A Program of ASTM International

Test Monitoring Center

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412-365-1000

MEMORANDUM: 11-062

DATE: December 7, 2011

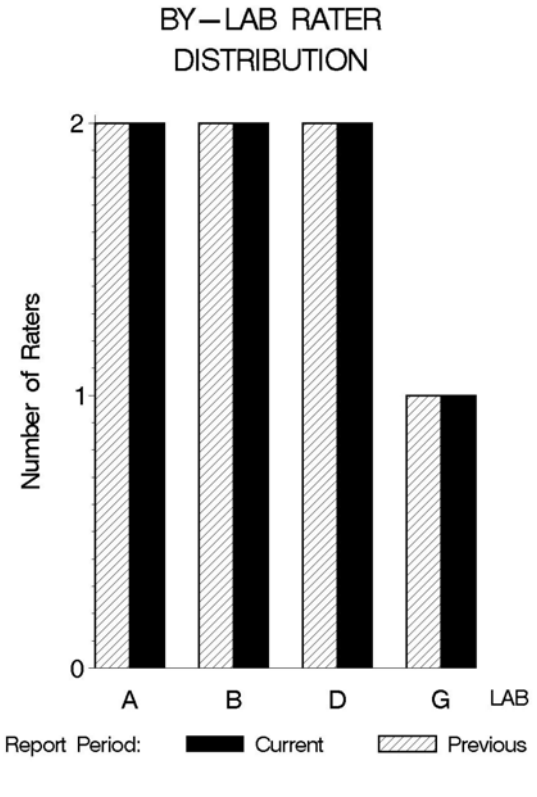
TO: Galen Greene, Chairman, L-37 Surveillance Panel

FROM: Scott Parke

SUBJECT: L-37 Rater Calibration from April 1, 2011 through September 30, 2011

The following is a summary of L-37 rater calibration activity from April 1, 2011 through September 30, 2011.

	Reporting Data	Calibrated on 9-30-2011
Number of Raters	7	7

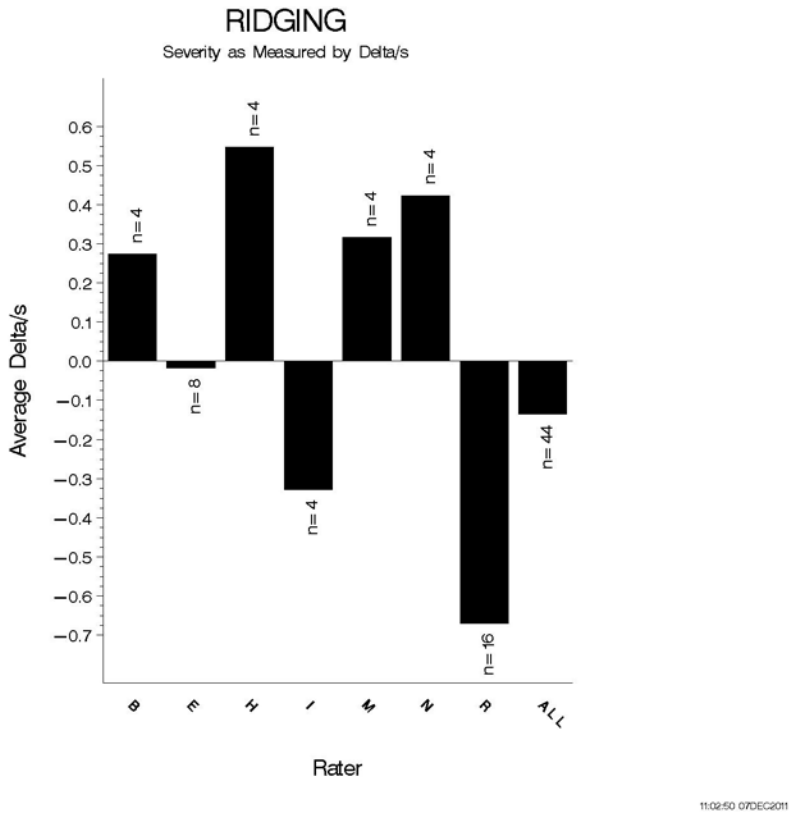


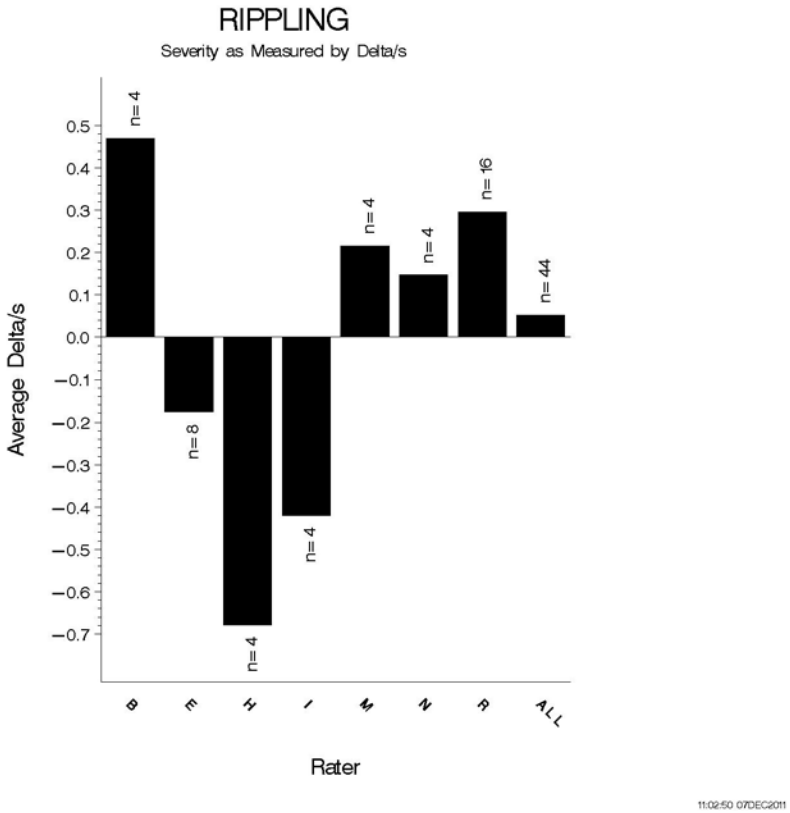
Test Distribution by Oil and Validity

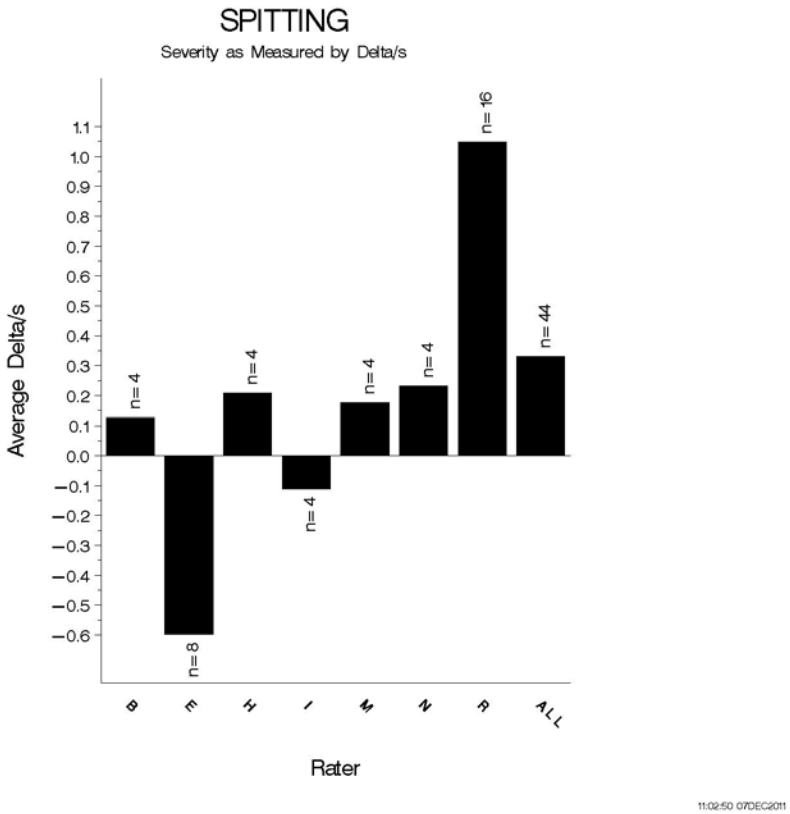
		Totals	
		Last Period	This Period
Accepted for calibration	AC	10	8
Rejected (mild)	OC	1	1
Rejected (severe)	OC	3	1
Rejected (multiple)	OC	1	1
Workshop data	AG	21	18
Total		36	29

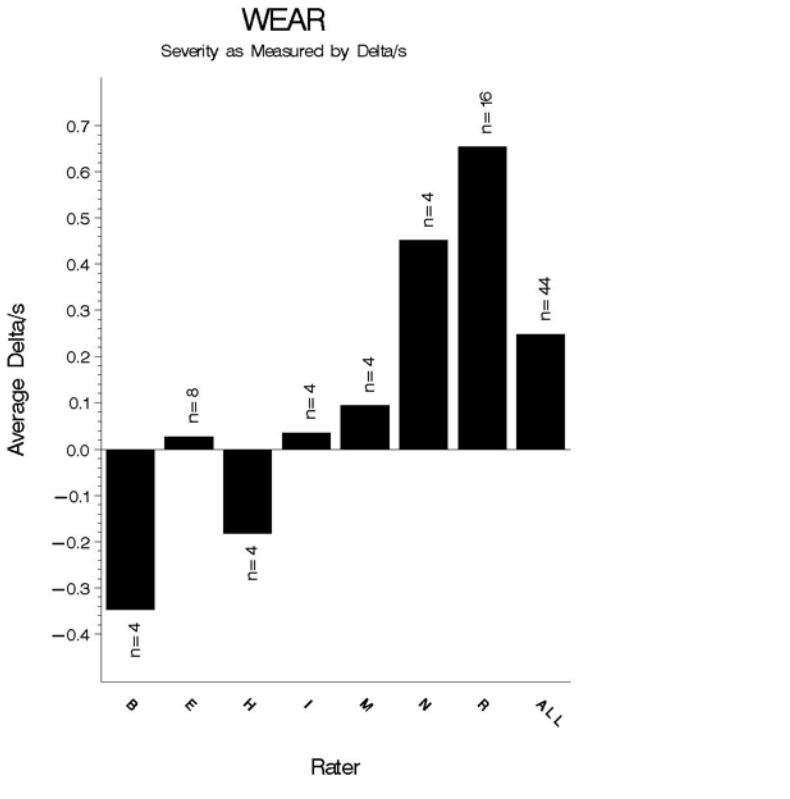
		Ridging		Rippling		Spitting		Wear	
Rater	N	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*
B	4	0.272	0.599	0.469	0.201	0.125	0.437	-0.346	0.663
E	8	-0.017	0.741	-0.175	0.626	-0.595	1.180	0.026	0.538
H	4	0.546	1.154	-0.678	0.927	0.207	0.520	-0.180	0.767
I	4	-0.326	0.646	-0.419	0.688	-0.109	0.315	0.035	0.728
M	4	0.315	0.827	0.215	0.315	0.175	0.209	0.092	0.833
N	4	0.422	0.687	0.146	0.213	0.230	0.296	0.450	0.681
R	16	-0.668	1.092	0.294	1.331	1.046	3.526	0.653	1.228
ALL	44	-0.134	0.975	0.051	0.953	0.329	2.233	0.247	0.945

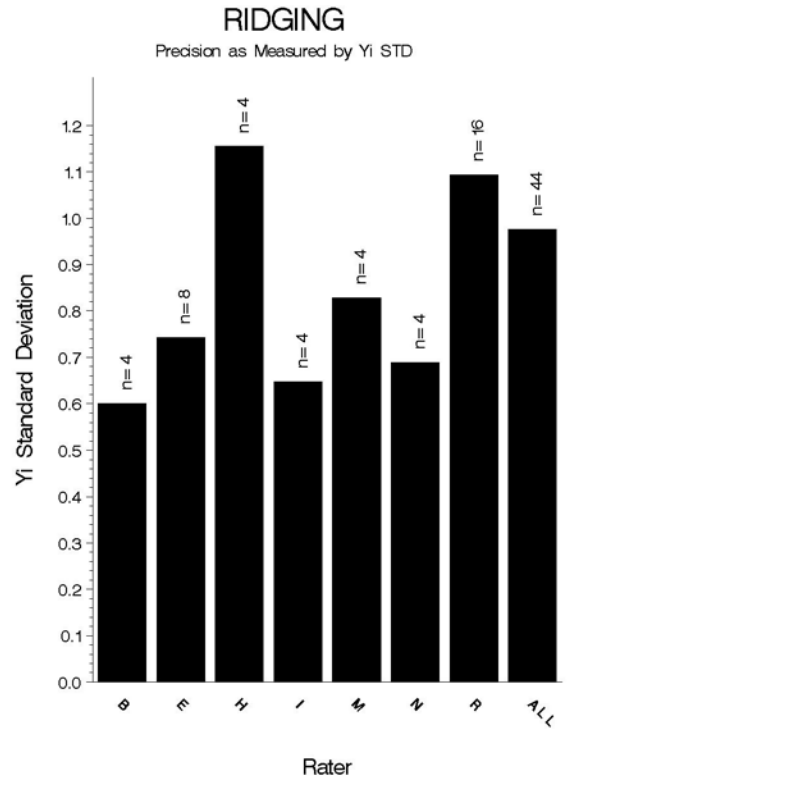
* Due to the small number of ratings per pinion, the standard deviation of the Yi values is given in place of a pooled standard deviation.

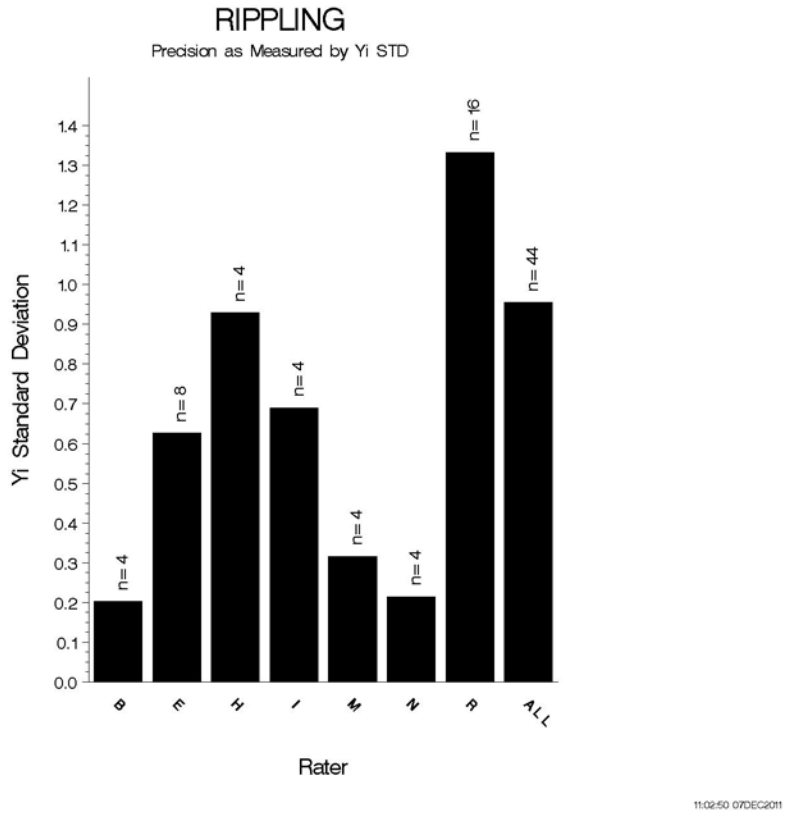


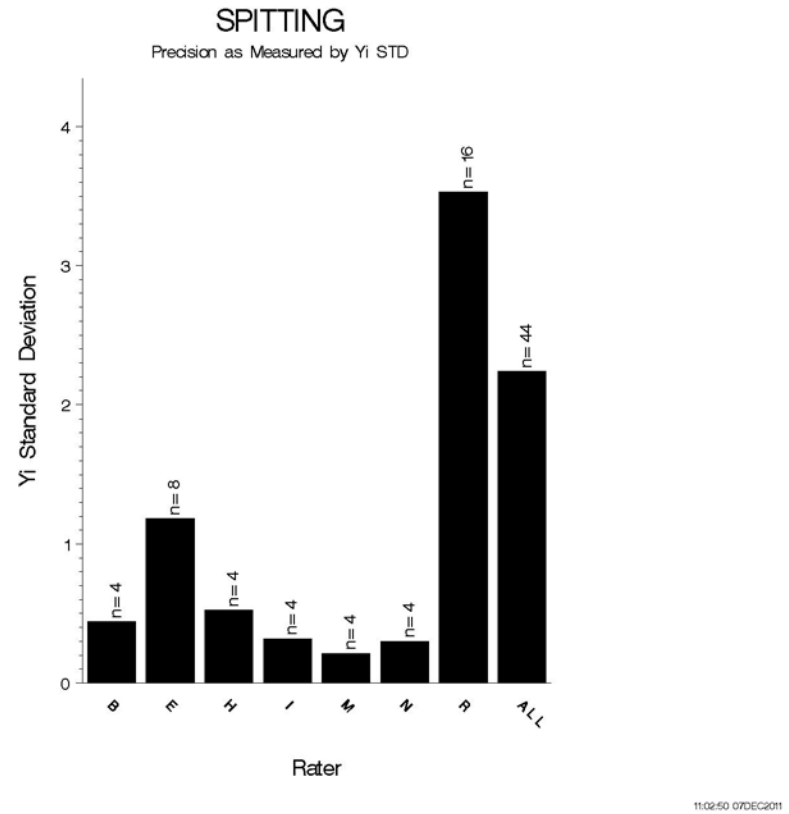

RIPPLING
Severity as Measured by Delta/s
Average Delta/s
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−0.4
−0.5
−0.6
−0.7
n= 4
n= 8
n= 4
n= 4
n= 4
n= 4
n= 16
n= 44
B
E
H
I
M
N
R
ALL
Rater
11:02:50 07DEC2011

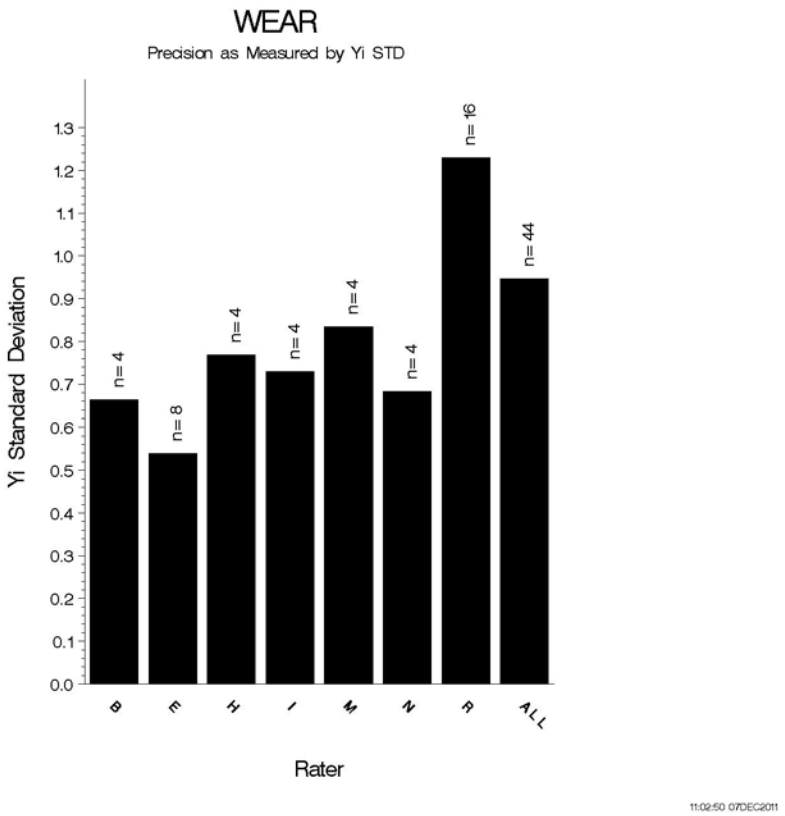

SPITTING
Severity as Measured by Delta/s
Average Delta/s
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−0.4
−0.5
−0.6
n= 4
n= 8
n= 4
n= 4
n= 4
n= 4
n= 16
n= 44
B
E
H
I
M
N
R
ALL
Rater
11:02:50 07DEC2011


WEAR
Severity as Measured by Delta/s
Average Delta/s
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−0.4
n= 4
n= 8
n= 4
n= 4
n= 4
n= 4
n= 16
n= 44
B
E
H
I
M
N
R
ALL
Rater
11:02:50 07DEC2011


RIDGING
Precision as Measured by Yi STD
Yi Standard Deviation
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
n= 4
n= 8
n= 4
n= 4
n= 4
n= 4
n= 16
n= 44
B
E
H
I
M
N
R
ALL
Rater
11:02:50 07DEC2011


RIPPLING
Precision as Measured by Yi STD
Yi Standard Deviation
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
n= 4
n= 8
n= 4
n= 4
n= 4
n= 4
n= 16
n= 44
B
E
H
I
M
N
R
ALL
Rater
11:02:50 07DEC2011

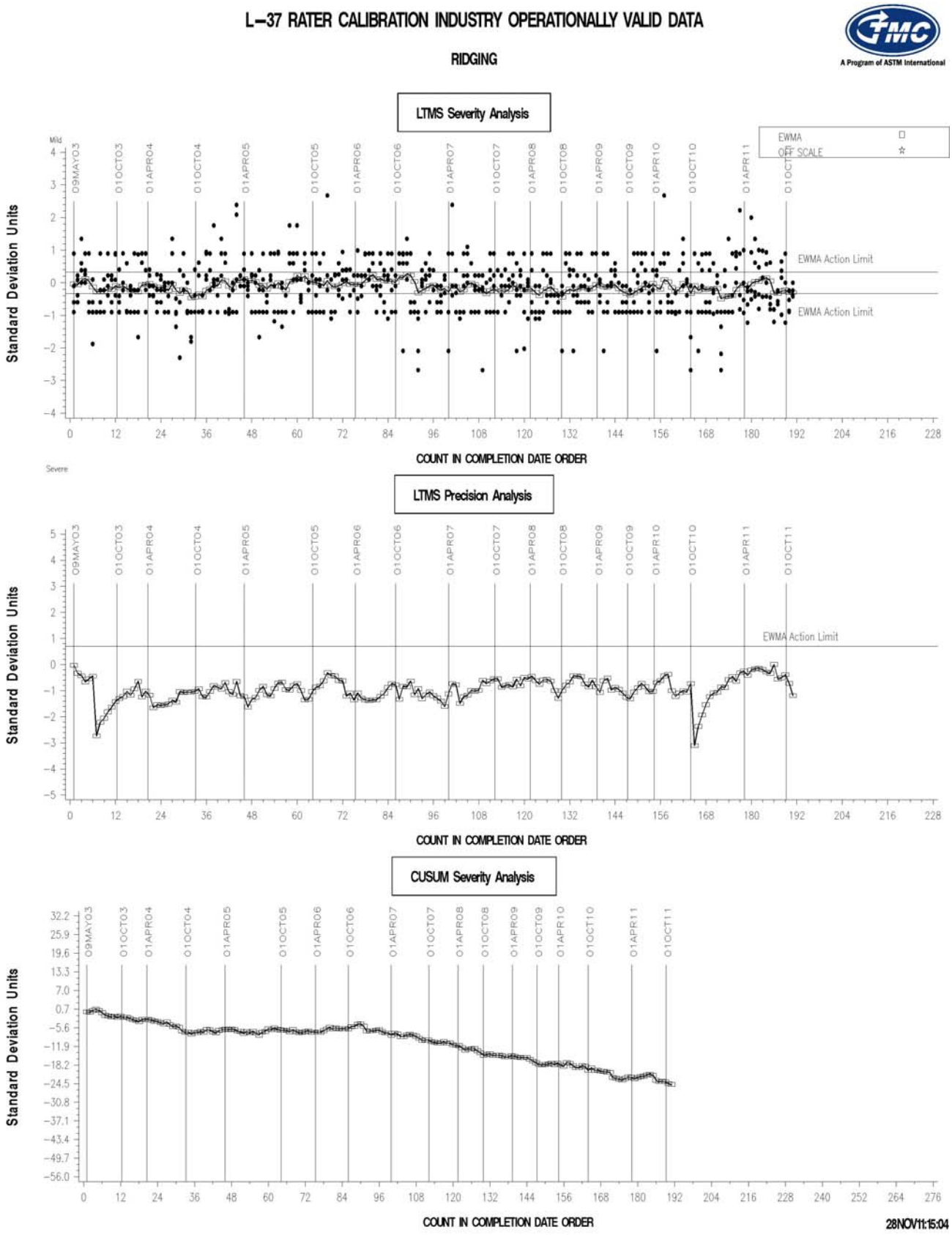

SPITTING
Precision as Measured by Yi STD
Yi Standard Deviation
0
1
2
3
4
n= 4
n= 8
n= 4
n= 4
n= 4
n= 4
n= 16
n= 44
B
E
H
I
M
N
R
ALL
Rater
11:02:50 07DEC2011



INDUSTRY CONTROL CHARTS:

The industry control charts are shown beginning on the following page.

During this report period, industry performance for RIDG was slightly severe. SPIT and WEAR were both mild. The mild SPIT and WEAR may be attributable to the introduction of a new rater. RIDG severity, however is a continuation of a long standing industry-wide trend. RIPP performance was on target. All parameters remained within precision control limits.


L–37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
RIDGING
A Program of ASTM International
LTMS Severity Analysis
EWMA
OFF SCALE
Mild
Severe
Standard Deviation Units
EWMA Action Limit
EWMA Action Limit
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
Standard Deviation Units
EWMA Action Limit
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
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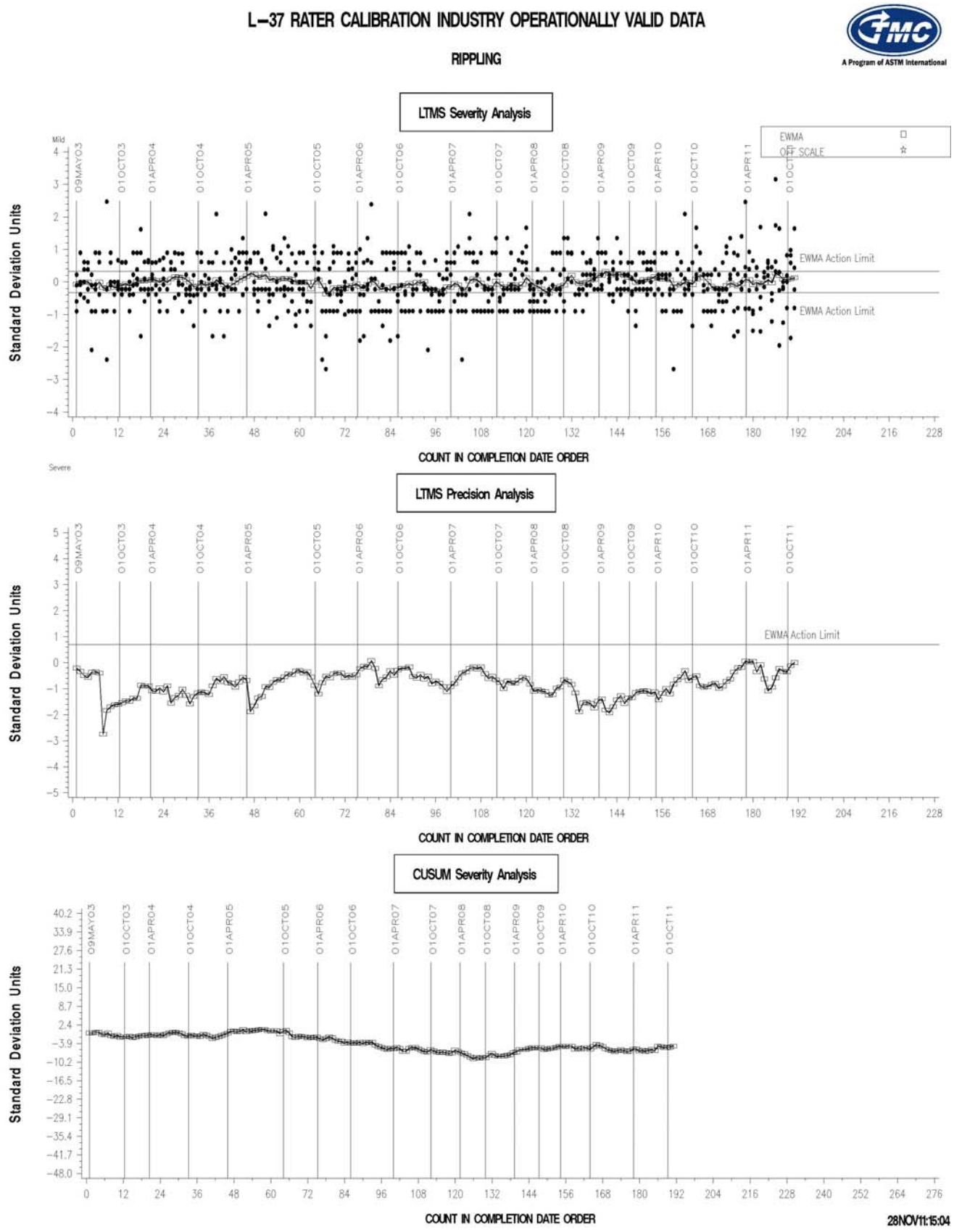
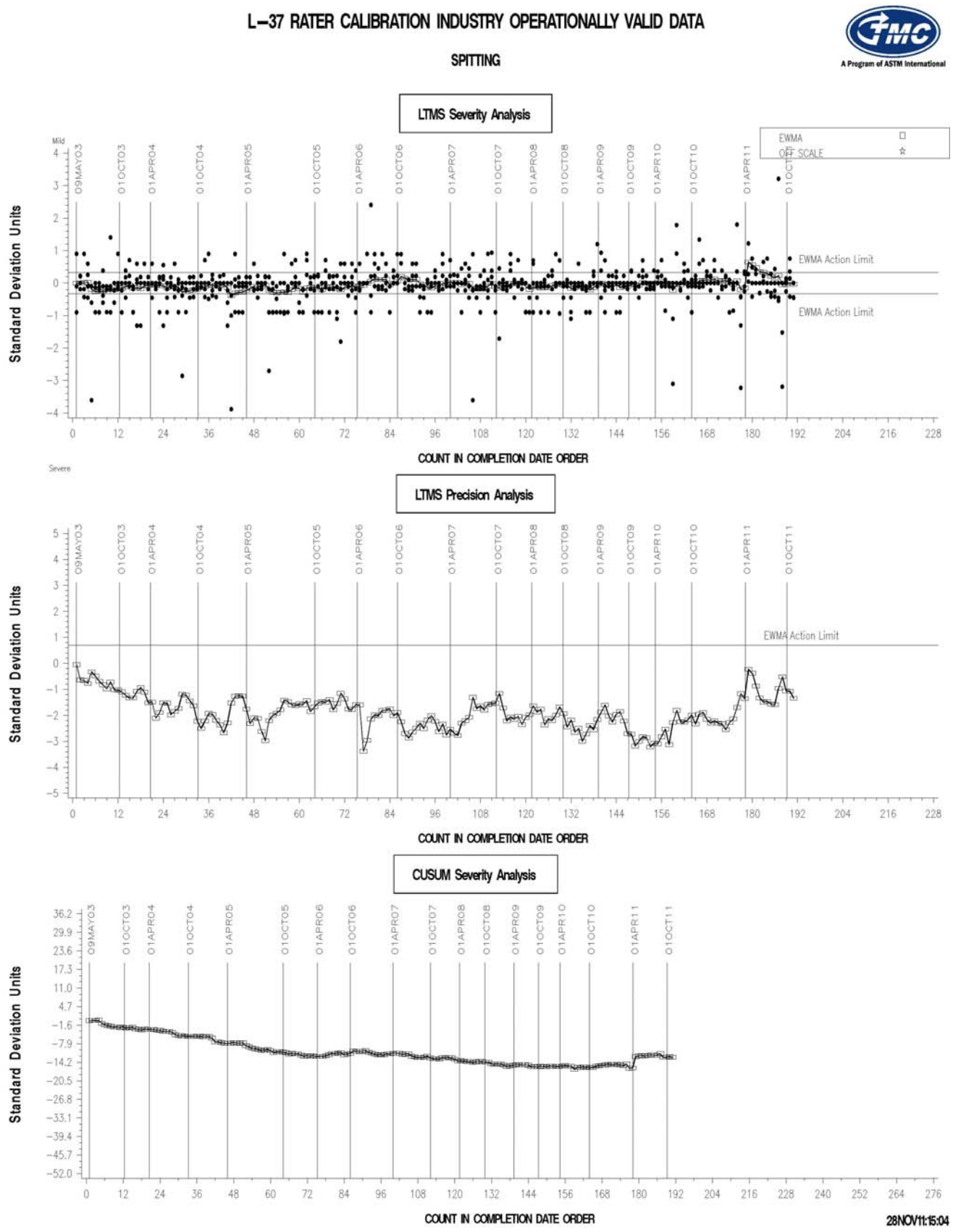
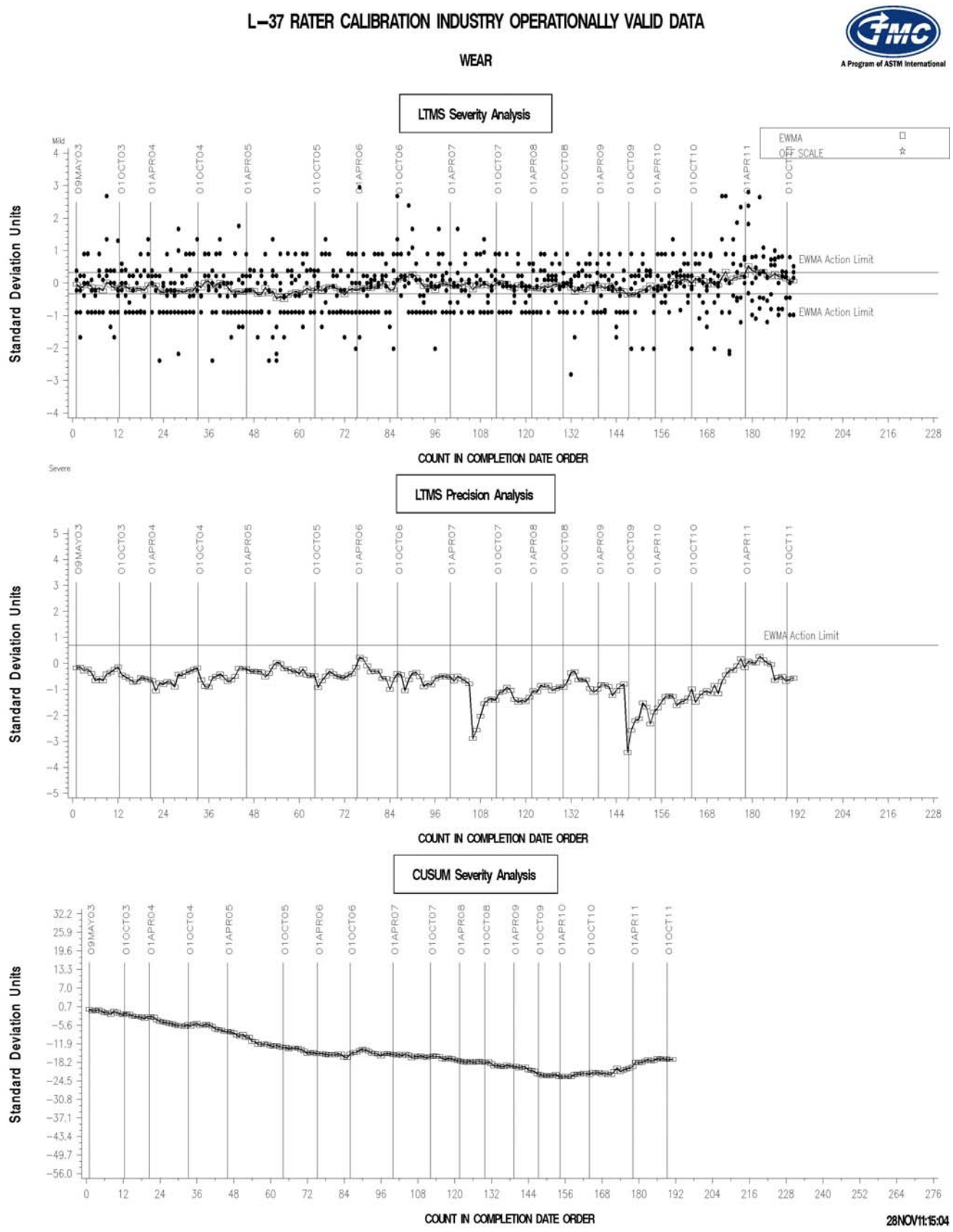

L–37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
RIPPLING
A Program of ASTM International
LTMS Severity Analysis
Mild
Severe
Standard Deviation Units
EWMA
OFF SCALE
EWMA Action Limit
EWMA Action Limit
09MAY03
01OCT03
01APR04
01OCT04
01APR05
01OCT05
01APR06
01OCT06
01APR07
01OCT07
01APR08
01OCT08
01APR09
01OCT09
01APR10
01OCT10
01APR11
01OCT11
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
EWMA Action Limit
CUSUM Severity Analysis
28NOV11:15:04


L–37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
SPITTING
A Program of ASTM International
LTMS Severity Analysis
Mild
EWMA
OFF SCALE
09MAY03
01OCT03
01APR04
01OCT04
01APR05
01OCT05
01APR06
01OCT06
01APR07
01OCT07
01APR08
01OCT08
01APR09
01OCT09
01APR10
01OCT10
01APR11
01OCT11
EWMA Action Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
Severe
LTMS Precision Analysis
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
28NOV11:15:04


L–37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
WEAR
A Program of ASTM International
LTMS Severity Analysis
Mild
Standard Deviation Units
EWMA
OFF SCALE
EWMA Action Limit
EWMA Action Limit
09MAY03
01OCT03
01APR04
01OCT04
01APR05
01OCT05
01APR06
01OCT06
01APR07
01OCT07
01APR08
01OCT08
01APR09
01OCT09
01APR10
01OCT10
01APR11
01OCT11
COUNT IN COMPLETION DATE ORDER
Severe
LTMS Precision Analysis
Standard Deviation Units
EWMA Action Limit
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
28NOV11:15:04

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cc: Frank Farber
Jeff Clark
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ftp://ftp.astmtmc.cmu.edu/docs/gears/l37rc/semiannualreports/l37rc-10-2011.pdf

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