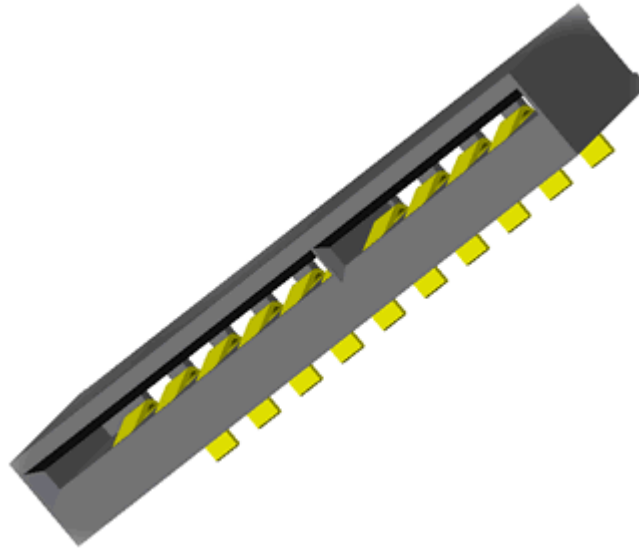




Project Number: N/A		Tracking Code: TC0327-N/A-0219	
Requested by: Phil Eckert		Date: 6/30/2003	Product Rev: N/A
Part #: PEC-10-02-T-S-A		Lot #: N/A	Tech: Troy Cook Eng: John Tozier
Part description: PEC			Qty to test: 10
Test Start: 07/14/2003	Test Completed: 8/19/2003		



Satin-Tin contact comparison, soldered with and without a Nitrogen blanket

PART DESCRIPTION

**PEC-10-02-T-S-A
Mated with
10 Position Card, "Omikron White Tin" finish**

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 evaluate Satin-Tin contact system integrity after exposure to typical Pb-free soldering processes. The evaluation will occur on systems soldered with and without the Nitrogen blanket.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

The two mating components (if applicable) were soldered using AIM TSC-4 lead free alloy using Sn with 3.8%-4% Ag, and 0.5% - 0.7% Cu solder paste using the oven profile .

- 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 were cleaned with the Aqueous Inline Cleaning System (Aqueous Millennium Technologies)

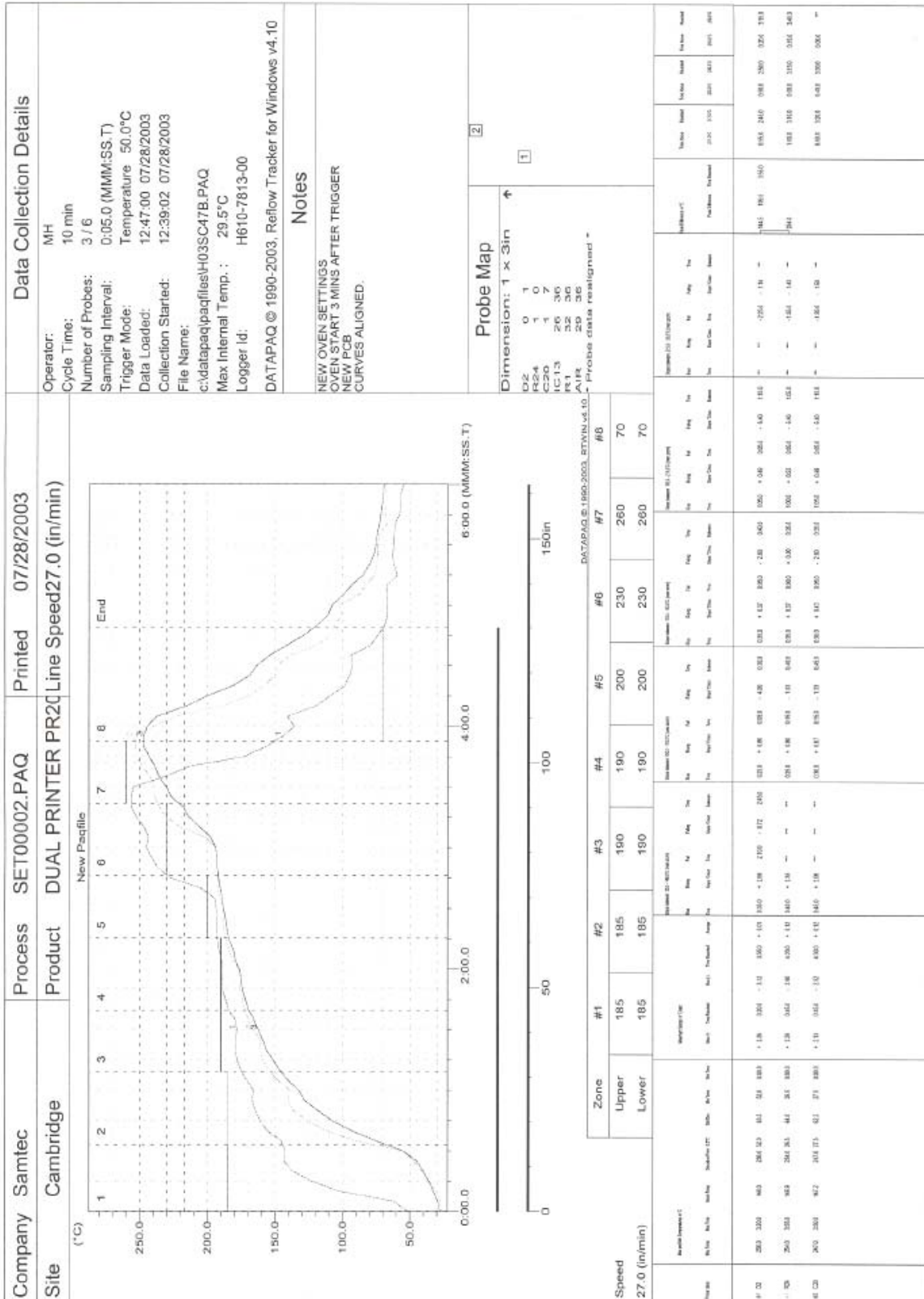
FLOWCHART

TEST STEP	GROUP A 200 Points 480 hour Test Processed in AIR	GROUP B 200 Points 480 hour Test Processed in Nitrogen
01	LLCR-1	LLCR-1
02	Data Review	Data Review
03	Cyclic Humidity, 240 Hours	Cyclic Humidity, 240 Hours
04	LLCR-2	LLCR-2
05	Data Review	Data Review
06	Cyclic Humidity, 240 Hours	Cyclic Humidity, 240 Hours
07	LLCR-3	LLCR-3

**Humidity =EIA-364-31, Test Condition B (240 Hours)
and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)
delete steps 7a and 7b**

**LLCR = EIA-364-23, LLCR
use Keithley 580 in the dry circuit mode, 10 mA Max**

OVEN PROFILE



ATTRIBUTE DEFINITION

Following is a brief, simplified description of attributes.

CYCLIC HUMIDITY:

- 1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors*.
 - a) Test Condition B, 240 Hours.
 - b) Method III, +25° C to + 65° C, 90% to 98% Relative Humidity excluding sub-cycles 7a and 7b.
- 2) Connectors are mated.
- 3) Test Condition B run twice for a total of 480 hours.
 - a) Intermediate results taken at 240 hours.

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) $\leq +5.0$ 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 (200 LLCR test points)**

- **Initial**
 - Air Processed ----- 3.0 mOhms Max
 - Nitrogen Processed----- 3.0 mOhms Max
- **Stressed 240 Hours**
 - **<= +5.0 mOhms**
 - Air Processed-----200 Points ----- Stable
 - Nitrogen Processed-----200 Points ----- Stable
 - **+5.1 to +10.0 mOhms**
 - Air Processed-----0 Points ----- Minor
 - Nitrogen Processed-----0 Points ----- Minor
 - **+10.1 to +15.0 mOhms**
 - Air Processed-----0 Points ----- Acceptable
 - Nitrogen Processed-----0 Points ----- Acceptable
 - **+15.1 to +50.0 mOhms**
 - Air Processed-----0 Points ----- Marginal
 - Nitrogen Processed-----0 Points ----- Marginal
 - **+50.1 to +2000 mOhms**
 - Air Processed-----0 Points ----- Unstable
 - Nitrogen Processed-----0 Points ----- Unstable
 - **>+2000 mOhms**
 - Air Processed-----0 Points ----- Open Failure
 - Nitrogen Processed-----0 Points ----- Open Failure
- **Stressed 480 Hours**
 - **<= +5.0 mOhms**
 - Air Processed-----200 Points ----- Stable
 - Nitrogen Processed-----200 Points ----- Stable
 - **+5.1 to +10.0 mOhms**
 - Air Processed-----0 Points ----- Minor
 - Nitrogen Processed-----0 Points ----- Minor
 - **+10.1 to +15.0 mOhms**
 - Air Processed-----0 Points ----- Acceptable
 - Nitrogen Processed-----0 Points ----- Acceptable
 - **+15.1 to +50.0 mOhms**
 - Air Processed-----0 Points ----- Marginal
 - Nitrogen Processed-----0 Points ----- Marginal
 - **+50.1 to +2000 mOhms**
 - Air Processed-----0 Points ----- Unstable
 - Nitrogen Processed-----0 Points ----- Unstable
 - **>+2000 mOhms**
 - Air Processed-----0 Points ----- Open Failure
 - Nitrogen Processed-----0 Points ----- Open Failure

After soldering, neither the parts soldered in the ‘open air process’ or parts soldered in the ‘nitrogen blanket process’ showed discoloration.

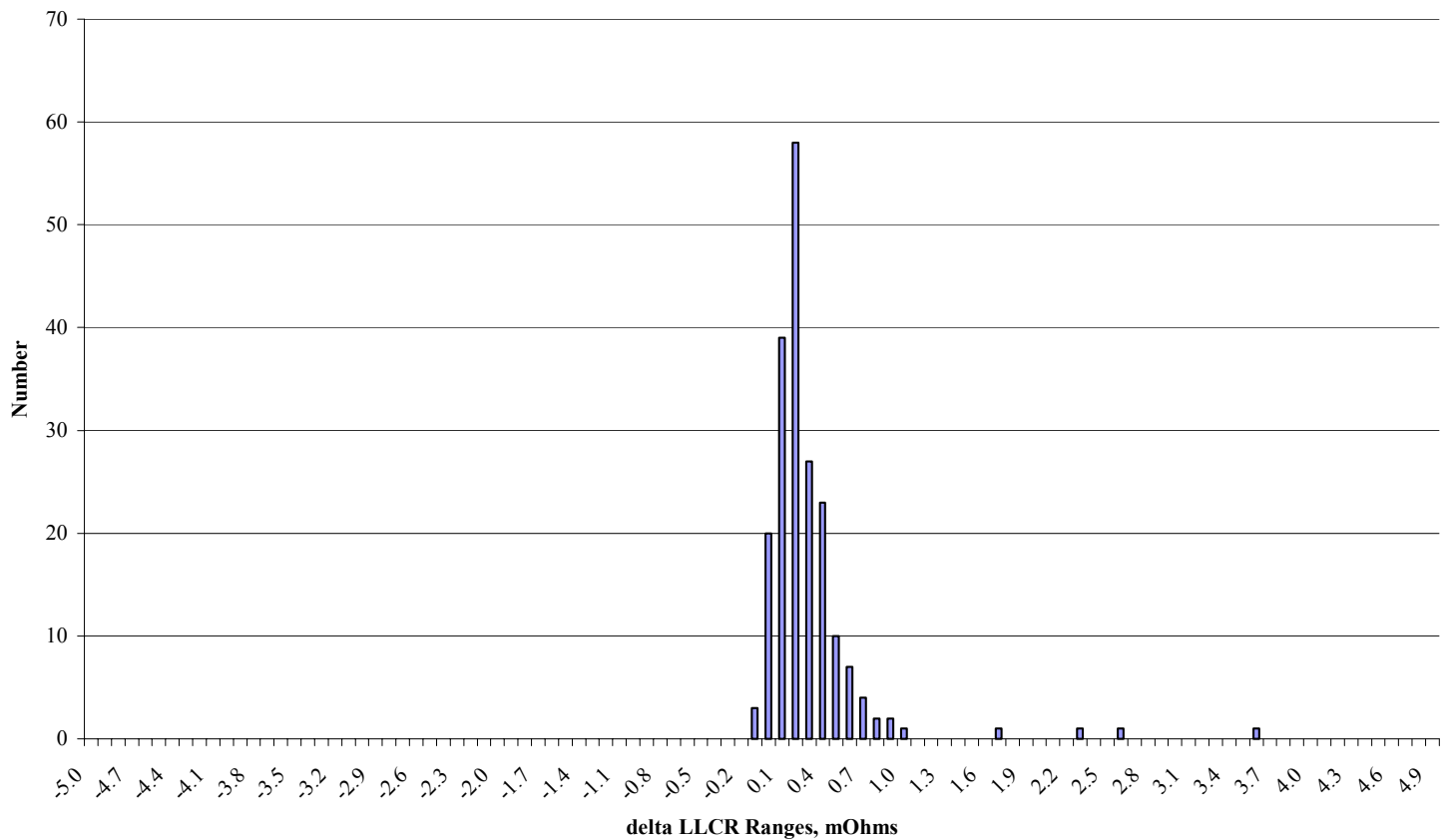
DATA SUMMARIES**LLCR:**

- 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) $\leq +5.0$ 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

Air Processed

mOhm values	Actual Initial	Delta 240 Hour Humidity	Delta 480 Hour Humidity
Average	2.6	0.1	0.2
St. Dev.	0.1	0.1	0.4
Min	2.2	-0.1	-0.1
Max	3.0	0.7	3.5
Count	200	200	200

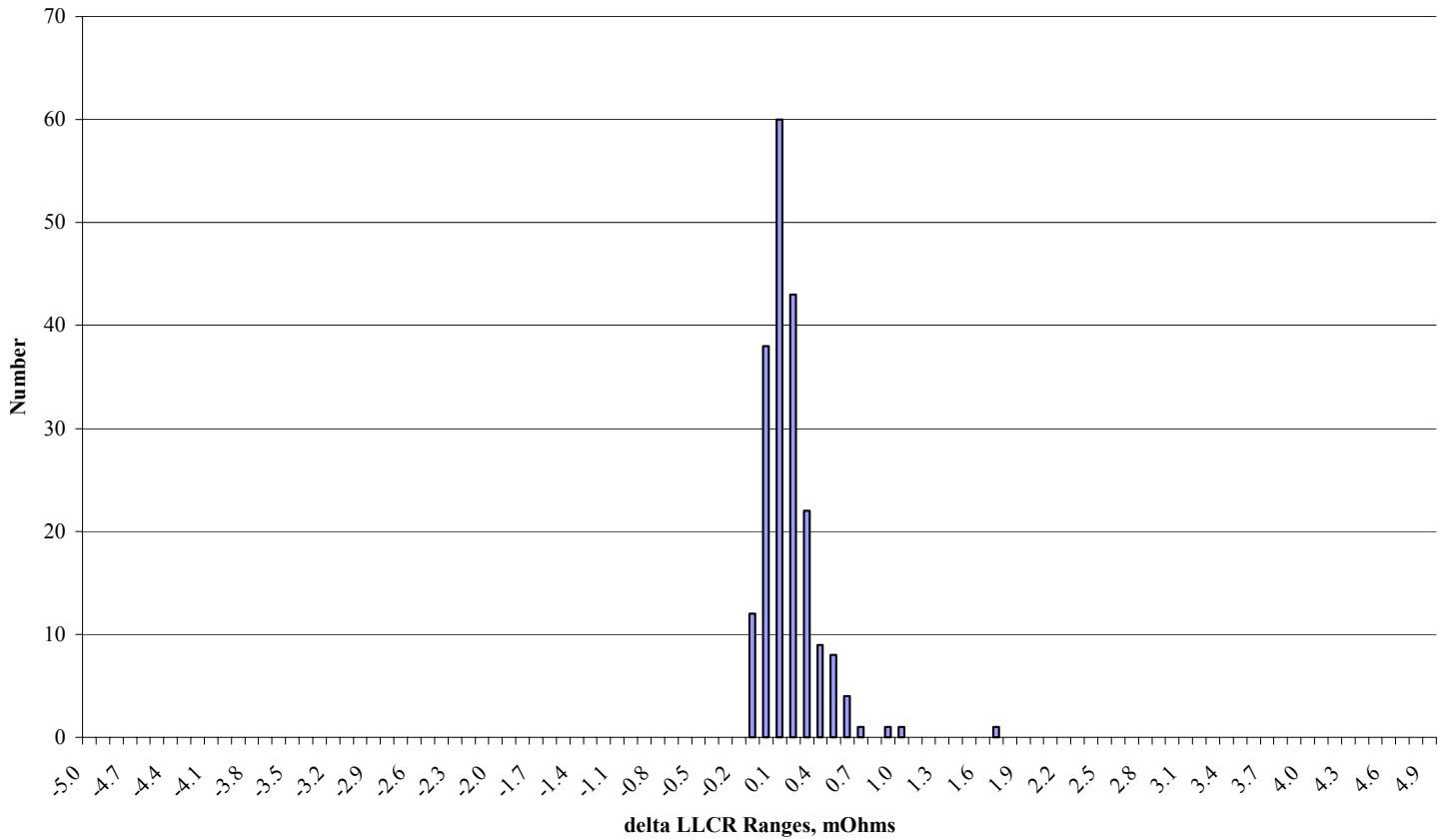
**Air Processed
After Stressing 480 Hours**

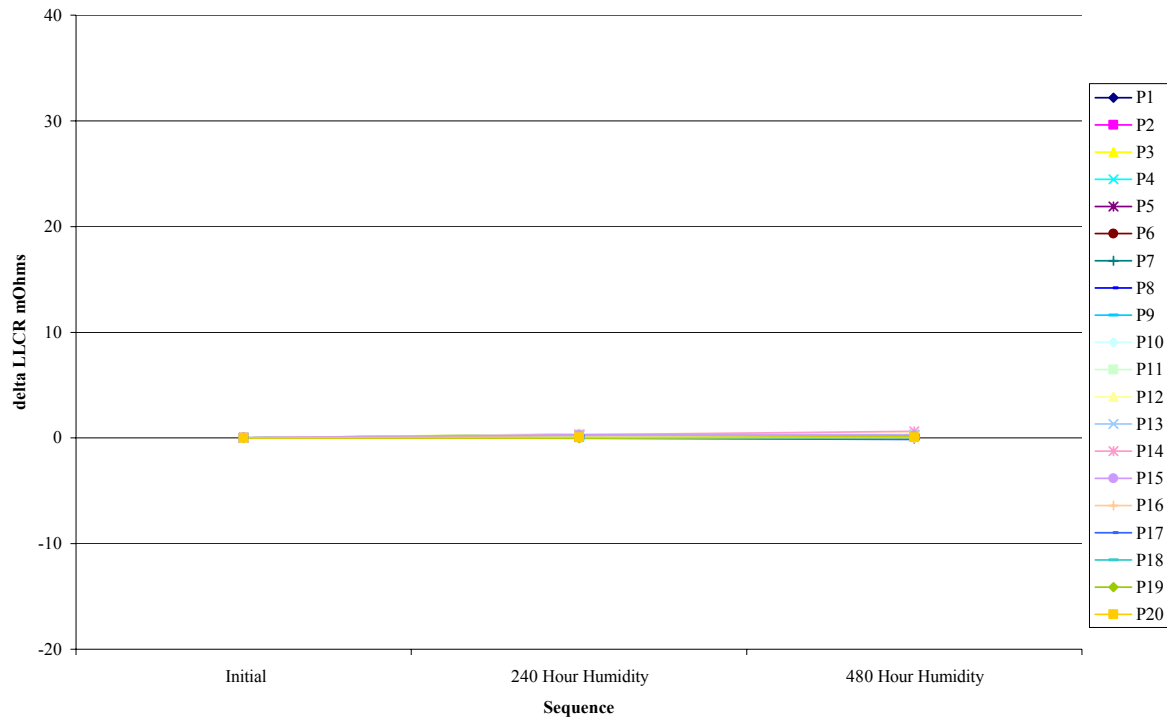
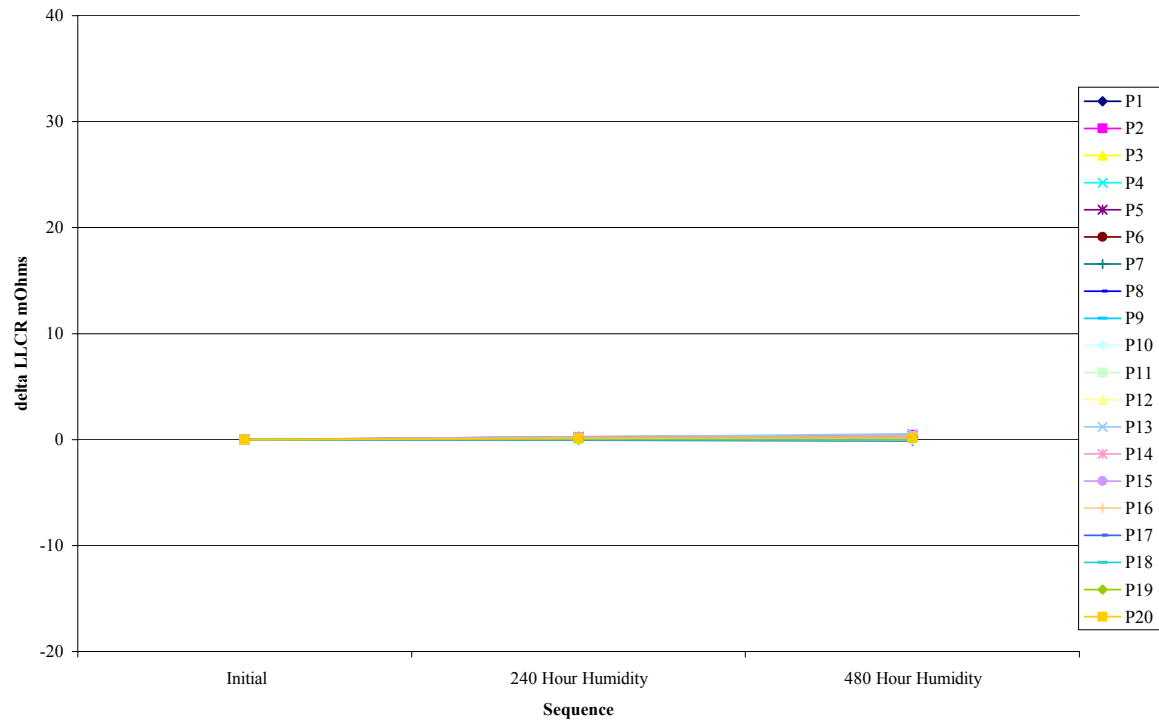


DATA SUMMARIES Continued

mOhm values	Nitrogen Processed		
	Actual Initial	Delta 240 Hour Humidity	Delta 480 Hour Humidity
Average	2.7	0.1	0.1
St. Dev.	0.1	0.1	0.2
Min	2.5	-0.2	-0.2
Max	3.0	0.6	1.7
Count	200	200	200

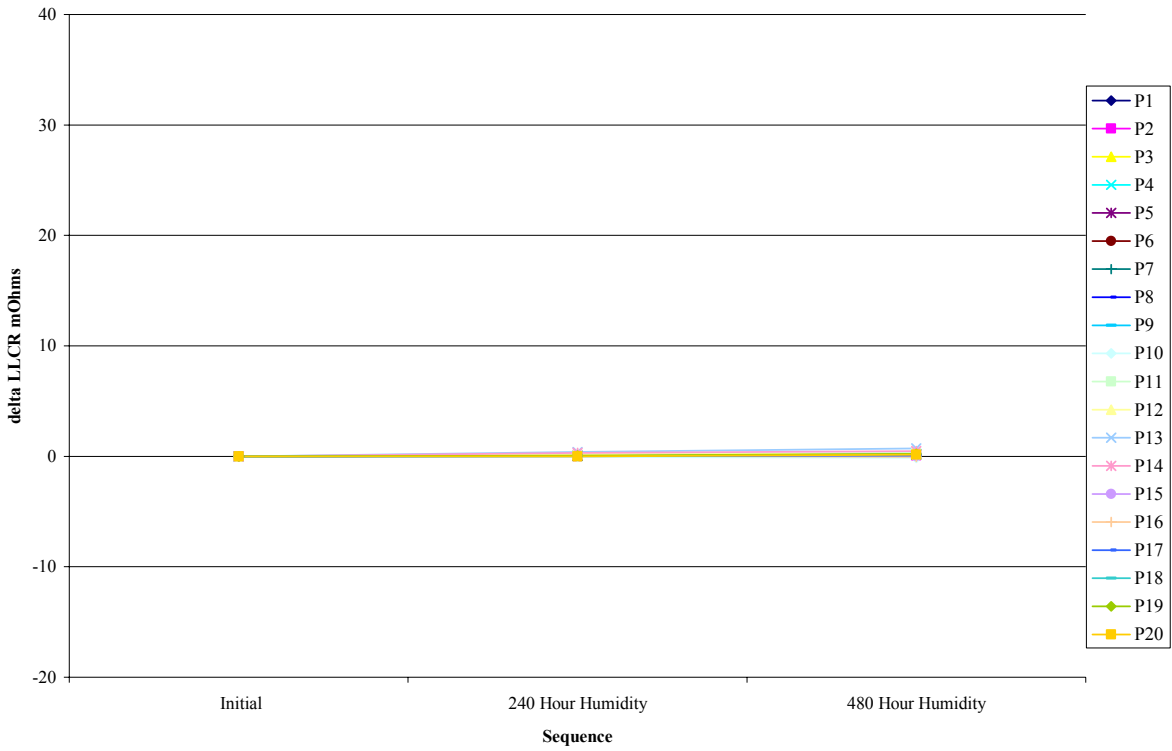
**Nitrogen Processed
After Stressing 480 Hours**



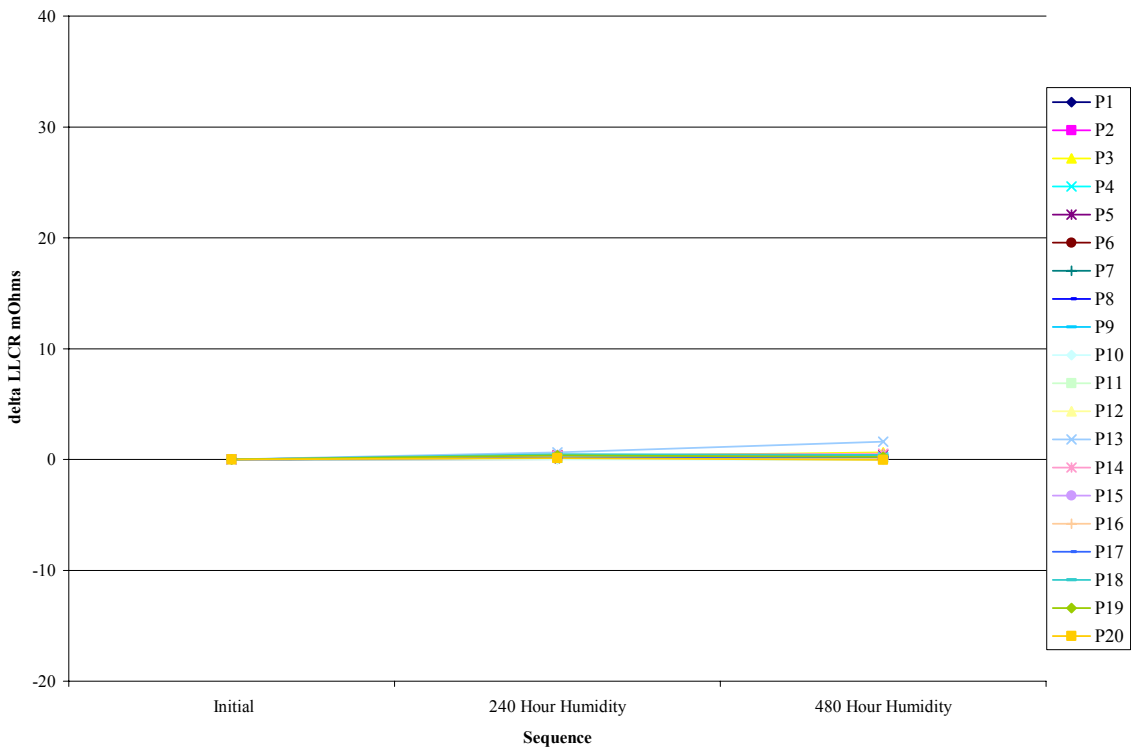
DATA SUMMARIES Continued**Air Processed
Board #1****Air Processed
Board #2**

DATA SUMMARIES Continued

Air Processed
Board #3

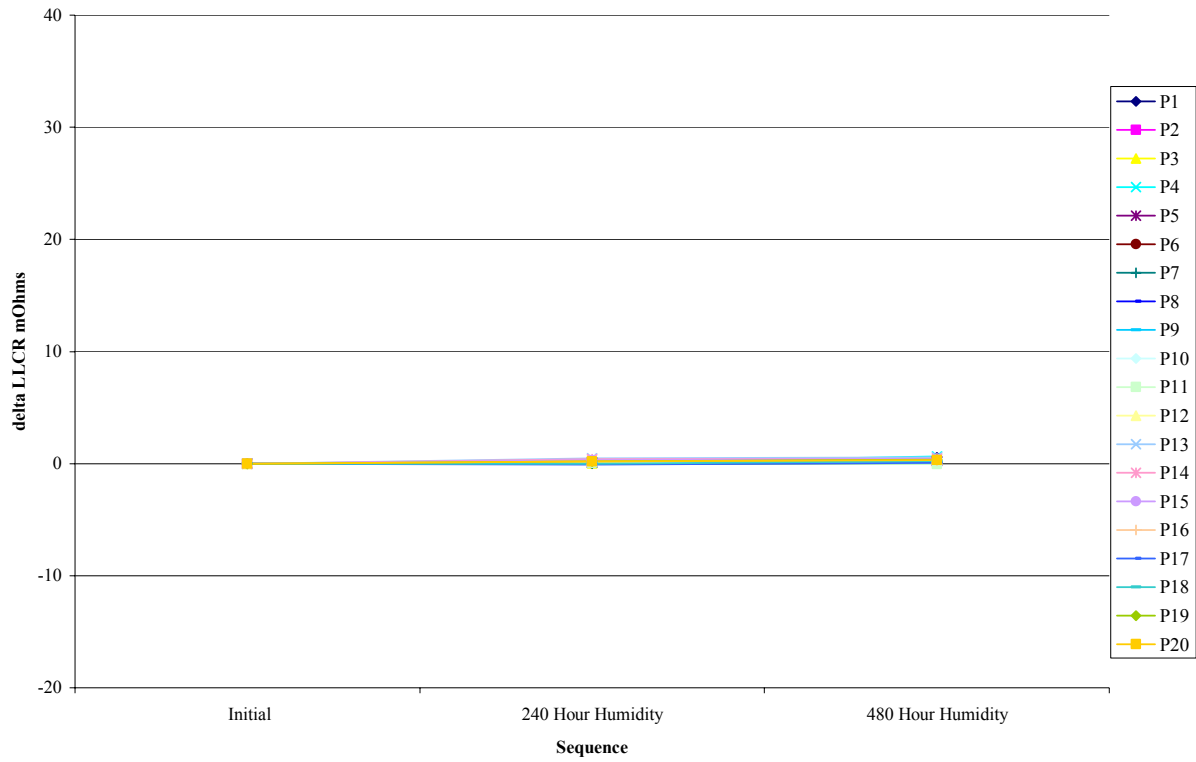


Air Processed
Board #4

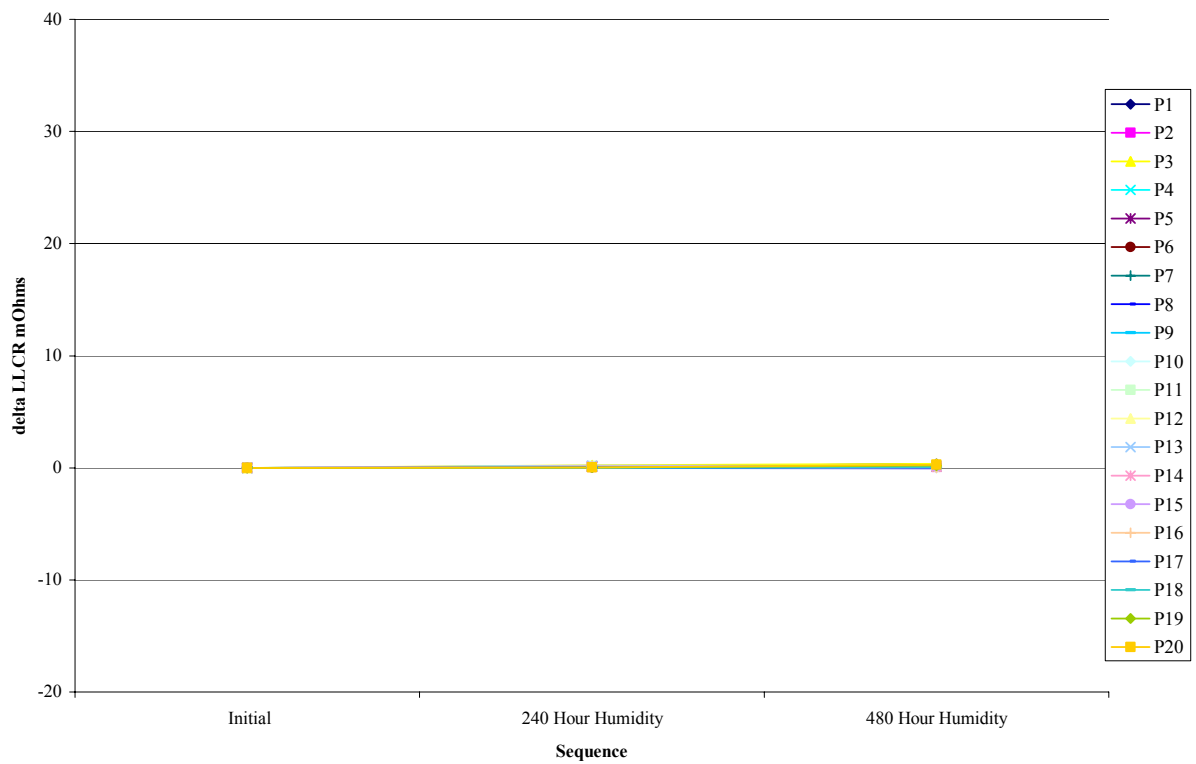


DATA SUMMARIES Continued

Air Processed
Board #5

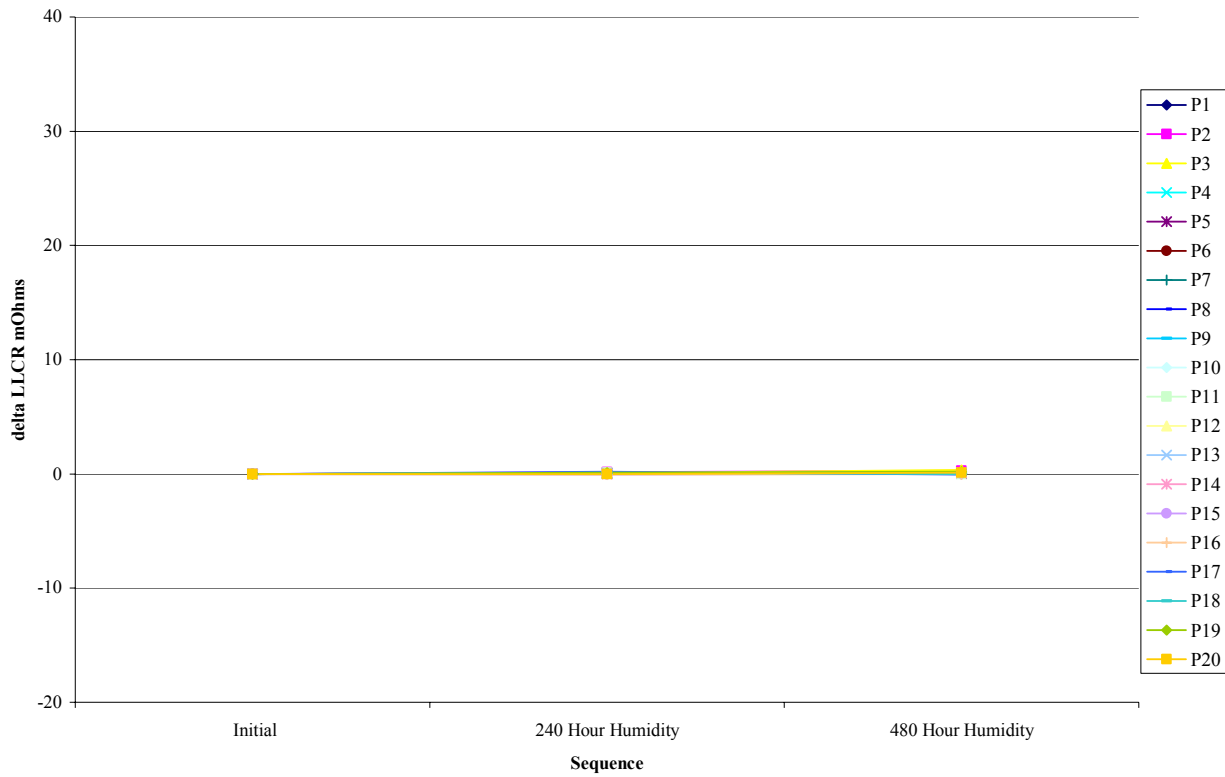


Air Processed
Board #6

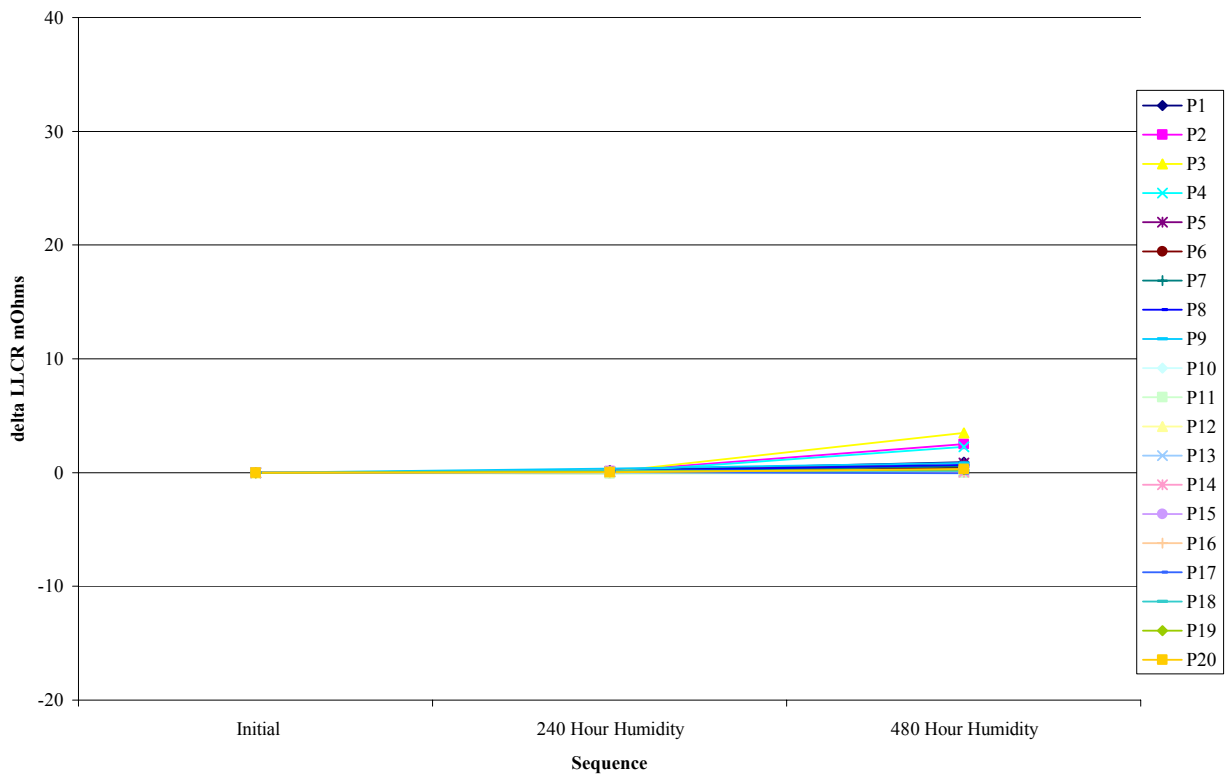


DATA SUMMARIES Continued

Air Processed Board #7

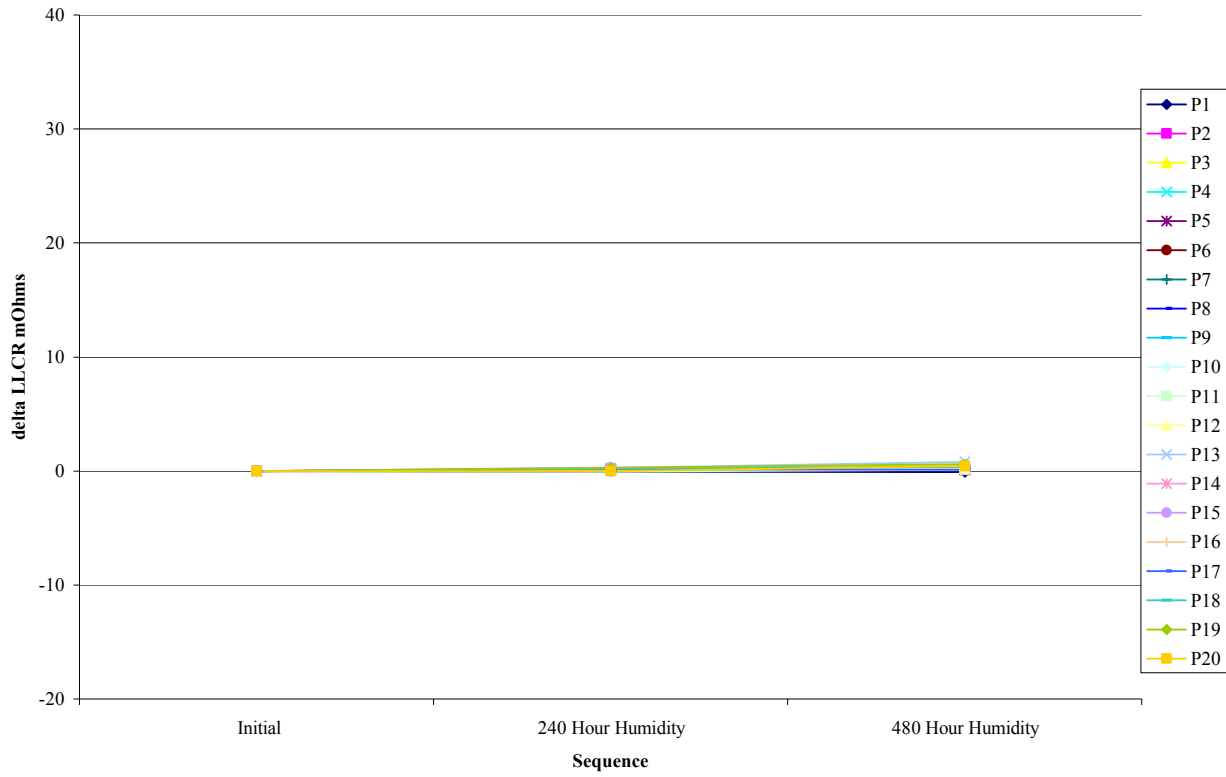


Air Processed Board #8

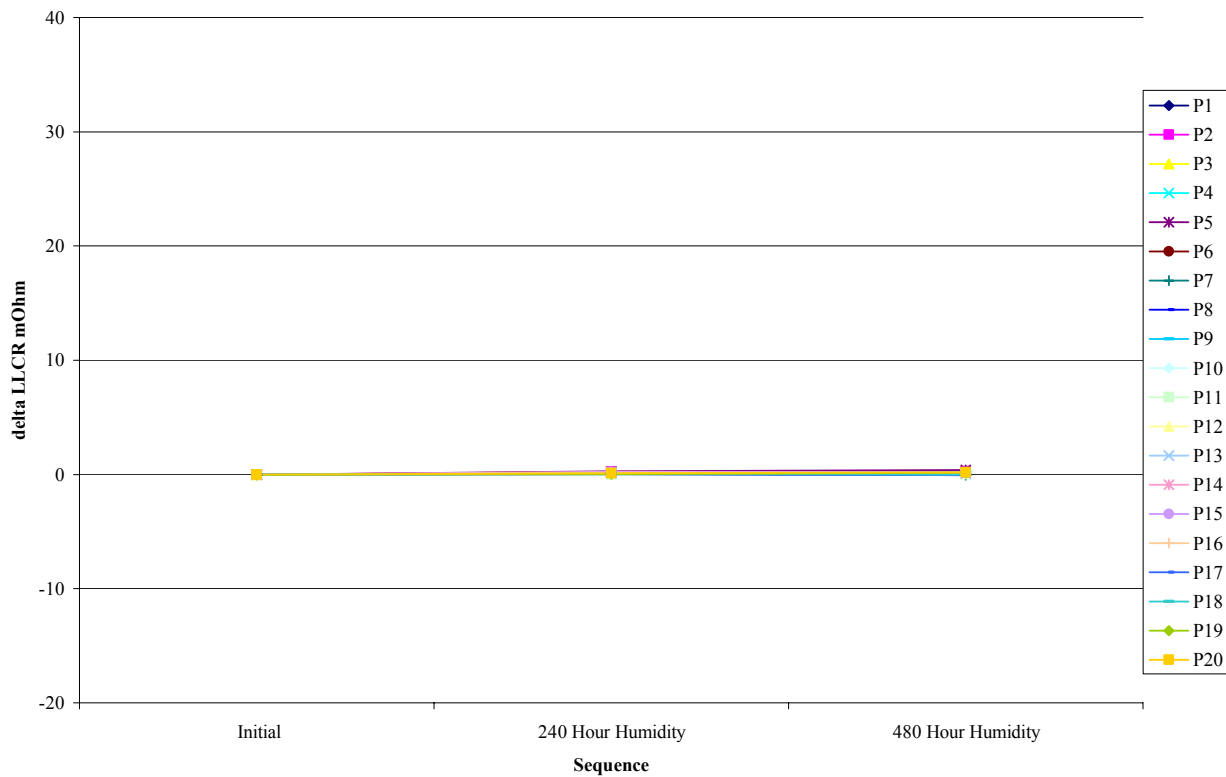


DATA SUMMARIES Continued

Air Processed
Board #9

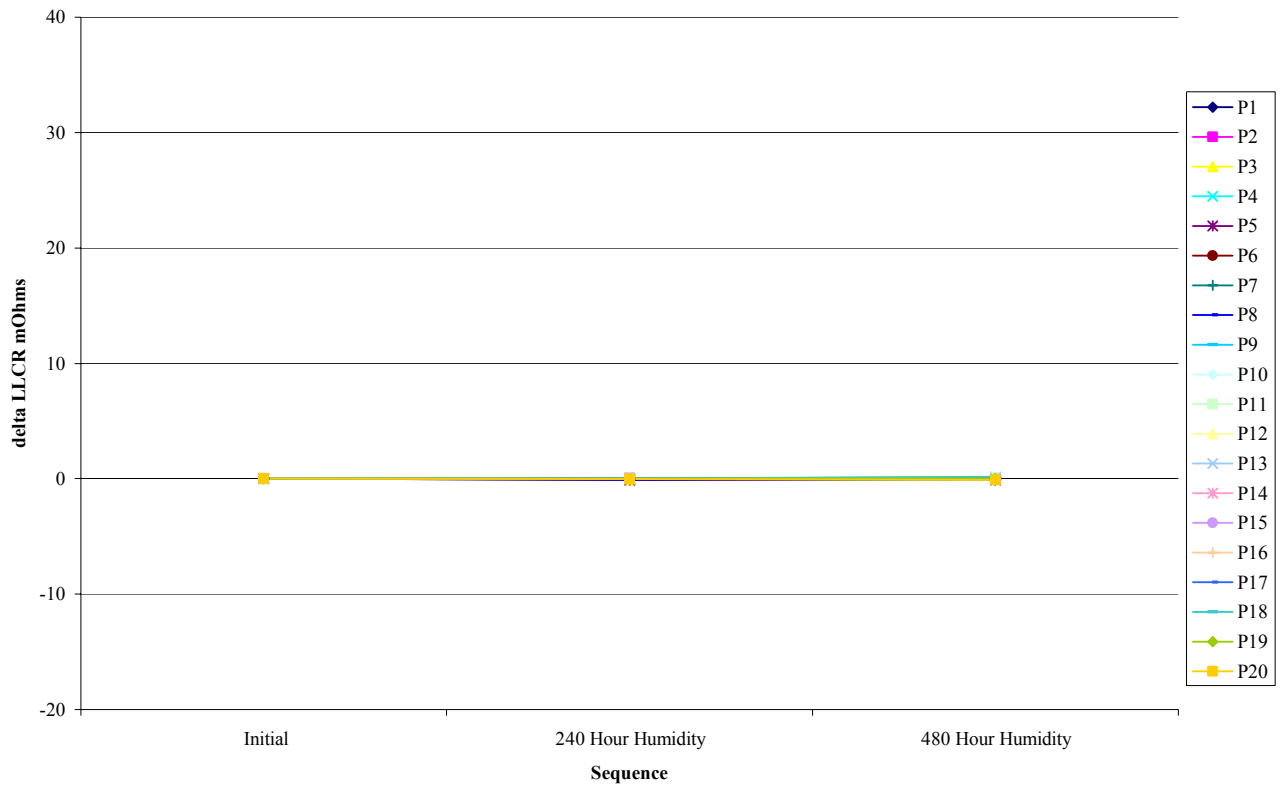


Air Processed
Board #10

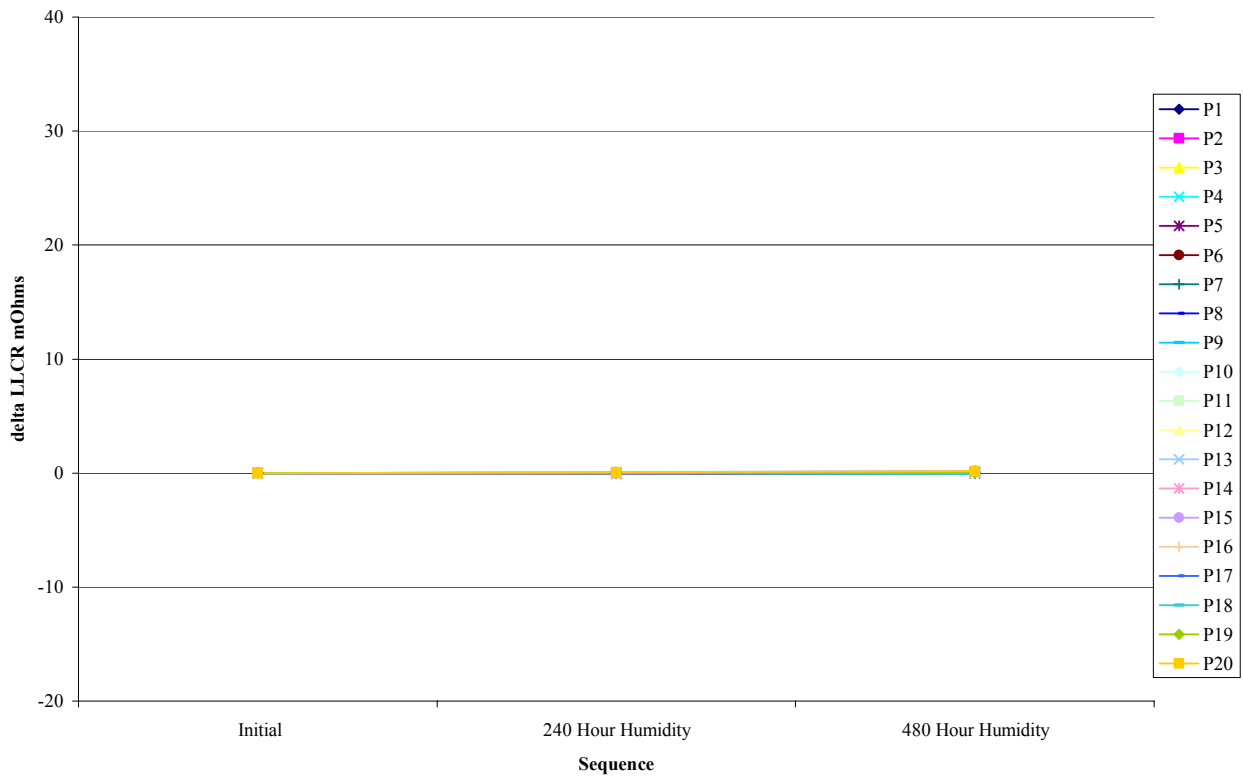


DATA SUMMARIES Continued

Nitrogen Processed Board #1

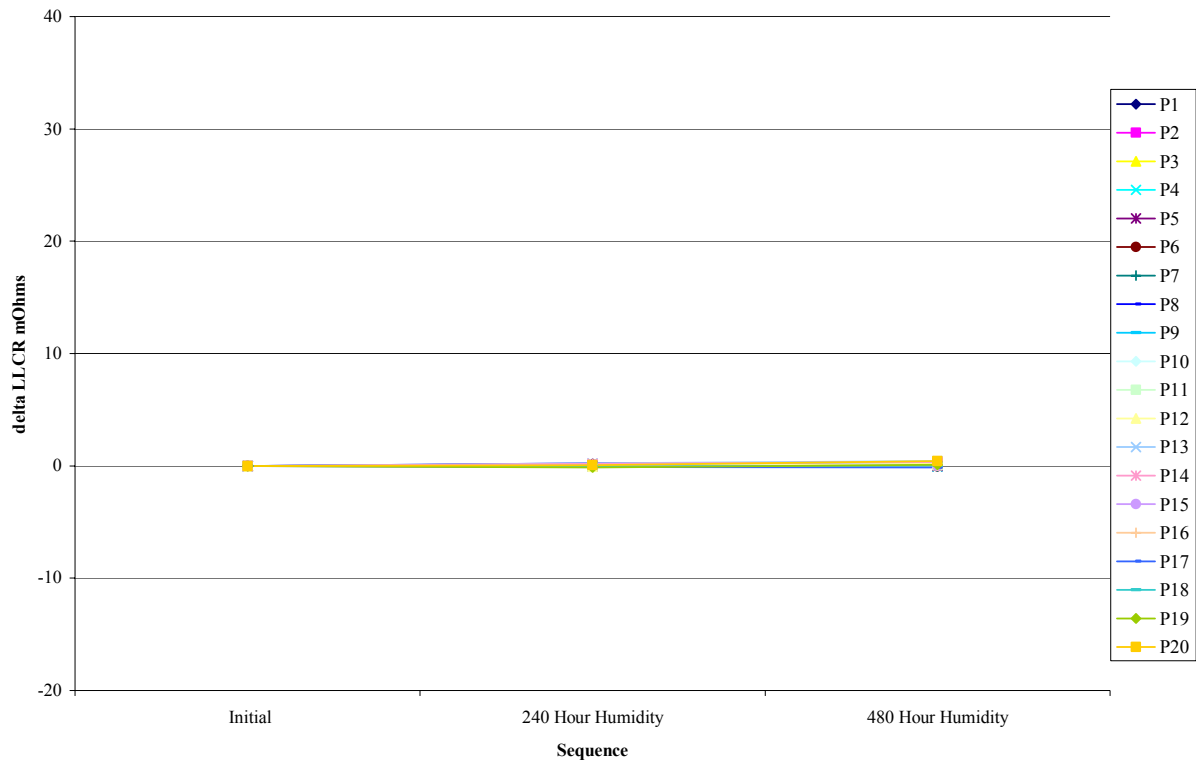


Nitrogen Processed Board #2

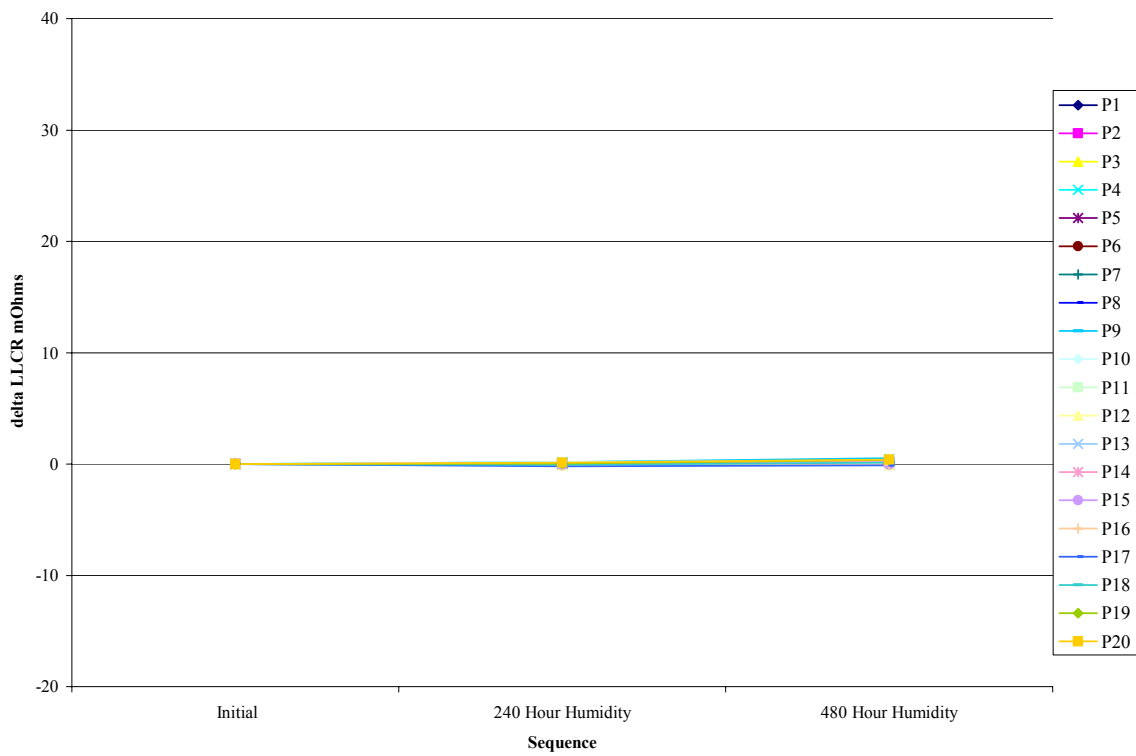


DATA SUMMARIES Continued

Nitrogen Processed Board #3

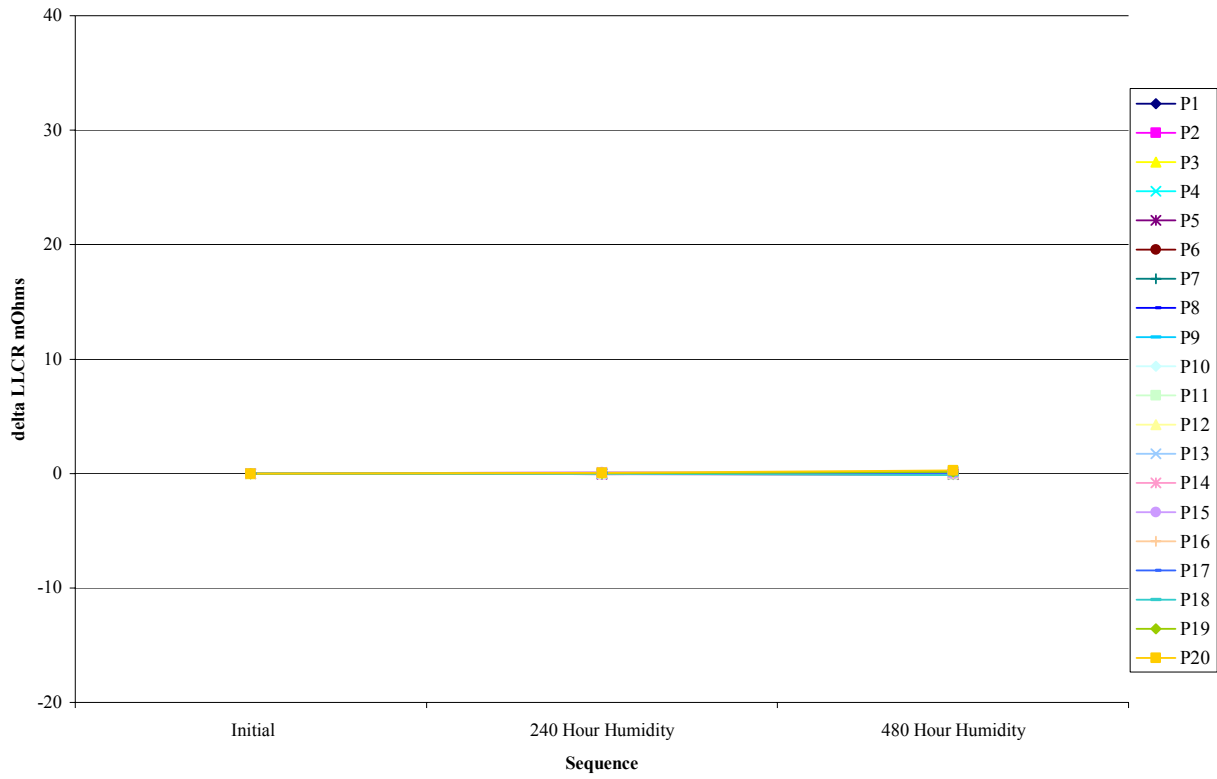


Nitrogen Processed Board #4

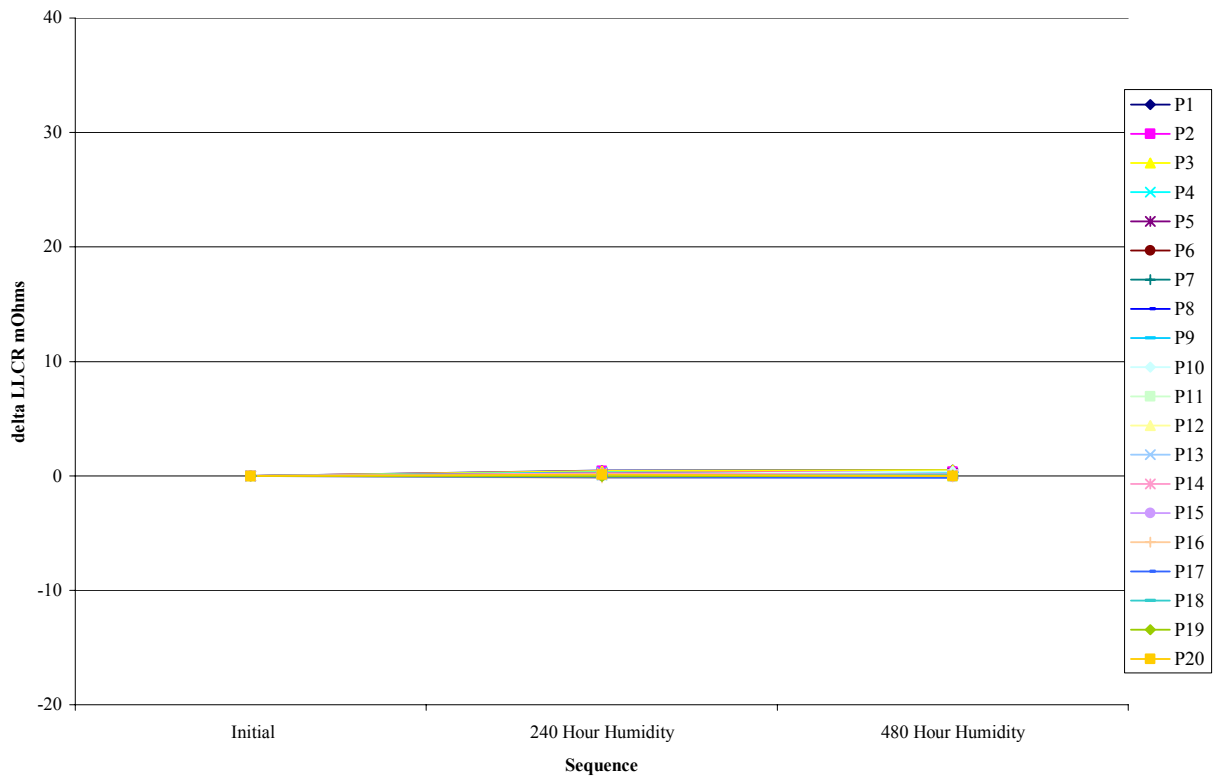


DATA SUMMARIES Continued

Nitrogen Processed Board #5

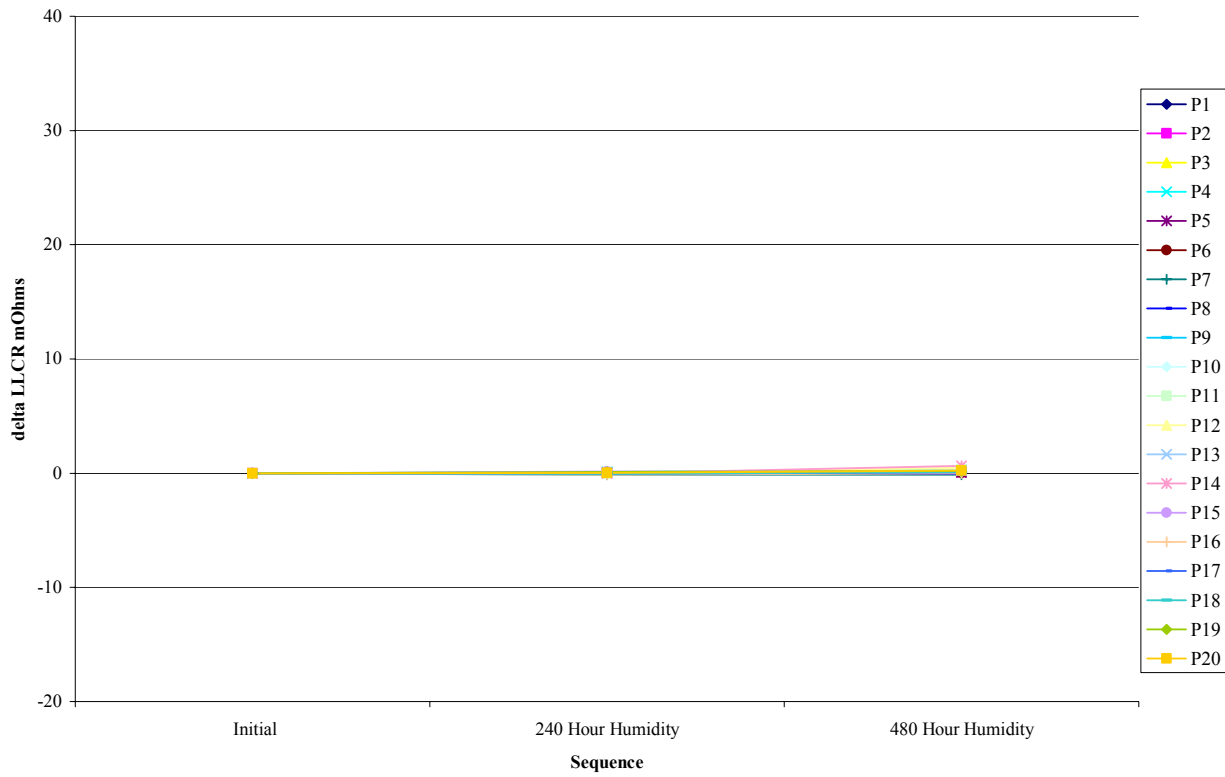


Nitrogen Processed Board #6

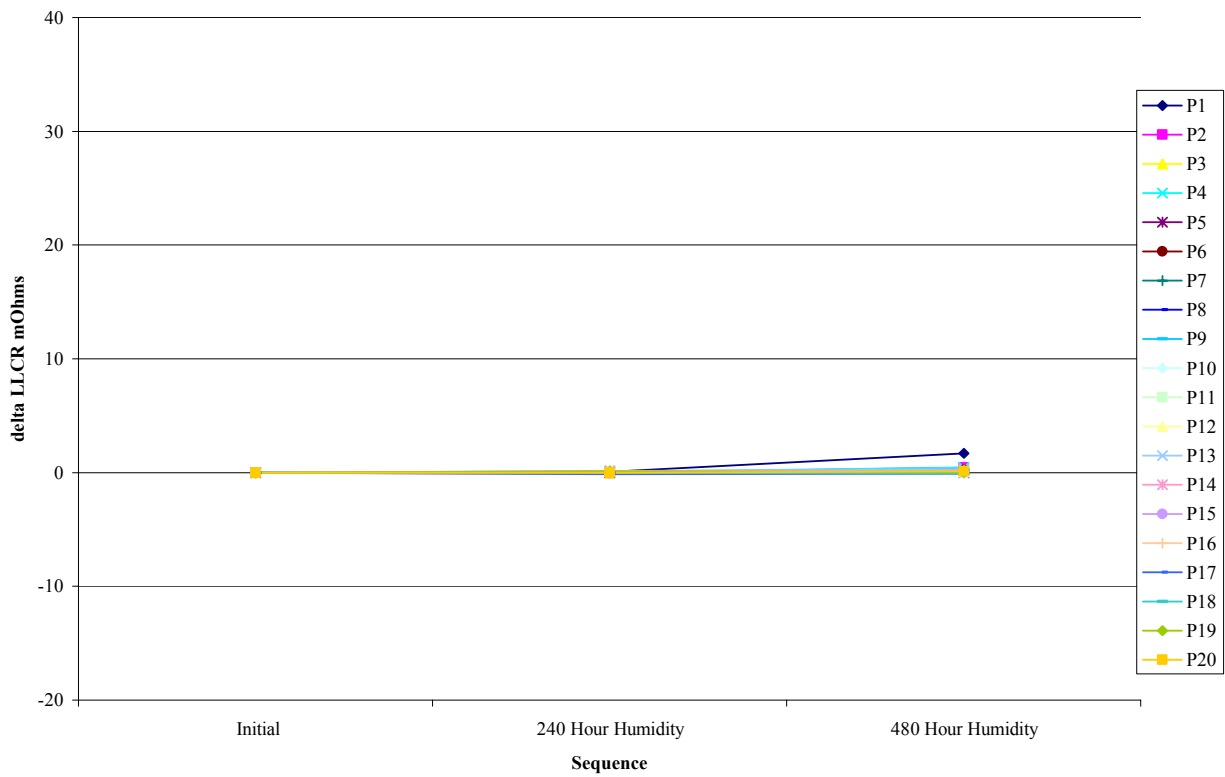


DATA SUMMARIES Continued

Nitrogen Processed Board #7

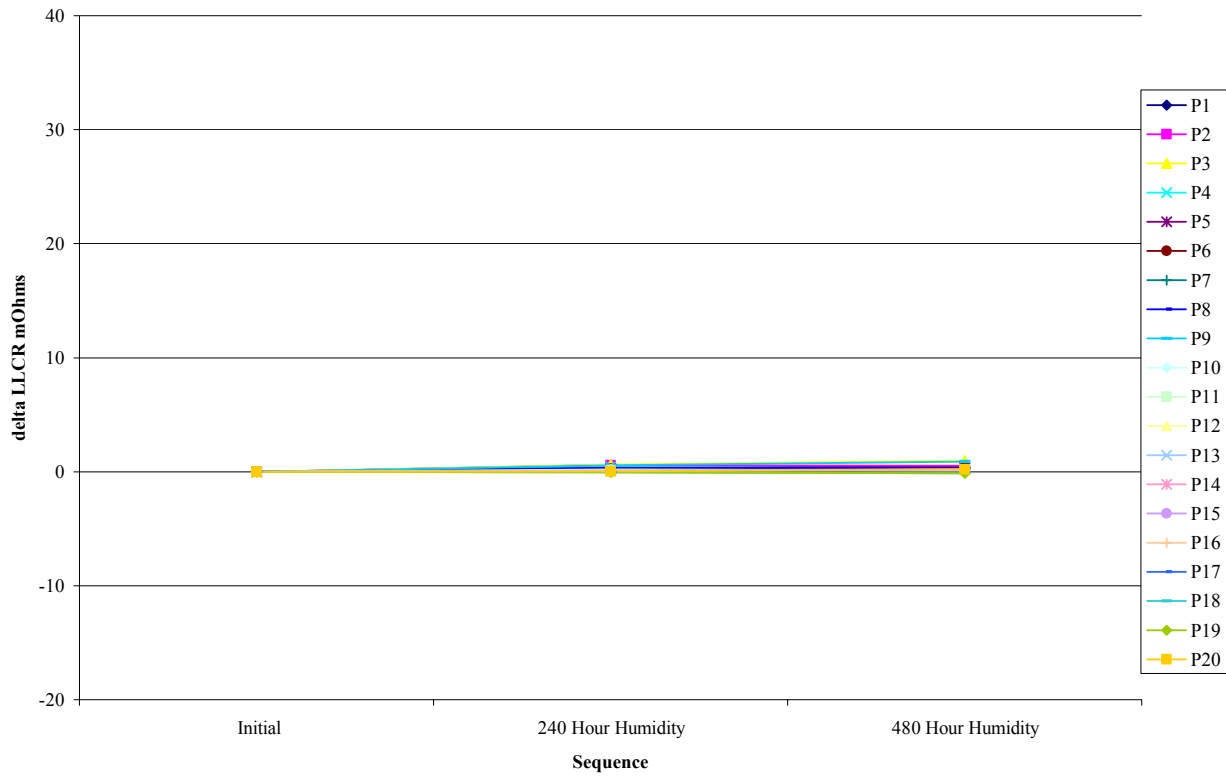


Nitrogen Processed Board #8

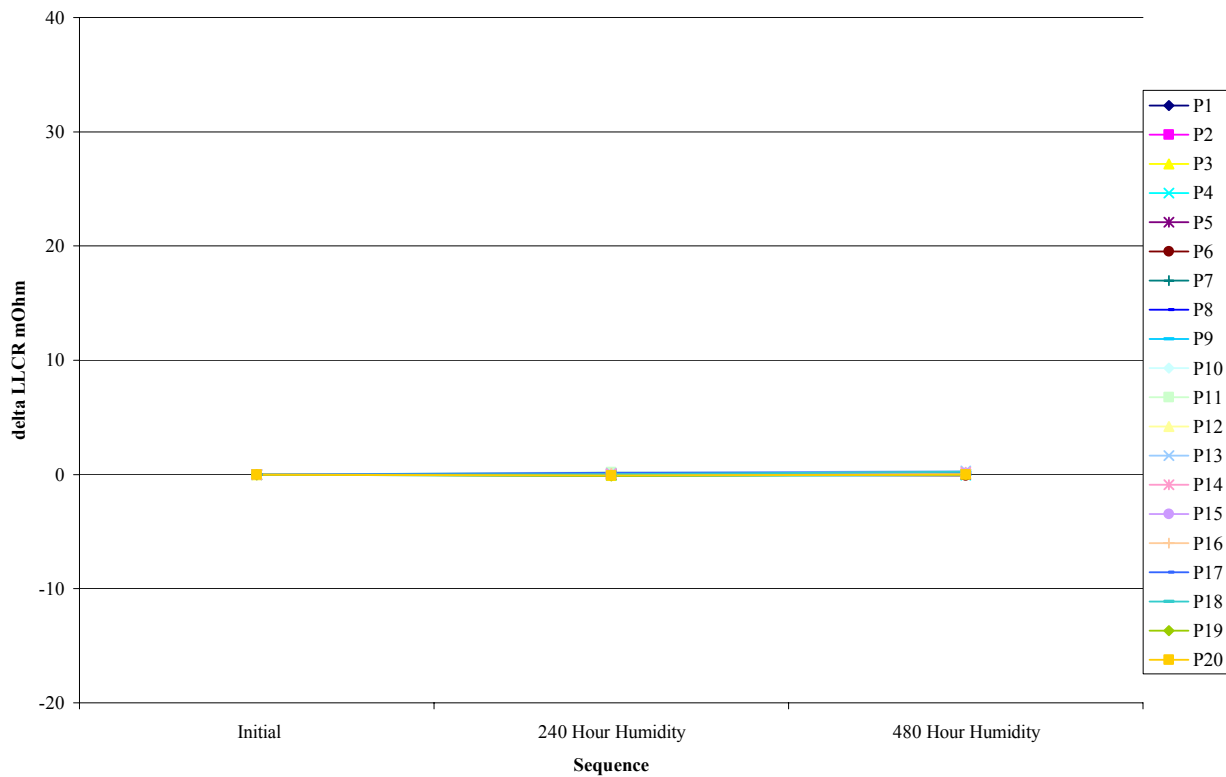


DATA SUMMARIES Continued

Nitrogen Processed Board #9



Nitrogen Processed Board #10



DATA**LLCR, Air Processed:****Air Processed**

Date	Jul. 14 2003	Aug. 04 2003	Aug. 18 2003
Room Temp C	23	21	22
RH	50%	53%	60%
Name	Troy Cook	Troy Cook	Troy Cook

mOhm values		Actual	Delta	Delta
Board	Position	Initial	240 Hour Humidity	480 Hour Humidity
1	P1	2.6	0.2	0.3
1	P2	2.7	0.1	0.1
1	P3	2.6	0.4	0.4
1	P4	2.7	0.2	0.2
1	P5	2.6	0.3	0.3
1	P6	2.8	0.1	0.1
1	P7	2.8	0.0	-0.1
1	P8	2.7	0.2	0.3
1	P9	2.7	0.2	0.2
1	P10	2.7	0.1	0.1
1	P11	2.5	0.4	0.4
1	P12	2.6	0.3	0.4
1	P13	2.7	0.2	0.3
1	P14	2.8	0.3	0.6
1	P15	2.7	0.3	0.3
1	P16	2.9	0.0	0.0
1	P17	2.9	0.0	-0.1
1	P18	2.8	0.0	0.0
1	P19	2.8	0.0	0.1
1	P20	2.8	0.1	0.1
2	P1	2.5	0.2	0.4
2	P2	2.7	0.2	0.4
2	P3	2.6	0.1	0.2
2	P4	2.5	0.2	0.4
2	P5	2.5	0.3	0.3
2	P6	2.6	0.2	0.1
2	P7	2.7	-0.1	-0.1
2	P8	2.5	0.0	0.1
2	P9	2.5	0.2	0.1
2	P10	2.6	0.0	0.0
2	P11	2.5	0.2	0.3
2	P12	2.6	0.2	0.3
2	P13	2.6	0.2	0.5
2	P14	2.7	0.2	0.3
2	P15	2.6	0.3	0.2

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

2	P16	2.7	0.2	0.1
2	P17	2.6	0.0	0.1
2	P18	2.7	0.0	0.1
2	P19	2.6	0.1	0.2
2	P20	2.6	0.1	0.2
3	P1	2.5	0.0	0.1
3	P2	2.6	0.0	0.1
3	P3	2.6	0.0	0.1
3	P4	2.6	0.0	0.2
3	P5	2.5	0.1	0.2
3	P6	2.6	0.1	0.1
3	P7	2.6	0.1	0.1
3	P8	2.6	0.1	0.1
3	P9	2.6	0.0	0.0
3	P10	2.6	0.0	-0.1
3	P11	2.5	0.1	0.3
3	P12	2.7	0.2	0.2
3	P13	2.7	0.4	0.7
3	P14	2.6	0.3	0.5
3	P15	2.8	0.0	0.0
3	P16	2.9	0.1	0.0
3	P17	2.8	0.0	0.1
3	P18	2.7	0.0	0.2
3	P19	2.8	0.1	0.2
3	P20	2.8	0.0	0.2
4	P1	2.6	0.1	0.1
4	P2	2.7	0.3	0.2
4	P3	2.8	0.3	0.7
4	P4	2.7	0.2	0.2
4	P5	2.6	0.4	0.4
4	P6	2.8	0.0	0.0
4	P7	2.7	0.1	0.1
4	P8	2.7	0.1	0.2
4	P9	2.7	0.2	0.3
4	P10	2.8	0.0	0.0
4	P11	2.6	0.1	0.1
4	P12	2.7	0.2	0.2
4	P13	2.6	0.7	1.6
4	P14	2.7	0.4	0.5
4	P15	2.7	0.1	0.1
4	P16	2.7	0.2	0.1
4	P17	2.7	0.2	0.2
4	P18	2.7	0.5	0.4
4	P19	2.7	0.4	0.3
4	P20	2.8	0.1	0.0
5	P1	2.7	0.1	0.6
5	P2	2.9	0.1	0.2
5	P3	2.8	0.0	0.4
5	P4	2.8	0.1	0.6
5	P5	2.8	0.1	0.2

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

5	P6	3.0	0.0	0.0
5	P7	3.0	0.0	0.0
5	P8	2.9	0.0	0.1
5	P9	2.8	0.1	0.2
5	P10	2.7	0.1	0.2
5	P11	2.8	0.1	-0.1
5	P12	2.6	0.3	0.4
5	P13	2.7	0.5	0.5
5	P14	2.7	0.4	0.4
5	P15	2.6	0.3	0.4
5	P16	2.8	0.2	0.3
5	P17	2.9	-0.1	0.1
5	P18	2.9	0.0	0.2
5	P19	2.8	0.2	0.4
5	P20	2.7	0.2	0.3
6	P1	2.5	0.1	0.3
6	P2	2.7	0.1	0.1
6	P3	2.6	0.2	0.3
6	P4	2.7	0.2	0.1
6	P5	2.7	0.1	0.1
6	P6	2.8	0.0	0.1
6	P7	2.7	0.0	0.0
6	P8	2.8	0.0	0.0
6	P9	2.6	0.0	0.0
6	P10	2.5	0.2	0.0
6	P11	2.4	0.1	0.2
6	P12	2.5	0.1	0.1
6	P13	2.6	0.2	0.2
6	P14	2.5	0.1	0.1
6	P15	2.6	0.1	0.1
6	P16	2.6	0.1	0.0
6	P17	2.5	0.1	0.0
6	P18	2.6	0.0	0.0
6	P19	2.5	0.0	0.2
6	P20	2.5	0.0	0.3
7	P1	2.4	0.1	0.1
7	P2	2.4	0.1	0.3
7	P3	2.5	0.1	0.4
7	P4	2.5	0.0	0.1
7	P5	2.5	0.1	0.0
7	P6	2.6	0.0	0.0
7	P7	2.5	0.1	0.2
7	P8	2.6	0.1	0.0
7	P9	2.5	0.0	0.2
7	P10	2.4	0.1	0.1
7	P11	2.4	0.1	0.0
7	P12	2.5	0.1	0.1
7	P13	2.6	0.1	0.1
7	P14	2.7	0.0	0.1
7	P15	2.6	-0.1	0.0

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

7	P16	2.7	-0.1	0.0
7	P17	2.6	0.2	0.0
7	P18	2.6	0.1	0.0
7	P19	2.6	0.1	0.2
7	P20	2.6	0.0	0.1
8	P1	2.4	0.2	0.9
8	P2	2.5	0.1	2.5
8	P3	2.5	0.1	3.5
8	P4	2.4	0.0	2.3
8	P5	2.4	0.1	0.8
8	P6	2.4	0.0	0.4
8	P7	2.3	0.1	0.5
8	P8	2.3	0.1	0.7
8	P9	2.2	0.4	0.8
8	P10	2.4	0.0	0.2
8	P11	2.6	-0.1	0.0
8	P12	2.5	0.1	0.2
8	P13	2.5	0.1	0.1
8	P14	2.6	0.1	0.0
8	P15	2.5	0.1	0.2
8	P16	2.6	0.1	0.1
8	P17	2.6	0.0	0.0
8	P18	2.5	0.2	0.1
8	P19	2.6	0.0	0.3
8	P20	2.7	0.0	0.3
9	P1	2.7	-0.1	-0.1
9	P2	2.7	0.0	0.1
9	P3	2.6	0.2	0.3
9	P4	2.6	0.2	0.1
9	P5	2.6	0.1	0.1
9	P6	2.6	0.2	0.2
9	P7	2.5	0.1	0.1
9	P8	2.6	0.1	0.2
9	P9	2.5	0.0	0.3
9	P10	2.6	0.0	0.2
9	P11	2.6	0.0	0.1
9	P12	2.5	0.2	0.3
9	P13	2.6	0.3	0.8
9	P14	2.7	0.2	0.4
9	P15	2.5	0.3	0.5
9	P16	2.5	0.1	0.5
9	P17	2.7	0.2	0.1
9	P18	2.6	0.2	0.4
9	P19	2.6	0.3	0.6
9	P20	2.7	0.0	0.4
10	P1	2.4	0.2	0.3
10	P2	2.4	0.2	0.3
10	P3	2.5	0.2	0.2
10	P4	2.6	0.1	0.1
10	P5	2.4	0.3	0.4

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

10	P6	2.5	0.1	0.1
10	P7	2.6	0.1	0.0
10	P8	2.7	0.0	-0.1
10	P9	2.4	0.1	0.2
10	P10	2.5	0.0	0.2
10	P11	2.5	0.0	0.0
10	P12	2.5	0.1	0.1
10	P13	2.5	0.1	0.1
10	P14	2.5	0.2	0.2
10	P15	2.5	0.2	0.1
10	P16	2.5	0.2	0.1
10	P17	2.6	0.0	0.0
10	P18	2.6	0.1	0.0
10	P19	2.6	0.0	0.1
10	P20	2.6	0.1	0.2

DATA Continued**LLCR, Nitrogen Processed:****Nitrogen Processed**

Date	Jul. 14 2003	Aug. 04 2003	Aug. 18 2003
Room Temp C	22	23	21
RH	47%	57%	49%
Name	Troy Cook	Troy Cook	Troy Cook

mOhm values		Actual	Delta	Delta
Board	Position	Initial	240 Hour Humidity	480 Hour Humidity
1	P1	2.5	0.1	0.1
1	P2	2.6	0.0	0.0
1	P3	2.7	-0.1	0.0
1	P4	2.6	0.0	0.1
1	P5	2.7	-0.1	-0.1
1	P6	2.7	0.0	-0.1
1	P7	2.7	0.1	-0.1
1	P8	2.7	-0.1	0.0
1	P9	2.6	0.0	-0.1
1	P10	2.5	0.1	0.1
1	P11	2.5	0.0	0.1
1	P12	2.6	0.0	0.1
1	P13	2.7	0.0	0.1
1	P14	2.7	0.0	-0.1
1	P15	2.7	0.0	-0.1
1	P16	2.7	0.0	0.0
1	P17	2.7	0.1	0.1
1	P18	2.6	0.0	0.2
1	P19	2.7	0.0	0.0
1	P20	2.7	0.0	-0.1
2	P1	2.6	0.0	0.1
2	P2	2.6	0.0	0.1
2	P3	2.7	0.1	0.1
2	P4	2.7	0.1	0.1
2	P5	2.8	-0.1	0.0
2	P6	2.8	0.0	0.0
2	P7	2.8	0.0	0.0
2	P8	2.7	0.0	0.0
2	P9	2.7	0.1	0.0
2	P10	2.6	0.1	0.2
2	P11	2.5	0.0	0.0
2	P12	2.6	0.0	0.1
2	P13	2.7	0.0	0.1
2	P14	2.7	-0.1	0.1
2	P15	2.6	0.0	0.2

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

2	P16	2.7	0.0	0.1
2	P17	2.8	-0.1	0.0
2	P18	2.7	0.0	-0.1
2	P19	2.6	0.0	0.0
2	P20	2.7	0.1	0.2
3	P1	2.8	0.2	0.3
3	P2	2.8	0.0	0.3
3	P3	2.8	0.1	0.1
3	P4	2.9	0.0	0.0
3	P5	2.8	0.0	0.0
3	P6	2.9	0.0	0.0
3	P7	2.9	0.0	-0.1
3	P8	2.9	0.2	0.2
3	P9	2.9	0.1	0.2
3	P10	2.8	0.0	0.2
3	P11	2.8	0.0	0.0
3	P12	2.9	0.0	0.2
3	P13	3.0	0.2	0.4
3	P14	2.8	0.2	0.4
3	P15	2.9	0.0	0.0
3	P16	3.0	-0.1	0.0
3	P17	3.0	-0.1	-0.1
3	P18	3.0	0.0	0.0
3	P19	2.9	-0.1	0.1
3	P20	2.9	0.1	0.4
4	P1	2.8	0.0	0.1
4	P2	2.7	0.0	0.1
4	P3	2.8	0.1	0.3
4	P4	2.7	0.2	0.4
4	P5	2.8	0.0	0.0
4	P6	2.8	0.0	0.0
4	P7	2.9	-0.1	-0.1
4	P8	2.6	0.0	0.2
4	P9	2.7	0.1	0.5
4	P10	2.6	0.2	0.3
4	P11	2.6	0.0	0.1
4	P12	2.9	-0.1	-0.1
4	P13	2.8	-0.1	0.2
4	P14	2.8	0.1	0.3
4	P15	2.9	-0.1	-0.1
4	P16	3.0	-0.1	-0.1
4	P17	3.0	-0.2	-0.1
4	P18	3.0	-0.1	0.1
4	P19	3.0	0.0	0.3
4	P20	2.7	0.1	0.4
5	P1	2.6	0.0	0.0
5	P2	2.6	0.0	0.0
5	P3	2.6	0.0	0.0
5	P4	2.6	0.0	0.2
5	P5	2.7	0.0	-0.1

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

5	P6	2.7	-0.1	0.0
5	P7	2.7	-0.1	0.0
5	P8	2.7	0.0	-0.1
5	P9	2.6	0.1	0.1
5	P10	2.6	-0.1	0.1
5	P11	2.5	0.1	-0.1
5	P12	2.5	0.0	0.1
5	P13	2.5	0.0	0.1
5	P14	2.5	0.1	0.0
5	P15	2.6	0.1	-0.1
5	P16	2.6	0.0	0.0
5	P17	2.7	0.0	0.0
5	P18	2.7	0.0	-0.1
5	P19	2.6	0.0	0.1
5	P20	2.6	0.1	0.3
6	P1	2.6	0.5	0.5
6	P2	2.6	0.5	0.4
6	P3	2.7	0.4	0.5
6	P4	2.7	0.3	0.2
6	P5	2.6	0.2	0.2
6	P6	2.7	0.1	0.1
6	P7	2.7	0.2	0.3
6	P8	2.7	0.1	0.3
6	P9	2.8	0.0	0.3
6	P10	2.6	0.1	0.4
6	P11	2.6	0.1	-0.1
6	P12	2.7	0.1	0.1
6	P13	2.7	0.1	0.2
6	P14	2.7	0.2	0.1
6	P15	2.7	0.0	-0.1
6	P16	2.9	-0.2	-0.1
6	P17	2.9	-0.1	-0.2
6	P18	2.8	0.1	0.1
6	P19	2.6	-0.1	0.0
6	P20	2.7	0.1	0.0
7	P1	2.5	0.0	0.0
7	P2	2.5	0.0	0.1
7	P3	2.5	0.1	0.3
7	P4	2.5	0.1	0.3
7	P5	2.5	0.0	0.1
7	P6	2.7	0.0	0.0
7	P7	2.7	-0.1	-0.1
7	P8	2.6	0.1	0.0
7	P9	2.5	0.0	0.1
7	P10	2.5	0.1	0.2
7	P11	2.5	0.0	0.3
7	P12	2.5	0.0	0.5
7	P13	2.6	0.0	0.2
7	P14	2.7	0.0	0.6
7	P15	2.6	0.2	0.2

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

7	P16	2.8	-0.1	0.0
7	P17	2.7	-0.1	0.0
7	P18	2.7	-0.1	0.1
7	P19	2.6	0.1	0.2
7	P20	2.5	0.0	0.2
8	P1	2.7	0.1	1.7
8	P2	2.8	0.0	0.4
8	P3	2.9	0.0	0.2
8	P4	2.8	0.1	0.4
8	P5	2.7	0.0	0.0
8	P6	2.8	0.0	0.2
8	P7	2.9	0.0	0.0
8	P8	2.8	0.0	0.2
8	P9	2.7	0.0	0.1
8	P10	2.6	0.1	0.1
8	P11	2.6	0.1	0.0
8	P12	2.7	0.1	0.1
8	P13	2.6	0.2	0.3
8	P14	2.6	0.2	0.2
8	P15	2.7	-0.1	0.0
8	P16	2.8	-0.1	0.0
8	P17	2.9	-0.1	-0.1
8	P18	2.8	0.0	-0.1
8	P19	2.7	0.1	0.0
8	P20	2.8	0.0	0.1
9	P1	2.6	0.6	0.4
9	P2	2.6	0.6	0.5
9	P3	2.7	0.6	1.0
9	P4	2.7	0.4	0.3
9	P5	2.7	0.3	0.4
9	P6	2.7	0.3	0.3
9	P7	2.8	0.3	0.2
9	P8	2.7	0.3	0.3
9	P9	2.6	0.6	0.9
9	P10	2.7	0.2	0.1
9	P11	2.6	0.1	0.1
9	P12	2.7	0.0	0.1
9	P13	2.7	0.1	0.2
9	P14	2.7	0.1	0.2
9	P15	2.7	0.0	0.1
9	P16	2.7	0.1	0.1
9	P17	2.8	0.0	-0.1
9	P18	2.8	-0.1	-0.1
9	P19	2.8	0.0	-0.1
9	P20	2.7	0.0	0.2
10	P1	2.7	0.1	0.1
10	P2	2.7	0.0	0.0
10	P3	2.8	-0.1	0.0
10	P4	2.8	-0.1	0.0
10	P5	2.8	0.0	0.0

Tracking Code: TC0327-N/A-0219

Part #: PEC-10-02-T-S-A

Part description: PEC

10	P6	2.8	0.0	-0.1
10	P7	2.9	0.0	0.1
10	P8	2.7	-0.1	0.0
10	P9	2.8	-0.1	0.0
10	P10	2.7	0.0	0.1
10	P11	2.7	0.2	0.1
10	P12	2.7	0.1	0.1
10	P13	2.8	0.1	0.3
10	P14	2.8	0.1	0.2
10	P15	2.9	-0.1	0.1
10	P16	2.9	0.1	0.1
10	P17	2.9	0.1	0.2
10	P18	2.8	0.0	0.2
10	P19	3.0	-0.1	0.0
10	P20	2.9	-0.1	0.0

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** THL-01**Description:** Temperature/Humidity Chart Recorder**Manufacturer:** Dickson**Model:** THDX**Serial #:** 9316255**Accuracy:** Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).

... Last Cal: 7/15/02, Next Cal: 7/15/03

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

... Last Cal: 6/12/03, Next Cal: 6/12/04

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

... Last Cal: 6/12/03, Next Cal: 6/12/04

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

... Last Cal: 5/28/2003, Next Cal: 5/28/2004

Equipment #: OV-5**Description:** Nitrogen Purge IR Reflow**Manufacturer:** Vitronics Soltec**Model:** XPM-730**Serial #:** XN 70328**Accuracy:** +/- 5 deg. C