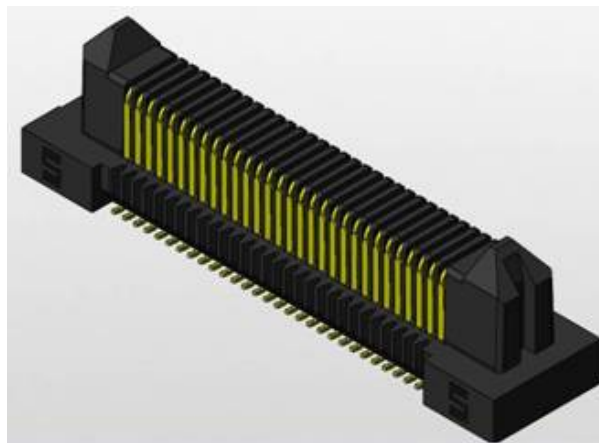
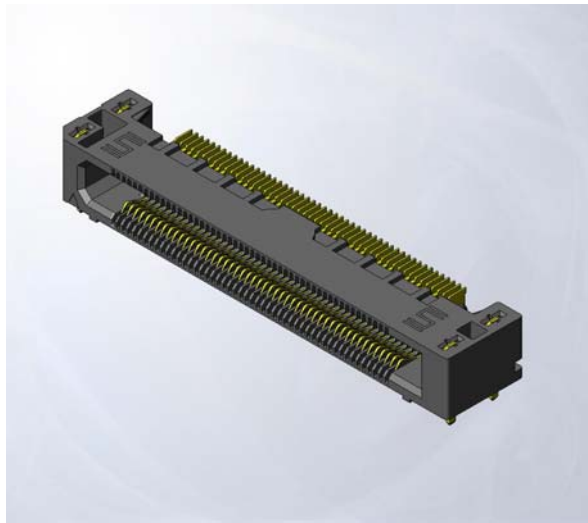




Project Number: Design Verification Test Report		Tracking Code: TC0945--2885_Report_Rev_1	
Requested by: Neal Patterson		Date: 10/11/2010	Product Rev: 1
Part #: ERF5-050-01-L-RA / ERM5-050-05.0-L-DV		Lot #: NA	Tech: Troy Cook Gary Lomax Aaron Mckim Eng: Eric Mings
Part description: ERF5 -RA			Qty to test: 100
Test Start: 11/5/2009	Test Completed: 9/24/2010		



Design Verification Test Report

ERF5/ERM5

ERF5-050-01-L-RA / ERM5-050-05.0-L-DV

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

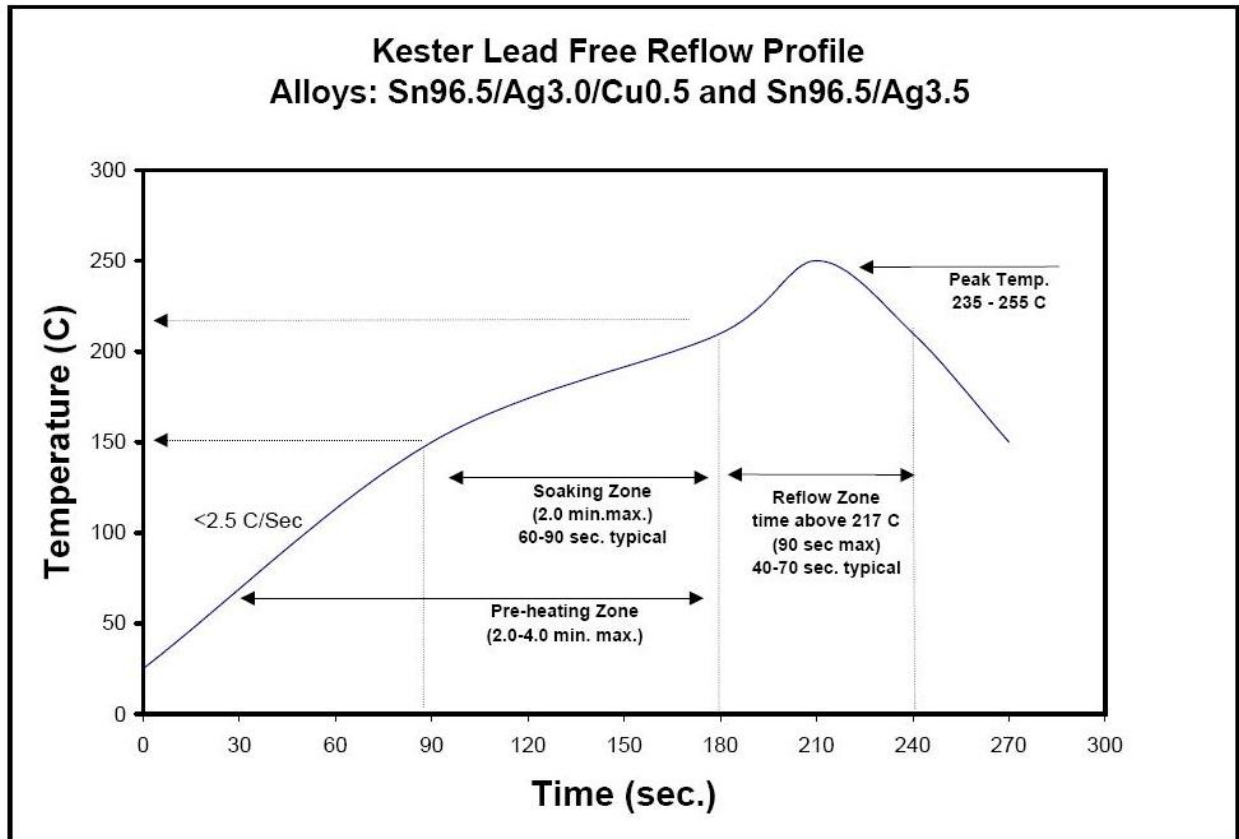
To perform the following tests: Design Verification Test ,See test plan

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 (min)
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

Durability/Thermal Age/Cyclic Humidity

TEST STEP	GROUP A 192 Points 100 Cycles
01	LLCR-1
02	100 Cycles
03	Clean Mating Interface
04	LLCR-2
05	Thermal Age (Mated and undisturbed)
06	LLCR-3
07	Cyclic Humidity (Mated and undisturbed)
08	LLCR-4

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;

Time Condition 'B' (250 hours)

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

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

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

LLCR = EIA-364-23, LLCR

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

FLOWCHARTS Continued**Mating/Unmating/Gaps/Normal Force/Deflection Force**

TEST STEP	GROUP A 10 Boards (each position submitted)	GROUP B1 Individual Contacts (8-10 min)	GROUP B2 Individual Contacts (8-10 min)
01	Contact Gaps	Setup Approve	Setup Approve
02	Mating / Unmating (smallest, middle, largest positions)	Normal Force (in the body unless otherwise specified)	Thermal Aging (Mated)
03	25 Cycles		Normal Force
04	Clean w/Compressed Air		
05	Mating / Unmating (smallest, middle, largest positions)		
06	25 Cycles (50 Total)		
07	Clean w/Compressed Air		
08	Mating / Unmating (smallest, middle, largest positions)		
09	25 Cycles (75 Total)		
10	Clean w/Compressed Air		
11	Mating / Unmating (smallest, middle, largest positions)		
12	25 Cycles (100 Total)		
13	Clean w/Compressed Air		
14	Mating / Unmating (smallest, middle, largest positions)		
15	Contact Gaps		
16	Thermal Aging (Mated)		
17	Mating / Unmating (smallest, middle, largest positions)		
18	Contact Gaps		
19	Cyclic Humidity (Mated)		
20	Mating / Unmating (smallest, middle, largest positions)		
21	Contact Gaps		

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

Time Condition 'B' (250 hours)

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/Un-Mating Forces = EIA-364-13

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

FLOWCHARTS Continued**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 B 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 Aging (both sets unmated)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (both sets unmated)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

* - DWV on group B to be performed at Test Voltage

DWV test voltage is equal to 75% of the lowest break down voltage from group A1, A2 or A3

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

Time Condition 'B' (250 hours)

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

Additional Groups Below May Be Needed Based Upon Part Options and Geometry

TEST STEP	GROUP C1 2 Mated Sets Break Down - Row to Row	GROUP C2 2 Unmated of Part# Being Tested Break Down - Row to Row	GROUP C3 2 Unmated of Mating Part # Break Down - Row to Row	GROUP D 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 Aging (both sets unmated)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (both sets unmated)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

Tracking Code: TC0945--2885 Report Rev 1	Part #: ERF5-050-01-L-RA / ERM5-050-05.0-L-DV
Part description: ERF5 /ERM5	

FLOWCHARTS Continued

Current Carrying Capacity
3 Mated Assemblies Each

TEST STEP	GROUP A 3 Mated Assemblies 2 CONTACT POWERED	GROUP B 3 Mated Assemblies 4 CONTACTS POWERED	GROUP C 3 Mated Assemblies 6 CONTACTS POWERED	GROUP D 3 Mated Assemblies 8 CONTACTS POWERED	GROUP E 3 Mated Assemblies ALL CONTACTS POWERED
01	CCC	CCC	CCC	CCC	CCC

(TIN PLATING) - Tabulate calculated current at RT, 65° C, 75° C and 95° C
after derating 20% and based on 105° C
(GOLD PLATING) - Tabulate calculated current at RT, 85° C, 95° C and 115° C
after derating 20% and based on 125° C
CCC, Temp rise = EIA-364-70

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL:

- 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.

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° C
 - c. 95° C
 - d. 115° 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.

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 Continued

The following is a brief, simplified description of attributes.

MATING/UNMATING:

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

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

- 1) 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 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 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.

ENGAGEMENT/SEPARATION (FOR CONTACTS TESTED IN THE HOUSING):

- 1) Reference document: EIA-364-37, *Contact Engagement and Separation Force Test Procedure for Electrical Connectors*.
- 2) Unless otherwise noted a minimum of twenty-five contacts shall be tested.
- 3) The insertion/withdrawal forces for each contact shall be repeated five times.
- 4) The connector housing shall be placed in a holding fixture that does not interfere with or otherwise influence the insertion of the probe into the contact.
- 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 resolution of 5.0 μm (0.0002").
- 6) The probe shall be attached to a load cell providing a typical accuracy of $\pm 0.2\%$.
- 7) The deflection rate shall be 5 mm (0.2")/minute nominal (not to exceed 2"/min).
- 8) The system shall utilize the TC² software in order to acquire and record the test data.
- 9) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

INSULATION RESISTANCE (IR):

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

- 1) PROCEDURE:
 - a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
 - b. Test Conditions:
 - i. Between Adjacent Contacts or Signal-to-Ground
 - ii. Electrification Time 2.0 minutes
 - iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
- 2) MEASUREMENTS:
- 3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 5000 megohms.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

To determine if the sockets can operate at its rated voltage and withstand momentary over potentials due to switching, surges, and other similar phenomenon. Separate samples are used to evaluate the effect of environmental stresses so not to influence the readings from arcing that occurs during the measurement process.

- 1) PROCEDURE:
 - a. Reference document: EIA-364-20, *Withstanding Voltage Test Procedure for Electrical Connectors*.
 - b. Test Conditions:
 - i. Between Adjacent Contacts or Signal-to-Ground
 - ii. Barometric Test Condition 1
 - iii. Rate of Application 500 V/Sec
 - iv. Test Voltage (VAC) until breakdown occurs
- 2) MEASUREMENTS/CALCULATIONS
 - a. The breakdown voltage shall be measured and recorded.
 - b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
 - c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

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 Continued

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

Temperature Rise, CCC at a 20% de-rating

- CCC for a 30°C Temperature Rise-----1.6A per contact with 2 adjacent contacts powered
- CCC for a 30°C Temperature Rise-----1.2A per contact with 4 adjacent contacts powered
- CCC for a 30°C Temperature Rise-----1.0A per contact with 6 adjacent contacts powered
- CCC for a 30°C Temperature Rise-----0.9A per contact with 8 adjacent contacts powered
- CCC for a 30°C Temperature Rise-----0.4A per contact with all adjacent contacts powered

Contact Gaps

- Initial
 - o Min-----1.7939 mm
 - o Max-----1.9359 mm
- After 100 Cycles
 - o Min-----1.8477 mm
 - o Max-----1.9816 mm
- Thermal
 - o Min-----1.8379 mm
 - o Max-----2.0439 mm
- Humidity
 - o Min-----1.9416 mm
 - o Max-----2.0616 mm

RESULTS Continued**Mating – Unmating Forces**

- **Initial**
 - **Mating**
 - **Min** ----- 3.16 Lbs
 - **Max** ----- 3.49 Lbs
 - **Unmating**
 - **Min** ----- 1.23 Lbs
 - **Max** ----- 1.80 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 3.25 Lbs
 - **Max** ----- 4.35 Lbs
 - **Unmating**
 - **Min** ----- 1.68 Lbs
 - **Max** ----- 2.13 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** ----- 3.35 Lbs
 - **Max** ----- 4.29 Lbs
 - **Unmating**
 - **Min** ----- 1.76 Lbs
 - **Max** ----- 2.09 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** ----- 3.46 Lbs
 - **Max** ----- 4.46 Lbs
 - **Unmating**
 - **Min** ----- 1.58 Lbs
 - **Max** ----- 2.28 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** ----- 3.49 Lbs
 - **Max** ----- 4.56 Lbs
 - **Unmating**
 - **Min** ----- 1.77 Lbs
 - **Max** ----- 2.37 Lbs
- **Thermal**
 - **Mating**
 - **Min** ----- 2.27 Lbs
 - **Max** ----- 2.99 Lbs
 - **Unmating**
 - **Min** ----- 0.96 Lbs
 - **Max** ----- 1.47 Lbs
- **Humidity**
 - **Mating**
 - **Min** ----- 2.15 Lbs
 - **Max** ----- 2.90 Lbs
 - **Unmating**
 - **Min** ----- 1.01 Lbs
 - **Max** ----- 1.38 Lbs

RESULTS Continued**Normal Force at 0.012" deflection****Row 1**

- **Initial**
 - o Min-----42.40 gf Set ---- 0.0008 in
 - o Max -----45.30 gf Set ---- 0.0011 in
- **Thermal**
 - o Min-----34.70 gf Set---- 0.0001 in
 - o Max -----38.40 gf Set---- 0.0007 in

Row 2

- **Initial**
 - o Min-----34.50 gf Set ---- 0.0002 in
 - o Max -----41.40 gf Set ---- 0.0013 in
- **Thermal**
 - o Min-----30.50 gf Set---- 0.0003 in
 - o Max -----38.30 gf Set---- 0.0009 in

Insulation Resistance minimums, IR**Pin to Pin**

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

Row to Row

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

Tracking Code: TC0945--2885 Report Rev 1	Part #: ERF5-050-01-L-RA / ERM5-050-05.0-L-DV
Part description: ERF5 /ERM5	

RESULTS Continued

Dielectric Withstanding Voltage minimums, DWV

Pin to Pin

- Minimums
 - Breakdown Voltage-----685 VAC
 - Test Voltage -----510 VAC
 - Working Voltage -----170 VAC
- Initial DWV -----Passed
- Thermal DWV -----Passed
- Humidity DWV-----Passed

Row to Row

- Minimums
 - Breakdown Voltage----- 1100 VAC
 - Test Voltage -----825 VAC
 - Working Voltage -----275 VAC
- Initial DWV -----Passed
- Thermal DWV -----Passed
- Humidity DWV-----Passed

RESULTS Continued**LLCR Durability (192 LLCR test points)**

- **Initial**----- 28.7mOhms Max
- **Durability, 25 Cycles**
 - o <= +5.0 mOhms ----- 192 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure
- **Thermal**
 - o <= +5.0 mOhms ----- 184 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 8 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure
- **Humidity**
 - o <= +5.0 mOhms ----- 166 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 21 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 4 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 1 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure

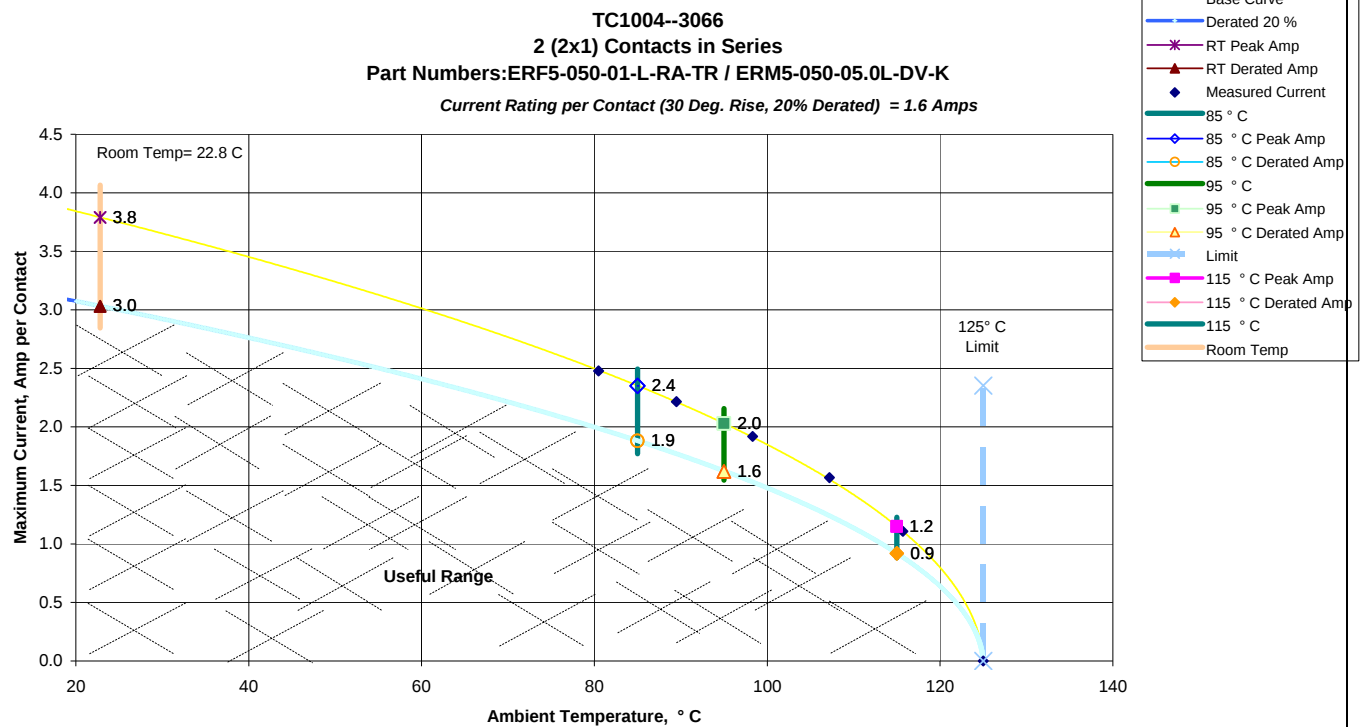
LLCR Gas Tight (240 LLCR test points)

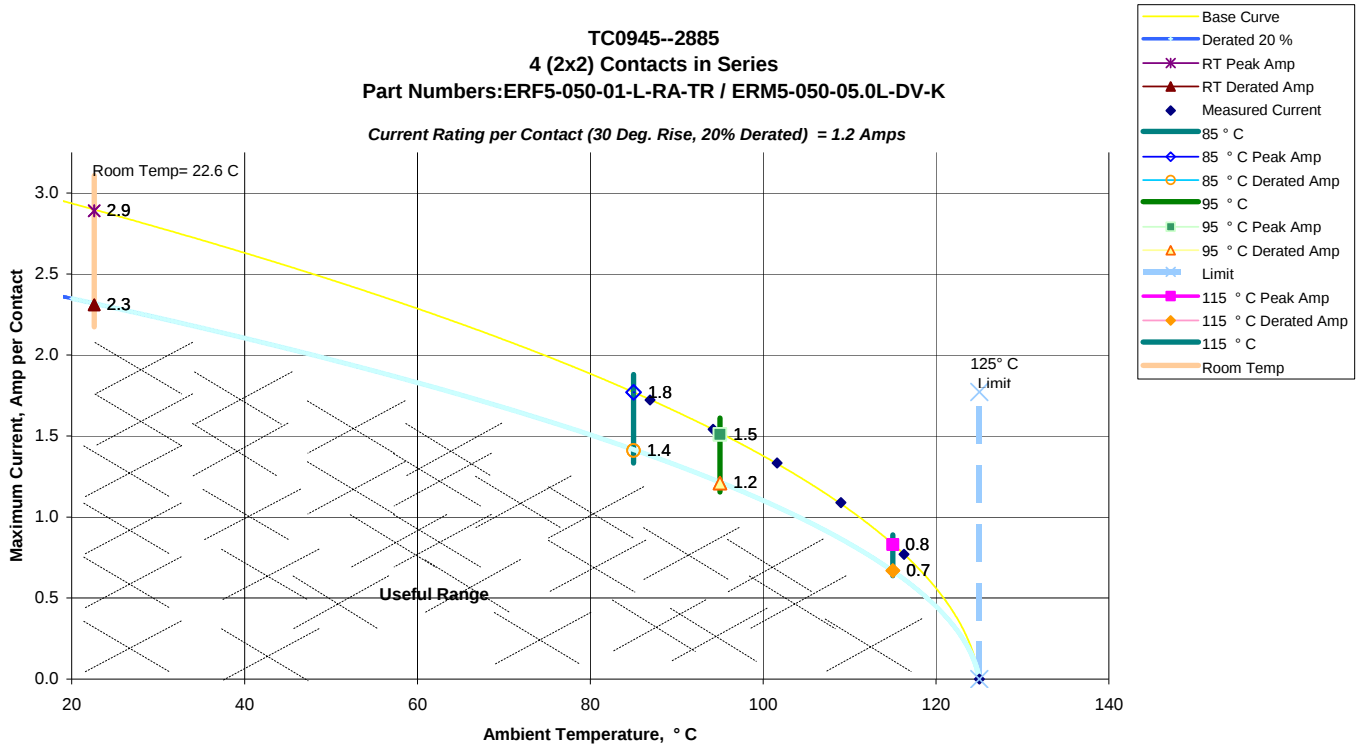
- **Initial**----- 34.9mOhms Max
- **Gas-Tight**
 - o <= +5.0 mOhms ----- 232 Points ----- Stable
 - o +5.1 to +10.0 mOhms ----- 8 Points ----- Minor
 - o +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - o +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - o +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - o >+2000 mOhms ----- 0 Points ----- Open Failure

DATA SUMMARIES**TEMPERATURE RISE (Current Carrying Capacity, CCC):**

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

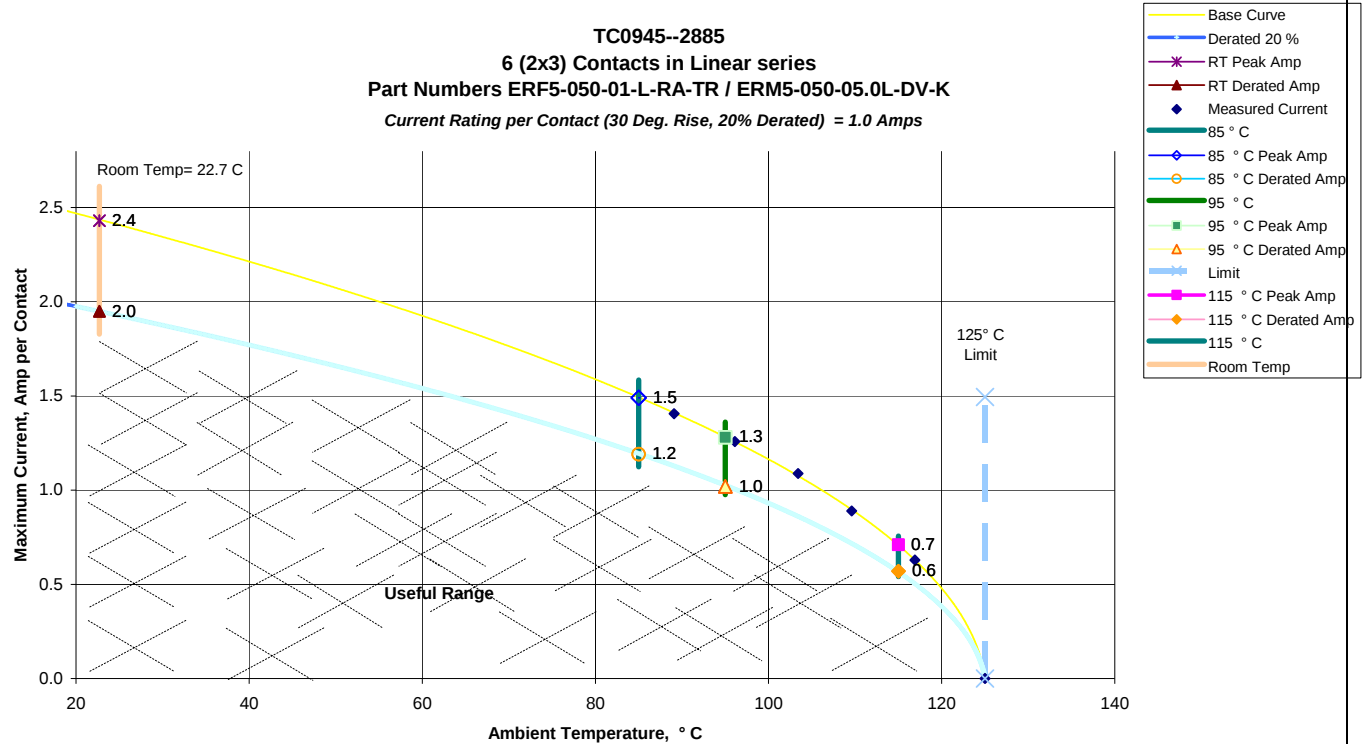
a. Linear configuration with 2 adjacent conductors/contacts powered



DATA SUMMARIES Continued**b. Linear configuration with 4 adjacent conductors/contacts powered**

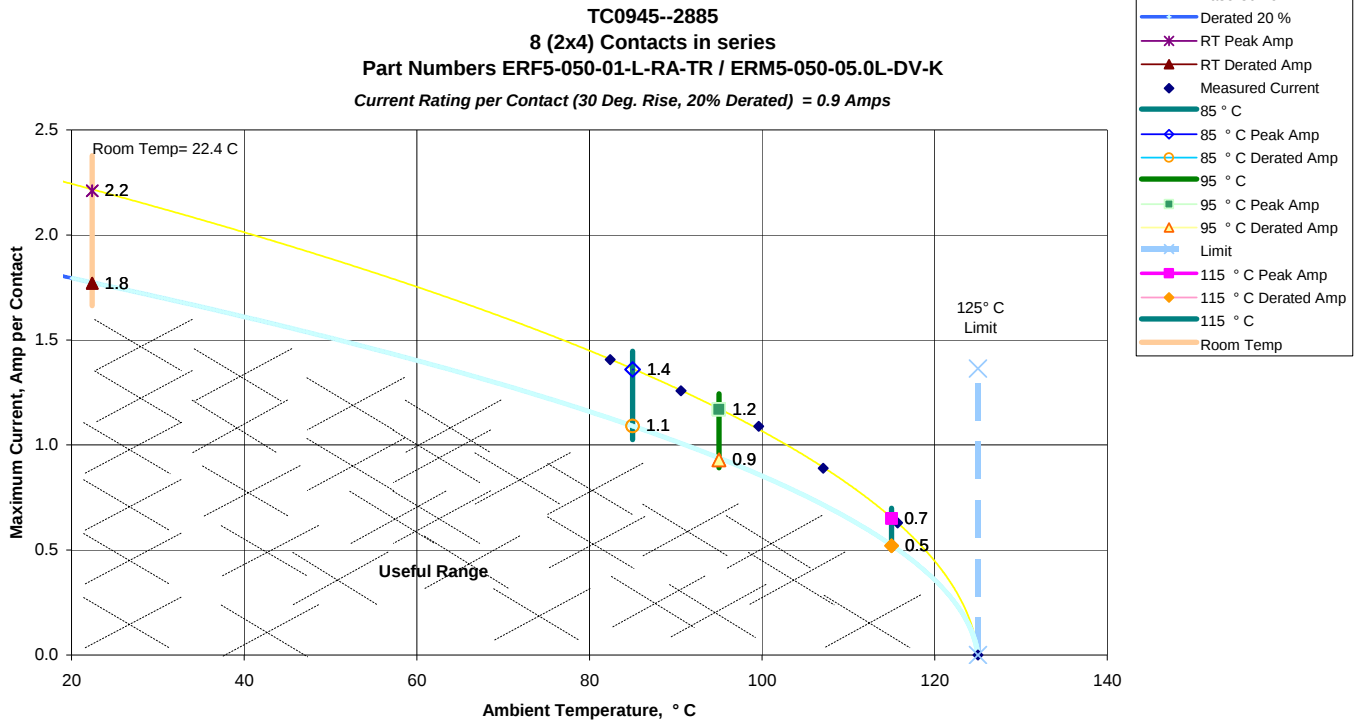
DATA SUMMARIES Continued

c. Linear configuration with 6 adjacent conductors/contacts powered



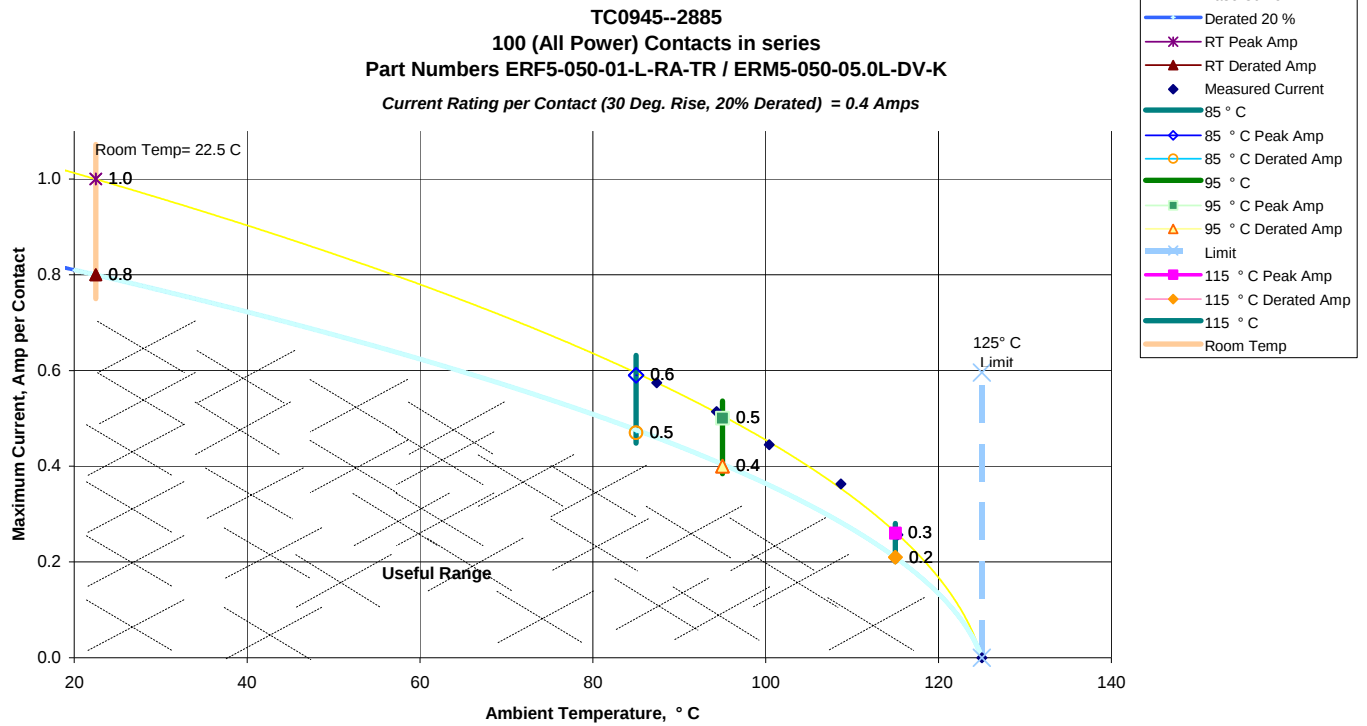
DATA SUMMARIES Continued

d. Linear configuration with 8 adjacent conductors/contacts powered



DATA SUMMARIES Continued

e. Linear configuration with all adjacent conductors/contacts powered



DATA SUMMARIES Continued**CONTACT GAPS:**

Initial		After 100 Cycles		After Thermal		After Humidity	
Units: mm		Units: mm		Units: mm		Units: mm	
Minimum	1.7939	Minimum	1.8477	Minimum	1.8379	Minimum	1.9416
Maximum	1.9359	Maximum	1.9816	Maximum	2.0439	Maximum	2.0616
Average	1.8515	Average	1.8984	Average	1.9714	Average	1.9819
St. Dev.	0.0215	St. Dev.	0.0199	St. Dev.	0.0217	St. Dev.	0.0189
Count	500	Count	500	Count	500	Count	500

MATING/UNMATING:

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	14.06	3.16	5.47	1.23	14.46	3.25	7.47	1.68
Maximum	17.53	3.94	8.01	1.80	19.35	4.35	9.47	2.13
Average	16.27	3.66	6.69	1.51	16.74	3.76	8.22	1.85
St Dev	1.04	0.23	0.88	0.20	1.56	0.35	0.60	0.13
Count	10	10	10	10	10	10	10	10
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	14.90	3.35	7.83	1.76	15.39	3.46	7.03	1.58
Maximum	19.08	4.29	9.30	2.09	19.84	4.46	10.14	2.28
Average	16.94	3.81	8.61	1.94	17.03	3.83	8.63	1.94
St Dev	1.29	0.29	0.54	0.12	1.28	0.29	0.81	0.18
Count	10	10	10	10	10	10	10	10
	After 100 Cycles				After Thermals			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	15.52	3.49	7.87	1.77	10.10	2.27	4.27	0.96
Maximum	20.28	4.56	10.54	2.37	13.30	2.99	6.54	1.47
Average	17.28	3.88	8.98	2.02	11.32	2.54	5.18	1.16
St Dev	1.28	0.29	0.77	0.17	1.14	0.26	0.88	0.20
Count	10	10	10	10	10	10	10	10
	After Humidity							
	Mating		Unmating					
	Newtons	Force (Lbs)	Newtons	Force (Lbs)				
Minimum	9.56	2.15	4.49	1.01				
Maximum	12.90	2.90	6.14	1.38				
Average	10.92	2.45	5.45	1.23				
St Dev	1.03	0.23	0.57	0.13				
Count	10	10	10	10				

DATA SUMMARIES Continued**NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):**

- 1) Calibrated force gauges are used along with computer controlled positioning equipment.
- 2) For Normal force 8-10 measurements are taken and the averages reported.

Row 1

Initial	Deflections in inches Forces in Grams										
	<u>0.0012</u>	<u>0.0024</u>	<u>0.0036</u>	<u>0.0048</u>	<u>0.0060</u>	<u>0.0072</u>	<u>0.0084</u>	<u>0.0096</u>	<u>0.0108</u>	<u>0.0120</u>	<i>SET</i>
Averages	4.73	9.57	14.53	19.51	24.07	28.40	32.87	36.98	40.80	43.98	0.0009
Min	4.10	8.40	12.90	18.00	22.40	26.60	31.10	34.90	38.90	42.40	0.0008
Max	5.10	10.60	15.60	20.50	25.60	30.00	34.50	38.00	42.00	45.30	0.0011
St. Dev	0.355	0.697	0.971	0.944	1.027	0.982	1.111	1.156	1.123	0.918	0.0001
Count	11	11	11	11	11	11	11	11	11	11	11

After Thermals	Deflections in inches Forces in Grams										
	<u>0.0012</u>	<u>0.0024</u>	<u>0.0036</u>	<u>0.0048</u>	<u>0.0060</u>	<u>0.0072</u>	<u>0.0084</u>	<u>0.0096</u>	<u>0.0108</u>	<u>0.0120</u>	<i>SET</i>
Averages	2.42	5.97	9.86	13.50	17.49	21.55	25.41	29.53	33.35	36.63	0.0005
Min	1.30	4.60	8.50	12.20	16.00	20.00	23.40	28.10	31.80	34.70	0.0001
Max	3.50	6.90	11.10	14.70	18.80	22.60	26.70	31.20	34.70	38.40	0.0007
St. Dev	0.596	0.780	0.765	0.771	0.850	0.797	0.939	0.856	0.826	1.083	0.0002
Count	11	11	11	11	11	11	11	11	11	11	11

Row 2

Initial	Deflections in inches Forces in Grams										
	<u>0.0012</u>	<u>0.0024</u>	<u>0.0036</u>	<u>0.0048</u>	<u>0.0060</u>	<u>0.0072</u>	<u>0.0084</u>	<u>0.0096</u>	<u>0.0108</u>	<u>0.0120</u>	<i>SET</i>
Averages	3.18	7.00	10.95	15.13	19.29	23.33	27.55	31.39	35.28	38.61	0.0007
Min	1.10	4.40	7.40	11.40	14.70	19.10	22.40	26.20	30.40	34.50	0.0002
Max	4.30	8.10	12.70	17.40	21.90	25.60	29.90	33.90	37.80	41.40	0.0013
St. Dev	0.846	1.082	1.456	1.641	1.927	1.904	2.160	2.255	2.242	2.212	0.0003
Count	11	11	11	11	11	11	11	11	11	11	11

After Thermals	Deflections in inches Forces in Grams										
	<u>0.0012</u>	<u>0.0024</u>	<u>0.0036</u>	<u>0.0048</u>	<u>0.0060</u>	<u>0.0072</u>	<u>0.0084</u>	<u>0.0096</u>	<u>0.0108</u>	<u>0.0120</u>	<i>SET</i>
Averages	2.59	5.35	7.45	10.35	13.75	17.67	21.85	25.84	29.82	34.01	0.0005
Min	1.80	3.90	5.30	8.90	12.10	16.10	19.80	23.30	26.80	30.50	0.0003
Max	4.10	7.70	10.60	13.00	15.80	20.50	25.00	29.20	33.40	38.30	0.0009
St. Dev	0.612	0.916	1.261	1.167	1.378	1.483	1.787	1.865	2.125	2.355	0.0002
Count	11	11	11	11	11	11	11	11	11	11	11

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

	Pin to Pin					Row to Row		
	Mated	Unmated	Unmated			Mated	Unmated	Unmated
Minimum	ERF5/ERM5	ERF5	ERM5		Minimum	ERF5/ERM5	ERF5	ERM5
Initial	100000	100000	100000		Initial	100000	100000	100000
Thermal	100000	100000	100000		Thermal	100000	100000	100000
Humidity	100000	100000	100000		Humidity	100000	100000	100000

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

Voltage Rating Summary	
Minimum	ERF5/ERM5
Break Down Voltage	680
Test Voltage	510
Working Voltage	170
Pin to Pin	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed
Row to Row	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

DATA SUMMARIES Continued**LLCR:**

- 1) A total of **192** points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ 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	2010-8-27	2010-8-30	2010-9-13	2010-9-24
Room Temp C	23	23	22	24
RH	41%	48%	46%	43%
Name	Aaron McKim	Aaron McKim	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta 25 Cycles	Delta Thermal	Delta Humidity
Average	23.5	0.3	2.0	2.4
St. Dev.	1.5	0.8	1.3	2.9
Min	20.8	-2.4	-0.4	-1.9
Max	28.7	4.0	6.9	21.3
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
25 Cycles	192	0	0	0	0	0
Thermal	184	8	0	0	0	0
Humidity	166	21	4	1	0	0

DATA SUMMARIES Continued**GAS TIGHT:**

- 1) A total of 240 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	2009-11-30	2009-12-1
Room Temp C	22.4	22.1
RH	35%	41%
Name	Troy Cook	Troy Cook
mOhm values	Actual Initial	Delta Gas Tight
Average	26.0	0.3
St. Dev.	2.7	1.9
Min	20.0	-6.4
Max	34.9	8.2
Count	240	240

How many samples are being tested?

10

How many contacts are on each board?

24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Gas Tight	232	8	0	0	0	0

DATA**CONTACT GAPS:**

Initial										
Units: mm										
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
1	1.9039	1.8919	1.8959	1.8879	1.9019	1.9119	1.8899	1.9099	1.9099	1.8959
2	1.8419	1.8259	1.8319	1.8239	1.8419	1.8339	1.8399	1.8659	1.8319	1.8299
3	1.8099	1.7959	1.8059	1.8119	1.8159	1.8039	1.8159	1.8219	1.8219	1.7999
4	1.8259	1.8159	1.8239	1.8159	1.8319	1.8219	1.8399	1.8319	1.8159	1.8199
5	1.8159	1.8099	1.8179	1.8359	1.8199	1.8279	1.8459	1.8399	1.8039	1.8199
6	1.8279	1.8099	1.8219	1.8259	1.8359	1.8079	1.8119	1.8459	1.8139	1.8119
7	1.8439	1.8319	1.8359	1.8379	1.8399	1.8319	1.8219	1.8219	1.8339	1.8519
8	1.8119	1.8239	1.8159	1.8159	1.8199	1.7939	1.8059	1.8179	1.8099	1.8099
9	1.8479	1.8419	1.8559	1.8319	1.8479	1.8239	1.8259	1.8239	1.8379	1.8319
10	1.8439	1.8419	1.8399	1.8259	1.8279	1.8199	1.8479	1.8299	1.8319	1.8339
11	1.8479	1.8519	1.8419	1.8399	1.8459	1.8399	1.8419	1.8439	1.8559	1.8559
12	1.8399	1.8179	1.8339	1.8499	1.8559	1.8319	1.8199	1.8279	1.8279	1.8459
13	1.8339	1.8299	1.8519	1.8419	1.8419	1.8399	1.8379	1.8359	1.8719	1.8459
14	1.8579	1.8419	1.8359	1.8539	1.8619	1.8699	1.8459	1.8319	1.8459	1.8379
15	1.8539	1.8399	1.8539	1.8579	1.8619	1.8499	1.8419	1.8459	1.8399	1.8559
16	1.8599	1.8419	1.8439	1.8359	1.8599	1.8359	1.8439	1.8359	1.8379	1.8499
17	1.8899	1.8739	1.8759	1.8719	1.8679	1.8859	1.8779	1.8699	1.8799	1.8939
18	1.8459	1.8539	1.8599	1.8479	1.8459	1.8459	1.8279	1.8379	1.8519	1.8439
19	1.8519	1.8399	1.8399	1.8319	1.8399	1.8439	1.8379	1.8459	1.8619	1.8559
20	1.8579	1.8559	1.8499	1.8419	1.8519	1.8479	1.8319	1.8559	1.8639	1.8559
21	1.8559	1.8319	1.8519	1.8539	1.8519	1.8479	1.8339	1.8119	1.8619	1.8679
22	1.8539	1.8579	1.8539	1.8559	1.8679	1.8539	1.8659	1.8479	1.8659	1.8599
23	1.8819	1.8699	1.8679	1.8579	1.8899	1.8619	1.8619	1.8519	1.8839	1.8639
24	1.8479	1.8479	1.8379	1.8359	1.8359	1.8579	1.8419	1.8499	1.8359	1.8239
25	1.8559	1.8319	1.8279	1.8319	1.8439	1.8359	1.8299	1.8439	1.8279	1.8359
26	1.8719	1.8739	1.8739	1.8719	1.8719	1.8639	1.8539	1.8539	1.8659	1.8759
27	1.8599	1.8599	1.8659	1.8739	1.8839	1.8499	1.8479	1.8459	1.8539	1.8559
28	1.8739	1.8719	1.8559	1.8979	1.8699	1.8659	1.8579	1.8499	1.8519	1.8639
29	1.8679	1.8379	1.8319	1.8519	1.8479	1.8739	1.8399	1.8339	1.8459	1.8619
30	1.8779	1.8599	1.8619	1.8739	1.8899	1.8799	1.8459	1.8559	1.8479	1.8579
31	1.8619	1.8519	1.8519	1.8479	1.8479	1.8539	1.8439	1.8339	1.8419	1.8519
32	1.8579	1.8479	1.8619	1.8799	1.8539	1.8479	1.8519	1.8319	1.8499	1.8539
33	1.8659	1.8399	1.8539	1.8779	1.8519	1.8819	1.8299	1.8459	1.8599	1.8339
34	1.8819	1.8559	1.8619	1.8959	1.8719	1.8699	1.8559	1.8539	1.8619	1.8499
35	1.8579	1.8359	1.8599	1.8799	1.8739	1.8619	1.8439	1.8439	1.8539	1.8639
36	1.8939	1.8679	1.8659	1.8659	1.8939	1.8599	1.8619	1.8579	1.8519	1.8679
37	1.9039	1.8519	1.8679	1.8739	1.8659	1.8759	1.8439	1.8579	1.8699	1.8819
38	1.8799	1.8859	1.8679	1.8939	1.8519	1.8819	1.8639	1.8599	1.8799	1.8619
39	1.8699	1.8659	1.8619	1.8799	1.8499	1.8579	1.8639	1.8659	1.8619	1.8559
40	1.8659	1.8499	1.8639	1.8659	1.8559	1.8439	1.8559	1.8399	1.8699	1.8459
41	1.8499	1.8459	1.8419	1.8559	1.8479	1.8379	1.8559	1.8219	1.8499	1.8359
42	1.8599	1.8639	1.8639	1.8559	1.8839	1.8579	1.8399	1.8599	1.8699	1.8659
43	1.8479	1.8259	1.8419	1.8399	1.8539	1.8359	1.8179	1.8399	1.8359	1.8259

44	1.8239	1.8359	1.8499	1.8399	1.8559	1.8299	1.8379	1.8219	1.8339	1.8279
45	1.8659	1.8579	1.8719	1.8619	1.8579	1.8519	1.8599	1.8399	1.8579	1.8639
46	1.9019	1.8619	1.8639	1.8679	1.8699	1.8599	1.8839	1.8739	1.8779	1.8739
47	1.8679	1.8319	1.8739	1.8519	1.8559	1.8339	1.8439	1.8619	1.8799	1.8499
48	1.8539	1.8399	1.8499	1.8679	1.8719	1.8619	1.8579	1.8619	1.8559	1.8519
49	1.8739	1.8299	1.8539	1.8699	1.8559	1.8659	1.8599	1.8499	1.8619	1.8519
50	1.8959	1.8739	1.9039	1.9079	1.9359	1.9139	1.9139	1.8919	1.8859	1.8979
After 100 Cycles										
Units: mm										
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
1	1.9456	1.9516	1.9276	1.9576	1.9536	1.9276	1.9396	1.9456	1.9736	1.9396
2	1.9096	1.9116	1.8937	1.9016	1.9116	1.8857	1.9236	1.9256	1.9436	1.9156
3	1.8937	1.8877	1.8797	1.8897	1.8997	1.8797	1.8997	1.8877	1.8997	1.8737
4	1.8897	1.9036	1.8817	1.8917	1.8917	1.8757	1.9076	1.8917	1.9016	1.8697
5	1.8697	1.8777	1.8757	1.8937	1.8937	1.8637	1.9016	1.9096	1.8857	1.8717
6	1.8857	1.8797	1.8857	1.8857	1.8977	1.8717	1.8797	1.8977	1.8977	1.8697
7	1.9016	1.8957	1.8817	1.8977	1.8937	1.8817	1.8837	1.8917	1.9016	1.8897
8	1.8797	1.8937	1.8677	1.8797	1.8697	1.8477	1.8697	1.8737	1.8797	1.8617
9	1.8997	1.8917	1.8957	1.8857	1.8897	1.8757	1.8777	1.8917	1.8917	1.8717
10	1.8917	1.8877	1.8817	1.8757	1.8757	1.8757	1.8937	1.8757	1.8977	1.8937
11	1.9056	1.8957	1.8977	1.8917	1.8937	1.8957	1.9036	1.9076	1.8977	1.9016
12	1.8937	1.8737	1.8817	1.8917	1.8957	1.8797	1.8757	1.8677	1.8737	1.8857
13	1.8937	1.8797	1.8937	1.8957	1.8957	1.8777	1.8797	1.8817	1.9076	1.8837
14	1.9096	1.8777	1.8897	1.8977	1.9056	1.9116	1.8877	1.8737	1.8897	1.8797
15	1.8977	1.8817	1.8857	1.8977	1.9016	1.8837	1.8837	1.8937	1.8897	1.8957
16	1.9096	1.8917	1.8877	1.8937	1.9076	1.8857	1.8937	1.8777	1.8917	1.8997
17	1.9276	1.9096	1.9236	1.9136	1.9096	1.9236	1.9136	1.9016	1.9176	1.9176
18	1.8817	1.8917	1.8857	1.8837	1.8737	1.8837	1.8797	1.8697	1.8857	1.8837
19	1.9016	1.8837	1.8897	1.8757	1.8857	1.8737	1.8877	1.8857	1.8937	1.8877
20	1.8977	1.8897	1.8917	1.8857	1.8937	1.8817	1.8777	1.8817	1.8997	1.8957
21	1.8997	1.8637	1.8917	1.8857	1.8897	1.8797	1.8677	1.8677	1.8917	1.8777
22	1.8857	1.9096	1.9116	1.9036	1.9056	1.9056	1.9076	1.8757	1.9096	1.8897
23	1.9216	1.9076	1.9216	1.9116	1.9316	1.9116	1.9096	1.8837	1.9156	1.8957
24	1.9036	1.8877	1.8837	1.8897	1.8757	1.8917	1.8777	1.8677	1.8737	1.8597
25	1.8897	1.8737	1.8717	1.8737	1.8777	1.8817	1.8597	1.8777	1.8757	1.8677
26	1.9156	1.9116	1.9116	1.9136	1.9156	1.9116	1.8957	1.8877	1.8977	1.9036
27	1.9036	1.9036	1.9036	1.8957	1.9236	1.8857	1.8997	1.8897	1.8917	1.8837
28	1.9096	1.9056	1.9056	1.9316	1.8937	1.9136	1.8977	1.8777	1.8917	1.8997
29	1.9136	1.8837	1.8917	1.8937	1.8857	1.9036	1.8877	1.8677	1.8837	1.8817
30	1.9136	1.8857	1.8997	1.8977	1.9036	1.8977	1.8877	1.8737	1.8817	1.8817
31	1.8917	1.8797	1.8997	1.8917	1.8857	1.8797	1.8757	1.8777	1.8837	1.8817
32	1.9116	1.8957	1.8997	1.9156	1.8917	1.9016	1.8917	1.8797	1.8997	1.8977
33	1.9056	1.8757	1.8877	1.8957	1.8797	1.8977	1.8617	1.8817	1.8837	1.8697
34	1.9096	1.8917	1.9116	1.9296	1.9216	1.9056	1.8977	1.8877	1.8977	1.8957
35	1.9096	1.8757	1.9036	1.9176	1.9056	1.8977	1.8817	1.8817	1.8817	1.8957
36	1.9336	1.9116	1.9136	1.9116	1.9316	1.9036	1.9036	1.9096	1.8997	1.9076
37	1.9276	1.8837	1.8977	1.9156	1.9056	1.9016	1.8817	1.8857	1.9056	1.9056
38	1.9236	1.9256	1.9156	1.9336	1.9096	1.9156	1.9096	1.8977	1.9136	1.9156
39	1.9276	1.9076	1.9076	1.9296	1.8997	1.8977	1.9076	1.9176	1.9116	1.9016

40	1.9056	1.8977	1.9056	1.9176	1.8977	1.8877	1.8997	1.8777	1.9076	1.8897
41	1.9036	1.8817	1.8937	1.9136	1.8937	1.8817	1.9056	1.8737	1.8997	1.8877
42	1.9076	1.9156	1.9076	1.8997	1.9196	1.9016	1.8897	1.8977	1.9216	1.9036
43	1.9076	1.8837	1.8897	1.8877	1.8917	1.8877	1.8677	1.8757	1.8857	1.8757
44	1.8897	1.8937	1.8957	1.8917	1.8897	1.8737	1.8797	1.8777	1.8777	1.8737
45	1.9156	1.9056	1.9076	1.9056	1.9156	1.8977	1.9036	1.9036	1.8997	1.9076
46	1.9416	1.9236	1.9216	1.9276	1.9336	1.9156	1.9296	1.9216	1.9356	1.9196
47	1.9316	1.8937	1.9176	1.9176	1.9236	1.8957	1.9136	1.9176	1.9296	1.9056
48	1.9136	1.9076	1.8977	1.9136	1.9096	1.8957	1.8957	1.9116	1.9076	1.9076
49	1.9496	1.9096	1.9236	1.9396	1.9376	1.9156	1.9416	1.9356	1.9276	1.9156
50	1.9536	1.9436	1.9676	1.9656	1.9816	1.9456	1.9656	1.9476	1.9736	1.9496

After Thermal

Units: mm

Pos.#	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
1	2.0159	2.0059	2.0099	2.0059	2.0279	1.9979	2.0179	2.0439	2.0359	2.0139
2	1.9679	1.9779	1.9687	1.9819	1.9679	1.9619	2.0039	1.9979	1.9759	2.0099
3	1.9679	1.9579	1.9699	1.9539	1.9525	1.9299	1.9699	1.9639	1.9599	1.9599
4	1.9739	1.9719	1.9840	1.9699	1.9659	1.9339	1.9779	1.9719	1.9579	1.9719
5	1.9479	1.9539	1.9559	1.9619	1.9579	1.9379	1.9639	1.9639	1.9479	1.9679
6	1.9559	1.9519	1.9746	1.9439	1.9579	1.9339	1.9539	1.9759	1.9259	1.9819
7	1.9639	1.9759	1.9599	1.9759	1.9599	1.9419	1.9599	1.9619	1.9539	1.9899
8	1.9599	1.9619	1.9539	1.9499	1.9599	1.9299	1.9659	1.9259	1.8379	1.9499
9	1.9759	1.9719	1.9839	1.9679	1.9899	1.9519	1.9719	1.9799	1.9639	1.9579
10	1.9759	1.9559	1.9679	1.9599	1.9519	1.9479	1.9759	1.9599	1.9119	1.9659
11	1.9879	1.9919	1.9799	1.9719	1.9719	1.9719	1.9759	1.9899	1.9519	1.9859
12	1.9659	1.9619	1.9599	1.9659	1.9799	1.9539	1.9659	1.9099	1.9499	1.9519
13	1.9599	1.9619	1.9659	1.9639	1.9599	1.9379	1.9679	1.9699	1.9699	1.9879
14	1.9859	1.9659	1.9759	1.9699	1.9739	1.9799	1.9639	1.9259	1.9539	1.9599
15	1.9659	1.9199	1.9579	1.9739	1.9699	1.9439	1.9599	1.9599	1.9599	1.9579
16	1.9859	1.9679	1.9719	1.9739	1.9739	1.9519	1.9639	1.9659	1.9739	1.9639
17	1.9939	1.9759	1.9959	1.9819	1.9819	2.0039	1.9919	1.9899	1.9819	1.9979
18	1.9599	1.9779	1.9599	1.9559	1.9519	1.9639	1.9499	1.9639	1.9539	1.9699
19	1.9779	1.9519	1.9799	1.9619	1.9619	1.9619	1.9659	1.9719	1.9679	1.9679
20	1.9819	1.9659	1.9599	1.9559	1.9599	1.9639	1.9479	1.9679	1.9639	1.9539
21	1.9639	1.9319	1.9579	1.9439	1.9519	1.9479	1.9539	1.9419	1.9639	1.9579
22	1.9819	1.9899	1.9919	1.9759	1.9799	1.9919	1.9819	1.9719	1.9759	1.9759
23	2.0059	1.9959	1.9899	1.9839	2.0119	1.9939	1.9859	1.9739	1.9779	1.9779
24	1.9759	1.9759	1.9599	1.9659	1.9699	1.9699	1.9019	1.9479	1.9559	1.9499
25	1.9559	1.9339	1.9599	1.9459	1.9559	1.9479	1.9339	1.9379	1.9479	1.9399
26	1.9999	1.9819	1.9799	1.9839	1.9759	1.9799	1.9739	1.9779	1.8959	1.9899
27	1.9799	1.9819	1.9739	1.9679	1.9859	1.9639	1.9399	1.9679	1.9679	1.9679
28	1.9779	1.9799	1.9779	1.9959	1.9639	1.9939	1.9599	1.9719	1.9739	1.9639
29	1.9759	1.9439	1.9739	1.9759	1.9539	1.9819	1.9699	1.9379	1.9579	1.9459
30	1.9759	1.9679	1.9659	1.9559	1.9659	1.9859	1.9599	1.9639	1.9439	1.9459
31	1.9679	1.9559	1.9699	1.9579	1.9559	1.9639	1.9499	1.9539	1.9499	1.9459
32	1.9859	1.9599	1.9739	1.9919	1.9599	1.9659	1.9839	1.9599	1.9679	1.9819
33	1.9619	1.9179	1.9519	1.9759	1.9619	1.9519	1.9499	1.9619	1.9439	1.9579
34	1.9819	1.9699	1.9979	2.0119	1.9899	1.9859	1.9799	1.9699	1.9859	1.9759
35	1.9639	1.9479	1.9759	2.0039	1.9759	1.9679	1.9659	1.9639	1.9659	1.9759

36	2.0019	1.9839	1.9819	1.9839	2.0079	1.9899	1.9899	1.9799	1.9819	1.9839
37	1.9919	1.9399	1.9859	1.9819	1.9759	1.9539	1.9759	1.9639	1.9679	1.9699
38	1.9919	2.0019	1.9999	2.0099	1.9879	1.9959	1.9939	1.9959	1.9939	1.9919
39	1.9839	1.9599	1.9899	2.0079	1.9759	1.9899	1.9919	1.9879	1.9899	1.9799
40	1.9779	1.9699	1.9899	1.9959	1.9739	1.9659	1.9819	1.9619	1.9799	1.9899
41	1.9699	1.9539	1.9759	1.9799	1.9599	1.9619	1.9959	1.9459	1.9619	2.0039
42	1.9799	1.9819	1.9919	1.9619	1.9919	1.9919	1.9819	1.9879	1.9859	2.0039
43	1.9699	1.9499	1.9859	1.9759	1.9599	1.9439	1.9579	1.9519	1.9499	1.9359
44	1.9559	1.9699	1.9799	1.9519	1.9619	1.9379	1.9619	1.9559	1.9459	1.9539
45	1.9719	1.9819	1.9639	1.9879	1.9759	1.9699	1.9839	1.9679	1.9939	1.9759
46	2.0139	1.9919	1.9839	1.9779	1.9999	1.9879	1.9979	1.9959	1.9979	2.0159
47	1.9899	1.9739	1.9879	1.9979	1.9839	1.9699	1.9799	1.9839	1.9739	1.9919
48	1.9699	1.9739	1.9739	1.9799	1.9539	1.9579	1.9619	1.9819	1.9019	1.9679
49	2.0099	1.9739	1.9999	2.0119	2.0099	1.9919	1.9939	2.0079	1.9819	2.0079
50	2.0159	2.0019	2.0219	2.0359	2.0339	2.0039	2.0259	2.0319	2.0139	1.9119

After Humidity

Units: mm

Pos.#	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
1	2.0216	2.0216	2.0196	2.0256	2.0336	2.0016	2.0396	2.0556	2.0336	2.0316
2	1.9856	1.9976	2.0196	1.9876	1.9516	1.9776	1.9936	1.9976	2.0196	2.0016
3	1.9716	1.9576	2.0096	1.9636	1.9896	1.9536	1.9696	1.9656	1.9816	1.9716
4	1.9836	1.9776	2.0056	1.9716	1.9736	1.9576	1.9876	1.9816	1.9816	1.9756
5	1.9636	1.9616	1.9536	1.9716	1.9816	1.9456	1.9836	1.9756	1.9756	1.9696
6	1.9716	1.9596	1.9896	1.9616	1.9776	1.9476	1.9736	1.9816	1.9736	1.9656
7	1.9816	1.9776	1.9676	1.9636	1.9836	1.9636	1.9896	1.9676	1.9856	1.9796
8	1.9696	1.9896	1.9636	1.9616	1.9616	1.9536	1.9736	1.9696	1.9696	1.9556
9	1.9976	1.9916	1.9876	1.9796	2.0036	1.9736	1.9836	1.9796	1.9776	1.9696
10	1.9836	1.9736	1.9656	1.9636	1.9696	1.9576	1.9836	1.9716	1.9696	1.9696
11	2.0016	1.9976	1.9876	1.9816	1.9916	1.9916	1.9936	1.9936	1.9836	1.9976
12	1.9816	1.9636	1.9756	1.9816	1.9896	1.9736	1.9776	1.9656	1.9576	1.9836
13	1.9716	1.9636	1.9656	1.9776	1.9756	1.9576	1.9756	1.9676	1.9756	1.9716
14	1.9956	1.9616	1.9736	1.9776	1.9776	1.9956	1.9836	1.9636	1.9596	1.9716
15	1.9776	1.9716	1.9576	1.9836	1.9796	1.9676	1.9776	1.9716	1.9696	1.9836
16	1.9936	1.9676	1.9636	1.9776	1.9776	1.9716	1.9856	1.9716	1.9776	1.9896
17	2.0176	1.9976	1.9936	2.0016	1.9956	2.0136	2.0156	1.9996	1.9996	2.0096
18	1.9776	1.9756	1.9636	1.9796	1.9576	1.9716	1.9676	1.9696	1.9596	1.9736
19	1.9876	1.9716	1.9676	1.9736	1.9776	1.9716	1.9836	1.9776	1.9676	1.9756
20	1.9796	1.9716	1.9716	1.9656	1.9656	1.9696	1.9696	1.9716	1.9756	1.9816
21	1.9716	1.9416	1.9676	1.9656	1.9716	1.9596	1.9716	1.9536	1.9616	1.9736
22	1.9876	1.9896	1.9936	1.9756	1.9736	1.9916	1.9936	1.9836	1.9876	1.9836
23	2.0116	1.9996	1.9936	1.9916	2.0136	2.0016	1.9976	1.9836	1.9936	1.9956
24	1.9916	1.9696	1.9636	1.9756	1.9756	1.9856	1.9776	1.9676	1.9596	1.9556
25	1.9596	1.9476	1.9536	1.9496	1.9616	1.9516	1.9576	1.9516	1.9496	1.9576
26	2.0036	2.0016	1.9916	1.9916	1.9916	1.9936	1.9936	1.9876	1.9816	2.0036
27	1.9836	1.9956	1.9936	1.9756	1.9956	1.9856	1.9956	1.9816	1.9716	1.9876
28	1.9936	1.9896	1.9796	1.9976	1.9756	2.0056	1.9936	1.9756	1.9716	1.9936
29	1.9816	1.9556	1.9676	1.9736	1.9656	1.9836	1.9776	1.9456	1.9516	1.9716
30	1.9836	1.9636	1.9676	1.9696	1.9816	1.9736	1.9756	1.9656	1.9596	1.9676
31	1.9736	1.9716	1.9676	1.9736	1.9596	1.9556	1.9736	1.9496	1.9516	1.9716

32	1.9816	1.9796	1.9756	2.0216	1.9716	1.9776	1.9836	1.9696	1.9796	1.9896
33	1.9696	1.9456	1.9536	1.9796	1.9596	1.9696	1.9556	1.9616	1.9596	1.9596
34	1.9876	1.9736	1.9816	1.9996	1.9916	1.9816	1.9796	1.9756	1.9796	1.9936
35	1.9776	1.9616	1.9656	2.0096	1.9876	1.9696	1.9616	1.9656	1.9676	1.9676
36	2.0156	1.9916	1.9916	2.0016	2.0016	1.9956	1.9976	1.9896	1.9916	2.0036
37	1.9976	1.9596	1.9696	1.9976	1.9756	1.9716	1.9736	1.9596	1.9816	1.9916
38	1.9976	1.9996	1.9936	2.0156	1.9916	2.0036	2.0016	1.9936	2.0016	1.9996
39	2.0056	1.9896	1.9876	2.0176	1.9836	1.9916	1.9936	1.9916	1.9956	1.9836
40	1.9796	1.9756	1.9756	2.0056	1.9796	1.9716	1.9856	1.9676	1.9896	1.9836
41	1.9756	1.9636	1.9776	1.9956	1.9756	1.9696	1.9936	1.9596	1.9756	1.9716
42	1.9936	1.9896	1.9896	1.9796	2.0136	1.9936	1.9836	1.9956	2.0056	1.9916
43	1.9836	1.9596	1.9656	1.9716	1.9756	1.9656	1.9676	1.9576	1.9636	1.9776
44	1.9676	1.9696	1.9736	1.9676	1.9716	1.9476	1.9676	1.9596	1.9636	1.9836
45	1.9836	1.9736	1.9816	1.9996	1.9916	1.9896	1.9836	1.9756	1.9816	2.0036
46	2.0156	1.9856	1.9996	1.9916	2.0116	1.9916	2.0076	1.9996	2.0116	1.9976
47	1.9896	1.9776	1.9956	1.9976	1.9836	1.9816	1.9876	1.9896	1.9916	1.9856
48	1.9716	1.9676	1.9756	1.9856	1.9696	1.9536	1.9736	1.9696	1.9796	1.9876
49	2.0236	1.9836	2.0116	2.0116	1.9976	2.0116	2.0076	2.0156	2.0076	2.0216
50	2.0196	2.0196	2.0336	2.0356	2.0616	2.0196	2.0356	2.0456	2.0476	2.0576

DATA Continued**MATING/UNMATING:**

<u>Sample#</u>	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles	
	<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	3.16	1.28	3.25	1.68	3.35	1.76	3.46	1.80
2	3.66	1.63	3.61	1.84	3.65	1.82	3.76	2.03
3	3.78	1.73	3.68	1.95	3.79	2.09	3.77	1.97
4	3.59	1.52	3.84	1.86	3.68	1.82	3.74	1.93
5	3.92	1.68	4.35	2.13	4.18	2.07	4.46	2.28
6	3.74	1.40	4.29	1.87	4.29	2.05	3.92	1.58
7	3.41	1.23	3.66	1.68	3.98	1.94	4.00	1.94
8	3.94	1.80	3.41	1.92	3.54	2.04	3.51	2.04
9	3.61	1.41	3.92	1.78	3.94	1.94	4.00	2.00
10	3.76	1.37	3.62	1.77	3.68	1.83	3.66	1.83
<u>Sample#</u>	After 100 Cycles		After Thermals		After Humidity			
	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>		
1	3.49	1.77	2.29	0.99	2.51	1.26		
2	3.77	2.10	2.73	1.44	2.44	1.35		
3	3.87	2.11	2.82	1.47	2.71	1.31		
4	3.76	2.10	2.51	0.99	2.35	1.02		
5	4.56	2.37	2.99	1.07	2.15	1.15		
6	3.90	1.84	2.31	0.97	2.26	1.28		
7	3.92	1.92	2.70	1.19	2.50	1.24		
8	3.69	2.07	2.27	0.96	2.90	1.38		
9	4.11	2.03	2.29	1.24	2.53	1.25		
10	3.77	1.88	2.53	1.32	2.19	1.01		

DATA Continued**NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):****Row 1**

Initial	Deflections in inches, Forces in Grams										
Sample #	0.0012	0.0024	0.0036	0.0048	0.0060	0.0072	0.0084	0.0096	0.0108	0.0120	SET
1	5.1	9.8	14.6	19.4	24.0	28.8	33.1	37.0	40.8	43.6	0.0009
2	4.8	9.9	15.3	20.4	25.0	29.1	34.5	38.0	42.0	45.2	0.0010
3	4.9	9.6	15.0	19.6	23.6	28.3	33.5	37.0	40.8	43.7	0.0009
4	5.1	10.6	15.6	20.4	25.6	30.0	33.8	38.0	41.6	44.3	0.0010
5	4.9	9.8	14.7	19.7	24.3	28.5	33.3	37.8	41.4	44.4	0.0009
6	4.9	9.8	14.7	19.7	24.3	28.5	33.3	37.8	41.4	44.4	0.0009
7	4.3	8.6	13.1	18.2	22.4	26.6	31.2	35.3	39.4	42.8	0.0008
8	4.1	8.4	12.9	18.0	22.7	27.3	31.1	34.9	39.2	43.3	0.0008
9	4.2	8.7	13.3	18.3	23.1	27.3	31.5	35.7	38.9	42.4	0.0009
10	4.9	10.1	15.3	20.4	25.0	29.1	33.3	38.0	42.0	45.3	0.0010
11	4.8	10.0	15.3	20.5	24.8	28.9	33.0	37.3	41.3	44.4	0.0011

After Thermals	Deflections in inches, Forces in Grams										
Sample #	0.0012	0.0024	0.0036	0.0048	0.0060	0.0072	0.0084	0.0096	0.0108	0.0120	SET
1	3.5	6.9	11.0	14.5	18.8	22.6	26.7	31.2	34.7	38.4	0.0001
2	2.4	6.3	10.1	14.2	18.5	21.9	25.5	29.8	34.2	38.1	0.0007
3	2.9	6.6	10.2	13.6	17.5	21.6	25.9	29.7	33.9	37.2	0.0005
4	2.4	6.1	9.9	13.4	17.4	21.8	25.7	28.9	32.6	36.1	0.0004
5	2.2	5.9	9.8	13.2	17.6	22.1	25.6	29.6	33.5	37.0	0.0005
6	2.8	6.5	10.0	13.9	17.5	21.8	25.9	29.6	33.1	36.4	0.0007
7	2.2	5.7	9.4	13.1	17.2	20.9	25.6	29.9	33.4	36.8	0.0005
8	2.2	4.6	8.5	12.2	16.0	20.0	23.4	28.1	31.8	34.7	0.0004
9	1.3	4.9	9.3	13.0	17.1	21.3	24.8	28.9	33.4	36.3	0.0006
10	1.8	5.3	9.2	12.7	16.4	20.6	24.2	28.7	32.5	35.3	0.0006
11	2.9	6.9	11.1	14.7	18.4	22.5	26.2	30.4	33.8	36.6	0.0006

DATA Continued**Row 2**

Initial	Deflections in inches, Forces in Grams										
Sample #	0.0012	0.0024	0.0036	0.0048	0.0060	0.0072	0.0084	0.0096	0.0108	0.0120	SET
1	1.1	4.4	7.4	11.4	14.7	19.1	22.4	26.2	30.4	34.5	0.0013
2	3.5	8.0	12.5	16.6	20.3	24.9	29.6	33.9	37.3	41.4	0.0008
3	3.9	7.4	11.6	15.7	19.5	23.7	28.9	33.0	36.8	39.9	0.0008
4	3.3	7.6	11.3	15.6	19.2	23.3	27.6	31.5	35.1	38.0	0.0006
5	3.1	6.2	10.1	13.3	17.2	20.7	25.3	29.0	32.7	35.8	0.0007
6	3.4	7.4	11.6	15.8	20.9	24.8	29.2	32.9	37.5	40.8	0.0005
7	3.0	7.2	10.8	15.5	19.9	24.1	28.0	32.4	36.1	39.7	0.0006
8	3.8	7.8	11.7	15.9	20.2	24.2	27.9	31.6	35.2	38.6	0.0006
9	3.1	6.7	10.6	14.4	19.2	22.9	26.9	30.2	34.1	36.9	0.0007
10	4.3	8.1	12.7	17.4	21.9	25.6	29.9	33.5	37.8	40.9	0.0002
11	2.5	6.2	10.1	14.8	19.2	23.3	27.3	31.1	35.1	38.2	0.0007

After Thermals	Deflections in inches, Forces in Grams										
Sample #	0.0012	0.0024	0.0036	0.0048	0.0060	0.0072	0.0084	0.0096	0.0108	0.0120	SET
1	2.7	5.5	7.7	11.1	14.1	18.4	22.9	27.1	30.7	34.8	0.0003
2	1.8	3.9	5.3	8.9	12.3	16.1	19.8	24.3	28.1	32.0	0.0004
3	3.1	5.6	7.8	11.0	14.9	18.8	23.0	26.9	31.9	36.1	0.0004
4	2.2	4.8	7.1	11.2	15.8	20.5	25.0	29.2	33.4	38.3	0.0005
5	2.1	4.8	6.6	9.7	13.2	17.2	20.8	24.7	28.4	32.0	0.0005
6	2.7	5.4	7.5	10.0	13.8	18.0	22.7	26.5	30.5	34.1	0.0004
7	2.5	5.2	7.4	10.4	15.0	19.4	24.2	28.2	32.3	36.5	0.0004
8	2.2	5.2	6.9	9.2	12.1	16.4	20.0	24.1	27.4	31.7	0.0005
9	4.1	7.7	10.6	13.0	15.4	17.3	20.3	23.3	26.8	30.5	0.0009
10	2.6	5.3	7.6	9.5	12.4	16.1	20.8	24.8	29.1	33.8	0.0005
11	2.5	5.5	7.4	9.9	12.3	16.2	20.8	25.1	29.4	34.3	0.0006

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

Initial Insulation Resistance		
Measured In Meg Ohms		

Pin to Pin			
Mated		Unmated	
X		X	X
Sample#	ERF5/ERM5	ERF5	ERM5
1	100000	100000	100000
2	100000	100000	100000

Thermal Insulation Resistance		
Measured In Meg Ohms		

Pin to Pin			
Mated		Unmated	
x		x	x
Sample#	ERF5/ERM5	ERF5	ERM5
1	100000	100000	100000
2	100000	100000	100000

Humidity Insulation Resistance		
Measured In Meg Ohms		

Pin to Pin			
Mated		Unmated	
x		x	x
Sample#	ERF5/ERM5	ERF5	ERM5
1	100000	100000	100000
2	100000	100000	100000

DATA Continued**Row to Row**

Initial Insulation Resistance			
Measured In Meg Ohms			
Row to Row			
Mated		Unmated	
X		X	X
Sample#	ERF5/ERM5	ERF5	ERM5
1	100000	100000	100000
2	100000	100000	100000

Thermal Insulation Resistance			
Measured In Meg Ohms			
Row to Row			
Mated		Unmated	
x		x	x
Sample#	ERF5/ERM5	ERF5	ERM5
1	100000	100000	100000
2	100000	100000	100000

Humidity Insulation Resistance			
Measured In Meg Ohms			
Row to Row			
Mated		Unmated	
x		x	x
Sample#	ERF5/ERM5	ERF5	ERM5
1	100000	100000	100000
2	100000	100000	100000

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

Initial Breakdown Voltage	
Test Voltage <i>Until Breakdown Occurs</i>	

	Pin to Pin		
	Mated	Unmated	
	X		
Sample#	ERF5/ERM5	ERF5	ERM5
1	680	760	720
2	720	720	740

Initial Breakdown Voltage	
Test Voltage <i>Until Breakdown Occurs</i>	

	Row to Row		
	Mated	Unmated	
	X		
Sample#	ERF5/ERM5	ERF5	ERM5
1	1200	1600	1100
2	1300	1700	1200

Initial DWV	
Test Voltage= 510	

Pin to Pin			
Mated		Unmated	
Sample#	ERF5/ERM5	ERF5	ERM5
1	510	510	510
2	510	510	510

Row to Row			
Mated		Unmated	
Sample#	ERF5/ERM5	ERF5	ERM5
1	510	510	510
2	510	510	510

DATA Continued

Thermal Test Voltage	
Test Voltage= 510	

Pin to Pin			
Mated		Unmated	
Sample#	ERF5/ERM5	ERF5	ERM5
1	510	510	510
2	510	510	510

Row to Row			
Mated		Unmated	
Sample#	ERF5/ERM5	ERF5	ERM5
1	510	510	510
2	510	510	510

Humidity Test Voltage	
Test Voltage= 510	

Pin to Pin			
Mated		Unmated	
Sample#	ERF5/ERM5	ERF5	ERM5
1	510	510	510
2	510	510	510

Row to Row			
Mated		Unmated	
Sample#	ERF5/ERM5	ERF5	ERM5
1	510	510	510
2	510	510	510

DATA Continued**LLCR:**

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	25 Cycles	Thermal	Humidity
1	P1	24.5	-0.5	4.9	6.5
1	P2	21.4	0.2	0.4	4.6
1	P3	24.4	-0.8	0.6	3.2
1	P4	21.1	0.6	1.4	4.7
1	P5	23.9	-0.9	0.9	2.4
1	P6	21.7	0.6	1.9	3.4
1	P7	21.4	0.5	0.7	4.6
1	P8	24.8	-0.6	1.4	3.0
1	P9	21.8	0.5	1.8	5.2
1	P10	24.0	-0.2	5.1	6.5
1	P11	22.7	-0.4	0.7	8.5
1	P12	24.1	-0.6	2.6	2.7
1	P13	22.8	0.2	0.8	2.1
1	P14	24.1	-0.2	2.6	5.9
1	P15	22.7	-0.1	-0.3	9.1
1	P16	24.8	0.2	2.4	1.5
1	P17	21.9	0.8	1.7	3.5
1	P18	25.0	0.1	2.1	2.3
1	P19	22.2	-0.6	0.7	1.8
1	P20	24.2	0.4	2.9	2.6
1	P21	24.3	0.5	4.6	2.2
1	P22	22.3	-0.7	0.2	1.7
1	P23	24.3	-0.1	2.4	4.6
1	P24	21.9	-0.1	1.9	4.3
2	P1	24.6	0.3	1.4	1.1
2	P2	22.1	0.3	2.6	4.3
2	P3	23.9	1.1	1.4	0.5
2	P4	22.0	0.1	1.2	11.1
2	P5	24.1	-0.4	1.7	-0.5
2	P6	21.8	0.4	0.5	0.7
2	P7	21.6	0.0	0.8	7.2
2	P8	24.5	0.4	2.9	2.7
2	P9	22.2	-0.3	0.8	6.1
2	P10	25.1	-0.2	1.8	3.1
2	P11	23.8	4.0	5.4	3.4
2	P12	24.0	0.9	2.0	0.3
2	P13	22.2	0.1	2.2	1.9
2	P14	24.3	0.2	1.9	2.8
2	P15	22.9	0.0	2.0	1.4
2	P16	25.0	-0.1	3.7	1.3
2	P17	22.6	-0.8	0.1	1.0
2	P18	24.4	-0.4	2.7	2.3
2	P19	25.0	-2.4	0.4	-1.9

2	P20	25.2	-0.9	1.9	-0.8
2	P21	24.8	-0.1	2.0	-0.4
2	P22	22.7	1.8	1.8	1.2
2	P23	25.2	0.3	1.7	0.8
2	P24	22.8	0.3	1.4	1.4
3	P1	24.7	0.0	1.8	9.5
3	P2	22.1	-0.2	2.0	7.8
3	P3	24.5	0.3	1.2	1.2
3	P4	22.4	-0.6	1.5	0.8
3	P5	24.8	0.4	0.8	4.9
3	P6	22.4	0.9	4.6	1.8
3	P7	22.1	-0.1	4.4	1.2
3	P8	25.5	0.2	1.5	-0.2
3	P9	21.7	1.1	5.9	2.4
3	P10	25.1	0.3	1.4	0.1
3	P11	22.3	0.7	4.3	2.5
3	P12	24.3	0.1	2.0	5.8
3	P13	22.8	0.6	1.7	1.4
3	P14	24.6	0.0	1.5	0.3
3	P15	22.9	0.1	2.8	1.3
3	P16	24.0	0.9	2.9	2.0
3	P17	21.3	1.9	3.2	4.4
3	P18	25.9	-0.4	1.2	0.8
3	P19	21.7	0.4	3.3	4.7
3	P20	24.9	-0.5	1.0	0.5
3	P21	25.3	-0.4	0.6	0.8
3	P22	20.8	2.4	2.3	2.1
3	P23	25.5	-1.1	0.4	-0.1
3	P24	21.5	1.9	1.6	1.6
4	P1	25.9	-0.7	0.2	0.3
4	P2	22.4	0.3	2.5	5.2
4	P3	24.6	0.3	1.1	1.2
4	P4	22.4	-0.1	1.4	0.6
4	P5	25.2	0.5	1.2	1.2
4	P6	21.9	1.0	1.7	8.7
4	P7	22.0	1.3	0.5	2.4
4	P8	25.6	0.2	1.4	2.2
4	P9	23.2	-0.6	1.1	8.6
4	P10	25.6	0.1	0.7	1.1
4	P11	22.8	-0.3	1.2	11.2
4	P12	25.5	0.4	1.7	2.3
4	P13	21.7	0.8	0.6	13.4
4	P14	25.8	-0.4	1.3	0.6
4	P15	22.0	0.6	1.8	8.1
4	P16	25.6	0.2	2.4	0.6
4	P17	21.8	0.9	1.7	1.5
4	P18	25.0	-0.2	1.2	0.5
4	P19	22.0	0.8	1.1	2.8
4	P20	25.3	-0.9	2.6	0.4

4	P21	25.2	0.7	2.3	1.0
4	P22	22.2	0.3	-0.3	2.0
4	P23	24.1	1.0	3.3	4.0
4	P24	21.6	0.5	0.3	1.0
5	P1	24.9	1.8	3.4	2.1
5	P2	21.7	0.6	1.1	1.1
5	P3	23.9	1.2	2.3	6.2
5	P4	21.2	0.0	1.8	0.4
5	P5	24.1	0.7	2.1	2.2
5	P6	22.1	0.0	0.5	0.9
5	P7	21.8	0.2	0.8	0.3
5	P8	25.2	0.0	6.9	2.6
5	P9	23.2	-1.0	4.7	0.8
5	P10	25.0	0.5	5.2	2.8
5	P11	22.3	0.1	-0.1	0.9
5	P12	24.4	0.9	2.1	1.0
5	P13	22.6	-1.1	-0.1	0.2
5	P14	24.4	0.9	2.0	6.7
5	P15	22.1	1.0	1.5	1.8
5	P16	24.8	0.5	2.6	0.5
5	P17	22.1	-0.1	0.2	-0.5
5	P18	24.6	-0.2	1.1	0.9
5	P19	23.6	-1.9	0.1	1.4
5	P20	24.8	1.0	2.7	1.3
5	P21	24.7	1.5	2.3	2.1
5	P22	22.3	-0.1	-0.1	-0.8
5	P23	24.5	-0.5	1.6	4.5
5	P24	21.2	-0.1	0.2	0.7
6	P1	24.1	-0.2	2.9	1.1
6	P2	21.8	1.3	2.7	2.7
6	P3	24.0	0.2	2.5	1.3
6	P4	21.9	0.8	1.1	0.5
6	P5	24.3	-0.3	4.4	-0.4
6	P6	21.4	2.2	3.4	1.4
6	P7	22.0	1.1	2.0	1.5
6	P8	24.8	-0.1	2.6	7.5
6	P9	22.0	1.8	1.3	1.0
6	P10	25.3	-0.3	2.2	4.9
6	P11	21.9	0.5	2.5	1.3
6	P12	25.2	-0.6	1.7	1.5
6	P13	21.9	1.0	1.8	1.5
6	P14	24.9	0.6	2.3	7.5
6	P15	21.6	1.4	2.2	2.2
6	P16	25.6	-0.1	1.9	-0.1
6	P17	22.0	0.8	1.6	0.6
6	P18	25.2	0.0	2.2	11.6
6	P19	22.1	0.9	1.4	0.8
6	P20	25.6	0.2	2.9	0.5
6	P21	24.9	-0.1	2.2	3.4

6	P22	21.6	1.4	1.9	1.2
6	P23	24.7	-0.1	0.5	0.6
6	P24	21.0	0.7	0.8	1.3
7	P1	24.9	-1.0	1.9	0.5
7	P2	22.1	1.0	2.2	1.0
7	P3	24.3	0.6	2.8	2.5
7	P4	21.4	2.1	2.4	1.1
7	P5	24.1	0.9	3.3	1.7
7	P6	21.3	1.7	2.3	1.6
7	P7	22.0	1.7	3.2	1.6
7	P8	24.9	0.1	6.7	0.8
7	P9	21.5	0.8	1.6	1.0
7	P10	28.7	0.1	1.3	0.2
7	P11	24.4	-0.6	-0.4	-1.0
7	P12	25.0	0.2	2.2	0.9
7	P13	22.5	0.9	1.5	-0.2
7	P14	25.6	-0.3	3.5	0.2
7	P15	22.0	0.7	1.6	0.3
7	P16	25.9	-0.6	2.7	-0.2
7	P17	21.9	1.2	1.9	0.7
7	P18	25.9	-0.2	1.4	2.2
7	P19	21.4	1.1	2.1	1.3
7	P20	25.6	1.5	2.5	21.3
7	P21	26.2	0.2	0.6	0.0
7	P22	21.7	1.9	2.5	1.6
7	P23	25.1	-0.4	0.7	2.4
7	P24	21.9	0.6	1.2	0.9
8	P1	24.4	1.4	3.2	1.0
8	P2	21.7	1.3	1.2	1.7
8	P3	23.6	0.6	3.7	1.5
8	P4	22.2	0.4	1.1	0.4
8	P5	24.0	0.7	2.0	1.6
8	P6	21.9	0.2	0.7	2.2
8	P7	21.5	1.0	1.0	3.2
8	P8	24.9	-0.8	1.3	0.7
8	P9	22.6	0.0	1.0	1.2
8	P10	24.7	-0.6	1.6	0.7
8	P11	21.5	1.7	5.4	5.4
8	P12	24.2	-0.4	2.6	8.2
8	P13	22.1	0.2	2.4	0.4
8	P14	25.4	-0.3	3.3	0.2
8	P15	22.4	0.8	1.6	2.6
8	P16	24.5	0.4	2.8	1.8
8	P17	22.1	0.7	4.1	2.0
8	P18	23.8	0.9	5.2	3.0
8	P19	21.7	0.4	1.0	0.1
8	P20	26.0	-0.8	1.6	0.7
8	P21	25.2	-0.6	1.3	-0.1
8	P22	22.2	1.9	3.2	1.3

8	P23	24.9	0.3	4.0	-0.4
8	P24	21.6	0.4	2.7	0.6

GAS TIGHT:

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	23.4	-1.3
1	P2	21.3	0.6
1	P3	22.0	0.6
1	P4	21.3	0.0
1	P5	25.8	1.9
1	P6	26.5	-1.2
1	P7	24.6	1.0
1	P8	26.5	1.2
1	P9	25.7	0.0
1	P10	27.3	-0.6
1	P11	29.0	-1.1
1	P12	28.3	-1.4
1	P13	28.8	-1.9
1	P14	27.9	-1.2
1	P15	29.9	-2.5
1	P16	26.9	-0.8
1	P17	29.0	-2.3
1	P18	25.0	4.2
1	P19	26.6	-0.5
1	P20	26.0	-0.5
1	P21	26.6	-0.3
1	P22	24.9	0.4
1	P23	20.8	0.3
1	P24	21.9	-0.6
2	P1	22.4	1.9
2	P2	22.1	3.8
2	P3	22.8	4.2
2	P4	21.5	0.7
2	P5	25.6	0.6
2	P6	26.1	0.5
2	P7	24.5	0.7
2	P8	26.7	0.0
2	P9	25.8	0.2
2	P10	25.8	2.5
2	P11	26.8	2.7
2	P12	26.2	0.8
2	P13	28.3	2.5
2	P14	25.9	1.3
2	P15	29.1	4.6
2	P16	27.0	-0.7
2	P17	26.4	2.5

2	P18	25.9	2.4
2	P19	26.2	1.0
2	P20	25.5	1.0
2	P21	27.4	0.1
2	P22	25.0	1.4
2	P23	20.5	1.1
2	P24	22.2	1.9
3	P1	20.4	0.3
3	P2	20.7	0.3
3	P3	21.4	1.0
3	P4	20.0	0.7
3	P5	25.1	0.4
3	P6	26.4	0.3
3	P7	26.9	0.4
3	P8	26.9	-0.8
3	P9	26.4	-1.0
3	P10	28.7	-0.5
3	P11	26.7	0.3
3	P12	29.4	-1.2
3	P13	26.5	0.0
3	P14	30.5	-2.9
3	P15	27.0	-0.7
3	P16	25.9	1.7
3	P17	25.4	0.6
3	P18	26.2	-0.2
3	P19	26.6	-0.1
3	P20	25.4	0.2
3	P21	26.2	-0.1
3	P22	25.2	0.2
3	P23	20.4	0.3
3	P24	21.2	0.3
4	P1	26.6	-1.7
4	P2	27.4	-3.8
4	P3	29.5	-5.6
4	P4	24.4	-0.8
4	P5	26.4	-0.2
4	P6	26.6	0.3
4	P7	25.4	0.2
4	P8	29.2	-1.8
4	P9	25.8	0.4
4	P10	28.1	-0.9
4	P11	28.9	-0.3
4	P12	27.9	0.6
4	P13	27.9	-0.7
4	P14	27.2	0.9
4	P15	28.8	0.4
4	P16	26.9	-0.3
4	P17	26.5	0.1
4	P18	25.0	-0.4

4	P19	28.3	-0.8
4	P20	26.3	1.6
4	P21	27.2	0.3
4	P22	25.2	1.1
4	P23	25.2	-1.6
4	P24	24.9	-1.2
5	P1	22.5	-1.4
5	P2	22.1	0.3
5	P3	22.1	-0.9
5	P4	20.1	0.6
5	P5	29.2	-1.4
5	P6	29.8	-1.4
5	P7	30.1	-2.6
5	P8	31.9	-3.9
5	P9	30.0	-0.2
5	P10	34.9	-5.8
5	P11	33.0	-1.4
5	P12	32.9	-5.4
5	P13	32.6	0.2
5	P14	34.2	-6.4
5	P15	31.9	-1.7
5	P16	27.6	-1.5
5	P17	27.1	-0.7
5	P18	25.4	1.1
5	P19	27.6	-0.3
5	P20	25.8	-0.4
5	P21	26.9	0.7
5	P22	24.6	0.9
5	P23	21.3	-1.2
5	P24	21.8	-0.8
6	P1	23.1	1.5
6	P2	24.7	0.5
6	P3	23.1	2.4
6	P4	23.7	0.0
6	P5	25.5	1.3
6	P6	26.2	-0.7
6	P7	24.6	0.3
6	P8	26.1	1.5
6	P9	25.1	0.7
6	P10	25.5	4.1
6	P11	29.6	0.4
6	P12	26.3	3.7
6	P13	28.9	2.3
6	P14	28.2	5.7
6	P15	31.7	8.1
6	P16	25.7	0.0
6	P17	25.2	0.4
6	P18	25.9	0.9
6	P19	25.6	-0.3

6	P20	26.9	-2.4
6	P21	25.7	4.6
6	P22	26.2	-0.7
6	P23	22.5	0.5
6	P24	23.7	0.4
7	P1	22.8	0.7
7	P2	23.4	1.1
7	P3	23.6	-0.4
7	P4	22.6	0.1
7	P5	25.2	1.8
7	P6	25.9	8.2
7	P7	24.7	0.8
7	P8	25.4	0.5
7	P9	23.5	2.8
7	P10	26.3	3.5
7	P11	25.4	2.8
7	P12	25.9	1.7
7	P13	27.1	1.0
7	P14	29.2	0.8
7	P15	24.9	0.9
7	P16	26.2	1.3
7	P17	25.4	1.1
7	P18	26.8	-0.3
7	P19	25.7	1.1
7	P20	25.2	-0.2
7	P21	24.9	1.8
7	P22	25.2	1.5
7	P23	22.1	1.1
7	P24	21.9	0.9
8	P1	21.7	1.3
8	P2	21.8	0.7
8	P3	20.9	0.7
8	P4	20.9	0.4
8	P5	24.5	0.5
8	P6	26.3	0.9
8	P7	25.2	0.9
8	P8	25.9	-0.3
8	P9	25.3	0.4
8	P10	30.4	-2.5
8	P11	26.5	2.7
8	P12	27.2	0.5
8	P13	27.7	-0.4
8	P14	27.5	-0.4
8	P15	30.6	-2.2
8	P16	26.3	-0.1
8	P17	24.9	0.9
8	P18	25.1	0.5
8	P19	27.9	-0.3
8	P20	25.1	0.1

8	P21	25.8	-0.1
8	P22	25.0	-0.1
8	P23	21.2	0.5
8	P24	21.4	-0.4
9	P1	25.2	-1.7
9	P2	24.8	0.7
9	P3	26.0	-0.3
9	P4	22.9	0.8
9	P5	26.2	0.4
9	P6	27.4	-0.2
9	P7	25.9	0.2
9	P8	27.4	2.3
9	P9	26.4	1.2
9	P10	27.2	7.2
9	P11	28.6	0.8
9	P12	27.3	0.0
9	P13	32.0	-2.6
9	P14	29.4	-2.4
9	P15	29.7	-1.3
9	P16	26.5	3.3
9	P17	26.9	3.7
9	P18	25.9	1.3
9	P19	27.9	-0.9
9	P20	25.8	4.7
9	P21	27.9	-0.1
9	P22	24.6	0.3
9	P23	24.3	-0.3
9	P24	25.0	0.6
10	P1	24.9	-1.0
10	P2	25.3	-1.6
10	P3	24.6	0.1
10	P4	24.0	-0.9
10	P5	26.0	0.5
10	P6	26.6	1.2
10	P7	25.3	0.6
10	P8	27.0	1.5
10	P9	27.9	-1.0
10	P10	26.4	1.0
10	P11	27.8	2.3
10	P12	27.4	-0.3
10	P13	28.5	1.3
10	P14	30.2	0.0
10	P15	28.4	2.0
10	P16	27.4	-1.0
10	P17	26.5	1.1
10	P18	26.4	-1.0
10	P19	27.4	-0.4
10	P20	25.6	0.4
10	P21	27.5	0.0

Tracking Code: TC0945--2885 Report Rev 1	Part #: ERF5-050-01-L-RA / ERM5-050-05.0-L-DV
Part description: ERF5 /ERM5	

10	P22	24.4	-0.4
10	P23	23.3	-0.5
10	P24	23.4	-0.6

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** MO-04**Description:** Multimeter /Data Acquisition System**Manufacturer:** Keithley**Model:** 2700**Serial #:** 0798688**Accuracy:** See Manual

... Last Cal: 04/30/2010, Next Cal: 04/30/2011

Equipment #: HPM-01**Description:** Hipot Megommeter**Manufacturer:** Hipotronics**Model:** H306B-A**Serial #:** M9905004**Accuracy:** 2 % Full Scale Accuracy

... Last Cal: 11/30/2009, Next Cal: 11/30/2010

Equipment #: LC-5N-1**Description:** 5 Newton icell load cell for Dillon Quantrol test stand**Manufacturer:** Dillon Quantrol**Model:** icell**Serial #:** 02-0159-03**Accuracy:** .10% of capacity

... Last Cal: 07/14/2010, Next Cal: 01/15/2011

Equipment #: LC-50N-3**Description:** 50 Newton icell load cell for Dillon Quantrol test stand**Manufacturer:** Mecmesin (Dillon/Quantrol)**Model:** icell**Serial #:** 08-0043-02**Accuracy:** .10% of Capacity

... Last Cal: 07/14/2010, Next Cal: 01/15/2011

Equipment #: MV-10**Description:** 6" x 6" Video Measuring Machine**Manufacturer:** Micro-Vu**Model:** M3010898**Serial #:** V9529**Accuracy:** See Manual

... Last Cal: 09/09/2009, Next Cal: 09/09/2010

Equipment #: PS-07**Description:** 20 V, 120 A DC Power Supply - AutoRanging SO/HPIB**Manufacturer:** Hewlett Packard / Agilent**Model:** AT-6031A**Serial #:** 2721A00648**Accuracy:** See Manual Current Carrying Capacity (CCC) Chamber

... Last Cal: Reference Only, Next Cal: Reference Only

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** TCT-04**Description:** Dillon Quantrol TC21 25-1000 mm/min series test stand**Manufacturer:** Dillon Quantrol**Model:** TC2 I series test stand**Serial #:** 04-1041-04**Accuracy:** Speed Accuracy: +/- 5% of indicated speed; Speed Accuracy: +/- 5% of indicated speed;
... Last Cal: 05/21/2010, Next Cal: 05/21/2011**Equipment #:** THL-07**Description:** Temperature-Humidity Recorder (QA TEST LAB)**Manufacturer:** Dickson**Model:** FH 320**Serial #:** 08007390**Accuracy:** See Manual

... Last Cal: 01/21/2008, Next Cal: 01/21/2009