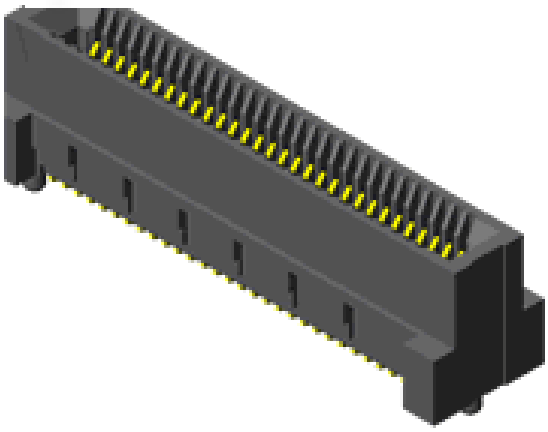
Project Number: Design Qualification Report	Tracking Code: 218303_Report_Rev 2		
Requested by: Eric Mings	Date: 11/16/2012	Product Rev: AM	
Part #: HSEC8-150-01-S-DV-A/Daughter Card	Lot #: N/A	Tech: Aaron McKim	Eng: Eric Mings
Part description: High Speed Edge Card Assembly		Qty to test: 112	
Test Start: 10/11/2012	Test Completed: 11/12/2012		



Design Qualification Report

HSEC8

HSEC8-150-01-S-DV-A
HSEC8-1100-01-S-DV-A
HSEC8-110-01-S-DV-A

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
11/16/2012	**1**	**Initial Issue**	**AM**
10/24/2013	**2**	**Update the flowchart**	**VZ**

CERTIFICATION

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

SCOPE

To perform the following tests: Design Qualification Test, Please see test plan

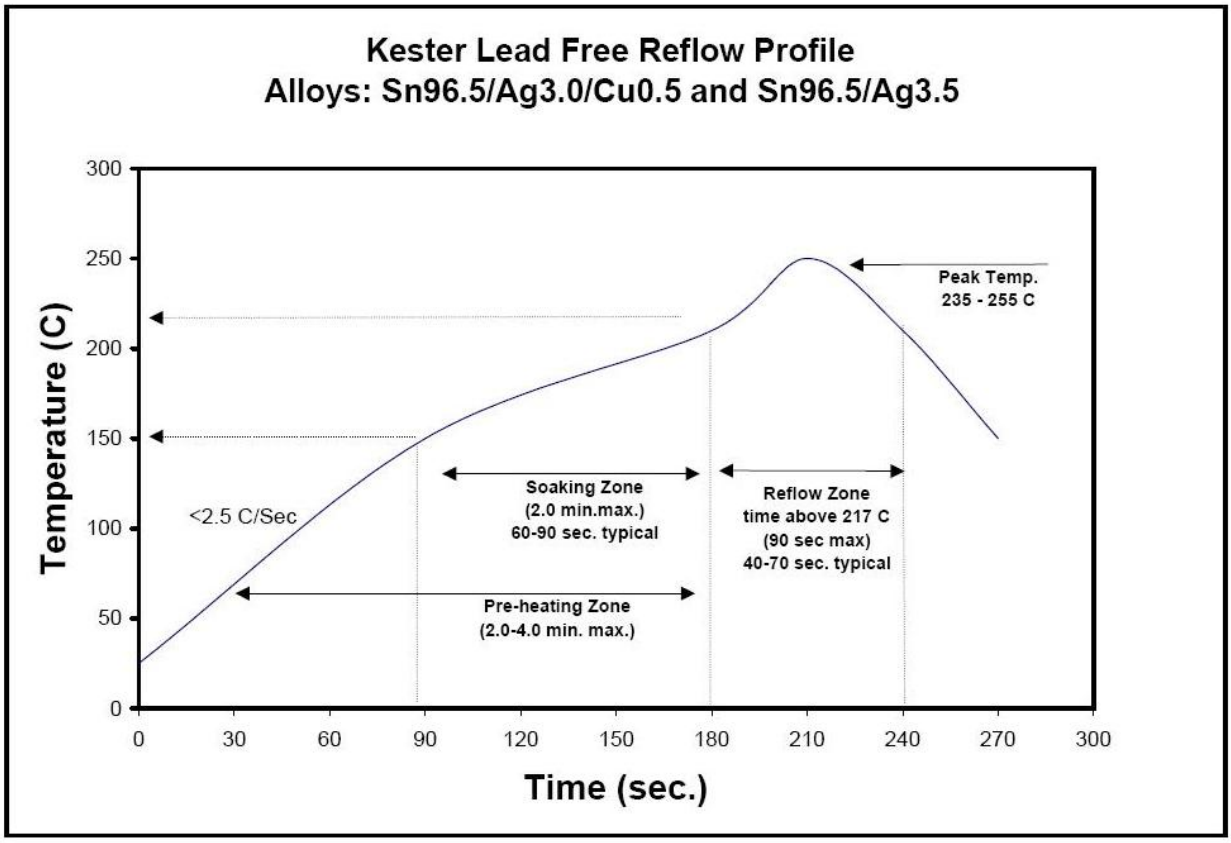
APPLICABLE DOCUMENTS

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-104046/PCB-104045/PCB-104049

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Gas Tight

TEST STEP	GROUP 1 8 Assemblies (.056" Thick Mating Card)
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 1 (8 Contacts Minimum)	GROUP 2 (8 Contacts Minimum) (.068" Thick Mating Card)
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 ± 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 1 8 Assemblies (.056" Thick Mating Card)	GROUP 2 8 Assemblies (.068" Thick Mating Card)
01	Contact Gaps	Contact Gaps
02	Forces - Mating / Unmating	Forces - Mating / Unmating
03	LLCR-1	LLCR-1
04	Thermal Aging (Mated and Undisturbed)	Thermal Aging (Mated and Undisturbed)
05	LLCR-2	LLCR-2
06	Forces - Mating / Unmating	Forces - Mating / Unmating
07	Contact Gaps	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

Current Carrying Capacity - Double Row

TEST STEP	GROUP 1 3 Mated Assemblies (.056" Thick Mating Card)	GROUP 2 3 Mated Assemblies (.056" Thick Mating Card)	GROUP 3 3 Mated Assemblies (.056" Thick Mating Card)	GROUP 4 3 Mated Assemblies (.056" Thick Mating Card)	GROUP 5 3 Mated Assemblies (.056" Thick Mating Card)
01	CCC - 2 Contacts Powered	CCC - 4 Contacts Powered	CCC - 6 Contacts Powered	CCC - 8 Contacts Powered	CCC - All Contacts Powered

(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

Durability/Mating/Unmating/Gaps

TEST STEP	GROUP 1 8 Assemblies HSEC8-150-01-S-DV-A (.056" Thick Mating Card)	GROUP 2 8 Assemblies HSEC8-150-01-S-DV-A (.068" Thick Mating Card)	GROUP 3 8 Assemblies HSEC8-1100-01-S-DV-A (.068" Thick Mating Card)	GROUP 4 8 Assemblies HSEC8-110-01-S-DV-A (.068" Thick Mating Card)
01	Contact Gaps	Contact Gaps	Contact Gaps	Contact Gaps
02	LLCR-1	LLCR-1	Forces - Mating / Unmating	Forces - Mating / Unmating
03	Forces - Mating / Unmating	Forces - Mating / Unmating	25 Cycles	25 Cycles
04	25 Cycles	25 Cycles	Forces - Mating / Unmating	Forces - Mating / Unmating
05	Forces - Mating / Unmating	Forces - Mating / Unmating	25 Cycles (50 Total)	25 Cycles (50 Total)
06	25 Cycles (50 Total)	25 Cycles (50 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
07	Forces - Mating / Unmating	Forces - Mating / Unmating	25 Cycles (75 Total)	25 Cycles (75 Total)
08	25 Cycles (75 Total)	25 Cycles (75 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
09	Forces - Mating / Unmating	Forces - Mating / Unmating	25 Cycles (100 Total)	25 Cycles (100 Total)
10	25 Cycles (100 Total)	25 Cycles (100 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
11	Forces - Mating / Unmating	Forces - Mating / Unmating		
12	Clean w/Compressed Air	Clean w/Compressed Air		
13	Contact Gaps	Contact Gaps		
14	LLCR-2	LLCR-2		
15	Thermal Shock (Mated and Undisturbed)	Thermal Shock (Mated and Undisturbed)		
16	LLCR-3	LLCR-3		
17	Cyclic Humidity (Mated and Undisturbed)	Cyclic Humidity (Mated and Undisturbed)		
18	LLCR-4	LLCR-4		
19	Forces - Mating / Unmating	Forces - Mating / Unmating		

Thermal Shock = EIA-364-32, Table II, Test Condition I:
-55ºC to +85ºC 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 1 2 Mated Sets Break Down Pin-to-Pin	GROUP 2 2 Unmated of Part # Being Tested Break Down Pin-to-Pin	GROUP 3 2 Unmated of Mating Part # Break Down Pin-to-Pin	GROUP 4 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)

TEST STEP	GROUP 5 2 Mated Sets Break Down Row-to-Row	GROUP 6 2 Unmated of Part # Being Tested Break Down Row-to-Row	GROUP 7 2 Unmated of Mating Part # Break Down Row-to-Row	GROUP 8 2 Mated Sets Row-to-Row
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 Groups 4 and 8 to be performed at Test Voltage

DWV test voltage is equal to 75% of the lowest break down voltage

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

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

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

and Method III (+25ºC to +65ºC @ 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

FLOWCHARTS CONTINUED

Mechanical Shock / Vibration / LLCR

TEST STEP	GROUP 1 8 Assemblies (.056" Thick Mating Card)	GROUP 2 8 Assemblies (.068" Thick Mating Card)
01	LLCR-1	LLCR-1
02	Shock	Shock
03	Vibration	Vibration
04	LLCR-2	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 1 60 Points (.056" Thick Mating Card)
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

FLOWCHARTS CONTINUED

Extended Life

TEST STEP	GROUP 1 8 Assemblies HSEC8-150-01-S-DV-A (.068" Thick Mating Card) 250 Cycles	GROUP 2 8 Assemblies HSEC8-150-01-S-DV-A (.068" Thick Mating Card) 500 Cycles	GROUP 3 8 Assemblies HSEC8-150-01-S-DV-A (.068" Thick Mating Card) 1,000 Cycles
01	* Plating Thickness Verification	* Plating Thickness Verification	* Plating Thickness Verification
02	LLCR-1	LLCR-1	LLCR-1
03	250 Cycles	500 Cycles	1,000 Cycles
04	Clean Mating Interface	Clean Mating Interface	Clean Mating Interface
05	LLCR-2	LLCR-2	LLCR-2
06	Thermal Shock (Mated and undisturbed)	Thermal Shock (Mated and undisturbed)	Thermal Shock (Mated and undisturbed)
07	LLCR-3	LLCR-3	LLCR-3
08	Cyclic Humidity (Mated and undisturbed)	Cyclic Humidity (Mated and undisturbed)	Cyclic Humidity (Mated and undisturbed)
09	LLCR-4	LLCR-4	LLCR-4
10	*** Photos of Contact Area	*** Photos of Contact Area	*** Photos of Contact Area

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

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

*** Measure, verify, and document plating thickness on both male and female (one group only)**

**** Plating thickness to be measured on loose pins used during assembly. Pins to be provided by requestor.**

***** Save 2-3 photos of contact area in project folder for each group**

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL AGE:

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.

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.

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 G^2 / 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

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.

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

1) The test shall be performed in accordance with EIA-364-13D, Mating and EIA-364-04A, Normal Force Test Procedure for Electrical Connectors.
2) The contacts shall be tested in the connector housing and soldered to a PCB.
3) If necessary, a "window" shall be made in the connector body to allow a probe to engage and deflect the contact at the same attitude and distance (plus 0.05 mm [0.002"]) as would occur in actual use.
4) The connector housing shall be placed in a holding fixture that does not interfere with or otherwise influence the contact force or deflection.
5) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the computer controlled test stand interconnected to the force-deflection measurement system.
6) The nominal deflection rate shall be 5 mm (0.2")/minute.
7) Unless otherwise noted a minimum of five contacts shall be tested.
8) The force/deflection characteristic to load and unload each contact shall be repeated five times.
9) The permanent set of each contact shall be measured based on the initial zero point versus the final zero point.
10) The acquired data shall be graphed in accordance with EIA-364-04A , ¶ 4.1.1.6 to 4.1.1.7.

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^{o} C
    c. 95^{o} C
    d. 115^{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

The following is a brief, simplified description of attributes

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

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. <= +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^{o} C
        ix. The final LLCR shall be conducted within 1 hour after drying.

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 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 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).

RESULTS

Temperature Rise, CCC at a 20% de-rating

- **CCC for a 30°C Temperature Rise ----------2.8A per contact with 2 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ----------2.2A per contact with 4 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ----------1.9A per contact with 6 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ----------1.8A per contact with 8 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ----------1.0A per contact with all adjacent contacts powered**

Mating – Unmating Forces

Thermal Age (HSEC8-150-01-S-DV-A/ 0.056" Edge Card)

- **Initial**
  - **Mating**
    - **Min ---------- 6.67 Lbs**
    - **Max----------10.68 Lbs**
  - **Unmating**
    - **Min ---------- 2.94 Lbs**
    - **Max---------- 5.10 Lbs**
- **After Thermals**
  - **Mating**
    - **Min ---------- 5.45 Lbs**
    - **Max---------- 7.21 Lbs**
  - **Unmating**
    - **Min ---------- 2.22 Lbs**
    - **Max---------- 2.90 Lbs**

Thermal Age (HSEC8-150-01-S-DV-A/ 0.068" Edge Card)

- **Initial**
  - **Mating**
    - **Min ----------12.46 Lbs**
    - **Max----------16.02 Lbs**
  - **Unmating**
    - **Min ---------- 4.19 Lbs**
    - **Max---------- 6.65 Lbs**
- **After Thermals**
  - **Mating**
    - **Min ---------- 9.30 Lbs**
    - **Max----------10.37 Lbs**
  - **Unmating**
    - **Min ---------- 3.35 Lbs**
    - **Max---------- 3.85 Lbs**

RESULTS Continued

Mating/Unmating Durability (HSEC8-150-01-S-DV-A/ 0.056" Edge Card)

- **Initial**
  - **Mating**
    - **Min ---------- 7.45 Lbs**
    - **Max---------- 9.57 Lbs**
  - **Unmating**
    - **Min ---------- 2.87 Lbs**
    - **Max---------- 4.18 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 8.04 Lbs**
    - **Max---------- 9.62 Lbs**
  - **Unmating**
    - **Min ---------- 3.45 Lbs**
    - **Max---------- 4.82 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 7.83 Lbs**
    - **Max---------- 9.88 Lbs**
  - **Unmating**
    - **Min ---------- 4.07 Lbs**
    - **Max---------- 5.44 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 7.71 Lbs**
    - **Max---------- 9.88 Lbs**
  - **Unmating**
    - **Min ---------- 4.58 Lbs**
    - **Max---------- 6.28 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 8.11 Lbs**
    - **Max----------10.05 Lbs**
  - **Unmating**
    - **Min ---------- 5.12 Lbs**
    - **Max---------- 6.91 Lbs**
- **Humidity**
  - **Mating**
    - **Min ---------- 4.54 Lbs**
    - **Max---------- 5.43 Lbs**
  - **Unmating**
    - **Min ---------- 1.82 Lbs**
    - **Max---------- 2.25 Lbs**

RESULTS Continued

Mating/Unmating Durability (HSEC8-150-01-S-DV-A/ 0.068" Edge Card)

- **Initial**
  - **Mating**
    - **Min ----------10.33 Lbs**
    - **Max----------14.04 Lbs**
  - **Unmating**
    - **Min ---------- 4.07 Lbs**
    - **Max---------- 5.30 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ----------10.92 Lbs**
    - **Max----------13.80 Lbs**
  - **Unmating**
    - **Min ---------- 4.90 Lbs**
    - **Max---------- 7.55 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ----------11.27 Lbs**
    - **Max----------13.78 Lbs**
  - **Unmating**
    - **Min ---------- 5.35 Lbs**
    - **Max---------- 8.26 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ----------11.50 Lbs**
    - **Max----------14.01 Lbs**
  - **Unmating**
    - **Min ---------- 5.93 Lbs**
    - **Max---------- 8.52 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ----------11.34 Lbs**
    - **Max----------14.43 Lbs**
  - **Unmating**
    - **Min ---------- 6.10 Lbs**
    - **Max---------- 9.03 Lbs**
- **Humidity**
  - **Mating**
    - **Min ---------- 6.77 Lbs**
    - **Max---------- 7.54 Lbs**
  - **Unmating**
    - **Min ---------- 2.40 Lbs**
    - **Max---------- 3.14 Lbs**

RESULTS Continued

Mating/Unmating Basic (HSEC8-1100-01-S-DV-A/0.068" Edge Card)

- **Initial**
  - **Mating**
    - **Min ----------16.86 Lbs**
    - **Max----------21.57 Lbs**
  - **Unmating**
    - **Min ---------- 7.30 Lbs**
    - **Max---------- 9.27 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ----------20.28 Lbs**
    - **Max----------27.38 Lbs**
  - **Unmating**
    - **Min ----------10.06 Lbs**
    - **Max----------15.25 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ----------20.63 Lbs**
    - **Max----------29.06 Lbs**
  - **Unmating**
    - **Min ----------10.74 Lbs**
    - **Max----------17.58 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ----------20.93 Lbs**
    - **Max----------29.57 Lbs**
  - **Unmating**
    - **Min ----------11.35 Lbs**
    - **Max----------19.65 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ----------21.28 Lbs**
    - **Max----------30.24 Lbs**
  - **Unmating**
    - **Min ----------11.50 Lbs**
    - **Max----------21.18 Lbs**

RESULTS Continued

Mating/Unmating Basic (HSEC8-110-01-S-DV-A/0.068" Edge Card)

- **Initial**
  - **Mating**
    - **Min ---------- 1.64 Lbs**
    - **Max---------- 3.47 Lbs**
  - **Unmating**
    - **Min ---------- 0.79 Lbs**
    - **Max---------- 1.10 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 1.68 Lbs**
    - **Max---------- 3.07 Lbs**
  - **Unmating**
    - **Min ---------- 1.07 Lbs**
    - **Max---------- 1.47 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 1.76 Lbs**
    - **Max---------- 4.11 Lbs**
  - **Unmating**
    - **Min ---------- 1.22 Lbs**
    - **Max---------- 1.59 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 1.75 Lbs**
    - **Max---------- 3.17 Lbs**
  - **Unmating**
    - **Min ---------- 1.33 Lbs**
    - **Max---------- 1.82 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 1.76 Lbs**
    - **Max---------- 3.03 Lbs**
  - **Unmating**
    - **Min ---------- 1.30 Lbs**
    - **Max---------- 1.91 Lbs**

Normal Force at 0.023" deflection

- **Initial**
  - **Min----------69.60 gf** **Set-----0.0032in**
  - **Max ----------74.70 gf** **Set-----0.0043in**
- **Thermal**
  - **Min---------- 50.90 gf** **Set-----0.0067in**
  - **Max---------- 56.90 gf** **Set-----0.0081in**

RESULTS Continued

Insulation resistance minimums, IR

- **Initial**
  - **Mated----------100000 Meg Ω ----------Pass**
  - **Unmated---------- 100000 Meg Ω---------- Pass**
- **Thermal**
  - **Mated----------100000 Meg Ω ----------Pass**
  - **Unmated---------- 100000 Meg Ω ----------Pass**
- **Humidity**
  - **Mated---------- 100000 Meg Ω ----------Pass**
  - **Unmated---------- 100000 Meg Ω ----------Pass**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage---------- 960 VAC**
  - **Test Voltage ---------- 720 VAC**
  - **Working Voltage ---------- 240 VAC**
- **Initial DWV ---------- Passed**
- **Thermal DWV---------- Passed**
- **Humidity---------- Passed**

LLCR Gas Tight (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.056" Edge Card

- **Initial ----------7.81 mOhms Max**
- **Gas Tight**
  - **<= +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 Thermal Age (192 LLCR test points)

HSEC8-150-01-S-DV-A/0.056" Edge Card

- **Initial ----------7.74 mOhms Max**
- **Thermal Age**
  - **<= +5.0 mOhms ---------- 170 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms---------- 21 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms----------0 Points ---------- Unstable**
  - **>+2000 mOhms----------0 Points ---------- Open Failure**

LLCR Thermal Age (192 LLCR test points)

HSEC8-150-01-S-DV-A/0.068" Edge Card

- **Initial ----------6.24 mOhms Max**
- **Thermal Age**
  - **<= +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 Mate/Unmate Durability (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.056" Edge Card

- **Initial ---------- 7.83 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 Shock**
  - **<= +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 ---------- 191 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 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 Mate/Unmate Durability (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.068" Edge Card

- **Initial ---------- 5.87 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 191 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 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 ---------- 191 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 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 Mechanical Shock & Random Vibration (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.056" Edge Card

- **Initial ---------- 8.29 mOhms Max**
- **Mechanical Shock & Random 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**

HSEC8-150-01-S-DV-A/ 0.068" Edge Card

- **Initial ---------- 6.42 mOhms Max**
- **Mechanical Shock & Random 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 Event Detection

HSEC8-150-01-S-DV-A/ 0.056" Edge Card

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

RESULTS Continued

LLCR Extended Life 250 Cycles (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.068" Edge Card

- **Initial ---------- 6.08 mOhms Max**
- **Durability, 250 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 ---------- 190 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 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 Extended Life 500 Cycles (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.068" Edge Card

- **Initial ---------- 6.32 mOhms Max**
- **Durability, 500 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 ---------- 191 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

LLCR Extended Life 1000 Cycles (192 LLCR test points)

HSEC8-150-01-S-DV-A/ 0.068" Edge Card

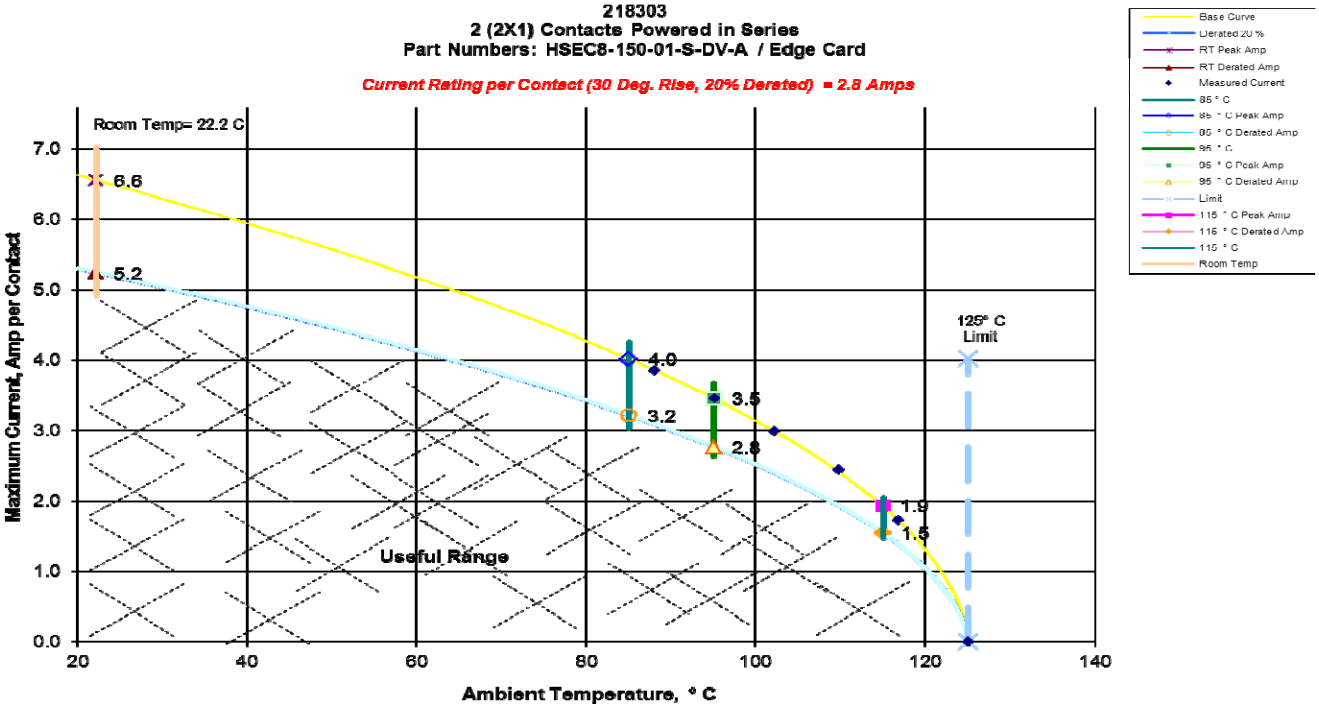
- **Initial ---------- 5.91 mOhms Max**
- **Durability, 1000 Cycles**
  - **<= +5.0 mOhms ---------- 192 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 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 ---------- 189 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 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):

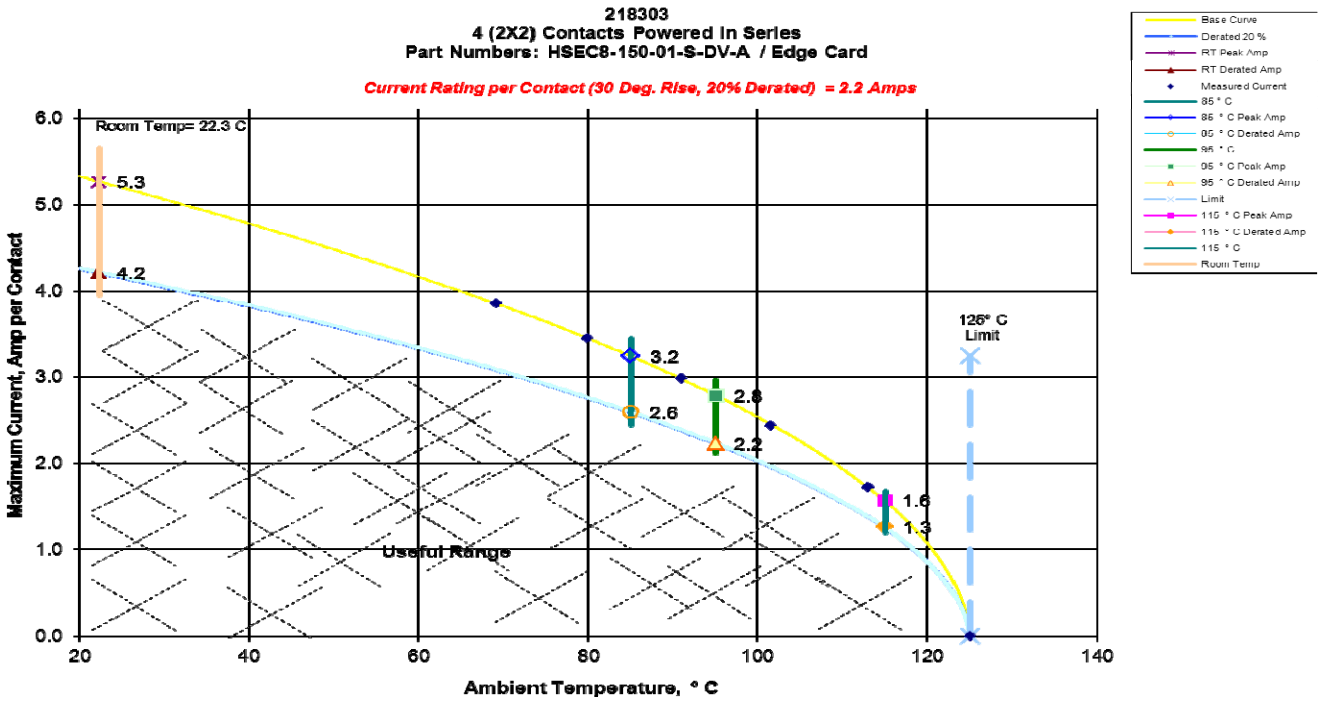
1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes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

a. Two adjacent conductors/contacts powered

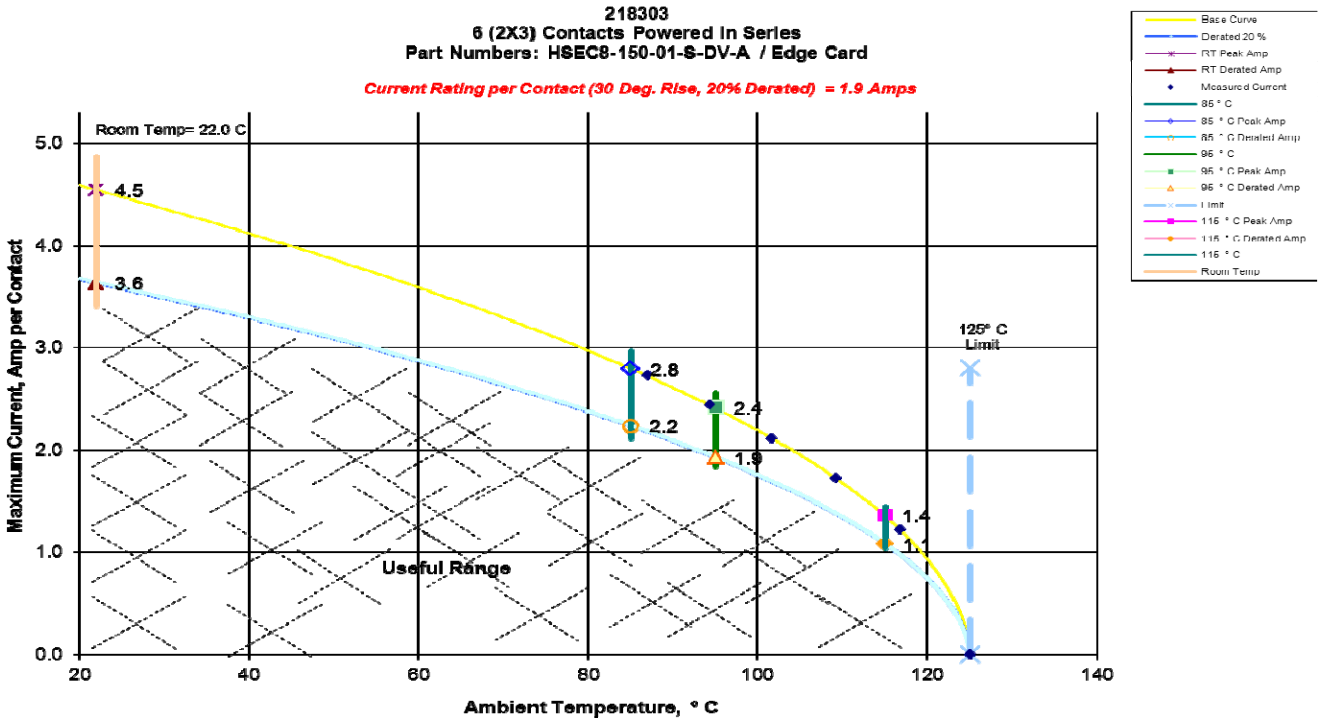


DATA SUMMARIES Continued

b. Four adjacent conductors/contacts powered

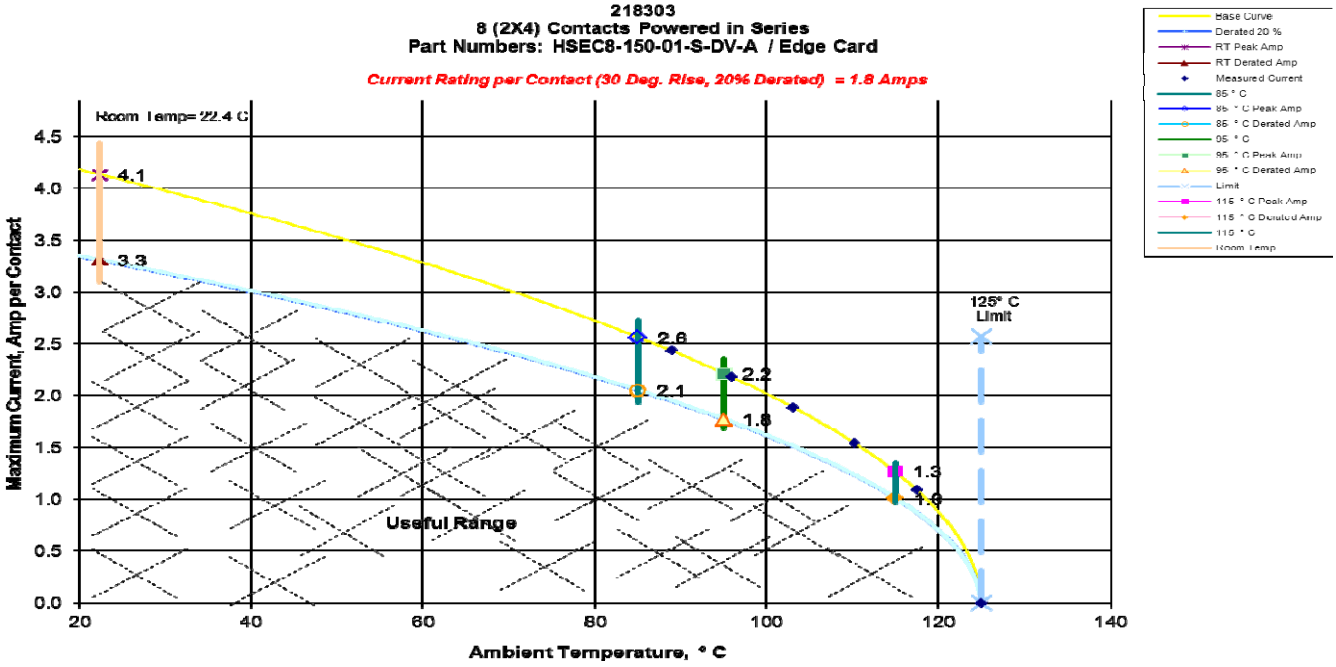


c. Six adjacent conductors/contacts powered

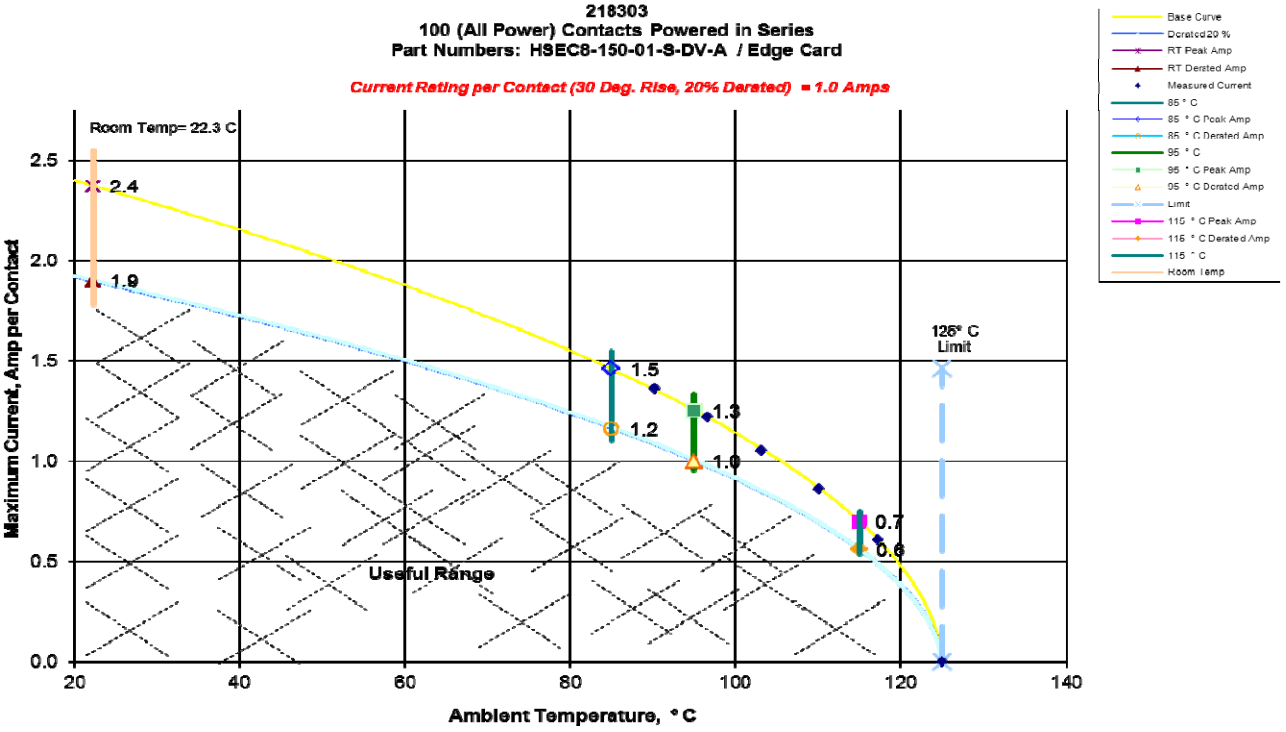


DATA SUMMARIES Continued

d. Eight adjacent conductors/contacts powered



e. All conductors/contacts powered



DATA SUMMARIES Continued

MATING-UNMATING FORCES

Thermal Age
HSEC8-150-01-S-DV-A/ 0.056" Edge Card

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	29.67	6.67	13.08	2.94	24.24	5.45	9.87	2.22
Maximum	47.50	10.68	22.68	5.10	32.07	7.21	12.90	2.90
Average	42.32	**9.51**	19.71	**4.43**	30.08	**6.76**	11.49	**2.58**
St Dev	5.84	1.31	3.08	0.69	2.79	0.63	1.00	0.23
Count	8	8	8	8	8	8	8	8

Thermal Age
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	55.42	12.46	18.64	4.19	41.37	9.30	14.90	3.35
Maximum	71.26	16.02	29.58	6.65	46.13	10.37	17.12	3.85
Average	65.73	**14.78**	25.29	**5.69**	43.57	**9.80**	15.78	**3.55**
St Dev	5.14	1.16	3.70	0.83	1.74	0.39	0.81	0.18
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

Mating/Unmating Durability
HSEC8-150-01-S-DV-A/ 0.056" Edge Card

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	33.14	7.45	12.77	2.87	35.76	8.04	15.35	3.45
Maximum	42.57	9.57	18.59	4.18	42.79	9.62	21.44	4.82
Average	38.33	**8.62**	16.69	**3.75**	39.67	**8.92**	19.64	**4.42**
St Dev	2.65	0.60	1.82	0.41	2.26	0.51	1.97	0.44
Count	8	8	8	8	8	8	8	8
	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	34.83	7.83	18.10	4.07	34.29	7.71	20.37	4.58
Maximum	43.95	9.88	24.20	5.44	43.95	9.88	27.93	6.28
Average	39.73	**8.93**	22.40	**5.04**	39.78	**8.94**	24.71	**5.56**
St Dev	2.69	0.60	1.98	0.44	2.83	0.64	2.29	0.52
Count	8	8	8	8	8	8	8	8
	100 Cycles				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	36.07	8.11	22.77	5.12	20.19	4.54	8.10	1.82
Maximum	44.70	10.05	30.74	6.91	24.15	5.43	10.01	2.25
Average	40.25	**9.05**	27.15	**6.10**	21.43	**4.82**	8.96	**2.02**
St Dev	2.65	0.59	2.54	0.57	1.23	0.28	0.63	0.14
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

Mating/Unmating Durability
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	45.95	10.33	18.10	4.07	48.57	10.92	21.80	4.90
Maximum	62.45	14.04	23.57	5.30	61.38	13.80	33.58	7.55
Average	53.61	**12.05**	20.92	**4.70**	55.59	**12.50**	25.84	**5.81**
St Dev	5.83	1.31	2.21	0.50	4.07	0.91	3.72	0.84
Count	8	8	8	8	8	8	8	8
	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	50.13	11.27	23.80	5.35	51.15	11.50	26.38	5.93
Maximum	61.29	13.78	36.74	8.26	62.32	14.01	37.90	8.52
Average	56.80	**12.77**	28.60	**6.43**	57.47	**12.92**	31.47	**7.08**
St Dev	3.92	0.88	4.08	0.92	3.86	0.87	4.05	0.91
Count	8	8	8	8	8	8	8	8
	100 Cycles				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	50.44	11.34	27.13	6.10	30.11	6.77	10.68	2.40
Maximum	64.18	14.43	40.17	9.03	33.54	7.54	13.97	3.14
Average	58.27	**13.10**	33.80	**7.60**	31.48	**7.08**	11.66	**2.62**
St Dev	4.41	0.99	4.33	0.97	1.30	0.29	1.05	0.24
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

Mating/Unmating Basic
HSEC8-1100-01-S-DV-A/ 0.068" Edge Card

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	74.99	16.86	32.47	7.30	90.21	20.28	44.75	10.06
Maximum	95.94	21.57	41.23	9.27	121.79	27.38	67.83	15.25
Average	86.88	**19.53**	36.29	**8.16**	106.56	**23.96**	57.34	**12.89**
St Dev	7.88	1.77	2.93	0.66	12.85	2.89	7.39	1.66
Count	8	8	8	8	8	8	8	8

	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	91.76	20.63	47.77	10.74	93.10	20.93	50.48	11.35
Maximum	129.26	29.06	78.20	17.58	131.53	29.57	87.40	19.65
Average	113.18	**25.45**	66.96	**15.05**	116.89	**26.28**	73.89	**16.61**
St Dev	13.26	2.98	10.10	2.27	13.40	3.01	12.34	2.77
Count	8	8	8	8	8	8	8	8

	100 Cycles			
	Mating		**Unmating**	
	New tons	Force (Lbs)	New tons	Force (Lbs)
Minimum	94.65	21.28	51.15	11.50
Maximum	134.51	30.24	94.21	21.18
Average	119.05	**26.76**	79.21	**17.81**
St Dev	13.30	2.99	14.73	3.31
Count	8	8	8	8

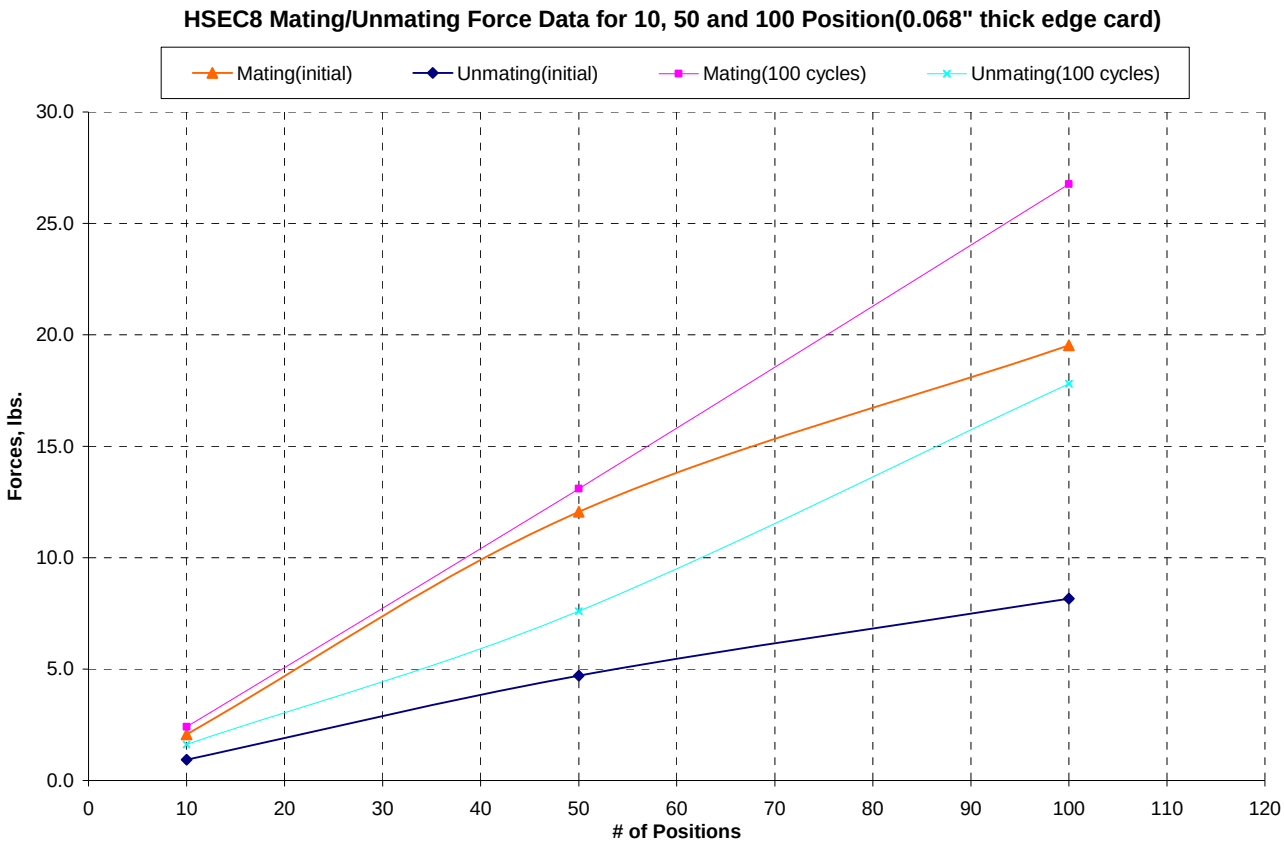
DATA SUMMARIES Continued

Mating/Unmating Basic
HSEC8-110-01-S-DV-A/ 0.068" Edge Card

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	7.29	1.64	3.51	0.79	7.47	1.68	4.76	1.07
Maximum	15.43	3.47	4.89	1.10	13.66	3.07	6.54	1.47
Average	9.22	**2.07**	4.15	**0.93**	10.01	**2.25**	5.72	**1.29**
St Dev	2.60	0.58	0.54	0.12	1.80	0.40	0.59	0.13
Count	8	8	8	8	8	8	8	8

	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	7.83	1.76	5.43	1.22	7.78	1.75	5.92	1.33
Maximum	18.28	4.11	7.07	1.59	14.10	3.17	8.10	1.82
Average	10.99	**2.47**	6.29	**1.41**	10.69	**2.40**	6.84	**1.54**
St Dev	3.14	0.71	0.62	0.14	1.80	0.41	0.78	0.17
Count	8	8	8	8	8	8	8	8

	100 Cycles			
	Mating		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	7.83	1.76	5.78	1.30
Maximum	13.48	3.03	8.50	1.91
Average	10.73	**2.41**	7.14	**1.61**
St Dev	1.66	0.37	1.01	0.23
Count	8	8	8	8


HSEC8 Mating/Unmating Force Data for 10, 50 and 100 Position(0.068" thick edge card)
Mating(initial)
Unmating(initial)
Mating(100 cycles)
Unmating(100 cycles)
Forces, lbs.
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0
10
20
30
40
50
60
70
80
90
100
110
120
# of Positions

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 inches Forces in Grams						MIN		NOM	MAX	
	0.0023	**0.0046**	**0.0069**	**0.0092**	**0.0115**	**0.0138**	**0.0167**	**0.0184**	**0.0197**	**0.0230**	***SET***
Averages	8.21	17.30	26.63	35.11	43.11	50.21	58.33	62.56	65.55	72.27	0.0039
Min	2.80	12.30	21.40	30.40	38.50	46.00	54.50	58.90	62.30	69.60	0.0032
Max	9.80	19.20	28.50	37.40	45.30	52.60	60.70	65.00	68.00	74.70	0.0043
St. Dev	2.101	2.247	2.217	2.159	1.962	1.968	1.857	1.892	1.830	1.741	0.0003
Count	12	12	12	12	12	12	12	12	12	12	12

After Thermals	Deflections in inches Forces in Grams						MIN		NOM	MAX	
	0.0023	**0.0046**	**0.0069**	**0.0092**	**0.0115**	**0.0138**	**0.0167**	**0.0184**	**0.0197**	**0.0230**	***SET***
Averages	0.01	0.02	0.09	5.85	13.23	21.16	31.29	37.44	42.13	54.07	0.0073
Min	-0.10	-0.10	-0.10	4.00	11.60	19.10	29.00	34.70	39.50	50.90	0.0067
Max	0.10	0.20	0.60	7.60	14.90	23.10	33.20	39.70	44.60	56.90	0.0081
St. Dev	0.090	0.103	0.211	1.123	1.165	1.391	1.493	1.524	1.546	1.629	0.0004
Count	12	12	12	12	12	12	12	12	12	12	12

INSULATION RESISTANCE (IR):

	Pin to Pin	
	Mated	Unmated
Minimum	HSEC8/Edge Card	HSEC8
Initial	100000	100000
Thermal	100000	100000
Humidity	100000	100000

	Row to Row	
	Mated	Unmated
Minimum	HSEC8/Edge Card	HSEC8
Initial	100000	100000
Thermal	100000	100000
Humidity	100000	100000

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**HSEC8/Edge Card**
Break Down Voltage	960
Test Voltage	720
Working Voltage	240

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

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

DATA SUMMARIES Continued

LLCR:

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. <= +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

Gas Tight
HSEC8-150-S-DV-A/ 0.056" Edge Card

	LLCR Measurement Summaries by Pin Type	
Date	10/11/2012	10/12/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	32	32
Technician	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta Acid Vapor**
	Pin Type 1: Signal	
Average	6.18	0.10
St. Dev.	0.36	0.09
Min	5.36	0.00
Max	7.81	0.53
Summary Count	192	192
Total Count	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Acid Vapor	**192**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR:

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. <= +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

Thermal Age
HSEC8-150-01-S-DV-A/ 0.056" Edge Card

	LLCR Measurement Summaries by Pin Type	
Date	10/17/2012	10/29/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	35	28
Technician	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta Thermal
	Pin Type 1: Signal	
Average	5.89	2.71
St. Dev.	0.33	1.87
Min	5.29	0.35
Max	7.74	11.54
Summary Count	192	192
Total Count	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal	**170**	**21**	**1**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR:

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. <= +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

Thermal Age
HSEC8-150-01-S-DV-A/0.068" Edge Card

	LLCR Measurement Summaries by Pin Type	
Date	10/17/2012	10/29/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	35	28
Technician	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta Thermal**
	Pin Type 1: Signal	
Average	5.27	1.16
St. Dev.	0.25	0.70
Min	4.84	0.01
Max	6.24	4.72
Summary Count	192	192
Total Count	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal	**192**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR:

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. <= +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

Mating/ Unmating Durability
HSEC8-150-01-S-D-V-A/0.056" Edge Card

	LLCR Measurement Summaries by Pin Type			
Date	10/18/2012	10/24/2012	10/29/2012	11/9/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	35	35	28	31
Technician	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	5.86	0.38	0.41	0.93
St. Dev.	0.36	0.30	0.34	1.03
Min	4.98	0.00	0.00	0.01
Max	7.83	1.33	1.94	7.41
Summary Count	192	192	192	192
Total Count	192	192	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**192**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**192**	**0**	**0**	**0**	**0**	**0**
Humidity	**191**	**1**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR:

1) A total of 192 points were measured.
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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

Mating/Unmating Durability
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

LLCR Measurement Summaries by Pin Type				
Date	10/18/2012	10/24/2012	10/29/2012	11/9/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	35	35	29	30
Technician	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	5.14	0.27	0.27	0.65
St. Dev.	0.22	0.56	0.28	0.85
Min	4.65	0.01	0.00	0.00
Max	5.87	7.57	2.63	7.24
Summary Count	192	192	192	192
Total Count	192	192	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**191**	**1**	**0**	**0**	**0**	**0**
Therm Shck	**192**	**0**	**0**	**0**	**0**	**0**
Humidity	**191**	**1**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR:

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. <= +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

Mechanical Shock & Random Vibration
HSEC8-150-01-S-DV-A/ 0.056" Edge Card

	LLCR Measurement Summaries by Pin Type	
Date	10/18/2012	10/25/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	36	38
Technician	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta Shock-Vib**
	Pin Type 1: Signal	
Average	5.92	0.31
St. Dev.	0.43	0.26
Min	5.13	0.01
Max	8.29	1.17
Summary Count	192	192
Total Count	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
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 SUMMARIES Continued

LLCR:

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. <= +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

Mechanical Shock & Random Vibration
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

	LLCR Measurement Summaries by Pin Type	
Date	10/18/2012	10/19/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	36	31
Technician	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta Shock-Vib**
	Pin Type 1: Signal	
Average	5.56	0.17
St. Dev.	0.27	0.20
Min	5.00	0.00
Max	6.42	2.35
Summary Count	192	192
Total Count	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Shock-Vib	**192**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR 250 Cycles:

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. <= +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

Extended Life 250 Cycles:
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

LLCR Measurement Summaries by Pin Type				
Date	10/15/2012	10/16/2012	10/22/2012	11/2/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	35	31	37	35
Technician	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta 250 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	5.31	0.36	0.37	0.50
St. Dev.	0.28	0.28	0.38	0.82
Min	4.64	0.00	0.00	0.00
Max	6.08	2.61	3.80	7.08
Summary Count	192	192	192	192
Total Count	192	192	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
250 Cycles	**192**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**192**	**0**	**0**	**0**	**0**	**0**
Humidity	**190**	**2**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR 500 Cycles:

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. <= +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

Extended Life 500 Cycles:
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

LLCR Measurement Summaries by Pin Type				
Date	10/15/2012	10/18/2012	10/22/2012	11/2/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	33	43	37	35
Technician	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta 500 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	5.22	0.35	0.45	0.71
St. Dev.	0.29	0.33	0.33	0.97
Min	4.63	0	0	0
Max	6.32	2.29	1.9	10.08
Summary Count	192	192	192	192
Total Count	192	192	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
500 Cycles	**192**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**192**	**0**	**0**	**0**	**0**	**0**
Humidity	**191**	**0**	**1**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR 1000 Cycles:

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. <= +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

Extended Life 1000 Cycles:
HSEC8-150-01-S-DV-A/ 0.068" Edge Card

LLCR Measurement Summaries by Pin Type				
Date	10/15/2012	10/22/2012	10/29/2012	11/9/2012
Room Temp (Deg C)	22	21	22	22
Rel Humidity (%)	32	38	28	32
Technician	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta 1000 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	5.28	0.68	0.69	0.81
St. Dev.	0.24	0.67	0.71	1.01
Min	4.71	0.00	0.00	0.00
Max	5.91	4.41	4.53	6.05
Summary Count	192	192	192	192
Total Count	192	192	192	192

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
1000 Cycles	**192**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**192**	**0**	**0**	**0**	**0**	**0**
Humidity	**189**	**3**	**0**	**0**	**0**	**0**

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 03/27/2012, Next Cal: 03/27/2013

Equipment #: MO-11
Description: System Switch Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 3706
Serial #:
Accuracy: See Manual
… Last Cal: 09/24/2012, Next Cal: 09/30/2013

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SE-1000-6-6
Serial #: 31808
Accuracy: See Manual
… Last Cal: 09/18/2012, Next Cal: 09/18/2013

Equipment #: TSC-01
Description: Vertical Thermal Shock Chamber
Manufacturer: Cincinnatti Sub Zero
Model: VTS-3-6-6-SC/AC
Serial #: 10-VT14993
Accuracy: See Manual
… Last Cal: 05/13/2012, Next Cal: 05/13/2013

Equipment #: OV-5
Description: Forced Air Oven, 5 Cu. Ft., 120 V
Manufacturer: Sheldon Mfg.
Model: CE5F
Serial #: 02008008
Accuracy: +/- 5 deg. C
… Last Cal: 05/29/2012, Next Cal: 05/29/2013

Equipment #: TCT-04
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 04-1041-04
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 05/03/2012, Next Cal: 05/03/2013

Equipment #: TCT-06
Description: Test Resources Test Stand
Manufacturer: Test Resources
Model: 100R250-12
Serial #: 0710191-C
Accuracy: See manual

Equipment #: TCT-07
Description: Chatillon
Manufacturer: Chatillon
Model: LF Plus
Serial #: LF1310
Accuracy: See Manual
… Last Cal: 07/13/2012, Next Cal: 07/13/2013

Equipment #: TCT-05
Description: Chatillon TCD Series
Manufacturer: Chatillon
Model: TCD2255
Serial #: TCD0071
Accuracy: See Manual
… Last Cal: 11/01/2012, Next Cal: 11/01/2013

Equipment #: LVDT-01
Description: Linear variable differential transducer
Manufacturer: Trans-Tek
Model: 240/0-0.250
Serial #: LVDT-01
Accuracy: ±0.5% OF F.S.
… Last Cal: 11/01/2012, Next Cal: 05/01/2013

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 11/30/2011, Next Cal: 11/30/2012

Equipment #: PS-11
Description: Power Supply
Manufacturer: Agilent Tech
Model: N57491
Serial #: US11M7700J
Accuracy: See Manual

Equipment #: RS-09
Description: Shunt
Manufacturer: EMPRO
Model: HA10050
Serial #: HA10050
Accuracy: ±0.25%RDG
… Last Cal: 5/30/2012, Next Cal: 5/30/2013

Equipment #: TCS-005-046
Description: Calibrated Thermocouples
Manufacturer: Samtec, Inc.
Model:
Serial #:
Accuracy:
… Last Cal: 5/30/2012, Next Cal: 05/30/2013

Equipment #: SVC-01
Description: Shock and Vibration Table
Manufacturer: Data Physics
Model: LE-DSA-10-20K
Serial #: 10037
Accuracy: See Manual
… Last Cal: 01/12/2012, Next Cal: 01/12/2013