Project Number:	Tracking Code: TC0752--1517		
Requested by: Joel Keinath	Date: 12/27/2007	Product Rev: NA	
Part #: SMM-130-02-S-D / TMM-130-01-S-D-SM-A	Lot #: NA	Tech: Rodney Riley, Gary Lomax	Eng: Troy Cook
Part description: 2mm Socket Strip			Qty to test: 45
Test Start: 12/27/2007	Test Completed: 2/1/2008		

EXTENDED LIFE PRODUCTS TEST STANDARD

SMM-130-02-S-D

Mated with TMM-130-01-S-D-SM-A

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to IS0 10012-l and ANSI/NCSL 2540-1, as applicable.

SCOPE

To perform the following tests: Extended Life Products test standard.

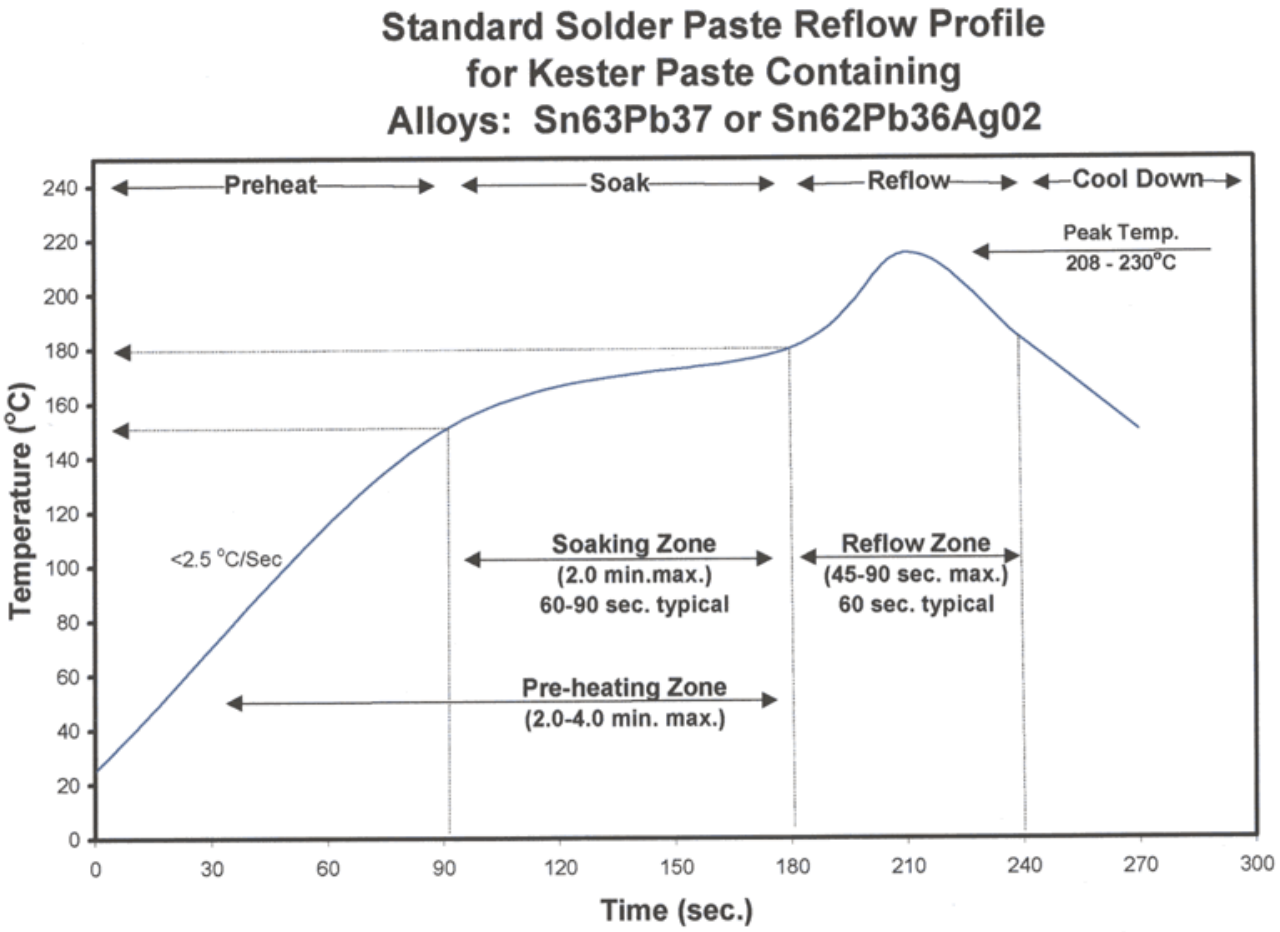
APPLICABLE DOCUMENTS

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:
9) Re-Flow Time/Temp: See accompanying profile.
10) Samtec Test PCBs used:

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Plating Thickness

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

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

Durability

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

Durability

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

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Durability

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05	Thermals
06	LLCR-3
07	Data Review
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09	LLCR-4

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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

Durability

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

Photo Documentation of Contact Area

TEST STEP	GROUP A 2-3 Photos of 1 sample 1 Sample 100 Cycle Group	GROUP B 2-3 Photos of 1 sample 1 Sample 250 Cycle Group	GROUP C 2-3 Photos of 1 sample 1 Sample 500 Cycle Group	GROUP D 2-3 Photos of 1 sample 1 Sample 1000 Cycle Group
01	Photos of Contact Area	Photos of Contact Area	Photos of Contact Area	Photos of Contact Area
02	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) All test samples are pre-conditioned at ambient.
5) All test samples are exposed to environmental stressing in the mated condition.

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) All samples are pre-conditioned at ambient.
5) All test samples are exposed to environmental stressing in the mated condition.

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. <= +5.0 mOhms: ---------- Stable
    b. +5.1 to +10.0 mOhms:---------- Minor
    c. +10.1 to +15.0 mOhms: ---------- Acceptable
    d. +15.1 to +50.0 mOhms: ---------- Marginal
    e. +50.1 to +2000 mOhms: ---------- Unstable
    f. >+2000 mOhms:---------- Open Failure

RESULTS

LLCR Durability (200 LLCR test points)

- **Initial ---------- 9.6 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
  -
- **Humidity**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Durability (200 LLCR test points)

- **Initial ---------- 9.3 mOhms Max**
- **Durability, 250 Cycles**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
  -
- **Humidity**
  - **<= +5.0 mOhms ---------- 194 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Durability (200 LLCR test points)

- **Initial ---------- 10.0 mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
  -
- **Humidity**
  - **<= +5.0 mOhms ---------- 196 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 1 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Durability (200 LLCR test points)

- **Initial ---------- 11.0 mOhms Max**
- **Durability, 1000 Cycles**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 200 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
  -
- **Humidity**
  - **<= +5.0 mOhms ---------- 198 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

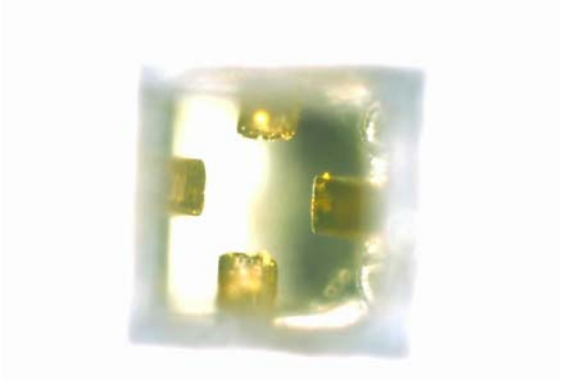
DATA SUMMARIES

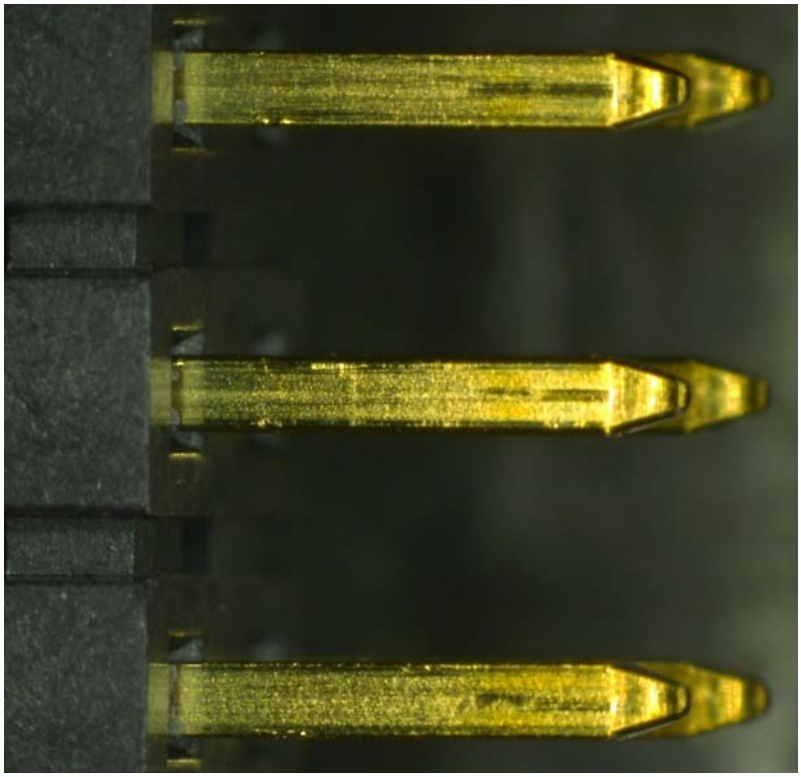
LLCR:

1) A total of 200 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
    a. <= +5.0 mOhms: ---------- Stable
    b. +5.1 to +10.0 mOhms:---------- Minor
    c. +10.1 to +15.0 mOhms: ---------- Acceptable
    d. +15.1 to +50.0 mOhms: ---------- Marginal
    e. +50.1 to +2000 mOhms ---------- Unstable
    f. >+2000 mOhms:---------- Open Failure

100 Cycle

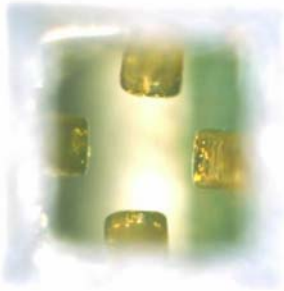
mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	8.6	-0.3	-0.2	0.2
St. Dev.	0.4	0.4	0.4	0.7
Min	5.9	-2.6	-1.2	-3.0
Max	9.6	0.7	2.0	4.0
Count	200	200	200	200

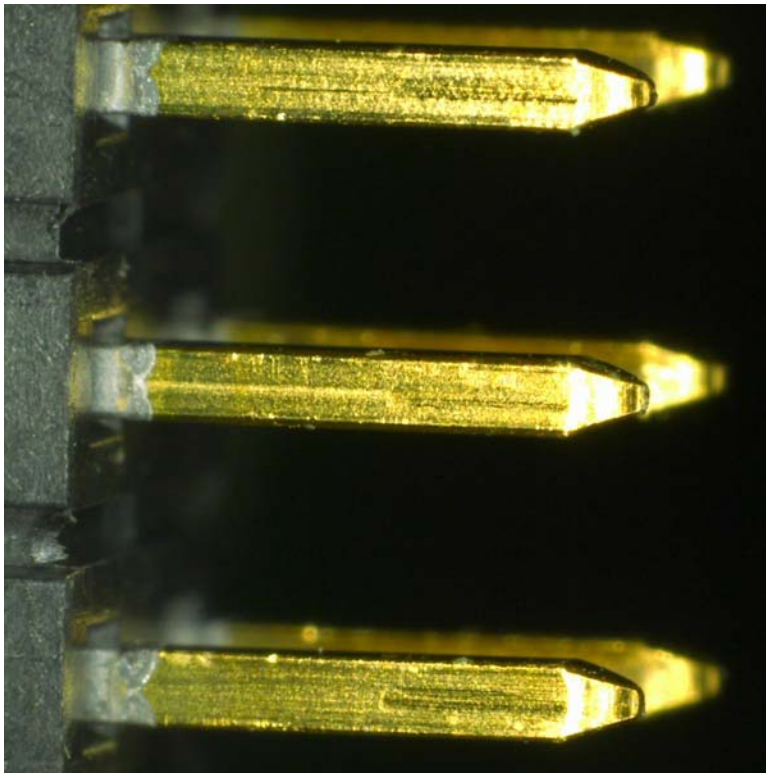




250 Cycle

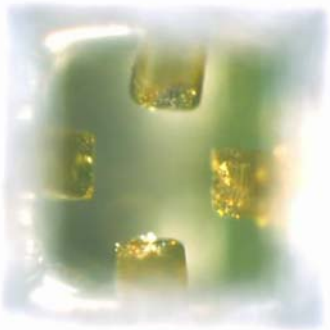
mOhm values	Actual Initial	Delta 250 Cycles	Delta Thermal	Delta Humidity
Average	8.3	-0.1	0.1	0.9
St. Dev.	0.5	0.4	0.6	1.5
Min	5.7	-1.5	-1.4	-1.0
Max	9.3	2.5	4.3	11.6
Count	200	200	200	200

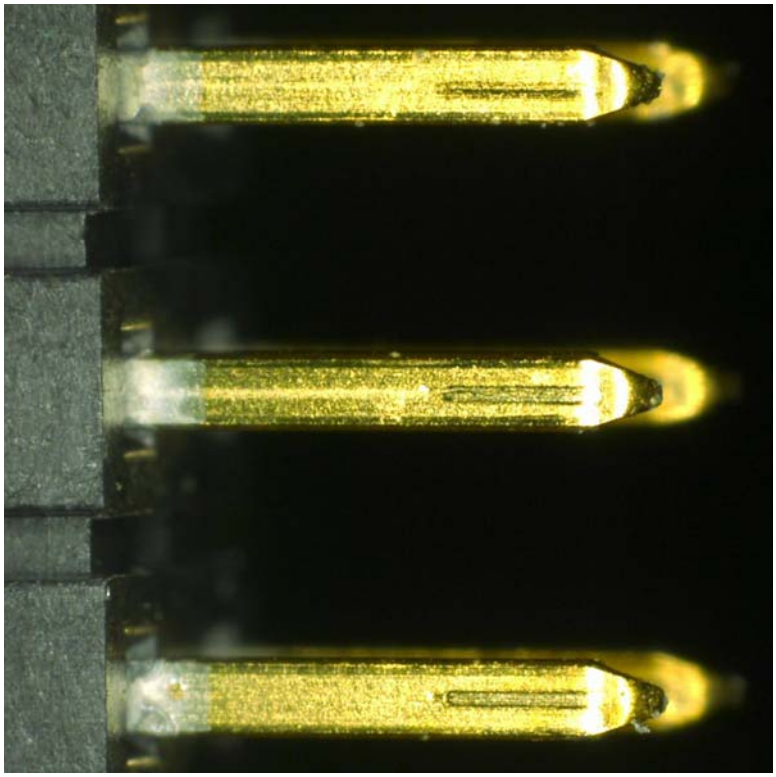




500 Cycle

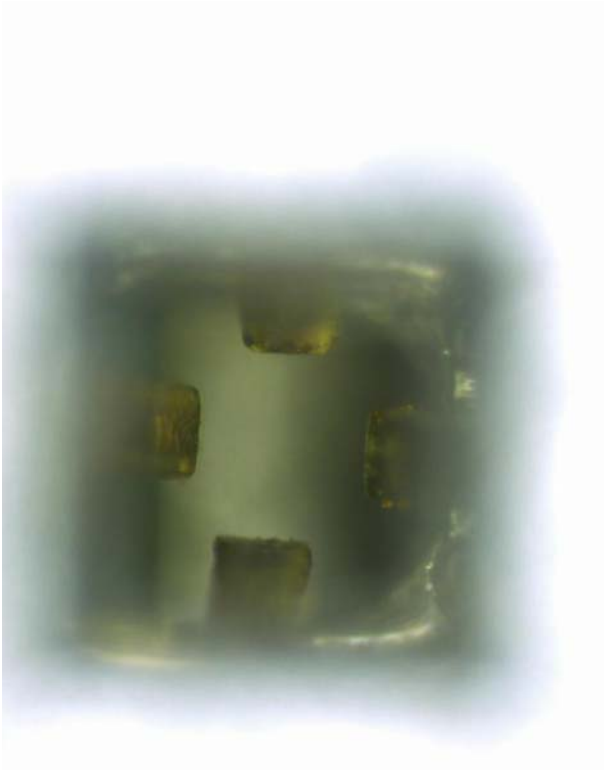
mOhm values	Actual Initial	Delta 500 Cycles	Delta Thermal	Delta Humidity
Average	8.4	-0.3	-0.1	0.8
St. Dev.	0.6	0.5	0.6	1.8
Min	6.3	-3.3	-2.7	-3.0
Max	10.0	1.3	3.2	20.2
Count	200	200	200	200

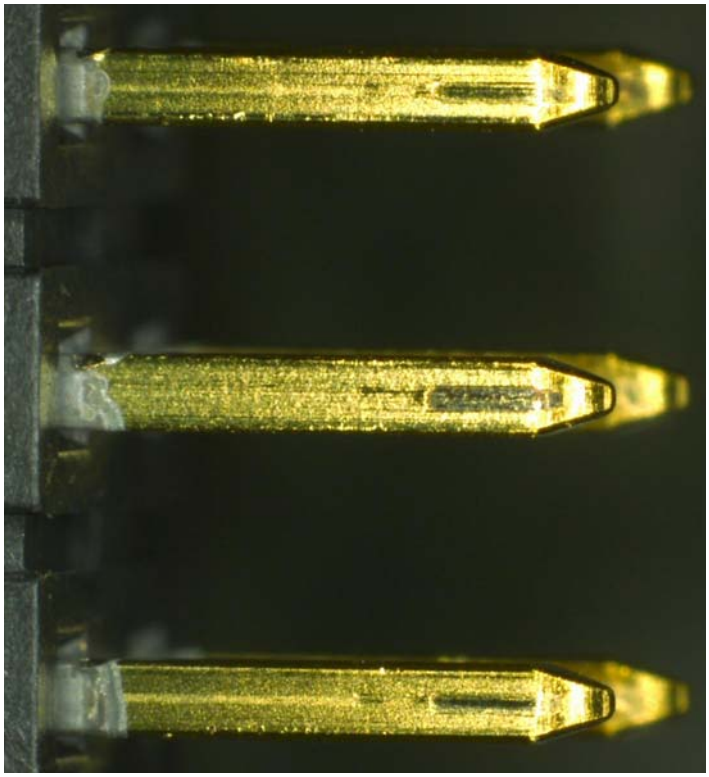




1000 Cycle

mOhm values	Actual Initial	Delta 1000 Cycles	Delta Thermal	Delta Humidity
Average	8.7	-0.2	0.4	0.8
St. Dev.	0.6	0.6	0.9	1.4
Min	4.9	-3.6	-1.5	-2.7
Max	11.0	1.9	3.4	11.1
Count	200	200	200	200





DATA

LLCR:

100 Cycle

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	9.6	-1.6	-1.0	-0.3
1	P2	8.6	-1.2	-0.6	-0.4
1	P3	8.3	-0.4	-0.3	-0.2
1	P4	8.8	-0.8	-0.6	-0.6
1	P5	8.3	-0.6	-0.3	-0.2
1	P6	9.0	-0.7	-0.3	-0.5
1	P7	9.0	-0.7	-0.5	-0.6
1	P8	9.0	-0.5	-0.7	-0.6
1	P9	8.9	-0.4	-0.2	-0.2
1	P10	8.4	-0.2	-0.1	0.1
1	P11	8.9	-0.8	-0.7	-0.4
1	P12	8.4	-0.3	-0.2	-0.2
1	P13	8.9	-0.8	-0.7	0.0
1	P14	8.3	-0.3	-0.2	-0.1
1	P15	8.6	-0.5	-0.3	0.0
1	P16	8.4	-0.3	-0.1	0.3
1	P17	8.5	-0.5	-0.3	-0.3
1	P18	8.5	-0.2	-0.1	-0.1
1	P19	7.8	0.7	0.6	0.5
1	P20	9.6	-0.8	-0.9	-1.0
1	P21	8.9	-0.7	-0.6	-0.4
1	P22	8.1	-0.5	0.0	0.1
1	P23	8.3	-0.4	0.1	0.2
1	P24	9.0	-0.7	-0.5	-0.6
1	P25	8.6	-0.6	-0.4	-0.6
2	P1	8.8	-0.5	-0.3	0.3
2	P2	8.4	-0.9	-0.7	0.3
2	P3	8.2	-0.2	0.0	0.3
2	P4	8.4	-0.1	-0.4	0.2
2	P5	8.7	-0.5	-0.6	0.0
2	P6	9.2	-0.7	-0.4	1.2
2	P7	9.5	-1.1	-1.2	-0.9
2	P8	8.6	-0.2	-0.3	-0.1
2	P9	8.4	-0.1	-0.1	0.0
2	P10	8.6	-0.4	-0.4	-0.4
2	P11	8.3	-2.5	0.2	0.3
2	P12	7.7	-2.1	0.4	-1.5
2	P13	8.3	-0.1	0.0	0.1
2	P14	8.5	-0.4	-0.2	0.8
2	P15	8.4	-0.3	-0.1	0.0

2	P16	8.3	-0.2	-0.1	0.4
2	P17	8.4	-0.2	-0.1	0.3
2	P18	8.7	-0.4	0.0	0.2
2	P19	8.7	0.1	-0.1	0.3
2	P20	8.8	-0.1	0.1	0.2
2	P21	8.3	-0.1	0.0	-0.1
2	P22	8.1	-0.1	-0.2	-0.1
2	P23	8.5	-0.4	-0.2	0.0
2	P24	8.9	-0.5	-0.5	0.1
2	P25	8.2	0.2	0.1	1.0
3	P1	8.7	-0.2	-0.2	0.0
3	P2	8.5	-0.3	-0.3	-0.1
3	P3	8.7	-0.5	-0.4	-0.3
3	P4	9.4	-1.0	-1.0	-0.8
3	P5	8.7	-0.4	-0.5	-0.3
3	P6	8.5	-0.1	-0.2	1.5
3	P7	8.8	-0.4	-0.4	-0.1
3	P8	8.9	-0.7	-0.7	0.0
3	P9	9.1	-1.0	-1.0	-0.5
3	P10	8.7	-0.6	-0.6	-0.4
3	P11	8.5	-0.4	-0.3	0.2
3	P12	8.7	-0.6	-0.5	-0.5
3	P13	8.5	-0.4	-0.3	-0.3
3	P14	8.4	-0.5	-0.3	-0.1
3	P15	9.0	-0.9	-0.8	-0.8
3	P16	8.5	-0.3	-0.4	-0.2
3	P17	8.3	-0.2	-0.3	-0.2
3	P18	8.4	-0.3	-0.4	0.0
3	P19	8.4	-0.3	-0.4	-0.3
3	P20	8.6	-0.1	-0.1	0.7
3	P21	9.0	-0.7	-0.7	-0.6
3	P22	8.6	-0.4	-0.4	-0.3
3	P23	8.7	-0.3	-0.3	-0.3
3	P24	9.1	-0.7	-0.7	-0.7
3	P25	8.4	-0.3	-0.1	-0.1
4	P1	8.4	0.0	-0.2	0.0
4	P2	8.7	0.0	-0.1	0.0
4	P3	8.7	-0.2	-0.2	0.1
4	P4	8.5	-0.1	-0.2	0.0
4	P5	8.8	-0.3	-0.4	-0.1
4	P6	8.4	0.0	0.0	0.0
4	P7	8.4	0.0	0.0	0.1
4	P8	8.4	-0.3	-0.2	0.1
4	P9	8.3	-0.1	-0.9	0.2
4	P10	8.4	-0.4	-0.3	0.0
4	P11	8.2	-0.1	-0.3	0.6
4	P12	8.7	-0.5	-0.3	0.4
4	P13	7.9	0.2	0.4	0.5
4	P14	8.5	-0.4	-0.2	0.1

4	P15	8.5	-0.4	-0.2	0.0
4	P16	7.9	0.2	0.4	0.7
4	P17	8.3	-0.1	-0.1	0.1
4	P18	8.4	-0.1	0.0	0.2
4	P19	8.6	-0.2	-0.1	0.8
4	P20	8.6	-0.1	0.0	1.3
4	P21	9.1	-0.8	-0.9	-0.3
4	P22	9.0	-0.4	-0.5	0.0
4	P23	9.1	-0.5	-0.7	-0.1
4	P24	8.7	-0.9	-0.2	-0.1
4	P25	8.8	-2.6	-0.3	1.0
5	P1	8.8	-0.3	-0.4	1.2
5	P2	8.1	0.2	0.7	1.0
5	P3	8.8	-0.2	0.0	0.2
5	P4	8.3	-0.7	0.2	0.9
5	P5	8.9	-0.5	-0.5	0.2
5	P6	9.1	-0.2	-0.2	0.4
5	P7	8.6	0.2	0.2	0.3
5	P8	8.8	-0.2	-0.2	-0.1
5	P9	8.6	-0.1	-0.1	1.4
5	P10	9.1	-0.7	-0.6	2.9
5	P11	9.0	-0.5	-0.4	2.5
5	P12	9.3	-0.9	-0.8	-0.4
5	P13	9.0	-0.6	-0.5	-0.1
5	P14	9.2	-0.7	-0.5	-0.6
5	P15	9.2	-0.7	-0.8	-0.6
5	P16	8.4	0.3	0.2	0.4
5	P17	8.9	-0.5	-0.5	0.7
5	P18	8.6	-0.2	-0.1	0.2
5	P19	8.8	-0.2	-0.2	0.3
5	P20	9.0	-0.2	-0.1	0.4
5	P21	8.9	-0.3	-0.2	2.4
5	P22	9.3	-0.7	-0.6	3.0
5	P23	8.7	-0.2	0.2	2.0
5	P24	8.7	-0.9	-0.5	4.0
5	P25	7.3	-0.5	-0.2	0.8
6	P1	8.4	0.0	0.1	-0.9
6	P2	8.4	-0.1	-0.1	0.1
6	P3	8.2	-0.1	0.0	0.2
6	P4	8.4	-0.1	-0.1	0.1
6	P5	8.5	-0.2	-0.2	0.0
6	P6	8.6	0.1	0.0	0.6
6	P7	8.6	-0.4	-0.3	0.3
6	P8	8.3	-0.2	-0.1	0.0
6	P9	8.2	0.0	0.1	0.4
6	P10	8.4	-0.2	-0.1	0.3
6	P11	8.2	-0.1	0.0	0.2
6	P12	8.5	-0.1	-0.1	0.0
6	P13	8.4	-0.2	-0.2	-0.2

6	P14	8.5	-0.2	-0.1	0.0
6	P15	8.6	-0.1	-0.2	0.0
6	P16	8.3	-0.2	-0.1	-0.1
6	P17	8.6	-0.2	-0.2	-0.1
6	P18	8.7	-0.2	-0.3	0.0
6	P19	8.5	0.1	0.0	0.2
6	P20	8.8	-0.3	-0.3	-0.3
6	P21	8.8	-0.5	-0.5	0.2
6	P22	8.6	-0.2	-0.2	-0.1
6	P23	8.6	-0.2	-0.3	0.0
6	P24	9.1	-0.6	-0.6	-0.5
6	P25	8.7	-0.4	-0.1	0.1
7	P1	8.6	-0.1	0.0	0.0
7	P2	9.1	-0.6	-0.3	-0.1
7	P3	8.5	-0.2	0.0	0.0
7	P4	8.4	-0.2	0.0	0.0
7	P5	8.5	-0.3	-0.2	-0.1
7	P6	8.9	-0.1	0.0	0.0
7	P7	8.7	-0.1	0.1	0.2
7	P8	8.3	0.0	0.3	0.3
7	P9	8.2	-0.1	0.0	0.1
7	P10	8.4	-0.1	-0.1	0.3
7	P11	8.3	-0.1	-0.2	-0.2
7	P12	8.3	-0.2	-0.1	-0.1
7	P13	8.3	-0.1	-0.1	0.0
7	P14	8.6	-0.2	-0.1	-3.0
7	P15	8.6	-0.1	-0.1	-0.1
7	P16	8.8	0.4	1.6	1.8
7	P17	8.4	-0.4	-0.3	-0.3
7	P18	8.2	-0.1	0.0	0.1
7	P19	8.2	-0.1	-0.1	0.1
7	P20	8.2	0.0	-0.1	0.0
7	P21	9.0	-0.7	-0.5	-0.7
7	P22	8.7	-0.3	-0.1	0.1
7	P23	8.4	-0.1	0.1	0.3
7	P24	8.5	-0.2	0.1	0.4
7	P25	8.3	0.1	0.3	1.6
8	P1	6.5	0.2	1.0	1.1
8	P2	8.2	-0.1	0.1	0.1
8	P3	8.1	-0.1	0.1	0.3
8	P4	8.1	-0.2	-0.1	0.1
8	P5	8.2	-0.1	0.0	0.0
8	P6	5.9	0.4	2.0	2.7
8	P7	8.4	-0.3	-0.1	0.2
8	P8	8.6	-0.2	-0.2	0.1
8	P9	8.6	-0.3	-0.3	0.1
8	P10	8.4	-0.3	-0.4	0.0
8	P11	8.5	-0.2	-0.2	0.1
8	P12	8.5	-0.2	-0.1	0.4

8	P13	8.4	-0.2	-0.2	-0.2
8	P14	8.4	-0.1	-0.1	0.0
8	P15	8.4	-0.2	-0.1	0.0
8	P16	8.7	-0.4	-0.4	-0.4
8	P17	8.4	-0.1	-0.1	-0.2
8	P18	8.5	-0.3	-0.2	-0.2
8	P19	8.7	-0.1	0.0	-0.1
8	P20	8.5	0.0	-0.1	-0.1
8	P21	8.3	-0.4	-0.2	1.4
8	P22	8.5	-0.5	-0.4	0.8
8	P23	8.5	-0.3	-0.2	0.3
8	P24	8.5	-0.5	-0.2	1.2
8	P25	8.2	-0.3	0.0	1.3

250 Cycle

	mOhm values	Actual	Delta	Delta	Delta
Board	**Position**	**Initial**	**100 Cycles**	**Thermal**	**Humidity**
1	P1	9.0	-0.4	-0.4	1.5
1	P2	8.6	-0.2	0.0	0.4
1	P3	8.9	-0.2	-0.2	-0.2
1	P4	8.5	-0.2	-0.2	0.0
1	P5	8.5	-0.3	-0.2	-0.1
1	P6	5.7	2.5	2.8	5.1
1	P7	8.4	0.1	0.0	1.9
1	P8	8.5	0.0	0.0	0.2
1	P9	8.4	-0.1	0.4	1.0
1	P10	8.4	-0.1	0.0	0.8
1	P11	8.6	-0.2	-0.2	0.4
1	P12	8.4	-0.1	-0.2	0.4
1	P13	8.6	-0.3	-0.3	0.5
1	P14	8.2	-0.1	-0.1	0.1
1	P15	8.4	-0.1	-0.2	0.0
1	P16	8.7	-0.5	-0.5	-0.4
1	P17	8.5	-0.2	-0.3	-0.1
1	P18	8.4	-0.2	-0.1	0.3
1	P19	8.5	-0.3	-0.6	-0.2
1	P20	8.5	0.2	0.2	1.6
1	P21	8.6	-0.3	-0.2	0.2
1	P22	8.4	-0.2	-0.1	0.4
1	P23	8.5	-0.2	-0.1	0.2
1	P24	8.6	-0.2	-0.2	0.9
1	P25	8.7	-0.3	-0.3	0.9
2	P1	8.6	-1.5	-0.9	-0.8
2	P2	9.1	-0.6	-0.1	2.3
2	P3	8.6	-0.4	-0.2	2.1
2	P4	8.5	-0.3	-0.2	0.6
2	P5	8.7	-0.4	-0.3	0.1
2	P6	7.6	-1.2	-0.3	0.4
2	P7	9.0	-0.4	0.0	1.5

2	P8	9.0	-0.4	-0.1	1.2
2	P9	8.6	-0.3	0.0	0.2
2	P10	8.7	-0.3	-0.2	-0.1
2	P11	8.8	-0.4	-0.1	0.8
2	P12	9.0	-0.6	-0.4	0.7
2	P13	9.0	-0.6	-0.2	1.0
2	P14	8.7	-0.3	-0.3	0.3
2	P15	8.7	-0.3	-0.2	1.2
2	P16	8.8	-0.4	-0.3	0.8
2	P17	8.9	-0.5	-0.4	1.6
2	P18	8.6	-0.4	-0.3	0.9
2	P19	9.0	0.3	4.3	-0.9
2	P20	9.0	-0.3	-0.2	2.4
2	P21	8.5	-0.3	0.0	1.2
2	P22	8.5	0.1	0.1	0.5
2	P23	8.5	-0.1	-0.1	0.5
2	P24	8.6	0.8	0.4	0.5
2	P25	8.6	0.3	0.8	5.6
3	P1	7.0	0.1	0.4	6.6
3	P2	8.6	-0.3	0.0	0.1
3	P3	8.5	-0.3	-0.2	0.0
3	P4	8.2	0.0	0.1	0.2
3	P5	8.5	-0.1	-0.1	0.0
3	P6	7.1	0.0	1.0	11.6
3	P7	8.8	-0.2	0.5	1.1
3	P8	8.6	0.0	0.7	0.1
3	P9	8.5	-0.1	0.2	0.4
3	P10	8.5	-0.3	0.0	0.0
3	P11	8.6	-0.3	-0.2	1.8
3	P12	8.4	-0.1	-0.1	0.6
3	P13	8.6	-0.2	-0.1	0.2
3	P14	8.4	0.0	0.1	1.0
3	P15	8.3	-0.1	0.3	0.6
3	P16	8.4	-0.1	0.3	2.4
3	P17	8.1	0.1	0.3	1.8
3	P18	9.1	-0.4	-0.4	3.1
3	P19	8.7	-0.2	0.1	0.3
3	P20	9.3	-0.3	0.1	0.8
3	P21	8.5	-0.1	0.0	1.1
3	P22	8.2	0.5	1.0	3.2
3	P23	8.3	0.2	0.4	4.9
3	P24	8.4	0.1	0.2	0.8
3	P25	9.0	-0.2	-0.1	1.2
4	P1	8.7	-0.1	-0.1	2.5
4	P2	8.6	-0.2	-0.1	1.0
4	P3	8.3	-0.2	-0.1	0.2
4	P4	8.6	-0.1	-0.1	0.4
4	P5	8.4	-0.2	-0.1	0.3
4	P6	7.6	0.9	1.2	1.9

4	P7	7.8	0.0	0.4	0.9
4	P8	8.0	-0.1	0.0	1.3
4	P9	7.9	-0.7	-0.1	0.2
4	P10	8.2	-0.2	-0.1	0.3
4	P11	8.1	-0.3	-0.3	1.0
4	P12	7.7	0.4	0.4	2.2
4	P13	7.9	0.0	0.0	0.6
4	P14	8.1	0.0	-0.1	0.2
4	P15	8.1	0.0	0.1	0.4
4	P16	7.9	0.0	0.1	0.4
4	P17	8.1	-0.1	-0.2	0.5
4	P18	7.8	0.0	-0.1	0.1
4	P19	8.2	-0.2	-0.3	0.2
4	P20	8.5	-0.3	-0.4	-0.2
4	P21	8.5	-0.3	0.0	0.0
4	P22	8.4	-0.2	-0.1	-0.1
4	P23	8.7	-0.2	-0.1	-0.1
4	P24	8.7	-0.3	-0.2	-0.1
4	P25	8.5	-0.1	0.0	0.5
5	P1	6.6	0.8	1.6	3.4
5	P2	8.4	-0.3	-0.2	1.4
5	P3	7.9	0.3	0.4	0.8
5	P4	8.3	-0.1	-0.1	0.8
5	P5	8.3	-0.2	-0.2	0.5
5	P6	7.8	-1.4	-1.4	-1.0
5	P7	8.4	-0.2	-0.1	0.5
5	P8	8.5	-0.3	-0.1	1.3
5	P9	8.2	-0.2	-0.2	0.1
5	P10	8.3	0.0	-0.1	0.3
5	P11	8.3	-0.1	-0.1	0.4
5	P12	8.3	-0.1	-0.2	0.4
5	P13	8.2	-0.1	-0.1	0.2
5	P14	7.5	0.7	0.7	1.2
5	P15	8.1	0.1	0.0	0.4
5	P16	8.2	0.0	-0.1	0.7
5	P17	8.3	0.0	-0.2	0.2
5	P18	8.2	-0.2	-0.1	2.1
5	P19	7.9	0.4	0.3	1.7
5	P20	8.3	-0.1	-0.2	0.2
5	P21	8.1	0.1	0.1	0.4
5	P22	6.4	1.2	1.5	1.9
5	P23	8.3	-0.2	-0.1	0.3
5	P24	7.5	0.7	0.8	2.2
5	P25	8.7	-0.6	-0.6	0.0
6	P1	8.0	0.3	0.3	0.8
6	P2	8.5	-0.2	-0.2	0.1
6	P3	8.9	-0.2	-0.2	0.3
6	P4	8.4	-0.2	-0.1	0.2
6	P5	8.5	-0.3	-0.4	-0.1

6	P6	8.3	-1.2	-0.8	1.2
6	P7	8.7	-0.2	0.2	1.2
6	P8	8.2	-0.1	0.4	0.6
6	P9	8.4	-0.1	-0.1	0.2
6	P10	8.5	0.0	0.1	0.1
6	P11	8.8	-0.1	-0.1	0.1
6	P12	8.6	-0.1	0.0	0.3
6	P13	8.9	-0.3	-0.2	0.1
6	P14	8.6	-0.2	-0.1	0.0
6	P15	8.7	-0.2	-0.1	0.1
6	P16	8.9	-0.2	0.0	1.2
6	P17	8.6	0.0	-0.1	0.1
6	P18	8.2	0.4	0.4	0.7
6	P19	8.9	-0.1	-0.1	0.0
6	P20	9.0	-0.2	-0.1	0.0
6	P21	8.8	-0.1	0.1	0.8
6	P22	8.4	0.4	0.3	1.1
6	P23	9.0	0.1	0.0	0.4
6	P24	9.1	-0.1	0.0	0.0
6	P25	9.1	-0.2	-0.2	0.2
7	P1	8.4	-0.5	-0.3	6.1
7	P2	8.3	-0.4	0.1	0.9
7	P3	8.1	-0.1	0.1	0.2
7	P4	8.0	-0.2	0.1	0.2
7	P5	8.0	-0.1	-0.1	0.2
7	P6	8.0	0.0	0.2	0.9
7	P7	8.1	-0.6	0.2	1.0
7	P8	7.6	0.1	0.3	1.0
7	P9	7.9	-0.1	-0.1	0.3
7	P10	8.1	-0.2	-0.1	0.0
7	P11	8.0	-0.1	-0.2	0.5
7	P12	8.1	-0.4	-0.4	0.3
7	P13	7.7	0.2	0.2	0.5
7	P14	8.0	-0.2	-0.2	0.2
7	P15	8.0	-0.3	-0.2	-0.1
7	P16	8.1	-0.3	-0.3	-0.1
7	P17	8.0	-0.3	-0.3	0.2
7	P18	7.9	-0.1	0.0	0.6
7	P19	7.0	0.7	0.9	2.0
7	P20	6.2	1.2	2.1	2.6
7	P21	8.1	-0.4	-0.3	0.8
7	P22	8.1	-0.2	0.0	1.3
7	P23	8.0	-0.1	0.1	0.9
7	P24	7.9	0.0	0.1	0.2
7	P25	6.1	2.1	2.2	2.6
8	P1	8.7	-0.7	-0.2	0.1
8	P2	8.5	-0.2	0.1	0.9
8	P3	8.5	-0.2	0.0	0.8
8	P4	8.1	-0.4	0.0	0.9

8	P5	8.4	-0.2	-0.1	1.0
8	P6	6.6	1.3	1.7	3.4
8	P7	8.1	0.2	0.4	1.0
8	P8	8.1	-0.2	0.3	1.5
8	P9	8.4	-0.4	-0.1	0.9
8	P10	8.3	-0.2	0.0	1.6
8	P11	8.1	0.0	0.4	1.1
8	P12	7.7	0.3	0.7	1.3
8	P13	8.3	-0.3	-0.1	0.9
8	P14	8.9	-0.6	-0.4	-0.4
8	P15	8.1	0.2	0.4	0.3
8	P16	7.3	0.8	0.9	1.1
8	P17	7.9	0.1	0.4	0.7
8	P18	7.8	0.3	0.6	1.4
8	P19	8.3	0.0	0.2	0.8
8	P20	8.7	-0.3	-0.2	0.0
8	P21	8.8	-0.2	-0.3	11.0
8	P22	9.1	-0.3	-0.1	1.6
8	P23	8.9	-0.2	-0.2	0.8
8	P24	9.0	-0.4	-0.4	1.5
8	P25	9.2	-0.3	-0.2	0.6

500 Cycle

	mOhm values	Actual	Delta	Delta	Delta
Board	**Position**	**Initial**	**100 Cycles**	**Thermal**	**Humidity**
1	P1	8.8	-0.4	-0.1	0.6
1	P2	8.3	-0.3	0.6	1.2
1	P3	8.3	-0.2	0.1	2.8
1	P4	8.4	-0.1	-0.2	1.9
1	P5	8.3	-0.2	0.0	1.1
1	P6	9.7	-0.8	-0.2	1.2
1	P7	9.0	-0.3	0.1	1.7
1	P8	9.1	-0.1	0.0	1.4
1	P9	8.9	-0.4	-0.5	2.1
1	P10	9.1	-0.7	-0.3	1.1
1	P11	8.9	-0.1	-0.4	0.2
1	P12	8.9	-0.3	-0.3	0.4
1	P13	8.9	-0.1	0.4	2.3
1	P14	8.6	-0.2	0.4	2.7
1	P15	8.6	-0.1	0.5	1.6
1	P16	9.0	-0.5	-0.3	0.6
1	P17	8.8	-0.5	0.4	0.1
1	P18	8.5	-0.2	0.7	0.7
1	P19	8.9	-0.4	0.2	-0.1
1	P20	9.2	-0.3	0.1	-0.1
1	P21	8.5	-0.1	0.0	0.2
1	P22	8.3	-0.2	0.4	0.8
1	P23	8.6	-0.2	-0.2	0.0
1	P24	8.8	-0.3	-0.3	0.5

1	P25	8.4	-0.2	0.1	0.5
2	P1	8.2	-0.2	-0.8	0.6
2	P2	8.9	-0.6	-0.7	-0.6
2	P3	8.4	-0.3	-0.3	0.1
2	P4	8.3	-0.3	0.0	0.8
2	P5	8.2	-0.1	0.0	0.5
2	P6	9.1	-1.0	-1.4	-0.5
2	P7	8.9	-0.8	-0.8	-0.7
2	P8	8.2	-0.3	-0.4	0.0
2	P9	8.0	-0.1	-0.1	-0.1
2	P10	8.2	-0.2	-0.3	0.0
2	P11	8.2	-0.3	-0.1	0.3
2	P12	8.4	-0.3	-0.5	0.1
2	P13	8.4	-0.3	-0.4	0.3
2	P14	8.4	-0.4	-0.3	0.2
2	P15	8.3	-0.3	-0.5	0.4
2	P16	8.3	-0.5	-0.3	0.4
2	P17	8.4	-0.5	-0.4	-0.1
2	P18	8.4	-0.5	-0.4	-0.1
2	P19	8.7	-0.5	-0.6	-0.3
2	P20	6.4	0.8	1.8	0.4
2	P21	8.1	0.1	0.1	0.6
2	P22	8.5	-0.2	-0.5	0.2
2	P23	8.4	-0.4	-0.3	0.6
2	P24	8.6	-0.4	-0.4	-0.2
2	P25	7.7	-0.3	0.3	0.7
3	P1	7.6	-0.8	0.7	2.1
3	P2	8.7	-0.5	-0.3	1.0
3	P3	8.8	-0.7	-0.8	2.2
3	P4	8.8	-0.7	-0.7	1.2
3	P5	8.7	-0.5	-0.1	2.2
3	P6	6.9	-0.5	1.6	0.7
3	P7	8.4	-0.2	0.5	4.3
3	P8	9.2	-0.8	-0.8	0.8
3	P9	8.8	-0.5	-0.6	1.6
3	P10	8.2	-0.1	0.1	1.9
3	P11	8.7	-0.5	-0.5	0.8
3	P12	8.6	-0.2	-0.7	2.0
3	P13	9.5	-1.0	-1.2	1.7
3	P14	8.9	-0.8	-0.6	7.5
3	P15	8.6	-0.5	-0.5	2.0
3	P16	8.8	-0.5	-0.7	1.2
3	P17	8.6	-0.3	-0.2	2.4
3	P18	8.4	-0.1	0.1	5.3
3	P19	8.6	0.0	0.0	1.3
3	P20	8.5	0.1	-2.1	0.4
3	P21	8.5	-0.2	-0.1	2.2
3	P22	8.2	-0.1	0.0	20.2
3	P23	8.5	-0.3	-0.2	4.3

3	P24	8.5	-0.2	0.0	1.4
3	P25	8.4	-0.1	-0.1	3.5
4	P1	8.8	-0.3	-2.7	-0.2
4	P2	8.0	0.2	0.0	0.3
4	P3	7.4	0.8	1.2	0.9
4	P4	8.8	-0.7	-0.6	-0.3
4	P5	8.0	-0.1	0.0	0.3
4	P6	8.7	-0.2	-0.4	-0.1
4	P7	8.3	-0.2	0.0	0.0
4	P8	8.6	-0.3	-0.5	0.1
4	P9	8.5	-0.3	-0.5	-0.3
4	P10	8.2	-0.1	-0.3	2.7
4	P11	8.5	-0.1	-0.5	0.3
4	P12	8.2	-0.2	-0.3	0.3
4	P13	8.3	-0.2	-0.2	0.3
4	P14	7.7	-0.7	0.4	0.6
4	P15	8.2	-0.4	0.2	0.2
4	P16	8.4	-0.7	-0.4	0.0
4	P17	8.3	-0.2	-0.2	-0.2
4	P18	8.5	-0.3	-0.2	0.5
4	P19	8.7	-0.3	-0.6	0.6
4	P20	8.6	-0.2	-0.1	1.1
4	P21	8.5	-0.6	-0.6	0.0
4	P22	8.5	-0.5	-0.3	-0.1
4	P23	8.8	-0.5	-0.5	0.3
4	P24	7.1	0.6	1.1	1.4
4	P25	6.6	-0.6	-0.5	0.4
5	P1	6.3	0.6	3.2	1.9
5	P2	7.4	0.4	1.2	1.2
5	P3	7.6	0.5	0.6	0.9
5	P4	7.8	0.2	0.6	0.5
5	P5	8.5	-0.3	-0.4	0.2
5	P6	8.0	0.3	0.6	0.7
5	P7	8.3	-0.3	0.4	0.4
5	P8	8.5	-0.2	-0.2	0.3
5	P9	8.3	-0.3	0.0	0.5
5	P10	7.4	0.3	0.2	1.6
5	P11	8.2	0.0	-0.2	0.9
5	P12	7.7	0.3	0.5	0.9
5	P13	7.1	0.9	1.2	1.7
5	P14	6.9	0.1	1.4	1.8
5	P15	6.9	0.1	1.4	2.1
5	P16	7.3	0.6	0.8	1.5
5	P17	8.4	0.0	-0.1	0.8
5	P18	8.5	-0.3	0.1	0.4
5	P19	8.9	-0.3	-0.6	0.0
5	P20	8.6	-0.1	0.1	0.1
5	P21	8.3	-0.3	0.0	0.3
5	P22	8.3	-0.1	-0.1	0.8

5	P23	7.6	0.5	0.5	1.8
5	P24	6.5	1.3	1.9	1.8
5	P25	6.7	1.0	0.8	2.4
6	P1	9.1	-0.5	0.5	1.1
6	P2	9.0	-0.6	-0.5	-0.4
6	P3	8.8	-0.6	-0.5	0.4
6	P4	9.1	-0.6	-0.8	0.1
6	P5	8.4	0.1	-0.2	0.3
6	P6	8.2	-0.6	1.0	5.5
6	P7	8.5	-0.2	0.6	1.0
6	P8	7.9	0.3	0.6	1.3
6	P9	7.2	1.0	1.4	2.0
6	P10	8.6	-0.4	-0.3	1.2
6	P11	8.6	-0.3	-1.1	0.1
6	P12	7.7	0.8	0.8	1.8
6	P13	7.8	-2.9	0.6	-1.8
6	P14	8.7	-3.3	-0.1	-3.0
6	P15	7.3	1.2	1.0	-0.2
6	P16	8.2	0.0	0.1	0.6
6	P17	9.0	-0.6	-0.7	0.4
6	P18	8.3	0.2	0.1	0.6
6	P19	7.8	0.9	0.5	1.8
6	P20	8.7	0.3	-0.9	1.1
6	P21	8.5	-0.2	0.0	0.2
6	P22	8.1	0.1	0.4	0.7
6	P23	8.1	0.2	0.2	0.9
6	P24	8.7	-0.3	-0.4	0.9
6	P25	9.1	0.5	-0.6	1.9
7	P1	8.7	-0.7	-0.7	0.5
7	P2	7.4	0.2	0.6	1.1
7	P3	7.9	0.2	1.1	0.9
7	P4	8.5	-0.8	0.0	0.6
7	P5	8.8	-0.4	-0.2	-0.1
7	P6	9.1	-0.3	0.1	-0.4
7	P7	10.0	-1.5	-1.1	-0.8
7	P8	9.1	-0.3	-0.4	0.2
7	P9	9.0	-0.4	-0.5	-0.2
7	P10	9.2	-0.5	-0.4	-0.2
7	P11	8.9	-0.3	-0.1	-0.3
7	P12	8.8	-0.2	-0.2	0.0
7	P13	9.0	-0.4	-0.4	0.0
7	P14	9.0	-0.3	-0.5	0.0
7	P15	9.1	-0.2	-0.6	0.2
7	P16	9.0	-0.1	-0.4	0.3
7	P17	8.9	-0.3	-0.2	-0.2
7	P18	9.0	-0.4	0.2	0.2
7	P19	9.3	-0.5	0.1	-0.3
7	P20	9.4	-0.2	-0.5	0.0
7	P21	8.8	-0.3	-0.2	-0.2

7	P22	8.9	-0.6	-0.8	-1.1
7	P23	9.0	-0.2	-0.9	0.3
7	P24	9.2	-0.9	-1.2	-0.4
7	P25	8.8	-0.9	-0.7	-0.4
8	P1	9.1	-0.8	-0.8	-0.3
8	P2	8.8	-0.3	-0.4	0.4
8	P3	8.4	-0.2	0.0	0.1
8	P4	8.5	-0.4	-0.2	0.1
8	P5	8.5	-0.3	-0.3	0.0
8	P6	8.2	0.4	0.3	0.7
8	P7	9.0	-0.3	-0.5	0.5
8	P8	8.8	-0.6	-0.6	-0.3
8	P9	8.5	-0.5	-0.2	-0.3
8	P10	9.2	-0.7	-0.7	-0.3
8	P11	8.5	-0.3	0.1	0.1
8	P12	8.5	-0.4	-0.1	-0.1
8	P13	8.5	-0.3	-0.3	-0.1
8	P14	9.0	-0.5	-0.8	0.1
8	P15	8.9	-0.3	-0.7	0.1
8	P16	8.4	-0.3	0.1	0.0
8	P17	8.8	-0.7	-0.7	-0.3
8	P18	8.5	-0.4	-0.2	-0.2
8	P19	8.4	-0.1	0.6	-0.1
8	P20	8.9	-0.4	-0.2	-0.4
8	P21	8.5	-0.4	-0.2	0.0
8	P22	8.5	-0.2	-0.3	0.0
8	P23	8.5	-0.3	-0.2	0.2
8	P24	8.8	-0.5	0.0	-0.3
8	P25	8.8	-0.5	-0.1	-0.4

1000 Cycle

	mOhm values	Actual	Delta	Delta	Delta
Board	**Position**	**Initial**	**100 Cycles**	**Thermal**	**Humidity**
1	P1	9.5	-0.6	-0.1	0.0
1	P2	9.6	-0.4	-0.2	0.0
1	P3	9.4	-0.6	-0.4	-0.2
1	P4	9.4	-0.8	-0.6	-0.5
1	P5	8.9	-0.4	-0.2	-0.1
1	P6	7.4	-0.1	0.7	1.3
1	P7	9.7	-0.6	-0.3	-0.3
1	P8	9.4	-0.4	0.0	0.0
1	P9	9.2	-0.4	-0.2	0.0
1	P10	9.1	-0.4	-0.3	0.0
1	P11	9.3	-0.7	-0.5	-0.4
1	P12	9.0	-0.1	0.1	0.1
1	P13	9.0	-0.2	-0.1	0.2
1	P14	8.9	-0.2	-0.2	-0.1
1	P15	8.9	-0.4	-0.2	0.0
1	P16	9.0	-0.3	0.0	0.0

1	P17	8.9	-0.3	-0.2	-0.1
1	P18	9.3	-0.8	-0.6	-0.5
1	P19	9.2	-0.6	-0.3	0.1
1	P20	9.2	-2.1	-0.8	-0.6
1	P21	8.7	-0.2	0.0	0.0
1	P22	8.6	-0.2	0.0	0.2
1	P23	8.7	-0.5	-0.1	0.2
1	P24	8.7	-0.3	0.0	-0.1
1	P25	8.7	-0.4	-0.1	-0.2
2	P1	10.8	-2.1	-1.5	-1.9
2	P2	9.5	-0.9	-0.2	-0.6
2	P3	8.9	-0.3	0.6	0.9
2	P4	8.7	-0.1	0.5	0.0
2	P5	9.1	-0.4	0.0	-0.2
2	P6	11.0	-2.1	-1.3	-1.8
2	P7	9.5	-0.7	0.0	-0.5
2	P8	8.7	-0.3	0.2	0.1
2	P9	8.7	-0.3	0.4	0.2
2	P10	8.8	-0.2	1.1	0.0
2	P11	8.9	-0.2	0.5	0.8
2	P12	8.1	-0.1	0.8	0.8
2	P13	8.6	-0.2	0.2	0.3
2	P14	8.7	-0.2	0.1	0.1
2	P15	8.9	-1.2	-0.4	-0.3
2	P16	8.0	0.3	1.5	1.0
2	P17	8.5	-0.2	0.6	0.1
2	P18	8.6	-0.2	0.4	0.2
2	P19	8.6	-0.4	0.7	0.6
2	P20	8.5	0.4	0.1	1.8
2	P21	7.0	1.1	1.8	1.5
2	P22	8.3	-0.1	0.3	0.4
2	P23	8.6	-0.1	0.5	0.6
2	P24	8.7	-0.4	-0.3	-0.1
2	P25	8.9	-0.3	0.2	0.2
3	P1	9.3	-0.8	0.1	0.6
3	P2	8.5	-0.3	1.1	1.3
3	P3	7.9	0.4	2.4	4.5
3	P4	8.1	-0.1	1.4	2.6
3	P5	7.9	-0.1	0.2	0.5
3	P6	8.6	-0.2	0.1	0.6
3	P7	8.3	-0.1	0.6	2.4
3	P8	8.1	0.2	1.1	1.5
3	P9	8.4	0.4	0.3	0.6
3	P10	8.3	0.4	2.6	3.0
3	P11	8.4	0.1	1.6	1.8
3	P12	8.3	-0.2	1.4	1.4
3	P13	8.8	-0.3	0.8	0.6
3	P14	8.2	0.2	1.3	2.0
3	P15	8.5	-0.1	1.5	5.5

3	P16	7.7	0.7	2.6	2.5
3	P17	8.2	0.1	0.3	0.4
3	P18	8.5	0.1	0.1	0.4
3	P19	8.6	-0.1	1.2	1.5
3	P20	8.8	-1.2	-0.2	-2.7
3	P21	8.2	0.1	0.4	0.6
3	P22	8.0	0.1	0.4	0.6
3	P23	8.0	0.3	0.7	0.8
3	P24	8.4	-0.2	0.2	0.1
3	P25	7.8	0.0	0.4	0.4
4	P1	7.1	1.5	2.3	4.6
4	P2	8.1	-0.1	1.3	1.5
4	P3	8.4	-0.3	0.2	1.0
4	P4	8.7	-0.4	0.4	0.7
4	P5	9.6	-1.5	-1.0	0.1
4	P6	7.0	1.4	2.2	-0.9
4	P7	8.6	-0.4	0.1	1.2
4	P8	9.1	-0.5	-0.5	0.0
4	P9	8.6	-0.2	-0.2	1.7
4	P10	8.4	-0.4	-0.2	0.0
4	P11	8.9	-0.5	-0.4	0.2
4	P12	8.1	0.3	0.6	0.6
4	P13	8.5	-0.1	0.1	-0.1
4	P14	7.1	0.5	1.5	1.9
4	P15	7.2	0.3	1.0	1.2
4	P16	8.2	0.5	0.5	0.0
4	P17	8.9	-0.4	-0.3	0.0
4	P18	8.9	-0.4	-0.2	-0.2
4	P19	9.1	-0.2	0.0	0.4
4	P20	9.6	0.0	-0.6	-0.1
4	P21	9.0	-0.4	0.5	0.5
4	P22	8.2	0.4	0.8	1.3
4	P23	8.2	0.0	0.7	1.0
4	P24	8.8	0.2	0.8	1.7
4	P25	9.9	-1.2	-0.6	0.5
5	P1	8.8	-1.6	-1.5	-0.7
5	P2	9.3	-0.2	2.6	2.6
5	P3	9.0	-0.2	2.8	3.0
5	P4	9.0	-0.2	3.2	2.2
5	P5	8.8	-0.1	3.4	2.8
5	P6	8.9	-0.5	0.4	0.6
5	P7	9.6	-0.4	0.1	2.3
5	P8	9.6	-0.7	0.0	0.6
5	P9	9.1	-0.2	0.4	1.2
5	P10	9.0	0.0	0.7	2.5
5	P11	7.7	1.1	1.8	11.1
5	P12	9.4	-0.4	0.4	2.2
5	P13	9.2	-0.3	0.4	1.6
5	P14	9.3	-0.4	-0.2	0.5

5	P15	8.8	0.2	0.1	1.6
5	P16	8.5	0.2	0.5	1.8
5	P17	8.7	0.0	1.0	3.5
5	P18	8.6	0.0	0.6	3.2
5	P19	8.9	-0.2	0.3	1.1
5	P20	9.0	0.2	0.8	1.8
5	P21	8.8	0.1	1.1	2.3
5	P22	8.7	-0.1	1.0	2.7
5	P23	8.8	0.0	0.4	1.9
5	P24	8.6	0.1	0.7	1.3
5	P25	8.9	-0.1	0.4	1.6
6	P1	8.8	-0.2	1.0	1.9
6	P2	8.1	0.4	1.6	2.5
6	P3	8.4	-0.1	0.6	-0.4
6	P4	8.2	0.4	0.9	2.0
6	P5	8.9	-0.5	0.1	1.0
6	P6	8.7	0.4	2.0	2.9
6	P7	8.7	0.0	1.4	1.4
6	P8	8.5	0.2	3.3	2.6
6	P9	8.5	0.4	2.5	1.6
6	P10	8.5	0.3	2.4	1.8
6	P11	8.6	0.1	2.0	0.8
6	P12	8.5	0.0	1.1	0.4
6	P13	8.6	0.3	1.0	1.0
6	P14	8.5	0.1	0.3	0.6
6	P15	8.6	0.5	0.2	0.2
6	P16	8.6	0.3	0.4	0.4
6	P17	8.6	0.2	0.5	0.3
6	P18	8.5	0.4	1.1	0.8
6	P19	8.9	0.2	0.6	0.1
6	P20	9.2	-0.1	0.2	0.9
6	P21	8.8	-0.2	0.0	-1.1
6	P22	8.4	0.4	0.5	0.1
6	P23	9.1	-0.2	0.0	0.5
6	P24	9.1	-0.1	0.0	0.5
6	P25	9.0	0.0	0.6	3.6
7	P1	8.9	-0.7	-0.3	0.0
7	P2	8.4	-0.3	0.0	0.3
7	P3	8.5	-0.7	-0.5	-0.3
7	P4	4.9	1.9	3.3	1.8
7	P5	8.3	-1.3	-0.4	-0.4
7	P6	8.5	0.1	0.3	1.8
7	P7	8.4	-0.2	0.0	0.9
7	P8	8.0	0.2	0.5	1.1
7	P9	8.3	-0.2	-0.1	0.3
7	P10	8.2	-0.3	-0.1	0.4
7	P11	8.4	-0.3	0.0	0.6
7	P12	8.4	-0.2	-0.1	0.1
7	P13	8.3	-0.3	-0.2	0.0

7	P14	7.8	0.3	0.4	0.9
7	P15	8.1	-0.1	0.1	2.3
7	P16	7.0	0.9	1.0	1.8
7	P17	7.7	0.5	0.6	1.6
7	P18	8.2	-0.3	0.1	1.1
7	P19	8.5	0.0	0.4	0.8
7	P20	8.9	-0.4	-0.1	0.7
7	P21	8.1	0.0	0.3	1.0
7	P22	8.3	-0.3	0.4	1.6
7	P23	8.4	-0.3	0.2	0.9
7	P24	8.7	-0.4	0.3	1.3
7	P25	8.5	-3.6	0.8	4.3
8	P1	9.4	-0.9	-0.1	0.9
8	P2	8.9	-0.4	0.3	0.9
8	P3	8.6	-0.3	-0.2	-0.1
8	P4	8.8	-0.6	-0.1	0.0
8	P5	8.7	-0.3	-0.2	0.1
8	P6	9.1	-0.9	0.0	0.4
8	P7	8.6	-0.4	0.0	0.5
8	P8	9.0	-0.4	-0.1	-0.1
8	P9	8.9	-0.7	-0.6	-1.2
8	P10	8.5	-0.3	-0.1	0.1
8	P11	8.5	-0.2	0.0	-0.6
8	P12	8.7	-0.4	-0.2	-0.6
8	P13	8.7	-0.4	-0.3	-1.3
8	P14	8.2	-0.2	-0.3	-0.4
8	P15	8.3	-0.3	-0.2	-0.1
8	P16	8.6	-0.4	-0.3	0.1
8	P17	8.9	-0.4	-0.3	0.3
8	P18	8.8	-0.2	-0.2	0.2
8	P19	8.8	-0.1	-0.1	0.5
8	P20	9.3	-0.6	-0.4	-0.1
8	P21	8.9	-0.3	-0.1	0.8
8	P22	9.1	-0.5	0.1	1.5
8	P23	8.9	-0.4	-0.3	0.5
8	P24	9.1	-0.6	-0.3	0.1
8	P25	9.3	-0.7	-0.2	1.1

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-01
Description: Micro-Ohmeter
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 #: MO-06
Description: Micro-Ohmeter
Manufacturer: Keithley
Model: 580
Serial #: 1110525
Accuracy: See Manual
… Last Cal: 06/22/2007, Next Cal: 06/22/2008

Equipment #: MO-07
Description: Multimeter / Data Acquistion System
Manufacturer: Keithley
Model: 2700
Serial #: 1116559
Accuracy: See Manual
… Last Cal: 6/22/2007, Next Cal: 6/22/2008

Equipment #: LC-2500N(icell)-1
Description: 2500 N Load Cell for Dillon Quantrol
Manufacturer: Dillon Quantrol
Model: icell
Serial #: 01-0132-01
Accuracy: .10% of capacity
… Last Cal: 6/28/07, Next Cal: 6/28/08

Equipment #: TCT-03
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 02-1033-03
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 5/18/07, Next Cal: 5/18/08

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 Temp. Stability: +/-.1C/C change in ambient
… Last Cal: 06/62/07, Next Cal: 06/22/08

Equipment #: THC-04
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-3800
Serial #: 37782
Accuracy: See Manual
… Last Cal: 09/21/2007, Next Cal: 09/21/2008