Test Monitoring Center
6555 Penn Avenue
Pittsburgh, PA 15206-4489
(412) 365-1000

MEMORANDUM: 07-019

DATE: May 7, 2007

TO: Don Bartlett, Chairman, L-37 Surveillance Panel

FROM: Donald Lind

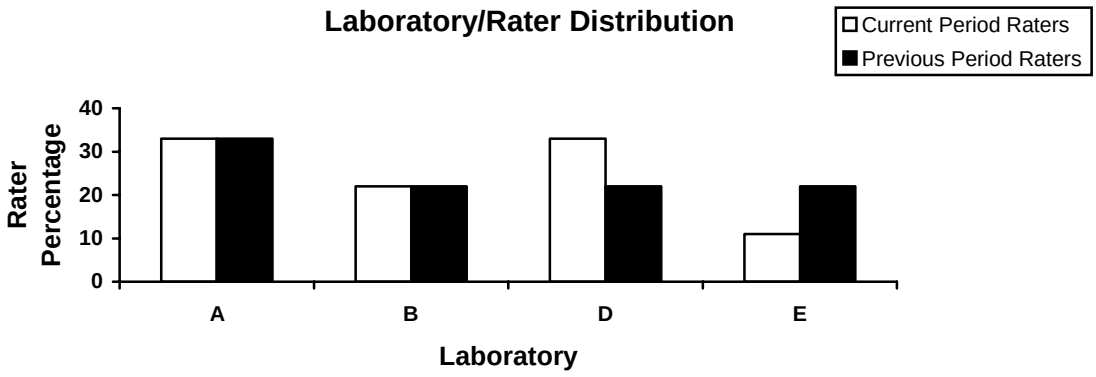
SUBJECT: L-37 Rater Calibration Status from October 1, 2006 through March 31, 2007

The following is a summary of the L-37 rater calibrations reported to the Test Monitoring Center during the period October 1, 2006 through March 31, 2007.

Rater Summary

	Reporting Data	Calibrated as of 3/31/07
Number of Raters	9	9

The following chart shows the laboratory/rater distribution:



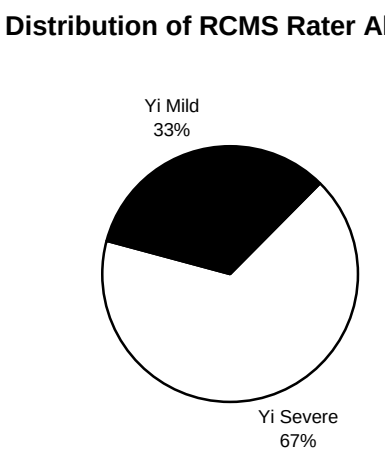
The following summarizes the status of the rater calibration tests reported to the TMC:

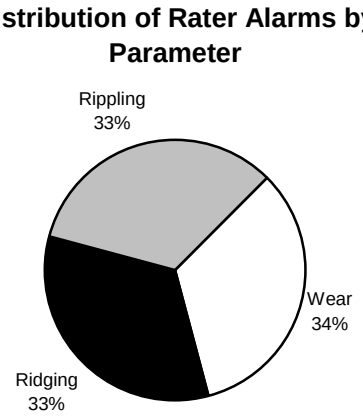
	TMC Validity Codes	No. of Calibrations
Statistically Acceptable	AC	11
Failed Acceptance Criteria	OC	3
Total		14

Summary

A total of 14 L-37 rater calibration results from nine different raters were reported to the TMC this period. Six of the nine raters were within the acceptance criteria with their first set of pinions. Three of the raters needed a second set of pinions to calibrate. One of the nine raters had their calibration period reduced to half (3 months) due to triggering an EWMA severity alarm for the wear parameter. Two of the nine raters were new raters. All nine raters are currently calibrated.

A detailed list of reasons tests failed the acceptance criteria are shown in Table 1. The following charts summarize these reasons with a breakdown by parameter of the failed tests.





There were no RCMS deviations written this period.

Severity and Precision

For this period, the mean delta/s was 0.09 severe for Wear, -0.15 severe for Rippling, -0.11 mild for Ridging, and 0.01 mild for Spitting. Precision was 0.89 for Wear, 0.72 for Rippling, 0.83 for Ridging, and 0.44 for Spitting. A straight standard deviation of Yi was used because the number of ratings per pinion was too small to determine a pooled standard deviation. Below is a table illustrating rater severity for this report period:

Rater	Wear		Rippling		Ridging		Spitting	
	Yi	S.D. *	Yi	S.D. *	Yi	S.D. *	Yi	S.D. *
B	-0.12	0.57	0.49	0.34	0.06	0.25	-0.03	0.10
D	0.41	0.61	0.20	0.87	0.82	0.15	0.82	0.14
E	0.60	1.40	0.29	0.85	0.73	0.52	-0.10	0.14
F	0.68	0.94	-0.31	0.86	-0.03	1.01	0.17	0.33
H	0.08	0.74	-0.35	0.41	-0.49	0.34	0.38	0.47
I	0.52	1.11	-0.43	0.32	0.07	0.96	0.12	0.37
K	0.77	0.73	-0.41	0.48	-0.62	0.38	-0.14	0.11
M	-0.31	0.76	-0.60	0.67	0.11	0.51	-0.18	0.45
N	-0.50	0.51	0.17	0.65	-0.78	0.89	-0.21	0.42

*A straight standard deviation of Yi was used as the number of ratings per pinion was too small to determine a pooled standard deviation.

Industry Control Charts

Figures 1 through 4 are the L-37 rater industry control charts for pinion Wear, Rippling, Ridging, and Spitting, respectively. Figures 5 through 8 are the rater industry control charts of the last 20 test results for pinion Wear, Rippling, Ridging, and Spitting, respectively. Severity and precision EWMA charts for pinion Wear, Rippling, Ridging, and Spitting were all in control this report period.

Attachments

c: L-37 Surveillance Panel
L-37 Rater Task Force
J. L. Zalar
F. M. Farber
ftp://ftp.astmtmc.cmu.edu/docs/rater_calibration/l37rc-04-2007.pdf

Distribution: Email

Listing of Tables and Figure Included as Part of This Report to the L-37 Rater Calibration Report

Table 1 is a Detailed List Summarizing the Reasons for Failed Tests

Figure 1 is the L-37 Rater Industry Control Charts for Pinion Wear

Figure 2 is the L-37 Rater Industry Control Charts for Pinion Rippling

Figure 3 is the L-37 Rater Industry Control Charts for Pinion Ridging

Figure 4 is the L-37 Rater Industry Control Charts for Pinion Spitting

Figure 5 is the L-37 Rater Industry Control Chart of the last 20 test results for Pinion Wear

Figure 6 is the L-37 Rater Industry Control Chart of the last 20 test results for Pinion Rippling

Figure 7 is the L-37 Rater Industry Control Chart of the last 20 test results for Pinion Ridging

Figure 8 is the L-37 Rater Industry Control Chart of the last 20 test results for Pinion Spitting

Table 1

Summary of Alarms This Period

Lab	Rater	Reason
A	F	Wear Yi Mild
B	N	Ridging Yi Severe and EWMA Severity
D	M	Rippling Yi Severe

FIGURE 1

L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

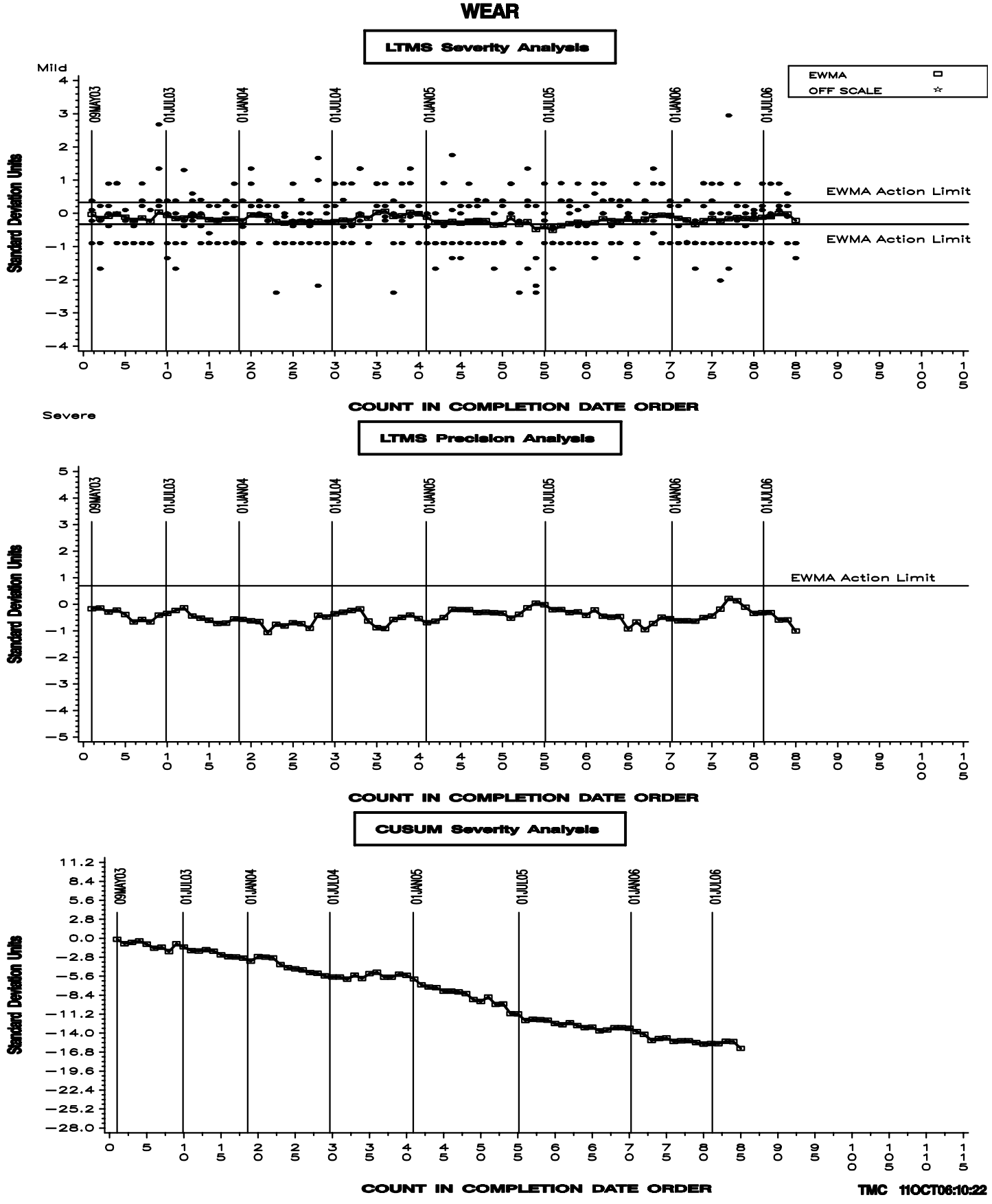


FIGURE 2

L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

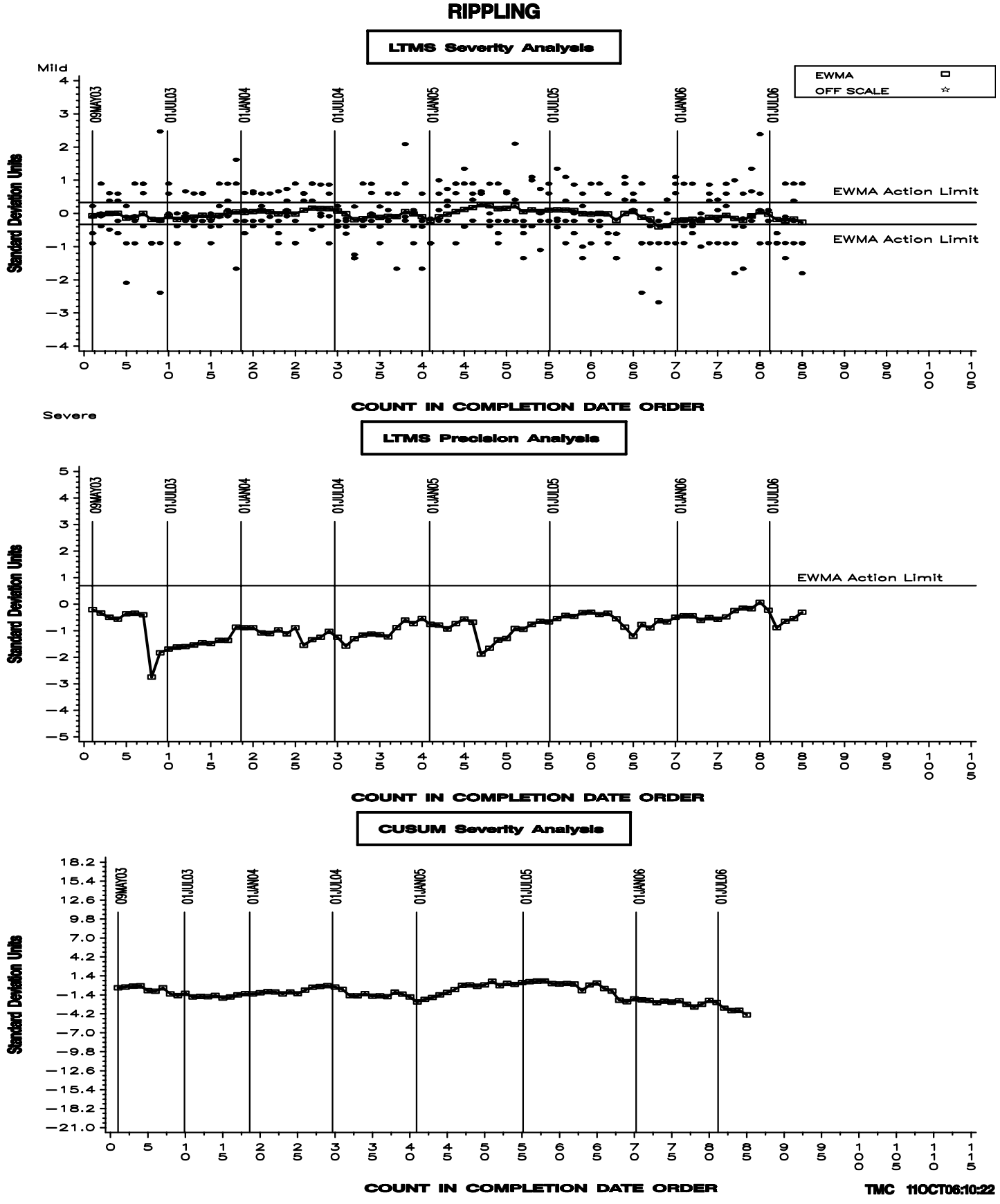


FIGURE 3

L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

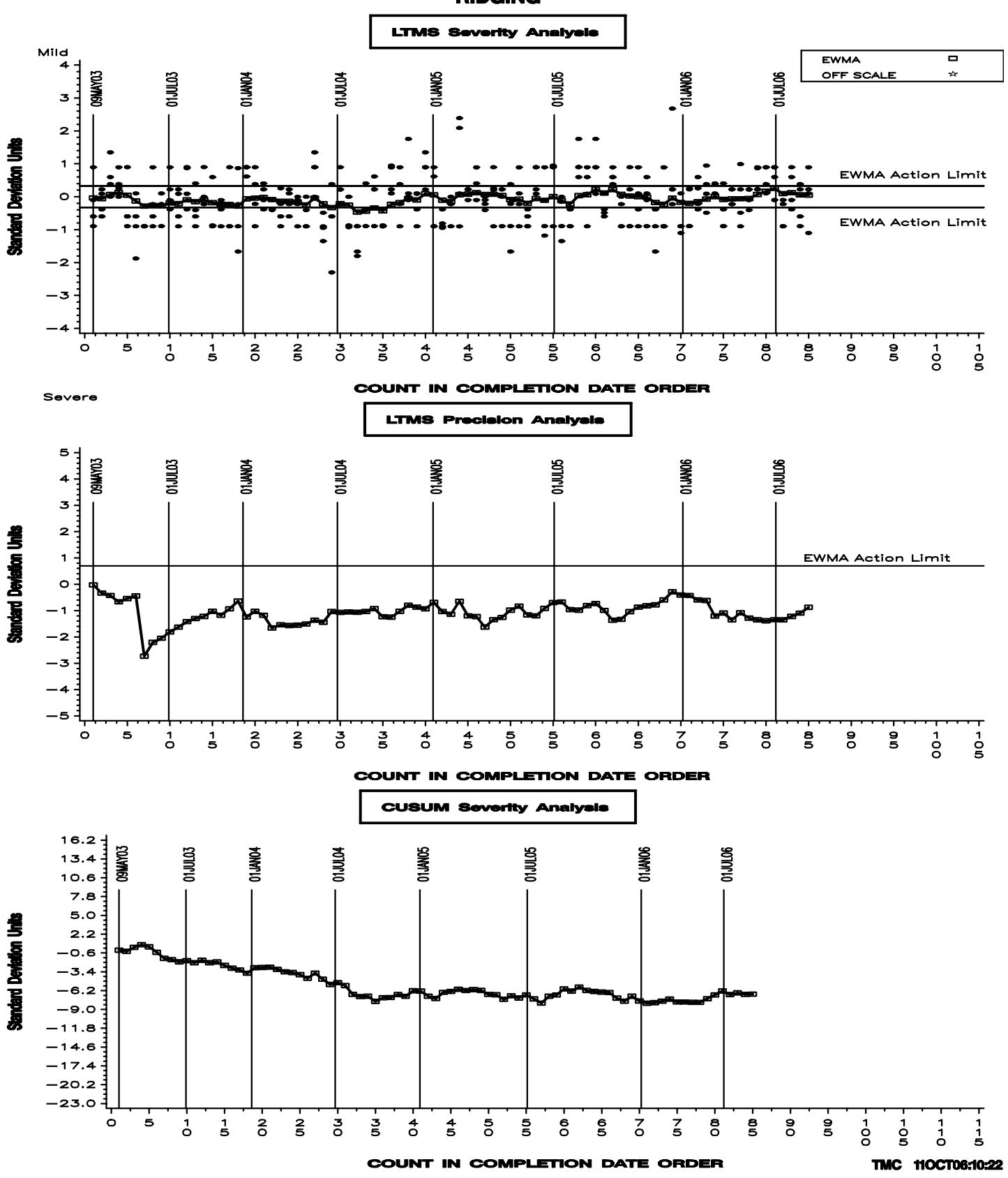


FIGURE 4

L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

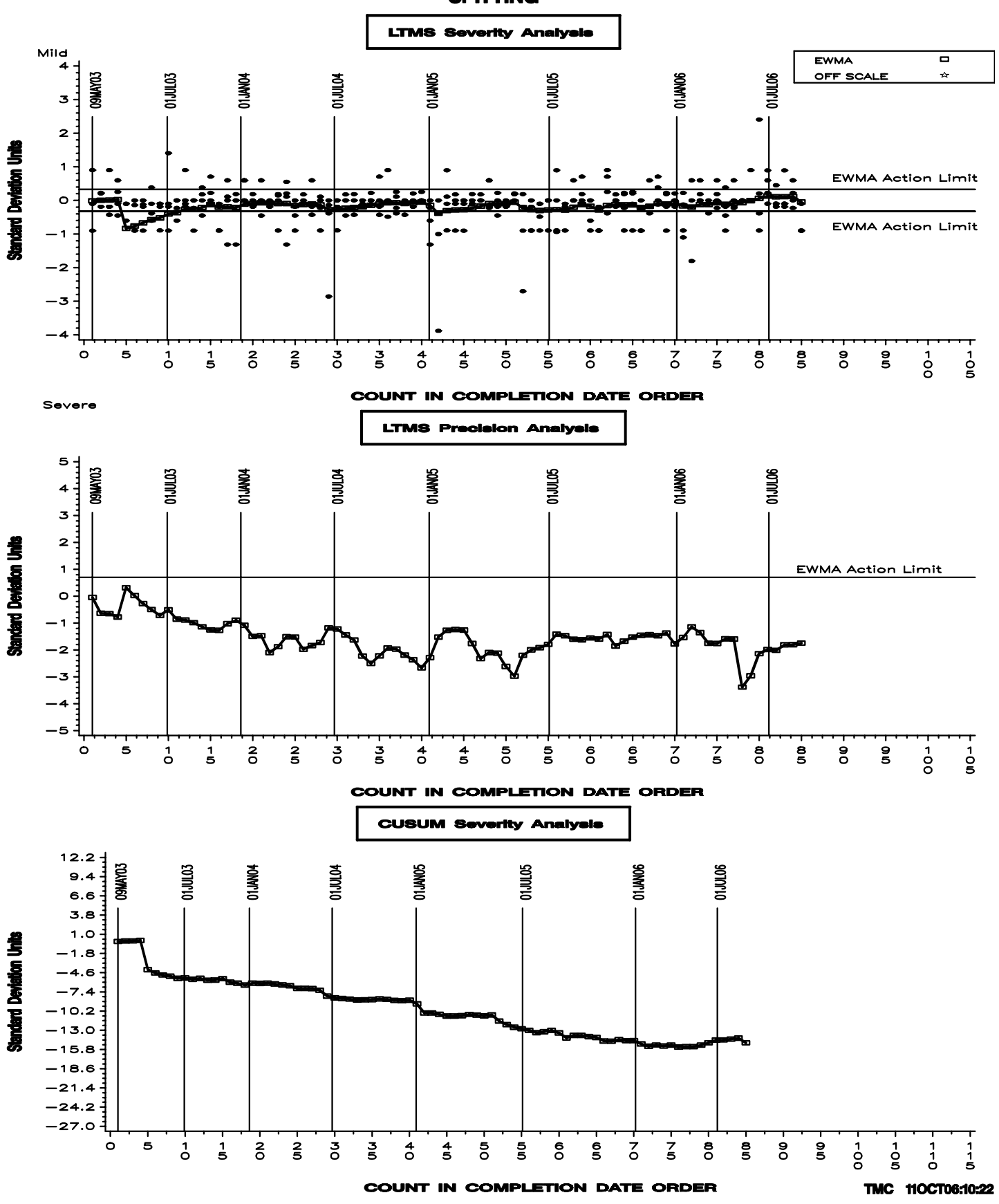
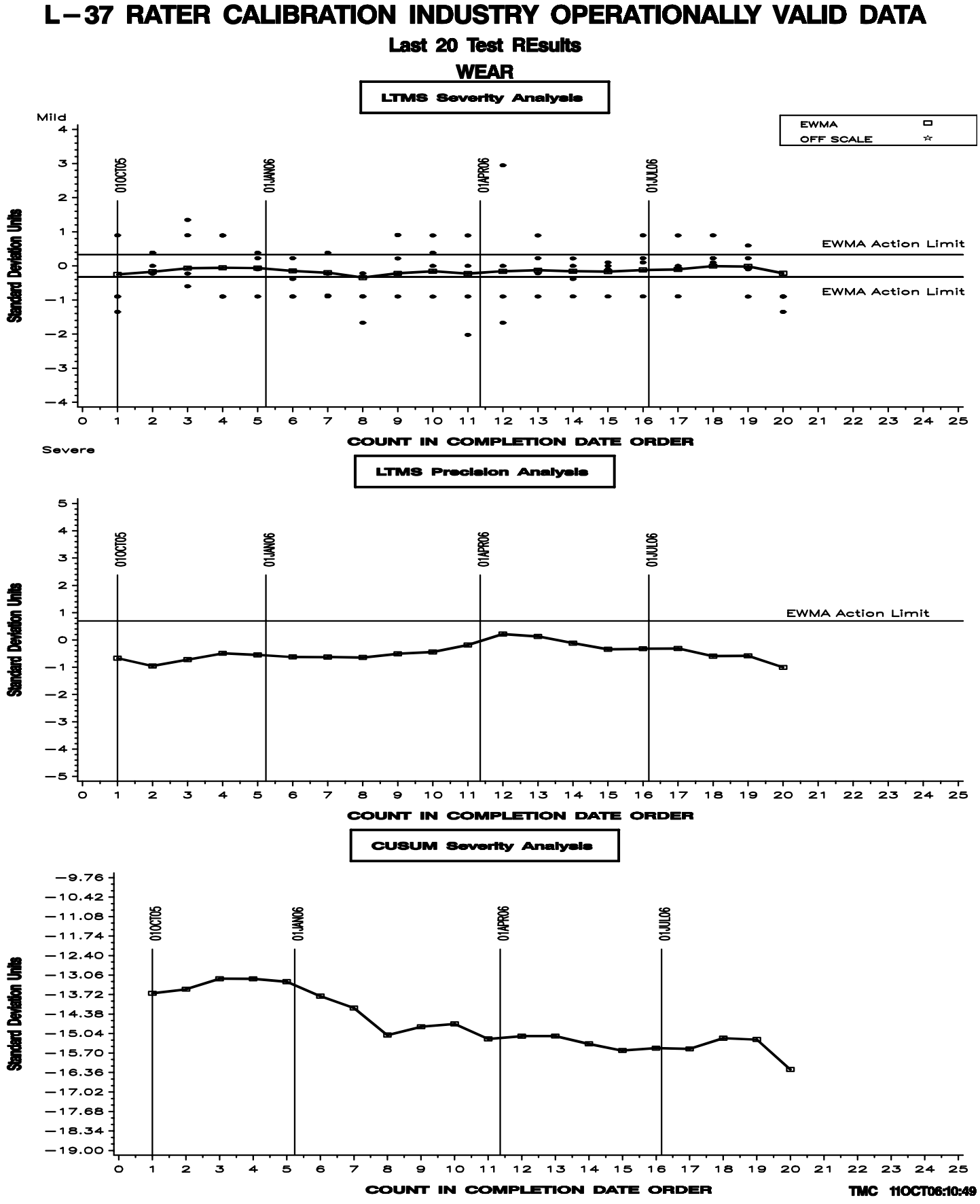


FIGURE 5


L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
Last 20 Test REsults
WEAR
LTMS Severity Analysis
Mild
Severe
EWMA
OFF SCALE
EWMA Action Limit
EWMA Action Limit
01OCT05
01JAN06
01APR06
01JUL06
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
CUSUM Severity Analysis
TMC 11OCT06:10:49

L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

Last 20 Test REsults

RIPPLING

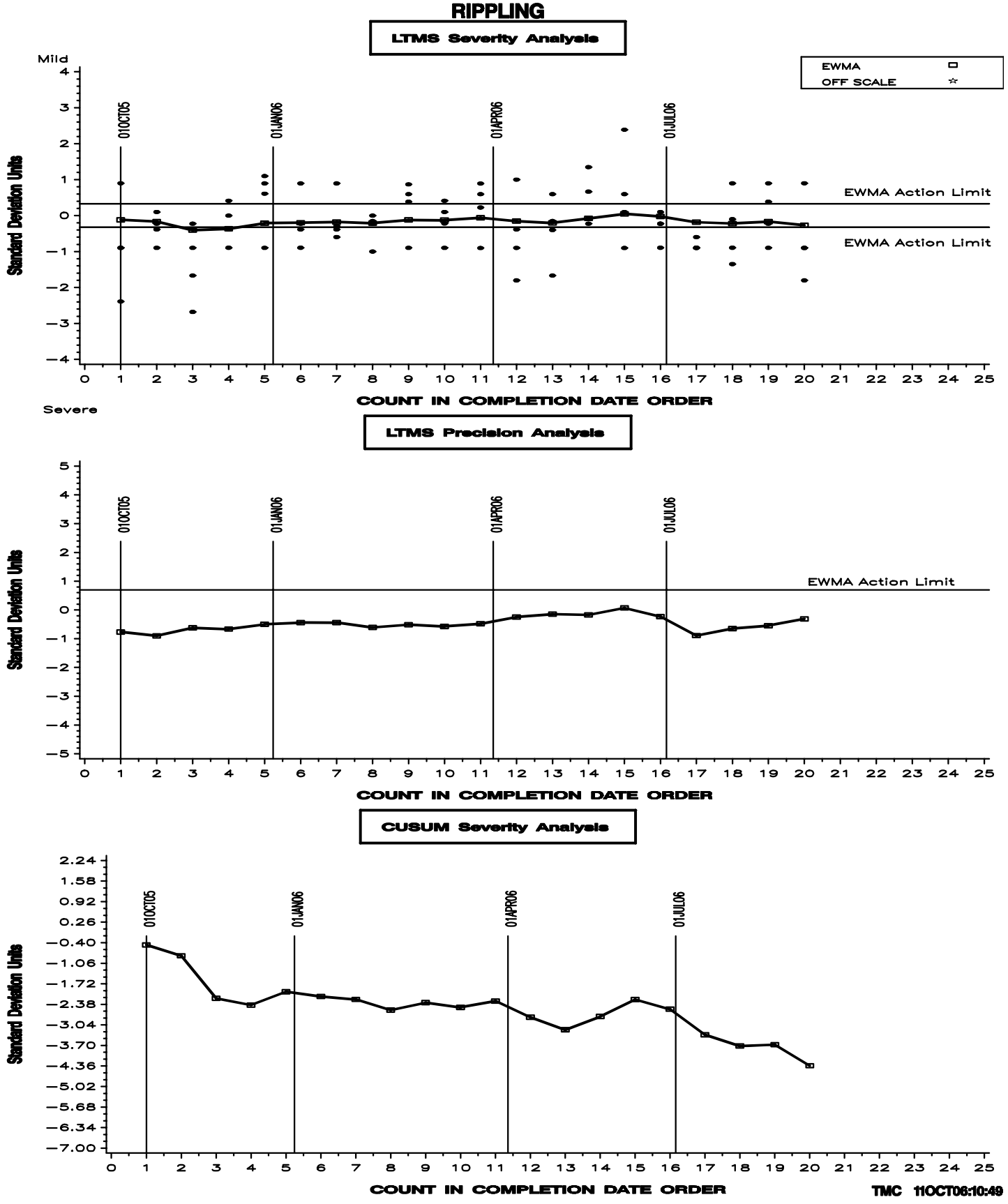


FIGURE 7

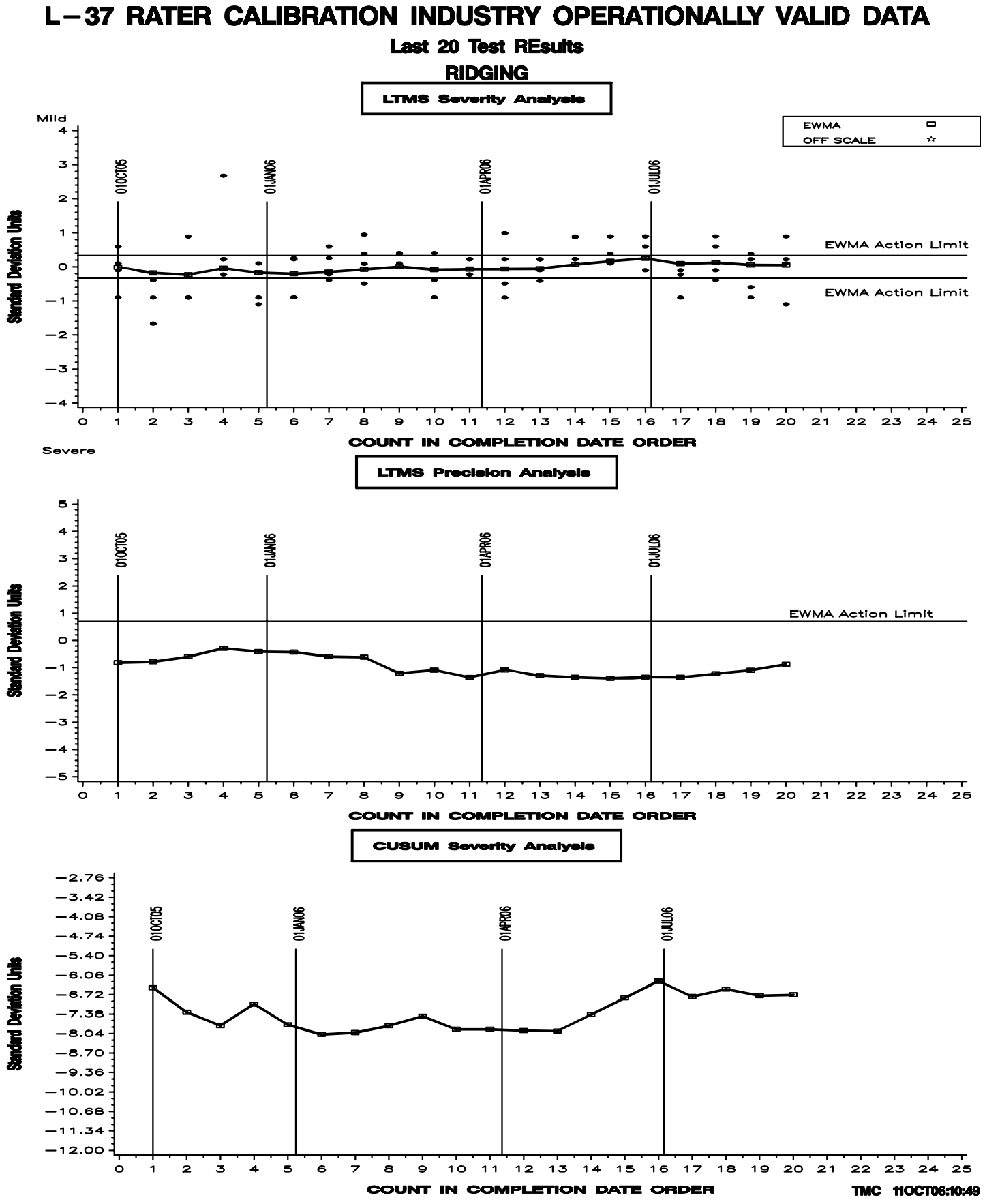

L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
Last 20 Test REsults
RIDGING
LTMS Severity Analysis
Mild
Severe
EWMA
OFF SCALE
01OCT05
01JAN06
01APR06
01JUL06
EWMA Action Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
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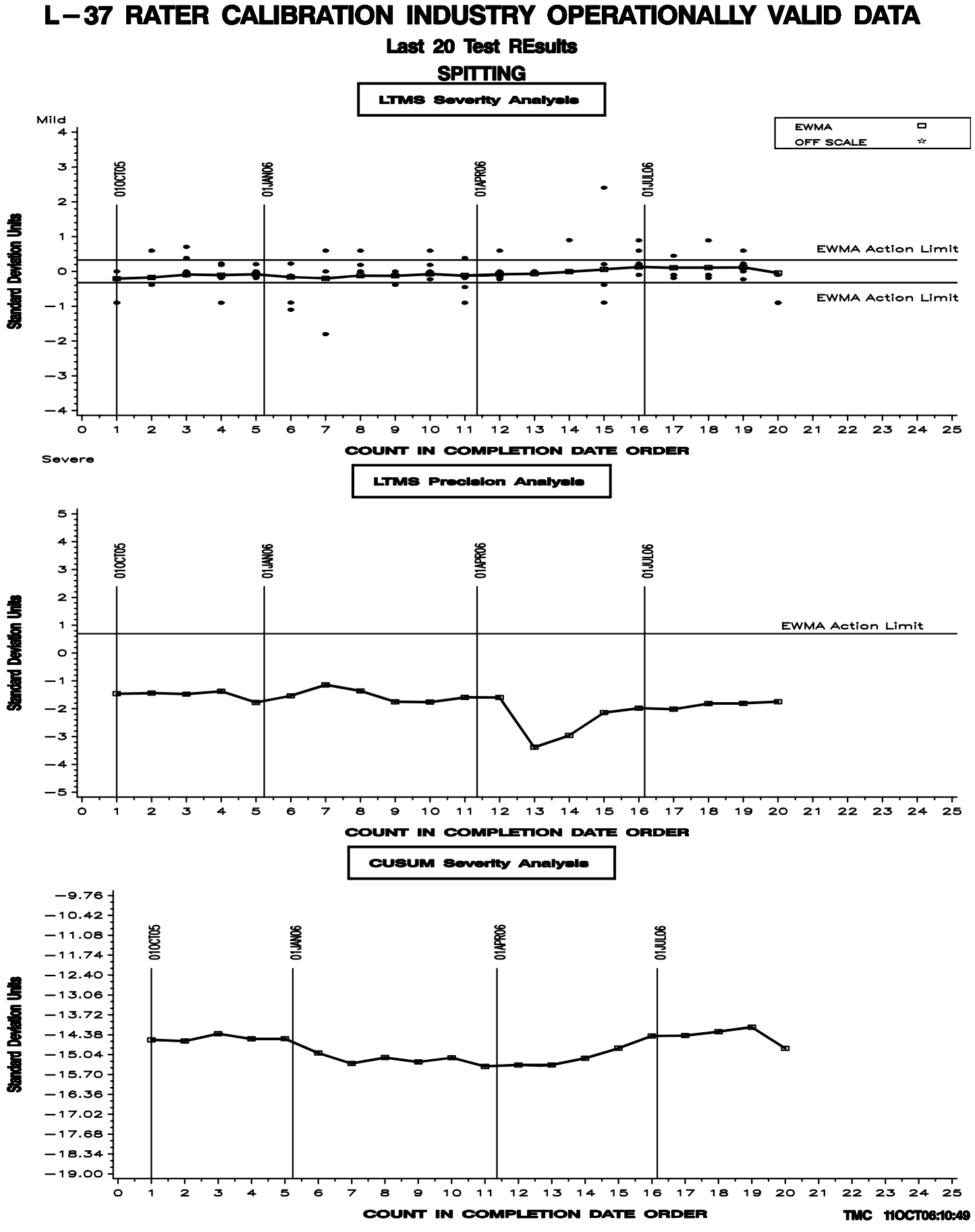
FIGURE 8


L−37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA
Last 20 Test REsults
SPITTING
LTMS Severity Analysis
Mild
Severe
EWMA
OFF SCALE
01OCT05
01JAN06
01APR06
01JUL06
EWMA Action Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
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
TMC 11OCT06:10:49