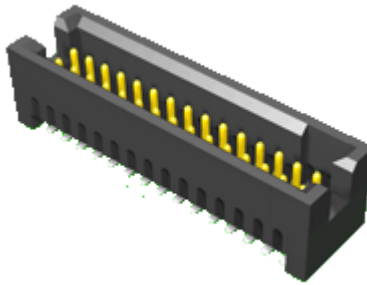
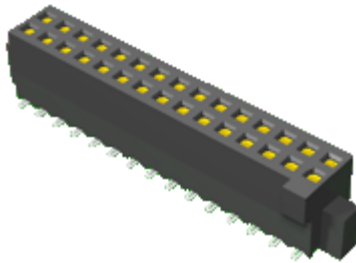




Project Number: Design Qualification Test Report		Tracking Code: 107636_Report_Rev_2	
Requested by: Mark Shireman		Date: 2/5/2015	Product Rev: 0
Part #: SFM-150-02-S-D-A/TFM-150-02-S-D-A		Lot #: N/A	Tech: Aaron McKim Eng: Eric Ming
Part description: SFM/TFM			Qty to test: 45
Test Start: 3/20/2011	Test Completed: 4/18/2011		



Design Qualification Test Report

SFM/TFM

SFM-150-02-S-D-A/TFM-150-02-S-D-A

Tracking Code: 107636_Report_Rev_2	Part #: SFM-150-02-S-D-A/TFM-150-02-S-D-A
Part description: SFM/TFM	

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
05/7/2011	1	Initial Issue	PC
02/05/2015	2	Updated the test data	PC

CERTIFICATION

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

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SCOPE

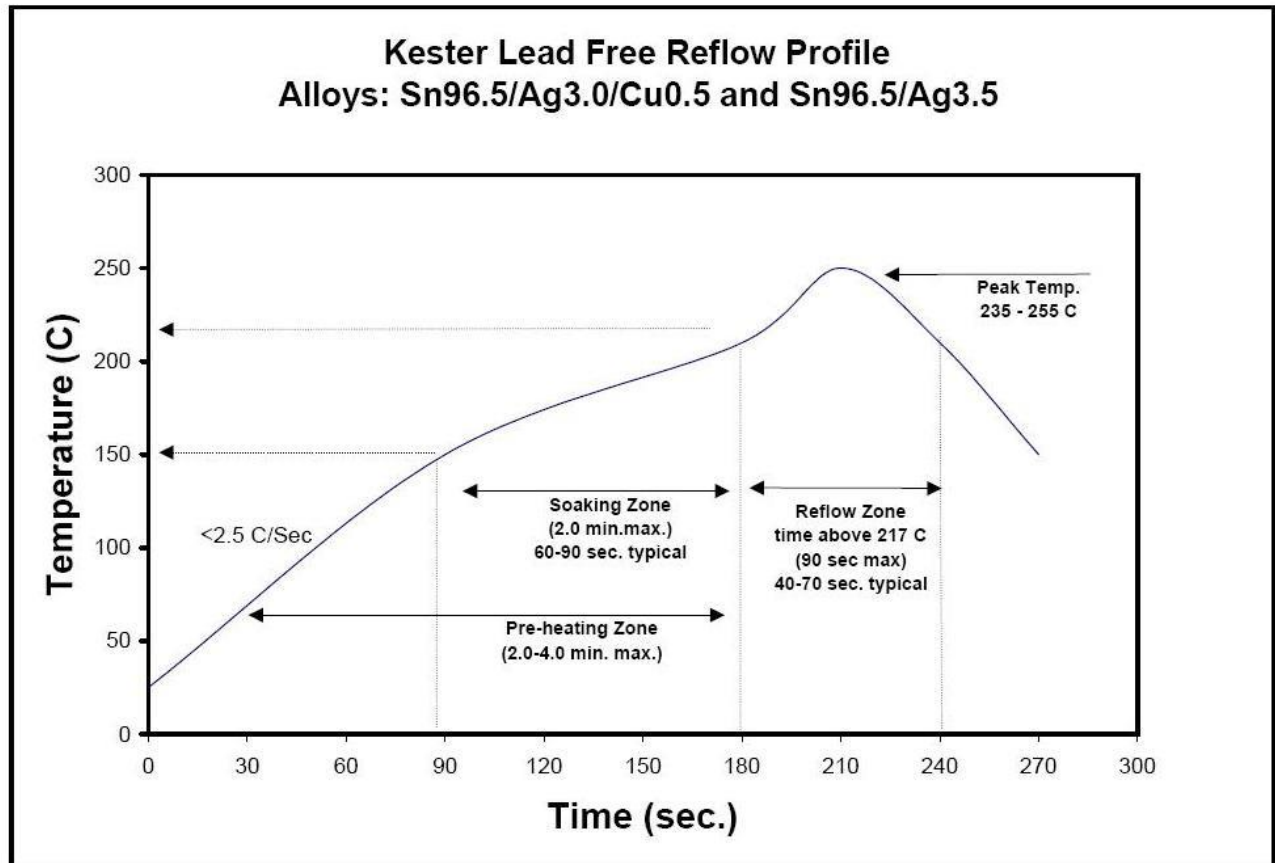
To perform the following tests: Design Qualification Test, Please see test plan.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to TLWI-0001.
- 4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 5) The automated procedure is used with aqueous compatible soldering materials.
- 6) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.
- 8) Solder Information: Lead free
- 9) Re-Flow Time/Temp: See accompanying profile.

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**Durability/Mating/Unmating/Gaps**

TEST STEP	GROUP A1 8 Boards (largest position submitted)	GROUP A2 8 Boards (middle position submitted)	GROUP A3 8 Boards (smallest position submitted)
01	Contact Gaps	Contact Gaps	Contact Gaps
02	LLCR-1	Forces - Mating / Unmating	Forces - Mating / Unmating
03	Forces - Mating / Unmating	25 Cycles	25 Cycles
04	25 Cycles	Forces - Mating / Unmating	Forces - Mating / Unmating
05	Forces - Mating / Unmating	25 Cycles (50 Total)	25 Cycles (50 Total)
06	25 Cycles (50 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
07	Forces - Mating / Unmating	25 Cycles (75 Total)	25 Cycles (75 Total)
08	25 Cycles (75 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
09	Forces - Mating / Unmating	25 Cycles (100 Total)	25 Cycles (100 Total)
10	25 Cycles (100 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
11	Forces - Mating / Unmating		
12	Clean w/Compressed Air		
13	Contact Gaps		
14	LLCR-2		
15	Thermal Shock (Mated and Undisturbed)		
16	LLCR-3		
17	Cyclic Humidity (Mated and Undisturbed)		
18	LLCR-4		
19	Forces - Mating / Unmating		

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

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

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

and Method III (+25°C to +65°C @ 90% RH to 98% RH)

ambient pre-condition and delete steps 7a and 7b

Mating / Unmating Forces = EIA-364-13

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

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

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued**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

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

FLOWCHARTS Continued**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

Normal Force

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

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

Time Condition 'B' (250 Hours)

Normal Force = EIA-364-04

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

Spec is 50 N @ 1 mm displacement

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

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

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

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

THERMAL:

- 1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors*.
- 2) Test Condition 4 at 105° C.
- 3) Test Time Condition B for 250 hours.
- 4) All test samples are pre-conditioned at ambient.
- 5) All test samples are exposed to environmental stressing in the mated condition.

HUMIDITY:

- 1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors*.
- 2) Test Condition B, 240 Hours.
- 3) Method III, +25° C to + 65° C, 90% to 98% Relative Humidity excluding sub-cycles 7a and 7b.
- 4) All samples are pre-conditioned at ambient.
- 5) All test samples are exposed to environmental stressing in the mated condition.

MECHANICAL SHOCK (Specified Pulse):

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

VIBRATION:

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

NANOSECOND-EVENT DETECTION:

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

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 TC², computer controlled test stand with a deflection measurement system accuracy of 5.0 μ m (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 TC² software in order to acquire and record the test data.
- 10) The permanent set of each contact shall be measured within the TC² 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)..

LLCR:

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

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

GAS TIGHT:

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

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms:----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure
- 4) Procedure:
 - a. Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems*.
 - b. Test Conditions:
 - i. Class II--- Mated pairs of contacts assembled to their plastic housings.
 - ii. Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
 - iii. The ratio of the volume of the test chamber to the surface area of the acid shall be 10:1.
 - iv. The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
 - v. Exposure time, 55 to 65 minutes.
 - vi. The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
 - vii. The samples shall be dried after exposure for a minimum of 1 hour.
 - viii. Drying temperature 50° C
 - ix. The final LLCR shall be conducted within 1 hour after drying.

RESULTS**Contact Gaps****Thermal aging**

- **Initial**
 - **Min**-----**0.0127 Inch**
 - **Max**-----**0.0139 Inch**
- **After thermal aging**
 - **Min**-----**0.0128 Inch**
 - **Max**-----**0.0144 Inch**

Mating&Unmating durability

- **Initial**
 - **Min**-----**0.0125 Inch**
 - **Max**-----**0.0141 Inch**
- **After 100 Cycles**
 - **Min**-----**0.0125 Inch**
 - **Max**-----**0.0141 Inch**

Mating – Unmating force**Thermal aging (SFM-150-02-S-D-A/TFM-150-02-S-D-A):**

- **Initial**
 - **Mating**
 - **Min**-----**16.70 Lbs**
 - **Max**-----**20.58 Lbs**
 - **Unmating**
 - **Min**-----**14.67 Lbs**
 - **Max**-----**19.14 Lbs**
- **After thermal aging**
 - **Mating**
 - **Min**-----**13.01 Lbs**
 - **Max**-----**20.60 Lbs**
 - **Unmating**
 - **Min**-----**9.06 Lbs**
 - **Max**-----**13.75 Lbs**

RESULTS Continued**Mating&Unmating durability (SFM-150-02-S-D-A/TFM-150-02-S-D-A):**

- **Initial**
 - **Mating**
 - **Min** -----15.35 Lbs
 - **Max** -----18.80 Lbs
 - **Unmating**
 - **Min** -----12.39 Lbs
 - **Max** -----17.50 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** -----17.03 Lbs
 - **Max** -----20.65 Lbs
 - **Unmating**
 - **Min** -----15.00 Lbs
 - **Max** -----18.63 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** -----17.73 Lbs
 - **Max** -----21.98 Lbs
 - **Unmating**
 - **Min** -----15.95 Lbs
 - **Max** -----19.97 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** -----18.34 Lbs
 - **Max** -----22.80 Lbs
 - **Unmating**
 - **Min** -----16.78 Lbs
 - **Max** -----20.40 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** -----19.07 Lbs
 - **Max** -----24.14 Lbs
 - **Unmating**
 - **Min** -----17.16 Lbs
 - **Max** -----21.37 Lbs
- **After Humidity**
 - **Mating**
 - **Min** -----14.57 Lbs
 - **Max** -----18.22 Lbs
 - **Unmating**
 - **Min** -----13.50 Lbs
 - **Max** -----17.08 Lbs

RESULTS Continued**Mating&Unmating basic (SFM-125-02-S-D-A/TFM-125-02-S-D-A):**

- **Initial**
 - **Mating**
 - **Min** -----10.66 Lbs
 - **Max** -----14.29 Lbs
 - **Unmating**
 - **Min** ----- 9.33 Lbs
 - **Max** -----11.61 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** -----10.14 Lbs
 - **Max** -----12.19 Lbs
 - **Unmating**
 - **Min** ----- 9.34 Lbs
 - **Max** -----10.57 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** -----11.52 Lbs
 - **Max** -----13.80 Lbs
 - **Unmating**
 - **Min** -----10.15 Lbs
 - **Max** -----12.18 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** -----12.03 Lbs
 - **Max** -----15.11 Lbs
 - **Unmating**
 - **Min** -----10.83 Lbs
 - **Max** -----13.60 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** -----12.18 Lbs
 - **Max** -----16.26 Lbs
 - **Unmating**
 - **Min** -----11.49 Lbs
 - **Max** -----14.33 Lbs

RESULTS Continued**Mating&Unmating basic (SFM-105-02-S-D-A/TFM-105-02-S-D-A):**

- **Initial**
 - **Mating**
 - **Min** ----- 1.11 Lbs
 - **Max** ----- 1.74 Lbs
 - **Unmating**
 - **Min** ----- 1.02 Lbs
 - **Max** ----- 1.48 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 1.12 Lbs
 - **Max** ----- 1.72 Lbs
 - **Unmating**
 - **Min** ----- 0.99 Lbs
 - **Max** ----- 1.47 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** ----- 1.15 Lbs
 - **Max** ----- 1.85 Lbs
 - **Unmating**
 - **Min** ----- 1.03 Lbs
 - **Max** ----- 1.59 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** ----- 1.19 Lbs
 - **Max** ----- 1.83 Lbs
 - **Unmating**
 - **Min** ----- 1.01 Lbs
 - **Max** ----- 1.64 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** ----- 1.17 Lbs
 - **Max** ----- 1.94 Lbs
 - **Unmating**
 - **Min** ----- 1.01 Lbs
 - **Max** ----- 1.76 Lbs

RESULTS Continued**Normal Force at 0.005 inch deflection**• **Initial****Back beam**

- **Min**-----100.40 gf **Set** ---- 0.0002 Inch
- **Max**-----133.00 gf **Set** ---- 0.0009 Inch

Left and right beam

- **Min**-----99.90 gf **Set** ---- 0.0008 Inch
- **Max**-----123.00 gf **Set** ---- 0.0023 Inch

• **Thermal****Back beam**

- **Min**-----80.80 gf **Set** ---- 0.0007 Inch
- **Max**-----139.10 gf **Set** ---- 0.0012 Inch

Left and right beam

- **Min**-----74.00 gf **Set** ---- 0.0011 Inch
- **Max**-----119.50 gf **Set** ---- 0.0016 Inch

LLCR Durability (192 pin LLCR test points)• **Initial**-----7.7 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**-----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 Thermal aging (192 pin LLCR test points)**

- **Initial** -----7.6 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

LLCR Gas Tight (192 pin LLCR test points)

- **Initial** -----8.2 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 Mechanical shock&Vibration (192 pin LLCR test points)

- **Initial** -----8.0 mOhms Max
- **Shock&Vibration**
 - <= +5.0 mOhms ----- 192 Points ----- Stable
 - +5.1 to +10.0 mOhms -----0 Points ----- Minor
 - +10.1 to +15.0 mOhms -----0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms -----0 Points ----- Marginal
 - +50.1 to +2000 mOhms -----0 Points ----- Unstable
 - >+2000 mOhms -----0 Points ----- Open Failure

Insulation Resistance minimums, IR**Pin-Pin**

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

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
 - Breakdown Voltage ----- 1000VAC
 - Test Voltage -----750VAC
 - Working Voltage -----250VAC

Pin - pin

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

DATA SUMMARIES

CONTACT GAPS:

Mating&Unmating durability:

Initial		After 100 Cycles	
Units: inches		Units: inches	
Minimum	0.0125	Minimum	0.0125
Maximum	0.0141	Maximum	0.0141
Average	0.0132	Average	0.0132
St. Dev.	0.0003	St. Dev.	0.0003
Count	160	Count	160

Thermal aging:

Initial		After Thermal	
Units: inches		Units: inches	
Minimum	0.0127	Minimum	0.0128
Maximum	0.0139	Maximum	0.0144
Average	0.0132	Average	0.0135
St. Dev.	0.0003	St. Dev.	0.0004
Count	160	Count	160

MATING/UNMATING FORCE:

Mating/Unmating durability (SFM-150-02-S-D-A/TFM-150-02-S-D-A):

	Initial				25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	68.29	15.35	55.10	12.39	75.74	17.03	66.72	15.00
Maximum	83.62	18.80	77.84	17.50	91.86	20.65	82.85	18.63
Average	75.09	16.88	67.65	15.21	86.36	19.42	76.55	17.21
St Dev	5.93	1.33	6.99	1.57	5.18	1.16	5.54	1.25
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	78.87	17.73	70.95	15.95	81.57	18.34	74.62	16.78
Maximum	97.78	21.98	88.83	19.97	101.41	22.80	90.98	20.46
Average	92.23	20.73	81.74	18.38	95.51	21.47	84.12	18.91
St Dev	6.37	1.43	6.89	1.55	6.37	1.43	6.55	1.47
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	84.82	19.07	76.33	17.16	64.80	14.57	60.06	13.50
Maximum	107.39	24.14	95.07	21.37	81.02	18.22	75.97	17.08
Average	99.00	22.26	86.76	19.50	76.40	17.18	70.27	15.80
St Dev	6.94	1.56	7.31	1.64	5.12	1.15	4.78	1.07
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES**Thermal aging (SFM-150-02-S-D-A/TFM-150-02-S-D-A):**

	Initial				After Thermals			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	74.28	16.70	65.27	14.67	57.88	13.01	40.28	9.06
Maximum	91.52	20.58	85.15	19.14	91.63	20.60	61.16	13.75
Average	83.19	18.70	74.95	16.85	66.63	14.98	55.86	12.56
St Dev	6.11	1.37	7.28	1.64	10.48	2.36	6.82	1.53
Count	8	8	8	8	8	8	8	8

Mating/Unmating basic (SFM-125-02-S-D-A/TFM-125-02-S-D-A):

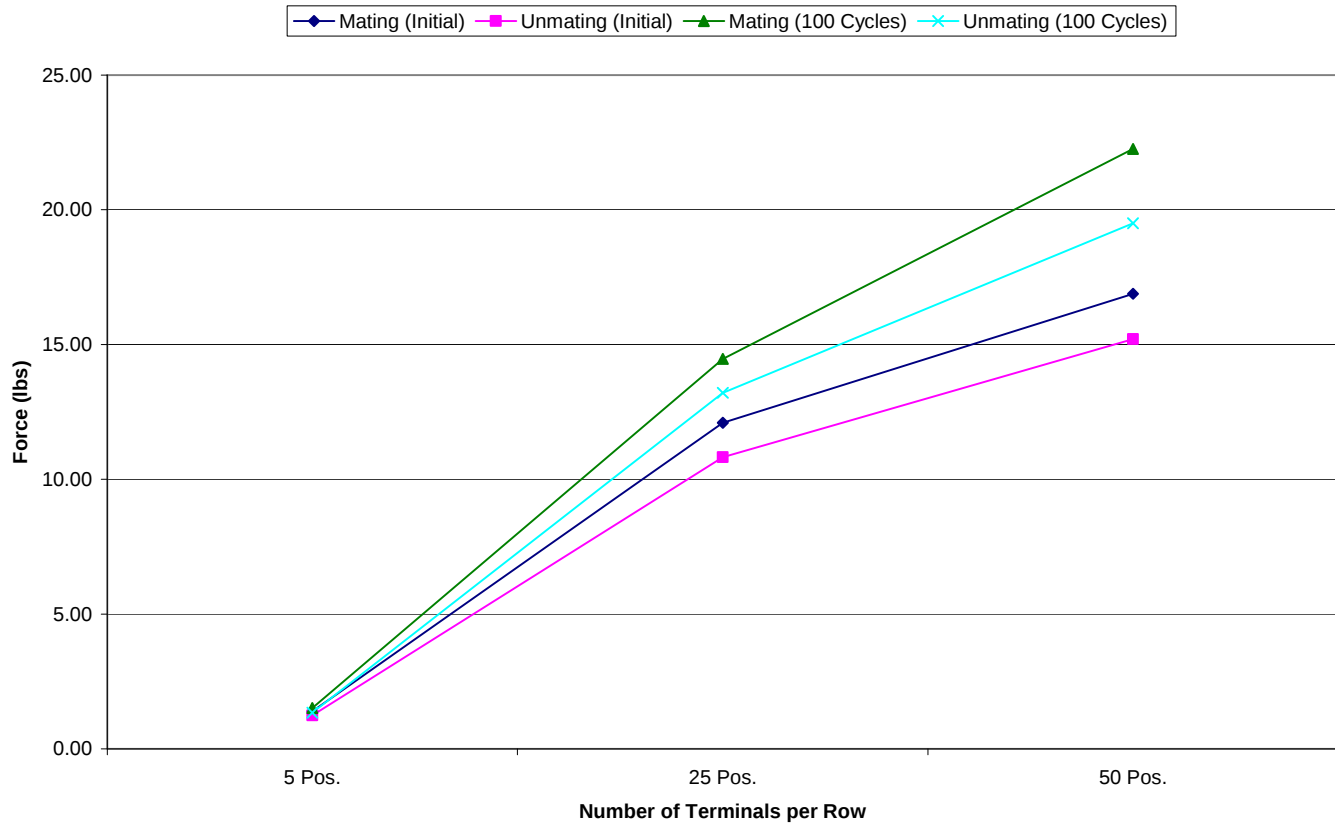
	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	47.42	10.66	41.50	9.33	45.10	10.14	41.54	9.34
Maximum	63.56	14.29	51.64	11.61	54.22	12.19	47.02	10.57
Average	53.79	12.09	48.12	10.82	49.94	11.23	43.79	9.84
St Dev	5.52	1.24	3.52	0.79	3.33	0.75	2.08	0.47
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	51.24	11.52	45.15	10.15	53.51	12.03	48.17	10.83
Maximum	61.38	13.80	54.18	12.18	67.21	15.11	60.49	13.60
Average	56.20	12.64	49.45	11.12	61.56	13.84	54.75	12.31
St Dev	4.44	1.00	3.59	0.81	5.12	1.15	4.55	1.02
Count	8	8	8	8	8	8	8	8

	After 100 Cycles			
	Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	54.18	12.18	51.11	11.49
Maximum	72.32	16.26	63.74	14.33
Average	64.35	14.47	58.76	13.21
St Dev	6.09	1.37	5.00	1.12
Count	8	8	8	8

DATA SUMMARIES**Mating/Unmating basic (SFM-105-02-S-D-A/TFM-105-02-S-D-A):**

	Initial				25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	4.94	1.11	4.54	1.02	4.98	1.12	4.40	0.99
Maximum	7.74	1.74	6.58	1.48	7.65	1.72	6.54	1.47
Average	6.15	1.38	5.53	1.24	6.03	1.36	5.43	1.22
St Dev	0.83	0.19	0.71	0.16	0.95	0.21	0.80	0.18
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	5.12	1.15	4.58	1.03	5.29	1.19	4.49	1.01
Maximum	8.23	1.85	7.07	1.59	8.14	1.83	7.29	1.64
Average	6.27	1.41	5.61	1.26	6.44	1.45	5.78	1.30
St Dev	1.14	0.26	0.98	0.22	1.28	0.29	1.15	0.26
Count	8	8	8	8	8	8	8	8
	100 Cycles							
	Mating		Unmating					
	Newtons	Force (Lbs)	Newtons	Force (Lbs)				
Minimum	5.20	1.17	4.49	1.01				
Maximum	8.63	1.94	7.83	1.76				
Average	6.71	1.51	5.97	1.34				
St Dev	1.44	0.32	1.22	0.28				
Count	8	8	8	8				

DATA SUMMARIES**Mating/Unmating Data for 5, 25 and 50 Position SFM/TFM**

DATA SUMMARIES**Normal force****Initial (back beam)**

Initial	Deflections in inches Forces in Grams										
	<u>0.0005</u>	<u>0.0010</u>	<u>0.0015</u>	<u>0.0020</u>	<u>0.0025</u>	<u>0.0030</u>	<u>0.0035</u>	<u>0.0040</u>	<u>0.0045</u>	<u>0.0050</u>	<i>SET</i>
Averages	10.78	22.08	34.88	47.68	59.60	71.83	83.60	95.05	107.50	119.25	0.0005
Min	8.90	18.10	27.70	36.90	45.70	54.60	63.70	72.70	85.20	100.40	0.0002
Max	14.10	27.30	41.10	55.40	68.10	82.50	96.10	109.40	122.90	133.00	0.0009
St. Dev	2.300	4.112	5.552	7.839	9.967	12.356	14.464	16.566	17.051	15.296	0.0003
Count	4	4	4	4	4	4	4	4	4	4	4

Initial (left and right beam)

Initial	Deflections in inches Forces in Grams										
	<u>0.0005</u>	<u>0.0010</u>	<u>0.0015</u>	<u>0.0020</u>	<u>0.0025</u>	<u>0.0030</u>	<u>0.0035</u>	<u>0.0040</u>	<u>0.0045</u>	<u>0.0050</u>	<i>SET</i>
Averages	13.60	26.01	37.93	49.77	61.67	72.60	83.31	93.73	103.26	112.19	0.0013
Min	11.10	21.00	31.40	43.30	54.20	65.20	74.80	83.30	91.60	99.90	0.0008
Max	15.40	30.00	43.50	56.50	69.50	80.50	91.70	103.70	114.50	123.00	0.0023
St. Dev	1.706	3.479	4.610	4.762	5.149	5.542	5.944	6.871	7.766	7.913	0.0005
Count	7	7	7	7	7	7	7	7	7	7	7

After thermal (back beam)

After Thermals	Deflections in inches Forces in Grams										
	<u>0.0005</u>	<u>0.0010</u>	<u>0.0015</u>	<u>0.0020</u>	<u>0.0025</u>	<u>0.0030</u>	<u>0.0035</u>	<u>0.0040</u>	<u>0.0045</u>	<u>0.0050</u>	<i>SET</i>
Averages	12.26	23.88	34.94	45.62	56.20	66.90	77.50	87.54	98.56	108.02	0.0010
Min	7.90	15.10	22.40	28.90	35.60	43.00	51.80	59.80	73.20	80.80	0.0007
Max	17.30	32.50	47.30	61.80	76.40	90.40	104.30	116.90	128.80	139.10	0.0012
St. Dev	4.038	7.967	11.156	15.078	18.655	21.865	24.303	26.886	27.218	27.440	0.0002
Count	5	5	5	5	5	5	5	5	5	5	5

After thermal (left and right beam)

After Thermals	Deflections in inches Forces in Grams										
	<u>0.0005</u>	<u>0.0010</u>	<u>0.0015</u>	<u>0.0020</u>	<u>0.0025</u>	<u>0.0030</u>	<u>0.0035</u>	<u>0.0040</u>	<u>0.0045</u>	<u>0.0050</u>	<i>SET</i>
Averages	10.46	20.39	30.37	41.57	52.43	63.34	73.16	82.17	90.93	98.81	0.0013
Min	9.50	17.90	25.30	34.80	42.20	48.80	55.80	62.10	68.10	74.00	0.0011
Max	12.60	23.20	34.20	50.90	64.10	75.50	86.40	98.40	110.20	119.50	0.0016
St. Dev	1.118	1.807	3.488	5.473	7.203	9.477	11.475	13.297	15.030	15.989	0.0002
Count	7	7	7	7	7	7	7	7	7	7	7

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

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	SFM/TFM	SFM	TFM
Initial	100000	100000	100000
Thermal	100000	100000	100000
Humidity	100000	100000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	SFM/TFM
Break Down Voltage	1000
Test Voltage	750
Working Voltage	250

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. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	3/23/2011	3/28/2011	4/4/2011	4/18/2011
Room Temp C	22	23	23	23
RH	42%	27%	48%	34%
Name	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	6.8	0.2	0.6	0.6
St. Dev.	0.4	0.2	1.0	1.0
Min	6.0	-0.2	-0.4	-0.5
Max	7.7	1.0	3.3	3.5
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	192	0	0	0	0	0

DATA SUMMARIES

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. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	3/23/2011	4/4/2011
Room Temp C	22	23
RH	45%	48%
Name	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta Thermal Age
Average	6.9	0.0
St. Dev.	0.3	0.1
Min	6.2	-0.3
Max	7.6	0.7
Count	192	192

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

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

DATA SUMMARIES**LLCR Shock/Vibration:**

- 1) A total of 192 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	3/23/2011	3/25/2011
Room Temp C	23	23
RH	43%	27%
Name	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta Shock / Vibe
Average	6.7	0.1
St. Dev.	0.4	0.5
Min	6.0	-0.8
Max	8.2	3.3
Count	192	192

How many samples are being tested?

8

How many contacts are on each board?

24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Shock / Vibe	192	0	0	0	0	0

DATA SUMMARIES**GAS TIGHT:**

- 1) A total of 192 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms:----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	3/21/2011	3/22/2011
Room Temp C	22	23
RH	48%	44%
Name	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta Gas Tight
Average	6.7	0.1
St. Dev.	0.5	0.1
Min	5.6	-0.1
Max	8.0	0.8
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**CONTACT GAPS****Thermal aging**

Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0132	0.0127	0.0133	0.0127	0.0131	0.0130	0.0132	0.0133
2	0.0132	0.0134	0.0132	0.0132	0.0130	0.0128	0.0133	0.0131
3	0.0134	0.0136	0.0131	0.0132	0.0135	0.0130	0.0132	0.0132
4	0.0130	0.0137	0.0132	0.0129	0.0130	0.0132	0.0128	0.0131
5	0.0132	0.0135	0.0134	0.0132	0.0131	0.0130	0.0134	0.0132
6	0.0132	0.0134	0.0133	0.0133	0.0131	0.0131	0.0128	0.0131
7	0.0133	0.0136	0.0132	0.0133	0.0128	0.0134	0.0131	0.0132
8	0.0128	0.0138	0.0131	0.0131	0.0130	0.0131	0.0128	0.0133
9	0.0132	0.0133	0.0134	0.0132	0.0133	0.0131	0.0131	0.0132
10	0.0128	0.0136	0.0133	0.0135	0.0131	0.0132	0.0128	0.0132
11	0.0133	0.0131	0.0130	0.0129	0.0130	0.0130	0.0129	0.0131
12	0.0130	0.0139	0.0132	0.0132	0.0129	0.0132	0.0129	0.0131
13	0.0130	0.0134	0.0133	0.0136	0.0136	0.0130	0.0130	0.0132
14	0.0130	0.0133	0.0136	0.0137	0.0132	0.0129	0.0130	0.0131
15	0.0134	0.0136	0.0130	0.0133	0.0130	0.0130	0.0130	0.0133
16	0.0129	0.0137	0.0130	0.0128	0.0127	0.0131	0.0129	0.0129
17	0.0132	0.0138	0.0132	0.0135	0.0129	0.0130	0.0130	0.0134
18	0.0130	0.0136	0.0129	0.0133	0.0136	0.0129	0.0130	0.0133
19	0.0131	0.0139	0.0130	0.0133	0.0129	0.0131	0.0130	0.0130
20	0.0129	0.0138	0.0129	0.0131	0.0129	0.0133	0.0128	0.0130
Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0134	0.0128	0.0132	0.0128	0.0132	0.0130	0.0133	0.0130
2	0.0135	0.0133	0.0138	0.0134	0.0130	0.0133	0.0137	0.0139
3	0.0136	0.0139	0.0131	0.0131	0.0133	0.0133	0.0132	0.0133
4	0.0129	0.0141	0.0134	0.0135	0.0131	0.0139	0.0136	0.0136
5	0.0132	0.0137	0.0129	0.0136	0.0131	0.0134	0.0133	0.0137
6	0.0136	0.0134	0.0140	0.0135	0.0132	0.0130	0.0135	0.0137
7	0.0134	0.0138	0.0135	0.0135	0.0129	0.0140	0.0133	0.0135
8	0.0139	0.0144	0.0135	0.0136	0.0134	0.0141	0.0137	0.0136
9	0.0134	0.0140	0.0136	0.0137	0.0133	0.0135	0.0137	0.0133
10	0.0135	0.0142	0.0143	0.0139	0.0142	0.0139	0.0137	0.0136
11	0.0131	0.0133	0.0132	0.0132	0.0129	0.0135	0.0137	0.0138
12	0.0136	0.0144	0.0137	0.0132	0.0136	0.0135	0.0140	0.0133
13	0.0132	0.0141	0.0137	0.0140	0.0138	0.0136	0.0137	0.0137
14	0.0138	0.0143	0.0144	0.0143	0.0144	0.0139	0.0139	0.0140
15	0.0130	0.0134	0.0132	0.0136	0.0132	0.0132	0.0130	0.0134
16	0.0141	0.0136	0.0133	0.0133	0.0137	0.0134	0.0133	0.0131
17	0.0133	0.0136	0.0136	0.0134	0.0133	0.0131	0.0132	0.0136
18	0.0134	0.0137	0.0141	0.0136	0.0136	0.0132	0.0133	0.0144
19	0.0134	0.0135	0.0131	0.0133	0.0132	0.0134	0.0132	0.0136
20	0.0136	0.0138	0.0135	0.0134	0.0130	0.0134	0.0134	0.0130

DATA Continued**Mating&Unmating durability**

Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0135	0.0131	0.0136	0.0132	0.0133	0.0135	0.0129	0.0131
2	0.0138	0.0136	0.0137	0.0129	0.0135	0.0134	0.0132	0.0132
3	0.0136	0.0130	0.0133	0.0133	0.0129	0.0134	0.0131	0.0138
4	0.0141	0.0133	0.0133	0.0132	0.0131	0.0138	0.0134	0.0131
5	0.0138	0.0135	0.0132	0.0131	0.0134	0.0131	0.0128	0.0133
6	0.0132	0.0134	0.0136	0.0128	0.0135	0.0137	0.0134	0.0134
7	0.0125	0.0130	0.0131	0.0130	0.0133	0.0134	0.0133	0.0136
8	0.0132	0.0127	0.0134	0.0133	0.0131	0.0136	0.0130	0.0131
9	0.0132	0.0132	0.0131	0.0132	0.0129	0.0134	0.0130	0.0136
10	0.0128	0.0130	0.0130	0.0134	0.0133	0.0133	0.0129	0.0134
11	0.0126	0.0126	0.0129	0.0130	0.0128	0.0131	0.0133	0.0132
12	0.0135	0.0128	0.0135	0.0132	0.0131	0.0135	0.0128	0.0132
13	0.0127	0.0129	0.0129	0.0129	0.0129	0.0131	0.0127	0.0130
14	0.0129	0.0131	0.0136	0.0132	0.0132	0.0132	0.0131	0.0133
15	0.0133	0.0132	0.0137	0.0138	0.0130	0.0136	0.0134	0.0130
16	0.0137	0.0135	0.0135	0.0131	0.0133	0.0131	0.0135	0.0131
17	0.0138	0.0133	0.0134	0.0134	0.0129	0.0135	0.0127	0.0130
18	0.0139	0.0131	0.0131	0.0134	0.0132	0.0134	0.0132	0.0134
19	0.0134	0.0134	0.0129	0.0133	0.0131	0.0135	0.0135	0.0133
20	0.0139	0.0133	0.0134	0.0130	0.0131	0.0130	0.0135	0.0135
Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0137	0.0134	0.0133	0.0134	0.0131	0.0135	0.0127	0.0134
2	0.0135	0.0131	0.0132	0.0132	0.0136	0.0132	0.0129	0.0131
3	0.0135	0.0130	0.0132	0.0134	0.0132	0.0133	0.0130	0.0139
4	0.0134	0.0131	0.0134	0.0132	0.0135	0.0132	0.0132	0.0131
5	0.0138	0.0134	0.0128	0.0133	0.0131	0.0131	0.0127	0.0132
6	0.0132	0.0129	0.0134	0.0130	0.0133	0.0132	0.0128	0.0132
7	0.0135	0.0132	0.0133	0.0131	0.0138	0.0133	0.0131	0.0132
8	0.0140	0.0129	0.0131	0.0130	0.0129	0.0130	0.0127	0.0128
9	0.0138	0.0131	0.0133	0.0131	0.0132	0.0135	0.0127	0.0133
10	0.0134	0.0130	0.0131	0.0133	0.0132	0.0132	0.0126	0.0129
11	0.0135	0.0129	0.0134	0.0130	0.0128	0.0130	0.0130	0.0131
12	0.0141	0.0129	0.0133	0.0129	0.0128	0.0132	0.0127	0.0131
13	0.0137	0.0132	0.0132	0.0129	0.0128	0.0132	0.0127	0.0131
14	0.0135	0.0130	0.0131	0.0128	0.0131	0.0126	0.0125	0.0130
15	0.0131	0.0132	0.0131	0.0131	0.0133	0.0137	0.0132	0.0130
16	0.0135	0.0130	0.0136	0.0131	0.0130	0.0132	0.0130	0.0134
17	0.0136	0.0133	0.0133	0.0130	0.0131	0.0131	0.0129	0.0130
18	0.0134	0.0130	0.0130	0.0134	0.0132	0.0128	0.0128	0.0127
19	0.0131	0.0131	0.0128	0.0131	0.0132	0.0133	0.0130	0.0130
20	0.0131	0.0131	0.0133	0.0133	0.0132	0.0130	0.0130	0.0130

DATA Continued**MATING/UNMATING FORCE****Mating/Unmating durability:**

<u>Sample#</u>	<u>Initial</u>		<u>25 Cycles</u>		<u>50 Cycles</u>		<u>75 Cycles</u>		<u>100 Cycles</u>		<u>After Humidity</u>	
	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>
1	15.35	12.39	17.03	15.00	17.73	15.95	18.34	16.78	19.07	17.16	14.57	13.50
2	15.64	14.28	20.28	17.35	21.64	18.68	21.84	18.47	22.69	19.50	17.72	15.49
3	16.76	15.71	20.07	18.37	21.74	19.65	22.52	20.37	22.60	20.30	18.22	16.02
4	17.25	15.16	19.48	16.57	19.98	17.19	21.10	17.60	21.92	18.30	17.53	15.81
5	15.45	14.76	19.16	17.45	21.28	19.38	22.11	19.96	23.01	20.96	17.57	16.79
6	17.36	15.03	18.63	16.12	20.02	16.67	20.83	17.59	21.24	17.55	17.00	15.74
7	18.45	16.85	20.65	18.63	21.98	19.97	22.80	20.46	24.14	21.37	18.00	17.08
8	18.80	17.50	20.03	18.18	21.50	19.53	22.24	20.08	23.38	20.89	16.81	15.96

Thermal Aging:

<u>Sample#</u>	<u>Initial</u>		<u>After Thermals</u>	
	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>
1	18.56	16.20	13.01	12.05
2	17.36	15.52	14.16	13.16
3	17.74	14.67	14.05	12.75
4	16.70	15.71	13.72	12.54
5	19.83	18.82	14.93	13.75
6	20.58	19.14	14.47	13.41
7	19.98	18.03	14.89	13.74
8	18.87	16.72	20.60	9.06

DATA Continued**NORMAL FORCE****Initial (Back beam)**

Initial	Deflections in inches, Forces in Grams										
Sample #	0.0005	0.0010	0.0015	0.0020	0.0025	0.0030	0.0035	0.0040	0.0045	0.0050	SET
1	8.9	18.1	27.7	36.9	45.7	54.6	63.7	72.7	85.2	100.4	0.0006
2	10.4	19.6	34.4	47.8	59.3	71.5	82.4	92.5	103.4	113.3	0.0009
3	9.7	23.3	36.3	50.6	65.3	78.7	92.2	105.6	118.5	130.3	0.0002
4	14.1	27.3	41.1	55.4	68.1	82.5	96.1	109.4	122.9	133.0	0.0002

Initial (Left and right beam)

Initial	Deflections in inches, Forces in Grams										
Sample #	0.0005	0.0010	0.0015	0.0020	0.0025	0.0030	0.0035	0.0040	0.0045	0.0050	SET
1	14.0	27.7	40.1	51.4	62.7	73.3	83.4	93.8	102.4	112.2	0.0023
3	13.2	24.7	35.8	46.4	55.9	65.4	74.8	83.3	91.6	99.9	0.0012
4	11.1	21.0	31.4	43.3	54.2	65.2	76.6	87.2	96.7	105.4	0.0008
5	11.6	22.0	32.8	45.5	62.3	75.6	87.6	99.1	110.2	119.6	0.0010
6	15.0	30.0	43.5	56.5	69.5	80.5	91.7	103.7	114.5	123.0	0.0011
8	14.9	28.4	41.1	52.8	63.8	74.9	85.7	95.6	105.6	114.4	0.0012
9	15.4	28.3	40.8	52.5	63.3	73.3	83.4	93.4	101.8	110.8	0.0012

After thermal (Back beam)

After Thermals	Deflections in inches, Forces in Grams										
Sample #	0.0005	0.0010	0.0015	0.0020	0.0025	0.0030	0.0035	0.0040	0.0045	0.0050	SET
1	17.3	32.5	47.3	61.8	76.4	90.4	104.3	116.9	128.8	139.1	0.0009
2	15.4	31.7	45.6	60.8	75.0	89.1	101.7	114.7	126.4	135.6	0.0009
3	9.0	17.6	26.6	34.4	42.7	50.6	58.6	65.8	73.2	80.8	0.0007
4	11.7	22.5	32.8	42.2	51.3	61.4	71.1	80.5	89.1	97.3	0.0012
5	7.9	15.1	22.4	28.9	35.6	43.0	51.8	59.8	75.3	87.3	0.0012

After thermal (left and right beam)

After Thermals	Deflections in inches, Forces in Grams										
Sample #	0.0005	0.0010	0.0015	0.0020	0.0025	0.0030	0.0035	0.0040	0.0045	0.0050	SET
1	9.6	17.9	25.3	37.0	46.1	55.6	64.6	72.4	81.0	88.8	0.0014
2	9.6	21.9	34.2	50.9	64.1	75.5	86.4	97.0	106.9	114.8	0.0013
3	10.1	20.2	34.0	46.2	57.5	67.4	77.8	86.7	95.1	103.5	0.0014
4	10.9	20.0	29.6	39.9	53.3	64.5	74.4	83.9	93.5	102.3	0.0013
5	9.5	18.7	26.8	34.8	42.2	48.8	55.8	62.1	68.1	74.0	0.0011
6	12.6	23.2	32.8	41.9	50.6	59.1	66.7	74.7	81.7	88.8	0.0016
7	10.9	20.8	29.9	40.3	53.2	72.5	86.4	98.4	110.2	119.5	0.0013

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

Initial Breakdown Voltage			
Test Voltage <i>Until Breakdown Occurs</i>			
Pin to Pin			
Mated	A	Unmated	B
X			
Sample#	SFM/TFM	SFM	TFM
107636-028	1100	1100	1400
107636-029	1000	1000	1300

Initial DWV			
Test Voltage= 750			
Pin to Pin			
Mated	A	Unmated	B
Sample#	SFM/TFM	SFM	TFM
107636-032	750	750	750
107636-033	750	750	750

Thermal Test Voltage			
Test Voltage= 750			
Pin to Pin			
Mated	A	Unmated	B
Sample#	SFM/TFM	SFM	TFM
107636-032	750	750	750
107636-033	750	750	750

Humidity Test Voltage			
Test Voltage= 750			
Pin to Pin			
Mated	A	Unmated	B
Sample#	SFM/TFM	SFM	TFM
107636-032	750	750	750
107636-033	750	750	750

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

Initial Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
	Mated	A Unmated	B
	X	X	X
Sample#	SFM/TFM	SFM	TFM
107636-032	100000	100000	100000
107636-033	100000	100000	100000

Thermal Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
	Mated	A Unmated	B
	X	X	X
Sample#	SFM/TFM	SFM	TFM
107636-032	100000	100000	100000
107636-033	100000	100000	100000

Humidity Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
	Mated	A Unmated	B
	X	X	X
Sample#	SFM/TFM	SFM	TFM
107636-032	100000	100000	100000
107636-033	100000	100000	100000

DATA Continued**LLCR Durability:**

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	6.1	0.7	3.1	3.3
1	P2	6.3	0.4	3.0	3.2
1	P3	6.3	0.3	2.6	2.7
1	P4	6.1	0.5	0.3	0.3
1	P5	6.8	0.4	0.2	0.1
1	P6	6.7	0.2	0.4	0.4
1	P7	6.7	0.0	0.1	0.1
1	P8	6.1	0.3	2.8	3.2
1	P9	6.0	0.3	3.1	3.1
1	P10	6.0	0.4	2.7	2.9
1	P11	6.1	0.4	3.2	3.4
1	P12	6.3	0.3	3.0	3.2
1	P13	6.2	0.6	2.0	2.2
1	P14	6.6	0.2	3.1	3.3
1	P15	6.7	0.3	3.0	3.2
1	P16	6.8	0.2	2.8	2.9
1	P17	6.4	0.5	1.8	2.1
1	P18	7.2	-0.2	-0.4	-0.5
1	P19	7.0	-0.2	-0.1	-0.2
1	P20	6.8	0.0	0.0	0.0
1	P21	6.4	0.3	0.8	1.7
1	P22	6.3	0.5	3.1	3.4
1	P23	6.3	0.9	2.9	3.1
1	P24	6.1	1.0	3.2	3.3
2	P1	6.3	0.2	1.2	1.2
2	P2	6.5	0.2	0.6	0.5
2	P3	7.1	0.0	-0.2	-0.2
2	P4	6.2	0.3	0.4	0.4
2	P5	6.4	0.4	0.7	0.7
2	P6	7.1	-0.1	0.0	0.1
2	P7	7.1	0.0	0.0	0.0
2	P8	6.5	0.0	-0.1	-0.1
2	P9	6.3	0.5	1.9	2.0
2	P10	6.3	0.6	0.3	0.3
2	P11	6.5	0.4	0.2	0.2
2	P12	6.5	0.2	0.2	0.3
2	P13	6.4	0.4	2.7	2.9
2	P14	6.5	0.5	3.3	3.5
2	P15	6.7	0.2	3.1	3.2
2	P16	6.6	0.4	2.9	3.0
2	P17	6.5	0.5	0.6	0.6
2	P18	6.5	0.3	0.7	0.7
2	P19	7.1	0.0	0.1	0.3
2	P20	7.1	-0.1	0.1	0.1
2	P21	6.9	0.0	0.1	0.0

2	P22	6.8	0.0	0.0	0.0
2	P23	6.6	0.2	0.0	0.1
2	P24	6.5	0.1	0.2	0.5
3	P1	6.3	0.2	0.4	0.4
3	P2	6.3	0.4	1.1	1.1
3	P3	6.8	0.6	0.3	0.5
3	P4	6.3	0.9	1.8	1.7
3	P5	6.9	-0.1	-0.1	-0.1
3	P6	6.9	0.1	0.1	0.1
3	P7	7.2	0.0	0.1	0.0
3	P8	7.0	0.0	0.0	-0.1
3	P9	6.9	-0.2	0.0	0.0
3	P10	7.2	0.0	-0.2	-0.3
3	P11	7.0	-0.2	0.0	0.0
3	P12	7.0	0.0	-0.3	-0.3
3	P13	7.0	0.1	0.1	0.0
3	P14	7.3	-0.2	-0.3	-0.4
3	P15	7.4	0.0	-0.1	-0.1
3	P16	7.1	0.0	-0.1	-0.1
3	P17	6.6	0.0	0.3	0.3
3	P18	7.3	0.0	-0.1	-0.1
3	P19	7.1	0.1	0.0	0.0
3	P20	7.4	0.0	0.0	0.0
3	P21	7.1	0.0	-0.1	-0.2
3	P22	7.2	0.0	-0.2	-0.1
3	P23	7.0	0.0	-0.1	-0.1
3	P24	7.1	-0.1	-0.3	-0.3
4	P1	6.9	0.3	0.0	0.0
4	P2	6.1	0.5	0.7	0.7
4	P3	7.1	-0.1	-0.3	-0.3
4	P4	6.3	0.1	1.0	0.9
4	P5	6.5	0.2	0.2	0.3
4	P6	7.2	0.1	0.1	0.1
4	P7	7.2	0.0	0.1	0.1
4	P8	6.3	0.3	0.4	0.4
4	P9	6.3	0.4	0.3	0.3
4	P10	6.4	0.1	0.4	0.4
4	P11	6.5	0.2	0.3	0.3
4	P12	6.3	0.1	0.3	0.3
4	P13	6.4	0.3	0.4	0.6
4	P14	6.5	0.2	2.8	3.1
4	P15	6.6	0.1	0.2	0.5
4	P16	6.4	0.2	2.4	2.7
4	P17	6.4	0.3	0.5	0.5
4	P18	7.0	0.0	-0.2	0.4
4	P19	7.1	0.3	0.1	0.1
4	P20	6.8	0.1	0.0	0.0
4	P21	6.5	0.1	0.0	0.3
4	P22	6.7	0.0	-0.1	-0.1
4	P23	6.0	0.2	0.8	0.7

4	P24	6.1	0.1	0.3	0.3
5	P1	6.3	0.5	0.7	0.6
5	P2	6.4	0.5	1.5	1.7
5	P3	6.8	0.1	-0.1	-0.1
5	P4	6.3	0.6	1.2	1.2
5	P5	6.8	0.0	-0.1	-0.1
5	P6	6.9	0.0	0.1	0.1
5	P7	7.0	0.0	0.0	0.0
5	P8	6.9	0.1	0.0	-0.1
5	P9	7.0	-0.1	-0.1	-0.1
5	P10	6.4	0.5	0.7	0.6
5	P11	7.1	0.1	0.2	0.2
5	P12	6.8	0.0	0.1	0.0
5	P13	6.5	0.6	0.8	0.8
5	P14	7.0	0.1	0.1	0.0
5	P15	7.2	-0.1	-0.3	-0.2
5	P16	6.5	0.8	1.1	1.1
5	P17	6.6	0.5	0.9	0.9
5	P18	7.0	0.2	0.0	0.2
5	P19	6.9	0.0	-0.1	0.3
5	P20	6.6	0.1	0.1	0.1
5	P21	6.8	-0.1	-0.3	-0.2
5	P22	6.2	0.5	0.6	0.7
5	P23	6.6	0.0	-0.2	-0.1
5	P24	6.0	0.2	0.6	0.6
6	P1	6.5	0.3	0.8	0.8
6	P2	6.5	0.6	0.6	0.6
6	P3	6.6	0.4	0.7	0.6
6	P4	6.8	0.1	0.0	0.0
6	P5	7.3	0.0	-0.1	-0.1
6	P6	7.2	0.1	0.1	0.1
6	P7	7.4	-0.1	0.0	0.0
6	P8	6.8	0.0	-0.1	0.0
6	P9	6.8	0.0	0.0	0.0
6	P10	6.1	0.3	0.8	0.6
6	P11	6.7	0.1	0.2	-0.2
6	P12	6.5	0.4	0.6	0.5
6	P13	6.9	0.0	0.0	0.0
6	P14	7.2	-0.1	-0.2	-0.3
6	P15	6.8	0.0	0.5	0.4
6	P16	7.1	0.0	-0.1	-0.1
6	P17	6.8	0.3	0.4	0.3
6	P18	7.5	0.0	-0.1	0.0
6	P19	7.3	0.2	0.2	0.1
6	P20	7.1	0.0	0.0	0.1
6	P21	7.0	0.1	-0.1	0.0
6	P22	6.8	0.3	2.6	2.9
6	P23	6.4	0.2	0.5	0.5
6	P24	6.6	0.4	0.3	0.3
7	P1	6.7	0.2	0.0	0.1

7	P2	6.7	0.0	0.0	0.1
7	P3	6.5	0.6	0.6	0.7
7	P4	7.3	0.1	-0.1	0.0
7	P5	6.7	0.1	-0.1	-0.1
7	P6	6.9	0.4	0.1	0.1
7	P7	7.7	0.1	0.0	-0.1
7	P8	7.3	0.1	-0.2	0.0
7	P9	7.2	0.0	0.0	0.0
7	P10	6.5	0.3	1.1	0.9
7	P11	7.7	0.0	-0.3	-0.3
7	P12	7.2	0.2	-0.1	-0.1
7	P13	6.6	0.6	1.6	1.2
7	P14	7.6	-0.1	-0.2	-0.2
7	P15	7.4	0.1	-0.2	-0.2
7	P16	6.6	0.9	2.1	2.7
7	P17	7.4	0.2	-0.1	-0.1
7	P18	7.5	0.1	0.0	-0.1
7	P19	7.4	0.0	0.1	0.4
7	P20	7.2	0.0	0.0	0.0
7	P21	7.0	0.0	-0.1	-0.2
7	P22	7.1	0.0	0.0	-0.1
7	P23	6.8	-0.1	-0.1	-0.1
7	P24	6.3	0.5	0.6	0.6
8	P1	6.8	0.0	0.0	0.0
8	P2	6.8	0.0	-0.1	-0.1
8	P3	7.0	0.0	-0.1	-0.1
8	P4	6.4	0.5	0.7	0.8
8	P5	6.6	0.1	0.1	0.1
8	P6	6.8	0.0	0.0	0.1
8	P7	7.5	-0.1	0.0	0.0
8	P8	7.1	-0.1	-0.1	-0.1
8	P9	7.2	-0.1	-0.3	-0.2
8	P10	7.0	0.2	0.3	0.3
8	P11	6.7	1.0	2.0	2.0
8	P12	7.3	0.0	-0.2	-0.2
8	P13	6.7	0.8	2.6	2.3
8	P14	7.6	-0.1	-0.2	-0.2
8	P15	6.9	0.5	2.4	2.7
8	P16	6.6	0.4	1.0	0.6
8	P17	6.8	0.5	0.7	0.6
8	P18	7.6	0.0	-0.2	-0.1
8	P19	7.7	0.0	-0.1	-0.1
8	P20	7.5	0.1	0.2	0.1
8	P21	7.0	0.1	0.0	0.0
8	P22	6.5	0.5	1.0	0.9
8	P23	6.9	0.0	-0.1	-0.1
8	P24	6.2	0.5	1.7	1.6

DATA Continued**LLCR Thermal aging:**

	mOhm values	Actual	Delta
Board	Position	Initial	Thermal Age
1	P1	7.0	0.0
1	P2	7.1	0.1
1	P3	7.1	0.0
1	P4	7.0	0.0
1	P5	7.4	-0.1
1	P6	7.1	0.1
1	P7	7.3	0.1
1	P8	6.7	0.0
1	P9	7.0	0.0
1	P10	7.0	0.0
1	P11	7.3	0.0
1	P12	7.1	0.0
1	P13	7.1	0.1
1	P14	7.0	0.1
1	P15	7.2	0.0
1	P16	6.9	0.0
1	P17	7.1	0.0
1	P18	7.3	-0.1
1	P19	7.3	0.0
1	P20	6.9	0.3
1	P21	6.6	0.2
1	P22	6.7	0.0
1	P23	6.7	0.0
1	P24	6.8	0.0
2	P1	6.5	0.0
2	P2	6.3	0.0
2	P3	6.7	0.3
2	P4	6.5	-0.1
2	P5	6.2	0.1
2	P6	6.7	0.3
2	P7	7.1	0.1
2	P8	7.0	0.1
2	P9	6.2	0.0
2	P10	6.2	0.0
2	P11	6.3	0.0
2	P12	7.2	0.0
2	P13	7.2	0.0
2	P14	6.6	-0.1
2	P15	7.1	0.0
2	P16	7.0	0.1
2	P17	7.2	0.1
2	P18	7.2	-0.2
2	P19	7.2	-0.1
2	P20	7.1	0.4
2	P21	6.4	0.0
2	P22	6.6	-0.1

2	P23	6.4	-0.1
2	P24	6.3	0.0
3	P1	7.5	0.0
3	P2	7.3	0.1
3	P3	7.3	0.1
3	P4	7.3	0.1
3	P5	6.8	0.1
3	P6	7.0	0.3
3	P7	7.2	0.0
3	P8	6.8	0.3
3	P9	6.9	0.2
3	P10	6.9	0.0
3	P11	7.1	0.1
3	P12	6.9	0.1
3	P13	7.1	0.1
3	P14	7.0	0.0
3	P15	7.1	0.0
3	P16	7.1	0.0
3	P17	7.1	0.1
3	P18	7.1	0.0
3	P19	7.2	0.0
3	P20	7.1	0.1
3	P21	7.3	0.0
3	P22	7.1	0.0
3	P23	7.0	0.0
3	P24	7.1	-0.1
4	P1	6.4	0.0
4	P2	6.5	-0.2
4	P3	6.3	0.0
4	P4	6.4	-0.1
4	P5	6.3	0.0
4	P6	6.4	0.3
4	P7	7.2	0.1
4	P8	6.3	0.2
4	P9	6.8	0.0
4	P10	6.4	0.4
4	P11	7.1	0.0
4	P12	6.8	0.0
4	P13	6.4	0.0
4	P14	6.9	-0.1
4	P15	7.0	0.0
4	P16	6.3	0.0
4	P17	6.9	0.1
4	P18	6.4	0.7
4	P19	6.8	0.0
4	P20	7.6	0.5
4	P21	6.3	0.0
4	P22	6.5	0.0
4	P23	6.5	0.2
4	P24	6.3	0.1

5	P1	6.8	0.2
5	P2	6.9	0.0
5	P3	7.0	0.0
5	P4	6.8	0.0
5	P5	6.7	0.2
5	P6	6.5	0.1
5	P7	6.6	0.0
5	P8	6.5	0.1
5	P9	6.7	0.0
5	P10	6.6	0.0
5	P11	6.7	-0.1
5	P12	6.7	-0.1
5	P13	6.9	-0.1
5	P14	7.0	-0.1
5	P15	7.0	0.0
5	P16	6.8	0.1
5	P17	6.9	0.0
5	P18	7.0	-0.2
5	P19	7.1	-0.1
5	P20	6.7	0.0
5	P21	6.7	0.1
5	P22	6.7	0.0
5	P23	6.6	0.0
5	P24	6.6	-0.1
6	P1	7.1	0.0
6	P2	6.8	0.1
6	P3	7.1	-0.1
6	P4	6.9	-0.1
6	P5	6.6	0.3
6	P6	6.6	0.2
6	P7	7.0	0.0
6	P8	6.8	0.0
6	P9	7.1	0.0
6	P10	7.0	0.0
6	P11	7.2	0.0
6	P12	7.2	0.1
6	P13	7.1	0.2
6	P14	7.2	0.0
6	P15	7.4	0.1
6	P16	7.0	-0.3
6	P17	6.8	-0.1
6	P18	7.4	0.0
6	P19	7.1	0.0
6	P20	7.0	0.1
6	P21	7.1	0.1
6	P22	7.2	0.0
6	P23	7.0	0.0
6	P24	7.1	0.0
7	P1	7.2	-0.1
7	P2	6.9	0.1

7	P3	7.0	0.0
7	P4	6.6	0.0
7	P5	6.7	0.2
7	P6	6.6	0.1
7	P7	6.6	0.1
7	P8	6.4	0.0
7	P9	6.4	-0.1
7	P10	6.5	-0.1
7	P11	6.7	-0.1
7	P12	6.6	0.0
7	P13	6.7	0.0
7	P14	6.8	0.0
7	P15	6.9	0.0
7	P16	6.8	0.0
7	P17	6.8	0.0
7	P18	6.8	0.1
7	P19	6.7	0.0
7	P20	6.9	0.0
7	P21	6.8	0.0
7	P22	6.8	0.0
7	P23	6.7	0.0
7	P24	6.8	0.0
8	P1	7.2	0.0
8	P2	7.0	0.1
8	P3	7.2	0.0
8	P4	7.2	0.0
8	P5	7.0	0.1
8	P6	6.9	0.1
8	P7	7.2	0.0
8	P8	7.0	0.0
8	P9	7.1	0.0
8	P10	7.0	0.0
8	P11	7.0	0.0
8	P12	7.3	0.0
8	P13	7.4	0.0
8	P14	7.1	0.1
8	P15	7.1	0.1
8	P16	7.1	0.0
8	P17	7.1	0.0
8	P18	7.1	0.0
8	P19	7.0	0.0
8	P20	7.5	0.0
8	P21	7.4	0.1
8	P22	7.3	0.0
8	P23	7.2	0.0
8	P24	7.3	0.0

DATA Continued**LLCR Shock/Vibration:**

	mOhm values	Actual	Delta
Board	Position	Initial	Shock / Vibe
1	P1	6.3	-0.1
1	P2	6.1	-0.1
1	P3	6.4	0.2
1	P4	6.3	0.5
1	P5	6.8	-0.1
1	P6	6.7	1.8
1	P7	7.2	-0.2
1	P8	6.1	0.2
1	P9	6.1	0.1
1	P10	6.3	0.0
1	P11	6.4	0.0
1	P12	6.3	0.0
1	P13	6.4	-0.1
1	P14	6.6	-0.1
1	P15	6.5	0.0
1	P16	6.7	0.1
1	P17	6.4	0.0
1	P18	6.3	0.0
1	P19	6.9	-0.3
1	P20	7.0	2.2
1	P21	6.4	-0.3
1	P22	6.4	0.0
1	P23	6.2	0.0
1	P24	6.4	-0.1
2	P1	6.2	0.0
2	P2	6.3	-0.1
2	P3	6.5	0.0
2	P4	6.3	0.1
2	P5	6.9	0.0
2	P6	7.1	2.0
2	P7	7.0	-0.1
2	P8	6.5	0.0
2	P9	6.4	0.2
2	P10	6.4	0.1
2	P11	6.4	0.0
2	P12	6.5	-0.2
2	P13	6.4	-0.1
2	P14	6.5	0.1
2	P15	6.6	0.2
2	P16	6.7	0.0
2	P17	6.4	-0.1
2	P18	6.9	-0.1
2	P19	7.0	-0.2
2	P20	6.9	1.2

2	P21	6.6	0.0
2	P22	6.8	-0.1
2	P23	6.6	0.0
2	P24	6.7	-0.1
3	P1	6.3	0.0
3	P2	6.3	0.1
3	P3	6.2	0.1
3	P4	6.3	0.4
3	P5	7.0	-0.2
3	P6	6.9	-0.2
3	P7	7.3	-0.4
3	P8	6.3	0.1
3	P9	6.4	0.1
3	P10	6.2	0.1
3	P11	6.6	0.2
3	P12	6.4	0.1
3	P13	6.4	0.1
3	P14	6.4	0.2
3	P15	6.4	0.1
3	P16	6.3	0.1
3	P17	6.4	0.0
3	P18	6.6	0.3
3	P19	7.1	-0.2
3	P20	7.2	1.4
3	P21	6.6	0.5
3	P22	6.5	0.3
3	P23	6.3	0.2
3	P24	6.3	0.1
4	P1	6.5	0.2
4	P2	6.6	0.0
4	P3	7.0	-0.1
4	P4	7.0	-0.1
4	P5	6.7	-0.1
4	P6	7.0	0.5
4	P7	7.6	0.0
4	P8	7.3	-0.1
4	P9	7.3	-0.1
4	P10	6.6	0.3
4	P11	7.2	-0.1
4	P12	6.9	-0.1
4	P13	7.1	-0.2
4	P14	7.1	-0.4
4	P15	6.6	1.5
4	P16	7.4	-0.4
4	P17	7.4	-0.1
4	P18	7.5	-0.3
4	P19	7.4	-0.5
4	P20	7.0	0.2
4	P21	6.8	-0.1
4	P22	7.0	-0.1

4	P23	6.9	-0.1
4	P24	6.8	0.0
5	P1	6.5	0.4
5	P2	6.4	0.0
5	P3	6.4	0.0
5	P4	6.6	0.3
5	P5	6.9	0.0
5	P6	7.1	0.9
5	P7	7.2	0.0
5	P8	6.7	-0.1
5	P9	6.5	0.2
5	P10	6.2	-0.1
5	P11	6.4	-0.1
5	P12	6.3	0.0
5	P13	6.4	0.1
5	P14	6.5	0.1
5	P15	6.7	0.1
5	P16	7.4	0.0
5	P17	7.4	-0.1
5	P18	7.4	-0.2
5	P19	7.7	-0.5
5	P20	7.0	-0.1
5	P21	6.6	0.3
5	P22	6.7	-0.2
5	P23	6.8	0.0
5	P24	6.3	-0.1
6	P1	6.1	0.0
6	P2	6.8	-0.5
6	P3	6.4	0.0
6	P4	6.8	0.0
6	P5	7.1	-0.1
6	P6	7.2	0.8
6	P7	7.4	-0.2
6	P8	6.9	0.0
6	P9	6.9	0.0
6	P10	6.3	0.1
6	P11	6.7	-0.2
6	P12	6.5	0.1
6	P13	6.5	0.2
6	P14	6.5	0.0
6	P15	6.7	0.0
6	P16	6.6	0.0
6	P17	7.0	-0.1
6	P18	6.7	-0.2
6	P19	7.0	-0.4
6	P20	6.8	3.3
6	P21	6.7	-0.1
6	P22	6.5	0.3
6	P23	6.2	-0.1
6	P24	6.3	0.0

7	P1	6.4	0.0
7	P2	6.4	0.0
7	P3	6.5	0.0
7	P4	7.4	-0.6
7	P5	7.0	0.0
7	P6	7.1	0.5
7	P7	7.2	-0.2
7	P8	6.8	-0.1
7	P9	6.8	0.0
7	P10	6.7	0.0
7	P11	7.1	-0.1
7	P12	6.7	-0.1
7	P13	7.1	-0.2
7	P14	7.1	-0.3
7	P15	7.5	-0.6
7	P16	7.3	-0.1
7	P17	8.2	-0.7
7	P18	8.0	-0.8
7	P19	7.3	-0.5
7	P20	7.4	1.9
7	P21	7.1	-0.1
7	P22	7.3	-0.3
7	P23	7.1	-0.2
7	P24	7.1	-0.1
8	P1	6.1	0.0
8	P2	6.2	0.0
8	P3	6.3	0.1
8	P4	6.3	0.0
8	P5	7.0	0.0
8	P6	7.2	-0.2
8	P7	6.9	0.1
8	P8	6.1	0.1
8	P9	6.2	0.0
8	P10	6.0	0.0
8	P11	6.3	0.0
8	P12	6.4	0.0
8	P13	6.4	0.0
8	P14	6.5	0.0
8	P15	6.5	0.1
8	P16	6.4	0.1
8	P17	6.3	0.0
8	P18	6.3	0.2
8	P19	6.7	0.0
8	P20	6.7	0.1
8	P21	6.2	0.6
8	P22	6.5	-0.1
8	P23	6.3	0.0
8	P24	6.3	0.0

DATA Continued**LLCR Gas Tight**

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	7.3	0.0
1	P2	7.1	0.0
1	P3	7.4	0.0
1	P4	7.0	0.0
1	P5	7.0	0.0
1	P6	7.1	0.0
1	P7	7.4	0.0
1	P8	7.1	0.0
1	P9	7.2	0.0
1	P10	7.2	0.0
1	P11	7.8	-0.1
1	P12	7.2	0.0
1	P13	7.3	0.0
1	P14	7.2	0.0
1	P15	7.2	0.0
1	P16	7.1	0.0
1	P17	7.2	0.0
1	P18	7.1	0.0
1	P19	6.9	0.0
1	P20	7.2	0.0
1	P21	7.4	0.0
1	P22	7.3	0.0
1	P23	7.2	0.0
1	P24	7.2	0.0
2	P1	6.6	0.0
2	P2	6.6	0.0
2	P3	6.6	0.1
2	P4	6.5	0.1
2	P5	6.3	0.1
2	P6	6.8	0.6
2	P7	7.4	0.7
2	P8	6.5	0.1
2	P9	6.5	0.1
2	P10	6.4	0.1
2	P11	6.6	0.1
2	P12	6.3	0.1
2	P13	6.4	0.1
2	P14	6.5	0.1
2	P15	6.5	0.1
2	P16	6.4	0.1
2	P17	6.5	0.1
2	P18	6.8	0.5
2	P19	7.5	0.6
2	P20	7.3	0.8
2	P21	6.6	0.4

2	P22	6.8	0.1
2	P23	6.4	0.1
2	P24	6.4	0.1
3	P1	6.6	0.3
3	P2	6.8	0.1
3	P3	6.4	0.2
3	P4	6.4	0.1
3	P5	6.4	0.1
3	P6	6.6	0.1
3	P7	7.1	0.1
3	P8	6.8	0.2
3	P9	6.2	0.2
3	P10	7.0	0.1
3	P11	6.1	0.1
3	P12	6.9	0.1
3	P13	6.3	0.1
3	P14	6.1	0.0
3	P15	6.2	0.0
3	P16	7.1	0.1
3	P17	7.1	0.1
3	P18	6.5	0.3
3	P19	6.8	0.1
3	P20	6.7	0.2
3	P21	6.1	0.2
3	P22	6.2	0.1
3	P23	6.1	0.1
3	P24	7.3	0.1
4	P1	6.8	0.1
4	P2	6.0	0.1
4	P3	6.2	0.1
4	P4	6.2	0.1
4	P5	5.6	0.1
4	P6	6.4	0.2
4	P7	6.6	0.1
4	P8	5.9	0.1
4	P9	5.9	0.1
4	P10	6.0	0.1
4	P11	6.0	0.1
4	P12	5.9	0.1
4	P13	6.2	0.1
4	P14	6.0	0.1
4	P15	6.3	0.1
4	P16	6.4	0.1
4	P17	6.3	0.1
4	P18	6.3	0.1
4	P19	7.7	0.2
4	P20	6.2	0.1
4	P21	6.3	0.1
4	P22	5.9	0.1
4	P23	6.4	0.1

4	P24	6.4	0.1
5	P1	6.6	0.1
5	P2	5.8	0.0
5	P3	5.9	0.0
5	P4	5.9	0.2
5	P5	6.0	0.2
5	P6	5.7	0.2
5	P7	6.4	0.2
5	P8	6.0	0.2
5	P9	6.0	0.3
5	P10	5.9	0.2
5	P11	6.0	0.1
5	P12	5.9	0.1
5	P13	6.1	0.2
5	P14	6.2	0.4
5	P15	6.2	0.1
5	P16	6.0	0.0
5	P17	6.3	0.1
5	P18	8.0	0.4
5	P19	7.0	0.1
5	P20	6.4	0.3
5	P21	5.8	0.1
5	P22	5.8	0.0
5	P23	5.8	0.0
5	P24	5.9	0.0
6	P1	7.1	0.1
6	P2	7.4	0.1
6	P3	7.5	0.1
6	P4	6.9	0.1
6	P5	7.1	0.1
6	P6	7.2	0.1
6	P7	7.3	0.1
6	P8	6.7	0.1
6	P9	7.0	0.1
6	P10	6.9	-0.1
6	P11	7.2	-0.1
6	P12	6.6	0.1
6	P13	6.8	0.1
6	P14	7.2	0.0
6	P15	7.0	0.1
6	P16	6.9	0.1
6	P17	7.3	0.0
6	P18	7.8	0.0
6	P19	7.1	0.0
6	P20	7.1	0.1
6	P21	7.0	0.1
6	P22	7.0	0.1
6	P23	6.9	0.1
6	P24	6.7	0.1
7	P1	6.9	0.1

7	P2	6.6	0.1
7	P3	6.8	0.1
7	P4	6.9	0.1
7	P5	6.6	0.1
7	P6	6.4	0.1
7	P7	6.8	0.1
7	P8	6.9	0.1
7	P9	6.9	0.1
7	P10	6.9	0.0
7	P11	6.9	0.1
7	P12	6.7	0.3
7	P13	7.1	0.1
7	P14	7.2	0.1
7	P15	7.3	0.1
7	P16	7.1	0.1
7	P17	6.6	0.1
7	P18	7.1	0.1
7	P19	7.1	0.1
7	P20	6.8	0.1
7	P21	6.9	0.0
7	P22	7.0	0.0
7	P23	6.9	0.0
7	P24	7.2	0.1
8	P1	7.2	0.1
8	P2	7.5	0.0
8	P3	7.0	0.1
8	P4	6.9	0.1
8	P5	6.8	0.1
8	P6	6.7	0.1
8	P7	6.8	0.1
8	P8	6.4	0.1
8	P9	6.4	0.1
8	P10	6.5	0.0
8	P11	6.6	0.0
8	P12	6.7	0.0
8	P13	6.7	0.0
8	P14	6.8	0.0
8	P15	6.8	0.0
8	P16	6.7	0.0
8	P17	6.8	0.1
8	P18	7.0	0.0
8	P19	6.8	0.0
8	P20	6.9	0.1
8	P21	6.9	0.1
8	P22	6.9	0.1
8	P23	6.8	0.0
8	P24	6.8	0.1

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** 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 #: MO-01**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 580**Serial #:** 0772740**Accuracy:** Last Cal: 2010-4-30, Next Cal: 2011-4-30**Equipment #:** 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 #: OV-03**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 #:** 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 #:** MO-04**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 AND CALIBRATION SCHEDULES**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 #: 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