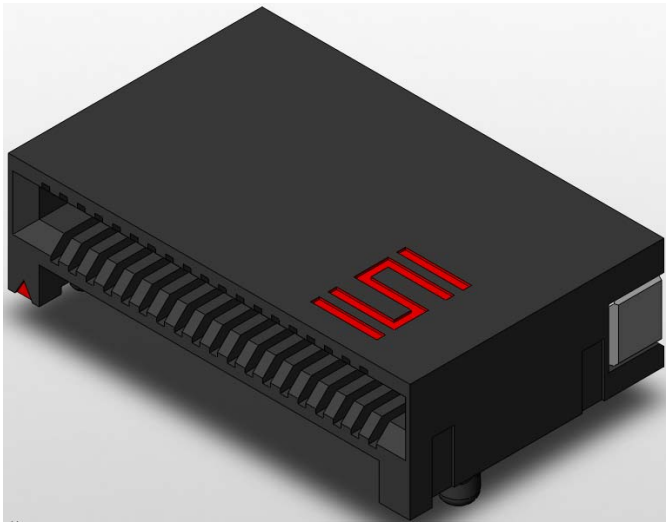
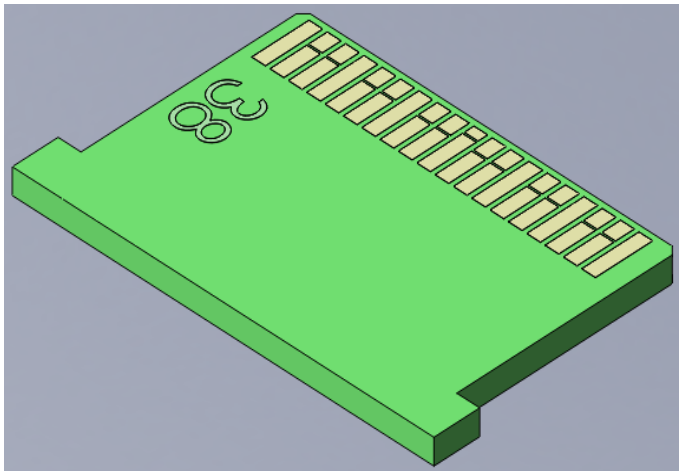
Project Number: Design Qualification Test Report	Tracking Code: 132820_Report_Rev_1			
Requested by: Hardy Tain	Date: 7/21/2011	Product Rev: 0		
Part #: QSFP8-038-01-L-D-RA1/QSFP8-Mating Board		Lot #: N/A	Tech: Peter Chen	Eng: Vico Zhao
Part description: QSFP8			Qty to test: 45	
Test Start: 4/10/2011	Test Completed: 5/5/2011			





Design Qualification Test Report

QSFP8
QSFP8-038-01-L-D-RA1/QSFP8-Mating Board

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.

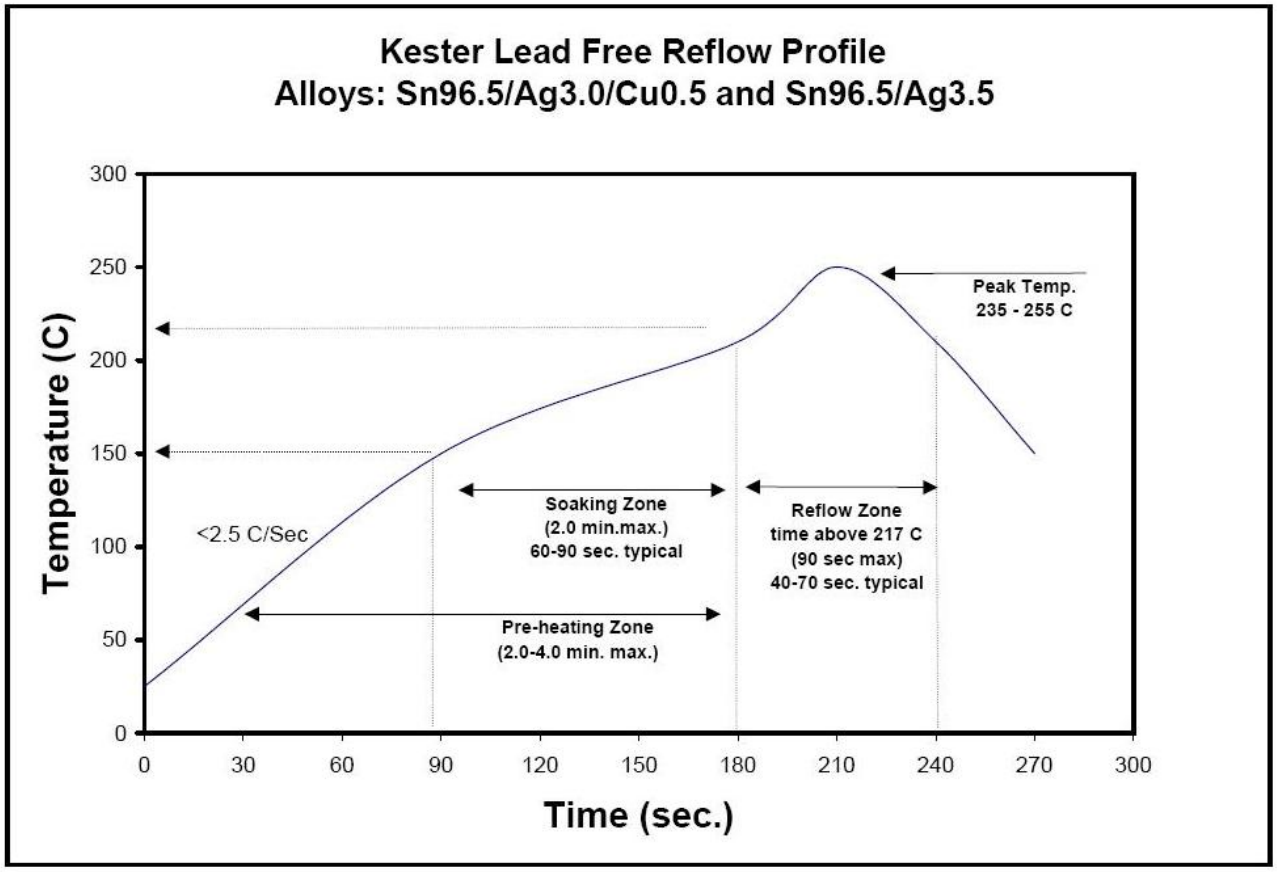
APPLICABLE DOCUMENTS

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-102894-TST-01A

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Gas Tight

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

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

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

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

FLOWCHARTS Continued

TEST STEP	GROUP B1 8 Boards (largest position submitted)
01	Contact Gaps
02	LLCR-1
03	Forces - Mating / Unmating
04	25 Cycles
05	Forces - Mating / Unmating
06	25 Cycles (50 Total)
07	Forces - Mating / Unmating
08	25 Cycles (75 Total)
09	Forces - Mating / Unmating
10	25 Cycles (100 Total)
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

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

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 ± 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

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

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

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 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

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.

ATTRIBUTE DEFINITIONS

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) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
2) The contacts shall be tested in the connector housing.
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 Dillon TC^2, computer controlled test stand with a deflection measurement system accuracy of 5.0 µm (0.0002").
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 system shall utilize the TC^2 software in order to acquire and record the test data.
10) The permanent set of each contact shall be measured within the TC^2 software.
11) 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.

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.

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

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. Rate of Application 500 V/Sec
        iii. Test Voltage (VAC) until breakdown occurs
2) MEASUREMENTS/CALCULATIONS
    a. The breakdown voltage shall be measured and recorded.
    b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
    c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage)..

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

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.

RESULTS

Temperature Rise, CCC at a 20% de-rating

- **CCC for a 30°C Temperature Rise ---------- 1.6 A per contact with 2 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.3 A per contact with 4 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.1 A per contact with 6 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 0.9 A per contact with 8 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 0.6 A per contact with all adjacent contacts powered**

Contact Gaps

Mating&Unmating durability

- **Initial**
  - **Min ---------- 0.324 mm**
  - **Max ---------- 0.420 mm**
- **After 100 Cycles**
  - **Min ---------- 0.386 mm**
  - **Max ---------- 0.470 mm**

Thermal aging

- **Initial**
  - **Min ---------- 0.328 mm**
  - **Max ---------- 0.404 mm**
- **After thermal aging**
  - **Min ---------- 0.408 mm**
  - **Max ---------- 0.500 mm**

RESULTS Continued

Mating – Unmating force
Mating&Unmating durability

- **Initial**
  - **Mating**
    - **Min ---------- 3.57 Lbs**
    - **Max---------- 6.31 Lbs**
  - **Unmating**
    - **Min ---------- 2.05 Lbs**
    - **Max---------- 2.95 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 3.13 Lbs**
    - **Max---------- 5.73 Lbs**
  - **Unmating**
    - **Min ---------- 1.87 Lbs**
    - **Max---------- 2.58 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 3.06 Lbs**
    - **Max---------- 5.34 Lbs**
  - **Unmating**
    - **Min ---------- 1.68 Lbs**
    - **Max---------- 2.51 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 3.04 Lbs**
    - **Max---------- 4.56 Lbs**
  - **Unmating**
    - **Min ---------- 1.72 Lbs**
    - **Max---------- 2.43 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 3.09 Lbs**
    - **Max---------- 4.04 Lbs**
  - **Unmating**
    - **Min ---------- 1.81 Lbs**
    - **Max---------- 2.16 Lb**
- **After Humidity**
  - **Mating**
    - **Min ---------- 1.96 Lbs**
    - **Max---------- 3.31 Lbs**
  - **Unmating**
    - **Min ---------- 1.14 Lbs**
    - **Max---------- 1.92 Lbs**

RESULTS Continued

Thermal aging

- **Initial**
  - **Mating**
    - **Min ---------- 5.51 Lbs**
    - **Max---------- 6.50 Lbs**
  - **Unmating**
    - **Min ---------- 2.58 Lbs**
    - **Max---------- 3.33 Lbs**
- **After thermal aging**
  - **Mating**
    - **Min ---------- 2.60 Lbs**
    - **Max---------- 4.59 Lbs**
  - **Unmating**
    - **Min ---------- 1.57 Lbs**
    - **Max---------- 3.45 Lbs**

LLCR Durability (192 pin LLCR test points)

- **Initial ---------- 30.1 mOhms Max**
- **After 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**
- **After 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**
- **After humidity**
  - **<= +5.0 mOhms ---------- 188 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 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 Aging (192 pin LLCR test points)

- **Initial ---------- 29.5 mOhms Max**
- **Thermal aging**
  - **<= +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 Gas Tight (192 pin LLCR test points)

- **Initial ---------- 29.0 mOhms Max**
- **Gas-Tight**
  - **<= +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**

LLCR Mechanical shock&Vibration (192 pin LLCR test points)

- **Initial ---------- 30.2mOhms 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**

Insulation Resistance minimums, IR

- **Initial**
  - **Mated ---------- 5810Meg Ω ---------- Pass**
  - **Unmated ---------- 5800Meg Ω ---------- Pass**
- **Thermal**
  - **Mated ---------- 6540Meg Ω ---------- Pass**
  - **Unmated ---------- 5680Meg Ω ---------- Pass**
- **Humidity**
  - **Mated ---------- 6758Meg Ω ---------- Pass**
  - **Unmated ---------- 6550Meg Ω ---------- Pass**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage ---------- 950VAC**
  - **Test Voltage ---------- 713VAC**
  - **Working Voltage ---------- 238VAC**
- **Initial DWV ---------- Passed**
- **Thermal DWV ---------- Passed**
- **Humidity DWV ---------- Passed**

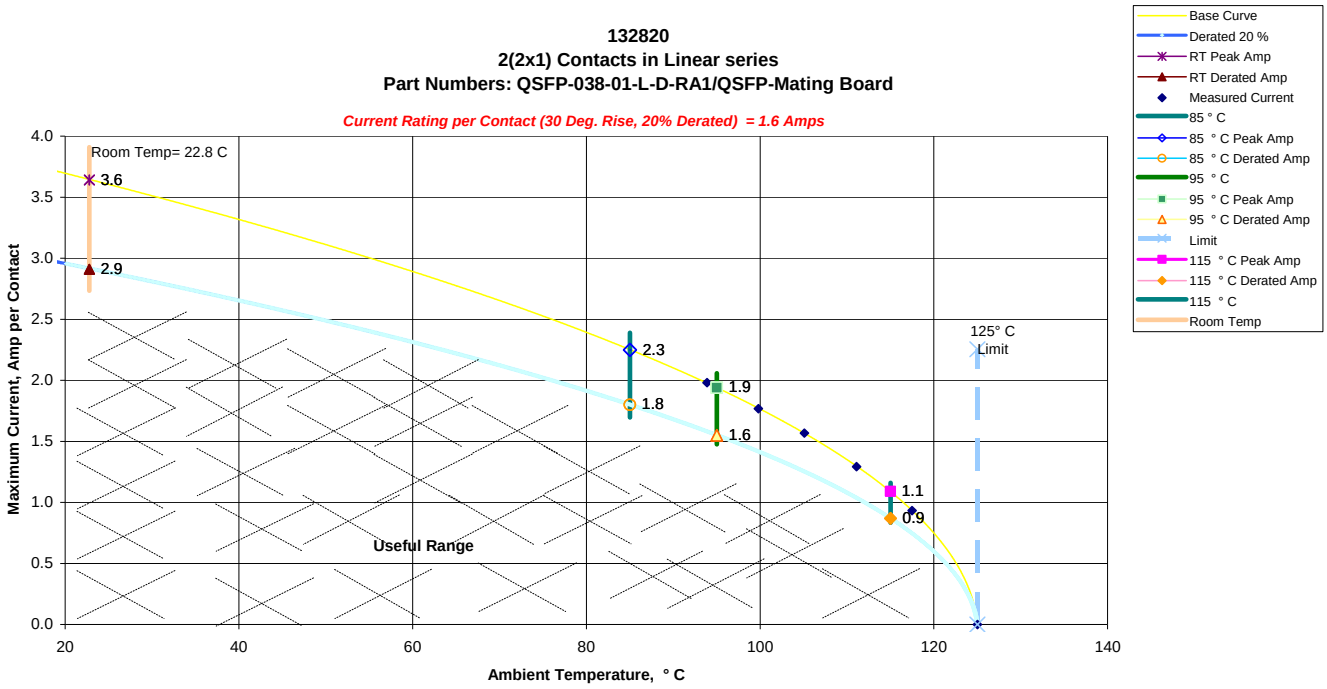
Mechanical Shock & Random Vibration:

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

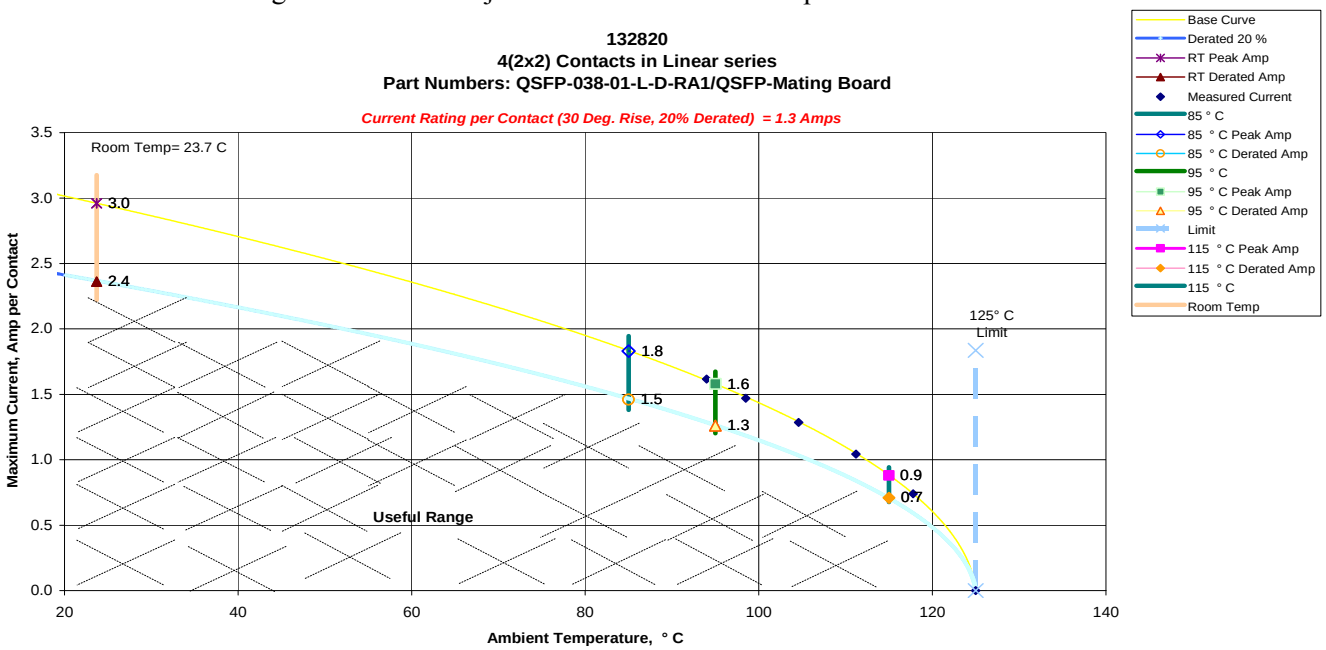
DATA SUMMARIES

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

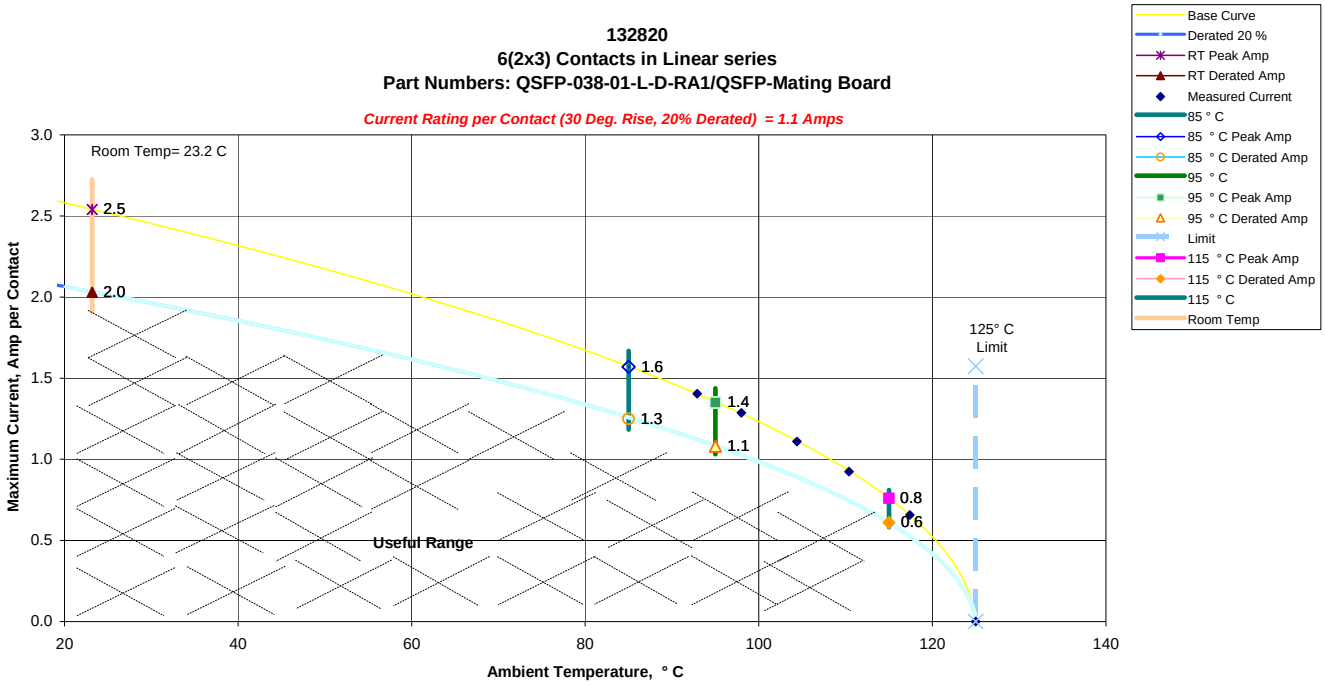


   b. Linear configuration with 4 adjacent conductors/contacts powered

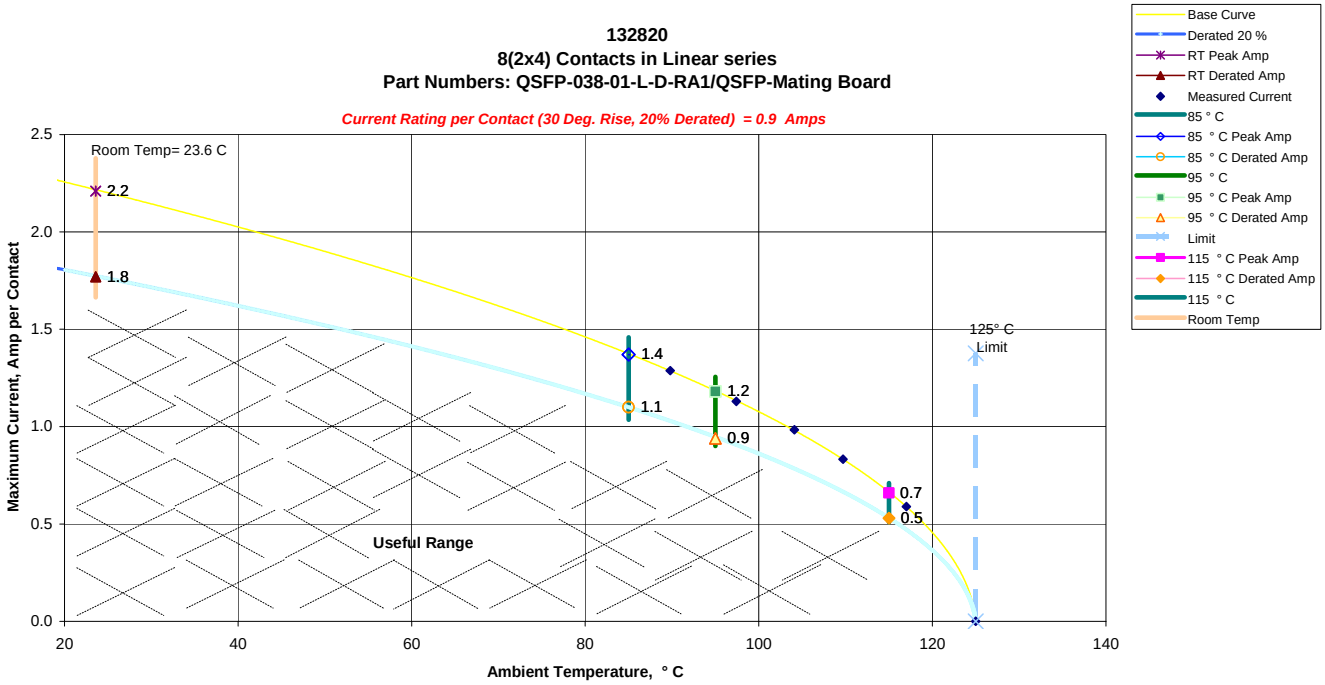


DATA SUMMARIES

c. Linear configuration with 6 adjacent conductors/contacts powered

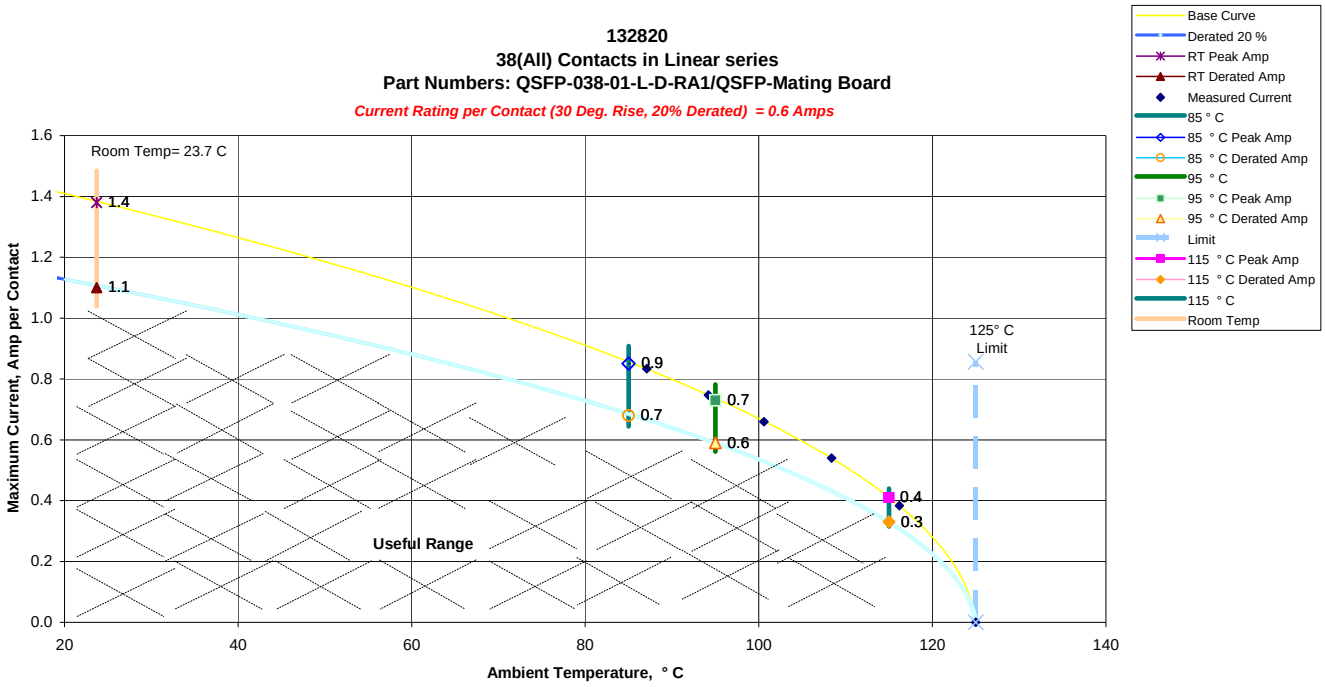


d. Linear configuration with 8 adjacent conductors/contacts powered



DATA SUMMARIES

e. Linear configuration with all adjacent conductors/contacts powered



DATA SUMMARIES

CONTACT GAPS:

Mating&Unmating durability:

Initial		After 100 Cycles	
Units:	mm	Units:	mm
Minimum	0.3240	***Minimum***	0.3860
Maximum	0.4200	***Maximum***	0.4700
Average	0.3552	***Average***	0.4129
St. Dev.	0.0197	***St. Dev.***	0.0190
Count	64	***Count***	64

Thermal aging:

Initial		After Thermal	
Units:	mm	Units:	mm
Minimum	0.3280	***Minimum***	0.4080
Maximum	0.4040	***Maximum***	0.5000
Average	0.3557	***Average***	0.4596
St. Dev.	0.0164	***St. Dev.***	0.0190
Count	64	***Count***	64

MATING/UNMATING FORCE:

Mating/Unmating durability:

	Initial				After 25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	15.89	3.57	9.12	2.05	13.93	3.13	8.34	1.87
Maximum	28.05	6.31	13.14	2.95	25.50	5.73	11.48	2.58
Average	22.01	**4.95**	11.11	**2.50**	19.46	**4.37**	9.81	**2.21**
St Dev	4.39	0.99	1.45	0.33	4.26	0.96	1.11	0.25
Count	8	8	8	8	8	8	8	8

	After 50 Cycles				After 75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	13.63	3.06	7.45	1.68	13.53	3.04	7.65	1.72
Maximum	23.73	5.34	11.18	2.51	20.30	4.56	10.79	2.43
Average	17.20	**3.87**	9.02	**2.03**	16.22	**3.65**	8.86	**1.99**
St Dev	3.77	0.85	1.28	0.29	2.61	0.59	1.01	0.23
Count	8	8	8	8	8	8	8	8

	After 100 Cycles				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	13.73	3.09	8.04	1.81	8.73	1.96	5.07	1.14
Maximum	17.95	4.04	9.61	2.16	14.71	3.31	8.53	1.92
Average	15.57	**3.50**	8.72	**1.96**	12.46	**2.80**	7.67	**1.72**
St Dev	1.65	0.37	0.59	0.13	2.17	0.49	1.17	0.26
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES

Thermal aging:

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	24.52	5.51	11.48	2.58	11.57	2.60	6.96	1.57
Maximum	28.93	6.50	14.81	3.33	20.40	4.59	15.35	3.45
Average	27.36	**6.15**	13.36	**3.00**	17.54	**3.94**	9.34	**2.10**
St Dev	1.65	0.37	1.27	0.29	3.10	0.70	2.91	0.65
Count	8	8	8	8	8	8	8	8

INSULATION RESISTANCE (IR):

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	**QSFP/Mating Boar**	**QSFP**	**Mating Board**
Initial	5810	5800	Not Tested
Thermal	6540	5680	Not Tested
Humidity	6758	6550	Not Tested

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**QSFP/Mating Board**
Break Down Voltage	950
Test Voltage	713
Working Voltage	238

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

DATA SUMMARIES

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. <= +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	4/6/2011	4/11/2011	4/23/2011	5/3/2011
Room Temp C	23	24	23	23
RH	45%	50%	50%	51%
Name	Peter Chen	Peter Chen	Peter Chen	Peter Chen
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Thermal**	**Delta Humidity**
Average	25.0	-0.2	0.3	0.9
St. Dev.	2.5	1.2	1.4	1.6
Min	19.4	-4.4	-3.7	-3.5
Max	30.1	4.5	4.3	5.5
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	188	4	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. <= +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	4/25/2011	5/5/2011
Room Temp C	23	23
RH	45%	50%
Name	Peter Chen	Peter Chen
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	23.8	1.9
St. Dev.	2.5	1.5
Min	18.2	-2.6
Max	29.0	6.3
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	189	3	0	0	0	0

DATA SUMMARIES Continued

Thermal Aging:

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. <= +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	4/18/2011	4/27/2011
Room Temp C	23	23
RH	50%	46%
Name	Peter Chen	Peter Chen
mOhm values	**Actual Initial**	**Delta Thermal Age**
Average	25.4	-0.7
St. Dev.	2.6	0.8
Min	19.7	-4.3
Max	29.5	1.4
Count	192	192

How many samples are being tested?	8
How many contacts are on each board?	24

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

DATA SUMMARIES Continued

LLCR Shock/Vibration:

9) A total of 192 points were measured.
10) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
11) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
12) 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

Date	5/25/2011	5/31/2011
Room Temp C	23	22
RH	48%	45%
Name	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta Shock / Vibe**
Average	24.5	-0.3
St. Dev.	2.4	0.4
Min	18.9	-2.8
Max	30.2	0.9
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 / Vibe	192	0	0	0	0	192

DATA

CONTACT GAPS

Mating&Unmating durability

Initial								
Units: mm								
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
1	0.3540	0.4020	0.3640	0.4000	0.3520	0.4060	0.3860	0.3820
2	0.3520	0.3620	0.3520	0.3680	0.3420	0.3520	0.3420	0.3540
3	0.3540	0.3460	0.3520	0.3380	0.3420	0.3380	0.3440	0.3360
4	0.3480	0.3460	0.3540	0.3420	0.3340	0.3640	0.3400	0.3520
5	0.3340	0.3420	0.3420	0.3460	0.3260	0.3400	0.3480	0.3340
6	0.3440	0.3540	0.3420	0.3480	0.3420	0.4200	0.3440	0.3440
7	0.3240	0.3660	0.3580	0.3560	0.3520	0.3520	0.3460	0.3540
8	0.3840	0.3580	0.4040	0.3680	0.3840	0.3620	0.3600	0.3560
After 100 cycles								
Units: mm								
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
1	0.464	0.47	0.422	0.406	0.4	0.438	0.44	0.412
2	0.45	0.448	0.414	0.396	0.404	0.424	0.404	0.4
3	0.438	0.424	0.41	0.396	0.396	0.422	0.428	0.394
4	0.424	0.42	0.406	0.388	0.402	0.416	0.4	0.392
5	0.424	0.42	0.388	0.386	0.404	0.42	0.406	0.394
6	0.428	0.392	0.406	0.386	0.404	0.402	0.428	0.392
7	0.424	0.402	0.396	0.422	0.396	0.406	0.418	0.4
8	0.4	0.406	0.402	0.436	0.405	0.45	0.43	0.402

Thermal aging

Initial								
Units: mm								
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
1	0.4040	0.3480	0.3760	0.3500	0.3900	0.3600	0.3720	0.3780
2	0.3640	0.3380	0.3360	0.3500	0.3540	0.3460	0.3960	0.3660
3	0.3500	0.3480	0.3440	0.3540	0.3420	0.3500	0.3660	0.3680
4	0.3480	0.3600	0.3440	0.3440	0.3540	0.3520	0.3280	0.3600
5	0.3400	0.3560	0.3360	0.3300	0.3500	0.3480	0.3420	0.3440
6	0.3400	0.3540	0.3440	0.3380	0.3640	0.3540	0.3620	0.3580
7	0.3380	0.3980	0.3460	0.3540	0.3560	0.3380	0.3520	0.3580
8	0.3520	0.3600	0.3740	0.3880	0.3500	0.3460	0.3660	0.3880
After Thermal								
Units: mm								
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
1	0.4760	0.4780	0.4640	0.4920	0.4600	0.4220	0.5000	0.4080
2	0.4560	0.4560	0.4580	0.4720	0.4120	0.4940	0.4780	0.4840
3	0.4500	0.4780	0.4440	0.4500	0.4080	0.4840	0.4720	0.4700
4	0.4640	0.4580	0.4420	0.4520	0.4900	0.4600	0.4600	0.4660
5	0.4380	0.4640	0.4320	0.4560	0.4880	0.4720	0.4760	0.4580
6	0.4400	0.4680	0.4460	0.4420	0.4720	0.4660	0.4740	0.4740
7	0.4360	0.4540	0.4440	0.4500	0.4720	0.4540	0.4660	0.4700
8	0.4640	0.4600	0.4400	0.4480	0.4640	0.4640	0.4560	0.4660

DATA continued

MATING/UNMATING FORCE

Mating/Unmating durability:

	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles		After 100 Cycles		After Humidity	
Sample#	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	3.70	2.05	3.33	2.03	3.06	1.90	3.04	1.92	3.09	2.09	2.87	1.14
2	4.48	2.47	3.13	2.29	3.44	1.68	3.29	1.72	3.31	1.81	2.62	1.57
3	5.91	2.95	5.73	2.51	5.34	2.51	4.56	2.43	4.04	2.01	2.29	1.81
4	3.57	2.14	3.46	1.87	3.44	1.87	3.35	1.87	3.31	1.83	1.96	1.76
5	5.16	2.54	4.43	2.25	4.19	2.18	3.97	1.98	3.79	1.81	2.84	1.81
6	4.92	2.37	4.96	2.07	3.20	1.76	3.18	1.83	3.20	1.98	3.20	1.87
7	6.31	2.93	4.83	2.03	3.37	2.01	3.37	1.96	3.31	1.98	3.31	1.92
8	5.53	2.54	5.12	2.58	4.90	2.32	4.41	2.23	3.97	2.16	3.31	1.92

Thermal aging:

	Initial		After Thermals	
Sample#	Mating	Unmating	Mating	Unmating
1	5.89	2.58	3.35	1.57
2	6.42	3.02	4.30	1.85
3	6.20	2.91	2.60	1.76
4	5.51	2.62	3.90	1.57
5	6.50	3.20	3.77	2.18
6	5.82	3.06	4.45	2.65
7	6.37	3.31	4.59	1.76
8	6.50	3.33	4.59	3.45

DATA continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Initial Breakdown Voltage

Test Voltage *Until Breakdown Occurs*

	Pin to Pin		
	Mated	A Unmated B	
	X		
Sample#	QSFP/Mating Boar	QSFP	Mating Board
132820-001	950	1200	
132820-002	1000	1200	

Initial DWV

Test Voltage= 713

	Pin to Pin		
	Mated	A Unmated B	
Sample#	QSFP/Mating Boar	QSFP	Mating Board
132820-005	713	713	
132820-006	713	713	

Thermal Test Voltage

Test Voltage= 713

	Pin to Pin		
	Mated	A Unmated B	
Sample#	QSFP/Mating Boar	QSFP	Mating Board
132820-005	713	713	
132820-006	713	713	

Humidity Test Voltage

Test Voltage= 713

	Pin to Pin		
	Mated	A Unmated B	
Sample#	QSFP/Mating Boar	QSFP	Mating Board
132820-005	713	713	
132820-006	713	713	

DATA continued

INSULATION RESISTANCE (IR):

Initial Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	A Unmated B	
	X	X	
Sample#	QSFP/Mating Board	QSFP	Mating Board
132820-005	5875	5888	
132820-006	5810	5800	

Thermal Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	A Unmated B	
	X	X	
Sample#	QSFP/Mating Board	QSFP	Mating Board
132820-005	6540	5680	
132820-006	7100	6000	

Humidity Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	A Unmated B	
	X	X	
Sample#	QSFP/Mating Board	QSFP	Mating Board
132820-005	6758	6900	
132820-006	7546	6550	

DATA Continued

LLCR Durability:

Board	mOhm values Position	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
1	P1	20.3	-0.2	0.3	1.3
1	P2	20.0	0.3	0.7	3.3
1	P3	20.3	0.9	0.9	3.4
1	P4	26.0	0.6	3.2	0.1
1	P5	25.7	-0.1	3.0	-0.4
1	P6	25.3	0.3	3.4	0.2
1	P7	25.5	1.7	4.2	0.6
1	P8	25.2	-0.1	3.8	0.1
1	P9	25.2	0.6	2.4	-0.1
1	P10	25.1	0.1	0.2	0.1
1	P11	25.4	-0.1	0.0	-0.1
1	P12	25.2	0.1	0.1	0.0
1	P13	25.3	0.0	-0.1	0.0
1	P14	25.3	-0.1	-0.3	0.2
1	P15	25.2	0.0	-0.1	0.1
1	P16	25.4	-0.2	-0.6	0.8
1	P17	25.2	0.0	-0.3	3.3
1	P18	25.4	0.1	-0.2	0.3
1	P19	25.4	-0.1	-0.5	1.0
1	P20	25.3	0.3	0.1	0.1
1	P21	25.4	0.4	0.5	0.2
1	P22	25.7	0.2	-0.3	0.8
1	P23	19.4	0.5	0.4	3.0
1	P24	19.6	0.0	0.7	0.2
2	P1	20.8	1.0	4.3	5.1
2	P2	20.7	0.6	-0.1	0.1
2	P3	21.7	-0.2	-0.6	-0.4
2	P4	29.7	-3.5	-3.6	-0.6
2	P5	26.3	0.1	-0.2	2.9
2	P6	28.3	-2.0	-2.3	-1.3
2	P7	26.4	-0.1	-0.3	1.1
2	P8	29.2	-2.9	-2.4	1.5
2	P9	26.1	0.3	2.1	5.4
2	P10	27.6	-1.5	-0.5	-0.1
2	P11	25.9	0.0	0.7	5.0
2	P12	25.9	0.2	1.4	5.3
2	P13	25.8	-0.4	0.0	2.3
2	P14	30.0	-4.4	-3.3	-3.5
2	P15	27.1	-1.0	1.9	2.3
2	P16	26.0	0.4	0.4	0.1
2	P17	28.0	-2.6	-2.0	-1.9
2	P18	26.7	-1.3	-0.7	-1.1
2	P19	26.0	-0.2	2.5	3.6
2	P20	26.4	-0.7	-0.5	-0.3
2	P21	27.0	-1.3	-1.4	-1.2

2	P22	26.6	-0.5	0.8	1.1
2	P23	20.4	0.0	-0.5	-0.2
2	P24	20.1	0.1	-0.2	-0.3
3	P1	20.3	0.0	0.0	1.2
3	P2	20.3	0.3	-0.1	0.6
3	P3	21.4	-0.2	-0.6	0.3
3	P4	26.4	-1.3	-1.3	-0.1
3	P5	25.7	1.3	2.6	1.5
3	P6	26.2	-0.4	0.0	1.0
3	P7	27.5	-1.5	-1.6	-0.5
3	P8	26.2	0.4	0.8	0.6
3	P9	26.3	-0.9	-1.0	0.0
3	P10	25.8	-0.3	0.4	1.0
3	P11	26.8	-0.5	-0.1	0.3
3	P12	25.8	0.7	2.4	0.8
3	P13	25.7	1.4	1.8	1.1
3	P14	27.0	-1.5	-1.4	-0.7
3	P15	25.8	-0.3	-0.6	1.0
3	P16	25.9	-0.6	-0.9	-0.1
3	P17	25.9	-0.3	-0.6	0.5
3	P18	25.5	0.1	-0.3	0.4
3	P19	25.8	0.2	0.2	0.0
3	P20	26.0	-0.1	-0.1	0.4
3	P21	26.3	-0.4	-0.6	0.2
3	P22	26.0	-0.1	-0.4	0.1
3	P23	20.3	0.1	0.3	0.3
3	P24	20.1	0.1	-0.2	1.6
4	P1	20.3	0.0	0.6	0.0
4	P2	20.0	0.0	1.0	0.2
4	P3	20.5	0.0	1.3	0.6
4	P4	25.8	0.1	1.0	2.2
4	P5	25.6	0.1	0.4	1.1
4	P6	25.5	0.4	0.9	3.2
4	P7	25.5	0.0	0.4	0.0
4	P8	25.9	-0.5	-0.3	-0.4
4	P9	25.5	-0.1	1.9	3.7
4	P10	25.5	-0.1	0.1	0.5
4	P11	25.5	-0.1	0.0	0.1
4	P12	25.4	-0.2	0.0	0.3
4	P13	25.6	-0.2	0.2	0.3
4	P14	25.5	0.2	0.2	0.2
4	P15	25.6	0.0	0.4	0.0
4	P16	25.5	0.0	0.7	0.8
4	P17	25.6	0.1	0.0	-0.3
4	P18	25.4	0.3	1.0	0.1
4	P19	25.5	0.1	2.7	1.9
4	P20	25.5	0.7	0.9	0.2
4	P21	25.8	0.0	0.3	0.6
4	P22	25.9	0.4	1.2	1.0
4	P23	20.0	0.1	-0.1	-0.1

4	P24	19.8	0.1	-0.1	0.0
5	P1	20.7	0.3	0.6	0.6
5	P2	21.7	-0.9	-0.8	-0.8
5	P3	21.4	0.3	-0.2	0.2
5	P4	26.0	-0.1	0.0	0.5
5	P5	25.8	-0.2	-0.2	5.0
5	P6	26.5	-1.2	-1.3	0.6
5	P7	26.4	-1.1	-1.4	-0.3
5	P8	25.9	-0.5	-0.6	0.3
5	P9	26.7	-0.7	-0.5	0.6
5	P10	25.8	-0.2	-0.4	-0.1
5	P11	26.4	-0.6	-0.1	4.3
5	P12	26.3	-0.7	-0.5	5.5
5	P13	26.5	-0.5	-0.6	-0.4
5	P14	27.3	-1.3	-0.6	2.8
5	P15	27.9	-1.4	-1.7	0.4
5	P16	26.6	-0.9	-1.3	-1.0
5	P17	26.9	-0.4	-0.5	2.9
5	P18	26.8	-1.1	0.4	-0.9
5	P19	26.4	-0.9	-1.2	-0.6
5	P20	26.8	-1.3	-1.7	0.5
5	P21	26.7	-0.7	-0.8	0.2
5	P22	26.1	0.4	0.4	3.8
5	P23	20.0	0.5	0.4	0.5
5	P24	20.1	-0.1	0.9	0.2
6	P1	20.1	3.8	0.3	2.4
6	P2	20.0	1.4	1.7	0.9
6	P3	20.6	0.3	0.5	1.3
6	P4	25.5	-0.3	0.9	3.1
6	P5	26.1	0.0	1.8	0.2
6	P6	25.4	0.5	1.0	0.8
6	P7	25.8	0.1	0.9	4.8
6	P8	25.5	1.4	0.9	3.2
6	P9	25.4	1.1	0.7	2.7
6	P10	26.0	0.0	1.8	2.7
6	P11	25.7	1.5	2.0	3.3
6	P12	25.6	1.4	1.5	2.9
6	P13	25.5	1.8	1.6	2.3
6	P14	25.5	1.1	1.8	4.9
6	P15	25.5	3.0	0.8	3.8
6	P16	25.4	0.6	0.9	2.1
6	P17	25.6	1.9	1.4	2.6
6	P18	25.5	4.5	3.1	3.5
6	P19	25.4	1.6	2.4	2.2
6	P20	25.7	1.8	0.5	2.8
6	P21	25.7	3.3	1.7	4.5
6	P22	25.9	1.2	0.1	2.0
6	P23	19.9	0.4	0.9	1.0
6	P24	20.2	0.3	0.5	2.3
7	P1	21.0	-0.5	0.8	0.7

7	P2	21.1	-0.6	0.2	0.6
7	P3	21.6	-0.3	0.4	0.5
7	P4	26.1	0.2	2.7	1.2
7	P5	26.2	0.1	2.1	1.6
7	P6	26.5	-0.7	0.1	1.0
7	P7	25.9	-0.9	0.7	1.2
7	P8	26.3	-0.7	0.4	1.5
7	P9	28.9	-3.2	-2.4	-1.8
7	P10	26.0	-0.6	3.5	1.2
7	P11	25.5	-0.1	1.1	0.0
7	P12	25.9	-0.4	1.2	0.6
7	P13	25.7	-0.1	2.0	1.2
7	P14	25.8	-0.6	1.3	1.0
7	P15	28.1	-2.6	-0.6	-1.2
7	P16	26.5	-1.3	2.8	0.2
7	P17	27.2	-1.7	2.6	0.4
7	P18	28.0	-2.4	0.2	-0.9
7	P19	29.8	-4.0	-1.8	-2.8
7	P20	25.1	0.6	3.2	1.8
7	P21	26.2	-0.5	2.9	1.1
7	P22	26.6	0.8	2.9	3.7
7	P23	20.4	0.0	3.4	3.3
7	P24	20.2	-0.4	0.2	0.6
8	P1	20.5	-0.7	-0.1	0.4
8	P2	20.6	-0.7	-0.8	-0.6
8	P3	20.7	-0.2	-0.1	-0.2
8	P4	25.7	0.1	0.1	-0.2
8	P5	25.6	-0.1	0.0	1.6
8	P6	25.4	0.0	0.2	2.3
8	P7	25.9	-0.6	-0.4	3.0
8	P8	26.9	-1.7	-1.5	-1.0
8	P9	25.7	-0.7	-0.5	0.3
8	P10	25.9	-0.7	-0.6	0.3
8	P11	25.5	-0.2	0.5	1.0
8	P12	30.1	-4.4	-3.7	-2.3
8	P13	25.7	-0.6	-0.5	-0.2
8	P14	26.2	-0.8	-0.2	0.9
8	P15	26.7	-1.3	-1.5	-0.5
8	P16	26.1	-1.0	-1.0	-0.5
8	P17	27.3	-2.2	-1.6	-1.9
8	P18	27.1	-2.2	-1.6	-1.5
8	P19	26.1	0.6	-0.5	0.0
8	P20	26.2	-1.2	-1.3	-0.6
8	P21	27.1	-2.1	-2.1	-2.0
8	P22	25.8	0.9	0.7	2.4
8	P23	19.7	0.2	0.3	0.3
8	P24	19.6	-0.2	0.0	-0.1

DATA Continued

LLCR Gas Tight

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	19.7	0.8
1	P2	19.6	1.4
1	P3	20.6	1.5
1	P4	25.6	0.7
1	P5	25.2	1.2
1	P6	27.2	-0.6
1	P7	25.2	0.8
1	P8	28.1	-2.4
1	P9	25.0	0.9
1	P10	26.5	-0.3
1	P11	24.8	4.0
1	P12	24.8	2.8
1	P13	24.7	2.2
1	P14	28.9	-2.5
1	P15	26.0	-0.3
1	P16	24.9	1.0
1	P17	26.9	-1.3
1	P18	25.6	0.4
1	P19	24.8	1.0
1	P20	25.3	1.0
1	P21	25.9	0.3
1	P22	25.5	0.4
1	P23	19.3	1.1
1	P24	19.0	1.0
2	P1	19.2	1.9
2	P2	18.9	3.4
2	P3	19.2	3.0
2	P4	24.9	-0.9
2	P5	24.6	0.5
2	P6	24.2	2.8
2	P7	24.4	3.0
2	P8	24.1	3.5
2	P9	24.1	3.0
2	P10	24.0	4.3
2	P11	24.3	5.3
2	P12	24.0	4.7
2	P13	24.2	2.4
2	P14	24.2	3.8
2	P15	24.1	3.6
2	P16	24.3	3.6
2	P17	24.1	3.0
2	P18	24.2	3.7
2	P19	24.2	2.4
2	P20	24.2	3.1
2	P21	24.3	0.8

2	P22	24.6	-0.3
2	P23	18.2	2.2
2	P24	18.5	3.8
3	P1	19.2	2.6
3	P2	18.9	3.5
3	P3	19.4	3.6
3	P4	24.7	4.6
3	P5	24.5	1.8
3	P6	24.4	3.0
3	P7	24.4	1.6
3	P8	24.8	2.4
3	P9	24.4	5.5
3	P10	24.4	1.0
3	P11	24.4	4.2
3	P12	24.3	2.5
3	P13	24.5	3.6
3	P14	24.4	2.9
3	P15	24.5	4.4
3	P16	24.4	4.0
3	P17	24.5	1.7
3	P18	24.3	2.0
3	P19	24.4	3.6
3	P20	24.4	2.6
3	P21	24.7	2.4
3	P22	24.8	2.1
3	P23	18.9	3.6
3	P24	18.7	2.1
4	P1	19.2	3.2
4	P2	19.2	2.9
4	P3	20.3	1.3
4	P4	25.3	4.4
4	P5	24.6	4.2
4	P6	25.0	2.5
4	P7	26.4	1.4
4	P8	25.0	2.1
4	P9	25.1	1.4
4	P10	24.7	3.3
4	P11	25.7	0.4
4	P12	24.7	2.0
4	P13	24.6	1.6
4	P14	25.8	0.3
4	P15	24.7	1.8
4	P16	24.8	2.8
4	P17	24.8	3.6
4	P18	24.4	4.1
4	P19	24.7	2.9
4	P20	24.9	1.0
4	P21	25.2	1.9
4	P22	24.8	3.3
4	P23	19.2	1.6

4	P24	19.0	1.3
5	P1	19.4	2.0
5	P2	19.5	2.9
5	P3	19.6	2.9
5	P4	24.6	-0.3
5	P5	24.5	3.7
5	P6	24.3	3.5
5	P7	24.8	2.5
5	P8	25.8	1.7
5	P9	24.6	2.4
5	P10	24.8	1.0
5	P11	24.4	3.1
5	P12	29.0	-2.6
5	P13	24.6	0.9
5	P14	25.1	3.3
5	P15	25.5	1.5
5	P16	25.0	2.4
5	P17	26.2	0.4
5	P18	26.0	-1.3
5	P19	24.9	1.5
5	P20	25.1	1.4
5	P21	25.9	3.1
5	P22	24.7	2.1
5	P23	18.6	2.1
5	P24	18.5	2.7
6	P1	19.0	1.0
6	P2	18.9	1.0
6	P3	19.5	1.8
6	P4	24.4	2.9
6	P5	25.0	0.0
6	P6	24.3	0.8
6	P7	24.7	0.9
6	P8	24.4	0.7
6	P9	24.3	1.1
6	P10	24.9	0.4
6	P11	24.6	0.9
6	P12	24.5	2.7
6	P13	24.4	1.6
6	P14	24.4	1.6
6	P15	24.4	1.9
6	P16	24.3	2.6
6	P17	24.5	2.2
6	P18	24.4	4.0
6	P19	24.3	2.5
6	P20	24.6	1.8
6	P21	24.6	1.2
6	P22	24.8	0.7
6	P23	18.8	1.0
6	P24	19.1	0.3
7	P1	19.9	2.3

7	P2	20.0	1.4
7	P3	20.5	1.7
7	P4	25.0	1.5
7	P5	25.1	1.6
7	P6	25.4	1.3
7	P7	24.8	1.5
7	P8	25.2	3.1
7	P9	27.8	0.2
7	P10	24.9	1.9
7	P11	24.4	4.1
7	P12	24.8	3.6
7	P13	24.6	2.0
7	P14	24.7	3.2
7	P15	27.0	-1.0
7	P16	25.4	0.9
7	P17	26.1	2.5
7	P18	26.9	1.2
7	P19	28.7	-1.3
7	P20	24.0	2.7
7	P21	25.1	2.8
7	P22	25.5	3.3
7	P23	19.3	1.9
7	P24	19.1	1.4
8	P1	19.6	1.6
8	P2	20.6	0.4
8	P3	20.3	6.3
8	P4	24.9	2.7
8	P5	24.7	1.1
8	P6	25.4	0.6
8	P7	25.3	1.8
8	P8	24.7	1.4
8	P9	25.6	0.5
8	P10	24.6	1.9
8	P11	25.3	1.5
8	P12	25.2	2.0
8	P13	25.4	2.3
8	P14	26.2	1.9
8	P15	26.8	1.7
8	P16	25.5	1.1
8	P17	25.7	1.6
8	P18	25.7	1.6
8	P19	25.3	2.2
8	P20	25.7	1.2
8	P21	25.6	-0.3
8	P22	24.9	1.9
8	P23	18.9	3.7
8	P24	18.9	1.9

DATA Continued

LLCR Thermal Aging:

mOhm values		Actual	Delta
Board	Position	Initial	Thermal Age
1	P1	20.2	-0.6
1	P2	20.4	-0.7
1	P3	21.0	-0.8
1	P4	26.1	-0.9
1	P5	26.9	-1.5
1	P6	27.4	-1.6
1	P7	25.7	-0.3
1	P8	25.4	-0.3
1	P9	25.8	-0.9
1	P10	27.2	-2.3
1	P11	28.4	-3.3
1	P12	29.5	-4.3
1	P13	29.2	-4.2
1	P14	28.9	-3.5
1	P15	27.3	-2.2
1	P16	28.5	-3.0
1	P17	26.6	-1.4
1	P18	28.3	-2.7
1	P19	26.7	-1.1
1	P20	26.1	-0.8
1	P21	26.2	-0.7
1	P22	26.3	-1.0
1	P23	20.1	-0.5
1	P24	19.9	-0.4
2	P1	21.9	-1.3
2	P2	21.5	-1.1
2	P3	22.1	-1.3
2	P4	27.7	-0.6
2	P5	26.8	-1.2
2	P6	26.9	-1.1
2	P7	26.7	-1.0
2	P8	27.3	-0.7
2	P9	26.2	-0.7
2	P10	26.9	-1.1
2	P11	27.1	-0.9
2	P12	26.4	-1.0
2	P13	27.2	-0.9
2	P14	26.5	-1.2
2	P15	26.0	-0.8
2	P16	26.1	-0.9
2	P17	26.0	-0.7
2	P18	26.1	-0.9
2	P19	26.2	-0.8
2	P20	27.1	-1.0
2	P21	26.5	-1.0
2	P22	26.7	0.3

2	P23	19.7	-0.2
2	P24	20.5	-0.6
3	P1	20.1	0.5
3	P2	19.9	0.2
3	P3	20.5	0.2
3	P4	25.5	0.8
3	P5	27.4	-0.4
3	P6	26.5	1.4
3	P7	25.8	0.5
3	P8	26.3	-0.1
3	P9	26.6	-0.8
3	P10	26.4	-0.7
3	P11	27.9	-1.2
3	P12	26.9	-1.1
3	P13	27.5	-1.6
3	P14	26.2	-0.1
3	P15	26.8	-0.5
3	P16	25.8	-0.1
3	P17	26.3	0.3
3	P18	25.3	0.0
3	P19	27.5	-0.3
3	P20	27.1	0.1
3	P21	27.9	-1.4
3	P22	27.9	-0.9
3	P23	20.1	0.0
3	P24	20.4	-0.5
4	P1	21.2	-0.4
4	P2	21.1	-0.2
4	P3	21.3	-0.8
4	P4	26.1	-0.3
4	P5	26.1	0.2
4	P6	25.7	-0.5
4	P7	26.1	-0.7
4	P8	26.2	-0.7
4	P9	25.8	-0.5
4	P10	26.4	-0.6
4	P11	26.0	-0.4
4	P12	26.1	-0.7
4	P13	25.8	-0.8
4	P14	25.5	-0.6
4	P15	25.5	-0.4
4	P16	25.9	-0.7
4	P17	25.7	-0.7
4	P18	25.5	-0.7
4	P19	25.7	-0.8
4	P20	25.7	-0.7
4	P21	26.0	-0.9
4	P22	25.9	-1.0
4	P23	21.6	-1.2
4	P24	21.0	-0.6

5	P1	21.1	-0.6
5	P2	21.5	-0.9
5	P3	21.6	-0.9
5	P4	29.0	0.4
5	P5	27.0	0.4
5	P6	26.6	0.9
5	P7	27.3	-1.3
5	P8	29.5	-2.9
5	P9	27.5	-1.4
5	P10	26.2	-0.5
5	P11	26.2	-0.6
5	P12	25.6	-0.7
5	P13	25.5	-0.6
5	P14	25.6	-0.6
5	P15	26.5	-1.0
5	P16	29.3	-3.6
5	P17	27.6	-2.0
5	P18	26.3	-1.0
5	P19	28.7	-3.2
5	P20	27.4	-1.7
5	P21	27.4	-1.5
5	P22	27.2	-2.0
5	P23	20.8	-0.5
5	P24	20.4	-0.4
6	P1	19.9	0.1
6	P2	20.1	-0.4
6	P3	21.0	0.4
6	P4	28.1	-1.0
6	P5	26.9	-0.2
6	P6	27.0	-0.8
6	P7	26.3	0.0
6	P8	26.8	-0.5
6	P9	28.5	-1.5
6	P10	27.4	-0.7
6	P11	27.0	0.4
6	P12	26.5	-0.3
6	P13	26.6	-0.2
6	P14	27.2	-0.6
6	P15	26.8	-0.5
6	P16	26.5	-0.7
6	P17	27.2	-0.4
6	P18	26.5	-0.8
6	P19	26.3	-0.5
6	P20	26.6	-0.4
6	P21	26.9	-0.7
6	P22	26.9	-0.3
6	P23	19.8	0.1
6	P24	19.7	0.3
7	P1	20.4	-0.4
7	P2	21.4	-1.0

7	P3	20.9	-0.4
7	P4	25.7	-0.1
7	P5	26.7	-1.0
7	P6	26.8	-1.2
7	P7	26.0	-0.1
7	P8	26.2	-0.4
7	P9	25.7	0.2
7	P10	26.5	-0.4
7	P11	25.7	-0.3
7	P12	26.0	-0.6
7	P13	27.9	-1.8
7	P14	27.3	-1.3
7	P15	26.2	-0.3
7	P16	25.7	-0.1
7	P17	25.6	-0.1
7	P18	25.4	0.1
7	P19	25.3	0.0
7	P20	25.8	-0.4
7	P21	25.8	-0.4
7	P22	25.7	-0.2
7	P23	20.1	-0.1
7	P24	19.7	0.0
8	P1	21.5	0.0
8	P2	20.4	0.1
8	P3	22.3	-0.3
8	P4	27.0	-0.3
8	P5	26.3	0.3
8	P6	27.2	0.0
8	P7	26.2	0.6
8	P8	27.2	0.0
8	P9	26.2	-0.4
8	P10	26.1	-0.2
8	P11	26.0	-0.3
8	P12	26.1	-0.3
8	P13	26.1	-0.5
8	P14	26.8	-0.4
8	P15	25.7	-0.2
8	P16	26.5	-0.8
8	P17	25.9	-0.6
8	P18	26.2	-0.8
8	P19	25.7	-0.5
8	P20	25.7	-0.5
8	P21	25.6	-0.4
8	P22	25.8	-0.7
8	P23	20.5	-0.1
8	P24	20.6	0.1

Data Continued

LLCR shock/vibration:

	mOhm values	Actual	Delta
Board	Position	Initial	Shock / Vibe
1	P1	19.2	-0.3
1	P2	19.1	-0.1
1	P3	19.6	-0.3
1	P4	19.7	-0.5
1	P5	20.2	-0.8
1	P6	25.3	-0.3
1	P7	25.4	-0.3
1	P8	24.8	-0.2
1	P9	24.3	0.6
1	P10	25.5	-0.6
1	P11	25.5	-0.5
1	P12	25.0	-0.4
1	P13	25.2	-0.3
1	P14	25.0	-0.1
1	P15	25.9	-0.6
1	P16	25.3	-0.4
1	P17	25.4	-0.4
1	P18	25.0	-0.3
1	P19	25.4	-0.4
1	P20	25.4	-0.4
1	P21	25.6	-0.7
1	P22	25.3	-0.4
1	P23	25.5	-0.5
1	P24	25.4	-0.4
2	P1	20.2	0.2
2	P2	20.3	-0.2
2	P3	20.1	0.1
2	P4	20.3	-0.4
2	P5	19.8	-0.1
2	P6	26.5	-0.6
2	P7	25.7	-0.4
2	P8	25.7	-0.5
2	P9	25.3	-0.2
2	P10	26.0	-0.8
2	P11	26.1	-0.7
2	P12	26.2	-0.5
2	P13	26.5	-0.9
2	P14	25.9	-0.3
2	P15	25.9	-0.1
2	P16	26.3	-0.2
2	P17	25.7	-0.3
2	P18	25.6	-0.2
2	P19	25.8	-0.4
2	P20	25.7	-0.7

2	P21	25.7	0.2
2	P22	25.4	-0.3
2	P23	25.4	0.0
2	P24	25.5	-0.1
3	P1	19.9	-0.6
3	P2	20.1	-0.6
3	P3	20.2	-0.9
3	P4	20.6	-1.2
3	P5	20.3	-0.9
3	P6	26.0	-0.8
3	P7	26.5	-0.8
3	P8	26.4	-0.8
3	P9	26.5	-0.8
3	P10	26.2	-0.5
3	P11	25.7	-0.4
3	P12	25.9	-0.3
3	P13	25.7	-0.2
3	P14	25.2	0.1
3	P15	25.7	-0.7
3	P16	25.5	-0.4
3	P17	25.8	-0.2
3	P18	25.8	-0.5
3	P19	25.6	-0.5
3	P20	25.7	-0.1
3	P21	25.6	-0.3
3	P22	25.7	-0.1
3	P23	25.5	0.1
3	P24	25.6	-0.6
4	P1	19.8	0.1
4	P2	20.3	0.0
4	P3	20.2	0.2
4	P4	19.8	0.1
4	P5	19.9	-0.1
4	P6	25.6	-0.2
4	P7	25.9	-0.4
4	P8	25.7	-0.1
4	P9	26.2	-0.7
4	P10	25.7	-0.6
4	P11	26.4	-0.7
4	P12	26.2	-0.8
4	P13	25.9	-0.5
4	P14	26.0	-0.6
4	P15	26.0	-0.6
4	P16	25.9	-0.6
4	P17	26.0	-0.5
4	P18	25.5	0.1
4	P19	25.5	-0.1
4	P20	25.4	-0.1
4	P21	25.9	-0.4
4	P22	25.7	-0.3

4	P23	26.1	0.4
4	P24	25.5	-0.2
5	P1	19.3	-0.5
5	P2	19.1	0.9
5	P3	18.9	0.1
5	P4	18.9	0.3
5	P5	19.1	0.7
5	P6	26.1	-0.1
5	P7	25.9	-0.1
5	P8	25.7	-0.2
5	P9	25.8	-0.3
5	P10	25.5	-0.1
5	P11	26.3	-0.4
5	P12	25.7	0.0
5	P13	26.3	-0.2
5	P14	26.1	-0.3
5	P15	25.7	0.1
5	P16	26.4	-0.6
5	P17	26.3	0.2
5	P18	26.2	-0.3
5	P19	26.0	-0.3
5	P20	26.0	-0.2
5	P21	25.7	0.6
5	P22	25.9	-0.4
5	P23	25.5	-0.3
5	P24	25.8	0.0
6	P1	19.9	0.0
6	P2	19.9	-0.1
6	P3	19.9	-0.1
6	P4	20.0	-0.4
6	P5	20.2	-0.1
6	P6	24.5	-0.1
6	P7	24.7	0.5
6	P8	24.7	0.2
6	P9	24.7	0.1
6	P10	24.7	0.1
6	P11	25.1	0.1
6	P12	25.2	-0.1
6	P13	25.1	0.1
6	P14	25.1	0.2
6	P15	25.0	0.2
6	P16	25.2	0.0
6	P17	25.1	0.2
6	P18	25.2	0.3
6	P19	25.2	-0.2
6	P20	24.9	0.2
6	P21	24.9	0.3
6	P22	25.1	0.1
6	P23	25.1	0.2
6	P24	24.9	0.3

7	P1	20.4	-0.3
7	P2	20.6	-0.1
7	P3	20.7	-0.3
7	P4	20.8	-0.3
7	P5	20.4	0.0
7	P6	26.7	-0.8
7	P7	26.6	-0.4
7	P8	27.2	-1.2
7	P9	26.1	-0.5
7	P10	26.8	-0.9
7	P11	26.4	-0.5
7	P12	30.2	-2.8
7	P13	26.1	-0.2
7	P14	26.1	-0.7
7	P15	26.0	-0.4
7	P16	25.9	-0.2
7	P17	26.0	-0.1
7	P18	25.9	-0.2
7	P19	25.4	-0.1
7	P20	25.7	-0.2
7	P21	25.4	-0.1
7	P22	25.3	-0.2
7	P23	25.2	-0.1
7	P24	25.8	-0.5
8	P1	21.0	0.0
8	P2	21.0	-0.4
8	P3	20.4	0.6
8	P4	20.5	0.7
8	P5	20.1	-0.1
8	P6	25.3	-0.5
8	P7	25.0	-0.1
8	P8	26.3	0.4
8	P9	25.6	-0.3
8	P10	26.3	-0.1
8	P11	26.0	-0.4
8	P12	25.7	0.3
8	P13	25.6	-0.4
8	P14	26.0	-0.7
8	P15	25.6	-0.5
8	P16	26.2	-1.0
8	P17	25.5	-0.4
8	P18	25.6	-0.3
8	P19	25.9	-0.5
8	P20	25.5	-0.3
8	P21	25.7	-0.5
8	P22	25.4	-0.2
8	P23	25.6	-0.4
8	P24	25.5	-0.1

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: HZ-TSC-01
Description: Vertical Thermal Shock Chamber
Manufacturer: Cincinnati Sub Zero
Model: VTS-3-6-6-SC/AC
Serial #: 10-VT14993
Accuracy: See Manual
… Last Cal: 05/18/2010, Next Cal: 05/18/2011

Equipment #: HZ-MO-01
Description: Micro-ohmmeter
Manufacturer: Keithley
Model: 580
Serial #: 0772740
Accuracy: Last Cal: 2010-4-30, Next Cal: 2011-4-30

Equipment #: HZ-THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual
… Last Cal: 08/16/2010, Next Cal: 02/16/2011

Equipment #: HZ-OV-02
Description: Cascade Tek Forced Air Oven
Manufacturer: Cascade Tek
Model: TFO-5
Serial #: 0500100
Accuracy: Temp. Stability: +/-.1C/C change in ambient
Last Cal: 06/16/2010, Next Cal: 206/16/2011

Equipment #: HZ-TCT-01
Description: Normal force analyzer
Manufacturer: Mecmesin Multitester
Model: Mecmesin Multitester 2.5-i
Serial #: 04-1041-04
Accuracy: Last Cal: 05/21/2010, Next Cal: 05/20/2011

Equipment #: HZ-MO-05
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 4/30/2010, Next Cal: 4/30/2011

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1100604
Accuracy: See Manual
… Last Cal: 06/04/2010, Next Cal: 06/04/2011

Equipment #: HZ-TCT-07
Description: Automated Test Stand
Manufacturer: Chatillon/Lloyd
Model: LF Plus
Serial #: LF1310
Accuracy: See Manual
… Last Cal: 07/15/2010, Next Cal: 07/15/2011

Equipment #: ACLM-01
Description: Accelerometer
Manufacturer: PCB Piezotronics
Model: 352C03
Serial #: 115819
Accuracy: See Manual
… Last Cal: 07/09/2010, Next Cal: 07/09/2011

Equipment #: SVC-01
Description: Shock & Vibration Table
Manufacturer: Data Physics
Model: LE-DSA-10-20K
Serial #: 10037
Accuracy: See Manual
… Last Cal: 11/31/2009, Next Cal: 11/31/2010

Equipment #: HZ-MO-03
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0791975
Accuracy: See Manual
… Last Cal: 06/16/2010, Next Cal: 06/16/2011