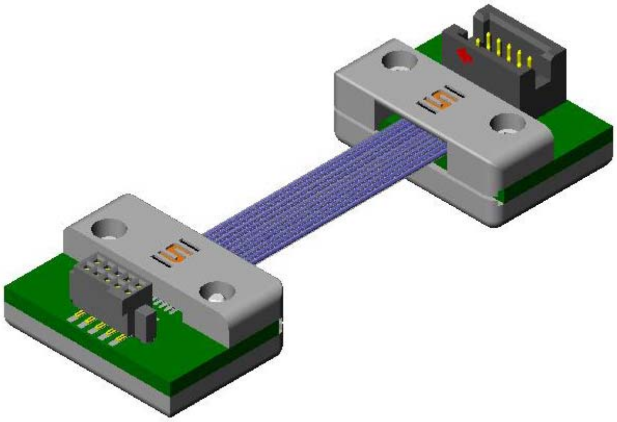
Project Number: NA	Tracking Code: TC0449--0566		
Requested by: Corey Rose	Date: 11/29/2004	Product Rev: 0	
Part #: HDR-114419-01-FHSC	Lot #: 771769	Tech: Troy Cook	Eng: John Tozier
Part description: FHSC	Qty to test: 30		
Test Start: 12/28/2004	Test Completed: 2/3/2005		



DVT Report

PART DESCRIPTION

HDR-114419-01-FHSC

Mated with SFM-110-L2-S-D-A, TFM-110-02-S-D-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.

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SCOPE

To perform the following tests: DVT.

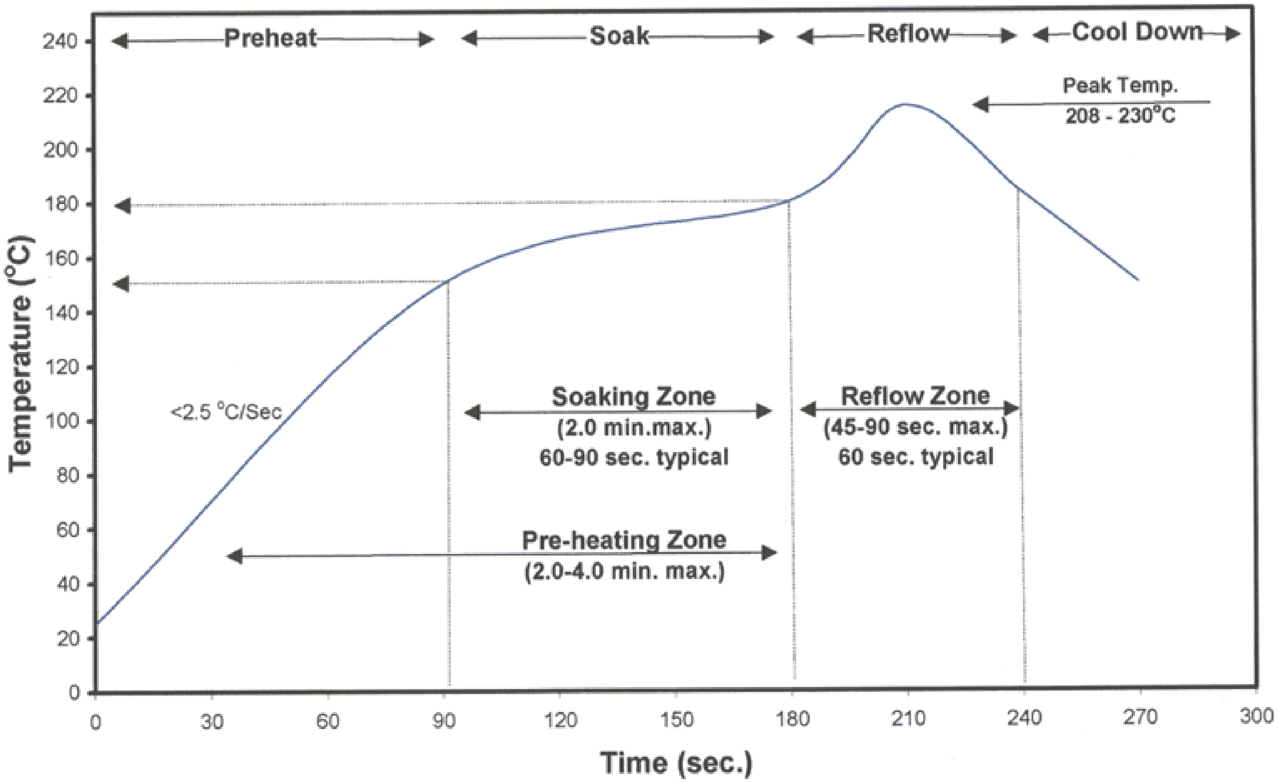
APPLICABLE DOCUMENTS

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) The ultrasonic procedure can be used with either aqueous or non-aqueous soldering components and follows:
    a. Sample test boards are to be ultrasonically cleaned after test lead attachment, preparation and/or soldering.
    b. Sample test boards are immersed into Branson 3510 cleaner containing Kyzen Ionox HC1 (or equivalent) with the following conditions:
        i. Temperature: -------55° C+/- 5° C
        ii. Frequency:-----------40 KHz
        iii. Immersion Time: ---5 to 10 Minutes
    c. Sample test boards are removed and placed into the Branson 3510 cleaner containing deionized water with the following conditions:
        i. Temperature: --------55° C +/- 5° C
        ii. Frequency:-----------40 KHz
        iii. Immersion Time: ---5 to 10 Minutes
    d. Sample test boards are removed and placed in a beaker positioned on a hot plate with a magnetic stirrer containing deionized water warmed to 55° C +/- 5° C for 1/2 to 1 minute.
    e. Upon removal, the sample boards are rinsed for ½ to 1 minute at room temperature with free flowing deionized water.
    f. After the final rinse, the sample test boards are dried in an air-circulating oven for 10 to 15 minutes at 50° C +/- 5° C.
    g. Sample test boards are then allowed to set and recover to room ambient condition prior to testing.
7) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
8) Any additional preparation will be noted in the individual test sequences.
9) Solder Information: Sn63Pb37
10) Re-Flow Time/Temp: See accompanying profile.
11) Internal Test PCBs used: PCB 100221-TST-xx

OVEN PROFILE (Soldering Parts to Test Boards)



Standard Solder Paste Reflow Profile for Kester Paste Containing Alloys: Sn63Pb37 or Sn62Pb36Ag02

FLOWCHARTS

TEST STEP	GROUP 1 SIG Region 6 Adjacent Conductors	GROUP 2 GND Region
01	CCC	CCC

Tabulate calculated current at RT, 75° C, 85° C and 95° C
after derating 20% and based on 80° C
CCC, Temp rise = EIA-364-70

TEST STEP -	GROUP 1 SIG-SIG Region	GROUP 2A SIG-SIG Region	GROUP 2B SIG-SIG Region	GROUP 2C SIG-SIG Region
01	IR	DWV/Working Voltage	Thermal Aging	Humidity
02	Data Review		DWV/Working Voltage	DWV/Working Voltage
03	Thermal Aging			
04	IR			
05	Data Review			
06	Humidity			
07	IR			

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)
delete steps 7a and 7b

TEST STEP -	GROUP 1 Sig-GND Region	GROUP 2A Sig-GND Region	GROUP 2B Sig-GND Region	GROUP 2C Sig-GND Region
01	IR	DWV/Working Voltage	Thermal Aging	Humidity
02	Data Review		DWV/Working Voltage	DWV/Working Voltage
03	Thermal Aging			
04	IR			
05	Data Review			
06	Humidity			
07	IR			

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)
delete steps 7a and 7b

FLOWCHARTS Continued

TEST STEP	GROUP 1 160 Points 500 Cycles
01	LLCR-1
02	Data Review
03	100 Cycles
04	LLCR-2
05	Data Review
06	100 Cycles
07	LLCR-3
08	Data Review
09	200 Cycles
10	LLCR-4
11	Data Review
12	100 Cycles
13	LLCR-5

LLCR = EIA-364-23, LLCR

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

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 mated and 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 mated and pre-conditioned at ambient.

TEMPERATURE RISE (Current Carrying Capacity, CCC):

1) EIA-364-70, *Temperature Rise versus Current Test Procedure for Electrical Connectors and Sockets*.
2) When current passes through a contact, the temperature of the contact increases as a result of I^2R (resistive) heating.
3) The number of contacts being investigated plays a significant part in power dissipation and therefore temperature rise.
4) The size of the temperature probe can affect the measured temperature.
5) Copper traces on PC boards will contribute to temperature rise:
    a. Self heating (resistive)
    b. Reduction in heat sink capacity affecting the heated contacts
6) A de-rating curve, usually 20%, is calculated.
7) Calculated de-rated currents at three temperature points are reported:
    a. Ambient
    b. 75^o C
    c. 85^o C
    d. 95^o C
8) Typically, neighboring contacts (in close proximity to maximize heat build up) are energized.
9) The thermocouple (or temperature measuring probe) will be positioned at a location to sense the maximum temperature in the vicinity of the heat generation area.
10) A computer program, *TR 803.exe*, ensures accurate stability for data acquisition.
11) Hook-up wire cross section is larger than the cross section of any connector leads/PC board traces, jumpers, etc.
12) Hook-up wire length is longer than the minimum specified in the referencing standard.

ATTRIBUTE DEFINITIONS Continued

INSULATION RESISTANCE (IR):

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

1) PROCEDURE:
    a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Signal-to-Signal and Signal-to-Ground
        ii. Electrification Time 2.0 minutes
        iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
2) MEASUREMENTS:
3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 1000 megohms.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

To determine if the sockets can operate at its rated voltage and withstand momentary over potentials due to switching, surges, and other similar phenomenon. Separate samples are used to evaluate the effect of environmental stresses so not to influence the readings from arcing that occurs during the measurement process.

1) PROCEDURE:
    a. Reference document: EIA-364-20, *Withstanding Voltage Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Signal-to-Signal and Signal-to-Ground
        ii. Rate of Application 500 V/Sec
        iii. Test Voltage (VAC) until breakdown occurs
2) MEASUREMENTS/CALCULATIONS
    a. The breakdown voltage shall be measured and recorded.
    b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
    c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

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

Temperature Rise, CCC at a 20% de-rating and a 30 Degree C T-Rise

- **Signal Lines --0.5 A with 6 adjacent contacts powered**
- **Ground System---11.3 A (all GNDs electrically in parallel)**

Insulation Resistance minimums, IR. Mated Configuration

- **Initial**
  - **Sig-Sig --- 25,000 Meg Ω ------------------------ Pass**
  - **Sig-GND---100,000 Meg Ω ------------------------ Pass**
- **Thermal**
  - **Sig-Sig --- 75,000 Meg Ω**
  - **Sig-GND---100,000 Meg Ω**
- **Humidity**
  - **Sig-Sig ---100,000 Meg Ω**
  - **Sig-GND---100,000 Meg Ω**

Dielectric Withstanding Voltage minimums, DWV. Mated Configuration

- **Initial**
  - **Breakdown**
    - **Sig-Sig -------------------------------------1,100 VAC**
    - **Sig-GND------------------------------------560 VAC**
  - **DWV**
    - **Sig-Sig ---------------------------------------825 VAC**
    - **Sig-GND------------------------------------420 VAC**
  - **Working voltage**
    - **Sig-Sig ---------------------------------------275 VAC**
    - **Sig-GND------------------------------------140 VAC**
- **Thermal**
  - **Breakdown**
    - **Sig-Sig -------------------------------------1,100 VAC**
    - **Sig-GND------------------------------------700 VAC**
  - **DWV**
    - **Sig-Sig ---------------------------------------825 VAC**
    - **Sig-GND------------------------------------525 VAC**
  - **Working voltage**
    - **Sig-Sig ---------------------------------------275 VAC**
    - **Sig-GND------------------------------------175 VAC**
- **Humidity**
  - **Breakdown**
    - **Sig-Sig ---------------------------------------900 VAC**
    - **Sig-GND------------------------------------540 VAC**
  - **DWV**
    - **Sig-Sig ---------------------------------------675 VAC**
    - **Sig-GND------------------------------------405 VAC**
  - **Working voltage**
    - **Sig-Sig ---------------------------------------225 VAC**
    - **Sig-GND------------------------------------135 VAC**

RESULTS Continued

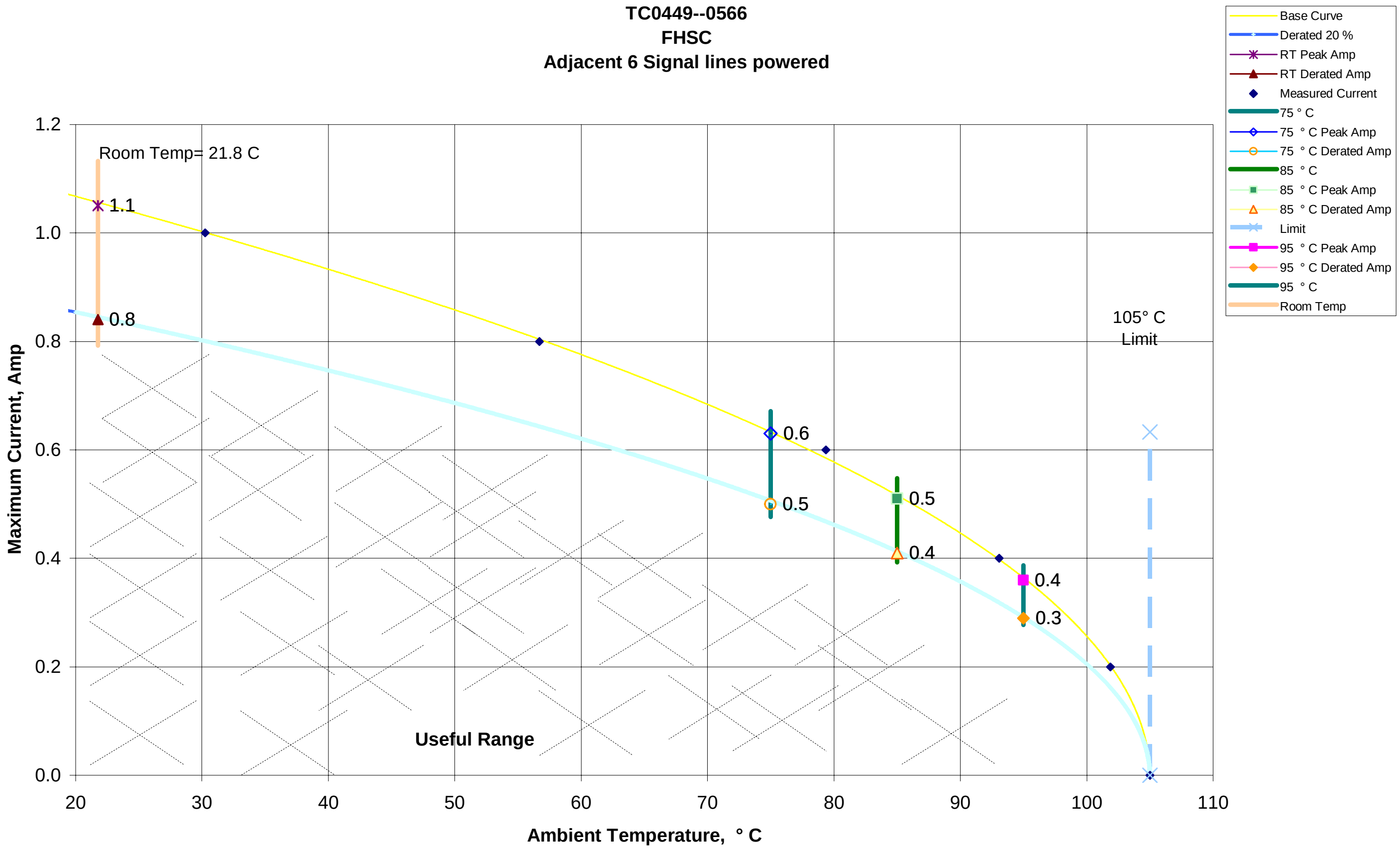
LLCR Durability (160 LLCR test points)

- **Initial -- 11.1 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ------------------------------------ 160 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 ------------------------------------ 160 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 ------------------------------------ 160 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**

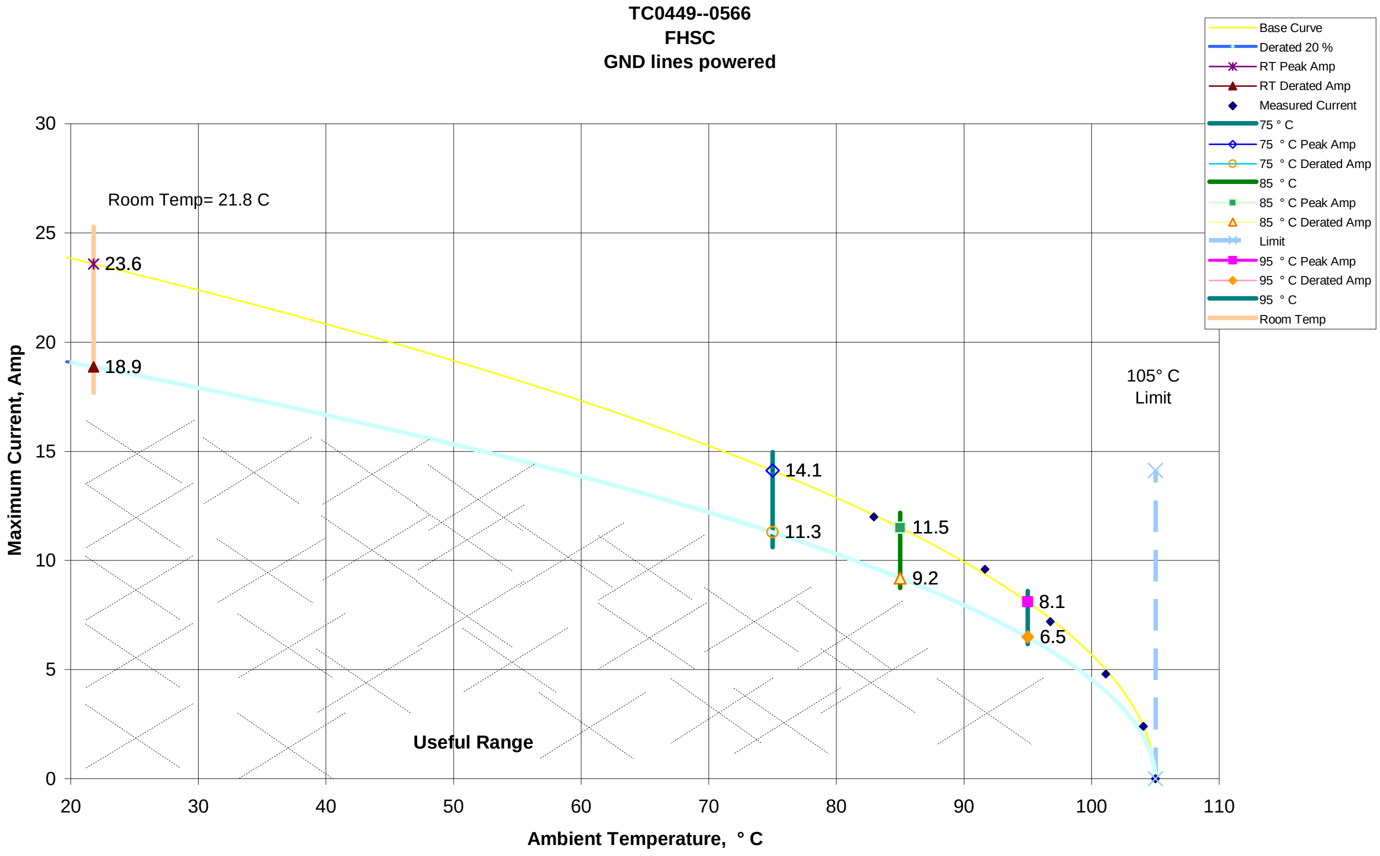
DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
4) Adjacent contacts were powered:
    a. Signal lines powered configuration with SIX adjacent conductors powered
    b. GND conductors powered



DATA SUMMARIES Continued



DATA SUMMARIES Continued

INSULATION RESISTANCE (IR) Signal-to- Signal:

Meg Ohms, Electrification Time *Two (2) minutes*			
	Initial	**Thermal**	**Humidity**
	Mated	**Mated**	**Mated**
Sig-Sig	**Insulation Resistance**	**Insulation Resistance**	**Insulation Resistance**
Average	62500	75000	100000
Min	25000	50000	100000
Max	100000	100000	100000

INSULATION RESISTANCE (IR) Signal-to- GND:

Meg Ohms, Electrification Time *Two (2) minutes*			
	Initial	**Thermal**	**Humidity**
	Mated	**Mated**	**Mated**
Sig-GND	**Insulation Resistance**	**Insulation Resistance**	**Insulation Resistance**
Average	100000	100000	100000
Min	100000	100000	100000
Max	100000	100000	100000

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal-to-Signal:

Voltage Rate 500 VAC Per Sec.
Test Voltage ***Until Breakdown Occurs***

	Initial, Mated		
Sig-Sig	**Breakdown Voltage**	**DWV**	**Working Voltage**
Average	1150	863	288
Min	1100	825	275
Max	1200	900	300

	Thermal, Mated		
Sig-Sig	**Breakdown Voltage**	**DWV**	**Working Voltage**
Average	1150	863	288
Min	1100	825	275
Max	1200	900	300

	Humidity, VAC Mated		
Sig-Sig	**Breakdown Voltage**	**DWV**	**Working Voltage**
Average	900	675	225
Min	900	675	225
Max	900	675	225

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal-to-GND:

Voltage Rate 500 VAC Per Sec.
Test Voltage ***Until Breakdown Occurs***

	Initial, Mated		
Sig-GND	**Breakdown Voltage**	**DWV**	**Working Voltage**
Average	615	461	154
Min	560	420	140
Max	700	525	175

	Thermal Mated		
Sig-GND	**Breakdown Voltage**	**DWV**	**Working Voltage**
Average	735	551	184
Min	700	525	175
Max	760	570	190

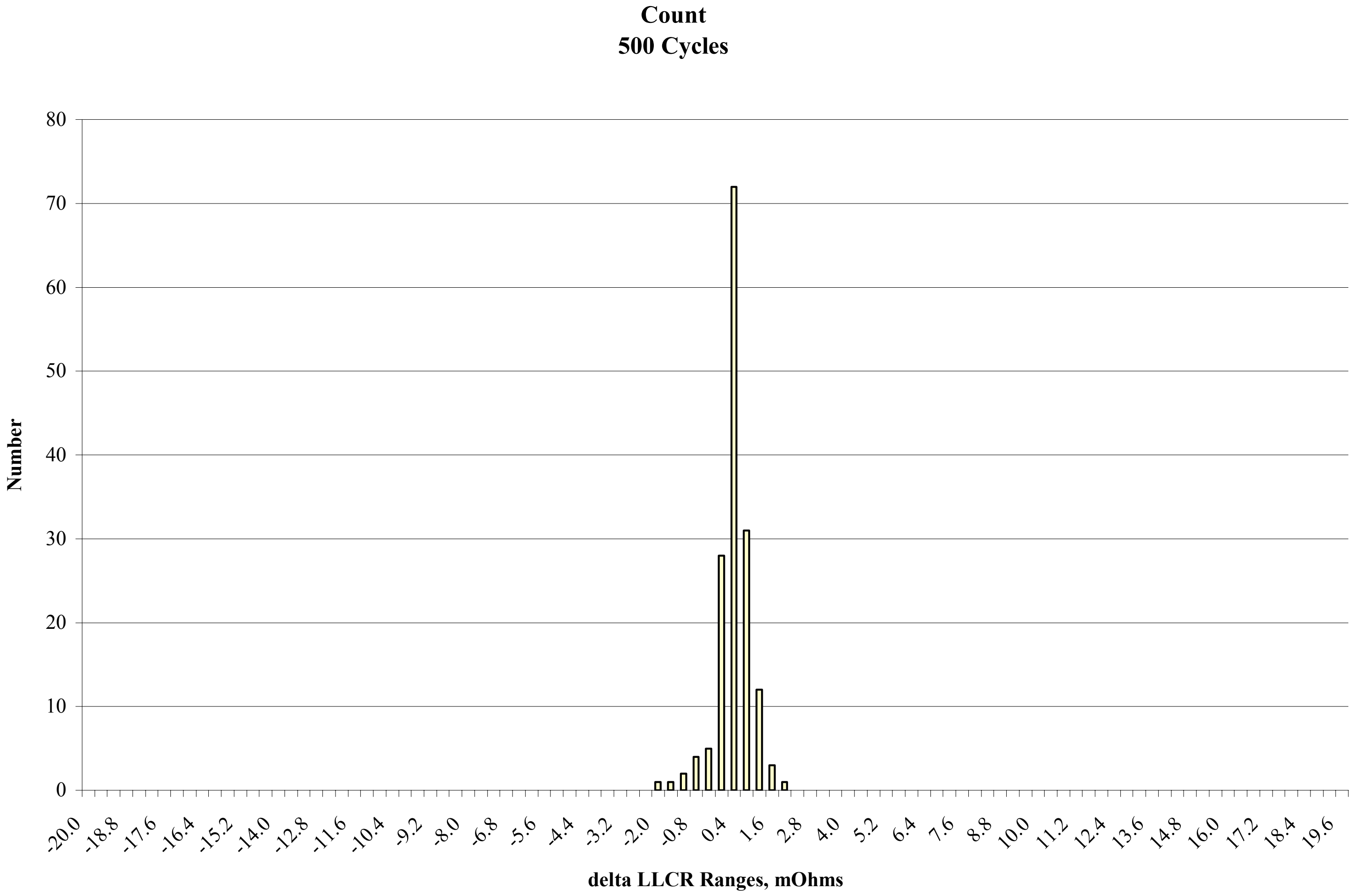
	Humidity, Mated		
Sig-GND	**Breakdown Voltage**	**DWV**	**Working Voltage**
Average	635	476	159
Min	540	405	135
Max	740	555	185

DATA SUMMARIES Continued

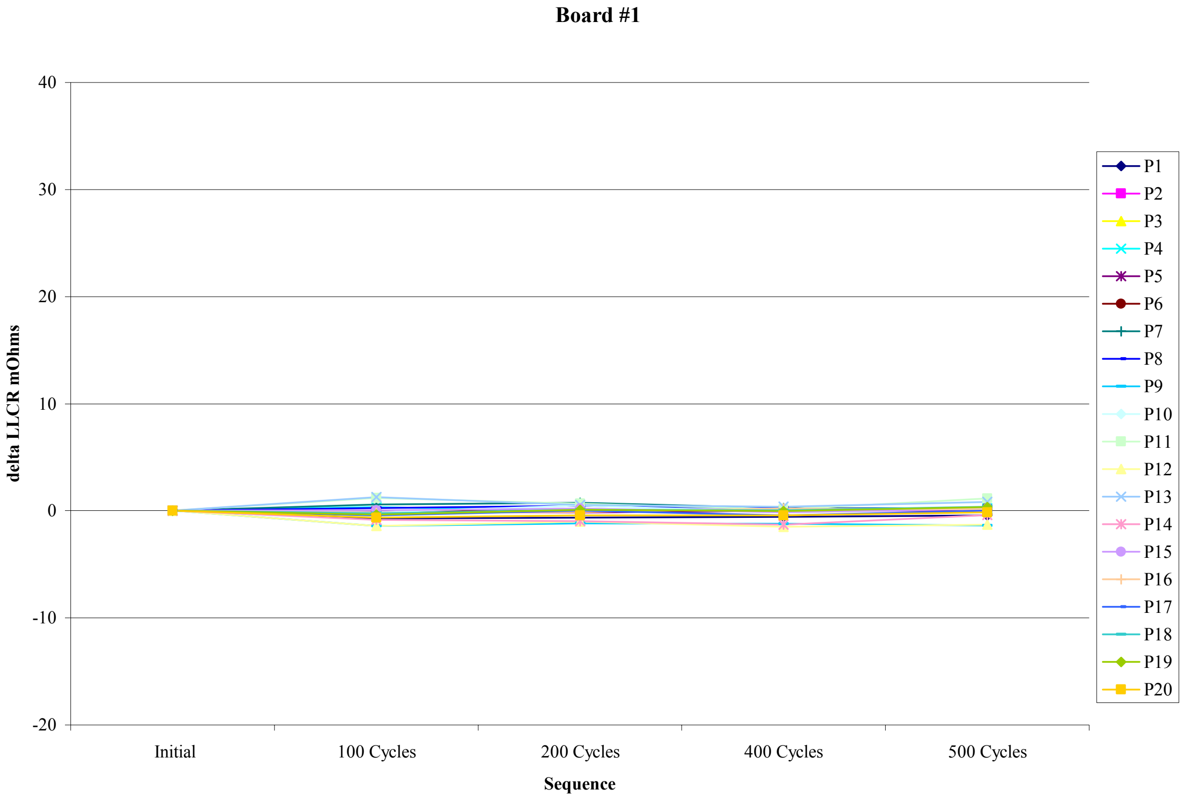
LLCR:

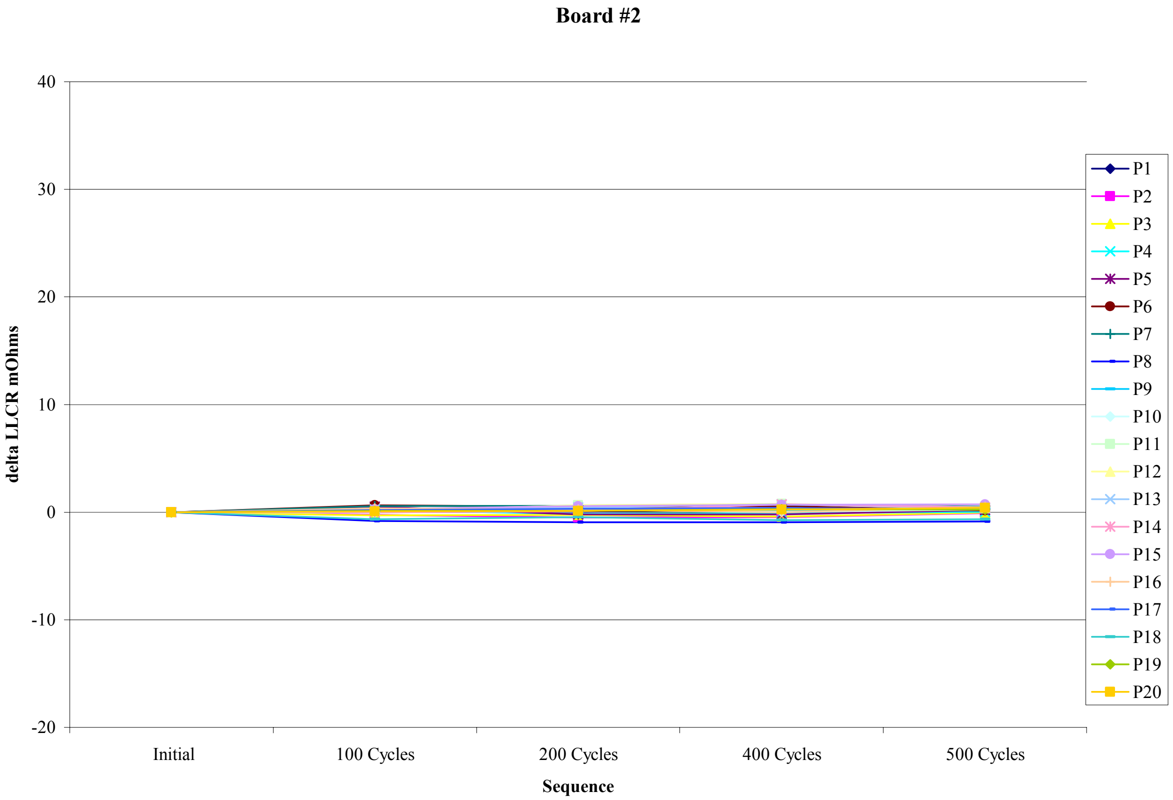
1) A total of 160 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result 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

mOhm values	Actual Initial	Delta 100 Cycles	Delta 200 Cycles	Delta 400 Cycles	Delta 500 Cycles
Average	8.5	0.1	0.1	0.2	0.2
St. Dev.	0.5	0.6	0.6	0.6	0.5
Min	7.6	-2.4	-2.4	-2.3	-2.1
Max	11.1	2.3	2.3	2.6	1.7
Count	160	160	160	160	160

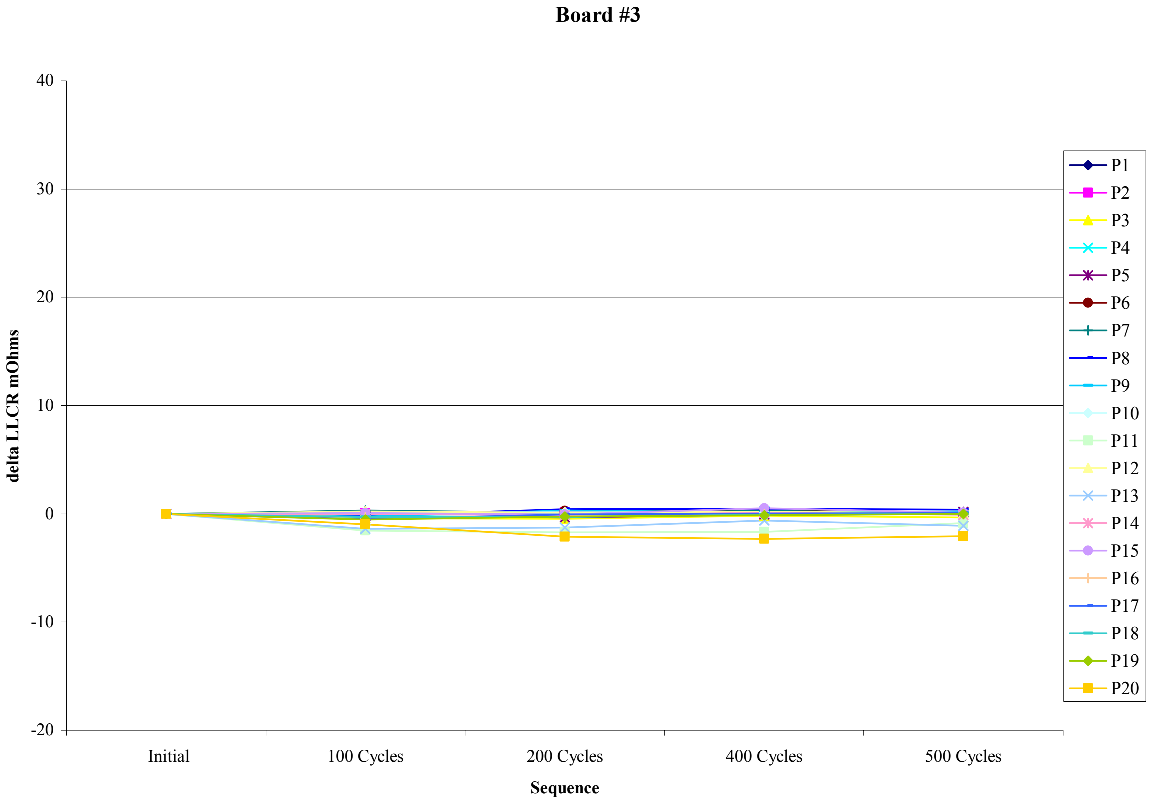

Count
500 Cycles

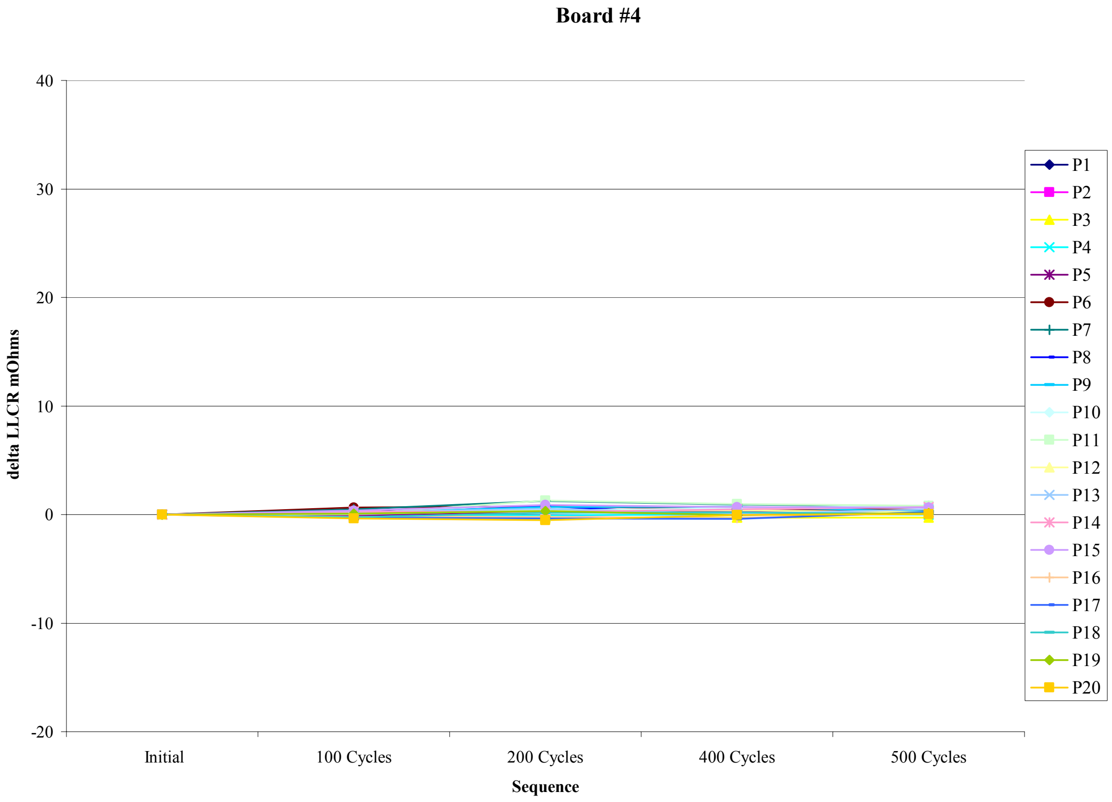
DATA SUMMARIES Continued



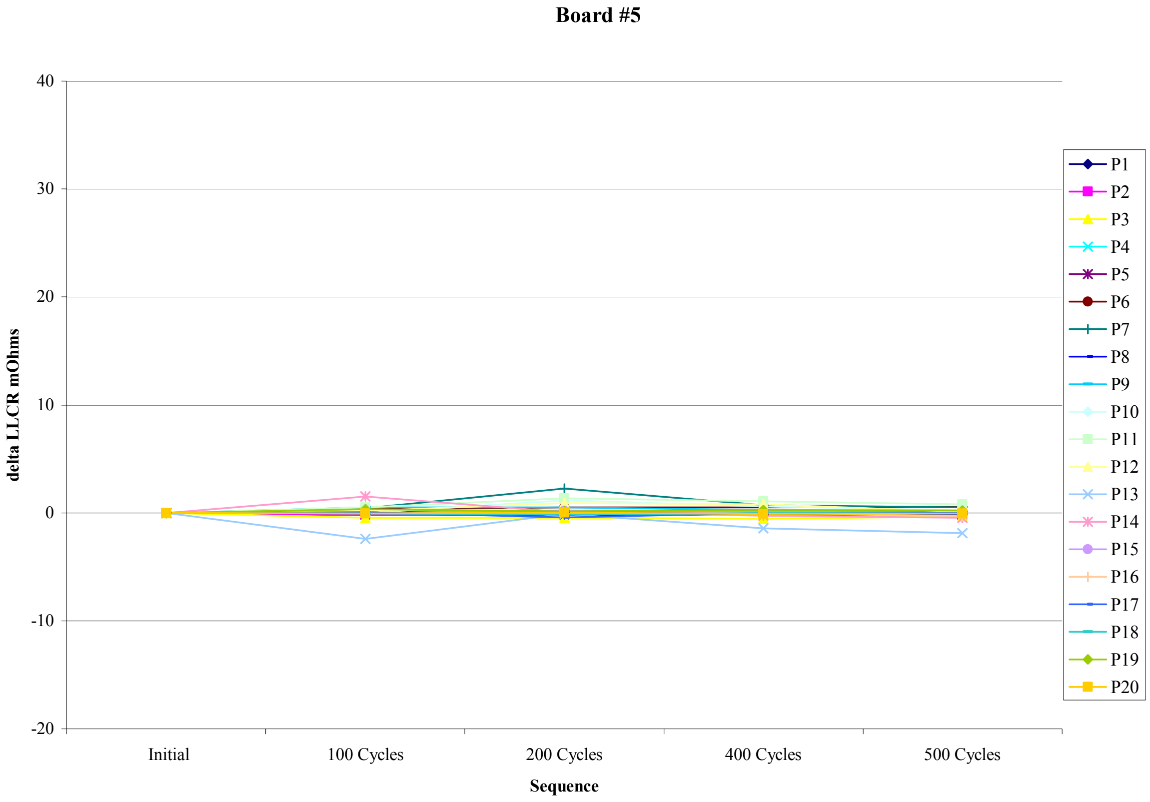


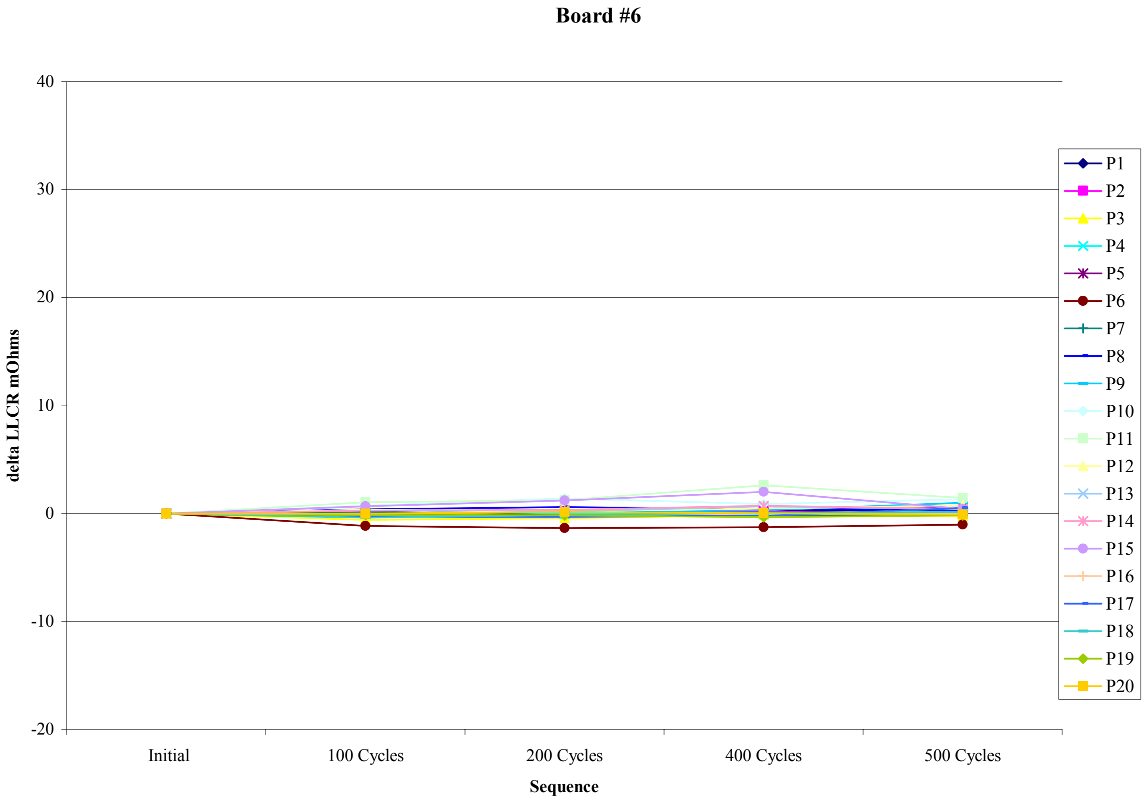
DATA SUMMARIES Continued





DATA SUMMARIES Continued

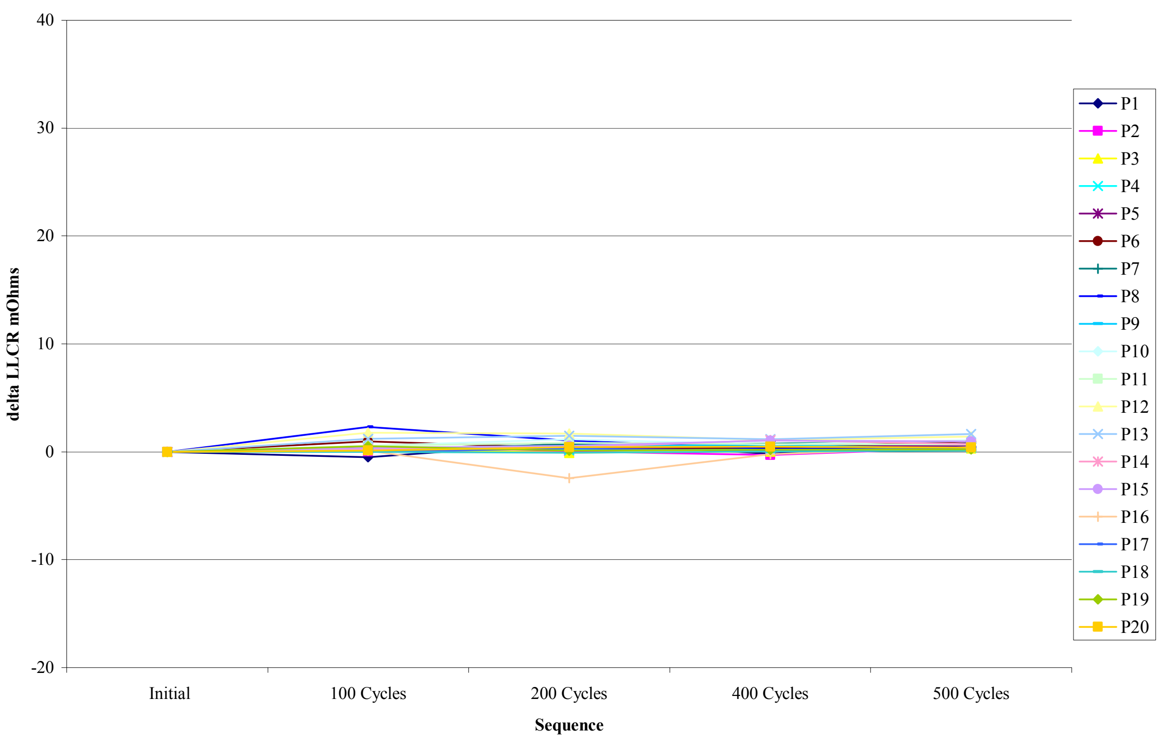




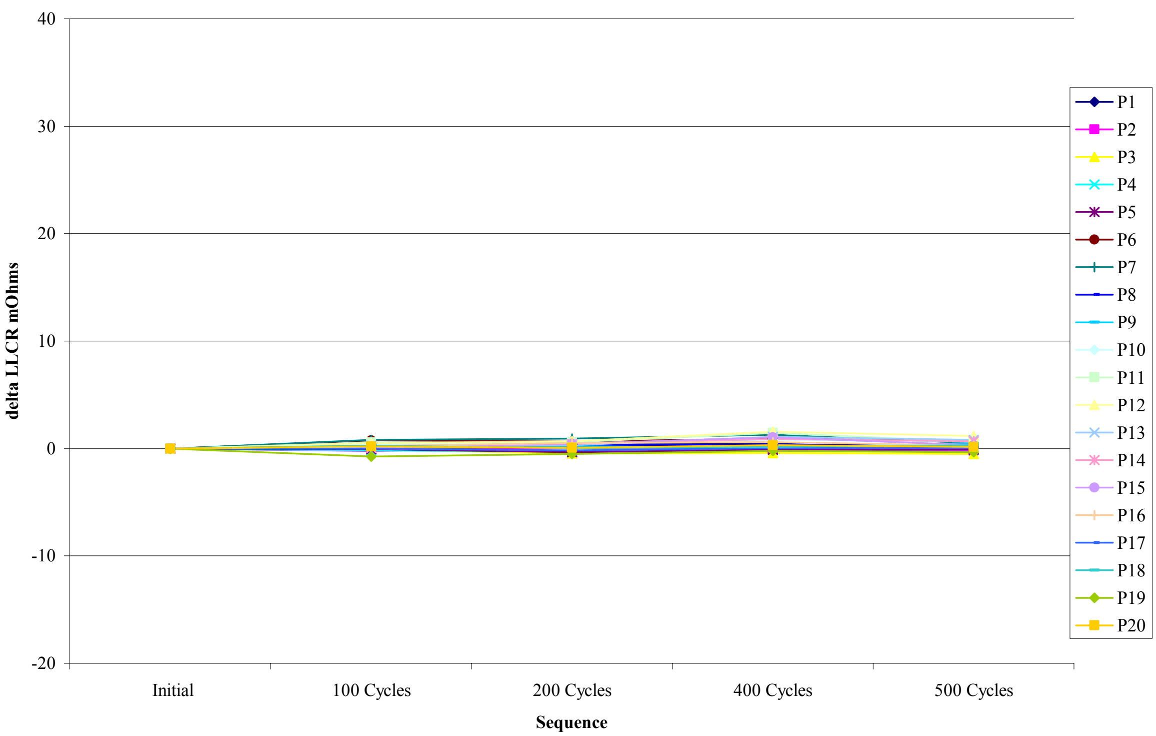
Tracking Code: TC0449--0566	Part #: HDR-114419-01-FHSC
Part description: FHSC	

DATA SUMMARIES Continued

Board #7



Board #8



DATA

INSULATION RESISTANCE (IR) Signal-to-Signal:

Test Date:	12/30/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	28%
Equipment ID:	HPM-01

Test Conditions	**YES**
Adjacent Contacts	**X**
Mated	**X**
PC Mounted	**X**

Electrification Time ***Two (2) minutes***

Initial, Meg Ohms

Sig-Sig	**Mated**
Sample #	**Insulation Resistance**
1	100000
2	25000

Test Date:	1/17/2005
Operator:	Troy Cook
Temperature (C):	25
Humidity (RH):	23%
Equipment ID:	HPM-01

Test Conditions	**YES**
Adjacent Contacts	**X**
Mated	**X**
PC Mounted	**X**

Electrification Time ***Two (2) minutes***

Thermal, Meg Ohms

Sig-Sig	**Mated**
Sample #	**Insulation Resistance**
1	100000
2	50000

DATA Continued

INSULATION RESISTANCE (IR) Signal-to-Signal:

Test Date:	2/2/2005
Operator:	Troy Cook
Temperature (C):	24
Humidity (RH):	26%
Equipment ID:	HPM-01

Test Conditions	**YES**
Adjacent Contacts	**X**
Mated	**X**
PC Mounted	**X**

Electrification Time ***Two (2) minutes***

Humidity, Meg Ohms

Sig-Sig	**Mated**
Sample #	**Insulation Resistance**
1	100000
2	100000

DATA Continued

INSULATION RESISTANCE (IR) Signal-to-GND:

Test Date:	12/30/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	28%
Equipment ID:	HPM-01

Test Conditions	**YES**
Adjacent Contacts	**X**
Mated	**X**
PC Mounted	**X**

Electrification Time ***Two (2) minutes***

Initial, MegOhms

Sig-GND	**Mated**
Sample #	**Insulation Resistance**
1	100000
2	100000
3	100000
4	100000

Test Date:	1/17/2005
Operator:	Troy Cook
Temperature (C):	25
Humidity (RH):	23%
Equipment ID:	HPM-01

Test Conditions	**YES**
Adjacent Contacts	**X**
Mated	**X**
PC Mounted	**X**

Electrification Time ***Two (2) minutes***

Thermal, Meg Ohms

Sig-GND	**Mated**
Sample #	**Insulation Resistance**
1	100000
2	100000
3	100000
4	100000

DATA Continued

INSULATION RESISTANCE (IR) Signal-to-GND:

Test Date:	2/2/2005
Operator:	Troy Cook
Temperature (C):	24
Humidity (RH):	26%
Equipment ID:	HPM-01

Test Conditions	**YES**
Adjacent Contacts	**X**
Mated	**X**
PC Mounted	**X**

Electrification Time ***Two (2) minutes***
Humidity, Meg Ohms

Sig-GND	**Mated**
Sample #	**Insulation Resistance**
1	100000
2	100000
3	100000
4	100000

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal-to-Signal:

Test Date:	12/30/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	28%
Equipment ID:	HPM-01

Test Conditions	**YES**	**NO**
Adjacent Contacts	X	
Mated	X	
PC Mounted	X	

Voltage Rate 500 VAC Per Sec.

Test Voltage ***Until Breakdown Occurs***

Sig-Sig	**Initial, VAC Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	1100	825	275
2	1200	900	300

Test Date:	1/17/2005
Operator:	Troy Cook
Temperature (C):	25
Humidity (RH):	23%
Equipment ID:	HPM-01

Test Conditions	**YES**	**NO**
Adjacent Contacts	X	
Mated	X	
PC Mounted	X	

Voltage Rate 500 VAC Per Sec.

Test Voltage ***Until Breakdown Occurs***

Sig-Sig	**Thermal, VAC Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	1200	900	300
2	1100	825	275

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal-to-Signal:

Test Date:	2/2/2005
Operator:	Troy Cook
Temperature (C):	24
Humidity (RH):	26%
Equipment ID:	HPM-01

Test Conditions	**YES**	**NO**
Adjacent Contacts	X	
Mated	X	
PC Mounted	X	

Voltage Rate 500 VAC Per Sec.

Test Voltage ***Until Breakdown Occurs***

Sig-Sig	**Humidity, VAC Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	900	675	225
2	900	675	225

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal-to-GND:

Test Date:	2/7/2005
Operator:	Troy Cook
Temperature (C):	26
Humidity (RH):	30%
Equipment ID:	HPM-01

Test Conditions	**YES**	**NO**
Adjacent Contacts	X	
Mated	X	
PC Mounted	X	

Voltage Rate 500 VAC Per Sec.

Test Voltage ***Until Breakdown Occurs***

Sig-GND	**Initial, Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	600	450	150
2	600	450	150
3	700	525	175
4	560	420	140

Test Date:	2/7/2005
Operator:	Troy Cook
Temperature (C):	26
Humidity (RH):	30%
Equipment ID:	HPM-01
Contact Part #:	N/A
Used In:	XXX

Test Conditions	**YES**	**NO**
Adjacent Contacts	X	
Mated	X	
PC Mounted	X	

Voltage Rate 500 VAC Per Sec.

Test Voltage ***Until Breakdown Occurs***

Sig-GND	**Thermal, Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	760	570	190
2	700	525	175
3	760	570	190
4	720	540	180

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal-to-GND:

Test Date:	2/7/2005
Operator:	Troy Cook
Temperature (C):	26
Humidity (RH):	30%
Equipment ID:	HPM-01

Test Conditions	**YES**	**NO**
Adjacent Contacts	X	
Mated	X	
PC Mounted	X	

Voltage Rate 500 VAC Per Sec.

Test Voltage ***Until Breakdown Occurs***

Sig-GND	**Humidity, Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	640	480	160
2	540	405	135
3	740	555	185
4	620	465	155

DATA Continued

LLCR:

	Date	Dec. 28 2004	Jan. 07 2005	Jan. 11 2005	Jan. 11 2005	Jan. 12 2005
	Room Temp C	25	24	25	24	25
	RH	15%	25%	36%	44%	42%
	Name	Troy Cook	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values		**Actual**	**Delta**	**Delta**	**Delta**	**Delta**
Board	**Position**	**Initial**	**100 Cycles**	**200 Cycles**	**400 Cycles**	**500 Cycles**
1	P1	9.2	-0.7	-0.6	-0.6	-0.4
1	P2	8.7	-0.1	-0.1	0.0	0.0
1	P3	8.5	-0.2	-0.1	0.0	0.1
1	P4	8.4	0.3	0.0	0.0	0.2
1	P5	8.4	-0.1	-0.2	0.0	0.1
1	P6	9.1	-0.1	0.0	0.1	0.3
1	P7	8.5	0.6	0.8	0.3	0.2
1	P8	8.6	0.3	0.5	0.2	0.2
1	P9	10.1	-1.4	-1.2	-1.2	-1.4
1	P10	9.1	-0.1	0.5	-0.2	0.3
1	P11	8.6	1.2	0.7	0.1	1.2
1	P12	10.2	-1.4	-1.0	-1.5	-1.3
1	P13	8.3	1.3	0.5	0.4	0.8
1	P14	10.1	-0.9	-1.0	-1.3	-0.4
1	P15	9.2	0.1	0.2	-0.2	0.2
1	P16	8.5	-0.2	-0.1	0.2	0.1
1	P17	8.4	-0.4	0.0	-0.4	0.0
1	P18	8.3	-0.2	0.1	0.1	0.4
1	P19	8.4	-0.4	0.1	0.0	0.3
1	P20	8.6	-0.7	-0.4	-0.5	-0.1
2	P1	8.4	0.0	0.0	0.2	0.0
2	P2	8.7	-0.2	-0.5	-0.5	-0.1
2	P3	8.6	-0.3	-0.3	-0.4	0.0
2	P4	8.2	0.2	-0.2	-0.1	0.0
2	P5	8.3	0.5	-0.2	-0.2	0.2
2	P6	8.4	0.6	0.5	0.6	0.2
2	P7	8.2	0.5	0.6	0.7	0.5
2	P8	9.8	-0.8	-0.9	-1.0	-0.9
2	P9	8.9	0.1	0.3	0.2	0.3
2	P10	8.7	0.0	0.3	0.0	0.2
2	P11	8.5	0.0	0.6	0.8	0.3
2	P12	8.6	0.1	0.6	0.8	0.4
2	P13	8.5	0.3	0.4	0.7	0.3
2	P14	8.8	0.0	0.1	0.7	0.5
2	P15	8.1	0.3	0.5	0.7	0.7
2	P16	8.3	0.4	0.2	0.0	0.5
2	P17	8.3	0.2	0.3	0.4	0.2
2	P18	9.0	-0.6	-0.5	-0.8	-0.7

2	P19	8.1	0.1	0.1	0.3	0.2
2	P20	8.1	0.1	0.1	0.3	0.4
3	P1	7.7	0.1	-0.1	0.2	0.1
3	P2	8.0	0.1	0.1	0.0	0.1
3	P3	8.2	-0.4	-0.4	-0.2	-0.3
3	P4	7.8	-0.1	0.0	0.2	0.1
3	P5	7.6	-0.2	-0.3	0.0	0.2
3	P6	8.1	0.0	0.3	0.3	0.1
3	P7	8.1	0.3	0.1	0.3	0.1
3	P8	8.2	-0.2	0.4	0.5	0.4
3	P9	8.4	-0.2	0.3	0.1	0.2
3	P10	8.4	0.1	0.1	0.1	-0.1
3	P11	10.0	-1.5	-1.7	-1.7	-0.9
3	P12	8.2	0.2	0.1	0.2	0.1
3	P13	9.7	-1.4	-1.2	-0.6	-1.1
3	P14	8.3	0.0	-0.1	0.1	-0.1
3	P15	7.8	0.1	0.0	0.5	0.1
3	P16	7.7	-0.3	-0.2	0.0	0.0
3	P17	7.8	-0.5	-0.1	0.0	0.1
3	P18	7.7	-0.3	-0.3	-0.1	0.0
3	P19	7.8	-0.5	-0.3	-0.1	0.0
3	P20	10.7	-1.0	-2.1	-2.3	-2.1
4	P1	8.0	0.4	0.2	0.4	0.3
4	P2	8.2	-0.1	-0.1	0.0	0.1
4	P3	8.9	0.0	-0.3	-0.3	-0.3
4	P4	8.1	0.0	-0.1	0.0	0.0
4	P5	8.0	-0.1	0.3	0.4	0.2
4	P6	8.4	0.6	0.8	0.5	0.4
4	P7	8.3	0.5	1.2	0.9	0.8
4	P8	8.7	0.0	0.8	0.0	0.1
4	P9	8.8	0.2	0.7	0.7	0.3
4	P10	8.7	0.0	0.4	0.6	0.9
4	P11	8.2	0.0	1.3	1.0	0.8
4	P12	8.6	0.2	0.3	0.4	0.2
4	P13	8.7	0.2	0.5	0.0	0.5
4	P14	8.6	0.3	0.2	0.5	0.7
4	P15	8.2	0.4	0.9	0.7	0.6
4	P16	8.4	-0.2	-0.2	-0.3	0.2
4	P17	8.4	-0.3	-0.4	-0.4	0.3
4	P18	8.2	-0.2	0.1	0.2	0.0
4	P19	7.9	0.1	0.3	0.0	0.1
4	P20	8.6	-0.4	-0.5	0.0	0.0
5	P1	8.4	-0.2	-0.2	-0.1	-0.2
5	P2	8.9	-0.2	-0.1	0.0	-0.3
5	P3	8.8	-0.5	-0.4	-0.6	-0.4
5	P4	8.3	0.2	0.2	0.1	0.2
5	P5	8.3	0.1	-0.2	0.2	0.2
5	P6	8.4	0.3	0.5	0.5	0.5
5	P7	8.4	0.4	2.3	0.7	0.5
5	P8	8.6	0.0	0.1	0.2	-0.1

5	P9	8.8	0.5	0.5	0.3	0.1
5	P10	8.7	0.0	1.2	0.6	0.2
5	P11	8.4	0.5	1.3	1.1	0.8
5	P12	8.8	0.2	0.9	0.8	0.1
5	P13	11.1	-2.4	-0.1	-1.4	-1.9
5	P14	9.3	1.5	0.1	-0.3	-0.4
5	P15	8.6	0.0	0.2	0.1	0.0
5	P16	8.8	-0.1	-0.1	0.0	-0.3
5	P17	8.7	0.1	-0.4	0.0	0.0
5	P18	8.7	0.0	-0.2	0.0	0.0
5	P19	8.2	0.3	0.1	0.3	0.2
5	P20	8.6	-0.1	0.0	-0.1	-0.1
6	P1	8.6	0.0	-0.2	0.2	0.4
6	P2	8.7	0.1	0.1	0.2	-0.1
6	P3	8.7	-0.6	-0.4	-0.1	-0.2
6	P4	8.0	0.0	-0.1	0.0	0.2
6	P5	8.0	0.3	0.2	0.5	0.6
6	P6	10.0	-1.1	-1.4	-1.3	-1.0
6	P7	8.9	0.2	-0.2	-0.3	0.0
6	P8	8.5	0.4	0.6	0.4	0.3
6	P9	8.7	0.4	0.2	0.3	1.0
6	P10	8.4	0.7	1.4	0.9	1.3
6	P11	8.3	1.0	1.2	2.6	1.4
6	P12	8.6	0.4	0.2	0.5	0.8
6	P13	8.9	-0.1	0.2	0.7	0.4
6	P14	8.9	0.3	0.4	0.7	0.4
6	P15	8.3	0.7	1.2	2.0	0.4
6	P16	8.6	-0.2	-0.2	0.0	0.0
6	P17	8.1	-0.3	-0.3	-0.2	0.5
6	P18	8.6	-0.4	-0.1	0.1	0.1
6	P19	8.2	-0.1	-0.2	-0.4	-0.2
6	P20	8.6	0.0	0.1	0.0	-0.1
7	P1	8.2	-0.5	0.8	-0.2	0.8
7	P2	8.3	0.0	0.0	-0.3	0.4
7	P3	8.1	0.3	-0.1	0.0	0.3
7	P4	7.9	0.4	0.2	0.2	0.4
7	P5	7.7	0.4	0.4	0.6	0.5
7	P6	8.4	1.0	0.4	0.4	1.0
7	P7	8.1	0.2	0.7	0.8	1.0
7	P8	8.7	2.3	1.0	0.3	0.4
7	P9	9.2	0.3	0.5	0.6	0.3
7	P10	8.7	0.5	1.2	0.7	1.1
7	P11	8.1	0.5	0.8	0.7	0.7
7	P12	8.4	1.8	1.7	1.1	1.4
7	P13	7.9	1.2	1.5	1.2	1.7
7	P14	8.9	0.2	0.4	1.1	0.7
7	P15	8.2	0.3	0.6	1.0	0.9
7	P16	8.3	0.1	-2.4	-0.2	0.4
7	P17	8.0	0.0	0.3	0.1	0.4
7	P18	8.0	0.0	-0.1	0.0	0.1

7	P19	7.7	0.5	0.1	0.2	0.2
7	P20	8.2	0.1	0.5	0.5	0.4
8	P1	8.3	0.0	0.5	0.5	0.1
8	P2	9.0	-0.2	0.1	-0.1	-0.2
8	P3	8.9	-0.1	-0.5	-0.4	-0.5
8	P4	8.7	-0.2	-0.3	-0.1	-0.1
8	P5	8.3	-0.1	-0.3	-0.1	-0.1
8	P6	8.5	0.8	0.6	0.9	0.7
8	P7	8.4	0.8	0.9	1.3	0.5
8	P8	8.7	0.3	0.3	0.3	0.3
8	P9	8.8	0.3	0.2	0.0	0.5
8	P10	8.7	0.3	0.5	0.8	0.6
8	P11	8.5	0.6	0.6	1.5	0.7
8	P12	8.5	0.5	0.7	1.6	1.2
8	P13	8.9	0.3	0.3	1.1	0.8
8	P14	8.9	0.1	0.4	0.9	0.7
8	P15	8.7	0.1	0.4	1.0	0.3
8	P16	8.5	0.2	0.5	0.6	0.3
8	P17	8.6	0.0	-0.2	0.0	0.1
8	P18	8.6	0.3	0.0	0.1	0.3
8	P19	9.3	-0.7	-0.5	-0.2	-0.4
8	P20	8.7	0.2	0.1	0.3	0.1

Tracking Code: TC0449--0566	Part #: HDR-114419-01-FHSC
Part description: FHSC	

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: THL-02
Description: Temperature/Humidity Chart Recorder
Manufacturer: Dickson
Model: THDX
Serial #: 00120351
Accuracy: Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).
… Last Cal: 6/02/04, Next Cal: 6/02/05

Equipment #: MO-02
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0780546
Accuracy: See Manual
… Last Cal: 6/12/04, Next Cal: 6/12/05

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 6/12/04, Next Cal: 6/12/05

Equipment #: PS-01
Description: System Power Supply
Manufacturer: Hewlett Packard
Model: HP 6033A
Serial #: (HP) 3329A-07330
Accuracy: See Manual
… Last Cal: 6/12/04, Next Cal: 6/12/05

Equipment #: TC090601-103/105
Description: IC Thermocouple-103/105
Manufacturer: Samtec
Serial #: TC090601-103/105
Accuracy: +/- 1 degree C

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 6/12/04, Next Cal: 6/12/05

EQUIPMENT AND CALIBRATION SCHEDULES Continued

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: 6/20/04, Next Cal: 6/30/05

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual
… Last Cal: 4/22/2004, Next Cal: 5/22/2005

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: 6/04/04, Next Cal: 6/04/05

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: 6/12/04, Next Cal: 6/12/05

Equipment #: LC-2500N(icell)
Description: 2500 N Load Cell for Dillon Quantrol
Manufacturer: Dillon Quantrol
Model: icell
Serial #: 00120351
Accuracy: .10% of capacity
… Last Cal: 4/27/04, Next Cal: 4/27/05

Equipment #: LC-1000
Description: Chatillon 1000 Lb Load Cell
Manufacturer: Chatillon
Model: Remote-1000
Serial #: F32799
Accuracy: +/- 0.3% of Full Scale +/- 1 LSC
… Last Cal: 6/17/04, Next Cal: 6/17/05