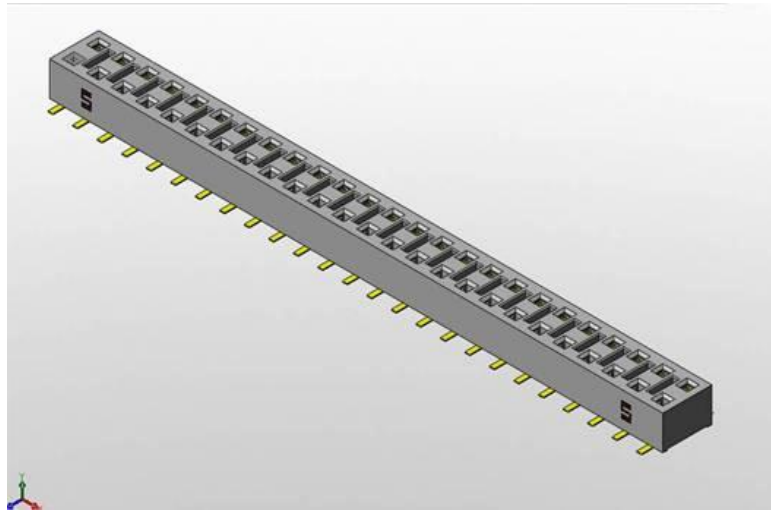
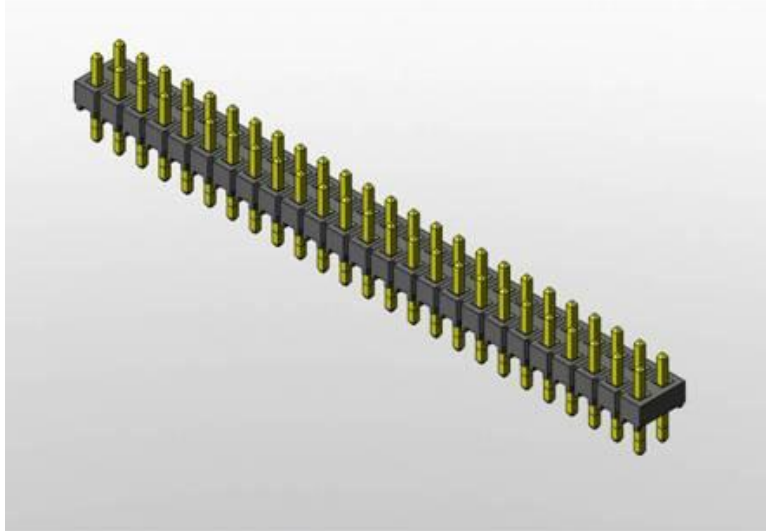




Project Number: Design Qualification Test Report		Tracking Code: 145424_Report_Rev_1	
Requested by: Joe Smallwood		Date: 4/12/2012	Product Rev: N/A
Part #: CLH-150-L-D-DV-A/TSW-150-05-L-D		Lot #: N/A	Tech: Kason He Eng: Vico Zhao
Part description: CLH/TSW			Qty to test: 80
Test Start: 7/12/2011	Test Completed: 9/12/2011		



DESIGN QUALIFICATION TEST REPORT

**CLH/TSW
CLH-150-L-D-DV-A/TSW-150-05-L-D**

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

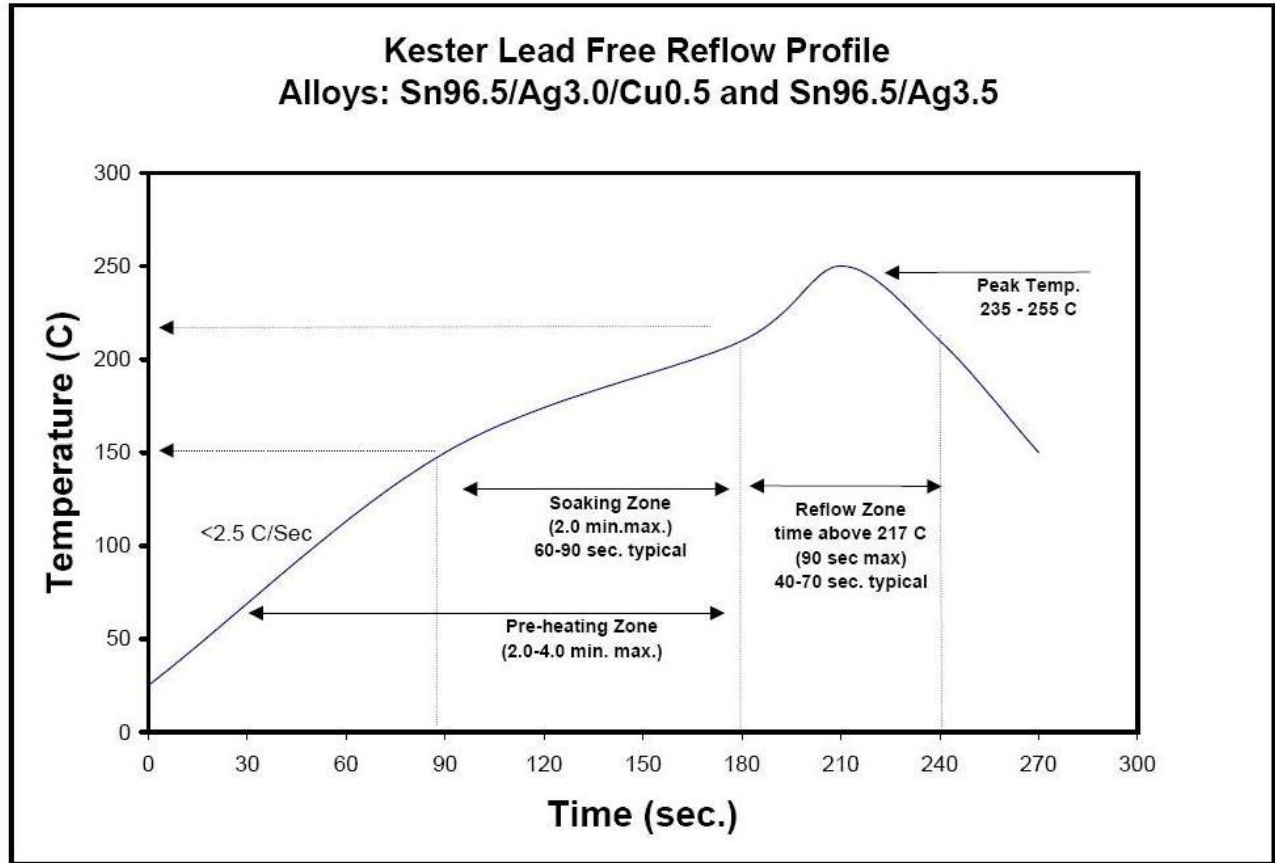
To perform the following tests: Design qualification test. Please see test plan.

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: Lead Free
- 9) Re-Flow Time/Temp: See accompanying profile.
- 10) Samtec Test PCBs used: PCB-103391-TST/PCB-103397-TST

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)

FLOWCHARTS**Gas Tight**

TEST STEP	GROUP A1 192 Points
01	LLCR-1
02	Gas Tight
03	LLCR-2

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

Normal Force

TEST STEP	GROUP A1 Individual Contacts (8-10 min)	GROUP A2 Individual Contacts (8-10 min)
01	Contact Gaps	Contact Gaps
02	Setup Approved	Thermal Aging (Mated and Undisturbed)
03	Normal Force (in the body and soldered on PCB unless otherwise specified)	Contact Gaps
04		Setup Approved
05		Normal Force (in the body and soldered on PCB unless otherwise specified)

Thermal Aging = EIA-364-17, Test Condition 4 (105°C)

Time Condition 'B' (250 Hours)

Normal Force = EIA-364-04

(Perpendicular) Displacement Force = 12.7 mm/min \pm 6 mm/min

Spec is 50 N @ 1 mm displacement

Contact Gaps / Height - No standard method. Usually measured optically

Gaps to be taken on a minimum of 20% of each part tested

FLOWCHARTS Continued**Thermal Aging**

TEST STEP	GROUP A1 8 Boards Thermal Aging (Mated)
01	Contact Gaps
02	Forces - Mating / Unmating
03	LLCR-1
04	Thermal Aging (Mated and Undisturbed)
05	LLCR-2
06	Forces - Mating / Unmating
07	Contact Gaps

Thermal Aging = EIA-364-17, Test Condition 4 (105°C)

Time Condition 'B' (250 Hours)

Mating / Unmating Forces = EIA-364-13

Contact Gaps / Height - No standard method. Usually measured optically.

Gaps to be taken on a minimum of 20% of each part tested

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued**Durability/Mating/Unmating/Gaps**

TEST STEP	GROUP B1 8 Boards (largest position submitted)	GROUP B2 8 Boards (middle position submitted)	GROUP B3 8 Boards (smallest position submitted)
01	Contact Gaps	Contact Gaps	Contact Gaps
02	LLCR-1	Forces - Mating / Unmating	Forces - Mating / Unmating
03	Forces - Mating / Unmating	25 Cycles	25 Cycles
04	25 Cycles	Forces - Mating / Unmating	Forces - Mating / Unmating
05	Forces - Mating / Unmating	25 Cycles (50 Total)	25 Cycles (50 Total)
06	25 Cycles (50 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
07	Forces - Mating / Unmating	25 Cycles (75 Total)	25 Cycles (75 Total)
08	25 Cycles (75 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
09	Forces - Mating / Unmating	25 Cycles (100 Total)	25 Cycles (100 Total)
10	25 Cycles (100 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
11	Forces - Mating / Unmating		
12	Clean w/Compressed Air		
13	Contact Gaps		
14	LLCR-2		
15	Thermal Shock (Mated and Undisturbed)		
16	LLCR-3		
17	Cyclic Humidity (Mated and Undisturbed)		
18	LLCR-4		
19	Forces - Mating / Unmating		

Thermal Shock = EIA-364-32, Table II, Test Condition I:

-55°C to +85°C 1/2 hour dwell, 100 cycles

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

Mating / Unmating Forces = EIA-364-13

Contact Gaps / Height - No standard method. Usually measured optically.

Gaps to be taken on a minimum of 20% of each part tested

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued**IR & DWV**

TEST STEP	GROUP A1 2 Mated Sets Break Down Pin-to-Pin	GROUP A2 2 Unmated of Part # Being Tested Break Down Pin-to-Pin	GROUP A3 2 Unmated of Mating Part # Break Down Pin-to-Pin	GROUP B1 2 Mated Sets Pin-to-Pin
01	DWV/Break Down Voltage	DWV/Break Down Voltage	DWV/Break Down Voltage	IR & DWV at test voltage (on both mated sets and on each connector unmated)
02				Thermal Shock (Mated and Undisturbed)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (Mated and Undisturbed)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

DWV on Group B1 to be performed at Test Voltage

DWV test voltage is equal to 75% of the lowest break down voltage from Groups A1, A2 or A3

Thermal Shock = EIA-364-32, Table II, Test Condition I:

-55°C to +85°C 1/2 hour dwell, 100 cycles

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

IR = EIA-364-21

DWV = EIA-364-20, Test Condition 1

Current Carrying Capacity - Double Row

TEST STEP	GROUP B1 3 Mated Assemblies 2 Contacts Powered	GROUP B2 3 Mated Assemblies 4 Contacts Powered	GROUP B3 3 Mated Assemblies 6 Contacts Powered	GROUP B4 3 Mated Assemblies 8 Contacts Powered	GROUP B5 3 Mated Assemblies All Contacts Powered
01	CCC	CCC	CCC	CCC	CCC

(TIN PLATING) - Tabulate calculated current at RT, 65°C, 75°C and 95°C
after derating 20% and based on 105°C

(GOLD PLATING) - Tabulate calculated current at RT, 85°C, 95°C and 115°C
after derating 20% and based on 125°C

CCC, Temp rise = EIA-364-70

FLOWCHARTS Continued**Mechanical Shock / Vibration / LLCR**

TEST STEP	GROUP A1 192 Points
01	LLCR-1
02	Shock
03	Vibration
04	LLCR-2

Mechanical Shock = EIA 364-27 Half Sine,

100 g's, 6 milliSeconds (Condition "C") each axis

Vibration = EIA 364-28, Random Vibration

7.56 g RMS, Condition VB --- 2 hours/axis

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

Shock / Vibration / nanoSecond Event Detection

TEST STEP	GROUP A1 60 Points
01	Event Detection, Shock
02	Event Detection, Vibration

Mechanical Shock = EIA 364-27 Half Sine,

100 g's, 6 milliSeconds (Condition "C") each axis

Vibration = EIA 364-28, Random Vibration

7.56 g RMS, Condition VB --- 2 hours/axis

Event detection requirement during Shock / Vibration is 50 nanoseconds minimum

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

- 1) EIA-364-32, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors*.
- 2) Test Condition 1: -55°C to +85°C
- 3) Test Time: ½ hour dwell at each temperature extreme
- 4) Number of Cycles: 100
- 5) All test samples are pre-conditioned at ambient.
- 6) All test samples are exposed to environmental stressing in the mated condition.

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.

MECHANICAL SHOCK (Specified Pulse):

- 1) Reference document: EIA-364-27, *Mechanical Shock Test Procedure for Electrical Connectors*
- 2) Test Condition C
- 3) Peak Value: 100 G
- 4) Duration: 6 Milliseconds
- 5) Wave Form: Half Sine
- 6) Velocity: 12.3 ft/s
- 7) Number of Shocks: 3 Shocks / Direction, 3 Axis (18 Total)

VIBRATION:

- 1) Reference document: EIA-364-28, *Vibration Test Procedure for Electrical Connectors*
- 2) Test Condition V, Letter B
- 3) Power Spectral Density: 0.04 G² / Hz
- 4) G 'RMS': 7.56
- 5) Frequency: 50 to 2000 Hz
- 6) Duration: 2.0 Hours per axis (3 axis total)

NANOSECOND-EVENT DETECTION:

- 1) Reference document: EIA-364-87, *Nanosecond-Event Detection for Electrical Connectors*
- 2) Prior to test, the samples were characterized to assure the low nanosecond event being monitored will trigger the detector.
- 3) After characterization it was determined the test samples could be monitored for 50 nanosecond events

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

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. 80° C
 - c. 95° C
 - d. 115° 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.

CONTACT GAPS:

- 1) Gaps above the surrounding plastic surface were measured before and after stressing the contacts (e.g. thermal aging, mechanical cycling, etc.).
- 2) Typically, all contacts on the connector are measured.

MATING/UNMATING:

- 1) Reference document: EIA-364-13, *Mating and Unmating Forces Test Procedure for Electrical Connectors*.
- 2) The full insertion position was to within 0.003" to 0.004" of the plug bottoming out in the receptacle to prevent damage to the system under test.
- 3) One of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

- 1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
- 2) The contacts shall be tested in the loose state, *not* inserted in connector housing.
- 3) The contacts shall be prepared to allow access to the spring member at the same attitude and deflection level as would occur in actual use.
- 4) In the event that portions of the contact prevent insertion of the test probe and/or deflection of the spring member under evaluation, said material shall be removed leaving the appropriate contact surfaces exposed.
- 5) In the case of multi-tine contacts, each tine shall be tested independently on separate samples as required.
- 6) The connector housing shall be simulated, if required, in order to provide an accurate representation of the actual contact system performance.
- 7) A holding fixture shall be fashioned to allow the contact to be properly deflected.
- 8) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the Dillon TC², computer controlled test stand with a deflection measurement system accuracy of 5 μm (0.0002").
- 9) The probe shall be attached to a Dillon P/N 49761-0105, 5 N (1.1 Lb) load cell providing an accuracy of $\pm 0.2\%$.
- 10) The nominal deflection rate shall be 5 mm (0.2")/minute.
- 11) Unless otherwise noted a minimum of five contacts shall be tested.
- 12) The force/deflection characteristic to load and unload each contact shall be repeated five times.
- 13) The system shall utilize the TC² software in order to acquire and record the test data.
- 14) The permanent set of each contact shall be measured within the TC² software.
- 15) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis and a print out will be stored with the Tracking Code paperwork.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

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 Adjacent Contacts or 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 5000 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 Adjacent Contacts or Signal-to-Ground
 - ii. Barometric Test Condition 1
 - iii. Rate of Application 500 V/Sec
 - iv. 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. $\leq +5.0$ 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

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

GAS TIGHT:

To provide method for evaluating the ability of the contacting surfaces in preventing penetration of harsh vapors which might lead to oxide formation that may degrade the electrical performance of the contact system.

- 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
- 4) Procedure:
 - a. Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems*.
 - b. Test Conditions:
 - i. Class II--- Mated pairs of contacts assembled to their plastic housings.
 - ii. Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
 - iii. The ratio of the volume of the test chamber to the surface area of the acid shall be 10:1.
 - iv. The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
 - v. Exposure time, 55 to 65 minutes.
 - vi. The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
 - vii. The samples shall be dried after exposure for a minimum of 1 hour.
 - viii. Drying temperature 50° C
 - ix. The final LLCR shall be conducted within 1 hour after drying.

RESULTS

Temperature Rise, CCC at a 20% de-rating

- CCC for a 30°C Temperature Rise -----3.4A per contact with 2 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.7A per contact with 4 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.3A per contact with 6 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.1A per contact with 8 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.4A per contact with all adjacent contacts powered

Contact Gaps

Normal Force Group

Group A1

- **Initial**
 - Min ----- 0.0123 in
 - Max ----- 0.0149 in

Group A2

- **Initial**
 - Min ----- 0.0129 in
 - Max ----- 0.0139 in
- **Thermal**
 - Min ----- 0.0128 in
 - Max ----- 0.0143 in

Thermal Aging Group

- **Initial**
 - Min ----- 0.0121 in
 - Max ----- 0.0150 in
- **Thermal**
 - Min ----- 0.0172 in
 - Max ----- 0.0205 in

Mating/Unmating Durability Group

- **Initial**
 - Min ----- 0.0072 in
 - Max ----- 0.0145 in
- **After 100 Cycles**
 - Min ----- 0.0143 in
 - Max ----- 0.0209 in

RESULTS Continued**Mating – Unmating Forces****Thermal Aging Group**

- **Initial**
 - **Mating**
 - **Min** -----19.76 Lbs
 - **Max** -----26.46 Lbs
 - **Unmating**
 - **Min** -----11.02 Lbs
 - **Max** -----13.50 Lbs
- **Thermal**
 - **Mating**
 - **Min** -----16.53 Lbs
 - **Max** -----19.61 Lbs
 - **Unmating**
 - **Min** ----- 9.60 Lbs
 - **Max** -----13.77 Lbs

RESULTS Continued**Mating – Unmating Forces****Mating/Unmating Durability Group**

- **Initial**
 - **Mating**
 - **Min** -----15.14 Lbs
 - **Max** -----20.26 Lbs
 - **Unmating**
 - **Min** -----10.37 Lbs
 - **Max** -----13.45 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** -----16.72 Lbs
 - **Max** -----20.44 Lbs
 - **Unmating**
 - **Min** -----13.67 Lbs
 - **Max** -----15.24 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** -----17.02 Lbs
 - **Max** -----21.22 Lbs
 - **Unmating**
 - **Min** -----13.53 Lbs
 - **Max** -----16.44 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** -----17.53 Lbs
 - **Max** -----19.81 Lbs
 - **Unmating**
 - **Min** -----14.17 Lbs
 - **Max** -----16.39 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** -----16.97 Lbs
 - **Max** -----20.20 Lbs
 - **Unmating**
 - **Min** -----13.72 Lbs
 - **Max** -----18.07 Lbs
- **Humidity**
 - **Mating**
 - **Min** -----14.01 Lbs
 - **Max** -----19.04 Lbs
 - **Unmating**
 - **Min** ----- 9.58 Lbs
 - **Max** -----12.00 Lbs

RESULTS Continued**Mating/Unmating Basic 05 Pin**

- **Initial**
 - **Mating**
 - **Min** ----- 1.73 Lbs
 - **Max** ----- 2.52 Lbs
 - **Unmating**
 - **Min** ----- 0.97 Lbs
 - **Max** ----- 1.36 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 1.68 Lbs
 - **Max** ----- 2.47 Lbs
 - **Unmating**
 - **Min** ----- 1.06 Lbs
 - **Max** ----- 1.63 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** ----- 1.62 Lbs
 - **Max** ----- 2.30 Lbs
 - **Unmating**
 - **Min** ----- 1.20 Lbs
 - **Max** ----- 1.53 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** ----- 1.72 Lbs
 - **Max** ----- 2.23 Lbs
 - **Unmating**
 - **Min** ----- 1.26 Lbs
 - **Max** ----- 1.71 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** ----- 1.77 Lbs
 - **Max** ----- 2.19 Lbs
 - **Unmating**
 - **Min** ----- 1.14 Lbs
 - **Max** ----- 1.58 Lbs

RESULTS Continued**Mating/Unmating Basic 25 Pin**

- **Initial**
 - **Mating**
 - **Min** -----10.19 Lbs
 - **Max** -----11.89 Lbs
 - **Unmating**
 - **Min** ----- 5.44 Lbs
 - **Max** ----- 6.13 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 9.53 Lbs
 - **Max** -----11.29 Lbs
 - **Unmating**
 - **Min** ----- 6.36 Lbs
 - **Max** ----- 7.79 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** ----- 9.36 Lbs
 - **Max** -----11.43 Lbs
 - **Unmating**
 - **Min** ----- 7.25 Lbs
 - **Max** ----- 8.91 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** ----- 9.83 Lbs
 - **Max** -----11.80 Lbs
 - **Unmating**
 - **Min** ----- 8.21 Lbs
 - **Max** ----- 9.11 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** -----10.43 Lbs
 - **Max** -----11.86 Lbs
 - **Unmating**
 - **Min** ----- 6.94 Lbs
 - **Max** ----- 9.08 Lbs

Normal Force at 0.144 mm deflection

- **Initial**
 - **Min** -----68.70 gf **Set** ----- 0.018 mm
 - **Max** -----77.30 gf **Set** ----- 0.025 mm
- **Thermal**
 - **Min** -----63.80 gf **Set** ----- 0.016 mm
 - **Max** -----79.30 gf **Set** ----- 0.030 mm
 -

RESULTS Continued**Insulation Resistance minimums, IR**

- **Initial**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass
- **Thermal**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass
- **Humidity**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
 - Breakdown Voltage----- 1750 VAC
 - Test Voltage ----- 1313 VAC
 - Working Voltage -----438 VAC
- **Initial DWV -----Passed**
- **Thermal DWV -----Passed**
- **Humidity DWV -----Passed**

LLCR Gas Tight (192 LLCR test points)

- **Initial ----- 17.7 mOhms Max**
- **Gas-Tight**
 - $\leq +5.0$ mOhms ----- 191 Points ----- Stable
 - $+5.1$ to $+10.0$ mOhms -----1Points----- 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 Thermal Aging (192 LLCR test points)

- **Initial ----- 10.0 mOhms Max**
- **Thermal**
 - $\leq +5.0$ mOhms ----- 192 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

RESULTS Continued**LLCR Durability (192 LLCR test points)**

- **Initial** ----- 10.8 mOhms Max
- **Durability, 100 Cycles**
 - <= +5.0 mOhms ----- 192 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 ----- 192 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 ----- 192 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 Mechanical Shock & Random Vibration (192 LLCR test points)

- **Initial** ----- 8.2 mOhms Max
- **Shock & Vibration**
 - <= +5.0 mOhms ----- 192 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

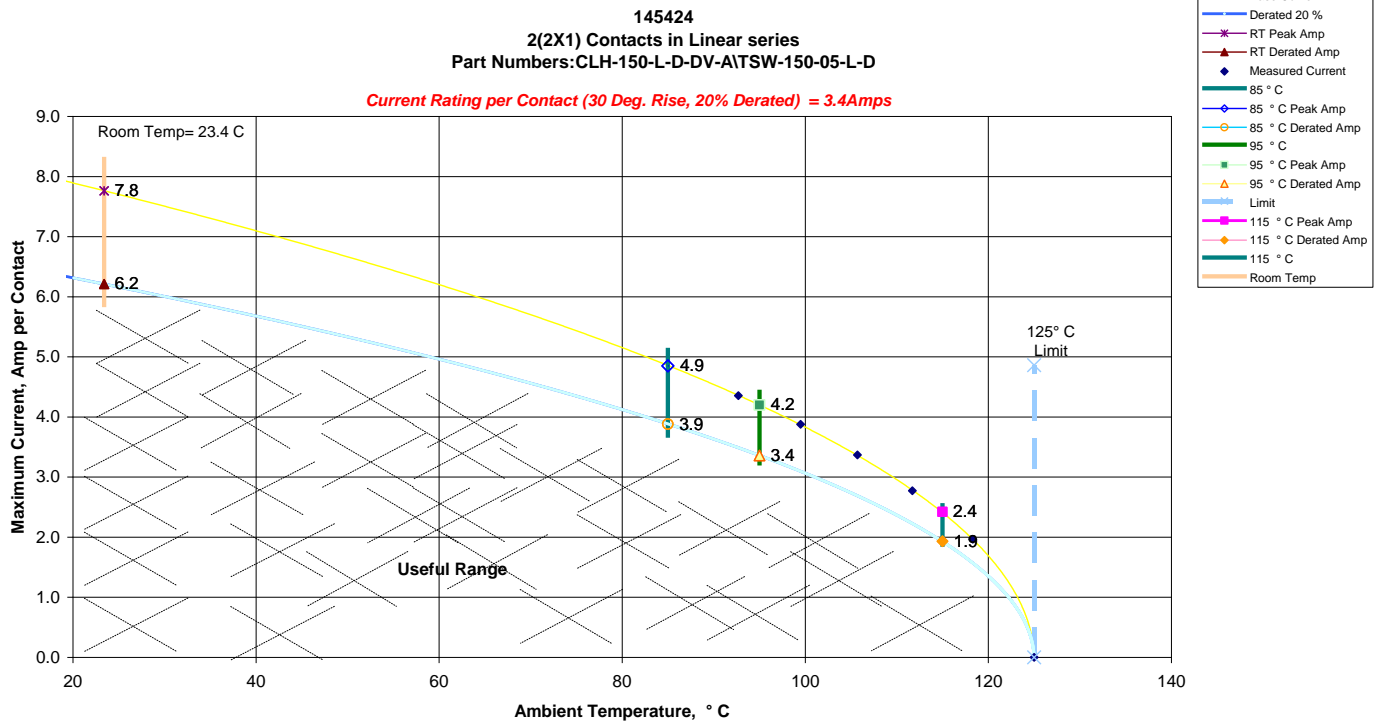
Mechanical Shock & Random Vibration:

- **Shock**
 - No Damage----- Passed
 - 50 Nanoseconds----- Passed
- **Vibration**
 - No Damage----- Passed
 - 50 Nanoseconds----- Passed

DATA SUMMARIES

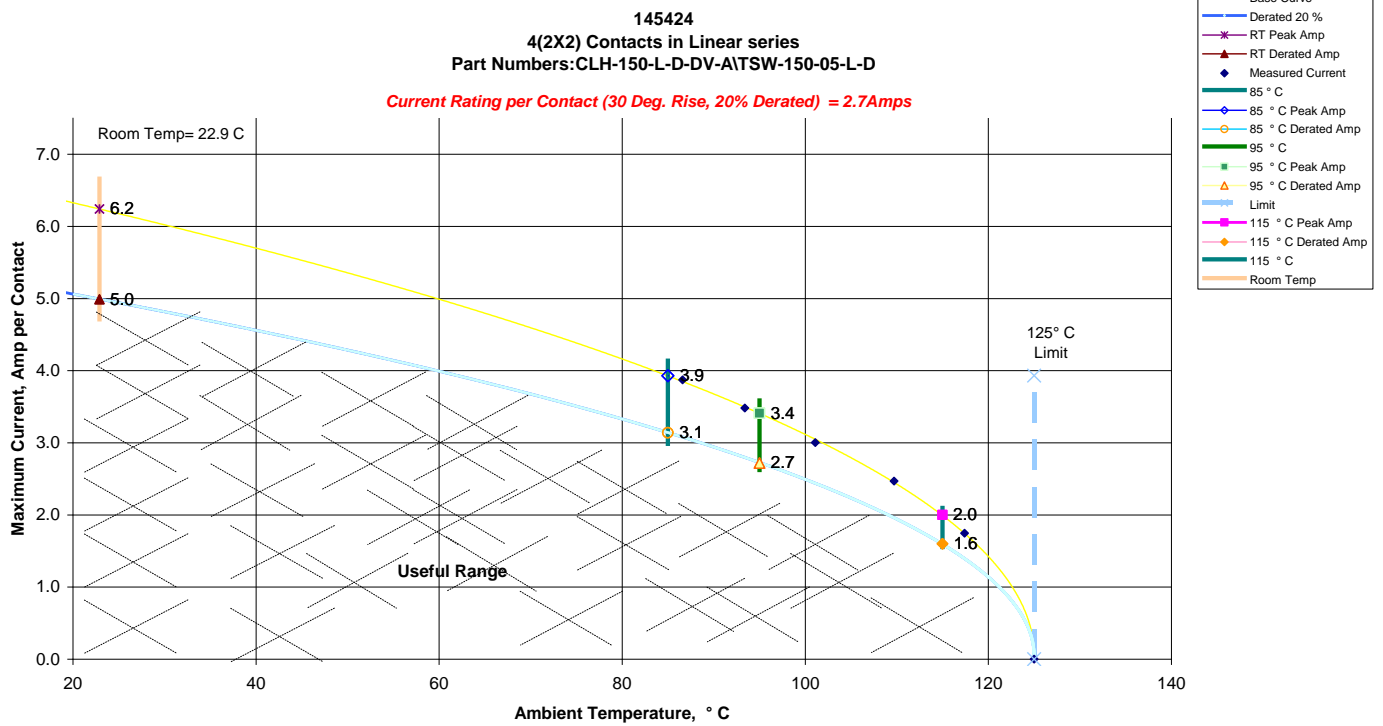
TEMPERATURE RISE (Current Carrying Capacity, CCC):

- 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. Linear configuration with 2 adjacent conductors/contacts powered



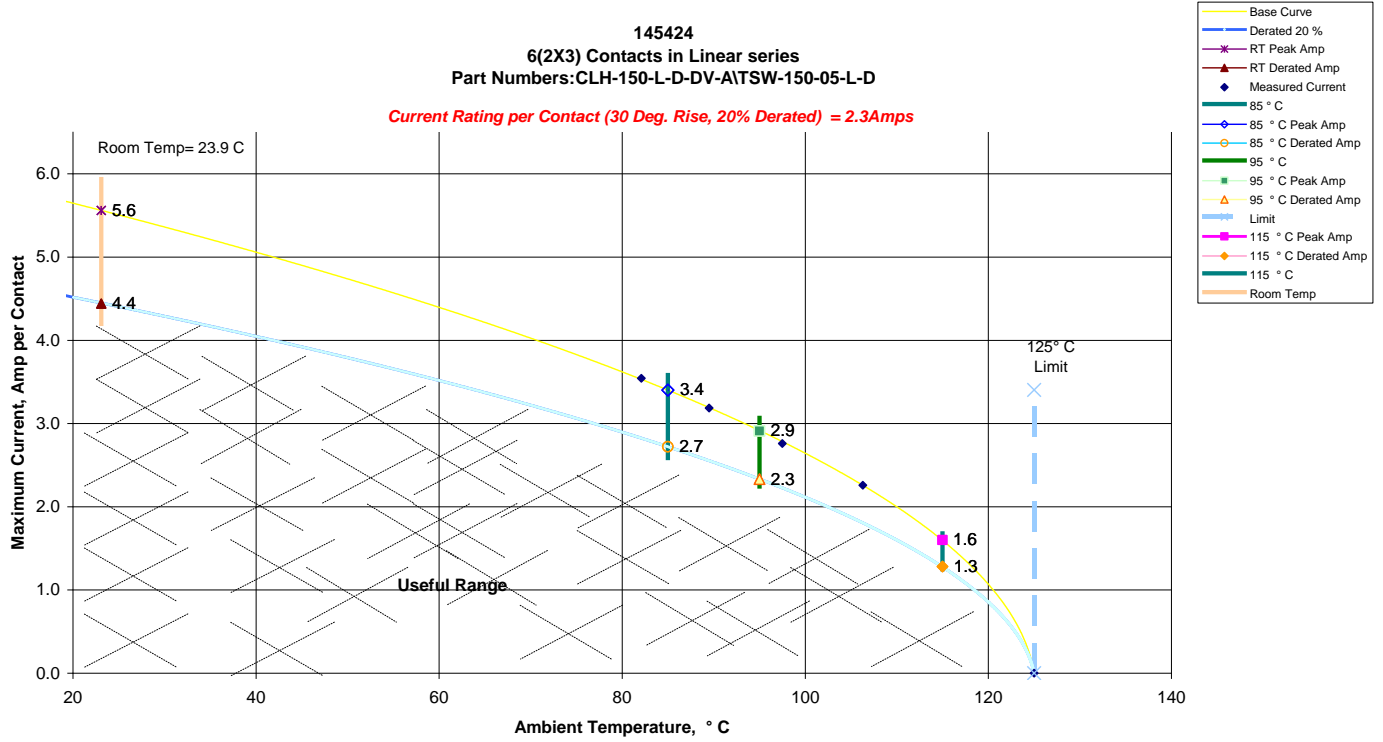
DATA SUMMARIES Continued

b. Linear configuration with 4 adjacent conductors/contacts powered



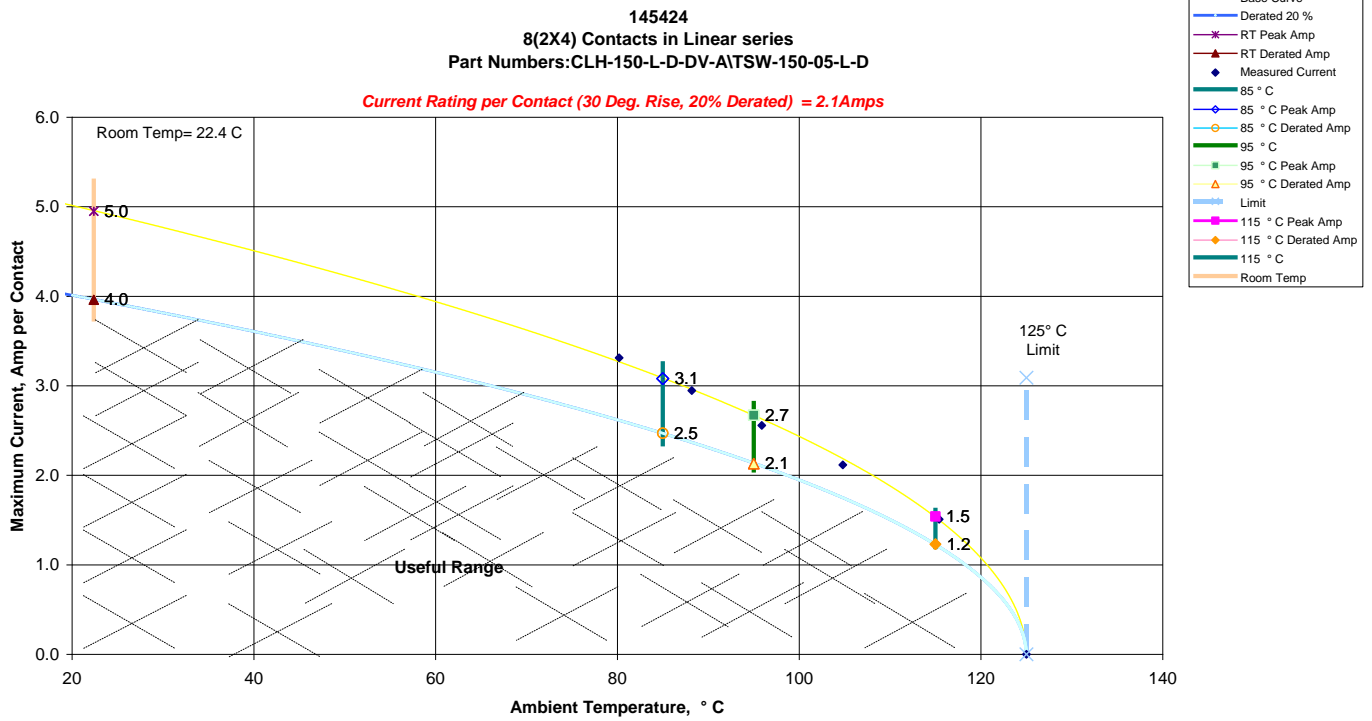
DATA SUMMARIES Continued

c. Linear configuration with 6 adjacent conductors/contacts powered



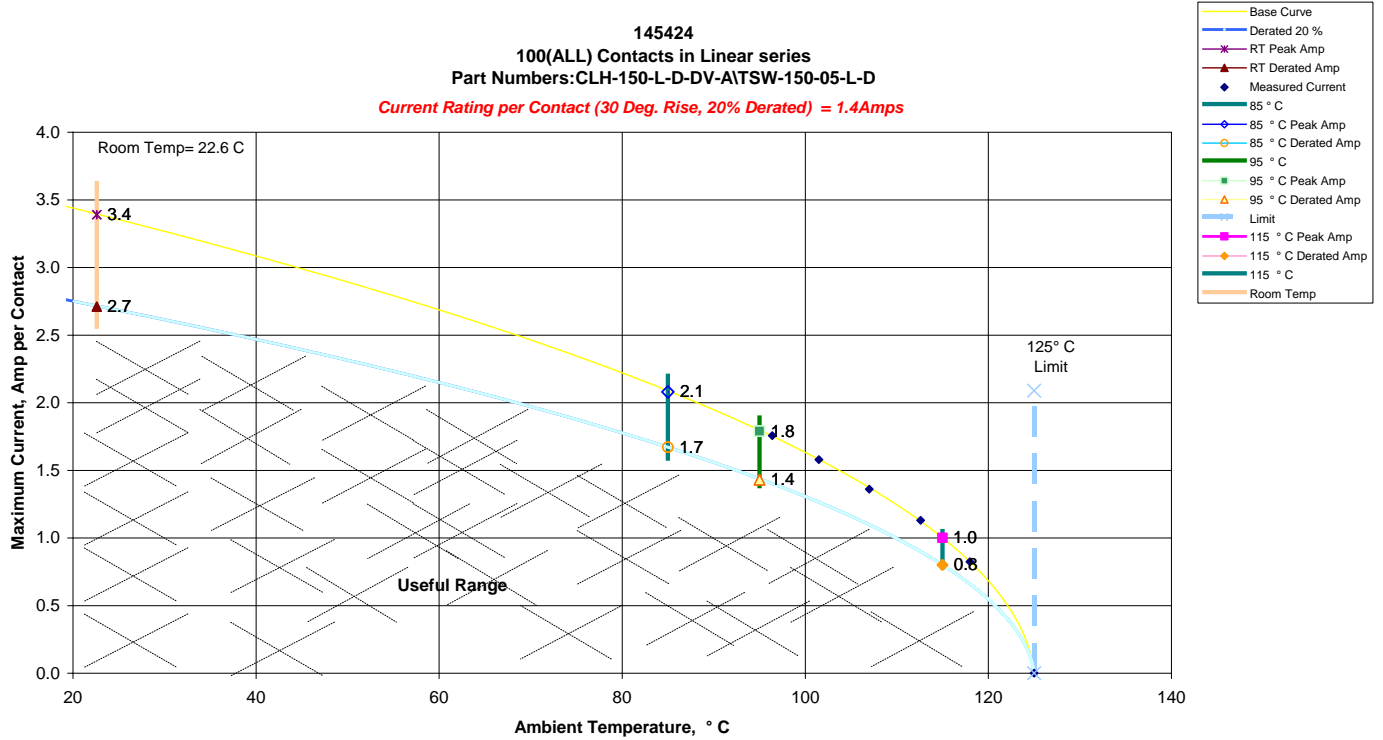
DATA SUMMARIES Continued

d. Linear configuration with 8 adjacent conductors/contacts powered



DATA SUMMARIES Continued

e. Linear configuration with all adjacent conductors/contacts powered



DATA SUMMARIES Continued**CONTACT GAPS:****Normal Force Group****Group A1**

Initial	
Units:	in
<i>Minimum</i>	0.0123
<i>Maximum</i>	0.0139
<i>Average</i>	0.0130
<i>St. Dev.</i>	0.0004
<i>Count</i>	20

Group A2

Initial		After Thermal	
Units:	in	Units:	in
<i>Minimum</i>	0.0129	<i>Minimum</i>	0.0128
<i>Maximum</i>	0.0149	<i>Maximum</i>	0.0143
<i>Average</i>	0.0139	<i>Average</i>	0.0136
<i>St. Dev.</i>	0.0005	<i>St. Dev.</i>	0.0004
<i>Count</i>	20	<i>Count</i>	20

Thermal Aging Group

Initial		After Thermal	
Units:	in	Units:	in
<i>Minimum</i>	0.0121	<i>Minimum</i>	0.0172
<i>Maximum</i>	0.0150	<i>Maximum</i>	0.0205
<i>Average</i>	0.0132	<i>Average</i>	0.0189
<i>St. Dev.</i>	0.0004	<i>St. Dev.</i>	0.0006
<i>Count</i>	160	<i>Count</i>	160

Mating/Unmating Durability Group

Initial		After 100 Cycles	
Units:	in	Units:	in
<i>Minimum</i>	0.0072	<i>Minimum</i>	0.0143
<i>Maximum</i>	0.0145	<i>Maximum</i>	0.0209
<i>Average</i>	0.0133	<i>Average</i>	0.0180
<i>St. Dev.</i>	0.0006	<i>St. Dev.</i>	0.0009
<i>Count</i>	160	<i>Count</i>	160

DATA SUMMARIES Continued**MATING/UNMATING:
Thermal Aging Group**

	Initial				After Thermal			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	88.83	19.97	49.02	11.02	73.53	16.53	42.70	9.60
Maximum	117.69	26.46	60.05	13.50	87.23	19.61	61.25	13.77
Average	103.42	23.25	54.38	12.23	77.24	17.37	51.16	11.50
St Dev	9.44	2.12	3.67	0.82	4.44	1.00	5.11	1.15
Count	8	8	8	8	8	8	8	8

Mating/Unmating Durability Group

	Initial				After 25 cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	67.34	15.14	46.13	10.37	74.37	16.72	60.80	13.67
Maximum	90.12	20.26	59.83	13.45	90.92	20.44	67.79	15.24
Average	81.34	18.29	52.14	11.72	85.02	19.11	63.72	14.33
St Dev	7.52	1.69	4.47	1.00	5.90	1.33	2.56	0.58
Count	8	8	8	8	8	8	8	8

	After 50 cycles				After 75 cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	75.70	17.02	60.18	13.53	77.97	17.53	63.03	14.17
Maximum	94.39	21.22	73.13	16.44	88.11	19.81	72.90	16.39
Average	87.78	19.74	68.15	15.32	85.43	19.21	68.67	15.44
St Dev	6.12	1.38	4.34	0.97	3.34	0.75	3.64	0.82
Count	8	8	8	8	8	8	8	8

	After 100 cycles				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	75.48	16.97	61.03	13.72	62.32	14.01	42.61	9.58
Maximum	89.85	20.20	80.38	18.07	84.69	19.04	53.38	12.00
Average	82.43	18.53	69.56	15.64	71.27	16.02	46.20	10.39
St Dev	5.03	1.13	5.95	1.34	7.50	1.69	3.66	0.82
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued**MATING/UNMATING:****Mating/Unmating Basic 05 Pin**

	Initial				After 25 cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	7.70	1.73	4.31	0.97	7.47	1.68	4.71	1.06
Maximum	11.21	2.52	6.05	1.36	10.99	2.47	7.25	1.63
Average	9.11	2.05	5.00	1.12	8.67	1.95	5.63	1.27
St Dev	1.16	0.26	0.58	0.13	1.09	0.25	0.77	0.17
Count	8	8	8	8	8	8	8	8
	After 50 cycles				After 75 cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	7.21	1.62	5.34	1.20	7.65	1.72	5.60	1.26
Maximum	10.23	2.30	6.81	1.53	9.92	2.23	7.61	1.71
Average	8.25	1.86	5.84	1.31	8.51	1.91	6.76	1.52
St Dev	0.96	0.22	0.47	0.10	0.82	0.18	0.63	0.14
Count	8	8	8	8	8	8	8	8
	After 100 cycles							
	Mating		Unmating					
	Newton's	Force (Lbs)	Newton's	Force (Lbs)				
Minimum	7.87	1.77	5.07	1.14				
Maximum	9.74	2.19	7.03	1.58				
Average	8.62	1.94	5.92	1.33				
St Dev	0.70	0.16	0.69	0.15				
Count	8	8	8	8				

DATA SUMMARIES Continued**MATING/UNMATING:****Mating/Unmating Basic 25 Pin**

	Initial				After 25 cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	45.33	10.19	24.20	5.44	42.39	9.53	28.29	6.36
Maximum	52.89	11.89	27.27	6.13	50.22	11.29	34.65	7.79
Average	48.95	11.01	25.70	5.78	46.24	10.40	31.43	7.07
St Dev	2.63	0.59	1.11	0.25	2.67	0.60	2.09	0.47
Count	8	8	8	8	8	8	8	8
	After 50 cycles				After 75 cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	41.77	9.39	32.25	7.25	43.72	9.83	36.52	8.21
Maximum	50.84	11.43	39.63	8.91	52.49	11.80	40.52	9.11
Average	46.29	10.41	35.79	8.05	48.17	10.83	38.62	8.68
St Dev	3.54	0.80	2.92	0.66	3.26	0.73	1.38	0.31
Count	8	8	8	8	8	8	8	8
	After 100 cycles							
	Mating		Unmating					
	Newton's	Force (Lbs)	Newton's	Force (Lbs)				
Minimum	46.39	10.43	30.87	6.94				
Maximum	52.75	11.86	40.39	9.08				
Average	49.76	11.19	37.12	8.35				
St Dev	2.28	0.51	2.92	0.66				
Count	8	8	8	8				

DATA SUMMARIES Continued**NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):**

- 1) Calibrated force gauges are used along with computer controlled positioning equipment.
- 2) For Normal force 8-10 measurements are taken and the averages reported.

Initial	Deflections in mm Forces in Grams					
	<u>0.0500</u>	<u>0.0700</u>	<u>0.0900</u>	<u>0.1100</u>	<u>0.1400</u>	<i>SET</i>
Averages	32.59	44.58	55.19	64.28	73.93	0.0211
Min	28.20	39.70	49.00	59.10	68.70	0.0180
Max	35.30	46.50	57.50	67.30	77.30	0.0250
St. Dev	2.064	2.039	2.464	2.155	2.363	0.0027
Count	12	12	12	12	12	12

After Thermals	Deflections in mm Forces in Grams					
	<u>0.0500</u>	<u>0.0700</u>	<u>0.0900</u>	<u>0.1100</u>	<u>0.1400</u>	<i>SET</i>
Averages	32.42	43.58	53.45	62.10	71.06	0.0206
Min	25.20	36.10	46.80	55.80	63.80	0.0160
Max	38.60	51.20	61.00	70.30	79.30	0.0300
St. Dev	3.414	4.126	4.509	4.375	4.181	0.0052
Count	12	12	12	12	12	12

INSULATION RESISTANCE (IR):

Minimum	Pin to Pin		
	Mated	Unmated	Unmated
	CLH/TSW	CLH	TSW
Initial	10000	10000	10000
Thermal	10000	10000	10000
Humidity	10000	10000	10000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	CLH/TSW
Break Down Voltage	1750
Test Voltage	1313
Working Voltage	438

Pin to Pin	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

DATA SUMMARIES Continued**LLCR Durability:**

- 1) A total of 192 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

Date	2011-8-2	2011-8-4	2011-8-17	2011-8-30
Room Temp C	24	25	23	24
RH	56%	56%	51%	52%
Name	Kason He	Kason He	Kason He	Kason He
mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	7.8	-0.1	0.0	0.2
St. Dev.	1.2	1.5	1.5	1.5
Min	6.0	-4.0	-4.1	-4.1
Max	10.8	3.6	3.3	3.8
Count	192	192	192	192

How many samples are being tested? 8

How many contacts are on each board? 24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
100 Cycles	192	0	0	0	0	0
Thermal	192	0	0	0	0	0
Humidity	192	0	0	0	0	0

DATA SUMMARIES Continued

LLCR Thermal:

- 5) A total of 192 points were measured.
- 6) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 7) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 8) 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

Date	2011-7-30	2011-8-9
Room Temp C	24	23
RH	56%	55%
Name	Kason He	Kason He
mOhm values	Actual Initial	Delta Thermal Age
Average	7.7	0.5
St. Dev.	0.9	1.0
Min	5.6	-1.8
Max	10.0	3.4
Count	192	192

How many samples are being tested?	<u>8</u>
How many contacts are on each board?	<u>24</u>

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Thermal Age	192	0	0	0	0	0

DATA SUMMARIES Continued**GAS TIGHT:**

- 1) A total of 192 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

Date	2011-7-12	2011-7-13
Room Temp C	24	24
RH	60%	56%
Name	Kason He	Kason He
mOhm values	Actual Initial	Delta Gas Tight
Average	7.7	-0.6
St. Dev.	2.0	1.1
Min	5.6	-5.1
Max	17.7	3.2
Count	192	192

How many samples are being tested?

8

How many contacts are on each board?

24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Gas Tight	191	1	0	0	0	0

DATA SUMMARIES Continued**LLCR Shock & Vibration:**

- 1) A total of 192 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

Date	2011-8-31	2011-9-12
Room Temp C	22	22
RH	47	45
Name	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta Shock-Vib
Average	6.5	0.2
St. Dev.	0.5	0.3
Min	5.4	0.0
Max	8.2	3.9
Count	192	192

How many samples are being tested?

8

How many contacts are on each board?

24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Shock-Vib	192	0	0	0	0	0

Nanosecond Event Detection:

Shock and Vibration Event Detection Summary	
Contacts tested	60
Test Condition	C, 100g's, 6ms, Half-Sine
Shock Events	0
Test Condition	V-B, 7.56 rms g
Vibration Events	0
Total Events	0

DATA**CONTACT GAPS:
Normal Force Group****Group A1**

Initial	
Units: in	
Gap #	009
1	0.0133
2	0.0127
3	0.0139
4	0.0127
5	0.0132
6	0.0128
7	0.0131
8	0.0123
9	0.0127
10	0.0131
11	0.0135
12	0.0127
13	0.0132
14	0.0128
15	0.0128
16	0.0123
17	0.0137
18	0.0127
19	0.0130
20	0.0129

Group A2

Initial	
Units: in	
Gap #	010
1	0.0133
2	0.0143
3	0.0139
4	0.0135
5	0.0149
6	0.0136
7	0.0143
8	0.0146
9	0.0145
10	0.0142
11	0.0138
12	0.0132
13	0.0138
14	0.0143
15	0.0129
16	0.0138
17	0.0137

18	0.0137
19	0.0140
20	0.0142
After Thermal	
Units: in	
Gap #	010
1	0.01354
2	0.01282
3	0.01331
4	0.0137
5	0.01386
6	0.01417
7	0.01346
8	0.01331
9	0.01362
10	0.01362
11	0.01378
12	0.01315
13	0.01425
14	0.01378
15	0.01307
16	0.01417
17	0.0137
18	0.01386
19	0.01315
20	0.01339

Thermal Aging Group

Initial								
Units: in								
Gap #	058	059	060	061	062	063	064	065
1	0.0132	0.0132	0.0133	0.0130	0.0129	0.0138	0.0130	0.0134
2	0.0131	0.0135	0.0133	0.0127	0.0127	0.0125	0.0130	0.0136
3	0.0130	0.0134	0.0132	0.0131	0.0131	0.0150	0.0131	0.0132
4	0.0131	0.0122	0.0131	0.0122	0.0128	0.0139	0.0132	0.0135
5	0.0133	0.0135	0.0136	0.0132	0.0131	0.0138	0.0138	0.0134
6	0.0135	0.0135	0.0139	0.0123	0.0121	0.0130	0.0130	0.0131
7	0.0131	0.0126	0.0135	0.0128	0.0139	0.0126	0.0136	0.0132
8	0.0124	0.0139	0.0128	0.0125	0.0125	0.0132	0.0134	0.0129
9	0.0133	0.0131	0.0139	0.0124	0.0132	0.0135	0.0126	0.0128
10	0.0128	0.0136	0.0133	0.0127	0.0124	0.0135	0.0135	0.0137
11	0.0129	0.0130	0.0134	0.0135	0.0136	0.0133	0.0141	0.0132
12	0.0132	0.0138	0.0128	0.0127	0.0130	0.0129	0.0132	0.0129
13	0.0131	0.0126	0.0134	0.0133	0.0135	0.0129	0.0140	0.0133
14	0.0128	0.0136	0.0130	0.0128	0.0124	0.0126	0.0129	0.0132
15	0.0135	0.0132	0.0134	0.0128	0.0139	0.0134	0.0136	0.0128
16	0.0128	0.0134	0.0128	0.0128	0.0128	0.0132	0.0130	0.0133
17	0.0134	0.0130	0.0138	0.0133	0.0138	0.0135	0.0137	0.0125
18	0.0135	0.0130	0.0138	0.0130	0.0137	0.0131	0.0130	0.0127

19	0.0127	0.0126	0.0134	0.0129	0.0135	0.0129	0.0137	0.0129
20	0.0129	0.0132	0.0135	0.0128	0.0127	0.0128	0.0132	0.0132
After Thermal								
Units: in								
Gap #	058	059	060	061	062	063	064	065
1	0.01929	0.01992	0.01992	0.01984	0.01976	0.01921	0.01929	0.01866
2	0.01882	0.01953	0.02031	0.01898	0.01882	0.01945	0.01842	0.01905
3	0.01913	0.01835	0.01953	0.01921	0.01992	0.01905	0.01882	0.01968
4	0.01842	0.01976	0.01961	0.01968	0.01858	0.01866	0.01945	0.01913
5	0.01858	0.01961	0.02016	0.01913	0.01858	0.01835	0.01961	0.01905
6	0.01905	0.01866	0.0189	0.01866	0.01929	0.01913	0.01953	0.01827
7	0.01866	0.0185	0.01748	0.01898	0.01834	0.0185	0.01913	0.01905
8	0.01842	0.01882	0.01795	0.01858	0.01937	0.01827	0.0189	0.01866
9	0.01858	0.01795	0.01858	0.01803	0.01811	0.01866	0.01882	0.01795
10	0.01795	0.01874	0.01772	0.0185	0.01874	0.01937	0.01866	0.01874
11	0.01772	0.01811	0.01756	0.01835	0.0189	0.01913	0.01898	0.01835
12	0.01898	0.01882	0.01827	0.01905	0.01827	0.01835	0.01961	0.01882
13	0.01795	0.01882	0.01724	0.01811	0.01779	0.01835	0.01858	0.01866
14	0.01811	0.01811	0.01772	0.01835	0.01827	0.01921	0.01874	0.01842
15	0.01921	0.01858	0.01866	0.01905	0.01929	0.0189	0.01866	0.01921
16	0.01866	0.01874	0.01921	0.01913	0.01929	0.01968	0.01976	0.01842
17	0.01921	0.01905	0.01882	0.01866	0.0189	0.01945	0.01968	0.01803
18	0.01819	0.01953	0.01866	0.01968	0.01929	0.0185	0.01866	0.01835
19	0.02047	0.01968	0.01905	0.01905	0.01953	0.01937	0.01842	0.0189
20	0.01929	0.01929	0.01945	0.01953	0.01921	0.01921	0.01976	0.01945

Mating/Unmating Durability Group

Initial								
Units: in								
Gap #	066	067	068	069	070	071	072	073
1	0.0132	0.0134	0.0135	0.0132	0.0132	0.0131	0.0128	0.0127
2	0.0145	0.0132	0.0130	0.0131	0.0131	0.0130	0.0139	0.0135
3	0.0143	0.0135	0.0132	0.0135	0.0131	0.0131	0.0139	0.0129
4	0.0135	0.0139	0.0135	0.0130	0.0135	0.0135	0.0135	0.0139
5	0.0140	0.0135	0.0134	0.0136	0.0128	0.0133	0.0132	0.0128
6	0.0139	0.0136	0.0133	0.0135	0.0128	0.0134	0.0132	0.0132
7	0.0132	0.0133	0.0131	0.0131	0.0134	0.0132	0.0134	0.0131
8	0.0133	0.0136	0.0139	0.0135	0.0135	0.0132	0.0131	0.0137
9	0.0135	0.0129	0.0137	0.0130	0.0130	0.0132	0.0132	0.0127
10	0.0128	0.0134	0.0131	0.0132	0.0135	0.0132	0.0141	0.0135
11	0.0138	0.0130	0.0132	0.0131	0.0132	0.0132	0.0129	0.0125
12	0.0134	0.0135	0.0135	0.0128	0.0132	0.0130	0.0141	0.0135
13	0.0135	0.0135	0.0135	0.0130	0.0139	0.0132	0.0129	0.0126
14	0.0131	0.0127	0.0134	0.0137	0.0130	0.0124	0.0139	0.0138
15	0.0135	0.0130	0.0134	0.0131	0.0132	0.0133	0.0129	0.0128
16	0.0132	0.0131	0.0135	0.0132	0.0139	0.0138	0.0129	0.0136
17	0.0143	0.0127	0.0132	0.0135	0.0126	0.0132	0.0134	0.0127
18	0.0142	0.0136	0.0131	0.0132	0.0135	0.0143	0.0134	0.0138
19	0.0138	0.0126	0.0133	0.0132	0.0126	0.0129	0.0126	0.0126

20	0.0128	0.0133	0.0129	0.0126	0.0132	0.0132	0.0130	0.0072
After 100 Cycles								
Units: in								
Gap #	066	067	068	069	070	071	072	073
1	0.01874	0.01953	0.01882	0.01779	0.01795	0.01842	0.01787	0.01953
2	0.0189	0.01787	0.01811	0.01835	0.01827	0.01795	0.01772	0.01984
3	0.01882	0.01874	0.01858	0.01811	0.01811	0.01842	0.01905	0.01976
4	0.0189	0.01858	0.0185	0.01842	0.0185	0.01441	0.01866	0.01984
5	0.01882	0.01756	0.01677	0.01835	0.0185	0.01756	0.01898	0.01953
6	0.0189	0.01764	0.01835	0.0185	0.01724	0.01803	0.0174	0.01835
7	0.01819	0.01803	0.01819	0.01724	0.01748	0.0174	0.01874	0.01764
8	0.01748	0.01811	0.01835	0.01756	0.01709	0.01724	0.01748	0.01709
9	0.01866	0.01764	0.01827	0.01764	0.01701	0.01677	0.01834	0.01779
10	0.01811	0.01764	0.01819	0.01756	0.01716	0.01732	0.0163	0.01756
11	0.01835	0.01803	0.01764	0.0174	0.01693	0.01764	0.01834	0.01724
12	0.01835	0.01748	0.01819	0.01787	0.01724	0.01732	0.01795	0.01709
13	0.01779	0.0174	0.01842	0.0174	0.01685	0.01732	0.01772	0.01724
14	0.01787	0.01756	0.01835	0.01803	0.01701	0.01638	0.0174	0.01764
15	0.01866	0.01866	0.01874	0.01795	0.0185	0.01803	0.01819	0.01913
16	0.01874	0.01756	0.01842	0.01779	0.01795	0.01819	0.01779	0.01866
17	0.01842	0.01874	0.0189	0.01811	0.01787	0.01535	0.01787	0.01819
18	0.01819	0.01764	0.01921	0.01709	0.01835	0.01693	0.01819	0.01772
19	0.01905	0.01842	0.02023	0.01764	0.01772	0.01981	0.0189	0.01874
20	0.02031	0.01756	0.01926	0.01819	0.01858	0.02086	0.01827	0.01425

DATA Continued**MATING/UNMATING:
Thermal Aging Group**

Sample#	Initial		After Thermals	
	Mating	Unmating	Mating	Unmating
1	20.66	12.55	19.61	13.77
2	19.97	11.02	17.03	9.60
3	23.22	11.69	17.95	10.97
4	23.66	11.76	17.14	11.82
5	24.66	11.96	16.98	11.35
6	26.46	13.22	16.53	11.39
7	22.92	12.10	16.96	11.69
8	24.46	13.50	16.72	11.42

Mating/Unmating Durability Group

Sample#	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles		After 100 Cycles		After Humidity	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	16.73	11.02	18.13	14.72	19.19	15.60	19.38	15.52	18.30	14.45	15.17	9.99
2	15.14	10.37	16.72	13.67	17.02	13.53	17.53	14.17	16.97	13.72	17.47	10.20
3	17.78	10.79	18.11	13.70	18.82	14.41	18.75	14.38	17.98	14.87	15.36	9.77
4	18.99	12.02	19.49	14.72	20.82	16.26	19.73	16.39	20.09	16.32	19.04	12.00
5	18.43	11.77	19.56	14.17	19.82	16.44	19.59	15.71	20.20	18.07	16.57	10.93
6	19.75	13.45	20.14	15.24	20.17	15.92	19.36	16.17	18.77	15.94	16.30	10.86
7	20.26	12.61	20.32	14.57	20.82	15.30	19.51	15.14	18.32	16.24	14.26	9.76
8	19.21	11.74	20.44	13.81	21.22	15.11	19.81	16.02	17.62	15.49	14.01	9.58

Mating/Unmating Basic 05 Pin

Sample#	Initial		25 Cycles		50 Cycles		75 Cycles		100 Cycles	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	2.17	1.22	2.11	1.35	1.98	1.36	2.04	1.65	2.13	1.58
2	1.73	1.02	1.68	1.06	1.65	1.31	1.72	1.44	1.95	1.14
3	2.07	1.12	1.97	1.26	1.80	1.30	2.07	1.71	1.92	1.29
4	1.82	1.03	1.77	1.11	1.62	1.23	1.83	1.60	1.77	1.42
5	2.12	1.07	1.89	1.28	1.86	1.34	1.91	1.45	1.79	1.26
6	1.79	0.97	1.86	1.22	1.75	1.23	1.72	1.51	1.97	1.28
7	2.16	1.20	1.85	1.21	1.88	1.20	1.79	1.26	1.79	1.18
8	2.52	1.36	2.47	1.63	2.30	1.53	2.23	1.53	2.19	1.50

DATA Continued**MATING/UNMATING:****Mating/Unmating Basic 25 Pin**

Sample#	Initial		25 Cycles		50 Cycles		75 Cycles		100 Cycles	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	11.13	5.84	10.67	7.32	10.03	7.25	9.83	8.21	10.43	8.20
2	11.83	6.13	10.61	7.19	11.06	8.56	11.48	8.37	11.62	8.89
3	10.65	5.90	11.29	7.43	11.43	8.91	11.80	8.67	11.86	8.67
4	11.89	5.88	10.80	7.79	11.23	8.81	11.63	9.07	11.79	8.49
5	10.63	5.44	10.05	7.10	9.85	7.69	10.35	8.61	10.95	8.39
6	10.19	5.47	9.66	6.68	9.39	7.84	10.13	8.63	10.80	8.10
7	10.82	5.59	9.53	6.66	9.56	7.26	10.67	8.79	11.00	6.94
8	10.90	5.98	10.56	6.36	10.71	8.05	10.74	9.11	11.05	9.08

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

Initial	Deflections in mm, Forces in Grams					
Sample #	0.0500	0.0700	0.0900	0.1100	0.1400	SET
1	32.3	43.8	55.3	64.3	73.5	0.0200
2	33.1	45.4	56.6	64.8	73.2	0.0180
3	34.2	46.0	55.8	65.4	74.2	0.0230
4	35.3	46.5	56.1	64.3	72.4	0.0200
5	35.3	46.5	57.5	62.0	76.7	0.0230
6	31.5	43.8	54.2	63.8	72.2	0.0230
7	33.1	45.7	56.4	64.8	73.1	0.0250
8	28.2	39.7	49.0	59.1	68.7	0.0180
9	32.6	44.1	55.3	64.8	73.9	0.0220
10	29.8	42.1	52.0	63.8	75.8	0.0180
11	33.4	46.2	57.5	67.0	76.1	0.0180
12	32.3	45.2	56.6	67.3	77.3	0.0250
After Thermals	Deflections in mm, Forces in Grams					
Sample #	0.0500	0.0700	0.0900	0.1100	0.1400	SET
1	33.7	46.5	58.0	66.5	74.1	0.0300
2	29.8	40.8	49.3	57.7	67.6	0.0180
3	31.8	43.0	53.9	62.1	72.2	0.0200
4	30.7	41.6	51.2	60.7	70.5	0.0160
5	30.9	41.6	51.7	60.7	70.7	0.0160
6	30.9	40.0	47.3	55.8	63.8	0.0300
7	25.2	36.1	46.8	56.6	66.0	0.0160
8	38.6	51.2	61.0	70.3	79.3	0.0250
9	32.6	42.7	52.8	61.6	70.4	0.0220
10	36.1	48.7	58.8	67.0	75.4	0.0200
11	33.9	44.3	54.2	61.6	70.0	0.0160
12	34.8	46.5	56.4	64.6	72.7	0.0180

DATA Continued**INSULATION RESISTANCE (IR):**

Initial Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
Mated		A	Unmated B
X		X	X
Sample#	CLH/TSW	CLH	TSW
145424-047	10000	10000	10000
145424-048	10000	10000	10000
Thermal Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
Mated		A	Unmated B
X		X	X
Sample#	CLH/TSW	CLH	TSW
145424-047	10000	10000	10000
145424-048	10000	10000	10000
Humidity Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
Mated		A	Unmated B
X		X	X
Sample#	CLH/TSW	CLH	TSW
145424-047	10000	10000	10000
145424-048	10000	10000	10000

DATA Continued**DIELECTRIC WITHSTANDING VOLTAGE (DWV):**

Initial Breakdown Voltage	
Test Voltage <i>Until Breakdown Occurs</i>	

Pin to Pin			
Mated		A	Unmated B
X			
Sample#	CLH/TSW	CLH	TSW
145424-045	2000	1750	2250
145424-046	2000	1750	2500

Initial DWV	
Test Voltage= 1313	

Pin to Pin			
Mated		A	Unmated B
Sample#	CLH/TSW	CLH	TSW
145424-047	1313	1313	1313
145424-048	1313	1313	1313

Thermal Test Voltage	
Test Voltage= 1313	

Pin to Pin			
Mated		A	Unmated B
Sample#	CLH/TSW	CLH	TSW
145424-047	1313	1313	1313
145424-048	1313	1313	1313

Humidity Test Voltage	
Test Voltage= 1313	

Pin to Pin			
Mated		A	Unmated B
Sample#	CLH/TSW	CLH	TSW
145424-047	1313	1313	1313
145424-048	1313	1313	1313

DATA Continued**GAS TIGHT:**

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	14.0	-0.5
1	P2	7.6	-1.3
1	P3	7.1	-0.5
1	P4	7.3	-0.9
1	P5	5.8	0.0
1	P6	7.2	-1.6
1	P7	6.8	-0.3
1	P8	6.9	-0.4
1	P9	7.0	-0.6
1	P10	8.5	-2.7
1	P11	9.1	-3.5
1	P12	8.0	-2.2
1	P13	7.7	-1.9
1	P14	7.1	-1.2
1	P15	7.4	-1.3
1	P16	6.2	0.1
1	P17	6.5	0.3
1	P18	6.4	0.2
1	P19	7.2	-1.1
1	P20	7.3	-1.2
1	P21	7.2	-1.0
1	P22	6.7	-0.5
1	P23	7.0	-0.8
1	P24	6.6	-0.1
2	P1	13.4	0.4
2	P2	6.2	1.8
2	P3	6.7	0.8
2	P4	6.7	0.4
2	P5	6.0	-0.1
2	P6	6.0	-0.1
2	P7	6.6	0.6
2	P8	6.3	0.5
2	P9	6.3	0.0
2	P10	5.9	1.1
2	P11	5.8	2.3
2	P12	6.1	0.4
2	P13	5.9	1.3
2	P14	6.2	0.7
2	P15	6.0	0.7
2	P16	6.3	0.2
2	P17	6.8	0.4
2	P18	6.4	0.9
2	P19	6.5	1.2

2	P20	7.9	-1.2
2	P21	6.6	0.2
2	P22	6.4	0.8
2	P23	6.3	1.4
2	P24	6.6	1.0
3	P1	14.9	-0.7
3	P2	7.8	-1.0
3	P3	8.6	-1.7
3	P4	8.2	0.1
3	P5	6.7	-0.3
3	P6	6.8	-0.4
3	P7	9.7	-2.4
3	P8	8.1	-1.3
3	P9	6.3	-0.3
3	P10	6.7	0.3
3	P11	6.6	-0.6
3	P12	6.2	0.0
3	P13	6.3	0.1
3	P14	6.1	-0.2
3	P15	5.8	0.2
3	P16	6.2	-0.1
3	P17	6.6	0.0
3	P18	7.7	-0.5
3	P19	7.8	-1.6
3	P20	6.9	-0.3
3	P21	6.5	-0.4
3	P22	7.1	-0.6
3	P23	8.5	-1.3
3	P24	7.7	-1.0
4	P1	13.8	0.2
4	P2	7.6	0.4
4	P3	6.5	0.0
4	P4	6.7	0.2
4	P5	6.0	-0.2
4	P6	5.6	0.0
4	P7	6.6	-0.4
4	P8	6.3	0.2
4	P9	6.3	0.0
4	P10	6.3	0.0
4	P11	5.7	0.1
4	P12	6.0	0.0
4	P13	6.3	-0.1
4	P14	7.7	-1.4
4	P15	6.1	-0.3
4	P16	6.5	-0.5
4	P17	6.3	-0.1
4	P18	6.7	0.1
4	P19	6.0	0.0
4	P20	6.5	-0.2

4	P21	6.2	0.0
4	P22	6.5	0.1
4	P23	6.3	0.2
4	P24	6.7	-0.1
5	P1	17.7	-1.9
5	P2	8.1	-0.5
5	P3	8.9	1.5
5	P4	11.6	-0.3
5	P5	6.8	-0.3
5	P6	10.1	-3.4
5	P7	9.4	0.9
5	P8	11.1	-0.1
5	P9	7.3	-0.4
5	P10	6.2	-0.2
5	P11	8.0	-0.9
5	P12	7.8	0.8
5	P13	7.7	0.3
5	P14	9.0	-0.5
5	P15	6.8	-0.2
5	P16	7.5	0.7
5	P17	7.5	1.6
5	P18	10.4	3.2
5	P19	7.7	0.2
5	P20	8.2	-0.7
5	P21	6.4	0.0
5	P22	9.8	-0.4
5	P23	10.4	-1.0
5	P24	9.0	-0.1
6	P1	16.1	-0.8
6	P2	7.0	-0.4
6	P3	7.0	-0.3
6	P4	7.7	-0.7
6	P5	7.1	-0.6
6	P6	6.3	-0.4
6	P7	7.0	-0.5
6	P8	6.5	-0.2
6	P9	6.3	-0.1
6	P10	6.9	-0.7
6	P11	6.3	0.0
6	P12	6.6	-0.4
6	P13	6.8	-0.2
6	P14	6.8	-0.3
6	P15	6.8	-0.4
6	P16	7.1	-0.5
6	P17	7.6	-1.0
6	P18	8.7	-1.5
6	P19	7.2	-0.7
6	P20	7.8	-1.3
6	P21	7.4	-0.8

6	P22	8.0	-0.4
6	P23	7.9	0.0
6	P24	7.2	-0.3
7	P1	16.9	-2.1
7	P2	8.0	-1.4
7	P3	10.7	-3.8
7	P4	11.9	-5.1
7	P5	8.6	-2.4
7	P6	8.3	-2.0
7	P7	10.1	-3.0
7	P8	7.9	-1.8
7	P9	7.3	-0.9
7	P10	6.4	-0.3
7	P11	7.2	-0.6
7	P12	6.7	-0.5
7	P13	6.4	-0.4
7	P14	6.6	-0.7
7	P15	8.0	-1.6
7	P16	7.9	-1.8
7	P17	6.9	-0.6
7	P18	7.3	-1.0
7	P19	6.8	-1.0
7	P20	7.9	-1.8
7	P21	10.3	-3.4
7	P22	7.1	-1.1
7	P23	8.4	-2.3
7	P24	7.1	-1.0
8	P1	17.0	-2.0
8	P2	9.0	-2.4
8	P3	7.6	-1.1
8	P4	9.3	-2.7
8	P5	7.1	-1.4
8	P6	5.9	-0.5
8	P7	9.3	-2.8
8	P8	7.2	-0.9
8	P9	7.1	-1.1
8	P10	8.7	-2.3
8	P11	7.4	-1.1
8	P12	7.5	-1.0
8	P13	8.4	0.0
8	P14	10.2	-3.1
8	P15	8.8	-2.4
8	P16	7.1	-1.1
8	P17	9.1	-0.6
8	P18	6.9	-0.2
8	P19	7.0	-0.6
8	P20	7.4	-1.0
8	P21	7.3	-1.1
8	P22	7.6	-0.8

8	P23	7.9	-1.4
8	P24	8.4	-1.2

LLCR Thermal:

		mOhm values	Actual	Delta
Board	Position		Initial	Thermal Age
1	P1		9.3	0.1
1	P2		9.6	-0.1
1	P3		8.1	0.2
1	P4		8.3	1.8
1	P5		7.6	1.7
1	P6		7.1	1.3
1	P7		8.0	0.1
1	P8		7.9	1.2
1	P9		6.6	0.2
1	P10		6.5	0.2
1	P11		6.7	0.5
1	P12		6.3	0.6
1	P13		7.1	-0.1
1	P14		7.1	-0.1
1	P15		9.4	1.7
1	P16		8.7	-0.6
1	P17		7.5	0.1
1	P18		7.9	0.1
1	P19		7.4	3.2
1	P20		7.2	0.8
1	P21		7.3	0.7
1	P22		8.7	-0.2
1	P23		9.1	-0.5
1	P24		8.1	-0.3
2	P1		8.0	1.1
2	P2		9.1	1.8
2	P3		8.3	0.7
2	P4		9.0	1.7
2	P5		7.3	1.2
2	P6		8.0	0.2
2	P7		8.5	2.5
2	P8		9.8	-1.5
2	P9		6.8	1.3
2	P10		7.4	1.8
2	P11		7.0	2.0
2	P12		7.6	0.3
2	P13		7.8	1.1
2	P14		8.6	-0.5
2	P15		8.2	0.6
2	P16		7.3	1.0
2	P17		9.6	-0.7
2	P18		9.5	1.1

2	P19	8.4	1.3
2	P20	9.5	-1.2
2	P21	8.0	0.5
2	P22	7.8	-0.1
2	P23	8.2	1.0
2	P24	9.1	2.1
3	P1	7.4	0.2
3	P2	6.8	0.3
3	P3	7.0	0.0
3	P4	7.2	0.1
3	P5	7.1	0.1
3	P6	7.2	0.2
3	P7	7.1	0.2
3	P8	6.6	0.5
3	P9	6.9	0.4
3	P10	7.0	-0.4
3	P11	6.7	-0.2
3	P12	7.5	-0.9
3	P13	8.3	-0.5
3	P14	7.3	-0.6
3	P15	7.7	-0.7
3	P16	8.0	-0.6
3	P17	9.4	-0.6
3	P18	9.4	0.7
3	P19	7.0	0.7
3	P20	7.6	0.2
3	P21	6.9	0.1
3	P22	9.4	0.5
3	P23	8.1	-0.7
3	P24	8.0	-0.2
4	P1	7.2	1.8
4	P2	9.9	-1.6
4	P3	9.4	1.8
4	P4	7.7	1.6
4	P5	7.0	-0.1
4	P6	6.9	0.1
4	P7	7.5	0.8
4	P8	10.0	-0.2
4	P9	8.0	-1.1
4	P10	6.7	2.0
4	P11	6.7	2.2
4	P12	6.8	2.3
4	P13	6.6	1.7
4	P14	6.5	-0.1
4	P15	6.9	-0.1
4	P16	8.5	1.0
4	P17	8.2	1.5
4	P18	7.4	1.0
4	P19	6.8	2.3

4	P20	7.0	2.0
4	P21	7.0	0.6
4	P22	8.1	1.6
4	P23	7.3	1.3
4	P24	7.0	1.1
5	P1	8.9	-1.8
5	P2	9.2	-0.4
5	P3	9.0	-0.8
5	P4	9.9	-1.7
5	P5	6.5	0.6
5	P6	6.7	0.7
5	P7	7.1	2.1
5	P8	7.3	1.2
5	P9	7.6	0.3
5	P10	7.1	1.8
5	P11	6.9	3.4
5	P12	6.4	0.5
5	P13	6.7	1.0
5	P14	6.4	0.1
5	P15	7.1	1.8
5	P16	6.6	1.7
5	P17	7.1	1.3
5	P18	7.5	0.5
5	P19	7.4	1.2
5	P20	7.5	0.9
5	P21	7.4	-0.5
5	P22	8.0	0.8
5	P23	7.9	0.5
5	P24	8.0	0.9
6	P1	8.2	1.0
6	P2	9.4	0.1
6	P3	8.0	1.9
6	P4	8.8	-0.3
6	P5	9.0	-0.8
6	P6	6.4	0.0
6	P7	7.9	-0.2
6	P8	8.4	-0.2
6	P9	6.4	0.1
6	P10	8.9	-0.1
6	P11	7.1	0.0
6	P12	6.7	0.5
6	P13	6.9	3.4
6	P14	7.1	1.4
6	P15	6.8	0.1
6	P16	6.8	0.6
6	P17	7.0	1.9
6	P18	6.4	0.2
6	P19	5.6	0.1
6	P20	6.6	0.1

6	P21	8.0	-0.4
6	P22	7.2	0.4
6	P23	8.5	0.2
6	P24	7.1	0.2
7	P1	7.2	0.9
7	P2	7.8	-0.1
7	P3	8.7	0.2
7	P4	8.4	0.3
7	P5	7.1	0.1
7	P6	6.9	0.4
7	P7	8.8	-0.5
7	P8	7.6	0.1
7	P9	7.5	0.0
7	P10	6.7	-0.4
7	P11	8.1	-0.6
7	P12	7.0	-0.1
7	P13	8.0	-0.6
7	P14	6.9	0.1
7	P15	8.4	0.4
7	P16	7.2	-0.2
7	P17	8.2	-0.5
7	P18	7.4	1.0
7	P19	7.6	0.6
7	P20	9.0	-0.2
7	P21	7.0	0.9
7	P22	8.7	1.7
7	P23	7.5	3.1
7	P24	7.2	3.4
8	P1	8.4	0.2
8	P2	7.7	0.1
8	P3	8.6	-0.1
8	P4	8.2	-0.1
8	P5	9.3	0.3
8	P6	6.9	0.6
8	P7	7.9	0.5
8	P8	7.8	0.4
8	P9	7.0	-0.2
8	P10	6.5	0.1
8	P11	7.0	-0.3
8	P12	6.6	-0.2
8	P13	6.5	-0.2
8	P14	6.4	0.1
8	P15	7.0	-0.2
8	P16	6.8	-0.3
8	P17	9.0	-1.2
8	P18	8.5	-0.6
8	P19	7.1	1.2
8	P20	7.2	1.4
8	P21	8.2	-0.1

8	P22	9.4	0.9
8	P23	7.1	0.0
8	P24	7.1	2.3

LLCR Durability:

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	8.6	0.5	0.9	-0.2
1	P2	7.4	0.1	1.6	0.4
1	P3	9.3	-1.1	-2.0	-2.1
1	P4	8.9	-1.9	-1.4	-1.1
1	P5	7.8	-0.7	-0.6	-0.6
1	P6	6.9	0.1	-0.6	0.6
1	P7	10.0	-1.6	-3.0	-1.7
1	P8	7.5	0.9	1.0	-0.5
1	P9	7.2	0.4	1.2	-0.8
1	P10	7.7	0.9	1.2	-0.4
1	P11	7.0	0.5	-0.6	0.6
1	P12	6.4	2.8	0.8	1.1
1	P13	8.5	0.0	-0.1	0.9
1	P14	9.4	0.5	-1.0	-2.3
1	P15	7.8	0.8	0.2	1.8
1	P16	7.2	1.7	-0.3	0.0
1	P17	7.2	2.1	-0.3	0.9
1	P18	7.6	0.9	-0.5	0.6
1	P19	7.1	0.4	-0.2	0.4
1	P20	8.0	0.1	0.2	2.4
1	P21	7.9	-0.1	-0.9	0.3
1	P22	8.3	0.0	-0.6	0.1
1	P23	8.6	0.3	-1.2	-0.8
1	P24	8.5	0.0	-0.2	2.4
2	P1	10.1	-0.3	-2.3	-1.8
2	P2	9.0	0.3	-1.8	-1.3
2	P3	8.2	-1.2	-1.1	-0.9
2	P4	8.0	0.0	-0.9	-0.8
2	P5	6.5	1.3	0.6	0.7
2	P6	7.0	0.3	0.8	0.9
2	P7	9.5	-1.9	-1.5	-1.0
2	P8	7.6	-1.0	-0.6	-0.1
2	P9	7.3	1.6	-0.4	-0.3
2	P10	8.7	-1.8	-1.6	-1.3
2	P11	8.2	-1.4	-1.5	-1.5
2	P12	7.0	0.8	-0.4	-0.1
2	P13	10.3	-2.2	-2.7	-2.6
2	P14	7.4	-0.6	0.5	-0.2
2	P15	7.3	-0.2	0.1	0.1
2	P16	7.8	0.3	-1.3	-1.2
2	P17	10.7	-3.4	-3.5	-3.5

2	P18	10.0	-2.8	-3.4	-3.3
2	P19	6.2	1.8	-0.4	0.1
2	P20	8.6	-0.9	-1.5	-0.4
2	P21	6.4	1.3	0.4	0.8
2	P22	6.7	1.5	0.1	0.5
2	P23	6.5	1.9	-0.3	-0.5
2	P24	7.9	2.5	-1.4	-1.5
3	P1	7.7	1.4	0.4	1.0
3	P2	10.7	-2.9	-2.7	-3.1
3	P3	9.6	-1.7	-0.8	-1.3
3	P4	9.7	-2.6	-0.7	1.4
3	P5	7.7	-1.5	2.3	2.5
3	P6	7.5	-1.2	1.4	3.2
3	P7	7.3	0.3	2.1	3.3
3	P8	9.8	-1.5	-1.9	-0.8
3	P9	9.7	-2.1	-1.4	-0.3
3	P10	10.0	-3.6	0.7	-2.4
3	P11	9.5	-3.1	-1.6	-2.6
3	P12	8.6	-1.5	-0.9	-1.6
3	P13	9.1	-1.1	-1.6	-2.2
3	P14	7.5	0.2	0.5	-0.1
3	P15	7.8	-0.9	-0.3	-0.5
3	P16	6.8	3.0	1.1	0.9
3	P17	7.5	0.9	2.2	3.5
3	P18	7.4	3.0	1.2	1.5
3	P19	7.6	0.2	-1.1	-0.7
3	P20	7.5	0.2	-0.6	0.0
3	P21	7.9	0.6	0.1	3.1
3	P22	8.0	1.8	-0.4	-0.2
3	P23	6.8	0.8	-0.2	0.1
3	P24	6.5	1.8	1.9	0.7
4	P1	7.0	3.0	0.5	0.9
4	P2	6.9	1.5	0.6	0.2
4	P3	7.2	0.3	1.8	0.9
4	P4	9.1	0.1	-1.9	-0.6
4	P5	6.7	0.6	0.3	3.8
4	P6	6.4	-0.7	1.8	2.1
4	P7	6.9	-0.6	0.8	1.7
4	P8	6.3	-0.1	1.0	0.5
4	P9	6.2	1.5	2.3	1.4
4	P10	6.6	3.5	3.3	1.3
4	P11	6.4	0.8	1.8	1.0
4	P12	6.0	1.3	1.3	1.2
4	P13	6.2	0.4	2.4	0.9
4	P14	7.3	-1.0	2.2	0.1
4	P15	6.5	0.4	3.3	0.6
4	P16	6.7	0.1	0.3	0.4
4	P17	7.3	0.4	-0.1	0.4
4	P18	6.6	0.9	0.0	1.1

4	P19	6.4	1.1	2.0	0.4
4	P20	6.4	1.5	1.2	1.8
4	P21	6.2	3.4	0.4	1.1
4	P22	6.5	2.7	1.9	0.5
4	P23	6.2	1.4	2.2	-0.3
4	P24	6.8	1.6	0.5	-0.5
5	P1	9.7	-0.3	-2.2	-1.3
5	P2	10.4	-2.8	-2.9	0.9
5	P3	9.5	-0.7	-0.3	1.0
5	P4	8.1	-1.2	0.2	1.9
5	P5	7.3	-0.7	1.7	3.3
5	P6	7.0	-0.8	-0.1	2.4
5	P7	6.7	0.4	1.3	2.1
5	P8	6.3	0.0	2.3	1.2
5	P9	6.3	0.6	0.7	0.9
5	P10	6.8	0.2	0.2	1.3
5	P11	6.9	-0.7	0.6	2.6
5	P12	7.1	-0.7	-0.2	1.4
5	P13	8.0	-1.3	-0.9	1.7
5	P14	9.5	-3.4	0.1	0.0
5	P15	9.4	-3.2	-0.3	2.1
5	P16	7.6	0.1	-0.2	2.1
5	P17	7.8	-0.9	-0.4	0.9
5	P18	7.4	0.1	-0.1	0.7
5	P19	7.5	-0.3	-0.7	3.3
5	P20	9.9	-3.0	-2.1	0.9
5	P21	7.1	1.4	1.1	1.5
5	P22	7.4	0.4	1.7	2.3
5	P23	6.4	3.6	1.5	2.5
5	P24	7.3	0.2	0.2	3.3
6	P1	9.7	-1.4	0.0	-0.7
6	P2	9.8	0.2	-2.3	-2.6
6	P3	8.2	0.7	1.3	0.2
6	P4	9.7	-0.8	0.0	-0.9
6	P5	9.8	-3.6	-2.5	-0.2
6	P6	7.2	0.5	1.1	1.2
6	P7	8.9	-1.7	-0.9	-0.6
6	P8	9.7	-2.6	-2.7	-2.0
6	P9	9.1	-2.2	-1.5	-2.1
6	P10	9.8	-2.7	-2.3	-1.7
6	P11	6.7	0.3	0.1	0.4
6	P12	10.7	-4.0	-4.1	-4.1
6	P13	10.4	0.1	-3.8	-3.9
6	P14	10.8	-0.6	-2.5	-3.3
6	P15	9.5	-2.7	-2.6	-2.6
6	P16	8.0	-1.3	-1.6	-1.6
6	P17	9.8	-2.5	-2.8	-2.6
6	P18	6.4	1.5	0.6	0.8
6	P19	7.3	-0.4	-0.9	-0.6

6	P20	6.4	2.0	0.7	0.6
6	P21	6.8	1.8	2.2	2.5
6	P22	7.4	0.7	-0.3	0.7
6	P23	6.6	1.7	-0.3	-0.1
6	P24	7.4	0.2	-0.7	-0.4
7	P1	7.3	1.7	0.9	0.2
7	P2	7.1	-0.1	-0.2	-0.3
7	P3	7.3	-0.6	0.2	0.2
7	P4	7.2	0.0	0.8	1.1
7	P5	7.0	-0.6	0.5	0.6
7	P6	6.8	-1.0	0.2	0.4
7	P7	7.6	-0.4	0.2	-0.2
7	P8	8.3	-0.8	-0.8	-1.0
7	P9	7.4	3.3	-0.2	-0.2
7	P10	7.2	-0.9	-0.4	0.3
7	P11	6.5	1.4	-0.1	0.2
7	P12	6.5	1.2	0.9	0.4
7	P13	7.2	1.3	1.8	0.4
7	P14	9.4	-1.2	-0.2	-0.3
7	P15	9.6	0.3	-1.9	-1.9
7	P16	9.3	-1.2	-1.5	-1.8
7	P17	8.0	1.0	0.5	0.3
7	P18	7.4	0.8	0.0	-0.1
7	P19	6.8	0.5	1.2	1.3
7	P20	7.2	-0.3	0.4	0.6
7	P21	6.8	0.0	1.6	0.2
7	P22	9.2	-2.0	1.4	-0.3
7	P23	7.9	1.3	-1.0	-1.2
7	P24	8.3	1.4	-0.7	-1.4
8	P1	6.9	2.4	2.2	1.4
8	P2	6.7	0.2	2.2	1.2
8	P3	6.9	0.9	2.1	1.1
8	P4	10.3	-1.1	0.4	0.4
8	P5	7.4	-0.9	2.4	0.5
8	P6	9.2	-2.7	-0.6	-0.6
8	P7	8.1	-1.0	1.2	0.3
8	P8	7.3	0.7	2.8	0.4
8	P9	6.8	-0.4	2.8	0.7
8	P10	7.5	-0.6	0.9	0.3
8	P11	7.1	-0.9	0.8	1.0
8	P12	7.3	-0.5	0.1	0.4
8	P13	7.0	0.0	3.2	1.3
8	P14	7.4	-1.1	1.1	2.3
8	P15	8.0	-0.2	1.5	0.2
8	P16	10.6	-3.4	-3.3	-0.4
8	P17	8.7	-1.5	-0.9	0.1
8	P18	7.7	-0.2	0.6	0.0
8	P19	9.4	-1.2	-2.7	-2.4
8	P20	8.1	-1.3	0.0	0.1

8	P21	6.3	1.0	1.6	2.5
8	P22	7.0	-0.1	0.3	0.4
8	P23	7.4	1.7	1.2	-0.5
8	P24	6.6	0.3	1.4	0.4

LLCR Shock / Vibration:

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	7.7	0.22
1	P2	7.24	0.05
1	P3	7.36	0.06
1	P4	7.39	0.08
1	P5	6.3	0.28
1	P6	6.48	0.25
1	P7	6.97	0.22
1	P8	7.12	0.06
1	P9	6.15	0.26
1	P10	6.48	0.05
1	P11	6.17	0.16
1	P12	6.42	0.18
1	P13	6.21	0.1
1	P14	6.53	0
1	P15	6.77	0.06
1	P16	7.03	0.26
1	P17	8.17	0.55
1	P18	8.09	0.6
1	P19	6.36	0.07
1	P20	7.21	0.13
1	P21	6.06	0.17
1	P22	7.34	0.07
1	P23	7.46	0.18
1	P24	7.09	0.15
2	P1	7.12	0.03
2	P2	6.86	0
2	P3	6.86	0.01
2	P4	7.59	0.17
2	P5	7.27	0.25
2	P6	7.56	3.9
2	P7	6.81	0.14
2	P8	6.53	0.19
2	P9	6.05	0.18
2	P10	6.4	0.46
2	P11	6.02	0.38
2	P12	6.53	0.25
2	P13	6.59	0.24
2	P14	7.35	0.77
2	P15	6.66	0.06
2	P16	6.71	0.05
2	P17	7.03	0.12

2	P18	6.58	0.03
2	P19	5.6	0.09
2	P20	6.68	0.01
2	P21	6.51	0.12
2	P22	6.93	0.3
2	P23	6.64	0.09
2	P24	6.76	0.12
3	P1	7.57	0.07
3	P2	6.89	0.05
3	P3	7.02	0.06
3	P4	7.5	0.04
3	P5	6.38	0.22
3	P6	6.16	0.1
3	P7	6.52	0.02
3	P8	6.43	0.12
3	P9	6.25	0.07
3	P10	6.51	0.17
3	P11	5.9	0.02
3	P12	5.81	0.06
3	P13	6.02	0.04
3	P14	6.54	0.09
3	P15	7.13	0.15
3	P16	6.89	0.07
3	P17	7.08	0.03
3	P18	7.02	0.03
3	P19	6.27	0.1
3	P20	7.32	0.12
3	P21	6.73	0.59
3	P22	6.71	0.11
3	P23	6.24	0
3	P24	6.21	0.03
4	P1	6.47	0.15
4	P2	5.99	0.1
4	P3	6.41	0.11
4	P4	6.7	0.07
4	P5	6.41	0.2
4	P6	6.54	0.2
4	P7	7.62	0.02
4	P8	6.44	0.07
4	P9	6.23	0.12
4	P10	6.62	0.04
4	P11	6.12	0.03
4	P12	6.12	0.01
4	P13	6.28	0.05
4	P14	6.09	0.04
4	P15	6.93	0.19
4	P16	6.51	0.34
4	P17	7.04	0.1
4	P18	6.48	0.11

4	P19	6.08	0.04
4	P20	6.84	0.03
4	P21	6.51	0.14
4	P22	6.36	0.04
4	P23	5.9	0.03
4	P24	5.98	0.02
5	P1	6.59	0.01
5	P2	6.37	0.08
5	P3	6.78	0.11
5	P4	6.69	0.09
5	P5	6.09	0.28
5	P6	5.89	0.16
5	P7	6.65	0.26
5	P8	6.4	0.09
5	P9	6.63	0.29
5	P10	6.42	0.18
5	P11	6.1	0.04
5	P12	6.25	0.02
5	P13	6.2	0.01
5	P14	6.42	0.09
5	P15	7.11	0.1
5	P16	6.79	0.02
5	P17	7.32	0.01
5	P18	6.89	0.02
5	P19	6.57	0.02
5	P20	8.2	0.24
5	P21	6.37	0.32
5	P22	7.5	0.06
5	P23	6.37	0.05
5	P24	6.01	0.16
6	P1	6.38	0
6	P2	6.06	0.01
6	P3	6.2	0.02
6	P4	6.92	0.1
6	P5	5.9	0.12
6	P6	6.44	0.06
6	P7	6.08	0.08
6	P8	6.03	0.03
6	P9	5.68	0.02
6	P10	5.7	0.1
6	P11	5.92	0.07
6	P12	5.51	0
6	P13	5.72	0.02
6	P14	5.76	0.01
6	P15	6.15	0.07
6	P16	5.8	0.06
6	P17	6.15	0.03
6	P18	5.8	0.24
6	P19	5.36	0.06

6	P20	6.7	0.08
6	P21	5.51	0.11
6	P22	6.18	0.04
6	P23	6.03	0.08
6	P24	5.92	0.03
7	P1	7.14	2.16
7	P2	6.7	0.12
7	P3	6.93	0.21
7	P4	7.46	0.1
7	P5	6.86	0.12
7	P6	6.89	0.37
7	P7	7.12	0.18
7	P8	6.69	0.28
7	P9	6.56	0.54
7	P10	6.52	0.78
7	P11	6.63	0.12
7	P12	6.42	0.76
7	P13	6.53	0.33
7	P14	6.4	0.09
7	P15	6.77	0.02
7	P16	6.01	0.35
7	P17	6.88	0.24
7	P18	6.34	0.08
7	P19	6.11	0.03
7	P20	6.7	0.09
7	P21	6.51	0.28
7	P22	6.9	1
7	P23	6.15	0.02
7	P24	6.36	0.03
8	P1	6.67	0.4
8	P2	6.31	0.09
8	P3	6.17	0.09
8	P4	6.4	0.44
8	P5	6.39	0.08
8	P6	6.71	0.11
8	P7	6.39	0.05
8	P8	6.27	0.22
8	P9	6.08	0.03
8	P10	6.6	0.08
8	P11	6.09	0.14
8	P12	5.93	0
8	P13	6.31	0.06
8	P14	6.13	0.1
8	P15	6.66	0.04
8	P16	6.24	0.16
8	P17	6.92	0.11
8	P18	6.39	0.07
8	P19	6.22	0.01
8	P20	6.99	0.03

Tracking Code: 145424_Report_Rev_1	Part #: CLH-150-L-D-DV-A\TSW-150-05-L-D
Part description: CLH\TSW	

8	P21	6.69	0.14
8	P22	6.6	0.05
8	P23	5.96	0.23
8	P24	6.26	0.31

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** HZ-TCT-01**Description:** Normal force analyzer**Manufacturer:** Mecmesin Multitester**Model:** Mecmesin Multitester 2.5-i**Serial #:** 08-1049-04**Accuracy:** Last Cal: 4/27/2011, Next Cal: 4/26/2012**Equipment #:** HZ-OV-01**Description:** Oven**Manufacturer:** Huida**Model:** CS101-1E**Serial #:** CS101-1E-B**Accuracy:** Last Cal: 12/14/2010, Next Cal: 12/13/2011**Equipment #:** HZ-THC-01**Description:** Humidity transmitter**Manufacturer:** Thermtron**Model:** HMM30C**Serial #:** D0240037**Accuracy:** Last Cal: 3/2/2011, Next Cal: 3/1/2012**Equipment #:** HZ-OGP-01**Description:** Video measurement system**Manufacturer:** OGP**Model:** SMARTSCOPE FLASH 200**Serial #:** SVW2003632**Accuracy:** Last Cal: 6/9/2011, Next Cal: 6/8/2012**Equipment #:** HZ-MO-01**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 2700**Serial #:** 1199807**Accuracy:** Last Cal:4/27/2011, Next Cal: 4/26/2012**Equipment #:** HZ-PS-01**Description:** Power Supply**Manufacturer:** Agilent**Model:** 6031A**Serial #:** MY41000982**Accuracy:** Last Cal: 4/27/2011, Next Cal: 4/26/2012

EQUIPMENT AND CALIBRATION SCHEDULES Continued**Equipment #:** HZ-HPM-01**Description:** NA9636H**Manufacturer:** Ainuo**Model:** 6031A**Serial #:** 089601091**Accuracy:** Last Cal: 3/8/2011, Next Cal: 3/7/2012**Equipment #:** SVC-01**Description:** Shock & Vibration Table**Manufacturer:** Data Physics**Model:** LE-DSA-10-20K**Serial #:** 10037**Accuracy:** See Manual

... Last Cal: 11/31/2010, Next Cal: 11/31/2011

Equipment #: ACLM-01**Description:** Accelerometer**Manufacturer:** PCB Piezotronics**Model:** 352C03**Serial #:** 115819**Accuracy:** See Manual

... Last Cal: 07/09/2011, Next Cal: 07/09/2012

Equipment #: ED-03**Description:** Event Detector**Manufacturer:** Analysis Tech**Model:** 32EHD**Serial #:** 1100604**Accuracy:** See Manual

... Last Cal: 06/04/2011, Next Cal: 06/04/2012