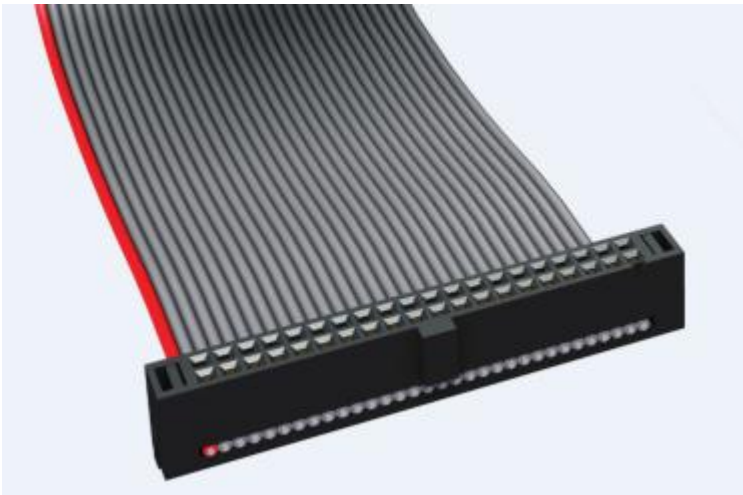
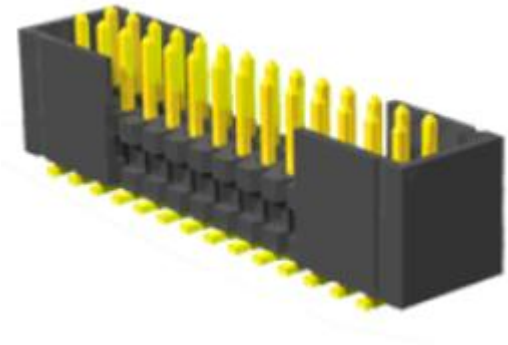
Project Number: Design Qualification Test Report	Tracking Code: 147206_Report_Rev_2			
Requested by: Mark Shireman	Date: 2/7/2013	Product Rev: 0		
Part #: FFSD-25-D-12.00-01/ FTSH-125-01-L-DV-A	Lot #: N/A	Tech: Tony Wagoner	Eng: Eric Mings	
Part description: FFSD/FTSH		Qty to test: 45		
Test Start: 7/15/2011	Test Completed: 8/15/2011			





Design Qualification Test Report

FFSD/FTSH

FFSD-25-D-12.00-01/ FTSH-125-01-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.

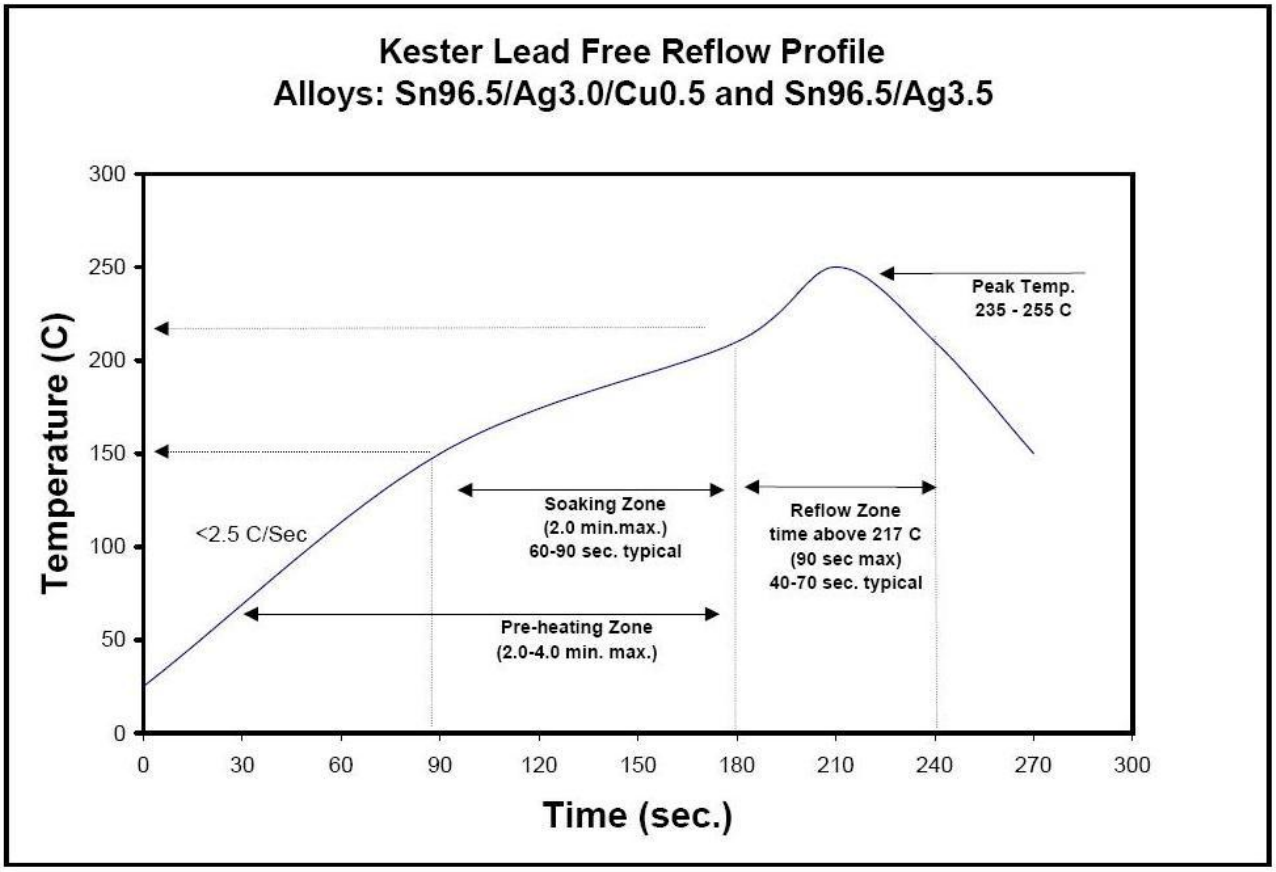
APPLICABLE DOCUMENTS

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.

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Gas Tight

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

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

Thermal Aging

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

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

Time Condition 'B' (250 Hours)

Mating / Unmating Forces = EIA-364-13

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued

Durability/Mating/Unmating/Gaps

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

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued

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)

TEST STEP	GROUP C1 2 Mated Sets Break Down Row-to-Row	GROUP C2 2 Unmatedof Part # Being Tested Break Down Row-to-Row	GROUP C3 2 Unmated of Mating Part # Break Down Row-to-Row	GROUP D1 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 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

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

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
01	CCC	CCC	CCC

TEST STEP	GROUP B4 3 Mated Assemblies 8 Contacts Powered	GROUP B5 3 Mated Assemblies All Contacts Powered
01	CCC	CCC

(TIN PLATING) - Tabulate calculated current at RT, 65°C, 75°C and 95°C

after derating 20% and based on 105°C

(GOLD PLATING) - Tabulate calculated current at RT, 85°C, 95°C and 115°C

after derating 20% and based on 125°C

CCC, Temp rise = EIA-364-70

FLOWCHARTS Continued

Mechanical Shock / Vibration / LLCR

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

Mechanical Shock = EIA 364-27 Half Sine,

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

Vibration = EIA 364-28, Random Vibration

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

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

Shock / Vibration / nanoSecond Event Detection

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

Mechanical Shock = EIA 364-27 Half Sine,

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

Vibration = EIA 364-28, Random Vibration

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

Event detection requirement during Shock / Vibration is 50 nanoseconds minimum

FLOWCHARTS Continued

Connector Pull

TEST STEP	GROUP A1 5 Pieces 0°	GROUP B1 5 Pieces 90°
01	Pull test, Continuity	Pull test, Continuity

Monitor continuity and pull; record forces when continuity fails

Cable Flex Test

TEST STEP	GROUP B1 8 Cable Assemblies Flat Cable
01	IR & DWV at test voltage
02	Flex 500 Cycles
03	Visual Inspection
04	IR & DWV at test voltage

DWV to be performed at Test Voltage

DWV test voltage is equal to 75% of the lowest break down voltage from 'Sequence E'

*** If 'Sequence E' is not being tested, then separate parts must be broken down to establish the test voltage**

Monitor continuity during flex testing on all groups

Cable Flex Test = EIA-364-41D

Flat Cable - to be tested 70°±5° each direction (140°±10° total)

EIA-364-41D min flex requirement = 500 cycles

IR = EIA-364-21

DWV = EIA-364-20, Test Condition 1

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:

- EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors.*
- Test Condition 4 at 105° C.
- Test Time Condition B for 250 hours.
- All test samples are pre-conditioned at ambient.
- 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

The following is a brief, simplified description of attributes.

CONTACT GAPS:

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

MATING/UNMATING:

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

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 1000 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.

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

CONNECTOR PULL:

1) Secure cable near center and pull on connector
    a. At 90°, right angle to cable
    b. At 0°, in-line with cable

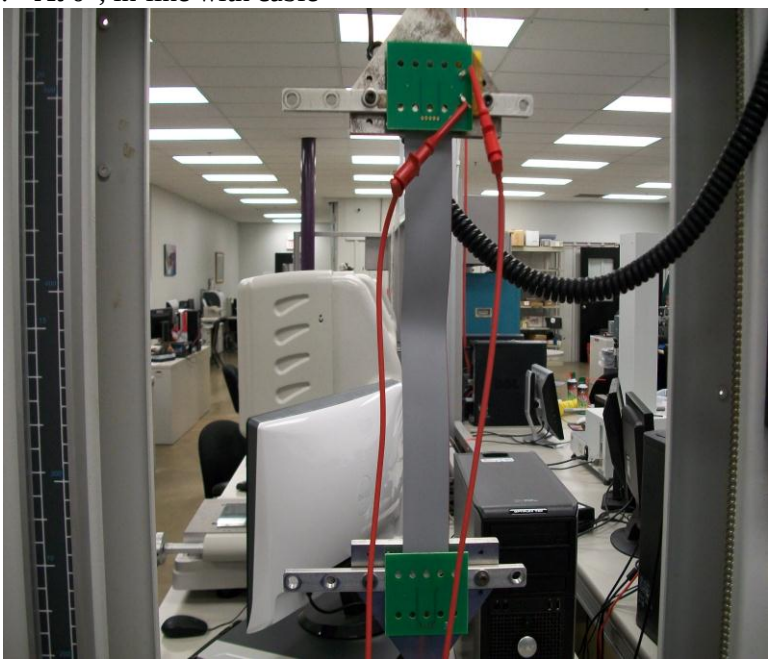


Fig. 1
0° Connector pull, notice the electrical continuity hook-up wires.

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

CABLE DURABILITY:

1) Oscillate and monitor electrical continuity for open circuit indication.
    a. ± 70° Pendulum Mode, bend up to 500 cycles with 4 oz. load on cable end.

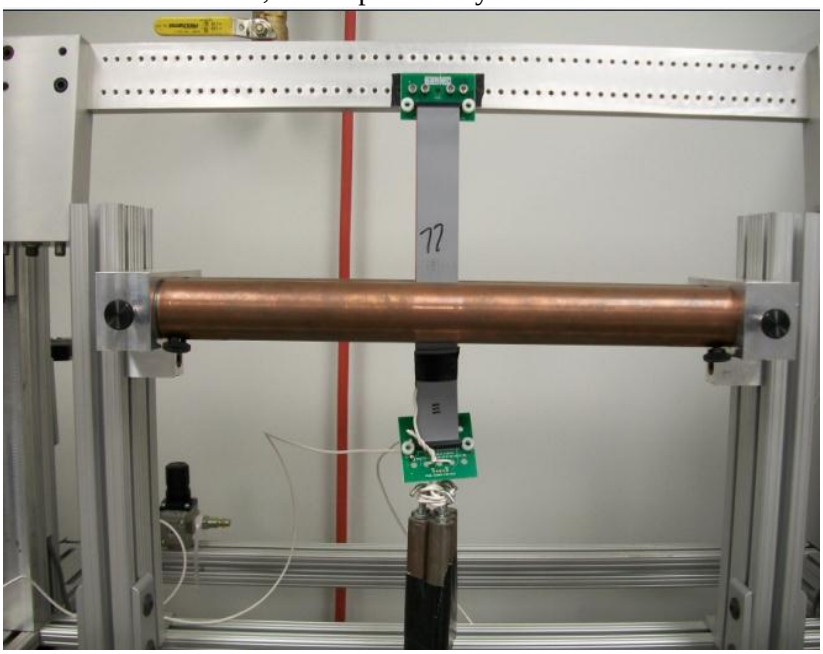


Fig. 2
(Typical set-up, actual part not depicted.)

RESULTS

Temperature Rise, CCC at a 20% de-rating

Contact

- **CCC for a 30°C Temperature Rise ---------- 2.3 A per contact with 2 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.8 A per contact with 4 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.5 A per contact with 6 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.4 A per contact with 8 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 0.8 A per contact with all adjacent contacts powered**

Contact Gaps

Normal force initial

- **Initial**
  - **Min ---------- 0.0112 inch**
  - **Max ---------- 0.0116 inch**

Normal force after thermal

- **Initial**
  - **Min ---------- 0.0112 inch**
  - **Max ---------- 0.0117 inch**
- **After thermal aging**
  - **Min ---------- 0.0119 inch**
  - **Max ---------- 0.0122 inch**

RESULTS Continued

Mating /unmating force
Mating&Unmating durability:

- **Initial**
  - **Mating**
    - **Min ---------- 4.63 Lbs**
    - **Max---------- 5.56 Lbs**
  - **Unmating**
    - **Min ---------- 2.93 Lbs**
    - **Max---------- 3.89 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 4.85 Lbs**
    - **Max---------- 5.41 Lbs**
  - **Unmating**
    - **Min ---------- 4.36 Lbs**
    - **Max---------- 5.10 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 5.35 Lbs**
    - **Max---------- 6.06 Lbs**
  - **Unmating**
    - **Min ---------- 4.93 Lbs**
    - **Max---------- 5.92 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 5.36 Lbs**
    - **Max---------- 6.65 Lbs**
  - **Unmating**
    - **Min ---------- 3.16 Lbs**
    - **Max---------- 6.39 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 6.15 Lbs**
    - **Max---------- 7.29 Lbs**
  - **Unmating**
    - **Min ---------- 5.63 Lbs**
    - **Max---------- 6.86 Lb**
- **After Humidity**
  - **Mating**
    - **Min ---------- 3.55 Lbs**
    - **Max---------- 5.56 Lbs**
  - **Unmating**
    - **Min ---------- 3.13 Lbs**
    - **Max---------- 3.91 Lbs**

RESULTS Continued

Thermal aging

- **Initial**
  - **Mating**
    - **Min ---------- 4.99 Lbs**
    - **Max---------- 6.05 Lbs**
  - **Unmating**
    - **Min ---------- 2.72 Lbs**
    - **Max---------- 3.52 Lbs**
- **After thermal aging**
  - **Mating**
    - **Min ---------- 3.48 Lbs**
    - **Max---------- 4.28 Lbs**
  - **Unmating**
    - **Min ---------- 2.74 Lbs**
    - **Max---------- 3.26 Lbs**

Normal Force at 0.0025 inch deflection

Main beam

- **Initial**
  - **Min----------48.90 gf Set ----- 0.0002 inch**
  - **Max ---------- 60.20 gf Set ----- 0.0003 inch**
- **Thermal**
  - **Min----------48.30 gf Set----- 0.0000 inch**
  - **Max ----------71.40 gf Set----- 0.0005 inch**

Short beam

- **Initial**
  - **Min----------75.20 gf Set ----- 0.0001 inch**
  - **Max ---------- 111.40 gf Set ----- 0.0002 inch**
- **Thermal**
  - **Min----------78.80 gf Set----- 0.0001 inch**
  - **Max ----------93.80 gf Set----- 0.0004 inch**

Cable pull

- **0° Pull**
  - **Min ----------53.50 Lbs**
  - **Max----------60.00 Lbs**
- **90° Pull**
  - **Min ---------- 9.00 Lbs**
  - **Max----------14.50 Lbs**

RESULTS Continued

LLCR Durability (192 pin LLCR test points)

- **Initial ----------113.2 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 ---------- 174 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 17 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**
- **After humidity**
  - **<= +5.0 mOhms ---------- 140 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 39 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 13 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 ----------112.8mOhms Max**
- **Thermal Aging**
  - **<= +5.0 mOhms ---------- 165 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 27 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 ---------- 113.6 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 Shock Vib (192 pin LLCR test points)

- **Initial ---------- 112.8 mOhms Max**
- **S&V**
  - **<= +5.0 mOhms ---------- 189 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 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**

Mechanical Shock & Random Vibration:

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

RESULTS Continued

Insulation Resistance minimums, IR

Pin-Pin

- **Initial**
  - **Mated ---------- 100000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**
- **Thermal**
  - **Mated ---------- 25000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**
- **Humidity**
  - **Mated ---------- 20000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**

Row-Row

- **Initial**
  - **Mated ---------- 100000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**
- **Thermal**
  - **Mated ---------- 25000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**
- **Humidity**
  - **Mated ---------- 50000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage ---------- 800VAC**
  - **Test Voltage ---------- 600VAC**
  - **Working Voltage ---------- 200VAC**

Pin - pin

- **Initial DWV ---------- Passed**
- **Thermal DWV ---------- Passed**
- **Humidity DWV ---------- Passed**

Row-Row

- **Initial DWV ---------- Passed**
- **Thermal DWV ---------- Passed**
- **Humidity DWV ---------- Passed**

Cable Flex

Insulation Resistance minimums, IR

Pin-Pin

- **Initial**
  - **Mated ---------- 100000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**
- **After flex**
  - **Mated ---------- 100000Meg Ω ---------- Pass**
  - **Unmated ---------- 100000Meg Ω ---------- Pass**

Dielectric Withstanding Voltage minimums, DWV

Pin - pin

- **Initial DWV ---------- Passed**
- **After Flex DWV ---------- Passed**

Visual inspection

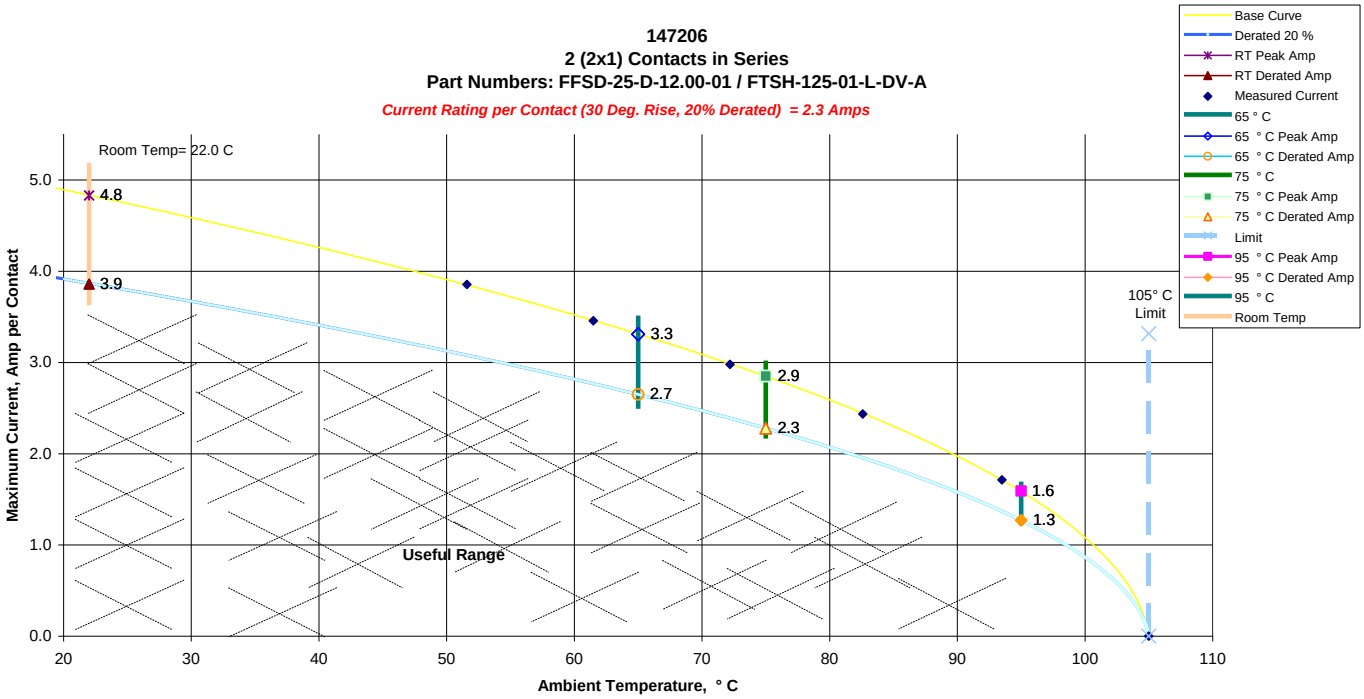
- **After Flex ---------- no damage found**

DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

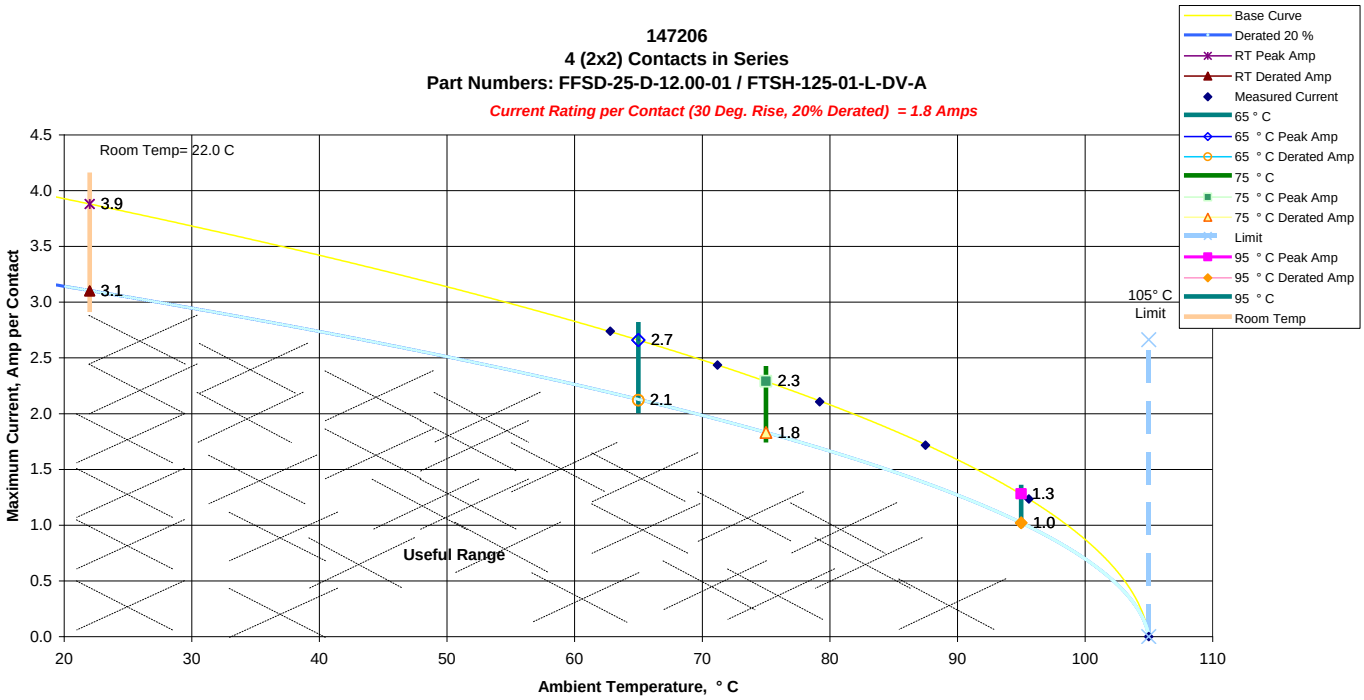
1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes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

    a. Linear configuration with 2 adjacent conductors/contacts powered

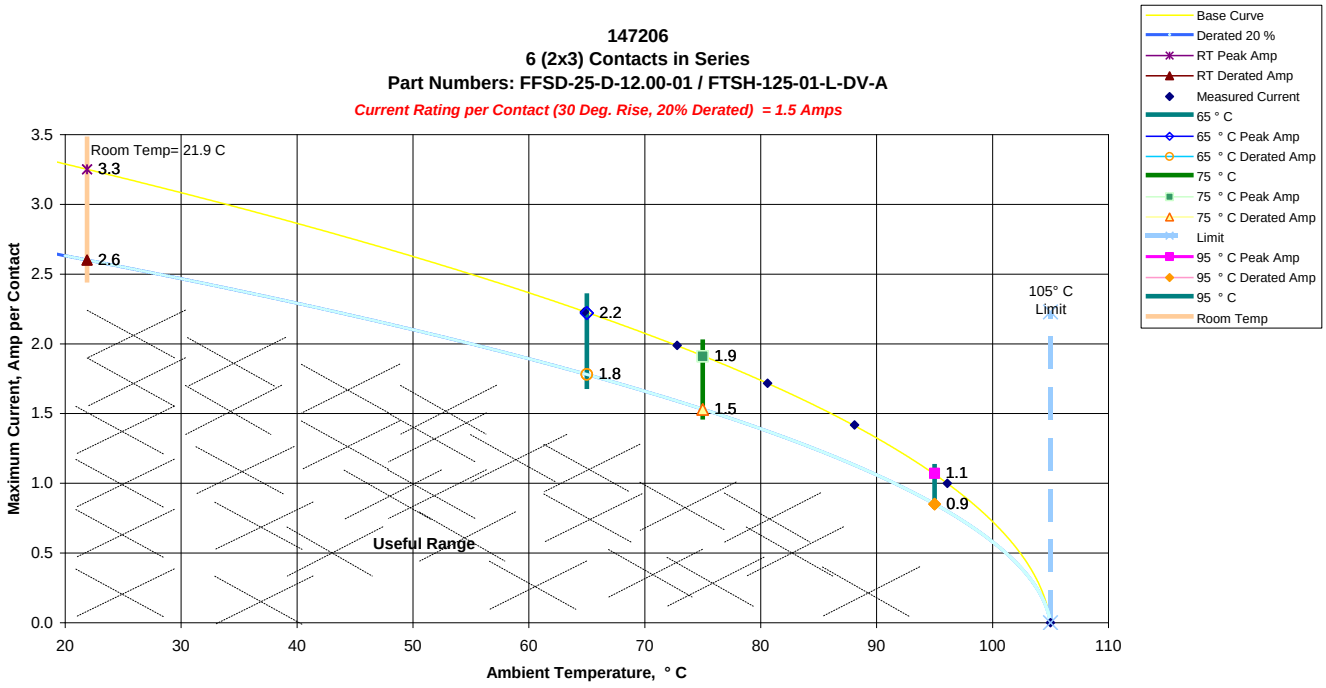


DATA SUMMARIES continued

b. Linear configuration with 4 adjacent conductors/contacts powered

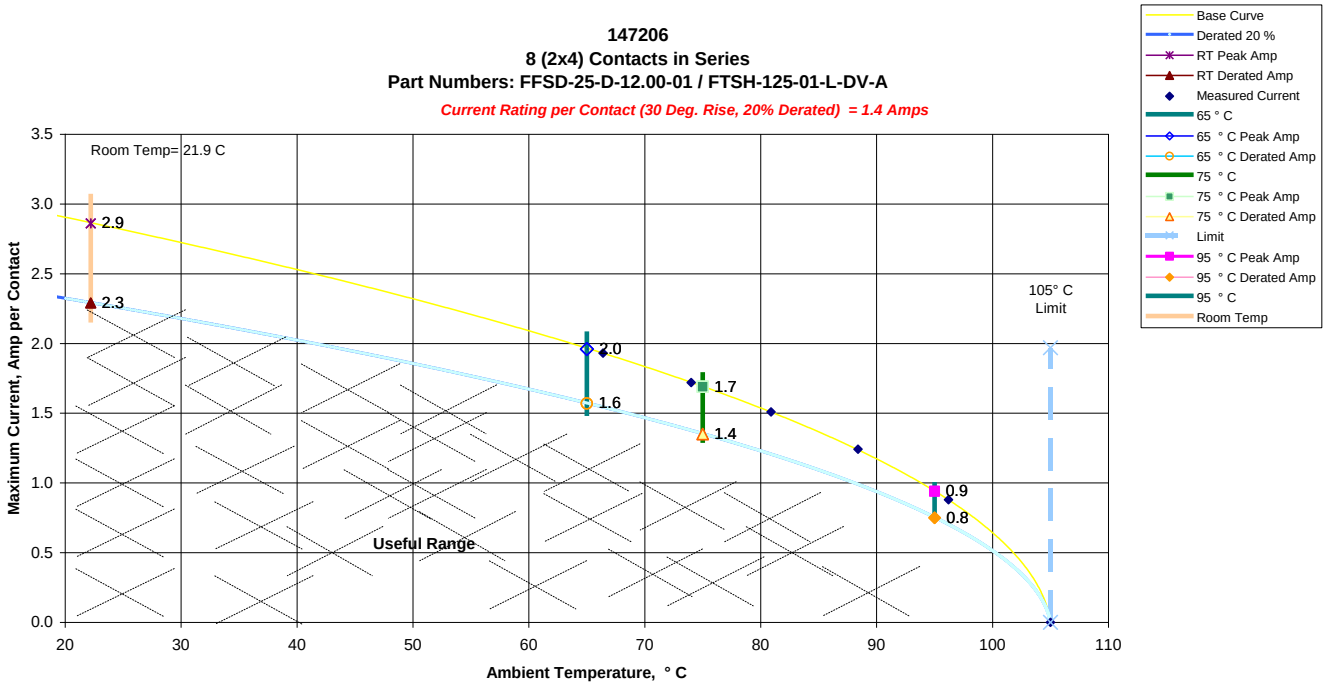


c. Linear configuration with 6 adjacent conductors/contacts powered

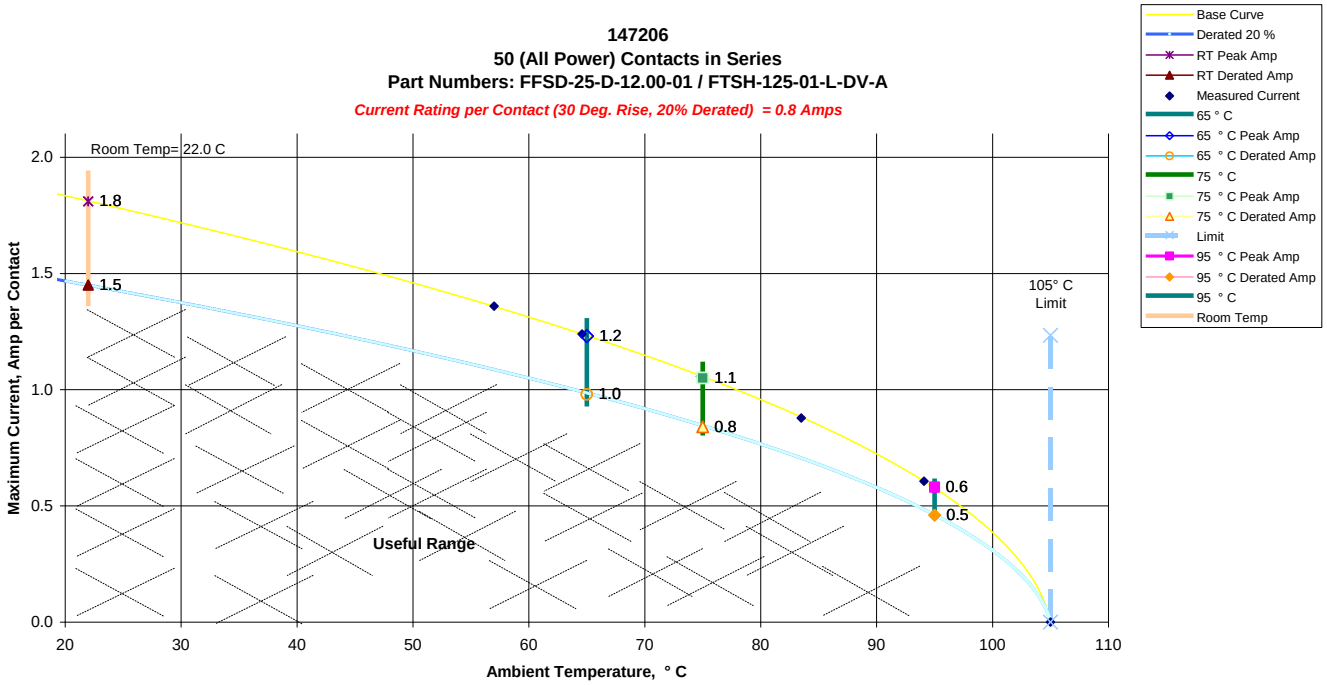


DATA SUMMARIES continued

d. Linear configuration with 8 adjacent conductors/contacts powered



e. Linear configuration with all adjacent conductors/contacts powered



DATA SUMMARIES

CONTACT GAPS:

Normal force initial:

Initial	
Units:	inch
Minimum	**0.0112**
Maximum	**0.0116**
Average	**0.0114**
St. Dev.	**0.0001**
Count	**20.0000**

Normal force after thermal:

Initial		After Thermal	
Units:	inch	Units:	inch
Minimum	**0.0112**	***Minimum***	**0.0119**
Maximum	**0.0117**	***Maximum***	**0.0122**
Average	**0.0121**	***Average***	**0.0121**
St. Dev.	**0.0001**	***St. Dev.***	**0.0001**
Count	**20.0000**	***Count***	**20.0000**

DATA SUMMARIES Continued

MATING/UNMATING FORCE:

Mating/Unmating durability:

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	20.59	4.63	13.03	2.93	21.57	4.85	19.39	4.36
Maximum	24.73	5.56	17.30	3.89	24.06	5.41	22.68	5.10
Average	22.82	**5.13**	14.85	**3.34**	22.85	**5.14**	21.07	**4.74**
St Dev	1.53	0.34	1.46	0.33	0.79	0.18	1.19	0.27
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	23.80	5.35	21.93	4.93	23.93	5.38	14.06	3.16
Maximum	26.95	6.06	26.33	5.92	29.58	6.65	28.42	6.39
Average	25.57	**5.75**	24.20	**5.44**	27.50	**6.18**	24.74	**5.56**
St Dev	1.23	0.28	1.61	0.36	1.90	0.43	4.72	1.06
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	27.36	6.15	25.04	5.63	15.79	3.55	13.92	3.13
Maximum	32.43	7.29	30.51	6.86	24.73	5.56	17.39	3.91
Average	30.26	**6.80**	27.85	**6.26**	19.10	**4.30**	15.29	**3.44**
St Dev	1.51	0.34	1.87	0.42	2.60	0.58	1.05	0.24
Count	8	8	8	8	8	8	8	8

Cable PULL

0° Pull

	Force (lbs)
Minimum	**53.50**
Maximum	60.00
Average	56.80

90° Pull

	Force (lbs)
Minimum	**9.00**
Maximum	14.50
Average	11.90

DATA SUMMARIES Continued

Thermal aging:

	Initial				After Thermals			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	22.20	4.99	12.10	2.72	15.48	3.48	12.19	2.74
Maximum	26.91	6.05	15.66	3.52	19.04	4.28	14.50	3.26
Average	25.42	**5.72**	13.88	**3.12**	17.21	**3.87**	13.15	**2.96**
St Dev	1.59	0.36	1.22	0.27	1.04	0.23	0.95	0.21
Count	8	8	8	8	8	8	8	8

NORMAL FORCE

Main beam:

Initial	Deflections in inches Forces in Grams										
	0.0003	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
Averages	5.78	11.78	17.55	23.41	28.96	34.13	39.73	44.72	49.65	54.60	0.0002
Min	5.00	10.30	15.50	20.70	26.30	30.70	35.80	40.90	45.30	48.90	0.0002
Max	6.80	12.80	19.50	26.00	31.60	37.70	43.70	49.00	54.80	60.20	0.0003
St. Dev	0.552	0.697	1.152	1.403	1.662	2.106	2.321	2.648	2.974	3.372	0.0000
Count	12	12	12	12	12	12	12	12	12	12	12

After thermal	Deflections in inches Forces in Grams										
	0.0003	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
Averages	6.34	12.94	19.38	25.37	31.48	37.28	42.82	48.48	53.80	59.20	0.0003
Min	5.30	11.10	16.60	21.80	26.90	31.10	35.50	40.20	44.00	48.30	0.0000
Max	8.30	15.90	24.00	30.80	37.60	45.50	52.20	58.50	64.70	71.40	0.0005
St. Dev	0.781	1.240	2.112	2.601	3.225	4.273	4.866	5.538	6.336	6.959	0.0001
Count	11	11	11	11	11	11	11	11	11	11	11

Short beam:

Initial	Deflections in inches Forces in Grams										
	0.0003	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
Averages	**11.53**	**22.98**	**33.75**	**43.94**	**53.74**	**63.01**	**71.73**	**80.44**	**89.03**	**96.48**	**0.0002**
Min	8.10	16.20	24.10	31.80	38.80	47.30	54.40	60.90	68.40	75.20	0.0001
Max	15.40	27.70	41.20	52.70	63.50	74.30	83.60	93.40	102.90	111.40	0.0002
St. Dev	2.697	4.447	6.356	7.696	8.932	9.763	10.491	11.214	11.925	12.248	0.0001
Count	8	8	8	8	8	8	8	8	8	8	8

After thermal	Deflections in inches Forces in Grams										
	0.0003	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
Averages	**10.00**	**19.54**	**29.13**	**38.48**	**47.51**	**56.01**	**64.38**	**72.66**	**80.21**	**87.70**	**0.0003**
Min	8.40	17.10	24.90	34.30	42.40	50.00	57.70	64.60	71.90	78.80	0.0001
Max	11.90	20.80	30.90	40.60	51.00	60.40	68.70	78.40	86.40	93.80	0.0004
St. Dev	1.226	1.156	2.066	2.325	2.926	3.632	4.034	4.812	5.157	5.337	0.0001
Count	8	8	8	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	**FFSD/FTSH**	**FFSD**	**FTSH**
Initial	100000	100000	100000
Thermal	25000	25000	100000
Humidity	20000	25000	100000

	Row to Row		
	Mated	Unmated	Unmated
Minimum	FFSD/FTSH	FFSD	FTSH
Initial	100000	100000	100000
Thermal	25000	25000	100000
Humidity	50000	50000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**FFSD/FTSH**
Break Down Voltage	800
Test Voltage	600
Working Voltage	200

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 Durabiltiy:

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	7/20/2011	7/26/2011	8/3/2011	8/15/2011
Room Temp C	23	23	22	22
RH	39%	38%	45%	44%
Name	Tony Wagoner	Tony Wagoner	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Thermal**	**Delta Humidity**
Average	110.0	0.0	1.7	3.5
St. Dev.	1.1	0.4	2.2	3.5
Min	101.5	-1.3	-1.1	-0.8
Max	113.2	2.2	10.7	15.0
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	174	17	1	0	0	0
Humidity	140	39	13	0	0	0

DATA SUMMARIES Continued

LLCR thermal aging

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	7/21/2011	8/1/2011
Room Temp C	24	22
RH	37%	50%
Name	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta Thermal Age**
Average	110.2	3.2
St. Dev.	1.0	1.6
Min	103.2	-1.3
Max	112.8	8.1
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	165	27	0	0	0	0

DATA SUMMARIES Continued

LLCR 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	7/19/2011	7/20/2011
Room Temp C	25	24
RH	37%	39%
Name	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	110.6	1.1
St. Dev.	1.1	0.3
Min	102.1	0.3
Max	113.6	2.3
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	192	0	0	0	0	0

DATA SUMMARIES Continued

LLCR S&V:

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	7/27/2011	8/17/2011
Room Temp C	24	22
RH	45%	46%
Name	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta Shock / Vibe**
Average	110.1	0.5
St. Dev.	1.3	1.3
Min	99.1	-1.0
Max	112.8	12.0
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	189	2	1	0	0	0

DATA

CONTACT GAPS

Normal force initial:

Initial	
Units:	inch
Pos.#	**B1**
1	**0.0116**
2	**0.0114**
3	**0.0116**
4	**0.0114**
5	**0.0115**
6	**0.0112**
7	**0.0115**
8	**0.0112**
9	**0.0114**
10	**0.0116**
11	**0.0115**
12	**0.0115**
13	**0.0114**
14	**0.0113**
15	**0.0112**
16	**0.0114**
17	**0.0115**
18	**0.0115**
19	**0.0115**
20	**0.0116**

DATA continued

Normal force after thermal aging:

Initial	
Units:	inch
Pos.#	**B1**
1	**0.0115**
2	**0.0117**
3	**0.0116**
4	**0.0116**
5	**0.0115**
6	**0.0115**
7	**0.0116**
8	**0.0115**
9	**0.0116**
10	**0.0113**
11	**0.0114**
12	**0.0115**
13	**0.0114**
14	**0.0112**
15	**0.0115**
16	**0.0115**
17	**0.0117**
18	**0.0113**
19	**0.0115**
20	**0.0113**
After thermal	
Units:	inch
Pos.#	**B1**
1	**0.0121**
2	**0.0122**
3	**0.0121**
4	**0.0121**
5	**0.0121**
6	**0.0121**
7	**0.0121**
8	**0.0122**
9	**0.0121**
10	**0.0122**
11	**0.0121**
12	**0.0122**
13	**0.0121**
14	**0.0119**
15	**0.0121**
16	**0.0119**
17	**0.0120**
18	**0.0121**
19	**0.0121**
20	**0.0121**

DATA continued

MATING\UNMATING FORCE

Mating/Unmating durability: (SMS-150-01-L-D/TMS-150-01-L-D)

	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	4.63	3.35	4.95	4.56	5.60	5.31	6.14	5.85	6.85	6.15	4.15	3.42
2	4.99	3.52	5.10	5.01	5.75	5.74	6.45	6.39	6.93	6.39	5.56	3.91
3	5.56	2.93	5.41	4.62	6.06	5.48	6.65	6.04	7.29	6.52	4.36	3.28
4	5.32	3.54	5.24	5.10	6.00	5.92	6.48	6.39	6.97	6.86	4.11	3.60
5	5.29	3.89	5.22	4.96	5.87	5.71	6.06	5.18	6.80	6.32	4.20	3.39
6	5.48	3.43	5.11	4.50	5.39	4.95	5.38	3.16	6.51	5.63	3.94	3.30
7	4.70	3.01	4.85	4.36	5.35	4.93	5.81	5.42	6.15	5.70	3.55	3.13
8	5.07	3.03	5.22	4.79	5.97	5.49	6.49	6.06	6.92	6.52	4.49	3.47

Thermal aging:

	Initial		After Thermals	
Sample#	Mating	Unmating	Mating	Unmating
1	5.54	3.00	3.68	2.74
2	4.99	3.30	3.90	2.74
3	6.05	3.08	4.28	2.95
4	5.86	2.85	3.82	2.78
5	6.02	2.72	3.48	2.85
6	5.82	3.52	3.99	3.26
7	5.50	3.41	3.84	3.18
8	5.94	3.08	3.96	3.16

Cable Pull

0° Pull

Sample #	Force (lbs)	Comments
1	60.00	Cable pulled out of assembly
2	56.00	Cable pulled out of assembly
3	56.00	Cable pulled out of assembly
4	53.50	Cable pulled out of assembly
5	58.50	Cable pulled out of assembly

90° Pull

Sample #	Force (lbs)	Comments
1	11.50	Pulled pins out of assembly with crimp intact
2	12.50	Pulled pins out of assembly with crimp intact
3	12.00	Pulled pins out of assembly with crimp intact
4	9.00	Pulled pins out of assembly with crimp intact
5	14.50	Pulled pins out of assembly with crimp intact

DATA continued

NORMAL FORCE
Main beam:

Initial	Deflections in inches, Forces in Grams										
Sample #	**0.0003**	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
1	5.7	11.5	17.1	22.4	27.6	32.4	38.1	42.5	47.2	52.1	0.0002
2	6.6	11.8	17.3	23.4	28.6	34.0	39.2	44.1	48.8	53.7	0.0002
3	5.0	10.9	15.8	20.7	26.3	30.7	35.8	40.9	45.3	48.9	0.0002
4	5.4	11.7	17.6	23.0	28.1	33.8	39.0	43.5	48.4	53.0	0.0002
5	6.1	11.6	17.0	23.1	28.3	33.1	38.2	43.0	47.3	52.0	0.0002
6	5.8	12.4	18.4	24.4	30.5	35.5	41.8	47.0	52.2	57.4	0.0002
7	6.8	12.5	18.1	23.9	29.8	35.2	40.9	45.7	50.8	56.3	0.0002
8	5.1	10.3	15.5	21.7	26.8	31.2	36.8	41.2	46.1	51.2	0.0002
9	6.0	12.8	19.5	26.0	31.6	37.7	43.7	49.0	54.8	60.2	0.0003
10	5.5	12.3	18.9	24.8	31.2	37.0	42.4	48.5	53.6	59.1	0.0002
11	6.0	11.9	17.9	23.7	29.1	34.3	40.4	45.4	50.7	55.4	0.0003
12	5.4	11.6	17.5	23.8	29.6	34.6	40.4	45.8	50.6	55.9	0.0002

After thermal	Deflections in inches, Forces in Grams										
Sample #	**0.0003**	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
1	6.2	11.7	16.6	21.8	26.9	31.1	35.5	40.2	44.0	48.3	0.0004
2	5.5	12.8	18.9	24.6	31.2	37.1	42.8	47.9	53.5	59.2	0.0002
3	6.5	13.3	19.9	27.1	33.3	39.2	44.7	51.2	56.4	62.2	0.0002
4	6.2	13.2	19.3	25.5	32.2	37.5	43.5	49.5	55.3	60.1	0.0003
5	8.3	15.9	24.0	30.8	37.6	45.5	52.2	58.5	64.7	71.4	0.0003
6	5.3	11.1	16.6	21.8	26.9	31.4	36.4	40.9	45.5	50.4	0.0005
7	6.3	12.1	18.7	24.5	31.0	36.8	42.4	47.6	53.3	58.7	0.0003
8	5.8	13.1	20.1	26.0	32.6	38.4	44.4	51.0	56.5	61.6	0.0003
9	6.6	13.1	20.1	26.2	31.6	38.2	43.9	49.2	55.1	61.0	0.0003
10	6.5	13.6	21.2	27.3	34.6	41.7	47.4	54.3	60.8	66.9	0.0000
11	6.5	12.4	17.8	23.5	28.4	33.2	37.8	43.0	46.7	51.4	0.0004

DATA continued

Shot beam:

Initial	Deflections in inches, Forces in Grams										
Sample #	**0.0003**	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
1	13.8	27.6	39.8	49.8	59.1	68.2	76.3	85.4	94.5	101.8	0.0001
2	8.1	17.8	26.7	35.2	43.3	51.4	58.9	67.3	75.1	82.2	0.0001
3	8.2	16.2	24.1	31.8	38.8	47.3	54.4	60.9	68.4	75.2	0.0001
4	10.9	21.3	30.9	41.7	52.1	61.2	71.4	80.2	89.3	97.3	0.0002
5	15.4	27.7	39.8	52.4	63.1	73.4	83.2	90.8	100.3	107.3	0.0002
6	14.1	27.1	41.2	52.7	63.5	74.3	83.6	93.4	102.9	111.4	0.0002
7	10.8	24.1	35.0	45.2	57.1	67.1	75.1	85.5	94.0	101.3	0.0002
8	10.9	22.0	32.5	42.7	52.9	61.2	70.9	80.0	87.7	95.3	0.0002

After thermal	Deflections in inches, Forces in Grams										
Sample #	**0.0003**	**0.0005**	**0.0008**	**0.0010**	**0.0013**	**0.0015**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	***SET***
1	8.4	17.1	24.9	34.3	42.4	50.0	57.7	64.6	71.9	78.8	0.0002
2	11.9	20.4	29.1	37.5	45.5	53.8	61.3	69.0	76.3	83.4	0.0001
3	10.0	20.2	30.8	40.6	51.0	60.4	68.7	78.4	86.4	93.8	0.0002
4	10.1	19.4	28.8	38.6	47.0	55.3	64.9	72.3	79.9	88.0	0.0002
5	9.7	20.0	30.2	40.2	50.2	59.8	68.6	77.8	86.2	92.8	0.0003
6	11.6	20.8	30.9	40.2	49.2	58.0	66.8	74.8	81.9	90.3	0.0004
7	9.5	19.5	30.7	40.3	49.3	57.9	66.3	75.3	83.0	91.2	0.0004
8	8.8	18.9	27.6	36.1	45.5	52.9	60.7	69.1	76.1	83.3	0.0004

DATA continued

INSULATION RESISTANCE (IR):

Initial Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	A Unmated B	
	X	X	X
Sample#	FFSD/FTSH	FFSD	FTSH
147206-031	100000	100000	100000
147206-032	100000	100000	100000

	Row to Row		
	Mated	A Unmated B	
	X	X	X
Sample#	FFSD/FTSH	FFSD	FTSH
147206-037	100000	100000	100000
147206-038	100000	100000	100000

Thermal Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	A Unmated B	
	X	X	X
Sample#	FFSD/FTSH	FFSD	FTSH
147206-031	25000	25000	100000
147206-032	25000	25000	100000

	Row to Row		
	Mated	A Unmated B	
	X	X	X
Sample#	FFSD/FTSH	FFSD	FTSH
147206-037	25000	25000	100000
147206-038	50000	50000	100000

DATA continued

Humidity Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	A Unmated B	
	X	X	X
Sample#	FFSD/FTSH	FFSD	FTSH
147206-031	25000	25000	100000
147206-032	20000	25000	100000

	Row to Row		
	Mated	A Unmated B	
	X	X	X
Sample#	FFSD/FTSH	FFSD	FTSH
147206-037	50000	50000	100000
147206-038	50000	50000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Initial Breakdown Voltage
Test Voltage *Until Breakdown Occurs*

	Pin to Pin		
	Mated	A Unmated B	
	X		
Sample#	FFSD/FTSH	FFSD	FTSH
147206-027	800	800	1200
147206-028	800	800	1200

	Row to Row		
	Mated	A Unmated B	
	X		
Sample#	FFSD/FTSH	FFSD	FTSH
147206-033	800	900	1200
147206-034	800	800	1200

DATA continued

Initial DWV	
Test Voltage=	600

	Pin to Pin		
	Mated	A Unmated B	
Sample#	FFSD/FTSH	FFSD	FTSH
147206-031	600	600	600
147206-032	600	600	600

	Row to Row		
	Mated	A Unmated B	
Sample#	FFSD/FTSH	FFSD	FTSH
147206-037	600	600	600
147206-038	600	600	600

Thermal Test Voltage	
Test Voltage=	600

	Pin to Pin		
	Mated	A Unmated B	
Sample#	FFSD/FTSH	FFSD	FTSH
147206-031	600	600	600
147206-032	600	600	600

	Row to Row		
	Mated	A Unmated B	
Sample#	FFSD/FTSH	FFSD	FTSH
147206-037	600	600	600
147206-038	600	600	600

DATA continued

Humidity Test Voltage	
Test Voltage=	600

	Pin to Pin		
	Mated	A Unmated B	
Sample#	FFSD/FTSH	FFSD	FTSH
147206-031	600	600	600
147206-032	600	600	600

	Row to Row		
	Mated	A Unmated B	
Sample#	FFSD/FTSH	FFSD	FTSH
147206-037	600	600	600
147206-038	600	600	600

Cable Flex
IR-Before Flex

	IDSD/TSM (Mated Set)	IDSD CABLE-TSM (1 End Only) (Unmated)			TSM Test PCB (Unmated)	
SAMPLE#	Actual	Pass/Fail	Actual	Pass/Fail	Actual	Pass/Fail
74	100000	PASS	100000	PASS	100000	PASS
75	100000	PASS	100000	PASS	100000	PASS
76	100000	PASS	100000	PASS	100000	PASS
77	100000	PASS	100000	PASS	100000	PASS
78	100000	PASS	100000	PASS	100000	PASS
79	100000	PASS	100000	PASS	100000	PASS
80	100000	PASS	100000	PASS	100000	PASS
81	100000	PASS	100000	PASS	100000	PASS

IR-After Flex

	IDSD/TSM (Mated Set)	IDSD CABLE-TSM (1 End Only) (Unmated)			TSM Test PCB (Unmated)	
SAMPLE#	Actual	Pass/Fail	Actual	Pass/Fail	Actual	Pass/Fail
74	100000	PASS	100000	PASS	100000	PASS
75	100000	PASS	100000	PASS	100000	PASS
76	100000	PASS	100000	PASS	100000	PASS
77	100000	PASS	100000	PASS	100000	PASS
78	100000	PASS	100000	PASS	100000	PASS
79	100000	PASS	100000	PASS	100000	PASS
80	100000	PASS	100000	PASS	100000	PASS
81	100000	PASS	100000	PASS	100000	PASS

DATA continued

DWV-Before Flex

	IDSD/TSM (Mated Set)	IDSD CABLE-TSM (1 End Only) (Unmated)			TSM Test PCB (Unmated)	
SAMPLE#	**Actual**	**Pass/Fail**	**Actual**	**Pass/Fail**	**Actual**	**Pass/Fail**
74	600	***PASS***	600	***PASS***	600	***PASS***
75	600	***PASS***	600	***PASS***	600	***PASS***
76	600	***PASS***	600	***PASS***	600	***PASS***
77	600	***PASS***	600	***PASS***	600	***PASS***
78	600	***PASS***	600	***PASS***	600	***PASS***
79	600	***PASS***	600	***PASS***	600	***PASS***
80	600	***PASS***	600	***PASS***	600	***PASS***
81	600	***PASS***	600	***PASS***	600	***PASS***

DWV-After Flex

	IDSD/TSM (Mated Set)	IDSD CABLE-TSM (1 End Only) (Unmated)			TSM Test PCB (Unmated)	
SAMPLE#	**Actual**	**Pass/Fail**	**Actual**	**Pass/Fail**	**Actual**	**Pass/Fail**
74	600	***PASS***	600	***PASS***	600	***PASS***
75	600	***PASS***	600	***PASS***	600	***PASS***
76	600	***PASS***	600	***PASS***	600	***PASS***
77	600	***PASS***	600	***PASS***	600	***PASS***
78	600	***PASS***	600	***PASS***	600	***PASS***
79	600	***PASS***	600	***PASS***	600	***PASS***
80	600	***PASS***	600	***PASS***	600	***PASS***
81	600	***PASS***	600	***PASS***	600	***PASS***

Flex Testing Visual Inspection

	70 Deg +/-5 Deg. Flex Test		Visual Inspection of cable assemblies
SAMPLE#	**Completed Cycles**	**Pass/Fail**	**After 500 Cycles**
147206-74	500	***PASS***	No damage found
147206-75	500	***PASS***	No damage found
147206-76	500	***PASS***	No damage found
147206-77	500	***PASS***	No damage found
147206-78	500	***PASS***	No damage found
147206-79	500	***PASS***	No damage found
147206-80	500	***PASS***	No damage found
147206-81	500	***PASS***	No damage found

DATA Continued

LLCR Durability:

Board	mOhm values Position	Actual Initial	Delta 30 Cycles	Delta Thermal	Delta Humidity
1	P1	109.6	-0.1	3.0	2.3
1	P2	110.0	0.6	3.5	5.7
1	P3	110.3	-0.1	0.4	0.8
1	P4	111.5	0.4	3.8	4.1
1	P5	110.9	0.0	4.6	3.6
1	P6	111.3	-0.8	3.0	6.0
1	P7	110.1	0.0	5.4	6.3
1	P8	111.0	-0.5	5.6	2.3
1	P9	110.0	-0.1	-0.1	0.5
1	P10	109.9	0.3	-0.1	0.4
1	P11	109.6	0.1	1.3	1.8
1	P12	111.0	0.3	0.7	1.3
1	P13	108.9	-0.2	2.3	0.5
1	P14	109.8	0.0	6.3	1.4
1	P15	111.0	0.1	1.1	1.1
1	P16	109.8	0.5	0.7	1.3
1	P17	109.7	0.2	2.4	2.9
1	P18	111.8	-0.2	2.2	0.8
1	P19	110.1	0.0	0.9	2.1
1	P20	108.8	0.1	1.1	2.8
1	P21	110.6	0.3	1.8	4.8
1	P22	110.5	0.3	-0.3	0.2
1	P23	110.6	0.1	6.4	6.9
1	P24	111.1	1.4	8.3	7.4
2	P1	111.2	-1.3	-0.9	-0.4
2	P2	110.1	-0.3	1.6	2.4
2	P3	110.7	-0.5	0.8	3.0
2	P4	111.1	-0.7	2.3	7.4
2	P5	111.8	-0.5	2.0	3.8
2	P6	110.2	-0.3	3.4	6.3
2	P7	109.9	-0.3	0.8	1.2
2	P8	109.8	-0.1	2.9	1.4
2	P9	110.1	-0.1	0.0	0.2
2	P10	109.9	0.0	-0.6	-0.2
2	P11	109.7	-0.3	-0.1	1.1
2	P12	110.5	-0.2	-0.1	0.1
2	P13	108.9	-0.1	-0.2	0.0
2	P14	110.0	-0.4	1.1	1.8
2	P15	111.6	-0.3	-0.2	0.0
2	P16	110.0	-0.3	-0.5	-0.3
2	P17	110.7	-0.5	9.2	12.6
2	P18	112.0	0.0	8.2	10.4
2	P19	110.1	-0.3	3.5	4.9
2	P20	109.1	0.0	2.2	5.4
2	P21	111.7	-0.2	-0.9	-0.3

2	P22	110.3	0.1	3.6	6.3
2	P23	111.5	-0.4	7.0	13.7
2	P24	110.6	0.6	9.0	12.8
3	P1	109.1	-0.5	0.3	1.8
3	P2	109.5	-0.5	-0.2	0.7
3	P3	110.0	-0.6	2.7	4.1
3	P4	110.1	-0.3	0.5	1.2
3	P5	110.2	-0.5	0.4	0.8
3	P6	110.0	-0.9	0.5	1.6
3	P7	110.2	-0.7	0.1	1.4
3	P8	110.0	-0.6	-0.6	-0.7
3	P9	110.1	-0.6	-0.6	-0.5
3	P10	109.7	-0.3	5.1	7.7
3	P11	109.7	-0.7	0.9	1.8
3	P12	111.0	-0.7	3.4	5.9
3	P13	108.4	-0.4	0.7	1.5
3	P14	110.3	-1.1	0.9	3.8
3	P15	111.1	-0.7	0.9	3.0
3	P16	111.0	-1.2	0.8	3.6
3	P17	109.5	-0.5	0.0	1.3
3	P18	111.5	-1.1	-0.5	-0.2
3	P19	109.9	-0.7	3.2	11.9
3	P20	108.2	-0.6	0.3	2.5
3	P21	111.3	-0.4	2.4	3.6
3	P22	110.6	-0.4	2.5	9.8
3	P23	109.9	-0.5	3.7	7.8
3	P24	110.7	-0.5	3.6	12.2
4	P1	108.6	-0.1	0.8	2.7
4	P2	109.2	0.0	0.0	1.4
4	P3	110.3	-0.2	1.6	2.7
4	P4	110.4	-0.1	0.2	0.6
4	P5	109.9	0.1	6.2	13.8
4	P6	108.8	0.0	1.4	2.6
4	P7	109.3	-0.2	0.2	0.4
4	P8	109.6	-0.2	0.3	0.8
4	P9	109.5	-0.1	0.4	1.0
4	P10	110.0	-0.2	-0.2	0.1
4	P11	109.6	-0.2	2.3	5.6
4	P12	110.2	-0.1	0.3	1.3
4	P13	107.6	0.1	0.5	0.8
4	P14	109.3	0.2	1.2	2.2
4	P15	111.0	0.1	4.8	13.5
4	P16	109.3	0.2	0.8	0.8
4	P17	109.9	-0.2	2.3	4.6
4	P18	110.8	-0.4	1.1	1.0
4	P19	109.9	-0.2	2.7	4.6
4	P20	109.0	-0.1	0.6	1.5
4	P21	110.7	-0.1	1.1	3.2
4	P22	109.9	0.0	3.0	7.1
4	P23	109.9	-0.2	1.6	5.7

4	P24	109.9	0.2	6.0	15.0
5	P1	109.5	-0.1	2.0	5.4
5	P2	109.8	-0.3	0.9	1.7
5	P3	110.1	0.0	0.8	2.2
5	P4	110.5	-0.3	0.2	3.1
5	P5	110.9	-0.6	2.3	13.1
5	P6	109.7	0.0	2.1	5.3
5	P7	110.1	-0.4	1.8	5.9
5	P8	109.8	0.2	0.3	0.3
5	P9	109.4	-0.4	0.0	0.6
5	P10	109.8	-0.1	0.4	1.0
5	P11	109.3	0.3	0.9	2.1
5	P12	110.3	0.0	0.8	1.0
5	P13	108.2	0.1	1.4	2.0
5	P14	109.0	0.0	0.0	0.0
5	P15	110.9	0.2	2.0	3.9
5	P16	111.0	-0.2	2.5	5.6
5	P17	110.7	-0.1	0.4	1.1
5	P18	111.5	0.0	1.9	8.4
5	P19	110.3	-0.2	0.6	1.7
5	P20	109.7	-0.1	2.0	7.5
5	P21	111.7	0.1	2.7	10.6
5	P22	110.1	0.0	1.5	6.8
5	P23	110.1	0.0	1.3	7.1
5	P24	110.2	0.7	5.5	10.8
6	P1	108.5	0.7	0.0	0.8
6	P2	109.5	0.0	1.4	2.7
6	P3	110.1	0.4	-0.3	1.1
6	P4	110.6	-0.6	1.2	2.8
6	P5	110.0	-0.1	0.3	2.2
6	P6	109.1	0.1	2.5	9.8
6	P7	110.1	1.1	6.9	5.9
6	P8	110.6	1.0	0.4	3.7
6	P9	109.3	0.1	2.5	6.4
6	P10	109.4	0.0	-0.1	-0.8
6	P11	109.5	0.8	6.0	9.1
6	P12	110.1	0.1	1.6	3.3
6	P13	108.1	0.2	2.6	4.1
6	P14	109.4	0.2	-0.2	0.1
6	P15	111.3	0.6	2.0	4.2
6	P16	109.3	0.1	0.1	0.6
6	P17	109.8	0.4	0.0	1.2
6	P18	110.8	0.0	0.9	1.5
6	P19	109.6	-0.2	-0.4	0.3
6	P20	108.9	0.1	2.3	4.3
6	P21	113.2	1.1	1.5	2.2
6	P22	109.4	0.2	0.2	1.1
6	P23	109.7	0.2	4.8	8.7
6	P24	110.2	0.4	2.0	4.9
7	P1	108.6	0.0	3.2	4.8

7	P2	109.3	-0.1	3.8	5.9
7	P3	109.8	0.2	0.5	0.9
7	P4	110.3	-0.1	0.0	0.7
7	P5	110.4	0.0	0.7	1.6
7	P6	109.1	0.2	1.0	1.9
7	P7	110.0	0.5	4.7	7.7
7	P8	109.8	0.2	0.9	2.8
7	P9	109.4	0.6	2.3	2.8
7	P10	109.9	0.2	0.1	0.9
7	P11	109.0	0.1	0.3	0.7
7	P12	110.0	0.4	3.4	6.7
7	P13	107.8	0.5	0.4	0.6
7	P14	109.2	0.0	2.3	2.7
7	P15	111.3	0.7	6.5	10.7
7	P16	110.0	-0.3	0.1	0.1
7	P17	110.3	-0.1	0.2	0.4
7	P18	110.8	-0.2	1.1	2.3
7	P19	109.7	0.3	0.4	0.5
7	P20	109.2	-0.5	0.3	1.7
7	P21	110.9	-0.1	0.6	0.7
7	P22	109.9	-0.3	3.1	6.9
7	P23	109.6	0.0	1.0	3.6
7	P24	110.0	0.4	9.3	9.3
8	P1	110.3	-0.2	-0.6	0.9
8	P2	110.2	-0.1	1.6	5.8
8	P3	109.5	0.2	0.7	4.9
8	P4	101.5	2.2	10.7	3.6
8	P5	111.9	-0.1	-0.4	2.8
8	P6	109.7	0.5	0.3	2.2
8	P7	111.2	0.4	2.7	5.6
8	P8	110.5	0.5	0.6	6.7
8	P9	110.8	1.1	2.0	7.7
8	P10	110.3	0.3	0.6	9.4
8	P11	109.4	0.2	-0.4	2.3
8	P12	111.4	0.2	-0.7	0.1
8	P13	109.3	-0.1	-1.1	0.2
8	P14	110.0	-0.2	-1.1	-0.7
8	P15	111.8	-0.1	-0.7	0.3
8	P16	110.8	-0.3	0.7	2.7
8	P17	109.5	0.0	0.6	1.3
8	P18	111.8	0.0	0.8	3.6
8	P19	110.4	0.1	0.4	4.1
8	P20	109.0	0.0	0.3	2.7
8	P21	111.2	0.0	-0.1	1.2
8	P22	110.9	-0.1	0.2	2.7
8	P23	110.9	0.8	0.8	2.4
8	P24	110.0	0.0	1.3	2.4

DATA Continued

LLCR thermal aging

	mOhm values	Actual	Delta
Board	Position	Initial	Thermal age
1	P1	108.6	0.7
1	P2	109.5	1.3
1	P3	109.9	1.4
1	P4	111.3	1.3
1	P5	109.0	1.3
1	P6	109.5	2.2
1	P7	110.2	3.2
1	P8	109.9	2.9
1	P9	109.8	2.9
1	P10	110.4	2.5
1	P11	109.8	3.9
1	P12	111.0	2.6
1	P13	108.7	4.6
1	P14	110.2	3.3
1	P15	111.1	2.2
1	P16	110.7	1.5
1	P17	110.3	1.8
1	P18	111.5	0.6
1	P19	109.5	1.4
1	P20	109.2	0.7
1	P21	110.8	1.9
1	P22	110.0	1.0
1	P23	110.2	1.9
1	P24	112.1	1.2
2	P1	109.4	1.8
2	P2	109.8	2.8
2	P3	111.0	6.1
2	P4	110.9	1.6
2	P5	110.3	1.7
2	P6	110.1	2.7
2	P7	110.3	1.9
2	P8	110.2	2.6
2	P9	109.5	2.9
2	P10	109.5	3.2
2	P11	109.0	1.8
2	P12	110.6	2.6
2	P13	108.1	2.6
2	P14	109.3	2.0
2	P15	111.0	1.4
2	P16	110.2	2.9
2	P17	110.7	1.4
2	P18	111.5	2.3
2	P19	110.0	3.5
2	P20	109.2	2.4
2	P21	111.2	2.8

2	P22	110.1	3.4
2	P23	110.8	2.8
2	P24	110.9	2.5
3	P1	109.6	3.4
3	P2	109.8	5.0
3	P3	110.5	4.0
3	P4	110.7	5.0
3	P5	110.4	6.1
3	P6	109.8	2.3
3	P7	110.5	2.7
3	P8	110.2	3.6
3	P9	110.0	2.8
3	P10	109.6	3.8
3	P11	109.2	2.4
3	P12	110.4	3.6
3	P13	108.3	2.3
3	P14	109.1	2.9
3	P15	111.3	2.7
3	P16	110.2	2.4
3	P17	110.2	2.0
3	P18	111.9	2.9
3	P19	109.9	2.6
3	P20	109.0	2.0
3	P21	110.6	1.4
3	P22	110.5	2.6
3	P23	110.4	2.2
3	P24	110.0	1.4
4	P1	109.2	1.9
4	P2	110.0	4.3
4	P3	110.2	2.6
4	P4	111.1	4.5
4	P5	110.0	2.0
4	P6	109.5	5.4
4	P7	110.0	2.8
4	P8	110.1	5.0
4	P9	110.0	4.2
4	P10	109.8	3.3
4	P11	109.3	6.6
4	P12	110.4	3.9
4	P13	108.4	5.1
4	P14	109.8	7.6
4	P15	111.1	7.6
4	P16	110.8	6.3
4	P17	110.4	6.8
4	P18	112.0	5.3
4	P19	110.8	8.1
4	P20	109.7	6.1
4	P21	111.0	4.8
4	P22	110.1	5.3
4	P23	110.5	6.5

4	P24	110.9	7.2
5	P1	109.0	3.0
5	P2	109.5	4.2
5	P3	110.8	6.8
5	P4	110.6	4.2
5	P5	110.7	4.9
5	P6	109.8	2.3
5	P7	110.7	3.3
5	P8	109.7	3.1
5	P9	110.2	2.8
5	P10	109.8	2.4
5	P11	109.1	2.8
5	P12	110.2	2.5
5	P13	109.2	3.1
5	P14	109.6	2.5
5	P15	111.5	2.1
5	P16	110.7	1.2
5	P17	110.4	2.7
5	P18	111.3	1.9
5	P19	110.6	1.4
5	P20	109.3	2.5
5	P21	112.4	3.4
5	P22	109.9	2.8
5	P23	111.3	4.2
5	P24	111.0	5.7
6	P1	110.0	4.9
6	P2	110.3	2.0
6	P3	110.2	3.6
6	P4	111.3	1.9
6	P5	111.5	2.9
6	P6	110.2	2.5
6	P7	110.6	3.5
6	P8	110.6	3.1
6	P9	110.2	3.4
6	P10	109.6	3.1
6	P11	109.5	3.9
6	P12	110.8	2.8
6	P13	108.6	2.2
6	P14	110.0	2.2
6	P15	111.0	1.0
6	P16	110.8	1.4
6	P17	109.7	0.7
6	P18	111.8	1.6
6	P19	109.8	1.3
6	P20	109.1	1.0
6	P21	111.1	1.0
6	P22	111.1	2.5
6	P23	110.8	2.0
6	P24	111.6	2.6
7	P1	110.0	5.2

7	P2	110.4	3.7
7	P3	110.4	5.8
7	P4	111.2	6.3
7	P5	109.9	4.1
7	P6	112.8	1.6
7	P7	110.0	2.9
7	P8	109.8	3.5
7	P9	110.0	4.8
7	P10	109.9	4.9
7	P11	109.5	4.6
7	P12	111.1	5.1
7	P13	108.2	2.6
7	P14	108.8	2.0
7	P15	112.2	5.8
7	P16	110.2	1.9
7	P17	109.6	2.3
7	P18	111.8	3.4
7	P19	109.9	2.8
7	P20	108.9	1.6
7	P21	110.8	1.5
7	P22	109.9	2.7
7	P23	110.4	2.7
7	P24	111.6	3.5
8	P1	108.5	2.4
8	P2	110.0	2.8
8	P3	110.6	2.7
8	P4	103.2	-1.3
8	P5	112.4	2.7
8	P6	109.8	2.5
8	P7	110.7	1.4
8	P8	110.1	4.1
8	P9	110.4	4.9
8	P10	110.9	3.9
8	P11	110.0	3.2
8	P12	111.1	5.6
8	P13	109.6	3.8
8	P14	110.7	5.7
8	P15	112.0	3.2
8	P16	110.6	3.9
8	P17	110.5	2.2
8	P18	111.5	4.6
8	P19	110.5	5.4
8	P20	109.7	3.4
8	P21	112.7	5.1
8	P22	111.6	8.0
8	P23	111.0	4.4
8	P24	110.2	3.0

DATA Continued

LLCR Gas Tight

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	109.5	0.7
1	P2	109.9	0.8
1	P3	110.9	0.7
1	P4	111.8	0.6
1	P5	110.6	0.8
1	P6	109.9	0.9
1	P7	110.0	0.8
1	P8	111.1	0.8
1	P9	110.0	0.8
1	P10	111.1	1.0
1	P11	110.4	0.8
1	P12	111.6	1.0
1	P13	109.2	0.6
1	P14	110.5	0.8
1	P15	111.9	0.6
1	P16	110.9	0.9
1	P17	111.5	0.5
1	P18	112.3	1.1
1	P19	111.1	0.6
1	P20	110.6	0.7
1	P21	113.5	0.4
1	P22	110.9	0.5
1	P23	110.9	0.9
1	P24	111.0	0.9
2	P1	109.7	0.9
2	P2	111.1	0.4
2	P3	111.2	1.1
2	P4	111.4	0.6
2	P5	110.9	0.7
2	P6	110.0	0.6
2	P7	111.7	1.0
2	P8	110.7	0.8
2	P9	111.1	0.9
2	P10	110.6	0.8
2	P11	110.0	1.2
2	P12	110.9	1.0
2	P13	108.9	1.1
2	P14	110.1	0.9
2	P15	112.4	1.2
2	P16	111.6	1.5
2	P17	110.9	1.3
2	P18	112.4	1.1
2	P19	111.4	1.3
2	P20	110.4	1.0
2	P21	112.1	1.4

2	P22	111.0	1.1
2	P23	111.6	1.3
2	P24	110.8	1.6
3	P1	109.4	1.5
3	P2	110.0	1.0
3	P3	110.4	1.2
3	P4	111.2	1.1
3	P5	111.9	1.0
3	P6	110.3	1.5
3	P7	111.1	1.5
3	P8	111.0	1.1
3	P9	110.2	1.2
3	P10	110.2	1.2
3	P11	110.1	1.1
3	P12	111.8	1.3
3	P13	109.1	1.2
3	P14	110.3	0.9
3	P15	111.5	1.1
3	P16	110.9	1.1
3	P17	110.3	0.9
3	P18	111.6	0.7
3	P19	110.1	0.8
3	P20	109.7	0.7
3	P21	111.1	0.7
3	P22	110.6	0.6
3	P23	110.3	1.0
3	P24	111.2	2.3
4	P1	109.7	0.8
4	P2	110.8	0.5
4	P3	111.0	0.8
4	P4	110.7	0.7
4	P5	110.6	0.9
4	P6	110.3	0.6
4	P7	110.3	0.8
4	P8	110.8	0.9
4	P9	110.2	0.8
4	P10	110.2	1.0
4	P11	110.0	1.2
4	P12	110.2	1.4
4	P13	109.2	1.5
4	P14	110.2	0.7
4	P15	111.3	1.0
4	P16	110.3	0.8
4	P17	110.0	1.1
4	P18	111.1	1.0
4	P19	109.5	1.1
4	P20	109.2	1.3
4	P21	112.4	1.0
4	P22	110.8	0.9
4	P23	110.6	1.2

4	P24	111.2	0.6
5	P1	109.6	1.3
5	P2	109.2	1.3
5	P3	109.9	1.2
5	P4	110.3	1.2
5	P5	109.9	1.2
5	P6	109.6	1.1
5	P7	110.7	0.9
5	P8	110.0	1.2
5	P9	110.1	1.0
5	P10	110.5	1.4
5	P11	109.8	1.1
5	P12	110.7	1.3
5	P13	109.2	1.1
5	P14	109.6	1.1
5	P15	111.7	1.0
5	P16	110.6	1.0
5	P17	110.3	1.0
5	P18	111.6	1.0
5	P19	110.3	0.8
5	P20	109.2	1.0
5	P21	111.3	0.8
5	P22	110.0	1.0
5	P23	110.4	0.9
5	P24	111.0	0.8
6	P1	109.4	1.2
6	P2	110.2	1.8
6	P3	111.1	1.4
6	P4	111.3	1.9
6	P5	110.1	1.1
6	P6	109.6	1.1
6	P7	112.3	1.2
6	P8	110.0	1.8
6	P9	110.7	1.4
6	P10	110.5	1.6
6	P11	109.8	1.3
6	P12	111.0	1.5
6	P13	109.2	1.0
6	P14	110.8	1.4
6	P15	112.3	0.8
6	P16	111.4	1.3
6	P17	111.0	0.7
6	P18	112.6	1.1
6	P19	110.3	0.9
6	P20	109.4	1.2
6	P21	111.8	1.8
6	P22	110.4	1.2
6	P23	110.8	1.0
6	P24	111.2	0.3
7	P1	109.8	1.2

7	P2	109.8	1.3
7	P3	111.2	1.3
7	P4	111.5	1.7
7	P5	110.9	1.4
7	P6	109.8	1.5
7	P7	113.6	1.5
7	P8	110.7	1.4
7	P9	110.2	1.3
7	P10	110.5	1.2
7	P11	110.0	1.2
7	P12	111.6	1.0
7	P13	109.1	1.0
7	P14	109.9	1.0
7	P15	112.2	1.8
7	P16	111.6	0.8
7	P17	110.6	1.0
7	P18	111.7	1.0
7	P19	110.7	1.0
7	P20	110.5	0.7
7	P21	111.3	0.9
7	P22	110.0	0.8
7	P23	110.5	0.8
7	P24	110.4	0.9
8	P1	110.5	1.1
8	P2	110.9	0.6
8	P3	110.9	1.0
8	P4	102.1	0.8
8	P5	111.1	1.1
8	P6	110.3	1.3
8	P7	111.8	1.1
8	P8	110.9	1.0
8	P9	111.5	1.3
8	P10	110.8	1.9
8	P11	109.7	1.2
8	P12	112.4	1.7
8	P13	109.4	1.1
8	P14	110.4	0.9
8	P15	112.1	1.7
8	P16	110.5	1.0
8	P17	110.5	1.2
8	P18	112.2	1.0
8	P19	110.9	1.1
8	P20	109.5	1.4
8	P21	110.8	1.1
8	P22	111.1	0.7
8	P23	111.3	1.0
8	P24	110.6	0.9

Data Continued

LLCR S&V:

	mOhm values	Actual	Delta
Board	Position	Initial	Shock / Vibe
1	P1	109.4	0.3
1	P2	109.5	0.5
1	P3	111.4	1.9
1	P4	110.3	0.7
1	P5	110.0	0.5
1	P6	109.3	5.1
1	P7	110.1	1.6
1	P8	110.1	1.0
1	P9	109.3	-0.3
1	P10	110.1	0.3
1	P11	109.4	0.1
1	P12	110.8	0.6
1	P13	108.2	-0.3
1	P14	109.5	-0.8
1	P15	111.5	0.9
1	P16	110.3	0.5
1	P17	110.6	2.4
1	P18	111.0	0.5
1	P19	110.1	1.6
1	P20	109.0	0.1
1	P21	111.3	0.4
1	P22	109.9	0.6
1	P23	109.5	1.2
1	P24	109.4	4.3
2	P1	109.5	0.6
2	P2	109.4	1.1
2	P3	110.3	0.0
2	P4	110.8	0.1
2	P5	109.4	2.8
2	P6	109.6	0.9
2	P7	110.2	-0.1
2	P8	110.7	-0.7
2	P9	110.0	-0.1
2	P10	110.0	0.1
2	P11	110.0	-0.2
2	P12	110.7	0.3
2	P13	108.6	2.4
2	P14	109.5	0.1
2	P15	111.3	0.3
2	P16	110.5	0.5
2	P17	110.2	0.0
2	P18	112.0	0.6
2	P19	109.9	-0.2
2	P20	108.8	1.2
2	P21	111.2	0.3
2	P22	110.0	2.0

2	P23	109.9	1.9
2	P24	111.2	3.9
3	P1	108.3	0.4
3	P2	109.5	0.2
3	P3	110.0	2.8
3	P4	110.7	0.3
3	P5	109.4	-0.1
3	P6	108.9	0.9
3	P7	110.1	0.3
3	P8	109.2	0.0
3	P9	109.8	-0.2
3	P10	109.7	0.5
3	P11	109.2	0.2
3	P12	110.3	-0.2
3	P13	108.5	-0.2
3	P14	109.8	-0.3
3	P15	110.9	0.1
3	P16	110.1	1.1
3	P17	109.6	0.3
3	P18	111.4	-0.3
3	P19	109.5	2.6
3	P20	108.5	0.0
3	P21	110.9	0.3
3	P22	109.5	0.6
3	P23	109.5	1.5
3	P24	110.4	2.8
4	P1	109.1	0.2
4	P2	109.6	0.2
4	P3	111.2	2.3
4	P4	110.9	-0.3
4	P5	110.4	1.6
4	P6	109.6	-0.2
4	P7	110.1	0.0
4	P8	110.1	-1.0
4	P9	110.4	0.3
4	P10	109.6	-0.1
4	P11	109.9	-0.1
4	P12	111.0	-0.8
4	P13	108.9	-0.2
4	P14	111.3	0.1
4	P15	112.8	1.3
4	P16	111.1	-0.6
4	P17	110.5	-0.6
4	P18	112.1	-0.8
4	P19	110.1	-0.5
4	P20	108.9	0.2
4	P21	111.5	0.6
4	P22	110.4	0.7
4	P23	110.0	-0.2
4	P24	110.1	2.3

5	P1	109.8	-0.2
5	P2	110.2	0.1
5	P3	110.8	1.2
5	P4	111.4	0.0
5	P5	110.2	0.0
5	P6	110.1	-0.7
5	P7	111.0	0.2
5	P8	110.6	-0.4
5	P9	110.3	-0.5
5	P10	110.5	1.1
5	P11	110.5	-0.3
5	P12	111.0	0.0
5	P13	109.5	-0.7
5	P14	111.6	0.0
5	P15	111.9	-0.5
5	P16	111.4	0.5
5	P17	110.3	-0.7
5	P18	111.2	-0.1
5	P19	110.1	-0.3
5	P20	109.7	-0.2
5	P21	111.3	0.2
5	P22	110.5	0.6
5	P23	110.4	0.0
5	P24	110.8	6.8
6	P1	109.8	0.7
6	P2	110.0	1.6
6	P3	110.4	-0.1
6	P4	99.1	12.0
6	P5	110.2	0.4
6	P6	110.5	1.5
6	P7	110.2	0.6
6	P8	110.2	0.5
6	P9	110.1	-0.1
6	P10	110.2	0.2
6	P11	110.0	1.1
6	P12	111.1	0.3
6	P13	108.5	-0.3
6	P14	109.3	0.3
6	P15	111.5	0.6
6	P16	110.5	0.5
6	P17	110.3	0.1
6	P18	111.3	1.4
6	P19	110.1	0.2
6	P20	109.1	0.2
6	P21	111.4	0.4
6	P22	110.1	0.0
6	P23	111.5	0.3
6	P24	110.3	2.6
7	P1	109.3	0.2
7	P2	109.6	0.1

7	P3	110.4	0.8
7	P4	110.9	-0.6
7	P5	110.1	0.5
7	P6	109.9	-0.1
7	P7	111.1	-0.6
7	P8	109.8	-0.1
7	P9	109.6	1.1
7	P10	110.0	-0.3
7	P11	109.7	1.6
7	P12	110.3	0.1
7	P13	109.5	0.6
7	P14	109.9	-0.7
7	P15	111.8	0.7
7	P16	110.3	-0.6
7	P17	109.9	0.0
7	P18	111.3	0.2
7	P19	110.4	-0.1
7	P20	108.8	-0.3
7	P21	112.2	1.0
7	P22	110.0	0.5
7	P23	110.2	0.3
7	P24	109.8	3.4
8	P1	109.2	0.4
8	P2	109.3	-0.2
8	P3	110.4	0.2
8	P4	102.2	-0.2
8	P5	110.2	0.9
8	P6	110.3	0.7
8	P7	110.2	0.1
8	P8	109.7	-0.2
8	P9	109.8	0.2
8	P10	109.9	0.0
8	P11	109.4	0.2
8	P12	110.6	-0.2
8	P13	108.7	-0.1
8	P14	109.8	0.1
8	P15	111.6	0.6
8	P16	110.8	-0.2
8	P17	109.6	-0.1
8	P18	111.9	0.6
8	P19	110.0	0.7
8	P20	109.0	0.0
8	P21	110.7	0.3
8	P22	109.7	0.5
8	P23	110.3	0.3
8	P24	110.4	1.3

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-03
Description: Micro-ohmmeter
Manufacturer: Keithley
Model: 580
Serial #: 297288
Accuracy: Last Cal: 2011-8-06, Next Cal: 2012-8-05

Equipment #: TCT-01
Description: Normal force analyzer
Manufacturer: Mecmesin Multitester
Model: Mecmesin Multitester 2.5-i
Serial #: 08-1049-04
Accuracy: Last Cal: 2011-4-28, Next Cal: 2012-4-27

Equipment #: OV-01
Description: Oven
Manufacturer: Huida
Model: CS101-1E
Serial #: CS101-1E-B
Accuracy: Last Cal: 2010-12-14, Next Cal: 2011-12-13

Equipment #: THC-01
Description: Humidity transmitter
Manufacturer: Thermtron
Model: HMM30C
Serial #: D0240037
Accuracy: Last Cal: 2011-3-3, Next Cal: 2012-3-2

Equipment #: OGP-01
Description: Video measurement system
Manufacturer: OGP
Model: SMARTSCOPE FLASH 200
Serial #: SVW2003632
Accuracy: Last Cal: 2011-6-10, Next Cal: 2012-6-9

Equipment #: MO-01
Description: Micro-ohmmeter
Manufacturer: Keithley
Model: 2700
Serial #: 1199807
Accuracy: Last Cal: 2011-4-28, Next Cal: 2012-4-27

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: PS-01
Description: Power Supply
Manufacturer: Agilent
Model: 6031A
Serial #: MY41000982
Accuracy: Last Cal: 2011-4-28, Next Cal: 2012-4-27

Equipment #: TSC-01
Description: Thermal Shock transmitter
Manufacturer: Keithley
Model: 10-VT14994
Serial #: VTS-3-6-6-SC/AC
Accuracy: Last Cal: 2011-11-1, Next Cal: 2012-11-1

Equipment #: ACLM-01
Description: Accelerometer
Manufacturer: PCB Piezotronics
Model: 352C03
Serial #: 115819
Accuracy: See Manual
… Last Cal: 2011-07-9, Next Cal: 2012-7-9

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1100604
Accuracy: See Manual
… Last Cal: 2011-06-4, Next Cal: 2012-06-4