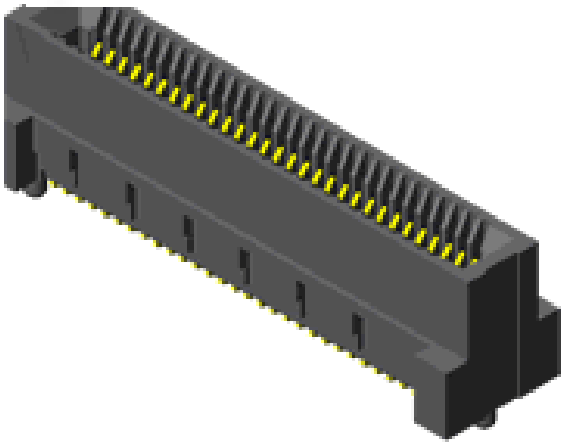
Project Number: Design Qualification Report	Tracking Code: 218304 Report		
Requested by: Eric Mings	Date: 11/16/2012	Product Rev: AM	
Part #: HSEC8-150-01-L-DV-A/Daughter Card	Lot #: N/A	Tech: Aaron McKim	Eng: Eric Mings
Part description: High Speed Edge Card Assembly			Qty to test: 32
Test Start: 10/09/2012	Test Completed: 10/30/2012		



Design Qualification Report

HSEC8

HSEC8-150-01-L-DV-A

CERTIFICATION

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

SCOPE

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

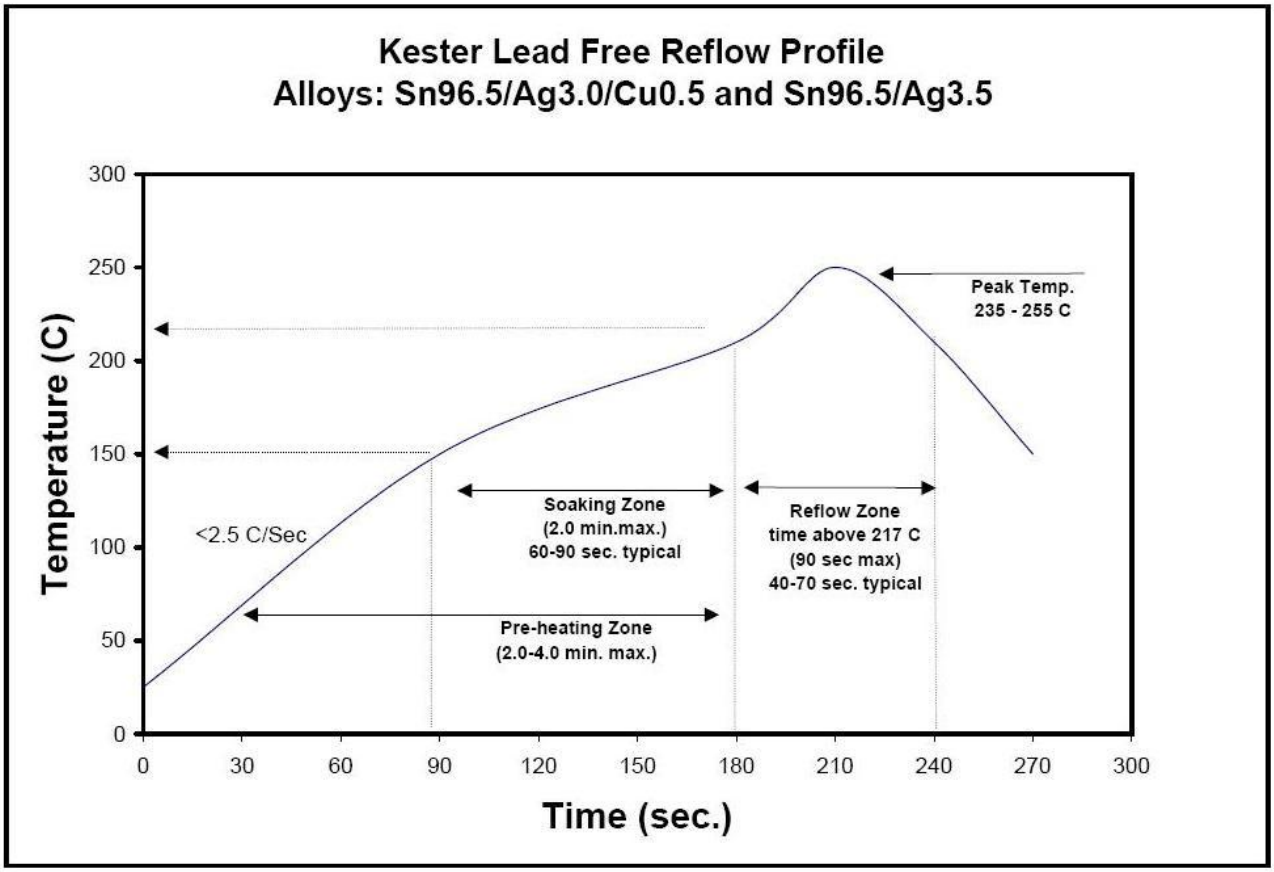
APPLICABLE DOCUMENTS

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

Durability/Mating/Unmating/Gaps

TEST STEP	GROUP 1 8 Assemblies HSEC8-150-01-L-DV-A (.056" Thick Mating Card)	GROUP 2 8 Assemblies HSEC8-150-01-L-DV-A (.068" Thick Mating Card)
01	Contact Gaps	Contact Gaps
02	LLCR-1	LLCR-1
03	Forces - Mating / Unmating	Forces - Mating / Unmating
04	25 Cycles	25 Cycles
05	Forces - Mating / Unmating	Forces - Mating / Unmating
06	25 Cycles (50 Total)	25 Cycles (50 Total)
07	Forces - Mating / Unmating	Forces - Mating / Unmating
08	25 Cycles (75 Total)	25 Cycles (75 Total)
09	Forces - Mating / Unmating	Forces - Mating / Unmating
10	25 Cycles (100 Total)	25 Cycles (100 Total)
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:

-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

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

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.

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.

LLCR:

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

RESULTS

Mating – Unmating Forces

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

- **Initial**
  - **Mating**
    - **Min ---------- 7.95 Lbs**
    - **Max---------- 11.03 Lbs**
  - **Unmating**
    - **Min ---------- 3.16 Lbs**
    - **Max---------- 5.14 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 8.10 Lbs**
    - **Max---------- 11.41 Lbs**
  - **Unmating**
    - **Min ---------- 4.02 Lbs**
    - **Max---------- 6.24 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 8.08 Lbs**
    - **Max---------- 11.37 Lbs**
  - **Unmating**
    - **Min ---------- 4.47 Lbs**
    - **Max---------- 7.75 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 8.12 Lbs**
    - **Max---------- 11.49 Lbs**
  - **Unmating**
    - **Min ---------- 4.76 Lbs**
    - **Max---------- 8.66 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 8.15 Lbs**
    - **Max---------- 11.49 Lbs**
  - **Unmating**
    - **Min ---------- 4.94 Lbs**
    - **Max---------- 9.23 Lbs**
- **Humidity**
  - **Mating**
    - **Min ---------- 5.22 Lbs**
    - **Max---------- 6.03 Lbs**
  - **Unmating**
    - **Min ---------- 1.89 Lbs**
    - **Max---------- 2.31 Lbs**

RESULTS Continued

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

- **Initial**
  - **Mating**
    - **Min ----------10.99 Lbs**
    - **Max----------13.18 Lbs**
  - **Unmating**
    - **Min ---------- 3.31 Lbs**
    - **Max---------- 4.88 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ----------10.24 Lbs**
    - **Max----------14.11 Lbs**
  - **Unmating**
    - **Min ---------- 4.56 Lbs**
    - **Max---------- 6.71 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ----------10.43 Lbs**
    - **Max----------14.69 Lbs**
  - **Unmating**
    - **Min ---------- 4.74 Lbs**
    - **Max---------- 8.07 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ----------10.39 Lbs**
    - **Max----------15.23 Lbs**
  - **Unmating**
    - **Min ---------- 4.85 Lbs**
    - **Max----------10.16 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ----------10.44 Lbs**
    - **Max----------15.48 Lbs**
  - **Unmating**
    - **Min ---------- 5.27 Lbs**
    - **Max----------11.07 Lbs**
- **Humidity**
  - **Mating**
    - **Min ---------- 6.85 Lbs**
    - **Max---------- 8.15 Lbs**
  - **Unmating**
    - **Min ---------- 2.30 Lbs**
    - **Max---------- 3.01 Lbs**

RESULTS Continued

LLCR Mate/Unmate Durability (192 LLCR test points)

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

- **Initial ---------- 8.22 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 ---------- 192Points---------- 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 Mate/Unmate Durability (192 LLCR test points)

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

- **Initial ----------8.13 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**

RESULTS Continued

LLCR Mechanical Shock & Random Vibration (192 LLCR test points)

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

- **Initial ---------- 8.21 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 ---------- 8.03 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-L-DV-A/ 0.056" Edge Card

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

DATA SUMMARIES

MATING-UNMATING FORCES

Mating/Unmating Durability
HSEC8-150-01-S-DV-A/ 0.056" 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	35.36	7.95	14.06	3.16	36.03	8.10	17.88	4.02
Maximum	49.06	11.03	22.86	5.14	50.75	11.41	27.76	6.24
Average	41.13	**9.25**	18.55	**4.17**	43.74	**9.83**	23.46	**5.27**
St Dev	4.52	1.02	3.35	0.75	5.15	1.16	3.50	0.79
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	35.94	8.08	19.88	4.47	36.12	8.12	21.17	4.76
Maximum	50.57	11.37	34.47	7.75	51.11	11.49	38.52	8.66
Average	44.55	**10.02**	27.79	**6.25**	45.04	**10.13**	31.36	**7.05**
St Dev	5.09	1.15	5.05	1.13	5.38	1.21	5.95	1.34
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	36.25	8.15	21.97	4.94	23.22	5.22	8.41	1.89
Maximum	51.11	11.49	41.06	9.23	26.82	6.03	10.27	2.31
Average	45.99	**10.34**	33.40	**7.51**	24.82	**5.58**	9.05	**2.04**
St Dev	5.65	1.27	6.11	1.37	1.16	0.26	0.67	0.15
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**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	48.88	10.99	14.72	3.31	45.55	10.24	20.28	4.56
Maximum	58.62	13.18	21.71	4.88	62.76	14.11	29.85	6.71
Average	53.29	**11.98**	18.29	**4.11**	53.77	**12.09**	25.76	**5.79**
St Dev	3.21	0.72	2.44	0.55	5.94	1.33	4.00	0.90
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	46.39	10.43	21.08	4.74	46.21	10.39	21.57	4.85
Maximum	65.34	14.69	35.90	8.07	67.74	15.23	45.19	10.16
Average	54.80	**12.32**	30.62	**6.89**	55.99	**12.59**	34.65	**7.79**
St Dev	6.67	1.50	6.02	1.35	7.56	1.70	8.57	1.93
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	46.44	10.44	23.44	5.27	30.47	6.85	10.23	2.30
Maximum	68.86	15.48	49.24	11.07	36.25	8.15	13.39	3.01
Average	56.82	**12.78**	38.15	**8.58**	33.10	**7.44**	11.16	**2.51**
St Dev	7.81	1.76	9.59	2.16	2.18	0.49	1.00	0.22
Count	8	8	8	8	8	8	8	8

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-L-D-V-A/0.056" Edge Card

	LLCR Measurement Summaries by Pin Type			
Date	10/9/2012	10/11/2012	10/16/2012	10/26/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	31	31	32	34
Technician	Aaron McKim	Aaron McKim	Troy Cook	Aaron McKim
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	6.73	0.47	0.63	0.79
St. Dev.	0.46	0.38	0.43	0.58
Min	5.91	0.00	0.01	0.00
Max	8.22	2.11	2.45	3.06
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	**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.*
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   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-L-DV-A/ 0.068" Edge Card

LLCR Measurement Summaries by Pin Type				
Date	10/9/2012	10/11/2012	10/16/2012	10/26/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	31	31	33	34
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	6.07	0.50	0.55	0.62
St. Dev.	0.40	0.40	0.36	0.40
Min	5.31	0.00	0.00	0.00
Max	8.13	2.96	2.37	2.57
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	**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

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

	LLCR Measurement Summaries by Pin Type	
Date	10/9/2012	10/29/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	30	28
Technician	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta Shock-Vib**
	Pin Type 1: Signal	
Average	6.61	0.60
St. Dev.	0.46	0.54
Min	5.73	0.00
Max	8.21	4.47
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-L-DV-A/ 0.068" Edge Card

	LLCR Measurement Summaries by Pin Type	
Date	10/9/2012	10/23/2012
Room Temp (Deg C)	22	22
Rel Humidity (%)	32	37
Technician	Aaron McKim	Aaron McKim
mOhm values	**Actual Initial**	**Delta Shock-Vib**
	Pin Type 1: Signal	
Average	6.13	0.40
St. Dev.	0.49	0.32
Min	5.27	0.00
Max	8.03	1.95
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**

EQUIPMENT AND CALIBRATION SCHEDULES

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 #: 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-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 #: 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