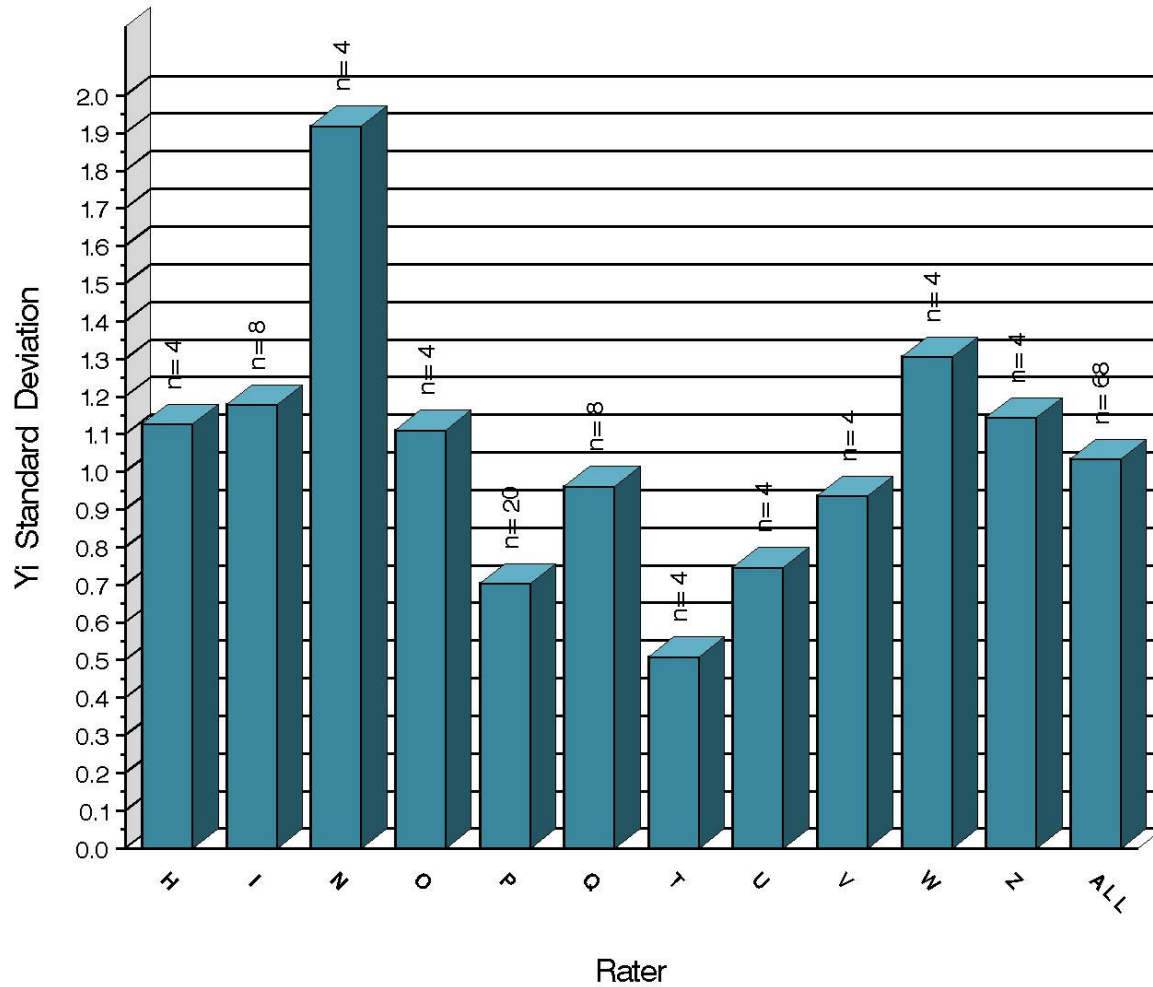
RIDGING
Precision as Measured by Y1 STD



858.06 15APR2019

L-37 Rater Calibration

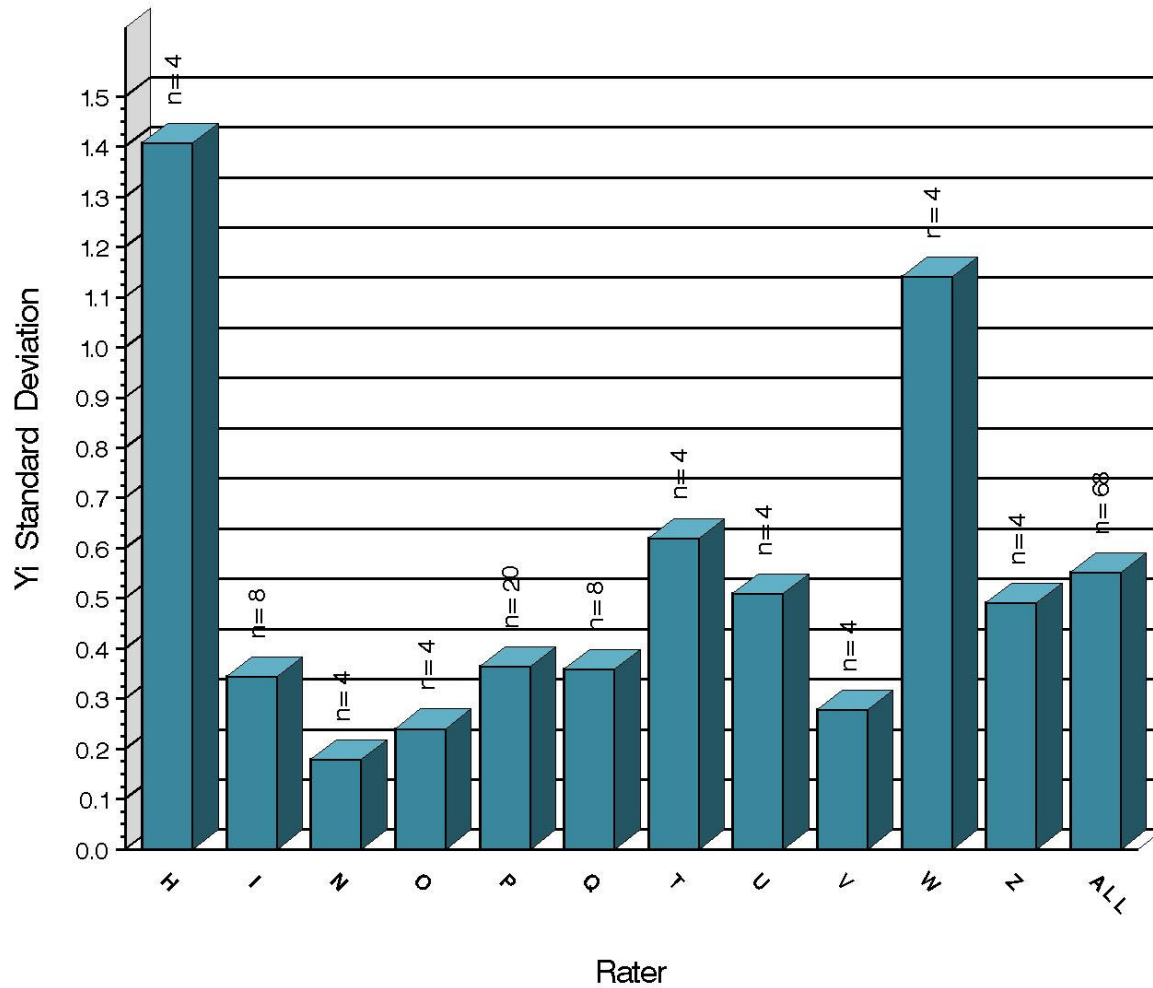
RIPPLING
Precision as Measured by Y1 STD



858:06 15APR2019

L-37 Rater Calibration

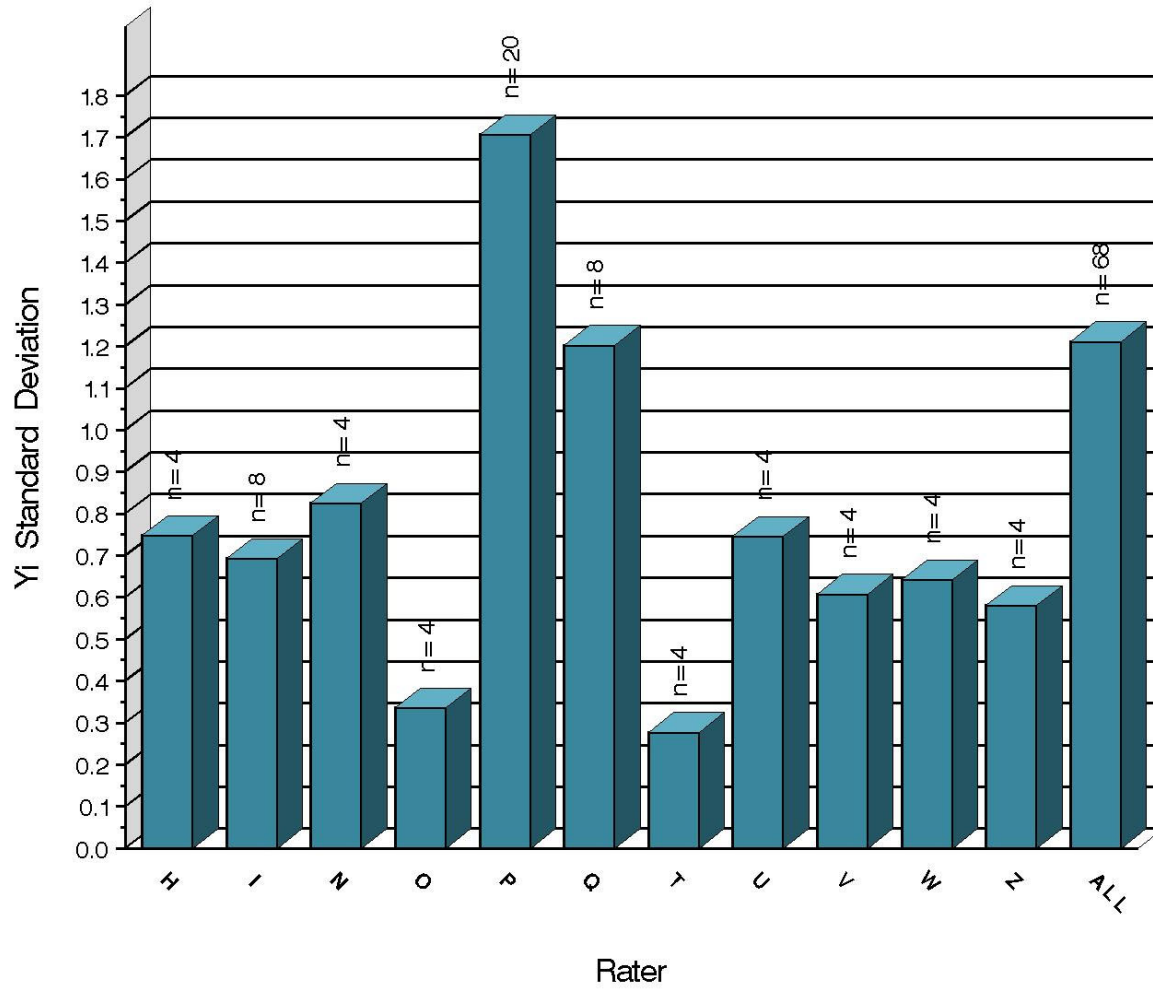
SPITTING
Precision as Measured by Y1 STD



858:06 15APR2019

L-37 Rater Calibration

WEAR
Precision as Measured by Y1 STD



858.06 15APR2019

L-37 Rater Calibration

SUMMARY OF SEVERITY & PRECISION

Severity

WEAR and RIDG both exceeded the action limit this period, both have since returned to within limits. All other parameters remained within limits throughout the period.

Precision

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

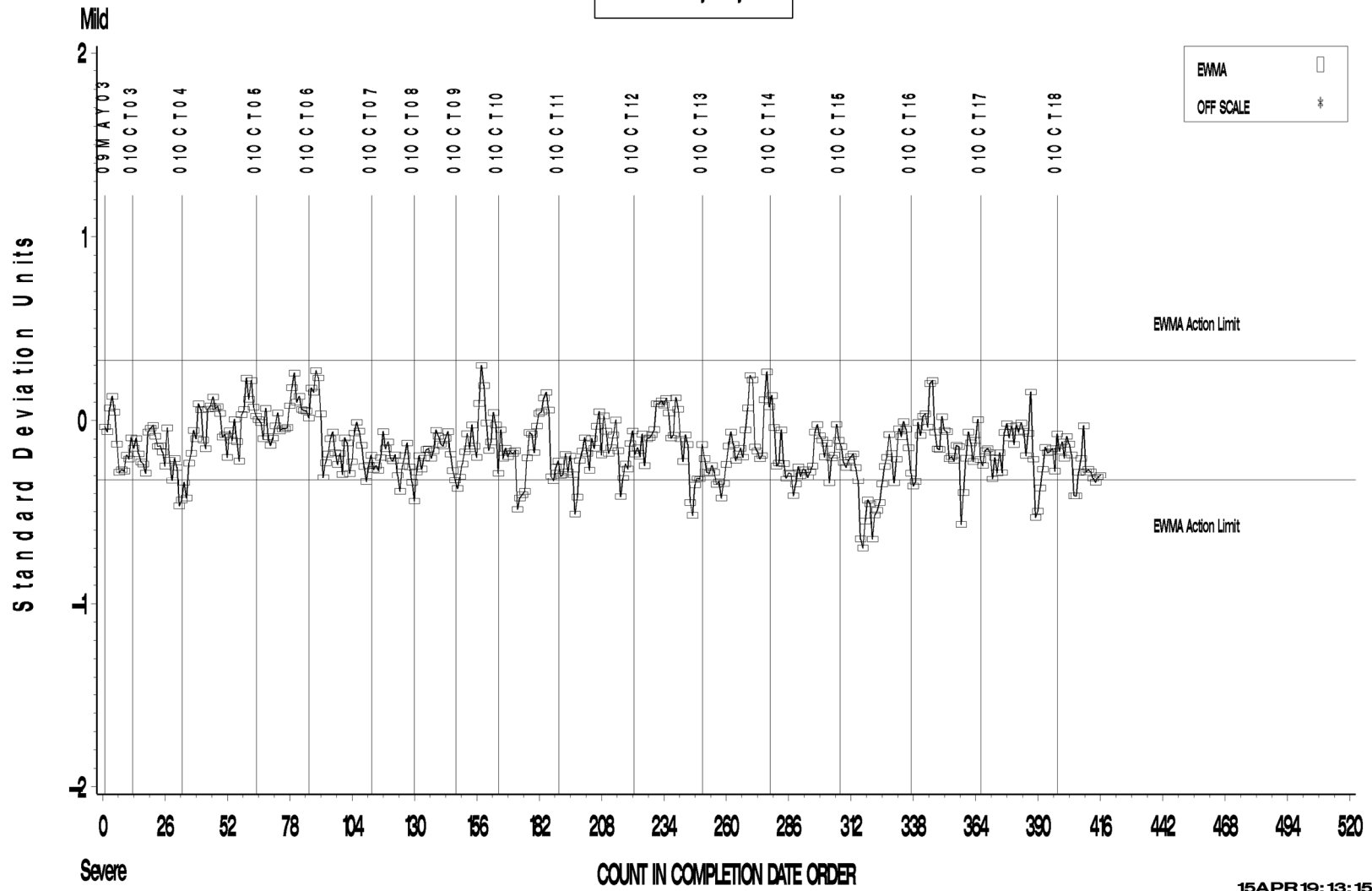
Industry rater control charts follow.

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

LTMS Severity Analysis



15APR19:13:15

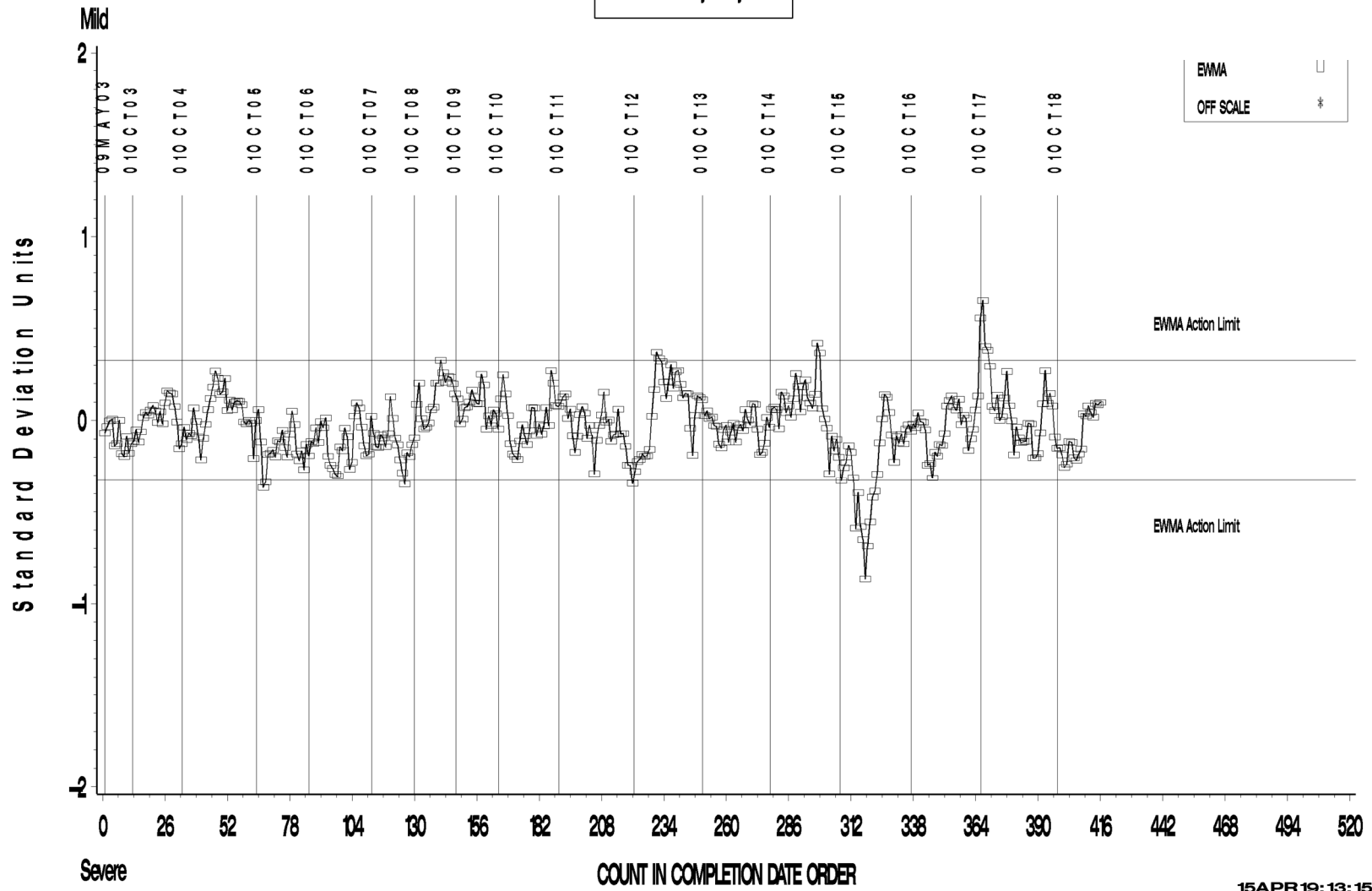
L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA



RIPPLING

LTMS Severity Analysis



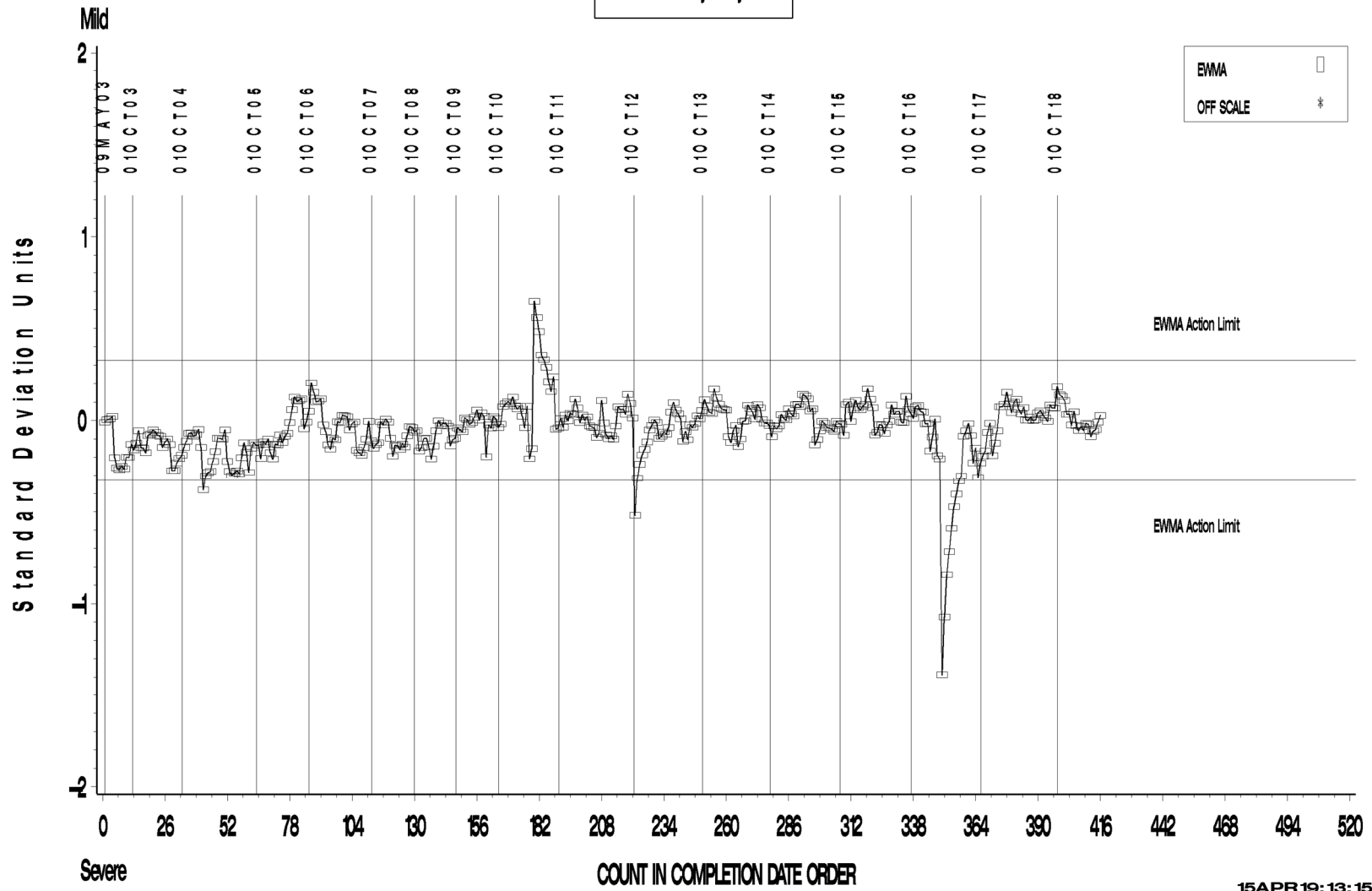
15APR19:13:15

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

SPITTING

LTMS Severity Analysis



15APR19:13:15

Test Monitoring Center

<http://astmtmc.cmu.edu>

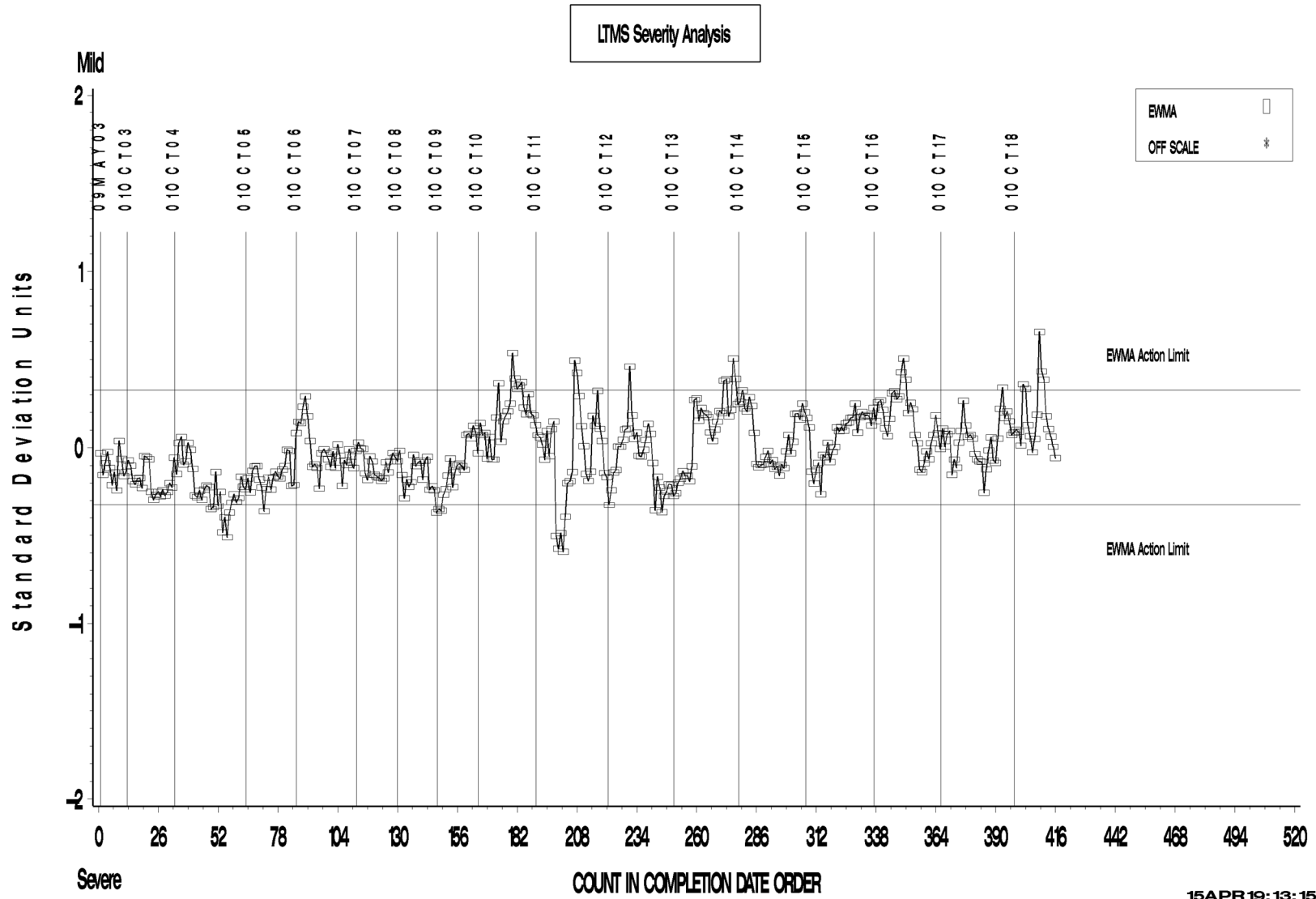


A Program of ASTM International

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR



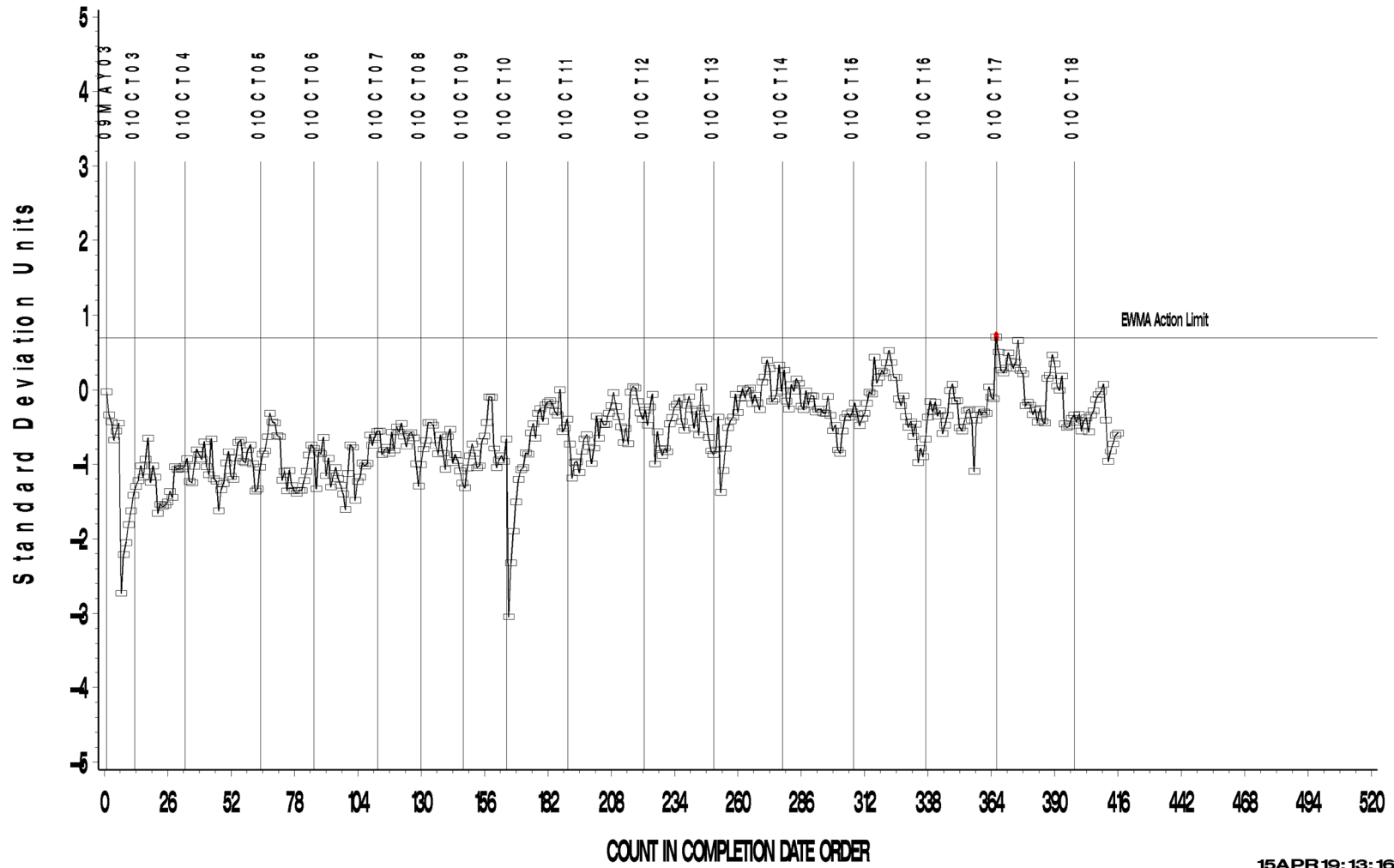
15APR19:13:15

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

LTMS Precision Analysis



15APR19:13:16

Test Monitoring Center

<http://astmtmc.cmu.edu>



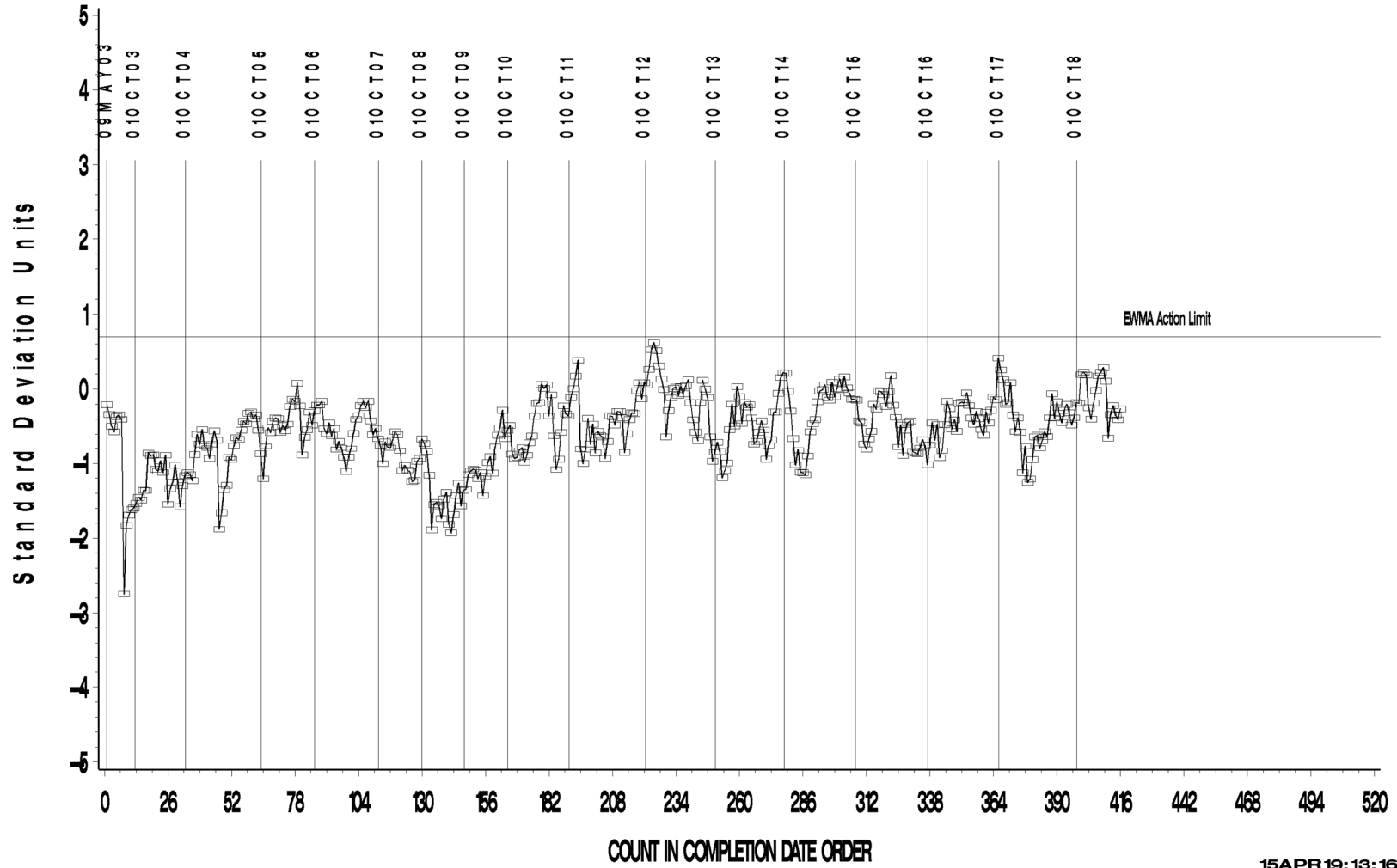
A Program of ASTM International

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

LTMS Precision Analysis



15APR19:13:16

Test Monitoring Center
<http://astmtmc.cmu.edu>

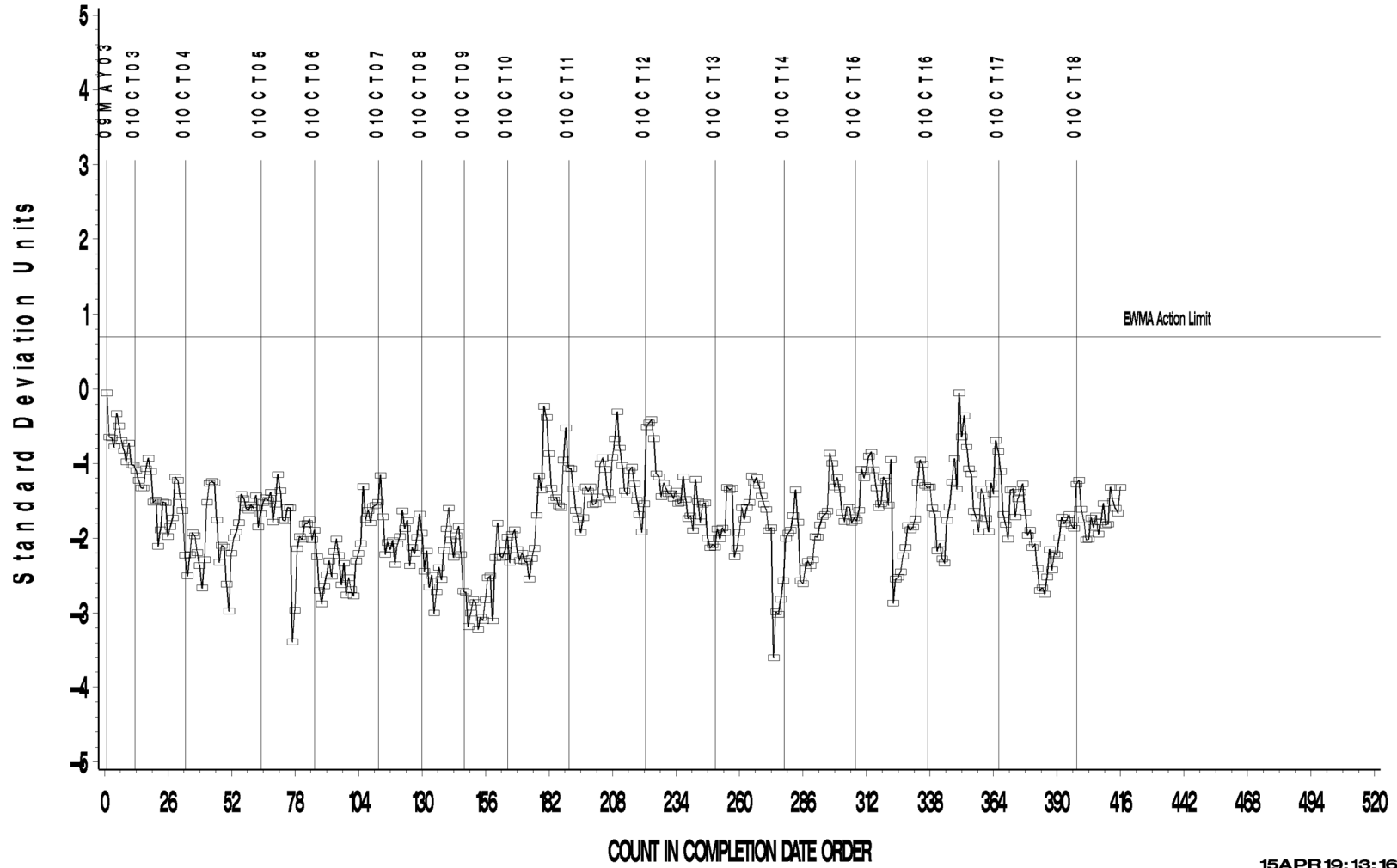


L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

SPITTING

LTMS Precision Analysis



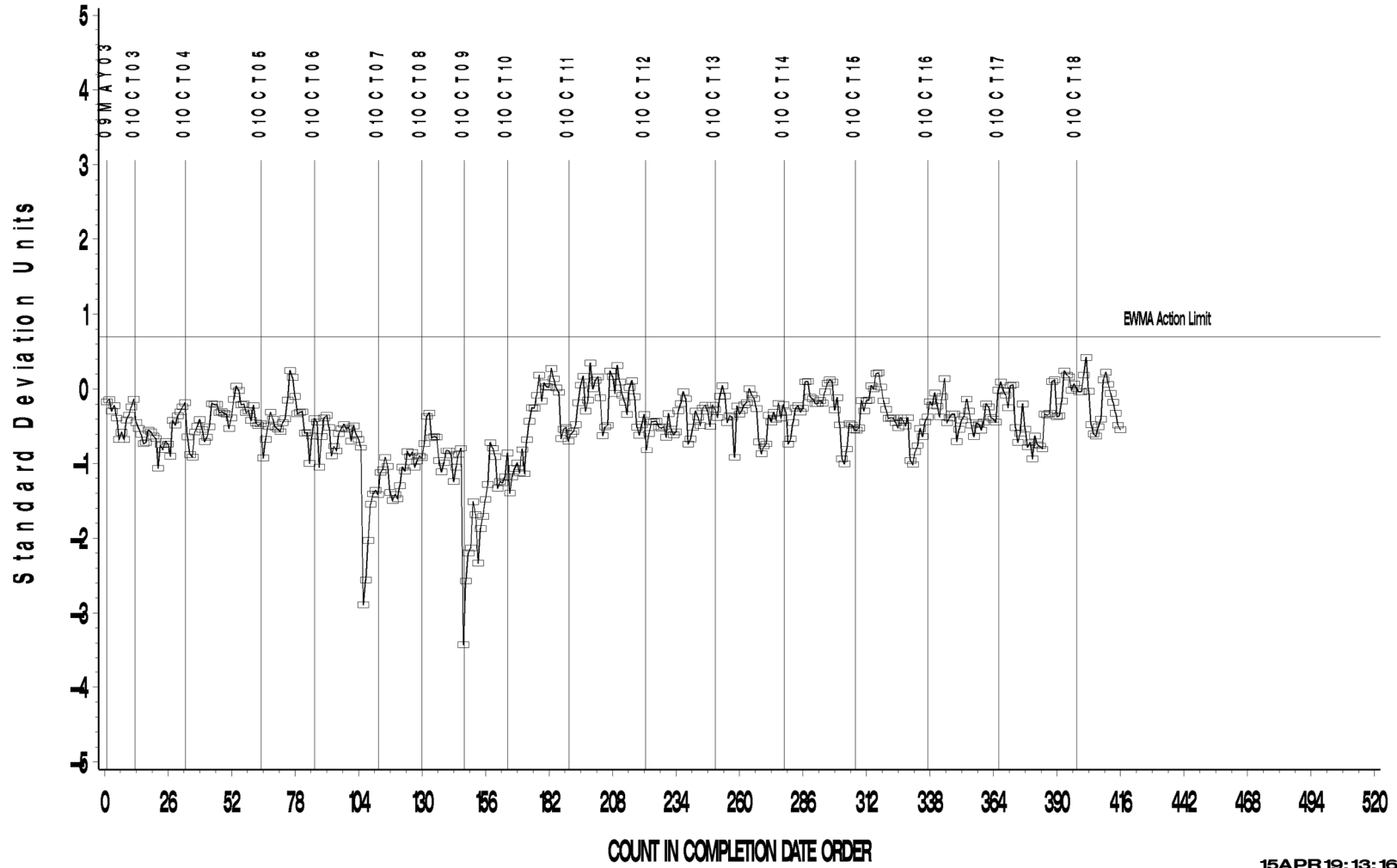
15APR19:13:16

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR

LTMS Precision Analysis



15APR19:13:16

Test Monitoring Center
<http://astmtmc.cmu.edu>



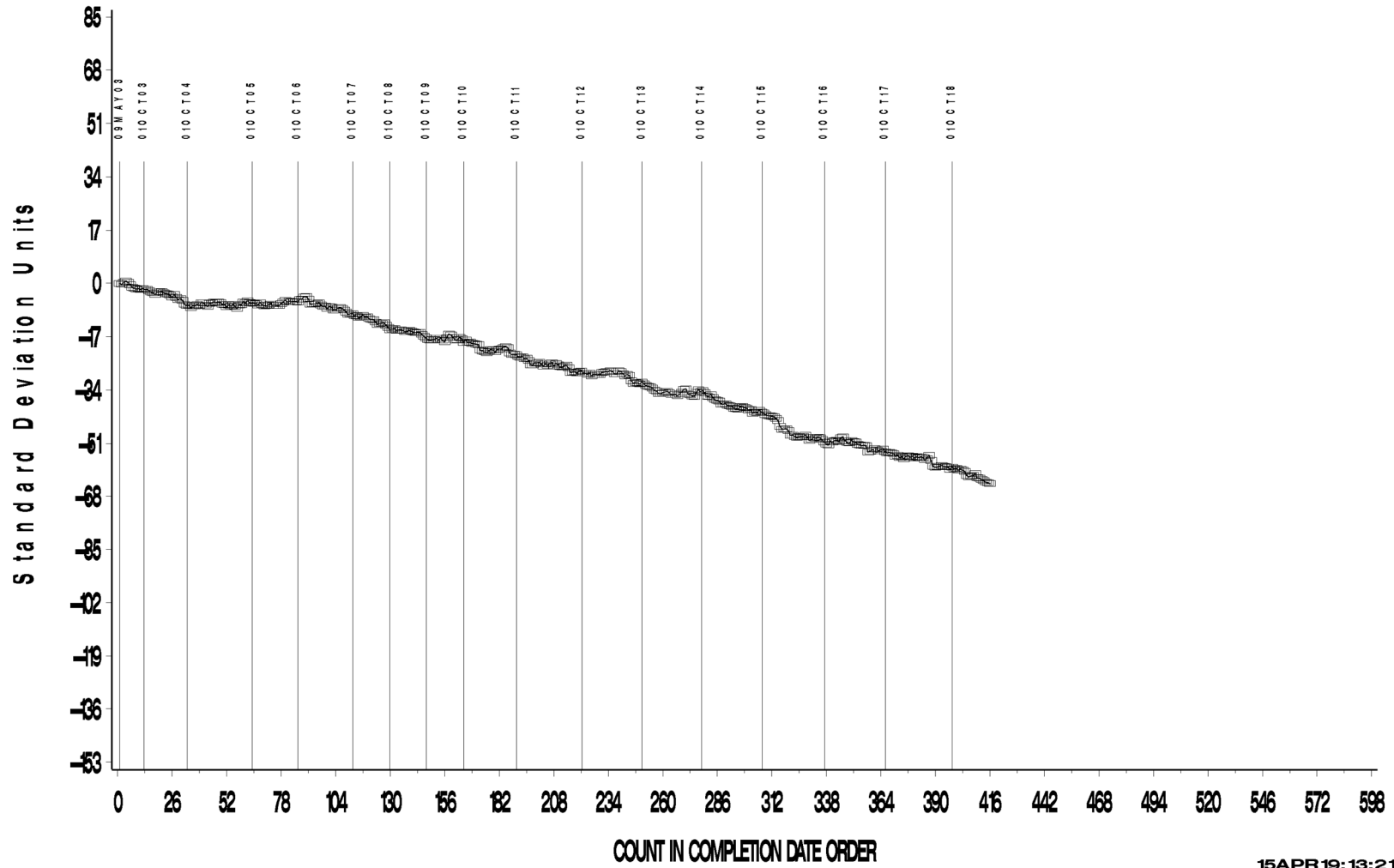
A Program of ASTM International

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

CUSUM Severity Analysis



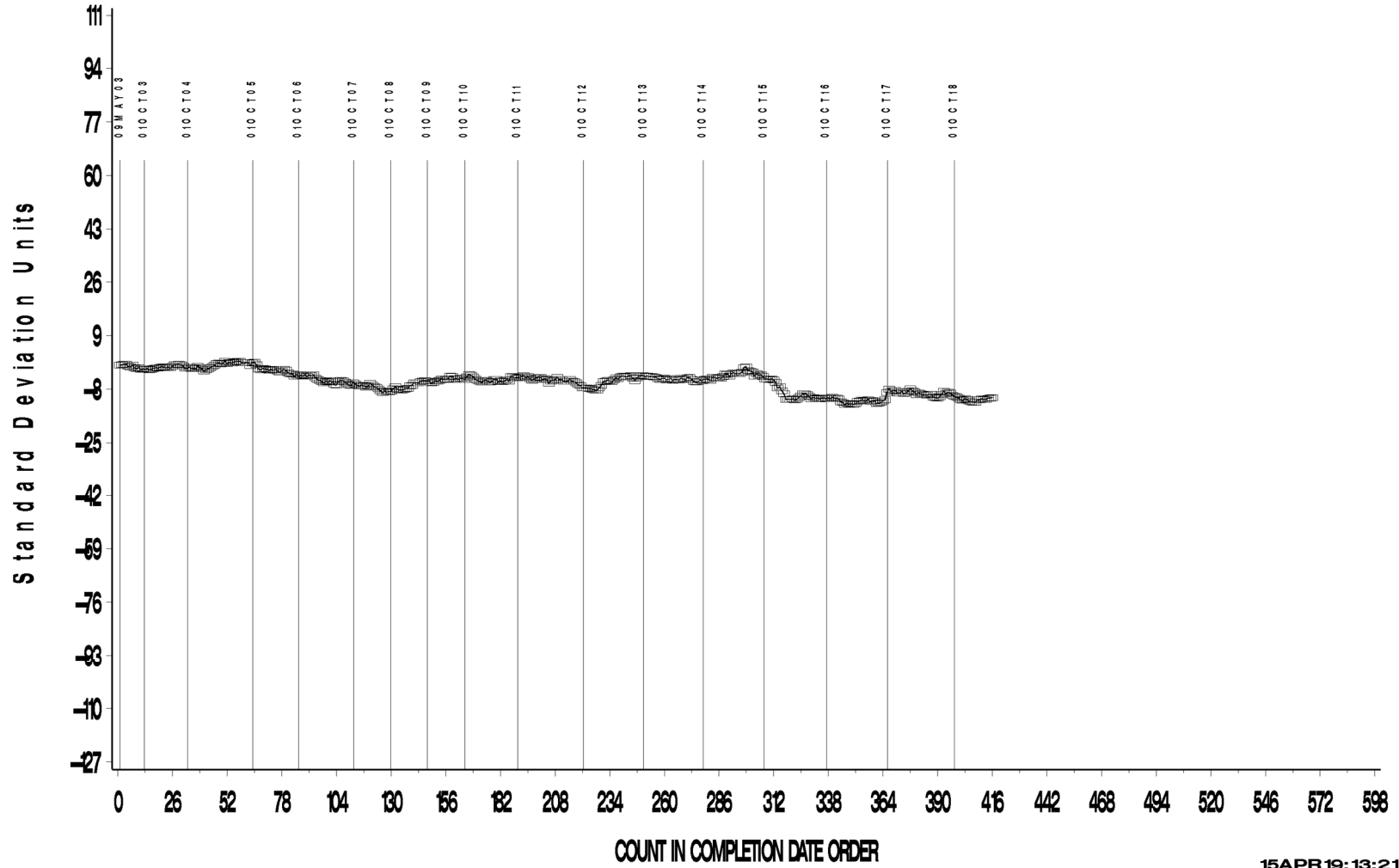
15APR19:13:21

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

CUSUM Severity Analysis



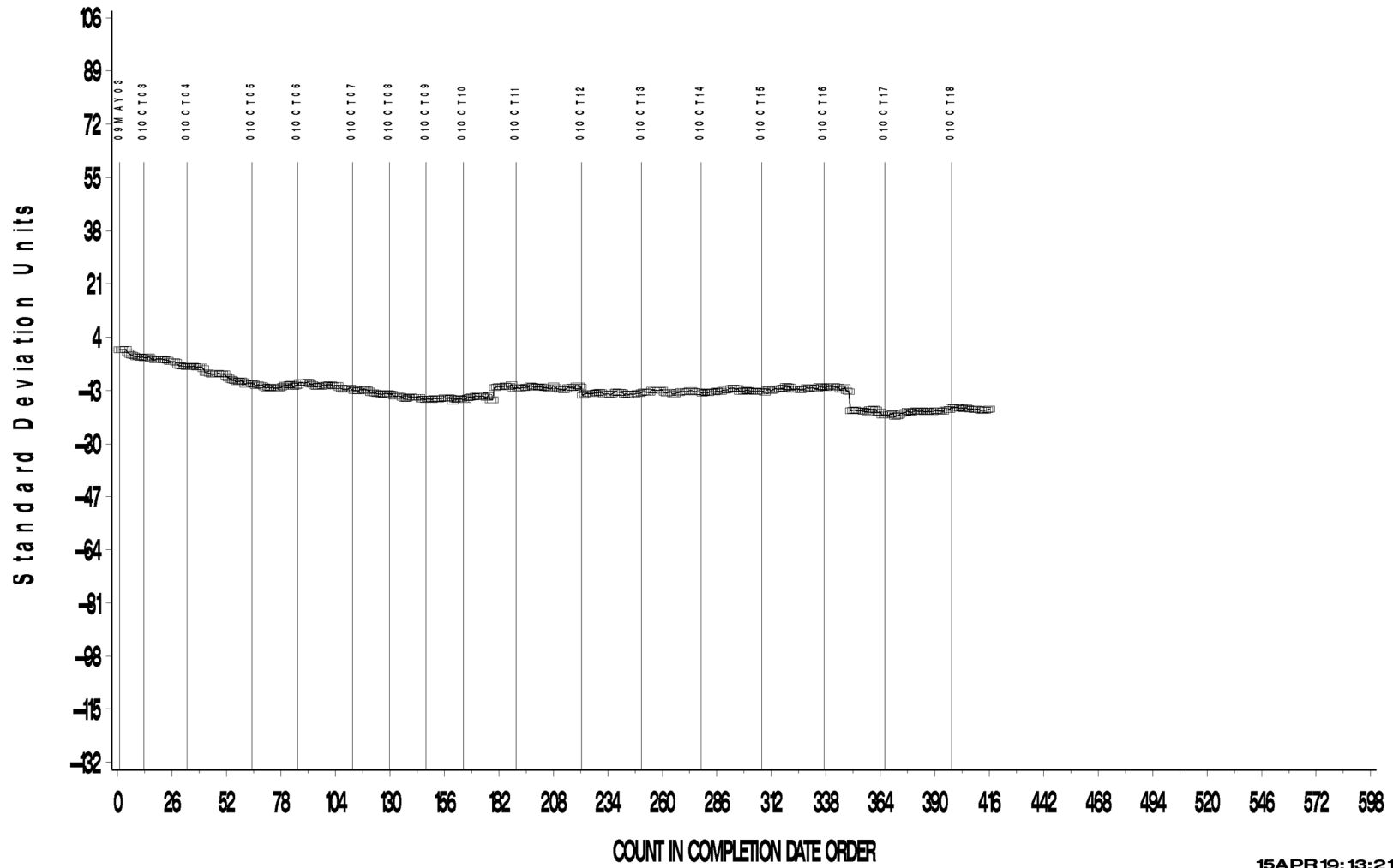
15APR19:13:21

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DAT

SPITTING

CUSUM Severity Analysis



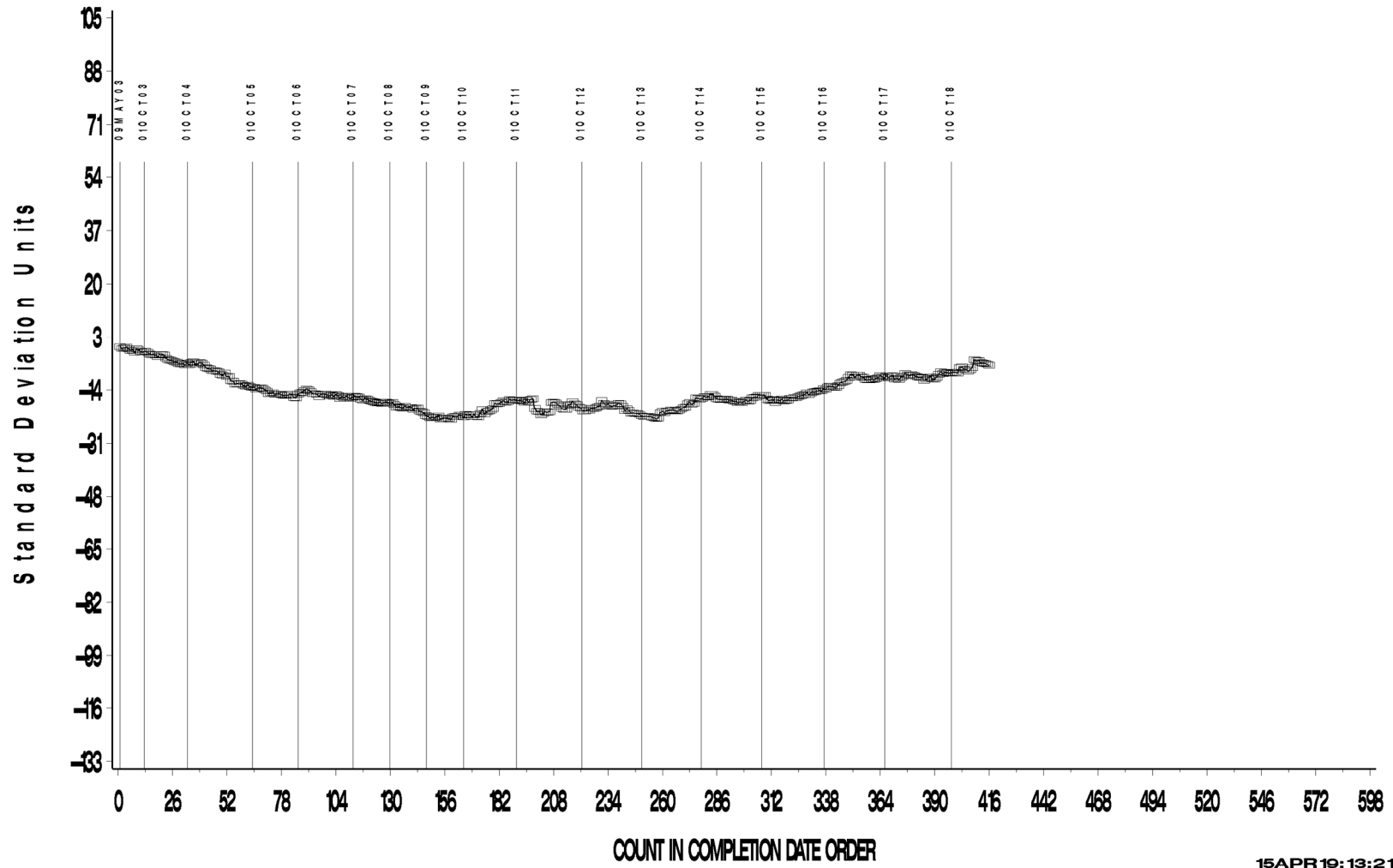
15APR19:13:21

L-37 Rater Calibration

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

WEAR

CUSUM Severity Analysis



15APR19:13:21