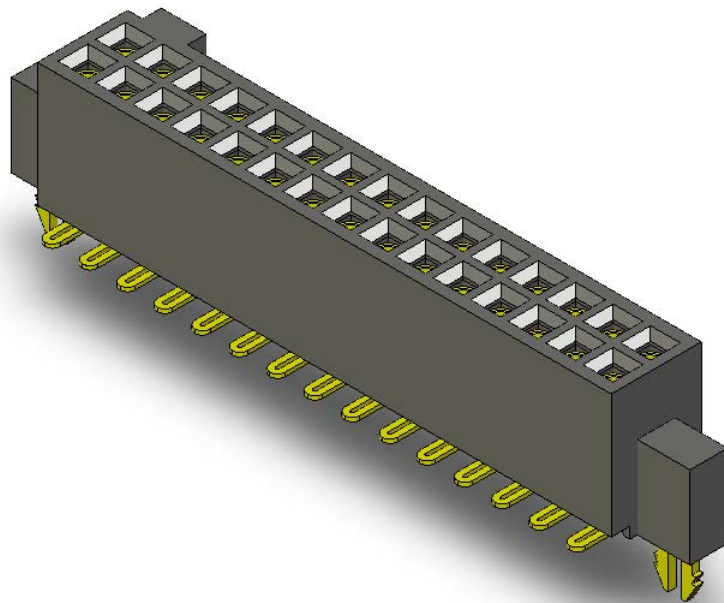




Project Number:		Tracking Code: TC0733—1425_ReportRev5				
Requested by: Craig Ryan		Date: 8/17/2007		Product Rev: CW & BZ		
Part #: TFM-125-02-S-D-A & SFM-125-02-S-D-A			Lot #: N/A		Tech: Tori Meek/Tony Wagoner	Eng: Troy Cook
Part description: TFM/SFM						Qty to test: 50
Test Start: 08/21/2007		Test Completed: 10/3/2007				



**Extended Durability Test Report SFM/TFM  
(1,000 Cycles)**

**SFM-125-02-S-D-A Mated With TFM-125-02-S-D-A**

**October 3, 2007**

## CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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### SCOPE

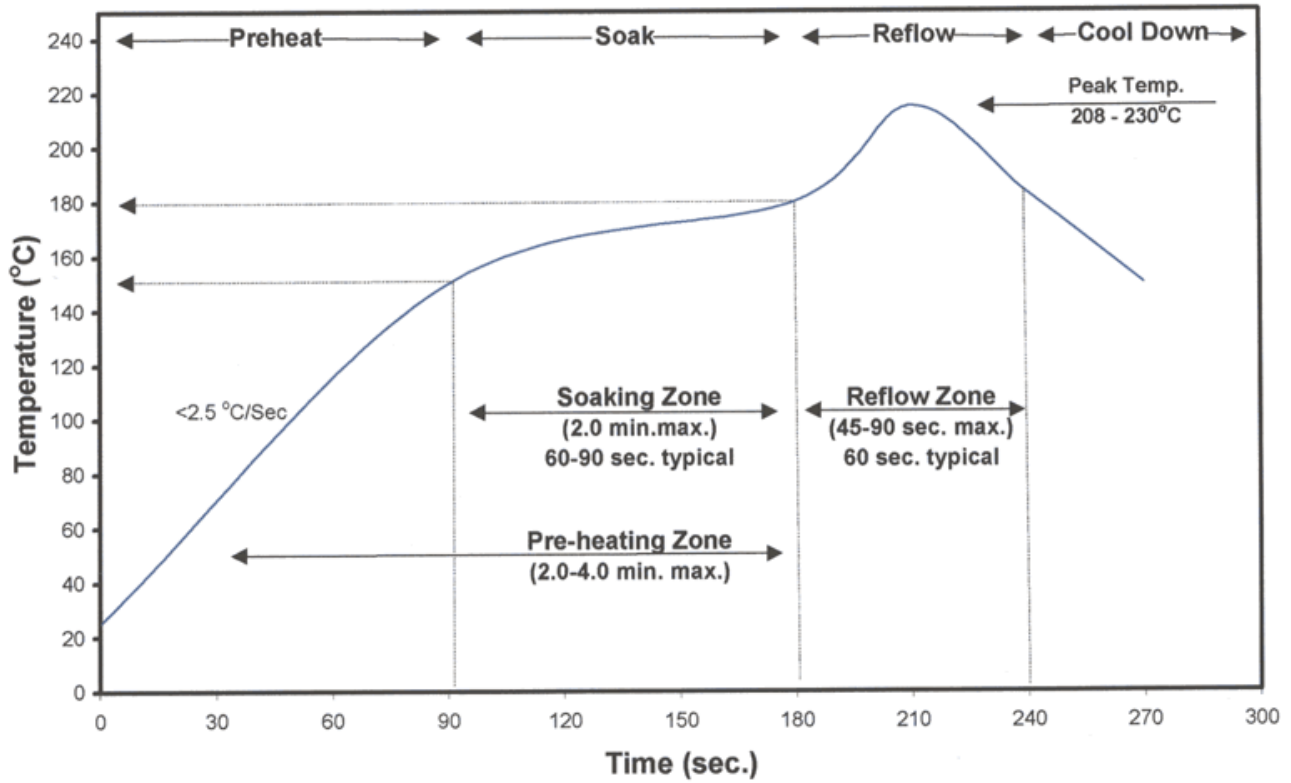
To perform the following tests: LLCR w/ Mating and Unmating per BV Test Plan. (100, 250, 500, 1000 cycles)

### APPLICABLE DOCUMENTS

Standards: EIA Publication 364

### TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to TLWI-0001.
- 4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 5) The automated procedure is used with aqueous compatible soldering materials.
- 6) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.
- 8) Solder Information: Leaded
- 9) Re-Flow Time/Temp: See accompanying profile.
- 10) Internal Test PCBs used: PCB-100873-TST-XX

**TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)****Standard Solder Paste Reflow Profile  
for Kester Paste Containing  
Alloys: Sn63Pb37 or Sn62Pb36Ag02**

**FLOWCHARTS****Plating Thickness**

TEST STEP	GROUP A (FEMALE) 20 Points Minimum - 5 Sample
01	Measure & Verify Plating Thickness
02	Document Plating Thickness

TEST STEP	GROUP B (MALE) 20 Points Minimum - 5 Sample
01	Measure & Verify Plating Thickness
02	Document Plating Thickness

**Durability**

TEST STEP	GROUP A 200 Points - 8 Samples 100 Cycles	GROUP A 200 Points - 8 Samples 250 Cycles	GROUP A 200 Points - 8 Samples 500 Cycles	GROUP A 200 Points - 8 Samples 1000 Cycles
01	LLCR-1	LLCR-1	LLCR-1	LLCR-1
02	100 Cycles	250 Cycles	500 Cycles	1000 Cycles
03	LLCR-2	LLCR-2	LLCR-2	LLCR-2
04	Data Review	Data Review	Data Review	Data Review
05	Thermals	Thermals	Thermals	Thermals
06	LLCR-3	LLCR-3	LLCR-3	LLCR-3
07	Data Review	Data Review	Data Review	Data Review
08	Humidity	Humidity	Humidity	Humidity
09	LLCR-4	LLCR-4	LLCR-4	LLCR-4

LLCR = EIA-364-23, LLCR

use Keithley 580 in the dry circuit mode, 10 mA Max

Cycling Rate = 500 +/- 50 per hour

Pass Criteria for LLCR = Less than 15 m-Ohm change in resistance.

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;

Time Condition 'B' (250 hours)

Humidity =EIA-364-31, Test Condition B (240 Hours)

and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)

ambient pre-condition and delete steps 7a and 7b

**FLOWCHARTS Continued****Photo Documentation of Contact Area**

<b>TEST STEP</b>	<b>GROUP A 2-3 Photos of 1 sample 1 Sample  100 Cycle Group</b>	<b>GROUP B 2-3 Photos of 1 sample 1 Sample  250 Cycle Group</b>	<b>GROUP C 2-3 Photos of 1 sample 1 Sample  500 Cycle Group</b>	<b>GROUP D 2-3 Photos of 1 sample 1 Sample  1000 Cycle Group</b>
<b>01</b>	Photos of Contact Area	Photos of Contact Area	Photos of Contact Area	Photos of Contact Area
<b>02</b>	Save Photos in Project Folder	Save Photos in Project Folder	Save Photos in Project Folder	Save Photos in Project Folder

## ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

### THERMAL:

- 1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors*.
- 2) Test Condition 4 at 105° C.
- 3) Test Time Condition B for 250 hours.
- 4) Connectors are sometimes mated and all samples are pre-conditioned at ambient.

### HUMIDITY:

- 1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors*.
- 2) Test Condition B, 240 Hours.
- 3) Method III, +25° C to + 65° C, 90% to 98% Relative Humidity excluding sub-cycles 7a and 7b.
- 4) Connectors are sometimes mated and all samples are pre-conditioned at ambient.

### LLCR:

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
  - a.  $\leq +5.0 \text{ m}\Omega$ : ----- Stable
  - b.  $+5.1 \text{ to } +10.0 \text{ m}\Omega$ : ----- Minor
  - c.  $+10.1 \text{ to } +15.0 \text{ m}\Omega$ : ----- Acceptable
  - d.  $+15.1 \text{ to } +50.0 \text{ m}\Omega$ : ----- Marginal
  - e.  $+50.1 \text{ to } +2000 \text{ m}\Omega$ : ----- Unstable
  - f.  $>+2000 \text{ m}\Omega$ : ----- Open Failure

## RESULTS

### PLATING THICKNESS

• “S” Plating	<u>Surface</u>	<u>Nickel Underplate</u>
○ Socket (SFM)		
▪ Min -----	27.2 Micro-inches Au	51.6 Micro-inches Ni
▪ Max -----	38.8 Micro-inches Au	110.9 Micro-inches Ni
○ Terminal (TFM)		
▪ Min -----	27.7 Micro-inches Au	46.0 Micro-inches Ni
▪ Max -----	34.0 Micro-inches Au	89.9 Micro-inches Ni

### SAMTEC RECOMMENDS THE FOLLOWING PASS/FAIL CRITERIA FOR EXTENDED LIFE PRODUCTS IN THIS TEST SEQUENCE:

- $\leq +5.0 \text{ m}\Omega$  ----- PASS
- $+5.1 \text{ to } +10.0 \text{ m}\Omega$  ----- PASS
- $+10.1 \text{ to } +15.0 \text{ m}\Omega$  ----- PASS
- $+15.1 \text{ to } +50.0 \text{ m}\Omega$  ----- PASS
- $+50.1 \text{ to } +2000 \text{ m}\Omega$  ----- FAIL
- $>+2000 \text{ m}\Omega$  ----- FAIL

\*\*\*ALL GROUPS PASSED – DETAILS FOLLOWING\*\*\*

### 100 CYCLE - LLCR Durability (200 LLCR test points)

- Initial ----- 11.0 m $\Omega$  Max
- Durability, 100 Cycles
  - $\leq +5.0 \text{ m}\Omega$  ----- 200 Points ----- Stable
  - $+5.1 \text{ to } +10.0 \text{ m}\Omega$  ----- 0 Points ----- Minor
  - $+10.1 \text{ to } +15.0 \text{ m}\Omega$  ----- 0 Points ----- Acceptable
  - $+15.1 \text{ to } +50.0 \text{ m}\Omega$  ----- 0 Points ----- Marginal
  - $+50.1 \text{ to } +2000 \text{ m}\Omega$  ----- 0 Points ----- Unstable
  - $>+2000 \text{ m}\Omega$  ----- 0 Points ----- Open Failure
- Thermal
  - $\leq +5.0 \text{ m}\Omega$  ----- 200 Points ----- Stable
  - $+5.1 \text{ to } +10.0 \text{ m}\Omega$  ----- 0 Points ----- Minor
  - $+10.1 \text{ to } +15.0 \text{ m}\Omega$  ----- 0 Points ----- Acceptable
  - $+15.1 \text{ to } +50.0 \text{ m}\Omega$  ----- 0 Points ----- Marginal
  - $+50.1 \text{ to } +2000 \text{ m}\Omega$  ----- 0 Points ----- Unstable
  - $>+2000 \text{ m}\Omega$  ----- 0 Points ----- Open Failure
  -
- Humidity
  - $\leq +5.0 \text{ m}\Omega$  ----- 200 Points ----- Stable
  - $+5.1 \text{ to } +10.0 \text{ m}\Omega$  ----- 0 Points ----- Minor
  - $+10.1 \text{ to } +15.0 \text{ m}\Omega$  ----- 0 Points ----- Acceptable
  - $+15.1 \text{ to } +50.0 \text{ m}\Omega$  ----- 0 Points ----- Marginal
  - $+50.1 \text{ to } +2000 \text{ m}\Omega$  ----- 0 Points ----- Unstable
  - $>+2000 \text{ m}\Omega$  ----- 0 Points ----- Open Failure

**250 CYCLE - LLCR Durability (200 LLCR test points)**

- **Initial** ----- 10.7 mΩ Max
- **Durability, 250 Cycles**
  - ≤ +5.0 mΩ ----- 200 Points ----- Stable
  - +5.1 to +10.0 mΩ ----- 0 Points ----- Minor
  - +10.1 to +15.0 mΩ ----- 0 Points ----- Acceptable
  - +15.1 to +50.0 mΩ ----- 0 Points ----- Marginal
  - +50.1 to +2000 mΩ ----- 0 Points ----- Unstable
  - >+2000 mΩ ----- 0 Points ----- Open Failure
- **Thermal**
  - ≤ +5.0 mΩ ----- 200 Points ----- Stable
  - +5.1 to +10.0 mΩ ----- 0 Points ----- Minor
  - +10.1 to +15.0 mΩ ----- 0 Points ----- Acceptable
  - +15.1 to +50.0 mΩ ----- 0 Points ----- Marginal
  - +50.1 to +2000 mΩ ----- 0 Points ----- Unstable
  - >+2000 mΩ mΩ ----- 0 Points ----- Open Failure
- **Humidity**
  - ≤ +5.0 mΩ ----- 200 Points ----- Stable
  - +5.1 to +10.0 mΩ ----- 0 Points ----- Minor
  - +10.1 to +15.0 mΩ ----- 0 Points ----- Acceptable
  - +15.1 to +50.0 mΩ ----- 0 Points ----- Marginal
  - +50.1 to +2000 mΩ ----- 0 Points ----- Unstable
  - >+2000 m mΩ ----- 0 Points ----- Open Failure

**500 CYCLE - LLCR Durability (500 LLCR test points)**

- **Initial** ----- 10.2 mΩ Max
- **Durability, 500 Cycles**
  - ≤ +5.0 mΩ ----- 200 Points ----- Stable
  - +5.1 to +10.0 mΩ ----- 0 Points ----- Minor
  - +10.1 to +15.0 mΩ ----- 0 Points ----- Acceptable
  - +15.1 to +50.0 mΩ ----- 0 Points ----- Marginal
  - +50.1 to +2000 mΩ ----- 0 Points ----- Unstable
  - >+2000 mΩ ----- 0 Points ----- Open Failure
- **Thermal**
  - ≤ +5.0 mΩ ----- 200 Points ----- Stable
  - +5.1 to +10.0 mΩ ----- 0 Points ----- Minor
  - +10.1 to +15.0 mΩ ----- 0 Points ----- Acceptable
  - +15.1 to +50.0 mΩ ----- 0 Points ----- Marginal
  - +50.1 to +2000 mΩ ----- 0 Points ----- Unstable
  - >+2000 mΩ ----- 0 Points ----- Open Failure
- **Humidity**
  - ≤ +5.0 mΩ ----- 200 Points ----- Stable
  - +5.1 to +10.0 mΩ ----- 0 Points ----- Minor
  - +10.1 to +15.0 mΩ ----- 0 Points ----- Acceptable
  - +15.1 to +50.0 mΩ ----- 0 Points ----- Marginal
  - +50.1 to +2000 mΩ ----- 0 Points ----- Unstable
  - >+2000 mΩ ----- 0 Points ----- Open Failure



**1,000 CYCLE - LLCR Durability (200 LLCR test points)**

- **Initial** ----- **10.1 mΩ Max**
- **Durability, 1,000 Cycles**
  - **<= +5.0 mΩ** ----- **200 Points** ----- **Stable**
  - **+5.1 to +10.0 mΩ** ----- **0 Points** ----- **Minor**
  - **+10.1 to +15.0 mΩ** ----- **0 Points** ----- **Acceptable**
  - **+15.1 to +50.0 mΩ** ----- **0 Points** ----- **Marginal**
  - **+50.1 to +2000 mΩ** ----- **0 Points** ----- **Unstable**
  - **>+2000 mΩ** ----- **0 Points** ----- **Open Failure**
- **Thermal**
  - **<= +5.0 mΩ** ----- **200 Points** ----- **Stable**
  - **+5.1 to +10.0 mΩ** ----- **0 Points** ----- **Minor**
  - **+10.1 to +15.0 mΩ** ----- **0 Points** ----- **Acceptable**
  - **+15.1 to +50.0 mΩ** ----- **0 Points** ----- **Marginal**
  - **+50.1 to +2000 mΩ** ----- **0 Points** ----- **Unstable**
  - **>+2000 mΩ** ----- **0 Points** ----- **Open Failure**
- **Humidity**
  - **<= +5.0 mΩ** ----- **199 Points** ----- **Stable**
  - **+5.1 to +10.0 mΩ** ----- **1 Points** ----- **Minor**
  - **+10.1 to +15.0 mΩ** ----- **0 Points** ----- **Acceptable**
  - **+15.1 to +50.0 mΩ** ----- **0 Points** ----- **Marginal**
  - **+50.1 to +2000 mΩ** ----- **0 Points** ----- **Unstable**
  - **>+2000 mΩ** ----- **0 Points** ----- **Open Failure**

**DATA SUMMARIES****PLATING THICKNESS:**

<b>TFM-125-01-X-D-A</b>		
Sample#	Surface	Underplate.
Min.	<b>27.7</b>	<b>46.0</b>
Max.	<b>34.0</b>	<b>89.9</b>
Ave.	<b>29.7</b>	<b>72.5</b>

<b>SFM-125-01-X-D-A</b>		
Sample#	Surface	Underplate.
Min.	<b>27.2</b>	<b>51.6</b>
Max.	<b>38.8</b>	<b>110.9</b>
Ave.	<b>30.5</b>	<b>75.0</b>

**100 CYCLE LLCR DURABILITY:**

Date	Aug. 21 2007	Aug. 23 2007	Sep. 18 2007	Oct. 02 2007
Room				
Temp C	23	22	23	22
RH	58%	50%	44%	47%
Name	Tori Meek	Tori Meek	Tony Wagoner	Tony Wagoner
<b>mΩ values</b>	<b>Actual Initial</b>	<b>Delta 100 Cycles</b>	<b>Delta Thermal</b>	<b>Delta Humidity</b>
Average	7.1	-0.2	-0.1	-0.1
St. Dev.	0.5	0.2	0.3	0.3
Min	6.1	-1.0	-1.7	-2.6
Max	11.0	0.3	0.4	0.8
Count	200	200	200	200

**250 CYCLE LLCR DURABILITY:**

Date	Aug. 21 2007	Aug. 23 2007	Sep. 18 2007	Oct. 02 2007
Room				
Temp C	23	22	24	22
RH	55%	47%	40%	47%
Name	Tori Meek	Tori Meek	Tori Meek	Tony Wagoner
<b>mΩ values</b>	<b>Actual Initial</b>	<b>Delta 250 Cycles</b>	<b>Delta Thermal</b>	<b>Delta Humidity</b>
Average	7.4	-0.2	-0.2	-0.1
St. Dev.	0.6	0.3	0.4	0.4
Min	6.6	-1.9	-1.8	-2.3
Max	10.7	1.0	1.4	1.3
Count	200	200	200	200

**DATA SUMMARIES Continued****500 CYCLE LLCR DURABILITY:**

Date	Aug. 21 2007	Aug. 24 2007	Sep. 18 2007	Oct. 02 2007
Room				
Temp C	23	22	24	22
RH	55%	50%	40%	47%
Name	Tori Meek	Tori Meek	Tori Meek	Tony Wagoner
<b>mΩ values</b>	<b>Actual Initial</b>	<b>Delta 500 Cycles</b>	<b>Delta Thermal</b>	<b>Delta Humidity</b>
Average	7.4	0.0	0.1	0.1
St. Dev.	0.5	0.4	0.6	0.5
Min	6.6	-0.9	-1.0	-1.5
Max	10.2	2.4	2.9	2.9
Count	200	200	200	200

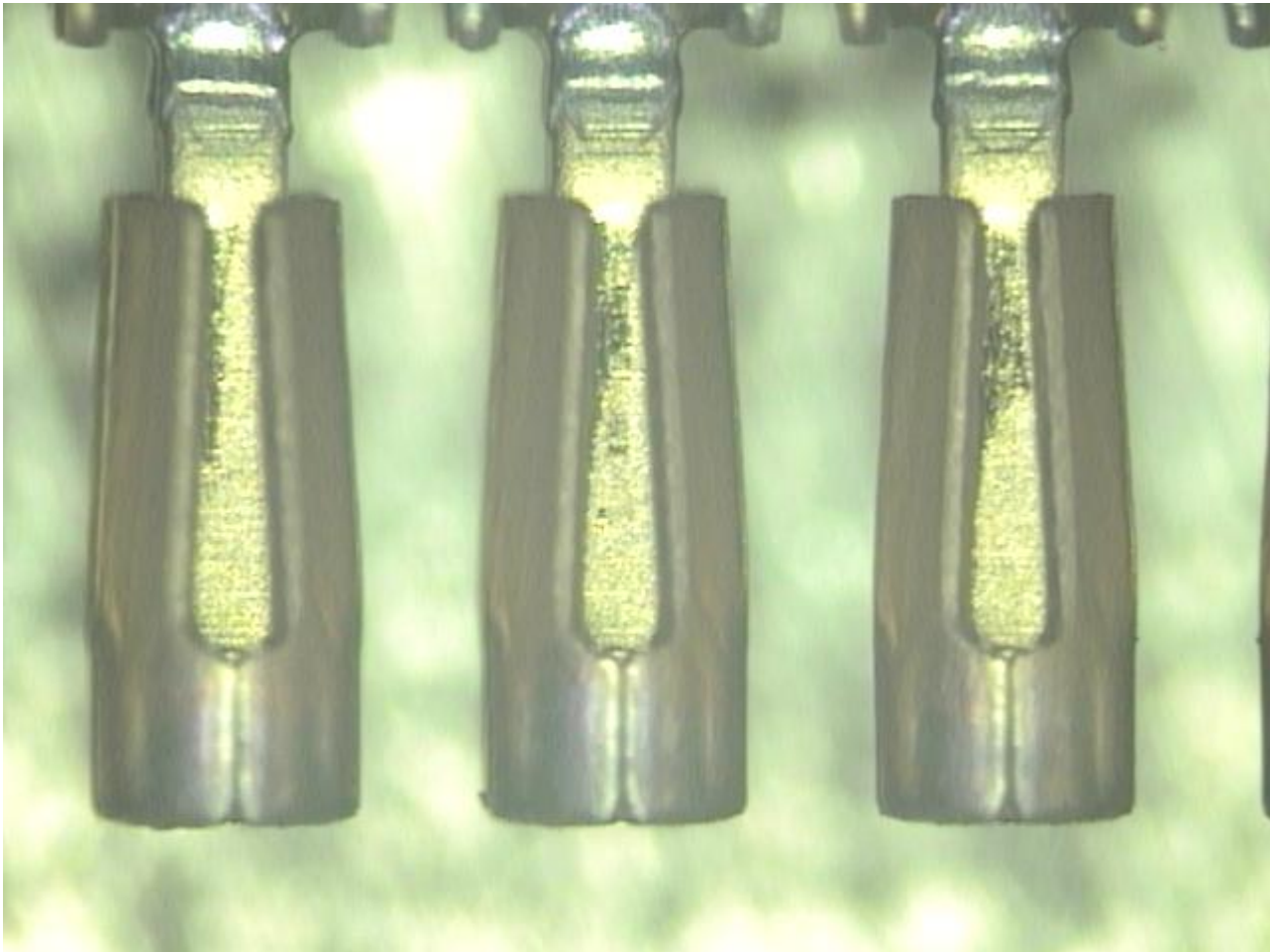
**1,000 CYCLE LLCR DURABILITY:**

Date	Aug. 21 2007	Aug. 30 2007	Sep. 18 2007	Oct. 02 2007
Room				
Temp C	23	23	24	22
RH	55%	54%	45%	47%
Name	Tori Meek	Tony Wagoner	Tori Meek	Tony Wagoner
<b>mΩ values</b>	<b>Actual Initial</b>	<b>Delta 1000 Cycles</b>	<b>Delta Thermal</b>	<b>Delta Humidity</b>
Average	7.1	0.1	0.3	0.7
St. Dev.	0.5	0.5	0.8	1.2
Min	6.3	-1.5	-1.2	-2.2
Max	10.1	1.7	3.4	5.1
Count	200	200	200	200

**DATA SUMMARIES Continued**

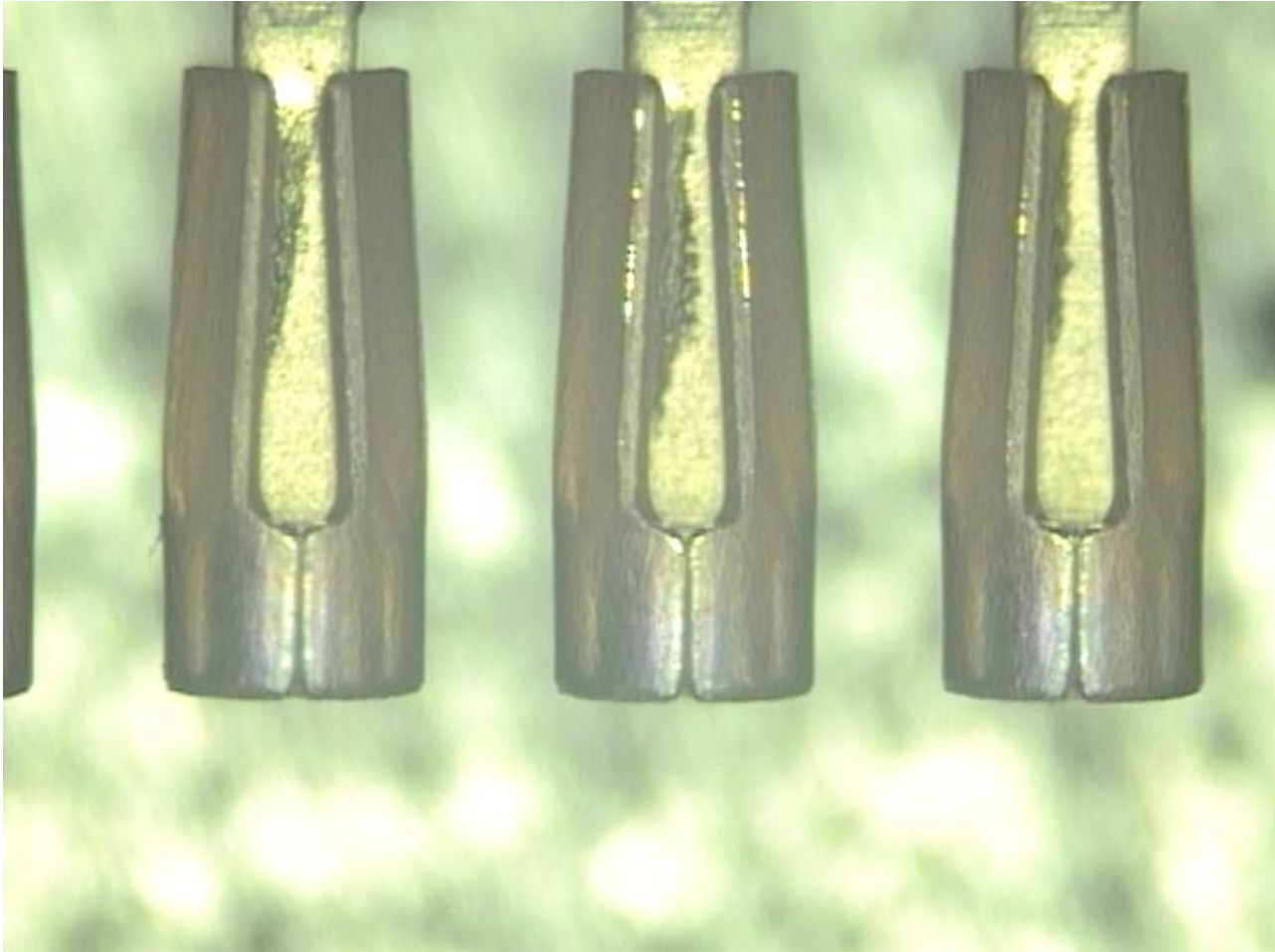
**WEAR TRACK PHOTOS**

**100 CYCLE GROUP:**



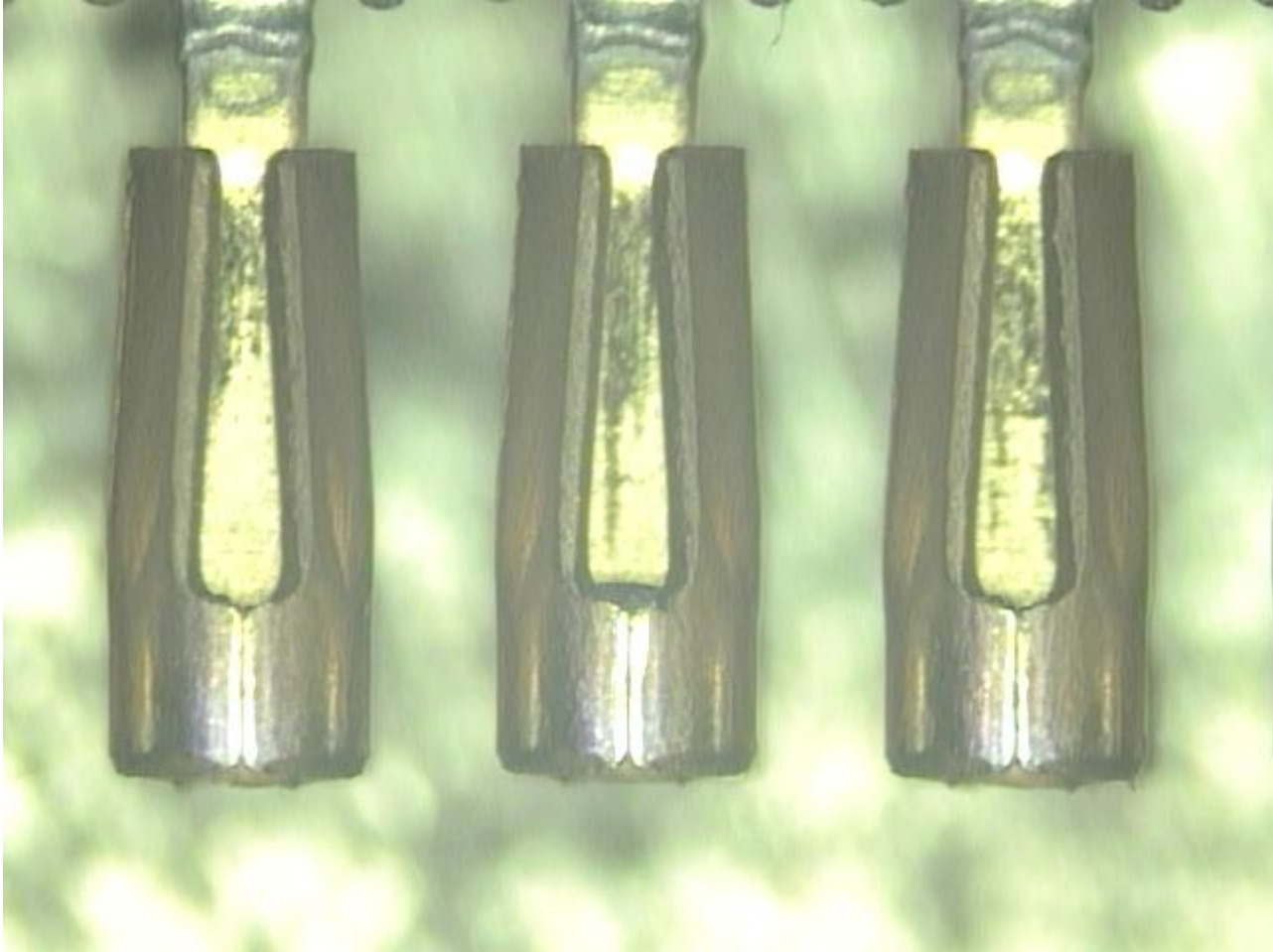
**DATA SUMMARIES Continued**

**250 CYCLE GROUP:**



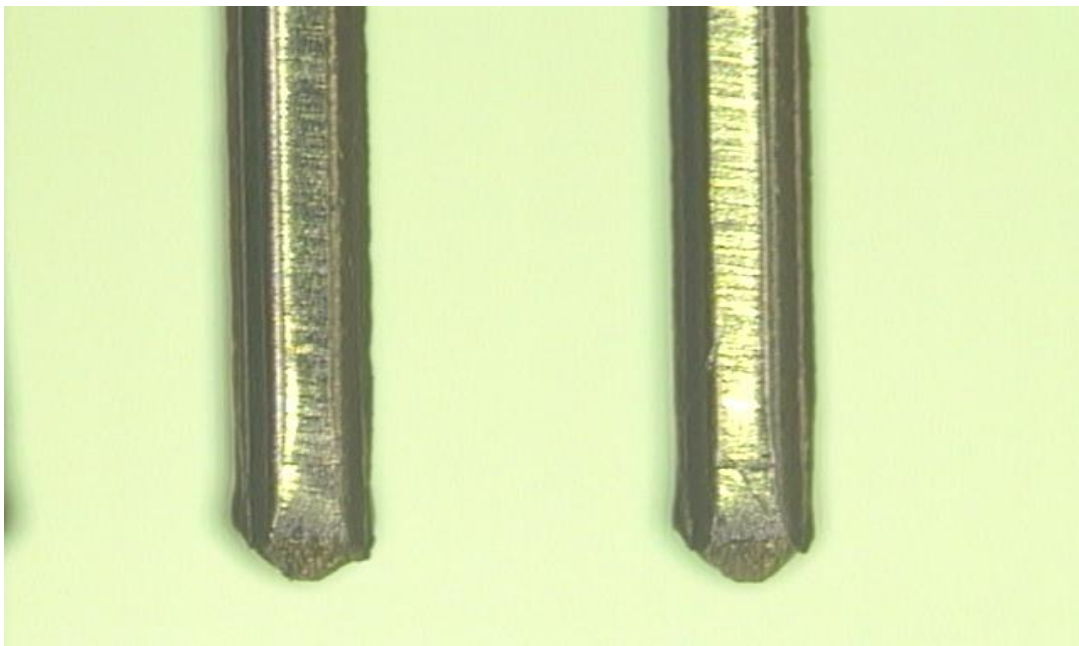
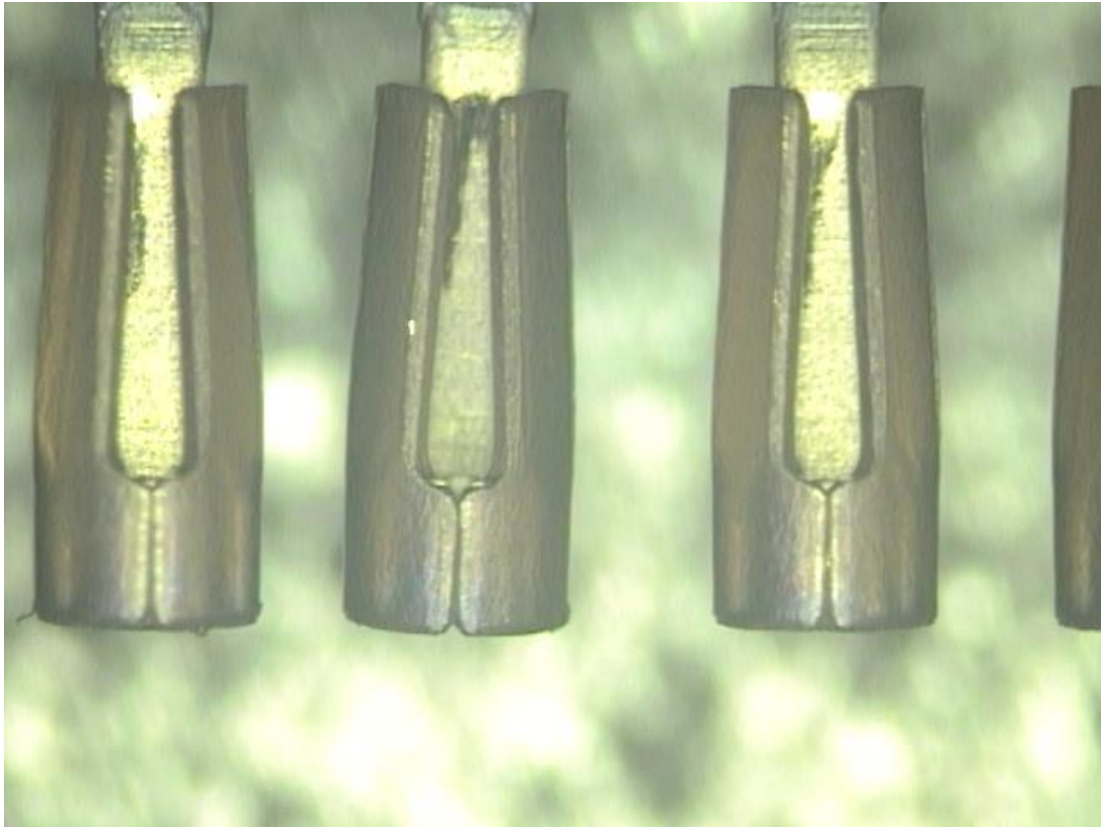
**DATA SUMMARIES Continued**

**500 CYCLE GROUP:**



**DATA SUMMARIES Continued**

**1,000 CYCLE GROUP:**



**DATA****PLATING THICKNESS:**

<b>TFM-125-01-X-D-A</b>		
Sample#	Surface	Underplat.
1	29.0	63.1
2	28.6	57.9
3	29.6	46.0
4	28.2	46.4
5	30.2	86.0
6	28.5	89.9
7	30.9	83.4
8	31.5	80.6
9	29.8	84.4
10	27.8	76.2
11	29.8	77.2
12	29.6	69.2
13	34.0	71.4
14	29.2	76.0
15	28.1	57.8
16	29.7	81.0
17	27.7	80.0
18	28.7	73.6
19	31.4	82.2
20	32.0	68.4

<b>SFM-125-01-X-D-A</b>		
Sample#	Surface	Underplat.
1	30.3	78.5
2	30.9	64.9
3	30.2	110.9
4	31.5	83.7
5	38.8	84.8
6	31.8	80.0
7	32.0	73.6
8	31.4	74.9
9	29.9	80.1
10	28.6	51.6
11	27.8	60.5
12	28.2	80.2
13	29.3	78.1
14	28.9	89.5
15	27.2	65.5
16	29.1	78.5
17	29.8	69.6
18	27.7	58.7
19	33.2	69.7
20	32.4	66.5

**100 CYCLE LLCR DURABILITY:**

	<b>mΩ</b>				
<b>Board</b>	<b>Position</b>	<b>Actual</b>	<b>Delta</b>	<b>Delta</b>	<b>Delta</b>
		<b>Initial</b>	<b>100 Cycles</b>	<b>Thermal</b>	<b>Humidity</b>
1	P1	6.6	-0.2	0.0	-0.2
1	P2	6.9	-0.3	-0.1	-0.2
1	P3	6.8	-0.2	-0.1	-0.2
1	P4	7.2	-0.2	-0.3	-0.2
1	P5	6.8	-0.2	-0.1	0.0
1	P6	6.7	-0.1	-0.1	0.1
1	P7	6.4	-0.2	-0.1	-0.1
1	P8	6.8	-0.4	-0.3	-0.2
1	P9	6.5	-0.2	-0.1	-0.1
1	P10	6.6	-0.1	0.0	0.0
1	P11	7.7	-0.5	-0.7	-0.2
1	P12	6.9	-0.3	-0.3	-0.3
1	P13	6.7	-0.3	-0.3	-0.3
1	P14	6.6	-0.1	-0.1	0.0
1	P15	6.9	-0.2	-0.3	-0.3



1	P16	6.8	-0.3	-0.2	-0.2
1	P17	6.8	0.0	0.1	0.0
1	P18	6.6	-0.1	0.0	0.0
1	P19	6.4	-0.1	-0.1	0.0
1	P20	7.5	-0.8	-0.7	-0.6
1	P21	7.5	-0.7	-0.6	-0.5
1	P22	6.9	-0.1	-0.1	-0.1
1	P23	6.8	0.0	0.0	0.0
1	P24	6.6	0.0	0.0	0.1
1	P25	6.6	0.0	0.1	0.2
2	P1	7.4	-0.5	-0.4	-0.5
2	P2	7.3	-0.1	-0.1	-0.1
2	P3	7.3	-0.2	-0.2	0.0
2	P4	7.2	-0.1	0.1	0.1
2	P5	7.4	-0.3	-0.2	-0.2
2	P6	7.4	-0.4	-0.3	-0.2
2	P7	7.1	-0.1	0.0	0.0
2	P8	7.5	-0.3	-0.2	-0.2
2	P9	7.6	-0.5	-0.4	-0.5
2	P10	7.2	0.0	0.2	0.2
2	P11	7.5	-0.4	-0.3	-0.1
2	P12	7.3	-0.3	-0.2	-0.3
2	P13	7.9	-0.6	-0.3	-0.8
2	P14	7.4	-0.3	0.1	-0.3
2	P15	7.3	-0.2	-0.2	0.0
2	P16	7.5	-0.4	-0.4	-0.6
2	P17	7.2	0.1	0.3	-0.1
2	P18	11.0	-1.0	-1.2	-1.6
2	P19	7.3	-0.2	-0.1	-0.2
2	P20	7.6	-0.3	-0.3	-0.2
2	P21	7.4	-0.1	-0.1	-0.1
2	P22	7.3	-0.2	-0.1	0.0
2	P23	7.5	-0.3	-0.3	-0.3
2	P24	7.3	0.2	0.1	0.0
2	P25	8.0	-0.6	-0.7	-0.7
3	P1	6.8	-0.2	-0.1	0.0
3	P2	6.9	-0.1	-0.1	0.0
3	P3	7.0	-0.3	0.0	0.0
3	P4	7.0	-0.3	0.0	0.0
3	P5	7.3	-0.3	-0.2	0.0
3	P6	7.0	0.0	-0.1	0.0
3	P7	6.7	0.2	0.2	0.4
3	P8	7.1	-0.2	-0.1	-0.1
3	P9	7.1	-0.2	-0.2	0.0
3	P10	7.0	0.2	0.0	0.3
3	P11	7.0	0.1	0.4	0.7
3	P12	7.1	-0.3	-0.2	0.0
3	P13	7.1	-0.1	-0.2	-0.1
3	P14	7.6	-0.6	-0.6	-0.5

3	P15	7.3	-0.3	-0.3	0.1
3	P16	7.1	0.0	-0.1	0.1
3	P17	7.3	-0.2	-0.1	-0.1
3	P18	7.0	-0.1	-0.1	0.0
3	P19	6.9	0.0	0.0	0.2
3	P20	6.8	0.0	0.2	0.3
3	P21	7.0	-0.3	-0.2	-0.1
3	P22	6.8	0.1	0.2	0.4
3	P23	6.8	0.2	0.2	0.3
3	P24	6.8	0.1	0.2	0.3
3	P25	6.9	0.2	0.3	0.2
4	P1	6.1	0.0	0.1	0.2
4	P2	6.4	-0.1	0.0	0.1
4	P3	6.5	0.2	0.3	-0.2
4	P4	6.8	-0.2	-0.2	0.1
4	P5	6.5	0.0	0.1	0.1
4	P6	6.4	0.1	0.2	0.2
4	P7	6.7	-0.3	-0.2	-0.1
4	P8	6.4	0.3	0.2	0.4
4	P9	6.4	-0.1	-0.1	0.2
4	P10	6.8	-0.4	-0.3	-0.2
4	P11	6.6	-0.1	-0.1	0.0
4	P12	6.5	-0.2	-0.1	0.1
4	P13	6.6	-0.4	-0.4	0.1
4	P14	6.6	-0.2	-0.2	-0.1
4	P15	6.7	-0.5	-0.3	-0.4
4	P16	6.6	-0.2	-0.2	0.2
4	P17	6.9	-0.3	-0.3	-0.2
4	P18	6.7	-0.1	-0.1	0.0
4	P19	6.9	-0.5	-0.2	-0.2
4	P20	6.6	0.1	0.1	0.2
4	P21	6.7	-0.3	-0.3	-0.1
4	P22	6.7	-0.2	-0.1	0.0
4	P23	6.7	-0.2	-0.1	0.0
4	P24	6.7	-0.2	0.0	0.0
4	P25	6.7	-0.1	0.0	0.0
5	P1	6.6	-0.1	-0.1	0.8
5	P2	6.9	-0.4	-0.3	-0.2
5	P3	6.8	-0.2	-0.1	-0.1
5	P4	6.8	-0.3	-0.3	-0.3
5	P5	6.9	-0.4	-0.3	-0.4
5	P6	7.0	-0.6	-0.5	-0.4
5	P7	6.9	0.1	0.1	-0.1
5	P8	6.8	-0.3	-0.2	-0.1
5	P9	6.8	-0.1	0.0	0.0
5	P10	6.7	0.0	0.1	0.1
5	P11	7.1	-0.4	-0.3	-0.2
5	P12	7.1	-0.1	-0.4	-0.4
5	P13	7.1	-0.2	-0.6	-0.5

5	P14	7.1	-0.1	0.0	0.0
5	P15	7.1	-0.2	-0.1	-0.2
5	P16	7.0	0.1	0.0	-0.2
5	P17	7.1	-0.3	-0.3	-0.2
5	P18	7.4	-0.6	-0.5	-0.3
5	P19	6.9	-0.3	-0.2	-0.3
5	P20	6.6	-0.3	-0.2	0.0
5	P21	6.7	-0.1	-0.1	-0.1
5	P22	6.5	0.2	0.1	0.2
5	P23	6.7	-0.3	-0.2	0.0
5	P24	6.8	-0.4	-0.3	-0.3
5	P25	6.6	-0.2	-0.1	0.1
6	P1	6.5	-0.1	0.1	-0.1
6	P2	6.8	0.0	0.3	0.1
6	P3	6.8	-0.1	0.1	0.0
6	P4	6.7	0.0	0.2	0.1
6	P5	7.0	-0.1	-0.1	-0.2
6	P6	6.5	0.0	0.1	0.1
6	P7	6.6	0.0	0.2	0.3
6	P8	7.2	-0.1	0.0	-0.2
6	P9	6.9	-0.1	0.0	0.0
6	P10	7.2	-0.1	0.1	0.0
6	P11	6.9	0.0	0.1	0.1
6	P12	7.0	-0.2	-0.2	0.0
6	P13	8.1	-0.6	-1.0	-1.1
6	P14	6.9	0.0	0.0	0.1
6	P15	7.1	-0.1	0.0	0.1
6	P16	6.9	-0.1	0.0	0.0
6	P17	7.1	-0.3	-0.2	-0.1
6	P18	7.4	-0.4	-0.4	-0.4
6	P19	6.7	0.0	0.1	0.1
6	P20	6.5	-0.1	0.0	0.0
6	P21	6.6	0.0	0.0	0.0
6	P22	6.7	-0.1	0.1	0.2
6	P23	6.9	-0.1	0.1	0.1
6	P24	7.1	0.0	0.0	0.0
6	P25	6.6	0.1	0.1	0.2
7	P1	7.4	0.1	0.2	0.1
7	P2	7.5	-0.3	-0.1	-0.1
7	P3	7.7	-0.4	-0.2	-0.2
7	P4	7.5	-0.1	0.0	0.2
7	P5	7.4	-0.2	0.0	0.1
7	P6	7.2	-0.1	0.2	0.2
7	P7	7.3	-0.3	0.1	0.0
7	P8	7.4	-0.4	-0.2	-0.2
7	P9	7.9	-0.7	-0.3	-0.1
7	P10	7.5	-0.5	-0.1	-0.1
7	P11	7.8	-0.3	-0.1	0.3
7	P12	7.4	-0.2	0.0	-0.1

7	P13	7.4	-0.6	-0.1	0.1
7	P14	7.3	-0.1	0.0	0.2
7	P15	7.6	-0.8	-0.6	-0.1
7	P16	7.6	-0.9	-0.6	-0.1
7	P17	7.6	-0.8	-0.8	-0.6
7	P18	7.4	-0.4	-0.1	-0.1
7	P19	7.4	-0.8	-0.6	-0.5
7	P20	7.3	0.0	0.1	0.4
7	P21	7.1	0.0	0.1	0.2
7	P22	7.2	0.0	0.1	0.3
7	P23	7.3	-0.3	-0.2	0.3
7	P24	7.1	0.1	0.4	0.4
7	P25	7.4	-0.3	-0.1	0.3
8	P1	6.8	-0.2	-0.1	0.1
8	P2	7.2	-0.1	0.0	0.0
8	P3	7.4	-0.3	-0.2	-0.2
8	P4	7.1	-0.2	0.0	0.0
8	P5	6.9	0.2	0.2	0.2
8	P6	7.1	-0.2	-0.2	-0.2
8	P7	6.8	-0.2	-0.1	0.1
8	P8	7.1	-0.3	-0.3	-0.1
8	P9	7.0	-0.3	-0.2	-0.1
8	P10	7.2	-0.5	-0.4	-0.2
8	P11	7.5	-0.4	-0.2	-0.1
8	P12	7.2	-0.3	-0.1	0.0
8	P13	7.2	-0.4	-0.3	0.0
8	P14	7.2	-0.3	-0.3	-0.1
8	P15	7.3	-0.4	-0.3	-0.2
8	P16	7.2	-0.2	0.0	0.1
8	P17	7.3	-0.2	-0.2	0.0
8	P18	10.6	-0.3	-1.7	-2.6
8	P19	7.1	-0.1	-0.1	0.0
8	P20	7.3	-0.1	0.0	0.0
8	P21	7.3	-0.1	0.1	0.2
8	P22	7.2	-0.3	0.0	0.0
8	P23	7.2	-0.2	-0.1	-0.1
8	P24	7.0	0.0	0.2	0.2
8	P25	7.2	0.2	0.0	0.3

**250 CYCLE LLCR DURABILITY:**

	mΩ values	Actual	Delta	Delta	Delta
Board	Position	Initial	250 Cycles	Thermal	Humidity
1	P1	7.2	-0.1	0.1	0.0
1	P2	7.2	-0.1	-0.2	-0.3
1	P3	7.2	0.0	0.1	0.1
1	P4	7.3	0.1	0.2	0.2
1	P5	7.3	-0.1	-0.1	-0.1

1	P6	7.2	0.1	1.4	0.8
1	P7	7.2	-0.1	-0.2	-0.2
1	P8	7.4	0.0	-0.2	0.0
1	P9	7.1	-0.1	0.0	0.1
1	P10	7.6	-0.4	-0.3	-0.3
1	P11	7.6	-0.5	-0.5	-0.5
1	P12	7.2	-0.1	0.2	0.1
1	P13	7.1	-0.3	-0.1	-0.1
1	P14	7.3	-0.4	-0.3	-0.4
1	P15	7.5	-0.4	-0.1	-0.3
1	P16	7.4	-0.5	-0.2	-0.4
1	P17	7.6	-0.5	-0.3	-0.6
1	P18	7.4	-0.6	-0.3	-0.5
1	P19	7.1	0.1	-0.1	-0.1
1	P20	7.2	-0.1	0.1	0.0
1	P21	7.2	-0.1	0.4	0.5
1	P22	7.3	0.0	0.3	0.2
1	P23	7.1	0.1	1.3	0.7
1	P24	7.2	-0.1	0.1	0.1
1	P25	7.2	0.1	0.9	0.7
2	P1	7.6	-0.1	-0.3	0.0
2	P2	7.5	1.0	1.1	1.3
2	P3	7.7	0.0	0.1	0.1
2	P4	7.6	0.0	0.1	0.1
2	P5	7.6	0.1	0.1	0.3
2	P6	7.6	0.0	0.0	0.2
2	P7	7.4	-0.4	0.0	-0.2
2	P8	7.2	-0.2	-0.1	-0.1
2	P9	7.3	-0.4	-0.2	-0.4
2	P10	7.2	-0.3	-0.1	-0.2
2	P11	7.4	0.0	0.1	0.1
2	P12	7.6	-0.1	-0.2	0.2
2	P13	7.5	-0.4	-0.4	-0.2
2	P14	7.6	-0.4	-0.4	-0.3
2	P15	7.4	-0.3	-0.2	-0.2
2	P16	7.4	0.1	-0.1	0.2
2	P17	7.3	-0.2	-0.2	-0.2
2	P18	10.7	-0.8	-0.1	-1.9
2	P19	7.6	-0.2	0.0	-0.2
2	P20	7.8	-0.2	-0.1	-0.1
2	P21	7.5	0.6	0.7	0.8
2	P22	7.6	0.0	0.0	0.0
2	P23	7.7	-0.3	-0.1	-0.2
2	P24	7.4	-0.1	0.3	0.1
2	P25	8.1	-0.5	-0.1	-0.3
3	P1	8.0	0.3	0.5	0.5
3	P2	7.0	0.0	-0.2	0.1
3	P3	7.1	0.0	-0.1	0.1
3	P4	7.1	-0.1	0.0	0.1

3	P5	7.2	-0.2	-0.1	0.1
3	P6	7.0	-0.1	-0.1	0.2
3	P7	6.7	-0.1	-0.1	0.1
3	P8	6.7	-0.1	0.0	0.2
3	P9	6.8	-0.2	-0.1	-0.1
3	P10	7.0	-0.3	-0.3	-0.2
3	P11	7.0	-0.1	-0.1	-0.1
3	P12	6.9	-0.1	0.0	0.0
3	P13	7.2	-0.4	-0.5	-0.3
3	P14	7.1	-0.3	-0.3	-0.2
3	P15	7.0	-0.1	-0.1	0.1
3	P16	6.9	0.0	-0.2	0.0
3	P17	7.0	-0.2	-0.2	0.0
3	P18	9.6	-0.6	-0.6	-1.2
3	P19	6.7	-0.2	0.0	0.2
3	P20	7.1	0.0	0.0	0.2
3	P21	6.9	-0.1	0.1	0.0
3	P22	7.1	0.0	-0.1	0.0
3	P23	7.0	-0.1	-0.1	0.2
3	P24	6.8	0.0	0.4	0.3
3	P25	6.9	0.0	0.2	0.4
4	P1	7.0	0.0	0.0	0.0
4	P2	6.9	-0.2	-0.1	0.1
4	P3	6.8	-0.4	-0.2	0.2
4	P4	7.0	-0.1	0.0	0.1
4	P5	6.9	-0.3	-0.1	0.1
4	P6	7.0	-0.1	-0.2	0.0
4	P7	6.9	0.2	0.1	0.4
4	P8	7.1	0.1	0.0	0.3
4	P9	7.1	-0.3	-0.2	-0.1
4	P10	7.2	-0.3	-0.4	-0.2
4	P11	7.6	-0.4	-0.5	-0.4
4	P12	7.1	-0.1	-0.1	0.0
4	P13	7.1	-0.2	-0.2	-0.1
4	P14	7.2	-0.4	-0.4	-0.1
4	P15	7.0	-0.3	-0.2	-0.1
4	P16	7.6	-0.5	-0.5	-0.6
4	P17	7.3	-0.3	-0.2	-0.2
4	P18	7.1	-0.2	-0.1	-0.2
4	P19	6.8	-0.1	0.1	0.0
4	P20	6.8	-0.1	0.0	0.2
4	P21	7.0	-0.2	-0.1	0.1
4	P22	6.8	-0.3	-0.3	0.0
4	P23	6.9	0.0	0.0	0.0
4	P24	6.9	0.0	0.1	0.0
4	P25	6.6	0.2	0.3	0.2
5	P1	8.0	-0.4	-0.5	-0.2
5	P2	7.5	0.1	0.2	0.2
5	P3	7.5	0.0	-0.1	0.1

5	P4	8.5	-0.8	-0.8	-0.6
5	P5	7.6	-0.2	-0.1	0.1
5	P6	7.4	0.1	0.1	0.2
5	P7	7.9	-0.4	-0.5	-0.1
5	P8	8.1	-0.6	-0.6	-0.4
5	P9	7.6	-0.3	-0.2	-0.2
5	P10	8.1	-0.7	-0.6	-0.5
5	P11	8.6	-0.7	-0.7	-0.5
5	P12	7.6	-0.1	-0.1	0.0
5	P13	8.4	-1.2	-1.0	-1.0
5	P14	7.9	-0.1	-0.2	-0.1
5	P15	8.0	-0.5	-0.4	-0.5
5	P16	7.9	-0.3	-0.4	-0.2
5	P17	7.7	-0.3	-0.3	-0.2
5	P18	7.6	-0.5	-0.4	-0.3
5	P19	7.0	0.0	-0.1	0.0
5	P20	7.6	0.0	-0.1	0.1
5	P21	7.9	-0.3	-0.4	-0.1
5	P22	8.1	-0.5	-0.5	-0.2
5	P23	7.6	-0.1	-0.2	0.0
5	P24	7.8	-0.2	-0.4	-0.1
5	P25	7.9	-0.5	-0.5	-0.4
6	P1	6.9	-0.1	0.0	0.0
6	P2	7.0	-0.2	-0.2	0.0
6	P3	6.9	0.2	0.2	0.3
6	P4	7.1	-0.4	0.1	0.0
6	P5	7.0	-0.2	0.0	0.1
6	P6	6.8	0.0	0.0	0.2
6	P7	7.1	-0.4	-0.3	-0.3
6	P8	7.2	-0.4	-0.4	0.3
6	P9	7.1	-0.3	-0.2	-0.2
6	P10	7.3	-0.4	-0.4	-0.3
6	P11	7.6	-0.5	-0.5	-0.3
6	P12	7.5	-0.7	-0.7	-0.5
6	P13	7.1	-0.4	-0.2	-0.1
6	P14	7.1	-0.4	-0.3	0.1
6	P15	7.4	-0.5	-0.4	-0.2
6	P16	7.1	-0.3	-0.1	0.1
6	P17	7.3	-0.4	-0.1	0.1
6	P18	7.3	-0.5	-0.2	-0.3
6	P19	6.9	-0.1	-0.1	0.4
6	P20	6.8	-0.1	0.1	0.0
6	P21	6.9	-0.2	-0.1	0.0
6	P22	7.0	-0.2	-0.1	-0.1
6	P23	6.9	-0.1	0.2	0.2
6	P24	6.6	0.3	0.7	1.0
6	P25	7.1	-0.1	-0.1	0.1
7	P1	7.3	-0.1	-0.1	0.0
7	P2	8.1	-0.9	-0.9	-0.8

7	P3	8.0	-0.7	-0.7	-0.7
7	P4	7.4	-0.2	-0.1	0.3
7	P5	8.9	-1.5	-1.6	-1.5
7	P6	8.9	-1.6	-1.6	-1.7
7	P7	7.1	-0.5	-0.5	-0.4
7	P8	7.2	-0.6	-0.5	-0.6
7	P9	6.9	-0.3	-0.3	-0.3
7	P10	7.0	-0.1	-0.1	-0.1
7	P11	7.4	-0.5	-0.5	-0.4
7	P12	7.0	-0.2	-0.2	-0.1
7	P13	7.0	-0.6	-0.3	-0.3
7	P14	7.1	-0.3	-0.2	-0.3
7	P15	6.9	-0.1	-0.2	-0.1
7	P16	7.1	-0.5	-0.4	-0.4
7	P17	7.0	-0.2	-0.2	0.0
7	P18	9.7	-1.9	-1.8	-2.3
7	P19	7.0	-0.3	-0.3	-0.3
7	P20	8.3	-1.0	-1.0	-1.0
7	P21	7.9	-0.7	-0.6	-0.6
7	P22	7.5	-0.3	-0.3	-0.2
7	P23	7.3	-0.3	-0.3	-0.2
7	P24	7.2	-0.2	-0.1	0.0
7	P25	7.4	-0.2	-0.1	-0.2
8	P1	7.1	0.0	0.0	0.1
8	P2	7.2	-0.1	-0.1	0.0
8	P3	7.3	0.0	0.1	0.2
8	P4	7.4	0.0	0.1	0.0
8	P5	7.5	-0.2	-0.1	0.1
8	P6	7.3	-0.1	-0.2	0.0
8	P7	7.0	-0.1	0.0	0.3
8	P8	7.3	-0.4	-0.3	-0.2
8	P9	7.2	-0.3	-0.2	-0.1
8	P10	8.5	-1.5	-1.4	-1.2
8	P11	7.9	-0.8	-0.6	-0.5
8	P12	7.8	-0.7	-0.7	-0.7
8	P13	7.4	-0.3	-0.5	-0.2
8	P14	7.7	-0.3	-0.6	-0.6
8	P15	7.7	-0.5	-0.3	-0.4
8	P16	7.3	-0.2	-0.1	-0.3
8	P17	7.3	-0.3	0.1	-0.3
8	P18	10.1	-0.5	0.1	-0.7
8	P19	7.2	-0.2	0.1	-0.1
8	P20	7.6	-0.2	-0.3	0.1
8	P21	7.5	-0.1	-0.2	0.0
8	P22	7.1	0.2	0.3	0.4
8	P23	7.4	-0.3	-0.2	-0.1
8	P24	7.4	-0.1	-0.1	0.0
8	P25	7.5	0.1	0.0	0.2



**500 CYCLE LLCR DURABILITY:**

	<b>mΩ values</b>	<b>Actual</b>	<b>Delta</b>	<b>Delta</b>	<b>Delta</b>
<b>Board</b>	<b>Position</b>	<b>Initial</b>	<b>500 Cycles</b>	<b>Thermal</b>	<b>Humidity</b>
1	P1	7.5	-0.1	-0.2	-0.1
1	P2	7.7	-0.7	-0.3	-0.6
1	P3	7.6	-0.2	-0.2	-0.1
1	P4	7.5	-0.3	0.2	-0.3
1	P5	7.6	0.4	0.2	0.3
1	P6	7.6	2.4	1.0	2.0
1	P7	7.2	0.2	-0.1	0.2
1	P8	7.1	-0.1	-0.1	0.1
1	P9	7.3	0.1	-0.2	0.5
1	P10	7.4	-0.1	-0.2	0.0
1	P11	7.6	-0.3	-0.5	-0.3
1	P12	7.2	0.0	-0.2	0.3
1	P13	7.3	-0.2	-0.2	-0.2
1	P14	7.2	-0.1	-0.2	-0.1
1	P15	7.1	0.1	-0.1	0.2
1	P16	7.3	-0.2	-0.3	-0.2
1	P17	7.3	-0.3	-0.3	-0.3
1	P18	7.3	-0.3	-0.2	-0.1
1	P19	7.1	-0.1	-0.1	0.1
1	P20	7.6	0.1	0.1	0.3
1	P21	7.4	0.6	0.3	0.6
1	P22	7.4	-0.2	0.4	0.2
1	P23	7.8	-0.4	-0.4	-0.3
1	P24	7.3	-0.2	0.2	0.1
1	P25	7.3	0.1	0.2	0.4
2	P1	7.2	0.0	0.0	0.1
2	P2	7.1	0.2	0.2	0.4
2	P3	7.4	-0.1	0.0	-0.1
2	P4	7.8	-0.3	-0.2	-0.3
2	P5	7.4	0.1	0.0	0.1
2	P6	7.5	0.9	0.5	0.2
2	P7	7.1	0.2	0.2	0.4
2	P8	7.6	-0.3	-0.3	-0.3
2	P9	7.5	-0.1	0.1	0.4
2	P10	7.7	-0.5	-0.4	-0.5
2	P11	9.3	-0.8	-1.0	-1.5
2	P12	8.1	-0.6	-0.3	-0.7
2	P13	7.5	-0.5	-0.3	-0.3
2	P14	7.8	-0.8	-0.6	-0.6
2	P15	8.1	-0.5	-0.5	-0.6
2	P16	7.7	-0.3	0.0	-0.3
2	P17	8.1	-0.5	-0.3	-0.7
2	P18	7.5	-0.2	0.1	0.1
2	P19	7.5	-0.2	-0.2	-0.5

2	P20	7.4	0.6	0.1	0.4
2	P21	7.5	1.3	1.1	1.3
2	P22	7.5	-0.1	0.0	0.4
2	P23	7.5	-0.1	0.2	0.1
2	P24	7.4	0.2	2.8	2.9
2	P25	7.2	0.6	0.4	0.9
3	P1	7.6	-0.1	0.0	-0.1
3	P2	7.1	0.4	0.4	0.8
3	P3	7.5	0.6	0.3	0.5
3	P4	7.8	0.6	0.5	0.7
3	P5	7.6	0.2	-0.1	0.1
3	P6	7.6	0.0	-0.1	0.0
3	P7	7.6	-0.1	-0.2	-0.1
3	P8	7.4	-0.1	-0.1	-0.1
3	P9	7.6	-0.1	-0.1	-0.2
3	P10	7.6	-0.2	-0.2	-0.1
3	P11	7.8	-0.4	-0.4	-0.4
3	P12	7.5	-0.2	-0.1	-0.1
3	P13	7.6	0.0	-0.1	0.2
3	P14	7.9	-0.5	-0.5	-0.6
3	P15	7.9	-0.4	-0.4	-0.5
3	P16	7.7	-0.5	-0.6	-0.4
3	P17	7.9	-0.6	-0.6	-0.6
3	P18	10.2	0.0	-0.9	-0.4
3	P19	7.2	-0.1	0.0	0.0
3	P20	7.2	0.4	0.5	0.7
3	P21	7.3	0.3	0.4	0.4
3	P22	7.6	0.1	0.0	0.3
3	P23	7.4	0.3	0.0	0.6
3	P24	7.4	0.5	0.2	0.5
3	P25	7.7	-0.3	-0.2	-0.1
4	P1	8.2	-0.2	0.0	-0.1
4	P2	8.3	0.2	0.1	0.0
4	P3	8.3	0.2	0.3	0.1
4	P4	8.1	0.1	0.4	0.1
4	P5	8.1	0.0	0.7	0.0
4	P6	8.2	0.2	0.8	0.3
4	P7	8.2	0.1	0.0	-0.1
4	P8	8.1	0.1	0.0	0.0
4	P9	8.3	-0.3	-0.2	0.2
4	P10	8.0	0.2	0.2	0.2
4	P11	7.9	-0.2	-0.4	-0.2
4	P12	7.6	0.1	0.1	0.0
4	P13	7.7	0.0	-0.1	0.1
4	P14	7.7	-0.1	0.0	0.1
4	P15	7.5	-0.2	0.0	-0.2
4	P16	7.7	-0.3	-0.2	-0.1
4	P17	7.5	-0.3	-0.2	-0.3
4	P18	7.5	-0.3	-0.1	-0.3

4	P19	7.3	-0.1	-0.1	0.0
4	P20	8.1	0.5	0.4	0.3
4	P21	8.1	-0.1	0.4	0.5
4	P22	8.0	-0.4	0.5	-0.2
4	P23	7.8	0.5	2.2	0.9
4	P24	7.9	0.0	0.1	0.1
4	P25	7.9	0.8	2.9	0.7
5	P1	6.9	0.2	0.2	0.4
5	P2	7.4	-0.3	-0.2	-0.3
5	P3	7.4	-0.1	-0.1	-0.2
5	P4	7.2	1.0	0.8	0.6
5	P5	7.4	-0.2	-0.2	-0.2
5	P6	7.5	0.4	0.1	-0.1
5	P7	6.7	-0.2	-0.1	-0.1
5	P8	6.9	-0.1	-0.1	-0.1
5	P9	6.8	0.2	0.2	0.2
5	P10	6.7	0.0	0.1	0.3
5	P11	7.4	-0.1	-0.2	-0.1
5	P12	6.9	-0.1	-0.1	-0.1
5	P13	7.0	-0.2	-0.2	-0.1
5	P14	7.4	-0.3	-0.3	-0.5
5	P15	7.0	-0.4	-0.3	-0.3
5	P16	7.0	-0.2	0.0	-0.2
5	P17	7.2	-0.5	-0.3	-0.4
5	P18	9.5	0.5	1.8	-0.7
5	P19	6.9	-0.3	-0.1	-0.3
5	P20	7.4	0.9	0.8	0.6
5	P21	7.4	0.3	0.3	-0.3
5	P22	7.4	-0.3	-0.2	-0.2
5	P23	7.1	0.0	0.1	-0.1
5	P24	7.2	0.4	1.0	0.6
5	P25	7.4	0.5	0.3	0.4
6	P1	7.1	-0.1	-0.1	0.2
6	P2	7.4	0.2	0.3	0.9
6	P3	7.2	0.3	0.1	0.6
6	P4	7.3	1.1	0.2	0.8
6	P5	7.4	0.7	-0.1	0.5
6	P6	7.4	-0.2	-0.2	0.0
6	P7	7.2	-0.3	-0.3	0.0
6	P8	8.0	-0.5	-0.6	-0.4
6	P9	7.4	-0.1	-0.1	0.1
6	P10	8.0	-0.7	-0.5	-0.6
6	P11	7.3	-0.1	-0.1	0.1
6	P12	7.6	0.1	0.3	0.0
6	P13	7.6	-0.3	-0.3	-0.3
6	P14	7.4	0.4	0.5	-0.1
6	P15	7.4	-0.4	-0.4	-0.5
6	P16	7.8	-0.1	-0.3	-0.5
6	P17	7.5	-0.4	-0.2	-0.5

6	P18	7.1	0.0	0.1	0.0
6	P19	7.2	-0.4	-0.1	-0.3
6	P20	7.3	0.6	0.7	1.0
6	P21	7.5	0.1	0.0	0.1
6	P22	7.3	-0.1	0.1	0.2
6	P23	7.1	0.2	0.4	0.4
6	P24	7.3	0.1	0.4	0.3
6	P25	7.3	0.1	0.4	0.1
7	P1	7.1	-0.3	-0.2	-0.3
7	P2	7.2	-0.3	-0.3	-0.2
7	P3	7.1	-0.3	-0.2	0.0
7	P4	6.9	0.2	0.1	0.3
7	P5	7.3	-0.3	-0.1	0.0
7	P6	7.3	0.3	0.5	1.1
7	P7	7.0	-0.4	-0.4	-0.3
7	P8	7.1	-0.3	-0.4	-0.3
7	P9	6.9	0.2	-0.1	0.3
7	P10	7.1	-0.4	-0.3	-0.2
7	P11	7.4	-0.5	-0.2	-0.5
7	P12	7.7	-0.9	-0.6	-0.9
7	P13	6.8	0.0	0.2	0.2
7	P14	7.1	-0.4	-0.2	-0.2
7	P15	7.0	-0.4	-0.2	-0.3
7	P16	7.2	-0.5	-0.5	-0.4
7	P17	7.1	-0.4	-0.2	-0.3
7	P18	7.1	-0.5	-0.3	-0.5
7	P19	6.8	-0.4	0.0	-0.3
7	P20	7.1	-0.5	-0.1	-0.2
7	P21	7.1	0.3	0.2	0.4
7	P22	6.9	0.1	0.3	0.4
7	P23	6.9	0.4	2.2	2.2
7	P24	6.9	0.6	2.3	1.1
7	P25	6.9	0.6	2.3	1.2
8	P1	6.6	0.3	0.2	0.1
8	P2	7.0	-0.3	0.1	0.1
8	P3	6.8	0.0	0.1	-0.1
8	P4	6.8	0.2	0.6	0.6
8	P5	6.8	0.4	0.6	0.8
8	P6	7.7	-0.6	-0.6	-0.2
8	P7	6.9	-0.2	0.0	-0.1
8	P8	7.4	-0.3	-0.4	-0.2
8	P9	7.1	-0.3	-0.4	-0.1
8	P10	7.1	-0.4	-0.5	-0.3
8	P11	6.9	-0.2	0.0	-0.1
8	P12	6.9	0.3	0.2	0.0
8	P13	6.8	-0.3	-0.1	0.1
8	P14	7.1	-0.2	-0.2	0.1
8	P15	7.0	-0.5	-0.3	-0.3
8	P16	6.8	0.0	-0.1	0.0

8	P17	6.9	-0.4	-0.1	-0.3
8	P18	7.0	-0.3	-0.5	0.0
8	P19	7.0	-0.2	-0.2	0.0
8	P20	7.0	0.2	0.2	0.7
8	P21	7.3	-0.2	0.0	0.0
8	P22	6.9	0.5	1.1	1.1
8	P23	7.4	-0.3	0.0	0.0
8	P24	6.7	0.0	0.3	0.0
8	P25	7.2	0.0	0.1	0.3

**1,000 CYCLE LLCR DURABILITY:**

	mΩ values	Actual	Delta	Delta	Delta
Board	Position	Initial	1000 Cycles	Thermal	Humidity
1	P1	6.9	0.7	0.9	1.2
1	P2	8.0	0.0	0.4	1.4
1	P3	6.9	0.1	1.2	2.7
1	P4	8.2	1.4	1.6	1.6
1	P5	7.0	0.1	0.7	1.0
1	P6	7.1	0.3	0.5	0.7
1	P7	6.8	0.2	0.2	0.3
1	P8	6.9	-0.2	-0.2	2.8
1	P9	6.9	0.1	0.2	0.6
1	P10	8.0	-0.2	-0.1	0.1
1	P11	7.8	-0.9	-0.6	0.1
1	P12	7.0	0.0	0.1	0.0
1	P13	6.9	0.0	-0.1	-0.1
1	P14	6.7	0.0	0.2	0.2
1	P15	6.8	0.1	0.1	0.2
1	P16	6.5	0.1	0.1	0.2
1	P17	6.6	0.1	0.1	0.1
1	P18	6.5	-0.1	0.0	0.1
1	P19	6.3	0.5	0.5	0.4
1	P20	7.0	-0.1	0.0	-0.2
1	P21	7.1	0.1	0.7	1.9
1	P22	6.8	-0.1	0.0	0.1
1	P23	6.5	0.1	0.2	0.2
1	P24	6.7	-0.1	0.0	0.1
1	P25	6.6	0.1	0.3	0.3
2	P1	6.8	-0.1	0.0	0.6
2	P2	6.5	0.3	0.4	0.4
2	P3	6.7	0.3	0.3	1.2
2	P4	6.9	0.1	0.1	0.2
2	P5	7.0	0.1	0.1	0.0
2	P6	6.6	0.3	0.3	0.5
2	P7	6.6	-0.3	-0.3	0.0
2	P8	7.1	-0.3	-0.4	-0.4
2	P9	7.1	-0.6	-0.5	-0.2

2	P10	7.9	-1.1	-1.2	-1.0
2	P11	7.3	-0.6	-0.7	-0.5
2	P12	6.9	-0.3	-0.2	-0.1
2	P13	6.8	-0.3	-0.2	-0.1
2	P14	6.9	-0.2	-0.1	0.0
2	P15	7.6	-1.0	-1.0	-0.9
2	P16	7.1	-0.3	-0.2	-0.5
2	P17	6.9	-0.5	-0.2	-0.3
2	P18	10.1	-0.2	-0.3	-2.2
2	P19	7.1	-0.5	-0.4	-0.6
2	P20	6.9	0.6	0.8	1.5
2	P21	6.9	0.0	0.1	0.2
2	P22	6.8	0.3	0.1	0.2
2	P23	6.8	0.2	0.1	0.2
2	P24	7.1	0.7	0.8	2.7
2	P25	7.2	0.1	-0.2	-0.2
3	P1	6.9	-0.1	0.0	0.3
3	P2	6.8	0.3	0.1	0.5
3	P3	6.9	0.2	0.2	0.1
3	P4	7.1	0.3	0.4	0.7
3	P5	7.3	-0.1	0.2	0.0
3	P6	7.1	-0.3	1.6	1.1
3	P7	6.9	1.6	0.2	0.5
3	P8	6.8	0.6	0.2	0.4
3	P9	7.1	0.0	-0.1	0.1
3	P10	6.8	0.7	0.4	0.4
3	P11	7.9	1.1	0.1	0.4
3	P12	7.2	0.2	0.0	0.2
3	P13	7.4	-0.3	-0.4	-0.3
3	P14	7.2	-0.3	-0.4	-0.4
3	P15	7.1	-0.2	-0.1	0.1
3	P16	7.6	-0.7	-0.7	-0.5
3	P17	7.3	-0.2	0.0	0.0
3	P18	7.4	-0.5	-0.1	-0.1
3	P19	7.0	0.1	0.1	0.4
3	P20	6.9	0.5	1.1	3.0
3	P21	7.1	-0.1	0.4	2.5
3	P22	7.0	0.6	0.4	1.6
3	P23	6.9	1.0	1.1	4.1
3	P24	6.6	0.9	1.1	3.7
3	P25	7.2	0.7	1.2	1.2
4	P1	7.4	-0.2	0.1	0.2
4	P2	7.5	0.1	0.5	0.4
4	P3	7.4	0.2	0.7	0.6
4	P4	7.4	0.0	1.0	2.0
4	P5	7.1	0.1	1.1	1.3
4	P6	7.2	0.4	1.5	2.0
4	P7	7.4	0.2	0.2	0.5
4	P8	7.7	0.1	-0.2	-0.3

4	P9	7.4	0.1	0.2	0.6
4	P10	7.4	1.7	1.0	2.3
4	P11	7.5	0.3	0.2	0.1
4	P12	7.3	-0.1	0.0	0.0
4	P13	7.6	0.2	-0.1	0.2
4	P14	7.2	-0.1	0.2	-0.1
4	P15	7.0	0.8	0.4	1.0
4	P16	7.0	-0.1	-0.1	-0.1
4	P17	7.0	-0.2	0.1	0.0
4	P18	7.6	-0.1	0.7	0.2
4	P19	7.0	-0.3	0.0	-0.3
4	P20	7.3	0.2	0.7	0.5
4	P21	7.4	-0.1	0.1	0.3
4	P22	7.2	0.5	1.5	2.3
4	P23	7.0	0.8	2.3	2.2
4	P24	7.1	0.4	1.5	3.3
4	P25	7.3	0.2	2.1	1.4
5	P1	6.5	-0.2	-0.2	0.1
5	P2	7.2	-0.8	-0.7	-0.4
5	P3	6.4	-0.3	-0.2	0.0
5	P4	6.3	0.1	0.3	0.5
5	P5	6.3	-0.2	0.0	0.1
5	P6	6.7	-0.3	-0.2	0.2
5	P7	6.7	-0.3	-0.4	-0.2
5	P8	6.9	-0.7	-0.7	-0.4
5	P9	7.1	-0.7	-0.8	-0.7
5	P10	6.4	0.0	0.0	0.0
5	P11	7.1	-0.2	-0.4	-0.4
5	P12	6.6	-0.1	-0.2	-0.2
5	P13	6.8	-0.2	-0.3	-0.3
5	P14	6.9	-0.2	-0.3	0.0
5	P15	6.7	-0.4	-0.3	-0.2
5	P16	6.7	-0.2	-0.1	0.0
5	P17	6.5	0.0	0.0	0.1
5	P18	7.2	0.0	3.4	0.4
5	P19	6.3	-0.1	-0.1	0.1
5	P20	6.9	-0.3	-0.2	0.1
5	P21	6.6	-0.1	0.0	0.3
5	P22	6.5	-0.2	-0.2	0.4
5	P23	6.6	0.7	0.5	1.2
5	P24	6.6	-0.1	0.0	0.4
5	P25	6.4	0.8	0.5	1.1
6	P1	7.1	-0.3	-0.2	0.0
6	P2	7.3	-0.1	-0.1	2.9
6	P3	7.3	0.3	0.5	1.6
6	P4	7.3	0.7	1.1	3.4
6	P5	7.2	0.1	1.1	1.4
6	P6	7.0	0.7	2.2	4.8
6	P7	7.3	-0.5	-0.5	-0.2

6	P8	7.1	-0.1	-0.1	0.6
6	P9	7.2	-0.1	-0.2	0.5
6	P10	7.5	0.4	0.2	1.5
6	P11	7.7	-0.9	-0.6	-0.5
6	P12	8.1	0.5	0.4	-0.1
6	P13	7.9	0.5	-0.2	-0.1
6	P14	7.1	0.4	0.4	0.4
6	P15	7.5	0.0	-0.2	0.1
6	P16	7.5	0.6	-0.1	0.4
6	P17	7.7	-0.4	-0.1	-0.1
6	P18	9.0	-1.5	-0.8	-0.9
6	P19	7.3	-0.3	0.0	0.1
6	P20	7.5	-0.7	-0.5	-0.1
6	P21	7.0	0.6	2.4	2.4
6	P22	8.9	-1.0	2.0	2.5
6	P23	7.0	1.2	2.8	4.0
6	P24	7.7	0.4	0.7	3.4
6	P25	7.4	-0.3	0.2	0.5
7	P1	6.4	0.0	0.2	0.2
7	P2	6.5	0.0	2.4	1.4
7	P3	6.5	1.0	1.3	1.3
7	P4	6.7	0.1	1.6	3.0
7	P5	6.8	-0.1	0.0	0.0
7	P6	6.7	0.7	0.4	1.3
7	P7	6.4	-0.4	-0.4	-0.4
7	P8	6.5	0.4	0.2	0.3
7	P9	6.5	0.1	0.0	0.0
7	P10	6.6	0.3	0.0	0.8
7	P11	7.0	-0.1	-0.1	0.0
7	P12	6.4	0.6	0.2	1.6
7	P13	7.0	-0.2	-0.8	0.4
7	P14	6.9	-0.3	-0.2	0.0
7	P15	6.7	-0.2	0.0	0.1
7	P16	6.6	-0.1	0.0	0.1
7	P17	6.7	-0.2	-0.2	0.1
7	P18	8.1	0.3	0.8	-0.2
7	P19	6.6	0.3	0.2	0.2
7	P20	6.7	-0.3	0.2	1.5
7	P21	6.8	0.2	2.0	2.7
7	P22	6.6	0.2	1.6	4.2
7	P23	6.8	0.4	2.5	1.8
7	P24	6.7	0.7	3.0	2.2
7	P25	6.7	0.6	1.1	0.9
8	P1	6.7	0.5	0.8	1.2
8	P2	7.2	0.1	0.9	1.2
8	P3	7.6	-0.3	-0.4	-0.2
8	P4	8.1	-0.4	0.0	1.7
8	P5	7.5	0.0	0.6	1.3
8	P6	7.5	0.0	1.7	1.5



8	P7	7.0	-0.2	-0.3	-0.5
8	P8	6.9	0.0	0.0	0.1
8	P9	7.5	-0.5	-0.6	-0.6
8	P10	7.0	1.0	0.5	1.4
8	P11	7.6	-0.9	-0.8	-0.8
8	P12	7.3	0.4	-0.3	0.5
8	P13	7.5	1.1	0.2	1.8
8	P14	7.5	0.5	-0.2	0.6
8	P15	7.0	-0.2	0.2	0.1
8	P16	7.1	1.7	-0.1	1.8
8	P17	7.1	-0.5	-0.3	-0.3
8	P18	7.1	0.3	1.0	0.0
8	P19	7.0	-0.3	-0.2	0.1
8	P20	7.5	-0.3	1.9	3.0
8	P21	7.7	1.0	0.7	5.1
8	P22	7.5	-0.4	-0.2	0.0
8	P23	7.6	0.2	1.3	4.9
8	P24	7.1	0.0	2.2	2.1
8	P25	6.9	0.2	0.7	0.5

**EQUIPMENT AND CALIBRATION SCHEDULES****Equipment #:** MO-01**Description:** Micro-Ohmmeter**Manufacturer:** Keithley**Model:** 580**Serial #:** 0772740**Accuracy:** See Manual

... Last Cal: 06/22/07, Next Cal: 06/22/08

**Equipment #:** MO-03**Description:** Multimeter /Data Acquisition System**Manufacturer:** Keithley**Model:** 2700**Serial #:** 0791975**Accuracy:** See Manual

... Last Cal: 06/22/07, Next Cal: 06/22/08

**Equipment #:** TCT-01**Description:** Test Stand**Manufacturer:** Chatillon**Model:** TCD-1000**Serial #:** 05 23 00 02**Accuracy:** Speed Accuracy: +/-5% of max speed; Displacement: +/- .5% or +/- .005, whichever is greater.

... Last Cal: 5/24/07, Next Cal: 5/31/08

**Equipment #:** LC-1000**Description:** Chatillon 1000 Lb Load Cell**Manufacturer:** Chatillon**Model:** Remote-1000**Serial #:** E36263**Accuracy:** +/- 0.3% of Full Scale +/- 1 LSC

... Last Cal: 5/29/07, Next Cal: 5/30/08

**Equipment #:** OV-03**Description:** Cascade Tek Forced Air Oven**Manufacturer:** Cascade Tek**Model:** TFO-5**Serial #:** 0500100**Accuracy:** Temp. Stability: +/- .1C/C change in ambient

... Last Cal: 06/22/07, Next Cal: 06/22/08

**Equipment #:** THC-01**Description:** Temperature/Humidity Chamber**Manufacturer:** Thermotron**Model:** SM-8-7800**Serial #:** 30676**Accuracy:** See Manual

... Last Cal: 9/21/2007, Next Cal: 9/21/2008